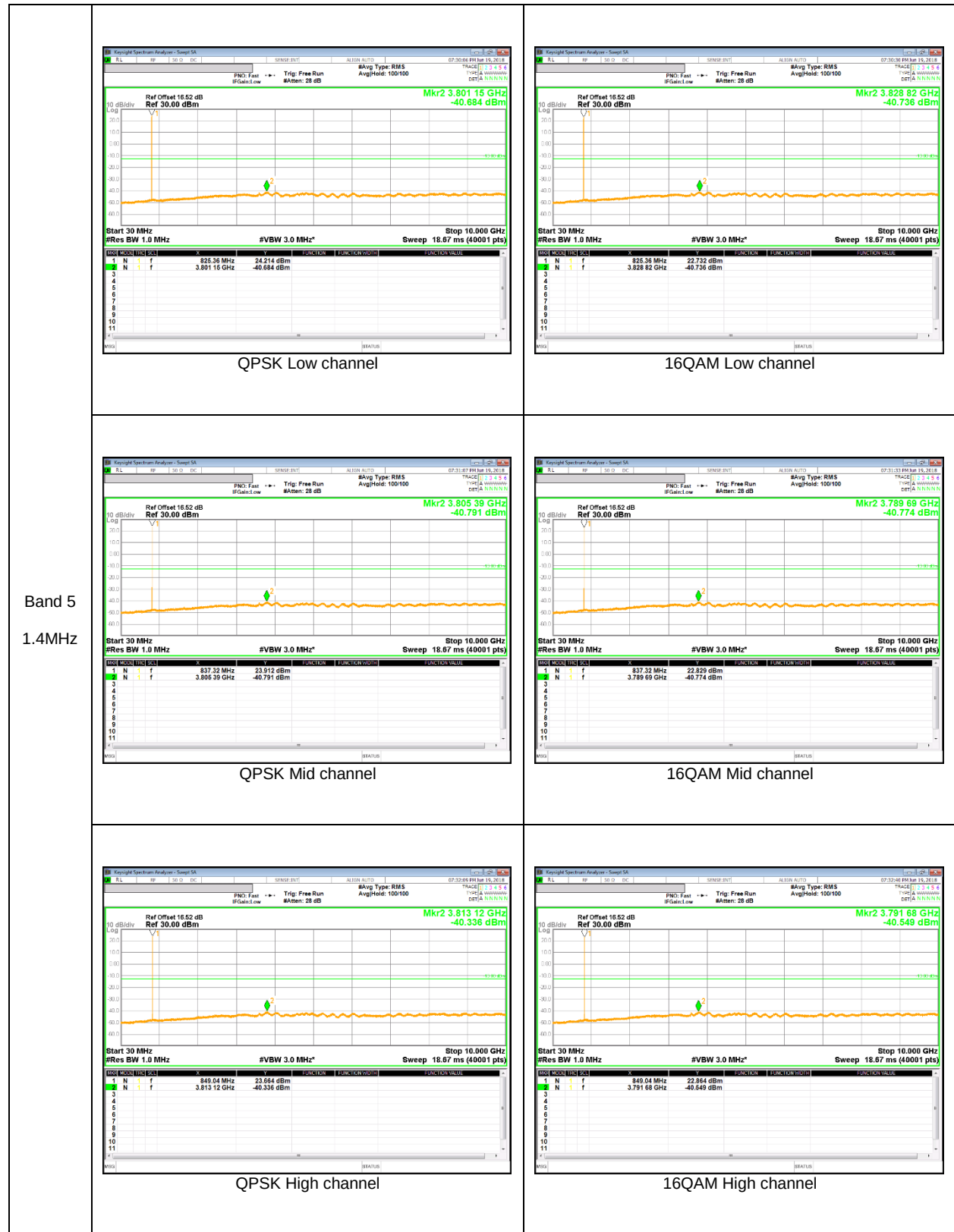
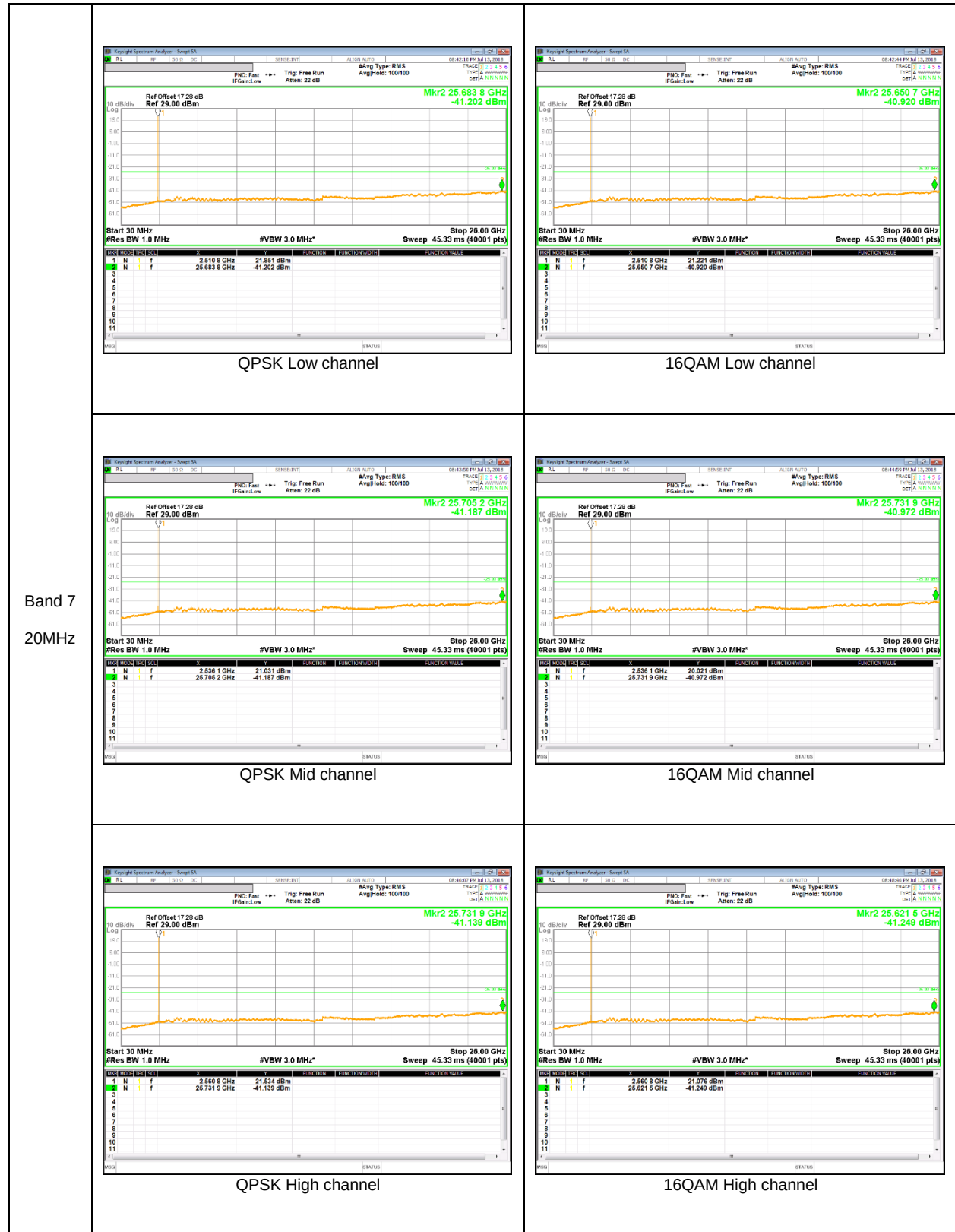
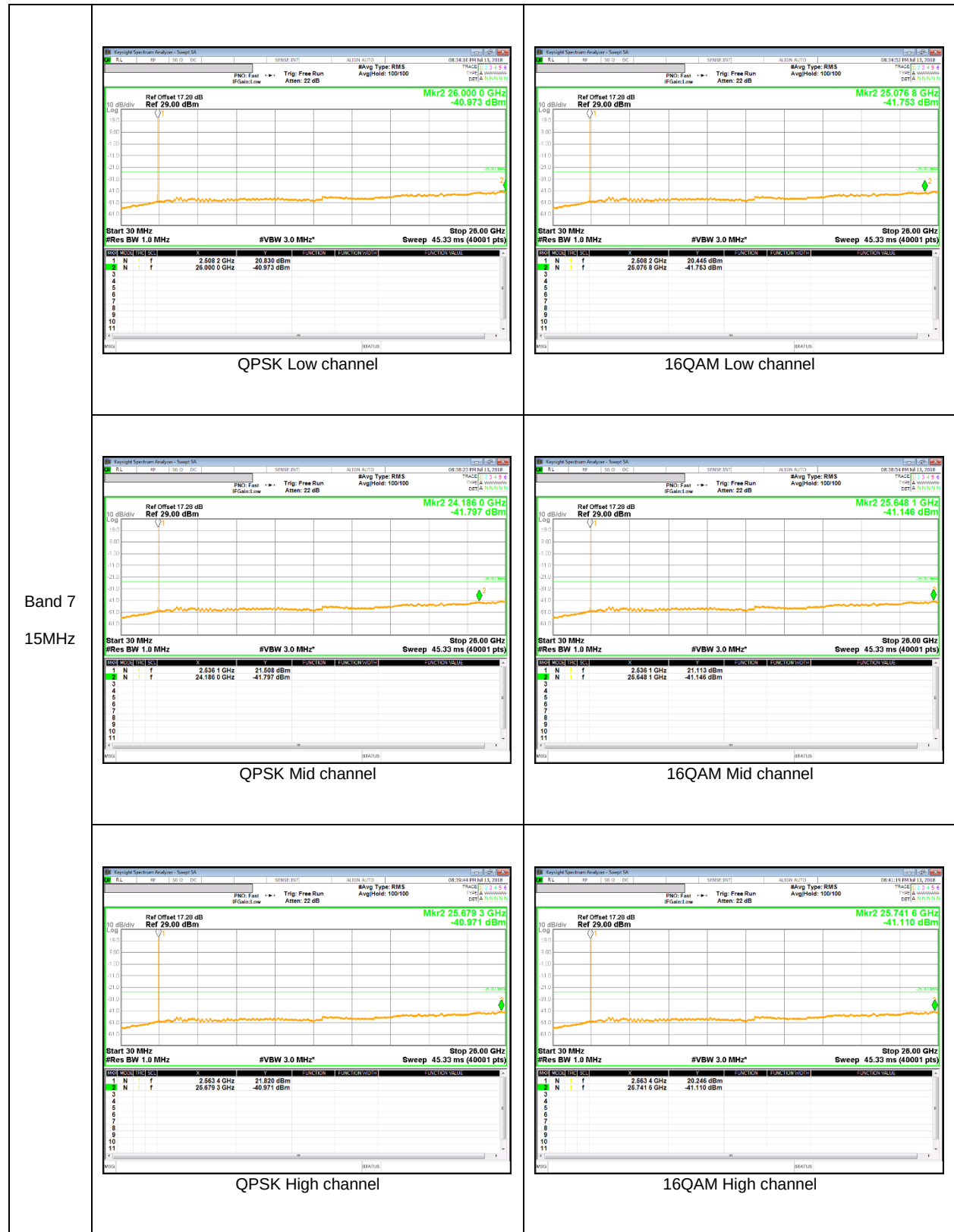
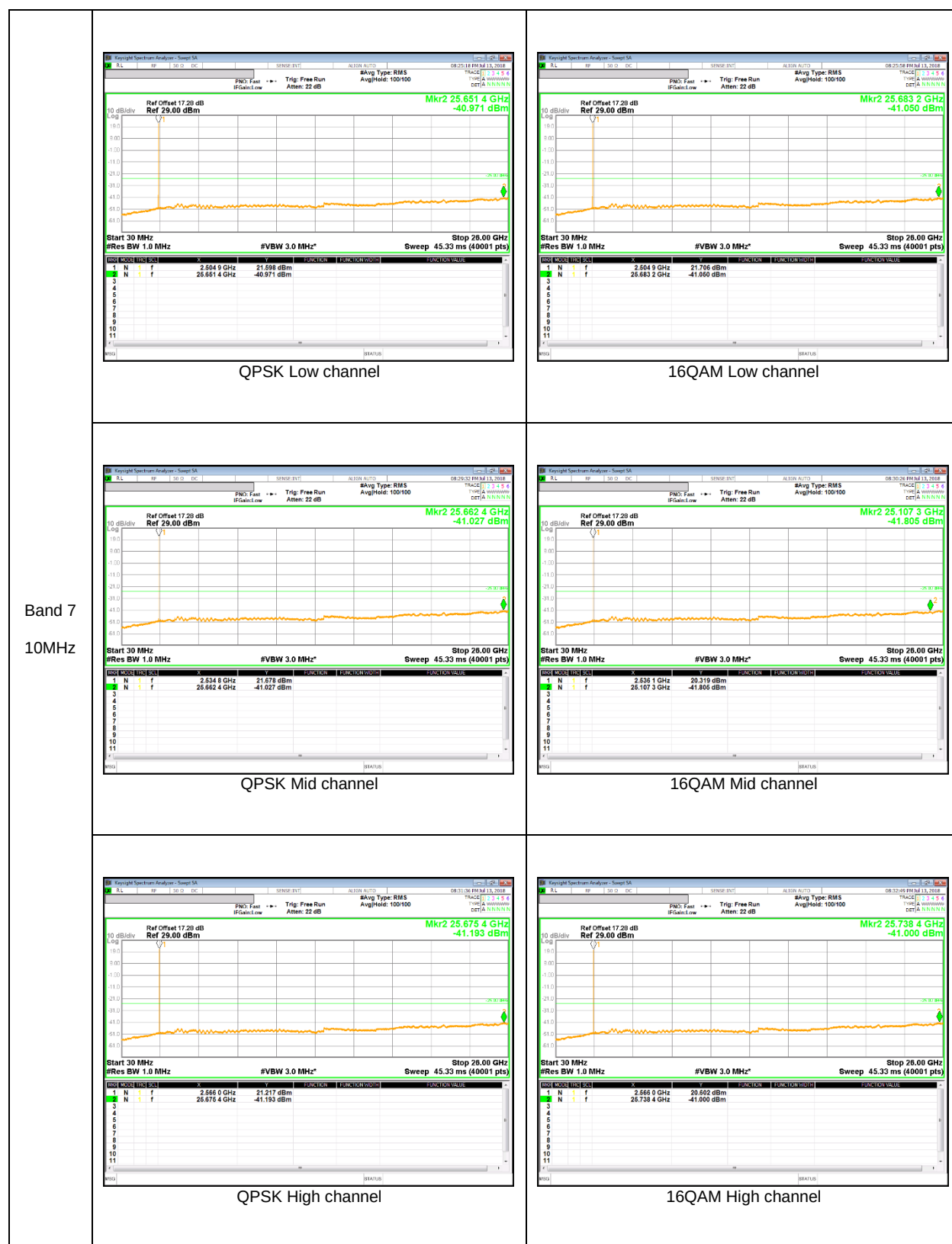


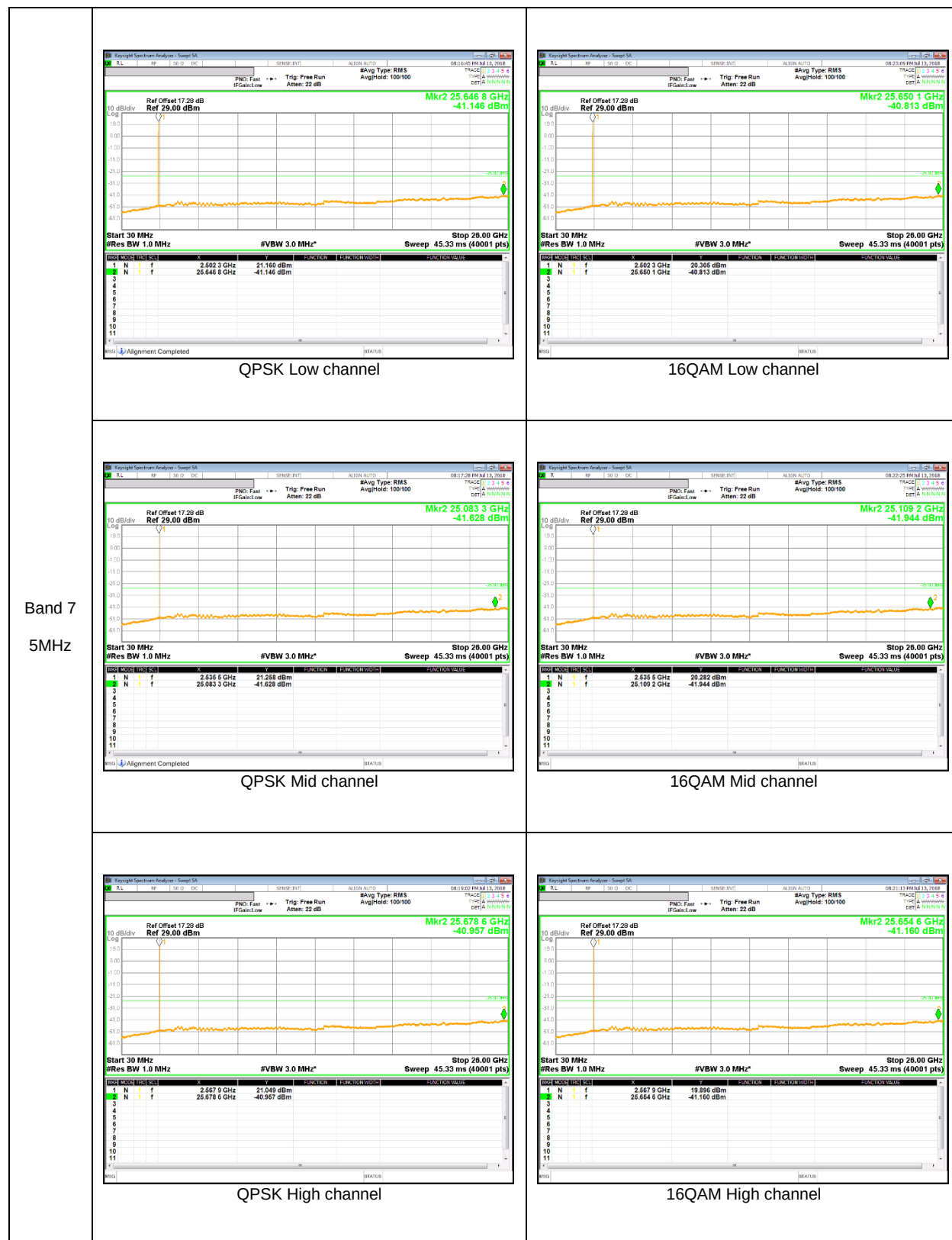


LTE Band 7

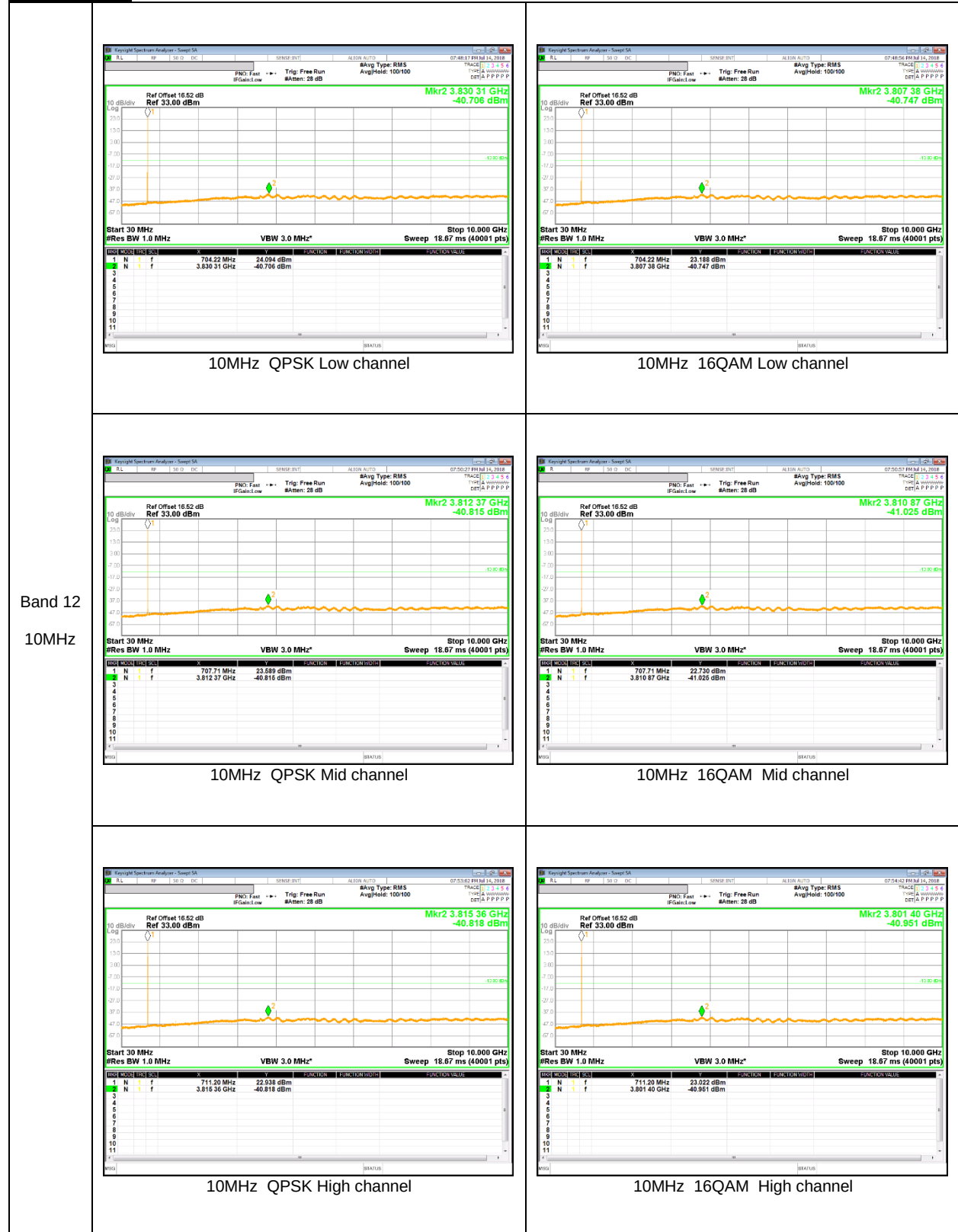


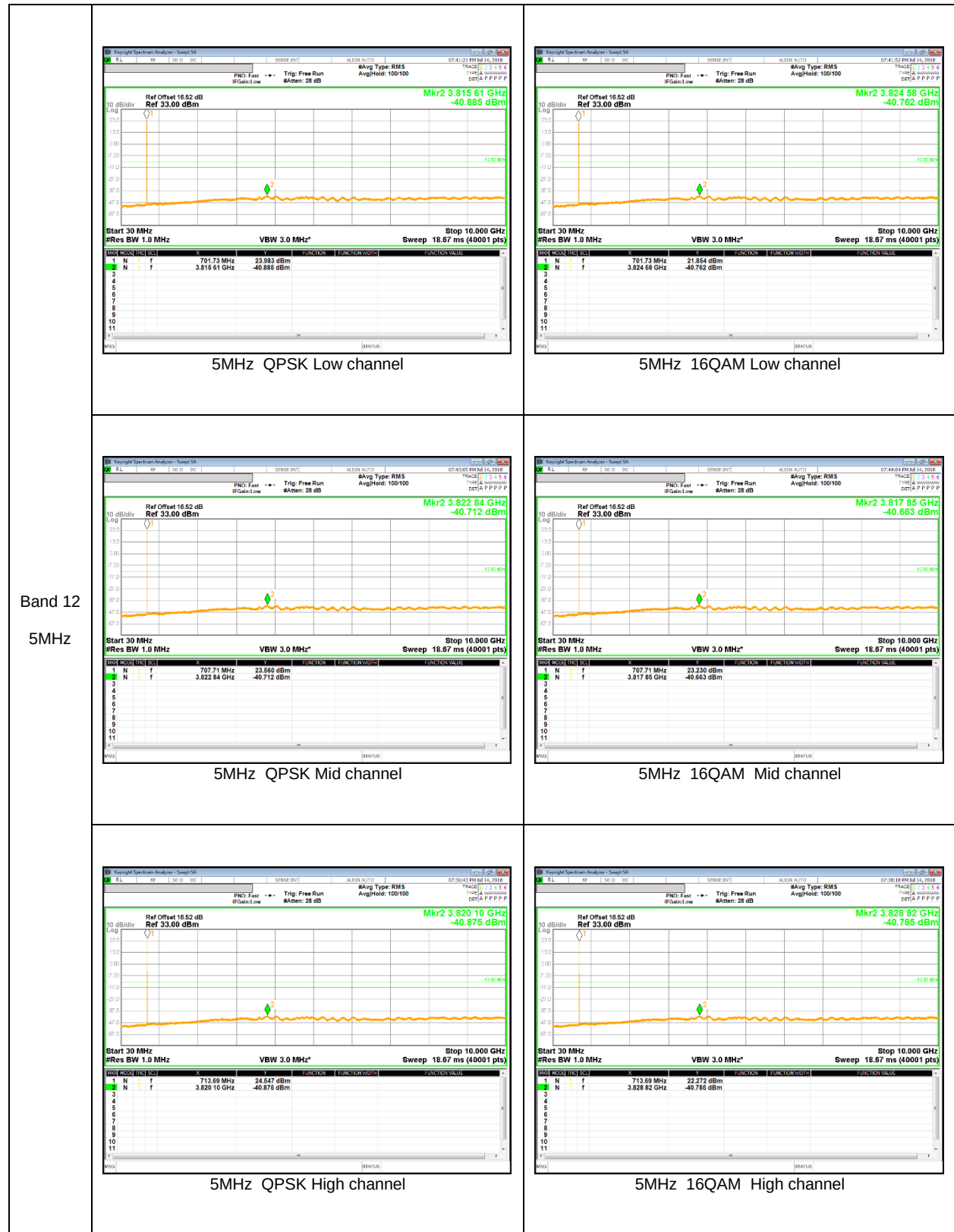


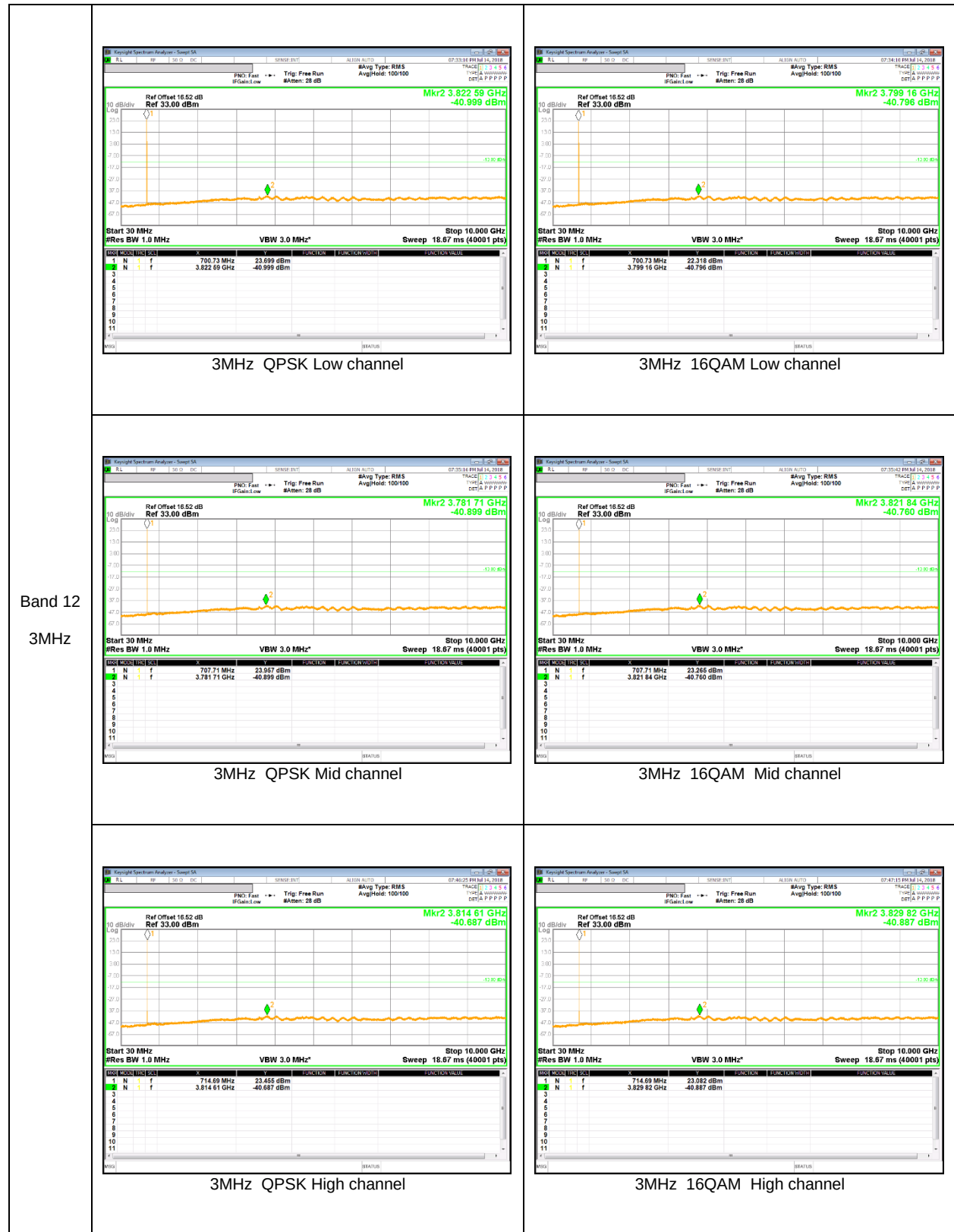


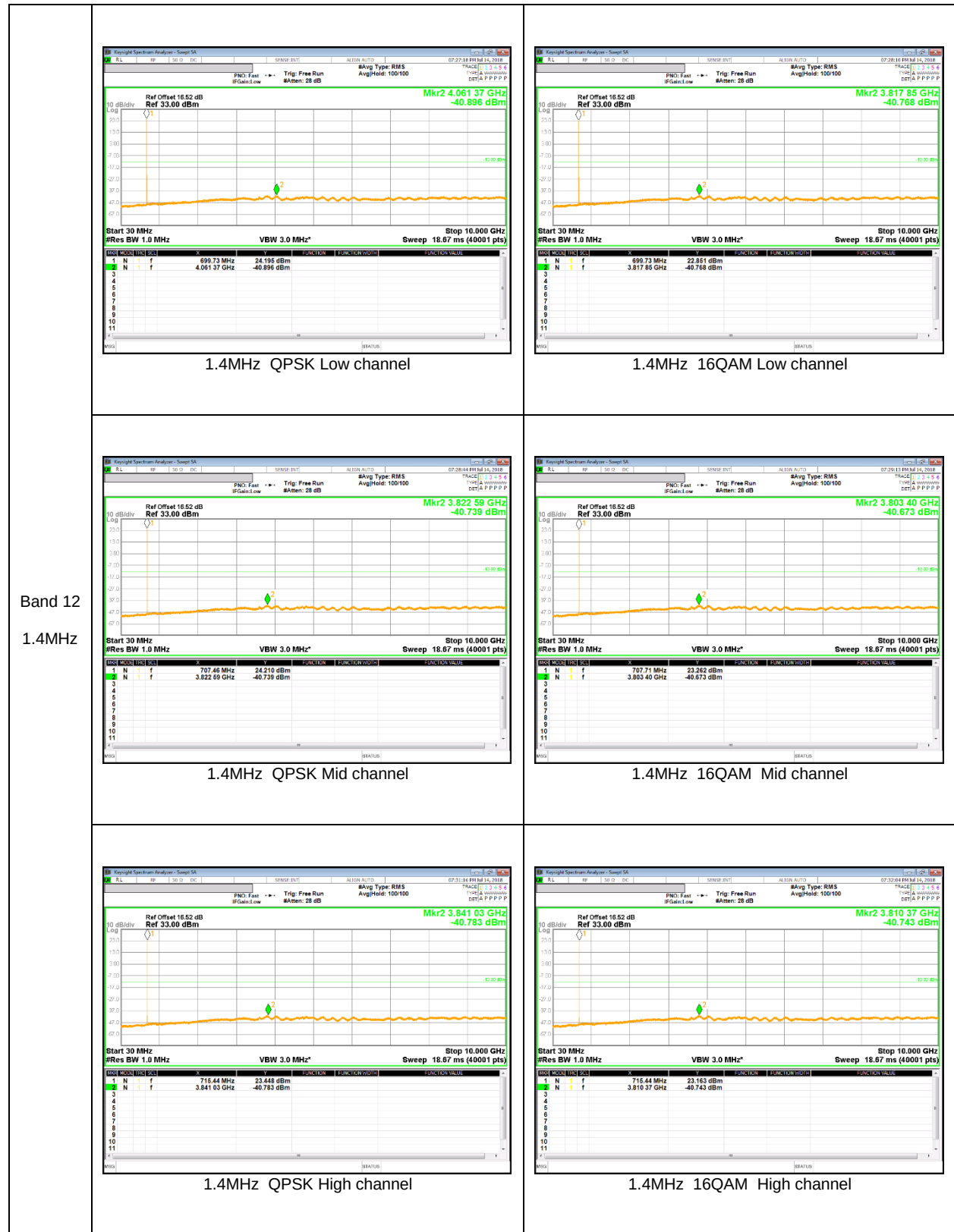


LTE Band 12









LTE Band 30





LTE Band 66



9.4. FREQUENCY STABILITY

RULE PART(S)

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

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.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v03r01

RESULTS

See the following pages.

9.4.1. FREQUENCY STABILITY RESULTS

WCDMA Band 5 (Rel 99)

Reference Frequency : WCDMA Band 5 Low Channel 826.4 MHz / High Channel 846.6 MHz @ 20°C							
Limit: +/- 2.5 ppm =		Low Channel	2066.000	Hz	High Channel	2116.500	Hz
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse					
		Low Channel		High Channel		Limit [ppm]	
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]		
3.80	50	826.39999013	-0.006	846.59998963	0.002	2.5	
3.80	40	826.39998925	-0.005	846.59998784	0.004	2.5	
3.80	30	826.39998537	0.000	846.59998495	0.007	2.5	
3.80	20	826.39998524	0.000	846.59999094	0.000	2.5	
3.80	10	826.39998115	0.005	846.59998490	0.007	2.5	
3.80	0	826.39999093	-0.007	846.59998599	0.006	2.5	
3.80	-10	826.39998136	0.005	846.59998773	0.004	2.5	
3.80	-20	826.39998507	0.000	846.59998240	0.010	2.5	
3.80	-30	826.39998251	0.003	846.59999029	0.001	2.5	

Reference Frequency : WCDMA Band 5 Low Channel 826.4 MHz / High Channel 846.6 MHz @ 20°C							
Limit: +/- 2.5 ppm =		Low Channel	2066.000	Hz	High Channel	2116.500	Hz
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse					Limit [ppm]
		Low Channel		High Channel		Limit [ppm]	
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]		
3.80	20	826.39998524	0	846.59999094	0	2.5	
4.30	20	826.39999029	-0.006	846.59998914	0.002	2.5	
3.40	20	826.39998195	0.004	846.59998481	0.007	2.5	

WCDMA Band 4 (Lowest Frequency: Rel99 / Highest Frequency: HSDPA)

Limit		1710	1755	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1712.3979	1752.6021		
Extreme (50C)		1712.3979	1752.6020	-26.3	-0.015
Extreme (40C)		1712.3979	1752.6020	-28.9	-0.017
Extreme (30C)		1712.3979	1752.6020	-27.0	-0.016
Extreme (10C)		1712.3979	1752.6020	-24.6	-0.014
Extreme (0C)		1712.3979	1752.6020	-28.8	-0.017
Extreme (-10C)		1712.3979	1752.6020	-28.6	-0.017
Extreme (-20C)		1712.3979	1752.6020	-24.5	-0.014
Extreme (-30C)		1712.3979	1752.6020	-19.6	-0.011
20C	15%	1712.3979	1752.6020	-26.9	-0.016
	-15%	1712.3979	1752.6020	-28.3	-0.016
	End Point	1712.3979	1752.6020	-24.3	-0.014

WCDMA Band 2 (HSDPA)

Limit		1850	1910	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1852.3979	1907.6021		
Extreme (50C)		1852.3979	1907.6020	-28.7	-0.015
Extreme (40C)		1852.3979	1907.6021	-22.4	-0.012
Extreme (30C)		1852.3979	1907.6020	-29.9	-0.016
Extreme (10C)		1852.3979	1907.6020	-25.1	-0.013
Extreme (0C)		1852.3979	1907.6020	-27.2	-0.014
Extreme (-10C)		1852.3979	1907.6021	-21.9	-0.012
Extreme (-20C)		1852.3979	1907.6021	-22.5	-0.012
Extreme (-30C)		1852.3979	1907.6021	-19.3	-0.010
20C	15%	1852.3979	1907.6020	-26.5	-0.014
	-15%	1852.3979	1907.6020	-29.8	-0.016
	End Point	1852.3979	1907.6020	-23.8	-0.013

LTE Band 2 (Lowest Frequency: QPSK / Highest Frequency: 16QAM)

Limit		1850	1910	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1850.6995	1909.3005		
Extreme (50C)		1850.6994	1909.3005	-24.3	-0.013
Extreme (40C)		1850.6994	1909.3005	-28.5	-0.015
Extreme (30C)		1850.6994	1909.3005	-19.2	-0.010
Extreme (10C)		1850.6994	1909.3005	-22.0	-0.012
Extreme (0C)		1850.6994	1909.3005	-22.4	-0.012
Extreme (-10C)		1850.6994	1909.3005	-28.3	-0.015
Extreme (-20C)		1850.6994	1909.3005	-27.1	-0.014
Extreme (-30C)		1850.6994	1909.3005	-28.0	-0.015
20C	15%	1850.6994	1909.3005	-20.7	-0.011
	-15%	1850.6994	1909.3005	-28.8	-0.015
	End Point	1850.6994	1909.3005	-22.7	-0.012

LTE Band 4 (Lowest Frequency: 16QAM / Highest Frequency: QPSK)

Limit		1710	1755	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1852.3995	1907.6005		
Extreme (50C)		1852.3994	1907.6005	-20.5	-0.012
Extreme (40C)		1852.3994	1907.6005	-24.1	-0.014
Extreme (30C)		1852.3994	1907.6005	-22.8	-0.013
Extreme (10C)		1852.3994	1907.6005	-19.8	-0.011
Extreme (0C)		1852.3994	1907.6005	-16.3	-0.009
Extreme (-10C)		1852.3994	1907.6005	-19.6	-0.011
Extreme (-20C)		1852.3994	1907.6005	-22.7	-0.013
Extreme (-30C)		1852.3994	1907.6005	-21.8	-0.013
20C	15%	1852.3994	1907.6005	-24.6	-0.014
	-15%	1852.3994	1907.6005	-23.6	-0.014
	End Point	1852.3994	1907.6005	-18.4	-0.011

LTE Band 5 (QPSK)

Reference Frequency : LTE Band 5 Low Channel 824.7 MHz / High Channel 848.3 MHz @ 20°C						
Limit: +/- 2.5 ppm =		Low Channel	2061.750	Hz	High Channel	2120.750
		Frequency Deviation Measured with Time Elapse				
Power Supply [Vdc]	Environment Temperature [°C]	Low Channel		High Channel		Limit [ppm]
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.80	50	824.69998846	-0.002	848.29998743	0.002	2.5
3.80	40	824.69999208	-0.006	848.29999382	-0.006	2.5
3.80	30	824.69998860	-0.002	848.29999243	-0.004	2.5
3.80	20	824.69998718	0.000	848.29998876	0.000	2.5
3.80	10	824.69998607	0.001	848.29999154	-0.003	2.5
3.80	0	824.69998590	0.002	848.29998302	0.007	2.5
3.80	-10	824.69999117	-0.005	848.29999046	-0.002	2.5
3.80	-20	824.69998633	0.001	848.29999399	-0.006	2.5
3.80	-30	824.69998938	-0.003	848.29998950	-0.001	2.5

Reference Frequency : LTE Band 5 Low Channel 824.7 MHz / High Channel 848.3 MHz @ 20°C						
Limit: +/- 2.5 ppm =		Low Channel	2061.750	Hz	High Channel	2120.750
		Frequency Deviation Measured with Time Elapse				
Power Supply [Vdc]	Environment Temperature [°C]	Low Channel		High Channel		Limit [ppm]
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.80	20	824.69998718	0	848.29998876	0	2.5
4.30	20	824.69998446	0.003	848.29998947	-0.001	2.5
3.40	20	824.69999278	-0.007	848.29998742	0.002	2.5

LTE Band 7 (Lowest Frequency: QPSK / Highest Frequency: 16QAM)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	2502.4978	2567.5022		
Extreme (50C)		2502.4978	2567.5023	28.5	0.011
Extreme (40C)		2502.4978	2567.5023	23.0	0.009
Extreme (30C)		2502.4978	2567.5023	30.9	0.012
Extreme (10C)		2502.4978	2567.5023	24.5	0.010
Extreme (0C)		2502.4978	2567.5023	27.4	0.011
Extreme (-10C)		2502.4978	2567.5023	30.4	0.012
Extreme (-20C)		2502.4978	2567.5023	25.0	0.010
Extreme (-30C)		2502.4978	2567.5023	20.4	0.008
20C	15%	2502.4978	2567.5023	22.9	0.009
	-15%	2502.4978	2567.5023	29.1	0.011
	End Point	2502.4978	2567.5023	30.0	0.012

LTE Band 12 (Lowest Frequency: QPSK / Highest Frequency: 16QAM)

Limit		699	716	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	699.6995	715.3005		
Extreme (50C)		699.6994	715.3005	-10.4	-0.015
Extreme (40C)		699.6994	715.3005	-17.2	-0.024
Extreme (30C)		699.6994	715.3005	-11.2	-0.016
Extreme (10C)		699.6994	715.3005	-15.9	-0.023
Extreme (0C)		699.6994	715.3005	-11.8	-0.017
Extreme (-10C)		699.6994	715.3005	-14.1	-0.020
Extreme (-20C)		699.6994	715.3005	-14.8	-0.021
Extreme (-30C)		699.6994	715.3005	-11.3	-0.016
20C	15%	699.6994	715.3005	-13.7	-0.019
	-15%	699.6994	715.3005	-9.4	-0.013
	End Point	699.6994	715.3005	-14.6	-0.021

LTE Band 14 (QPSK)

Reference Frequency : LTE Band 14 Low Channel 790.5 MHz / High Channel 795.5 MHz @ 20°C						
Limit: +/- 2.5 ppm =		Low Channel	988.125	Hz	High Channel	994.375
		Frequency Deviation Measured with Time Elapse				
Power Supply [Vdc]	Environment Temperature [°C]	Low Channel		High Channel		Limit [ppm]
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.80	50	790.49998354	0.017	795.49998375	0.001	1.25
3.80	40	790.49998286	0.019	795.49998050	0.009	1.25
3.80	30	790.49998250	0.020	795.49998880	-0.012	1.25
3.80	20	790.49999037	0.000	795.49998410	0.000	1.25
3.80	10	790.49998986	0.001	795.49998936	-0.013	1.25
3.80	0	790.49998949	0.002	795.49998509	-0.002	1.25
3.80	-10	790.49999015	0.001	795.49998934	-0.013	1.25
3.80	-20	790.49998870	0.004	795.49998404	0.000	1.25
3.80	-30	790.49998993	0.001	795.49998955	-0.014	1.25

Reference Frequency : LTE Band 14 Low Channel 790.5 MHz / High Channel 795.5 MHz @ 20°C						
Limit: +/- 2.5 ppm =		Low Channel	988.125	Hz	High Channel	994.375
		Frequency Deviation Measured with Time Elapse				
Power Supply [Vdc]	Environment Temperature [°C]	Low Channel		High Channel		Limit [ppm]
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.80	20	790.49999037	0	795.49998410	0	1.25
4.30	20	790.49998849	0.005	795.49999017	-0.015	1.25
3.40	20	790.49998681	0.009	795.49998717	-0.008	1.25

LTE Band 30 (Lowest Frequency: QPSK / Highest Frequency: 16QAM)

Limit		2305	2315	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	2307.4978	2312.5022		
Extreme (50C)		2307.4978	2312.5023	22.5	0.010
Extreme (40C)		2307.4978	2312.5023	22.7	0.010
Extreme (30C)		2307.4978	2312.5023	24.8	0.011
Extreme (10C)		2307.4978	2312.5023	25.7	0.011
Extreme (0C)		2307.4978	2312.5023	21.8	0.009
Extreme (-10C)		2307.4978	2312.5023	23.1	0.010
Extreme (-20C)		2307.4978	2312.5023	27.7	0.012
Extreme (-30C)		2307.4978	2312.5023	25.5	0.011
20C	15%	2307.4978	2312.5023	25.1	0.011
	-15%	2307.4978	2312.5023	25.2	0.011
	End Point	2307.4978	2312.5023	23.4	0.010

LTE Band 66 (16QAM)

Limit		1710	1780	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1710.6995	1779.3005		
Extreme (50C)		1710.6995	1779.3006	18.7	0.011
Extreme (40C)		1710.6995	1779.3006	9.5	0.005
Extreme (30C)		1710.6995	1779.3006	10.4	0.006
Extreme (10C)		1710.6995	1779.3006	17.0	0.010
Extreme (0C)		1710.6995	1779.3006	13.0	0.007
Extreme (-10C)		1710.6995	1779.3006	18.0	0.010
Extreme (-20C)		1710.6995	1779.3006	19.5	0.011
Extreme (-30C)		1710.6995	1779.3006	15.2	0.009
20C	15%	1710.6995	1779.3006	17.7	0.010
	-15%	1710.6995	1779.3006	16.7	0.010
	End Point	1710.6995	1779.3006	16.9	0.010

10. RADIATED TEST RESULTS

10.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, §27.50 and §27.53

IC RSS-132 (5.4), RSS-130 (4.4), RSS-133 (6.4), RSS-139 (6.5), RSS-195 (5.5) and RSS-199 (4.4)

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:

(a) The following power limits and related requirements apply to stations transmitting in the 2305-2320 MHz band or the 2345-2360 MHz band.

(c) (10) - Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

(d) (4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

(h) The following power limits shall apply in the BRS and EBS:

(2) Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

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 603 E Clause 2.2.17; ESU40 setting reference to 971168 D01 v03r01

For radiated output power measurement with a ESU40:

a) Set the RBW $\geq$ OBW; b) Set VBW $\geq 3 \times$ RBW; c) Set span $\geq 2 \times$ RBW; d) Sweep time = auto couple; e) Detector = rms; f) Ensure that the number of measurement points $\geq$ span/RBW; g) Trace mode = max hold(CDMA), average(LTE);

TEST RESULTS

10.1.1. ERP/EIRP Results

WCDMA

Band	Mode	Channel	f [MHz]	ERP / EIRP	
				[dBm]	[mW]
Band 5	REL99	4132	826.4	23.00	199.53
		4183	836.6	22.58	181.13
		4233	846.6	22.21	166.34
	HSDPA	4132	826.4	22.02	159.22
		4183	836.6	21.43	139.00
		4233	846.6	20.96	124.74
Band 4	REL99	1312	1712.4	24.22	264.24
		1413	1732.6	24.35	272.27
		1513	1752.6	25.01	316.96
	HSDPA	1312	1712.4	22.98	198.61
		1413	1732.6	23.17	207.49
		1513	1752.6	23.86	243.22
Band 2	REL99	9262	1852.4	24.38	274.16
		9400	1880.0	23.82	240.99
		9538	1907.6	22.46	176.20
	HSDPA	9262	1852.4	23.65	231.74
		9400	1880.0	23.26	211.84
		9538	1907.6	21.09	128.53

LTE Band 2

Band	BW	Mode	RB Size/	f [MHz]	ERP / EIRP	
	[MHz]		RB Offset		[dBm]	[mW]
Band 2	20	QPSK	1/49	1860.0	22.68	185.35
			1/99	1880.0	22.33	171.00
			1/0	1900.0	22.41	174.18
		16QAM	1/49	1860.0	21.69	147.57
			1/99	1880.0	21.67	146.89
			1/0	1900.0	21.20	131.83
	15	QPSK	1/37	1857.5	22.83	191.87
			1/74	1880.0	22.37	172.58
			1/0	1902.5	21.55	142.89
		16QAM	1/37	1857.5	21.96	157.04
			1/74	1880.0	21.10	128.82
			1/37	1902.5	20.53	112.98
	10	QPSK	1/49	1855.0	22.55	179.89
			1/25	1880.0	22.46	176.20
			1/0	1905.0	20.85	121.62
		16QAM	1/49	1855.0	21.46	139.96
			1/25	1880.0	21.01	126.18
			1/25	1905.0	20.68	116.95
	5	QPSK	1/24	1852.5	22.37	172.58
			1/24	1880.0	22.06	160.69
			1/0	1907.5	21.36	136.77
		16QAM	1/24	1852.5	21.48	140.60
			1/24	1880.0	20.70	117.49
			1/0	1907.5	20.50	112.20
	3	QPSK	1/8	1851.5	21.89	154.53
			1/14	1880.0	21.88	154.17
			1/14	1908.5	21.38	137.40
		16QAM	1/14	1851.5	21.34	136.14
			1/14	1880.0	20.42	110.15
			1/0	1908.5	20.19	104.47
	1.4	QPSK	1/0	1850.7	21.60	144.54
			1/3	1880.0	22.09	161.81
			1/3	1909.3	21.41	138.36
		16QAM	1/3	1850.7	20.79	119.95
			1/3	1880.0	21.23	132.74
			1/3	1909.3	20.43	110.41

LTE Band 4

Band	BW	Mode	RB Size/	f [MHz]	ERP / EIRP	
	[MHz]		RB Offset		[dBm]	[mW]
Band 4	20	QPSK	1/49	1720.0	24.35	272.27
			1/49	1732.5	24.88	307.61
			1/99	1745.0	24.75	298.54
		16QAM	1/99	1720.0	24.12	258.23
			1/99	1732.5	24.05	254.10
			1/49	1745.0	24.24	265.46
	15	QPSK	1/74	1717.5	24.52	283.14
			1/37	1732.5	24.62	289.73
			1/74	1747.5	25.03	318.42
		16QAM	1/74	1717.5	23.27	212.32
			1/37	1732.5	23.26	211.84
			1/74	1747.5	23.58	228.03
	10	QPSK	1/49	1715.0	24.29	268.53
			1/25	1732.5	23.78	238.78
			1/49	1750.0	23.70	234.42
		16QAM	1/0	1715.0	23.03	200.91
			1/49	1732.5	22.57	180.72
			1/49	1750.0	22.69	185.78
	5	QPSK	1/12	1712.5	21.99	158.12
			1/12	1732.5	24.14	259.42
			1/24	1752.5	24.80	302.00
		16QAM	1/0	1712.5	20.73	118.30
			1/12	1732.5	22.49	177.42
			1/24	1752.5	23.72	235.50
	3	QPSK	1/8	1711.5	24.14	259.42
			1/0	1732.5	23.37	217.27
			1/14	1753.5	23.57	227.51
		16QAM	1/8	1711.5	23.75	237.14
			1/0	1732.5	21.86	153.46
			1/14	1753.5	22.53	179.06
	1.4	QPSK	1/5	1710.7	25.26	335.74
			1/3	1732.5	24.89	308.32
			1/3	1754.3	25.91	389.94
		16QAM	1/3	1710.7	24.16	260.62
			1/0	1732.5	23.74	236.59
			1/3	1754.3	24.16	260.62

LTE Band 5

Band	BW	Mode	RB Size/	f [MHz]	ERP / EIRP	
	[MHz]		RB Offset		[dBm]	[mW]
Band 5	10	QPSK	1/25	829.0	23.14	206.06
			1/25	836.5	23.02	200.45
			1/0	844.0	23.16	207.01
		16QAM	1/0	829.0	22.37	172.58
			1/0	836.5	21.57	143.55
			1/49	844.0	21.60	144.54
	5	QPSK	1/12	826.5	22.66	184.50
			1/12	836.5	23.84	242.10
			1/12	846.5	22.87	193.64
		16QAM	1/12	826.5	21.13	129.72
			1/0	836.5	22.41	174.18
			1/12	846.5	21.51	141.58
	3	QPSK	1/0	825.5	23.51	224.39
			1/0	836.5	23.79	239.33
			1/8	847.5	23.08	203.24
		16QAM	1/0	825.5	22.37	172.58
			1/0	836.5	22.54	179.47
			1/8	847.5	22.14	163.68
	1.4	QPSK	3/1	824.7	23.55	226.46
			3/3	836.5	24.12	258.23
			3/0	848.3	22.65	184.08
		16QAM	1/3	824.7	22.44	175.39
			3/3	836.5	23.21	209.41
			3/0	848.3	21.43	139.00

LTE Band 7

Band	BW	Mode	RB Size/	f [MHz]	ERP / EIRP	
	[MHz]		RB Offset		[dBm]	[mW]
Band 7	20	QPSK	1/49	2510.0	19.27	84.53
			1/49	2535.0	19.61	91.41
			1/0	2560.0	18.56	71.78
		16QAM	1/49	2510.0	18.42	69.50
			1/49	2535.0	17.47	55.85
			1/49	2560.0	18.27	67.14
	15	QPSK	1/37	2507.5	19.54	89.95
			1/74	2535.0	18.92	77.98
			1/0	2562.5	19.60	91.20
		16QAM	1/37	2507.5	18.02	63.39
			1/37	2535.0	18.21	66.22
			1/0	2562.5	18.11	64.71
	10	QPSK	1/25	2505.0	20.15	103.51
			1/25	2535.0	20.62	115.35
			1/0	2565.0	20.17	103.99
		16QAM	1/49	2505.0	19.04	80.17
			1/49	2535.0	19.62	91.62
			1/25	2565.0	19.13	81.85
	5	QPSK	1/12	2502.5	20.15	103.51
			1/12	2535.0	20.04	100.93
			1/12	2567.5	19.80	95.50
		16QAM	1/12	2502.5	19.43	87.70
			1/12	2535.0	19.50	89.13
			1/12	2567.5	18.88	77.27

LTE Band 12

Band	BW	Mode	RB Size/	f [MHz]	ERP / EIRP	
	[MHz]		RB Offset		[dBm]	[mW]
Band 12	10	QPSK	1/25	704.0	18.38	68.87
			1/49	707.5	17.98	62.81
			1/25	711.0	18.15	65.31
		16QAM	1/25	704.0	16.87	48.64
			1/49	707.5	16.61	45.81
			1/0	711.0	17.19	52.36
	5	QPSK	1/12	701.5	18.06	63.97
			1/24	707.5	17.91	61.80
			1/12	713.5	18.58	72.11
		16QAM	1/12	701.5	16.92	49.20
			1/24	707.5	16.61	45.81
			1/12	713.5	17.09	51.17
	3	QPSK	1/0	700.5	17.74	59.43
			1/14	707.5	18.13	65.01
			1/0	714.5	18.33	68.08
		16QAM	1/8	700.5	16.96	49.66
			1/8	707.5	16.69	46.67
			1/8	714.5	16.97	49.77
	1.4	QPSK	1/3	699.7	18.17	65.61
			1/3	707.5	18.53	71.29
			1/0	715.3	18.60	72.44
		16QAM	1/0	699.7	17.37	54.58
			1/5	707.5	17.14	51.76
			1/3	715.3	17.11	51.40

LTE Band 30

Band	BW	Mode	RB Size/	f [MHz]	ERP / EIRP	
	[MHz]		RB Offset		[dBm]	[mW]
Band 30	10	QPSK	1/25	2310.0	19.98	99.54
		16QAM	1/25	2310.0	18.99	79.25
	5	QPSK	1/12	2307.5	19.63	91.83
			1/24	2310.0	18.24	66.68
			1/12	2312.5	19.78	95.06
		16QAM	1/12	2307.5	18.96	78.70
			1/12	2310.0	18.55	71.61
			1/12	2312.5	18.84	76.56

LTE Band 66

Band	BW	Mode	RB Size/	f [MHz]	ERP / EIRP	
	[MHz]		RB Offset		[dBm]	[mW]
Band 66	20	QPSK	1/0	1720.0	25.10	323.59
			1/49	1745.0	24.74	297.85
			1/99	1770.0	24.87	306.90
		16QAM	1/49	1720.0	25.12	325.09
			1/49	1745.0	23.96	248.89
			1/0	1770.0	25.08	322.11
	15	QPSK	1/37	1717.5	25.63	365.59
			1/0	1747.5	26.13	410.20
			1/37	1772.5	26.14	411.15
		16QAM	1/37	1717.5	24.24	265.46
			1/74	1747.5	24.83	304.09
			1/37	1772.5	24.91	309.74
	10	QPSK	1/0	1715.0	24.99	315.50
			1/0	1745.0	26.10	407.38
			1/0	1775.0	26.13	410.20
		16QAM	1/25	1715.0	24.14	259.42
			1/0	1745.0	24.89	308.32
			1/49	1775.0	24.15	260.02
	5	QPSK	1/12	1712.5	25.53	357.27
			1/12	1745.0	25.44	349.95
			1/24	1777.5	25.22	332.66
		16QAM	1/0	1712.5	24.76	299.23
			1/0	1745.0	23.86	243.22
			1/24	1777.5	24.25	266.07
	3	QPSK	1/14	1711.5	24.10	257.04
			1/0	1745.0	26.73	470.98
			1/14	1778.5	25.07	321.37
		16QAM	1/14	1711.5	23.40	218.78
			1/14	1745.0	24.41	276.06
			1/8	1778.5	25.37	344.35
	1.4	QPSK	1/3	1710.7	25.21	331.89
			1/3	1745.0	26.38	434.51
			1/3	1779.3	25.67	368.98
		16QAM	1/5	1710.7	24.59	287.74
			1/3	1745.0	25.48	353.18
			1/3	1779.3	24.16	260.62

10.1.2. ERP/EIRP DATA

WCDMA Band 5

WCDMA Band 5 REL99	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-19 Test Engineer: 45585 Configuration: EUT / X-Position Location: Chamber 1 Mode: Rel99 Band 5 Fundamentals Test Equipment: Receiving: VULB9163-750, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td colspan="9">Low Ch</td></tr><tr><td>826.40</td><td>19.41</td><td>V</td><td>1.0</td><td>-1.5</td><td>16.99</td><td>38.5</td><td>-21.5</td><td></td></tr><tr><td>826.40</td><td>25.42</td><td>H</td><td>1.0</td><td>-1.5</td><td>23.00</td><td>38.5</td><td>-15.5</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>836.60</td><td>18.09</td><td>V</td><td>1.0</td><td>-1.4</td><td>15.71</td><td>38.5</td><td>-22.8</td><td></td></tr><tr><td>836.60</td><td>24.96</td><td>H</td><td>1.0</td><td>-1.4</td><td>22.58</td><td>38.5</td><td>-15.9</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>846.60</td><td>17.24</td><td>V</td><td>1.0</td><td>-1.4</td><td>14.89</td><td>38.5</td><td>-23.6</td><td></td></tr><tr><td>846.60</td><td>24.56</td><td>H</td><td>1.0</td><td>-1.4</td><td>22.21</td><td>38.5</td><td>-16.3</td><td></td></tr></table>									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	19.41	V	1.0	-1.5	16.99	38.5	-21.5		826.40	25.42	H	1.0	-1.5	23.00	38.5	-15.5		Mid Ch									836.60	18.09	V	1.0	-1.4	15.71	38.5	-22.8		836.60	24.96	H	1.0	-1.4	22.58	38.5	-15.9		High Ch									846.60	17.24	V	1.0	-1.4	14.89	38.5	-23.6		846.60	24.56	H	1.0	-1.4	22.21	38.5	-16.3	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
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	826.40	19.41	V	1.0	-1.5	16.99	38.5	-21.5																																																																																											
	826.40	25.42	H	1.0	-1.5	23.00	38.5	-15.5																																																																																											
	Mid Ch																																																																																																		
	836.60	18.09	V	1.0	-1.4	15.71	38.5	-22.8																																																																																											
	836.60	24.96	H	1.0	-1.4	22.58	38.5	-15.9																																																																																											
	High Ch																																																																																																		
	846.60	17.24	V	1.0	-1.4	14.89	38.5	-23.6																																																																																											
846.60	24.56	H	1.0	-1.4	22.21	38.5	-16.3																																																																																												
WCDMA Band 5 HSDPA	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-19 Test Engineer: 45585 Configuration: EUT / X-Position Location: Chamber 1 Mode: HSDPA Band 5 Fundamentals Test Equipment: Receiving: VULB9163-750, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td colspan="9">Low Ch</td></tr><tr><td>826.40</td><td>18.05</td><td>V</td><td>1.0</td><td>-1.5</td><td>15.63</td><td>38.5</td><td>-22.9</td><td></td></tr><tr><td>826.40</td><td>24.44</td><td>H</td><td>1.0</td><td>-1.5</td><td>22.02</td><td>38.5</td><td>-16.5</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>836.60</td><td>17.04</td><td>V</td><td>1.0</td><td>-1.4</td><td>14.66</td><td>38.5</td><td>-23.8</td><td></td></tr><tr><td>836.60</td><td>23.81</td><td>H</td><td>1.0</td><td>-1.4</td><td>21.43</td><td>38.5</td><td>-17.1</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>846.60</td><td>16.35</td><td>V</td><td>1.0</td><td>-1.4</td><td>14.00</td><td>38.5</td><td>-24.5</td><td></td></tr><tr><td>846.60</td><td>23.31</td><td>H</td><td>1.0</td><td>-1.4</td><td>20.96</td><td>38.5</td><td>-17.5</td><td></td></tr></table>									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	18.05	V	1.0	-1.5	15.63	38.5	-22.9		826.40	24.44	H	1.0	-1.5	22.02	38.5	-16.5		Mid Ch									836.60	17.04	V	1.0	-1.4	14.66	38.5	-23.8		836.60	23.81	H	1.0	-1.4	21.43	38.5	-17.1		High Ch									846.60	16.35	V	1.0	-1.4	14.00	38.5	-24.5		846.60	23.31	H	1.0	-1.4	20.96	38.5	-17.5	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
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	826.40	18.05	V	1.0	-1.5	15.63	38.5	-22.9																																																																																											
	826.40	24.44	H	1.0	-1.5	22.02	38.5	-16.5																																																																																											
	Mid Ch																																																																																																		
	836.60	17.04	V	1.0	-1.4	14.66	38.5	-23.8																																																																																											
	836.60	23.81	H	1.0	-1.4	21.43	38.5	-17.1																																																																																											
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	846.60	16.35	V	1.0	-1.4	14.00	38.5	-24.5																																																																																											
846.60	23.31	H	1.0	-1.4	20.96	38.5	-17.5																																																																																												

WCDMA Band 4

WCDMA Band 4 REL99	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788534512 Date: 2018-07-21 Test Engineer: 45585 Configuration: EUT / Z-Position Location: Chamber 1 Mode: Rel99 Band 4 Fundamentals Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1712.40</td><td>15.57</td><td>V</td><td>4.3</td><td>9.5</td><td>20.72</td><td>30.0</td><td>-9.3</td></tr><tr><td>1712.40</td><td>19.06</td><td>H</td><td>4.3</td><td>9.5</td><td>24.22</td><td>30.0</td><td>-5.8</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1732.60</td><td>14.45</td><td>V</td><td>4.3</td><td>9.5</td><td>19.64</td><td>30.0</td><td>-10.4</td></tr><tr><td>1732.60</td><td>19.16</td><td>H</td><td>4.3</td><td>9.5</td><td>24.35</td><td>30.0</td><td>-5.6</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1752.60</td><td>15.33</td><td>V</td><td>4.4</td><td>9.6</td><td>20.57</td><td>30.0</td><td>-9.4</td></tr><tr><td>1752.60</td><td>19.77</td><td>H</td><td>4.4</td><td>9.6</td><td>25.01</td><td>30.0</td><td>-5.0</td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch								1712.40	15.57	V	4.3	9.5	20.72	30.0	-9.3	1712.40	19.06	H	4.3	9.5	24.22	30.0	-5.8	Mid Ch								1732.60	14.45	V	4.3	9.5	19.64	30.0	-10.4	1732.60	19.16	H	4.3	9.5	24.35	30.0	-5.6	High Ch								1752.60	15.33	V	4.4	9.6	20.57	30.0	-9.4	1752.60	19.77	H	4.4	9.6	25.01	30.0	-5.0
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																	
	Low Ch																																																																																									
	1712.40	15.57	V	4.3	9.5	20.72	30.0	-9.3																																																																																		
	1712.40	19.06	H	4.3	9.5	24.22	30.0	-5.8																																																																																		
	Mid Ch																																																																																									
	1732.60	14.45	V	4.3	9.5	19.64	30.0	-10.4																																																																																		
	1732.60	19.16	H	4.3	9.5	24.35	30.0	-5.6																																																																																		
	High Ch																																																																																									
	1752.60	15.33	V	4.4	9.6	20.57	30.0	-9.4																																																																																		
1752.60	19.77	H	4.4	9.6	25.01	30.0	-5.0																																																																																			
WCDMA Band 4 HSDPA	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788534512 Date: 2018-07-21 Test Engineer: 45585 Configuration: EUT / Z-Position Location: Chamber 1 Mode: HSDPA Band 4 Fundamentals Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1712.40</td><td>14.36</td><td>V</td><td>4.3</td><td>9.5</td><td>19.51</td><td>30.0</td><td>-10.5</td></tr><tr><td>1712.40</td><td>17.82</td><td>H</td><td>4.3</td><td>9.5</td><td>22.98</td><td>30.0</td><td>-7.0</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1732.60</td><td>13.22</td><td>V</td><td>4.3</td><td>9.5</td><td>18.41</td><td>30.0</td><td>-11.6</td></tr><tr><td>1732.60</td><td>17.98</td><td>H</td><td>4.3</td><td>9.5</td><td>23.17</td><td>30.0</td><td>-6.8</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1752.60</td><td>14.04</td><td>V</td><td>4.4</td><td>9.6</td><td>19.28</td><td>30.0</td><td>-10.7</td></tr><tr><td>1752.60</td><td>18.62</td><td>H</td><td>4.4</td><td>9.6</td><td>23.86</td><td>30.0</td><td>-6.1</td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch								1712.40	14.36	V	4.3	9.5	19.51	30.0	-10.5	1712.40	17.82	H	4.3	9.5	22.98	30.0	-7.0	Mid Ch								1732.60	13.22	V	4.3	9.5	18.41	30.0	-11.6	1732.60	17.98	H	4.3	9.5	23.17	30.0	-6.8	High Ch								1752.60	14.04	V	4.4	9.6	19.28	30.0	-10.7	1752.60	18.62	H	4.4	9.6	23.86	30.0	-6.1
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																	
	Low Ch																																																																																									
	1712.40	14.36	V	4.3	9.5	19.51	30.0	-10.5																																																																																		
	1712.40	17.82	H	4.3	9.5	22.98	30.0	-7.0																																																																																		
	Mid Ch																																																																																									
	1732.60	13.22	V	4.3	9.5	18.41	30.0	-11.6																																																																																		
	1732.60	17.98	H	4.3	9.5	23.17	30.0	-6.8																																																																																		
	High Ch																																																																																									
	1752.60	14.04	V	4.4	9.6	19.28	30.0	-10.7																																																																																		
1752.60	18.62	H	4.4	9.6	23.86	30.0	-6.1																																																																																			

WCDMA Band 2

WCDMA Band 2 REL99	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-18 Test Engineer: 47989 Configuration: EUT / X-Position Location: Chamber 1 Mode: Rel99 Band 2 Fundamentals Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable																																																																																										
	<table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td colspan="9">Low Ch</td></tr><tr><td>1852.40</td><td>17.60</td><td>V</td><td>4.5</td><td>9.5</td><td>22.59</td><td>33.0</td><td>-10.4</td><td></td></tr><tr><td>1852.40</td><td>19.39</td><td>H</td><td>4.5</td><td>9.5</td><td>24.38</td><td>33.0</td><td>-8.6</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>1880.00</td><td>18.69</td><td>V</td><td>4.5</td><td>9.2</td><td>23.37</td><td>33.0</td><td>-9.6</td><td></td></tr><tr><td>1880.00</td><td>19.14</td><td>H</td><td>4.5</td><td>9.2</td><td>23.82</td><td>33.0</td><td>-9.2</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>1907.60</td><td>16.52</td><td>V</td><td>4.6</td><td>8.9</td><td>20.86</td><td>33.0</td><td>-12.1</td><td></td></tr><tr><td>1907.60</td><td>18.12</td><td>H</td><td>4.6</td><td>8.9</td><td>22.46</td><td>33.0</td><td>-10.5</td><td></td></tr></table>	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									1852.40	17.60	V	4.5	9.5	22.59	33.0	-10.4		1852.40	19.39	H	4.5	9.5	24.38	33.0	-8.6		Mid Ch									1880.00	18.69	V	4.5	9.2	23.37	33.0	-9.6		1880.00	19.14	H	4.5	9.2	23.82	33.0	-9.2		High Ch									1907.60	16.52	V	4.6	8.9	20.86	33.0	-12.1		1907.60	18.12	H	4.6	8.9	22.46	33.0	-10.5	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																		
	Low Ch																																																																																										
	1852.40	17.60	V	4.5	9.5	22.59	33.0	-10.4																																																																																			
	1852.40	19.39	H	4.5	9.5	24.38	33.0	-8.6																																																																																			
	Mid Ch																																																																																										
	1880.00	18.69	V	4.5	9.2	23.37	33.0	-9.6																																																																																			
	1880.00	19.14	H	4.5	9.2	23.82	33.0	-9.2																																																																																			
	High Ch																																																																																										
1907.60	16.52	V	4.6	8.9	20.86	33.0	-12.1																																																																																				
1907.60	18.12	H	4.6	8.9	22.46	33.0	-10.5																																																																																				
WCDMA Band 2 HSDPA	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-18 Test Engineer: 47989 Configuration: EUT / X-Position Location: Chamber 1 Mode: HSDPA Band 2 Fundamentals Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable																																																																																										
	<table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td colspan="9">Low Ch</td></tr><tr><td>1852.40</td><td>16.96</td><td>V</td><td>4.5</td><td>9.5</td><td>21.95</td><td>33.0</td><td>-11.1</td><td></td></tr><tr><td>1852.40</td><td>18.66</td><td>H</td><td>4.5</td><td>9.5</td><td>23.65</td><td>33.0</td><td>-9.4</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>1880.00</td><td>17.13</td><td>V</td><td>4.5</td><td>9.2</td><td>21.81</td><td>33.0</td><td>-11.2</td><td></td></tr><tr><td>1880.00</td><td>18.58</td><td>H</td><td>4.5</td><td>9.2</td><td>23.26</td><td>33.0</td><td>-9.7</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>1907.60</td><td>16.03</td><td>V</td><td>4.6</td><td>8.9</td><td>20.37</td><td>33.0</td><td>-12.6</td><td></td></tr><tr><td>1907.60</td><td>16.75</td><td>H</td><td>4.6</td><td>8.9</td><td>21.09</td><td>33.0</td><td>-11.9</td><td></td></tr></table>	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									1852.40	16.96	V	4.5	9.5	21.95	33.0	-11.1		1852.40	18.66	H	4.5	9.5	23.65	33.0	-9.4		Mid Ch									1880.00	17.13	V	4.5	9.2	21.81	33.0	-11.2		1880.00	18.58	H	4.5	9.2	23.26	33.0	-9.7		High Ch									1907.60	16.03	V	4.6	8.9	20.37	33.0	-12.6		1907.60	16.75	H	4.6	8.9	21.09	33.0	-11.9	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																		
	Low Ch																																																																																										
	1852.40	16.96	V	4.5	9.5	21.95	33.0	-11.1																																																																																			
	1852.40	18.66	H	4.5	9.5	23.65	33.0	-9.4																																																																																			
	Mid Ch																																																																																										
	1880.00	17.13	V	4.5	9.2	21.81	33.0	-11.2																																																																																			
	1880.00	18.58	H	4.5	9.2	23.26	33.0	-9.7																																																																																			
	High Ch																																																																																										
1907.60	16.03	V	4.6	8.9	20.37	33.0	-12.6																																																																																				
1907.60	16.75	H	4.6	8.9	21.09	33.0	-11.9																																																																																				

LTE Band 2

LTE

Band 2

20MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-08

Test Engineer: 45585

Configuration: EUT / X-Position

Location: Chamber 1

Mode: LTE_QPSK Band 2 Fundamentals, 20MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1860.00	16.04	V	4.5	9.4	20.94	33.0	-12.1	
1860.00	17.78	H	4.5	9.4	22.68	33.0	-10.3	
Mid Ch								
1880.00	16.33	V	4.5	9.2	21.01	33.0	-12.0	
1880.00	17.65	H	4.5	9.2	22.33	33.0	-10.7	
High Ch								
1900.00	16.25	V	4.6	9.0	20.71	33.0	-12.3	
1900.00	17.95	H	4.6	9.0	22.41	33.0	-10.6	

LTE

Band 2

20MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-08

Test Engineer: 45585

Configuration: EUT / X-Position

Location: Chamber 1

Mode: LTE_16QAM Band 2 Fundamentals, 20MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1860.00	15.06	V	4.5	9.4	19.96	33.0	-13.0	
1860.00	16.79	H	4.5	9.4	21.69	33.0	-11.3	
Mid Ch								
1880.00	15.92	V	4.5	9.2	20.60	33.0	-12.4	
1880.00	16.99	H	4.5	9.2	21.67	33.0	-11.3	
High Ch								
1900.00	15.06	V	4.6	9.0	19.52	33.0	-13.5	
1900.00	16.74	H	4.6	9.0	21.20	33.0	-11.8	

LTE Band 2 15MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-08 Test Engineer: 45585 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_QPSK Band 2 Fundamentals, 15MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1857.50</td><td>15.42</td><td>V</td><td>4.5</td><td>9.4</td><td>20.35</td><td>33.0</td><td>-12.7</td></tr><tr><td>1857.50</td><td>17.90</td><td>H</td><td>4.5</td><td>9.4</td><td>22.83</td><td>33.0</td><td>-10.2</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1880.00</td><td>16.35</td><td>V</td><td>4.5</td><td>9.2</td><td>21.03</td><td>33.0</td><td>-12.0</td></tr><tr><td>1880.00</td><td>17.69</td><td>H</td><td>4.5</td><td>9.2</td><td>22.37</td><td>33.0</td><td>-10.6</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1902.50</td><td>13.87</td><td>V</td><td>4.6</td><td>9.0</td><td>18.29</td><td>33.0</td><td>-14.7</td></tr><tr><td>1902.50</td><td>17.14</td><td>H</td><td>4.6</td><td>9.0</td><td>21.55</td><td>33.0</td><td>-11.4</td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch								1857.50	15.42	V	4.5	9.4	20.35	33.0	-12.7	1857.50	17.90	H	4.5	9.4	22.83	33.0	-10.2	Mid Ch								1880.00	16.35	V	4.5	9.2	21.03	33.0	-12.0	1880.00	17.69	H	4.5	9.2	22.37	33.0	-10.6	High Ch								1902.50	13.87	V	4.6	9.0	18.29	33.0	-14.7	1902.50	17.14	H	4.6	9.0	21.55	33.0	-11.4
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																	
	Low Ch																																																																																									
	1857.50	15.42	V	4.5	9.4	20.35	33.0	-12.7																																																																																		
	1857.50	17.90	H	4.5	9.4	22.83	33.0	-10.2																																																																																		
	Mid Ch																																																																																									
	1880.00	16.35	V	4.5	9.2	21.03	33.0	-12.0																																																																																		
	1880.00	17.69	H	4.5	9.2	22.37	33.0	-10.6																																																																																		
	High Ch																																																																																									
	1902.50	13.87	V	4.6	9.0	18.29	33.0	-14.7																																																																																		
1902.50	17.14	H	4.6	9.0	21.55	33.0	-11.4																																																																																			
LTE Band 2 15MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-08 Test Engineer: 45585 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_16QAM Band 2 Fundamentals, 15MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1857.50</td><td>14.43</td><td>V</td><td>4.5</td><td>9.4</td><td>19.36</td><td>33.0</td><td>-13.6</td></tr><tr><td>1857.50</td><td>17.03</td><td>H</td><td>4.5</td><td>9.4</td><td>21.96</td><td>33.0</td><td>-11.0</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1880.00</td><td>15.41</td><td>V</td><td>4.5</td><td>9.2</td><td>20.09</td><td>33.0</td><td>-12.9</td></tr><tr><td>1880.00</td><td>16.42</td><td>H</td><td>4.5</td><td>9.2</td><td>21.10</td><td>33.0</td><td>-11.9</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1902.50</td><td>13.60</td><td>V</td><td>4.6</td><td>9.0</td><td>18.02</td><td>33.0</td><td>-15.0</td></tr><tr><td>1902.50</td><td>16.12</td><td>H</td><td>4.6</td><td>9.0</td><td>20.53</td><td>33.0</td><td>-12.5</td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch								1857.50	14.43	V	4.5	9.4	19.36	33.0	-13.6	1857.50	17.03	H	4.5	9.4	21.96	33.0	-11.0	Mid Ch								1880.00	15.41	V	4.5	9.2	20.09	33.0	-12.9	1880.00	16.42	H	4.5	9.2	21.10	33.0	-11.9	High Ch								1902.50	13.60	V	4.6	9.0	18.02	33.0	-15.0	1902.50	16.12	H	4.6	9.0	20.53	33.0	-12.5
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																	
	Low Ch																																																																																									
	1857.50	14.43	V	4.5	9.4	19.36	33.0	-13.6																																																																																		
	1857.50	17.03	H	4.5	9.4	21.96	33.0	-11.0																																																																																		
	Mid Ch																																																																																									
	1880.00	15.41	V	4.5	9.2	20.09	33.0	-12.9																																																																																		
	1880.00	16.42	H	4.5	9.2	21.10	33.0	-11.9																																																																																		
	High Ch																																																																																									
	1902.50	13.60	V	4.6	9.0	18.02	33.0	-15.0																																																																																		
1902.50	16.12	H	4.6	9.0	20.53	33.0	-12.5																																																																																			

LTE Band 2 10MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-08 Test Engineer: 45585 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_QPSK Band 2 Fundamentals, 10MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td colspan="9">Low Ch</td></tr><tr><td>1855.00</td><td>15.84</td><td>V</td><td>4.5</td><td>9.5</td><td>20.79</td><td>33.0</td><td>-12.2</td><td></td></tr><tr><td>1855.00</td><td>17.59</td><td>H</td><td>4.5</td><td>9.5</td><td>22.55</td><td>33.0</td><td>-10.5</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>1880.00</td><td>15.48</td><td>V</td><td>4.5</td><td>9.2</td><td>20.16</td><td>33.0</td><td>-12.8</td><td></td></tr><tr><td>1880.00</td><td>17.78</td><td>H</td><td>4.5</td><td>9.2</td><td>22.46</td><td>33.0</td><td>-10.5</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>1905.00</td><td>13.77</td><td>V</td><td>4.6</td><td>8.9</td><td>18.14</td><td>33.0</td><td>-14.9</td><td></td></tr><tr><td>1905.00</td><td>16.47</td><td>H</td><td>4.6</td><td>8.9</td><td>20.85</td><td>33.0</td><td>-12.2</td><td></td></tr></table>	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									1855.00	15.84	V	4.5	9.5	20.79	33.0	-12.2		1855.00	17.59	H	4.5	9.5	22.55	33.0	-10.5		Mid Ch									1880.00	15.48	V	4.5	9.2	20.16	33.0	-12.8		1880.00	17.78	H	4.5	9.2	22.46	33.0	-10.5		High Ch									1905.00	13.77	V	4.6	8.9	18.14	33.0	-14.9		1905.00	16.47	H	4.6	8.9	20.85	33.0	-12.2	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																		
	Low Ch																																																																																										
	1855.00	15.84	V	4.5	9.5	20.79	33.0	-12.2																																																																																			
	1855.00	17.59	H	4.5	9.5	22.55	33.0	-10.5																																																																																			
	Mid Ch																																																																																										
	1880.00	15.48	V	4.5	9.2	20.16	33.0	-12.8																																																																																			
	1880.00	17.78	H	4.5	9.2	22.46	33.0	-10.5																																																																																			
	High Ch																																																																																										
	1905.00	13.77	V	4.6	8.9	18.14	33.0	-14.9																																																																																			
1905.00	16.47	H	4.6	8.9	20.85	33.0	-12.2																																																																																				
LTE Band 2 10MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-08 Test Engineer: 45585 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_16QAM Band 2 Fundamentals, 10MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td colspan="9">Low Ch</td></tr><tr><td>1855.00</td><td>15.13</td><td>V</td><td>4.5</td><td>9.5</td><td>20.08</td><td>33.0</td><td>-12.9</td><td></td></tr><tr><td>1855.00</td><td>16.50</td><td>H</td><td>4.5</td><td>9.5</td><td>21.46</td><td>33.0</td><td>-11.5</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>1880.00</td><td>14.47</td><td>V</td><td>4.5</td><td>9.2</td><td>19.15</td><td>33.0</td><td>-13.9</td><td></td></tr><tr><td>1880.00</td><td>16.33</td><td>H</td><td>4.5</td><td>9.2</td><td>21.01</td><td>33.0</td><td>-12.0</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>1905.00</td><td>14.05</td><td>V</td><td>4.6</td><td>8.9</td><td>18.42</td><td>33.0</td><td>-14.6</td><td></td></tr><tr><td>1905.00</td><td>16.30</td><td>H</td><td>4.6</td><td>8.9</td><td>20.68</td><td>33.0</td><td>-12.3</td><td></td></tr></table>	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									1855.00	15.13	V	4.5	9.5	20.08	33.0	-12.9		1855.00	16.50	H	4.5	9.5	21.46	33.0	-11.5		Mid Ch									1880.00	14.47	V	4.5	9.2	19.15	33.0	-13.9		1880.00	16.33	H	4.5	9.2	21.01	33.0	-12.0		High Ch									1905.00	14.05	V	4.6	8.9	18.42	33.0	-14.6		1905.00	16.30	H	4.6	8.9	20.68	33.0	-12.3	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																		
	Low Ch																																																																																										
	1855.00	15.13	V	4.5	9.5	20.08	33.0	-12.9																																																																																			
	1855.00	16.50	H	4.5	9.5	21.46	33.0	-11.5																																																																																			
	Mid Ch																																																																																										
	1880.00	14.47	V	4.5	9.2	19.15	33.0	-13.9																																																																																			
	1880.00	16.33	H	4.5	9.2	21.01	33.0	-12.0																																																																																			
	High Ch																																																																																										
	1905.00	14.05	V	4.6	8.9	18.42	33.0	-14.6																																																																																			
1905.00	16.30	H	4.6	8.9	20.68	33.0	-12.3																																																																																				

LTE

Band 2

5MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-08

Test Engineer: 45585

Configuration: EUT / X-Position

Location: Chamber 1

Mode: LTE_QPSK Band 2 Fundamentals, 5MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.50	15.16	V	4.5	9.5	20.15	33.0	-12.9	
1852.50	17.38	H	4.5	9.5	22.37	33.0	-10.6	
Mid Ch								
1880.00	15.35	V	4.5	9.2	20.03	33.0	-13.0	
1880.00	17.38	H	4.5	9.2	22.06	33.0	-10.9	
High Ch								
1907.50	14.78	V	4.6	8.9	19.12	33.0	-13.9	
1907.50	17.02	H	4.6	8.9	21.36	33.0	-11.6	

LTE

Band 2

5MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-08

Test Engineer: 45585

Configuration: EUT / X-Position

Location: Chamber 1

Mode: LTE_16QAM Band 2 Fundamentals, 5MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.50	14.27	V	4.5	9.5	19.26	33.0	-13.7	
1852.50	16.49	H	4.5	9.5	21.48	33.0	-11.5	
Mid Ch								
1880.00	13.76	V	4.5	9.2	18.44	33.0	-14.6	
1880.00	16.02	H	4.5	9.2	20.70	33.0	-12.3	
High Ch								
1907.50	14.03	V	4.6	8.9	18.37	33.0	-14.6	
1907.50	16.16	H	4.6	8.9	20.50	33.0	-12.5	

LTE

Band 2

3MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-08

Test Engineer: 45585

Configuration: EUT / X-Position

Location: Chamber 1

Mode: LTE_QPSK Band 2 Fundamentals, 3MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1851.50	15.29	V	4.5	9.5	20.29	33.0	-12.7	
1851.50	16.89	H	4.5	9.5	21.89	33.0	-11.1	
Mid Ch								
1880.00	15.84	V	4.5	9.2	20.52	33.0	-12.5	
1880.00	17.20	H	4.5	9.2	21.88	33.0	-11.1	
High Ch								
1908.50	14.66	V	4.6	8.9	18.99	33.0	-14.0	
1908.50	17.06	H	4.6	8.9	21.38	33.0	-11.6	

LTE

Band 2

3MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-08

Test Engineer: 45585

Configuration: EUT / X-Position

Location: Chamber 1

Mode: LTE_16QAM Band 2 Fundamentals, 3MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1851.50	14.12	V	4.5	9.5	19.12	33.0	-13.9	
1851.50	16.34	H	4.5	9.5	21.34	33.0	-11.7	
Mid Ch								
1880.00	14.56	V	4.5	9.2	19.24	33.0	-13.8	
1880.00	15.74	H	4.5	9.2	20.42	33.0	-12.6	
High Ch								
1908.50	13.77	V	4.6	8.9	18.10	33.0	-14.9	
1908.50	15.87	H	4.6	8.9	20.19	33.0	-12.8	

LTE Band 2 1.4MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-08 Test Engineer: 45585 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_QPSK Band 2 Fundamentals, 1.4MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1850.70</td><td>14.24</td><td>V</td><td>4.5</td><td>9.5</td><td>19.24</td><td>33.0</td><td>-13.8</td><td></td></tr><tr><td>1850.70</td><td>16.59</td><td>H</td><td>4.5</td><td>9.5</td><td>21.60</td><td>33.0</td><td>-11.4</td><td></td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1880.00</td><td>15.30</td><td>V</td><td>4.5</td><td>9.2</td><td>19.98</td><td>33.0</td><td>-13.0</td><td></td></tr><tr><td>1880.00</td><td>17.41</td><td>H</td><td>4.5</td><td>9.2</td><td>22.09</td><td>33.0</td><td>-10.9</td><td></td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1909.30</td><td>15.06</td><td>V</td><td>4.6</td><td>8.9</td><td>19.37</td><td>33.0</td><td>-13.6</td><td></td></tr><tr><td>1909.30</td><td>17.10</td><td>H</td><td>4.6</td><td>8.9</td><td>21.41</td><td>33.0</td><td>-11.6</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									1850.70	14.24	V	4.5	9.5	19.24	33.0	-13.8		1850.70	16.59	H	4.5	9.5	21.60	33.0	-11.4		Mid Ch									1880.00	15.30	V	4.5	9.2	19.98	33.0	-13.0		1880.00	17.41	H	4.5	9.2	22.09	33.0	-10.9		High Ch									1909.30	15.06	V	4.6	8.9	19.37	33.0	-13.6		1909.30	17.10	H	4.6	8.9	21.41	33.0	-11.6	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
	Low Ch																																																																																																		
	1850.70	14.24	V	4.5	9.5	19.24	33.0	-13.8																																																																																											
	1850.70	16.59	H	4.5	9.5	21.60	33.0	-11.4																																																																																											
	Mid Ch																																																																																																		
	1880.00	15.30	V	4.5	9.2	19.98	33.0	-13.0																																																																																											
	1880.00	17.41	H	4.5	9.2	22.09	33.0	-10.9																																																																																											
	High Ch																																																																																																		
	1909.30	15.06	V	4.6	8.9	19.37	33.0	-13.6																																																																																											
1909.30	17.10	H	4.6	8.9	21.41	33.0	-11.6																																																																																												
LTE Band 2 1.4MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-08 Test Engineer: 45585 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_16QAM Band 2 Fundamentals, 1.4MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1850.70</td><td>13.23</td><td>V</td><td>4.5</td><td>9.5</td><td>18.23</td><td>33.0</td><td>-14.8</td><td></td></tr><tr><td>1850.70</td><td>15.78</td><td>H</td><td>4.5</td><td>9.5</td><td>20.79</td><td>33.0</td><td>-12.2</td><td></td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1880.00</td><td>14.12</td><td>V</td><td>4.5</td><td>9.2</td><td>18.80</td><td>33.0</td><td>-14.2</td><td></td></tr><tr><td>1880.00</td><td>16.55</td><td>H</td><td>4.5</td><td>9.2</td><td>21.23</td><td>33.0</td><td>-11.8</td><td></td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1909.30</td><td>14.27</td><td>V</td><td>4.6</td><td>8.9</td><td>18.58</td><td>33.0</td><td>-14.4</td><td></td></tr><tr><td>1909.30</td><td>16.12</td><td>H</td><td>4.6</td><td>8.9</td><td>20.43</td><td>33.0</td><td>-12.6</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									1850.70	13.23	V	4.5	9.5	18.23	33.0	-14.8		1850.70	15.78	H	4.5	9.5	20.79	33.0	-12.2		Mid Ch									1880.00	14.12	V	4.5	9.2	18.80	33.0	-14.2		1880.00	16.55	H	4.5	9.2	21.23	33.0	-11.8		High Ch									1909.30	14.27	V	4.6	8.9	18.58	33.0	-14.4		1909.30	16.12	H	4.6	8.9	20.43	33.0	-12.6	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
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	1850.70	13.23	V	4.5	9.5	18.23	33.0	-14.8																																																																																											
	1850.70	15.78	H	4.5	9.5	20.79	33.0	-12.2																																																																																											
	Mid Ch																																																																																																		
	1880.00	14.12	V	4.5	9.2	18.80	33.0	-14.2																																																																																											
	1880.00	16.55	H	4.5	9.2	21.23	33.0	-11.8																																																																																											
	High Ch																																																																																																		
	1909.30	14.27	V	4.6	8.9	18.58	33.0	-14.4																																																																																											
1909.30	16.12	H	4.6	8.9	20.43	33.0	-12.6																																																																																												

LTE Band 4

LTE Band 4 20MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-15 Test Engineer: 47989 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_QPSK Band 4 Fundamentals, 20MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td colspan="9">Low Ch</td></tr><tr><td>1720.00</td><td>16.76</td><td>V</td><td>4.3</td><td>9.5</td><td>21.93</td><td>30.0</td><td>-8.1</td><td></td></tr><tr><td>1720.00</td><td>19.18</td><td>H</td><td>4.3</td><td>9.5</td><td>24.35</td><td>30.0</td><td>-5.7</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>1732.50</td><td>17.13</td><td>V</td><td>4.3</td><td>9.5</td><td>22.32</td><td>30.0</td><td>-7.7</td><td></td></tr><tr><td>1732.50</td><td>19.68</td><td>H</td><td>4.3</td><td>9.5</td><td>24.88</td><td>30.0</td><td>-5.1</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>1745.00</td><td>17.39</td><td>V</td><td>4.4</td><td>9.6</td><td>22.61</td><td>30.0</td><td>-7.4</td><td></td></tr><tr><td>1745.00</td><td>19.53</td><td>H</td><td>4.4</td><td>9.6</td><td>24.75</td><td>30.0</td><td>-5.2</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									1720.00	16.76	V	4.3	9.5	21.93	30.0	-8.1		1720.00	19.18	H	4.3	9.5	24.35	30.0	-5.7		Mid Ch									1732.50	17.13	V	4.3	9.5	22.32	30.0	-7.7		1732.50	19.68	H	4.3	9.5	24.88	30.0	-5.1		High Ch									1745.00	17.39	V	4.4	9.6	22.61	30.0	-7.4		1745.00	19.53	H	4.4	9.6	24.75	30.0	-5.2	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
	Low Ch																																																																																																		
	1720.00	16.76	V	4.3	9.5	21.93	30.0	-8.1																																																																																											
	1720.00	19.18	H	4.3	9.5	24.35	30.0	-5.7																																																																																											
	Mid Ch																																																																																																		
	1732.50	17.13	V	4.3	9.5	22.32	30.0	-7.7																																																																																											
	1732.50	19.68	H	4.3	9.5	24.88	30.0	-5.1																																																																																											
	High Ch																																																																																																		
	1745.00	17.39	V	4.4	9.6	22.61	30.0	-7.4																																																																																											
1745.00	19.53	H	4.4	9.6	24.75	30.0	-5.2																																																																																												
LTE Band 4 20MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-15 Test Engineer: 47989 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_16QAM Band 4 Fundamentals, 20MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td colspan="9">Low Ch</td></tr><tr><td>1720.00</td><td>15.44</td><td>V</td><td>4.3</td><td>9.5</td><td>20.61</td><td>30.0</td><td>-9.4</td><td></td></tr><tr><td>1720.00</td><td>18.95</td><td>H</td><td>4.3</td><td>9.5</td><td>24.12</td><td>30.0</td><td>-5.9</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>1732.50</td><td>16.40</td><td>V</td><td>4.3</td><td>9.5</td><td>21.59</td><td>30.0</td><td>-8.4</td><td></td></tr><tr><td>1732.50</td><td>18.85</td><td>H</td><td>4.3</td><td>9.5</td><td>24.05</td><td>30.0</td><td>-6.0</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>1745.00</td><td>16.47</td><td>V</td><td>4.4</td><td>9.6</td><td>21.69</td><td>30.0</td><td>-8.3</td><td></td></tr><tr><td>1745.00</td><td>19.02</td><td>H</td><td>4.4</td><td>9.6</td><td>24.24</td><td>30.0</td><td>-5.8</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									1720.00	15.44	V	4.3	9.5	20.61	30.0	-9.4		1720.00	18.95	H	4.3	9.5	24.12	30.0	-5.9		Mid Ch									1732.50	16.40	V	4.3	9.5	21.59	30.0	-8.4		1732.50	18.85	H	4.3	9.5	24.05	30.0	-6.0		High Ch									1745.00	16.47	V	4.4	9.6	21.69	30.0	-8.3		1745.00	19.02	H	4.4	9.6	24.24	30.0	-5.8	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
	Low Ch																																																																																																		
	1720.00	15.44	V	4.3	9.5	20.61	30.0	-9.4																																																																																											
	1720.00	18.95	H	4.3	9.5	24.12	30.0	-5.9																																																																																											
	Mid Ch																																																																																																		
	1732.50	16.40	V	4.3	9.5	21.59	30.0	-8.4																																																																																											
	1732.50	18.85	H	4.3	9.5	24.05	30.0	-6.0																																																																																											
	High Ch																																																																																																		
	1745.00	16.47	V	4.4	9.6	21.69	30.0	-8.3																																																																																											
1745.00	19.02	H	4.4	9.6	24.24	30.0	-5.8																																																																																												

LTE

Band 4

15MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-15

Test Engineer: 47989

Configuration: EUT / X-Position

Location: Chamber 1

Mode: LTE_QPSK Band 4 Fundamentals, 15MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1717.50	17.10	V	4.3	9.5	22.27	30.0	-7.7	
1717.50	19.35	H	4.3	9.5	24.52	30.0	-5.5	
Mid Ch								
1732.50	16.77	V	4.3	9.5	21.96	30.0	-8.0	
1732.50	19.44	H	4.3	9.5	24.64	30.0	-5.4	
High Ch								
1747.50	16.63	V	4.4	9.6	21.85	30.0	-8.1	
1747.50	19.80	H	4.4	9.6	25.03	30.0	-5.0	

LTE

Band 4

15MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-15

Test Engineer: 47989

Configuration: EUT / X-Position

Location: Chamber 1

Mode: LTE_16QAM Band 4 Fundamentals, 15MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1717.50	16.13	V	4.3	9.5	21.30	30.0	-8.7	
1717.50	18.10	H	4.3	9.5	23.27	30.0	-6.7	
Mid Ch								
1732.50	15.52	V	4.3	9.5	20.71	30.0	-9.3	
1732.50	18.06	H	4.3	9.5	23.26	30.0	-6.7	
High Ch								
1747.50	16.02	V	4.4	9.6	21.24	30.0	-8.8	
1747.50	18.35	H	4.4	9.6	23.58	30.0	-6.4	

LTE

Band 4

10MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-15

Test Engineer: 47989

Configuration: EUT / X-Position

Location: Chamber 1

Mode: LTE_QPSK Band 4 Fundamentals, 10MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1715.00	16.66	V	4.3	9.5	21.82	30.0	-8.2	
1715.00	19.14	H	4.3	9.5	24.29	30.0	-5.7	
Mid Ch								
1732.50	17.17	V	4.3	9.5	22.36	30.0	-7.6	
1732.50	18.58	H	4.3	9.5	23.78	30.0	-6.2	
High Ch								
1750.00	16.69	V	4.4	9.6	21.92	30.0	-8.1	
1750.00	18.47	H	4.4	9.6	23.70	30.0	-6.3	

LTE

Band 4

10MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-15

Test Engineer: 47989

Configuration: EUT / X-Position

Location: Chamber 1

Mode: LTE_16QAM Band 4 Fundamentals, 10MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1715.00	15.58	V	4.3	9.5	20.74	30.0	-9.3	
1715.00	17.88	H	4.3	9.5	23.03	30.0	-7.0	
Mid Ch								
1732.50	15.34	V	4.3	9.5	20.53	30.0	-9.5	
1732.50	17.37	H	4.3	9.5	22.57	30.0	-7.4	
High Ch								
1750.00	16.48	V	4.4	9.6	21.71	30.0	-8.3	
1750.00	17.46	H	4.4	9.6	22.69	30.0	-7.3	

LTE

Band 4

5MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-15

Test Engineer: 47989

Configuration: EUT / X-Position

Location: Chamber 1

Mode: LTE_QPSK Band 4 Fundamentals, 5MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.50	15.97	V	4.3	9.5	21.12	30.0	-8.9	
1712.50	16.84	H	4.3	9.5	21.99	30.0	-8.0	
Mid Ch								
1732.50	16.65	V	4.3	9.5	21.84	30.0	-8.2	
1732.50	18.94	H	4.3	9.5	24.14	30.0	-5.9	
High Ch								
1752.50	17.18	V	4.4	9.6	22.41	30.0	-7.6	
1752.50	19.56	H	4.4	9.6	24.80	30.0	-5.2	

LTE

Band 4

5MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-15

Test Engineer: 47989

Configuration: EUT / X-Position

Location: Chamber 1

Mode: LTE_16QAM Band 4 Fundamentals, 5MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.50	15.04	V	4.3	9.5	20.19	30.0	-9.8	
1712.50	15.58	H	4.3	9.5	20.73	30.0	-9.3	
Mid Ch								
1732.50	15.18	V	4.3	9.5	20.37	30.0	-9.6	
1732.50	17.29	H	4.3	9.5	22.49	30.0	-7.5	
High Ch								
1752.50	16.33	V	4.4	9.6	21.56	30.0	-8.4	
1752.50	18.48	H	4.4	9.6	23.72	30.0	-6.3	

LTE

Band 4

3MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-15

Test Engineer: 47989

Configuration: EUT / X-Position

Location: Chamber 1

Mode: LTE_QPSK Band 4 Fundamentals, 3MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1711.50	15.68	V	4.3	9.5	20.84	30.0	-9.2	
1711.50	18.99	H	4.3	9.5	24.14	30.0	-5.9	
Mid Ch								
1732.50	16.80	V	4.3	9.5	21.99	30.0	-8.0	
1732.50	18.17	H	4.3	9.5	23.37	30.0	-6.6	
High Ch								
1753.50	16.60	V	4.4	9.6	21.84	30.0	-8.2	
1753.50	18.33	H	4.4	9.6	23.57	30.0	-6.4	

LTE

Band 4

3MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-15

Test Engineer: 47989

Configuration: EUT / X-Position

Location: Chamber 1

Mode: LTE_16QAM Band 4 Fundamentals, 3MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1711.50	14.94	V	4.3	9.5	20.10	30.0	-9.9	
1711.50	18.60	H	4.3	9.5	23.75	30.0	-6.2	
Mid Ch								
1732.50	15.36	V	4.3	9.5	20.55	30.0	-9.4	
1732.50	16.66	H	4.3	9.5	21.86	30.0	-8.1	
High Ch								
1753.50	15.21	V	4.4	9.6	20.45	30.0	-9.5	
1753.50	17.29	H	4.4	9.6	22.53	30.0	-7.5	

LTE Band 4 1.4MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-16 Test Engineer: 47989 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_QPSK Band 4 Fundamentals, 1.4MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td colspan="9">Low Ch</td></tr><tr><td>1710.70</td><td>16.67</td><td>V</td><td>4.3</td><td>9.5</td><td>21.82</td><td>30.0</td><td>-8.2</td><td></td></tr><tr><td>1710.70</td><td>20.11</td><td>H</td><td>4.3</td><td>9.5</td><td>25.26</td><td>30.0</td><td>-4.7</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>1732.50</td><td>16.66</td><td>V</td><td>4.3</td><td>9.5</td><td>21.85</td><td>30.0</td><td>-8.1</td><td></td></tr><tr><td>1732.50</td><td>19.69</td><td>H</td><td>4.3</td><td>9.5</td><td>24.89</td><td>30.0</td><td>-5.1</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>1754.30</td><td>17.32</td><td>V</td><td>4.4</td><td>9.6</td><td>22.56</td><td>30.0</td><td>-7.4</td><td></td></tr><tr><td>1754.30</td><td>20.67</td><td>H</td><td>4.4</td><td>9.6</td><td>25.91</td><td>30.0</td><td>-4.1</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									1710.70	16.67	V	4.3	9.5	21.82	30.0	-8.2		1710.70	20.11	H	4.3	9.5	25.26	30.0	-4.7		Mid Ch									1732.50	16.66	V	4.3	9.5	21.85	30.0	-8.1		1732.50	19.69	H	4.3	9.5	24.89	30.0	-5.1		High Ch									1754.30	17.32	V	4.4	9.6	22.56	30.0	-7.4		1754.30	20.67	H	4.4	9.6	25.91	30.0	-4.1	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
	Low Ch																																																																																																		
	1710.70	16.67	V	4.3	9.5	21.82	30.0	-8.2																																																																																											
	1710.70	20.11	H	4.3	9.5	25.26	30.0	-4.7																																																																																											
	Mid Ch																																																																																																		
	1732.50	16.66	V	4.3	9.5	21.85	30.0	-8.1																																																																																											
	1732.50	19.69	H	4.3	9.5	24.89	30.0	-5.1																																																																																											
	High Ch																																																																																																		
	1754.30	17.32	V	4.4	9.6	22.56	30.0	-7.4																																																																																											
1754.30	20.67	H	4.4	9.6	25.91	30.0	-4.1																																																																																												
LTE Band 4 1.4MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-16 Test Engineer: 47989 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_16QAM Band 4 Fundamentals, 1.4MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td colspan="9">Low Ch</td></tr><tr><td>1710.70</td><td>15.89</td><td>V</td><td>4.3</td><td>9.5</td><td>21.04</td><td>30.0</td><td>-9.0</td><td></td></tr><tr><td>1710.70</td><td>19.01</td><td>H</td><td>4.3</td><td>9.5</td><td>24.16</td><td>30.0</td><td>-5.8</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>1732.50</td><td>16.11</td><td>V</td><td>4.3</td><td>9.5</td><td>21.30</td><td>30.0</td><td>-8.7</td><td></td></tr><tr><td>1732.50</td><td>18.54</td><td>H</td><td>4.3</td><td>9.5</td><td>23.74</td><td>30.0</td><td>-6.3</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>1754.30</td><td>16.19</td><td>V</td><td>4.4</td><td>9.6</td><td>21.43</td><td>30.0</td><td>-8.6</td><td></td></tr><tr><td>1754.30</td><td>18.92</td><td>H</td><td>4.4</td><td>9.6</td><td>24.16</td><td>30.0</td><td>-5.8</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									1710.70	15.89	V	4.3	9.5	21.04	30.0	-9.0		1710.70	19.01	H	4.3	9.5	24.16	30.0	-5.8		Mid Ch									1732.50	16.11	V	4.3	9.5	21.30	30.0	-8.7		1732.50	18.54	H	4.3	9.5	23.74	30.0	-6.3		High Ch									1754.30	16.19	V	4.4	9.6	21.43	30.0	-8.6		1754.30	18.92	H	4.4	9.6	24.16	30.0	-5.8	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
	Low Ch																																																																																																		
	1710.70	15.89	V	4.3	9.5	21.04	30.0	-9.0																																																																																											
	1710.70	19.01	H	4.3	9.5	24.16	30.0	-5.8																																																																																											
	Mid Ch																																																																																																		
	1732.50	16.11	V	4.3	9.5	21.30	30.0	-8.7																																																																																											
	1732.50	18.54	H	4.3	9.5	23.74	30.0	-6.3																																																																																											
	High Ch																																																																																																		
	1754.30	16.19	V	4.4	9.6	21.43	30.0	-8.6																																																																																											
1754.30	18.92	H	4.4	9.6	24.16	30.0	-5.8																																																																																												

LTE Band 5

LTE Band 5 10MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-16 Test Engineer: 51072 Configuration: EUT / X-position Location: Chamber 2 Mode: LTE_QPSK Band 5 Fundamentals, 10MHz Bandwidth								
	Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 3m N-type Cable								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	829.00	19.74	V	1.0	-1.5	17.33	38.5	-21.2	
	829.00	25.55	H	1.0	-1.5	23.14	38.5	-15.4	
	Mid Ch								
	836.50	19.71	V	1.0	-1.4	17.33	38.5	-21.2	
	836.50	25.40	H	1.0	-1.4	23.02	38.5	-15.5	
LTE Band 5 10MHz 16QAM	High Ch								
	844.00	19.40	V	1.0	-1.4	17.05	38.5	-21.5	
	844.00	25.52	H	1.0	-1.4	23.16	38.5	-15.3	
LTE Band 5 10MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-16 Test Engineer: 51072 Configuration: EUT / X-position Location: Chamber 2 Mode: LTE_16QAM Band 5 Fundamentals, 10MHz Bandwidth								
	Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 3m N-type Cable								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	829.00	19.60	V	1.0	-1.5	17.19	38.5	-21.3	
	829.00	24.78	H	1.0	-1.5	22.37	38.5	-16.1	
	Mid Ch								
	836.50	17.88	V	1.0	-1.4	15.50	38.5	-23.0	
	836.50	23.95	H	1.0	-1.4	21.57	38.5	-16.9	
	High Ch								
	844.00	18.52	V	1.0	-1.4	16.17	38.5	-22.3	
	844.00	23.96	H	1.0	-1.4	21.60	38.5	-16.9	

LTE Band 5 5MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-16 Test Engineer: 51072 Configuration: EUT , X-position Location: Chamber 2 Mode: LTE_QPSK Band 5 Fundamentals, 1.4MHz Bandwidth Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>824.70</td><td>19.27</td><td>V</td><td>1.0</td><td>-1.5</td><td>16.84</td><td>38.5</td><td>-21.7</td></tr><tr><td>824.70</td><td>25.09</td><td>H</td><td>1.0</td><td>-1.5</td><td>22.66</td><td>38.5</td><td>-15.8</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>836.50</td><td>20.66</td><td>V</td><td>1.0</td><td>-1.4</td><td>18.28</td><td>38.5</td><td>-20.2</td></tr><tr><td>836.50</td><td>26.22</td><td>H</td><td>1.0</td><td>-1.4</td><td>23.84</td><td>38.5</td><td>-14.7</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>848.30</td><td>19.96</td><td>V</td><td>1.0</td><td>-1.4</td><td>17.61</td><td>38.5</td><td>-20.9</td></tr><tr><td>848.30</td><td>25.22</td><td>H</td><td>1.0</td><td>-1.4</td><td>22.87</td><td>38.5</td><td>-15.6</td></tr></table>									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	19.27	V	1.0	-1.5	16.84	38.5	-21.7	824.70	25.09	H	1.0	-1.5	22.66	38.5	-15.8	Mid Ch								836.50	20.66	V	1.0	-1.4	18.28	38.5	-20.2	836.50	26.22	H	1.0	-1.4	23.84	38.5	-14.7	High Ch								848.30	19.96	V	1.0	-1.4	17.61	38.5	-20.9	848.30	25.22	H	1.0	-1.4	22.87	38.5	-15.6
	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	19.27	V	1.0	-1.5	16.84	38.5	-21.7																																																																																		
	824.70	25.09	H	1.0	-1.5	22.66	38.5	-15.8																																																																																		
	Mid Ch																																																																																									
	836.50	20.66	V	1.0	-1.4	18.28	38.5	-20.2																																																																																		
	836.50	26.22	H	1.0	-1.4	23.84	38.5	-14.7																																																																																		
	High Ch																																																																																									
	848.30	19.96	V	1.0	-1.4	17.61	38.5	-20.9																																																																																		
848.30	25.22	H	1.0	-1.4	22.87	38.5	-15.6																																																																																			
LTE Band 5 5MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-16 Test Engineer: 51072 Configuration: EUT / X-position Location: Chamber 2 Mode: LTE_16QAM Band 5 Fundamentals, 5MHz Bandwidth Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>826.50</td><td>17.90</td><td>V</td><td>1.0</td><td>-1.5</td><td>15.48</td><td>38.5</td><td>-23.0</td></tr><tr><td>826.50</td><td>23.55</td><td>H</td><td>1.0</td><td>-1.5</td><td>21.13</td><td>38.5</td><td>-17.4</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>836.50</td><td>19.35</td><td>V</td><td>1.0</td><td>-1.4</td><td>16.97</td><td>38.5</td><td>-21.5</td></tr><tr><td>836.50</td><td>24.79</td><td>H</td><td>1.0</td><td>-1.4</td><td>22.41</td><td>38.5</td><td>-16.1</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>846.50</td><td>18.52</td><td>V</td><td>1.0</td><td>-1.4</td><td>16.17</td><td>38.5</td><td>-22.3</td></tr><tr><td>846.50</td><td>23.86</td><td>H</td><td>1.0</td><td>-1.4</td><td>21.51</td><td>38.5</td><td>-17.0</td></tr></table>									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	17.90	V	1.0	-1.5	15.48	38.5	-23.0	826.50	23.55	H	1.0	-1.5	21.13	38.5	-17.4	Mid Ch								836.50	19.35	V	1.0	-1.4	16.97	38.5	-21.5	836.50	24.79	H	1.0	-1.4	22.41	38.5	-16.1	High Ch								846.50	18.52	V	1.0	-1.4	16.17	38.5	-22.3	846.50	23.86	H	1.0	-1.4	21.51	38.5	-17.0
	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	17.90	V	1.0	-1.5	15.48	38.5	-23.0																																																																																		
	826.50	23.55	H	1.0	-1.5	21.13	38.5	-17.4																																																																																		
	Mid Ch																																																																																									
	836.50	19.35	V	1.0	-1.4	16.97	38.5	-21.5																																																																																		
	836.50	24.79	H	1.0	-1.4	22.41	38.5	-16.1																																																																																		
	High Ch																																																																																									
	846.50	18.52	V	1.0	-1.4	16.17	38.5	-22.3																																																																																		
846.50	23.86	H	1.0	-1.4	21.51	38.5	-17.0																																																																																			

LTE

Band 5

3MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-16

Test Engineer: 51072

Configuration: EUT , X-position

Location: Chamber 2

Mode: LTE_QPSK Band 5 Fundamentals, 3MHz Bandwidth

Test Equipment:

Receiving: VULB9163-749, and Chamber 2 SMA Cables

Substitution: Dipole 3121_DB4, 3m N-type Cable

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	21.26	V	1.0	-1.5	18.84	38.5	-19.7	
825.50	25.93	H	1.0	-1.5	23.51	38.5	-15.0	
Mid Ch								
836.50	20.73	V	1.0	-1.4	18.35	38.5	-20.2	
836.50	26.17	H	1.0	-1.4	23.79	38.5	-14.7	
High Ch								
847.50	20.36	V	1.0	-1.4	18.02	38.5	-20.5	
847.50	25.43	H	1.0	-1.4	23.08	38.5	-15.4	

LTE

Band 5

3MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-16

Test Engineer: 51072

Configuration: EUT / X-position

Location: Chamber 2

Mode: LTE_16QAM Band 5 Fundamentals, 3MHz Bandwidth

Test Equipment:

Receiving: VULB9163-749, and Chamber 2 SMA Cables

Substitution: Dipole 3121_DB4, 3m N-type Cable

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	19.98	V	1.0	-1.5	17.56	38.5	-20.9	
825.50	24.79	H	1.0	-1.5	22.37	38.5	-16.1	
Mid Ch								
836.50	19.13	V	1.0	-1.4	16.75	38.5	-21.8	
836.50	24.92	H	1.0	-1.4	22.54	38.5	-16.0	
High Ch								
847.50	19.56	V	1.0	-1.4	17.22	38.5	-21.3	
847.50	24.49	H	1.0	-1.4	22.14	38.5	-16.4	

LTE

Band 5

1.4MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-16

Test Engineer: 51072

Configuration: EUT / X-position

Location: Chamber 2

Mode: LTE_QPSK Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equipment:

Receiving: VULB9163-749, and Chamber 2 SMA Cables

Substitution: Dipole 3121_DB4, 3m N-type Cable

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	21.08	V	1.0	-1.5	18.65	38.5	-19.8	
824.70	25.98	H	1.0	-1.5	23.55	38.5	-14.9	
Mid Ch								
836.50	18.99	V	1.0	-1.4	16.61	38.5	-21.9	
836.50	26.50	H	1.0	-1.4	24.12	38.5	-14.4	
High Ch								
848.30	20.28	V	1.0	-1.4	17.93	38.5	-20.6	
848.30	25.00	H	1.0	-1.4	22.65	38.5	-15.8	

LTE

Band 5

1.4MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788481138

Date: 2018-06-16

Test Engineer: 51072

Configuration: EUT / X-position

Location: Chamber 2

Mode: LTE_16QAM Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equipment:

Receiving: VULB9163-749, and Chamber 2 SMA Cables

Substitution: Dipole 3121_DB4, 3m N-type Cable

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	20.09	V	1.0	-1.5	17.66	38.5	-20.8	
824.70	24.87	H	1.0	-1.5	22.44	38.5	-16.1	
Mid Ch								
836.50	17.77	V	1.0	-1.4	15.39	38.5	-23.1	
836.50	25.59	H	1.0	-1.4	23.21	38.5	-15.3	
High Ch								
848.30	18.41	V	1.0	-1.4	16.06	38.5	-22.4	
848.30	23.78	H	1.0	-1.4	21.43	38.5	-17.1	

LTE
Band 7
20MHz
QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788534512

2018-07-12

47989

EUT / Y-Position

Chamber 1

LTE_QPSK Band 7 Fundamentals, 20MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2510.00	14.35	V	5.3	10.3	19.27	33.0	-13.7	
2510.00	13.17	H	5.3	10.3	18.10	33.0	-14.9	
Mid Ch								
2535.00	13.56	V	5.4	10.2	18.40	33.0	-14.6	
2535.00	14.76	H	5.4	10.2	19.61	33.0	-13.4	
High Ch								
2560.00	14.33	V	5.4	10.2	19.10	33.0	-13.9	
2560.00	13.79	H	5.4	10.2	18.56	33.0	-14.4	

LTE
Band 7
20MHz
16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788534512

2018-07-12

47989

EUT / Y-Position

Chamber 1

LTE_16QAM Band 7 Fundamentals, 20MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2510.00	13.50	V	5.3	10.3	18.42	33.0	-14.6	
2510.00	12.06	H	5.3	10.3	16.99	33.0	-16.0	
Mid Ch								
2535.00	12.63	V	5.4	10.2	17.47	33.0	-15.5	
2535.00	12.01	H	5.4	10.2	16.86	33.0	-16.1	
High Ch								
2560.00	13.50	V	5.4	10.2	18.27	33.0	-14.7	
2560.00	11.90	H	5.4	10.2	16.67	33.0	-16.3	

LTE
Band 7
15MHz
QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788534512
Date: 2018-07-12
Test Engineer: 47989
Configuration: EUT / Y-Position
Location: Chamber 1
Mode: LTE_QPSK Band 7 Fundamentals, 15MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables
Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2507.50	14.60	V	5.3	10.3	19.54	33.0	-13.5	
2507.50	13.13	H	5.3	10.3	18.07	33.0	-14.9	
Mid Ch								
2535.00	14.08	V	5.4	10.2	18.92	33.0	-14.1	
2535.00	13.74	H	5.4	10.2	18.59	33.0	-14.4	
High Ch								
2562.50	14.84	V	5.4	10.1	19.60	33.0	-13.4	
2562.50	13.82	H	5.4	10.1	18.58	33.0	-14.4	

LTE
Band 7
15MHz
16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788534512
Date: 2018-07-12
Test Engineer: 47989
Configuration: EUT / Y-Position
Location: Chamber 1
Mode: LTE_16QAM Band 7 Fundamentals, 15MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables
Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2507.50	13.08	V	5.3	10.3	18.02	33.0	-15.0	
2507.50	11.84	H	5.3	10.3	16.78	33.0	-16.2	
Mid Ch								
2535.00	13.37	V	5.4	10.2	18.21	33.0	-14.8	
2535.00	12.03	H	5.4	10.2	16.88	33.0	-16.1	
High Ch								
2562.50	13.35	V	5.4	10.1	18.11	33.0	-14.9	
2562.50	12.17	H	5.4	10.1	16.93	33.0	-16.1	

LTE

Band 7

10MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788534512

Date: 2018-07-12

Test Engineer: 47989

Configuration: EUT / Y-Position

Location: Chamber 1

Mode: LTE_QPSK Band 7 Fundamentals, 10MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2505.00	15.20	V	5.3	10.3	20.15	33.0	-12.8	
2505.00	13.15	H	5.3	10.3	18.10	33.0	-14.9	
Mid Ch								
2535.00	15.78	V	5.4	10.2	20.62	33.0	-12.4	
2535.00	13.84	H	5.4	10.2	18.69	33.0	-14.3	
High Ch								
2565.00	15.42	V	5.4	10.1	20.17	33.0	-12.8	
2565.00	12.46	H	5.4	10.1	17.21	33.0	-15.8	

LTE

Band 7

10MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788534512

Date: 2018-07-12

Test Engineer: 47989

Configuration: EUT / Y-Position

Location: Chamber 1

Mode: LTE_16QAM Band 7 Fundamentals, 10MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2505.00	14.09	V	5.3	10.3	19.04	33.0	-14.0	
2505.00	11.68	H	5.3	10.3	16.63	33.0	-16.4	
Mid Ch								
2535.00	14.78	V	5.4	10.2	19.62	33.0	-13.4	
2535.00	12.76	H	5.4	10.2	17.61	33.0	-15.4	
High Ch								
2565.00	14.38	V	5.4	10.1	19.13	33.0	-13.9	
2565.00	11.63	H	5.4	10.1	16.38	33.0	-16.6	

LTE Band 7 5MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788534512 Date: 2018-07-12 Test Engineer: 47989 Configuration: EUT / Y-Position Location: Chamber 1 Mode: LTE_QPSK Band 7 Fundamentals, 5MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td colspan="9">Low Ch</td></tr><tr><td>2502.50</td><td>15.20</td><td>V</td><td>5.3</td><td>10.3</td><td>20.15</td><td>33.0</td><td>-12.8</td><td></td></tr><tr><td>2502.50</td><td>12.57</td><td>H</td><td>5.3</td><td>10.3</td><td>17.53</td><td>33.0</td><td>-15.5</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>2535.00</td><td>15.20</td><td>V</td><td>5.4</td><td>10.2</td><td>20.04</td><td>33.0</td><td>-13.0</td><td></td></tr><tr><td>2535.00</td><td>13.47</td><td>H</td><td>5.4</td><td>10.2</td><td>18.32</td><td>33.0</td><td>-14.7</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>2567.50</td><td>15.05</td><td>V</td><td>5.4</td><td>10.1</td><td>19.80</td><td>33.0</td><td>-13.2</td><td></td></tr><tr><td>2567.50</td><td>13.19</td><td>H</td><td>5.4</td><td>10.1</td><td>17.93</td><td>33.0</td><td>-15.1</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									2502.50	15.20	V	5.3	10.3	20.15	33.0	-12.8		2502.50	12.57	H	5.3	10.3	17.53	33.0	-15.5		Mid Ch									2535.00	15.20	V	5.4	10.2	20.04	33.0	-13.0		2535.00	13.47	H	5.4	10.2	18.32	33.0	-14.7		High Ch									2567.50	15.05	V	5.4	10.1	19.80	33.0	-13.2		2567.50	13.19	H	5.4	10.1	17.93	33.0	-15.1	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
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	2502.50	15.20	V	5.3	10.3	20.15	33.0	-12.8																																																																																											
	2502.50	12.57	H	5.3	10.3	17.53	33.0	-15.5																																																																																											
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	2535.00	15.20	V	5.4	10.2	20.04	33.0	-13.0																																																																																											
	2535.00	13.47	H	5.4	10.2	18.32	33.0	-14.7																																																																																											
	High Ch																																																																																																		
	2567.50	15.05	V	5.4	10.1	19.80	33.0	-13.2																																																																																											
2567.50	13.19	H	5.4	10.1	17.93	33.0	-15.1																																																																																												
LTE Band 7 5MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788534512 Date: 2018-07-12 Test Engineer: 47989 Configuration: EUT / Y-Position Location: Chamber 1 Mode: LTE_16QAM Band 7 Fundamentals, 5MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td colspan="9">Low Ch</td></tr><tr><td>2502.50</td><td>14.48</td><td>V</td><td>5.3</td><td>10.3</td><td>19.43</td><td>33.0</td><td>-13.6</td><td></td></tr><tr><td>2502.50</td><td>11.98</td><td>H</td><td>5.3</td><td>10.3</td><td>16.94</td><td>33.0</td><td>-16.1</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>2535.00</td><td>14.66</td><td>V</td><td>5.4</td><td>10.2</td><td>19.50</td><td>33.0</td><td>-13.5</td><td></td></tr><tr><td>2535.00</td><td>12.14</td><td>H</td><td>5.4</td><td>10.2</td><td>16.99</td><td>33.0</td><td>-16.0</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>2567.50</td><td>14.13</td><td>V</td><td>5.4</td><td>10.1</td><td>18.88</td><td>33.0</td><td>-14.1</td><td></td></tr><tr><td>2567.50</td><td>12.05</td><td>H</td><td>5.4</td><td>10.1</td><td>16.79</td><td>33.0</td><td>-16.2</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									2502.50	14.48	V	5.3	10.3	19.43	33.0	-13.6		2502.50	11.98	H	5.3	10.3	16.94	33.0	-16.1		Mid Ch									2535.00	14.66	V	5.4	10.2	19.50	33.0	-13.5		2535.00	12.14	H	5.4	10.2	16.99	33.0	-16.0		High Ch									2567.50	14.13	V	5.4	10.1	18.88	33.0	-14.1		2567.50	12.05	H	5.4	10.1	16.79	33.0	-16.2	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
	Low Ch																																																																																																		
	2502.50	14.48	V	5.3	10.3	19.43	33.0	-13.6																																																																																											
	2502.50	11.98	H	5.3	10.3	16.94	33.0	-16.1																																																																																											
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	2535.00	14.66	V	5.4	10.2	19.50	33.0	-13.5																																																																																											
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	2567.50	14.13	V	5.4	10.1	18.88	33.0	-14.1																																																																																											
2567.50	12.05	H	5.4	10.1	16.79	33.0	-16.2																																																																																												

LTE Band 12

LTE Band 12 10MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788534512 Date: 2018-07-11 Test Engineer: 47989 Configuration: EUT / X-position Location: Chamber 2 Mode: LTE_QPSK Band 12 Fundamentals, 10MHz Bandwidth Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td colspan="9">Low Ch</td></tr><tr><td>704.00</td><td>13.48</td><td>V</td><td>0.9</td><td>-1.6</td><td>11.01</td><td>34.8</td><td>-23.8</td><td></td></tr><tr><td>704.00</td><td>20.84</td><td>H</td><td>0.9</td><td>-1.6</td><td>18.38</td><td>34.8</td><td>-16.4</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>707.50</td><td>14.40</td><td>V</td><td>0.9</td><td>-1.6</td><td>11.93</td><td>34.8</td><td>-22.9</td><td></td></tr><tr><td>707.50</td><td>20.45</td><td>H</td><td>0.9</td><td>-1.6</td><td>17.98</td><td>34.8</td><td>-16.8</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>711.00</td><td>14.70</td><td>V</td><td>0.9</td><td>-1.6</td><td>12.23</td><td>34.8</td><td>-22.6</td><td></td></tr><tr><td>711.00</td><td>20.62</td><td>H</td><td>0.9</td><td>-1.6</td><td>18.15</td><td>34.8</td><td>-16.7</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									704.00	13.48	V	0.9	-1.6	11.01	34.8	-23.8		704.00	20.84	H	0.9	-1.6	18.38	34.8	-16.4		Mid Ch									707.50	14.40	V	0.9	-1.6	11.93	34.8	-22.9		707.50	20.45	H	0.9	-1.6	17.98	34.8	-16.8		High Ch									711.00	14.70	V	0.9	-1.6	12.23	34.8	-22.6		711.00	20.62	H	0.9	-1.6	18.15	34.8	-16.7	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
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	704.00	13.48	V	0.9	-1.6	11.01	34.8	-23.8																																																																																											
	704.00	20.84	H	0.9	-1.6	18.38	34.8	-16.4																																																																																											
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	707.50	14.40	V	0.9	-1.6	11.93	34.8	-22.9																																																																																											
	707.50	20.45	H	0.9	-1.6	17.98	34.8	-16.8																																																																																											
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	711.00	14.70	V	0.9	-1.6	12.23	34.8	-22.6																																																																																											
711.00	20.62	H	0.9	-1.6	18.15	34.8	-16.7																																																																																												
LTE Band 12 10MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788534512 Date: 2018-07-11 Test Engineer: 47989 Configuration: EUT / X-position Location: Chamber 2 Mode: LTE_16QAM Band 12 Fundamentals, 10MHz Bandwidth Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td colspan="9">Low Ch</td></tr><tr><td>704.00</td><td>12.83</td><td>V</td><td>0.9</td><td>-1.6</td><td>10.36</td><td>34.8</td><td>-24.4</td><td></td></tr><tr><td>704.00</td><td>19.33</td><td>H</td><td>0.9</td><td>-1.6</td><td>16.87</td><td>34.8</td><td>-17.9</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>707.50</td><td>13.60</td><td>V</td><td>0.9</td><td>-1.6</td><td>11.13</td><td>34.8</td><td>-23.7</td><td></td></tr><tr><td>707.50</td><td>19.08</td><td>H</td><td>0.9</td><td>-1.6</td><td>16.61</td><td>34.8</td><td>-18.2</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>711.00</td><td>13.41</td><td>V</td><td>0.9</td><td>-1.6</td><td>10.94</td><td>34.8</td><td>-23.9</td><td></td></tr><tr><td>711.00</td><td>19.66</td><td>H</td><td>0.9</td><td>-1.6</td><td>17.19</td><td>34.8</td><td>-17.6</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									704.00	12.83	V	0.9	-1.6	10.36	34.8	-24.4		704.00	19.33	H	0.9	-1.6	16.87	34.8	-17.9		Mid Ch									707.50	13.60	V	0.9	-1.6	11.13	34.8	-23.7		707.50	19.08	H	0.9	-1.6	16.61	34.8	-18.2		High Ch									711.00	13.41	V	0.9	-1.6	10.94	34.8	-23.9		711.00	19.66	H	0.9	-1.6	17.19	34.8	-17.6	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
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	704.00	19.33	H	0.9	-1.6	16.87	34.8	-17.9																																																																																											
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	707.50	13.60	V	0.9	-1.6	11.13	34.8	-23.7																																																																																											
	707.50	19.08	H	0.9	-1.6	16.61	34.8	-18.2																																																																																											
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	711.00	13.41	V	0.9	-1.6	10.94	34.8	-23.9																																																																																											
711.00	19.66	H	0.9	-1.6	17.19	34.8	-17.6																																																																																												

LTE

Band 12

5MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Samsung

Project #:

4788534512

Date:

2018-07-10

Test Engineer:

51072

Configuration:

EUT / X-position

Location:

Chamber 2

Mode:

LTE_QPSK Band 12 Fundamentals, 5MHz Bandwidth

Test Equipment:

Receiving: VULB9163-749, and Chamber 2 SMA Cables

Substitution: Dipole 3121_DB4, 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
701.50	15.94	V	0.9	-1.6	13.47	34.8	-21.3	
701.50	20.53	H	0.9	-1.6	18.06	34.8	-16.7	
Mid Ch								
707.50	15.62	V	0.9	-1.6	13.15	34.8	-21.7	
707.50	20.38	H	0.9	-1.6	17.91	34.8	-16.9	
High Ch								
713.50	15.43	V	0.9	-1.6	12.96	34.8	-21.8	
713.50	21.06	H	0.9	-1.6	18.58	34.8	-16.2	

LTE

Band 12

5MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Samsung

Project #:

4788534512

Date:

2018-07-10

Test Engineer:

51072

Configuration:

EUT / X-position

Location:

Chamber 2

Mode:

LTE_16QAM Band 12 Fundamentals, 5MHz Bandwidth

Test Equipment:

Receiving: VULB9163-749, and Chamber 2 SMA Cables

Substitution: Dipole 3121_DB4, 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
701.50	14.99	V	0.9	-1.6	12.52	34.8	-22.3	
701.50	19.39	H	0.9	-1.6	16.92	34.8	-17.9	
Mid Ch								
707.50	14.44	V	0.9	-1.6	11.97	34.8	-22.8	
707.50	19.08	H	0.9	-1.6	16.61	34.8	-18.2	
High Ch								
713.50	14.16	V	0.9	-1.6	11.69	34.8	-23.1	
713.50	19.57	H	0.9	-1.6	17.09	34.8	-17.7	

LTE Band 12 3MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788534512 Date: 2018-07-10 Test Engineer: 51072 Configuration: EUT / X-position Location: Chamber 2 Mode: LTE_QPSK Band 12 Fundamentals, 3MHz Bandwidth Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td colspan="9">Low Ch</td></tr><tr><td>700.50</td><td>15.69</td><td>V</td><td>0.9</td><td>-1.6</td><td>13.23</td><td>34.8</td><td>-21.6</td><td></td></tr><tr><td>700.50</td><td>20.20</td><td>H</td><td>0.9</td><td>-1.6</td><td>17.74</td><td>34.8</td><td>-17.1</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>707.50</td><td>15.95</td><td>V</td><td>0.9</td><td>-1.6</td><td>13.48</td><td>34.8</td><td>-21.3</td><td></td></tr><tr><td>707.50</td><td>20.60</td><td>H</td><td>0.9</td><td>-1.6</td><td>18.13</td><td>34.8</td><td>-16.7</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>714.50</td><td>15.21</td><td>V</td><td>0.9</td><td>-1.6</td><td>12.73</td><td>34.8</td><td>-22.1</td><td></td></tr><tr><td>714.50</td><td>20.81</td><td>H</td><td>0.9</td><td>-1.6</td><td>18.33</td><td>34.8</td><td>-16.5</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									700.50	15.69	V	0.9	-1.6	13.23	34.8	-21.6		700.50	20.20	H	0.9	-1.6	17.74	34.8	-17.1		Mid Ch									707.50	15.95	V	0.9	-1.6	13.48	34.8	-21.3		707.50	20.60	H	0.9	-1.6	18.13	34.8	-16.7		High Ch									714.50	15.21	V	0.9	-1.6	12.73	34.8	-22.1		714.50	20.81	H	0.9	-1.6	18.33	34.8	-16.5	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
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	714.50	15.21	V	0.9	-1.6	12.73	34.8	-22.1																																																																																											
714.50	20.81	H	0.9	-1.6	18.33	34.8	-16.5																																																																																												
LTE Band 12 3MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788534512 Date: 2018-07-10 Test Engineer: 51072 Configuration: EUT / X-position Location: Chamber 2 Mode: LTE_16QAM Band 12 Fundamentals, 3MHz Bandwidth Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td colspan="9">Low Ch</td></tr><tr><td>700.50</td><td>15.52</td><td>V</td><td>0.9</td><td>-1.6</td><td>13.06</td><td>34.8</td><td>-21.7</td><td></td></tr><tr><td>700.50</td><td>19.42</td><td>H</td><td>0.9</td><td>-1.6</td><td>16.96</td><td>34.8</td><td>-17.8</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>707.50</td><td>14.68</td><td>V</td><td>0.9</td><td>-1.6</td><td>12.21</td><td>34.8</td><td>-22.6</td><td></td></tr><tr><td>707.50</td><td>19.16</td><td>H</td><td>0.9</td><td>-1.6</td><td>16.69</td><td>34.8</td><td>-18.1</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>714.50</td><td>14.26</td><td>V</td><td>0.9</td><td>-1.6</td><td>11.78</td><td>34.8</td><td>-23.0</td><td></td></tr><tr><td>714.50</td><td>19.45</td><td>H</td><td>0.9</td><td>-1.6</td><td>16.97</td><td>34.8</td><td>-17.8</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									700.50	15.52	V	0.9	-1.6	13.06	34.8	-21.7		700.50	19.42	H	0.9	-1.6	16.96	34.8	-17.8		Mid Ch									707.50	14.68	V	0.9	-1.6	12.21	34.8	-22.6		707.50	19.16	H	0.9	-1.6	16.69	34.8	-18.1		High Ch									714.50	14.26	V	0.9	-1.6	11.78	34.8	-23.0		714.50	19.45	H	0.9	-1.6	16.97	34.8	-17.8	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
	Low Ch																																																																																																		
	700.50	15.52	V	0.9	-1.6	13.06	34.8	-21.7																																																																																											
	700.50	19.42	H	0.9	-1.6	16.96	34.8	-17.8																																																																																											
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	707.50	14.68	V	0.9	-1.6	12.21	34.8	-22.6																																																																																											
	707.50	19.16	H	0.9	-1.6	16.69	34.8	-18.1																																																																																											
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	714.50	14.26	V	0.9	-1.6	11.78	34.8	-23.0																																																																																											
714.50	19.45	H	0.9	-1.6	16.97	34.8	-17.8																																																																																												

LTE
Band 12
1.4MHz
QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788534512
Date: 2018-07-10
Test Engineer: 51072
Configuration: EUT / X-position
Location: Chamber 2
Mode: LTE_QPSK Band 12 Fundamentals, 1.4MHz Bandwidth

Test Equipment:

Receiving: VULB9163-749, and Chamber 2 SMA Cables
Substitution: Dipole 3121_DB4, 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
699.70	16.11	V	0.9	-1.6	13.65	34.8	-21.2	
699.70	20.64	H	0.9	-1.6	18.17	34.8	-16.6	
Mid Ch								
707.50	16.07	V	0.9	-1.6	13.60	34.8	-21.2	
707.50	21.00	H	0.9	-1.6	18.53	34.8	-16.3	
High Ch								
715.30	15.81	V	0.9	-1.6	13.33	34.8	-21.5	
715.30	21.08	H	0.9	-1.6	18.60	34.8	-16.2	

LTE
Band 12
1.4MHz
16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788534512
Date: 2018-07-10
Test Engineer: 51072
Configuration: EUT / X-position
Location: Chamber 2
Mode: LTE_16QAM Band 12 Fundamentals, 1.4MHz Bandwidth

Test Equipment:

Receiving: VULB9163-749, and Chamber 2 SMA Cables
Substitution: Dipole 3121_DB4, 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
699.70	15.18	V	0.9	-1.6	12.72	34.8	-22.1	
699.70	19.84	H	0.9	-1.6	17.37	34.8	-17.4	
Mid Ch								
707.50	15.07	V	0.9	-1.6	12.60	34.8	-22.2	
707.50	19.61	H	0.9	-1.6	17.14	34.8	-17.7	
High Ch								
715.30	14.55	V	0.9	-1.6	12.07	34.8	-22.7	
715.30	19.59	H	0.9	-1.6	17.11	34.8	-17.7	

LTE Band 30

LTE
Band 30

QPSK
10MHz

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788534512
Date: 2018-07-20
Test Engineer: 51072
Configuration: EUT / X-position
Location: Chamber 1
Mode: LTE_QPSK Band 30 Fundamentals, 10MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables
Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Mid Ch								
2310.00	13.52	V	5.1	10.0	18.45	24.0	-5.5	
2310.00	15.05	H	5.1	10.0	19.98	24.0	-4.0	

LTE
Band 30

16QAM
10MHz

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788534512
Date: 2018-07-20
Test Engineer: 51072
Configuration: EUT / X-position
Location: Chamber 1
Mode: LTE_16QAM Band 30 Fundamentals, 10MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables
Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Mid Ch								
2310.00	12.59	V	5.1	10.0	17.52	24.0	-6.5	
2310.00	14.06	H	5.1	10.0	18.99	24.0	-5.0	

LTE
Band 30

QPSK
5MHz

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788534512
Date: 2018-07-20
Test Engineer: 51072
Configuration: EUT / X-position
Location: Chamber 1
Mode: LTE_QPSK Band 30 Fundamentals, 5MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables
Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2307.50	13.01	V	5.1	10.0	17.93	24.0	-6.1	
2307.50	14.71	H	5.1	10.0	19.63	24.0	-4.4	
Mid Ch								
2310.00	13.04	V	5.1	10.0	17.97	24.0	-6.0	
2310.00	13.31	H	5.1	10.0	18.24	24.0	-5.8	
High Ch								
2312.50	13.02	V	5.1	10.0	17.96	24.0	-6.0	
2312.50	14.84	H	5.1	10.0	19.78	24.0	-4.2	

LTE
Band 30

16QAM
5MHz

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788534512
Date: 2018-07-20
Test Engineer: 51072
Configuration: EUT / X-position
Location: Chamber 1
Mode: LTE_16QAM Band 30 Fundamentals, 5MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables
Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2307.50	12.47	V	5.1	10.0	17.39	24.0	-6.6	
2307.50	14.04	H	5.1	10.0	18.96	24.0	-5.0	
Mid Ch								
2310.00	12.03	V	5.1	10.0	16.96	24.0	-7.0	
2310.00	13.62	H	5.1	10.0	18.55	24.0	-5.4	
High Ch								
2312.50	12.26	V	5.1	10.0	17.20	24.0	-6.8	
2312.50	13.90	H	5.1	10.0	18.84	24.0	-5.2	

LTE Band 66

LTE Band 66 20MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788665909 Date: 2018-10-11 Test Engineer: 47989 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_QPSK Band 66 Fundamentals, 20MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1720.00</td><td>16.09</td><td>V</td><td>4.3</td><td>9.5</td><td>21.26</td><td>30.0</td><td>-8.7</td></tr><tr><td>1720.00</td><td>19.93</td><td>H</td><td>4.3</td><td>9.5</td><td>25.10</td><td>30.0</td><td>-4.9</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1745.00</td><td>16.18</td><td>V</td><td>4.4</td><td>9.6</td><td>21.40</td><td>30.0</td><td>-8.6</td></tr><tr><td>1745.00</td><td>19.52</td><td>H</td><td>4.4</td><td>9.6</td><td>24.74</td><td>30.0</td><td>-5.3</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1770.00</td><td>15.78</td><td>V</td><td>4.4</td><td>9.6</td><td>21.02</td><td>30.0</td><td>-9.0</td></tr><tr><td>1770.00</td><td>19.64</td><td>H</td><td>4.4</td><td>9.6</td><td>24.87</td><td>30.0</td><td>-5.1</td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch								1720.00	16.09	V	4.3	9.5	21.26	30.0	-8.7	1720.00	19.93	H	4.3	9.5	25.10	30.0	-4.9	Mid Ch								1745.00	16.18	V	4.4	9.6	21.40	30.0	-8.6	1745.00	19.52	H	4.4	9.6	24.74	30.0	-5.3	High Ch								1770.00	15.78	V	4.4	9.6	21.02	30.0	-9.0	1770.00	19.64	H	4.4	9.6	24.87	30.0	-5.1
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																	
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	1745.00	19.52	H	4.4	9.6	24.74	30.0	-5.3																																																																																		
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1770.00	19.64	H	4.4	9.6	24.87	30.0	-5.1																																																																																			
LTE Band 66 20MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788665909 Date: 2018-10-11 Test Engineer: 47989 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_16QAM Band 66 Fundamentals, 20MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1720.00</td><td>13.68</td><td>V</td><td>4.3</td><td>9.5</td><td>18.85</td><td>30.0</td><td>-11.2</td></tr><tr><td>1720.00</td><td>19.95</td><td>H</td><td>4.3</td><td>9.5</td><td>25.12</td><td>30.0</td><td>-4.9</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1745.00</td><td>15.44</td><td>V</td><td>4.4</td><td>9.6</td><td>20.66</td><td>30.0</td><td>-9.3</td></tr><tr><td>1745.00</td><td>18.74</td><td>H</td><td>4.4</td><td>9.6</td><td>23.96</td><td>30.0</td><td>-6.0</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1770.00</td><td>17.16</td><td>V</td><td>4.4</td><td>9.6</td><td>22.40</td><td>30.0</td><td>-7.6</td></tr><tr><td>1770.00</td><td>19.85</td><td>H</td><td>4.4</td><td>9.6</td><td>25.08</td><td>30.0</td><td>-4.9</td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch								1720.00	13.68	V	4.3	9.5	18.85	30.0	-11.2	1720.00	19.95	H	4.3	9.5	25.12	30.0	-4.9	Mid Ch								1745.00	15.44	V	4.4	9.6	20.66	30.0	-9.3	1745.00	18.74	H	4.4	9.6	23.96	30.0	-6.0	High Ch								1770.00	17.16	V	4.4	9.6	22.40	30.0	-7.6	1770.00	19.85	H	4.4	9.6	25.08	30.0	-4.9
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																	
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	1720.00	19.95	H	4.3	9.5	25.12	30.0	-4.9																																																																																		
	Mid Ch																																																																																									
	1745.00	15.44	V	4.4	9.6	20.66	30.0	-9.3																																																																																		
	1745.00	18.74	H	4.4	9.6	23.96	30.0	-6.0																																																																																		
	High Ch																																																																																									
	1770.00	17.16	V	4.4	9.6	22.40	30.0	-7.6																																																																																		
1770.00	19.85	H	4.4	9.6	25.08	30.0	-4.9																																																																																			

LTE
Band 66
15MHz
QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788665909
Date: 2018-10-11
Test Engineer: 47989
Configuration: EUT / X-Position
Location: Chamber 1
Mode: LTE_QPSK Band 66 Fundamentals, 15MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables
Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1717.50	17.53	V	4.3	9.5	22.70	30.0	-7.3	
1717.50	20.46	H	4.3	9.5	25.63	30.0	-4.4	
Mid Ch								
1745.00	15.98	V	4.4	9.6	21.20	30.0	-8.8	
1745.00	20.91	H	4.4	9.6	26.13	30.0	-3.9	
High Ch								
1772.50	17.23	V	4.4	9.6	22.46	30.0	-7.5	
1772.50	20.90	H	4.4	9.6	26.14	30.0	-3.9	

LTE
Band 66
15MHz
16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788665909
Date: 2018-10-11
Test Engineer: 47989
Configuration: EUT / X-Position
Location: Chamber 1
Mode: LTE_16QAM Band 66 Fundamentals, 15MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables
Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1717.50	16.51	V	4.3	9.5	21.68	30.0	-8.3	
1717.50	19.07	H	4.3	9.5	24.24	30.0	-5.8	
Mid Ch								
1745.00	16.85	V	4.4	9.6	22.07	30.0	-7.9	
1745.00	19.61	H	4.4	9.6	24.83	30.0	-5.2	
High Ch								
1772.50	16.20	V	4.4	9.6	21.43	30.0	-8.6	
1772.50	19.67	H	4.4	9.6	24.91	30.0	-5.1	

LTE
Band 66
10MHz
QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788665909
Date: 2018-10-11
Test Engineer: 47989
Configuration: EUT / X-Position
Location: Chamber 1
Mode: LTE_QPSK Band 66 Fundamentals, 10MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables
Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1715.00	16.71	V	4.3	9.5	21.87	30.0	-8.1	
1715.00	19.84	H	4.3	9.5	24.99	30.0	-5.0	
Mid Ch								
1745.00	18.10	V	4.4	9.6	23.32	30.0	-6.7	
1745.00	20.88	H	4.4	9.6	26.10	30.0	-3.9	
High Ch								
1775.00	17.38	V	4.4	9.6	22.62	30.0	-7.4	
1775.00	20.89	H	4.4	9.6	26.13	30.0	-3.9	

LTE
Band 66
10MHz
16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788665909
Date: 2018-10-11
Test Engineer: 47989
Configuration: EUT / X-Position
Location: Chamber 1
Mode: LTE_16QAM Band 66 Fundamentals, 10MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables
Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1715.00	16.23	V	4.3	9.5	21.39	30.0	-8.6	
1715.00	18.99	H	4.3	9.5	24.14	30.0	-5.9	
Mid Ch								
1745.00	16.61	V	4.4	9.6	21.83	30.0	-8.2	
1745.00	19.67	H	4.4	9.6	24.89	30.0	-5.1	
High Ch								
1775.00	17.02	V	4.4	9.6	22.26	30.0	-7.7	
1775.00	18.91	H	4.4	9.6	24.15	30.0	-5.8	

LTE

Band 66

5MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788665909

Date: 2018-10-11

Test Engineer: 47989

Configuration: EUT / X-Position

Location: Chamber 1

Mode: LTE_QPSK Band 66 Fundamentals, 5MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.50	17.42	V	4.3	9.5	22.57	30.0	-7.4	
1712.50	20.38	H	4.3	9.5	25.53	30.0	-4.5	
Mid Ch								
1745.00	17.31	V	4.4	9.6	22.53	30.0	-7.5	
1745.00	20.22	H	4.4	9.6	25.44	30.0	-4.6	
High Ch								
1777.50	18.32	V	4.4	9.6	23.55	30.0	-6.4	
1777.50	19.98	H	4.4	9.6	25.22	30.0	-4.8	

LTE

Band 66

5MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788665909

Date: 2018-10-11

Test Engineer: 47989

Configuration: EUT / X-Position

Location: Chamber 1

Mode: LTE_16QAM Band 66 Fundamentals, 5MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables

Substitution: Horn 3115[00161451], 3m N-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.50	17.95	V	4.3	9.5	23.10	30.0	-6.9	
1712.50	19.61	H	4.3	9.5	24.76	30.0	-5.2	
Mid Ch								
1745.00	16.09	V	4.4	9.6	21.31	30.0	-8.7	
1745.00	18.64	H	4.4	9.6	23.86	30.0	-6.1	
High Ch								
1777.50	17.28	V	4.4	9.6	22.51	30.0	-7.5	
1777.50	19.01	H	4.4	9.6	24.25	30.0	-5.8	

LTE Band 66 3MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788665909 Date: 2018-10-11 Test Engineer: 47989 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_QPSK Band 66 Fundamentals, 3MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1711.50</td><td>17.48</td><td>V</td><td>4.3</td><td>9.5</td><td>22.64</td><td>30.0</td><td>-7.4</td></tr><tr><td>1711.50</td><td>18.95</td><td>H</td><td>4.3</td><td>9.5</td><td>24.10</td><td>30.0</td><td>-5.9</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1745.00</td><td>17.87</td><td>V</td><td>4.4</td><td>9.6</td><td>23.09</td><td>30.0</td><td>-6.9</td></tr><tr><td>1745.00</td><td>21.51</td><td>H</td><td>4.4</td><td>9.6</td><td>26.73</td><td>30.0</td><td>-3.3</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1778.50</td><td>18.66</td><td>V</td><td>4.4</td><td>9.6</td><td>23.89</td><td>30.0</td><td>-6.1</td></tr><tr><td>1778.50</td><td>19.83</td><td>H</td><td>4.4</td><td>9.6</td><td>25.07</td><td>30.0</td><td>-4.9</td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch								1711.50	17.48	V	4.3	9.5	22.64	30.0	-7.4	1711.50	18.95	H	4.3	9.5	24.10	30.0	-5.9	Mid Ch								1745.00	17.87	V	4.4	9.6	23.09	30.0	-6.9	1745.00	21.51	H	4.4	9.6	26.73	30.0	-3.3	High Ch								1778.50	18.66	V	4.4	9.6	23.89	30.0	-6.1	1778.50	19.83	H	4.4	9.6	25.07	30.0	-4.9
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																	
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	1711.50	17.48	V	4.3	9.5	22.64	30.0	-7.4																																																																																		
	1711.50	18.95	H	4.3	9.5	24.10	30.0	-5.9																																																																																		
	Mid Ch																																																																																									
	1745.00	17.87	V	4.4	9.6	23.09	30.0	-6.9																																																																																		
	1745.00	21.51	H	4.4	9.6	26.73	30.0	-3.3																																																																																		
	High Ch																																																																																									
	1778.50	18.66	V	4.4	9.6	23.89	30.0	-6.1																																																																																		
1778.50	19.83	H	4.4	9.6	25.07	30.0	-4.9																																																																																			
LTE Band 66 3MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788665909 Date: 2018-10-11 Test Engineer: 47989 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_16QAM Band 66 Fundamentals, 3MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1711.50</td><td>17.13</td><td>V</td><td>4.3</td><td>9.5</td><td>22.29</td><td>30.0</td><td>-7.7</td></tr><tr><td>1711.50</td><td>18.25</td><td>H</td><td>4.3</td><td>9.5</td><td>23.40</td><td>30.0</td><td>-6.6</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1745.00</td><td>17.57</td><td>V</td><td>4.4</td><td>9.6</td><td>22.79</td><td>30.0</td><td>-7.2</td></tr><tr><td>1745.00</td><td>19.19</td><td>H</td><td>4.4</td><td>9.6</td><td>24.41</td><td>30.0</td><td>-5.6</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1778.50</td><td>18.05</td><td>V</td><td>4.4</td><td>9.6</td><td>23.28</td><td>30.0</td><td>-6.7</td></tr><tr><td>1778.50</td><td>20.13</td><td>H</td><td>4.4</td><td>9.6</td><td>25.37</td><td>30.0</td><td>-4.6</td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch								1711.50	17.13	V	4.3	9.5	22.29	30.0	-7.7	1711.50	18.25	H	4.3	9.5	23.40	30.0	-6.6	Mid Ch								1745.00	17.57	V	4.4	9.6	22.79	30.0	-7.2	1745.00	19.19	H	4.4	9.6	24.41	30.0	-5.6	High Ch								1778.50	18.05	V	4.4	9.6	23.28	30.0	-6.7	1778.50	20.13	H	4.4	9.6	25.37	30.0	-4.6
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																	
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	1711.50	17.13	V	4.3	9.5	22.29	30.0	-7.7																																																																																		
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	Mid Ch																																																																																									
	1745.00	17.57	V	4.4	9.6	22.79	30.0	-7.2																																																																																		
	1745.00	19.19	H	4.4	9.6	24.41	30.0	-5.6																																																																																		
	High Ch																																																																																									
	1778.50	18.05	V	4.4	9.6	23.28	30.0	-6.7																																																																																		
1778.50	20.13	H	4.4	9.6	25.37	30.0	-4.6																																																																																			

LTE Band 66 1.4MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788665909 Date: 2018-10-11 Test Engineer: 47989 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_QPSK Band 66 Fundamentals, 1.4MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1710.70</td><td>15.96</td><td>V</td><td>4.3</td><td>9.5</td><td>21.11</td><td>30.0</td><td>-8.9</td></tr><tr><td>1710.70</td><td>20.06</td><td>H</td><td>4.3</td><td>9.5</td><td>25.21</td><td>30.0</td><td>-4.8</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1745.00</td><td>18.29</td><td>V</td><td>4.4</td><td>9.6</td><td>23.51</td><td>30.0</td><td>-6.5</td></tr><tr><td>1745.00</td><td>21.16</td><td>H</td><td>4.4</td><td>9.6</td><td>26.38</td><td>30.0</td><td>-3.6</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1779.30</td><td>18.46</td><td>V</td><td>4.4</td><td>9.6</td><td>23.70</td><td>30.0</td><td>-6.3</td></tr><tr><td>1779.30</td><td>20.43</td><td>H</td><td>4.4</td><td>9.6</td><td>25.67</td><td>30.0</td><td>-4.3</td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch								1710.70	15.96	V	4.3	9.5	21.11	30.0	-8.9	1710.70	20.06	H	4.3	9.5	25.21	30.0	-4.8	Mid Ch								1745.00	18.29	V	4.4	9.6	23.51	30.0	-6.5	1745.00	21.16	H	4.4	9.6	26.38	30.0	-3.6	High Ch								1779.30	18.46	V	4.4	9.6	23.70	30.0	-6.3	1779.30	20.43	H	4.4	9.6	25.67	30.0	-4.3
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																	
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	1710.70	20.06	H	4.3	9.5	25.21	30.0	-4.8																																																																																		
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	1745.00	18.29	V	4.4	9.6	23.51	30.0	-6.5																																																																																		
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	1779.30	18.46	V	4.4	9.6	23.70	30.0	-6.3																																																																																		
1779.30	20.43	H	4.4	9.6	25.67	30.0	-4.3																																																																																			
LTE Band 66 1.4MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788665909 Date: 2018-10-11 Test Engineer: 47989 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_16QAM Band 66 Fundamentals, 1.4MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1710.70</td><td>16.16</td><td>V</td><td>4.3</td><td>9.5</td><td>21.31</td><td>30.0</td><td>-8.7</td></tr><tr><td>1710.70</td><td>19.44</td><td>H</td><td>4.3</td><td>9.5</td><td>24.59</td><td>30.0</td><td>-5.4</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1745.00</td><td>17.79</td><td>V</td><td>4.4</td><td>9.6</td><td>23.01</td><td>30.0</td><td>-7.0</td></tr><tr><td>1745.00</td><td>20.26</td><td>H</td><td>4.4</td><td>9.6</td><td>25.48</td><td>30.0</td><td>-4.5</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1779.30</td><td>17.09</td><td>V</td><td>4.4</td><td>9.6</td><td>22.33</td><td>30.0</td><td>-7.7</td></tr><tr><td>1779.30</td><td>18.92</td><td>H</td><td>4.4</td><td>9.6</td><td>24.16</td><td>30.0</td><td>-5.8</td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch								1710.70	16.16	V	4.3	9.5	21.31	30.0	-8.7	1710.70	19.44	H	4.3	9.5	24.59	30.0	-5.4	Mid Ch								1745.00	17.79	V	4.4	9.6	23.01	30.0	-7.0	1745.00	20.26	H	4.4	9.6	25.48	30.0	-4.5	High Ch								1779.30	17.09	V	4.4	9.6	22.33	30.0	-7.7	1779.30	18.92	H	4.4	9.6	24.16	30.0	-5.8
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																	
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	1710.70	16.16	V	4.3	9.5	21.31	30.0	-8.7																																																																																		
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	1779.30	17.09	V	4.4	9.6	22.33	30.0	-7.7																																																																																		
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10.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

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

IC: RSS-132 (5.5), RSS-133 (6.5), RSS-130 (4.6), RSS-139 (6.6), RSS-195 (5.4) and RSS-199 (4.5)

LIMIT

Part 22.917(a) & Part 24.238(a) & Part 27.53(h) 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 27.53:

(a) (4) (iii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2360 and 2365 MHz, and not less than $70 + 10 \log (P)$ dB above 2365 MHz.

(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB.

(h) AWS emission limits the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB.

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

TEST PROCEDURE

ANSI / TIA / EIA 603 E Clause 2.2.12; ESU40 setting reference to 971168 D01 v03

For peak power measurement with a ESU40:

- a) Set the RBW = 100 KHz for emission below 1GHz and 1MHz for emissions above 1GHz
- b) Set VBW $\geq 3 \times$ RBW;
- c) Set span ≥ 1.5 times the OBW;
- d) Sweep time = auto couple;
- e) Detector = rms;
- f) Ensure that the number of measurement points $\geq$ span/RBW;
- g) Trace mode = average(CDMA, LTE);

NOTE : Radiated spurious emissions were investigated below 30MHz, 30MHz – 1GHz and above 1GHz. There were no emissions found on below 30MHz and 30MHz – 1GHz.

RESULTS

See the following pages.

WCDMA Band 5

WCDMA

Band 5

REL99

UL Verification Services, Inc.

Above 1GHz High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788481138

2018-06-19

45585

EUT / Adapter / Earphone, X-Position

Chamber 1

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, 826.4MHz									
1652.80	-21.1	V	3.0	43.6	1.0	-63.6	-13.0	-50.6	
2479.20	-15.9	V	3.0	43.4	1.0	-58.3	-13.0	-45.3	
3305.60	-21.3	V	3.0	43.6	1.0	-63.9	-13.0	-50.9	
1652.80	-19.7	H	3.0	43.6	1.0	-62.2	-13.0	-49.2	
2479.20	-2.9	H	3.0	43.4	1.0	-45.4	-13.0	-32.4	
3305.60	-20.8	H	3.0	43.6	1.0	-63.5	-13.0	-50.5	
Mid Ch, 836.6MHz									
1673.20	-21.1	V	3.0	43.6	1.0	-63.7	-13.0	-50.7	
2509.80	-8.3	V	3.0	43.4	1.0	-50.8	-13.0	-37.8	
3346.40	-21.6	V	3.0	43.6	1.0	-64.2	-13.0	-51.2	
1673.20	-18.2	H	3.0	43.6	1.0	-60.7	-13.0	-47.7	
2509.80	-1.0	H	3.0	43.4	1.0	-43.5	-13.0	-30.5	
3346.40	-20.9	H	3.0	43.6	1.0	-63.6	-13.0	-50.6	
High Ch, 846.6MHz									
1693.20	-22.7	V	3.0	43.6	1.0	-65.2	-13.0	-52.2	
2539.80	-5.7	V	3.0	43.4	1.0	-48.2	-13.0	-35.2	
3386.40	-21.9	V	3.0	43.7	1.0	-64.6	-13.0	-51.6	
1693.20	-19.6	H	3.0	43.6	1.0	-62.1	-13.0	-49.1	
2539.80	-1.6	H	3.0	43.4	1.0	-44.1	-13.0	-31.1	
3386.40	-21.2	H	3.0	43.7	1.0	-63.9	-13.0	-50.9	

WCDMA

Band 5

HSDPA

UL Verification Services, Inc.

Above 1GHz High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788481138

2018-06-19

45585

EUT / Adapter / Earphone, X-Position

Chamber 1

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, 826.4MHz									
1652.80	-21.0	V	3.0	43.6	1.0	-63.6	-13.0	-50.6	
2479.20	-17.9	V	3.0	43.4	1.0	-60.4	-13.0	-47.4	
3305.60	-21.3	V	3.0	43.6	1.0	-63.9	-13.0	-50.9	
1652.80	-19.6	H	3.0	43.6	1.0	-62.2	-13.0	-49.2	
2479.20	-10.1	H	3.0	43.4	1.0	-52.5	-13.0	-39.5	
3305.60	-20.9	H	3.0	43.6	1.0	-63.5	-13.0	-50.5	
Mid Ch, 836.6MHz									
1673.20	-21.7	V	3.0	43.6	1.0	-64.3	-13.0	-51.3	
2509.80	-8.6	V	3.0	43.4	1.0	-51.0	-13.0	-38.0	
3346.40	-21.5	V	3.0	43.6	1.0	-64.1	-13.0	-51.1	
1673.20	-18.4	H	3.0	43.6	1.0	-61.0	-13.0	-48.0	
2509.80	-0.4	H	3.0	43.4	1.0	-42.9	-13.0	-29.9	
3346.40	-20.9	H	3.0	43.6	1.0	-63.5	-13.0	-50.5	
High Ch, 846.6MHz									
1693.20	-22.8	V	3.0	43.6	1.0	-65.3	-13.0	-52.3	
2539.80	-7.7	V	3.0	43.4	1.0	-50.2	-13.0	-37.2	
3386.40	-21.9	V	3.0	43.7	1.0	-64.6	-13.0	-51.6	
1693.20	-19.4	H	3.0	43.6	1.0	-62.0	-13.0	-49.0	
2539.80	-2.3	H	3.0	43.4	1.0	-44.7	-13.0	-31.7	
3386.40	-21.3	H	3.0	43.7	1.0	-63.9	-13.0	-50.9	

WCDMA Band 4

WCDMA Band 4 REL99	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4788534512 Date: 2018-07-21 Test Engineer: 45585 Configuration: EUT / AC Adapter / Earphone, Z-Position Location: Chamber 1 Mode: Rel99 Band 4 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, 1712.4MHz									
	3424.80	-5.5	V	3.0	43.7	1.0	-48.2	-13.0	-35.2	
	5137.20	-19.5	V	3.0	43.8	1.0	-62.3	-13.0	-49.3	
	6849.60	-17.2	V	3.0	42.9	1.0	-59.1	-13.0	-46.1	
	3424.80	-5.1	H	3.0	43.7	1.0	-47.8	-13.0	-34.8	
	5137.20	-19.6	H	3.0	43.8	1.0	-62.4	-13.0	-49.4	
	6849.60	-16.8	H	3.0	42.9	1.0	-58.7	-13.0	-45.7	
	Mid Ch, 1732.6MHz									
	3465.20	-5.2	V	3.0	43.7	1.0	-47.9	-13.0	-34.9	
	5197.80	-18.8	V	3.0	43.8	1.0	-61.5	-13.0	-48.5	
	6930.40	-17.7	V	3.0	42.8	1.0	-59.5	-13.0	-46.5	
	3465.20	-4.4	H	3.0	43.7	1.0	-47.0	-13.0	-34.0	
	5197.80	-19.2	H	3.0	43.8	1.0	-62.0	-13.0	-49.0	
	6930.40	-17.1	H	3.0	42.8	1.0	-58.9	-13.0	-45.9	
	High Ch, 1752.6MHz									
	3505.20	-1.4	V	3.0	43.7	1.0	-44.1	-13.0	-31.1	
	5257.80	-17.7	V	3.0	43.8	1.0	-60.5	-13.0	-47.5	
	7010.40	-18.4	V	3.0	42.7	1.0	-60.1	-13.0	-47.1	
	3505.20	-2.6	H	3.0	43.7	1.0	-45.3	-13.0	-32.3	
	5257.80	-18.4	H	3.0	43.8	1.0	-61.2	-13.0	-48.2	
	7010.40	-17.8	H	3.0	42.7	1.0	-59.5	-13.0	-46.5	
WCDMA Band 4 HSDPA	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4788534512 Date: 2018-07-21 Test Engineer: 45585 Configuration: EUT / AC Adapter / Earphone, Z-Position Location: Chamber 1 Mode: HSDPA Band 4 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, 1712.4MHz									
	3424.80	-6.8	V	3.0	43.7	1.0	-49.5	-13.0	-36.5	
	5137.20	-19.5	V	3.0	43.8	1.0	-62.2	-13.0	-49.2	
	6849.60	-17.2	V	3.0	42.9	1.0	-59.1	-13.0	-46.1	
	3424.80	-6.3	H	3.0	43.7	1.0	-49.0	-13.0	-36.0	
	5137.20	-19.8	H	3.0	43.8	1.0	-62.5	-13.0	-49.5	
	6849.60	-16.8	H	3.0	42.9	1.0	-58.6	-13.0	-45.6	
	Mid Ch, 1732.6MHz									
	3465.20	-6.4	V	3.0	43.7	1.0	-49.1	-13.0	-36.1	
	5197.80	-21.4	V	3.0	43.8	1.0	-64.1	-13.0	-51.1	
	6930.40	-17.6	V	3.0	42.8	1.0	-59.4	-13.0	-46.4	
	3465.20	-5.7	H	3.0	43.7	1.0	-48.4	-13.0	-35.4	
	5197.80	-19.2	H	3.0	43.8	1.0	-62.0	-13.0	-49.0	
	6930.40	-17.1	H	3.0	42.8	1.0	-58.9	-13.0	-45.9	
	High Ch, 1752.6MHz									
	3505.20	-2.8	V	3.0	43.7	1.0	-45.5	-13.0	-32.5	
	5257.80	-17.8	V	3.0	43.8	1.0	-60.6	-13.0	-47.6	
	7010.40	-18.5	V	3.0	42.7	1.0	-60.2	-13.0	-47.2	
	3505.20	-3.9	H	3.0	43.7	1.0	-46.6	-13.0	-33.6	
	5257.80	-18.3	H	3.0	43.8	1.0	-61.1	-13.0	-48.1	
	7010.40	-17.7	H	3.0	42.7	1.0	-59.4	-13.0	-46.4	

WCDMA Band 2

WCDMA Band 2 REL99	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4788481138 Date: 2018-06-18 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 1 Mode: Rel99 Band 2 Harmonics									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
WCDMA Band 2 HSDPA	Low Ch, 1852.4MHz									
	3704.80	-13.6	V	3.0	43.8	1.0	-56.4	-13.0	-43.4	
	5557.20	-17.8	V	3.0	43.7	1.0	-60.5	-13.0	-47.5	
	7409.60	-18.0	V	3.0	42.5	1.0	-59.5	-13.0	-46.5	
	3704.80	-12.4	H	3.0	43.8	1.0	-55.1	-13.0	-42.1	
	5557.20	-18.4	H	3.0	43.7	1.0	-61.1	-13.0	-48.1	
	7409.60	-16.7	H	3.0	42.5	1.0	-58.2	-13.0	-45.2	
	Mid Ch, 1880MHz									
	3760.00	-15.6	V	3.0	43.8	1.0	-58.4	-13.0	-45.4	
	5640.00	-17.4	V	3.0	43.7	1.0	-60.1	-13.0	-47.1	
	7520.00	-17.2	V	3.0	42.5	1.0	-58.7	-13.0	-45.7	
	3760.00	-6.8	H	3.0	43.8	1.0	-49.5	-13.0	-36.5	
	5640.00	-18.0	H	3.0	43.7	1.0	-60.7	-13.0	-47.7	
	7520.00	-17.1	H	3.0	42.5	1.0	-58.5	-13.0	-45.5	
	High Ch, 1907.6MHz									
	3815.20	-10.0	V	3.0	43.8	1.0	-52.8	-13.0	-39.8	
	5722.80	-17.0	V	3.0	43.7	1.0	-59.7	-13.0	-46.7	
	7630.40	-17.6	V	3.0	42.4	1.0	-59.0	-13.0	-46.0	
	3815.20	-3.1	H	3.0	43.8	1.0	-45.9	-13.0	-32.9	
	5722.80	-17.7	H	3.0	43.7	1.0	-60.4	-13.0	-47.4	
	7630.40	-17.4	H	3.0	42.4	1.0	-58.8	-13.0	-45.8	
WCDMA Band 2 HSDPA	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung Project #: 4788481138 Date: 2018-06-18 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 1 Mode: HSDPA Band 2 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, 1852.4MHz									
	3704.80	-14.4	V	3.0	43.8	1.0	-57.2	-13.0	-44.2	
	5557.20	-18.4	V	3.0	43.7	1.0	-61.1	-13.0	-48.1	
	7409.60	-18.5	V	3.0	42.5	1.0	-60.0	-13.0	-47.0	
	3704.80	-11.7	H	3.0	43.8	1.0	-54.5	-13.0	-41.5	
	5557.20	-18.4	H	3.0	43.7	1.0	-61.1	-13.0	-48.1	
	7409.60	-17.8	H	3.0	42.5	1.0	-59.3	-13.0	-46.3	
	Mid Ch, 1880MHz									
	3760.00	-15.0	V	3.0	43.8	1.0	-57.8	-13.0	-44.8	
	5640.00	-17.9	V	3.0	43.7	1.0	-60.6	-13.0	-47.6	
	7520.00	-17.7	V	3.0	42.5	1.0	-59.1	-13.0	-46.1	
	3760.00	-9.4	H	3.0	43.8	1.0	-52.2	-13.0	-39.2	
	5640.00	-17.6	H	3.0	43.7	1.0	-60.3	-13.0	-47.3	
	7520.00	-17.2	H	3.0	42.5	1.0	-58.7	-13.0	-45.7	
	High Ch, 1907.6MHz									
	3815.20	-11.5	V	3.0	43.8	1.0	-54.3	-13.0	-41.3	
	5722.80	-16.6	V	3.0	43.7	1.0	-59.3	-13.0	-46.3	
	7630.40	-17.8	V	3.0	42.4	1.0	-59.2	-13.0	-46.2	
	3815.20	-4.1	H	3.0	43.8	1.0	-46.9	-13.0	-33.9	
	5722.80	-17.8	H	3.0	43.7	1.0	-60.5	-13.0	-47.5	
	7630.40	-17.7	H	3.0	42.4	1.0	-59.1	-13.0	-46.1	

LTE Band 2

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-15							
Test Engineer:		47989							
Configuration:		EUT / Adapter / Earphone, X-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 2 Harmonics, 20MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1860MHz									
3720.00	-14.1	V	3.0	43.8	1.0	-56.9	-13.0	-43.9	
5580.00	-12.3	V	3.0	43.7	1.0	-55.0	-13.0	-42.0	
7440.00	-8.2	V	3.0	42.5	1.0	-49.7	-13.0	-36.7	
9300.00	-15.2	V	3.0	41.2	1.0	-55.4	-13.0	-42.4	
11160.00	-12.3	V	3.0	40.9	1.0	-52.2	-13.0	-39.2	
3720.00	-6.3	H	3.0	43.8	1.0	-49.1	-13.0	-36.1	
5580.00	-15.6	H	3.0	43.7	1.0	-58.4	-13.0	-45.4	
7440.00	-15.0	H	3.0	42.5	1.0	-56.5	-13.0	-43.5	
9300.00	-16.7	H	3.0	41.2	1.0	-56.9	-13.0	-43.9	
11160.00	-10.8	H	3.0	40.9	1.0	-50.7	-13.0	-37.7	
Mid Ch, 1880MHz									
3760.00	-10.8	V	3.0	43.8	1.0	-53.6	-13.0	-40.6	
5640.00	-14.7	V	3.0	43.7	1.0	-57.4	-13.0	-44.4	
7520.00	-11.7	V	3.0	42.5	1.0	-53.2	-13.0	-40.2	
9400.00	-15.6	V	3.0	41.1	1.0	-55.7	-13.0	-42.7	
11280.00	-10.3	V	3.0	41.0	1.0	-50.3	-13.0	-37.3	
3760.00	-1.0	H	3.0	43.8	1.0	-43.8	-13.0	-30.8	
5640.00	-17.4	H	3.0	43.7	1.0	-60.1	-13.0	-47.1	
7520.00	-15.8	H	3.0	42.5	1.0	-57.2	-13.0	-44.2	
9400.00	-13.9	H	3.0	41.1	1.0	-54.0	-13.0	-41.0	
11280.00	-15.7	H	3.0	41.0	1.0	-55.7	-13.0	-42.7	
High Ch, 1900MHz									
3800.00	-11.4	V	3.0	43.8	1.0	-54.2	-13.0	-41.2	
5700.00	-14.1	V	3.0	43.7	1.0	-56.8	-13.0	-43.8	
7600.00	-12.0	V	3.0	42.4	1.0	-53.4	-13.0	-40.4	
9500.00	-15.8	V	3.0	41.0	1.0	-55.8	-13.0	-42.8	
11400.00	-10.6	V	3.0	41.0	1.0	-50.6	-13.0	-37.6	
3800.00	-2.0	H	3.0	43.8	1.0	-44.8	-13.0	-31.8	
5700.00	-16.6	H	3.0	43.7	1.0	-59.3	-13.0	-46.3	
7600.00	-15.8	H	3.0	42.4	1.0	-57.2	-13.0	-44.2	
9500.00	-14.3	H	3.0	41.0	1.0	-54.4	-13.0	-41.4	
11400.00	-15.1	H	3.0	41.0	1.0	-55.1	-13.0	-42.1	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-15							
Test Engineer:		47989							
Configuration:		EUT / Adapter / Earphone, X-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 2 Harmonics, 20MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1860MHz									
3720.00	-14.1	V	3.0	43.8	1.0	-56.9	-13.0	-43.9	
5580.00	-12.3	V	3.0	43.7	1.0	-55.0	-13.0	-42.0	
7440.00	-8.2	V	3.0	42.5	1.0	-49.7	-13.0	-36.7	
9300.00	-15.2	V	3.0	41.2	1.0	-55.4	-13.0	-42.4	
11160.00	-12.3	V	3.0	40.9	1.0	-52.2	-13.0	-39.2	
3720.00	-6.3	H	3.0	43.8	1.0	-49.1	-13.0	-36.1	
5580.00	-15.6	H	3.0	43.7	1.0	-58.4	-13.0	-45.4	
7440.00	-15.0	H	3.0	42.5	1.0	-56.5	-13.0	-43.5	
9300.00	-16.7	H	3.0	41.2	1.0	-56.9	-13.0	-43.9	
11160.00	-10.8	H	3.0	40.9	1.0	-50.7	-13.0	-37.7	
Mid Ch, 1880MHz									
3760.00	-10.8	V	3.0	43.8	1.0	-53.6	-13.0	-40.6	
5640.00	-14.7	V	3.0	43.7	1.0	-57.4	-13.0	-44.4	
7520.00	-11.7	V	3.0	42.5	1.0	-53.2	-13.0	-40.2	
9400.00	-15.6	V	3.0	41.1	1.0	-55.7	-13.0	-42.7	
11280.00	-10.3	V	3.0	41.0	1.0	-50.3	-13.0	-37.3	
3760.00	-1.0	H	3.0	43.8	1.0	-43.8	-13.0	-30.8	
5640.00	-17.4	H	3.0	43.7	1.0	-60.1	-13.0	-47.1	
7520.00	-15.8	H	3.0	42.5	1.0	-57.2	-13.0	-44.2	
9400.00	-13.9	H	3.0	41.1	1.0	-54.0	-13.0	-41.0	
11280.00	-15.7	H	3.0	41.0	1.0	-55.7	-13.0	-42.7	
High Ch, 1900MHz									
3800.00	-11.4	V	3.0	43.8	1.0	-54.2	-13.0	-41.2	
5700.00	-14.1	V	3.0	43.7	1.0	-56.8	-13.0	-43.8	
7600.00	-12.0	V	3.0	42.4	1.0	-53.4	-13.0	-40.4	
9500.00	-15.8	V	3.0	41.0	1.0	-55.8	-13.0	-42.8	
11400.00	-10.6	V	3.0	41.0	1.0	-50.6	-13.0	-37.6	
3800.00	-2.0	H	3.0	43.8	1.0	-44.8	-13.0	-31.8	
5700.00	-16.6	H	3.0	43.7	1.0	-59.3	-13.0	-46.3	
7600.00	-15.8	H	3.0	42.4	1.0	-57.2	-13.0	-44.2	
9500.00	-14.3	H	3.0	41.0	1.0	-54.4	-13.0	-41.4	
11400.00	-15.1	H	3.0	41.0	1.0	-55.1	-13.0	-42.1	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-15							
Test Engineer:		45585							
Configuration:		EUT / Adapter / Earphone, X-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 2 Harmonics, 15MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1857.5MHz									
3715.00	-16.4	V	3.0	43.8	1.0	-59.2	-13.0	-46.2	
5572.50	-12.5	V	3.0	43.7	1.0	-55.2	-13.0	-42.2	
7430.00	-9.4	V	3.0	42.5	1.0	-50.9	-13.0	-37.9	
9287.50	-15.7	V	3.0	41.2	1.0	-55.9	-13.0	-42.9	
11145.00	-8.6	V	3.0	40.9	1.0	-48.5	-13.0	-35.5	
3715.00	-9.4	H	3.0	43.8	1.0	-52.2	-13.0	-39.2	
5572.50	-15.6	H	3.0	43.7	1.0	-58.3	-13.0	-45.3	
7430.00	-14.0	H	3.0	42.5	1.0	-55.5	-13.0	-42.5	
9287.50	-18.8	H	3.0	41.2	1.0	-59.0	-13.0	-46.0	
11145.00	-17.0	H	3.0	40.9	1.0	-56.9	-13.0	-43.9	
Mid Ch, 1880MHz									
3760.00	-11.0	V	3.0	43.8	1.0	-53.7	-13.0	-40.7	
5640.00	-15.0	V	3.0	43.7	1.0	-57.7	-13.0	-44.7	
7520.00	-11.2	V	3.0	42.5	1.0	-52.7	-13.0	-39.7	
9400.00	-16.0	V	3.0	41.1	1.0	-56.2	-13.0	-43.2	
11280.00	-10.6	V	3.0	41.0	1.0	-50.5	-13.0	-37.5	
3760.00	-2.0	H	3.0	43.8	1.0	-44.8	-13.0	-31.8	
5640.00	-17.5	H	3.0	43.7	1.0	-60.2	-13.0	-47.2	
7520.00	-14.0	H	3.0	42.5	1.0	-55.5	-13.0	-42.5	
9400.00	-17.9	H	3.0	41.1	1.0	-58.0	-13.0	-45.0	
11280.00	-16.0	H	3.0	41.0	1.0	-56.0	-13.0	-43.0	
High Ch, 1902.5MHz									
3805.00	-11.0	V	3.0	43.8	1.0	-53.8	-13.0	-40.8	
5707.50	-13.9	V	3.0	43.7	1.0	-56.6	-13.0	-43.6	
7610.00	-12.4	V	3.0	42.4	1.0	-53.8	-13.0	-40.8	
9512.50	-15.4	V	3.0	41.0	1.0	-55.4	-13.0	-42.4	
11415.00	-12.2	V	3.0	41.0	1.0	-52.2	-13.0	-39.2	
3805.00	-1.0	H	3.0	43.8	1.0	-43.8	-13.0	-30.8	
5707.50	-16.6	H	3.0	43.7	1.0	-59.2	-13.0	-46.2	
7610.00	-14.5	H	3.0	42.4	1.0	-55.9	-13.0	-42.9	
9512.50	-17.9	H	3.0	41.0	1.0	-57.9	-13.0	-44.9	
11415.00	-16.4	H	3.0	41.0	1.0	-56.4	-13.0	-43.4	

LTE
Band 2
15MHz
QPSK

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-15							
Test Engineer:		45585							
Configuration:		EUT / Adapter / Earphone, X-Position							
Location:		Chamber 1							
Mode:		LTE_16QAM Band 2 Harmonics, 15MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1857.5MHz									
3715.00	-16.9	V	3.0	43.8	1.0	-59.7	-13.0	-46.7	
5572.50	-13.6	V	3.0	43.7	1.0	-56.3	-13.0	-43.3	
7430.00	-10.1	V	3.0	42.5	1.0	-51.6	-13.0	-38.6	
9287.50	-16.1	V	3.0	41.2	1.0	-56.3	-13.0	-43.3	
11145.00	-9.7	V	3.0	40.9	1.0	-49.6	-13.0	-36.6	
3715.00	-10.1	H	3.0	43.8	1.0	-52.8	-13.0	-39.8	
5572.50	-16.2	H	3.0	43.7	1.0	-58.9	-13.0	-45.9	
7430.00	-14.5	H	3.0	42.5	1.0	-56.0	-13.0	-43.0	
9287.50	-18.8	H	3.0	41.2	1.0	-59.0	-13.0	-46.0	
11145.00	-17.0	H	3.0	40.9	1.0	-56.9	-13.0	-43.9	
Mid Ch, 1880MHz									
3760.00	-11.8	V	3.0	43.8	1.0	-54.5	-13.0	-41.5	
5640.00	-15.7	V	3.0	43.7	1.0	-58.4	-13.0	-45.4	
7520.00	-12.1	V	3.0	42.5	1.0	-53.6	-13.0	-40.6	
9400.00	-16.4	V	3.0	41.1	1.0	-56.5	-13.0	-43.5	
11280.00	-11.4	V	3.0	41.0	1.0	-51.3	-13.0	-38.3	
3760.00	-3.0	H	3.0	43.8	1.0	-45.8	-13.0	-32.8	
5640.00	-17.7	H	3.0	43.7	1.0	-60.4	-13.0	-47.4	
7520.00	-14.6	H	3.0	42.5	1.0	-56.1	-13.0	-43.1	
9400.00	-17.9	H	3.0	41.1	1.0	-58.0	-13.0	-45.0	
11280.00	-16.0	H	3.0	41.0	1.0	-56.0	-13.0	-43.0	
High Ch, 1902.5MHz									
3805.00	-10.0	V	3.0	43.8	1.0	-52.8	-13.0	-39.8	
5707.50	-12.5	V	3.0	43.7	1.0	-55.2	-13.0	-42.2	
7610.00	-13.5	V	3.0	42.4	1.0	-54.9	-13.0	-41.9	
9512.50	-15.1	V	3.0	41.0	1.0	-55.1	-13.0	-42.1	
11415.00	-10.4	V	3.0	41.0	1.0	-50.4	-13.0	-37.4	
3805.00	0.0	H	3.0	43.8	1.0	-42.8	-13.0	-29.8	
5707.50	-16.1	H	3.0	43.7	1.0	-58.8	-13.0	-45.8	
7610.00	-12.5	H	3.0	42.4	1.0	-53.9	-13.0	-40.9	
9512.50	-17.6	H	3.0	41.0	1.0	-57.6	-13.0	-44.6	
11415.00	-15.6	H	3.0	41.0	1.0	-55.6	-13.0	-42.6	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-15							
Test Engineer:		45585							
Configuration:		EUT / Adapter / Earphone, X-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 2 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
Low Ch, 1855MHz									
3710.00	-12.9	V	3.0	43.8	1.0	-55.7	-13.0	-42.7	
5565.00	-13.1	V	3.0	43.7	1.0	-55.8	-13.0	-42.8	
7420.00	-8.5	V	3.0	42.5	1.0	-50.0	-13.0	-37.0	
9275.00	-16.5	V	3.0	41.2	1.0	-56.7	-13.0	-43.7	
11130.00	-9.4	V	3.0	40.9	1.0	-49.3	-13.0	-36.3	
3710.00	-8.1	H	3.0	43.8	1.0	-50.9	-13.0	-37.9	
5565.00	-15.9	H	3.0	43.7	1.0	-58.6	-13.0	-45.6	
7420.00	-13.2	H	3.0	42.5	1.0	-54.7	-13.0	-41.7	
9275.00	-18.5	H	3.0	41.2	1.0	-58.8	-13.0	-45.8	
11130.00	-17.2	H	3.0	40.9	1.0	-57.1	-13.0	-44.1	
Mid Ch, 1880MHz									
3760.00	-12.4	V	3.0	43.8	1.0	-55.2	-13.0	-42.2	
5640.00	-14.3	V	3.0	43.7	1.0	-57.0	-13.0	-44.0	
7520.00	-10.0	V	3.0	42.5	1.0	-51.5	-13.0	-38.5	
9400.00	-16.5	V	3.0	41.1	1.0	-56.6	-13.0	-43.6	
11280.00	-10.5	V	3.0	41.0	1.0	-50.5	-13.0	-37.5	
3760.00	-4.1	H	3.0	43.8	1.0	-46.9	-13.0	-33.9	
5640.00	-17.9	H	3.0	43.7	1.0	-60.6	-13.0	-47.6	
7520.00	-14.1	H	3.0	42.5	1.0	-55.6	-13.0	-42.6	
9400.00	-18.1	H	3.0	41.1	1.0	-58.2	-13.0	-45.2	
11280.00	-16.0	H	3.0	41.0	1.0	-55.9	-13.0	-42.9	
High Ch, 1905MHz									
3810.00	-9.9	V	3.0	43.8	1.0	-52.7	-13.0	-39.7	
5715.00	-13.7	V	3.0	43.7	1.0	-56.4	-13.0	-43.4	
7620.00	-12.4	V	3.0	42.4	1.0	-53.8	-13.0	-40.8	
9525.00	-15.6	V	3.0	41.0	1.0	-55.6	-13.0	-42.6	
11430.00	-11.5	V	3.0	41.0	1.0	-51.5	-13.0	-38.5	
3810.00	0.0	H	3.0	43.8	1.0	-42.8	-13.0	-29.8	
5715.00	-16.1	H	3.0	43.7	1.0	-58.7	-13.0	-45.7	
7620.00	-14.8	H	3.0	42.4	1.0	-56.2	-13.0	-43.2	
9525.00	-17.5	H	3.0	41.0	1.0	-57.5	-13.0	-44.5	
11430.00	-15.6	H	3.0	41.0	1.0	-55.6	-13.0	-42.6	

LTE
Band 2
10MHz
QPSK

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-15							
Test Engineer:		45585							
Configuration:		EUT / Adapter / Earphone, X-Position							
Location:		Chamber 1							
Mode:		LTE_16QAM Band 2 Harmonics, 10MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1855MHz									
3710.00	-13.6	V	3.0	43.8	1.0	-56.4	-13.0	-43.4	
5565.00	-14.2	V	3.0	43.7	1.0	-56.9	-13.0	-43.9	
7420.00	-9.6	V	3.0	42.5	1.0	-51.1	-13.0	-38.1	
9275.00	-16.9	V	3.0	41.2	1.0	-57.2	-13.0	-44.2	
11130.00	-10.1	V	3.0	40.9	1.0	-50.0	-13.0	-37.0	
3710.00	-9.0	H	3.0	43.8	1.0	-51.8	-13.0	-38.8	
5565.00	-16.4	H	3.0	43.7	1.0	-59.1	-13.0	-46.1	
7420.00	-13.9	H	3.0	42.5	1.0	-55.4	-13.0	-42.4	
9275.00	-18.5	H	3.0	41.2	1.0	-58.8	-13.0	-45.8	
11130.00	-17.2	H	3.0	40.9	1.0	-57.1	-13.0	-44.1	
Mid Ch, 1880MHz									
3760.00	-13.3	V	3.0	43.8	1.0	-56.1	-13.0	-43.1	
5640.00	-15.3	V	3.0	43.7	1.0	-58.0	-13.0	-45.0	
7520.00	-10.8	V	3.0	42.5	1.0	-52.3	-13.0	-39.3	
9400.00	-16.9	V	3.0	41.1	1.0	-57.0	-13.0	-44.0	
11280.00	-11.7	V	3.0	41.0	1.0	-51.7	-13.0	-38.7	
3760.00	-5.0	H	3.0	43.8	1.0	-47.8	-13.0	-34.8	
5640.00	-18.1	H	3.0	43.7	1.0	-60.8	-13.0	-47.8	
7520.00	-14.8	H	3.0	42.5	1.0	-56.3	-13.0	-43.3	
9400.00	-18.0	H	3.0	41.1	1.0	-58.1	-13.0	-45.1	
11280.00	-16.1	H	3.0	41.0	1.0	-56.1	-13.0	-43.1	
High Ch, 1905MHz									
3810.00	-9.3	V	3.0	43.8	1.0	-52.1	-13.0	-39.1	
5715.00	-13.6	V	3.0	43.7	1.0	-56.3	-13.0	-43.3	
7620.00	-12.3	V	3.0	42.4	1.0	-53.7	-13.0	-40.7	
9525.00	-15.0	V	3.0	41.0	1.0	-55.0	-13.0	-42.0	
11430.00	-9.2	V	3.0	41.0	1.0	-49.2	-13.0	-36.2	
3810.00	0.0	H	3.0	43.8	1.0	-42.9	-13.0	-29.9	
5715.00	-16.4	H	3.0	43.7	1.0	-59.1	-13.0	-46.1	
7620.00	-14.9	H	3.0	42.4	1.0	-56.3	-13.0	-43.3	
9525.00	-17.7	H	3.0	41.0	1.0	-57.7	-13.0	-44.7	
11430.00	-15.6	H	3.0	41.0	1.0	-55.7	-13.0	-42.7	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-15							
Test Engineer:		45585							
Configuration:		EUT / Adapter / Earphone, X-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 2 Harmonics, 5MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.5MHz									
3705.00	-13.0	V	3.0	43.8	1.0	-55.8	-13.0	-42.8	
5557.50	-14.3	V	3.0	43.7	1.0	-57.0	-13.0	-44.0	
7410.00	-10.1	V	3.0	42.5	1.0	-51.6	-13.0	-38.6	
9262.50	-16.0	V	3.0	41.3	1.0	-56.2	-13.0	-43.2	
11115.00	-7.9	V	3.0	40.9	1.0	-47.8	-13.0	-34.8	
3705.00	-9.0	H	3.0	43.8	1.0	-51.7	-13.0	-38.7	
5557.50	-16.8	H	3.0	43.7	1.0	-59.5	-13.0	-46.5	
7410.00	-15.5	H	3.0	42.5	1.0	-57.0	-13.0	-44.0	
9262.50	-18.9	H	3.0	41.3	1.0	-59.1	-13.0	-46.1	
11115.00	-15.4	H	3.0	40.9	1.0	-55.3	-13.0	-42.3	
Mid Ch, 1880MHz									
3760.00	-12.3	V	3.0	43.8	1.0	-55.1	-13.0	-42.1	
5640.00	-14.8	V	3.0	43.7	1.0	-57.5	-13.0	-44.5	
7520.00	-11.6	V	3.0	42.5	1.0	-53.0	-13.0	-40.0	
9400.00	-16.9	V	3.0	41.1	1.0	-57.1	-13.0	-44.1	
11280.00	-9.8	V	3.0	41.0	1.0	-49.8	-13.0	-36.8	
3760.00	-4.5	H	3.0	43.8	1.0	-47.3	-13.0	-34.3	
5640.00	-17.7	H	3.0	43.7	1.0	-60.4	-13.0	-47.4	
7520.00	-14.6	H	3.0	42.5	1.0	-56.0	-13.0	-43.0	
9400.00	-18.0	H	3.0	41.1	1.0	-58.1	-13.0	-45.1	
11280.00	-16.2	H	3.0	41.0	1.0	-56.2	-13.0	-43.2	
High Ch, 1907.5MHz									
3815.00	-9.5	V	3.0	43.8	1.0	-52.3	-13.0	-39.3	
5722.50	-13.1	V	3.0	43.7	1.0	-55.8	-13.0	-42.8	
7630.00	-11.7	V	3.0	42.4	1.0	-53.1	-13.0	-40.1	
9537.50	-14.6	V	3.0	41.0	1.0	-54.6	-13.0	-41.6	
11445.00	-8.2	V	3.0	41.0	1.0	-48.2	-13.0	-35.2	
3815.00	0.8	H	3.0	43.8	1.0	-42.0	-13.0	-29.0	
5722.50	-16.5	H	3.0	43.7	1.0	-59.2	-13.0	-46.2	
7630.00	-14.7	H	3.0	42.4	1.0	-56.1	-13.0	-43.1	
9537.50	-17.8	H	3.0	41.0	1.0	-57.8	-13.0	-44.8	
11445.00	-15.8	H	3.0	41.0	1.0	-55.8	-13.0	-42.8	

LTE
Band 2
5MHz
QPSK

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-15							
Test Engineer:		45585							
Configuration:		EUT / Adapter / Earphone, X-Position							
Location:		Chamber 1							
Mode:		LTE_16QAM Band 2 Harmonics, 5MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.5MHz									
3705.00	-13.7	V	3.0	43.8	1.0	-56.5	-13.0	-43.5	
5557.50	-14.9	V	3.0	43.7	1.0	-57.6	-13.0	-44.6	
7410.00	-10.8	V	3.0	42.5	1.0	-52.3	-13.0	-39.3	
9262.50	-16.3	V	3.0	41.3	1.0	-56.5	-13.0	-43.5	
11115.00	-8.7	V	3.0	40.9	1.0	-48.6	-13.0	-35.6	
3705.00	-9.8	H	3.0	43.8	1.0	-52.5	-13.0	-39.5	
5557.50	-17.2	H	3.0	43.7	1.0	-59.9	-13.0	-46.9	
7410.00	-15.8	H	3.0	42.5	1.0	-57.3	-13.0	-44.3	
9262.50	-19.0	H	3.0	41.3	1.0	-59.3	-13.0	-46.3	
11115.00	-15.6	H	3.0	40.9	1.0	-55.5	-13.0	-42.5	
Mid Ch, 1880MHz									
3760.00	-12.9	V	3.0	43.8	1.0	-55.7	-13.0	-42.7	
5640.00	-15.9	V	3.0	43.7	1.0	-58.6	-13.0	-45.6	
7520.00	-13.2	V	3.0	42.5	1.0	-54.6	-13.0	-41.6	
9400.00	-17.1	V	3.0	41.1	1.0	-57.2	-13.0	-44.2	
11280.00	-12.2	V	3.0	41.0	1.0	-52.2	-13.0	-39.2	
3760.00	-5.2	H	3.0	43.8	1.0	-48.0	-13.0	-35.0	
5640.00	-18.0	H	3.0	43.7	1.0	-60.7	-13.0	-47.7	
7520.00	-15.4	H	3.0	42.5	1.0	-56.8	-13.0	-43.8	
9400.00	-18.1	H	3.0	41.1	1.0	-58.2	-13.0	-45.2	
11280.00	-16.3	H	3.0	41.0	1.0	-56.2	-13.0	-43.2	
High Ch, 1907.5MHz									
3815.00	-10.0	V	3.0	43.8	1.0	-52.8	-13.0	-39.8	
5722.50	-13.7	V	3.0	43.7	1.0	-56.4	-13.0	-43.4	
7630.00	-12.3	V	3.0	42.4	1.0	-53.7	-13.0	-40.7	
9537.50	-14.9	V	3.0	41.0	1.0	-54.8	-13.0	-41.8	
11445.00	-8.9	V	3.0	41.0	1.0	-48.9	-13.0	-35.9	
3815.00	0.4	H	3.0	43.8	1.0	-42.4	-13.0	-29.4	
5722.50	-16.8	H	3.0	43.7	1.0	-59.5	-13.0	-46.5	
7630.00	-15.0	H	3.0	42.4	1.0	-56.4	-13.0	-43.4	
9537.50	-17.9	H	3.0	41.0	1.0	-57.9	-13.0	-44.9	
11445.00	-15.8	H	3.0	41.0	1.0	-55.8	-13.0	-42.8	

LTE
Band 2
5MHz
16QAM

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-15							
Test Engineer:		45585							
Configuration:		EUT / Adapter / Earphone, X-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 2 Harmonics, 3MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.5MHz									
3703.00	-16.1	V	3.0	43.8	1.0	-58.8	-13.0	-45.8	
5554.50	-14.4	V	3.0	43.7	1.0	-57.2	-13.0	-44.2	
7406.00	-11.0	V	3.0	42.5	1.0	-52.5	-13.0	-39.5	
9257.50	-16.0	V	3.0	41.3	1.0	-56.2	-13.0	-43.2	
11109.00	-7.0	V	3.0	40.9	1.0	-46.9	-13.0	-33.9	
3703.00	-10.7	H	3.0	43.8	1.0	-53.4	-13.0	-40.4	
5554.50	-17.2	H	3.0	43.7	1.0	-59.9	-13.0	-46.9	
7406.00	-15.3	H	3.0	42.5	1.0	-56.8	-13.0	-43.8	
9257.50	-19.1	H	3.0	41.3	1.0	-59.3	-13.0	-46.3	
11109.00	-10.2	H	3.0	40.9	1.0	-50.1	-13.0	-37.1	
Mid Ch, 1880MHz									
3760.00	-10.3	V	3.0	43.8	1.0	-53.1	-13.0	-40.1	
5640.00	-14.5	V	3.0	43.7	1.0	-57.2	-13.0	-44.2	
7520.00	-10.8	V	3.0	42.5	1.0	-52.3	-13.0	-39.3	
9400.00	-16.6	V	3.0	41.1	1.0	-56.7	-13.0	-43.7	
11280.00	-9.8	V	3.0	41.0	1.0	-49.8	-13.0	-36.8	
3760.00	-3.4	H	3.0	43.8	1.0	-46.2	-13.0	-33.2	
5640.00	-17.9	H	3.0	43.7	1.0	-60.6	-13.0	-47.6	
7520.00	-14.3	H	3.0	42.5	1.0	-55.7	-13.0	-42.7	
9400.00	-17.0	H	3.0	41.1	1.0	-57.1	-13.0	-44.1	
11280.00	-16.1	H	3.0	41.0	1.0	-56.1	-13.0	-43.1	
High Ch, 1908.5MHz									
3817.00	-7.6	V	3.0	43.8	1.0	-50.4	-13.0	-37.4	
5725.50	-12.3	V	3.0	43.7	1.0	-55.0	-13.0	-42.0	
7634.00	-11.9	V	3.0	42.4	1.0	-53.3	-13.0	-40.3	
9542.50	-15.1	V	3.0	41.0	1.0	-55.1	-13.0	-42.1	
11451.00	-7.8	V	3.0	41.0	1.0	-47.8	-13.0	-34.8	
3817.00	4.0	H	3.0	43.8	1.0	-38.8	-13.0	-25.8	
5725.50	-15.6	H	3.0	43.7	1.0	-58.3	-13.0	-45.3	
7634.00	-14.7	H	3.0	42.4	1.0	-56.1	-13.0	-43.1	
9542.50	-18.0	H	3.0	41.0	1.0	-58.0	-13.0	-45.0	
11451.00	-15.9	H	3.0	41.0	1.0	-56.0	-13.0	-43.0	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-15							
Test Engineer:		45585							
Configuration:		EUT / Adapter / Earphone, X-Position							
Location:		Chamber 1							
Mode:		LTE_16QAM Band 2 Harmonics, 3MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.5MHz									
3703.00	-15.0	V	3.0	43.8	1.0	-57.8	-13.0	-44.8	
5554.50	-15.3	V	3.0	43.7	1.0	-58.0	-13.0	-45.0	
7406.00	-11.3	V	3.0	42.5	1.0	-52.8	-13.0	-39.8	
9257.50	-16.6	V	3.0	41.3	1.0	-56.8	-13.0	-43.8	
11109.00	-9.3	V	3.0	40.9	1.0	-49.2	-13.0	-36.2	
3703.00	-11.3	H	3.0	43.8	1.0	-54.0	-13.0	-41.0	
5554.50	-17.8	H	3.0	43.7	1.0	-60.6	-13.0	-47.6	
7406.00	-15.3	H	3.0	42.5	1.0	-56.8	-13.0	-43.8	
9257.50	-19.1	H	3.0	41.3	1.0	-59.4	-13.0	-46.4	
11109.00	-16.1	H	3.0	40.9	1.0	-56.0	-13.0	-43.0	
Mid Ch, 1880MHz									
3760.00	-11.2	V	3.0	43.8	1.0	-54.0	-13.0	-41.0	
5640.00	-15.5	V	3.0	43.7	1.0	-58.2	-13.0	-45.2	
7520.00	-12.2	V	3.0	42.5	1.0	-53.7	-13.0	-40.7	
9400.00	-16.9	V	3.0	41.1	1.0	-57.0	-13.0	-44.0	
11280.00	-11.6	V	3.0	41.0	1.0	-51.6	-13.0	-38.6	
3760.00	-4.6	H	3.0	43.8	1.0	-47.4	-13.0	-34.4	
5640.00	-18.1	H	3.0	43.7	1.0	-60.8	-13.0	-47.8	
7520.00	-14.9	H	3.0	42.5	1.0	-56.3	-13.0	-43.3	
9400.00	-18.0	H	3.0	41.1	1.0	-58.1	-13.0	-45.1	
11280.00	-16.1	H	3.0	41.0	1.0	-56.1	-13.0	-43.1	
High Ch, 1908.5MHz									
3817.00	-9.7	V	3.0	43.8	1.0	-52.5	-13.0	-39.5	
5725.50	-12.9	V	3.0	43.7	1.0	-55.6	-13.0	-42.6	
7634.00	-12.0	V	3.0	42.4	1.0	-53.4	-13.0	-40.4	
9542.50	-15.0	V	3.0	41.0	1.0	-55.0	-13.0	-42.0	
11451.00	-9.7	V	3.0	41.0	1.0	-49.7	-13.0	-36.7	
3817.00	1.0	H	3.0	43.8	1.0	-41.8	-13.0	-28.8	
5725.50	-16.0	H	3.0	43.7	1.0	-58.7	-13.0	-45.7	
7634.00	-15.1	H	3.0	42.4	1.0	-56.5	-13.0	-43.5	
9542.50	-18.0	H	3.0	41.0	1.0	-57.9	-13.0	-44.9	
11451.00	-15.9	H	3.0	41.0	1.0	-55.9	-13.0	-42.9	

LTE
Band 2
3MHz
16QAM

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-08							
Test Engineer:		45585							
Configuration:		EUT / Adapter / Earphone, X-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 2 Harmonics, 1.4MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.7MHz									
3701.40	-15.5	V	3.0	43.8	1.0	-58.2	-13.0	-45.2	
5552.10	-15.1	V	3.0	43.7	1.0	-57.9	-13.0	-44.9	
7402.80	-12.0	V	3.0	42.5	1.0	-53.5	-13.0	-40.5	
9253.50	-16.5	V	3.0	41.3	1.0	-56.7	-13.0	-43.7	
11104.20	-8.3	V	3.0	40.9	1.0	-48.2	-13.0	-35.2	
3701.40	-9.5	H	3.0	43.8	1.0	-52.3	-13.0	-39.3	
5552.10	-15.8	H	3.0	43.7	1.0	-58.5	-13.0	-45.5	
7402.80	-14.9	H	3.0	42.5	1.0	-56.4	-13.0	-43.4	
9253.50	-17.9	H	3.0	41.3	1.0	-58.2	-13.0	-45.2	
11104.20	-8.7	H	3.0	40.9	1.0	-48.6	-13.0	-35.6	
Mid Ch, 1880MHz									
3760.00	-13.1	V	3.0	43.8	1.0	-55.9	-13.0	-42.9	
5640.00	-13.6	V	3.0	43.7	1.0	-56.3	-13.0	-43.3	
7520.00	-9.7	V	3.0	42.5	1.0	-51.2	-13.0	-38.2	
9400.00	-16.5	V	3.0	41.1	1.0	-56.6	-13.0	-43.6	
11280.00	-9.6	V	3.0	41.0	1.0	-49.5	-13.0	-36.5	
3760.00	-3.4	H	3.0	43.8	1.0	-46.1	-13.0	-33.1	
5640.00	-16.4	H	3.0	43.7	1.0	-59.1	-13.0	-46.1	
7520.00	-14.1	H	3.0	42.5	1.0	-55.6	-13.0	-42.6	
9400.00	-15.2	H	3.0	41.1	1.0	-55.4	-13.0	-42.4	
11280.00	-13.6	H	3.0	41.0	1.0	-53.6	-13.0	-40.6	
High Ch, 1909.3MHz									
3818.60	-4.7	V	3.0	43.8	1.0	-47.5	-13.0	-34.5	
5727.90	-12.2	V	3.0	43.7	1.0	-54.9	-13.0	-41.9	
7637.20	-11.2	V	3.0	42.4	1.0	-52.6	-13.0	-39.6	
9546.50	-15.9	V	3.0	41.0	1.0	-55.9	-13.0	-42.9	
11455.80	-6.8	V	3.0	41.0	1.0	-46.8	-13.0	-33.8	
3818.60	3.1	H	3.0	43.8	1.0	-39.7	-13.0	-26.7	
5727.90	-15.3	H	3.0	43.7	1.0	-58.0	-13.0	-45.0	
7637.20	-15.0	H	3.0	42.4	1.0	-56.4	-13.0	-43.4	
9546.50	-14.6	H	3.0	41.0	1.0	-54.5	-13.0	-41.5	
11455.80	-13.2	H	3.0	41.0	1.0	-53.2	-13.0	-40.2	

LTE
Band 2
1.4MHz
QPSK

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-08							
Test Engineer:		45585							
Configuration:		EUT / Adapter / Earphone, X-Position							
Location:		Chamber 1							
Mode:		LTE_16QAM Band 2 Harmonics, 1.4MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.7MHz									
3701.40	-15.0	V	3.0	43.8	1.0	-57.7	-13.0	-44.7	
5552.10	-14.7	V	3.0	43.7	1.0	-57.5	-13.0	-44.5	
7402.80	-11.4	V	3.0	42.5	1.0	-52.9	-13.0	-39.9	
9253.50	-16.3	V	3.0	41.3	1.0	-56.5	-13.0	-43.5	
11104.20	-9.1	V	3.0	40.9	1.0	-49.0	-13.0	-36.0	
3701.40	-9.9	H	3.0	43.8	1.0	-52.6	-13.0	-39.6	
5552.10	-16.7	H	3.0	43.7	1.0	-59.4	-13.0	-46.4	
7402.80	-15.5	H	3.0	42.5	1.0	-57.0	-13.0	-44.0	
9253.50	-18.9	H	3.0	41.3	1.0	-59.1	-13.0	-46.1	
11104.20	-14.8	H	3.0	40.9	1.0	-54.7	-13.0	-41.7	
Mid Ch, 1880MHz									
3760.00	-13.8	V	3.0	43.8	1.0	-56.6	-13.0	-43.6	
5640.00	-14.4	V	3.0	43.7	1.0	-57.1	-13.0	-44.1	
7520.00	-11.2	V	3.0	42.5	1.0	-52.6	-13.0	-39.6	
9400.00	-16.8	V	3.0	41.1	1.0	-56.9	-13.0	-43.9	
11280.00	-10.6	V	3.0	41.0	1.0	-50.5	-13.0	-37.5	
3760.00	-4.3	H	3.0	43.8	1.0	-47.1	-13.0	-34.1	
5640.00	-17.0	H	3.0	43.7	1.0	-59.7	-13.0	-46.7	
7520.00	-14.7	H	3.0	42.5	1.0	-56.2	-13.0	-43.2	
9400.00	-15.7	H	3.0	41.1	1.0	-55.8	-13.0	-42.8	
11280.00	-14.1	H	3.0	41.0	1.0	-54.0	-13.0	-41.0	
High Ch, 1909.3MHz									
3818.60	-5.4	V	3.0	43.8	1.0	-48.3	-13.0	-35.3	
5727.90	-13.0	V	3.0	43.7	1.0	-55.7	-13.0	-42.7	
7637.20	-12.2	V	3.0	42.4	1.0	-53.6	-13.0	-40.6	
9546.50	-16.3	V	3.0	41.0	1.0	-56.3	-13.0	-43.3	
11455.80	-8.0	V	3.0	41.0	1.0	-48.0	-13.0	-35.0	
3818.60	2.4	H	3.0	43.8	1.0	-40.4	-13.0	-27.4	
5727.90	-15.9	H	3.0	43.7	1.0	-58.6	-13.0	-45.6	
7637.20	-15.5	H	3.0	42.4	1.0	-56.8	-13.0	-43.8	
9546.50	-15.0	H	3.0	41.0	1.0	-55.0	-13.0	-42.0	
11455.80	-13.9	H	3.0	41.0	1.0	-53.9	-13.0	-40.9	

LTE
Band 2
1.4MHz
16QAM

LTE Band 4

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-15							
Test Engineer:		47989							
Configuration:		EUT / AC Adapter / Cradle, X-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 4 Harmonics, 20MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1720MHz									
3440.00	0.4	V	3.0	43.7	1.0	-42.2	-13.0	-29.2	
5160.00	-19.5	V	3.0	43.8	1.0	-62.3	-13.0	-49.3	
6880.00	-14.5	V	3.0	42.8	1.0	-56.4	-13.0	-43.4	
8600.00	-19.0	V	3.0	41.8	1.0	-59.8	-13.0	-46.8	
10320.00	-18.2	V	3.0	40.7	1.0	-57.8	-13.0	-44.8	
3440.00	5.3	H	3.0	43.7	1.0	-37.3	-13.0	-24.3	
5160.00	-20.1	H	3.0	43.8	1.0	-62.9	-13.0	-49.9	
6880.00	-16.1	H	3.0	42.8	1.0	-57.9	-13.0	-44.9	
8600.00	-18.3	H	3.0	41.8	1.0	-59.1	-13.0	-46.1	
10320.00	-18.7	H	3.0	40.7	1.0	-58.4	-13.0	-45.4	
Mid Ch, 1732.5MHz									
3465.00	1.1	V	3.0	43.7	1.0	-41.6	-13.0	-28.6	
5197.50	-18.2	V	3.0	43.8	1.0	-60.9	-13.0	-47.9	
6930.00	-13.9	V	3.0	42.8	1.0	-55.7	-13.0	-42.7	
8662.50	-18.5	V	3.0	41.7	1.0	-59.3	-13.0	-46.3	
10395.00	-18.7	V	3.0	40.7	1.0	-58.3	-13.0	-45.3	
3465.00	6.4	H	3.0	43.7	1.0	-36.2	-13.0	-23.2	
5197.50	-18.9	H	3.0	43.8	1.0	-61.7	-13.0	-48.7	
6930.00	-16.3	H	3.0	42.8	1.0	-58.1	-13.0	-45.1	
8662.50	-18.3	H	3.0	41.7	1.0	-59.1	-13.0	-46.1	
10395.00	-18.6	H	3.0	40.7	1.0	-58.2	-13.0	-45.2	
High Ch, 1745MHz									
3490.00	-3.2	V	3.0	43.7	1.0	-45.9	-13.0	-32.9	
5235.00	-18.6	V	3.0	43.8	1.0	-61.4	-13.0	-48.4	
6980.00	-14.4	V	3.0	42.7	1.0	-56.1	-13.0	-43.1	
8725.00	-19.2	V	3.0	41.7	1.0	-59.8	-13.0	-46.8	
10470.00	-16.9	V	3.0	40.7	1.0	-56.6	-13.0	-43.6	
3490.00	4.6	H	3.0	43.7	1.0	-38.1	-13.0	-25.1	
5235.00	-18.9	H	3.0	43.8	1.0	-61.6	-13.0	-48.6	
6980.00	-16.9	H	3.0	42.7	1.0	-58.6	-13.0	-45.6	
8725.00	-19.0	H	3.0	41.7	1.0	-59.7	-13.0	-46.7	
10470.00	-18.9	H	3.0	40.7	1.0	-58.6	-13.0	-45.6	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-15							
Test Engineer:		47989							
Configuration:		EUT / AC Adapter / Cradle, X-Position							
Location:		Chamber 1							
Mode:		LTE_16QAM Band 4 Harmonics, 20MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1720MHz									
3440.00	-3.9	V	3.0	43.7	1.0	-46.6	-13.0	-33.6	
5160.00	-19.8	V	3.0	43.8	1.0	-62.5	-13.0	-49.5	
6880.00	-17.6	V	3.0	42.8	1.0	-59.4	-13.0	-46.4	
8600.00	-19.3	V	3.0	41.8	1.0	-60.1	-13.0	-47.1	
10320.00	-19.1	V	3.0	40.7	1.0	-58.8	-13.0	-45.8	
3440.00	1.0	H	3.0	43.7	1.0	-41.7	-13.0	-28.7	
5160.00	-20.2	H	3.0	43.8	1.0	-62.9	-13.0	-49.9	
6880.00	-17.0	H	3.0	42.8	1.0	-58.9	-13.0	-45.9	
8600.00	-18.7	H	3.0	41.8	1.0	-59.5	-13.0	-46.5	
10320.00	-19.2	H	3.0	40.7	1.0	-58.9	-13.0	-45.9	
Mid Ch, 1732.5MHz									
3465.00	-0.2	V	3.0	43.7	1.0	-42.8	-13.0	-29.8	
5197.50	-18.3	V	3.0	43.8	1.0	-61.1	-13.0	-48.1	
6930.00	-15.3	V	3.0	42.8	1.0	-57.1	-13.0	-44.1	
8662.50	-19.2	V	3.0	41.7	1.0	-59.9	-13.0	-46.9	
10395.00	-17.1	V	3.0	40.7	1.0	-56.7	-13.0	-43.7	
3465.00	5.4	H	3.0	43.7	1.0	-37.3	-13.0	-24.3	
5197.50	-18.6	H	3.0	43.8	1.0	-61.4	-13.0	-48.4	
6930.00	-17.7	H	3.0	42.8	1.0	-59.5	-13.0	-46.5	
8662.50	-17.9	H	3.0	41.7	1.0	-58.7	-13.0	-45.7	
10395.00	-17.2	H	3.0	40.7	1.0	-56.9	-13.0	-43.9	
High Ch, 1745MHz									
3490.00	-4.0	V	3.0	43.7	1.0	-46.7	-13.0	-33.7	
5235.00	-18.6	V	3.0	43.8	1.0	-61.3	-13.0	-48.3	
6980.00	-14.7	V	3.0	42.7	1.0	-56.5	-13.0	-43.5	
8725.00	-19.5	V	3.0	41.7	1.0	-60.2	-13.0	-47.2	
10470.00	-17.3	V	3.0	40.7	1.0	-57.0	-13.0	-44.0	
3490.00	3.1	H	3.0	43.7	1.0	-39.6	-13.0	-26.6	
5235.00	-18.9	H	3.0	43.8	1.0	-61.6	-13.0	-48.6	
6980.00	-17.1	H	3.0	42.7	1.0	-58.8	-13.0	-45.8	
8725.00	-19.1	H	3.0	41.7	1.0	-59.8	-13.0	-46.8	
10470.00	-18.9	H	3.0	40.7	1.0	-58.6	-13.0	-45.6	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-15							
Test Engineer:		45585							
Configuration:		EUT / Adapter / Earphone, X-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 4 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
Low Ch, 1715MHz									
3430.00	-5.6	V	3.0	43.7	1.0	-48.2	-13.0	-35.2	
5145.00	-19.9	V	3.0	43.8	1.0	-62.6	-13.0	-49.6	
6860.00	-17.6	V	3.0	42.9	1.0	-59.4	-13.0	-46.4	
8575.00	-19.5	V	3.0	41.8	1.0	-60.3	-13.0	-47.3	
10290.00	-18.9	V	3.0	40.6	1.0	-58.6	-13.0	-45.6	
3430.00	3.1	H	3.0	43.7	1.0	-39.5	-13.0	-26.5	
5145.00	-20.2	H	3.0	43.8	1.0	-62.9	-13.0	-49.9	
6860.00	-16.9	H	3.0	42.9	1.0	-58.7	-13.0	-45.7	
8575.00	-18.9	H	3.0	41.8	1.0	-59.7	-13.0	-46.7	
10290.00	-19.0	H	3.0	40.6	1.0	-58.7	-13.0	-45.7	
Mid Ch, 1732.5MHz									
3465.00	-4.8	V	3.0	43.7	1.0	-47.5	-13.0	-34.5	
5197.50	-19.0	V	3.0	43.8	1.0	-61.7	-13.0	-48.7	
6930.00	-15.2	V	3.0	42.8	1.0	-57.0	-13.0	-44.0	
8662.50	-19.1	V	3.0	41.7	1.0	-59.8	-13.0	-46.8	
10395.00	-18.4	V	3.0	40.7	1.0	-58.0	-13.0	-45.0	
3465.00	2.9	H	3.0	43.7	1.0	-39.8	-13.0	-26.8	
5197.50	-19.2	H	3.0	43.8	1.0	-62.0	-13.0	-49.0	
6930.00	-17.5	H	3.0	42.8	1.0	-59.3	-13.0	-46.3	
8662.50	-18.9	H	3.0	41.7	1.0	-59.7	-13.0	-46.7	
10395.00	-19.2	H	3.0	40.7	1.0	-58.9	-13.0	-45.9	
High Ch, 1750MHz									
3500.00	-5.8	V	3.0	43.7	1.0	-48.5	-13.0	-35.5	
5250.00	-17.1	V	3.0	43.8	1.0	-59.9	-13.0	-46.9	
7000.00	-14.3	V	3.0	42.7	1.0	-56.1	-13.0	-43.1	
8750.00	-19.9	V	3.0	41.7	1.0	-60.6	-13.0	-47.6	
10500.00	-16.5	V	3.0	40.7	1.0	-56.2	-13.0	-43.2	
3500.00	1.9	H	3.0	43.7	1.0	-40.8	-13.0	-27.8	
5250.00	-18.5	H	3.0	43.8	1.0	-61.3	-13.0	-48.3	
7000.00	-17.7	H	3.0	42.7	1.0	-59.5	-13.0	-46.5	
8750.00	-19.2	H	3.0	41.7	1.0	-59.9	-13.0	-46.9	
10500.00	-18.4	H	3.0	40.7	1.0	-58.1	-13.0	-45.1	

LTE
Band 4
10MHz
QPSK

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-15							
Test Engineer:		45585							
Configuration:		EUT / Adapter / Earphone, X-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 4 Harmonics, 5MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1712.5MHz									
3425.00	-5.3	V	3.0	43.7	1.0	-47.9	-13.0	-34.9	
5137.50	-19.7	V	3.0	43.8	1.0	-62.4	-13.0	-49.4	
6850.00	-16.6	V	3.0	42.9	1.0	-58.5	-13.0	-45.5	
8562.50	-18.9	V	3.0	41.8	1.0	-59.7	-13.0	-46.7	
10275.00	-18.1	V	3.0	40.6	1.0	-57.7	-13.0	-44.7	
3425.00	3.9	H	3.0	43.7	1.0	-38.7	-13.0	-25.7	
5137.50	-19.8	H	3.0	43.8	1.0	-62.6	-13.0	-49.6	
6850.00	-16.7	H	3.0	42.9	1.0	-58.6	-13.0	-45.6	
8562.50	-18.8	H	3.0	41.8	1.0	-59.6	-13.0	-46.6	
10275.00	-18.8	H	3.0	40.6	1.0	-58.4	-13.0	-45.4	
Mid Ch, 1732.5MHz									
3465.00	1.5	V	3.0	43.7	1.0	-41.2	-13.0	-28.2	
5197.50	-19.1	V	3.0	43.8	1.0	-61.8	-13.0	-48.8	
6930.00	-17.0	V	3.0	42.8	1.0	-58.7	-13.0	-45.7	
8662.50	-19.2	V	3.0	41.7	1.0	-59.9	-13.0	-46.9	
10395.00	-18.8	V	3.0	40.7	1.0	-58.5	-13.0	-45.5	
3465.00	3.6	H	3.0	43.7	1.0	-39.1	-13.0	-26.1	
5197.50	-19.3	H	3.0	43.8	1.0	-62.0	-13.0	-49.0	
6930.00	-17.4	H	3.0	42.8	1.0	-59.2	-13.0	-46.2	
8662.50	-18.9	H	3.0	41.7	1.0	-59.6	-13.0	-46.6	
10395.00	-19.2	H	3.0	40.7	1.0	-58.9	-13.0	-45.9	
High Ch, 1752.5MHz									
3505.00	-5.3	V	3.0	43.7	1.0	-48.0	-13.0	-35.0	
5257.50	-17.6	V	3.0	43.8	1.0	-60.4	-13.0	-47.4	
7010.00	-14.8	V	3.0	42.7	1.0	-56.5	-13.0	-43.5	
8762.50	-19.4	V	3.0	41.7	1.0	-60.1	-13.0	-47.1	
10515.00	-16.4	V	3.0	40.7	1.0	-56.1	-13.0	-43.1	
3505.00	1.6	H	3.0	43.7	1.0	-41.1	-13.0	-28.1	
5257.50	-18.5	H	3.0	43.8	1.0	-61.3	-13.0	-48.3	
7010.00	-17.8	H	3.0	42.7	1.0	-59.6	-13.0	-46.6	
8762.50	-19.4	H	3.0	41.7	1.0	-60.1	-13.0	-47.1	
10515.00	-18.4	H	3.0	40.7	1.0	-58.1	-13.0	-45.1	

LTE
Band 4
5MHz
QPSK

LTE

Band 4

3MHz

16QAM

UL Verification Services, Inc.

Above 1GHz High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788481138

2018-06-15

45585

EUT / Adapter / Earphone, X-Position

Chamber 1

LTE_16QAM Band 4 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1711.5MHz									
3423.00	-6.6	V	3.0	43.7	1.0	-49.2	-13.0	-36.2	
5134.50	-19.4	V	3.0	43.8	1.0	-62.1	-13.0	-49.1	
6846.00	-17.3	V	3.0	42.9	1.0	-59.1	-13.0	-46.1	
8557.50	-18.9	V	3.0	41.8	1.0	-59.7	-13.0	-46.7	
10269.00	-17.9	V	3.0	40.6	1.0	-57.5	-13.0	-44.5	
3423.00	2.2	H	3.0	43.7	1.0	-40.5	-13.0	-27.5	
5134.50	-19.7	H	3.0	43.8	1.0	-62.4	-13.0	-49.4	
6846.00	-16.8	H	3.0	42.9	1.0	-58.7	-13.0	-45.7	
8557.50	-18.5	H	3.0	41.8	1.0	-59.3	-13.0	-46.3	
10269.00	-18.3	H	3.0	40.6	1.0	-58.0	-13.0	-45.0	
Mid Ch, 1732.5MHz									
3465.00	-2.1	V	3.0	43.7	1.0	-44.8	-13.0	-31.8	
5197.50	-18.8	V	3.0	43.8	1.0	-61.6	-13.0	-48.6	
6930.00	-17.3	V	3.0	42.8	1.0	-59.1	-13.0	-46.1	
8662.50	-19.3	V	3.0	41.7	1.0	-60.0	-13.0	-47.0	
10395.00	-18.9	V	3.0	40.7	1.0	-58.5	-13.0	-45.5	
3465.00	0.7	H	3.0	43.7	1.0	-42.0	-13.0	-29.0	
5197.50	-19.1	H	3.0	43.8	1.0	-61.9	-13.0	-48.9	
6930.00	-17.2	H	3.0	42.8	1.0	-58.9	-13.0	-45.9	
8662.50	-18.7	H	3.0	41.7	1.0	-59.4	-13.0	-46.4	
10395.00	-18.7	H	3.0	40.7	1.0	-58.4	-13.0	-45.4	
High Ch, 1753.5MHz									
3507.00	-7.0	V	3.0	43.7	1.0	-49.7	-13.0	-36.7	
5260.50	-18.1	V	3.0	43.8	1.0	-60.9	-13.0	-47.9	
7014.00	-14.8	V	3.0	42.7	1.0	-56.6	-13.0	-43.6	
8767.50	-19.2	V	3.0	41.7	1.0	-59.9	-13.0	-46.9	
10521.00	-17.3	V	3.0	40.7	1.0	-57.0	-13.0	-44.0	
3507.00	0.3	H	3.0	43.7	1.0	-42.4	-13.0	-29.4	
5260.50	-18.4	H	3.0	43.8	1.0	-61.2	-13.0	-48.2	
7014.00	-13.5	H	3.0	42.7	1.0	-55.2	-13.0	-42.2	
8767.50	-19.3	H	3.0	41.7	1.0	-60.0	-13.0	-47.0	
10521.00	-18.2	H	3.0	40.7	1.0	-57.9	-13.0	-44.9	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-15							
Test Engineer:		45585							
Configuration:		EUT / Adapter / Earphone, X-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 4 Harmonics, 1.4MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1710.7MHz									
3421.40	-5.9	V	3.0	43.7	1.0	-48.6	-13.0	-35.6	
5132.10	-19.4	V	3.0	43.8	1.0	-62.2	-13.0	-49.2	
6842.80	-17.3	V	3.0	42.9	1.0	-59.2	-13.0	-46.2	
8553.50	-18.5	V	3.0	41.8	1.0	-59.3	-13.0	-46.3	
10264.20	-18.2	V	3.0	40.6	1.0	-57.9	-13.0	-44.9	
3421.40	3.3	H	3.0	43.7	1.0	-39.4	-13.0	-26.4	
5132.10	-19.8	H	3.0	43.8	1.0	-62.6	-13.0	-49.6	
6842.80	-17.0	H	3.0	42.9	1.0	-58.8	-13.0	-45.8	
8553.50	-18.6	H	3.0	41.8	1.0	-59.4	-13.0	-46.4	
10264.20	-18.6	H	3.0	40.6	1.0	-58.3	-13.0	-45.3	
Mid Ch, 1732.5MHz									
3465.00	1.8	V	3.0	43.7	1.0	-40.9	-13.0	-27.9	
5197.50	-18.8	V	3.0	43.8	1.0	-61.6	-13.0	-48.6	
6930.00	-16.0	V	3.0	42.8	1.0	-57.8	-13.0	-44.8	
8662.50	-19.0	V	3.0	41.7	1.0	-59.8	-13.0	-46.8	
10395.00	-18.4	V	3.0	40.7	1.0	-58.1	-13.0	-45.1	
3465.00	3.0	H	3.0	43.7	1.0	-39.6	-13.0	-26.6	
5197.50	-19.3	H	3.0	43.8	1.0	-62.0	-13.0	-49.0	
6930.00	-17.3	H	3.0	42.8	1.0	-59.1	-13.0	-46.1	
8662.50	-18.9	H	3.0	41.7	1.0	-59.7	-13.0	-46.7	
10395.00	-18.7	H	3.0	40.7	1.0	-58.3	-13.0	-45.3	
High Ch, 1754.3MHz									
3508.60	-3.1	V	3.0	43.7	1.0	-45.8	-13.0	-32.8	
5262.90	-17.9	V	3.0	43.8	1.0	-60.6	-13.0	-47.6	
7017.20	-12.6	V	3.0	42.7	1.0	-54.4	-13.0	-41.4	
8771.50	-18.7	V	3.0	41.7	1.0	-59.3	-13.0	-46.3	
10525.80	-15.8	V	3.0	40.7	1.0	-55.5	-13.0	-42.5	
3508.60	1.5	H	3.0	43.7	1.0	-41.2	-13.0	-28.2	
5262.90	-18.4	H	3.0	43.8	1.0	-61.2	-13.0	-48.2	
7017.20	-16.9	H	3.0	42.7	1.0	-58.6	-13.0	-45.6	
8771.50	-18.9	H	3.0	41.7	1.0	-59.6	-13.0	-46.6	
10525.80	-18.1	H	3.0	40.7	1.0	-57.8	-13.0	-44.8	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-15							
Test Engineer:		45585							
Configuration:		EUT / Adapter / Earphone, X-Position							
Location:		Chamber 1							
Mode:		LTE_16QAM Band 4 Harmonics, 1.4MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1710.7MHz									
3421.40	-6.4	V	3.0	43.7	1.0	-49.1	-13.0	-36.1	
5132.10	-18.7	V	3.0	43.8	1.0	-61.4	-13.0	-48.4	
6842.80	-15.3	V	3.0	42.9	1.0	-57.2	-13.0	-44.2	
8553.50	-17.9	V	3.0	41.8	1.0	-58.8	-13.0	-45.8	
10264.20	-17.9	V	3.0	40.6	1.0	-57.5	-13.0	-44.5	
3421.40	3.6	H	3.0	43.7	1.0	-39.1	-13.0	-26.1	
5132.10	-19.5	H	3.0	43.8	1.0	-62.3	-13.0	-49.3	
6842.80	-16.7	H	3.0	42.9	1.0	-58.6	-13.0	-45.6	
8553.50	-18.2	H	3.0	41.8	1.0	-59.1	-13.0	-46.1	
10264.20	-18.3	H	3.0	40.6	1.0	-58.0	-13.0	-45.0	
Mid Ch, 1732.5MHz									
3465.00	-7.0	V	3.0	43.7	1.0	-49.7	-13.0	-36.7	
5197.50	-18.7	V	3.0	43.8	1.0	-61.5	-13.0	-48.5	
6930.00	-15.5	V	3.0	42.8	1.0	-57.2	-13.0	-44.2	
8662.50	-19.1	V	3.0	41.7	1.0	-59.9	-13.0	-46.9	
10395.00	-18.5	V	3.0	40.7	1.0	-58.1	-13.0	-45.1	
3465.00	1.8	H	3.0	43.7	1.0	-40.9	-13.0	-27.9	
5197.50	-19.1	H	3.0	43.8	1.0	-61.9	-13.0	-48.9	
6930.00	-16.8	H	3.0	42.8	1.0	-58.5	-13.0	-45.5	
8662.50	-18.4	H	3.0	41.7	1.0	-59.2	-13.0	-46.2	
10395.00	-17.8	H	3.0	40.7	1.0	-57.4	-13.0	-44.4	
High Ch, 1754.3MHz									
3508.60	-4.8	V	3.0	43.7	1.0	-47.5	-13.0	-34.5	
5262.90	-18.0	V	3.0	43.8	1.0	-60.7	-13.0	-47.7	
7017.20	-13.2	V	3.0	42.7	1.0	-54.9	-13.0	-41.9	
8771.50	-18.8	V	3.0	41.7	1.0	-59.5	-13.0	-46.5	
10525.80	-16.8	V	3.0	40.7	1.0	-56.5	-13.0	-43.5	
3508.60	0.0	H	3.0	43.7	1.0	-42.7	-13.0	-29.7	
5262.90	-18.3	H	3.0	43.8	1.0	-61.1	-13.0	-48.1	
7017.20	-17.4	H	3.0	42.7	1.0	-59.2	-13.0	-46.2	
8771.50	-18.8	H	3.0	41.7	1.0	-59.5	-13.0	-46.5	
10525.80	-18.2	H	3.0	40.7	1.0	-57.9	-13.0	-44.9	

LTE Band 5

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-18							
Test Engineer:		51072							
Configuration:		EUT / Adapter / Earphone , X-position							
Location:		Chamber 2							
Mode:		LTE_QPSK Band 5 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
Low Ch, 829MHz									
1658.00	-17.8	V	3.0	38.2	1.0	-55.0	-13.0	-42.0	
2487.00	-4.1	V	3.0	38.8	1.0	-41.9	-13.0	-28.9	
3316.00	-22.3	V	3.0	39.4	1.0	-60.7	-13.0	-47.7	
4145.00	-18.9	V	3.0	39.8	1.0	-57.7	-13.0	-44.7	
4974.00	-20.0	V	3.0	39.8	1.0	-58.8	-13.0	-45.8	
1658.00	-19.1	H	3.0	38.2	1.0	-56.3	-13.0	-43.3	
2487.00	-1.2	H	3.0	38.8	1.0	-39.0	-13.0	-26.0	
3316.00	-22.0	H	3.0	39.4	1.0	-60.5	-13.0	-47.5	
4145.00	-20.4	H	3.0	39.8	1.0	-59.2	-13.0	-46.2	
4974.00	-20.7	H	3.0	39.8	1.0	-59.5	-13.0	-46.5	
Mid Ch, 836.5MHz									
1673.00	-17.9	V	3.0	38.2	1.0	-55.1	-13.0	-42.1	
2509.50	-2.2	V	3.0	38.8	1.0	-40.0	-13.0	-27.0	
3346.00	-21.3	V	3.0	39.5	1.0	-59.8	-13.0	-46.8	
4182.50	-18.6	V	3.0	39.8	1.0	-57.4	-13.0	-44.4	
5019.00	-19.4	V	3.0	39.8	1.0	-58.2	-13.0	-45.2	
1673.00	-18.0	H	3.0	38.2	1.0	-55.2	-13.0	-42.2	
2509.50	0.9	H	3.0	38.8	1.0	-36.9	-13.0	-23.9	
3346.00	-25.1	H	3.0	39.5	1.0	-63.6	-13.0	-50.6	
4182.50	-20.5	H	3.0	39.8	1.0	-59.3	-13.0	-46.3	
5019.00	-21.1	H	3.0	39.8	1.0	-59.9	-13.0	-46.9	
High Ch, 844MHz									
1688.00	-18.9	V	3.0	38.2	1.0	-56.2	-13.0	-43.2	
2532.00	1.8	V	3.0	38.9	1.0	-36.1	-13.0	-23.1	
3376.00	-19.6	V	3.0	39.5	1.0	-58.1	-13.0	-45.1	
4220.00	-16.7	V	3.0	39.8	1.0	-55.5	-13.0	-42.5	
5064.00	-17.3	V	3.0	39.8	1.0	-56.1	-13.0	-43.1	
1688.00	-17.9	H	3.0	38.2	1.0	-55.2	-13.0	-42.2	
2532.00	-0.7	H	3.0	38.9	1.0	-38.5	-13.0	-25.5	
3376.00	-24.0	H	3.0	39.5	1.0	-62.5	-13.0	-49.5	
4220.00	-17.8	H	3.0	39.8	1.0	-56.6	-13.0	-43.6	
5064.00	-18.4	H	3.0	39.8	1.0	-57.2	-13.0	-44.2	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-18							
Test Engineer:		51072							
Configuration:		EUT / Adapter / Earphone , X-position							
Location:		Chamber 2							
Mode:		LTE_16QAM Band 5 Harmonics, 10MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 829MHz									
1658.00	-17.8	V	3.0	38.2	1.0	-55.1	-13.0	-42.1	
2487.00	-28.6	V	3.0	38.8	1.0	-66.4	-13.0	-53.4	
3316.00	-22.9	V	3.0	39.4	1.0	-61.4	-13.0	-48.4	
4145.00	-19.1	V	3.0	39.8	1.0	-57.9	-13.0	-44.9	
4974.00	-16.7	V	3.0	39.8	1.0	-55.4	-13.0	-42.4	
1658.00	-19.2	H	3.0	38.2	1.0	-56.4	-13.0	-43.4	
2487.00	-28.9	H	3.0	38.8	1.0	-66.7	-13.0	-53.7	
3316.00	-25.4	H	3.0	39.4	1.0	-63.9	-13.0	-50.9	
4145.00	-20.8	H	3.0	39.8	1.0	-59.6	-13.0	-46.6	
4974.00	-20.4	H	3.0	39.8	1.0	-59.2	-13.0	-46.2	
Mid Ch, 836.5MHz									
1673.00	-19.2	V	3.0	38.2	1.0	-56.4	-13.0	-43.4	
2509.50	-4.0	V	3.0	38.8	1.0	-41.8	-13.0	-28.8	
3346.00	-23.3	V	3.0	39.5	1.0	-61.7	-13.0	-48.7	
4182.50	-19.6	V	3.0	39.8	1.0	-58.4	-13.0	-45.4	
5019.00	-19.8	V	3.0	39.8	1.0	-58.6	-13.0	-45.6	
1673.00	-19.3	H	3.0	38.2	1.0	-56.5	-13.0	-43.5	
2509.50	-0.8	H	3.0	38.8	1.0	-38.7	-13.0	-25.7	
3346.00	-25.6	H	3.0	39.5	1.0	-64.1	-13.0	-51.1	
4182.50	-21.2	H	3.0	39.8	1.0	-60.0	-13.0	-47.0	
5019.00	-21.6	H	3.0	39.8	1.0	-60.4	-13.0	-47.4	
High Ch, 844MHz									
1688.00	-24.5	V	3.0	38.2	1.0	-61.8	-13.0	-48.8	
2532.00	-6.2	V	3.0	38.9	1.0	-44.0	-13.0	-31.0	
3376.00	-20.3	V	3.0	39.5	1.0	-58.8	-13.0	-45.8	
4220.00	-19.6	V	3.0	39.8	1.0	-58.4	-13.0	-45.4	
5064.00	-18.6	V	3.0	39.8	1.0	-57.4	-13.0	-44.4	
1688.00	-19.7	H	3.0	38.2	1.0	-56.9	-13.0	-43.9	
2532.00	-0.2	H	3.0	38.9	1.0	-38.0	-13.0	-25.0	
3376.00	-23.6	H	3.0	39.5	1.0	-62.1	-13.0	-49.1	
4220.00	-18.4	H	3.0	39.8	1.0	-57.2	-13.0	-44.2	
5064.00	-20.0	H	3.0	39.8	1.0	-58.8	-13.0	-45.8	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-18							
Test Engineer:		51072							
Configuration:		EUT / Adapter / Earphone , X-position							
Location:		Chamber 2							
Mode:		LTE_QPSK Band 5 Harmonics, 5MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.5MHz									
1653.00	-19.0	V	3.0	38.2	1.0	-56.3	-13.0	-43.3	
2479.50	-9.2	V	3.0	38.8	1.0	-47.0	-13.0	-34.0	
3306.00	-21.1	V	3.0	39.4	1.0	-59.6	-13.0	-46.6	
4132.50	-16.5	V	3.0	39.8	1.0	-55.4	-13.0	-42.4	
4959.00	-16.7	V	3.0	39.8	1.0	-55.5	-13.0	-42.5	
1653.00	-19.5	H	3.0	38.2	1.0	-56.8	-13.0	-43.8	
2479.50	-9.9	H	3.0	38.8	1.0	-47.7	-13.0	-34.7	
3306.00	-21.8	H	3.0	39.4	1.0	-60.2	-13.0	-47.2	
4132.50	-19.5	H	3.0	39.8	1.0	-58.3	-13.0	-45.3	
4959.00	-20.3	H	3.0	39.8	1.0	-59.0	-13.0	-46.0	
Mid Ch, 836.5MHz									
1673.00	-21.8	V	3.0	38.2	1.0	-59.1	-13.0	-46.1	
2509.50	-0.6	V	3.0	38.8	1.0	-38.4	-13.0	-25.4	
3346.00	-22.1	V	3.0	39.5	1.0	-60.6	-13.0	-47.6	
4182.50	-17.6	V	3.0	39.8	1.0	-56.4	-13.0	-43.4	
5019.00	-18.9	V	3.0	39.8	1.0	-57.7	-13.0	-44.7	
1673.00	-17.9	H	3.0	38.2	1.0	-55.1	-13.0	-42.1	
2509.50	0.9	H	3.0	38.8	1.0	-37.0	-13.0	-24.0	
3346.00	-24.7	H	3.0	39.5	1.0	-63.2	-13.0	-50.2	
4182.50	-20.2	H	3.0	39.8	1.0	-59.0	-13.0	-46.0	
5019.00	-21.2	H	3.0	39.8	1.0	-60.0	-13.0	-47.0	
High Ch, 846.5MHz									
1693.00	-24.7	V	3.0	38.2	1.0	-61.9	-13.0	-48.9	
2539.50	1.1	V	3.0	38.9	1.0	-36.7	-13.0	-23.7	
3386.00	-21.4	V	3.0	39.5	1.0	-59.9	-13.0	-46.9	
4232.50	-17.2	V	3.0	39.8	1.0	-56.0	-13.0	-43.0	
5079.00	-17.0	V	3.0	39.8	1.0	-55.7	-13.0	-42.7	
1693.00	-19.5	H	3.0	38.2	1.0	-56.8	-13.0	-43.8	
2539.50	1.0	H	3.0	38.9	1.0	-36.9	-13.0	-23.9	
3386.00	-24.8	H	3.0	39.5	1.0	-63.3	-13.0	-50.3	
4232.50	-17.1	H	3.0	39.8	1.0	-55.9	-13.0	-42.9	
5079.00	-19.8	H	3.0	39.8	1.0	-58.6	-13.0	-45.6	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-18							
Test Engineer:		51072							
Configuration:		EUT / Adapter / Earphone , X-position							
Location:		Chamber 2							
Mode:		LTE_16QAM Band 5 Harmonics, 5MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.5MHz									
1653.00	-20.1	V	3.0	38.2	1.0	-57.3	-13.0	-44.3	
2479.50	-11.4	V	3.0	38.8	1.0	-49.2	-13.0	-36.2	
3306.00	-22.0	V	3.0	39.4	1.0	-60.5	-13.0	-47.5	
4132.50	-18.4	V	3.0	39.8	1.0	-57.2	-13.0	-44.2	
4959.00	-17.8	V	3.0	39.8	1.0	-56.6	-13.0	-43.6	
1653.00	-20.5	H	3.0	38.2	1.0	-57.7	-13.0	-44.7	
2479.50	-12.7	H	3.0	38.8	1.0	-50.6	-13.0	-37.6	
3306.00	-23.0	H	3.0	39.4	1.0	-61.4	-13.0	-48.4	
4132.50	-20.8	H	3.0	39.8	1.0	-59.6	-13.0	-46.6	
4959.00	-21.4	H	3.0	39.8	1.0	-60.2	-13.0	-47.2	
Mid Ch, 836.5MHz									
1673.00	-25.9	V	3.0	38.2	1.0	-63.1	-13.0	-50.1	
2509.50	-4.6	V	3.0	38.8	1.0	-42.4	-13.0	-29.4	
3346.00	-24.8	V	3.0	39.5	1.0	-63.3	-13.0	-50.3	
4182.50	-20.5	V	3.0	39.8	1.0	-59.3	-13.0	-46.3	
5019.00	-17.5	V	3.0	39.8	1.0	-56.3	-13.0	-43.3	
1673.00	-19.8	H	3.0	38.2	1.0	-57.0	-13.0	-44.0	
2509.50	-1.8	H	3.0	38.8	1.0	-39.6	-13.0	-26.6	
3346.00	-24.6	H	3.0	39.5	1.0	-63.1	-13.0	-50.1	
4182.50	-22.5	H	3.0	39.8	1.0	-61.4	-13.0	-48.4	
5019.00	-20.9	H	3.0	39.8	1.0	-59.7	-13.0	-46.7	
High Ch, 846.5MHz									
1693.00	-25.4	V	3.0	38.2	1.0	-62.7	-13.0	-49.7	
2539.50	-1.3	V	3.0	38.9	1.0	-39.2	-13.0	-26.2	
3386.00	-22.3	V	3.0	39.5	1.0	-60.8	-13.0	-47.8	
4232.50	-18.6	V	3.0	39.8	1.0	-57.4	-13.0	-44.4	
5079.00	-18.3	V	3.0	39.8	1.0	-57.1	-13.0	-44.1	
1693.00	-20.7	H	3.0	38.2	1.0	-58.0	-13.0	-45.0	
2539.50	-0.1	H	3.0	38.9	1.0	-37.9	-13.0	-24.9	
3386.00	-25.4	H	3.0	39.5	1.0	-63.8	-13.0	-50.8	
4232.50	-18.4	H	3.0	39.8	1.0	-57.2	-13.0	-44.2	
5079.00	-20.8	H	3.0	39.8	1.0	-59.6	-13.0	-46.6	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-18							
Test Engineer:		51072							
Configuration:		EUT / Adapter / Earphone , X-position							
Location:		Chamber 2							
Mode:		LTE_QPSK Band 5 Harmonics, 3MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 825.5MHz									
1651.00	-17.4	V	3.0	38.2	1.0	-54.7	-13.0	-41.7	
2476.50	-28.4	V	3.0	38.8	1.0	-66.2	-13.0	-53.2	
3302.00	-24.3	V	3.0	39.4	1.0	-62.7	-13.0	-49.7	
4127.50	-21.5	V	3.0	39.8	1.0	-60.3	-13.0	-47.3	
4953.00	-19.0	V	3.0	39.8	1.0	-57.8	-13.0	-44.8	
1651.00	-18.9	H	3.0	38.2	1.0	-56.1	-13.0	-43.1	
2476.50	-29.0	H	3.0	38.8	1.0	-66.8	-13.0	-53.8	
3302.00	-26.2	H	3.0	39.4	1.0	-64.6	-13.0	-51.6	
4127.50	-23.0	H	3.0	39.8	1.0	-61.8	-13.0	-48.8	
4953.00	-21.7	H	3.0	39.8	1.0	-60.5	-13.0	-47.5	
Mid Ch, 836.5MHz									
1673.00	-19.3	V	3.0	38.2	1.0	-56.6	-13.0	-43.6	
2509.50	-1.9	V	3.0	38.8	1.0	-39.8	-13.0	-26.8	
3346.00	-22.9	V	3.0	39.5	1.0	-61.3	-13.0	-48.3	
4182.50	-21.3	V	3.0	39.8	1.0	-60.1	-13.0	-47.1	
5019.00	-21.6	V	3.0	39.8	1.0	-60.4	-13.0	-47.4	
1673.00	-17.8	H	3.0	38.2	1.0	-55.0	-13.0	-42.0	
2509.50	0.0	H	3.0	38.8	1.0	-37.8	-13.0	-24.8	
3346.00	-25.2	H	3.0	39.5	1.0	-63.7	-13.0	-50.7	
4182.50	-22.4	H	3.0	39.8	1.0	-61.2	-13.0	-48.2	
5019.00	-22.0	H	3.0	39.8	1.0	-60.8	-13.0	-47.8	
High Ch, 847.5MHz									
1695.00	-22.1	V	3.0	38.2	1.0	-59.3	-13.0	-46.3	
2542.50	-1.4	V	3.0	38.9	1.0	-39.2	-13.0	-26.2	
3390.00	-21.4	V	3.0	39.5	1.0	-59.9	-13.0	-46.9	
4237.50	-19.7	V	3.0	39.8	1.0	-58.5	-13.0	-45.5	
5085.00	-19.0	V	3.0	39.8	1.0	-57.7	-13.0	-44.7	
1695.00	-17.5	H	3.0	38.2	1.0	-54.7	-13.0	-41.7	
2542.50	4.9	H	3.0	38.9	1.0	-32.9	-13.0	-19.9	
3390.00	-24.0	H	3.0	39.5	1.0	-62.5	-13.0	-49.5	
4237.50	-20.8	H	3.0	39.8	1.0	-59.6	-13.0	-46.6	
5085.00	-22.0	H	3.0	39.8	1.0	-60.8	-13.0	-47.8	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-18							
Test Engineer:		51072							
Configuration:		EUT / Adapter / Earphone , X-position							
Location:		Chamber 2							
Mode:		LTE_16QAM Band 5 Harmonics, 3MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 825.5MHz									
1651.00	-18.2	V	3.0	38.2	1.0	-55.4	-13.0	-42.4	
2476.50	-28.8	V	3.0	38.8	1.0	-66.6	-13.0	-53.6	
3302.00	-24.6	V	3.0	39.4	1.0	-63.1	-13.0	-50.1	
4127.50	-22.2	V	3.0	39.8	1.0	-61.0	-13.0	-48.0	
4953.00	-19.8	V	3.0	39.8	1.0	-58.6	-13.0	-45.6	
1651.00	-19.4	H	3.0	38.2	1.0	-56.7	-13.0	-43.7	
2476.50	-29.1	H	3.0	38.8	1.0	-66.9	-13.0	-53.9	
3302.00	-26.3	H	3.0	39.4	1.0	-64.8	-13.0	-51.8	
4127.50	-23.5	H	3.0	39.8	1.0	-62.3	-13.0	-49.3	
4953.00	-22.1	H	3.0	39.8	1.0	-60.9	-13.0	-47.9	
Mid Ch, 836.5MHz									
1673.00	-20.8	V	3.0	38.2	1.0	-58.0	-13.0	-45.0	
2509.50	-3.4	V	3.0	38.8	1.0	-41.2	-13.0	-28.2	
3346.00	-23.8	V	3.0	39.5	1.0	-62.3	-13.0	-49.3	
4182.50	-22.1	V	3.0	39.8	1.0	-60.9	-13.0	-47.9	
5019.00	-22.4	V	3.0	39.8	1.0	-61.1	-13.0	-48.1	
1673.00	-18.8	H	3.0	38.2	1.0	-56.0	-13.0	-43.0	
2509.50	-1.0	H	3.0	38.8	1.0	-38.8	-13.0	-25.8	
3346.00	-25.7	H	3.0	39.5	1.0	-64.2	-13.0	-51.2	
4182.50	-23.3	H	3.0	39.8	1.0	-62.1	-13.0	-49.1	
5019.00	-22.7	H	3.0	39.8	1.0	-61.5	-13.0	-48.5	
High Ch, 847.5MHz									
1695.00	-23.0	V	3.0	38.2	1.0	-60.2	-13.0	-47.2	
2542.50	-2.0	V	3.0	38.9	1.0	-39.9	-13.0	-26.9	
3390.00	-22.3	V	3.0	39.5	1.0	-60.8	-13.0	-47.8	
4237.50	-20.3	V	3.0	39.8	1.0	-59.1	-13.0	-46.1	
5085.00	-19.7	V	3.0	39.8	1.0	-58.5	-13.0	-45.5	
1695.00	-18.4	H	3.0	38.2	1.0	-55.7	-13.0	-42.7	
2542.50	2.2	H	3.0	38.9	1.0	-35.7	-13.0	-22.7	
3390.00	-24.8	H	3.0	39.5	1.0	-63.3	-13.0	-50.3	
4237.50	-21.3	H	3.0	39.8	1.0	-60.1	-13.0	-47.1	
5085.00	-22.5	H	3.0	39.8	1.0	-61.3	-13.0	-48.3	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788481138							
Date:		2018-06-18							
Test Engineer:		51072							
Configuration:		EUT / Adapter / Earphone , X-position							
Location:		Chamber 2							
Mode:		LTE_QPSK Band 5 Harmonics, 1.4MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.7MHz									
1649.40	-18.0	V	3.0	38.2	1.0	-55.3	-13.0	-42.3	
2474.10	-27.9	V	3.0	38.8	1.0	-65.7	-13.0	-52.7	
3298.80	-23.1	V	3.0	39.4	1.0	-61.6	-13.0	-48.6	
4123.50	-21.6	V	3.0	39.8	1.0	-60.5	-13.0	-47.5	
4948.20	-19.0	V	3.0	39.8	1.0	-57.8	-13.0	-44.8	
1649.40	-19.2	H	3.0	38.2	1.0	-56.4	-13.0	-43.4	
2474.10	-29.0	H	3.0	38.8	1.0	-66.8	-13.0	-53.8	
3298.80	-24.0	H	3.0	39.4	1.0	-62.4	-13.0	-49.4	
4123.50	-24.0	H	3.0	39.8	1.0	-62.8	-13.0	-49.8	
4948.20	-22.0	H	3.0	39.8	1.0	-60.8	-13.0	-47.8	
Mid Ch, 836.5MHz									
1673.00	-17.5	V	3.0	38.2	1.0	-54.8	-13.0	-41.8	
2509.50	0.3	V	3.0	38.8	1.0	-37.6	-13.0	-24.6	
3346.00	-22.1	V	3.0	39.5	1.0	-60.6	-13.0	-47.6	
4182.50	-20.0	V	3.0	39.8	1.0	-58.8	-13.0	-45.8	
5019.00	-21.0	V	3.0	39.8	1.0	-59.8	-13.0	-46.8	
1673.00	-17.1	H	3.0	38.2	1.0	-54.4	-13.0	-41.4	
2509.50	-0.2	H	3.0	38.8	1.0	-38.1	-13.0	-25.1	
3346.00	-25.5	H	3.0	39.5	1.0	-63.9	-13.0	-50.9	
4182.50	-21.2	H	3.0	39.8	1.0	-60.0	-13.0	-47.0	
5019.00	-21.2	H	3.0	39.8	1.0	-60.0	-13.0	-47.0	
High Ch, 848.3MHz									
1696.60	-21.9	V	3.0	38.2	1.0	-59.1	-13.0	-46.1	
2544.90	-0.7	V	3.0	38.9	1.0	-38.6	-13.0	-25.6	
3393.20	-19.5	V	3.0	39.5	1.0	-58.0	-13.0	-45.0	
4241.50	-19.6	V	3.0	39.8	1.0	-58.4	-13.0	-45.4	
5089.80	-18.7	V	3.0	39.8	1.0	-57.5	-13.0	-44.5	
1696.60	-16.6	H	3.0	38.2	1.0	-53.9	-13.0	-40.9	
2544.90	0.5	H	3.0	38.9	1.0	-37.4	-13.0	-24.4	
3393.20	-22.8	H	3.0	39.5	1.0	-61.2	-13.0	-48.2	
4241.50	-21.5	H	3.0	39.8	1.0	-60.3	-13.0	-47.3	
5089.80	-21.4	H	3.0	39.8	1.0	-60.2	-13.0	-47.2	

LTE Band 5 1.4MHz 16QAM	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company:		Samsung							
	Project #:		4788481138							
	Date:		2018-06-18							
	Test Engineer:		51072							
	Configuration:		EUT / Adapter / Earphone , X-position							
	Location:		Chamber 2							
	Mode:		LTE_16QAM Band 5 Harmonics, 1.4MHz Bandwidth							
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 824.7MHz									
	1649.40	-19.0	V	3.0	38.2	1.0	-56.2	-13.0	-43.2	
	2474.10	-28.4	V	3.0	38.8	1.0	-66.2	-13.0	-53.2	
	3298.80	-23.6	V	3.0	39.4	1.0	-62.1	-13.0	-49.1	
	4123.50	-22.7	V	3.0	39.8	1.0	-61.6	-13.0	-48.6	
	4948.20	-20.3	V	3.0	39.8	1.0	-59.1	-13.0	-46.1	
	1649.40	-20.0	H	3.0	38.2	1.0	-57.2	-13.0	-44.2	
	2474.10	-29.3	H	3.0	38.8	1.0	-67.2	-13.0	-54.2	
	3298.80	-24.7	H	3.0	39.4	1.0	-63.1	-13.0	-50.1	
	4123.50	-24.7	H	3.0	39.8	1.0	-63.5	-13.0	-50.5	
	4948.20	-22.6	H	3.0	39.8	1.0	-61.4	-13.0	-48.4	
	Mid Ch, 836.5MHz									
	1673.00	-18.2	V	3.0	38.2	1.0	-55.5	-13.0	-42.5	
	2509.50	-0.1	V	3.0	38.8	1.0	-37.9	-13.0	-24.9	
	3346.00	-22.4	V	3.0	39.5	1.0	-60.8	-13.0	-47.8	
	4182.50	-20.5	V	3.0	39.8	1.0	-59.3	-13.0	-46.3	
	5019.00	-21.1	V	3.0	39.8	1.0	-59.8	-13.0	-46.8	
	1673.00	-18.4	H	3.0	38.2	1.0	-55.6	-13.0	-42.6	
	2509.50	-1.6	H	3.0	38.8	1.0	-39.4	-13.0	-26.4	
	3346.00	-25.7	H	3.0	39.5	1.0	-64.2	-13.0	-51.2	
	4182.50	-21.1	H	3.0	39.8	1.0	-59.9	-13.0	-46.9	
	5019.00	-21.6	H	3.0	39.8	1.0	-60.4	-13.0	-47.4	
	High Ch, 848.3MHz									
	1696.60	-22.6	V	3.0	38.2	1.0	-59.9	-13.0	-46.9	
2544.90	-1.2	V	3.0	38.9	1.0	-39.1	-13.0	-26.1		
3393.20	-20.5	V	3.0	39.5	1.0	-59.0	-13.0	-46.0		
4241.50	-20.4	V	3.0	39.8	1.0	-59.2	-13.0	-46.2		
5089.80	-19.3	V	3.0	39.8	1.0	-58.1	-13.0	-45.1		
1696.60	-17.5	H	3.0	38.2	1.0	-54.7	-13.0	-41.7		
2544.90	-0.3	H	3.0	38.9	1.0	-38.2	-13.0	-25.2		
3393.20	-23.5	H	3.0	39.5	1.0	-61.9	-13.0	-48.9		
4241.50	-22.0	H	3.0	39.8	1.0	-60.8	-13.0	-47.8		
5089.80	-21.8	H	3.0	39.8	1.0	-60.6	-13.0	-47.6		

LTE Band 7

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788534512							
Date:		2018-07-20							
Test Engineer:		45585							
Configuration:		EUT / AC Adapter / Earphone, Y-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 7 Harmonics, 20MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2510MHz									
5020.00	-12.3	V	3.0	43.8	1.0	-55.1	-25.0	-30.1	
7530.00	-15.0	V	3.0	42.4	1.0	-56.4	-25.0	-31.4	
10040.00	-19.0	V	3.0	40.6	1.0	-58.6	-25.0	-33.6	
12550.00	-7.3	V	3.0	41.7	1.0	-48.0	-25.0	-23.0	
5020.00	-13.9	H	3.0	43.8	1.0	-56.6	-25.0	-31.6	
7530.00	-9.9	H	3.0	42.4	1.0	-51.4	-25.0	-26.4	
10040.00	-17.8	H	3.0	40.6	1.0	-57.3	-25.0	-32.3	
12550.00	-3.2	H	3.0	41.7	1.0	-43.9	-25.0	-18.9	
Mid Ch, 2535MHz									
5070.00	-10.7	V	3.0	43.8	1.0	-53.5	-25.0	-28.5	
7605.00	-16.9	V	3.0	42.4	1.0	-58.3	-25.0	-33.3	
10140.00	-17.3	V	3.0	40.6	1.0	-56.9	-25.0	-31.9	
12675.00	-9.9	V	3.0	41.8	1.0	-50.6	-25.0	-25.6	
5070.00	-11.8	H	3.0	43.8	1.0	-54.6	-25.0	-29.6	
7605.00	-11.4	H	3.0	42.4	1.0	-52.8	-25.0	-27.8	
10140.00	-13.1	H	3.0	40.6	1.0	-52.6	-25.0	-27.6	
12675.00	-2.8	H	3.0	41.8	1.0	-43.5	-25.0	-18.5	
High Ch, 2560MHz									
5120.00	-7.2	V	3.0	43.8	1.0	-50.0	-25.0	-25.0	
7680.00	-11.3	V	3.0	42.4	1.0	-52.7	-25.0	-27.7	
10240.00	-16.9	V	3.0	40.6	1.0	-56.5	-25.0	-31.5	
12800.00	-10.0	V	3.0	41.9	1.0	-50.9	-25.0	-25.9	
5120.00	-12.1	H	3.0	43.8	1.0	-54.9	-25.0	-29.9	
7680.00	-5.7	H	3.0	42.4	1.0	-47.1	-25.0	-22.1	
10240.00	-13.6	H	3.0	40.6	1.0	-53.2	-25.0	-28.2	
12800.00	-2.4	H	3.0	41.9	1.0	-43.3	-25.0	-18.3	

LTE

Band 7

20MHz

16QAM

UL Verification Services, Inc.

Above 1GHz High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788534512

2018-07-20

45585

EUT / AC Adapter / Earphone, Y-Position

Chamber 1

LTE_16QAM Band 7 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2510MHz									
5020.00	-13.0	V	3.0	43.8	1.0	-55.8	-25.0	-30.8	
7530.00	-15.3	V	3.0	42.4	1.0	-56.8	-25.0	-31.8	
10040.00	-19.1	V	3.0	40.6	1.0	-58.6	-25.0	-33.6	
12550.00	-8.0	V	3.0	41.7	1.0	-48.6	-25.0	-23.6	
5020.00	-14.5	H	3.0	43.8	1.0	-57.3	-25.0	-32.3	
7530.00	-10.4	H	3.0	42.4	1.0	-51.9	-25.0	-26.9	
10040.00	-18.1	H	3.0	40.6	1.0	-57.7	-25.0	-32.7	
12550.00	-3.9	H	3.0	41.7	1.0	-44.5	-25.0	-19.5	
Mid Ch, 2535MHz									
5070.00	-11.3	V	3.0	43.8	1.0	-54.0	-25.0	-29.0	
7605.00	-17.0	V	3.0	42.4	1.0	-58.4	-25.0	-33.4	
10140.00	-17.5	V	3.0	40.6	1.0	-57.1	-25.0	-32.1	
12675.00	-10.4	V	3.0	41.8	1.0	-51.2	-25.0	-26.2	
5070.00	-12.4	H	3.0	43.8	1.0	-55.2	-25.0	-30.2	
7605.00	-12.6	H	3.0	42.4	1.0	-54.0	-25.0	-29.0	
10140.00	-14.3	H	3.0	40.6	1.0	-53.9	-25.0	-28.9	
12675.00	-4.0	H	3.0	41.8	1.0	-44.7	-25.0	-19.7	
High Ch, 2560MHz									
5120.00	-8.4	V	3.0	43.8	1.0	-51.1	-25.0	-26.1	
7680.00	-12.8	V	3.0	42.4	1.0	-54.2	-25.0	-29.2	
10240.00	-17.4	V	3.0	40.6	1.0	-57.0	-25.0	-32.0	
12800.00	-10.9	V	3.0	41.9	1.0	-51.7	-25.0	-26.7	
5120.00	-13.3	H	3.0	43.8	1.0	-56.1	-25.0	-31.1	
7680.00	-7.9	H	3.0	42.4	1.0	-49.3	-25.0	-24.3	
10240.00	-15.2	H	3.0	40.6	1.0	-54.9	-25.0	-29.9	
12800.00	-3.7	H	3.0	41.9	1.0	-44.5	-25.0	-19.5	

LTE

Band 7

15MHz

QPSK

UL Verification Services, Inc.

Above 1GHz High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788534512

2018-07-13

47989

EUT / AC Adapter / Earphone, Y-Position

Chamber 1

LTE_QPSK Band 7 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2507.5MHz									
5015.00	-9.2	V	3.0	43.8	1.0	-52.0	-25.0	-27.0	
7522.50	-12.4	V	3.0	42.5	1.0	-53.9	-25.0	-28.9	
10030.00	-14.9	V	3.0	40.6	1.0	-54.5	-25.0	-29.5	
12537.50	-9.3	V	3.0	41.6	1.0	-50.0	-25.0	-25.0	
5015.00	-9.0	H	3.0	43.8	1.0	-51.8	-25.0	-26.8	
7522.50	-5.0	H	3.0	42.5	1.0	-46.5	-25.0	-21.5	
10030.00	-13.3	H	3.0	40.6	1.0	-52.9	-25.0	-27.9	
12537.50	-6.5	H	3.0	41.6	1.0	-47.1	-25.0	-22.1	
Mid Ch, 2535MHz									
5070.00	-6.8	V	3.0	43.8	1.0	-49.6	-25.0	-24.6	
7605.00	-15.1	V	3.0	42.4	1.0	-56.5	-25.0	-31.5	
10140.00	-15.2	V	3.0	40.6	1.0	-54.8	-25.0	-29.8	
12675.00	-9.3	V	3.0	41.8	1.0	-50.0	-25.0	-25.0	
5070.00	-10.4	H	3.0	43.8	1.0	-53.2	-25.0	-28.2	
7605.00	-8.9	H	3.0	42.4	1.0	-50.3	-25.0	-25.3	
10140.00	-13.7	H	3.0	40.6	1.0	-53.3	-25.0	-28.3	
12675.00	-9.3	H	3.0	41.8	1.0	-50.1	-25.0	-25.1	
High Ch, 2562.5MHz									
5125.00	-8.4	V	3.0	43.8	1.0	-51.2	-25.0	-26.2	
7687.50	-17.0	V	3.0	42.4	1.0	-58.3	-25.0	-33.3	
10250.00	-16.9	V	3.0	40.6	1.0	-56.6	-25.0	-31.6	
12812.50	-10.6	V	3.0	41.9	1.0	-51.5	-25.0	-26.5	
5125.00	-10.2	H	3.0	43.8	1.0	-53.0	-25.0	-28.0	
7687.50	-12.1	H	3.0	42.4	1.0	-53.4	-25.0	-28.4	
10250.00	-13.7	H	3.0	40.6	1.0	-53.4	-25.0	-28.4	
12812.50	-3.2	H	3.0	41.9	1.0	-44.1	-25.0	-19.1	

LTE

Band 7

15MHz

16QAM

UL Verification Services, Inc.

Above 1GHz High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788534512

2018-07-13

47989

EUT / AC Adapter / Earphone, Y-Position

Chamber 1

LTE_16QAM Band 7 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2507.5MHz									
5015.00	-9.9	V	3.0	43.8	1.0	-52.7	-25.0	-27.7	
7522.50	-11.6	V	3.0	42.5	1.0	-53.0	-25.0	-28.0	
10030.00	-15.2	V	3.0	40.6	1.0	-54.8	-25.0	-29.8	
12537.50	-10.2	V	3.0	41.6	1.0	-50.8	-25.0	-25.8	
5015.00	-10.1	H	3.0	43.8	1.0	-52.9	-25.0	-27.9	
7522.50	-6.5	H	3.0	42.5	1.0	-48.0	-25.0	-23.0	
10030.00	-14.1	H	3.0	40.6	1.0	-53.6	-25.0	-28.6	
12537.50	-7.0	H	3.0	41.6	1.0	-47.6	-25.0	-22.6	
Mid Ch, 2535MHz									
5070.00	-7.5	V	3.0	43.8	1.0	-50.3	-25.0	-25.3	
7605.00	-14.2	V	3.0	42.4	1.0	-55.6	-25.0	-30.6	
10140.00	-16.4	V	3.0	40.6	1.0	-56.0	-25.0	-31.0	
12675.00	-10.2	V	3.0	41.8	1.0	-51.0	-25.0	-26.0	
5070.00	-12.3	H	3.0	43.8	1.0	-55.1	-25.0	-30.1	
7605.00	-10.3	H	3.0	42.4	1.0	-51.7	-25.0	-26.7	
10140.00	-14.1	H	3.0	40.6	1.0	-53.7	-25.0	-28.7	
12675.00	-9.7	H	3.0	41.8	1.0	-50.4	-25.0	-25.4	
High Ch, 2562.5MHz									
5125.00	-9.7	V	3.0	43.8	1.0	-52.4	-25.0	-27.4	
7687.50	-17.4	V	3.0	42.4	1.0	-58.8	-25.0	-33.8	
10250.00	-17.9	V	3.0	40.6	1.0	-57.5	-25.0	-32.5	
12812.50	-10.9	V	3.0	41.9	1.0	-51.7	-25.0	-26.7	
5125.00	-11.1	H	3.0	43.8	1.0	-53.9	-25.0	-28.9	
7687.50	-12.9	H	3.0	42.4	1.0	-54.2	-25.0	-29.2	
10250.00	-14.7	H	3.0	40.6	1.0	-54.3	-25.0	-29.3	
12812.50	-4.7	H	3.0	41.9	1.0	-45.5	-25.0	-20.5	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788534512							
Date:		2018-07-13							
Test Engineer:		47989							
Configuration:		EUT / AC Adapter / Earphone, Y-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 7 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
Low Ch, 2505MHz									
5010.00	-11.8	V	3.0	43.8	1.0	-54.6	-25.0	-29.6	
7515.00	-10.4	V	3.0	42.5	1.0	-51.8	-25.0	-26.8	
10020.00	-15.6	V	3.0	40.6	1.0	-55.1	-25.0	-30.1	
12525.00	-8.7	V	3.0	41.6	1.0	-49.3	-25.0	-24.3	
5010.00	-10.7	H	3.0	43.8	1.0	-53.5	-25.0	-28.5	
7515.00	-12.9	H	3.0	42.5	1.0	-54.4	-25.0	-29.4	
10020.00	-14.3	H	3.0	40.6	1.0	-53.9	-25.0	-28.9	
12525.00	-9.6	H	3.0	41.6	1.0	-50.2	-25.0	-25.2	
Mid Ch, 2535MHz									
5070.00	-7.1	V	3.0	43.8	1.0	-49.9	-25.0	-24.9	
7605.00	-13.0	V	3.0	42.4	1.0	-54.4	-25.0	-29.4	
10140.00	-14.8	V	3.0	40.6	1.0	-54.4	-25.0	-29.4	
12675.00	-8.3	V	3.0	41.8	1.0	-49.0	-25.0	-24.0	
5070.00	-6.7	H	3.0	43.8	1.0	-49.5	-25.0	-24.5	
7605.00	-8.8	H	3.0	42.4	1.0	-50.2	-25.0	-25.2	
10140.00	-15.0	H	3.0	40.6	1.0	-54.6	-25.0	-29.6	
12675.00	-9.0	H	3.0	41.8	1.0	-49.8	-25.0	-24.8	
High Ch, 2565MHz									
5130.00	-7.1	V	3.0	43.8	1.0	-49.9	-25.0	-24.9	
7695.00	-14.7	V	3.0	42.4	1.0	-56.1	-25.0	-31.1	
10260.00	-15.5	V	3.0	40.6	1.0	-55.1	-25.0	-30.1	
12825.00	-11.6	V	3.0	41.9	1.0	-52.5	-25.0	-27.5	
5130.00	-10.6	H	3.0	43.8	1.0	-53.4	-25.0	-28.4	
7695.00	-9.2	H	3.0	42.4	1.0	-50.5	-25.0	-25.5	
10260.00	-15.3	H	3.0	40.6	1.0	-55.0	-25.0	-30.0	
12825.00	-11.6	H	3.0	41.9	1.0	-52.5	-25.0	-27.5	

LTE

Band 7

10MHz

16QAM

UL Verification Services, Inc.

Above 1GHz High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788534512

2018-07-13

47989

EUT / AC Adapter / Earphone, Y-Position

Chamber 1

LTE_16QAM Band 7 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
Low Ch, 2505MHz									
5010.00	-12.5	V	3.0	43.8	1.0	-55.3	-25.0	-30.3	
7515.00	-12.2	V	3.0	42.5	1.0	-53.7	-25.0	-28.7	
10020.00	-16.1	V	3.0	40.6	1.0	-55.7	-25.0	-30.7	
12525.00	-9.7	V	3.0	41.6	1.0	-50.3	-25.0	-25.3	
5010.00	-10.9	H	3.0	43.8	1.0	-53.7	-25.0	-28.7	
7515.00	-10.1	H	3.0	42.5	1.0	-51.5	-25.0	-26.5	
10020.00	-15.9	H	3.0	40.6	1.0	-55.4	-25.0	-30.4	
12525.00	-10.6	H	3.0	41.6	1.0	-51.2	-25.0	-26.2	
Mid Ch, 2535MHz									
5070.00	-8.7	V	3.0	43.8	1.0	-51.5	-25.0	-26.5	
7605.00	-15.1	V	3.0	42.4	1.0	-56.5	-25.0	-31.5	
10140.00	-15.3	V	3.0	40.6	1.0	-54.8	-25.0	-29.8	
12675.00	-9.1	V	3.0	41.8	1.0	-49.9	-25.0	-24.9	
5070.00	-9.9	H	3.0	43.8	1.0	-52.7	-25.0	-27.7	
7605.00	-9.8	H	3.0	42.4	1.0	-51.2	-25.0	-26.2	
10140.00	-15.9	H	3.0	40.6	1.0	-55.5	-25.0	-30.5	
12675.00	-9.8	H	3.0	41.8	1.0	-50.5	-25.0	-25.5	
High Ch, 2565MHz									
5130.00	-7.7	V	3.0	43.8	1.0	-50.4	-25.0	-25.4	
7695.00	-15.4	V	3.0	42.4	1.0	-56.7	-25.0	-31.7	
10260.00	-16.0	V	3.0	40.6	1.0	-55.6	-25.0	-30.6	
12825.00	-11.9	V	3.0	41.9	1.0	-52.8	-25.0	-27.8	
5130.00	-11.5	H	3.0	43.8	1.0	-54.3	-25.0	-29.3	
7695.00	-10.5	H	3.0	42.4	1.0	-51.9	-25.0	-26.9	
10260.00	-16.0	H	3.0	40.6	1.0	-55.6	-25.0	-30.6	
12825.00	-11.9	H	3.0	41.9	1.0	-52.8	-25.0	-27.8	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788534512							
Date:		2018-07-13							
Test Engineer:		47989							
Configuration:		EUT / AC Adapter / Earphone, Z-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 7 Harmonics, 5MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2502.5MHz									
5005.00	-9.4	V	3.0	43.8	1.0	-52.1	-25.0	-27.1	
7507.50	-13.5	V	3.0	42.5	1.0	-54.9	-25.0	-29.9	
10010.00	-16.3	V	3.0	40.6	1.0	-55.9	-25.0	-30.9	
12512.50	-10.0	V	3.0	41.6	1.0	-50.6	-25.0	-25.6	
5005.00	-5.8	H	3.0	43.8	1.0	-48.6	-25.0	-23.6	
7507.50	-6.3	H	3.0	42.5	1.0	-47.7	-25.0	-22.7	
10010.00	-15.2	H	3.0	40.6	1.0	-54.8	-25.0	-29.8	
12512.50	-8.6	H	3.0	41.6	1.0	-49.2	-25.0	-24.2	
Mid Ch, 2535MHz									
5070.00	-8.0	V	3.0	43.8	1.0	-50.8	-25.0	-25.8	
7605.00	-12.7	V	3.0	42.4	1.0	-54.1	-25.0	-29.1	
10140.00	-15.0	V	3.0	40.6	1.0	-54.6	-25.0	-29.6	
12675.00	-9.1	V	3.0	41.8	1.0	-49.9	-25.0	-24.9	
5070.00	-7.5	H	3.0	43.8	1.0	-50.2	-25.0	-25.2	
7605.00	-8.3	H	3.0	42.4	1.0	-49.7	-25.0	-24.7	
10140.00	-15.2	H	3.0	40.6	1.0	-54.8	-25.0	-29.8	
12675.00	-7.2	H	3.0	41.8	1.0	-47.9	-25.0	-22.9	
High Ch, 2567.5MHz									
5135.00	-5.0	V	3.0	43.8	1.0	-47.8	-25.0	-22.8	
7702.50	-14.8	V	3.0	42.4	1.0	-56.1	-25.0	-31.1	
10270.00	-17.4	V	3.0	40.6	1.0	-57.0	-25.0	-32.0	
12837.50	-12.5	V	3.0	41.9	1.0	-53.4	-25.0	-28.4	
5135.00	-6.9	H	3.0	43.8	1.0	-49.7	-25.0	-24.7	
7702.50	-11.5	H	3.0	42.4	1.0	-52.9	-25.0	-27.9	
10270.00	-15.5	H	3.0	40.6	1.0	-55.2	-25.0	-30.2	
12837.50	-10.6	H	3.0	41.9	1.0	-51.5	-25.0	-26.5	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788534512							
Date:		2018-07-13							
Test Engineer:		47989							
Configuration:		EUT / AC Adapter / Earphone, Y-Position							
Location:		Chamber 1							
Mode:		LTE_16QAM Band 7 Harmonics, 5MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2502.5MHz									
5005.00	-10.1	V	3.0	43.8	1.0	-52.9	-25.0	-27.9	
7507.50	-13.4	V	3.0	42.5	1.0	-54.9	-25.0	-29.9	
10010.00	-16.9	V	3.0	40.6	1.0	-56.5	-25.0	-31.5	
12512.50	-11.0	V	3.0	41.6	1.0	-51.7	-25.0	-26.7	
5005.00	-6.8	H	3.0	43.8	1.0	-49.6	-25.0	-24.6	
7507.50	-8.4	H	3.0	42.5	1.0	-49.8	-25.0	-24.8	
10010.00	-16.0	H	3.0	40.6	1.0	-55.5	-25.0	-30.5	
12512.50	-9.0	H	3.0	41.6	1.0	-49.6	-25.0	-24.6	
Mid Ch, 2535MHz									
5070.00	-9.4	V	3.0	43.8	1.0	-52.2	-25.0	-27.2	
7605.00	-14.1	V	3.0	42.4	1.0	-55.5	-25.0	-30.5	
10140.00	-16.1	V	3.0	40.6	1.0	-55.7	-25.0	-30.7	
12675.00	-10.1	V	3.0	41.8	1.0	-50.9	-25.0	-25.9	
5070.00	-8.5	H	3.0	43.8	1.0	-51.3	-25.0	-26.3	
7605.00	-8.9	H	3.0	42.4	1.0	-50.3	-25.0	-25.3	
10140.00	-15.9	H	3.0	40.6	1.0	-55.5	-25.0	-30.5	
12675.00	-8.8	H	3.0	41.8	1.0	-49.5	-25.0	-24.5	
High Ch, 2567.5MHz									
5135.00	-6.3	V	3.0	43.8	1.0	-49.1	-25.0	-24.1	
7702.50	-16.1	V	3.0	42.4	1.0	-57.5	-25.0	-32.5	
10270.00	-17.8	V	3.0	40.6	1.0	-57.5	-25.0	-32.5	
12837.50	-13.0	V	3.0	41.9	1.0	-53.9	-25.0	-28.9	
5135.00	-7.9	H	3.0	43.8	1.0	-50.7	-25.0	-25.7	
7702.50	-10.5	H	3.0	42.4	1.0	-51.9	-25.0	-26.9	
10270.00	-16.4	H	3.0	40.6	1.0	-56.1	-25.0	-31.1	
12837.50	-11.0	H	3.0	41.9	1.0	-51.9	-25.0	-26.9	

LTE Band 12

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788534512							
Date:		2018-07-20							
Test Engineer:		47989							
Configuration:		EUT / Adapter / Earphone / X-position							
Location:		Chamber 2							
Mode:		LTE_QPSK Band 12 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
Low Ch, 704MHz									
1408.00	-27.4	V	3.0	38.1	1.0	-64.5	-13.0	-51.5	
2112.00	-29.1	V	3.0	38.5	1.0	-66.6	-13.0	-53.6	
2816.00	-27.9	V	3.0	39.1	1.0	-66.0	-13.0	-53.0	
3520.00	-26.5	V	3.0	39.6	1.0	-65.1	-13.0	-52.1	
4224.00	-22.8	V	3.0	39.8	1.0	-61.6	-13.0	-48.6	
1408.00	-24.3	H	3.0	38.1	1.0	-61.5	-13.0	-48.5	
2112.00	-29.5	H	3.0	38.5	1.0	-67.0	-13.0	-54.0	
2816.00	-27.8	H	3.0	39.1	1.0	-65.9	-13.0	-52.9	
3520.00	-26.1	H	3.0	39.6	1.0	-64.7	-13.0	-51.7	
4224.00	-23.4	H	3.0	39.8	1.0	-62.2	-13.0	-49.2	
Mid Ch, 707.5MHz									
1415.00	-25.0	V	3.0	38.1	1.0	-62.1	-13.0	-49.1	
2122.50	-28.5	V	3.0	38.5	1.0	-66.0	-13.0	-53.0	
2830.00	-27.2	V	3.0	39.1	1.0	-65.3	-13.0	-52.3	
3537.50	-25.9	V	3.0	39.6	1.0	-64.4	-13.0	-51.4	
4245.00	-23.3	V	3.0	39.8	1.0	-62.1	-13.0	-49.1	
1415.00	-18.7	H	3.0	38.1	1.0	-55.8	-13.0	-42.8	
2122.50	-29.2	H	3.0	38.5	1.0	-66.7	-13.0	-53.7	
2830.00	-27.1	H	3.0	39.1	1.0	-65.2	-13.0	-52.2	
3537.50	-25.6	H	3.0	39.6	1.0	-64.2	-13.0	-51.2	
4245.00	-22.4	H	3.0	39.8	1.0	-61.3	-13.0	-48.3	
High Ch, 711MHz									
1422.00	-25.1	V	3.0	38.1	1.0	-62.2	-13.0	-49.2	
2133.00	-28.6	V	3.0	38.5	1.0	-66.1	-13.0	-53.1	
2844.00	-27.4	V	3.0	39.1	1.0	-65.5	-13.0	-52.5	
3555.00	-25.5	V	3.0	39.6	1.0	-64.0	-13.0	-51.0	
4266.00	-23.4	V	3.0	39.8	1.0	-62.2	-13.0	-49.2	
1422.00	-18.2	H	3.0	38.1	1.0	-55.3	-13.0	-42.3	
2133.00	-28.9	H	3.0	38.5	1.0	-66.4	-13.0	-53.4	
2844.00	-27.2	H	3.0	39.1	1.0	-65.3	-13.0	-52.3	
3555.00	-25.2	H	3.0	39.6	1.0	-63.7	-13.0	-50.7	
4266.00	-24.5	H	3.0	39.8	1.0	-63.3	-13.0	-50.3	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788534512							
Date:		2018-07-20							
Test Engineer:		47989							
Configuration:		EUT / Adapter / Earphone / X-position							
Location:		Chamber 2							
Mode:		LTE_16QAM Band 12 Harmonics, 10MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 704MHz									
1408.00	-28.0	V	3.0	38.1	1.0	-65.1	-13.0	-52.1	
2112.00	-29.1	V	3.0	38.5	1.0	-66.6	-13.0	-53.6	
2816.00	-28.0	V	3.0	39.1	1.0	-66.1	-13.0	-53.1	
3520.00	-26.6	V	3.0	39.6	1.0	-65.1	-13.0	-52.1	
4224.00	-23.2	V	3.0	39.8	1.0	-62.0	-13.0	-49.0	
1408.00	-25.1	H	3.0	38.1	1.0	-62.2	-13.0	-49.2	
2112.00	-29.7	H	3.0	38.5	1.0	-67.2	-13.0	-54.2	
2816.00	-28.0	H	3.0	39.1	1.0	-66.1	-13.0	-53.1	
3520.00	-26.4	H	3.0	39.6	1.0	-65.0	-13.0	-52.0	
4224.00	-23.8	H	3.0	39.8	1.0	-62.6	-13.0	-49.6	
Mid Ch, 707.5MHz									
1415.00	-25.9	V	3.0	38.1	1.0	-63.0	-13.0	-50.0	
2122.50	-28.2	V	3.0	38.5	1.0	-65.7	-13.0	-52.7	
2830.00	-26.8	V	3.0	39.1	1.0	-64.9	-13.0	-51.9	
3537.50	-25.9	V	3.0	39.6	1.0	-64.5	-13.0	-51.5	
4245.00	-23.9	V	3.0	39.8	1.0	-62.7	-13.0	-49.7	
1415.00	-20.4	H	3.0	38.1	1.0	-57.5	-13.0	-44.5	
2122.50	-29.4	H	3.0	38.5	1.0	-66.8	-13.0	-53.8	
2830.00	-27.4	H	3.0	39.1	1.0	-65.5	-13.0	-52.5	
3537.50	-25.6	H	3.0	39.6	1.0	-64.2	-13.0	-51.2	
4245.00	-22.2	H	3.0	39.8	1.0	-61.0	-13.0	-48.0	
High Ch, 711MHz									
1422.00	-26.0	V	3.0	38.1	1.0	-63.1	-13.0	-50.1	
2133.00	-28.5	V	3.0	38.5	1.0	-66.1	-13.0	-53.1	
2844.00	-27.6	V	3.0	39.1	1.0	-65.7	-13.0	-52.7	
3555.00	-25.9	V	3.0	39.6	1.0	-64.5	-13.0	-51.5	
4266.00	-23.7	V	3.0	39.8	1.0	-62.5	-13.0	-49.5	
1422.00	-18.6	H	3.0	38.1	1.0	-55.7	-13.0	-42.7	
2133.00	-29.5	H	3.0	38.5	1.0	-67.0	-13.0	-54.0	
2844.00	-27.4	H	3.0	39.1	1.0	-65.5	-13.0	-52.5	
3555.00	-25.8	H	3.0	39.6	1.0	-64.4	-13.0	-51.4	
4266.00	-24.8	H	3.0	39.8	1.0	-63.6	-13.0	-50.6	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788534512							
Date:		2018-07-20							
Test Engineer:		47989							
Configuration:		EUT / Adapter / Earphone / X-position							
Location:		Chamber 2							
Mode:		LTE_QPSK Band 12 Harmonics, 5MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 701.5MHz									
1403.00	-29.4	V	3.0	38.1	1.0	-66.5	-13.0	-53.5	
2104.50	-28.9	V	3.0	38.5	1.0	-66.4	-13.0	-53.4	
2806.00	-28.0	V	3.0	39.1	1.0	-66.1	-13.0	-53.1	
3507.50	-26.9	V	3.0	39.5	1.0	-65.5	-13.0	-52.5	
4209.00	-25.5	V	3.0	39.8	1.0	-64.3	-13.0	-51.3	
1403.00	-26.9	H	3.0	38.1	1.0	-64.0	-13.0	-51.0	
2104.50	-29.6	H	3.0	38.5	1.0	-67.1	-13.0	-54.1	
2806.00	-27.9	H	3.0	39.1	1.0	-66.0	-13.0	-53.0	
3507.50	-25.8	H	3.0	39.5	1.0	-64.4	-13.0	-51.4	
4209.00	-25.1	H	3.0	39.8	1.0	-63.9	-13.0	-50.9	
Mid Ch, 707.5MHz									
1415.00	-28.2	V	3.0	38.1	1.0	-65.3	-13.0	-52.3	
2122.50	-28.3	V	3.0	38.5	1.0	-65.8	-13.0	-52.8	
2830.00	-27.1	V	3.0	39.1	1.0	-65.2	-13.0	-52.2	
3537.50	-25.8	V	3.0	39.6	1.0	-64.3	-13.0	-51.3	
4245.00	-22.8	V	3.0	39.8	1.0	-61.6	-13.0	-48.6	
1415.00	-25.7	H	3.0	38.1	1.0	-62.8	-13.0	-49.8	
2122.50	-29.8	H	3.0	38.5	1.0	-67.2	-13.0	-54.2	
2830.00	-27.1	H	3.0	39.1	1.0	-65.2	-13.0	-52.2	
3537.50	-25.2	H	3.0	39.6	1.0	-63.7	-13.0	-50.7	
4245.00	-23.0	H	3.0	39.8	1.0	-61.8	-13.0	-48.8	
High Ch, 713.5MHz									
1427.00	-25.8	V	3.0	38.1	1.0	-62.9	-13.0	-49.9	
2140.50	-25.1	V	3.0	38.5	1.0	-62.6	-13.0	-49.6	
2854.00	-27.6	V	3.0	39.1	1.0	-65.7	-13.0	-52.7	
3567.50	-26.1	V	3.0	39.6	1.0	-64.7	-13.0	-51.7	
4281.00	-24.5	V	3.0	39.8	1.0	-63.4	-13.0	-50.4	
1427.00	-23.3	H	3.0	38.1	1.0	-60.4	-13.0	-47.4	
2140.50	-27.6	H	3.0	38.5	1.0	-65.1	-13.0	-52.1	
2854.00	-27.9	H	3.0	39.1	1.0	-66.0	-13.0	-53.0	
3567.50	-25.6	H	3.0	39.6	1.0	-64.2	-13.0	-51.2	
4281.00	-23.3	H	3.0	39.8	1.0	-62.1	-13.0	-49.1	

LTE Band 12 5MHz 16QAM	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
	Company:		Samsung								
	Project #:		4788534512								
	Date:		2018-07-20								
	Test Engineer:		47989								
	Configuration:		EUT / Adapter / Earphone / X-position								
	Location:		Chamber 2								
	Mode:		LTE_16QAM Band 12 Harmonics, 5MHz Bandwidth								
	f MHz		SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 701.5MHz										
	1403.00		-30.3	V	3.0	38.1	1.0	-67.4	-13.0	-54.4	
	2104.50		-28.9	V	3.0	38.5	1.0	-66.4	-13.0	-53.4	
	2806.00		-28.0	V	3.0	39.1	1.0	-66.1	-13.0	-53.1	
	3507.50		-26.9	V	3.0	39.5	1.0	-65.4	-13.0	-52.4	
	4209.00		-25.9	V	3.0	39.8	1.0	-64.7	-13.0	-51.7	
	1403.00		-28.0	H	3.0	38.1	1.0	-65.1	-13.0	-52.1	
	2104.50		-29.7	H	3.0	38.5	1.0	-67.2	-13.0	-54.2	
	2806.00		-28.3	H	3.0	39.1	1.0	-66.4	-13.0	-53.4	
	3507.50		-26.3	H	3.0	39.5	1.0	-64.8	-13.0	-51.8	
	4209.00		-25.6	H	3.0	39.8	1.0	-64.5	-13.0	-51.5	
	Mid Ch, 707.5MHz										
	1415.00		-29.0	V	3.0	38.1	1.0	-66.1	-13.0	-53.1	
	2122.50		-28.5	V	3.0	38.5	1.0	-66.0	-13.0	-53.0	
	2830.00		-27.1	V	3.0	39.1	1.0	-65.2	-13.0	-52.2	
	3537.50		-25.6	V	3.0	39.6	1.0	-64.2	-13.0	-51.2	
	4245.00		-23.2	V	3.0	39.8	1.0	-62.0	-13.0	-49.0	
	1415.00		-25.9	H	3.0	38.1	1.0	-63.0	-13.0	-50.0	
	2122.50		-29.8	H	3.0	38.5	1.0	-67.3	-13.0	-54.3	
	2830.00		-27.2	H	3.0	39.1	1.0	-65.3	-13.0	-52.3	
	3537.50		-25.4	H	3.0	39.6	1.0	-64.0	-13.0	-51.0	
	4245.00		-23.5	H	3.0	39.8	1.0	-62.3	-13.0	-49.3	
	High Ch, 713.5MHz										
	1427.00		-26.9	V	3.0	38.1	1.0	-64.0	-13.0	-51.0	
2140.50		-26.3	V	3.0	38.5	1.0	-63.8	-13.0	-50.8		
2854.00		-28.1	V	3.0	39.1	1.0	-66.2	-13.0	-53.2		
3567.50		-26.0	V	3.0	39.6	1.0	-64.6	-13.0	-51.6		
4281.00		-24.2	V	3.0	39.8	1.0	-63.0	-13.0	-50.0		
1427.00		-24.1	H	3.0	38.1	1.0	-61.2	-13.0	-48.2		
2140.50		-27.9	H	3.0	38.5	1.0	-65.4	-13.0	-52.4		
2854.00		-28.3	H	3.0	39.1	1.0	-66.4	-13.0	-53.4		
3567.50		-26.3	H	3.0	39.6	1.0	-64.9	-13.0	-51.9		
4281.00		-23.7	H	3.0	39.8	1.0	-62.5	-13.0	-49.5		

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788534512							
Date:		2018-07-13							
Test Engineer:		51072							
Configuration:		EUT / Adapter / Earphone / X-position							
Location:		Chamber 2							
Mode:		LTE_QPSK Band 12 Harmonics, 3MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 700.5MHz									
1401.00	-30.1	V	3.0	38.1	1.0	-67.2	-13.0	-54.2	
2101.50	-27.7	V	3.0	38.5	1.0	-65.2	-13.0	-52.2	
2802.00	-27.7	V	3.0	39.1	1.0	-65.8	-13.0	-52.8	
3502.50	-26.0	V	3.0	39.5	1.0	-64.5	-13.0	-51.5	
4203.00	-25.5	V	3.0	39.8	1.0	-64.3	-13.0	-51.3	
1401.00	-27.7	H	3.0	38.1	1.0	-64.8	-13.0	-51.8	
2101.50	-27.5	H	3.0	38.5	1.0	-64.9	-13.0	-51.9	
2802.00	-27.0	H	3.0	39.1	1.0	-65.1	-13.0	-52.1	
3502.50	-25.2	H	3.0	39.5	1.0	-63.7	-13.0	-50.7	
4203.00	-23.9	H	3.0	39.8	1.0	-62.7	-13.0	-49.7	
Mid Ch, 707.5MHz									
1415.00	-24.5	V	3.0	38.1	1.0	-61.6	-13.0	-48.6	
2122.50	-27.2	V	3.0	38.5	1.0	-64.7	-13.0	-51.7	
2830.00	-26.8	V	3.0	39.1	1.0	-64.9	-13.0	-51.9	
3537.50	-26.1	V	3.0	39.6	1.0	-64.6	-13.0	-51.6	
4245.00	-24.1	V	3.0	39.8	1.0	-62.9	-13.0	-49.9	
1415.00	-24.5	H	3.0	38.1	1.0	-61.6	-13.0	-48.6	
2122.50	-29.0	H	3.0	38.5	1.0	-66.5	-13.0	-53.5	
2830.00	-27.8	H	3.0	39.1	1.0	-65.9	-13.0	-52.9	
3537.50	-25.5	H	3.0	39.6	1.0	-64.1	-13.0	-51.1	
4245.00	-23.5	H	3.0	39.8	1.0	-62.3	-13.0	-49.3	
High Ch, 714.5MHz									
1429.00	-26.7	V	3.0	38.1	1.0	-63.8	-13.0	-50.8	
2143.50	-27.1	V	3.0	38.5	1.0	-64.6	-13.0	-51.6	
2858.00	-26.8	V	3.0	39.1	1.0	-64.9	-13.0	-51.9	
3572.50	-25.6	V	3.0	39.6	1.0	-64.2	-13.0	-51.2	
4287.00	-23.7	V	3.0	39.8	1.0	-62.5	-13.0	-49.5	
1429.00	-23.5	H	3.0	38.1	1.0	-60.6	-13.0	-47.6	
2143.50	-29.1	H	3.0	38.5	1.0	-66.6	-13.0	-53.6	
2858.00	-27.2	H	3.0	39.1	1.0	-65.3	-13.0	-52.3	
3572.50	-25.5	H	3.0	39.6	1.0	-64.0	-13.0	-51.0	
4287.00	-23.1	H	3.0	39.8	1.0	-62.0	-13.0	-49.0	

LTE
Band 12
3MHz
QPSK

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788534512							
Date:		2018-07-13							
Test Engineer:		51072							
Configuration:		EUT / Adapter / Earphone / X-position							
Location:		Chamber 2							
Mode:		LTE_16QAM Band 12 Harmonics, 3MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 700.5MHz									
1401.00	-28.6	V	3.0	38.1	1.0	-65.7	-13.0	-52.7	
2101.50	-27.9	V	3.0	38.5	1.0	-65.4	-13.0	-52.4	
2802.00	-27.7	V	3.0	39.1	1.0	-65.7	-13.0	-52.7	
3502.50	-26.7	V	3.0	39.5	1.0	-65.2	-13.0	-52.2	
4203.00	-25.7	V	3.0	39.8	1.0	-64.5	-13.0	-51.5	
1401.00	-28.5	H	3.0	38.1	1.0	-65.6	-13.0	-52.6	
2101.50	-27.8	H	3.0	38.5	1.0	-65.2	-13.0	-52.2	
2802.00	-27.3	H	3.0	39.1	1.0	-65.3	-13.0	-52.3	
3502.50	-25.7	H	3.0	39.5	1.0	-64.3	-13.0	-51.3	
4203.00	-24.7	H	3.0	39.8	1.0	-63.5	-13.0	-50.5	
Mid Ch, 707.5MHz									
1415.00	-25.9	V	3.0	38.1	1.0	-63.0	-13.0	-50.0	
2122.50	-27.3	V	3.0	38.5	1.0	-64.8	-13.0	-51.8	
2830.00	-27.6	V	3.0	39.1	1.0	-65.7	-13.0	-52.7	
3537.50	-26.3	V	3.0	39.6	1.0	-64.8	-13.0	-51.8	
4245.00	-24.7	V	3.0	39.8	1.0	-63.5	-13.0	-50.5	
1415.00	-26.5	H	3.0	38.1	1.0	-63.6	-13.0	-50.6	
2122.50	-29.4	H	3.0	38.5	1.0	-66.8	-13.0	-53.8	
2830.00	-28.2	H	3.0	39.1	1.0	-66.3	-13.0	-53.3	
3537.50	-25.9	H	3.0	39.6	1.0	-64.5	-13.0	-51.5	
4245.00	-24.3	H	3.0	39.8	1.0	-63.1	-13.0	-50.1	
High Ch, 714.5MHz									
1429.00	-28.0	V	3.0	38.1	1.0	-65.1	-13.0	-52.1	
2143.50	-27.4	V	3.0	38.5	1.0	-64.9	-13.0	-51.9	
2858.00	-27.2	V	3.0	39.1	1.0	-65.4	-13.0	-52.4	
3572.50	-25.7	V	3.0	39.6	1.0	-64.2	-13.0	-51.2	
4287.00	-24.2	V	3.0	39.8	1.0	-63.0	-13.0	-50.0	
1429.00	-25.1	H	3.0	38.1	1.0	-62.2	-13.0	-49.2	
2143.50	-29.3	H	3.0	38.5	1.0	-66.8	-13.0	-53.8	
2858.00	-27.6	H	3.0	39.1	1.0	-65.7	-13.0	-52.7	
3572.50	-25.7	H	3.0	39.6	1.0	-64.2	-13.0	-51.2	
4287.00	-23.3	H	3.0	39.8	1.0	-62.2	-13.0	-49.2	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788534512							
Date:		2018-07-13							
Test Engineer:		51072							
Configuration:		EUT / Adapter / Earphone / X-position							
Location:		Chamber 2							
Mode:		LTE_QPSK Band 12 Harmonics, 1.4MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 699.7MHz									
1399.40	-29.5	V	3.0	38.1	1.0	-66.6	-13.0	-53.6	
2099.10	-28.1	V	3.0	38.5	1.0	-65.5	-13.0	-52.5	
2798.80	-27.0	V	3.0	39.1	1.0	-65.0	-13.0	-52.0	
3498.50	-25.4	V	3.0	39.5	1.0	-63.9	-13.0	-50.9	
4198.20	-23.9	V	3.0	39.8	1.0	-62.7	-13.0	-49.7	
1399.40	-28.3	H	3.0	38.1	1.0	-65.4	-13.0	-52.4	
2099.10	-29.0	H	3.0	38.5	1.0	-66.4	-13.0	-53.4	
2798.80	-27.2	H	3.0	39.1	1.0	-65.3	-13.0	-52.3	
3498.50	-25.9	H	3.0	39.5	1.0	-64.5	-13.0	-51.5	
4198.20	-23.5	H	3.0	39.8	1.0	-62.3	-13.0	-49.3	
Mid Ch, 707.5MHz									
1415.00	-26.7	V	3.0	38.1	1.0	-63.8	-13.0	-50.8	
2122.50	-28.3	V	3.0	38.5	1.0	-65.8	-13.0	-52.8	
2830.00	-27.3	V	3.0	39.1	1.0	-65.4	-13.0	-52.4	
3537.50	-26.1	V	3.0	39.6	1.0	-64.6	-13.0	-51.6	
4245.00	-23.9	V	3.0	39.8	1.0	-62.7	-13.0	-49.7	
1415.00	-26.1	H	3.0	38.1	1.0	-63.3	-13.0	-50.3	
2122.50	-29.0	H	3.0	38.5	1.0	-66.5	-13.0	-53.5	
2830.00	-27.7	H	3.0	39.1	1.0	-65.8	-13.0	-52.8	
3537.50	-25.8	H	3.0	39.6	1.0	-64.3	-13.0	-51.3	
4245.00	-23.3	H	3.0	39.8	1.0	-62.2	-13.0	-49.2	
High Ch, 715.3MHz									
1430.60	-27.9	V	3.0	38.1	1.0	-65.0	-13.0	-52.0	
2145.90	-27.3	V	3.0	38.5	1.0	-64.8	-13.0	-51.8	
2861.20	-27.5	V	3.0	39.1	1.0	-65.6	-13.0	-52.6	
3576.50	-25.7	V	3.0	39.6	1.0	-64.2	-13.0	-51.2	
4291.80	-22.6	V	3.0	39.8	1.0	-61.4	-13.0	-48.4	
1430.60	-23.9	H	3.0	38.1	1.0	-61.1	-13.0	-48.1	
2145.90	-28.9	H	3.0	38.5	1.0	-66.4	-13.0	-53.4	
2861.20	-27.8	H	3.0	39.1	1.0	-65.9	-13.0	-52.9	
3576.50	-25.4	H	3.0	39.6	1.0	-64.0	-13.0	-51.0	
4291.80	-21.8	H	3.0	39.8	1.0	-60.6	-13.0	-47.6	

LTE
Band 12
1.4MHz
QPSK

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788534512							
Date:		2018-07-13							
Test Engineer:		51072							
Configuration:		EUT / Adapter / Earphone / X-position							
Location:		Chamber 2							
Mode:		LTE_16QAM Band 12 Harmonics, 1.4MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 699.7MHz									
1399.40	-30.0	V	3.0	38.1	1.0	-67.1	-13.0	-54.1	
2099.10	-28.6	V	3.0	38.5	1.0	-66.0	-13.0	-53.0	
2798.80	-27.5	V	3.0	39.1	1.0	-65.6	-13.0	-52.6	
3498.50	-26.0	V	3.0	39.5	1.0	-64.5	-13.0	-51.5	
4198.20	-24.6	V	3.0	39.8	1.0	-63.5	-13.0	-50.5	
1399.40	-29.9	H	3.0	38.1	1.0	-67.0	-13.0	-54.0	
2099.10	-29.3	H	3.0	38.5	1.0	-66.8	-13.0	-53.8	
2798.80	-27.7	H	3.0	39.1	1.0	-65.7	-13.0	-52.7	
3498.50	-25.9	H	3.0	39.5	1.0	-64.5	-13.0	-51.5	
4198.20	-24.0	H	3.0	39.8	1.0	-62.8	-13.0	-49.8	
Mid Ch, 707.5MHz									
1415.00	-27.1	V	3.0	38.1	1.0	-64.2	-13.0	-51.2	
2122.50	-28.5	V	3.0	38.5	1.0	-66.0	-13.0	-53.0	
2830.00	-27.6	V	3.0	39.1	1.0	-65.7	-13.0	-52.7	
3537.50	-26.0	V	3.0	39.6	1.0	-64.5	-13.0	-51.5	
4245.00	-24.0	V	3.0	39.8	1.0	-62.8	-13.0	-49.8	
1415.00	-26.7	H	3.0	38.1	1.0	-63.8	-13.0	-50.8	
2122.50	-29.1	H	3.0	38.5	1.0	-66.6	-13.0	-53.6	
2830.00	-28.0	H	3.0	39.1	1.0	-66.1	-13.0	-53.1	
3537.50	-26.1	H	3.0	39.6	1.0	-64.7	-13.0	-51.7	
4245.00	-23.6	H	3.0	39.8	1.0	-62.4	-13.0	-49.4	
High Ch, 715.3MHz									
1430.60	-28.1	V	3.0	38.1	1.0	-65.2	-13.0	-52.2	
2145.90	-28.4	V	3.0	38.5	1.0	-65.9	-13.0	-52.9	
2861.20	-27.6	V	3.0	39.1	1.0	-65.7	-13.0	-52.7	
3576.50	-25.8	V	3.0	39.6	1.0	-64.4	-13.0	-51.4	
4291.80	-23.5	V	3.0	39.8	1.0	-62.3	-13.0	-49.3	
1430.60	-24.6	H	3.0	38.1	1.0	-61.7	-13.0	-48.7	
2145.90	-29.0	H	3.0	38.5	1.0	-66.5	-13.0	-53.5	
2861.20	-28.3	H	3.0	39.1	1.0	-66.4	-13.0	-53.4	
3576.50	-26.1	H	3.0	39.6	1.0	-64.7	-13.0	-51.7	
4291.80	-23.4	H	3.0	39.8	1.0	-62.2	-13.0	-49.2	

LTE
Band 12
1.4MHz
16QAM

LTE Band 30

LTE
Band 30

QPSK
10MHz

UL Verification Services, Inc.

Above 1GHz High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788534512

2018-07-21

51072

EUT / Adapter / Earphone / X-position

Chamber 2

LTE_QPSK Band 30 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, 2310MHz									
4620.00	-4.6	V	3.0	39.8	1.0	-43.4	-40.0	-3.4	
6930.00	-18.8	V	3.0	39.7	1.0	-57.4	-40.0	-17.4	
9240.00	-21.9	V	3.0	38.8	1.0	-59.6	-40.0	-19.6	
11550.00	-11.3	V	3.0	38.5	1.0	-48.8	-40.0	-8.8	
13860.00	-13.7	V	3.0	40.2	1.0	-52.9	-40.0	-12.9	
4620.00	-9.7	H	3.0	39.8	1.0	-48.5	-40.0	-8.5	
6930.00	-18.4	H	3.0	39.7	1.0	-57.1	-40.0	-17.1	
9240.00	-21.7	H	3.0	38.8	1.0	-59.4	-40.0	-19.4	
11550.00	-16.3	H	3.0	38.5	1.0	-53.8	-40.0	-13.8	
13860.00	-14.3	H	3.0	40.2	1.0	-53.6	-40.0	-13.6	

LTE
Band 30

16QAM
10MHz

UL Verification Services, Inc.

Above 1GHz High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788534512

2018-07-21

51072

EUT / Adapter / Earphone / X-position

Chamber 2

LTE_16QAM Band 30 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, 2310MHz									
4620.00	-5.3	V	3.0	39.8	1.0	-44.1	-40.0	-4.1	
6930.00	-19.6	V	3.0	39.7	1.0	-58.3	-40.0	-18.3	
9240.00	-21.9	V	3.0	38.8	1.0	-59.6	-40.0	-19.6	
11550.00	-11.8	V	3.0	38.5	1.0	-49.3	-40.0	-9.3	
13860.00	-13.9	V	3.0	40.2	1.0	-53.1	-40.0	-13.1	
4620.00	-10.7	H	3.0	39.8	1.0	-49.5	-40.0	-9.5	
6930.00	-19.9	H	3.0	39.7	1.0	-58.5	-40.0	-18.5	
9240.00	-21.6	H	3.0	38.8	1.0	-59.3	-40.0	-19.3	
11550.00	-16.5	H	3.0	38.5	1.0	-54.0	-40.0	-14.0	
13860.00	-14.6	H	3.0	40.2	1.0	-53.9	-40.0	-13.9	

LTE Band 30 QPSK 5MHz	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company:		Samsung							
	Project #:		4788534512							
	Date:		2018-07-21							
	Test Engineer:		51072							
	Configuration:		EUT / Adapter / Earphone / X-position							
	Location:		Chamber 2							
	Mode:		LTE_QPSK Band 30 Harmonics, 5MHz Bandwidth							
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 2307.5MHz									
	4615.00	-7.4	V	3.0	39.8	1.0	-46.2	-40.0	-6.2	
	6922.50	-15.0	V	3.0	39.7	1.0	-53.7	-40.0	-13.7	
	9230.00	-20.9	V	3.0	38.8	1.0	-58.7	-40.0	-18.7	
	11537.50	-12.4	V	3.0	38.5	1.0	-49.9	-40.0	-9.9	
	13845.00	-12.4	V	3.0	40.2	1.0	-51.6	-40.0	-11.6	
	4615.00	-11.4	H	3.0	39.8	1.0	-50.2	-40.0	-10.2	
	6922.50	-19.2	H	3.0	39.7	1.0	-57.9	-40.0	-17.9	
	9230.00	-21.3	H	3.0	38.8	1.0	-59.1	-40.0	-19.1	
	11537.50	-17.7	H	3.0	38.5	1.0	-55.2	-40.0	-15.2	
	13845.00	-13.2	H	3.0	40.2	1.0	-52.4	-40.0	-12.4	
	Mid Ch, 2310MHz									
	4620.00	-4.4	V	3.0	39.8	1.0	-43.2	-40.0	-3.2	
	6930.00	-18.6	V	3.0	39.7	1.0	-57.3	-40.0	-17.3	
	9240.00	-22.2	V	3.0	38.8	1.0	-60.0	-40.0	-20.0	
	11550.00	-12.7	V	3.0	38.5	1.0	-50.2	-40.0	-10.2	
	13860.00	-12.4	V	3.0	40.2	1.0	-51.6	-40.0	-11.6	
	4620.00	-9.7	H	3.0	39.8	1.0	-48.4	-40.0	-8.4	
	6930.00	-20.8	H	3.0	39.7	1.0	-59.5	-40.0	-19.5	
	9240.00	-21.3	H	3.0	38.8	1.0	-59.1	-40.0	-19.1	
	11550.00	-17.2	H	3.0	38.5	1.0	-54.7	-40.0	-14.7	
	13860.00	-13.0	H	3.0	40.2	1.0	-52.3	-40.0	-12.3	
	High Ch, 2312.5MHz									
	4625.00	-4.8	V	3.0	39.8	1.0	-43.6	-40.0	-3.6	
6937.50	-16.6	V	3.0	39.6	1.0	-55.2	-40.0	-15.2		
9250.00	-22.3	V	3.0	38.8	1.0	-60.1	-40.0	-20.1		
11562.50	-13.4	V	3.0	38.5	1.0	-50.9	-40.0	-10.9		
13875.00	-11.3	V	3.0	40.2	1.0	-50.5	-40.0	-10.5		
4625.00	-10.1	H	3.0	39.8	1.0	-48.9	-40.0	-8.9		
6937.50	-17.9	H	3.0	39.6	1.0	-56.6	-40.0	-16.6		
9250.00	-21.2	H	3.0	38.8	1.0	-59.0	-40.0	-19.0		
11562.50	-17.9	H	3.0	38.5	1.0	-55.4	-40.0	-15.4		
13875.00	-12.2	H	3.0	40.2	1.0	-51.5	-40.0	-11.5		

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788534512							
Date:		2018-07-21							
Test Engineer:		51072							
Configuration:		EUT / Adapter / Earphone / X-position							
Location:		Chamber 2							
Mode:		LTE_16QAM Band 30 Harmonics, 5MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2307.5MHz									
4615.00	-8.4	V	3.0	39.8	1.0	-47.2	-40.0	-7.2	
6922.50	-19.2	V	3.0	39.7	1.0	-57.8	-40.0	-17.8	
9230.00	-21.2	V	3.0	38.8	1.0	-58.9	-40.0	-18.9	
11537.50	-13.3	V	3.0	38.5	1.0	-50.8	-40.0	-10.8	
13845.00	-12.8	V	3.0	40.2	1.0	-52.0	-40.0	-12.0	
4615.00	-12.2	H	3.0	39.8	1.0	-51.0	-40.0	-11.0	
6922.50	-18.9	H	3.0	39.7	1.0	-57.6	-40.0	-17.6	
9230.00	-21.5	H	3.0	38.8	1.0	-59.3	-40.0	-19.3	
11537.50	-17.9	H	3.0	38.5	1.0	-55.4	-40.0	-15.4	
13845.00	-13.6	H	3.0	40.2	1.0	-52.8	-40.0	-12.8	
Mid Ch, 2310MHz									
4620.00	-5.1	V	3.0	39.8	1.0	-43.9	-40.0	-3.9	
6930.00	-19.6	V	3.0	39.7	1.0	-58.2	-40.0	-18.2	
9240.00	-22.1	V	3.0	38.8	1.0	-59.9	-40.0	-19.9	
11550.00	-13.1	V	3.0	38.5	1.0	-50.6	-40.0	-10.6	
13860.00	-12.8	V	3.0	40.2	1.0	-52.1	-40.0	-12.1	
4620.00	-10.5	H	3.0	39.8	1.0	-49.3	-40.0	-9.3	
6930.00	-21.4	H	3.0	39.7	1.0	-60.1	-40.0	-20.1	
9240.00	-21.8	H	3.0	38.8	1.0	-59.6	-40.0	-19.6	
11550.00	-17.5	H	3.0	38.5	1.0	-55.0	-40.0	-15.0	
13860.00	-13.5	H	3.0	40.2	1.0	-52.7	-40.0	-12.7	
High Ch, 2312.5MHz									
4625.00	-5.5	V	3.0	39.8	1.0	-44.3	-40.0	-4.3	
6937.50	-17.3	V	3.0	39.6	1.0	-56.0	-40.0	-16.0	
9250.00	-22.2	V	3.0	38.8	1.0	-60.0	-40.0	-20.0	
11562.50	-13.6	V	3.0	38.5	1.0	-51.1	-40.0	-11.1	
13875.00	-11.6	V	3.0	40.2	1.0	-50.9	-40.0	-10.9	
4625.00	-10.8	H	3.0	39.8	1.0	-49.6	-40.0	-9.6	
6937.50	-18.8	H	3.0	39.6	1.0	-57.5	-40.0	-17.5	
9250.00	-21.2	H	3.0	38.8	1.0	-59.0	-40.0	-19.0	
11562.50	-18.1	H	3.0	38.5	1.0	-55.6	-40.0	-15.6	
13875.00	-12.7	H	3.0	40.2	1.0	-51.9	-40.0	-11.9	

LTE
Band 30

QPSK
5MHz

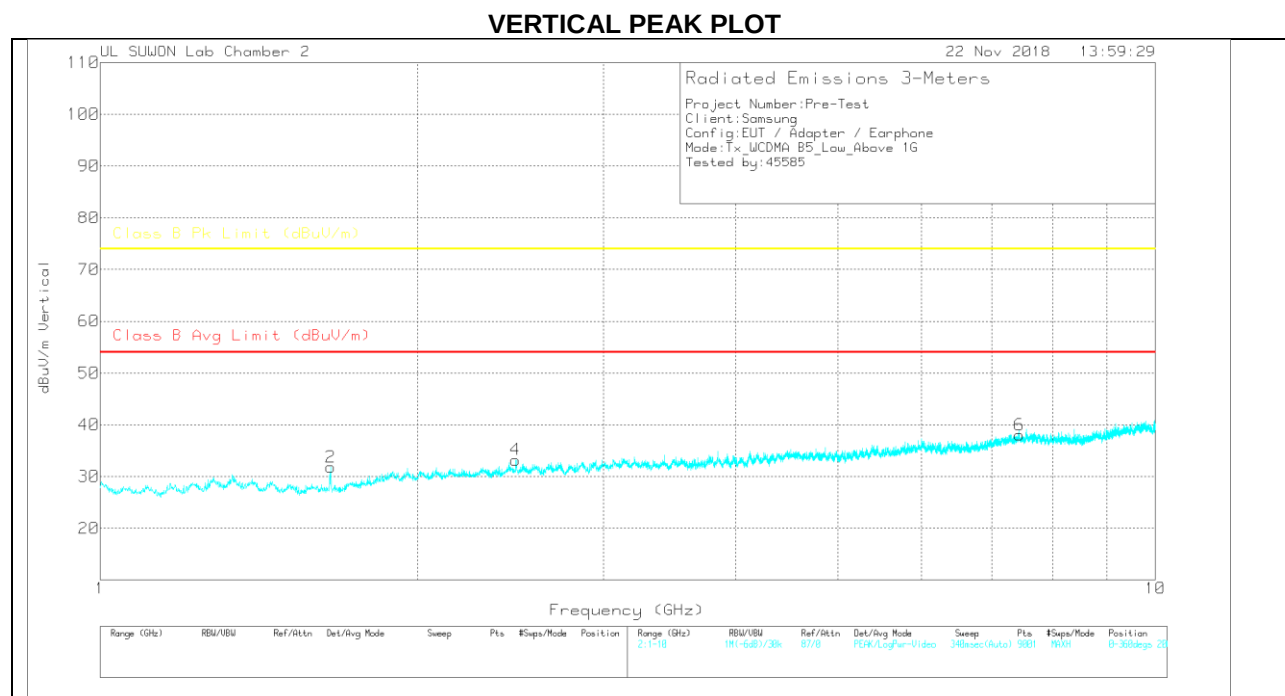
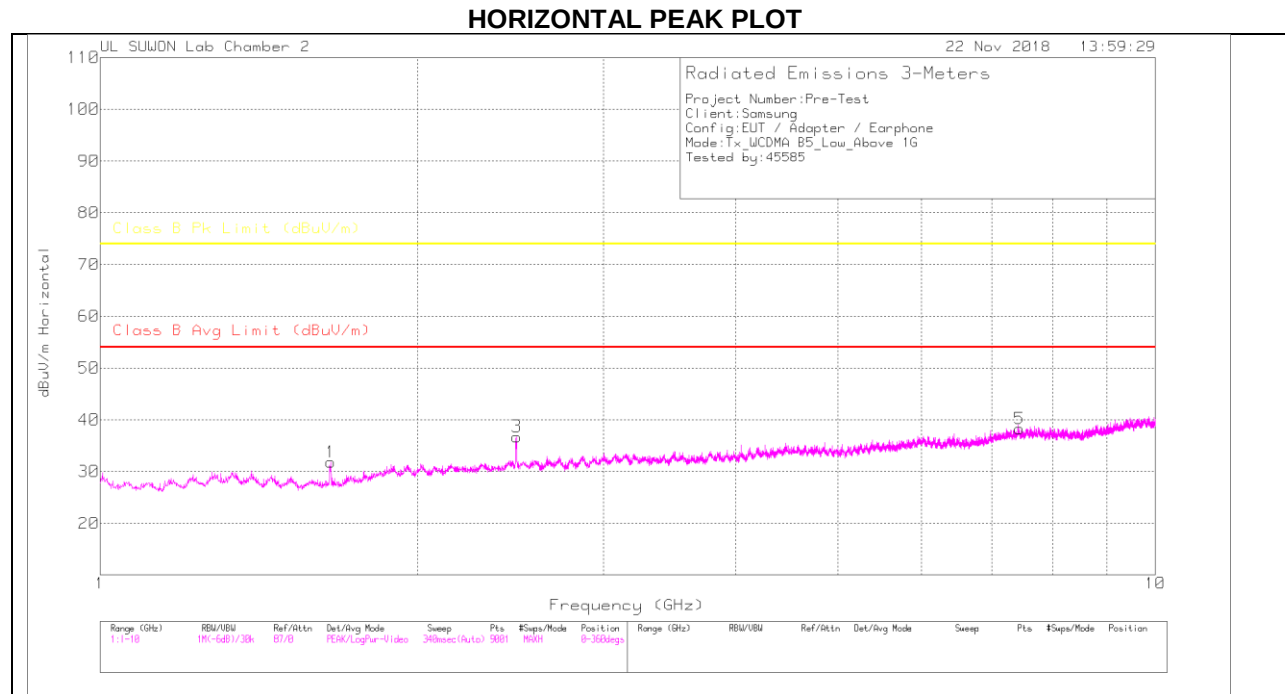
LTE Band 66

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788665909							
Date:		2018-10-12							
Test Engineer:		45585							
Configuration:		EUT / AC Adapter / Earphone, X-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 66 Harmonics, 15MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1717.5MHz									
3435.00	2.3	V	3.0	43.7	1.0	-40.4	-13.0	-27.4	
5152.50	-7.2	V	3.0	43.8	1.0	-49.9	-13.0	-36.9	
6870.00	-3.6	V	3.0	42.8	1.0	-45.5	-13.0	-32.5	
8587.50	-3.4	V	3.0	41.8	1.0	-44.2	-13.0	-31.2	
10305.00	-0.2	V	3.0	40.6	1.0	-39.8	-13.0	-26.8	
3435.00	3.8	H	3.0	43.7	1.0	-38.9	-13.0	-25.9	
5152.50	-7.5	H	3.0	43.8	1.0	-50.3	-13.0	-37.3	
6870.00	-3.2	H	3.0	42.8	1.0	-45.0	-13.0	-32.0	
8587.50	-2.8	H	3.0	41.8	1.0	-43.6	-13.0	-30.6	
10305.00	0.2	H	3.0	40.6	1.0	-39.4	-13.0	-26.4	
Mid Ch, 1745MHz									
3490.00	-1.0	V	3.0	43.7	1.0	-43.7	-13.0	-30.7	
5235.00	-6.4	V	3.0	43.8	1.0	-49.2	-13.0	-36.2	
6980.00	-3.3	V	3.0	42.7	1.0	-45.1	-13.0	-32.1	
8725.00	-3.3	V	3.0	41.7	1.0	-44.0	-13.0	-31.0	
10470.00	0.6	V	3.0	40.7	1.0	-39.1	-13.0	-26.1	
3490.00	5.1	H	3.0	43.7	1.0	-37.6	-13.0	-24.6	
5235.00	-6.8	H	3.0	43.8	1.0	-49.5	-13.0	-36.5	
6980.00	-2.8	H	3.0	42.7	1.0	-44.5	-13.0	-31.5	
8725.00	-2.6	H	3.0	41.7	1.0	-43.3	-13.0	-30.3	
10470.00	1.1	H	3.0	40.7	1.0	-38.6	-13.0	-25.6	
High Ch, 1772.5MHz									
3545.00	-0.9	V	3.0	43.7	1.0	-43.6	-13.0	-30.6	
5317.50	-6.4	V	3.0	43.7	1.0	-49.1	-13.0	-36.1	
7090.00	-3.3	V	3.0	42.7	1.0	-45.0	-13.0	-32.0	
8862.50	-3.2	V	3.0	41.6	1.0	-43.8	-13.0	-30.8	
10635.00	0.8	V	3.0	40.8	1.0	-39.0	-13.0	-26.0	
3545.00	3.6	H	3.0	43.7	1.0	-39.1	-13.0	-26.1	
5317.50	-6.7	H	3.0	43.7	1.0	-49.4	-13.0	-36.4	
7090.00	-2.7	H	3.0	42.7	1.0	-44.4	-13.0	-31.4	
8862.50	-2.6	H	3.0	41.6	1.0	-43.2	-13.0	-30.2	
10635.00	1.2	H	3.0	40.8	1.0	-38.5	-13.0	-25.5	

11. Appendix A : Pre-scan data for check the Part15B receiver mode

11.1. Above 1 GHz in the WCDMA Band 5

LOW CHANNEL



DATA

Trace Markers

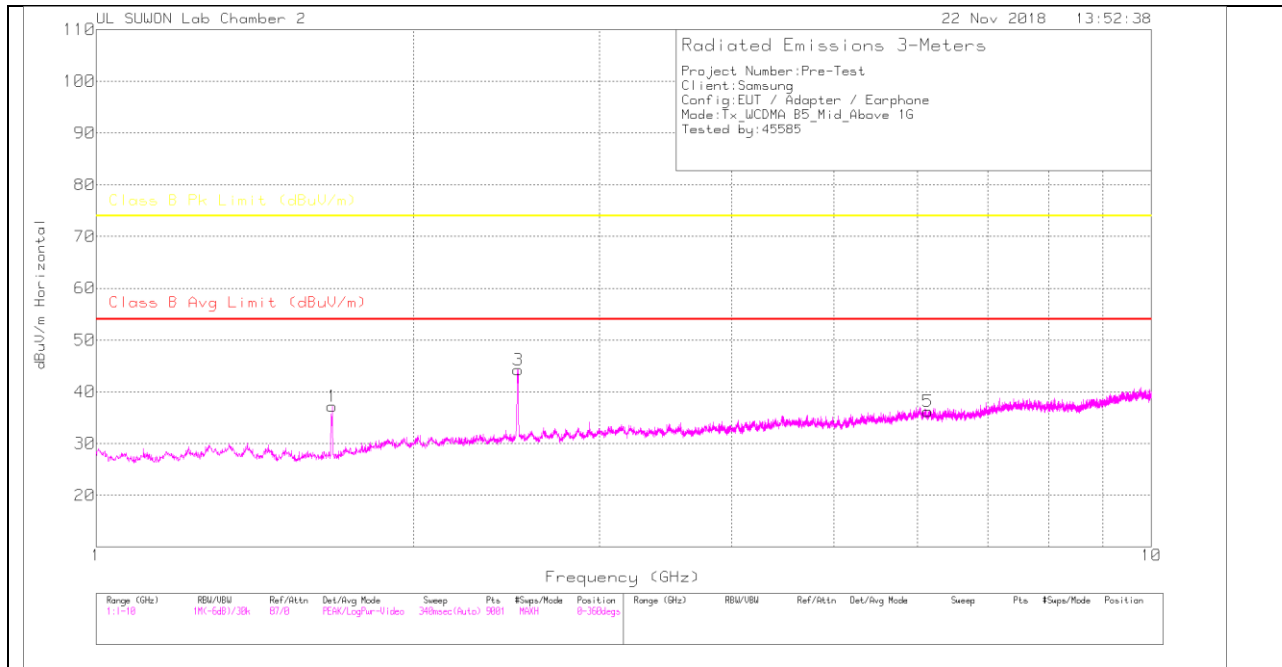
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	1-18GHz[dB]	1GHz_HPF	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.654	34.51	PK	28.3	-31.5	.5	31.81	-	-	74	-42.19	0-360	100	H
3	2.482	34.44	PK	31.9	-30.2	.6	36.74	-	-	74	-37.26	0-360	200	H
5	7.435	26.65	PK	36.2	-25.1	.5	38.25	-	-	74	-35.75	0-360	200	H
2	1.654	34.5	PK	28.3	-31.5	.5	31.8	-	-	74	-42.2	0-360	200	V
4	2.476	30.73	PK	31.9	-30.1	.7	33.23	-	-	74	-40.77	0-360	200	V
6	7.434	26.43	PK	36.2	-25.1	.5	38.03	-	-	74	-35.97	0-360	100	V

PK – Peak Detector

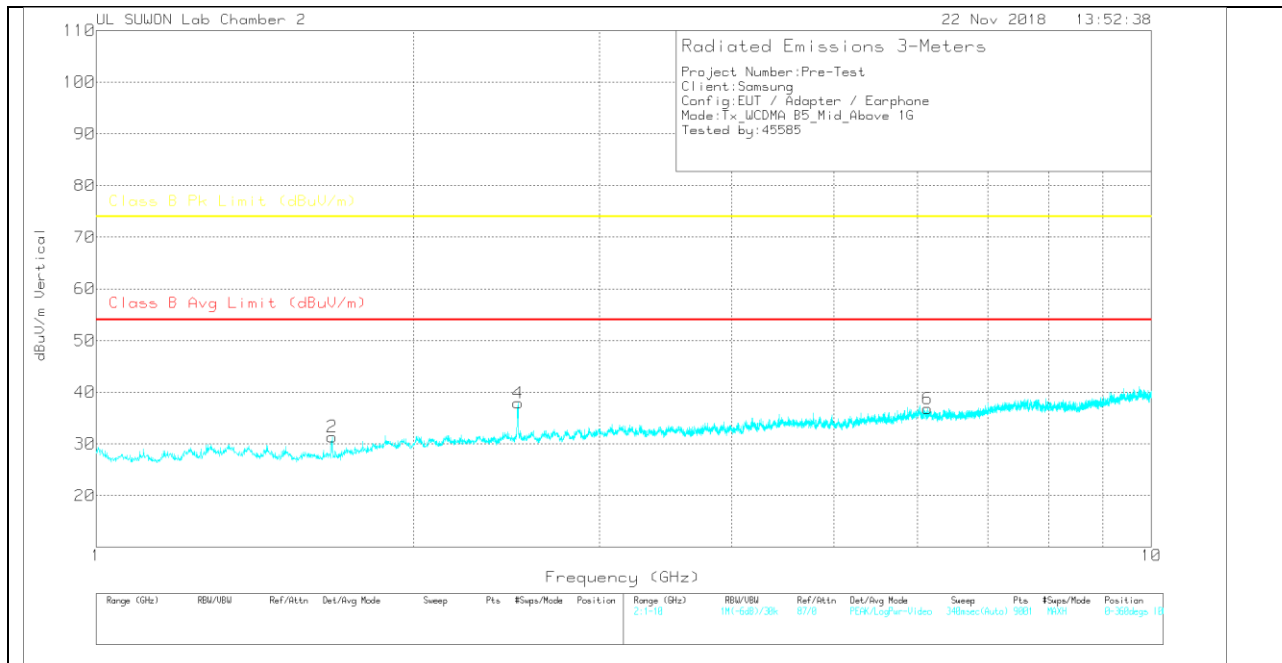
Note: The test data exists only the noise floor except for the fundamental and harmonics.

MID CHANNEL

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

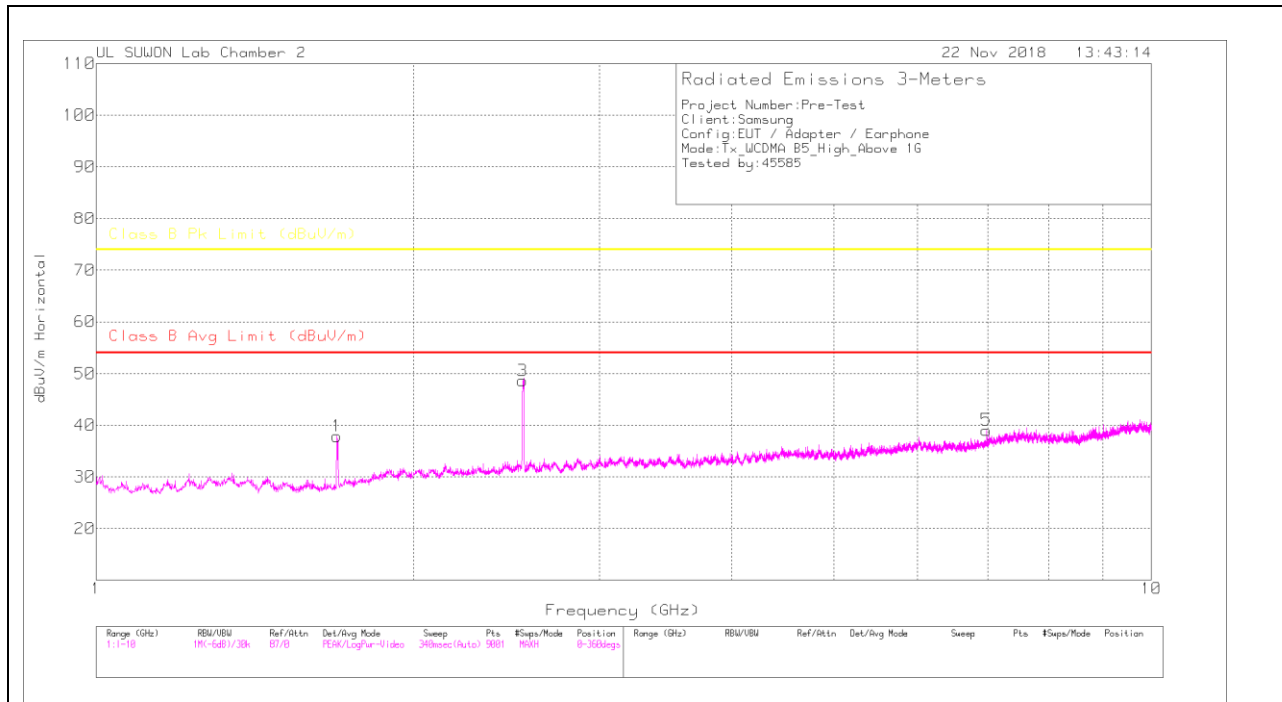
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	1-18GHz[dB]	1GHz_HPF	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.674	39.58	PK	28.5	-31.4	.5	37.18	-	-	74	-36.82	0-360	100	H
3	2.512	42.04	PK	31.9	-30.2	.5	44.24	-	-	74	-29.76	0-360	200	H
5	6.141	27.58	PK	35.1	-26.9	.4	36.18	-	-	74	-37.82	0-360	100	H
2	1.674	33.76	PK	28.5	-31.4	.5	31.36	-	-	74	-42.64	0-360	200	V
4	2.512	35.72	PK	31.9	-30.2	.5	37.92	-	-	74	-36.08	0-360	200	V
6	6.135	28.21	PK	35.1	-26.9	.4	36.81	-	-	74	-37.19	0-360	200	V

PK – Peak Detector

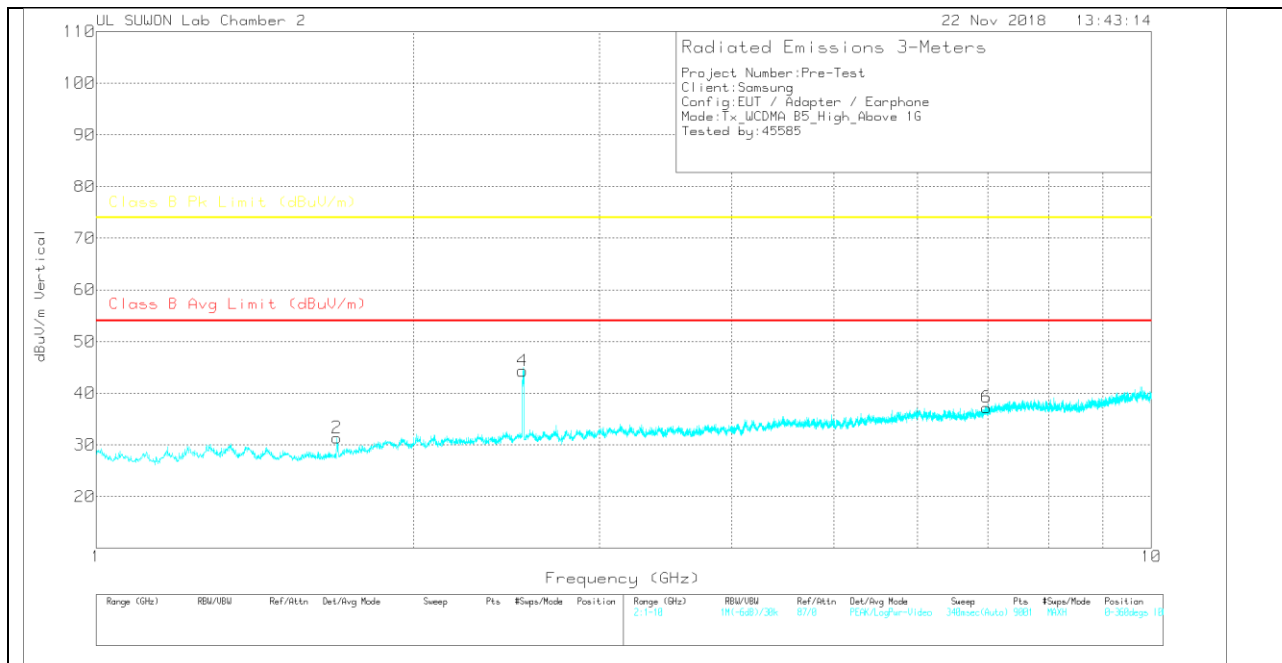
Note: The test data exists only the noise floor except for the fundamental and harmonics.

HIGH CHANNEL

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	1-18GHz(dB)	1GHz_HPF	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.691	39.88	PK	28.6	-31.2	.6	37.88	-	-	74	-36.12	0-360	100	H
3	2.536	46.21	PK	32	-30.2	.6	48.61	-	-	74	-25.39	0-360	200	H
5	6.977	28.96	PK	35.8	-26.1	.4	39.06	-	-	74	-34.94	0-360	100	H
2	1.691	33.38	PK	28.6	-31.2	.6	31.38	-	-	74	-42.62	0-360	200	V
4	2.536	41.93	PK	32	-30.2	.6	44.33	-	-	74	-29.67	0-360	200	V
6	6.98	27.14	PK	35.8	-26.1	.4	37.24	-	-	74	-36.76	0-360	200	V

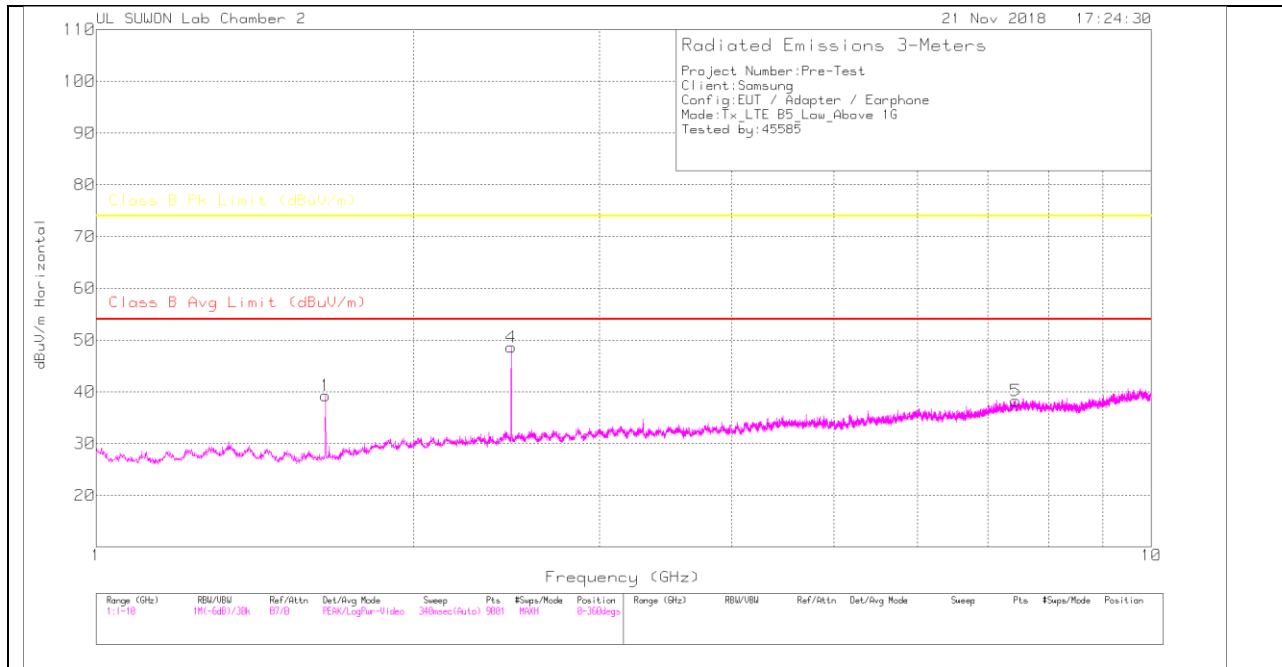
PK – Peak Detector

Note: The test data exists only the noise floor except for the fundamental and harmonics.

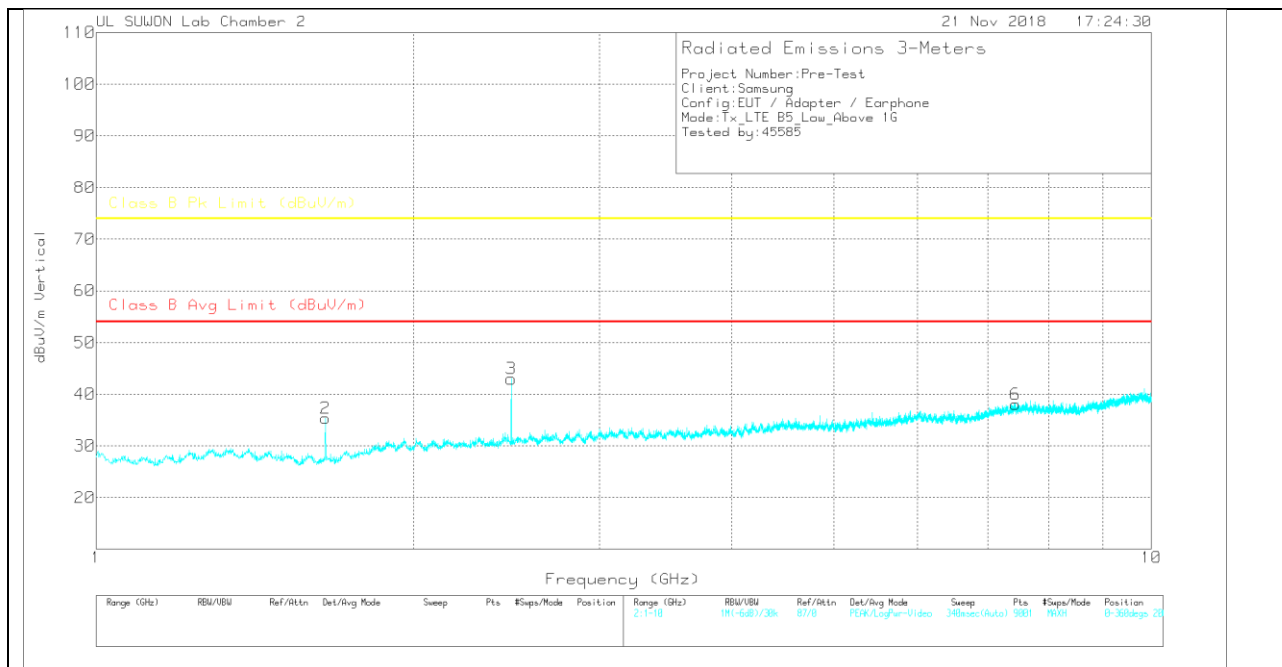
11.2. Above 1 GHz in the LTE Band 5

LOW CHANNEL

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

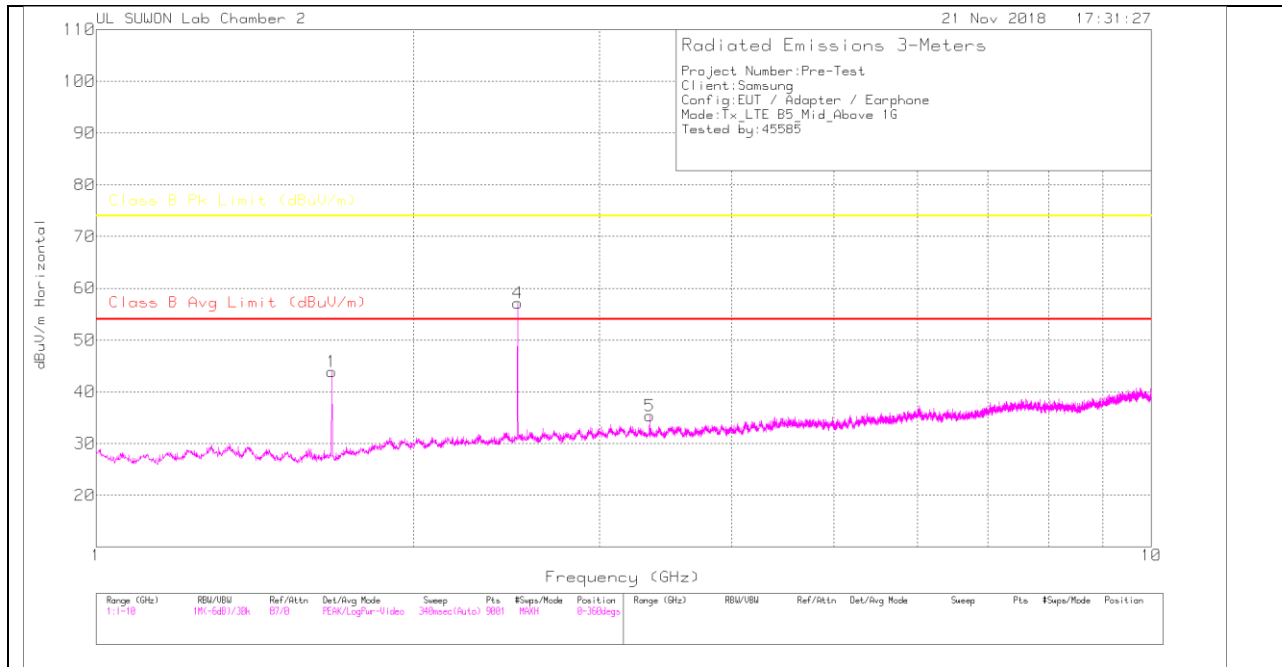
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	1-18GHz[dB]	1GHz_HPF	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.649	41.74	PK	28.3	-31.4	.6	39.24	-	-	74	-34.76	0-360	200	H
4	2.474	46.44	PK	31.8	-30.3	.7	48.64	-	-	74	-25.36	0-360	200	H
5	7.44	26.79	PK	36.2	-25.1	.4	38.29	-	-	74	-35.71	0-360	100	H
2	1.649	37.85	PK	28.3	-31.4	.6	35.35	-	-	74	-38.65	0-360	200	V
3	2.474	40.79	PK	31.8	-30.3	.7	42.99	-	-	74	-31.01	0-360	200	V
6	7.439	26.53	PK	36.2	-25.1	.4	38.03	-	-	74	-35.97	0-360	200	V

PK – Peak Detector

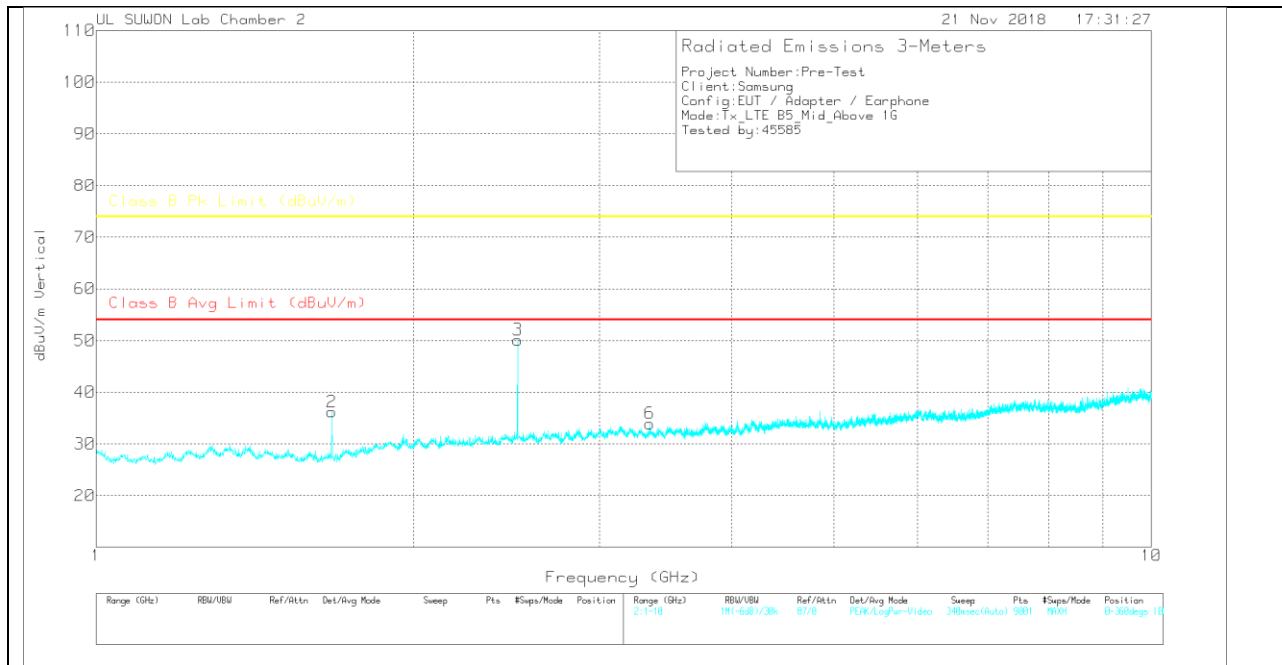
Note: The test data exists only the noise floor except for the fundamental and harmonics.

MID CHANNEL

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

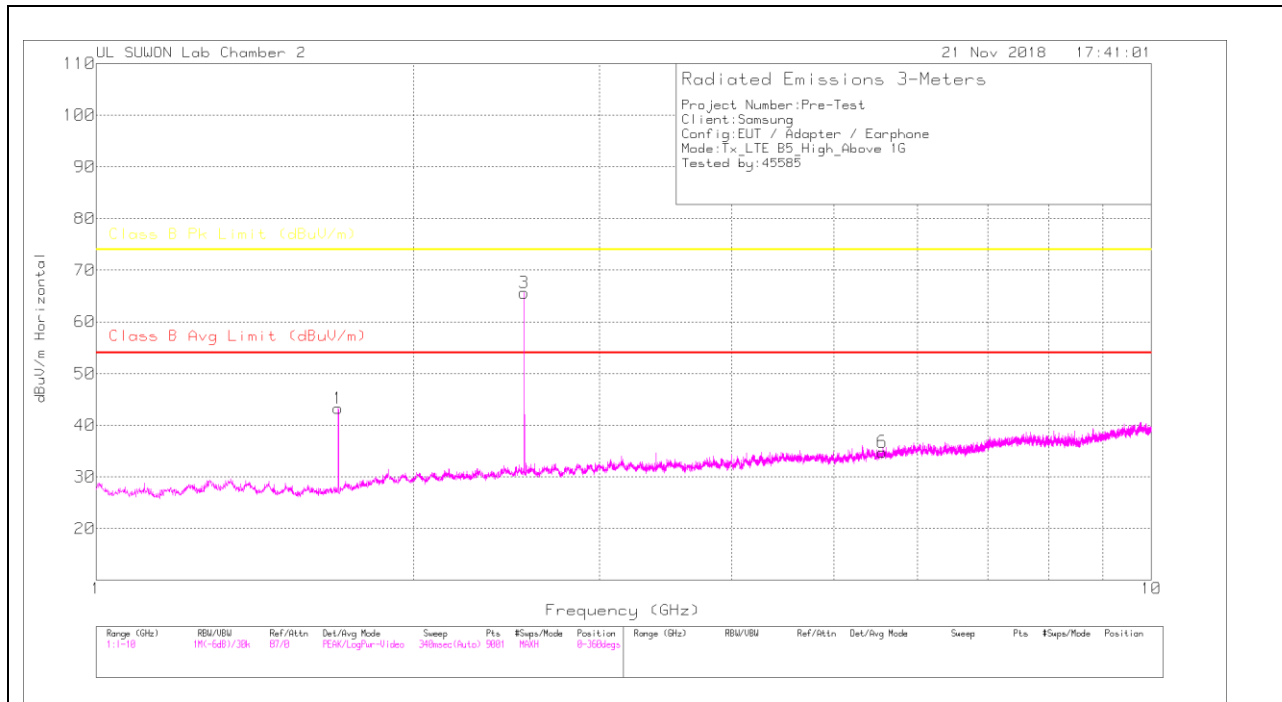
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	1-18GHz[dB]	1GHz_HPF	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.673	46.18	PK	28.5	-31.3	.5	43.88	-	-	74	-30.12	0-360	100	H
4	2.509	55.03	PK	31.9	-30.3	.5	57.13	-	-	74	-16.87	0-360	200	H
5	3.346	32.03	PK	32.6	-29.8	.5	35.33	-	-	74	-38.67	0-360	200	H
2	1.673	38.52	PK	28.5	-31.3	.5	36.22	-	-	74	-37.78	0-360	200	V
3	2.51	48.02	PK	31.9	-30.3	.5	50.12	-	-	74	-23.88	0-360	200	V
6	3.346	30.66	PK	32.6	-29.8	.5	33.96	-	-	74	-40.04	0-360	200	V

PK – Peak Detector

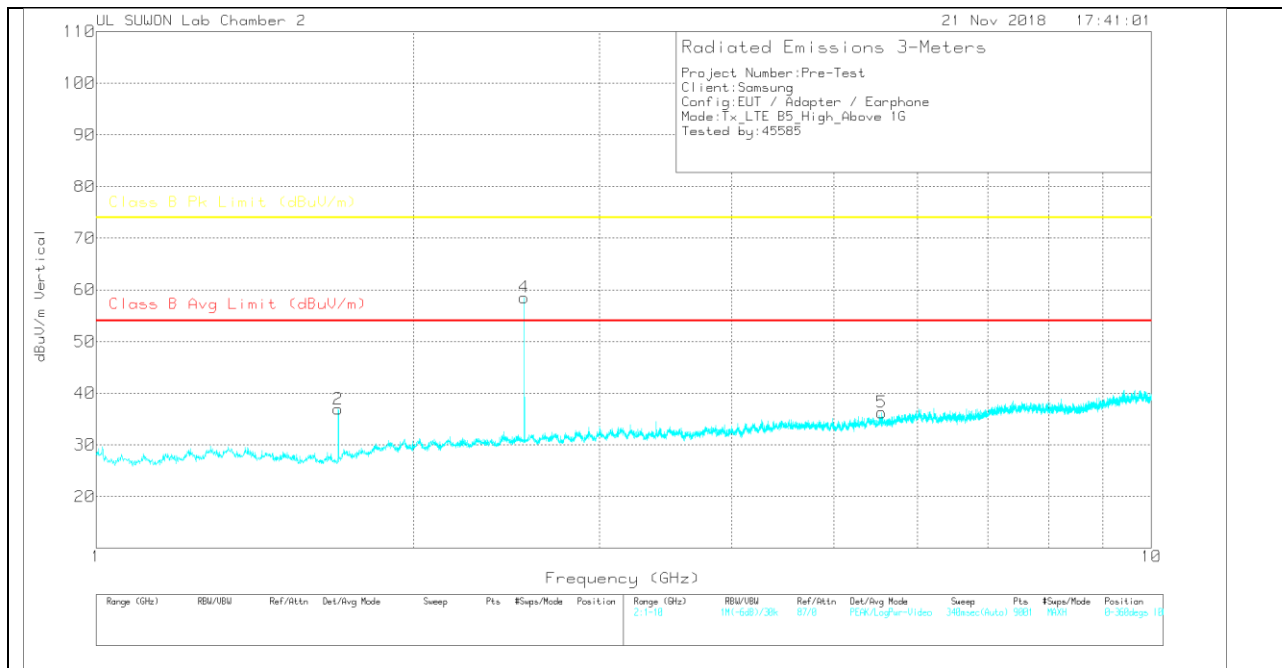
Note: The test data exists only the noise floor except for the fundamental and harmonics.

HIGH CHANNEL

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	1-18GHz(dB)	1GHz_HPF	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.696	45.36	PK	28.6	-31.3	.6	43.26	-	-	74	-30.74	0-360	100	H
3	2.545	62.93	PK	32	-30	.7	65.63	-	-	74	-8.37	0-360	200	H
6	5.557	27.5	PK	34.6	-27.7	.4	34.8	-	-	74	-39.2	0-360	100	H
2	1.696	39.02	PK	28.6	-31.3	.6	36.92	-	-	74	-37.08	0-360	200	V
4	2.545	55.84	PK	32	-30	.7	58.54	-	-	74	-15.46	0-360	200	V
5	5.555	29.08	PK	34.6	-27.8	.4	36.28	-	-	74	-37.72	0-360	200	V

PK – Peak Detector

Note: The test data exists only the noise floor except for the fundamental and harmonics.