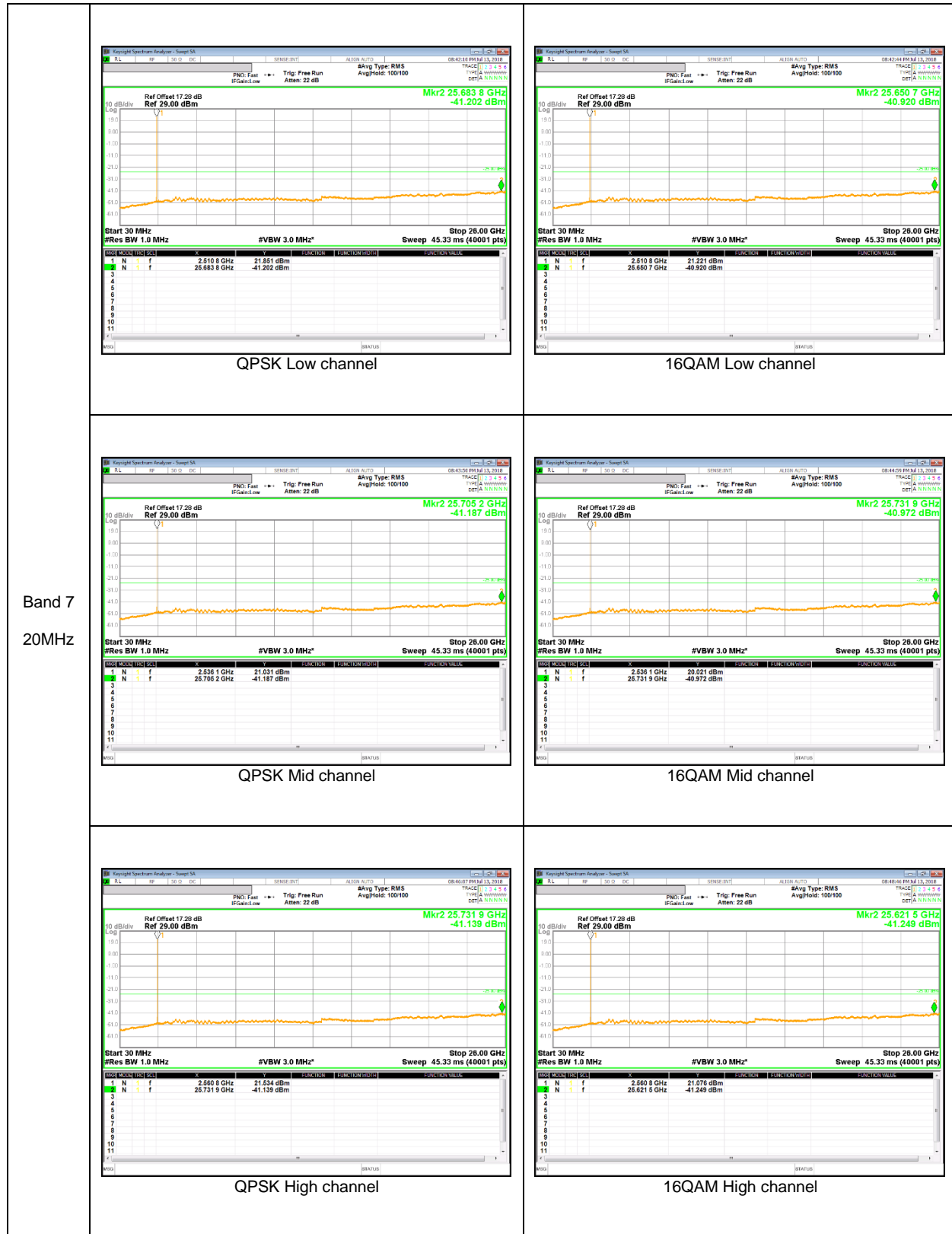
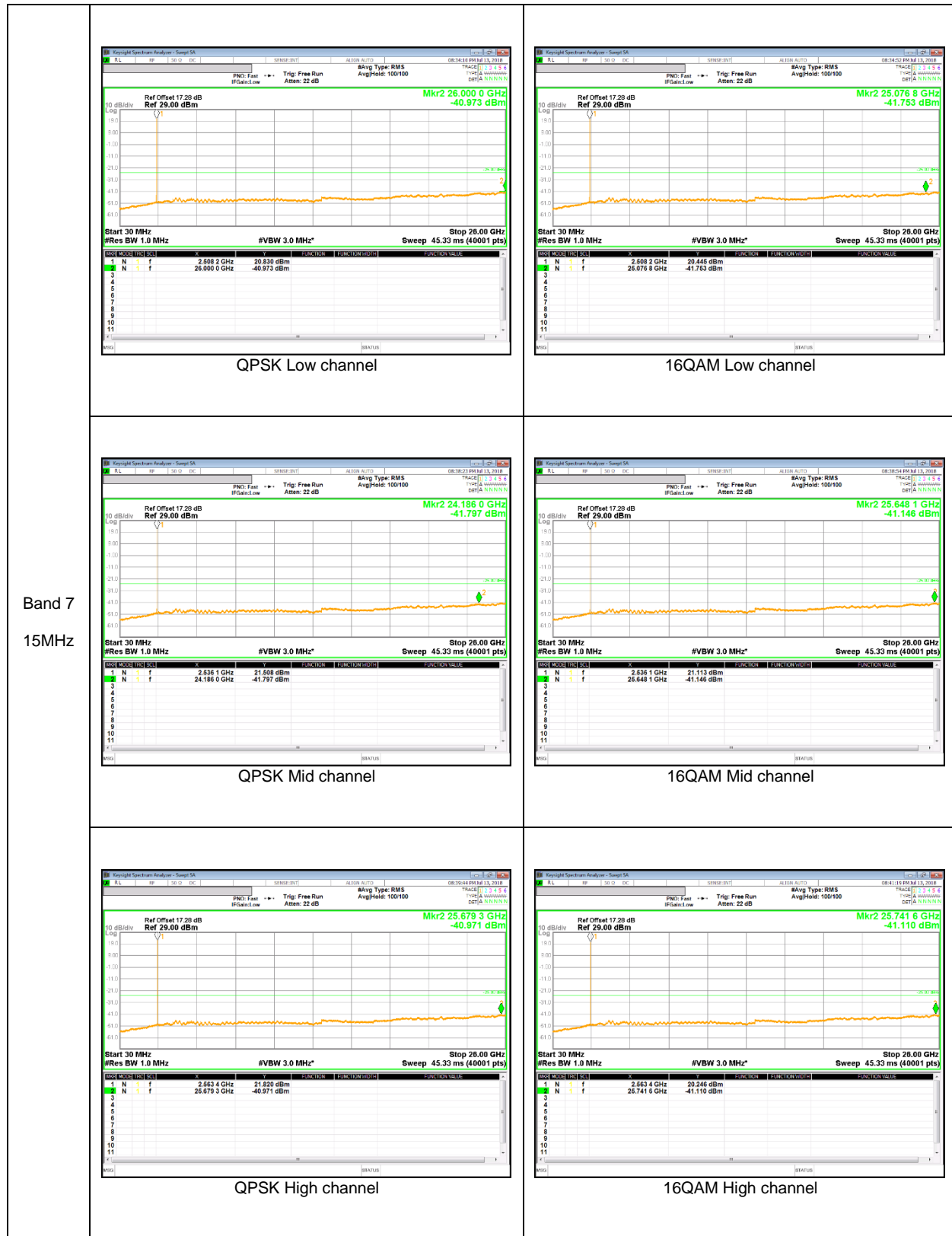
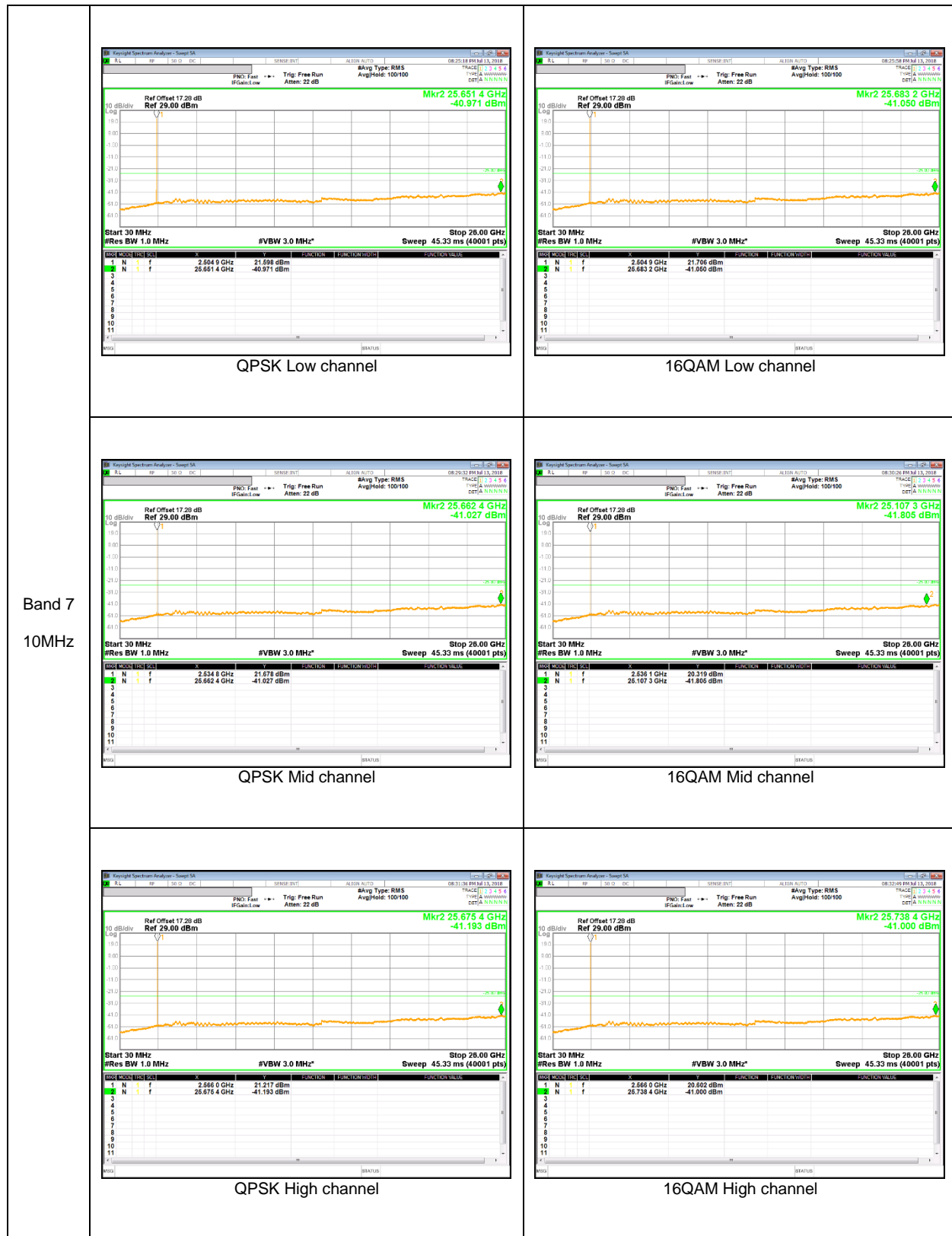


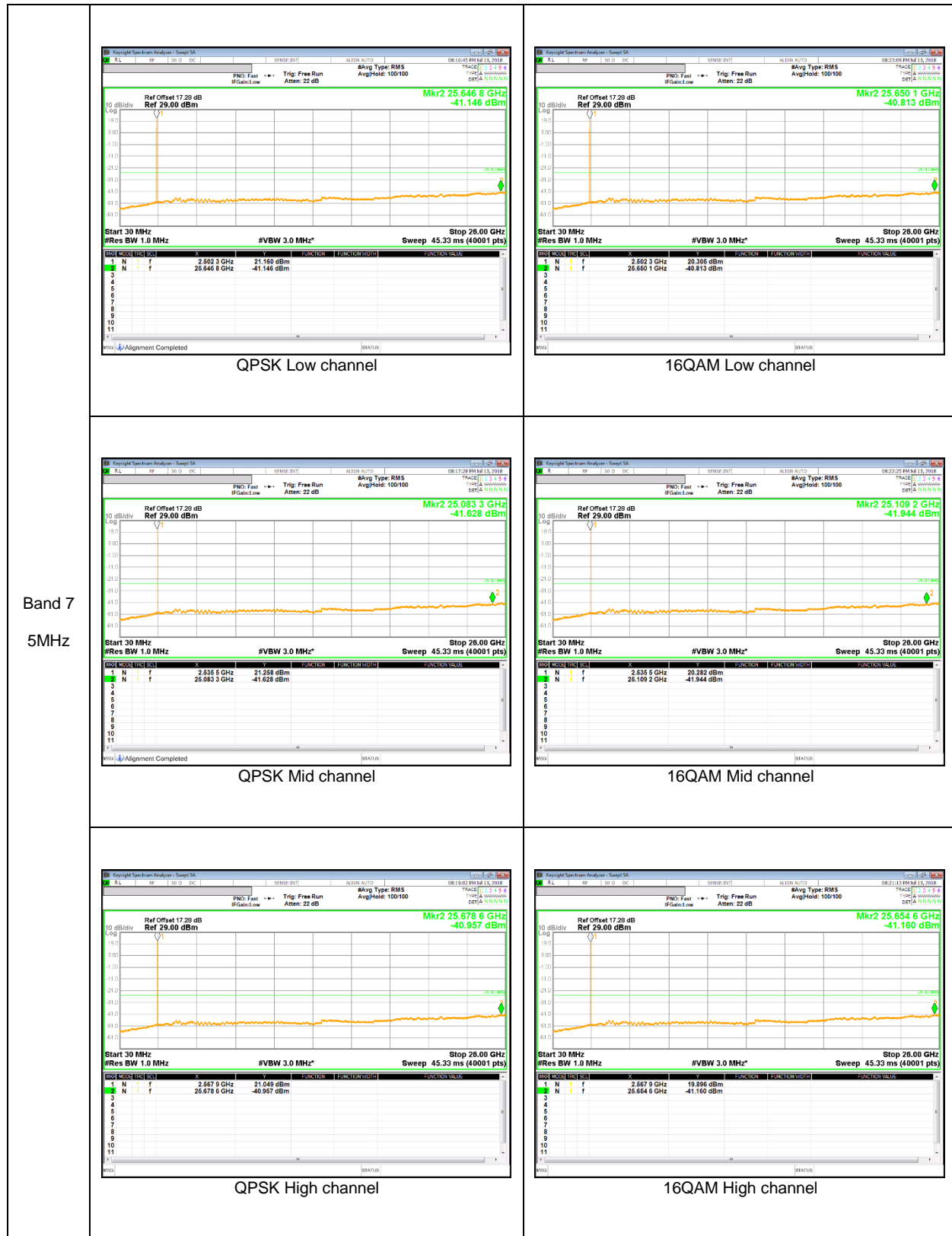
**LTE Band 7**



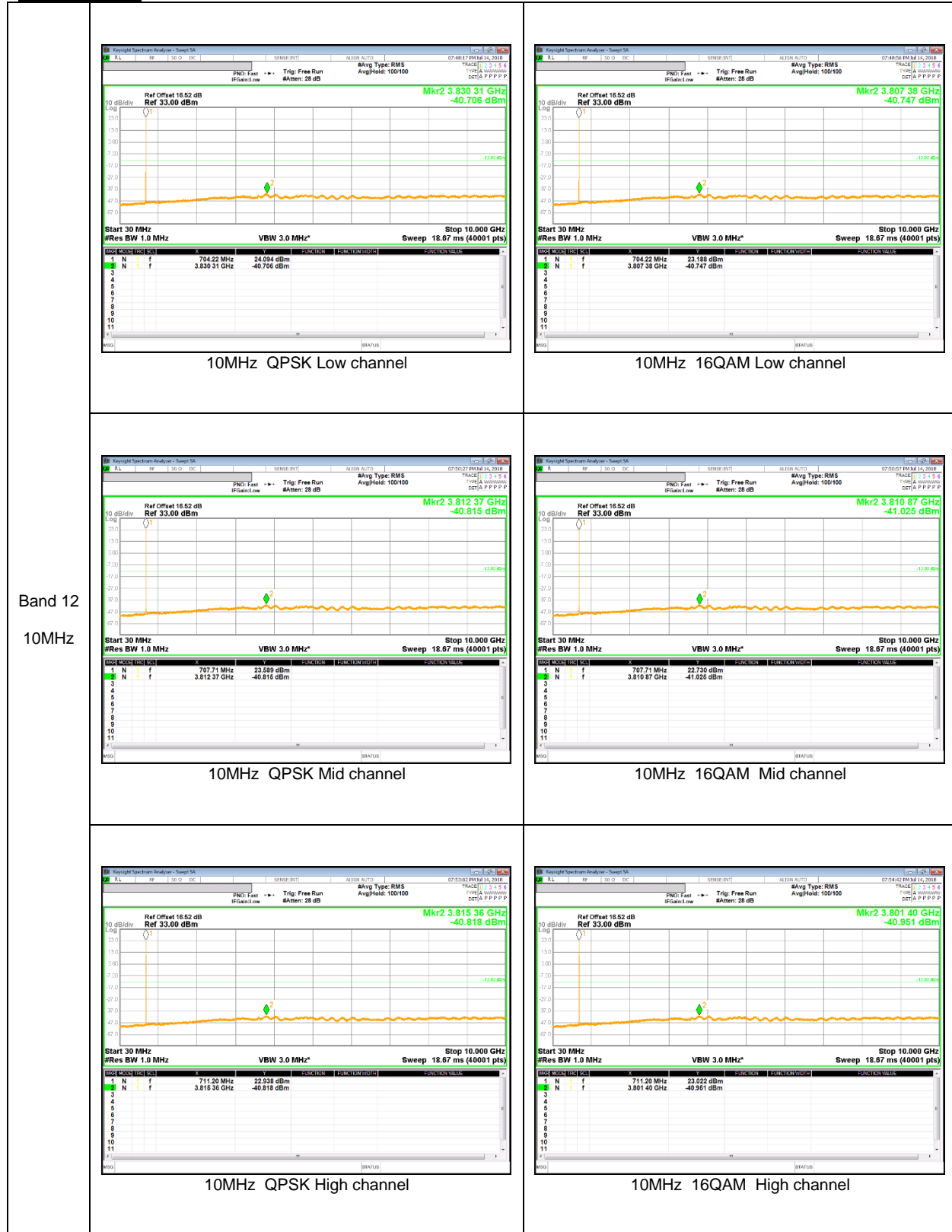


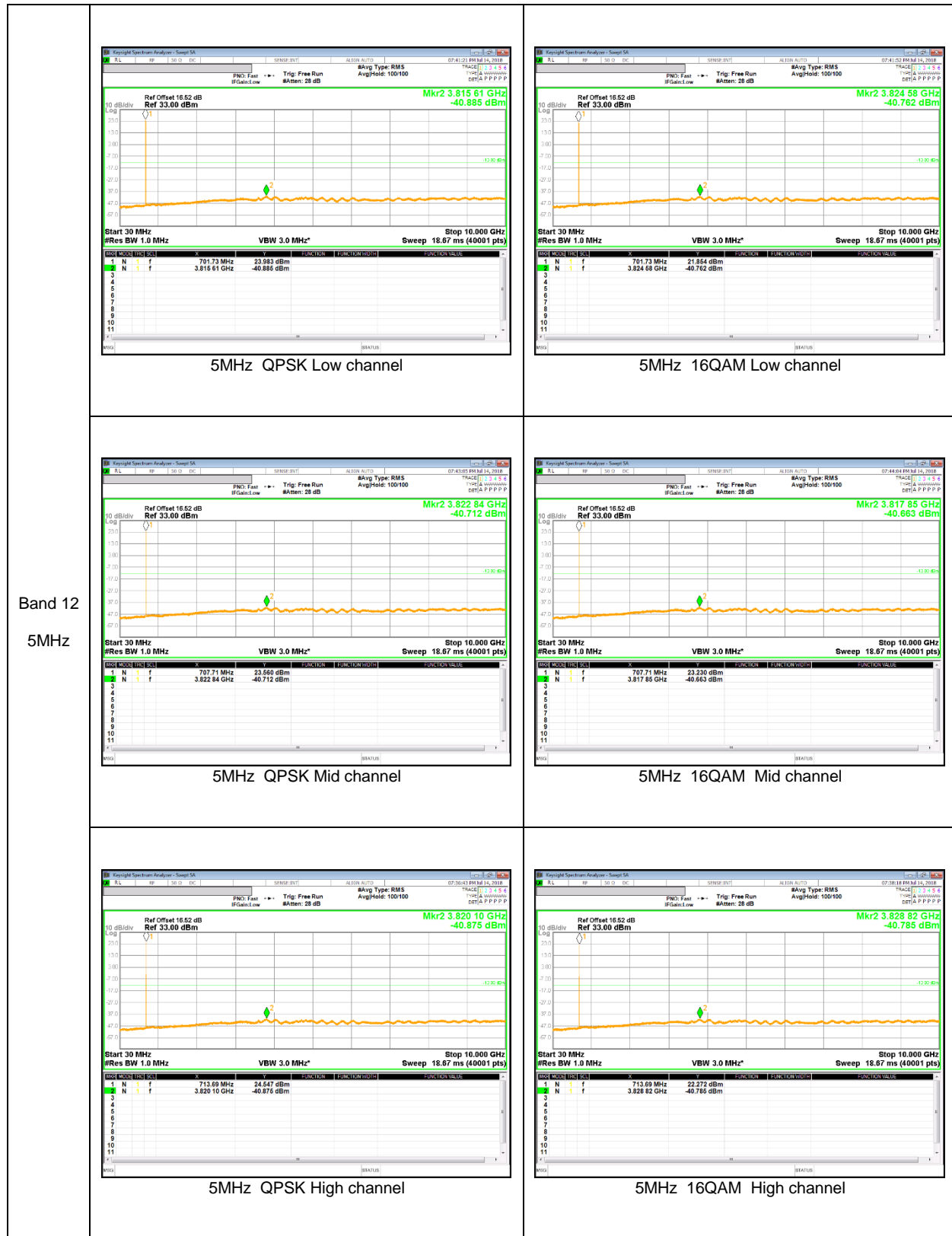


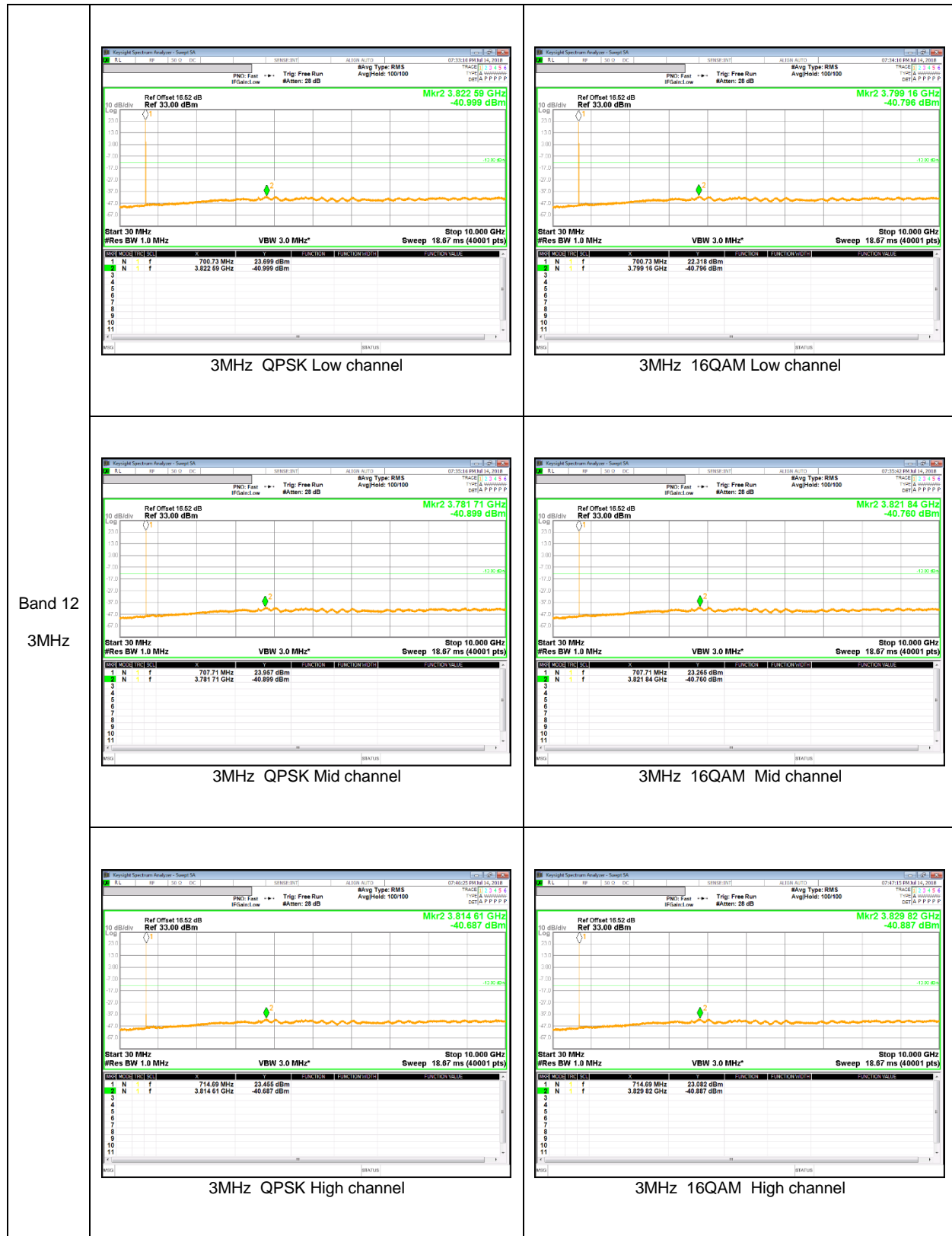
Band 7  
10MHz



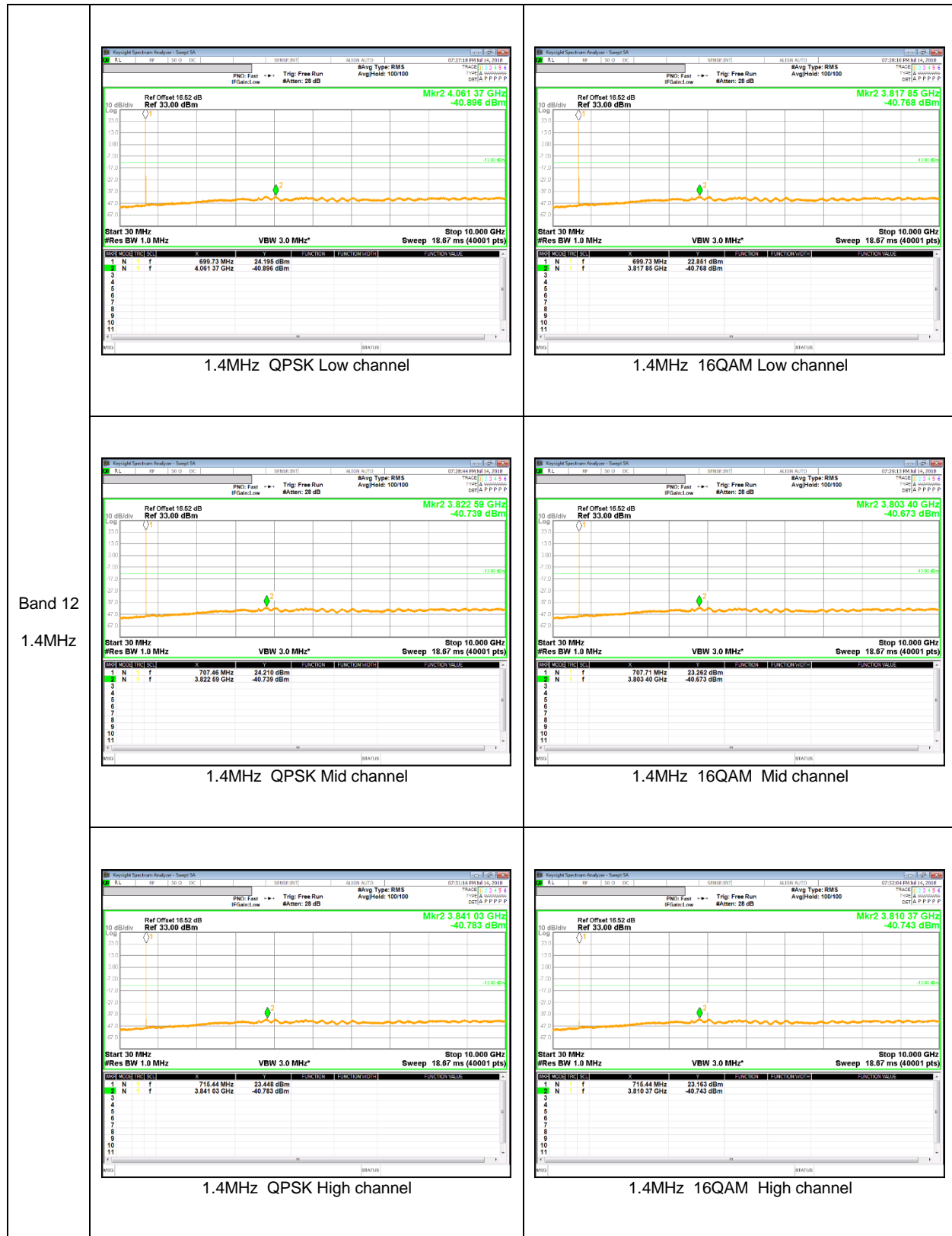
**LTE Band 12**





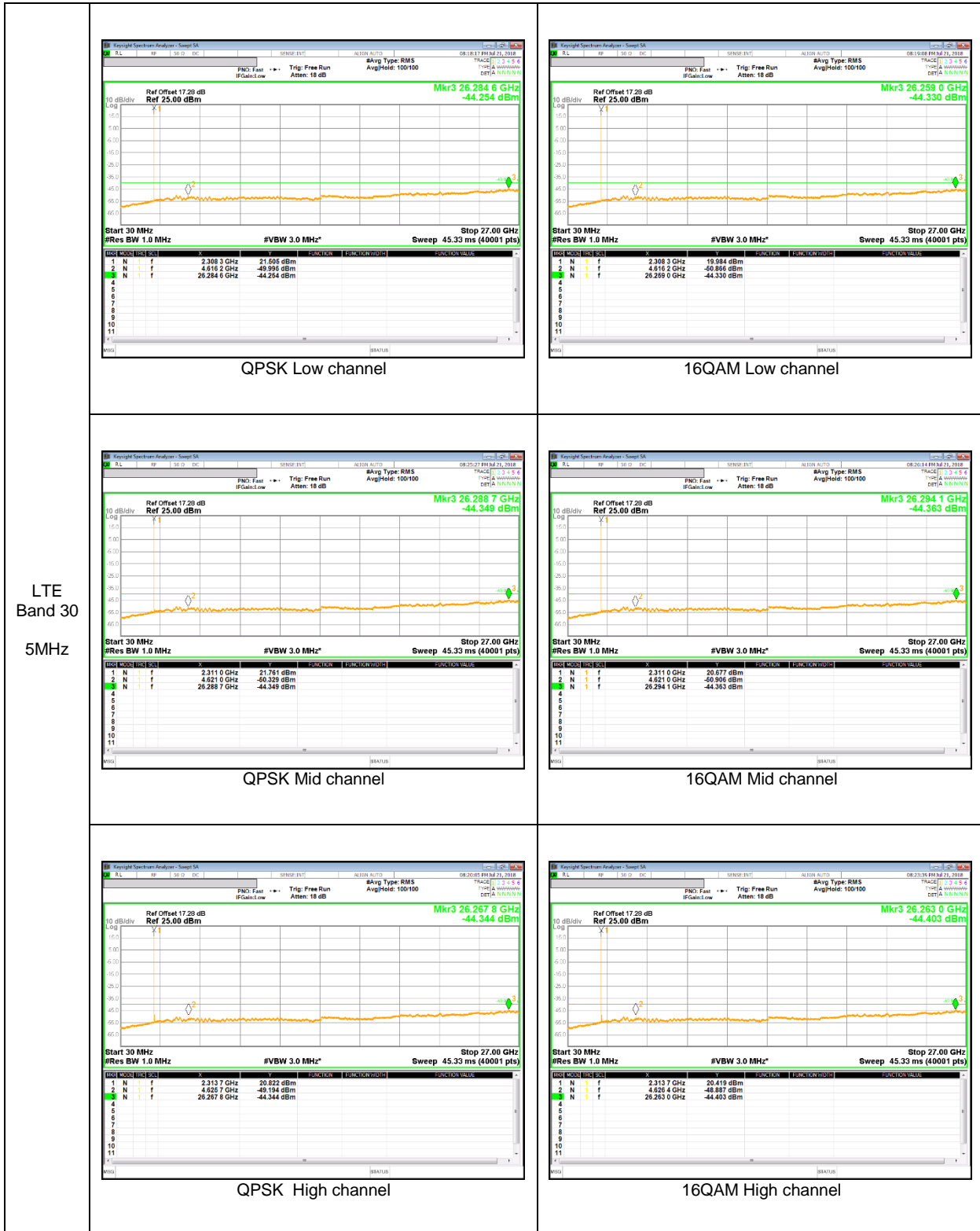




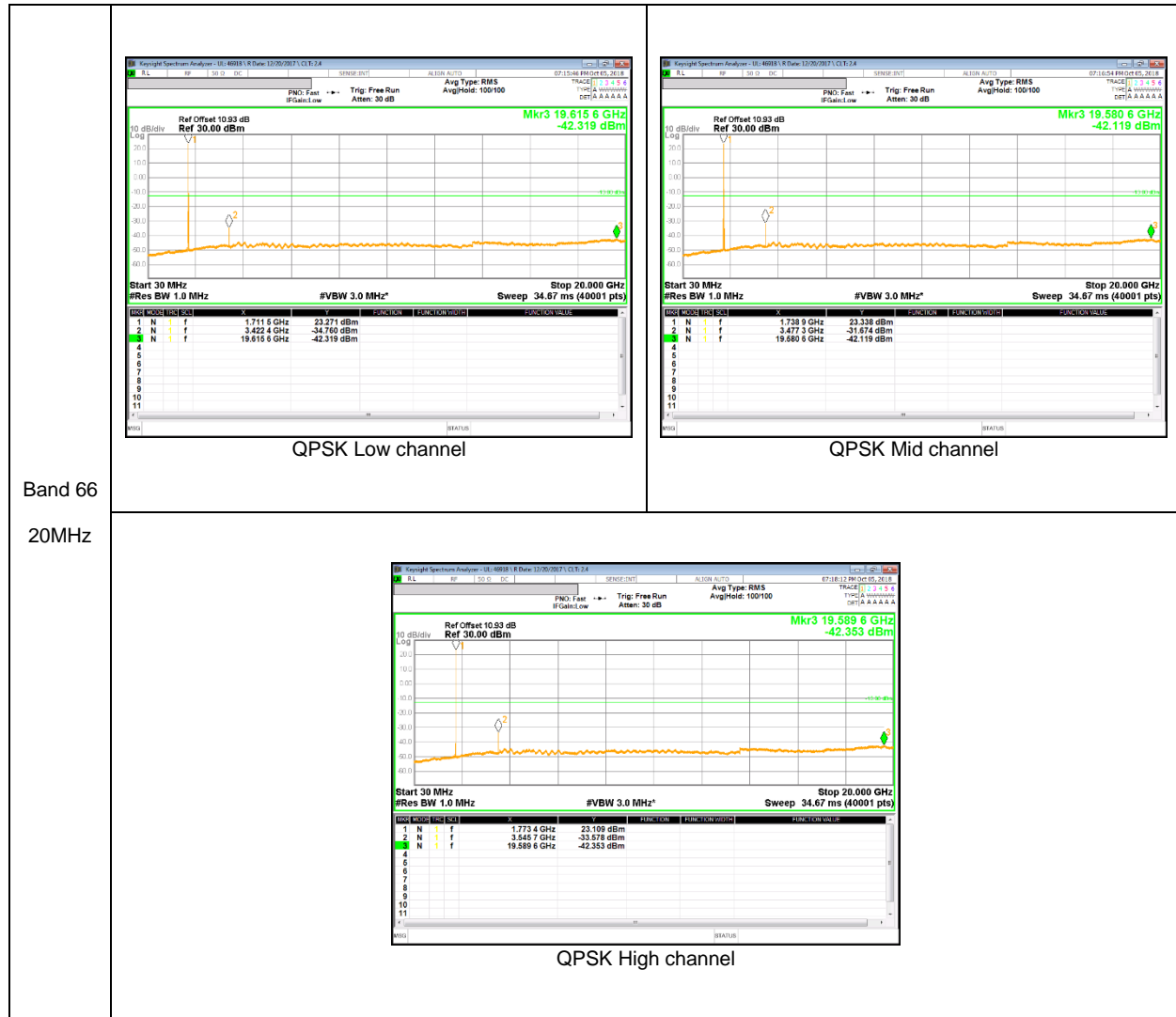


**LTE Band 30**





**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  $\pm 2.5$  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				Limit [ppm]	
		Low Channel		High Channel			
		[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	
<b>3.80</b>	<b>20</b>	<b>826.39998524</b>	<b>0.000</b>	<b>846.59999094</b>	<b>0.000</b>	<b>2.5</b>	
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			
		[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
	-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
	-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
	-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	Hz
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse				Limit [ppm]	
		Low Channel		High Channel			
		[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	
<b>3.80</b>	<b>20</b>	<b>824.69998718</b>	<b>0.000</b>	<b>848.29998876</b>	<b>0.000</b>	<b>2.5</b>	
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	Hz
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse				Limit [ppm]	
		Low Channel		High Channel			
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]		
<b>3.80</b>	<b>20</b>	<b>824.69998718</b>	<b>0</b>	<b>848.29998876</b>	<b>0</b>	<b>2.5</b>	
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
	-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
	-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	Hz
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse				Limit [ppm]	
		Low Channel		High Channel			
		[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	
<b>3.80</b>	<b>20</b>	<b>790.49999037</b>	<b>0.000</b>	<b>795.49998410</b>	<b>0.000</b>	<b>1.25</b>	
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	Hz
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse				Limit [ppm]	
		Low Channel		High Channel			
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]		
<b>3.80</b>	<b>20</b>	<b>790.49999037</b>	<b>0</b>	<b>795.49998410</b>	<b>0</b>	<b>1.25</b>	
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
	-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
	-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	<b>23.00</b>	<b>199.53</b>
		4183	836.6	22.58	181.13
		4233	846.6	22.21	166.34
	HSDPA	4132	826.4	<b>22.02</b>	<b>159.22</b>
		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	<b>25.01</b>	<b>316.96</b>
	HSDPA	1312	1712.4	22.98	198.61
		1413	1732.6	23.17	207.49
		1513	1752.6	<b>23.86</b>	<b>243.22</b>
Band 2	REL99	9262	1852.4	<b>24.38</b>	<b>274.16</b>
		9400	1880.0	23.82	240.99
		9538	1907.6	22.46	176.20
	HSDPA	9262	1852.4	<b>23.65</b>	<b>231.74</b>
		9400	1880.0	23.26	211.84
		9538	1907.6	21.09	128.53

Note: These data of Band 5 are ERP results.

(The EIRP conversion formula for IC : EIRP result (dBm) = ERP result (dBm) + 2.15 dB)

**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	<b>22.83</b>	<b>191.87</b>
			1/74	1880.0	22.37	172.58
			1/0	1902.5	21.55	142.89
		16QAM	1/37	1857.5	<b>21.96</b>	<b>157.04</b>
			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	<b>24.24</b>	<b>265.46</b>
	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	<b>25.91</b>	<b>389.94</b>
		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	<b>24.12</b>	<b>258.23</b>
			3/0	848.3	22.65	184.08
		16QAM	1/3	824.7	22.44	175.39
			3/3	836.5	<b>23.21</b>	<b>209.41</b>
			3/0	848.3	21.43	139.00

Note: These data are ERP results.

(The EIRP conversion formula for IC : EIRP result (dBm) = ERP result (dBm) + 2.15 dB)



**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	<b>19.61</b>	<b>91.41</b>
			1/0	2560.0	18.56	71.78
		16QAM	1/49	2510.0	<b>18.42</b>	<b>69.50</b>
			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	<b>19.60</b>	<b>91.20</b>
		16QAM	1/37	2507.5	18.02	63.39
			1/37	2535.0	<b>18.21</b>	<b>66.22</b>
			1/0	2562.5	18.11	64.71
	10	QPSK	1/25	2505.0	20.15	103.51
			1/25	2535.0	<b>20.62</b>	<b>115.35</b>
			1/0	2565.0	20.17	103.99
		16QAM	1/49	2505.0	19.04	80.17
			1/49	2535.0	<b>19.62</b>	<b>91.62</b>
			1/25	2565.0	19.13	81.85
	5	QPSK	1/12	2502.5	<b>20.15</b>	<b>103.51</b>
			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	<b>19.50</b>	<b>89.13</b>
			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	<b>18.38</b>	<b>68.87</b>
			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	<b>17.19</b>	<b>52.36</b>
	5	QPSK	1/12	701.5	18.06	63.97
			1/24	707.5	17.91	61.80
			1/12	713.5	<b>18.58</b>	<b>72.11</b>
		16QAM	1/12	701.5	16.92	49.20
			1/24	707.5	16.61	45.81
			1/12	713.5	<b>17.09</b>	<b>51.17</b>
	3	QPSK	1/0	700.5	17.74	59.43
			1/14	707.5	18.13	65.01
			1/0	714.5	<b>18.33</b>	<b>68.08</b>
		16QAM	1/8	700.5	16.96	49.66
			1/8	707.5	16.69	46.67
			1/8	714.5	<b>16.97</b>	<b>49.77</b>
	1.4	QPSK	1/3	699.7	18.17	65.61
			1/3	707.5	18.53	71.29
			1/0	715.3	<b>18.60</b>	<b>72.44</b>
		16QAM	1/0	699.7	<b>17.37</b>	<b>54.58</b>
			1/5	707.5	17.14	51.76
			1/3	715.3	17.11	51.40

Note: These data are ERP results.

(The EIRP conversion formula for IC : EIRP result (dBm) = ERP result (dBm) + 2.15 dB)

**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	<b>19.98</b>	<b>99.54</b>
		16QAM	1/25	2310.0	<b>18.99</b>	<b>79.25</b>
	5	QPSK	1/12	2307.5	19.63	91.83
			1/24	2310.0	18.24	66.68
			1/12	2312.5	<b>19.78</b>	<b>95.06</b>
		16QAM	1/12	2307.5	<b>18.96</b>	<b>78.70</b>
			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	<b>25.10</b>	<b>323.59</b>
			1/49	1745.0	24.74	297.85
			1/99	1770.0	24.87	306.90
		16QAM	1/49	1720.0	<b>25.12</b>	<b>325.09</b>
			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	<b>26.14</b>	<b>411.15</b>
		16QAM	1/37	1717.5	24.24	265.46
			1/74	1747.5	24.83	304.09
			1/37	1772.5	<b>24.91</b>	<b>309.74</b>
	10	QPSK	1/0	1715.0	24.99	315.50
			1/0	1745.0	26.10	407.38
			1/0	1775.0	<b>26.13</b>	<b>410.20</b>
		16QAM	1/25	1715.0	24.14	259.42
			1/0	1745.0	<b>24.89</b>	<b>308.32</b>
			1/49	1775.0	24.15	260.02
	5	QPSK	1/12	1712.5	<b>25.53</b>	<b>357.27</b>
			1/12	1745.0	25.44	349.95
			1/24	1777.5	25.22	332.66
		16QAM	1/0	1712.5	<b>24.76</b>	<b>299.23</b>
			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	<b>26.73</b>	<b>470.98</b>
			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	<b>25.37</b>	<b>344.35</b>
1.4	QPSK	1/3	1710.7	25.21	331.89	
		1/3	1745.0	<b>26.38</b>	<b>434.51</b>	
		1/3	1779.3	25.67	368.98	
	16QAM	1/5	1710.7	24.59	287.74	
		1/3	1745.0	<b>25.48</b>	<b>353.18</b>	
		1/3	1779.3	24.16	260.62	

### 10.1.2. ERP/EIRP DATA

#### WCDMA Band 5

WCDMA Band 5 REL99	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>																																																																																									
	<p> <b>Company:</b> Samsung  <b>Project #:</b> 4788481138  <b>Date:</b> 2018-06-19  <b>Test Engineer:</b> 45585  <b>Configuration:</b> EUT / X-Position  <b>Location:</b> Chamber 1  <b>Mode:</b> Rel99 Band 5 Fundamentals                 </p> <p> <b>Test Equipment:</b>                      Receiving: VULB9163-750, and Chamber 2 SMA Cables                      Substitution: Dipole 3121_DB4, 3m N-type Cable                 </p> <table border="1"> <thead> <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> </thead> <tbody> <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> </tbody> </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
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**WCDMA Band 4**

WCDMA Band 4 REL99	<p><b>UL Verification Services, Inc.</b>                  High Frequency Substitution Measurement</p> <p><b>Company:</b> Samsung  <b>Project #:</b> 4788534512  <b>Date:</b> 2018-07-21  <b>Test Engineer:</b> 45585  <b>Configuration:</b> EUT / Z-Position  <b>Location:</b> Chamber 1  <b>Mode:</b> Rel99 Band 4 Fundamentals</p> <p><b>Test Equipment:</b>                  Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables                  Substitution: Horn 3115[00161451], 3m N-type Cable</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td colspan="9">Low Ch</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> <td></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> <td></td> </tr> <tr> <td colspan="9">Mid Ch</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> <td></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> <td></td> </tr> <tr> <td colspan="9">High Ch</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> <td></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> <td></td> </tr> </tbody> </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	
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WCDMA Band 4 HSDPA	<p><b>UL Verification Services, Inc.</b>                  High Frequency Substitution Measurement</p> <p><b>Company:</b> Samsung  <b>Project #:</b> 4788534512  <b>Date:</b> 2018-07-21  <b>Test Engineer:</b> 45585  <b>Configuration:</b> EUT / Z-Position  <b>Location:</b> Chamber 1  <b>Mode:</b> HSDPA Band 4 Fundamentals</p> <p><b>Test Equipment:</b>                  Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables                  Substitution: Horn 3115[00161451], 3m N-type Cable</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td colspan="9">Low Ch</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> <td></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> <td></td> </tr> <tr> <td colspan="9">Mid Ch</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> <td></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> <td></td> </tr> <tr> <td colspan="9">High Ch</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> <td></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> <td></td> </tr> </tbody> </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	
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**WCDMA Band 2**

WCDMA Band 2 REL99	<p style="text-align: center;"><b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b></p> <p><b>Company:</b> Samsung  <b>Project #:</b> 4788481138  <b>Date:</b> 2018-06-18  <b>Test Engineer:</b> 47989  <b>Configuration:</b> EUT / X-Position  <b>Location:</b> Chamber 1  <b>Mode:</b> Rel99 Band 2 Fundamentals</p> <p><b>Test Equipment:</b>                  Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables                  Substitution: Horn 3115[00161451], 3m N-type Cable</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td colspan="9"><b>Low Ch</b></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"><b>Mid Ch</b></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"><b>High Ch</b></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> </tbody> </table>	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	<b>Low Ch</b>									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		<b>Mid Ch</b>									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		<b>High Ch</b>									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	
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**LTE Band 2**

LTE Band 2 20MHz QPSK	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788481138 <b>Date:</b> 2018-06-08 <b>Test Engineer:</b> 45585 <b>Configuration:</b> EUT / X-Position <b>Location:</b> Chamber 1 <b>Mode:</b> LTE_QPSK Band 2 Fundamentals, 20MHz Bandwidth								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788481138 <b>Date:</b> 2018-06-08 <b>Test Engineer:</b> 45585 <b>Configuration:</b> EUT / X-Position <b>Location:</b> Chamber 1 <b>Mode:</b> LTE_16QAM Band 2 Fundamentals, 20MHz Bandwidth								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788481138 <b>Date:</b> 2018-06-08 <b>Test Engineer:</b> 45585 <b>Configuration:</b> EUT / X-Position <b>Location:</b> Chamber 1 <b>Mode:</b> LTE_QPSK Band 2 Fundamentals, 15MHz Bandwidth								
	<b>Test Equipment:</b> 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								
	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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788481138 <b>Date:</b> 2018-06-08 <b>Test Engineer:</b> 45585 <b>Configuration:</b> EUT / X-Position <b>Location:</b> Chamber 1 <b>Mode:</b> LTE_16QAM Band 2 Fundamentals, 15MHz Bandwidth								
	<b>Test Equipment:</b> 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								
	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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788481138 <b>Date:</b> 2018-06-08 <b>Test Engineer:</b> 45585 <b>Configuration:</b> EUT / X-Position <b>Location:</b> Chamber 1 <b>Mode:</b> LTE_QPSK Band 2 Fundamentals, 10MHz Bandwidth								
	<b>Test Equipment:</b> 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								
	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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788481138 <b>Date:</b> 2018-06-08 <b>Test Engineer:</b> 45585 <b>Configuration:</b> EUT / X-Position <b>Location:</b> Chamber 1 <b>Mode:</b> LTE_16QAM Band 2 Fundamentals, 10MHz Bandwidth								
	<b>Test Equipment:</b> 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								
	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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788481138 <b>Date:</b> 2018-06-08 <b>Test Engineer:</b> 45585 <b>Configuration:</b> EUT / X-Position <b>Location:</b> Chamber 1 <b>Mode:</b> LTE_QPSK Band 2 Fundamentals, 5MHz Bandwidth								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788481138 <b>Date:</b> 2018-06-08 <b>Test Engineer:</b> 45585 <b>Configuration:</b> EUT / X-Position <b>Location:</b> Chamber 1 <b>Mode:</b> LTE_16QAM Band 2 Fundamentals, 5MHz Bandwidth								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	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								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	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								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	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								
	<b>Test Equipment:</b> 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								
	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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	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								
	<b>Test Equipment:</b> 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								
	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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>																																																																																																	
	<b>Company:</b> Samsung																																																																																																	
	<b>Project #:</b> 4788481138																																																																																																	
	<b>Date:</b> 2018-06-15																																																																																																	
	<b>Test Engineer:</b> 47989																																																																																																	
	<b>Configuration:</b> EUT / X-Position																																																																																																	
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LTE Band 4 15MHz QPSK	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>																																																																																																	
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LTE Band 4 10MHz QPSK	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
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	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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788481138 <b>Date:</b> 2018-06-15 <b>Test Engineer:</b> 47989 <b>Configuration:</b> EUT / X-Position <b>Location:</b> Chamber 1 <b>Mode:</b> LTE_16QAM Band 4 Fundamentals, 10MHz Bandwidth								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788481138 <b>Date:</b> 2018-06-15 <b>Test Engineer:</b> 47989 <b>Configuration:</b> EUT / X-Position <b>Location:</b> Chamber 1 <b>Mode:</b> LTE_QPSK Band 4 Fundamentals, 5MHz Bandwidth								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788481138 <b>Date:</b> 2018-06-15 <b>Test Engineer:</b> 47989 <b>Configuration:</b> EUT / X-Position <b>Location:</b> Chamber 1 <b>Mode:</b> LTE_16QAM Band 4 Fundamentals, 5MHz Bandwidth								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>																																																																																																	
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LTE Band 4 1.4MHz QPSK	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>																																																																																																	
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**LTE Band 5**

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	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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	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								
	<b>Test Equipment:</b> 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								
	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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	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								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	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								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>																																																																																																	
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**LTE Band 7**

LTE Band 7 20MHz QPSK	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>																																																																																																		
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LTE Band 7 15MHz QPSK	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	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								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	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								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788534512 <b>Date:</b> 2018-07-12 <b>Test Engineer:</b> 47989 <b>Configuration:</b> EUT / Y-Position <b>Location:</b> Chamber 1 <b>Mode:</b> LTE_QPSK Band 7 Fundamentals, 10MHz Bandwidth								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788534512 <b>Date:</b> 2018-07-12 <b>Test Engineer:</b> 47989 <b>Configuration:</b> EUT / Y-Position <b>Location:</b> Chamber 1 <b>Mode:</b> LTE_16QAM Band 7 Fundamentals, 10MHz Bandwidth								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788534512 <b>Date:</b> 2018-07-12 <b>Test Engineer:</b> 47989 <b>Configuration:</b> EUT / Y-Position <b>Location:</b> Chamber 1 <b>Mode:</b> LTE_QPSK Band 7 Fundamentals, 5MHz Bandwidth								
	<b>Test Equipment:</b> 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								
	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		
LTE Band 7 5MHz 16QAM	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788534512 <b>Date:</b> 2018-07-12 <b>Test Engineer:</b> 47989 <b>Configuration:</b> EUT / Y-Position <b>Location:</b> Chamber 1 <b>Mode:</b> LTE_16QAM Band 7 Fundamentals, 5MHz Bandwidth								
	<b>Test Equipment:</b> 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								
	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		

**LTE Band 12**

LTE Band 12 10MHz QPSK	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>																																																																																																		
	<b>Company:</b> Samsung																																																																																																		
	<b>Project #:</b> 4788534512																																																																																																		
	<b>Date:</b> 2018-07-11																																																																																																		
	<b>Test Engineer:</b> 47989																																																																																																		
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LTE Band 12 5MHz QPSK	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788534512 <b>Date:</b> 2018-07-10 <b>Test Engineer:</b> 51072 <b>Configuration:</b> EUT / X-position <b>Location:</b> Chamber 2 <b>Mode:</b> LTE_QPSK Band 12 Fundamentals, 5MHz Bandwidth								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788534512 <b>Date:</b> 2018-07-10 <b>Test Engineer:</b> 51072 <b>Configuration:</b> EUT / X-position <b>Location:</b> Chamber 2 <b>Mode:</b> LTE_16QAM Band 12 Fundamentals, 5MHz Bandwidth								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788534512 <b>Date:</b> 2018-07-10 <b>Test Engineer:</b> 51072 <b>Configuration:</b> EUT / X-position <b>Location:</b> Chamber 2 <b>Mode:</b> LTE_QPSK Band 12 Fundamentals, 3MHz Bandwidth								
	<b>Test Equipment:</b> 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								
	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		
LTE Band 12 3MHz 16QAM	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788534512 <b>Date:</b> 2018-07-10 <b>Test Engineer:</b> 51072 <b>Configuration:</b> EUT / X-position <b>Location:</b> Chamber 2 <b>Mode:</b> LTE_16QAM Band 12 Fundamentals, 3MHz Bandwidth								
	<b>Test Equipment:</b> 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								
	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		

LTE Band 12 1.4MHz QPSK	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788534512 <b>Date:</b> 2018-07-10 <b>Test Engineer:</b> 51072 <b>Configuration:</b> EUT / X-position <b>Location:</b> Chamber 2 <b>Mode:</b> LTE_QPSK Band 12 Fundamentals, 1.4MHz Bandwidth								
	<b>Test Equipment:</b> 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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
	<b>Company:</b> Samsung <b>Project #:</b> 4788534512 <b>Date:</b> 2018-07-10 <b>Test Engineer:</b> 51072 <b>Configuration:</b> EUT / X-position <b>Location:</b> Chamber 2 <b>Mode:</b> LTE_16QAM Band 12 Fundamentals, 1.4MHz Bandwidth								
	<b>Test Equipment:</b> 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	<p><b>UL Verification Services, Inc.</b>  <b>High Frequency Substitution Measurement</b></p> <p><b>Company:</b> Samsung  <b>Project #:</b> 4788534512  <b>Date:</b> 2018-07-20  <b>Test Engineer:</b> 51072  <b>Configuration:</b> EUT / X-position  <b>Location:</b> Chamber 1  <b>Mode:</b> LTE_QPSK Band 30 Fundamentals, 10MHz Bandwidth</p> <p><b>Test Equipment:</b>                  Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables                  Substitution: Horn 3115[00161451], 3m N-type Cable</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td>Mid Ch</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2310.00</td> <td>13.52</td> <td>V</td> <td>5.1</td> <td>10.0</td> <td>18.45</td> <td>24.0</td> <td>-5.5</td> <td></td> </tr> <tr> <td>2310.00</td> <td>15.05</td> <td>H</td> <td>5.1</td> <td>10.0</td> <td>19.98</td> <td>24.0</td> <td>-4.0</td> <td></td> </tr> </tbody> </table>	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	
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LTE Band 30  QPSK 5MHz	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>																																																																																									
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**LTE Band 66**

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	<b>Test Equipment:</b> Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable								
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	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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>								
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	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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>																																																																																																		
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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	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>																																																																																																	
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LTE Band 66 1.4MHz QPSK	<b>UL Verification Services, Inc.</b> <b>High Frequency Substitution Measurement</b>																																																																																																					
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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  $\geq 1.5$  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.



### 10.2.1. SPURIOUS RADIATION PLOTS

#### WCDMA Band 5

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
		f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
WCDMA Band 5 REL99	Company: Samsung Project #: 4788481138 Date: 2018-06-19 Test Engineer: 45585 Configuration: EUT / Adapter / Earphone, X-Position Location: Chamber 1 Mode: Rel99 Band 5 Harmonics										
	<b>Low Ch, 826.4MHz</b> 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										
	<b>Mid Ch, 836.6MHz</b> 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										
	<b>High Ch, 846.6MHz</b> 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	Company: Samsung Project #: 4788481138 Date: 2018-06-19 Test Engineer: 45585 Configuration: EUT / Adapter / Earphone, X-Position Location: Chamber 1 Mode: HSDPA Band 5 Harmonics									
		<b>Low Ch, 826.4MHz</b> 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									
		<b>Mid Ch, 836.6MHz</b> 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									
		<b>High Ch, 846.6MHz</b> 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**

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
		f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
WCDMA Band 4 REL99	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										
	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	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									
		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**

		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 REL99	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)
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
<b>Low Ch, 1860MHz</b>									
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	
<b>Mid Ch, 1880MHz</b>									
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	
<b>High Ch, 1900MHz</b>									
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	

LTE  
Band 2  
20MHz  
QPSK

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
LTE									
Band 2									
20MHz									
16QAM									
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									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788481138							
<b>Date:</b>		2018-06-15							
<b>Test Engineer:</b>		45585							
<b>Configuration:</b>		EUT / Adapter / Earphone, X-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		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
<b>Low Ch, 1857.5MHz</b>									
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	
<b>Mid Ch, 1880MHz</b>									
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	
<b>High Ch, 1902.5MHz</b>									
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									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788481138							
<b>Date:</b>		2018-06-15							
<b>Test Engineer:</b>		45585							
<b>Configuration:</b>		EUT / Adapter / Earphone, X-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		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
LTE									
Band 2									
15MHz									
16QAM									
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									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788481138							
<b>Date:</b>		2018-06-15							
<b>Test Engineer:</b>		45585							
<b>Configuration:</b>		EUT / Adapter / Earphone, X-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		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
<b>Low Ch, 1855MHz</b>									
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	
<b>Mid Ch, 1880MHz</b>									
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	
<b>High Ch, 1905MHz</b>									
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									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788481138							
<b>Date:</b>		2018-06-15							
<b>Test Engineer:</b>		45585							
<b>Configuration:</b>		EUT / Adapter / Earphone, X-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		LTE_16QAM 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
<b>Low Ch, 1855MHz</b>									
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	
<b>Mid Ch, 1880MHz</b>									
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	
<b>High Ch, 1905MHz</b>									
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	

LTE  
Band 2  
10MHz  
16QAM

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
LTE Band 2 5MHz QPSK		<b>Company:</b> Samsung							
		<b>Project #:</b> 4788481138							
		<b>Date:</b> 2018-06-15							
		<b>Test Engineer:</b> 45585							
		<b>Configuration:</b> EUT / Adapter / Earphone, X-Position							
<b>Location:</b> Chamber 1									
<b>Mode:</b> 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
<b>Low Ch, 1852.5MHz</b>									
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	
<b>Mid Ch, 1880MHz</b>									
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	
<b>High Ch, 1907.5MHz</b>									
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	

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
LTE									
Band 2									
5MHz									
16QAM									
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	

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
<b>Low Ch, 1851.5MHz</b>									
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	
<b>Mid Ch, 1880MHz</b>									
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	
<b>High Ch, 1908.5MHz</b>									
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	

LTE  
 Band 2  
 3MHz  
 QPSK

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
LTE Band 2 3MHz 16QAM		<b>Company:</b> Samsung							
		<b>Project #:</b> 4788481138							
		<b>Date:</b> 2018-06-15							
		<b>Test Engineer:</b> 45585							
		<b>Configuration:</b> EUT / Adapter / Earphone, X-Position							
<b>Location:</b> Chamber 1									
<b>Mode:</b> 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
<b>Low Ch, 1851.5MHz</b>									
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	
<b>Mid Ch, 1880MHz</b>									
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	
<b>High Ch, 1908.5MHz</b>									
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	

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
<b>Low Ch, 1850.7MHz</b>									
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	
<b>Mid Ch, 1880MHz</b>									
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	
<b>High Ch, 1909.3MHz</b>									
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
<b>Low Ch, 1720MHz</b>									
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	
<b>Mid Ch, 1732.5MHz</b>									
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	
<b>High Ch, 1745MHz</b>									
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	

LTE  
Band 4  
20MHz  
QPSK



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)	Preamp (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	

LTE  
 Band 4  
 20MHz  
 16QAM

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788481138							
<b>Date:</b>		2018-06-15							
<b>Test Engineer:</b>		45585							
<b>Configuration:</b>		EUT / Adapter / Earphone, X-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		LTE_QPSK Band 4 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
<b>Low Ch, 1717.5MHz</b>									
3435.00	-7.9	V	3.0	43.7	1.0	-50.6	-13.0	-37.6	
5152.50	-20.0	V	3.0	43.8	1.0	-62.8	-13.0	-49.8	
6870.00	-17.3	V	3.0	42.8	1.0	-59.1	-13.0	-46.1	
8587.50	-19.6	V	3.0	41.8	1.0	-60.4	-13.0	-47.4	
10305.00	-19.2	V	3.0	40.6	1.0	-58.9	-13.0	-45.9	
3435.00	1.4	H	3.0	43.7	1.0	-41.3	-13.0	-28.3	
5152.50	-20.4	H	3.0	43.8	1.0	-63.2	-13.0	-50.2	
6870.00	-16.9	H	3.0	42.8	1.0	-58.8	-13.0	-45.8	
8587.50	-19.0	H	3.0	41.8	1.0	-59.8	-13.0	-46.8	
10305.00	-19.2	H	3.0	40.6	1.0	-58.8	-13.0	-45.8	
<b>Mid Ch, 1732.5MHz</b>									
3465.00	-6.9	V	3.0	43.7	1.0	-48.5	-13.0	-35.5	
5197.50	-19.0	V	3.0	43.8	1.0	-61.7	-13.0	-48.7	
6930.00	-17.2	V	3.0	42.8	1.0	-59.0	-13.0	-46.0	
8662.50	-19.2	V	3.0	41.7	1.0	-59.9	-13.0	-46.9	
10395.00	-18.6	V	3.0	40.7	1.0	-58.3	-13.0	-45.3	
3465.00	4.2	H	3.0	43.7	1.0	-38.5	-13.0	-25.5	
5197.50	-19.3	H	3.0	43.8	1.0	-62.1	-13.0	-49.1	
6930.00	-17.2	H	3.0	42.8	1.0	-59.0	-13.0	-46.0	
8662.50	-18.8	H	3.0	41.7	1.0	-59.6	-13.0	-46.6	
10395.00	-19.2	H	3.0	40.7	1.0	-58.8	-13.0	-45.8	
<b>High Ch, 1747.5MHz</b>									
3495.00	-6.7	V	3.0	43.7	1.0	-49.4	-13.0	-36.4	
5242.50	-18.3	V	3.0	43.8	1.0	-61.0	-13.0	-48.0	
6990.00	-13.8	V	3.0	42.7	1.0	-55.5	-13.0	-42.5	
8737.50	-19.8	V	3.0	41.7	1.0	-60.5	-13.0	-47.5	
10485.00	-16.6	V	3.0	40.7	1.0	-56.3	-13.0	-43.3	
3495.00	2.0	H	3.0	43.7	1.0	-40.7	-13.0	-27.7	
5242.50	-18.7	H	3.0	43.8	1.0	-61.5	-13.0	-48.5	
6990.00	-17.8	H	3.0	42.7	1.0	-59.6	-13.0	-46.6	
8737.50	-19.2	H	3.0	41.7	1.0	-59.9	-13.0	-46.9	
10485.00	-18.2	H	3.0	40.7	1.0	-57.9	-13.0	-44.9	

LTE  
Band 4  
15MHz  
QPSK

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788481138							
<b>Date:</b>		2018-06-15							
<b>Test Engineer:</b>		45585							
<b>Configuration:</b>		EUT / Adapter / Earphone, X-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		LTE_16QAM Band 4 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
<b>Low Ch, 1717.5MHz</b>									
3435.00	-8.5	V	3.0	43.7	1.0	-51.2	-13.0	-38.2	
5152.50	-20.0	V	3.0	43.8	1.0	-62.8	-13.0	-49.8	
6870.00	-17.3	V	3.0	42.8	1.0	-59.2	-13.0	-46.2	
8587.50	-19.5	V	3.0	41.8	1.0	-60.3	-13.0	-47.3	
10305.00	-19.2	V	3.0	40.6	1.0	-58.9	-13.0	-45.9	
3435.00	0.4	H	3.0	43.7	1.0	-42.3	-13.0	-29.3	
5152.50	-20.3	H	3.0	43.8	1.0	-63.1	-13.0	-50.1	
6870.00	-16.9	H	3.0	42.8	1.0	-58.7	-13.0	-45.7	
8587.50	-19.1	H	3.0	41.8	1.0	-59.8	-13.0	-46.8	
10305.00	-19.3	H	3.0	40.6	1.0	-59.0	-13.0	-46.0	
<b>Mid Ch, 1732.5MHz</b>									
3465.00	-7.3	V	3.0	43.7	1.0	-50.0	-13.0	-37.0	
5197.50	-19.0	V	3.0	43.8	1.0	-61.8	-13.0	-48.8	
6930.00	-17.4	V	3.0	42.8	1.0	-59.2	-13.0	-46.2	
8662.50	-19.3	V	3.0	41.7	1.0	-60.0	-13.0	-47.0	
10395.00	-19.0	V	3.0	40.7	1.0	-58.7	-13.0	-45.7	
3465.00	2.3	H	3.0	43.7	1.0	-40.4	-13.0	-27.4	
5197.50	-19.3	H	3.0	43.8	1.0	-62.1	-13.0	-49.1	
6930.00	-17.2	H	3.0	42.8	1.0	-59.0	-13.0	-46.0	
8662.50	-19.0	H	3.0	41.7	1.0	-59.7	-13.0	-46.7	
10395.00	-19.1	H	3.0	40.7	1.0	-58.8	-13.0	-45.8	
<b>High Ch, 1747.5MHz</b>									
3495.00	-8.0	V	3.0	43.7	1.0	-50.7	-13.0	-37.7	
5242.50	-18.3	V	3.0	43.8	1.0	-61.1	-13.0	-48.1	
6990.00	-15.2	V	3.0	42.7	1.0	-56.9	-13.0	-43.9	
8737.50	-19.8	V	3.0	41.7	1.0	-60.5	-13.0	-47.5	
10485.00	-17.2	V	3.0	40.7	1.0	-56.9	-13.0	-43.9	
3495.00	1.0	H	3.0	43.7	1.0	-41.7	-13.0	-28.7	
5242.50	-18.8	H	3.0	43.8	1.0	-61.5	-13.0	-48.5	
6990.00	-17.8	H	3.0	42.7	1.0	-59.6	-13.0	-46.6	
8737.50	-19.2	H	3.0	41.7	1.0	-59.9	-13.0	-46.9	
10485.00	-18.2	H	3.0	40.7	1.0	-57.9	-13.0	-44.9	

LTE  
 Band 4  
 15MHz  
 16QAM

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788481138							
<b>Date:</b>		2018-06-15							
<b>Test Engineer:</b>		45585							
<b>Configuration:</b>		EUT / Adapter / Earphone, X-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		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
<b>Low Ch, 1715MHz</b>									
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	
<b>Mid Ch, 1732.5MHz</b>									
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	
<b>High Ch, 1750MHz</b>									
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									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788481138							
<b>Date:</b>		2018-06-15							
<b>Test Engineer:</b>		45585							
<b>Configuration:</b>		EUT / Adapter / Earphone, X-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		LTE_16QAM 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
<b>Low Ch, 1715MHz</b>									
3430.00	-6.8	V	3.0	43.7	1.0	-49.5	-13.0	-36.5	
5145.00	-19.8	V	3.0	43.8	1.0	-62.6	-13.0	-49.6	
6860.00	-17.1	V	3.0	42.9	1.0	-59.0	-13.0	-46.0	
8575.00	-18.8	V	3.0	41.8	1.0	-59.5	-13.0	-46.5	
10290.00	-18.6	V	3.0	40.6	1.0	-58.2	-13.0	-45.2	
3430.00	1.8	H	3.0	43.7	1.0	-40.9	-13.0	-27.9	
5145.00	-20.2	H	3.0	43.8	1.0	-63.0	-13.0	-50.0	
6860.00	-16.8	H	3.0	42.9	1.0	-58.7	-13.0	-45.7	
8575.00	-19.0	H	3.0	41.8	1.0	-59.8	-13.0	-46.8	
10290.00	-19.0	H	3.0	40.6	1.0	-58.6	-13.0	-45.6	
<b>Mid Ch, 1732.5MHz</b>									
3465.00	-6.6	V	3.0	43.7	1.0	-49.3	-13.0	-36.3	
5197.50	-18.9	V	3.0	43.8	1.0	-61.7	-13.0	-48.7	
6930.00	-17.8	V	3.0	42.8	1.0	-59.6	-13.0	-46.6	
8662.50	-19.0	V	3.0	41.7	1.0	-59.7	-13.0	-46.7	
10395.00	-18.8	V	3.0	40.7	1.0	-58.5	-13.0	-45.5	
3465.00	0.8	H	3.0	43.7	1.0	-41.9	-13.0	-28.9	
5197.50	-19.1	H	3.0	43.8	1.0	-61.9	-13.0	-48.9	
6930.00	-17.5	H	3.0	42.8	1.0	-59.3	-13.0	-46.3	
8662.50	-19.0	H	3.0	41.7	1.0	-59.7	-13.0	-46.7	
10395.00	-19.2	H	3.0	40.7	1.0	-58.8	-13.0	-45.8	
<b>High Ch, 1750MHz</b>									
3500.00	-6.5	V	3.0	43.7	1.0	-49.2	-13.0	-36.2	
5250.00	-17.6	V	3.0	43.8	1.0	-60.4	-13.0	-47.4	
7000.00	-15.4	V	3.0	42.7	1.0	-57.1	-13.0	-44.1	
8750.00	-19.9	V	3.0	41.7	1.0	-60.6	-13.0	-47.6	
10500.00	-16.9	V	3.0	40.7	1.0	-56.6	-13.0	-43.6	
3500.00	1.1	H	3.0	43.7	1.0	-41.6	-13.0	-28.6	
5250.00	-18.5	H	3.0	43.8	1.0	-61.3	-13.0	-48.3	
7000.00	-17.8	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  
 16QAM

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788481138							
<b>Date:</b>		2018-06-15							
<b>Test Engineer:</b>		45585							
<b>Configuration:</b>		EUT / Adapter / Earphone, X-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		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
<b>Low Ch, 1712.5MHz</b>									
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	
<b>Mid Ch, 1732.5MHz</b>									
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	
<b>High Ch, 1752.5MHz</b>									
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

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
LTE Band 4 5MHz 16QAM		<b>Company:</b>		Samsung					
		<b>Project #:</b>		4788481138					
		<b>Date:</b>		2018-06-15					
		<b>Test Engineer:</b>		45585					
		<b>Configuration:</b>		EUT / Adapter / Earphone, X-Position					
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		LTE_16QAM 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
<b>Low Ch, 1712.5MHz</b>									
3425.00	-7.9	V	3.0	43.7	1.0	-50.6	-13.0	-37.6	
5137.50	-19.6	V	3.0	43.8	1.0	-62.3	-13.0	-49.3	
6850.00	-17.2	V	3.0	42.9	1.0	-59.0	-13.0	-46.0	
8562.50	-18.8	V	3.0	41.8	1.0	-59.6	-13.0	-46.6	
10275.00	-18.4	V	3.0	40.6	1.0	-58.0	-13.0	-45.0	
3425.00	1.3	H	3.0	43.7	1.0	-41.4	-13.0	-28.4	
5137.50	-19.9	H	3.0	43.8	1.0	-62.7	-13.0	-49.7	
6850.00	-16.8	H	3.0	42.9	1.0	-58.7	-13.0	-45.7	
8562.50	-18.6	H	3.0	41.8	1.0	-59.5	-13.0	-46.5	
10275.00	-18.7	H	3.0	40.6	1.0	-58.4	-13.0	-45.4	
<b>Mid Ch, 1732.5MHz</b>									
3465.00	-0.5	V	3.0	43.7	1.0	-43.2	-13.0	-30.2	
5197.50	-19.0	V	3.0	43.8	1.0	-61.8	-13.0	-48.8	
6930.00	-17.3	V	3.0	42.8	1.0	-59.1	-13.0	-46.1	
8662.50	-19.4	V	3.0	41.7	1.0	-60.1	-13.0	-47.1	
10395.00	-19.1	V	3.0	40.7	1.0	-58.8	-13.0	-45.8	
3465.00	1.4	H	3.0	43.7	1.0	-41.3	-13.0	-28.3	
5197.50	-19.3	H	3.0	43.8	1.0	-62.1	-13.0	-49.1	
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	
<b>High Ch, 1752.5MHz</b>									
3505.00	-6.5	V	3.0	43.7	1.0	-49.2	-13.0	-36.2	
5257.50	-17.7	V	3.0	43.8	1.0	-60.5	-13.0	-47.5	
7010.00	-15.1	V	3.0	42.7	1.0	-56.8	-13.0	-43.8	
8762.50	-19.5	V	3.0	41.7	1.0	-60.2	-13.0	-47.2	
10515.00	-16.9	V	3.0	40.7	1.0	-56.6	-13.0	-43.6	
3505.00	0.6	H	3.0	43.7	1.0	-42.1	-13.0	-29.1	
5257.50	-18.5	H	3.0	43.8	1.0	-61.2	-13.0	-48.2	
7010.00	-17.8	H	3.0	42.7	1.0	-59.5	-13.0	-46.5	
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	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788481138							
<b>Date:</b>		2018-06-15							
<b>Test Engineer:</b>		45585							
<b>Configuration:</b>		EUT / Adapter / Earphone, X-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		LTE_QPSK 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
<b>Low Ch, 1711.5MHz</b>									
3423.00	-6.0	V	3.0	43.7	1.0	-48.6	-13.0	-35.6	
5134.50	-19.4	V	3.0	43.8	1.0	-62.2	-13.0	-49.2	
6846.00	-16.7	V	3.0	42.9	1.0	-58.6	-13.0	-45.6	
8557.50	-18.6	V	3.0	41.8	1.0	-59.5	-13.0	-46.5	
10269.00	-17.8	V	3.0	40.6	1.0	-57.4	-13.0	-44.4	
3423.00	3.1	H	3.0	43.7	1.0	-39.5	-13.0	-26.5	
5134.50	-19.7	H	3.0	43.8	1.0	-62.5	-13.0	-49.5	
6846.00	-16.7	H	3.0	42.9	1.0	-58.6	-13.0	-45.6	
8557.50	-18.7	H	3.0	41.8	1.0	-59.5	-13.0	-46.5	
10269.00	-18.2	H	3.0	40.6	1.0	-57.9	-13.0	-44.9	
<b>Mid Ch, 1732.5MHz</b>									
3465.00	-0.4	V	3.0	43.7	1.0	-43.1	-13.0	-30.1	
5197.50	-18.9	V	3.0	43.8	1.0	-61.6	-13.0	-48.6	
6930.00	-17.2	V	3.0	42.8	1.0	-59.0	-13.0	-46.0	
8662.50	-19.4	V	3.0	41.7	1.0	-60.1	-13.0	-47.1	
10395.00	-18.4	V	3.0	40.7	1.0	-58.1	-13.0	-45.1	
3465.00	2.5	H	3.0	43.7	1.0	-40.1	-13.0	-27.1	
5197.50	-19.1	H	3.0	43.8	1.0	-61.9	-13.0	-48.9	
6930.00	-17.1	H	3.0	42.8	1.0	-58.9	-13.0	-45.9	
8662.50	-18.5	H	3.0	41.7	1.0	-59.3	-13.0	-46.3	
10395.00	-18.8	H	3.0	40.7	1.0	-58.4	-13.0	-45.4	
<b>High Ch, 1753.5MHz</b>									
3507.00	-6.2	V	3.0	43.7	1.0	-48.9	-13.0	-35.9	
5260.50	-17.8	V	3.0	43.8	1.0	-60.6	-13.0	-47.6	
7014.00	-13.6	V	3.0	42.7	1.0	-55.3	-13.0	-42.3	
8767.50	-18.9	V	3.0	41.7	1.0	-59.5	-13.0	-46.5	
10521.00	-16.8	V	3.0	40.7	1.0	-56.5	-13.0	-43.5	
3507.00	1.4	H	3.0	43.7	1.0	-41.3	-13.0	-28.3	
5260.50	-18.1	H	3.0	43.8	1.0	-60.9	-13.0	-47.9	
7014.00	-13.6	H	3.0	42.7	1.0	-55.3	-13.0	-42.3	
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	

LTE  
 Band 4  
 3MHz  
 QPSK



UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788481138							
<b>Date:</b>		2018-06-15							
<b>Test Engineer:</b>		45585							
<b>Configuration:</b>		EUT / Adapter / Earphone, X-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		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
<b>Low Ch, 1711.5MHz</b>									
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	
<b>Mid Ch, 1732.5MHz</b>									
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	
<b>High Ch, 1753.5MHz</b>									
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	
<b>High Ch, 1753.5MHz</b>									
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	

LTE  
 Band 4  
 3MHz  
 16QAM

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788481138							
<b>Date:</b>		2018-06-15							
<b>Test Engineer:</b>		45585							
<b>Configuration:</b>		EUT / Adapter / Earphone, X-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		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
<b>Low Ch, 1710.7MHz</b>									
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	
<b>Mid Ch, 1732.5MHz</b>									
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	
<b>High Ch, 1754.3MHz</b>									
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	

LTE  
Band 4  
1.4MHz  
QPSK

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788481138							
<b>Date:</b>		2018-06-15							
<b>Test Engineer:</b>		45585							
<b>Configuration:</b>		EUT / Adapter / Earphone, X-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		LTE_16QAM 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
<b>Low Ch, 1710.7MHz</b>									
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	
<b>Mid Ch, 1732.5MHz</b>									
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	
<b>High Ch, 1754.3MHz</b>									
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 4  
1.4MHz  
16QAM

**LTE Band 5**

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement												
LTE Band 5 10MHz QPSK		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	
		<b>Low Ch, 829MHz</b>										
		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				
<b>Mid Ch, 836.5MHz</b>												
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				
<b>High Ch, 844MHz</b>												
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									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788481138							
<b>Date:</b>		2018-06-18							
<b>Test Engineer:</b>		51072							
<b>Configuration:</b>		EUT / Adapter / Earphone , X-position							
<b>Location:</b>		Chamber 2							
<b>Mode:</b>		LTE_16QAM 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
<b>Low Ch, 829MHz</b>									
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	
<b>Mid Ch, 836.5MHz</b>									
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	
<b>High Ch, 844MHz</b>									
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	

LTE  
 Band 5  
 10MHz  
 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_QPSK Band 5 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, 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	

LTE  
Band 5  
5MHz  
QPSK

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)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
<b>Low Ch, 826.5MHz</b>									
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	
<b>Mid Ch, 836.5MHz</b>									
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	
<b>High Ch, 846.5MHz</b>									
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	

LTE  
Band 5  
5MHz  
16QAM

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788481138							
<b>Date:</b>		2018-06-18							
<b>Test Engineer:</b>		51072							
<b>Configuration:</b>		EUT / Adapter / Earphone , X-position							
<b>Location:</b>		Chamber 2							
<b>Mode:</b>		LTE_QPSK Band 5 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
<b>Low Ch, 825.5MHz</b>									
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	
<b>Mid Ch, 836.5MHz</b>									
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	
<b>High Ch, 847.5MHz</b>									
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	

LTE  
Band 5  
3MHz  
QPSK



UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788481138							
<b>Date:</b>		2018-06-18							
<b>Test Engineer:</b>		51072							
<b>Configuration:</b>		EUT / Adapter / Earphone , X-position							
<b>Location:</b>		Chamber 2							
<b>Mode:</b>		LTE_16QAM Band 5 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
<b>Low Ch, 825.5MHz</b>									
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	
<b>Mid Ch, 836.5MHz</b>									
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	
<b>High Ch, 847.5MHz</b>									
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	

LTE  
Band 5  
3MHz  
16QAM

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788481138							
<b>Date:</b>		2018-06-18							
<b>Test Engineer:</b>		51072							
<b>Configuration:</b>		EUT / Adapter / Earphone , X-position							
<b>Location:</b>		Chamber 2							
<b>Mode:</b>		LTE_QPSK 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
<b>Low Ch, 824.7MHz</b>									
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	
<b>Mid Ch, 836.5MHz</b>									
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	
<b>High Ch, 848.3MHz</b>									
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  
 QPSK

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 5  
 1.4MHz  
 16QAM

**LTE Band 7**

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement												
LTE Band 7 20MHz QPSK		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	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes	
		MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)		
		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				

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788534512							
<b>Date:</b>		2018-07-20							
<b>Test Engineer:</b>		45585							
<b>Configuration:</b>		EUT / AC Adapter / Earphone, Y-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		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
<b>Low Ch, 2510MHz</b>									
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	
<b>Mid Ch, 2535MHz</b>									
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	
<b>High Ch, 2560MHz</b>									
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  
 20MHz  
 16QAM

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, 15MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
<b>Low Ch, 2507.5MHz</b>									
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	
<b>Mid Ch, 2535MHz</b>									
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	
<b>High Ch, 2562.5MHz</b>									
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  
QPSK

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788534512							
<b>Date:</b>		2018-07-13							
<b>Test Engineer:</b>		47989							
<b>Configuration:</b>		EUT / AC Adapter / Earphone, Y-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		LTE_16QAM Band 7 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
<b>Low Ch, 2507.5MHz</b>									
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	
<b>Mid Ch, 2535MHz</b>									
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	
<b>High Ch, 2562.5MHz</b>									
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	

LTE  
 Band 7  
 15MHz  
 16QAM

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  
 QPSK



UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788534512							
<b>Date:</b>		2018-07-13							
<b>Test Engineer:</b>		47989							
<b>Configuration:</b>		EUT / AC Adapter / Earphone, Y-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		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
<b>Low Ch, 2505MHz</b>									
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	
<b>Mid Ch, 2535MHz</b>									
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	
<b>High Ch, 2565MHz</b>									
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	

LTE  
Band 7  
10MHz  
16QAM

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788534512							
<b>Date:</b>		2018-07-13							
<b>Test Engineer:</b>		47989							
<b>Configuration:</b>		EUT / AC Adapter / Earphone, Z-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		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
<b>Low Ch, 2502.5MHz</b>									
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	
<b>Mid Ch, 2535MHz</b>									
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	
<b>High Ch, 2567.5MHz</b>									
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	

LTE  
Band 7  
5MHz  
QPSK

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788534512							
<b>Date:</b>		2018-07-13							
<b>Test Engineer:</b>		47989							
<b>Configuration:</b>		EUT / AC Adapter / Earphone, Y-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		LTE_16QAM 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
<b>Low Ch, 2502.5MHz</b>									
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	
<b>Mid Ch, 2535MHz</b>									
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	
<b>High Ch, 2567.5MHz</b>									
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 7  
 5MHz  
 16QAM

**LTE Band 12**

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement											
LTE Band 12 10MHz QPSK		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									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788534512							
<b>Date:</b>		2018-07-20							
<b>Test Engineer:</b>		47989							
<b>Configuration:</b>		EUT / Adapter / Earphone / X-position							
<b>Location:</b>		Chamber 2							
<b>Mode:</b>		LTE_16QAM 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
<b>Low Ch, 704MHz</b>									
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	
<b>Mid Ch, 707.5MHz</b>									
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	
<b>High Ch, 711MHz</b>									
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	

LTE  
 Band 12  
 10MHz  
 16QAM

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788534512							
<b>Date:</b>		2018-07-20							
<b>Test Engineer:</b>		47989							
<b>Configuration:</b>		EUT / Adapter / Earphone / X-position							
<b>Location:</b>		Chamber 2							
<b>Mode:</b>		LTE_QPSK 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
<b>Low Ch, 701.5MHz</b>									
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	
<b>Mid Ch, 707.5MHz</b>									
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	
<b>High Ch, 713.5MHz</b>									
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  
 QPSK

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	

LTE  
 Band 12  
 5MHz  
 16QAM

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
<b>Low Ch, 700.5MHz</b>									
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	
<b>Mid Ch, 707.5MHz</b>									
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	
<b>High Ch, 714.5MHz</b>									
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									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788534512							
<b>Date:</b>		2018-07-13							
<b>Test Engineer:</b>		51072							
<b>Configuration:</b>		EUT / Adapter / Earphone / X-position							
<b>Location:</b>		Chamber 2							
<b>Mode:</b>		LTE_16QAM 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
<b>Low Ch, 700.5MHz</b>									
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	
<b>Mid Ch, 707.5MHz</b>									
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	
<b>High Ch, 714.5MHz</b>									
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	

LTE  
 Band 12  
 3MHz  
 16QAM

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788534512							
<b>Date:</b>		2018-07-13							
<b>Test Engineer:</b>		51072							
<b>Configuration:</b>		EUT / Adapter / Earphone / X-position							
<b>Location:</b>		Chamber 2							
<b>Mode:</b>		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
<b>Low Ch, 699.7MHz</b>									
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	
<b>Mid Ch, 707.5MHz</b>									
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	
<b>High Ch, 715.3MHz</b>									
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									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788534512							
<b>Date:</b>		2018-07-13							
<b>Test Engineer:</b>		51072							
<b>Configuration:</b>		EUT / Adapter / Earphone / X-position							
<b>Location:</b>		Chamber 2							
<b>Mode:</b>		LTE_16QAM 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
<b>Low Ch, 699.7MHz</b>									
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	
<b>Mid Ch, 707.5MHz</b>									
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	
<b>High Ch, 715.3MHz</b>									
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	<b>UL Verification Services, Inc.</b> <b>Above 1GHz High Frequency Substitution Measurement</b>									
	<b>Company:</b> Samsung									
	<b>Project #:</b> 4788534512									
	<b>Date:</b> 2018-07-21									
	<b>Test Engineer:</b> 51072									
	<b>Configuration:</b> EUT / Adapter / Earphone / X-position									
	<b>Location:</b> Chamber 2									
	<b>Mode:</b> 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	<b>UL Verification Services, Inc.</b> <b>Above 1GHz High Frequency Substitution Measurement</b>									
	<b>Company:</b> Samsung									
	<b>Project #:</b> 4788534512									
	<b>Date:</b> 2018-07-21									
	<b>Test Engineer:</b> 51072									
	<b>Configuration:</b> EUT / Adapter / Earphone / X-position									
	<b>Location:</b> Chamber 2									
	<b>Mode:</b> 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		

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788534512							
<b>Date:</b>		2018-07-21							
<b>Test Engineer:</b>		51072							
<b>Configuration:</b>		EUT / Adapter / Earphone / X-position							
<b>Location:</b>		Chamber 2							
<b>Mode:</b>		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
<b>Low Ch, 2307.5MHz</b>									
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	
<b>Mid Ch, 2310MHz</b>									
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	
<b>High Ch, 2312.5MHz</b>									
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	

LTE  
Band 30  
  
QPSK  
5MHz

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788534512							
<b>Date:</b>		2018-07-21							
<b>Test Engineer:</b>		51072							
<b>Configuration:</b>		EUT / Adapter / Earphone / X-position							
<b>Location:</b>		Chamber 2							
<b>Mode:</b>		LTE_16QAM 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
<b>Low Ch, 2307.5MHz</b>									
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	
<b>Mid Ch, 2310MHz</b>									
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	
<b>High Ch, 2312.5MHz</b>									
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									
<b>Company:</b>		Samsung							
<b>Project #:</b>		4788665909							
<b>Date:</b>		2018-10-12							
<b>Test Engineer:</b>		45585							
<b>Configuration:</b>		EUT / AC Adapter / Earphone, X-Position							
<b>Location:</b>		Chamber 1							
<b>Mode:</b>		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
<b>Low Ch, 1717.5MHz</b>									
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	
<b>Mid Ch, 1745MHz</b>									
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	
<b>High Ch, 1772.5MHz</b>									
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	

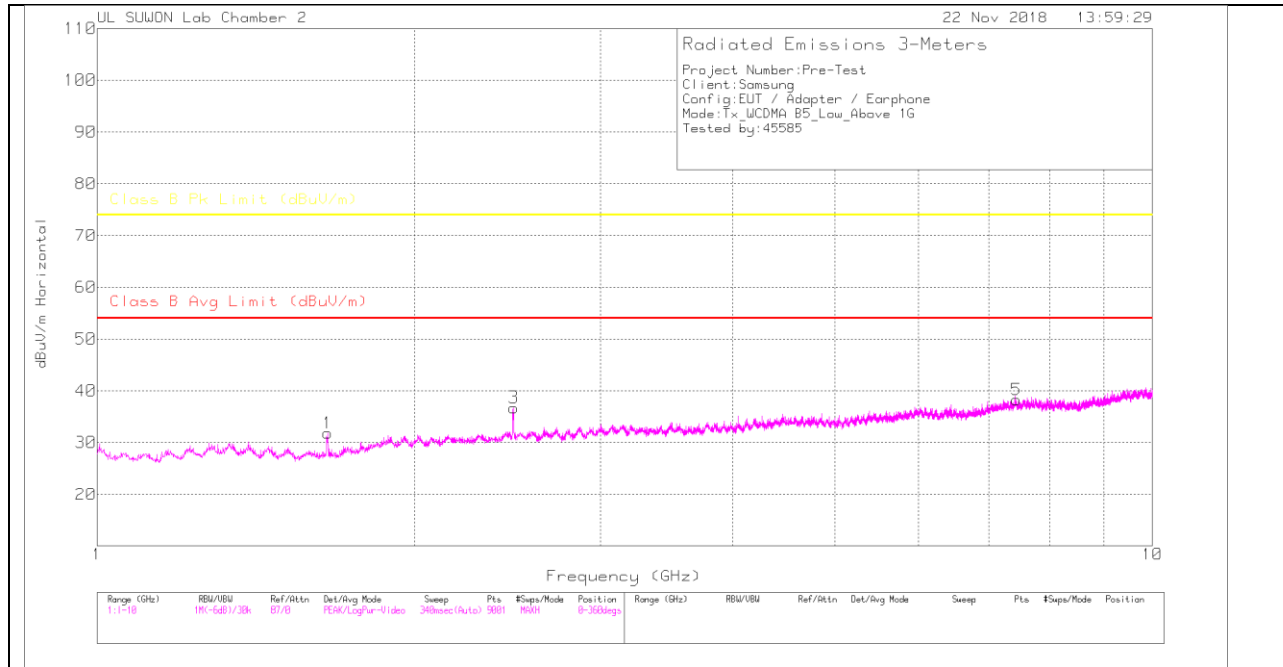
LTE  
Band  
66  
QPSK

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

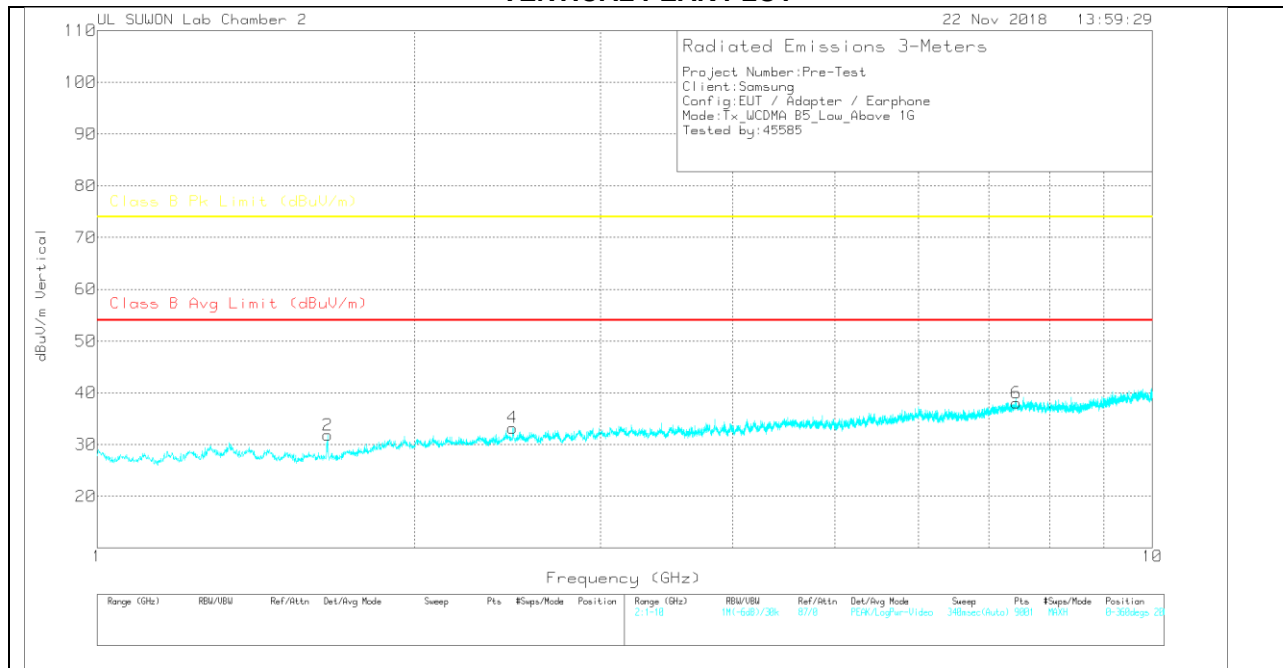
## 11.1. Above 1 GHz in the WCDMA Band 5

### LOW CHANNEL

**HORIZONTAL PEAK PLOT**



**VERTICAL PEAK PLOT**





**DATA**

Trace Markers

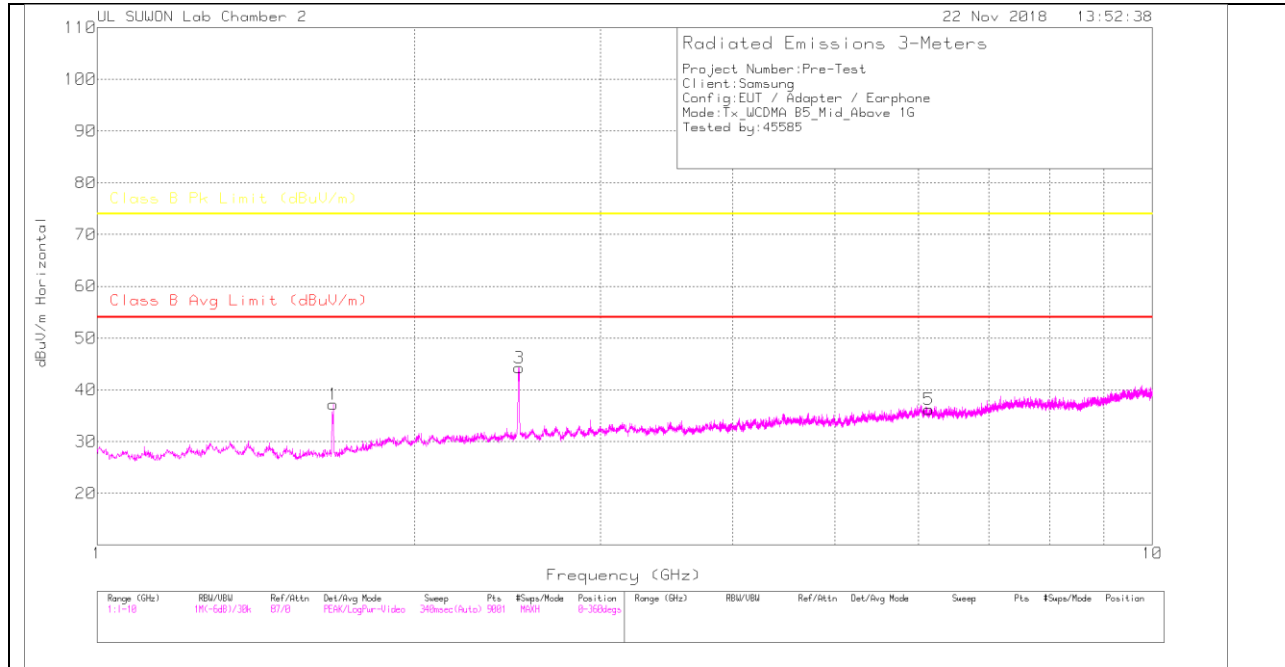
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	1-18GHz(dB)	1GHz_HPF	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CSPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.654	34.51	PK	28.3	-31.5	.5	31.81	-	-	74	-42.19	0-360	100	H
3	2.482	34.44	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

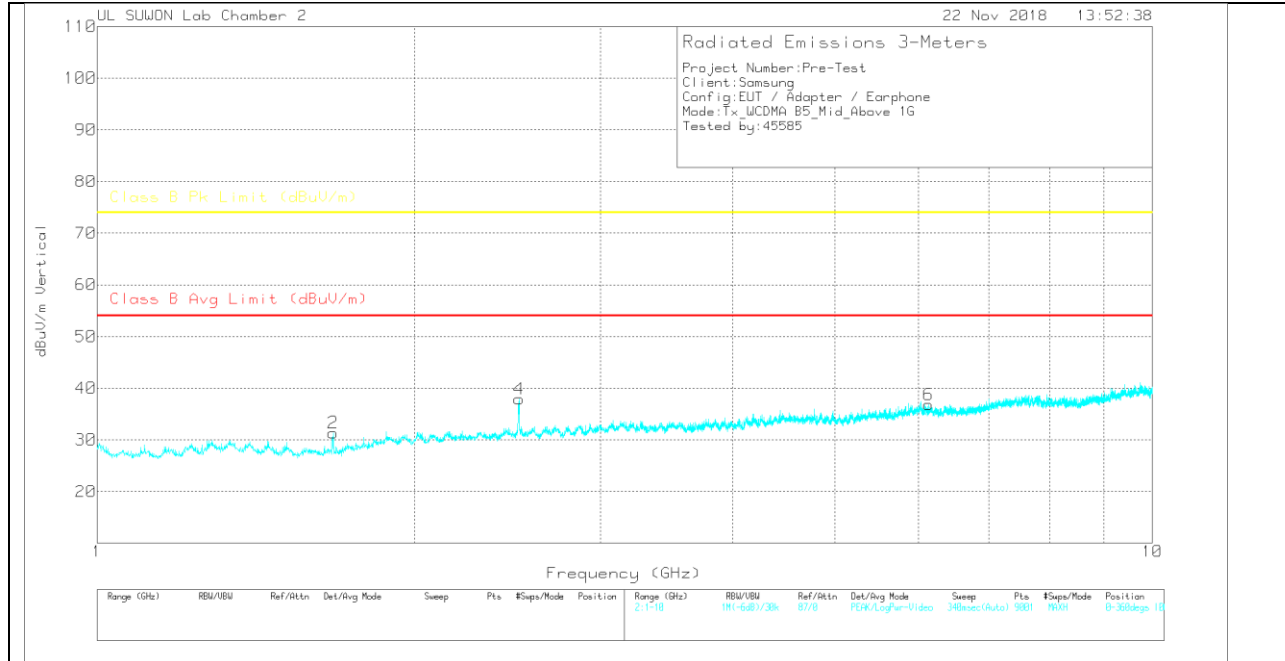
Note: The test data exists only the noise floor except for the fundamental and harmonics.

**MID CHANNEL**

**HORIZONTAL PEAK PLOT**



**VERTICAL PEAK PLOT**



**DATA**

Trace Markers

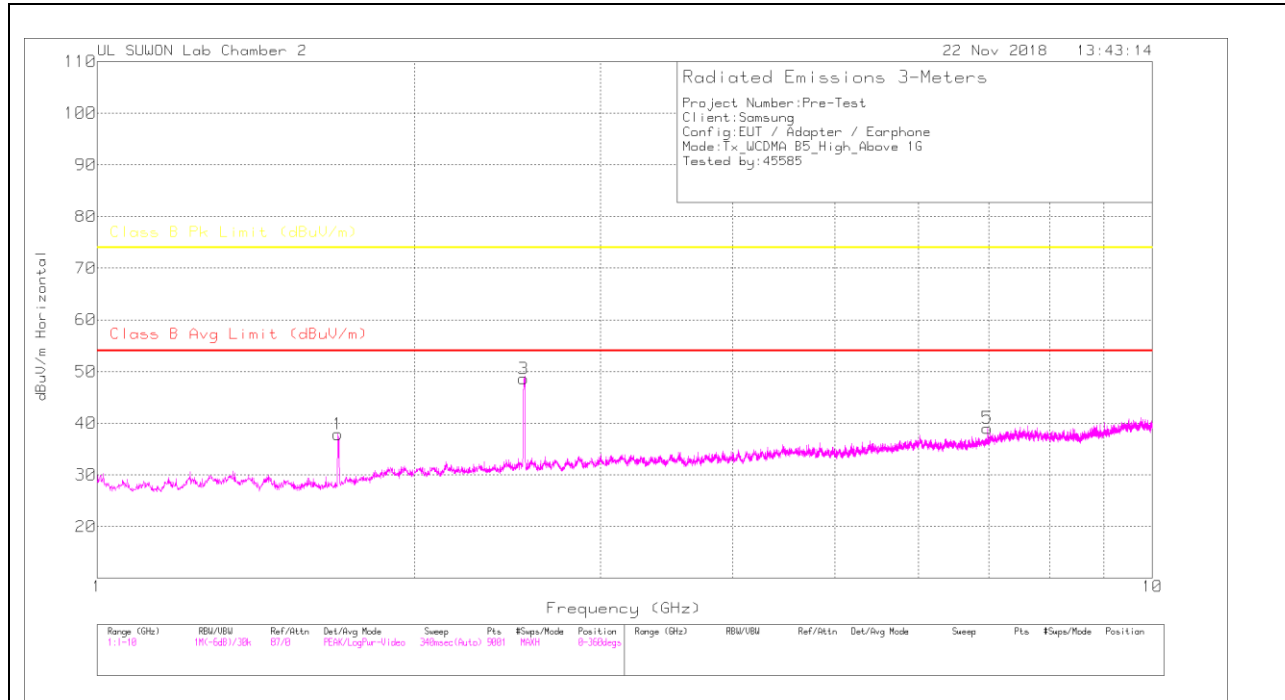
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	1-18GHz(dB)	1GHz_HPF	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CSPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.674	39.58	PK	28.5	-31.4	.5	37.18	-	-	74	-36.82	0-360	100	H
3	2.512	42.04	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

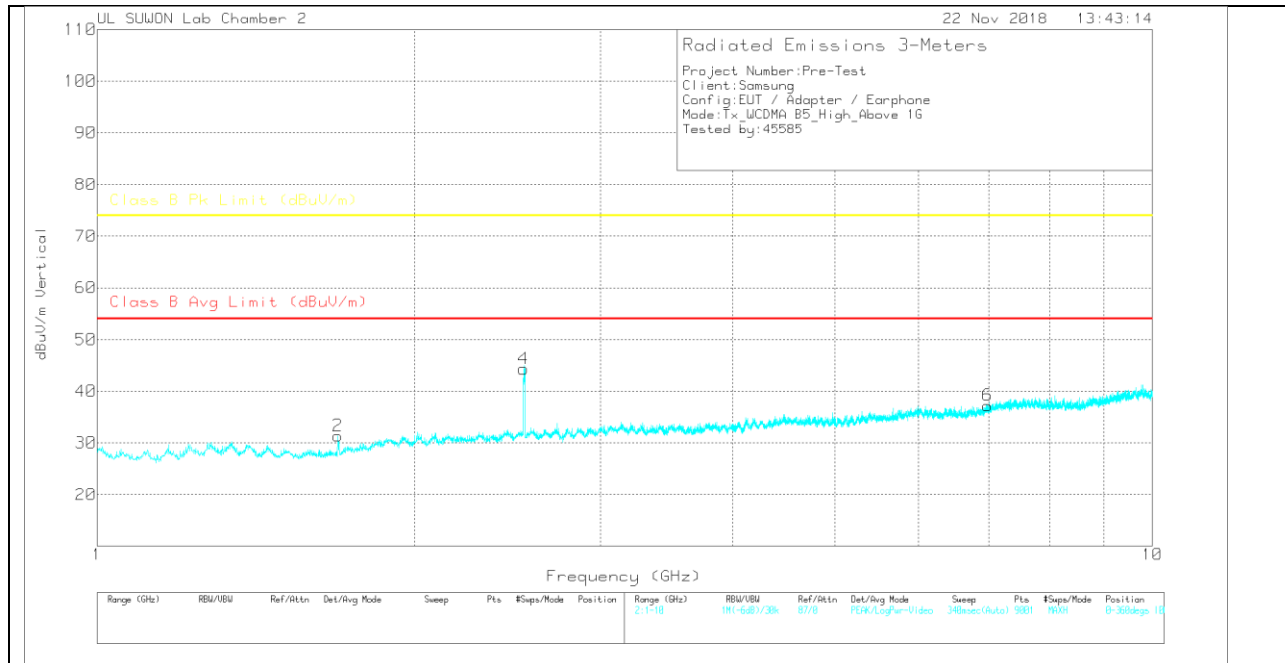
Note: The test data exists only the noise floor except for the fundamental and harmonics.

**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(CSPR)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

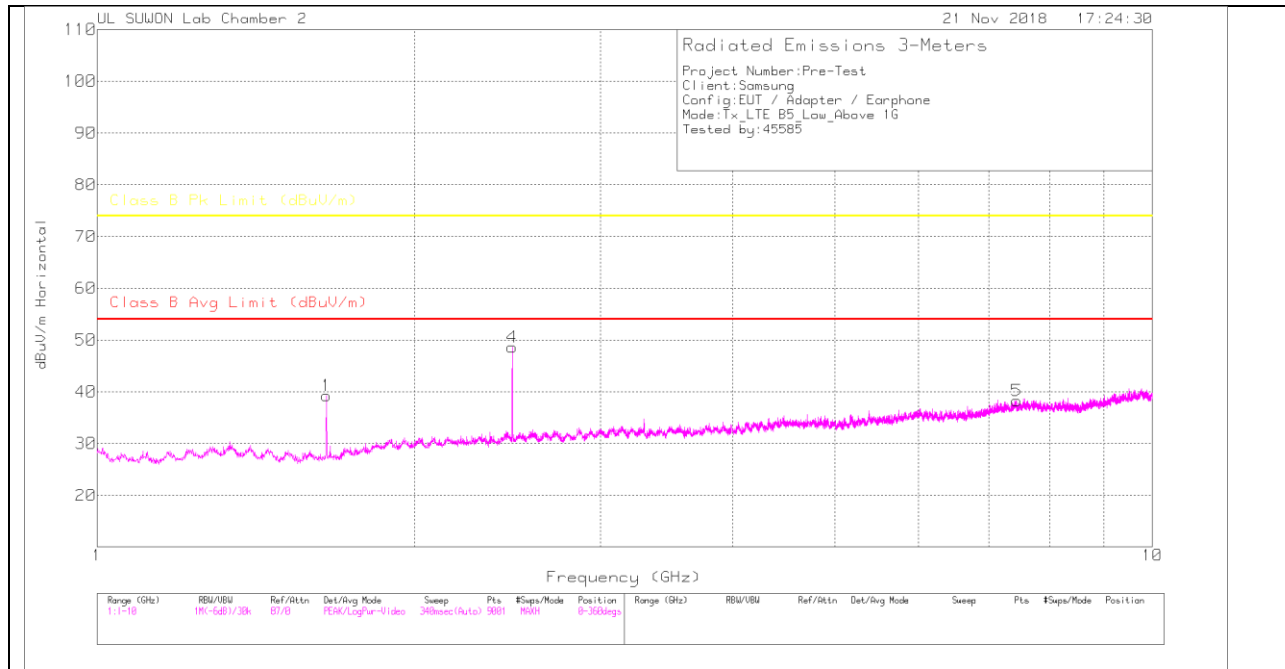
PK – Peak Detector

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

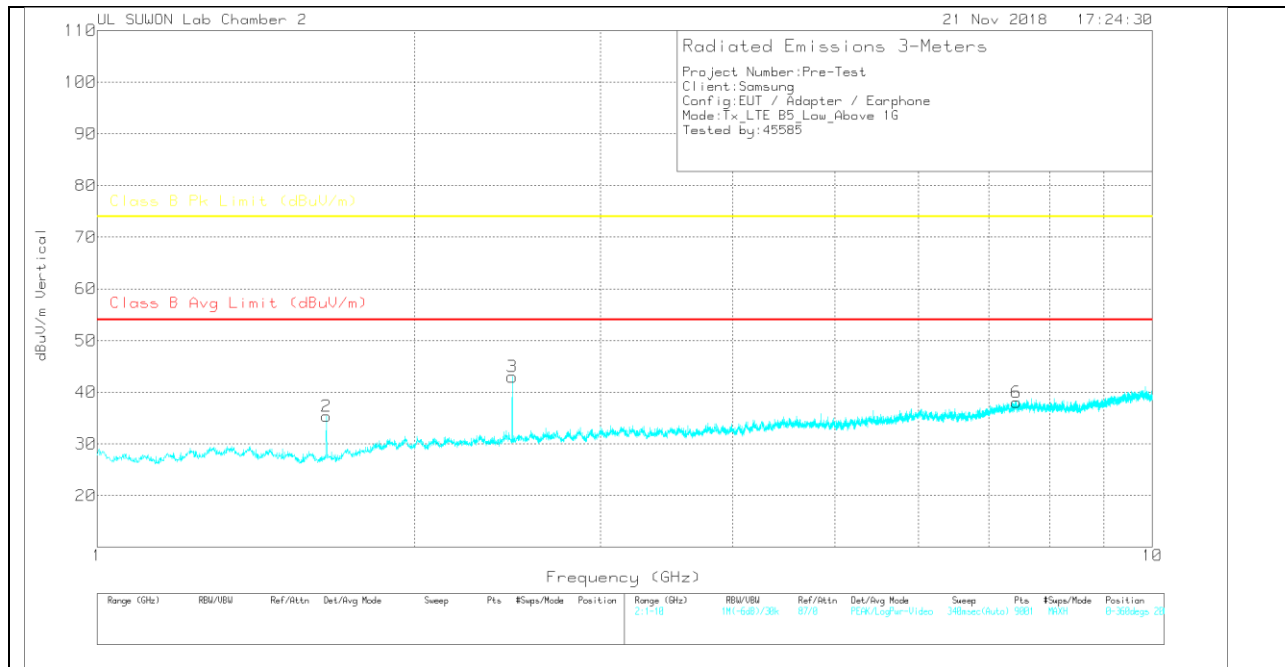
## 11.2. Above 1 GHz in the LTE Band 5

### LOW CHANNEL

#### HORIZONTAL PEAK PLOT



#### VERTICAL PEAK PLOT



**DATA**

Trace Markers

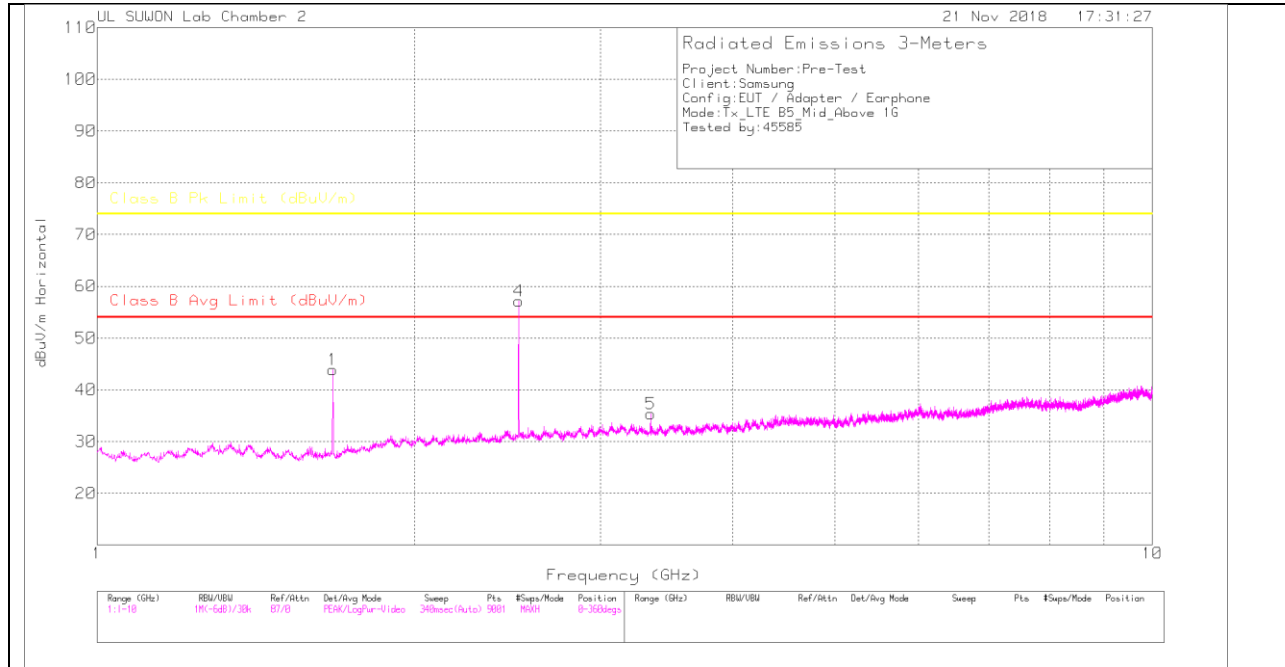
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	1-18GHz(dB)	1GHz_HPF	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CSPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.649	41.74	PK	28.3	-31.4	.6	39.24	-	-	74	-34.76	0-360	200	H
4	2.474	46.44	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

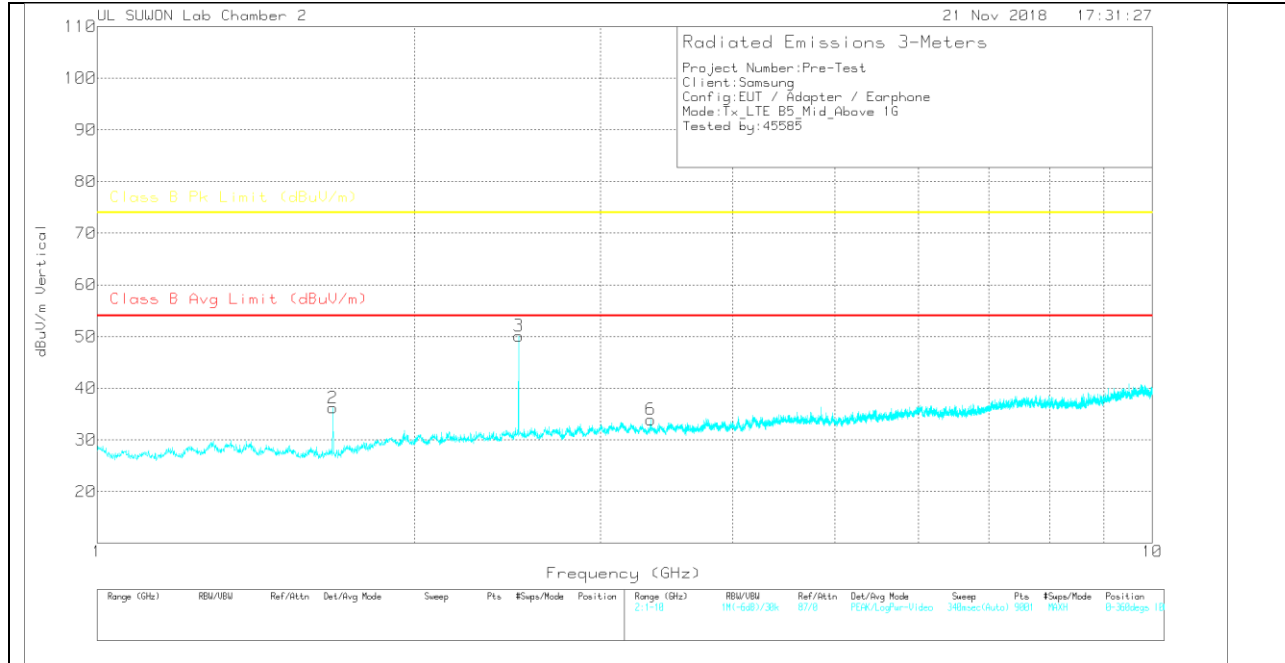
Note: The test data exists only the noise floor except for the fundamental and harmonics.

**MID CHANNEL**

**HORIZONTAL PEAK PLOT**



**VERTICAL PEAK PLOT**





**DATA**

Trace Markers

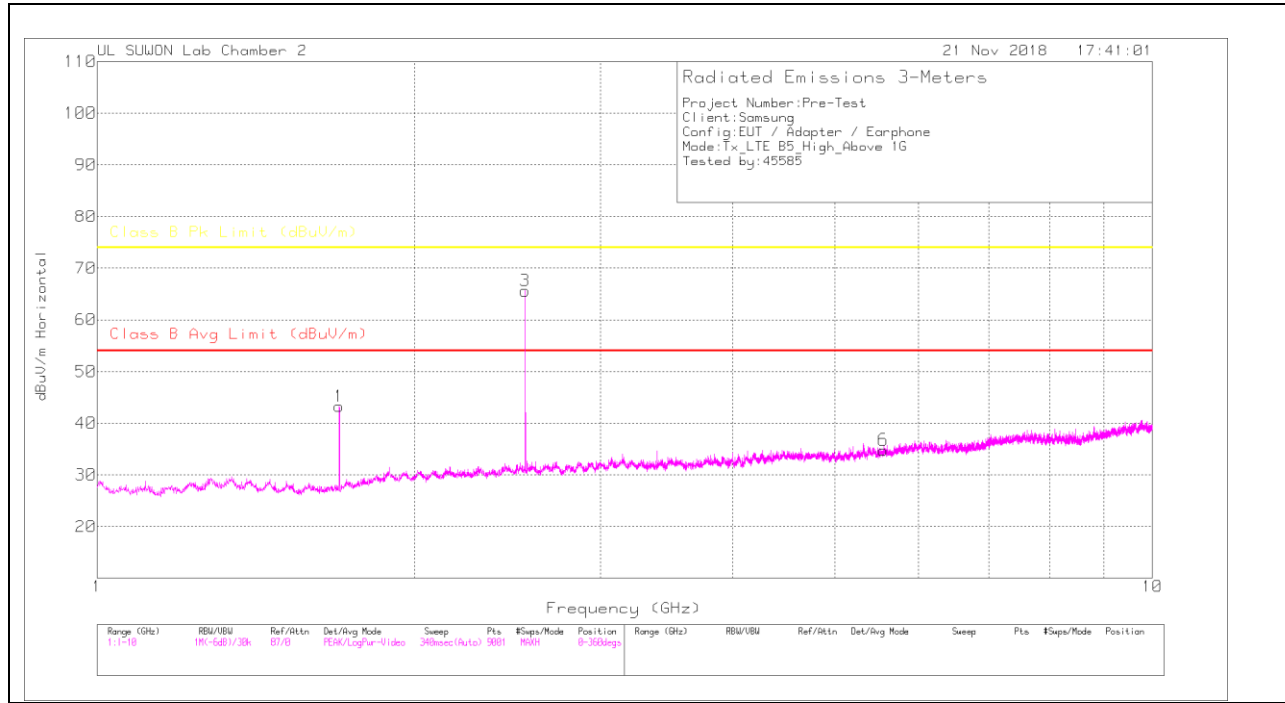
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	1-18GHz(dB)	1GHz_HPF	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CSPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.673	46.18	PK	28.5	-31.3	.5	43.88	-	-	74	-30.12	0-360	100	H
4	2.509	55.03	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

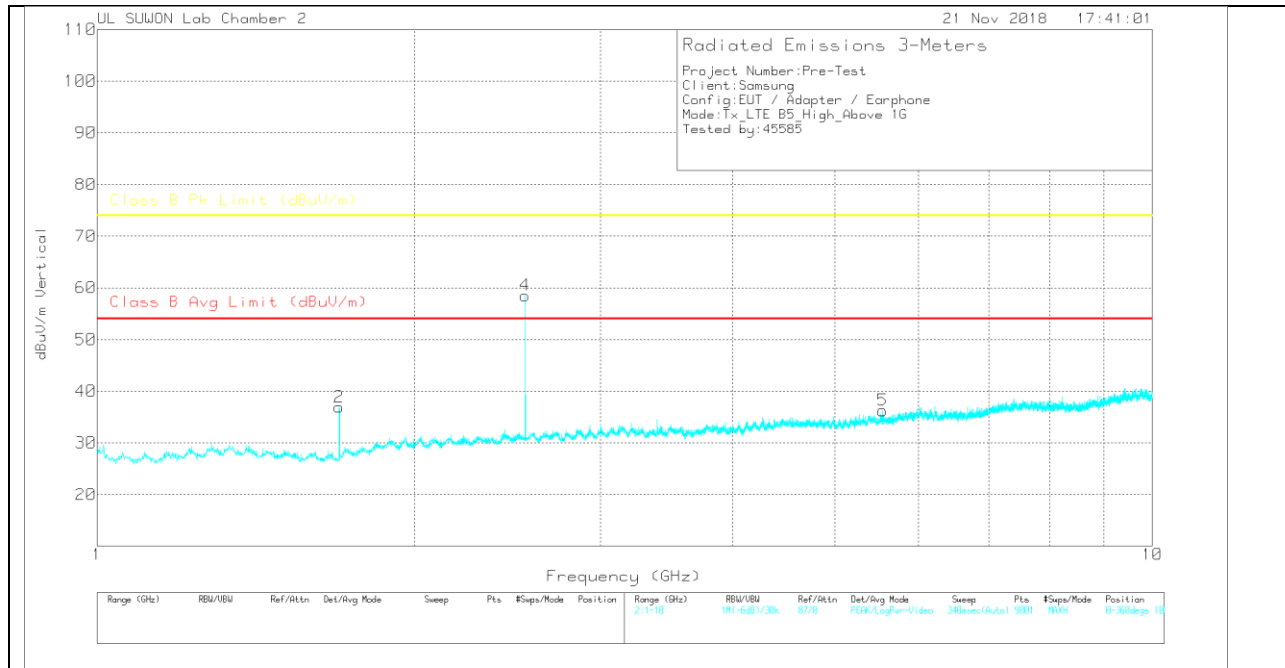
Note: The test data exists only the noise floor except for the fundamental and harmonics.

**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(CSPR)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.