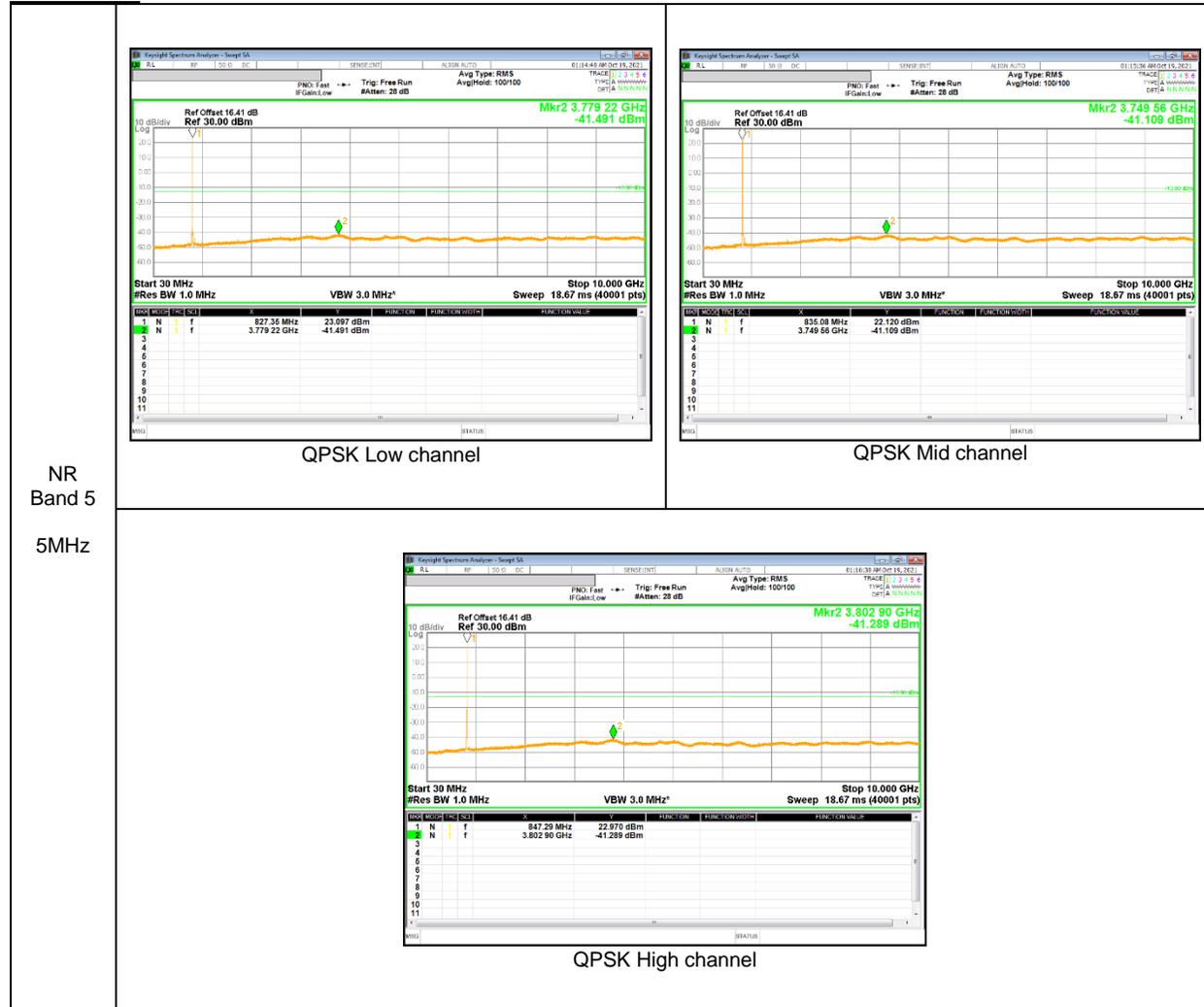
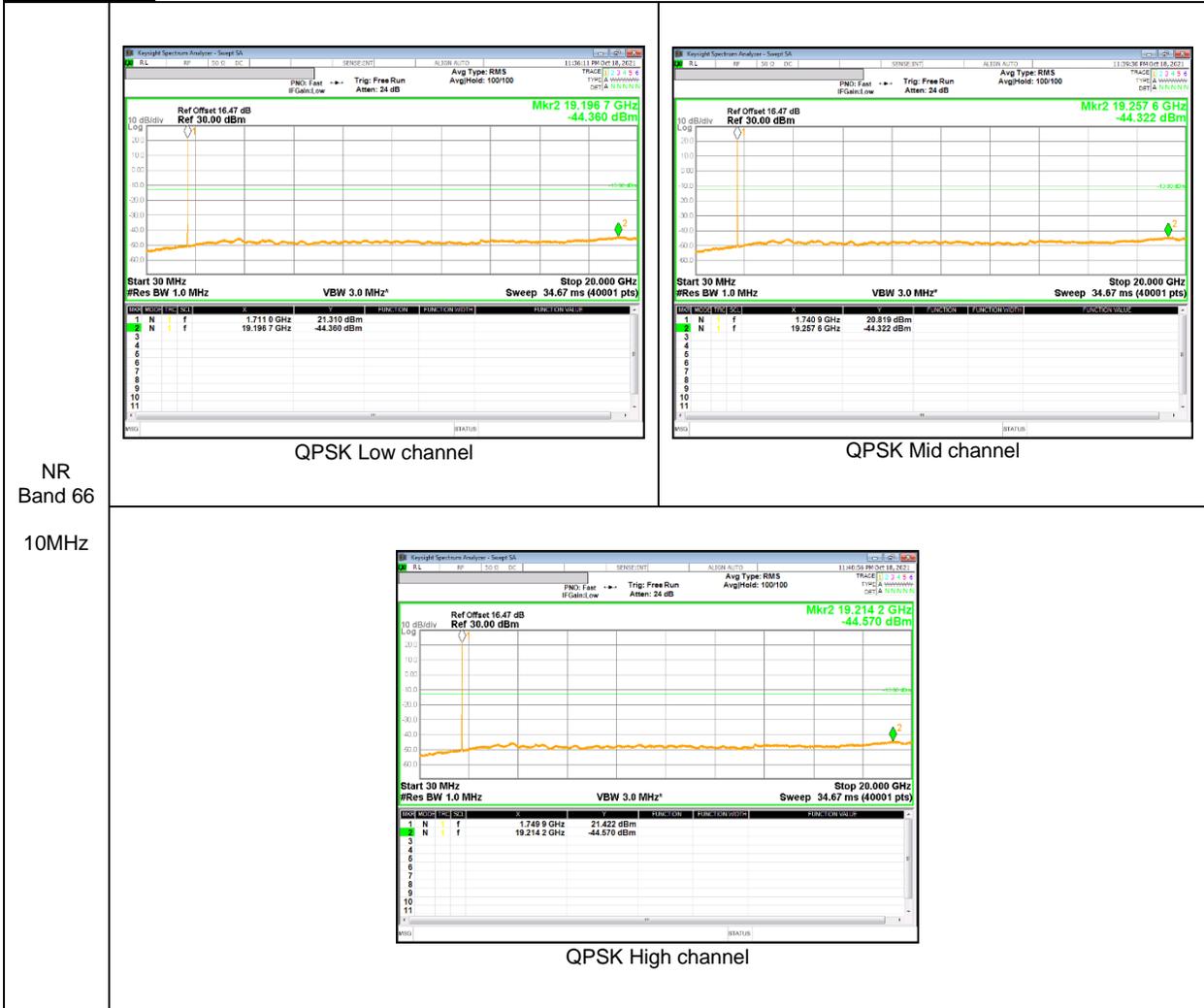


NR Band 5



NR
 Band 5
 5MHz

NR Band 66



NR
 Band 66
 10MHz

9.4. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

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

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

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

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

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v03r01

RESULTS

See the following pages.

NOTE : Test were performed each lowest or highest frequency on the modulation condition of more wide bandwidth. (Please refer to section 9.1.1 OBW results)

9.4.1. FREQUENCY STABILITY RESULTS

GSM 850, Channel 128/251, Frequency 824.2/848.8 MHz

Reference Frequency : GSM850 Low Channel 824.2 MHz / High Channel 848.8 MHz @ 20°C							
Limit: +- 2.5 ppm =		Low Channel	2060.500	Hz	High Channel	2122.000	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]		
3.88	50	824.20002158	0.001	848.80002208	-0.002	2.5	
3.88	40	824.20002206	0.000	848.80002106	-0.001	2.5	
3.88	30	824.20002300	-0.001	848.80001958	0.001	2.5	
3.88	20	824.20002242	0.000	848.80002058	0.000	2.5	
3.88	10	824.20001641	0.007	848.80001217	0.010	2.5	
3.88	0	824.20001558	0.008	848.80002000	0.001	2.5	
3.88	-10	824.20001791	0.005	848.80001458	0.007	2.5	
3.88	-20	824.20001647	0.007	848.80001986	0.001	2.5	
3.88	-30	824.20001944	0.004	848.80002136	-0.001	2.5	

Reference Frequency : GSM850 Low Channel 824.2 MHz / High Channel 848.8 MHz @ 20°C							
Limit: +- 2.5 ppm =		Low Channel	2060.500	Hz	High Channel	2122.000	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]		
3.88	20	824.20002242	0	848.80002058	0	2.5	
4.42	20	824.20001305	0.011	848.80001267	0.009	2.5	
3.65	20	824.20001068	0.014	848.80001401	0.008	2.5	

GSM 1900, Channel 512/810, Frequency 1850.0/1910.0 MHz (Lowest Frequency:GPRS / Highest Frequency: GPRS)

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	1850.0763	1909.9241		
Extreme (50C)		1850.0764	1909.9241	33.5	0.018
Extreme (40C)		1850.0764	1909.9241	38.8	0.021
Extreme (30C)		1850.0764	1909.9241	32.7	0.017
Extreme (10C)		1850.0764	1909.9241	33.2	0.018
Extreme (0C)		1850.0764	1909.9241	31.5	0.017
Extreme (-10C)		1850.0764	1909.9241	37.9	0.020
Extreme (-20C)		1850.0764	1909.9241	31.6	0.017
Extreme (-30C)		1850.0764	1909.9241	37.9	0.020
20C	15%	1850.0764	1909.9241	5.8	0.003
	-15%	1850.0764	1909.9241	6.4	0.003
	End Point	1850.0764	1909.9241	7.0	0.004

WCDMA Band 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]		
3.88	50	826.40000870	-0.005	846.60001050	-0.003	2.5	
3.88	40	826.40000640	-0.002	846.60000910	-0.001	2.5	
3.88	30	826.40000824	-0.005	846.60000722	0.001	2.5	
3.88	20	826.40000436	0.000	846.60000838	0.000	2.5	
3.88	10	826.40000591	-0.002	846.60000738	0.001	2.5	
3.88	0	826.40000828	-0.005	846.60000596	0.003	2.5	
3.88	-10	826.40000739	-0.004	846.60000904	-0.001	2.5	
3.88	-20	826.40000945	-0.006	846.60000713	0.001	2.5	
3.88	-30	826.40000538	-0.001	846.60000628	0.002	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]		
3.88	20	826.40000436	0	846.60000838	0	2.5	
4.42	20	826.40000885	-0.005	846.60000407	0.005	2.5	
3.65	20	826.40000487	-0.001	846.60000421	0.005	2.5	

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

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	1710.3118	1754.6912		
Extreme (50C)		1710.3118	1754.6912	4.1	0.002
Extreme (40C)		1710.3118	1754.6912	4.3	0.002
Extreme (30C)		1710.3118	1754.6912	4.5	0.003
Extreme (10C)		1710.3118	1754.6912	5.1	0.003
Extreme (0C)		1710.3118	1754.6912	5.1	0.003
Extreme (-10C)		1710.3118	1754.6912	4.7	0.003
Extreme (-20C)		1710.3118	1754.6912	3.9	0.002
Extreme (-30C)		1710.3118	1754.6912	4.3	0.002
20C		15%	1710.3118	1754.6912	4.0
	-15%	1710.3118	1754.6912	5.1	0.003
	End Point	1710.3118	1754.6912	4.2	0.002

WCDMA Band 2 (Lowest Frequency: HSDPA / Highest Frequency: Rel99)

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	1850.3116	1909.6925		
Extreme (50C)		1850.3116	1909.6925	16.4	0.009
Extreme (40C)		1850.3116	1909.6925	13.6	0.007
Extreme (30C)		1850.3116	1909.6925	11.4	0.006
Extreme (10C)		1850.3116	1909.6925	10.1	0.005
Extreme (0C)		1850.3116	1909.6925	14.7	0.008
Extreme (-10C)		1850.3116	1909.6925	15.9	0.008
Extreme (-20C)		1850.3116	1909.6925	17.9	0.009
Extreme (-30C)		1850.3116	1909.6925	16.4	0.009
20C		15%	1850.3116	1909.6925	7.4
	-15%	1850.3116	1909.6925	7.0	0.004
	End Point	1850.3116	1909.6925	6.9	0.004

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	699.1530	715.8449		
Extreme (50C)		699.1530	715.8449	41.2	0.058
Extreme (40C)		699.1530	715.8449	39.2	0.055
Extreme (30C)		699.1530	715.8449	39.5	0.056
Extreme (10C)		699.1530	715.8449	40.3	0.057
Extreme (0C)		699.1530	715.8449	39.6	0.056
Extreme (-10C)		699.1530	715.8449	40.2	0.057
Extreme (-20C)		699.1530	715.8449	41.4	0.059
Extreme (-30C)		699.1530	715.8449	42.9	0.061
20C		15%	699.1530	715.8449	7.9
	-15%	699.1530	715.8449	7.1	0.010
	End Point	699.1530	715.8449	8.5	0.012

LTE Band 13 (Lowest Frequency:QPSK / Highest Frequency: QPSK)

Limit		777	787	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	777.2507	786.7506		
Extreme (50C)		777.2507	786.7506	7.1	0.009
Extreme (40C)		777.2507	786.7506	7.4	0.009
Extreme (30C)		777.2507	786.7506	7.6	0.010
Extreme (10C)		777.2507	786.7506	8.1	0.010
Extreme (0C)		777.2507	786.7506	7.0	0.009
Extreme (-10C)		777.2507	786.7506	7.7	0.010
Extreme (-20C)		777.2507	786.7506	8.2	0.010
Extreme (-30C)		777.2507	786.7506	7.5	0.010
20C		15%	777.2507	786.7506	10.4
	-15%	777.2507	786.7506	11.1	0.014
	End Point	777.2507	786.7506	10.6	0.014

LTE Band 25 (Lowest Frequency:16QAM / Highest Frequency: QPSK)

Limit		1850	1915	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1850.1565	1914.8444		
Extreme (50C)		1850.1565	1914.8444	49.1	0.026
Extreme (40C)		1850.1565	1914.8444	48.7	0.026
Extreme (30C)		1850.1565	1914.8444	42.0	0.022
Extreme (10C)		1850.1565	1914.8444	45.8	0.024
Extreme (0C)		1850.1565	1914.8444	49.4	0.026
Extreme (-10C)		1850.1565	1914.8444	49.1	0.026
Extreme (-20C)		1850.1565	1914.8444	49.5	0.026
Extreme (-30C)		1850.1566	1914.8444	50.1	0.027
20C		15%	1850.1565	1914.8444	14.5
	-15%	1850.1565	1914.8444	14.7	0.008
	End Point	1850.1565	1914.8444	15.1	0.008

LTE Band 26

Reference Frequency : LTE Band 26 Low Channel 814.7 MHz / High Channel 848.3 MHz @ 20°C							
Limit: +/- 2.5 ppm =		Low Channel	2036.750	Hz	High Channel	2120.750	Hz
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse					Limit [ppm]
		Low Channel		High Channel		Limit [ppm]	
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]		
3.85	50	814.70003359	0.000	848.30003362	0.000	2.5	
3.85	40	814.70003128	0.003	848.30003528	-0.002	2.5	
3.85	30	814.70003050	0.004	848.30003284	0.001	2.5	
3.85	20	814.70003380	0.000	848.30003390	0.000	2.5	
3.85	10	814.70003176	0.003	848.30003197	0.002	2.5	
3.85	0	814.70003370	0.000	848.30003416	0.000	2.5	
3.85	-10	814.70003522	-0.002	848.30003454	-0.001	2.5	
3.85	-20	814.70003427	-0.001	848.30003485	-0.001	2.5	
3.85	-30	814.70003322	0.001	848.30003496	-0.001	2.5	

Reference Frequency : LTE Band 26 Low Channel 814.7 MHz / High Channel 848.3 MHz @ 20°C							
Limit: +/- 2.5 ppm =		Low Channel	2036.750	Hz	High Channel	2120.750	Hz
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse					Limit [ppm]
		Low Channel		High Channel		Limit [ppm]	
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]		
3.88	20	814.70003380	0	848.30003390	0	2.5	
4.42	20	814.70000644	0.034	848.30001402	0.023	2.5	
3.65	20	814.70000657	0.033	848.30001783	0.019	2.5	

LTE Band 41 PC2 (Lowest Frequency:QPSK / Highest Frequency: QPSK)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	2496.2529	2689.7425		
Extreme (50C)		2496.2529	2689.7425	27.0	0.010
Extreme (40C)		2496.2529	2689.7425	21.3	0.008
Extreme (30C)		2496.2529	2689.7425	25.1	0.010
Extreme (10C)		2496.2529	2689.7425	24.9	0.010
Extreme (0C)		2496.2529	2689.7425	27.6	0.011
Extreme (-10C)		2496.2529	2689.7425	28.7	0.011
Extreme (-20C)		2496.2529	2689.7425	26.6	0.010
Extreme (-30C)		2496.2529	2689.7425	29.1	0.011
20C	15%	2496.2529	2689.7425	8.8	0.003
	-15%	2496.2529	2689.7425	8.4	0.003
	End Point	2496.2529	2689.7425	12.7	0.005

LTE Band 66 (Lowest Frequency: 16QAM / Highest Frequency: 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	24.8	0.014
Extreme (50C)		1710.6995	1779.3006		
Extreme (40C)		1710.6995	1779.3006		
Extreme (30C)		1710.6995	1779.3006		
Extreme (10C)		1710.6995	1779.3006		
Extreme (0C)		1710.6995	1779.3006		
Extreme (-10C)		1710.6995	1779.3006		
Extreme (-20C)		1710.6995	1779.3006		
Extreme (-30C)		1710.6995	1779.3006		
20C		15%	1710.6995		
	-15%	1710.6995	1779.3006	13.8	0.008
	End Point	1710.6995	1779.3006	10.1	0.006

NR Band 5

Reference Frequency : NR 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]		
3.85	50	824.70003428	0.002	848.30003503	0.001	2.5	
3.85	40	824.70003309	0.004	848.30003298	0.003	2.5	
3.85	30	824.70003505	0.001	848.30003414	0.002	2.5	
3.85	20	824.70003614	0.000	848.30003580	0.000	2.5	
3.85	10	824.70003290	0.004	848.30003313	0.003	2.5	
3.85	0	824.70003308	0.004	848.30003608	0.000	2.5	
3.85	-10	824.70003248	0.004	848.30003507	0.001	2.5	
3.85	-20	824.70003631	0.000	848.30003624	-0.001	2.5	
3.85	-30	824.70003537	0.001	848.30003085	0.006	2.5	

Reference Frequency : NR 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]		
3.88	20	824.70003614	0	848.30003580	0	2.5	
4.42	20	824.70001402	0.027	848.30001737	0.022	2.5	
3.65	20	824.70001382	0.027	848.30001691	0.022	2.5	

NR Band 66 (Lowest Frequency: QPSK / Highest Frequency: QPSK)

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	23.5	0.013
Extreme (40C)		1710.6995	1779.3006	26.1	0.015
Extreme (30C)		1710.6995	1779.3006	21.3	0.012
Extreme (10C)		1710.6995	1779.3006	20.9	0.012
Extreme (0C)		1710.6995	1779.3006	23.5	0.013
Extreme (-10C)		1710.6995	1779.3006	24.3	0.014
Extreme (-20C)		1710.6995	1779.3006	25.1	0.014
Extreme (-30C)		1710.6995	1779.3006	30.5	0.017
20C		15%	1710.6995	1779.3006	13.7
	-15%	1710.6995	1779.3006	12.2	0.007
	End Point	1710.6995	1779.3006	13.4	0.008

9.5. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, §27.50, §27.53 and §90.635

LIMITS

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

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

27.50:

(b)(10) Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

(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.

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

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(GSM, WCDMA), average(LTE,NR);

TEST RESULTS

9.5.1. ERP/EIRP Results

GSM

Band	Mode	Channel	f [MHz]	ERP / EIRP	
				[dBm]	[mW]
GSM850	GPRS	128	824.2	29.81	957.19
		190	836.6	30.08	1018.59
		251	848.8	29.83	961.61
	EGPRS	128	824.2	23.57	227.51
		190	836.6	23.58	228.03
		251	848.8	23.73	236.05
GSM1900	GPRS	512	1850.2	30.57	1140.25
		661	1880	30.46	1111.73
		810	1909.8	29.48	887.16
	EGPRS	512	1850.2	26.38	434.51
		661	1880	26.40	436.52
		810	1909.8	25.92	390.84

WCDMA

Band	Mode	Channel	f [MHz]	ERP / EIRP	
				[dBm]	[mW]
Band 5	REL99	4132	826.4	18.44	69.82
		4183	836.6	19.98	99.54
		4233	846.6	18.95	78.52
	HSDPA	4132	826.4	18.21	66.22
		4183	836.6	19.61	91.41
		4233	846.6	19.05	80.35
Band 4	REL99	1312	1712.4	20.95	124.45
		1413	1732.6	21.43	139.00
		1513	1752.6	21.28	134.28
	HSDPA	1312	1712.4	20.74	118.58
		1413	1732.6	21.21	132.13
		1513	1752.6	21.10	128.82
Band 2	REL99	9262	1852.4	21.79	151.01
		9400	1880.0	22.62	182.81
		9538	1907.6	23.30	213.80
	HSDPA	9262	1852.4	21.92	155.60
		9400	1880.0	22.92	195.88
		9538	1907.6	23.18	207.97

LTE Band 12

Band	BW [MHz]	Mode	RB Size/	f [MHz]	ERP / EIRP	
			RB Offset		[dBm]	[mW]
Band 12	10	QPSK	1/0	704.0	17.49	56.10
			1/25	707.5	17.72	59.16
			1/0	711.0	17.50	56.23
		16QAM	1/25	704.0	15.41	34.75
			1/25	707.5	15.58	36.14
			1/0	711.0	15.67	36.90
	5	QPSK	1/12	701.5	17.76	59.70
			1/12	707.5	17.53	56.62
			1/24	713.5	17.30	53.70
		16QAM	1/12	701.5	15.68	36.98
			1/0	707.5	15.56	35.97
			1/0	713.5	15.18	32.96
	3	QPSK	1/14	700.5	17.51	56.36
			1/8	707.5	17.64	58.08
			1/14	714.5	17.23	52.84
		16QAM	1/0	700.5	15.70	37.15
			1/14	707.5	15.82	38.19
			1/8	714.5	15.29	33.81
	1.4	QPSK	1/0	699.7	17.76	59.70
			1/0	707.5	17.69	58.75
			1/0	715.3	17.22	52.72
		16QAM	1/3	699.7	15.80	38.02
			1/5	707.5	15.60	36.31
			1/3	715.3	15.18	32.96

LTE Band 13

Band	BW [MHz]	Mode	RB size / RB Offset	f [MHz]	ERP / EIRP	
					[dBm]	[mW]
Band 13	10	QPSK	1/0	782.0	18.78	75.51
		16QAM	1/25	782.0	16.23	41.98
	5	QPSK	1/24	779.5	18.91	77.80
			1/12	782.0	18.86	76.91
			1/12	784.5	18.58	72.11
		16QAM	1/0	779.5	16.51	44.77
			1/12	782.0	16.35	43.15
	1/0	784.5	16.12	40.93		

LTE Band 25

Band	BW [MHz]	Mode	RB Size/	f [MHz]	ERP / EIRP	
			RB Offset		[dBm]	[mW]
Band 25	20	QPSK	1/99	1860.0	21.86	153.46
			1/49	1882.5	22.48	177.01
			1/0	1905.0	23.04	201.37
		16QAM	1/0	1860.0	20.11	102.57
			1/0	1882.5	20.39	109.40
			1/0	1905.0	20.78	119.67
	15	QPSK	1/37	1857.5	22.57	180.72
			1/37	1882.5	22.74	187.93
			1/0	1907.5	23.10	204.17
		16QAM	1/37	1857.5	21.06	127.64
			1/37	1882.5	20.50	112.20
			1/37	1907.5	21.27	133.97
	10	QPSK	1/0	1855.0	22.77	189.23
			1/25	1882.5	22.59	181.55
			1/25	1910.0	23.49	223.36
		16QAM	1/0	1855.0	20.45	110.92
			1/0	1882.5	20.71	117.76
			1/0	1910.0	21.03	126.77
	5	QPSK	1/12	1852.5	20.09	102.09
			1/24	1882.5	22.19	165.58
			1/12	1912.5	23.65	231.74
		16QAM	1/0	1852.5	18.43	69.66
			1/12	1882.5	20.05	101.16
			1/12	1912.5	21.87	153.82
	3	QPSK	1/8	1851.5	22.64	183.65
			1/8	1882.5	22.64	183.65
			1/8	1913.5	23.47	222.33
		16QAM	1/8	1851.5	20.51	112.46
			1/8	1882.5	20.33	107.89
			1/8	1913.5	21.59	144.21
1.4	QPSK	1/0	1850.7	22.48	177.01	
		1/0	1882.5	22.62	182.81	
		1/0	1914.3	23.79	239.33	
	16QAM	1/3	1850.7	20.55	113.50	
		1/5	1882.5	20.48	111.69	
		1/5	1914.3	21.92	155.60	

LTE Band 26

Band	BW [MHz]	Mode	RB Size/	f [MHz]	ERP/EIRP	
			RB Offset		[dBm]	[mW]
Band 26	15	QPSK	1/0	821.5	18.33	68.08
			1/37	831.5	19.29	84.92
			1/37	841.5	19.57	90.57
		16QAM	1/0	821.5	16.49	44.57
			1/37	831.5	17.33	54.08
			1/0	841.5	17.59	57.41
	10	QPSK	1/25	819.0	18.49	70.63
			1/0	829.0	19.15	82.22
			1/25	831.5	19.36	86.30
			1/0	844.0	19.54	89.95
		16QAM	1/25	819.0	16.26	42.27
			1/0	829.0	17.21	52.60
			1/25	831.5	17.10	51.29
			1/25	844.0	17.53	56.62
	5	QPSK	1/12	816.5	18.49	70.63
			1/0	821.5	18.32	67.92
			1/0	826.5	18.63	72.95
			1/12	831.5	19.25	84.14
			1/12	846.5	19.35	86.10
		16QAM	1/12	816.5	16.48	44.46
			1/0	821.5	16.32	42.85
			1/0	826.5	16.95	49.55
			1/12	831.5	17.87	61.24
			1/0	846.5	17.62	57.81
	3	QPSK	1/14	815.5	18.46	70.15
			1/0	822.5	18.44	69.82
			1/0	825.5	18.62	72.78
			1/8	831.5	19.32	85.51
			1/8	847.5	19.40	87.10
		16QAM	1/8	815.5	16.29	42.56
			1/0	822.5	16.67	46.45
			1/0	825.5	16.44	44.06
			1/14	831.5	17.25	53.09
			1/8	847.5	17.42	55.21
	1.4	QPSK	1/0	814.7	18.37	68.71
			1/0	823.3	18.47	70.31
			1/0	824.7	18.55	71.61
			1/0	831.5	19.20	83.18
			1/0	848.3	19.54	89.95
		16QAM	1/3	814.7	16.27	42.36
1/0			823.3	16.45	44.16	
1/5			824.7	16.46	44.26	
1/3			831.5	17.58	57.28	
1/3			848.3	17.29	53.58	

LTE Band 26(Straddle)

Band	BW	Mode	RB Size/	f [MHz]	ERP/EIRP	
	[MHz]		RB Offset		[dBm]	[mW]
Band 26 Straddle	15	QPSK	1/0	824	18.43	69.66
		16QAM	1/0		16.76	47.42
	10	QPSK	1/0	824	18.36	68.55
		16QAM	1/0		16.61	45.81
	5	QPSK	1/0	824	18.62	72.78
		16QAM	1/0		16.63	46.03
	3	QPSK	1/0	824	18.36	68.55
		16QAM	1/0		16.28	42.46
	1.4	QPSK	1/0	824	18.66	73.45
		16QAM	1/0		16.54	45.08

LTE Band 41 (PC2)

Band	BW [MHz]	Mode	RB Size/	f [MHz]	ERP / EIRP	
			RB Offset		[dBm]	[mW]
Band 41	20	QPSK	1/49	2506.0	21.76	149.97
			1/49	2593.0	23.11	204.64
			1/0	2680.0	23.02	200.45
		16QAM	1/0	2506.0	20.95	124.45
			1/0	2593.0	22.45	175.79
			1/49	2680.0	22.16	164.44
	15	QPSK	1/0	2503.5	22.64	183.65
			1/0	2593.0	23.92	246.60
			1/0	2682.5	22.33	171.00
		16QAM	1/0	2503.5	22.29	169.43
			1/0	2593.0	23.35	216.27
			1/0	2682.5	21.69	147.57
	10	QPSK	1/49	2501.0	22.18	165.20
			1/25	2593.0	23.64	231.21
			1/0	2685.0	22.75	188.36
		16QAM	1/0	2501.0	21.58	143.88
			1/25	2593.0	23.02	200.45
			1/49	2685.0	22.03	159.59
	5	QPSK	1/24	2498.5	22.17	164.82
			1/0	2593.0	23.71	234.96
			1/0	2687.5	22.72	187.07
		16QAM	1/0	2498.5	21.55	142.89
			1/0	2593.0	22.93	196.34
			1/0	2687.5	21.84	152.76

LTE Band 66

Band	BW [MHz]	Mode	RB Size/	f [MHz]	ERP / EIRP	
			RB Offset		[dBm]	[mW]
Band 66	20	QPSK	1/49	1720.0	21.08	128.23
			1/49	1745.0	21.09	128.53
			1/49	1770.0	20.88	122.46
		16QAM	1/0	1720.0	18.94	78.34
			1/0	1745.0	19.08	80.91
			1/0	1770.0	18.88	77.27
	15	QPSK	1/37	1717.5	20.84	121.34
			1/0	1747.5	21.20	131.83
			1/37	1772.5	21.35	136.46
		16QAM	1/37	1717.5	18.92	77.98
			1/0	1747.5	19.14	82.04
			1/37	1772.5	19.05	80.35
	10	QPSK	1/49	1715.0	20.96	124.74
			1/49	1745.0	20.92	123.59
			1/0	1775.0	21.31	135.21
		16QAM	1/0	1715.0	18.92	77.98
			1/25	1745.0	18.98	79.07
			1/25	1775.0	19.46	88.31
	5	QPSK	1/24	1712.5	21.11	129.12
			1/12	1745.0	21.58	143.88
			1/12	1777.5	21.37	137.09
		16QAM	1/12	1712.5	19.14	82.04
			1/0	1745.0	19.65	92.26
			1/0	1777.5	19.63	91.83
	3	QPSK	1/14	1711.5	21.25	133.35
			1/14	1745.0	21.06	127.64
			1/8	1778.5	21.47	140.28
		16QAM	1/8	1711.5	19.19	82.99
			1/8	1745.0	18.96	78.70
			1/0	1778.5	19.47	88.51
1.4	QPSK	1/5	1710.7	21.14	130.02	
		1/0	1745.0	21.10	128.82	
		1/0	1779.3	20.94	124.17	
	16QAM	1/3	1710.7	19.14	82.04	
		1/3	1745.0	18.92	77.98	
		1/5	1779.3	18.94	78.34	

NR Band 5

Band	BW [MHz]	Modulation	Mode	RB Size/	f [MHz]	ERP / EIRP	
				RB Offset		[dBm]	[mW]
n5	20	DFT-s OFDM	QPSK	1/53	834.0	16.10	40.74
				1/53	836.5	15.81	38.11
				1/53	839.0	15.64	36.64
			16QAM	1/53	834.0	14.85	30.55
				1/53	836.5	14.37	27.35
				1/53	839.0	14.25	26.61
	15	DFT-s OFDM	QPSK	1/1	831.5	17.16	52.00
				1/1	836.5	16.72	46.99
				1/1	841.5	16.36	43.25
			16QAM	1/1	831.5	15.75	37.58
				1/1	836.5	15.43	34.91
				1/1	841.5	14.73	29.72
	10	DFT-s OFDM	QPSK	1/26	829.0	17.31	53.83
				1/26	836.5	16.66	46.34
				1/26	844.0	16.18	41.50
			16QAM	1/26	829.0	16.17	41.40
				1/26	836.5	15.27	33.65
				1/26	844.0	15.09	32.28
	5	DFT-s OFDM	QPSK	1/13	826.5	17.12	51.52
				1/1	836.5	16.90	48.98
				1/13	846.5	16.27	42.36
			16QAM	1/13	826.5	16.01	39.90
				1/1	836.5	15.48	35.32
				1/13	846.5	14.95	31.26

NR Band 66

Band	BW [MHz]	Modulation	Mode	RB Size/	f [MHz]	ERP / EIRP	
				RB Offset		[dBm]	[mW]
n66	20	DFT-s OFDM	QPSK	1/1	1720.0	20.63	115.61
				1/1	1745.0	19.54	89.95
				1/104	1770.0	19.93	98.40
			16QAM	1/1	1720.0	19.72	93.76
				1/1	1745.0	18.25	66.83
				1/104	1770.0	19.20	83.18
	15	DFT-s OFDM	QPSK	1/1	1717.5	19.02	79.80
				1/1	1745.0	17.87	61.24
				1/77	1772.5	19.33	85.70
			16QAM	1/1	1717.5	17.75	59.57
				1/1	1745.0	17.22	52.72
				1/77	1772.5	18.24	66.68
	10	DFT-s OFDM	QPSK	1/1	1715.0	19.58	90.78
				1/1	1745.0	20.24	105.68
				1/50	1775.0	20.43	110.41
			16QAM	1/1	1715.0	19.64	92.04
				1/1	1745.0	20.73	118.30
				1/50	1775.0	20.56	113.76
	5	DFT-s OFDM	QPSK	1/1	1712.5	18.62	72.78
				1/1	1745.0	19.20	83.18
				1/23	1777.5	19.99	99.77
			16QAM	1/1	1712.5	17.73	59.29
				1/1	1745.0	17.77	59.84
				1/23	1777.5	19.24	83.95

9.5.2. ERP/EIRP DATA

GSM850

GSM850 GPRS	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																									
	<p> Company: Samsung Project #: 4790089631 Date: 9/13/2021 Test Engineer: 20881 Configuration: EUT, Z-Position Location: Chamber 1 Mode: GPRS 850 MHz Fundamentals </p> <p> Test Equipment: Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 8.5m SMA-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>824.20</td> <td>34.15</td> <td>V</td> <td>3.0</td> <td>-1.3</td> <td>29.81</td> <td>38.5</td> <td>-8.7</td> <td></td> </tr> <tr> <td>824.20</td> <td>22.65</td> <td>H</td> <td>3.0</td> <td>-1.3</td> <td>18.31</td> <td>38.5</td> <td>-20.2</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>836.60</td> <td>34.33</td> <td>V</td> <td>3.0</td> <td>-1.2</td> <td>30.08</td> <td>38.5</td> <td>-8.4</td> <td></td> </tr> <tr> <td>836.60</td> <td>23.65</td> <td>H</td> <td>3.0</td> <td>-1.2</td> <td>19.40</td> <td>38.5</td> <td>-19.1</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>848.80</td> <td>33.99</td> <td>V</td> <td>3.1</td> <td>-1.1</td> <td>29.83</td> <td>38.5</td> <td>-8.7</td> <td></td> </tr> <tr> <td>848.80</td> <td>24.17</td> <td>H</td> <td>3.1</td> <td>-1.1</td> <td>20.01</td> <td>38.5</td> <td>-18.5</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									824.20	34.15	V	3.0	-1.3	29.81	38.5	-8.7		824.20	22.65	H	3.0	-1.3	18.31	38.5	-20.2		Mid Ch									836.60	34.33	V	3.0	-1.2	30.08	38.5	-8.4		836.60	23.65	H	3.0	-1.2	19.40	38.5	-19.1		High Ch									848.80	33.99	V	3.1	-1.1	29.83	38.5	-8.7		848.80	24.17	H	3.1	-1.1	20.01	38.5	-18.5
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836.60	27.83	V	3.0	-1.2	23.58	38.5	-14.9																																																																																			
836.60	17.63	H	3.0	-1.2	13.38	38.5	-25.1																																																																																			
High Ch																																																																																										
848.80	27.89	V	3.1	-1.1	23.73	38.5	-14.8																																																																																			
848.80	18.44	H	3.1	-1.1	14.28	38.5	-24.2																																																																																			

GSM1900

GSM1900 GPRS		UL Verification Services, Inc. High Frequency Substitution Measurement							
		f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)
		Company: Samsung Project #: 4790089631 Date: 9/13/2021 Test Engineer: 20881 Configuration: EUT, X-Position Location: Chamber 1 Mode: GPRS 1900 MHz Fundamentals Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-type Cable							
		Low Ch							
		1850.20	19.18	V	4.5	9.6	24.31	33.0	-8.7
		1850.20	25.44	H	4.5	9.6	30.57	33.0	-2.4
		Mid Ch							
		1880.00	20.20	V	4.5	9.4	25.08	33.0	-7.9
		1880.00	25.58	H	4.5	9.4	30.46	33.0	-2.5
		High Ch							
		1909.80	20.56	V	4.5	9.1	25.14	33.0	-7.9
		1909.80	24.90	H	4.5	9.1	29.48	33.0	-3.5

GSM1900 EGPRS		UL Verification Services, Inc. High Frequency Substitution Measurement							
		f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)
		Company: Samsung Project #: 4790089631 Date: 9/13/2021 Test Engineer: 20881 Configuration: EUT, X-Position Location: Chamber 1 Mode: EGPRS 1900 MHz Fundamentals Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-type Cable							
		Low Ch							
		1850.20	12.23	V	4.5	9.6	17.36	33.0	-15.6
		1850.20	21.25	H	4.5	9.6	26.38	33.0	-6.6
		Mid Ch							
		1880.00	15.15	V	4.5	9.4	20.03	33.0	-13.0
		1880.00	21.52	H	4.5	9.4	26.40	33.0	-6.6
		High Ch							
		1909.80	17.43	V	4.5	9.1	22.01	33.0	-11.0
		1909.80	21.34	H	4.5	9.1	25.92	33.0	-7.1

WCDMA Band 5

Band 5 REL99	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company:		Samsung						
	Project #:		4790089631						
	Date:		9/13/2021						
	Test Engineer:		19568						
	Configuration:		EUT, Z-Position						
	Location:		Chamber 2						
	Mode:		Rel99 Band 5 Fundamentals						
	Test Equipment:								
	Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 8.5m SMA-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								
	826.40	22.77	V	3.0	-1.3	18.44	38.5	-20.1	
	826.40	13.38	H	3.0	-1.3	9.05	38.5	-29.4	
	Mid Ch								
	836.60	24.23	V	3.0	-1.2	19.98	38.5	-18.5	
	836.60	14.21	H	3.0	-1.2	9.96	38.5	-28.5	
	High Ch								
	846.60	23.13	V	3.0	-1.1	18.95	38.5	-19.5	
	846.60	13.67	H	3.0	-1.1	9.49	38.5	-29.0	

Band 5 HSDPA	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company:		Samsung						
	Project #:		4790089631						
	Date:		9/13/2021						
	Test Engineer:		19568						
	Configuration:		EUT, Z-Position						
	Location:		Chamber 2						
	Mode:		HSDPA Band 5 Fundamentals						
	Test Equipment:								
	Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 8.5m SMA-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								
	826.40	22.54	V	3.0	-1.3	18.21	38.5	-20.3	
	826.40	13.20	H	3.0	-1.3	8.87	38.5	-29.6	
	Mid Ch								
	836.60	23.86	V	3.0	-1.2	19.61	38.5	-18.9	
	836.60	13.92	H	3.0	-1.2	9.67	38.5	-28.8	
	High Ch								
	846.60	23.23	V	3.0	-1.1	19.05	38.5	-19.4	
	846.60	13.65	H	3.0	-1.1	9.47	38.5	-29.0	

WCDMA Band 4

Band 4 REL99	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company:		Samsung						
	Project #:		4790089631						
	Date:		9/14/2021						
	Test Engineer:		22943						
	Configuration:		EUT, Z-Position						
	Location:		Chamber 2						
	Mode:		Rel99 Band 4 Fundamentals						
	Test Equipment:								
	Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables								
	Substitution: Horn 3115[00161451], 8.5m SMA-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								
	1712.40	13.42	V	4.3	9.6	18.71	30.0	-11.3	
	1712.40	15.67	H	4.3	9.6	20.95	30.0	-9.0	
Mid Ch									
1732.60	12.70	V	4.3	9.6	18.03	30.0	-12.0		
1732.60	16.11	H	4.3	9.6	21.43	30.0	-8.6		
High Ch									
1752.60	12.42	V	4.3	9.7	17.78	30.0	-12.2		
1752.60	15.93	H	4.3	9.7	21.28	30.0	-8.7		

Band 4 HSDPA	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company:		Samsung						
	Project #:		4790089631						
	Date:		9/14/2021						
	Test Engineer:		22943						
	Configuration:		EUT, Z-Position						
	Location:		Chamber 2						
	Mode:		HSDPA Band 4 Fundamentals						
	Test Equipment:								
	Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables								
	Substitution: Horn 3115[00161451], 8.5m SMA-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								
	1712.40	13.19	V	4.3	9.6	18.48	30.0	-11.5	
	1712.40	15.46	H	4.3	9.6	20.74	30.0	-9.3	
Mid Ch									
1732.60	12.51	V	4.3	9.6	17.84	30.0	-12.2		
1732.60	15.89	H	4.3	9.6	21.21	30.0	-8.8		
High Ch									
1752.60	12.31	V	4.3	9.7	17.67	30.0	-12.3		
1752.60	15.75	H	4.3	9.7	21.10	30.0	-8.9		

WCDMA Band 2

Band 2 REL99	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company:		Samsung						
	Project #:		4790089631						
	Date:		9/13/2021						
	Test Engineer:		19227						
	Configuration:		EUT, X-Position						
	Location:		Chamber 2						
	Mode:		Rel99 Band 2 Fundamentals						
	Test Equipment:								
	Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Substitution: Horn 3115[00161451], 8.5m SMA-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								
	1852.40	11.10	V	4.5	9.6	16.25	33.0	-16.8	
	1852.40	16.63	H	4.5	9.6	21.79	33.0	-11.2	
	Mid Ch								
	1880.00	13.86	V	4.5	9.4	18.73	33.0	-14.3	
	1880.00	17.75	H	4.5	9.4	22.62	33.0	-10.4	
	High Ch								
	1907.60	14.61	V	4.5	9.1	19.17	33.0	-13.8	
	1907.60	18.74	H	4.5	9.1	23.30	33.0	-9.7	

Band 2 HSDPA	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company:		Samsung						
	Project #:		4790089631						
	Date:		9/13/2021						
	Test Engineer:		19227						
	Configuration:		EUT, X-Position						
	Location:		Chamber 2						
	Mode:		HSDPA Band 2 Fundamentals						
	Test Equipment:								
	Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Substitution: Horn 3115[00161451], 8.5m SMA-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								
	1852.40	11.07	V	4.5	9.6	16.22	33.0	-16.8	
	1852.40	16.76	H	4.5	9.6	21.92	33.0	-11.1	
	Mid Ch								
	1880.00	13.77	V	4.5	9.4	18.64	33.0	-14.4	
	1880.00	18.05	H	4.5	9.4	22.92	33.0	-10.1	
	High Ch								
	1907.60	14.58	V	4.5	9.1	19.14	33.0	-13.9	
	1907.60	18.62	H	4.5	9.1	23.18	33.0	-9.8	

LTE Band 12

LTE Band 12 10MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement										
	Company:		Samsung								
	Project #:		4790089631								
	Date:		9/14/2021								
	Test Engineer:		22943								
	Configuration:		EUT, Y-Position								
	Location:		Chamber 1								
	Mode:		LTE_QPSK Band 12 Fundamentals, 10MHz Bandwidth								
	Test Equipment:		Receiving: VULB9163-750, and Chamber 1 SMA Cables								
			Substitution: Dipole 3121_DB4, 8.5m SMA-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											
704.00	18.62	V	2.8	-1.4	14.47	34.8	-20.3				
704.00	21.63	H	2.8	-1.4	17.49	34.8	-17.3				
Mid Ch											
707.50	18.50	V	2.8	-1.4	14.34	34.8	-20.4				
707.50	21.89	H	2.8	-1.4	17.72	34.8	-17.0				
High Ch											
711.00	18.60	V	2.8	-1.4	14.43	34.8	-20.3				
711.00	21.67	H	2.8	-1.4	17.50	34.8	-17.3				

LTE Band 12 10MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement										
	Company:		Samsung								
	Project #:		4790089631								
	Date:		9/14/2021								
	Test Engineer:		22943								
	Configuration:		EUT, Y-Position								
	Location:		Chamber 1								
	Mode:		LTE_16QAM Band 12 Fundamentals, 10MHz Bandwidth								
	Test Equipment:		Receiving: VULB9163-750, and Chamber 1 SMA Cables								
			Substitution: Dipole 3121_DB4, 8.5m SMA-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											
704.00	16.41	V	2.8	-1.4	12.26	34.8	-22.5				
704.00	19.55	H	2.8	-1.4	15.41	34.8	-19.4				
Mid Ch											
707.50	16.70	V	2.8	-1.4	12.54	34.8	-22.2				
707.50	19.75	H	2.8	-1.4	15.58	34.8	-19.2				
High Ch											
711.00	16.51	V	2.8	-1.4	12.34	34.8	-22.4				
711.00	19.84	H	2.8	-1.4	15.67	34.8	-19.1				

LTE Band 12 5MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																									
	<p> Company: Samsung Project #: 4790089631 Date: 9/14/2021 Test Engineer: 20882 Configuration: EUT, Y-Position Location: Chamber 1 Mode: LTE_QPSK Band 12 Fundamentals, 5MHz Bandwidth </p> <p> Test Equipment: Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 8.5m SMA-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>701.50</td> <td>18.78</td> <td>V</td> <td>2.8</td> <td>-1.4</td> <td>14.65</td> <td>34.8</td> <td>-20.1</td> <td></td> </tr> <tr> <td>701.50</td> <td>21.89</td> <td>H</td> <td>2.8</td> <td>-1.4</td> <td>17.76</td> <td>34.8</td> <td>-17.0</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>707.50</td> <td>18.79</td> <td>V</td> <td>2.8</td> <td>-1.4</td> <td>14.63</td> <td>34.8</td> <td>-20.1</td> <td></td> </tr> <tr> <td>707.50</td> <td>21.70</td> <td>H</td> <td>2.8</td> <td>-1.4</td> <td>17.53</td> <td>34.8</td> <td>-17.2</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>713.50</td> <td>18.78</td> <td>V</td> <td>2.8</td> <td>-1.4</td> <td>14.59</td> <td>34.8</td> <td>-20.2</td> <td></td> </tr> <tr> <td>713.50</td> <td>21.48</td> <td>H</td> <td>2.8</td> <td>-1.4</td> <td>17.30</td> <td>34.8</td> <td>-17.5</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									701.50	18.78	V	2.8	-1.4	14.65	34.8	-20.1		701.50	21.89	H	2.8	-1.4	17.76	34.8	-17.0		Mid Ch									707.50	18.79	V	2.8	-1.4	14.63	34.8	-20.1		707.50	21.70	H	2.8	-1.4	17.53	34.8	-17.2		High Ch									713.50	18.78	V	2.8	-1.4	14.59	34.8	-20.2		713.50	21.48	H	2.8	-1.4	17.30	34.8	-17.5
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																		
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LTE Band 12 5MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																									
	<p> Company: Samsung Project #: 4790089631 Date: 9/14/2021 Test Engineer: 20882 Configuration: EUT, Y-Position Location: Chamber 1 Mode: LTE_16QAM Band 12 Fundamentals, 5MHz Bandwidth </p> <p> Test Equipment: Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 8.5m SMA-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>701.50</td> <td>16.86</td> <td>V</td> <td>2.8</td> <td>-1.4</td> <td>12.73</td> <td>34.8</td> <td>-22.0</td> <td></td> </tr> <tr> <td>701.50</td> <td>19.81</td> <td>H</td> <td>2.8</td> <td>-1.4</td> <td>15.68</td> <td>34.8</td> <td>-19.1</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>707.50</td> <td>16.91</td> <td>V</td> <td>2.8</td> <td>-1.4</td> <td>12.75</td> <td>34.8</td> <td>-22.0</td> <td></td> </tr> <tr> <td>707.50</td> <td>19.73</td> <td>H</td> <td>2.8</td> <td>-1.4</td> <td>15.56</td> <td>34.8</td> <td>-19.2</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>713.50</td> <td>16.70</td> <td>V</td> <td>2.8</td> <td>-1.4</td> <td>12.51</td> <td>34.8</td> <td>-22.3</td> <td></td> </tr> <tr> <td>713.50</td> <td>19.36</td> <td>H</td> <td>2.8</td> <td>-1.4</td> <td>15.18</td> <td>34.8</td> <td>-19.6</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									701.50	16.86	V	2.8	-1.4	12.73	34.8	-22.0		701.50	19.81	H	2.8	-1.4	15.68	34.8	-19.1		Mid Ch									707.50	16.91	V	2.8	-1.4	12.75	34.8	-22.0		707.50	19.73	H	2.8	-1.4	15.56	34.8	-19.2		High Ch									713.50	16.70	V	2.8	-1.4	12.51	34.8	-22.3		713.50	19.36	H	2.8	-1.4	15.18	34.8	-19.6
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LTE Band 13

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	Low Ch								
	779.50	17.54	V	2.9	-1.5	13.10	34.8	-21.7	
	779.50	23.34	H	2.9	-1.5	18.91	34.8	-15.9	
	Mid Ch								
	782.00	17.71	V	2.9	-1.5	13.26	34.8	-21.5	
	782.00	23.31	H	2.9	-1.5	18.86	34.8	-15.9	
High Ch									
784.50	17.76	V	2.9	-1.5	13.30	34.8	-21.5		
784.50	23.04	H	2.9	-1.5	18.58	34.8	-16.2		
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	Low Ch								
	779.50	15.10	V	2.9	-1.5	10.66	34.8	-24.1	
	779.50	20.94	H	2.9	-1.5	16.51	34.8	-18.3	
	Mid Ch								
	782.00	15.10	V	2.9	-1.5	10.65	34.8	-24.1	
	782.00	20.80	H	2.9	-1.5	16.35	34.8	-18.4	
High Ch									
784.50	15.48	V	2.9	-1.5	11.02	34.8	-23.7		
784.50	20.58	H	2.9	-1.5	16.12	34.8	-18.6		

LTE Band 25

LTE Band 25 20MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement										
	Company:		Samsung								
	Project #:		4790089631								
	Date:		9/14/2021								
	Test Engineer:		19568								
	Configuration:		EUT, X-Position								
	Location:		Chamber 2								
	Mode:		LTE_QPSK Band 25 Fundamentals, 20MHz Bandwidth								
	Test Equipment:		Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables								
			Substitution: Horn 3115[00161451], 8.5m SMA-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	11.53	V	4.5	9.6	16.61	33.0	-16.4				
1860.00	16.79	H	4.5	9.6	21.86	33.0	-11.1				
Mid Ch											
1882.50	13.51	V	4.5	9.3	18.35	33.0	-14.7				
1882.50	17.63	H	4.5	9.3	22.48	33.0	-10.5				
High Ch											
1905.00	14.42	V	4.5	9.1	19.02	33.0	-14.0				
1905.00	18.45	H	4.5	9.1	23.04	33.0	-10.0				

LTE Band 25 20MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement										
	Company:		Samsung								
	Project #:		4790089631								
	Date:		9/14/2021								
	Test Engineer:		19568								
	Configuration:		EUT, X-Position								
	Location:		Chamber 2								
	Mode:		LTE_16QAM Band 25 Fundamentals, 20MHz Bandwidth								
	Test Equipment:		Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables								
			Substitution: Horn 3115[00161451], 8.5m SMA-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	9.22	V	4.5	9.6	14.30	33.0	-18.7				
1860.00	15.04	H	4.5	9.6	20.11	33.0	-12.9				
Mid Ch											
1882.50	11.41	V	4.5	9.3	16.25	33.0	-16.8				
1882.50	15.54	H	4.5	9.3	20.39	33.0	-12.6				
High Ch											
1905.00	12.01	V	4.5	9.1	16.61	33.0	-16.4				
1905.00	16.19	H	4.5	9.1	20.78	33.0	-12.2				

LTE Band 25 15MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																									
	<p> Company: Samsung Project #: 4790089631 Date: 9/14/2021 Test Engineer: 19568 Configuration: EUT, X-Position Location: Chamber 2 Mode: LTE_QPSK Band 25 Fundamentals, 15MHz Bandwidth </p> <p> Test Equipment: Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Substitution: Horn 3115[00161451], 8.5m SMA-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>1857.50</td> <td>11.58</td> <td>V</td> <td>4.5</td> <td>9.6</td> <td>16.68</td> <td>33.0</td> <td>-16.3</td> <td></td> </tr> <tr> <td>1857.50</td> <td>17.47</td> <td>H</td> <td>4.5</td> <td>9.6</td> <td>22.57</td> <td>33.0</td> <td>-10.4</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1882.50</td> <td>13.21</td> <td>V</td> <td>4.5</td> <td>9.3</td> <td>18.05</td> <td>33.0</td> <td>-15.0</td> <td></td> </tr> <tr> <td>1882.50</td> <td>17.89</td> <td>H</td> <td>4.5</td> <td>9.3</td> <td>22.74</td> <td>33.0</td> <td>-10.3</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1907.50</td> <td>14.27</td> <td>V</td> <td>4.5</td> <td>9.1</td> <td>18.83</td> <td>33.0</td> <td>-14.2</td> <td></td> </tr> <tr> <td>1907.50</td> <td>18.54</td> <td>H</td> <td>4.5</td> <td>9.1</td> <td>23.10</td> <td>33.0</td> <td>-9.9</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									1857.50	11.58	V	4.5	9.6	16.68	33.0	-16.3		1857.50	17.47	H	4.5	9.6	22.57	33.0	-10.4		Mid Ch									1882.50	13.21	V	4.5	9.3	18.05	33.0	-15.0		1882.50	17.89	H	4.5	9.3	22.74	33.0	-10.3		High Ch									1907.50	14.27	V	4.5	9.1	18.83	33.0	-14.2		1907.50	18.54	H	4.5	9.1	23.10	33.0	-9.9
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1882.50	13.21	V	4.5	9.3	18.05	33.0	-15.0																																																																																			
1882.50	17.89	H	4.5	9.3	22.74	33.0	-10.3																																																																																			
High Ch																																																																																										
1907.50	14.27	V	4.5	9.1	18.83	33.0	-14.2																																																																																			
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	<p> Company: Samsung Project #: 4790089631 Date: 9/14/2021 Test Engineer: 19568 Configuration: EUT, X-Position Location: Chamber 2 Mode: LTE_16QAM Band 25 Fundamentals, 15MHz Bandwidth </p> <p> Test Equipment: Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Substitution: Horn 3115[00161451], 8.5m SMA-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>1857.50</td> <td>9.32</td> <td>V</td> <td>4.5</td> <td>9.6</td> <td>14.42</td> <td>33.0</td> <td>-18.6</td> <td></td> </tr> <tr> <td>1857.50</td> <td>15.96</td> <td>H</td> <td>4.5</td> <td>9.6</td> <td>21.06</td> <td>33.0</td> <td>-11.9</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1882.50</td> <td>10.88</td> <td>V</td> <td>4.5</td> <td>9.3</td> <td>15.72</td> <td>33.0</td> <td>-17.3</td> <td></td> </tr> <tr> <td>1882.50</td> <td>15.65</td> <td>H</td> <td>4.5</td> <td>9.3</td> <td>20.50</td> <td>33.0</td> <td>-12.5</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1907.50</td> <td>12.18</td> <td>V</td> <td>4.5</td> <td>9.1</td> <td>16.74</td> <td>33.0</td> <td>-16.3</td> <td></td> </tr> <tr> <td>1907.50</td> <td>16.71</td> <td>H</td> <td>4.5</td> <td>9.1</td> <td>21.27</td> <td>33.0</td> <td>-11.7</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									1857.50	9.32	V	4.5	9.6	14.42	33.0	-18.6		1857.50	15.96	H	4.5	9.6	21.06	33.0	-11.9		Mid Ch									1882.50	10.88	V	4.5	9.3	15.72	33.0	-17.3		1882.50	15.65	H	4.5	9.3	20.50	33.0	-12.5		High Ch									1907.50	12.18	V	4.5	9.1	16.74	33.0	-16.3		1907.50	16.71	H	4.5	9.1	21.27	33.0	-11.7
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LTE Band 25 10MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/14/2021 Test Engineer: 19568 Configuration: EUT, X-Position Location: Chamber 2 Mode: LTE_QPSK Band 25 Fundamentals, 10MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Substitution: Horn 3115[00161451], 8.5m SMA-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	10.94	V	4.5	9.6	16.06	33.0	-16.9	
	1855.00	17.65	H	4.5	9.6	22.77	33.0	-10.2	
	Mid Ch								
	1882.50	13.87	V	4.5	9.3	18.71	33.0	-14.3	
	1882.50	17.74	H	4.5	9.3	22.59	33.0	-10.4	
High Ch									
1910.00	14.33	V	4.5	9.1	18.85	33.0	-14.1		
1910.00	18.97	H	4.5	9.1	23.49	33.0	-9.5		
LTE Band 25 10MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/14/2021 Test Engineer: 19568 Configuration: EUT, X-Position Location: Chamber 2 Mode: LTE_16QAM Band 25 Fundamentals, 10MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Substitution: Horn 3115[00161451], 8.5m SMA-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	9.02	V	4.5	9.6	14.14	33.0	-18.9	
	1855.00	15.33	H	4.5	9.6	20.45	33.0	-12.5	
	Mid Ch								
	1882.50	11.61	V	4.5	9.3	16.45	33.0	-16.6	
	1882.50	15.86	H	4.5	9.3	20.71	33.0	-12.3	
High Ch									
1910.00	12.09	V	4.5	9.1	16.61	33.0	-16.4		
1910.00	16.51	H	4.5	9.1	21.03	33.0	-12.0		

LTE Band 25 5MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																									
	<p> Company: Sumsung Project #: 4790089631 Date: 9/14/2021 Test Engineer: 19568 Configuration: EUT, X-Position Location: Chamber 2 Mode: LTE_QPSK Band 25 Fundamentals, 5MHz Bandwidth </p> <p> Test Equipment: Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Substitution: Horn 3115[00161451], 8.5m SMA-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>1852.50</td> <td>11.01</td> <td>V</td> <td>4.5</td> <td>9.6</td> <td>16.16</td> <td>33.0</td> <td>-16.8</td> <td></td> </tr> <tr> <td>1852.50</td> <td>14.94</td> <td>H</td> <td>4.5</td> <td>9.6</td> <td>20.09</td> <td>33.0</td> <td>-12.9</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1882.50</td> <td>14.13</td> <td>V</td> <td>4.5</td> <td>9.3</td> <td>18.97</td> <td>33.0</td> <td>-14.0</td> <td></td> </tr> <tr> <td>1882.50</td> <td>17.34</td> <td>H</td> <td>4.5</td> <td>9.3</td> <td>22.19</td> <td>33.0</td> <td>-10.8</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1912.50</td> <td>14.45</td> <td>V</td> <td>4.5</td> <td>9.0</td> <td>18.94</td> <td>33.0</td> <td>-14.1</td> <td></td> </tr> <tr> <td>1912.50</td> <td>19.16</td> <td>H</td> <td>4.5</td> <td>9.0</td> <td>23.65</td> <td>33.0</td> <td>-9.4</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									1852.50	11.01	V	4.5	9.6	16.16	33.0	-16.8		1852.50	14.94	H	4.5	9.6	20.09	33.0	-12.9		Mid Ch									1882.50	14.13	V	4.5	9.3	18.97	33.0	-14.0		1882.50	17.34	H	4.5	9.3	22.19	33.0	-10.8		High Ch									1912.50	14.45	V	4.5	9.0	18.94	33.0	-14.1		1912.50	19.16	H	4.5	9.0	23.65	33.0	-9.4
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LTE Band 26 (Part 90)

LTE Band 26 15MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
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	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	821.50	22.70	V	3.0	-1.4	18.33	50.0	-31.7	Part 90
	821.50	12.69	H	3.0	-1.4	8.33	50.0	-41.7	Part 90
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	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	821.50	20.86	V	3.0	-1.4	16.49	50.0	-33.5	Part 90
	821.50	10.68	H	3.0	-1.4	6.32	50.0	-43.7	Part 90

LTE Band 26 10MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement																																			
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LTE Band 26 (Part 22)

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841.50	12.84	H	3.0	-1.2	8.63	38.5	-29.9																																																																																				
LTE Band 26 15MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																										
	Company: Samsung Project #: 4790089631 Date: 9/15/2021 Test Engineer: 19568 Configuration: EUT, Z-Position Location: Chamber 2 Mode: LTE_16QAM Band 26 Fundamentals, 15MHz Bandwidth Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 8.5m SMA-type Cable																																																																																										
	<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">Straddle Ch</td> </tr> <tr> <td>824.00</td> <td>21.10</td> <td>V</td> <td>3.0</td> <td>-1.3</td> <td>16.76</td> <td>38.5</td> <td>-21.7</td> <td></td> </tr> <tr> <td>824.00</td> <td>10.88</td> <td>H</td> <td>3.0</td> <td>-1.3</td> <td>6.54</td> <td>38.5</td> <td>-32.0</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>831.50</td> <td>21.62</td> <td>V</td> <td>3.0</td> <td>-1.3</td> <td>17.33</td> <td>38.5</td> <td>-21.2</td> <td></td> </tr> <tr> <td>831.50</td> <td>11.49</td> <td>H</td> <td>3.0</td> <td>-1.3</td> <td>7.20</td> <td>38.5</td> <td>-31.3</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>844.00</td> <td>21.79</td> <td>V</td> <td>3.0</td> <td>-1.2</td> <td>17.59</td> <td>38.5</td> <td>-20.9</td> <td></td> </tr> <tr> <td>844.00</td> <td>10.88</td> <td>H</td> <td>3.0</td> <td>-1.2</td> <td>6.69</td> <td>38.5</td> <td>-31.8</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	Straddle Ch									824.00	21.10	V	3.0	-1.3	16.76	38.5	-21.7		824.00	10.88	H	3.0	-1.3	6.54	38.5	-32.0		Mid Ch									831.50	21.62	V	3.0	-1.3	17.33	38.5	-21.2		831.50	11.49	H	3.0	-1.3	7.20	38.5	-31.3		High Ch									844.00	21.79	V	3.0	-1.2	17.59	38.5	-20.9		844.00	10.88	H	3.0	-1.2	6.69	38.5	-31.8	
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																			
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LTE Band 26 10MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/15/2021 Test Engineer: 19568 Configuration: EUT, Z-Position Location: Chamber 2 Mode: LTE_QPSK Band 26 Fundamentals, 10MHz Bandwidth								
	Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 8.5m SMA-type Cable								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Straddle Ch								
	824.00	22.70	V	3.0	-1.3	18.36	38.5	-20.1	
	824.00	13.14	H	3.0	-1.3	8.80	38.5	-29.7	
	Mid Ch								
	829.00	23.46	V	3.0	-1.3	19.15	38.5	-19.3	
	829.00	13.39	H	3.0	-1.3	9.09	38.5	-29.4	
	Mid Ch								
	831.50	23.65	V	3.0	-1.3	19.36	38.5	-19.1	
	831.50	13.46	H	3.0	-1.3	9.17	38.5	-29.3	
High Ch									
844.00	23.74	V	3.0	-1.2	19.54	38.5	-19.0		
844.00	13.04	H	3.0	-1.2	8.85	38.5	-29.7		
LTE Band 26 10MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/15/2021 Test Engineer: 19568 Configuration: EUT, Z-Position Location: Chamber 2 Mode: LTE_16QAM Band 26 Fundamentals, 10MHz Bandwidth								
	Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 8.5m SMA-type Cable								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Straddle Ch								
	824.70	20.95	V	3.0	-1.3	16.61	50.0	-33.4	
	824.70	11.14	H	3.0	-1.3	6.81	50.0	-43.2	
	Mid Ch								
	829.00	21.52	V	3.0	-1.3	17.21	38.5	-21.3	
	829.00	11.52	H	3.0	-1.3	7.22	38.5	-31.3	
	Mid Ch								
	831.50	21.39	V	3.0	-1.3	17.10	38.5	-21.4	
	831.50	11.43	H	3.0	-1.3	7.14	38.5	-31.4	
High Ch									
844.00	21.73	V	3.0	-1.2	17.53	38.5	-21.0		
844.00	10.97	H	3.0	-1.2	6.78	38.5	-31.7		

LTE Band 26 5MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/15/2021 Test Engineer: 20882 Configuration: EUT / Z-Position Location: Chamber 2 Mode: LTE_QPSK Band 26 Fundamentals, 5MHz Bandwidth								
	Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 8.5m SMA-type Cable								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Straddle Ch								
	824.00	22.96	V	3.0	-1.3	18.62	38.5	-19.9	
	824.00	12.60	H	3.0	-1.3	8.26	38.5	-30.2	
	Low Ch								
	826.50	22.95	V	3.0	-1.3	18.63	38.5	-19.9	
	826.50	13.47	H	3.0	-1.3	9.15	38.5	-29.4	
	Mid Ch								
	831.50	23.54	V	3.0	-1.3	19.25	38.5	-19.3	
	831.50	13.48	H	3.0	-1.3	9.19	38.5	-29.3	
High Ch									
846.50	23.53	V	3.0	-1.1	19.35	38.5	-19.2		
846.50	13.16	H	3.0	-1.1	8.98	38.5	-29.5		
LTE Band 26 5MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/15/2021 Test Engineer: 20882 Configuration: EUT / Z-Position Location: Chamber 2 Mode: LTE_16QAM Band 26 Fundamentals, 5MHz Bandwidth								
	Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 8.5m SMA-type Cable								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Straddle Ch								
	824.00	20.97	V	3.0	-1.3	16.63	38.5	-21.9	
	824.00	11.14	H	3.0	-1.3	6.80	38.5	-31.7	
	Low Ch								
	826.50	21.28	V	3.0	-1.3	16.95	38.5	-21.5	
	826.50	11.56	H	3.0	-1.3	7.23	38.5	-31.3	
	Mid Ch								
	831.50	22.16	V	3.0	-1.3	17.87	38.5	-20.6	
	831.50	11.35	H	3.0	-1.3	7.06	38.5	-31.4	
High Ch									
846.50	21.80	V	3.0	-1.1	17.62	38.5	-20.9		
846.50	11.18	H	3.0	-1.1	7.00	38.5	-31.5		

LTE Band 26 3MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/15/2021 Test Engineer: 20882 Configuration: EUT / Z-Position Location: Chamber 2 Mode: LTE_QPSK Band 26 Fundamentals, 3MHz Bandwidth								
	Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 8.5m SMA-type Cable								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Straddle Ch								
	824.00	22.70	V	3.0	-1.3	18.36	38.5	-20.1	
	824.00	12.90	H	3.0	-1.3	8.56	38.5	-29.9	
	Low Ch								
	825.50	22.95	V	3.0	-1.3	18.62	38.5	-19.9	
	825.50	13.26	H	3.0	-1.3	8.93	38.5	-29.6	
	Mid Ch								
	831.50	23.61	V	3.0	-1.3	19.32	38.5	-19.2	
	831.50	13.20	H	3.0	-1.3	8.91	38.5	-29.6	
High Ch									
847.50	23.57	V	3.0	-1.1	19.40	38.5	-19.1		
847.50	13.03	H	3.0	-1.1	8.86	38.5	-29.6		
LTE Band 26 3MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/15/2021 Test Engineer: 20882 Configuration: EUT / Z-Position Location: Chamber 2 Mode: LTE_16QAM Band 26 Fundamentals, 3MHz Bandwidth								
	Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 8.5m SMA-type Cable								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Straddle Ch								
	824.00	20.62	V	3.0	-1.3	16.28	38.5	-22.2	
	824.00	10.79	H	3.0	-1.3	6.45	38.5	-32.1	
	Low Ch								
	825.50	20.77	V	3.0	-1.3	16.44	38.5	-22.1	
	825.50	11.24	H	3.0	-1.3	6.91	38.5	-31.6	
	Mid Ch								
	831.50	21.54	V	3.0	-1.3	17.25	38.5	-21.3	
	831.50	11.33	H	3.0	-1.3	7.04	38.5	-31.5	
High Ch									
847.50	21.59	V	3.0	-1.1	17.42	38.5	-21.1		
847.50	11.27	H	3.0	-1.1	7.10	38.5	-31.4		

LTE Band 26 1.4MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/15/2021 Test Engineer: 20882 Configuration: EUT / Z-Position Location: Chamber 2 Mode: LTE_QPSK Band 26 Fundamentals, 1.4MHz Bandwidth								
	Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 8.5m SMA-type Cable								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Straddle Ch								
	824.00	23.00	V	3.0	-1.3	18.66	38.5	-19.8	
	824.00	13.32	H	3.0	-1.3	8.98	38.5	-29.5	
	Low Ch								
	824.70	22.89	V	3.0	-1.3	18.55	38.5	-20.0	
	824.70	12.97	H	3.0	-1.3	8.63	38.5	-29.9	
	Mid Ch								
	831.50	23.49	V	3.0	-1.3	19.20	38.5	-19.3	
	831.50	13.36	H	3.0	-1.3	9.07	38.5	-29.4	
High Ch									
848.30	23.71	V	3.1	-1.1	19.54	38.5	-19.0		
848.30	13.64	H	3.1	-1.1	9.47	38.5	-29.0		
LTE Band 26 1.4MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/15/2021 Test Engineer: 20882 Configuration: EUT / Z-Position Location: Chamber 2 Mode: LTE_16QAM Band 26 Fundamentals, 1.4MHz Bandwidth								
	Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 8.5m SMA-type Cable								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Straddle Ch								
	824.00	20.88	V	3.0	-1.3	16.54	38.5	-22.0	
	824.00	11.13	H	3.0	-1.3	6.79	38.5	-31.7	
	Low Ch								
	824.70	20.80	V	3.0	-1.3	16.46	38.5	-22.0	
	824.70	10.86	H	3.0	-1.3	6.52	38.5	-32.0	
	Mid Ch								
	831.50	21.87	V	3.0	-1.3	17.58	38.5	-20.9	
	831.50	11.33	H	3.0	-1.3	7.04	38.5	-31.5	
High Ch									
847.50	21.46	V	3.0	-1.1	17.29	38.5	-21.2		
847.50	11.56	H	3.0	-1.1	7.39	38.5	-31.1		

LTE Band 41 (PC2)

LTE Band 41 20MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/14/2021 Test Engineer: 19568 Configuration: EUT, X-Position Location: Chamber 2 Mode: LTE_QPSK Band 41 Fundamentals, 20MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Substitution: Horn 3115[00161451], 8.5m SMA-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								
	2506.00	13.71	V	5.2	10.2	18.66	33.0	-14.3	
	2506.00	16.80	H	5.2	10.2	21.76	33.0	-11.2	
	Mid Ch								
	2593.00	15.63	V	5.3	10.1	20.41	33.0	-12.6	
	2593.00	18.33	H	5.3	10.1	23.11	33.0	-9.9	
High Ch									
2680.00	14.92	V	5.4	10.2	19.68	33.0	-13.3		
2680.00	18.26	H	5.4	10.2	23.02	33.0	-10.0		

LTE Band 41 20MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/14/2021 Test Engineer: 19568 Configuration: EUT, X-Position Location: Chamber 2 Mode: LTE_16QAM Band 41 Fundamentals, 20MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Substitution: Horn 3115[00161451], 8.5m SMA-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								
	2506.00	12.90	V	5.2	10.2	17.85	33.0	-15.1	
	2506.00	15.99	H	5.2	10.2	20.95	33.0	-12.1	
	Mid Ch								
	2593.00	15.58	V	5.3	10.1	20.36	33.0	-12.6	
	2593.00	17.67	H	5.3	10.1	22.45	33.0	-10.5	
High Ch									
2680.00	14.16	V	5.4	10.2	18.92	33.0	-14.1		
2680.00	17.40	H	5.4	10.2	22.16	33.0	-10.8		

LTE Band 41 15MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/16/2021 Test Engineer: 20890 Configuration: EUT, X-Position Location: Chamber 1 Mode: LTE_QPSK Band 41 Fundamentals, 15MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-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								
	2503.50	15.18	V	5.2	10.2	20.10	33.0	-12.9	
	2503.50	17.71	H	5.2	10.2	22.64	33.0	-10.4	
	Mid Ch								
	2593.00	15.62	V	5.3	10.0	20.32	33.0	-12.7	
	2593.00	19.23	H	5.3	10.0	23.92	33.0	-9.1	
High Ch									
2682.50	15.98	V	5.4	10.1	20.60	33.0	-12.4		
2682.50	17.71	H	5.4	10.1	22.33	33.0	-10.7		
LTE Band 41 15MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/16/2021 Test Engineer: 20890 Configuration: EUT, X-Position Location: Chamber 1 Mode: LTE_16QAM Band 41 Fundamentals, 15MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-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								
	2503.50	14.67	V	5.2	10.2	19.59	33.0	-13.4	
	2503.50	17.36	H	5.2	10.2	22.29	33.0	-10.7	
	Mid Ch								
	2593.00	14.93	V	5.3	10.0	19.63	33.0	-13.4	
	2593.00	18.66	H	5.3	10.0	23.35	33.0	-9.6	
High Ch									
2682.50	15.35	V	5.4	10.1	19.97	33.0	-13.0		
2682.50	17.07	H	5.4	10.1	21.69	33.0	-11.3		

LTE Band 41 10MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																																	
	Company:		Samsung																																																																																															
	Project #:		4790089631																																																																																															
	Date:		9/16/2021																																																																																															
	Test Engineer:		20890																																																																																															
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LTE Band 41 5MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/16/2021 Test Engineer: 22943 Configuration: EUT, X-Position Location: Chamber 1 Mode: LTE_QPSK Band 41 Fundamentals, 5MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-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								
	2498.50	15.65	V	5.2	10.2	20.59	33.0	-12.4	
	2498.50	17.23	H	5.2	10.2	22.17	33.0	-10.8	
	Mid Ch								
	2593.00	16.03	V	5.3	10.0	20.73	33.0	-12.3	
	2593.00	19.02	H	5.3	10.0	23.71	33.0	-9.3	
High Ch									
2687.50	15.74	V	5.4	10.1	20.36	33.0	-12.6		
2687.50	18.10	H	5.4	10.1	22.72	33.0	-10.3		
LTE Band 41 5MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/16/2021 Test Engineer: 20890 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_16QAM Band 41 Fundamentals, 5MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-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								
	2498.50	14.99	V	5.2	10.2	19.93	33.0	-13.1	
	2498.50	16.61	H	5.2	10.2	21.55	33.0	-11.4	
	Mid Ch								
	2593.00	15.25	V	5.3	10.0	19.95	33.0	-13.1	
	2593.00	18.24	H	5.3	10.0	22.93	33.0	-10.1	
High Ch									
2687.50	14.88	V	5.4	10.1	19.50	33.0	-13.5		
2687.50	17.22	H	5.4	10.1	21.84	33.0	-11.2		

LTE Band 66

LTE Band 66 20MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/15/2021 Test Engineer: 22943 Configuration: EUT, X-Position Location: Chamber 1 Mode: LTE_QPSK Band 66 Fundamentals, 20MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-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								
	1720.00	10.57	V	4.3	9.6	15.86	30.0	-14.1	
	1720.00	15.79	H	4.3	9.6	21.08	30.0	-8.9	
	Mid Ch								
	1745.00	11.93	V	4.3	9.7	17.28	30.0	-12.7	
	1745.00	15.74	H	4.3	9.7	21.09	30.0	-8.9	
High Ch									
1770.00	11.90	V	4.4	9.7	17.23	30.0	-12.8		
1770.00	15.54	H	4.4	9.7	20.88	30.0	-9.1		

LTE Band 66 20MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 9/15/2021 Test Engineer: 19227 Configuration: EUT, X-Position Location: Chamber 1 Mode: LTE_16QAM Band 66 Fundamentals, 20MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-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								
	1720.00	8.41	V	4.3	9.6	13.70	30.0	-16.3	
	1720.00	13.65	H	4.3	9.6	18.94	30.0	-11.1	
	Mid Ch								
	1745.00	10.05	V	4.3	9.7	15.40	30.0	-14.6	
	1745.00	13.73	H	4.3	9.7	19.08	30.0	-10.9	
High Ch									
1770.00	9.84	V	4.4	9.7	15.17	30.0	-14.8		
1770.00	13.54	H	4.4	9.7	18.88	30.0	-11.1		

LTE Band 66 15MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																									
	<p> Company: Samsung Project #: 4790089631 Date: 9/15/2021 Test Engineer: 22943 Configuration: EUT, X-Position Location: Chamber 1 Mode: LTE_QPSK Band 66 Fundamentals, 15MHz Bandwidth </p> <p> Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-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>1717.50</td> <td>9.79</td> <td>V</td> <td>4.3</td> <td>9.6</td> <td>15.08</td> <td>30.0</td> <td>-14.9</td> <td></td> </tr> <tr> <td>1717.50</td> <td>15.55</td> <td>H</td> <td>4.3</td> <td>9.6</td> <td>20.84</td> <td>30.0</td> <td>-9.2</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1745.00</td> <td>11.36</td> <td>V</td> <td>4.3</td> <td>9.7</td> <td>16.71</td> <td>30.0</td> <td>-13.3</td> <td></td> </tr> <tr> <td>1745.00</td> <td>15.85</td> <td>H</td> <td>4.3</td> <td>9.7</td> <td>21.20</td> <td>30.0</td> <td>-8.8</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1772.50</td> <td>12.24</td> <td>V</td> <td>4.4</td> <td>9.7</td> <td>17.57</td> <td>30.0</td> <td>-12.4</td> <td></td> </tr> <tr> <td>1772.50</td> <td>16.02</td> <td>H</td> <td>4.4</td> <td>9.7</td> <td>21.35</td> <td>30.0</td> <td>-8.6</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									1717.50	9.79	V	4.3	9.6	15.08	30.0	-14.9		1717.50	15.55	H	4.3	9.6	20.84	30.0	-9.2		Mid Ch									1745.00	11.36	V	4.3	9.7	16.71	30.0	-13.3		1745.00	15.85	H	4.3	9.7	21.20	30.0	-8.8		High Ch									1772.50	12.24	V	4.4	9.7	17.57	30.0	-12.4		1772.50	16.02	H	4.4	9.7	21.35	30.0	-8.6
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	<p> Company: Samsung Project #: 4790089631 Date: 9/15/2021 Test Engineer: 19227 Configuration: EUT, X-Position Location: Chamber 1 Mode: LTE_16QAM Band 66 Fundamentals, 3MHz Bandwidth </p> <p> Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-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>1711.50</td> <td>6.92</td> <td>V</td> <td>4.3</td> <td>9.6</td> <td>12.19</td> <td>30.0</td> <td>-17.8</td> <td></td> </tr> <tr> <td>1711.50</td> <td>13.92</td> <td>H</td> <td>4.3</td> <td>9.6</td> <td>19.19</td> <td>30.0</td> <td>-10.8</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1745.00</td> <td>9.35</td> <td>V</td> <td>4.3</td> <td>9.7</td> <td>14.70</td> <td>30.0</td> <td>-15.3</td> <td></td> </tr> <tr> <td>1745.00</td> <td>13.61</td> <td>H</td> <td>4.3</td> <td>9.7</td> <td>18.96</td> <td>30.0</td> <td>-11.0</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1778.50</td> <td>10.32</td> <td>V</td> <td>4.4</td> <td>9.7</td> <td>15.65</td> <td>30.0</td> <td>-14.4</td> <td></td> </tr> <tr> <td>1778.50</td> <td>14.14</td> <td>H</td> <td>4.4</td> <td>9.7</td> <td>19.47</td> <td>30.0</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	Low Ch									1711.50	6.92	V	4.3	9.6	12.19	30.0	-17.8		1711.50	13.92	H	4.3	9.6	19.19	30.0	-10.8		Mid Ch									1745.00	9.35	V	4.3	9.7	14.70	30.0	-15.3		1745.00	13.61	H	4.3	9.7	18.96	30.0	-11.0		High Ch									1778.50	10.32	V	4.4	9.7	15.65	30.0	-14.4		1778.50	14.14	H	4.4	9.7	19.47	30.0	-10.5
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NR Band 5

NR Band 5 20MHz DFT-s QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement										
	Company:		Samsung								
	Project #:		4790089631								
	Date:		10/20/2021								
	Test Engineer:		22943								
	Configuration:		EUT, Z-Position								
	Location:		Chamber 1								
	Mode:		LTE_QPSK NR n5 Fundamentals, 20MHz Bandwidth								
	Test Equipment:		Receiving: VULB9163-750, and Chamber 1 SMA Cables								
			Substitution: Dipole 3121_DB4, 8.5m SMA-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											
834.00	20.37	V	3.0	-1.2	16.10	38.5	-22.4				
834.00	11.42	H	3.0	-1.2	7.15	38.5	-31.4				
Mid Ch											
836.50	20.06	V	3.0	-1.2	15.81	38.5	-22.7				
836.50	11.45	H	3.0	-1.2	7.20	38.5	-31.3				
High Ch											
839.00	19.87	V	3.0	-1.2	15.64	38.5	-22.9				
839.00	11.32	H	3.0	-1.2	7.09	38.5	-31.4				

NR Band 5 20MHz DFT-s 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement										
	Company:		Samsung								
	Project #:		4790089631								
	Date:		10/20/2021								
	Test Engineer:		20882								
	Configuration:		EUT, Z-Position								
	Location:		Chamber 1								
	Mode:		LTE_16QAM NR n5 Fundamentals, 20MHz Bandwidth								
	Test Equipment:		Receiving: VULB9163-750, and Chamber 1 SMA Cables								
			Substitution: Dipole 3121_DB4, 8.5m SMA-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											
834.00	19.12	V	3.0	-1.2	14.85	38.5	-23.6				
834.00	10.17	H	3.0	-1.2	5.90	38.5	-32.6				
Mid Ch											
836.50	18.62	V	3.0	-1.2	14.37	38.5	-24.1				
836.50	10.31	H	3.0	-1.2	6.06	38.5	-32.4				
High Ch											
839.00	18.48	V	3.0	-1.2	14.25	38.5	-24.3				
839.00	10.10	H	3.0	-1.2	5.87	38.5	-32.6				

NR Band 5 15MHz DFT-s QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																																	
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NR Band 66

NR Band 66 20MHz DFT-s QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement										
	Company:		Samsung								
	Project #:		4790089631								
	Date:		10/25/2021								
	Test Engineer:		19227								
	Configuration:		EUT, Z-Position								
	Location:		Chamber 1								
	Mode:		LTE_QPSK NR n66 Fundamentals, 20MHz Bandwidth								
	Test Equipment:		Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables								
			Substitution: Horn 3115[00167211], 8.5m SMA-type Cable								
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Low Ch											
1720.00	10.99	V	4.3	9.6	16.28	30.0	-13.7				
1720.00	15.34	H	4.3	9.6	20.63	30.0	-9.4				
Mid Ch											
1745.00	11.44	V	4.3	9.7	16.79	30.0	-13.2				
1745.00	14.19	H	4.3	9.7	19.54	30.0	-10.5				
High Ch											
1770.00	9.64	V	4.4	9.7	14.97	30.0	-15.0				
1770.00	14.59	H	4.4	9.7	19.93	30.0	-10.1				

NR Band 66 20MHz DFT-s 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement										
	Company:		Samsung								
	Project #:		4790089631								
	Date:		10/25/2021								
	Test Engineer:		19227								
	Configuration:		EUT, Z-Position								
	Location:		Chamber 1								
	Mode:		LTE_16QAM NR n66 Fundamentals, 20MHz Bandwidth								
	Test Equipment:		Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables								
			Substitution: Horn 3115[00167211], 8.5m SMA-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											
1720.00	10.08	V	4.3	9.6	15.37	30.0	-14.6				
1720.00	14.43	H	4.3	9.6	19.72	30.0	-10.3				
Mid Ch											
1745.00	10.48	V	4.3	9.7	15.83	30.0	-14.2				
1745.00	12.90	H	4.3	9.7	18.25	30.0	-11.8				
High Ch											
1770.00	8.69	V	4.4	9.7	14.02	30.0	-16.0				
1770.00	13.86	H	4.4	9.7	19.20	30.0	-10.8				

NR Band 66 15MHz DFT-s QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 10/25/2021 Test Engineer: 19227 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_QPSK NR n66 Fundamentals, 15MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-type Cable								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch								
	1717.50	9.41	V	4.3	9.6	14.70	30.0	-15.3	
	1717.50	13.73	H	4.3	9.6	19.02	30.0	-11.0	
	Mid Ch								
	1745.00	9.03	V	4.3	9.7	14.38	30.0	-15.6	
	1745.00	12.52	H	4.3	9.7	17.87	30.0	-12.1	
High Ch									
1772.50	9.47	V	4.4	9.7	14.80	30.0	-15.2		
1772.50	14.00	H	4.4	9.7	19.33	30.0	-10.7		
NR Band 66 15MHz DFT-s 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 10/25/2021 Test Engineer: 19227 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_16QAM NR n66 Fundamentals, 15MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-type Cable								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch								
	1717.50	8.65	V	4.3	9.6	13.94	30.0	-16.1	
	1717.50	12.46	H	4.3	9.6	17.75	30.0	-12.3	
	Mid Ch								
	1745.00	8.09	V	4.3	9.7	13.44	30.0	-16.6	
	1745.00	11.87	H	4.3	9.7	17.22	30.0	-12.8	
High Ch									
1772.50	8.46	V	4.4	9.7	13.79	30.0	-16.2		
1772.50	12.91	H	4.4	9.7	18.24	30.0	-11.8		

NR Band 66 10MHz DFT-s QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																																	
	Company:		Samsung																																																																																															
	Project #:		4790089631																																																																																															
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	Mode:		LTE_QPSK NR n66 Fundamentals, 10MHz Bandwidth																																																																																															
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f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
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NR Band 66 5MHz DFT-s QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 10/25/2021 Test Engineer: 19227 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_QPSK NR n66 Fundamentals, 5MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-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	13.34	V	4.3	9.6	18.62	30.0	-11.4	
	1712.50	13.14	H	4.3	9.6	18.42	30.0	-11.6	
	Mid Ch								
	1745.00	13.85	V	4.3	9.7	19.20	30.0	-10.8	
	1745.00	13.24	H	4.3	9.7	18.59	30.0	-11.4	
High Ch									
1777.50	13.08	V	4.4	9.7	18.41	30.0	-11.6		
1777.50	14.66	H	4.4	9.7	19.99	30.0	-10.0		
NR Band 66 5MHz DFT-s 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4790089631 Date: 10/25/2021 Test Engineer: 19227 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_16QAM NR n66 Fundamentals, 5MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-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	12.27	V	4.3	9.6	17.55	30.0	-12.5	
	1712.50	12.45	H	4.3	9.6	17.73	30.0	-12.3	
	Mid Ch								
	1745.00	12.40	V	4.3	9.7	17.75	30.0	-12.3	
	1745.00	12.42	H	4.3	9.7	17.77	30.0	-12.2	
High Ch									
1777.50	12.09	V	4.4	9.7	17.42	30.0	-12.6		
1777.50	13.91	H	4.4	9.7	19.24	30.0	-10.8		

9.6. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

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

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:

(c)(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB.

(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

(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) 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.

Part 90.691(a):

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz. (NOTE : Use 100kHz reference bandwidth)

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

TEST PROCEDURE

ANSI / TIA / EIA 603 E Clause 2.2.12; ESU40 setting reference to 971168 D01 v03r01

For peak power measurement with a ESU40:

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

NOTE

5G NR: All Waveforms (CP-OFDM vs DFT-s OFDM) and modulations (QPSK, 16QAM, 64QAM, 256QAM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

RESULTS

See the following pages.

NOTE : Please refer to section 5.4 for bandwidth and RB setting about LTE,NR bands.

9.6.1. SPURIOUS RADIATION PLOTS

GSM850

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement								
		Company: Samsung Project #: 4790089631 Date: 9/13/2021 Test Engineer: 20881 Configuration: EUT, X-Position Location: Chamber 1 Mode: GPRS 850 MHz Harmonics Test Voltage: AC 120 V, 60 Hz								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Ch, 824.2MHz										
1648.40	-9.0	V	3.0	45.6	1.0	-53.7	-13.0	-40.7		
2472.60	-10.7	V	3.0	45.4	1.0	-55.1	-13.0	-42.1		
3296.80	-8.8	V	3.0	45.7	1.0	-53.5	-13.0	-40.5		
1648.40	-4.6	H	3.0	45.6	1.0	-49.2	-13.0	-36.2		
2472.60	-9.6	H	3.0	45.4	1.0	-54.1	-13.0	-41.1		
3296.80	-9.0	H	3.0	45.7	1.0	-53.7	-13.0	-40.7		
Mid Ch, 836.6MHz										
1673.20	-9.0	V	3.0	45.6	1.0	-53.6	-13.0	-40.6		
2509.80	-9.4	V	3.0	45.5	1.0	-53.8	-13.0	-40.8		
3346.40	-12.0	V	3.0	45.7	1.0	-56.7	-13.0	-43.7		
1673.20	-2.8	H	3.0	45.6	1.0	-47.4	-13.0	-34.4		
2509.80	-3.8	H	3.0	45.5	1.0	-48.3	-13.0	-35.3		
3346.40	-8.8	H	3.0	45.7	1.0	-53.4	-13.0	-40.4		
High Ch, 848.8MHz										
1697.60	-5.6	V	3.0	45.6	1.0	-50.2	-13.0	-37.2		
2546.40	-2.0	V	3.0	45.5	1.0	-46.4	-13.0	-33.4		
3395.20	-8.4	V	3.0	45.7	1.0	-53.1	-13.0	-40.1		
1697.60	-1.9	H	3.0	45.6	1.0	-46.5	-13.0	-33.5		
2546.40	0.4	H	3.0	45.5	1.0	-44.0	-13.0	-31.0		
3395.20	-8.4	H	3.0	45.7	1.0	-53.1	-13.0	-40.1		

GSM850
GPRS

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4790089631							
Date:		9/13/2021							
Test Engineer:		20881							
Configuration:		EUT, X-Position							
Location:		Chamber 1							
Mode:		EGPRS 850 MHz Harmonics							
Test Voltage:		AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2MHz									
1648.40	-14.7	V	3.0	45.6	1.0	-59.4	-13.0	-46.4	
2472.60	-11.3	V	3.0	45.4	1.0	-55.7	-13.0	-42.7	
3296.80	-8.9	V	3.0	45.7	1.0	-53.6	-13.0	-40.6	
Mid Ch, 836.6MHz									
1673.20	-14.4	V	3.0	45.6	1.0	-59.0	-13.0	-46.0	
2509.80	-11.3	V	3.0	45.5	1.0	-55.8	-13.0	-42.8	
3346.40	-8.8	V	3.0	45.7	1.0	-53.5	-13.0	-40.5	
1673.20	-14.0	H	3.0	45.6	1.0	-58.6	-13.0	-45.6	
2509.80	-11.7	H	3.0	45.5	1.0	-56.1	-13.0	-43.1	
3346.40	-8.8	H	3.0	45.7	1.0	-53.5	-13.0	-40.5	
High Ch, 848.8MHz									
1697.60	-13.3	V	3.0	45.6	1.0	-57.9	-13.0	-44.9	
2546.40	-9.9	V	3.0	45.5	1.0	-54.4	-13.0	-41.4	
3395.20	-8.4	V	3.0	45.7	1.0	-53.1	-13.0	-40.1	
1697.60	-11.9	H	3.0	45.6	1.0	-56.4	-13.0	-43.4	
2546.40	-7.9	H	3.0	45.5	1.0	-52.3	-13.0	-39.3	
3395.20	-8.4	H	3.0	45.7	1.0	-53.1	-13.0	-40.1	

GSM1900

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4790089631							
Date:		9/13/2021							
Test Engineer:		20881							
Configuration:		EUT / AC Adapter, Z-Position							
Location:		Chamber 1							
Mode:		GPRS 1900 MHz Harmonics							
Test Voltage:		AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2MHz									
3700.40	1.1	V	3.0	45.8	1.0	-43.7	-13.0	-30.7	
5550.60	-3.4	V	3.0	45.7	1.0	-48.2	-13.0	-35.2	
7400.80	-2.8	V	3.0	44.6	1.0	-46.3	-13.0	-33.3	
Mid Ch, 1880MHz									
3700.40	4.0	H	3.0	45.8	1.0	-40.8	-13.0	-27.8	
5550.60	-4.4	H	3.0	45.7	1.0	-49.2	-13.0	-36.2	
7400.80	-3.2	H	3.0	44.6	1.0	-46.8	-13.0	-33.8	
High Ch, 1909.8MHz									
3760.00	0.7	V	3.0	45.8	1.0	-44.1	-13.0	-31.1	
5640.00	-1.0	V	3.0	45.7	1.0	-45.8	-13.0	-32.8	
7520.00	-3.0	V	3.0	44.5	1.0	-46.5	-13.0	-33.5	
3760.00	4.5	H	3.0	45.8	1.0	-40.4	-13.0	-27.4	
5640.00	-5.4	H	3.0	45.7	1.0	-50.2	-13.0	-37.2	
7520.00	-3.1	H	3.0	44.5	1.0	-46.6	-13.0	-33.6	
High Ch, 1909.8MHz									
3819.60	1.8	V	3.0	45.8	1.0	-43.0	-13.0	-30.0	
5729.40	-1.5	V	3.0	45.7	1.0	-46.2	-13.0	-33.2	
7639.20	-3.6	V	3.0	44.4	1.0	-47.0	-13.0	-34.0	
3819.60	5.0	H	3.0	45.8	1.0	-39.8	-13.0	-26.8	
5729.40	-4.5	H	3.0	45.7	1.0	-49.3	-13.0	-36.3	
7639.20	-3.0	H	3.0	44.4	1.0	-46.5	-13.0	-33.5	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
GSM1900 EGPRS		Company:		Samsung					
		Project #:		4790089631					
		Date:		9/13/2021					
		Test Engineer:		20881					
		Configuration:		EUT / AC Adapter, Z-Position					
		Location:		Chamber 1					
		Mode:		EGPRS 1900 MHz Harmonics					
Test Voltage:		AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2MHz									
3700.40	-7.5	V	3.0	45.8	1.0	-52.3	-13.0	-39.3	
5550.60	-7.2	V	3.0	45.7	1.0	-52.0	-13.0	-39.0	
7400.80	-5.2	V	3.0	44.6	1.0	-48.7	-13.0	-35.7	
3700.40	-5.7	H	3.0	45.8	1.0	-50.5	-13.0	-37.5	
5550.60	-7.2	H	3.0	45.7	1.0	-51.9	-13.0	-38.9	
7400.80	-5.3	H	3.0	44.6	1.0	-48.9	-13.0	-35.9	
Mid Ch, 1880MHz									
3760.00	-6.6	V	3.0	45.8	1.0	-51.4	-13.0	-38.4	
5640.00	-4.2	V	3.0	45.7	1.0	-49.0	-13.0	-36.0	
7520.00	-5.3	V	3.0	44.5	1.0	-48.8	-13.0	-35.8	
3760.00	-5.4	H	3.0	45.8	1.0	-50.2	-13.0	-37.2	
5640.00	-7.8	H	3.0	45.7	1.0	-52.5	-13.0	-39.5	
7520.00	-5.4	H	3.0	44.5	1.0	-48.9	-13.0	-35.9	
High Ch, 1909.8MHz									
3819.60	-4.6	V	3.0	45.8	1.0	-49.5	-13.0	-36.5	
5729.40	-5.7	V	3.0	45.7	1.0	-50.4	-13.0	-37.4	
7639.20	-5.2	V	3.0	44.4	1.0	-48.6	-13.0	-35.6	
3819.60	-0.7	H	3.0	45.8	1.0	-45.6	-13.0	-32.6	
5729.40	-7.8	H	3.0	45.7	1.0	-52.5	-13.0	-39.5	
7639.20	-5.2	H	3.0	44.4	1.0	-48.6	-13.0	-35.6	

WCDMA Band 5

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Band 5 REL99		Company:		Samsung							
		Project #:		4790089631							
		Date:		9/13/2021							
		Test Engineer:		19568							
		Configuration:		EUT / AC Adapter, Z-Position							
		Location:		Chamber 2							
		Mode:		Rel99 Band 5 Harmonics							
		Test Voltage:		AC 120 V, 60 Hz							
		f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
		Low Ch, 826.4MHz									
1652.80	-15.3	V	3.0	40.9	1.0	-55.2	-13.0	-42.2			
2479.20	-12.5	V	3.0	41.6	1.0	-53.1	-13.0	-40.1			
3305.60	-9.6	V	3.0	42.3	1.0	-50.9	-13.0	-37.9			
1652.80	-16.0	H	3.0	40.9	1.0	-55.9	-13.0	-42.9			
2479.20	-12.9	H	3.0	41.6	1.0	-53.4	-13.0	-40.4			
3305.60	-9.7	H	3.0	42.3	1.0	-51.0	-13.0	-38.0			
Mid Ch, 836.6MHz											
1673.20	-15.3	V	3.0	40.9	1.0	-55.2	-13.0	-42.2			
2509.80	-12.3	V	3.0	41.6	1.0	-52.9	-13.0	-39.9			
3346.40	-9.4	V	3.0	42.3	1.0	-50.7	-13.0	-37.7			
1673.20	-15.7	H	3.0	40.9	1.0	-55.6	-13.0	-42.6			
2509.80	-12.6	H	3.0	41.6	1.0	-53.2	-13.0	-40.2			
3346.40	-9.2	H	3.0	42.3	1.0	-50.5	-13.0	-37.5			
High Ch, 846.6MHz											
1693.20	-15.2	V	3.0	40.9	1.0	-55.2	-13.0	-42.2			
2539.80	-12.2	V	3.0	41.6	1.0	-52.9	-13.0	-39.9			
3386.40	-9.2	V	3.0	42.3	1.0	-50.5	-13.0	-37.5			
1693.20	-15.9	H	3.0	40.9	1.0	-55.8	-13.0	-42.8			
2539.80	-12.5	H	3.0	41.6	1.0	-53.1	-13.0	-40.1			
3386.40	-9.0	H	3.0	42.3	1.0	-50.3	-13.0	-37.3			
Band 5 HSDPA		Company:		Samsung							
		Project #:		4790089631							
		Date:		9/13/2021							
		Test Engineer:		19568							
		Configuration:		EUT / AC Adapter, Z-Position							
		Location:		Chamber 2							
		Mode:		HSDPA Band 5 Harmonics							
		Test Voltage:		AC 120 V, 60 Hz							
		f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
		Low Ch, 826.4MHz									
1652.80	-15.4	V	3.0	40.9	1.0	-55.3	-13.0	-42.3			
2479.20	-12.4	V	3.0	41.6	1.0	-52.9	-13.0	-39.9			
3305.60	-9.7	V	3.0	42.3	1.0	-51.0	-13.0	-38.0			
1652.80	-16.0	H	3.0	40.9	1.0	-55.9	-13.0	-42.9			
2479.20	-12.7	H	3.0	41.6	1.0	-53.3	-13.0	-40.3			
3305.60	-9.7	H	3.0	42.3	1.0	-51.0	-13.0	-38.0			
Mid Ch, 836.6MHz											
1673.20	-15.1	V	3.0	40.9	1.0	-55.0	-13.0	-42.0			
2509.80	-12.1	V	3.0	41.6	1.0	-52.7	-13.0	-39.7			
3346.40	-9.4	V	3.0	42.3	1.0	-50.7	-13.0	-37.7			
1673.20	-15.9	H	3.0	40.9	1.0	-55.9	-13.0	-42.9			
2509.80	-12.8	H	3.0	41.6	1.0	-53.3	-13.0	-40.3			
3346.40	-9.4	H	3.0	42.3	1.0	-50.7	-13.0	-37.7			
High Ch, 846.6MHz											
1693.20	-15.3	V	3.0	40.9	1.0	-55.2	-13.0	-42.2			
2539.80	-12.2	V	3.0	41.6	1.0	-52.9	-13.0	-39.9			
3386.40	-9.2	V	3.0	42.3	1.0	-50.5	-13.0	-37.5			
1693.20	-15.7	H	3.0	40.9	1.0	-55.7	-13.0	-42.7			
2539.80	-12.5	H	3.0	41.6	1.0	-53.1	-13.0	-40.1			
3386.40	-9.1	H	3.0	42.3	1.0	-50.4	-13.0	-37.4			

WCDMA Band 4

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		Samsung								
Project #:		4790089631								
Date:		9/14/2021								
Test Engineer:		22943								
Configuration:		EUT / AC Adapter, X-Position								
Location:		Chamber 2								
Mode:		Rel99 Band 4 Harmonics								
Test Voltage:		AC 120 V, 60 Hz								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Ch, 1712.4MHz										
3424.80	-9.4	V	3.0	42.3	1.0	-50.7	-13.0	-37.7		
5137.20	-9.4	V	3.0	43.1	1.0	-51.5	-13.0	-38.5		
6849.60	-6.7	V	3.0	43.0	1.0	-48.6	-13.0	-35.6		
3424.80	-9.4	H	3.0	42.3	1.0	-50.7	-13.0	-37.7		
5137.20	-9.2	H	3.0	43.1	1.0	-51.3	-13.0	-38.3		
6849.60	-6.5	H	3.0	43.0	1.0	-48.5	-13.0	-35.5		
Mid Ch, 1732.6MHz										
3465.20	-7.7	V	3.0	42.3	1.0	-49.0	-13.0	-36.0		
5197.80	-9.2	V	3.0	43.1	1.0	-51.2	-13.0	-38.2		
6930.40	-6.7	V	3.0	43.0	1.0	-48.7	-13.0	-35.7		
3465.20	-8.2	H	3.0	42.3	1.0	-49.5	-13.0	-36.5		
5197.80	-9.0	H	3.0	43.1	1.0	-51.1	-13.0	-38.1		
6930.40	-6.6	H	3.0	43.0	1.0	-48.5	-13.0	-35.5		
High Ch, 1752.6MHz										
3505.20	-7.7	V	3.0	42.3	1.0	-49.0	-13.0	-36.0		
5257.80	-9.2	V	3.0	43.1	1.0	-51.3	-13.0	-38.3		
7010.40	-6.5	V	3.0	42.9	1.0	-48.4	-13.0	-35.4		
3505.20	-8.2	H	3.0	42.3	1.0	-49.5	-13.0	-36.5		
5257.80	-9.1	H	3.0	43.1	1.0	-51.2	-13.0	-38.2		
7010.40	-6.3	H	3.0	42.9	1.0	-48.2	-13.0	-35.2		

Band 4
REL99

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		Samsung								
Project #:		4790089631								
Date:		9/14/2021								
Test Engineer:		22943								
Configuration:		EUT / AC Adapter, X-Position								
Location:		Chamber 2								
Mode:		HSDPA Band 4 Harmonics								
Test Voltage:		AC 120 V, 60 Hz								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Ch, 1712.4MHz										
3424.80	-9.6	V	3.0	42.3	1.0	-50.9	-13.0	-37.9		
5137.20	-9.3	V	3.0	43.1	1.0	-51.4	-13.0	-38.4		
6849.60	-6.7	V	3.0	43.0	1.0	-48.7	-13.0	-35.7		
3424.80	-9.6	H	3.0	42.3	1.0	-50.9	-13.0	-37.9		
5137.20	-9.2	H	3.0	43.1	1.0	-51.2	-13.0	-38.2		
6849.60	-6.5	H	3.0	43.0	1.0	-48.5	-13.0	-35.5		
Mid Ch, 1732.6MHz										
3465.20	-8.4	V	3.0	42.3	1.0	-49.7	-13.0	-36.7		
5197.80	-9.1	V	3.0	43.1	1.0	-51.2	-13.0	-38.2		
6930.40	-6.7	V	3.0	43.0	1.0	-48.7	-13.0	-35.7		
3465.20	-8.7	H	3.0	42.3	1.0	-50.0	-13.0	-37.0		
5197.80	-8.9	H	3.0	43.1	1.0	-51.0	-13.0	-38.0		
6930.40	-6.5	H	3.0	43.0	1.0	-48.4	-13.0	-35.4		
High Ch, 1752.6MHz										
3505.20	-7.8	V	3.0	42.3	1.0	-49.1	-13.0	-36.1		
5257.80	-9.2	V	3.0	43.1	1.0	-51.3	-13.0	-38.3		
7010.40	-6.5	V	3.0	42.9	1.0	-48.4	-13.0	-35.4		
3505.20	-8.7	H	3.0	42.3	1.0	-50.1	-13.0	-37.1		
5257.80	-9.1	H	3.0	43.1	1.0	-51.2	-13.0	-38.2		
7010.40	-6.3	H	3.0	42.9	1.0	-48.2	-13.0	-35.2		

Band 4
HSDPA

WCDMA Band 2

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4790089631							
Date:		9/13/2021							
Test Engineer:		19227							
Configuration:		EUT / AC Adapter, X-Position							
Location:		Chamber 2							
Mode:		Rel99 Band 2 Harmonics							
Test Voltage:		AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4MHz									
3704.80	-11.7	V	3.0	42.3	1.0	-53.1	-13.0	-40.1	
5557.20	-8.5	V	3.0	43.1	1.0	-50.7	-13.0	-37.7	
7409.60	-6.5	V	3.0	42.7	1.0	-48.2	-13.0	-35.2	
3704.80	-11.6	H	3.0	42.3	1.0	-52.9	-13.0	-39.9	
5557.20	-8.5	H	3.0	43.1	1.0	-50.7	-13.0	-37.7	
7409.60	-6.4	H	3.0	42.7	1.0	-48.2	-13.0	-35.2	
Mid Ch, 1880MHz									
3760.00	-11.4	V	3.0	42.3	1.0	-52.8	-13.0	-39.8	
5640.00	-8.2	V	3.0	43.2	1.0	-50.4	-13.0	-37.4	
7520.00	-6.6	V	3.0	42.7	1.0	-48.2	-13.0	-35.2	
3760.00	-11.3	H	3.0	42.3	1.0	-52.6	-13.0	-39.6	
5640.00	-8.2	H	3.0	43.2	1.0	-50.4	-13.0	-37.4	
7520.00	-6.6	H	3.0	42.7	1.0	-48.3	-13.0	-35.3	
High Ch, 1907.6MHz									
3815.20	-11.5	V	3.0	42.3	1.0	-52.8	-13.0	-39.8	
5722.80	-8.5	V	3.0	43.2	1.0	-50.7	-13.0	-37.7	
7630.40	-6.6	V	3.0	42.6	1.0	-48.2	-13.0	-35.2	
3815.20	-11.0	H	3.0	42.3	1.0	-52.4	-13.0	-39.4	
5722.80	-8.4	H	3.0	43.2	1.0	-50.6	-13.0	-37.6	
7630.40	-6.1	H	3.0	42.6	1.0	-47.7	-13.0	-34.7	

Band 2
REL99

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4790089631							
Date:		9/13/2021							
Test Engineer:		19227							
Configuration:		EUT / AC Adapter, X-Position							
Location:		Chamber 2							
Mode:		HSDPA Band 2 Harmonics							
Test Voltage:		AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4MHz									
3704.80	-11.7	V	3.0	42.3	1.0	-53.0	-13.0	-40.0	
5557.20	-8.5	V	3.0	43.1	1.0	-50.6	-13.0	-37.6	
7409.60	-6.6	V	3.0	42.7	1.0	-48.3	-13.0	-35.3	
3704.80	-11.5	H	3.0	42.3	1.0	-52.8	-13.0	-39.8	
5557.20	-8.3	H	3.0	43.1	1.0	-50.4	-13.0	-37.4	
7409.60	-6.4	H	3.0	42.7	1.0	-48.1	-13.0	-35.1	
Mid Ch, 1880MHz									
3760.00	-11.6	V	3.0	42.3	1.0	-52.9	-13.0	-39.9	
5640.00	-8.2	V	3.0	43.2	1.0	-50.4	-13.0	-37.4	
7520.00	-6.7	V	3.0	42.7	1.0	-48.3	-13.0	-35.3	
3760.00	-11.3	H	3.0	42.3	1.0	-52.6	-13.0	-39.6	
5640.00	-8.2	H	3.0	43.2	1.0	-50.4	-13.0	-37.4	
7520.00	-6.7	H	3.0	42.7	1.0	-48.4	-13.0	-35.4	
High Ch, 1907.6MHz									
3815.20	-11.5	V	3.0	42.3	1.0	-52.8	-13.0	-39.8	
5722.80	-8.2	V	3.0	43.2	1.0	-50.4	-13.0	-37.4	
7630.40	-6.5	V	3.0	42.6	1.0	-48.1	-13.0	-35.1	
3815.20	-11.3	H	3.0	42.3	1.0	-52.6	-13.0	-39.6	
5722.80	-8.4	H	3.0	43.2	1.0	-50.6	-13.0	-37.6	
7630.40	-6.6	H	3.0	42.6	1.0	-48.2	-13.0	-35.2	

Band 2
HSDPA

LTE Band 12

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4790089631							
Date:		9/29/2021							
Test Engineer:		22943							
Configuration:		EUT / AC Adapter, Y-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 12 Harmonics, 10MHz Bandwidth							
Test Votage:		AC 120 V, 60 Hz							
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	-16.7	V	3.0	45.8	1.0	-61.5	-13.0	-48.5	
2112.00	-12.9	V	3.0	45.4	1.0	-57.3	-13.0	-44.3	
2816.00	-11.0	V	3.0	45.5	1.0	-55.5	-13.0	-42.5	
1408.00	-17.7	H	3.0	45.8	1.0	-62.5	-13.0	-49.5	
2112.00	-13.8	H	3.0	45.4	1.0	-58.2	-13.0	-45.2	
2816.00	-11.1	H	3.0	45.5	1.0	-55.6	-13.0	-42.6	
Mid Ch, 707.5MHz									
1415.00	-16.6	V	3.0	45.8	1.0	-61.5	-13.0	-48.5	
2122.50	-13.1	V	3.0	45.4	1.0	-57.4	-13.0	-44.4	
2830.00	-10.9	V	3.0	45.5	1.0	-55.4	-13.0	-42.4	
1415.00	-17.7	H	3.0	45.8	1.0	-62.5	-13.0	-49.5	
2122.50	-13.8	H	3.0	45.4	1.0	-58.2	-13.0	-45.2	
2830.00	-11.1	H	3.0	45.5	1.0	-55.6	-13.0	-42.6	
High Ch, 711MHz									
1422.00	-16.7	V	3.0	45.8	1.0	-61.5	-13.0	-48.5	
2133.00	-12.9	V	3.0	45.4	1.0	-57.3	-13.0	-44.3	
2844.00	-10.5	V	3.0	45.5	1.0	-55.0	-13.0	-42.0	
1422.00	-17.5	H	3.0	45.8	1.0	-62.3	-13.0	-49.3	
2133.00	-13.8	H	3.0	45.4	1.0	-58.2	-13.0	-45.2	
2844.00	-11.1	H	3.0	45.5	1.0	-55.6	-13.0	-42.6	

LTE
Band 12

10MHz

QPSK

LTE Band 13

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4790089631							
Date:		9/29/2021							
Test Engineer:		22943							
Configuration:		EUT, Y-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 13 Harmonics, 5MHz Bandwidth							
Test Voltage:		AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 779.5MHz									
1559.00	-24.0	V	3.0	45.7	1.0	-68.7	-40.0	-28.7	
2338.50	-11.8	V	3.0	45.4	1.0	-56.3	-13.0	-43.3	
3118.00	-10.1	V	3.0	45.6	1.0	-54.7	-13.0	-41.7	
1559.00	-26.3	H	3.0	45.7	1.0	-71.0	-40.0	-31.0	
2338.50	-12.6	H	3.0	45.4	1.0	-57.0	-13.0	-44.0	
3118.00	-9.9	H	3.0	45.6	1.0	-54.5	-13.0	-41.5	
Mid Ch, 782MHz									
1564.00	-23.8	V	3.0	45.7	1.0	-68.5	-40.0	-28.5	
2346.00	-12.0	V	3.0	45.4	1.0	-56.4	-13.0	-43.4	
3128.00	-10.2	V	3.0	45.6	1.0	-54.8	-13.0	-41.8	
1564.00	-26.5	H	3.0	45.7	1.0	-71.2	-40.0	-31.2	
2346.00	-12.8	H	3.0	45.4	1.0	-57.2	-13.0	-44.2	
3128.00	-9.8	H	3.0	45.6	1.0	-54.5	-13.0	-41.5	
High Ch, 784.5MHz									
1569.00	-24.0	V	3.0	45.7	1.0	-68.6	-40.0	-28.6	
2353.50	-12.1	V	3.0	45.4	1.0	-56.5	-13.0	-43.5	
3138.00	-10.1	V	3.0	45.6	1.0	-54.7	-13.0	-41.7	
1569.00	-26.4	H	3.0	45.7	1.0	-71.0	-40.0	-31.0	
2353.50	-12.3	H	3.0	45.4	1.0	-56.7	-13.0	-43.7	
3138.00	-9.8	H	3.0	45.6	1.0	-54.4	-13.0	-41.4	

Note : No narrowband emissions so only applied the -70dBW/MHz (-40dBm/MHz) wideband emission limit for the 1559-1610 MHz band

LTE Band 25

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4790089631							
Date:		9/30/2021							
Test Engineer:		22943							
Configuration:		EUT / AC Adapter, X-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 25 Harmonics, 20MHz Bandwidth							
Test Votage:		AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1860MHz									
3720.00	-9.9	V	3.0	45.8	1.0	-54.7	-13.0	-41.7	
5580.00	-8.4	V	3.0	45.7	1.0	-53.1	-13.0	-40.1	
7440.00	-5.9	V	3.0	44.5	1.0	-49.4	-13.0	-36.4	
3720.00	-8.4	H	3.0	45.8	1.0	-53.3	-13.0	-40.3	
5580.00	-8.8	H	3.0	45.7	1.0	-53.5	-13.0	-40.5	
7440.00	-5.8	H	3.0	44.5	1.0	-49.4	-13.0	-36.4	
Mid Ch, 1882.5MHz									
3765.00	-9.9	V	3.0	45.8	1.0	-54.8	-13.0	-41.8	
5647.50	-8.4	V	3.0	45.7	1.0	-53.2	-13.0	-40.2	
7530.00	-6.0	V	3.0	44.5	1.0	-49.5	-13.0	-36.5	
3765.00	-8.7	H	3.0	45.8	1.0	-53.6	-13.0	-40.6	
5647.50	-8.4	H	3.0	45.7	1.0	-53.2	-13.0	-40.2	
7530.00	-6.0	H	3.0	44.5	1.0	-49.5	-13.0	-36.5	
High Ch, 1905MHz									
3810.00	-9.1	V	3.0	45.8	1.0	-54.0	-13.0	-41.0	
5715.00	-8.4	V	3.0	45.7	1.0	-53.1	-13.0	-40.1	
7620.00	-5.7	V	3.0	44.4	1.0	-49.1	-13.0	-36.1	
3810.00	-7.6	H	3.0	45.8	1.0	-52.4	-13.0	-39.4	
5715.00	-8.2	H	3.0	45.7	1.0	-52.9	-13.0	-39.9	
7620.00	-5.6	H	3.0	44.4	1.0	-49.0	-13.0	-36.0	

LTE
 Band 25
 20MHz
 QPSK

LTE Band 26 (Part 90)

LTE Band 26 15MHz QPSK	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung Project #: 4790089631 Date: 9/30/2021 Test Engineer: 22943 Configuration: EUT / AC Adapter, Z-Position Location: Chamber 1 Mode: LTE_QPSK Band 26 Harmonics, 15MHz Bandwidth Test Voltage: AC 120 V, 60 Hz									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 821.5MHz									
	1643.00	-15.4	V	3.0	45.6	1.0	-60.0	-13.0	-47.0	
	2464.50	-11.9	V	3.0	45.4	1.0	-56.4	-13.0	-43.4	
	3286.00	-9.6	V	3.0	45.7	1.0	-54.3	-13.0	-41.3	
	1643.00	-16.2	H	3.0	45.6	1.0	-60.8	-13.0	-47.8	
	2464.50	-12.4	H	3.0	45.4	1.0	-56.9	-13.0	-43.9	
	3286.00	-9.7	H	3.0	45.7	1.0	-54.4	-13.0	-41.4	

LTE Band 26 (Straddle)

LTE Band 26 10MHz QPSK	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung Project #: 4790089631 Date: 9/30/2021 Test Engineer: 22943 Configuration: EUT / AC Adapter, Z-Position Location: Chamber 1 Mode: LTE_QPSK Band 26 Harmonics, 10MHz Bandwidth Test Voltage: AC 120 V, 60 Hz									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Straddle Ch, 824MHz									
	1648.00	-15.3	V	3.0	45.6	1.0	-59.9	-13.0	-46.9	
	2472.00	-11.9	V	3.0	45.4	1.0	-56.3	-13.0	-43.3	
	3296.00	-9.6	V	3.0	45.7	1.0	-54.3	-13.0	-41.3	
	1648.00	-15.7	H	3.0	45.6	1.0	-60.3	-13.0	-47.3	
	2472.00	-12.2	H	3.0	45.4	1.0	-56.7	-13.0	-43.7	
	3296.00	-9.6	H	3.0	45.7	1.0	-54.3	-13.0	-41.3	

LTE Band 26 (Part 22)

LTE Band 26 15MHz QPSK		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)
		Company: Samsung								
		Project #: 4790089631								
		Date: 9/29/2021								
		Test Engineer: 22943								
		Configuration: EUT / AC Adapter, Z-Position								
		Location: Chamber 1								
		Mode: LTE_QPSK Band 26 Harmonics, 15MHz Bandwidth								
		Test Voltage: AC 120 V, 60 Hz								
		Mid Ch, 831.5MHz								
		1663.00	-12.6	V	3.0	45.6	1.0	-57.2	-13.0	-44.2
		2494.50	-11.7	V	3.0	45.5	1.0	-56.2	-13.0	-43.2
		3326.00	-9.5	V	3.0	45.7	1.0	-54.2	-13.0	-41.2
		1663.00	-12.8	H	3.0	45.6	1.0	-57.4	-13.0	-44.4
		2494.50	-12.4	H	3.0	45.5	1.0	-56.8	-13.0	-43.8
		3326.00	-9.5	H	3.0	45.7	1.0	-54.1	-13.0	-41.1
		High Ch, 841.5MHz								
		1683.00	-15.2	V	3.0	45.6	1.0	-59.8	-13.0	-46.8
		2524.50	-11.9	V	3.0	45.5	1.0	-56.3	-13.0	-43.3
		3366.00	-9.3	V	3.0	45.7	1.0	-54.0	-13.0	-41.0
		1683.00	-16.0	H	3.0	45.6	1.0	-60.6	-13.0	-47.6
		2524.50	-12.2	H	3.0	45.5	1.0	-56.6	-13.0	-43.6
		3366.00	-9.4	H	3.0	45.7	1.0	-54.1	-13.0	-41.1

LTE Band 41 (PC2)

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4790089631							
Date:		9/30/2021							
Test Engineer:		22943							
Configuration:		EUT / AC Adapter, Z-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 41 Harmonics, 20MHz Bandwidth							
Test Votage:		AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2506MHz									
5012.00	6.1	V	3.0	45.8	1.0	-38.7	-25.0	-13.7	
7518.00	5.3	V	3.0	44.5	1.0	-38.2	-25.0	-13.2	
10024.00	-6.2	V	3.0	42.6	1.0	-47.8	-25.0	-22.8	
12530.00	-0.8	V	3.0	43.7	1.0	-43.5	-25.0	-18.5	
15036.00	-6.0	V	3.0	45.7	1.0	-50.7	-25.0	-25.7	
5012.00	5.2	H	3.0	45.8	1.0	-39.6	-25.0	-14.6	
7518.00	8.5	H	3.0	44.5	1.0	-35.0	-25.0	-10.0	
10024.00	-6.6	H	3.0	42.6	1.0	-48.2	-25.0	-23.2	
12530.00	-1.5	H	3.0	43.7	1.0	-44.2	-25.0	-19.2	
15036.00	-2.3	H	3.0	45.7	1.0	-47.0	-25.0	-22.0	
Mid Ch, 2593MHz									
5186.00	4.0	V	3.0	45.8	1.0	-40.8	-25.0	-15.8	
7779.00	0.2	V	3.0	44.4	1.0	-43.2	-25.0	-18.2	
10372.00	-4.4	V	3.0	42.7	1.0	-46.1	-25.0	-21.1	
12965.00	0.5	V	3.0	44.0	1.0	-42.5	-25.0	-17.5	
15558.00	-5.9	V	3.0	45.1	1.0	-50.0	-25.0	-25.0	
5186.00	7.4	H	3.0	45.8	1.0	-37.4	-25.0	-12.4	
7779.00	4.9	H	3.0	44.4	1.0	-38.4	-25.0	-13.4	
10372.00	-5.5	H	3.0	42.7	1.0	-47.2	-25.0	-22.2	
12965.00	7.2	H	3.0	44.0	1.0	-35.8	-25.0	-10.8	
15558.00	-4.9	H	3.0	45.1	1.0	-49.0	-25.0	-24.0	
High Ch, 2680MHz									
5360.00	0.3	V	3.0	45.8	1.0	-44.5	-25.0	-19.5	
8040.00	0.1	V	3.0	44.2	1.0	-43.1	-25.0	-18.1	
10720.00	-5.7	V	3.0	42.8	1.0	-47.5	-25.0	-22.5	
13400.00	-2.8	V	3.0	44.4	1.0	-46.2	-25.0	-21.2	
16080.00	-5.6	V	3.0	44.5	1.0	-49.1	-25.0	-24.1	
5360.00	5.2	H	3.0	45.8	1.0	-39.6	-25.0	-14.6	
8040.00	1.1	H	3.0	44.2	1.0	-42.2	-25.0	-17.2	
10720.00	-2.8	H	3.0	42.8	1.0	-44.6	-25.0	-19.6	
13400.00	-2.9	H	3.0	44.4	1.0	-46.4	-25.0	-21.4	
16080.00	-4.6	H	3.0	44.5	1.0	-48.1	-25.0	-23.1	

LTE
 Band 41
 (PC2)
 20MHz
 QPSK

LTE Band 66

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4790089631							
Date:		10/1/2021							
Test Engineer:		22943							
Configuration:		EUT / AC Adapter, X-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 66 Harmonics, 20MHz Bandwidth							
Test Voltage:		AC 120 V, 60 Hz							
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	-2.4	V	3.0	45.7	1.0	-47.1	-13.0	-34.1	
5160.00	-9.7	V	3.0	45.8	1.0	-54.5	-13.0	-41.5	
6880.00	-6.3	V	3.0	44.9	1.0	-50.2	-13.0	-37.2	
3440.00	-1.4	H	3.0	45.7	1.0	-46.1	-13.0	-33.1	
5160.00	-9.5	H	3.0	45.8	1.0	-54.3	-13.0	-41.3	
6880.00	-6.4	H	3.0	44.9	1.0	-50.3	-13.0	-37.3	
Mid Ch, 1745MHz									
3490.00	-7.0	V	3.0	45.7	1.0	-51.7	-13.0	-38.7	
5235.00	-9.2	V	3.0	45.8	1.0	-54.0	-13.0	-41.0	
6980.00	-6.0	V	3.0	44.8	1.0	-49.8	-13.0	-36.8	
3490.00	-5.6	H	3.0	45.7	1.0	-50.4	-13.0	-37.4	
5235.00	-9.1	H	3.0	45.8	1.0	-53.9	-13.0	-40.9	
6980.00	-6.2	H	3.0	44.8	1.0	-50.0	-13.0	-37.0	
High Ch, 1770MHz									
3540.00	-3.6	V	3.0	45.8	1.0	-48.3	-13.0	-35.3	
5310.00	-9.1	V	3.0	45.8	1.0	-53.9	-13.0	-40.9	
7080.00	-5.9	V	3.0	44.7	1.0	-49.6	-13.0	-36.6	
3540.00	-3.1	H	3.0	45.8	1.0	-47.9	-13.0	-34.9	
5310.00	-9.0	H	3.0	45.8	1.0	-53.8	-13.0	-40.8	
7080.00	-6.0	H	3.0	44.7	1.0	-49.8	-13.0	-36.8	

LTE
 Band 66
 20MHz
 QPSK

NR Band 5

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4790089631							
Date:		10/25/2021							
Test Engineer:		19227							
Configuration:		EUT / AC Adapter, Z-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK NR n5 Harmonics, 5MHz Bandwidth							
Test Voltage:		AC 120 V, 60 Hz							
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	-15.6	V	3.0	45.6	1.0	-60.2	-13.0	-47.2	
2479.50	-12.0	V	3.0	45.5	1.0	-56.5	-13.0	-43.5	
3306.00	-9.7	V	3.0	45.7	1.0	-54.4	-13.0	-41.4	
Mid Ch, 836.5MHz									
1673.00	-15.4	V	3.0	45.6	1.0	-60.1	-13.0	-47.1	
2509.50	-12.0	V	3.0	45.5	1.0	-56.5	-13.0	-43.5	
3346.00	-9.5	V	3.0	45.7	1.0	-54.2	-13.0	-41.2	
1673.00	-15.2	H	3.0	45.6	1.0	-59.8	-13.0	-46.8	
2509.50	-12.4	H	3.0	45.5	1.0	-56.9	-13.0	-43.9	
3346.00	-9.4	H	3.0	45.7	1.0	-54.1	-13.0	-41.1	
High Ch, 846.5MHz									
1693.00	-15.3	V	3.0	45.6	1.0	-59.9	-13.0	-46.9	
2539.50	-11.9	V	3.0	45.5	1.0	-56.4	-13.0	-43.4	
3386.00	-9.2	V	3.0	45.7	1.0	-53.9	-13.0	-40.9	
1693.00	-16.4	H	3.0	45.6	1.0	-61.0	-13.0	-48.0	
2539.50	-12.5	H	3.0	45.5	1.0	-56.9	-13.0	-43.9	
3386.00	-9.2	H	3.0	45.7	1.0	-53.9	-13.0	-40.9	

NR
 Band 5
 5MHz
 QPSK

NR Band 66

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4790089631							
Date:		10/25/2021							
Test Engineer:		19227							
Configuration:		EUT / AC Adapter, Z-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK NR n66 Harmonics, 10MHz Bandwidth							
Test Voltage:		AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1715MHz									
3430.00	-124.0	V	3.0	45.7	1.0	-168.7	-13.0	-155.7	
5145.00	-131.9	V	3.0	45.8	1.0	-176.7	-13.0	-163.7	
6860.00	-132.1	V	3.0	44.9	1.0	-175.9	-13.0	-162.9	
3430.00	-123.9	H	3.0	45.7	1.0	-168.6	-13.0	-155.6	
5145.00	-131.8	H	3.0	45.8	1.0	-176.6	-13.0	-163.6	
6860.00	-132.1	H	3.0	44.9	1.0	-176.0	-13.0	-163.0	
Mid Ch, 1745MHz									
3490.00	-123.7	V	3.0	45.7	1.0	-168.4	-13.0	-155.4	
5235.00	-131.5	V	3.0	45.8	1.0	-176.3	-13.0	-163.3	
6980.00	-131.7	V	3.0	44.8	1.0	-175.5	-13.0	-162.5	
3490.00	-123.5	H	3.0	45.7	1.0	-168.2	-13.0	-155.2	
5235.00	-131.3	H	3.0	45.8	1.0	-176.1	-13.0	-163.1	
6980.00	-131.8	H	3.0	44.8	1.0	-175.6	-13.0	-162.6	
High Ch, 1775MHz									
3550.00	-123.2	V	3.0	45.8	1.0	-168.0	-13.0	-155.0	
5325.00	-129.4	V	3.0	45.8	1.0	-174.2	-13.0	-161.2	
10650.00	-132.3	V	3.0	42.8	1.0	-174.1	-13.0	-161.1	
3550.00	-123.5	H	3.0	45.8	1.0	-168.2	-13.0	-155.2	
5325.00	-131.2	H	3.0	45.8	1.0	-176.0	-13.0	-163.0	
7100.00	-132.0	H	3.0	44.7	1.0	-175.7	-13.0	-162.7	

NR
 Band 66
 10MHz
 QPSK

END OF REPORT