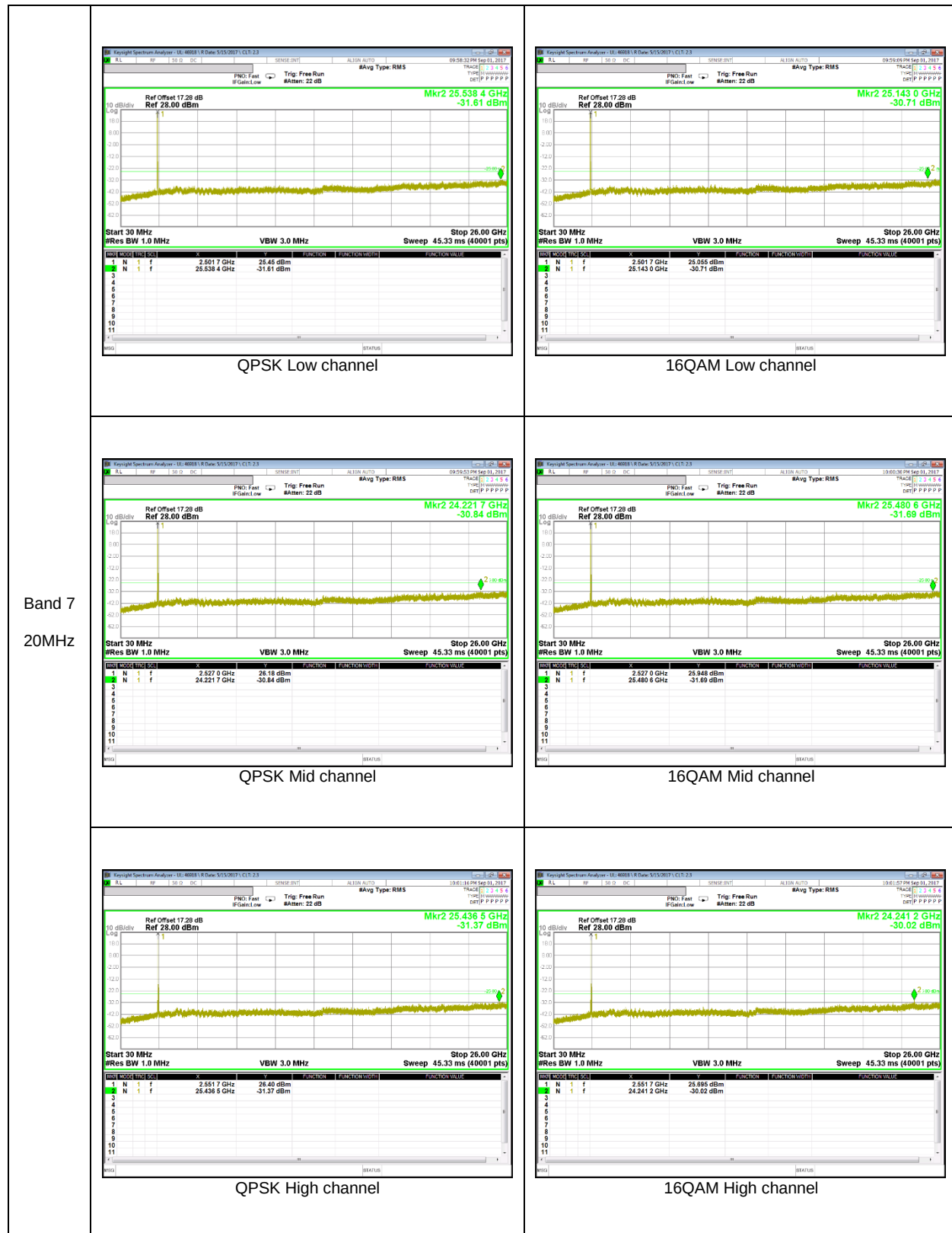
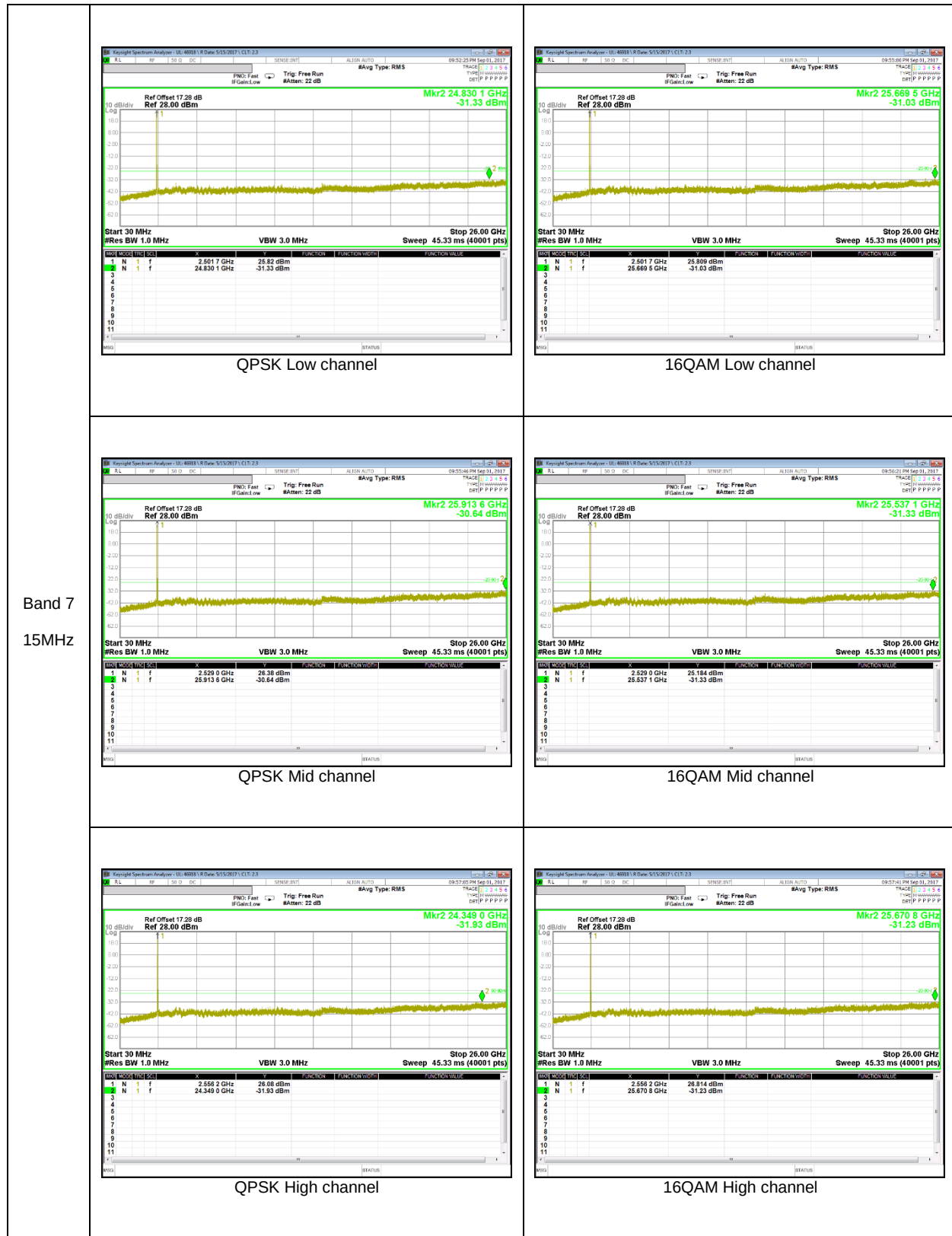
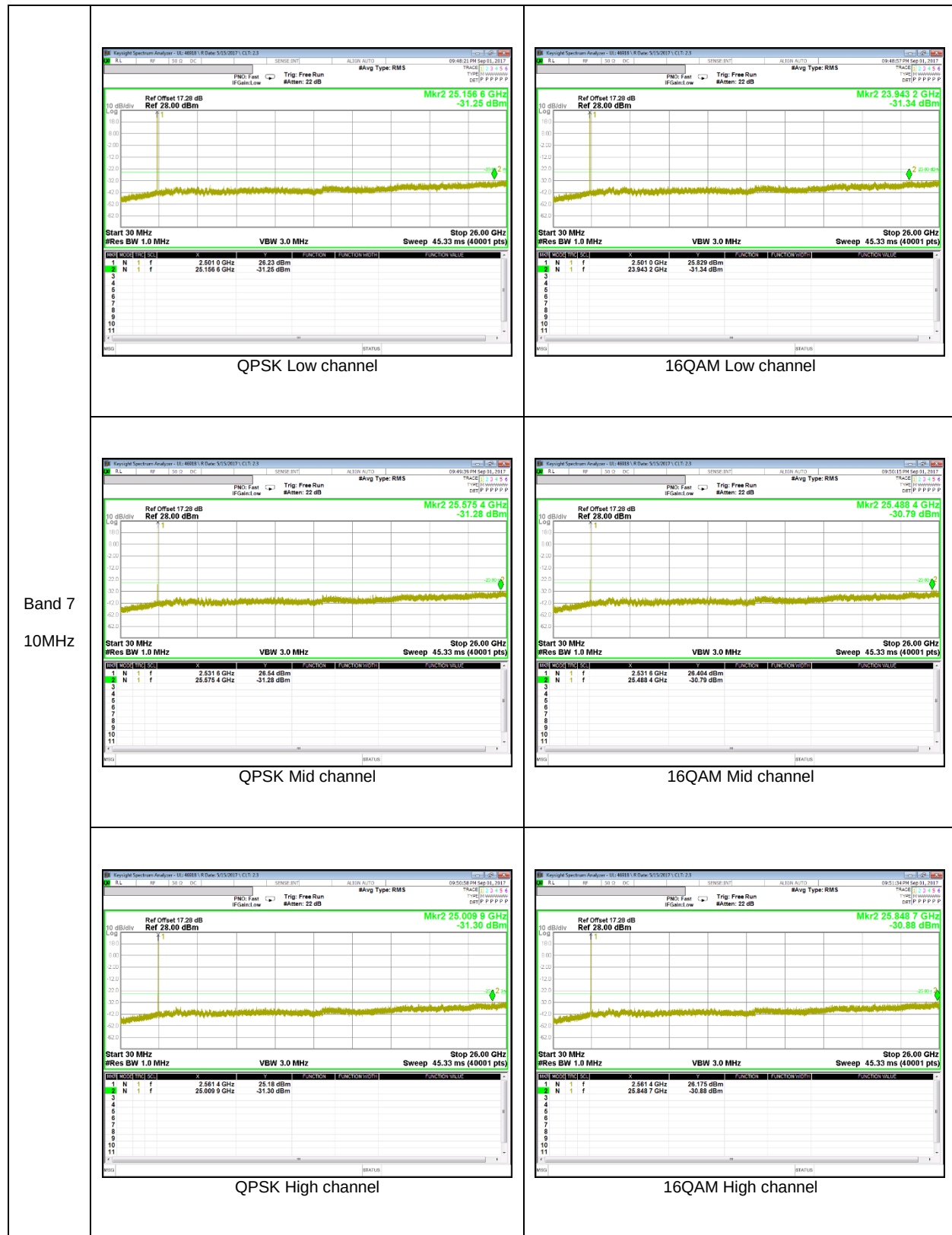
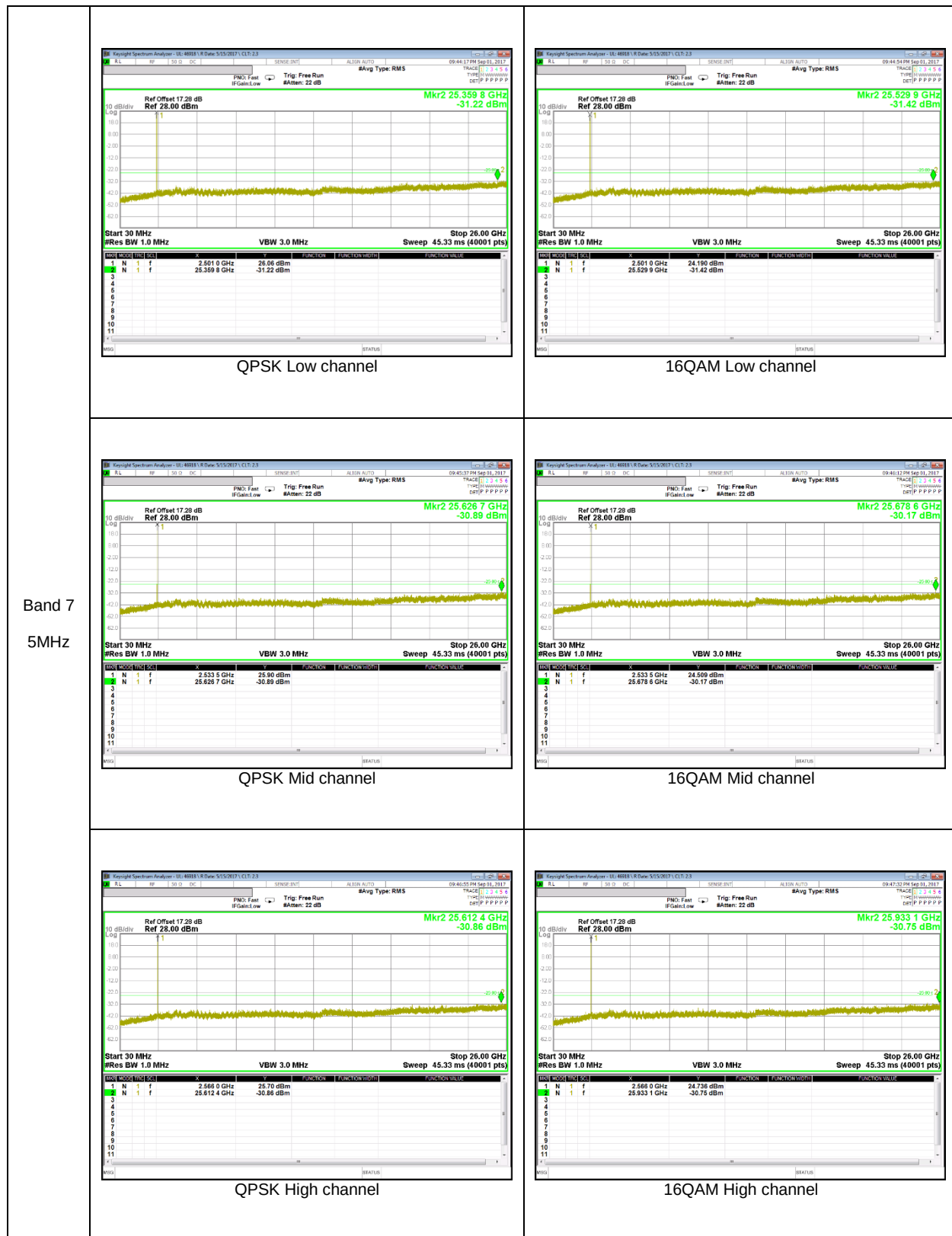


LTE Band 7

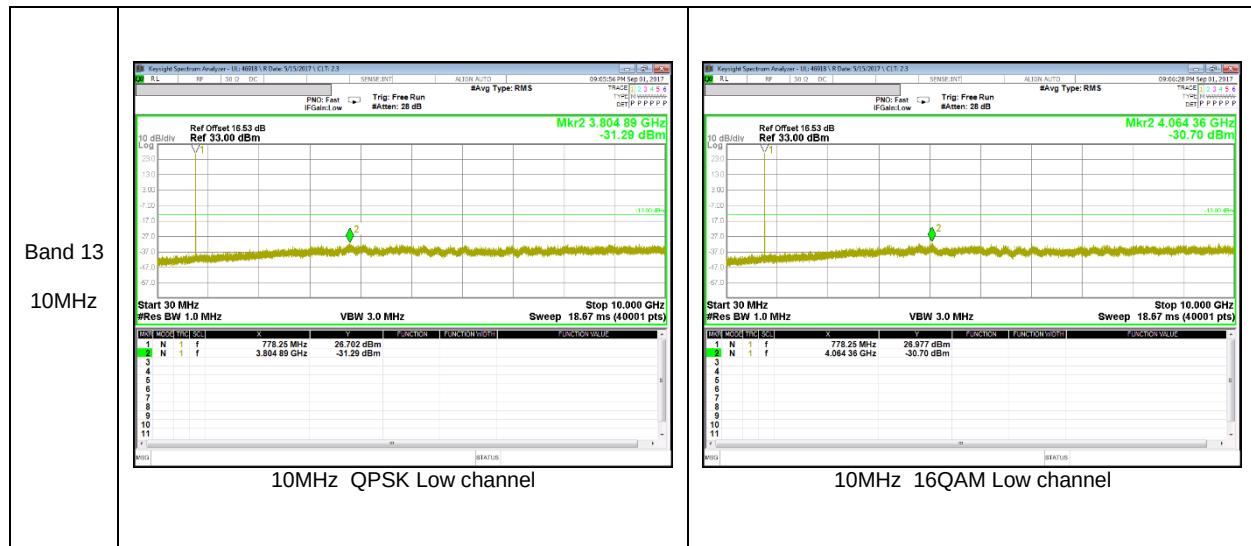


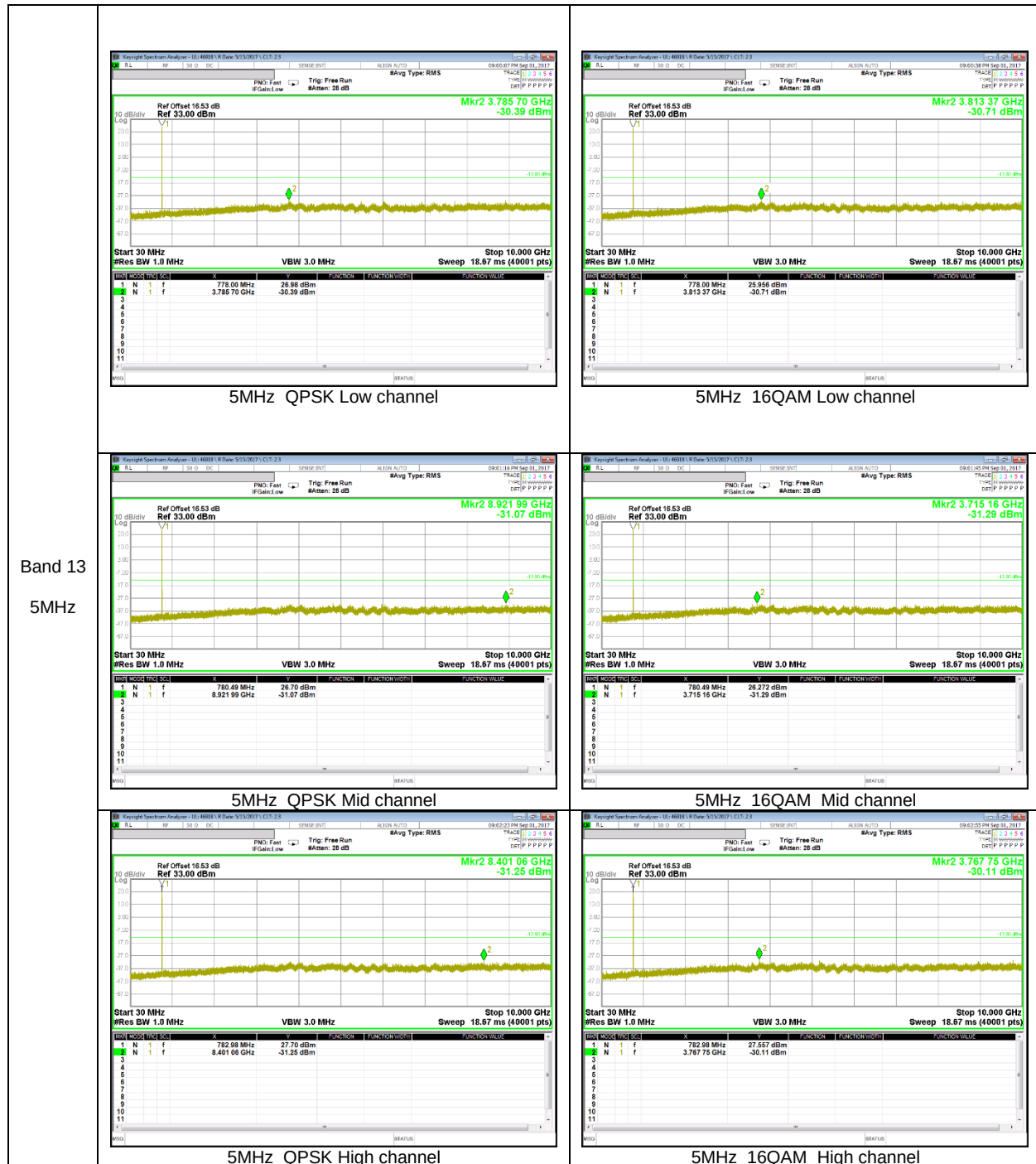






LTE Band 13





9.4. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

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

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

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

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

RESULTS

See the following pages.

9.4.1. FREQUENCY STABILITY RESULTS

WCDMA Band 5 , Channel 4183, Frequency 836.6 MHz

Reference Frequency: WCDMA Band 5 Mid Channel 836.6 MHz @ 20°C				
Limit: +- 2.5 ppm = 2091.500 Hz				
Power Supply [Vdc]	Environment Temperature [*C]	Frequency Deviation Measured with Time Elapse		
		[MHz]	Delta [ppm]	Limit [ppm]
3.80	50	836.60000408	0.000	2.5
3.80	40	836.60000500	-0.001	2.5
3.80	30	836.60000395	0.000	2.5
3.80	20	836.60000430	0	2.5
3.80	10	836.60000570	-0.002	2.5
3.80	0	836.60000473	-0.001	2.5
3.80	-10	836.60000468	0.000	2.5
3.80	-20	836.60000508	-0.001	2.5
3.80	-30	836.60000628	-0.002	2.5

Reference Frequency: WCDMA Band 5 Mid Channel 836.6 MHz @ 20°C				
Limit: +- 2.5 ppm = 2091.500 Hz				
Power Supply [Vdc]	Environment Temperature [*C]	Frequency Deviation Measured with Time Elapse		
		[MHz]	Delta [ppm]	Limit [ppm]
3.80	20	836.60000430	0	2.5
4.30	20	836.60000512	-0.001	2.5
3.60	20	836.60000451	0.000	2.5

WCDMA Band 2 , Channel 9400, Frequency 1880.0 MHz

Reference Frequency: WCDMA Band 2 Mid Channel 1880.0 MHz @ 20°C				
Limit: +- 2.5 ppm = 4700.000 Hz				
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse		
		[MHz]	Delta [ppm]	Limit [ppm]
3.80	50	1879.99999339	0.000	2.5
3.80	40	1879.99999449	-0.001	2.5
3.80	30	1879.99999412	-0.001	2.5
3.80	20	1879.99999291	0	2.5
3.80	10	1879.99999419	-0.001	2.5
3.80	0	1879.99999587	-0.002	2.5
3.80	-10	1879.99999353	0.000	2.5
3.80	-20	1879.99999428	-0.001	2.5
3.80	-30	1879.99999373	0.000	2.5

Reference Frequency: WCDMA Band 2 Mid Channel 1880.0 MHz @ 20°C				
Limit: +- 2.5 ppm = 4700.000 Hz				
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse		
		[MHz]	Delta [ppm]	Limit [ppm]
3.80	20	1879.99999291	0	2.5
4.30	20	1879.99999389	-0.001	2.5
3.60	20	1879.99999257	0.000	2.5

LTE Band 5 , Channel 20524, Frequency 836.5 MHz

Reference Frequency: LTE Band 5 Mid Channel 836.5 MHz @ 20°C				
Limit: +- 2.5 ppm = 2091.250 Hz				
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse		
		[MHz]	Delta [ppm]	Limit [ppm]
3.80	50	836.50001511	-0.002	2.5
3.80	40	836.50001448	-0.001	2.5
3.80	30	836.50001504	-0.002	2.5
3.80	20	836.50001349	0	2.5
3.80	10	836.50001469	-0.001	2.5
3.80	0	836.50001227	0.001	2.5
3.80	-10	836.50001569	-0.003	2.5
3.80	-20	836.50001591	-0.003	2.5
3.80	-30	836.50001373	0.000	2.5

Reference Frequency: LTE Band 5 Mid Channel 836.5 MHz @ 20°C				
Limit: +- 2.5 ppm = 2091.250 Hz				
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse		
		[MHz]	Delta [ppm]	Limit [ppm]
3.80	20	836.50001349	0	2.5
4.30	20	836.50001505	-0.002	2.5
3.60	20	836.50001469	-0.001	2.5

LTE Band 4, Channel 20174, Frequency 1732.5 MHz

Reference Frequency: LTE Band 4 Mid Channel 1732.5 MHz @ 20°C				
Limit: +- 2.5 ppm = 4331.250 Hz				
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse		
		[MHz]	Delta [ppm]	Limit [ppm]
3.80	50	1732.50002053	-0.002	2.5
3.80	40	1732.50001715	0.000	2.5
3.80	30	1732.50001674	0.000	2.5
3.80	20	1732.50001732	0	2.5
3.80	10	1732.50001761	0.000	2.5
3.80	0	1732.50001427	0.002	2.5
3.80	-10	1732.50001352	0.002	2.5
3.80	-20	1732.50001679	0.000	2.5
3.80	-30	1732.50001928	-0.001	2.5

Reference Frequency: LTE Band 4 Mid Channel 1732.5 MHz @ 20°C				
Limit: +- 2.5 ppm = 4331.250 Hz				
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse		
		[MHz]	Delta [ppm]	Limit [ppm]
3.80	20	1732.50001732	0	2.5
4.30	20	1732.50001824	-0.001	2.5
3.60	20	1732.50001599	0.001	2.5

LTE Band 2, Channel 18900, Frequency 1880.0 MHz

Reference Frequency: LTE Band 2 Mid Channel 1880 MHz @ 20°C				
Limit: +- 2.5 ppm = 4700.000 Hz				
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse		
		[MHz]	Delta [ppm]	Limit [ppm]
3.80	50	1880.00001988	0.000	2.5
3.80	40	1880.00002135	-0.001	2.5
3.80	30	1880.00001860	0.001	2.5
3.80	20	1880.00002008	0	2.5
3.80	10	1880.00001753	0.001	2.5
3.80	0	1880.00001820	0.001	2.5
3.80	-10	1880.00001921	0.000	2.5
3.80	-20	1880.00002125	-0.001	2.5
3.80	-30	1880.00001960	0.000	2.5

Reference Frequency: LTE Band 2 Mid Channel 1880 MHz @ 20°C				
Limit: +- 2.5 ppm = 4700.000 Hz				
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse		
		[MHz]	Delta [ppm]	Limit [ppm]
3.80	20	1880.00002008	0	2.5
4.30	20	1880.00001649	0.002	2.5
3.60	20	1880.00002050	0.000	2.5

LTE Band 7, Channel 21100, Frequency 2535.0 MHz

Reference Frequency: LTE Band 7 Mid Channel 2535 MHz @ 20°C				
Limit: +- 2.5 ppm = 6337.500 Hz				
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse		
		[MHz]	Delta [ppm]	Limit [ppm]
3.80	50	2535.00001940	-0.001	2.5
3.80	40	2535.00001724	0.000	2.5
3.80	30	2535.00001881	-0.001	2.5
3.80	20	2535.00001748	0	2.5
3.80	10	2535.00001891	-0.001	2.5
3.80	0	2535.00001914	-0.001	2.5
3.80	-10	2535.00002020	-0.001	2.5
3.80	-20	2535.00001881	-0.001	2.5
3.80	-30	2535.00002030	-0.001	2.5

Reference Frequency: LTE Band 7 Mid Channel 2535 MHz @ 20°C				
Limit: +- 2.5 ppm = 6337.500 Hz				
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse		
		[MHz]	Delta [ppm]	Limit [ppm]
3.80	20	2535.00001748	0	2.5
4.30	20	2535.00001790	0.000	2.5
3.60	20	2535.00001954	-0.001	2.5

LTE Band 13, Channel 23230, Frequency 782.0 MHz

Reference Frequency: LTE Band 13 Mid Channel 782 MHz @ 20°C				
Limit: +- 2.5 ppm = 1955.000 Hz				
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse		
		[MHz]	Delta [ppm]	Limit [ppm]
3.80	50	782.00001076	-0.001	2.5
3.80	40	782.00000963	0.001	2.5
3.80	30	782.00001155	-0.002	2.5
3.80	20	782.00001032	0	2.5
3.80	10	782.00001147	-0.001	2.5
3.80	0	782.00001194	-0.002	2.5
3.80	-10	782.00001016	0.000	2.5
3.80	-20	782.00001074	-0.001	2.5
3.80	-30	782.00001147	-0.001	2.5

Reference Frequency: LTE Band 13 Mid Channel 782 MHz @ 20°C				
Limit: +- 2.5 ppm = 1955.000 Hz				
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measured with Time Elapse		
		[MHz]	Delta [ppm]	Limit [ppm]
3.80	20	782.00001032	0	2.5
4.30	20	782.00001059	0.000	2.5
3.60	20	782.00001098	-0.001	2.5

10. RADIATED TEST RESULTS

10.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

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

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

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.

27.50(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.

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 v02r02

For peak 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 = peak; f) Ensure that the number of measurement points $\geq$ span/RBW; g) Trace mode = max hold;

For average power measurement with a ESU40:

a) Set span to at least 1.5 times the OBW; b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz; c) Set VBW $\geq 3 \times$ RBW; d) Set number of points in sweep $\geq 2 \times$ span / RBW; e) Sweep time = auto-couple; f) Detector = RMS (power averaging); g) Use free run trigger If burst duty cycle ≥ 98 ; h) Use trigger to capture bursts If burst duty cycle < 98 ; i) Trace average at least 100 traces in power averaging (i.e., RMS) mode. j) Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function. (RBW/VBW are automatically set for LTE B41)

TEST RESULTS

10.1.1. ERP/EIRP Results

WCDMA

Band	Mode	Channel	f [MHz]	ERP / EIRP	
				[dBm]	[mW]
Band 5	REL99	4132	826.4	21.50	141.25
		4183	836.6	21.63	145.55
		4233	846.6	20.82	120.78
	HSDPA	4132	826.4	21.56	143.22
		4183	836.6	20.51	112.46
		4233	846.6	19.95	98.86
Band 2	REL99	9262	1852.4	23.75	237.14
		9400	1880.0	23.66	232.27
		9538	1907.6	23.30	213.80
	HSDPA	9262	1852.4	24.13	258.82
		9400	1880.0	23.66	232.27
		9538	1907.6	23.28	212.81

LTE Band 5

Band	BW [MHz]	Mode	RB/RB Size	f [MHz]	ERP / EIRP	
			Full RB		[dBm]	[mW]
Band 5	10	QPSK	50/0	829.0	20.82	120.78
			50/0	836.5	20.72	118.03
			50/0	844.0	19.68	92.90
		16QAM	50/0	829.0	19.86	96.83
			50/0	836.5	19.81	95.72
			50/0	844.0	18.70	74.13
	5	QPSK	25/0	826.5	20.66	116.41
			25/0	836.5	20.35	108.39
			25/0	846.5	18.60	72.44
		16QAM	25/0	826.5	19.75	94.41
			25/0	836.5	19.36	86.30
			25/0	846.5	18.06	63.97
	3	QPSK	15/0	825.5	20.52	112.72
			15/0	836.5	20.59	114.55
			15/0	847.5	19.17	82.60
		16QAM	15/0	825.5	19.53	89.74
			15/0	836.5	19.61	91.41
			15/0	847.5	18.69	73.96
	1.4	QPSK	6/0	824.7	18.51	70.96
			6/0	836.5	17.96	62.52
			6/0	848.3	17.19	52.36
		16QAM	6/0	824.7	17.60	57.54
			6/0	836.5	17.05	50.70
			6/0	848.3	16.75	47.32

LTE Band 4

Band	BW [MHz]	Mode	RB/RB Size	f [MHz]	ERP / EIRP	
			Full RB		[dBm]	[mW]
Band 4	20	QPSK	100/0	1720.0	23.84	242.10
			100/0	1732.5	21.88	154.17
			100/0	1745.0	22.05	160.32
		16QAM	100/0	1720.0	22.85	192.75
			100/0	1732.5	20.83	121.06
			100/0	1745.0	21.07	127.94
	15	QPSK	75/0	1717.5	23.92	246.60
			75/0	1732.5	23.93	247.17
			75/0	1747.5	23.83	241.55
		16QAM	75/0	1717.5	22.92	195.88
			75/0	1732.5	22.90	194.98
			75/0	1747.5	22.82	191.43
	10	QPSK	50/0	1715.0	20.61	115.08
			50/0	1732.5	22.94	196.79
			50/0	1750.0	24.56	285.76
		16QAM	50/0	1715.0	19.60	91.20
			50/0	1732.5	21.94	156.31
			50/0	1750.0	23.58	228.03
	5	QPSK	25/0	1712.5	24.86	306.20
			25/0	1732.5	25.23	333.43
			25/0	1752.5	23.81	240.44
		16QAM	25/0	1712.5	23.86	243.22
			25/0	1732.5	24.25	266.07
			25/0	1752.5	22.80	190.55
	3	QPSK	15/0	1711.5	19.60	91.20
			15/0	1732.5	21.01	126.18
			15/0	1753.5	18.94	78.34
		16QAM	15/0	1711.5	18.65	73.28
			15/0	1732.5	19.90	97.72
			15/0	1753.5	17.85	60.95
	1.4	QPSK	6/0	1710.7	18.46	70.15
			6/0	1732.5	18.11	64.71
			6/0	1754.3	19.52	89.54
		16QAM	6/0	1710.7	17.53	56.62
			6/0	1732.5	17.14	51.76
			6/0	1754.3	18.34	68.23

LTE Band 2

Band	BW [MHz]	Mode	RB/RB Size	f [MHz]	ERP / EIRP	
			Full RB		[dBm]	[mW]
Band 2	20	QPSK	100/0	1860.0	23.98	250.03
			100/0	1880.0	23.56	226.99
			100/0	1900.0	22.87	193.64
		16QAM	100/0	1860.0	23.00	199.53
			100/0	1880.0	22.73	187.50
			100/0	1900.0	21.94	156.31
	15	QPSK	75/0	1857.5	24.43	277.33
			75/0	1880.0	23.46	221.82
			75/0	1902.5	21.26	133.66
		16QAM	75/0	1857.5	23.45	221.31
			75/0	1880.0	22.45	175.79
			75/0	1902.5	20.31	107.40
	10	QPSK	50/0	1855.0	22.21	166.34
			50/0	1880.0	23.29	213.30
			50/0	1905.0	22.52	178.65
		16QAM	50/0	1855.0	21.26	133.66
			50/0	1880.0	23.27	212.32
			50/0	1905.0	21.59	144.21
	5	QPSK	25/0	1852.5	22.59	181.55
			25/0	1880.0	23.17	207.49
			25/0	1907.5	22.47	176.60
		16QAM	25/0	1852.5	21.64	145.88
			25/0	1880.0	22.21	166.34
			25/0	1907.5	21.55	142.89
	3	QPSK	15/0	1851.5	23.88	244.34
			15/0	1880.0	23.65	231.74
			15/0	1908.5	22.36	172.19
		16QAM	15/0	1851.5	22.86	193.20
			15/0	1880.0	22.68	185.35
			15/0	1908.5	21.95	156.68
	1.4	QPSK	6/0	1850.7	20.97	125.03
			6/0	1880.0	21.78	150.66
			6/0	1909.3	20.84	121.34
		16QAM	6/0	1850.7	20.05	101.16
			6/0	1880.0	20.81	120.50
			6/0	1909.3	19.88	97.27

LTE Band 13

Band	BW [MHz]	Mode	RB/RB Size	f [MHz]	ERP / EIRP	
			Full RB		[dBm]	[mW]
Band 17	10	QPSK	50/0	782.0	18.65	73.28
		16QAM	50/0	782.0	17.71	59.02
	5	QPSK	25/0	779.5	18.22	66.37
			25/0	782.0	18.50	70.79
			25/0	784.5	18.53	71.29
			25/0	779.5	17.27	53.33
		16QAM	25/0	782.0	17.59	57.41
			25/0	784.5	18.05	63.83
			25/0	784.5	18.05	63.83

LTE Band 7

Band	BW [MHz]	Mode	RB/RB Size	f [MHz]	ERP / EIRP	
			Full RB		[dBm]	[mW]
Band 7	20	QPSK	100/0	2510.0	17.83	60.67
			100/0	2535.0	18.69	73.96
			100/0	2560.0	19.19	82.99
		16QAM	100/0	2510.0	17.13	51.64
			100/0	2535.0	17.66	58.34
			100/0	2560.0	18.22	66.37
	15	QPSK	75/0	2507.5	17.64	58.08
			75/0	2535.0	17.77	59.84
			75/0	2562.5	18.28	67.30
		16QAM	75/0	2507.5	16.59	45.60
			75/0	2535.0	16.76	47.42
			75/0	2562.5	17.26	53.21
	10	QPSK	50/0	2505.0	17.58	57.28
			50/0	2535.0	18.85	76.74
			50/0	2565.0	18.53	71.29
		16QAM	50/0	2505.0	16.53	44.98
			50/0	2535.0	17.88	61.38
			50/0	2565.0	17.54	56.75
	5	QPSK	25/0	2502.5	18.13	65.01
			25/0	2535.0	19.51	89.33
			25/0	2567.5	18.51	70.96
		16QAM	25/0	2502.5	17.05	50.70
			25/0	2535.0	18.03	63.53
			25/0	2567.5	17.61	57.68

10.1.2. ERP/EIRP DATA

WCDMA Band 5

WCDMA Band 5 REL99	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 09-07-17 Test Engineer: YH Lim Configuration: EUT ONLY, X Position Mode: Rel 99_850 MHz								
	Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	826.40	19.15	V	1.1	-1.5	16.54	38.5	-21.9	
	826.40	24.11	H	1.1	-1.5	21.50	38.5	-17.0	
	Mid Ch								
	836.60	18.30	V	1.1	-1.4	15.81	38.5	-22.6	
	836.60	24.12	H	1.1	-1.4	21.63	38.5	-16.8	
	High Ch								
	846.60	17.15	V	1.1	-1.3	14.77	38.5	-23.7	
	846.60	23.20	H	1.1	-1.3	20.82	38.5	-17.6	
	Rev. 3.17.11								
WCDMA Band 5 HSDPA	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 09-07-17 Test Engineer: YH Lim Configuration: EUT ONLY, X Position Mode: HSDPA_850 MHz								
	Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	826.40	18.95	V	1.1	-1.5	16.34	38.5	-22.1	
	826.40	24.17	H	1.1	-1.5	21.56	38.5	-16.9	
	Mid Ch								
	836.60	17.91	V	1.1	-1.4	15.42	38.5	-23.0	
	836.60	23.00	H	1.1	-1.4	20.51	38.5	-17.9	
	High Ch								
	846.60	16.70	V	1.1	-1.3	14.32	38.5	-24.1	
	846.60	22.33	H	1.1	-1.3	19.95	38.5	-18.5	
	Rev. 3.17.11								

WCDMA Band 2

WCDMA Band 2 REL99	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company:		Samsung						
	Project #:		4788103295						
	Date:		09-01-17						
	Test Engineer:		YH Lim						
	Configuration:		EUT / Z-Position						
	Mode:		REL99_1900 MHz						
	Test Equipment:								
	Receiving: 3117[00168724] and Chamber 1 SMA Cables								
	Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
	Low Ch								
	1852.40	13.72	V	1.60	8.79	20.91	33.0	-12.1	
	1852.40	16.56	H	1.60	8.79	23.75	33.0	-9.3	
Mid Ch									
1880.00	12.24	V	1.62	8.62	19.24	33.0	-13.8		
1880.00	16.66	H	1.62	8.62	23.66	33.0	-9.3		
High Ch									
1907.60	15.06	V	1.63	8.45	21.88	33.0	-11.1		
1907.60	16.48	H	1.63	8.45	23.30	33.0	-9.7		
Rev. 3.17.11									
Note: For Band 4 EIRP limit is 30dBm									

WCDMA Band 2 HSDPA	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company:		Samsung						
	Project #:		4788103295						
	Date:		09-01-17						
	Test Engineer:		YH Lim						
	Configuration:		EUT / Z-Position						
	Mode:		HSDPA_1900 MHz						
	Test Equipment:								
	Receiving: 3117[00168724] and Chamber 1 SMA Cables								
	Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
	Low Ch								
	1852.40	13.71	V	1.60	8.79	20.90	33.0	-12.1	
	1852.40	16.94	H	1.60	8.79	24.13	33.0	-8.9	
Mid Ch									
1880.00	12.14	V	1.62	8.62	19.14	33.0	-13.9		
1880.00	16.66	H	1.62	8.62	23.66	33.0	-9.3		
High Ch									
1907.60	15.05	V	1.63	8.45	21.87	33.0	-11.1		
1907.60	16.46	H	1.63	8.45	23.28	33.0	-9.7		
Rev. 3.17.11									
Note: For Band 4 EIRP limit is 30dBm									

LTE Band 5

LTE Band 5 10MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-21-17 Test Engineer: YH Lim Configuration: EUT ONLY, X Position Mode: TX, LTE BAND 5, 10MHz BW,QPSK								
	Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	829.00	18.19	V	1.1	-1.5	15.61	38.5	-22.8	
	829.00	23.40	H	1.1	-1.5	20.82	38.5	-17.6	
	Mid Ch								
	836.50	18.00	V	1.1	-1.4	15.51	38.5	-22.9	
	836.50	23.21	H	1.1	-1.4	20.72	38.5	-17.7	
	High Ch								
	844.00	17.09	V	1.1	-1.3	14.70	38.5	-23.8	
	844.00	22.10	H	1.1	-1.3	19.68	38.5	-18.8	
	Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm								
	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-21-17 Test Engineer: YH Lim Configuration: EUT ONLY, X Position Mode: LTE5 10MHz FUND 16QAM								
	Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	829.00	17.24	V	1.1	-1.5	14.66	38.5	-23.8	
	829.00	22.44	H	1.1	-1.5	19.86	38.5	-18.6	
	Mid Ch								
	836.50	17.07	V	1.1	-1.4	14.56	38.5	-23.9	
	836.50	22.32	H	1.1	-1.4	19.81	38.5	-18.6	
	High Ch								
	844.00	16.14	V	1.1	-1.3	13.72	38.5	-24.7	
	844.00	21.12	H	1.1	-1.3	18.70	38.5	-19.7	
	Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm								

LTE Band 5 5MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-21-17 Test Engineer: YH Lim Configuration: EUT ONLY, X Position Mode: LTE5 5MHz FUND QPSK								
	Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	826.50	17.90	V	1.1	-1.5	15.30	38.5	-23.2	
	826.50	23.26	H	1.1	-1.5	20.66	38.5	-17.8	
	Mid Ch								
	836.50	17.67	V	1.1	-1.4	15.18	38.5	-23.3	
	836.50	22.84	H	1.1	-1.4	20.35	38.5	-18.1	
	High Ch								
	846.50	16.57	V	1.6	-1.3	13.69	38.5	-24.8	
	846.50	21.48	H	1.6	-1.3	18.60	38.5	-19.8	
Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm									
LTE Band 5 5MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-21-17 Test Engineer: YH Lim Configuration: EUT ONLY, X Position Mode: LTE5 5MHz FUND 16QAM								
	Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	826.50	16.97	V	1.1	-1.5	14.37	38.5	-24.1	
	826.50	22.35	H	1.1	-1.5	19.75	38.5	-18.7	
	Mid Ch								
	836.50	16.82	V	1.1	-1.4	14.33	38.5	-24.1	
	836.50	21.85	H	1.1	-1.4	19.36	38.5	-19.1	
	High Ch								
	846.50	15.64	V	1.1	-1.3	13.26	38.5	-25.2	
	846.50	20.44	H	1.1	-1.3	18.06	38.5	-20.4	
Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm									

LTE Band 5 3MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-21-17 Test Engineer: YH Lim Configuration: EUT ONLY, X Position Mode: LTE5 3MHz FUND QPSK								
	Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	825.50	16.44	V	1.1	-1.5	13.84	38.5	-24.6	
	825.50	23.12	H	1.1	-1.5	20.52	38.5	-17.9	
	Mid Ch								
	836.50	16.67	V	1.1	-1.4	14.18	38.5	-24.3	
	836.50	23.08	H	1.1	-1.4	20.59	38.5	-17.9	
	High Ch								
	847.50	16.04	V	1.6	-1.3	13.16	38.5	-25.3	
	847.50	22.05	H	1.6	-1.3	19.17	38.5	-19.3	
Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm									
LTE Band 5 3MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-21-17 Test Engineer: YH Lim Configuration: EUT ONLY, X Position Mode: LTE5 3MHz FUND 16QAM								
	Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	825.50	15.54	V	1.1	-1.5	12.94	38.5	-25.5	
	825.50	22.13	H	1.1	-1.5	19.53	38.5	-18.9	
	Mid Ch								
	836.50	16.35	V	1.1	-1.4	13.86	38.5	-24.6	
	836.50	22.10	H	1.1	-1.4	19.61	38.5	-18.8	
	High Ch								
	847.50	15.05	V	1.1	-1.3	12.67	38.5	-25.8	
	847.50	21.07	H	1.1	-1.3	18.69	38.5	-19.8	
Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm									

LTE Band 5 1.4MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company:		Samsung						
	Project #:		4788103295						
	Date:		08-21-17						
	Test Engineer:		YH Lim						
	Configuration:		EUT ONLY, X Position						
	Mode:		LTE5 1.4MHz FUND QPSK						
	Test Equipment:								
	Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT)								
	Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
f MHz		SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch									
824.70		15.84	V	1.1	-1.5	13.24	38.5	-25.2	
824.70		21.11	H	1.1	-1.5	18.51	38.5	-19.9	
Mid Ch									
836.50		14.57	V	1.1	-1.4	12.08	38.5	-26.4	
836.50		20.45	H	1.1	-1.4	17.96	38.5	-20.5	
High Ch									
848.30		13.57	V	1.6	-1.3	10.69	38.5	-27.8	
848.30		20.07	H	1.6	-1.3	17.19	38.5	-21.3	
Rev. 3.17.11									
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm									
LTE Band 5 1.4MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company:		Samsung						
	Project #:		4788103295						
	Date:		08-21-17						
	Test Engineer:		YH Lim						
	Configuration:		EUT ONLY, X Position						
	Mode:		LTE5 1.4MHz FUND 16QAM						
	Test Equipment:								
	Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT)								
	Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
f MHz		SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch									
824.70		14.80	V	1.1	-1.5	12.20	38.5	-26.3	
824.70		20.20	H	1.1	-1.5	17.60	38.5	-20.9	
Mid Ch									
836.50		13.68	V	1.1	-1.4	11.19	38.5	-27.3	
836.50		19.54	H	1.1	-1.4	17.05	38.5	-21.4	
High Ch									
848.30		12.61	V	1.1	-1.3	10.23	38.5	-28.2	
848.30		19.13	H	1.1	-1.3	16.75	38.5	-21.7	
Rev. 3.17.11									
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm									

LTE Band 4

LTE Band 4 20MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-17-17 Test Engineer: JH Park Configuration: EUT / Z-Position Mode: LTE Band 4, QPSK, 20MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1720.00	14.01	V	1.54	9.12	21.59	30.0	-8.4	
	1720.00	16.26	H	1.54	9.12	23.84	30.0	-6.2	
	Mid Ch								
	1732.50	11.53	V	1.55	9.31	19.29	30.0	-10.7	
	1732.50	14.12	H	1.55	9.31	21.88	30.0	-8.1	
	High Ch								
	1745.00	12.81	V	1.56	9.37	20.62	30.0	-9.4	
	1745.00	14.24	H	1.56	9.37	22.05	30.0	-8.0	
	Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm								
LTE Band 4 20MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-17-17 Test Engineer: JH Park Configuration: EUT / Z-Position Mode: LTE Band 4, 16QAM, 20MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1720.00	13.03	V	1.54	9.12	20.61	30.0	-9.4	
	1720.00	15.27	H	1.54	9.12	22.85	30.0	-7.2	
	Mid Ch								
	1732.50	10.55	V	1.55	9.31	18.31	30.0	-11.7	
	1732.50	13.07	H	1.55	9.31	20.83	30.0	-9.2	
	High Ch								
	1745.00	11.81	V	1.56	9.37	19.62	30.0	-10.4	
	1745.00	13.26	H	1.56	9.37	21.07	30.0	-8.9	
	Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm								

LTE Band 4 15MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-17-17 Test Engineer: JH Park Configuration: EUT / Z-Position Mode: LTE Band 4, QPSK, 15MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1717.50	12.85	V	1.54	9.12	20.43	30.0	-9.6	
	1717.50	16.34	H	1.54	9.12	23.92	30.0	-6.1	
	Mid Ch								
	1732.50	11.79	V	1.55	9.31	19.55	30.0	-10.5	
	1732.50	16.17	H	1.55	9.31	23.93	30.0	-6.1	
	High Ch								
	1747.50	13.77	V	1.56	9.39	21.60	30.0	-8.4	
	1747.50	16.00	H	1.56	9.39	23.83	30.0	-6.2	
	Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm								
LTE Band 4 15MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-17-17 Test Engineer: JH Park Configuration: EUT / Z-Position Mode: LTE Band 4, 16QAM, 15MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1717.50	11.84	V	1.54	9.12	19.42	30.0	-10.6	
	1717.50	15.34	H	1.54	9.12	22.92	30.0	-7.1	
	Mid Ch								
	1732.50	10.78	V	1.55	9.31	18.54	30.0	-11.5	
	1732.50	15.14	H	1.55	9.31	22.90	30.0	-7.1	
	High Ch								
	1747.50	12.78	V	1.56	9.39	20.61	30.0	-9.4	
	1747.50	14.99	H	1.56	9.39	22.82	30.0	-7.2	
	Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm								

LTE Band 4 10MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-17-17 Test Engineer: JH Park Configuration: EUT / Z-Position Mode: LTE Band 4, QPSK, 10MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1715.00	11.99	V	1.54	9.12	19.57	30.0	-10.4	
	1715.00	13.03	H	1.54	9.12	20.61	30.0	-9.4	
	Mid Ch								
	1732.50	14.62	V	1.55	9.31	22.38	30.0	-7.6	
LTE Band 4 10MHz 16QAM	1732.50	15.18	H	1.55	9.31	22.94	30.0	-7.1	
	High Ch								
	1750.00	16.72	V	1.56	9.40	24.56	30.0	-5.4	
	1750.00	16.33	H	1.56	9.40	24.17	30.0	-5.8	
	Rev. 3.17.11								
	Note: For Band 4 EIRP limit is 30dBm								
	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-17-17 Test Engineer: JH Park Configuration: EUT / Z-Position Mode: LTE Band 4 16QAM, 10MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1715.00	11.00	V	1.54	9.12	18.58	30.0	-11.4	
	1715.00	12.02	H	1.54	9.12	19.60	30.0	-10.4	
	Mid Ch								
	1732.50	13.64	V	1.55	9.31	21.40	30.0	-8.6	
	1732.50	14.18	H	1.55	9.31	21.94	30.0	-8.1	
	High Ch								
	1750.00	15.74	V	1.56	9.40	23.58	30.0	-6.4	
	1750.00	15.33	H	1.56	9.40	23.17	30.0	-6.8	
	Rev. 3.17.11								
	Note: For Band 4 EIRP limit is 30dBm								

LTE Band 4 5MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-17-17 Test Engineer: JH Park Configuration: EUT / Z-Position Mode: LTE Band 4, QPSK , 5MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1712.50	15.49	V	1.54	9.12	23.07	30.0	-6.9	
	1712.50	17.28	H	1.54	9.12	24.86	30.0	-5.1	
	Mid Ch								
	1732.50	12.89	V	1.55	9.31	20.65	30.0	-9.4	
LTE Band 4 5MHz 16QAM	1732.50	17.47	H	1.55	9.31	25.23	30.0	-4.8	
	High Ch								
	1752.50	14.19	V	1.56	9.39	22.02	30.0	-8.0	
	1752.50	15.98	H	1.56	9.39	23.81	30.0	-6.2	
	Rev. 3.17.11								
	Note: For Band 4 EIRP limit is 30dBm								
	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-17-17 Test Engineer: JH Park Configuration: EUT / Z-Position Mode: LTE Band 4 16QAM, 5MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1712.50	14.46	V	1.54	9.12	22.04	30.0	-8.0	
	1712.50	16.28	H	1.54	9.12	23.86	30.0	-6.1	
	Mid Ch								
	1732.50	11.89	V	1.55	9.31	19.65	30.0	-10.4	
	1732.50	16.49	H	1.55	9.31	24.25	30.0	-5.8	
	High Ch								
	1752.50	13.15	V	1.56	9.39	20.98	30.0	-9.0	
	1752.50	14.97	H	1.56	9.39	22.80	30.0	-7.2	
	Rev. 3.17.11								
	Note: For Band 4 EIRP limit is 30dBm								

LTE Band 4 3MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-17-17 Test Engineer: JH Park Configuration: EUT / Z-Position Mode: LTE Band 4, QPSK , 3MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1711.50	10.18	V	1.54	9.12	17.76	30.0	-12.2	
	1711.50	12.02	H	1.54	9.12	19.60	30.0	-10.4	
	Mid Ch								
	1732.50	8.10	V	1.55	9.31	15.86	30.0	-14.1	
	1732.50	13.25	H	1.55	9.31	21.01	30.0	-9.0	
	High Ch								
	1753.50	7.47	V	1.56	9.38	15.29	30.0	-14.7	
	1753.50	11.12	H	1.56	9.38	18.94	30.0	-11.1	
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									
LTE Band 4 3MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-17-17 Test Engineer: JH Park Configuration: EUT / Z-Position Mode: LTE Band 4 16QAM, 3MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1711.50	9.16	V	1.54	9.12	16.74	30.0	-13.3	
	1711.50	11.07	H	1.54	9.12	18.65	30.0	-11.4	
	Mid Ch								
	1732.50	7.10	V	1.55	9.31	14.86	30.0	-15.1	
	1732.50	12.14	H	1.55	9.31	19.90	30.0	-10.1	
	High Ch								
	1753.50	6.41	V	1.56	9.38	14.23	30.0	-15.8	
	1753.50	10.03	H	1.56	9.38	17.85	30.0	-12.2	
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									

LTE Band 4 1.4MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-17-17 Test Engineer: JH Park Configuration: EUT / Z-Position Mode: LTE Band 4 QPSK, 1.4MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1710.70	10.17	V	1.54	9.12	17.75	30.0	-12.3	
	1710.70	10.88	H	1.54	9.12	18.46	30.0	-11.5	
	Mid Ch								
	1732.50	10.25	V	1.55	9.31	18.01	30.0	-12.0	
LTE Band 4 1.4MHz 16QAM	1732.50	10.35	H	1.55	9.31	18.11	30.0	-11.9	
	High Ch								
	1754.30	8.95	V	1.56	9.37	16.76	30.0	-13.2	
	1754.30	11.71	H	1.56	9.37	19.52	30.0	-10.5	
	Rev. 3.17.11								
	Note: For Band 4 EIRP limit is 30dBm								
	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-17-17 Test Engineer: JH Park Configuration: EUT / Z-Position Mode: LTE Band 4 16QAM, 1.4MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1710.70	9.17	V	1.54	9.12	16.75	30.0	-13.3	
	1710.70	9.95	H	1.54	9.12	17.53	30.0	-12.5	
	Mid Ch								
	1732.50	9.19	V	1.55	9.31	16.95	30.0	-13.1	
	1732.50	9.38	H	1.55	9.31	17.14	30.0	-12.9	
	High Ch								
	1754.30	7.81	V	1.56	9.37	15.62	30.0	-14.4	
	1754.30	10.53	H	1.56	9.37	18.34	30.0	-11.7	
	Rev. 3.17.11								
	Note: For Band 4 EIRP limit is 30dBm								

LTE Band 2

LTE Band 2 20MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-16-17 Test Engineer: YH Lim Configuration: EUT / Z-Position Mode: LTE Band 2 QPSK, 20MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1860.00	15.66	V	1.60	9.12	23.18	33.0	-9.8	
	1860.00	16.46	H	1.60	9.12	23.98	33.0	-9.0	
	Mid Ch								
	1880.00	15.73	V	1.62	8.62	22.73	33.0	-10.3	
	1880.00	16.56	H	1.62	8.62	23.56	33.0	-9.4	
	High Ch								
	1900.00	15.95	V	1.63	8.50	22.82	33.0	-10.2	
	1900.00	16.00	H	1.63	8.50	22.87	33.0	-10.1	
	Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm								
LTE Band 2 20MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-16-17 Test Engineer: YH Lim Configuration: EUT / Z-Position Mode: LTE Band 2 16QAM, 20MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1860.00	14.72	V	1.60	9.12	22.24	33.0	-10.8	
	1860.00	15.48	H	1.60	9.12	23.00	33.0	-10.0	
	Mid Ch								
	1880.00	15.73	V	1.62	8.62	22.73	33.0	-10.3	
	1880.00	15.57	H	1.62	8.62	22.57	33.0	-10.4	
	High Ch								
	1900.00	15.01	V	1.63	8.50	21.88	33.0	-11.1	
	1900.00	15.07	H	1.63	8.50	21.94	33.0	-11.1	
	Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm								

LTE Band 2 15MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-16-17 Test Engineer: YH Lim Configuration: EUT / Z-Position Mode: LTE Band 2 QPSK, 15MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1857.50	16.91	V	1.60	9.12	24.43	33.0	-8.6	
	1857.50	15.57	H	1.60	9.12	23.09	33.0	-9.9	
	Mid Ch								
	1880.00	16.46	V	1.62	8.62	23.46	33.0	-9.5	
	1880.00	15.35	H	1.62	8.62	22.35	33.0	-10.6	
	High Ch								
	1902.50	14.08	V	1.63	8.49	20.94	33.0	-12.1	
	1902.50	14.40	H	1.63	8.49	21.26	33.0	-11.7	
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									
LTE Band 2 15MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-16-17 Test Engineer: YH Lim Configuration: EUT / Z-Position Mode: LTE Band 2 16QAM, 15MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1857.50	15.93	V	1.60	9.12	23.45	33.0	-9.6	
	1857.50	14.54	H	1.60	9.12	22.06	33.0	-10.9	
	Mid Ch								
	1880.00	15.45	V	1.62	8.62	22.45	33.0	-10.5	
	1880.00	14.40	H	1.62	8.62	21.40	33.0	-11.6	
	High Ch								
	1902.50	13.25	V	1.63	8.49	20.11	33.0	-12.9	
	1902.50	13.45	H	1.63	8.49	20.31	33.0	-12.7	
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									

LTE Band 2 10MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-16-17 Test Engineer: YH Lim Configuration: EUT / Z-Position Mode: LTE Band 2 QPSK, 10MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1855.00	14.69	V	1.60	9.12	22.21	33.0	-10.8	
	1855.00	14.58	H	1.60	9.12	22.10	33.0	-10.9	
	Mid Ch								
	1880.00	14.77	V	1.62	8.62	21.77	33.0	-11.2	
LTE Band 2 10MHz 16QAM	1880.00	16.29	H	1.62	8.62	23.29	33.0	-9.7	
	High Ch								
	1905.00	13.82	V	1.63	8.47	20.66	33.0	-12.3	
	1905.00	15.68	H	1.63	8.47	22.52	33.0	-10.5	
	Rev. 3.17.11								
	Note: For Band 4 EIRP limit is 30dBm								
	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-16-17 Test Engineer: YH Lim Configuration: EUT / Z-Position Mode: LTE Band 2 16QAM, 10MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1855.00	13.74	V	1.60	9.12	21.26	33.0	-11.7	
	1855.00	13.66	H	1.60	9.12	21.18	33.0	-11.8	
	Mid Ch								
	1880.00	13.84	V	1.62	8.62	20.84	33.0	-12.2	
	1880.00	16.27	H	1.62	8.62	23.27	33.0	-9.7	
	High Ch								
	1905.00	12.97	V	1.63	8.47	19.81	33.0	-13.2	
	1905.00	14.75	H	1.63	8.47	21.59	33.0	-11.4	
	Rev. 3.17.11								
	Note: For Band 4 EIRP limit is 30dBm								

LTE Band 2 5MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-16-17 Test Engineer: YH Lim Configuration: EUT / Z-Position Mode: LTE Band 2 QPSK, 5MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1852.50	14.63	V	1.60	9.12	22.15	33.0	-10.9	
	1852.50	15.07	H	1.60	9.12	22.59	33.0	-10.4	
	Mid Ch								
	1880.00	14.71	V	1.62	8.62	21.71	33.0	-11.3	
LTE Band 2 5MHz 16QAM	1880.00	16.17	H	1.62	8.62	23.17	33.0	-9.8	
	High Ch								
	1907.50	14.84	V	1.63	8.46	21.67	33.0	-11.3	
	1907.50	15.64	H	1.63	8.46	22.47	33.0	-10.5	
	Rev. 3.17.11								
	Note: For Band 4 EIRP limit is 30dBm								
	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-16-17 Test Engineer: YH Lim Configuration: EUT / Z-Position Mode: LTE Band 2 16QAM, 5MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1852.50	13.68	V	1.60	9.12	21.20	33.0	-11.8	
	1852.50	14.12	H	1.60	9.12	21.64	33.0	-11.4	
	Mid Ch								
	1880.00	13.74	V	1.62	8.62	20.74	33.0	-12.3	
	1880.00	15.21	H	1.62	8.62	22.21	33.0	-10.8	
	High Ch								
	1907.50	13.90	V	1.63	8.46	20.73	33.0	-12.3	
	1907.50	14.72	H	1.63	8.46	21.55	33.0	-11.4	
	Rev. 3.17.11								
	Note: For Band 4 EIRP limit is 30dBm								

LTE Band 2 3MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-16-17 Test Engineer: YH Lim Configuration: EUT / Z-Position Mode: LTE Band 2 QPSK, 3MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1851.50	16.36	V	1.60	9.12	23.88	33.0	-9.1	
	1851.50	15.62	H	1.60	9.12	23.14	33.0	-9.9	
	Mid Ch								
	1880.00	14.80	V	1.62	8.62	21.80	33.0	-11.2	
	1880.00	16.65	H	1.62	8.62	23.65	33.0	-9.3	
	High Ch								
	1908.50	15.12	V	1.63	8.45	21.94	33.0	-11.1	
	1908.50	15.54	H	1.63	8.45	22.36	33.0	-10.6	
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									
LTE Band 2 3MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-16-17 Test Engineer: YH Lim Configuration: EUT / Z-Position Mode: LTE Band 2 16QAM, 3MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1851.50	15.34	V	1.60	9.12	22.86	33.0	-10.1	
	1851.50	14.68	H	1.60	9.12	22.20	33.0	-10.8	
	Mid Ch								
	1880.00	13.83	V	1.62	8.62	20.83	33.0	-12.2	
	1880.00	15.68	H	1.62	8.62	22.68	33.0	-10.3	
	High Ch								
	1908.50	15.13	V	1.63	8.45	21.95	33.0	-11.0	
	1908.50	14.76	H	1.63	8.45	21.58	33.0	-11.4	
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									

LTE Band 2 1.4MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-16-17 Test Engineer: YH Lim Configuration: EUT / Z-Position Mode: LTE Band 2 QPSK, 1.4MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1850.70	12.45	V	1.60	9.12	19.97	33.0	-13.0	
	1850.70	13.45	H	1.60	9.12	20.97	33.0	-12.0	
	Mid Ch								
	1880.00	13.26	V	1.62	8.62	20.26	33.0	-12.7	
	1880.00	14.78	H	1.62	8.62	21.78	33.0	-11.2	
	High Ch								
	1909.30	13.60	V	1.63	8.44	20.41	33.0	-12.6	
	1909.30	14.03	H	1.63	8.44	20.84	33.0	-12.2	
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									
LTE Band 2 1.4MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-16-17 Test Engineer: YH Lim Configuration: EUT / Z-Position Mode: LTE Band 2 16QAM, 1.4MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1850.70	11.52	V	1.60	9.12	19.04	33.0	-14.0	
	1850.70	12.53	H	1.60	9.12	20.05	33.0	-13.0	
	Mid Ch								
	1880.00	12.34	V	1.62	8.62	19.34	33.0	-13.7	
	1880.00	13.81	H	1.62	8.62	20.81	33.0	-12.2	
	High Ch								
	1909.30	12.59	V	1.63	8.44	19.40	33.0	-13.6	
	1909.30	13.07	H	1.63	8.44	19.88	33.0	-13.1	
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									

LTE Band 13

LTE Band 13 10MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2 Company: Samsung Project #: 4788103295 Date: 08-31-17 Test Engineer: Chan Park Configuration: EUT ONLY, X Position Mode: TX, LTE BAND 13, 10MHz BW,QPSK Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse. <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Margin (dB)</th><th>Notes</th></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>782.00</td><td>16.52</td><td>V</td><td>1.1</td><td>-1.4</td><td>14.03</td><td>34.8</td><td>-20.7</td><td></td></tr><tr><td>782.00</td><td>21.14</td><td>H</td><td>1.1</td><td>-1.4</td><td>18.65</td><td>34.8</td><td>-16.1</td><td></td></tr></table> Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes	Mid Ch									782.00	16.52	V	1.1	-1.4	14.03	34.8	-20.7		782.00	21.14	H	1.1	-1.4	18.65	34.8	-16.1	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes																																				
	Mid Ch																																												
	782.00	16.52	V	1.1	-1.4	14.03	34.8	-20.7																																					
	782.00	21.14	H	1.1	-1.4	18.65	34.8	-16.1																																					
LTE Band 13 10MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2 Company: Samsung Project #: 4788103295 Date: 08-31-17 Test Engineer: Chan Park Configuration: EUT ONLY, X Position Mode: LTE13 10MHz FUND 16QAM Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse. <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Margin (dB)</th><th>Notes</th></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>782.00</td><td>15.59</td><td>V</td><td>1.1</td><td>-1.4</td><td>13.08</td><td>34.8</td><td>-21.7</td><td></td></tr><tr><td>782.00</td><td>20.22</td><td>H</td><td>1.1</td><td>-1.4</td><td>17.71</td><td>34.8</td><td>-17.1</td><td></td></tr></table> Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes	Mid Ch									782.00	15.59	V	1.1	-1.4	13.08	34.8	-21.7		782.00	20.22	H	1.1	-1.4	17.71	34.8	-17.1	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes																																				
	Mid Ch																																												
	782.00	15.59	V	1.1	-1.4	13.08	34.8	-21.7																																					
	782.00	20.22	H	1.1	-1.4	17.71	34.8	-17.1																																					

LTE Band 13 5MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-31-17 Test Engineer: Chan Park Configuration: EUT ONLY, X Position Mode: LTE13 5MHz FUND QPSK								
	Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	779.50	16.46	V	1.1	-1.5	13.86	34.8	-20.9	
	779.50	20.82	H	1.1	-1.5	18.22	34.8	-16.6	
	Mid Ch								
	782.00	17.01	V	1.1	-1.4	14.52	34.8	-20.3	
	782.00	20.99	H	1.1	-1.4	18.50	34.8	-16.3	
	High Ch								
	784.50	17.25	V	1.6	-1.3	14.37	34.8	-20.4	
	784.50	21.41	H	1.6	-1.3	18.53	34.8	-16.2	
Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm									
LTE Band 13 5MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 08-31-17 Test Engineer: Chan Park Configuration: EUT ONLY, X Position Mode: LTE13 5MHz FUND 16QAM								
	Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	779.50	15.53	V	1.1	-1.5	12.93	34.8	-21.8	
	779.50	19.87	H	1.1	-1.5	17.27	34.8	-17.5	
	Mid Ch								
	782.00	16.05	V	1.1	-1.4	13.56	34.8	-21.2	
	782.00	20.08	H	1.1	-1.4	17.59	34.8	-17.2	
	High Ch								
	784.50	16.32	V	1.1	-1.3	13.94	34.8	-20.8	
	784.50	20.43	H	1.1	-1.3	18.05	34.8	-16.7	
Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm									

LTE Band 7

LTE Band 7 20MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 09-04-17 Test Engineer: YH Lim Configuration: EUT / X-Position Mode: LTE Band 7, QPSK, 20MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	2510.00	8.94	V	1.9	9.1	16.20	33.0	-16.8	
	2510.00	10.57	H	1.9	9.1	17.83	33.0	-15.2	
	Mid Ch								
	2535.00	8.59	V	1.9	10.4	17.08	33.0	-15.9	
	2535.00	10.20	H	1.9	10.4	18.69	33.0	-14.3	
	High Ch								
	2560.00	7.20	V	1.9	10.3	15.64	33.0	-17.4	
	2560.00	10.75	H	1.9	10.3	19.19	33.0	-13.8	
	Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm								
LTE Band 7 20MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 09-04-17 Test Engineer: YH Lim Configuration: EUT / X-Position Mode: LTE Band 7, 16QAM, 20MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	2510.00	7.91	V	1.9	9.1	15.17	33.0	-17.8	
	2510.00	9.87	H	1.9	9.1	17.13	33.0	-15.9	
	Mid Ch								
	2535.00	7.69	V	1.9	10.4	16.18	33.0	-16.8	
	2535.00	9.17	H	1.9	10.4	17.66	33.0	-15.3	
	High Ch								
	2560.00	6.25	V	1.9	10.3	14.69	33.0	-18.3	
	2560.00	9.78	H	1.9	10.3	18.22	33.0	-14.8	
	Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm								

LTE Band 7 15MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 09-04-17 Test Engineer: YH Lim Configuration: EUT / X-Position Mode: LTE Band 7, QPSK, 15MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	2507.50	6.99	V	1.9	9.1	14.25	33.0	-18.8	
	2507.50	10.38	H	1.9	9.1	17.64	33.0	-15.4	
	Mid Ch								
	2535.00	8.48	V	1.9	10.4	16.97	33.0	-16.0	
	2535.00	9.28	H	1.9	10.4	17.77	33.0	-15.2	
	High Ch								
	2562.50	7.54	V	1.9	10.3	15.98	33.0	-17.0	
	2562.50	9.84	H	1.9	10.3	18.28	33.0	-14.7	
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									
LTE Band 7 15MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 09-04-17 Test Engineer: YH Lim Configuration: EUT / X-Position Mode: LTE Band 7, 16QAM, 15MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	2507.50	5.92	V	1.9	9.1	13.18	33.0	-19.8	
	2507.50	9.33	H	1.9	9.1	16.59	33.0	-16.4	
	Mid Ch								
	2535.00	7.46	V	1.9	10.4	15.95	33.0	-17.1	
	2535.00	8.27	H	1.9	10.4	16.76	33.0	-16.2	
	High Ch								
	2562.50	6.57	V	1.9	10.3	15.01	33.0	-18.0	
	2562.50	8.82	H	1.9	10.3	17.26	33.0	-15.7	
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									

LTE Band 7 10MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 09-04-17 Test Engineer: YH Lim Configuration: EUT / X-Position Mode: LTE Band 7, QPSK, 10MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	2505.00	7.61	V	1.9	9.1	14.87	33.0	-18.1	
	2505.00	10.32	H	1.9	9.1	17.58	33.0	-15.4	
	Mid Ch								
	2535.00	7.91	V	1.9	10.4	16.40	33.0	-16.6	
LTE Band 7 10MHz 16QAM	2535.00	10.36	H	1.9	10.4	18.85	33.0	-14.2	
	High Ch								
	2565.00	9.69	V	1.9	10.3	18.13	33.0	-14.9	
	2565.00	10.09	H	1.9	10.3	18.53	33.0	-14.5	
	Rev. 3.17.11								
	Note: For Band 4 EIRP limit is 30dBm								
	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 09-04-17 Test Engineer: YH Lim Configuration: EUT / X-Position Mode: LTE Band 7 16QAM, 10MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	2505.00	6.57	V	1.9	9.1	13.83	33.0	-19.2	
	2505.00	9.27	H	1.9	9.1	16.53	33.0	-16.5	
	Mid Ch								
	2535.00	7.00	V	1.9	10.4	15.49	33.0	-17.5	
	2535.00	9.39	H	1.9	10.4	17.88	33.0	-15.1	
	High Ch								
	2565.00	8.70	V	1.9	10.3	17.14	33.0	-15.9	
	2565.00	9.10	H	1.9	10.3	17.54	33.0	-15.5	
	Rev. 3.17.11								
	Note: For Band 4 EIRP limit is 30dBm								

LTE Band 7 5MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 09-04-17 Test Engineer: YH Lim Configuration: EUT / X-Position Mode: LTE Band 7, QPSK , 5MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	2502.50	6.24	V	1.9	9.1	13.50	33.0	-19.5	
	2502.50	10.87	H	1.9	9.1	18.13	33.0	-14.9	
	Mid Ch								
	2535.00	8.20	V	1.9	10.4	16.69	33.0	-16.3	
	2535.00	11.02	H	1.9	10.4	19.51	33.0	-13.5	
	High Ch								
	2567.50	5.82	V	1.9	10.3	14.26	33.0	-18.7	
	2567.50	10.07	H	1.9	10.3	18.51	33.0	-14.5	
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									
LTE Band 7 5MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 4788103295 Date: 09-04-17 Test Engineer: YH Lim Configuration: EUT / X-Position Mode: LTE Band 7, 16QAM, 5MHz								
	Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	2502.50	5.22	V	1.9	9.1	12.48	33.0	-20.5	
	2502.50	9.79	H	1.9	9.1	17.05	33.0	-16.0	
	Mid Ch								
	2535.00	7.38	V	1.9	10.4	15.87	33.0	-17.1	
	2535.00	9.54	H	1.9	10.4	18.03	33.0	-15.0	
	High Ch								
	2567.50	4.95	V	1.9	10.3	13.39	33.0	-19.6	
	2567.50	9.17	H	1.9	10.3	17.61	33.0	-15.4	
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									

10.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238 and §27. 53

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: (m)(4) For mobile station, the attenuation factor shall be not less than $43 + 10 \log (P)$ dB at the channel edge and $(55 + 10 \log (P))$ dB at the 5.5 MHz from the channel edges.

Part 27.53(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. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

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.

TEST PROCEDURE

ANSI / TIA / EIA 603 E Clause 2.2.12; ESU40 setting reference to 971168 D01 v02r02

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 = peak;
- f) Ensure that the number of measurement points $\geq$ span/RBW;
- g) Trace mode = max hold;

RESULTS

10.2.1. SPURIOUS RADIATION PLOTS

WCDMA Band 5

		UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement																																																																																																																																																																																																																																			
WCDMA	Band 5 REL99	Company: Samsung Project #: 4788103295 Date: 09-01-17 Test Engineer: Chan Park Configuration: EUT / AC Adapter / Earphone / X Position Mode: Tx, REL99,850MHz																																																																																																																																																																																																																																			
		Chamber Chamber 2 Pre-amplifier AFS42 Filter Filter 1 Limit Part 22																																																																																																																																																																																																																																			
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WCDMA Band 2

WCDMA
Band 2
REL99

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788103295
Date: 09-01-17
Test Engineer: Chan Park
Configuration: EUT / AC Adapter / Earphone / Z Position
Mode: Tx, REL99, 1900MHz

Chamber

Pre-amplifier

Filter

Limit

Chamber 2

AFS42

Filter 1

Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4MHz									
3.7048	-10.8	V	3.0	39.7	1.0	-49.5	-13.0	-36.5	
5.5572	-11.1	V	3.0	39.9	1.0	-50.0	-13.0	-37.0	
7.4096	-9.6	V	3.0	39.4	1.0	-48.0	-13.0	-35.0	
3.7048	-11.3	H	3.0	39.7	1.0	-50.0	-13.0	-37.0	
5.5572	-12.3	H	3.0	39.9	1.0	-51.2	-13.0	-38.2	
7.4096	-10.0	H	3.0	39.4	1.0	-48.4	-13.0	-35.4	
Mid Ch, 1880MHz									
3.7600	-3.6	V	3.0	39.7	1.0	-42.2	-13.0	-29.2	
5.6400	-8.9	V	3.0	40.0	1.0	-47.8	-13.0	-34.8	
7.5200	-9.7	V	3.0	39.4	1.0	-48.0	-13.0	-35.0	
3.7600	-6.2	H	3.0	39.7	1.0	-44.9	-13.0	-31.9	
5.6400	-10.9	H	3.0	40.0	1.0	-49.9	-13.0	-36.9	
7.5200	-9.7	H	3.0	39.4	1.0	-48.1	-13.0	-35.1	
High Ch, 1907.6MHz									
3.8152	-3.0	V	3.0	39.7	1.0	-41.7	-13.0	-28.7	
5.7228	-10.3	V	3.0	40.0	1.0	-49.3	-13.0	-36.3	
7.6304	-7.7	V	3.0	39.3	1.0	-46.0	-13.0	-33.0	
3.8152	-5.7	H	3.0	39.7	1.0	-44.4	-13.0	-31.4	
5.7228	-11.3	H	3.0	40.0	1.0	-50.3	-13.0	-37.3	
7.6304	-9.1	H	3.0	39.3	1.0	-47.4	-13.0	-34.4	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

WCDMA
Band 2
HSDPA

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788103295
Date: 09-01-17
Test Engineer: Chan Park
Configuration: EUT / AC Adapter / Earphone / Z Position
Mode: Tx, HSDPA, 1900MHz

Chamber

Pre-amplifier

Filter

Limit

Chamber 2

AFS42

Filter 1

Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4MHz									
3.7048	-10.6	V	3.0	39.7	1.0	-49.2	-13.0	-36.2	
5.5572	-11.3	V	3.0	39.9	1.0	-50.3	-13.0	-37.3	
7.4096	-9.3	V	3.0	39.4	1.0	-47.7	-13.0	-34.7	
3.7048	-11.4	H	3.0	39.7	1.0	-50.0	-13.0	-37.0	
5.5572	-12.4	H	3.0	39.9	1.0	-51.4	-13.0	-38.4	
7.4096	-9.9	H	3.0	39.4	1.0	-48.4	-13.0	-35.4	
Mid Ch, 1880MHz									
3.7600	-3.3	V	3.0	39.7	1.0	-42.0	-13.0	-29.0	
5.6400	-9.6	V	3.0	40.0	1.0	-48.5	-13.0	-35.5	
7.5200	-9.0	V	3.0	39.4	1.0	-47.4	-13.0	-34.4	
3.7600	-6.2	H	3.0	39.7	1.0	-44.9	-13.0	-31.9	
5.6400	-11.2	H	3.0	40.0	1.0	-50.2	-13.0	-37.2	
7.5200	-10.0	H	3.0	39.4	1.0	-48.4	-13.0	-35.4	
High Ch, 1907.6MHz									
3.8152	-3.2	V	3.0	39.7	1.0	-41.9	-13.0	-28.9	
5.7228	-10.2	V	3.0	40.0	1.0	-49.2	-13.0	-36.2	
7.6304	-7.4	V	3.0	39.3	1.0	-45.7	-13.0	-32.7	
3.8152	-6.0	H	3.0	39.7	1.0	-44.7	-13.0	-31.7	
5.7228	-11.4	H	3.0	40.0	1.0	-50.4	-13.0	-37.4	
7.6304	-8.6	H	3.0	39.3	1.0	-46.9	-13.0	-33.9	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE Band 5

UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement										
Company: Samsung Project #: 4788103295 Date: 08-22-17 Test Engineer: Chan Park Configuration: EUT / AC Adapter / Earphone, X Position Mode: TX, LTE BAND 5, 10MHz BW,QPSK										
Chamber Chamber 2		Pre-amplifier AFS42		Filter Filter 1		Limit Part 22				
LTE Band 5 10MHz QPSK	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Channel (829MHz)									
	1.6580	-16.5	V	3.0	38.2	1.0	-53.7	-13.0	-40.7	
	2.4870	-5.7	V	3.0	38.8	1.0	-43.6	-13.0	-30.6	
	3.3160	-10.8	V	3.0	39.4	1.0	-49.3	-13.0	-36.3	
	4.1450	-11.9	V	3.0	39.8	1.0	-50.7	-13.0	-37.7	
	1.6580	-15.5	H	3.0	38.2	1.0	-52.7	-13.0	-39.7	
	2.4870	-5.9	H	3.0	38.8	1.0	-43.7	-13.0	-30.7	
	3.3160	-9.2	H	3.0	39.4	1.0	-47.7	-13.0	-34.7	
	4.1450	-10.9	H	3.0	39.8	1.0	-49.7	-13.0	-36.7	
	Mid Channel (836.5MHz)									
	1.6730	-14.0	V	3.0	38.2	1.0	-51.2	-13.0	-38.2	
	2.5090	-1.6	V	3.0	38.8	1.0	-39.5	-13.0	-26.5	
	3.3460	-10.5	V	3.0	39.5	1.0	-49.0	-13.0	-36.0	
	4.1825	-9.2	V	3.0	39.8	1.0	-48.0	-13.0	-35.0	
	1.6730	-13.9	H	3.0	38.2	1.0	-51.1	-13.0	-38.1	
	2.5090	-4.6	H	3.0	38.8	1.0	-42.5	-13.0	-29.5	
	3.3460	-7.4	H	3.0	39.5	1.0	-45.9	-13.0	-32.9	
	4.1825	-9.5	H	3.0	39.8	1.0	-48.3	-13.0	-35.3	
	High Channel (844MHz)									
	1.6880	-13.9	V	3.0	38.2	1.0	-51.1	-13.0	-38.1	
	2.5320	-7.8	V	3.0	38.9	1.0	-45.7	-13.0	-32.7	
	3.3760	-10.1	V	3.0	39.5	1.0	-48.5	-13.0	-35.5	
	4.2200	-9.5	V	4.0	39.8	2.0	-44.8	-13.0	-31.8	
	1.6880	-12.4	H	3.0	38.2	1.0	-49.7	-13.0	-36.7	
	2.5320	-7.4	H	3.0	38.9	1.0	-45.2	-13.0	-32.2	
	3.3760	-7.4	H	3.0	39.5	1.0	-45.9	-13.0	-32.9	
	4.2200	-10.7	H	3.0	39.8	1.0	-49.5	-13.0	-36.5	
Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.										

UL Korea, Ltd Suwon Laboratory										
Above 1GHz High Frequency Substitution Measurement										
Company: Project #: Date: Test Engineer: Configuration: Mode:		Samsung 4788103295 08-22-17 Chan Park EUT / AC Adapter / Earphone, X Position TX, LTE BAND 5, 10MHz BW, 16QAM								
Chamber		Pre-amplifier		Filter		Limit				
Chamber 2		AFS42		Filter 1		Part 22				
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Channel (829MHz)										
LTE Band 5 10MHz 16QAM	1.6580	-16.7	V	3.0	38.2	1.0	-53.9	-13.0	-40.9	
	2.4870	-6.2	V	3.0	38.8	1.0	-44.0	-13.0	-31.0	
	3.3160	-11.1	V	3.0	39.4	1.0	-49.6	-13.0	-36.6	
	4.1450	-11.8	V	3.0	39.8	1.0	-50.7	-13.0	-37.7	
	1.6580	-15.5	H	3.0	38.2	1.0	-52.7	-13.0	-39.7	
	2.4870	-6.6	H	3.0	38.8	1.0	-44.5	-13.0	-31.5	
	3.3160	-9.6	H	3.0	39.4	1.0	-48.0	-13.0	-35.0	
	4.1450	-10.9	H	3.0	39.8	1.0	-49.7	-13.0	-36.7	
	Mid Channel (836.5MHz)									
	1.6730	-13.9	V	3.0	38.2	1.0	-51.2	-13.0	-38.2	
	2.5090	-2.0	V	3.0	38.8	1.0	-39.8	-13.0	-26.8	
	3.3460	-10.9	V	3.0	39.5	1.0	-49.3	-13.0	-36.3	
4.1825	-9.3	V	3.0	39.8	1.0	-48.1	-13.0	-35.1		
1.6730	-13.8	H	3.0	38.2	1.0	-51.1	-13.0	-38.1		
2.5090	-5.3	H	3.0	38.8	1.0	-43.1	-13.0	-30.1		
3.3460	-7.6	H	3.0	39.5	1.0	-46.0	-13.0	-33.0		
4.1825	-9.6	H	3.0	39.8	1.0	-48.4	-13.0	-35.4		
High Channel (844MHz)										
1.6880	-13.9	V	3.0	38.2	1.0	-51.2	-13.0	-38.2		
2.5320	-8.3	V	3.0	38.9	1.0	-46.2	-13.0	-33.2		
3.3760	-10.4	V	3.0	39.5	1.0	-48.8	-13.0	-35.8		
4.2200	-9.5	V	4.0	39.8	2.0	-44.9	-13.0	-31.9		
1.6880	-12.4	H	3.0	38.2	1.0	-49.7	-13.0	-36.7		
2.5320	-7.8	H	3.0	38.9	1.0	-45.7	-13.0	-32.7		
3.3760	-7.5	H	3.0	39.5	1.0	-46.0	-13.0	-33.0		
4.2200	-10.8	H	3.0	39.8	1.0	-49.6	-13.0	-36.6		
Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.										