

Band 5
 1.4MHz

10.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238

LIMITS

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

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

RESULTS

10.3.1. OUT OF BAND EMISSIONS RESULT

GSM

Band	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]	Margin [dB]
GSM850	GPRS	824.2	-24.49	-13.00	-11.49
		836.6	-25.05		-12.05
		848.8	-24.62		-11.62
	EGPRS	824.2	-23.97		-10.97
		836.6	-23.64		-10.64
		848.8	-23.84		-10.84
GSM1900	GPRS	1850.2	-23.98		-10.98
		1880.0	-24.43		-11.43
		1909.8	-24.70		-11.7
	EGPRS	1850.2	-24.14	-11.14	
		1880.0	-23.34	-10.34	
		1909.8	-24.26	-11.26	

WCDMA

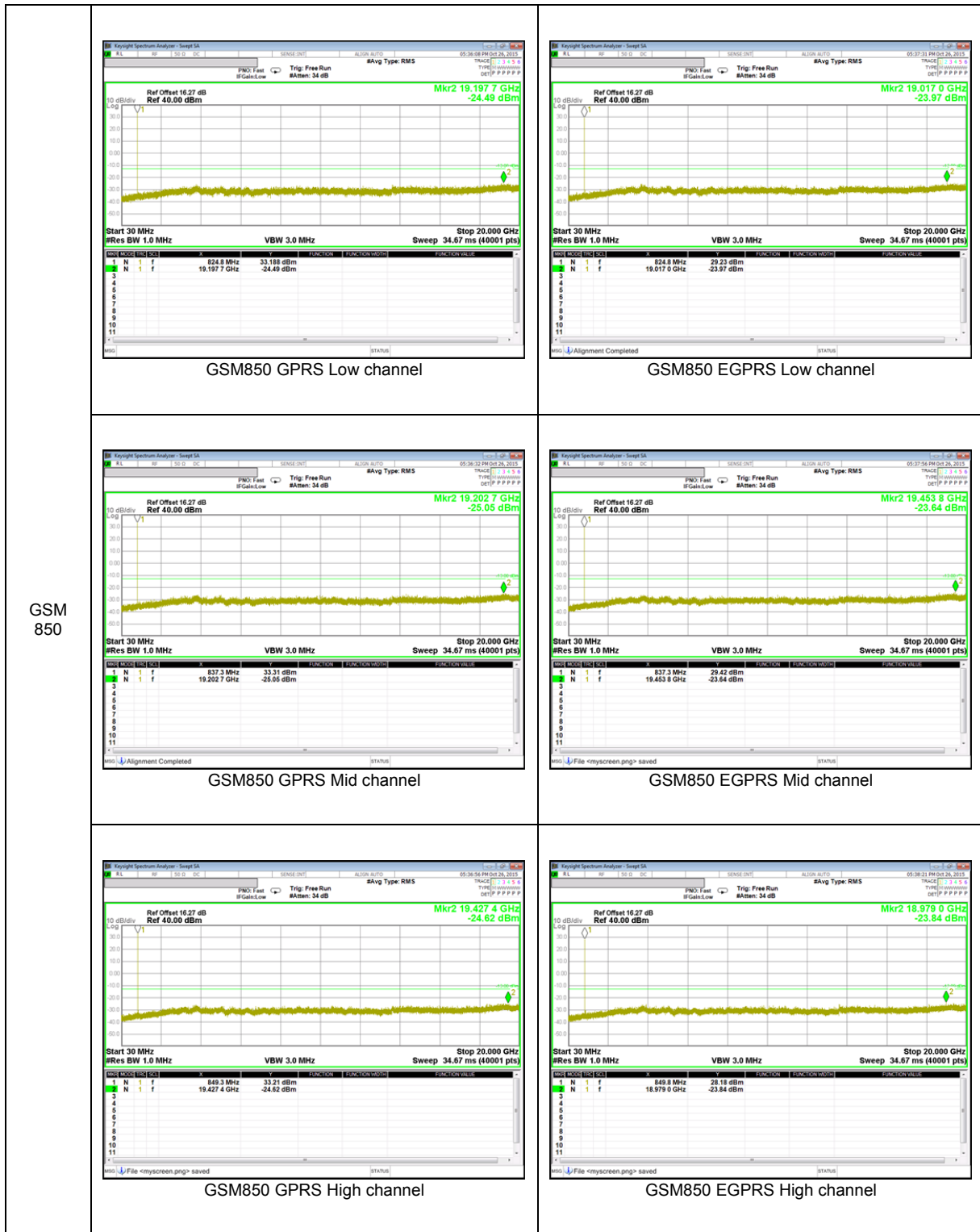
Band	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]	Margin [dB]
Band 5	REL99	826.4	-34.45	-13.00	-21.45
		836.6	-34.75		-21.75
		846.6	-34.23		-21.23
	HSDPA	826.4	-34.40		-21.4
		836.6	-33.89		-20.89
		846.6	-34.13		-21.13
Band 2	REL99	1852.4	-34.27		-21.27
		1880.0	-33.58		-20.58
		1907.6	-34.21		-21.21
	HSDPA	1852.4	-33.70	-20.7	
		1880.0	-34.79	-21.79	
		1907.6	-34.01	-21.01	

LTE 5

Bandwidth	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]	Margin [dB]
10 MHz	QPSK	829.0	-28.53	-13.00	-15.53
		836.5	-28.22		-15.22
		844.0	-29.06		-16.06
	16QAM	829.0	-28.58		-15.58
		836.5	-28.55		-15.55
		844.0	-28.60		-15.6
5 MHz	QPSK	826.5	-28.62		-15.62
		836.5	-29.18		-16.18
		846.5	-29.25		-16.25
	16QAM	826.5	-29.40		-16.4
		836.5	-29.28		-16.28
		846.5	-29.26		-16.26
3 MHz	QPSK	825.5	-28.94	-15.94	
		836.5	-27.91	-14.91	
		847.5	-28.99	-15.99	
	16QAM	825.5	-28.96	-15.96	
		836.5	-28.55	-15.55	
		847.5	-28.84	-15.84	
1.4 MHz	QPSK	824.7	-29.35	-16.35	
		836.5	-28.35	-15.35	
		848.3	-28.21	-15.21	
	16QAM	824.7	-28.39	-15.39	
		836.5	-28.42	-15.42	
		848.3	-28.93	-15.93	

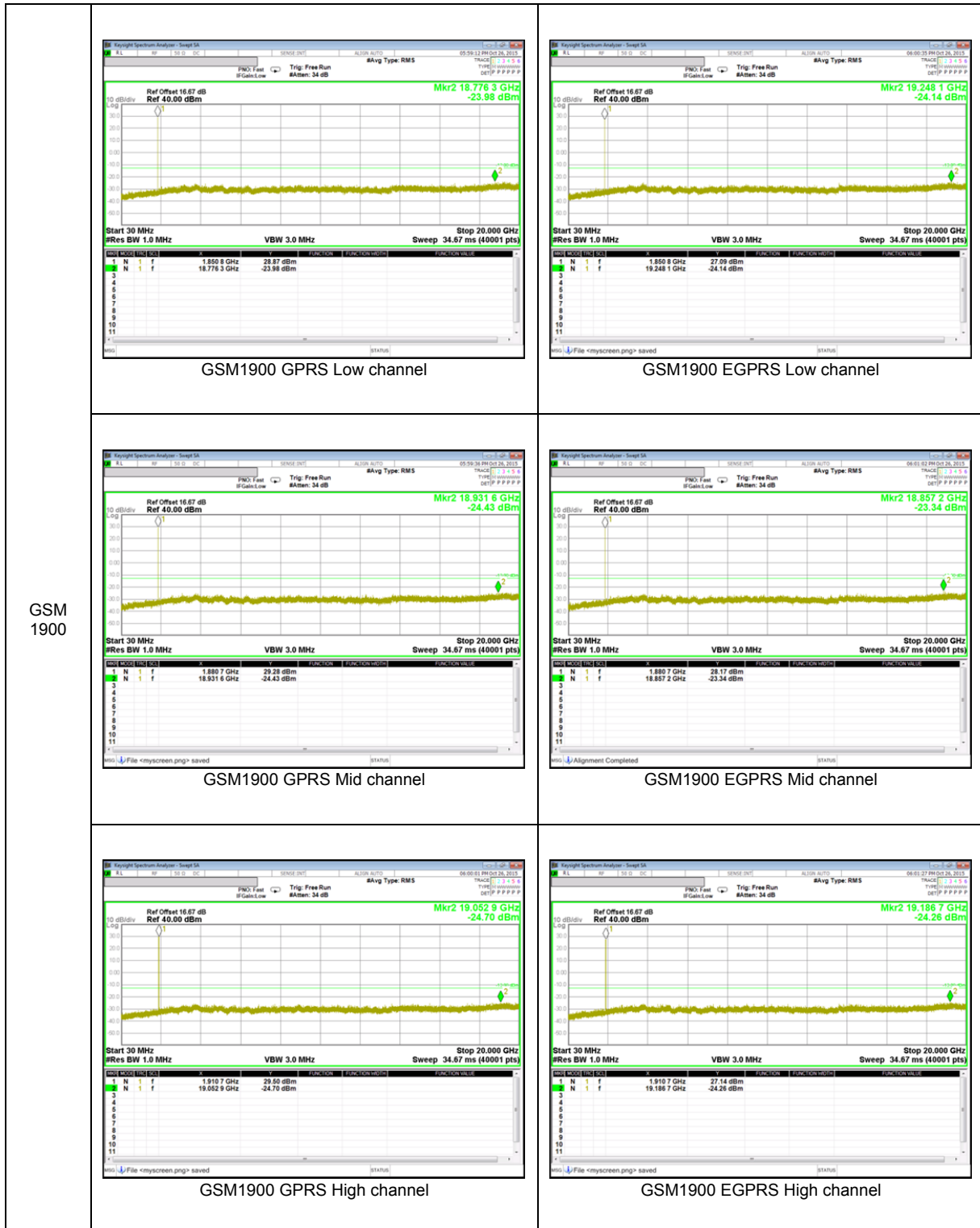
10.3.2. OUT OF BAND EMISSIONS PLOTS

GSM 850

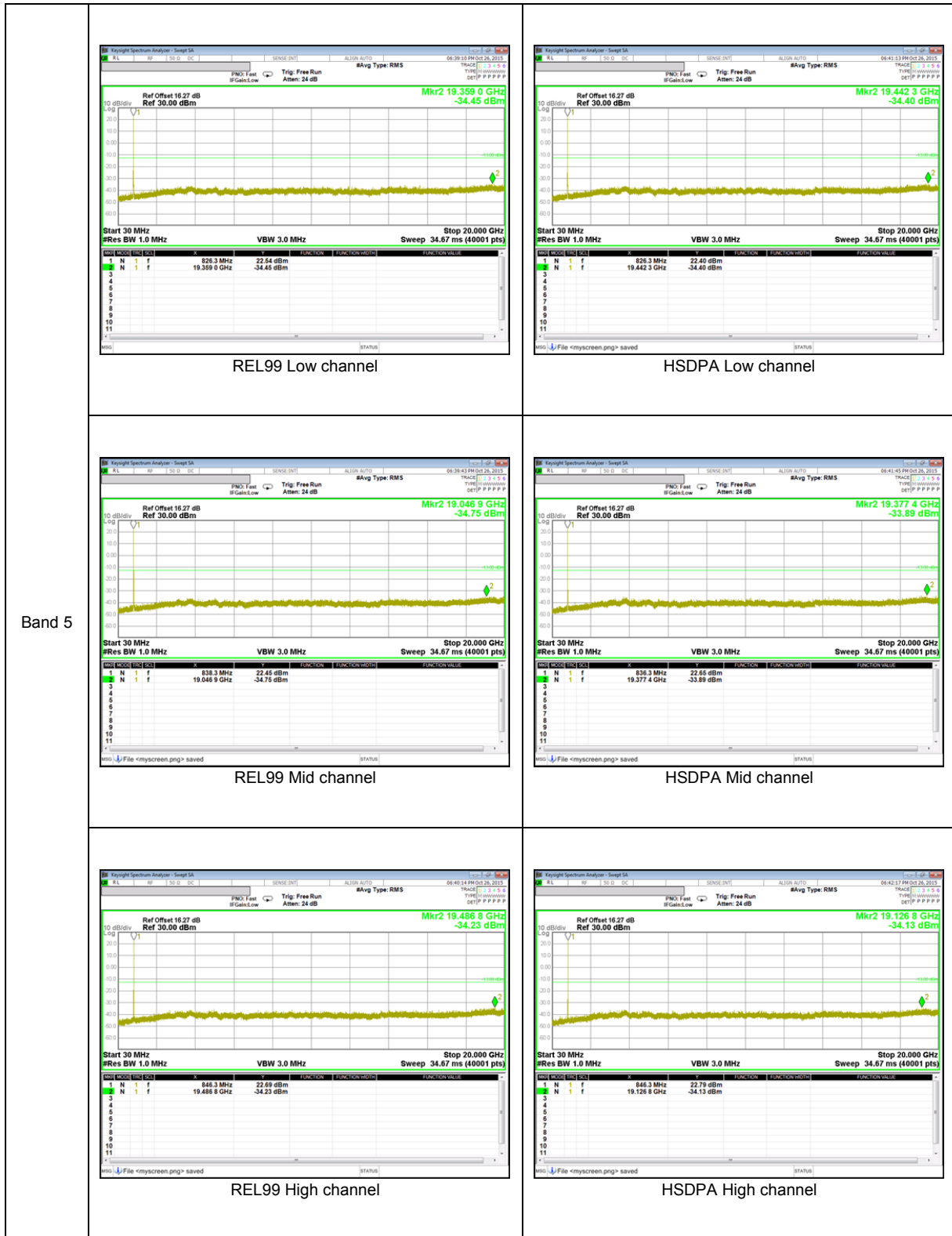


GSM
850

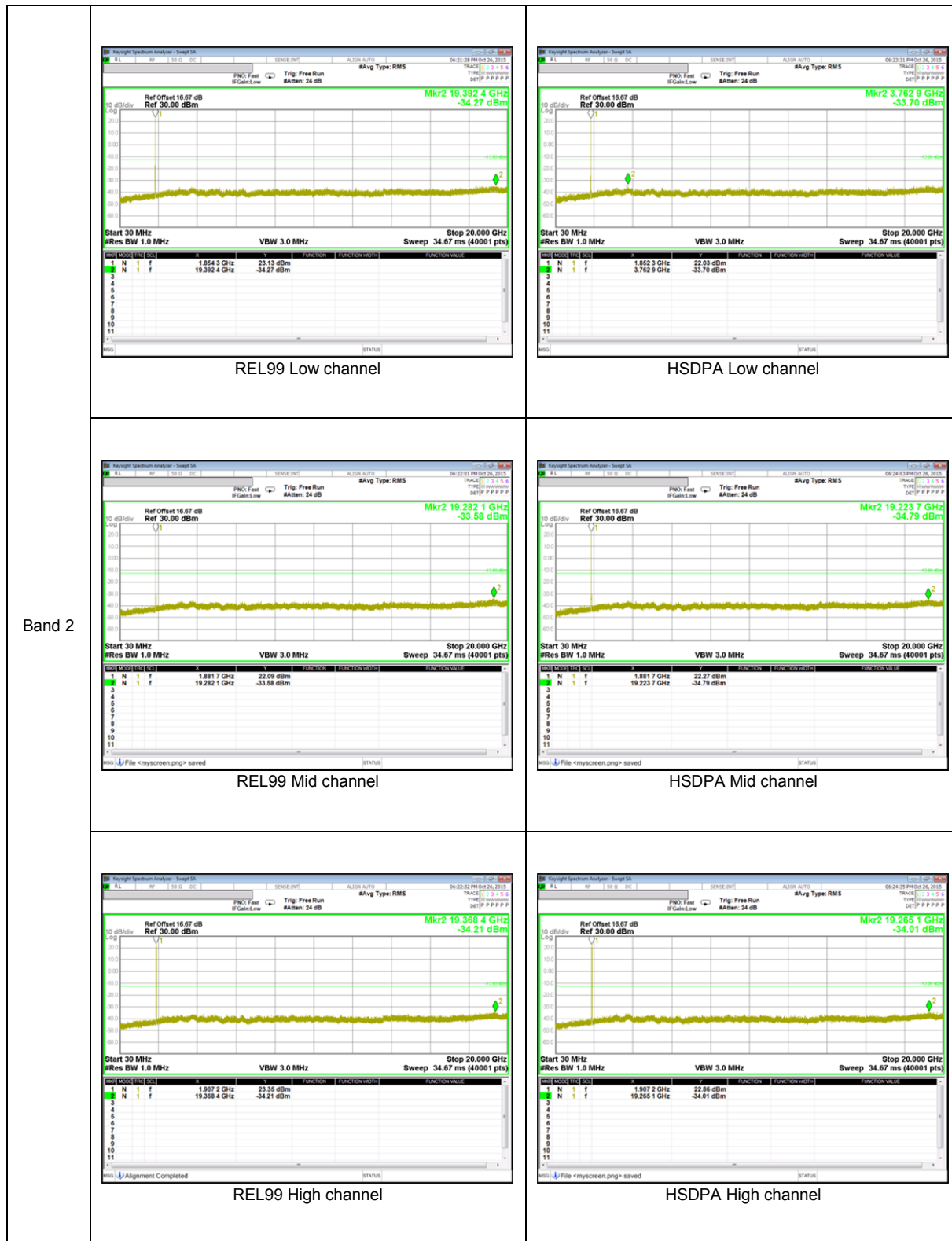
GSM 1900



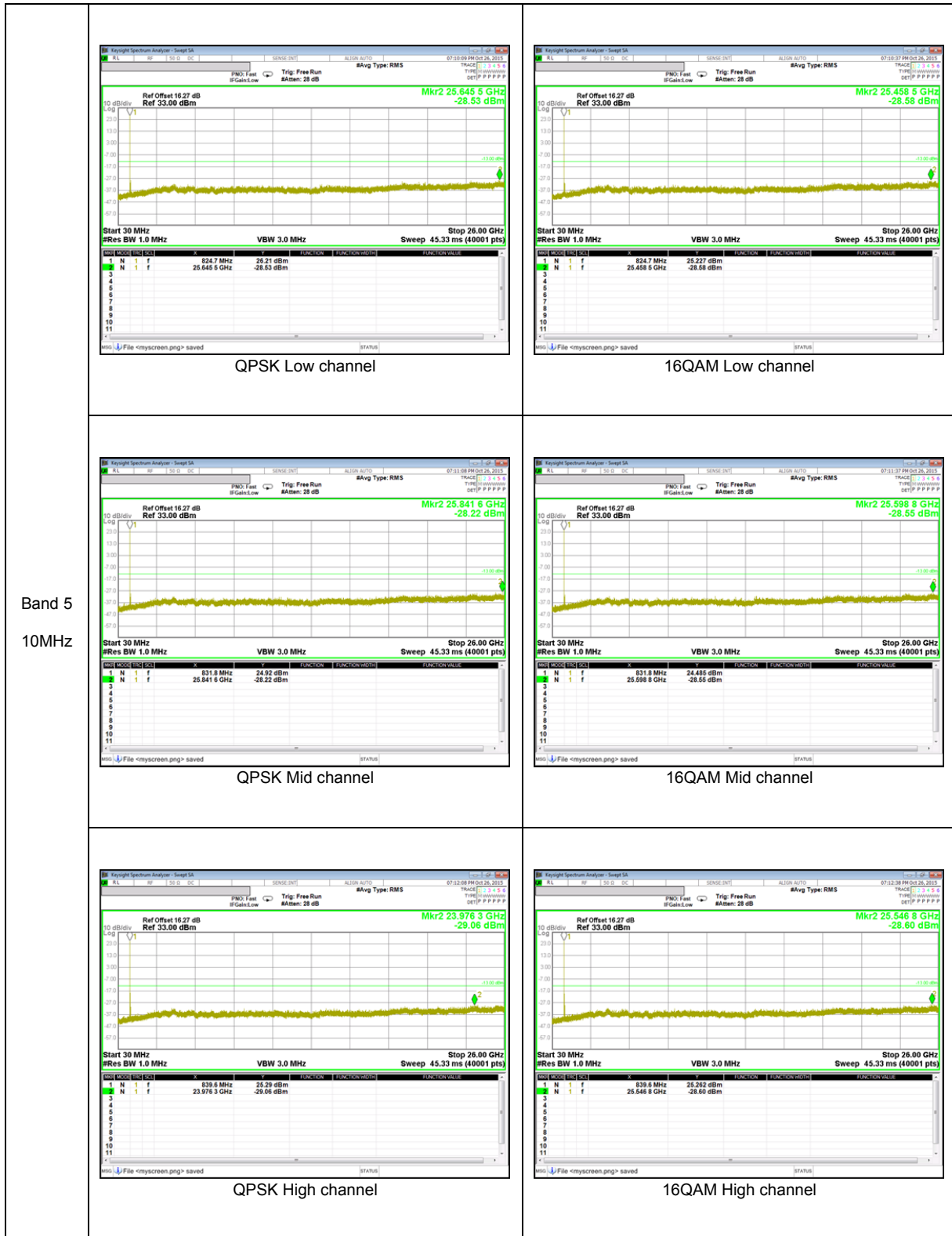
WCDMA Band 5



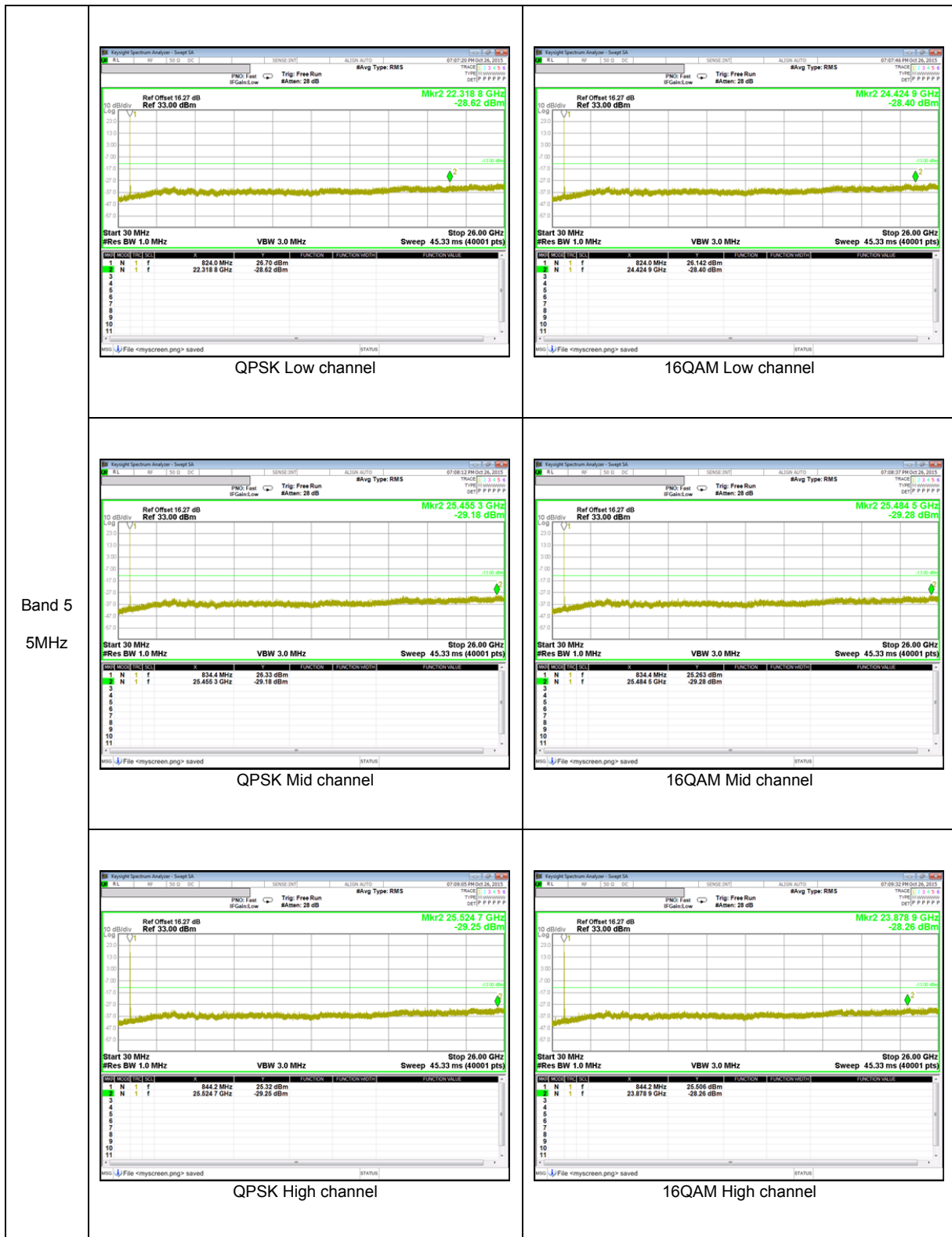
WCDMA Band 2



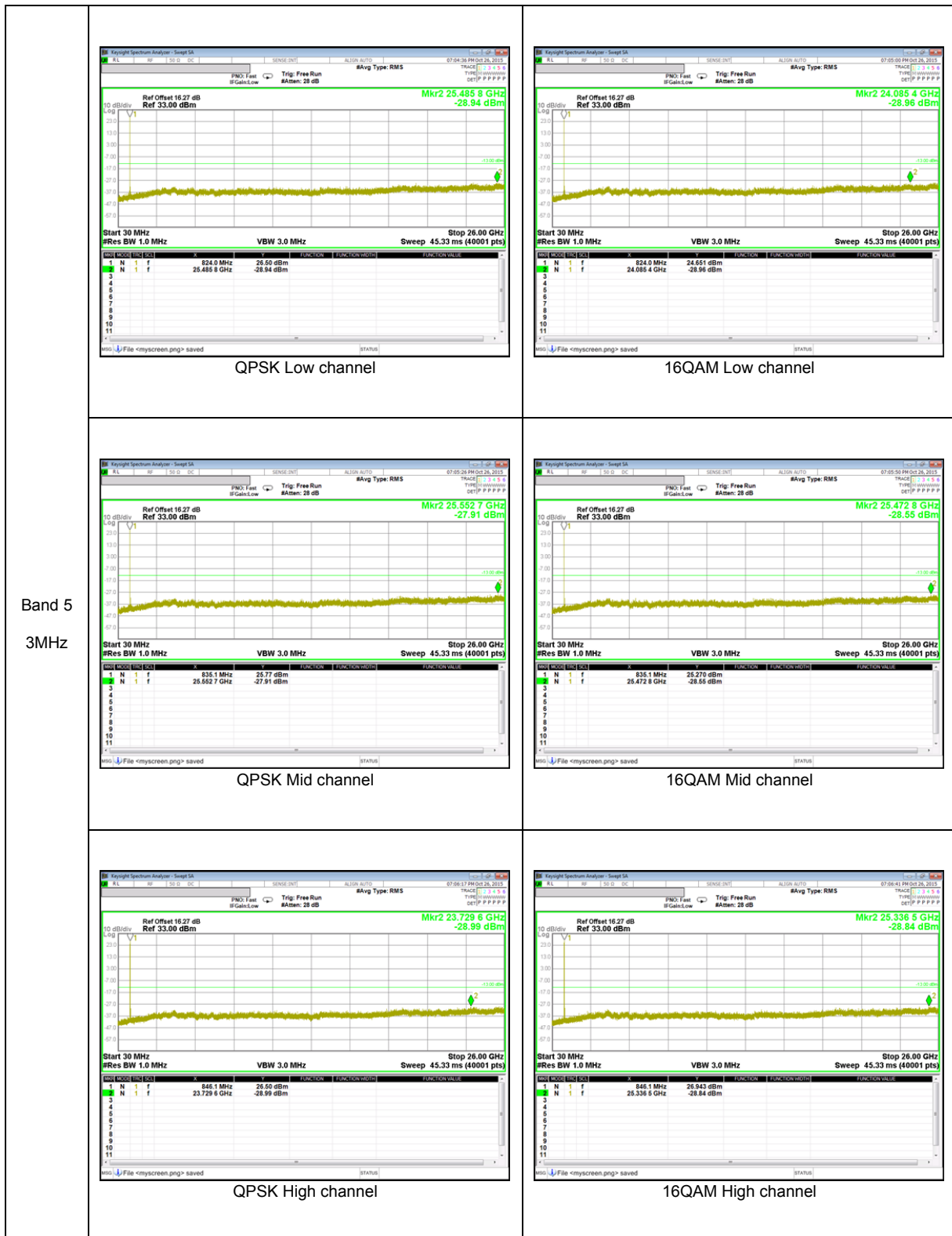
LTE Band 5

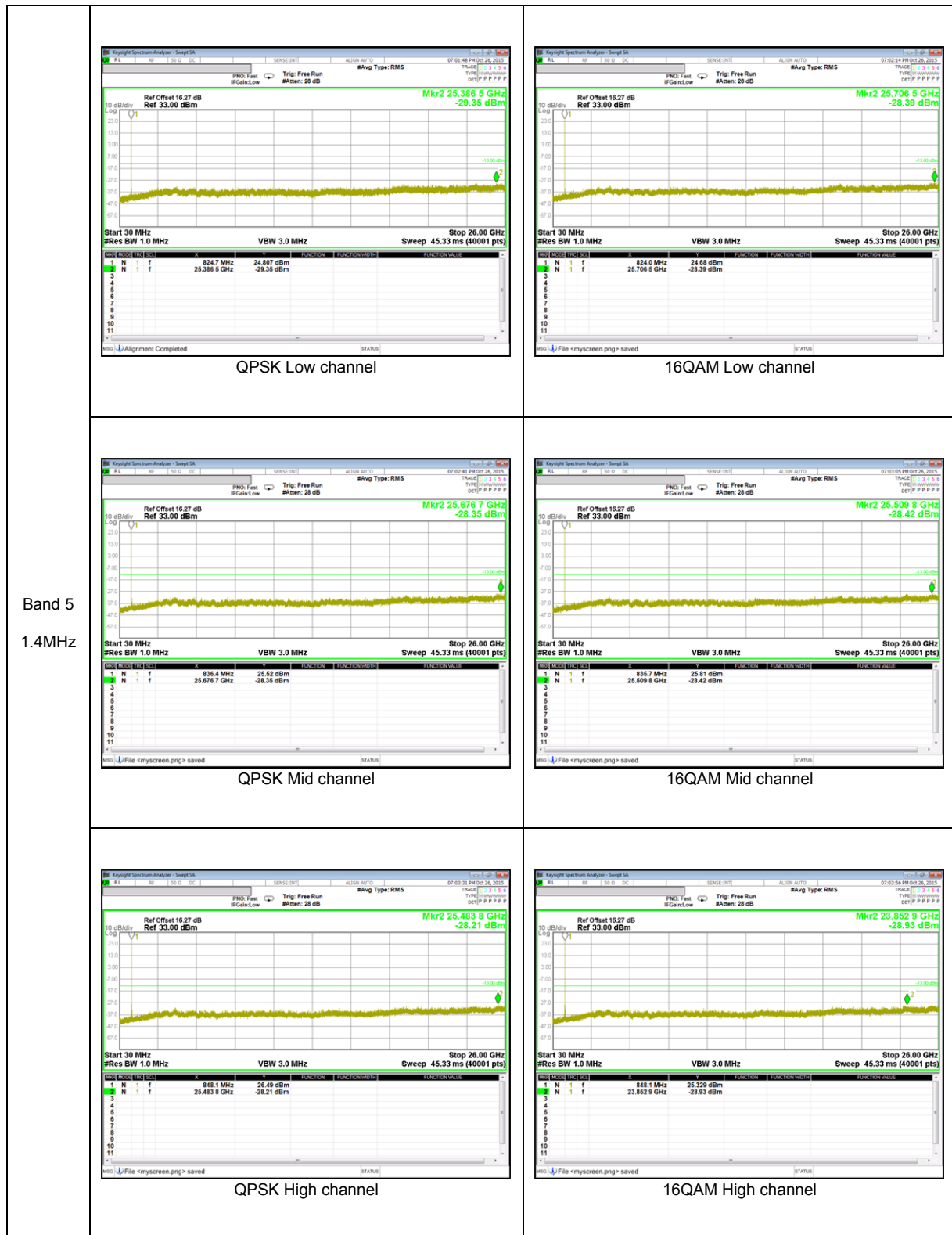


Band 5
 10MHz



Band 5
5MHz





10.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235

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.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

RESULTS

See the following pages.

10.4.1. FREQUENCY STABILITY RESULTS

LTE Band 5, Channel 20524, Frequency 836.5 MHz

WCDMA Band 5, Channel 4183, Frequency 836.6 MHz

GSM 850, Channel 190, Frequency 836.6 MHz

Reference Frequency: CELL 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	836.59997583	0.001	2.5
3.80	40	836.59997502	0.002	2.5
3.80	30	836.59997631	0.000	2.5
3.80	20	836.59997659	0	2.5
3.80	10	836.59996601	0.013	2.5
3.80	0	836.59997050	0.007	2.5
3.80	-10	836.59997513	0.002	2.5
3.80	-20	836.59997230	0.005	2.5
3.80	-30	836.59997060	0.007	2.5

Reference Frequency: CELL 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	836.59997659	0	2.5
4.20	20	836.59997353	0.004	2.5
3.40	20	836.59997930	-0.003	2.5

WCDMA Band 2, Channel 9400, Frequency 1880.0 MHz

GSM 1900, Channel 661, Frequency 1880.0 MHz

Reference Frequency: PCS 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	1879.99996111	-0.009	2.5
3.80	40	1879.99996266	-0.010	2.5
3.80	30	1879.99996279	-0.010	2.5
3.80	20	1879.99994370	0	2.5
3.80	10	1879.99996795	-0.013	2.5
3.80	0	1879.99996914	-0.014	2.5
3.80	-10	1879.99995476	-0.006	2.5
3.80	-20	1879.99995543	-0.006	2.5
3.80	-30	1879.99995393	-0.005	2.5

Reference Frequency: PCS 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	1879.99994370	0	2.5
4.20	20	1879.99997186	-0.015	2.5
3.40	20	1879.99996893	-0.013	2.5

11. RADIATED TEST RESULTS

11.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232

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.

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

TEST PROCEDURE

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

For peak power measurement with a MXA:

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 MXA:

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.

TEST RESULTS

11.1.1. ERP/EIRP Results

GSM

Band	Mode	Channel	f [MHz]	ERP / EIRP	
				[dBm]	[mW]
GSM850	GPRS	128	824.2	24.90	309.03
		190	836.6	24.70	295.12
		251	848.8	25.56	359.75
	EGPRS	128	824.2	20.22	105.20
		190	836.6	19.52	89.54
		251	848.8	19.82	95.94
GSM1900	GPRS	512	1850.2	28.70	741.31
		661	1880.0	29.00	794.33
		810	1909.8	26.54	450.82
	EGPRS	512	1850.2	23.45	221.31
		661	1880.0	23.11	204.64
		810	1909.8	20.54	113.24

WCDMA

Band	Mode	Channel	f [MHz]	ERP / EIRP	
				[dBm]	[mW]
Band 5	REL99	4132	826.4	13.71	23.50
		4183	836.6	14.46	27.93
		4233	846.6	15.95	39.36
	HSDPA	4132	826.4	13.18	20.80
		4183	836.6	14.31	26.98
		4233	846.6	16.28	42.46
Band 2	REL99	9262	1852.4	23.12	205.12
		9400	1880.0	24.56	285.76
		9538	1907.6	24.16	260.62
	HSDPA	9262	1852.4	22.95	197.24
		9400	1880.0	25.13	325.84
		9538	1907.6	24.36	272.90

LTE Band 5

Band	BW [MHz]	Mode	RB/RB Size	f [MHz]	ERP / EIRP	
			Full RB		[dBm]	[mW]
Band 5	10	QPSK	50/0	1860.0	10.66	11.64
			50/0	1880.0	11.07	12.79
			50/0	1900.0	12.30	16.98
		16QAM	50/0	1860.0	9.61	9.14
			50/0	1880.0	10.02	10.05
			50/0	1900.0	11.32	13.55
	5	QPSK	25/0	1852.5	11.32	13.55
			25/0	1880.0	12.25	16.79
			25/0	1907.5	13.12	20.51
		16QAM	25/0	1852.5	10.27	10.64
			25/0	1880.0	11.24	13.30
			25/0	1907.5	12.65	18.41
	3	QPSK	15/0	1815.5	12.05	16.03
			15/0	1880.0	12.41	17.42
			15/0	1908.5	13.72	23.55
		16QAM	15/0	1815.5	11.06	12.76
			15/0	1880.0	11.14	13.00
			15/0	1908.5	13.22	20.99
	1.4	QPSK	6/0	1850.7	9.73	9.40
			6/0	1880.0	10.40	10.96
			6/0	1909.3	11.01	12.62
		16QAM	6/0	1850.7	8.73	7.46
			6/0	1880.0	9.44	8.79
			6/0	1909.3	10.50	11.22

11.1.2. ERP/EIRP DATA

GSM 850

		High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2									
		Company: Samsung Project #: 15K22047 Date: 11-05-15 Test Engineer: Steven Kim Configuration: EUT ONLY, X Position Mode: GPRS 850 MHz <u>Test Equipment:</u> 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	
GSM GSM850 GPRS	Low Ch										
		824.20	26.12	V	1.1	-1.6	23.50	38.5	-15.0		
		824.20	27.51	H	1.1	-1.6	24.89	38.5	-13.6		
		Mid Ch									
		836.60	26.07	V	1.1	-1.4	23.58	38.5	-14.9		
		836.60	27.19	H	1.1	-1.4	24.70	38.5	-13.8		
		High Ch									
		848.80	25.50	V	1.1	-1.3	23.14	38.5	-15.3		
		848.80	27.92	H	1.1	-1.3	25.56	38.5	-12.9		
	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 #: 15K22047 Date: 11-05-15 Test Engineer: Steven Kim Configuration: EUT ONLY, X Position Mode: EGPRS 850 MHz <u>Test Equipment:</u> 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	
GSM GSM850 EGPRS	Low Ch										
		824.20	21.79	V	1.1	-1.6	19.17	38.5	-19.3		
		824.20	22.84	H	1.1	-1.6	20.22	38.5	-18.2		
		Mid Ch									
		836.60	20.80	V	1.1	-1.4	18.31	38.5	-20.1		
		836.60	22.01	H	1.1	-1.4	19.52	38.5	-18.9		
		High Ch									
		848.80	20.10	V	1.1	-1.3	17.74	38.5	-20.7		
		848.80	22.18	H	1.1	-1.3	19.82	38.5	-18.6		
	Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm										

GSM 1900

GSM GSM1900 GPRS		High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2							
		f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)
GSM GSM1900 EGPRS		Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven Kim Configuration: EUT ONLY, X Position Mode: GPRS 1900MHz Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse							
		Rev. 3.17.11							
		Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven Kim Configuration: EUT ONLY, X Position Mode: EGPRS 1900MHz Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse							
		Rev. 3.17.11							
		Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven Kim Configuration: EUT ONLY, X Position Mode: EGPRS 1900MHz Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse							
		Rev. 3.17.11							
		Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven Kim Configuration: EUT ONLY, X Position Mode: EGPRS 1900MHz Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse							
		Rev. 3.17.11							
		Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven Kim Configuration: EUT ONLY, X Position Mode: EGPRS 1900MHz Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse							
		Rev. 3.17.11							
		Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven Kim Configuration: EUT ONLY, X Position Mode: EGPRS 1900MHz Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse							
		Rev. 3.17.11							
		Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven Kim Configuration: EUT ONLY, X Position Mode: EGPRS 1900MHz Test Equipment: Receiving: 3117[00168724] and Chamber 1 SMA Cables Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse							
		Rev. 3.17.11							

WCDMA Band 5

		High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
		Company: Samsung		Project #: 15K22047		Date: 11-06-15		Test Engineer: Steven Kim		Configuration: EUT ONLY, X Position
WCDMA Band 5 REL99		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 MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
		Low Ch								
		826.40	8.60	V	1.1	-1.5	5.99	38.5	-32.5	
		826.40	16.32	H	1.1	-1.5	13.71	38.5	-24.7	
		Mid Ch								
		836.60	9.20	V	1.1	-1.4	6.71	38.5	-31.7	
		836.60	16.95	H	1.1	-1.4	14.46	38.5	-24.0	
		High Ch								
		846.60	9.30	V	1.1	-1.3	6.92	38.5	-31.5	
		846.60	18.33	H	1.1	-1.3	15.95	38.5	-22.5	
		Rev. 3.17.11								
		High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
		Company: Samsung		Project #: 15K22092		Date: 11-06-15		Test Engineer: Steven.Kim		Configuration: EUT ONLY, X Position

WCDMA Band 2

WCDMA Band 2 REL99		High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
		Company: Samsung		Project #: 15K22047		Date: 11-06-15		Test Engineer: Steven.Kim		
		Configuration: EUT ONLY, X 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	14.28	V	1.60	8.79	21.47	33.0	-11.5	
		1852.40	15.93	H	1.60	8.79	23.12	33.0	-9.9	
		Mid Ch								
		1880.00	15.14	V	1.62	8.62	22.14	33.0	-10.9	
		1880.00	17.56	H	1.62	8.62	24.56	33.0	-8.4	
		High Ch								
		1907.60	15.85	V	1.63	8.45	22.67	33.0	-10.3	
		1907.60	17.34	H	1.63	8.45	24.16	33.0	-8.8	
		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 #: 15K22047		Date: 11-06-15		Test Engineer: Steven.Kim		

LTE Band 5

High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2										
LTE Band 5 10MHz QPSK	Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven.Kim 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 MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes	
	Low Ch									
	829.00	6.29	V	1.1	-1.5	3.71	38.5	-34.7		
	829.00	13.24	H	1.1	-1.5	10.66	38.5	-27.8		
	Mid Ch									
	836.50	6.62	V	1.1	-1.4	4.13	38.5	-34.3		
	836.50	13.56	H	1.1	-1.4	11.07	38.5	-27.4		
	High Ch									
	844.00	7.00	V	1.1	-1.3	4.61	38.5	-33.8		
	844.00	14.72	H	1.1	-1.3	12.30	38.5	-26.1		
	Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm									
	LTE Band 5 10MHz 16QAM	Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven.Kim 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 MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
		Low Ch								
829.00		5.33	V	1.1	-1.5	2.75	38.5	-35.7		
829.00		12.19	H	1.1	-1.5	9.61	38.5	-28.8		
Mid Ch										
836.50		5.66	V	1.1	-1.4	3.15	38.5	-35.3		
836.50		12.53	H	1.1	-1.4	10.02	38.5	-28.4		
High Ch										
844.00		5.96	V	1.1	-1.3	3.54	38.5	-34.9		
844.00		13.74	H	1.1	-1.3	11.32	38.5	-27.1		
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										
LTE Band 5 5MHz QPSK	Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven.Kim 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	6.75	V	1.1	-1.5	4.15	38.5	-34.3		
	826.50	13.92	H	1.1	-1.5	11.32	38.5	-27.1		
	Mid Ch									
	836.50	7.13	V	1.1	-1.4	4.64	38.5	-33.8		
	836.50	14.74	H	1.1	-1.4	12.25	38.5	-26.2		
	High Ch									
	846.50	8.06	V	1.6	-1.3	5.18	38.5	-33.3		
	846.50	16.00	H	1.6	-1.3	13.12	38.5	-25.3		
	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	Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven.Kim 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		5.75	V	1.1	-1.5	3.15	38.5	-35.3		
826.50		12.87	H	1.1	-1.5	10.27	38.5	-28.2		
Mid Ch										
836.50		6.16	V	1.1	-1.4	3.67	38.5	-34.8		
836.50		13.73	H	1.1	-1.4	11.24	38.5	-27.2		
High Ch										
846.50		7.06	V	1.1	-1.3	4.68	38.5	-33.8		
846.50		15.03	H	1.1	-1.3	12.65	38.5	-25.8		
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										
LTE Band 5 3MHz QPSK	Company:		Samsung							
	Project #:		15K22047							
	Date:		11-06-15							
	Test Engineer:		Steven.Kim							
	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 MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes	
	Low Ch									
	825.50	6.82	V	1.1	-1.5	4.22	38.5	-34.2		
	825.50	14.65	H	1.1	-1.5	12.05	38.5	-26.4		
	Mid Ch									
	836.50	7.64	V	1.1	-1.4	5.15	38.5	-33.3		
836.50	14.90	H	1.1	-1.4	12.41	38.5	-26.0			
High Ch										
847.50	8.16	V	1.6	-1.3	5.28	38.5	-33.2			
847.50	16.60	H	1.6	-1.3	13.72	38.5	-24.7			
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 #:		15K22047								
Date:		11-06-15								
Test Engineer:		Steven.Kim								
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 MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes		
Low Ch										
825.50	5.77	V	1.1	-1.5	3.17	38.5	-35.3			
825.50	13.66	H	1.1	-1.5	11.06	38.5	-27.4			
Mid Ch										
836.50	6.66	V	1.1	-1.4	4.17	38.5	-34.3			
836.50	13.93	H	1.1	-1.4	11.44	38.5	-27.0			
High Ch										
847.50	7.13	V	1.1	-1.3	4.75	38.5	-33.7			
847.50	15.60	H	1.1	-1.3	13.22	38.5	-25.2			
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										
LTE Band 5 1.4MHz QPSK	Company:		Samsung							
	Project #:		15K22047							
	Date:		11-06-15							
	Test Engineer:		Steven.Kim							
	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	4.55	V	1.1	-1.5	1.95	38.5	-36.5		
	824.70	12.33	H	1.1	-1.5	9.73	38.5	-28.7		
	Mid Ch									
	836.50	5.36	V	1.1	-1.4	2.87	38.5	-35.6		
836.50	12.89	H	1.1	-1.4	10.40	38.5	-28.1			
High Ch										
844.30	5.38	V	1.6	-1.3	2.50	38.5	-35.9			
844.30	13.89	H	1.6	-1.3	11.01	38.5	-27.4			
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 #:		15K22047								
Date:		11-06-15								
Test Engineer:		Steven.Kim								
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	3.55	V	1.1	-1.5	0.95	38.5	-37.5			
824.70	11.33	H	1.1	-1.5	8.73	38.5	-29.7			
Mid Ch										
836.50	4.36	V	1.1	-1.4	1.87	38.5	-36.6			
836.50	11.93	H	1.1	-1.4	9.44	38.5	-29.0			
High Ch										
844.30	4.36	V	1.1	-1.3	1.98	38.5	-36.5			
844.30	12.88	H	1.1	-1.3	10.50	38.5	-28.0			
Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm										

11.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238

LIMIT

Part 22.917(a) & Part 24.238(a) 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.

TEST PROCEDURE

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

RESULTS

11.2.1. SPURIOUS RADIATION PLOTS

GSM 850

		UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement									
GSM GSM850 GPRS	Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven Kim Configuration: EUT / AC Adapter / Earphone, X Position Mode: GPRS 850 MHz		Chamber: Chamber 2		Pre-amplifier: AFS42		Filter: Filter 1		Limit: 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 Ch, 824.2MHz										
	1.6484	-11.3	V	3.0	39.1	1.0	-49.4	-13.0	-36.4		
	2.4726	-12.4	V	3.0	39.5	1.0	-50.9	-13.0	-37.9		
	3.2968	-14.7	V	3.0	40.1	1.0	-53.8	-13.0	-40.8		
	1.6484	-12.2	H	3.0	39.1	1.0	-50.3	-13.0	-37.3		
	2.4726	-12.3	H	3.0	39.5	1.0	-50.9	-13.0	-37.9		
	3.2968	-15.3	H	3.0	40.1	1.0	-54.4	-13.0	-41.4		
	Mid Ch, 836.6MHz										
1.6730	-9.7	V	3.0	39.1	1.0	-47.8	-13.0	-34.8			
2.5098	-14.4	V	3.0	39.5	1.0	-53.0	-13.0	-40.0			
3.3464	-14.7	V	3.0	40.1	1.0	-53.8	-13.0	-40.8			
1.6730	-5.5	H	3.0	39.1	1.0	-43.7	-13.0	-30.7			
2.5098	-13.5	H	3.0	39.5	1.0	-52.1	-13.0	-39.1			
3.3464	-14.8	H	3.0	40.1	1.0	-54.0	-13.0	-41.0			
High Ch, 848.8MHz											
1.6976	-4.8	V	3.0	39.1	1.0	-42.9	-13.0	-29.9			
2.5466	-12.5	V	3.0	39.6	1.0	-51.0	-13.0	-38.0			
3.3952	-14.2	V	3.0	40.2	1.0	-53.4	-13.0	-40.4			
1.6976	-2.0	H	3.0	39.1	1.0	-40.1	-13.0	-27.1			
2.5466	-11.9	H	3.0	39.6	1.0	-50.4	-13.0	-37.4			
3.3952	-14.8	H	3.0	40.2	1.0	-54.0	-13.0	-41.0			
Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.											
GSM GSM850 EGPRS	Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven Kim Configuration: EUT / AC Adapter / Earphone, X Position Mode: EGPRS 850 MHz		Chamber: Chamber 1		Pre-amplifier: AFS42		Filter: Filter 1		Limit: 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 Ch, 824.2MHz										
	1.6484	-16.2	V	3.0	39.1	1.0	-54.3	-13.0	-41.3		
	2.4726	-19.6	V	3.0	39.5	1.0	-58.2	-13.0	-45.2		
	3.2968	-17.9	V	3.0	40.1	1.0	-57.0	-13.0	-44.0		
	1.6484	-17.2	H	3.0	39.1	1.0	-55.3	-13.0	-42.3		
	2.4726	-17.5	H	3.0	39.5	1.0	-56.0	-13.0	-43.0		
	3.2968	-17.9	H	3.0	40.1	1.0	-57.0	-13.0	-44.0		
	Mid Ch, 836.6MHz										
1.6730	-14.8	V	3.0	39.1	1.0	-52.9	-13.0	-39.9			
2.5098	-17.9	V	3.0	39.5	1.0	-56.4	-13.0	-43.4			
3.3464	-17.4	V	3.0	40.1	1.0	-56.6	-13.0	-43.6			
1.6730	-10.0	H	3.0	39.1	1.0	-48.2	-13.0	-35.2			
2.5098	-18.3	H	3.0	39.5	1.0	-56.8	-13.0	-43.8			
3.3464	-18.0	H	3.0	40.1	1.0	-57.1	-13.0	-44.1			
High Ch, 848.8MHz											
1.6976	-9.7	V	3.0	39.1	1.0	-47.8	-13.0	-34.8			
2.5466	-16.9	V	3.0	39.6	1.0	-55.5	-13.0	-42.5			
3.3952	-17.4	V	3.0	40.2	1.0	-56.6	-13.0	-43.6			
1.6976	-6.9	H	3.0	39.1	1.0	-45.0	-13.0	-32.0			
2.5466	-16.3	H	3.0	39.6	1.0	-54.8	-13.0	-41.8			
3.3952	-17.8	H	3.0	40.2	1.0	-57.0	-13.0	-44.0			
Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.											

GSM 1900

UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement									
Company: Samsung									
Project #: 15K22047									
Date: 11-06-15									
Test Engineer: Steven Kim									
Configuration: EUT / AC Adapter / Earphone, X Position									
Mode: GPRS 1900									
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, 1850.2MHz									
3.7004	-5.8	V	3.0	40.5	1.0	-45.3	-13.0	-32.3	
5.5506	-7.5	V	3.0	40.8	1.0	-47.3	-13.0	-34.3	
7.4008	-5.8	V	3.0	40.8	1.0	-45.6	-13.0	-32.6	
3.7000	-6.9	H	3.0	40.5	1.0	-46.4	-13.0	-33.4	
5.5506	-6.4	H	3.0	40.8	1.0	-46.2	-13.0	-33.2	
7.4008	-10.5	H	3.0	40.8	1.0	-50.3	-13.0	-37.3	
Mid Ch, 1880.0MHz									
3.7600	-3.3	V	3.0	40.5	1.0	-42.8	-13.0	-29.8	
5.6400	-4.2	V	3.0	40.8	1.0	-44.0	-13.0	-31.0	
7.5200	-5.4	V	3.0	40.7	1.0	-45.1	-13.0	-32.1	
3.7600	-6.1	H	3.0	40.5	1.0	-45.6	-13.0	-32.6	
5.6400	-7.6	H	3.0	40.8	1.0	-47.4	-13.0	-34.4	
7.5200	-9.6	H	3.0	40.7	1.0	-49.3	-13.0	-36.3	
High Ch, 1909.8 MHz									
3.8196	-4.3	V	3.0	40.6	1.0	-43.9	-13.0	-30.9	
5.7294	-2.2	V	3.0	40.8	1.0	-42.0	-13.0	-29.0	
7.6392	-7.3	V	3.0	40.7	1.0	-47.0	-13.0	-34.0	
3.8196	-6.3	H	3.0	40.6	1.0	-45.9	-13.0	-32.9	
5.7294	-6.5	H	3.0	40.8	1.0	-46.3	-13.0	-33.3	
7.6392	-8.8	H	3.0	40.7	1.0	-48.5	-13.0	-35.5	
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: Samsung									
Project #: 15K22047									
Date: 11-06-15									
Test Engineer: Steven Kim									
Configuration: EUT / AC Adapter / Earphone, X Position									
Mode: EGPRS 1900 MHz									
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, 1850.2MHz									
3.7004	-12.7	V	3.0	40.5	1.0	-52.2	-13.0	-39.2	
5.5506	-10.7	V	3.0	40.8	1.0	-50.5	-13.0	-37.5	
7.4008	-10.2	V	3.0	40.8	1.0	-50.0	-13.0	-37.0	
3.7000	-12.6	H	3.0	40.5	1.0	-52.1	-13.0	-39.1	
5.5500	-10.6	H	3.0	40.8	1.0	-50.5	-13.0	-37.5	
7.4000	-11.7	H	3.0	40.8	1.0	-51.5	-13.0	-38.5	
Mid Ch, 1880.0MHz									
3.7600	-10.9	V	3.0	40.5	1.0	-50.4	-13.0	-37.4	
5.6400	-7.0	V	3.0	40.8	1.0	-46.8	-13.0	-33.8	
7.5200	-11.0	V	3.0	40.7	1.0	-50.8	-13.0	-37.8	
3.7600	-12.8	H	3.0	40.5	1.0	-52.3	-13.0	-39.3	
5.6400	-11.7	H	3.0	40.8	1.0	-51.5	-13.0	-38.5	
7.5200	-10.9	H	3.0	40.7	1.0	-50.6	-13.0	-37.6	
High Ch, 1909.8 MHz									
3.8196	-12.2	V	3.0	40.6	1.0	-51.8	-13.0	-38.8	
5.7294	-4.9	V	3.0	40.8	1.0	-44.7	-13.0	-31.7	
7.6392	-10.7	V	3.0	40.7	1.0	-50.3	-13.0	-37.3	
3.8196	-12.6	H	3.0	40.6	1.0	-52.2	-13.0	-39.2	
5.7294	-8.5	H	3.0	40.8	1.0	-48.3	-13.0	-35.3	
7.6392	-10.6	H	3.0	40.7	1.0	-50.3	-13.0	-37.3	
Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.									

WCDMA Band 5

		UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement																																																																																																																																																																																																																																				
WCDMA Band 5 REL99	Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven Kim Configuration: EUT / AC Adapter / Earphone / X Position Mode: Tx, REL99,850MHz	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">Chamber</div> <div style="border: 1px solid black; padding: 2px;">Pre-amplifier</div> <div style="border: 1px solid black; padding: 2px;">Filter</div> <div style="border: 1px solid black; padding: 2px;">Limit</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid black; padding: 2px;">Chamber 2</div> <div style="border: 1px solid black; padding: 2px;">AFS42</div> <div style="border: 1px solid black; padding: 2px;">Filter 1</div> <div style="border: 1px solid black; padding: 2px;">Part 22</div> </div> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>f GHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Distance (m)</th> <th>Preamp (dB)</th> <th>Filter (dB)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Delta (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr><td colspan="10">Low Ch, 826.40MHz</td></tr> <tr><td>1.6520</td><td>-19.1</td><td>V</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-57.3</td><td>-13.0</td><td>-44.3</td><td></td></tr> <tr><td>2.4790</td><td>-12.7</td><td>V</td><td>3.0</td><td>39.5</td><td>1.0</td><td>-51.2</td><td>-13.0</td><td>-38.2</td><td></td></tr> <tr><td>3.3056</td><td>-15.7</td><td>V</td><td>3.0</td><td>40.1</td><td>1.0</td><td>-54.8</td><td>-13.0</td><td>-41.8</td><td></td></tr> <tr><td>1.6520</td><td>-20.5</td><td>H</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-58.6</td><td>-13.0</td><td>-45.6</td><td></td></tr> <tr><td>2.4790</td><td>-10.0</td><td>H</td><td>3.0</td><td>39.5</td><td>1.0</td><td>-48.5</td><td>-13.0</td><td>-35.5</td><td></td></tr> <tr><td>3.3056</td><td>-16.1</td><td>H</td><td>3.0</td><td>40.1</td><td>1.0</td><td>-55.2</td><td>-13.0</td><td>-42.2</td><td></td></tr> <tr><td colspan="10">Mid Ch, 836.6MHz</td></tr> <tr><td>1.6732</td><td>-19.4</td><td>V</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-57.5</td><td>-13.0</td><td>-44.5</td><td></td></tr> <tr><td>2.5098</td><td>-15.6</td><td>V</td><td>3.0</td><td>39.5</td><td>1.0</td><td>-54.1</td><td>-13.0</td><td>-41.1</td><td></td></tr> <tr><td>3.3464</td><td>-16.2</td><td>V</td><td>3.0</td><td>40.1</td><td>1.0</td><td>-55.4</td><td>-13.0</td><td>-42.4</td><td></td></tr> <tr><td>1.6732</td><td>-18.9</td><td>H</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-57.1</td><td>-13.0</td><td>-44.1</td><td></td></tr> <tr><td>2.5098</td><td>-16.2</td><td>H</td><td>3.0</td><td>39.5</td><td>1.0</td><td>-54.7</td><td>-13.0</td><td>-41.7</td><td></td></tr> <tr><td>3.3464</td><td>-16.5</td><td>H</td><td>3.0</td><td>40.1</td><td>1.0</td><td>-55.7</td><td>-13.0</td><td>-42.7</td><td></td></tr> <tr><td colspan="10">High Ch, 846.6MHz</td></tr> <tr><td>1.6932</td><td>-19.3</td><td>V</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-57.4</td><td>-13.0</td><td>-44.4</td><td></td></tr> <tr><td>2.5390</td><td>-15.3</td><td>V</td><td>3.0</td><td>39.6</td><td>1.0</td><td>-53.9</td><td>-13.0</td><td>-40.9</td><td></td></tr> <tr><td>3.3860</td><td>-15.6</td><td>V</td><td>3.0</td><td>40.2</td><td>1.0</td><td>-54.8</td><td>-13.0</td><td>-41.8</td><td></td></tr> <tr><td>1.6932</td><td>-20.3</td><td>H</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-58.4</td><td>-13.0</td><td>-45.4</td><td></td></tr> <tr><td>2.5390</td><td>-13.9</td><td>H</td><td>3.0</td><td>39.6</td><td>1.0</td><td>-52.4</td><td>-13.0</td><td>-39.4</td><td></td></tr> <tr><td>3.3860</td><td>-15.9</td><td>H</td><td>3.0</td><td>40.2</td><td>1.0</td><td>-55.1</td><td>-13.0</td><td>-42.1</td><td></td></tr> </tbody> </table> <p>Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.</p>									f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch, 826.40MHz										1.6520	-19.1	V	3.0	39.1	1.0	-57.3	-13.0	-44.3		2.4790	-12.7	V	3.0	39.5	1.0	-51.2	-13.0	-38.2		3.3056	-15.7	V	3.0	40.1	1.0	-54.8	-13.0	-41.8		1.6520	-20.5	H	3.0	39.1	1.0	-58.6	-13.0	-45.6		2.4790	-10.0	H	3.0	39.5	1.0	-48.5	-13.0	-35.5		3.3056	-16.1	H	3.0	40.1	1.0	-55.2	-13.0	-42.2		Mid Ch, 836.6MHz										1.6732	-19.4	V	3.0	39.1	1.0	-57.5	-13.0	-44.5		2.5098	-15.6	V	3.0	39.5	1.0	-54.1	-13.0	-41.1		3.3464	-16.2	V	3.0	40.1	1.0	-55.4	-13.0	-42.4		1.6732	-18.9	H	3.0	39.1	1.0	-57.1	-13.0	-44.1		2.5098	-16.2	H	3.0	39.5	1.0	-54.7	-13.0	-41.7		3.3464	-16.5	H	3.0	40.1	1.0	-55.7	-13.0	-42.7		High Ch, 846.6MHz										1.6932	-19.3	V	3.0	39.1	1.0	-57.4	-13.0	-44.4		2.5390	-15.3	V	3.0	39.6	1.0	-53.9	-13.0	-40.9		3.3860	-15.6	V	3.0	40.2	1.0	-54.8	-13.0	-41.8		1.6932	-20.3	H	3.0	39.1	1.0	-58.4	-13.0	-45.4		2.5390	-13.9	H	3.0	39.6	1.0	-52.4	-13.0	-39.4		3.3860	-15.9	H	3.0	40.2	1.0	-55.1	-13.0	-42.1	
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3.3860	-13.6	V	3.0	40.2	1.0	-52.8	-13.0	-39.8																																																																																																																																																																																																																														
1.6932	-20.2	H	3.0	39.1	1.0	-58.4	-13.0	-45.4																																																																																																																																																																																																																														
2.5390	-14.0	H	3.0	39.6	1.0	-52.5	-13.0	-39.5																																																																																																																																																																																																																														
3.3860	-15.9	H	3.0	40.2	1.0	-55.1	-13.0	-42.1																																																																																																																																																																																																																														

WCDMA Band 2

		UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement									
WCDMA Band 2 REL99	Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven Kim Configuration: EUT / AC Adapter / Earphone / X Position Mode: Tx, REL99,1900MHz		Chamber: Chamber 2		Pre-amplifier: AFS42		Filter: Filter 1		Limit: 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	-10.9	V	3.0	40.5	1.0	-50.4	-13.0	-37.4		
	5.5572	-11.3	V	3.0	40.8	1.0	-51.2	-13.0	-38.2		
	7.4096	-9.6	V	3.0	40.8	1.0	-49.4	-13.0	-36.4		
	3.7048	-9.0	H	3.0	40.5	1.0	-48.5	-13.0	-35.5		
	5.5572	-11.4	H	3.0	40.8	1.0	-51.2	-13.0	-38.2		
	7.4096	-9.3	H	3.0	40.8	1.0	-49.1	-13.0	-36.1		
	Mid Ch, 1880MHz										
	3.7600	-12.8	V	3.0	40.5	1.0	-52.4	-13.0	-39.4		
	5.6400	-11.4	V	3.0	40.8	1.0	-51.2	-13.0	-38.2		
	7.5200	-9.2	V	3.0	40.7	1.0	-48.9	-13.0	-35.9		
	3.7600	-12.1	H	3.0	40.5	1.0	-51.7	-13.0	-38.7		
	5.6400	-11.4	H	3.0	40.8	1.0	-51.2	-13.0	-38.2		
	7.5200	-8.8	H	3.0	40.7	1.0	-48.5	-13.0	-35.5		
	High Ch, 1907.6MHz										
	3.8152	-12.0	V	3.0	40.6	1.0	-51.6	-13.0	-38.6		
	5.7228	-9.1	V	3.0	40.8	1.0	-48.9	-13.0	-35.9		
	7.6304	-8.8	V	3.0	40.7	1.0	-48.5	-13.0	-35.5		
3.8152	-12.5	H	3.0	40.6	1.0	-52.1	-13.0	-39.1			
5.7228	-10.6	H	3.0	40.8	1.0	-50.4	-13.0	-37.4			
7.6304	-8.7	H	3.0	40.7	1.0	-48.3	-13.0	-35.3			
Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.											
WCDMA Band 2 HSDPA	Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven Kim Configuration: EUT / AC Adapter / Earphone / X Position Mode: Tx, HSDPA,1900MHz		Chamber: Chamber 2		Pre-amplifier: AFS42		Filter: Filter 1		Limit: 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	-10.4	V	3.0	40.5	1.0	-49.9	-13.0	-36.9		
	5.5572	-11.4	V	3.0	40.8	1.0	-51.2	-13.0	-38.2		
	7.4096	-9.6	V	3.0	40.8	1.0	-49.4	-13.0	-36.4		
	3.7048	-10.3	H	3.0	40.5	1.0	-49.8	-13.0	-36.8		
	5.5572	-11.3	H	3.0	40.8	1.0	-51.1	-13.0	-38.1		
	7.4096	-9.4	H	3.0	40.8	1.0	-49.2	-13.0	-36.2		
	Mid Ch, 1880MHz										
	3.7600	-13.7	V	3.0	40.5	1.0	-53.2	-13.0	-40.2		
	5.6400	-11.3	V	3.0	40.8	1.0	-51.1	-13.0	-38.1		
	7.5200	-8.9	V	3.0	40.7	1.0	-48.7	-13.0	-35.7		
	3.7600	-13.8	H	3.0	40.5	1.0	-53.3	-13.0	-40.3		
	5.6400	-11.4	H	3.0	40.8	1.0	-51.2	-13.0	-38.2		
	7.5200	-8.7	H	3.0	40.7	1.0	-48.5	-13.0	-35.5		
	High Ch, 1907.6MHz										
	3.8152	-13.8	V	3.0	40.6	1.0	-53.4	-13.0	-40.4		
	5.7228	-9.2	V	3.0	40.8	1.0	-49.0	-13.0	-36.0		
	7.6304	-8.7	V	3.0	40.7	1.0	-48.4	-13.0	-35.4		
3.8152	-12.3	H	3.0	40.6	1.0	-51.9	-13.0	-38.9			
5.7228	-11.1	H	3.0	40.8	1.0	-50.9	-13.0	-37.9			
7.6304	-8.7	H	3.0	40.7	1.0	-48.3	-13.0	-35.3			
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										
LTE Band 5 10MHz QPSK		Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven.Kim Configuration: EUT / AC Adapter / Earphone, X Position Mode: TX, LTE BAND 5, 10MHz BW,QPSK								
		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)
Low Channel (829MHz)										
1.6580	-26.0	V	3.0	39.1	1.0	-64.1	-13.0	-51.1		
2.4870	-24.2	V	3.0	39.5	1.0	-62.7	-13.0	-49.7		
3.3160	-21.6	V	3.0	40.1	1.0	-60.7	-13.0	-47.7		
1.6580	-21.9	H	3.0	39.1	1.0	-60.0	-13.0	-47.0		
2.4870	-23.9	H	3.0	39.5	1.0	-62.4	-13.0	-49.4		
3.3160	-21.2	H	3.0	40.1	1.0	-60.3	-13.0	-47.3		
Mid Channel (836.5MHz)										
1.6730	-26.1	V	3.0	39.1	1.0	-64.2	-13.0	-51.2		
2.5090	-24.3	V	3.0	39.5	1.0	-62.8	-13.0	-49.8		
3.3460	-22.1	V	3.0	40.1	1.0	-61.3	-13.0	-48.3		
1.6730	-21.0	H	3.0	39.1	1.0	-59.1	-13.0	-46.1		
2.5090	-24.3	H	3.0	39.5	1.0	-62.8	-13.0	-49.8		
3.3460	-22.3	H	3.0	40.1	1.0	-61.4	-13.0	-48.4		
High Channel (844MHz)										
1.6880	-26.0	V	3.0	39.1	1.0	-64.2	-13.0	-51.2		
2.5320	-24.0	V	3.0	39.5	1.0	-62.6	-13.0	-49.6		
3.3760	-22.6	V	3.0	40.2	1.0	-61.7	-13.0	-48.7		
1.6880	-21.5	H	3.0	39.1	1.0	-59.6	-13.0	-46.6		
2.5320	-23.9	H	3.0	39.5	1.0	-62.5	-13.0	-49.5		
3.3760	-22.4	H	3.0	40.2	1.0	-61.6	-13.0	-48.6		
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										
LTE Band 5 10MHz 16QAM		Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven.Kim Configuration: EUT / AC Adapter / Earphone, X Position Mode: 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)
Low Channel (829MHz)										
1.6580	-26.0	V	3.0	39.1	1.0	-64.1	-13.0	-51.1		
2.4870	-24.0	V	3.0	39.5	1.0	-62.5	-13.0	-49.5		
3.3160	-21.7	V	3.0	40.1	1.0	-60.9	-13.0	-47.9		
1.6580	-22.9	H	3.0	39.1	1.0	-61.0	-13.0	-48.0		
2.4870	-23.8	H	3.0	39.5	1.0	-62.4	-13.0	-49.4		
3.3160	-21.2	H	3.0	40.1	1.0	-60.3	-13.0	-47.3		
Mid Channel (836.5MHz)										
1.6730	-26.0	V	3.0	39.1	1.0	-64.1	-13.0	-51.1		
2.5090	-24.3	V	3.0	39.5	1.0	-62.8	-13.0	-49.8		
3.3460	-21.5	V	3.0	40.1	1.0	-60.7	-13.0	-47.7		
1.6730	-22.0	H	3.0	39.1	1.0	-60.1	-13.0	-47.1		
2.5090	-24.5	H	3.0	39.5	1.0	-63.0	-13.0	-50.0		
3.3460	-22.4	H	3.0	40.1	1.0	-61.5	-13.0	-48.5		
High Channel (844MHz)										
1.6880	-25.9	V	3.0	39.1	1.0	-64.1	-13.0	-51.1		
2.5320	-23.9	V	3.0	39.5	1.0	-62.5	-13.0	-49.5		
3.3760	-22.8	V	3.0	40.2	1.0	-62.0	-13.0	-49.0		
1.6880	-22.4	H	3.0	39.1	1.0	-60.6	-13.0	-47.6		
2.5320	-23.5	H	3.0	39.5	1.0	-62.1	-13.0	-49.1		
3.3760	-21.8	H	3.0	40.2	1.0	-61.0	-13.0	-48.0		
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																																																																																																																																																																																																																																					
LTE Band 5 5MHz QPSK	Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven.Kim Configuration: EUT / AC Adapter / Earphone, XPosition Mode: TX, LTE BAND 5, 5MHz BW, QPSK																																																																																																																																																																																																																																						
	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">Chamber</div> <div style="border: 1px solid black; padding: 2px;">Pre-amplifier</div> <div style="border: 1px solid black; padding: 2px;">Filter</div> <div style="border: 1px solid black; padding: 2px;">Limit</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid black; padding: 2px;">Chamber 2</div> <div style="border: 1px solid black; padding: 2px;">AFS42</div> <div style="border: 1px solid black; padding: 2px;">Filter 1</div> <div style="border: 1px solid black; padding: 2px;">Part 22</div> </div>																																																																																																																																																																																																																																						
		<table border="1"> <thead> <tr> <th>f GHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Distance (m)</th> <th>Preamp (dB)</th> <th>Filter (dB)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Delta (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr><td colspan="10">Low Channel (826.5MHz)</td></tr> <tr><td>1.6530</td><td>-26.0</td><td>V</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-64.1</td><td>-13.0</td><td>-51.1</td><td></td></tr> <tr><td>2.4790</td><td>-24.0</td><td>V</td><td>3.0</td><td>39.5</td><td>1.0</td><td>-62.5</td><td>-13.0</td><td>-49.5</td><td></td></tr> <tr><td>3.3060</td><td>-21.9</td><td>V</td><td>3.0</td><td>40.1</td><td>1.0</td><td>-61.0</td><td>-13.0</td><td>-48.0</td><td></td></tr> <tr><td>1.6530</td><td>-23.2</td><td>H</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-61.3</td><td>-13.0</td><td>-48.3</td><td></td></tr> <tr><td>2.4790</td><td>-23.6</td><td>H</td><td>3.0</td><td>39.5</td><td>1.0</td><td>-62.1</td><td>-13.0</td><td>-49.1</td><td></td></tr> <tr><td>3.3060</td><td>-20.9</td><td>H</td><td>3.0</td><td>40.1</td><td>1.0</td><td>-60.0</td><td>-13.0</td><td>-47.0</td><td></td></tr> <tr><td colspan="10">Mid Channel (836.5MHz)</td></tr> <tr><td>1.6730</td><td>-26.0</td><td>V</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-64.1</td><td>-13.0</td><td>-51.1</td><td></td></tr> <tr><td>2.5090</td><td>-24.6</td><td>V</td><td>3.0</td><td>39.5</td><td>1.0</td><td>-63.1</td><td>-13.0</td><td>-50.1</td><td></td></tr> <tr><td>3.3460</td><td>-21.6</td><td>V</td><td>3.0</td><td>40.1</td><td>1.0</td><td>-60.8</td><td>-13.0</td><td>-47.8</td><td></td></tr> <tr><td>1.6730</td><td>-22.2</td><td>H</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-60.3</td><td>-13.0</td><td>-47.3</td><td></td></tr> <tr><td>2.5090</td><td>-24.5</td><td>H</td><td>3.0</td><td>39.5</td><td>1.0</td><td>-63.0</td><td>-13.0</td><td>-50.0</td><td></td></tr> <tr><td>3.3460</td><td>-22.4</td><td>H</td><td>3.0</td><td>40.1</td><td>1.0</td><td>-61.6</td><td>-13.0</td><td>-48.6</td><td></td></tr> <tr><td colspan="10">High Channel (846.5MHz)</td></tr> <tr><td>1.6930</td><td>-25.9</td><td>V</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-64.0</td><td>-13.0</td><td>-51.0</td><td></td></tr> <tr><td>2.5390</td><td>-24.0</td><td>V</td><td>3.0</td><td>39.6</td><td>1.0</td><td>-62.6</td><td>-13.0</td><td>-49.6</td><td></td></tr> <tr><td>3.3860</td><td>-22.5</td><td>V</td><td>3.0</td><td>40.2</td><td>1.0</td><td>-61.6</td><td>-13.0</td><td>-48.6</td><td></td></tr> <tr><td>1.6930</td><td>-22.0</td><td>H</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-60.2</td><td>-13.0</td><td>-47.2</td><td></td></tr> <tr><td>2.5390</td><td>-23.4</td><td>H</td><td>3.0</td><td>39.6</td><td>1.0</td><td>-62.0</td><td>-13.0</td><td>-49.0</td><td></td></tr> <tr><td>3.3860</td><td>-21.7</td><td>H</td><td>3.0</td><td>40.2</td><td>1.0</td><td>-60.9</td><td>-13.0</td><td>-47.9</td><td></td></tr> </tbody> </table>	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Channel (826.5MHz)										1.6530	-26.0	V	3.0	39.1	1.0	-64.1	-13.0	-51.1		2.4790	-24.0	V	3.0	39.5	1.0	-62.5	-13.0	-49.5		3.3060	-21.9	V	3.0	40.1	1.0	-61.0	-13.0	-48.0		1.6530	-23.2	H	3.0	39.1	1.0	-61.3	-13.0	-48.3		2.4790	-23.6	H	3.0	39.5	1.0	-62.1	-13.0	-49.1		3.3060	-20.9	H	3.0	40.1	1.0	-60.0	-13.0	-47.0		Mid Channel (836.5MHz)										1.6730	-26.0	V	3.0	39.1	1.0	-64.1	-13.0	-51.1		2.5090	-24.6	V	3.0	39.5	1.0	-63.1	-13.0	-50.1		3.3460	-21.6	V	3.0	40.1	1.0	-60.8	-13.0	-47.8		1.6730	-22.2	H	3.0	39.1	1.0	-60.3	-13.0	-47.3		2.5090	-24.5	H	3.0	39.5	1.0	-63.0	-13.0	-50.0		3.3460	-22.4	H	3.0	40.1	1.0	-61.6	-13.0	-48.6		High Channel (846.5MHz)										1.6930	-25.9	V	3.0	39.1	1.0	-64.0	-13.0	-51.0		2.5390	-24.0	V	3.0	39.6	1.0	-62.6	-13.0	-49.6		3.3860	-22.5	V	3.0	40.2	1.0	-61.6	-13.0	-48.6		1.6930	-22.0	H	3.0	39.1	1.0	-60.2	-13.0	-47.2		2.5390	-23.4	H	3.0	39.6	1.0	-62.0	-13.0	-49.0		3.3860	-21.7	H	3.0	40.2	1.0	-60.9	-13.0	-47.9										
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3.3020	-20.8	H	3.0	40.1	1.0	-59.9	-13.0	-46.9																																																																																																																																																																																																																															
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1.6730	-26.0	V	3.0	39.1	1.0	-64.1	-13.0	-51.1																																																																																																																																																																																																																															
2.5090	-24.1	V	3.0	39.5	1.0	-62.6	-13.0	-49.6																																																																																																																																																																																																																															
3.3460	-21.5	V	3.0	40.1	1.0	-60.7	-13.0	-47.7																																																																																																																																																																																																																															
1.6730	-22.2	H	3.0	39.1	1.0	-60.3	-13.0	-47.3																																																																																																																																																																																																																															
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1.6950	-25.8	V	3.0	39.1	1.0	-63.9	-13.0	-50.9																																																																																																																																																																																																																															
2.5425	-24.0	V	3.0	39.6	1.0	-62.6	-13.0	-49.6																																																																																																																																																																																																																															
3.3900	-22.6	V	3.0	40.2	1.0	-61.7	-13.0	-48.7																																																																																																																																																																																																																															
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LTE Band 5 3MHz 16QAM	Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven.Kim Configuration: EUT / AC Adapter / Earphone, X Position Mode: TX, LTE BAND 5, 3MHz BW, 16QAM																																																																																																																																																																																																																																						
	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">Chamber Chamber 2</div> <div style="border: 1px solid black; padding: 2px;">Pre-amplifier AFS42</div> <div style="border: 1px solid black; padding: 2px;">Filter Filter 1</div> <div style="border: 1px solid black; padding: 2px;">Limit Part 22</div> </div>																																																																																																																																																																																																																																						
		<table border="1"> <thead> <tr> <th>f GHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Distance (m)</th> <th>Preamp (dB)</th> <th>Filter (dB)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Delta (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr><td colspan="10">Low Channel (825.5MHz)</td></tr> <tr><td>1.6510</td><td>-26.1</td><td>V</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-64.2</td><td>-13.0</td><td>-51.2</td><td></td></tr> <tr><td>2.4675</td><td>-24.1</td><td>V</td><td>3.0</td><td>39.5</td><td>1.0</td><td>-62.7</td><td>-13.0</td><td>-49.7</td><td></td></tr> <tr><td>3.3020</td><td>-21.7</td><td>V</td><td>3.0</td><td>40.1</td><td>1.0</td><td>-60.8</td><td>-13.0</td><td>-47.8</td><td></td></tr> <tr><td>1.6510</td><td>-24.1</td><td>H</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-62.2</td><td>-13.0</td><td>-49.2</td><td></td></tr> <tr><td>2.4675</td><td>-23.6</td><td>H</td><td>3.0</td><td>39.5</td><td>1.0</td><td>-62.1</td><td>-13.0</td><td>-49.1</td><td></td></tr> <tr><td>3.3020</td><td>-20.8</td><td>H</td><td>3.0</td><td>40.1</td><td>1.0</td><td>-59.9</td><td>-13.0</td><td>-46.9</td><td></td></tr> <tr><td colspan="10">Mid Channel (836.5MHz)</td></tr> <tr><td>1.6730</td><td>-26.0</td><td>V</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-64.1</td><td>-13.0</td><td>-51.1</td><td></td></tr> <tr><td>2.5090</td><td>-24.1</td><td>V</td><td>3.0</td><td>39.5</td><td>1.0</td><td>-62.6</td><td>-13.0</td><td>-49.6</td><td></td></tr> <tr><td>3.3460</td><td>-21.5</td><td>V</td><td>3.0</td><td>40.1</td><td>1.0</td><td>-60.7</td><td>-13.0</td><td>-47.7</td><td></td></tr> <tr><td>1.6730</td><td>-23.1</td><td>H</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-61.2</td><td>-13.0</td><td>-48.2</td><td></td></tr> <tr><td>2.5090</td><td>-24.4</td><td>H</td><td>3.0</td><td>39.5</td><td>1.0</td><td>-62.9</td><td>-13.0</td><td>-49.9</td><td></td></tr> <tr><td>3.3460</td><td>-22.4</td><td>H</td><td>3.0</td><td>40.1</td><td>1.0</td><td>-61.6</td><td>-13.0</td><td>-48.6</td><td></td></tr> <tr><td colspan="10">High Channel (847.5MHz)</td></tr> <tr><td>1.6950</td><td>-25.8</td><td>V</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-63.9</td><td>-13.0</td><td>-50.9</td><td></td></tr> <tr><td>2.5425</td><td>-24.0</td><td>V</td><td>3.0</td><td>39.6</td><td>1.0</td><td>-62.6</td><td>-13.0</td><td>-49.6</td><td></td></tr> <tr><td>3.3900</td><td>-22.6</td><td>V</td><td>3.0</td><td>40.2</td><td>1.0</td><td>-61.7</td><td>-13.0</td><td>-48.7</td><td></td></tr> <tr><td>1.6950</td><td>-23.5</td><td>H</td><td>3.0</td><td>39.1</td><td>1.0</td><td>-61.6</td><td>-13.0</td><td>-48.6</td><td></td></tr> <tr><td>2.5425</td><td>-23.4</td><td>H</td><td>3.0</td><td>39.6</td><td>1.0</td><td>-62.0</td><td>-13.0</td><td>-49.0</td><td></td></tr> <tr><td>3.3900</td><td>-21.7</td><td>H</td><td>3.0</td><td>40.2</td><td>1.0</td><td>-60.9</td><td>-13.0</td><td>-47.9</td><td></td></tr> </tbody> </table>	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Channel (825.5MHz)										1.6510	-26.1	V	3.0	39.1	1.0	-64.2	-13.0	-51.2		2.4675	-24.1	V	3.0	39.5	1.0	-62.7	-13.0	-49.7		3.3020	-21.7	V	3.0	40.1	1.0	-60.8	-13.0	-47.8		1.6510	-24.1	H	3.0	39.1	1.0	-62.2	-13.0	-49.2		2.4675	-23.6	H	3.0	39.5	1.0	-62.1	-13.0	-49.1		3.3020	-20.8	H	3.0	40.1	1.0	-59.9	-13.0	-46.9		Mid Channel (836.5MHz)										1.6730	-26.0	V	3.0	39.1	1.0	-64.1	-13.0	-51.1		2.5090	-24.1	V	3.0	39.5	1.0	-62.6	-13.0	-49.6		3.3460	-21.5	V	3.0	40.1	1.0	-60.7	-13.0	-47.7		1.6730	-23.1	H	3.0	39.1	1.0	-61.2	-13.0	-48.2		2.5090	-24.4	H	3.0	39.5	1.0	-62.9	-13.0	-49.9		3.3460	-22.4	H	3.0	40.1	1.0	-61.6	-13.0	-48.6		High Channel (847.5MHz)										1.6950	-25.8	V	3.0	39.1	1.0	-63.9	-13.0	-50.9		2.5425	-24.0	V	3.0	39.6	1.0	-62.6	-13.0	-49.6		3.3900	-22.6	V	3.0	40.2	1.0	-61.7	-13.0	-48.7		1.6950	-23.5	H	3.0	39.1	1.0	-61.6	-13.0	-48.6		2.5425	-23.4	H	3.0	39.6	1.0	-62.0	-13.0	-49.0		3.3900	-21.7	H	3.0	40.2	1.0	-60.9	-13.0	-47.9		Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.								
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		UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement									
LTE Band 5 1.4MHz QPSK	Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven.Kim Configuration: EUT / AC Adapter / Earphone, XPosition Mode: TX, LTE BAND 5, 1.4MHz BW,QPSK		Chamber: Chamber 2		Pre-amplifier: AFS42		Filter: Filter 1		Limit: 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 (824.7MHz)										
	1.6494	-26.3	V	3.0	39.1	1.0	-64.4	-13.0	-51.4		
	2.4741	-24.3	V	3.0	39.5	1.0	-62.9	-13.0	-49.9		
	3.2988	-22.3	V	3.0	40.1	1.0	-61.4	-13.0	-48.4		
	1.6494	-23.2	H	3.0	39.1	1.0	-61.3	-13.0	-48.3		
	2.4741	-23.8	H	3.0	39.5	1.0	-62.3	-13.0	-49.3		
	3.2988	-21.4	H	3.0	40.1	1.0	-60.5	-13.0	-47.5		
	Mid Channel (836.5MHz)										
	1.6730	-26.0	V	3.0	39.1	1.0	-64.1	-13.0	-51.1		
	2.5090	-24.0	V	3.0	39.5	1.0	-62.5	-13.0	-49.5		
	3.3460	-21.8	V	3.0	40.1	1.0	-60.9	-13.0	-47.9		
	1.6730	-22.1	H	3.0	39.1	1.0	-60.3	-13.0	-47.3		
	2.5090	-24.5	H	3.0	39.5	1.0	-63.1	-13.0	-50.1		
3.3460	-22.2	H	3.0	40.1	1.0	-61.3	-13.0	-48.3			
High Channel (844.3MHz)											
1.6886	-25.7	V	3.0	39.1	1.0	-63.9	-13.0	-50.9			
2.5329	-23.9	V	3.0	39.5	1.0	-62.5	-13.0	-49.5			
3.3772	-23.0	V	3.0	40.2	1.0	-62.1	-13.0	-49.1			
1.6886	-22.1	H	3.0	39.1	1.0	-60.2	-13.0	-47.2			
2.5329	-23.4	H	3.0	39.5	1.0	-62.0	-13.0	-49.0			
3.3772	-22.2	H	3.0	40.2	1.0	-61.4	-13.0	-48.4			
Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.											
LTE Band 5 1.4MHz 16QAM	Company: Samsung Project #: 15K22047 Date: 11-06-15 Test Engineer: Steven.Kim Configuration: EUT / AC Adapter / Earphone, XPosition Mode: TX, LTE BAND 5, 1.4MHz BW,16QAM		Chamber: Chamber 2		Pre-amplifier: AFS42		Filter: Filter 1		Limit: 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 (824.7MHz)										
	1.6494	-26.3	V	3.0	39.1	1.0	-64.4	-13.0	-51.4		
	2.4741	-24.3	V	3.0	39.5	1.0	-62.9	-13.0	-49.9		
	3.2988	-22.3	V	3.0	40.1	1.0	-61.4	-13.0	-48.4		
	1.6494	-24.1	H	3.0	39.1	1.0	-62.2	-13.0	-49.2		
	2.4741	-23.8	H	3.0	39.5	1.0	-62.3	-13.0	-49.3		
	3.2988	-21.4	H	3.0	40.1	1.0	-60.5	-13.0	-47.5		
	Mid Channel (836.5MHz)										
	1.6730	-26.0	V	3.0	39.1	1.0	-64.1	-13.0	-51.1		
	2.5090	-24.0	V	3.0	39.5	1.0	-62.5	-13.0	-49.5		
	3.3460	-21.8	V	3.0	40.1	1.0	-60.9	-13.0	-47.9		
	1.6730	-23.1	H	3.0	39.1	1.0	-61.2	-13.0	-48.2		
	2.5090	-24.5	H	3.0	39.5	1.0	-63.1	-13.0	-50.1		
3.3460	-22.2	H	3.0	40.1	1.0	-61.3	-13.0	-48.3			
High Channel (844.3MHz)											
1.6886	-25.7	V	3.0	39.1	1.0	-63.9	-13.0	-50.9			
2.5329	-23.9	V	3.0	39.5	1.0	-62.5	-13.0	-49.5			
3.3772	-23.0	V	3.0	40.2	1.0	-62.1	-13.0	-49.1			
1.6886	-23.3	H	3.0	39.1	1.0	-61.5	-13.0	-48.5			
2.5329	-23.4	H	3.0	39.5	1.0	-62.0	-13.0	-49.0			
3.3772	-22.2	H	3.0	40.2	1.0	-61.4	-13.0	-48.4			
Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.											