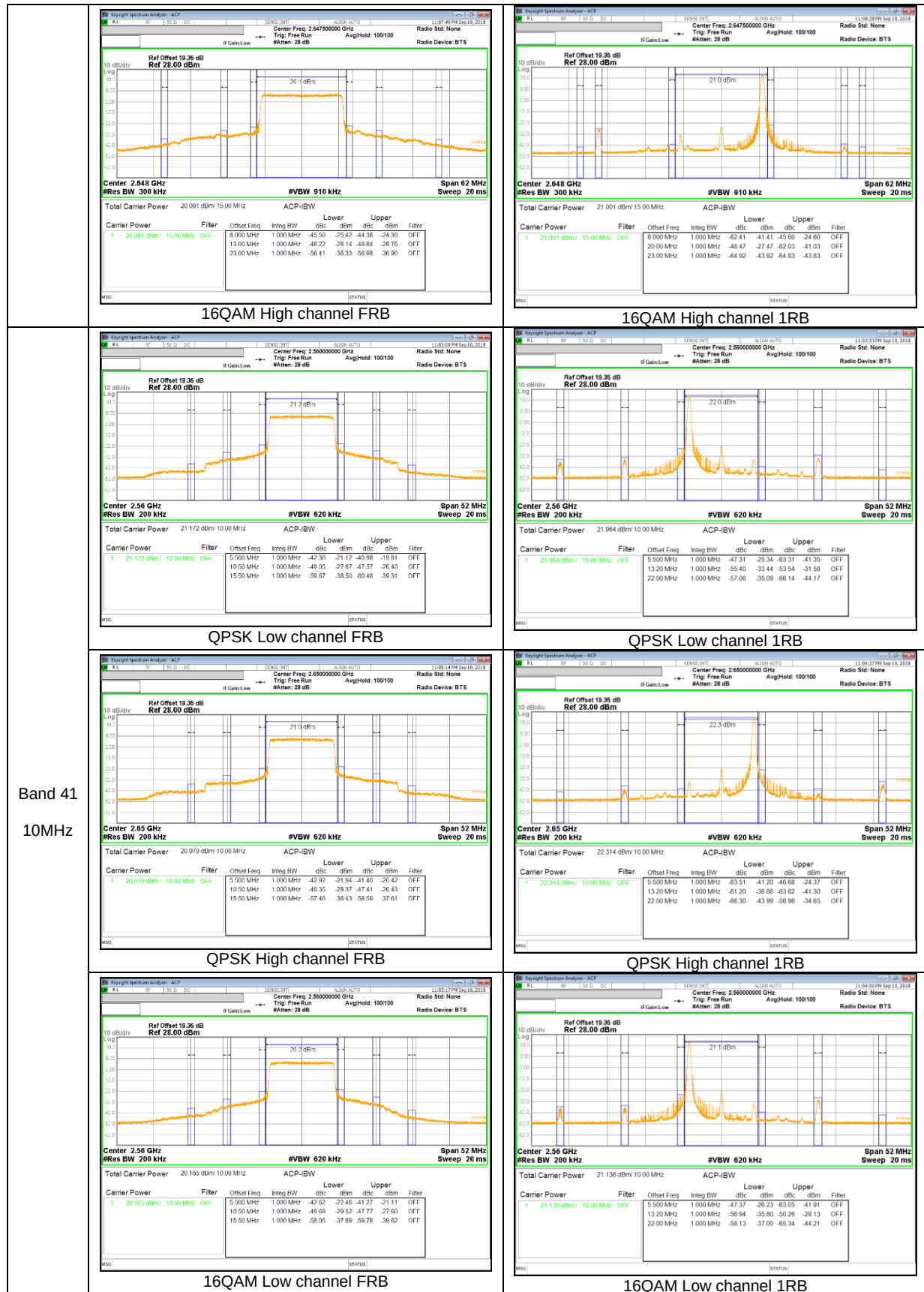
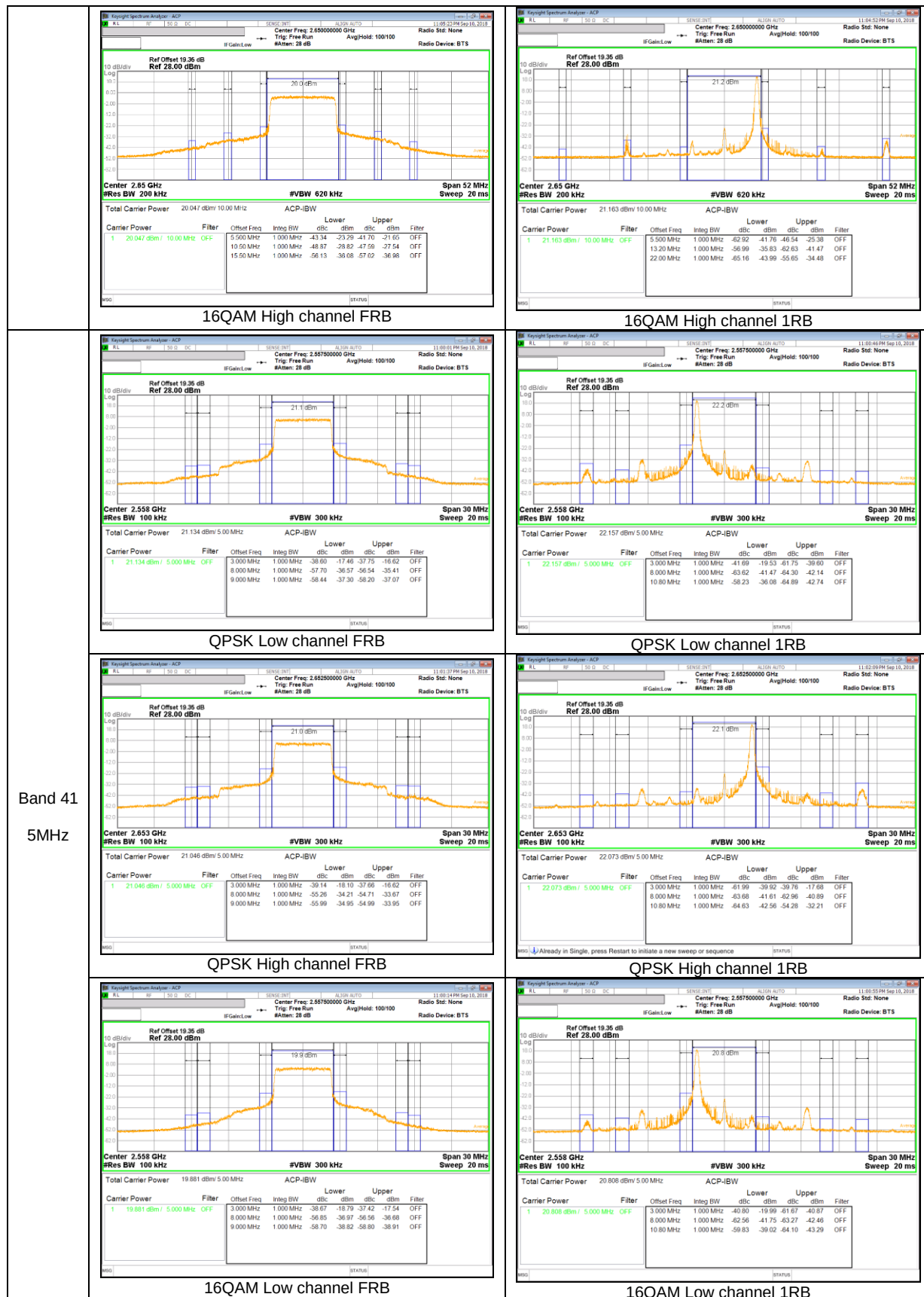
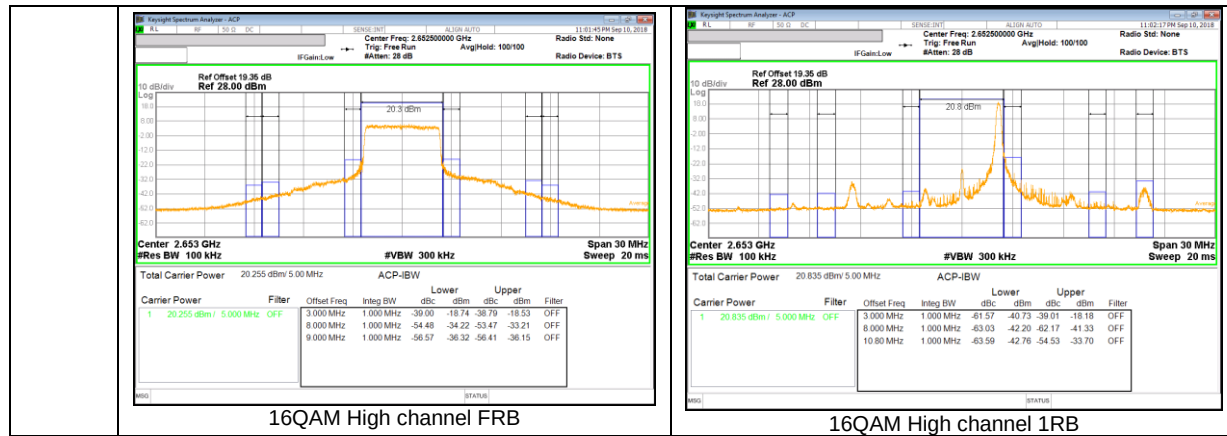










9.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §27.53

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.

27.53(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.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v03r01

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.

- a) Set the RBW = 100KHz for emission below 1GHz and 1MHz for emissions above 1GHz
(Tests were performed 1MHz [Worst case], to sweep 1 time for all frequency range)
- b) Set VBW $\geq 3 \times$ RBW;
- c) Set span ≥ 1.5 times the OBW;
- d) Sweep time = auto couple;
- e) Detector = rms;
- f) Ensure that the number of measurement points = Max (40001);
- g) Trace mode = average(LTE 5), Maxhold(LTE Band41);

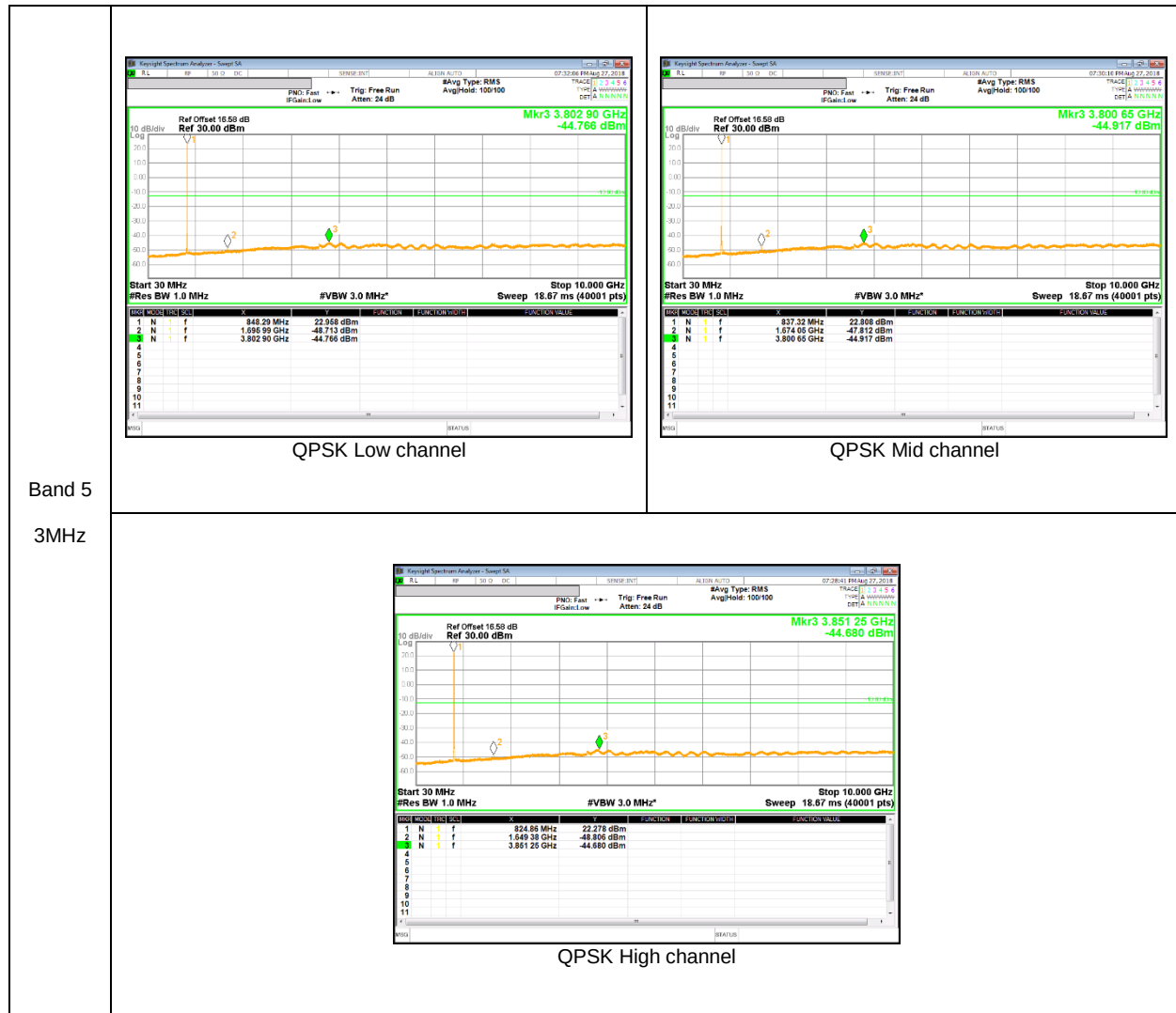
Note : Please refer to section 5.4 for bandwidth and RB setting about LTE bands.

RESULTS

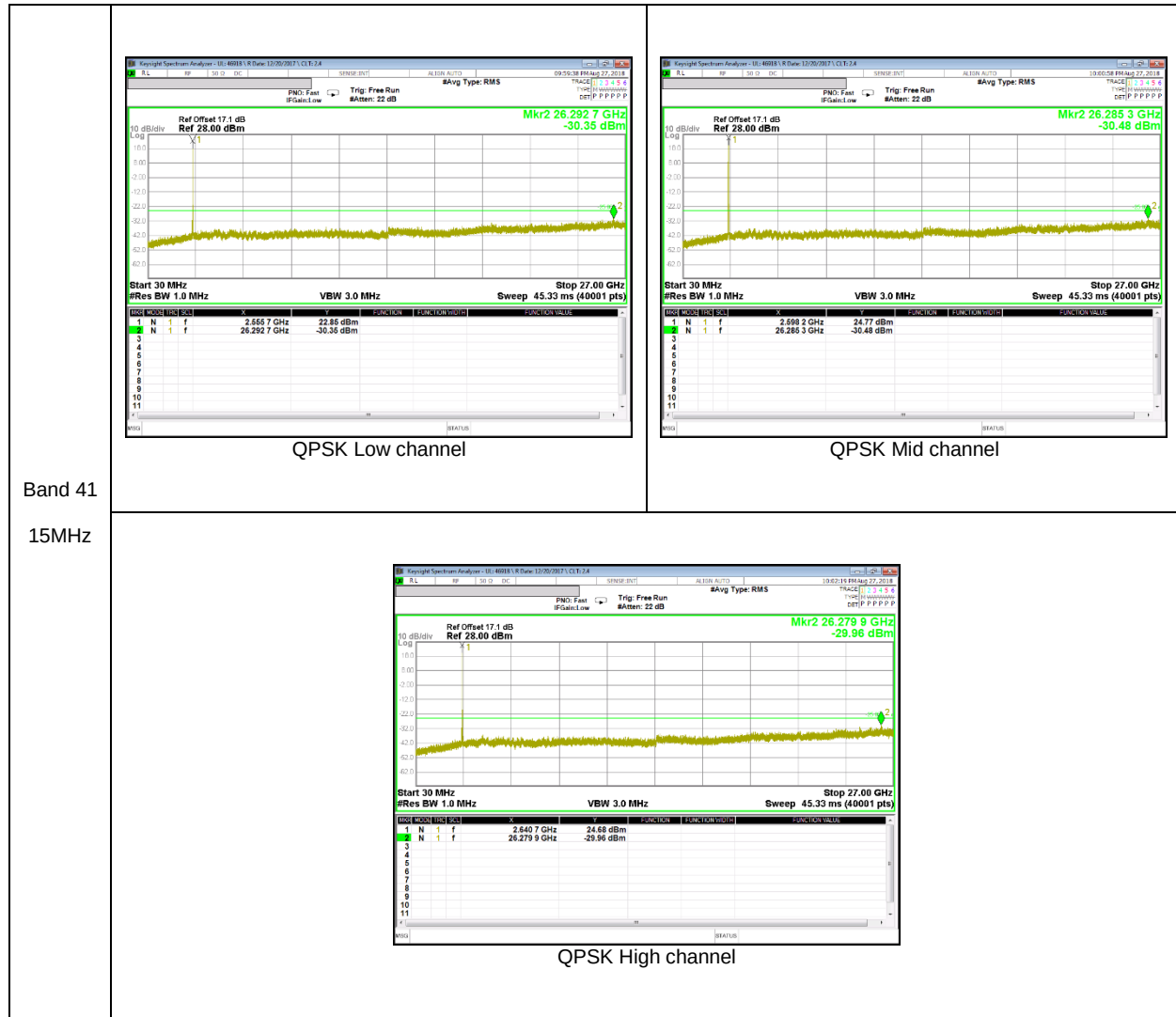
See the following pages.

9.3.1. OUT OF BAND EMISSIONS RESULTS

LTE Band 5



LTE Band 41



9.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §27.54

LIMITS

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

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

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v03r01

NOTE: The bandwidth was set to the lowest bandwidth.

RESULTS

See the following pages.

9.4.1. FREQUENCY STABILITY RESULTS

LTE Band 5 (QPSK)

Reference Frequency : LTE Band 5 Low Channel 824.7 MHz / High Channel 848.3 MHz @ 20°C						
Limit: +/- 2.5 ppm =		Low Channel	2061.750	Hz	High Channel	2120.750
		Frequency Deviation Measured with Time Elapse				
Power Supply [Vdc]	Environment Temperature [°C]	Low Channel		High Channel		Limit [ppm]
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.85	50	824.69999037	-0.010	848.29998052	0.004	2.5
3.85	40	824.69998318	-0.001	848.29998312	0.001	2.5
3.85	30	824.69998977	-0.009	848.29998808	-0.005	2.5
3.85	20	824.69998212	0.000	848.29998410	0.000	2.5
3.85	10	824.69998777	-0.007	848.29998819	-0.005	2.5
3.85	0	824.69998030	0.002	848.29998595	-0.002	2.5
3.85	-10	824.69998367	-0.002	848.29998174	0.003	2.5
3.85	-20	824.69998149	0.001	848.29998421	0.000	2.5
3.85	-30	824.69998562	-0.004	848.29998942	-0.006	2.5

Reference Frequency : LTE Band 5 Low Channel 824.7 MHz / High Channel 848.3 MHz @ 20°C						
Limit: +/- 2.5 ppm =		Low Channel	2061.750	Hz	High Channel	2120.750
		Frequency Deviation Measured with Time Elapse				
Power Supply [Vdc]	Environment Temperature [°C]	Low Channel		High Channel		Limit [ppm]
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.85	20	824.69998212	0	848.29998410	0	2.5
4.40	20	824.69998890	-0.008	848.29998440	0.000	2.5
3.60	20	824.69998291	-0.001	848.29999037	-0.007	2.5

LTE Band 41 (Lowest frequency: QPSK / Highest frequency: 16QAM)

Limit		2555	2655	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	2557.4977	2652.5023		
Extreme (50C)		2557.4977	2652.5022	-27.0	-0.010
Extreme (40C)		2557.4977	2652.5022	-22.9	-0.009
Extreme (30C)		2557.4977	2652.5022	-27.6	-0.011
Extreme (10C)		2557.4977	2652.5022	-23.2	-0.009
Extreme (0C)		2557.4977	2652.5022	-29.0	-0.011
Extreme (-10C)		2557.4977	2652.5022	-21.8	-0.008
Extreme (-20C)		2557.4977	2652.5022	-21.0	-0.008
Extreme (-30C)		2557.4977	2652.5022	-27.9	-0.011
20C	15%	2557.4977	2652.5022	-29.8	-0.011
	-15%	2557.4977	2652.5022	-24.5	-0.009
	End Point	2557.4977	2652.5022	-26.4	-0.010

10. RADIATED TEST RESULTS

10.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §27.50

LIMITS

22.913(a)(5) The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

Part 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.

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

TEST PROCEDURE

ANSI / TIA / EIA 603 E Clause 2.2.17; ESU40 setting reference to 971168 D01 v03r01

For radiated output power measurement with a ESU40:

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

TEST RESULTS

10.1.1. ERP/EIRP Results

LTE Band 5

Band	BW	Mode	RB Size/	f [MHz]	ERP / EIRP	
	[MHz]		RB Offset		[dBm]	[mW]
Band 5	10	QPSK	1/0	829.0	12.13	16.33
			1/0	836.5	12.07	16.11
			1/0	844.0	10.61	11.51
		16QAM	1/0	829.0	10.75	11.89
			1/0	836.5	11.01	12.62
			1/0	844.0	9.28	8.47
	5	QPSK	1/0	826.5	13.21	20.94
			1/0	836.5	13.30	21.38
			1/24	846.5	11.73	14.89
		16QAM	1/0	826.5	11.79	15.10
			1/0	836.5	12.24	16.75
			1/0	846.5	10.97	12.50
	3	QPSK	1/0	825.5	13.60	22.91
			1/8	836.5	14.27	26.73
			1/8	847.5	13.71	23.50
		16QAM	1/0	825.5	12.32	17.06
			1/8	836.5	12.87	19.36
			1/14	847.5	11.92	15.56
	1.4	QPSK	1/0	824.7	12.55	17.99
			1/5	836.5	12.87	19.36
			1/0	848.3	11.68	14.72
		16QAM	1/3	824.7	11.41	13.84
			1/5	836.5	11.67	14.69
			1/0	848.3	10.27	10.64

LTE Band 41

Band	BW	Mode	RB Size/	f [MHz]	ERP / EIRP	
	[MHz]		RB Offset		[dBm]	[mW]
Band 41	20	QPSK	1/0	2506.0	20.63	115.61
			1/0	2593.0	23.42	219.79
			1/0	2680.0	23.93	247.17
		16QAM	1/99	2506.0	19.20	83.18
			1/0	2593.0	22.00	158.49
			1/0	2680.0	23.80	239.88
	15	QPSK	1/0	2503.5	20.61	115.08
			1/0	2593.0	23.93	247.17
			1/0	2682.5	23.97	249.46
		16QAM	1/37	2503.5	18.89	77.45
			1/74	2593.0	22.93	196.34
			1/0	2682.5	22.74	187.93
	10	QPSK	1/0	2501.0	21.34	136.14
			1/0	2593.0	23.58	228.03
			1/0	2685.0	24.19	262.42
		16QAM	1/0	2501.0	20.45	110.92
			1/49	2593.0	22.95	197.24
			1/0	2685.0	23.10	204.17
	5	QPSK	1/0	2498.5	21.85	153.11
			1/0	2593.0	23.76	237.68
			1/0	2687.5	24.35	272.27
		16QAM	1/0	2498.5	20.96	124.74
			1/0	2593.0	22.40	173.78
			1/0	2687.5	23.22	209.89

10.1.2. ERP/EIRP DATA

LTE Band 5

LTE

Band 5

10MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788605276

2018-08-24

47989

EUT, Wireless Charger, Adapter / X-Position

Chamber 2

LTE_QPSK Band 5 Fundamentals, 10MHz Bandwidth

Test Equipment:

Receiving: VULB9163-749, and Chamber 2 SMA Cables

Substitution: Dipole 3121_DB4, 2.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
829.00	12.45	V	-1.1	-1.5	12.13	38.5	-26.4	
829.00	10.06	H	-1.1	-1.5	9.74	38.5	-28.8	
Mid Ch								
836.50	12.36	V	-1.1	-1.4	12.07	38.5	-26.4	
836.50	10.91	H	-1.1	-1.4	10.61	38.5	-27.9	
High Ch								
844.00	10.87	V	-1.1	-1.4	10.61	38.5	-27.9	
844.00	10.40	H	-1.1	-1.4	10.14	38.5	-28.4	

LTE

Band 5

10MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788605276

2018-08-24

47989

EUT, Wirerless charger, Adapter / X-Position

Chamber 2

LTE_16QAM Band 5 Fundamentals, 10MHz Bandwidth

Test Equipment:

Receiving: VULB9163-749, and Chamber 2 SMA Cables

Substitution: Dipole 3121_DB4, 2.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
829.00	11.07	V	-1.1	-1.5	10.75	38.5	-27.8	
829.00	8.64	H	-1.1	-1.5	8.32	38.5	-30.2	
Mid Ch								
836.50	11.30	V	-1.1	-1.4	11.01	38.5	-27.5	
836.50	9.11	H	-1.1	-1.4	8.81	38.5	-29.7	
High Ch								
844.00	9.54	V	-1.1	-1.4	9.28	38.5	-29.2	
844.00	9.11	H	-1.1	-1.4	8.85	38.5	-29.7	

LTE Band 5 5MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788605276 Date: 2018-08-23 Test Engineer: 45585 Configuration: EUT, Wireless Charger, Adapter / X-Position Location: Chamber 2 Mode: LTE_QPSK Band 5 Fundamentals, 5MHz Bandwidth Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>826.50</td><td>13.55</td><td>V</td><td>-1.1</td><td>-1.5</td><td>13.21</td><td>38.5</td><td>-25.3</td></tr><tr><td>826.50</td><td>11.54</td><td>H</td><td>-1.1</td><td>-1.5</td><td>11.20</td><td>38.5</td><td>-27.3</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>836.50</td><td>13.59</td><td>V</td><td>-1.1</td><td>-1.4</td><td>13.30</td><td>38.5</td><td>-25.2</td></tr><tr><td>836.50</td><td>11.52</td><td>H</td><td>-1.1</td><td>-1.4</td><td>11.22</td><td>38.5</td><td>-27.3</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>846.50</td><td>11.99</td><td>V</td><td>-1.1</td><td>-1.4</td><td>11.73</td><td>38.5</td><td>-26.8</td></tr><tr><td>846.50</td><td>10.49</td><td>H</td><td>-1.1</td><td>-1.4</td><td>10.23</td><td>38.5</td><td>-28.3</td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch								826.50	13.55	V	-1.1	-1.5	13.21	38.5	-25.3	826.50	11.54	H	-1.1	-1.5	11.20	38.5	-27.3	Mid Ch								836.50	13.59	V	-1.1	-1.4	13.30	38.5	-25.2	836.50	11.52	H	-1.1	-1.4	11.22	38.5	-27.3	High Ch								846.50	11.99	V	-1.1	-1.4	11.73	38.5	-26.8	846.50	10.49	H	-1.1	-1.4	10.23	38.5	-28.3
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																	
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	826.50	13.55	V	-1.1	-1.5	13.21	38.5	-25.3																																																																																		
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LTE Band 5 5MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788605276 Date: 2018-08-23 Test Engineer: 45585 Configuration: EUT, Wireless Charger, Adapter / X-Position Location: Chamber 2 Mode: LTE_16QAM Band 5 Fundamentals, 5MHz Bandwidth Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>826.50</td><td>12.13</td><td>V</td><td>-1.1</td><td>-1.5</td><td>11.79</td><td>38.5</td><td>-26.7</td></tr><tr><td>826.50</td><td>10.24</td><td>H</td><td>-1.1</td><td>-1.5</td><td>9.90</td><td>38.5</td><td>-28.6</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>836.50</td><td>12.53</td><td>V</td><td>-1.1</td><td>-1.4</td><td>12.24</td><td>38.5</td><td>-26.3</td></tr><tr><td>836.50</td><td>10.16</td><td>H</td><td>-1.1</td><td>-1.4</td><td>9.86</td><td>38.5</td><td>-28.6</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>846.50</td><td>11.23</td><td>V</td><td>-1.1</td><td>-1.4</td><td>10.97</td><td>38.5</td><td>-27.5</td></tr><tr><td>846.50</td><td>10.41</td><td>H</td><td>-1.1</td><td>-1.4</td><td>10.15</td><td>38.5</td><td>-28.3</td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch								826.50	12.13	V	-1.1	-1.5	11.79	38.5	-26.7	826.50	10.24	H	-1.1	-1.5	9.90	38.5	-28.6	Mid Ch								836.50	12.53	V	-1.1	-1.4	12.24	38.5	-26.3	836.50	10.16	H	-1.1	-1.4	9.86	38.5	-28.6	High Ch								846.50	11.23	V	-1.1	-1.4	10.97	38.5	-27.5	846.50	10.41	H	-1.1	-1.4	10.15	38.5	-28.3
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																	
	Low Ch																																																																																									
	826.50	12.13	V	-1.1	-1.5	11.79	38.5	-26.7																																																																																		
	826.50	10.24	H	-1.1	-1.5	9.90	38.5	-28.6																																																																																		
	Mid Ch																																																																																									
	836.50	12.53	V	-1.1	-1.4	12.24	38.5	-26.3																																																																																		
	836.50	10.16	H	-1.1	-1.4	9.86	38.5	-28.6																																																																																		
	High Ch																																																																																									
	846.50	11.23	V	-1.1	-1.4	10.97	38.5	-27.5																																																																																		
846.50	10.41	H	-1.1	-1.4	10.15	38.5	-28.3																																																																																			

LTE Band 5 3MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788605276 Date: 2018-08-23 Test Engineer: 45585 Configuration: EUT, Wireless Charger, Adapter / X-Position Location: Chamber 2 Mode: LTE_QPSK Band 5 Fundamentals, 3MHz Bandwidth Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>825.50</td><td>13.94</td><td>V</td><td>-1.1</td><td>-1.5</td><td>13.60</td><td>38.5</td><td>-24.9</td></tr><tr><td>825.50</td><td>11.09</td><td>H</td><td>-1.1</td><td>-1.5</td><td>10.74</td><td>38.5</td><td>-27.8</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>836.50</td><td>14.56</td><td>V</td><td>-1.1</td><td>-1.4</td><td>14.27</td><td>38.5</td><td>-24.2</td></tr><tr><td>836.50</td><td>11.60</td><td>H</td><td>-1.1</td><td>-1.4</td><td>11.30</td><td>38.5</td><td>-27.2</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>847.50</td><td>13.95</td><td>V</td><td>-1.1</td><td>-1.4</td><td>13.71</td><td>38.5</td><td>-24.8</td></tr><tr><td>847.50</td><td>11.48</td><td>H</td><td>-1.1</td><td>-1.4</td><td>11.23</td><td>38.5</td><td>-27.3</td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch								825.50	13.94	V	-1.1	-1.5	13.60	38.5	-24.9	825.50	11.09	H	-1.1	-1.5	10.74	38.5	-27.8	Mid Ch								836.50	14.56	V	-1.1	-1.4	14.27	38.5	-24.2	836.50	11.60	H	-1.1	-1.4	11.30	38.5	-27.2	High Ch								847.50	13.95	V	-1.1	-1.4	13.71	38.5	-24.8	847.50	11.48	H	-1.1	-1.4	11.23	38.5	-27.3
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																	
	Low Ch																																																																																									
	825.50	13.94	V	-1.1	-1.5	13.60	38.5	-24.9																																																																																		
	825.50	11.09	H	-1.1	-1.5	10.74	38.5	-27.8																																																																																		
	Mid Ch																																																																																									
	836.50	14.56	V	-1.1	-1.4	14.27	38.5	-24.2																																																																																		
	836.50	11.60	H	-1.1	-1.4	11.30	38.5	-27.2																																																																																		
	High Ch																																																																																									
	847.50	13.95	V	-1.1	-1.4	13.71	38.5	-24.8																																																																																		
847.50	11.48	H	-1.1	-1.4	11.23	38.5	-27.3																																																																																			
LTE Band 5 3MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788605276 Date: 2018-08-23 Test Engineer: 45585 Configuration: EUT, Wireless Charger, Adapter / X-Position Location: Chamber 2 Mode: LTE_16QAM Band 5 Fundamentals, 3MHz Bandwidth Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>825.50</td><td>12.66</td><td>V</td><td>-1.1</td><td>-1.5</td><td>12.32</td><td>38.5</td><td>-26.2</td></tr><tr><td>825.50</td><td>10.03</td><td>H</td><td>-1.1</td><td>-1.5</td><td>9.68</td><td>38.5</td><td>-28.8</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>836.50</td><td>13.16</td><td>V</td><td>-1.1</td><td>-1.4</td><td>12.87</td><td>38.5</td><td>-25.6</td></tr><tr><td>836.50</td><td>10.05</td><td>H</td><td>-1.1</td><td>-1.4</td><td>9.75</td><td>38.5</td><td>-28.7</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>847.50</td><td>12.16</td><td>V</td><td>-1.1</td><td>-1.4</td><td>11.92</td><td>38.5</td><td>-26.6</td></tr><tr><td>847.50</td><td>10.62</td><td>H</td><td>-1.1</td><td>-1.4</td><td>10.37</td><td>38.5</td><td>-28.1</td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch								825.50	12.66	V	-1.1	-1.5	12.32	38.5	-26.2	825.50	10.03	H	-1.1	-1.5	9.68	38.5	-28.8	Mid Ch								836.50	13.16	V	-1.1	-1.4	12.87	38.5	-25.6	836.50	10.05	H	-1.1	-1.4	9.75	38.5	-28.7	High Ch								847.50	12.16	V	-1.1	-1.4	11.92	38.5	-26.6	847.50	10.62	H	-1.1	-1.4	10.37	38.5	-28.1
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																	
	Low Ch																																																																																									
	825.50	12.66	V	-1.1	-1.5	12.32	38.5	-26.2																																																																																		
	825.50	10.03	H	-1.1	-1.5	9.68	38.5	-28.8																																																																																		
	Mid Ch																																																																																									
	836.50	13.16	V	-1.1	-1.4	12.87	38.5	-25.6																																																																																		
	836.50	10.05	H	-1.1	-1.4	9.75	38.5	-28.7																																																																																		
	High Ch																																																																																									
	847.50	12.16	V	-1.1	-1.4	11.92	38.5	-26.6																																																																																		
847.50	10.62	H	-1.1	-1.4	10.37	38.5	-28.1																																																																																			

LTE

Band 5

1.4MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788605276

2018-08-23

45585

EUT, Wireless Charger, Adapter / X-Position

Chamber 2

LTE_QPSK Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equipment:

Receiving: VULB9163-749, and Chamber 2 SMA Cables

Substitution: Dipole 3121_DB4, 2.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.70	12.89	V	-1.1	-1.5	12.55	38.5	-26.0	
824.70	10.11	H	-1.1	-1.5	9.77	38.5	-28.7	
Mid Ch								
836.50	13.16	V	-1.1	-1.4	12.87	38.5	-25.6	
836.50	11.15	H	-1.1	-1.4	10.85	38.5	-27.6	
High Ch								
848.30	11.93	V	-1.1	-1.4	11.68	38.5	-26.8	
848.30	10.69	H	-1.1	-1.4	10.44	38.5	-28.1	

LTE

Band 5

1.4MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788605276

2018-08-23

45585

EUT, Wireless Charger, Adapter / X-Position

Chamber 2

LTE_16QAM Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equipment:

Receiving: VULB9163-749, and Chamber 2 SMA Cables

Substitution: Dipole 3121_DB4, 2.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.70	11.75	V	-1.1	-1.5	11.41	38.5	-27.1	
824.70	8.71	H	-1.1	-1.5	8.37	38.5	-30.1	
Mid Ch								
836.50	11.96	V	-1.1	-1.4	11.67	38.5	-26.8	
836.50	9.84	H	-1.1	-1.4	9.54	38.5	-29.0	
High Ch								
848.30	10.52	V	-1.1	-1.4	10.27	38.5	-28.2	
848.30	9.47	H	-1.1	-1.4	9.22	38.5	-29.3	

LTE Band 41

LTE
Band 41
20MHz
QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788605276
Date: 2018-08-27
Test Engineer: 45585
Configuration: EUT
Location: Chamber 1
Mode: LTE_QPSK Band 41 Fundamentals, 20MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables
Substitution: Horn 3115[00167211], 2.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2506.00	7.39	V	-2.0	9.9	19.26	33.0	-13.7	
2506.00	8.76	H	-2.0	9.9	20.63	33.0	-12.4	
Mid Ch								
2593.00	6.10	V	-2.0	9.8	17.89	33.0	-15.1	
2593.00	11.62	H	-2.0	9.8	23.42	33.0	-9.6	
High Ch								
2680.00	6.08	V	-2.0	9.8	17.91	33.0	-15.1	
2680.00	12.10	H	-2.0	9.8	23.93	33.0	-9.1	

LTE
Band 41
20MHz
16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788605276
Date: 2018-08-27
Test Engineer: 45585
Configuration: EUT
Location: Chamber 1
Mode: LTE_16QAM Band 41 Fundamentals, 20MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables
Substitution: Horn 3115[00167211], 2.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2506.00	6.39	V	-2.0	9.9	18.26	33.0	-14.7	
2506.00	7.33	H	-2.0	9.9	19.20	33.0	-13.8	
Mid Ch								
2593.00	5.03	V	-2.0	9.8	16.82	33.0	-16.2	
2593.00	10.20	H	-2.0	9.8	22.00	33.0	-11.0	
High Ch								
2680.00	5.65	V	-2.0	9.8	17.48	33.0	-15.5	
2680.00	11.97	H	-2.0	9.8	23.80	33.0	-9.2	

LTE Band 41 15MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788605276 Date: 2018-08-27 Test Engineer: 45585 Configuration: EUT Location: Chamber 1 Mode: LTE_QPSK Band 41 Fundamentals, 15MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 2.5m SMA-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2503.50</td><td>7.08</td><td>V</td><td>-2.0</td><td>9.9</td><td>18.95</td><td>33.0</td><td>-14.0</td><td></td></tr><tr><td>2503.50</td><td>8.74</td><td>H</td><td>-2.0</td><td>9.9</td><td>20.61</td><td>33.0</td><td>-12.4</td><td></td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2593.00</td><td>5.97</td><td>V</td><td>-2.0</td><td>9.8</td><td>17.76</td><td>33.0</td><td>-15.2</td><td></td></tr><tr><td>2593.00</td><td>12.13</td><td>H</td><td>-2.0</td><td>9.8</td><td>23.93</td><td>33.0</td><td>-9.1</td><td></td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2682.50</td><td>7.09</td><td>V</td><td>-2.0</td><td>9.8</td><td>18.92</td><td>33.0</td><td>-14.1</td><td></td></tr><tr><td>2682.50</td><td>12.14</td><td>H</td><td>-2.0</td><td>9.8</td><td>23.97</td><td>33.0</td><td>-9.0</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch								2503.50	7.08	V	-2.0	9.9	18.95	33.0	-14.0		2503.50	8.74	H	-2.0	9.9	20.61	33.0	-12.4		Mid Ch									2593.00	5.97	V	-2.0	9.8	17.76	33.0	-15.2		2593.00	12.13	H	-2.0	9.8	23.93	33.0	-9.1		High Ch									2682.50	7.09	V	-2.0	9.8	18.92	33.0	-14.1		2682.50	12.14	H	-2.0	9.8	23.97	33.0	-9.0		
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
	Low Ch																																																																																																		
	2503.50	7.08	V	-2.0	9.9	18.95	33.0	-14.0																																																																																											
	2503.50	8.74	H	-2.0	9.9	20.61	33.0	-12.4																																																																																											
	Mid Ch																																																																																																		
	2593.00	5.97	V	-2.0	9.8	17.76	33.0	-15.2																																																																																											
	2593.00	12.13	H	-2.0	9.8	23.93	33.0	-9.1																																																																																											
	High Ch																																																																																																		
	2682.50	7.09	V	-2.0	9.8	18.92	33.0	-14.1																																																																																											
2682.50	12.14	H	-2.0	9.8	23.97	33.0	-9.0																																																																																												
LTE Band 41 15MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788605276 Date: 2018-08-27 Test Engineer: 45585 Configuration: EUT Location: Chamber 1 Mode: LTE_16QAM Band 41 Fundamentals, 15MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 2.5m SMA-type Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2503.50</td><td>6.51</td><td>V</td><td>-2.0</td><td>9.9</td><td>18.38</td><td>33.0</td><td>-14.6</td><td></td></tr><tr><td>2503.50</td><td>7.02</td><td>H</td><td>-2.0</td><td>9.9</td><td>18.89</td><td>33.0</td><td>-14.1</td><td></td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2593.00</td><td>4.76</td><td>V</td><td>-2.0</td><td>9.8</td><td>16.55</td><td>33.0</td><td>-16.4</td><td></td></tr><tr><td>2593.00</td><td>11.13</td><td>H</td><td>-2.0</td><td>9.8</td><td>22.93</td><td>33.0</td><td>-10.1</td><td></td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2682.50</td><td>5.38</td><td>V</td><td>-2.0</td><td>9.8</td><td>17.21</td><td>33.0</td><td>-15.8</td><td></td></tr><tr><td>2682.50</td><td>10.91</td><td>H</td><td>-2.0</td><td>9.8</td><td>22.74</td><td>33.0</td><td>-10.3</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									2503.50	6.51	V	-2.0	9.9	18.38	33.0	-14.6		2503.50	7.02	H	-2.0	9.9	18.89	33.0	-14.1		Mid Ch									2593.00	4.76	V	-2.0	9.8	16.55	33.0	-16.4		2593.00	11.13	H	-2.0	9.8	22.93	33.0	-10.1		High Ch									2682.50	5.38	V	-2.0	9.8	17.21	33.0	-15.8		2682.50	10.91	H	-2.0	9.8	22.74	33.0	-10.3	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
	Low Ch																																																																																																		
	2503.50	6.51	V	-2.0	9.9	18.38	33.0	-14.6																																																																																											
	2503.50	7.02	H	-2.0	9.9	18.89	33.0	-14.1																																																																																											
	Mid Ch																																																																																																		
	2593.00	4.76	V	-2.0	9.8	16.55	33.0	-16.4																																																																																											
	2593.00	11.13	H	-2.0	9.8	22.93	33.0	-10.1																																																																																											
	High Ch																																																																																																		
	2682.50	5.38	V	-2.0	9.8	17.21	33.0	-15.8																																																																																											
2682.50	10.91	H	-2.0	9.8	22.74	33.0	-10.3																																																																																												

LTE

Band 41

10MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788605276

Date: 2018-08-24

Test Engineer: 45585

Configuration: EUT

Location: Chamber 1

Mode: LTE_QPSK Band 41 Fundamentals, 10MHz Bandwidth

Test Equipment:

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

Substitution: Horn 3115[00167211], 2.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2501.00	7.70	V	-1.9	9.9	19.57	33.0	-13.4	
2501.00	9.47	H	-1.9	9.9	21.34	33.0	-11.7	
Mid Ch								
2593.00	7.89	V	-2.0	9.8	19.68	33.0	-13.3	
2593.00	11.78	H	-2.0	9.8	23.58	33.0	-9.4	
High Ch								
2685.00	6.41	V	-2.0	9.8	18.25	33.0	-14.7	
2685.00	12.36	H	-2.0	9.8	24.19	33.0	-8.8	

LTE

Band 41

10MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788605276

Date: 2018-08-24

Test Engineer: 45585

Configuration: EUT

Location: Chamber 1

Mode: LTE_16QAM Band 41 Fundamentals, 10MHz Bandwidth

Test Equipment:

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

Substitution: Horn 3115[00167211], 2.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2501.00	6.57	V	-1.9	9.9	18.44	33.0	-14.6	
2501.00	8.58	H	-1.9	9.9	20.45	33.0	-12.5	
Mid Ch								
2593.00	7.40	V	-2.0	9.8	19.19	33.0	-13.8	
2593.00	11.15	H	-2.0	9.8	22.95	33.0	-10.1	
High Ch								
2685.00	5.57	V	-2.0	9.8	17.41	33.0	-15.6	
2685.00	11.27	H	-2.0	9.8	23.10	33.0	-9.9	

LTE

Band 41

5MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788605276

Date: 2018-08-24

Test Engineer: 51072

Configuration: EUT

Location: Chamber 1

Mode: LTE_QPSK Band 41 Fundamentals, 5MHz Bandwidth

Test Equipment:

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

Substitution: Horn 3115[00167211], 2.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2498.50	7.86	V	-2.0	9.9	19.74	33.0	-13.3	
2498.50	9.98	H	-2.0	9.9	21.85	33.0	-11.1	
Mid Ch								
2593.00	6.68	V	-2.0	9.8	18.47	33.0	-14.5	
2593.00	11.96	H	-2.0	9.8	23.76	33.0	-9.2	
High Ch								
2687.50	6.58	V	-2.0	9.8	18.42	33.0	-14.6	
2687.50	12.51	H	-2.0	9.8	24.35	33.0	-8.7	

LTE

Band 41

5MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788605276

Date: 2018-08-24

Test Engineer: 51072

Configuration: EUT

Location: Chamber 1

Mode: LTE_16QAM Band 41 Fundamentals, 5MHz Bandwidth

Test Equipment:

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

Substitution: Horn 3115[00167211], 2.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2498.50	6.18	V	-2.0	9.9	18.06	33.0	-14.9	
2498.50	9.09	H	-2.0	9.9	20.96	33.0	-12.0	
Mid Ch								
2593.00	5.46	V	-2.0	9.8	17.25	33.0	-15.7	
2593.00	10.60	H	-2.0	9.8	22.40	33.0	-10.6	
High Ch								
2687.50	5.37	V	-2.0	9.8	17.21	33.0	-15.8	
2687.50	11.38	H	-2.0	9.8	23.22	33.0	-9.8	

10.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §27.53

LIMIT

Part 22.917(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.

Part 27.53(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.

TEST PROCEDURE

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

For peak power measurement with a ESU40:

- a) Set the RBW = 100 KHz for emission below 1GHz and 1MHz for emissions above 1GHz
- b) Set VBW $\geq 3 \times$ RBW;
- c) Set span ≥ 1.5 times the OBW;
- d) Sweep time = auto couple;
- e) Detector = rms;
- f) Ensure that the number of measurement points $\geq$ span/RBW;
- g) Trace mode = average(LTE Band 5) , Maxhold(LTE Band 41);

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

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open area test site.
Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the one of tests made in an open field based on KDB 414788.

NOTE 2: Please refer to section 5.4 for bandwidth and RB setting about LTE bands.

RESULTS

See the following pages.

10.2.1. SPURIOUS RADIATION RESULTS

LTE Band 5

LTE

Band 5

QPSK

UL Verification Services, Inc.

Above 1GHz High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788605276

2018-08-24

47989

EUT, Wireless Charger, Adapter / X-Position

Chamber 2

LTE_QPSK Band 5 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 825.5MHz									
1651.00	-15.1	V	3.0	38.2	1.0	-52.3	-13.0	-39.3	
2476.50	-12.1	V	3.0	38.8	1.0	-49.9	-13.0	-36.9	
3302.00	-9.8	V	3.0	39.4	1.0	-48.2	-13.0	-35.2	
1651.00	-16.1	H	3.0	38.2	1.0	-53.3	-13.0	-40.3	
2476.50	-12.7	H	3.0	38.8	1.0	-50.5	-13.0	-37.5	
3302.00	-10.2	H	3.0	39.4	1.0	-48.6	-13.0	-35.6	
Mid Ch, 836.5MHz									
1673.00	-15.1	V	3.0	38.2	1.0	-52.3	-13.0	-39.3	
2509.50	-12.1	V	3.0	38.8	1.0	-49.9	-13.0	-36.9	
3346.00	-9.7	V	3.0	39.5	1.0	-48.1	-13.0	-35.1	
1673.00	-16.1	H	3.0	38.2	1.0	-53.3	-13.0	-40.3	
2509.50	-12.6	H	3.0	38.8	1.0	-50.5	-13.0	-37.5	
3346.00	-9.9	H	3.0	39.5	1.0	-48.4	-13.0	-35.4	
High Ch, 847.5MHz									
1695.00	-14.8	V	3.0	38.2	1.0	-52.1	-13.0	-39.1	
2542.50	-12.1	V	3.0	38.9	1.0	-49.9	-13.0	-36.9	
3390.00	-9.3	V	3.0	39.5	1.0	-47.8	-13.0	-34.8	
1695.00	-15.6	H	3.0	38.2	1.0	-52.8	-13.0	-39.8	
2542.50	-12.2	H	3.0	38.9	1.0	-50.1	-13.0	-37.1	
3390.00	-9.7	H	3.0	39.5	1.0	-48.2	-13.0	-35.2	

LTE Band 41

LTE

Band 41

QPSK

UL Verification Services, Inc.

Above 1GHz High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788605276

2018-08-27

45585

EUT, Wireless Charger, Adapter / Y-Position

Chamber 1

LTE_QPSK Band 41 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2503.5MHz									
5007.00	-5.8	V	3.0	43.8	1.0	-48.6	-25.0	-23.6	
7510.50	-2.6	V	3.0	42.5	1.0	-44.0	-25.0	-19.0	
10014.00	0.8	V	3.0	40.6	1.0	-38.8	-25.0	-13.8	
5007.00	-5.2	H	3.0	43.8	1.0	-48.0	-25.0	-23.0	
7510.50	-2.5	H	3.0	42.5	1.0	-44.0	-25.0	-19.0	
10014.00	1.3	H	3.0	40.6	1.0	-38.2	-25.0	-13.2	
Mid Ch, 2593MHz									
5186.00	-6.4	V	3.0	43.8	1.0	-49.1	-25.0	-24.1	
7779.00	-2.5	V	3.0	42.3	1.0	-43.8	-25.0	-18.8	
10372.00	1.5	V	3.0	40.7	1.0	-38.1	-25.0	-13.1	
5186.00	-6.5	H	3.0	43.8	1.0	-49.3	-25.0	-24.3	
7779.00	-2.6	H	3.0	42.3	1.0	-43.9	-25.0	-18.9	
10372.00	1.5	H	3.0	40.7	1.0	-38.2	-25.0	-13.2	
High Ch, 2682.5MHz									
5365.00	-5.6	V	3.0	43.7	1.0	-48.3	-25.0	-23.3	
8047.50	-2.1	V	3.0	42.2	1.0	-43.3	-25.0	-18.3	
10730.00	2.0	V	3.0	40.8	1.0	-37.7	-25.0	-12.7	
5365.00	-6.2	H	3.0	43.7	1.0	-49.0	-25.0	-24.0	
8047.50	-2.5	H	3.0	42.2	1.0	-43.7	-25.0	-18.7	
10730.00	2.2	H	3.0	40.8	1.0	-37.5	-25.0	-12.5	