

LTE Band 26 1.4MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement							
	Company: Samsung Project #: 4789230288 Date: 2019-12-18 Test Engineer: 20890 Configuration: EUT, Z-Position Location: Chamber 2 Mode: LTE_16QAM Band 26 Fundamentals, 1.4MHz Bandwidth							
	Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 8.5m SMA-type Cable							
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)
	Low Ch							
	814.70	22.35	V	3.0	-1.0	18.36	50.0	-31.6
	814.70	10.95	H	3.0	-1.0	6.97	50.0	-43.0
	Mid Ch							
	823.30	21.92	V	3.0	-1.0	17.95	50.0	-32.0
	823.30	11.24	H	3.0	-1.0	7.27	50.0	-42.7
UL Verification Services, Inc. High Frequency Substitution Measurement								
Company: Samsung Project #: 4789230288 Date: 2019-12-18 Test Engineer: 20890 Configuration: EUT, Z-Position Location: Chamber 2 Mode: LTE_16QAM Band 26 Fundamentals, 1.4MHz Bandwidth								
Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 8.5m SMA-type Cable								
f MHz								
SG reading (dBm)								
Ant. Pol. (H/V)								
Cable Loss (dB)								
Antenna Gain (dBd)								
ERP (dBm)								
Limit (dBm)								
Delta (dB)								
Notes								
Low Ch								
824.70								
22.10								
V								
3.0								
-1.0								
18.14								
38.5								
-20.4								
824.70								
11.50								
H								
3.0								
-1.0								
7.53								
38.5								
-31.0								
Mid Ch								
831.50								
21.80								
V								
3.0								
-0.9								
17.85								
38.5								
-20.7								
831.50								
11.64								
H								
3.0								
-0.9								
7.69								
38.5								
-30.8								
High Ch								
848.30								
21.38								
V								
3.0								
-0.9								
17.47								
38.5								
-21.0								
848.30								
11.05								
H								
3.0								
-0.9								
7.14								
38.5								
-31.4								

LTE Band 41(PC2)

LTE
Band 41
20MHz
QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4789230288
Date: 2019-12-19
Test Engineer: 20882
Configuration: EUT, Y-Position
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], 8.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2506.00	22.07	V	5.2	9.9	26.74	33.0	-6.3	
2506.00	17.00	H	5.2	9.9	21.67	33.0	-11.3	
Mid Ch								
2593.00	20.12	V	5.3	9.8	24.58	33.0	-8.4	
2593.00	16.50	H	5.3	9.8	20.97	33.0	-12.0	
High Ch								
2680.00	21.17	V	5.4	9.8	25.53	33.0	-7.5	
2680.00	18.56	H	5.4	9.8	22.92	33.0	-10.1	

LTE
Band 41
20MHz
16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4789230288
Date: 2019-12-19
Test Engineer: 20882
Configuration: EUT, Y-Position
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], 8.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2506.00	21.91	V	5.2	9.9	26.58	33.0	-6.4	
2506.00	17.26	H	5.2	9.9	21.93	33.0	-11.1	
Mid Ch								
2593.00	19.92	V	5.3	9.8	24.38	33.0	-8.6	
2593.00	15.93	H	5.3	9.8	20.40	33.0	-12.6	
High Ch								
2680.00	19.61	V	5.4	9.8	23.97	33.0	-9.0	
2680.00	16.48	H	5.4	9.8	20.84	33.0	-12.2	

LTE
Band 41
15MHz
QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4789230288
Date: 2019-12-19
Test Engineer: 20882
Configuration: EUT, Y-Position
Location: Chamber 1
Mode: LTE_QPSK Band 41 Fundamentals, 15MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables
Substitution: Horn 3115[00167211], 8.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2503.50	21.67	V	5.2	9.9	26.34	33.0	-6.7	
2503.50	16.18	H	5.2	9.9	20.86	33.0	-12.1	
Mid Ch								
2593.00	20.08	V	5.3	9.8	24.54	33.0	-8.5	
2593.00	16.14	H	5.3	9.8	20.61	33.0	-12.4	
High Ch								
2682.50	20.41	V	5.4	9.8	24.77	33.0	-8.2	
2682.50	17.25	H	5.4	9.8	21.61	33.0	-11.4	

LTE
Band 41
15MHz
16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4789230288
Date: 2019-12-19
Test Engineer: 20882
Configuration: EUT, Y-Position
Location: Chamber 1
Mode: LTE_16QAM Band 41 Fundamentals, 15MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables
Substitution: Horn 3115[00167211], 8.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2503.50	21.70	V	5.2	9.9	26.37	33.0	-6.6	
2503.50	15.18	H	5.2	9.9	19.86	33.0	-13.1	
Mid Ch								
2593.00	18.93	V	5.3	9.8	23.39	33.0	-9.6	
2593.00	15.76	H	5.3	9.8	20.23	33.0	-12.8	
High Ch								
2682.50	20.76	V	5.4	9.8	25.12	33.0	-7.9	
2682.50	17.54	H	5.4	9.8	21.90	33.0	-11.1	

LTE

Band 41

10MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Samsung

Project #:

4789230288

Date:

2019-12-19

Test Engineer:

20882

Configuration:

EUT, Y-Position

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], 8.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2501.00	21.92	V	5.2	9.9	26.60	33.0	-6.4	
2501.00	15.37	H	5.2	9.9	20.05	33.0	-12.9	
Mid Ch								
2593.00	19.57	V	5.3	9.8	24.03	33.0	-9.0	
2593.00	16.67	H	5.3	9.8	21.14	33.0	-11.9	
High Ch								
2685.00	20.85	V	5.5	9.8	25.21	33.0	-7.8	
2685.00	16.68	H	5.5	9.8	21.04	33.0	-12.0	

LTE

Band 41

10MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Samsung

Project #:

4789230288

Date:

2019-12-19

Test Engineer:

20882

Configuration:

EUT, Y-Position

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], 8.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2501.00	22.13	V	5.2	9.9	26.81	33.0	-6.2	
2501.00	15.40	H	5.2	9.9	20.08	33.0	-12.9	
Mid Ch								
2593.00	19.22	V	5.3	9.8	23.68	33.0	-9.3	
2593.00	17.31	H	5.3	9.8	21.78	33.0	-11.2	
High Ch								
2685.00	20.58	V	5.5	9.8	24.94	33.0	-8.1	
2685.00	17.13	H	5.5	9.8	21.49	33.0	-11.5	

LTE

Band 41

5MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4789230288

2019-12-19

20882

EUT, Y-Position

Chamber 1

LTE_QPSK Band 41 Fundamentals, 5MHz Bandwidth

Test Equipment:

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

Substitution: Horn 3115[00167211], 8.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2498.50	21.34	V	5.2	9.9	26.03	33.0	-7.0	
2498.50	15.50	H	5.2	9.9	20.18	33.0	-12.8	
Mid Ch								
2593.00	19.70	V	5.3	9.8	24.16	33.0	-8.8	
2593.00	16.38	H	5.3	9.8	20.85	33.0	-12.2	
High Ch								
2687.50	21.28	V	5.5	9.8	25.64	33.0	-7.4	
2687.50	18.15	H	5.5	9.8	22.51	33.0	-10.5	

LTE

Band 41

5MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4789230288

2019-12-19

20882

EUT, Y-Position

Chamber 1

LTE_16QAM Band 41 Fundamentals, 5MHz Bandwidth

Test Equipment:

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

Substitution: Horn 3115[00167211], 8.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2498.50	21.94	V	5.2	9.9	26.63	33.0	-6.4	
2498.50	16.23	H	5.2	9.9	20.91	33.0	-12.1	
Mid Ch								
2593.00	21.49	V	5.3	9.8	25.95	33.0	-7.0	
2593.00	15.96	H	5.3	9.8	20.43	33.0	-12.6	
High Ch								
2687.50	21.63	V	5.5	9.8	25.99	33.0	-7.0	
2687.50	17.20	H	5.5	9.8	21.56	33.0	-11.4	

LTE Band 66

LTE
Band 66
20MHz
QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4789230288
Date: 2019-11-26
Test Engineer: 20896
Configuration: EUT / Z-Position
Location: Chamber 2
Mode: LTE_QPSK Band 66 Fundamentals, 20MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables
Substitution: Horn 3115[00167451], 8.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1720.00	13.82	V	4.3	9.4	18.84	30.0	-11.2	
1720.00	17.45	H	4.3	9.4	22.47	30.0	-7.5	
Mid Ch								
1745.00	14.43	V	4.4	9.4	19.52	30.0	-10.5	
1745.00	17.80	H	4.4	9.4	22.89	30.0	-7.1	
High Ch								
1770.00	14.28	V	4.4	9.5	19.38	30.0	-10.6	
1770.00	16.53	H	4.4	9.5	21.63	30.0	-8.4	

LTE
Band 66
20MHz
16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4789230288
Date: 2019-11-26
Test Engineer: 20896
Configuration: EUT / Z-Position
Location: Chamber 2
Mode: LTE_16QAM Band 66 Fundamentals, 20MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables
Substitution: Horn 3115[00167451], 8.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1720.00	12.53	V	4.3	9.4	17.55	30.0	-12.4	
1720.00	16.29	H	4.3	9.4	21.31	30.0	-8.7	
Mid Ch								
1745.00	13.01	V	4.4	9.4	18.10	30.0	-11.9	
1745.00	16.64	H	4.4	9.4	21.73	30.0	-8.3	
High Ch								
1770.00	11.35	V	4.4	9.5	16.45	30.0	-13.6	
1770.00	14.29	H	4.4	9.5	19.39	30.0	-10.6	

LTE Band 66 15MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789230288 Date: 2019-11-26 Test Engineer: 20896 Configuration: EUT / Z-Position Location: Chamber 2 Mode: LTE_QPSK Band 66 Fundamentals, 15MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Substitution: Horn 3115[00167451], 8.5m 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 colspan="9">Low Ch</td></tr><tr><td>1717.50</td><td>12.84</td><td>V</td><td>4.3</td><td>9.3</td><td>17.86</td><td>30.0</td><td>-12.1</td><td></td></tr><tr><td>1717.50</td><td>17.18</td><td>H</td><td>4.3</td><td>9.3</td><td>22.20</td><td>30.0</td><td>-7.8</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>1745.00</td><td>12.69</td><td>V</td><td>4.4</td><td>9.4</td><td>17.78</td><td>30.0</td><td>-12.2</td><td></td></tr><tr><td>1745.00</td><td>16.83</td><td>H</td><td>4.4</td><td>9.4</td><td>21.92</td><td>30.0</td><td>-8.1</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>1772.50</td><td>13.24</td><td>V</td><td>4.4</td><td>9.5</td><td>18.33</td><td>30.0</td><td>-11.7</td><td></td></tr><tr><td>1772.50</td><td>15.01</td><td>H</td><td>4.4</td><td>9.5</td><td>20.10</td><td>30.0</td><td>-9.9</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									1717.50	12.84	V	4.3	9.3	17.86	30.0	-12.1		1717.50	17.18	H	4.3	9.3	22.20	30.0	-7.8		Mid Ch									1745.00	12.69	V	4.4	9.4	17.78	30.0	-12.2		1745.00	16.83	H	4.4	9.4	21.92	30.0	-8.1		High Ch									1772.50	13.24	V	4.4	9.5	18.33	30.0	-11.7		1772.50	15.01	H	4.4	9.5	20.10	30.0	-9.9	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
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LTE Band 66 15MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789230288 Date: 2019-11-26 Test Engineer: 20896 Configuration: EUT / Z-Position Location: Chamber 2 Mode: LTE_16QAM Band 66 Fundamentals, 15MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Substitution: Horn 3115[00167451], 8.5m 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 colspan="9">Low Ch</td></tr><tr><td>1717.50</td><td>11.70</td><td>V</td><td>4.3</td><td>9.3</td><td>16.72</td><td>30.0</td><td>-13.3</td><td></td></tr><tr><td>1717.50</td><td>15.94</td><td>H</td><td>4.3</td><td>9.3</td><td>20.96</td><td>30.0</td><td>-9.0</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>1745.00</td><td>11.62</td><td>V</td><td>4.4</td><td>9.4</td><td>16.71</td><td>30.0</td><td>-13.3</td><td></td></tr><tr><td>1745.00</td><td>15.96</td><td>H</td><td>4.4</td><td>9.4</td><td>21.05</td><td>30.0</td><td>-9.0</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>1772.50</td><td>12.43</td><td>V</td><td>4.4</td><td>9.5</td><td>17.52</td><td>30.0</td><td>-12.5</td><td></td></tr><tr><td>1772.50</td><td>14.07</td><td>H</td><td>4.4</td><td>9.5</td><td>19.16</td><td>30.0</td><td>-10.8</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									1717.50	11.70	V	4.3	9.3	16.72	30.0	-13.3		1717.50	15.94	H	4.3	9.3	20.96	30.0	-9.0		Mid Ch									1745.00	11.62	V	4.4	9.4	16.71	30.0	-13.3		1745.00	15.96	H	4.4	9.4	21.05	30.0	-9.0		High Ch									1772.50	12.43	V	4.4	9.5	17.52	30.0	-12.5		1772.50	14.07	H	4.4	9.5	19.16	30.0	-10.8	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
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	High Ch																																																																																																		
	1772.50	12.43	V	4.4	9.5	17.52	30.0	-12.5																																																																																											
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LTE

Band 66

10MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Samsung

Project #:

4789230288

Date:

2019-11-26

Test Engineer:

45585

Configuration:

EUT / Z-Position

Location:

Chamber 2

Mode:

LTE_QPSK Band 66 Fundamentals, 10MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables

Substitution: Horn 3115[00167451], 8.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1715.00	13.25	V	4.3	9.3	18.26	30.0	-11.7	
1715.00	17.94	H	4.3	9.3	22.95	30.0	-7.0	
Mid Ch								
1745.00	14.24	V	4.4	9.4	19.33	30.0	-10.7	
1745.00	17.81	H	4.4	9.4	22.90	30.0	-7.1	
High Ch								
1775.00	12.96	V	4.4	9.5	18.06	30.0	-11.9	
1775.00	15.84	H	4.4	9.5	20.94	30.0	-9.1	

LTE

Band 66

10MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Samsung

Project #:

4789230288

Date:

2019-11-26

Test Engineer:

45585

Configuration:

EUT / Z-Position

Location:

Chamber 2

Mode:

LTE_16QAM Band 66 Fundamentals, 10MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables

Substitution: Horn 3115[00167451], 8.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1715.00	12.11	V	4.3	9.3	17.12	30.0	-12.9	
1715.00	17.02	H	4.3	9.3	22.03	30.0	-8.0	
Mid Ch								
1745.00	13.11	V	4.4	9.4	18.20	30.0	-11.8	
1745.00	16.76	H	4.4	9.4	21.85	30.0	-8.2	
High Ch								
1775.00	11.78	V	4.4	9.5	16.88	30.0	-13.1	
1775.00	14.81	H	4.4	9.5	19.91	30.0	-10.1	

LTE Band 66 5MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789230288 Date: 2019-11-26 Test Engineer: 45585 Configuration: EUT / Z-Position Location: Chamber 2 Mode: LTE_QPSK Band 66 Fundamentals, 5MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Substitution: Horn 3115[00167451], 8.5m 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 colspan="9">Low Ch</td></tr><tr><td>1712.50</td><td>12.01</td><td>V</td><td>4.3</td><td>9.3</td><td>17.01</td><td>30.0</td><td>-13.0</td><td></td></tr><tr><td>1712.50</td><td>17.06</td><td>H</td><td>4.3</td><td>9.3</td><td>22.06</td><td>30.0</td><td>-7.9</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>1745.00</td><td>13.10</td><td>V</td><td>4.4</td><td>9.4</td><td>18.19</td><td>30.0</td><td>-11.8</td><td></td></tr><tr><td>1745.00</td><td>16.50</td><td>H</td><td>4.4</td><td>9.4</td><td>21.59</td><td>30.0</td><td>-8.4</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>1777.50</td><td>12.83</td><td>V</td><td>4.4</td><td>9.5</td><td>17.93</td><td>30.0</td><td>-12.1</td><td></td></tr><tr><td>1777.50</td><td>16.38</td><td>H</td><td>4.4</td><td>9.5</td><td>21.48</td><td>30.0</td><td>-8.5</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									1712.50	12.01	V	4.3	9.3	17.01	30.0	-13.0		1712.50	17.06	H	4.3	9.3	22.06	30.0	-7.9		Mid Ch									1745.00	13.10	V	4.4	9.4	18.19	30.0	-11.8		1745.00	16.50	H	4.4	9.4	21.59	30.0	-8.4		High Ch									1777.50	12.83	V	4.4	9.5	17.93	30.0	-12.1		1777.50	16.38	H	4.4	9.5	21.48	30.0	-8.5	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
	Low Ch																																																																																																		
	1712.50	12.01	V	4.3	9.3	17.01	30.0	-13.0																																																																																											
	1712.50	17.06	H	4.3	9.3	22.06	30.0	-7.9																																																																																											
	Mid Ch																																																																																																		
	1745.00	13.10	V	4.4	9.4	18.19	30.0	-11.8																																																																																											
	1745.00	16.50	H	4.4	9.4	21.59	30.0	-8.4																																																																																											
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LTE Band 66 5MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789230288 Date: 2019-11-26 Test Engineer: 45585 Configuration: EUT / Z-Position Location: Chamber 2 Mode: LTE_16QAM Band 66 Fundamentals, 5MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Substitution: Horn 3115[00167451], 8.5m 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 colspan="9">Low Ch</td></tr><tr><td>1712.50</td><td>11.10</td><td>V</td><td>4.3</td><td>9.3</td><td>16.10</td><td>30.0</td><td>-13.9</td><td></td></tr><tr><td>1712.50</td><td>16.06</td><td>H</td><td>4.3</td><td>9.3</td><td>21.06</td><td>30.0</td><td>-8.9</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>1745.00</td><td>12.60</td><td>V</td><td>4.4</td><td>9.4</td><td>17.69</td><td>30.0</td><td>-12.3</td><td></td></tr><tr><td>1745.00</td><td>15.52</td><td>H</td><td>4.4</td><td>9.4</td><td>20.61</td><td>30.0</td><td>-9.4</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>1777.50</td><td>10.40</td><td>V</td><td>4.4</td><td>9.5</td><td>15.50</td><td>30.0</td><td>-14.5</td><td></td></tr><tr><td>1777.50</td><td>14.62</td><td>H</td><td>4.4</td><td>9.5</td><td>19.72</td><td>30.0</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									1712.50	11.10	V	4.3	9.3	16.10	30.0	-13.9		1712.50	16.06	H	4.3	9.3	21.06	30.0	-8.9		Mid Ch									1745.00	12.60	V	4.4	9.4	17.69	30.0	-12.3		1745.00	15.52	H	4.4	9.4	20.61	30.0	-9.4		High Ch									1777.50	10.40	V	4.4	9.5	15.50	30.0	-14.5		1777.50	14.62	H	4.4	9.5	19.72	30.0	-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																																																																																																		
	1712.50	11.10	V	4.3	9.3	16.10	30.0	-13.9																																																																																											
	1712.50	16.06	H	4.3	9.3	21.06	30.0	-8.9																																																																																											
	Mid Ch																																																																																																		
	1745.00	12.60	V	4.4	9.4	17.69	30.0	-12.3																																																																																											
	1745.00	15.52	H	4.4	9.4	20.61	30.0	-9.4																																																																																											
	High Ch																																																																																																		
	1777.50	10.40	V	4.4	9.5	15.50	30.0	-14.5																																																																																											
1777.50	14.62	H	4.4	9.5	19.72	30.0	-10.3																																																																																												

LTE

Band 66

3MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4789230288

2019-11-26

45585

EUT / Z-Position

Chamber 2

LTE_QPSK Band 66 Fundamentals, 3MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables

Substitution: Horn 3115[00167451], 8.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1711.50	12.20	V	4.3	9.3	17.21	30.0	-12.8	
1711.50	16.78	H	4.3	9.3	21.79	30.0	-8.2	
Mid Ch								
1745.00	13.63	V	4.4	9.4	18.72	30.0	-11.3	
1745.00	16.88	H	4.4	9.4	21.97	30.0	-8.0	
High Ch								
1778.50	11.68	V	4.4	9.5	16.78	30.0	-13.2	
1778.50	14.35	H	4.4	9.5	19.45	30.0	-10.6	

LTE

Band 66

3MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4789230288

2019-11-26

45585

EUT / Z-Position

Chamber 2

LTE_16QAM Band 66 Fundamentals, 3MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables

Substitution: Horn 3115[00167451], 8.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1711.50	10.96	V	4.3	9.3	15.97	30.0	-14.0	
1711.50	15.83	H	4.3	9.3	20.84	30.0	-9.2	
Mid Ch								
1745.00	12.87	V	4.4	9.4	17.96	30.0	-12.0	
1745.00	15.61	H	4.4	9.4	20.70	30.0	-9.3	
High Ch								
1778.50	10.77	V	4.4	9.5	15.87	30.0	-14.1	
1778.50	13.31	H	4.4	9.5	18.41	30.0	-11.6	

LTE

Band 66

1.4MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4789230288

Date: 2019-11-26

Test Engineer: 45585

Configuration: EUT / Z-Position

Location: Chamber 2

Mode: LTE_QPSK Band 66 Fundamentals, 1.4MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables

Substitution: Horn 3115[00167451], 8.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1710.70	12.34	V	4.3	9.3	17.34	30.0	-12.7	
1710.70	16.44	H	4.3	9.3	21.44	30.0	-8.6	
Mid Ch								
1745.00	13.78	V	4.4	9.4	18.87	30.0	-11.1	
1745.00	16.58	H	4.4	9.4	21.67	30.0	-8.3	
High Ch								
1779.30	13.55	V	4.4	9.5	18.65	30.0	-11.4	
1779.30	16.51	H	4.4	9.5	21.61	30.0	-8.4	

LTE

Band 66

1.4MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4789230288

Date: 2019-11-26

Test Engineer: 45585

Configuration: EUT / Z-Position

Location: Chamber 2

Mode: LTE_16QAM Band 66 Fundamentals, 1.4MHz Bandwidth

Test Equipment:

Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables

Substitution: Horn 3115[00167451], 8.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1710.70	11.22	V	4.3	9.3	16.22	30.0	-13.8	
1710.70	15.49	H	4.3	9.3	20.49	30.0	-9.5	
Mid Ch								
1745.00	12.33	V	4.4	9.4	17.42	30.0	-12.6	
1745.00	15.51	H	4.4	9.4	20.60	30.0	-9.4	
High Ch								
1779.30	11.73	V	4.4	9.5	16.83	30.0	-13.2	
1779.30	12.67	H	4.4	9.5	17.77	30.0	-12.2	

10.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

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

LIMIT

Part 22.917(a) & Part 24.238(a) & Part 27.53(h) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

Part 27.53:

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

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

(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB.

(h) The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB.

(m) (4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Part 90.691(a):

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

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

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

TEST PROCEDURE

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

For peak power measurement with a ESU40:

- a) Set the RBW = 100 KHz for emission below 1GHz and 1MHz for emissions above 1GHz
- b) Set VBW $\geq 3 \times$ RBW;
- c) Set span ≥ 1.5 times the OBW;
- d) Sweep time = auto couple;
- e) Detector = rms;
- f) Ensure that the number of measurement points $\geq$ span/RBW;
- g) Trace mode = average(WCDMA, LTE), Maxhold(GSM, LTE Band41);;

RESULTS

See the following pages.

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

10.2.1. SPURIOUS RADIATION PLOTS

GSM850

	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung Project #: 4789230288 Date: 2019-11-20 Test Engineer: 20896 Configuration: EUT / AC Adapter, X-Position Location: Chamber 2 Mode: GPRS 850 MHz Harmonics									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
GSM850 GPRS	Low Ch, 824.2MHz									
	1648.40	-12.3	V	3.0	40.7	1.0	-51.9	-13.0	-38.9	
	2472.60	2.1	V	3.0	41.3	1.0	-38.2	-13.0	-25.2	
	3296.80	-9.3	V	3.0	42.0	1.0	-50.3	-13.0	-37.3	
	1648.40	-9.7	H	3.0	40.7	1.0	-49.4	-13.0	-36.4	
	2472.60	-1.3	H	3.0	41.3	1.0	-41.5	-13.0	-28.5	
	3296.80	-8.9	H	3.0	42.0	1.0	-49.9	-13.0	-36.9	
	Mid Ch, 836.6MHz									
	1673.20	-13.1	V	3.0	40.7	1.0	-52.7	-13.0	-39.7	
	2509.80	-4.3	V	3.0	41.3	1.0	-44.6	-13.0	-31.6	
	3346.40	-8.8	V	3.0	42.0	1.0	-49.8	-13.0	-36.8	
	1673.20	-5.8	H	3.0	40.7	1.0	-45.4	-13.0	-32.4	
	2509.80	2.9	H	3.0	41.3	1.0	-37.4	-13.0	-24.4	
	3346.40	-8.7	H	3.0	42.0	1.0	-49.7	-13.0	-36.7	
	High Ch, 848.8MHz									
	1697.60	-13.6	V	3.0	40.7	1.0	-53.2	-13.0	-40.2	
	2546.40	-7.4	V	3.0	41.4	1.0	-47.8	-13.0	-34.8	
	3395.20	-8.7	V	3.0	42.0	1.0	-49.7	-13.0	-36.7	
	1697.60	-10.6	H	3.0	40.7	1.0	-50.2	-13.0	-37.2	
	2546.40	-7.1	H	3.0	41.4	1.0	-47.5	-13.0	-34.5	
	3395.20	-8.4	H	3.0	42.0	1.0	-49.4	-13.0	-36.4	
GSM850 EGPRS	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung Project #: 4789230288 Date: 2019-11-20 Test Engineer: 20896 Configuration: EUT / AC Adapter, X-Position Location: Chamber 2 Mode: EGPRS 850 MHz Harmonics									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 824.2MHz									
	1648.40	-14.3	V	3.0	40.7	1.0	-54.0	-13.0	-41.0	
	2472.60	-2.9	V	3.0	41.3	1.0	-43.2	-13.0	-30.2	
	3296.80	-9.5	V	3.0	42.0	1.0	-50.5	-13.0	-37.5	
	1648.40	-15.0	H	3.0	40.7	1.0	-54.7	-13.0	-41.7	
	2472.60	-5.3	H	3.0	41.3	1.0	-45.5	-13.0	-32.5	
	3296.80	-9.2	H	3.0	42.0	1.0	-50.2	-13.0	-37.2	
	Mid Ch, 836.6MHz									
	1673.20	-14.3	V	3.0	40.7	1.0	-54.0	-13.0	-41.0	
	2509.80	-3.2	V	3.0	41.3	1.0	-43.5	-13.0	-30.5	
	3346.40	-8.9	V	3.0	42.0	1.0	-49.9	-13.0	-36.9	
	1673.20	-13.9	H	3.0	40.7	1.0	-53.6	-13.0	-40.6	
	2509.80	-1.0	H	3.0	41.3	1.0	-41.3	-13.0	-28.3	
	3346.40	-8.8	H	3.0	42.0	1.0	-49.8	-13.0	-36.8	
	High Ch, 848.8MHz									
	1697.60	-14.2	V	3.0	40.7	1.0	-53.8	-13.0	-40.8	
	2546.40	-11.7	V	3.0	41.4	1.0	-52.1	-13.0	-39.1	
	3395.20	-9.0	V	3.0	42.0	1.0	-50.0	-13.0	-37.0	
	1697.60	-14.5	H	3.0	40.7	1.0	-54.2	-13.0	-41.2	
	2546.40	-8.7	H	3.0	41.4	1.0	-49.1	-13.0	-36.1	
	3395.20	-8.4	H	3.0	42.0	1.0	-49.5	-13.0	-36.5	

GSM1900

GSM1900 GPRS	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4789230288 Date: 2019-11-20 Test Engineer: 20882 Configuration: EUT / AC Adapter, Y-Position Location: Chamber 1 Mode: GPRS 1900 MHz Harmonics									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 1850.2MHz									
	3700.40	0.4	V	3.0	45.4	1.0	-44.0	-13.0	-31.0	
	5550.60	-0.3	V	3.0	45.3	1.0	-44.5	-13.0	-31.5	
	7400.80	-4.5	V	3.0	44.1	1.0	-47.7	-13.0	-34.7	
	3700.40	2.8	H	3.0	45.4	1.0	-41.6	-13.0	-28.6	
	5550.60	0.2	H	3.0	45.3	1.0	-44.0	-13.0	-31.0	
	7400.80	-4.4	H	3.0	44.1	1.0	-47.6	-13.0	-34.6	
	Mid Ch, 1880MHz									
	3760.00	-0.1	V	3.0	45.4	1.0	-44.5	-13.0	-31.5	
	5640.00	-0.6	V	3.0	45.3	1.0	-44.8	-13.0	-31.8	
	7520.00	-4.5	V	3.0	44.1	1.0	-47.6	-13.0	-34.6	
	3760.00	4.7	H	3.0	45.4	1.0	-39.7	-13.0	-26.7	
	5640.00	3.2	H	3.0	45.3	1.0	-41.1	-13.0	-28.1	
	7520.00	-4.4	H	3.0	44.1	1.0	-47.5	-13.0	-34.5	
	High Ch, 1909.8MHz									
	3819.60	-2.7	V	3.0	45.4	1.0	-47.1	-13.0	-34.1	
	5729.40	0.9	V	3.0	45.3	1.0	-43.4	-13.0	-30.4	
	7639.20	-4.5	V	3.0	44.0	1.0	-47.5	-13.0	-34.5	
	3819.60	-0.6	H	3.0	45.4	1.0	-45.1	-13.0	-32.1	
	5729.40	0.9	H	3.0	45.3	1.0	-43.4	-13.0	-30.4	
	7639.20	-4.1	H	3.0	44.0	1.0	-47.1	-13.0	-34.1	
GSM1900 EGPRS	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4789230288 Date: 2019-11-20 Test Engineer: 20882 Configuration: EUT / AC Adapter, Y-Position Location: Chamber 1 Mode: EGPRS 1900 MHz Harmonics									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 1850.2MHz									
	3700.40	-4.1	V	3.0	45.4	1.0	-48.5	-13.0	-35.5	
	5550.60	-5.2	V	3.0	45.3	1.0	-49.4	-13.0	-36.4	
	7400.80	-4.6	V	3.0	44.1	1.0	-47.7	-13.0	-34.7	
	3700.40	-1.3	H	3.0	45.4	1.0	-45.7	-13.0	-32.7	
	5550.60	-6.6	H	3.0	45.3	1.0	-50.8	-13.0	-37.8	
	7400.80	-4.6	H	3.0	44.1	1.0	-47.7	-13.0	-34.7	
	Mid Ch, 1880MHz									
	3760.00	-5.3	V	3.0	45.4	1.0	-49.8	-13.0	-36.8	
	5640.00	-5.8	V	3.0	45.3	1.0	-50.0	-13.0	-37.0	
	7520.00	-4.6	V	3.0	44.1	1.0	-47.7	-13.0	-34.7	
	3760.00	-4.1	H	3.0	45.4	1.0	-48.5	-13.0	-35.5	
	5640.00	-4.9	H	3.0	45.3	1.0	-49.2	-13.0	-36.2	
	7520.00	-4.5	H	3.0	44.1	1.0	-47.6	-13.0	-34.6	
	High Ch, 1909.8MHz									
	3819.60	-9.3	V	3.0	45.4	1.0	-53.8	-13.0	-40.8	
	5729.40	-2.2	V	3.0	45.3	1.0	-46.5	-13.0	-33.5	
	7639.20	-4.4	V	3.0	44.0	1.0	-47.4	-13.0	-34.4	
	3819.60	-8.7	H	3.0	45.4	1.0	-53.2	-13.0	-40.2	
	5729.40	-2.5	H	3.0	45.3	1.0	-46.8	-13.0	-33.8	
	7639.20	-4.2	H	3.0	44.0	1.0	-47.2	-13.0	-34.2	

WCDMA Band 5

WCDMA Band 5 REL99	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4789230288 Date: 2019-11-20 Test Engineer: 20890 Configuration: EUT / AC Adapter, Z-Position Location: Chamber 1 Mode: Rel99 Band 5 Harmonics									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 826.4MHz									
	1652.80	-15.1	V	3.0	45.2	1.0	-59.3	-13.0	-46.3	
	2479.20	-11.7	V	3.0	45.0	1.0	-55.7	-13.0	-42.7	
	3305.60	-9.4	V	3.0	45.3	1.0	-53.7	-13.0	-40.7	
	1652.80	-14.0	H	3.0	45.2	1.0	-58.2	-13.0	-45.2	
	2479.20	-10.8	H	3.0	45.0	1.0	-54.8	-13.0	-41.8	
	3305.60	-9.6	H	3.0	45.3	1.0	-53.9	-13.0	-40.9	
	Mid Ch, 836.6MHz									
	1673.20	-15.0	V	3.0	45.2	1.0	-59.2	-13.0	-46.2	
	2509.80	-11.8	V	3.0	45.0	1.0	-55.8	-13.0	-42.8	
	3346.40	-9.4	V	3.0	45.3	1.0	-53.7	-13.0	-40.7	
	1673.20	-14.2	H	3.0	45.2	1.0	-58.4	-13.0	-45.4	
	2509.80	-11.3	H	3.0	45.0	1.0	-55.3	-13.0	-42.3	
	3346.40	-9.6	H	3.0	45.3	1.0	-53.8	-13.0	-40.8	
	High Ch, 846.6MHz									
	1693.20	-14.7	V	3.0	45.2	1.0	-58.9	-13.0	-45.9	
	2539.80	-11.7	V	3.0	45.0	1.0	-55.7	-13.0	-42.7	
	3386.40	-9.3	V	3.0	45.3	1.0	-53.6	-13.0	-40.6	
	1693.20	-13.8	H	3.0	45.2	1.0	-57.9	-13.0	-44.9	
	2539.80	-11.1	H	3.0	45.0	1.0	-55.2	-13.0	-42.2	
	3386.40	-9.4	H	3.0	45.3	1.0	-53.7	-13.0	-40.7	
WCDMA Band 5 HSDPA	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4789230288 Date: 2019-11-20 Test Engineer: 20890 Configuration: EUT / AC Adapter, Z-Position Location: Chamber 1 Mode: HSDPA Band 5 Harmonics									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 826.4MHz									
	1652.80	-15.2	V	3.0	45.2	1.0	-59.4	-13.0	-46.4	
	2479.20	-11.7	V	3.0	45.0	1.0	-55.8	-13.0	-42.8	
	3305.60	-9.5	V	3.0	45.3	1.0	-53.8	-13.0	-40.8	
	1652.80	-14.2	H	3.0	45.2	1.0	-58.4	-13.0	-45.4	
	2479.20	-10.8	H	3.0	45.0	1.0	-54.8	-13.0	-41.8	
	3305.60	-9.3	H	3.0	45.3	1.0	-53.6	-13.0	-40.6	
	Mid Ch, 836.6MHz									
	1673.20	-15.0	V	3.0	45.2	1.0	-59.2	-13.0	-46.2	
	2509.80	-11.7	V	3.0	45.0	1.0	-55.7	-13.0	-42.7	
	3346.40	-9.3	V	3.0	45.3	1.0	-53.6	-13.0	-40.6	
	1673.20	-14.1	H	3.0	45.2	1.0	-58.3	-13.0	-45.3	
	2509.80	-11.1	H	3.0	45.0	1.0	-55.2	-13.0	-42.2	
	3346.40	-9.6	H	3.0	45.3	1.0	-53.9	-13.0	-40.9	
	High Ch, 846.6MHz									
	1693.20	-14.7	V	3.0	45.2	1.0	-58.9	-13.0	-45.9	
	2539.80	-11.7	V	3.0	45.0	1.0	-55.7	-13.0	-42.7	
	3386.40	-9.2	V	3.0	45.3	1.0	-53.5	-13.0	-40.5	
	1693.20	-13.9	H	3.0	45.2	1.0	-58.1	-13.0	-45.1	
	2539.80	-11.2	H	3.0	45.0	1.0	-55.2	-13.0	-42.2	
	3386.40	-9.3	H	3.0	45.3	1.0	-53.6	-13.0	-40.6	

WCDMA Band 4

WCDMA Band 4 REL99	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4789230288 Date: 2019-12-03 Test Engineer: 20896 Configuration: EUT / AC Adapter, X-Position Location: Chamber 1 Mode: Rel99 Band 4 Harmonics									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 1712.4MHz									
	3424.80	-8.7	V	3.0	45.3	1.0	-53.0	-13.0	-40.0	
	5137.20	-8.2	V	3.0	45.3	1.0	-52.4	-13.0	-39.4	
	6849.60	-5.8	V	3.0	44.5	1.0	-49.3	-13.0	-36.3	
	3424.80	-9.0	H	3.0	45.3	1.0	-53.3	-13.0	-40.3	
	5137.20	-8.5	H	3.0	45.3	1.0	-52.8	-13.0	-39.8	
	6849.60	-5.8	H	3.0	44.5	1.0	-49.3	-13.0	-36.3	
	Mid Ch, 1732.6MHz									
	3465.20	-8.9	V	3.0	45.3	1.0	-53.2	-13.0	-40.2	
	5197.80	-7.8	V	3.0	45.3	1.0	-52.1	-13.0	-39.1	
	6930.40	-5.8	V	3.0	44.4	1.0	-49.2	-13.0	-36.2	
	3465.20	-9.2	H	3.0	45.3	1.0	-53.5	-13.0	-40.5	
	5197.80	-8.3	H	3.0	45.3	1.0	-52.6	-13.0	-39.6	
	6930.40	-5.8	H	3.0	44.4	1.0	-49.3	-13.0	-36.3	
	High Ch, 1752.6MHz									
	3505.20	-7.9	V	3.0	45.3	1.0	-52.3	-13.0	-39.3	
	5257.80	-7.9	V	3.0	45.3	1.0	-52.2	-13.0	-39.2	
	7010.40	-5.2	V	3.0	44.4	1.0	-48.5	-13.0	-35.5	
	3505.20	-8.0	H	3.0	45.3	1.0	-52.4	-13.0	-39.4	
	5257.80	-8.2	H	3.0	45.3	1.0	-52.5	-13.0	-39.5	
	7010.40	-5.5	H	3.0	44.4	1.0	-48.8	-13.0	-35.8	
WCDMA Band 4 HSDPA	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4789230288 Date: 2019-12-03 Test Engineer: 20896 Configuration: EUT / AC Adapter, X-Position Location: Chamber 1 Mode: HSDPA Band 4 Harmonics									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 1712.4MHz									
	3424.80	-8.6	V	3.0	45.3	1.0	-52.9	-13.0	-39.9	
	5137.20	-8.2	V	3.0	45.3	1.0	-52.5	-13.0	-39.5	
	6849.60	-5.9	V	3.0	44.5	1.0	-49.4	-13.0	-36.4	
	3424.80	-8.9	H	3.0	45.3	1.0	-53.2	-13.0	-40.2	
	5137.20	-8.6	H	3.0	45.3	1.0	-52.9	-13.0	-39.9	
	6849.60	-5.9	H	3.0	44.5	1.0	-49.4	-13.0	-36.4	
	Mid Ch, 1732.6MHz									
	3465.20	-8.6	V	3.0	45.3	1.0	-52.9	-13.0	-39.9	
	5197.80	-7.9	V	3.0	45.3	1.0	-52.2	-13.0	-39.2	
	6930.40	-5.9	V	3.0	44.4	1.0	-49.3	-13.0	-36.3	
	3465.20	-8.9	H	3.0	45.3	1.0	-53.2	-13.0	-40.2	
	5197.80	-8.3	H	3.0	45.3	1.0	-52.5	-13.0	-39.5	
	6930.40	-5.9	H	3.0	44.4	1.0	-49.3	-13.0	-36.3	
	High Ch, 1752.6MHz									
	3505.20	-7.8	V	3.0	45.3	1.0	-52.1	-13.0	-39.1	
	5257.80	-8.0	V	3.0	45.3	1.0	-52.3	-13.0	-39.3	
	7010.40	-5.5	V	3.0	44.4	1.0	-48.9	-13.0	-35.9	
	3505.20	-8.0	H	3.0	45.3	1.0	-52.3	-13.0	-39.3	
	5257.80	-8.3	H	3.0	45.3	1.0	-52.6	-13.0	-39.6	
	7010.40	-5.6	H	3.0	44.4	1.0	-48.9	-13.0	-35.9	

WCDMA Band 2

WCDMA Band 2 REL99	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4789230288 Date: 2019-12-03 Test Engineer: 20896 Configuration: EUT / AC Adapter, X-Position Location: Chamber 1 Mode: Rel99 Band 2 Harmonics									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 1852.4MHz									
	3704.80	-10.9	V	3.0	45.4	1.0	-55.3	-13.0	-42.3	
	5557.20	-7.9	V	3.0	45.3	1.0	-52.2	-13.0	-39.2	
	7409.60	-5.7	V	3.0	44.1	1.0	-48.9	-13.0	-35.9	
	3704.80	-11.3	H	3.0	45.4	1.0	-55.7	-13.0	-42.7	
	5557.20	-8.2	H	3.0	45.3	1.0	-52.5	-13.0	-39.5	
	7409.60	-5.6	H	3.0	44.1	1.0	-48.8	-13.0	-35.8	
	Mid Ch, 1880MHz									
	3760.00	-10.4	V	3.0	45.4	1.0	-54.8	-13.0	-41.8	
	5640.00	-8.0	V	3.0	45.3	1.0	-52.3	-13.0	-39.3	
	7520.00	-5.7	V	3.0	44.1	1.0	-48.8	-13.0	-35.8	
	3760.00	-11.0	H	3.0	45.4	1.0	-55.4	-13.0	-42.4	
	5640.00	-8.2	H	3.0	45.3	1.0	-52.5	-13.0	-39.5	
	7520.00	-5.6	H	3.0	44.1	1.0	-48.7	-13.0	-35.7	
	High Ch, 1907.6MHz									
	3815.20	-10.4	V	3.0	45.4	1.0	-54.9	-13.0	-41.9	
	5722.80	-7.9	V	3.0	45.3	1.0	-52.2	-13.0	-39.2	
	7630.40	-5.6	V	3.0	44.0	1.0	-48.6	-13.0	-35.6	
	3815.20	-11.0	H	3.0	45.4	1.0	-55.4	-13.0	-42.4	
	5722.80	-8.1	H	3.0	45.3	1.0	-52.4	-13.0	-39.4	
	7630.40	-5.5	H	3.0	44.0	1.0	-48.5	-13.0	-35.5	
WCDMA Band 2 HSDPA	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4789230288 Date: 2019-12-03 Test Engineer: 20896 Configuration: EUT / AC Adapter, X-Position Location: Chamber 1 Mode: HSDPA Band 2 Harmonics									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 1852.4MHz									
	3704.80	-11.0	V	3.0	45.4	1.0	-55.4	-13.0	-42.4	
	5557.20	-7.9	V	3.0	45.3	1.0	-52.2	-13.0	-39.2	
	7409.60	-5.7	V	3.0	44.1	1.0	-48.9	-13.0	-35.9	
	3704.80	-11.4	H	3.0	45.4	1.0	-55.8	-13.0	-42.8	
	5557.20	-8.2	H	3.0	45.3	1.0	-52.5	-13.0	-39.5	
	7409.60	-5.6	H	3.0	44.1	1.0	-48.8	-13.0	-35.8	
	Mid Ch, 1880MHz									
	3760.00	-10.4	V	3.0	45.4	1.0	-54.9	-13.0	-41.9	
	5640.00	-8.0	V	3.0	45.3	1.0	-52.3	-13.0	-39.3	
	7520.00	-5.7	V	3.0	44.1	1.0	-48.8	-13.0	-35.8	
	3760.00	-11.0	H	3.0	45.4	1.0	-55.4	-13.0	-42.4	
	5640.00	-8.2	H	3.0	45.3	1.0	-52.5	-13.0	-39.5	
	7520.00	-5.6	H	3.0	44.1	1.0	-48.7	-13.0	-35.7	
	High Ch, 1907.6MHz									
	3815.20	-10.5	V	3.0	45.4	1.0	-54.9	-13.0	-41.9	
	5722.80	-7.9	V	3.0	45.3	1.0	-52.1	-13.0	-39.1	
	7630.40	-5.7	V	3.0	44.0	1.0	-48.7	-13.0	-35.7	
	3815.20	-10.9	H	3.0	45.4	1.0	-55.4	-13.0	-42.4	
	5722.80	-8.1	H	3.0	45.3	1.0	-52.4	-13.0	-39.4	
	7630.40	-5.5	H	3.0	44.0	1.0	-48.5	-13.0	-35.5	

LTE Band 12

LTE Band 12 10MHz QPSK	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung Project #: 4789230288 Date: 2019-12-03 Test Engineer: 20882 Configuration: EUT / AC Adapter, Y-Position Location: Chamber 1 Mode: LTE_QPSK Band 12 Harmonics, 10MHz Bandwidth									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 704MHz									
	1408.00	-15.9	V	3.0	45.4	1.0	-60.3	-13.0	-47.3	
	2112.00	-11.3	V	3.0	45.0	1.0	-55.2	-13.0	-42.2	
	2816.00	-10.2	V	3.0	45.1	1.0	-54.3	-13.0	-41.3	
	1408.00	-15.4	H	3.0	45.4	1.0	-59.8	-13.0	-46.8	
	2112.00	-8.0	H	3.0	45.0	1.0	-52.0	-13.0	-39.0	
	2816.00	-10.2	H	3.0	45.1	1.0	-54.3	-13.0	-41.3	
	Mid Ch, 707.5MHz									
	1415.00	-16.1	V	3.0	45.4	1.0	-60.5	-13.0	-47.5	
	2122.50	-12.4	V	3.0	45.0	1.0	-56.3	-13.0	-43.3	
	2830.00	-10.4	V	3.0	45.1	1.0	-54.5	-13.0	-41.5	
	1415.00	-14.2	H	3.0	45.4	1.0	-58.6	-13.0	-45.6	
	2122.50	-9.1	H	3.0	45.0	1.0	-53.1	-13.0	-40.1	
	2830.00	-10.4	H	3.0	45.1	1.0	-54.5	-13.0	-41.5	
	High Ch, 711MHz									
	1422.00	-15.9	V	3.0	45.4	1.0	-60.3	-13.0	-47.3	
	2133.00	-10.7	V	3.0	45.0	1.0	-54.7	-13.0	-41.7	
	2844.00	-10.2	V	3.0	45.1	1.0	-54.4	-13.0	-41.4	
	1422.00	-15.1	H	3.0	45.4	1.0	-59.4	-13.0	-46.4	
	2133.00	-7.4	H	3.0	45.0	1.0	-51.3	-13.0	-38.3	
	2844.00	-10.2	H	3.0	45.1	1.0	-54.4	-13.0	-41.4	

LTE Band 13

LTE Band 13 10MHz QPSK	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung Project #: 4789230288 Date: 2019-12-03 Test Engineer: 20882 Configuration: EUT / AC Adapter, X-Position Location: Chamber 1 Mode: LTE_QPSK Band 13 Harmonics, 10MHz Bandwidth									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Mid Ch, 782MHz									
	1564.00	-23.6	V	3.0	45.3	1.0	-67.8	-40.0	-27.8	
	2346.00	-7.8	V	3.0	45.0	1.0	-51.8	-13.0	-38.8	
	3128.00	-8.9	V	3.0	45.2	1.0	-53.1	-13.0	-40.1	
	1564.00	-19.4	H	3.0	45.3	1.0	-63.6	-40.0	-23.6	
	2346.00	-6.2	H	3.0	45.0	1.0	-50.2	-13.0	-37.2	
	3128.00	-9.0	H	3.0	45.2	1.0	-53.2	-13.0	-40.2	

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

LTE Band 25

LTE Band 25 3MHz QPSK	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Company: Samsung Project #: 4789230288 Date: 2019-11-20 Test Engineer: 20882 Configuration: EUT / AC Adapter, Y-Position Location: Chamber 1 Mode: LTE_QPSK Band 25 Harmonics, 3MHz Bandwidth	Low Ch, 1851.5MHz									
	3703.00	-6.4	V	3.0	45.4	1.0	-50.8	-13.0	-37.8	
	5554.50	-7.1	V	3.0	45.3	1.0	-51.4	-13.0	-38.4	
	7406.00	-4.8	V	3.0	44.1	1.0	-47.9	-13.0	-34.9	
	3703.00	-4.7	H	3.0	45.4	1.0	-49.1	-13.0	-36.1	
	5554.50	-6.4	H	3.0	45.3	1.0	-50.7	-13.0	-37.7	
	7406.00	-4.5	H	3.0	44.1	1.0	-47.7	-13.0	-34.7	
	Mid Ch, 1882.5MHz									
	3765.00	-8.7	V	3.0	45.4	1.0	-53.1	-13.0	-40.1	
	5647.50	-7.9	V	3.0	45.3	1.0	-52.2	-13.0	-39.2	
	7530.00	-5.7	V	3.0	44.1	1.0	-48.8	-13.0	-35.8	
	3765.00	-6.5	H	3.0	45.4	1.0	-51.0	-13.0	-38.0	
	5647.50	-7.6	H	3.0	45.3	1.0	-51.8	-13.0	-38.8	
	7530.00	-4.9	H	3.0	44.1	1.0	-48.0	-13.0	-35.0	
	High Ch, 1913.5MHz									
	3827.00	-10.7	V	3.0	45.4	1.0	-55.1	-13.0	-42.1	
	5740.50	-7.2	V	3.0	45.3	1.0	-51.5	-13.0	-38.5	
	7654.00	-4.6	V	3.0	44.0	1.0	-47.6	-13.0	-34.6	
	3827.00	-9.7	H	3.0	45.4	1.0	-54.1	-13.0	-41.1	
	5740.50	-7.4	H	3.0	45.3	1.0	-51.7	-13.0	-38.7	
	7654.00	-4.7	H	3.0	44.0	1.0	-47.7	-13.0	-34.7	

LTE Band 26

LTE Band 26 15MHz QPSK	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4789230288 Date: 2019-12-03 Test Engineer: 20881 Configuration: EUT / AC Adapter, Y-Position Location: Chamber 2 Mode: LTE_QPSK Band 26 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, 821.5MHz										
1643.00	-13.8	V	3.0	40.7	1.0	-53.5	-13.0	-40.5		
2464.50	-10.9	V	3.0	41.3	1.0	-51.1	-13.0	-38.1		
3286.00	-10.4	V	3.0	42.0	1.0	-51.5	-13.0	-38.5		
1643.00	-15.2	H	3.0	40.7	1.0	-54.9	-13.0	-41.9		
2464.50	-10.9	H	3.0	41.3	1.0	-51.1	-13.0	-38.1		
3286.00	-10.1	H	3.0	42.0	1.0	-51.2	-13.0	-38.2		
LTE Band 26 15MHz QPSK	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4789230288 Date: 2019-12-03 Test Engineer: 20881 Configuration: EUT / AC Adapter, Y-Position Location: Chamber 2 Mode: LTE_QPSK Band 26 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
Mid Ch, 831.5MHz										
1663.00	-13.5	V	3.0	40.7	1.0	-53.1	-13.0	-40.1		
2494.50	-8.9	V	3.0	41.3	1.0	-49.2	-13.0	-36.2		
3326.00	-10.2	V	3.0	42.0	1.0	-51.2	-13.0	-38.2		
1663.00	-15.2	H	3.0	40.7	1.0	-54.8	-13.0	-41.8		
2494.50	-11.2	H	3.0	41.3	1.0	-51.5	-13.0	-38.5		
3326.00	-10.0	H	3.0	42.0	1.0	-51.0	-13.0	-38.0		
High Ch, 841.5MHz										
1683.00	-13.8	V	3.0	40.7	1.0	-53.5	-13.0	-40.5		
2524.50	-10.3	V	3.0	41.3	1.0	-50.7	-13.0	-37.7		
3366.00	-9.9	V	3.0	42.0	1.0	-51.0	-13.0	-38.0		
1683.00	-15.5	H	3.0	40.7	1.0	-55.2	-13.0	-42.2		
2524.50	-10.4	H	3.0	41.3	1.0	-50.7	-13.0	-37.7		
3366.00	-9.8	H	3.0	42.0	1.0	-50.8	-13.0	-37.8		

LTE Band 41(PC2)

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4789230288							
Date:		2019-11-21							
Test Engineer:		20896							
Configuration:		EUT / AC Adapter, Y-Position							
Location:		Chamber 2							
Mode:		LTE_QPSK Band 41 Harmonics, 5MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2498.5MHz									
4997.00	-15.0	V	3.0	42.7	1.0	-56.8	-25.0	-31.8	
7495.50	-16.7	V	3.0	42.4	1.0	-58.1	-25.0	-33.1	
9994.00	-7.0	V	3.0	40.8	1.0	-46.8	-25.0	-21.8	
12492.50	-1.9	V	3.0	42.0	1.0	-42.9	-25.0	-17.9	
14991.00	8.0	V	3.0	43.6	1.0	-34.7	-25.0	-9.7	
4997.00	-16.9	H	3.0	42.7	1.0	-58.6	-25.0	-33.6	
7495.50	-16.1	H	3.0	42.4	1.0	-57.5	-25.0	-32.5	
9994.00	-9.7	H	3.0	40.8	1.0	-49.5	-25.0	-24.5	
12492.50	-8.6	H	3.0	42.0	1.0	-49.6	-25.0	-24.6	
14991.00	2.2	H	3.0	43.6	1.0	-40.4	-25.0	-15.4	
Mid Ch, 2593MHz									
5186.00	-17.8	V	3.0	42.8	1.0	-59.6	-25.0	-34.6	
7779.00	-17.0	V	3.0	42.3	1.0	-58.2	-25.0	-33.2	
10372.00	-8.2	V	3.0	41.0	1.0	-48.2	-25.0	-23.2	
12965.00	-6.1	V	3.0	42.3	1.0	-47.4	-25.0	-22.4	
15558.00	8.9	V	3.0	43.5	1.0	-33.5	-25.0	-8.5	
5186.00	-15.6	H	3.0	42.8	1.0	-57.4	-25.0	-32.4	
7779.00	-15.6	H	3.0	42.3	1.0	-56.9	-25.0	-31.9	
10372.00	-12.1	H	3.0	41.0	1.0	-52.1	-25.0	-27.1	
12965.00	-8.9	H	3.0	42.3	1.0	-50.2	-25.0	-25.2	
15558.00	3.6	H	3.0	43.5	1.0	-38.9	-25.0	-13.9	
High Ch, 2687.5MHz									
5375.00	-3.2	V	3.0	42.8	1.0	-45.1	-25.0	-20.1	
8062.50	-9.7	V	3.0	42.1	1.0	-50.8	-25.0	-25.8	
10750.00	-3.9	V	3.0	41.2	1.0	-44.0	-25.0	-19.0	
13437.50	-2.6	V	3.0	42.6	1.0	-44.3	-25.0	-19.3	
16125.00	11.5	V	3.0	43.3	1.0	-30.8	-25.0	-5.8	
5375.00	-6.8	H	3.0	42.8	1.0	-48.7	-25.0	-23.7	
8062.50	-10.3	H	3.0	42.1	1.0	-51.4	-25.0	-26.4	
10750.00	-8.8	H	3.0	41.2	1.0	-48.9	-25.0	-23.9	
13437.50	-6.3	H	3.0	42.6	1.0	-47.9	-25.0	-22.9	
16125.00	8.1	H	3.0	43.3	1.0	-34.3	-25.0	-9.3	

LTE Band 66

LTE Band 66 3MHz QPSK	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung Project #: 4789230288 Date: 2019-11-26 Test Engineer: 20890 Configuration: EUT / AC Adapter, Z-Position Location: Chamber 2 Mode: LTE_QPSK Band 66 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, 1711.5MHz									
	3423.00	-8.9	V	3.0	42.0	1.0	-49.9	-13.0	-36.9	
	5134.50	-8.8	V	3.0	42.8	1.0	-50.6	-13.0	-37.6	
	6846.00	-6.4	V	3.0	42.7	1.0	-48.1	-13.0	-35.1	
	3423.00	-8.7	H	3.0	42.0	1.0	-49.7	-13.0	-36.7	
	5134.50	-8.7	H	3.0	42.8	1.0	-50.4	-13.0	-37.4	
	6846.00	-6.2	H	3.0	42.7	1.0	-48.0	-13.0	-35.0	
	Mid Ch, 1745MHz									
	3490.00	-8.1	V	3.0	42.0	1.0	-49.1	-13.0	-36.1	
	5235.00	-8.5	V	3.0	42.8	1.0	-50.3	-13.0	-37.3	
	6980.00	-6.2	V	3.0	42.7	1.0	-47.9	-13.0	-34.9	
	3490.00	-7.9	H	3.0	42.0	1.0	-49.0	-13.0	-36.0	
	5235.00	-8.4	H	3.0	42.8	1.0	-50.2	-13.0	-37.2	
	6980.00	-6.2	H	3.0	42.7	1.0	-47.9	-13.0	-34.9	
	High Ch, 1778.5MHz									
	3557.00	-7.8	V	3.0	42.0	1.0	-48.8	-13.0	-35.8	
	5335.50	-8.2	V	3.0	42.8	1.0	-50.0	-13.0	-37.0	
	7114.00	-6.2	V	3.0	42.6	1.0	-47.8	-13.0	-34.8	
	3557.00	-7.7	H	3.0	42.0	1.0	-48.8	-13.0	-35.8	
	5335.50	-8.1	H	3.0	42.8	1.0	-49.9	-13.0	-36.9	
	7114.00	-6.1	H	3.0	42.6	1.0	-47.7	-13.0	-34.7	

LTE Band 2

LTE Band 2(Frequency range: 1850-1910 MHz) is covered by LTE Band 25 (Frequency range: 1850-1915 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 4

LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 5

LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 17

LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band41(PC3)

LTE Band 41(PC3, Frequency range : 2496-2690 MHz) is covered by LTE Band 41(PC2) (Frequency range: 2496-2690 MHz) due to same frequency range, same channel bandwidth and maximum tune-up limit is higher than LTE Band41(PC3).

END OF REPORT