

WCDMA Band 5

WCDMA Band 5 REL99	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788805451 Date: 2019-01-15 Test Engineer: 47989 Configuration: EUT / Z-Position Location: Chamber 1 Mode: Rel99 Band 5 Fundamentals Test Equipment: Receiving: VULB9163-750, and Chamber 1 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 colspan="9">Low Ch</td></tr><tr><td>826.40</td><td>22.31</td><td>V</td><td>3.0</td><td>-1.5</td><td>17.83</td><td>38.5</td><td>-20.7</td><td></td></tr><tr><td>826.40</td><td>9.58</td><td>H</td><td>3.0</td><td>-1.5</td><td>5.10</td><td>38.5</td><td>-33.4</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>836.60</td><td>21.84</td><td>V</td><td>3.0</td><td>-1.4</td><td>17.38</td><td>38.5</td><td>-21.1</td><td></td></tr><tr><td>836.60</td><td>9.68</td><td>H</td><td>3.0</td><td>-1.4</td><td>5.21</td><td>38.5</td><td>-33.3</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>846.60</td><td>22.78</td><td>V</td><td>3.1</td><td>-1.4</td><td>18.33</td><td>38.5</td><td>-20.2</td><td></td></tr><tr><td>846.60</td><td>10.19</td><td>H</td><td>3.1</td><td>-1.4</td><td>5.74</td><td>38.5</td><td>-32.8</td><td></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									826.40	22.31	V	3.0	-1.5	17.83	38.5	-20.7		826.40	9.58	H	3.0	-1.5	5.10	38.5	-33.4		Mid Ch									836.60	21.84	V	3.0	-1.4	17.38	38.5	-21.1		836.60	9.68	H	3.0	-1.4	5.21	38.5	-33.3		High Ch									846.60	22.78	V	3.1	-1.4	18.33	38.5	-20.2		846.60	10.19	H	3.1	-1.4	5.74	38.5	-32.8	
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WCDMA Band 5 HSDPA	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788805451 Date: 2019-01-15 Test Engineer: 47989 Configuration: EUT / Z-Position Location: Chamber 1 Mode: HSDPA Band 5 Fundamentals Test Equipment: Receiving: VULB9163-750, and Chamber 1 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 colspan="9">Low Ch</td></tr><tr><td>826.40</td><td>21.82</td><td>V</td><td>3.0</td><td>-1.5</td><td>17.34</td><td>38.5</td><td>-21.2</td><td></td></tr><tr><td>826.40</td><td>8.80</td><td>H</td><td>3.0</td><td>-1.5</td><td>4.32</td><td>38.5</td><td>-34.2</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>836.60</td><td>21.82</td><td>V</td><td>3.0</td><td>-1.4</td><td>17.36</td><td>38.5</td><td>-21.1</td><td></td></tr><tr><td>836.60</td><td>9.76</td><td>H</td><td>3.0</td><td>-1.4</td><td>5.29</td><td>38.5</td><td>-33.2</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>846.60</td><td>22.61</td><td>V</td><td>3.1</td><td>-1.4</td><td>18.16</td><td>38.5</td><td>-20.3</td><td></td></tr><tr><td>846.60</td><td>10.07</td><td>H</td><td>3.1</td><td>-1.4</td><td>5.62</td><td>38.5</td><td>-32.9</td><td></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									826.40	21.82	V	3.0	-1.5	17.34	38.5	-21.2		826.40	8.80	H	3.0	-1.5	4.32	38.5	-34.2		Mid Ch									836.60	21.82	V	3.0	-1.4	17.36	38.5	-21.1		836.60	9.76	H	3.0	-1.4	5.29	38.5	-33.2		High Ch									846.60	22.61	V	3.1	-1.4	18.16	38.5	-20.3		846.60	10.07	H	3.1	-1.4	5.62	38.5	-32.9	
	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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WCDMA Band 2

WCDMA
Band 2
REL99

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788805451
Date: 2019-01-15
Test Engineer: 47989
Configuration: EUT / X-Position
Location: Chamber 1
Mode: Rel99 Band 2 Fundamentals

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								
1852.40	2.32	V	4.5	9.5	7.32	33.0	-25.7	
1852.40	16.75	H	4.5	9.5	21.75	33.0	-11.3	
Mid Ch								
1880.00	4.67	V	4.5	9.3	9.45	33.0	-23.6	
1880.00	18.85	H	4.5	9.3	23.62	33.0	-9.4	
High Ch								
1907.60	15.91	V	4.6	9.1	20.42	33.0	-12.6	
1907.60	19.33	H	4.6	9.1	23.85	33.0	-9.2	

WCDMA
Band 2
HSDPA

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788805451
Date: 2019-01-15
Test Engineer: 47989
Configuration: EUT / X-Position
Location: Chamber 1
Mode: HSDPA Band 2 Fundamentals

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								
1852.40	2.23	V	4.5	9.5	7.23	33.0	-25.8	
1852.40	16.30	H	4.5	9.5	21.30	33.0	-11.7	
Mid Ch								
1880.00	3.63	V	4.5	9.3	8.41	33.0	-24.6	
1880.00	18.50	H	4.5	9.3	23.27	33.0	-9.7	
High Ch								
1907.60	16.21	V	4.6	9.1	20.72	33.0	-12.3	
1907.60	18.98	H	4.6	9.1	23.50	33.0	-9.5	

LTE Band 5

LTE Band 5 10MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788805451 Date: 2018-12-20 Test Engineer: 45585 Configuration: EUT / Z-Position Location: Chamber 2 Mode: 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 <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 colspan="9">Low Ch</td></tr><tr><td>829.00</td><td>22.47</td><td>V</td><td>3.0</td><td>-1.5</td><td>17.99</td><td>38.5</td><td>-20.5</td><td></td></tr><tr><td>829.00</td><td>8.76</td><td>H</td><td>3.0</td><td>-1.5</td><td>4.28</td><td>38.5</td><td>-34.2</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>836.50</td><td>22.31</td><td>V</td><td>3.0</td><td>-1.4</td><td>17.85</td><td>38.5</td><td>-20.7</td><td></td></tr><tr><td>836.50</td><td>7.94</td><td>H</td><td>3.0</td><td>-1.4</td><td>3.47</td><td>38.5</td><td>-35.0</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>844.00</td><td>22.33</td><td>V</td><td>3.1</td><td>-1.4</td><td>17.88</td><td>38.5</td><td>-20.6</td><td></td></tr><tr><td>844.00</td><td>8.51</td><td>H</td><td>3.1</td><td>-1.4</td><td>4.06</td><td>38.5</td><td>-34.4</td><td></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									829.00	22.47	V	3.0	-1.5	17.99	38.5	-20.5		829.00	8.76	H	3.0	-1.5	4.28	38.5	-34.2		Mid Ch									836.50	22.31	V	3.0	-1.4	17.85	38.5	-20.7		836.50	7.94	H	3.0	-1.4	3.47	38.5	-35.0		High Ch									844.00	22.33	V	3.1	-1.4	17.88	38.5	-20.6		844.00	8.51	H	3.1	-1.4	4.06	38.5	-34.4	
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LTE Band 5 10MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788805451 Date: 2018-12-20 Test Engineer: 45585 Configuration: EUT / Z-Position Location: Chamber 2 Mode: 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 <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 colspan="9">Low Ch</td></tr><tr><td>829.00</td><td>21.14</td><td>V</td><td>3.0</td><td>-1.5</td><td>16.66</td><td>38.5</td><td>-21.8</td><td></td></tr><tr><td>829.00</td><td>7.58</td><td>H</td><td>3.0</td><td>-1.5</td><td>3.10</td><td>38.5</td><td>-35.4</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>836.50</td><td>21.50</td><td>V</td><td>3.0</td><td>-1.4</td><td>17.04</td><td>38.5</td><td>-21.5</td><td></td></tr><tr><td>836.50</td><td>6.93</td><td>H</td><td>3.0</td><td>-1.4</td><td>2.46</td><td>38.5</td><td>-36.0</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>844.00</td><td>20.87</td><td>V</td><td>3.1</td><td>-1.4</td><td>16.42</td><td>38.5</td><td>-22.1</td><td></td></tr><tr><td>844.00</td><td>7.08</td><td>H</td><td>3.1</td><td>-1.4</td><td>2.63</td><td>38.5</td><td>-35.9</td><td></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									829.00	21.14	V	3.0	-1.5	16.66	38.5	-21.8		829.00	7.58	H	3.0	-1.5	3.10	38.5	-35.4		Mid Ch									836.50	21.50	V	3.0	-1.4	17.04	38.5	-21.5		836.50	6.93	H	3.0	-1.4	2.46	38.5	-36.0		High Ch									844.00	20.87	V	3.1	-1.4	16.42	38.5	-22.1		844.00	7.08	H	3.1	-1.4	2.63	38.5	-35.9	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
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LTE

Band 5

5MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788805451

Date: 2018-12-20

Test Engineer: 45585

Configuration: EUT, Z-Posigion

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

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	22.14	V	3.0	-1.5	17.65	38.5	-20.8	
826.50	9.29	H	3.0	-1.5	4.81	38.5	-33.7	
Mid Ch								
836.50	22.10	V	3.0	-1.4	17.64	38.5	-20.9	
836.50	8.43	H	3.0	-1.4	3.96	38.5	-34.5	
High Ch								
846.50	22.88	V	3.1	-1.4	18.43	38.5	-20.1	
846.50	9.70	H	3.1	-1.4	5.25	38.5	-33.2	

LTE

Band 5

5MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788805451

Date: 2018-12-20

Test Engineer: 45585

Configuration: EUT, Z-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

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	20.13	V	3.0	-1.5	15.64	38.5	-22.9	
826.50	8.30	H	3.0	-1.5	3.82	38.5	-34.7	
Mid Ch								
836.50	20.66	V	3.0	-1.4	16.20	38.5	-22.3	
836.50	6.99	H	3.0	-1.4	2.52	38.5	-36.0	
High Ch								
846.50	21.43	V	3.1	-1.4	16.98	38.5	-21.5	
846.50	8.01	H	3.1	-1.4	3.56	38.5	-34.9	

LTE

Band 5

1.4MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788805451

Date: 2018-12-20

Test Engineer: 45585

Configuration: EUT, Z-Position

Location: Chamber 2

Mode: 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	21.60	V	3.0	-1.5	17.12	38.5	-21.4	
824.70	9.31	H	3.0	-1.5	4.82	38.5	-33.7	
Mid Ch								
836.50	21.97	V	3.0	-1.4	17.51	38.5	-21.0	
836.50	8.19	H	3.0	-1.4	3.72	38.5	-34.8	
High Ch								
848.30	22.52	V	3.1	-1.4	18.08	38.5	-20.4	
848.30	9.34	H	3.1	-1.4	4.90	38.5	-33.6	

LTE

Band 5

1.4MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung

Project #: 4788805451

Date: 2018-12-20

Test Engineer: 45585

Configuration: EUT, Z-Position

Location: Chamber 2

Mode: 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	20.27	V	3.0	-1.5	15.79	38.5	-22.7	
824.70	7.75	H	3.0	-1.5	3.26	38.5	-35.2	
Mid Ch								
836.50	20.11	V	3.0	-1.4	15.65	38.5	-22.9	
836.50	7.14	H	3.0	-1.4	2.67	38.5	-35.8	
High Ch								
848.30	21.43	V	3.1	-1.4	16.99	38.5	-21.5	
848.30	8.06	H	3.1	-1.4	3.62	38.5	-34.9	

LTE Band 41

LTE
Band 41
20MHz
QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788805451
Date: 2019-01-22
Test Engineer: 47989
Configuration: EUT / X-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], 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	8.70	V	5.2	9.9	13.37	33.0	-19.6	
2506.00	19.30	H	5.2	9.9	23.97	33.0	-9.0	
Mid Ch								
2593.00	12.31	V	5.3	9.8	16.77	33.0	-16.2	
2593.00	19.86	H	5.3	9.8	24.33	33.0	-8.7	
High Ch								
2680.00	17.36	V	5.4	9.8	21.73	33.0	-11.3	
2680.00	18.15	H	5.4	9.8	22.52	33.0	-10.5	

LTE
Band 41
20MHz
16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788805451
Date: 2019-01-22
Test Engineer: 47989
Configuration: EUT / X-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], 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	17.46	V	5.2	9.9	22.13	33.0	-10.9	
2506.00	18.62	H	5.2	9.9	23.29	33.0	-9.7	
Mid Ch								
2593.00	10.00	V	5.3	9.8	14.46	33.0	-18.5	
2593.00	18.72	H	5.3	9.8	23.19	33.0	-9.8	
High Ch								
2680.00	16.75	V	5.4	9.8	21.12	33.0	-11.9	
2680.00	17.46	H	5.4	9.8	21.83	33.0	-11.2	

LTE Band 41 15MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788805451 Date: 2019-01-22 Test Engineer: 47989 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_QPSK Band 41 Fundamentals, 15MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 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>17.69</td><td>V</td><td>5.2</td><td>9.9</td><td>22.37</td><td>33.0</td><td>-10.6</td><td></td></tr><tr><td>2503.50</td><td>19.00</td><td>H</td><td>5.2</td><td>9.9</td><td>23.67</td><td>33.0</td><td>-9.3</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>12.54</td><td>V</td><td>5.3</td><td>9.8</td><td>17.00</td><td>33.0</td><td>-16.0</td><td></td></tr><tr><td>2593.00</td><td>19.64</td><td>H</td><td>5.3</td><td>9.8</td><td>24.11</td><td>33.0</td><td>-8.9</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>17.10</td><td>V</td><td>5.4</td><td>9.8</td><td>21.48</td><td>33.0</td><td>-11.5</td><td></td></tr><tr><td>2682.50</td><td>16.67</td><td>H</td><td>5.4</td><td>9.8</td><td>21.04</td><td>33.0</td><td>-12.0</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	17.69	V	5.2	9.9	22.37	33.0	-10.6		2503.50	19.00	H	5.2	9.9	23.67	33.0	-9.3		Mid Ch									2593.00	12.54	V	5.3	9.8	17.00	33.0	-16.0		2593.00	19.64	H	5.3	9.8	24.11	33.0	-8.9		High Ch									2682.50	17.10	V	5.4	9.8	21.48	33.0	-11.5		2682.50	16.67	H	5.4	9.8	21.04	33.0	-12.0	
	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	17.69	V	5.2	9.9	22.37	33.0	-10.6																																																																																											
	2503.50	19.00	H	5.2	9.9	23.67	33.0	-9.3																																																																																											
	Mid Ch																																																																																																		
	2593.00	12.54	V	5.3	9.8	17.00	33.0	-16.0																																																																																											
	2593.00	19.64	H	5.3	9.8	24.11	33.0	-8.9																																																																																											
	High Ch																																																																																																		
	2682.50	17.10	V	5.4	9.8	21.48	33.0	-11.5																																																																																											
2682.50	16.67	H	5.4	9.8	21.04	33.0	-12.0																																																																																												
LTE Band 41 15MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788805451 Date: 2019-01-22 Test Engineer: 47989 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_16QAM Band 41 Fundamentals, 15MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 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>16.94</td><td>V</td><td>5.2</td><td>9.9</td><td>21.62</td><td>33.0</td><td>-11.4</td><td></td></tr><tr><td>2503.50</td><td>18.04</td><td>H</td><td>5.2</td><td>9.9</td><td>22.71</td><td>33.0</td><td>-10.3</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>11.51</td><td>V</td><td>5.3</td><td>9.8</td><td>15.97</td><td>33.0</td><td>-17.0</td><td></td></tr><tr><td>2593.00</td><td>18.49</td><td>H</td><td>5.3</td><td>9.8</td><td>22.96</td><td>33.0</td><td>-10.0</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>15.85</td><td>V</td><td>5.4</td><td>9.8</td><td>20.23</td><td>33.0</td><td>-12.8</td><td></td></tr><tr><td>2682.50</td><td>17.64</td><td>H</td><td>5.4</td><td>9.8</td><td>22.01</td><td>33.0</td><td>-11.0</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	16.94	V	5.2	9.9	21.62	33.0	-11.4		2503.50	18.04	H	5.2	9.9	22.71	33.0	-10.3		Mid Ch									2593.00	11.51	V	5.3	9.8	15.97	33.0	-17.0		2593.00	18.49	H	5.3	9.8	22.96	33.0	-10.0		High Ch									2682.50	15.85	V	5.4	9.8	20.23	33.0	-12.8		2682.50	17.64	H	5.4	9.8	22.01	33.0	-11.0	
	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	16.94	V	5.2	9.9	21.62	33.0	-11.4																																																																																											
	2503.50	18.04	H	5.2	9.9	22.71	33.0	-10.3																																																																																											
	Mid Ch																																																																																																		
	2593.00	11.51	V	5.3	9.8	15.97	33.0	-17.0																																																																																											
	2593.00	18.49	H	5.3	9.8	22.96	33.0	-10.0																																																																																											
	High Ch																																																																																																		
	2682.50	15.85	V	5.4	9.8	20.23	33.0	-12.8																																																																																											
2682.50	17.64	H	5.4	9.8	22.01	33.0	-11.0																																																																																												

LTE

Band 41

10MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788805451

2019-01-22

47989

EUT / X-Position

Chamber 1

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	17.49	V	5.2	9.9	22.18	33.0	-10.8	
2501.00	18.96	H	5.2	9.9	23.64	33.0	-9.4	
Mid Ch								
2593.00	13.33	V	5.3	9.8	17.79	33.0	-15.2	
2593.00	19.61	H	5.3	9.8	24.08	33.0	-8.9	
High Ch								
2685.00	13.93	V	5.4	9.8	18.30	33.0	-14.7	
2685.00	17.35	H	5.4	9.8	21.71	33.0	-11.3	

LTE

Band 41

10MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788805451

2019-01-22

47989

EUT / X-Position

Chamber 1

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	17.23	V	5.2	9.9	21.92	33.0	-11.1	
2501.00	18.75	H	5.2	9.9	23.43	33.0	-9.6	
Mid Ch								
2593.00	13.57	V	5.3	9.8	18.03	33.0	-15.0	
2593.00	19.61	H	5.3	9.8	24.08	33.0	-8.9	
High Ch								
2685.00	13.65	V	5.4	9.8	18.02	33.0	-15.0	
2685.00	17.17	H	5.4	9.8	21.53	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

4788805451

2019-01-22

47989

EUT / X-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], 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	17.86	V	5.2	9.9	22.55	33.0	-10.5	
2498.50	19.08	H	5.2	9.9	23.77	33.0	-9.2	
Mid Ch								
2593.00	15.56	V	5.3	9.8	20.02	33.0	-13.0	
2593.00	19.29	H	5.3	9.8	23.76	33.0	-9.2	
High Ch								
2687.50	17.34	V	5.4	9.8	21.71	33.0	-11.3	
2687.50	17.70	H	5.4	9.8	22.07	33.0	-10.9	

LTE

Band 41

5MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788805451

2019-01-22

47989

EUT / X-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], 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	16.97	V	5.2	9.9	21.66	33.0	-11.3	
2498.50	18.46	H	5.2	9.9	23.15	33.0	-9.9	
Mid Ch								
2593.00	16.01	V	5.3	9.8	20.47	33.0	-12.5	
2593.00	18.07	H	5.3	9.8	22.54	33.0	-10.5	
High Ch								
2687.50	17.43	V	5.4	9.8	21.80	33.0	-11.2	
2687.50	18.05	H	5.4	9.8	22.42	33.0	-10.6	

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:

(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.

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.

WCDMA Band 5

WCDMA

Band 5

REL99

UL Verification Services, Inc.

Above 1GHz High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788805451

2019-01-15

47989

EUT / AC Adapter / Earphone, X-Position

Chamber 1

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	-14.6	V	3.0	43.6	1.0	-57.2	-13.0	-44.2	
2479.20	-12.0	V	3.0	43.4	1.0	-54.4	-13.0	-41.4	
3305.60	-10.5	V	3.0	43.6	1.0	-53.1	-13.0	-40.1	
1652.80	-15.8	H	3.0	43.6	1.0	-58.4	-13.0	-45.4	
2479.20	-12.6	H	3.0	43.4	1.0	-55.0	-13.0	-42.0	
3305.60	-10.9	H	3.0	43.6	1.0	-53.5	-13.0	-40.5	
Mid Ch, 836.6MHz									
1673.20	-14.6	V	3.0	43.6	1.0	-57.2	-13.0	-44.2	
2509.80	-12.0	V	3.0	43.4	1.0	-54.5	-13.0	-41.5	
3346.40	-10.4	V	3.0	43.6	1.0	-53.1	-13.0	-40.1	
1673.20	-15.2	H	3.0	43.6	1.0	-57.8	-13.0	-44.8	
2509.80	-12.9	H	3.0	43.4	1.0	-55.3	-13.0	-42.3	
3346.40	-9.8	H	3.0	43.6	1.0	-52.5	-13.0	-39.5	
High Ch, 846.6MHz									
1693.20	-14.3	V	3.0	43.6	1.0	-56.8	-13.0	-43.8	
2539.80	-12.2	V	3.0	43.4	1.0	-54.7	-13.0	-41.7	
3386.40	-10.2	V	3.0	43.7	1.0	-52.8	-13.0	-39.8	
1693.20	-14.1	H	3.0	43.6	1.0	-56.6	-13.0	-43.6	
2539.80	-13.1	H	3.0	43.4	1.0	-55.6	-13.0	-42.6	
3386.40	-10.3	H	3.0	43.7	1.0	-53.0	-13.0	-40.0	

WCDMA

Band 5

HSDPA

UL Verification Services, Inc.

Above 1GHz High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788805451

2015-01-15

47989

EUT / AC Adapter / Earphone, X-Position

Chamber 1

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	43.6	1.0	-57.8	-13.0	-44.8	
2479.20	-11.6	V	3.0	43.4	1.0	-54.1	-13.0	-41.1	
3305.60	-10.7	V	3.0	43.6	1.0	-53.4	-13.0	-40.4	
1652.80	-15.8	H	3.0	43.6	1.0	-58.4	-13.0	-45.4	
2479.20	-13.3	H	3.0	43.4	1.0	-55.7	-13.0	-42.7	
3305.60	-10.6	H	3.0	43.6	1.0	-53.2	-13.0	-40.2	
Mid Ch, 836.6MHz									
1673.20	-14.3	V	3.0	43.6	1.0	-56.8	-13.0	-43.8	
2509.80	-12.2	V	3.0	43.4	1.0	-54.7	-13.0	-41.7	
3346.40	-10.7	V	3.0	43.6	1.0	-53.4	-13.0	-40.4	
1673.20	-15.0	H	3.0	43.6	1.0	-57.6	-13.0	-44.6	
2509.80	-12.8	H	3.0	43.4	1.0	-55.2	-13.0	-42.2	
3346.40	-10.0	H	3.0	43.6	1.0	-52.7	-13.0	-39.7	
High Ch, 846.6MHz									
1693.20	-14.3	V	3.0	43.6	1.0	-56.8	-13.0	-43.8	
2539.80	-12.1	V	3.0	43.4	1.0	-54.5	-13.0	-41.5	
3386.40	-10.2	V	3.0	43.7	1.0	-52.8	-13.0	-39.8	
1693.20	-14.3	H	3.0	43.6	1.0	-56.8	-13.0	-43.8	
2539.80	-12.5	H	3.0	43.4	1.0	-54.9	-13.0	-41.9	
3386.40	-9.8	H	3.0	43.7	1.0	-52.4	-13.0	-39.4	

WCDMA Band 2 REL99	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4788805451 Date: 2019-01-15 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 1 Mode: Rel99 Band 2 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, 1852.4MHz									
	3704.80	-10.0	V	3.0	43.8	1.0	-52.7	-13.0	-39.7	
	5557.20	-8.4	V	3.0	43.7	1.0	-51.1	-13.0	-38.1	
	7409.60	-6.0	V	3.0	42.5	1.0	-47.5	-13.0	-34.5	
	3704.80	-7.2	H	3.0	43.8	1.0	-49.9	-13.0	-36.9	
	5557.20	-8.8	H	3.0	43.7	1.0	-51.5	-13.0	-38.5	
	7409.60	-6.0	H	3.0	42.5	1.0	-47.5	-13.0	-34.5	
	Mid Ch, 1880MHz									
	3760.00	-11.4	V	3.0	43.8	1.0	-54.2	-13.0	-41.2	
	5640.00	-8.5	V	3.0	43.7	1.0	-51.2	-13.0	-38.2	
	7520.00	-6.0	V	3.0	42.5	1.0	-47.4	-13.0	-34.4	
	3760.00	-10.0	H	3.0	43.8	1.0	-52.8	-13.0	-39.8	
	5640.00	-8.7	H	3.0	43.7	1.0	-51.4	-13.0	-38.4	
	7520.00	-5.9	H	3.0	42.5	1.0	-47.3	-13.0	-34.3	
	High Ch, 1907.6MHz									
	3815.20	-11.5	V	3.0	43.8	1.0	-54.3	-13.0	-41.3	
	5722.80	-8.3	V	3.0	43.7	1.0	-51.0	-13.0	-38.0	
	7630.40	-5.8	V	3.0	42.4	1.0	-47.2	-13.0	-34.2	
	3815.20	-11.4	H	3.0	43.8	1.0	-54.2	-13.0	-41.2	
	5722.80	-8.4	H	3.0	43.7	1.0	-51.1	-13.0	-38.1	
	7630.40	-6.1	H	3.0	42.4	1.0	-47.5	-13.0	-34.5	
WCDMA Band 2 HSDPA	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4788805451 Date: 2019-01-15 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone Location: Chamber 1 Mode: HSDPA Band 2 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, 1852.4MHz									
	3704.80	-11.5	V	3.0	43.8	1.0	-54.3	-13.0	-41.3	
	5557.20	-8.4	V	3.0	43.7	1.0	-51.1	-13.0	-38.1	
	7409.60	-6.0	V	3.0	42.5	1.0	-47.5	-13.0	-34.5	
	3704.80	-6.9	H	3.0	43.8	1.0	-49.7	-13.0	-36.7	
	5557.20	-8.7	H	3.0	43.7	1.0	-51.4	-13.0	-38.4	
	7409.60	-5.9	H	3.0	42.5	1.0	-47.4	-13.0	-34.4	
	Mid Ch, 1880MHz									
	3760.00	-11.0	V	3.0	43.8	1.0	-53.8	-13.0	-40.8	
	5640.00	-8.4	V	3.0	43.7	1.0	-51.1	-13.0	-38.1	
	7520.00	-6.0	V	3.0	42.5	1.0	-47.5	-13.0	-34.5	
	3760.00	-9.9	H	3.0	43.8	1.0	-52.7	-13.0	-39.7	
	5640.00	-8.6	H	3.0	43.7	1.0	-51.3	-13.0	-38.3	
	7520.00									

LTE Band 5

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4788805451							
Date:		2018-12-21							
Test Engineer:		45585							
Configuration:		EUT / AC Adapter / Earphone, Z-Position							
Location:		Chamber 2							
Mode:		LTE_QPSK Band 5 Harmonics, 1.4MHz 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, 824.7MHz									
1649.40	-15.2	V	3.0	38.2	1.0	-52.4	-13.0	-39.4	
2474.10	-12.4	V	3.0	38.8	1.0	-50.2	-13.0	-37.2	
3298.80	-10.1	V	3.0	39.4	1.0	-48.6	-13.0	-35.6	
4123.50	-10.3	V	3.0	39.8	1.0	-49.1	-13.0	-36.1	
4948.20	-9.0	V	3.0	39.8	1.0	-47.8	-13.0	-34.8	
1649.40	-16.0	H	3.0	38.2	1.0	-53.2	-13.0	-40.2	
2474.10	-13.2	H	3.0	38.8	1.0	-51.0	-13.0	-38.0	
3298.80	-10.3	H	3.0	39.4	1.0	-48.7	-13.0	-35.7	
4123.50	-10.6	H	3.0	39.8	1.0	-49.4	-13.0	-36.4	
4948.20	-9.6	H	3.0	39.8	1.0	-48.4	-13.0	-35.4	
Mid Ch, 836.5MHz									
1673.00	-15.1	V	3.0	38.2	1.0	-52.3	-13.0	-39.3	
2509.50	-12.4	V	3.0	38.8	1.0	-50.2	-13.0	-37.2	
3346.00	-10.0	V	3.0	39.5	1.0	-48.5	-13.0	-35.5	
4182.50	-10.0	V	3.0	39.8	1.0	-48.9	-13.0	-35.9	
5019.00	-8.7	V	3.0	39.8	1.0	-47.5	-13.0	-34.5	
1673.00	-16.1	H	3.0	38.2	1.0	-53.3	-13.0	-40.3	
2509.50	-13.0	H	3.0	38.8	1.0	-50.8	-13.0	-37.8	
3346.00	-10.3	H	3.0	39.5	1.0	-48.7	-13.0	-35.7	
4182.50	-10.3	H	3.0	39.8	1.0	-49.1	-13.0	-36.1	
5019.00	-9.4	H	3.0	39.8	1.0	-48.2	-13.0	-35.2	
High Ch, 848.3MHz									
1696.60	-15.0	V	3.0	38.2	1.0	-52.3	-13.0	-39.3	
2544.90	-12.2	V	3.0	38.9	1.0	-50.1	-13.0	-37.1	
3393.20	-9.4	V	3.0	39.5	1.0	-47.9	-13.0	-34.9	
4241.50	-10.1	V	3.0	39.8	1.0	-48.9	-13.0	-35.9	
5089.80	-8.8	V	3.0	39.8	1.0	-47.6	-13.0	-34.6	
1696.60	-15.8	H	3.0	38.2	1.0	-53.1	-13.0	-40.1	
2544.90	-12.7	H	3.0	38.9	1.0	-50.6	-13.0	-37.6	
3393.20	-9.6	H	3.0	39.5	1.0	-48.1	-13.0	-35.1	
4241.50	-10.3	H	3.0	39.8	1.0	-49.1	-13.0	-36.1	
5089.80	-9.4	H	3.0	39.8	1.0	-48.2	-13.0	-35.2	

LTE
Band 5
1.4MHz
QPSK

LTE Band 41

LTE

Band 41

10MHz

QPSK

UL Verification Services, Inc.

Above 1GHz High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788805451

2019-01-22

47989

EUT / AC Adapter / Earphone, Y-Position

Chamber 1

LTE_QPSK Band 41 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, 2501MHz									
5002.00	-2.5	V	3.0	43.8	1.0	-45.2	-25.0	-20.2	
7503.00	10.0	V	3.0	42.5	1.0	-31.4	-25.0	-6.4	
10004.00	-1.7	V	3.0	40.6	1.0	-41.2	-25.0	-16.2	
5002.00	0.0	H	3.0	43.8	1.0	-42.8	-25.0	-17.8	
7503.00	6.7	H	3.0	42.5	1.0	-34.8	-25.0	-9.8	
10004.00	-6.1	H	3.0	40.6	1.0	-45.7	-25.0	-20.7	
Mid Ch, 2593MHz									
5186.00	-2.6	V	3.0	43.8	1.0	-45.4	-25.0	-20.4	
7779.00	6.4	V	3.0	42.3	1.0	-34.9	-25.0	-9.9	
10372.00	-0.5	V	3.0	40.7	1.0	-40.1	-25.0	-15.1	
5186.00	0.9	H	3.0	43.8	1.0	-41.9	-25.0	-16.9	
7779.00	3.9	H	3.0	42.3	1.0	-37.4	-25.0	-12.4	
10372.00	-0.8	H	3.0	40.7	1.0	-40.4	-25.0	-15.4	
High Ch, 2685MHz									
5370.00	-3.0	V	3.0	43.7	1.0	-45.8	-25.0	-20.8	
8055.00	8.3	V	3.0	42.2	1.0	-32.9	-25.0	-7.9	
10740.00	-2.1	V	3.0	40.8	1.0	-41.9	-25.0	-16.9	
5370.00	1.0	H	3.0	43.7	1.0	-41.8	-25.0	-16.8	
8055.00	7.8	H	3.0	42.2	1.0	-33.4	-25.0	-8.4	
10740.00	-1.2	H	3.0	40.8	1.0	-41.0	-25.0	-16.0	