

LTE Band 12 1.4MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-07-28 Test Engineer: 20881 Configuration: EUT, X-Position Location: Chamber 1 Mode: LTE_QPSK Band 12 Fundamentals, 1.4MHz Bandwidth Test Equipment: Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 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 (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>699.70</td><td>12.60</td><td>V</td><td>2.8</td><td>-1.1</td><td>8.77</td><td>34.8</td><td>-26.0</td></tr><tr><td>699.70</td><td>20.65</td><td>H</td><td>2.8</td><td>-1.1</td><td>16.81</td><td>34.8</td><td>-18.0</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>707.50</td><td>12.39</td><td>V</td><td>2.8</td><td>-1.1</td><td>8.55</td><td>34.8</td><td>-26.2</td></tr><tr><td>707.50</td><td>20.78</td><td>H</td><td>2.8</td><td>-1.1</td><td>16.93</td><td>34.8</td><td>-17.8</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>715.30</td><td>12.02</td><td>V</td><td>2.8</td><td>-1.1</td><td>8.16</td><td>34.8</td><td>-26.6</td></tr><tr><td>715.30</td><td>20.60</td><td>H</td><td>2.8</td><td>-1.1</td><td>16.74</td><td>34.8</td><td>-18.0</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								699.70	12.60	V	2.8	-1.1	8.77	34.8	-26.0	699.70	20.65	H	2.8	-1.1	16.81	34.8	-18.0	Mid Ch								707.50	12.39	V	2.8	-1.1	8.55	34.8	-26.2	707.50	20.78	H	2.8	-1.1	16.93	34.8	-17.8	High Ch								715.30	12.02	V	2.8	-1.1	8.16	34.8	-26.6	715.30	20.60	H	2.8	-1.1	16.74	34.8	-18.0
	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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	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 13

LTE Band 13 10MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-07-28 Test Engineer: 22943 Configuration: EUT, X-Position Location: Chamber 2 Mode: LTE_QPSK Band 13 Fundamentals, 10MHz Bandwidth Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 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 (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>782.00</td><td>15.42</td><td>V</td><td>2.9</td><td>-1.1</td><td>11.43</td><td>34.8</td><td>-23.3</td><td></td></tr><tr><td>782.00</td><td>21.76</td><td>H</td><td>2.9</td><td>-1.1</td><td>17.77</td><td>34.8</td><td>-17.0</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	Mid Ch									782.00	15.42	V	2.9	-1.1	11.43	34.8	-23.3		782.00	21.76	H	2.9	-1.1	17.77	34.8	-17.0	
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Mid Ch																																					
782.00	15.42	V	2.9	-1.1	11.43	34.8	-23.3																														
782.00	21.76	H	2.9	-1.1	17.77	34.8	-17.0																														
LTE Band 13 10MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-07-28 Test Engineer: 22943 Configuration: EUT, X-Position Location: Chamber 2 Mode: LTE_16QAM Band 13 Fundamentals, 10MHz Bandwidth Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 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 (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>782.00</td><td>14.39</td><td>V</td><td>2.9</td><td>-1.1</td><td>10.40</td><td>34.8</td><td>-24.4</td><td></td></tr><tr><td>782.00</td><td>20.88</td><td>H</td><td>2.9</td><td>-1.1</td><td>16.89</td><td>34.8</td><td>-17.9</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	Mid Ch									782.00	14.39	V	2.9	-1.1	10.40	34.8	-24.4		782.00	20.88	H	2.9	-1.1	16.89	34.8	-17.9	
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782.00	14.39	V	2.9	-1.1	10.40	34.8	-24.4																														
782.00	20.88	H	2.9	-1.1	16.89	34.8	-17.9																														

LTE Band 13 5MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-07-28 Test Engineer: 22943 Configuration: EUT, X-Position Location: Chamber 2 Mode: LTE_QPSK Band 13 Fundamentals, 5MHz Bandwidth Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 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 (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>779.50</td><td>15.64</td><td>V</td><td>2.9</td><td>-1.1</td><td>11.66</td><td>34.8</td><td>-23.1</td></tr><tr><td>779.50</td><td>21.58</td><td>H</td><td>2.9</td><td>-1.1</td><td>17.60</td><td>34.8</td><td>-17.2</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>782.00</td><td>15.26</td><td>V</td><td>2.9</td><td>-1.1</td><td>11.27</td><td>34.8</td><td>-23.5</td></tr><tr><td>782.00</td><td>21.72</td><td>H</td><td>2.9</td><td>-1.1</td><td>17.73</td><td>34.8</td><td>-17.0</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>784.50</td><td>15.06</td><td>V</td><td>2.9</td><td>-1.1</td><td>11.07</td><td>34.8</td><td>-23.7</td></tr><tr><td>784.50</td><td>21.88</td><td>H</td><td>2.9</td><td>-1.1</td><td>17.89</td><td>34.8</td><td>-16.9</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								779.50	15.64	V	2.9	-1.1	11.66	34.8	-23.1	779.50	21.58	H	2.9	-1.1	17.60	34.8	-17.2	Mid Ch								782.00	15.26	V	2.9	-1.1	11.27	34.8	-23.5	782.00	21.72	H	2.9	-1.1	17.73	34.8	-17.0	High Ch								784.50	15.06	V	2.9	-1.1	11.07	34.8	-23.7	784.50	21.88	H	2.9	-1.1	17.89	34.8	-16.9
	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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	784.50	15.06	V	2.9	-1.1	11.07	34.8	-23.7																																																																																		
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LTE Band 26(Part90)

LTE Band 26 15MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-07-28 Test Engineer: 20896 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_QPSK Band 26 Fundamentals, 15MHz Bandwidth Test Equipment: Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 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 (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><td></td></tr><tr><td>821.50</td><td>21.25</td><td>V</td><td>3.0</td><td>-1.0</td><td>17.28</td><td>50.0</td><td>-32.7</td><td>Part 90</td></tr><tr><td>821.50</td><td>12.00</td><td>H</td><td>3.0</td><td>-1.0</td><td>8.03</td><td>50.0</td><td>-42.0</td><td>Part 90</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									821.50	21.25	V	3.0	-1.0	17.28	50.0	-32.7	Part 90	821.50	12.00	H	3.0	-1.0	8.03	50.0	-42.0	Part 90
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LTE Band 26 15MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-07-28 Test Engineer: 20896 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_QPSK Band 26 Fundamentals, 15MHz Bandwidth Test Equipment: Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 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 (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><td></td></tr><tr><td>821.50</td><td>20.13</td><td>V</td><td>3.0</td><td>-1.0</td><td>16.16</td><td>50.0</td><td>-33.8</td><td>Part 90</td></tr><tr><td>821.50</td><td>10.94</td><td>H</td><td>3.0</td><td>-1.0</td><td>6.97</td><td>50.0</td><td>-43.0</td><td>Part 90</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									821.50	20.13	V	3.0	-1.0	16.16	50.0	-33.8	Part 90	821.50	10.94	H	3.0	-1.0	6.97	50.0	-43.0	Part 90
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																													
Low Ch																																					
821.50	20.13	V	3.0	-1.0	16.16	50.0	-33.8	Part 90																													
821.50	10.94	H	3.0	-1.0	6.97	50.0	-43.0	Part 90																													

LTE Band 26 10MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-07-28 Test Engineer: 20896 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_QPSK Band 26 Fundamentals, 10MHz Bandwidth Test Equipment: Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 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 (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><td></td></tr><tr><td>819.00</td><td>21.15</td><td>V</td><td>3.0</td><td>-1.0</td><td>17.17</td><td>50.0</td><td>-32.8</td><td>Part 90</td></tr><tr><td>819.00</td><td>12.28</td><td>H</td><td>3.0</td><td>-1.0</td><td>8.30</td><td>50.0</td><td>-41.7</td><td>Part 90</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									819.00	21.15	V	3.0	-1.0	17.17	50.0	-32.8	Part 90	819.00	12.28	H	3.0	-1.0	8.30	50.0	-41.7	Part 90
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																													
Low Ch																																					
819.00	21.15	V	3.0	-1.0	17.17	50.0	-32.8	Part 90																													
819.00	12.28	H	3.0	-1.0	8.30	50.0	-41.7	Part 90																													
LTE Band 26 10MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-07-28 Test Engineer: 20896 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_16QAM Band 26 Fundamentals, 10MHz Bandwidth Test Equipment: Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 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 (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><td></td></tr><tr><td>819.00</td><td>20.40</td><td>V</td><td>3.0</td><td>-1.0</td><td>16.42</td><td>50.0</td><td>-33.6</td><td>Part 90</td></tr><tr><td>819.00</td><td>11.50</td><td>H</td><td>3.0</td><td>-1.0</td><td>7.52</td><td>50.0</td><td>-42.5</td><td>Part 90</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									819.00	20.40	V	3.0	-1.0	16.42	50.0	-33.6	Part 90	819.00	11.50	H	3.0	-1.0	7.52	50.0	-42.5	Part 90
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																													
Low Ch																																					
819.00	20.40	V	3.0	-1.0	16.42	50.0	-33.6	Part 90																													
819.00	11.50	H	3.0	-1.0	7.52	50.0	-42.5	Part 90																													

LTE

Band 26

5MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4789555428

2020-07-28

20896

EUT, Z-Position

Chamber 1

LTE_QPSK Band 26 Fundamentals, 5MHz Bandwidth

Test Equipment:

Receiving: VULB9163-750, and Chamber 1 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								
816.50	21.22	V	3.0	-1.0	17.24	50.0	-32.8	Part 90
816.50	12.40	H	3.0	-1.0	8.42	50.0	-41.6	Part 90
Mid Ch								
821.50	21.29	V	3.0	-1.0	17.32	50.0	-32.7	Part 90
821.50	12.45	H	3.0	-1.0	8.48	50.0	-41.5	Part 90

LTE

Band 26

5MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4789555428

2020-07-28

20896

EUT, Z-Position

Chamber 1

LTE_16QAM Band 26 Fundamentals, 5MHz Bandwidth

Test Equipment:

Receiving: VULB9163-750, and Chamber 1 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								
816.50	20.26	V	3.0	-1.0	16.28	50.0	-33.7	Part 90
816.50	11.93	H	3.0	-1.0	7.95	50.0	-42.0	Part 90
Mid Ch								
821.50	20.41	V	3.0	-1.0	16.44	50.0	-33.6	Part 90
821.50	11.63	H	3.0	-1.0	7.66	50.0	-42.3	Part 90

LTE Band 26 3MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-07-28 Test Engineer: 20882 Configuration: EUT,Z-Position Location: Chamber 1 Mode: LTE_QPSK Band 26 Fundamentals, 3MHz Bandwidth Test Equipment: Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 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 (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><td></td></tr><tr><td>815.50</td><td>21.38</td><td>V</td><td>3.0</td><td>-1.0</td><td>17.39</td><td>50.0</td><td>-32.6</td><td>Part 90</td></tr><tr><td>815.50</td><td>12.28</td><td>H</td><td>3.0</td><td>-1.0</td><td>8.30</td><td>50.0</td><td>-41.7</td><td>Part 90</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>822.50</td><td>21.30</td><td>V</td><td>3.0</td><td>-1.0</td><td>17.33</td><td>50.0</td><td>-32.7</td><td>Part 90</td></tr><tr><td>822.50</td><td>12.68</td><td>H</td><td>3.0</td><td>-1.0</td><td>8.72</td><td>50.0</td><td>-41.3</td><td>Part 90</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									815.50	21.38	V	3.0	-1.0	17.39	50.0	-32.6	Part 90	815.50	12.28	H	3.0	-1.0	8.30	50.0	-41.7	Part 90	Mid Ch									822.50	21.30	V	3.0	-1.0	17.33	50.0	-32.7	Part 90	822.50	12.68	H	3.0	-1.0	8.72	50.0	-41.3	Part 90
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																								
Low Ch																																																																
815.50	21.38	V	3.0	-1.0	17.39	50.0	-32.6	Part 90																																																								
815.50	12.28	H	3.0	-1.0	8.30	50.0	-41.7	Part 90																																																								
Mid Ch																																																																
822.50	21.30	V	3.0	-1.0	17.33	50.0	-32.7	Part 90																																																								
822.50	12.68	H	3.0	-1.0	8.72	50.0	-41.3	Part 90																																																								
LTE Band 26 3MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-07-28 Test Engineer: 20882 Configuration: EUT,Z-Position Location: Chamber 1 Mode: LTE_16QAM Band 26 Fundamentals, 3MHz Bandwidth Test Equipment: Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 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 (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><td></td></tr><tr><td>815.50</td><td>20.20</td><td>V</td><td>3.0</td><td>-1.0</td><td>16.21</td><td>50.0</td><td>-33.8</td><td>Part 90</td></tr><tr><td>815.50</td><td>11.02</td><td>H</td><td>3.0</td><td>-1.0</td><td>7.04</td><td>50.0</td><td>-43.0</td><td>Part 90</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>822.50</td><td>20.30</td><td>V</td><td>3.0</td><td>-1.0</td><td>16.33</td><td>50.0</td><td>-33.7</td><td>Part 90</td></tr><tr><td>822.50</td><td>11.76</td><td>H</td><td>3.0</td><td>-1.0</td><td>7.80</td><td>50.0</td><td>-42.2</td><td>Part 90</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									815.50	20.20	V	3.0	-1.0	16.21	50.0	-33.8	Part 90	815.50	11.02	H	3.0	-1.0	7.04	50.0	-43.0	Part 90	Mid Ch									822.50	20.30	V	3.0	-1.0	16.33	50.0	-33.7	Part 90	822.50	11.76	H	3.0	-1.0	7.80	50.0	-42.2	Part 90
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																								
Low Ch																																																																
815.50	20.20	V	3.0	-1.0	16.21	50.0	-33.8	Part 90																																																								
815.50	11.02	H	3.0	-1.0	7.04	50.0	-43.0	Part 90																																																								
Mid Ch																																																																
822.50	20.30	V	3.0	-1.0	16.33	50.0	-33.7	Part 90																																																								
822.50	11.76	H	3.0	-1.0	7.80	50.0	-42.2	Part 90																																																								

LTE

Band 26

1.4MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4789555428

2020-07-28

20882

EUT, Z-Position

Chamber 1

LTE_QPSK Band 26 Fundamentals, 1.4MHz Bandwidth

Test Equipment:

Receiving: VULB9163-750, and Chamber 1 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								
814.70	21.44	V	3.0	-1.0	17.46	50.0	-32.5	Part 90
814.70	11.92	H	3.0	-1.0	7.93	50.0	-42.1	Part 90
Mid Ch								
823.30	21.41	V	3.0	-1.0	17.44	50.0	-32.6	Part 90
823.30	12.59	H	3.0	-1.0	8.62	50.0	-41.4	Part 90

LTE

Band 26

1.4MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4789555428

2020-07-28

20882

EUT, Z-Position

Chamber 1

LTE_16QAM Band 26 Fundamentals, 1.4MHz Bandwidth

Test Equipment:

Receiving: VULB9163-750, and Chamber 1 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								
814.70	20.54	V	3.0	-1.0	16.56	50.0	-33.4	Part 90
814.70	10.88	H	3.0	-1.0	6.89	50.0	-43.1	Part 90
Mid Ch								
823.30	20.35	V	3.0	-1.0	16.38	50.0	-33.6	Part 90
823.30	11.61	H	3.0	-1.0	7.64	50.0	-42.4	Part 90

LTE Band 26(Part22)

LTE Band 26 15MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-07-28 Test Engineer: 20882 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_QPSK Band 26 Fundamentals, 15MHz Bandwidth Test Equipment: Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 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 (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>831.50</td><td>22.11</td><td>V</td><td>3.0</td><td>-0.9</td><td>18.17</td><td>38.5</td><td>-20.3</td></tr><tr><td>831.50</td><td>13.45</td><td>H</td><td>3.0</td><td>-0.9</td><td>9.50</td><td>38.5</td><td>-29.0</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>841.50</td><td>22.49</td><td>V</td><td>3.0</td><td>-0.9</td><td>18.57</td><td>38.5</td><td>-19.9</td></tr><tr><td>841.50</td><td>13.05</td><td>H</td><td>3.0</td><td>-0.9</td><td>9.13</td><td>38.5</td><td>-29.4</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	Mid Ch								831.50	22.11	V	3.0	-0.9	18.17	38.5	-20.3	831.50	13.45	H	3.0	-0.9	9.50	38.5	-29.0	High Ch								841.50	22.49	V	3.0	-0.9	18.57	38.5	-19.9	841.50	13.05	H	3.0	-0.9	9.13	38.5	-29.4	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																										
	Mid Ch																																																																		
	831.50	22.11	V	3.0	-0.9	18.17	38.5	-20.3																																																											
	831.50	13.45	H	3.0	-0.9	9.50	38.5	-29.0																																																											
	High Ch																																																																		
	841.50	22.49	V	3.0	-0.9	18.57	38.5	-19.9																																																											
	841.50	13.05	H	3.0	-0.9	9.13	38.5	-29.4																																																											
	LTE Band 26 15MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-07-28 Test Engineer: 20882 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_16QAM Band 26 Fundamentals, 15MHz Bandwidth Test Equipment: Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 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 (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>831.50</td><td>21.07</td><td>V</td><td>3.0</td><td>-0.9</td><td>17.13</td><td>38.5</td><td>-21.4</td></tr><tr><td>831.50</td><td>12.50</td><td>H</td><td>3.0</td><td>-0.9</td><td>8.55</td><td>38.5</td><td>-30.0</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>841.50</td><td>21.73</td><td>V</td><td>3.0</td><td>-0.9</td><td>17.81</td><td>38.5</td><td>-20.7</td></tr><tr><td>841.50</td><td>12.37</td><td>H</td><td>3.0</td><td>-0.9</td><td>8.45</td><td>38.5</td><td>-30.1</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	Mid Ch								831.50	21.07	V	3.0	-0.9	17.13	38.5	-21.4	831.50	12.50	H	3.0	-0.9	8.55	38.5	-30.0	High Ch								841.50	21.73	V	3.0	-0.9	17.81	38.5	-20.7	841.50	12.37	H	3.0	-0.9	8.45	38.5	-30.1
		f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																									
Mid Ch																																																																			
831.50		21.07	V	3.0	-0.9	17.13	38.5	-21.4																																																											
831.50		12.50	H	3.0	-0.9	8.55	38.5	-30.0																																																											
High Ch																																																																			
841.50		21.73	V	3.0	-0.9	17.81	38.5	-20.7																																																											
841.50		12.37	H	3.0	-0.9	8.45	38.5	-30.1																																																											

LTE Band 26 10MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																																	
	Company:		Samsung																																																																																															
	Project #:		4789555428																																																																																															
	Date:		2020-07-28																																																																																															
	Test Engineer:		20882																																																																																															
	Configuration:		Z-Position																																																																																															
	Location:		Chamber 1																																																																																															
	Mode:		LTE_QPSK Band 26 Fundamentals, 10MHz Bandwidth																																																																																															
	Test Equipment:																																																																																																	
	Receiving: VULB9163-750, and Chamber 1 SMA Cables																																																																																																	
Substitution: Dipole 3121_DB4, 8.5m SMA-type Cable																																																																																																		
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	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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	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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847.50	13.04	H	3.1	-0.9	9.13	38.5	-29.4																																																																																			
LTE Band 26 3MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-07-28 Test Engineer: 20882 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_16QAM Band 26 Fundamentals, 3MHz Bandwidth Test Equipment: Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 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 (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>20.55</td><td>V</td><td>3.0</td><td>-0.9</td><td>16.59</td><td>38.5</td><td>-21.9</td></tr><tr><td>825.50</td><td>11.74</td><td>H</td><td>3.0</td><td>-0.9</td><td>7.78</td><td>38.5</td><td>-30.7</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>831.50</td><td>20.99</td><td>V</td><td>3.0</td><td>-0.9</td><td>17.05</td><td>38.5</td><td>-21.5</td></tr><tr><td>831.50</td><td>14.57</td><td>H</td><td>3.0</td><td>-0.9</td><td>10.62</td><td>38.5</td><td>-27.9</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>22.40</td><td>V</td><td>3.1</td><td>-0.9</td><td>18.49</td><td>38.5</td><td>-20.0</td></tr><tr><td>847.50</td><td>12.22</td><td>H</td><td>3.1</td><td>-0.9</td><td>8.31</td><td>38.5</td><td>-30.2</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	20.55	V	3.0	-0.9	16.59	38.5	-21.9	825.50	11.74	H	3.0	-0.9	7.78	38.5	-30.7	Mid Ch								831.50	20.99	V	3.0	-0.9	17.05	38.5	-21.5	831.50	14.57	H	3.0	-0.9	10.62	38.5	-27.9	High Ch								847.50	22.40	V	3.1	-0.9	18.49	38.5	-20.0	847.50	12.22	H	3.1	-0.9	8.31	38.5	-30.2
	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	20.55	V	3.0	-0.9	16.59	38.5	-21.9																																																																																		
	825.50	11.74	H	3.0	-0.9	7.78	38.5	-30.7																																																																																		
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	831.50	20.99	V	3.0	-0.9	17.05	38.5	-21.5																																																																																		
	831.50	14.57	H	3.0	-0.9	10.62	38.5	-27.9																																																																																		
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LTE Band 26 1.4MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement							
	Company: Samsung Project #: 4789555428 Date: 2020-07-28 Test Engineer: 20882 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_QPSK Band 26 Fundamentals, 1.4MHz Bandwidth							
	Test Equipment: Receiving: VULB9163-750, and Chamber 1 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							
	824.70	21.57	V	3.0	-1.0	17.60	38.5	-20.9
	824.70	12.55	H	3.0	-1.0	8.59	38.5	-29.9
	Mid Ch							
	831.50	22.05	V	3.0	-0.9	18.11	38.5	-20.4
	831.50	12.82	H	3.0	-0.9	8.87	38.5	-29.6
LTE Band 26 1.4MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement							
	Company: Samsung Project #: 4789555428 Date: 2020-07-28 Test Engineer: 20882 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_16QAM Band 26 Fundamentals, 1.4MHz Bandwidth							
	Test Equipment: Receiving: VULB9163-750, and Chamber 1 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							
	824.70	20.24	V	3.0	-1.0	16.27	38.5	-22.2
	824.70	11.71	H	3.0	-1.0	7.75	38.5	-30.8
	Mid Ch							
	831.50	20.77	V	3.0	-0.9	16.83	38.5	-21.7
	831.50	11.65	H	3.0	-0.9	7.70	38.5	-30.8
LTE Band 26 1.4MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement							
	Company: Samsung Project #: 4789555428 Date: 2020-07-28 Test Engineer: 20882 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_16QAM Band 26 Fundamentals, 1.4MHz Bandwidth							
	Test Equipment: Receiving: VULB9163-750, and Chamber 1 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							
	824.70	20.24	V	3.0	-1.0	16.27	38.5	-22.2
	824.70	11.71	H	3.0	-1.0	7.75	38.5	-30.8
	Mid Ch							
	831.50	20.77	V	3.0	-0.9	16.83	38.5	-21.7
	831.50	11.65	H	3.0	-0.9	7.70	38.5	-30.8

LTE Band 41(PC3)

LTE

Band 41

20MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4789555428

2020-08-10

20881

EUT_Z position

Chamber 1

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	16.82	V	5.2	9.9	21.49	33.0	-11.5	
2506.00	17.36	H	5.2	9.9	22.03	33.0	-11.0	
Mid Ch								
2593.00	17.91	V	5.3	9.8	22.37	33.0	-10.6	
2593.00	19.20	H	5.3	9.8	23.67	33.0	-9.3	
High Ch								
2680.00	18.73	V	5.4	9.8	23.09	33.0	-9.9	
2680.00	19.51	H	5.4	9.8	23.87	33.0	-9.1	

LTE

Band 41

20MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4789555428

2020-08-10

20881

EUT_Z position

Chamber 1

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	16.99	V	5.2	9.9	21.66	33.0	-11.3	
2506.00	17.69	H	5.2	9.9	22.36	33.0	-10.6	
Mid Ch								
2593.00	18.05	V	5.3	9.8	22.51	33.0	-10.5	
2593.00	19.04	H	5.3	9.8	23.51	33.0	-9.5	
High Ch								
2680.00	19.15	V	5.4	9.8	23.51	33.0	-9.5	
2680.00	19.96	H	5.4	9.8	24.32	33.0	-8.7	

LTE Band 41 15MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-08-10 Test Engineer: 20881 Configuration: EUT_Z 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 <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>18.16</td><td>V</td><td>5.2</td><td>9.9</td><td>22.83</td><td>33.0</td><td>-10.2</td><td></td></tr><tr><td>2503.50</td><td>18.64</td><td>H</td><td>5.2</td><td>9.9</td><td>23.32</td><td>33.0</td><td>-9.7</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>18.65</td><td>V</td><td>5.3</td><td>9.8</td><td>23.11</td><td>33.0</td><td>-9.9</td><td></td></tr><tr><td>2593.00</td><td>18.98</td><td>H</td><td>5.3</td><td>9.8</td><td>23.45</td><td>33.0</td><td>-9.6</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>18.12</td><td>V</td><td>5.4</td><td>9.8</td><td>22.48</td><td>33.0</td><td>-10.5</td><td></td></tr><tr><td>2682.50</td><td>19.48</td><td>H</td><td>5.4</td><td>9.8</td><td>23.84</td><td>33.0</td><td>-9.2</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	18.16	V	5.2	9.9	22.83	33.0	-10.2		2503.50	18.64	H	5.2	9.9	23.32	33.0	-9.7		Mid Ch									2593.00	18.65	V	5.3	9.8	23.11	33.0	-9.9		2593.00	18.98	H	5.3	9.8	23.45	33.0	-9.6		High Ch									2682.50	18.12	V	5.4	9.8	22.48	33.0	-10.5		2682.50	19.48	H	5.4	9.8	23.84	33.0	-9.2	
	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	18.16	V	5.2	9.9	22.83	33.0	-10.2																																																																																											
	2503.50	18.64	H	5.2	9.9	23.32	33.0	-9.7																																																																																											
	Mid Ch																																																																																																		
	2593.00	18.65	V	5.3	9.8	23.11	33.0	-9.9																																																																																											
	2593.00	18.98	H	5.3	9.8	23.45	33.0	-9.6																																																																																											
	High Ch																																																																																																		
	2682.50	18.12	V	5.4	9.8	22.48	33.0	-10.5																																																																																											
2682.50	19.48	H	5.4	9.8	23.84	33.0	-9.2																																																																																												
LTE Band 41 15MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-08-10 Test Engineer: 20881 Configuration: EUT_Z 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 <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>18.34</td><td>V</td><td>5.2</td><td>9.9</td><td>23.01</td><td>33.0</td><td>-10.0</td><td></td></tr><tr><td>2503.50</td><td>18.81</td><td>H</td><td>5.2</td><td>9.9</td><td>23.49</td><td>33.0</td><td>-9.5</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>18.88</td><td>V</td><td>5.3</td><td>9.8</td><td>23.34</td><td>33.0</td><td>-9.7</td><td></td></tr><tr><td>2593.00</td><td>19.20</td><td>H</td><td>5.3</td><td>9.8</td><td>23.67</td><td>33.0</td><td>-9.3</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>18.10</td><td>V</td><td>5.4</td><td>9.8</td><td>22.46</td><td>33.0</td><td>-10.5</td><td></td></tr><tr><td>2682.50</td><td>19.42</td><td>H</td><td>5.4</td><td>9.8</td><td>23.78</td><td>33.0</td><td>-9.2</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	18.34	V	5.2	9.9	23.01	33.0	-10.0		2503.50	18.81	H	5.2	9.9	23.49	33.0	-9.5		Mid Ch									2593.00	18.88	V	5.3	9.8	23.34	33.0	-9.7		2593.00	19.20	H	5.3	9.8	23.67	33.0	-9.3		High Ch									2682.50	18.10	V	5.4	9.8	22.46	33.0	-10.5		2682.50	19.42	H	5.4	9.8	23.78	33.0	-9.2	
	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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	2503.50	18.34	V	5.2	9.9	23.01	33.0	-10.0																																																																																											
	2503.50	18.81	H	5.2	9.9	23.49	33.0	-9.5																																																																																											
	Mid Ch																																																																																																		
	2593.00	18.88	V	5.3	9.8	23.34	33.0	-9.7																																																																																											
	2593.00	19.20	H	5.3	9.8	23.67	33.0	-9.3																																																																																											
	High Ch																																																																																																		
	2682.50	18.10	V	5.4	9.8	22.46	33.0	-10.5																																																																																											
2682.50	19.42	H	5.4	9.8	23.78	33.0	-9.2																																																																																												

LTE Band 41 10MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-08-10 Test Engineer: 20881 Configuration: EUT_Z 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 <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>2501.00</td><td>17.49</td><td>V</td><td>5.2</td><td>9.9</td><td>22.17</td><td>33.0</td><td>-10.8</td><td></td></tr><tr><td>2501.00</td><td>18.63</td><td>H</td><td>5.2</td><td>9.9</td><td>23.31</td><td>33.0</td><td>-9.7</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>18.77</td><td>V</td><td>5.3</td><td>9.8</td><td>23.23</td><td>33.0</td><td>-9.8</td><td></td></tr><tr><td>2593.00</td><td>20.39</td><td>H</td><td>5.3</td><td>9.8</td><td>24.86</td><td>33.0</td><td>-8.1</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>2685.00</td><td>18.25</td><td>V</td><td>5.5</td><td>9.8</td><td>22.61</td><td>33.0</td><td>-10.4</td><td></td></tr><tr><td>2685.00</td><td>18.99</td><td>H</td><td>5.5</td><td>9.8</td><td>23.35</td><td>33.0</td><td>-9.7</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									2501.00	17.49	V	5.2	9.9	22.17	33.0	-10.8		2501.00	18.63	H	5.2	9.9	23.31	33.0	-9.7		Mid Ch									2593.00	18.77	V	5.3	9.8	23.23	33.0	-9.8		2593.00	20.39	H	5.3	9.8	24.86	33.0	-8.1		High Ch									2685.00	18.25	V	5.5	9.8	22.61	33.0	-10.4		2685.00	18.99	H	5.5	9.8	23.35	33.0	-9.7	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																										
	Low Ch																																																																																																		
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	Mid Ch																																																																																																		
	2593.00	18.77	V	5.3	9.8	23.23	33.0	-9.8																																																																																											
	2593.00	20.39	H	5.3	9.8	24.86	33.0	-8.1																																																																																											
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	2685.00	18.25	V	5.5	9.8	22.61	33.0	-10.4																																																																																											
2685.00	18.99	H	5.5	9.8	23.35	33.0	-9.7																																																																																												
LTE Band 41 10MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-08-10 Test Engineer: 20881 Configuration: EUT_Z 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 <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>2501.00</td><td>17.24</td><td>V</td><td>5.2</td><td>9.9</td><td>21.92</td><td>33.0</td><td>-11.1</td><td></td></tr><tr><td>2501.00</td><td>18.96</td><td>H</td><td>5.2</td><td>9.9</td><td>23.64</td><td>33.0</td><td>-9.4</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>18.36</td><td>V</td><td>5.3</td><td>9.8</td><td>22.82</td><td>33.0</td><td>-10.2</td><td></td></tr><tr><td>2593.00</td><td>19.89</td><td>H</td><td>5.3</td><td>9.8</td><td>24.36</td><td>33.0</td><td>-8.6</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>2685.00</td><td>17.83</td><td>V</td><td>5.5</td><td>9.8</td><td>22.19</td><td>33.0</td><td>-10.8</td><td></td></tr><tr><td>2685.00</td><td>18.61</td><td>H</td><td>5.5</td><td>9.8</td><td>22.97</td><td>33.0</td><td>-10.0</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									2501.00	17.24	V	5.2	9.9	21.92	33.0	-11.1		2501.00	18.96	H	5.2	9.9	23.64	33.0	-9.4		Mid Ch									2593.00	18.36	V	5.3	9.8	22.82	33.0	-10.2		2593.00	19.89	H	5.3	9.8	24.36	33.0	-8.6		High Ch									2685.00	17.83	V	5.5	9.8	22.19	33.0	-10.8		2685.00	18.61	H	5.5	9.8	22.97	33.0	-10.0	
	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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	2501.00	17.24	V	5.2	9.9	21.92	33.0	-11.1																																																																																											
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	2593.00	18.36	V	5.3	9.8	22.82	33.0	-10.2																																																																																											
	2593.00	19.89	H	5.3	9.8	24.36	33.0	-8.6																																																																																											
	High Ch																																																																																																		
	2685.00	17.83	V	5.5	9.8	22.19	33.0	-10.8																																																																																											
2685.00	18.61	H	5.5	9.8	22.97	33.0	-10.0																																																																																												

LTE Band 41 5MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-08-10 Test Engineer: 20881 Configuration: EUT_Z-Position 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], 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>2498.50</td><td>18.06</td><td>V</td><td>5.2</td><td>9.9</td><td>22.75</td><td>33.0</td><td>-10.3</td><td></td></tr><tr><td>2498.50</td><td>18.26</td><td>H</td><td>5.2</td><td>9.9</td><td>22.94</td><td>33.0</td><td>-10.1</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>2593.00</td><td>18.97</td><td>V</td><td>5.3</td><td>9.8</td><td>23.43</td><td>33.0</td><td>-9.6</td><td></td></tr><tr><td>2593.00</td><td>19.92</td><td>H</td><td>5.3</td><td>9.8</td><td>24.39</td><td>33.0</td><td>-8.6</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>2687.50</td><td>19.11</td><td>V</td><td>5.5</td><td>9.8</td><td>23.47</td><td>33.0</td><td>-9.5</td><td></td></tr><tr><td>2687.50</td><td>18.94</td><td>H</td><td>5.5</td><td>9.8</td><td>23.30</td><td>33.0</td><td>-9.7</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									2498.50	18.06	V	5.2	9.9	22.75	33.0	-10.3		2498.50	18.26	H	5.2	9.9	22.94	33.0	-10.1		Mid Ch									2593.00	18.97	V	5.3	9.8	23.43	33.0	-9.6		2593.00	19.92	H	5.3	9.8	24.39	33.0	-8.6		High Ch									2687.50	19.11	V	5.5	9.8	23.47	33.0	-9.5		2687.50	18.94	H	5.5	9.8	23.30	33.0	-9.7	
	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	18.06	V	5.2	9.9	22.75	33.0	-10.3																																																																																											
	2498.50	18.26	H	5.2	9.9	22.94	33.0	-10.1																																																																																											
	Mid Ch																																																																																																		
	2593.00	18.97	V	5.3	9.8	23.43	33.0	-9.6																																																																																											
	2593.00	19.92	H	5.3	9.8	24.39	33.0	-8.6																																																																																											
	High Ch																																																																																																		
	2687.50	19.11	V	5.5	9.8	23.47	33.0	-9.5																																																																																											
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LTE Band 41 5MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-08-10 Test Engineer: 20881 Configuration: EUT_Z position 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], 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>2498.50</td><td>17.33</td><td>V</td><td>5.2</td><td>9.9</td><td>22.02</td><td>33.0</td><td>-11.0</td><td></td></tr><tr><td>2498.50</td><td>18.99</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 colspan="9">Mid Ch</td></tr><tr><td>2593.00</td><td>18.25</td><td>V</td><td>5.3</td><td>9.8</td><td>22.71</td><td>33.0</td><td>-10.3</td><td></td></tr><tr><td>2593.00</td><td>20.23</td><td>H</td><td>5.3</td><td>9.8</td><td>24.70</td><td>33.0</td><td>-8.3</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>2687.50</td><td>16.89</td><td>V</td><td>5.5</td><td>9.8</td><td>21.25</td><td>33.0</td><td>-11.7</td><td></td></tr><tr><td>2687.50</td><td>19.07</td><td>H</td><td>5.5</td><td>9.8</td><td>23.43</td><td>33.0</td><td>-9.6</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									2498.50	17.33	V	5.2	9.9	22.02	33.0	-11.0		2498.50	18.99	H	5.2	9.9	23.67	33.0	-9.3		Mid Ch									2593.00	18.25	V	5.3	9.8	22.71	33.0	-10.3		2593.00	20.23	H	5.3	9.8	24.70	33.0	-8.3		High Ch									2687.50	16.89	V	5.5	9.8	21.25	33.0	-11.7		2687.50	19.07	H	5.5	9.8	23.43	33.0	-9.6	
	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	17.33	V	5.2	9.9	22.02	33.0	-11.0																																																																																											
	2498.50	18.99	H	5.2	9.9	23.67	33.0	-9.3																																																																																											
	Mid Ch																																																																																																		
	2593.00	18.25	V	5.3	9.8	22.71	33.0	-10.3																																																																																											
	2593.00	20.23	H	5.3	9.8	24.70	33.0	-8.3																																																																																											
	High Ch																																																																																																		
	2687.50	16.89	V	5.5	9.8	21.25	33.0	-11.7																																																																																											
2687.50	19.07	H	5.5	9.8	23.43	33.0	-9.6																																																																																												

LTE Band 66

LTE
Band 66
20MHz
QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4789555428
Date: 2020-08-10
Test Engineer: 20896
Configuration: EUT / X-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	10.89	V	4.3	9.4	15.91	30.0	-14.1	
1720.00	15.35	H	4.3	9.4	20.37	30.0	-9.6	
Mid Ch								
1745.00	10.09	V	4.4	9.4	15.18	30.0	-14.8	
1745.00	15.77	H	4.4	9.4	20.86	30.0	-9.1	
High Ch								
1770.00	12.86	V	4.4	9.5	17.96	30.0	-12.0	
1770.00	16.09	H	4.4	9.5	21.19	30.0	-8.8	

LTE
Band 66
20MHz
16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4789555428
Date: 2020-08-10
Test Engineer: 20896
Configuration: EUT / X-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	10.08	V	4.3	9.4	15.10	30.0	-14.9	
1720.00	15.04	H	4.3	9.4	20.06	30.0	-9.9	
Mid Ch								
1745.00	9.71	V	4.4	9.4	14.80	30.0	-15.2	
1745.00	15.47	H	4.4	9.4	20.56	30.0	-9.4	
High Ch								
1770.00	12.51	V	4.4	9.5	17.61	30.0	-12.4	
1770.00	14.78	H	4.4	9.5	19.88	30.0	-10.1	

LTE Band 66 15MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement							
	Company: Samsung Project #: 4789555428 Date: 2020-08-10 Test Engineer: 20896 Configuration: EUT / X-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							
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)
	Low Ch							
	1717.50	10.37	V	4.3	9.3	15.39	30.0	-14.6
	1717.50	16.36	H	4.3	9.3	21.38	30.0	-8.6
	Mid Ch							
	1745.00	12.16	V	4.4	9.4	17.25	30.0	-12.8
	1745.00	16.27	H	4.4	9.4	21.36	30.0	-8.6
LTE Band 66 15MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement							
	Company: Samsung Project #: 4789555428 Date: 2020-08-10 Test Engineer: 20896 Configuration: EUT / X-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							
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)
	Low Ch							
	1717.50	9.57	V	4.3	9.3	14.59	30.0	-15.4
	1717.50	14.87	H	4.3	9.3	19.89	30.0	-10.1
	Mid Ch							
	1745.00	11.06	V	4.4	9.4	16.15	30.0	-13.9
	1745.00	15.42	H	4.4	9.4	20.51	30.0	-9.5
LTE Band 66 15MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement							
	Company: Samsung Project #: 4789555428 Date: 2020-08-10 Test Engineer: 20896 Configuration: EUT / X-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							
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)
	Low Ch							
	1717.50	9.57	V	4.3	9.3	14.59	30.0	-15.4
	1717.50	14.87	H	4.3	9.3	19.89	30.0	-10.1
	Mid Ch							
	1745.00	11.06	V	4.4	9.4	16.15	30.0	-13.9
	1745.00	15.42	H	4.4	9.4	20.51	30.0	-9.5

LTE Band 66 10MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-08-10 Test Engineer: 20896 Configuration: EUT / X-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 <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>1715.00</td><td>10.43</td><td>V</td><td>4.3</td><td>9.3</td><td>15.44</td><td>30.0</td><td>-14.6</td><td></td></tr><tr><td>1715.00</td><td>16.08</td><td>H</td><td>4.3</td><td>9.3</td><td>21.09</td><td>30.0</td><td>-8.9</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>1745.00</td><td>11.20</td><td>V</td><td>4.4</td><td>9.4</td><td>16.29</td><td>30.0</td><td>-13.7</td><td></td></tr><tr><td>1745.00</td><td>16.55</td><td>H</td><td>4.4</td><td>9.4</td><td>21.64</td><td>30.0</td><td>-8.4</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>1775.00</td><td>12.12</td><td>V</td><td>4.4</td><td>9.5</td><td>17.22</td><td>30.0</td><td>-12.8</td><td></td></tr><tr><td>1775.00</td><td>14.02</td><td>H</td><td>4.4</td><td>9.5</td><td>19.12</td><td>30.0</td><td>-10.9</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									1715.00	10.43	V	4.3	9.3	15.44	30.0	-14.6		1715.00	16.08	H	4.3	9.3	21.09	30.0	-8.9		Mid Ch									1745.00	11.20	V	4.4	9.4	16.29	30.0	-13.7		1745.00	16.55	H	4.4	9.4	21.64	30.0	-8.4		High Ch									1775.00	12.12	V	4.4	9.5	17.22	30.0	-12.8		1775.00	14.02	H	4.4	9.5	19.12	30.0	-10.9	
	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	10.43	V	4.3	9.3	15.44	30.0	-14.6																																																																																											
	1715.00	16.08	H	4.3	9.3	21.09	30.0	-8.9																																																																																											
	Mid Ch																																																																																																		
	1745.00	11.20	V	4.4	9.4	16.29	30.0	-13.7																																																																																											
	1745.00	16.55	H	4.4	9.4	21.64	30.0	-8.4																																																																																											
	High Ch																																																																																																		
	1775.00	12.12	V	4.4	9.5	17.22	30.0	-12.8																																																																																											
1775.00	14.02	H	4.4	9.5	19.12	30.0	-10.9																																																																																												
LTE Band 66 10MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-08-10 Test Engineer: 20896 Configuration: EUT / X-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 <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>1715.00</td><td>9.34</td><td>V</td><td>4.3</td><td>9.3</td><td>14.35</td><td>30.0</td><td>-15.6</td><td></td></tr><tr><td>1715.00</td><td>14.95</td><td>H</td><td>4.3</td><td>9.3</td><td>19.96</td><td>30.0</td><td>-10.0</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>1745.00</td><td>10.25</td><td>V</td><td>4.4</td><td>9.4</td><td>15.34</td><td>30.0</td><td>-14.7</td><td></td></tr><tr><td>1745.00</td><td>15.45</td><td>H</td><td>4.4</td><td>9.4</td><td>20.54</td><td>30.0</td><td>-9.5</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>1775.00</td><td>10.93</td><td>V</td><td>4.4</td><td>9.5</td><td>16.03</td><td>30.0</td><td>-14.0</td><td></td></tr><tr><td>1775.00</td><td>12.95</td><td>H</td><td>4.4</td><td>9.5</td><td>18.05</td><td>30.0</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									1715.00	9.34	V	4.3	9.3	14.35	30.0	-15.6		1715.00	14.95	H	4.3	9.3	19.96	30.0	-10.0		Mid Ch									1745.00	10.25	V	4.4	9.4	15.34	30.0	-14.7		1745.00	15.45	H	4.4	9.4	20.54	30.0	-9.5		High Ch									1775.00	10.93	V	4.4	9.5	16.03	30.0	-14.0		1775.00	12.95	H	4.4	9.5	18.05	30.0	-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																																																																																																		
	1715.00	9.34	V	4.3	9.3	14.35	30.0	-15.6																																																																																											
	1715.00	14.95	H	4.3	9.3	19.96	30.0	-10.0																																																																																											
	Mid Ch																																																																																																		
	1745.00	10.25	V	4.4	9.4	15.34	30.0	-14.7																																																																																											
	1745.00	15.45	H	4.4	9.4	20.54	30.0	-9.5																																																																																											
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1775.00	12.95	H	4.4	9.5	18.05	30.0	-12.0																																																																																												

LTE
Band 66

5MHz

QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4789555428
Date: 2020-08-10
Test Engineer: 20896
Configuration: EUT / X-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

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	9.38	V	4.3	9.3	14.38	30.0	-15.6	
1712.50	15.65	H	4.3	9.3	20.65	30.0	-9.3	
Mid Ch								
1745.00	11.80	V	4.4	9.4	16.89	30.0	-13.1	
1745.00	16.78	H	4.4	9.4	21.87	30.0	-8.1	
High Ch								
1777.50	12.39	V	4.4	9.5	17.49	30.0	-12.5	
1777.50	14.59	H	4.4	9.5	19.69	30.0	-10.3	

LTE
Band 66

5MHz

16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4789555428
Date: 2020-08-10
Test Engineer: 20896
Configuration: EUT / X-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

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	8.45	V	4.3	9.3	13.45	30.0	-16.5	
1712.50	14.96	H	4.3	9.3	19.96	30.0	-10.0	
Mid Ch								
1745.00	11.02	V	4.4	9.4	16.11	30.0	-13.9	
1745.00	15.38	H	4.4	9.4	20.47	30.0	-9.5	
High Ch								
1777.50	10.52	V	4.4	9.5	15.62	30.0	-14.4	
1777.50	15.32	H	4.4	9.5	20.42	30.0	-9.6	

LTE Band 66 3MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-08-05 Test Engineer: 20896 Configuration: EUT / X-Position Location: Chamber 2 Mode: 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 <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>1711.50</td><td>8.68</td><td>V</td><td>4.3</td><td>9.3</td><td>13.69</td><td>30.0</td><td>-16.3</td><td></td></tr><tr><td>1711.50</td><td>15.46</td><td>H</td><td>4.3</td><td>9.3</td><td>20.47</td><td>30.0</td><td>-9.5</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>1745.00</td><td>12.18</td><td>V</td><td>4.4</td><td>9.4</td><td>17.27</td><td>30.0</td><td>-12.7</td><td></td></tr><tr><td>1745.00</td><td>16.52</td><td>H</td><td>4.4</td><td>9.4</td><td>21.61</td><td>30.0</td><td>-8.4</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>1778.50</td><td>12.29</td><td>V</td><td>4.4</td><td>9.5</td><td>17.39</td><td>30.0</td><td>-12.6</td><td></td></tr><tr><td>1778.50</td><td>16.31</td><td>H</td><td>4.4</td><td>9.5</td><td>21.41</td><td>30.0</td><td>-8.6</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									1711.50	8.68	V	4.3	9.3	13.69	30.0	-16.3		1711.50	15.46	H	4.3	9.3	20.47	30.0	-9.5		Mid Ch									1745.00	12.18	V	4.4	9.4	17.27	30.0	-12.7		1745.00	16.52	H	4.4	9.4	21.61	30.0	-8.4		High Ch									1778.50	12.29	V	4.4	9.5	17.39	30.0	-12.6		1778.50	16.31	H	4.4	9.5	21.41	30.0	-8.6	
	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	8.68	V	4.3	9.3	13.69	30.0	-16.3																																																																																											
	1711.50	15.46	H	4.3	9.3	20.47	30.0	-9.5																																																																																											
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	1745.00	12.18	V	4.4	9.4	17.27	30.0	-12.7																																																																																											
	1745.00	16.52	H	4.4	9.4	21.61	30.0	-8.4																																																																																											
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LTE Band 66 3MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-08-05 Test Engineer: 20896 Configuration: EUT / X-Position Location: Chamber 2 Mode: 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 <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>1711.50</td><td>8.05</td><td>V</td><td>4.3</td><td>9.3</td><td>13.06</td><td>30.0</td><td>-16.9</td><td></td></tr><tr><td>1711.50</td><td>14.55</td><td>H</td><td>4.3</td><td>9.3</td><td>19.56</td><td>30.0</td><td>-10.4</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>1745.00</td><td>11.42</td><td>V</td><td>4.4</td><td>9.4</td><td>16.51</td><td>30.0</td><td>-13.5</td><td></td></tr><tr><td>1745.00</td><td>15.63</td><td>H</td><td>4.4</td><td>9.4</td><td>20.72</td><td>30.0</td><td>-9.3</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>1778.50</td><td>11.41</td><td>V</td><td>4.4</td><td>9.5</td><td>16.51</td><td>30.0</td><td>-13.5</td><td></td></tr><tr><td>1778.50</td><td>15.46</td><td>H</td><td>4.4</td><td>9.5</td><td>20.56</td><td>30.0</td><td>-9.4</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									1711.50	8.05	V	4.3	9.3	13.06	30.0	-16.9		1711.50	14.55	H	4.3	9.3	19.56	30.0	-10.4		Mid Ch									1745.00	11.42	V	4.4	9.4	16.51	30.0	-13.5		1745.00	15.63	H	4.4	9.4	20.72	30.0	-9.3		High Ch									1778.50	11.41	V	4.4	9.5	16.51	30.0	-13.5		1778.50	15.46	H	4.4	9.5	20.56	30.0	-9.4	
	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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	1711.50	8.05	V	4.3	9.3	13.06	30.0	-16.9																																																																																											
	1711.50	14.55	H	4.3	9.3	19.56	30.0	-10.4																																																																																											
	Mid Ch																																																																																																		
	1745.00	11.42	V	4.4	9.4	16.51	30.0	-13.5																																																																																											
	1745.00	15.63	H	4.4	9.4	20.72	30.0	-9.3																																																																																											
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	1778.50	11.41	V	4.4	9.5	16.51	30.0	-13.5																																																																																											
1778.50	15.46	H	4.4	9.5	20.56	30.0	-9.4																																																																																												

LTE Band 66 1.4MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-08-10 Test Engineer: 20896 Configuration: EUT / X-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 <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>1710.70</td><td>10.16</td><td>V</td><td>4.3</td><td>9.3</td><td>15.16</td><td>30.0</td><td>-14.8</td><td></td></tr><tr><td>1710.70</td><td>15.05</td><td>H</td><td>4.3</td><td>9.3</td><td>20.05</td><td>30.0</td><td>-9.9</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>1745.00</td><td>12.01</td><td>V</td><td>4.4</td><td>9.4</td><td>17.10</td><td>30.0</td><td>-12.9</td><td></td></tr><tr><td>1745.00</td><td>16.35</td><td>H</td><td>4.4</td><td>9.4</td><td>21.44</td><td>30.0</td><td>-8.6</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>1779.30</td><td>11.34</td><td>V</td><td>4.4</td><td>9.5</td><td>16.44</td><td>30.0</td><td>-13.6</td><td></td></tr><tr><td>1779.30</td><td>15.20</td><td>H</td><td>4.4</td><td>9.5</td><td>20.30</td><td>30.0</td><td>-9.7</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									1710.70	10.16	V	4.3	9.3	15.16	30.0	-14.8		1710.70	15.05	H	4.3	9.3	20.05	30.0	-9.9		Mid Ch									1745.00	12.01	V	4.4	9.4	17.10	30.0	-12.9		1745.00	16.35	H	4.4	9.4	21.44	30.0	-8.6		High Ch									1779.30	11.34	V	4.4	9.5	16.44	30.0	-13.6		1779.30	15.20	H	4.4	9.5	20.30	30.0	-9.7	
	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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	1710.70	10.16	V	4.3	9.3	15.16	30.0	-14.8																																																																																											
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	1745.00	12.01	V	4.4	9.4	17.10	30.0	-12.9																																																																																											
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	1779.30	11.34	V	4.4	9.5	16.44	30.0	-13.6																																																																																											
1779.30	15.20	H	4.4	9.5	20.30	30.0	-9.7																																																																																												
LTE Band 66 1.4MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-08-10 Test Engineer: 20896 Configuration: EUT / X-Positon 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 <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>1710.70</td><td>8.93</td><td>V</td><td>4.3</td><td>9.3</td><td>13.93</td><td>30.0</td><td>-16.1</td><td></td></tr><tr><td>1710.70</td><td>14.00</td><td>H</td><td>4.3</td><td>9.3</td><td>19.00</td><td>30.0</td><td>-11.0</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>1745.00</td><td>10.86</td><td>V</td><td>4.4</td><td>9.4</td><td>15.95</td><td>30.0</td><td>-14.1</td><td></td></tr><tr><td>1745.00</td><td>15.45</td><td>H</td><td>4.4</td><td>9.4</td><td>20.54</td><td>30.0</td><td>-9.5</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>1779.30</td><td>10.07</td><td>V</td><td>4.4</td><td>9.5</td><td>15.17</td><td>30.0</td><td>-14.8</td><td></td></tr><tr><td>1779.30</td><td>14.18</td><td>H</td><td>4.4</td><td>9.5</td><td>19.28</td><td>30.0</td><td>-10.7</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									1710.70	8.93	V	4.3	9.3	13.93	30.0	-16.1		1710.70	14.00	H	4.3	9.3	19.00	30.0	-11.0		Mid Ch									1745.00	10.86	V	4.4	9.4	15.95	30.0	-14.1		1745.00	15.45	H	4.4	9.4	20.54	30.0	-9.5		High Ch									1779.30	10.07	V	4.4	9.5	15.17	30.0	-14.8		1779.30	14.18	H	4.4	9.5	19.28	30.0	-10.7	
	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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	1745.00	10.86	V	4.4	9.4	15.95	30.0	-14.1																																																																																											
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	1779.30	10.07	V	4.4	9.5	15.17	30.0	-14.8																																																																																											
1779.30	14.18	H	4.4	9.5	19.28	30.0	-10.7																																																																																												

9.6. 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.

9.6.1. SPURIOUS RADIATION PLOTS

GSM850

GSM850 GPRS	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung									
	Project #: 4789555428									
	Date: 2020-08-06									
	Test Engineer: 20890									
	Configuration: EUT / AC Adapter, Y-Position									
	Location: Chamber 1									
	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
	Low Ch, 824.2MHz									
	1648.40	-10.6	V	3.0	45.2	1.0	-54.8	-13.0	-41.8	
	2472.60	-10.3	V	3.0	45.0	1.0	-54.3	-13.0	-41.3	
	3296.80	-8.5	V	3.0	45.3	1.0	-52.7	-13.0	-39.7	
	1648.40	-10.0	H	3.0	45.2	1.0	-54.3	-13.0	-41.3	
	2472.60	-9.8	H	3.0	45.0	1.0	-53.8	-13.0	-40.8	
	3296.80	-8.5	H	3.0	45.3	1.0	-52.8	-13.0	-39.8	
	Mid Ch, 836.6MHz									
	1673.20	-12.1	V	3.0	45.2	1.0	-56.3	-13.0	-43.3	
	2509.80	-10.5	V	3.0	45.0	1.0	-54.5	-13.0	-41.5	
3346.40	-7.9	V	3.0	45.3	1.0	-52.2	-13.0	-39.2		
1673.20	-8.8	H	3.0	45.2	1.0	-53.0	-13.0	-40.0		
2509.80	-10.0	H	3.0	45.0	1.0	-54.0	-13.0	-41.0		
3346.40	-8.1	H	3.0	45.3	1.0	-52.4	-13.0	-39.4		
High Ch, 848.8MHz										
1697.60	-10.6	V	3.0	45.2	1.0	-54.8	-13.0	-41.8		
2546.40	-10.5	V	3.0	45.1	1.0	-54.6	-13.0	-41.6		
3395.20	-7.7	V	3.0	45.3	1.0	-52.0	-13.0	-39.0		
1697.60	-4.0	H	3.0	45.2	1.0	-48.2	-13.0	-35.2		
2546.40	-10.1	H	3.0	45.1	1.0	-54.1	-13.0	-41.1		
3395.20	-7.9	H	3.0	45.3	1.0	-52.2	-13.0	-39.2		
GSM850 EGPRS	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung									
	Project #: 4789555428									
	Date: 2020-08-06									
	Test Engineer: 20890									
	Configuration: EUT / AC Adapter, Y-Position									
	Location: Chamber 1									
	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	-13.7	V	3.0	45.2	1.0	-57.9	-13.0	-44.9	
	2472.60	-10.5	V	3.0	45.0	1.0	-54.6	-13.0	-41.6	
	3296.80	-8.2	V	3.0	45.3	1.0	-52.5	-13.0	-39.5	
	1648.40	-12.5	H	3.0	45.2	1.0	-56.7	-13.0	-43.7	
	2472.60	-9.9	H	3.0	45.0	1.0	-54.0	-13.0	-41.0	
	3296.80	-8.7	H	3.0	45.3	1.0	-52.9	-13.0	-39.9	
	Mid Ch, 836.6MHz									
	1673.20	-12.1	V	3.0	45.2	1.0	-56.3	-13.0	-43.3	
	2509.80	-10.4	V	3.0	45.0	1.0	-54.5	-13.0	-41.5	
3346.40	-7.9	V	3.0	45.3	1.0	-52.2	-13.0	-39.2		
1673.20	-12.7	H	3.0	45.2	1.0	-56.9	-13.0	-43.9		
2509.80	-9.9	H	3.0	45.0	1.0	-54.0	-13.0	-41.0		
3346.40	-8.1	H	3.0	45.3	1.0	-52.4	-13.0	-39.4		
High Ch, 848.8MHz										
1697.60	-13.1	V	3.0	45.2	1.0	-57.2	-13.0	-44.2		
2546.40	-10.5	V	3.0	45.1	1.0	-54.5	-13.0	-41.5		
3395.20	-7.9	V	3.0	45.3	1.0	-52.2	-13.0	-39.2		
1697.60	-12.3	H	3.0	45.2	1.0	-56.5	-13.0	-43.5		
2546.40	-10.0	H	3.0	45.1	1.0	-54.1	-13.0	-41.1		
3395.20	-8.0	H	3.0	45.3	1.0	-52.3	-13.0	-39.3		

GSM1900

	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)
GSM1900 GPRS	Company: Samsung								
	Project #: 4789555428								
	Date: 2020-08-06								
	Test Engineer: 20890								
	Configuration: EUT / AC Adapter, Y-Position								
	Location: Chamber 1								
	Mode: GPRS 1900 MHz Harmonics								
	Notes								
	Low Ch, 1850.2MHz								
	3700.40	-9.3	V	3.0	45.4	1.0	-53.7	-13.0	-40.7
	5550.60	9.1	V	3.0	45.3	1.0	-35.2	-13.0	-22.2
	7400.80	-4.0	V	3.0	44.1	1.0	-47.2	-13.0	-34.2
	9251.00	-1.5	V	3.0	42.9	1.0	-43.4	-13.0	-30.4
	3700.40	-9.8	H	3.0	45.4	1.0	-54.2	-13.0	-41.2
	5550.60	5.6	H	3.0	45.3	1.0	-38.7	-13.0	-25.7
	7400.80	-4.1	H	3.0	44.1	1.0	-47.3	-13.0	-34.3
	9251.00	0.8	H	3.0	42.9	1.0	-41.1	-13.0	-28.1
	Mid Ch, 1880MHz								
	3760.00	-9.2	V	3.0	45.4	1.0	-53.7	-13.0	-40.7
	5640.00	13.8	V	3.0	45.3	1.0	-30.5	-13.0	-17.5
	7520.00	-4.1	V	3.0	44.1	1.0	-47.2	-13.0	-34.2
	9400.00	0.0	V	3.0	42.8	1.0	-41.8	-13.0	-28.8
	3760.00	-9.6	H	3.0	45.4	1.0	-54.0	-13.0	-41.0
	5640.00	9.6	H	3.0	45.3	1.0	-34.7	-13.0	-21.7
	7520.00	-3.9	H	3.0	44.1	1.0	-47.0	-13.0	-34.0
	9400.00	3.0	H	3.0	42.8	1.0	-38.7	-13.0	-25.7
	High Ch, 1909.8MHz								
	3819.60	-9.3	V	3.0	45.4	1.0	-53.8	-13.0	-40.8
	5729.40	13.6	V	3.0	45.3	1.0	-30.7	-13.0	-17.7
	7639.20	-4.1	V	3.0	44.0	1.0	-47.2	-13.0	-34.2
	9549.00	0.7	V	3.0	42.6	1.0	-40.9	-13.0	-27.9
	3819.60	-9.8	H	3.0	45.4	1.0	-54.2	-13.0	-41.2
	5729.40	10.8	H	3.0	45.3	1.0	-33.5	-13.0	-20.5
	7639.20	-3.9	H	3.0	44.0	1.0	-46.9	-13.0	-33.9
	9549.00	0.3	H	3.0	42.6	1.0	-41.4	-13.0	-28.4

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WCDMA Band 5

WCDMA Band 5 REL99	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-08-07 Test Engineer: 20882 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	-6.4	V	3.0	45.2	1.0	-50.6	-13.0	-37.6	
	2479.20	-2.9	V	3.0	45.0	1.0	-46.9	-13.0	-33.9	
	3305.60	-0.8	V	3.0	45.3	1.0	-45.1	-13.0	-32.1	
	1652.80	-5.4	H	3.0	45.2	1.0	-49.6	-13.0	-36.6	
	2479.20	-2.4	H	3.0	45.0	1.0	-46.4	-13.0	-33.4	
	3305.60	-0.9	H	3.0	45.3	1.0	-45.2	-13.0	-32.2	
	Mid Ch, 836.6MHz									
	1673.20	-6.3	V	3.0	45.2	1.0	-50.4	-13.0	-37.4	
	2509.80	-3.1	V	3.0	45.0	1.0	-47.2	-13.0	-34.2	
	3346.40	-0.4	V	3.0	45.3	1.0	-44.6	-13.0	-31.6	
	1673.20	-5.2	H	3.0	45.2	1.0	-49.4	-13.0	-36.4	
	2509.80	-2.2	H	3.0	45.0	1.0	-46.3	-13.0	-33.3	
	3346.40	-0.6	H	3.0	45.3	1.0	-44.9	-13.0	-31.9	
	High Ch, 846.6MHz									
	1693.20	-6.2	V	3.0	45.2	1.0	-50.4	-13.0	-37.4	
	2539.80	-2.8	V	3.0	45.0	1.0	-46.8	-13.0	-33.8	
	3386.40	-0.3	V	3.0	45.3	1.0	-44.5	-13.0	-31.5	
	1693.20	-5.3	H	3.0	45.2	1.0	-49.5	-13.0	-36.5	
	2539.80	-2.4	H	3.0	45.0	1.0	-46.4	-13.0	-33.4	
	3386.40	-0.6	H	3.0	45.3	1.0	-44.9	-13.0	-31.9	
WCDMA Band 5 HSDPA	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-08-07 Test Engineer: 20882 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	-6.3	V	3.0	45.2	1.0	-50.5	-13.0	-37.5	
	2479.20	-3.0	V	3.0	45.0	1.0	-47.0	-13.0	-34.0	
	3305.60	-0.8	V	3.0	45.3	1.0	-45.0	-13.0	-32.0	
	1652.80	-5.8	H	3.0	45.2	1.0	-50.0	-13.0	-37.0	
	2479.20	-2.2	H	3.0	45.0	1.0	-46.3	-13.0	-33.3	
	3305.60	-0.7	H	3.0	45.3	1.0	-45.0	-13.0	-32.0	
	Mid Ch, 836.6MHz									
	1673.20	-6.4	V	3.0	45.2	1.0	-50.6	-13.0	-37.6	
	2509.80	-3.1	V	3.0	45.0	1.0	-47.1	-13.0	-34.1	
	3346.40	-0.5	V	3.0	45.3	1.0	-44.8	-13.0	-31.8	
	1673.20	-5.4	H	3.0	45.2	1.0	-49.6	-13.0	-36.6	
	2509.80	-2.7	H	3.0	45.0	1.0	-46.7	-13.0	-33.7	
	3346.40	-0.5	H	3.0	45.3	1.0	-44.8	-13.0	-31.8	
	High Ch, 846.6MHz									
	1693.20	-6.1	V	3.0	45.2	1.0	-50.2	-13.0	-37.2	
	2539.80	-3.1	V	3.0	45.0	1.0	-47.2	-13.0	-34.2	
	3386.40	-0.5	V	3.0	45.3	1.0	-44.8	-13.0	-31.8	
	1693.20	-5.1	H	3.0	45.2	1.0	-49.3	-13.0	-36.3	
	2539.80	-2.4	H	3.0	45.0	1.0	-46.5	-13.0	-33.5	
	3386.40	-0.8	H	3.0	45.3	1.0	-45.1	-13.0	-32.1	

WCDMA Band 4

WCDMA Band 4 REL99	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-08-07 Test Engineer: 20881 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	-8.2	V	3.0	45.3	1.0	-52.5	-13.0	-39.5	
	5137.20	-7.7	V	3.0	45.3	1.0	-51.9	-13.0	-38.9	
	6849.60	-5.4	V	3.0	44.5	1.0	-48.9	-13.0	-35.9	
	3424.80	-8.4	H	3.0	45.3	1.0	-52.7	-13.0	-39.7	
	5137.20	-7.9	H	3.0	45.3	1.0	-52.2	-13.0	-39.2	
	6849.60	-5.4	H	3.0	44.5	1.0	-48.8	-13.0	-35.8	
	Mid Ch, 1732.6MHz									
	3465.20	-7.8	V	3.0	45.3	1.0	-52.1	-13.0	-39.1	
	5197.80	-7.2	V	3.0	45.3	1.0	-51.5	-13.0	-38.5	
	6930.40	-5.4	V	3.0	44.4	1.0	-48.8	-13.0	-35.8	
	3465.20	-7.8	H	3.0	45.3	1.0	-52.1	-13.0	-39.1	
	5197.80	-7.6	H	3.0	45.3	1.0	-51.9	-13.0	-38.9	
	6930.40	-5.2	H	3.0	44.4	1.0	-48.7	-13.0	-35.7	
	High Ch, 1752.6MHz									
	3505.20	-7.3	V	3.0	45.3	1.0	-51.6	-13.0	-38.6	
	5257.80	-7.5	V	3.0	45.3	1.0	-51.8	-13.0	-38.8	
	7010.40	-5.2	V	3.0	44.4	1.0	-48.5	-13.0	-35.5	
	3505.20	-7.5	H	3.0	45.3	1.0	-51.8	-13.0	-38.8	
	5257.80	-7.8	H	3.0	45.3	1.0	-52.1	-13.0	-39.1	
	7010.40	-5.0	H	3.0	44.4	1.0	-48.3	-13.0	-35.3	
WCDMA Band 4 HSDPA	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4789555428 Date: 2020-08-07 Test Engineer: 20881 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	-8.5	V	3.0	45.3	1.0	-52.8	-13.0	-39.8	
	5137.20	-7.7	V	3.0	45.3	1.0	-52.0	-13.0	-39.0	
	6849.60	-5.5	V	3.0	44.5	1.0	-49.0	-13.0	-36.0	
	3424.80	-8.6	H	3.0	45.3	1.0	-52.9	-13.0	-39.9	
	5137.20	-8.1	H	3.0	45.3	1.0	-52.3	-13.0	-39.3	
	6849.60	-5.5	H	3.0	44.5	1.0	-49.0	-13.0	-36.0	
	Mid Ch, 1732.6MHz									
	3465.20	-7.9	V	3.0	45.3	1.0	-52.2	-13.0	-39.2	
	5197.80	-7.5	V	3.0	45.3	1.0	-51.7	-13.0	-38.7	
	6930.40	-5.7	V	3.0	44.4	1.0	-49.1	-13.0	-36.1	
	3465.20	-8.2	H	3.0	45.3	1.0	-52.5	-13.0	-39.5	
	5197.80	-8.0	H	3.0	45.3	1.0	-52.3	-13.0	-39.3	
	6930.40	-5.7	H	3.0	44.4	1.0	-49.1	-13.0	-36.1	
	High Ch, 1752.6MHz									
	3505.20	-7.6	V	3.0	45.3	1.0	-51.9	-13.0	-38.9	
	5257.80	-7.7	V	3.0	45.3	1.0	-52.0	-13.0	-39.0	
	7010.40	-5.0	V	3.0	44.4	1.0	-48.3	-13.0	-35.3	
	3505.20	-7.7	H	3.0	45.3	1.0	-52.0	-13.0	-39.0	
	5257.80	-7.9	H	3.0	45.3	1.0	-52.1	-13.0	-39.1	
	7010.40	-5.1	H	3.0	44.4	1.0	-48.5	-13.0	-35.5	

WCDMA Band 2

WCDMA Band 2 REL99	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung									
	Project #: 4789555428									
	Date: 2020-08-07									
	Test Engineer: 20882									
	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)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 1852.4MHz									
	3704.80	-10.7	V	3.0	45.4	1.0	-55.1	-13.0	-42.1	
	5557.20	-7.7	V	3.0	45.3	1.0	-52.0	-13.0	-39.0	
	7409.60	-5.3	V	3.0	44.1	1.0	-48.5	-13.0	-35.5	
	3704.80	-11.0	H	3.0	45.4	1.0	-55.4	-13.0	-42.4	
	5557.20	-8.0	H	3.0	45.3	1.0	-52.3	-13.0	-39.3	
	7409.60	-5.1	H	3.0	44.1	1.0	-48.3	-13.0	-35.3	
	Mid Ch, 1880MHz									
	3760.00	-10.5	V	3.0	45.4	1.0	-54.9	-13.0	-41.9	
	5640.00	-7.7	V	3.0	45.3	1.0	-52.0	-13.0	-39.0	
	7520.00	-5.4	V	3.0	44.1	1.0	-48.4	-13.0	-35.4	
	3760.00	-10.8	H	3.0	45.4	1.0	-55.2	-13.0	-42.2	
	5640.00	-7.9	H	3.0	45.3	1.0	-52.2	-13.0	-39.2	
	7520.00	-5.1	H	3.0	44.1	1.0	-48.2	-13.0	-35.2	
	High Ch, 1907.6MHz									
3815.20	-10.3	V	3.0	45.4	1.0	-54.8	-13.0	-41.8		
5722.80	-7.7	V	3.0	45.3	1.0	-52.0	-13.0	-39.0		
7630.40	-5.2	V	3.0	44.0	1.0	-48.2	-13.0	-35.2		
3815.20	-10.9	H	3.0	45.4	1.0	-55.4	-13.0	-42.4		
5722.80	-7.8	H	3.0	45.3	1.0	-52.1	-13.0	-39.1		
7630.40	-5.1	H	3.0	44.0	1.0	-48.1	-13.0	-35.1		
WCDMA Band 2 HSDPA	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung									
	Project #: 4789555428									
	Date: 2020-08-07									
	Test Engineer: 20882									
	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)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 1852.4MHz									
	3704.80	-10.6	V	3.0	45.4	1.0	-55.0	-13.0	-42.0	
	5557.20	-7.7	V	3.0	45.3	1.0	-52.0	-13.0	-39.0	
	7409.60	-5.3	V	3.0	44.1	1.0	-48.5	-13.0	-35.5	
	3704.80	-10.7	H	3.0	45.4	1.0	-55.1	-13.0	-42.1	
	5557.20	-7.8	H	3.0	45.3	1.0	-52.1	-13.0	-39.1	
	7409.60	-5.2	H	3.0	44.1	1.0	-48.4	-13.0	-35.4	
	Mid Ch, 1880MHz									
	3760.00	-9.9	V	3.0	45.4	1.0	-54.3	-13.0	-41.3	
	5640.00	-7.1	V	3.0	45.3	1.0	-51.4	-13.0	-38.4	
	7520.00	-5.1	V	3.0	44.1	1.0	-48.2	-13.0	-35.2	
	3760.00	-10.3	H	3.0	45.4	1.0	-54.8	-13.0	-41.8	
	5640.00	-7.9	H	3.0	45.3	1.0	-52.1	-13.0	-39.1	
	7520.00	-5.0	H	3.0	44.1	1.0	-48.1	-13.0	-35.1	
	High Ch, 1907.6MHz									
3815.20	-10.0	V	3.0	45.4	1.0	-54.4	-13.0	-41.4		
5722.80	-7.2	V	3.0	45.3	1.0	-51.5	-13.0	-38.5		
7630.40	-5.0	V	3.0	44.0	1.0	-48.0	-13.0	-35.0		
3815.20	-10.8	H	3.0	45.4	1.0	-55.2	-13.0	-42.2		
5722.80	-7.5	H	3.0	45.3	1.0	-51.8	-13.0	-38.8		
7630.40	-4.8	H	3.0	44.0	1.0	-47.9	-13.0	-34.9		

LTE Band 2

LTE Band 2 3MHz QPSK	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company:		Samsung							
	Project #:		4789555428							
	Date:		2020-08-06							
	Test Engineer:		20881							
	Configuration:		EUT / AC Adapter, X-Position							
	Location:		Chamber 1							
	Mode:		LTE_QPSK Band 2 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, 1852.5MHz									
	3705.00	-10.7	V	3.0	45.4	1.0	-55.1	-13.0	-42.1	
	5557.50	-7.8	V	3.0	45.3	1.0	-52.1	-13.0	-39.1	
	7410.00	-5.3	V	3.0	44.1	1.0	-48.4	-13.0	-35.4	
	3705.00	-10.9	H	3.0	45.4	1.0	-55.3	-13.0	-42.3	
	5557.50	-8.1	H	3.0	45.3	1.0	-52.4	-13.0	-39.4	
	7410.00	-5.3	H	3.0	44.1	1.0	-48.4	-13.0	-35.4	
	Mid Ch, 1880MHz									
	3760.00	-10.4	V	3.0	45.4	1.0	-54.9	-13.0	-41.9	
	5640.00	-6.8	V	3.0	45.3	1.0	-51.1	-13.0	-38.1	
	7520.00	-5.2	V	3.0	44.1	1.0	-48.3	-13.0	-35.3	
	3760.00	-10.8	H	3.0	45.4	1.0	-55.2	-13.0	-42.2	
	5640.00	-7.8	H	3.0	45.3	1.0	-52.1	-13.0	-39.1	
	7520.00	-5.2	H	3.0	44.1	1.0	-48.3	-13.0	-35.3	
	High Ch, 1907.5MHz									
	3815.00	-10.4	V	3.0	45.4	1.0	-54.9	-13.0	-41.9	
	5722.50	-6.5	V	3.0	45.3	1.0	-50.8	-13.0	-37.8	
	7630.00	-5.1	V	3.0	44.0	1.0	-48.1	-13.0	-35.1	
	3815.00	-10.8	H	3.0	45.4	1.0	-55.2	-13.0	-42.2	
	5722.50	-7.7	H	3.0	45.3	1.0	-52.0	-13.0	-39.0	
	7630.00	-4.9	H	3.0	44.0	1.0	-48.0	-13.0	-35.0	

LTE Band 2

LTE Band 2 3MHz QPSK	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company:		Samsung							
	Project #:		4789555428							
	Date:		2020-08-06							
	Test Engineer:		20881							
	Configuration:		EUT / AC Adapter, X-Position							
	Location:		Chamber 1							
	Mode:		LTE_QPSK Band 2 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, 1852.5MHz									
	3705.00	-10.7	V	3.0	45.4	1.0	-55.1	-13.0	-42.1	
	5557.50	-7.8	V	3.0	45.3	1.0	-52.1	-13.0	-39.1	
	7410.00	-5.3	V	3.0	44.1	1.0	-48.4	-13.0	-35.4	
	3705.00	-10.9	H	3.0	45.4	1.0	-55.3	-13.0	-42.3	
	5557.50	-8.1	H	3.0	45.3	1.0	-52.4	-13.0	-39.4	
	7410.00	-5.3	H	3.0	44.1	1.0	-48.4	-13.0	-35.4	
	Mid Ch, 1880MHz									
	3760.00	-10.4	V	3.0	45.4	1.0	-54.9	-13.0	-41.9	
	5640.00	-6.8	V	3.0	45.3	1.0	-51.1	-13.0	-38.1	
	7520.00	-5.2	V	3.0	44.1	1.0	-48.3	-13.0	-35.3	
	3760.00	-10.8	H	3.0	45.4	1.0	-55.2	-13.0	-42.2	
	5640.00	-7.8	H	3.0	45.3	1.0	-52.1	-13.0	-39.1	
	7520.00	-5.2	H	3.0	44.1	1.0	-48.3	-13.0	-35.3	
	High Ch, 1907.5MHz									
	3815.00	-10.4	V	3.0	45.4	1.0	-54.9	-13.0	-41.9	
	5722.50	-6.5	V	3.0	45.3	1.0	-50.8	-13.0	-37.8	
	7630.00	-5.1	V	3.0	44.0	1.0	-48.1	-13.0	-35.1	
	3815.00	-10.8	H	3.0	45.4	1.0	-55.2	-13.0	-42.2	
	5722.50	-7.7	H	3.0	45.3	1.0	-52.0	-13.0	-39.0	
	7630.00	-4.9	H	3.0	44.0	1.0	-48.0	-13.0	-35.0	

LTE Band 13

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4789555428							
Date:		2020-08-03							
Test Engineer:		20890							
Configuration:		EUT / AC Adapter							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 13 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, 779.5MHz									
1559.00	-24.4	V	3.0	45.3	1.0	-68.7	-40.0	-28.7	
2338.50	-10.9	V	3.0	45.0	1.0	-54.9	-13.0	-41.9	
3118.00	-8.9	V	3.0	45.2	1.0	-53.1	-13.0	-40.1	
1559.00	-23.5	H	3.0	45.3	1.0	-67.7	-40.0	-27.7	
2338.50	-10.4	H	3.0	45.0	1.0	-54.4	-13.0	-41.4	
3118.00	-9.1	H	3.0	45.2	1.0	-53.3	-13.0	-40.3	
Mid Ch, 782MHz									
1564.00	-24.2	V	3.0	45.3	1.0	-68.5	-40.0	-28.5	
2346.00	-11.2	V	3.0	45.0	1.0	-55.2	-13.0	-42.2	
3128.00	-8.8	V	3.0	45.2	1.0	-53.0	-13.0	-40.0	
1564.00	-23.5	H	3.0	45.3	1.0	-67.8	-40.0	-27.8	
2346.00	-10.4	H	3.0	45.0	1.0	-54.4	-13.0	-41.4	
3128.00	-9.0	H	3.0	45.2	1.0	-53.2	-13.0	-40.2	
High Ch, 784.5MHz									
1569.00	-24.2	V	3.0	45.3	1.0	-68.4	-40.0	-28.4	
2353.50	-10.8	V	3.0	45.0	1.0	-54.8	-13.0	-41.8	
3138.00	-8.5	V	3.0	45.2	1.0	-52.7	-13.0	-39.7	
1569.00	-23.5	H	3.0	45.3	1.0	-67.8	-40.0	-27.8	
2353.50	-10.3	H	3.0	45.0	1.0	-54.3	-13.0	-41.3	
3138.00	-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 26(Part90)

LTE Band 26 3MHz QPSK	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company:		Samsung							
	Project #:		4789555428							
	Date:		2020-08-06							
	Test Engineer:		20881							
	Configuration:		EUT / AC Adapter, Z-Position							
	Location:		Chamber 1							
	Mode:		LTE_QPSK Band 26 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, 815.5MHz									
	1631.00	-14.9	V	3.0	45.2	1.0	-59.1	-13.0	-46.1	
	2446.50	-11.5	V	3.0	45.0	1.0	-55.5	-13.0	-42.5	
	3262.00	-9.2	V	3.0	45.2	1.0	-53.4	-13.0	-40.4	
	1631.00	-14.1	H	3.0	45.2	1.0	-58.3	-13.0	-45.3	
	2446.50	-10.9	H	3.0	45.0	1.0	-54.9	-13.0	-41.9	
	3262.00	-9.5	H	3.0	45.2	1.0	-53.7	-13.0	-40.7	
	Mid Ch, 822.5MHz									
	1645.00	-14.9	V	3.0	45.2	1.0	-59.1	-13.0	-46.1	
	2467.50	-11.3	V	3.0	45.0	1.0	-55.4	-13.0	-42.4	
	3290.00	-9.5	V	3.0	45.3	1.0	-53.7	-13.0	-40.7	
	1645.00	-14.0	H	3.0	45.2	1.0	-58.3	-13.0	-45.3	
	2467.50	-10.9	H	3.0	45.0	1.0	-54.9	-13.0	-41.9	
	3290.00	-9.6	H	3.0	45.3	1.0	-53.9	-13.0	-40.9	

LTE Band 26(Part22)

LTE Band 26 5MHz QPSK	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company:		Samsung							
	Project #:		4789555428							
	Date:		2020-08-06							
	Test Engineer:		20881							
	Configuration:		EUT / AC Adapter, Z-Position							
	Location:		Chamber 1							
	Mode:		LTE_QPSK Band 26 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, 826.5MHz									
	1653.00	-14.9	V	3.0	45.2	1.0	-59.1	-13.0	-46.1	
	2479.50	-11.5	V	3.0	45.0	1.0	-55.5	-13.0	-42.5	
	3306.00	-9.5	V	3.0	45.3	1.0	-53.7	-13.0	-40.7	
	1653.00	-14.0	H	3.0	45.2	1.0	-58.2	-13.0	-45.2	
	2479.50	-10.9	H	3.0	45.0	1.0	-54.9	-13.0	-41.9	
	3306.00	-9.6	H	3.0	45.3	1.0	-53.9	-13.0	-40.9	
	Mid Ch, 831.5MHz									
	1663.00	-14.9	V	3.0	45.2	1.0	-59.1	-13.0	-46.1	
	2494.50	-11.6	V	3.0	45.0	1.0	-55.7	-13.0	-42.7	
	3326.00	-9.1	V	3.0	45.3	1.0	-53.4	-13.0	-40.4	
	1663.00	-13.8	H	3.0	45.2	1.0	-58.0	-13.0	-45.0	
	2494.50	-10.8	H	3.0	45.0	1.0	-54.9	-13.0	-41.9	
	3326.00	-9.3	H	3.0	45.3	1.0	-53.6	-13.0	-40.6	
	High Ch, 846.5MHz									
	1693.00	-14.6	V	3.0	45.2	1.0	-58.8	-13.0	-45.8	
	2539.50	-11.4	V	3.0	45.0	1.0	-55.4	-13.0	-42.4	
	3386.00	-8.7	V	3.0	45.3	1.0	-53.0	-13.0	-40.0	
	1693.00	-13.7	H	3.0	45.2	1.0	-57.9	-13.0	-44.9	
	2539.50	-10.9	H	3.0	45.0	1.0	-54.9	-13.0	-41.9	
	3386.00	-8.9	H	3.0	45.3	1.0	-53.2	-13.0	-40.2	

LTE Band 41(PC3)

LTE Band 41 (PC3) 10MHz QPSK	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung Project #: 4789555428 Date: 2020-08-07 Test Engineer: 20881 Configuration: EUT / AC Adapter, X-Position Location: Chamber 1 Mode: LTE_QPSK Band 41 Harmonics, 10MHz Bandwidth									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 2501MHz									
	5002.00	-16.1	V	3.0	45.3	1.0	-60.4	-25.0	-35.4	
	7503.00	-15.0	V	3.0	44.1	1.0	-58.1	-25.0	-33.1	
	10004.00	-12.9	V	3.0	42.2	1.0	-54.1	-25.0	-29.1	
	5002.00	-16.4	H	3.0	45.3	1.0	-60.7	-25.0	-35.7	
	7503.00	-15.0	H	3.0	44.1	1.0	-58.1	-25.0	-33.1	
	10004.00	-12.6	H	3.0	42.2	1.0	-53.8	-25.0	-28.8	
	Mid Ch, 2593MHz									
	5186.00	-15.1	V	3.0	45.3	1.0	-59.3	-25.0	-34.3	
	7779.00	-5.5	V	3.0	43.9	1.0	-48.4	-25.0	-23.4	
	10372.00	-12.6	V	3.0	42.3	1.0	-53.9	-25.0	-28.9	
	5186.00	-16.0	H	3.0	45.3	1.0	-60.3	-25.0	-35.3	
	7779.00	-11.4	H	3.0	43.9	1.0	-54.4	-25.0	-29.4	
	10372.00	-12.4	H	3.0	42.3	1.0	-53.7	-25.0	-28.7	
	High Ch, 2685MHz									
	5370.00	-15.4	V	3.0	45.3	1.0	-59.7	-25.0	-34.7	
	8055.00	-11.7	V	3.0	43.8	1.0	-54.4	-25.0	-29.4	
	10740.00	-11.9	V	3.0	42.4	1.0	-53.3	-25.0	-28.3	
	5370.00	-15.4	H	3.0	45.3	1.0	-59.6	-25.0	-34.6	
	8055.00	-13.1	H	3.0	43.8	1.0	-55.9	-25.0	-30.9	
	10740.00	-11.5	H	3.0	42.4	1.0	-52.9	-25.0	-27.9	

LTE Band 66

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
LTE Band 66 3MHz QPSK	Company: Samsung Project #: 4789555428 Date: 2020-08-10 Test Engineer: 20896 Configuration: EUT, AC Adapter / X-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	-9.8	V	3.0	42.0	1.0	-50.9	-13.0	-37.9	
	5134.50	-8.2	V	3.0	42.8	1.0	-50.0	-13.0	-37.0	
	6846.00	-6.6	V	3.0	42.7	1.0	-48.3	-13.0	-35.3	
	3423.00	-9.6	H	3.0	42.0	1.0	-50.6	-13.0	-37.6	
	5134.50	-8.6	H	3.0	42.8	1.0	-50.4	-13.0	-37.4	
	6846.00	-6.5	H	3.0	42.7	1.0	-48.2	-13.0	-35.2	
	Mid Ch, 1745MHz									
	3490.00	-9.4	V	3.0	42.0	1.0	-50.5	-13.0	-37.5	
	5235.00	-8.5	V	3.0	42.8	1.0	-50.3	-13.0	-37.3	
	6980.00	-6.4	V	3.0	42.7	1.0	-48.0	-13.0	-35.0	
	3490.00	-12.6	H	3.0	42.0	1.0	-53.7	-13.0	-40.7	
	5235.00	-8.8	H	3.0	42.8	1.0	-50.6	-13.0	-37.6	
	6980.00	-6.2	H	3.0	42.7	1.0	-47.9	-13.0	-34.9	
	High Ch, 1778.5MHz									
	3557.00	-8.4	V	3.0	42.0	1.0	-49.4	-13.0	-36.4	
	5335.50	-7.9	V	3.0	42.8	1.0	-49.8	-13.0	-36.8	
	7114.00	-6.3	V	3.0	42.6	1.0	-47.9	-13.0	-34.9	
	3557.00	-8.2	H	3.0	42.0	1.0	-49.2	-13.0	-36.2	
	5335.50	-7.8	H	3.0	42.8	1.0	-49.7	-13.0	-36.7	
	7114.00	-6.2	H	3.0	42.6	1.0	-47.8	-13.0	-34.8	

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 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.

END OF REPORT