

10MHz DFT-s QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																									
	<p> Company: Samsung Project #: 4789867826 Date: 2021-04-30 Test Engineer: 22943 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_QPSK NR n25 Fundamentals, 10MHz Bandwidth </p> <p> Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-type Cable </p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>1855.00</td> <td>16.15</td> <td>V</td> <td>4.5</td> <td>9.6</td> <td>21.17</td> <td>33.0</td> <td>-11.8</td> <td></td> </tr> <tr> <td>1855.00</td> <td>20.06</td> <td>H</td> <td>4.5</td> <td>9.6</td> <td>25.08</td> <td>33.0</td> <td>-7.9</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>1882.50</td> <td>17.84</td> <td>V</td> <td>4.6</td> <td>9.4</td> <td>22.63</td> <td>33.0</td> <td>-10.4</td> <td></td> </tr> <tr> <td>1882.50</td> <td>21.04</td> <td>H</td> <td>4.6</td> <td>9.4</td> <td>25.83</td> <td>33.0</td> <td>-7.2</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>1910.00</td> <td>17.80</td> <td>V</td> <td>4.6</td> <td>9.1</td> <td>22.32</td> <td>33.0</td> <td>-10.7</td> <td></td> </tr> <tr> <td>1910.00</td> <td>21.43</td> <td>H</td> <td>4.6</td> <td>9.1</td> <td>25.94</td> <td>33.0</td> <td>-7.1</td> <td></td> </tr> </tbody> </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									1855.00	16.15	V	4.5	9.6	21.17	33.0	-11.8		1855.00	20.06	H	4.5	9.6	25.08	33.0	-7.9		Mid Ch									1882.50	17.84	V	4.6	9.4	22.63	33.0	-10.4		1882.50	21.04	H	4.6	9.4	25.83	33.0	-7.2		High Ch									1910.00	17.80	V	4.6	9.1	22.32	33.0	-10.7		1910.00	21.43	H	4.6	9.1	25.94	33.0	-7.1
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NR Band 41

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	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								
	2546.01	18.86	V	5.3	10.1	23.62	33.0	-9.4	
	2546.01	20.68	H	5.3	10.1	25.43	33.0	-7.6	
	Mid Ch								
	2592.99	16.95	V	5.4	10.0	21.60	33.0	-11.4	
	2592.99	21.91	H	5.4	10.0	26.56	33.0	-6.4	
High Ch									
2640.00	16.34	V	5.4	10.0	20.94	33.0	-12.1		
2640.00	21.45	H	5.4	10.0	26.05	33.0	-7.0		
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	Low Ch								
	2546.01	18.41	V	5.3	10.1	23.17	33.0	-9.8	
	2546.01	20.23	H	5.3	10.1	24.98	33.0	-8.0	
	Mid Ch								
	2592.99	16.51	V	5.4	10.0	21.16	33.0	-11.8	
	2592.99	21.65	H	5.4	10.0	26.30	33.0	-6.7	
High Ch									
2640.00	15.83	V	5.4	10.0	20.43	33.0	-12.6		
2640.00	20.87	H	5.4	10.0	25.47	33.0	-7.5		

90MHz DFT-s QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																																
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	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								
	2536.02	16.77	V	5.3	10.1	21.56	33.0	-11.4	
	2536.02	21.08	H	5.3	10.1	25.87	33.0	-7.1	
	Mid Ch								
	2592.99	17.05	V	5.4	10.0	21.70	33.0	-11.3	
	2592.99	21.97	H	5.4	10.0	26.62	33.0	-6.4	
High Ch									
2649.99	12.63	V	5.4	10.0	17.22	33.0	-15.8		
2649.99	19.73	H	5.4	10.0	24.32	33.0	-8.7		
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	Low Ch								
	2536.02	16.37	V	5.3	10.1	21.16	33.0	-11.8	
	2536.02	20.86	H	5.3	10.1	25.65	33.0	-7.4	
	Mid Ch								
	2592.99	16.54	V	5.4	10.0	21.19	33.0	-11.8	
	2592.99	21.50	H	5.4	10.0	26.15	33.0	-6.8	
High Ch									
2649.99	11.98	V	5.4	10.0	16.57	33.0	-16.4		
2649.99	19.15	H	5.4	10.0	23.74	33.0	-9.3		

60MHz DFT-s QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																																
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NR Band 66

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	1720.00	16.17	V	4.4	9.6	21.40	30.0	-8.6	
	1720.00	20.51	H	4.4	9.6	25.73	30.0	-4.3	
	Mid Ch								
	1745.00	17.52	V	4.4	9.7	22.79	30.0	-7.2	
	1745.00	20.32	H	4.4	9.7	25.59	30.0	-4.4	
High Ch									
1770.00	16.48	V	4.4	9.7	21.75	30.0	-8.3		
1770.00	19.24	H	4.4	9.7	24.51	30.0	-5.5		
20MHz DFT-s 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4789867826 Date: 2021-05-11 Test Engineer: 20881 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_16QAMNR n66 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								
	1720.00	15.30	V	4.4	9.6	20.53	30.0	-9.5	
	1720.00	19.06	H	4.4	9.6	24.28	30.0	-5.7	
	Mid Ch								
	1745.00	16.30	V	4.4	9.7	21.57	30.0	-8.4	
	1745.00	19.29	H	4.4	9.7	24.56	30.0	-5.4	
High Ch									
1770.00	15.16	V	4.4	9.7	20.43	30.0	-9.6		
1770.00	18.01	H	4.4	9.7	23.28	30.0	-6.7		

15MHz DFT-s QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																									
	<p> Company: Samsung Project #: 4789867826 Date: 2021-05-11 Test Engineer: 20881 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_QPSK NR n66 Fundamentals, 15MHz Bandwidth </p> <p> Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-type Cable </p> <table border="1"> <thead> <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> </thead> <tbody> <tr><td colspan="9">Low Ch</td></tr> <tr><td>1717.50</td><td>15.77</td><td>V</td><td>4.4</td><td>9.6</td><td>20.99</td><td>30.0</td><td>-9.0</td><td></td></tr> <tr><td>1717.50</td><td>20.68</td><td>H</td><td>4.4</td><td>9.6</td><td>25.91</td><td>30.0</td><td>-4.1</td><td></td></tr> <tr><td colspan="9">Mid Ch</td></tr> <tr><td>1745.00</td><td>17.39</td><td>V</td><td>4.4</td><td>9.7</td><td>22.66</td><td>30.0</td><td>-7.3</td><td></td></tr> <tr><td>1745.00</td><td>20.08</td><td>H</td><td>4.4</td><td>9.7</td><td>25.35</td><td>30.0</td><td>-4.6</td><td></td></tr> <tr><td colspan="9">High Ch</td></tr> <tr><td>1772.50</td><td>16.36</td><td>V</td><td>4.4</td><td>9.7</td><td>21.63</td><td>30.0</td><td>-8.4</td><td></td></tr> <tr><td>1772.50</td><td>19.12</td><td>H</td><td>4.4</td><td>9.7</td><td>24.38</td><td>30.0</td><td>-5.6</td><td></td></tr> </tbody> </table>	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									1717.50	15.77	V	4.4	9.6	20.99	30.0	-9.0		1717.50	20.68	H	4.4	9.6	25.91	30.0	-4.1		Mid Ch									1745.00	17.39	V	4.4	9.7	22.66	30.0	-7.3		1745.00	20.08	H	4.4	9.7	25.35	30.0	-4.6		High Ch									1772.50	16.36	V	4.4	9.7	21.63	30.0	-8.4		1772.50	19.12	H	4.4	9.7	24.38	30.0	-5.6
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5MHz DFT-s QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
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	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	15.80	V	4.4	9.6	21.01	30.0	-9.0	
	1712.50	19.66	H	4.4	9.6	24.87	30.0	-5.1	
	Mid Ch								
	1745.00	17.65	V	4.4	9.7	22.92	30.0	-7.1	
	1745.00	20.30	H	4.4	9.7	25.57	30.0	-4.4	
High Ch									
1777.50	16.98	V	4.4	9.7	22.24	30.0	-7.8		
1777.50	19.65	H	4.4	9.7	24.91	30.0	-5.1		
5MHz DFT-s 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4789867826 Date: 2021-05-11 Test Engineer: 20881 Configuration: EUT, Z-Position Location: Chamber 1 Mode: LTE_16QAMNR n66 Fundamentals, 5MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-type Cable								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch								
	1712.50	14.93	V	4.4	9.6	20.14	30.0	-9.9	
	1712.50	18.91	H	4.4	9.6	24.12	30.0	-5.9	
	Mid Ch								
	1745.00	16.16	V	4.4	9.7	21.43	30.0	-8.6	
	1745.00	19.08	H	4.4	9.7	24.35	30.0	-5.6	
High Ch									
1777.50	15.52	V	4.4	9.7	20.78	30.0	-9.2		
1777.50	18.24	H	4.4	9.7	23.50	30.0	-6.5		

NR Band 71

20MHz DFT-s QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																									
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NR Band 77(Lower)

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	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	3490.02	19.69	V	6.2	10.6	24.07	30.0	-5.9	
	3490.02	21.87	H	6.2	10.6	26.26	30.0	-3.7	
	Mid Ch								
	3499.98	19.98	V	6.3	10.6	24.37	30.0	-5.6	
	3499.98	21.92	H	6.3	10.6	26.31	30.0	-3.7	
	High Ch								
	3510.00	19.66	V	6.3	10.7	24.05	30.0	-5.9	
	3510.00	21.51	H	6.3	10.7	25.90	30.0	-4.1	
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	Low Ch								
	3490.02	19.34	V	6.2	10.6	23.72	30.0	-6.3	
	3490.02	21.57	H	6.2	10.6	25.96	30.0	-4.0	
	Mid Ch								
	3499.98	19.40	V	6.3	10.6	23.79	30.0	-6.2	
	3499.98	21.21	H	6.3	10.6	25.60	30.0	-4.4	
	High Ch								
	3510.00	19.20	V	6.3	10.7	23.59	30.0	-6.4	
	3510.00	20.79	H	6.3	10.7	25.18	30.0	-4.8	

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NR Band 77(Upper)

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	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	3740.01	18.28	V	6.5	10.8	22.57	30.0	-7.4	
	3740.01	21.38	H	6.5	10.8	25.67	30.0	-4.3	
	Mid Ch								
	3840.00	19.67	V	6.6	10.6	23.75	30.0	-6.3	
	3840.00	21.08	H	6.6	10.6	25.16	30.0	-4.8	
	High Ch								
	3939.99	17.46	V	6.7	10.6	21.43	30.0	-8.6	
	3939.99	20.02	H	6.7	10.6	23.99	30.0	-6.0	
80MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
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	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	3740.01	18.00	V	6.5	10.8	22.29	30.0	-7.7	
	3740.01	20.89	H	6.5	10.8	25.18	30.0	-4.8	
	Mid Ch								
	3840.00	19.27	V	6.6	10.6	23.35	30.0	-6.7	
	3840.00	20.70	H	6.6	10.6	24.78	30.0	-5.2	
	High Ch								
	3939.99	16.52	V	6.7	10.6	20.49	30.0	-9.5	
	3939.99	19.61	H	6.7	10.6	23.58	30.0	-6.4	

60MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																																	
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	<p> Company: Samsung Project #: 4789867826 Date: 2021-05-24 Test Engineer: 20881 Configuration: EUT / Keyboard, Covered_X Location: Chamber 1 Mode: NR_16QAM n77 Fundamentals, 20MHz Bandwidth </p> <p> Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 8.5m SMA-type Cable </p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td colspan="9">Low Ch</td> </tr> <tr> <td>3710.01</td> <td>17.80</td> <td>V</td> <td>6.5</td> <td>10.8</td> <td>22.15</td> <td>30.0</td> <td>-7.9</td> <td></td> </tr> <tr> <td>3710.01</td> <td>20.34</td> <td>H</td> <td>6.5</td> <td>10.8</td> <td>24.69</td> <td>30.0</td> <td>-5.3</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>3840.00</td> <td>19.54</td> <td>V</td> <td>6.6</td> <td>10.6</td> <td>23.62</td> <td>30.0</td> <td>-6.4</td> <td></td> </tr> <tr> <td>3840.00</td> <td>20.22</td> <td>H</td> <td>6.6</td> <td>10.6</td> <td>24.30</td> <td>30.0</td> <td>-5.7</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>3969.99</td> <td>17.78</td> <td>V</td> <td>6.7</td> <td>10.6</td> <td>21.72</td> <td>30.0</td> <td>-8.3</td> <td></td> </tr> <tr> <td>3969.99</td> <td>17.87</td> <td>H</td> <td>6.7</td> <td>10.6</td> <td>21.82</td> <td>30.0</td> <td>-8.2</td> <td></td> </tr> </tbody> </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									3710.01	17.80	V	6.5	10.8	22.15	30.0	-7.9		3710.01	20.34	H	6.5	10.8	24.69	30.0	-5.3		Mid Ch									3840.00	19.54	V	6.6	10.6	23.62	30.0	-6.4		3840.00	20.22	H	6.6	10.6	24.30	30.0	-5.7		High Ch									3969.99	17.78	V	6.7	10.6	21.72	30.0	-8.3		3969.99	17.87	H	6.7	10.6	21.82	30.0	-8.2	
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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) Out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(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.

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) Sweep time = auto couple;
- d) Detector = rms;
- e) Ensure that the number of measurement points \geq span/RBW;
- f) Trace mode = average(FDD), Max hold(TDD);

NOTE

5G NR: All waveforms(CP-OFDM vs DFT-OFDM) were investigated to determine the worst case configuration. All mode of operation were investigated and the worst case configuration results are reported in tis section.

RESULTS

See the following pages.

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

9.6.1. SPURIOUS RADIATION PLOTS

WCDMA

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
		Company:	Samsung								
		Project #:	4789867826								
		Date:	2021-04-13								
		Test Engineer:	20882								
		Configuration:	EUT / AC Adapter, Y-Position								
		Location:	Chamber 2								
		Mode:	Rel99 Band 5 Harmonics								
		Test Voltage:	AC 120 V, 60 Hz								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes		
Band 5											
REL99											
Low Ch, 826.4MHz											
1652.80	-15.5	V	3.0	40.7	1.0	-55.2	-13.0	-42.2			
2479.20	-12.6	V	3.0	41.3	1.0	-52.9	-13.0	-39.9			
3305.60	-10.0	V	3.0	42.1	1.0	-51.1	-13.0	-38.1			
1652.80	-15.6	H	3.0	40.7	1.0	-55.3	-13.0	-42.3			
2479.20	-12.6	H	3.0	41.3	1.0	-52.9	-13.0	-39.9			
3305.60	-10.0	H	3.0	42.1	1.0	-51.1	-13.0	-38.1			
Mid Ch, 836.6MHz											
1673.20	-15.4	V	3.0	40.7	1.0	-55.1	-13.0	-42.1			
2509.80	-12.7	V	3.0	41.4	1.0	-53.1	-13.0	-40.1			
3346.40	-9.8	V	3.0	42.1	1.0	-50.8	-13.0	-37.8			
1673.20	-15.2	H	3.0	40.7	1.0	-54.9	-13.0	-41.9			
2509.80	-12.3	H	3.0	41.4	1.0	-52.7	-13.0	-39.7			
3346.40	-9.8	H	3.0	42.1	1.0	-50.8	-13.0	-37.8			
High Ch, 846.6MHz											
1693.20	-15.5	V	3.0	40.7	1.0	-55.2	-13.0	-42.2			
2539.80	-12.3	V	3.0	41.4	1.0	-52.7	-13.0	-39.7			
3386.40	-9.7	V	3.0	42.1	1.0	-50.8	-13.0	-37.8			
1693.20	-15.0	H	3.0	40.7	1.0	-54.7	-13.0	-41.7			
2539.80	-12.1	H	3.0	41.4	1.0	-52.5	-13.0	-39.5			
3386.40	-9.5	H	3.0	42.1	1.0	-50.6	-13.0	-37.6			
Band 5											
HSDPA											
Low Ch, 826.4MHz											
1652.80	-15.6	V	3.0	40.7	1.0	-55.3	-13.0	-42.3			
2479.20	-12.7	V	3.0	41.3	1.0	-53.0	-13.0	-40.0			
3305.60	-10.1	V	3.0	42.1	1.0	-51.1	-13.0	-38.1			
1652.80	-15.3	H	3.0	40.7	1.0	-55.0	-13.0	-42.0			
2479.20	-12.4	H	3.0	41.3	1.0	-52.7	-13.0	-39.7			
3305.60	-9.8	H	3.0	42.1	1.0	-50.8	-13.0	-37.8			
Mid Ch, 836.6MHz											
1673.20	-15.3	V	3.0	40.7	1.0	-55.0	-13.0	-42.0			
2509.80	-12.5	V	3.0	41.4	1.0	-52.9	-13.0	-39.9			
3346.40	-9.6	V	3.0	42.1	1.0	-50.6	-13.0	-37.6			
1673.20	-15.5	H	3.0	40.7	1.0	-55.1	-13.0	-42.1			
2509.80	-12.4	H	3.0	41.4	1.0	-52.8	-13.0	-39.8			
3346.40	-9.4	H	3.0	42.1	1.0	-50.5	-13.0	-37.5			
High Ch, 846.6MHz											
1693.20	-15.5	V	3.0	40.7	1.0	-55.2	-13.0	-42.2			
2539.80	-12.4	V	3.0	41.4	1.0	-52.8	-13.0	-39.8			
3386.40	-9.6	V	3.0	42.1	1.0	-50.7	-13.0	-37.7			
1693.20	-15.4	H	3.0	40.7	1.0	-55.1	-13.0	-42.1			
2539.80	-12.1	H	3.0	41.4	1.0	-52.5	-13.0	-39.5			
3386.40	-9.7	H	3.0	42.1	1.0	-50.8	-13.0	-37.8			

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
		Company:	Samsung								
		Project #:	4789867826								
		Date:	2021-04-13								
		Test Engineer:	20882								
		Configuration:	EUT / AC Adapter, X-Position								
		Location:	Chamber 2								
		Mode:	Rel99 Band 4 Harmonics								
		Test Voltage:	AC 120 V, 60 Hz								
Band 4	REL99	f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
		MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
		Low Ch, 1712.4MHz									
		3424.80	-9.6	V	3.0	42.1	1.0	-50.7	-13.0	-37.7	
		5137.20	-9.2	V	3.0	42.8	1.0	-51.0	-13.0	-38.0	
		6849.60	-6.5	V	3.0	42.7	1.0	-48.3	-13.0	-35.3	
		3424.80	-9.5	H	3.0	42.1	1.0	-50.6	-13.0	-37.6	
		5137.20	-8.8	H	3.0	42.8	1.0	-50.6	-13.0	-37.6	
		6849.60	-6.6	H	3.0	42.7	1.0	-48.3	-13.0	-35.3	
		Mid Ch, 1732.6MHz									
		3465.20	-9.2	V	3.0	42.1	1.0	-50.3	-13.0	-37.3	
		5197.80	-8.9	V	3.0	42.8	1.0	-50.7	-13.0	-37.7	
		6930.40	-6.5	V	3.0	42.7	1.0	-48.3	-13.0	-35.3	
		3465.20	-9.2	H	3.0	42.1	1.0	-50.3	-13.0	-37.3	
		5197.80	-8.6	H	3.0	42.8	1.0	-50.4	-13.0	-37.4	
		6930.40	-6.6	H	3.0	42.7	1.0	-48.3	-13.0	-35.3	
		High Ch, 1752.6MHz									
		3505.20	-8.8	V	3.0	42.1	1.0	-49.9	-13.0	-36.9	
		5257.80	-9.1	V	3.0	42.8	1.0	-50.9	-13.0	-37.9	
		7010.40	-6.2	V	3.0	42.7	1.0	-47.9	-13.0	-34.9	
		3505.20	-8.8	H	3.0	42.1	1.0	-49.9	-13.0	-36.9	
		5257.80	-8.6	H	3.0	42.8	1.0	-50.5	-13.0	-37.5	
		7010.40	-6.4	H	3.0	42.7	1.0	-48.1	-13.0	-35.1	
		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
		Company:	Samsung								
		Project #:	4789867826								
		Date:	2021-04-13								
		Test Engineer:	20882								
		Configuration:	EUT / AC Adapter, X-Position								
		Location:	Chamber 2								
		Mode:	HSDPA Band 4 Harmonics								
		Test Voltage:	AC 120 V, 60 Hz								
Band 4	HSDPA	f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
		MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
		Low Ch, 1712.4MHz									
		3424.80	-9.7	V	3.0	42.1	1.0	-50.8	-13.0	-37.8	
		5137.20	-9.3	V	3.0	42.8	1.0	-51.1	-13.0	-38.1	
		6849.60	-6.5	V	3.0	42.7	1.0	-48.3	-13.0	-35.3	
		3424.80	-9.7	H	3.0	42.1	1.0	-50.7	-13.0	-37.7	
		5137.20	-8.8	H	3.0	42.8	1.0	-50.6	-13.0	-37.6	
		6849.60	-6.5	H	3.0	42.7	1.0	-48.3	-13.0	-35.3	
		Mid Ch, 1732.6MHz									
		3465.20	-9.2	V	3.0	42.1	1.0	-50.3	-13.0	-37.3	
		5197.80	-8.8	V	3.0	42.8	1.0	-50.6	-13.0	-37.6	
		6930.40	-6.4	V	3.0	42.7	1.0	-48.1	-13.0	-35.1	
		3465.20	-9.1	H	3.0	42.1	1.0	-50.2	-13.0	-37.2	
		5197.80	-8.5	H	3.0	42.8	1.0	-50.4	-13.0	-37.4	
		6930.40	-6.6	H	3.0	42.7	1.0	-48.3	-13.0	-35.3	
		High Ch, 1752.6MHz									
		3505.20	-8.7	V	3.0	42.1	1.0	-49.8	-13.0	-36.8	
		5257.80	-8.7	V	3.0	42.8	1.0	-50.6	-13.0	-37.6	
		7010.40	-6.1	V	3.0	42.7	1.0	-47.8	-13.0	-34.8	
		3505.20	-8.7	H	3.0	42.1	1.0	-49.8	-13.0	-36.8	
		5257.80	-8.6	H	3.0	42.8	1.0	-50.5	-13.0	-37.5	
		7010.40	-6.2	H	3.0	42.7	1.0	-47.9	-13.0	-34.9	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4789867826							
Date:		2021-04-12							
Test Engineer:		20882							
Configuration:		EUT / AC Adapter, X-Position							
Location:		Chamber 2							
Mode:		Rel99 Band 2 Harmonics							
Test Voltage:		AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Band 2 REL99									
Low Ch, 1852.4MHz									
3704.80	-10.8	V	3.0	42.1	1.0	-51.9	-13.0	-38.9	
5557.20	-7.2	V	3.0	42.9	1.0	-49.1	-13.0	-36.1	
7409.60	-5.3	V	3.0	42.5	1.0	-46.8	-13.0	-33.8	
3704.80	-10.8	H	3.0	42.1	1.0	-51.9	-13.0	-38.9	
5557.20	-7.1	H	3.0	42.9	1.0	-49.0	-13.0	-36.0	
7409.60	-5.3	H	3.0	42.5	1.0	-46.8	-13.0	-33.8	
Mid Ch, 1880MHz									
3760.00	-10.5	V	3.0	42.1	1.0	-51.5	-13.0	-38.5	
5640.00	-7.0	V	3.0	42.9	1.0	-48.9	-13.0	-35.9	
7520.00	-5.5	V	3.0	42.4	1.0	-46.9	-13.0	-33.9	
3760.00	-10.2	H	3.0	42.1	1.0	-51.3	-13.0	-38.3	
5640.00	-6.6	H	3.0	42.9	1.0	-48.6	-13.0	-35.6	
7520.00	-5.6	H	3.0	42.4	1.0	-47.0	-13.0	-34.0	
High Ch, 1907.6MHz									
3815.20	-10.5	V	3.0	42.1	1.0	-51.6	-13.0	-38.6	
5722.80	-7.2	V	3.0	42.9	1.0	-49.2	-13.0	-36.2	
7630.40	-5.4	V	3.0	42.4	1.0	-46.8	-13.0	-33.8	
3815.20	-10.3	H	3.0	42.1	1.0	-51.4	-13.0	-38.4	
5722.80	-7.1	H	3.0	42.9	1.0	-49.1	-13.0	-36.1	
7630.40	-5.5	H	3.0	42.4	1.0	-46.9	-13.0	-33.9	
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Band 2 HSDPA									
Low Ch, 1852.4MHz									
3704.80	-10.8	V	3.0	42.1	1.0	-51.9	-13.0	-38.9	
5557.20	-7.3	V	3.0	42.9	1.0	-49.2	-13.0	-36.2	
7409.60	-5.5	V	3.0	42.5	1.0	-47.0	-13.0	-34.0	
3704.80	-10.8	H	3.0	42.1	1.0	-51.9	-13.0	-38.9	
5557.20	-7.1	H	3.0	42.9	1.0	-49.0	-13.0	-36.0	
7409.60	-5.4	H	3.0	42.5	1.0	-46.9	-13.0	-33.9	
Mid Ch, 1880MHz									
3760.00	-10.3	V	3.0	42.1	1.0	-51.4	-13.0	-38.4	
5640.00	-6.7	V	3.0	42.9	1.0	-48.7	-13.0	-35.7	
7520.00	-5.6	V	3.0	42.4	1.0	-47.0	-13.0	-34.0	
3760.00	-10.7	H	3.0	42.1	1.0	-51.8	-13.0	-38.8	
5640.00	-6.7	H	3.0	42.9	1.0	-48.6	-13.0	-35.6	
7520.00	-5.4	H	3.0	42.4	1.0	-46.9	-13.0	-33.9	
High Ch, 1907.6MHz									
3815.20	-10.6	V	3.0	42.1	1.0	-51.7	-13.0	-38.7	
5722.80	-7.2	V	3.0	42.9	1.0	-49.2	-13.0	-36.2	
7630.40	-5.5	V	3.0	42.4	1.0	-46.9	-13.0	-33.9	
3815.20	-10.6	H	3.0	42.1	1.0	-51.7	-13.0	-38.7	
5722.80	-7.0	H	3.0	42.9	1.0	-49.0	-13.0	-36.0	
7630.40	-5.6	H	3.0	42.4	1.0	-47.0	-13.0	-34.0	

LTE Band 7

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement								
		Company:	Samsung							
		Project #:	4789867826							
		Date:	2021-04-05							
		Test Engineer:	22943							
		Configuration:	EUT							
		Location:	Chamber 1							
		Mode:	LTE_QPSK Band 7 Harmonics, 5MHz Bandwidth							
		Test Votage:	AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
5MHz QPSK										
Low Ch, 2502.5MHz										
5005.00	-19.8	V	3.0	45.5	1.0	-64.3	-25.0	-39.3		
7507.50	-18.3	V	3.0	44.1	1.0	-61.4	-25.0	-36.4		
10010.00	-15.4	V	3.0	42.2	1.0	-56.7	-25.0	-31.7		
5005.00	-19.6	H	3.0	45.5	1.0	-64.0	-25.0	-39.0		
7507.50	-18.1	H	3.0	44.1	1.0	-61.2	-25.0	-36.2		
10010.00	-15.6	H	3.0	42.2	1.0	-56.9	-25.0	-31.9		
Mid Ch, 2535MHz										
5070.00	-19.6	V	3.0	45.5	1.0	-64.1	-25.0	-39.1		
7605.00	-18.1	V	3.0	44.1	1.0	-61.2	-25.0	-36.2		
10140.00	-15.2	V	3.0	42.3	1.0	-56.4	-25.0	-31.4		
5070.00	-19.3	H	3.0	45.5	1.0	-63.8	-25.0	-38.8		
7605.00	-18.1	H	3.0	44.1	1.0	-61.2	-25.0	-36.2		
10140.00	-15.4	H	3.0	42.3	1.0	-56.7	-25.0	-31.7		
High Ch, 2567.5MHz										
5135.00	-19.9	V	3.0	45.5	1.0	-64.3	-25.0	-39.3		
7702.50	-18.0	V	3.0	44.0	1.0	-61.0	-25.0	-36.0		
10270.00	-15.3	V	3.0	42.3	1.0	-56.6	-25.0	-31.6		
5135.00	-19.6	H	3.0	45.5	1.0	-64.1	-25.0	-39.1		
7702.50	-18.0	H	3.0	44.0	1.0	-61.0	-25.0	-36.0		
10270.00	-15.3	H	3.0	42.3	1.0	-56.6	-25.0	-31.6		

LTE Band 12

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement								
		Company:	Samsung							
		Project #:	4789867826							
		Date:	2021-04-07							
		Test Engineer:	22943							
		Configuration:	EUT, X-Position							
		Location:	Chamber 1							
		Mode:	LTE_QPSK Band 12 Harmonics, 10MHz Bandwidth							
		Test Votage:	AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
5MHz QPSK										
Low Ch, 704MHz										
1408.00	-15.4	V	3.0	45.5	1.0	-59.9	-13.0	-46.9		
2112.00	-11.3	V	3.0	45.0	1.0	-55.3	-13.0	-42.3		
2816.00	-10.1	V	3.0	45.2	1.0	-54.3	-13.0	-41.3		
1408.00	-16.8	H	3.0	45.5	1.0	-61.3	-13.0	-48.3		
2112.00	-13.1	H	3.0	45.0	1.0	-57.1	-13.0	-44.1		
2816.00	-10.3	H	3.0	45.2	1.0	-54.5	-13.0	-41.5		
Mid Ch, 707.5MHz										
1415.00	-15.3	V	3.0	45.5	1.0	-59.8	-13.0	-46.8		
2122.50	-11.6	V	3.0	45.0	1.0	-55.6	-13.0	-42.6		
2830.00	-10.2	V	3.0	45.2	1.0	-54.3	-13.0	-41.3		
1415.00	-16.9	H	3.0	45.5	1.0	-61.4	-13.0	-48.4		
2122.50	-12.9	H	3.0	45.0	1.0	-56.9	-13.0	-43.9		
2830.00	-10.5	H	3.0	45.2	1.0	-54.7	-13.0	-41.7		
High Ch, 711MHz										
1422.00	-15.3	V	3.0	45.5	1.0	-59.7	-13.0	-46.7		
2133.00	-11.5	V	3.0	45.0	1.0	-55.5	-13.0	-42.5		
2844.00	-10.2	V	3.0	45.2	1.0	-54.4	-13.0	-41.4		
1422.00	-16.6	H	3.0	45.5	1.0	-61.1	-13.0	-48.1		
2133.00	-13.0	H	3.0	45.0	1.0	-57.0	-13.0	-44.0		
2844.00	-10.3	H	3.0	45.2	1.0	-54.5	-13.0	-41.5		

LTE Band 13

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
		Company:	Samsung							
		Project #:	4789867826							
		Date:	2021-04-14							
		Test Engineer:	20882							
		Configuration:	EUT, X-Position							
		Location:	Chamber 2							
		Mode:	LTE_QPSK Band 13 Harmonics, 5MHz Bandwidth							
		Test Voltage:	AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
5MHz QPSK										
Low Ch, 779.5MHz										
1559.00	-28.2	V	3.0	40.7	1.0	-67.9	-40.0	-27.9		
2338.50	-12.6	V	3.0	41.1	1.0	-52.7	-13.0	-39.7		
3118.00	-9.7	V	3.0	42.1	1.0	-50.8	-13.0	-37.8		
1559.00	-24.0	H	3.0	40.7	1.0	-63.7	-40.0	-23.7		
2338.50	-12.5	H	3.0	41.1	1.0	-52.6	-13.0	-39.6		
3118.00	-9.8	H	3.0	42.1	1.0	-50.8	-13.0	-37.8		
Mid Ch, 782MHz										
1564.00	-26.4	V	3.0	40.7	1.0	-66.1	-40.0	-26.1		
2346.00	-12.8	V	3.0	41.1	1.0	-52.9	-13.0	-39.9		
3128.00	-9.8	V	3.0	42.1	1.0	-50.8	-13.0	-37.8		
1564.00	-23.8	H	3.0	40.7	1.0	-63.5	-40.0	-23.5		
2346.00	-12.3	H	3.0	41.1	1.0	-52.4	-13.0	-39.4		
3128.00	-9.8	H	3.0	42.1	1.0	-50.9	-13.0	-37.9		
High Ch, 784.5MHz										
1569.00	-26.3	V	3.0	40.7	1.0	-66.0	-40.0	-26.0		
2353.50	-12.4	V	3.0	41.1	1.0	-52.5	-13.0	-39.5		
3138.00	-9.7	V	3.0	42.1	1.0	-50.8	-13.0	-37.8		
1569.00	-24.0	H	3.0	40.7	1.0	-63.7	-40.0	-23.7		
2353.50	-12.3	H	3.0	41.1	1.0	-52.4	-13.0	-39.4		
3138.00	-9.8	H	3.0	42.1	1.0	-50.8	-13.0	-37.8		

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

LTE Band 14

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement								
		Company:	Samsung							
		Project #:	4789867826							
		Date:	2021-04-14							
		Test Engineer:	20881							
		Configuration:	EUT / AC Adapter, X-Position							
		Location:	Chamber 2							
		Mode:	LTE_QPSK Band 14 Harmonics, 5MHz Bandwidth							
		Test Voltage:	AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Ch, 790.5MHz										
5MHz	1581.00	-30.2	V	3.0	40.7	1.0	-69.9	-40.0	-29.9	
QPSK	2371.50	-13.1	V	3.0	41.2	1.0	-53.3	-13.0	-40.3	
	3162.00	-10.2	V	3.0	42.1	1.0	-51.3	-13.0	-38.3	
	1581.00	-28.6	H	3.0	40.7	1.0	-68.3	-40.0	-28.3	
	2371.50	-12.8	H	3.0	41.2	1.0	-52.9	-13.0	-39.9	
	3162.00	-10.1	H	3.0	42.1	1.0	-51.2	-13.0	-38.2	
Mid Ch, 793MHz										
	1586.00	-29.4	V	3.0	40.7	1.0	-69.1	-40.0	-29.1	
	2379.00	-13.1	V	3.0	41.2	1.0	-53.3	-13.0	-40.3	
	3172.00	-10.2	V	3.0	42.1	1.0	-51.3	-13.0	-38.3	
	1586.00	-26.8	H	3.0	40.7	1.0	-66.5	-40.0	-26.5	
	2379.00	-12.8	H	3.0	41.2	1.0	-53.0	-13.0	-40.0	
	3172.00	-10.1	H	3.0	42.1	1.0	-51.2	-13.0	-38.2	
High Ch, 795.5MHz										
	1591.00	-29.7	V	3.0	40.7	1.0	-69.5	-40.0	-29.5	
	2386.50	-13.2	V	3.0	41.2	1.0	-53.4	-13.0	-40.4	
	3182.00	-10.2	V	3.0	42.1	1.0	-51.3	-13.0	-38.3	
	1591.00	-26.9	H	3.0	40.7	1.0	-66.6	-40.0	-26.6	
	2386.50	-12.8	H	3.0	41.2	1.0	-53.0	-13.0	-40.0	
	3182.00	-10.2	H	3.0	42.1	1.0	-51.2	-13.0	-38.2	

LTE Band 25

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement								
		Company:	Samsung							
		Project #:	4789867826							
		Date:	2021-04-08							
		Test Engineer:	22943							
		Configuration:	EUT / AC Adapter, Z-Position							
		Location:	Chamber 1							
		Mode:	LTE_QPSK Band 25 Harmonics, 5MHz Bandwidth							
		Test Voltage:	AC 120 V, 60 Hz							
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										
5MHz	3705.00	-11.5	V	3.0	45.5	1.0	-56.0	-13.0	-43.0	
QPSK	5557.50	-9.1	V	3.0	45.4	1.0	-53.5	-13.0	-40.5	
	7410.00	-6.3	V	3.0	44.2	1.0	-49.5	-13.0	-36.5	
	3705.00	-11.0	H	3.0	45.5	1.0	-55.4	-13.0	-42.4	
	5557.50	-8.9	H	3.0	45.4	1.0	-53.3	-13.0	-40.3	
	7410.00	-6.0	H	3.0	44.2	1.0	-49.2	-13.0	-36.2	
Mid Ch, 1882.5MHz										
	3765.00	-11.4	V	3.0	45.5	1.0	-55.9	-13.0	-42.9	
	5647.50	-8.9	V	3.0	45.4	1.0	-53.3	-13.0	-40.3	
	7530.00	-6.4	V	3.0	44.1	1.0	-49.5	-13.0	-36.5	
	3765.00	-11.0	H	3.0	45.5	1.0	-55.5	-13.0	-42.5	
	5647.50	-8.8	H	3.0	45.4	1.0	-53.2	-13.0	-40.2	
	7530.00	-6.3	H	3.0	44.1	1.0	-49.4	-13.0	-36.4	
High Ch, 1912.5MHz										
	3825.00	-12.2	V	3.0	45.5	1.0	-56.7	-13.0	-43.7	
	5737.50	-8.9	V	3.0	45.4	1.0	-53.3	-13.0	-40.3	
	7650.00	-6.1	V	3.0	44.1	1.0	-49.2	-13.0	-36.2	
	3825.00	-10.3	H	3.0	45.5	1.0	-54.8	-13.0	-41.8	
	5737.50	-8.8	H	3.0	45.4	1.0	-53.2	-13.0	-40.2	
	7650.00	-5.9	H	3.0	44.1	1.0	-49.0	-13.0	-36.0	

LTE Band 26 (Part 90)

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
1.4MHz QPSK		Company: Samsung Project #: 4789867826 Date: 2021-04-14 Test Engineer: 20882 Configuration: EUT / AC Adapter, X-Position Location: Chamber 2 Mode: LTE_QPSK Band 26 Harmonics, 1.4MHz Bandwidth Test Voltage: AC 120 V, 60 Hz										
		f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
		Low Ch, 814.7MHz										
		1629.40	-15.3	V	3.0	40.7	1.0	-55.0	-13.0	-42.0		
		2444.10	-12.5	V	3.0	41.3	1.0	-52.7	-13.0	-39.7		
		3258.80	-9.9	V	3.0	42.1	1.0	-51.0	-13.0	-38.0		
		1629.40	-15.6	H	3.0	40.7	1.0	-55.3	-13.0	-42.3		
		2444.10	-12.2	H	3.0	41.3	1.0	-52.5	-13.0	-39.5		
		3258.80	-9.8	H	3.0	42.1	1.0	-50.8	-13.0	-37.8		
		Mid Ch, 823.3MHz										
1646.60	-15.8	V	3.0	40.7	1.0	-55.4	-13.0	-42.4				
2469.90	-12.8	V	3.0	41.3	1.0	-53.1	-13.0	-40.1				
3293.20	-9.9	V	3.0	42.1	1.0	-50.9	-13.0	-37.9				
1646.60	-15.5	H	3.0	40.7	1.0	-55.2	-13.0	-42.2				
2469.90	-12.3	H	3.0	41.3	1.0	-52.6	-13.0	-39.6				
3293.20	-9.9	H	3.0	42.1	1.0	-51.0	-13.0	-38.0				

LTE Band 26 (Straddle)

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
5MHz QPSK		Company: Samsung Project #: 4789867826 Date: 2021-04-14 Test Engineer: 20882 Configuration: EUT / AC Adapter, X-Position Location: Chamber 2 Mode: LTE_QPSK Band 26 Harmonics, 5MHz Bandwidth Test Voltage: AC 120 V, 60 Hz										
		f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
		Straddle Ch, 824MHz										
		1648.00	-15.5	V	3.0	40.7	1.0	-55.2	-13.0	-42.2		
		2472.00	-12.5	V	3.0	41.3	1.0	-52.8	-13.0	-39.8		
		3296.00	-10.0	V	3.0	42.1	1.0	-51.1	-13.0	-38.1		
		1648.00	-15.5	H	3.0	40.7	1.0	-55.2	-13.0	-42.2		
		2472.00	-12.1	H	3.0	41.3	1.0	-52.4	-13.0	-39.4		
		3296.00	-10.0	H	3.0	42.1	1.0	-51.0	-13.0	-38.0		

LTE Band 26 (Part 22)

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4789867826							
Date:		2021-04-14							
Test Engineer:		20882							
Configuration:		EUT / AC Adpater, X-Position							
Location:		Chamber 2							
Mode:		LTE_QPSK Band 26 Harmonics, 5MHz Bandwidth							
Test Votage:		AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
5MHz QPSK									
Low Ch, 826.5MHz									
1653.00	-15.5	V	3.0	40.7	1.0	-55.2	-13.0	-42.2	
2479.50	-12.6	V	3.0	41.3	1.0	-52.9	-13.0	-39.9	
3306.00	-9.2	V	3.0	42.1	1.0	-50.3	-13.0	-37.3	
1653.00	-15.3	H	3.0	40.7	1.0	-55.0	-13.0	-42.0	
2479.50	-12.4	H	3.0	41.3	1.0	-52.7	-13.0	-39.7	
3306.00	-9.9	H	3.0	42.1	1.0	-51.0	-13.0	-38.0	
Mid Ch, 831.5MHz									
1663.00	-15.8	V	3.0	40.7	1.0	-55.4	-13.0	-42.4	
2494.50	-12.5	V	3.0	41.3	1.0	-52.8	-13.0	-39.8	
3326.00	-9.9	V	3.0	42.1	1.0	-50.9	-13.0	-37.9	
1663.00	-15.4	H	3.0	40.7	1.0	-55.1	-13.0	-42.1	
2494.50	-12.4	H	3.0	41.3	1.0	-52.7	-13.0	-39.7	
3326.00	-10.0	H	3.0	42.1	1.0	-51.1	-13.0	-38.1	
High Ch, 846.5MHz									
1693.00	-15.5	V	3.0	40.7	1.0	-55.2	-13.0	-42.2	
2539.50	-12.6	V	3.0	41.4	1.0	-53.0	-13.0	-40.0	
3386.00	-9.4	V	3.0	42.1	1.0	-50.5	-13.0	-37.5	
1693.00	-15.3	H	3.0	40.7	1.0	-55.0	-13.0	-42.0	
2539.50	-11.7	H	3.0	41.4	1.0	-52.1	-13.0	-39.1	
3386.00	-9.7	H	3.0	42.1	1.0	-50.7	-13.0	-37.7	

LTE Band 30

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4789867826							
Date:		2021-04-22							
Test Engineer:		20882							
Configuration:		EUT / AC Adapter, Z-Position							
Location:		Chamber 2							
Mode:		LTE_QPSK Band 30 Harmonics, 5MHz Bandwidth							
Test Votage:		AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
5MHz QPSK									
Low Ch, 2307.5MHz									
4615.00	-23.5	V	3.0	42.5	1.0	-65.1	-40.0	-25.1	
6922.50	-20.7	V	3.0	42.7	1.0	-62.4	-40.0	-22.4	
9230.00	-23.6	V	3.0	41.6	1.0	-64.2	-40.0	-24.2	
4615.00	-19.6	H	3.0	42.5	1.0	-61.1	-40.0	-21.1	
6922.50	-23.9	H	3.0	42.7	1.0	-65.6	-40.0	-25.6	
9230.00	-23.3	H	3.0	41.6	1.0	-63.9	-40.0	-23.9	
Mid Ch, 2310MHz									
4620.00	-23.2	V	3.0	42.5	1.0	-64.7	-40.0	-24.7	
6930.00	-24.1	V	3.0	42.7	1.0	-65.9	-40.0	-25.9	
9240.00	-23.5	V	3.0	41.6	1.0	-64.1	-40.0	-24.1	
4620.00	-18.6	H	3.0	42.5	1.0	-60.2	-40.0	-20.2	
6930.00	-24.2	H	3.0	42.7	1.0	-65.9	-40.0	-25.9	
9240.00	-23.4	H	3.0	41.6	1.0	-64.0	-40.0	-24.0	
High Ch, 2312.5MHz									
4625.00	-23.1	V	3.0	42.5	1.0	-64.6	-40.0	-24.6	
6937.50	-24.0	V	3.0	42.7	1.0	-65.8	-40.0	-25.8	
9250.00	-23.8	V	3.0	41.6	1.0	-64.4	-40.0	-24.4	
4625.00	-20.3	H	3.0	42.5	1.0	-61.8	-40.0	-21.8	
6937.50	-18.8	H	3.0	42.7	1.0	-60.5	-40.0	-20.5	
9250.00	-23.8	H	3.0	41.6	1.0	-64.4	-40.0	-24.4	

LTE Band 41(PC2)

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4789867826							
Date:		2021-04-28							
Test Engineer:		19227							
Configuration:		EUT / Laptop mode							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 41 Harmonics, 5MHz Bandwidth							
Test Voltage:									
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
5MHz QPSK									
Low Ch, 2498.5MHz									
4997.00	-9.8	V	3.0	45.5	1.0	-54.2	-25.0	-29.2	
7495.50	-17.9	V	3.0	44.2	1.0	-61.1	-25.0	-36.1	
9994.00	-15.8	V	3.0	42.2	1.0	-57.0	-25.0	-32.0	
4997.00	-12.1	H	3.0	45.5	1.0	-56.5	-25.0	-31.5	
7495.50	-16.2	H	3.0	44.2	1.0	-59.3	-25.0	-34.3	
9994.00	-16.3	H	3.0	42.2	1.0	-57.6	-25.0	-32.6	
Mid Ch, 2593MHz									
5186.00	-12.7	V	3.0	45.4	1.0	-57.2	-25.0	-32.2	
7779.00	-19.3	V	3.0	44.0	1.0	-62.3	-25.0	-37.3	
10372.00	-16.3	V	3.0	42.4	1.0	-57.6	-25.0	-32.6	
5186.00	-14.9	H	3.0	45.4	1.0	-59.3	-25.0	-34.3	
7779.00	-19.7	H	3.0	44.0	1.0	-62.7	-25.0	-37.7	
10372.00	-16.3	H	3.0	42.4	1.0	-57.7	-25.0	-32.7	
High Ch, 2687.5MHz									
5375.00	-9.7	V	3.0	45.4	1.0	-54.1	-25.0	-29.1	
8062.50	-17.3	V	3.0	43.8	1.0	-60.1	-25.0	-35.1	
10750.00	-16.5	V	3.0	42.5	1.0	-58.0	-25.0	-33.0	
5375.00	-15.0	H	3.0	45.4	1.0	-59.4	-25.0	-34.4	
8062.50	-17.0	H	3.0	43.8	1.0	-59.8	-25.0	-34.8	
10750.00	-16.4	H	3.0	42.5	1.0	-57.9	-25.0	-32.9	

LTE Band 66

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4789867826							
Date:		2021-04-08							
Test Engineer:		22943							
Configuration:		EUT / AC Adapter, X-Position							
Location:		Chamber 2							
Mode:		LTE_QPSK Band 66 Harmonics, 1.4MHz Bandwidth							
Test Voltage:		AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
1.4MHz QPSK									
Low Ch, 1710.7MHz									
3421.40	-11.6	V	3.0	42.1	1.0	-52.7	-13.0	-39.7	
5132.10	-10.6	V	3.0	42.8	1.0	-52.4	-13.0	-39.4	
6842.80	-8.2	V	3.0	42.7	1.0	-49.9	-13.0	-36.9	
3421.40	-11.5	H	3.0	42.1	1.0	-52.6	-13.0	-39.6	
5132.10	-10.3	H	3.0	42.8	1.0	-52.1	-13.0	-39.1	
6842.80	-8.2	H	3.0	42.7	1.0	-49.9	-13.0	-36.9	
Mid Ch, 1745MHz									
3490.00	-10.8	V	3.0	42.1	1.0	-51.9	-13.0	-38.9	
5235.00	-10.5	V	3.0	42.8	1.0	-52.3	-13.0	-39.3	
6980.00	-8.0	V	3.0	42.7	1.0	-49.7	-13.0	-36.7	
3490.00	-11.0	H	3.0	42.1	1.0	-52.1	-13.0	-39.1	
5235.00	-10.1	H	3.0	42.8	1.0	-52.0	-13.0	-39.0	
6980.00	-8.0	H	3.0	42.7	1.0	-49.7	-13.0	-36.7	
High Ch, 1779.3MHz									
3558.60	-10.5	V	3.0	42.1	1.0	-51.6	-13.0	-38.6	
5337.90	-10.0	V	3.0	42.9	1.0	-51.8	-13.0	-38.8	
7117.20	-7.7	V	3.0	42.6	1.0	-49.3	-13.0	-36.3	
3558.60	-10.4	H	3.0	42.1	1.0	-51.4	-13.0	-38.4	
5337.90	-9.7	H	3.0	42.9	1.0	-51.5	-13.0	-38.5	
7117.20	-7.9	H	3.0	42.6	1.0	-49.5	-13.0	-36.5	

LTE Band 71

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
		Company:	Samsung							
		Project #:	4789867826							
		Date:	2021-04-12							
		Test Engineer:	20882							
		Configuration:	EUT / AC Adapter, Y-Position							
		Location:	Chamber 2							
		Mode:	LTE_QPSK Band 71 Harmonics, 5MHz Bandwidth							
		Test Voltage:	AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
5MHz QPSK										
Low Ch, 665.5MHz										
1331.00	-17.2	V	3.0	40.8	1.0	-57.0	-13.0	-44.0		
1996.50	-14.6	V	3.0	40.6	1.0	-54.2	-13.0	-41.2		
2662.00	-12.3	V	3.0	41.6	1.0	-52.9	-13.0	-39.9		
1331.00	-17.6	H	3.0	40.8	1.0	-57.3	-13.0	-44.3		
1996.50	-14.0	H	3.0	40.6	1.0	-53.6	-13.0	-40.6		
2662.00	-11.9	H	3.0	41.6	1.0	-52.5	-13.0	-39.5		
Mid Ch, 680.5MHz										
1361.00	-17.0	V	3.0	40.7	1.0	-56.7	-13.0	-43.7		
2041.50	-14.5	V	3.0	40.7	1.0	-54.2	-13.0	-41.2		
2722.00	-12.0	V	3.0	41.7	1.0	-52.6	-13.0	-39.6		
1361.00	-17.4	H	3.0	40.7	1.0	-57.2	-13.0	-44.2		
2041.50	-14.3	H	3.0	40.7	1.0	-54.0	-13.0	-41.0		
2722.00	-11.8	H	3.0	41.7	1.0	-52.5	-13.0	-39.5		
High Ch, 695.5MHz										
1391.00	-16.7	V	3.0	40.7	1.0	-56.4	-13.0	-43.4		
2086.50	-14.3	V	3.0	40.8	1.0	-54.1	-13.0	-41.1		
2782.00	-11.6	V	3.0	41.7	1.0	-52.4	-13.0	-39.4		
1391.00	-17.1	H	3.0	40.7	1.0	-56.8	-13.0	-43.8		
2086.50	-13.5	H	3.0	40.8	1.0	-53.2	-13.0	-40.2		
2782.00	-11.4	H	3.0	41.7	1.0	-52.1	-13.0	-39.1		

LTE Band 2

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

LTE Band 4

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

LTE Band 5

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

LTE Band 17

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

LTE Band41(PC3)

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

NR Band 5

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement											
15MHz DFT-s QPSK		Company: Samsung Project #: 4789867826 Date: 2021-04-26 Test Engineer: 22943 Configuration: EUT , Y-Position Location: Chamber 1 Mode: LTE_QPSK NR n5 Harmonics, 15MHz Bandwidth Test Votage: AC 120 V, 60 Hz									
		f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
		MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
		Low Ch, 831.5MHz									
		1663.00	-13.4	V	3.0	45.3	1.0	-57.7	-13.0	-44.7	
		2494.50	-11.0	V	3.0	45.1	1.0	-55.1	-13.0	-42.1	
		3326.00	-9.5	V	3.0	45.3	1.0	-53.9	-13.0	-40.9	
		1663.00	-15.1	H	3.0	45.3	1.0	-59.3	-13.0	-46.3	
		2494.50	-11.8	H	3.0	45.1	1.0	-55.9	-13.0	-42.9	
		3326.00	-9.4	H	3.0	45.3	1.0	-53.7	-13.0	-40.7	
Mid Ch, 836.5MHz											
1673.00	-13.1	V	3.0	45.3	1.0	-57.3	-13.0	-44.3			
2509.50	-10.9	V	3.0	45.1	1.0	-55.0	-13.0	-42.0			
3346.00	-9.4	V	3.0	45.3	1.0	-53.7	-13.0	-40.7			
1673.00	-14.9	H	3.0	45.3	1.0	-59.2	-13.0	-46.2			
2509.50	-11.7	H	3.0	45.1	1.0	-55.8	-13.0	-42.8			
3346.00	-9.2	H	3.0	45.3	1.0	-53.6	-13.0	-40.6			
High Ch, 841.5MHz											
1683.00	-12.6	V	3.0	45.2	1.0	-56.8	-13.0	-43.8			
2524.50	-11.0	V	3.0	45.1	1.0	-55.1	-13.0	-42.1			
3366.00	-9.3	V	3.0	45.3	1.0	-53.7	-13.0	-40.7			
1683.00	-14.9	H	3.0	45.2	1.0	-59.2	-13.0	-46.2			
2524.50	-11.7	H	3.0	45.1	1.0	-55.8	-13.0	-42.8			
3366.00	-9.1	H	3.0	45.3	1.0	-53.5	-13.0	-40.5			

NR Band 25

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement											
5MHz DFT-s QPSK		Company: Samsung Project #: 4789867826 Date: 2021-05-11 Test Engineer: 20882 Configuration: EUT / AC Adapter, Z-Position Location: Chamber 1 Mode: LTE_QPSK NR n25 Harmonics, 5MHz Bandwidth Test Votage: AC 120 V, 60 Hz									
		f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
		MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
		Low Ch, 1852.5MHz									
		3705.00	-11.2	V	3.0	45.5	1.0	-55.7	-13.0	-42.7	
		5557.50	-8.8	V	3.0	45.4	1.0	-53.2	-13.0	-40.2	
		7410.00	-6.1	V	3.0	44.2	1.0	-49.3	-13.0	-36.3	
		3705.00	-10.9	H	3.0	45.5	1.0	-55.3	-13.0	-42.3	
		5557.50	-8.6	H	3.0	45.4	1.0	-53.0	-13.0	-40.0	
		7410.00	-5.9	H	3.0	44.2	1.0	-49.1	-13.0	-36.1	
Mid Ch, 1882.5MHz											
3765.00	-11.3	V	3.0	45.5	1.0	-55.8	-13.0	-42.8			
5647.50	-8.5	V	3.0	45.4	1.0	-52.9	-13.0	-39.9			
7530.00	-5.8	V	3.0	44.1	1.0	-48.9	-13.0	-35.9			
3765.00	-11.1	H	3.0	45.5	1.0	-55.6	-13.0	-42.6			
5647.50	-8.7	H	3.0	45.4	1.0	-53.0	-13.0	-40.0			
7530.00	-5.9	H	3.0	44.1	1.0	-49.0	-13.0	-36.0			
High Ch, 1912.5MHz											
3825.00	-11.2	V	3.0	45.5	1.0	-55.7	-13.0	-42.7			
5737.50	-8.7	V	3.0	45.4	1.0	-53.0	-13.0	-40.0			
7650.00	-5.9	V	3.0	44.1	1.0	-49.0	-13.0	-36.0			
3825.00	-10.8	H	3.0	45.5	1.0	-55.3	-13.0	-42.3			
5737.50	-8.5	H	3.0	45.4	1.0	-52.9	-13.0	-39.9			
7650.00	-5.8	H	3.0	44.1	1.0	-48.8	-13.0	-35.8			

NR Band 41

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
40MHz DFT-s QPSK		Company: Samsung Project #: 4789867826 Date: 2021-05-20 Test Engineer: 20881 Configuration: EUT / AC Adapter, X-Position Location: Chamber 1 Mode: NR_QPSK n41 Harmonics, 40MHz Bandwidth Test Votage: AC 120 V, 60 Hz										
		f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
		Low Ch, 2516.01MHz										
		5032.02	-8.2	V	3.0	45.5	1.0	-52.7	-25.0	-27.7		
		7548.03	-7.1	V	3.0	44.1	1.0	-50.3	-25.0	-25.3		
		10064.04	-3.3	V	3.0	42.3	1.0	-44.6	-25.0	-19.6		
		5032.02	-7.9	H	3.0	45.5	1.0	-52.3	-25.0	-27.3		
		7548.03	-6.6	H	3.0	44.1	1.0	-49.7	-25.0	-24.7		
		10064.04	-4.0	H	3.0	42.3	1.0	-45.3	-25.0	-20.3		
		Mid Ch, 2592.99MHz										
5185.98	-7.5	V	3.0	45.4	1.0	-51.9	-25.0	-26.9				
7778.97	-6.5	V	3.0	44.0	1.0	-49.5	-25.0	-24.5				
10371.96	-3.3	V	3.0	42.4	1.0	-44.6	-25.0	-19.6				
5185.98	-7.6	H	3.0	45.4	1.0	-52.0	-25.0	-27.0				
7778.97	-5.9	H	3.0	44.0	1.0	-48.9	-25.0	-23.9				
10371.96	-3.6	H	3.0	42.4	1.0	-45.0	-25.0	-20.0				
High Ch, 2670MHz												
5340.00	-7.8	V	3.0	45.4	1.0	-52.3	-25.0	-27.3				
8010.00	-7.0	V	3.0	43.9	1.0	-49.9	-25.0	-24.9				
10680.00	-3.5	V	3.0	42.5	1.0	-44.9	-25.0	-19.9				
5340.00	-7.1	H	3.0	45.4	1.0	-51.5	-25.0	-26.5				
8010.00	-7.1	H	3.0	43.9	1.0	-49.9	-25.0	-24.9				
10680.00	-3.5	H	3.0	42.5	1.0	-45.0	-25.0	-20.0				

NR Band 66

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
15MHz DFT-s QPSK		Company: Samsung Project #: 4789867826 Date: 2021-05-11 Test Engineer: 20882 Configuration: EUT / AC Adapter, Z-Position Location: Chamber 1 Mode: LTE_QPSK NR n66 Harmonics, 15MHz Bandwidth Test Votage: AC 120 V, 60 Hz										
		f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
		Low Ch, 1717.5MHz										
		3435.00	-8.8	V	3.0	45.4	1.0	-53.1	-13.0	-40.1		
		5152.50	-9.4	V	3.0	45.5	1.0	-53.9	-13.0	-40.9		
		6870.00	-6.5	V	3.0	44.5	1.0	-50.0	-13.0	-37.0		
		3435.00	-8.7	H	3.0	45.4	1.0	-53.1	-13.0	-40.1		
		5152.50	-8.9	H	3.0	45.5	1.0	-53.4	-13.0	-40.4		
		6870.00	-6.3	H	3.0	44.5	1.0	-49.8	-13.0	-36.8		
		Mid Ch, 1745MHz										
3490.00	-8.7	V	3.0	45.4	1.0	-53.0	-13.0	-40.0				
5235.00	-9.3	V	3.0	45.4	1.0	-53.7	-13.0	-40.7				
6980.00	-6.5	V	3.0	44.4	1.0	-49.9	-13.0	-36.9				
3490.00	-8.2	H	3.0	45.4	1.0	-52.6	-13.0	-39.6				
5235.00	-8.7	H	3.0	45.4	1.0	-53.2	-13.0	-40.2				
6980.00	-6.1	H	3.0	44.4	1.0	-49.5	-13.0	-36.5				
High Ch, 1772.5MHz												
3545.00	-8.2	V	3.0	45.4	1.0	-52.6	-13.0	-39.6				
5317.50	-8.9	V	3.0	45.4	1.0	-53.4	-13.0	-40.4				
7090.00	-6.1	V	3.0	44.4	1.0	-49.4	-13.0	-36.4				
3545.00	-7.9	H	3.0	45.4	1.0	-52.3	-13.0	-39.3				
5317.50	-8.8	H	3.0	45.4	1.0	-53.2	-13.0	-40.2				
7090.00	-5.9	H	3.0	44.4	1.0	-49.2	-13.0	-36.2				

NR Band 71

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement											
5MHz DFT-s QPSK		Company:	Samsung								
		Project #:	4789867826								
		Date:	2021-05-26								
		Test Engineer:	19568								
		Configuration:	EUT / AC Adapter, X-Position								
		Location:	Chamber 1								
		Mode:	LTE_QPSK NR_n71 Harmonics, 5MHz Bandwidth								
		Test Voltage:	AC 120 V, 60 Hz								
		f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
		MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
Low Ch, 665.5MHz											
1331.00	-15.9	V	3.0	45.5	1.0	-60.4	-13.0	-47.4			
1996.50	-12.1	V	3.0	45.0	1.0	-56.1	-13.0	-43.1			
2662.00	-10.7	V	3.0	45.1	1.0	-54.8	-13.0	-41.8			
1331.00	-16.8	H	3.0	45.5	1.0	-61.3	-13.0	-48.3			
1996.50	-13.5	H	3.0	45.0	1.0	-57.5	-13.0	-44.5			
2662.00	-11.1	H	3.0	45.1	1.0	-55.2	-13.0	-42.2			
Mid Ch, 680.5MHz											
1361.00	-15.7	V	3.0	45.5	1.0	-60.2	-13.0	-47.2			
2041.50	-11.7	V	3.0	45.0	1.0	-55.7	-13.0	-42.7			
2722.00	-10.2	V	3.0	45.1	1.0	-54.4	-13.0	-41.4			
1361.00	-15.8	H	3.0	45.5	1.0	-60.3	-13.0	-47.3			
2041.50	-13.4	H	3.0	45.0	1.0	-57.4	-13.0	-44.4			
2722.00	-10.8	H	3.0	45.1	1.0	-55.0	-13.0	-42.0			
High Ch, 695.5MHz											
1391.00	-15.2	V	3.0	45.5	1.0	-59.7	-13.0	-46.7			
2086.50	-11.4	V	3.0	45.0	1.0	-55.4	-13.0	-42.4			
2782.00	-10.1	V	3.0	45.2	1.0	-54.3	-13.0	-41.3			
1391.00	-17.0	H	3.0	45.5	1.0	-61.4	-13.0	-48.4			
2086.50	-13.1	H	3.0	45.0	1.0	-57.1	-13.0	-44.1			
2782.00	-10.4	H	3.0	45.2	1.0	-54.6	-13.0	-41.6			

NR Band 77(Lower)

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement											
20MHz DFT-s QPSK		Company:	Samsung								
		Project #:	4789867826								
		Date:	2021-05-25								
		Test Engineer:	20881								
		Configuration:	EUT / AC Adapter, X-Position								
		Location:	Chamber 1								
		Mode:	NR_QPSK n77 Harmonics, 20MHz Bandwidth								
		Test Voltage:	AC 120 V, 60 Hz								
		f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
		MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
Low Ch, 3460.02MHz											
6920.04	-3.8	V	3.0	44.5	1.0	-47.3	-13.0	-34.3			
10380.06	0.4	V	3.0	42.4	1.0	-41.0	-13.0	-28.0			
13840.08	4.5	V	3.0	44.4	1.0	-38.9	-13.0	-25.9			
6920.04	-3.8	H	3.0	44.5	1.0	-47.3	-13.0	-34.3			
10380.06	0.3	H	3.0	42.4	1.0	-41.0	-13.0	-28.0			
13840.08	4.6	H	3.0	44.4	1.0	-38.8	-13.0	-25.8			
Mid Ch, 3499.98MHz											
6999.96	-4.2	V	3.0	44.4	1.0	-47.7	-13.0	-34.7			
10499.94	0.5	V	3.0	42.4	1.0	-40.9	-13.0	-27.9			
13999.92	4.6	V	3.0	44.5	1.0	-38.9	-13.0	-25.9			
6999.96	-4.1	H	3.0	44.4	1.0	-47.5	-13.0	-34.5			
10499.94	0.4	H	3.0	42.4	1.0	-41.0	-13.0	-28.0			
13999.92	4.6	H	3.0	44.5	1.0	-38.9	-13.0	-25.9			
High Ch, 3540MHz											
7080.00	-3.8	V	3.0	44.4	1.0	-47.2	-13.0	-34.2			
10620.00	0.8	V	3.0	42.4	1.0	-40.7	-13.0	-27.7			
14160.00	5.1	V	3.0	44.7	1.0	-38.6	-13.0	-25.6			
7080.00	-3.7	H	3.0	44.4	1.0	-47.0	-13.0	-34.0			
10620.00	1.0	H	3.0	42.4	1.0	-40.4	-13.0	-27.4			
14160.00	5.1	H	3.0	44.7	1.0	-38.6	-13.0	-25.6			

NR Band 77(Upper)

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4789867826							
Date:		2021-05-25							
Test Engineer:		20881							
Configuration:		EUT / AC Adapter, X-Position							
Location:		Chamber 1							
Mode:		NR_QPSK n77 Harmonics, 80MHz Bandwidth							
Test Voltage:		AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 3740.01MHz									
7480.02	-3.6	V	3.0	44.2	1.0	-46.8	-13.0	-33.8	
11220.03	1.8	V	3.0	42.6	1.0	-39.8	-13.0	-26.8	
14960.04	5.9	V	3.0	45.3	1.0	-38.4	-13.0	-25.4	
7480.02	-3.5	H	3.0	44.2	1.0	-46.6	-13.0	-33.6	
11220.03	2.0	H	3.0	42.6	1.0	-39.6	-13.0	-26.6	
14960.04	5.7	H	3.0	45.3	1.0	-38.7	-13.0	-25.7	
Mid Ch, 3840MHz									
7680.00	-3.6	V	3.0	44.1	1.0	-46.6	-13.0	-33.6	
11520.00	1.9	V	3.0	42.7	1.0	-39.8	-13.0	-26.8	
15360.00	6.2	V	3.0	45.0	1.0	-37.7	-13.0	-24.7	
7680.00	-3.6	H	3.0	44.1	1.0	-46.6	-13.0	-33.6	
11520.00	1.9	H	3.0	42.7	1.0	-39.8	-13.0	-26.8	
15360.00	6.3	H	3.0	45.0	1.0	-37.7	-13.0	-24.7	
High Ch, 3939.99MHz									
7879.98	-3.9	V	3.0	44.0	1.0	-46.8	-13.0	-33.8	
11819.97	2.6	V	3.0	42.8	1.0	-39.3	-13.0	-26.3	
15759.96	6.5	V	3.0	44.5	1.0	-37.0	-13.0	-24.0	
7879.98	-3.5	H	3.0	44.0	1.0	-46.5	-13.0	-33.5	
11819.97	3.1	H	3.0	42.8	1.0	-38.7	-13.0	-25.7	
15759.96	6.3	H	3.0	44.5	1.0	-37.2	-13.0	-24.2	

80MHz
DFT-s
QPSK

END OF TEST REPORT