

LTE Band 66 5MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung								
	Project #: 4788371671								
	Date: 2018-03-30								
	Test Engineer: 47989								
	Configuration: EUT / X-Position								
	Location: Chamber 1								
	Mode: LTE_QPSK Band 66 Fundamentals, 5MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-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	8.31	V	4.3	9.5	13.46	30.0	-16.5	
1712.50	13.88	H	4.3	9.5	19.03	30.0	-11.0		
Mid Ch									
1745.00	6.89	V	4.4	9.6	12.11	30.0	-17.9		
1745.00	14.15	H	4.4	9.6	19.37	30.0	-10.6		
High Ch									
1777.50	8.40	V	4.4	9.6	13.63	30.0	-16.4		
1777.50	13.74	H	4.4	9.6	18.98	30.0	-11.0		
LTE Band 66 5MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung								
	Project #: 4788371671								
	Date: 2018-03-30								
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	Configuration: EUT / X-Position								
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	Mode: LTE_16QAM Band 66 Fundamentals, 5MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-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	7.62	V	4.3	9.5	12.77	30.0	-17.2	
1712.50	12.91	H	4.3	9.5	18.06	30.0	-11.9		
Mid Ch									
1745.00	5.79	V	4.4	9.6	11.01	30.0	-19.0		
1745.00	13.37	H	4.4	9.6	18.59	30.0	-11.4		
High Ch									
1777.50	7.29	V	4.4	9.6	12.53	30.0	-17.5		
1777.50	12.62	H	4.4	9.6	17.86	30.0	-12.1		

LTE Band 66 3MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																																	
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LTE Band 66 1.4MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4788371671 Date: 2018-03-30 Test Engineer: 51072 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_QPSK Band 66 Fundamentals, 1.4MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch								
	1710.70	5.85	V	4.3	9.5	11.00	30.0	-19.0	
	1710.70	11.99	H	4.3	9.5	17.14	30.0	-12.9	
	Mid Ch								
	1745.00	4.63	V	4.4	9.6	9.85	30.0	-20.1	
	1745.00	10.64	H	4.4	9.6	15.86	30.0	-14.1	
High Ch									
1779.30	5.36	V	4.4	9.6	10.60	30.0	-19.4		
1779.30	10.89	H	4.4	9.6	16.13	30.0	-13.9		
LTE Band 66 1.4MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4788371671 Date: 2018-03-30 Test Engineer: 51072 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_16QAM Band 66 Fundamentals, 1.4MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch								
	1710.70	4.84	V	4.3	9.5	9.99	30.0	-20.0	
	1710.70	10.87	H	4.3	9.5	16.02	30.0	-14.0	
	Mid Ch								
	1745.00	3.51	V	4.4	9.6	8.73	30.0	-21.3	
	1745.00	9.61	H	4.4	9.6	14.83	30.0	-15.2	
High Ch									
1779.30	4.29	V	4.4	9.6	9.53	30.0	-20.5		
1779.30	9.96	H	4.4	9.6	15.20	30.0	-14.8		

LTE Band 2

LTE Band 2 20MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4788371667 Date: 2018-03-14 Test Engineer: 51072 Configuration: EUT / Z-Position Location: Chamber 1 Mode: LTE_QPSK Band 2 Fundamentals, 20MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-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								
	1860.00	10.47	V	4.5	9.4	15.37	33.0	-17.6	
	1860.00	13.43	H	4.5	9.4	18.33	33.0	-14.7	
	Mid Ch								
	1880.00	9.56	V	4.5	9.2	14.24	33.0	-18.8	
	1880.00	12.93	H	4.5	9.2	17.61	33.0	-15.4	
High Ch									
1900.00	10.16	V	4.6	9.0	14.62	33.0	-18.4		
1900.00	13.58	H	4.6	9.0	18.04	33.0	-15.0		
LTE Band 2 20MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4788371667 Date: 2018-03-14 Test Engineer: 51072 Configuration: EUT / Z-Position Location: Chamber 1 Mode: LTE_16QAM Band 2 Fundamentals, 20MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-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								
	1860.00	9.51	V	4.5	9.4	14.41	33.0	-18.6	
	1860.00	12.80	H	4.5	9.4	17.70	33.0	-15.3	
	Mid Ch								
	1880.00	8.65	V	4.5	9.2	13.33	33.0	-19.7	
	1880.00	12.00	H	4.5	9.2	16.68	33.0	-16.3	
High Ch									
1900.00	9.21	V	4.6	9.0	13.67	33.0	-19.3		
1900.00	12.64	H	4.6	9.0	17.10	33.0	-15.9		

LTE Band 2 15MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4788371667 Date: 2018-03-14 Test Engineer: 51072 Configuration: EUT / Z-Position Location: Chamber 1 Mode: LTE_QPSK Band 2 Fundamentals, 15MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-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								
	1857.50	10.64	V	4.5	9.4	15.57	33.0	-17.4	
	1857.50	13.80	H	4.5	9.4	18.73	33.0	-14.3	
	Mid Ch								
	1880.00	9.59	V	4.5	9.2	14.27	33.0	-18.7	
	1880.00	13.23	H	4.5	9.2	17.91	33.0	-15.1	
High Ch									
1902.50	10.03	V	4.6	9.0	14.45	33.0	-18.5		
1902.50	13.06	H	4.6	9.0	17.47	33.0	-15.5		
LTE Band 2 15MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4788371667 Date: 2018-03-14 Test Engineer: 51072 Configuration: EUT / Z-Position Location: Chamber 1 Mode: LTE_16QAM Band 2 Fundamentals, 15MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-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								
	1857.50	9.67	V	4.5	9.4	14.60	33.0	-18.4	
	1857.50	12.80	H	4.5	9.4	17.73	33.0	-15.3	
	Mid Ch								
	1880.00	8.63	V	4.5	9.2	13.31	33.0	-19.7	
	1880.00	12.24	H	4.5	9.2	16.92	33.0	-16.1	
High Ch									
1902.50	8.98	V	4.6	9.0	13.40	33.0	-19.6		
1902.50	12.07	H	4.6	9.0	16.48	33.0	-16.5		

LTE Band 2 10MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4788371667 Date: 2018-03-14 Test Engineer: 47989 Configuration: EUT / Z-Position Location: Chamber 1 Mode: LTE_QPSK Band 2 Fundamentals, 10MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-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								
	1855.00	9.70	V	4.5	9.5	14.65	33.0	-18.3	
	1855.00	11.71	H	4.5	9.5	16.67	33.0	-16.3	
	Mid Ch								
	1880.00	9.73	V	4.5	9.2	14.41	33.0	-18.6	
	1880.00	12.72	H	4.5	9.2	17.40	33.0	-15.6	
High Ch									
1905.00	7.52	V	4.6	8.9	11.89	33.0	-21.1		
1905.00	11.65	H	4.6	8.9	16.03	33.0	-17.0		
LTE Band 2 10MHz 16QAM	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								
	1855.00	8.68	V	4.5	9.5	13.63	33.0	-19.4	
	1855.00	10.80	H	4.5	9.5	15.76	33.0	-17.2	
	Mid Ch								
	1880.00	8.73	V	4.5	9.2	13.41	33.0	-19.6	
	1880.00	11.55	H	4.5	9.2	16.23	33.0	-16.8	
High Ch									
1905.00	6.51	V	4.6	8.9	10.88	33.0	-22.1		
1905.00	10.57	H	4.6	8.9	14.95	33.0	-18.1		

LTE Band 2 5MHz 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								
	1852.50	9.13	V	4.5	9.5	14.12	33.0	-18.9	
	1852.50	12.45	H	4.5	9.5	17.44	33.0	-15.6	
	Mid Ch								
	1880.00	9.67	V	4.5	9.2	14.35	33.0	-18.7	
	1880.00	12.15	H	4.5	9.2	16.83	33.0	-16.2	
High Ch									
1907.50	8.69	V	4.6	8.9	13.03	33.0	-20.0		
1907.50	11.31	H	4.6	8.9	15.65	33.0	-17.4		
LTE Band 2 5MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
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	Low Ch								
	1852.50	8.17	V	4.5	9.5	13.16	33.0	-19.8	
	1852.50	11.68	H	4.5	9.5	16.67	33.0	-16.3	
	Mid Ch								
	1880.00	8.66	V	4.5	9.2	13.34	33.0	-19.7	
	1880.00	10.91	H	4.5	9.2	15.59	33.0	-17.4	
High Ch									
1907.50	7.76	V	4.6	8.9	12.10	33.0	-20.9		
1907.50	10.31	H	4.6	8.9	14.65	33.0	-18.4		

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LTE Band 13

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LTE Band 12

LTE Band 12 10MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4788371667 Date: 2018-03-15 Test Engineer: 51072 Configuration: EUT / Z-Position Location: Chamber 2 Mode: LTE_QPSK Band 12 Fundamentals, 10MHz Bandwidth								
	Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 3m N-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								
	704.00	14.24	V	0.9	-1.6	11.77	34.8	-23.0	
	704.00	-1.20	H	0.9	-1.6	-3.66	34.8	-38.5	
	Mid Ch								
	707.50	14.12	V	0.9	-1.6	11.65	34.8	-23.2	
	707.50	-0.78	H	0.9	-1.6	-3.25	34.8	-38.0	
	High Ch								
	711.00	14.04	V	0.9	-1.6	11.57	34.8	-23.2	
711.00	-0.23	H	0.9	-1.6	-2.70	34.8	-37.5		
LTE Band 12 10MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company: Samsung Project #: 4788371667 Date: 2018-03-15 Test Engineer: 51072 Configuration: EUT / Z-Position Location: Chamber 2 Mode: LTE_16QAM Band 12 Fundamentals, 10MHz Bandwidth								
	Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 3m N-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								
	704.00	12.83	V	0.9	-1.6	10.36	34.8	-24.4	
	704.00	-2.73	H	0.9	-1.6	-5.19	34.8	-40.0	
	Mid Ch								
	707.50	12.66	V	0.9	-1.6	10.19	34.8	-24.6	
	707.50	-2.14	H	0.9	-1.6	-4.61	34.8	-39.4	
	High Ch								
	711.00	12.63	V	0.9	-1.6	10.16	34.8	-24.6	
711.00	-1.64	H	0.9	-1.6	-4.11	34.8	-38.9		

LTE Band 12 5MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company:		Samsung						
	Project #:		4788371667						
	Date:		2018-03-15						
	Test Engineer:		51072						
	Configuration:		EUT / Z-Position						
	Location:		Chamber 2						
	Mode:		LTE_QPSK Band 12 Fundamentals, 5MHz Bandwidth						
	Test Equipment:		Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 3m N-type Cable						
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	701.50	13.93	V	0.9	-1.6	11.46	34.8	-23.3	
701.50	-2.31	H	0.9	-1.6	-4.78	34.8	-39.6		
Mid Ch									
707.50	13.75	V	0.9	-1.6	11.28	34.8	-23.5		
707.50	-1.15	H	0.9	-1.6	-3.62	34.8	-38.4		
High Ch									
713.50	13.63	V	0.9	-1.6	11.16	34.8	-23.6		
713.50	-0.92	H	0.9	-1.6	-3.40	34.8	-38.2		
LTE Band 12 5MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company:		Samsung						
	Project #:		4788371667						
	Date:		2018-03-15						
	Test Engineer:		51072						
	Configuration:		EUT / Z-Position						
	Location:		Chamber 2						
	Mode:		LTE_16QAM Band 12 Fundamentals, 5MHz Bandwidth						
	Test Equipment:		Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 3m N-type Cable						
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	701.50	12.49	V	0.9	-1.6	10.02	34.8	-24.8	
701.50	-3.75	H	0.9	-1.6	-6.22	34.8	-41.0		
Mid Ch									
707.50	12.26	V	0.9	-1.6	9.79	34.8	-25.0		
707.50	-2.69	H	0.9	-1.6	-5.16	34.8	-40.0		
High Ch									
713.50	12.20	V	0.9	-1.6	9.73	34.8	-25.1		
713.50	-2.38	H	0.9	-1.6	-4.86	34.8	-39.7		

LTE Band 12 3MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company:		Samsung						
	Project #:		4788371667						
	Date:		2018-03-15						
	Test Engineer:		51072						
	Configuration:		EUT / Z-Position						
	Location:		Chamber 2						
	Mode:		LTE_QPSK Band 12 Fundamentals, 3MHz Bandwidth						
	Test Equipment:		Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 3m N-type Cable						
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	700.50	13.97	V	0.9	-1.6	11.51	34.8	-23.3	
700.50	-1.76	H	0.9	-1.6	-4.22	34.8	-39.0		
Mid Ch									
707.50	13.62	V	0.9	-1.6	11.15	34.8	-23.7		
707.50	-0.60	H	0.9	-1.6	-3.07	34.8	-37.9		
High Ch									
714.50	13.75	V	0.9	-1.6	11.27	34.8	-23.5		
714.50	-0.07	H	0.9	-1.6	-2.55	34.8	-37.3		
LTE Band 12 3MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement								
	Company:		Samsung						
	Project #:		4788371667						
	Date:		2018-03-15						
	Test Engineer:		51072						
	Configuration:		EUT / Z-Position						
	Location:		Chamber 2						
	Mode:		LTE_16QAM Band 12 Fundamentals, 3MHz Bandwidth						
	Test Equipment:		Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 3m N-type Cable						
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	700.50	12.51	V	0.9	-1.6	10.05	34.8	-24.8	
700.50	-3.21	H	0.9	-1.6	-5.67	34.8	-40.5		
Mid Ch									
707.50	12.15	V	0.9	-1.6	9.68	34.8	-25.1		
707.50	-2.10	H	0.9	-1.6	-4.57	34.8	-39.4		
High Ch									
714.50	12.24	V	0.9	-1.6	9.76	34.8	-25.0		
714.50	-1.62	H	0.9	-1.6	-4.10	34.8	-38.9		

LTE Band 12 1.4MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement																																																																																																		
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			<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 (dBd)</th> <th>ERP (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>699.70</td> <td>10.12</td> <td>V</td> <td>0.9</td> <td>-1.6</td> <td>7.66</td> <td>34.8</td> <td>-27.1</td> <td></td> </tr> <tr> <td>699.70</td> <td>-5.78</td> <td>H</td> <td>0.9</td> <td>-1.6</td> <td>-8.25</td> <td>34.8</td> <td>-43.0</td> <td></td> </tr> <tr> <td colspan="9">Mid Ch</td> </tr> <tr> <td>707.50</td> <td>9.79</td> <td>V</td> <td>0.9</td> <td>-1.6</td> <td>7.32</td> <td>34.8</td> <td>-27.5</td> <td></td> </tr> <tr> <td>707.50</td> <td>-4.27</td> <td>H</td> <td>0.9</td> <td>-1.6</td> <td>-6.74</td> <td>34.8</td> <td>-41.5</td> <td></td> </tr> <tr> <td colspan="9">High Ch</td> </tr> <tr> <td>715.30</td> <td>10.18</td> <td>V</td> <td>0.9</td> <td>-1.6</td> <td>7.70</td> <td>34.8</td> <td>-27.1</td> <td></td> </tr> <tr> <td>715.30</td> <td>-3.70</td> <td>H</td> <td>0.9</td> <td>-1.6</td> <td>-6.18</td> <td>34.8</td> <td>-41.0</td> <td></td> </tr> </tbody> </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	10.12	V	0.9	-1.6	7.66	34.8	-27.1		699.70	-5.78	H	0.9	-1.6	-8.25	34.8	-43.0		Mid Ch									707.50	9.79	V	0.9	-1.6	7.32	34.8	-27.5		707.50	-4.27	H	0.9	-1.6	-6.74	34.8	-41.5		High Ch									715.30	10.18	V	0.9	-1.6	7.70	34.8	-27.1		715.30	-3.70	H	0.9	-1.6	-6.18	34.8	-41.0	
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10.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

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

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: (m)(4) For mobile station, the attenuation factor shall be not less than $43 + 10 \log (P)$ dB at the channel edge and $(55 + 10 \log (P))$ dB at the 5.5 MHz from the channel edges.

Part 27.53(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. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

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.

Part 27.53 (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.

Part 27.53 (h) AWS emission limits—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.

TEST PROCEDURE

ANSI / TIA / EIA 603 E Clause 2.2.12; ESU40 setting reference to 971168 D01 v03

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 = peak;
- f) Ensure that the number of measurement points \geq span/RBW;
- g) Trace mode = max hold;

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

RESULTS

10.2.1. SPURIOUS RADIATION PLOTS

GSM 850

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
		Company: Samsung Project #: 4788371662 Date: 2018-03-13 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 2 Mode: GPRS 850 MHz Harmonics									
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes		
Low Ch, 824.2MHz											
1648.40	-10.0	V	3.0	38.2	1.0	-47.2	-13.0	-34.2			
2472.60	8.8	V	3.0	38.8	1.0	-29.0	-13.0	-16.0			
3296.80	-15.0	V	3.0	39.4	1.0	-53.5	-13.0	-40.5			
4121.00	1.1	V	3.0	39.8	1.0	-37.7	-13.0	-24.7			
1648.40	-10.6	H	3.0	38.2	1.0	-47.8	-13.0	-34.8			
2472.60	9.8	H	3.0	38.8	1.0	-28.0	-13.0	-15.0			
3296.80	-15.2	H	3.0	39.4	1.0	-53.6	-13.0	-40.6			
4121.00	3.5	H	3.0	39.8	1.0	-35.3	-13.0	-22.3			
Mid Ch, 836.6MHz											
1673.20	-10.2	V	3.0	38.2	1.0	-47.4	-13.0	-34.4			
2509.80	7.3	V	3.0	38.8	1.0	-30.6	-13.0	-17.6			
3346.40	-14.7	V	3.0	39.5	1.0	-53.2	-13.0	-40.2			
4183.00	3.6	V	3.0	39.8	1.0	-35.2	-13.0	-22.2			
1673.20	-9.2	H	3.0	38.2	1.0	-46.5	-13.0	-33.5			
2509.80	9.2	H	3.0	38.8	1.0	-28.7	-13.0	-15.7			
3346.40	-14.2	H	3.0	39.5	1.0	-52.7	-13.0	-39.7			
4183.00	4.6	H	3.0	39.8	1.0	-34.2	-13.0	-21.2			
High Ch, 848.8MHz											
1697.60	-8.7	V	3.0	38.2	1.0	-45.9	-13.0	-32.9			
2546.40	7.4	V	3.0	38.9	1.0	-30.5	-13.0	-17.5			
3395.20	-14.8	V	3.0	39.5	1.0	-53.3	-13.0	-40.3			
4244.00	4.0	V	3.0	39.8	1.0	-34.8	-13.0	-21.8			
1697.60	-4.3	H	3.0	38.2	1.0	-41.6	-13.0	-28.6			
2546.40	11.6	H	3.0	38.9	1.0	-26.3	-13.0	-13.3			
3395.20	-14.3	H	3.0	39.5	1.0	-52.8	-13.0	-39.8			
4244.00	2.2	H	3.0	39.8	1.0	-36.6	-13.0	-23.6			

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
		Company: Samsung Project #: 4788371662 Date: 2018-03-13 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 2 Mode: EGPRS 850 MHz Harmonics									
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes		
Low Ch, 824.2MHz											
1648.40	-17.5	V	3.0	38.2	1.0	-54.7	-13.0	-41.7			
2472.60	-4.2	V	3.0	38.8	1.0	-42.0	-13.0	-29.0			
3296.80	-15.5	V	3.0	39.4	1.0	-53.9	-13.0	-40.9			
4121.00	-10.6	V	3.0	39.8	1.0	-49.4	-13.0	-36.4			
1648.40	-15.2	H	3.0	38.2	1.0	-52.4	-13.0	-39.4			
2472.60	-3.7	H	3.0	38.8	1.0	-41.5	-13.0	-28.5			
3296.80	-15.4	H	3.0	39.4	1.0	-53.8	-13.0	-40.8			
4121.00	-9.0	H	3.0	39.8	1.0	-47.8	-13.0	-34.8			
Mid Ch, 836.6MHz											
1673.20	-17.1	V	3.0	38.2	1.0	-54.3	-13.0	-41.3			
2509.80	-5.7	V	3.0	38.8	1.0	-43.5	-13.0	-30.5			
3346.40	-14.5	V	3.0	39.5	1.0	-52.9	-13.0	-39.9			
4183.00	-9.7	V	3.0	39.8	1.0	-48.6	-13.0	-35.6			
1673.20	-14.7	H	3.0	38.2	1.0	-51.9	-13.0	-38.9			
2509.80	-2.7	H	3.0	38.8	1.0	-40.6	-13.0	-27.6			
3346.40	-14.5	H	3.0	39.5	1.0	-53.0	-13.0	-40.0			
4183.00	-7.8	H	3.0	39.8	1.0	-46.6	-13.0	-33.6			
High Ch, 848.8MHz											
1697.60	-11.2	V	3.0	38.2	1.0	-48.5	-13.0	-35.5			
2546.40	-2.2	V	3.0	38.9	1.0	-40.0	-13.0	-27.0			
3395.20	-14.2	V	3.0	39.5	1.0	-52.7	-13.0	-39.7			
4244.00	-9.1	V	3.0	39.8	1.0	-47.9	-13.0	-34.9			
1697.60	-8.7	H	3.0	38.2	1.0	-46.0	-13.0	-33.0			
2546.40	2.0	H	3.0	38.9	1.0	-35.9	-13.0	-22.9			
3395.20	-14.2	H	3.0	39.5	1.0	-52.6	-13.0	-39.6			
4244.00	-8.5	H	3.0	39.8	1.0	-47.3	-13.0	-34.3			

GSM 1900

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement								
GSM GSM1900 GPRS	Company:	Samsung								
	Project #:	4788371662								
	Date:	2018-03-12								
	Test Engineer:	47989								
	Configuration:	EUT / AC Adapter / Earphone, Y-Position								
	Location:	Chamber 2								
	Mode:	GPRS 1900 MHz Harmonics								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 1850.2MHz									
	3700.40	-9.0	V	3.0	39.7	1.0	-47.6	-13.0	-34.6	
	5550.60	-8.8	V	3.0	39.9	1.0	-47.7	-13.0	-34.7	
	7400.80	-11.6	V	3.0	39.4	1.0	-50.0	-13.0	-37.0	
	3700.40	-10.3	H	3.0	39.7	1.0	-48.9	-13.0	-35.9	
	5550.60	-10.0	H	3.0	39.9	1.0	-48.9	-13.0	-35.9	
	7400.80	-11.1	H	3.0	39.4	1.0	-49.5	-13.0	-36.5	
	Mid Ch, 1880MHz									
	3760.00	-9.0	V	3.0	39.7	1.0	-47.7	-13.0	-34.7	
	5640.00	-10.3	V	3.0	40.0	1.0	-49.3	-13.0	-36.3	
	7520.00	-10.7	V	3.0	39.4	1.0	-49.1	-13.0	-36.1	
	3760.00	-10.1	H	3.0	39.7	1.0	-48.8	-13.0	-35.8	
	5640.00	-11.6	H	3.0	40.0	1.0	-50.6	-13.0	-37.6	
	7520.00	-10.8	H	3.0	39.4	1.0	-49.2	-13.0	-36.2	
	High Ch, 1909.8MHz									
	3819.60	-9.8	V	3.0	39.7	1.0	-48.5	-13.0	-35.5	
5729.40	-11.1	V	3.0	40.0	1.0	-50.1	-13.0	-37.1		
7639.20	-10.7	V	3.0	39.3	1.0	-49.1	-13.0	-36.1		
3819.60	-11.1	H	3.0	39.7	1.0	-49.8	-13.0	-36.8		
5729.40	-9.8	H	3.0	40.0	1.0	-48.7	-13.0	-35.7		
7639.20	-10.3	H	3.0	39.3	1.0	-48.7	-13.0	-35.7		
		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement								
GSM GSM1900 EGPRS	Company:	Samsung								
	Project #:	4788371662								
	Date:	2018-03-12								
	Test Engineer:	47989								
	Configuration:	EUT / AC Adapter / Earphone, Y-Position								
	Location:	Chamber 2								
	Mode:	EGPRS 1900 MHz Harmonics								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 1850.2MHz									
	3700.40	-10.9	V	3.0	39.7	1.0	-49.5	-13.0	-36.5	
	5550.60	-11.0	V	3.0	39.9	1.0	-49.9	-13.0	-36.9	
	7400.80	-11.9	V	3.0	39.4	1.0	-50.4	-13.0	-37.4	
	3700.40	-13.1	H	3.0	39.7	1.0	-51.8	-13.0	-38.8	
	5550.60	-12.1	H	3.0	39.9	1.0	-51.0	-13.0	-38.0	
	7400.80	-11.2	H	3.0	39.4	1.0	-49.6	-13.0	-36.6	
	Mid Ch, 1880MHz									
	3760.00	-11.9	V	3.0	39.7	1.0	-50.6	-13.0	-37.6	
	5640.00	-12.3	V	3.0	40.0	1.0	-51.2	-13.0	-38.2	
	7520.00	-10.9	V	3.0	39.4	1.0	-49.3	-13.0	-36.3	
	3760.00	-12.4	H	3.0	39.7	1.0	-51.1	-13.0	-38.1	
	5640.00	-12.3	H	3.0	40.0	1.0	-51.2	-13.0	-38.2	
	7520.00	-10.9	H	3.0	39.4	1.0	-49.2	-13.0	-36.2	
	High Ch, 1909.8MHz									
	3819.60	-12.0	V	3.0	39.7	1.0	-50.7	-13.0	-37.7	
5729.40	-11.5	V	3.0	40.0	1.0	-50.5	-13.0	-37.5		
7639.20	-11.0	V	3.0	39.3	1.0	-49.3	-13.0	-36.3		
3819.60	-12.9	H	3.0	39.7	1.0	-51.6	-13.0	-38.6		
5729.40	-12.1	H	3.0	40.0	1.0	-51.1	-13.0	-38.1		
7639.20	-11.0	H	3.0	39.3	1.0	-49.3	-13.0	-36.3		

WCDMA Band 5

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
WCDMA Band 5 REL99	Company: Samsung Project #: 4788371662 Date: 2018-03-02 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 2 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	-17.8	V	3.0	38.2	1.0	-55.0	-13.0	-42.0			
	2479.20	-14.3	V	3.0	38.8	1.0	-52.1	-13.0	-39.1			
	3305.60	-12.5	V	3.0	39.4	1.0	-50.9	-13.0	-37.9			
	4132.00	-5.7	V	3.0	39.8	1.0	-44.5	-13.0	-31.5			
	1652.80	-16.9	H	3.0	38.2	1.0	-54.1	-13.0	-41.1			
	2479.20	-13.6	H	3.0	38.8	1.0	-51.5	-13.0	-38.5			
	3305.60	-11.6	H	3.0	39.4	1.0	-50.0	-13.0	-37.0			
	4132.00	-2.7	H	3.0	39.8	1.0	-41.5	-13.0	-28.5			
	Mid Ch, 836.6MHz											
	1673.20	-17.0	V	3.0	38.2	1.0	-54.2	-13.0	-41.2			
	2509.80	-14.3	V	3.0	38.8	1.0	-52.1	-13.0	-39.1			
	3346.40	-11.4	V	3.0	39.5	1.0	-49.8	-13.0	-36.8			
	4183.00	-3.9	V	3.0	39.8	1.0	-42.7	-13.0	-29.7			
	1673.20	-18.0	H	3.0	38.2	1.0	-55.2	-13.0	-42.2			
	2509.80	-12.7	H	3.0	38.8	1.0	-50.5	-13.0	-37.5			
	3346.40	-12.0	H	3.0	39.5	1.0	-50.5	-13.0	-37.5			
	4183.00	-0.5	H	3.0	39.8	1.0	-39.3	-13.0	-26.3			
	High Ch, 846.6MHz											
	1693.20	-17.7	V	3.0	38.2	1.0	-54.9	-13.0	-41.9			
	2539.80	-14.7	V	3.0	38.9	1.0	-52.6	-13.0	-39.6			
	3386.40	-9.6	V	3.0	39.5	1.0	-48.1	-13.0	-35.1			
	4233.00	-3.9	V	3.0	39.8	1.0	-42.7	-13.0	-29.7			
	1693.20	-17.5	H	3.0	38.2	1.0	-54.8	-13.0	-41.8			
	2539.80	-12.9	H	3.0	38.9	1.0	-50.7	-13.0	-37.7			
	3386.40	-9.5	H	3.0	39.5	1.0	-48.0	-13.0	-35.0			
4233.00	2.0	H	3.0	39.8	1.0	-36.8	-13.0	-23.8				
WCDMA Band 5 HSDPA	Company: Samsung Project #: 4788371662 Date: 2018-03-02 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 2 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	-18.1	V	3.0	38.2	1.0	-55.3	-13.0	-42.3			
	2479.20	-15.3	V	3.0	38.8	1.0	-53.2	-13.0	-40.2			
	3305.60	-13.4	V	3.0	39.4	1.0	-51.9	-13.0	-38.9			
	4132.00	-7.4	V	3.0	39.8	1.0	-46.2	-13.0	-33.2			
	1652.80	-17.7	H	3.0	38.2	1.0	-54.9	-13.0	-41.9			
	2479.20	-14.5	H	3.0	38.8	1.0	-52.3	-13.0	-39.3			
	3305.60	-13.7	H	3.0	39.4	1.0	-52.2	-13.0	-39.2			
	4132.00	-6.0	H	3.0	39.8	1.0	-44.8	-13.0	-31.8			
	Mid Ch, 836.6MHz											
	1673.20	-17.8	V	3.0	38.2	1.0	-55.1	-13.0	-42.1			
	2509.80	-14.7	V	3.0	38.8	1.0	-52.5	-13.0	-39.5			
	3346.40	-14.0	V	3.0	39.5	1.0	-52.4	-13.0	-39.4			
	4183.00	-6.5	V	3.0	39.8	1.0	-45.3	-13.0	-32.3			
	1673.20	-17.7	H	3.0	38.2	1.0	-54.9	-13.0	-41.9			
	2509.80	-13.8	H	3.0	38.8	1.0	-51.7	-13.0	-38.7			
	3346.40	-13.9	H	3.0	39.5	1.0	-52.3	-13.0	-39.3			
	4183.00	-5.5	H	3.0	39.8	1.0	-44.4	-13.0	-31.4			
	High Ch, 846.6MHz											
	1693.20	-17.8	V	3.0	38.2	1.0	-55.0	-13.0	-42.0			
	2539.80	-16.3	V	3.0	38.9	1.0	-54.2	-13.0	-41.2			
	3386.40	-12.2	V	3.0	39.5	1.0	-50.7	-13.0	-37.7			
	4233.00	-6.8	V	3.0	39.8	1.0	-45.6	-13.0	-32.6			
	1693.20	-17.9	H	3.0	38.2	1.0	-55.2	-13.0	-42.2			
	2539.80	-13.8	H	3.0	38.9	1.0	-51.6	-13.0	-38.6			
	3386.40	-12.0	H	3.0	39.5	1.0	-50.5	-13.0	-37.5			
4233.00	-1.3	H	3.0	39.8	1.0	-40.1	-13.0	-27.1				

WCDMA Band 2

		UL Verification Services, Inc.									
		Above 1GHz High Frequency Substitution Measurement									
WCDMA Band 2 REL99		Company: Samsung Project #: 4788371662 Date: 2018-03-04 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, Y-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	-6.9	V	3.0	43.8	1.0	-49.6	-13.0	-36.6	
		5557.20	-4.8	V	3.0	43.7	1.0	-47.5	-13.0	-34.5	
		7409.60	-5.0	V	3.0	42.5	1.0	-46.5	-13.0	-33.5	
		3704.80	-7.0	H	3.0	43.8	1.0	-49.7	-13.0	-36.7	
		5557.20	-6.0	H	3.0	43.7	1.0	-48.7	-13.0	-35.7	
		7409.60	-4.4	H	3.0	42.5	1.0	-46.0	-13.0	-33.0	
		Mid Ch, 1880MHz									
		3760.00	-7.4	V	3.0	43.8	1.0	-50.2	-13.0	-37.2	
		5640.00	-4.2	V	3.0	43.7	1.0	-46.9	-13.0	-33.9	
		7520.00	-4.6	V	3.0	42.5	1.0	-46.1	-13.0	-33.1	
		3760.00	-7.5	H	3.0	43.8	1.0	-50.2	-13.0	-37.2	
		5640.00	-4.8	H	3.0	43.7	1.0	-47.5	-13.0	-34.5	
		7520.00	-4.0	H	3.0	42.5	1.0	-45.5	-13.0	-32.5	
		High Ch, 1907.6MHz									
		3815.20	-7.6	V	3.0	43.8	1.0	-50.4	-13.0	-37.4	
		5722.80	-4.7	V	3.0	43.7	1.0	-47.4	-13.0	-34.4	
		7630.40	-4.8	V	3.0	42.4	1.0	-46.2	-13.0	-33.2	
3815.20	-7.5	H	3.0	43.8	1.0	-50.3	-13.0	-37.3			
5722.80	-4.8	H	3.0	43.7	1.0	-47.5	-13.0	-34.5			
7630.40	-3.4	H	3.0	42.4	1.0	-44.7	-13.0	-31.7			
WCDMA Band 2 HSDPA		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement Company: Samsung Project #: 4788371662 Date: 2018-03-04 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, Y-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	-6.9	V	3.0	43.8	1.0	-49.7	-13.0	-36.7	
		5557.20	-5.4	V	3.0	43.7	1.0	-48.1	-13.0	-35.1	
		7409.60	-5.1	V	3.0	42.5	1.0	-46.6	-13.0	-33.6	
		3704.80	-7.5	H	3.0	43.8	1.0	-50.2	-13.0	-37.2	
		5557.20	-6.2	H	3.0	43.7	1.0	-48.9	-13.0	-35.9	
		7409.60	-4.7	H	3.0	42.5	1.0	-46.2	-13.0	-33.2	
		Mid Ch, 1880MHz									
		3760.00	-8.1	V	3.0	43.8	1.0	-50.9	-13.0	-37.9	
		5640.00	-4.5	V	3.0	43.7	1.0	-47.2	-13.0	-34.2	
		7520.00	-5.5	V	3.0	42.5	1.0	-46.9	-13.0	-33.9	
		3760.00	-7.7	H	3.0	43.8	1.0	-50.5	-13.0	-37.5	
		5640.00	-5.3	H	3.0	43.7	1.0	-48.0	-13.0	-35.0	
		7520.00	-4.5	H	3.0	42.5	1.0	-45.9	-13.0	-32.9	
		High Ch, 1907.6MHz									
		3815.20	-8.2	V	3.0	43.8	1.0	-51.0	-13.0	-38.0	
		5722.80	-5.2	V	3.0	43.7	1.0	-47.9	-13.0	-34.9	
		7630.40	-5.1	V	3.0	42.4	1.0	-46.5	-13.0	-33.5	
3815.20	-8.4	H	3.0	43.8	1.0	-51.2	-13.0	-38.2			
5722.80	-5.4	H	3.0	43.7	1.0	-48.1	-13.0	-35.1			
7630.40	-4.2	H	3.0	42.4	1.0	-45.5	-13.0	-32.5			

WCDMA Band 4

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
WCDMA Band 4 REL99	Company:	Samsung									
	Project #:	4788371667									
	Date:	2018-03-27									
	Test Engineer:	45585									
	Configuration:	EUT / Adapter / Earphone, X-Position									
	Location:	Chamber 2									
	Mode:	Rel99 Band 4 Harmonics									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
	Low Ch, 1712.4MHz										
	3424.80	-14.0	V	3.0	39.5	1.0	-52.5	-13.0	-39.5		
	5137.20	-12.1	V	3.0	39.8	1.0	-50.9	-13.0	-37.9		
	6849.60	-11.3	V	3.0	39.7	1.0	-50.0	-13.0	-37.0		
	3424.80	-12.9	H	3.0	39.5	1.0	-51.4	-13.0	-38.4		
	5137.20	-12.1	H	3.0	39.8	1.0	-50.9	-13.0	-37.9		
	6849.60	-11.0	H	3.0	39.7	1.0	-49.7	-13.0	-36.7		
	Mid Ch, 1732.6MHz										
	3465.20	-14.2	V	3.0	39.5	1.0	-52.7	-13.0	-39.7		
	5197.80	-12.3	V	3.0	39.8	1.0	-51.1	-13.0	-38.1		
	6930.40	-11.2	V	3.0	39.7	1.0	-49.8	-13.0	-36.8		
	3465.20	-14.2	H	3.0	39.5	1.0	-52.7	-13.0	-39.7		
	5197.80	-11.8	H	3.0	39.8	1.0	-50.7	-13.0	-37.7		
	6930.40	-10.7	H	3.0	39.7	1.0	-49.4	-13.0	-36.4		
	High Ch, 1752.6MHz										
	3505.20	-13.6	V	3.0	39.5	1.0	-52.2	-13.0	-39.2		
	5257.80	-12.3	V	3.0	39.8	1.0	-51.2	-13.0	-38.2		
7010.40	-11.2	V	3.0	39.6	1.0	-49.8	-13.0	-36.8			
3505.20	-12.8	H	3.0	39.5	1.0	-51.3	-13.0	-38.3			
5257.80	-12.5	H	3.0	39.8	1.0	-51.4	-13.0	-38.4			
7010.40	-11.6	H	3.0	39.6	1.0	-50.2	-13.0	-37.2			
		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
WCDMA Band 4 HSDPA	Company:	Samsung									
	Project #:	4788371667									
	Date:	2018-03-27									
	Test Engineer:	45585									
	Configuration:	EUT / Adapter / Earphone, X-Position									
	Location:	Chamber 2									
	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	-14.1	V	3.0	39.5	1.0	-52.6	-13.0	-39.6		
	5137.20	-11.8	V	3.0	39.8	1.0	-50.6	-13.0	-37.6		
	6849.60	-11.0	V	3.0	39.7	1.0	-49.7	-13.0	-36.7		
	3424.80	-14.1	H	3.0	39.5	1.0	-52.6	-13.0	-39.6		
	5137.20	-12.1	H	3.0	39.8	1.0	-50.9	-13.0	-37.9		
	6849.60	-10.7	H	3.0	39.7	1.0	-49.4	-13.0	-36.4		
	Mid Ch, 1732.6MHz										
	3465.20	-14.0	V	3.0	39.5	1.0	-52.6	-13.0	-39.6		
	5197.80	-12.2	V	3.0	39.8	1.0	-51.0	-13.0	-38.0		
	6930.40	-10.5	V	3.0	39.7	1.0	-49.2	-13.0	-36.2		
	3465.20	-13.7	H	3.0	39.5	1.0	-52.2	-13.0	-39.2		
	5197.80	-12.1	H	3.0	39.8	1.0	-51.0	-13.0	-38.0		
	6930.40	-10.7	H	3.0	39.7	1.0	-49.3	-13.0	-36.3		
	High Ch, 1752.6MHz										
	3505.20	-13.6	V	3.0	39.5	1.0	-52.1	-13.0	-39.1		
	5257.80	-12.4	V	3.0	39.8	1.0	-51.2	-13.0	-38.2		
7010.40	-10.8	V	3.0	39.6	1.0	-49.4	-13.0	-36.4			
3505.20	-13.9	H	3.0	39.5	1.0	-52.4	-13.0	-39.4			
5257.80	-11.8	H	3.0	39.8	1.0	-50.7	-13.0	-37.7			
7010.40	-11.1	H	3.0	39.6	1.0	-49.7	-13.0	-36.7			

LTE Band 5

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement											
		Company: Samsung Project #: 4788371662 Date: 2018-02-22 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, XPosition Location: Chamber 2 Mode: LTE_QPSK Band 5 Hamonics, 10MHz Bandwidth											
		f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes		
LTE Band 5 10MHz QPSK		Low Ch, 829MHz											
		1658.00	-16.7	V	3.0	38.2	1.0	-53.9	-13.0	-40.9			
		2487.00	-7.8	V	3.0	38.8	1.0	-45.7	-13.0	-32.7			
		3316.00	-8.3	V	3.0	39.4	1.0	-46.8	-13.0	-33.8			
		4145.00	5.2	V	3.0	39.8	1.0	-33.6	-13.0	-20.6			
		4974.00	-8.0	V	3.0	39.8	1.0	-46.7	-13.0	-33.7			
		1658.00	-15.0	H	3.0	38.2	1.0	-52.2	-13.0	-39.2			
		2487.00	-9.5	H	3.0	38.8	1.0	-47.3	-13.0	-34.3			
		3316.00	-7.5	H	3.0	39.4	1.0	-45.9	-13.0	-32.9			
		4145.00	6.8	H	3.0	39.8	1.0	-32.0	-13.0	-19.0			
		4974.00	-7.0	H	3.0	39.8	1.0	-45.8	-13.0	-32.8			
		Mid Ch, 836.5MHz											
		1673.00	-17.3	V	3.0	38.2	1.0	-54.6	-13.0	-41.6			
		2509.50	-8.7	V	3.0	38.8	1.0	-46.5	-13.0	-33.5			
		3346.00	-8.8	V	3.0	39.5	1.0	-45.2	-13.0	-32.2			
		4182.50	4.9	V	3.0	39.8	1.0	-33.9	-13.0	-20.9			
		5019.00	-6.0	V	3.0	39.8	1.0	-44.7	-13.0	-31.7			
		1673.00	-16.5	H	3.0	38.2	1.0	-53.7	-13.0	-40.7			
		2509.50	-6.2	H	3.0	38.8	1.0	-44.0	-13.0	-31.0			
		3346.00	-7.0	H	3.0	39.5	1.0	-45.4	-13.0	-32.4			
		4182.50	4.4	H	3.0	39.8	1.0	-34.5	-13.0	-21.5			
		5019.00	-4.7	H	3.0	39.8	1.0	-43.4	-13.0	-30.4			
		High Ch, 844MHz											
		1688.00	-16.2	V	3.0	38.2	1.0	-53.5	-13.0	-40.5			
		2532.00	-6.3	V	3.0	38.9	1.0	-44.2	-13.0	-31.2			
		3376.00	-9.2	V	3.0	39.5	1.0	-47.7	-13.0	-34.7			
		4220.00	0.8	V	3.0	39.8	1.0	-38.0	-13.0	-25.0			
		5064.00	-8.5	V	3.0	39.8	1.0	-47.3	-13.0	-34.3			
		1688.00	-17.9	H	3.0	38.2	1.0	-55.1	-13.0	-42.1			
		2532.00	-4.8	H	3.0	38.9	1.0	-42.6	-13.0	-29.6			
		3376.00	-10.0	H	3.0	39.5	1.0	-48.4	-13.0	-35.4			
		4220.00	0.9	H	3.0	39.8	1.0	-37.9	-13.0	-24.9			
		5064.00	-8.6	H	3.0	39.8	1.0	-48.4	-13.0	-35.4			
		LTE Band 5 10MHz 16QAM		Low Ch, 829MHz									
				1658.00	-16.8	V	3.0	38.2	1.0	-54.0	-13.0	-41.0	
				2487.00	-6.0	V	3.0	38.8	1.0	-43.8	-13.0	-30.8	
3316.00	-7.4			V	3.0	39.4	1.0	-45.8	-13.0	-32.8			
4145.00	5.0			V	3.0	39.8	1.0	-33.8	-13.0	-20.8			
4974.00	-8.9			V	3.0	39.8	1.0	-47.7	-13.0	-34.7			
1658.00	-14.0			H	3.0	38.2	1.0	-51.2	-13.0	-38.2			
2487.00	-10.4			H	3.0	38.8	1.0	-48.2	-13.0	-35.2			
3316.00	-8.6			H	3.0	39.4	1.0	-47.0	-13.0	-34.0			
4145.00	6.1			H	3.0	39.8	1.0	-32.7	-13.0	-19.7			
4974.00	-8.0			H	3.0	39.8	1.0	-46.7	-13.0	-33.7			
Mid Ch, 836.5MHz													
1673.00	-17.3			V	3.0	38.2	1.0	-54.5	-13.0	-41.5			
2509.50	-8.8			V	3.0	38.8	1.0	-46.7	-13.0	-33.7			
3346.00	-8.1			V	3.0	39.5	1.0	-46.5	-13.0	-33.5			
4182.50	3.5			V	3.0	39.8	1.0	-35.3	-13.0	-22.3			
5019.00	-6.8			V	3.0	39.8	1.0	-45.6	-13.0	-32.6			
1673.00	-17.4			H	3.0	38.2	1.0	-54.6	-13.0	-41.6			
2509.50	-8.8			H	3.0	38.8	1.0	-44.7	-13.0	-31.7			
3346.00	-8.8			H	3.0	39.5	1.0	-47.2	-13.0	-34.2			
4182.50	5.7			H	3.0	39.8	1.0	-33.1	-13.0	-20.1			
5019.00	-6.8			H	3.0	39.8	1.0	-45.6	-13.0	-32.6			
High Ch, 844MHz													
1688.00	-17.2			V	3.0	38.2	1.0	-54.5	-13.0	-41.5			
2532.00	-7.2			V	3.0	38.9	1.0	-45.1	-13.0	-32.1			
3376.00	-9.2			V	3.0	39.5	1.0	-47.7	-13.0	-34.7			
4220.00	-0.9			V	3.0	39.8	1.0	-39.7	-13.0	-26.7			
5064.00	-9.5			V	3.0	39.8	1.0	-48.3	-13.0	-35.3			
1688.00	-16.4			H	3.0	38.2	1.0	-53.7	-13.0	-40.7			
2532.00	-5.3			H	3.0	38.9	1.0	-43.1	-13.0	-30.1			
3376.00	-8.9			H	3.0	39.5	1.0	-47.4	-13.0	-34.4			
4220.00	-0.5			H	3.0	39.8	1.0	-39.3	-13.0	-26.3			
5064.00	-8.0			H	3.0	39.8	1.0	-47.8	-13.0	-34.8			

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement													
		Company: Samsung Project #: 4788371662 Date: 2018-03-07 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 2 Mode: LTE_QPSK Band 5 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				
LTE Band 5 5MHz QPSK		Low Ch, 826.5MHz													
		1653.00	-17.4	V	3.0	38.2	1.0	-54.6	-13.0	-41.6					
		2479.50	-6.7	V	3.0	38.8	1.0	-44.6	-13.0	-31.6					
		3306.00	-11.4	V	3.0	39.4	1.0	-49.9	-13.0	-36.9					
		4132.50	0.4	V	3.0	39.8	1.0	-38.4	-13.0	-25.4					
		4959.00	-8.2	V	3.0	39.8	1.0	-47.0	-13.0	-34.0					
		1653.00	-14.1	H	3.0	38.2	1.0	-51.3	-13.0	-38.3					
		2479.50	-2.4	H	3.0	38.8	1.0	-40.2	-13.0	-27.2					
		3306.00	-9.3	H	3.0	39.4	1.0	-47.7	-13.0	-34.7					
		4132.50	2.6	H	3.0	39.8	1.0	-36.2	-13.0	-23.2					
		4959.00	-7.5	H	3.0	39.8	1.0	-46.2	-13.0	-33.2					
		Mid Ch, 836.5MHz													
		1673.00	-17.6	V	3.0	38.2	1.0	-54.8	-13.0	-41.8					
		2509.50	-10.2	V	3.0	38.8	1.0	-48.1	-13.0	-35.1					
		3346.00	-6.3	V	3.0	39.5	1.0	-44.7	-13.0	-31.7					
		4182.50	0.8	V	3.0	39.8	1.0	-38.0	-13.0	-25.0					
		5019.00	-7.0	V	3.0	39.8	1.0	-45.8	-13.0	-32.8					
		1673.00	-14.7	H	3.0	38.2	1.0	-51.9	-13.0	-38.9					
		2509.50	-8.2	H	3.0	38.8	1.0	-46.0	-13.0	-33.0					
		3346.00	-5.8	H	3.0	39.5	1.0	-44.3	-13.0	-31.3					
		4182.50	4.1	H	3.0	39.8	1.0	-34.8	-13.0	-21.8					
		5019.00	-7.1	H	3.0	39.8	1.0	-45.9	-13.0	-32.9					
		High Ch, 846.5MHz													
		1693.00	-15.1	V	3.0	38.2	1.0	-52.4	-13.0	-39.4					
		2539.50	-6.2	V	3.0	38.9	1.0	-43.1	-13.0	-30.1					
		3386.00	-8.1	V	3.0	39.5	1.0	-46.5	-13.0	-33.5					
		4232.50	6.0	V	3.0	39.8	1.0	-32.8	-13.0	-19.8					
		5079.00	-7.8	V	3.0	39.8	1.0	-46.6	-13.0	-33.6					
		1693.00	-13.0	H	3.0	38.2	1.0	-50.3	-13.0	-37.3					
		2539.50	-2.2	H	3.0	38.9	1.0	-40.0	-13.0	-27.0					
		3386.00	-3.8	H	3.0	39.5	1.0	-42.3	-13.0	-29.3					
		4232.50	8.1	H	3.0	39.8	1.0	-30.7	-13.0	-17.7					
		5079.00	-6.1	H	3.0	39.8	1.0	-44.9	-13.0	-31.9					
		LTE Band 5 5MHz 16QAM		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement											
				Company: Samsung Project #: 4788371662 Date: 2018-03-07 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 2 Mode: LTE_16QAM Band 5 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	-18.3	V	3.0	38.2	1.0	-55.5	-13.0	-42.5			
				2479.50	-5.3	V	3.0	38.8	1.0	-43.1	-13.0	-30.1			
				3306.00	-10.9	V	3.0	39.4	1.0	-49.3	-13.0	-36.3			
4132.50	0.2			V	3.0	39.8	1.0	-38.6	-13.0	-25.6					
4959.00	-9.3			V	3.0	39.8	1.0	-48.1	-13.0	-35.1					
1653.00	-14.8			H	3.0	38.2	1.0	-52.1	-13.0	-39.1					
2479.50	-3.3			H	3.0	38.8	1.0	-41.1	-13.0	-28.1					
3306.00	-10.5			H	3.0	39.4	1.0	-49.0	-13.0	-36.0					
4132.50	1.1			H	3.0	39.8	1.0	-37.7	-13.0	-24.7					
4959.00	-7.5			H	3.0	39.8	1.0	-46.2	-13.0	-33.2					
Mid Ch, 836.5MHz															
1673.00	-16.8			V	3.0	38.2	1.0	-54.0	-13.0	-41.0					
2509.50	-10.3			V	3.0	38.8	1.0	-48.1	-13.0	-35.1					
3346.00	-6.7			V	3.0	39.5	1.0	-45.2	-13.0	-32.2					
4182.50	2.9			V	3.0	39.8	1.0	-35.9	-13.0	-22.9					
5019.00	-7.8			V	3.0	39.8	1.0	-46.5	-13.0	-33.5					
1673.00	-15.8			H	3.0	38.2	1.0	-53.0	-13.0	-40.0					
2509.50	-7.4			H	3.0	38.8	1.0	-45.2	-13.0	-32.2					
3346.00	-8.8			H	3.0	39.5	1.0	-47.2	-13.0	-34.2					
4182.50	3.2			H	3.0	39.8	1.0	-35.6	-13.0	-22.6					
5019.00	-7.2			H	3.0	39.8	1.0	-46.0	-13.0	-33.0					
High Ch, 846.5MHz															
1693.00	-16.4			V	3.0	38.2	1.0	-53.7	-13.0	-40.7					
2539.50	-7.5			V	3.0	38.9	1.0	-45.3	-13.0	-32.3					
3386.00	-8.1			V	3.0	39.5	1.0	-47.6	-13.0	-34.6					
4232.50	5.5			V	3.0	39.8	1.0	-33.3	-13.0	-20.3					
5079.00	-9.9			V	3.0	39.8	1.0	-48.7	-13.0	-35.7					
1693.00	-14.3			H	3.0	38.2	1.0	-51.6	-13.0	-38.6					
2539.50	-3.2			H	3.0	38.9	1.0	-41.1	-13.0	-28.1					
3386.00	-5.1			H	3.0	39.5	1.0	-43.6	-13.0	-30.6					
4232.50	7.5			H	3.0	39.8	1.0	-31.3	-13.0	-18.3					
5079.00	-7.1			H	3.0	39.8	1.0	-45.9	-13.0	-32.9					

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
LTE Band 5 3MHz QPSK	Company: Samsung										
	Project #: 4788371662										
	Date: 2018-03-07										
	Test Engineer: 47989										
	Configuration: EUT / AC Adapter / Earphone, X-Position										
	Location: Chamber 2										
	Mode: LTE_QPSK Band 5 Harmonics, 3MHz Bandwidth										
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
	Low Ch, 825.5MHz										
	1651.00	-15.8	V	3.0	38.2	1.0	-53.0	-13.0	-40.0		
	2476.50	-9.1	V	3.0	38.8	1.0	-46.9	-13.0	-33.9		
	3302.00	-13.1	V	3.0	39.4	1.0	-51.6	-13.0	-38.6		
	4127.50	-1.6	V	3.0	39.8	1.0	-40.4	-13.0	-27.4		
	4953.00	-8.7	V	3.0	39.8	1.0	-47.5	-13.0	-34.5		
	1651.00	-15.1	H	3.0	38.2	1.0	-52.3	-13.0	-39.3		
	2476.50	-6.0	H	3.0	38.8	1.0	-43.8	-13.0	-30.8		
	3302.00	-11.7	H	3.0	39.4	1.0	-50.2	-13.0	-37.2		
	4127.50	0.0	H	3.0	39.8	1.0	-38.8	-13.0	-25.8		
	4953.00	-8.9	H	3.0	39.8	1.0	-47.7	-13.0	-34.7		
	Mid Ch, 836.5MHz										
	1673.00	-17.6	V	3.0	38.2	1.0	-54.8	-13.0	-41.8		
	2509.50	-10.5	V	3.0	38.8	1.0	-48.4	-13.0	-35.4		
	3346.00	-10.7	V	3.0	39.5	1.0	-49.2	-13.0	-36.2		
	4182.50	0.6	V	3.0	39.8	1.0	-38.2	-13.0	-25.2		
	5019.00	-7.2	V	3.0	39.8	1.0	-46.0	-13.0	-33.0		
1673.00	-17.3	H	3.0	38.2	1.0	-54.6	-13.0	-41.6			
2509.50	-7.6	H	3.0	38.8	1.0	-45.4	-13.0	-32.4			
3346.00	-6.2	H	3.0	39.5	1.0	-44.7	-13.0	-31.7			
4182.50	4.7	H	3.0	39.8	1.0	-34.1	-13.0	-21.1			
5019.00	-5.4	H	3.0	39.8	1.0	-44.2	-13.0	-31.2			
High Ch, 847.5MHz											
1695.00	-16.2	V	3.0	38.2	1.0	-53.5	-13.0	-40.5			
2542.50	-7.7	V	3.0	38.9	1.0	-45.6	-13.0	-32.6			
3390.00	-5.4	V	3.0	39.5	1.0	-43.9	-13.0	-30.9			
4237.50	5.7	V	3.0	39.8	1.0	-33.1	-13.0	-20.1			
5085.00	-8.1	V	3.0	39.8	1.0	-46.9	-13.0	-33.9			
1695.00	-11.0	H	3.0	38.2	1.0	-48.2	-13.0	-35.2			
2542.50	-3.8	H	3.0	38.9	1.0	-41.7	-13.0	-28.7			
3390.00	-3.6	H	3.0	39.5	1.0	-42.1	-13.0	-29.1			
4237.50	6.7	H	3.0	39.8	1.0	-32.1	-13.0	-19.1			
5085.00	-4.6	H	3.0	39.8	1.0	-43.4	-13.0	-30.4			
		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
LTE Band 5 3MHz 16QAM	Company: Samsung										
	Project #: 4788371662										
	Date: 2018-03-07										
	Test Engineer: 47989										
	Configuration: EUT / AC Adapter / Earphone, X-Position										
	Location: Chamber 2										
	Mode: LTE_16QAM Band 5 Harmonics, 3MHz Bandwidth										
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
	Low Ch, 825.5MHz										
	1651.00	-16.0	V	3.0	38.2	1.0	-53.2	-13.0	-40.2		
	2476.50	-10.0	V	3.0	38.8	1.0	-47.8	-13.0	-34.8		
	3302.00	-14.1	V	3.0	39.4	1.0	-52.6	-13.0	-39.6		
	4127.50	-2.0	V	3.0	39.8	1.0	-40.8	-13.0	-27.8		
	4953.00	-10.7	V	3.0	39.8	1.0	-49.5	-13.0	-36.5		
	1651.00	-16.6	H	3.0	38.2	1.0	-53.8	-13.0	-40.8		
	2476.50	-6.2	H	3.0	38.8	1.0	-44.0	-13.0	-31.0		
	3302.00	-12.2	H	3.0	39.4	1.0	-50.6	-13.0	-37.6		
	4127.50	-0.2	H	3.0	39.8	1.0	-39.0	-13.0	-26.0		
	4953.00	-8.3	H	3.0	39.8	1.0	-47.1	-13.0	-34.1		
	Mid Ch, 836.5MHz										
	1673.00	-18.1	V	3.0	38.2	1.0	-55.4	-13.0	-42.4		
	2509.50	-11.6	V	3.0	38.8	1.0	-49.4	-13.0	-36.4		
	3346.00	-11.7	V	3.0	39.5	1.0	-50.2	-13.0	-37.2		
	4182.50	0.0	V	3.0	39.8	1.0	-38.8	-13.0	-25.8		
	5019.00	-8.3	V	3.0	39.8	1.0	-47.0	-13.0	-34.0		
1673.00	-19.3	H	3.0	38.2	1.0	-56.5	-13.0	-43.5			
2509.50	-6.9	H	3.0	38.8	1.0	-44.8	-13.0	-31.8			
3346.00	-7.8	H	3.0	39.5	1.0	-46.3	-13.0	-33.3			
4182.50	2.9	H	3.0	39.8	1.0	-35.9	-13.0	-22.9			
5019.00	-6.1	H	3.0	39.8	1.0	-44.9	-13.0	-31.9			
High Ch, 847.5MHz											
1695.00	-17.3	V	3.0	38.2	1.0	-54.5	-13.0	-41.5			
2542.50	-7.8	V	3.0	38.9	1.0	-45.6	-13.0	-32.6			
3390.00	-6.8	V	3.0	39.5	1.0	-45.3	-13.0	-32.3			
4237.50	4.2	V	3.0	39.8	1.0	-34.6	-13.0	-21.6			
5085.00	-10.1	V	3.0	39.8	1.0	-48.9	-13.0	-35.9			
1695.00	-13.0	H	3.0	38.2	1.0	-50.2	-13.0	-37.2			
2542.50	-4.5	H	3.0	38.9	1.0	-42.4	-13.0	-29.4			
3390.00	-5.0	H	3.0	39.5	1.0	-43.5	-13.0	-30.5			
4237.50	4.9	H	3.0	39.8	1.0	-33.9	-13.0	-20.9			
5085.00	-4.4	H	3.0	39.8	1.0	-43.2	-13.0	-30.2			

LTE Band 41

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement								
		Company:	Samsung							
		Project #:	4788371667							
		Date:	2018-03-20							
		Test Engineer:	47989							
		Configuration:	EUT / AC Adapter / Earphone, X-Position							
		Location:	Chamber 3							
		Mode:	LTE_QPSK Band 41 Harmonics, 20MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
LTE										
Band 41										
20MHz										
QPSK										
Low Ch, 2506MHz										
5012.00	-2.5	V	3.0	40.1	1.0	-41.6	-25.0	-16.6		
7518.00	-8.7	V	3.0	40.0	1.0	-47.8	-25.0	-22.8		
10024.00	-5.1	V	3.0	40.2	1.0	-44.3	-25.0	-19.3		
5012.00	-6.9	H	3.0	40.1	1.0	-46.0	-25.0	-21.0		
7518.00	-9.7	H	3.0	40.0	1.0	-48.8	-25.0	-23.8		
10024.00	-5.1	H	3.0	40.2	1.0	-44.3	-25.0	-19.3		
Mid Ch, 2593MHz										
5186.00	-2.4	V	3.0	40.1	1.0	-41.5	-25.0	-16.5		
7779.00	-8.2	V	3.0	40.0	1.0	-47.3	-25.0	-22.3		
10372.00	-5.6	V	3.0	40.1	1.0	-44.7	-25.0	-19.7		
5186.00	-2.2	H	3.0	40.1	1.0	-41.3	-25.0	-16.3		
7779.00	-10.1	H	3.0	40.0	1.0	-49.2	-25.0	-24.2		
10372.00	-5.9	H	3.0	40.1	1.0	-45.0	-25.0	-20.0		
High Ch, 2680MHz										
5360.00	-4.1	V	3.0	40.1	1.0	-43.2	-25.0	-18.2		
8040.00	-5.0	V	3.0	40.0	1.0	-44.1	-25.0	-19.1		
10720.00	-4.5	V	3.0	40.0	1.0	-43.5	-25.0	-18.5		
5360.00	-4.0	H	3.0	40.1	1.0	-43.1	-25.0	-18.1		
8040.00	-8.0	H	3.0	40.0	1.0	-47.0	-25.0	-22.0		
10720.00	-5.8	H	3.0	40.0	1.0	-44.8	-25.0	-19.8		
LTE										
Band 41										
20MHz										
16QAM										
Low Ch, 2506MHz										
5012.00	-1.8	V	3.0	40.1	1.0	-40.9	-25.0	-15.9		
7518.00	-8.7	V	3.0	40.0	1.0	-47.8	-25.0	-22.8		
10024.00	-5.6	V	3.0	40.2	1.0	-44.8	-25.0	-19.8		
5012.00	-6.7	H	3.0	40.1	1.0	-45.8	-25.0	-20.8		
7518.00	-9.2	H	3.0	40.0	1.0	-48.3	-25.0	-23.3		
10024.00	-5.5	H	3.0	40.2	1.0	-44.7	-25.0	-19.7		
Mid Ch, 2593MHz										
5186.00	-2.9	V	3.0	40.1	1.0	-42.0	-25.0	-17.0		
7779.00	-9.1	V	3.0	40.0	1.0	-48.2	-25.0	-23.2		
10372.00	-5.9	V	3.0	40.1	1.0	-45.0	-25.0	-20.0		
5186.00	-2.9	H	3.0	40.1	1.0	-42.1	-25.0	-17.1		
7779.00	-10.4	H	3.0	40.0	1.0	-49.4	-25.0	-24.4		
10372.00	-6.6	H	3.0	40.1	1.0	-45.7	-25.0	-20.7		
High Ch, 2680MHz										
5360.00	-3.8	V	3.0	40.1	1.0	-42.9	-25.0	-17.9		
8040.00	-6.3	V	3.0	40.0	1.0	-45.4	-25.0	-20.4		
10720.00	-4.0	V	3.0	40.0	1.0	-43.0	-25.0	-18.0		
5360.00	-4.9	H	3.0	40.1	1.0	-44.0	-25.0	-19.0		
8040.00	-8.7	H	3.0	40.0	1.0	-47.8	-25.0	-22.8		
10720.00	-5.5	H	3.0	40.0	1.0	-44.5	-25.0	-19.5		

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement											
LTE Band 41 15MHz QPSK	Company: Samsung Project #: 4788371667 Date: 2018-03-20 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 3 Mode: LTE_QPSK Band 41 Harmonics, 15MHz Bandwidth										
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
	Low Ch, 2503.5MHz										
	5007.00	-5.0	V	3.0	40.1	1.0	-44.2	-25.0	-19.2		
	7510.50	-9.3	V	3.0	40.0	1.0	-48.3	-25.0	-23.3		
	10014.00	-5.0	V	3.0	40.2	1.0	-44.1	-25.0	-19.1		
	Mid Ch, 2593MHz										
	5186.00	-4.7	V	3.0	40.1	1.0	-43.8	-25.0	-18.8		
	7779.00	-8.7	V	3.0	40.0	1.0	-47.7	-25.0	-22.7		
	10372.00	-6.5	V	3.0	40.1	1.0	-45.6	-25.0	-20.6		
	5186.00	-3.1	H	3.0	40.1	1.0	-42.3	-25.0	-17.3		
	7779.00	-10.4	H	3.0	40.0	1.0	-49.4	-25.0	-24.4		
	10372.00	-6.7	H	3.0	40.1	1.0	-45.8	-25.0	-20.8		
	High Ch, 2682.5MHz										
	5365.00	-3.0	V	3.0	40.1	1.0	-42.1	-25.0	-17.1		
	8047.50	-6.1	V	3.0	40.0	1.0	-45.1	-25.0	-20.1		
	10730.00	-4.6	V	3.0	40.0	1.0	-43.6	-25.0	-18.6		
	5365.00	-3.7	H	3.0	40.1	1.0	-42.8	-25.0	-17.8		
	8047.50	-7.7	H	3.0	40.0	1.0	-46.7	-25.0	-21.7		
	10730.00	-5.5	H	3.0	40.0	1.0	-44.5	-25.0	-19.5		
	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
	LTE Band 41 15MHz 16QAM	Company: Samsung Project #: 4788371667 Date: 2018-03-20 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 3 Mode: LTE_16QAM Band 41 Harmonics, 15MHz Bandwidth									
		f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
		Low Ch, 2503.5MHz									
		5007.00	-5.3	V	3.0	40.1	1.0	-44.4	-25.0	-19.4	
7510.50		-9.1	V	3.0	40.0	1.0	-48.2	-25.0	-23.2		
10014.00		-5.5	V	3.0	40.2	1.0	-44.7	-25.0	-19.7		
Mid Ch, 2593MHz											
5186.00		-5.5	V	3.0	40.1	1.0	-44.6	-25.0	-19.6		
7779.00		-8.3	V	3.0	40.0	1.0	-47.4	-25.0	-22.4		
10372.00		-6.6	V	3.0	40.1	1.0	-45.7	-25.0	-20.7		
5186.00		-4.3	H	3.0	40.1	1.0	-43.4	-25.0	-18.4		
7779.00		-10.0	H	3.0	40.0	1.0	-49.1	-25.0	-24.1		
10372.00		-7.1	H	3.0	40.1	1.0	-46.2	-25.0	-21.2		
High Ch, 2682.5MHz											
5365.00		-2.9	V	3.0	40.1	1.0	-41.9	-25.0	-16.9		
8047.50		-6.7	V	3.0	40.0	1.0	-45.7	-25.0	-20.7		
10730.00		-4.7	V	3.0	40.0	1.0	-43.7	-25.0	-18.7		
5365.00		-3.8	H	3.0	40.1	1.0	-42.8	-25.0	-17.8		
8047.50		-8.6	H	3.0	40.0	1.0	-47.6	-25.0	-22.6		
10730.00		-5.6	H	3.0	40.0	1.0	-44.6	-25.0	-19.6		

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement											
		Company: Samsung Project #: 4788371667 Date: 2018-03-19 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 3 Mode: LTE_QPSK Band 41 Harmonics, 10MHz Bandwidth											
LTE	Band 41	10MHz	QPSK	f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
				MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
				Low Ch, 2501MHz									
				5002.00	-4.6	V	3.0	40.1	1.0	-43.8	-25.0	-18.8	
				7503.00	-9.2	V	3.0	40.0	1.0	-48.2	-25.0	-23.2	
				10004.00	-5.4	V	3.0	40.2	1.0	-44.6	-25.0	-19.6	
				5002.00	-6.1	H	3.0	40.1	1.0	-45.2	-25.0	-20.2	
				7503.00	-9.0	H	3.0	40.0	1.0	-48.1	-25.0	-23.1	
				10004.00	-4.8	H	3.0	40.2	1.0	-43.9	-25.0	-18.9	
				Mid Ch, 2593MHz									
				5186.00	-2.7	V	3.0	40.1	1.0	-41.8	-25.0	-16.8	
				7779.00	-8.3	V	3.0	40.0	1.0	-47.4	-25.0	-22.4	
				10372.00	-5.5	V	3.0	40.1	1.0	-44.6	-25.0	-19.6	
				5186.00	-2.6	H	3.0	40.1	1.0	-41.8	-25.0	-16.8	
				7779.00	-10.1	H	3.0	40.0	1.0	-49.2	-25.0	-24.2	
				10372.00	-6.6	H	3.0	40.1	1.0	-45.7	-25.0	-20.7	
				High Ch, 2685MHz									
				5370.00	-2.7	V	3.0	40.1	1.0	-41.7	-25.0	-16.7	
				8055.00	-5.9	V	3.0	40.0	1.0	-44.9	-25.0	-19.9	
				10740.00	-3.5	V	3.0	40.0	1.0	-42.6	-25.0	-17.6	
				5370.00	-3.2	H	3.0	40.1	1.0	-42.3	-25.0	-17.3	
				8055.00	-7.5	H	3.0	40.0	1.0	-46.6	-25.0	-21.6	
				10740.00	-5.4	H	3.0	40.0	1.0	-44.4	-25.0	-19.4	

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement											
		Company: Samsung Project #: 4788371667 Date: 2018-03-19 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 3 Mode: LTE_16QAM Band 41 Harmonics, 10MHz Bandwidth											
LTE	Band 41	10MHz	16QAM	f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
				MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
				Low Ch, 2501MHz									
				5002.00	-5.4	V	3.0	40.1	1.0	-44.6	-25.0	-19.6	
				7503.00	-11.0	V	3.0	40.0	1.0	-50.0	-25.0	-25.0	
				10004.00	-6.0	V	3.0	40.2	1.0	-45.2	-25.0	-20.2	
				5002.00	-7.9	H	3.0	40.1	1.0	-47.0	-25.0	-22.0	
				7503.00	-8.9	H	3.0	40.0	1.0	-47.9	-25.0	-22.9	
				10004.00	-4.8	H	3.0	40.2	1.0	-44.0	-25.0	-19.0	
				Mid Ch, 2593MHz									
				5186.00	-4.3	V	3.0	40.1	1.0	-43.4	-25.0	-18.4	
				7779.00	-9.7	V	3.0	40.0	1.0	-48.7	-25.0	-23.7	
				10372.00	-6.3	V	3.0	40.1	1.0	-45.4	-25.0	-20.4	
				5186.00	-2.6	H	3.0	40.1	1.0	-41.7	-25.0	-16.7	
				7779.00	-10.6	H	3.0	40.0	1.0	-49.7	-25.0	-24.7	
				10372.00	-6.6	H	3.0	40.1	1.0	-45.7	-25.0	-20.7	
				High Ch, 2685MHz									
				5370.00	-3.0	V	3.0	40.1	1.0	-42.0	-25.0	-17.0	
				8055.00	-6.3	V	3.0	40.0	1.0	-45.3	-25.0	-20.3	
				10740.00	-4.2	V	3.0	40.0	1.0	-43.2	-25.0	-18.2	
				5370.00	-3.2	H	3.0	40.1	1.0	-42.3	-25.0	-17.3	
				8055.00	-7.7	H	3.0	40.0	1.0	-46.7	-25.0	-21.7	
				10740.00	-6.8	H	3.0	40.0	1.0	-45.8	-25.0	-20.8	

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
LTE Band 41 5MHz QPSK	Company: Samsung Project #: 4788371667 Date: 2018-03-19 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 3 Mode: LTE_QPSK Band 41 Harmonics, 5MHz Bandwidth										
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
	Low Ch, 2498.5MHz										
	4997.00	-4.1	V	3.0	40.1	1.0	-43.3	-25.0	-18.3		
	7495.50	-9.0	V	3.0	40.0	1.0	-48.0	-25.0	-23.0		
	9994.00	-4.9	V	3.0	40.2	1.0	-44.1	-25.0	-19.1		
	4997.00	-7.9	H	3.0	40.1	1.0	-47.0	-25.0	-22.0		
	7495.50	-9.5	H	3.0	40.0	1.0	-48.6	-25.0	-23.6		
	9994.00	-4.9	H	3.0	40.2	1.0	-44.1	-25.0	-19.1		
	Mid Ch, 2593MHz										
	5186.00	-3.4	V	3.0	40.1	1.0	-42.5	-25.0	-17.5		
	7779.00	-8.5	V	3.0	40.0	1.0	-47.6	-25.0	-22.6		
	10372.00	-6.0	V	3.0	40.1	1.0	-45.1	-25.0	-20.1		
	5186.00	-2.4	H	3.0	40.1	1.0	-41.5	-25.0	-16.5		
	7779.00	-10.1	H	3.0	40.0	1.0	-49.2	-25.0	-24.2		
	10372.00	-6.0	H	3.0	40.1	1.0	-45.1	-25.0	-20.1		
	High Ch, 2687.5MHz										
	5375.00	-5.6	V	3.0	40.1	1.0	-44.7	-25.0	-19.7		
	8062.50	-5.4	V	3.0	40.0	1.0	-44.4	-25.0	-19.4		
	10750.00	-4.7	V	3.0	40.0	1.0	-43.7	-25.0	-18.7		
	5375.00	-4.6	H	3.0	40.1	1.0	-43.7	-25.0	-18.7		
	8062.50	-7.8	H	3.0	40.0	1.0	-46.8	-25.0	-21.8		
	10750.00	-5.7	H	3.0	40.0	1.0	-44.7	-25.0	-19.7		
			UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement								
		Company: Samsung Project #: 4788371667 Date: 2018-03-19 Test Engineer: 47989 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 3 Mode: LTE_16QAM Band 41 Harmonics, 5MHz Bandwidth									
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes		
Low Ch, 2498.5MHz											
4997.00	-4.9	V	3.0	40.1	1.0	-44.0	-25.0	-19.0			
7495.50	-9.2	V	3.0	40.0	1.0	-48.2	-25.0	-23.2			
9994.00	-5.3	V	3.0	40.2	1.0	-44.5	-25.0	-19.5			
4997.00	-8.5	H	3.0	40.1	1.0	-47.6	-25.0	-22.6			
7495.50	-9.5	H	3.0	40.0	1.0	-48.5	-25.0	-23.5			
9994.00	-5.0	H	3.0	40.2	1.0	-44.1	-25.0	-19.1			
Mid Ch, 2593MHz											
5186.00	-2.9	V	3.0	40.1	1.0	-42.0	-25.0	-17.0			
7779.00	-9.2	V	3.0	40.0	1.0	-48.3	-25.0	-23.3			
10372.00	-6.7	V	3.0	40.1	1.0	-45.8	-25.0	-20.8			
5186.00	-2.4	H	3.0	40.1	1.0	-41.5	-25.0	-16.5			
7779.00	-10.3	H	3.0	40.0	1.0	-49.3	-25.0	-24.3			
10372.00	-6.0	H	3.0	40.1	1.0	-45.1	-25.0	-20.1			
High Ch, 2687.5MHz											
5375.00	-5.6	V	3.0	40.1	1.0	-44.7	-25.0	-19.7			
8062.50	-6.3	V	3.0	40.0	1.0	-45.3	-25.0	-20.3			
10750.00	-4.6	V	3.0	40.0	1.0	-43.6	-25.0	-18.6			
5375.00	-5.2	H	3.0	40.1	1.0	-44.3	-25.0	-19.3			
8062.50	-8.3	H	3.0	40.0	1.0	-47.3	-25.0	-22.3			
10750.00	-5.4	H	3.0	40.0	1.0	-44.4	-25.0	-19.4			