

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	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	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	
LTE Band 66 5MHz 16QAM	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 Test Engineer: 47989 Configuration: EUT / X-Position Location: Chamber 1 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	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	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	
LTE Band 66 5MHz 16QAM	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								
	Company: Samsung Project #: 4788371671 Date: 2018-03-30 Test Engineer: 51072 Configuration: EUT / X-Position Location: Chamber 1 Mode: LTE_QPSK Band 66 Fundamentals, 3MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1711.50	8.19	V	4.3	9.5	13.35	30.0	-16.7	
	1711.50	14.36	H	4.3	9.5	19.51	30.0	-10.5	
	Mid Ch								
	1745.00	7.01	V	4.4	9.6	12.23	30.0	-17.8	
LTE Band 66 3MHz 16QAM	1745.00	13.25	H	4.4	9.6	18.47	30.0	-11.5	
	High Ch								
	1778.50	8.30	V	4.4	9.6	13.53	30.0	-16.5	
	1778.50	13.19	H	4.4	9.6	18.43	30.0	-11.6	
LTE Band 66 3MHz 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, 3MHz Bandwidth								
	Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1711.50	7.09	V	4.3	9.5	12.25	30.0	-17.8	
	1711.50	13.30	H	4.3	9.5	18.45	30.0	-11.5	
	Mid Ch								
	1745.00	5.92	V	4.4	9.6	11.14	30.0	-18.9	
	1745.00	12.05	H	4.4	9.6	17.27	30.0	-12.7	
LTE Band 66 3MHz 16QAM	High Ch								
	1778.50	7.24	V	4.4	9.6	12.47	30.0	-17.5	
	1778.50	12.12	H	4.4	9.6	17.36	30.0	-12.6	

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	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	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	
LTE Band 66 1.4MHz 16QAM	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	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	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	
LTE Band 66 1.4MHz 16QAM	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

Company: Samsung
Project #: 4788371667
Date: 2018-03-14
Test Engineer: 47989
Configuration: EUT / Z-Position
Location: Chamber 1
Mode: LTE_16QAM 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	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 Company: Samsung Project #: 4788371667 Date: 2018-03-14 Test Engineer: 47989 Configuration: EUT / Z-Position Location: Chamber 1 Mode: LTE_QPSK Band 2 Fundamentals, 5MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	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								
LTE Band 2 5MHz 16QAM	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 Company: Samsung Project #: 4788371667 Date: 2018-03-14 Test Engineer: 47989 Configuration: EUT / Z-Position Location: Chamber 1 Mode: LTE_16QAM Band 2 Fundamentals, 5MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	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								
LTE Band 2 5MHz 16QAM	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	

LTE

Band 2

3MHz

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, 3MHz 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								
1851.50	10.35	V	4.5	9.5	15.35	33.0	-17.7	
1851.50	12.63	H	4.5	9.5	17.63	33.0	-15.4	
Mid Ch								
1880.00	9.96	V	4.5	9.2	14.64	33.0	-18.4	
1880.00	13.08	H	4.5	9.2	17.76	33.0	-15.2	
High Ch								
1908.50	10.31	V	4.6	8.9	14.64	33.0	-18.4	
1908.50	12.57	H	4.6	8.9	16.89	33.0	-16.1	

LTE

Band 2

3MHz

16QAM

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_16QAM Band 2 Fundamentals, 3MHz 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								
1851.50	9.38	V	4.5	9.5	14.38	33.0	-18.6	
1851.50	11.76	H	4.5	9.5	16.76	33.0	-16.2	
Mid Ch								
1880.00	8.96	V	4.5	9.2	13.64	33.0	-19.4	
1880.00	12.06	H	4.5	9.2	16.74	33.0	-16.3	
High Ch								
1908.50	8.89	V	4.6	8.9	13.22	33.0	-19.8	
1908.50	11.54	H	4.6	8.9	15.86	33.0	-17.1	

LTE Band 2 1.4MHz 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, 1.4MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1850.70	8.05	V	4.5	9.5	13.05	33.0	-19.9	
	1850.70	10.93	H	4.5	9.5	15.94	33.0	-17.1	
	Mid Ch								
	1880.00	7.15	V	4.5	9.2	11.83	33.0	-21.2	
	1880.00	10.78	H	4.5	9.2	15.46	33.0	-17.5	
	High Ch								
LTE Band 2 1.4MHz 16QAM	1909.30	6.37	V	4.6	8.9	10.68	33.0	-22.3	
	1909.30	10.14	H	4.6	8.9	14.45	33.0	-18.5	
LTE Band 2 1.4MHz 16QAM	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_16QAM Band 2 Fundamentals, 1.4MHz Bandwidth Test Equipment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00161451], 3m N-type Cable								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1850.70	7.07	V	4.5	9.5	12.07	33.0	-20.9	
	1850.70	9.94	H	4.5	9.5	14.95	33.0	-18.0	
	Mid Ch								
	1880.00	6.30	V	4.5	9.2	10.98	33.0	-22.0	
	1880.00	9.89	H	4.5	9.2	14.57	33.0	-18.4	
	High Ch								
LTE Band 2 1.4MHz 16QAM	1909.30	5.24	V	4.6	8.9	9.55	33.0	-23.5	
	1909.30	9.13	H	4.6	8.9	13.44	33.0	-19.6	

LTE Band 13

LTE

Band 13

10MHz

QPSK

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788371667

2018-03-16

51072

EUT / Z-Postition

Chamber 2

LTE_QPSK Band 13 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
Mid Ch								
782.00	14.50	V	0.9	-1.6	12.01	34.8	-22.8	
782.00	-1.06	H	0.9	-1.6	-3.55	34.8	-38.3	

LTE

Band 13

10MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788371667

2018-03-16

51072

EUT / Z-Postition

Chamber 2

LTE_16QAM Band 13 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
Mid Ch								
782.00	13.40	V	0.9	-1.6	10.91	34.8	-23.9	
782.00	-2.18	H	0.9	-1.6	-4.67	34.8	-39.4	

LTE Band 13 5MHz QPSK	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788371667 Date: 2018-03-16 Test Engineer: 51072 Configuration: EUT / Z-Position Location: Chamber 2 Mode: LTE_QPSK Band 13 Fundamentals, 5MHz Bandwidth Test Equipment: Receiving: VULB9163-749, and Chamber 2 SMA Cables Substitution: Dipole 3121_DB4, 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								
	779.50	11.98	V	0.9	-1.6	9.49	34.8	-25.3	
	779.50	-4.03	H	0.9	-1.6	-6.53	34.8	-41.3	
	Mid Ch								
	782.00	10.89	V	0.9	-1.6	8.40	34.8	-26.4	
	782.00	-4.11	H	0.9	-1.6	-6.60	34.8	-41.4	
	High Ch								
LTE Band 13 5MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788371667 Date: 2018-03-16 Test Engineer: 51072 Configuration: EUT / Z-Position Location: Chamber 2 Mode: LTE_16QAM Band 13 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								
	779.50	10.78	V	0.9	-1.6	8.29	34.8	-26.5	
	779.50	-5.22	H	0.9	-1.6	-7.72	34.8	-42.5	
	Mid Ch								
	782.00	11.95	V	0.9	-1.6	9.46	34.8	-25.3	
	782.00	-5.10	H	0.9	-1.6	-7.59	34.8	-42.4	
	High Ch								
LTE Band 13 5MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788371667 Date: 2018-03-16 Test Engineer: 51072 Configuration: EUT / Z-Position Location: Chamber 2 Mode: LTE_16QAM Band 13 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								
	779.50	10.78	V	0.9	-1.6	8.29	34.8	-26.5	
	779.50	-5.22	H	0.9	-1.6	-7.72	34.8	-42.5	
	Mid Ch								
	782.00	11.95	V	0.9	-1.6	9.46	34.8	-25.3	
	782.00	-5.10	H	0.9	-1.6	-7.59	34.8	-42.4	
	High Ch								
LTE Band 13 5MHz 16QAM	UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 4788371667 Date: 2018-03-16 Test Engineer: 51072 Configuration: EUT / Z-Position Location: Chamber 2 Mode: LTE_16QAM Band 13 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								
	779.50	10.78	V	0.9	-1.6	8.29	34.8	-26.5	
	779.50	-5.22	H	0.9	-1.6	-7.72	34.8	-42.5	
	Mid Ch								
	782.00	11.95	V	0.9	-1.6	9.46	34.8	-25.3	
	782.00	-5.10	H	0.9	-1.6	-7.59	34.8	-42.4	
	High Ch								

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 <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>704.00</td><td>14.24</td><td>V</td><td>0.9</td><td>-1.6</td><td>11.77</td><td>34.8</td><td>-23.0</td></tr><tr><td>704.00</td><td>-1.20</td><td>H</td><td>0.9</td><td>-1.6</td><td>-3.66</td><td>34.8</td><td>-38.5</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>707.50</td><td>14.12</td><td>V</td><td>0.9</td><td>-1.6</td><td>11.65</td><td>34.8</td><td>-23.2</td></tr><tr><td>707.50</td><td>-0.78</td><td>H</td><td>0.9</td><td>-1.6</td><td>-3.25</td><td>34.8</td><td>-38.0</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>711.00</td><td>14.04</td><td>V</td><td>0.9</td><td>-1.6</td><td>11.57</td><td>34.8</td><td>-23.2</td></tr><tr><td>711.00</td><td>-0.23</td><td>H</td><td>0.9</td><td>-1.6</td><td>-2.70</td><td>34.8</td><td>-37.5</td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch								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
	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 <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBd)</th><th>ERP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>704.00</td><td>12.83</td><td>V</td><td>0.9</td><td>-1.6</td><td>10.36</td><td>34.8</td><td>-24.4</td></tr><tr><td>704.00</td><td>-2.73</td><td>H</td><td>0.9</td><td>-1.6</td><td>-5.19</td><td>34.8</td><td>-40.0</td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>707.50</td><td>12.66</td><td>V</td><td>0.9</td><td>-1.6</td><td>10.19</td><td>34.8</td><td>-24.6</td></tr><tr><td>707.50</td><td>-2.14</td><td>H</td><td>0.9</td><td>-1.6</td><td>-4.61</td><td>34.8</td><td>-39.4</td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>711.00</td><td>12.63</td><td>V</td><td>0.9</td><td>-1.6</td><td>10.16</td><td>34.8</td><td>-24.6</td></tr><tr><td>711.00</td><td>-1.64</td><td>H</td><td>0.9</td><td>-1.6</td><td>-4.11</td><td>34.8</td><td>-38.9</td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch								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
	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								
LTE Band 12 5MHz 16QAM	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								
LTE Band 12 5MHz 16QAM	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 Company: Samsung Project #: 4788371667 Date: 2018-03-15 Test Engineer: 51072 Configuration: EUT / Z-Position Location: Chamber 2 Mode: LTE_QPSK Band 12 Fundamentals, 1.4MHz 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								
	699.70	11.61	V	0.9	-1.6	9.15	34.8	-25.7	
	699.70	-4.22	H	0.9	-1.6	-6.69	34.8	-41.5	
	Mid Ch								
	707.50	11.33	V	0.9	-1.6	8.86	34.8	-25.9	
	707.50	-2.82	H	0.9	-1.6	-5.29	34.8	-40.1	
	High Ch								
LTE Band 12 1.4MHz 16QAM	715.30	11.62	V	0.9	-1.6	9.14	34.8	-25.7	
	715.30	-2.08	H	0.9	-1.6	-4.56	34.8	-39.4	
LTE Band 12 1.4MHz 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, 1.4MHz 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								
	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								
LTE Band 12 1.4MHz 16QAM	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	

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

GSM GSM850 GPRS		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	
GSM GSM850 EGPRS		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	-8.7	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

GSM GSM1900 GPRS	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	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		
GSM GSM1900 EGPRS	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	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

WCDMA Band 5 REL99		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement 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	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
		MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
		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		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement 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	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
		MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
		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

WCDMA Band 2 REL99	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: 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

WCDMA Band 4 REL99	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement 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
WCDMA Band 4 HSDPA	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement 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
WCDMA Band 4 HSDPA	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement 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

LTE Band 5

LTE Band 5 10MHz QPSK		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 Harmonics, 10MHz Bandwidth									
		f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
		Low Ch, 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									
LTE Band 5 10MHz 16QAM		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_16QAM Band 5 Harmonics, 10MHz Bandwidth									
		f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
		Low Ch, 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									

LTE Band 5 5MHz QPSK		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
		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	

LTE Band 5 3MHz QPSK	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, 3MHz Bandwidth									

LTE

Band 5

1.4MHz

QPSK

UL Verification Services, Inc.

Above 1GHz High Frequency Substitution Measurement

Company: Samsung

Project #: 4788371662

Date: 2018-03-02

Test Engineer: 47989

Configuration: EUT / AC Adapter / Earphone, X-Position

Location: Chamber 2

Mode: LTE_QPSK Band 5 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.7MHz									
1649.40	-16.1	V	3.0	38.2	1.0	-53.3	-13.0	-40.3	
2474.10	-7.6	V	3.0	38.8	1.0	-45.4	-13.0	-32.4	
3298.80	-13.2	V	3.0	39.4	1.0	-51.6	-13.0	-38.6	
4123.50	-3.7	V	3.0	39.8	1.0	-42.5	-13.0	-29.5	
4948.20	-8.5	V	3.0	39.8	1.0	-47.3	-13.0	-34.3	
1649.40	-14.8	H	3.0	38.2	1.0	-52.0	-13.0	-39.0	
2474.10	-5.1	H	3.0	38.8	1.0	-42.9	-13.0	-29.9	
3298.80	-12.0	H	3.0	39.4	1.0	-50.5	-13.0	-37.5	
4123.50	-1.7	H	3.0	39.8	1.0	-40.5	-13.0	-27.5	
4948.20	-12.0	H	3.0	39.8	1.0	-50.7	-13.0	-37.7	
Mid Ch, 836.5MHz									
1673.00	-17.4	V	3.0	38.2	1.0	-54.7	-13.0	-41.7	
2509.50	-8.3	V	3.0	38.8	1.0	-46.1	-13.0	-33.1	
3346.00	-7.6	V	3.0	39.5	1.0	-46.1	-13.0	-33.1	
4182.50	3.8	V	3.0	39.8	1.0	-35.0	-13.0	-22.0	
5019.00	-5.5	V	3.0	39.8	1.0	-44.2	-13.0	-31.2	
1673.00	-16.2	H	3.0	38.2	1.0	-53.5	-13.0	-40.5	
2509.50	-7.6	H	3.0	38.8	1.0	-45.4	-13.0	-32.4	
3346.00	-6.4	H	3.0	39.5	1.0	-44.8	-13.0	-31.8	
4182.50	5.9	H	3.0	39.8	1.0	-32.9	-13.0	-19.9	
5019.00	-4.0	H	3.0	39.8	1.0	-42.7	-13.0	-29.7	
High Ch, 848.3MHz									
1696.60	-17.5	V	3.0	38.2	1.0	-54.8	-13.0	-41.8	
2544.90	-7.3	V	3.0	38.9	1.0	-45.1	-13.0	-32.1	
3393.20	-2.5	V	3.0	39.5	1.0	-40.9	-13.0	-27.9	
4241.50	4.9	V	3.0	39.8	1.0	-33.9	-13.0	-20.9	
5089.80	-7.3	V	3.0	39.8	1.0	-46.1	-13.0	-33.1	
1696.60	-16.9	H	3.0	38.2	1.0	-54.1	-13.0	-41.1	
2544.90	-5.8	H	3.0	38.9	1.0	-43.7	-13.0	-30.7	
3393.20	-3.3	H	3.0	39.5	1.0	-41.8	-13.0	-28.8	
4241.50	7.0	H	3.0	39.8	1.0	-31.8	-13.0	-18.8	
5089.80	-5.5	H	3.0	39.8	1.0	-44.3	-13.0	-31.3	

LTE

Band 5

1.4MHz

16QAM

UL Verification Services, Inc.

Above 1GHz High Frequency Substitution Measurement

Company: Samsung

Project #: 4788371662

Date: 2018-03-02

Test Engineer: 47989

Configuration: EUT / AC Adapter / Earphone, X-Position

Location: Chamber 2

Mode: LTE_16QAM Band 5 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.7MHz									
1649.40	-17.3	V	3.0	38.2	1.0	-54.5	-13.0	-41.5	
2474.10	-6.5	V	3.0	38.8	1.0	-44.3	-13.0	-31.3	
3298.80	-14.3	V	3.0	39.4	1.0	-52.7	-13.0	-39.7	
4123.50	-5.4	V	3.0	39.8	1.0	-44.2	-13.0	-31.2	
4948.20	-9.1	V	3.0	39.8	1.0	-47.9	-13.0	-34.9	
1649.40	-16.1	H	3.0	38.2	1.0	-53.3	-13.0	-40.3	
2474.10	-6.5	H	3.0	38.8	1.0	-44.3	-13.0	-31.3	
3298.80	-13.3	H	3.0	39.4	1.0	-51.7	-13.0	-38.7	
4123.50	-2.6	H	3.0	39.8	1.0	-41.4	-13.0	-28.4	
4948.20	-12.0	H	3.0	39.8	1.0	-50.7	-13.0	-37.7	
Mid Ch, 836.5MHz									
1673.00	-18.1	V	3.0	38.2	1.0	-55.3	-13.0	-42.3	
2509.50	-7.1	V	3.0	38.8	1.0	-45.0	-13.0	-32.0	
3346.00	-6.2	V	3.0	39.5	1.0	-46.6	-13.0	-33.6	
4182.50	2.7	V	3.0	39.8	1.0	-36.1	-13.0	-23.1	
5019.00	-8.1	V	3.0	39.8	1.0	-46.9	-13.0	-33.9	
1673.00	-15.8	H	3.0	38.2	1.0	-53.0	-13.0	-40.0	
2509.50	-7.2	H	3.0	38.8	1.0	-45.1	-13.0	-32.1	
3346.00	-8.6	H	3.0	39.5	1.0	-47.1	-13.0	-34.1	
4182.50	4.7	H	3.0	39.8	1.0	-34.1	-13.0	-21.1	
5019.00	-6.8	H	3.0	39.8	1.0	-45.6	-13.0	-32.6	
High Ch, 848.3MHz									
1696.60	-17.9	V	3.0	38.2	1.0	-55.2	-13.0	-42.2	
2544.90	-8.2	V	3.0	38.9	1.0	-46.1	-13.0	-33.1	
3393.20	-4.7	V	3.0	39.5	1.0	-43.1	-13.0	-30.1	
4241.50	4.0	V	3.0	39.8	1.0	-34.8	-13.0	-21.8	
5089.80	-8.3	V	3.0	39.8	1.0	-47.1	-13.0	-34.1	
1696.60	-16.5	H	3.0	38.2	1.0	-53.7	-13.0	-40.7	
2544.90	-4.8	H	3.0	38.9	1.0	-42.6	-13.0	-29.6	
3393.20	-5.9	H	3.0	39.5	1.0	-44.4	-13.0	-31.4	
4241.50	8.1	H	3.0	39.8	1.0	-30.7	-13.0	-17.7	
5089.80	-6.1	H	3.0	39.8	1.0	-44.9	-13.0	-31.9	

LTE

Band 5

1.4MHz

16QAM

UL Verification Services, Inc.

Above 1GHz High Frequency Substitution Measurement

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

Samsung

4788371662

2018-03-02

47989

EUT / AC Adapter / Earphone, X-Position

Chamber 2

LTE_16QAM Band 5 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.7MHz									
1649.40	-17.3	V	3.0	38.2	1.0	-54.5	-13.0	-41.5	
2474.10	-6.5	V	3.0	38.8	1.0	-44.3	-13.0	-31.3	
3298.80	-14.3	V	3.0	39.4	1.0	-52.7	-13.0	-39.7	
4123.50	-5.4	V	3.0	39.8	1.0	-44.2	-13.0	-31.2	
4948.20	-9.1	V	3.0	39.8	1.0	-47.9	-13.0	-34.9	
1649.40	-16.1	H	3.0	38.2	1.0	-53.3	-13.0	-40.3	
2474.10	-6.5	H	3.0	38.8	1.0	-44.3	-13.0	-31.3	
3298.80	-13.3	H	3.0	39.4	1.0	-51.7	-13.0	-38.7	
4123.50	-2.6	H	3.0	39.8	1.0	-41.4	-13.0	-28.4	
4948.20	-12.0	H	3.0	39.8	1.0	-50.7	-13.0	-37.7	
Mid Ch, 836.5MHz									
1673.00	-18.1	V	3.0	38.2	1.0	-55.3	-13.0	-42.3	
2509.50	-7.1	V	3.0	38.8	1.0	-45.0	-13.0	-32.0	
3346.00	-8.2	V	3.0	39.5	1.0	-46.6	-13.0	-33.6	
4182.50	2.7	V	3.0	39.8	1.0	-36.1	-13.0	-23.1	
5019.00	-8.1	V	3.0	39.8	1.0	-46.9	-13.0	-33.9	
1673.00	-15.8	H	3.0	38.2	1.0	-53.0	-13.0	-40.0	
2509.50	-7.2	H	3.0	38.8	1.0	-45.1	-13.0	-32.1	
3346.00	-8.6	H	3.0	39.5	1.0	-47.1	-13.0	-34.1	
4182.50	4.7	H	3.0	39.8	1.0	-34.1	-13.0	-21.1	
5019.00	-6.8	H	3.0	39.8	1.0	-45.6	-13.0	-32.6	
High Ch, 848.3MHz									
1696.60	-17.9	V	3.0	38.2	1.0	-55.2	-13.0	-42.2	
2544.90	-8.2	V	3.0	38.9	1.0	-46.1	-13.0	-33.1	
3393.20	-4.7	V	3.0	39.5	1.0	-43.1	-13.0	-30.1	
4241.50	4.0	V	3.0	39.8	1.0	-34.8	-13.0	-21.8	
5089.80	-8.3	V	3.0	39.8	1.0	-47.1	-13.0	-34.1	
1696.60	-16.5	H	3.0	38.2	1.0	-53.7	-13.0	-40.7	
2544.90	-4.8	H	3.0	38.9	1.0	-42.6	-13.0	-29.6	
3393.20	-5.9	H	3.0	39.5	1.0	-44.4	-13.0	-31.4	
4241.50	8.1	H	3.0	39.8	1.0	-30.7	-13.0	-17.7	
5089.80	-6.1	H	3.0	39.8	1.0	-44.9	-13.0	-31.9	

LTE Band 41

LTE Band 41 20MHz QPSK	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
	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	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_16QAM 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
	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		

LTE Band 41 15MHz QPSK	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, 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	
	5007.00	-6.7	H	3.0	40.1	1.0	-45.8	-25.0	-20.8	
	7510.50	-9.5	H	3.0	40.0	1.0	-48.6	-25.0	-23.6	
	10014.00	-5.6	H	3.0	40.2	1.0	-44.7	-25.0	-19.7	
	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		
LTE Band 41 15MHz 16QAM	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_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	
	5007.00	-7.5	H	3.0	40.1	1.0	-46.6	-25.0	-21.6	
	7510.50	-10.0	H	3.0	40.0	1.0	-49.0	-25.0	-24.0	
	10014.00	-5.3	H	3.0	40.2	1.0	-44.5	-25.0	-19.5	
	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		

LTE
Band 41
10MHz
QPSK

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

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2501MHz									
5002.00	-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	

LTE
Band 41
10MHz
16QAM

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

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2501MHz									
5002.00	-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	

LTE Band 41 5MHz QPSK	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, 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		
LTE Band 41 5MHz 16QAM	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		