WCDMA Band 5

WCDMA

Band 5
REL99

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-02-25
Test Engineer: 45585
Configuration: EUT / X-Position
Location: Chamber 1
Mode: Rel99 Band 5 Fundamentals

Test Equpment:
Receiving: VULB9163-845, 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								
826.40	10.30	V	1.0	-1.5	7.88	38.5	-30.6	
826.40	20.35	H	1.0	-1.5	17.93	38.5	-20.6	
Mid Ch								
836.60	10.34	V	1.0	-1.4	7.96	38.5	-30.5	
836.60	19.86	H	1.0	-1.4	17.48	38.5	-21.0	
High Ch								
846.60	9.87	V	1.0	-1.4	7.52	38.5	-31.0	
846.60	18.99	H	1.0	-1.4	16.64	38.5	-21.9	

WCDMA

Band 5
HSDPA

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-02-25
Test Engineer: 45585
Configuration: EUT / X-Position
Location: Chamber 1
Mode: HSDPA Band 5 Fundamentals

Test Equpment:
Receiving: VULB9163-845, 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								
826.40	10.10	V	1.0	-1.5	7.68	38.5	-30.8	
826.40	19.85	H	1.0	-1.5	17.43	38.5	-21.1	
Mid Ch								
836.60	9.78	V	1.0	-1.4	7.40	38.5	-31.1	
836.60	19.47	H	1.0	-1.4	17.09	38.5	-21.4	
High Ch								
846.60	9.28	V	1.0	-1.4	6.93	38.5	-31.6	
846.60	18.70	H	1.0	-1.4	16.35	38.5	-22.1	

WCDMA Band 2

WCDMA

Band 2
REL99

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788480738
Date: 2018-05-14
Test Engineer: 51072
Configuration: EUT
Location: Chamber 1
Mode: Rel99 Band 2 Fundamentals

Test Equpment:
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								
1852.40	10.94	V	4.5	9.5	15.93	33.0	-17.1	
1852.40	13.37	H	4.5	9.5	18.36	33.0	-14.6	
Mid Ch								
1880.00	11.91	V	4.5	9.2	16.59	33.0	-16.4	
1880.00	16.02	H	4.5	9.2	20.70	33.0	-12.3	
High Ch								
1907.60	11.87	V	4.6	8.9	16.21	33.0	-16.8	
1907.60	15.71	H	4.6	8.9	20.05	33.0	-12.9	

WCDMA

Band 2
HSDPA

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788480738
Date: 2018-05-14
Test Engineer: 51072
Configuration: EUT
Location: Chamber 1
Mode: HSDPA Band 2 Fundamentals

Test Equpment:
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								
1852.40	9.75	V	4.5	9.5	14.74	33.0	-18.3	
1852.40	12.39	H	4.5	9.5	17.38	33.0	-15.6	
Mid Ch								
1880.00	10.98	V	4.5	9.2	15.66	33.0	-17.3	
1880.00	15.14	H	4.5	9.2	19.82	33.0	-13.2	
High Ch								
1907.60	10.83	V	4.6	8.9	15.17	33.0	-17.8	
1907.60	14.25	H	4.6	8.9	18.59	33.0	-14.4	

LTE Band 5

LTE Band 5 10MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-03-19
Test Engineer: 47989
Configuration: EUT / X-Position
Location: Chamber 1
Mode: LTE_QPSK Band 5 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: VULB9163-845, 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								
829.00	12.21	V	1.0	-1.5	9.80	38.5	-28.7	
829.00	18.73	H	1.0	-1.5	16.32	38.5	-22.2	
Mid Ch								
836.50	11.17	V	1.0	-1.4	8.79	38.5	-29.7	
836.50	18.40	H	1.0	-1.4	16.02	38.5	-22.5	
High Ch								
844.00	10.75	V	1.0	-1.4	8.39	38.5	-30.1	
844.00	17.92	H	1.0	-1.4	15.57	38.5	-22.9	

LTE Band 5 10MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-03-19
Test Engineer: 47989
Configuration: EUT / X-Position
Location: Chamber 1
Mode: LTE_16QAM Band 5 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: VULB9163-845, 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								
829.00	11.24	V	1.0	-1.5	8.83	38.5	-29.7	
829.00	17.91	H	1.0	-1.5	15.50	38.5	-23.0	
Mid Ch								
836.50	10.19	V	1.0	-1.4	7.81	38.5	-30.7	
836.50	17.43	H	1.0	-1.4	15.05	38.5	-23.5	
High Ch								
844.00	9.66	V	1.0	-1.4	7.30	38.5	-31.2	
844.00	16.74	H	1.0	-1.4	14.39	38.5	-24.1	

LTE Band 5 5MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-03-19
Test Engineer: 47989
Configuration: EUT / X-Position
Location: Chamber 1
Mode: LTE_QPSK Band 5 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: VULB9163-845, 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								
826.50	12.27	V	1.0	-1.5	9.85	38.5	-28.6	
826.50	18.50	H	1.0	-1.5	16.08	38.5	-22.4	
Mid Ch								
836.50	11.23	V	1.0	-1.4	8.85	38.5	-29.6	
836.50	18.07	H	1.0	-1.4	15.69	38.5	-22.8	
High Ch								
846.50	9.34	V	1.0	-1.4	6.99	38.5	-31.5	
846.50	17.11	H	1.0	-1.4	14.76	38.5	-23.7	

LTE Band 5 5MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-03-19
Test Engineer: 47989
Configuration: EUT / X-Position
Location: Chamber 1
Mode: LTE_16QAM Band 5 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: VULB9163-845, 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								
826.50	11.26	V	1.0	-1.5	8.84	38.5	-29.7	
826.50	17.49	H	1.0	-1.5	15.07	38.5	-23.4	
Mid Ch								
836.50	9.94	V	1.0	-1.4	7.56	38.5	-30.9	
836.50	17.15	H	1.0	-1.4	14.77	38.5	-23.7	
High Ch								
846.50	8.34	V	1.0	-1.4	5.99	38.5	-32.5	
846.50	16.18	H	1.0	-1.4	13.83	38.5	-24.7	

LTE
Band 5
3MHz
QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-03-19
Test Engineer: 47989
Configuration: EUT / X-Position
Location: Chamber 1
Mode: LTE_QPSK Band 5 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: VULB9163-845, 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								
825.50	12.48	V	1.0	-1.5	10.05	38.5	-28.4	
825.50	18.87	H	1.0	-1.5	16.45	38.5	-22.0	
Mid Ch								
836.50	11.26	V	1.0	-1.4	8.88	38.5	-29.6	
836.50	17.95	H	1.0	-1.4	15.57	38.5	-22.9	
High Ch								
847.50	9.79	V	1.0	-1.4	7.45	38.5	-31.1	
847.50	16.82	H	1.0	-1.4	14.48	38.5	-24.0	

LTE
Band 5
3MHz
16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-03-19
Test Engineer: 47989
Configuration: EUT / X-Position
Location: Chamber 1
Mode: LTE_16QAM Band 5 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: VULB9163-845, 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								
825.50	11.38	V	1.0	-1.5	8.95	38.5	-29.5	
825.50	17.84	H	1.0	-1.5	15.42	38.5	-23.1	
Mid Ch								
836.50	10.35	V	1.0	-1.4	7.97	38.5	-30.5	
836.50	16.97	H	1.0	-1.4	14.59	38.5	-23.9	
High Ch								
847.50	8.91	V	1.0	-1.4	6.57	38.5	-31.9	
847.50	15.85	H	1.0	-1.4	13.51	38.5	-25.0	

LTE

Band 5

1.4MHz

QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788372835
Date:	2018-03-19
Test Engineer:	47989
Configuration:	EUT / X-Position
Location:	Chamber 1
Mode:	LTE_QPSK Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: VULB9163-845, 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								
824.70	10.61	V	1.0	-1.5	8.19	38.5	-30.3	
824.70	16.40	H	1.0	-1.5	13.98	38.5	-24.5	
Mid Ch								
836.50	8.96	V	1.0	-1.4	6.58	38.5	-31.9	
836.50	14.83	H	1.0	-1.4	12.45	38.5	-26.1	
High Ch								
848.30	6.70	V	1.0	-1.4	4.36	38.5	-34.1	
848.30	14.67	H	1.0	-1.4	12.33	38.5	-26.2	

LTE

Band 5

1.4MHz

16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788372835
Date:	2018-03-19
Test Engineer:	47989
Configuration:	EUT / X-Position
Location:	Chamber 1
Mode:	LTE_16QAM Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: VULB9163-845, 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								
824.70	9.64	V	1.0	-1.5	7.22	38.5	-31.3	
824.70	15.56	H	1.0	-1.5	13.14	38.5	-25.4	
Mid Ch								
836.50	7.98	V	1.0	-1.4	5.60	38.5	-32.9	
836.50	13.89	H	1.0	-1.4	11.51	38.5	-27.0	
High Ch								
848.30	5.66	V	1.0	-1.4	3.32	38.5	-35.2	
848.30	13.74	H	1.0	-1.4	11.40	38.5	-27.1	

LTE Band 17

LTE Band 17 10MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788480738
Date: 2018-05-17
Test Engineer: 51072
Configuration: EUT
Location: Chamber 1
Mode: LTE_QPSK Band 17 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: VULB9163-750, 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								
709.00	19.79	V	0.9	-1.6	17.33	34.8	-17.4	
709.00	3.78	H	0.9	-1.6	1.31	34.8	-33.5	
Mid Ch								
710.00	20.02	V	0.9	-1.6	17.55	34.8	-17.2	
710.00	4.08	H	0.9	-1.6	1.61	34.8	-33.2	
High Ch								
711.00	18.93	V	0.9	-1.6	16.46	34.8	-18.3	
711.00	3.26	H	0.9	-1.6	0.78	34.8	-34.0	

LTE Band 17 10MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788480738
Date: 2018-05-17
Test Engineer: 51072
Configuration: EUT
Location: Chamber 1
Mode: LTE_16QAM Band 17 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: VULB9163-750, 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								
709.00	18.72	V	0.9	-1.6	16.26	34.8	-18.5	
709.00	2.50	H	0.9	-1.6	0.03	34.8	-34.7	
Mid Ch								
710.00	19.09	V	0.9	-1.6	16.62	34.8	-18.2	
710.00	2.55	H	0.9	-1.6	0.08	34.8	-34.7	
High Ch								
711.00	17.98	V	0.9	-1.6	15.51	34.8	-19.3	
711.00	2.22	H	0.9	-1.6	-0.26	34.8	-35.0	

LTE

Band 17

5MHz

QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788480738
Date: 2018-05-17
Test Engineer: 51072
Configuration: EUT
Location: Chamber 1
Mode: LTE_QPSK Band 17 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: VULB9163-750, 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								
706.50	19.64	V	0.9	-1.6	17.17	34.8	-17.6	
706.50	2.70	H	0.9	-1.6	0.24	34.8	-34.5	
Mid Ch								
710.00	19.85	V	0.9	-1.6	17.38	34.8	-17.4	
710.00	3.40	H	0.9	-1.6	0.93	34.8	-33.8	
High Ch								
713.50	20.21	V	0.9	-1.6	17.73	34.8	-17.0	
713.50	3.40	H	0.9	-1.6	0.92	34.8	-33.8	

LTE

Band 17

5MHz

16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788480738
Date: 2018-05-17
Test Engineer: 51072
Configuration: EUT
Location: Chamber 1
Mode: LTE_16QAM Band 17 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: VULB9163-750, 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								
706.50	18.72	V	0.9	-1.6	16.25	34.8	-18.5	
706.50	2.27	H	0.9	-1.6	-0.19	34.8	-35.0	
Mid Ch								
710.00	19.08	V	0.9	-1.6	16.61	34.8	-18.2	
710.00	2.37	H	0.9	-1.6	-0.10	34.8	-34.9	
High Ch								
713.50	18.74	V	0.9	-1.6	16.26	34.8	-18.5	
713.50	1.88	H	0.9	-1.6	-0.60	34.8	-35.4	

LTE Band 41

LTE Band 41 20MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788480738
Date: 2018-05-17
Test Engineer: 51072
Configuration: EUT
Location: Chamber 1
Mode: LTE_QPSK Band 41 Fundamentals, 20MHz Bandwidth

Test Equpment:
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								
2506.00	14.83	V	5.3	10.3	19.77	33.0	-13.2	
2506.00	15.76	H	5.3	10.3	20.70	33.0	-12.3	
Mid Ch								
2593.00	16.96	V	5.4	10.1	21.63	33.0	-11.4	
2593.00	16.63	H	5.4	10.1	21.30	33.0	-11.7	
High Ch								
2680.00	14.86	V	5.5	10.2	19.50	33.0	-13.5	
2680.00	17.95	H	5.5	10.2	22.58	33.0	-10.4	

LTE Band 41 20MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788480738
Date: 2018-05-17
Test Engineer: 51072
Configuration: EUT
Location: Chamber 1
Mode: LTE_16QAM Band 41 Fundamentals, 20MHz Bandwidth

Test Equpment:
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								
2506.00	13.26	V	5.3	10.3	18.20	33.0	-14.8	
2506.00	14.37	H	5.3	10.3	19.31	33.0	-13.7	
Mid Ch								
2593.00	16.11	V	5.4	10.1	20.78	33.0	-12.2	
2593.00	17.45	H	5.4	10.1	22.12	33.0	-10.9	
High Ch								
2680.00	13.82	V	5.5	10.2	18.46	33.0	-14.5	
2680.00	16.81	H	5.5	10.2	21.44	33.0	-11.6	

LTE

Band 41

15MHz

QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788480738
Date:	2018-05-15
Test Engineer:	51072
Configuration:	EUT
Location:	Chamber 1
Mode:	LTE_QPSK Band 41 Fundamentals, 15MHz Bandwidth

Test Equpment:
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								
2503.50	16.09	V	5.3	10.3	21.04	33.0	-12.0	
2503.50	17.34	H	5.3	10.3	22.29	33.0	-10.7	
Mid Ch								
2593.00	16.25	V	5.4	10.1	20.92	33.0	-12.1	
2593.00	16.48	H	5.4	10.1	21.15	33.0	-11.9	
High Ch								
2682.50	15.09	V	5.5	10.2	19.72	33.0	-13.3	
2682.50	17.73	H	5.5	10.2	22.37	33.0	-10.6	

LTE

Band 41

15MHz

16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788480738
Date:	2018-05-15
Test Engineer:	51072
Configuration:	EUT
Location:	Chamber 1
Mode:	LTE_16QAM Band 41 Fundamentals, 15MHz Bandwidth

Test Equpment:
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								
2503.50	14.92	V	5.3	10.3	19.87	33.0	-13.1	
2503.50	15.91	H	5.3	10.3	20.86	33.0	-12.1	
Mid Ch								
2593.00	16.41	V	5.4	10.1	21.08	33.0	-11.9	
2593.00	17.54	H	5.4	10.1	22.21	33.0	-10.8	
High Ch								
2682.50	15.35	V	5.5	10.2	19.98	33.0	-13.0	
2682.50	17.10	H	5.5	10.2	21.74	33.0	-11.3	

LTE

Band 41

10MHz

QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788480738
Date:	2018-05-15
Test Engineer:	51072
Configuration:	EUT
Location:	Chamber 1
Mode:	LTE_QPSK Band 41 Fundamentals, 10MHz Bandwidth

Test Equpment:
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								
2501.00	15.96	V	5.3	10.3	20.92	33.0	-12.1	
2501.00	16.41	H	5.3	10.3	21.38	33.0	-11.6	
Mid Ch								
2593.00	17.54	V	5.4	10.1	22.21	33.0	-10.8	
2593.00	18.39	H	5.4	10.1	23.06	33.0	-9.9	
High Ch								
2685.00	16.63	V	5.5	10.2	21.26	33.0	-11.7	
2685.00	17.65	H	5.5	10.2	22.28	33.0	-10.7	

LTE

Band 41

10MHz

16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788480738
Date:	2018-05-15
Test Engineer:	51072
Configuration:	EUT
Location:	Chamber 1
Mode:	LTE_16QAM Band 41 Fundamentals, 10MHz Bandwidth

Test Equpment:
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								
2501.00	16.27	V	5.3	10.3	21.23	33.0	-11.8	
2501.00	16.49	H	5.3	10.3	21.46	33.0	-11.5	
Mid Ch								
2593.00	16.68	V	5.4	10.1	21.35	33.0	-11.7	
2593.00	17.06	H	5.4	10.1	21.73	33.0	-11.3	
High Ch								
2685.00	15.73	V	5.5	10.2	20.36	33.0	-12.6	
2685.00	17.80	H	5.5	10.2	22.43	33.0	-10.6	

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LTE Band 41 5MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788480738
Date: 2018-05-15
Test Engineer: 51072
Configuration: EUT
Location: Chamber 1
Mode: LTE_QPSK Band 41 Fundamentals, 5MHz Bandwidth

Test Equpment:
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								
2498.50	15.51	V	5.3	10.3	20.51	33.0	-12.5	
2498.50	16.53	H	5.3	10.3	21.53	33.0	-11.5	
Mid Ch								
2593.00	17.52	V	5.4	10.1	22.19	33.0	-10.8	
2593.00	18.53	H	5.4	10.1	23.20	33.0	-9.8	
High Ch								
2687.50	15.37	V	5.5	10.2	20.00	33.0	-13.0	
2687.50	17.48	H	5.5	10.2	22.11	33.0	-10.9	

LTE Band 41 5MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 4788480738
Date: 2018-05-15
Test Engineer: 51072
Configuration: EUT
Location: Chamber 1
Mode: LTE_16QAM Band 41 Fundamentals, 5MHz Bandwidth

Test Equpment:
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								
2498.50	15.92	V	5.3	10.3	20.92	33.0	-12.1	
2498.50	16.20	H	5.3	10.3	21.20	33.0	-11.8	
Mid Ch								
2593.00	16.92	V	5.4	10.1	21.59	33.0	-11.4	
2593.00	17.67	H	5.4	10.1	22.34	33.0	-10.7	
High Ch								
2687.50	14.68	V	5.5	10.2	19.31	33.0	-13.7	
2687.50	16.81	H	5.5	10.2	21.44	33.0	-11.6	

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_22/24/27
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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.

TEST PROCEDURE

ANSI / TIA / EIA 603 E Clause 2.2.12; ESU40 setting reference to 971168 D01 v03r01

For peak power measurement with a ESU40:

a) Set the RBW = 100 KHz for emission below 1GHz and 1MHz for emissions above 1GHz

b) Set VBW ≥ 3 × RBW;

c) Set span ≥ 1.5 times the OBW;

d) Sweep time = auto couple;

e) Detector = peak(WCDMA B5, LTE B5), rms(GSM1900, WCDMA B2, LTE B17, LTE B41);

f) Ensure that the number of measurement points ≥ span/RBW;

g) Trace mode = max hold(GSM1900, WCDMA B5, LTE B5, LTE B41), average(WCDMA B2, LTE B17);

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 1900

GSM

GSM1900
GPRS

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788480738
Date:	2018-05-21
Test Engineer:	51072
Configuration:	EUT / Adapter / Earphone , Z-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	-24.0	V	3.0	39.7	1.0	-62.6	-13.0	-49.6	
5550.60	-20.4	V	3.0	39.9	1.0	-59.4	-13.0	-46.4	
7400.80	-19.7	V	3.0	39.4	1.0	-58.1	-13.0	-45.1	
3700.40	-23.9	H	3.0	39.7	1.0	-62.6	-13.0	-49.6	
5550.60	-21.6	H	3.0	39.9	1.0	-60.5	-13.0	-47.5	
7400.80	-21.3	H	3.0	39.4	1.0	-59.7	-13.0	-46.7	
Mid Ch, 1880MHz									
3760.00	-20.1	V	3.0	39.7	1.0	-58.8	-13.0	-45.8	
5640.00	-20.0	V	3.0	40.0	1.0	-58.9	-13.0	-45.9	
7520.00	-17.9	V	3.0	39.4	1.0	-56.3	-13.0	-43.3	
3760.00	-21.7	H	3.0	39.7	1.0	-60.3	-13.0	-47.3	
5640.00	-22.2	H	3.0	40.0	1.0	-61.2	-13.0	-48.2	
7520.00	-17.1	H	3.0	39.4	1.0	-55.4	-13.0	-42.4	
High Ch, 1909.8MHz									
3819.60	-16.1	V	3.0	39.7	1.0	-54.8	-13.0	-41.8	
5729.40	-20.5	V	3.0	40.0	1.0	-59.5	-13.0	-46.5	
7639.20	-12.5	V	3.0	39.3	1.0	-50.8	-13.0	-37.8	
3819.60	-19.3	H	3.0	39.7	1.0	-58.0	-13.0	-45.0	
5729.40	-22.9	H	3.0	40.0	1.0	-61.8	-13.0	-48.8	
7639.20	-13.5	H	3.0	39.3	1.0	-51.8	-13.0	-38.8	

GSM

GSM1900
EGPRS

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788480738
Date:	2018-05-21
Test Engineer:	51072
Configuration:	EUT / Adapter / Earphone , Z-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	-25.4	V	3.0	39.7	1.0	-64.1	-13.0	-51.1	
5550.60	-23.1	V	3.0	39.9	1.0	-62.0	-13.0	-49.0	
7400.80	-21.6	V	3.0	39.4	1.0	-60.0	-13.0	-47.0	
3700.40	-26.1	H	3.0	39.7	1.0	-64.7	-13.0	-51.7	
5550.60	-22.8	H	3.0	39.9	1.0	-61.7	-13.0	-48.7	
7400.80	-22.6	H	3.0	39.4	1.0	-61.0	-13.0	-48.0	
Mid Ch, 1880MHz									
3760.00	-24.5	V	3.0	39.7	1.0	-63.2	-13.0	-50.2	
5640.00	-22.9	V	3.0	40.0	1.0	-61.8	-13.0	-48.8	
7520.00	-21.9	V	3.0	39.4	1.0	-60.3	-13.0	-47.3	
3760.00	-25.2	H	3.0	39.7	1.0	-63.9	-13.0	-50.9	
5640.00	-22.9	H	3.0	40.0	1.0	-61.9	-13.0	-48.9	
7520.00	-20.3	H	3.0	39.4	1.0	-58.6	-13.0	-45.6	
High Ch, 1909.8MHz									
3819.60	-21.6	V	3.0	39.7	1.0	-60.3	-13.0	-47.3	
5729.40	-23.3	V	3.0	40.0	1.0	-62.3	-13.0	-49.3	
7639.20	-19.9	V	3.0	39.3	1.0	-58.3	-13.0	-45.3	
3819.60	-23.5	H	3.0	39.7	1.0	-62.2	-13.0	-49.2	
5729.40	-23.5	H	3.0	40.0	1.0	-62.5	-13.0	-49.5	
7639.20	-20.6	H	3.0	39.3	1.0	-58.9	-13.0	-45.9	

WCDMA Band 5

WCDMA

Band 5
REL99

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-02-27
Test Engineer: 45585
Configuration: EUT / Adapter / Earphone , X-Position
Location: Chamber 1
Mode: Rel99 Band 5 Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.4MHz									
1652.80	-9.3	V	3.0	43.6	1.0	-51.9	-13.0	-38.9	
2479.20	-9.5	V	3.0	43.4	1.0	-51.9	-13.0	-38.9	
3305.60	-8.1	V	3.0	43.6	1.0	-50.7	-13.0	-37.7	
1652.80	-8.2	H	3.0	43.6	1.0	-50.8	-13.0	-37.8	
2479.20	-8.5	H	3.0	43.4	1.0	-50.9	-13.0	-37.9	
3305.60	-7.6	H	3.0	43.6	1.0	-50.2	-13.0	-37.2	
Mid Ch, 836.6MHz									
1673.20	-9.7	V	3.0	43.6	1.0	-52.2	-13.0	-39.2	
2509.80	-9.5	V	3.0	43.4	1.0	-51.9	-13.0	-38.9	
3346.40	-8.7	V	3.0	43.6	1.0	-51.3	-13.0	-38.3	
1673.20	-10.0	H	3.0	43.6	1.0	-52.5	-13.0	-39.5	
2509.80	-10.0	H	3.0	43.4	1.0	-52.4	-13.0	-39.4	
3346.40	-7.9	H	3.0	43.6	1.0	-50.5	-13.0	-37.5	
High Ch, 846.6MHz									
1693.20	-8.6	V	3.0	43.6	1.0	-51.2	-13.0	-38.2	
2539.80	-9.6	V	3.0	43.4	1.0	-52.0	-13.0	-39.0	
3386.40	-8.4	V	3.0	43.7	1.0	-51.0	-13.0	-38.0	
1693.20	-9.6	H	3.0	43.6	1.0	-52.1	-13.0	-39.1	
2539.80	-9.5	H	3.0	43.4	1.0	-51.9	-13.0	-38.9	
3386.40	-7.7	H	3.0	43.7	1.0	-50.4	-13.0	-37.4	

WCDMA

Band 5
HSDPA

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-02-27
Test Engineer: 45585
Configuration: EUT / Adapter / Earphone , X-Position
Location: Chamber 1
Mode: HSDPA Band 5 Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.4MHz									
1652.80	-10.0	V	3.0	43.6	1.0	-52.6	-13.0	-39.6	
2479.20	-9.8	V	3.0	43.4	1.0	-52.2	-13.0	-39.2	
3305.60	-8.1	V	3.0	43.6	1.0	-50.8	-13.0	-37.8	
1652.80	-9.6	H	3.0	43.6	1.0	-52.2	-13.0	-39.2	
2479.20	-9.7	H	3.0	43.4	1.0	-52.1	-13.0	-39.1	
3305.60	-7.6	H	3.0	43.6	1.0	-50.3	-13.0	-37.3	
Mid Ch, 836.6MHz									
1673.20	-10.1	V	3.0	43.6	1.0	-52.6	-13.0	-39.6	
2509.80	-9.5	V	3.0	43.4	1.0	-51.9	-13.0	-38.9	
3346.40	-8.4	V	3.0	43.6	1.0	-51.1	-13.0	-38.1	
1673.20	-10.6	H	3.0	43.6	1.0	-53.2	-13.0	-40.2	
2509.80	-9.8	H	3.0	43.4	1.0	-52.2	-13.0	-39.2	
3346.40	-7.9	H	3.0	43.6	1.0	-50.5	-13.0	-37.5	
High Ch, 846.6MHz									
1693.20	-10.2	V	3.0	43.6	1.0	-52.8	-13.0	-39.8	
2539.80	-9.3	V	3.0	43.4	1.0	-51.7	-13.0	-38.7	
3386.40	-8.1	V	3.0	43.7	1.0	-50.8	-13.0	-37.8	
1693.20	-10.0	H	3.0	43.6	1.0	-52.6	-13.0	-39.6	
2539.80	-9.2	H	3.0	43.4	1.0	-51.6	-13.0	-38.6	
3386.40	-7.8	H	3.0	43.7	1.0	-50.4	-13.0	-37.4	

WCDMA Band 2

WCDMA

Band 2
REL99

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788480738
Date:	2018-05-22
Test Engineer:	51072
Configuration:	EUT / Adapter / Earphone , Z-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	-19.5	V	3.0	43.8	1.0	-62.3	-13.0	-49.3	
5557.20	-18.1	V	3.0	43.7	1.0	-60.8	-13.0	-47.8	
7409.60	-18.2	V	3.0	42.5	1.0	-59.7	-13.0	-46.7	
3704.80	-18.6	H	3.0	43.8	1.0	-61.4	-13.0	-48.4	
5557.20	-18.4	H	3.0	43.7	1.0	-61.2	-13.0	-48.2	
7409.60	-17.7	H	3.0	42.5	1.0	-59.2	-13.0	-46.2	
Mid Ch, 1880MHz									
3760.00	-19.7	V	3.0	43.8	1.0	-62.5	-13.0	-49.5	
5640.00	-17.9	V	3.0	43.7	1.0	-60.6	-13.0	-47.6	
7520.00	-17.4	V	3.0	42.5	1.0	-58.8	-13.0	-45.8	
3760.00	-18.6	H	3.0	43.8	1.0	-61.4	-13.0	-48.4	
5640.00	-17.9	H	3.0	43.7	1.0	-60.6	-13.0	-47.6	
7520.00	-16.7	H	3.0	42.5	1.0	-58.1	-13.0	-45.1	
High Ch, 1907.6MHz									
3815.20	-19.9	V	3.0	43.8	1.0	-62.7	-13.0	-49.7	
5722.80	-17.4	V	3.0	43.7	1.0	-60.1	-13.0	-47.1	
7630.40	-14.9	V	3.0	42.4	1.0	-56.3	-13.0	-43.3	
3815.20	-19.7	H	3.0	43.8	1.0	-62.5	-13.0	-49.5	
5722.80	-17.7	H	3.0	43.7	1.0	-60.4	-13.0	-47.4	
7630.40	-17.6	H	3.0	42.4	1.0	-59.0	-13.0	-46.0	

WCDMA

Band 2
HSDPA

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788480738
Date:	2018-05-22
Test Engineer:	51072
Configuration:	EUT / Adapter / Earphone , Z-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	-19.6	V	3.0	43.8	1.0	-62.4	-13.0	-49.4	
5557.20	-18.1	V	3.0	43.7	1.0	-60.8	-13.0	-47.8	
7409.60	-18.2	V	3.0	42.5	1.0	-59.7	-13.0	-46.7	
3704.80	-18.8	H	3.0	43.8	1.0	-61.6	-13.0	-48.6	
5557.20	-18.4	H	3.0	43.7	1.0	-61.1	-13.0	-48.1	
7409.60	-17.7	H	3.0	42.5	1.0	-59.2	-13.0	-46.2	
Mid Ch, 1880MHz									
3760.00	-19.8	V	3.0	43.8	1.0	-62.6	-13.0	-49.6	
5640.00	-18.0	V	3.0	43.7	1.0	-60.7	-13.0	-47.7	
7520.00	-17.4	V	3.0	42.5	1.0	-58.8	-13.0	-45.8	
3760.00	-18.8	H	3.0	43.8	1.0	-61.6	-13.0	-48.6	
5640.00	-18.1	H	3.0	43.7	1.0	-60.8	-13.0	-47.8	
7520.00	-16.9	H	3.0	42.5	1.0	-58.4	-13.0	-45.4	
High Ch, 1907.6MHz									
3815.20	-19.7	V	3.0	43.8	1.0	-62.5	-13.0	-49.5	
5722.80	-17.4	V	3.0	43.7	1.0	-60.1	-13.0	-47.1	
7630.40	-17.0	V	3.0	42.4	1.0	-58.4	-13.0	-45.4	
3815.20	-19.7	H	3.0	43.8	1.0	-62.5	-13.0	-49.5	
5722.80	-17.7	H	3.0	43.7	1.0	-60.4	-13.0	-47.4	
7630.40	-17.6	H	3.0	42.4	1.0	-59.0	-13.0	-46.0	

LTE Band 5

LTE Band 5 10MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-03-05
Test Engineer: 45585
Configuration: EUT / Adapter / Earphone, X-Position
Location: Chamber 1
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	-8.9	V	3.0	43.6	1.0	-51.5	-13.0	-38.5	
2487.00	-8.4	V	3.0	43.4	1.0	-50.9	-13.0	-37.9	
3316.00	-9.0	V	3.0	43.6	1.0	-51.6	-13.0	-38.6	
1658.00	-8.4	H	3.0	43.6	1.0	-51.0	-13.0	-38.0	
2487.00	-9.2	H	3.0	43.4	1.0	-51.6	-13.0	-38.6	
3316.00	-8.1	H	3.0	43.6	1.0	-50.7	-13.0	-37.7	
Mid Ch, 836.5MHz									
1673.00	-10.1	V	3.0	43.6	1.0	-52.7	-13.0	-39.7	
2509.50	-6.4	V	3.0	43.4	1.0	-48.8	-13.0	-35.8	
3346.00	-8.4	V	3.0	43.6	1.0	-51.1	-13.0	-38.1	
1673.00	-9.9	H	3.0	43.6	1.0	-52.4	-13.0	-39.4	
2509.50	-7.6	H	3.0	43.4	1.0	-50.1	-13.0	-37.1	
3346.00	-8.1	H	3.0	43.6	1.0	-50.8	-13.0	-37.8	
High Ch, 844MHz									
1688.00	-9.8	V	3.0	43.6	1.0	-52.4	-13.0	-39.4	
2532.00	-9.5	V	3.0	43.4	1.0	-52.0	-13.0	-39.0	
3376.00	-8.7	V	3.0	43.7	1.0	-51.4	-13.0	-38.4	
1688.00	-9.4	H	3.0	43.6	1.0	-51.9	-13.0	-38.9	
2532.00	-8.8	H	3.0	43.4	1.0	-51.2	-13.0	-38.2	
3376.00	-8.7	H	3.0	43.7	1.0	-51.4	-13.0	-38.4	

LTE Band 5 10MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-03-05
Test Engineer: 45585
Configuration: EUT / Adapter / Earphone, X-Position
Location: Chamber 1
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	-8.5	V	3.0	43.6	1.0	-51.1	-13.0	-38.1	
2487.00	-9.3	V	3.0	43.4	1.0	-51.7	-13.0	-38.7	
3316.00	-8.9	V	3.0	43.6	1.0	-51.6	-13.0	-38.6	
1658.00	-7.6	H	3.0	43.6	1.0	-50.2	-13.0	-37.2	
2487.00	-8.3	H	3.0	43.4	1.0	-50.7	-13.0	-37.7	
3316.00	-8.2	H	3.0	43.6	1.0	-50.8	-13.0	-37.8	
Mid Ch, 836.5MHz									
1673.00	-9.9	V	3.0	43.6	1.0	-52.4	-13.0	-39.4	
2509.50	-6.2	V	3.0	43.4	1.0	-48.6	-13.0	-35.6	
3346.00	-8.3	V	3.0	43.6	1.0	-51.0	-13.0	-38.0	
1673.00	-9.6	H	3.0	43.6	1.0	-52.2	-13.0	-39.2	
2509.50	-7.0	H	3.0	43.4	1.0	-49.4	-13.0	-36.4	
3346.00	-7.6	H	3.0	43.6	1.0	-50.2	-13.0	-37.2	
High Ch, 844MHz									
1688.00	-9.7	V	3.0	43.6	1.0	-52.2	-13.0	-39.2	
2532.00	-9.1	V	3.0	43.4	1.0	-51.6	-13.0	-38.6	
3376.00	-9.1	V	3.0	43.7	1.0	-51.7	-13.0	-38.7	
1688.00	-9.5	H	3.0	43.6	1.0	-52.1	-13.0	-39.1	
2532.00	-8.7	H	3.0	43.4	1.0	-51.2	-13.0	-38.2	
3376.00	-8.4	H	3.0	43.7	1.0	-51.0	-13.0	-38.0	

LTE Band 5 5MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-03-05
Test Engineer: 45585
Configuration: EUT / Adapter / Earphone, X-Position
Location: Chamber 1
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	-8.8	V	3.0	43.6	1.0	-51.3	-13.0	-38.3	
2479.50	-9.3	V	3.0	43.4	1.0	-51.7	-13.0	-38.7	
3306.00	-8.4	V	3.0	43.6	1.0	-51.0	-13.0	-38.0	
1653.00	-7.0	H	3.0	43.6	1.0	-49.5	-13.0	-36.5	
2479.50	-7.9	H	3.0	43.4	1.0	-50.3	-13.0	-37.3	
3306.00	-8.1	H	3.0	43.6	1.0	-50.8	-13.0	-37.8	
Mid Ch, 836.5MHz									
1673.00	-9.9	V	3.0	43.6	1.0	-52.4	-13.0	-39.4	
2509.50	-7.0	V	3.0	43.4	1.0	-49.4	-13.0	-36.4	
3346.00	-9.2	V	3.0	43.6	1.0	-51.9	-13.0	-38.9	
1673.00	-9.7	H	3.0	43.6	1.0	-52.2	-13.0	-39.2	
2509.50	-7.4	H	3.0	43.4	1.0	-49.8	-13.0	-36.8	
3346.00	-7.8	H	3.0	43.6	1.0	-50.4	-13.0	-37.4	
High Ch, 846.5MHz									
1693.00	-11.1	V	3.0	43.6	1.0	-53.7	-13.0	-40.7	
2539.50	-8.6	V	3.0	43.4	1.0	-51.0	-13.0	-38.0	
3386.00	-7.1	V	3.0	43.7	1.0	-49.7	-13.0	-36.7	
1693.00	-11.2	H	3.0	43.6	1.0	-53.8	-13.0	-40.8	
2539.50	-8.3	H	3.0	43.4	1.0	-50.7	-13.0	-37.7	
3386.00	-8.7	H	3.0	43.7	1.0	-51.4	-13.0	-38.4	

LTE Band 5 5MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-03-05
Test Engineer: 45585
Configuration: EUT / Adapter / Earphone, X-Position
Location: Chamber 1
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	-8.1	V	3.0	43.6	1.0	-50.7	-13.0	-37.7	
2479.50	-8.7	V	3.0	43.4	1.0	-51.1	-13.0	-38.1	
3306.00	-8.6	V	3.0	43.6	1.0	-51.2	-13.0	-38.2	
1653.00	-7.5	H	3.0	43.6	1.0	-50.1	-13.0	-37.1	
2479.50	-7.6	H	3.0	43.4	1.0	-50.0	-13.0	-37.0	
3306.00	-7.8	H	3.0	43.6	1.0	-50.4	-13.0	-37.4	
Mid Ch, 836.5MHz									
1673.00	-9.8	V	3.0	43.6	1.0	-52.4	-13.0	-39.4	
2509.50	-6.9	V	3.0	43.4	1.0	-49.3	-13.0	-36.3	
3346.00	-9.3	V	3.0	43.6	1.0	-51.9	-13.0	-38.9	
1673.00	-9.7	H	3.0	43.6	1.0	-52.3	-13.0	-39.3	
2509.50	-7.4	H	3.0	43.4	1.0	-49.9	-13.0	-36.9	
3346.00	-8.2	H	3.0	43.6	1.0	-50.9	-13.0	-37.9	
High Ch, 846.5MHz									
1693.00	-11.1	V	3.0	43.6	1.0	-53.7	-13.0	-40.7	
2539.50	-8.5	V	3.0	43.4	1.0	-50.9	-13.0	-37.9	
3386.00	-8.4	V	3.0	43.7	1.0	-51.1	-13.0	-38.1	
1693.00	-10.5	H	3.0	43.6	1.0	-53.1	-13.0	-40.1	
2539.50	-8.8	H	3.0	43.4	1.0	-51.2	-13.0	-38.2	
3386.00	-9.0	H	3.0	43.7	1.0	-51.7	-13.0	-38.7	

LTE Band 5 3MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-02-27
Test Engineer: 45585
Configuration: EUT / Adapter / Earphone , X-Position
Location: Chamber 1
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	-6.8	V	3.0	43.6	1.0	-49.4	-13.0	-36.4	
2476.50	-7.6	V	3.0	43.4	1.0	-50.0	-13.0	-37.0	
3302.00	-7.3	V	3.0	43.6	1.0	-49.9	-13.0	-36.9	
1651.00	-6.4	H	3.0	43.6	1.0	-49.0	-13.0	-36.0	
2476.50	-7.0	H	3.0	43.4	1.0	-49.4	-13.0	-36.4	
3302.00	-7.5	H	3.0	43.6	1.0	-50.1	-13.0	-37.1	
Mid Ch, 836.5MHz									
1673.00	-9.3	V	3.0	43.6	1.0	-51.9	-13.0	-38.9	
2509.50	-5.8	V	3.0	43.4	1.0	-48.2	-13.0	-35.2	
3346.00	-8.4	V	3.0	43.6	1.0	-51.0	-13.0	-38.0	
1673.00	-8.1	H	3.0	43.6	1.0	-50.7	-13.0	-37.7	
2509.50	-9.4	H	3.0	43.4	1.0	-51.9	-13.0	-38.9	
3346.00	-7.7	H	3.0	43.6	1.0	-50.3	-13.0	-37.3	
High Ch, 847.5MHz									
1695.00	-6.8	V	3.0	43.6	1.0	-49.4	-13.0	-36.4	
2542.50	-9.4	V	3.0	43.4	1.0	-51.8	-13.0	-38.8	
3390.00	-8.7	V	3.0	43.7	1.0	-51.4	-13.0	-38.4	
1695.00	-6.3	H	3.0	43.6	1.0	-48.9	-13.0	-35.9	
2542.50	-8.7	H	3.0	43.4	1.0	-51.2	-13.0	-38.2	
3390.00	-8.0	H	3.0	43.7	1.0	-50.7	-13.0	-37.7	

LTE Band 5 3MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-02-27
Test Engineer: 45585
Configuration: EUT / Adapter / Earphone , X-Position
Location: Chamber 1
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	-6.4	V	3.0	43.6	1.0	-49.0	-13.0	-36.0	
2476.50	-7.2	V	3.0	43.4	1.0	-49.6	-13.0	-36.6	
3302.00	-7.8	V	3.0	43.6	1.0	-50.4	-13.0	-37.4	
1651.00	-6.2	H	3.0	43.6	1.0	-48.8	-13.0	-35.8	
2476.50	-6.7	H	3.0	43.4	1.0	-49.1	-13.0	-36.1	
3302.00	-7.6	H	3.0	43.6	1.0	-50.2	-13.0	-37.2	
Mid Ch, 836.5MHz									
1673.00	-8.8	V	3.0	43.6	1.0	-51.4	-13.0	-38.4	
2509.50	-5.3	V	3.0	43.4	1.0	-47.8	-13.0	-34.8	
3346.00	-8.4	V	3.0	43.6	1.0	-51.0	-13.0	-38.0	
1673.00	-8.4	H	3.0	43.6	1.0	-51.0	-13.0	-38.0	
2509.50	-9.4	H	3.0	43.4	1.0	-51.8	-13.0	-38.8	
3346.00	-7.8	H	3.0	43.6	1.0	-50.4	-13.0	-37.4	
High Ch, 847.5MHz									
1695.00	-5.5	V	3.0	43.6	1.0	-48.1	-13.0	-35.1	
2542.50	-9.4	V	3.0	43.4	1.0	-51.8	-13.0	-38.8	
3390.00	-8.4	V	3.0	43.7	1.0	-51.1	-13.0	-38.1	
1695.00	-5.4	H	3.0	43.6	1.0	-47.9	-13.0	-34.9	
2542.50	-9.2	H	3.0	43.4	1.0	-51.7	-13.0	-38.7	
3390.00	-8.3	H	3.0	43.7	1.0	-51.0	-13.0	-38.0	

LTE Band 5 1.4MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-02-27
Test Engineer: 45585
Configuration: EUT / Adapter / Earphone , X-Position
Location: Chamber 1
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	-7.2	V	3.0	43.6	1.0	-49.8	-13.0	-36.8	
2474.10	-7.7	V	3.0	43.4	1.0	-50.2	-13.0	-37.2	
3298.80	-7.9	V	3.0	43.6	1.0	-50.5	-13.0	-37.5	
1649.40	-6.8	H	3.0	43.6	1.0	-49.3	-13.0	-36.3	
2474.10	-5.7	H	3.0	43.4	1.0	-48.1	-13.0	-35.1	
3298.80	-7.7	H	3.0	43.6	1.0	-50.3	-13.0	-37.3	
Mid Ch, 836.5MHz									
1673.00	-9.1	V	3.0	43.6	1.0	-51.6	-13.0	-38.6	
2509.50	-9.0	V	3.0	43.4	1.0	-51.4	-13.0	-38.4	
3346.00	-8.5	V	3.0	43.6	1.0	-51.2	-13.0	-38.2	
1673.00	-8.3	H	3.0	43.6	1.0	-50.8	-13.0	-37.8	
2509.50	-7.5	H	3.0	43.4	1.0	-50.0	-13.0	-37.0	
3346.00	-7.7	H	3.0	43.6	1.0	-50.3	-13.0	-37.3	
High Ch, 848.3MHz									
1696.60	-4.1	V	3.0	43.6	1.0	-46.6	-13.0	-33.6	
2544.90	-8.4	V	3.0	43.4	1.0	-50.8	-13.0	-37.8	
3393.20	-8.6	V	3.0	43.7	1.0	-51.2	-13.0	-38.2	
1696.60	-4.9	H	3.0	43.6	1.0	-47.5	-13.0	-34.5	
2544.90	-9.4	H	3.0	43.4	1.0	-51.8	-13.0	-38.8	
3393.20	-7.7	H	3.0	43.7	1.0	-50.4	-13.0	-37.4	

LTE Band 5 1.4MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788372835
Date: 2018-02-27
Test Engineer: 45585
Configuration: EUT / Adapter / Earphone , X-Position
Location: Chamber 1
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	-7.2	V	3.0	43.6	1.0	-49.8	-13.0	-36.8	
2474.10	-6.8	V	3.0	43.4	1.0	-49.2	-13.0	-36.2	
3298.80	-7.8	V	3.0	43.6	1.0	-50.4	-13.0	-37.4	
1649.40	-6.4	H	3.0	43.6	1.0	-49.0	-13.0	-36.0	
2474.10	-5.9	H	3.0	43.4	1.0	-48.3	-13.0	-35.3	
3298.80	-7.3	H	3.0	43.6	1.0	-50.0	-13.0	-37.0	
Mid Ch, 836.5MHz									
1673.00	-9.3	V	3.0	43.6	1.0	-51.9	-13.0	-38.9	
2509.50	-8.4	V	3.0	43.4	1.0	-50.9	-13.0	-37.9	
3346.00	-8.4	V	3.0	43.6	1.0	-51.0	-13.0	-38.0	
1673.00	-8.5	H	3.0	43.6	1.0	-51.1	-13.0	-38.1	
2509.50	-6.9	H	3.0	43.4	1.0	-49.3	-13.0	-36.3	
3346.00	-7.8	H	3.0	43.6	1.0	-50.5	-13.0	-37.5	
High Ch, 848.3MHz									
1696.60	-3.7	V	3.0	43.6	1.0	-46.2	-13.0	-33.2	
2544.90	-8.9	V	3.0	43.4	1.0	-51.3	-13.0	-38.3	
3393.20	-8.1	V	3.0	43.7	1.0	-50.7	-13.0	-37.7	
1696.60	-4.8	H	3.0	43.6	1.0	-47.3	-13.0	-34.3	
2544.90	-8.7	H	3.0	43.4	1.0	-51.1	-13.0	-38.1	
3393.20	-8.2	H	3.0	43.7	1.0	-50.8	-13.0	-37.8	

LTE Band 17

LTE

Band 17

10MHz

QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788480738
Date:	2018-05-23
Test Engineer:	47989
Configuration:	EUT / AC Adapter / Earphone, Z-Position
Location:	Chamber 2
Mode:	LTE_QPSK Band 17 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, 709MHz									
1418.00	-9.1	V	3.0	38.1	1.0	-46.2	-13.0	-33.2	
2127.00	-15.6	V	3.0	38.5	1.0	-53.1	-13.0	-40.1	
2836.00	-11.5	V	3.0	39.1	1.0	-49.6	-13.0	-36.6	
3545.00	-8.2	V	3.0	39.6	1.0	-46.8	-13.0	-33.8	
4254.00	-22.0	V	3.0	39.8	1.0	-60.8	-13.0	-47.8	
1418.00	-11.2	H	3.0	38.1	1.0	-48.3	-13.0	-35.3	
2127.00	-16.9	H	3.0	38.5	1.0	-54.4	-13.0	-41.4	
2836.00	-14.4	H	3.0	39.1	1.0	-52.5	-13.0	-39.5	
3545.00	-11.2	H	3.0	39.6	1.0	-49.8	-13.0	-36.8	
4254.00	-21.9	H	3.0	39.8	1.0	-60.7	-13.0	-47.7	
Mid Ch, 710MHz									
1420.00	-7.1	V	3.0	38.1	1.0	-44.2	-13.0	-31.2	
2130.00	-15.3	V	3.0	38.5	1.0	-52.8	-13.0	-39.8	
2840.00	-11.4	V	3.0	39.1	1.0	-49.5	-13.0	-36.5	
3550.00	-6.5	V	3.0	39.6	1.0	-45.0	-13.0	-32.0	
4260.00	-23.4	V	3.0	39.8	1.0	-62.2	-13.0	-49.2	
1420.00	-7.8	H	3.0	38.1	1.0	-45.0	-13.0	-32.0	
2130.00	-17.7	H	3.0	38.5	1.0	-55.2	-13.0	-42.2	
2840.00	-14.2	H	3.0	39.1	1.0	-52.3	-13.0	-39.3	
3550.00	-11.2	H	3.0	39.6	1.0	-49.8	-13.0	-36.8	
4260.00	-22.5	H	3.0	39.8	1.0	-61.4	-13.0	-48.4	
High Ch, 711MHz									
1422.00	-7.2	V	3.0	38.1	1.0	-44.3	-13.0	-31.3	
2133.00	-14.2	V	3.0	38.5	1.0	-51.7	-13.0	-38.7	
2844.00	-12.0	V	3.0	39.1	1.0	-50.1	-13.0	-37.1	
3555.00	-7.7	V	3.0	39.6	1.0	-46.3	-13.0	-33.3	
4266.00	-23.0	V	3.0	39.8	1.0	-61.8	-13.0	-48.8	
1422.00	-10.4	H	3.0	38.1	1.0	-47.5	-13.0	-34.5	
2133.00	-19.3	H	3.0	38.5	1.0	-56.8	-13.0	-43.8	
2844.00	-14.7	H	3.0	39.1	1.0	-52.8	-13.0	-39.8	
3555.00	-10.6	H	3.0	39.6	1.0	-49.1	-13.0	-36.1	
4266.00	-22.6	H	3.0	39.8	1.0	-61.4	-13.0	-48.4	

LTE

Band 17

10MHz

16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788480738
Date:	2018-05-23
Test Engineer:	47989
Configuration:	EUT / AC Adapter / Earphone, Z-Position
Location:	Chamber 2
Mode:	LTE_16QAM Band 17 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, 709MHz									
1418.00	-7.9	V	3.0	38.1	1.0	-45.1	-13.0	-32.1	
2127.00	-16.9	V	3.0	38.5	1.0	-54.4	-13.0	-41.4	
2836.00	-14.0	V	3.0	39.1	1.0	-52.1	-13.0	-39.1	
3545.00	-9.4	V	3.0	39.6	1.0	-48.0	-13.0	-35.0	
4254.00	-23.2	V	3.0	39.8	1.0	-62.1	-13.0	-49.1	
1418.00	-11.2	H	3.0	38.1	1.0	-48.3	-13.0	-35.3	
2127.00	-18.5	H	3.0	38.5	1.0	-56.0	-13.0	-43.0	
2836.00	-16.4	H	3.0	39.1	1.0	-54.5	-13.0	-41.5	
3545.00	-13.4	H	3.0	39.6	1.0	-52.0	-13.0	-39.0	
4254.00	-22.4	H	3.0	39.8	1.0	-61.2	-13.0	-48.2	
Mid Ch, 710MHz									
1420.00	-11.7	V	3.0	38.1	1.0	-48.8	-13.0	-35.8	
2130.00	-17.1	V	3.0	38.5	1.0	-54.6	-13.0	-41.6	
2840.00	-12.5	V	3.0	39.1	1.0	-50.7	-13.0	-37.7	
3550.00	-7.4	V	3.0	39.6	1.0	-46.0	-13.0	-33.0	
4260.00	-23.3	V	3.0	39.8	1.0	-62.1	-13.0	-49.1	
1420.00	-9.8	H	3.0	38.1	1.0	-46.9	-13.0	-33.9	
2130.00	-16.7	H	3.0	38.5	1.0	-54.3	-13.0	-41.3	
2840.00	-14.1	H	3.0	39.1	1.0	-52.2	-13.0	-39.2	
3550.00	-13.4	H	3.0	39.6	1.0	-51.9	-13.0	-38.9	
4260.00	-22.9	H	3.0	39.8	1.0	-61.7	-13.0	-48.7	
High Ch, 711MHz									
1422.00	-9.2	V	3.0	38.1	1.0	-46.3	-13.0	-33.3	
2133.00	-17.5	V	3.0	38.5	1.0	-55.0	-13.0	-42.0	
2844.00	-13.1	V	3.0	39.1	1.0	-51.2	-13.0	-38.2	
3555.00	-9.6	V	3.0	39.6	1.0	-48.2	-13.0	-35.2	
4266.00	-22.4	V	3.0	39.8	1.0	-61.2	-13.0	-48.2	
1422.00	-9.8	H	3.0	38.1	1.0	-46.9	-13.0	-33.9	
2133.00	-17.2	H	3.0	38.5	1.0	-54.7	-13.0	-41.7	
2844.00	-15.9	H	3.0	39.1	1.0	-54.0	-13.0	-41.0	
3555.00	-12.7	H	3.0	39.6	1.0	-51.3	-13.0	-38.3	
4266.00	-22.9	H	3.0	39.8	1.0	-61.7	-13.0	-48.7	

LTE

Band 17

5MHz

QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788480738
Date: 2018-05-22
Test Engineer: 47989
Configuration: EUT / AC Adapter / Earphone, Z-Position
Location: Chamber 2
Mode: LTE_QPSK Band 17 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, 706.5MHz									
1413.00	-9.5	V	3.0	38.1	1.0	-46.6	-13.0	-33.6	
2119.50	-16.4	V	3.0	38.5	1.0	-53.9	-13.0	-40.9	
2826.00	-14.1	V	3.0	39.1	1.0	-52.2	-13.0	-39.2	
3532.50	-10.1	V	3.0	39.6	1.0	-48.6	-13.0	-35.6	
4239.00	-23.6	V	3.0	39.8	1.0	-62.4	-13.0	-49.4	
1413.00	-10.2	H	3.0	38.1	1.0	-47.3	-13.0	-34.3	
2119.50	-16.9	H	3.0	38.5	1.0	-54.4	-13.0	-41.4	
2826.00	-17.1	H	3.0	39.1	1.0	-55.2	-13.0	-42.2	
3532.50	-13.6	H	3.0	39.6	1.0	-52.2	-13.0	-39.2	
4239.00	-24.4	H	3.0	39.8	1.0	-63.2	-13.0	-50.2	
Mid Ch, 710MHz									
1420.00	-9.5	V	3.0	38.1	1.0	-46.6	-13.0	-33.6	
2130.00	-15.1	V	3.0	38.5	1.0	-52.6	-13.0	-39.6	
2840.00	-12.9	V	3.0	39.1	1.0	-51.0	-13.0	-38.0	
3550.00	-15.0	V	3.0	39.6	1.0	-53.6	-13.0	-40.6	
4260.00	-23.2	V	3.0	39.8	1.0	-62.0	-13.0	-49.0	
1420.00	-9.7	H	3.0	38.1	1.0	-46.8	-13.0	-33.8	
2130.00	-16.4	H	3.0	38.5	1.0	-54.0	-13.0	-41.0	
2840.00	-16.2	H	3.0	39.1	1.0	-54.3	-13.0	-41.3	
3550.00	-15.0	H	3.0	39.6	1.0	-53.6	-13.0	-40.6	
4260.00	-24.9	H	3.0	39.8	1.0	-63.7	-13.0	-50.7	
High Ch, 713.5MHz									
1427.00	-9.0	V	3.0	38.1	1.0	-46.1	-13.0	-33.1	
2140.50	-13.6	V	3.0	38.5	1.0	-51.1	-13.0	-38.1	
2854.00	-14.0	V	3.0	39.1	1.0	-52.1	-13.0	-39.1	
3567.50	-11.1	V	3.0	39.6	1.0	-49.7	-13.0	-36.7	
4281.00	-24.4	V	3.0	39.8	1.0	-63.2	-13.0	-50.2	
1427.00	-5.2	H	3.0	38.1	1.0	-42.3	-13.0	-29.3	
2140.50	-15.3	H	3.0	38.5	1.0	-52.9	-13.0	-39.9	
2854.00	-16.1	H	3.0	39.1	1.0	-54.3	-13.0	-41.3	
3567.50	-14.4	H	3.0	39.6	1.0	-53.0	-13.0	-40.0	
4281.00	-24.3	H	3.0	39.8	1.0	-63.1	-13.0	-50.1	

LTE

Band 17

5MHz

16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788480738
Date: 2018-05-22
Test Engineer: 47989
Configuration: EUT / AC Adapter / Earphone, Z-Position
Location: Chamber 2
Mode: LTE_16QAM Band 17 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, 706.5MHz									
1413.00	-11.6	V	3.0	38.1	1.0	-48.7	-13.0	-35.7	
2119.50	-18.4	V	3.0	38.5	1.0	-55.9	-13.0	-42.9	
2826.00	-16.5	V	3.0	39.1	1.0	-54.6	-13.0	-41.6	
3532.50	-12.5	V	3.0	39.6	1.0	-51.0	-13.0	-38.0	
4239.00	-23.8	V	3.0	39.8	1.0	-62.7	-13.0	-49.7	
1413.00	-12.2	H	3.0	38.1	1.0	-49.3	-13.0	-36.3	
2119.50	-19.0	H	3.0	38.5	1.0	-56.5	-13.0	-43.5	
2826.00	-18.8	H	3.0	39.1	1.0	-56.9	-13.0	-43.9	
3532.50	-14.8	H	3.0	39.6	1.0	-53.4	-13.0	-40.4	
4239.00	-24.0	H	3.0	39.8	1.0	-62.8	-13.0	-49.8	
Mid Ch, 710MHz									
1420.00	-11.1	V	3.0	38.1	1.0	-48.3	-13.0	-35.3	
2130.00	-16.6	V	3.0	38.5	1.0	-54.1	-13.0	-41.1	
2840.00	-17.9	V	3.0	39.1	1.0	-56.0	-13.0	-43.0	
3550.00	-12.3	V	3.0	39.6	1.0	-50.8	-13.0	-37.8	
4260.00	-23.8	V	3.0	39.8	1.0	-62.6	-13.0	-49.6	
1420.00	-9.9	H	3.0	38.1	1.0	-47.0	-13.0	-34.0	
2130.00	-17.9	H	3.0	38.5	1.0	-55.4	-13.0	-42.4	
2840.00	-18.8	H	3.0	39.1	1.0	-56.9	-13.0	-43.9	
3550.00	-16.9	H	3.0	39.6	1.0	-55.4	-13.0	-42.4	
4260.00	-24.1	H	3.0	39.8	1.0	-62.9	-13.0	-49.9	
High Ch, 713.5MHz									
1427.00	-10.6	V	3.0	38.1	1.0	-47.7	-13.0	-34.7	
2140.50	-15.4	V	3.0	38.5	1.0	-52.9	-13.0	-39.9	
2854.00	-14.9	V	3.0	39.1	1.0	-53.0	-13.0	-40.0	
3567.50	-9.7	V	3.0	39.6	1.0	-48.2	-13.0	-35.2	
4281.00	-24.0	V	3.0	39.8	1.0	-62.8	-13.0	-49.8	
1427.00	-6.7	H	3.0	38.1	1.0	-43.8	-13.0	-30.8	
2140.50	-16.2	H	3.0	38.5	1.0	-53.7	-13.0	-40.7	
2854.00	-16.2	H	3.0	39.1	1.0	-54.4	-13.0	-41.4	
3567.50	-14.8	H	3.0	39.6	1.0	-53.4	-13.0	-40.4	
4281.00	-24.2	H	3.0	39.8	1.0	-63.0	-13.0	-50.0	

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_22/24/27
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

LTE Band 41

LTE Band 41 20MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788480738
Date: 2018-05-23
Test Engineer: 51072
Configuration: EUT / Adapter / Earphone , Z-position
Location: Chamber 1
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	-11.2	V	3.0	43.8	1.0	-53.9	-25.0	-28.9	
7518.00	-5.3	V	3.0	42.5	1.0	-46.8	-25.0	-21.8	
10024.00	-8.7	V	3.0	40.6	1.0	-48.3	-25.0	-23.3	
5012.00	-9.4	H	3.0	43.8	1.0	-52.2	-25.0	-27.2	
7518.00	1.0	H	3.0	42.5	1.0	-40.4	-25.0	-15.4	
10024.00	1.2	H	3.0	40.6	1.0	-38.4	-25.0	-13.4	
Mid Ch, 2593MHz									
5186.00	-10.3	V	3.0	43.8	1.0	-53.0	-25.0	-28.0	
7779.00	-2.6	V	3.0	42.3	1.0	-43.9	-25.0	-18.9	
10372.00	-14.2	V	3.0	40.7	1.0	-53.8	-25.0	-28.8	
5186.00	-9.1	H	3.0	43.8	1.0	-51.9	-25.0	-26.9	
7779.00	-1.1	H	3.0	42.3	1.0	-42.4	-25.0	-17.4	
10372.00	-4.2	H	3.0	40.7	1.0	-43.8	-25.0	-18.8	
High Ch, 2680MHz									
5360.00	-8.2	V	3.0	43.7	1.0	-50.9	-25.0	-25.9	
8040.00	5.3	V	3.0	42.2	1.0	-35.8	-25.0	-10.8	
10720.00	-8.5	V	3.0	40.8	1.0	-48.3	-25.0	-23.3	
5360.00	-10.3	H	3.0	43.7	1.0	-53.0	-25.0	-28.0	
8040.00	6.1	H	3.0	42.2	1.0	-35.1	-25.0	-10.1	
16080.00	0.0	H	3.0	42.4	1.0	-41.4	-25.0	-16.4	

LTE Band 41 20MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788480738
Date: 2018-05-23
Test Engineer: 51072
Configuration: EUT / Adapter / Earphone , Z-position
Location: Chamber 1
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	-10.9	V	3.0	43.8	1.0	-53.6	-25.0	-28.6	
7518.00	-5.4	V	3.0	42.5	1.0	-46.9	-25.0	-21.9	
10024.00	-8.7	V	3.0	40.6	1.0	-48.2	-25.0	-23.2	
5012.00	-10.5	H	3.0	43.8	1.0	-53.3	-25.0	-28.3	
7518.00	0.8	H	3.0	42.5	1.0	-40.6	-25.0	-15.6	
10024.00	-0.7	H	3.0	40.6	1.0	-40.2	-25.0	-15.2	
Mid Ch, 2593MHz									
5186.00	-9.3	V	3.0	43.8	1.0	-52.1	-25.0	-27.1	
7779.00	-0.8	V	3.0	42.3	1.0	-42.2	-25.0	-17.2	
10372.00	-12.6	V	3.0	40.7	1.0	-52.2	-25.0	-27.2	
5186.00	-9.2	H	3.0	43.8	1.0	-52.0	-25.0	-27.0	
7779.00	0.5	H	3.0	42.3	1.0	-40.9	-25.0	-15.9	
10372.00	-5.3	H	3.0	40.7	1.0	-45.0	-25.0	-20.0	
High Ch, 2680MHz									
5360.00	-8.3	V	3.0	43.7	1.0	-51.0	-25.0	-26.0	
8040.00	4.9	V	3.0	42.2	1.0	-36.2	-25.0	-11.2	
10720.00	-9.0	V	3.0	40.8	1.0	-48.8	-25.0	-23.8	
5360.00	-10.6	H	3.0	43.7	1.0	-53.3	-25.0	-28.3	
8040.00	6.0	H	3.0	42.2	1.0	-35.2	-25.0	-10.2	
10720.00	0.4	H	3.0	40.8	1.0	-39.3	-25.0	-14.3	

LTE

Band 41

15MHz

QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788480738
Date:	2018-05-23
Test Engineer:	51072
Configuration:	EUT / Adapter / Earphone , Z-position
Location:	Chamber 1
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	-4.5	V	3.0	43.8	1.0	-47.3	-25.0	-22.3	
7510.50	-4.0	V	3.0	42.5	1.0	-45.5	-25.0	-20.5	
10014.00	-6.7	V	3.0	40.6	1.0	-46.2	-25.0	-21.2	
5007.00	-6.1	H	3.0	43.8	1.0	-48.9	-25.0	-23.9	
7510.50	3.3	H	3.0	42.5	1.0	-38.1	-25.0	-13.1	
10014.00	3.1	H	3.0	40.6	1.0	-36.4	-25.0	-11.4	
Mid Ch, 2593MHz									
5186.00	-8.8	V	3.0	43.8	1.0	-51.6	-25.0	-26.6	
7779.00	-1.5	V	3.0	42.3	1.0	-42.8	-25.0	-17.8	
10372.00	-11.4	V	3.0	40.7	1.0	-51.1	-25.0	-26.1	
5186.00	-9.7	H	3.0	43.8	1.0	-52.5	-25.0	-27.5	
7779.00	2.0	H	3.0	42.3	1.0	-39.4	-25.0	-14.4	
10372.00	-2.0	H	3.0	40.7	1.0	-41.7	-25.0	-16.7	
High Ch, 2682.5MHz									
5365.00	-8.2	V	3.0	43.7	1.0	-50.9	-25.0	-25.9	
8047.50	7.5	V	3.0	42.2	1.0	-33.6	-25.0	-8.6	
10730.00	-10.8	V	3.0	40.8	1.0	-50.6	-25.0	-25.6	
5365.00	0.4	H	3.0	43.7	1.0	-42.3	-25.0	-17.3	
8047.50	5.3	H	3.0	42.2	1.0	-35.9	-25.0	-10.9	
10730.00	0.5	H	3.0	40.8	1.0	-39.3	-25.0	-14.3	

LTE

Band 41

15MHz

16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788480738
Date:	2018-05-23
Test Engineer:	51072
Configuration:	EUT / Adapter / Earphone , Z-position
Location:	Chamber 1
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	-6.3	V	3.0	43.8	1.0	-49.1	-25.0	-24.1	
7510.50	-3.8	V	3.0	42.5	1.0	-45.3	-25.0	-20.3	
10014.00	-6.8	V	3.0	40.6	1.0	-46.3	-25.0	-21.3	
5007.00	-6.5	H	3.0	43.8	1.0	-49.3	-25.0	-24.3	
7510.50	2.7	H	3.0	42.5	1.0	-38.7	-25.0	-13.7	
10014.00	2.4	H	3.0	40.6	1.0	-37.1	-25.0	-12.1	
Mid Ch, 2593MHz									
5186.00	-10.6	V	3.0	43.8	1.0	-53.3	-25.0	-28.3	
7779.00	-2.9	V	3.0	42.3	1.0	-44.2	-25.0	-19.2	
10372.00	-12.1	V	3.0	40.7	1.0	-51.8	-25.0	-26.8	
5186.00	-9.0	H	3.0	43.8	1.0	-51.8	-25.0	-26.8	
7779.00	-0.3	H	3.0	42.3	1.0	-41.6	-25.0	-16.6	
10372.00	-0.8	H	3.0	40.7	1.0	-40.5	-25.0	-15.5	
High Ch, 2682.5MHz									
5365.00	-8.6	V	3.0	43.7	1.0	-51.3	-25.0	-26.3	
8047.50	7.5	V	3.0	42.2	1.0	-33.7	-25.0	-8.7	
10730.00	-10.5	V	3.0	40.8	1.0	-50.3	-25.0	-25.3	
5365.00	-8.2	H	3.0	43.7	1.0	-50.9	-25.0	-25.9	
8047.50	5.1	H	3.0	42.2	1.0	-36.0	-25.0	-11.0	
10730.00	0.3	H	3.0	40.8	1.0	-39.5	-25.0	-14.5	

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_22/24/27
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

LTE

Band 41

10MHz

QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788480738
Date:	2018-05-22
Test Engineer:	51072
Configuration:	EUT / Adapter / Earphone , Z-Position
Location:	Chamber 1
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	-6.6	V	3.0	43.8	1.0	-49.4	-25.0	-24.4	
7503.00	-3.9	V	3.0	42.5	1.0	-45.3	-25.0	-20.3	
10004.00	-5.9	V	3.0	40.6	1.0	-45.5	-25.0	-20.5	
5002.00	-4.3	H	3.0	43.8	1.0	-47.1	-25.0	-22.1	
7503.00	2.6	H	3.0	42.5	1.0	-38.8	-25.0	-13.8	
10004.00	3.7	H	3.0	40.6	1.0	-35.8	-25.0	-10.8	
Mid Ch, 2593MHz									
5186.00	-10.3	V	3.0	43.8	1.0	-53.0	-25.0	-28.0	
7779.00	-1.7	V	3.0	42.3	1.0	-43.0	-25.0	-18.0	
10372.00	-10.8	V	3.0	40.7	1.0	-50.5	-25.0	-25.5	
5186.00	-7.5	H	3.0	43.8	1.0	-50.3	-25.0	-25.3	
7779.00	0.6	H	3.0	42.3	1.0	-40.7	-25.0	-15.7	
10372.00	-1.4	H	3.0	40.7	1.0	-41.0	-25.0	-16.0	
High Ch, 2685MHz									
5370.00	-6.8	V	3.0	43.7	1.0	-49.5	-25.0	-24.5	
8055.00	7.9	V	3.0	42.2	1.0	-33.3	-25.0	-8.3	
10740.00	-9.7	V	3.0	40.8	1.0	-49.5	-25.0	-24.5	
5370.00	-11.1	H	3.0	43.7	1.0	-53.8	-25.0	-28.8	
8055.00	6.8	H	3.0	42.2	1.0	-34.4	-25.0	-9.4	
10740.00	1.2	H	3.0	40.8	1.0	-38.6	-25.0	-13.6	

LTE

Band 41

10MHz

16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788480738
Date:	2018-05-22
Test Engineer:	51072
Configuration:	EUT / Adapter / Earphone , Z-Position
Location:	Chamber 1
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	-7.6	V	3.0	43.8	1.0	-50.4	-25.0	-25.4	
7503.00	-3.7	V	3.0	42.5	1.0	-45.2	-25.0	-20.2	
10004.00	-6.5	V	3.0	40.6	1.0	-46.0	-25.0	-21.0	
5002.00	-5.5	H	3.0	43.8	1.0	-48.3	-25.0	-23.3	
7503.00	2.8	H	3.0	42.5	1.0	-38.7	-25.0	-13.7	
10004.00	3.6	H	3.0	40.6	1.0	-35.9	-25.0	-10.9	
Mid Ch, 2593MHz									
5186.00	-10.4	V	3.0	43.8	1.0	-53.1	-25.0	-28.1	
7779.00	-1.7	V	3.0	42.3	1.0	-43.0	-25.0	-18.0	
10372.00	-10.0	V	3.0	40.7	1.0	-49.7	-25.0	-24.7	
5186.00	-8.4	H	3.0	43.8	1.0	-51.2	-25.0	-26.2	
7779.00	0.7	H	3.0	42.3	1.0	-40.6	-25.0	-15.6	
10372.00	-1.7	H	3.0	40.7	1.0	-41.3	-25.0	-16.3	
High Ch, 2685MHz									
5370.00	-7.9	V	3.0	43.7	1.0	-50.6	-25.0	-25.6	
8055.00	7.3	V	3.0	42.2	1.0	-33.8	-25.0	-8.8	
10740.00	-9.7	V	3.0	40.8	1.0	-49.5	-25.0	-24.5	
5370.00	-10.9	H	3.0	43.7	1.0	-53.7	-25.0	-28.7	
8055.00	5.1	H	3.0	42.2	1.0	-36.1	-25.0	-11.1	
10740.00	1.5	H	3.0	40.8	1.0	-38.3	-25.0	-13.3	

LTE

Band 41

5MHz

QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788480738
Date:	2018-05-22
Test Engineer:	51072
Configuration:	EUT / Adapter / Earphone , Z-position
Location:	Chamber 1
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	-12.5	V	3.0	43.8	1.0	-55.3	-25.0	-30.3	
7495.50	-2.9	V	3.0	42.5	1.0	-44.4	-25.0	-19.4	
9994.00	-10.6	V	3.0	40.6	1.0	-50.2	-25.0	-25.2	
4997.00	-5.7	H	3.0	43.8	1.0	-48.4	-25.0	-23.4	
7495.50	-4.9	H	3.0	42.5	1.0	-46.4	-25.0	-21.4	
9994.00	-5.3	H	3.0	40.6	1.0	-44.9	-25.0	-19.9	
Mid Ch, 2593MHz									
5186.00	-9.5	V	3.0	43.8	1.0	-52.3	-25.0	-27.3	
7779.00	-3.7	V	3.0	42.3	1.0	-45.0	-25.0	-20.0	
10372.00	-9.8	V	3.0	40.7	1.0	-49.5	-25.0	-24.5	
5186.00	-8.4	H	3.0	43.8	1.0	-51.1	-25.0	-26.1	
7779.00	-1.6	H	3.0	42.3	1.0	-42.9	-25.0	-17.9	
10372.00	-4.5	H	3.0	40.7	1.0	-44.2	-25.0	-19.2	
High Ch, 2687.5MHz									
5375.00	-12.0	V	3.0	43.7	1.0	-54.8	-25.0	-29.8	
8062.50	0.8	V	3.0	42.2	1.0	-40.4	-25.0	-15.4	
10750.00	-10.4	V	3.0	40.8	1.0	-50.1	-25.0	-25.1	
5375.00	-9.5	H	3.0	43.7	1.0	-52.2	-25.0	-27.2	
8062.50	-0.8	H	3.0	42.2	1.0	-42.0	-25.0	-17.0	
10750.00	-4.6	H	3.0	40.8	1.0	-44.4	-25.0	-19.4	

LTE

Band 41

5MHz

16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788480738
Date:	2018-05-22
Test Engineer:	51072
Configuration:	EUT / Adapter / Earphone , Z-position
Location:	Chamber 1
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	-11.4	V	3.0	43.8	1.0	-54.2	-25.0	-29.2	
7495.50	-2.8	V	3.0	42.5	1.0	-44.3	-25.0	-19.3	
9994.00	-8.7	V	3.0	40.6	1.0	-48.3	-25.0	-23.3	
4997.00	-4.5	H	3.0	43.8	1.0	-47.3	-25.0	-22.3	
7495.50	-5.9	H	3.0	42.5	1.0	-47.3	-25.0	-22.3	
9994.00	-2.3	H	3.0	40.6	1.0	-41.8	-25.0	-16.8	
Mid Ch, 2593MHz									
5186.00	-10.1	V	3.0	43.8	1.0	-52.9	-25.0	-27.9	
7779.00	-4.2	V	3.0	42.3	1.0	-45.5	-25.0	-20.5	
10372.00	-10.0	V	3.0	40.7	1.0	-49.7	-25.0	-24.7	
5186.00	-8.2	H	3.0	43.8	1.0	-51.0	-25.0	-26.0	
7779.00	-1.5	H	3.0	42.3	1.0	-42.8	-25.0	-17.8	
10372.00	-4.6	H	3.0	40.7	1.0	-44.2	-25.0	-19.2	
High Ch, 2687.5MHz									
5375.00	-12.3	V	3.0	43.7	1.0	-55.1	-25.0	-30.1	
8062.50	0.8	V	3.0	42.2	1.0	-40.4	-25.0	-15.4	
10750.00	-10.0	V	3.0	40.8	1.0	-49.8	-25.0	-24.8	
5375.00	-9.8	H	3.0	43.7	1.0	-52.6	-25.0	-27.6	
8062.50	-0.8	H	3.0	42.2	1.0	-41.9	-25.0	-16.9	
10750.00	-4.5	H	3.0	40.8	1.0	-44.3	-25.0	-19.3	