UL Verification Services, Inc. High Frequency Substitution Measurement

LTE_QPSK Band 26 Fundamentals, 15MHz Bandwidth

 Company:
 Samsung

 Project #:
 4788725460

 Date:
 2018-11-27

 Test Engineer:
 47989

 Configuration:
 EUT / Z-Position

 Location:
 Chamber 1

Mode:

Band 26 Test Equpment:
Receiving: VULE

Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-type Cable

15MHz QPSK

LTE

f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Delta	Notes
MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
Low Ch								
821.50	22.42	V	3.0	-1.5	17.92	50.0	-32.1	Part 90
831.50	12.64	Н	3.0	-1.4	8.17	50.0	-41.8	Part 90
Mid Ch								
831.50	24.59	٧	3.0	-1.4	20.12	38.5	-18.4	
831.50	12.92	Н	3.0	-1.4	8.45	38.5	-30.1	
High Ch								
841.50	25.21	V	3.0	-1.4	20.75	38.5	-17.7	
841.50	14.95	Н	3.0	-1.4	10.50	38.5	-28.0	

UL Verification Services, Inc. High Frequency Substitution Measurement

 Company:
 Samsung

 Project #:
 4788725460

 Date:
 2018-11-27

 Test Engineer:
 47989

 Configuration:
 EUT / Z-Position

 Location:
 Chamber 1

 Mode:
 LTE_16QAM Band 26 Fundamentals, 15MHz Bandwidth

LTE

Band 26

Test Equpment:
Receiving: VULB9163-750, and Chamber 1 SMA Cables
Substitution: Dipole 3121_DB4, 2.5m SMA-type Cable

15MHz 16QAM

f	SG reading	Ant. Pol.	Cable Loss		ERP	Limit	Delta	Notes
MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
Low Ch								
821.50	21.03	٧	3.0	-1.5	16.53	50.0	-33.5	Part 90
821.50	11.55	Н	3.0	-1.5	7.06	50.0	-42.9	Part 90
Mid Ch								
831.50	23.42	٧	3.0	-1.4	18.95	38.5	-19.6	
831.50	14.26	Н	3.0	-1.4	9.79	38.5	-28.7	
High Ch								
841.50	23.74	V	3.0	-1.4	19.28	38.5	-19.2	
841.50	13.72	Н	3.0	-1.4	9.27	38.5	-29.2	

Notes

Part 90

Part 90

UL Verification Services, Inc.

High Frequency Substitution Measurement

Antenna Gain

(dBd)

-1.5

-1.5

-1.4

-1.4

-1.4

-1.4

High Frequency Substitution Measurement

ERP

(dBm)

16.89

18.86

9.80

18.82

10.82

Limit

(dBm)

50.0

38.5

38.5

38.5

Delta

(dB)

-33.1

-19.6

-19.7

-27.7

 Company:
 Samsung

 Project #:
 4788725460

 Date:
 2018-11-17

 Test Engineer:
 51072

 Configuration:
 EUT / Z-position

 Location:
 Chamber 1

SG reading

(dBm)

23.33

23.27

15.27

Mode: LTE_QPSK Band 26 Fundamentals, 10MHz Bandwidth

Ant. Pol.

(H/V)

Н

Cable Loss

(dB)

3.0

3.0

3.0

3.0

3.1

Test Equpment:

MHz

Low Ch 819.00

819.00

Mid Ch

831.50 831.50

High Ch 844.00

844.00

Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-type Cable

LTE Band 26

10MHz QPSK

UL Verification Services, Inc.

 Company:
 Samsung

 Project #:
 4788725460

 Date:
 2018-11-22

 Test Engineer:
 47989

 Configuration:
 EUT / Z-position

 Location:
 Chamber 1

Mode: LTE_QPSK Band 26 Fundamentals, 10MHz Bandwidth

Test Equpment:

Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-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								
829.00	23.00	٧	3.0	-1.5	18.52	50.0	-31.5	
829.00	13.69	Н	3.0	-1.5	9.21	50.0	-40.8	

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung Project #: 4788725460 2018-11-17 Date: Test Engineer: 51072 Configuration: EUT / Z-position Location: Chamber 1

Mode: LTE_16QAM Band 26 Fundamentals, 10MHz Bandwidth

Test Equpment:

Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-type Cable

SG reading Ant. Pol. Cable Loss Antenna Gain ERP Limit Delta Notes MHz (dBm) (H/V) (dB) (dBd) (dBm) (dBm) (dB) Low Ch 819.00 3.0 -1.5 15.28 50.0 -34.7 Part 90 819.00 3.0 -1.5 Part 90 Mid Ch 21.61 17.14 3.0 -1.4 38.5 -21.4 831.50 831.50 12.62 -1.4 -30.4 Н 3.0 8.15 High Ch 844.00 21.48 3.1 -1.4 17.03 38.5 -21.5 844.00 -1.4 38.5 -29.2

LTE Band 26

10MHz

16QAM

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung Project #: 4788725460 2018-11-22 Date: Test Engineer: 47989 Configuration: EUT / Z-position Location: Chamber 1

Mode: LTE_16QAM Band 26 Fundamentals, 10MHz Bandwidth

Test Equpment:

Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-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				1				
829.00	21.45	V	3.0	-1.5	16.97	50.0	-33.0	
829.00	12.23	Н	3.0	-1.5	7.75	50.0	-42.3	

Company: Samsung 4788725460 Project #: Date: 2018-11-22 Test Engineer: 47989 EUT / Z-position Configuration: Location: Chamber 1

Mode: LTE_QPSK Band 26 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-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								
821.50	21.68	V	3.0	-1.5	17.18	50.0	-32.8	Part 90
821.50	12.63	Н	3.0	-1.5	8.14	50.0	-41.9	Part 90
Mid Ch								
826.50	22.78	V	3.0	-1.5	18.30	38.5	-20.2	***************************************
826.50	13.61	Н	3.0	-1.5	9.13	38.5	-29.4	

LTE

Band 26

High Frequency Substitution Measurement

5MHz

QPSK

Company: Samsung 4788725460 Project #: 2018-11-17 Date: Test Engineer: 51072 Configuration: EUT / Z-position Chamber 1 Location:

LTE_QPSK Band 26 Fundamentals, 5MHz Bandwidth Mode:

Test Equpment:
Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-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								
816.50	21.64	٧	3.0	-1 .5	17.13	50.0	-32.9	Part 90
816.50	12.78	Н	3.0	-1.5	8.27	50.0	-41.7	Part 90
Mid Ch								
831.50	23.48	V	3.0	-1.4	19.01	38.5	-19.5	
831.50	14.06	Н	3.0	-1.4	9.59	38.5	-28.9	
High Ch								
846.50	22.82	٧	3.1	-1.4	18.37	38.5	-20.1	
846.50	14.92	Н	3.1	-1.4	10.47	38.5	-28.0	

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung Project #: 4788725460 2018-11-22 Date: 47989 Test Engineer: Configuration: EUT / Z-position Location: Chamber 1

Mode: LTE_16QAM Band 26 Fundamentals, 5MHz Bandwidth

Test Equpment:

Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-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								8 8 8
821.50	20.25	V	3.0	-1.5	15.75	50.0	-34.2	Part 90
821.50	10.82	Н	3.0	-1.5	6.33	50.0	-43.7	Part 90
Mid Ch								
826.50	18.87	٧	3.0	-1.5	14.39	38.5	-24.1	
826.50	11.84	Н	3.0	- 1.5	7.36	38.5	-31.1	

LTE

Band 26

UL Verification Services, Inc.

High Frequency Substitution Measurement

5MHz 16QAM

Company: Samsung Project #: 4788725460 Date: 2018-11-17 51072 Test Engineer: EUT / Z-position Configuration: Location: Chamber 1

Mode: LTE_16QAM Band 26 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-type Cable

f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit) (dBm)	Delta	Notes
MHz	(dBm)	(H/V) (dB)	(dB)	(dBd)	(dBm)		(dB)	
Low Ch								
816.50	19.61	V	3.0	-1.5	15.10	50.0	-34.9	Part 90
816.50	10.88	Н	3.0	-1.5	6.37	50.0	-43.6	Part 90
Mid Ch								
831.50	21.64	٧	3.0	-1.4	17.17	38.5	-21.3	
831.50	12.83	Н	3.0	-1.4	8.36	38.5	-30.1	
High Ch								
846.50	21.31	٧	3.1	-1.4	16.86	38.5	-21.6	
846.50	13.23	Н	3.1	-1.4	8.78	38.5	-29.7	

Company: Samsung Project #: 4788725460 Date: 2018-11-22 Test Engineer: 47989 Configuration: EUT / Z-position

Mode: LTE_QPSK Band 26 Fundamentals, 3MHz Bandwidth

Chamber 1

Test Equpment:

Location:

Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
822.50	22.23	V	3.0	-1.5	17.74	50.0	-32.3	Part 90
822.50	12.99	Н	3.0	-1.5	8.50	50.0	-41.5	Part 90
Mid Ch								
825.50	22.60	V	3.0	-1.5	18.12	38.5	-20.4	
825.50	13.69	Н	3.0	-1.5	9.21	38.5	-29.3	

LTE

Band 26

UL Verification Services, Inc. **High Frequency Substitution Measurement**

3MHz QPSK

Company: Samsung Project #: 4788725460 Date: 2018-11-17 Test Engineer: 51072 Configuration: EUT / Z-position Location:

LTE_QPSK Band 26 Fundamentals, 3MHz Bandwidth Mode:

Test Equpment:

Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-type Cable

f	SG reading	Ant. Pol.	Cable Loss	1	ERP	Limit	Delta	Notes
MHz	(dBm)	(H/V)	(dB)		(dBm)	(dBm)	(dB)	
Low Ch								
815.50	21.14	٧	3.0	-1.5	16.64	50.0	-33.4	Part 90
815.50	11.77	Н	3.0	-1.5	7.26	50.0	-42.7	Part 90
Mid Ch								
831.50	23.54	V	3.0	-1.4	19.07	38.5	-19.4	
831.50	13.90	Н	3.0	-1.4	9.43	38.5	-29.1	
High Ch								
847.50	22.97	٧	3.1	-1.4	18.53	38.5	-20.0	
847.50	14.85	Н	3.1	-1.4	10.40	38.5	-28.1	

Company: Samsung Project #: 4788725460 2018-11-22 Date: Test Engineer: 47989 Configuration: EUT / Z-position

Mode: LTE_16QAM Band 26 Fundamentals, 3MHz Bandwidth

Chamber 1

Test Equpment:

Location:

Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-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								
822.50	20.50	V	3.0	-1.5	16.01	50.0	-34.0	Part 90
822.50	11.76	Н	3.0	-1.5	7.27	50.0	-42.7	Part 90
Mid Ch								
825.50	21.28	V	3.0	-1.5	16.80	38.5	-21.7	
825.50	12.06	Н	3.0	-1.5	7.58	38.5	-30.9	

LTE

Band 26

UL Verification Services, Inc.

High Frequency Substitution Measurement

3MHz 16QAM

Company: Project #: 4788725460 Date: 2018-11-17 51072 Test Engineer: Configuration: EUT / Z-position Location:

Mode: LTE_16QAM Band 26 Fundamentals, 3MHz Bandwidth

Test Equpment:

Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-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								
815.50	19.97	V	3.0	-1.5	15.47	50.0	-34.5	Part 90
815.50	10.92	Н	3.0	-1.5	6.41	50.0	-43.6	Part 90
Mid Ch								
831.50	21.78	V	3.0	-1.4	17.31	38.5	-21.2	
831.50	12.39	Н	3.0	-1.4	7.92	38.5	-30.6	
High Ch								
847.50	21.00	V	3.1	-1.4	16.56	38.5	-21.9	
847.50	13.29	Н	3.1	-1.4	8.84	38.5	-29.7	

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung Project #: 4788725460 2018-11-22 Date: Test Engineer: 47989 EUT / Z-position Configuration: Location: Chamber 1

Mode: LTE_QPSK Band 26 Fundamentals, 1.4MHz Bandwidth

Test Equpment:

Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-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								
823.30	22.33	V	3.0	-1.5	17.84	50.0	-32.2	Part 90
823.30	13.20	Н	3.0	-1.5	8.71	50.0	-41.3	Part 90
Mid Ch								
824.70	22.41	٧	3.0	-1.5	17.92	38.5	-20.6	
824.70	13.48	Н	3.0	-1.5	8.99	38.5	-29.5	

LTE

Band 26 1.4MHz

QPSK

UL Verification Services, Inc. High Frequency Substitution Measurement

Company:

Samsung Project #: 4788725460 Date: 2018-11-17

51072 Test Engineer: EUT / Z-position Configuration: Location: Chamber 1

Mode: LTE_QPSK Band 26 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-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								
814.70	20.97	٧	3.0	-1.5	16.46	50.0	-33.5	Part 90
814.70	11.72	Н	3.0	-1.5	7.21	50.0	-42.8	Part 90
Mid Ch								
831.50	23.36	V	3.0	-1.4	18.89	38.5	-19.6	
831.50	13.86	Н	3.0	-1.4	9.39	38.5	-29.1	
High Ch								
848.30	22.73	٧	3.1	-1.4	18.29	38.5	-20.2	
848.30	14.74	Н	3.1	-1.4	10.30	38.5	-28.2	

UL Verification Services, Inc.

High Frequency Substitution Measurement

Company: Samsung Project #: 4788725460 2018-11-22 Date: Test Engineer: 47989 EUT / Z-position Configuration: Location: Chamber 1

Mode: LTE_16QAM Band 26 Fundamentals, 1.4MHz Bandwidth

Test Equpment:

Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-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	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							
823.30	20.40	٧	3.0	-1.5	15.91	50.0	-34.1	Part 90
823.30	11.62	Н	3.0	-1.5	7.13	50.0	-42.9	Part 90
Mid Ch								
824.70	20.74	٧	3.0	-1.5	16.25	38.5	-22.2	
824.70	11.87	Н	3.0	-1.5	7.38	38.5	-31.1	

LTE

Band 26

UL Verification Services, Inc.

High Frequency Substitution Measurement

1.4MHz 16QAM

Samsung Company: 4788725460 Project #: Date: 2018-11-17 Test Engineer: Configuration: EUT / Z-position Location: Chamber 1

LTE_16QAM Band 26 Fundamentals, 1.4MHz Bandwidth Mode:

Test Equpment:
Receiving: VULB9163-750, and Chamber 1 SMA Cables Substitution: Dipole 3121_DB4, 2.5m SMA-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								
814.70	19.23	V	3.0	-1.5	14.72	50.0	-35.3	Part 90
814.70	9.83	Н	3.0	-1.5	5.32	50.0	-44.7	Part 90
Mid Ch								
831.50	21.67	٧	3.0	-1.4	17.20	38.5	-21.3	
831.50	12.29	Н	3.0	-1.4	7.82	38.5	-30.7	
High Ch								
848.30	21.43	٧	3.1	-1.4	16.99	38.5	-21.5	
848.30	13.27	Н	3.1	-1.4	8.83	38.5	-29.7	

UL Verification Services, Inc. **High Frequency Substitution Measurement** Company: Samsung Project #: 4788725460 2018-11-23 Date: Test Engineer: 45585 EUT, X-Position Configuration: Location: Chamber 2 Mode: LTE_QPSK Band 41 Fundamentals, 20MHz Bandwidth LTE Test Equpment: Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Band 41 Substitution: Horn 3115[00167451], 2.5m SMA-type Cable 20MHz Ant. Pol. Cable Loss Antenna Gain EIRP Limit Delta Notes SG reading MHz (dBm) (H/V) (dB) (dBi) (dBm) (dBm) (dB) **QPSK** Low Ch 2506.00 17.77 33.0 2506.00 18.36 5.2 10.1 23.19 33.0 -9.8 Mid Ch 2593.00 13.51 10.0 18.15 33.0 -14.9 2593.00 17.49 5.3 10.0 22.13 33.0 -10.9 High Ch 15.19 5.4 10.0 19.78 33.0 -13.2 2680.00 17.80 5.4 10.0 22.39 -10.6 UL Verification Services, Inc. **High Frequency Substitution Measurement** Samsung Company: 4788725460 Project #: 2018-11-23 Date: Test Engineer: 45585 EUT. X-Position Configuration: Location: Chamber 2 Mode: LTE_16QAM Band 41 Fundamentals, 20MHz Bandwidth LTE Test Equpment: Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Band 41 Substitution: Horn 3115[00167451], 2.5m SMA-type Cable 20MHz EIRP SG reading Ant. Pol. Cable Loss Antenna Gain Limit Delta Notes (dBm) (H/V) (dB) (dBm) (dBm) (dB) MHz (dBi) 16QAM Low Ch 2506.00

2506.00 17.37 5.2 10.1 22.20 33.0 -10.8 Mid Ch 2593.00 2593.00 15.86 5.3 10.0 20.50 33.0 -12.5 High Ch 2680.00 2680.00 33.0

DATE: DEC 26, 2018

UL Verification Services, Inc. **High Frequency Substitution Measurement** Company: Samsung Project #: 4788725460 2018-11-23 Date: Test Engineer: 45585 Configuration: EUT, X-Position Location: Chamber 2 LTE_QPSK Band 41 Fundamentals, 15MHz Bandwidth Mode: LTE Test Equpment: Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Band 41 Substitution: Horn 3115[00167451], 2.5m SMA-type Cable 15MHz Ant. Pol. SG reading Cable Loss Antenna Gain EIRP Limit Delta Notes MHz (dBm) (H/V) (dB) (dBm) (dB) **QPSK** Low Ch 2503.50 14.08 10.1 18.91 33.0 -14.1 2503.50 19.30 5.2 10.1 24.13 33.0 -8.9 Mid Ch 13.99 10.0 18.63 33.0 -14.4 2593.00 2593.00 5.3 10.0 21.64 33.0 -11.4 High Ch 2682.50 14.24 5.4 10.0 18.84 33.0 -14.2 2682.50 10.0 22.14 33.0 -10.9 UL Verification Services, Inc. **High Frequency Substitution Measurement** Company: Samsung 4788725460 Project #: 2018-11-23 Date: Test Engineer: 45585 Configuration: EUT, X-Position Chamber 2 Location: LTE_16QAM Band 41 Fundamentals, 15MHz Bandwidth Mode: LTE Test Equpment: Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Band 41 Substitution: Horn 3115[00167451], 2.5m SMA-type Cable 15MHz EIRP SG reading Ant. Pol. Cable Loss Antenna Gain Limit Delta Notes MHz (dBm) (H/V) (dB) (dBi) (dBm) (dBm) (dB) 16QAM Low Ch 2503.50 5.2 10.1 16.95 33.0 -16.0 2503.50 17.17 5.2 10.1 22.00 33.0 -11.0 Mid Ch 2593.00 13.55 5.3 10.0 18.19 33.0 -14.8 2593.00 15.49 5.3 10.0 20.13 33.0 -12.9 High Ch 2682.50 12.64 10.0 17.24 33.0 -15.8 5.4 2682.50 10.0 21.96 33.0 -11.0

UL Verification Services, Inc. **High Frequency Substitution Measurement** Company: 4788725460 Project #: 2018-11-23 Date: 45585 Test Engineer: Configuration: EUT, X-Position Location: Chamber 2 Mode: LTE_QPSK Band 41 Fundamentals, 10MHz Bandwidth LTE Test Equpment: Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Band 41 Substitution: Horn 3115[00167451], 2.5m SMA-type Cable 10MHz SG reading Ant. Pol. Cable Loss Antenna Gain EIRP Limit Delta Notes MHz (dBm) (H/V) (dB) (dBi) (dBm) (dBm) (dB) **QPSK** Low Ch 2501.00 13.66 5.2 10.1 18.50 33.0 -14.5 2501.00 14.97 5.2 10.1 19.81 33.0 -13.2 Mid Ch 2593.00 14.41 10.0 19.05 33.0 -14.0 5.3 2593.00 14.11 10.0 18.75 33.0 -14.3 High Ch 12.69 17.28 2685.00 18.06 10.0 22.65 33.0 -10.4 UL Verification Services, Inc. **High Frequency Substitution Measurement** Company: Samsung 4788725460 Project #: 2018-11-23 Date: Test Engineer: 45585 Configuration: EUT, X-Position Location: Chamber 2 LTE_16QAM Band 41 Fundamentals, 10MHz Bandwidth Mode: LTE Test Equpment: Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables Band 41 Substitution: Horn 3115[00167451], 2.5m SMA-type Cable 10MHz SG reading Ant. Pol. EIRP Cable Loss Antenna Gain Limit Delta Notes MHz (dBm) (H/V) (dB) (dBi) (dBm) (dBm) (dB) 16QAM Low Ch 2501.00 12.71 10.1 17.55 33.0 -15.4 2501.00 12.73 5.2 10.1 17.57 33.0 -15.4 Mid Ch 12.53 10.0 17.17 33.0 2593.00 2593.00 12.31 5.3 10.0 16.95 33.0 -16.1 High Ch 11.34 5.4 10.0 15.93 -17.1 33.0 2685.00 2685.00 10.0

 Company:
 Samsung

 Project #:
 4788725460

 Date:
 2018-11-23

 Test Engineer:
 45585

 Configuration:
 EUT, X-Position

 Location:
 Chamber 2

Mode: LTE_QPSK Band 41 Fundamentals, 5MHz Bandwidth

<u>Test Equpment:</u>
Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables
Substitution: Horn 3115[00167451], 2.5m SMA-type Cable

5MHz

LTE

Band 41

QPSK

f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
Low Ch								
2498.50	13.98	V	5.2	10.1	18.82	33.0	-14.2	
2498.50	18.12	Н	5.2	10.1	22.96	33.0	-10.0	
Mid Ch								
2593.00	13.70	V	5.3	10.0	18.34	33.0	-14.7	
2593.00	17.71	Н	5.3	10.0	22.35	33.0	-10.7	
High Ch								
2687.50	13.97	V	5.4	10.0	18.57	33.0	-14.4	
2687.50	17.74	Н	5.4	10.0	22.34	33.0	-10.7	

UL Verification Services, Inc. High Frequency Substitution Measurement

 Company:
 Samsung

 Project #:
 4788725460

 Date:
 2018-11-23

 Test Engineer:
 45585

 Configuration:
 EUT, X-Position

 Location:
 Chamber 2

 Mode:
 LTE_16QAM Band 41 Fundamentals, 5MHz Bandwidth

LTE

Band 41 5MHz Test Equpment:
Receiving: Horn 3117[00168724], and Chamber 2 SMA Cables
Substitution: Horn 3115[00167451], 2.5m SMA-type Cable

16QAM

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	12.23	V	5.2	10.1	17.07	33.0	-15.9	
2498.50	16.99	Н	5.2	10.1	21.83	33.0	-11.2	
Mid Ch								
2593.00	12.21	V	5.3	10.0	16.85	33.0	-16.2	
2593.00	16.05	Н	5.3	10.0	20.69	33.0	-12.3	
High Ch								
2687.50	12.35	V	5.4	10.0	16.95	33.0	-16.1	
2687.50	16.78	Н	5.4	10.0	21.38	33.0	-11.6	

LTE

66

20MHz

QPSK

UL Verification Services, Inc. **High Frequency Substitution Measurement**

Company: Samsung 4788725460 Project #: Date: 2018-11-13 Test Engineer: 47989 Configuration: EUT / Y-Position Location: Chamber 1

LTE_QPSK Band 66 Fundamentals, 20MHz Bandwidth Mode:

Test Equpment: Band

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 2.5m SMA-type Cable

SG reading Ant. Pol. Cable Loss Antenna Gain **EIRP** Limit Delta Notes MHz (dBm) (H/V) (dB) (dBi) (dBm) (dBm) (dB) Low Ch 1720.00 1720.00 94 19.06 30.0 -10.9 Mid Ch 1745.00 18.58 23.74 30.0 4.4 9.5 -6.3 1745.00 9.5 -11.9 4.4 18.15 30.0 High Ch 1770.00 19.13 24.30 30.0 -5.7 1770.00 11.19 4.4 9.6 16.36 30.0 -13.6

> UL Verification Services, Inc. **High Frequency Substitution Measurement**

Samsung Company: Project #: 4788725460 Date: 2018-11-13 Test Engineer: 47989 EUT / Y-Position Configuration: Location: Chamber 1

LTE_16QAM Band 66 Fundamentals, 20MHz Bandwidth Mode:

Test Equpment: Band 66

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 2.5m SMA-type Cable

20MHz 16QAM

LTE

MHz (dBm) (H/V) (dB) (dBi) (dBm) (dBm) (dB) Low Ch 1720.00 17.78 V 4.3 9.4 22.88 30.0 -7.1 1720.00 11.85 H 4.3 9.4 16.96 30.0 -13.0 Mid Ch 1745.00 16.74 V 4.4 9.5 21.90 30.0 -8.1 1745.00 10.85 H 4.4 9.5 16.02 30.0 -14.0 High Ch 1770.00 17.02 V 4.4 9.6 22.19 30.0 -7.8 1770.00 9.27 H 4.4 9.6 14.44 30.0 -15.6	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
1720.00 17.78 V 4.3 9.4 22.88 30.0 -7.1 1720.00 11.85 H 4.3 9.4 16.96 30.0 -13.0 Mid Ch T745.00 16.74 V 4.4 9.5 21.90 30.0 -8.1 1745.00 10.85 H 4.4 9.5 16.02 30.0 -14.0 High Ch T770.00 17.02 V 4.4 9.6 22.19 30.0 -7.8	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
1720.00 11.85 H 4.3 9.4 16.96 30.0 -13.0 Mid Ch 1745.00 16.74 V 4.4 9.5 21.90 30.0 -8.1 1745.00 10.85 H 4.4 9.5 16.02 30.0 -14.0 High Ch	Low Ch								
Mid Ch 1745.00 16.74 V 4.4 9.5 21.90 30.0 -8.1 1745.00 10.85 H 4.4 9.5 16.02 30.0 -14.0 High Ch 1770.00 17.02 V 4.4 9.6 22.19 30.0 -7.8	1720.00	17.78	V	4.3	9.4	22.88	30.0	-7.1	
1745.00 16.74 V 4.4 9.5 21.90 30.0 -8.1 1745.00 10.85 H 4.4 9.5 16.02 30.0 -14.0 High Ch	1720.00	11.85	Н	4.3	9.4	16.96	30.0	-13.0	
1745.00 10.85 H 4.4 9.5 16.02 30.0 -14.0 High Ch 2170.00 17.02 V 4.4 9.6 22.19 30.0 -7.8	Mid Ch								
High Ch 22.19 30.0 -7.8	1745.00	16.74	V	4.4	9.5	21.90	30.0	-8.1	
1770.00 17.02 V 4.4 9.6 22.19 30.0 -7.8	1745.00	10.85	Н	4.4	9.5	16.02	30.0	-14.0	
	High Ch								
1770 00 9 27 H 44 9 6 14 44 30 0 -15 6	1770.00	17.02	V	4.4	9.6	22.19	30.0	-7.8	
1110.00 3.21 11 4.44 30.0 -13.0	1770.00	9.27	Н	4.4	9.6	14.44	30.0	-15.6	

DATE: DEC 26, 2018

Company: Samsung 4788725460 Project #: Date: 2018-11-13 Test Engineer: 47989 Configuration: EUT / Y-Position Location: Chamber 1 Mode: LTE_QPSK Band 66 Fundamentals, 15MHz Bandwidth

LTE Band 66

Test Equpment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 2.5m SMA-type Cable

15MHz QPSK

f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
Low Ch								
1717.50	19.18	V	4.3	9.4	24.28	30.0	-5.7	
1717.50	13.76	Н	4.3	9.4	18.86	30.0	-11.1	
Mid Ch								
1745.00	19.20	V	4.4	9.5	24.36	30.0	-5.6	
1745.00	12.64	Н	4.4	9.5	17.81	30.0	-12.2	
High Ch								
1772.50	17.33	V	4.4	9.6	22.50	30.0	-7.5	
1772.50	12.81	Н	4.4	9.6	17.98	30.0	-12.0	

UL Verification Services, Inc. **High Frequency Substitution Measurement**

Company: Samsung Project #: 4788725460 Date: 2018-11-13 47989 Test Engineer: Configuration: EUT / Y-Position Chamber 1 Location: LTE_16QAM Band 66 Fundamentals, 15MHz Bandwidth Mode:

LTE

Band 66

<u>Test Equpment:</u> Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 2.5m SMA-type Cable

15MHz 16QAM

f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
Low Ch								
1717.50	16.96	V	4.3	9.4	22.06	30.0	-7.9	
1717.50	12.11	Н	4.3	9.4	17.21	30.0	-12.8	
Mid Ch								
1745.00	17.68	V	4.4	9.5	22.84	30.0	-7.2	
1745.00	10.29	Н	4.4	9.5	15.46	30.0	-14.5	
High Ch								
1772.50	18.85	V	4.4	9.6	24.02	30.0	-6.0	
1772.50	10.50	Н	4.4	9.6	15.67	30.0	-14.3	

Samsung Company: 4788725460 Project #: Date: 2018-11-13 Test Engineer: 47989 Configuration: EUT / Y-Position Location: Chamber 1

LTE_QPSK Band 66 Fundamentals, 10MHz Bandwidth Mode:

Test Equpment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 2.5m SMA-type Cable

10MHz

LTE

Band 66

QPSK

f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
Low Ch								
1715.00	19.56	V	4.3	9.4	24.65	30.0	-5.3	
1715.00	11.02	Н	4.3	9.4	16.12	30.0	-13.9	
Mid Ch								
1745.00	19.62	V	4.4	9.5	24.78	30.0	-5.2	
1745.00	13.03	Н	4.4	9.5	18.20	30.0	-11.8	
High Ch								
1775.00	19.11	V	4.4	9.6	24.28	30.0	-5.7	
1775.00	11.49	Н	4.4	9.6	16.66	30.0	-13.3	
					£			

UL Verification Services, Inc. **High Frequency Substitution Measurement**

Company: Samsung 4788725460 Project #: Date: 2018-11-13 Test Engineer: 47989 EUT / Y-Position Configuration: Chamber 1 Location: LTE_16QAM Band 66 Fundamentals, 10MHz Bandwidth Mode:

Test Equpment:

LTE

Band 66 10MHz

16QAM

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 2.5m SMA-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								
1715.00	17.71	V	4.3	9.4	22.80	30.0	-7.2	
1715.00	9.41	Н	4.3	9.4	14.51	30.0	-15.5	
Mid Ch								
1745.00	17.41	V	4.4	9.5	22.57	30.0	-7.4	
1745.00	11.41	Н	4.4	9.5	16.58	30.0	-13.4	
High Ch								
1775.00	16.46	V	4.4	9.6	21.63	30.0	-8.4	
1775.00	9.64	Н	4.4	9.6	14.81	30.0	-15.2	

Samsung Company: 4788725460 Project #: Date: 2018-11-13 Test Engineer: 47989 Configuration: EUT / Y-Position Location: Chamber 1

Mode:

LTE_QPSK Band 66 Fundamentals, 5MHz Bandwidth

Test Equpment: Band 66

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 2.5m SMA-type Cable

5MHz

LTE

QPSK

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	19.64	V	4.3	9.4	24.73	30.0	-5.3	
1712.50	13.04	Н	4.3	9.4	18.13	30.0	-11.9	
Mid Ch								
1745.00	20.18	٧	4.4	9.5	25.34	30.0	-4.7	
1745.00	12.78	Н	4.4	9.5	17.95	30.0	-12.1	
High Ch								
1777.50	18.48	V	4.4	9.6	23.65	30.0	-6.4	
1777.50	12.39	Н	4.4	9.6	17.56	30.0	-12.4	
	•							

UL Verification Services, Inc. **High Frequency Substitution Measurement**

Company: Samsung 4788725460 Project #: Date: 2018-11-13 Test Engineer: 47989 EUT / Y-Position Configuration: Chamber 1 Location: LTE_16QAM Band 66 Fundamentals, 5MHz Bandwidth Mode:

LTE

Band 66

5MHz

16QAM

Test Equpment: Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 2.5m SMA-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	17.66	V	4.3	9.4	22.75	30.0	-7.3	
1712.50	11.54	Н	4.3	9.4	16.63	30.0	-13.4	
Mid Ch								
1745.00	17.71	V	4.4	9.5	22.87	30.0	-7.1	
1745.00	10.53	Н	4.4	9.5	15.70	30.0	-14.3	
High Ch								
1777.50	16.27	V	4.4	9.6	21.44	30.0	-8.6	
1777.50	10.74	Н	4.4	9.6	15.91	30.0	-14.1	

Notes

UL Verification Services, Inc. High Frequency Substitution Measurement

EIRP

(dBm)

24.70

24.82

17.83

24.05

Limit

(dBm)

30.0

30.0

30.0

30.0

Delta

(dB)

-5.3 -11.4

-5.2

-12.2

-6.0

-12.7

 Company:
 Samsung

 Project #:
 4788725460

 Date:
 2018-11-13

 Test Engineer:
 47989

 Configuration:
 EUT / Y-Position

 Location:
 Chamber 1

 Mode:
 LTE_QPSK Band 66 Fundamentals, 3MHz Bandwidth

19.66

12.66

18.88

12.12

LTE Band 66

Test Equpment:

1745.00

1745.00

High Ch 1778.50

1778.50

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 2.5m SMA-type Cable

3MHz QPSK

f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain
MHz	(dBm)	(H/V)	(dB)	(dBi)
Low Ch				
1711.50	19.61	V	4.3	9.4
1711 50	13 56	н	4.3	9.4

4.4

4.4

4.4

UL Verification Services, Inc. High Frequency Substitution Measurement

9.5

 Company:
 Samsung

 Project #:
 4788725460

 Date:
 2018-11-13

 Test Engineer:
 47989

 Configuration:
 EUT / Y-Position

 Location:
 Chamber 1

 Mode:
 LTE_16QAM Band 66 Fundamentals, 3MHz Bandwidth

LTE

Band 66

<u>Test Equpment:</u>
Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables
Substitution: Horn 3115[00167211], 2.5m SMA-type Cable

3MHz

16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch		, ,	 	` '				
1711.50	18.37	V	4.3	9.4	23.46	30.0	-6.5	
1711.50	12.35	Н	4.3	9.4	17.44	30.0	-12.6	
Mid Ch								
1745.00	18.09	V	4.4	9.5	23.25	30.0	-6.7	
1745.00	10.13	Н	4.4	9.5	15.30	30.0	-14.7	
High Ch								
1778.50	16.59	V	4.4	9.6	21.76	30.0	-8.2	
1778.50	10.59	Н	4.4	9.6	15.76	30.0	-14.2	

 Company:
 Samsung

 Project #:
 4788725460

 Date:
 2018-11-13

 Test Engineer:
 47989

 Configuration:
 EUT / Y-Position

 Location:
 Chamber 1

Mode: LTE_QPSK Band 66 Fundamentals, 1.4MHz Bandwidth

Test Equpment:

Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 2.5m SMA-type Cable

1.4MHz

LTE

Band 66

QPSK

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	19.36	V	4.3	9.4	24.44	30.0	-5.6	
1710.70	13.97	Н	4.3	9.4	19.05	30.0	-10.9	
Mid Ch								
1745.00	19.38	V	4.4	9.5	24.54	30.0	-5.5	
1745.00	12.72	Н	4.4	9.5	17.89	30.0	-12.1	
High Ch								
1779.30	18.32	V	4.4	9.6	23.49	30.0	-6.5	
1779.30	10.53	Н	4.4	9.6	15.70	30.0	-14.3	

UL Verification Services, Inc. High Frequency Substitution Measurement

 Company:
 Samsung

 Project #:
 4788725460

 Date:
 2018-11-13

 Test Engineer:
 47989

 Configuration:
 EUT / Y-Position

 Location:
 Chamber 1

 Mode:
 LTE_16QAM Band 66 Fundamentals, 1.4MHz Bandwidth

LTE

Band 66

1.4MHz 16QAM <u>Test Equpment:</u> Receiving: Horn 3117[00168717], and Chamber 1 SMA Cables Substitution: Horn 3115[00167211], 2.5m SMA-type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch	(()	(==/	(()	((/	
1710.70	17.54	V	4.3	9.4	22.62	30.0	-7.4	
1710.70	11.69	Н	4.3	9.4	16.77	30.0	-13.2	
Mid Ch								
1745.00	17.41	V	4.4	9.5	22.57	30.0	-7.4	
1745.00	10.56	Н	4.4	9.5	15.73	30.0	-14.3	
High Ch								
1779.30	16.28	V	4.4	9.6	21.45	30.0	-8.5	
1779.30	9.32	Н	4.4	9.6	14.49	30.0	-15.5	

10.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27. 53 and §90.691

LIMIT

Part 22.917(a) & Part 24.238(a) & Part 27.53(h) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

Part 27.53:

- (c)(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB.
- (g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB.
- (h) The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log₁₀ (P) dB.
- (m) (4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Part 90.691(a):

- (1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.
- (2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log₁₀(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz (NOTE: Use 100kHz reference bandwidth)
- (b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

DATE: DEC 26, 2018

DATE: DEC 26, 2018 FCC ID: A3LSMG973F

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 = rms;
- f) Ensure that the number of measurement points ≥ span/RBW;
- g) Trace mode = average(WCDMA, LTE), Maxhold(GSM, LTE Band41);;

RESULTS

See the following pages.

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

DATE: DEC 26, 2018

10.2.1. SPURIOUS RADIATION PLOTS

GSM850

	Company: Project #: Date: Test Engine Configurati Location: Mode:		Samsung 4788725460 2018-11-16 45585 EUT / AC Adapte Chamber 2 GPRS 850 MHz			cy Substitu	nion meast	nement		
	Project #: Date: Test Engine Configurati Location: Mode:		4788725460 2018-11-16 45585 EUT / AC Adapte Chamber 2		osition 'osition					
	Date: Test Engine Configurati Location: Mode:		2018-11-16 45585 EUT / AC Adapte Chamber 2		'osition					
	Date: Test Engine Configurati Location: Mode:		45585 EUT / AC Adapte Chamber 2		osition					
	Test Engine Configurati Location: Mode:		45585 EUT / AC Adapte Chamber 2		osition					
	Configurati Location: Mode:		EUT / AC Adapte Chamber 2		osition					
	Location: Mode:	on:	Chamber 2		osition					
	Mode:			Harmonics						
			GPRS 850 MHz	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. 824.		()	(,	(/	(/	(====,	(==,,,	(/	
	1648.40	-1.7	V	3.0	38.2	1.0	-39.0	-13.0	-26.0	
	2472.60	-11.3	v	3.0	38.8	1.0	-49.1	-13.0	-36.1	
	3296.80	-9.6	V	3.0	39.4	1.0	-48.1	-13.0	-35.1	
	4121.00	-9.1	V	3.0	39.8	1.0	-48.0	-13.0	-35.0	
	4945.20	-7.8	V	3.0	39.8	1.0	-46.6	-13.0	-33.6	
	1648.40	4.2	Н	3.0	38.2	1.0	-33.0	-13.0	-20.0	
	2472.60	-11.8	Н	3.0	38.8	1.0	-49.6	-13.0	-36.6	
50	3296.80	-9.5	Н	3.0	39.4	1.0	-47.9	-13.0	-34.9	
30	4121.00	-9.6	Н	3.0	39.8	1.0	-48.4	-13.0	-35.4	
	4945.20	-8.7	Н	3.0	39.8	1.0	-47.5	-13.0	-34.5	
S	Mid Ch, 836.6									
	1673.20	11.8	٧	3.0	38.2	1.0	-25.5	-13.0	-12.5	
	2509.80	-11.4	V	3.0	38.8	1.0	-49.2	-13.0	-36.2	
	3346.40 4183.00	-9.1 -8.9	V V	3.0 3.0	39.5 39.8	1.0 1.0	-47.5 -47.7	-13.0 -13.0	-34.5 -34.7	
	5019.60	-6.9 -7.7	V	3.0	39.8	1.0	-47.7 -46.5	-13.0 -13.0	-34.7	
	1673.20	7.3	H	3.0	38.2	1.0	-40.5	-13.0	-16.9	***************************************
	2509.80	-12.0	H	3.0	38.8	1.0	-29.9 -49.8	-13.0	-36.8	
	3346.40	-9.1	H	3.0	39.5	1.0	-47.6	-13.0	-34.6	
	4183.00	-9.1	H	3.0	39.8	1.0	-47.9	-13.0	-34.9	
	5019.60	-8.2	Н	3.0	39.8	1.0	-47.0	-13.0	-34.0	***************************************
	High Ch, 848						1			,
	1697.60	-5.6	V	3.0	38.2	1.0	-42.8	-13.0	-29.8	
	2546.40	-11.4	V	3.0	38.9	1.0	-49.2	-13.0	-36.2	
	3395.20	-8.3	V	3.0	39.5	1.0	-46.8	-13.0	-33.8	
	4244.00	-9.0	V	3.0	39.8	1.0	-47.9	-13.0	-34.9	
	5092.80	-7.7	V	3.0	39.8	1.0	-46.5	-13.0	-33.5	
	1697.60	1.7	Н	3.0	38.2	1.0	-35.6	-13.0	-22.6	
	2546.40	-11.8	Н	3.0	38.9	1.0	-49.7	-13.0	-36.7	
	3395.20	-8.6	Н	3.0	39.5	1.0	-47.1	-13.0	-34.1	
	4244.00	-9.2	Н	3.0	39.8	1.0	-48.0	-13.0	-35.0	
	5092.80	-8.3	Н	3.0	39.8	1.0	-47.1	-13.0	-34.1	

Company: Samsung 4788725460 Project #: 2018-11-16 Date: 45585 Test Engineer:

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

Location:

Chamber 2 EGPRS 850 MHz Harmonics Mode:

GSM850

EGPRS

f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
ow Ch, 824.									
1648.40	-7.9	V	3.0	38.2	1.0	-45.1	-13.0	-32.1	
2472.60	-11.6	V	3.0	38.8	1.0	-49.4	-13.0	-36.4	
3296.80	-9.3	V	3.0	39.4	1.0	-47.8	-13.0	-34.8	
4121.00	-9.2	V	3.0	39.8	1.0	-48.1	-13.0	-35.1	
4945.20	-8.1	V	3.0	39.8	1.0	-46.9	-13.0	-33.9	
1648.40	-8.0	Н	3.0	38.2	1.0	-45.3	-13.0	-32.3	
2472.60	-12.1	Н	3.0	38.8	1.0	-49.9	-13.0	-36.9	
3296.80	-9.5	Н	3.0	39.4	1.0	-47.9	-13.0	-34.9	
4121.00	-9.6	Н	3.0	39.8	1.0	-48.4	-13.0	-35.4	
4945.20	-8.3	Н	3.0	39.8	1.0	-47.0	-13.0	-34.0	
Mid Ch, 836.6	6MHz								
1673.20	-11.7	V	3.0	38.2	1.0	-48.9	-13.0	-35.9	
2509.80	-11.3	V	3.0	38.8	1.0	-49.1	-13.0	-36.1	
3346.40	-9.1	V	3.0	39.5	1.0	-47.5	-13.0	-34.5	
4183.00	-8.9	V	3.0	39.8	1.0	-47.7	-13.0	-34.7	
5019.60	-7.8	V	3.0	39.8	1.0	-46.6	-13.0	-33.6	
1673.20	-4.6	Н	3.0	38.2	1.0	-41.8	-13.0	-28.8	
2509.80	-12.0	Н	3.0	38.8	1.0	-49.9	-13.0	-36.9	
3346.40	-9.4	Н	3.0	39.5	1.0	-47.9	-13.0	-34.9	
4183.00	-9.3	Н	3.0	39.8	1.0	-48.2	-13.0	-35.2	
5019.60	-8.3	Н	3.0	39.8	1.0	-47.1	-13.0	-34.1	
High Ch, 848.	.8MHz					-			
1697.60	-13.6	V	3.0	38.2	1.0	-50.9	-13.0	-37.9	
2546.40	-11.2	V	3.0	38.9	1.0	-49.1	-13.0	-36.1	
3395.20	-8.4	V	3.0	39.5	1.0	-46.9	-13.0	-33.9	
4244.00	-8.8	V	3.0	39.8	1.0	-47.6	-13.0	-34.6	
5092.80	-7.7	V	3.0	39.8	1.0	-46.5	-13.0	-33.5	
1697.60	-7.7	H	3.0	38.2	1.0	-45.0	-13.0	-32.0	
2546.40	-11.7	Н	3.0	38.9	1.0	-49.6	-13.0	-36.6	
3395.20	-8.6	Н	3.0	39.5	1.0	-47.1	-13.0	-34.1	
4244.00	-9.1	Н	3.0	39.8	1.0	-47.9	-13.0	-34.9	
5092.80	-8.5	H	3.0	39.8	1.0	-47.3	-13.0	-34.3	

GSM1900

			100	Above 1GHz I	UL Verification			ırement		
	Common			TOTAL TOTAL	garriequen	o, oubsult	on meast			
	Company: Project #:		Samsung 4788725460							
			2018-11-15							
	Date:		45585							
	Test Engine			/=						
	Configuration	on:	EUT / AC Adapte	er / Earpnone, Y-F	osition					
	Location:		Chamber 2							
	Mode:		GPRS 1900 MHz	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, 1850		v	3.0	39.7	1.0	40.0	-13.0	-35.9	
	3700.40 5550.60	-10.2 -7.0	V	3.0	39.7	1.0	-48.9 -46.0	-13.0	-35.9	
SM1900	7400.80	-5.0	V	3.0	39.4	1.0	43.5	-13.0	-30.5	
	3700.40	-10.5	Н	3.0	39.7	1.0	49.1	-13.0	-36.1	
GPRS	5550.60	-7.4	Н	3.0	39.9	1.0	-46.3	-13.0	-33.3	
51 10	7400.80	-6.0	Н	3.0	39.4	1.0	-44.4	-13.0	-31.4	
ļ	Mid Ch, 1880									
	3760.00	-9.9	V	3.0	39.7	1.0	-48.6	-13.0	-35.6	
ļ	5640.00	-6.8	V	3.0	40.0	1.0	-45.8	-13.0	-32.8	
	7520.00	-5.1	V	3.0	39.4	1.0	-43.5	-13.0	-30.5	
	3760.00	-10.0	Н	3.0	39.7	1.0	-48.7	-13.0	-35.7	
ļ	5640.00	-7.0	H	3.0	40.0	1.0	-46.0	-13.0	-33.0	
ļ	7520.00	-6.1	Н	3.0	39.4	1.0	-44.4	-13.0	-31.4	
ļ	High Ch, 1909 3819.60	-9.9	V	3.0	39.7	1.0	-48.6	-13.0	-35.6	
	5729.40	-9.9 -7.0	V	3.0	40.0	1.0	-48.6 -46.0	-13.0	-33.0	
	7639.20	-7.0 -5.0	V	3.0	39.3	1.0	-43.4	-13.0	-30.4	
	3819.60	-10.1	H	3.0	39.7	1.0	-48.8	-13.0	-35.8	
	5729.40	-7.5	H	3.0	40.0	1.0	-46.5	-13.0	-33.5	
	7639.20	-5.9	Н	3.0	39.3	1.0	-44.3	-13.0	-31.3	
								l		
	Company: Project #: Date: Test Engine Configuratic Location: Mode:		Samsung 4788725460 2018-11-15 45585 EUT / AC Adapte Chamber 2 EGPRS 1900 MH	Above 1GHz h				urement		
	Project #: Date: Test Engine Configuratic Location: Mode:	SG reading (dBm)	Samsung 4788725460 2018-11-15 45585 EUT / AC Adapte Chamber 2	Above 1GHz h	High Frequen			urement Limit (dBm)	De Ita (dB)	Notes
	Project #: Date: Test Engine Configuratic Location: Mode: f MHz Low Ch, 1850	SG reading (dBm)	Samsung 4788725460 2018-11-15 45585 EUT / AC Adapte Chamber 2 EGPRS 1900 MH	er / Earphone, Y-F tz Harmonics Distance (m)	Preamp (dB)	cy Substitu	EIRP (dBm)	Limit (dBm)	(dB)	Notes
SM1900	Project #: Date: Test Engine Configuratic Location: Mode: f MHz Low Ch, 1850 3700.40	SG reading (dBm) .2MHz	Samsung 4788725460 2018-11-15 45585 EUT / AC Adapte Chamber 2 EGPRS 1900 MH	Per / Earphone, Y-F dz Harmonics Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	(dB)	Notes
SSM1900	Project #: Date: Test Engine Configuratio Location: Mode: f MHz Low Ch, 1850 3700.40 5550.60	SG reading (dBm) .2MHz -10.3 -7.2	Samsung 4788725460 2018-11-15 45585 EUT / AC Adapte Chamber 2 EGPRS 1900 MH	Per / Earphone, Y-Fitz Harmonics Distance (m) 3.0 3.0	Preamp (dB) 39.7 39.9	Filter (dB)	EIRP (dBm)	Limit (dBm)	-36.0 -33.1	Notes
	Project #: Date: Test Engine Configuratio Location: Mode: f MHz Low Ch, 1850 3700.40 5550.60 7440.80	SG reading (dBm) .2MHz -10.3 -7.2 -5.1	Samsung 4788725460 2018-11-15 45585 EUT / AC Adapte Chamber 2 EGPRS 1900 MH	Pistance (m) 3.0 3.0 3.0	Preamp (dB) 39.7 39.9 39.4	Filter (dB)	EIRP (dBm) -49.0 -49.1 -43.5	Limit (dBm) -13.0 -13.0 -13.0	-36.0 -33.1 -30.5	Notes
	Project #: Date: Test Engine Configuratio Location: Mode: f MHz Low Ch, 1850 3700.40 5550.60 7400.80 3700.40	SG reading (dBm).2MHz -10.3 -7.2 -5.1 -10.5	Samsung 4788725460 2018-11-15 45585 EUT / AC Adapte Chamber 2 EGPRS 1900 MH	Pr / Earphone, Y-F dz Harmonics Distance (m) 3.0 3.0 3.0 3.0	Preamp (dB) 39.7 39.9 39.4 39.7	Filter (dB) 1.0 1.0 1.0 1.0	EIRP (dBm) -49.0 -46.1 -43.5 -49.1	Limit (dBm) -13.0 -13.0 -13.0 -13.0	-36.0 -33.1 -30.5 -36.1	Notes
	Project #: Date: Test Engine Configuratio Location: Mode: f MHz Low Ch, 1850 3700.40 5550.60 7440.80	SG reading (dBm) .2MHz -10.3 -7.2 -5.1	Samsung 4788725460 2018-11-15 45585 EUT / AC Adapte Chamber 2 EGPRS 1900 MH	Pistance (m) 3.0 3.0 3.0	Preamp (dB) 39.7 39.9 39.4	Filter (dB)	EIRP (dBm) -49.0 -49.1 -43.5	Limit (dBm) -13.0 -13.0 -13.0	-36.0 -33.1 -30.5	Notes
	Project #: Date: Test Engine Configuratio Location: Mode: f MHz Low Ch, 1850 3700.40 5550.60 7400.80 3700.40 5550.60	SG reading (dBm) .2MHz -10.3 -7.2 -5.1 -10.5 -7.4 -6.0	Samsung 4788725460 2018-11-15 45585 EUT / AC Adapte Chamber 2 EGPRS 1900 MH	Distance (m) 3.0 3.0 3.0 3.0	Preamp (dB) 39.7 39.9 39.4 39.7 39.9	Filter (dB) 1.0 1.0 1.0 1.0	EIRP (dBm) 49.0 46.1 43.5 49.1 46.4	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0	-36.0 -33.1 -30.5 -36.1 -33.4	Notes
	Project #: Date: Test Engine Configuratio Location: Mode: f MHz Low Ch, 1850 3700.40 5550.60 7400.80 3700.40 5550.60 7400.80 Mid Ch, 18800	SG reading (dBm) .2MHz -10.3 -7.2 -5.1 -10.5 -7.4 -6.0	Samsung 4788725460 2018-11-15 45585 EUT / AC Adapte Chamber 2 EGPRS 1900 MH	Distance (m) 3.0 3.0 3.0 3.0	Preamp (dB) 39.7 39.9 39.4 39.7 39.9	Filter (dB) 1.0 1.0 1.0 1.0	EIRP (dBm) 49.0 46.1 43.5 49.1 46.4	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0	-36.0 -33.1 -30.5 -36.1 -33.4	Notes
	Project #: Date: Test Engine Configuratic Location: Mode: f MHz Low Ch, 1850 3700.40 5550.60 7400.80 3700.40 5550.60 7400.80 Mid Ch, 18800 3760.00 5640.00	SG reading (dBm) .2MHz -10.3 -7.2 -5.1 -10.5 -7.4 -6.0 WHz -9.8 -6.9	Samsung 4788725460 2018-11-15 45585 EUT / AC Adapte Chamber 2 EGPRS 1900 MH	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	Preamp (dB) 39.7 39.9 39.4 39.7 39.9 39.4 39.7 40.0	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	EIRP (dBm) -49.0 -46.1 -43.5 -49.1 -46.4 -44.4 -48.5 -45.8	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	(dB) -36.0 -33.1 -30.5 -36.1 -33.4 -31.4 -35.5 -32.8	Notes
	Project #: Date: Test Engine Configuratio Location: Mode: f MHz Low Ch, 1850 3700.40 5550.60 7400.80 3700.40 5550.60 7400.80 Mid Ch, 18800 3760.00 5640.00 7520.00	SG reading (dBm). 2MHz -10.3 -7.2 -5.1 -10.5 -7.4 -6.0 WHz -9.8 -6.9 -5.2	Samsung 4788725460 2018-11-15 45585 EUT / AC Adapte Chamber 2 EGPRS 1900 MH	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	Preamp (dB) 39.7 39.9 39.4 39.7 39.9 39.4 39.7 39.9 39.4	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) 49.0 46.1 43.5 49.1 46.4 44.4 48.5 45.8	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	(dB) -36.0 -33.1 -30.5 -36.1 -33.4 -31.4 -35.5 -32.8 -30.6	Notes
SSM1900 EGPRS	Project #: Date: Test Engine Configuratic Location: Mode: f MHz Low Ch, 1850 3700.40 5550.60 7400.80 Mid Ch, 1880 3760.00 5640.00 7520.00 3760.00	SG reading (dBm) .2MHz -10.3 -7.2 -5.1 -10.5 -7.4 -6.0 WHz -9.8 -6.9 -5.2 -10.1	Samsung 4788725460 2018-11-15 45585 EUT / AC Adapte Chamber 2 EGPRS 1900 MH	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	Preamp (dB) 39.7 39.9 39.4 39.7 40.0 39.4 39.7 40.0	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0	EIRP (dBm) -49.0 -46.1 -43.5 -49.1 -46.4 -44.4 -45.8 -45.8 -43.6 -48.8	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	(dB) -36.0 -33.1 -30.5 -36.1 -33.4 -31.4 -35.5 -32.8 -30.6 -35.8	Notes
	Project #: Date: Test Engine Configuratio Location: Mode: f MHz Low Ch, 1850 3700.40 5550.60 7400.80 3700.40 5550.60 7400.80 Mid Ch, 18800 3760.00 5640.00 7520.00	SG reading (dBm). 2MHz -10.3 -7.2 -5.1 -10.5 -7.4 -6.0 WHz -9.8 -6.9 -5.2	Samsung 4788725460 2018-11-15 45585 EUT / AC Adapte Chamber 2 EGPRS 1900 MH	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	Preamp (dB) 39.7 39.9 39.4 39.7 39.9 39.4 39.7 39.9 39.4	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) 49.0 46.1 43.5 49.1 46.4 44.4 48.5 45.8	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	(dB) -36.0 -33.1 -30.5 -36.1 -33.4 -31.4 -35.5 -32.8 -30.6	Notes

40.0 39.3 39.7 40.0

3.0 3.0 3.0 3.0

1.0 1.0 1.0 1.0

45.9 43.5 48.8 46.3 44.2

-13.0 -13.0 -13.0 -13.0

-13.0

-32.9 -30.5

-35.8

-31.2

-6.9 -5.1 -10.1 -7.3 -5.9

High Ch, 1909.8MHz 3819.60 5729.40 7639.20

3819.60 5729.40 7639.20

WCDMA Band 5

					UL Verification					
			1.9	Above 1GHz H	ligh Frequen	cy Substitu	ition Measi	irement		
	Company:		Samsung							
	Project #:		4788725460							
	Date:		2018-11-15							
	Test Engin	eer:	47989							
	Configurat	ion:	EUT / AC Adapte	er / Earphone, Z-P	osition					
	Location:		Chamber 1							
	Mode:		Rel99 Band 5 Ha	monics						
	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									
CDMA	1652.80	-9.0	V	3.0	43.6	1.0	-51.6	-13.0	-38.6	
	2479.20	-12.5 -10.5	V	3.0	43.4 43.6	1.0 1.0	-54.9	-13.0 -13.0	-41.9 -40.2	
and 5	3305.60 1652.80	-10.5	H	3.0	43.6	1.0	-53.2 -53.3	-13.0	-40.2 -40.3	
REL99	2479.20	-12.9	H	3.0	43.4	1.0	-55.4	-13.0	-42.4	
	3305.60	-10.8	Н	3.0	43.6	1.0	-53.4	-13.0	-40.4	
	Mid Ch, 836.									
	1673.20 2509.80	-10.2 -12.6	V V	3.0 3.0	43.6 43.4	1.0 1.0	-52.8 -55.0	-13.0 -13.0	-39.8 -42.0	
	3346.40	-12.6 -10.6	v	3.0	43.4	1.0	-53.3	-13.0 -13.0	-42.0 -40.3	
	1673.20	-11.2	н	3.0	43.6	1.0	-53.8	-13.0	40.8	
	2509.80	-13.1	Н	3.0	43.4	1.0	-55.5	-13.0	-42.5	
	3346.40	-10.9	Н	3.0	43.6	1.0	-53.5	-13.0	-40.5	
	High Ch, 846		1,,	2.0	42.0	40	40.4	42.0	26.4	
	1693.20 2539.80	-6.5 -12.6	V V	3.0	43.6 43.4	1.0 1.0	-49.1 -55.0	-13.0 -13.0	-36.1 -42.0	
	3386.40	-9.8	v	3.0	43.4	1.0	-52.4	-13.0	-39.4	
	1693.20	-7.1	н	3.0	43.6	1.0	-49.6	-13.0	-36.6	
	2539.80	-14.4	Н	3.0	43.4	1.0	-56.8	-13.0	-43.8	
									-41.1	
	3386.40 Company:	-11.4	Samsung	3.0 Above 1GHz H	43.7 UL Verificatio			-13.0	41.1	
	Company: Project #: Date: Test Engin	eer:	Samsung 4788725460 2018-11-15 47989	Above 1GHz H	UL Verificatic High Frequen	on Services	, Inc.		71.1	
	Company: Project #: Date: Test Engin Configurat	eer:	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte		UL Verificatic High Frequen	on Services	, Inc.		91.1	
	Company: Project #: Date: Test Engin Configurati	eer: ion:	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1	Above 1GHz F	UL Verificatic High Frequen	on Services	, Inc.		91.1	
	Company: Project #: Date: Test Engin Configurat	eer: ion:	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte	Above 1GHz F	UL Verificatic High Frequen	on Services	, Inc.		41.1	
	Company: Project #: Date: Test Engin Configurati	eer: ion:	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1	Above 1GHz F	UL Verificatic High Frequen	on Services	, Inc.		41.1	
	Company: Project #: Date: Test Engin Configurat Location: Mode:	eer: ion: SG reading	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 H	Above 1GHz h er / Earphone, Z-P Harmonics Distance	UL Verification High Frequen osition	on Services cy Substitu	, Inc. ition Measu	rement Limit	Delta	Notes
	Company: Project #: Date: Test Engin Configurat Location: Mode:	eer: ion: SG reading (dBm)	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 H	Above 1GHz H er / Earphone, Z-P Harmonics	UL Verification	on Services cy Substitu	, Inc. ition Measu	ırement		Notes
CDMA	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 826	eer: ion: SG reading (dBm)	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 H	Above 1GHz Herr / Earphone, Z-P	UL Verification digh Frequent osition Preamp (dB)	on Services cy Substitu Filter (dB)	, Inc. Ition Measu EIRP (dBm)	Irement Limit (dBm)	De Ita (dB)	Notes
CDMA	Company: Project #: Date: Test Engin Configurat Location: Mode:	eer: ion: SG reading (dBm)	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 H	Above 1GHz h er / Earphone, Z-P Harmonics Distance	UL Verification High Frequen osition	on Services cy Substitu	, Inc. ition Measu	rement Limit	Delta	Notes
	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 826 1652.80 2479.20 3305.60	eer: ion: SG reading (dBm) -4MHz -11.5 -12.4 -10.6	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 H	Above 1GHz Her / Earphone, Z-P Harmonics Distance (m) 3.0 3.0 3.0	UL Verification Preamp (dB) 43.6 43.4 43.6	Filter (dB)	EIRP (dBm)	Limit (dBm) -13.0 -13.0 -13.0	Delta (dB) -41.0 -41.8 -40.2	Notes
and 5	Company: Project #: Date: Test Engin Configurat Location: Mode: f Mz Low Ch, 826 1652.80 2479.20 3305.60 1652.80	SG reading (dBm) -11.5 -12.4 -10.6 -12.7	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 I MIL Pol. (H/V)	Pistance (m) 3.0 3.0 3.0 3.0	UL Verification Preamp (dB) 43.6 43.4 43.6 43.6	Filter (dB) 1.0 1.0 1.0	EIRP (dBm) -54.0 -54.8 -53.2 -55.3	Limit (dBm) -13.0 -13.0 -13.0 -13.0	Delta (dB) -41.0 -41.8 -40.2 -42.3	Notes
and 5	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 826 1652.80 2479.20 3305.60 1652.80 2479.20	eer: ion: SG reading (dBm) .4MHz -11.5 -12.4 -10.6 -12.7 -13.0	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 I (H/V) V V V H H	Above 1GHz Fer / Earphone, Z-P Harmonics Distance (m) 3.0 3.0 3.0 3.0	UL Verification Preamp (dB) 43.6 43.6 43.6 43.6 43.6	Filter (dB) 1.0 1.0 1.0	EIRP (dBm) -54.0 -54.8 -53.2 -55.3	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) 41.0 41.8 40.2 42.3 42.5	Notes
and 5	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 826 1652.80 2479.20 3305.60 1652.80 2479.20 3305.60	eer: ion: SG reading (dBm) -4MHz -11.5 -12.4 -10.6 -12.7 -13.0 -10.9	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 I MIL Pol. (H/V)	Pistance (m) 3.0 3.0 3.0 3.0	UL Verification Preamp (dB) 43.6 43.4 43.6 43.6	Filter (dB) 1.0 1.0 1.0	EIRP (dBm) -54.0 -54.8 -53.2 -55.3	Limit (dBm) -13.0 -13.0 -13.0 -13.0	Delta (dB) -41.0 -41.8 -40.2 -42.3	Notes
and 5	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 826 1652.80 2479.20 3305.60 Mid Ch, 836. 1673.20	eer: ion: SG reading (dBm) .4MHz -11.5 -12.4 -10.6 -12.7 -13.0 -10.9 66MHz -11.9	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 I (H/V) V V V H H H	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0	UL Verification Preamp (dB) 43.6 43.6 43.6 43.6 43.6 43.6	Filter (dB) 1.0 1.0 1.0 1.0 1.0	EIRP (dBm) -54.0 -54.8 -53.2 -55.5 -53.6	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) -41.0 -41.8 -40.2 -42.3 -42.5 -40.6	Notes
and 5	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 826 1652.80 2479.20 3305.60 1652.80 2479.20 3305.60 Mid Ch, 836. 1673.20 2509.80	SG reading (dBm) -4MHz -11.5 -12.4 -10.6 -12.7 -13.0 -10.9 -6MHz -11.9 -12.3	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 I WV V V V V V V V V V V V	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	UL Verification Preamp (dB) 43.6 43.6 43.4 43.6 43.4 43.6 43.4 43.6	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0	EIRP (dBm) -54.0 -54.8 -55.3 -55.3 -55.3 -55.4 -54.5	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) -41.0 -41.8 -40.2 -42.3 -42.5 -40.6 -41.5 -41.7	Notes
and 5	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 826 1652.80 2479.20 3305.60 1652.80 2479.20 3305.60 Mid Ch, 836. 1673.20 2509.80 3346.40	eer: ion: SG reading (dBm) .4MHz -11.5 -12.4 -10.6 -12.7 -13.0 -10.9 6MHz -11.9 -12.3 -10.5	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 H WILLIAM V V V V H H H H	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 43.6 43.4 43.6 43.4 43.6 43.4 43.6 43.4 43.6	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -54.0 -54.8 -55.3 -55.5 -53.6 -54.5 -54.7 -53.2	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) 41.0 41.8 40.2 42.3 42.5 40.6 41.5 41.7 40.2	Notes
and 5	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 826 1652.80 2479.20 3305.60 1652.80 2479.20 3305.60 Mid Ch, 836. 1673.20 2509.80 3346.40	SG reading (dBm) .4MHz -11.5 -12.4 -10.6 -12.7 -13.0 -10.9 6MHz -1.9 -12.3 -10.5 -13.0	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 H Ant. Pol. (H/V) V V H H H V V V H H H	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 43.6 43.6 43.6 43.6 43.6 43.6 43.6 43.	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -54.0 -55.3 -55.5 -53.6 -54.5 -54.7 -53.2 -55.6	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) 41.0 41.8 40.2 42.3 42.5 40.6 41.5 41.7 40.2 42.6	Notes
and 5	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 826 1652.80 2479.20 3305.60 1652.80 2479.20 3305.60 Mid Ch, 836. 1673.20 2509.80 3346.40	SG reading (dBm) -4MHz -11.5 -12.4 -10.6 -12.7 -13.0 -10.9 -6MHz -11.9 -12.3 -10.5 -13.0 -13.0	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 I V V V V V H H H V V V	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 43.6 43.6 43.6 43.6 43.6 43.6 43.6 43.	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -54.0 -54.8 -55.3 -55.3 -55.3 -55.5 -54.7 -53.2 -55.6 -55.6	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) 41.0 41.8 40.2 42.3 42.5 40.6 41.7 40.2 42.6 42.4	Notes
and 5	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 826 1652.80 2479.20 3305.60 Mid Ch, 836. 1673.20 2509.80 3346.40 1673.20 2509.80	eer: ion: SG reading (dBm) .4MHz -11.5 -12.4 -10.6 -12.7 -13.0 -10.9 6MHz -11.9 -12.3 -10.5 -13.0 -13.0 -10.7	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 H Ant. Pol. (H/V) V V H H H H H	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 43.6 43.6 43.6 43.6 43.6 43.6 43.6 43.	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -54.0 -54.8 -53.2 -55.3 -55.5 -53.6 -54.7 -53.2 -55.6 -55.4 -53.3	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) 41.0 41.8 40.2 42.3 42.5 40.6 41.5 41.7 40.2 42.6	Notes
and 5	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 826 1652.80 2479.20 3305.60 1652.80 2479.20 3305.60 Mid Ch, 836. 1673.20 2509.80 3346.40 1673.20 2509.80 3346.40 High Ch, 846	eer: ion: SG reading (dBm) 4MHz -11.5 -12.4 -10.6 -12.7 -13.0 -10.9 6MHz -11.9 -11.3 -10.5 -13.0 -13.0 -10.7	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 H V V V H H H V V V H H H	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification High Frequen osition Preamp (dB) 43.6 43.6 43.6 43.6 43.6 43.6 43.6 43.6 43.6 43.6 43.6 43.6 43.6 43.6 43.6	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -54.0 -54.8 -53.2 -55.5 -53.6 -54.5 -54.7 -53.2 -55.6 -55.4 -53.3	Limit (dBm) -13.0	Delta (dB) 41.0 41.8 40.2 42.3 42.5 40.6 41.5 41.7 40.2 42.6 42.4 40.3	Notes
CDMA and 5 SDPA	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 826 1652.80 2479.20 3305.60 Mid Ch, 836.60 6673.20 2509.80 3346.40 1673.20 2509.80 3346.40 High Ch, 846 1693.20 2539.80	eer: ion: SG reading (dBm) .4MHz -11.5 -12.4 -10.6 -12.7 -13.0 -10.9 6MHz -11.9 -12.3 -10.5 -13.0 -13.0 -10.7 .6MHz -9.4	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 I W V V V H H H H	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 43.6 43.6 43.6 43.6 43.6 43.6 43.6 43.	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -54.0 -54.8 -53.2 -55.6 -54.5 -55.6 -55.6 -55.6 -55.6 -55.6 -55.8	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) 41.0 41.8 40.2 42.3 42.5 40.6 41.5 41.7 40.2 42.6 42.4 40.3 39.0 41.8	Notes
and 5	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 826 1652.80 2479.20 3305.60 1652.80 2479.20 3305.60 Mid Ch, 836. 1673.20 2509.80 3346.40 1673.20 2509.80 3346.40 1693.20 2539.80 3346.40	SG reading (dBm) -4MHz -11.5 -12.4 -10.6 -12.7 -13.0 -10.9 -6MHz -11.9 -13.0 -10.7 -6MHz -9.8	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 H Ant. Pol. (H/V) V V H H H H V V V V H H H V V V V V	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 43.6 43.6 43.6 43.6 43.6 43.6 43.6 43.6 43.7	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -54.0 -54.8 -53.2 -55.3 -55.5 -53.6 -54.7 -53.2 -55.6 -55.4 -53.3	Limit (dBm) -13.0	Delta (dB) 41.0 41.8 40.2 42.3 42.5 40.6 41.5 41.7 40.2 42.6 42.4 40.3 39.0 41.8	Notes
and 5	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 826 1652.80 2479.20 3305.60 1652.80 2479.20 3305.60 Mid Ch, 836. 1673.20 2509.80 3346.40 High Ch, 846 1693.20 2539.80 3386.40 1693.20	eer: ion: SG reading (dBm) .4MHz -11.5 -12.4 -10.6 -12.7 -13.0 -10.9 6MHz -11.9 -12.3 -10.5 -13.0 -10.7 .6MHz -9.4 -12.4 -9.8 -9.4	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 H Ant. Pol. (H/V) V V H H H V V V H H H V V V H H H H	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 43.6 43.4 43.6 43.6 43.6 43.6 43.4 43.6 43.6	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -54.0 -54.8 -53.2 -55.5 -53.6 -54.7 -53.2 -55.6 -55.4 -53.3	Limit (dBm) -13.0	Delta (dB) 41.0 41.8 40.2 42.3 42.5 40.6 41.7 40.2 42.6 42.4 40.3 39.0 41.8 39.5 38.9	Notes
and 5	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 826 1652.80 2479.20 3305.60 1652.80 2479.20 3305.60 Mid Ch, 836. 1673.20 2509.80 3346.40 1673.20 2509.80 3346.40 1693.20 2539.80 3346.40	SG reading (dBm) -4MHz -11.5 -12.4 -10.6 -12.7 -13.0 -10.9 -6MHz -11.9 -13.0 -10.7 -6MHz -9.8	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 5 H Ant. Pol. (H/V) V V H H H H V V V V H H H V V V V V	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 43.6 43.6 43.6 43.6 43.6 43.6 43.6 43.6 43.7	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -54.0 -54.8 -53.2 -55.3 -55.5 -53.6 -54.7 -53.2 -55.6 -55.4 -53.3	Limit (dBm) -13.0	Delta (dB) 41.0 41.8 40.2 42.3 42.5 40.6 41.5 41.7 40.2 42.6 42.4 40.3 39.0 41.8	Notes

WCDMA Band 4

	11			Above 1GHz H	UL Verificatio I igh Freguen			irement		
						,				
	Company:		Samsung							
	Project #:		4788725460							
	Date:		2018-11-15							
	Test Engir		47989	r/Eamh 75	asition					
	Configurat			er / Earphone, X-P	osition					
	Location:		Chamber 1							
	Mode:		Rel99 Band 4 Ha	irmonics						
	f	SC madina	Ant. Pol.	Distance	Bro ama	Filter	EIRP	Limit	Delta	Notes
	MHz	SG reading (dBm)	(H/V)	(m)	Preamp (dB)	(dB)	(dBm)	(dBm)	(dB)	Notes
CDMA	Low Ch, 171 3424.80	12.4MHz -9.3	V	3.0	43.7	1.0	-52.0	-13.0	-39.0	
CDIVIA	5137.20	-9.3	v	3.0	43.8	1.0	-52.1	-13.0	-39.1	
	6849.60	-6.0	v	3.0	42.9	1.0	-47.9	-13.0	-34.9	
and 4	3424.80	-9.4	Н	3.0	43.7	1.0	-52.0	-13.0	-39.0	
EL99	5137.20	-9.1	H	3.0	43.8	1.0	-51.9	-13.0	-38.9	
	6849.60 Mid Ch, 173	-6.1	Н	3.0	42.9	1.0	-48.0	-13.0	-35.0	
	3465.20	-9.4	V	3.0	43.7	1.0	-52.1	-13.0	-39.1	
	5197.80	-9.4	v	3.0	43.8	1.0	-52.1	-13.0	-39.0	
	6930.40	-6.1	v	3.0	42.8	1.0	-47.9	-13.0	-34.9	
	3465.20	-9.2	Н	3.0	43.7	1.0	-51.9	-13.0	-38.9	
	5197.80	-9.0	H	3.0	43.8	1.0	-51.7	-13.0	-38.7	
	6930.40 High Ch, 17	-5.9	Н	3.0	42.8	1.0	-47.7	-13.0	-34.7	
	3505.20	-8.9	V	3.0	43.7	1.0	-51.6	-13.0	-38.6	
	5257.80	-8.9	v	3.0	43.8	1.0	-51.6	-13.0	-38.6	
	7010.40	-5.8	V	3.0	42.7	1.0	-47.6	-13.0	-34.6	
	3505.20	-8.8	Н	3.0	43.7	1.0	-51.5	-13.0	-38.5	
	5257.80	-8.8	Н	3.0	43.8	1.0	-51.5	-13.0	-38.5	
	7046 10									
	7010.40 Company:		Samsung	3.0 Above 1GHz H	42.7 UL Verificatio			-13.0	-34.6	
	Company: Project #: Date: Test Engir Configurat	neer: tion:	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte		UL Verificatic High Frequen	on Services	, Inc.		34,0	
	Company: Project #: Date: Test Engir Configurat Location:	neer: tion:	Samsung 4788725460 2018-11-15 47989	Above 1GHz H	UL Verificatic High Frequen	on Services	, Inc.		34,0	
	Company: Project #: Date: Test Engir Configurat	neer: tion:	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte	Above 1GHz F	UL Verificatic High Frequen	on Services	, Inc.		34,0	
	Company: Project #: Date: Test Engir Configurat Location: Mode:	neer: tion: SG reading	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H	Above 1GHz h er / Earphone, X-P Harmonics Distance	UL Verification High Frequent osition	on Services cy Substitu	Inc. tion Measu	rement Limit	Delta	Notes
	Company: Project #: Date: Test Engir Configurat Location: Mode:	neer: tion: SG reading (dBm)	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H	Above 1GHz H er / Earphone, X-P Harmonics	UL Verification	on Services cy Substitu	Inc. tion Measu	ırement		Notes
CDMA	Company: Project #: Date: Test Engir Configurat Location: Mode:	neer: tion: SG reading (dBm)	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H	Above 1GHz h er / Earphone, X-P Harmonics Distance	UL Verification High Frequent osition	on Services cy Substitu	Inc. tion Measu	rement Limit	Delta	Notes
CDMA	Company: Project #: Date: Test Engir Configurat Location: Mode: f MHz Low Ch, 17' 3424.80 5137.20	SG reading (dBm) 12.4MHz -9.5	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H Ant. Pol. (H/V)	Above 1GHz Feer / Earphone, X-Pearmonics Distance (m) 3.0 3.0	UL Verification Output Preamp (dB) 43.7 43.8	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB) -39.2 -38.7	Notes
	Company: Project #: Date: Test Engir Configurat Location: Mode: f MHz Low Ch. 17' 3424.80 5137.20 6849.60	SG reading (dBm) 12.4MHz -9.5 -9.0 -6.3	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H	Above 1GHz Herr / Earphone, X-P Harmonics Distance (m) 3.0 3.0 3.0	UL Verification High Frequen osition Preamp (dB) 43.7 43.8 42.9	Filter (dB)	EIRP (dBm)	Limit (dBm) -13.0 -13.0 -13.0	Delta (dB) -39.2 -38.7 -35.1	Notes
and 4	Company: Project #: Date: Test Engir Configurat Location: Mode: f MHz Low Ch, 17- 3424.80 5137.20 6849.60 3424.80	SG reading (dBm) 12.4MHz -9.5 -9.0 -6.3 -8.9	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H Ant. Pol. (H/V) V V	Above 1GHz Herr / Earphone, X-PHarmonics Distance (m) 3.0 3.0 3.0 3.0	UL Verification Output Preamp (dB) 43.7 43.8 42.9 43.7	Filter (dB) 1.0 1.0 1.0	EIRP (dBm) -52.2 -51.7 -48.1 -51.5	Limit (dBm) -13.0 -13.0 -13.0 -13.0	Delta (dB) -39.2 -38.7 -35.1 -35.5	Notes
and 4	Company: Project #: Date: Test Engir Configurat Location: Mode: f MHz Low Ch, 17: 3424.80 5137.20 6849.60 3424.80 5137.20	SG reading (dBm) 12.4MHz -9.5 -9.0 -6.3 -8.9 -8.6	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H (H/V) V V V H H	Above 1GHz Her / Earphone, X-P Harmonics Distance (m) 3.0 3.0 3.0 3.0 3.0	UL Verification Preamp (dB) 43.7 43.8 42.9 43.7 43.8	Filter (dB) 1.0 1.0 1.0	EIRP (dBm) -52.2 -51.7 -48.1 -51.5 -51.3	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) -39.2 -38.7 -35.1 -38.5 -38.3	Notes
and 4	Company: Project #: Date: Test Engir Configurat Location: Mode: f MHz Low Ch, 17- 3424.80 5137.20 6849.60 3424.80	SG reading (dBm) 12.4MHz -9.5 -9.0 -6.3 -8.9 -8.6 -6.3	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H Ant. Pol. (H/V) V V	Above 1GHz Herr / Earphone, X-PHarmonics Distance (m) 3.0 3.0 3.0 3.0	UL Verification Output Preamp (dB) 43.7 43.8 42.9 43.7	Filter (dB) 1.0 1.0 1.0	EIRP (dBm) -52.2 -51.7 -48.1 -51.5	Limit (dBm) -13.0 -13.0 -13.0 -13.0	Delta (dB) -39.2 -38.7 -35.1 -35.5	Notes
and 4	Company: Project #: Date: Test Engir Configurat Location: Mode: f MHz Low Ch. 17' 3424.80 5137.20 6849.60 3424.80 5137.20 6849.60	SG reading (dBm) 12.4MHz -9.5 -9.0 -6.3 -8.9 -8.6 -6.3	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H (H/V) V V V H H	Above 1GHz Her / Earphone, X-P Harmonics Distance (m) 3.0 3.0 3.0 3.0 3.0	UL Verification Preamp (dB) 43.7 43.8 42.9 43.7 43.8	Filter (dB) 1.0 1.0 1.0	EIRP (dBm) -52.2 -51.7 -48.1 -51.5 -51.3	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) -39.2 -38.7 -35.1 -38.5 -38.3	Notes
and 4	Company: Project #: Date: Test Engir Configurat Location: Mode: f MHz Low Ch, 17' 3424.80 5137.20 6849.60 3424.80 5137.20 6849.60 Mid Ch, 173 3465.20 5197.80	SG reading (dBm) 12.4MHz -9.5 -9.0 -6.3 -8.9 -8.6 -6.3 -2.6MHz -9.0 -8.6	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H WV V V V V H H H	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0	UL Verification Preamp (dB) 43.7 43.8 42.9 43.7 43.8 42.9 43.7	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0	EIRP (dBm) -52.2 -51.7 -48.1 -51.3 -48.2 -51.7 -51.4	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) -39.2 -38.7 -35.1 -38.5 -38.3 -35.2 -38.7 -38.4	Notes
and 4	Company: Project #: Date: Test Engir Configurat Location: Mode: f MHz Low Ch, 17: 3424.80 5137.20 6849.60 3424.80 5137.20 6849.60 Mid Ch, 173 3465.20 5197.80 6930.40	SG reading (dBm) 12.4MHz	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H WV V V H H H V V	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 43.7 43.8 42.9 43.7 43.8 42.9	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -52.2 -51.7 -48.1 -51.3 -48.2 -51.7 -51.4 -47.9	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) -39.2 -38.7 -35.1 -38.3 -35.2 -38.3 -35.2 -38.4 -34.9	Notes
and 4	Company: Project #: Date: Test Engir Configurat Location: Mode: f MHz Low Ch, 17' 3424.80 5137.20 6849.60 3424.80 5137.20 6849.60 Mid Ch, 173 3465.20 5197.80 6930.40 3465.20	SG reading (dBm) 12.4MHz -9.5 -9.0 -6.3 -8.9 -8.6 -6.3 -2.6MHz -9.0 -9.0 -9.0 -9.0 -9.0 -9.0 -9.0 -9.0	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H MILE (H/V) V V V H H H	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 43.7 43.8 42.9 43.7 43.8 42.9 43.7 43.8 42.9	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -51.7 -48.1 -51.3 -48.2 -51.7 -51.4 -47.9 -52.0	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) -39.2 -38.7 -35.1 -38.5 -36.2 -38.7 -38.4 -34.9 -39.0	Notes
and 4	Company: Project #: Date: Test Engir Configurat Location: Mode: f MHz Low Ch, 17' 3424.80 5137.20 6849.60 3424.80 5137.20 6849.60 Mid Ch, 173 3465.20 5197.80 6930.40 3465.20 5197.80	SG reading (dBm) 12.4MHz -9.5 -9.0 -6.3 -8.9 -8.6 -6.3 12.6MHz -9.0 -8.6 -6.1 -9.0 -8.6 -6.1	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H V V V H H H V V H H H	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 43.7 43.8 42.9 43.7 43.8 42.9 43.7 43.8 42.8 43.7 43.8	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -52.2 -51.7 -48.1 -51.5 -51.3 -48.2 -51.7 -51.4 -47.9 -52.0 -51.7	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) -39.2 -38.7 -35.1 -38.5 -38.3 -35.2 -38.4 -34.9 -39.0 -39.0 -38.7	Notes
and 4	Company: Project #: Date: Test Engir Configurat Location: Mode: f MHz Low Ch, 17: 3424.80 5137.20 6849.60 3424.80 5137.20 6849.60 Mid Ch, 173 3465.20 5197.80 6930.40 3465.20 5197.80 6930.40	SG reading (dBm) 12.4MHz	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H MILE (H/V) V V V H H H	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 43.7 43.8 42.9 43.7 43.8 42.9 43.7 43.8 42.9	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -51.7 -48.1 -51.3 -48.2 -51.7 -51.4 -47.9 -52.0	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) -39.2 -38.7 -35.1 -38.5 -36.2 -38.7 -38.4 -34.9 -39.0	Notes
and 4	Company: Project #: Date: Test Engir Configurat Location: Mode: f MHz Low Ch. 17' 3424.80 5137.20 6849.60 3424.80 5197.20 6849.60 Mid Ch. 173 3465.20 5197.80 6930.40 3465.20 5197.80 6930.40 High Ch. 17'	SG reading (dBm) 12.4MHz -9.5 -9.0 -6.3 -8.9 -6.3 -2.6MHz -9.0 -8.6 -6.1 -9.3 -8.9 -6.0 52.6MHz	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H W V V H H H V V V H H H	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 43.7 43.8 42.9 43.7 43.8 42.9 43.7 43.8 42.8 43.7 43.8	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -52.2 -51.7 -48.1 -51.5 -51.3 -48.2 -51.7 -51.4 -47.9 -52.0 -51.7	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) -39.2 -38.7 -35.1 -38.5 -38.3 -35.2 -38.4 -34.9 -39.0 -39.0 -38.7	Notes
and 4	Company: Project #: Date: Test Engir Configurat Location: Mode: f MHz Low Ch, 17: 3424.80 5137.20 6849.60 3424.80 5137.20 6849.60 Mid Ch, 173 3465.20 5197.80 6930.40 3465.20 5197.80 6930.40 High Ch, 17	SG reading (dBm) 12.4MHz -9.5 -9.0 -6.3 -8.9 -8.6 -6.3 -2.66MHz -9.0 -8.6 -6.1 -9.3 -8.9 -8.6 -6.1 -9.3 -8.9 -8.6 -8.6 -8.1 -9.3 -8.9 -8.6 -8.3 -8.9 -8.3 -8.9 -8.6 -8.3 -8.9 -8.6 -8.3 -8.9 -8.3 -8.9 -8.0 -8.3 -8.9 -8.3 -8.9 -8.0 -8.0 -8.0 -8.0 -8.0 -8.0 -8.0 -8.0	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H W V V H H H H H V V V V H H H H V V V V	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 43.7 43.8 42.9 43.7 43.8 42.9 43.7 43.8 42.8 43.7 43.8 42.8	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -52.2 -51.7 -48.1 -51.5 -51.3 -48.2 -51.7 -51.4 -47.9 -52.0 -51.7 -47.8	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) -39.2 -38.7 -35.1 -38.5 -38.3 -35.2 -38.7 -38.4 -34.9 -39.0 -38.7 -34.8 -38.6 -38.1	Notes
and 4	Company: Project #: Date: Test Engir Configurat Location: Mode: f HHz Low Ch, 17' 3424.80 5137.20 6849.60 3424.80 5137.20 6849.60 Mid Ch, 173 3465.20 5197.80 6930.40 High Ch, 17 3505.20 5257.80 7010.40	SG reading (dBm) 12.4MHz	Samsung 4788729460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H W V V H H H H V V V V H H H V V V V V	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 43.7 43.8 42.9 43.7 43.8 42.9 43.7 43.8 42.8 42.8	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -51.2 -51.7 -48.1 -51.5 -51.3 -48.2 -51.7 -51.4 -47.9 -52.0 -51.7 -47.8	Limit (dBm) -13.0	Delta (dB) -39.2 -38.7 -35.1 -38.5 -38.3 -35.2 -38.4 -34.9 -39.0 -38.7 -34.8 -38.6 -38.1 -34.4 -34.4	Notes
and 4	Company: Project #: Date: Test Engir Configurat Location: Mode: f MHz Low Ch. 17: 3424.80 5137.20 6849.60 3424.80 5137.20 6849.60 3465.20 5197.80 6930.40 416jb Ch. 17: 3505.20 5257.80 7010.40 33505.20	SG reading (dBm) 12.4MHz	Samsung 4788725460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H W V V H H H V V V H H H H V V V H H H H	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 43.7 43.8 42.9 43.7 43.8 42.9 43.7 43.8 42.8 43.7 43.8 42.8	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -52.2 -51.7 -48.1 -51.5 -51.3 -48.2 -51.7 -51.4 -47.9 -52.0 -51.7 -47.8	Limit (dBm) -13.0	Delta (dB) -39.2 -38.7 -35.1 -38.5 -38.3 -35.2 -38.4 -34.9 -39.0 -38.7 -34.8 -38.6 -38.1 -34.4 -34.3	Notes
CDMA and 4 SDPA	Company: Project #: Date: Test Engir Configurat Location: Mode: f HHz Low Ch, 17' 3424.80 5137.20 6849.60 3424.80 5137.20 6849.60 Mid Ch, 173 3465.20 5197.80 6930.40 High Ch, 17 3505.20 5257.80 7010.40	SG reading (dBm) 12.4MHz	Samsung 4788729460 2018-11-15 47989 EUT / AC Adapte Chamber 1 HSDPA Band 4 H W V V H H H H V V V V H H H V V V V V	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 43.7 43.8 42.9 43.7 43.8 42.9 43.7 43.8 42.8 42.8	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -51.2 -51.7 -48.1 -51.5 -51.3 -48.2 -51.7 -51.4 -47.9 -52.0 -51.7 -47.8	Limit (dBm) -13.0	Delta (dB) -39.2 -38.7 -35.1 -38.5 -38.3 -35.2 -38.4 -34.9 -39.0 -38.7 -34.8 -38.6 -38.1 -34.4 -34.4	Notes

WCDMA Band 2

				Above 1GHz H	UL Verificatio		•	rement		
			•	ADOVE IGHZ I	ngn riequen	cy Gubstill	aon weast	ent		
	Company:		Samsung							
	Project #:		4788725460							
	Date:		2018-11-14							
	Test Engin		45585							
	Configurat	ion:		er / Earphone, Y-P	osition					
	Location:		Chamber 2							
	Mode:		Rel99 Band 2 Ha	amonics						
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
VCDMA	Low Ch, 185 3704.80	2.4MHz -11.6	V	3.0	39.7	1.0	-50.2	-13.0	-37.2	
VCDIVIA	5557.20	-8.6	v	3.0	39.9	1.0	-30.2 -47.5	-13.0	-34.5	
	7409.60	-6.4	v	3.0	39.4	1.0	-44.8	-13.0	-31.8	
Band 2	3704.80	-11.8	Н	3.0	39.7	1.0	-50.4	-13.0	-37.4	
REL99	5557.20	-8.8	H	3.0	39.9	1.0	-47.7	-13.0	-34.7	
	7409.60 Mid Ch, 1880	-7.3	Н	3.0	39.4	1.0	-45.7	-13.0	-32.7	
	3760.00	-11.2	v	3.0	39.7	1.0	-49.9	-13.0	-36.9	
	5640.00	-8.2	v	3.0	40.0	1.0	-47.2	-13.0	-34.2	
	7520.00	-6.4	V	3.0	39.4	1.0	-44.8	-13.0	-31.8	
	3760.00	-11.5	H	3.0	39.7	1.0	-50.1	-13.0	-37.1	
	5640.00	-8.4	Н	3.0	40.0	1.0	-47.4	-13.0	-34.4	
	7520.00 High Ch, 190	-7.2	Н	3.0	39.4	1.0	-45.6	-13.0	-32.6	
	3815.20	-11.3	V	3.0	39.7	1.0	-50.0	-13.0	-37.0	
	5722.80	-8.3	V	3.0	40.0	1.0	-47.3	-13.0	-34.3	
	7630.40	-6.5	V	3.0	39.3	1.0	-44.9	-13.0	-31.9	
	3815.20	-11.6	H	3.0	39.7	1.0	-50.3	-13.0	-37.3	
	5722.80	-8.6	Н	3.0	40.0	1.0	-47.6	-13.0	-34.6	
		-7 1	Д	3 0				-13 n		
	Company:	7.1	Samsung	3.0 Above 1GHz H	39.3 UL Verificatio ligh Frequen			-13.0	-32.5	
	Company: Project #: Date: Test Engin Configurat	eer:	Samsung 4788725460 2018-11-14 45585		UL Verificatio	on Services	, Inc.		32.5	
	Company: Project #: Date: Test Engin Configurat Location:	eer:	Samsung 4788725460 2018-11-14 45585	Above 1GHz H	UL Verificatio	on Services	, Inc.		32.5	
	Company: Project #: Date: Test Engin Configurat Location: Mode:	eer: ion:	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I	Above 1GHz H er / Earphone, Y-P Harmonics	UL Verification	on Services cy Substitu	, Inc. tion Measu	rement		
	Company: Project #: Date: Test Engin Configurat Location:	eer:	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2	Above 1GHz H	UL Verificatio	on Services	, Inc.		Delta (dB)	Notes
	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 185	eer: ion: SG reading (dBm)	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I	Above 1GHz Her / Earphone, Y-P	UL Verification Igh Frequent osition Preamp (dB)	on Services cy Substitu Filter (dB)	, Inc. tion Measu EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
CDMA	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 185 3704.80	eer: ion: SG reading (dBm) 2.4MHz	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I	Above 1GHz Her/Earphone, Y-PHarmonics	UL Verification Igh Frequent osition Preamp (dB) 39.7	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
CDMA	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 185 3704.80 5557.20	eer: ion: SG reading (dBm) 2.4MHz -11.4 -8.4	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I (H/V) V	Above 1GHz Fer/ Earphone, Y-Per/ Earphon	UL Verification I igh Frequent Osition Preamp (dB) 39.7 39.9	Filter (dB)	EIRP (dBm)	Limit (dBm) -13.0	Delta (dB) -37.1 -34.3	Notes
	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 185 3704.80 5557.20 7409.60	eer: ion: SG reading (dBm) 2.4MHz -11.4 -8.4 -6.3	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I	Above 1GHz Her / Earphone, Y-P	UL Verification ligh Frequen osition Preamp (dB) 39.7 39.9 39.4	Filter (dB)	EIRP (dBm)	Limit (dBm) -13.0 -13.0 -13.0	Delta (dB) -37.1 -34.3 -31.7	Notes
and 2	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 185 3704.80 5557.20	eer: ion: SG reading (dBm) 2.4MHz -11.4 -8.4	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I (H/V) V	Above 1GHz Fer/ Earphone, Y-Per/ Earphon	UL Verification I igh Frequent Osition Preamp (dB) 39.7 39.9	Filter (dB)	EIRP (dBm)	Limit (dBm) -13.0	Delta (dB) -37.1 -34.3	Notes
and 2	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 185 3704.80 5557.20 7409.60 3704.80 5557.20 7409.60	SG reading (dBm) 2.4MHz -11.4 -8.4 -6.3 -11.7 -8.7 -7.1	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I	Above 1GHz Her/Earphone, Y-PHarmonics Distance (m) 3.0 3.0 3.0 3.0	Preamp (dB) 39.7 39.9 39.4 39.7	Filter (dB) 1.0 1.0 1.0	EIRP (dBm) -50.1 -47.3 -44.7 -50.4	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0	Deita (dB) -37.1 -34.3 -31.7 -37.4	Notes
and 2	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 185 3704.80 5557.20 7409.60 3704.80 5557.20 7409.60 Mid Ch, 1881	eer: ion: SG reading (dBm) 2.4MHz -11.4 -8.4 -6.3 -11.7 -8.7 -7.1	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I V V V V H H	Above 1GHz F er / Earphone, Y-P Harmonics Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0	UL Verification ligh Frequen osition Preamp (dB) 39.7 39.9 39.4 39.7 39.9 39.4	Filter (dB) 1.0 1.0 1.0 1.0	EIRP (dBm) -50.1 -47.3 -44.7 -50.4 -47.7 -45.6	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) -37.1 -34.3 -31.7 -37.4 -34.7 -32.6	Notes
and 2	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 185 3704.80 5557.20 7409.60 3704.80 60 Mid Ch, 1888 3760.00	eer: ion: SG reading (dBm) 2.4MHz -11.4 -8.4 -6.3 -11.7 -8.7 -7.1 DMHz -11.1	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I (H/V) V V V H H H	Above 1GHz Her / Earphone, Y-P Harmonics Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0	UL Verificatic ligh Frequen osition Preamp (dB) 39.7 39.4 39.7 39.9 39.4 39.7	Filter (dB) 1.0 1.0 1.0 1.0	EIRP (dBm) -50.1 -47.3 -44.7 -50.4 -47.7 -45.6	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Deita (dB) -37.1 -34.3 -31.7 -37.4 -34.7 -32.6	Notes
and 2	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 185 3704.80 5557.20 7409.60 3704.80 5557.20 7409.60 Mid Ch, 1884 3760.00 5640.00	SG reading (dBm) 2.4MHz -11.4 -8.4 -6.3 -11.7 -8.7 -7.1 MHz -11.1 -8.2	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I Ant. Pol. (H/V) V V V H H H H V V	Above 1GHz Her / Earphone, Y-P Harmonics Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	Preamp (dB) 39.7 39.9 39.4 39.7 39.9 39.4	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0	EIRP (dBm) -50.1 -47.3 -44.7 -50.4 -47.7 -45.6 -49.8 -47.1	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) -37.1 -34.3 -31.7 -37.4 -34.7 -32.6 -36.8 -34.1	Notes
and 2	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 185 3704.80 5557.20 7409.60 3704.80 5557.20 7409.60 Mid Ch, 188 3760.00 5640.00 7520.00	SG reading (dBm) 2.4MHz -11.4 -8.4 -6.3 -11.7 -8.7 -7.1 MHz -11.1 -8.2 -6.5	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I W V V V H H H V V	Above 1GHz F er / Earphone, Y-P Harmonics Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	UL Verificatic ligh Frequen osition Preamp (dB) 39.7 39.9 39.4 39.7 39.9 39.4 40.0 39.4	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	EIRP (dBm) -50.1 -47.3 -44.7 -50.4 -47.7 -45.6 -49.8 -47.1 -44.9	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) -37.1 -34.3 -31.7 -37.4 -34.7 -32.6 -36.8 -34.1 -31.9	Notes
and 2	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 185 3704.80 5557.20 7409.60 3704.80 5557.20 7409.60 Mid Ch, 1884 3760.00 5640.00	SG reading (dBm) 2.4MHz -11.4 -8.4 -6.3 -11.7 -8.7 -7.1 MHz -11.1 -8.2	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I	Above 1GHz Her / Earphone, Y-P Harmonics Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	Preamp (dB) 39.7 39.9 39.4 39.7 39.9 39.4	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0	EIRP (dBm) -50.1 -47.3 -44.7 -50.4 -47.7 -45.6 -49.8 -47.1	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) -37.1 -34.3 -31.7 -37.4 -34.7 -32.6 -36.8 -34.1	Notes
and 2	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 185 3704.80 5557.20 7409.60 3704.80 65557.20 7409.60 Mid Ch, 1880 3760.00 5640.00 7520.00 3760.00 5640.00 7520.00	eer: ion: SG reading (dBm) 2.4MHz -11.4 -8.4 -6.3 -11.7 -8.7 -7.1 MHz -11.1 -8.2 -6.5 -11.4 -8.4 -7.2	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I Ant. Pol. (H/V) V V H H H V V V H H H H	Above 1GHz Her / Earphone, Y-P Harmonics Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verificatic ligh Frequen osition Preamp (dB) 39.7 39.9 39.4 39.7 40.0 39.4 39.7 40.0 39.4 39.7	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -50.1 -47.3 -44.7 -50.4 -47.7 -45.6 -49.8 -47.1 -44.9 -50.0	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Deita (dB) -37.1 -34.3 -31.7 -37.4 -34.7 -32.6 -36.8 -34.1 -31.9 -37.0	Notes
Band 2	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 185 3704.80 5557.20 7409.60 3704.80 5557.20 7409.60 Mid Ch, 1881 3760.00 5640.00 7520.00 3760.00 5640.00 7520.00 High Ch, 196	SG reading (dBm) 2.4MHz -11.4 -8.4 -6.3 -11.7 -7.1 MHz -1.1.1 -8.2 -6.5 -11.4 -8.4 -7.2 7.6MHz	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I Ant. Pol. (H/V) V V H H H H H	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verification Preamp (dB) 39.7 39.4 39.7 40.0 39.4 39.7 40.0 39.4	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -50.1 -47.3 -44.7 -50.4 -47.7 -45.6 -49.8 -47.1 -44.9 -50.0 -47.4 -45.6	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Delta (dB) -37.1 -34.3 -34.7 -37.4 -34.7 -32.6 -36.8 -34.1 -31.9 -37.0 -34.4 -32.6	Notes
Band 2	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 185 3704.80 5557.20 7409.60 3704.80 5557.20 7409.60 Mid Ch, 1888 3760.00 5640.00 7520.00 3760.00 5640.00 7520.00 High Ch, 196 3815.20	SG reading (dBm) 2.4MHz -11.4 -8.4 -5.3 -11.7 -8.7 -7.1 MHz -11.1 -8.2 -6.5 -11.4 -8.4 -7.2 77.6MHz -11.3	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I Ant. Pol. (H/V) V V H H H H V V V H H H H V	Above 1GHz Her / Earphone, Y-P Harmonics Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	Preamp (dB) 39.7 39.9 39.4 39.7 40.0 39.4 39.7 40.0 39.4 39.7 40.0 39.4	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -50.1 47.3 44.7 -50.4 47.7 45.6 49.8 47.1 44.9 -50.0 47.4 45.6	Limit (dBm) -13.0	Delta (dB) 37.1 -34.3 -31.7 -37.4 -34.7 -32.6 -36.8 -34.1 -31.9 -37.0 -34.4 -32.6	Notes
Band 2	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 185 3704.80 5557.20 7409.60 3704.80 5557.20 7409.60 Mid Ch, 1886 3760.00 5640.00 7520.00 3760.00 High Ch, 190 3815.20 5722.80	eer: ion: SG reading (dBm) 2.4MHz -11.4 -8.4 -6.3 -11.7 -8.7 -7.1 MHz -11.1 -8.2 -6.5 -11.4 -8.4 -7.2 -7.2 -7.6 -7.2 -7.6 -7.2 -7.3 -7	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I Ant. Pol. (H/V) V V H H H H V V V V H H H H V V V V	Above 1GHz Her / Earphone, Y-P Harmonics Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verificatic ligh Frequen Preamp (dB) 39.7 39.9 39.4 39.7 40.0 39.7 40.0 39.4 39.7 40.0	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -50.1 -47.3 -44.7 -50.4 -47.7 -45.6 -49.8 -47.1 -44.9 -50.0 -47.4 -45.6	Limit (dBm) -13.0	Deita (dB) -37.1 -34.3 -34.7 -37.4 -34.7 -32.6 -36.8 -34.1 -31.9 -37.0 -34.4 -32.6 -37.0 -34.3	Notes
/CDMA Band 2 ISDPA	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 185 3704.80 5557.20 7409.60 3704.80 5557.20 7409.60 Mid Ch, 1881 3763.00 5640.00 7520.00 5640.00 7520.00 High Ch, 190 3815.20 5722.80	eer: ion: SG reading (dBm) 2.4MHz -1.1.4 -8.4 -6.3 -11.7 -8.7 -7.1 MHz -1.1.1 -8.2 -6.5 -11.4 -8.4 -7.2 7.6MHz -11.3 -8.3 -8.3 -6.5	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I Ant. Pol. (H/V) V V H H H V V V H H H V V V V V V V	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	Preamp (dB) 97. 39.7 39.9 39.4 39.7 40.0 39.4 39.7 40.0 39.4 39.7 40.0 39.3	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -50.1 -47.3 -44.7 -50.4 -47.7 -45.6 -49.8 -47.1 -44.9 -50.0 -47.4 -45.6 -50.0 -47.3 -44.8	Limit (dBm) -13.0	Delta (dB) -37.1 -34.3 -34.7 -37.4 -34.7 -32.6 -36.8 -34.1 -31.9 -37.0 -34.4 -32.6 -37.0 -34.3 -34.3 -34.8	Notes
Band 2	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 185 3704.80 5557.20 7409.60 3704.80 5557.20 7409.60 Mid Ch, 1886 3760.00 5640.00 7520.00 3760.00 High Ch, 190 3815.20 5722.80	eer: ion: SG reading (dBm) 2.4MHz -11.4 -8.4 -6.3 -11.7 -8.7 -7.1 MHz -11.1 -8.2 -6.5 -11.4 -8.4 -7.2 -7.2 -7.6 -7.2 -7.6 -7.2 -7.3 -7	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I Ant. Pol. (H/V) V V H H H H V V V V H H H H V V V V	Above 1GHz Her / Earphone, Y-P Harmonics Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verificatic ligh Frequen Preamp (dB) 39.7 39.9 39.4 39.7 40.0 39.7 40.0 39.4 39.7 40.0	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -50.1 -47.3 -44.7 -50.4 -47.7 -45.6 -49.8 -47.1 -44.9 -50.0 -47.4 -45.6	Limit (dBm) -13.0	Deita (dB) -37.1 -34.3 -34.7 -37.4 -34.7 -32.6 -36.8 -34.1 -31.9 -37.0 -34.4 -32.6 -37.0 -34.3	Notes
Band 2	Company: Project #: Date: Test Engin Configurat Location: Mode: f MHz Low Ch, 188 3704.80 5557.20 7409.60 3704.80 5557.20 7409.60 3704.80 5557.20 7409.60 3706.00 5640.00 7520.00 High Ch, 198 3815.20 5722.80 7630.40 3815.20	eer: ion: SG reading (dBm) 2.4MHz -11.4 -8.4 -6.3 -11.7 -8.7 -7.1 MHz -11.1 -8.2 -6.5 -11.4 -8.4 -7.2 7.6MHz -1.13 -8.3 -6.5 -11.5	Samsung 4788725460 2018-11-14 45585 EUT / AC Adapte Chamber 2 HSDPA Band 2 I Ant. Pol. (H/V) V V H H H V V V H H H H V V V H H H H	Distance (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	UL Verificatic ligh Frequen osition Preamp (dB) 39.7 39.9 39.4 39.7 40.0 39.4 39.7 40.0 39.4 39.7 40.0 39.7	Filter (dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	EIRP (dBm) -50.1 -47.3 -44.7 -50.4 -47.7 -45.6 -49.8 -47.1 -44.9 -50.0 -47.4 -45.6 -50.0 -47.3 -44.8 -50.0	Limit (dBm) -13.0	Delta (dB) -37.1 -34.3 -31.7 -37.4 -34.7 -32.6 -36.8 -34.1 -31.9 -37.0 -34.4 -32.6 -37.0 -34.3 -31.8 -37.2	Notes

					UL Verification	n Services	s, Inc.			
				Above 1GHz I	High Frequen	cy Substiti	ution Measu	urement		
	Company:		Samsung							
	Project #:		4788725460							
			2018-11-07							
	Date:									
	Test Engin		45585							
	Configurat	ion:		er / Earphone, Y-P	osition					
	Location:		Chamber 2							
	Mode:		LIE_QPSK Ban	d 2 Harmonics, 20	JIVIHZ Bandwidth					
	f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
	Low Ch, 186									
	3720.00	-10.7	V	3.0	39.7	1.0	-49.4	-13.0	-36.4	
	5580.00	-7.8	V	3.0	39.9	1.0	-46.8	-13.0	-33.8	
	7440.00	-5.7	٧	3.0	39.4	1.0	-44.2	-13.0	-31.2	
_	9300.00	-3.6	V	3.0	38.7	1.0	-41.4	-13.0	-28.4	
E	11160.00	0.8	V	3.0	38.5	1.0	-36.7 -49.7	-13.0 -13.0	-23.7 -36.7	
	3720.00 5580.00	-11.0 -8.1	H	3.0	39.7 39.9	1.0	-49.7 -47.1	-13.0	-36.7 -34.1	
d 2	7440.00	-6.6	H	3.0	39.4	1.0	-47.1	-13.0	-34.1	
<i>4</i>	9300.00	-4.3	H	3.0	38.7	1.0	-42.1	-13.0	-29.1	
	11160.00	0.7	H	3.0	38.5	1.0	-36.8	-13.0	-23.8	
Hz	Mid Ch, 1880									
	3760.00	-10.4	V	3.0	39.7	1.0	-49.1	-13.0	-36.1	
SK	5640.00	-7.9	V	3.0	40.0	1.0	-46.8	-13.0	-33.8	
)I\	7520.00	-5.8	V	3.0	39.4	1.0	-44.2	-13.0	-31.2	
	9400.00	-3.3	V	3.0	38.7	1.0	-41.1	-13.0	-28.1	
	11280.00	0.7	V	3.0	38.5	1.0	-36.8	-13.0	-23.8	
	3760.00	-10.3	Н	3.0	39.7	1.0	-49.0	-13.0	-36.0	
	5640.00	-8.1	Н	3.0	40.0	1.0	-47.1	-13.0	-34.1	
	7520.00	-6.6	Н	3.0	39.4	1.0	-45.0	-13.0	-32.0	
	9400.00 11280.00	-3.9 0.7	Н	3.0	38.7	1.0	-41.7	-13.0	-28.7	
			Н	3.0	38.5	1.0	-36.8	-13.0	-23.8	
	High Ch, 190 3800.00	-10.3	V	3.0	39.7	1.0	-49.0	-13.0	-36.0	
	5700.00	-7.5	v	3.0	40.0	1.0	-46.5	-13.0	-33.5	
	7600.00	-5.8	V	3.0	39.4	1.0	-44.2	-13.0	-31.2	
	9500.00	-3.3	v	3.0	38.7	1.0	-41.0	-13.0	-28.0	
	11400.00	0.9	v	3.0	38.5	1.0	-36.6	-13.0	-23.6	
	3800.00	-10.3	H	3.0	39.7	1.0	-49.0	-13.0	-36.0	
	5700.00	-7.8	Н	3.0	40.0	1.0	-46.8	-13.0	-33.8	
	7600.00	-6.6	Н	3.0	39.4	1.0	-44.9	-13.0	-31.9	
	9500.00	-3.8	Н	3.0	38.7	1.0	-41.5	-13.0	-28.5	
		0.0	- 11	2.0	38.5	1.0	-36.7	-13.0	-23.7	
	11400.00	0.9	Н	3.0	30.3	1.0	-50.7	10.0	-23.1	

					UL Verificatio						
			,	Above 1GHz H	ligh Frequen	cy Substitu	ition Measi	irement			
Com	pany:		Samsung								
	ect#:		478725460								
Date			2018-11-13								
	t Engineer:		45585								
			4585 EUT / Adapter / Earphone / Z-Position Chamber 2 LTE_QPSK Band 4 Harmonics, 15MHz Bandwidth								
	figuration:										
	ation:										
Mod	ie:		LIE_QPSK Band	14 Harmonics, 15	MHZ Bandwidth						
	4 00		And Bol	Distance	D	F:14	EIRP	1::4	D-14-	Notes	
		reading IBm)	Ant. Pol. (H/V)	Distance	Preamp (dB)	Filter	(dBm)	Limit (dBm)	Delta (dB)	Notes	
	MHZ (0 Ch, 1717.5MHz	юш)	(n/v)	(m)	(ub)	(dB)	(ubiii)	(abiii)	(ub)		
3435		-9.3	V	3.0	39.5	1.0	-47.8	-13.0	-34.8		
5152		-9.3 -9.1	V	3.0	39.8	1.0	-47.8 -47.9	-13.0	-34.8		
6870		-6.2	V	3.0	39.7	1.0	-44.9	-13.0	-31.9		
8587		-5.4	v	3.0	39.0	1.0	-43.3	-13.0	-30.3		
1030		-1.9	V	3.0	38.6	1.0	-39.5	-13.0	-26.5		
3435		-9.6	Н	3.0	39.5	1.0	-48.2	-13.0	-35.2		
5152	.50	-9.6	Н	3.0	39.8	1.0	-48.4	-13.0	-35.4		
4 6870	.00	-7.3	Н	3.0	39.7	1.0	-45.9	-13.0	-32.9		
8587		-6.3	Н	3.0	39.0	1.0	-44.3	-13.0	-31.3		
Z 1030		0.1	Н	3.0	38.6	1.0	-37.4	-13.0	-24.4		
WIIG	Ch, 1732.5MHz										
3465		-9.0	V	3.0	39.5	1.0	-47.5	-13.0	-34.5		
5197		-8.8	V	3.0	39.8	1.0	-47.6	-13.0	-34.6		
6930		-6.2	V	3.0	39.7	1.0	-44.8	-13.0	-31.8		
8662		-5.3	V	3.0	38.9 38.6	1.0	-43.2 -39.5	-13.0 -13.0	-30.2 -26.5		
1039		-1.9 -9.2	H	3.0 3.0	39.5	1.0	-39.5	-13.0	-26.5 -34.7		
3465 5197		-9.2 -9.3	H	3.0	39.8	1.0 1.0	-47.7 -48.1	-13.0 -13.0	-34.7 -35.1		
6930		-9.3 -7.2	H	3.0	39.7	1.0	-46.1 -45.9	-13.0	-32.9		
8662		-7.2 -6.1	H	3.0	38.9	1.0	-44.0	-13.0	-32.9		
1039		-0.8	H	3.0	38.6	1.0	-38.4	-13.0	-25.4		
	Ch, 1747.5MHz			U.U	55.5		1		2017		
3495		-8.6	V	3.0	39.5	1.0	-47.1	-13.0	-34.1		
5242		-8.9	V	3.0	39.8	1.0	-47.8	-13.0	-34.8		
6990		-5.8	V	3.0	39.6	1.0	-44.4	-13.0	-31.4		
8737		-5.0	V	3.0	38.9	1.0	-42.9	-13.0	-29.9		
1048		-1.5	V	3.0	38.6	1.0	-39.0	-13.0	-26.0		
3495		-8.9	Н	3.0	39.5	1.0	-47.4	-13.0	-34.4		
		-9.4	Н	3.0	39.8	1.0	-48.2	-13.0	-35.2		
5242	.00	-7.1	Н	3.0	39.6	1.0	-45.7	-13.0	-32.7		
6990			Н	3.0	38.9	1.0	-43.9	-13.0	-30.9		
		-6.0 -1.5	H	3.0	38.6	1.0	-39.0	-13.0	-26.0		

					UL Verification					
				Above 1GHz H	ligh Frequen	cy Substitu	ıtion Meası	urement		
	Company:		Samsung							
	Project #:		4788725460							
	Date:		2018-12-02							
	Test Engin		45585							
	Configurat	ion:	EUT / AC Adapte	er / Earphone, Y-P	osition					
	Location:		Chamber 2							
	Mode:		LTE_QPSK Band	d 5 Harmonics, 3N	/IHz Bandwidth					
	f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
	MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	Notes
	Low Ch. 825	· · ·	(11/4)	(111)	(GD)	(GD)	(ubiii)	(abiii)	(GD)	-
	1651.00	-14.4	V	3.0	38.2	1.0	-51.6	-13.0	-38.6	
	2476.50	-12.6	· v	3.0	38.8	1.0	-50.4	-13.0	-37.4	
	3302.00	-10.2	v	3.0	39.4	1.0	-48.6	-13.0	-35.6	
	4127.50	-10.3	V	3.0	39.8	1.0	49.1	-13.0	-36.1	
E	4953.00	-9.1	v	3.0	39.8	1.0	-47.9	-13.0	-34.9	
_	1651.00	-12.3	H	3.0	38.2	1.0	-49.5	-13.0	-36.5	
	2476.50	-13.4	Н	3.0	38.8	1.0	-51.2	-13.0	-38.2	
d 5	3302.00	-10.5	Н	3.0	39.4	1.0	-48.9	-13.0	-35.9	
	4127.50	-10.6	Н	3.0	39.8	1.0	-49.4	-13.0	-36.4	
	4953.00	-9.7	Н	3.0	39.8	1.0	-48.5	-13.0	-35.5	
Hz	Mid Ch, 836.	5MHz								
	1673.00	-15.2	V	3.0	38.2	1.0	-52.4	-13.0	-39.4	
SK	2509.50	-12.5	V	3.0	38.8	1.0	-50.4	-13.0	-37.4	
OIX	3346.00	-10.1	V	3.0	39.5	1.0	-48.5	-13.0	-35.5	
	4182.50	-10.0	V	3.0	39.8	1.0	-48.8	-13.0	-35.8	
	5019.00	-8.8	V	3.0	39.8	1.0	-47.6	-13.0	-34.6	
	1673.00	-13.0	Н	3.0	38.2	1.0	-50.3	-13.0	-37.3	
	2509.50	-13.2	Н	3.0	38.8	1.0	-51.1	-13.0	-38.1	
	3346.00	-10.3	Н	3.0	39.5	1.0	-48.8	-13.0	-35.8	
	4182.50	-10.6	Н	3.0	39.8	1.0	-49.4	-13.0	-36.4	
	5019.00	-9.6	Н	3.0	39.8	1.0	-48.4	-13.0	-35.4	
	High Ch, 847		ļ					40.0		
	1695.00	-14.1	V	3.0	38.2	1.0	-51.3	-13.0	-38.3	
	2542.50	-12.4	V	3.0	38.9	1.0	-50.3	-13.0	-37.3	
	3390.00	-9.4	V	3.0	39.5	1.0	-47.9	-13.0	-34.9	
	4237.50	-9.8	V	3.0	39.8	1.0	-48.6 47.0	-13.0	-35.6	
	5085.00	-8.4	H	3.0	39.8	1.0	-47.2	-13.0	-34.2	
	1695.00	-13.4			38.2	1.0	-50.6	-13.0	-37.6	
	2542.50 3390.00	-12.9	H	3.0	38.9 39.5	1.0	-50.8	-13.0 -13.0	-37.8 -34.8	
	4237.50	-9.3 -10.2	H	3.0	39.5	1.0 1.0	-47.8 -49.0	-13.0 -13.0	-34.8 -36.0	
	5085.00	-10.2 -8.8	H	3.0	39.8	1.0	-49.0 -47.6	-13.0	-36.0	
	3003.00	-0.0	П	3.0	J9.0	1.0	-47.0	-13.0	-34.0	
							1	1		

			Above 1GHz H	UL Verificatio		-	ırement		
		,	ADOVE TOTIZ I	ngii Frequeii	cy Subsult	ition weast	irement		
Company:		Samsung							
Project #:		4788725460							
Date:		2018-11-14							
Test Engir	neer:	45585							
Configuration		EUT / AC Adapte	r / Famhone V-F	osition					
Location:	ion.	Chamber 2	ii / Laiphone, 1-i	OSITION					
Mode:		LTE_QPSK Band	. 7	ALLE Describedable					
wode:		LIE_QPSK Ballo	1 / Harmonics, 5k	inz bandwidtri					
f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
Low Ch. 25	02.5MHz				. ,				
5005.00	-19.6	V	3.0	39.8	1.0	-58.4	-25.0	-33.4	
7507.50	-19.4	V	3.0	39.4	1.0	-57.8	-25.0	-32.8	
10010.00	-12.2	V	3.0	38.6	1.0	-49.8	-25.0	-24.8	
5005.00	-20.6	Н	3.0	39.8	1.0	-59.4	-25.0	-34.4	
7507.50	-20.3	Н	3.0	39.4	1.0	-58.7	-25.0	-33.7	
10010.00	-11.9	Н	3.0	38.6	1.0	-49.5	-25.0	-24.5	
Mid Ch, 253									
5070.00	-20.4	V	3.0	39.8	1.0	-59.2	-25.0	-34.2	
7605.00	-19.5	V	3.0	39.3	1.0	-57.8	-25.0	-32.8	
	-13.7	V	3.0	38.6	1.0	-51.2	-25.0	-26.2	
10140.00			3.0	39.8	1.0	-59.1	-25.0	-34.1	
10140.00 5070.00	-20.4	Н							
10140.00 5070.00 7605.00	-20.1	Н	3.0	39.3	1.0	-58.4	-25.0	-33.4	
10140.00 5070.00 7605.00 10140.00	-20.1 -14.5								
10140.00 5070.00 7605.00 10140.00 High Ch, 25	-20.1 -14.5 67.5MHz	H	3.0 3.0	39.3 38.6	1.0 1.0	-58.4 -52.1	-25.0 -25.0	-33.4 -27.1	
10140.00 5070.00 7605.00 10140.00 High Ch, 25 5135.00	-20.1 -14.5 67.5MHz -20.7	H H V	3.0 3.0 3.0	39.3 38.6 39.8	1.0 1.0	-58.4 -52.1 -59.5	-25.0 -25.0 -25.0	-33.4 -27.1	
10140.00 5070.00 7605.00 10140.00 High Ch, 25 5135.00 7702.50	-20.1 -14.5 67.5MHz -20.7 -19.8	H H V V	3.0 3.0 3.0 3.0	39.3 38.6 39.8 39.3	1.0 1.0 1.0 1.0	-58.4 -52.1 -59.5 -58.1	-25.0 -25.0 -25.0 -25.0	-33.4 -27.1 -34.5 -33.1	
10140.00 5070.00 7605.00 10140.00 High Ch, 25 5135.00 7702.50 10270.00	-20.1 -14.5 67.5MHz -20.7 -19.8 -13.9	H H V V	3.0 3.0 3.0 3.0 3.0	39.3 38.6 39.8 39.3 38.6	1.0 1.0 1.0 1.0 1.0	-58.4 -52.1 -59.5 -58.1 -51.5	-25.0 -25.0 -25.0 -25.0 -25.0	-33.4 -27.1 -34.5 -33.1 -26.5	
10140.00 5070.00 7605.00 10140.00 High Ch, 25 5135.00 7702.50 10270.00 5135.00	-20.1 -14.5 67.5MHz -20.7 -19.8 -13.9 -20.3	H H V V V V	3.0 3.0 3.0 3.0 3.0 3.0 3.0	39.3 38.6 39.8 39.3 38.6 39.8	1.0 1.0 1.0 1.0 1.0 1.0	-58.4 -52.1 -59.5 -58.1 -51.5 -59.1	-25.0 -25.0 -25.0 -25.0 -25.0 -25.0	-33.4 -27.1 -34.5 -33.1 -26.5 -34.1	
10140.00 5070.00 7605.00 10140.00 High Ch, 25 5135.00 7702.50 10270.00	-20.1 -14.5 67.5MHz -20.7 -19.8 -13.9	H H V V	3.0 3.0 3.0 3.0 3.0	39.3 38.6 39.8 39.3 38.6	1.0 1.0 1.0 1.0 1.0	-58.4 -52.1 -59.5 -58.1 -51.5	-25.0 -25.0 -25.0 -25.0 -25.0	-33.4 -27.1 -34.5 -33.1 -26.5	

	Above 1GHz High Frequency Substitution Measurement										
						,					
	Company:		Samsung								
	Project #:		4788725460								
	Date:		2018-11-17 47989 EUT / Adpater / Earphone, Y-Position Chamber 1 LTE QPSK Band 12 Harmonics, 3MHz Bandwidth								
	Test Engin	eer.									
	Configurati										
	Location:	OII.									
	Mode:		LIE_QPSK Band	12 Harmonics, 3	SIVINZ Bandwidth						
	f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes	
	MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	Hotes	
	Low Ch, 700		(11/4)	(1117	(GD)	(GD)	(GDIII)	(ubiii)	(GD)		
	1401.00	-15.4	V	3.0	43.8	1.0	-58.1	-13.0	-45.1		
	2101.50	-13.8	v	3.0	43.3	1.0	-56.1	-13.0	43.1		
	2802.00	-11.7	v	3.0	43.5	1.0	-54.2	-13.0	-41.2		
	3502.50	-9.0	v	3.0	43.7	1.0	-51.7	-13.0	-38.7		
E 4	4203.00	-10.4	V	3.0	43.9	1.0	-53.3	-13.0	-40.3		
	1401.00	-14.8	Н	3.0	43.8	1.0	-57.6	-13.0	-44.6		
	2101.50	-14.6	Н	3.0	43.3	1.0	-57.0	-13.0	-44.0		
12	2802.00	-12.1	Н	3.0	43.5	1.0	-54.6	-13.0	-41.6		
	3502.50	-9.1	Н	3.0	43.7	1.0	-51.8	-13.0	-38.8		
_	4203.00	-10.3	Н	3.0	43.9	1.0	-53.1	-13.0	-40.1		
Z	Mid Ch, 707.	5MHz									
	1415.00	-13.5	V	3.0	43.8	1.0	-56.3	-13.0	-43.3		
K	2122.50	-13.7	V	3.0	43.3	1.0	-56.1	-13.0	-43.1		
	2830.00	-11.7	V	3.0	43.5	1.0	-54.2	-13.0	-41.2		
	3537.50	-8.9	V	3.0	43.7	1.0	-51.6	-13.0	-38.6		
	4245.00	-10.6	V	3.0	43.9	1.0	-53.4	-13.0	-40.4		
	1415.00	-10.9	Н	3.0	43.8	1.0	-53.6	-13.0	-40.6		
	2122.50	-14.7	Н	3.0	43.3	1.0	-57.0	-13.0	-44.0		
	2830.00	-12.0	Н	3.0	43.5	1.0	-54.5	-13.0	-41.5		
	3537.50	-8.8	H	3.0	43.7	1.0	-51.5	-13.0	-38.5		
	4245.00	-10.3	Н	3.0	43.9	1.0	-53.2	-13.0	-40.2		
	High Ch, 714 1429.00	-11.3	V	3.0	43.8	1.0	-54.0	-13.0	-41.0		
	2143.50	-11.3 -13.6	V	3.0	43.8	1.0	-54.0	-13.0	-41.0 -43.0		
	2858.00	-13.6 -11.5	V	3.0	43.5	1.0	-54.0	-13.0	-43.0 -41.0		
	3572.50	-9.3	V	3.0	43.7	1.0	-54.0	-13.0	-39.0		
	4287.00	-10.3	V	3.0	43.8	1.0	-53.1	-13.0	-40.1		
	1429.00	-10.3	H	3.0	43.8	1.0	-52.8	-13.0	-39.8		
	2143.50	-14.5	H	3.0	43.3	1.0	-56.9	-13.0	-43.9		
	2858.00	-11.9	H	3.0	43.5	1.0	-54.4	-13.0	41.4		
l l	3572.50	-9.2	H	3.0	43.7	1.0	-52.0	-13.0	-39.0		
							-53.0	-13.0	-40.0		
	4287.00	-10.1	Н	3.0	43.8	1.0					