5G NR BAND n66

BW (MHz)	Mode	RB/RB Size	f(MHz)	EIRP	
				dBm	W
20	BPSK	1/1	1720	20.29	0.106905
		1/1	1745	20.32	0.107647
		1/1	1770	21.08	0.128233
	16QAM	1/1	1720	19.61	0.091411
		1/1	1745	19.06	0.080538
		1/1	1770	20.79	0.119950
15	BPSK	1/1	1717.7	21.29	0.134586
		1/1	1745	20.02	0.100462
		1/1	1772.5	21.13	0.129718
	16QAM	1/1	1717.7	20.63	0.115611
		1/1	1745	19.28	0.084723
		1/1	1772.5	20.39	0.109396
10	BPSK	1/1	1715	20.40	0.109648
		1/1	1745	20.34	0.108143
		1/1	1775	21.28	0.134276
	16QAM	1/1	1715	19.68	0.092897
		1/1	1745	19.79	0.095280
		1/1	1775	20.58	0.114288
5	BPSK	1/1	1712.5	21.72	0.148594
		1/1	1745	20.50	0.112202
		1/1	1777.5	21.26	0.133660
	16QAM	1/1	1712.5	21.03	0.126765
		1/1	1745	19.93	0.098401
		1/1	1777.5	19.90	0.097724

9.1.1. GSM

GPRS 850

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: GPRS 850 MHz Fundamentals

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.20	21.72	V	0.2	-1.7	19.79	38.5	-18.7	
824.20	27.20	H	0.2	-1.4	25.66	38.5	-12.8	
Mid Ch								
836.60	22.59	V	0.2	-1.8	20.55	38.5	-18.0	
836.60	27.69	H	0.2	-1.3	26.19	38.5	-12.3	
High Ch								
848.80	23.09	V	0.2	-1.9	20.94	38.5	-17.6	
848.80	27.60	H	0.2	-1.3	26.13	38.5	-12.4	

EGPRS 850

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: EGPRS 850 MHz Fundamentals

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.20	17.24	V	0.2	-1.7	15.31	38.5	-23.2	
824.20	22.78	H	0.2	-1.4	21.24	38.5	-17.3	
Mid Ch								
836.60	18.04	V	0.2	-1.8	16.00	38.5	-22.5	
836.60	23.24	H	0.2	-1.3	21.74	38.5	-16.8	
High Ch								
848.80	18.49	V	0.2	-1.9	16.34	38.5	-22.2	
848.80	23.30	H	0.2	-1.3	21.83	38.5	-16.7	

GPRS 1900

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: GPRS 1900 MHz Fundamentals

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution 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								
1850.20	19.08	V	0.3	4.7	23.43	33.0	-9.6	
1850.20	21.06	H	0.3	4.7	25.41	33.0	-7.6	
Mid Ch								
1880.00	20.02	V	0.3	4.9	24.53	33.0	-8.5	
1880.00	21.33	H	0.3	4.9	25.84	33.0	-7.2	
High Ch								
1909.80	19.90	V	0.4	5.1	24.63	33.0	-8.4	
1909.80	21.85	H	0.4	5.1	26.58	33.0	-6.4	

EGPRS 1900

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: EGPRS 1900 MHz Fundamentals

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution 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								
1850.20	16.03	V	0.3	4.7	20.38	33.0	-12.6	
1850.20	18.47	H	0.3	4.7	22.82	33.0	-10.2	
Mid Ch								
1880.00	16.80	V	0.3	4.9	21.31	33.0	-11.7	
1880.00	18.67	H	0.3	4.9	23.18	33.0	-9.8	
High Ch								
1909.80	16.98	V	0.4	5.1	21.71	33.0	-11.3	
1909.80	19.34	H	0.4	5.1	24.07	33.0	-8.9	

9.1.2. WCDMA

B5 REL99

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: Rel99 Band 5 Fundamentals

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.40	14.08	V	0.2	-1.8	12.13	38.5	-26.4	
826.40	18.96	H	0.2	-1.3	17.43	38.5	-21.1	
Mid Ch								
836.60	14.46	V	0.2	-1.8	12.42	38.5	-26.1	
836.60	19.10	H	0.2	-1.3	17.60	38.5	-20.9	
High Ch								
846.60	14.80	V	0.2	-1.9	12.67	38.5	-25.8	
846.60	18.99	H	0.2	-1.3	17.52	38.5	-21.0	

B5 HSDPA

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: HSDPA Band 5 Fundamentals

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.40	13.20	V	0.2	-1.8	11.25	38.5	-27.2	
826.40	17.93	H	0.2	-1.3	16.40	38.5	-22.1	
Mid Ch								
836.60	13.44	V	0.2	-1.8	11.40	38.5	-27.1	
836.60	17.98	H	0.2	-1.3	16.48	38.5	-22.0	
High Ch								
846.60	13.83	V	0.2	-1.9	11.70	38.5	-26.8	
846.60	17.80	H	0.2	-1.3	16.33	38.5	-22.2	

B2 REL99

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: Rel99 Band 2 Fundamentals

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.40	12.99	V	0.3	4.6	17.28	33.0	-15.7	
1852.40	15.56	H	0.3	4.6	19.85	33.0	-13.2	
Mid Ch								
1880.00	13.25	V	0.3	4.9	17.76	33.0	-15.2	
1880.00	15.61	H	0.3	4.9	20.12	33.0	-12.9	
High Ch								
1907.60	13.57	V	0.4	5.0	18.25	33.0	-14.7	
1907.60	16.30	H	0.4	5.0	20.98	33.0	-12.0	

B2 HSDPA

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: HSDPA Band 2 Fundamentals

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.40	11.96	V	0.3	4.6	16.25	33.0	-16.8	
1852.40	14.66	H	0.3	4.6	18.95	33.0	-14.1	
Mid Ch								
1880.00	12.31	V	0.3	4.9	16.82	33.0	-16.2	
1880.00	14.55	H	0.3	4.9	19.06	33.0	-13.9	
High Ch								
1907.60	12.50	V	0.4	5.0	17.18	33.0	-15.8	
1907.60	15.35	H	0.4	5.0	20.03	33.0	-13.0	

B4 REL99

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: Rel99 Band 4 Fundamentals

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.40	12.45	V	0.3	5.7	17.89	30.0	-12.1	
1712.40	15.34	H	0.3	5.7	20.78	30.0	-9.2	
Mid Ch								
1732.60	13.14	V	0.3	5.5	18.37	30.0	-11.6	
1732.60	15.58	H	0.3	5.5	20.81	30.0	-9.2	
High Ch								
1752.60	12.79	V	0.3	5.4	17.85	30.0	-12.1	
1752.60	15.13	H	0.3	5.4	20.19	30.0	-9.8	

B4 HSDPA

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: HSDPA Band 4 Fundamentals

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.40	11.41	V	0.3	5.7	16.85	30.0	-13.2	
1712.40	14.28	H	0.3	5.7	19.72	30.0	-10.3	
Mid Ch								
1732.60	12.11	V	0.3	5.5	17.34	30.0	-12.7	
1732.60	14.72	H	0.3	5.5	19.95	30.0	-10.0	
High Ch								
1752.60	11.80	V	0.3	5.4	16.86	30.0	-13.1	
1752.60	14.15	H	0.3	5.4	19.21	30.0	-10.8	

9.1.3. LTE Band 2

20MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 2 Fundamentals, 20MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1860.00	13.22	V	0.3	4.8	17.64	33.0	-15.4	
1860.00	15.34	H	0.3	4.8	19.76	33.0	-13.2	
Mid Ch								
1880.00	13.24	V	0.3	4.9	17.75	33.0	-15.3	
1880.00	15.54	H	0.3	4.9	20.05	33.0	-13.0	
High Ch								
1900.00	13.58	V	0.4	5.1	18.35	33.0	-14.7	
1900.00	15.93	H	0.4	5.1	20.70	33.0	-12.3	

20MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 2 Fundamentals, 20MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1860.00	12.58	V	0.3	4.8	17.00	33.0	-16.0	
1860.00	14.66	H	0.3	4.8	19.08	33.0	-13.9	
Mid Ch								
1880.00	12.64	V	0.3	4.9	17.15	33.0	-15.9	
1880.00	14.98	H	0.3	4.9	19.49	33.0	-13.5	
High Ch								
1900.00	12.96	V	0.4	5.1	17.73	33.0	-15.3	
1900.00	15.35	H	0.4	5.1	20.12	33.0	-12.9	

15MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 2 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1857.50	13.09	V	0.3	4.7	17.43	33.0	-15.6	
1857.50	15.19	H	0.3	4.7	19.53	33.0	-13.5	
Mid Ch								
1880.00	13.19	V	0.3	4.9	17.70	33.0	-15.3	
1880.00	15.23	H	0.3	4.9	19.74	33.0	-13.3	
High Ch								
1902.50	13.77	V	0.4	5.1	18.52	33.0	-14.5	
1902.50	15.80	H	0.4	5.1	20.55	33.0	-12.5	

15MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 2 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1857.50	12.49	V	0.3	4.7	16.83	33.0	-16.2	
1857.50	14.56	H	0.3	4.7	18.90	33.0	-14.1	
Mid Ch								
1880.00	12.65	V	0.3	4.9	17.16	33.0	-15.8	
1880.00	14.66	H	0.3	4.9	19.17	33.0	-13.8	
High Ch								
1902.50	13.13	V	0.4	5.1	17.88	33.0	-15.1	
1902.50	15.16	H	0.4	5.1	19.91	33.0	-13.1	

10MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 2 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1855.00	12.92	V	0.3	4.6	17.20	33.0	-15.8	
1855.00	15.36	H	0.3	4.6	19.64	33.0	-13.4	
Mid Ch								
1880.00	13.28	V	0.3	4.9	17.79	33.0	-15.2	
1880.00	15.21	H	0.3	4.9	19.72	33.0	-13.3	
High Ch								
1905.00	13.53	V	0.4	5.1	18.23	33.0	-14.8	
1905.00	15.96	H	0.4	5.1	20.66	33.0	-12.3	

10MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 2 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1855.00	12.18	V	0.3	4.6	16.46	33.0	-16.5	
1855.00	14.87	H	0.3	4.6	19.15	33.0	-13.9	
Mid Ch								
1880.00	12.84	V	0.3	4.9	17.35	33.0	-15.7	
1880.00	14.82	H	0.3	4.9	19.33	33.0	-13.7	
High Ch								
1905.00	13.00	V	0.4	5.1	17.70	33.0	-15.3	
1905.00	15.24	H	0.4	5.1	19.94	33.0	-13.1	

5MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 2 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.50	12.97	V	0.3	4.6	17.26	33.0	-15.7	
1852.50	15.62	H	0.3	4.6	19.91	33.0	-13.1	
Mid Ch								
1880.00	13.34	V	0.3	4.9	17.85	33.0	-15.2	
1880.00	15.30	H	0.3	4.9	19.81	33.0	-13.2	
High Ch								
1907.50	13.33	V	0.4	5.0	18.01	33.0	-15.0	
1907.50	15.98	H	0.4	5.0	20.66	33.0	-12.3	

5MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 2 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.50	12.40	V	0.3	4.6	16.69	33.0	-16.3	
1852.50	14.77	H	0.3	4.6	19.06	33.0	-13.9	
Mid Ch								
1880.00	12.69	V	0.3	4.9	17.20	33.0	-15.8	
1880.00	14.65	H	0.3	4.9	19.16	33.0	-13.8	
High Ch								
1907.50	12.65	V	0.4	5.0	17.33	33.0	-15.7	
1907.50	15.29	H	0.4	5.0	19.97	33.0	-13.0	

3MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 2 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1851.50	13.10	V	0.3	4.7	17.41	33.0	-15.6	
1851.50	15.46	H	0.3	4.7	19.77	33.0	-13.2	
Mid Ch								
1880.00	13.28	V	0.3	4.9	17.79	33.0	-15.2	
1880.00	15.25	H	0.3	4.9	19.76	33.0	-13.2	
High Ch								
1908.50	13.40	V	0.4	5.1	18.09	33.0	-14.9	
1908.50	15.89	H	0.4	5.1	20.58	33.0	-12.4	

3MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 2 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1851.50	12.30	V	0.3	4.7	16.61	33.0	-16.4	
1851.50	14.67	H	0.3	4.7	18.98	33.0	-14.0	
Mid Ch								
1880.00	12.68	V	0.3	4.9	17.19	33.0	-15.8	
1880.00	14.64	H	0.3	4.9	19.15	33.0	-13.9	
High Ch								
1908.50	12.69	V	0.4	5.1	17.38	33.0	-15.6	
1908.50	15.25	H	0.4	5.1	19.94	33.0	-13.1	

1.4MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 2 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution 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								
1850.70	13.17	V	0.3	4.7	17.51	33.0	-15.5	
1850.70	15.46	H	0.3	4.7	19.80	33.0	-13.2	
Mid Ch								
1880.00	13.43	V	0.3	4.9	17.94	33.0	-15.1	
1880.00	15.39	H	0.3	4.9	19.90	33.0	-13.1	
High Ch								
1909.30	13.53	V	0.4	5.1	18.24	33.0	-14.8	
1909.30	15.96	H	0.4	5.1	20.67	33.0	-12.3	

1.4Hz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/10/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 2 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution 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								
1850.70	12.64	V	0.3	4.7	16.98	33.0	-16.0	
1850.70	14.94	H	0.3	4.7	19.28	33.0	-13.7	
Mid Ch								
1880.00	12.79	V	0.3	4.9	17.30	33.0	-15.7	
1880.00	14.80	H	0.3	4.9	19.31	33.0	-13.7	
High Ch								
1909.30	12.86	V	0.4	5.1	17.57	33.0	-15.4	
1909.30	15.20	H	0.4	5.1	19.91	33.0	-13.1	

9.1.4. LTE Band 5

10MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 5 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
829.00	13.36	V	0.2	-1.8	11.39	38.5	-27.1	
829.00	19.29	H	0.2	-1.3	17.77	38.5	-20.7	
Mid Ch								
836.50	14.10	V	0.2	-1.8	12.06	38.5	-26.4	
836.50	19.30	H	0.2	-1.3	17.80	38.5	-20.7	
High Ch								
844.00	14.44	V	0.2	-1.9	12.33	38.5	-26.2	
844.00	19.03	H	0.2	-1.3	17.55	38.5	-21.0	

10MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 5 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
829.00	12.44	V	0.2	-1.8	10.47	38.5	-28.0	
829.00	18.57	H	0.2	-1.3	17.05	38.5	-21.5	
Mid Ch								
836.50	13.37	V	0.2	-1.8	11.33	38.5	-27.2	
836.50	18.49	H	0.2	-1.3	16.99	38.5	-21.5	
High Ch								
844.00	13.59	V	0.2	-1.9	11.48	38.5	-27.0	
844.00	18.12	H	0.2	-1.3	16.64	38.5	-21.9	

5MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 5 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.50	13.59	V	0.2	-1.8	11.64	38.5	-26.9	
826.50	19.38	H	0.2	-1.3	17.85	38.5	-20.6	
Mid Ch								
836.50	13.98	V	0.2	-1.8	11.94	38.5	-26.6	
836.50	19.23	H	0.2	-1.3	17.73	38.5	-20.8	
High Ch								
846.50	14.20	V	0.2	-1.9	12.07	38.5	-26.4	
846.50	18.76	H	0.2	-1.3	17.29	38.5	-21.2	

5MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 5 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.50	12.56	V	0.2	-1.8	10.61	38.5	-27.9	
826.50	18.31	H	0.2	-1.3	16.78	38.5	-21.7	
Mid Ch								
836.50	13.35	V	0.2	-1.8	11.31	38.5	-27.2	
836.50	18.65	H	0.2	-1.3	17.15	38.5	-21.4	
High Ch								
846.50	13.40	V	0.2	-1.9	11.27	38.5	-27.2	
846.50	18.03	H	0.2	-1.3	16.56	38.5	-21.9	

3MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 5 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
825.50	13.15	V	0.2	-1.8	11.21	38.5	-27.3	
825.50	18.95	H	0.2	-1.3	17.42	38.5	-21.1	
Mid Ch								
836.50	13.92	V	0.2	-1.8	11.88	38.5	-26.6	
836.50	19.03	H	0.2	-1.3	17.53	38.5	-21.0	
High Ch								
847.50	14.16	V	0.2	-1.9	12.02	38.5	-26.5	
847.50	18.69	H	0.2	-1.3	17.22	38.5	-21.3	

3MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 5 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
825.50	12.34	V	0.2	-1.8	10.40	38.5	-28.1	
825.50	18.04	H	0.2	-1.3	16.51	38.5	-22.0	
Mid Ch								
836.50	13.31	V	0.2	-1.8	11.27	38.5	-27.2	
836.50	18.42	H	0.2	-1.3	16.92	38.5	-21.6	
High Ch								
847.50	13.33	V	0.2	-1.9	11.19	38.5	-27.3	
847.50	17.90	H	0.2	-1.3	16.43	38.5	-22.1	

1.4MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.70	12.91	V	0.2	-1.7	10.98	38.5	-27.5	
824.70	18.66	H	0.2	-1.4	17.13	38.5	-21.4	
Mid Ch								
836.50	13.68	V	0.2	-1.8	11.64	38.5	-26.9	
836.50	18.82	H	0.2	-1.3	17.32	38.5	-21.2	
High Ch								
848.30	13.81	V	0.2	-1.9	11.66	38.5	-26.8	
848.30	18.35	H	0.2	-1.3	16.88	38.5	-21.6	

1.4MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.70	12.33	V	0.2	-1.7	10.40	38.5	-28.1	
824.70	17.84	H	0.2	-1.4	16.31	38.5	-22.2	
Mid Ch								
836.50	12.95	V	0.2	-1.8	10.91	38.5	-27.6	
836.50	18.03	H	0.2	-1.3	16.53	38.5	-22.0	
High Ch								
848.30	13.01	V	0.2	-1.9	10.86	38.5	-27.6	
848.30	17.50	H	0.2	-1.3	16.03	38.5	-22.5	

9.1.5. 5G NR BAND n5

20MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/21/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: NR_BPSK Band 5 Fundamentals, 20MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
834.00	14.38	V	0.2	-1.8	12.36	38.5	-26.1	
834.00	19.45	H	0.2	-1.3	17.94	38.5	-20.6	
Mid Ch								
836.50	14.71	V	0.2	-1.8	12.67	38.5	-25.8	
836.50	19.86	H	0.2	-1.3	18.36	38.5	-20.1	
High Ch								
839.00	15.08	V	0.2	-1.9	13.02	38.5	-25.5	
839.00	19.61	H	0.2	-1.3	18.12	38.5	-20.4	

20MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/21/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: NR_16QAM Band 5 Fundamentals, 20MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
834.00	13.43	V	0.2	-1.8	11.41	38.5	-27.1	
834.00	18.64	H	0.2	-1.3	17.13	38.5	-21.4	
Mid Ch								
836.50	13.72	V	0.2	-1.8	11.68	38.5	-26.8	
836.50	19.07	H	0.2	-1.3	17.57	38.5	-20.9	
High Ch								
839.00	14.19	V	0.2	-1.9	12.13	38.5	-26.4	
839.00	18.84	H	0.2	-1.3	17.35	38.5	-21.2	

15MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/21/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: NR_BPSK Band 5 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
831.50	14.37	V	0.2	-1.8	12.38	38.5	-26.1	
831.50	19.37	H	0.2	-1.3	17.86	38.5	-20.6	
Mid Ch								
836.50	15.06	V	0.2	-1.8	13.02	38.5	-25.5	
836.50	19.98	H	0.2	-1.3	18.48	38.5	-20.0	
High Ch								
841.50	14.87	V	0.2	-1.9	12.78	38.5	-25.7	
841.50	19.06	H	0.2	-1.3	17.57	38.5	-20.9	

15MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/21/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: NR_16QAM Band 5 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
831.50	13.22	V	0.2	-1.8	11.23	38.5	-27.3	
831.50	18.12	H	0.2	-1.3	16.61	38.5	-21.9	
Mid Ch								
836.50	13.62	V	0.2	-1.8	11.58	38.5	-26.9	
836.50	18.96	H	0.2	-1.3	17.46	38.5	-21.0	
High Ch								
841.50	14.21	V	0.2	-1.9	12.12	38.5	-26.4	
841.50	17.81	H	0.2	-1.3	16.32	38.5	-22.2	

10MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/21/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: NR_BPSK Band 5 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
829.00	13.95	V	0.2	-1.8	11.98	38.5	-26.5	
829.00	19.41	H	0.2	-1.3	17.89	38.5	-20.6	
Mid Ch								
836.50	14.53	V	0.2	-1.8	12.49	38.5	-26.0	
836.50	19.55	H	0.2	-1.3	18.05	38.5	-20.5	
High Ch								
844.00	14.77	V	0.2	-1.9	12.66	38.5	-25.8	
844.00	19.53	H	0.2	-1.3	18.05	38.5	-20.5	

10MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/21/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: NR_16QAM Band 5 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
829.00	12.56	V	0.2	-1.8	10.59	38.5	-27.9	
829.00	18.24	H	0.2	-1.3	16.72	38.5	-21.8	
Mid Ch								
836.50	13.42	V	0.2	-1.8	11.38	38.5	-27.1	
836.50	18.64	H	0.2	-1.3	17.14	38.5	-21.4	
High Ch								
844.00	13.77	V	0.2	-1.9	11.66	38.5	-26.8	
844.00	18.30	H	0.2	-1.3	16.82	38.5	-21.7	

5MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/21/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: NR_BPSK Band 5 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.50	13.22	V	0.2	-1.8	11.27	38.5	-27.2	
826.50	19.67	H	0.2	-1.3	18.14	38.5	-20.4	
Mid Ch								
836.50	13.74	V	0.2	-1.8	11.70	38.5	-26.8	
836.50	19.84	H	0.2	-1.3	18.34	38.5	-20.2	
High Ch								
846.50	14.28	V	0.2	-1.9	12.15	38.5	-26.4	
846.50	19.09	H	0.2	-1.3	17.62	38.5	-20.9	

5MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/21/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: NR_16QAM Band 5 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.50	12.02	V	0.2	-1.8	10.07	38.5	-28.4	
826.50	18.48	H	0.2	-1.3	16.95	38.5	-21.5	
Mid Ch								
836.50	12.95	V	0.2	-1.8	10.91	38.5	-27.6	
836.50	18.66	H	0.2	-1.3	17.16	38.5	-21.3	
High Ch								
846.50	13.08	V	0.2	-1.9	10.95	38.5	-27.6	
846.50	17.93	H	0.2	-1.3	16.46	38.5	-22.0	

9.1.6. LTE Band 12

10MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/9/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 12 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
704.00	13.86	V	0.1	-0.7	13.04	34.8	-21.8	
704.00	18.72	H	0.1	-0.3	18.28	34.8	-16.5	
Mid Ch								
707.50	14.09	V	0.1	-0.7	13.24	34.8	-21.6	
707.50	19.06	H	0.1	-0.3	18.58	34.8	-16.2	
High Ch								
711.00	14.65	V	0.1	-0.7	13.77	34.8	-21.0	
711.00	19.67	H	0.1	-0.4	19.15	34.8	-15.7	

10MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/9/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 12 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
704.00	13.14	V	0.1	-0.7	12.32	34.8	-22.5	
704.00	17.95	H	0.1	-0.3	17.51	34.8	-17.3	
Mid Ch								
707.50	13.19	V	0.1	-0.7	12.34	34.8	-22.5	
707.50	18.31	H	0.1	-0.3	17.83	34.8	-17.0	
High Ch								
711.00	13.83	V	0.1	-0.7	12.95	34.8	-21.8	
711.00	18.75	H	0.1	-0.4	18.23	34.8	-16.6	

5MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/9/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 12 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
701.50	13.60	V	0.1	-0.7	12.80	34.8	-22.0	
701.50	18.49	H	0.1	-0.3	18.08	34.8	-16.7	
Mid Ch								
707.50	14.20	V	0.1	-0.7	13.35	34.8	-21.5	
707.50	19.06	H	0.1	-0.3	18.58	34.8	-16.2	
High Ch								
713.50	14.93	V	0.1	-0.8	14.03	34.8	-20.8	
713.50	19.80	H	0.1	-0.4	19.25	34.8	-15.6	

5MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/9/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 12 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
701.50	12.86	V	0.1	-0.7	12.06	34.8	-22.7	
701.50	17.79	H	0.1	-0.3	17.38	34.8	-17.4	
Mid Ch								
707.50	13.29	V	0.1	-0.7	12.44	34.8	-22.4	
707.50	18.20	H	0.1	-0.3	17.72	34.8	-17.1	
High Ch								
713.50	14.23	V	0.1	-0.8	13.33	34.8	-21.5	
713.50	19.08	H	0.1	-0.4	18.53	34.8	-16.3	

3MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/9/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 12 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
700.50	13.41	V	0.1	-0.7	12.62	34.8	-22.2	
700.50	18.14	H	0.1	-0.3	17.74	34.8	-17.1	
Mid Ch								
707.50	13.92	V	0.1	-0.7	13.07	34.8	-21.7	
707.50	18.84	H	0.1	-0.3	18.36	34.8	-16.4	
High Ch								
714.50	14.79	V	0.1	-0.8	13.88	34.8	-20.9	
714.50	19.62	H	0.1	-0.4	19.05	34.8	-15.7	

3MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/9/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 12 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
700.50	12.75	V	0.1	-0.7	11.96	34.8	-22.8	
700.50	17.47	H	0.1	-0.3	17.07	34.8	-17.7	
Mid Ch								
707.50	13.13	V	0.1	-0.7	12.28	34.8	-22.5	
707.50	18.05	H	0.1	-0.3	17.57	34.8	-17.2	
High Ch								
714.50	13.99	V	0.1	-0.8	13.08	34.8	-21.7	
714.50	18.83	H	0.1	-0.4	18.26	34.8	-16.5	

1.4MHz QPSK	1.4MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company:	Samsung
Project #:	13583138
Date:	12/9/2020
Test Engineer:	19480
Configuration:	EUT Only
Location:	Chamber J
Mode:	LTE_QPSK Band 12 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
699.70	13.10	V	0.1	-0.7	12.31	34.8	-22.5	
699.70	17.89	H	0.1	-0.3	17.50	34.8	-17.3	
Mid Ch								
707.50	13.85	V	0.1	-0.7	13.00	34.8	-21.8	
707.50	18.70	H	0.1	-0.3	18.22	34.8	-16.6	
High Ch								
715.30	14.45	V	0.1	-0.8	13.54	34.8	-21.3	
715.30	19.50	H	0.1	-0.4	18.92	34.8	-15.9	

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company:	Samsung
Project #:	13583138
Date:	12/9/2020
Test Engineer:	19480
Configuration:	EUT Only
Location:	Chamber J
Mode:	LTE_16QAM Band 12 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
699.70	12.38	V	0.1	-0.7	11.59	34.8	-23.2	
699.70	17.27	H	0.1	-0.3	16.88	34.8	-17.9	
Mid Ch								
707.50	12.85	V	0.1	-0.7	12.00	34.8	-22.8	
707.50	18.15	H	0.1	-0.3	17.67	34.8	-17.1	
High Ch								
715.30	13.93	V	0.1	-0.8	13.02	34.8	-21.8	
715.30	18.67	H	0.1	-0.4	18.09	34.8	-16.7	

9.1.7. LTE Band 26 (FCC PART 90)

15MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/9/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 26 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Mid Ch								
821.50	13.49	V	0.2	-1.7	11.58	50.0	-38.4	
821.50	18.70	H	0.2	-1.4	17.14	50.0	-32.9	

15MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/9/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 26 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Mid Ch								
821.50	12.73	V	0.2	-1.7	10.82	50.0	-39.2	
821.50	18.01	H	0.2	-1.4	16.45	50.0	-33.5	

10MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/9/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 26 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Mid Ch								
819.00	14.17	V	0.2	-1.7	12.27	50.0	-37.7	
819.00	18.79	H	0.2	-1.4	17.22	50.0	-32.8	

10MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/9/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 26 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Mid Ch								
819.00	13.28	V	0.2	-1.7	11.38	50.0	-38.6	
819.00	17.98	H	0.2	-1.4	16.41	50.0	-33.6	

5MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/9/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 26 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
816.50	14.31	V	0.2	-1.7	12.42	50.0	-37.6	
816.50	18.61	H	0.2	-1.4	17.02	50.0	-33.0	
Mid Ch								
819.00	14.09	V	0.2	-1.7	12.19	50.0	-37.8	
819.00	18.72	H	0.2	-1.4	17.15	50.0	-32.9	
High Ch								
821.50	13.89	V	0.2	-1.7	11.98	50.0	-38.0	
821.50	19.03	H	0.2	-1.4	17.47	50.0	-32.5	

5MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/9/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 26 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
816.50	13.28	V	0.2	-1.7	11.39	50.0	-38.6	
816.50	17.86	H	0.2	-1.4	16.27	50.0	-33.7	
Mid Ch								
819.00	13.45	V	0.2	-1.7	11.55	50.0	-38.5	
819.00	18.08	H	0.2	-1.4	16.51	50.0	-33.5	
High Ch								
821.50	13.35	V	0.2	-1.7	11.44	50.0	-38.6	
821.50	18.37	H	0.2	-1.4	16.81	50.0	-33.2	

3MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/9/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 26 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
815.50	14.03	V	0.2	-1.7	12.15	50.0	-37.9	
815.50	18.51	H	0.2	-1.4	16.91	50.0	-33.1	
Mid Ch								
819.00	14.06	V	0.2	-1.7	12.16	50.0	-37.8	
819.00	18.63	H	0.2	-1.4	17.06	50.0	-32.9	
High Ch								
822.50	13.78	V	0.2	-1.7	11.86	50.0	-38.1	
822.50	18.91	H	0.2	-1.4	17.36	50.0	-32.6	

3MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/9/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 26 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
815.50	13.00	V	0.2	-1.7	11.12	50.0	-38.9	
815.50	17.45	H	0.2	-1.4	15.85	50.0	-34.1	
Mid Ch								
821.50	13.40	V	0.2	-1.7	11.49	50.0	-38.5	
821.50	18.00	H	0.2	-1.4	16.44	50.0	-33.6	
High Ch								
822.50	13.15	V	0.2	-1.7	11.23	50.0	-38.8	
822.50	18.21	H	0.2	-1.4	16.66	50.0	-33.3	

1.4MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/9/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 26 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
814.70	13.74	V	0.2	-1.7	11.86	50.0	-38.1	
814.70	18.45	H	0.2	-1.4	16.85	50.0	-33.2	
Mid Ch								
819.00	13.79	V	0.2	-1.7	11.89	50.0	-38.1	
819.00	18.42	H	0.2	-1.4	16.85	50.0	-33.2	
High Ch								
823.30	13.51	V	0.2	-1.7	11.59	50.0	-38.4	
823.30	18.62	H	0.2	-1.4	17.08	50.0	-32.9	

1.4MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/9/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 26 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
814.70	13.25	V	0.2	-1.7	11.37	50.0	-38.6	
814.70	17.62	H	0.2	-1.4	16.02	50.0	-34.0	
Mid Ch								
819.00	13.01	V	0.2	-1.7	11.11	50.0	-38.9	
819.00	17.66	H	0.2	-1.4	16.09	50.0	-33.9	
High Ch								
823.30	12.70	V	0.2	-1.7	10.78	50.0	-39.2	
823.30	17.83	H	0.2	-1.4	16.29	50.0	-33.7	

9.1.8. LTE Band 26 (FCC PART 22)

15MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 26 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
831.50	13.53	V	0.2	-1.8	11.54	38.5	-27.0	
831.50	19.23	H	0.2	-1.3	17.72	38.5	-20.8	
Mid Ch								
836.50	14.06	V	0.2	-1.8	12.02	38.5	-26.5	
836.50	19.29	H	0.2	-1.3	17.79	38.5	-20.7	
High Ch								
841.50	14.49	V	0.2	-1.9	12.40	38.5	-26.1	
841.50	19.08	H	0.2	-1.3	17.59	38.5	-20.9	

15MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 26 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution 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								
831.50	12.71	V	0.2	-1.8	10.72	38.5	-27.8	
831.50	18.42	H	0.2	-1.3	16.91	38.5	-21.6	
Mid Ch								
836.50	13.37	V	0.2	-1.8	11.33	38.5	-27.2	
836.50	18.54	H	0.2	-1.3	17.04	38.5	-21.5	
High Ch								
841.50	13.66	V	0.2	-1.9	11.57	38.5	-26.9	
841.50	18.25	H	0.2	-1.3	16.76	38.5	-21.7	

10MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 26 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
829.00	13.43	V	0.2	-1.8	11.46	38.5	-27.0	
829.00	19.09	H	0.2	-1.3	17.57	38.5	-20.9	
Mid Ch								
836.50	14.23	V	0.2	-1.8	12.19	38.5	-26.3	
836.50	19.38	H	0.2	-1.3	17.88	38.5	-20.6	
High Ch								
844.00	14.58	V	0.2	-1.9	12.47	38.5	-26.0	
844.00	19.04	H	0.2	-1.3	17.56	38.5	-20.9	

10MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 26 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
829.00	12.52	V	0.2	-1.8	10.55	38.5	-27.9	
829.00	18.17	H	0.2	-1.3	16.65	38.5	-21.9	
Mid Ch								
836.50	13.50	V	0.2	-1.8	11.46	38.5	-27.0	
836.50	18.73	H	0.2	-1.3	17.23	38.5	-21.3	
High Ch								
844.00	13.71	V	0.2	-1.9	11.60	38.5	-26.9	
844.00	18.16	H	0.2	-1.3	16.68	38.5	-21.8	

5MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 26 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.50	13.74	V	0.2	-1.8	11.79	38.5	-26.7	
826.50	19.23	H	0.2	-1.3	17.70	38.5	-20.8	
Mid Ch								
836.50	13.89	V	0.2	-1.8	11.85	38.5	-26.6	
836.50	19.31	H	0.2	-1.3	17.81	38.5	-20.7	
High Ch								
846.50	14.40	V	0.2	-1.9	12.27	38.5	-26.2	
846.50	18.81	H	0.2	-1.3	17.34	38.5	-21.2	

5MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 26 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.50	12.64	V	0.2	-1.8	10.69	38.5	-27.8	
826.50	18.16	H	0.2	-1.3	16.63	38.5	-21.9	
Mid Ch								
836.50	13.07	V	0.2	-1.8	11.03	38.5	-27.5	
836.50	18.67	H	0.2	-1.3	17.17	38.5	-21.3	
High Ch								
846.50	13.32	V	0.2	-1.9	11.19	38.5	-27.3	
846.50	17.96	H	0.2	-1.3	16.49	38.5	-22.0	

3MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 26 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
825.50	13.56	V	0.2	-1.8	11.62	38.5	-26.9	
825.50	18.89	H	0.2	-1.3	17.36	38.5	-21.1	
Mid Ch								
836.50	13.71	V	0.2	-1.8	11.67	38.5	-26.8	
836.50	19.23	H	0.2	-1.3	17.73	38.5	-20.8	
High Ch								
847.50	13.91	V	0.2	-1.9	11.77	38.5	-26.7	
847.50	18.62	H	0.2	-1.3	17.15	38.5	-21.4	

3MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 26 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
825.50	12.72	V	0.2	-1.8	10.78	38.5	-27.7	
825.50	18.06	H	0.2	-1.3	16.53	38.5	-22.0	
Mid Ch								
836.50	13.05	V	0.2	-1.8	11.01	38.5	-27.5	
836.50	18.63	H	0.2	-1.3	17.13	38.5	-21.4	
High Ch								
847.50	13.11	V	0.2	-1.9	10.97	38.5	-27.5	
847.50	17.74	H	0.2	-1.3	16.27	38.5	-22.2	

1.4MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 26 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.70	13.49	V	0.2	-1.7	11.56	38.5	-26.9	
824.70	18.60	H	0.2	-1.4	17.07	38.5	-21.4	
Mid Ch								
836.50	13.47	V	0.2	-1.8	11.43	38.5	-27.1	
836.50	19.02	H	0.2	-1.3	17.62	38.5	-21.0	
High Ch								
848.30	13.63	V	0.2	-1.9	11.48	38.5	-27.0	
848.30	18.32	H	0.2	-1.3	16.85	38.5	-21.6	

1.4MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/8/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 26 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid T900, and Chamber J SMA Cables
Substitution: Dipole T416, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.70	12.65	V	0.2	-1.7	10.72	38.5	-27.8	
824.70	17.77	H	0.2	-1.4	16.24	38.5	-22.3	
Mid Ch								
836.50	12.69	V	0.2	-1.8	10.65	38.5	-27.8	
836.50	18.31	H	0.2	-1.3	16.81	38.5	-21.7	
High Ch								
848.30	13.06	V	0.2	-1.9	10.91	38.5	-27.6	
848.30	17.41	H	0.2	-1.3	15.94	38.5	-22.6	

9.1.9. LTE Band 66

20MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/11/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 66 Fundamentals, 20MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1720.00	13.22	V	0.3	5.5	18.45	30.0	-11.5	
1720.00	16.24	H	0.3	5.5	21.47	30.0	-8.5	
Mid Ch								
1745.00	14.05	V	0.3	5.5	19.25	30.0	-10.8	
1745.00	16.78	H	0.3	5.5	21.98	30.0	-8.0	
High Ch								
1770.00	14.50	V	0.3	5.4	19.59	30.0	-10.4	
1770.00	17.10	H	0.3	5.4	22.19	30.0	-7.8	

20MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/11/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 66 Fundamentals, 20MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1720.00	12.60	V	0.3	5.5	17.83	30.0	-12.2	
1720.00	15.62	H	0.3	5.5	20.85	30.0	-9.1	
Mid Ch								
1745.00	13.48	V	0.3	5.5	18.68	30.0	-11.3	
1745.00	16.21	H	0.3	5.5	21.41	30.0	-8.6	
High Ch								
1770.00	13.91	V	0.3	5.4	19.00	30.0	-11.0	
1770.00	16.50	H	0.3	5.4	21.59	30.0	-8.4	

15MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/11/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 66 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution 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								
1717.50	13.13	V	0.3	5.6	18.40	30.0	-11.6	
1717.50	16.18	H	0.3	5.6	21.45	30.0	-8.5	
Mid Ch								
1745.00	14.01	V	0.3	5.5	19.21	30.0	-10.8	
1745.00	16.73	H	0.3	5.5	21.93	30.0	-8.1	
High Ch								
1772.50	14.44	V	0.3	5.4	19.55	30.0	-10.4	
1772.50	17.06	H	0.3	5.4	22.17	30.0	-7.8	

15MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/11/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 66 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution 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								
1717.50	12.49	V	0.3	5.6	17.76	30.0	-12.2	
1717.50	15.44	H	0.3	5.6	20.71	30.0	-9.3	
Mid Ch								
1745.00	13.40	V	0.3	5.5	18.60	30.0	-11.4	
1745.00	16.11	H	0.3	5.5	21.31	30.0	-8.7	
High Ch								
1772.50	13.81	V	0.3	5.4	18.92	30.0	-11.1	
1772.50	16.41	H	0.3	5.4	21.52	30.0	-8.5	

10MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/11/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 66 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution 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								
1715.00	13.04	V	0.3	5.7	18.40	30.0	-11.6	
1715.00	16.00	H	0.3	5.7	21.36	30.0	-8.6	
Mid Ch								
1745.00	14.03	V	0.3	5.5	19.23	30.0	-10.8	
1745.00	16.74	H	0.3	5.5	21.94	30.0	-8.1	
High Ch								
1775.00	14.33	V	0.3	5.4	19.41	30.0	-10.6	
1775.00	17.22	H	0.3	5.4	22.30	30.0	-7.7	

10MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/11/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 66 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution 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								
1715.00	12.08	V	0.3	5.7	17.44	30.0	-12.6	
1715.00	15.70	H	0.3	5.7	21.06	30.0	-8.9	
Mid Ch								
1745.00	13.57	V	0.3	5.5	18.77	30.0	-11.2	
1745.00	16.27	H	0.3	5.5	21.47	30.0	-8.5	
High Ch								
1775.00	13.59	V	0.3	5.4	18.67	30.0	-11.3	
1775.00	16.44	H	0.3	5.4	21.52	30.0	-8.5	

5MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/11/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 66 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.50	12.93	V	0.3	5.7	18.37	30.0	-11.6	
1712.50	16.06	H	0.3	5.7	21.50	30.0	-8.5	
Mid Ch								
1745.00	14.09	V	0.3	5.5	19.29	30.0	-10.7	
1745.00	16.79	H	0.3	5.5	21.99	30.0	-8.0	
High Ch								
1777.50	14.18	V	0.3	5.3	19.20	30.0	-10.8	
1777.50	17.25	H	0.3	5.3	22.27	30.0	-7.7	

5MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/11/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 66 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.50	12.04	V	0.3	5.7	17.48	30.0	-12.5	
1712.50	15.18	H	0.3	5.7	20.62	30.0	-9.4	
Mid Ch								
1745.00	13.42	V	0.3	5.5	18.62	30.0	-11.4	
1745.00	16.16	H	0.3	5.5	21.36	30.0	-8.6	
High Ch								
1777.50	13.39	V	0.3	5.3	18.41	30.0	-11.6	
1777.50	16.46	H	0.3	5.3	21.48	30.0	-8.5	

3MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/11/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 66 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution 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								
1711.50	12.56	V	0.3	5.7	18.01	30.0	-12.0	
1711.50	15.72	H	0.3	5.7	21.17	30.0	-8.8	
Mid Ch								
1745.00	14.03	V	0.3	5.5	19.23	30.0	-10.8	
1745.00	16.76	H	0.3	5.5	21.96	30.0	-8.0	
High Ch								
1778.50	13.91	V	0.3	5.3	18.90	30.0	-11.1	
1778.50	17.04	H	0.3	5.3	22.03	30.0	-8.0	

3MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/11/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 66 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution 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								
1711.50	11.85	V	0.3	5.7	17.30	30.0	-12.7	
1711.50	15.00	H	0.3	5.7	20.45	30.0	-9.6	
Mid Ch								
1745.00	13.43	V	0.3	5.5	18.63	30.0	-11.4	
1745.00	16.15	H	0.3	5.5	21.35	30.0	-8.7	
High Ch								
1778.50	13.25	V	0.3	5.3	18.24	30.0	-11.8	
1778.50	16.38	H	0.3	5.3	21.37	30.0	-8.6	

1.4MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/11/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_QPSK Band 66 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution 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	12.54	V	0.3	5.7	17.99	30.0	-12.0	
1710.70	15.69	H	0.3	5.7	21.14	30.0	-8.9	
Mid Ch								
1745.00	14.17	V	0.3	5.5	19.37	30.0	-10.6	
1745.00	16.84	H	0.3	5.5	22.04	30.0	-8.0	
High Ch								
1779.30	13.91	V	0.3	5.3	18.87	30.0	-11.1	
1779.30	17.00	H	0.3	5.3	21.96	30.0	-8.0	

1.4Hz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/11/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: LTE_16QAM Band 66 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution 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	12.01	V	0.3	5.7	17.46	30.0	-12.5	
1710.70	15.18	H	0.3	5.7	20.63	30.0	-9.4	
Mid Ch								
1745.00	13.51	V	0.3	5.5	18.71	30.0	-11.3	
1745.00	16.22	H	0.3	5.5	21.42	30.0	-8.6	
High Ch								
1779.30	13.28	V	0.3	5.3	18.24	30.0	-11.8	
1779.30	16.45	H	0.3	5.3	21.41	30.0	-8.6	

9.1.10. 5G NR BAND n66

20MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/22/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: NR_BPSK Band 66 Fundamentals, 20MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1720.00	11.94	V	0.3	5.5	17.17	30.0	-12.8	
1720.00	15.06	H	0.3	5.5	20.29	30.0	-9.7	
Mid Ch								
1745.00	6.95	V	0.3	5.5	12.15	30.0	-17.9	
1745.00	15.12	H	0.3	5.5	20.32	30.0	-9.7	
High Ch								
1770.00	7.25	V	0.3	5.4	12.34	30.0	-17.7	
1770.00	15.99	H	0.3	5.4	21.08	30.0	-8.9	

20MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/22/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: NR_16QAM Band 66 Fundamentals, 20MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1720.00	11.26	V	0.3	5.5	16.49	30.0	-13.5	
1720.00	14.38	H	0.3	5.5	19.61	30.0	-10.4	
Mid Ch								
1745.00	9.50	V	0.3	5.5	14.70	30.0	-15.3	
1745.00	13.86	H	0.3	5.5	19.06	30.0	-10.9	
High Ch								
1770.00	6.70	V	0.3	5.4	11.79	30.0	-18.2	
1770.00	15.70	H	0.3	5.4	20.79	30.0	-9.2	

15MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/22/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: NR_BPSK Band 66 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution 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								
1717.50	7.05	V	0.3	5.6	12.32	30.0	-17.7	
1717.50	16.02	H	0.3	5.6	21.29	30.0	-8.7	
Mid Ch								
1745.00	5.93	V	0.3	5.5	11.13	30.0	-18.9	
1745.00	14.82	H	0.3	5.5	20.02	30.0	-10.0	
High Ch								
1772.50	5.70	V	0.3	5.4	10.81	30.0	-19.2	
1772.50	16.02	H	0.3	5.4	21.13	30.0	-8.9	

15MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/22/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: NR_16QAM Band 66 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution 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								
1717.50	6.48	V	0.3	5.6	11.75	30.0	-18.2	
1717.50	15.36	H	0.3	5.6	20.63	30.0	-9.4	
Mid Ch								
1745.00	5.15	V	0.3	5.5	10.35	30.0	-19.7	
1745.00	14.08	H	0.3	5.5	19.28	30.0	-10.7	
High Ch								
1772.50	4.55	V	0.3	5.4	9.66	30.0	-20.3	
1772.50	15.28	H	0.3	5.4	20.39	30.0	-9.6	

10MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/22/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: NR_BPSK Band 66 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution 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								
1715.00	12.53	V	0.3	5.7	17.89	30.0	-12.1	
1715.00	15.04	H	0.3	5.7	20.40	30.0	-9.6	
Mid Ch								
1745.00	10.29	V	0.3	5.5	15.49	30.0	-14.5	
1745.00	15.14	H	0.3	5.5	20.34	30.0	-9.7	
High Ch								
1775.00	13.52	V	0.3	5.4	18.60	30.0	-11.4	
1775.00	16.20	H	0.3	5.4	21.28	30.0	-8.7	

10MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/22/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: NR_16QAM Band 66 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution 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								
1715.00	11.83	V	0.3	5.7	17.19	30.0	-12.8	
1715.00	14.32	H	0.3	5.7	19.68	30.0	-10.3	
Mid Ch								
1745.00	9.67	V	0.3	5.5	14.87	30.0	-15.1	
1745.00	14.59	H	0.3	5.5	19.79	30.0	-10.2	
High Ch								
1775.00	12.65	V	0.3	5.4	17.73	30.0	-12.3	
1775.00	15.50	H	0.3	5.4	20.58	30.0	-9.4	

5MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/22/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: NR_BPSK Band 66 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.50	7.03	V	0.3	5.7	12.47	30.0	-17.5	
1712.50	16.28	H	0.3	5.7	21.72	30.0	-8.3	
Mid Ch								
1745.00	13.07	V	0.3	5.5	18.27	30.0	-11.7	
1745.00	15.30	H	0.3	5.5	20.50	30.0	-9.5	
High Ch								
1777.50	13.32	V	0.3	5.3	18.34	30.0	-11.7	
1777.50	16.24	H	0.3	5.3	21.26	30.0	-8.7	

5MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 13583138
Date: 12/22/2020
Test Engineer: 19480
Configuration: EUT Only
Location: Chamber J
Mode: NR_16QAM Band 66 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Horn T963, and Chamber J SMA Cables
Substitution: T346, Substitution Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.50	6.29	V	0.3	5.7	11.73	30.0	-18.3	
1712.50	15.59	H	0.3	5.7	21.03	30.0	-9.0	
Mid Ch								
1745.00	12.47	V	0.3	5.5	17.67	30.0	-12.3	
1745.00	14.73	H	0.3	5.5	19.93	30.0	-10.1	
High Ch								
1777.50	12.02	V	0.3	5.3	17.04	30.0	-13.0	
1777.50	14.88	H	0.3	5.3	19.90	30.0	-10.1	

9.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)
FCC: §2.1053, §22.917, §24.238, §27.53, §90.691
ISED: RSS130§4.7, RSS132§5.5; RSS133§6.5, RSS139§6.6

LIMITS
FCC: §22.917(a), §24.238(a), §27.53 (g), (h), §90.691
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.

RSS130§4.7
4.7.1 General unwanted emissions limits
The unwanted emissions in any 100 kHz bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (dBW), by at least 43 + 10 $\log_{10}$ p (watts), dB. However, in the 100 kHz band immediately outside of the equipment's frequency block range, a resolution bandwidth of 30 kHz may be employed.

4.7.2 Additional unwanted emissions limits
In addition to the limit outlined in section 4.7.1 above, equipment operating in the frequency bands 746-756 MHz and 777-787 MHz shall also comply with the following restrictions:

(a) the power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least:
    i. 76 + 10 $\log_{10}$ p (watts), dB, for base and fixed equipment and
    ii. 65 + 10 $\log_{10}$ p (watts), dB, for mobile and portable equipment
(b) the e.i.r.p. in the band 1559-1610 MHz shall not exceed −70 dBW/MHz for wideband signal and −80 dBW for discrete emission with bandwidth less than 700 Hz.

RSS132§5.5

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

(iii) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p (watts).
(iv) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least43 + 10 log10 p (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

RSS133§6.5

Equipment shall comply with the limits in (i) and (ii) below.

(iii) In the 1.0 MHz bands immediately outside and adjacent to the equipment’s operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p(watts).
(iv) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p(watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

RSS139§6.6

(iii) (i)In the first 1.0 MHz bands immediately outside and adjacent to the equipment’s smallest operating frequency block,Footnote2 which can contain the equipment’s occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least43 + 10 log10 p (watts) dB.

(iv) (ii)After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 log10 p (watts) dB.

TEST PROCEDURE

KDB 971168 D01 v03r01/D02 v02/r01

All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz.

RESULTS

No spurious emissions were detected above system noise floor from 18-26GHz.

9.2.1. GSM 850

GPRS MODE

Company:	Samsung
Project #:	13583138
Date:	01/19/2021
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	GPRS 850
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T963 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	824.2 MHz											
1	1.64813	71.87	Pk	25.1	-35.6	-95.2	-33.83	-13	-20.83	0-360	150	H
2	2.47209	75.51	Pk	29.5	-35.3	-95.2	-25.49	-13	-12.49	0-360	150	H
3	3.29606	68.42	Pk	31.5	-34.2	-95.2	-29.48	-13	-16.48	0-360	150	H
4	1.64813	71.44	Pk	25.1	-35.6	-95.2	-34.26	-13	-21.26	0-360	150	V
5	2.47209	73.98	Pk	29.5	-35.3	-95.2	-27.02	-13	-14.02	0-360	150	V
6	3.29606	63.84	Pk	31.5	-34.2	-95.2	-34.06	-13	-21.06	0-360	150	V
	836.6 MHz											
1	1.67256	74.79	Pk	25.2	-35.6	-95.2	-30.81	-13	-17.81	0-360	150	H
2	2.50981	75.55	Pk	29.6	-35.2	-95.2	-25.25	-13	-12.25	0-360	150	H
3	3.346	67.82	Pk	31.2	-34.1	-95.2	-30.28	-13	-17.28	0-360	150	H
4	1.67256	72.05	Pk	25.2	-35.6	-95.2	-33.55	-13	-20.55	0-360	150	V
5	2.50981	73.79	Pk	29.6	-35.2	-95.2	-27.01	-13	-14.01	0-360	150	V
6	3.34653	63.24	Pk	31.2	-34.1	-95.2	-34.86	-13	-21.86	0-360	150	V
	848.8 MHz											
1	1.69753	75.98	Pk	25.2	-35.6	-95.2	-29.62	-13	-16.62	0-360	150	H
2	2.54647	76.28	Pk	29.8	-35	-95.2	-24.12	-13	-11.12	0-360	150	H
3	3.39488	69.16	Pk	31	-34.1	-95.2	-29.14	-13	-16.14	0-360	150	H
4	1.69753	76.56	Pk	25.2	-35.6	-95.2	-29.04	-13	-16.04	0-360	150	V
5	2.54647	73.95	Pk	29.8	-35	-95.2	-26.45	-13	-13.45	0-360	150	V
6	3.39488	65.08	Pk	31	-34.1	-95.2	-33.22	-13	-20.22	0-360	150	V

EGPRS MODE

Company:	Samsung
Project #:	13583138
Date:	01/19/2021
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	EGPRS 850
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T963 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	824.2 MHz											
1	1.64813	57.34	Pk	25.1	-35.6	-95.2	-48.36	-13	-35.36	0-360	150	H
2	2.47209	65.88	Pk	29.5	-35.3	-95.2	-35.12	-13	-22.12	0-360	150	H
3	3.29659	56.08	Pk	31.5	-34.2	-95.2	-41.82	-13	-28.82	0-360	150	H
4	1.64813	61.4	Pk	25.1	-35.6	-95.2	-44.3	-13	-31.3	0-360	150	V
5	2.47209	63.86	Pk	29.5	-35.3	-95.2	-37.14	-13	-24.14	0-360	150	V
6	3.29606	63.49	Pk	31.5	-34.2	-95.2	-34.41	-13	-21.41	0-360	150	V
	836.6 MHz											
1	1.67309	57.3	Pk	25.2	-35.6	-95.2	-48.3	-13	-35.3	0-360	150	H
2	2.50981	66.7	Pk	29.6	-35.2	-95.2	-34.1	-13	-21.1	0-360	150	H
3	3.346	60.21	Pk	31.2	-34.1	-95.2	-37.89	-13	-24.89	0-360	150	H
4	1.67256	61.33	Pk	25.2	-35.6	-95.2	-44.27	-13	-31.27	0-360	150	V
5	2.50928	68.9	Pk	29.6	-35.2	-95.2	-31.9	-13	-18.9	0-360	150	V
6	3.34653	55.19	Pk	31.2	-34.1	-95.2	-42.91	-13	-29.91	0-360	150	V
	848.8 MHz											
1	1.69753	64.8	Pk	25.2	-35.6	-95.2	-40.8	-13	-27.8	0-360	150	H
2	2.54594	69.33	Pk	29.8	-35	-95.2	-31.07	-13	-18.07	0-360	150	H
3	3.39488	59.15	Pk	31	-34.1	-95.2	-39.15	-13	-26.15	0-360	150	H
4	1.697	71.31	Pk	25.2	-35.6	-95.2	-34.29	-13	-21.29	0-360	150	V
5	2.54594	65.71	Pk	29.8	-35	-95.2	-34.69	-13	-21.69	0-360	150	V
6	3.39488	53.66	Pk	31	-34.1	-95.2	-44.64	-13	-31.64	0-360	150	V

9.2.2. GSM 1900

GPRS MODE

Company:	Samsung
Project #:	13583138
Date:	01/21/2021
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	GPRS 1900
Chamber #:	Chamber K

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T863 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	1850.2 MHz											
1	3.70034	73.18	Pk	33.6	-42.4	-95.2	-30.82	-13	-17.82	0-360	150	H
2	5.55069	59.52	Pk	35.6	-40.5	-95.2	-40.58	-13	-27.58	0-360	150	H
3	7.4005	59.14	Pk	36.1	-38.3	-95.2	-38.26	-13	-25.26	0-360	150	H
4	3.70034	70.86	Pk	33.6	-42.4	-95.2	-33.14	-13	-20.14	0-360	150	V
5	5.55069	58.06	Pk	35.6	-40.5	-95.2	-42.04	-13	-29.04	0-360	150	V
6	7.40103	59.92	Pk	36.1	-38.3	-95.2	-37.48	-13	-24.48	0-360	150	V
	1880 MHz											
1	3.75984	75.09	Pk	33.6	-42.3	-95.2	-28.81	-13	-15.81	0-360	150	H
2	5.63994	61.27	Pk	35.3	-40.5	-95.2	-39.13	-13	-26.13	0-360	150	H
3	7.52003	62.24	Pk	36	-38.2	-95.2	-35.16	-13	-22.16	0-360	150	H
4	3.75984	73.53	Pk	33.6	-42.3	-95.2	-30.37	-13	-17.37	0-360	150	V
5	5.63994	56.6	Pk	35.3	-40.5	-95.2	-43.8	-13	-30.8	0-360	150	V
6	7.5195	64.77	Pk	36	-38.2	-95.2	-32.63	-13	-19.63	0-360	150	V
	1909.8 MHz											
1	3.81934	63.41	Pk	33.5	-42.1	-95.2	-40.39	-13	-27.39	0-360	150	H
2	5.72919	53.58	Pk	35.1	-40.3	-95.2	-46.82	-13	-33.82	0-360	150	H
3	7.63956	64.86	Pk	36.1	-38.5	-95.2	-32.74	-13	-19.74	0-360	150	H
4	3.81934	60.19	Pk	33.5	-42.1	-95.2	-43.61	-13	-30.61	0-360	150	V
5	5.72919	52.53	Pk	35.1	-40.3	-95.2	-47.87	-13	-34.87	0-360	150	V
6	7.63956	66.62	Pk	36.1	-38.5	-95.2	-30.98	-13	-17.98	0-360	150	V

EGPRS MODE

Company:	Samsung
Project #:	13583138
Date:	01/21/2021
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	EGPRS 1900
Chamber #:	Chamber K

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T863 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	1850.2 MHz											
1	3.70034	68.42	Pk	33.6	-42.4	-95.2	-35.58	-13	-22.58	0-360	150	H
2	5.55069	61.02	Pk	35.6	-40.5	-95.2	-39.08	-13	-26.08	0-360	150	H
3	7.40103	51.21	Pk	36.1	-38.3	-95.2	-46.19	-13	-33.19	0-360	150	H
4	3.70034	68.5	Pk	33.6	-42.4	-95.2	-35.5	-13	-22.5	0-360	150	V
5	5.55016	51.01	Pk	35.6	-40.5	-95.2	-49.09	-13	-36.09	0-360	150	V
6	7.59175	47.19	Pk	36.1	-38.5	-95.2	-50.41	-13	-37.41	0-360	150	V
	1880 MHz											
1	3.75984	70.39	Pk	33.6	-42.3	-95.2	-33.51	-13	-20.51	0-360	150	H
2	5.63941	59.5	Pk	35.3	-40.5	-95.2	-40.9	-13	-27.9	0-360	150	H
3	7.52003	61.26	Pk	36	-38.2	-95.2	-36.14	-13	-23.14	0-360	150	H
4	3.75984	65.62	Pk	33.6	-42.3	-95.2	-38.28	-13	-25.28	0-360	150	V
5	5.63994	51.86	Pk	35.3	-40.5	-95.2	-48.54	-13	-35.54	0-360	150	V
6	7.52003	61.41	Pk	36	-38.2	-95.2	-35.99	-13	-22.99	0-360	150	V
	1909.8 MHz											
1	3.81934	62.52	Pk	33.5	-42.1	-95.2	-41.28	-13	-28.28	0-360	150	H
2	5.72919	48.63	Pk	35.1	-40.3	-95.2	-51.77	-13	-38.77	0-360	150	H
3	7.63903	62.48	Pk	36.1	-38.5	-95.2	-35.12	-13	-22.12	0-360	150	H
4	3.81934	59.53	Pk	33.5	-42.1	-95.2	-44.27	-13	-31.27	0-360	150	V
5	5.72919	49.31	Pk	35.1	-40.3	-95.2	-51.09	-13	-38.09	0-360	150	V
6	7.63903	58.42	Pk	36.1	-38.5	-95.2	-39.18	-13	-26.18	0-360	150	V

9.2.3. WCDMA BAND 5

REL 99 MODE

Company:	Samsung
Project #:	13583138
Date:	01/21/2021
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	REL 99 Band 5
Chamber #:	Chamber K

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T863 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	826.4 MHz											
1	1.65503	65.14	Pk	29	-46.6	-95.2	-47.66	-13	-34.66	0-360	150	H
2	2.47634	58.58	Pk	32.4	-44.8	-95.2	-49.02	-13	-36.02	0-360	150	H
3	3.30669	51.17	Pk	32.8	-42.7	-95.2	-53.93	-13	-40.93	0-360	150	H
4	1.65503	62.84	Pk	29	-46.6	-95.2	-49.96	-13	-36.96	0-360	150	V
5	2.48113	57.93	Pk	32.5	-44.9	-95.2	-49.67	-13	-36.67	0-360	150	V
6	3.31625	50.07	Pk	32.9	-42.7	-95.2	-54.93	-13	-41.93	0-360	150	V
	836.6 MHz											
1	1.67044	60.02	Pk	28.9	-46.6	-95.2	-52.88	-13	-39.88	0-360	150	H
2	2.50663	59.83	Pk	32.6	-44.7	-95.2	-47.47	-13	-34.47	0-360	150	H
3	3.346	51.32	Pk	32.9	-42.7	-95.2	-53.68	-13	-40.68	0-360	150	H
4	1.67097	60.64	Pk	28.9	-46.6	-95.2	-52.26	-13	-39.26	0-360	150	V
5	2.51247	59.36	Pk	32.7	-44.6	-95.2	-47.74	-13	-34.74	0-360	150	V
6	3.34494	50.34	Pk	32.9	-42.7	-95.2	-54.66	-13	-41.66	0-360	150	V
	846.6 MHz											
1	1.69063	67.55	Pk	29	-46.6	-95.2	-45.25	-13	-32.25	0-360	150	H
2	2.54222	59.5	Pk	32.7	-44.5	-95.2	-47.5	-13	-34.5	0-360	150	H
3	3.36619	50.07	Pk	33	-42.8	-95.2	-54.93	-13	-41.93	0-360	150	H
4	1.69063	64.42	Pk	29	-46.6	-95.2	-48.38	-13	-35.38	0-360	150	V
5	2.53744	60.18	Pk	32.7	-44.6	-95.2	-46.92	-13	-33.92	0-360	150	V
6	3.38584	49.75	Pk	32.9	-42.7	-95.2	-55.25	-13	-42.25	0-360	150	V

HSDPA MODE

Company:	Samsung
Project #:	13583138
Date:	01/21/2021
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	HSDPA Band 5
Chamber #:	Chamber K

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T863 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	826.4 MHz											
1	1.65397	61.8	Pk	29	-46.6	-95.2	-51	-13	-38	0-360	150	H
2	2.47634	56.07	Pk	32.4	-44.8	-95.2	-51.53	-13	-38.53	0-360	150	H
3	3.329	49.55	Pk	32.9	-42.7	-95.2	-55.45	-13	-42.45	0-360	150	H
4	1.6545	60.87	Pk	29	-46.6	-95.2	-51.93	-13	-38.93	0-360	150	V
5	2.48166	56.06	Pk	32.5	-44.8	-95.2	-51.44	-13	-38.44	0-360	150	V
6	3.32847	49.58	Pk	32.9	-42.7	-95.2	-55.42	-13	-42.42	0-360	150	V
	836.6 MHz											
1	1.67363	58.84	Pk	28.9	-46.6	-95.2	-54.06	-13	-41.06	0-360	150	H
2	2.51247	57.93	Pk	32.7	-44.6	-95.2	-49.17	-13	-36.17	0-360	150	H
3	3.33166	50.71	Pk	32.9	-42.7	-95.2	-54.29	-13	-41.29	0-360	150	H
4	1.67097	59.99	Pk	28.9	-46.6	-95.2	-52.91	-13	-39.91	0-360	150	V
5	2.51247	58.6	Pk	32.7	-44.6	-95.2	-48.5	-13	-35.5	0-360	150	V
6	3.34972	50.11	Pk	33	-42.7	-95.2	-54.79	-13	-41.79	0-360	150	V
	846.6 MHz											
1	1.69116	65.28	Pk	29	-46.6	-95.2	-47.52	-13	-34.52	0-360	150	H
2	2.54222	58.6	Pk	32.7	-44.5	-95.2	-48.4	-13	-35.4	0-360	150	H
3	3.39116	49.64	Pk	32.9	-42.7	-95.2	-55.36	-13	-42.36	0-360	150	H
4	1.69488	63.59	Pk	29	-46.7	-95.2	-49.31	-13	-36.31	0-360	150	V
5	2.54063	58.11	Pk	32.7	-44.6	-95.2	-48.99	-13	-35.99	0-360	150	V
6	3.35291	50.03	Pk	33	-42.7	-95.2	-54.87	-13	-41.87	0-360	150	V

9.2.4. WCDMA BAND 2

REL 99 MODE

Company:	Samsung
Project #:	13583138
Date:	01/19/2021
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	REL 99 Band 2
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T963 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	1852.4 MHz											
1	3.70725	54.28	Pk	30.5	-33.1	-95.2	-43.52	-13	-30.52	0-360	150	H
2	5.55388	37.52	Pk	33.4	-30.1	-95.2	-54.38	-13	-41.38	0-360	150	H
3	7.40528	41.81	Pk	37.1	-27.3	-95.2	-43.59	-13	-30.59	0-360	150	H
4	3.70619	52.72	Pk	30.5	-33.1	-95.2	-45.08	-13	-32.08	0-360	150	V
5	5.55919	38.26	Pk	33.4	-30.1	-95.2	-53.64	-13	-40.64	0-360	150	V
6	7.41272	36.59	Pk	37.1	-27.3	-95.2	-48.81	-13	-35.81	0-360	150	V
	1880 MHz											
1	3.75825	55.06	Pk	30.7	-33	-95.2	-42.44	-13	-29.44	0-360	150	H
2	5.63888	37.22	Pk	33.4	-30.2	-95.2	-54.78	-13	-41.78	0-360	150	H
3	7.52269	38.05	Pk	37	-27.3	-95.2	-47.45	-13	-34.45	0-360	150	H
4	3.76144	52.4	Pk	30.7	-32.9	-95.2	-45	-13	-32	0-360	150	V
5	5.64313	37.66	Pk	33.5	-30.1	-95.2	-54.14	-13	-41.14	0-360	150	V
6	7.51738	37	Pk	37	-27.3	-95.2	-48.5	-13	-35.5	0-360	150	V
	1907.6 MHz											
1	3.8135	42.99	Pk	31.1	-32.7	-95.2	-53.81	-13	-40.81	0-360	150	H
2	5.71644	36.62	Pk	33.4	-29.9	-95.2	-55.08	-13	-42.08	0-360	150	H
3	7.62522	40.64	Pk	37.2	-27.1	-95.2	-44.46	-13	-31.46	0-360	150	H
4	3.81722	42.58	Pk	31	-32.7	-95.2	-54.32	-13	-41.32	0-360	150	V
5	5.72547	37.78	Pk	33.4	-29.9	-95.2	-53.92	-13	-40.92	0-360	150	V
6	7.63478	42.6	Pk	37.1	-27	-95.2	-42.5	-13	-29.5	0-360	150	V

HSDPA MODE

Company:	Samsung
Project #:	13583138
Date:	01/19/2021
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	HSDPA Band 2
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T963 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	1852.4 MHz											
1	3.70247	51.83	Pk	30.4	-33.2	-95.2	-46.17	-13	-33.17	0-360	150	H
2	5.55494	38.37	Pk	33.4	-30.1	-95.2	-53.53	-13	-40.53	0-360	150	H
3	7.41378	40.26	Pk	37.1	-27.3	-95.2	-45.14	-13	-32.14	0-360	150	H
4	3.70672	50.85	Pk	30.5	-33.1	-95.2	-46.95	-13	-33.95	0-360	150	V
5	5.55972	37.82	Pk	33.4	-30.1	-95.2	-54.08	-13	-41.08	0-360	150	V
6	7.41378	35.41	Pk	37.1	-27.3	-95.2	-49.99	-13	-36.99	0-360	150	V
	1880 MHz											
1	3.75772	52.75	Pk	30.7	-33	-95.2	-44.75	-13	-31.75	0-360	150	H
2	5.64259	37.37	Pk	33.5	-30.1	-95.2	-54.43	-13	-41.43	0-360	150	H
3	7.52375	37.91	Pk	37.1	-27.3	-95.2	-47.49	-13	-34.49	0-360	150	H
4	3.76197	50.55	Pk	30.8	-32.9	-95.2	-46.75	-13	-33.75	0-360	150	V
5	5.64259	37.28	Pk	33.5	-30.1	-95.2	-54.52	-13	-41.52	0-360	150	V
6	7.51578	36.59	Pk	37	-27.4	-95.2	-49.01	-13	-36.01	0-360	150	V
	1907.6 MHz											
1	3.8127	42.35	Pk	31.1	-32.7	-95.2	-54.45	-13	-41.45	0-360	150	H
2	5.71963	37.15	Pk	33.4	-29.9	-95.2	-54.55	-13	-41.55	0-360	150	H
3	7.63425	39.93	Pk	37.1	-27	-95.2	-45.17	-13	-32.17	0-360	150	H
4	3.81244	41.69	Pk	31	-32.7	-95.2	-55.21	-13	-42.21	0-360	150	V
5	5.71963	38.35	Pk	33.4	-29.9	-95.2	-53.35	-13	-40.35	0-360	150	V
6	7.62628	42.31	Pk	37.2	-27.1	-95.2	-42.79	-13	-29.79	0-360	150	V

9.2.5. WCDMA BAND 4

REL 99 MODE

Company:	Samsung
Project #:	13583138
Date:	01/21/2021
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	REL 99 Band 4
Chamber #:	Chamber K

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T863 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	1712.4 MHz											
1	3.4225	42.13	Pk	30.7	-34.1	-95.2	-56.47	-13	-43.47	0-360	150	H
2	5.14481	37.63	Pk	34.1	-30.8	-95.2	-54.27	-13	-41.27	0-360	150	H
3	6.85013	37.03	Pk	36.4	-27.7	-95.2	-49.47	-13	-36.47	0-360	150	H
4	3.4225	40.22	Pk	30.7	-34.1	-95.2	-58.38	-13	-45.38	0-360	150	V
5	5.13631	37.24	Pk	34.2	-30.8	-95.2	-54.56	-13	-41.56	0-360	150	V
6	6.84481	38.49	Pk	36.4	-27.8	-95.2	-48.11	-13	-35.11	0-360	150	V
	1732.6 MHz											
1	3.46659	42.11	Pk	30.5	-33.8	-95.2	-56.39	-13	-43.39	0-360	150	H
2	5.19475	37.27	Pk	34.1	-30.8	-95.2	-54.63	-13	-41.63	0-360	150	H
3	6.92769	37.45	Pk	36.5	-27.7	-95.2	-48.95	-13	-35.95	0-360	150	H
4	3.46288	39.33	Pk	30.4	-33.9	-95.2	-59.37	-13	-46.37	0-360	150	V
5	5.20538	38.55	Pk	34.1	-30.7	-95.2	-53.25	-13	-40.25	0-360	150	V
6	6.93034	38	Pk	36.5	-27.7	-95.2	-48.4	-13	-35.4	0-360	150	V
	1752.6 MHz											
1	3.50272	51.89	Pk	30.3	-33.7	-95.2	-46.71	-13	-33.71	0-360	150	H
2	5.25478	37.5	Pk	33.9	-30.8	-95.2	-54.6	-13	-41.6	0-360	150	H
3	7.00525	35.99	Pk	36.7	-27.5	-95.2	-50.01	-13	-37.01	0-360	150	H
4	3.50272	45.89	Pk	30.3	-33.7	-95.2	-52.71	-13	-39.71	0-360	150	V
5	5.25691	37.37	Pk	33.9	-30.8	-95.2	-54.73	-13	-41.73	0-360	150	V
6	7.01481	37.63	Pk	36.6	-27.5	-95.2	-48.47	-13	-35.47	0-360	150	V

HSDPA MODE

Company:	Samsung
Project #:	13583138
Date:	01/21/2021
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	HSDPA Band 4
Chamber #:	Chamber K

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T863 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	1712.4 MHz											
1	3.42303	57.42	Pk	32.8	-42.7	-95.2	-47.68	-13	-34.68	0-360	150	H
2	5.1395	53.85	Pk	34.6	-41	-95.2	-47.75	-13	-34.75	0-360	150	H
3	6.85438	49.7	Pk	36	-38.6	-95.2	-48.1	-13	-35.1	0-360	150	H
4	3.42675	56.75	Pk	32.9	-42.7	-95.2	-48.25	-13	-35.25	0-360	150	V
5	5.14056	51.48	Pk	34.6	-41	-95.2	-50.12	-13	-37.12	0-360	150	V
6	6.85384	52.19	Pk	36	-38.6	-95.2	-45.61	-13	-32.61	0-360	150	V
	1732.6 MHz											
1	3.46341	60.42	Pk	32.8	-42.6	-95.2	-44.58	-13	-31.58	0-360	150	H
2	5.19475	57.46	Pk	34.6	-41	-95.2	-44.14	-13	-31.14	0-360	150	H
3	6.92928	50.55	Pk	36	-38.5	-95.2	-47.15	-13	-34.15	0-360	150	H
4	3.46713	61.64	Pk	32.8	-42.5	-95.2	-43.26	-13	-30.26	0-360	150	V
5	5.20059	56.99	Pk	34.6	-40.9	-95.2	-44.51	-13	-31.51	0-360	150	V
6	6.92503	53.48	Pk	36	-38.4	-95.2	-44.12	-13	-31.12	0-360	150	V
	1752.6 MHz											
1	3.50325	67.68	Pk	32.9	-42.7	-95.2	-37.32	-13	-24.32	0-360	150	H
2	5.25531	61.67	Pk	34.8	-40.9	-95.2	-39.63	-13	-26.63	0-360	150	H
3	7.01534	49.1	Pk	36	-39	-95.2	-49.1	-13	-36.1	0-360	150	H
4	3.5075	67.39	Pk	32.9	-42.7	-95.2	-37.61	-13	-24.61	0-360	150	V
5	5.25478	59.74	Pk	34.8	-40.9	-95.2	-41.56	-13	-28.56	0-360	150	V
6	7.01428	52.59	Pk	36	-39	-95.2	-45.61	-13	-32.61	0-360	150	V

9.2.6. LTE BAND 2

LIMITS

FCC: §24.238(a)

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.

RSS133§6.5

Equipment shall comply with the limits in (i) and (ii) below.

(i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p(watts).

(ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p(watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

QPSK LTE BAND 2 (20.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13583138
Date:	12/14/2020
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	LTE 2 QPSK 20MHz
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T963 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	1860 MHz											
1	3.70194	49.32	Pk	30.4	-33.2	-95.2	-48.68	-13	-35.68	0-360	150	H
2	5.55281	38.1	Pk	33.4	-30.1	-95.2	-53.8	-13	-40.8	0-360	150	H
3	7.40422	47.68	Pk	37.1	-27.3	-95.2	-37.72	-13	-24.72	0-360	150	H
4	3.70194	46.88	Pk	30.4	-33.2	-95.2	-51.12	-13	-38.12	0-360	150	V
5	5.55334	39.63	Pk	33.4	-30.1	-95.2	-52.27	-13	-39.27	0-360	150	V
6	7.40422	47.09	Pk	37.1	-27.3	-95.2	-38.31	-13	-25.31	0-360	150	V
	1880 MHz											
1	3.74178	52.02	Pk	30.6	-33	-95.2	-45.58	-13	-32.58	0-360	150	H
2	5.61709	36.95	Pk	33.4	-30.1	-95.2	-54.95	-13	-41.95	0-360	150	H
3	7.48444	43.43	Pk	37	-27.3	-95.2	-42.07	-13	-29.07	0-360	150	H
4	3.74231	42.34	Pk	30.6	-33	-95.2	-55.26	-13	-42.26	0-360	150	V
5	5.61338	37.33	Pk	33.5	-30.1	-95.2	-54.47	-13	-41.47	0-360	150	V
6	7.48444	45.88	Pk	37	-27.3	-95.2	-39.62	-13	-26.62	0-360	150	V
	1900 MHz											
1	3.78216	48.47	Pk	30.9	-32.8	-95.2	-48.63	-13	-35.63	0-360	150	H
2	5.67288	39.99	Pk	33.4	-30	-95.2	-51.81	-13	-38.81	0-360	150	H
3	7.56413	48.15	Pk	37.1	-27.3	-95.2	-37.25	-13	-24.25	0-360	150	H
4	3.78163	46.7	Pk	30.9	-32.8	-95.2	-50.4	-13	-37.4	0-360	150	V
5	5.67288	39.43	Pk	33.4	-30	-95.2	-52.37	-13	-39.37	0-360	150	V
6	7.56413	43.72	Pk	37.1	-27.3	-95.2	-41.68	-13	-28.68	0-360	150	V

16QAM LTE BAND 2 (20.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13583138
Date:	12/14/2020
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	LTE 2 16QAM 20MHz
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T963 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	1860 MHz											
1	3.70194	50.52	Pk	30.4	-33.2	-95.2	-47.48	-13	-34.48	0-360	150	H
2	5.55334	38.02	Pk	33.4	-30.1	-95.2	-53.88	-13	-40.88	0-360	150	H
3	7.40422	50.07	Pk	37.1	-27.3	-95.2	-35.33	-13	-22.33	0-360	150	H
4	3.70194	45.28	Pk	30.4	-33.2	-95.2	-52.72	-13	-39.72	0-360	150	V
5	5.55334	39.69	Pk	33.4	-30.1	-95.2	-52.21	-13	-39.21	0-360	150	V
6	7.40422	47.32	Pk	37.1	-27.3	-95.2	-38.08	-13	-25.08	0-360	150	V
	1880 MHz											
1	3.74178	49.32	Pk	30.6	-33	-95.2	-48.28	-13	-35.28	0-360	150	H
2	5.61338	38.43	Pk	33.5	-30.1	-95.2	-53.37	-13	-40.37	0-360	150	H
3	7.48391	44.94	Pk	37	-27.3	-95.2	-40.56	-13	-27.56	0-360	150	H
4	3.74178	47.43	Pk	30.6	-33	-95.2	-50.17	-13	-37.17	0-360	150	V
5	5.61284	39.47	Pk	33.5	-30.1	-95.2	-52.33	-13	-39.33	0-360	150	V
6	7.48444	40.61	Pk	37	-27.3	-95.2	-44.89	-13	-31.89	0-360	150	V
	1900 MHz											
1	3.78216	50.19	Pk	30.9	-32.8	-95.2	-46.91	-13	-33.91	0-360	150	H
2	5.67288	36.74	Pk	33.4	-30	-95.2	-55.06	-13	-42.06	0-360	150	H
3	7.56413	46.19	Pk	37.1	-27.3	-95.2	-39.21	-13	-26.21	0-360	150	H
4	3.78163	48.75	Pk	30.9	-32.8	-95.2	-48.35	-13	-35.35	0-360	150	V
5	5.67288	39.01	Pk	33.4	-30	-95.2	-52.79	-13	-39.79	0-360	150	V
6	7.56413	46.62	Pk	37.1	-27.3	-95.2	-38.78	-13	-25.78	0-360	150	V

9.2.7. LTE BAND 5 AND 5G NR BAND n5

LIMITS

FCC: §22.917(a)
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.

RSS132§5.5

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

(i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p (watts).

(ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least43 + 10 log10 p (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

QPSK LTE BAND 5 (10.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13583138
Date:	01/19/2021
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	LTE 5 QPSK 10MHz
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T963 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	829 MHz											
1	1.64866	56.96	Pk	25.1	-35.6	-95.2	-48.74	-13	-35.74	0-360	150	H
2	2.47369	56.67	Pk	29.5	-35.2	-95.2	-44.23	-13	-31.23	0-360	150	H
3	3.29819	45.28	Pk	31.5	-34.2	-95.2	-52.62	-13	-39.62	0-360	150	H
4	1.64919	57.42	Pk	25.1	-35.6	-95.2	-48.28	-13	-35.28	0-360	150	V
5	2.47369	54.26	Pk	29.5	-35.2	-95.2	-46.64	-13	-33.64	0-360	150	V
6	3.29819	42.36	Pk	31.5	-34.2	-95.2	-55.54	-13	-42.54	0-360	150	V
	836.5 MHz											
1	1.66406	58.05	Pk	25.2	-35.6	-95.2	-47.55	-13	-34.55	0-360	150	H
2	2.496	62.34	Pk	29.6	-35.2	-95.2	-38.46	-13	-25.46	0-360	150	H
3	3.32794	48.42	Pk	31.3	-34.2	-95.2	-49.68	-13	-36.68	0-360	150	H
4	1.66406	59.32	Pk	25.2	-35.6	-95.2	-46.28	-13	-33.28	0-360	150	V
5	2.496	58.74	Pk	29.6	-35.2	-95.2	-42.06	-13	-29.06	0-360	150	V
6	3.32847	43.57	Pk	31.3	-34.2	-95.2	-54.53	-13	-41.53	0-360	150	V
	844 MHz											
1	1.67894	58.08	Pk	25.1	-35.6	-95.2	-47.62	-13	-34.62	0-360	150	H
2	2.51831	61.04	Pk	29.8	-35.2	-95.2	-39.56	-13	-26.56	0-360	150	H
3	3.35822	43.24	Pk	31.2	-34.1	-95.2	-54.86	-13	-41.86	0-360	150	H
4	1.67894	59.96	Pk	25.1	-35.6	-95.2	-45.74	-13	-32.74	0-360	150	V
5	2.51831	57.43	Pk	29.8	-35.2	-95.2	-43.17	-13	-30.17	0-360	150	V
6	3.35822	42.72	Pk	31.2	-34.1	-95.2	-55.38	-13	-42.38	0-360	150	V

16QAM LTE BAND 5 (10.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13583138
Date:	01/19/2021
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	LTE 5 16QAM 10MHz
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T963 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	829 MHz											
1	1.64866	55.94	Pk	25.1	-35.6	-95.2	-49.76	-13	-36.76	0-360	150	H
2	2.47369	59.24	Pk	29.5	-35.2	-95.2	-41.66	-13	-28.66	0-360	150	H
3	3.29819	44.01	Pk	31.5	-34.2	-95.2	-53.89	-13	-40.89	0-360	150	H
4	1.64866	59.2	Pk	25.1	-35.6	-95.2	-46.5	-13	-33.5	0-360	150	V
5	2.47369	55.95	Pk	29.5	-35.2	-95.2	-44.95	-13	-31.95	0-360	150	V
6	3.29819	41.35	Pk	31.5	-34.2	-95.2	-56.55	-13	-43.55	0-360	150	V
	836.5 MHz											
1	1.6638	59.63	Pk	25.2	-35.6	-95.2	-45.97	-13	-32.97	0-360	150	H
2	2.496	61.95	Pk	29.6	-35.2	-95.2	-38.85	-13	-25.85	0-360	150	H
3	3.32794	52.1	Pk	31.3	-34.2	-95.2	-46	-13	-33	0-360	150	H
4	1.66406	60.57	Pk	25.2	-35.6	-95.2	-45.03	-13	-32.03	0-360	150	V
5	2.496	65.74	Pk	29.6	-35.2	-95.2	-35.06	-13	-22.06	0-360	150	V
6	3.32794	51.86	Pk	31.3	-34.2	-95.2	-46.24	-13	-33.24	0-360	150	V
	844 MHz											
1	1.67894	58.19	Pk	25.1	-35.6	-95.2	-47.51	-13	-34.51	0-360	150	H
2	2.51831	60.75	Pk	29.8	-35.2	-95.2	-39.85	-13	-26.85	0-360	150	H
3	3.35822	44.26	Pk	31.2	-34.1	-95.2	-53.84	-13	-40.84	0-360	150	H
4	1.67894	59.43	Pk	25.1	-35.6	-95.2	-46.27	-13	-33.27	0-360	150	V
5	2.51831	56.99	Pk	29.8	-35.2	-95.2	-43.61	-13	-30.61	0-360	150	V
6	3.35822	41.58	Pk	31.2	-34.1	-95.2	-56.52	-13	-43.52	0-360	150	V

BPSK 5G NR BAND n5 (20.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13583138
Date:	12/22/2020
Test Engineer:	20756
Configuration:	EUT + Support Equipment
Mode:	LTE NR Band n5 BPSK 20MHz
Chamber #:	Chamber L

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T344 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	834 MHz											
1	1.64919	41.25	Pk	28.5	-32.8	-95.2	-58.25	-13	-45.25	0-360	150	H
2	2.47369	45.04	Pk	32.3	-30.8	-95.2	-48.66	-13	-35.66	0-360	150	H
3	3.31572	33.69	Pk	32.8	-29.6	-95.2	-58.31	-13	-45.31	0-360	150	H
4	1.64919	41.67	Pk	28.5	-32.8	-95.2	-57.83	-13	-44.83	0-360	150	V
5	2.47369	41.85	Pk	32.3	-30.8	-95.2	-51.85	-13	-38.85	0-360	150	V
6	3.31253	33.21	Pk	32.8	-29.6	-95.2	-58.79	-13	-45.79	0-360	150	V
	836.5 MHz											
1	1.65397	41.86	Pk	28.5	-32.8	-95.2	-57.64	-13	-44.64	0-360	150	H
2	2.48166	43.06	Pk	32.4	-30.8	-95.2	-50.54	-13	-37.54	0-360	150	H
3	3.33272	33.46	Pk	32.8	-29.7	-95.2	-58.64	-13	-45.64	0-360	150	H
4	1.6545	41.41	Pk	28.5	-32.8	-95.2	-58.09	-13	-45.09	0-360	150	V
5	2.48113	38.59	Pk	32.4	-30.8	-95.2	-55.01	-13	-42.01	0-360	150	V
6	3.32953	34.29	Pk	32.8	-29.6	-95.2	-57.71	-13	-44.71	0-360	150	V
	839 MHz											
1	1.65928	46.71	Pk	28.6	-32.8	-95.2	-52.69	-13	-39.69	0-360	150	H
2	2.47634	36.41	Pk	32.3	-30.8	-95.2	-57.29	-13	-44.29	0-360	150	H
3	3.33644	33.8	Pk	32.8	-29.7	-95.2	-58.3	-13	-45.3	0-360	150	H
4	1.65928	44.32	Pk	28.6	-32.8	-95.2	-55.08	-13	-42.08	0-360	150	V
5	2.44978	36.45	Pk	32.2	-30.8	-95.2	-57.35	-13	-44.35	0-360	150	V
6	3.34016	33.66	Pk	32.8	-29.7	-95.2	-58.44	-13	-45.44	0-360	150	V

16QAM 5G NR BAND n5 (20.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13583138
Date:	12/22/2020
Test Engineer:	20756
Configuration:	EUT + Support Equipment
Mode:	LTE NR Band n5 16QAM 20MHz
Chamber #:	Chamber L

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T344 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	834 MHz											
1	1.64919	41.8	Pk	28.5	-32.8	-95.2	-57.7	-13	-44.7	0-360	150	H
2	2.47422	48.19	Pk	32.3	-30.8	-95.2	-45.51	-13	-32.51	0-360	150	H
3	3.30616	34.15	Pk	32.9	-29.6	-95.2	-57.75	-13	-44.75	0-360	150	H
4	1.64919	41.02	Pk	28.5	-32.8	-95.2	-58.48	-13	-45.48	0-360	150	V
5	2.47369	42.67	Pk	32.3	-30.8	-95.2	-51.03	-13	-38.03	0-360	150	V
6	3.32581	35.5	Pk	32.8	-29.6	-95.2	-56.5	-13	-43.5	0-360	150	V
	836.5 MHz											
1	1.65397	41.69	Pk	28.5	-32.8	-95.2	-57.81	-13	-44.81	0-360	150	H
2	2.48166	38.91	Pk	32.4	-30.8	-95.2	-54.69	-13	-41.69	0-360	150	H
3	3.33059	33.5	Pk	32.8	-29.6	-95.2	-58.5	-13	-45.5	0-360	150	H
4	1.65397	41.24	Pk	28.5	-32.8	-95.2	-58.26	-13	-45.26	0-360	150	V
5	2.48113	39.35	Pk	32.4	-30.8	-95.2	-54.25	-13	-41.25	0-360	150	V
6	3.36406	33.22	Pk	32.8	-29.7	-95.2	-58.88	-13	-45.88	0-360	150	V
	839 MHz											
1	1.65928	44.65	Pk	28.6	-32.8	-95.2	-54.75	-13	-41.75	0-360	150	H
2	2.48909	42.92	Pk	32.3	-30.8	-95.2	-50.78	-13	-37.78	0-360	150	H
3	3.3545	34.01	Pk	32.8	-29.7	-95.2	-58.09	-13	-45.09	0-360	150	H
4	1.65928	43.21	Pk	28.6	-32.8	-95.2	-56.19	-13	-43.19	0-360	150	V
5	2.48909	36.25	Pk	32.3	-30.8	-95.2	-57.45	-13	-44.45	0-360	150	V
6	3.36034	33.65	Pk	32.8	-29.7	-95.2	-58.45	-13	-45.45	0-360	150	V

9.2.8. LTE BAND 12

LIMITS

FCC: §27.53 (g)
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.

RSS130§4.7
4.7.1 General unwanted emissions limits
The unwanted emissions in any 100 kHz bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (dBW), by at least 43 + 10 $\log_{10}$ p (watts), dB. However, in the 100 kHz band immediately outside of the equipment's frequency block range, a resolution bandwidth of 30 kHz may be employed.

4.7.2 Additional unwanted emissions limits
In addition to the limit outlined in section 4.7.1 above, equipment operating in the frequency bands 746-756 MHz and 777-787 MHz shall also comply with the following restrictions:

a. the power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least:
   iii. 76 + 10 $\log_{10}$ p (watts), dB, for base and fixed equipment and
   iv. 65 + 10 $\log_{10}$ p (watts), dB, for mobile and portable equipment
b. the e.i.r.p. in the band 1559-1610 MHz shall not exceed −70 dBW/MHz for wideband signal and −80 dBW for discrete emission with bandwidth less than 700 Hz.

QPSK LTE BAND 12 (10.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13583138
Date:	11/25/2020
Test Engineer:	19497
Configuration:	EUT + Support Equipment
Mode:	LTE 12 QPSK 10MHz
Chamber #:	Chamber K

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T863 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	704 MHz											
1	1.41278	55.91	Pk	28.8	-46.5	-95.2	-56.99	-13	-43.99	0-360	149	H
2	2.11934	63.38	Pk	31.5	-45.8	-95.2	-46.12	-13	-33.12	0-360	149	H
3	2.80784	50.84	Pk	32.6	-43.9	-95.2	-55.66	-13	-42.66	0-360	149	H
4	1.39897	53.12	Pk	29	-46.5	-95.2	-59.58	-13	-46.58	0-360	149	V
5	2.11988	57.94	Pk	31.5	-45.8	-95.2	-51.56	-13	-38.56	0-360	149	V
6	2.81581	50.65	Pk	32.5	-43.9	-95.2	-55.95	-13	-42.95	0-360	149	V
	707.5 MHz											
1	1.40641	53.46	Pk	28.9	-46.5	-95.2	-59.34	-13	-46.34	0-360	149	H
2	2.10925	64.87	Pk	31.5	-45.7	-95.2	-44.53	-13	-31.53	0-360	149	H
3	2.81847	51.26	Pk	32.5	-43.9	-95.2	-55.34	-13	-42.34	0-360	149	H
4	1.39578	52.64	Pk	29.1	-46.4	-95.2	-59.86	-13	-46.86	0-360	149	V
5	2.10872	56.74	Pk	31.5	-45.7	-95.2	-52.66	-13	-39.66	0-360	149	V
6	2.80094	51	Pk	32.6	-43.9	-95.2	-55.5	-13	-42.5	0-360	149	V
	711 MHz											
1	1.41331	53.94	Pk	28.8	-46.5	-95.2	-58.96	-13	-45.96	0-360	149	H
2	2.11934	63.4	Pk	31.5	-45.8	-95.2	-46.1	-13	-33.1	0-360	149	H
3	2.84663	50.86	Pk	32.5	-43.8	-95.2	-55.64	-13	-42.64	0-360	149	H
4	1.39684	53.47	Pk	29.1	-46.4	-95.2	-59.03	-13	-46.03	0-360	149	V
5	2.11934	58.18	Pk	31.5	-45.8	-95.2	-51.32	-13	-38.32	0-360	149	V
6	2.84344	51.68	Pk	32.5	-43.8	-95.2	-54.82	-13	-41.82	0-360	149	V

16QAM LTE BAND 12 (10.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13583138
Date:	11/25/2020
Test Engineer:	19497
Configuration:	EUT + Support Equipment
Mode:	LTE 12 16QAM 10MHz
Chamber #:	Chamber K

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T863 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	704 MHz											
1	1.39844	56.3	Pk	29	-46.5	-95.2	-56.4	-13	-43.4	0-360	149	H
2	2.122	51.85	Pk	31.6	-45.8	-95.2	-57.55	-13	-44.55	0-360	149	H
3	2.8105	50.92	Pk	32.6	-43.9	-95.2	-55.58	-13	-42.58	0-360	149	H
4	1.38941	53.18	Pk	29.1	-46.5	-95.2	-59.42	-13	-46.42	0-360	149	V
5	2.13794	50.93	Pk	31.7	-45.8	-95.2	-58.37	-13	-45.37	0-360	149	V
6	2.82591	50.24	Pk	32.5	-43.8	-95.2	-56.26	-13	-43.26	0-360	149	V
	707.5 MHz											
1	1.41278	53.64	Pk	28.8	-46.5	-95.2	-59.26	-13	-46.26	0-360	149	H
2	2.11934	63.94	Pk	31.5	-45.8	-95.2	-45.56	-13	-32.56	0-360	149	H
3	2.81794	50.93	Pk	32.5	-43.9	-95.2	-55.67	-13	-42.67	0-360	149	H
4	1.39897	53.87	Pk	29	-46.5	-95.2	-58.83	-13	-45.83	0-360	149	V
5	2.11934	59.25	Pk	31.5	-45.8	-95.2	-50.25	-13	-37.25	0-360	149	V
6	2.82484	50.63	Pk	32.5	-43.8	-95.2	-55.87	-13	-42.87	0-360	149	V
	711 MHz											
1	1.41278	54.65	Pk	28.8	-46.5	-95.2	-58.25	-13	-45.25	0-360	149	H
2	2.11934	64.36	Pk	31.5	-45.8	-95.2	-45.14	-13	-32.14	0-360	149	H
3	2.80413	50.89	Pk	32.6	-43.9	-95.2	-55.61	-13	-42.61	0-360	149	H
4	1.40906	52.5	Pk	28.9	-46.5	-95.2	-60.3	-13	-47.3	0-360	149	V
5	2.11934	57.75	Pk	31.5	-45.8	-95.2	-51.75	-13	-38.75	0-360	149	V
6	2.77384	50.85	Pk	32.5	-44	-95.2	-55.85	-13	-42.85	0-360	149	V

9.2.9. LTE BAND 26 (FCC PART 90S)

LIMITS

FCC: §90.691
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.

QPSK LTE BAND 26 (15.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13583138
Date:	01/19/2021
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	LTE 26 QPSK 15MHz
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T963 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	821.5 MHz											
1	1.6391	55.41	Pk	25.2	-35.6	-95.2	-50.19	-13	-37.19	0-360	150	H
2	2.38341	58.08	Pk	29.4	-35.3	-95.2	-43.02	-13	-30.02	0-360	150	H
3	3.28834	47.67	Pk	31.5	-34.3	-95.2	-50.33	-13	-37.33	0-360	150	H
4	1.6391	53.31	Pk	25.2	-35.6	-95.2	-52.29	-13	-39.29	0-360	150	V
5	2.38541	57.98	Pk	29.4	-35.3	-95.2	-43.12	-13	-30.12	0-360	150	V
6	3.28934	45.24	Pk	31.5	-34.3	-95.2	-52.76	-13	-39.76	0-360	150	V

16QAM LTE BAND 26 (15.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13583138
Date:	01/19/2021
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	LTE 26 16QAM 15MHz
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T963 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	821.5 MHz											
1	1.6491	55.17	Pk	25.2	-35.6	-95.2	-50.43	-13	-37.43	0-360	150	H
2	2.37341	62.71	Pk	29.4	-35.3	-95.2	-38.39	-13	-25.39	0-360	150	H
3	3.26864	52.92	Pk	31.5	-34.3	-95.2	-45.08	-13	-32.08	0-360	150	H
4	1.6391	54.16	Pk	25.2	-35.6	-95.2	-51.44	-13	-38.44	0-360	150	V
5	2.38741	62.64	Pk	29.4	-35.3	-95.2	-38.46	-13	-25.46	0-360	150	V
6	3.28634	47.62	Pk	31.5	-34.3	-95.2	-50.38	-13	-37.38	0-360	150	V

9.2.10. LTE BAND 26 (FCC PART 22)

LIMITS

FCC: §22.917(a)
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.

QPSK LTE BAND 26 (15.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13583138
Date:	01/19/2021
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	LTE 26 QPSK 15MHz
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T963 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	831.5 MHz											
1	1.64919	56.07	Pk	25.1	-35.6	-95.2	-49.63	-13	-36.63	0-360	150	H
2	2.47422	55.16	Pk	29.5	-35.2	-95.2	-45.74	-13	-32.74	0-360	150	H
3	3.29925	44.53	Pk	31.4	-34.2	-95.2	-53.47	-13	-40.47	0-360	150	H
4	1.64919	57.04	Pk	25.1	-35.6	-95.2	-48.66	-13	-35.66	0-360	150	V
5	2.47422	53.21	Pk	29.5	-35.2	-95.2	-47.69	-13	-34.69	0-360	150	V
6	3.29872	41.44	Pk	31.4	-34.2	-95.2	-56.56	-13	-43.56	0-360	150	V
	836.5 MHz											
1	1.65928	57.81	Pk	25.2	-35.6	-95.2	-47.79	-13	-34.79	0-360	150	H
2	2.48909	59.15	Pk	29.5	-35.2	-95.2	-41.75	-13	-28.75	0-360	150	H
3	3.31944	45.74	Pk	31.4	-34.2	-95.2	-52.26	-13	-39.26	0-360	150	H
4	1.65928	59.35	Pk	25.2	-35.6	-95.2	-46.25	-13	-33.25	0-360	150	V
5	2.48909	57.11	Pk	29.5	-35.2	-95.2	-43.79	-13	-30.79	0-360	150	V
6	3.31944	44.09	Pk	31.4	-34.2	-95.2	-53.91	-13	-40.91	0-360	150	V
	841.5 MHz											
1	1.66938	56.53	Pk	25.2	-35.6	-95.2	-49.07	-13	-36.07	0-360	150	H
2	2.5045	62.85	Pk	29.6	-35.2	-95.2	-37.95	-13	-24.95	0-360	150	H
3	3.33909	45.21	Pk	31.3	-34.2	-95.2	-52.89	-13	-39.89	0-360	150	H
4	1.66938	56.69	Pk	25.2	-35.6	-95.2	-48.91	-13	-35.91	0-360	150	V
5	2.5045	57.84	Pk	29.6	-35.2	-95.2	-42.96	-13	-29.96	0-360	150	V
6	3.33909	45.25	Pk	31.3	-34.2	-95.2	-52.85	-13	-39.85	0-360	150	V

16QAM LTE BAND 26 (15.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13583138
Date:	01/19/2021
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	LTE 26 16QAM 15MHz
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T963 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	831.5 MHz											
1	1.64919	55.93	Pk	25.1	-35.6	-95.2	-49.77	-13	-36.77	0-360	150	H
2	2.47422	54.1	Pk	29.5	-35.2	-95.2	-46.8	-13	-33.8	0-360	150	H
3	3.29925	43.39	Pk	31.4	-34.2	-95.2	-54.61	-13	-41.61	0-360	150	H
4	1.64919	57.48	Pk	25.1	-35.6	-95.2	-48.22	-13	-35.22	0-360	150	V
5	2.47422	52.74	Pk	29.5	-35.2	-95.2	-48.16	-13	-35.16	0-360	150	V
6	3.29872	42.72	Pk	31.4	-34.2	-95.2	-55.28	-13	-42.28	0-360	150	V
	836.5 MHz											
1	1.65928	59.03	Pk	25.2	-35.6	-95.2	-46.57	-13	-33.57	0-360	150	H
2	2.48963	63.94	Pk	29.5	-35.2	-95.2	-36.96	-13	-23.96	0-360	150	H
3	3.31891	50.18	Pk	31.4	-34.2	-95.2	-47.82	-13	-34.82	0-360	150	H
4	1.65955	58.55	Pk	25.2	-35.6	-95.2	-47.05	-13	-34.05	0-360	150	V
5	2.48909	59.79	Pk	29.5	-35.2	-95.2	-41.11	-13	-28.11	0-360	150	V
6	3.31891	44.23	Pk	31.4	-34.2	-95.2	-53.77	-13	-40.77	0-360	150	V
	841.5 MHz											
1	1.66938	55.05	Pk	25.2	-35.6	-95.2	-50.55	-13	-37.55	0-360	150	H
2	2.5045	63.35	Pk	29.6	-35.2	-95.2	-37.45	-13	-24.45	0-360	150	H
3	3.33909	48.87	Pk	31.3	-34.2	-95.2	-49.23	-13	-36.23	0-360	150	H
4	1.66938	57.84	Pk	25.2	-35.6	-95.2	-47.76	-13	-34.76	0-360	150	V
5	2.50397	62.99	Pk	29.6	-35.2	-95.2	-37.81	-13	-24.81	0-360	150	V
6	3.33909	47.66	Pk	31.3	-34.2	-95.2	-50.44	-13	-37.44	0-360	150	V

9.2.11. LTE BAND 66 AND 5G NR BAND n66

LIMITS

FCC: §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.

RSS139§6.6

(i) In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block,Footnote2 which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least43 + 10 log10 p (watts) dB.

(ii) After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 log10 p (watts) dB.

QPSK LTE BAND 66 (20.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13583138
Date:	1/20/2020
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	LTE 66 QPSK 20MHz
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T963 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	1720 MHz											
1	3.42197	52.16	Pk	30.8	-34.1	-95.2	-46.34	-13	-33.34	0-360	150	H
2	5.13313	48.01	Pk	34.1	-30.8	-95.2	-43.89	-13	-30.89	0-360	150	H
3	6.84428	42.51	Pk	36.5	-27.8	-95.2	-43.99	-13	-30.99	0-360	150	H
4	3.42197	51.09	Pk	30.8	-34.1	-95.2	-47.41	-13	-34.41	0-360	150	V
5	5.13286	47.28	Pk	34.1	-30.8	-95.2	-44.62	-13	-31.62	0-360	150	V
6	6.84428	46.11	Pk	36.5	-27.8	-95.2	-40.39	-13	-27.39	0-360	150	V
	1745 MHz											
1	3.47191	61.31	Pk	30.4	-33.8	-95.2	-37.29	-13	-24.29	0-360	150	H
2	5.20803	55.45	Pk	34.1	-30.7	-95.2	-36.35	-13	-23.35	0-360	150	H
3	6.94416	40.46	Pk	36.5	-27.7	-95.2	-45.94	-13	-32.94	0-360	150	H
4	3.47191	58.47	Pk	30.4	-33.8	-95.2	-40.13	-13	-27.13	0-360	150	V
5	5.20803	51.8	Pk	34.1	-30.7	-95.2	-40	-13	-27	0-360	150	V
6	6.94416	45.44	Pk	36.5	-27.7	-95.2	-40.96	-13	-27.96	0-360	150	V
	1770 MHz											
1	3.52184	70.39	Pk	30.3	-33.6	-95.2	-28.11	-13	-15.11	0-360	150	H
2	5.28294	58.53	Pk	33.8	-30.6	-95.2	-33.47	-13	-20.47	0-360	150	H
3	7.04403	42.42	Pk	36.7	-27.2	-95.2	-43.28	-13	-30.28	0-360	150	H
4	3.52184	67.07	Pk	30.3	-33.6	-95.2	-31.43	-13	-18.43	0-360	150	V
5	5.28294	56.09	Pk	33.8	-30.6	-95.2	-35.91	-13	-22.91	0-360	150	V
6	7.04403	44.9	Pk	36.7	-27.2	-95.2	-40.8	-13	-27.8	0-360	150	V

16QAM LTE BAND 66 (20.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13583138
Date:	1/20/2020
Test Engineer:	19480
Configuration:	EUT + Support Equipment
Mode:	LTE 66 16QAM 20MHz
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T963 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	1720 MHz											
1	3.42197	52.49	Pk	30.8	-34.1	-95.2	-46.01	-13	-33.01	0-360	150	H
2	5.13313	48.12	Pk	34.1	-30.8	-95.2	-43.78	-13	-30.78	0-360	150	H
3	6.84428	42.56	Pk	36.5	-27.8	-95.2	-43.94	-13	-30.94	0-360	150	H
4	3.42197	51.96	Pk	30.8	-34.1	-95.2	-46.54	-13	-33.54	0-360	150	V
5	5.13313	43.79	Pk	34.1	-30.8	-95.2	-48.11	-13	-35.11	0-360	150	V
6	6.84375	45.61	Pk	36.5	-27.8	-95.2	-40.89	-13	-27.89	0-360	150	V
	1745 MHz											
1	3.47191	62.39	Pk	30.4	-33.8	-95.2	-36.21	-13	-23.21	0-360	150	H
2	5.20803	55.46	Pk	34.1	-30.7	-95.2	-36.34	-13	-23.34	0-360	150	H
3	6.94416	42.14	Pk	36.5	-27.7	-95.2	-44.26	-13	-31.26	0-360	150	H
4	3.47191	58.8	Pk	30.4	-33.8	-95.2	-39.8	-13	-26.8	0-360	150	V
5	5.20803	49.24	Pk	34.1	-30.7	-95.2	-42.56	-13	-29.56	0-360	150	V
6	6.94469	44.09	Pk	36.5	-27.7	-95.2	-42.31	-13	-29.31	0-360	150	V
	1770 MHz											
1	3.52184	71.26	Pk	30.3	-33.6	-95.2	-27.24	-13	-14.24	0-360	150	H
2	5.28294	61.65	Pk	33.8	-30.6	-95.2	-30.35	-13	-17.35	0-360	150	H
3	7.04403	41.72	Pk	36.7	-27.2	-95.2	-43.98	-13	-30.98	0-360	150	H
4	3.52184	67.02	Pk	30.3	-33.6	-95.2	-31.48	-13	-18.48	0-360	150	V
5	5.28294	54.83	Pk	33.8	-30.6	-95.2	-37.17	-13	-24.17	0-360	150	V
6	7.04403	46.06	Pk	36.7	-27.2	-95.2	-39.64	-13	-26.64	0-360	150	V

BPSK 5G NR BAND n66 (20.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13583138
Date:	12/23/2020
Test Engineer:	20756
Configuration:	EUT + Support Equipment
Mode:	LTE NR Band n66 BPSK 20MHz
Chamber #:	Chamber L

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T344 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	1720 MHz											
1	3.40284	34.66	Pk	32.6	-29.6	-95.2	-57.54	-13	-44.54	0-360	149	H
2	5.10709	27.11	Pk	34.2	-27.8	-95.2	-61.69	-13	-48.69	0-360	149	H
3	6.84269	35.33	Pk	35.6	-24.8	-95.2	-49.07	-13	-36.07	0-360	149	H
4	3.43897	33.29	Pk	32.6	-29.4	-95.2	-58.71	-13	-45.71	0-360	149	V
5	5.13153	26.34	Pk	34.3	-27.6	-95.2	-62.16	-13	-49.16	0-360	149	V
6	6.84269	41.45	Pk	35.6	-24.8	-95.2	-42.95	-13	-29.95	0-360	149	V
	1745 MHz											
1	3.43047	34.61	Pk	32.6	-29.5	-95.2	-57.49	-13	-44.49	0-360	149	H
2	5.2075	27.23	Pk	34.2	-27.4	-95.2	-61.17	-13	-48.17	0-360	149	H
3	6.94256	37.83	Pk	35.6	-25	-95.2	-46.77	-13	-33.77	0-360	149	H
4	3.45863	33.36	Pk	32.6	-29.4	-95.2	-58.64	-13	-45.64	0-360	149	V
5	5.20644	26.86	Pk	34.2	-27.4	-95.2	-61.54	-13	-48.54	0-360	149	V
6	6.94256	42.11	Pk	35.6	-25	-95.2	-42.49	-13	-29.49	0-360	149	V
	1770 MHz											
1	3.48466	35.14	Pk	32.6	-29.4	-95.2	-56.86	-13	-43.86	0-360	149	H
2	5.28188	26.77	Pk	34.4	-27.3	-95.2	-61.33	-13	-48.33	0-360	149	H
3	7.04297	39.84	Pk	35.7	-24.8	-95.2	-44.46	-13	-31.46	0-360	149	H
4	3.52078	33	Pk	32.8	-29.1	-95.2	-58.5	-13	-45.5	0-360	149	V
5	5.28188	26.12	Pk	34.4	-27.3	-95.2	-61.98	-13	-48.98	0-360	149	V
6	7.04244	44.34	Pk	35.7	-24.8	-95.2	-39.96	-13	-26.96	0-360	149	V

16QAM 5G NR BAND n66 (20.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13583138
Date:	12/23/2020
Test Engineer:	20756
Configuration:	EUT + Support Equipment
Mode:	LTE NR Band n66 16QAM 20MHz
Chamber #:	Chamber L

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T344 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	WWAN Harmonics Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	1720 MHz											
1	3.41559	34.46	Pk	32.7	-29.5	-95.2	-57.54	-13	-44.54	0-360	149	H
2	5.14959	25.51	Pk	34.3	-27.5	-95.2	-62.89	-13	-49.89	0-360	149	H
3	6.84269	36.65	Pk	35.6	-24.8	-95.2	-47.75	-13	-34.75	0-360	149	H
4	3.42941	33.81	Pk	32.6	-29.5	-95.2	-58.29	-13	-45.29	0-360	149	V
5	5.13525	26.42	Pk	34.3	-27.6	-95.2	-62.08	-13	-49.08	0-360	149	V
6	6.84269	40.7	Pk	35.6	-24.8	-95.2	-43.7	-13	-30.7	0-360	149	V
	1745 MHz											
1	3.49953	34.45	Pk	32.7	-29.2	-95.2	-57.25	-13	-44.25	0-360	149	H
2	5.20697	29.25	Pk	34.2	-27.4	-95.2	-59.15	-13	-46.15	0-360	149	H
3	6.94256	37.65	Pk	35.6	-25	-95.2	-46.95	-13	-33.95	0-360	149	H
4	3.45863	34.43	Pk	32.6	-29.4	-95.2	-57.57	-13	-44.57	0-360	149	V
5	5.20697	26.22	Pk	34.2	-27.4	-95.2	-62.18	-13	-49.18	0-360	149	V
6	6.94256	43.5	Pk	35.6	-25	-95.2	-41.1	-13	-28.1	0-360	149	V
	1770 MHz											
1	3.52131	33.9	Pk	32.8	-29.1	-95.2	-57.6	-13	-44.6	0-360	149	H
2	5.28188	30.19	Pk	34.4	-27.3	-95.2	-57.91	-13	-44.91	0-360	149	H
3	7.04297	41.7	Pk	35.7	-24.8	-95.2	-42.6	-13	-29.6	0-360	149	H
4	3.52397	33.74	Pk	32.8	-29.1	-95.2	-57.76	-13	-44.76	0-360	149	V
5	5.28188	27.71	Pk	34.4	-27.3	-95.2	-60.39	-13	-47.39	0-360	149	V
6	7.04244	44.6	Pk	35.7	-24.8	-95.2	-39.7	-13	-26.7	0-360	149	V