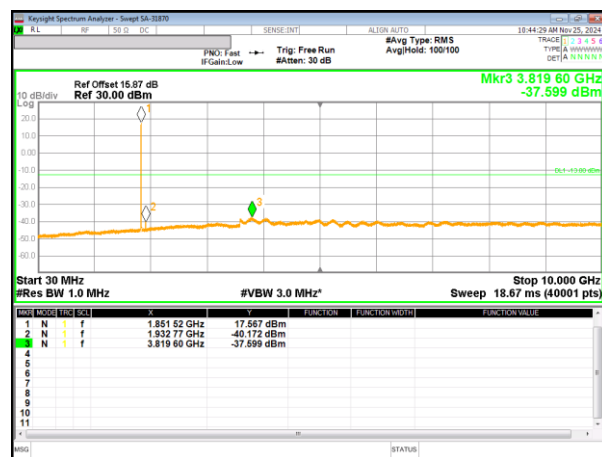
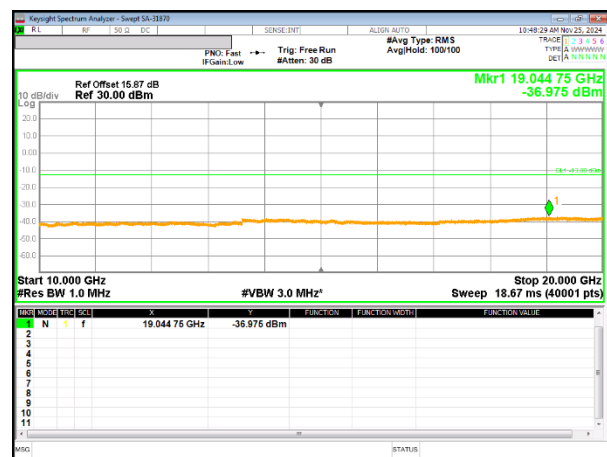


WCDMA Band 2

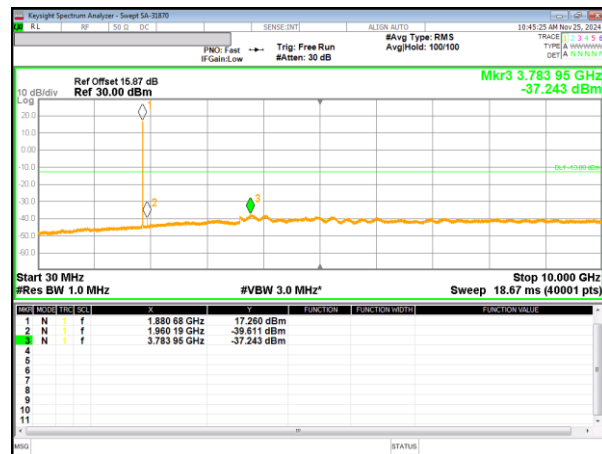
REL99



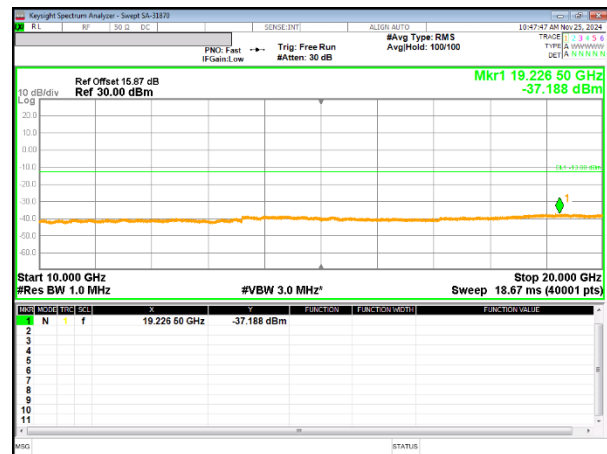
Low channel



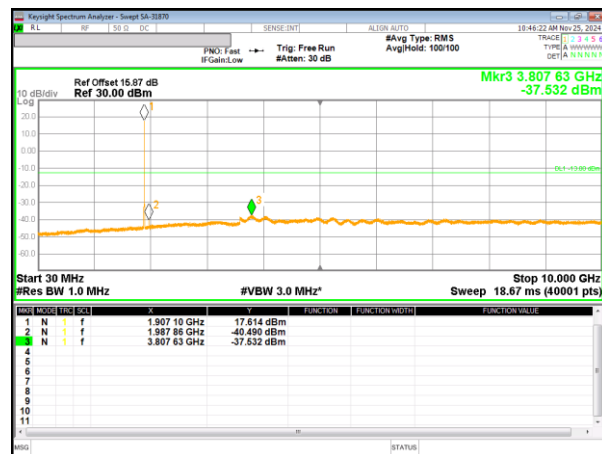
Low channel



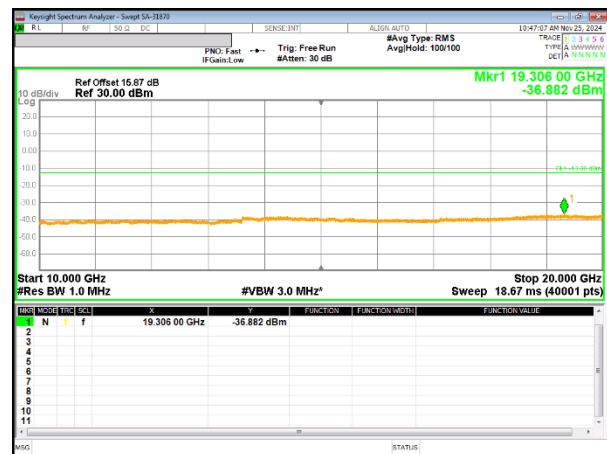
Mid channel



Mid channel



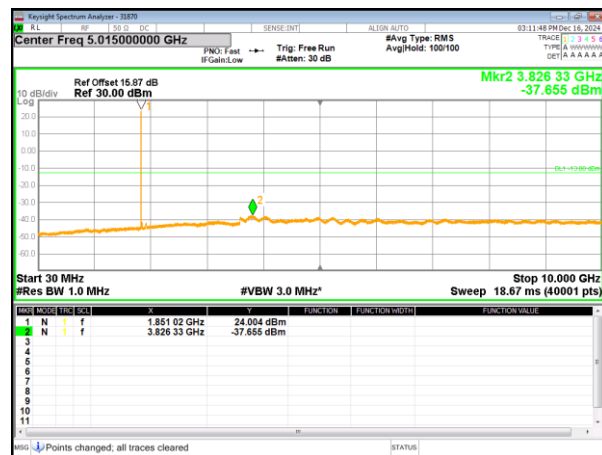
High channel



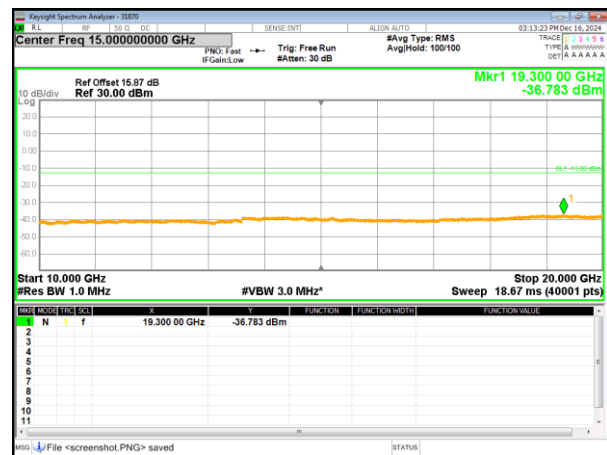
High channel

LTE Band 25 (ANT B)

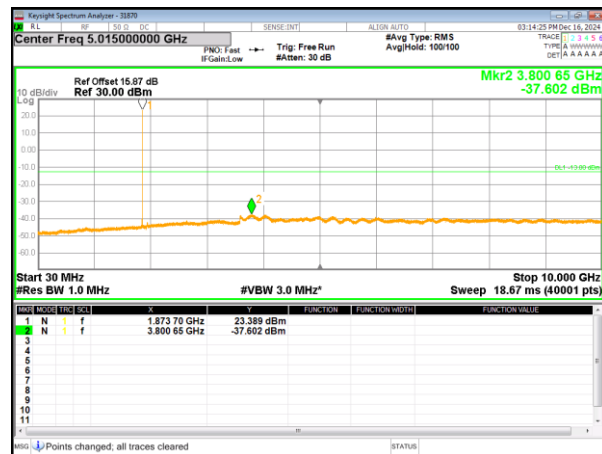
20MHz QPSK



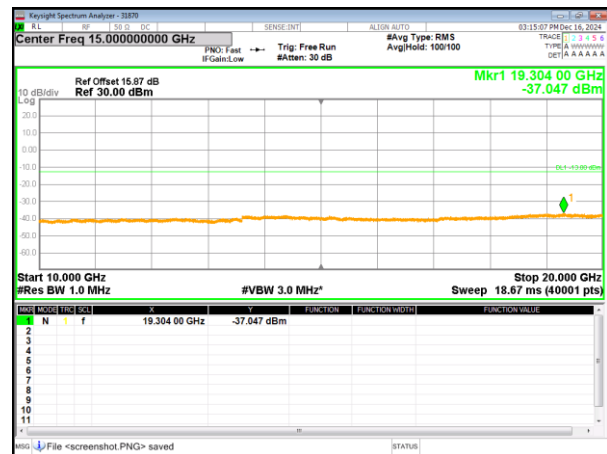
Low channel



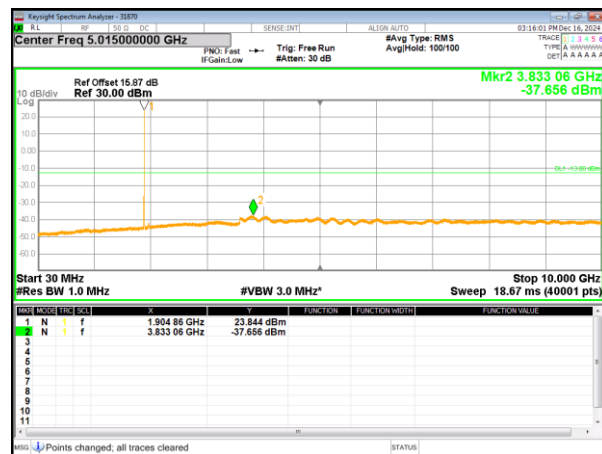
Low channel



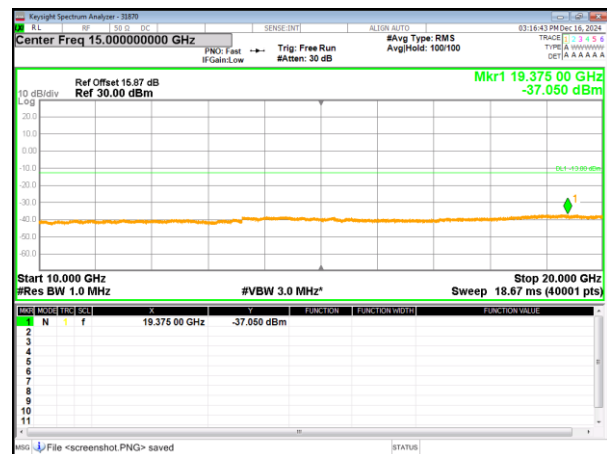
Mid channel



Mid channel



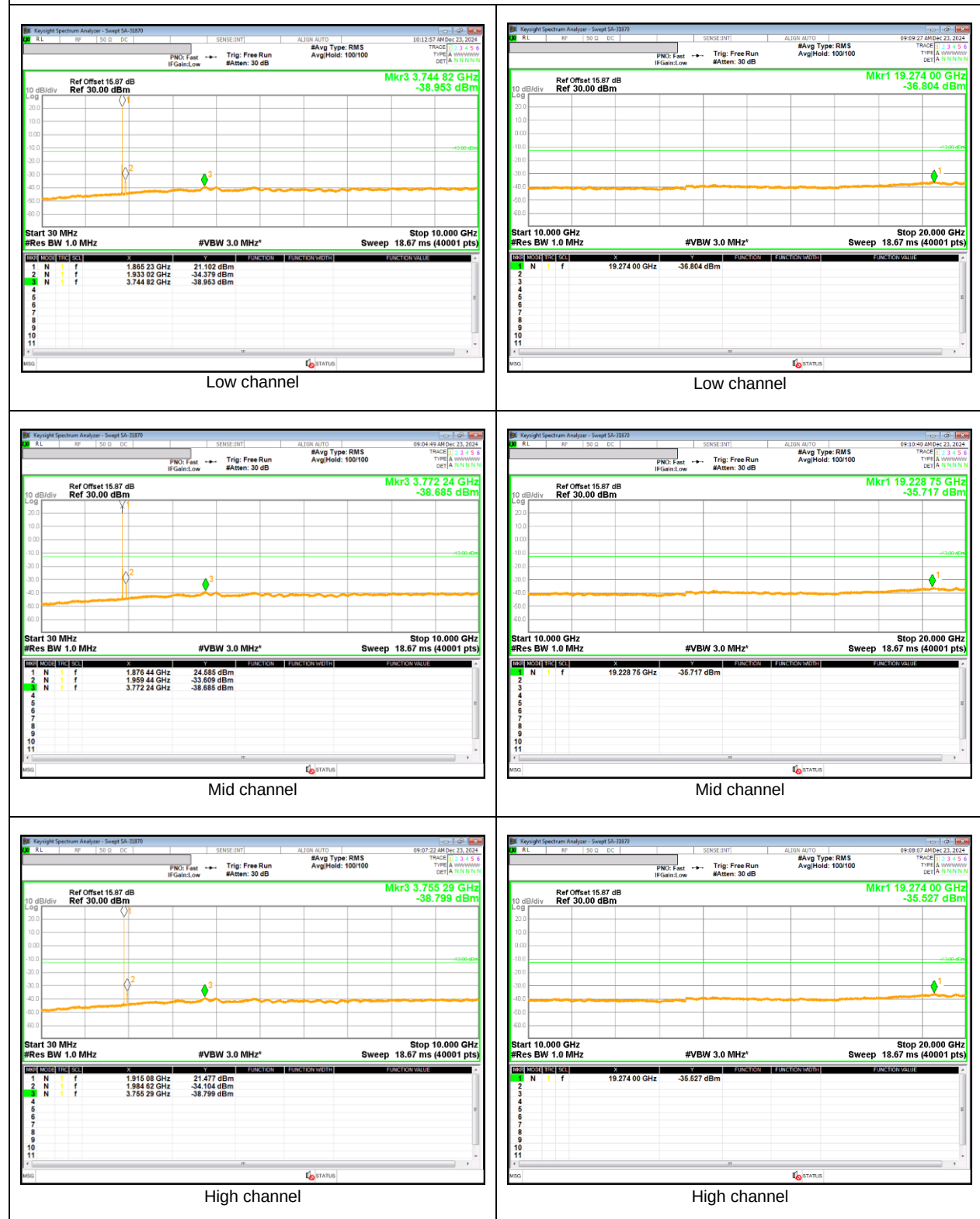
High channel



High channel

NR Band n25 DFT-s OFDM (ANT B)

15MHz QPSK



8.6. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §24.235

LIMITS

§24.235

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v03r01

NOTE

Test were performed each lowest or highest frequency on the modulation condition of more wide bandwidth.(Please refer to OBW results)

RESULTS

See the following pages.

8.6.1. FREQUENCY STABILITY RESULT

GSM 1900, Channel 512/810, Frequency 1850.0/1910.0 MHz
(Lowest Frequency: EGPRS / Highest Frequency: GPRS)

Test Date	2024-12-23
Test Engineer	31870

Limit		1850	1910	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1850.0761	1909.9218		
Extreme (50C)		1850.0772	1909.9229	1103.3	0.587
Extreme (40C)		1850.0772	1909.9229	1117.8	0.595
Extreme (30C)		1850.0773	1909.9229	1192.0	0.634
Extreme (10C)		1850.0773	1909.9229	1164.9	0.620
Extreme (0C)		1850.0773	1909.9229	1193.8	0.635
Extreme (-10C)		1850.0773	1909.9229	1178.6	0.627
Extreme (-20C)		1850.0773	1909.9229	1179.6	0.627
Extreme (-30C)		1850.0772	1909.9229	1121.1	0.596
20C	15%	1850.0772	1909.9229	1132.4	0.602
	-15%	1850.0772	1909.9229	1172.9	0.624
	End Point	1850.0773	1909.9229	1171.7	0.623

WCDMA Band 2 (Lowest Frequency: HSDPA / Highest Frequency: HSDPA)

Test Date	2024-12-19
Test Engineer	31870

Limit		1850	1910	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1850.3194	1909.6796		
Extreme (50C)		1850.3195	1909.6797	106.2	0.056
Extreme (40C)		1850.3195	1909.6797	100.1	0.053
Extreme (30C)		1850.3195	1909.6797	104.6	0.056
Extreme (10C)		1850.3195	1909.6797	109.4	0.058
Extreme (0C)		1850.3194	1909.6796	97.0	0.052
Extreme (-10C)		1850.3195	1909.6797	102.2	0.054
Extreme (-20C)		1850.3194	1909.6796	97.0	0.052
Extreme (-30C)		1850.3195	1909.6797	103.0	0.055
20C	15%	1850.3195	1909.6797	119.1	0.063
	-15%	1850.3195	1909.6797	114.4	0.061
	End Point	1850.3195	1909.6796	94.4	0.050

LTE Band 25 (Lowest Frequency: 16QAM / Highest Frequency: QPSK) (ANT B)

Test Date	2024-12-17
Test Engineer	31870

Limit		1850	1915	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1850.1538	1914.8460		
Extreme (50C)		1850.1540	1914.8462	183.8	0.098
Extreme (40C)		1850.1540	1914.8462	195.8	0.104
Extreme (30C)		1850.1540	1914.8462	197.4	0.105
Extreme (10C)		1850.1539	1914.8461	145.9	0.078
Extreme (0C)		1850.1539	1914.8461	134.8	0.072
Extreme (-10C)		1850.1540	1914.8462	167.3	0.089
Extreme (-20C)		1850.1540	1914.8462	194.7	0.103
Extreme (-30C)		1850.1539	1914.8461	142.5	0.076
20C	15%	1850.1540	1914.8461	137.3	0.073
	-15%	1850.1540	1914.8461	127.7	0.068
	End Point	1850.1540	1914.8462	158.2	0.084

NR Band n25 (Lowest Frequency: QPSK / Highest Frequency: QPSK) (ANT B)

Test Date	2024-12-20
Test Engineer	31870

Limit		1850	1915	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1850.2567	1914.7442		
Extreme (50C)		1850.2567	1914.7442	12.8	0.007
Extreme (40C)		1850.2567	1914.7442	7.6	0.004
Extreme (30C)		1850.2567	1914.7442	8.9	0.005
Extreme (10C)		1850.2567	1914.7442	8.4	0.004
Extreme (0C)		1850.2567	1914.7442	6.7	0.004
Extreme (-10C)		1850.2567	1914.7442	6.6	0.004
Extreme (-20C)		1850.2567	1914.7442	8.0	0.004
Extreme (-30C)		1850.2567	1914.7442	5.5	0.003
20C	15%	1850.2567	1914.7442	8.4	0.004
	-15%	1850.2567	1914.7442	6.8	0.004
	End Point	1850.2567	1914.7442	7.8	0.004

9. RADIATED RESULTS

9.1. RADIATED POWER (EIRP)

RULE PART(S)

FCC: §2.1046, §24.232

LIMITS

§24.232(c)

Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

TEST PROCEDURE

ANSI / TIA / EIA 603 E Clause 2.2.17; ESU40 setting reference to 971168 D01 v03r01

For radiated output power measurement with a ESU40:

- a) Set the RBW $\geq$ OBW;
- b) Set VBW $\geq 3 \times$ RBW;
- c) Set span $\geq 2 \times$ OBW;
- d) Sweep time = auto couple or 1 second;
- e) Detector = rms;
- f) Ensure that the number of measurement points $\geq$ span/RBW;
- g) Trace Mode = max hold(GSM,WCDMA), average(LTE, 5G NR);

TEST RESULTS

See the following pages.

9.1.1. EIRP RESULT

GSM

Band	Mode	Frequency (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)
GSM 1900	GPRS	1850.20	21.48	H	4.50	9.48	26.47	443.61	33.00	-6.53
		1880.00	22.62	H	4.53	9.20	27.29	535.80	33.00	-5.71
		1909.80	24.12	H	4.57	8.86	28.42	695.02	33.00	-4.58
	EGPRS	1850.20	18.39	H	4.50	9.48	23.38	217.77	33.00	-9.62
		1880.00	20.12	H	4.53	9.20	24.79	301.30	33.00	-8.21
		1909.80	21.05	H	4.57	8.86	25.35	342.77	33.00	-7.65

WCDMA Band 2

Band	Mode	Frequency (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)
Band 2	REL99	1852.40	16.10	V	4.50	9.46	21.06	127.64	33.00	-11.94
		1880.00	17.12	V	4.53	9.20	21.79	151.01	33.00	-11.21
		1907.60	18.18	V	4.56	8.89	22.50	177.83	33.00	-10.50
	HSDPA	1852.40	15.00	V	4.50	9.46	19.96	99.08	33.00	-13.04
		1880.00	16.14	V	4.53	9.20	20.81	120.50	33.00	-12.19
		1907.60	17.12	V	4.56	8.89	21.44	139.32	33.00	-11.56

LTE Band 25 (ANT B)

BW (MHz)	Modulation	Frequency (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)	RB
20	QPSK	1860.00	16.20	H	4.51	9.39	21.08	128.23	33.00	-11.92	1/99
		1882.50	17.32	H	4.53	9.17	21.96	157.04	33.00	-11.04	1/49
		1905.00	18.67	H	4.56	8.93	23.04	201.37	33.00	-9.96	1/49
	16-QAM	1860.00	15.48	H	4.51	9.39	20.37	108.89	33.00	-12.63	1/99
		1882.50	16.55	H	4.53	9.17	21.19	131.52	33.00	-11.81	1/49
		1905.00	17.86	H	4.56	8.93	22.22	166.72	33.00	-10.78	1/49
15	QPSK	1857.50	16.30	H	4.50	9.41	21.21	132.13	33.00	-11.79	1/74
		1882.50	17.18	H	4.53	9.17	21.83	152.41	33.00	-11.17	1/0
		1907.50	18.57	H	4.56	8.89	22.90	194.98	33.00	-10.10	1/0
	16-QAM	1857.50	15.47	H	4.50	9.41	20.38	109.14	33.00	-12.62	1/74
		1882.50	16.42	H	4.53	9.17	21.06	127.64	33.00	-11.94	1/0
		1907.50	17.80	H	4.56	8.89	22.13	163.31	33.00	-10.87	1/0
10	QPSK	1855.00	16.01	H	4.50	9.43	20.94	124.17	33.00	-12.06	1/49
		1882.50	17.41	H	4.53	9.17	22.06	160.69	33.00	-10.94	1/25
		1910.00	18.87	H	4.57	8.85	23.16	207.01	33.00	-9.84	1/0
	16-QAM	1855.00	15.27	H	4.50	9.43	20.20	104.71	33.00	-12.80	1/49
		1882.50	16.66	H	4.53	9.17	21.31	135.21	33.00	-11.69	1/25
		1910.00	18.06	H	4.57	8.85	22.35	171.79	33.00	-10.65	1/0
5	QPSK	1852.50	15.54	H	4.50	9.46	20.50	112.20	33.00	-12.50	1/12
		1882.50	17.41	H	4.53	9.17	22.06	160.69	33.00	-10.94	1/12
		1912.50	18.92	H	4.57	8.82	23.16	207.01	33.00	-9.84	1/12
	16-QAM	1852.50	14.76	H	4.50	9.46	19.72	93.76	33.00	-13.28	1/12
		1882.50	16.69	H	4.53	9.17	21.34	136.14	33.00	-11.66	1/12
		1912.50	18.04	H	4.57	8.82	22.29	169.43	33.00	-10.71	1/12
3	QPSK	1851.50	15.70	H	4.50	9.47	20.67	116.68	33.00	-12.33	1/8
		1882.50	17.24	H	4.53	9.17	21.88	154.17	33.00	-11.12	1/8
		1913.50	18.84	H	4.57	8.80	23.08	203.24	33.00	-9.93	1/8
	16-QAM	1851.50	14.91	H	4.50	9.47	19.88	97.27	33.00	-13.12	1/8
		1882.50	16.47	H	4.53	9.17	21.11	129.12	33.00	-11.89	1/8
		1913.50	18.08	H	4.57	8.80	22.32	170.61	33.00	-10.68	1/8
1.4	QPSK	1850.70	15.51	H	4.50	9.48	20.48	111.69	33.00	-12.52	1/5
		1882.50	17.38	H	4.53	9.17	22.02	159.22	33.00	-10.98	1/3
		1914.30	18.78	H	4.57	8.79	23.00	199.53	33.00	-10.00	1/0
	16-QAM	1850.70	14.79	H	4.50	9.48	19.77	94.84	33.00	-13.23	1/5
		1882.50	16.59	H	4.53	9.17	21.24	133.05	33.00	-11.76	1/3
		1914.30	18.06	H	4.57	8.79	22.28	169.04	33.00	-10.72	1/0

LTE Band 25 (ANT C)

BW (MHz)	Modulation	Frequency (MHz)	SG reading (dBm)	Ant. Pol (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)	RB
20	QPSK	1860.00	17.11	V	4.51	9.39	21.99	158.12	33.00	-11.01	1/0
		1882.50	17.83	V	4.53	9.17	22.47	176.60	33.00	-10.53	1/0
		1905.00	16.50	V	4.56	8.93	20.87	122.18	33.00	-12.13	1/0
	16-QAM	1860.00	16.20	V	4.51	9.39	21.08	128.23	33.00	-11.92	1/0
		1882.50	16.79	V	4.53	9.17	21.43	139.00	33.00	-11.57	1/0
		1905.00	15.98	V	4.56	8.93	20.35	108.39	33.00	-12.65	1/0
15	QPSK	1857.50	17.33	V	4.50	9.41	22.24	167.49	33.00	-10.76	1/0
		1882.50	17.59	V	4.53	9.17	22.23	167.11	33.00	-10.77	1/0
		1907.50	16.80	V	4.56	8.89	21.13	129.72	33.00	-11.87	1/37
	16-QAM	1857.50	16.51	V	4.50	9.41	21.42	138.68	33.00	-11.58	1/0
		1882.50	16.67	V	4.53	9.17	21.31	135.21	33.00	-11.69	1/0
		1907.50	16.00	V	4.56	8.89	20.33	107.89	33.00	-12.67	1/37
10	QPSK	1855.00	17.59	V	4.50	9.43	22.52	178.65	33.00	-10.48	1/49
		1882.50	17.74	V	4.53	9.17	22.38	172.98	33.00	-10.62	1/0
		1910.00	16.75	V	4.57	8.85	21.04	127.06	33.00	-11.96	1/0
	16-QAM	1855.00	16.64	V	4.50	9.43	21.57	143.55	33.00	-11.43	1/49
		1882.50	16.54	V	4.53	9.17	21.18	131.22	33.00	-11.82	1/0
		1910.00	15.90	V	4.57	8.85	20.19	104.47	33.00	-12.81	1/0
5	QPSK	1852.50	17.34	V	4.50	9.46	22.30	169.82	33.00	-10.70	1/12
		1882.50	17.84	V	4.53	9.17	22.48	177.01	33.00	-10.52	1/0
		1912.50	16.82	V	4.57	8.82	21.07	127.94	33.00	-11.93	1/0
	16-QAM	1852.50	16.57	V	4.50	9.46	21.53	142.23	33.00	-11.47	1/12
		1882.50	16.74	V	4.53	9.17	21.38	137.40	33.00	-11.62	1/0
		1912.50	15.84	V	4.57	8.82	20.09	102.09	33.00	-12.91	1/0
3	QPSK	1851.50	17.32	V	4.50	9.47	22.29	169.43	33.00	-10.71	1/14
		1882.50	17.59	V	4.53	9.17	22.23	167.11	33.00	-10.77	1/0
		1913.50	15.80	V	4.57	8.80	20.04	100.93	33.00	-12.96	1/0
	16-QAM	1851.50	16.16	V	4.50	9.47	21.13	129.72	33.00	-11.87	1/14
		1882.50	17.15	V	4.53	9.17	21.79	151.01	33.00	-11.21	1/0
		1913.50	15.06	V	4.57	8.80	19.30	85.11	33.00	-13.70	1/0
1.4	QPSK	1850.70	17.11	V	4.50	9.48	22.09	161.81	33.00	-10.91	1/3
		1882.50	17.50	V	4.53	9.17	22.14	163.68	33.00	-10.86	1/0
		1914.30	15.29	V	4.57	8.79	19.51	89.33	33.00	-13.49	1/0
	16-QAM	1850.70	16.23	V	4.50	9.48	21.21	132.13	33.00	-11.79	1/3
		1882.50	16.97	V	4.53	9.17	21.61	144.88	33.00	-11.39	1/0
		1914.30	14.69	V	4.57	8.79	18.91	77.80	33.00	-14.09	1/5

NR Band n25 DFT-s OFDM (ANT B)

BW (MHz)	Modulation	Frequency (MHz)	SG reading (dBm)	Ant. Pol (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)	RB
40	QPSK	1870.00	17.02	H	4.52	9.29	21.80	151.36	33.00	-11.20	1/108
		1882.50	17.41	H	4.53	9.17	22.05	160.32	33.00	-10.95	1/214
		1895.00	18.17	H	4.55	9.05	22.67	184.93	33.00	-10.33	1/1
	16-QAM	1870.00	16.30	H	4.52	9.29	21.08	128.23	33.00	-11.92	1/108
		1882.50	16.72	H	4.53	9.17	21.36	136.77	33.00	-11.64	1/214
		1895.00	17.20	H	4.55	9.05	21.70	147.91	33.00	-11.30	1/1
35	QPSK	1867.50	16.74	H	4.51	9.32	21.54	142.56	33.00	-11.46	1/186
		1882.50	17.43	H	4.53	9.17	22.07	161.06	33.00	-10.93	1/93
		1897.50	18.05	H	4.55	9.03	22.53	179.06	33.00	-10.47	1/93
	16-QAM	1867.50	15.90	H	4.51	9.32	20.70	117.49	33.00	-12.30	1/186
		1882.50	16.79	H	4.53	9.17	21.43	139.00	33.00	-11.57	1/93
		1897.50	17.22	H	4.55	9.03	21.70	147.91	33.00	-11.30	1/93
30	QPSK	1865.00	17.15	H	4.51	9.34	21.98	157.76	33.00	-11.02	1/158
		1882.50	16.99	H	4.53	9.17	21.63	145.55	33.00	-11.37	1/1
		1900.00	18.37	H	4.55	9.01	22.82	191.43	33.00	-10.18	1/1
	16-QAM	1865.00	15.99	H	4.51	9.34	20.82	120.78	33.00	-12.18	1/158
		1882.50	16.18	H	4.53	9.17	20.82	120.78	33.00	-12.18	1/1
		1900.00	17.48	H	4.55	9.01	21.93	155.96	33.00	-11.07	1/1
25	QPSK	1862.50	16.87	H	4.51	9.36	21.73	148.94	33.00	-11.27	1/131
		1882.50	17.51	H	4.53	9.17	22.15	164.06	33.00	-10.85	1/131
		1902.50	18.02	H	4.56	8.97	22.43	174.98	33.00	-10.57	1/1
	16-QAM	1862.50	15.64	H	4.51	9.36	20.50	112.20	33.00	-12.50	1/131
		1882.50	16.38	H	4.53	9.17	21.02	126.47	33.00	-11.98	1/131
		1902.50	16.99	H	4.56	8.97	21.40	138.04	33.00	-11.60	1/1
20	QPSK	1860.00	16.29	H	4.51	9.39	21.17	130.92	33.00	-11.83	1/104
		1882.50	17.17	H	4.53	9.17	21.81	151.71	33.00	-11.19	1/104
		1905.00	18.57	H	4.56	8.93	22.94	196.79	33.00	-10.06	1/53
	16-QAM	1860.00	15.45	H	4.51	9.39	20.33	107.89	33.00	-12.67	1/104
		1882.50	16.02	H	4.53	9.17	20.66	116.41	33.00	-12.34	1/104
		1905.00	17.50	H	4.56	8.93	21.87	153.82	33.00	-11.13	1/53
15	QPSK	1857.50	16.30	H	4.50	9.41	21.21	132.13	33.00	-11.79	1/77
		1882.50	17.30	H	4.53	9.17	21.94	156.31	33.00	-11.06	1/40
		1907.50	18.49	H	4.56	8.89	22.82	191.43	33.00	-10.18	1/1
	16-QAM	1857.50	15.46	H	4.50	9.41	20.37	108.89	33.00	-12.63	1/77
		1882.50	16.90	H	4.53	9.17	21.54	142.56	33.00	-11.46	1/40
		1907.50	17.70	H	4.56	8.89	22.03	159.59	33.00	-10.97	1/1
10	QPSK	1855.00	16.07	H	4.50	9.43	21.00	125.89	33.00	-12.00	1/50
		1882.50	17.25	H	4.53	9.17	21.89	154.53	33.00	-11.11	1/50
		1910.00	18.49	H	4.57	8.85	22.78	189.67	33.00	-10.22	1/1
	16-QAM	1855.00	14.89	H	4.50	9.43	19.82	95.94	33.00	-13.18	1/50
		1882.50	16.24	H	4.53	9.17	20.88	122.46	33.00	-12.12	1/50
		1910.00	17.45	H	4.57	8.85	21.74	149.28	33.00	-11.26	1/1
5	QPSK	1852.50	15.85	H	4.50	9.46	20.81	120.50	33.00	-12.19	1/23
		1882.50	17.15	H	4.53	9.17	21.79	151.01	33.00	-11.21	1/1
		1912.50	18.14	H	4.57	8.82	22.38	172.98	33.00	-10.62	1/23
	16-QAM	1852.50	14.97	H	4.50	9.46	19.93	98.40	33.00	-13.07	1/23
		1882.50	16.11	H	4.53	9.17	20.75	118.85	33.00	-12.25	1/1
		1912.50	17.48	H	4.57	8.82	21.72	148.59	33.00	-11.28	1/23

NR Band n25 DFT-s OFDM (ANT C)

BW (MHz)	Modulation	Frequency (MHz)	SG reading (dBm)	Ant. Pol (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)	RB
40	QPSK	1870.00	16.50	H	4.52	9.29	21.28	134.28	33.00	-11.72	1/1
		1882.50	17.62	H	4.53	9.17	22.26	168.27	33.00	-10.74	1/1
		1895.00	17.70	H	4.55	9.05	22.20	165.96	33.00	-10.80	1/1
	16-QAM	1870.00	15.47	H	4.52	9.29	20.25	105.93	33.00	-12.75	1/1
		1882.50	16.66	H	4.53	9.17	21.30	134.90	33.00	-11.70	1/1
		1895.00	16.86	H	4.55	9.05	21.36	136.77	33.00	-11.64	1/1
35	QPSK	1867.50	16.57	H	4.51	9.32	21.37	137.09	33.00	-11.63	1/93
		1882.50	17.48	H	4.53	9.17	22.12	162.93	33.00	-10.88	1/1
		1897.50	17.64	H	4.55	9.03	22.12	162.93	33.00	-10.88	1/1
	16-QAM	1867.50	15.95	H	4.51	9.32	20.75	118.85	33.00	-12.25	1/93
		1882.50	16.53	H	4.53	9.17	21.17	130.92	33.00	-11.83	1/1
		1897.50	16.70	H	4.55	9.03	21.18	131.22	33.00	-11.82	1/1
30	QPSK	1865.00	16.69	H	4.51	9.34	21.52	141.91	33.00	-11.48	1/80
		1882.50	17.28	H	4.53	9.17	21.92	155.60	33.00	-11.08	1/1
		1900.00	17.52	H	4.55	9.01	21.97	157.40	33.00	-11.03	1/1
	16-QAM	1865.00	15.68	H	4.51	9.34	20.51	112.46	33.00	-12.49	1/80
		1882.50	16.62	H	4.53	9.17	21.26	133.66	33.00	-11.74	1/1
		1900.00	16.47	H	4.55	9.01	20.92	123.59	33.00	-12.08	1/1
25	QPSK	1862.50	16.37	H	4.51	9.36	21.23	132.74	33.00	-11.77	1/131
		1882.50	16.98	H	4.53	9.17	21.62	145.21	33.00	-11.38	1/1
		1902.50	17.36	H	4.56	8.97	21.77	150.31	33.00	-11.23	1/1
	16-QAM	1862.50	15.82	H	4.51	9.36	20.68	116.95	33.00	-12.32	1/131
		1882.50	16.37	H	4.53	9.17	21.07	127.94	33.00	-11.99	1/1
		1902.50	16.66	H	4.56	8.97	21.07	127.94	33.00	-11.93	1/1
20	QPSK	1860.00	16.80	H	4.51	9.39	21.68	147.23	33.00	-11.32	1/104
		1882.50	17.31	H	4.53	9.17	21.95	156.68	33.00	-11.05	1/1
		1905.00	17.06	H	4.56	8.93	21.43	139.00	33.00	-11.57	1/1
	16-QAM	1860.00	15.81	H	4.51	9.39	20.69	117.22	33.00	-12.31	1/104
		1882.50	16.57	H	4.53	9.17	21.21	132.13	33.00	-11.79	1/1
		1905.00	16.19	H	4.56	8.93	20.56	113.76	33.00	-12.44	1/1
15	QPSK	1857.50	16.85	H	4.50	9.41	21.76	149.97	33.00	-11.24	1/77
		1882.50	17.38	H	4.53	9.17	22.02	159.22	33.00	-10.98	1/1
		1907.50	16.32	H	4.56	8.89	20.65	116.14	33.00	-12.35	1/1
	16-QAM	1857.50	15.84	H	4.50	9.41	20.75	118.85	33.00	-12.25	1/77
		1882.50	16.54	H	4.53	9.17	21.18	131.22	33.00	-11.82	1/1
		1907.50	15.77	H	4.56	8.89	20.10	102.33	33.00	-12.90	1/1
10	QPSK	1855.00	16.65	H	4.50	9.43	21.58	143.88	33.00	-11.42	1/50
		1882.50	16.90	H	4.53	9.17	21.54	142.56	33.00	-11.46	1/1
		1910.00	16.76	H	4.57	8.85	21.05	127.35	33.00	-11.95	1/1
	16-QAM	1855.00	15.74	H	4.50	9.43	20.67	116.68	33.00	-12.33	1/50
		1882.50	16.10	H	4.53	9.17	20.74	118.58	33.00	-12.26	1/1
		1910.00	15.77	H	4.57	8.85	20.06	101.39	33.00	-12.94	1/1
5	QPSK	1852.50	16.50	H	4.50	9.46	21.46	139.96	33.00	-11.54	1/23
		1882.50	16.93	H	4.53	9.17	21.57	143.55	33.00	-11.43	1/1
		1912.50	16.24	H	4.57	8.82	20.48	111.69	33.00	-12.52	1/1
	16-QAM	1852.50	15.54	H	4.50	9.46	20.50	112.20	33.00	-12.50	1/23
		1882.50	15.89	H	4.53	9.17	20.53	112.98	33.00	-12.47	1/1
		1912.50	15.39	H	4.57	8.82	19.63	91.83	33.00	-13.37	1/1

9.2. RADIATED SPURIOUS EMISSION

RULE PART(S)

FCC: §2.1053, §24.238

LIMIT

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.

TEST PROCEDURE

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

For peak power measurement with a ESU40:

- a) Set the RBW = 1 MHz for emissions above 1 GHz
- b) Set VBW $\geq 3 \times$ RBW;
- c) Set span ≥ 1.5 times the OBW;
- d) Sweep time = auto couple;
- e) Detector = rms;
- f) Ensure that the number of measurement points $\geq$ span/RBW;
- g) Trace Mode = average(WCDMA, LTE, 5G NR), Maxhold(GSM);

NOTE1

GSM : It was tested at GPRS as worst case (the highest output power and density).

UMTS: It was tested at REL 99 as worst case (the highest output power and density).

LTE: It was tested at 1RB QPSK as worst case (the highest output power and density).

5G NR: All Waveforms (CP-OFDM vs DFT-s_OFDM) and modulations ($\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

NOTE2

Please refer to section 5.4 for bandwidth and RB setting about LTE, 5G NR bands.

RESULTS

See the following pages.

9.2.1. SPURIOUS RADIATION RESULT

GSM1900

	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung Project #: 4791547056 Date: 2024-11-22 Test Engineer: 27089 Configuration: EUT / AC Adapter, X-Position Location: Chamber 1 Mode: GPRS 1900 MHz Harmonics Test Voltage: AC 120 V, 60 Hz									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
GPRS	Low Ch, 1850.2MHz									
	3700.40	-7.7	V	3.0	44.2	1.0	-51.0	-13.0	-38.0	
	5550.60	-5.7	V	3.0	44.6	1.0	-49.3	-13.0	-36.3	
	7400.80	-0.6	V	3.0	44.8	1.0	-44.4	-13.0	-31.4	
	3700.40	-7.7	H	3.0	44.2	1.0	-51.0	-13.0	-38.0	
	5550.60	-4.9	H	3.0	44.6	1.0	-48.5	-13.0	-35.5	
	7400.80	-1.4	H	3.0	44.8	1.0	-45.3	-13.0	-32.3	
	Mid Ch, 1880MHz									
	3760.00	-7.1	V	3.0	44.3	1.0	-50.4	-13.0	-37.4	
	5640.00	-5.3	V	3.0	44.7	1.0	-48.9	-13.0	-35.9	
	7520.00	0.1	V	3.0	44.7	1.0	-43.6	-13.0	-30.6	
	3760.00	-7.6	H	3.0	44.3	1.0	-50.9	-13.0	-37.9	
	5640.00	-4.7	H	3.0	44.7	1.0	-48.4	-13.0	-35.4	
	7520.00	-1.8	H	3.0	44.7	1.0	-45.5	-13.0	-32.5	
	High Ch, 1909.8MHz									
	3819.60	-7.8	V	3.0	44.4	1.0	-51.1	-13.0	-38.1	
	5729.40	-5.4	V	3.0	44.7	1.0	-49.1	-13.0	-36.1	
	7639.20	0.0	V	3.0	44.6	1.0	-43.7	-13.0	-30.7	
	3819.60	-7.5	H	3.0	44.4	1.0	-50.9	-13.0	-37.9	
	5729.40	-4.4	H	3.0	44.7	1.0	-48.1	-13.0	-35.1	
	7639.20	-1.3	H	3.0	44.6	1.0	-45.0	-13.0	-32.0	

WCDMA Band 2

	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung Project #: 4791547056 Date: 2024-11-21 Test Engineer: 27089 Configuration: EUT / AC Adapter, Y-Position Location: Chamber 1 Mode: Rel99 Band 2 Harmonics Test Votage: AC 120 V, 60 Hz									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
REL99	Low Ch, 1852.4MHz									
	3704.80	-9.1	V	3.0	44.2	1.0	-52.3	-13.0	-39.3	
	5557.20	-7.0	V	3.0	44.6	1.0	-50.7	-13.0	-37.7	
	7409.60	-4.1	V	3.0	44.8	1.0	-47.9	-13.0	-34.9	
	3704.80	-8.9	H	3.0	44.2	1.0	-52.2	-13.0	-39.2	
	5557.20	-7.0	H	3.0	44.6	1.0	-50.7	-13.0	-37.7	
	7409.60	-4.1	H	3.0	44.8	1.0	-47.9	-13.0	-34.9	
	Mid Ch, 1880MHz									
	3760.00	-9.1	V	3.0	44.3	1.0	-52.4	-13.0	-39.4	
	5640.00	-6.7	V	3.0	44.7	1.0	-50.4	-13.0	-37.4	
	7520.00	-4.1	V	3.0	44.7	1.0	-47.8	-13.0	-34.8	
	3760.00	-9.0	H	3.0	44.3	1.0	-52.3	-13.0	-39.3	
	5640.00	-6.7	H	3.0	44.7	1.0	-50.3	-13.0	-37.3	
	7520.00	-4.1	H	3.0	44.7	1.0	-47.8	-13.0	-34.8	
	High Ch, 1907.6MHz									
	3815.20	-8.9	V	3.0	44.4	1.0	-52.3	-13.0	-39.3	
	5722.80	-6.8	V	3.0	44.7	1.0	-50.4	-13.0	-37.4	
	7630.40	-3.6	V	3.0	44.6	1.0	-47.3	-13.0	-34.3	
	3815.20	-8.8	H	3.0	44.4	1.0	-52.2	-13.0	-39.2	
	5722.80	-6.8	H	3.0	44.7	1.0	-50.4	-13.0	-37.4	
	7630.40	-3.7	H	3.0	44.6	1.0	-47.4	-13.0	-34.4	

LTE Band 25

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4791547056							
Date:		2024-11-21							
Test Engineer:		28775							
Configuration:		EUT / AC Adapter, X-Position							
Location:		Chamber 2							
Mode:		LTE_QPSK Band 25 Harmonics, 10MHz Bandwidth							
Test Votage:		AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
10 MHz									
QPSK									
ANT B									
Low Ch, 1855MHz									
3710.00	-10.2	V	3.0	43.1	1.0	-52.3	-13.0	-39.3	
5565.00	-7.2	V	3.0	43.4	1.0	-49.6	-13.0	-36.6	
7420.00	-4.5	V	3.0	43.0	1.0	-46.5	-13.0	-33.5	
3710.00	-10.1	H	3.0	43.1	1.0	-52.1	-13.0	-39.1	
5565.00	-7.4	H	3.0	43.4	1.0	-49.8	-13.0	-36.8	
7420.00	-4.9	H	3.0	43.0	1.0	-46.9	-13.0	-33.9	
Mid Ch, 1882.5MHz									
3765.00	-10.0	V	3.0	43.1	1.0	-52.1	-13.0	-39.1	
5647.50	-7.1	V	3.0	43.4	1.0	-49.5	-13.0	-36.5	
7530.00	-4.4	V	3.0	42.9	1.0	-46.3	-13.0	-33.3	
3765.00	-9.7	H	3.0	43.1	1.0	-51.8	-13.0	-38.8	
5647.50	-7.2	H	3.0	43.4	1.0	-49.6	-13.0	-36.6	
7530.00	-5.0	H	3.0	42.9	1.0	-46.9	-13.0	-33.9	
High Ch, 1910MHz									
3820.00	-9.9	V	3.0	43.1	1.0	-52.1	-13.0	-39.1	
5730.00	-7.1	V	3.0	43.4	1.0	-49.6	-13.0	-36.6	
7640.00	-4.2	V	3.0	42.9	1.0	-46.0	-13.0	-33.0	
3820.00	-9.6	H	3.0	43.1	1.0	-51.7	-13.0	-38.7	
5730.00	-7.4	H	3.0	43.4	1.0	-49.8	-13.0	-36.8	
7640.00	-4.9	H	3.0	42.9	1.0	-46.7	-13.0	-33.7	
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4791547056							
Date:		2024-11-22							
Test Engineer:		27089							
Configuration:		EUT / AC Adapter, X-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 25 Harmonics, 10MHz Bandwidth							
Test Votage:		AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
10 MHz									
QPSK									
ANT C									
Low Ch, 1855MHz									
3710.00	-9.0	V	3.0	44.3	1.0	-52.3	-13.0	-39.3	
5565.00	-6.8	V	3.0	44.6	1.0	-50.5	-13.0	-37.5	
7420.00	-2.8	V	3.0	44.8	1.0	-46.7	-13.0	-33.7	
3710.00	-9.1	H	3.0	44.3	1.0	-52.3	-13.0	-39.3	
5565.00	-6.5	H	3.0	44.6	1.0	-50.1	-13.0	-37.1	
7420.00	-3.6	H	3.0	44.8	1.0	-47.4	-13.0	-34.4	
Mid Ch, 1882.5MHz									
3765.00	-9.2	V	3.0	44.3	1.0	-52.5	-13.0	-39.5	
5647.50	-6.3	V	3.0	44.7	1.0	-50.0	-13.0	-37.0	
7530.00	-2.6	V	3.0	44.7	1.0	-46.3	-13.0	-33.3	
3765.00	-9.1	H	3.0	44.3	1.0	-52.4	-13.0	-39.4	
5647.50	-6.2	H	3.0	44.7	1.0	-49.8	-13.0	-36.8	
7530.00	-3.4	H	3.0	44.7	1.0	-47.1	-13.0	-34.1	
High Ch, 1910MHz									
3820.00	-9.1	V	3.0	44.4	1.0	-52.5	-13.0	-39.5	
5730.00	-6.6	V	3.0	44.7	1.0	-50.3	-13.0	-37.3	
7640.00	-2.2	V	3.0	44.6	1.0	-45.8	-13.0	-32.8	
3820.00	-8.9	H	3.0	44.4	1.0	-52.3	-13.0	-39.3	
5730.00	-6.5	H	3.0	44.7	1.0	-50.1	-13.0	-37.1	
7640.00	-3.2	H	3.0	44.6	1.0	-46.9	-13.0	-33.9	

NR Band n25 DFT-s OFDM

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4791547056							
Date:		2024-11-26							
Test Engineer:		27089							
Configuration:		EUT / AC Adapter, X-Position							
Location:		Chamber 1							
Mode:		5G NR_QPSK NR n25 Harmonics, 20MHz Bandwidth							
Test Votage:		AC 120 V, 60 Hz							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1860MHz									
3720.00	-9.2	V	3.0	44.3	1.0	-52.4	-13.0	-39.4	
5580.00	-7.1	V	3.0	44.6	1.0	-50.8	-13.0	-37.8	
7440.00	-3.6	V	3.0	44.8	1.0	-47.4	-13.0	-34.4	
9300.00	-1.4	V	3.0	44.2	1.0	-44.6	-13.0	-31.6	
11160.00	0.7	V	3.0	42.9	1.0	-41.2	-13.0	-28.2	
3720.00	-9.1	H	3.0	44.3	1.0	-52.3	-13.0	-39.3	
5580.00	-7.1	H	3.0	44.6	1.0	-50.7	-13.0	-37.7	
7440.00	-4.0	H	3.0	44.8	1.0	-47.8	-13.0	-34.8	
9300.00	-1.5	H	3.0	44.2	1.0	-44.7	-13.0	-31.7	
11160.00	0.8	H	3.0	42.9	1.0	-41.1	-13.0	-28.1	
Mid Ch, 1882.5MHz									
3765.00	-9.2	V	3.0	44.3	1.0	-52.5	-13.0	-39.5	
5647.50	-6.8	V	3.0	44.7	1.0	-50.5	-13.0	-37.5	
7530.00	-3.4	V	3.0	44.7	1.0	-47.1	-13.0	-34.1	
9412.50	-1.3	V	3.0	44.0	1.0	-44.3	-13.0	-31.3	
11295.00	0.7	V	3.0	42.9	1.0	-41.2	-13.0	-28.2	
3765.00	-9.3	H	3.0	44.3	1.0	-52.6	-13.0	-39.6	
5647.50	-6.9	H	3.0	44.7	1.0	-50.5	-13.0	-37.5	
7530.00	-3.9	H	3.0	44.7	1.0	-47.6	-13.0	-34.6	
9412.50	-1.4	H	3.0	44.0	1.0	-44.4	-13.0	-31.4	
11295.00	0.8	H	3.0	42.9	1.0	-41.0	-13.0	-28.0	
High Ch, 1905MHz									
3810.00	-9.1	V	3.0	44.4	1.0	-52.5	-13.0	-39.5	
5715.00	-6.9	V	3.0	44.7	1.0	-50.6	-13.0	-37.6	
7620.00	-3.3	V	3.0	44.7	1.0	-47.0	-13.0	-34.0	
9525.00	-1.3	V	3.0	43.8	1.0	-44.1	-13.0	-31.1	
11430.00	0.8	V	3.0	42.9	1.0	-41.1	-13.0	-28.1	
3810.00	-8.9	H	3.0	44.4	1.0	-52.3	-13.0	-39.3	
5715.00	-6.9	H	3.0	44.7	1.0	-50.5	-13.0	-37.5	
7620.00	-3.7	H	3.0	44.7	1.0	-47.3	-13.0	-34.3	
9525.00	-1.4	H	3.0	43.8	1.0	-44.1	-13.0	-31.1	
11430.00	1.0	H	3.0	42.9	1.0	-40.9	-13.0	-27.9	

20 MHz
QPSK
ANT B

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		Samsung								
Project #:		4791547056								
Date:		2024-11-27								
Test Engineer:		27089								
Configuration:		EUT / AC Adapter, Z-Position								
Location:		Chamber 1								
Mode:		5G NR_QPSK NR n25 Harmonics, 40MHz Bandwidth								
Test Votage:		AC 120 V, 60 Hz								
40 MHz QPSK ANT C	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 1870MHz									
	3740.00	-9.1	V	3.0	44.3	1.0	-52.3	-13.0	-39.3	
	5610.00	-5.9	V	3.0	44.6	1.0	-49.5	-13.0	-36.5	
	7480.00	-2.6	V	3.0	44.8	1.0	-46.4	-13.0	-33.4	
	3740.00	-9.0	H	3.0	44.3	1.0	-52.3	-13.0	-39.3	
	5610.00	-6.1	H	3.0	44.6	1.0	-49.8	-13.0	-36.8	
	7480.00	-1.5	H	3.0	44.8	1.0	-45.2	-13.0	-32.2	
	Mid Ch, 1882.5MHz									
	3765.00	-8.8	V	3.0	44.3	1.0	-52.2	-13.0	-39.2	
	5647.50	-6.0	V	3.0	44.7	1.0	-49.7	-13.0	-36.7	
	7530.00	-3.4	V	3.0	44.7	1.0	-47.1	-13.0	-34.1	
	3765.00	-8.8	H	3.0	44.3	1.0	-52.1	-13.0	-39.1	
	5647.50	-5.8	H	3.0	44.7	1.0	-49.5	-13.0	-36.5	
	7530.00	-2.7	H	3.0	44.7	1.0	-46.4	-13.0	-33.4	
	High Ch, 1895MHz									
	3790.00	-9.2	V	3.0	44.4	1.0	-52.5	-13.0	-39.5	
	5685.00	-5.8	V	3.0	44.7	1.0	-49.4	-13.0	-36.4	
	7580.00	-3.0	V	3.0	44.7	1.0	-46.7	-13.0	-33.7	
	3790.00	-9.3	H	3.0	44.4	1.0	-52.6	-13.0	-39.6	
	5685.00	-5.7	H	3.0	44.7	1.0	-49.3	-13.0	-36.3	
	7580.00	-2.1	H	3.0	44.7	1.0	-45.8	-13.0	-32.8	

END OF REPORT