

















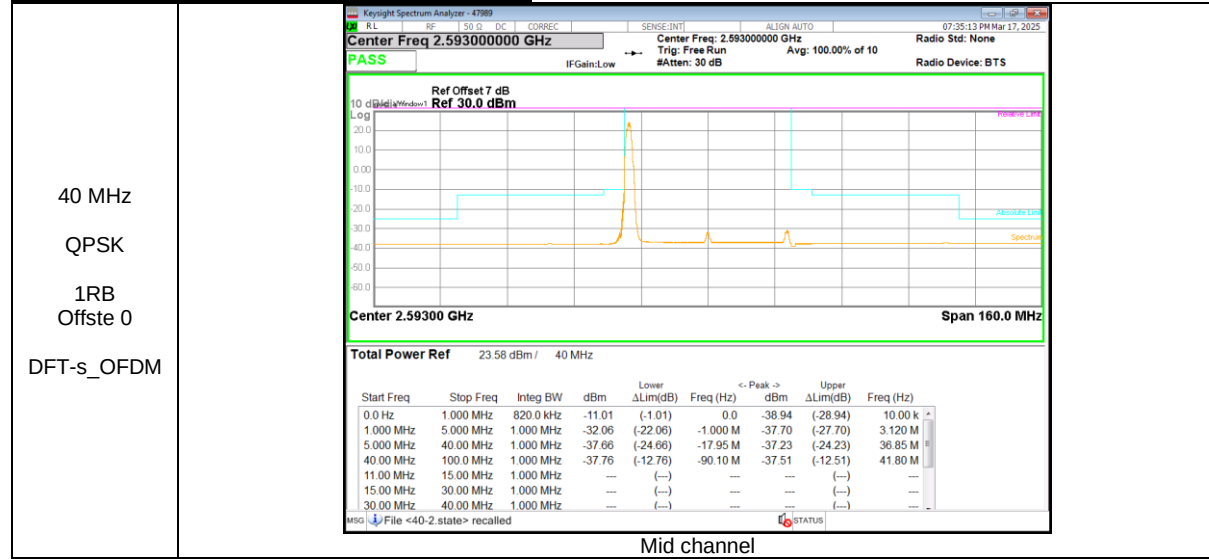








NR Band n41 1 RB (Worst Case) (ANT D)



8.5. CONDUCTED SPURIOUS EMISSIONS

RULE PART(S)

FCC: §27.53

LIMITS

§27.53:

(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB.

(h) The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB.

(m) (4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

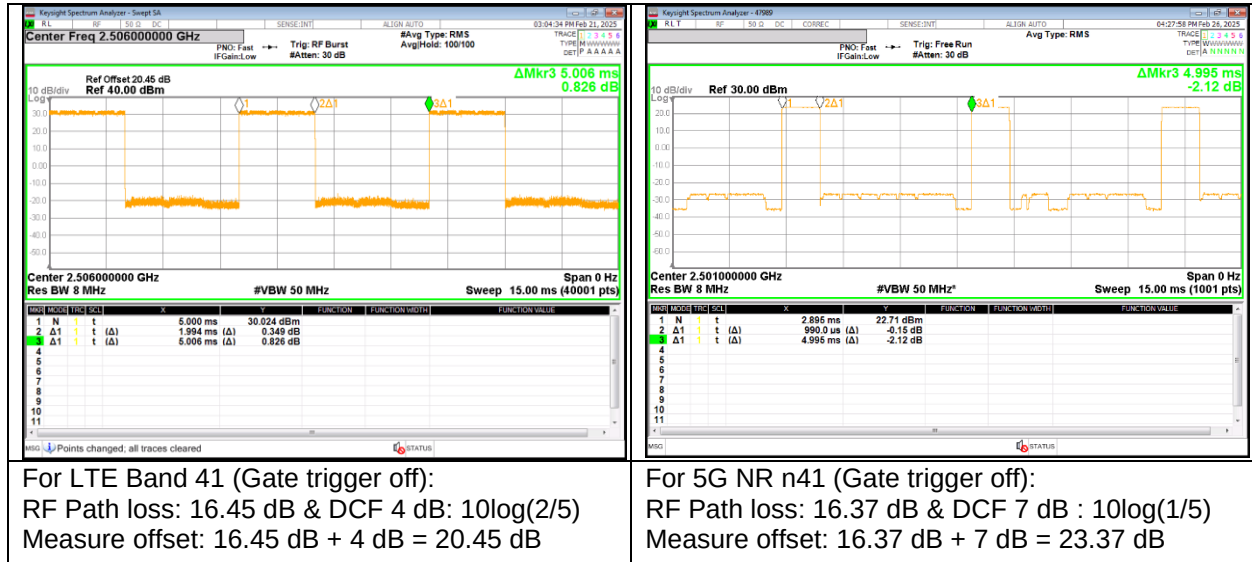
TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v03r01

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold Mode using a peak detector to ensure that the worst-case emissions were caught.

- a) Set the RBW = 100 kHz for emission below 1 GHz and 1 MHz for emissions above 1 GHz
(Tests were performed 1MHz [Worst case], to sweep 1 time for all frequency range)
- b) Set VBW $\geq 3 \times$ RBW;
- c) Set span ≥ 1.5 times the OBW;
- d) Sweep time = auto couple or Set $\geq [10 \times (\text{number of points in sweep}) \times (\text{transmission period})]$ for single sweep (automation-compatible) measurement. Transmission period is the on and off time of the transmitter.
- e) Detector = rms;
- f) Ensure that the number of measurement points = Max (40001);
- g) Trace Mode = average;

NOTE1



NOTE2

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.

NOTE3

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

RESULTS

See the following pages.

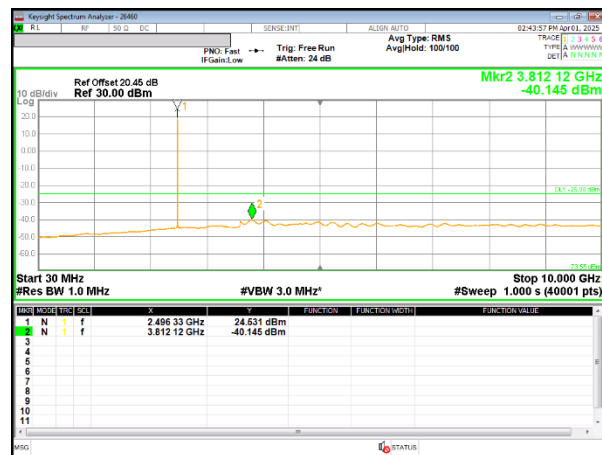
8.5.1. OUT OF BAND EMISSIONS RESULT

LTE Band 12 (ANT A)



LTE Band 41 (ANT D)

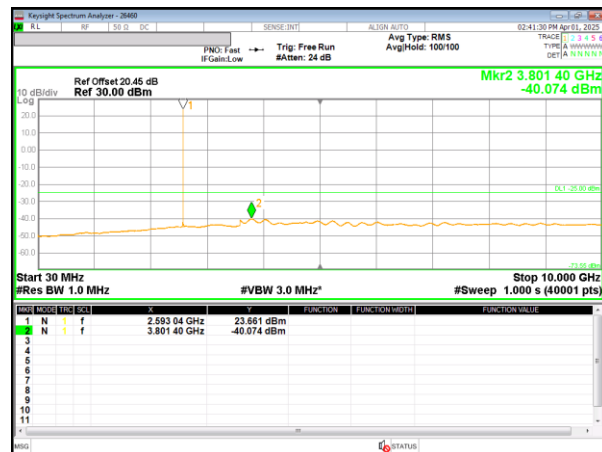
5 MHz QPSK



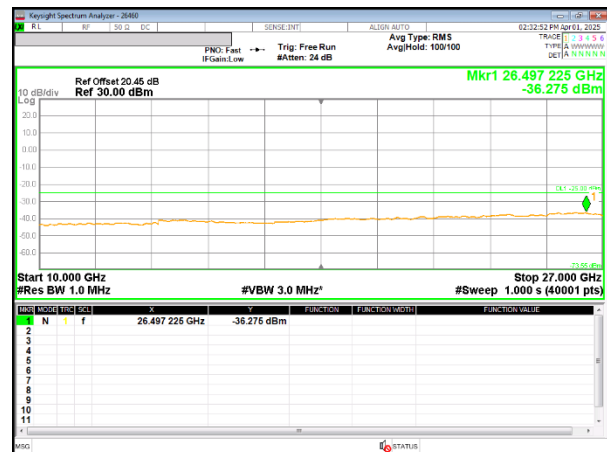
Low channel



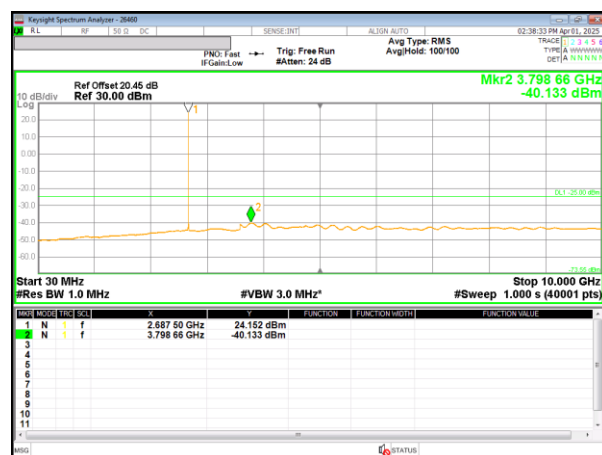
Low channel



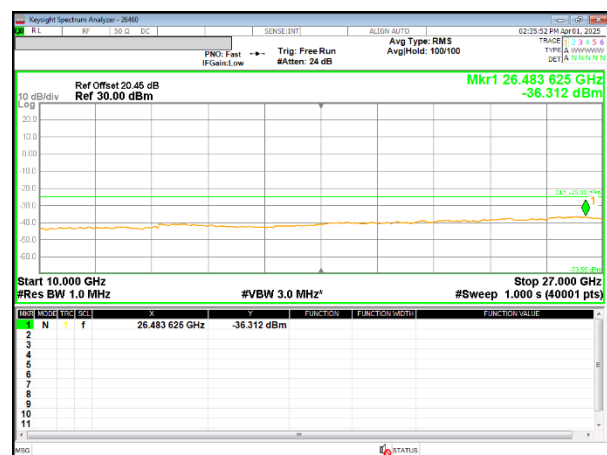
Mid channel



Mid channel



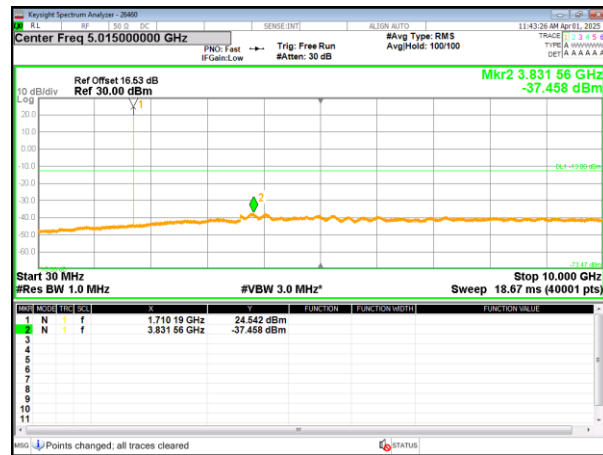
High channel



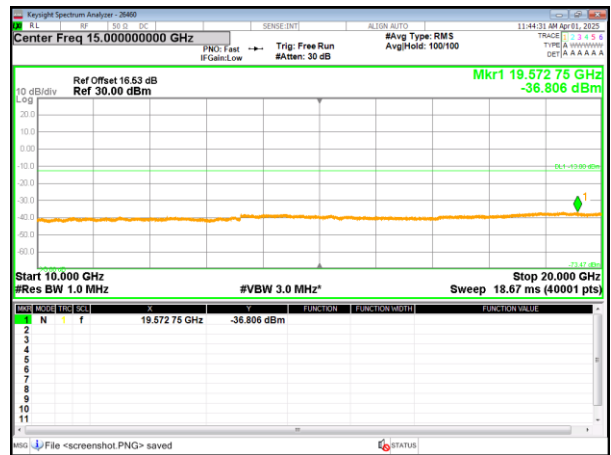
High channel

LTE Band 66 (ANT D)

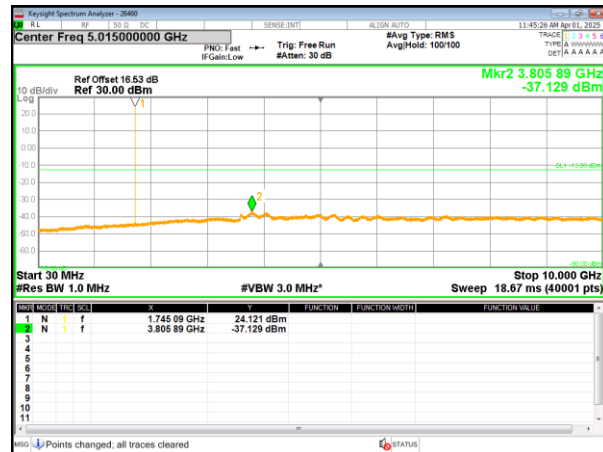
1.4 MHz QPSK



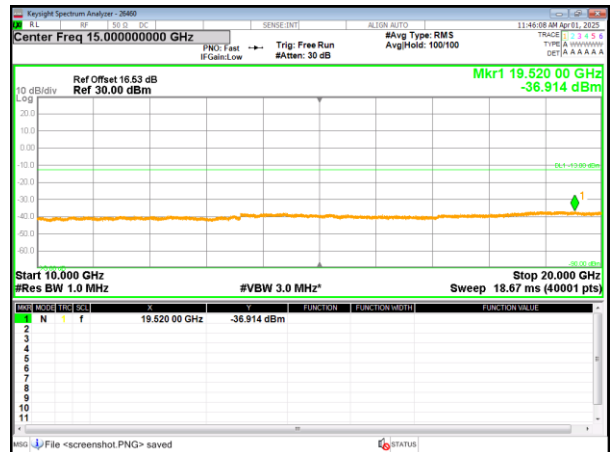
Low channel



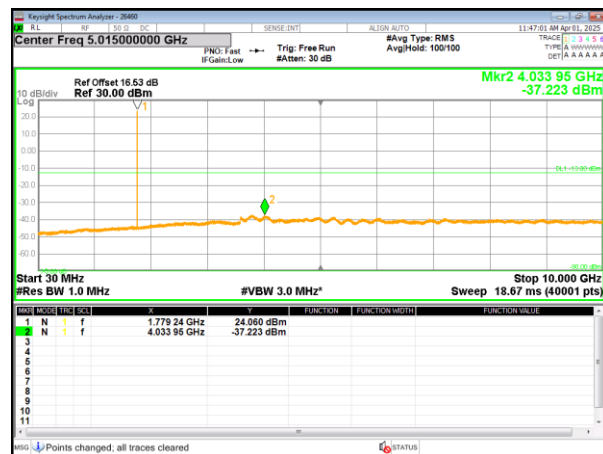
Low channel



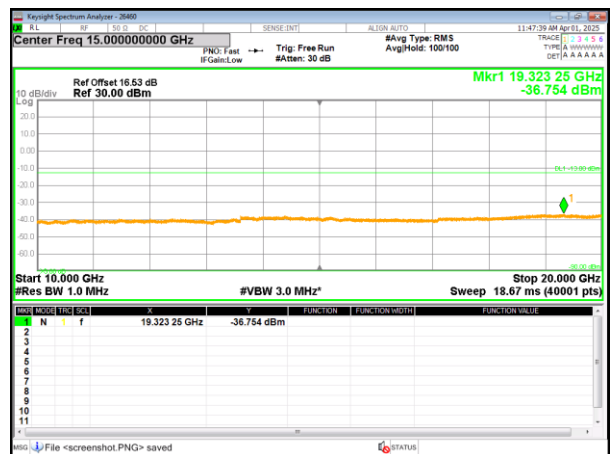
Mid channel



Mid channel



High channel



High channel

NR Band n41 (ANT D)

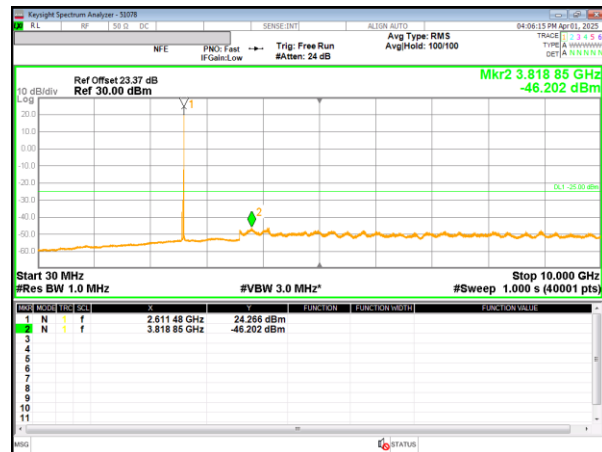
40 MHz QPSK DFT-s_OFDM



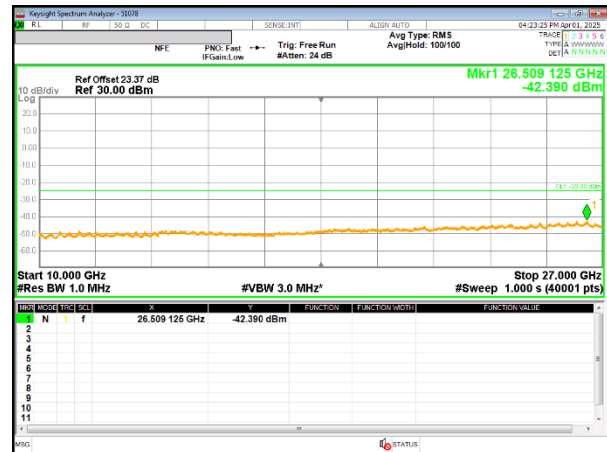
Low channel



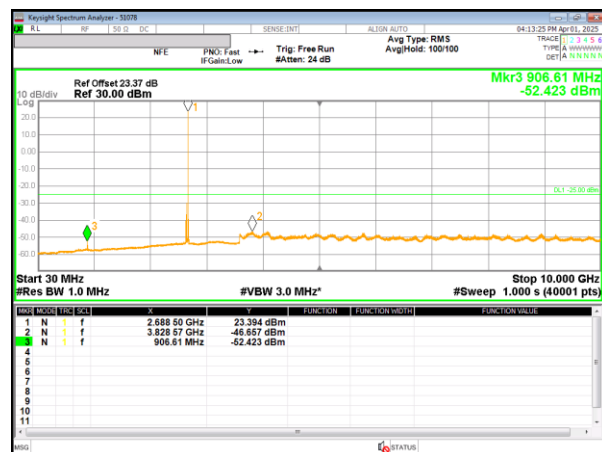
Low channel



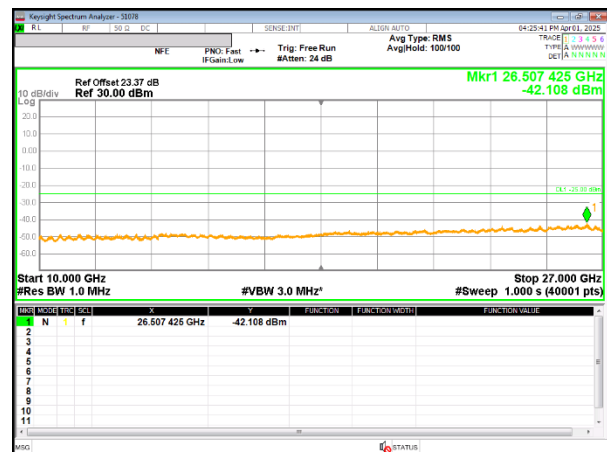
Mid channel



Mid channel



High channel



High channel

8.6. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §27.54

LIMITS

§27.54

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

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

LTE Band 12 (Lowest Frequency: 16QAM / Highest Frequency: 16QAM)

Test Date	2025-03-11
Test Engineer	47989

Limit		699	716	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	699.1552	715.8464		
Extreme (50C)		699.1552	715.8464	12.2	0.017
Extreme (40C)		699.1552	715.8464	11.7	0.017
Extreme (30C)		699.1552	715.8464	10.1	0.014
Extreme (10C)		699.1552	715.8464	9.1	0.013
Extreme (0C)		699.1552	715.8464	8.5	0.012
Extreme (-10C)		699.1552	715.8464	9.4	0.013
Extreme (-20C)		699.1552	715.8464	9.5	0.013
Extreme (-30C)		699.1552	715.8464	9.2	0.013
20C	15%	699.1552	715.8464	3.1	0.004
	-15%	699.1552	715.8464	3.5	0.005
	End Point	699.1552	715.8464	5.5	0.008

LTE Band 41 (Lowest Frequency: 16QAM / Highest Frequency: QPSK)

Test Date	2025-03-12
Test Engineer	47989

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	2496.2576	2689.7403		
Extreme (50C)		2496.2576	2689.7403	11.3	0.004
Extreme (40C)		2496.2576	2689.7403	13.4	0.005
Extreme (30C)		2496.2576	2689.7403	11.7	0.005
Extreme (10C)		2496.2576	2689.7403	10.7	0.004
Extreme (0C)		2496.2576	2689.7403	11.4	0.004
Extreme (-10C)		2496.2576	2689.7403	13.1	0.005
Extreme (-20C)		2496.2576	2689.7403	13.4	0.005
Extreme (-30C)		2496.2576	2689.7403	13.6	0.005
20C	15%	2496.2576	2689.7403	10.1	0.004
	-15%	2496.2576	2689.7403	8.8	0.003
	End Point	2496.2576	2689.7403	11.3	0.004

LTE Band 66 (Lowest Frequency: QPSK / Highest Frequency: 16QAM)

Test Date	2025-03-13
Test Engineer	47989

Limit		1710	1780	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1710.1563	1779.8464		
Extreme (50C)		1710.1563	1779.8464	21.6	0.012
Extreme (40C)		1710.1563	1779.8464	20.6	0.012
Extreme (30C)		1710.1563	1779.8464	21.6	0.012
Extreme (10C)		1710.1563	1779.8464	21.7	0.012
Extreme (0C)		1710.1563	1779.8464	20.7	0.012
Extreme (-10C)		1710.1563	1779.8464	22.7	0.013
Extreme (-20C)		1710.1563	1779.8464	12.7	0.007
Extreme (-30C)		1710.1563	1779.8464	13.7	0.008
20C	15%	1710.1563	1779.8464	5.5	0.003
	-15%	1710.1563	1779.8464	5.9	0.003
	End Point	1710.1563	1779.8464	6.0	0.003

NR Band n41 (Lowest Frequency: QPSK / Highest Frequency: QPSK)

Test Date	2025-03-14
Test Engineer	47989

Normal (20C)		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	2496.7023	2689.3042		
Extreme (50C)		2496.7023	2689.3042	12.9	0.005
Extreme (40C)		2496.7023	2689.3042	12.4	0.005
Extreme (30C)		2496.7023	2689.3042	10.6	0.004
Extreme (10C)		2496.7023	2689.3042	11.4	0.004
Extreme (0C)		2496.7023	2689.3042	12.6	0.005
Extreme (-10C)		2496.7023	2689.3042	13.1	0.005
Extreme (-20C)		2496.7023	2689.3042	14.2	0.005
Extreme (-30C)		2496.7023	2689.3042	13.9	0.005
20C	15%	2496.7023	2689.3042	13.0	0.005
	-15%	2496.7023	2689.3042	11.7	0.005
	End Point	2496.7023	2689.3042	14.6	0.006

9. RADIATED RESULTS

9.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §27.50

LIMITS

§27.50:

(c) (10) - Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

(d)(4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

(h) The following power limits shall apply in the BRS and EBS:

(2) Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

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 $\geq 1\%$ to 5% of the OBW;
- b) Set VBW $\geq 3 \times$ RBW;
- c) Set span $\geq 2 \times$ to $3 \times$ the OBW.;
- d) Sweep time = auto couple or Set $\geq [10 \times (\text{number of points in sweep}) \times (\text{transmission period})]$ for single sweep (automation-compatible) measurement. Transmission period is the on and off time of the transmitter.;
- e) Detector = rms;
- f) Ensure that the number of measurement points $\geq 2 \times \text{span/RBW}$;
- g) Trace mode = average;
- h) If the EUT can be configured to transmit continuously, then set the trigger to free run.
- i) If the EUT cannot be configured to transmit continuously, then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Verify that the sweep time is less than or equal to the transmission burst duration. Time gating can also be used under similar constraints (i.e., configured such that measurement data is collected only during active full-power transmissions).
- j) Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over multiple symbols, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.
- k) Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band or channel power measurement function, with the band/channel limits set equal to the OBW band edges. If the instrument does not have a band or channel power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

NOTE

LTE, 5G NR: The OBW value corresponding to the total channel bandwidth is the OBW of FullRB. Measurements were made with a 1RB configuration (Worst case) over the entire channel bandwidth, and FRB configurations were also reported for the worst BW.

TEST RESULTS

See the following pages.

9.1.1. ERP/EIRP RESULT

LTE Band 12 (ANT A)

BW (MHz)	Modulation	Frequency (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)	RB
10	QPSK	704.00	22.23	V	2.79	-1.34	18.10	64.57	34.77	-16.67	1/0
		707.50	22.48	V	2.80	-1.34	18.34	68.23	34.77	-16.43	1/0
		711.00	22.05	V	2.81	-1.33	17.92	61.94	34.77	-16.85	1/25
	16-QAM	704.00	21.23	V	2.79	-1.34	17.10	51.29	34.77	-17.67	1/25
		707.50	21.35	V	2.80	-1.34	17.21	52.60	34.77	-17.56	1/0
		711.00	21.19	V	2.81	-1.33	17.06	50.82	34.77	-17.71	1/25
5	QPSK	701.50	21.96	V	2.79	-1.35	17.83	60.67	34.77	-16.94	1/0
		707.50	22.18	V	2.80	-1.34	18.04	63.68	34.77	-16.73	1/0
		713.50	22.03	V	2.81	-1.32	17.90	61.66	34.77	-16.87	1/0
	16-QAM	701.50	20.89	V	2.79	-1.35	16.76	47.42	34.77	-18.01	1/0
		707.50	21.05	V	2.80	-1.34	16.91	49.09	34.77	-17.86	1/0
		713.50	20.95	V	2.81	-1.32	16.82	48.08	34.77	-17.95	1/24
3	QPSK	700.50	22.02	V	2.79	-1.35	17.89	61.52	34.77	-16.88	1/8
		707.50	22.22	V	2.80	-1.34	18.08	64.27	34.77	-16.69	1/8
		714.50	22.30	V	2.82	-1.32	18.16	65.46	34.77	-16.61	1/8
	16-QAM	700.50	20.95	V	2.79	-1.35	16.82	48.08	34.77	-17.95	1/8
		707.50	21.05	V	2.80	-1.34	16.91	49.09	34.77	-17.86	1/14
		714.50	21.38	V	2.82	-1.32	17.24	52.97	34.77	-17.53	1/0
1.4	QPSK	699.70	21.79	V	2.78	-1.35	17.65	58.21	34.77	-17.12	1/3
		707.50	21.92	V	2.80	-1.34	17.78	59.98	34.77	-16.99	1/5
		715.30	21.74	V	2.82	-1.32	17.60	57.54	34.77	-17.17	1/0
	16-QAM	699.70	20.68	V	2.78	-1.35	16.54	45.08	34.77	-18.23	1/5
		707.50	20.82	V	2.80	-1.34	16.68	46.56	34.77	-18.09	1/0
		715.30	20.57	V	2.82	-1.32	16.43	43.95	34.77	-18.34	1/3
10	QPSK	704.00	21.06	V	2.79	-1.34	16.93	49.32	34.77	-17.84	50/0
		707.50	21.42	V	2.80	-1.34	17.28	53.46	34.77	-17.49	50/0
		711.00	21.01	V	2.81	-1.33	16.88	48.75	34.77	-17.89	50/0
3	16-QAM	700.50	19.88	V	2.79	-1.35	15.75	37.58	34.77	-19.02	15/0
		707.50	19.87	V	2.80	-1.34	15.73	37.41	34.77	-19.04	15/0
		714.50	20.10	V	2.82	-1.32	15.96	39.45	34.77	-18.81	15/0
10	QPSK	704.00	21.06	V	2.79	-1.34	16.93	49.32	34.77	-17.84	50/0
		707.50	21.42	V	2.80	-1.34	17.28	53.46	34.77	-17.49	50/0
		711.00	21.01	V	2.81	-1.33	16.88	48.75	34.77	-17.89	50/0
3	16-QAM	700.50	19.88	V	2.79	-1.35	15.75	37.58	34.77	-19.02	15/0
		707.50	19.87	V	2.80	-1.34	15.73	37.41	34.77	-19.04	15/0
		714.50	20.10	V	2.82	-1.32	15.96	39.45	34.77	-18.81	15/0

LTE Band 41 (ANT B)

BW (MHz)	MoHulation	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	2506.00	18.76	H	5.25	10.04	23.55	226.46	33.00	-9.45	1/99
		2593.00	19.68	H	5.34	9.90	24.24	265.46	33.00	-8.76	1/99
		2680.00	19.44	H	5.44	9.88	23.87	243.78	33.00	-9.13	1/99
	16-QAM	2506.00	18.24	H	5.25	10.04	23.03	200.91	33.00	-9.97	1/99
		2593.00	19.14	H	5.34	9.90	23.70	234.42	33.00	-9.30	1/0
		2680.00	18.93	H	5.44	9.88	23.36	216.77	33.00	-9.64	1/49
15	QPSK	2503.50	17.48	H	5.25	10.05	22.28	169.04	33.00	-10.72	1/37
		2593.00	19.30	H	5.34	9.90	23.86	243.22	33.00	-9.14	1/74
		2682.50	18.06	H	5.44	9.88	22.50	177.83	33.00	-10.50	1/74
	16-QAM	2503.50	16.97	H	5.25	10.05	21.77	150.31	33.00	-11.23	1/0
		2593.00	18.76	H	5.34	9.90	23.32	214.78	33.00	-9.68	1/0
		2682.50	17.50	H	5.44	9.88	21.94	156.31	33.00	-11.06	1/74
10	QPSK	2501.00	17.53	H	5.24	10.05	22.34	171.40	33.00	-10.66	1/25
		2593.00	19.48	H	5.34	9.90	24.04	253.51	33.00	-8.96	1/25
		2685.00	18.55	H	5.45	9.89	22.98	198.61	33.00	-10.02	1/25
	16-QAM	2501.00	16.89	H	5.24	10.05	21.70	147.91	33.00	-11.30	1/25
		2593.00	18.96	H	5.34	9.90	23.52	224.91	33.00	-9.48	1/49
		2685.00	18.02	H	5.45	9.89	22.45	175.79	33.00	-10.55	1/25
5	QPSK	2498.50	17.22	H	5.24	10.06	22.04	159.96	33.00	-10.96	1/12
		2593.00	19.37	H	5.34	9.90	23.93	247.17	33.00	-9.07	1/12
		2687.50	18.46	H	5.45	9.89	22.90	194.98	33.00	-10.10	1/12
	16-QAM	2498.50	16.48	H	5.24	10.06	21.29	134.59	33.00	-11.71	1/12
		2593.00	18.81	H	5.34	9.90	23.37	217.27	33.00	-9.63	1/24
		2687.50	17.67	H	5.45	9.89	22.11	162.55	33.00	-10.89	1/24
20	QPSK	2506.00	17.73	H	5.25	10.04	22.52	178.65	33.00	-10.48	100/0
		2593.00	18.57	H	5.34	9.90	23.13	205.59	33.00	-9.87	100/0
		2680.00	18.46	H	5.44	9.88	22.89	194.54	33.00	-10.11	100/0
	16-QAM	2506.00	17.19	H	5.25	10.04	21.98	157.76	33.00	-11.02	100/0
		2593.00	18.17	H	5.34	9.90	22.73	187.50	33.00	-10.27	100/0
		2680.00	17.87	H	5.44	9.88	22.30	169.82	33.00	-10.70	100/0

LTE Band 41 (ANT D)

BW (MHz)	MoHulation	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	2506.00	15.79	V	5.25	10.04	20.58	114.29	33.00	-12.42	1/49
		2593.00	16.54	V	5.34	9.90	21.10	128.82	33.00	-11.90	1/0
		2680.00	15.76	V	5.44	9.88	20.20	104.71	33.00	-12.80	1/49
	16-QAM	2506.00	15.12	V	5.25	10.04	19.91	97.95	33.00	-13.09	1/49
		2593.00	15.60	V	5.34	9.90	20.16	103.75	33.00	-12.84	1/99
		2680.00	15.18	V	5.44	9.88	19.62	91.62	33.00	-13.38	1/99
15	QPSK	2503.50	15.88	V	5.25	10.05	20.68	116.95	33.00	-12.32	1/74
		2593.00	16.40	V	5.34	9.90	20.96	124.74	33.00	-12.04	1/0
		2682.50	15.80	V	5.44	9.88	20.24	105.68	33.00	-12.76	1/74
	16-QAM	2503.50	15.29	V	5.25	10.05	20.09	102.09	33.00	-12.91	1/37
		2593.00	15.97	V	5.34	9.90	20.53	112.98	33.00	-12.47	1/37
		2682.50	15.30	V	5.44	9.88	19.74	94.19	33.00	-13.26	1/37
10	QPSK	2501.00	16.12	V	5.24	10.05	20.93	123.88	33.00	-12.07	1/0
		2593.00	16.40	V	5.34	9.90	20.96	124.74	33.00	-12.04	1/25
		2685.00	15.83	V	5.45	9.89	20.27	106.41	33.00	-12.73	1/25
	16-QAM	2501.00	15.51	V	5.24	10.05	20.32	107.65	33.00	-12.68	1/49
		2593.00	15.79	V	5.34	9.90	20.35	108.39	33.00	-12.65	1/0
		2685.00	15.34	V	5.45	9.89	19.78	95.06	33.00	-13.22	1/0
5	QPSK	2498.50	15.83	V	5.24	10.06	20.65	116.14	33.00	-12.35	1/24
		2593.00	16.68	V	5.34	9.90	21.24	133.05	33.00	-11.76	1/12
		2687.50	15.90	V	5.45	9.89	20.34	108.14	33.00	-12.66	1/24
	16-QAM	2498.50	15.17	V	5.24	10.06	19.99	99.77	33.00	-13.01	1/12
		2593.00	16.08	V	5.34	9.90	20.64	115.88	33.00	-12.36	1/24
		2687.50	15.18	V	5.45	9.89	19.62	91.62	33.00	-13.38	1/24
5	QPSK	2498.50	14.74	V	5.24	10.06	19.56	90.36	33.00	-13.44	25/0
		2593.00	15.57	V	5.34	9.90	20.13	103.04	33.00	-12.87	25/0
		2687.50	14.81	V	5.45	9.89	19.25	84.14	33.00	-13.75	25/0
	16-QAM	2498.50	13.94	V	5.24	10.06	18.76	75.16	33.00	-14.24	25/0
		2593.00	15.02	V	5.34	9.90	19.58	90.78	33.00	-13.42	25/0
		2687.50	13.94	V	5.45	9.89	18.38	68.87	33.00	-14.62	25/0

LTE Band 66 (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	1720.00	16.31	H	4.33	9.50	21.48	140.60	30.00	-8.52	1/99
		1745.00	16.23	H	4.37	9.58	21.45	139.64	30.00	-8.55	1/99
		1770.00	16.16	H	4.40	9.62	21.39	137.72	30.00	-8.61	1/99
	16-QAM	1720.00	15.63	H	4.33	9.50	20.80	120.23	30.00	-9.20	1/0
		1745.00	15.23	H	4.37	9.58	20.45	110.92	30.00	-9.55	1/99
		1770.00	15.37	H	4.40	9.62	20.59	114.55	30.00	-9.41	1/0
15	QPSK	1717.50	16.29	H	4.32	9.49	21.46	139.96	30.00	-8.54	1/74
		1745.00	15.94	H	4.37	9.58	21.16	130.62	30.00	-8.84	1/74
		1772.50	15.97	H	4.40	9.63	21.20	131.83	30.00	-8.80	1/37
	16-QAM	1717.50	15.69	H	4.32	9.49	20.86	121.90	30.00	-9.14	1/0
		1745.00	15.28	H	4.37	9.58	20.50	112.20	30.00	-9.50	1/74
		1772.50	15.25	H	4.40	9.63	20.48	111.69	30.00	-9.52	1/37
10	QPSK	1715.00	15.83	H	4.32	9.48	20.99	125.60	30.00	-9.01	1/25
		1745.00	16.33	H	4.37	9.58	21.55	142.89	30.00	-8.45	1/49
		1775.00	15.98	H	4.40	9.63	21.21	132.13	30.00	-8.79	1/25
	16-QAM	1715.00	15.04	H	4.32	9.48	20.21	104.95	30.00	-9.79	1/25
		1745.00	15.49	H	4.37	9.58	20.71	117.76	30.00	-9.29	1/0
		1775.00	15.38	H	4.40	9.63	20.61	115.08	30.00	-9.39	1/0
5	QPSK	1712.50	16.50	H	4.32	9.47	21.66	146.55	30.00	-8.34	1/24
		1745.00	16.14	H	4.37	9.58	21.36	136.77	30.00	-8.64	1/24
		1777.50	16.10	H	4.40	9.63	21.33	135.83	30.00	-8.67	1/12
	16-QAM	1712.50	15.84	H	4.32	9.47	20.99	125.60	30.00	-9.01	1/0
		1745.00	15.28	H	4.37	9.58	20.49	111.94	30.00	-9.51	1/12
		1777.50	15.33	H	4.40	9.63	20.56	113.76	30.00	-9.44	1/24
3	QPSK	1711.50	16.45	H	4.31	9.47	21.60	144.54	30.00	-8.40	1/14
		1745.00	16.12	H	4.37	9.58	21.34	136.14	30.00	-8.66	1/8
		1778.50	15.64	H	4.40	9.63	20.87	122.18	30.00	-9.13	1/14
	16-QAM	1711.50	15.59	H	4.31	9.47	20.74	118.58	30.00	-9.26	1/8
		1745.00	15.48	H	4.37	9.58	20.70	117.49	30.00	-9.30	1/0
		1778.50	14.88	H	4.40	9.63	20.11	102.57	30.00	-9.89	1/0
1.4	QPSK	1710.70	16.05	H	4.31	9.47	21.21	132.13	30.00	-8.79	1/3
		1745.00	16.51	H	4.37	9.58	21.73	148.94	30.00	-8.27	1/0
		1779.30	15.93	H	4.40	9.63	21.16	130.62	30.00	-8.84	1/0
	16-QAM	1710.70	15.24	H	4.31	9.47	20.40	109.65	30.00	-9.60	1/5
		1745.00	15.88	H	4.37	9.58	21.09	128.53	30.00	-8.91	1/5
		1779.30	15.29	H	4.40	9.63	20.53	112.98	30.00	-9.47	1/5
1.4	QPSK	1710.70	14.74	H	4.31	9.47	19.89	97.50	30.00	-10.11	6/0
		1745.00	15.53	H	4.37	9.58	20.75	118.85	30.00	-9.25	6/0
		1779.30	14.96	H	4.40	9.63	20.19	104.47	30.00	-9.81	6/0
	16-QAM	1710.70	14.21	H	4.31	9.47	19.36	86.30	30.00	-10.64	6/0
		1745.00	14.86	H	4.37	9.58	20.08	101.86	30.00	-9.92	6/0
		1779.30	14.58	H	4.40	9.63	19.81	95.72	30.00	-10.19	6/0

LTE Band 66 (ANT D)

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	1720.00	16.48	H	4.33	9.50	21.65	146.22	30.00	-8.35	1/99
		1745.00	16.91	H	4.37	9.58	22.13	163.31	30.00	-7.87	1/99
		1770.00	16.51	H	4.40	9.62	21.74	149.28	30.00	-8.26	1/49
	16-QAM	1720.00	15.89	H	4.33	9.50	21.06	127.64	30.00	-8.94	1/99
		1745.00	16.06	H	4.37	9.58	21.28	134.28	30.00	-8.72	1/49
		1770.00	16.14	H	4.40	9.62	21.36	136.77	30.00	-8.64	1/49
15	QPSK	1717.50	16.02	H	4.32	9.49	21.19	131.52	30.00	-8.81	1/37
		1745.00	16.21	H	4.37	9.58	21.42	138.68	30.00	-8.58	1/74
		1772.50	16.56	H	4.40	9.63	21.79	151.01	30.00	-8.21	1/37
	16-QAM	1717.50	15.39	H	4.32	9.49	20.55	113.50	30.00	-9.45	1/74
		1745.00	15.78	H	4.37	9.58	21.00	125.89	30.00	-9.00	1/74
		1772.50	16.13	H	4.40	9.63	21.36	136.77	30.00	-8.64	1/37
10	QPSK	1715.00	16.00	H	4.32	9.48	21.16	130.62	30.00	-8.84	1/25
		1745.00	16.00	H	4.37	9.58	21.22	132.43	30.00	-8.78	1/0
		1775.00	16.39	H	4.40	9.63	21.62	145.21	30.00	-8.38	1/49
	16-QAM	1715.00	15.36	H	4.32	9.48	20.52	112.72	30.00	-9.48	1/0
		1745.00	15.69	H	4.37	9.58	20.91	123.31	30.00	-9.09	1/49
		1775.00	15.97	H	4.40	9.63	21.20	131.83	30.00	-8.80	1/25
5	QPSK	1712.50	15.96	H	4.32	9.47	21.11	129.12	30.00	-8.89	1/0
		1745.00	16.64	H	4.37	9.58	21.86	153.46	30.00	-8.14	1/12
		1777.50	16.97	H	4.40	9.63	22.20	165.96	30.00	-7.80	1/12
	16-QAM	1712.50	15.41	H	4.32	9.47	20.56	113.76	30.00	-9.44	1/12
		1745.00	16.04	H	4.37	9.58	21.26	133.66	30.00	-8.74	1/12
		1777.50	16.54	H	4.40	9.63	21.77	150.31	30.00	-8.23	1/12
3	QPSK	1711.50	16.44	H	4.31	9.47	21.59	144.21	30.00	-8.41	1/8
		1745.00	16.34	H	4.37	9.58	21.56	143.22	30.00	-8.44	1/8
		1778.50	16.25	H	4.40	9.63	21.48	140.60	30.00	-8.52	1/8
	16-QAM	1711.50	15.80	H	4.31	9.47	20.96	124.74	30.00	-9.04	1/8
		1745.00	15.71	H	4.37	9.58	20.93	123.88	30.00	-9.07	1/14
		1778.50	15.54	H	4.40	9.63	20.77	119.40	30.00	-9.23	1/8
1.4	QPSK	1710.70	16.48	H	4.31	9.47	21.63	145.55	30.00	-8.37	1/3
		1745.00	16.45	H	4.37	9.58	21.67	146.89	30.00	-8.33	1/3
		1779.30	15.93	H	4.40	9.63	21.16	130.62	30.00	-8.84	1/3
	16-QAM	1710.70	16.01	H	4.31	9.47	21.16	130.62	30.00	-8.84	1/0
		1745.00	16.10	H	4.37	9.58	21.32	135.52	30.00	-8.68	1/3
		1779.30	15.44	H	4.40	9.63	20.67	116.68	30.00	-9.33	1/3
5	QPSK	1712.50	15.12	H	4.32	9.47	20.28	106.66	30.00	-9.72	25/0
		1745.00	15.73	H	4.37	9.58	20.95	124.45	30.00	-9.05	25/0
		1777.50	15.93	H	4.40	9.63	21.17	130.92	30.00	-8.83	25/0
	16-QAM	1720.00	14.27	H	4.32	9.47	19.43	87.70	30.00	-10.57	25/0
		1745.00	15.69	H	4.37	9.58	20.91	123.31	30.00	-9.09	25/0
		1770.00	15.89	H	4.40	9.63	21.13	129.72	30.00	-8.87	25/0

NR Band n41 DFT-s OFDM (ANT B)

BW (MHz)	Modulation	Frequency (MHz)	SG reading (dBm)	Ant. ol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)	RB
100	QPSK	2546.01	19.36	H	5.29	9.97	24.03	252.93	33.00	-8.97	1/136
		2592.99	19.76	H	5.34	9.90	24.31	269.77	33.00	-8.69	1/1
		2640.00	19.27	H	5.39	9.87	23.75	237.14	33.00	-9.25	1/1
	16-QAM	2546.01	18.62	H	5.29	9.97	23.30	213.80	33.00	-9.70	1/271
		2592.99	19.15	H	5.34	9.90	23.71	234.96	33.00	-9.29	1/1
		2640.00	18.48	H	5.39	9.87	22.96	197.70	33.00	-10.04	1/1
90	QPSK	2541.00	19.95	H	5.29	9.98	24.64	291.07	33.00	-8.36	1/243
		2592.99	19.84	H	5.34	9.90	24.40	275.42	33.00	-8.60	1/1
		2644.98	20.37	H	5.40	9.86	24.83	304.09	33.00	-8.17	1/1
	16-QAM	2541.00	19.28	H	5.29	9.98	23.96	248.89	33.00	-9.04	1/123
		2592.99	19.03	H	5.34	9.90	23.59	228.56	33.00	-9.41	1/1
		2644.98	19.70	H	5.40	9.86	24.16	260.62	33.00	-8.84	1/1
80	QPSK	2536.02	19.87	H	5.28	9.99	24.57	286.42	33.00	-8.43	1/109
		2592.99	19.82	H	5.34	9.90	24.38	274.16	33.00	-8.62	1/1
		2649.99	20.24	H	5.41	9.86	24.69	294.44	33.00	-8.21	1/1
	16-QAM	2536.02	19.15	H	5.28	9.99	23.85	242.66	33.00	-9.15	1/215
		2592.99	19.10	H	5.34	9.90	23.66	232.27	33.00	-9.34	1/1
		2649.99	19.51	H	5.41	9.86	23.96	248.89	33.00	-9.04	1/1
70	QPSK	2531.02	19.69	H	5.28	10.00	24.41	276.06	33.00	-8.59	1/1
		2593.99	20.04	H	5.34	9.90	24.60	288.40	33.00	-8.40	1/1
		2654.98	20.25	H	5.42	9.86	24.70	295.12	33.00	-8.30	1/1
	16-QAM	2531.02	18.96	H	5.28	10.00	23.68	233.35	33.00	-9.32	1/95
		2593.99	19.16	H	5.34	9.90	23.71	234.96	33.00	-9.29	1/1
		2654.98	19.57	H	5.42	9.86	24.02	252.35	33.00	-8.98	1/1
60	QPSK	2526.00	19.56	H	5.28	10.01	24.29	268.53	33.00	-8.71	1/160
		2592.99	20.13	H	5.34	9.90	24.69	294.44	33.00	-8.31	1/81
		2659.98	20.16	H	5.42	9.87	24.60	288.40	33.00	-8.40	1/1
	16-QAM	2526.00	18.94	H	5.28	10.01	23.67	232.81	33.00	-9.33	1/160
		2592.99	19.35	H	5.34	9.90	23.91	246.04	33.00	-9.09	1/81
		2659.98	19.53	H	5.42	9.87	23.97	249.46	33.00	-9.03	1/1
50	QPSK	2521.01	19.20	H	5.27	10.02	23.95	248.31	33.00	-9.05	1/131
		2592.99	20.09	H	5.34	9.90	24.65	291.74	33.00	-8.35	1/1
		2665.00	19.69	H	5.43	9.87	24.14	259.42	33.00	-8.86	1/131
	16-QAM	2521.01	18.48	H	5.27	10.02	23.23	210.38	33.00	-9.77	1/131
		2592.99	19.11	H	5.34	9.90	23.67	232.81	33.00	-9.33	1/1
		2665.00	18.98	H	5.43	9.87	23.43	220.29	33.00	-9.57	1/131
40	QPSK	2516.01	19.24	H	5.26	10.02	24.00	251.19	33.00	-9.00	1/104
		2592.99	20.19	H	5.34	9.90	24.75	298.54	33.00	-8.25	1/1
		2670.00	19.64	H	5.43	9.88	24.09	256.45	33.00	-8.91	1/104
	16-QAM	2516.01	18.37	H	5.26	10.02	23.13	205.59	33.00	-9.87	1/104
		2592.99	19.36	H	5.34	9.90	23.92	246.60	33.00	-9.08	1/1
		2670.00	18.63	H	5.43	9.88	23.08	203.24	33.00	-9.92	1/104
30	QPSK	2511.00	18.86	H	5.26	10.03	23.64	231.21	33.00	-9.36	1/76
		2592.99	19.90	H	5.34	9.90	24.46	279.25	33.00	-8.54	1/76
		2675.00	19.09	H	5.43	9.88	23.54	225.94	33.00	-9.46	1/76
	16-QAM	2511.00	17.85	H	5.26	10.03	22.63	183.23	33.00	-10.37	1/76
		2592.99	18.85	H	5.34	9.90	23.41	219.28	33.00	-9.59	1/76
		2675.00	18.30	H	5.43	9.88	22.75	188.36	33.00	-10.25	1/76
20	QPSK	2506.02	18.48	H	5.25	10.04	23.27	212.32	33.00	-9.73	1/49
		2592.99	19.84	H	5.34	9.90	24.40	275.42	33.00	-8.60	1/1
		2679.99	18.62	H	5.44	9.88	23.05	201.84	33.00	-9.95	1/49
	16-QAM	2506.02	17.54	H	5.25	10.04	22.33	171.00	33.00	-10.67	1/49
		2592.99	18.71	H	5.34	9.90	23.27	212.32	33.00	-9.73	1/1
		2679.99	17.49	H	5.44	9.88	21.93	155.96	33.00	-11.07	1/49
15	QPSK	2503.50	18.29	H	5.25	10.05	23.09	203.70	33.00	-9.91	1/36
		2592.99	19.74	H	5.34	9.90	24.30	269.15	33.00	-8.70	1/1
		2682.48	18.76	H	5.44	9.88	23.20	208.93	33.00	-9.80	1/36
	16-QAM	2503.50	17.17	H	5.25	10.05	21.97	157.40	33.00	-11.03	1/36
		2592.99	18.61	H	5.34	9.90	23.17	207.49	33.00	-9.83	1/1
		2682.48	18.04	H	5.44	9.88	22.48	177.01	33.00	-10.52	1/36
10	QPSK	2501.01	17.79	H	5.24	10.05	22.60	181.97	33.00	-10.40	1/22
		2592.99	19.50	H	5.34	9.90	24.06	254.68	33.00	-8.94	1/1
		2685.00	18.65	H	5.45	9.89	23.08	203.24	33.00	-9.92	1/22
	16-QAM	2501.01	16.84	H	5.24	10.05	21.65	146.22	33.00	-11.35	1/22
		2592.99	18.42	H	5.34	9.90	22.98	198.61	33.00	-10.02	1/1
		2685.00	17.82	H	5.45	9.89	22.25	167.88	33.00	-10.75	1/22
90	QPSK	2541.00	19.01	H	5.29	9.98	23.70	234.42	33.00	-9.30	243/0
		2592.99	19.00	H	5.34	9.90	23.56	226.99	33.00	-9.44	243/0
		2644.98	19.28	H	5.40	9.86	23.74	236.59	33.00	-9.26	243/0
	16-QAM	2541.00	18.21	H	5.29	9.98	22.90	194.98	33.00	-10.10	243/0
		2592.99	17.84	H	5.34	9.90	22.40	173.78	33.00	-10.60	243/0
		2644.98	18.57	H	5.40	9.86	23.03	200.91	33.00	-9.97	243/0

NR Band n41 DFT-s OFDM (ANT D)

BW (MHz)	Modulation	Frequency (MHz)	SG reading (dBm)	Ant. ol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)	RB
100	QPSK	2546.01	17.08	V	5.29	9.97	21.76	149.97	33.00	-11.24	1/136
		2592.99	17.91	V	5.34	9.90	22.47	176.60	33.00	-10.53	1/271
		2640.00	16.27	V	5.39	9.87	20.75	118.85	33.00	-12.25	1/271
	16-QAM	2546.01	16.05	V	5.29	9.97	20.73	118.30	33.00	-12.27	1/136
		2592.99	16.99	V	5.34	9.90	21.55	142.89	33.00	-11.45	1/136
		2640.00	15.11	V	5.39	9.87	19.99	90.99	33.00	-13.41	1/136
90	QPSK	2541.00	16.85	V	5.29	9.98	21.54	142.56	33.00	-11.46	1/243
		2592.99	18.12	V	5.34	9.90	22.68	185.35	33.00	-10.32	1/243
		2644.98	15.99	V	5.40	9.86	20.45	110.92	33.00	-12.55	1/243
	16-QAM	2541.00	15.78	V	5.29	9.98	20.47	111.43	33.00	-12.53	1/243
		2592.99	16.92	V	5.34	9.90	21.48	140.60	33.00	-11.52	1/243
		2644.98	14.84	V	5.40	9.86	19.30	85.11	33.00	-13.70	1/243
80	QPSK	2536.02	16.87	V	5.28	9.99	21.57	143.55	33.00	-11.43	1/215
		2592.99	18.01	V	5.34	9.90	22.57	180.72	33.00	-10.43	1/1
		2649.99	15.51	V	5.41	9.86	19.96	99.08	33.00	-13.04	1/215
	16-QAM	2536.02	15.78	V	5.28	9.99	20.48	111.69	33.00	-12.52	1/215
		2592.99	16.96	V	5.34	9.90	21.52	141.91	33.00	-11.48	1/1
		2649.99	14.55	V	5.41	9.86	19.00	79.43	33.00	-14.00	1/215
70	QPSK	2531.02	16.97	V	5.28	10.00	21.69	147.57	33.00	-11.31	1/1
		2592.99	18.05	V	5.34	9.90	22.61	182.39	33.00	-10.39	1/1
		2654.98	15.53	V	5.42	9.86	19.98	99.54	33.00	-13.02	1/95
	16-QAM	2531.02	15.72	V	5.28	10.00	20.44	110.66	33.00	-12.56	1/187
		2592.99	17.09	V	5.34	9.90	21.65	146.22	33.00	-11.35	1/1
		2654.98	14.38	V	5.42	9.86	18.83	76.38	33.00	-14.17	1/95
60	QPSK	2526.00	16.72	V	5.28	10.01	21.45	139.64	33.00	-11.55	1/160
		2592.99	17.97	V	5.34	9.90	22.53	179.06	33.00	-10.47	1/81
		2659.98	17.33	V	5.42	9.87	21.78	150.66	33.00	-11.22	1/160
	16-QAM	2526.00	16.01	V	5.28	10.01	20.74	118.48	33.00	-12.26	1/160
		2592.99	16.90	V	5.34	9.90	21.46	139.85	33.00	-11.54	1/81
		2659.98	15.93	V	5.42	9.87	20.38	109.12	33.00	-12.62	1/81
50	QPSK	2521.01	16.62	V	5.27	10.02	21.37	137.09	33.00	-11.63	1/131
		2592.99	17.83	V	5.34	9.90	22.38	172.98	33.00	-10.62	1/131
		2665.00	17.36	V	5.43	9.87	21.80	151.36	33.00	-11.20	1/131
	16-QAM	2521.01	15.81	V	5.27	10.02	20.55	113.50	33.00	-12.45	1/131
		2592.99	16.24	V	5.34	9.90	20.80	120.23	33.00	-12.20	1/131
		2665.00	16.50	V	5.43	9.87	20.95	124.45	33.00	-12.05	1/131
40	QPSK	2516.01	17.26	V	5.26	10.02	22.02	159.22	33.00	-10.98	1/104
		2592.99	17.88	V	5.34	9.90	22.44	175.39	33.00	-10.56	1/104
		2670.00	17.52	V	5.43	9.88	21.96	157.04	33.00	-11.04	1/104
	16-QAM	2516.01	16.62	V	5.26	10.02	21.38	137.40	33.00	-11.62	1/104
		2592.99	17.04	V	5.34	9.90	21.60	144.54	33.00	-11.40	1/104
		2670.00	16.67	V	5.43	9.88	21.12	129.42	33.00	-11.88	1/104
30	QPSK	2511.00	16.94	V	5.26	10.03	21.72	148.59	33.00	-11.28	1/76
		2592.99	17.48	V	5.34	9.90	22.04	159.96	33.00	-10.96	1/76
		2675.00	17.75	V	5.43	9.88	22.20	165.96	33.00	-10.80	1/76
	16-QAM	2511.00	16.08	V	5.26	10.03	20.86	121.90	33.00	-12.14	1/76
		2592.99	16.58	V	5.34	9.90	21.14	130.02	33.00	-11.86	1/76
		2675.00	16.85	V	5.43	9.88	21.30	134.90	33.00	-11.70	1/76
20	QPSK	2506.02	16.84	V	5.25	10.04	21.63	145.55	33.00	-11.37	1/49
		2592.99	17.40	V	5.34	9.90	21.96	157.04	33.00	-11.04	1/49
		2679.99	17.61	V	5.44	9.88	22.05	160.32	33.00	-10.95	1/49
	16-QAM	2506.02	15.89	V	5.25	10.04	20.68	116.95	33.00	-12.32	1/49
		2592.99	16.49	V	5.34	9.90	21.04	127.06	33.00	-11.96	1/49
		2679.99	16.67	V	5.44	9.88	21.11	129.12	33.00	-11.89	1/1
15	QPSK	2503.50	16.91	V	5.25	10.05	21.70	147.91	33.00	-11.30	1/36
		2592.99	17.32	V	5.34	9.90	21.87	153.82	33.00	-11.13	1/36
		2682.48	17.66	V	5.44	9.88	22.10	162.18	33.00	-10.90	1/1
	16-QAM	2503.50	16.06	V	5.25	10.05	20.86	121.90	33.00	-12.14	1/36
		2592.99	16.42	V	5.34	9.90	20.98	125.31	33.00	-12.02	1/36
		2682.48	16.72	V	5.44	9.88	21.16	130.62	33.00	-11.84	1/36
10	QPSK	2501.01	16.86	V	5.24	10.05	21.67	146.89	33.00	-11.33	1/22
		2592.99	17.20	V	5.34	9.90	21.76	149.97	33.00	-11.24	1/22
		2685.00	17.55	V	5.45	9.89	21.99	158.12	33.00	-11.01	1/22
	16-QAM	2501.01	15.95	V	5.24	10.05	20.75	118.85	33.00	-12.25	1/22
		2592.99	16.30	V	5.34	9.90	20.86	121.90	33.00	-12.14	1/22
		2685.00	16.58	V	5.45	9.89	21.01	126.18	33.00	-11.99	1/22
90	QPSK	2541.00	15.64	V	5.29	9.98	20.33	107.89	33.00	-12.67	243/0
		2592.99	16.95	V	5.34	9.90	21.51	141.58	33.00	-11.49	243/0
		2644.98	15.21	V	5.40	9.86	19.67	92.68	33.00	-13.33	243/0
70	16-QAM	2531.02	14.54	V	5.28	10.00	19.26	84.33	33.00	-13.74	180/0
		2592.99	15.47	V	5.34	9.90	20.03	100.69	33.00	-12.97	180/0
		2654.98	13.43	V	5.42	9.86	17.88	61.38	33.00	-15.12	180/0

9.2. RADIATED SPURIOUS EMISSION

RULE PART(S)

FCC: §2.1053, §27. 53

LIMIT

§27.53:

(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB.

(h) The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB.

(m) (4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

TEST PROCEDURE

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

For peak power measurement with a ESU40:

- a) Set the RBW = 100 kHz for emission below 1 GHz and 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 $\geq 2 \times$ span/RBW;
- g) Trace Mode = average(LTE FDD), Maxhold(LTE TDD, 5G NR TDD);

NOTE1

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

LTE Band 12

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4791655852							
Date:		2025-02-26							
Test Engineer:		26087							
Configuration:		EUT / AC Adapter, X-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 12 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
Low Ch, 704MHz									
1408.00	-15.6	V	3.0	43.0	1.0	-57.6	-13.0	-44.6	
2112.00	-12.4	V	3.0	44.0	1.0	-55.5	-13.0	-42.5	
2816.00	-10.7	V	3.0	43.5	1.0	-53.2	-13.0	-40.2	
1408.00	-15.3	H	3.0	43.0	1.0	-57.3	-13.0	-44.3	
2112.00	-13.1	H	3.0	44.0	1.0	-56.2	-13.0	-43.2	
2816.00	-10.9	H	3.0	43.5	1.0	-53.4	-13.0	-40.4	
Mid Ch, 707.5MHz									
1415.00	-15.9	V	3.0	43.0	1.0	-57.9	-13.0	-44.9	
2122.50	-12.9	V	3.0	44.0	1.0	-55.9	-13.0	-42.9	
2830.00	-10.6	V	3.0	43.5	1.0	-53.1	-13.0	-40.1	
1415.00	-16.2	H	3.0	43.0	1.0	-58.2	-13.0	-45.2	
2122.50	-12.6	H	3.0	44.0	1.0	-55.6	-13.0	-42.6	
2830.00	-10.8	H	3.0	43.5	1.0	-53.3	-13.0	-40.3	
High Ch, 711MHz									
1422.00	-11.8	V	3.0	43.0	1.0	-53.8	-13.0	-40.8	
2133.00	-11.9	V	3.0	44.0	1.0	-54.9	-13.0	-41.9	
2844.00	-11.2	V	3.0	43.5	1.0	-53.7	-13.0	-40.7	
1422.00	-10.0	H	3.0	43.0	1.0	-52.1	-13.0	-39.1	
2133.00	-12.6	H	3.0	44.0	1.0	-55.7	-13.0	-42.7	
2844.00	-11.3	H	3.0	43.5	1.0	-53.8	-13.0	-40.8	

LTE Band 41

20 MHz QPSK ANT B	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung									
	Project #: 4791655852									
	Date: 2025-02-27									
	Test Engineer: 27089									
	Configuration: EUT / AC Adpater, Z-Position									
	Location: Chamber 1									
	Mode: LTE_QPSK Band 41 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, 2506MHz									
	5012.00	-10.7	V	3.0	44.6	1.0	-54.3	-25.0	-29.3	
	7518.00	-14.0	V	3.0	44.7	1.0	-57.8	-25.0	-32.8	
	10024.00	-6.5	V	3.0	42.9	1.0	-48.4	-25.0	-23.4	
	5012.00	-14.7	H	3.0	44.6	1.0	-58.3	-25.0	-33.3	
	7518.00	-14.0	H	3.0	44.7	1.0	-57.8	-25.0	-32.8	
	10024.00	-5.7	H	3.0	42.9	1.0	-47.6	-25.0	-22.6	
	Mid Ch, 2593MHz									
	5186.00	-5.8	V	3.0	44.6	1.0	-49.4	-25.0	-24.4	
	7779.00	-13.8	V	3.0	44.5	1.0	-57.4	-25.0	-32.4	
	10372.00	-2.5	V	3.0	42.9	1.0	-44.4	-25.0	-19.4	
	5186.00	-3.6	H	3.0	44.6	1.0	-47.1	-25.0	-22.1	
7779.00	-13.8	H	3.0	44.5	1.0	-57.3	-25.0	-32.3		
10372.00	-3.8	H	3.0	42.9	1.0	-45.7	-25.0	-20.7		
High Ch, 2680MHz										
5360.00	-13.0	V	3.0	44.6	1.0	-56.6	-25.0	-31.6		
8040.00	-14.0	V	3.0	44.4	1.0	-57.4	-25.0	-32.4		
10720.00	-2.3	V	3.0	42.9	1.0	-44.2	-25.0	-19.2		
5360.00	-11.6	H	3.0	44.6	1.0	-55.2	-25.0	-30.2		
8040.00	-14.1	H	3.0	44.4	1.0	-57.5	-25.0	-32.5		
10720.00	-2.7	H	3.0	42.9	1.0	-44.6	-25.0	-19.6		
5 MHz QPSK ANT D	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung									
	Project #: 4791655852									
	Date: 2025-02-27									
	Test Engineer: 27089									
	Configuration: EUT / Y-Position									
	Location: Chamber 2									
	Mode: LTE_QPSK Band 41 Harmonics, 5MHz 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, 2498.5MHz									
	4997.00	-15.3	V	3.0	43.3	1.0	-57.6	-25.0	-32.6	
	7495.50	-13.9	V	3.0	43.0	1.0	-55.8	-25.0	-30.8	
	9994.00	-0.6	V	3.0	41.6	1.0	-41.2	-25.0	-16.2	
	4997.00	-13.2	H	3.0	43.3	1.0	-55.4	-25.0	-30.4	
	7495.50	-14.0	H	3.0	43.0	1.0	-55.9	-25.0	-30.9	
	9994.00	-0.7	H	3.0	41.6	1.0	-41.2	-25.0	-16.2	
	Mid Ch, 2593MHz									
	5186.00	-14.5	V	3.0	43.3	1.0	-56.8	-25.0	-31.8	
	7779.00	-13.4	V	3.0	42.8	1.0	-55.2	-25.0	-30.2	
	10372.00	2.1	V	3.0	41.3	1.0	-38.2	-25.0	-13.2	
	5186.00	-13.7	H	3.0	43.3	1.0	-56.0	-25.0	-31.0	
7779.00	-13.7	H	3.0	42.8	1.0	-55.4	-25.0	-30.4		
10372.00	4.7	H	3.0	41.3	1.0	-35.5	-25.0	-10.5		
High Ch, 2687.5MHz										
5375.00	-15.1	V	3.0	43.4	1.0	-57.5	-25.0	-32.5		
8062.50	-13.6	V	3.0	42.6	1.0	-55.1	-25.0	-30.1		
10750.00	4.8	V	3.0	40.9	1.0	-35.2	-25.0	-10.2		
5375.00	-11.9	H	3.0	43.4	1.0	-54.3	-25.0	-29.3		
8062.50	-13.9	H	3.0	42.6	1.0	-55.5	-25.0	-30.5		
10750.00	5.1	H	3.0	40.9	1.0	-34.9	-25.0	-9.9		

LTE Band 66

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		4791655852							
Date:		2025-02-26							
Test Engineer:		26087							
Configuration:		EUT / AC Adapter, X-Position							
Location:		Chamber 1							
Mode:		LTE_QPSK Band 66 Harmonics, 1.4MHz Bandwidth							
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
1.4 MHz									
QPSK									
ANT B									
Low Ch, 1710.7MHz									
3421.40	-8.4	V	3.0	43.9	1.0	-51.3	-13.0	-38.3	
5132.10	-7.1	V	3.0	44.6	1.0	-50.7	-13.0	-37.7	
6842.80	-4.4	V	3.0	45.0	1.0	-48.4	-13.0	-35.4	
3421.40	-8.4	H	3.0	43.9	1.0	-51.3	-13.0	-38.3	
5132.10	-7.2	H	3.0	44.6	1.0	-50.7	-13.0	-37.7	
6842.80	-4.3	H	3.0	45.0	1.0	-48.3	-13.0	-35.3	
Mid Ch, 1745MHz									
3490.00	-8.1	V	3.0	44.0	1.0	-51.1	-13.0	-38.1	
5235.00	-6.9	V	3.0	44.6	1.0	-50.5	-13.0	-37.5	
6980.00	-4.0	V	3.0	45.1	1.0	-48.1	-13.0	-35.1	
3490.00	-8.1	H	3.0	44.0	1.0	-51.1	-13.0	-38.1	
5235.00	-6.9	H	3.0	44.6	1.0	-50.5	-13.0	-37.5	
6980.00	-3.9	H	3.0	45.1	1.0	-48.0	-13.0	-35.0	
High Ch, 1779.3MHz									
3558.60	-7.7	V	3.0	44.1	1.0	-50.8	-13.0	-37.8	
5337.90	-6.8	V	3.0	44.6	1.0	-50.4	-13.0	-37.4	
7117.20	-3.8	V	3.0	45.0	1.0	-47.8	-13.0	-34.8	
3558.60	-7.6	H	3.0	44.1	1.0	-50.7	-13.0	-37.7	
5337.90	-6.8	H	3.0	44.6	1.0	-50.4	-13.0	-37.4	
7117.20	-3.7	H	3.0	45.0	1.0	-47.7	-13.0	-34.7	
5 MHz									
QPSK									
ANT D									
Low Ch, 1712.5MHz									
3425.00	-8.5	V	3.0	42.9	1.0	-50.4	-13.0	-37.4	
5137.50	-7.7	V	3.0	43.3	1.0	-50.0	-13.0	-37.0	
6850.00	-5.3	V	3.0	43.3	1.0	-47.6	-13.0	-34.6	
3425.00	-8.4	H	3.0	42.9	1.0	-50.3	-13.0	-37.3	
5137.50	-7.7	H	3.0	43.3	1.0	-50.0	-13.0	-37.0	
6850.00	-5.3	H	3.0	43.3	1.0	-47.6	-13.0	-34.6	
Mid Ch, 1745MHz									
3490.00	-7.8	V	3.0	43.0	1.0	-49.7	-13.0	-36.7	
5235.00	-7.6	V	3.0	43.3	1.0	-49.9	-13.0	-36.9	
6980.00	-4.8	V	3.0	43.3	1.0	-47.1	-13.0	-34.1	
3490.00	-7.7	H	3.0	43.0	1.0	-49.7	-13.0	-36.7	
5235.00	-7.5	H	3.0	43.3	1.0	-49.8	-13.0	-36.8	
6980.00	-4.7	H	3.0	43.3	1.0	-47.0	-13.0	-34.0	
High Ch, 1777.5MHz									
3555.00	-7.7	V	3.0	43.0	1.0	-49.7	-13.0	-36.7	
5332.50	-8.4	V	3.0	43.3	1.0	-50.7	-13.0	-37.7	
7110.00	-4.7	V	3.0	43.2	1.0	-46.9	-13.0	-33.9	
3555.00	-7.5	H	3.0	43.0	1.0	-49.5	-13.0	-36.5	
5332.50	-7.4	H	3.0	43.3	1.0	-49.7	-13.0	-36.7	
7110.00	-4.8	H	3.0	43.2	1.0	-47.0	-13.0	-34.0	

NR Band n41 DFT-s OFDM

90 MHz QPSK ANT B	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung									
	Project #: 4791655852									
	Date: 2025-03-07									
	Test Engineer: 28775									
	Configuration: EUT / AC Adapter, X-Position									
	Location: Chamber 2									
	Mode: 5G NR_QPSK NR n41 Harmonics, 90MHz 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, 2541MHz									
	5082.00	-14.7	V	3.0	43.3	1.0	-57.0	-25.0	-32.0	
	7623.00	-13.6	V	3.0	42.9	1.0	-55.5	-25.0	-30.5	
	10164.00	0.3	V	3.0	41.4	1.0	-40.1	-25.0	-15.1	
	5082.00	-14.5	H	3.0	43.3	1.0	-56.8	-25.0	-31.8	
	7623.00	-13.7	H	3.0	42.9	1.0	-55.6	-25.0	-30.6	
	10164.00	-5.3	H	3.0	41.4	1.0	-45.8	-25.0	-20.8	
	Mid Ch, 2592.99MHz									
	5185.98	-14.9	V	3.0	43.3	1.0	-57.2	-25.0	-32.2	
	7778.97	-13.2	V	3.0	42.8	1.0	-54.9	-25.0	-29.9	
	10371.96	1.7	V	3.0	41.3	1.0	-38.6	-25.0	-13.6	
	5185.98	-14.0	H	3.0	43.3	1.0	-56.3	-25.0	-31.3	
7778.97	-13.7	H	3.0	42.8	1.0	-55.5	-25.0	-30.5		
10371.96	-4.5	H	3.0	41.3	1.0	-44.8	-25.0	-19.8		
High Ch, 2644.98MHz										
5289.96	-14.3	V	3.0	43.3	1.0	-56.7	-25.0	-31.7		
7934.94	-13.5	V	3.0	42.7	1.0	-55.2	-25.0	-30.2		
10579.92	1.3	V	3.0	41.1	1.0	-38.8	-25.0	-13.8		
5289.96	-14.2	H	3.0	43.3	1.0	-56.5	-25.0	-31.5		
7934.94	-13.3	H	3.0	42.7	1.0	-54.9	-25.0	-29.9		
10579.92	-5.0	H	3.0	41.1	1.0	-45.1	-25.0	-20.1		
90 MHz QPSK ANT D	UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
	Company: Samsung									
	Project #: 4791655852									
	Date: 2025-03-07									
	Test Engineer: 28775									
	Configuration: EUT, Y-Position									
	Location: Chamber 2									
	Mode: 5G NR_QPSK NR n41 Harmonics, 90MHz 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, 2541.01MHz									
	5082.02	-12.8	V	3.0	43.3	1.0	-55.1	-25.0	-30.1	
	7623.03	-13.2	V	3.0	42.9	1.0	-55.1	-25.0	-30.1	
	10164.04	-2.4	V	3.0	41.4	1.0	-42.8	-25.0	-17.8	
	5082.02	-11.6	H	3.0	43.3	1.0	-53.9	-25.0	-28.9	
	7623.03	-13.3	H	3.0	42.9	1.0	-55.2	-25.0	-30.2	
	10164.04	0.0	H	3.0	41.4	1.0	-40.4	-25.0	-15.4	
	Mid Ch, 2592.99MHz									
	5185.98	-13.0	V	3.0	43.3	1.0	-55.3	-25.0	-30.3	
	7778.97	-13.3	V	3.0	42.8	1.0	-55.1	-25.0	-30.1	
	10371.96	-1.6	V	3.0	41.3	1.0	-41.9	-25.0	-16.9	
	5185.98	-11.6	H	3.0	43.3	1.0	-53.9	-25.0	-28.9	
7778.97	-13.3	H	3.0	42.8	1.0	-55.0	-25.0	-30.0		
10371.96	0.8	H	3.0	41.3	1.0	-39.5	-25.0	-14.5		
High Ch, 2645MHz										
5290.00	-12.6	V	3.0	43.3	1.0	-54.9	-25.0	-29.9		
7935.00	-13.2	V	3.0	42.7	1.0	-54.9	-25.0	-29.9		
10580.00	2.1	V	3.0	41.1	1.0	-37.9	-25.0	-12.9		
5290.00	-12.2	H	3.0	43.3	1.0	-54.6	-25.0	-29.6		
7935.00	-13.6	H	3.0	42.7	1.0	-55.2	-25.0	-30.2		
10580.00	4.0	H	3.0	41.1	1.0	-36.0	-25.0	-11.0		

END OF REPORT