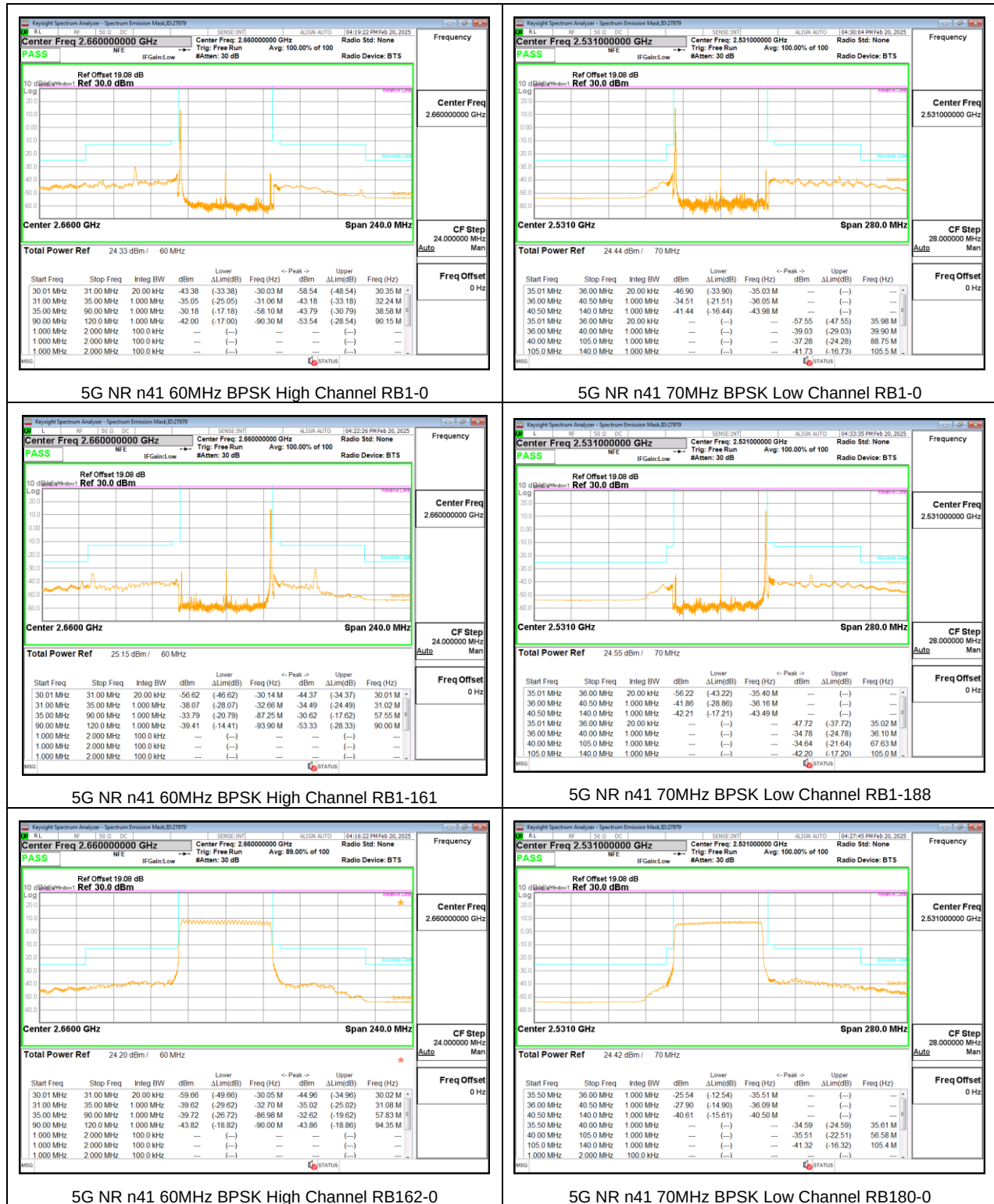
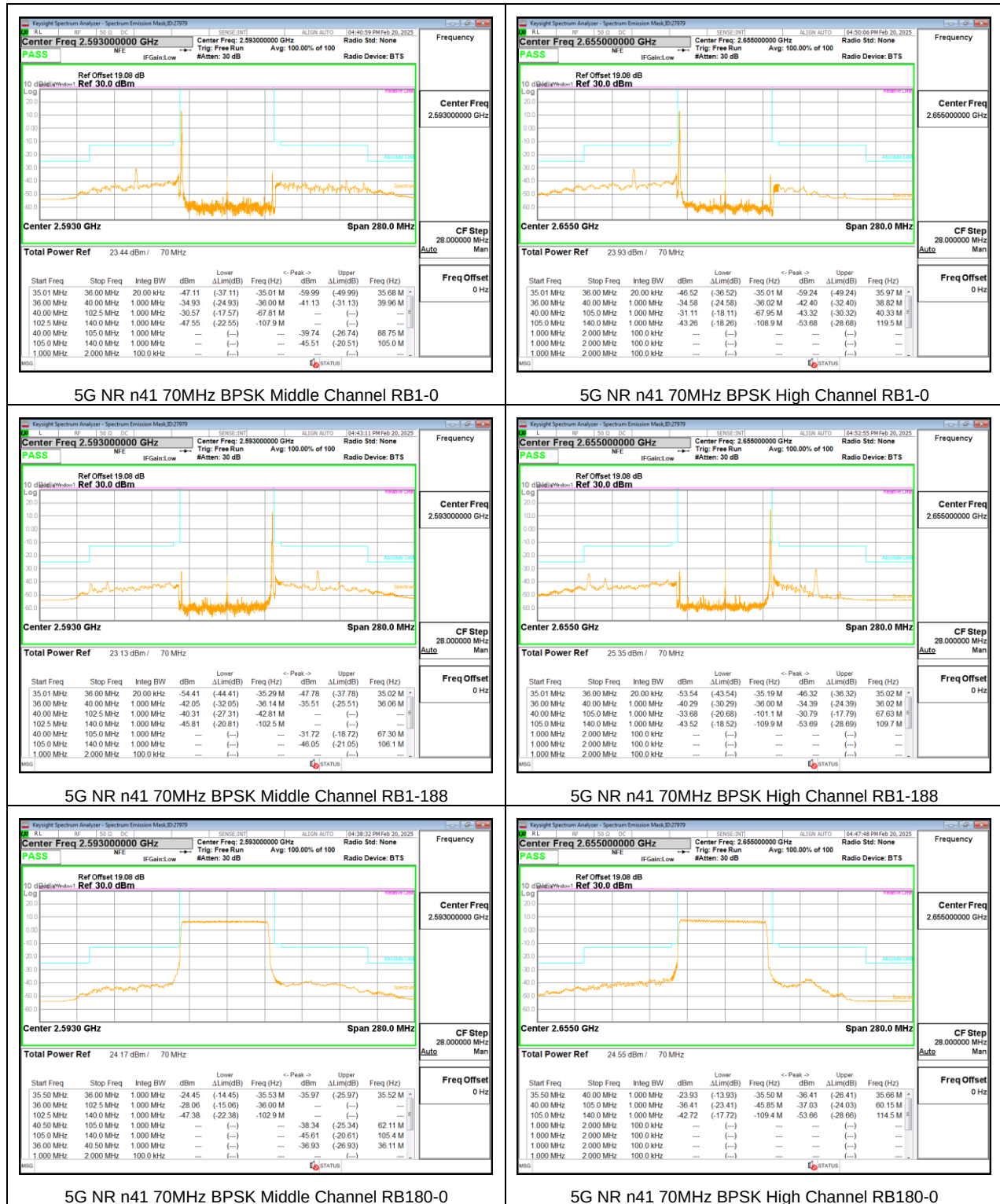
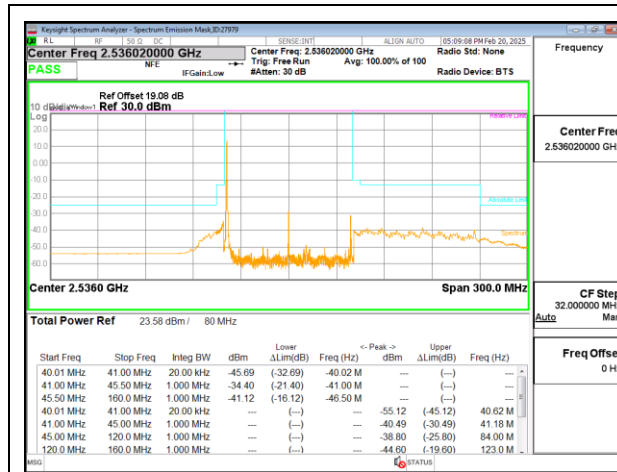
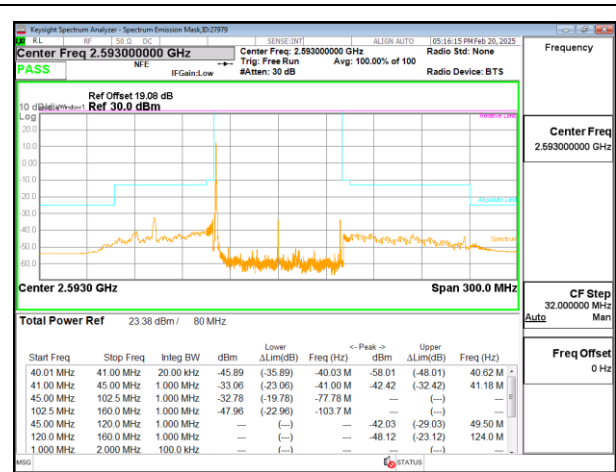




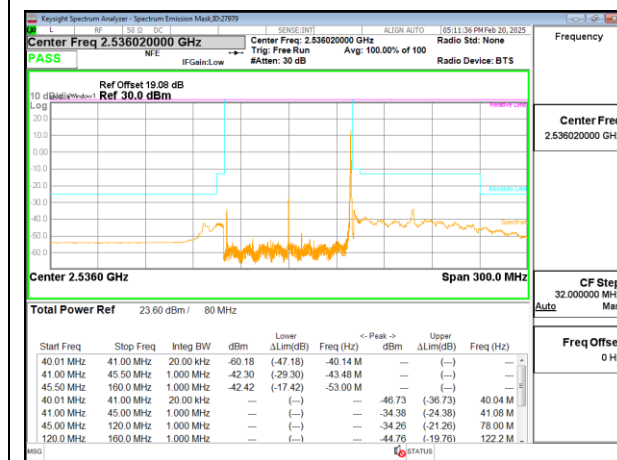




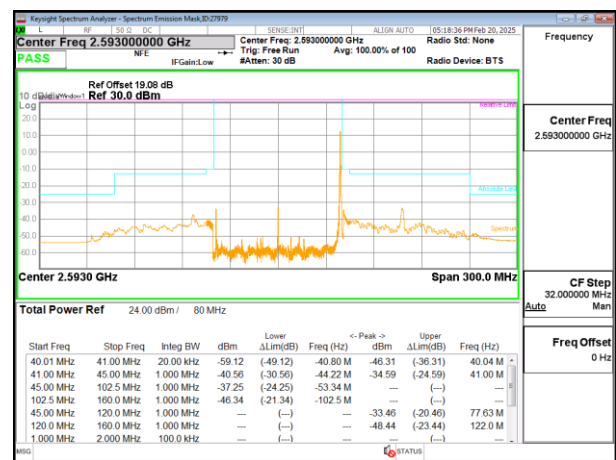
5G NR n41 80MHz BPSK Low Channel RB1-0



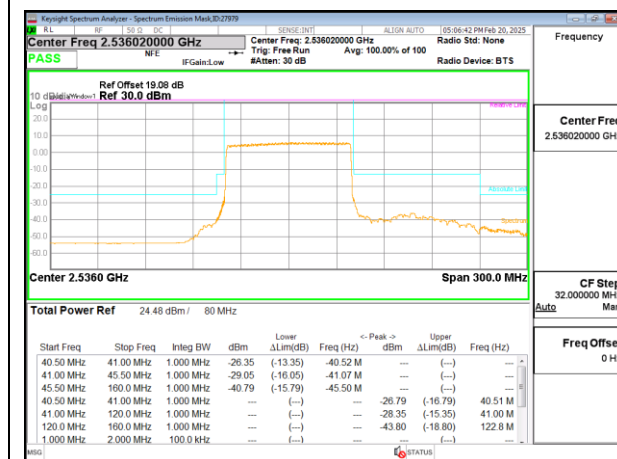
5G NR n41 80MHz BPSK Middle Channel RB1-0



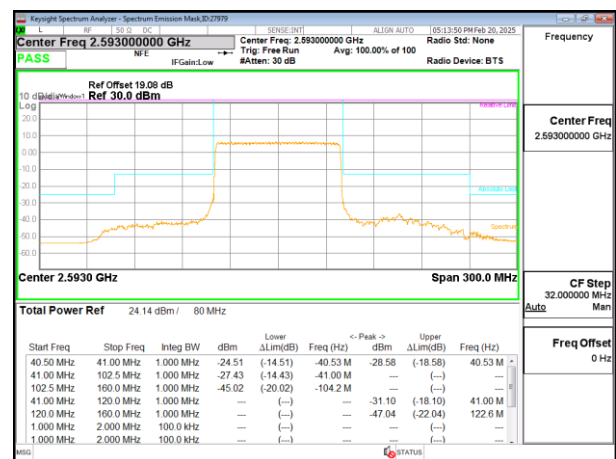
5G NR n41 80MHz BPSK Low Channel RB1-216



5G NR n41 80MHz BPSK Middle Channel RB1-216



5G NR n41 80MHz BPSK Low Channel RB216-0

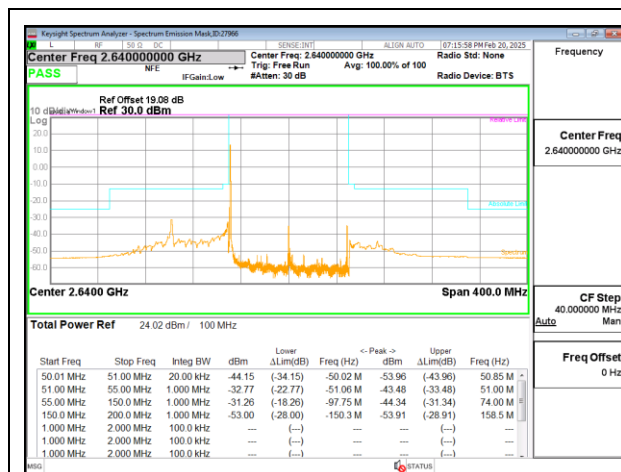


5G NR n41 80MHz BPSK Middle Channel RB216-0



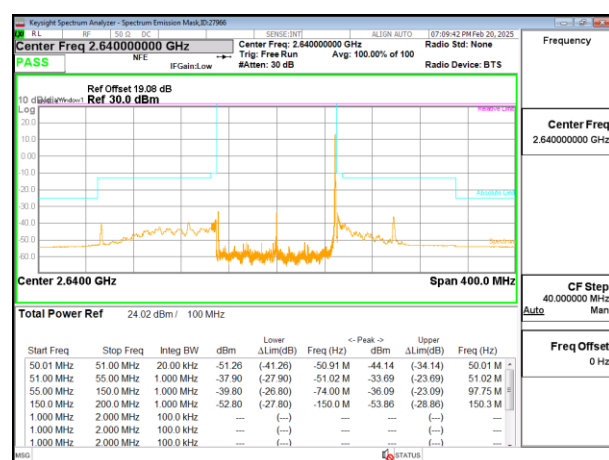






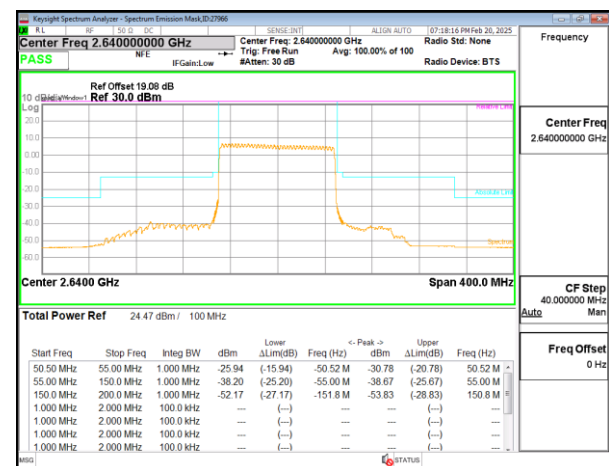
5G NR n41 100MHz BPSK High Channel RB1-0

Intentionally Blank



5G NR n41 100MHz BPSK High Channel RB1-272

Intentionally Blank



5G NR n41 100MHz BPSK High Channel RB270-0

Intentionally Blank

9.3. OUT OF BAND EMISSIONS

LIMITS

FCC: §27.53 (m)

The minimum permissible attenuation level of any spurious emissions is $55 + 10 \log (P)$ dB where transmitting power (P) in Watts.

TEST PROCEDURE

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.

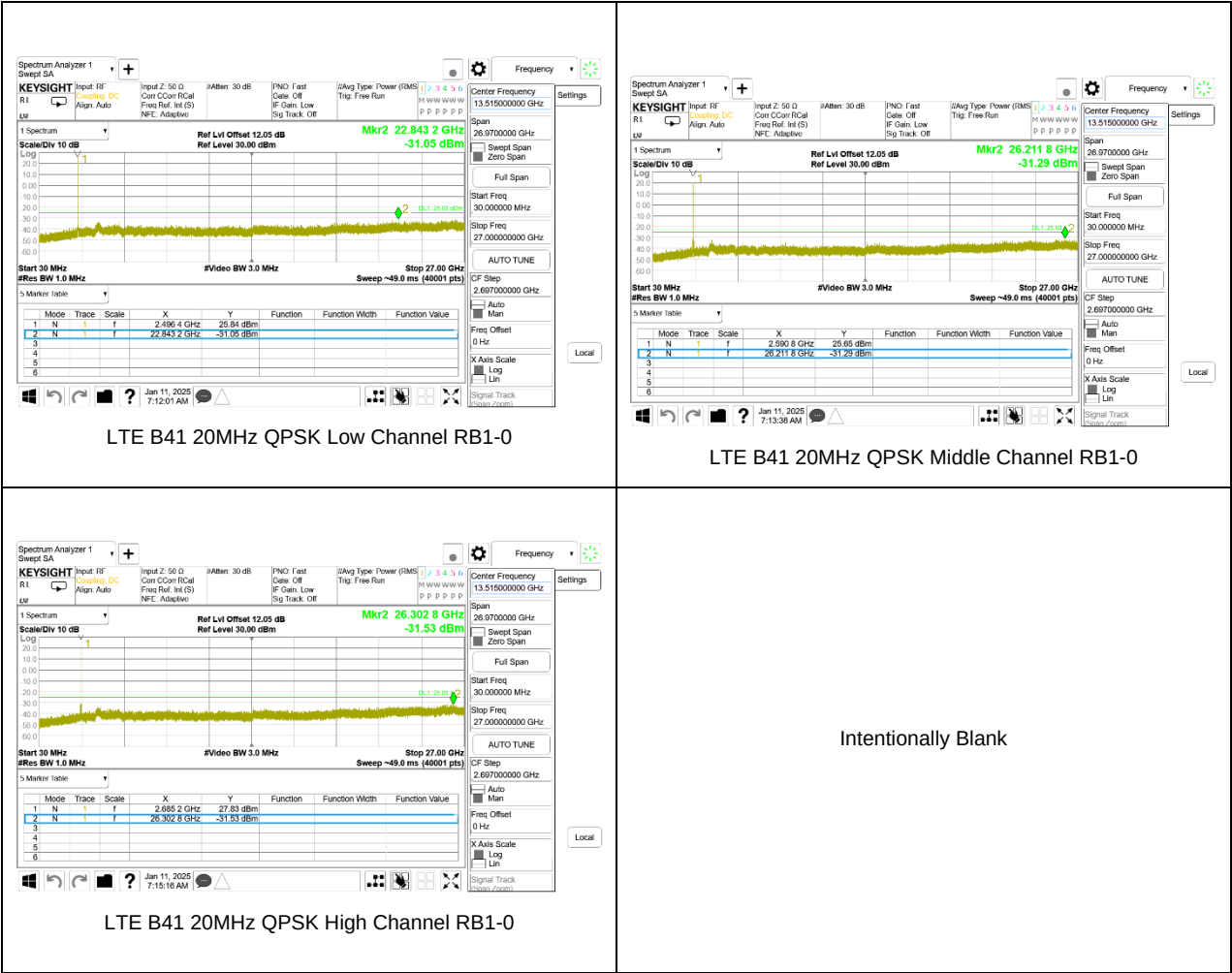
For each out of band emissions measurement:

- Set display line at -25dBm according to the band Limit
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.
(NOTE: Worst-case set RBW/VBW to 1MHz/3MHz)

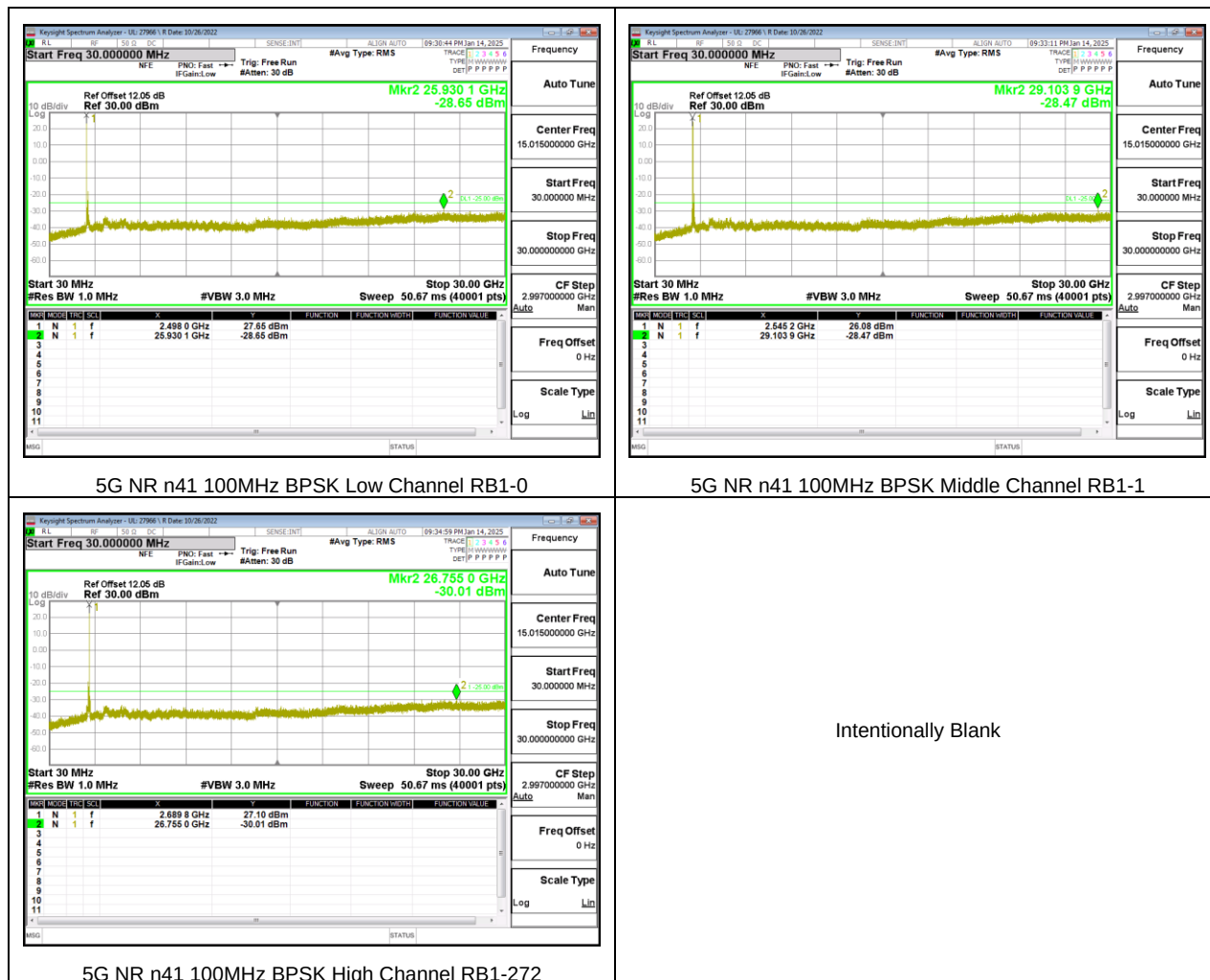
RESULTS

All bandwidth combinations of BPSK, QPSK and 16QAM modes are tested, only highest bandwidth results are reported as worst case.

9.3.1. LTE BAND 41



9.3.2. 5G NR n41



9.4. FREQUENCY STABILITY

LIMITS

FCC: §27.54

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

TEST PROCEDURE

Use base station simulator with Frequency Error measurement capability.

- Temp. = -30°C to $+50^{\circ}\text{C}$

- Voltage = (85% - 115%)

Low voltage, 3.65VDC, Normal, 3.86VDC and High voltage, 4.4VDC.

End Voltage, 3.6VDC.

Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to 20°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until $+50^{\circ}\text{C}$ is reached.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

RESULTS

9.4.1. LTE B41 (QPSK 20MHz BANDWIDTH)

Test Engineer ID:	27979	Test Date:	1/28/2025
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Band	41	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		2496	2690		0	
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)	Normal	2496.6204	2689.4389			
Extreme (50°C)		2496.6204	2689.4389	-1.1	0.000	Yes
Extreme (40°C)		2496.6204	2689.4389	-0.5	0.000	Yes
Extreme (30°C)		2496.6204	2689.4389	-2.2	-0.001	Yes
Extreme (10°C)		2496.6204	2689.4389	-1.7	-0.001	Yes
Extreme (0°C)		2496.6204	2689.4389	-0.9	0.000	Yes
Extreme (-10°C)		2496.6204	2689.4389	-1.0	0.000	Yes
Extreme (-20°C)		2496.6204	2689.4389	-3.9	-0.002	Yes
Extreme (-30°C)		2496.6204	2689.4389	-0.4	0.000	Yes
20°C	15%	2496.6204	2689.4389	-0.7	0.000	Yes
	-15%	2496.6204	2689.4389	-0.9	0.000	Yes
	End Point Voltage	2496.6204	2689.4389	-4.9	-0.002	Yes

9.4.2. 5G NR n41 (BPSK 100MHz BANDWIDTH)

Test Engineer ID:	27966	Test Date:	2025-01-29
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Band	41	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		2496.01	2690		2.5	
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)	Normal	2496.8258	2689.6209			
Extreme (50°C)		2496.8258	2689.6209	-4.9	-0.002	Yes
Extreme (40°C)		2496.8258	2689.6209	4.4	0.002	Yes
Extreme (30°C)		2496.8258	2689.6209	-2.9	-0.001	Yes
Extreme (10°C)		2496.8258	2689.6209	-4.7	-0.002	Yes
Extreme (0°C)		2496.8258	2689.6209	3.9	0.002	Yes
Extreme (-10°C)		2496.8258	2689.6209	-5.8	-0.002	Yes
Extreme (-20°C)		2496.8258	2689.6209	-6.0	-0.002	Yes
Extreme (-30°C)		2496.8258	2689.6209	-7.2	-0.003	Yes
20°C	15%	2496.8258	2689.6209	-3.0	-0.001	Yes
	-15%	2496.8258	2689.6209	-1.6	-0.001	Yes
	End Point Voltage	2496.8258	2689.6209	-7.4	-0.003	Yes

9.5. PEAK-TO-AVERAGE POWER RATIO

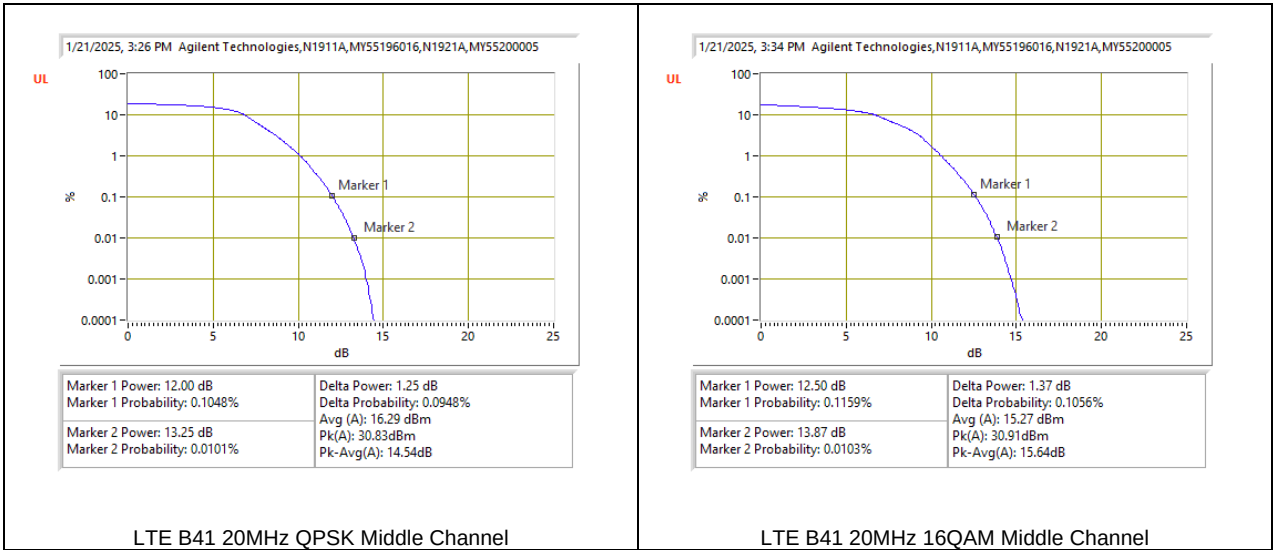
LIMIT

In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

RESULT

The worst-case antenna port for conducted power shown in section 6.5. was used to measure as the worst case; full resource block (FRB) for each bandwidth was used to measure as the worst case. The results from all CCDF measurements are passed with 13dB peak-to-average power ratio criteria.

Example Plots: FULL RB



9.5.1. LTE BAND 41

Test Engineer ID:	27979	Test Date:	2025-01-21
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Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
LTE Band 41	5MHz	2593.0	25	0	QPSK	31.01	16.31	7.74
					16QAM	30.91	15.33	8.62
	10MHz		50	0	QPSK	31.02	16.29	7.77
					16QAM	31.08	15.32	8.80
	15MHz		75	0	QPSK	30.77	16.28	7.53
					16QAM	30.77	15.28	8.53
	20MHz		100	0	QPSK	30.83	16.29	7.58
					16QAM	30.91	15.27	8.68
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor								

9.5.2. 5G NR n41

Test Engineer ID:	27979	Test Date:	2025-01-21
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Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
5G NR n41	10MHz	2593.0	24	0	BPSK	30.46	24.05	6.41
					16QAM	31.35	22.52	8.83
	15MHz		36	0	BPSK	30.18	24.00	6.18
					16QAM	31.98	22.52	9.46
	20MHz		50	0	BPSK	30.36	24.01	6.35
					16QAM	31.56	22.49	9.07
	30MHz		75	0	BPSK	30.37	23.98	6.39
					16QAM	31.78	22.47	9.31
	40MHz		100	0	BPSK	30.31	23.94	6.37
					16QAM	31.28	22.43	8.85
	50MHz		128	0	BPSK	29.75	23.91	5.84
					16QAM	30.80	22.40	8.40
	60MHz		162	0	BPSK	29.63	23.90	5.73
					16QAM	30.56	22.37	8.19
	70MHz		180	0	BPSK	30.07	23.93	6.14
					16QAM	30.67	22.33	8.34
	80MHz		216	0	BPSK	29.25	23.85	5.40
					16QAM	30.66	22.29	8.37
	90MHz		243	0	BPSK	29.54	23.84	5.70
					16QAM	30.17	22.26	7.91
	100MHz		270	0	BPSK	28.71	23.86	4.85
					16QAM	30.02	22.25	7.77
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor								

10. RADIATED TEST RESULTS

10.1. EFFECTIVE RADIATED POWER ERP/EIRP

RULE PART(S)

FCC: §2.1046, §27.50

LIMITS

27.50 (h) (2) All user stations are limited to 2.0 watts transmitter output power.

TEST PROCEDURE

ANSI / TIA / EIA 603-E (2016), Clause 2.2.17; PSA setting reference to 971168 D01

For peak power measurement with a PSA:

a) Set the RBW $\geq$ OBW; b) Set VBW $\geq 3 \times$ RBW; c) Set span $\geq 2 \times$ RBW; d) Sweep time = auto couple; e) Detector = peak; f) Ensure that the number of measurement points $\geq$ span/RBW; g) Trace mode = max hold;

For average power measurement with a PSA:

a) Set span to at least 1.5 times the OBW; b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz; c) Set VBW $\geq 3 \times$ RBW; d) Set number of points in sweep $\geq 2 \times$ span / RBW; e) Sweep time = auto-couple; f) Detector = RMS (power averaging); g) Use free run trigger If burst duty cycle ≥ 98 ; h) Use trigger to capture bursts If burst duty cycle < 98 ; i) Trace average at least 100 traces in power averaging (i.e., RMS) mode. j) Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function.

TEST RESULTS

LTE Band 41

BW (MHz)	Mode	RB/RB Size	f(MHz)	EIRP	
				dBm	W
20	QPSK	1/0	2506	19.49	0.089
		1/0	2593	22.45	0.176
		1/0	2680	20.05	0.101
	16QAM	1/0	2506	18.99	0.079
		1/0	2593	22.08	0.161
		1/0	2680	19.65	0.092
15	QPSK	1/0	2503.5	19.40	0.087
		1/0	2593	22.33	0.171
		1/0	2682.5	20.03	0.101
	16QAM	1/0	2503.5	19.05	0.080
		1/0	2593	22.07	0.161
		1/0	2682.5	19.63	0.092
10	QPSK	1/0	2501	19.26	0.084
		1/0	2593	22.29	0.169
		1/0	2685	20.11	0.103
	16QAM	1/0	2501	18.96	0.079
		1/0	2593	22.13	0.163
		1/0	2685	19.66	0.092
5	QPSK	1/0	2498.5	19.22	0.084
		1/0	2593	22.22	0.167
		1/0	2687.5	19.98	0.100
	16QAM	1/0	2498.5	18.92	0.078
		1/0	2593	22.09	0.162
		1/0	2687.5	19.64	0.092

5G NR n41

BW (MHz)	Mode	RB/RB Size	f(MHz)	EIRP	
				dBm	W
100	BPSK	1/1	2546	22.78	0.190
		1/1	2593	22.52	0.179
		1/1	2640	20.71	0.118
	16QAM	1/1	2546	21.44	0.139
		1/1	2593	21.17	0.131
		1/1	2640	19.43	0.088
90	BPSK	1/1	2541	22.72	0.187
		1/1	2593	22.46	0.176
		1/1	2644	20.70	0.117
	16QAM	1/1	2541	21.37	0.137
		1/1	2593	21.02	0.126
		1/1	2644	19.45	0.088
80	BPSK	1/1	2536	22.77	0.189
		1/1	2593	22.57	0.181
		1/1	2650	20.89	0.123
	16QAM	1/1	2536	21.35	0.136
		1/1	2593	20.95	0.124
		1/1	2650	19.47	0.089
70	BPSK	1/1	2631	22.58	0.181
		1/1	2593	22.26	0.168
		1/1	2655	20.63	0.116
	16QAM	1/1	2631	21.22	0.132
		1/1	2593	20.79	0.120
		1/1	2655	19.16	0.082
60	BPSK	1/1	2526	22.60	0.182
		1/1	2593	22.32	0.171
		1/1	2660	20.65	0.116
	16QAM	1/1	2526	21.29	0.135
		1/1	2593	20.81	0.121
		1/1	2660	19.18	0.083
50	BPSK	1/1	2512	22.73	0.187
		1/1	2593	22.22	0.167
		1/1	2665	20.82	0.121
	16QAM	1/1	2512	21.28	0.134
		1/1	2593	20.91	0.123
		1/1	2665	19.54	0.090

BW (MHz)	Mode	RB/RB Size	f(MHz)	EIRP	
				dBm	W
40	BPSK	1/1	2516	22.54	0.179
		1/1	2593	22.13	0.163
		1/1	2670	20.56	0.114
	16QAM	1/1	2516	21.44	0.139
		1/1	2593	21.12	0.129
		1/1	2670	19.56	0.090
30	BPSK	1/1	2511	22.45	0.176
		1/1	2593	22.08	0.161
		1/1	2675	20.54	0.113
	16QAM	1/1	2511	21.35	0.136
		1/1	2593	20.97	0.125
		1/1	2675	19.45	0.088
20	BPSK	1/1	2506	22.47	0.177
		1/1	2593	22.13	0.163
		1/1	2680	20.56	0.114
	16QAM	1/1	2506	21.25	0.133
		1/1	2593	20.92	0.124
		1/1	2680	19.47	0.089
15	BPSK	1/1	2503.5	22.43	0.175
		1/1	2593	22.08	0.161
		1/1	2637.75	20.47	0.111
	16QAM	1/1	2503.5	21.10	0.129
		1/1	2593	20.84	0.121
		1/1	2637.75	19.43	0.088
10	BPSK	1/1	2501	22.06	0.161
		1/1	2593	21.98	0.158
		1/1	2639	20.38	0.109
	16QAM	1/1	2501	21.00	0.126
		1/1	2593	20.51	0.112
		1/1	2639	19.31	0.085

10.1.1. LTE Band 41

20MHz QPSK									20MHz 16QAM								
UL Verification Services, Inc. High Frequency Substitution Measurement									UL Verification Services, Inc. High Frequency Substitution Measurement								
Company: Samsung Project #: 15605535 Date: 1/16/2025 Test Engineer: 39005 Configuration: EUT Only Location: Chamber K Mode: LTE_QPSK Band 41(FCC) Fundamentals, 20MHz Bandwidth									Company: Samsung Project #: 15605535 Date: 1/16/2025 Test Engineer: 39005 Configuration: EUT Only Location: Chamber K Mode: LTE_16QAM Band 41(FCC) Fundamentals, 20MHz Bandwidth								
Test Equipment: Receiving: Horn 206808, and Chamber K SMA Cables Substitution: Horn 223083, Chamber K SMA Cable									Test Equipment: Receiving: Horn 206808, and Chamber K SMA Cables Substitution: Horn 223083, Chamber K SMA Cable								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch									Low Ch								
2506.00	19.25	V	5.8	6.0	19.46	33.0	-13.5		2506.00	18.78	V	5.8	6.0	18.99	33.0	-14.0	
2506.00	16.64	H	5.8	6.0	16.85	33.0	-16.2		2506.00	16.28	H	5.8	6.0	16.49	33.0	-16.5	
Mid Ch									Mid Ch								
2593.00	22.00	V	5.8	6.2	22.45	33.0	-10.6		2593.00	21.63	V	5.8	6.2	22.08	33.0	-10.9	
2593.00	15.49	H	5.8	6.2	15.94	33.0	-17.1		2593.00	15.05	H	5.8	6.2	15.50	33.0	-17.5	
High Ch									High Ch								
2680.00	19.31	V	5.7	6.4	20.05	33.0	-12.9		2680.00	18.91	V	5.7	6.4	19.65	33.0	-13.3	
2680.00	14.66	H	5.7	6.4	15.40	33.0	-17.6		2680.00	14.26	H	5.7	6.4	15.00	33.0	-18.0	

15MHz QPSK									15MHz 16QAM								
UL Verification Services, Inc. High Frequency Substitution Measurement									UL Verification Services, Inc. High Frequency Substitution Measurement								
Company: Samsung Project #: 15605535 Date: 1/16/2025 Test Engineer: 39005 Configuration: EUT Only Location: Chamber K Mode: LTE_QPSK Band 41(FCC) Fundamentals, 15MHz Bandwidth									Company: Samsung Project #: 15605535 Date: 1/16/2025 Test Engineer: 39005 Configuration: EUT Only Location: Chamber K Mode: LTE_16QAM Band 41(FCC) Fundamentals, 15MHz Bandwidth								
Test Equipment: Receiving: Horn 206808, and Chamber K SMA Cables Substitution: Horn 223083, Chamber K SMA Cable									Test Equipment: Receiving: Horn 206808, and Chamber K SMA Cables Substitution: Horn 223083, Chamber K SMA Cable								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch									Low Ch								
2503.50	19.20	V	5.8	6.0	19.40	33.0	-13.6		2503.50	18.85	V	5.8	6.0	19.05	33.0	-13.9	
2503.50	16.64	H	5.8	6.0	16.84	33.0	-16.2		2503.50	16.30	H	5.8	6.0	16.50	33.0	-16.5	
Mid Ch									Mid Ch								
2593.00	21.88	V	5.8	6.2	22.33	33.0	-10.7		2593.00	21.62	V	5.8	6.2	22.07	33.0	-10.9	
2593.00	15.51	H	5.8	6.2	15.96	33.0	-17.0		2593.00	15.09	H	5.8	6.2	15.54	33.0	-17.5	
High Ch									High Ch								
2682.50	19.28	V	5.7	6.4	20.03	33.0	-13.0		2682.50	18.88	V	5.7	6.4	19.63	33.0	-13.4	
2682.50	14.62	H	5.7	6.4	15.37	33.0	-17.6		2682.50	14.28	H	5.7	6.4	15.03	33.0	-18.0	

10MHz QPSK									10MHz 16QAM								
UL Verification Services, Inc. High Frequency Substitution Measurement									UL Verification Services, Inc. High Frequency Substitution Measurement								
Company: Samsung Project #: 15605535 Date: 1/17/2025 Test Engineer: 39005 Configuration: EUT Only Location: Chamber K Mode: LTE_QPSK Band 41(FCC) Fundamentals, 10MHz Bandwidth									Company: Samsung Project #: 15605535 Date: 1/17/2025 Test Engineer: 39005 Configuration: EUT Only Location: Chamber K Mode: LTE_16QAM Band 41(FCC) Fundamentals, 10MHz Bandwidth								
Test Equipment: Receiving: Horn 206808, and Chamber K SMA Cables Substitution: Horn 223083, Chamber K SMA Cable									Test Equipment: Receiving: Horn 206808, and Chamber K SMA Cables Substitution: Horn 223083, Chamber K SMA Cable								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch									Low Ch								
2501.00	19.06	V	5.8	6.0	19.26	33.0	-13.7		2501.00	18.76	V	5.8	6.0	18.96	33.0	-14.0	
2501.00	16.66	H	5.8	6.0	16.86	33.0	-16.1		2501.00	16.31	H	5.8	6.0	16.51	33.0	-16.5	
Mid Ch									Mid Ch								
2593.00	21.84	V	5.8	6.2	22.29	33.0	-10.7		2593.00	21.68	V	5.8	6.2	22.13	33.0	-10.9	
2593.00	15.72	H	5.8	6.2	16.17	33.0	-16.8		2593.00	15.07	H	5.8	6.2	15.52	33.0	-17.5	
High Ch									High Ch								
2685.00	19.35	V	5.7	6.4	20.11	33.0	-12.9		2685.00	18.90	V	5.7	6.4	19.66	33.0	-13.3	
2685.00	14.66	H	5.7	6.4	15.42	33.0	-17.6		2685.00	14.26	H	5.7	6.4	15.02	33.0	-18.0	

5MHz QPSK									5MHz 16QAM								
UL Verification Services, Inc. High Frequency Substitution Measurement									UL Verification Services, Inc. High Frequency Substitution Measurement								
Company: Samsung Project #: 15605535 Date: 1/17/2025 Test Engineer: 39005 Configuration: EUT Only Location: Chamber K Mode: LTE_QPSK Band 41(FCC) Fundamentals, 5MHz Bandwidth									Company: Samsung Project #: 15605535 Date: 1/17/2025 Test Engineer: 39005 Configuration: EUT Only Location: Chamber K Mode: LTE_16QAM Band 41(FCC) Fundamentals, 5MHz Bandwidth								
Test Equipment: Receiving: Horn 206808, and Chamber K SMA Cables Substitution: Horn 223083, Chamber K SMA Cable									Test Equipment: Receiving: Horn 206808, and Chamber K SMA Cables Substitution: Horn 223083, Chamber K SMA Cable								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch									Low Ch								
2498.50	19.03	V	5.7	5.9	19.22	33.0	-13.8		2498.50	18.73	V	5.7	5.9	18.92	33.0	-14.1	
2498.50	16.42	H	5.7	5.9	16.61	33.0	-16.4		2498.50	16.27	H	5.7	5.9	16.46	33.0	-16.5	
Mid Ch									Mid Ch								
2593.00	21.77	V	5.8	6.2	22.22	33.0	-10.8		2593.00	21.64	V	5.8	6.2	22.09	33.0	-10.9	
2593.00	15.67	H	5.8	6.2	16.12	33.0	-16.9		2593.00	15.03	H	5.8	6.2	15.48	33.0	-17.5	
High Ch									High Ch								
2687.50	19.21	V	5.7	6.5	19.98	33.0	-13.0		2687.50	18.87	V	5.7	6.5	19.64	33.0	-13.4	
2687.50	14.60	H	5.7	6.5	15.37	33.0	-17.6		2687.50	14.22	H	5.7	6.5	14.99	33.0	-18.0	

10.1.2. 5G NR n41

100MHz BPSK									100MHz 16QAM																																																																																																																																																																																												
UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 1/27/2025 Test Engineer: 39005 Configuration: EUT only Location: Chamber K Mode: FR1_N41_BPSK 100 MHz Fundamentals Test Equipment: Receiving: Horn 206808, and Chamber K SMA Cables Substitution: Horn 223083, Chamber K SMA Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2546.00</td><td>22.58</td><td>V</td><td>5.8</td><td>6.0</td><td>22.78</td><td>33.0</td><td>-10.2</td><td></td></tr><tr><td>2546.00</td><td>13.34</td><td>H</td><td>5.8</td><td>6.0</td><td>13.54</td><td>33.0</td><td>-19.5</td><td></td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2593.00</td><td>22.08</td><td>V</td><td>5.8</td><td>6.2</td><td>22.52</td><td>33.0</td><td>-10.5</td><td></td></tr><tr><td>2593.00</td><td>16.96</td><td>H</td><td>5.8</td><td>6.2</td><td>17.40</td><td>33.0</td><td>-15.6</td><td></td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2640.00</td><td>20.15</td><td>V</td><td>5.7</td><td>6.3</td><td>20.71</td><td>33.0</td><td>-12.3</td><td></td></tr><tr><td>2640.00</td><td>15.53</td><td>H</td><td>5.7</td><td>6.3</td><td>16.09</td><td>33.0</td><td>-16.9</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									2546.00	22.58	V	5.8	6.0	22.78	33.0	-10.2		2546.00	13.34	H	5.8	6.0	13.54	33.0	-19.5		Mid Ch									2593.00	22.08	V	5.8	6.2	22.52	33.0	-10.5		2593.00	16.96	H	5.8	6.2	17.40	33.0	-15.6		High Ch									2640.00	20.15	V	5.7	6.3	20.71	33.0	-12.3		2640.00	15.53	H	5.7	6.3	16.09	33.0	-16.9		UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 1/27/2025 Test Engineer: 39005 Configuration: EUT only Location: Chamber K Mode: FR1_N41_16QAM 100 MHz Fundamentals Test Equipment: Receiving: Horn 206808, and Chamber K SMA Cables Substitution: Horn 223083, Chamber K SMA cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2546.00</td><td>21.24</td><td>V</td><td>5.8</td><td>6.0</td><td>21.44</td><td>33.0</td><td>-11.6</td><td></td></tr><tr><td>2546.00</td><td>12.06</td><td>H</td><td>5.8</td><td>6.0</td><td>12.26</td><td>33.0</td><td>-20.7</td><td></td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2593.00</td><td>20.73</td><td>V</td><td>5.8</td><td>6.2</td><td>21.17</td><td>33.0</td><td>-11.8</td><td></td></tr><tr><td>2593.00</td><td>15.66</td><td>H</td><td>5.8</td><td>6.2</td><td>16.10</td><td>33.0</td><td>-16.9</td><td></td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2640.00</td><td>18.87</td><td>V</td><td>5.7</td><td>6.3</td><td>19.43</td><td>33.0</td><td>-13.6</td><td></td></tr><tr><td>2640.00</td><td>14.23</td><td>H</td><td>5.7</td><td>6.3</td><td>14.79</td><td>33.0</td><td>-18.2</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									2546.00	21.24	V	5.8	6.0	21.44	33.0	-11.6		2546.00	12.06	H	5.8	6.0	12.26	33.0	-20.7		Mid Ch									2593.00	20.73	V	5.8	6.2	21.17	33.0	-11.8		2593.00	15.66	H	5.8	6.2	16.10	33.0	-16.9		High Ch									2640.00	18.87	V	5.7	6.3	19.43	33.0	-13.6		2640.00	14.23	H	5.7	6.3	14.79	33.0	-18.2	
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																																																																																																																													
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2546.00	22.58	V	5.8	6.0	22.78	33.0	-10.2																																																																																																																																																																																														
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2593.00	22.08	V	5.8	6.2	22.52	33.0	-10.5																																																																																																																																																																																														
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2593.00	20.73	V	5.8	6.2	21.17	33.0	-11.8																																																																																																																																																																																														
2593.00	15.66	H	5.8	6.2	16.10	33.0	-16.9																																																																																																																																																																																														
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2640.00	18.87	V	5.7	6.3	19.43	33.0	-13.6																																																																																																																																																																																														
2640.00	14.23	H	5.7	6.3	14.79	33.0	-18.2																																																																																																																																																																																														
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2593.00	15.60	H	5.8	6.2	16.04	33.0	-17.0																																																																																																																																																																																														
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2645.00	18.87	V	5.7	6.3	19.45	33.0	-13.5																																																																																																																																																																																														
2645.00	14.18	H	5.7	6.3	14.76	33.0	-18.2																																																																																																																																																																																														
80MHz BPSK									80MHz 16QAM																																																																																																																																																																																												
UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 1/27/2025 Test Engineer: 39005 Configuration: EUT only Location: Chamber K Mode: FR1_N41_BPSK 80 MHz Fundamentals Test Equipment: Receiving: Horn 206808, and Chamber K SMA Cables Substitution: Horn 223083, Chamber K SMA Cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2536.00</td><td>22.61</td><td>V</td><td>5.8</td><td>5.9</td><td>22.77</td><td>33.0</td><td>-10.2</td><td></td></tr><tr><td>2536.00</td><td>13.30</td><td>H</td><td>5.8</td><td>5.9</td><td>13.46</td><td>33.0</td><td>-19.5</td><td></td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2593.00</td><td>22.13</td><td>V</td><td>5.8</td><td>6.2</td><td>22.57</td><td>33.0</td><td>-10.4</td><td></td></tr><tr><td>2593.00</td><td>16.85</td><td>H</td><td>5.8</td><td>6.2</td><td>17.29</td><td>33.0</td><td>-15.7</td><td></td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2650.00</td><td>20.29</td><td>V</td><td>5.7</td><td>6.3</td><td>20.89</td><td>33.0</td><td>-12.1</td><td></td></tr><tr><td>2650.00</td><td>15.46</td><td>H</td><td>5.7</td><td>6.3</td><td>16.06</td><td>33.0</td><td>-16.9</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									2536.00	22.61	V	5.8	5.9	22.77	33.0	-10.2		2536.00	13.30	H	5.8	5.9	13.46	33.0	-19.5		Mid Ch									2593.00	22.13	V	5.8	6.2	22.57	33.0	-10.4		2593.00	16.85	H	5.8	6.2	17.29	33.0	-15.7		High Ch									2650.00	20.29	V	5.7	6.3	20.89	33.0	-12.1		2650.00	15.46	H	5.7	6.3	16.06	33.0	-16.9		UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 1/27/2025 Test Engineer: 39005 Configuration: EUT only Location: Chamber K Mode: FR1_N41_16QAM 80 MHz Fundamentals Test Equipment: Receiving: Horn 206808, and Chamber K SMA Cables Substitution: Horn 223083, Chamber K SMA cable <table><tr><th>f MHz</th><th>SG reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Cable Loss (dB)</th><th>Antenna Gain (dBi)</th><th>EIRP (dBm)</th><th>Limit (dBm)</th><th>Delta (dB)</th><th>Notes</th></tr><tr><td>Low Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2536.00</td><td>21.19</td><td>V</td><td>5.8</td><td>5.9</td><td>21.35</td><td>33.0</td><td>-11.6</td><td></td></tr><tr><td>2536.00</td><td>12.06</td><td>H</td><td>5.8</td><td>5.9</td><td>12.22</td><td>33.0</td><td>-20.8</td><td></td></tr><tr><td>Mid Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2593.00</td><td>20.51</td><td>V</td><td>5.8</td><td>6.2</td><td>20.95</td><td>33.0</td><td>-12.0</td><td></td></tr><tr><td>2593.00</td><td>15.60</td><td>H</td><td>5.8</td><td>6.2</td><td>16.04</td><td>33.0</td><td>-17.0</td><td></td></tr><tr><td>High Ch</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2650.00</td><td>18.87</td><td>V</td><td>5.7</td><td>6.3</td><td>19.47</td><td>33.0</td><td>-13.5</td><td></td></tr><tr><td>2650.00</td><td>14.18</td><td>H</td><td>5.7</td><td>6.3</td><td>14.78</td><td>33.0</td><td>-18.2</td><td></td></tr></table>									f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	Low Ch									2536.00	21.19	V	5.8	5.9	21.35	33.0	-11.6		2536.00	12.06	H	5.8	5.9	12.22	33.0	-20.8		Mid Ch									2593.00	20.51	V	5.8	6.2	20.95	33.0	-12.0		2593.00	15.60	H	5.8	6.2	16.04	33.0	-17.0		High Ch									2650.00	18.87	V	5.7	6.3	19.47	33.0	-13.5		2650.00	14.18	H	5.7	6.3	14.78	33.0	-18.2	
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																																																																																																																													
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2536.00	22.61	V	5.8	5.9	22.77	33.0	-10.2																																																																																																																																																																																														
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2650.00	20.29	V	5.7	6.3	20.89	33.0	-12.1																																																																																																																																																																																														
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2536.00	21.19	V	5.8	5.9	21.35	33.0	-11.6																																																																																																																																																																																														
2536.00	12.06	H	5.8	5.9	12.22	33.0	-20.8																																																																																																																																																																																														
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2593.00	20.51	V	5.8	6.2	20.95	33.0	-12.0																																																																																																																																																																																														
2593.00	15.60	H	5.8	6.2	16.04	33.0	-17.0																																																																																																																																																																																														
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2650.00	14.18	H	5.7	6.3	14.78	33.0	-18.2																																																																																																																																																																																														

70MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 1/27/2025
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: FR1_N41_BPSK 70 MHz Fundamentals

Test Equipment:

Receiving: Horn 206808, and Chamber K SMA Cables
Substitution: Horn 223083, Chamber K SMA 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								
2631.01	22.42	V	5.7	5.9	22.58	33.0	-10.4	
2631.01	13.27	H	5.7	5.9	13.43	33.0	-19.6	
Mid Ch								
2593.00	21.82	V	5.8	6.2	22.26	33.0	-10.7	
2593.00	16.79	H	5.8	6.2	17.23	33.0	-15.8	
High Ch								
2655.00	19.98	V	5.7	6.4	20.63	33.0	-12.4	
2655.00	15.42	H	5.7	6.4	16.07	33.0	-16.9	

70MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 1/27/2025
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: FR1_N41_16QAM 70 MHz Fundamentals

Test Equipment:

Receiving: Horn 206808, and Chamber K SMA Cables
Substitution: Horn 223083, Chamber K SMA 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								
2631.01	21.06	V	5.7	5.9	21.22	33.0	-11.8	
2631.01	11.92	H	5.7	5.9	12.08	33.0	-20.9	
Mid Ch								
2593.00	20.34	V	5.8	6.2	20.79	33.0	-12.2	
2593.00	15.61	H	5.8	6.2	16.05	33.0	-16.9	
High Ch								
2655.00	18.51	V	5.7	6.4	19.16	33.0	-13.8	
2655.00	14.00	H	5.7	6.4	14.65	33.0	-18.4	

60MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 1/27/2025
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: FR1_N41_BPSK 60 MHz Fundamentals

Test Equipment:

Receiving: Horn 206808, and Chamber K SMA Cables
Substitution: Horn 223083, Chamber K SMA 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								
2526.00	22.46	V	5.8	5.9	22.60	33.0	-10.4	
2526.00	13.27	H	5.8	5.9	13.41	33.0	-19.6	
Mid Ch								
2593.00	21.88	V	5.8	6.2	22.32	33.0	-10.7	
2593.00	16.82	H	5.8	6.2	17.26	33.0	-15.7	
High Ch								
2660.00	20.00	V	5.7	6.4	20.65	33.0	-12.4	
2660.00	15.46	H	5.7	6.4	16.11	33.0	-16.9	

60MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 1/27/2025
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: FR1_N41_16QAM 60 MHz Fundamentals

Test Equipment:

Receiving: Horn 206808, and Chamber K SMA Cables
Substitution: Horn 223083, Chamber K SMA 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								
2526.00	21.15	V	5.8	5.9	21.29	33.0	-11.7	
2526.00	11.91	H	5.8	5.9	12.05	33.0	-21.0	
Mid Ch								
2593.00	20.37	V	5.8	6.2	20.81	33.0	-12.2	
2593.00	15.61	H	5.8	6.2	16.05	33.0	-16.9	
High Ch								
2660.00	18.53	V	5.7	6.4	19.18	33.0	-13.8	
2660.00	14.08	H	5.7	6.4	14.73	33.0	-18.3	

50MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 1/27/2025
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: FR1_N41_BPSK 50 MHz Fundamentals

Test Equipment:

Receiving: Horn 206808, and Chamber K SMA Cables
Substitution: Horn 223083, Chamber K SMA 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								
2521.00	22.60	V	5.8	5.9	22.73	33.0	-10.3	
2521.00	13.23	H	5.8	5.9	13.36	33.0	-19.6	
Mid Ch								
2593.00	21.78	V	5.8	6.2	22.22	33.0	-10.8	
2593.00	16.71	H	5.8	6.2	17.15	33.0	-15.8	
High Ch								
2665.00	20.15	V	5.7	6.4	20.82	33.0	-12.2	
2665.00	15.46	H	5.7	6.4	16.13	33.0	-16.9	

50MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 1/27/2025
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: FR1_N41_16QAM 50 MHz Fundamentals

Test Equipment:

Receiving: Horn 206808, and Chamber K SMA Cables
Substitution: Horn 223083, Chamber K SMA 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								
2521.00	21.15	V	5.8	5.9	21.28	33.0	-11.7	
2521.00	11.94	H	5.8	5.9	12.07	33.0	-20.9	
Mid Ch								
2593.00	20.47	V	5.8	6.2	20.91	33.0	-12.1	
2593.00	15.99	H	5.8	6.2	16.03	33.0	-17.0	
High Ch								
2665.00	18.87	V	5.7	6.4	19.54	33.0	-13.5	
2665.00	14.18	H	5.7	6.4	14.85	33.0	-18.1	

40MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 1/27/2025
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: FR1_N41_BPSK 40 MHz Fundamentals

Test Equipment:

Receiving: Horn 206808, and Chamber K SMA Cables
Substitution: Horn 223083, Chamber K SMA 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								
2516.00	22.42	V	5.8	5.9	22.54	33.0	-10.5	
2516.00	12.77	H	5.8	5.9	12.89	33.0	-20.1	
Mid Ch								
2593.00	21.69	V	5.8	6.2	22.13	33.0	-10.9	
2593.00	15.81	H	5.8	6.2	16.25	33.0	-16.7	
High Ch								
2670.00	19.86	V	5.7	6.4	20.56	33.0	-12.4	
2670.00	15.42	H	5.7	6.4	16.12	33.0	-16.9	

40MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 1/27/2025
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: FR1_N41_16QAM 40 MHz Fundamentals

Test Equipment:

Receiving: Horn 206808, and Chamber K SMA Cables
Substitution: Horn 223083, Chamber K SMA 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								
2516.00	21.32	V	5.8	5.9	21.44	33.0	-11.6	
2516.00	12.15	H	5.8	5.9	12.27	33.0	-20.7	
Mid Ch								
2593.00	20.68	V	5.8	6.2	21.12	33.0	-11.9	
2593.00	15.10	H	5.8	6.2	15.54	33.0	-17.5	
High Ch								
2670.00	18.86	V	5.7	6.4	19.56	33.0	-13.4	
2670.00	14.06	H	5.7	6.4	14.76	33.0	-18.2	

30MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 1/27/2025
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: FR1_N41_BPSK 30 MHz Fundamentals

Test Equipment:

Receiving: Horn 206808, and Chamber K SMA Cables
Substitution: Horn 223083, Chamber K SMA 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								
2511.00	22.34	V	5.8	5.9	22.45	33.0	-10.6	
2511.00	12.74	H	5.8	5.9	12.85	33.0	-20.2	
Mid Ch								
2593.00	21.64	V	5.8	6.2	22.08	33.0	-10.9	
2593.00	15.76	H	5.8	6.2	16.20	33.0	-16.8	
High Ch								
2675.00	19.82	V	5.7	6.4	20.54	33.0	-12.5	
2675.00	15.39	H	5.7	6.4	16.11	33.0	-16.9	

30MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 1/27/2025
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: FR1_N41_16QAM 30 MHz Fundamentals

Test Equipment:

Receiving: Horn 206808, and Chamber K SMA Cables
Substitution: Horn 223083, Chamber K SMA 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								
2511.00	21.24	V	5.8	5.9	21.35	33.0	-11.7	
2511.00	11.82	H	5.8	5.9	11.93	33.0	-21.1	
Mid Ch								
2593.00	20.53	V	5.8	6.2	20.97	33.0	-12.0	
2593.00	15.01	H	5.8	6.2	15.45	33.0	-17.5	
High Ch								
2675.00	18.73	V	5.7	6.4	19.45	33.0	-13.6	
2675.00	14.06	H	5.7	6.4	14.78	33.0	-18.2	

20MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 1/27/2025
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: FR1_N41_BPSK 20 MHz Fundamentals

Test Equipment:

Receiving: Horn 206808, and Chamber K SMA Cables
Substitution: Horn 223083, Chamber K SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2506.00	22.37	V	5.8	5.9	22.47	33.0	-10.5	
2506.00	12.77	H	5.8	5.9	12.87	33.0	-20.1	
Mid Ch								
2593.00	21.69	V	5.8	6.2	22.13	33.0	-10.9	
2593.00	15.85	H	5.8	6.2	16.29	33.0	-16.7	
High Ch								
2680.00	19.82	V	5.7	6.4	20.56	33.0	-12.4	
2680.00	15.53	H	5.7	6.4	16.27	33.0	-16.7	

20MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 1/27/2025
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: FR1_N41_16QAM 20 MHz Fundamentals

Test Equipment:

Receiving: Horn 206808, and Chamber K SMA Cables
Substitution: Horn 223083, Chamber K SMA cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2506.00	21.15	V	5.8	5.9	21.25	33.0	-11.8	
2506.00	11.84	H	5.8	5.9	11.94	33.0	-21.1	
Mid Ch								
2593.00	20.48	V	5.8	6.2	20.92	33.0	-12.1	
2593.00	14.99	H	5.8	6.2	15.43	33.0	-17.6	
High Ch								
2680.00	18.73	V	5.7	6.4	19.47	33.0	-13.5	
2680.00	14.01	H	5.7	6.4	14.75	33.0	-18.3	

15MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 1/27/2025
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: FR1_N41_BPSK 15 MHz Fundamentals

Test Equipment:
Receiving: Horn 206808, and Chamber K SMA Cables
Substitution: Horn 223083, Chamber K SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2503.50	22.33	V	5.8	5.9	22.43	33.0	-10.6	
2503.50	12.71	H	5.8	5.9	12.81	33.0	-20.2	
Mid Ch								
2593.00	21.64	V	5.8	6.2	22.08	33.0	-10.9	
2593.00	15.79	H	5.8	6.2	16.23	33.0	-16.8	
High Ch								
2637.75	19.76	V	5.7	6.4	20.47	33.0	-12.5	
2637.75	15.49	H	5.7	6.4	16.20	33.0	-16.8	

10MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 1/27/2025
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: FR1_N41_BPSK 10 MHz Fundamentals

Test Equipment:
Receiving: Horn 206808, and Chamber K SMA Cables
Substitution: Horn 223083, Chamber K SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2501.01	21.96	V	5.8	5.9	22.06	33.0	-10.9	
2501.01	12.67	H	5.8	5.9	12.77	33.0	-20.2	
Mid Ch								
2593.00	21.54	V	5.8	6.2	21.98	33.0	-11.0	
2593.00	15.73	H	5.8	6.2	16.17	33.0	-16.8	
High Ch								
2639.01	19.67	V	5.7	6.4	20.38	33.0	-12.6	
2639.01	15.44	H	5.7	6.4	16.15	33.0	-16.8	

15MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 1/27/2025
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: FR1_N41_16QAM 15 MHz Fundamentals

Test Equipment:
Receiving: Horn 206808, and Chamber K SMA Cables
Substitution: Horn 223083, Chamber K SMA cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2503.50	21.00	V	5.8	5.9	21.10	33.0	-11.9	
2503.50	11.72	H	5.8	5.9	11.82	33.0	-21.2	
Mid Ch								
2593.00	20.40	V	5.8	6.2	20.84	33.0	-12.2	
2593.00	14.99	H	5.8	6.2	15.43	33.0	-17.6	
High Ch								
2637.75	18.72	V	5.7	6.4	19.43	33.0	-13.6	
2637.75	13.93	H	5.7	6.4	14.64	33.0	-18.4	

10MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 1/27/2025
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: FR1_N41_16QAM 10 MHz Fundamentals

Test Equipment:
Receiving: Horn 206808, and Chamber K SMA Cables
Substitution: Horn 223083, Chamber K SMA cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2501.01	20.90	V	5.8	5.9	21.00	33.0	-12.0	
2501.01	11.54	H	5.8	5.9	11.64	33.0	-21.4	
Mid Ch								
2593.00	20.07	V	5.8	6.2	20.51	33.0	-12.5	
2593.00	14.86	H	5.8	6.2	15.30	33.0	-17.7	
High Ch								
2639.01	18.60	V	5.7	6.4	19.31	33.0	-13.7	
2639.01	13.83	H	5.7	6.4	14.54	33.0	-18.5	

10.2. FIELD STRENGTH OF SPURIOUS RADIATION, ABOVE 1GHz

Radiated measurement using the Field Strength Method

Using the test configuration shown in Figure 6 below, the radiated emissions is measured directly from the EUT and convert the measured field strength or received power to ERP or EIRP, as required, for comparison to the applicable limits. As stated in 5.5.1 of ANSI C63.26-2015, the field strength measurement method using a test site validated to the requirements of ANSI C63.4 is an alternative to the substitution measurement.

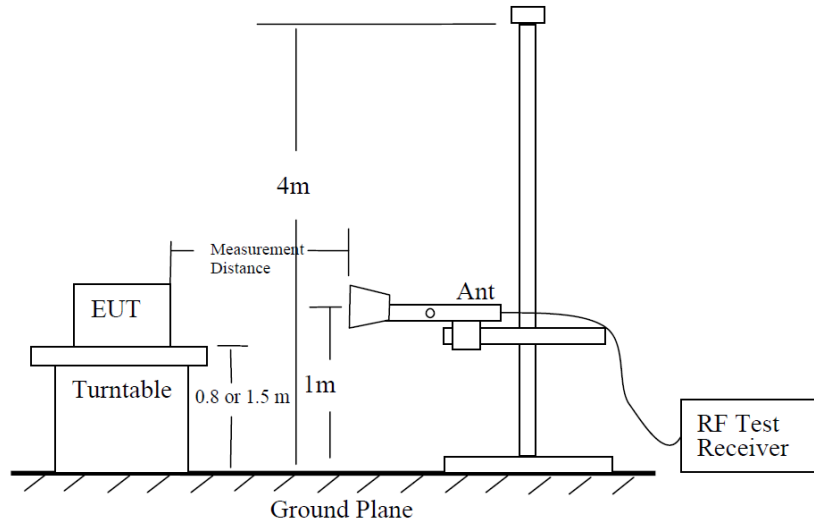


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

Radiated Power Measurement Calculation According to ANSI C63.26-2015

- a) $E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dB}\mu\text{V)} + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$.
- b) $E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$.
- c) $E \text{ (dB}\mu\text{V/m)} = \text{EIRP (dBm)} - 20\log(D) + 104.8$; where D is the measurement distance (in the far field region) in m.
- d) $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.

So, from d)

The measuring distance is usually at 3m, then $20 \cdot \log(3) = 9.5424$

Then, $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 9.5424 - 104.8 = E \text{ (dB}\mu\text{V/m)} - 95.2576$

Note: Confidence check of each chamber is performed daily to see if any degradation from expected/normal reading reference data. Ambient check of each chamber is performed monthly.

LIMITS

FCC: §27.53 (m)

At least $55 + 10 \log (P)$ 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.

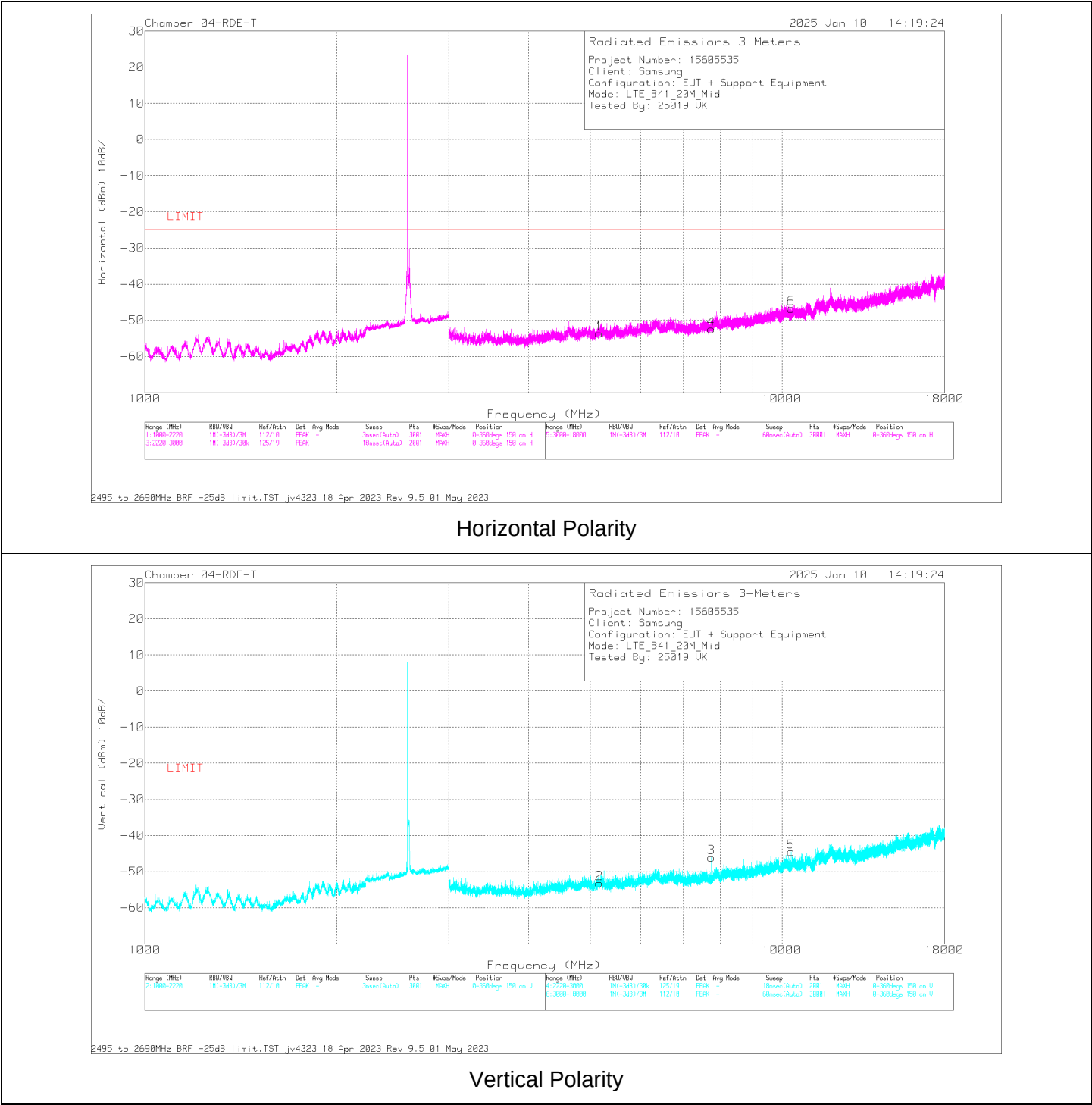
TEST PROCEDURE

KDB 971168 D01 /D02

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

RESULTS

Example Plot



Trace Markers

Frequency (GHz)	Meter Reading (dBuV)	Det	79834 ACF(dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
5.166	53.18	Pk	34.4	-95.2	-46.04	-53.66	-25	-28.66	H
5.166	53.58	Pk	34.4	-95.2	-46.04	-53.26	-25	-28.26	V
7.752	50.52	Pk	35.9	-95.2	-43.68	-52.46	-25	-27.46	H
7.752	56.89	Pk	35.9	-95.2	-43.68	-46.09	-25	-21.09	V
10.336	53.07	Pk	37.3	-95.2	-41.92	-46.75	-25	-21.75	H
10.336	55.24	Pk	37.3	-95.2	-41.92	-44.58	-25	-19.58	V

Pk - Peak detector

10.2.1. LTE BAND 41

LTE BAND 41 (QPSK 20.0MHZ BANDWIDTH, Main ANT 1)

Project:	15605535
Date:	2025-01-10
Test Engineer:	25019 VK
Configuration:	EUT + Support Equipment
Mode:	LTE 41 QPSK 20MHz
Chamber #:	04-RDE-T

Frequency (GHz)	Meter Reading (dBuV)	Det	79834 ACF (dB) - 3mH	EIRP CF	Amp/Cbl (dB)	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2506MHz									
4.994	54.03	Pk	34.4	-95.2	-46.18	-52.95	-25	-27.95	H
7.489	51.66	Pk	35.4	-95.2	-43.9	-52.04	-25	-27.04	H
4.994	57.86	Pk	34.4	-95.2	-46.18	-49.12	-25	-24.12	V
7.489	51.85	Pk	35.4	-95.2	-43.9	-51.85	-25	-26.85	V
9.989	53.89	Pk	37.2	-95.2	-42.59	-46.7	-25	-21.7	H
9.987	54.31	Pk	37.2	-95.2	-42.48	-46.17	-25	-21.17	V
9.987	41.83	RMS	37.2	-95.2	-42.48	-58.65	-25	-33.65	V
Mid Channel, 2593MHz									
5.167	53.18	Pk	34.4	-95.2	-46.04	-53.66	-25	-28.66	H
5.167	53.58	Pk	34.4	-95.2	-46.04	-53.26	-25	-28.26	V
7.752	50.52	Pk	35.9	-95.2	-43.68	-52.46	-25	-27.46	H
7.752	56.89	Pk	35.9	-95.2	-43.68	-46.09	-25	-21.09	V
10.337	53.07	Pk	37.3	-95.2	-41.92	-46.75	-25	-21.75	H
10.337	55.24	Pk	37.3	-95.2	-41.92	-44.58	-25	-19.58	V
High Channel, 2680MHz									
5.341	53.09	Pk	34.6	-95.2	-45.89	-53.4	-25	-28.4	H
5.341	52.24	Pk	34.6	-95.2	-45.89	-54.25	-25	-29.25	V
8.011	51.11	Pk	36	-95.2	-43.31	-51.4	-25	-26.4	H
8.011	51.26	Pk	36	-95.2	-43.31	-51.25	-25	-26.25	V
10.684	51.32	Pk	37.3	-95.2	-41.8	-48.38	-25	-23.38	H
10.684	68.76	Pk	37.3	-95.2	-41.64	-30.78	-25	-5.78	V
10.684	52.04	RMS	37.3	-95.2	-41.64	-47.5	-25	-22.5	V

10.2.2. 5G NR n41

5G NR n41 (BPSK 100.0MHZ BANDWIDTH, Main ANT 1)

Project:	15605535
Date:	2025-01-10
Test Engineer:	25019 VK
Configuration:	EUT + Support Equipment
Mode:	N41 QPSK 100MHz
Chamber #:	04-RDE-T

Frequency (GHz)	Meter Reading (dBuV)	Det	79834 ACF (dB) - 3mH	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Amp/Cbl (dB)	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2546MHz										
4.992	40.02	Pk	34	.7	-95.2	-31.02	-51.5	-25	-26.5	H
4.992	40.77	Pk	34	.7	-95.2	-31.02	-50.75	-25	-25.75	V
7.488	40.44	Pk	35.6	.3	-95.2	-26.8	-45.66	-25	-20.66	H
7.488	38.46	Pk	35.6	.3	-95.2	-26.8	-47.64	-25	-22.64	V
9.984	37.39	Pk	37.2	.5	-95.2	-24.86	-44.97	-25	-19.97	H
9.984	37.53	Pk	37.2	.5	-95.2	-24.86	-44.83	-25	-19.83	V
Mid Channel, 2593MHz										
5.086	39.54	Pk	34.1	.8	-95.2	-30.9	-51.66	-25	-26.66	H
5.086	39.57	Pk	34.1	.8	-95.2	-30.9	-51.63	-25	-26.63	V
7.628	39.64	Pk	35.7	.4	-95.2	-27.1	-46.56	-25	-21.56	H
7.628	41.28	Pk	35.7	.4	-95.2	-27.1	-44.92	-25	-19.92	V
10.172	38.97	Pk	37.3	.6	-95.2	-24.91	-43.24	-25	-18.24	H
10.172	38.26	Pk	37.3	.6	-95.2	-24.91	-43.95	-25	-18.95	V
High Channel, 2640MHz										
5.180	39.8	Pk	34.2	.7	-95.2	-30.38	-50.88	-25	-25.88	H
5.180	40.95	Pk	34.2	.7	-95.2	-30.38	-49.73	-25	-24.73	V
7.771	42.72	Pk	35.8	.3	-95.2	-27	-43.38	-25	-18.38	H
7.771	41.08	Pk	35.8	.3	-95.2	-27	-45.02	-25	-20.02	V
10.360	39	Pk	37.5	.8	-95.2	-24.9	-42.8	-25	-17.8	H
10.360	38.26	Pk	37.5	.8	-95.2	-24.9	-43.54	-25	-18.54	V

5G NR n41 (BPSK 100.0MHZ BANDWIDTH, Sub ANT 1)

Project:	15605535
Date:	2025-02-06
Test Engineer:	25019 VK
Configuration:	EUT + Support Equipment
Mode:	n41 QPSK 20MHz
Chamber #:	04-RDE-T

Frequency (GHz)	Meter Reading (dBuV)	Det	79834 ACF (dB) - 3mH	EIRP CF	Amp/Cbl (dB)	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2546MHz									
4.912	53.51	Pk	34.3	-95.2	-46.45	-53.84	-25	-28.84	H
7.369	51.38	Pk	35.3	-95.2	-44.18	-52.7	-25	-27.7	H
4.912	54.13	Pk	34.3	-95.2	-46.45	-53.22	-25	-28.22	V
7.369	52.33	Pk	35.3	-95.2	-44.18	-51.75	-25	-26.75	V
9.825	52.49	Pk	37	-95.2	-41.63	-47.34	-25	-22.34	H
9.825	51.7	Pk	37	-95.2	-41.63	-48.13	-25	-23.13	V
Mid Channel, 2593MHz									
5.187	52.57	Pk	34.5	-95.2	-45.71	-53.84	-25	-28.84	H
5.187	55.06	Pk	34.5	-95.2	-45.71	-51.35	-25	-26.35	V
7.780	51.41	Pk	35.8	-95.2	-43.49	-51.48	-25	-26.48	H
7.780	50.12	Pk	35.8	-95.2	-43.49	-52.77	-25	-27.77	V
10.373	51.33	Pk	37.3	-95.2	-41.2	-47.77	-25	-22.77	H
10.373	51.46	Pk	37.3	-95.2	-41.2	-47.64	-25	-22.64	V
High Channel, 2640MHz									
5.187	52.26	Pk	34.5	-95.2	-45.21	-53.65	-25	-28.65	H
5.187	52.46	Pk	34.5	-95.2	-45.21	-53.45	-25	-28.45	V
7.780	52.16	Pk	35.9	-95.2	-43.18	-50.32	-25	-25.32	H
7.780	50.97	Pk	35.9	-95.2	-43.18	-51.51	-25	-26.51	V
10.373	52.37	Pk	37.4	-95.2	-42.09	-47.52	-25	-22.52	H
10.373	52.69	Pk	37.4	-95.2	-42.09	-47.2	-25	-22.2	V

5G NR n41 (BPSK 100.0MHZ BANDWIDTH, Sub ANT 2)

Project:	15605535
Date:	2025-01-10
Test Engineer:	25019 VK
Configuration:	EUT + Support Equipment
Mode:	n41 QPSK 20MHz
Chamber #:	04-RDE-T

Frequency (GHz)	Meter Reading (dBuV)	Det	79834 ACF (dB) - 3mH	EIRP CF	Amp/Cbl (dB)	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2546MHz									
5.093	52.79	Pk	34.4	-95.2	-46.42	-54.43	-25	-29.43	H
7.639	52.16	Pk	35.7	-95.2	-44.08	-51.42	-25	-26.42	H
5.093	53.38	Pk	34.4	-95.2	-46.42	-53.84	-25	-28.84	V
7.639	51.49	Pk	35.7	-95.2	-44.08	-52.09	-25	-27.09	V
10.185	51.83	Pk	37.4	-95.2	-41.29	-47.26	-25	-22.26	H
10.185	52.72	Pk	37.4	-95.2	-41.29	-46.37	-25	-21.37	V
Mid Channel, 2593MHz									
5.186	53.65	Pk	34.5	-95.2	-45.67	-52.72	-25	-27.72	H
5.186	52.71	Pk	34.5	-95.2	-45.67	-53.66	-25	-28.66	V
7.780	51.18	Pk	35.8	-95.2	-43.49	-51.71	-25	-26.71	H
7.780	51.07	Pk	35.8	-95.2	-43.49	-51.82	-25	-26.82	V
10.373	51.39	Pk	37.3	-95.2	-41.2	-47.71	-25	-22.71	H
10.373	51.65	Pk	37.3	-95.2	-41.2	-47.45	-25	-22.45	V
High Channel, 2640MHz									
5.281	51.53	Pk	34.5	-95.2	-45.28	-54.45	-25	-29.45	H
5.281	51.5	Pk	34.5	-95.2	-45.28	-54.48	-25	-29.48	V
7.921	51.7	Pk	35.9	-95.2	-43.22	-50.82	-25	-25.82	H
7.921	51.45	Pk	35.9	-95.2	-43.22	-51.07	-25	-26.07	V
10.560	53.28	Pk	37.4	-95.2	-42.17	-46.69	-25	-21.69	H
10.560	52.5	Pk	37.4	-95.2	-42.17	-47.47	-25	-22.47	V

5G NR n41 (BPSK 100.0MHZ BANDWIDTH, Sub ANT 3)

Project:	15605535
Date:	2025-01-10
Test Engineer:	25019 VK
Configuration:	EUT + Support Equipment
Mode:	n41 QPSK 20MHz
Chamber #:	04-RDE-T

Frequency (GHz)	Meter Reading (dBuV)	Det	79834 ACF (dB) - 3mH	EIRP CF	Amp/Cbl (dB)	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2546MHz									
5.187	52.97	Pk	34.5	-95.2	-45.71	-53.44	-25	-28.44	H
5.187	53.89	Pk	34.5	-95.2	-45.71	-52.52	-25	-27.52	V
7.780	51.18	Pk	35.8	-95.2	-43.49	-51.71	-25	-26.71	H
7.780	51.07	Pk	35.8	-95.2	-43.49	-51.82	-25	-26.82	V
10.372	51.26	Pk	37.3	-95.2	-41.15	-47.79	-25	-22.79	H
10.372	52.63	Pk	37.3	-95.2	-41.15	-46.42	-25	-21.42	V
Mid Channel, 2593MHz									
5.187	54.11	Pk	34.5	-95.2	-45.74	-52.33	-25	-27.33	H
51.870	52.33	Pk	34.5	-95.2	-45.74	-54.11	-25	-29.11	V
7.779	51.28	Pk	35.8	-95.2	-43.53	-51.65	-25	-26.65	H
7.779	51.8	Pk	35.8	-95.2	-43.53	-51.13	-25	-26.13	V
10.373	51.39	Pk	37.3	-95.2	-41.2	-47.71	-25	-22.71	H
10.373	51.65	Pk	37.3	-95.2	-41.2	-47.45	-25	-22.45	V
High Channel, 2640MHz									
5.281	51.91	Pk	34.5	-95.2	-45.34	-54.13	-25	-29.13	H
5.281	52.41	Pk	34.5	-95.2	-45.34	-53.63	-25	-28.63	V
7.920	50.91	Pk	35.9	-95.2	-43.14	-51.53	-25	-26.53	H
7.920	51.6	Pk	35.9	-95.2	-43.14	-50.84	-25	-25.84	V
10.561	52.09	Pk	37.4	-95.2	-42	-47.71	-25	-22.71	H
10.561	51.76	Pk	37.4	-95.2	-42	-48.04	-25	-23.04	V

11. SETUP PHOTOS

Please refer to 15605535-EP1V1 for setup photos.

END OF REPORT