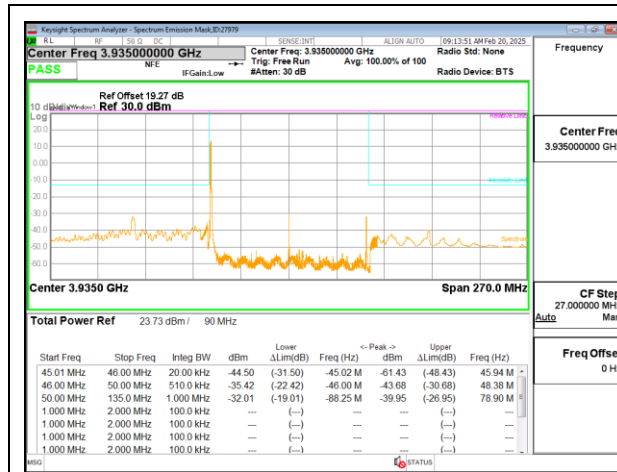
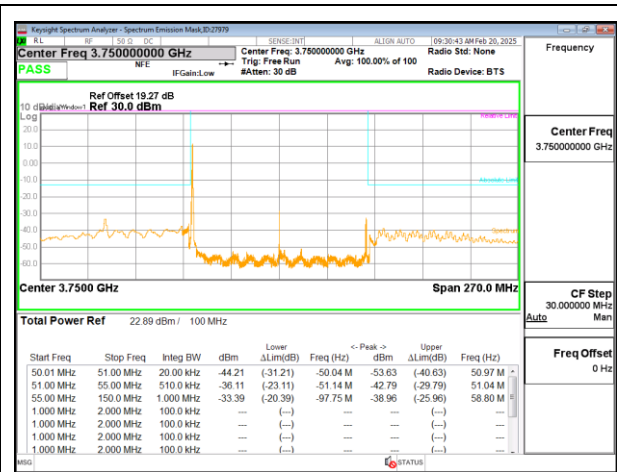


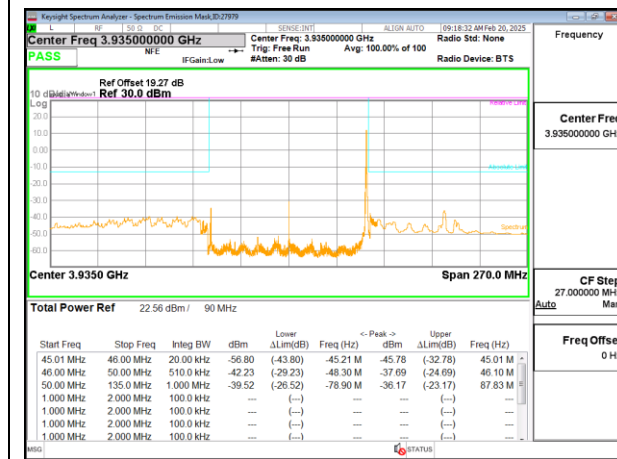




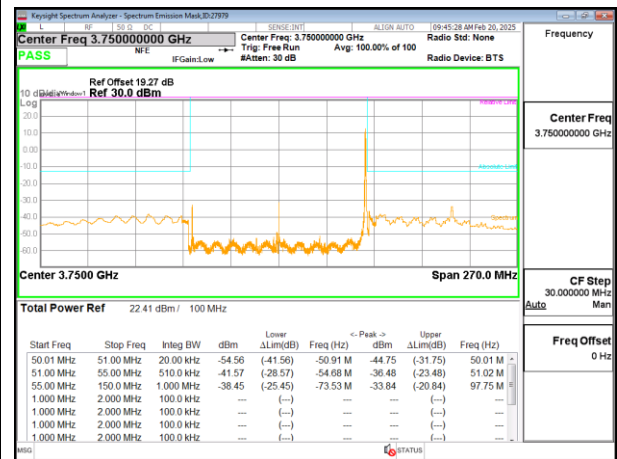
5G NR n77 90MHz BPSK High Channel RB1-0



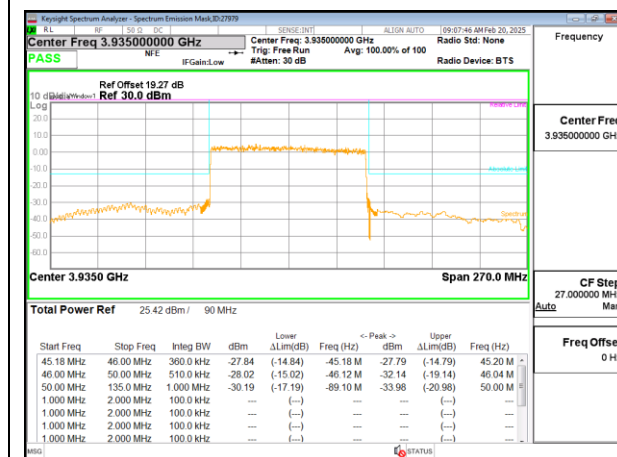
5G NR n77 100MHz BPSK Low Channel RB1-0



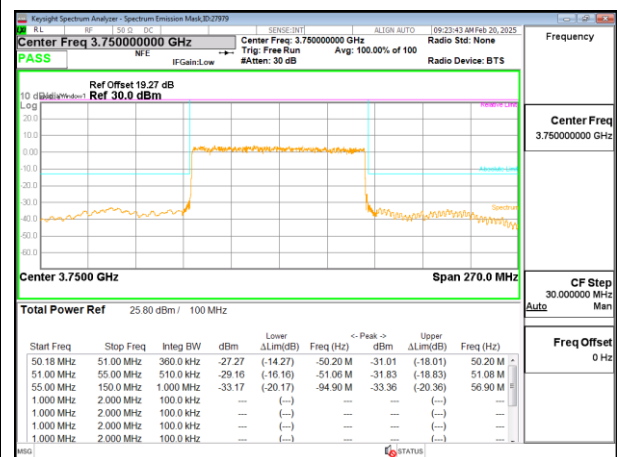
5G NR n77 90MHz BPSK High Channel RB1-244



5G NR n77 100MHz BPSK Low Channel RB1-272



5G NR n77 90MHz BPSK High Channel RB243-0



5G NR n77 100MHz BPSK Low Channel RB270-0



9.3. OUT OF BAND EMISSIONS

LIMITS

FCC: §27.53

Emission limits

(n) 3.45 GHz Service. The following emission limits apply to stations transmitting in the 3450-3550 MHz band:

(2) For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz.

FCC: §27.53

Emission limits

(l) 3.7 GHz Service. The following emission limits apply to stations transmitting in the 3700-3980 MHz band:

(2) For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz.

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.

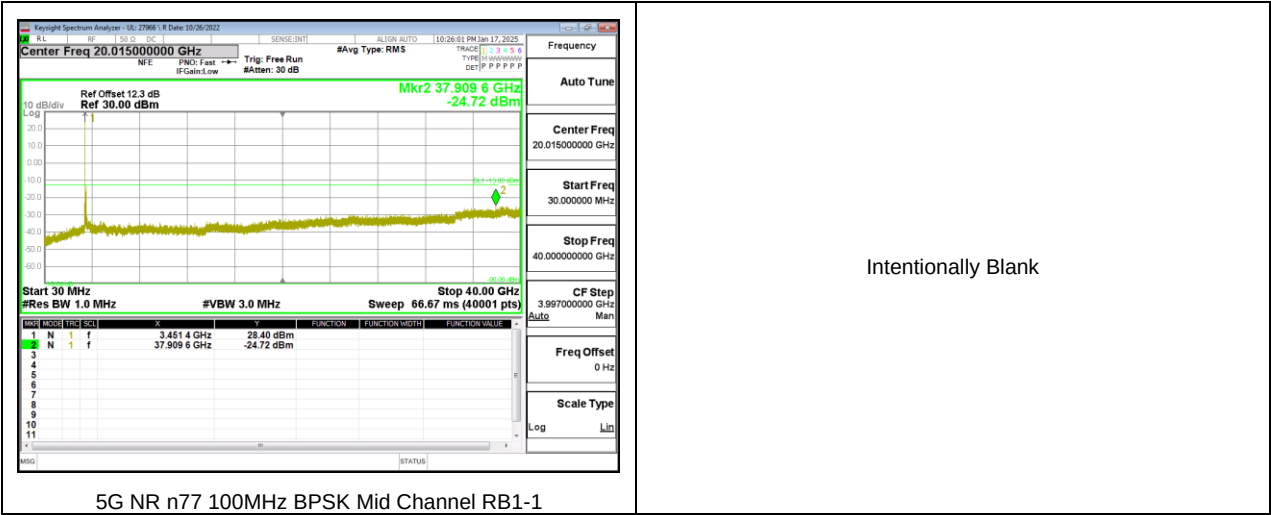
For each out of band emissions measurement:

- Set display line at -13 dBm, -25dBm and -40dBm 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)

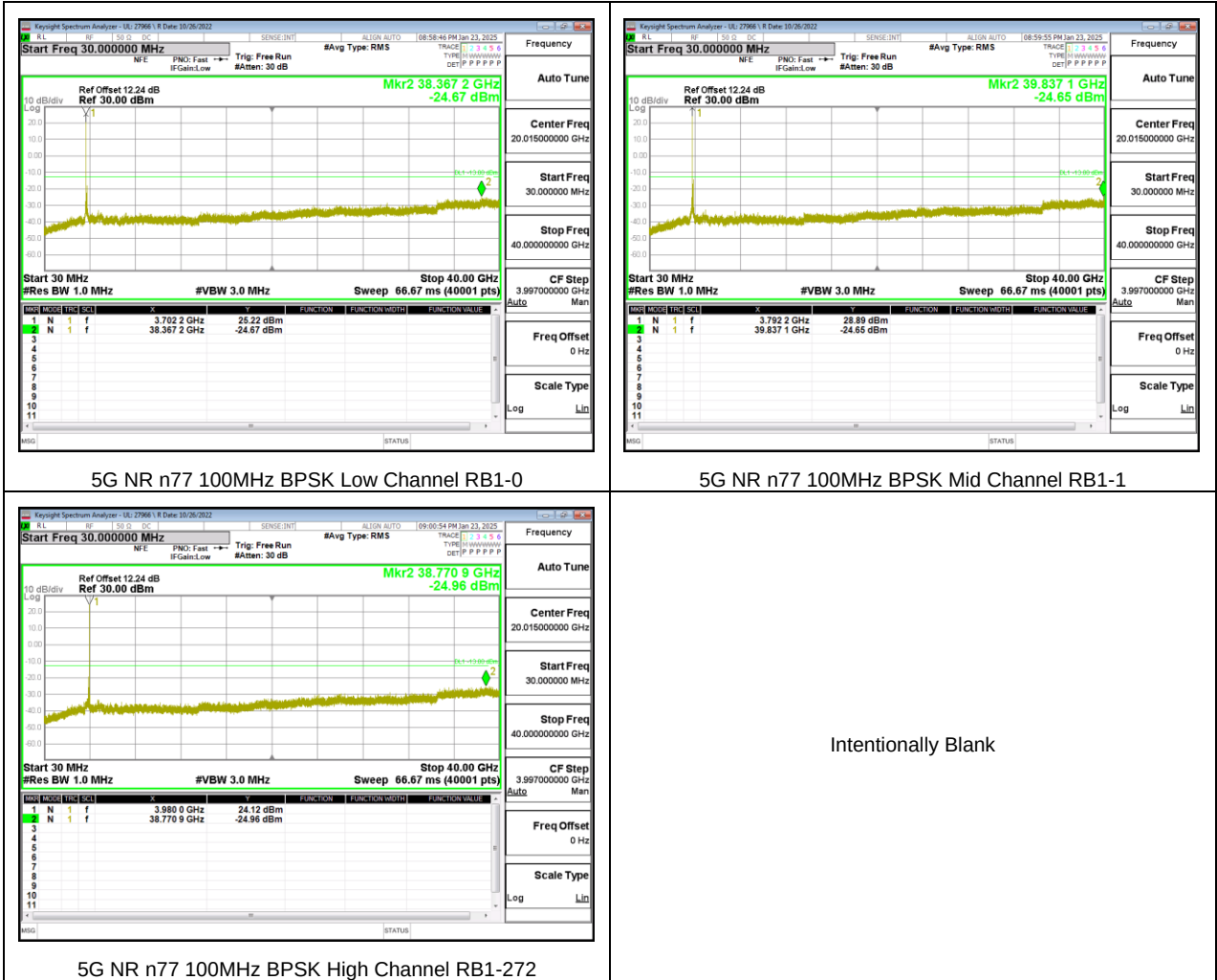
RESULTS

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

9.3.1. 5G NR n77 (FCC Part 27 3450-3550MHz)



9.3.2. 5G NR n77 (FCC Part 27 3700-3980MHz)



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°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°C is reached.

Frequency Stability vs Voltage:

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

RESULTS

9.4.1. 5G NR n77 (BPSK 100MHz BANDWIDTH, FCC Part 27 3450-3550MHz)

Test Engineer ID:	27966	Test Date:	2025-01-29
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Band	77	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		3450.01	3549.98			
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)			
Temperature	Voltage				Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Normal (20°C)	Normal	3451.3521	3548.6040			
Extreme (50°C)		3451.3521	3548.6041	9.8	0.003	Yes
Extreme (40°C)		3451.3521	3548.6040	-5.2	-0.001	Yes
Extreme (30°C)		3451.3521	3548.6041	5.5	0.002	Yes
Extreme (10°C)		3451.3521	3548.6040	-4.1	-0.001	Yes
Extreme (0°C)		3451.3521	3548.6040	-6.0	-0.002	Yes
Extreme (-10°C)		3451.3521	3548.6041	6.6	0.002	Yes
Extreme (-20°C)		3451.3521	3548.6041	8.2	0.002	Yes
Extreme (-30°C)		3451.3521	3548.6041	7.7	0.002	Yes
20°C	15%	3451.3521	3548.6040	-4.5	-0.001	Yes
	-15%	3451.3521	3548.6040	-3.8	-0.001	Yes
	End Point Voltage	3451.3521	3548.6040	-15.5	-0.004	Yes

9.4.2. 5G NR n77 (BPSK 100MHz BANDWIDTH, FCC Part 27 3700-3980MHz)

Test Engineer ID:	27966	Test Date:	2025-01-29
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Band	77	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		3700	3980			
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)	Normal	3701.1892	3978.0772			
Extreme (50°C)		3701.1892	3978.0772	5.1	0.001	Yes
Extreme (40°C)		3701.1892	3978.0772	10.1	0.003	Yes
Extreme (30°C)		3701.1892	3978.0772	-2.8	-0.001	Yes
Extreme (10°C)		3701.1892	3978.0772	-4.6	-0.001	Yes
Extreme (0°C)		3701.1892	3978.0772	-6.7	-0.002	Yes
Extreme (-10°C)		3701.1892	3978.0772	-6.0	-0.002	Yes
Extreme (-20°C)		3701.1892	3978.0772	-9.1	-0.002	Yes
Extreme (-30°C)		3701.1892	3978.0772	-8.5	-0.002	Yes
20°C	15%	3701.1892	3978.0772	-3.8	-0.001	Yes
	-15%	3701.1892	3978.0772	-1.9	-0.001	Yes
	End Point Voltage	3701.1892	3978.0772	-14.0	-0.004	Yes

9.5. PEAK-TO-AVERAGE POWER RATIO

LIMITS

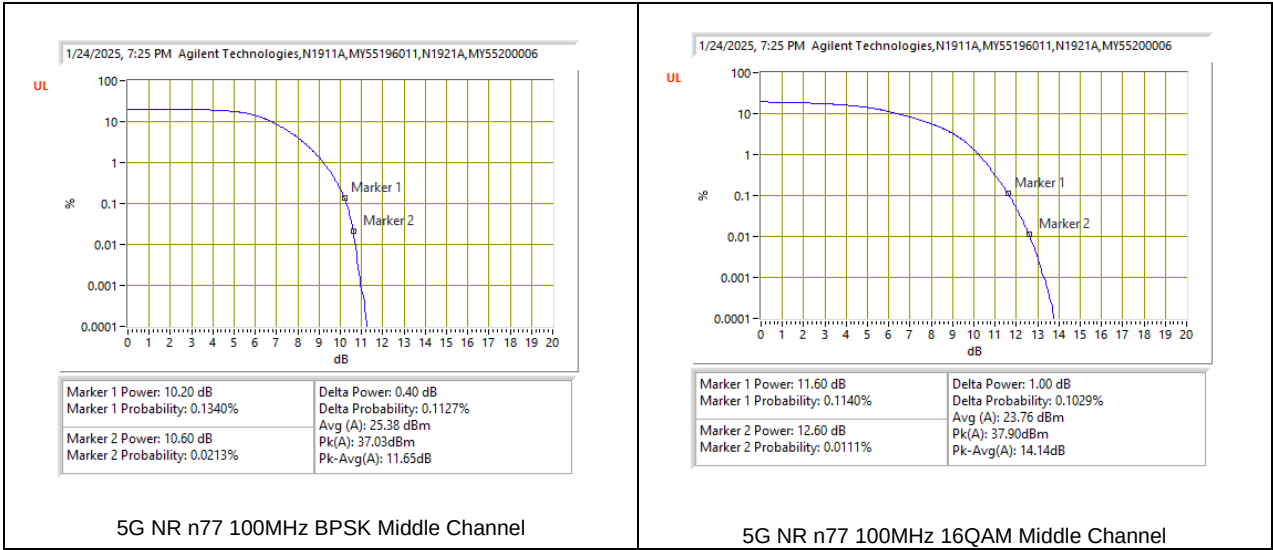
FCC: §27.50
(k) (4) In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

FCC: §27.50
(j) (4) In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

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. 5G NR n77 (FCC Part 27 3450-3550MHz)

Test Engineer ID:	27966	Test Date:	2025-01-24
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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 n77	10MHz	3500.0	24	0	BPSK	31.56	25.58	5.98
					16QAM	32.53	24.08	8.45
	15MHz		36	0	BPSK	31.68	25.56	6.12
					16QAM	32.49	24.08	8.41
	20MHz		50	0	BPSK	31.50	25.56	5.94
					16QAM	32.28	24.07	8.21
	25MHz		64	0	BPSK	31.12	25.22	5.90
					16QAM	32.55	23.71	8.84
	30MHz		75	0	BPSK	31.55	25.54	6.01
					16QAM	32.22	24.03	8.19
	40MHz		100	0	BPSK	31.82	25.53	6.29
					16QAM	32.22	24.02	8.20
	50MHz		128	0	BPSK	31.04	25.49	5.55
					16QAM	32.08	23.95	8.13
	60MHz	162	0	BPSK	30.96	25.46	5.50	
				16QAM	31.90	23.91	7.99	
	70MHz	180	0	BPSK	30.86	25.48	5.38	
				16QAM	31.55	23.91	7.64	
	80MHz	216	0	BPSK	30.61	25.45	5.16	
				16QAM	31.41	23.85	7.56	
	90MHz	243	0	BPSK	30.30	25.39	4.91	
				16QAM	31.12	23.78	7.34	
	100MHz	270	0	BPSK	30.06	25.38	4.68	
				16QAM	30.93	23.76	7.17	
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor								

9.5.2. 5G NR n77 (FCC Part 27 3700-3980MHz)

Test Engineer ID:	27966	Test Date:	2025-01-24
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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 n77	10MHz	3840.0	24	0	BPSK	31.70	26.04	5.66
					16QAM	33.35	24.51	8.84
	15MHz		36	0	BPSK	32.24	26.02	6.22
					16QAM	32.64	24.55	8.09
	20MHz		50	0	BPSK	32.14	26.01	6.13
					16QAM	32.94	24.49	8.45
	25MHz		64	0	BPSK	31.95	25.75	6.20
					16QAM	32.90	24.26	8.64
	30MHz		75	0	BPSK	31.98	25.99	5.99
					16QAM	32.72	24.5	8.22
	40MHz		100	0	BPSK	32.22	25.99	6.23
					16QAM	33.09	24.46	8.63
	50MHz		128	0	BPSK	31.86	25.96	5.90
					16QAM	32.62	24.41	8.21
	60MHz		162	0	BPSK	31.34	25.95	5.39
					16QAM	32.49	24.41	8.08
	70MHz		180	0	BPSK	31.15	25.9	5.25
					16QAM	32.10	24.33	7.77
	80MHz		216	0	BPSK	31.37	25.92	5.45
					16QAM	32.14	24.33	7.81
	90MHz		243	0	BPSK	30.98	25.95	5.03
					16QAM	31.78	24.32	7.46
	100MHz		270	0	BPSK	30.73	25.88	4.85
					16QAM	31.31	24.24	7.07

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(j) - (3) Mobile and portable stations are limited to 1 Watt EIRP. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

27.50(k) - (3) Mobile devices are limited to 1Watt (30 dBm) EIRP. Mobile devices operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

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.

5G NR n77 (Part 27 3450-3550MHz)

BW (MHz)	Mode	RB/RB Size	f(MHz)	EIRP	
				dBm	W
100	BPSK				
		1/1	3500	23.64	0.231
	16QAM				
		1/1	3500	24.12	0.258
90	BPSK	1/1	3495	23.78	0.239
		1/1	3500	24.13	0.259
		1/1	3505	23.95	0.248
	16QAM	1/1	3495	22.93	0.196
		1/1	3500	23.57	0.228
		1/1	3505	23.49	0.223
80	BPSK	1/1	3490	23.72	0.236
		1/1	3500	24.03	0.253
		1/1	3510	23.83	0.242
	16QAM	1/1	3490	22.80	0.191
		1/1	3500	23.63	0.231
		1/1	3510	23.27	0.212
70	BPSK	1/1	3485	23.73	0.236
		1/1	3500	24.08	0.256
		1/1	3515	23.92	0.247
	16QAM	1/1	3485	23.00	0.200
		1/1	3500	23.65	0.232
		1/1	3515	23.30	0.214
60	BPSK	1/1	3480	23.74	0.237
		1/1	3500	24.23	0.265
		1/1	3520	23.97	0.249
	16QAM	1/1	3480	23.08	0.203
		1/1	3500	23.80	0.240
		1/1	3520	23.45	0.221
50	BPSK	1/1	3475	23.68	0.233
		1/1	3500	24.31	0.270
		1/1	3525	23.86	0.243
	16QAM	1/1	3475	22.71	0.187
		1/1	3500	23.63	0.231
		1/1	3525	23.38	0.218

BW (MHz)	Mode	RB/RB Size	f(MHz)	EIRP	
				dBm	W
40	BPSK	1/1	3470	23.90	0.245
		1/1	3500	23.91	0.246
		1/1	3530	24.17	0.261
	16QAM	1/1	3470	23.42	0.220
		1/1	3500	23.20	0.209
		1/1	3530	23.52	0.225
30	BPSK	1/1	3465	23.88	0.244
		1/1	3500	24.05	0.254
		1/1	3535	24.05	0.254
	16QAM	1/1	3465	23.12	0.205
		1/1	3500	23.56	0.227
		1/1	3535	23.56	0.227
25	BPSK	1/1	3463	23.75	0.237
		1/1	3500	24.14	0.259
		1/1	3537	24.16	0.261
	16QAM	1/1	3463	23.12	0.205
		1/1	3500	23.75	0.237
		1/1	3537	23.47	0.222
20	BPSK	1/1	3460	23.83	0.242
		1/1	3500	24.13	0.259
		1/1	3540	24.08	0.256
	16QAM	1/1	3460	23.29	0.213
		1/1	3500	23.61	0.230
		1/1	3540	23.59	0.229
15	BPSK	1/1	3457.5	23.79	0.239
		1/1	3500	24.15	0.260
		1/1	3542.5	24.15	0.260
	16QAM	1/1	3457.5	23.19	0.208
		1/1	3500	23.73	0.236
		1/1	3542.5	23.44	0.221
10	BPSK	1/1	3455	23.92	0.247
		1/1	3500	24.04	0.254
		1/1	3545	24.09	0.256
	16QAM	1/1	3455	23.28	0.213
		1/1	3500	23.72	0.236
		1/1	3545	23.73	0.236

5G NR n77 (Part 27 3700-3980MHz)

BW (MHz)	Mode	RB/RB Size	f(MHz)	EIRP	
				dBm	W
100	BPSK	1/1	3750	23.23	0.210
		1/1	3840	23.48	0.223
		1/1	3930	24.37	0.274
	16QAM	1/1	3750	22.40	0.174
		1/1	3840	22.55	0.180
		1/1	3930	23.65	0.232
90	BPSK	1/1	3745	23.36	0.217
		1/1	3840	23.49	0.223
		1/1	3935	24.30	0.269
	16QAM	1/1	3745	22.23	0.167
		1/1	3840	22.74	0.188
		1/1	3935	23.52	0.225
80	BPSK	1/1	3740	23.13	0.206
		1/1	3840	23.44	0.221
		1/1	3940	24.51	0.282
	16QAM	1/1	3740	22.73	0.187
		1/1	3840	22.63	0.183
		1/1	3940	23.87	0.244
70	BPSK	1/1	3735	23.28	0.213
		1/1	3840	23.49	0.223
		1/1	3945	24.61	0.289
	16QAM	1/1	3735	22.64	0.184
		1/1	3840	23.03	0.201
		1/1	3945	23.78	0.239
60	BPSK	1/1	3730	23.64	0.231
		1/1	3840	23.68	0.233
		1/1	3950	24.19	0.262
	16QAM	1/1	3730	22.50	0.178
		1/1	3840	22.82	0.191
		1/1	3950	23.43	0.220
50	BPSK	1/1	3725	23.59	0.229
		1/1	3840	23.61	0.230
		1/1	3595	23.82	0.241
	16QAM	1/1	3725	22.97	0.198
		1/1	3840	22.78	0.190
		1/1	3595	23.37	0.217

BW (MHz)	Mode	RB/RB Size	f(MHz)	EIRP	
				dBm	W
40	BPSK	1/1	3720	23.79	0.239
		1/1	3840	23.37	0.217
		1/1	3960	24.22	0.264
	16QAM	1/1	3720	22.75	0.188
		1/1	3840	22.48	0.177
		1/1	3960	23.57	0.228
30	BPSK	1/1	3715	23.74	0.237
		1/1	3840	23.50	0.224
		1/1	3965	24.13	0.259
	16QAM	1/1	3715	22.73	0.187
		1/1	3840	22.63	0.183
		1/1	3965	23.87	0.244
25	BPSK	1/1	3712.5	23.18	0.208
		1/1	3840	23.60	0.229
		1/1	3967.5	24.17	0.261
	16QAM	1/1	3712.5	22.57	0.181
		1/1	3840	22.84	0.192
		1/1	3967.5	23.21	0.209
20	BPSK	1/1	3710	23.27	0.212
		1/1	3840	23.45	0.221
		1/1	3670	24.46	0.279
	16QAM	1/1	3710	22.41	0.174
		1/1	3840	22.81	0.191
		1/1	3670	23.77	0.238
15	BPSK	1/1	3707.5	23.34	0.216
		1/1	3840	23.54	0.226
		1/1	3972.5	24.53	0.284
	16QAM	1/1	3707.5	22.76	0.189
		1/1	3840	22.91	0.195
		1/1	3972.5	23.86	0.243
10	BPSK	1/1	3705	23.44	0.221
		1/1	3840	23.79	0.239
		1/1	3975	24.68	0.294
	16QAM	1/1	3705	22.51	0.178
		1/1	3840	23.04	0.201
		1/1	3975	23.97	0.249

10.1.1. 5G NR n77 (Part 27 3450-3550MHz)

100MHz BPSK										100MHz 16QAM																																																																																																																																																																																																																	
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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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3490.00	22.01	V	6.8	8.2	23.36	30.0	-6.6																																																																																																																																																																																																																				
3490.00	22.37	H	6.8	8.2	23.72	30.0	-6.3																																																																																																																																																																																																																				
Mid Ch																																																																																																																																																																																																																											
3500.01	22.58	V	6.8	8.1	23.93	30.0	-6.1																																																																																																																																																																																																																				
3500.01	22.68	H	6.8	8.1	24.03	30.0	-6.0																																																																																																																																																																																																																				
High Ch																																																																																																																																																																																																																											
3510.00	22.28	V	6.8	8.1	23.57	30.0	-6.4																																																																																																																																																																																																																				
3510.00	22.54	H	6.8	8.1	23.83	30.0	-6.2																																																																																																																																																																																																																				
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																																																																																																																																																			
Low Ch																																																																																																																																																																																																																											
3490.00	21.20	V	6.8	8.2	22.55	30.0	-7.4																																																																																																																																																																																																																				
3490.00	21.45	H	6.8	8.2	22.80	30.0	-7.2																																																																																																																																																																																																																				
Mid Ch																																																																																																																																																																																																																											
3500.01	21.87	V	6.8	8.1	23.22	30.0	-6.8																																																																																																																																																																																																																				
3500.01	22.28	H	6.8	8.1	23.63	30.0	-6.4																																																																																																																																																																																																																				
High Ch																																																																																																																																																																																																																											
3510.00	21.84	V	6.8	8.1	23.13	30.0	-6.9																																																																																																																																																																																																																				
3510.00	21.98	H	6.8	8.1	23.27	30.0	-6.7																																																																																																																																																																																																																				

70MHz BPSK									70MHz 16QAM								
UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 2/10/2025 Test Engineer: 27966 Configuration: EUT Only Location: Chamber K Mode: FR1_N77a_BPSK 70 MHz Fundamentals Test Equipment: Receiving: Horn 206808, and Chamber K SMA Cables Substitution: Horn 223083, Chamber K SMA Cable									UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 2/10/2025 Test Engineer: 27966 Configuration: EUT Only Location: Chamber K Mode: FR1_N77a_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	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								
3485.00	21.98	V	6.8	8.2	23.33	30.0	-6.7		3485.00	21.37	V	6.8	8.2	22.72	30.0	-7.3	
3485.00	22.38	H	6.8	8.2	23.73	30.0	-6.3		3485.00	21.65	H	6.8	8.2	23.00	30.0	-7.0	
Mid Ch									Mid Ch								
3500.01	22.37	V	6.8	8.1	23.72	30.0	-6.3		3500.01	21.77	V	6.8	8.1	23.12	30.0	-6.9	
3500.01	22.73	H	6.8	8.1	24.08	30.0	-5.9		3500.01	22.30	H	6.8	8.1	23.65	30.0	-6.4	
High Ch									High Ch								
3515.00	22.57	V	6.8	8.1	23.84	30.0	-6.2		3515.00	21.62	V	6.8	8.1	22.89	30.0	-7.1	
3515.00	22.65	H	6.8	8.1	23.92	30.0	-6.1		3515.00	22.03	H	6.8	8.1	23.30	30.0	-6.7	

60MHz BPSK									60MHz 16QAM								
UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 2/10/2025 Test Engineer: 27966 Configuration: EUT Only Location: Chamber K Mode: FR1_N77a_BPSK 60 MHz Fundamentals Test Equipment: Receiving: Horn 206808, and Chamber K SMA Cables Substitution: Horn 223083, Chamber K SMA Cable									UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 2/10/2025 Test Engineer: 27966 Configuration: EUT Only Location: Chamber K Mode: FR1_N77a_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	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								
3480.00	22.10	V	6.8	8.1	23.44	30.0	-6.6		3480.00	21.50	V	6.8	8.1	22.84	30.0	-7.2	
3480.00	22.40	H	6.8	8.1	23.74	30.0	-6.3		3480.00	21.74	H	6.8	8.1	23.08	30.0	-6.9	
Mid Ch									Mid Ch								
3500.01	22.21	V	6.8	8.1	23.56	30.0	-6.4		3500.01	21.81	V	6.8	8.1	23.16	30.0	-6.8	
3500.01	22.88	H	6.8	8.1	24.23	30.0	-5.8		3500.01	22.45	H	6.8	8.1	23.80	30.0	-6.2	
High Ch									High Ch								
3520.00	22.43	V	6.8	8.1	23.89	30.0	-6.3		3520.00	21.71	V	6.8	8.1	22.97	30.0	-7.0	
3520.00	22.71	H	6.8	8.1	23.97	30.0	-6.0		3520.00	22.19	H	6.8	8.1	23.45	30.0	-6.5	

50MHz BPSK									50MHz 16QAM								
UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 2/10/2025 Test Engineer: 27966 Configuration: EUT Only Location: Chamber K Mode: FR1_N77a_BPSK 50 MHz Fundamentals Test Equipment: Receiving: Horn 206808, and Chamber K SMA Cables Substitution: Horn 223083, Chamber K SMA Cable									UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 2/10/2025 Test Engineer: 27966 Configuration: EUT Only Location: Chamber K Mode: FR1_N77a_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	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								
3475.02	21.97	V	6.8	8.1	23.30	30.0	-6.7		3475.02	21.31	V	6.8	8.1	22.64	30.0	-7.4	
3475.02	22.35	H	6.8	8.1	23.68	30.0	-6.3		3475.02	21.38	H	6.8	8.1	22.71	30.0	-7.3	
Mid Ch									Mid Ch								
3500.01	22.08	V	6.8	8.1	23.43	30.0	-6.6		3500.01	21.85	V	6.8	8.1	23.20	30.0	-6.8	
3500.01	22.96	H	6.8	8.1	24.31	30.0	-5.7		3500.01	22.28	H	6.8	8.1	23.63	30.0	-6.4	
High Ch									High Ch								
3525.00	22.52	V	6.8	8.1	23.78	30.0	-6.2		3525.00	21.92	V	6.8	8.1	23.18	30.0	-6.8	
3525.00	22.60	H	6.8	8.1	23.86	30.0	-6.1		3525.00	22.12	H	6.8	8.1	23.38	30.0	-6.6	

40MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 2/10/2025
Test Engineer: 27966
Configuration: EUT Only
Location: Chamber K
Mode: FR1_N77a_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								
3470.01	22.15	V	6.8	8.1	23.47	30.0	-6.5	
3470.01	22.58	H	6.8	8.1	23.90	30.0	-6.1	
Mid Ch								
3500.01	22.05	V	6.8	8.1	23.40	30.0	-6.6	
3500.01	22.56	H	6.8	8.1	23.91	30.0	-6.1	
High Ch								
3529.98	22.23	V	6.8	8.1	23.48	30.0	-6.5	
3529.98	22.92	H	6.8	8.1	24.17	30.0	-5.8	

40MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 2/10/2025
Test Engineer: 27966
Configuration: EUT Only
Location: Chamber K
Mode: FR1_N77a_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								
3470.01	21.14	V	6.8	8.1	22.46	30.0	-7.5	
3470.01	22.10	H	6.8	8.1	23.42	30.0	-6.6	
Mid Ch								
3500.01	21.53	V	6.8	8.1	22.88	30.0	-7.1	
3500.01	21.85	H	6.8	8.1	23.20	30.0	-6.8	
High Ch								
3529.98	21.37	V	6.8	8.1	22.62	30.0	-7.4	
3529.98	22.27	H	6.8	8.1	23.52	30.0	-6.5	

30MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 2/10/2025
Test Engineer: 27966
Configuration: EUT Only
Location: Chamber K
Mode: FR1_N77a_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								
3465.00	22.18	V	6.8	8.1	23.48	30.0	-6.5	
3465.00	22.58	H	6.8	8.1	23.88	30.0	-6.1	
Mid Ch								
3500.01	22.39	V	6.8	8.1	23.74	30.0	-6.3	
3500.01	22.70	H	6.8	8.1	24.05	30.0	-6.0	
High Ch								
3534.99	22.10	V	6.8	8.1	23.35	30.0	-6.7	
3534.99	22.80	H	6.8	8.1	24.05	30.0	-6.0	

30MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 2/10/2025
Test Engineer: 27966
Configuration: EUT Only
Location: Chamber K
Mode: FR1_N77a_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								
3465.00	21.53	V	6.8	8.1	22.83	30.0	-7.2	
3465.00	21.82	H	6.8	8.1	23.12	30.0	-6.9	
Mid Ch								
3500.01	21.29	V	6.8	8.1	22.64	30.0	-7.4	
3500.01	22.21	H	6.8	8.1	23.56	30.0	-6.4	
High Ch								
3534.99	21.52	V	6.8	8.1	22.77	30.0	-7.2	
3534.99	22.31	H	6.8	8.1	23.56	30.0	-6.4	

25MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 2/10/2025
Test Engineer: 27966
Configuration: EUT Only
Location: Chamber K
Mode: FR1_N77a_BPSK 25 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								
3462.99	22.03	V	6.8	8.1	23.33	30.0	-6.7	
3462.99	22.45	H	6.8	8.1	23.75	30.0	-6.3	
Mid Ch								
3500.01	22.36	V	6.8	8.1	23.71	30.0	-6.3	
3500.01	22.79	H	6.8	8.1	24.14	30.0	-5.9	
High Ch								
3537.00	22.75	V	6.8	8.1	23.99	30.0	-6.0	
3537.00	22.92	H	6.8	8.1	24.16	30.0	-5.8	

25MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 2/10/2025
Test Engineer: 27966
Configuration: EUT Only
Location: Chamber K
Mode: FR1_N77a_16QAM 25 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								
3462.99	21.42	V	6.8	8.1	22.72	30.0	-7.3	
3462.99	21.82	H	6.8	8.1	23.12	30.0	-6.9	
Mid Ch								
3500.01	21.82	V	6.8	8.1	23.17	30.0	-6.8	
3500.01	22.40	H	6.8	8.1	23.75	30.0	-6.3	
High Ch								
3537.00	22.10	V	6.8	8.1	23.34	30.0	-6.7	
3537.00	22.23	H	6.8	8.1	23.47	30.0	-6.5	

20MHz BPSK									20MHz 16QAM																																																																																																																																																																																												
UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 2/10/2025 Test Engineer: 27966 Configuration: EUT Only Location: Chamber K Mode: FR1_N77a_BPSK 20 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 colspan="9">Low Ch</td></tr><tr><td>3460.02</td><td>22.07</td><td>V</td><td>6.8</td><td>8.1</td><td>23.36</td><td>30.0</td><td>-6.6</td><td></td></tr><tr><td>3460.02</td><td>22.54</td><td>H</td><td>6.8</td><td>8.1</td><td>23.83</td><td>30.0</td><td>-6.2</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>3500.01</td><td>22.23</td><td>V</td><td>6.8</td><td>8.1</td><td>23.58</td><td>30.0</td><td>-6.4</td><td></td></tr><tr><td>3500.01</td><td>22.78</td><td>H</td><td>6.8</td><td>8.1</td><td>24.13</td><td>30.0</td><td>-5.9</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>3540.00</td><td>22.62</td><td>V</td><td>6.8</td><td>8.1</td><td>23.86</td><td>30.0</td><td>-6.1</td><td></td></tr><tr><td>3540.00</td><td>22.84</td><td>H</td><td>6.8</td><td>8.1</td><td>24.08</td><td>30.0</td><td>-5.9</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									3460.02	22.07	V	6.8	8.1	23.36	30.0	-6.6		3460.02	22.54	H	6.8	8.1	23.83	30.0	-6.2		Mid Ch									3500.01	22.23	V	6.8	8.1	23.58	30.0	-6.4		3500.01	22.78	H	6.8	8.1	24.13	30.0	-5.9		High Ch									3540.00	22.62	V	6.8	8.1	23.86	30.0	-6.1		3540.00	22.84	H	6.8	8.1	24.08	30.0	-5.9		UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 2/10/2025 Test Engineer: 27966 Configuration: EUT Only Location: Chamber K Mode: FR1_N77a_16QAM 20 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 colspan="9">Low Ch</td></tr><tr><td>3460.02</td><td>21.44</td><td>V</td><td>6.8</td><td>8.1</td><td>22.73</td><td>30.0</td><td>-7.3</td><td></td></tr><tr><td>3460.02</td><td>22.00</td><td>H</td><td>6.8</td><td>8.1</td><td>23.29</td><td>30.0</td><td>-6.7</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>3500.01</td><td>22.13</td><td>V</td><td>6.8</td><td>8.1</td><td>23.48</td><td>30.0</td><td>-6.5</td><td></td></tr><tr><td>3500.01</td><td>22.26</td><td>H</td><td>6.8</td><td>8.1</td><td>23.61</td><td>30.0</td><td>-6.4</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>3540.00</td><td>21.95</td><td>V</td><td>6.8</td><td>8.1</td><td>23.19</td><td>30.0</td><td>-6.8</td><td></td></tr><tr><td>3540.00</td><td>22.35</td><td>H</td><td>6.8</td><td>8.1</td><td>23.59</td><td>30.0</td><td>-6.4</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									3460.02	21.44	V	6.8	8.1	22.73	30.0	-7.3		3460.02	22.00	H	6.8	8.1	23.29	30.0	-6.7		Mid Ch									3500.01	22.13	V	6.8	8.1	23.48	30.0	-6.5		3500.01	22.26	H	6.8	8.1	23.61	30.0	-6.4		High Ch									3540.00	21.95	V	6.8	8.1	23.19	30.0	-6.8		3540.00	22.35	H	6.8	8.1	23.59	30.0	-6.4	
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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3460.02	22.07	V	6.8	8.1	23.36	30.0	-6.6																																																																																																																																																																																														
3460.02	22.54	H	6.8	8.1	23.83	30.0	-6.2																																																																																																																																																																																														
Mid Ch																																																																																																																																																																																																					
3500.01	22.23	V	6.8	8.1	23.58	30.0	-6.4																																																																																																																																																																																														
3500.01	22.78	H	6.8	8.1	24.13	30.0	-5.9																																																																																																																																																																																														
High Ch																																																																																																																																																																																																					
3540.00	22.62	V	6.8	8.1	23.86	30.0	-6.1																																																																																																																																																																																														
3540.00	22.84	H	6.8	8.1	24.08	30.0	-5.9																																																																																																																																																																																														
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																																																																																																																													
Low Ch																																																																																																																																																																																																					
3460.02	21.44	V	6.8	8.1	22.73	30.0	-7.3																																																																																																																																																																																														
3460.02	22.00	H	6.8	8.1	23.29	30.0	-6.7																																																																																																																																																																																														
Mid Ch																																																																																																																																																																																																					
3500.01	22.13	V	6.8	8.1	23.48	30.0	-6.5																																																																																																																																																																																														
3500.01	22.26	H	6.8	8.1	23.61	30.0	-6.4																																																																																																																																																																																														
High Ch																																																																																																																																																																																																					
3540.00	21.95	V	6.8	8.1	23.19	30.0	-6.8																																																																																																																																																																																														
3540.00	22.35	H	6.8	8.1	23.59	30.0	-6.4																																																																																																																																																																																														
15MHz BPSK									15MHz 16QAM																																																																																																																																																																																												
UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 2/10/2025 Test Engineer: 27966 Configuration: EUT Only Location: Chamber K Mode: FR1_N77a_BPSK 15 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 colspan="9">Low Ch</td></tr><tr><td>3457.50</td><td>22.16</td><td>V</td><td>6.8</td><td>8.1</td><td>23.44</td><td>30.0</td><td>-6.6</td><td></td></tr><tr><td>3457.50</td><td>22.51</td><td>H</td><td>6.8</td><td>8.1</td><td>23.79</td><td>30.0</td><td>-6.2</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>3500.01</td><td>22.50</td><td>V</td><td>6.8</td><td>8.1</td><td>23.85</td><td>30.0</td><td>-6.2</td><td></td></tr><tr><td>3500.01</td><td>22.80</td><td>H</td><td>6.8</td><td>8.1</td><td>24.15</td><td>30.0</td><td>-5.9</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>3542.49</td><td>22.23</td><td>V</td><td>6.8</td><td>8.1</td><td>23.47</td><td>30.0</td><td>-6.5</td><td></td></tr><tr><td>3542.49</td><td>22.91</td><td>H</td><td>6.8</td><td>8.1</td><td>24.15</td><td>30.0</td><td>-5.9</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									3457.50	22.16	V	6.8	8.1	23.44	30.0	-6.6		3457.50	22.51	H	6.8	8.1	23.79	30.0	-6.2		Mid Ch									3500.01	22.50	V	6.8	8.1	23.85	30.0	-6.2		3500.01	22.80	H	6.8	8.1	24.15	30.0	-5.9		High Ch									3542.49	22.23	V	6.8	8.1	23.47	30.0	-6.5		3542.49	22.91	H	6.8	8.1	24.15	30.0	-5.9		UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 2/10/2025 Test Engineer: 27966 Configuration: EUT Only Location: Chamber K Mode: FR1_N77a_16QAM 15 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 colspan="9">Low Ch</td></tr><tr><td>3457.50</td><td>21.62</td><td>V</td><td>6.8</td><td>8.1</td><td>22.90</td><td>30.0</td><td>-7.1</td><td></td></tr><tr><td>3457.50</td><td>21.91</td><td>H</td><td>6.8</td><td>8.1</td><td>23.19</td><td>30.0</td><td>-6.8</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>3500.01</td><td>21.55</td><td>V</td><td>6.8</td><td>8.1</td><td>22.90</td><td>30.0</td><td>-7.1</td><td></td></tr><tr><td>3500.01</td><td>22.38</td><td>H</td><td>6.8</td><td>8.1</td><td>23.73</td><td>30.0</td><td>-6.3</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>3542.49</td><td>21.54</td><td>V</td><td>6.8</td><td>8.1</td><td>22.78</td><td>30.0</td><td>-7.2</td><td></td></tr><tr><td>3542.49</td><td>22.20</td><td>H</td><td>6.8</td><td>8.1</td><td>23.44</td><td>30.0</td><td>-6.6</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									3457.50	21.62	V	6.8	8.1	22.90	30.0	-7.1		3457.50	21.91	H	6.8	8.1	23.19	30.0	-6.8		Mid Ch									3500.01	21.55	V	6.8	8.1	22.90	30.0	-7.1		3500.01	22.38	H	6.8	8.1	23.73	30.0	-6.3		High Ch									3542.49	21.54	V	6.8	8.1	22.78	30.0	-7.2		3542.49	22.20	H	6.8	8.1	23.44	30.0	-6.6	
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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3457.50	22.51	H	6.8	8.1	23.79	30.0	-6.2																																																																																																																																																																																														
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3500.01	22.50	V	6.8	8.1	23.85	30.0	-6.2																																																																																																																																																																																														
3500.01	22.80	H	6.8	8.1	24.15	30.0	-5.9																																																																																																																																																																																														
High Ch																																																																																																																																																																																																					
3542.49	22.23	V	6.8	8.1	23.47	30.0	-6.5																																																																																																																																																																																														
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3542.49	22.20	H	6.8	8.1	23.44	30.0	-6.6																																																																																																																																																																																														
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UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 2/10/2025 Test Engineer: 27966 Configuration: EUT Only Location: Chamber K Mode: FR1_N77a_BPSK 10 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 colspan="9">Low Ch</td></tr><tr><td>3455.01</td><td>21.79</td><td>V</td><td>6.8</td><td>8.1</td><td>23.06</td><td>30.0</td><td>-6.9</td><td></td></tr><tr><td>3455.01</td><td>22.65</td><td>H</td><td>6.8</td><td>8.1</td><td>23.92</td><td>30.0</td><td>-6.1</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>3500.01</td><td>22.45</td><td>V</td><td>6.8</td><td>8.1</td><td>23.80</td><td>30.0</td><td>-6.2</td><td></td></tr><tr><td>3500.01</td><td>22.69</td><td>H</td><td>6.8</td><td>8.1</td><td>24.04</td><td>30.0</td><td>-6.0</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>3544.98</td><td>22.48</td><td>V</td><td>6.9</td><td>8.1</td><td>23.72</td><td>30.0</td><td>-6.3</td><td></td></tr><tr><td>3544.98</td><td>22.85</td><td>H</td><td>6.9</td><td>8.1</td><td>24.09</td><td>30.0</td><td>-5.9</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									3455.01	21.79	V	6.8	8.1	23.06	30.0	-6.9		3455.01	22.65	H	6.8	8.1	23.92	30.0	-6.1		Mid Ch									3500.01	22.45	V	6.8	8.1	23.80	30.0	-6.2		3500.01	22.69	H	6.8	8.1	24.04	30.0	-6.0		High Ch									3544.98	22.48	V	6.9	8.1	23.72	30.0	-6.3		3544.98	22.85	H	6.9	8.1	24.09	30.0	-5.9		UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 2/10/2025 Test Engineer: 27966 Configuration: EUT Only Location: Chamber K Mode: FR1_N77a_16QAM 10 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 colspan="9">Low Ch</td></tr><tr><td>3455.01</td><td>21.26</td><td>V</td><td>6.8</td><td>8.1</td><td>22.53</td><td>30.0</td><td>-7.5</td><td></td></tr><tr><td>3455.01</td><td>22.01</td><td>H</td><td>6.8</td><td>8.1</td><td>23.28</td><td>30.0</td><td>-6.7</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>3500.01</td><td>22.12</td><td>V</td><td>6.8</td><td>8.1</td><td>23.47</td><td>30.0</td><td>-6.5</td><td></td></tr><tr><td>3500.01</td><td>22.37</td><td>H</td><td>6.8</td><td>8.1</td><td>23.72</td><td>30.0</td><td>-6.3</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>3544.98</td><td>21.98</td><td>V</td><td>6.9</td><td>8.1</td><td>23.22</td><td>30.0</td><td>-6.8</td><td></td></tr><tr><td>3544.98</td><td>22.49</td><td>H</td><td>6.9</td><td>8.1</td><td>23.73</td><td>30.0</td><td>-6.3</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									3455.01	21.26	V	6.8	8.1	22.53	30.0	-7.5		3455.01	22.01	H	6.8	8.1	23.28	30.0	-6.7		Mid Ch									3500.01	22.12	V	6.8	8.1	23.47	30.0	-6.5		3500.01	22.37	H	6.8	8.1	23.72	30.0	-6.3		High Ch									3544.98	21.98	V	6.9	8.1	23.22	30.0	-6.8		3544.98	22.49	H	6.9	8.1	23.73	30.0	-6.3	
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3455.01	22.01	H	6.8	8.1	23.28	30.0	-6.7																																																																																																																																																																																														
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3500.01	22.37	H	6.8	8.1	23.72	30.0	-6.3																																																																																																																																																																																														
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3544.98	21.98	V	6.9	8.1	23.22	30.0	-6.8																																																																																																																																																																																														
3544.98	22.49	H	6.9	8.1	23.73	30.0	-6.3																																																																																																																																																																																														

10.1.2. 5G NR n77 (Part 27 3700-3980MHz)

100MHz BPSK								
UL Verification Services, Inc. High Frequency Substitution Measurement								
Company:	Samsung							
Project #:	15605535							
Date:	2/7/2025							
Test Engineer:	27966							
Configuration:	EUT Only							
Location:	Chamber L							
Mode:	FR1_N77c_BPSK 100 MHz Fundamentals							
Test Equipment:								
Receiving: Horn 206805, and Chamber L SMA Cables								
Substitution: Horn 223083, PRE0183392 N-Type Cable								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3750.00	17.43	V	3.4	8.6	22.67	30.0	-7.3	
3750.00	17.99	H	3.4	8.6	23.23	30.0	-6.8	
Mid Ch								
3840.00	17.84	V	3.3	8.6	23.16	30.0	-6.8	
3840.00	18.16	H	3.3	8.6	23.48	30.0	-6.5	
High Ch								
3930.00	18.69	V	3.4	8.8	24.08	30.0	-5.9	
3930.00	18.98	H	3.4	8.8	24.37	30.0	-5.6	

100MHz 16QAM								
UL Verification Services, Inc. High Frequency Substitution Measurement								
Company:	Samsung							
Project #:	15605535							
Date:	2/7/2025							
Test Engineer:	27966							
Configuration:	EUT Only							
Location:	Chamber L							
Mode:	FR1_N77c_16QAM 100 MHz Fundamentals							
Test Equipment:								
Receiving: Horn 206805, and Chamber L SMA Cables								
Substitution: Horn 223083, PRE0183392 N-Type Cable								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3750.00	16.89	V	3.4	8.6	22.13	30.0	-7.9	
3750.00	17.16	H	3.4	8.6	22.40	30.0	-7.6	
Mid Ch								
3840.00	17.23	V	3.3	8.6	22.55	30.0	-7.5	
3840.00	16.97	H	3.3	8.6	22.29	30.0	-7.7	
High Ch								
3930.00	17.71	V	3.4	8.8	23.10	30.0	-6.9	
3930.00	18.26	H	3.4	8.8	23.65	30.0	-6.4	

90MHz BPSK								
UL Verification Services, Inc. High Frequency Substitution Measurement								
Company:	Samsung							
Project #:	15605535							
Date:	2/7/2025							
Test Engineer:	27966							
Configuration:	EUT Only							
Location:	Chamber L							
Mode:	FR1_N77c_BPSK 90 MHz Fundamentals							
Test Equipment:								
Receiving: Horn 206805, and Chamber L SMA Cables								
Substitution: Horn 223083, PRE0183392 N-Type Cable								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3745.02	17.51	V	3.4	8.6	22.74	30.0	-7.3	
3745.02	18.13	H	3.4	8.6	23.36	30.0	-6.6	
Mid Ch								
3840.00	18.15	V	3.3	8.6	23.47	30.0	-6.5	
3840.00	18.17	H	3.3	8.6	23.49	30.0	-6.5	
High Ch								
3934.98	18.73	V	3.4	8.8	24.12	30.0	-5.9	
3934.98	18.91	H	3.4	8.8	24.30	30.0	-5.7	

90MHz 16QAM								
UL Verification Services, Inc. High Frequency Substitution Measurement								
Company:	Samsung							
Project #:	15605535							
Date:	2/7/2025							
Test Engineer:	27966							
Configuration:	EUT Only							
Location:	Chamber L							
Mode:	FR1_N77c_BPSK 80 MHz Fundamentals							
Test Equipment:								
Receiving: Horn 206805, and Chamber L SMA Cables								
Substitution: Horn 223083, PRE0183392 N-Type Cable								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3740.01	17.00	V	3.4	8.6	22.23	30.0	-7.8	
3740.01	16.87	H	3.4	8.6	22.10	30.0	-7.9	
Mid Ch								
3840.00	17.41	V	3.3	8.6	22.73	30.0	-7.3	
3840.00	17.42	H	3.3	8.6	22.74	30.0	-7.3	
High Ch								
3939.99	17.76	V	3.4	8.8	23.16	30.0	-6.8	
3939.99	18.12	H	3.4	8.8	23.52	30.0	-6.5	

80MHz BPSK								
UL Verification Services, Inc. High Frequency Substitution Measurement								
Company:	Samsung							
Project #:	15605535							
Date:	2/7/2025							
Test Engineer:	27966							
Configuration:	EUT Only							
Location:	Chamber L							
Mode:	FR1_N77c_BPSK 80 MHz Fundamentals							
Test Equipment:								
Receiving: Horn 206805, and Chamber L SMA Cables								
Substitution: Horn 223083, PRE0183392 N-Type Cable								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3740.01	17.59	V	3.4	8.6	22.82	30.0	-7.2	
3740.01	17.90	H	3.4	8.6	23.13	30.0	-6.9	
Mid Ch								
3840.00	18.07	V	3.3	8.6	23.39	30.0	-6.6	
3840.00	18.12	H	3.3	8.6	23.44	30.0	-6.6	
High Ch								
3939.99	18.85	V	3.4	8.8	24.25	30.0	-5.8	
3939.99	19.11	H	3.4	8.8	24.51	30.0	-5.5	

80MHz 16QAM								
UL Verification Services, Inc. High Frequency Substitution Measurement								
Company:	Samsung							
Project #:	15605535							
Date:	2/7/2025							
Test Engineer:	27966							
Configuration:	EUT Only							
Location:	Chamber L							
Mode:	FR1_N77c_16QAM 80 MHz Fundamentals							
Test Equipment:								
Receiving: Horn 206805, and Chamber L SMA Cables								
Substitution: Horn 223083, PRE0183392 N-Type Cable								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3740.01	16.94	V	3.4	8.6	22.17	30.0	-7.8	
3740.01	17.50	H	3.4	8.6	22.73	30.0	-7.3	
Mid Ch								
3840.00	17.31	V	3.3	8.6	22.63	30.0	-7.4	
3840.00	17.23	H	3.3	8.6	22.55	30.0	-7.5	
High Ch								
3939.99	18.47	V	3.4	8.8	23.87	30.0	-6.1	
3939.99	18.28	H	3.4	8.8	23.68	30.0	-6.3	

70MHz BPSK								
UL Verification Services, Inc. High Frequency Substitution Measurement								
Company:	Samsung							
Project #:	15605535							
Date:	2/7/2025							
Test Engineer:	27966							
Configuration:	EUT Only							
Location:	Chamber L							
Mode:	FR1_N77c_BPSK 70 MHz Fundamentals							
Test Equipment:								
Receiving: Horn 206805, and Chamber L SMA Cables								
Substitution: Horn 223083, PRE0183392 N-Type Cable								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3735.00	17.53	V	3.4	8.6	22.76	30.0	-7.2	
3735.00	18.05	H	3.4	8.6	23.28	30.0	-6.7	
Mid Ch								
3840.00	18.17	V	3.3	8.6	23.49	30.0	-6.5	
3840.00	18.10	H	3.3	8.6	23.42	30.0	-6.6	
High Ch								
3945.00	18.87	V	3.4	8.8	24.28	30.0	-5.7	
3945.00	19.20	H	3.4	8.8	24.61	30.0	-5.4	

70MHz 16QAM								
UL Verification Services, Inc. High Frequency Substitution Measurement								
Company:	Samsung							
Project #:	15605535							
Date:	2/7/2025							
Test Engineer:	27966							
Configuration:	EUT Only							
Location:	Chamber L							
Mode:	FR1_N77c_16QAM 70 MHz Fundamentals							
Test Equipment:								
Receiving: Horn 206805, and Chamber L SMA Cables								
Substitution: Horn 223083, PRE0183392 N-Type Cable								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3735.00	16.46	V	3.4	8.6	21.69	30.0	-8.3	
3735.00	17.41	H	3.4	8.6	22.64	30.0	-7.4	
Mid Ch								
3840.00	17.71	V	3.3	8.6	23.03	30.0	-7.0	
3840.00	17.30	H	3.3	8.6	22.62	30.0	-7.4	
High Ch								
3945.00	18.18	V	3.4	8.8	23.59	30.0	-6.4	
3945.00	18.37	H	3.4	8.8	23.78	30.0	-6.2	

60MHz BPSK								
UL Verification Services, Inc. High Frequency Substitution Measurement								
Company:	Samsung							
Project #:	15605535							
Date:	2/7/2025							
Test Engineer:	27966							
Configuration:	EUT Only							
Location:	Chamber L							
Mode:	FR1_N77c_BPSK 60 MHz Fundamentals							
Test Equipment:								
Receiving: Horn 206805, and Chamber L SMA Cables								
Substitution: Horn 223083, PRE0183392 N-Type Cable								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3730.02	17.56	V	3.4	8.6	22.78	30.0	-7.2	
3730.02	18.42	H	3.4	8.6	23.64	30.0	-6.4	
Mid Ch								
3840.00	18.36	V	3.3	8.6	23.68	30.0	-6.3	
3840.00	18.09	H	3.3	8.6	23.41	30.0	-6.6	
High Ch								
3949.98	18.78	V	3.4	8.9	24.19	30.0	-5.8	
3949.98	18.74	H	3.4	8.9	24.15	30.0	-5.8	

60MHz 16QAM								
UL Verification Services, Inc. High Frequency Substitution Measurement								
Company:	Samsung							
Project #:	15605535							
Date:	2/7/2025							
Test Engineer:	27966							
Configuration:	EUT Only							
Location:	Chamber L							
Mode:	FR1_N77c_16QAM 60 MHz Fundamentals							
Test Equipment:								
Receiving: Horn 206805, and Chamber L SMA Cables								
Substitution: Horn 223083, PRE0183392 N-Type Cable								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3730.02	17.35	V	3.4	8.6	22.57	30.0	-7.4	
3730.02	17.28	H	3.4	8.6	22.50	30.0	-7.5	
Mid Ch								
3840.00	17.50	V	3.3	8.6	22.82	30.0	-7.2	
3840.00	17.07	H	3.3	8.6	22.39	30.0	-7.6	
High Ch								
3949.98	17.99	V	3.4	8.9	23.40	30.0	-6.6	
3949.98	18.02	H	3.4	8.9	23.43	30.0	-6.6	

50MHz BPSK								
UL Verification Services, Inc. High Frequency Substitution Measurement								
Company:	Samsung							
Project #:	15605535							
Date:	2/7/2025							
Test Engineer:	27966							
Configuration:	EUT Only							
Location:	Chamber L							
Mode:	FR1_N77c_BPSK 50 MHz Fundamentals							
Test Equipment:								
Receiving: Horn 206805, and Chamber L SMA Cables								
Substitution: Horn 223083, PRE0183392 N-Type Cable								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3725.01	17.67	V	3.4	8.6	22.88	30.0	-7.1	
3725.01	18.38	H	3.4	8.6	23.59	30.0	-6.4	
Mid Ch								
3840.00	18.19	V	3.3	8.6	23.51	30.0	-6.5	
3840.00	18.02	H	3.3	8.6	23.34	30.0	-6.7	
High Ch								
3594.99	18.52	V	3.2	8.2	23.51	30.0	-6.5	
3594.99	18.83	H	3.2	8.2	23.82	30.0	-6.2	

50MHz 16QAM								
UL Verification Services, Inc. High Frequency Substitution Measurement								
Company:	Samsung							
Project #:	15605535							
Date:	2/7/2025							
Test Engineer:	27966							
Configuration:	EUT Only							
Location:	Chamber L							
Mode:	FR1_N77c_16QAM 50 MHz Fundamentals							
Test Equipment:								
Receiving: Horn 206805, and Chamber L SMA Cables								
Substitution: Horn 223083, PRE0183392 N-Type Cable								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3725.01	17.16	V	3.4	8.6	22.37	30.0	-7.6	
3725.01	17.76	H	3.4	8.6	22.97	30.0	-7.0	
Mid Ch								
3840.00	17.46	V	3.3	8.6	22.78	30.0	-7.2	
3840.00	17.29	H	3.3	8.6	22.61	30.0	-7.4	
High Ch								
3594.99	17.78	V	3.2	8.2	22.77	30.0	-7.2	
3594.99	18.38	H	3.2	8.2	23.37	30.0	-6.6	

40MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 2/7/2025
Test Engineer: 27966
Configuration: EUT Only
Location: Chamber L
Mode: FR1_N77c_BPSK 40 MHz Fundamentals

Test Equipment:
Receiving: Horn 206805, and Chamber L SMA Cables
Substitution: Horn 223083, PRE0183392 N-Type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3720.00	17.65	V	3.4	8.6	22.86	30.0	-7.1	
3720.00	18.58	H	3.4	8.6	23.79	30.0	-6.2	
Mid Ch								
3840.00	17.91	V	3.3	8.6	23.23	30.0	-6.8	
3840.00	18.05	H	3.3	8.6	23.37	30.0	-6.6	
High Ch								
3960.00	18.79	V	3.5	8.9	24.22	30.0	-5.8	
3960.00	18.72	H	3.5	8.9	24.15	30.0	-5.9	

40MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 2/7/2025
Test Engineer: 27966
Configuration: EUT Only
Location: Chamber L
Mode: FR1_N77c_16QAM 40 MHz Fundamentals

Test Equipment:
Receiving: Horn 206805, and Chamber L SMA Cables
Substitution: Horn 223083, PRE0183392 N-Type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3720.00	16.71	V	3.4	8.6	21.92	30.0	-8.1	
3720.00	17.54	H	3.4	8.6	22.75	30.0	-7.3	
Mid Ch								
3840.00	16.97	V	3.3	8.6	22.29	30.0	-7.7	
3840.00	17.16	H	3.3	8.6	22.48	30.0	-7.5	
High Ch								
3960.00	17.92	V	3.5	8.9	23.35	30.0	-6.7	
3960.00	18.14	H	3.5	8.9	23.57	30.0	-6.4	

30MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 2/7/2025
Test Engineer: 27966
Configuration: EUT Only
Location: Chamber L
Mode: FR1_N77c_BPSK 30 MHz Fundamentals

Test Equipment:
Receiving: Horn 206805, and Chamber L SMA Cables
Substitution: Horn 223083, PRE0183392 N-Type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3715.02	17.39	V	3.4	8.6	22.59	30.0	-7.4	
3715.02	18.54	H	3.4	8.6	23.74	30.0	-6.3	
Mid Ch								
3840.00	17.79	V	3.3	8.6	23.11	30.0	-6.9	
3840.00	18.18	H	3.3	8.6	23.50	30.0	-6.5	
High Ch								
3964.98	18.69	V	3.5	8.9	24.13	30.0	-5.9	
3964.98	18.53	H	3.5	8.9	23.97	30.0	-6.0	

30MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 2/7/2025
Test Engineer: 27966
Configuration: EUT Only
Location: Chamber L
Mode: FR1_N77c_16QAM 30 MHz Fundamentals

Test Equipment:
Receiving: Horn 206805, and Chamber L SMA Cables
Substitution: Horn 223083, PRE0183392 N-Type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3740.01	16.94	V	3.4	8.6	22.17	30.0	-7.8	
3740.01	17.50	H	3.4	8.6	22.73	30.0	-7.3	
Mid Ch								
3840.00	17.31	V	3.3	8.6	22.63	30.0	-7.4	
3840.00	17.23	H	3.3	8.6	22.55	30.0	-7.5	
High Ch								
3939.99	18.47	V	3.4	8.8	23.87	30.0	-6.1	
3939.99	18.28	H	3.4	8.8	23.68	30.0	-6.3	

25MHz BPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 2/7/2025
Test Engineer: 27966
Configuration: EUT Only
Location: Chamber L
Mode: FR1_N77c_BPSK 25 MHz Fundamentals

Test Equipment:
Receiving: Horn 206805, and Chamber L SMA Cables
Substitution: Horn 223083, PRE0183392 N-Type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3712.50	17.81	V	3.4	8.6	23.01	30.0	-7.0	
3712.50	17.98	H	3.4	8.6	23.18	30.0	-6.8	
Mid Ch								
3840.00	17.81	V	3.3	8.6	23.13	30.0	-6.9	
3840.00	18.28	H	3.3	8.6	23.60	30.0	-6.4	
High Ch								
3967.50	18.73	V	3.5	8.9	24.17	30.0	-5.8	
3967.50	18.69	H	3.5	8.9	24.13	30.0	-5.9	

25MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 15605535
Date: 2/7/2025
Test Engineer: 27966
Configuration: EUT Only
Location: Chamber L
Mode: FR1_N77c_16QAM 25 MHz Fundamentals

Test Equipment:
Receiving: Horn 206805, and Chamber L SMA Cables
Substitution: Horn 223083, PRE0183392 N-Type Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
3712.50	17.24	V	3.4	8.6	22.44	30.0	-7.6	
3712.50	17.37	H	3.4	8.6	22.57	30.0	-7.4	
Mid Ch								
3840.00	16.88	V	3.3	8.6	22.20	30.0	-7.8	
3840.00	17.52	H	3.3	8.6	22.84	30.0	-7.2	
High Ch								
3967.50	17.77	V	3.5	8.9	23.21	30.0	-6.8	
3967.50	17.61	H	3.5	8.9	23.05	30.0	-7.0	

20MHz BPSK									20MHz 16QAM																																																																																																																																																																																												
UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 2/7/2025 Test Engineer: 27966 Configuration: EUT Only Location: Chamber L Mode: FR1_N77c_BPSK 20 MHz Fundamentals Test Equipment: Receiving: Horn 206805, and Chamber L SMA Cables Substitution: Horn 223083, PRE0183392 N-Type 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 colspan="9">Low Ch</td></tr><tr><td>3710.01</td><td>17.70</td><td>V</td><td>3.4</td><td>8.6</td><td>22.89</td><td>30.0</td><td>-7.1</td><td></td></tr><tr><td>3710.01</td><td>18.08</td><td>H</td><td>3.4</td><td>8.6</td><td>23.27</td><td>30.0</td><td>-6.7</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>3840.00</td><td>17.88</td><td>V</td><td>3.3</td><td>8.6</td><td>23.20</td><td>30.0</td><td>-6.8</td><td></td></tr><tr><td>3840.00</td><td>18.13</td><td>H</td><td>3.3</td><td>8.6</td><td>23.45</td><td>30.0</td><td>-6.6</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>3969.99</td><td>18.59</td><td>V</td><td>3.5</td><td>8.9</td><td>24.03</td><td>30.0</td><td>-6.0</td><td></td></tr><tr><td>3969.99</td><td>19.02</td><td>H</td><td>3.5</td><td>8.9</td><td>24.46</td><td>30.0</td><td>-5.5</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									3710.01	17.70	V	3.4	8.6	22.89	30.0	-7.1		3710.01	18.08	H	3.4	8.6	23.27	30.0	-6.7		Mid Ch									3840.00	17.88	V	3.3	8.6	23.20	30.0	-6.8		3840.00	18.13	H	3.3	8.6	23.45	30.0	-6.6		High Ch									3969.99	18.59	V	3.5	8.9	24.03	30.0	-6.0		3969.99	19.02	H	3.5	8.9	24.46	30.0	-5.5		UL Verification Services, Inc. High Frequency Substitution Measurement Company: Samsung Project #: 15605535 Date: 2/7/2025 Test Engineer: 27966 Configuration: EUT Only Location: Chamber L Mode: FR1_N77c_16QAM 20 MHz Fundamentals Test Equipment: Receiving: Horn 206805, and Chamber L SMA Cables Substitution: Horn 223083, PRE0183392 N-Type 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 colspan="9">Low Ch</td></tr><tr><td>3710.01</td><td>17.02</td><td>V</td><td>3.4</td><td>8.6</td><td>22.21</td><td>30.0</td><td>-7.8</td><td></td></tr><tr><td>3710.01</td><td>17.22</td><td>H</td><td>3.4</td><td>8.6</td><td>22.41</td><td>30.0</td><td>-7.6</td><td></td></tr><tr><td colspan="9">Mid Ch</td></tr><tr><td>3840.00</td><td>16.99</td><td>V</td><td>3.3</td><td>8.6</td><td>22.31</td><td>30.0</td><td>-7.7</td><td></td></tr><tr><td>3840.00</td><td>17.49</td><td>H</td><td>3.3</td><td>8.6</td><td>22.81</td><td>30.0</td><td>-7.2</td><td></td></tr><tr><td colspan="9">High Ch</td></tr><tr><td>3969.99</td><td>17.92</td><td>V</td><td>3.5</td><td>8.9</td><td>23.36</td><td>30.0</td><td>-6.6</td><td></td></tr><tr><td>3969.99</td><td>18.33</td><td>H</td><td>3.5</td><td>8.9</td><td>23.77</td><td>30.0</td><td>-6.2</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									3710.01	17.02	V	3.4	8.6	22.21	30.0	-7.8		3710.01	17.22	H	3.4	8.6	22.41	30.0	-7.6		Mid Ch									3840.00	16.99	V	3.3	8.6	22.31	30.0	-7.7		3840.00	17.49	H	3.3	8.6	22.81	30.0	-7.2		High Ch									3969.99	17.92	V	3.5	8.9	23.36	30.0	-6.6		3969.99	18.33	H	3.5	8.9	23.77	30.0	-6.2	
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes																																																																																																																																																																																													
Low Ch																																																																																																																																																																																																					
3710.01	17.70	V	3.4	8.6	22.89	30.0	-7.1																																																																																																																																																																																														
3710.01	18.08	H	3.4	8.6	23.27	30.0	-6.7																																																																																																																																																																																														
Mid Ch																																																																																																																																																																																																					
3840.00	17.88	V	3.3	8.6	23.20	30.0	-6.8																																																																																																																																																																																														
3840.00	18.13	H	3.3	8.6	23.45	30.0	-6.6																																																																																																																																																																																														
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3969.99	18.59	V	3.5	8.9	24.03	30.0	-6.0																																																																																																																																																																																														
3969.99	19.02	H	3.5	8.9	24.46	30.0	-5.5																																																																																																																																																																																														
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3710.01	17.02	V	3.4	8.6	22.21	30.0	-7.8																																																																																																																																																																																														
3710.01	17.22	H	3.4	8.6	22.41	30.0	-7.6																																																																																																																																																																																														
Mid Ch																																																																																																																																																																																																					
3840.00	16.99	V	3.3	8.6	22.31	30.0	-7.7																																																																																																																																																																																														
3840.00	17.49	H	3.3	8.6	22.81	30.0	-7.2																																																																																																																																																																																														
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3969.99	17.92	V	3.5	8.9	23.36	30.0	-6.6																																																																																																																																																																																														
3969.99	18.33	H	3.5	8.9	23.77	30.0	-6.2																																																																																																																																																																																														
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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.

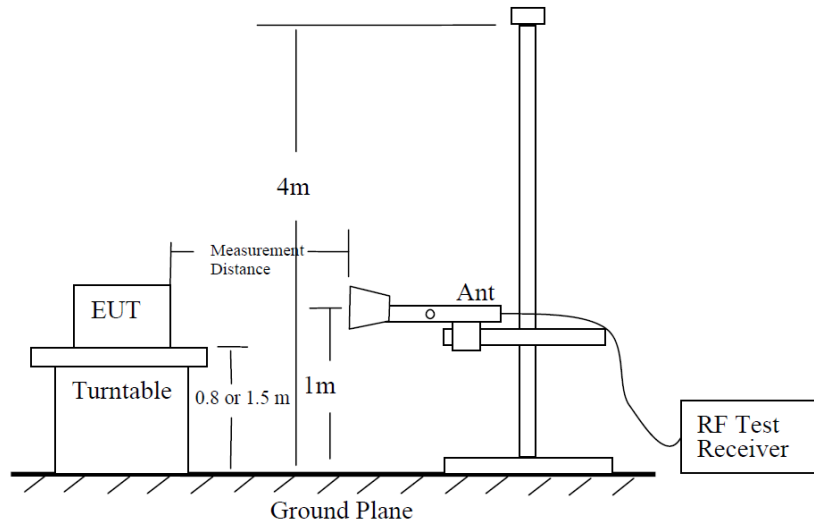


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

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

Emission limits

(n) 3.45 GHz Service. The following emission limits apply to stations transmitting in the 3450-3550 MHz band:

(2) For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz.

FCC: §27.53

(l) 3.7 GHz Service. The following emission limits apply to stations transmitting in the 3700-3980 MHz band:

(2) For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz.

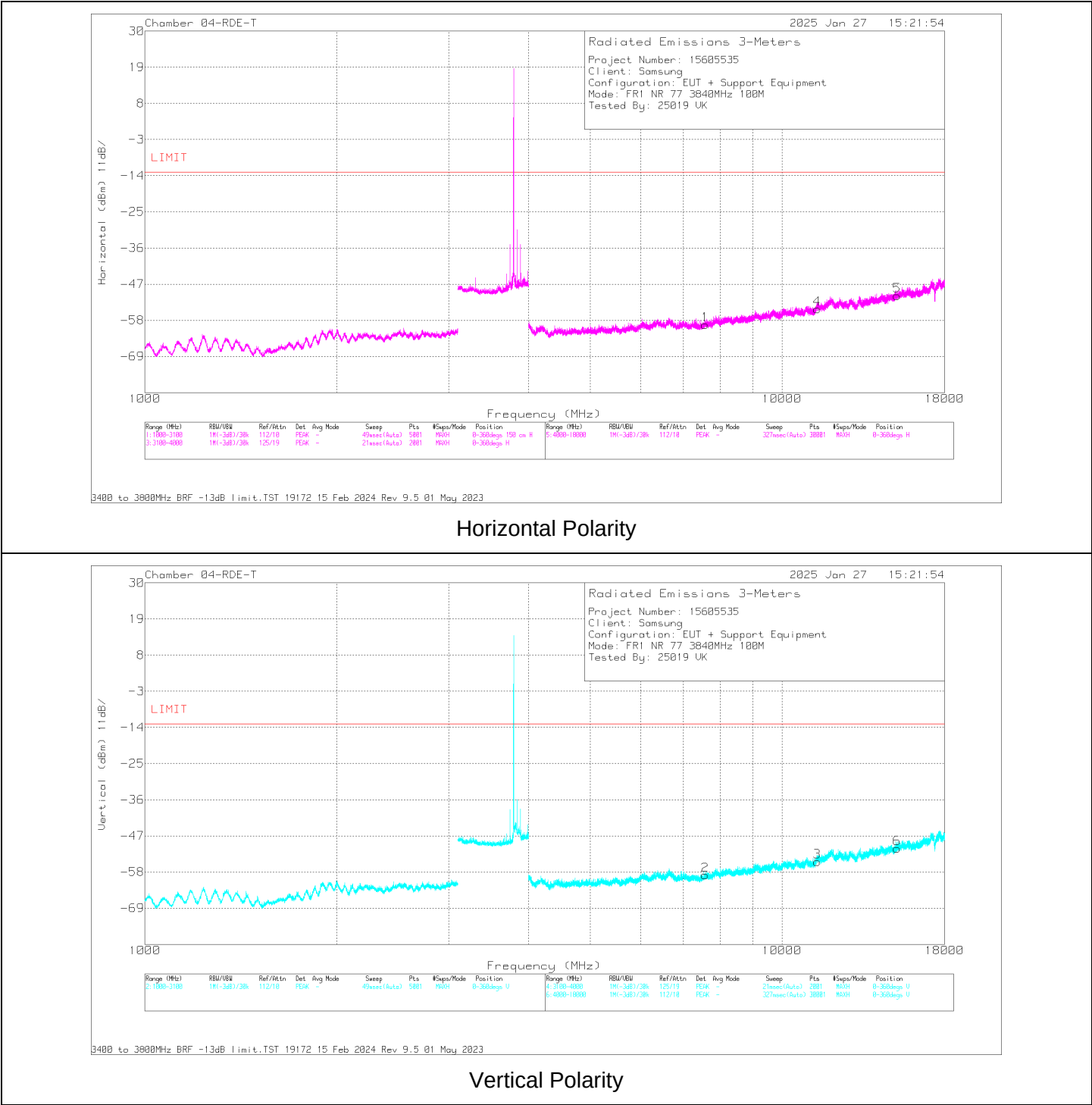
TEST PROCEDURE

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	AF T962 (dB/m)	Amp/Cbl/Filtr/P ad (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
7580.269	44.05	Pk	35.6	-95.2	-43.84	-59.39	-13	-46.39	H
11370.539	43.06	Pk	38.2	-95.2	-40.63	-54.57	-13	-41.57	H
7580.269	44.47	Pk	35.6	-95.2	-43.84	-58.97	-13	-45.97	V
11370.539	42.83	Pk	38.2	-95.2	-40.63	-54.8	-13	-41.8	V
15159.875	44.47	Pk	40.1	-95.2	-39.92	-50.55	-13	-37.55	H
15159.875	44.27	Pk	40.1	-95.2	-39.92	-50.75	-13	-37.75	V

Pk - Peak detector

10.2.1. 5G NR n77 (FCC Part 27 3450-3550MHz)

BPSK 5G NR n77 (100.0MHZ BANDWIDTH, Main ANT 2)

Project #:	15605535
Date:	2025-01-27
Test Engineer:	25019 VK
Configuration:	EUT + Support Equipment
Mode	N77 BPSK 100MHz
Chamber #:	04-RDE-T

Frequency (GHz)	Meter Reading (dBuV)	Det	79834 ACF (dB)	EIRP CF	DCCF (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Mid Channel, 3500MHz										
6.901	44.33	RMS	35.6	-95.2	6.97	-44.2	-52.5	-13	-46.47	H
6.901	44.58	RMS	35.6	-95.2	6.97	-44.2	-52.25	-13	-46.22	V
10.350	43.29	RMS	37.3	-95.2	6.97	-41.89	-49.53	-13	-43.5	H
10.350	43.14	RMS	37.3	-95.2	6.97	-41.89	-49.68	-13	-43.65	V
13.800	44.33	RMS	39.3	-95.2	6.97	-40.18	-44.78	-13	-38.75	H
13.800	44.87	RMS	39.3	-95.2	6.97	-40.18	-44.24	-13	-38.21	V

10.2.2. 5G NR n77 (FCC Part 27 3700-3980MHz)

BPSK 5G NR n77 (100.0MHZ BANDWIDTH, Main ANT 2)

Project #:	15605535
Date:	2025-01-27
Test Engineer:	25019 VK
Configuration:	EUT + Support Equipment
Mode	N77 BPSK 100MHz
Chamber #:	04-RDE-T

Frequency (GHz)	Meter Reading (dBuV)	Det	79834 ACF (dB)	EIRP CF	DCCF (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 3750MHz										
7.400	43.87	RMS	35.3	-95.2	7.03	-44.3	-53.3	-13	-47.33	H
7.400	44.05	RMS	35.3	-95.2	7.03	-44.3	-53.12	-13	-47.15	V
11.100	43.64	RMS	37.6	-95.2	7.03	-41.42	-48.35	-13	-42.38	H
11.100	43.26	RMS	37.6	-95.2	7.03	-41.42	-48.73	-13	-42.76	V
14.801	44.4	RMS	39.7	-95.2	7.03	-40.44	-44.51	-13	-38.54	H
14.801	44.37	RMS	39.7	-95.2	7.03	-40.44	-44.54	-13	-38.57	V
Mid Channel, 3840MHz										
7.580	44.05	RMS	35.6	-95.2	7.03	-43.84	-52.36	-13	-46.39	H
7.580	44.47	RMS	35.6	-95.2	7.03	-43.84	-51.94	-13	-45.97	V
11.371	43.06	RMS	38.2	-95.2	7.03	-40.63	-47.54	-13	-41.57	H
11.371	42.83	RMS	38.2	-95.2	7.03	-40.63	-47.77	-13	-41.8	V
15.160	44.47	RMS	40.1	-95.2	7.03	-39.92	-43.52	-13	-37.55	H
15.160	44.27	RMS	40.1	-95.2	7.03	-39.92	-43.72	-13	-37.75	V
High Channel, 3930MHz										
7.761	43.19	RMS	35.8	-95.2	7.03	-43.43	-52.61	-13	-46.64	H
7.761	43.08	RMS	35.8	-95.2	7.03	-43.43	-52.72	-13	-46.75	V
15.521	44.39	RMS	40.6	-95.2	7.03	-39.01	-42.19	-13	-36.22	H
15.521	43.71	RMS	40.6	-95.2	7.03	-39.01	-42.87	-13	-36.9	V
11.641	43.14	RMS	39	-95.2	7.03	-40.71	-46.74	-13	-40.77	V
11.641	42.24	RMS	39	-95.2	7.03	-40.71	-47.64	-13	-41.67	H

11. SETUP PHOTOS

Please refer to 15605535-EP1V1 for setup photos.

END OF REPORT