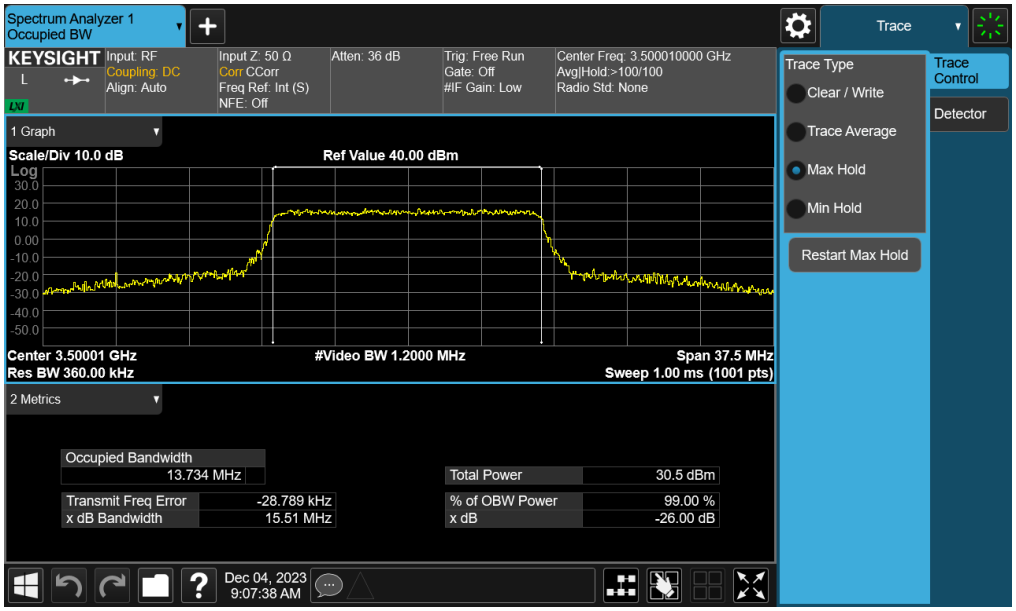
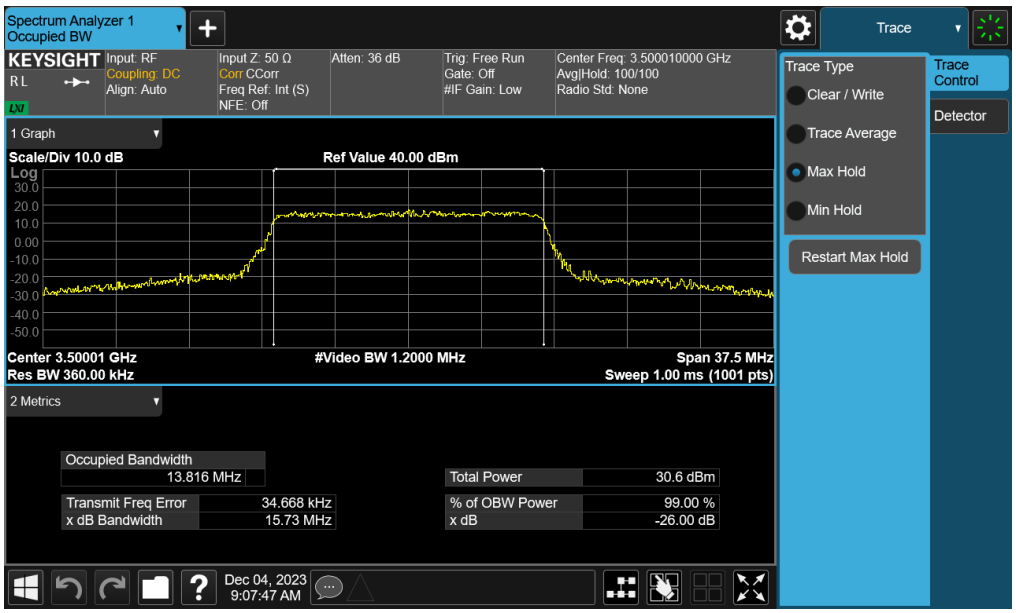
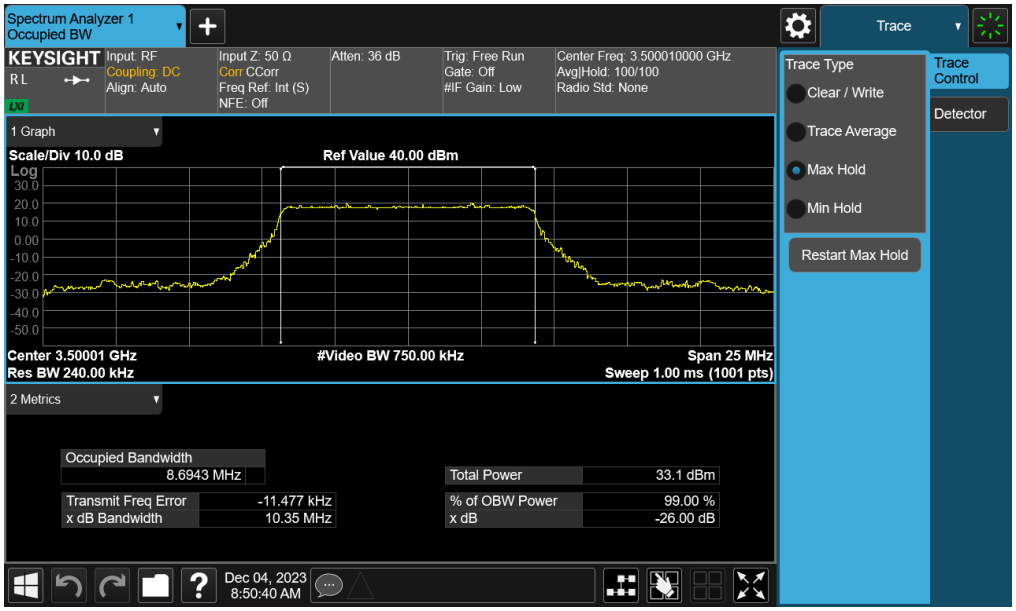
Plot 7-67. Occupied Bandwidth Plot (NR Band n77 DoD Band - 15MHz π/2 BPSK - Full RB)



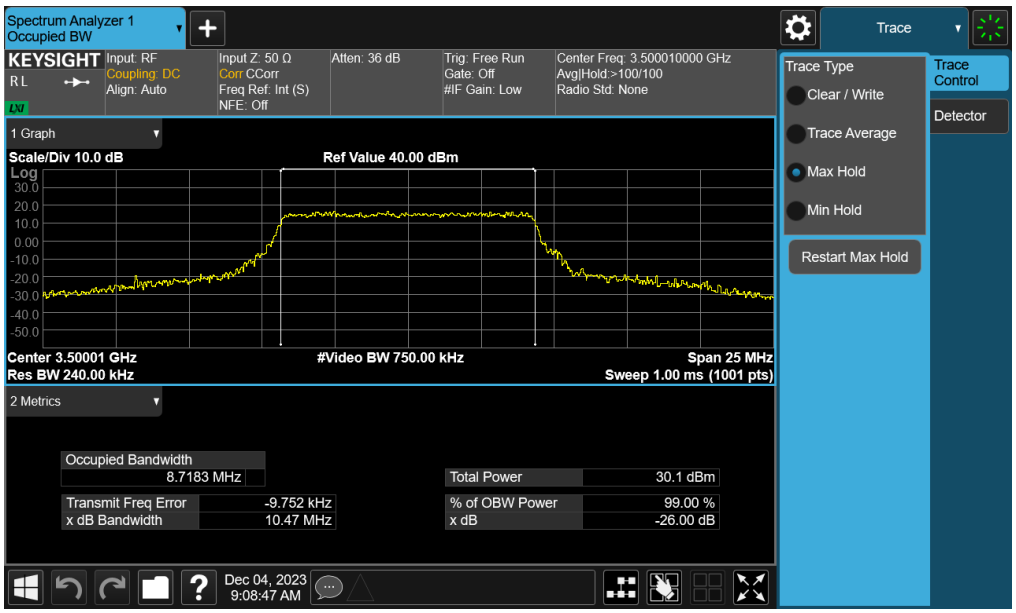
Plot 7-68. Occupied Bandwidth Plot (NR Band n77 DoD Band - 15MHz QPSK - Full RB)



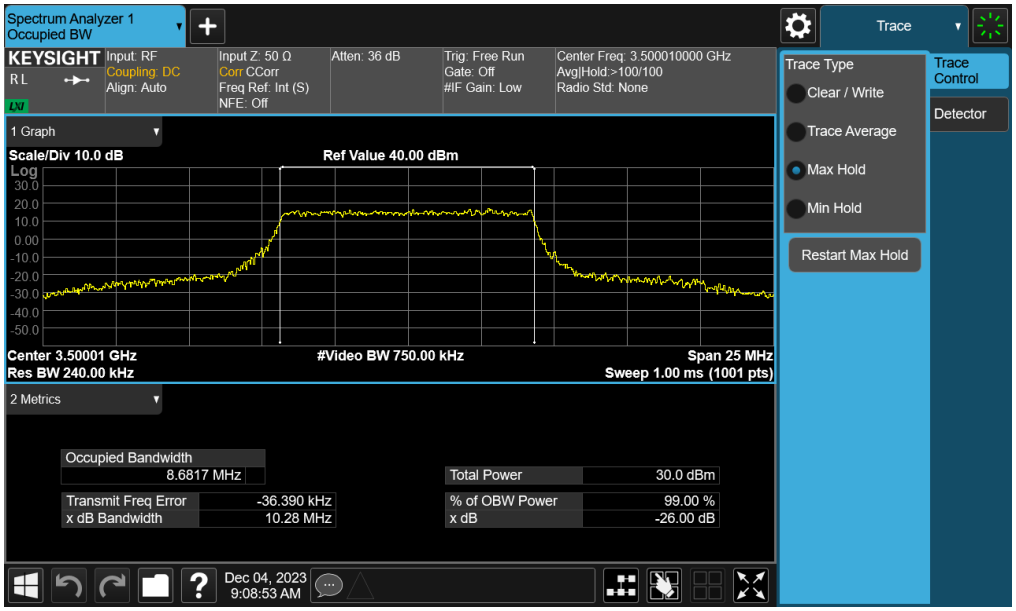
Plot 7-69. Occupied Bandwidth Plot (NR Band n77 DoD Band - 15MHz 16-QAM - Full RB)



Plot 7-70. Occupied Bandwidth Plot (NR Band n77 DoD Band - 10MHz π/2 BPSK - Full RB)



Plot 7-71. Occupied Bandwidth Plot (NR Band n77 DoD Band - 10MHz QPSK - Full RB)



Plot 7-72. Occupied Bandwidth Plot (NR Band n77 DoD Band - 10MHz 16-QAM - Full RB)

7.4 Spurious and Harmonic Emissions at Antenna Terminal

Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated, and the worst-case configuration results are reported in this section.

For operations in the 3700 – 3980MHz band and the 3450 – 3550MHz band, the maximum permissible conducted power level of any spurious emission is -13dBm/MHz.

Test Procedure Used

ANSI C63.26-2015 – Section 5.7.4

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to the tenth harmonic of the highest transmit frequency (separated into at least two plots per channel)
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize.
6. Please see test notes below for RBW and VBW settings

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

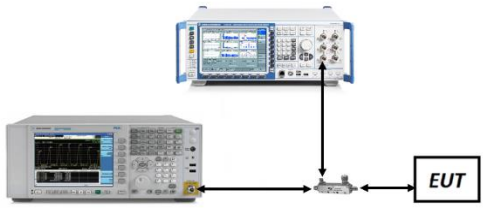


Figure 7-3. Test Instrument & Measurement Setup

Test Notes

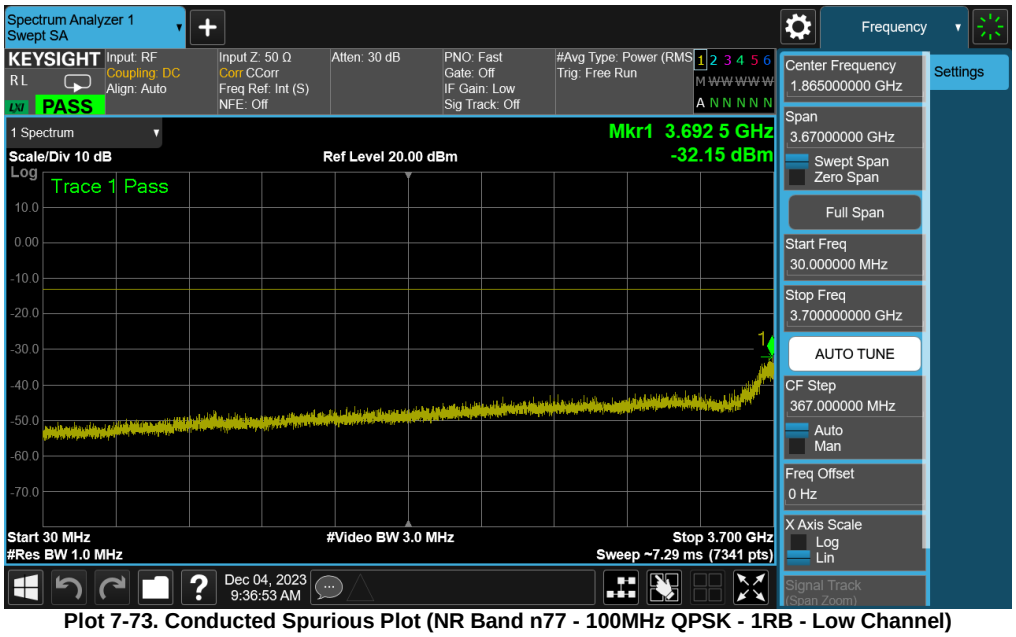
1. Per Part 27.53(l) and Part 27.53(n), compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz.

2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst-case configuration. All modes of operation were investigated, and the worst-case configuration results are reported in this section.

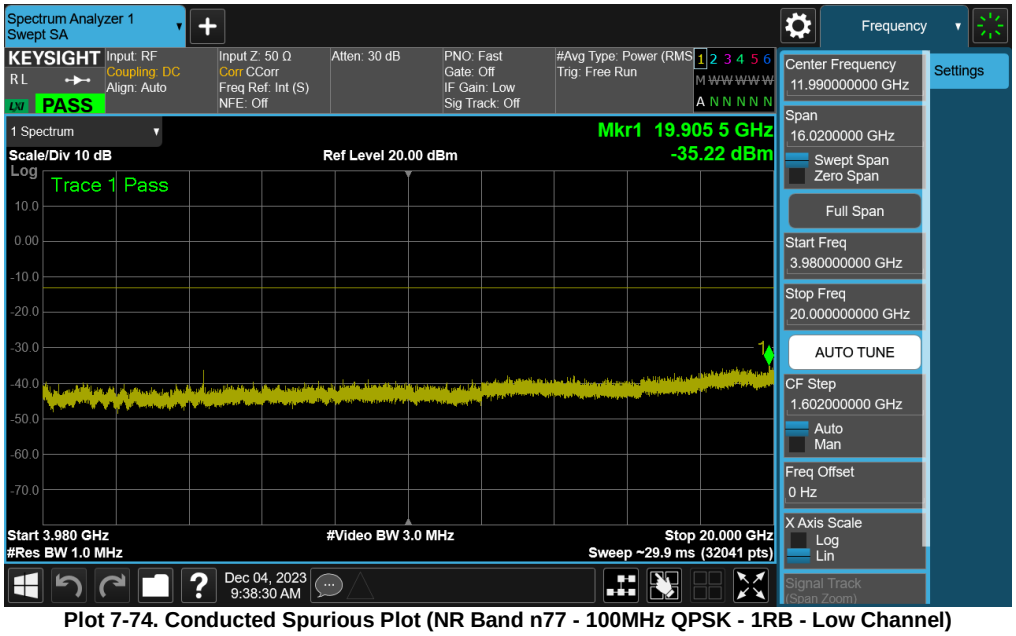
Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
NR-n77 PC2 DoD	100MHz	Mid	30.0 - 3450.0	-30.59	-13	-17.59
		Mid	3550.0 - 20000.0	-30.91	-13	-17.91
		Mid	20000.0 - 40000.0	-43.60	-13	-30.60
NR-n77 PC2 C-Band	100MHz	Low	30.0 - 3700.0	-32.15	-13	-19.15
		Low	3980.0 - 20000.0	-35.22	-13	-22.22
		Low	20000.0 - 40000.0	-42.68	-13	-29.68
		Mid	30.0 - 3700.0	-38.73	-13	-25.73
		Mid	3980.0 - 20000.0	-34.68	-13	-21.68
		Mid	20000.0 - 40000.0	-43.29	-13	-30.29
		High	30.0 - 3700.0	-41.05	-13	-28.05
		High	3980.0 - 20000.0	-30.63	-13	-17.63
		High	20000.0 - 40000.0	-43.10	-13	-30.10

Table 7-6. Conducted Emission Test Results

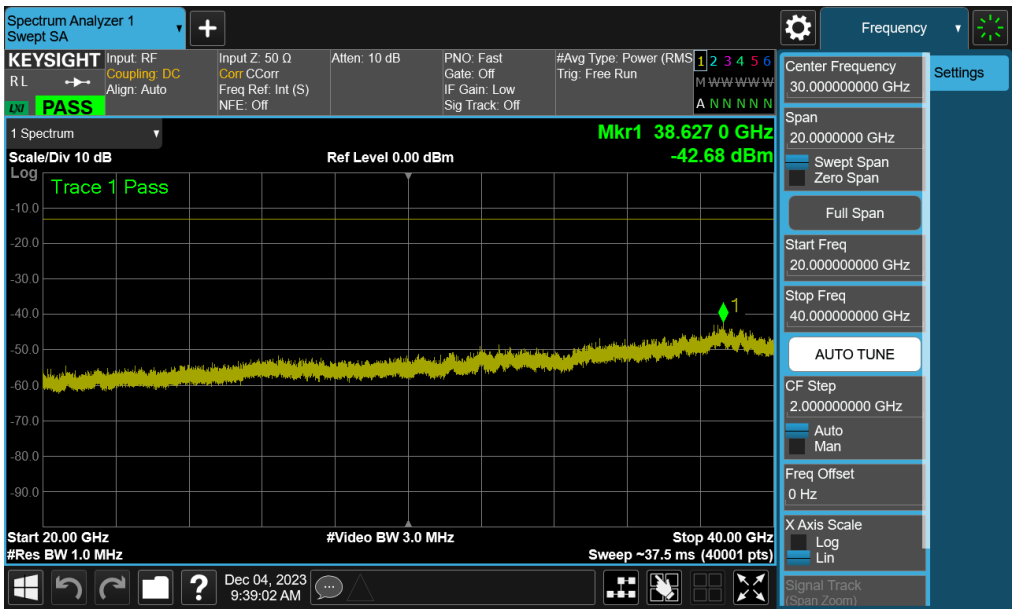
NR Band n77 PC2 C-Band



Plot 7-73. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - 1RB - Low Channel)

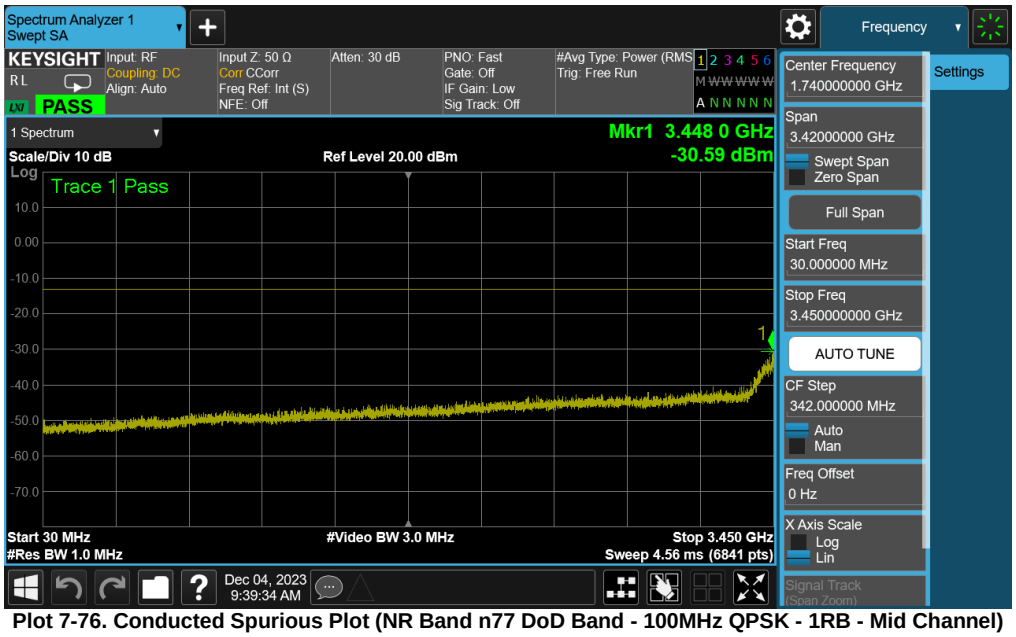


Plot 7-74. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - 1RB - Low Channel)

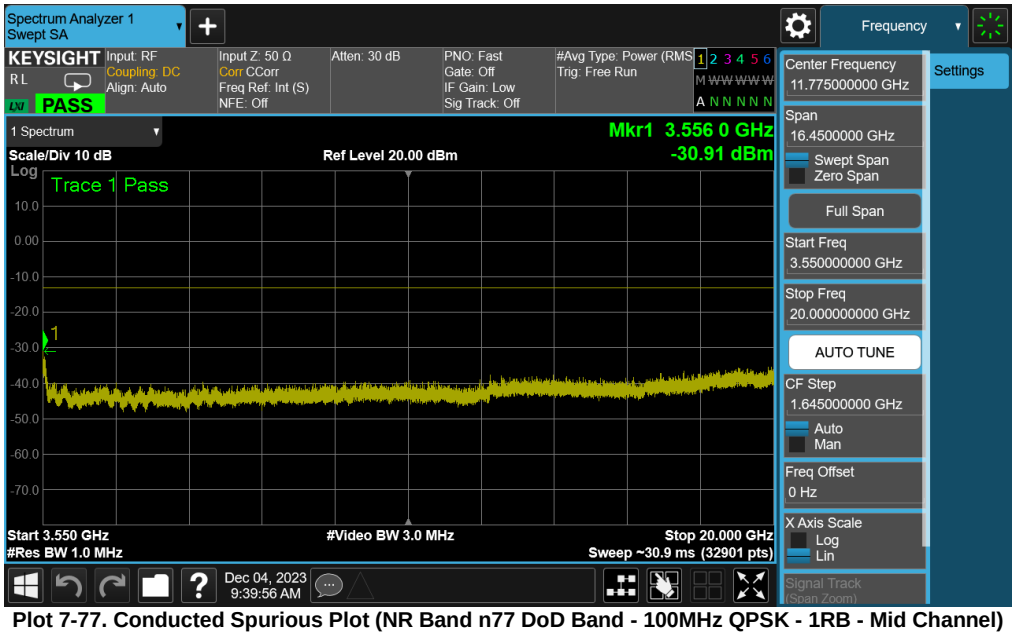


Plot 7-75. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - 1RB - Low Channel)

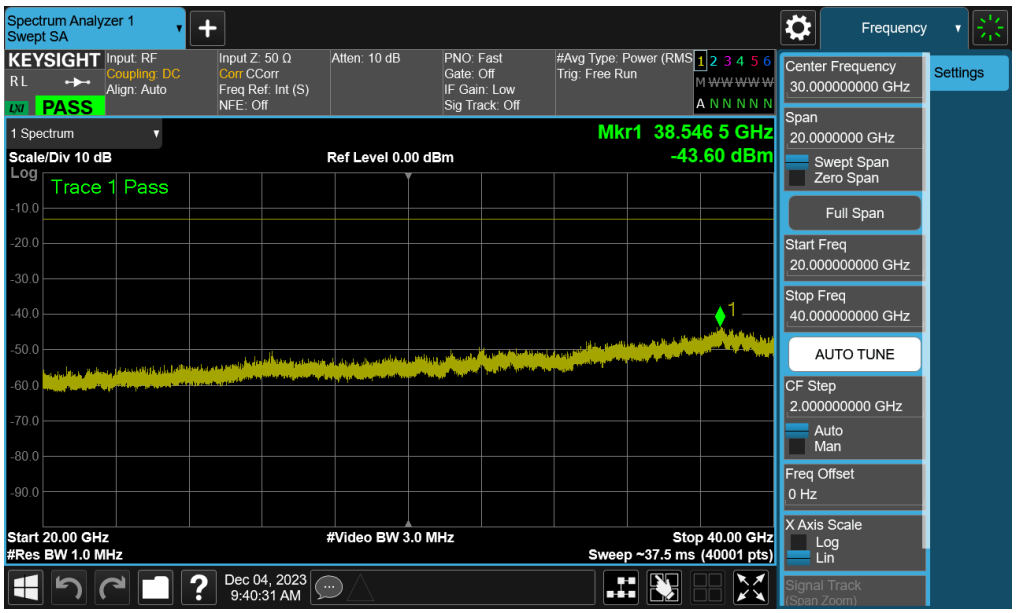
NR Band n77 PC2 DoD Band



Plot 7-76. Conducted Spurious Plot (NR Band n77 DoD Band - 100MHz QPSK - 1RB - Mid Channel)



Plot 7-77. Conducted Spurious Plot (NR Band n77 DoD Band - 100MHz QPSK - 1RB - Mid Channel)



Plot 7-78. Conducted Spurious Plot (NR Band n77 DoD Band - 100MHz QPSK - 1RB - Mid Channel)

7.5 Band Edge Emissions at Antenna Terminal

Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated, and the worst-case configuration results are reported in this section.

For operations in the 3700 – 3980MHz band and the 3450 – 3550MHz band, the maximum permissible conducted power level of any out-of-band emission is -13dBm/MHz.

Test Procedure Used

ANSI C63.26-2015 – Section 5.7.3

Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot.
2. Span was set large enough to capture all out of band emissions near the band edge.
3. RBW ≥ 1% of the emission bandwidth
4. VBW ≥ 3 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

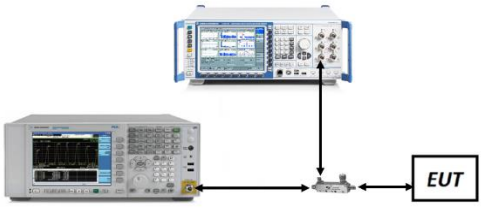


Figure 7-4. Test Instrument & Measurement Setup

Test Notes

1. Per Part 27.53(l), compliance with the -13dBm/MHz conducted power limit for out-of-band emissions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz.

2. Per Part 27.53(n), compliance with the -13dBm/MHz conducted power limit for out-of-band emissions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed but limited to a maximum of 200 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz.

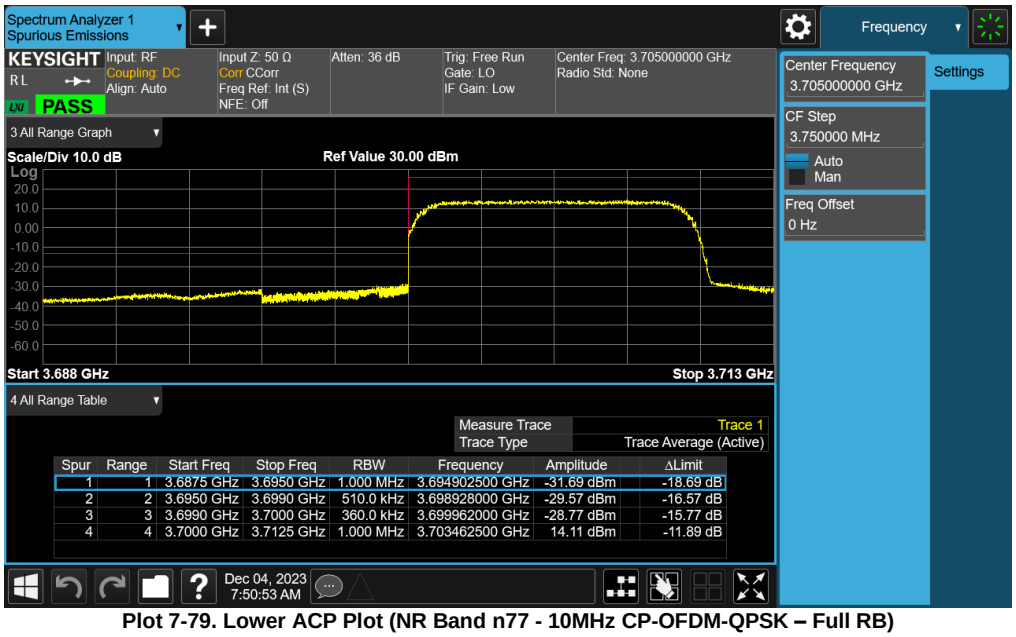
3. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

4. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst-case configuration. All modes of operation were investigated, and the worst-case configuration results are reported in this section.

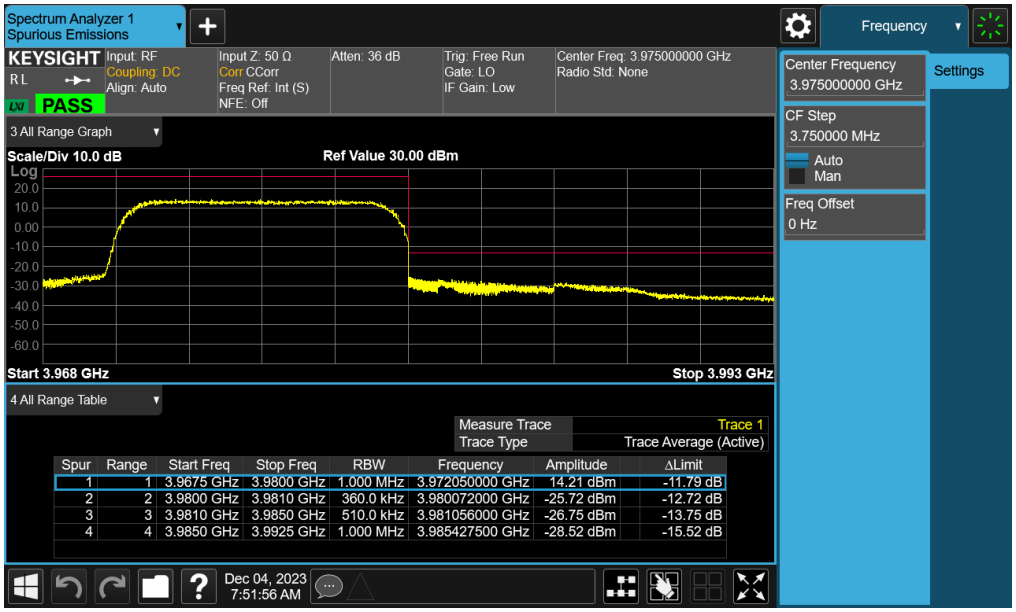
Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
NR-n77 PC2 C-Band	100MHz	Low	Band Edge	-33.84	-13	-20.84
		High	Band Edge	-33.77	-13	-20.77
	90MHz	Low	Band Edge	-34.22	-13	-21.22
		High	Band Edge	-33.13	-13	-20.13
	80MHz	Low	Band Edge	-33.49	-13	-20.49
		High	Band Edge	-31.46	-13	-18.46
	70MHz	Low	Band Edge	-33.14	-13	-20.14
		High	Band Edge	-30.90	-13	-17.90
	60MHz	Low	Band Edge	-35.08	-13	-22.08
		High	Band Edge	-31.44	-13	-18.44
	50MHz	Low	Band Edge	-33.56	-13	-20.56
		High	Band Edge	-29.14	-13	-16.14
	40MHz	Low	Band Edge	-31.50	-13	-18.50
		High	Band Edge	-30.01	-13	-17.01
	30MHz	Low	Band Edge	-33.28	-13	-20.28
		High	Band Edge	-29.66	-13	-16.66
	25MHz	Low	Band Edge	-32.45	-13	-19.45
		High	Band Edge	-29.32	-13	-16.32
	20MHz	Low	Band Edge	-31.31	-13	-18.31
		High	Band Edge	-28.93	-13	-15.93
	15MHz	Low	Band Edge	-30.30	-13	-17.30
		High	Band Edge	-27.92	-13	-14.92
	10MHz	Low	Band Edge	-28.77	-13	-15.77
		High	Band Edge	-25.72	-13	-12.72

Table 7-7. Conducted Band Edge Test Results – NR n77 PC2 C-Band

NR Band n77 PC2 C-Band



Plot 7-79. Lower ACP Plot (NR Band n77 - 10MHz CP-OFDM-QPSK – Full RB)

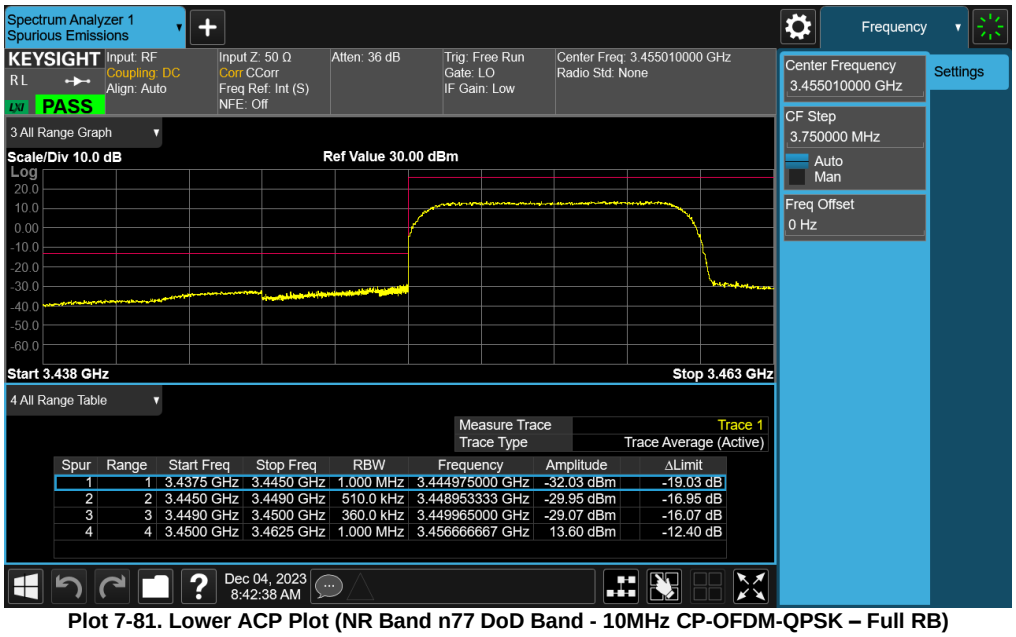


Plot 7-80. Upper ACP Plot (NR Band n77 - 10MHz CP-OFDM-QPSK – Full RB – Ant1)

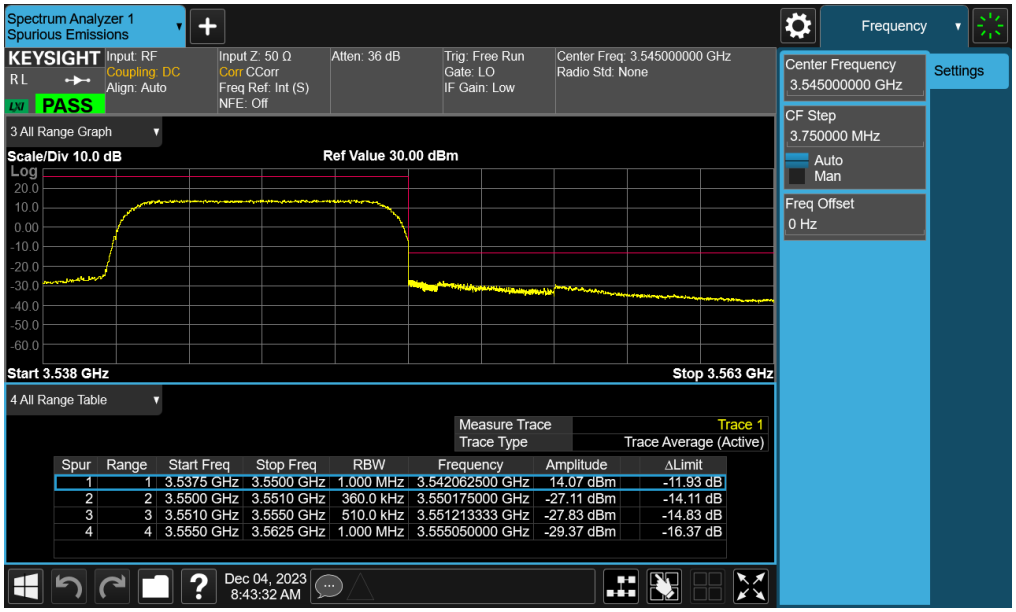
Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
NR-n77 PC2 DoD	100MHz	Low	Band Edge	-35.18	-13	-22.18
		High	Band Edge	-33.64	-13	-20.64
	90MHz	Low	Band Edge	-35.12	-13	-22.12
		High	Band Edge	-33.87	-13	-20.87
	80MHz	Low	Band Edge	-34.07	-13	-21.07
		High	Band Edge	-32.54	-13	-19.54
	70MHz	Low	Band Edge	-33.73	-13	-20.73
		High	Band Edge	-31.71	-13	-18.71
	60MHz	Low	Band Edge	-34.95	-13	-21.95
		High	Band Edge	-31.67	-13	-18.67
	50MHz	Low	Band Edge	-31.90	-13	-18.90
		High	Band Edge	-29.92	-13	-16.92
	40MHz	Low	Band Edge	-32.32	-13	-19.32
		High	Band Edge	-30.11	-13	-17.11
	30MHz	Low	Band Edge	-32.90	-13	-19.90
		High	Band Edge	-30.05	-13	-17.05
	25MHz	Low	Band Edge	-30.23	-13	-17.23
		High	Band Edge	-29.38	-13	-16.38
	20MHz	Low	Band Edge	-31.49	-13	-18.49
		High	Band Edge	-29.65	-13	-16.65
	15MHz	Low	Band Edge	-30.42	-13	-17.42
		High	Band Edge	-27.90	-13	-14.90
	10MHz	Low	Band Edge	-29.07	-13	-16.07
		High	Band Edge	-27.11	-13	-14.11

Table 7-8. Conducted Band Edge Test Results – NR n77 PC2 DoD Band

NR Band n77 PC2 DoD Band



Plot 7-81. Lower ACP Plot (NR Band n77 DoD Band - 10MHz CP-OFDM-QPSK – Full RB)



Plot 7-82. Upper ACP Plot (NR Band n77 DoD Band - 10MHz CP-OFDM-QPSK – Full RB)

7.6 Peak-Average Ratio

Test Overview

A peak to average ratio measurement is performed at the conducted port of the EUT. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in each bandwidth. The CCDF curve shows how much time the peak waveform spends at, or above, a given average power level. The percentage of time the signal spends at or above the level defines the probability for that power level.

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB.

Test Procedure Used

ANSI C63.26-2015 – Section 5.2.3.4

Test Settings

1. The signal analyzer's CCDF measurement profile is enabled.
2. Frequency = carrier center frequency
3. Measurement BW ≥ OBW or specified reference bandwidth
4. The signal analyzer was set to collect one million samples to generate the CCDF curve.
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

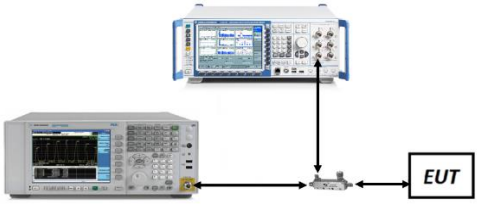


Figure 7-5. Test Instrument & Measurement Setup

Test Notes

For the QAM modulations, 256QAM was found to have the worst-case peak-to-average ratio so it is the only QAM measurement included in this section.

Mode	Bandwidth	Modulation	Average Power [dBm]	PAR at 0.1% [dB]	PAR Limit [dB]	Margin [dB]
NR-n77 PC2 C-Band	100MHz	π/2 BPSK	25.24	5.27	13.0	-7.73
		QPSK	22.69	8.74	13.0	-4.26
		256QAM	19.19	8.54	13.0	-4.46
	90MHz	π/2 BPSK	25.27	4.56	13.0	-8.44
		QPSK	22.69	8.65	13.0	-4.35
		256QAM	19.16	8.49	13.0	-4.51
	80MHz	π/2 BPSK	25.26	5.19	13.0	-7.81
		QPSK	22.73	8.66	13.0	-4.34
		256QAM	19.18	8.53	13.0	-4.47
	70MHz	π/2 BPSK	25.31	4.71	13.0	-8.29
		QPSK	22.75	8.63	13.0	-4.37
		256QAM	19.23	8.49	13.0	-4.51
	60MHz	π/2 BPSK	25.30	4.57	13.0	-8.43
		QPSK	22.77	8.63	13.0	-4.37
		256QAM	19.24	8.40	13.0	-4.60
	50MHz	π/2 BPSK	25.34	4.89	13.0	-8.11
		QPSK	22.79	8.63	13.0	-4.37
		256QAM	19.27	8.57	13.0	-4.43
	40MHz	π/2 BPSK	25.35	4.75	13.0	-8.25
		QPSK	22.77	8.57	13.0	-4.43
		256QAM	19.26	8.45	13.0	-4.55
	30MHz	π/2 BPSK	24.98	5.05	13.0	-7.95
		QPSK	22.77	8.59	13.0	-4.41
		256QAM	19.25	8.44	13.0	-4.56
	25MHz	π/2 BPSK	25.26	4.67	13.0	-8.33
		QPSK	22.71	8.67	13.0	-4.33
		256QAM	19.19	8.72	13.0	-4.28
	20MHz	π/2 BPSK	25.25	4.59	13.0	-8.41
		QPSK	22.71	8.51	13.0	-4.49
		256QAM	19.20	8.73	13.0	-4.27
	15MHz	π/2 BPSK	25.27	4.52	13.0	-8.48
		QPSK	22.69	8.45	13.0	-4.55
		256QAM	19.18	8.48	13.0	-4.52
	10MHz	π/2 BPSK	25.25	4.55	13.0	-8.45
		QPSK	22.69	8.52	13.0	-4.48
		256QAM	19.17	8.23	13.0	-4.77

Table 7-9. Peak-Average Ratio Test Results – NR n77 PC2 C-Band

NR Band n77 PC2 C-Band

Plot 7-83. PAR Plot (NR Band n77 - 100MHz DFT-s-OFDM BPSK - Full RB)

Plot 7-84. PAR Plot (NR Band n77 - 100MHz CP-OFDM QPSK - Full RB)

Plot 7-85. PAR Plot (NR Band n77 - 100MHz CP-OFDM 256-QAM - Full RB)

Mode	Bandwidth	Modulation	Average Power [dBm]	PAR at 0.1% [dB]	PAR Limit [dB]	Margin [dB]
NR-n77 PC2 DoD	100MHz	π/2 BPSK	24.87	5.28	13.0	-7.72
		QPSK	22.62	8.12	13.0	-4.88
		256QAM	19.10	8.44	13.0	-4.56
	90MHz	π/2 BPSK	25.13	4.42	13.0	-8.58
		QPSK	22.88	7.92	13.0	-5.08
		256QAM	19.39	8.36	13.0	-4.64
	80MHz	π/2 BPSK	25.16	4.92	13.0	-8.08
		QPSK	22.87	7.96	13.0	-5.04
		256QAM	19.35	8.42	13.0	-4.58
	70MHz	π/2 BPSK	24.56	5.06	13.0	-7.94
		QPSK	22.77	7.95	13.0	-5.05
		256QAM	19.25	8.40	13.0	-4.60
	60MHz	π/2 BPSK	24.82	4.70	13.0	-8.30
		QPSK	22.72	8.01	13.0	-4.99
		256QAM	19.20	8.35	13.0	-4.65
	50MHz	π/2 BPSK	25.18	4.65	13.0	-8.35
		QPSK	22.70	8.01	13.0	-4.99
		256QAM	19.17	8.46	13.0	-4.54
	40MHz	π/2 BPSK	25.06	4.59	13.0	-8.41
		QPSK	22.68	7.97	13.0	-5.03
		256QAM	19.18	8.35	13.0	-4.65
	30MHz	π/2 BPSK	24.85	4.79	13.0	-8.21
		QPSK	22.67	8.02	13.0	-4.98
		256QAM	19.18	8.36	13.0	-4.64
	25MHz	π/2 BPSK	25.11	4.47	13.0	-8.53
		QPSK	22.59	8.05	13.0	-4.95
		256QAM	19.09	8.54	13.0	-4.46
	20MHz	π/2 BPSK	25.12	4.38	13.0	-8.62
		QPSK	22.61	7.97	13.0	-5.03
		256QAM	19.10	8.57	13.0	-4.43
	15MHz	π/2 BPSK	25.11	4.32	13.0	-8.68
		QPSK	22.60	7.94	13.0	-5.06
		256QAM	19.09	8.35	13.0	-4.65
	10MHz	π/2 BPSK	25.11	4.35	13.0	-8.65
		QPSK	22.60	7.92	13.0	-5.08
		256QAM	19.08	8.20	13.0	-4.80

Table 7-10. Peak-Average Ratio Test Results – NR n77 PC2 DoD Band

NR Band n77 PC2 DoD Band

Plot 7-86. PAR Plot (NR Band n77 DoD Band - 100MHz DFT-s-OFDM BPSK - Full RB)

Plot 7-87. PAR Plot (NR Band n77 DoD Band - 100MHz CP-OFDM QPSK - Full RB)

Plot 7-88. PAR Plot (NR Band n77 DoD Band - 100MHz CP-OFDM 256-QAM - Full RB)

7.7 Radiated Power (EIRP)

Test Overview

Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

ANSI C63.26-2015 – Section 5.2.4.4

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW ≥ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points ≥ 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto". Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration.
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

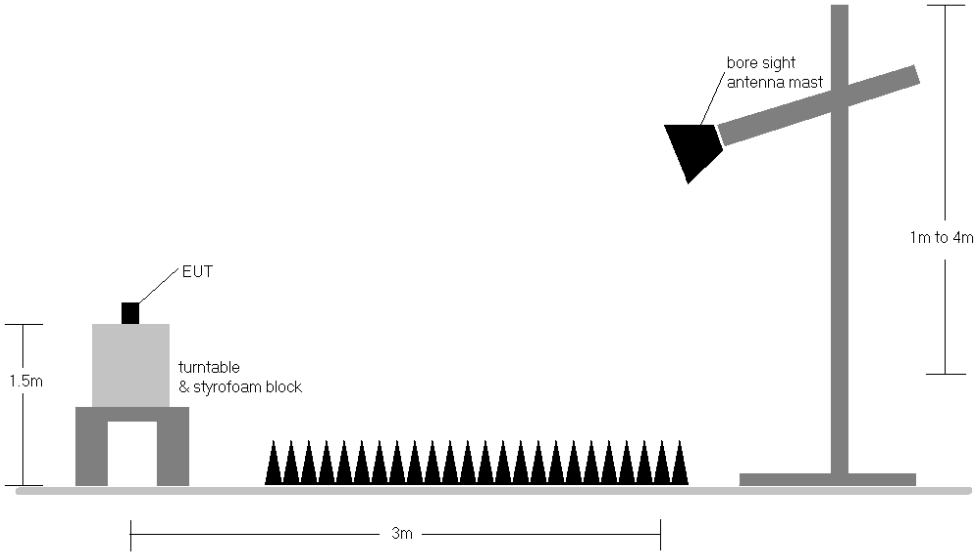


Figure 7-6. Radiated Test Setup >1GHz

Test Notes

1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst-case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.

2) This unit was tested with its standard battery.

3) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst-case configuration. All modes of operation were investigated, and the worst-case configuration results are reported in this section.

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
100 MHz	π/2 BPSK	3750.00	H	117	143	7.01	1 / 136	21.17	**28.18**	0.658	30.00	-1.82
	π/2 BPSK	3840.00	H	121	146	7.15	1 / 1	20.70	27.85	0.610	30.00	-2.15
	π/2 BPSK	3930.00	H	127	145	7.39	1 / 136	20.21	27.60	0.576	30.00	-2.40
	QPSK	3750.00	H	117	143	7.01	1 / 136	21.02	28.03	0.636	30.00	-1.97
	QPSK	3840.00	H	121	146	7.15	1 / 1	20.69	27.84	0.609	30.00	-2.16
	QPSK	3930.00	H	127	145	7.39	1 / 136	20.22	27.61	0.577	30.00	-2.39
	16-QAM	3750.00	H	117	143	7.01	1 / 136	20.16	27.17	0.522	30.00	-2.83
	16-QAM	3840.00	H	121	146	7.15	1 / 1	19.48	26.63	0.461	30.00	-3.37
	16-QAM	3930.00	H	127	145	7.39	1 / 136	19.39	26.78	0.477	30.00	-3.22
90 MHz	π/2 BPSK	3745.02	H	117	143	7.00	1 / 243	21.06	**28.06**	0.640	30.00	-1.94
	π/2 BPSK	3840.00	H	121	146	7.15	1 / 1	20.61	27.76	0.597	30.00	-2.24
	π/2 BPSK	3934.98	H	127	145	7.40	1 / 122	20.30	27.70	0.589	30.00	-2.30
	QPSK	3745.02	H	117	143	7.00	1 / 243	20.94	27.94	0.623	30.00	-2.06
	QPSK	3840.00	H	121	146	7.15	1 / 1	20.68	27.83	0.607	30.00	-2.17
	QPSK	3934.98	H	127	145	7.40	1 / 122	20.34	27.74	0.594	30.00	-2.26
	16-QAM	3745.02	H	117	143	7.00	1 / 243	20.18	27.18	0.523	30.00	-2.82
	16-QAM	3840.00	H	121	146	7.15	1 / 1	19.55	26.70	0.468	30.00	-3.30
	16-QAM	3934.98	H	127	145	7.40	1 / 122	19.50	26.90	0.490	30.00	-3.10
80 MHz	π/2 BPSK	3740.01	H	117	143	6.99	1 / 215	21.35	**28.33**	0.682	30.00	-1.67
	π/2 BPSK	3840.00	H	121	146	7.15	1 / 215	20.64	27.79	0.602	30.00	-2.21
	π/2 BPSK	3939.99	H	127	145	7.41	1 / 108	20.24	27.65	0.582	30.00	-2.35
	QPSK	3740.01	H	117	143	6.99	1 / 215	21.22	28.20	0.661	30.00	-1.80
	QPSK	3840.00	H	121	146	7.15	1 / 215	20.68	27.83	0.607	30.00	-2.17
	QPSK	3939.99	H	127	145	7.41	1 / 108	20.37	27.78	0.600	30.00	-2.22
	16-QAM	3740.01	H	117	143	6.99	1 / 215	20.41	27.39	0.549	30.00	-2.61
	16-QAM	3840.00	H	121	146	7.15	1 / 215	19.27	26.42	0.439	30.00	-3.58
	16-QAM	3939.99	H	127	145	7.41	1 / 108	19.61	27.02	0.504	30.00	-2.98
70 MHz	π/2 BPSK	3735.00	H	117	143	6.97	1 / 187	21.43	**28.40**	0.693	30.00	-1.60
	π/2 BPSK	3840.00	H	121	146	7.15	1 / 1	20.62	27.77	0.599	30.00	-2.23
	π/2 BPSK	3945.00	H	127	145	7.42	1 / 94	20.02	27.44	0.555	30.00	-2.56
	QPSK	3735.00	H	117	143	6.97	1 / 187	21.30	28.27	0.672	30.00	-1.73
	QPSK	3840.00	H	121	146	7.15	1 / 1	20.68	27.83	0.607	30.00	-2.17
	QPSK	3945.00	H	127	145	7.42	1 / 94	20.15	27.57	0.572	30.00	-2.43
	16-QAM	3735.00	H	117	143	6.97	1 / 187	20.49	27.46	0.558	30.00	-2.54
	16-QAM	3840.00	H	121	146	7.15	1 / 1	19.32	26.47	0.444	30.00	-3.53
	16-QAM	3945.00	H	127	145	7.42	1 / 94	19.48	26.90	0.490	30.00	-3.10
60 MHz	π/2 BPSK	3730.02	H	117	143	6.96	1 / 160	21.36	**28.31**	0.678	30.00	-1.69
	π/2 BPSK	3840.00	H	121	146	7.15	1 / 1	20.63	27.78	0.600	30.00	-2.22
	π/2 BPSK	3949.98	H	127	145	7.43	1 / 81	20.12	27.54	0.568	30.00	-2.46
	QPSK	3730.02	H	117	143	6.96	1 / 160	21.23	28.18	0.658	30.00	-1.82
	QPSK	3840.00	H	121	146	7.15	1 / 1	20.71	27.86	0.611	30.00	-2.14
	QPSK	3949.98	H	127	145	7.43	1 / 81	20.19	27.61	0.577	30.00	-2.39
	16-QAM	3730.02	H	117	143	6.96	1 / 160	20.41	27.36	0.545	30.00	-2.64
	16-QAM	3840.00	H	121	146	7.15	1 / 1	19.22	26.37	0.434	30.00	-3.63
	16-QAM	3949.98	H	127	145	7.43	1 / 81	19.27	26.69	0.467	30.00	-3.31
50 MHz	π/2 BPSK	3725.01	H	117	143	6.94	1 / 131	21.03	**27.97**	0.627	30.00	-2.03
	π/2 BPSK	3840.00	H	121	146	7.15	1 / 1	20.70	27.85	0.610	30.00	-2.15
	π/2 BPSK	3954.99	H	127	145	7.43	1 / 1	20.05	27.48	0.560	30.00	-2.52
	QPSK	3725.01	H	117	143	6.94	1 / 131	20.89	27.83	0.607	30.00	-2.17
	QPSK	3840.00	H	121	146	7.15	1 / 1	20.77	27.92	0.620	30.00	-2.08
	QPSK	3954.99	H	127	145	7.43	1 / 1	20.20	27.63	0.580	30.00	-2.37
	16-QAM	3725.01	H	117	143	6.94	1 / 131	20.12	27.06	0.509	30.00	-2.94
	16-QAM	3840.00	H	121	146	7.15	1 / 1	19.35	26.50	0.447	30.00	-3.50
	16-QAM	3954.99	H	127	145	7.43	1 / 1	19.31	26.74	0.472	30.00	-3.26
40 MHz	π/2 BPSK	3720.00	H	117	143	6.93	1 / 53	20.98	27.90	0.617	30.00	-2.10
	π/2 BPSK	3840.00	H	121	146	7.15	1 / 1	20.71	27.86	0.611	30.00	-2.14
	π/2 BPSK	3960.00	H	127	145	7.44	1 / 1	20.06	27.50	0.563	30.00	-2.50
	QPSK	3720.00	H	117	143	6.93	1 / 53	20.81	27.73	0.594	30.00	-2.27
	QPSK	3840.00	H	121	146	7.15	1 / 1	20.81	**27.96**	0.626	30.00	-2.04
	QPSK	3960.00	H	127	145	7.44	1 / 1	20.22	27.66	0.584	30.00	-2.34
	16-QAM	3720.00	H	117	143	6.93	1 / 53	19.86	26.78	0.477	30.00	-3.22
	16-QAM	3840.00	H	121	146	7.15	1 / 1	19.48	26.63	0.461	30.00	-3.37
	16-QAM	3960.00	H	127	145	7.44	1 / 1	19.44	26.88	0.488	30.00	-3.12
30 MHz	π/2 BPSK	3715.02	H	117	143	6.91	1 / 39	20.92	27.83	0.607	30.00	-2.17
	π/2 BPSK	3840.00	H	121	146	7.15	1 / 1	20.70	27.85	0.610	30.00	-2.15
	π/2 BPSK	3964.98	H	127	145	7.45	1 / 1	19.90	27.35	0.543	30.00	-2.65
	QPSK	3715.02	H	117	143	6.91	1 / 39	20.78	27.69	0.588	30.00	-2.31
	QPSK	3840.00	H	121	146	7.15	1 / 1	20.77	**27.92**	0.620	30.00	-2.08
	QPSK	3964.98	H	127	145	7.45	1 / 1	20.09	27.54	0.568	30.00	-2.46
	16-QAM	3715.02	H	117	143	6.91	1 / 39	19.93	26.84	0.484	30.00	-3.16
	16-QAM	3840.00	H	121	146	7.15	1 / 1	19.46	26.61	0.458	30.00	-3.39
	16-QAM	3964.98	H	127	145	7.45	1 / 1	19.22	26.67	0.465	30.00	-3.33
25 MHz	π/2 BPSK	3712.50	H	124	140	6.91	1 / 32	21.02	**27.92**	0.620	30.00	-2.08
	π/2 BPSK	3840.00	H	124	140	7.15	1 / 1	20.68	27.83	0.607	30.00	-2.17
	π/2 BPSK	3967.50	H	124	140	7.46	1 / 1	19.68	27.13	0.517	30.00	-2.87
	QPSK	3712.50	H	124	140	6.91	1 / 32	21.01	27.91	0.619	30.00	-2.09
	QPSK	3840.00	H	124	140	7.15	1 / 1	20.75	27.90	0.617	30.00	-2.10
	QPSK	3967.50	H	124	140	7.46	1 / 1	19.88	27.33	0.541	30.00	-2.67
	16-QAM	3712.50	H	124	140	6.91	1 / 32	20.11	27.01	0.503	30.00	-2.99
	16-QAM	3840.00	H	124	140	7.15	1 / 1	19.50	26.65	0.463	30.00	-3.35
	16-QAM	3967.50	H	124	140	7.46	1 / 1	18.98	26.43	0.440	30.00	-3.57
20 MHz	π/2 BPSK	3710.01	H	117	143	6.90	1 / 25	21.00	**27.90**	0.617	30.00	-2.10
	π/2 BPSK	3840.00	H	121	146	7.15	1 / 1	20.63	27.78	0.600	30.00	-2.22
	π/2 BPSK	3969.99	H	127	145	7.46	1 / 49	19.67	27.13	0.517	30.00	-2.87
	QPSK	3710.01	H	117	143	6.90	1 / 25	20.91	27.81	0.605	30.00	-2.19
	QPSK	3840.00	H	121	146	7.15	1 / 1	20.67	27.82	0.606	30.00	-2.18
	QPSK	3969.99	H	127	145	7.46	1 / 49	19.84	27.30	0.537	30.00	-2.70
	16-QAM	3710.01	H	117	143	6.90	1 / 25	19.96	26.86	0.486	30.00	-3.14
	16-QAM	3840.00	H	121	146	7.15	1 / 1	19.37	26.52	0.449	30.00	-3.48
	16-QAM	3969.99	H	127	145	7.46	1 / 49	19.07	26.53	0.450	30.00	-3.47
15 MHz	π/2 BPSK	3707.52	H	117	143	6.89	1 / 36	20.98	**27.87**	0.613	30.00	-2.13
	π/2 BPSK	3840.00	H	121	146	7.15	1 / 1	20.59	27.74	0.595	30.00	-2.26
	π/2 BPSK	3972.48	H	127	145	7.46	1 / 36	19.71	27.17	0.521	30.00	-2.83
	QPSK	3707.52	H	117	143	6.89	1 / 36	20.89	27.78	0.600	30.00	-2.22
	QPSK	3840.00	H	121	146	7.15	1 / 1	20.58	27.73	0.593	30.00	-2.27
	QPSK	3972.48	H	127	145	7.46	1 / 36	19.88	27.34	0.542	30.00	-2.66
	16-QAM	3707.52	H	117	143	6.89	1 / 36	19.98	26.87	0.487	30.00	-3.13
	16-QAM	3840.00	H	121	146	7.15	1 / 1	19.43	26.58	0.455	30.00	-3.42
	16-QAM	3972.48	H	127	145	7.46	1 / 36	19.06	26.52	0.449	30.00	-3.48
10 MHz	π/2 BPSK	3705.00	H	117	143	6.89	1 / 12	20.99	**27.87**	0.613	30.00	-2.13
	π/2 BPSK	3840.00	H	121	146	7.15	1 / 1	20.51	27.66	0.584	30.00	-2.34
	π/2 BPSK	3975.00	H	127	145	7.47	1 / 22	19.62	27.09	0.512	30.00	-2.91
	QPSK	3705.00	H	117	143	6.89	1 / 12	20.88	27.76	0.598	30.00	-2.24
	QPSK	3840.00	H	121	146	7.15	1 / 1	20.52	27.67	0.585	30.00	-2.33
	QPSK	3975.00	H	127	145	7.47	1 / 22	19.80	27.27	0.533	30.00	-2.73
	16-QAM	3705.00	H	117	143	6.89	1 / 12	19.88	26.76	0.475	30.00	-3.24
	16-QAM	3840.00	H	121	146	7.15	1 / 1	19.31	26.46	0.443	30.00	-3.54
	16-QAM	3975.00	H	127	145	7.47	1 / 22	18.98	26.45	0.442	30.00	-3.55
100 MHz	QPSK (CP-OFDM)	3750.00	H	127	143	7.01	1 / 136	19.66	26.67	0.465	30.00	-3.33

Table 7-11. EIRP Data (NR Band n77 PC2 C-Band)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
100 MHz	π/2 BPSK	3500.01	H	124	140	6.46	1 / 271	20.33	26.79	0.478	30.00	-3.21
	QPSK	3500.01	H	124	140	6.46	1 / 271	20.65	**27.11**	0.515	30.00	-2.89
	16-QAM	3500.01	H	124	140	6.46	1 / 271	19.49	25.95	0.394	30.00	-4.05
90 MHz	π/2 BPSK	3495.00	H	124	140	6.46	1 / 243	20.34	26.79	0.478	30.00	-3.21
	π/2 BPSK	3500.01	H	124	140	6.46	1 / 243	20.37	26.83	0.482	30.00	-3.17
	π/2 BPSK	3504.99	H	124	140	6.47	1 / 243	20.38	26.84	0.484	30.00	-3.16
	QPSK	3495.00	H	124	140	6.46	1 / 243	20.62	27.07	0.510	30.00	-2.93
	QPSK	3500.01	H	124	140	6.46	1 / 243	20.64	27.10	0.513	30.00	-2.90
	QPSK	3504.99	H	124	140	6.47	1 / 243	20.67	**27.13**	0.517	30.00	-2.87
	16-QAM	3495.00	H	124	140	6.46	1 / 243	19.41	25.86	0.386	30.00	-4.14
	16-QAM	3500.01	H	124	140	6.46	1 / 243	19.40	25.86	0.386	30.00	-4.14
	16-QAM	3504.99	H	124	140	6.47	1 / 243	19.32	25.78	0.379	30.00	-4.22
80 MHz	π/2 BPSK	3490.02	H	124	140	6.45	1 / 215	20.50	26.95	0.496	30.00	-3.05
	π/2 BPSK	3500.01	H	124	140	6.46	1 / 215	20.42	26.88	0.488	30.00	-3.12
	π/2 BPSK	3510.00	H	124	140	6.47	1 / 215	20.34	26.81	0.480	30.00	-3.19
	QPSK	3490.02	H	124	140	6.45	1 / 215	20.79	**27.24**	0.530	30.00	-2.76
	QPSK	3500.01	H	124	140	6.46	1 / 215	20.77	27.23	0.529	30.00	-2.77
	QPSK	3510.00	H	124	140	6.47	1 / 215	20.64	27.11	0.515	30.00	-2.89
	16-QAM	3490.02	H	124	140	6.45	1 / 215	19.56	26.01	0.399	30.00	-3.99
	16-QAM	3500.01	H	124	140	6.46	1 / 215	19.56	26.02	0.400	30.00	-3.98
	16-QAM	3510.00	H	124	140	6.47	1 / 215	19.42	25.89	0.389	30.00	-4.11
70 MHz	π/2 BPSK	3485.01	H	124	140	6.45	1 / 187	20.35	26.79	0.478	30.00	-3.21
	π/2 BPSK	3500.01	H	124	140	6.46	1 / 187	20.50	26.96	0.497	30.00	-3.04
	π/2 BPSK	3514.98	H	124	140	6.47	1 / 187	20.47	26.94	0.495	30.00	-3.06
	QPSK	3485.01	H	124	140	6.45	1 / 187	20.57	27.01	0.503	30.00	-2.99
	QPSK	3500.01	H	124	140	6.46	1 / 187	20.79	**27.25**	0.531	30.00	-2.75
	QPSK	3514.98	H	124	140	6.47	1 / 187	20.78	**27.25**	0.531	30.00	-2.75
	16-QAM	3485.01	H	124	140	6.45	1 / 187	19.40	25.84	0.384	30.00	-4.16
	16-QAM	3500.01	H	124	140	6.46	1 / 187	19.54	26.00	0.399	30.00	-4.00
	16-QAM	3514.98	H	124	140	6.47	1 / 187	19.55	26.02	0.400	30.00	-3.98
60 MHz	π/2 BPSK	3480.00	H	124	140	6.44	1 / 160	20.16	26.60	0.458	30.00	-3.40
	π/2 BPSK	3500.01	H	124	140	6.46	1 / 160	20.54	27.00	0.502	30.00	-3.00
	π/2 BPSK	3519.99	H	124	140	6.48	1 / 81	20.58	27.05	0.508	30.00	-2.95
	QPSK	3480.00	H	124	140	6.44	1 / 160	20.43	26.87	0.487	30.00	-3.13
	QPSK	3500.01	H	124	140	6.46	1 / 160	20.84	27.30	0.538	30.00	-2.70
	QPSK	3519.99	H	124	140	6.48	1 / 81	20.91	**27.38**	0.548	30.00	-2.62
	16-QAM	3480.00	H	124	140	6.44	1 / 160	19.28	25.72	0.374	30.00	-4.28
	16-QAM	3500.01	H	124	140	6.46	1 / 160	19.42	25.88	0.388	30.00	-4.12
	16-QAM	3519.99	H	124	140	6.48	1 / 81	19.59	26.06	0.404	30.00	-3.94
50 MHz	π/2 BPSK	3475.02	H	124	140	6.43	1 / 66	20.18	26.61	0.459	30.00	-3.39
	π/2 BPSK	3500.01	H	124	140	6.46	1 / 131	20.48	26.94	0.495	30.00	-3.06
	π/2 BPSK	3525.00	H	124	140	6.48	1 / 66	20.62	27.09	0.512	30.00	-2.91
	QPSK	3475.02	H	124	140	6.43	1 / 66	20.43	26.86	0.486	30.00	-3.14
	QPSK	3500.01	H	124	140	6.46	1 / 131	20.76	27.22	0.528	30.00	-2.78
	QPSK	3525.00	H	124	140	6.48	1 / 66	20.89	**27.36**	0.545	30.00	-2.64
	16-QAM	3475.02	H	124	140	6.43	1 / 66	19.09	25.52	0.357	30.00	-4.48
	16-QAM	3500.01	H	124	140	6.46	1 / 131	19.50	25.96	0.395	30.00	-4.04
	16-QAM	3525.00	H	124	140	6.48	1 / 66	19.66	26.13	0.411	30.00	-3.87
40 MHz	π/2 BPSK	3470.01	H	124	140	6.43	1 / 53	20.14	26.56	0.453	30.00	-3.44
	π/2 BPSK	3500.01	H	124	140	6.46	1 / 104	20.39	26.85	0.485	30.00	-3.15
	π/2 BPSK	3529.98	H	124	140	6.48	1 / 53	20.70	27.18	0.523	30.00	-2.82
	QPSK	3470.01	H	124	140	6.43	1 / 53	20.46	26.88	0.488	30.00	-3.12
	QPSK	3500.01	H	124	140	6.46	1 / 104	20.72	27.18	0.523	30.00	-2.82
	QPSK	3529.98	H	124	140	6.48	1 / 53	20.94	**27.42**	0.553	30.00	-2.58
	16-QAM	3470.01	H	124	140	6.43	1 / 53	19.19	25.61	0.364	30.00	-4.39
	16-QAM	3500.01	H	124	140	6.46	1 / 104	19.44	25.90	0.389	30.00	-4.10
	16-QAM	3529.98	H	124	140	6.48	1 / 53	19.76	26.24	0.421	30.00	-3.76
30 MHz	π/2 BPSK	3465.00	H	124	140	6.42	1 / 39	20.09	26.51	0.448	30.00	-3.49
	π/2 BPSK	3500.01	H	124	140	6.46	1 / 76	20.31	26.77	0.476	30.00	-3.23
	π/2 BPSK	3534.99	H	124	140	6.48	1 / 39	20.71	27.19	0.524	30.00	-2.81
	QPSK	3465.00	H	124	140	6.42	1 / 39	20.39	26.81	0.480	30.00	-3.19
	QPSK	3500.01	H	124	140	6.46	1 / 76	20.63	27.09	0.512	30.00	-2.91
	QPSK	3534.99	H	124	140	6.48	1 / 39	20.95	**27.43**	0.554	30.00	-2.57
	16-QAM	3465.00	H	124	140	6.42	1 / 39	19.22	25.64	0.367	30.00	-4.36
	16-QAM	3500.01	H	124	140	6.46	1 / 76	19.32	25.78	0.379	30.00	-4.22
	16-QAM	3534.99	H	124	140	6.48	1 / 39	19.86	26.34	0.431	30.00	-3.66
25 MHz	π/2 BPSK	3462.51	H	124	140	6.42	1 / 32	20.12	26.53	0.450	30.00	-3.47
	π/2 BPSK	3500.01	H	124	140	6.46	1 / 63	20.25	26.71	0.469	30.00	-3.29
	π/2 BPSK	3537.48	H	124	140	6.48	1 / 32	20.53	27.01	0.503	30.00	-2.99
	QPSK	3462.51	H	124	140	6.42	1 / 32	20.48	26.89	0.489	30.00	-3.11
	QPSK	3500.01	H	124	140	6.46	1 / 63	20.57	27.03	0.505	30.00	-2.97
	QPSK	3537.48	H	124	140	6.48	1 / 32	20.82	**27.30**	0.538	30.00	-2.70
	16-QAM	3462.51	H	124	140	6.42	1 / 32	19.18	25.59	0.363	30.00	-4.41
	16-QAM	3500.01	H	124	140	6.46	1 / 63	19.28	25.74	0.375	30.00	-4.26
	16-QAM	3537.48	H	124	140	6.48	1 / 32	19.52	26.00	0.399	30.00	-4.00
20 MHz	π/2 BPSK	3460.02	H	124	140	6.42	1 / 49	20.14	26.55	0.452	30.00	-3.45
	π/2 BPSK	3500.01	H	124	140	6.46	1 / 49	20.22	26.68	0.466	30.00	-3.32
	π/2 BPSK	3540.00	H	124	140	6.49	1 / 1	20.58	27.06	0.509	30.00	-2.94
	QPSK	3460.02	H	124	140	6.42	1 / 49	20.45	26.86	0.486	30.00	-3.14
	QPSK	3500.01	H	124	140	6.46	1 / 49	20.50	26.96	0.497	30.00	-3.04
	QPSK	3540.00	H	124	140	6.49	1 / 1	20.88	**27.36**	0.545	30.00	-2.64
	16-QAM	3460.02	H	124	140	6.42	1 / 49	19.20	25.61	0.364	30.00	-4.39
	16-QAM	3500.01	H	124	140	6.46	1 / 49	19.31	25.77	0.378	30.00	-4.23
	16-QAM	3540.00	H	124	140	6.49	1 / 1	19.55	26.03	0.401	30.00	-3.97
15 MHz	π/2 BPSK	3457.50	H	124	140	6.41	1 / 36	20.07	26.48	0.445	30.00	-3.52
	π/2 BPSK	3500.01	H	124	140	6.46	1 / 36	20.17	26.63	0.461	30.00	-3.37
	π/2 BPSK	3542.49	H	124	140	6.49	1 / 19	20.57	27.05	0.508	30.00	-2.95
	QPSK	3457.50	H	124	140	6.41	1 / 36	20.39	26.80	0.479	30.00	-3.20
	QPSK	3500.01	H	124	140	6.46	1 / 36	20.50	26.96	0.497	30.00	-3.04
	QPSK	3542.49	H	124	140	6.49	1 / 19	21.00	**27.48**	0.560	30.00	-2.52
	16-QAM	3457.50	H	124	140	6.41	1 / 36	19.14	25.55	0.359	30.00	-4.45
	16-QAM	3500.01	H	124	140	6.46	1 / 36	19.15	25.61	0.364	30.00	-4.39
	16-QAM	3542.49	H	124	140	6.49	1 / 19	19.66	26.14	0.412	30.00	-3.86
10 MHz	π/2 BPSK	3455.01	H	124	140	6.41	1 / 1	20.11	26.51	0.448	30.00	-3.49
	π/2 BPSK	3500.01	H	124	140	6.46	1 / 22	20.14	26.60	0.458	30.00	-3.40
	π/2 BPSK	3544.98	H	124	140	6.49	1 / 12	20.63	27.11	0.515	30.00	-2.89
	QPSK	3455.01	H	124	140	6.41	1 / 1	20.39	26.79	0.478	30.00	-3.21
	QPSK	3500.01	H	124	140	6.46	1 / 22	20.43	26.89	0.489	30.00	-3.11
	QPSK	3544.98	H	124	140	6.49	1 / 12	20.87	**27.35**	0.544	30.00	-2.65
	16-QAM	3455.01	H	124	140	6.41	1 / 1	19.13	25.53	0.358	30.00	-4.47
	16-QAM	3500.01	H	124	140	6.46	1 / 22	19.15	25.61	0.364	30.00	-4.39
	16-QAM	3544.98	H	124	140	6.49	1 / 12	19.59	26.07	0.405	30.00	-3.93
100 MHz	QPSK (CP-OFDM)	3500.0	H	124	140	6.46	1 / 136	19.69	26.15	0.413	30.00	-3.85

Table 7-12. EIRP Data (NR Band n77 PC2 DoD Band)

7.8 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using hybrid (biconical/log) antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

ANSI C63.26-2015 – Section 5.5.4

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW ≥ 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points ≥ 2 x span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

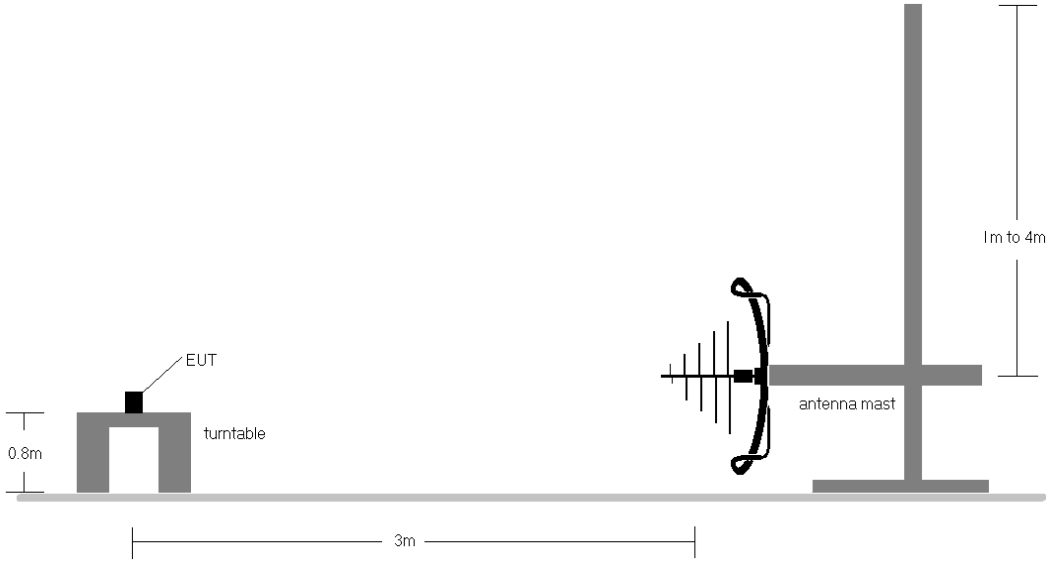


Figure 7-7. Test Instrument & Measurement Setup < 1GHz

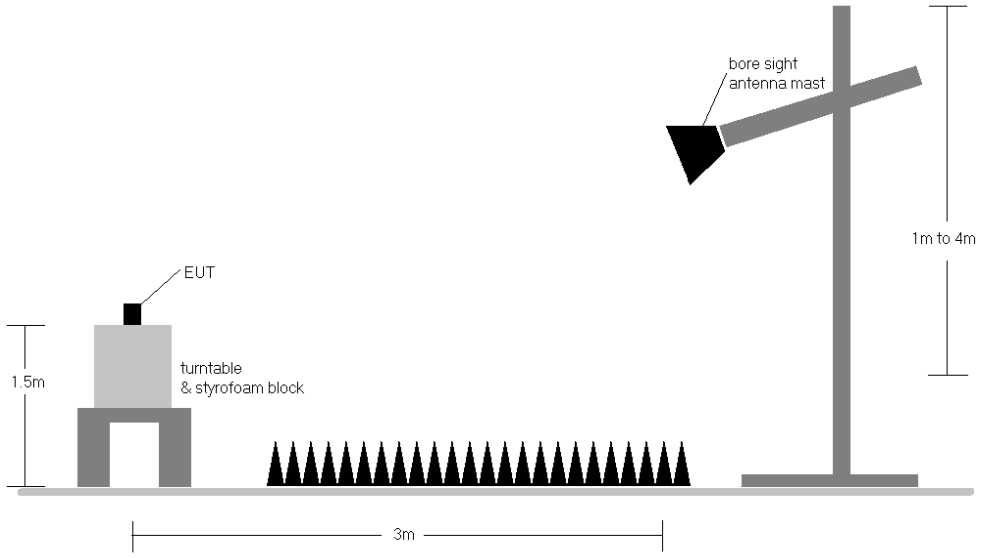


Figure 7-8. Test Instrument & Measurement Setup >1 GHz

Test Notes

1) Field strengths are calculated using the Measurement quantity conversions in ANSI C63.26-2015 Section 5.2.7:

   b) E(dBµV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m)
   d) EIRP (dBm) = E(dBµV/m) + 20logD – 104.8; where D is the measurement distance in meters.

2) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst-case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.

3) This unit was tested with its standard battery.

4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.

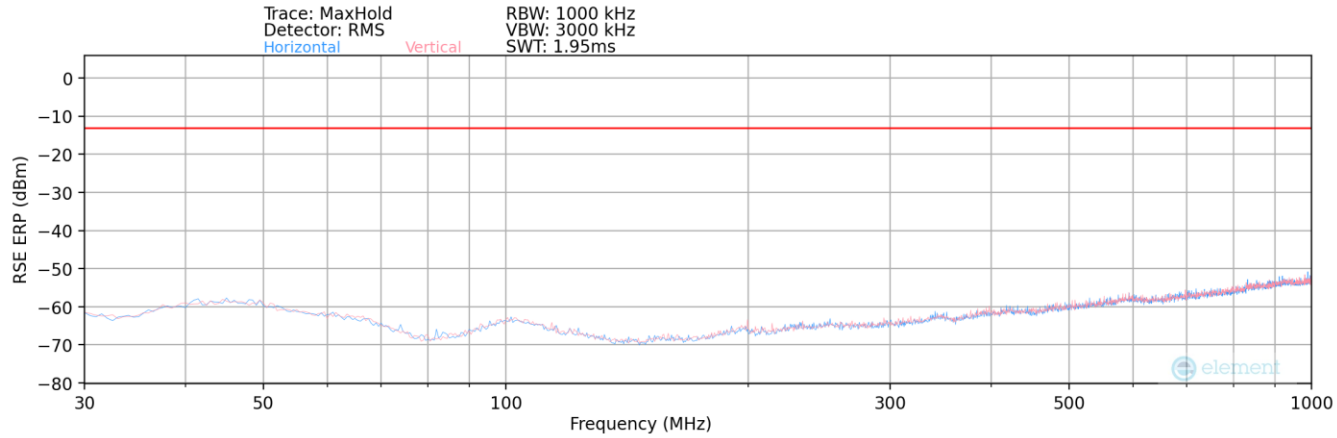
5) Emissions below 18GHz were measured at a 3-meter test distance while emissions above 18GHz were measured at a 1-meter test distance with the application of a distance correction factor.

6) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

7) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst-case configuration. All modes of operation were investigated, and the worst-case configuration results are reported in this section.

8) Spurious emission in EN-DC Operating mode with Sub 6GHz NR carrier as well as an LTE carrier (anchor) has been checked and was found to not to be the worst case. Spurious emissions from the NR carrier device are subject to the rules under which the NR carrier operates. Spurious emissions caused by the LTE carrier must meet the requirements of the rules under which the LTE carrier operates.

NR Band n77 PC2 C-Band

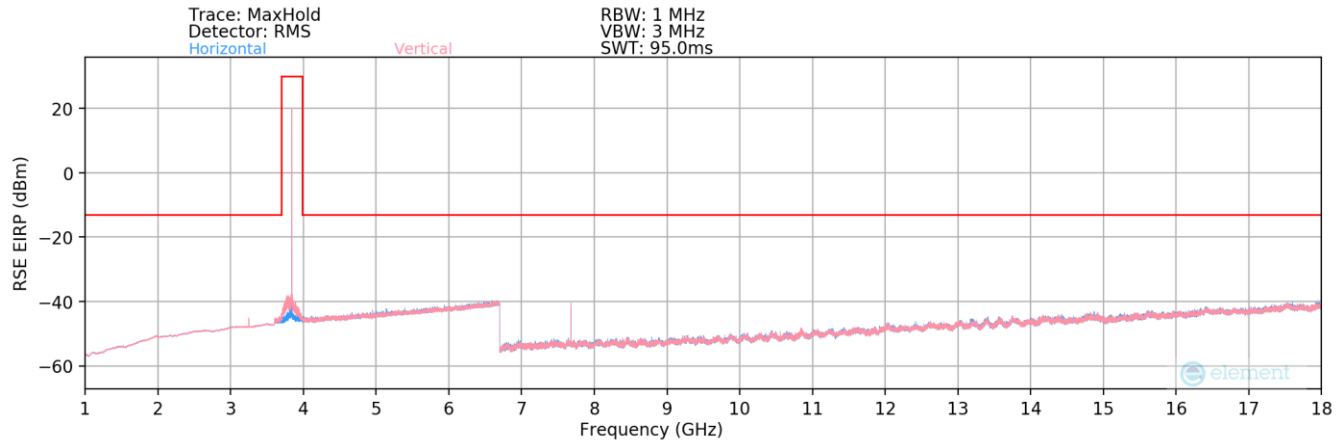


Plot 7-89. Radiated Spurious Plot – Below 1GHz (NR Band n77 PC2 C-Band)

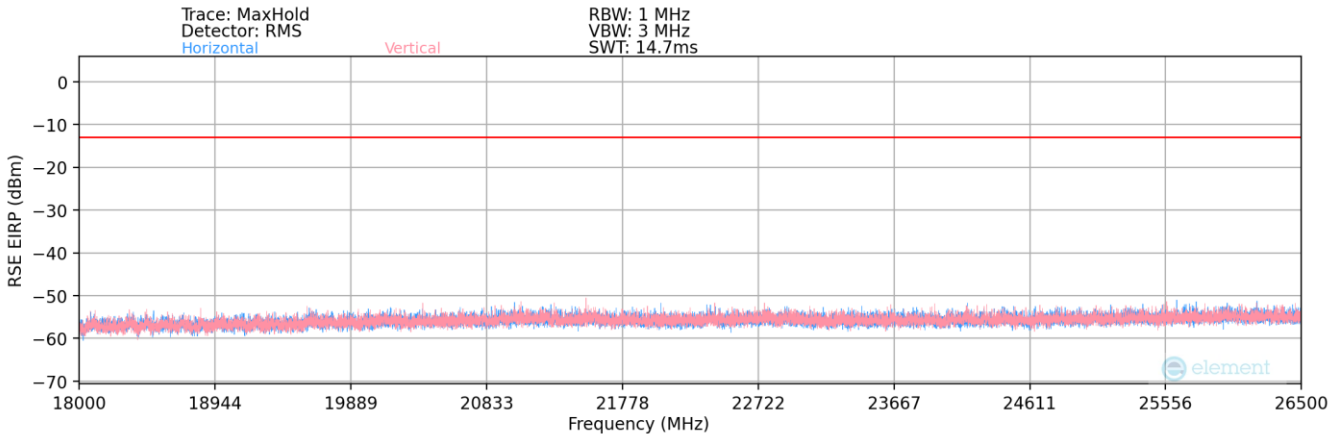
Bandwidth (MHz):	100
Frequency (MHz):	3930.00
RB / Offset:	1 / 136

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
187.24	V	-	-	-62.16	-14.43	30.41	-66.99	-13.00	-53.99

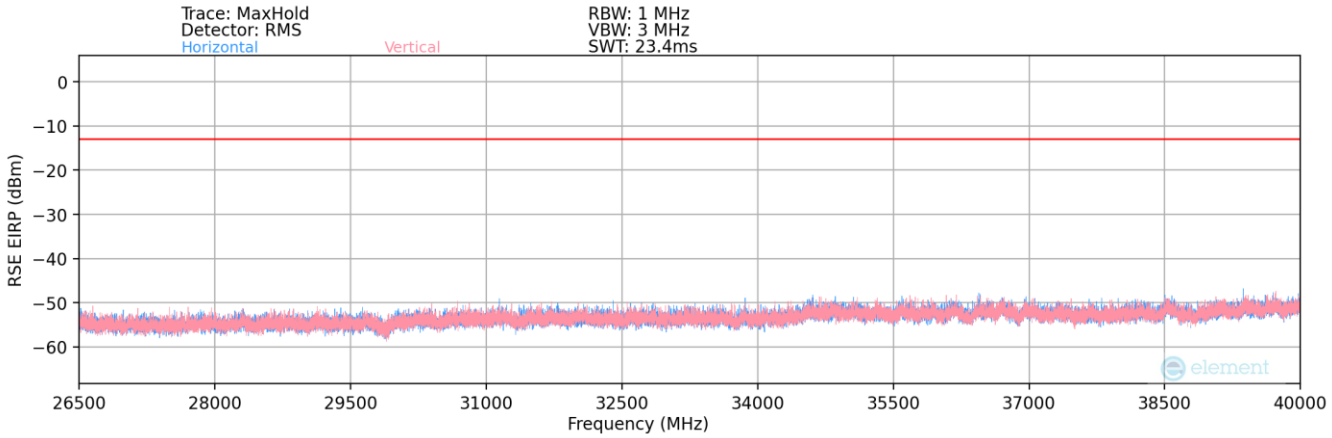
Table 7-13. Radiated Spurious Data Below 1GHz (NR Band n77 PC2 C-Band – Mid Channel)



Plot 7-90. Radiated Spurious Plot – 1GHz – 18GHz (NR Band n77 PC2 C-Band)



Plot 7-91. Radiated Spurious Plot – 18GHz – 26.5GHz (NR Band n77 PC2 C-Band)



Plot 7-92. Radiated Spurious Plot – 26.5GHz – 40GHz (NR Band n77 PC2 C-Band)

Bandwidth (MHz):	100
Frequency (MHz):	3750.00
RB / Offset:	1 / 136

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7500.00	V	133	44	-62.68	12.59	56.91	-38.35	-13.00	-25.35
11250.00	V	150	353	-78.87	18.24	46.37	-48.88	-13.00	-35.88
15000.00	V	-	-	-79.94	23.03	50.09	-45.16	-13.00	-32.16
18750.00	V	150	17	-55.05	1.53	53.49	-51.31	-13.00	-38.31
22500.00	V	150	352	-55.59	3.77	55.19	-49.61	-13.00	-36.61
26250.00	V	-	-	-56.02	4.18	55.16	-49.64	-13.00	-36.64
30000.00	V	-	-	-56.86	5.99	56.13	-48.67	-13.00	-35.67
33750.00	V	-	-	-57.65	7.49	56.84	-47.96	-13.00	-34.96

Table 7-14. Radiated Spurious Data (NR Band n77 PC2 C-Band – Low Channel)

Bandwidth (MHz):	100
Frequency (MHz):	3840.00
RB / Offset:	1 / 136

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7680.00	V	137	62	-64.03	13.02	55.99	-39.27	-13.00	-26.27
11520.00	V	159	13	-78.98	18.34	46.36	-48.90	-13.00	-35.90
15360.00	V	-	-	-79.83	23.20	50.37	-44.89	-13.00	-31.89
19200.00	V	150	20	-54.98	2.06	54.08	-50.72	-13.00	-37.72
23040.00	V	150	32	-54.49	3.74	56.26	-48.54	-13.00	-35.54
26880.00	V	-	-	-56.01	4.42	55.41	-49.39	-13.00	-36.39
30720.00	V	-	-	-57.02	6.66	56.64	-48.16	-13.00	-35.16
34560.00	V	-	-	-56.94	7.55	57.61	-47.19	-13.00	-34.19

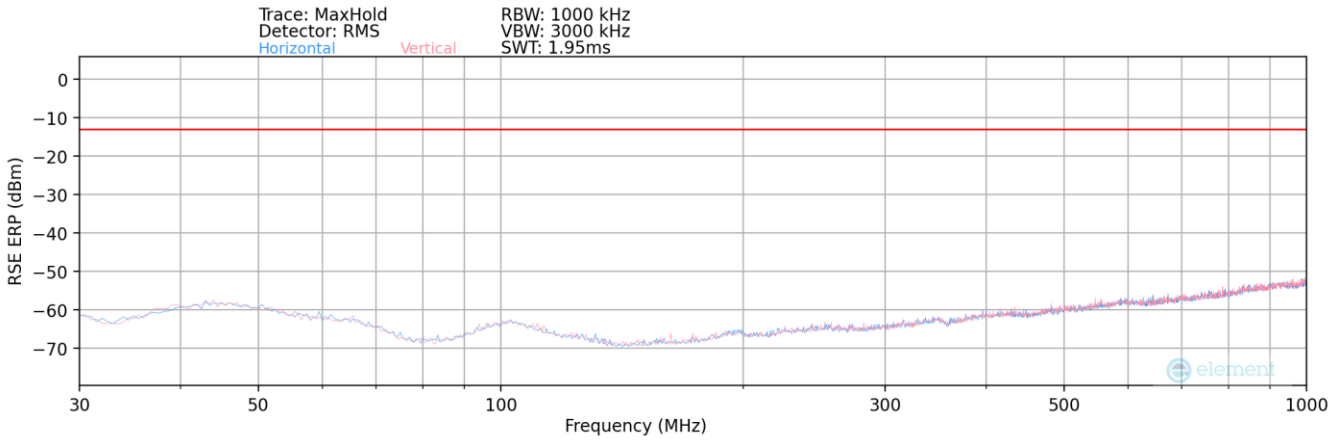
Table 7-15. Radiated Spurious Data (NR Band n77 PC2 C-Band – Mid Channel)

Bandwidth (MHz):	100
Frequency (MHz):	3930.00
RB / Offset:	1 / 136

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7860.00	V	153	292	-59.70	13.34	60.64	-34.62	-13.00	-21.62
11790.00	V	126	22	-76.32	18.45	49.13	-46.12	-13.00	-33.12
15720.00	V	-	-	-80.10	24.42	51.32	-43.94	-13.00	-30.94
19650.00	V	150	19	-54.26	2.49	55.23	-49.57	-13.00	-36.57
23580.00	V	150	346	-53.41	3.77	57.37	-47.43	-13.00	-34.43
27510.00	V	-	-	-56.46	4.33	54.88	-49.92	-13.00	-36.92
31440.00	V	-	-	-56.92	6.69	56.78	-48.02	-13.00	-35.02
35370.00	V	-	-	-57.95	8.67	57.72	-47.08	-13.00	-34.08

Table 7-16. Radiated Spurious Data (NR Band n77 PC2 C-Band – High Channel)

NR Band n77 PC2 DoD Band

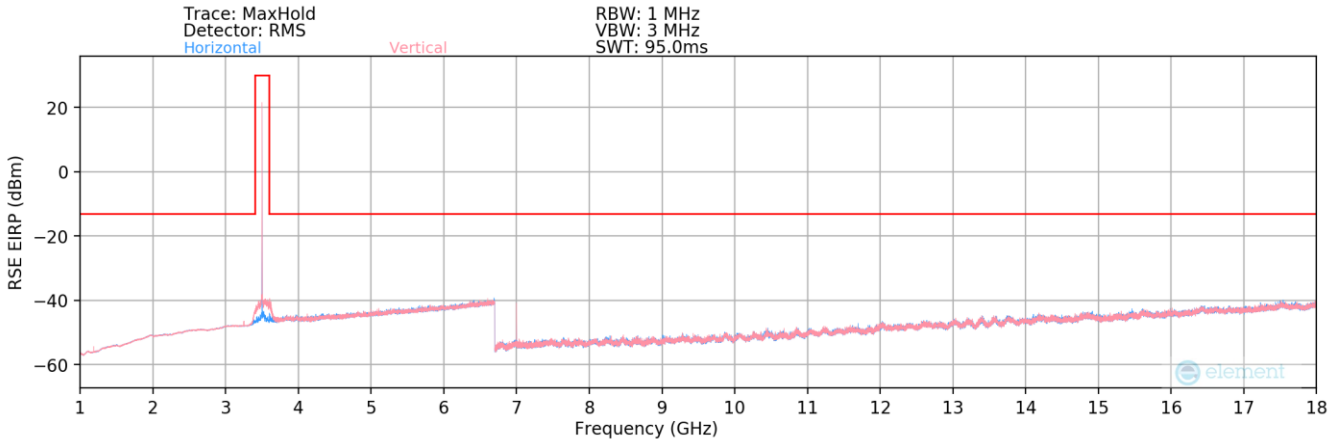


Plot 7-93. Radiated Spurious Plot – Below 1GHz (NR Band n77 PC2 DoD Band)

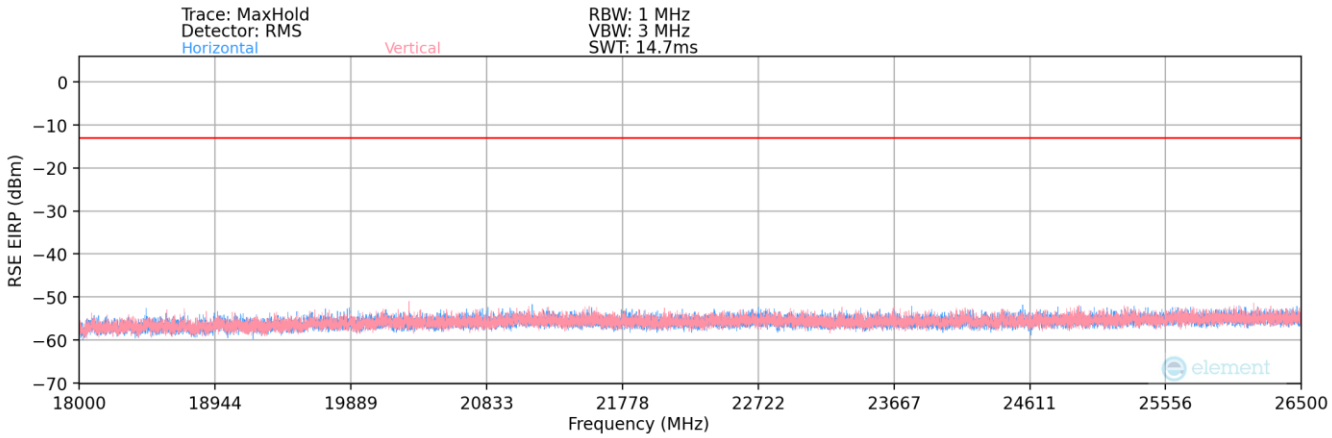
Bandwidth (MHz):	100
Frequency (MHz):	3930.00
RB / Offset:	1 / 136

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
633.93	V	-	-	-66.94	-4.59	35.47	-61.94	-13.00	-48.94

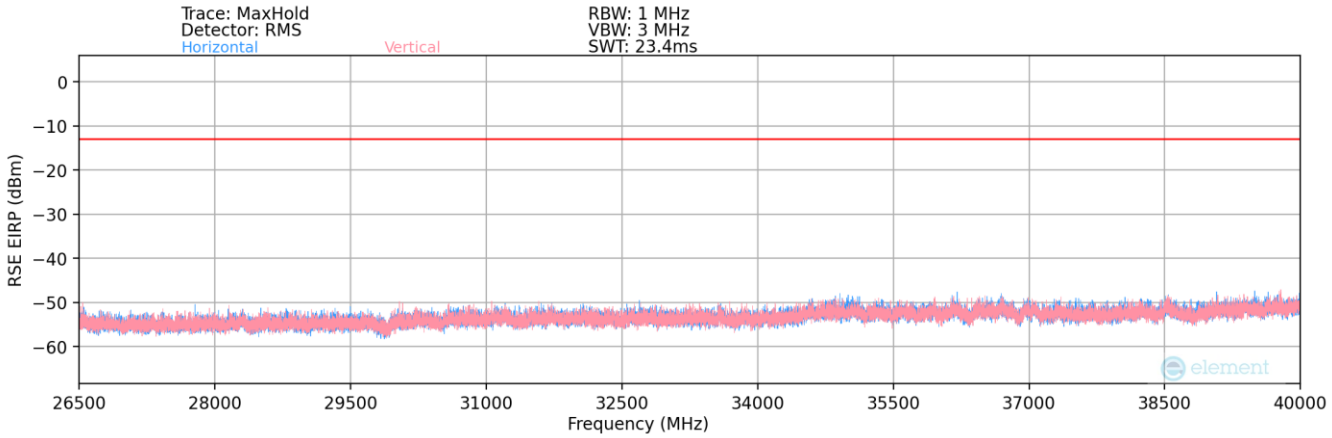
Table 7-17. Radiated Spurious Data Below 1GHz (NR Band n77 PC2 DoD Band – Mid Channel)



Plot 7-94. Radiated Spurious Plot – 1GHz – 18GHz (NR Band n77 PC2 DoD Band)



Plot 7-95. Radiated Spurious Plot – 18GHz – 26.5GHz (NR Band n77 PC2 DoD Band)



Plot 7-96. Radiated Spurious Plot – 26.5GHz – 40GHz (NR Band n77 PC2 DoD Band)

Bandwidth (MHz):	50
Frequency (MHz):	3500.01
RB / Offset:	1 / 136

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7000.02	V	181	113	-64.82	12.76	54.94	-40.32	-13.00	-27.32
10500.03	V	136	17	-77.36	17.16	46.80	-48.46	-13.00	-35.46
14000.04	V	127	333	-76.74	21.98	52.24	-43.02	-13.00	-30.02
17500.05	V	-	-	-80.24	27.33	54.09	-41.17	-13.00	-28.17
21000.06	V	150	307	-55.82	3.52	54.70	-50.10	-13.00	-37.10
24500.07	V	-	-	-56.76	3.88	54.13	-50.67	-13.00	-37.67
28000.08	V	-	-	-56.50	4.51	55.01	-49.79	-13.00	-36.79
31500.09	V	-	-	-57.00	7.25	57.24	-47.56	-13.00	-34.56

Table 7-18. Radiated Spurious Data (NR Band n77 PC2 DoD Band – Mid Channel)

7.9 Frequency Stability / Temperature Variation

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015. The frequency stability of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Procedure Used

ANSI C63.26-2015 – Section 5.6

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

Test Notes

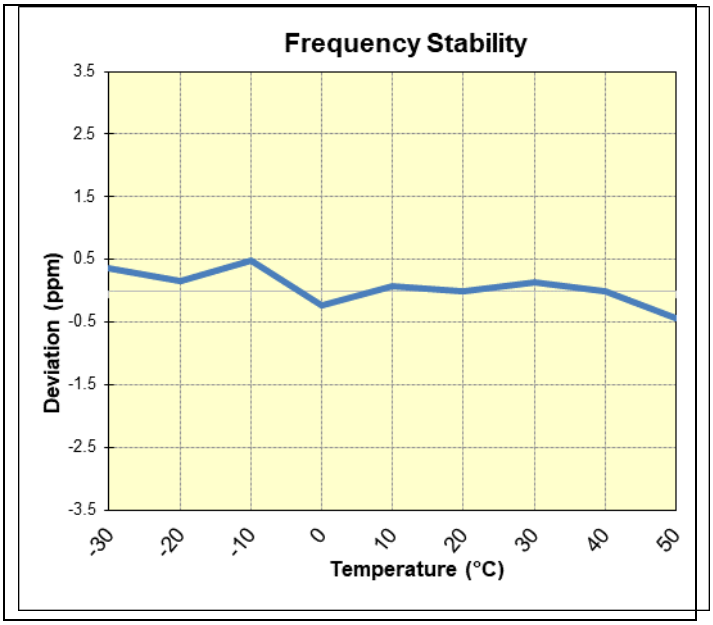
None

NR Band n77 C-Band

Operating Frequency (Hz):	3,840,000,000
Ref. Voltage (VDC):	4.414

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.414	- 30	3,840,165,366	1,358	0.0000354
		- 20	3,840,164,609	601	0.0000156
		- 10	3,840,165,886	1,877	0.0000489
		0	3,840,163,157	-852	-0.0000222
		+ 10	3,840,164,260	252	0.0000066
		+ 20 (Ref)	3,840,164,009	0	0.0000000
		+ 30	3,840,164,509	500	0.0000130
		+ 40	3,840,163,982	-27	-0.0000007
		+ 50	3,840,162,306	-1,703	-0.0000443
Battery Endpoint	3.774	+ 20	3,840,164,543	534	0.0000139

Table 7-19. NR Band n77 Frequency Stability Data



Plot 7-97. NR Band n77 Frequency Stability Chart

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMA356E** complies with all the requirements of Part 27 of the FCC rules.