Bandwidth (MHz):	100
Frequency (MHz):	3840.00
RB / Offset:	1 / 135
Mode:	Stand Alone

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	H	307	292	-74.87	6.59	38.72	-56.54	-13.00	-43.54
11520.00	H	-	-	-78.79	11.03	39.24	-56.02	-13.00	-43.02
15360.00	H	-	-	-79.93	15.23	42.30	-52.96	-13.00	-39.96
19200.00	H	150	31	-51.94	2.06	57.12	-47.68	-13.00	-34.68
23040.00	H	-	-	-56.92	3.74	53.82	-50.98	-13.00	-37.98
26880.00	H	-	-	-55.53	4.42	55.89	-48.91	-13.00	-35.91
30720.00	H	-	-	-56.70	6.66	56.96	-47.84	-13.00	-34.84

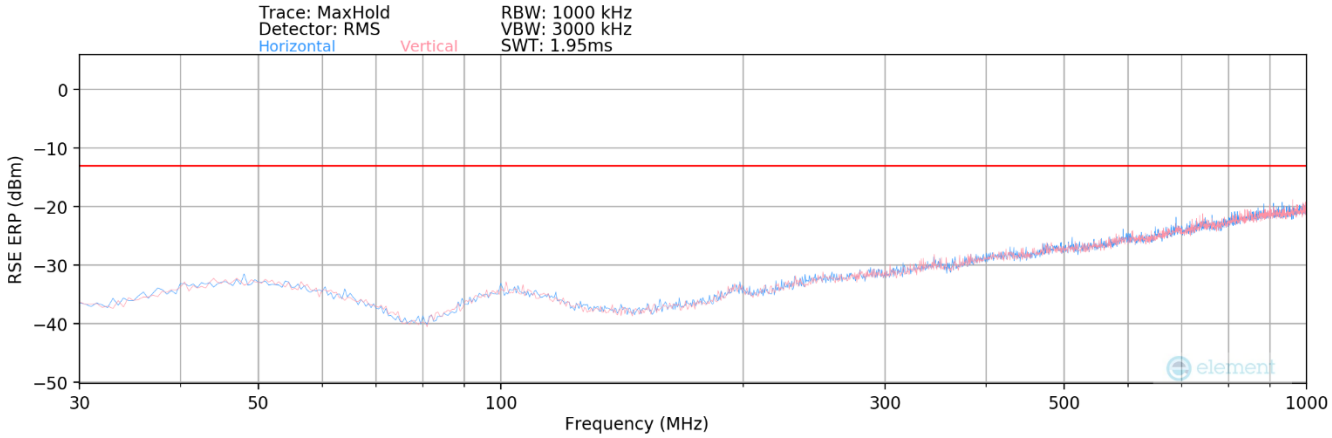
Table 7-48. Radiated Spurious Data (NR Band n77 – Mid Channel – Ant3)

Bandwidth (MHz):	100
Frequency (MHz):	3930.00
RB / Offset:	1 / 135
Mode:	Stand Alone

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	H	-	-	-76.71	7.56	37.85	-57.41	-13.00	-44.41
11790.00	H	-	-	-78.42	12.18	40.76	-54.50	-13.00	-41.50
15720.00	H	-	-	-79.53	14.16	41.63	-53.63	-13.00	-40.63
19650.00	H	150	134	-55.60	2.49	53.89	-50.91	-13.00	-37.91
23580.00	H	-	-	-57.03	3.77	53.75	-51.05	-13.00	-38.05
27510.00	H	-	-	-55.72	4.33	55.61	-49.19	-13.00	-36.19
31440.00	H	-	-	-55.94	6.69	57.75	-47.05	-13.00	-34.05

Table 7-49. Radiated Spurious Data (NR Band n77 – High Channel – Ant3)

NR Band n77 C Band – Ant5

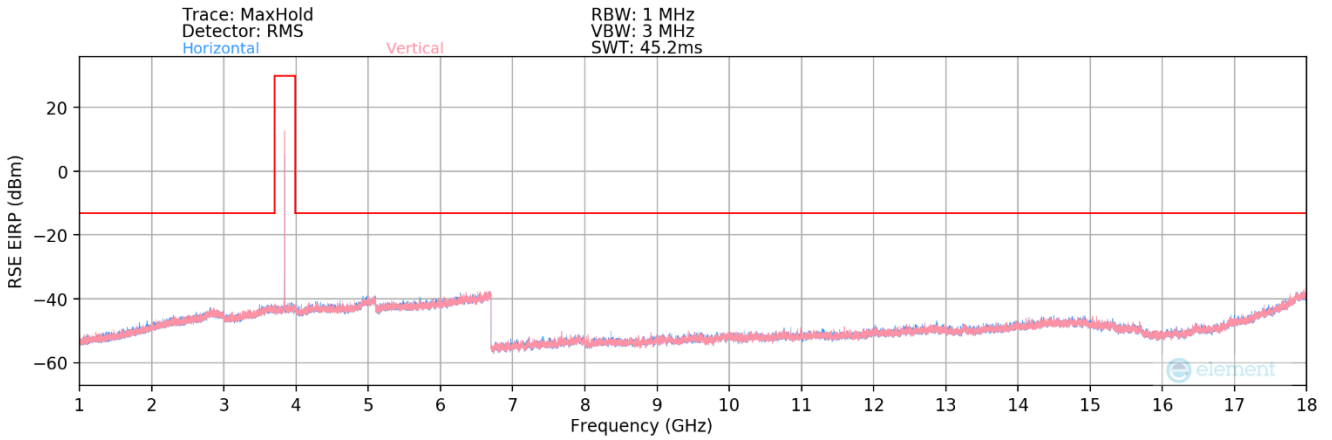


Plot 7-185. Radiated Spurious Plot – Below 1GHz (NR Band n77 – Ant5)

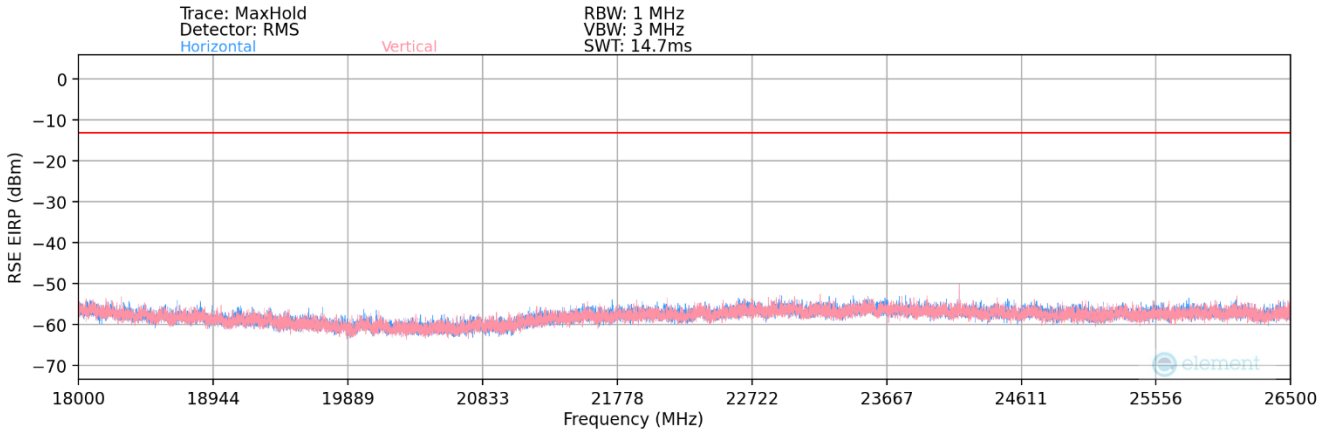
Bandwidth (MHz):	100
Frequency (MHz):	3840.00
RB / Offset:	1 / 135
Mode:	Stand Alone

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]
835.33	H	-	-	-78.26	29.73	58.47	-38.94	-13.00	-25.94

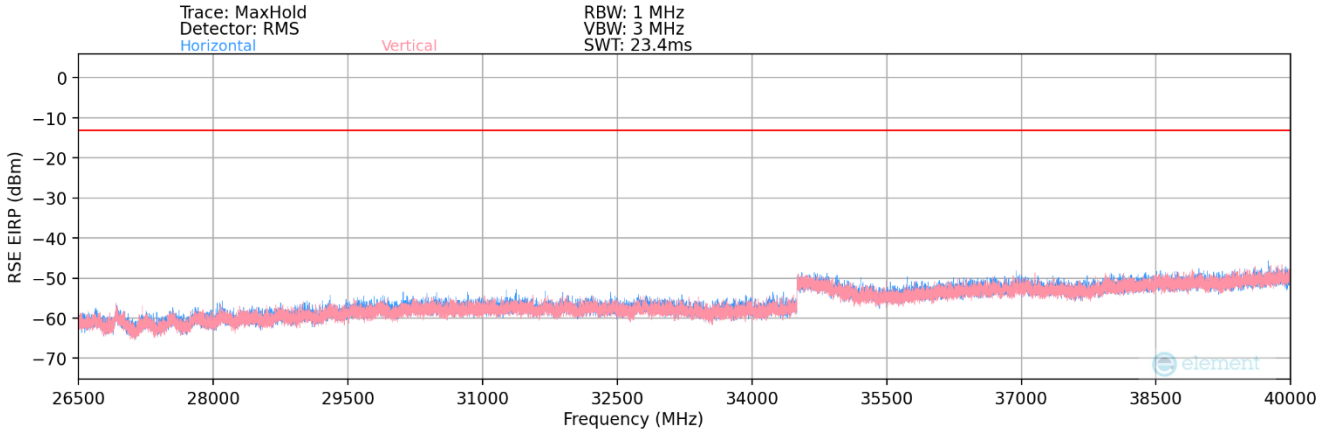
Table 7-50. Radiated Spurious Data – Below 1GHz (NR Band n77 – Ant5)



Plot 7-186. Radiated Spurious Plot – 1GHz – 18GHz (NR Band n77 – Ant5)



Plot 7-187. Radiated Spurious Plot – 18GHz – 26.5GHz (NR Band n77 – Ant5)



Plot 7-188. Radiated Spurious Plot – 26.5GHz – 40GHz (NR Band n77 – Ant5)

Bandwidth (MHz):	100
Frequency (MHz):	3750.00
RB / Offset:	1 / 135
Mode:	Stand Alone

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	H	196	91	-76.71	6.68	36.97	-58.29	-13.00	-45.29
11250.00	H	-	-	-78.35	11.89	40.54	-54.72	-13.00	-41.72
15000.00	H	-	-	-79.65	16.29	43.64	-51.62	-13.00	-38.62
18750.00	H	-	-	-56.55	1.53	51.98	-52.82	-13.00	-39.82

Table 7-51. Radiated Spurious Data (NR Band n77 – Low Channel – Ant5)

Bandwidth (MHz):	100
Frequency (MHz):	3840.00
RB / Offset:	1 / 135
Mode:	Stand Alone

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	H	181	86	-73.19	6.59	40.40	-54.86	-13.00	-41.86
11520.00	H	-	-	-78.65	11.03	39.38	-55.88	-13.00	-42.88
15360.00	H	-	-	-79.76	15.23	42.47	-52.79	-13.00	-39.79
19200.00	H	-	-	-56.43	2.06	52.63	-52.17	-13.00	-39.17

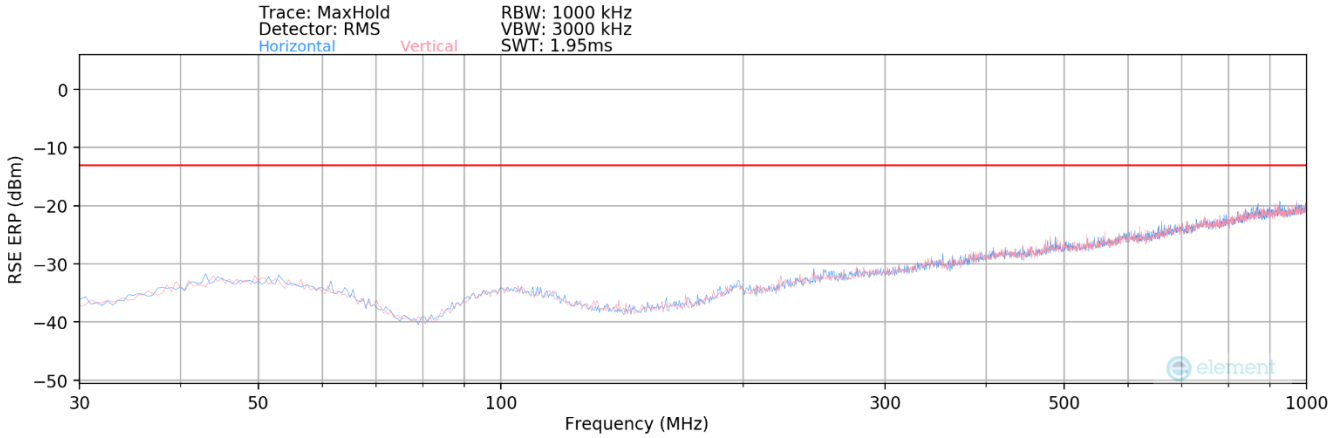
Table 7-52. Radiated Spurious Data (NR Band n77 – Mid Channel – Ant5)

Bandwidth (MHz):	100
Frequency (MHz):	3930.00
RB / Offset:	1 / 135
Mode:	Stand Alone

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	H	211	103	-74.29	7.56	40.27	-54.99	-13.00	-41.99
11790.00	H	-	-	-78.44	12.18	40.74	-54.52	-13.00	-41.52
15720.00	H	-	-	-79.55	14.16	41.61	-53.65	-13.00	-40.65
19650.00	H	-	-	-55.71	2.49	53.78	-51.02	-13.00	-38.02

Table 7-53. Radiated Spurious Data (NR Band n77 – High Channel – Ant5)

NR Band n77 C Band – Ant8

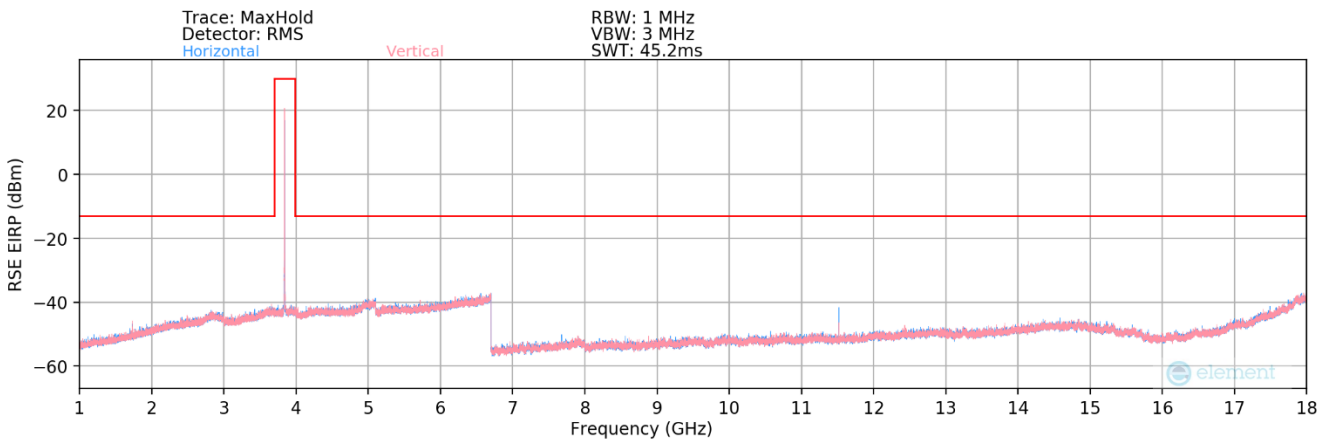


Plot 7-189. Radiated Spurious Plot – Below 1GHz (NR Band n77 – Ant8)

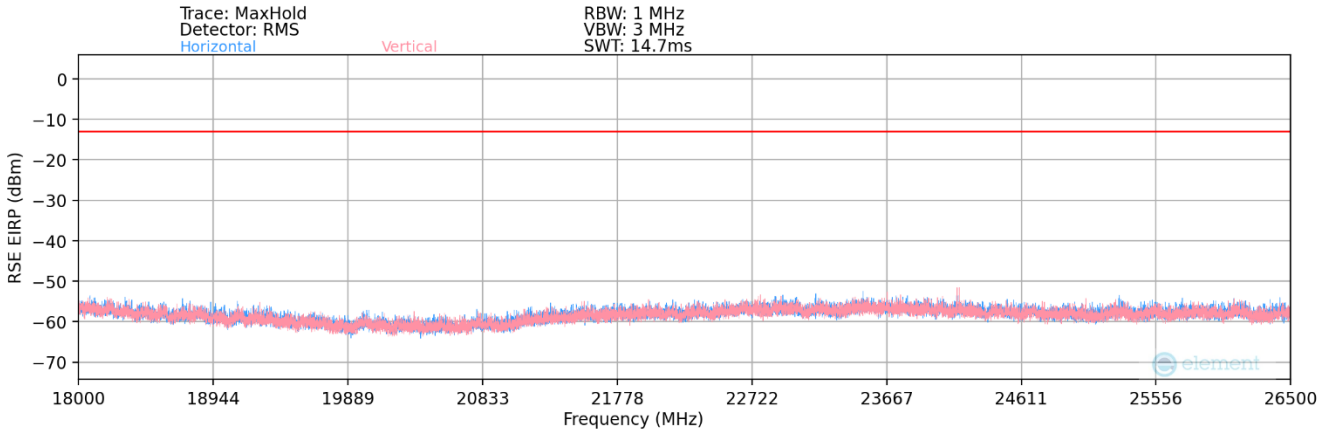
Bandwidth (MHz):	100
Frequency (MHz):	3500.01
RB / Offset:	1 / 135
Mode:	Stand Alone

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]
882.31	H	-	-	-78.35	30.27	58.92	-38.49	-13.00	-25.49

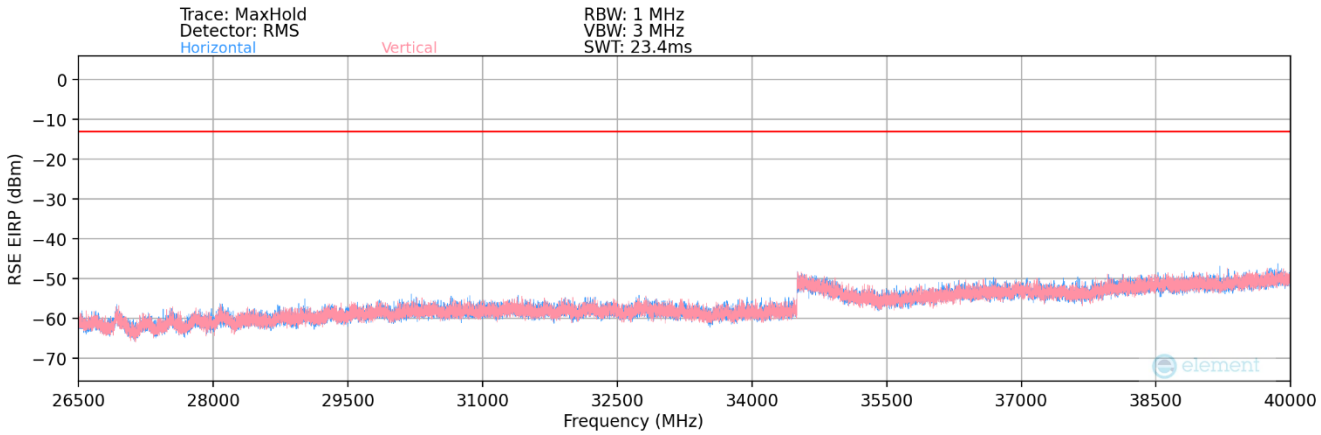
Table 7-54. Radiated Spurious Data – Below 1GHz (NR Band n77 – Ant8)



Plot 7-190. Radiated Spurious Plot – 1GHz – 18GHz (NR Band n77 – Ant8)



Plot 7-191. Radiated Spurious Plot – 18GHz – 26.5GHz (NR Band n77 – Ant8)



Plot 7-192. Radiated Spurious Plot – 26.5GHz – 40GHz (NR Band n77 – Ant8)

Bandwidth (MHz):	100
Frequency (MHz):	3750.00
RB / Offset:	1 / 135
Mode:	Stand Alone

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	H	122	104	-76.54	6.68	37.14	-58.12	-13.00	-45.12
11250.00	H	151	113	-73.74	11.89	45.15	-50.11	-13.00	-37.11
15000.00	H	-	-	-79.99	16.29	43.30	-51.96	-13.00	-38.96
18750.00	H	-	-	-56.20	1.53	52.33	-52.47	-13.00	-39.47
22500.00	H	-	-	-56.93	3.77	53.84	-50.96	-13.00	-37.96

Table 7-55. Radiated Spurious Data (NR Band n77 – Low Channel – Ant8)

Bandwidth (MHz):	100
Frequency (MHz):	3840.00
RB / Offset:	1 / 135
Mode:	Stand Alone

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	H	128	104	-72.55	6.59	41.04	-54.22	-13.00	-41.22
11520.00	H	142	113	-73.36	11.03	44.67	-50.59	-13.00	-37.59
15360.00	H	-	-	-80.10	15.23	42.13	-53.13	-13.00	-40.13
19200.00	H	-	-	-56.39	2.06	52.67	-52.13	-13.00	-39.13
23040.00	H	-	-	-55.61	3.74	55.13	-49.67	-13.00	-36.67

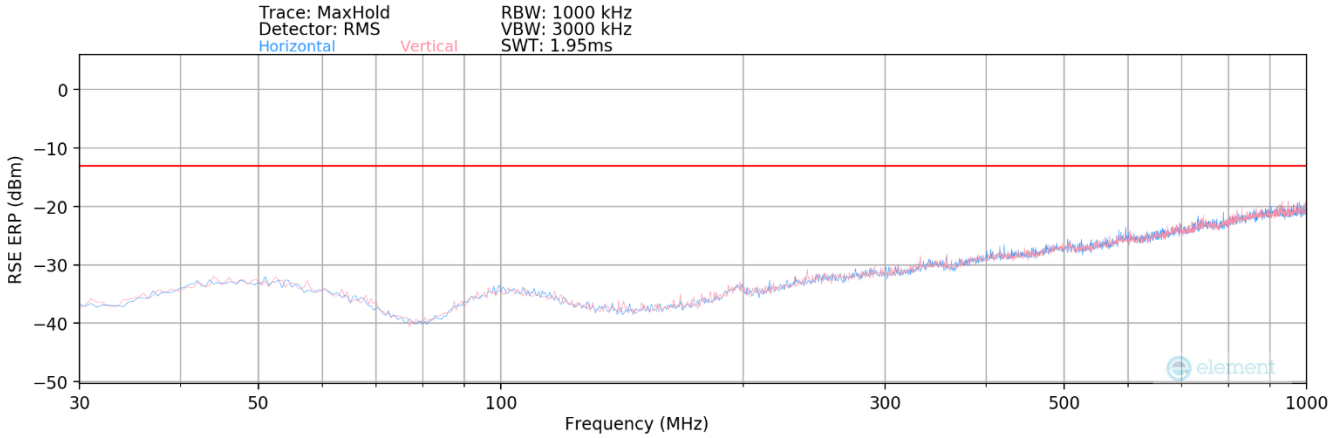
Table 7-56. Radiated Spurious Data (NR Band n77 – Mid Channel – Ant8)

Bandwidth (MHz):	100
Frequency (MHz):	3930.00
RB / Offset:	1 / 135
Mode:	Stand Alone

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	H	132	107	-76.21	7.56	38.35	-56.91	-13.00	-43.91
11790.00	H	157	127	-71.87	12.18	47.31	-47.95	-13.00	-34.95
15720.00	H	-	-	-79.83	14.16	41.33	-53.93	-13.00	-40.93
19650.00	H	-	-	-56.52	2.49	52.97	-51.83	-13.00	-38.83
23580.00	H	-	-	-56.95	3.77	53.82	-50.98	-13.00	-37.98

Table 7-57. Radiated Spurious Data (NR Band n77 – High Channel – Ant8)

UL-MIMO NR Band n77 DoD Band – Ant2 and Ant3

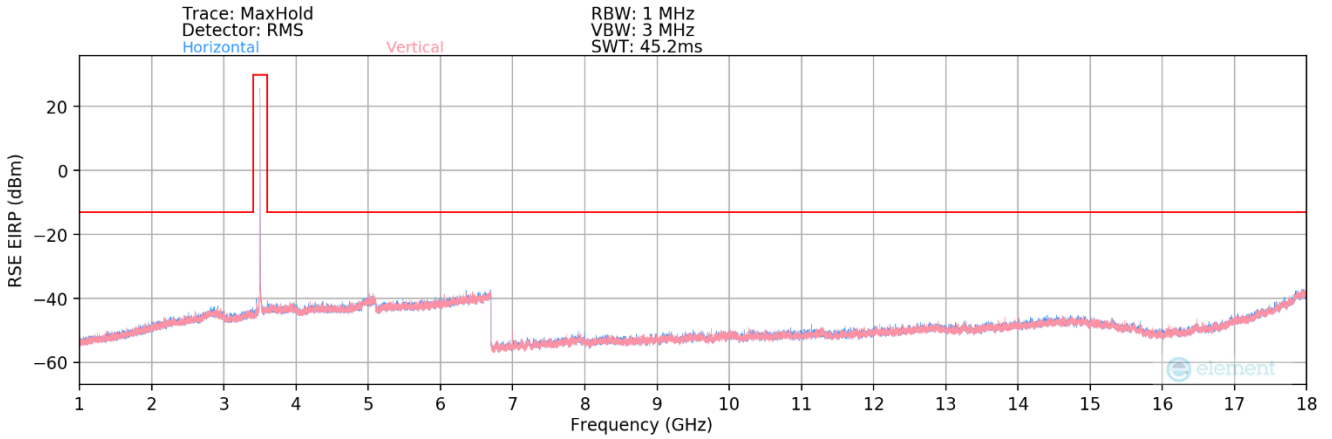


Plot 7-193. Radiated Spurious Plot – Below 1GHz (UL-MIMO NR Band n77 – Ant2 and Ant3)

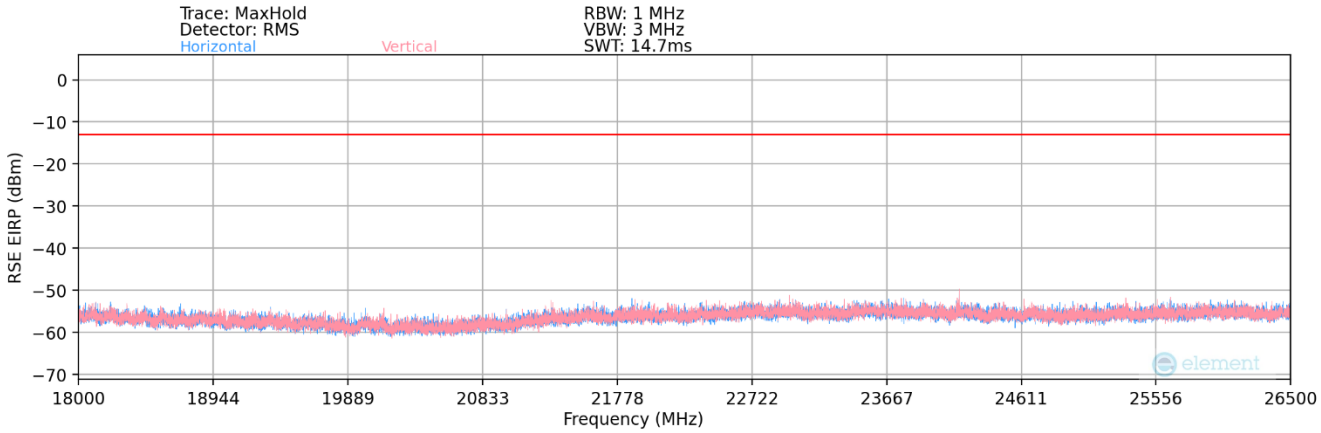
Bandwidth (MHz):	100
Frequency (MHz):	3500.01
RB / Offset:	1 / 135

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]
809.84	V	-	-	-79.02	29.29	57.27	-40.13	-13.00	-27.13

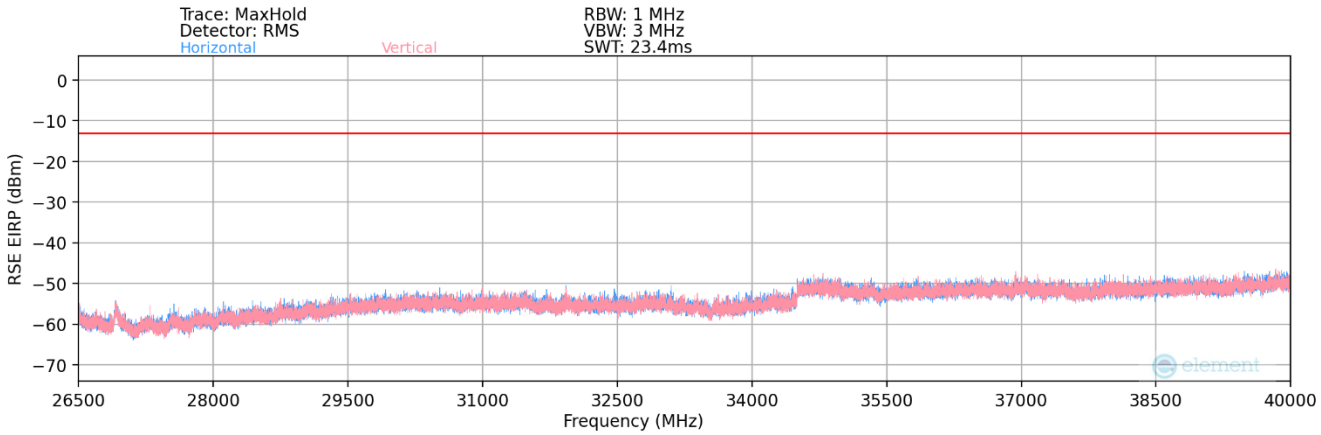
Table 7-58. Radiated Spurious Data – Below 1GHz (UL-MIMO NR Band n77 DoD Band – Ant2 and Ant3)



Plot 7-194. Radiated Spurious Plot – 1GHz – 18GHz (UL-MIMO NR Band n77 DoD Band – Ant2 and Ant3)



Plot 7-195. Radiated Spurious Plot – 18GHz – 26.5GHz (UL-MIMO NR Band n77 DoD Band – Ant2 and Ant3)



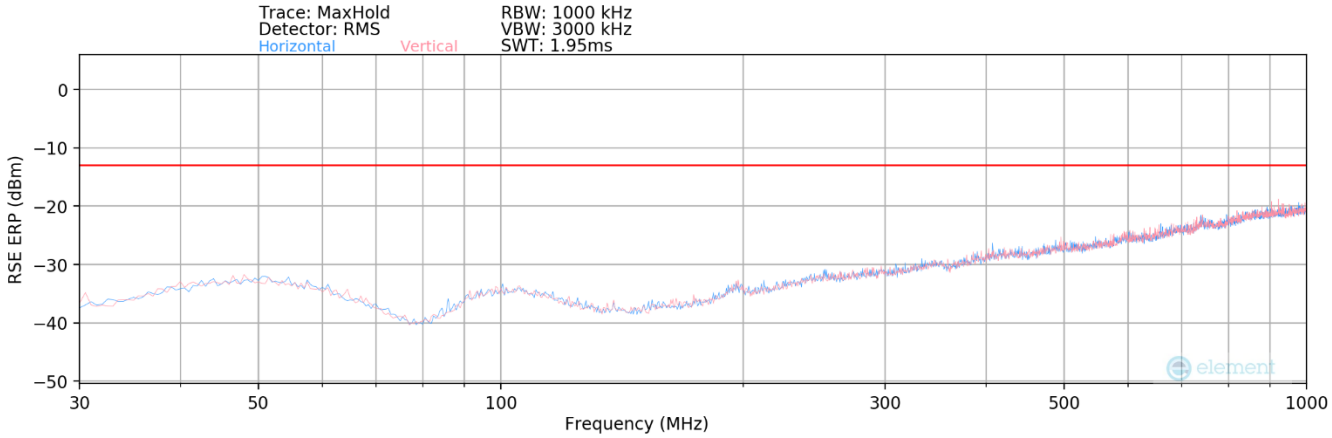
Plot 7-196. Radiated Spurious Plot – 26.5GHz – 40GHz (UL-MIMO NR Band n77 DoD Band – Ant2 and Ant3)

Bandwidth (MHz):	100
Frequency (MHz):	3500.01
RB / Offset:	1 / 135

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	281	152	-73.50	5.36	38.86	-56.39	-13.00	-43.39
10500.03	V	295	145	-77.00	10.75	40.75	-54.51	-13.00	-41.51
14000.04	V	-	-	-79.75	15.55	42.80	-52.45	-13.00	-39.45
17500.05	V	-	-	-78.63	20.42	48.79	-46.47	-13.00	-33.47
21000.06	V	150	5	-54.10	3.52	56.42	-48.38	-13.00	-35.38
24500.07	V	-	-	-56.67	3.88	54.22	-50.58	-13.00	-37.58
28000.08	V	-	-	-56.74	4.51	54.77	-50.03	-13.00	-37.03
31500.09	V	-	-	-55.69	7.25	58.56	-46.24	-13.00	-33.24

Table 7-59. Radiated Spurious Data (UL-MIMO NR Band n77 DoD Band – Ant2 and Ant3)

UL-MIMO NR Band n77 C Band – Ant2 and Ant3

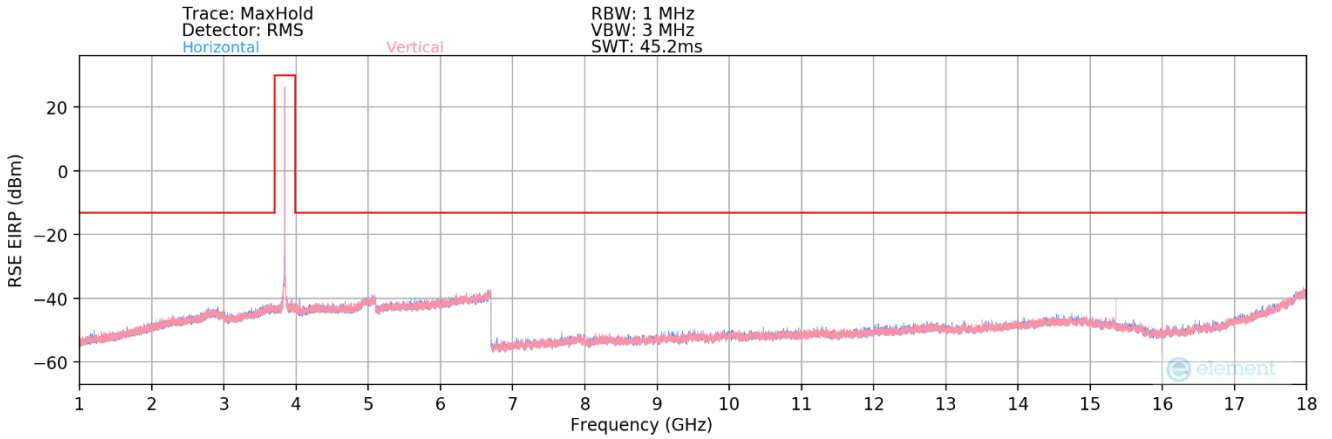


Plot 7-197. Radiated Spurious Plot – Below 1GHz (UL-MIMO NR Band n77 C Band – Ant2 and Ant3)

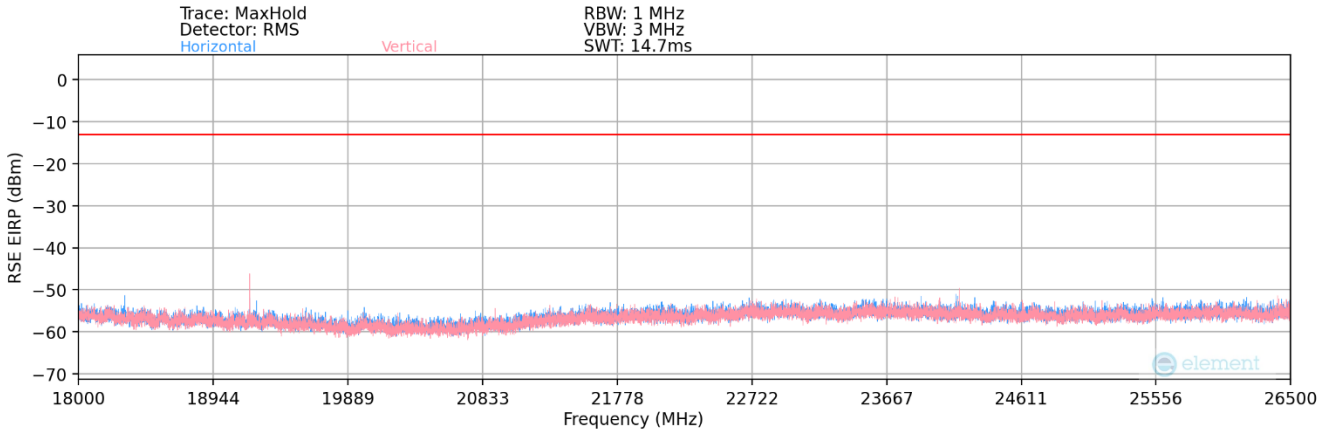
Bandwidth (MHz):	100
Frequency (MHz):	3840.00
RB / Offset:	1 / 135

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]
943.80	V	-	-	-77.04	30.56	60.52	-36.89	-13.00	-23.89

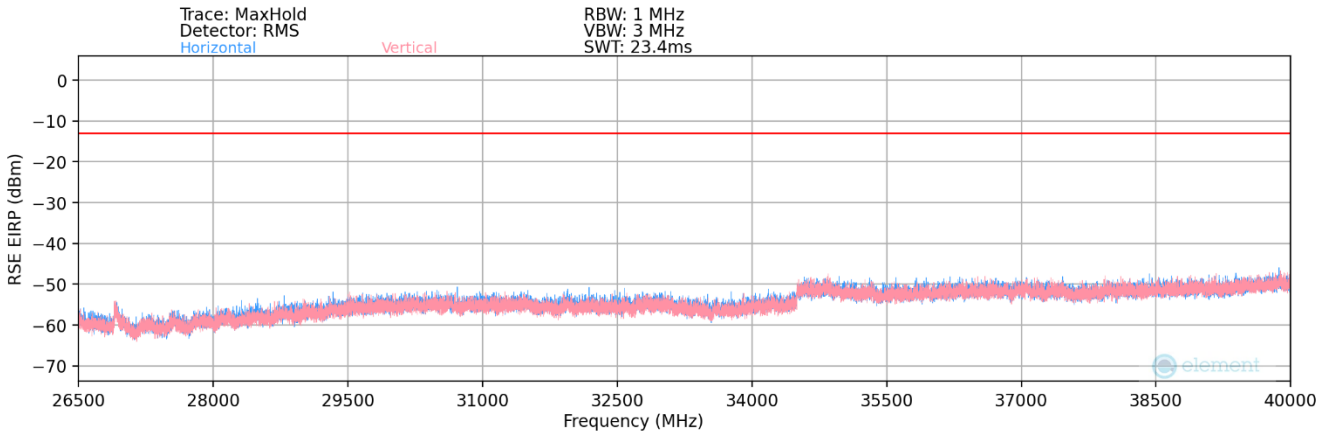
Table 7-60. Radiated Spurious Data – Below 1GHz (UL-MIMO NR Band n77 C Band – Ant2 and Ant3)



Plot 7-198. Radiated Spurious Plot – 1GHz – 18GHz (UL-MIMO NR Band n77 C Band – Ant2 and Ant3)



Plot 7-199. Radiated Spurious Plot – 18GHz – 26.5GHz (UL-MIMO NR Band n77 C Band – Ant2 and Ant3)



Plot 7-200. Radiated Spurious Plot – 26.5GHz – 40GHz (UL-MIMO NR Band n77 C Band – Ant2 and Ant3)

Bandwidth (MHz):	100
Frequency (MHz):	3750.00
RB / Offset:	1 / 135

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	282	155	-69.25	6.68	44.43	-50.83	-13.00	-37.83
11250.00	V	-	-	-78.44	11.89	40.45	-54.81	-13.00	-41.81
15000.00	V	285	77	-78.22	16.29	45.07	-50.19	-13.00	-37.19
18750.00	V	150	66	-54.96	1.53	53.57	-51.23	-13.00	-38.23
22500.00	V	-	-	-56.84	3.77	53.93	-50.87	-13.00	-37.87
26250.00	V	-	-	-56.41	4.18	54.77	-50.03	-13.00	-37.03
30000.00	V	-	-	-55.87	5.99	57.12	-47.68	-13.00	-34.68

Table 7-61. Radiated Spurious Data (UL-MIMO NR Band n77 C Band – Low Channel – Ant2 and Ant3)

Bandwidth (MHz):	100
Frequency (MHz):	3840.00
RB / Offset:	1 / 135

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	274	155	-69.53	6.59	44.06	-51.20	-13.00	-38.20
11520.00	V	-	-	-78.55	11.03	39.48	-55.78	-13.00	-42.78
15360.00	V	284	148	-75.86	15.23	46.37	-48.89	-13.00	-35.89
19200.00	V	150	50	-46.14	2.06	62.92	-41.88	-13.00	-28.88
23040.00	V	-	-	-57.32	3.74	53.42	-51.38	-13.00	-38.38
26880.00	V	-	-	-55.54	4.42	55.88	-48.92	-13.00	-35.92
30720.00	V	-	-	-56.60	6.66	57.07	-47.73	-13.00	-34.73

Table 7-62. Radiated Spurious Data (UL-MIMO NR Band n77 C Band – Mid Channel – Ant2 and Ant3)

Bandwidth (MHz):	100
Frequency (MHz):	3930.00
RB / Offset:	1 / 135

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	236	129	-76.52	7.56	38.04	-57.22	-13.00	-44.22
11790.00	V	236	140	-77.67	12.18	41.51	-53.75	-13.00	-40.75
15720.00	V	292	104	-74.79	14.16	46.37	-48.89	-13.00	-35.89
19650.00	V	150	64	-44.17	2.49	65.32	-39.48	-13.00	-26.48
23580.00	V	-	-	-56.98	3.77	53.79	-51.01	-13.00	-38.01
27510.00	V	-	-	-55.09	4.33	56.25	-48.55	-13.00	-35.55
31440.00	V	-	-	-55.80	6.69	57.89	-46.91	-13.00	-33.91

Table 7-63. Radiated Spurious Data (UL-MIMO NR Band n77 C Band – High Channel – Ant2 and Ant3)

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

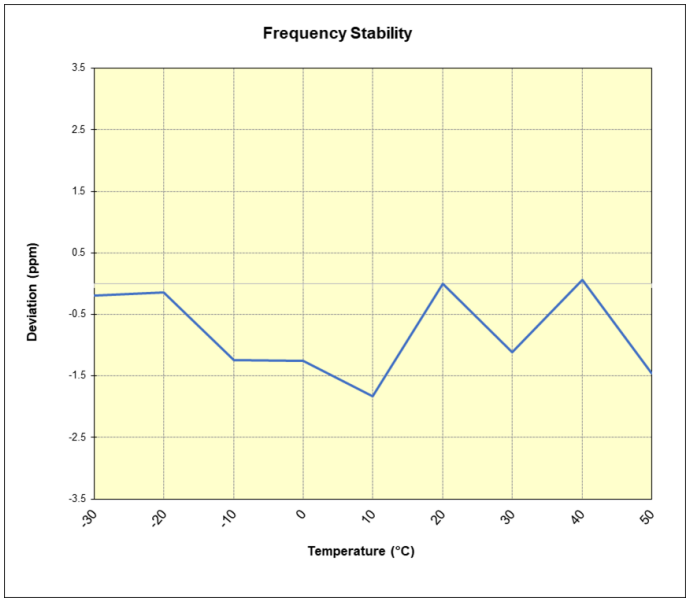
None

NR Band n77 DoD Band

NR Band n77 DoD Band	
Operating Frequency (Hz):	3,500,000,000
Ref. Voltage (VDC):	8.8

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	8.8	- 30	3,500,178,414	-684	-0.0000195
		- 20	3,500,178,602	-496	-0.0000142
		- 10	3,500,174,750	-4,348	-0.0001242
		0	3,500,174,722	-4,376	-0.0001250
		+ 10	3,500,172,692	-6,406	-0.0001830
		+ 20 (Ref)	3,500,179,098	0	0.0000000
		+ 30	3,500,175,197	-3,901	-0.0001114
		+ 40	3,500,179,327	228	0.0000065
		+ 50	3,500,173,969	-5,130	-0.0001466
Battery Endpoint	6.0	+ 20	3,500,179,587	489	0.0000140

Table 7-64. NR Band n77 Frequency Stability Data



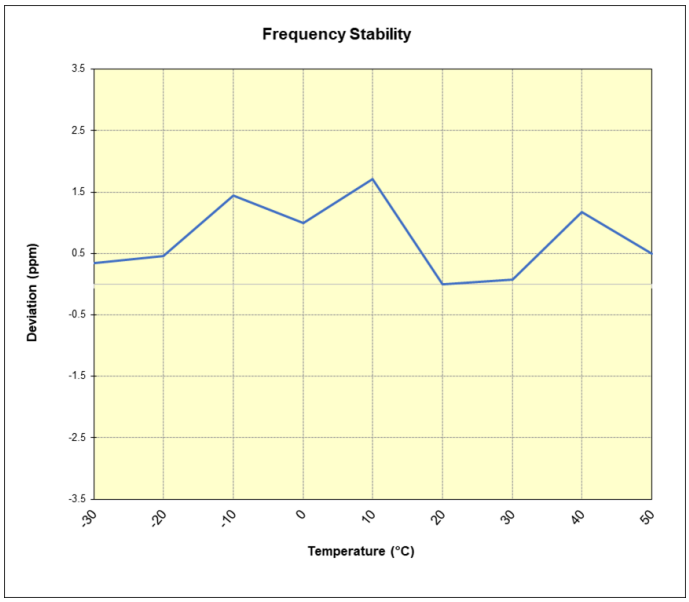
Plot 7-201. NR Band n77 Frequency Stability Chart

NR Band n77 C Band

NR Band n77 C-Band	
Operating Frequency (Hz):	3,840,000,000
Ref. Voltage (VDC):	8.8

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	8.8	- 30	3,840,164,365	1,333	0.0000347
		- 20	3,840,164,791	1,759	0.0000458
		- 10	3,840,168,568	5,536	0.0001442
		0	3,840,166,860	3,828	0.0000997
		+ 10	3,840,169,601	6,569	0.0001711
		+ 20 (Ref)	3,840,163,032	0	0.0000000
		+ 30	3,840,163,306	274	0.0000071
		+ 40	3,840,167,540	4,508	0.0001174
		+ 50	3,840,164,920	1,888	0.0000492
Battery Endpoint	6.0	+ 20	3,840,164,656	1,624	0.0000423

Table 7-65. NR Band n77 Frequency Stability Data



Plot 7-202. NR Band n77 Frequency Stability Chart

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Microsoft Corporation Portable Computing Device FCC ID: C3K2077** complies with all the requirements of Part 27 of the FCC rules.