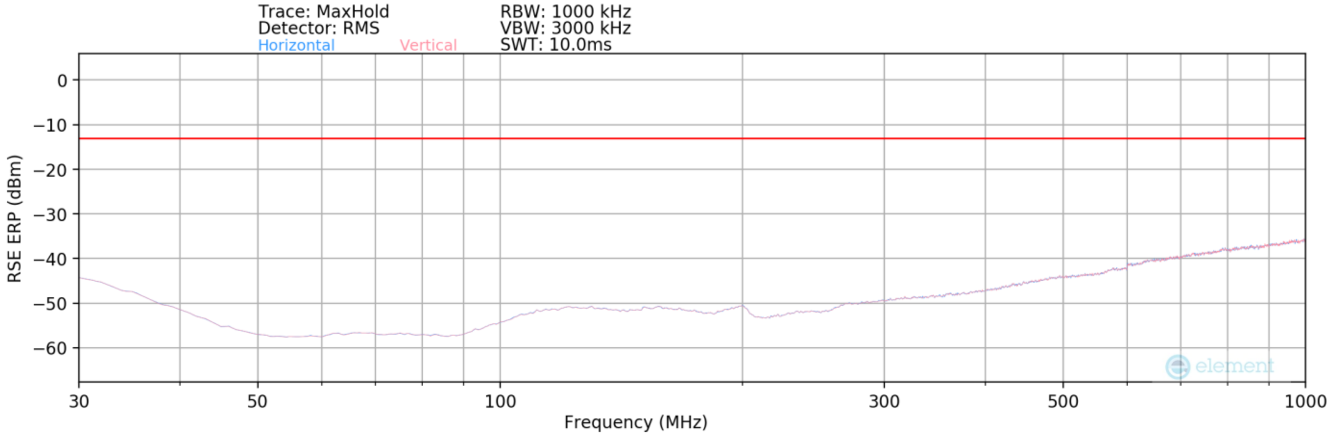
NR Band n77 (DoD Band) – Ant2

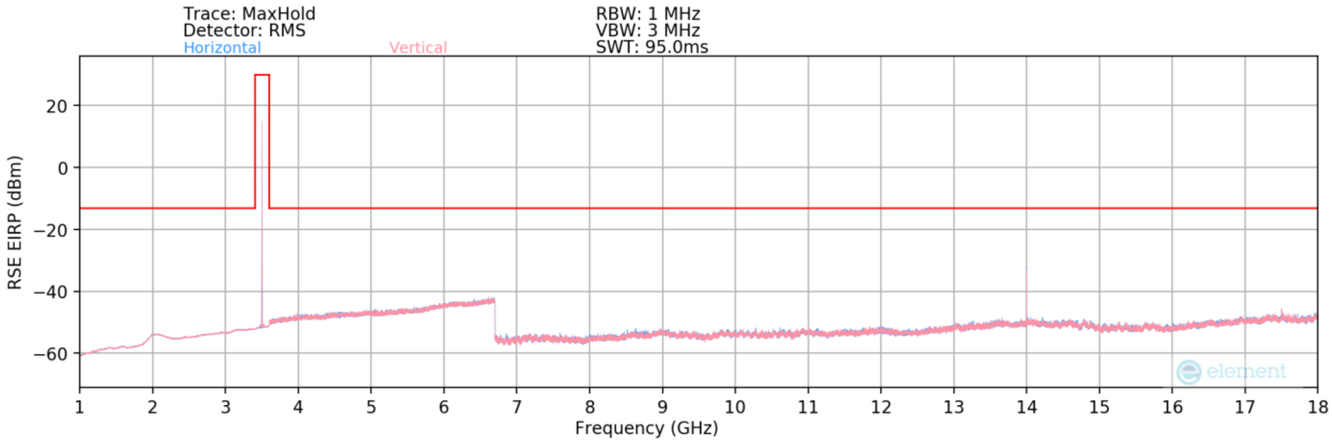


Plot 7-137. Radiated Spurious Plot – Below 1GHz (NR Band n77 (DoD) – Ant2)

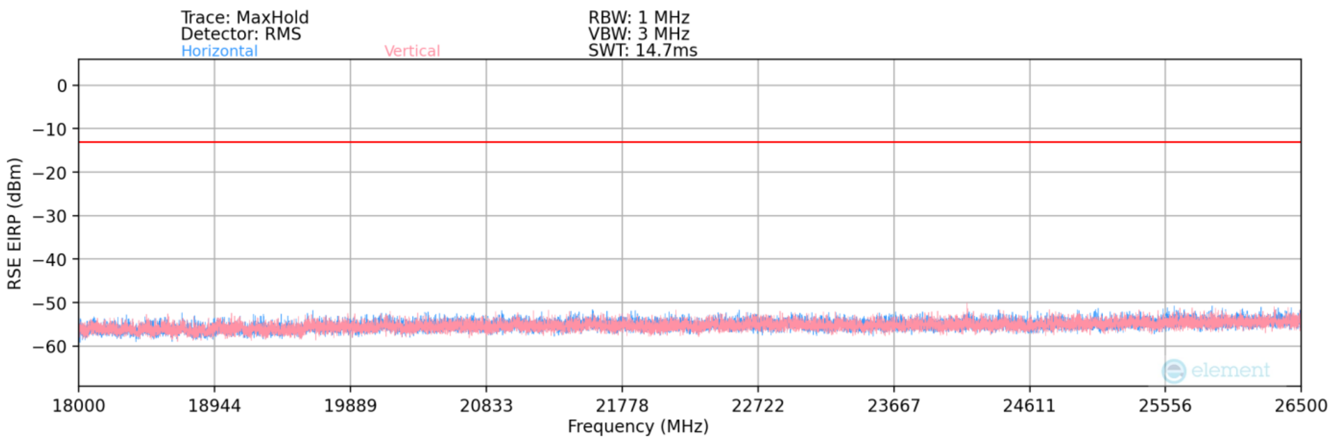
Bandwidth (MHz):	0
Frequency (MHz):	3500.01
RB / Offset:	1 / 136

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
55.00	H	-	-	-80.76	14.15	40.39	-57.01	-13.00	-44.01
91.00	H	-	-	-80.90	14.90	41.00	-56.41	-13.00	-43.41
198.00	H	-	-	-80.83	20.08	46.25	-51.16	-13.00	-38.16

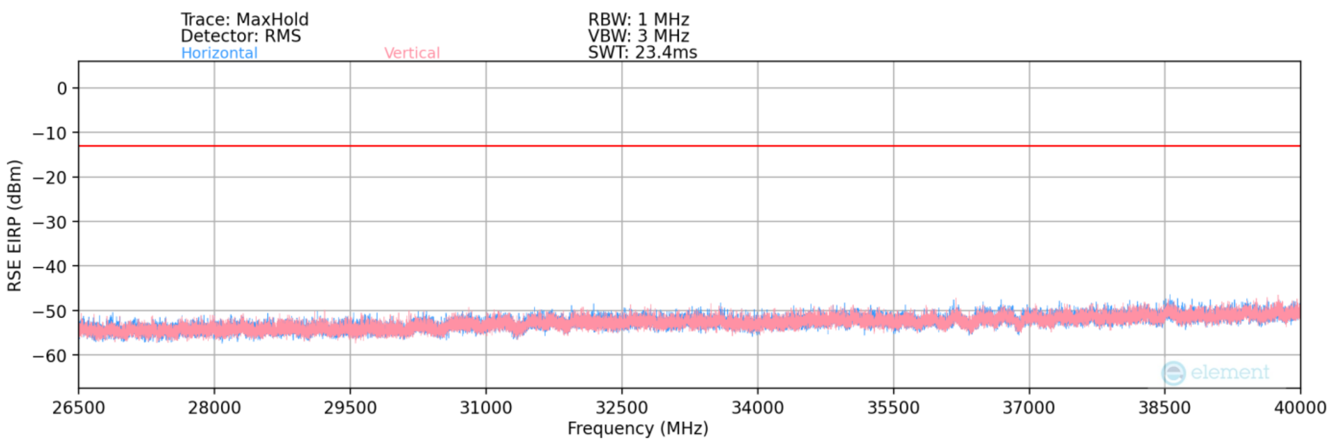
Table 7-48. Radiated Spurious Data – Below 1GHz (NR Band n77 (DoD) – Ant2)



Plot 7-138. Radiated Spurious Plot – 1GHz – 18GHz (NR Band n77 (DoD) – Ant2)



Plot 7-139. Radiated Spurious Plot – 18GHz – 25.5GHz (NR Band n77 (DoD) – Ant2)



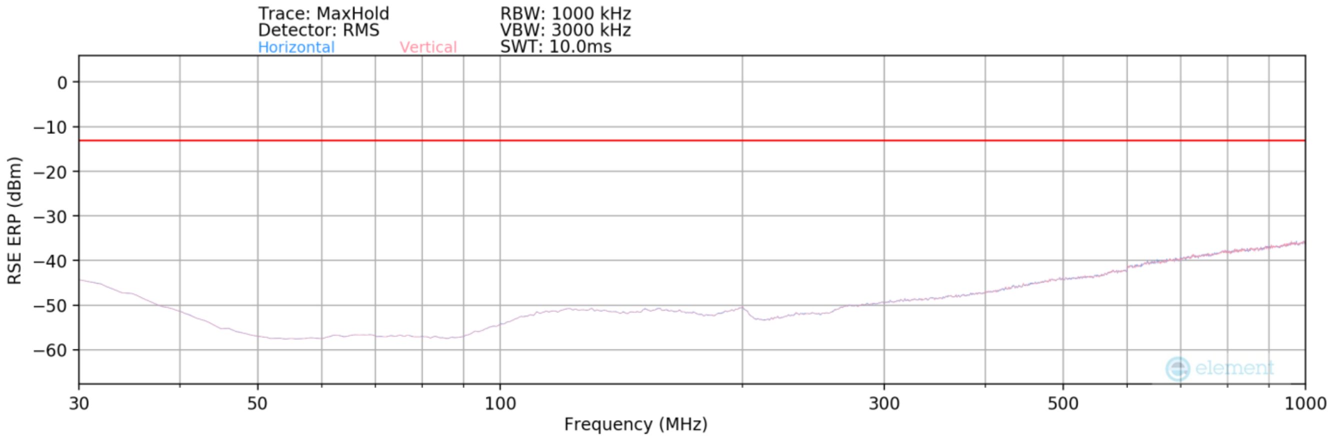
Plot 7-140. Radiated Spurious Plot – 26.5GHz – 40GHz (NR Band n77 (DoD) – Ant2)

Bandwidth (MHz):	100
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	H	-	-	-76.40	8.71	39.31	-55.95	-13.00	-42.95
10500.03	H	260	315	-77.08	11.97	41.89	-53.37	-13.00	-40.37
14000.04	H	375	335	-57.22	15.96	65.74	-29.52	-13.00	-16.52
17500.05	H	358	37	-74.33	17.31	49.98	-45.28	-13.00	-32.28
21000.06	H	150	190	-57.60	3.66	53.06	-51.74	-13.00	-38.74
24500.07	H	-	-	-58.75	4.10	52.35	-52.45	-13.00	-39.45
28000.08	H	-	-	-58.12	4.90	53.78	-51.02	-13.00	-38.02
31500.09	H	-	-	-58.50	7.41	55.91	-48.89	-13.00	-35.89

Table 7-49. Radiated Spurious Data (NR Band n77 (DoD) – Mid Channel – Ant2)

NR Band n77 (DoD Band) – Ant3

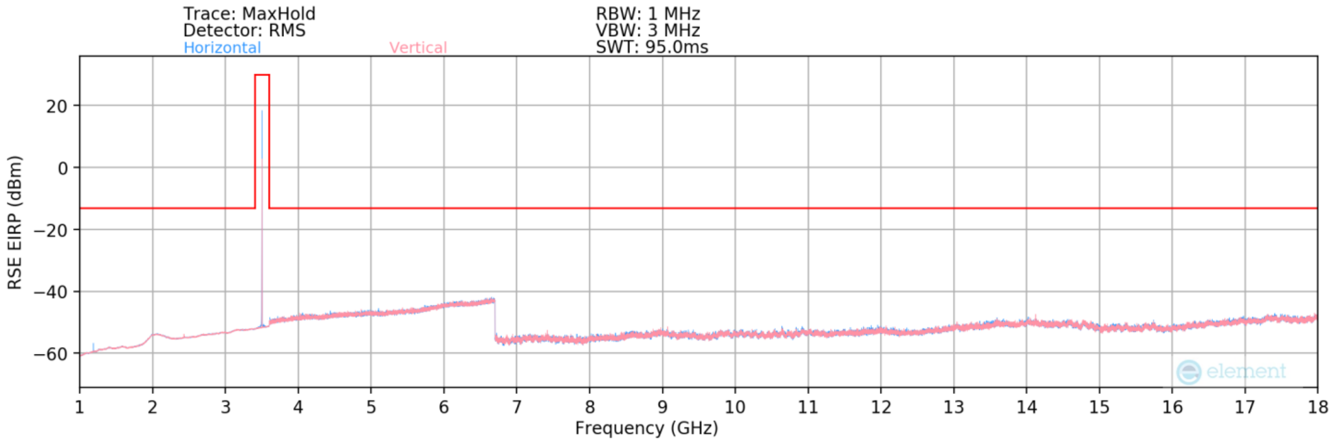


Plot 7-141. Radiated Spurious Plot – Below 1GHz (NR Band n77 (DoD) – Ant3)

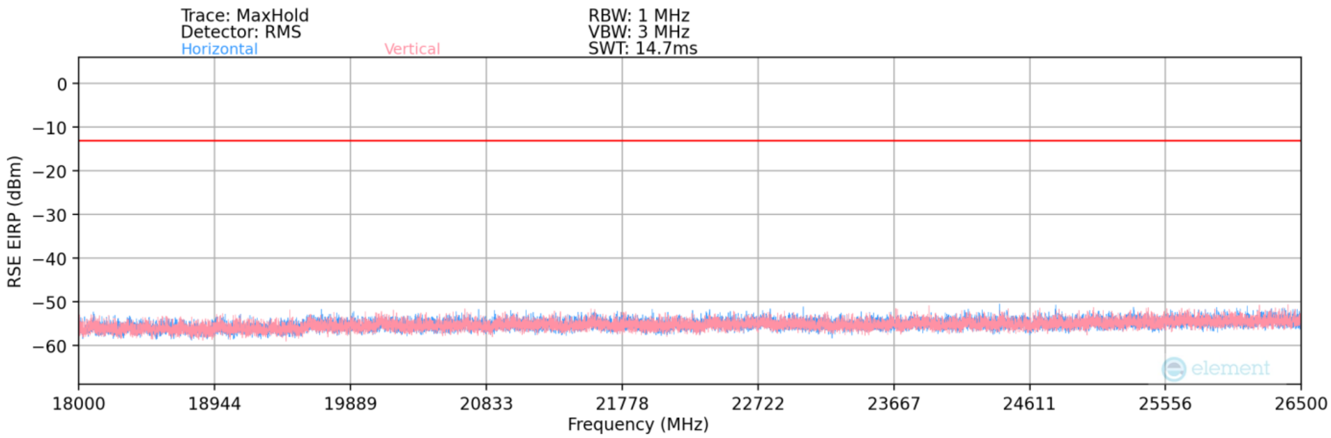
Bandwidth (MHz):	0
Frequency (MHz):	3500.01
RB / Offset:	1 / 136

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
51.00	H	-	-	-80.72	14.56	40.84	-56.57	-13.00	-43.57
84.00	H	-	-	-81.19	14.29	40.10	-57.30	-13.00	-44.30
193.00	H	-	-	-80.87	19.10	45.23	-52.18	-13.00	-39.18

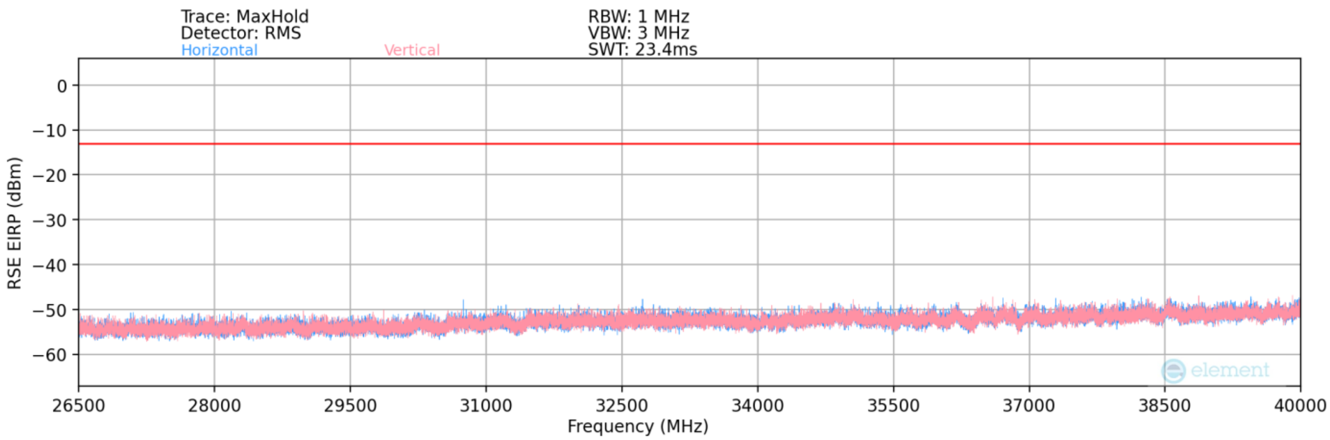
Table 7-50. Radiated Spurious Data – Below 1GHz (NR Band n77 (DoD) – Ant3)



Plot 7-142. Radiated Spurious Plot – 1GHz – 18GHz (NR Band n77 (DoD) – Ant3)



Plot 7-143. Radiated Spurious Plot – 18GHz – 25.5GHz (NR Band n77 (DoD) – Ant3)



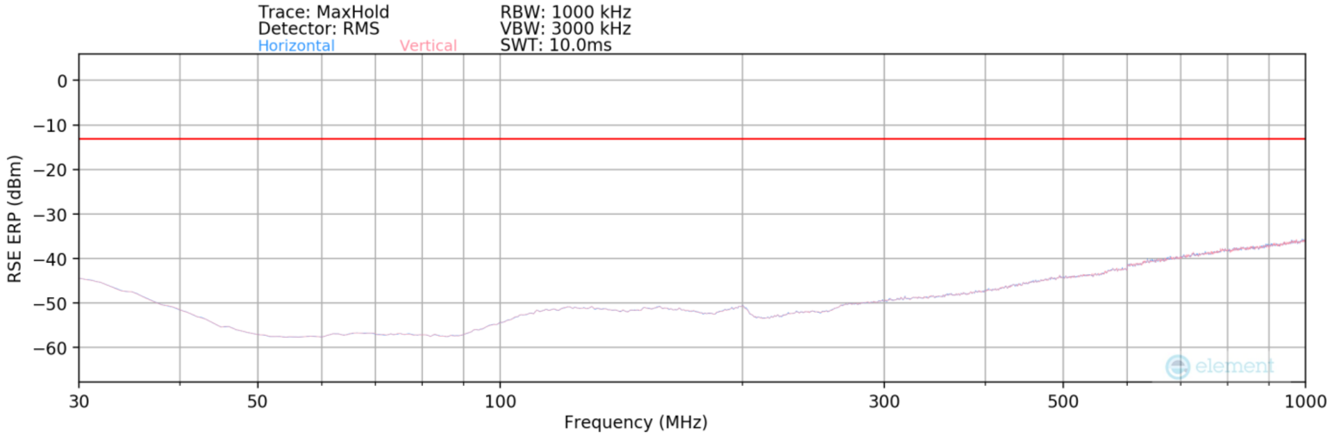
Plot 7-144. Radiated Spurious Plot – 26.5GHz – 40GHz (NR Band n77 (DoD) – Ant3)

Bandwidth (MHz):	100
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	H	-	-	-76.68	8.71	39.03	-56.23	-13.00	-43.23
10500.03	H	-	-	-78.99	11.97	39.98	-55.28	-13.00	-42.28
14000.04	H	135	56	-76.73	15.96	46.23	-49.03	-13.00	-36.03
17500.05	H	-	-	-79.00	17.31	45.31	-49.95	-13.00	-36.95
21000.06	H	-	-	-57.55	3.66	53.11	-51.69	-13.00	-38.69
24500.07	H	-	-	-57.71	4.10	53.39	-51.41	-13.00	-38.41

Table 7-51. Radiated Spurious Data (NR Band n77 (DoD) – Mid Channel – Ant3)

NR Band n77 (DoD Band) – Ant4

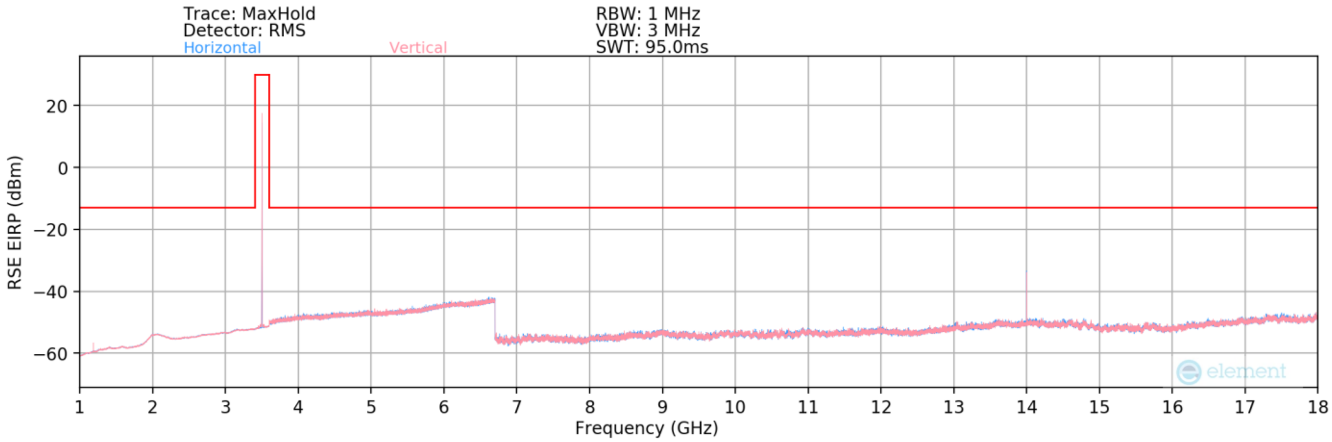


Plot 7-145. Radiated Spurious Plot – Below 1GHz (NR Band n77 (DoD) – Ant4)

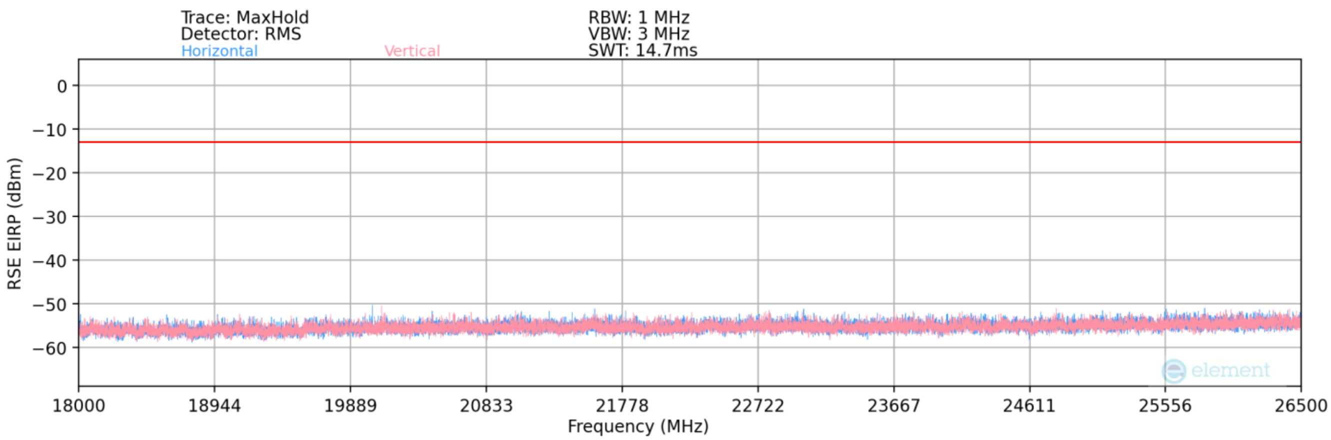
Bandwidth (MHz):	100
Frequency (MHz):	3500.01
RB / Offset:	1 / 136

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
66.10	H	-	-	-81.42	14.88	40.46	-56.95	-13.00	-43.95
91.58	H	-	-	-81.25	15.05	40.80	-56.61	-13.00	-43.61
189.50	H	-	-	-81.01	18.76	44.75	-52.66	-13.00	-39.66

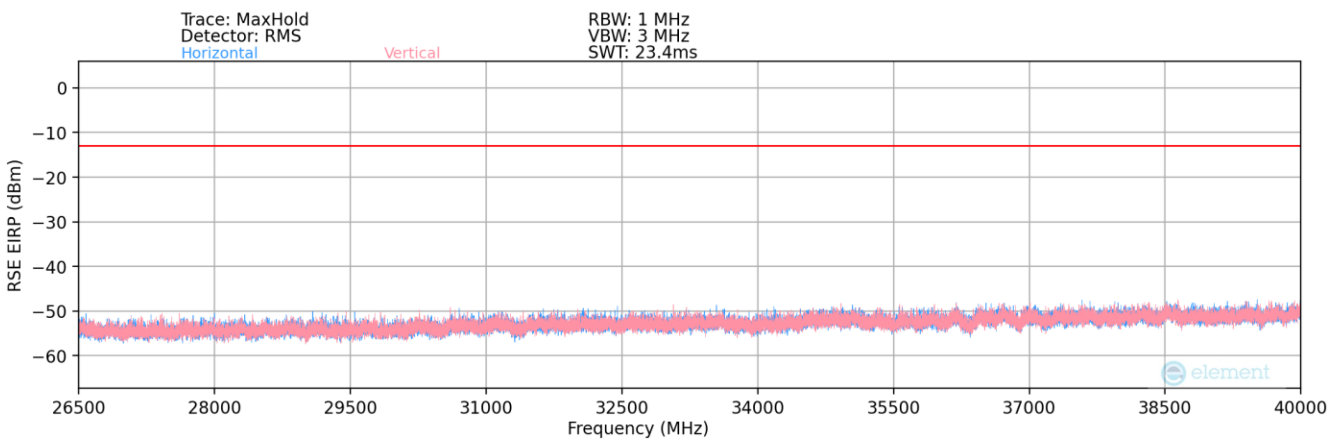
Table 7-52. Radiated Spurious Data – Below 1GHz (NR Band n77 (DoD) – Ant4)



Plot 7-146. Radiated Spurious Plot – 1GHz – 18GHz (NR Band n77 (DoD) – Ant4)



Plot 7-147. Radiated Spurious Plot – 18GHz – 25.5GHz (NR Band n77 (DoD) – Ant4)



Plot 7-148. Radiated Spurious Plot – 26.5GHz – 40GHz (NR Band n77 (DoD) – Ant4)

Bandwidth (MHz):	100
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	H	-	-	-76.57	8.71	39.14	-56.12	-13.00	-43.12
10500.03	H	162	334	-78.48	11.97	40.49	-54.77	-13.00	-41.77
14000.04	H	149	325	-56.78	15.96	66.18	-29.08	-13.00	-16.08
17500.05	H	147	343	-75.75	17.31	48.56	-46.70	-13.00	-33.70
21000.06	H	150	197	-55.53	3.66	55.13	-49.67	-13.00	-36.67
24500.07	H	-	-	-58.27	4.10	52.83	-51.97	-13.00	-38.97
28000.08	H	-	-	-57.87	4.90	54.03	-50.77	-13.00	-37.77
31500.09	H	-	-	-57.26	7.41	57.15	-47.65	-13.00	-34.65

Table 7-53. Radiated Spurious Data (NR Band n77 (DoD) – Mid Channel – Ant4)

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.

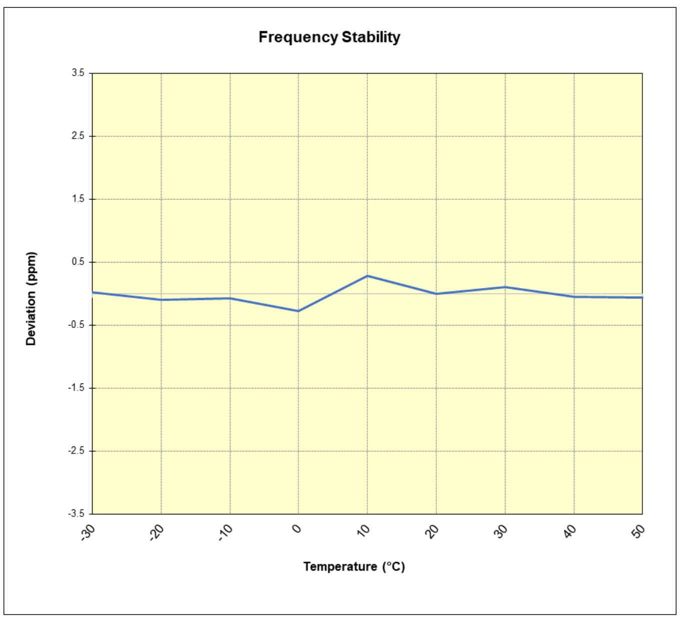
Test Notes

None

NR Band n77 C-Band

NR Band n77 C-Band					
	Operating Frequency (Hz):		3,840,000,000		
	Ref. Voltage (VDC):		4.431		
Voltage (%)	**Power (VDC)**	**Temp (^{o}C)**	**Frequency (Hz)**	**Freq. Dev. (Hz)**	**Deviation (%)**
100 %	4.431	- 30	3,840,165,527	89	0.0000023
		- 20	3,840,165,053	-386	-0.0000100
		- 10	3,840,165,158	-281	-0.0000073
		0	3,840,164,372	-1,067	-0.0000278
		+ 10	3,840,166,545	1,106	0.0000288
		+ 20 (Ref)	3,840,165,439	0	0.0000000
		+ 30	3,840,165,833	394	0.0000103
		+ 40	3,840,165,236	-203	-0.0000053
		+ 50	3,840,165,211	-228	-0.0000059
Battery Endpoint	3.278	+ 20	3,840,164,301	-1,138	-0.0000296

Table 7-54. NR Band n77 Frequency Stability Data

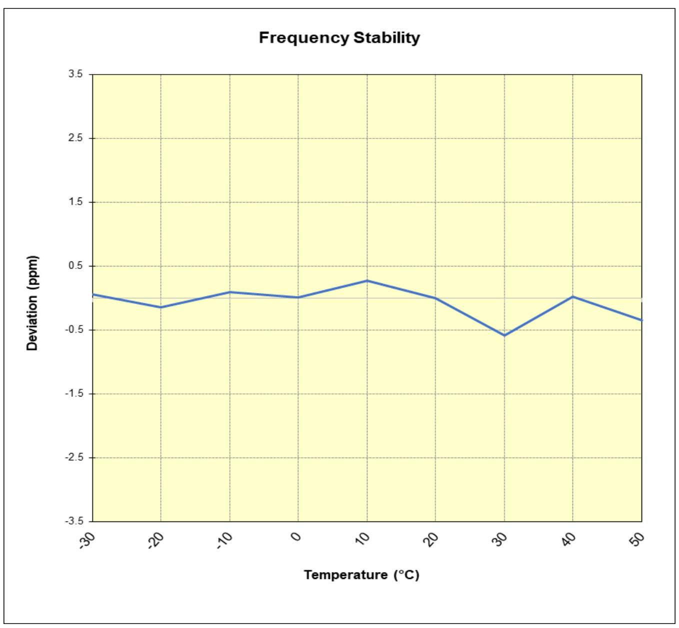


Plot 7-149. NR Band n77 Frequency Stability Chart

NR Band n77 DoD

NR Band n77 DoD					
	Operating Frequency (Hz):		3,550,000,000		
	Ref. Voltage (VDC):		4.431		
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Frequency (Hz)**	**Freq. Dev. (Hz)**	**Deviation (%)**
100 %	4.431	- 30	3,500,175,282	212	0.0000060
		- 20	3,500,174,575	-495	-0.0000141
		- 10	3,500,175,425	355	0.0000101
		0	3,500,175,110	40	0.0000011
		+ 10	3,500,176,017	947	0.0000271
		+ 20 (Ref)	3,500,175,070	0	0.0000000
		+ 30	3,500,173,019	-2,052	-0.0000586
		+ 40	3,500,175,175	105	0.0000030
		+ 50	3,500,173,884	-1,187	-0.0000339
attery Endpoi	3.278	+ 20	3,500,175,488	418	0.0000119

Table 7-55. NR Band n77 (DoD) Frequency Stability Data



Plot 7-150. NR Band n77 (DoD) 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: A3LSMS928B** complies with all the requirements of Part 27 of the FCC rules.