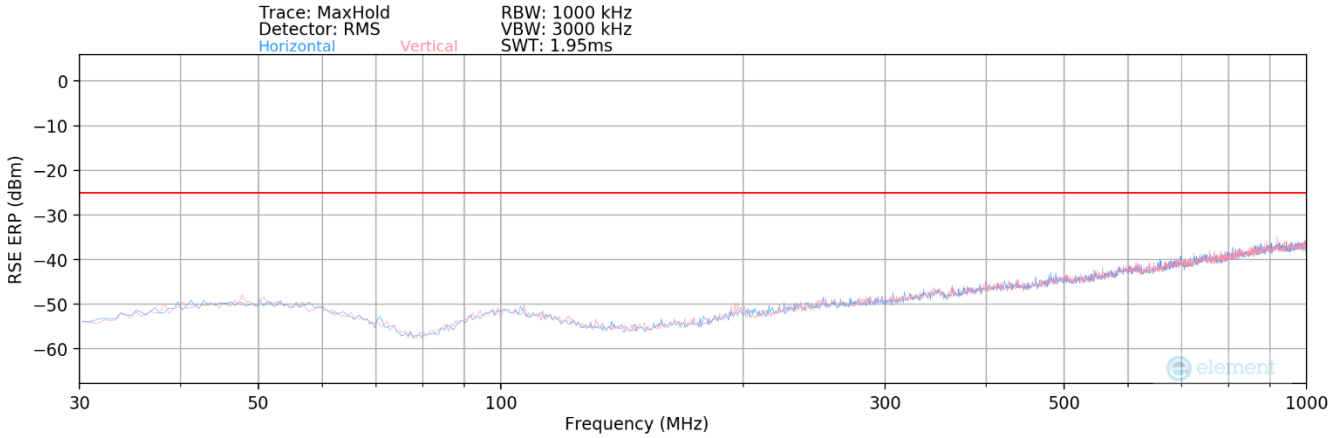
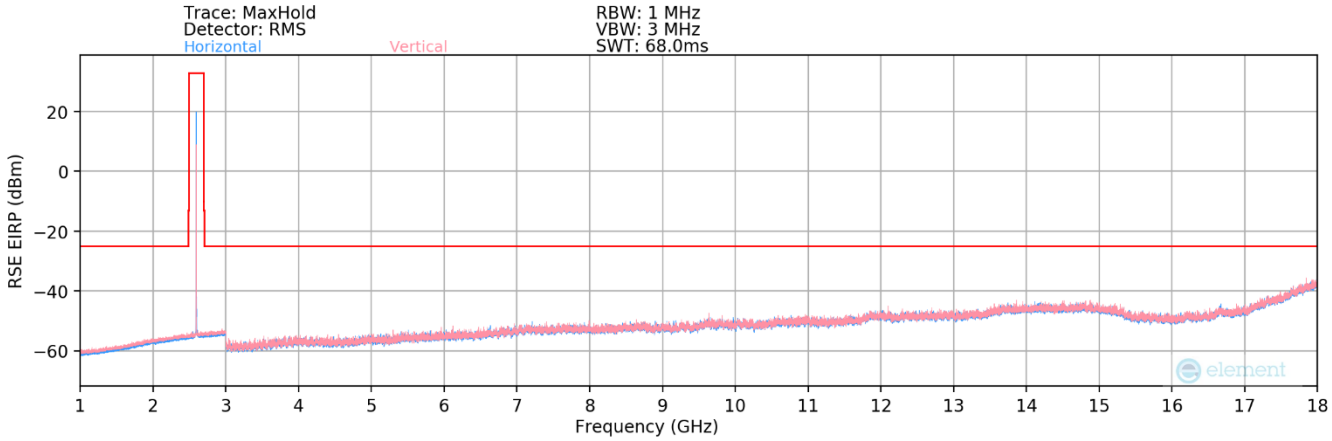
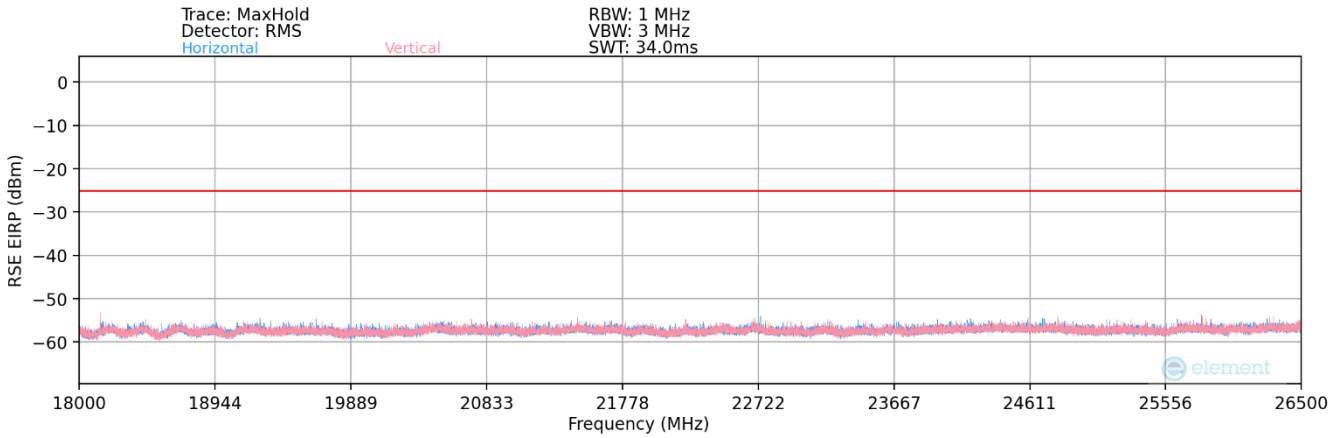
NR Band n41 – Ant F – Switching



Plot 7-228. Radiated Spurious Plot (NR Band n41 – Ant F)



Plot 7-229. Radiated Spurious Plot (NR Band n41 – Ant F)



Plot 7-230. Radiated Spurious Plot (NR Band n41 – Ant F)

Bandwidth (MHz):	100
Frequency (MHz):	2546.01
RB / Offset:	1 / 136
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]
5092.02	H	-	-	-75.41	1.93	33.52	-61.74	-25.00	-36.74
7638.03	H	-	-	-76.84	7.24	37.40	-57.86	-25.00	-32.86
10184.04	H	-	-	-79.93	10.88	37.95	-57.31	-25.00	-32.31

Table 7-80. Radiated Spurious Data (NR Band n41 – Low Channel – Ant F)

Bandwidth (MHz):	100
Frequency (MHz):	2592.99
RB / Offset:	1 / 136
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]
5185.98	H	-	-	-75.54	2.23	33.69	-61.57	-25.00	-36.57
7778.97	H	-	-	-77.75	7.42	36.67	-58.58	-25.00	-33.58
10371.96	H	-	-	-79.69	11.13	38.44	-56.82	-25.00	-31.82

Table 7-81. Radiated Spurious Data (NR Band n41 – Mid Channel – Ant F)

Bandwidth (MHz):	100
Frequency (MHz):	2640.00
RB / Offset:	1 / 136
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]
5280.00	H	-	-	-75.95	2.23	33.28	-61.98	-25.00	-36.98
7920.00	H	-	-	-77.49	7.39	36.90	-58.35	-25.00	-33.35
10560.00	H	-	-	-79.10	11.35	39.25	-56.00	-25.00	-31.00

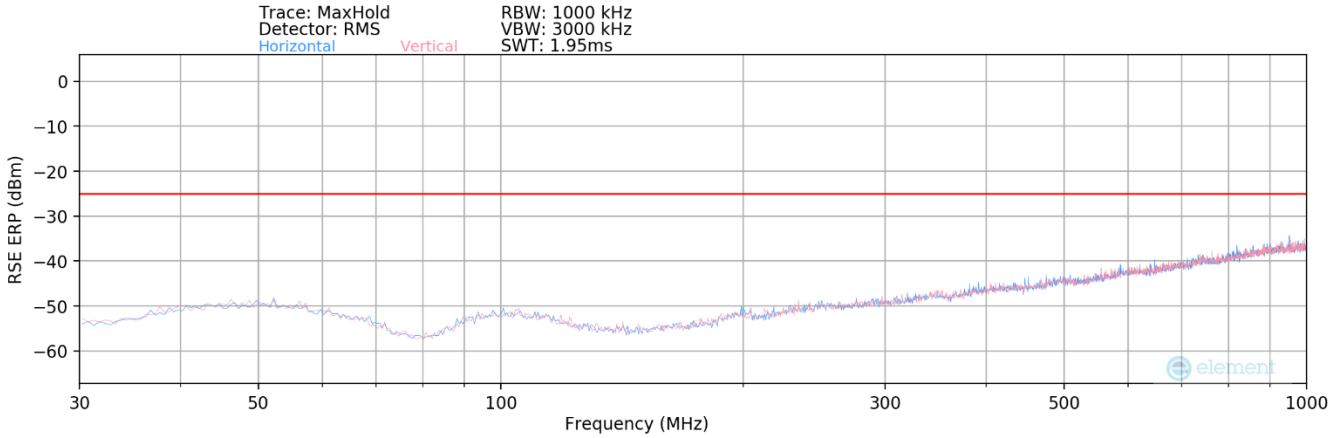
Table 7-82. Radiated Spurious Data (NR Band n41 – High Channel – Ant F)

Bandwidth (MHz):	100
Frequency (MHz):	2592.99
RB / Offset:	1 / 136
Mode:	Stand Alone

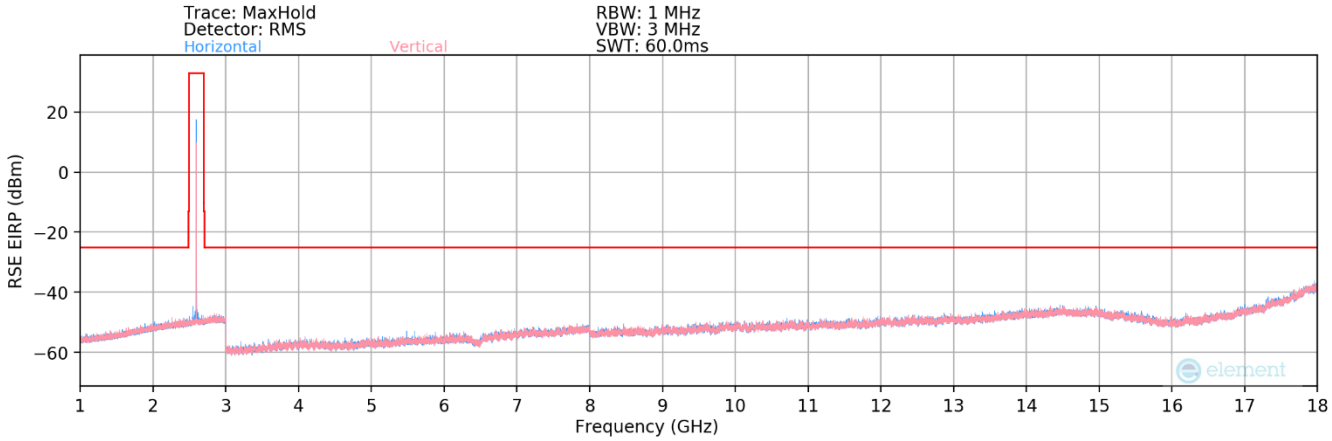
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
244.50	H	-	-	-96.93	19.61	29.68	-67.73	-25.00	-42.73
551.51	H	-	-	-96.08	25.51	36.43	-60.98	-25.00	-35.98
964.99	H	-	-	-95.92	30.89	41.97	-55.44	-25.00	-30.44

Table 7-83. Radiated Spurious Data (NR Band n41 – Mid Channel – Ant F)

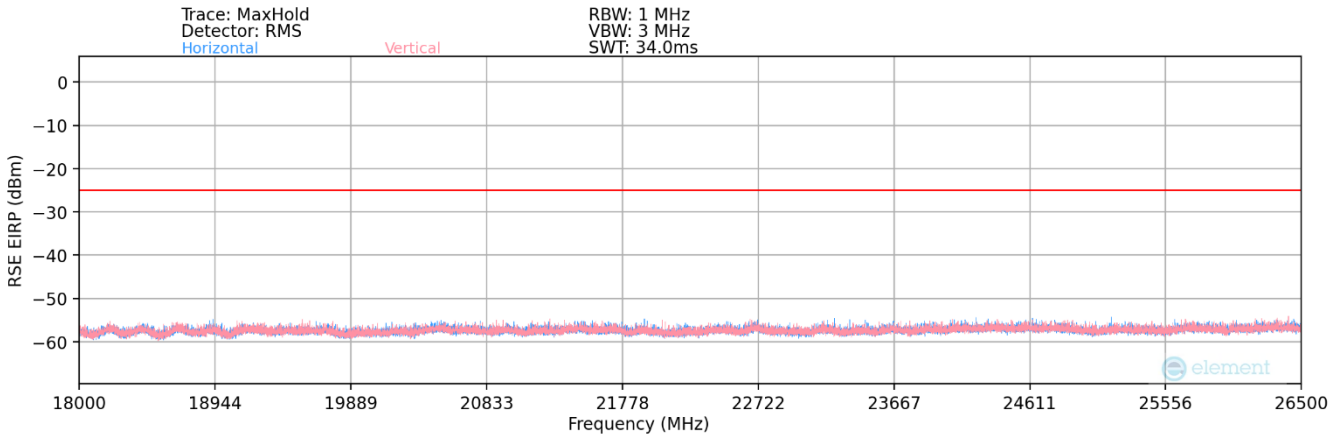
NR Band n41 – Ant E – Default



Plot 7-231. Radiated Spurious Plot (NR Band n41 – Ant E)



Plot 7-232. Radiated Spurious Plot (NR Band n41 – Ant E)



Plot 7-233. Radiated Spurious Plot (NR Band n41 – Ant E)

Bandwidth (MHz):	100
Frequency (MHz):	2640.00
RB / Offset:	1 / 136
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]
5280.00	H	154	330	-61.63	1.93	47.30	-47.96	-25.00	-22.96
7920.00	H	200	67	-77.37	7.24	36.87	-58.39	-25.00	-33.39
10560.00	H	-	-	-80.58	10.88	37.30	-57.96	-25.00	-32.96
13200.00	H	-	-	-81.72	14.22	39.50	-55.76	-25.00	-30.76
15840.00	H	-	-	-82.32	16.10	40.78	-54.48	-25.00	-29.48

Table 7-84. Radiated Spurious Data (NR Band n41 – Low Channel – Ant E)

Bandwidth (MHz):	100
Frequency (MHz):	2640.00
RB / Offset:	1 / 136
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]
5280.00	H	167	323	-66.21	2.23	43.02	-52.24	-25.00	-27.24
7920.00	H	193	99	-66.96	7.42	47.46	-47.79	-25.00	-22.79
10560.00	H	-	-	-81.23	11.13	36.90	-58.36	-25.00	-33.36
13200.00	H	-	-	-81.19	14.06	39.87	-55.38	-25.00	-30.38
15840.00	H	-	-	-81.97	14.91	39.94	-55.31	-25.00	-30.31

Table 7-85. Radiated Spurious Data (NR Band n41 – Mid Channel – Ant E)

Bandwidth (MHz):	100
Frequency (MHz):	2640.00
RB / Offset:	1 / 136
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]
5280.00	H	134	365	-64.27	2.23	44.96	-50.30	-25.00	-25.30
7920.00	H	188	91	-68.03	7.39	46.36	-48.89	-25.00	-23.89
10560.00	H	-	-	-80.21	11.35	38.14	-57.11	-25.00	-32.11
13200.00	H	-	-	-81.39	14.11	39.72	-55.53	-25.00	-30.53
15840.00	H	-	-	-81.73	13.91	39.18	-56.08	-25.00	-31.08

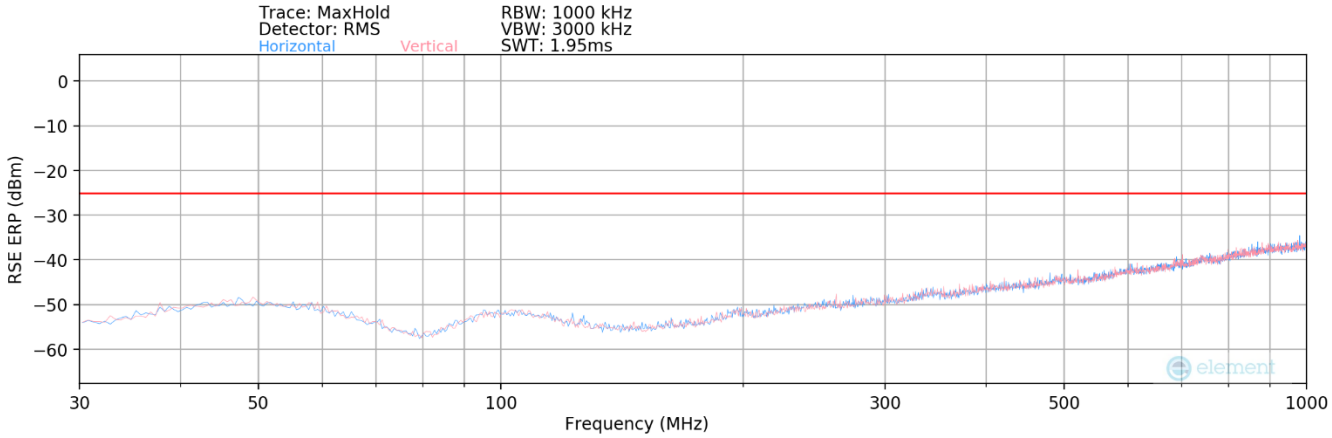
Table 7-86. Radiated Spurious Data (NR Band n41 – High Channel – Ant E)

Bandwidth (MHz):	100
Frequency (MHz):	2592.99
RB / Offset:	1 / 136
Detector / Trace Mode:	Stand Alone

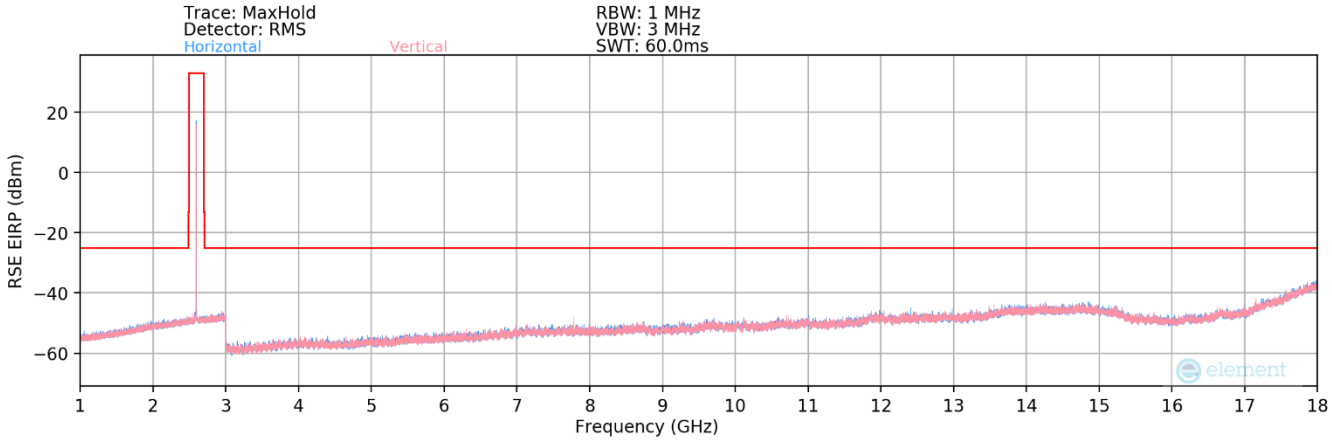
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
195.58	H	-	-	-96.95	18.59	28.64	-68.77	-25.00	-43.77
552.09	H	-	-	-95.96	25.52	36.56	-60.84	-25.00	-35.84
980.73	H	-	-	-96.15	31.10	41.95	-55.45	-25.00	-30.45

Table 7-87. Radiated Spurious Data (NR Band n41 – Mid Channel – Ant E)

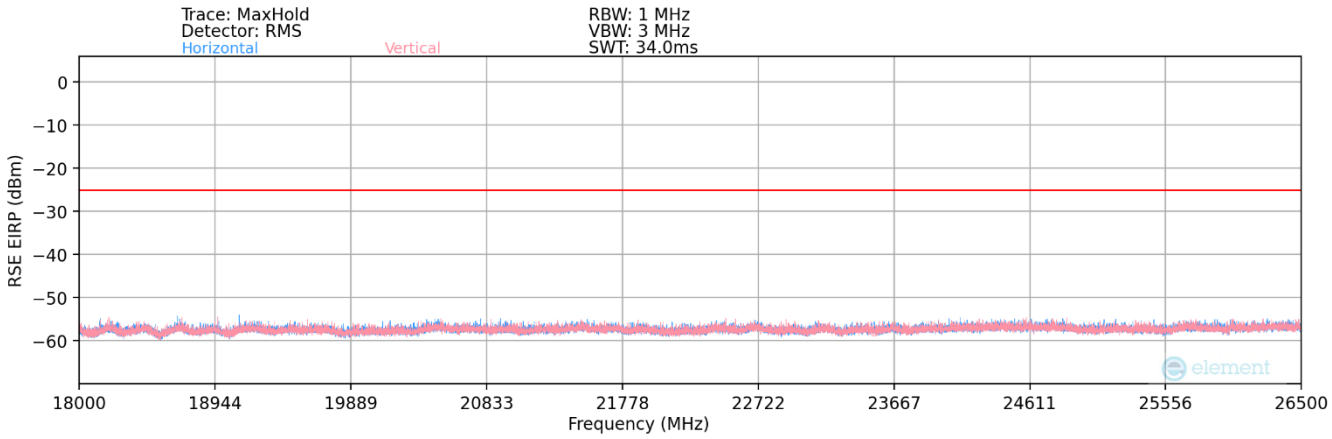
NR Band n41 – Ant D – Switching



Plot 7-234. Radiated Spurious Plot (NR Band n41 – Ant D)



Plot 7-235. Radiated Spurious Plot (NR Band n41 – Ant D)



Plot 7-236. Radiated Spurious Plot (NR Band n41 – Ant D)

Bandwidth (MHz):	100
Frequency (MHz):	2546.01
RB / Offset:	1 / 136
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]
5092.02	V	-	-	-75.38	1.93	33.55	-61.71	-25.00	-36.71
7638.03	V	100	23	-74.81	7.24	39.43	-55.83	-25.00	-30.83
10184.04	V	-	-	-80.03	10.88	37.85	-57.41	-25.00	-32.41
12730.05	V	-	-	-80.14	14.22	41.08	-54.18	-25.00	-29.18
15276.06	V	-	-	-80.87	16.10	42.23	-53.03	-25.00	-28.03

Table 7-88. Radiated Spurious Data (NR Band n41 – Low Channel – Ant D)

Bandwidth (MHz):	100
Frequency (MHz):	2592.99
RB / Offset:	1 / 136
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]
5185.98	V	-	-	-75.72	2.23	33.51	-61.75	-25.00	-36.75
7778.97	V	100	22	-69.59	7.42	44.83	-50.42	-25.00	-25.42
10371.96	V	-	-	-79.71	11.13	38.42	-56.84	-25.00	-31.84
12964.95	V	-	-	-79.11	14.06	41.95	-53.30	-25.00	-28.30
15557.94	V	-	-	-81.26	14.91	40.65	-54.60	-25.00	-29.60

Table 7-89. Radiated Spurious Data (NR Band n41 – Mid Channel – Ant D)

Bandwidth (MHz):	100
Frequency (MHz):	2640.00
RB / Offset:	1 / 136
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]
5280.00	V	-	-	-75.96	2.23	33.27	-61.99	-25.00	-36.99
7920.00	V	-	-	-77.50	7.39	36.89	-58.36	-25.00	-33.36
10560.00	V	-	-	-79.07	11.35	39.28	-55.97	-25.00	-30.97
13200.00	V	-	-	-80.04	14.11	41.07	-54.18	-25.00	-29.18
15840.00	V	-	-	-80.49	13.91	40.42	-54.84	-25.00	-29.84

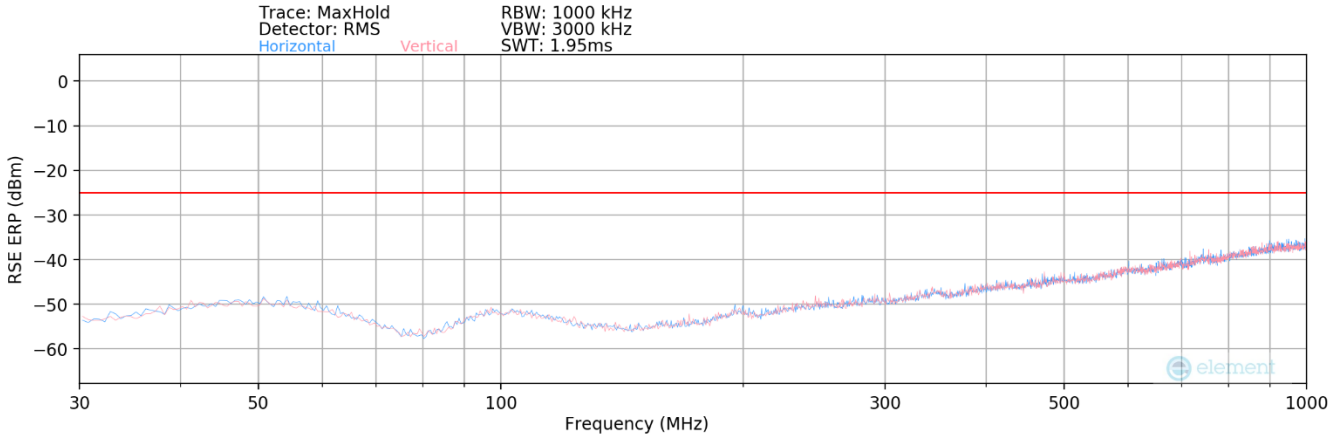
Table 7-90. Radiated Spurious Data (NR Band n41 – High Channel – Ant D)

Bandwidth (MHz):	100
Frequency (MHz):	2592.99
RB / Offset:	1 / 136
Detector / Trace Mode:	Stand Alone

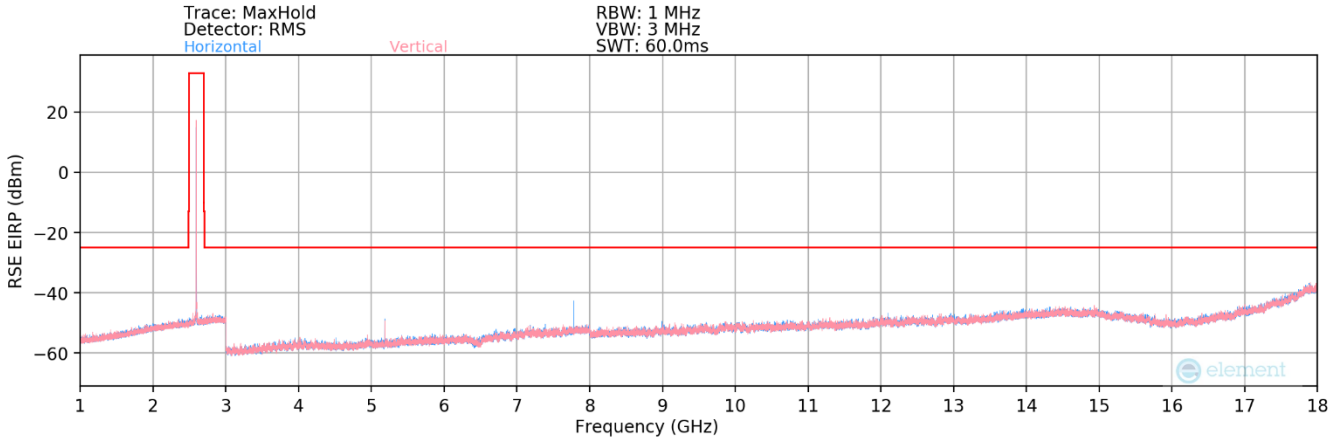
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
242.01	V	-	-	-96.87	19.50	29.63	-67.78	-25.00	-42.78
457.38	V	-	-	-95.87	23.72	34.85	-62.56	-25.00	-37.56
845.05	V	-	-	-96.00	30.10	41.10	-56.31	-25.00	-31.31

Table 7-91. Radiated Spurious Data (NR Band n41 – Mid Channel – Ant D)

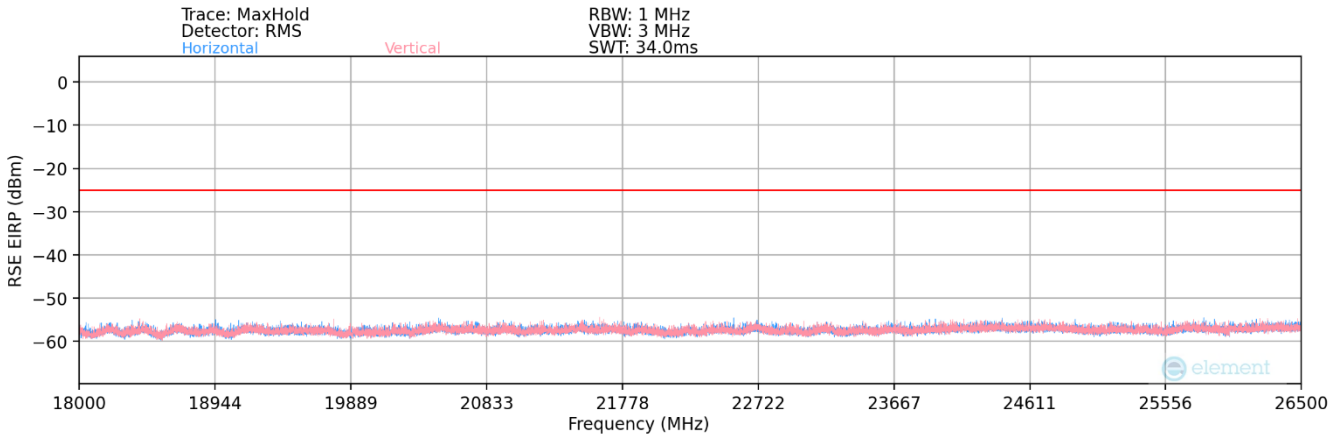
NR Band n41 – Ant D – Default



Plot 7-237. Radiated Spurious Plot (NR Band n41 – Ant D)



Plot 7-238. Radiated Spurious Plot (NR Band n41 – Ant D)



Plot 7-239. Radiated Spurious Plot (NR Band n41 – Ant D)

Bandwidth (MHz):	100
Frequency (MHz):	2546.01
RB / Offset:	1 / 136
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]
5092.02	H	-	-	-76.66	1.93	32.27	-62.99	-25.00	-37.99
7638.03	H	-	-	-78.10	7.24	36.14	-59.12	-25.00	-34.12
10184.04	H	-	-	-80.76	10.88	37.12	-58.14	-25.00	-33.14

Table 7-92. Radiated Spurious Data (NR Band n41 – Low Channel – Ant D)

Bandwidth (MHz):	100
Frequency (MHz):	2592.99
RB / Offset:	1 / 136
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]
5185.98	H	-	-	-76.79	2.23	32.44	-62.82	-25.00	-37.82
7778.97	H	-	-	-78.77	7.42	35.65	-59.60	-25.00	-34.60
10371.96	H	-	-	-81.01	11.13	37.12	-58.14	-25.00	-33.14

Table 7-93. Radiated Spurious Data (NR Band n41 – Mid Channel – Ant D)

Bandwidth (MHz):	100
Frequency (MHz):	2640.00
RB / Offset:	1 / 136
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]
5280.00	H	-	-	-77.06	2.23	32.17	-63.09	-25.00	-38.09
7920.00	H	-	-	-78.77	7.39	35.62	-59.63	-25.00	-34.63
10560.00	H	-	-	-80.21	11.35	38.14	-57.11	-25.00	-32.11

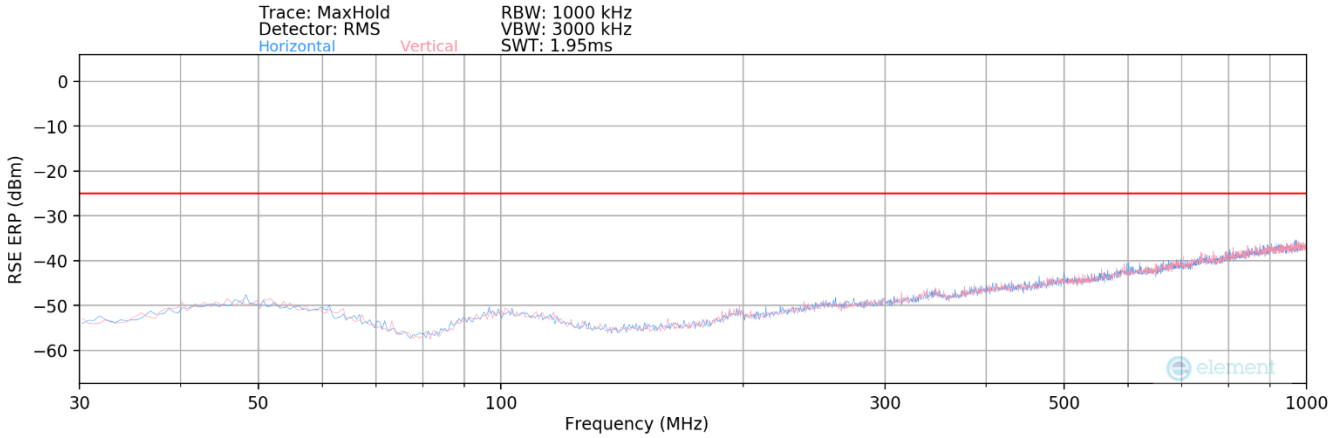
Table 7-94. Radiated Spurious Data (NR Band n41 – High Channel – Ant D)

Bandwidth (MHz):	100
Frequency (MHz):	2592.99
RB / Offset:	1 / 136
Mode:	Stand Alone

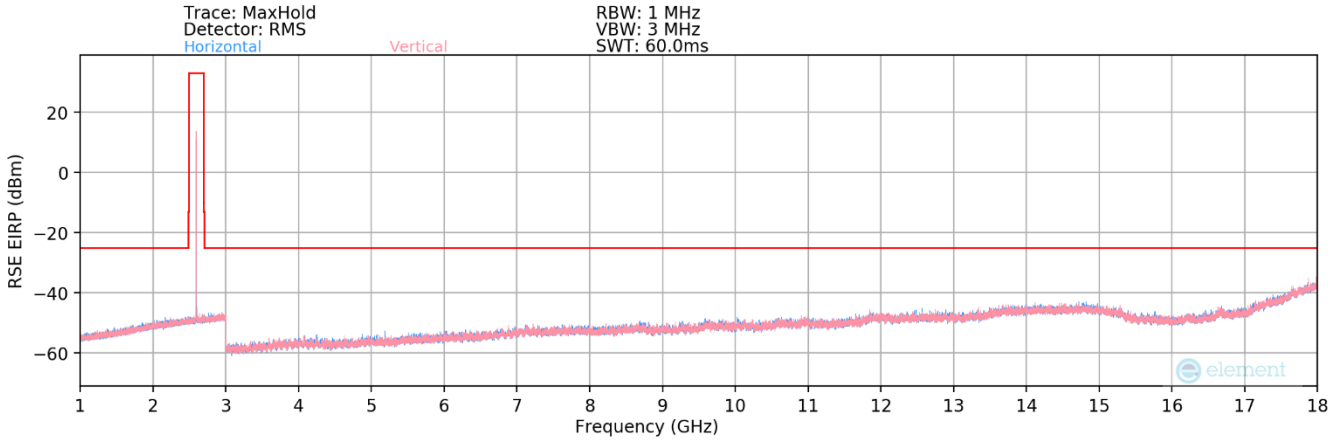
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
92.93	H	-	-	-96.91	17.48	27.57	-69.83	-25.00	-44.83
550.85	H	-	-	-96.00	25.49	36.49	-60.92	-25.00	-35.92
968.99	H	-	-	-96.04	30.97	41.93	-55.48	-25.00	-30.48

Table 7-95. Radiated Spurious Data (NR Band n41 – Mid Channel – Ant D)

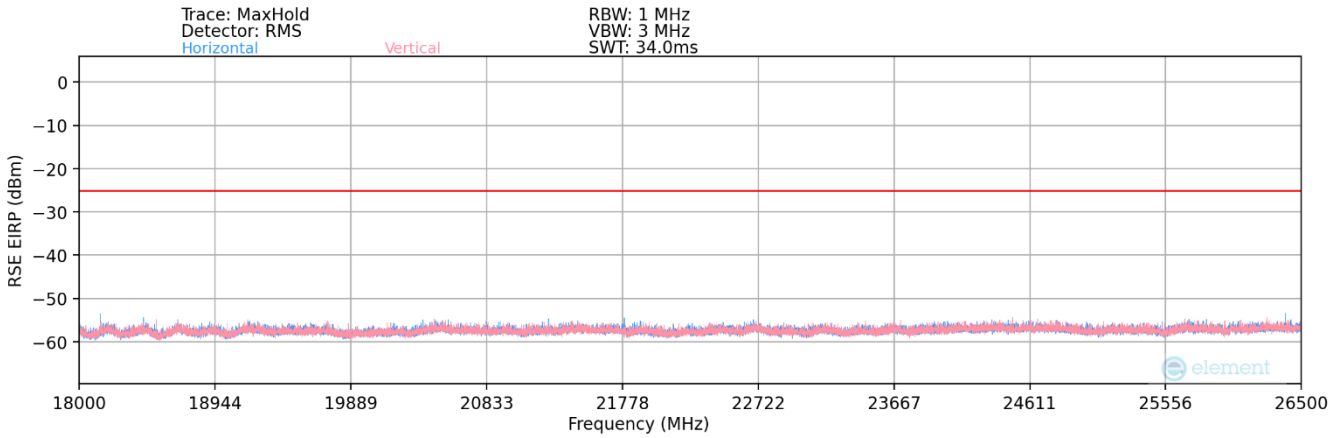
NR Band n41 – Ant E – Switching



Plot 7-240. Radiated Spurious Plot (NR Band n41 – Ant E)



Plot 7-241. Radiated Spurious Plot (NR Band n41 – Ant E)



Plot 7-242. Radiated Spurious Plot (NR Band n41 – Ant E)

Bandwidth (MHz):	100
Frequency (MHz):	2546.01
RB / Offset:	1 / 136
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]
5092.02	H	-	-	-75.25	1.93	33.68	-61.58	-25.00	-36.58
7638.03	H	-	-	-76.89	7.24	37.35	-57.91	-25.00	-32.91
10184.04	H	-	-	-79.98	10.88	37.90	-57.36	-25.00	-32.36
12730.05	H	-	-	-80.09	14.22	41.13	-54.13	-25.00	-29.13

Table 7-96. Radiated Spurious Data (NR Band n41 – Low Channel – Ant E)

Bandwidth (MHz):	100
Frequency (MHz):	2592.99
RB / Offset:	1 / 136
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]
5185.98	H	162	6	-70.02	2.23	39.21	-56.05	-25.00	-31.05
7778.97	H	-	-	-77.78	7.42	36.64	-58.61	-25.00	-33.61
10371.96	H	-	-	-79.70	11.13	38.43	-56.83	-25.00	-31.83
12964.95	H	-	-	-79.44	14.06	41.62	-53.63	-25.00	-28.63

Table 7-97. Radiated Spurious Data (NR Band n41 – Mid Channel – Ant E)

Bandwidth (MHz):	100
Frequency (MHz):	2640.00
RB / Offset:	1 / 136
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]
5280.00	H	180	2	-68.77	2.23	40.46	-54.80	-25.00	-29.80
7920.00	H	-	-	-77.54	7.39	36.85	-58.40	-25.00	-33.40
10560.00	H	-	-	-79.04	11.35	39.31	-55.94	-25.00	-30.94
13200.00	H	-	-	-80.05	14.11	41.06	-54.19	-25.00	-29.19

Table 7-98. Radiated Spurious Data (NR Band n41 – High Channel – Ant E)

Bandwidth (MHz):	100
Frequency (MHz):	2592.99
RB / Offset:	1 / 136
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]
211.29	H	-	-	-96.82	17.88	28.06	-69.34	-25.00	-44.34
551.97	H	-	-	-96.13	25.52	36.39	-61.02	-25.00	-36.02
828.83	H	-	-	-95.97	29.76	40.79	-56.62	-25.00	-31.62

Table 7-99. Radiated Spurious Data (NR Band n41 – Mid Channel – Ant E)

7.8 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

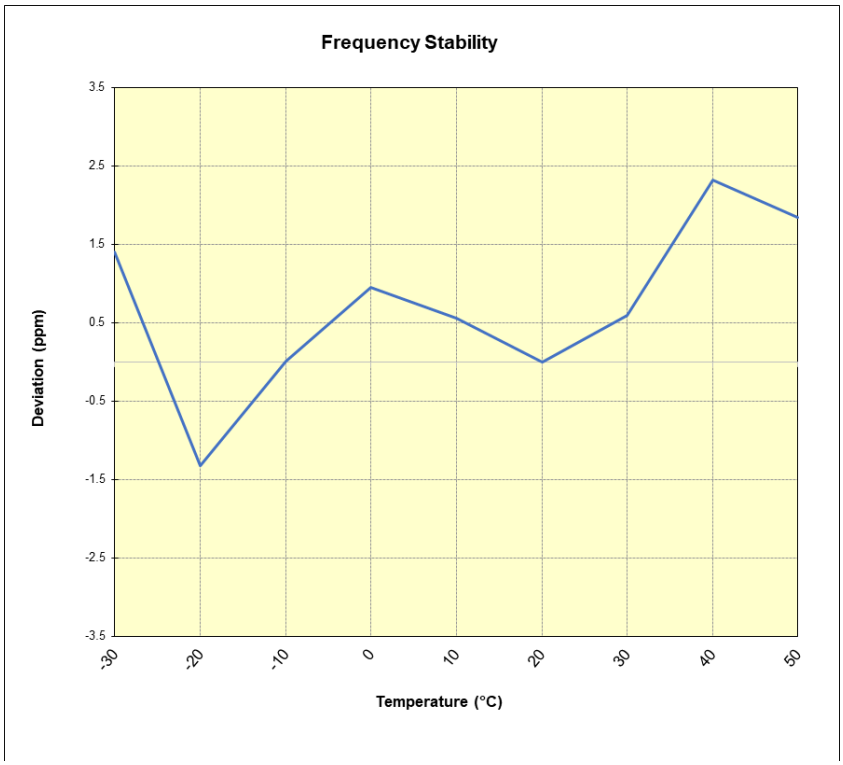
None

LTE Band 41

LTE Band 41/38	
Operating Frequency (Hz):	2,593,000,000
Ref. Voltage (VDC):	3.863

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.863	- 30	2,593,104,302	3,625	0.0001398
		- 20	2,593,097,255	-3,422	-0.0001320
		- 10	2,593,100,698	21	0.0000008
		0	2,593,103,131	2,454	0.0000946
		+ 10	2,593,102,117	1,440	0.0000555
		+ 20 (Ref)	2,593,100,677	0	0.0000000
		+ 30	2,593,102,203	1,526	0.0000588
		+ 40	2,593,106,687	6,010	0.0002318
		+ 50	2,593,105,447	4,770	0.0001839
Battery Endpoint	3.174	+ 20	2,593,104,558	3,881	0.0001497

Table 7-100. LTE Band 41(PC2) Frequency Stability Data



Plot 7-243. LTE Band 41(PC2) Frequency Stability Chart

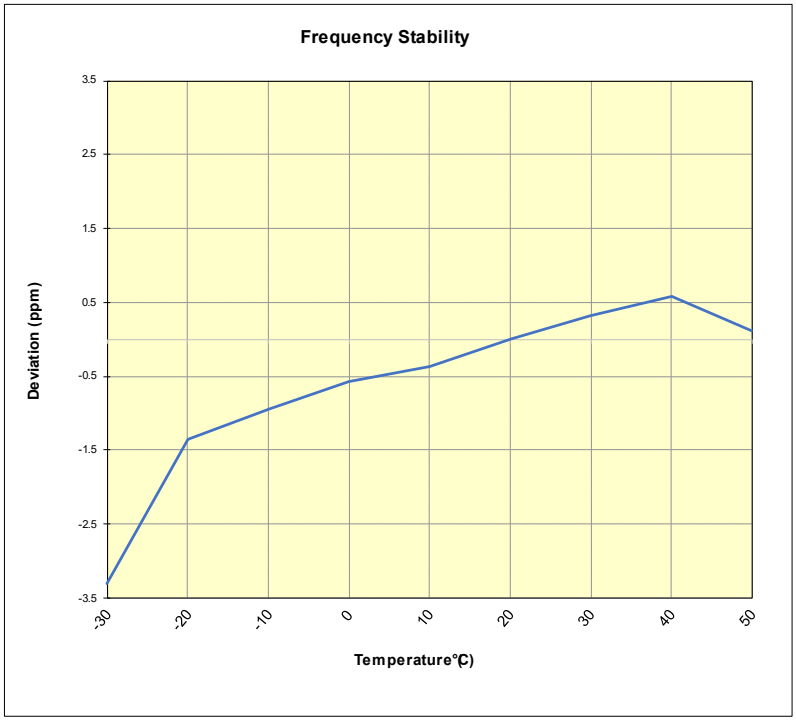
NR Band n41

NR Band n41

Operating Frequency (Hz):	2,593,000,000
Ref. Voltage (VDC):	3.863

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.863	- 30	2,593,085,352	-8,594	-0.0003314
		- 20	2,593,090,411	-3,535	-0.0001363
		- 10	2,593,091,475	-2,471	-0.0000953
		0	2,593,092,444	-1,502	-0.0000579
		+ 10	2,593,093,014	-932	-0.0000359
		+ 20 (Ref)	2,593,093,946	0	0.0000000
		+ 30	2,593,094,781	835	0.0000322
		+ 40	2,593,095,470	1,524	0.0000588
		+ 50	2,593,094,247	301	0.0000116
Battery Endpoint	3.174	+ 20	2,593,093,444	-502	-0.0000194

Table 7-101. NR Band n7 Frequency Stability Data



Plot 7-244. NR Band n7 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: A3LSMS936B** complies with all the requirements of Part 27 of the FCC rules.