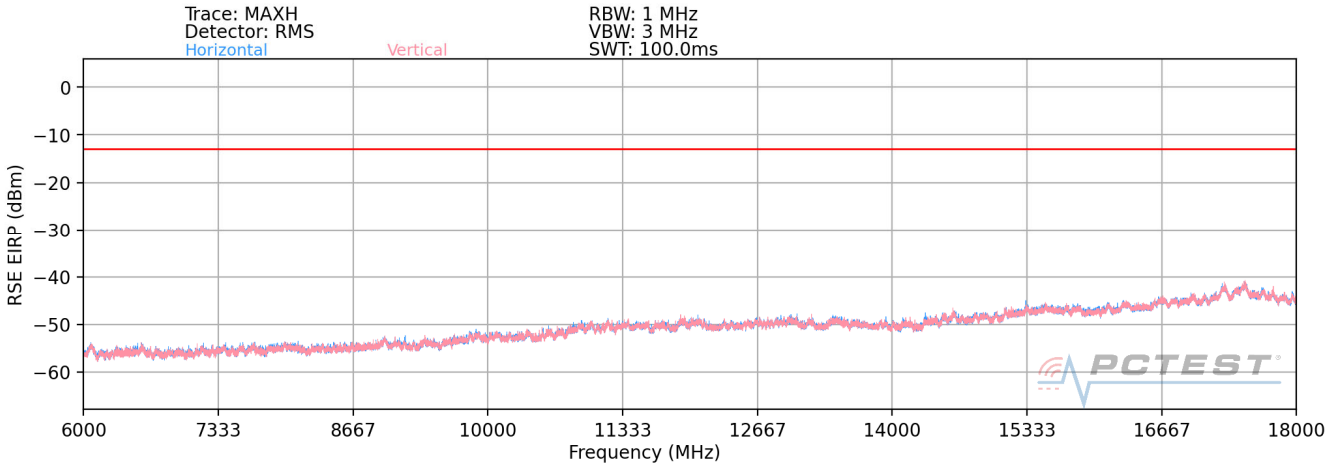


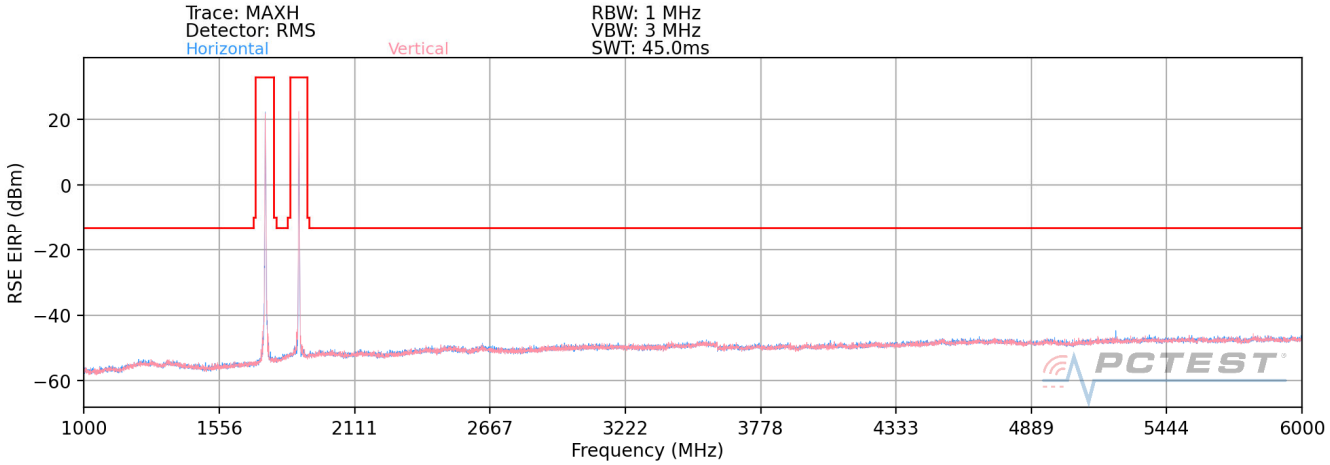
Plot 7-197. Radiated Spurious Plot (EN-DC n25/2 (North) & B66 (South) - 6 – 18GHz - Closed)

Bandwidth (MHz):	20
Frequency (MHz):	1882.5
RB / Offset:	1 / 53
Mode:	EN-DC
Anchor Band:	B66

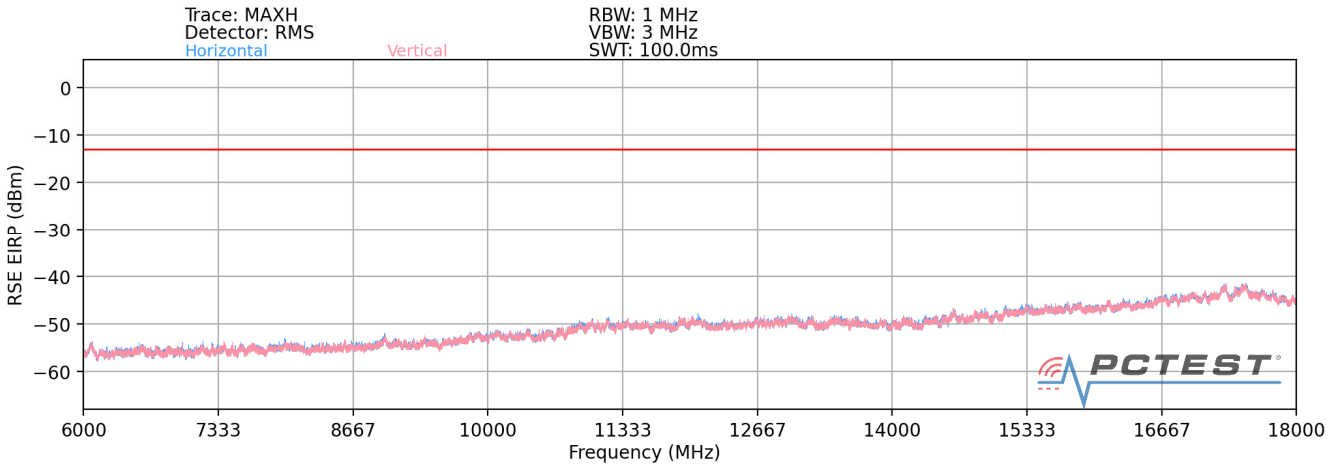
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1470.0	H	-	-	-76.32	-2.62	28.06	-67.20	-13.00	-54.20
1607.5	H	-	-	-76.28	-2.70	28.02	-67.24	-13.00	-54.24
2020.0	H	-	-	-76.90	0.79	30.89	-64.37	-13.00	-51.37
2157.5	H	-	-	-77.83	0.86	30.03	-65.23	-13.00	-52.23
2295.0	H	-	-	-77.44	0.98	30.54	-64.72	-13.00	-51.72

Table 7-24. Radiated Spurious Data (EN-DC n25/2 (North) & B66 (South) - Closed)

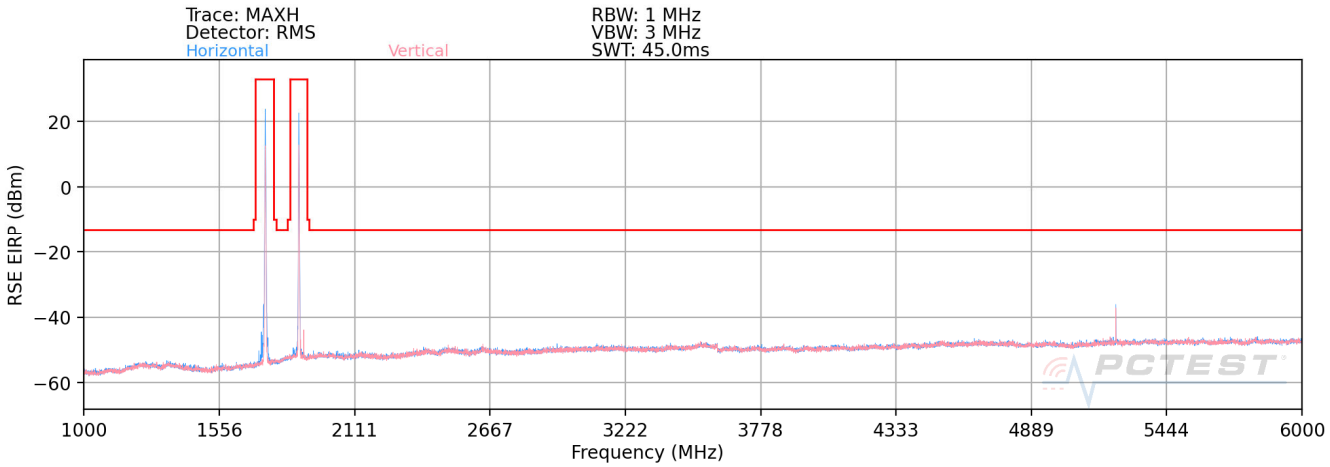
EN-DC NR Band n25/2 – South & LTE Band 66 – North



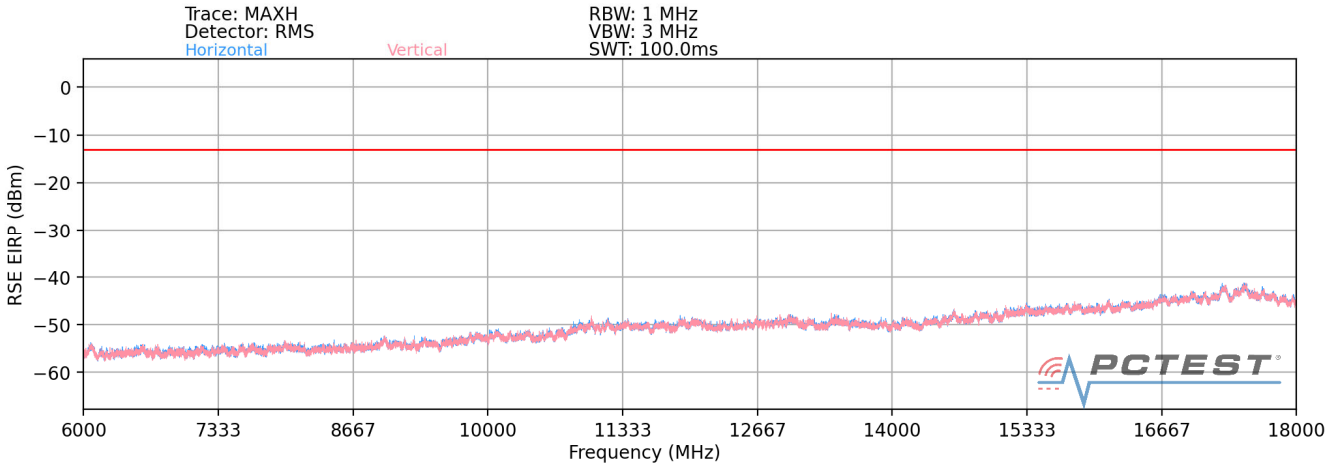
Plot 7-198. Radiated Spurious Plot (EN-DC n25/2 (South) & B66 (North) - 1 – 6 GHz - Half)



Plot 7-199. Radiated Spurious Plot (EN-DC n25/2 (South) & B66 (North) - 6 – 18GHz - Half)



Plot 7-200. Radiated Spurious Plot (EN-DC n25/2 (South) & B66 (North) - 1 – 6 GHz - Closed)



Plot 7-201. Radiated Spurious Plot (EN-DC n25/2 (South) & B66 (North) - 6 – 18GHz - Closed)

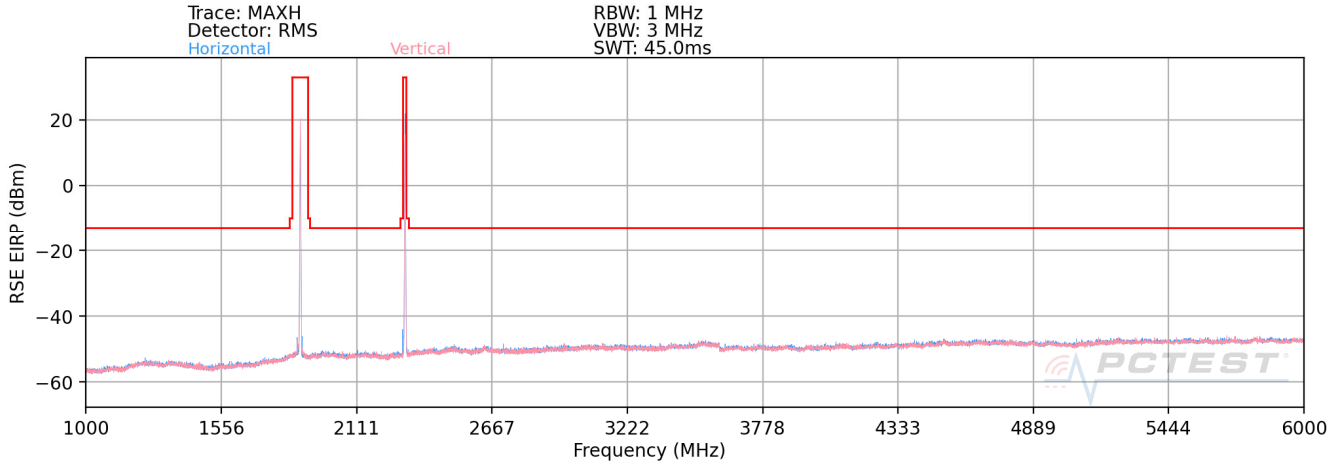
Bandwidth (MHz):	20
Frequency (MHz):	1882.5
RB / Offset:	1 / 53
Mode:	EN-DC
Anchor Band:	B66

1 / 50

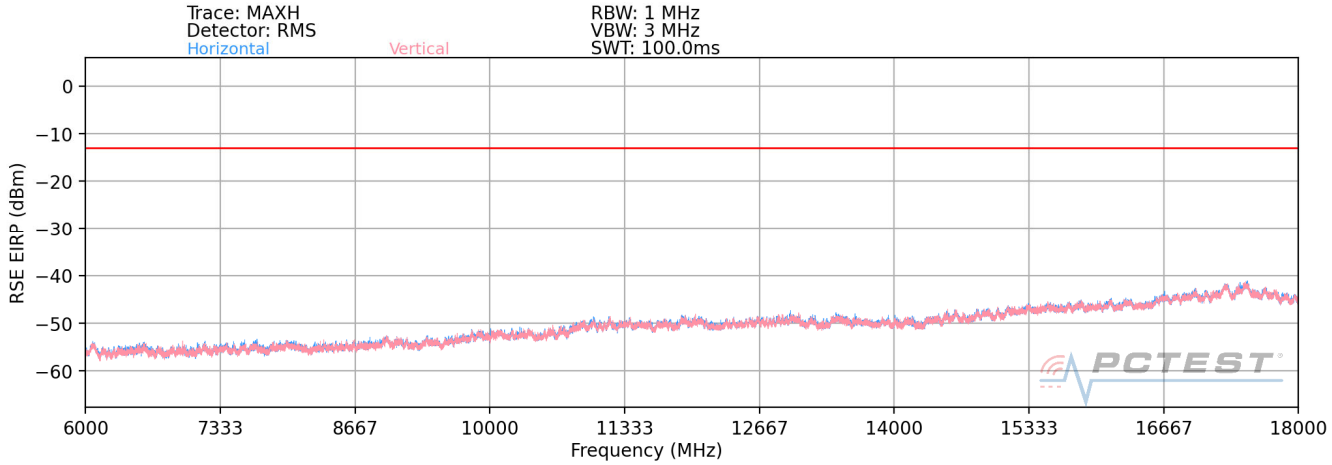
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1470.0	V	-	-	-76.71	5.77	36.06	-59.20	-13.00	-46.20
1607.5	V	-	-	-77.02	6.24	36.22	-59.03	-13.00	-46.03
2020.0	V	-	-	-77.21	9.89	39.68	-55.57	-13.00	-42.57
2157.5	V	-	-	-77.15	9.82	39.67	-55.59	-13.00	-42.59
5235.0	V	293	320	-76.94	15.32	45.38	-49.88	-13.00	-36.88

Table 7-25. Radiated Spurious Data (EN-DC n25/2 (South) & B66 (North) - Closed)

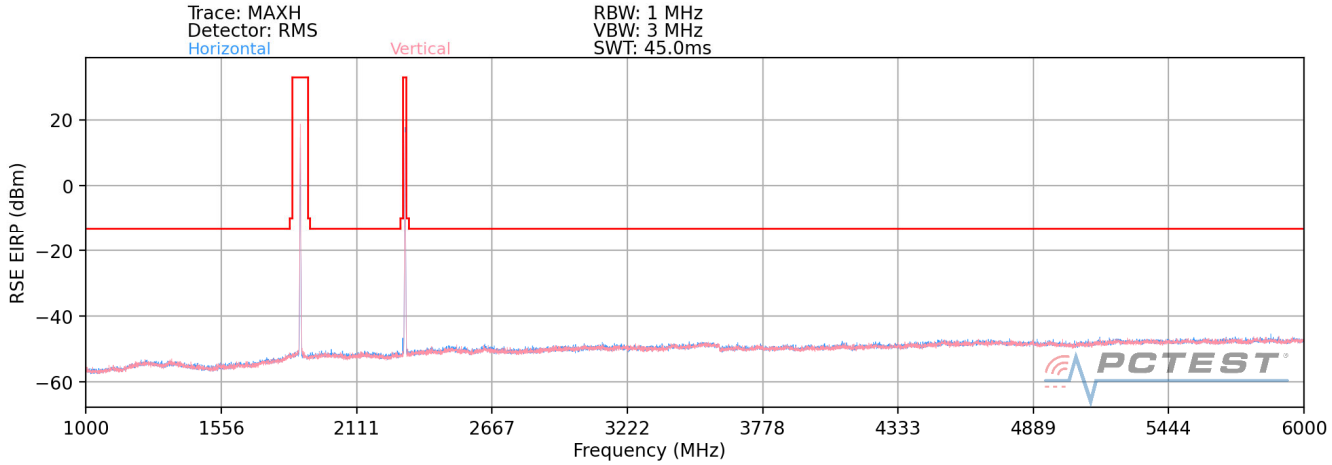
EN-DC NR Band n2 – North & LTE Band 30 – South



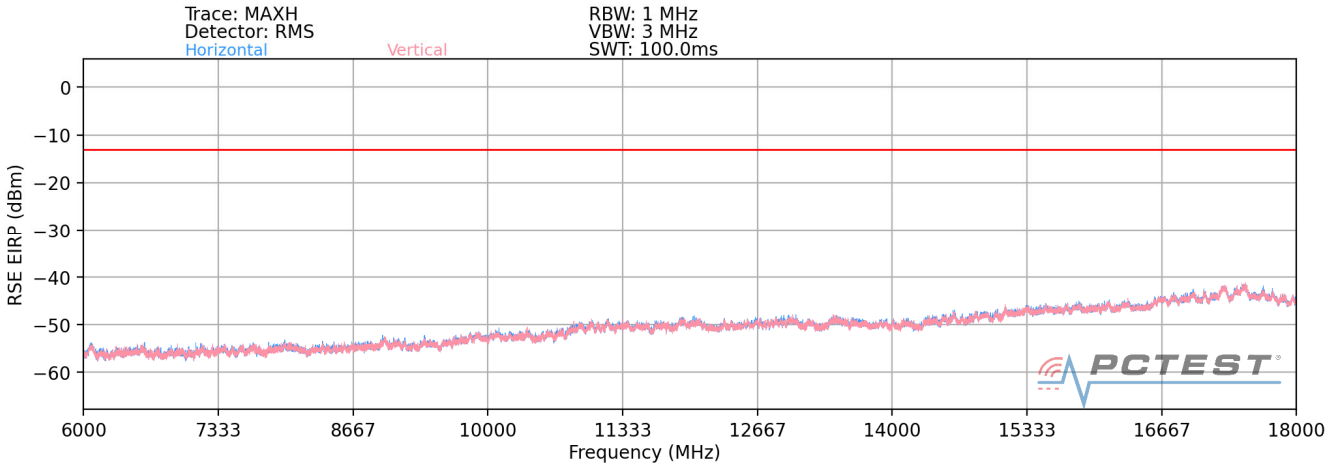
Plot 7-202. Radiated Spurious Plot (EN-DC n2 (North) & B30 (South) - 1 – 6 GHz - Open)



Plot 7-203. Radiated Spurious Plot (EN-DC n2 (North) & B30 (South) - 6 – 18GHz - Open)



Plot 7-204. Radiated Spurious Plot (EN-DC n2 (North) & B30 (South) - 1 – 6 GHz - Closed)



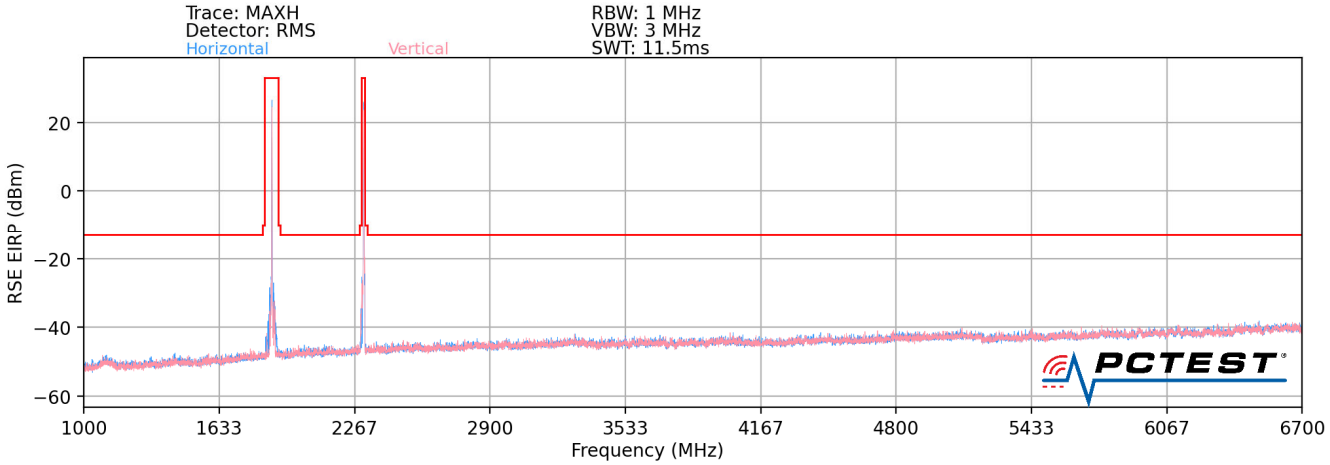
Plot 7-205. Radiated Spurious Plot (EN-DC n2 (North) & B30 (South) - 6 – 18GHz - Closed)

Bandwidth (MHz):	20
Frequency (MHz):	1880.0
RB / Offset:	1 / 53
Mode:	EN-DC
Anchor Band:	LTE Band 30

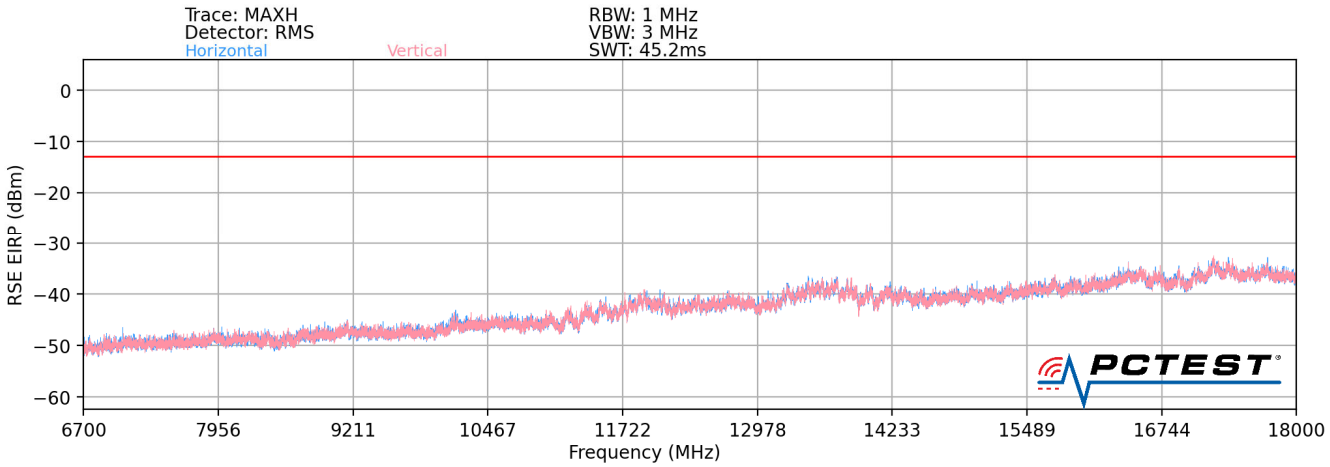
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1450.0	H	-	-	-76.30	-2.12	28.58	-66.68	-13.00	-53.68
2740.0	H	-	-	-76.63	2.04	32.41	-62.85	-13.00	-49.85
3170.0	H	-	-	-77.20	3.19	32.99	-62.27	-13.00	-49.27

Table 7-26. Radiated Spurious Data (EN-DC n2 (North) & B30 (South) - Open)

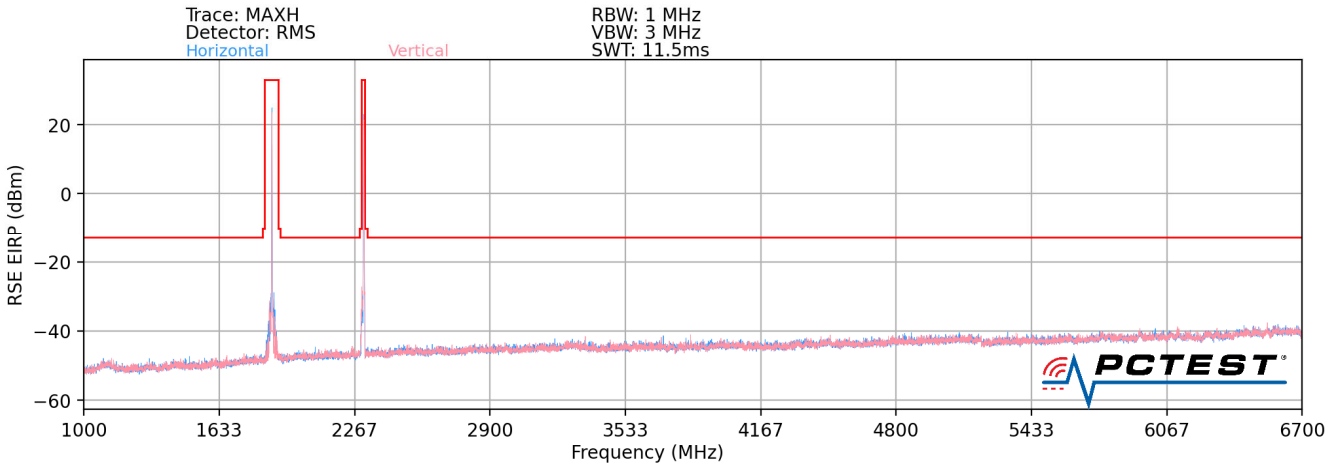
EN-DC NR Band n2 – South & LTE Band 30 – North



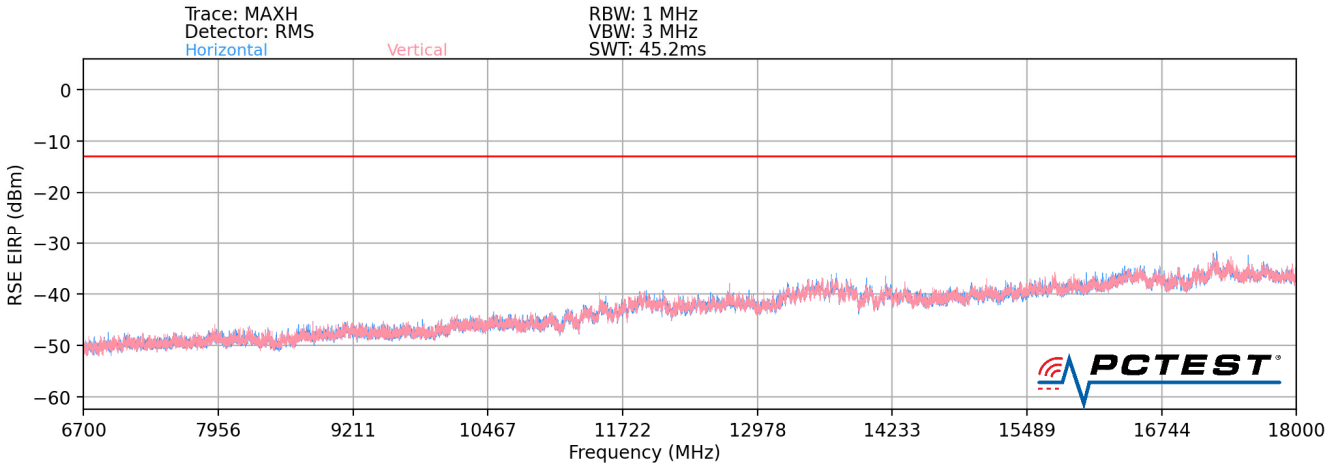
Plot 7-206. Radiated Spurious Plot (EN-DC n2 (South) & B30 (North) - 1 – 6 GHz - Open)



Plot 7-207. Radiated Spurious Plot (EN-DC n2 (South) & B30 (North) - 6 – 18GHz - Open)



Plot 7-208. Radiated Spurious Plot (EN-DC n2 (South) & B30 (North) - 1 – 6 GHz - Closed)



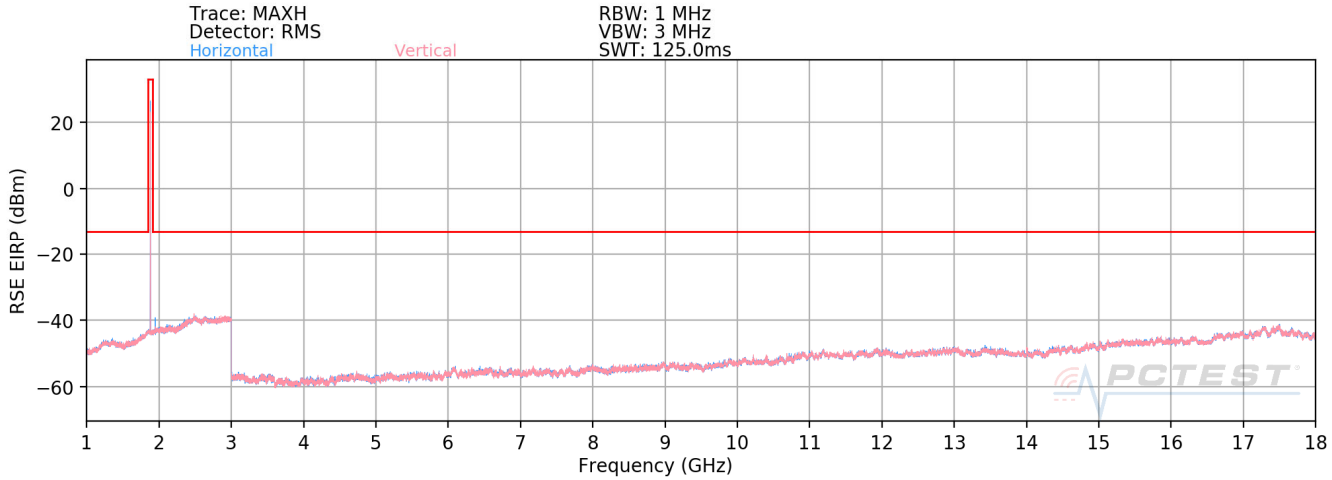
Plot 7-209. Radiated Spurious Plot (EN-DC n2 (South) & B30 (North) - 6 – 18GHz - Closed)

Bandwidth (MHz):	20MHz/10MHz
Frequency (MHz):	1880 & 2310
RB / Offset:	1/53 & 1/25
Mode:	EN-DC
Anchor Band:	LTE Band 30

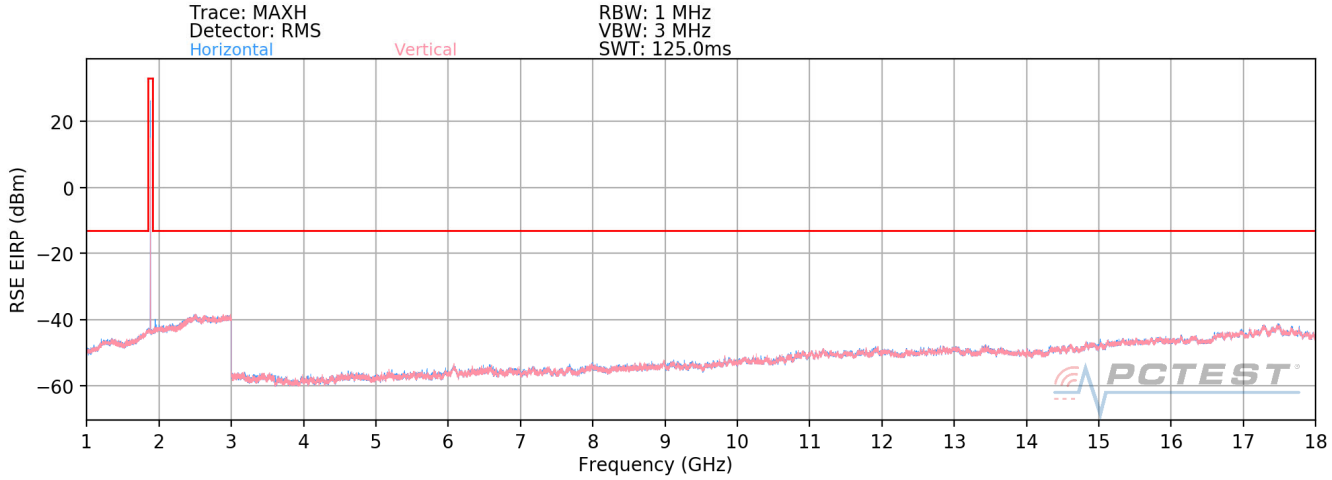
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1450.0	H	-	-	-78.67	9.33	37.66	-57.60	-13.00	-44.60
2740.0	H	-	-	-79.80	14.77	41.97	-53.29	-13.00	-40.29
3170.0	H	-	-	-80.36	15.77	42.41	-52.85	-13.00	-39.85

Table 7-27. Radiated Spurious Data (EN-DC n2 (South) & B30 (North) - Open)

GSM/GPRS PCS – South



Plot 7-210. Radiated Spurious Plot (GPRS PCS - South - Half)



Plot 7-211. Radiated Spurious Plot (GPRS PCS - South - Open)

Mode:	GPRS 1 Tx Slot
Channel:	512
Frequency (MHz):	1850.2

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]
3700.4	H	378	294	-74.25	3.93	36.68	-58.58	-13.00	-45.58
5550.6	H	-	-	-76.05	5.33	36.28	-58.98	-13.00	-45.98
7400.8	H	236	302	-75.70	8.40	39.70	-55.56	-13.00	-42.56
9251.0	H	-	-	-77.93	9.26	38.33	-56.93	-13.00	-43.93
11101.2	H	-	-	-78.38	13.79	42.41	-52.85	-13.00	-39.85
12951.4	H	-	-	-76.05	25.37	56.32	-38.94	-13.00	-25.94

Table 7-28. Radiated Spurious Data (GPRS PCS – Low Channel - South - Half)

Mode:	GPRS 1 Tx Slot
Channel:	661
Frequency (MHz):	1880

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]
3760.0	H	377	297	-73.50	4.19	37.69	-57.57	-13.00	-44.57
5640.0	H	304	50	-74.15	6.34	39.19	-56.07	-13.00	-43.07
7520.0	H	-	-	-78.08	7.60	36.52	-58.74	-13.00	-45.74
9400.0	H	-	-	-78.89	10.30	38.41	-56.85	-13.00	-43.85
11280.0	H	-	-	-75.70	21.45	52.75	-42.50	-13.00	-29.50
13160.0	H	-	-	-75.98	25.50	56.52	-38.74	-13.00	-25.74

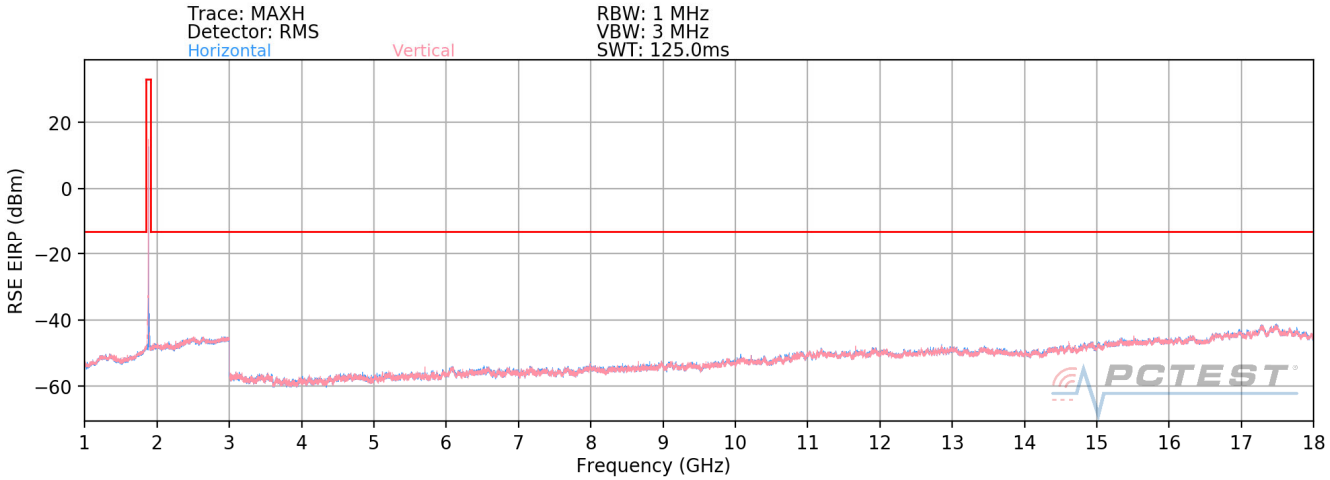
Table 7-29. Radiated Spurious Data (GPRS PCS – Mid Channel - South - Half)

Mode:	GPRS 1 Tx Slot
Channel:	810
Frequency (MHz):	1909.8

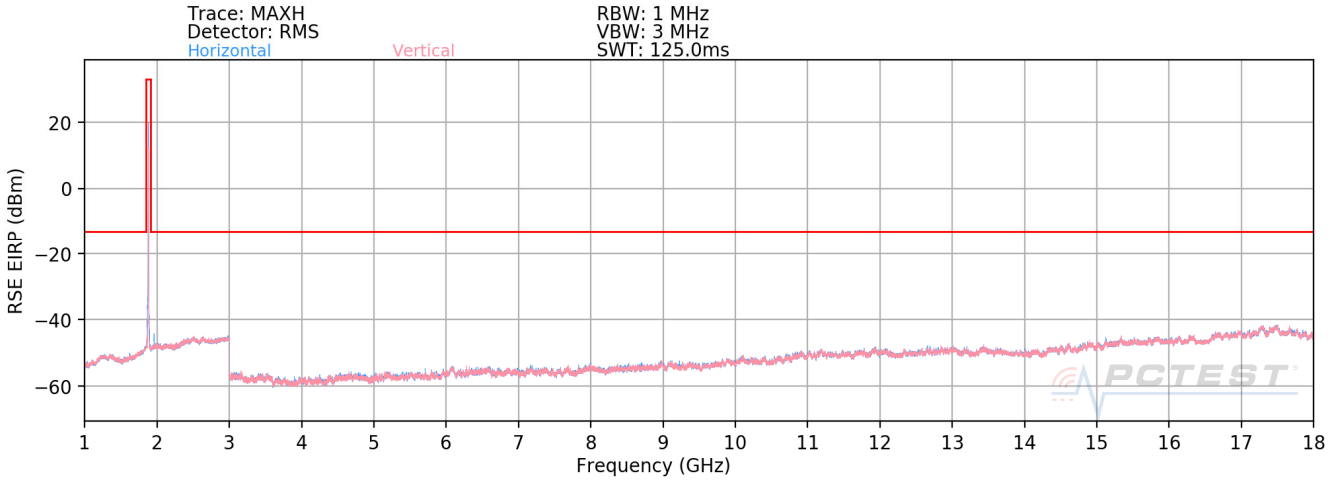
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3819.6	H	380	46	-70.26	3.27	40.01	-55.25	-13.00	-42.25
5729.4	H	-	-	-76.82	5.55	35.73	-59.52	-13.00	-46.52
7639.2	H	-	-	-78.02	8.63	37.61	-57.65	-13.00	-44.65
9549.0	H	-	-	-78.84	10.26	38.42	-56.83	-13.00	-43.83
11458.8	H	-	-	-77.00	21.67	51.67	-43.59	-13.00	-30.59
13368.6	H	-	-	-76.08	26.81	57.73	-37.53	-13.00	-24.53

Table 7-30. Radiated Spurious Data (GPRS PCS – High Channel - South - Half)

WCDMA PCS – South



Plot 7-212. Radiated Spurious Plot (WCDMA PCS – South - Half)



Plot 7-213. Radiated Spurious Plot (WCDMA PCS – South - Open)

Mode:	WCDMA RMC
Channel:	9262
Frequency (MHz):	1852.4

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]
3704.8	H	-	-	-79.01	3.68	31.67	-63.59	-13.00	-50.59
5557.2	H	-	-	-79.27	5.34	33.07	-62.18	-13.00	-49.18
7409.6	H	-	-	-72.96	15.62	49.66	-45.60	-13.00	-32.60
9262.0	H	-	-	-74.48	18.01	50.53	-44.73	-13.00	-31.73
11114.4	H	-	-	-76.24	21.28	52.04	-43.21	-13.00	-30.21
12966.8	H	-	-	-75.93	24.63	55.70	-39.55	-13.00	-26.55

Table 7-31. Radiated Spurious Data (WCDMA PCS – Low Channel - South - Half)

Mode:	WCDMA RMC
Channel:	9400
Frequency (MHz):	1880

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]
3760.0	H	-	-	-79.15	4.19	32.04	-63.22	-13.00	-50.22
5640.0	H	-	-	-79.67	6.34	33.67	-61.59	-13.00	-48.59
7520.0	H	-	-	-73.48	15.71	49.23	-46.03	-13.00	-33.03
9400.0	H	-	-	-76.01	18.38	49.37	-45.89	-13.00	-32.89
11280.0	H	-	-	-75.85	21.45	52.60	-42.65	-13.00	-29.65
13160.0	H	-	-	-75.25	25.50	57.25	-38.01	-13.00	-25.01

Table 7-32. Radiated Spurious Data (WCDMA PCS – Mid Channel - South - Half)

Mode:	WCDMA RMC
Channel:	9538
Frequency (MHz):	1907.6

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]
3815.2	H	-	-	-78.53	3.26	31.73	-63.53	-13.00	-50.53
5722.8	H	-	-	-79.40	5.75	33.35	-61.91	-13.00	-48.91
7630.4	H	-	-	-73.61	16.44	49.83	-45.43	-13.00	-32.43
9538.0	H	-	-	-76.00	18.64	49.64	-45.62	-13.00	-32.62
11445.6	H	-	-	-75.91	22.07	53.16	-42.10	-13.00	-29.10
13353.2	H	-	-	-76.31	27.01	57.70	-37.56	-13.00	-24.56

Table 7-33. Radiated Spurious Data (WCDMA PCS – High Channel - South - Half)

7.9 Frequency Stability / Temperature Variation

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. 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.

Test Procedure Used

ANSI/TIA-603-E-2016

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

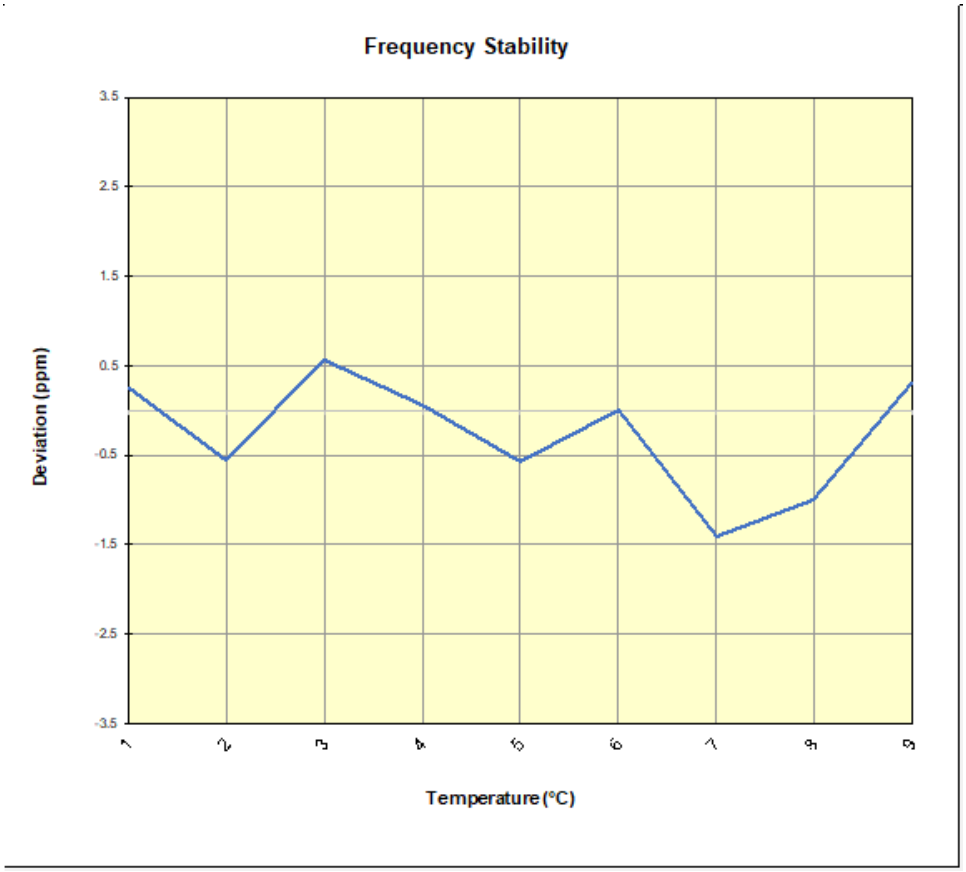
None

LTE Band 25/2

Operating Frequency (Hz):	1,882,500,000
Ref. Voltage (VDC):	4.24

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.24	- 30	1,882,503,336	450	0.0000239
		- 20	1,882,501,853	-1,033	-0.0000549
		- 10	1,882,503,961	1,075	0.0000571
		0	1,882,502,994	108	0.0000057
		+ 10	1,882,501,807	-1,079	-0.0000573
		+ 20 (Ref)	1,882,502,886	0	0.0000000
		+ 30	1,882,500,241	-2,645	-0.0001405
		+ 40	1,882,501,018	-1,868	-0.0000992
		+ 50	1,882,503,440	554	0.0000295
Battery Endpoint	3.70	+ 20	1,882,501,056	-1,830	-0.0000972

Table 7-34. LTE Band 25/2 Frequency Stability Data



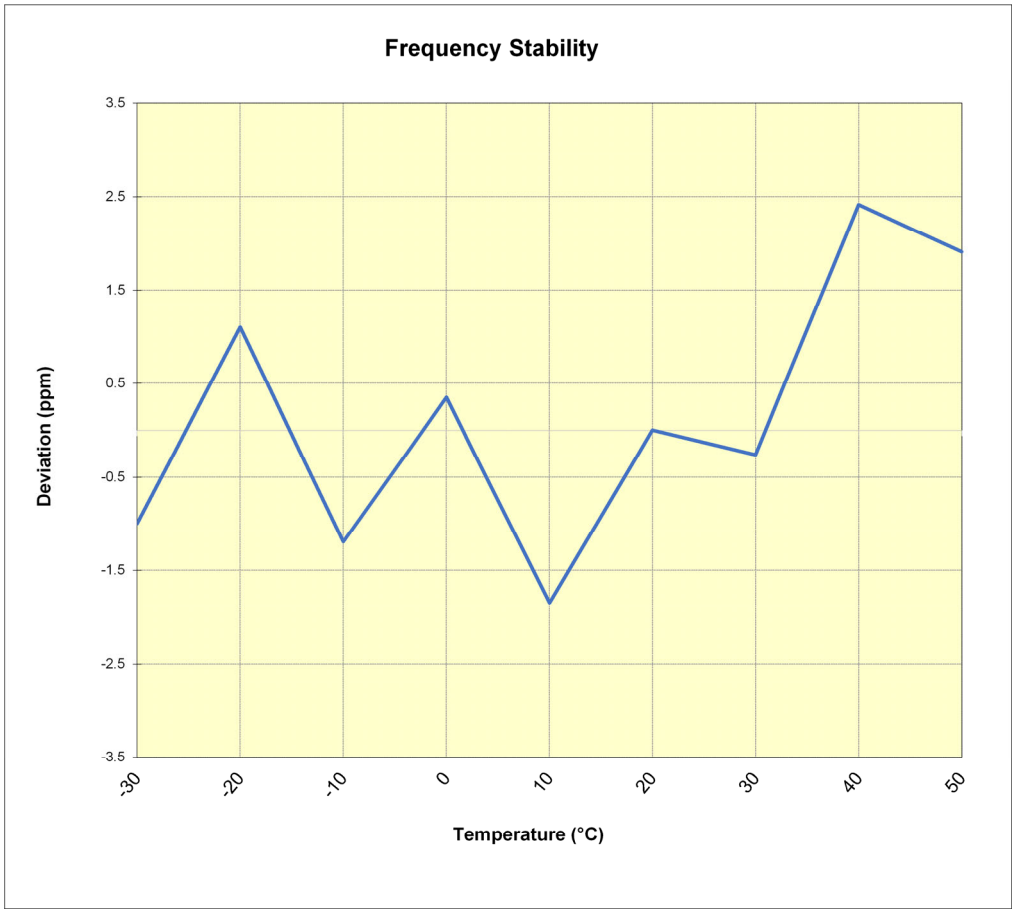
Plot 7-214. LTE Band 25/2 Frequency Stability Chart

NR Band n25/2

Operating Frequency (Hz):	1,882,500,000
Ref. Voltage (VDC):	4.24

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.24	- 30	1,873,027,047	-1,873	-0.0001000
		- 20	1,873,030,983	2,063	0.0001101
		- 10	1,873,026,680	-2,240	-0.0001196
		0	1,873,029,576	656	0.0000350
		+ 10	1,873,025,452	-3,467	-0.0001851
		+ 20 (Ref)	1,873,028,920	0	0.0000000
		+ 30	1,873,028,430	-490	-0.0000262
		+ 40	1,873,033,441	4,521	0.0002414
		+ 50	1,873,032,501	3,581	0.0001912
Battery Endpoint	3.70	+ 20	1,873,030,268	1,348	0.0000720

Table 7-35. NR Band n25/2 Frequency Stability Data



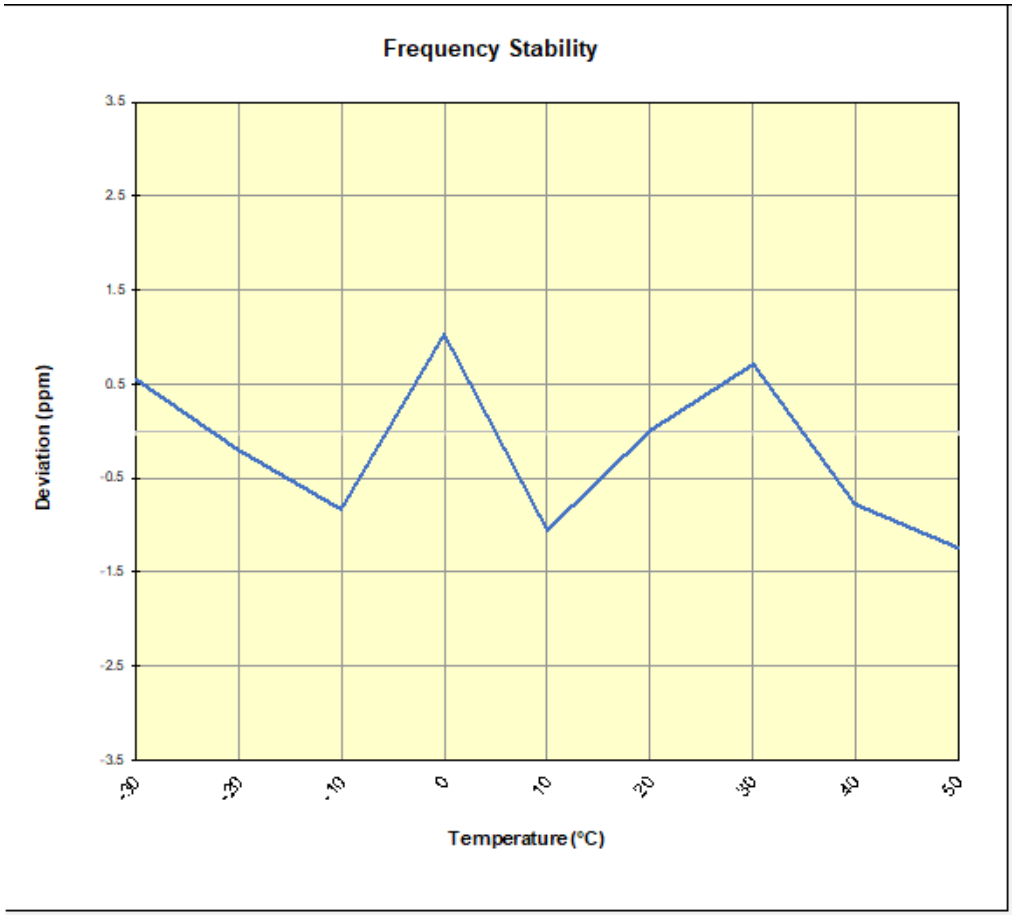
Plot 7-215. NR Band n25/2 Frequency Stability Chart

GSM/GPRS PCS

Operating Frequency (Hz):	1,880,000,000
Ref. Voltage (VDC):	4.24

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.24	- 30	1,880,000,527	1,032	0.0000549
		- 20	1,879,999,103	-392	-0.0000209
		- 10	1,879,997,923	-1,572	-0.0000836
		0	1,880,001,419	1,923	0.0001023
		+ 10	1,879,997,513	-1,982	-0.0001054
		+ 20 (Ref)	1,879,999,495	0	0.0000000
		+ 30	1,880,000,834	1,338	0.0000712
		+ 40	1,879,998,025	-1,470	-0.0000782
		+ 50	1,879,997,171	-2,324	-0.0001236
Battery Endpoint	3.70	+ 20	1,879,998,917	-578	-0.0000307

Table 7-36. GSM/GPRS PCS Frequency Stability Data



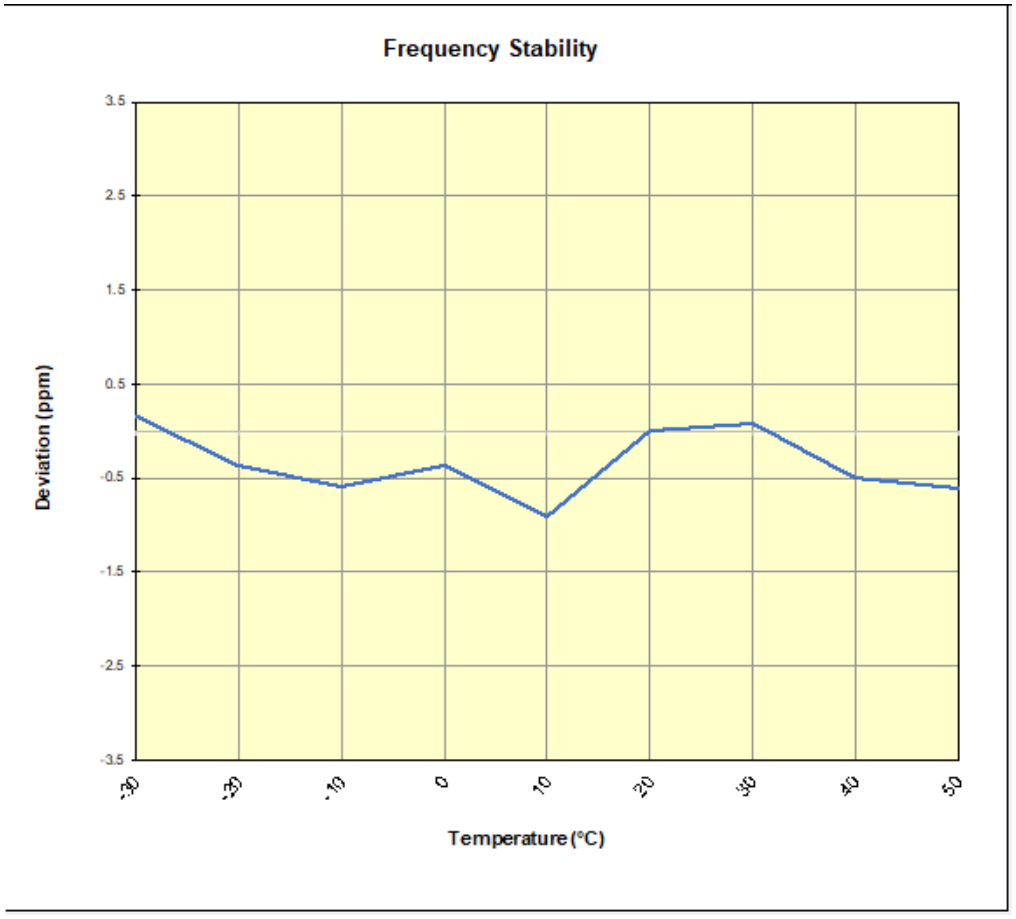
Plot 7-216. GSM/GPRS PCS Frequency Stability Chart

WCDMA PCS

Operating Frequency (Hz):	1,880,000,000
Ref. Voltage (VDC):	4.24

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.24	- 30	1,880,003,476	279	0.0000148
		- 20	1,880,002,499	-698	-0.0000371
		- 10	1,880,002,077	-1,120	-0.0000596
		0	1,880,002,519	-678	-0.0000361
		+ 10	1,880,001,505	-1,692	-0.0000900
		+ 20 (Ref)	1,880,003,197	0	0.0000000
		+ 30	1,880,003,359	161	0.0000086
		+ 40	1,880,002,248	-950	-0.0000505
		+ 50	1,880,002,061	-1,136	-0.0000604
Battery Endpoint	3.70	+ 20	1,880,003,353	155	0.0000083

Table 7-37. WCDMA PCS Frequency Stability Data



Plot 7-217. WCDMA PCS Frequency Stability Chart

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Microsoft Corporation Portable Handset FCC ID: C3K1995 / IC: 3048A-1995** complies with all the requirements of Part 24 of the FCC rules and RSS-133 of the Innovation, Science and Economic Development Canada Rules.