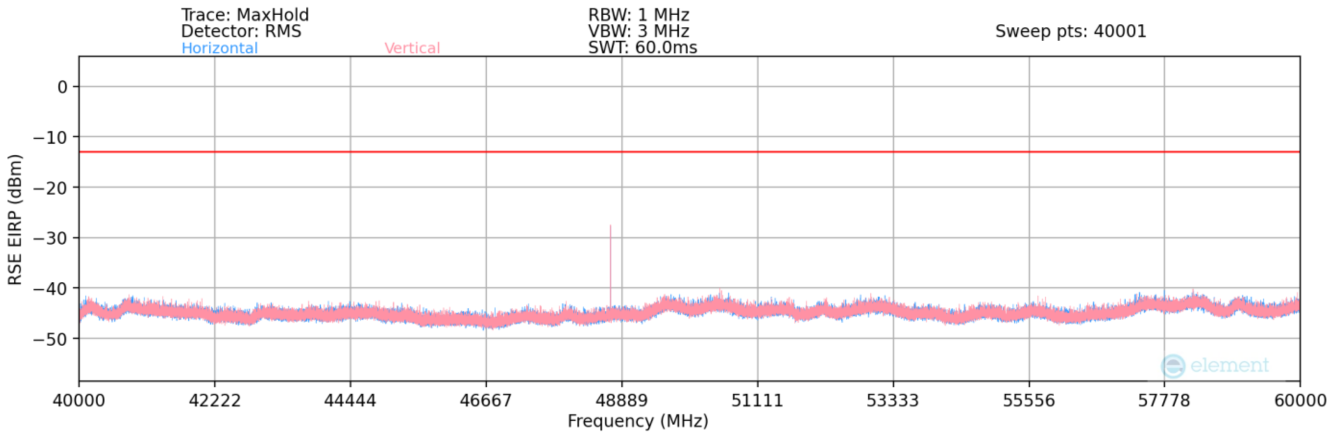
40GHz - 60GHz



Plot 7-90. n258-R1 Radiated Spurious Plot

Spurious Emissions EIRP Sample Calculation (n258-R1)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

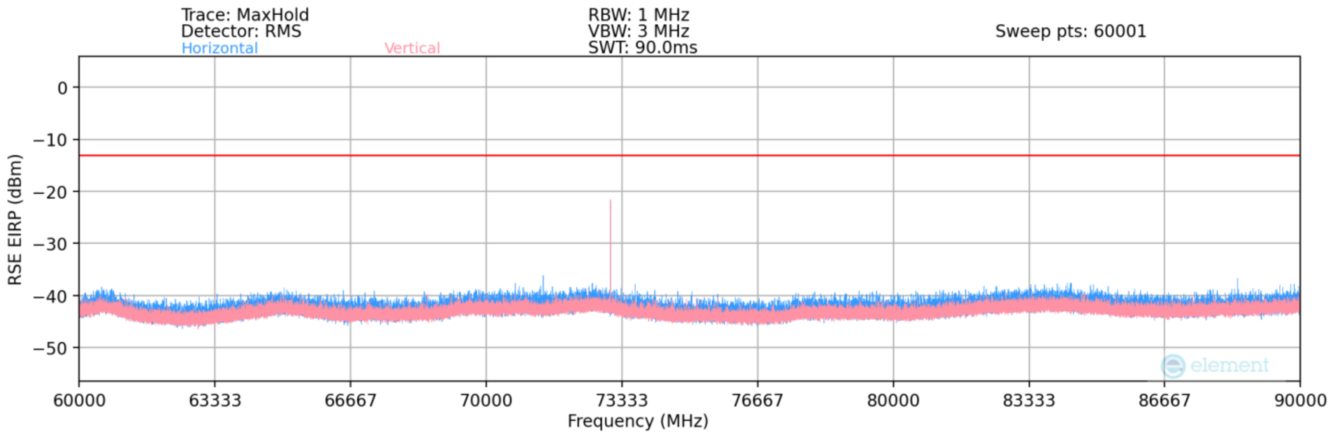
Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Positioner Roll [degrees]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
48550.08	Low	50	2Tx	QPSK	V	42	243	-26.19	-13.00	-13.19
48700.08	Mid	50	2Tx	QPSK	V	73	243	-27.12	-13.00	-14.12
48849.00	High	50	2Tx	QPSK	V	67	242	-25.31	-13.00	-12.31

Table 7-18. n258-R1 Radiated Spurious Emissions Table (40GHz - 60GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1.5 meter.

60GHz - 90GHz



Plot 7-91. n258-R1 Radiated Spurious Plot

Spurious Emissions EIRP Sample Calculation (n258-R1)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

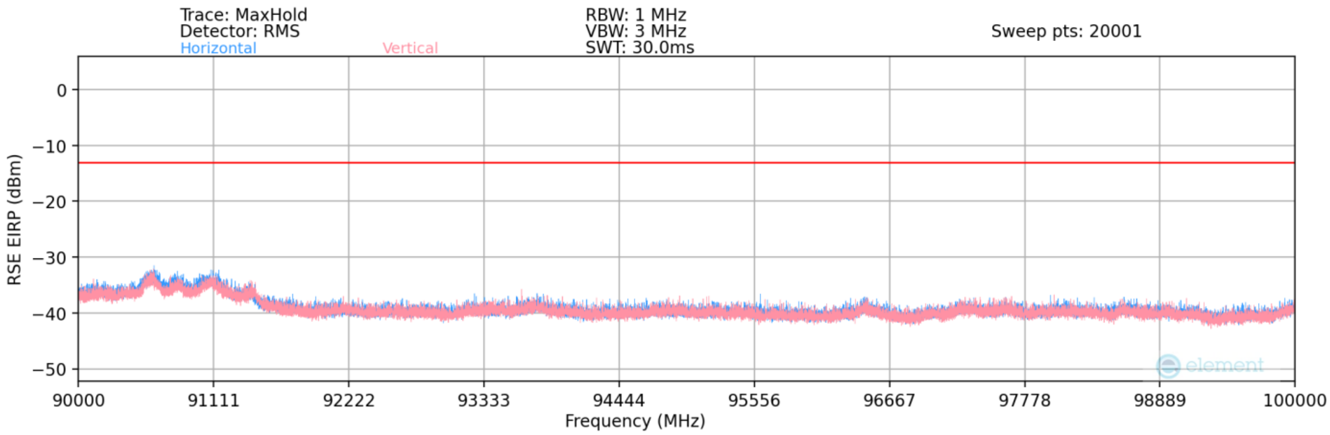
Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Positioner Roll [degrees]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
72826.98	Low	50	2Tx	QPSK	V	355	264	-24.37	-13.00	-11.37
73051.23	Mid	50	2Tx	QPSK	V	5	212	-25.93	-13.00	-12.93
75685.91	Mid	50	2Tx	QPSK	H	-	-	-49.57	-13.00	-36.57
73276.62	High	50	2Tx	QPSK	V	353	264	-24.02	-13.00	-11.02

Table 7-19. n258-R1 Radiated Spurious Emissions Table (60GHz - 90GHz)

<u>Notes</u>

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.

90GHz - 100GHz



Plot 7-92. n258-R1 Radiated Spurious Plot – EN-DC Anchor LTE Band 2

Spurious Emissions EIRP Sample Calculation (n258-R1)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Positioner Roll [degrees]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
95999.00	Low	50	2Tx	QPSK	V	-	-	-43.27	-13.00	-30.27
96495.00	Mid	50	2Tx	QPSK	V	-	-	-43.12	-13.00	-30.12
97265.00	High	50	2Tx	QPSK	V	-	.-	-43.14	-13.00	-30.14

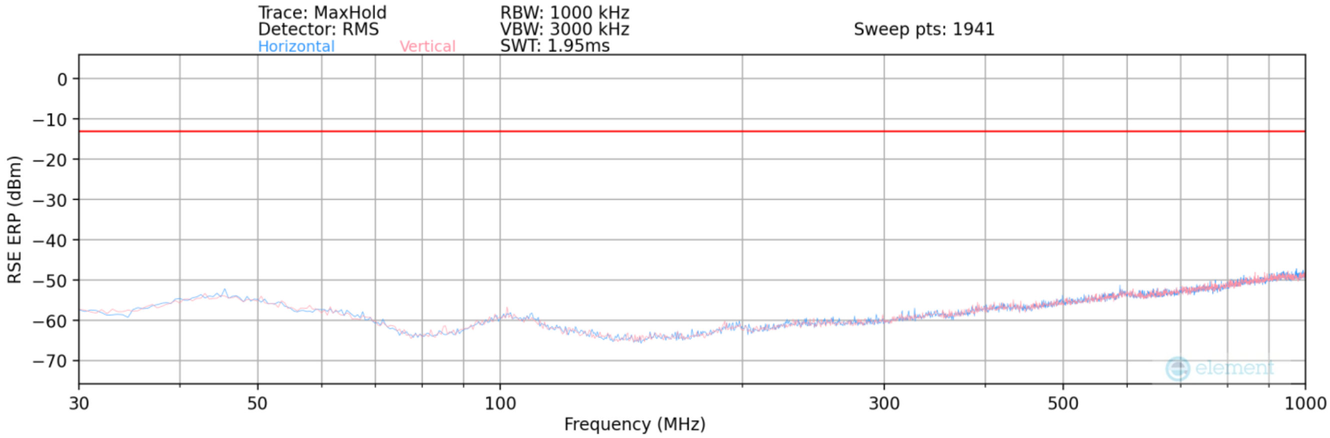
Table 7-20. n258-R1 Radiated Spurious Plot

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.

Band n258-R2

30MHz - 1GHz



Plot 7-93. n258-R2 Radiated Spurious Plot – EN-DC Anchor LTE Band 2

Spurious Emissions ERP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE ERP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

RSE ERP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 – 2.15 (dB)

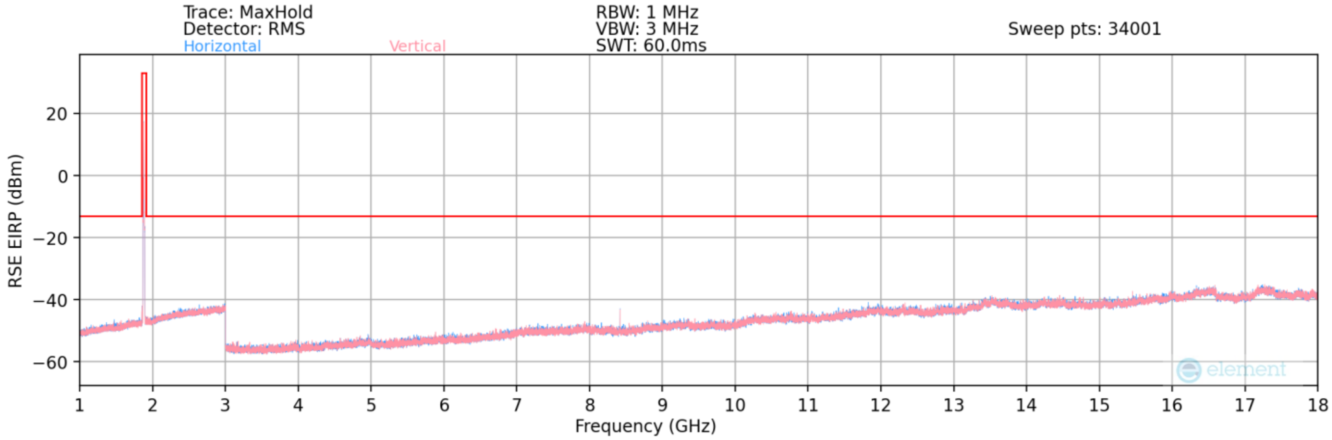
Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Antenna Height [cm]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
483.49	Mid	50	2Tx	QPSK	V	-	-	-64.22	-13.00	-51.22

Table 7-21. n258-R2 Radiated Spurious Emissions Table (30MHz - 1GHz)

<u>Notes</u>

The RSE ERP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

1GHz - 18GHz



Plot 7-94. n258-R2 Radiated Spurious Plot – EN-DC Anchor LTE Band 2

Spurious Emissions EIRP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

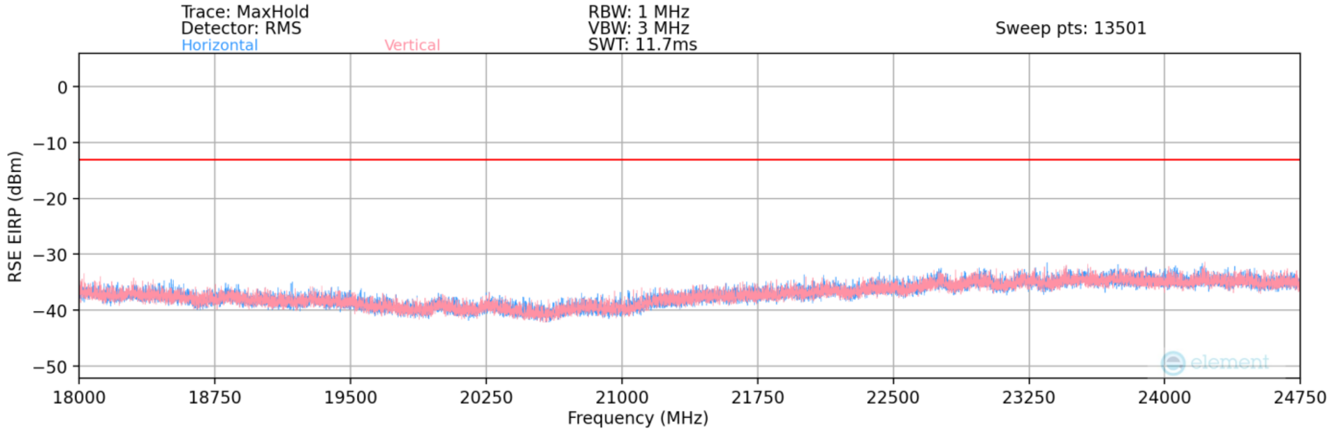
Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Antenna Height [cm]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
5616.00	Low	50	2Tx	QPSK	V	-	-	-56.39	-13.00	-43.39
7520.00	Mid	50	2Tx	QPSK	V	-	-	-55.11	-13.00	-42.11
8418.00	High	50	2Tx	QPSK	V	116	182	-43.94	-13.00	-30.94
9560.00	High	50	2Tx	QPSK	V	-	-	-51.23	-13.00	-38.23

Table 7-22. n258-R2 Radiated Spurious Emissions Table (1GHz - 18GHz)

Notes

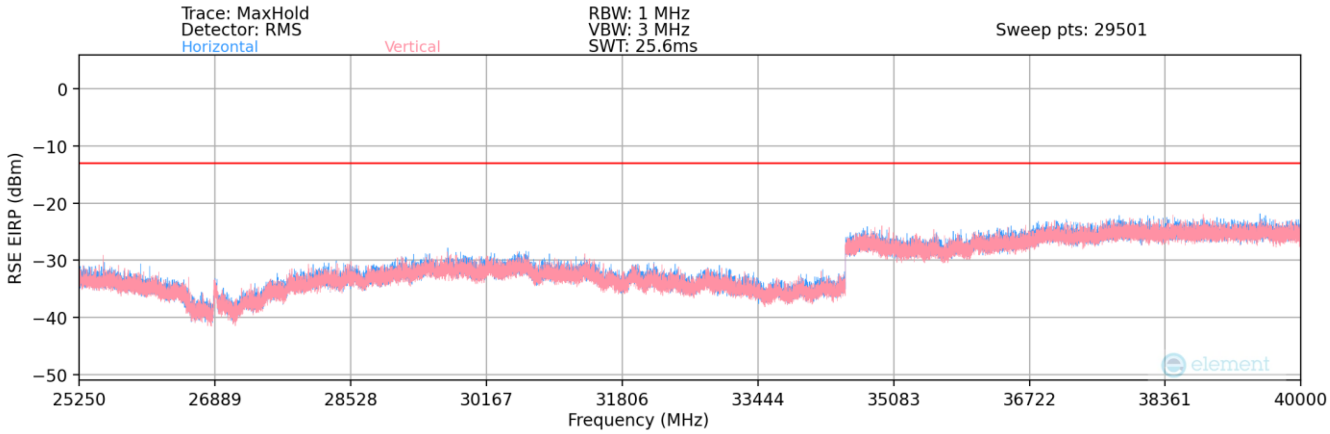
The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

18GHz-24.75GHz



Plot 7-95. n258-R2 Radiated Spurious Plot

25.25GHz-40GHz



Plot 7-96. n258-R2 Radiated Spurious Plot

Spurious Emissions EIRP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

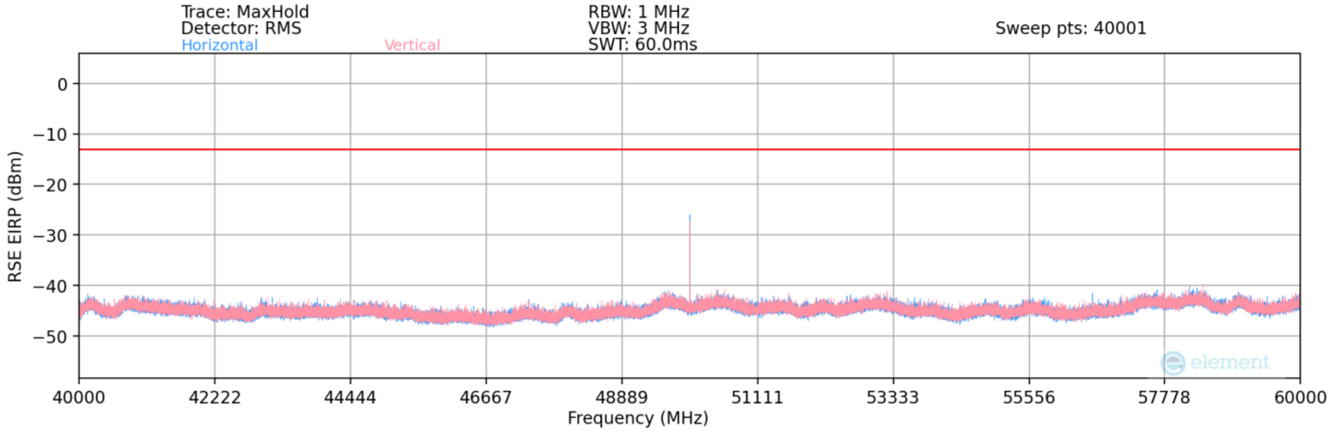
Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Antenna Height [cm]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
24032.96	Low	50	2Tx	QPSK	V	-	-	-34.08	-13.00	-21.08
24206.34	Mid	50	2Tx	QPSK	V	-	-	-36.01	-13.00	-23.01
24317.02	High	50	2Tx	QPSK	V	-	-	-35.72	-13.00	-22.72
38081.70	Low	50	2Tx	QPSK	V	-	-	-30.33	-13.00	-17.33
38463.90	Mid	50	2Tx	QPSK	V	-	-	-29.69	-13.00	-16.69
38509.15	High	50	2Tx	QPSK	V	-	-	-29.37	-13.00	-16.37

Table 7-23. n258-R2 Radiated Spurious Emissions Table (18GHz - 40GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a test distance of 1 meter.

40GHz - 60GHz



Plot 7-97. n258-R2 Radiated Spurious Plot

Spurious Emissions EIRP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

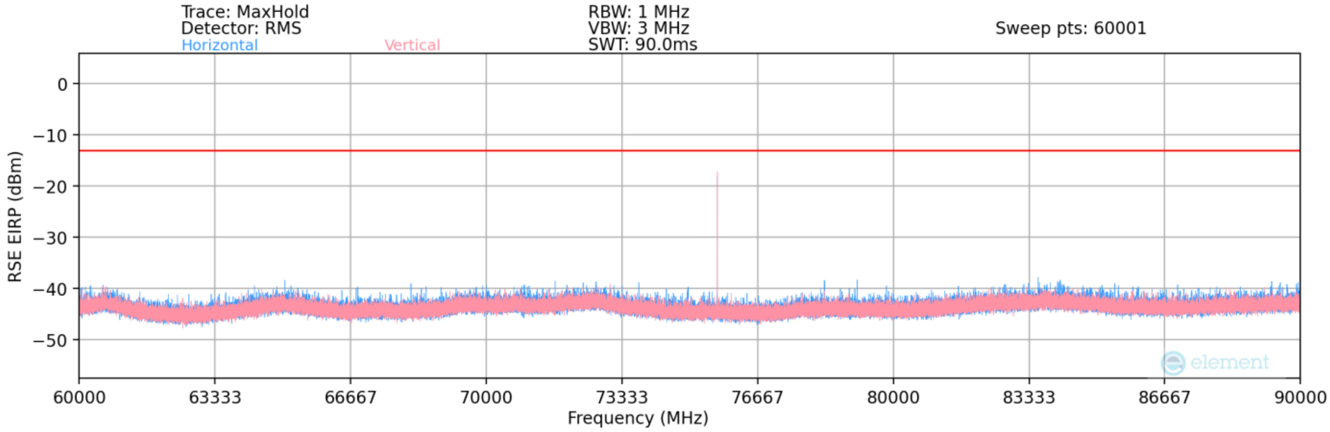
Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Positioner Roll [degrees]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
49550.16	Low	50	2Tx	QPSK	V	68	240	-20.31	-13.00	-7.31
49999.92	Mid	50	2Tx	QPSK	V	75	238	-26.04	-13.00	-13.04
50449.92	High	50	2Tx	QPSK	V	65	238	-22.55	-13.00	-9.55

Table 7-24. n258-R2 Radiated Spurious Emissions Table (40GHz - 60GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1.5 meter.

60GHz - 90GHz



Plot 7-98. n258-R2 Radiated Spurious Plot

Spurious Emissions EIRP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

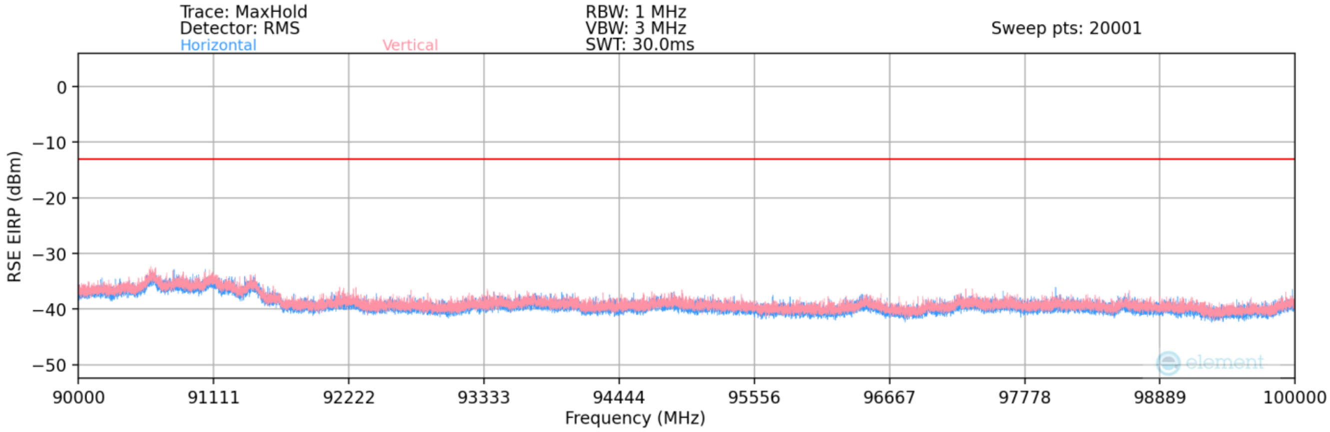
Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Positioner Roll [degrees]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
73050.92	Low	50	2Tx	QPSK	H	336	259	-18.90	-13.00	-5.90
75684.80	Mid	50	2Tx	QPSK	H	338	451	-19.54	-13.00	-6.54
75676.60	High	50	2Tx	QPSK	H	338	247	-18.85	-13.00	-5.85

Table 7-25. n258-R2 Radiated Spurious Emissions Table (60GHz - 90GHz)

<u>Notes</u>

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a test distance of 1 meter.

90GHz - 100GHz



Plot 7-99. n258-R2 Radiated Spurious Plot

Spurious Emissions EIRP Sample Calculation (n258-R2)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Positioner Roll [degrees]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
95026.00	Low	50	2Tx	QPSK	H	-	-	-43.25	-13.00	-30.25
96444.00	Mid	50	2Tx	QPSK	H	-	.-	-42.65	-13.00	-29.65
96517.00	High	50	2Tx	QPSK	H	-	-	-42.87	-13.00	-29.87

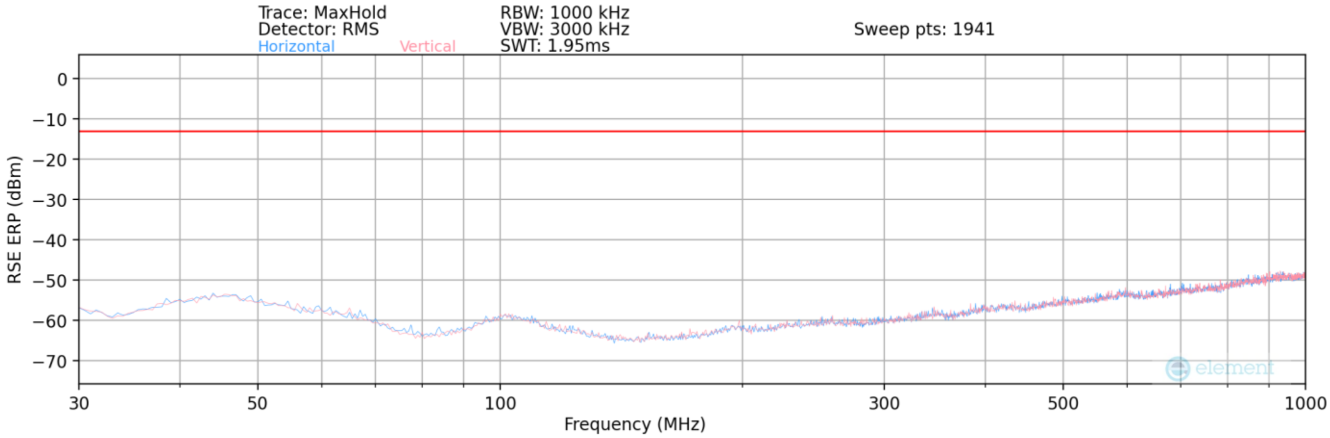
Plot 7-100. n258-R2 Radiated Spurious Plot

<u>Notes</u>

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a test distance of 1 meter.

Band n261

30MHz - 1GHz



Plot 7-101. n261 Radiated Spurious Plot – EN-DC Anchor LTE Band 2

Spurious Emissions ERP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE ERP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

RSE ERP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 – 2.15 (dB)

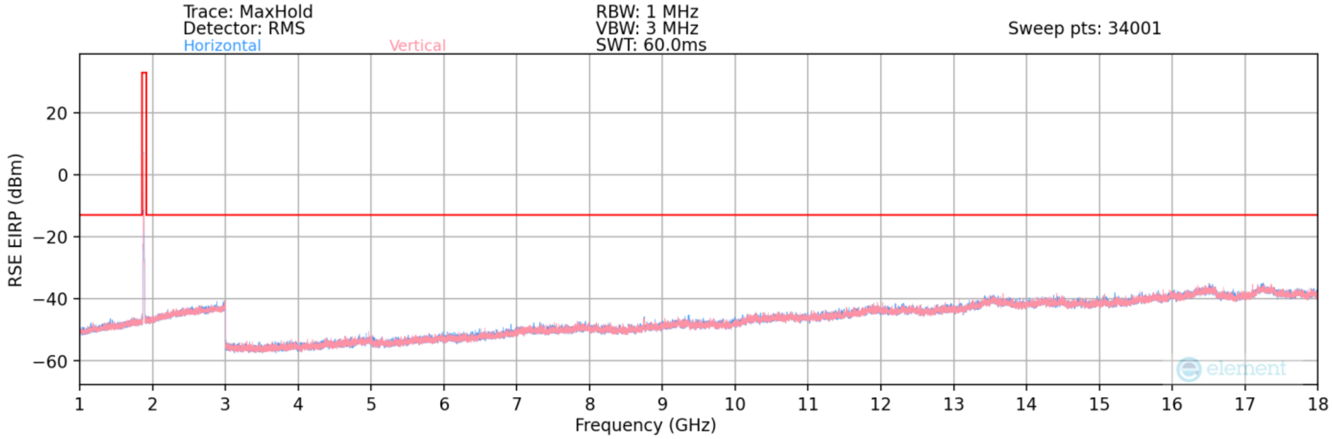
Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Antenna Height [cm]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
827.00	Mid	50	2Tx	QPSK	H	-	-	-56.75	-13.00	-43.75

Table 7-26. n261 Radiated Spurious Emissions Table (30MHz - 1GHz)

<u>Notes</u>

The RSE ERP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

1GHz - 18GHz



Plot 7-102. n261 Radiated Spurious Plot – EN-DC Anchor LTE Band 2

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

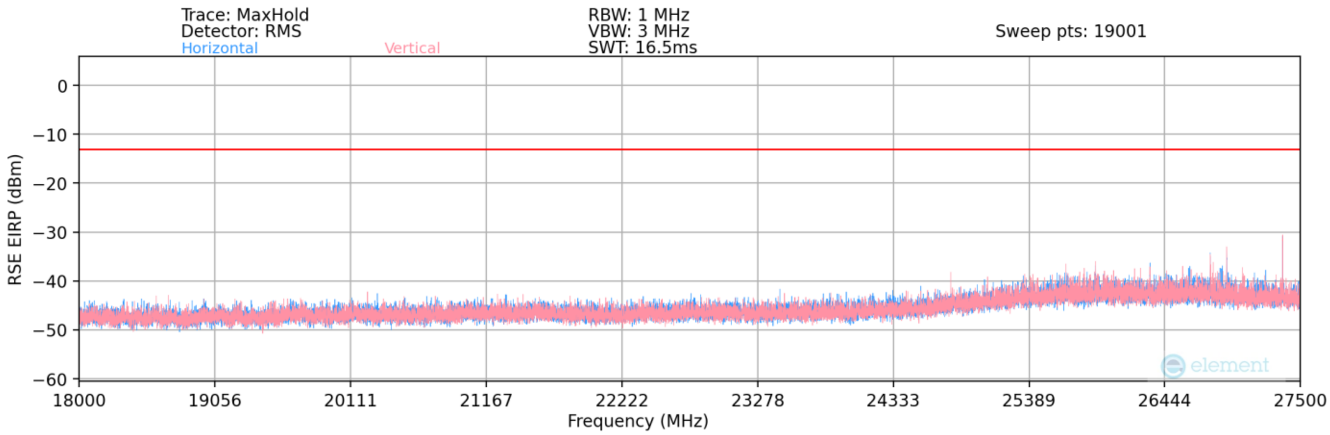
Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Antenna Height [cm]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
4652.00	Low	50	2Tx	QPSK	H	-	-	-61.38	-13.00	-48.38
8950.00	Mid	50	2Tx	QPSK	H	-	-	-50.22	-13.00	-37.22
11250.00	High	50	2Tx	QPSK	H	-	-	-48.50	-13.00	-35.50

Table 7-27. n261 Radiated Spurious Emissions Table (1GHz - 18GHz)

Notes

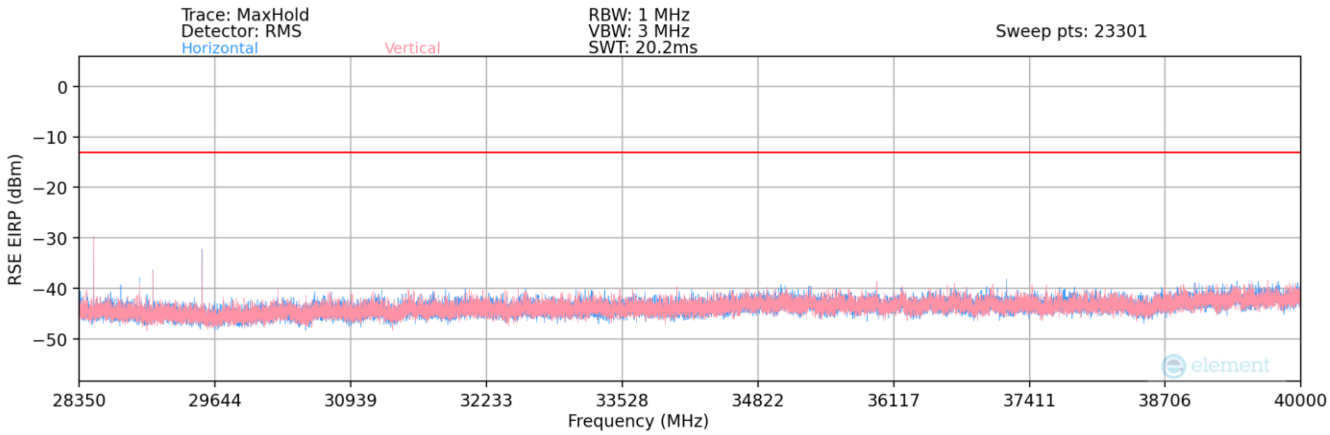
The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a test distance of 3 meter.

18GHz-27.5GHz



Plot 7-103. n261 Radiated Spurious Plot

28.35GHz-40GHz



Plot 7-104. n261 Radiated Spurious Plot

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

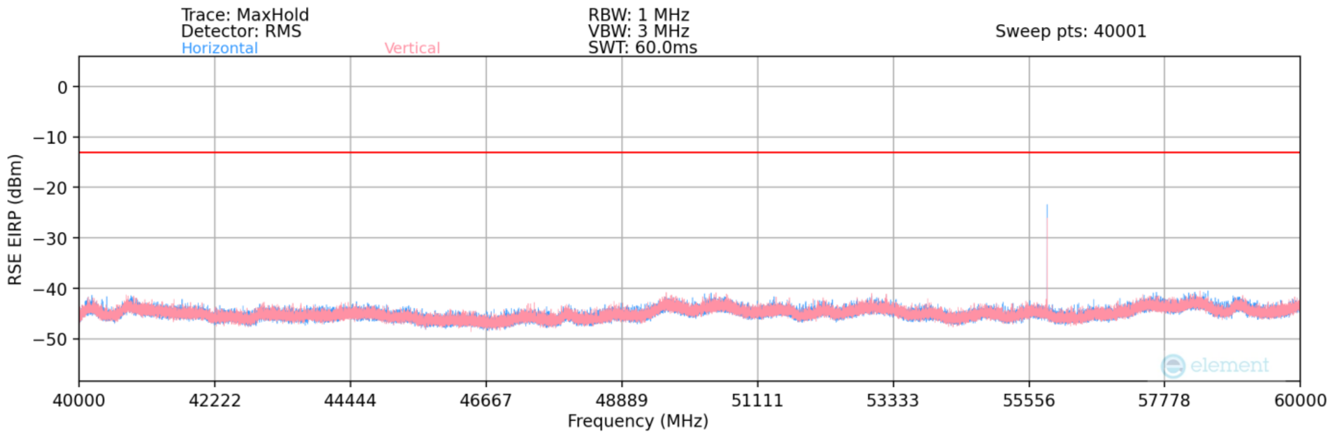
Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Antenna Height [cm]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
27340.00	Low	50	2Tx	QPSK	V	150	241	-34.28	-13.00	-21.28
24750.00	Mid	50	2Tx	QPSK	V	150	158	-43.88	-13.00	-30.88
27401.00	High	50	2Tx	QPSK	V	150	156	-37.47	-13.00	-24.47
28401.00	High	50	2Tx	QPSK	V	150	128	-32.93	-13.00	-19.93
29540.00	High	50	2Tx	QPSK	V	150	125	-33.35	-13.00	-20.35
28443.00	High	50	2Tx	QPSK	V	150	162	-42.81	-13.00	-29.81
29020.00	High	50	2Tx	QPSK	V	150	125	-38.08	-13.00	-25.08
34811.00	High	50	2Tx	QPSK	V	-	-	-33.23	-13.00	-20.23

Table 7-28. n261 Radiated Spurious Emissions Table (18GHz - 40GHz)

<u>Notes</u>

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a test distance of 1 meter.

40GHz - 60GHz



Plot 7-105. n261 Radiated Spurious Plot

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

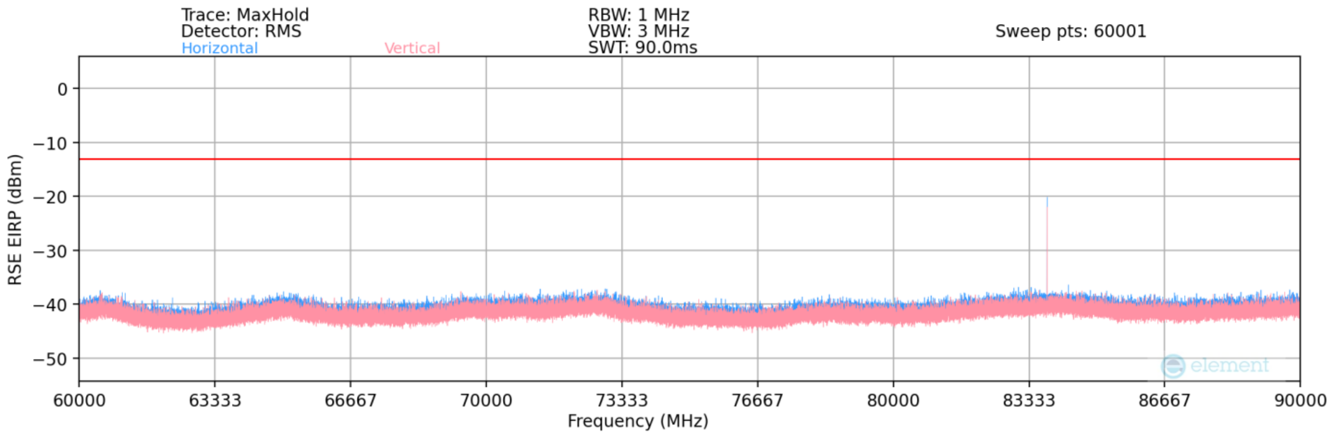
Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Positioner Roll [degrees]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
55050.60	Low	50	2Tx	QPSK	H	13	235	-21.69	-13.00	-8.69
55849.92	Mid	50	2Tx	QPSK	H	14	235	-22.11	-13.00	-9.11
56649.84	High	50	2Tx	QPSK	H	16	233	-21.10	-13.00	-8.10

Table 7-29. n261 Radiated Spurious Emissions Table (40GHz - 60GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1.5 meter.

60GHz - 90GHz



Plot 7-106. n261 Radiated Spurious Plot

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

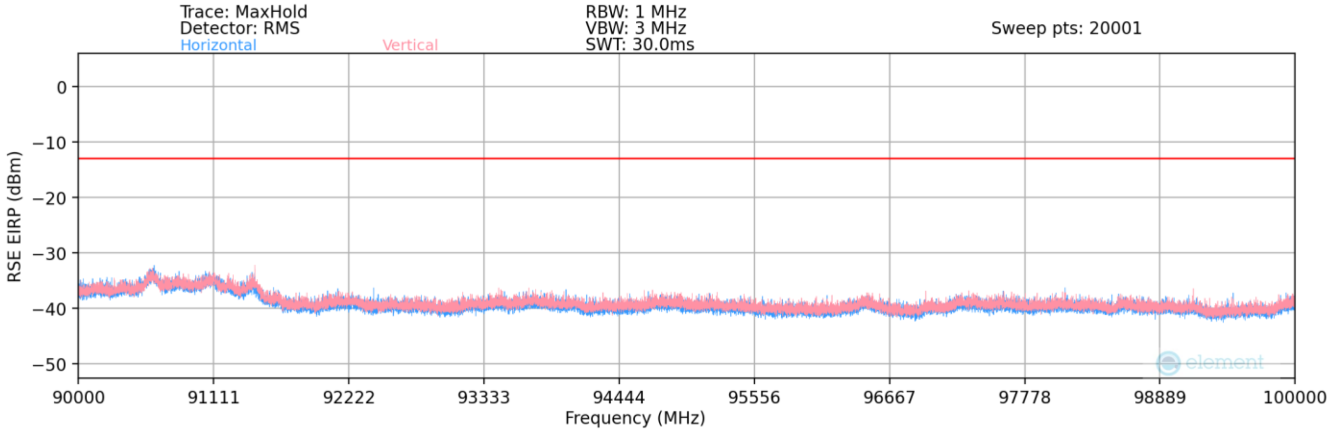
Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Positioner Roll [degrees]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
82577.07	Low	50	2Tx	QPSK	H	0	300	-25.72	-13.00	-12.72
83777.32	Mid	50	2Tx	QPSK	H	358	303	-26.28	-13.00	-13.28
84976.47	High	50	2Tx	QPSK	H	353	249	-29.18	-13.00	-16.18

Table 7-30. n261 Radiated Spurious Emissions Table (60GHz - 90GHz)

<u>Notes</u>

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a test distance of 1 meter.

90GHz - 100GHz



Plot 7-107. n261 Radiated Spurious Plot

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Positioner Roll [degrees]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
94990.00	Low	50	2Tx	QPSK	H	-	-	-42.02	-13.00	-29.02
95235.00	Mid	50	2Tx	QPSK	H	-	-	-42.95	-13.00	-29.95
96254.00	High	50	2Tx	QPSK	H	-	-	-42.83	-13.00	-29.83

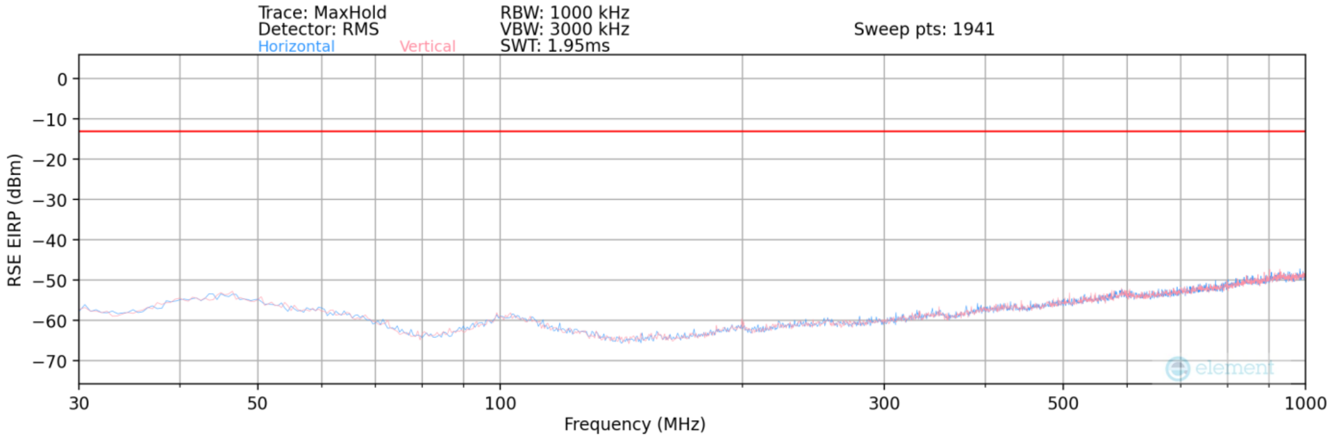
Plot 7-108. n261 Radiated Spurious Plot

<u>Notes</u>

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a test distance of 1 meter.

Band n260

30MHz - 1GHz



Plot 7-109. n260 Radiated Spurious Plot – EN-DC Anchor LTE Band 2

Spurious Emissions ERP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE ERP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

RSE ERP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 – 2.15 (dB)

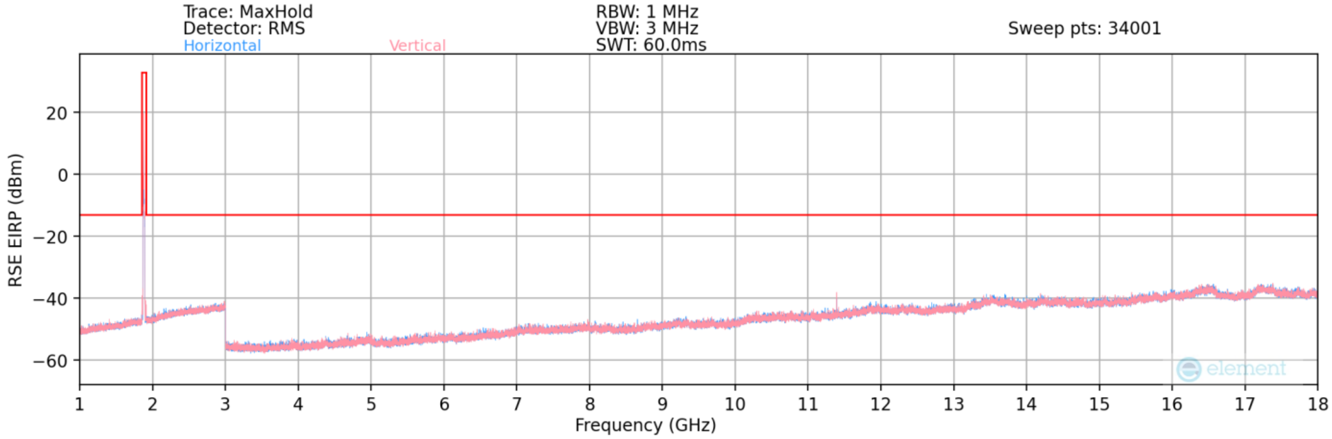
Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Antenna Height [cm]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
550.34	Mid	50	2Tx	QPSK	H	-	-	-56.61	-13.00	-43.61

Table 7-31. n260 Radiated Spurious Emissions Table (30MHz - 1GHz)

Notes

The RSE ERP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

1GHz - 18GHz



Plot 7-110. n260 Radiated Spurious Plot – EN-DC Anchor LTE Band 2

Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

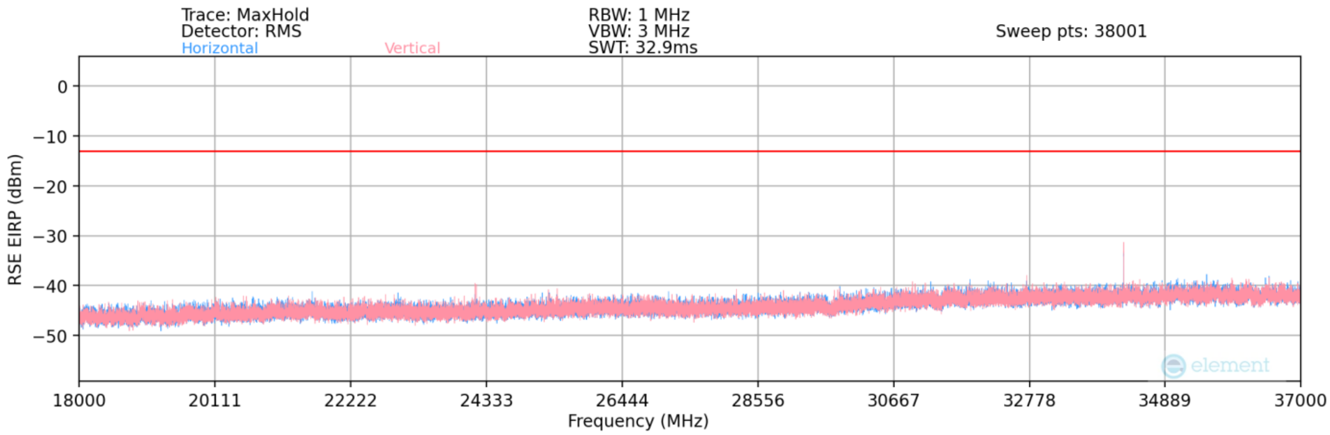
Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Antenna Height [cm]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
4560.00	Low	50	2Tx	QPSK	H	-	-	-60.48	-13.00	-47.48
6720.00	Mid	50	2Tx	QPSK	H	-	-	-57.60	-13.00	-44.60
11380.00	High	50	2Tx	QPSK	H	216	213	-43.41	-13.00	-30.41

Table 7-32. n260 Radiated Spurious Emissions Table (1GHz - 18GHz)

<u>Notes</u>

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a test distance of 3 meter.

18GHz-40GHz



Plot 7-111. n260 Radiated Spurious Plot

Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

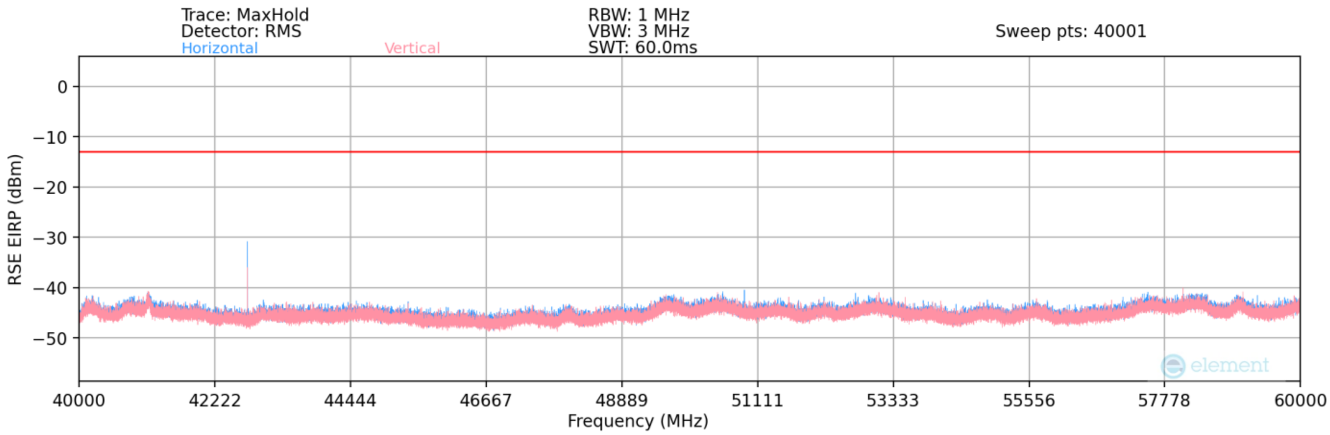
Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Antenna Height [cm]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
20560.00	Low	50	2Tx	QPSK	H	-	-	-47.86	-13.00	-34.86
26780.00	Mid	50	2Tx	QPSK	H	-	-	-45.87	-13.00	-32.87
34247.00	High	50	2Tx	QPSK	H	150	126	-36.87	-13.00	-23.87

Table 7-33. n260 Radiated Spurious Emissions Table (18GHz - 40GHz)

<u>**Notes**</u>

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a test distance of 1 meter.

40GHz - 60GHz



Plot 7-112. n260 Radiated Spurious Plot

Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

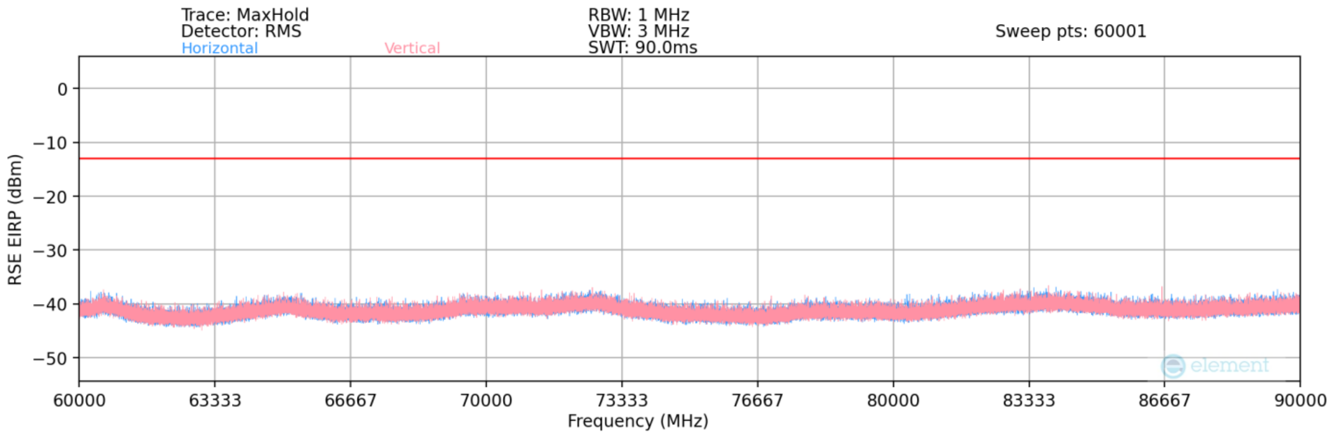
Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Positioner Roll [degrees]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
40388.47	Low	50	2Tx	QPSK	H	7	259	-21.15	-13.00	-8.15
42753.42	Mid	50	2Tx	QPSK	H	353	250	-23.04	-13.00	-10.04
44811.26	High	50	2Tx	QPSK	H	368	260	-22.85	-13.00	-9.85

Table 7-34. n260 Radiated Spurious Emissions Table (40GHz - 60GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1.5 meter.

60GHz - 90GHz



Plot 7-113. n260 Radiated Spurious Plot

Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

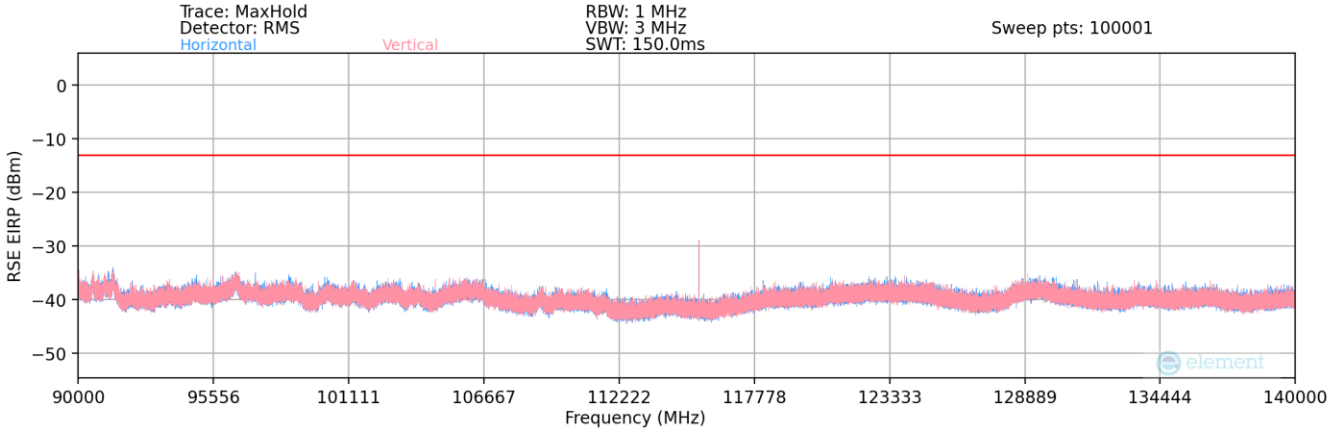
Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Positioner Roll [degrees]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
74051.79	Low	50	2Tx	QPSK	H	343	241	-42.54	-13.00	-29.54
77001.06	Mid	50	2Tx	QPSK	H	6	295	-45.07	-13.00	-32.07
79951.17	High	50	2Tx	QPSK	H	348	292	-47.94	-13.00	-34.94

Table 7-35. n260 Radiated Spurious Emissions Table (60GHz - 90GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a test distance of 1 meter.

90GHz - 140GHz



Plot 7-114. n260 Radiated Spurious Plot

Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

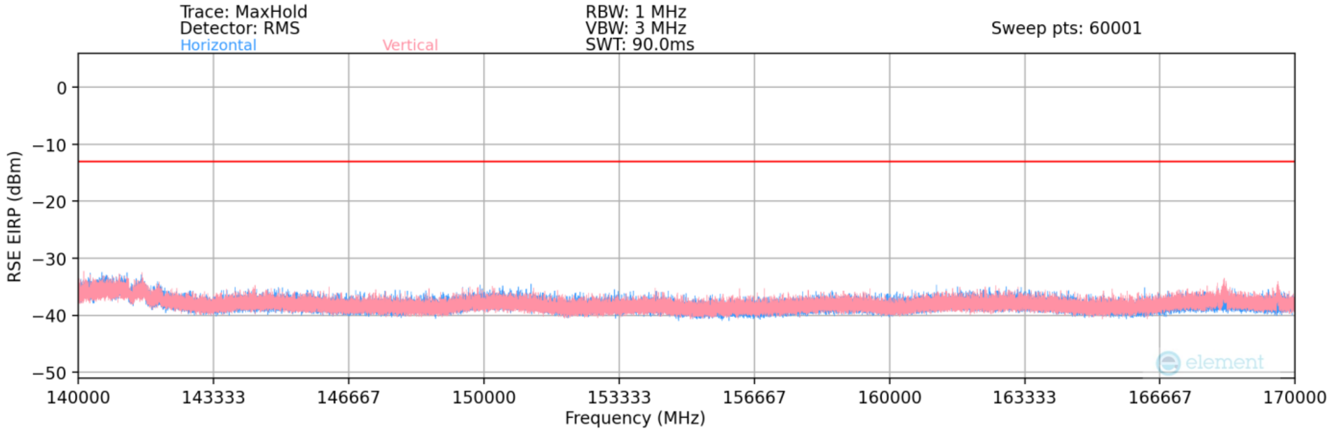
Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Positioner Roll [degrees]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
111076.83	Low	50	2Tx	QPSK	H	16	291	-43.56	-13.00	-30.56
115500.83	Mid	50	2Tx	QPSK	H	3	259	-32.67	-13.00	-19.67
119926.59	High	50	2Tx	QPSK	H	345	237	-32.20	-13.00	-19.20

Table 7-36. n260 Radiated Spurious Emissions Table (90GHz - 140GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a test distance of 1 meter.

140GHz - 170GHz



Plot 7-115. n260 Radiated Spurious Plot

Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

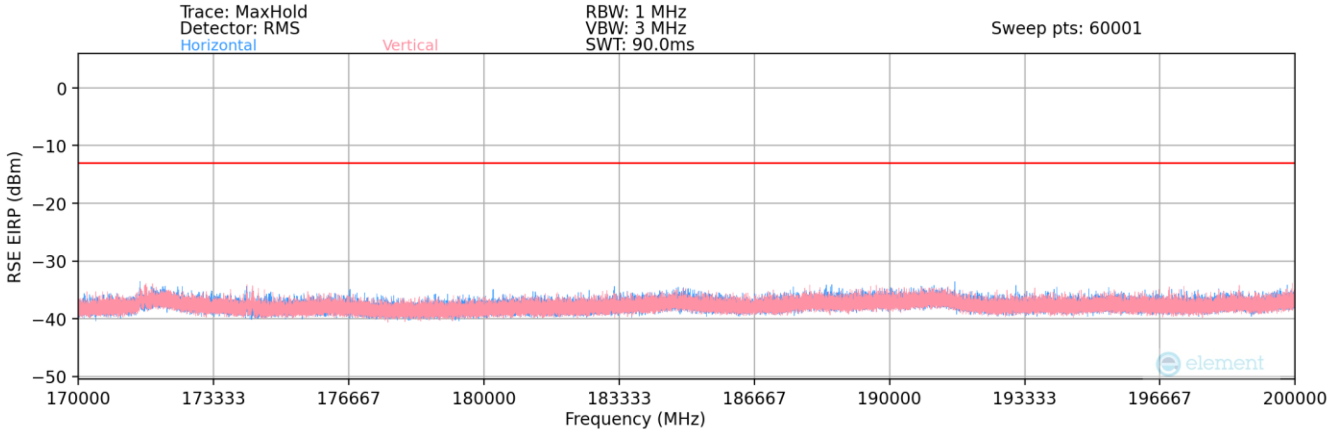
Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Positioner Roll [degrees]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
148110.35	Low	50	2Tx	QPSK	H	-	-	-41.04	-13.00	-28.04
153993.94	Mid	50	2Tx	QPSK	H	-	-	-40.96	-13.00	-27.96
159895.51	High	50	2Tx	QPSK	H	-	-	-40.98	-13.00	-27.98

Table 7-37. n260 Radiated Spurious Emissions Table (140GHz - 170GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a test distance of 1 meter.

170GHz - 200GHz



Plot 7-116. n260 Radiated Spurious Plot

Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Positioner Roll [degrees]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
185142.35	Low	50	2Tx	QPSK	H	-	-	-42.06	-13.00	-29.06
192504.71	Mid	50	2Tx	QPSK	H	-	-	-42.53	-13.00	-29.53
199883.97	High	50	2Tx	QPSK	H	-	-	-41.72	-13.00	-28.72

Table 7-38. n260 Radiated Spurious Emissions Table (170GHz - 200GHz)

Notes

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a test distance of 1 meter.

7.5 Band Edge Emissions

§2.1051, §30.203

Test Overview

All out of band emissions are measured in a radiated setup while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All modulations 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.

The minimum permissible attenuation level of any spurious emission is -13dBm/1MHz. However, in the bands immediately outside and adjacent to the licensee's frequency block, having a bandwidth equal to 10 percent of the channel bandwidth, the conductive power or the total radiated power of any emission shall be −5 dBm/MHz or lower.

Test Procedure Used

ANSI C63.26-2015 Section 5 and ANSI C63.26-2015 Section 6.4
KDB 842590 D01 v01r02 Section 4.4.2.4

Test Settings

1. Start and stop frequency were set such that both upper and lower band edges are measured.
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW = 1MHz
4. VBW ≥ 3 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW
7. Trace mode = trace average
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Notes

1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning.

2) Band Edge emissions were measured at a 1 meter distance.

3) The spectrum analyzer for each measurement shows an offset value that was determined using the measurement antenna factor, cable loss, far field measurement distance. A sample calculation is shown on the following page.

4) This device supports transmission of H-polarized and V-polarized beams from the antenna array in both CP-OFDM and DFT-s-OFDM transmission schemes. SISO and MIMO operation is also supported for some configurations. As part of the testing, all modes were fully investigated and only the worst case has been included in this report.

5) All combinations of 1CC, 2CC, 3CC, and 4CC were fully investigated, and only the worst case has been included in this report.

6) Unless otherwise specified, the radiated band edge plots in this section display the worst case EIRP measurements for the indicated bandwidth−component carrier configuration.

7) The plots in this section that display Total Radiated Power (TRP) were obtained from measurements that were performed in accordance with the guidance of Section 4.4.2.4 of KDB 842590 D01 for the Spherical Method.

Sample Analyzer Offset Calculation (at 27.5GHz)

Measurement Antenna Factor = 46.85dB/m

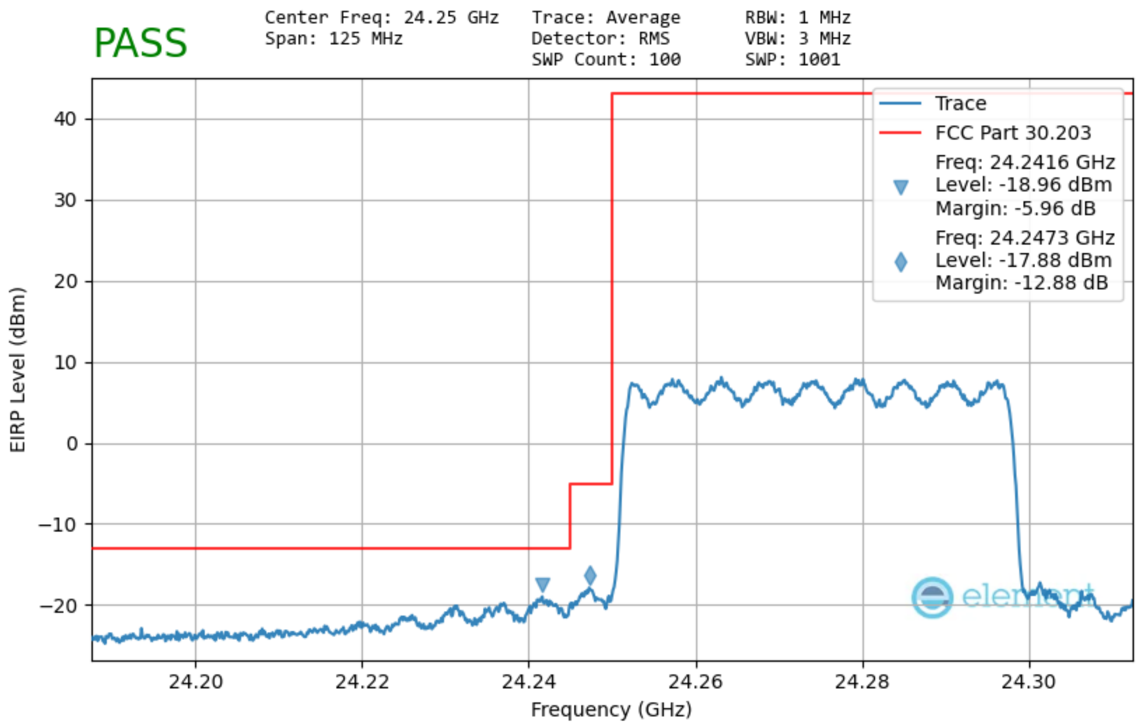
Cable Loss = 9.18dB

Analyzer Offset (dB) = AF (dB/m) + CL (dB) + 107 + $20\log_{10}(D)$ – 104.8dB, where D = 1m

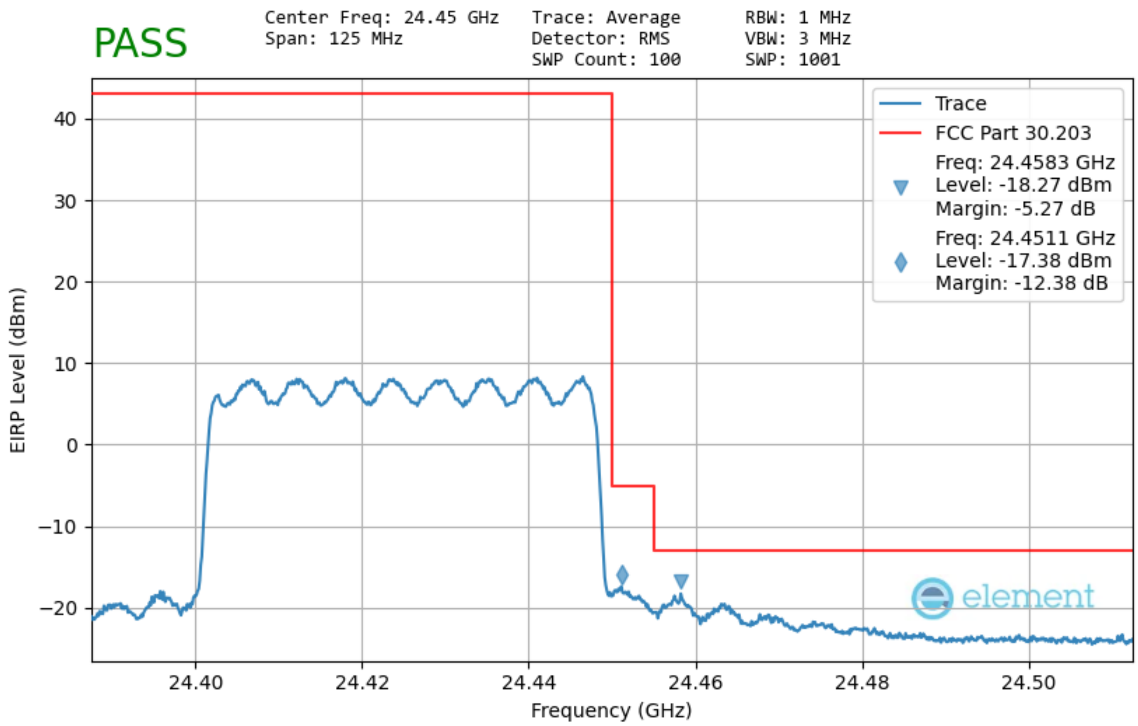
= 46.85dB/m + 9.18dB + 107 + $20\log_{10}(1m)$ – 104.8dB

= 58.23dB

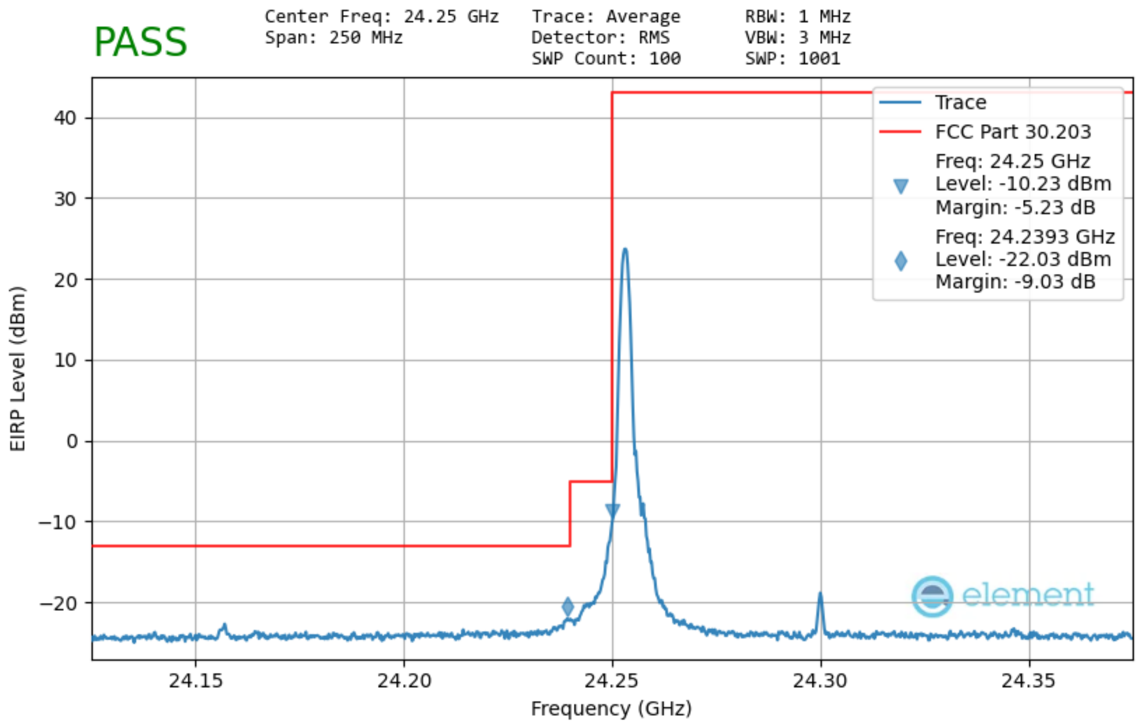
Band n258-R1 – Worst Case



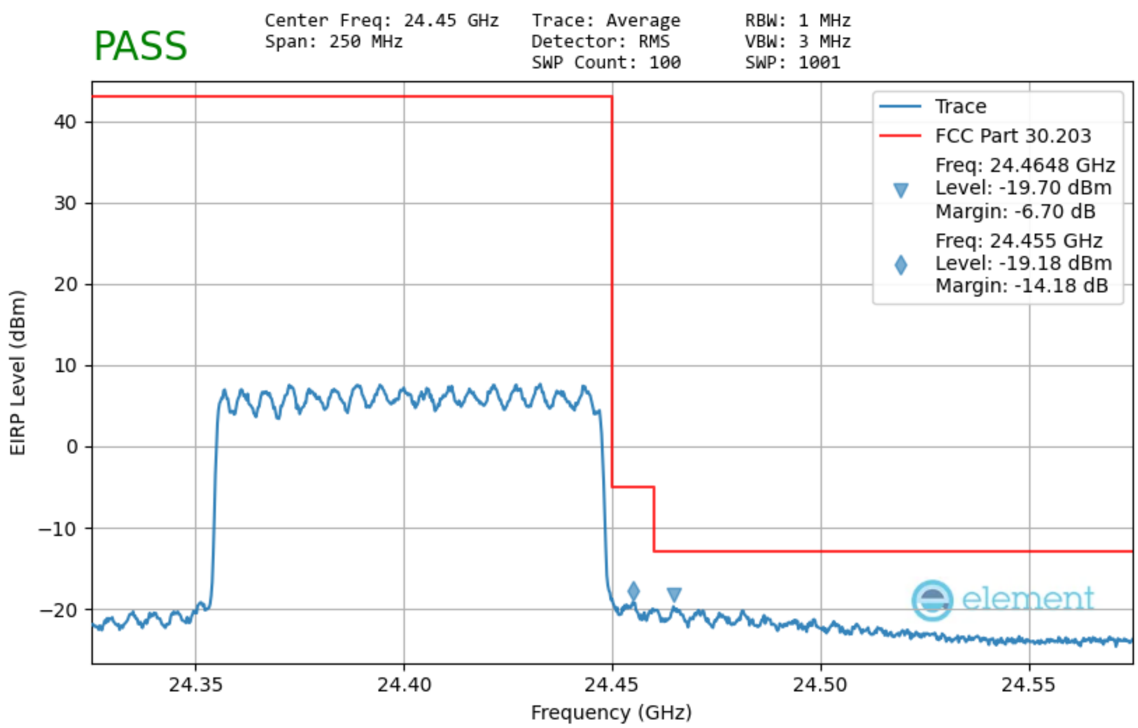
Plot 7-117. Lower Band Edge (50MHz-1CC – CP-OFDM QPSK Full RB)



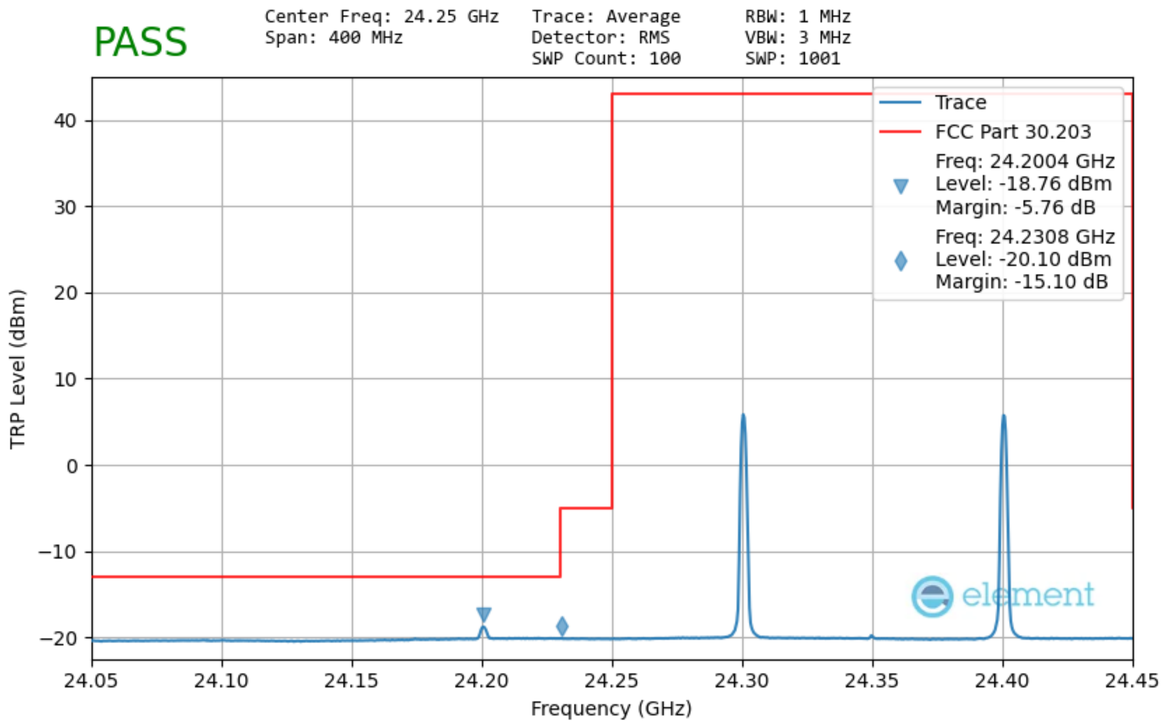
Plot 7-118. Upper Band Edge (50MHz-1CC – CP-OFDM QPSK Full RB)



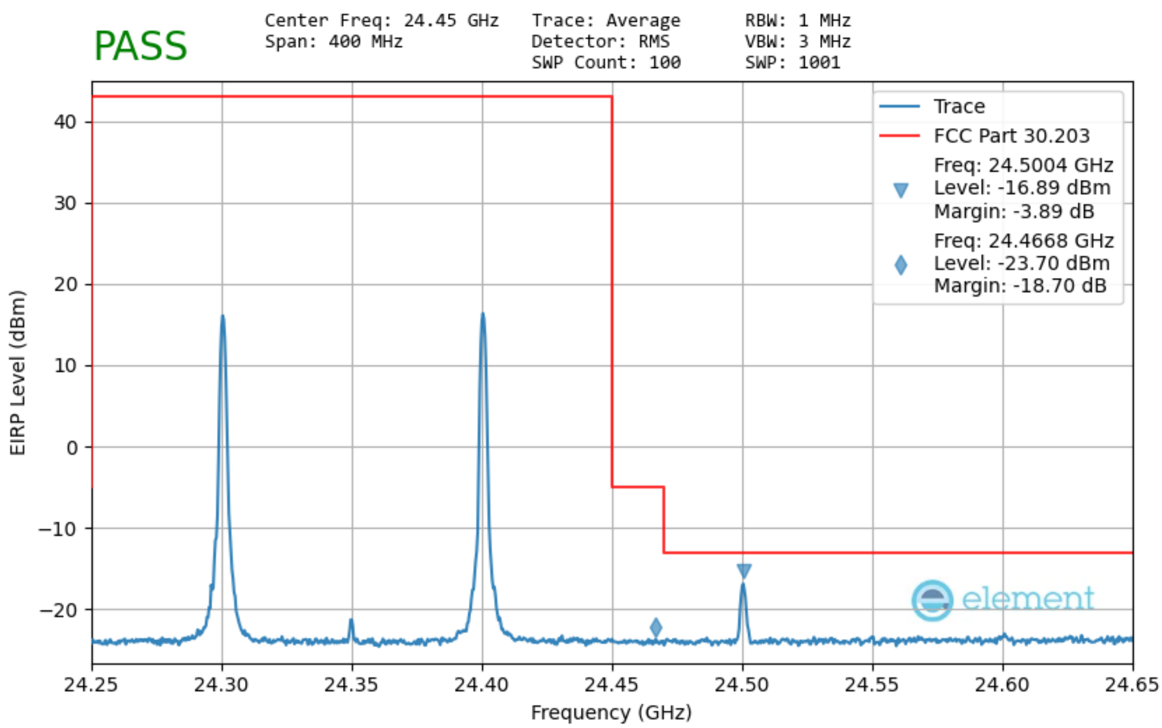
Plot 7-119. Lower Band Edge (100MHz-1CC – DFT-s-OFDM π/2 BPSK 1 RB)



Plot 7-120. Upper Band Edge (100MHz-1CC – DFT-s-OFDM QPSK Full RB)

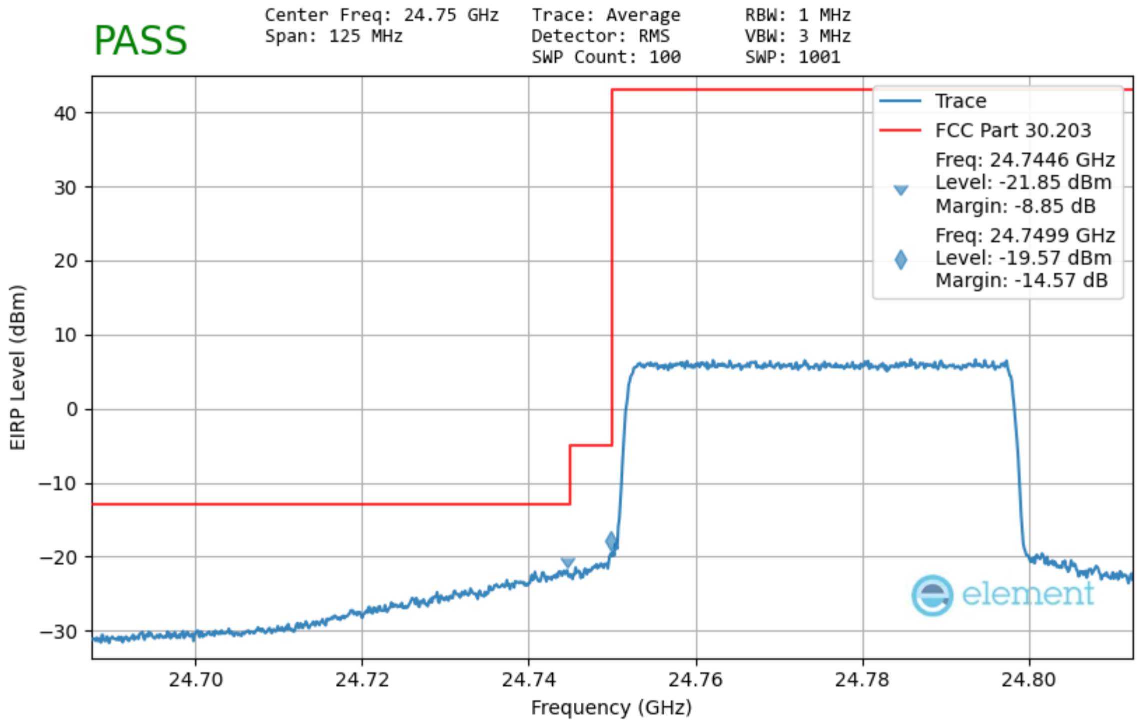


Plot 7-121. Lower Band Edge - TRP (100MHz-2CC – DFT-s-OFDM π/2 BPSK 1 RB)

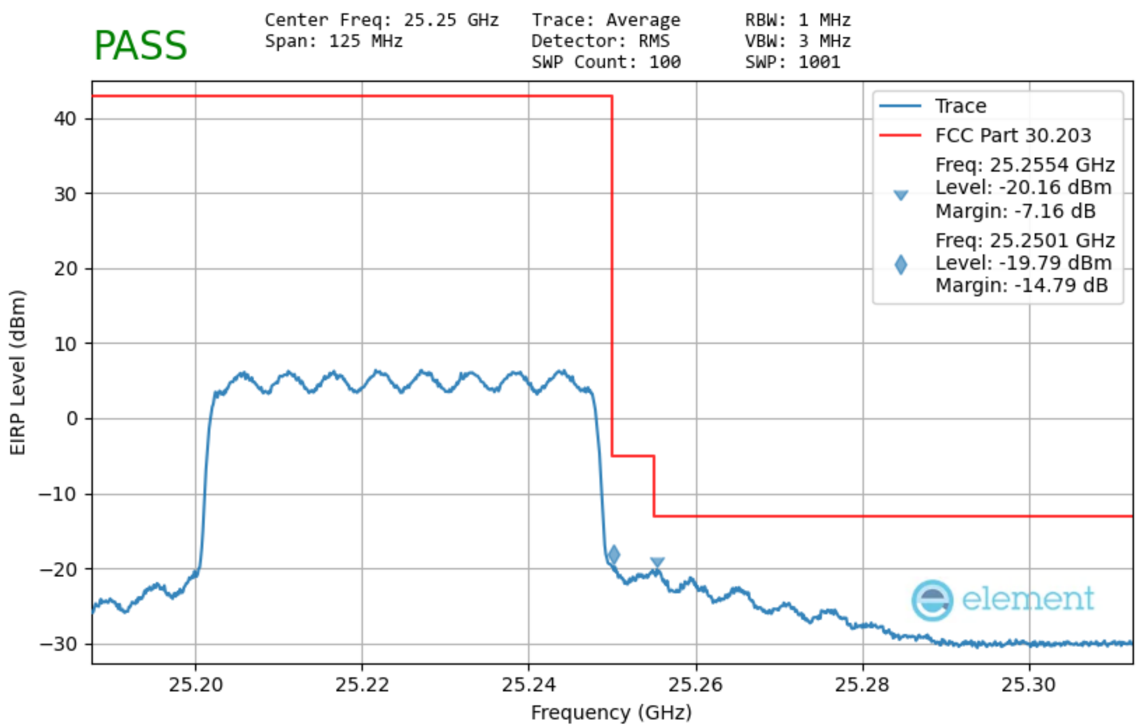


Plot 7-122. Upper Band Edge (100MHz-2CC – CP-OFDM QPSK 1 RB)

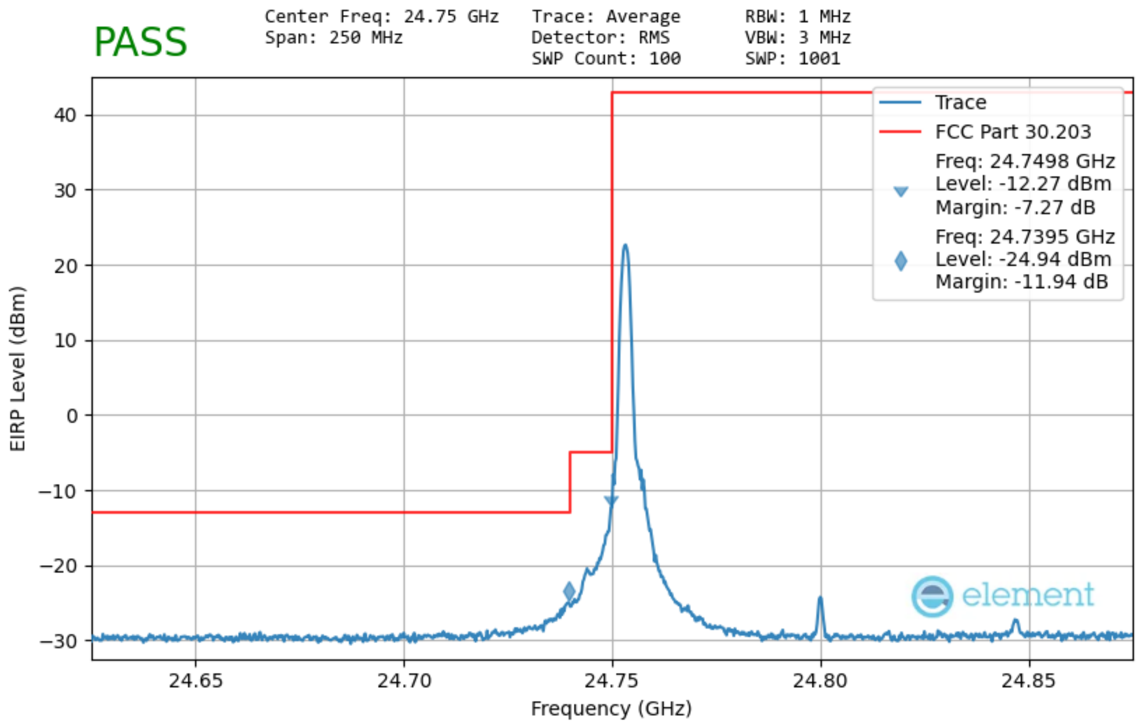
Band n258-R2 – Worst Case



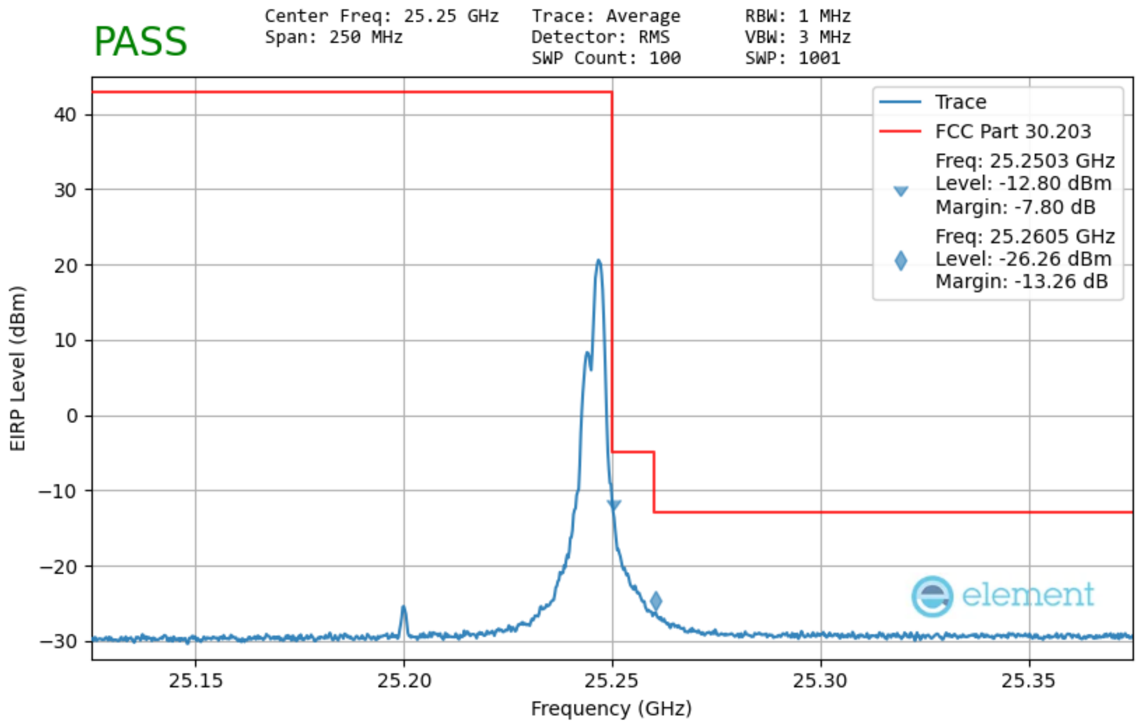
Plot 7-123. Lower Band Edge (50MHz-1CC – CP-OFDM QPSK Full RB)



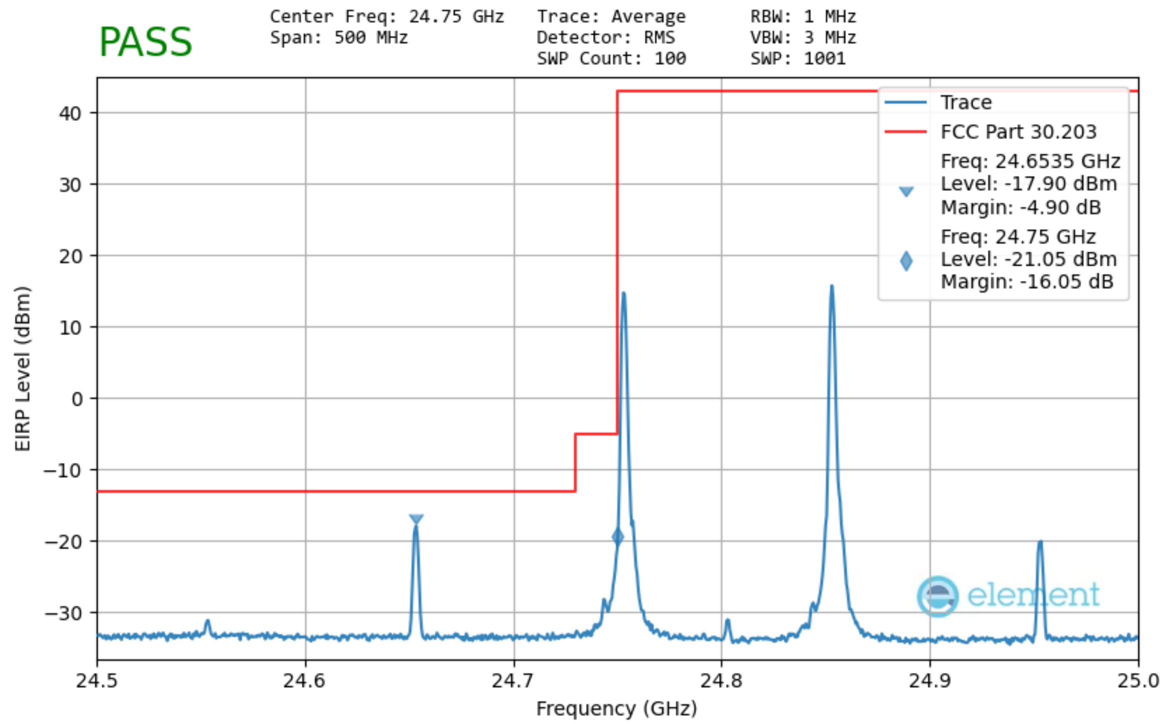
Plot 7-124. Upper Band Edge (50MHz-1CC – CP-OFDM QPSK Full RB)



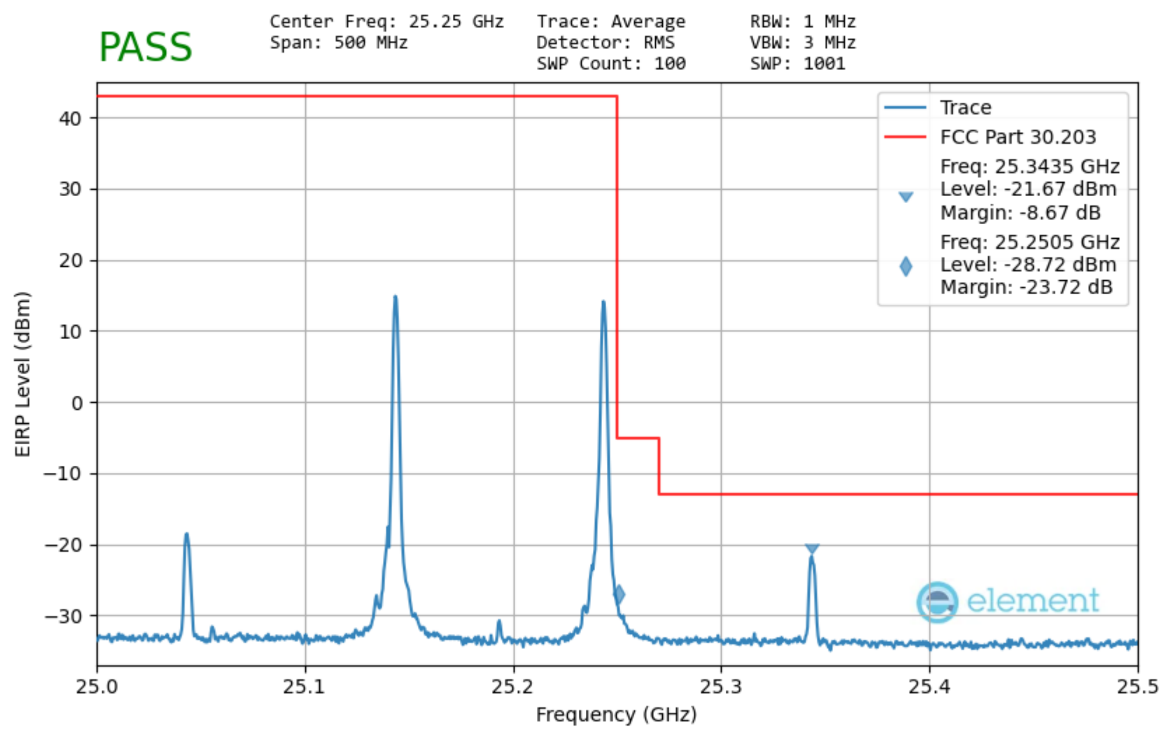
Plot 7-125. Lower Band Edge (100MHz-1CC – DFT-s-OFDM π/2 BPSK 1 RB)



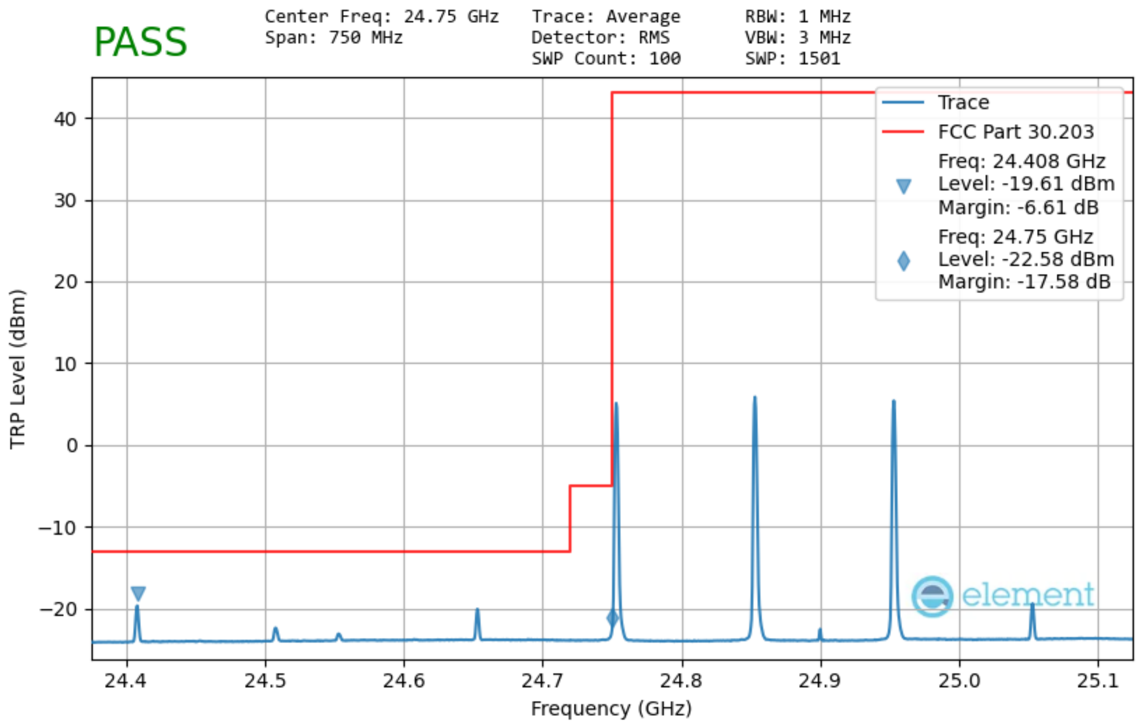
Plot 7-126. Upper Band Edge (100MHz-1CC – CP-OFDM QPSK 1 RB)



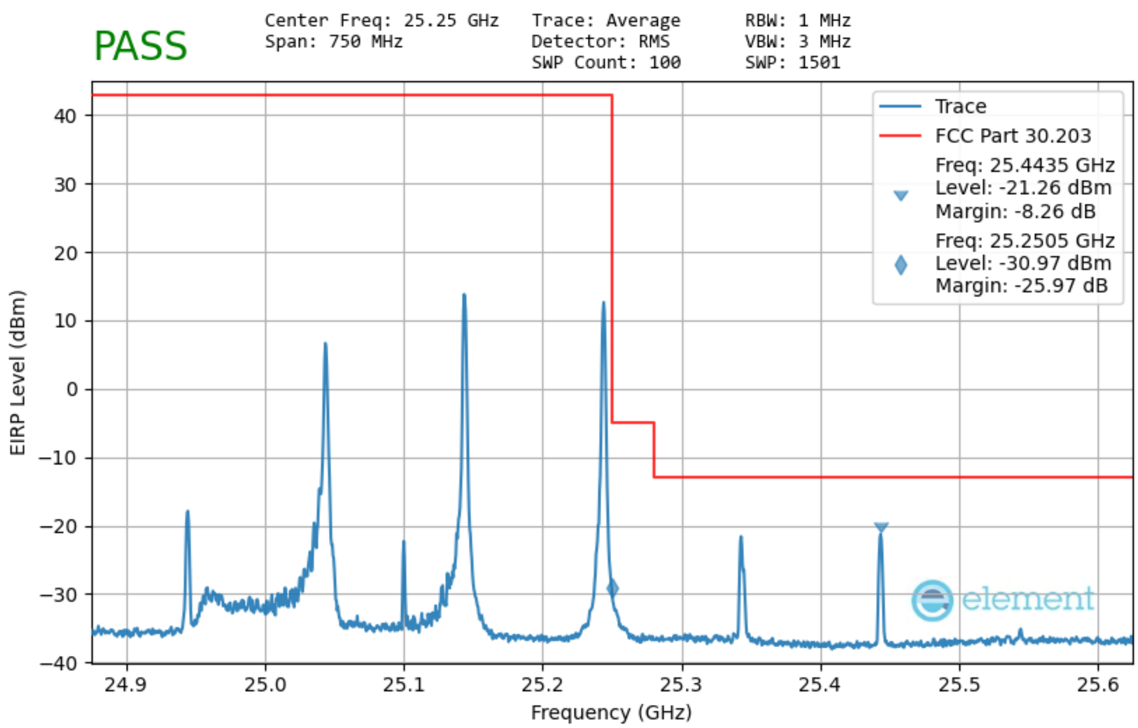
Plot 7-127. Lower Band Edge (100MHz-2CC – CP-OFDM QPSK 1 RB)



Plot 7-128. Upper Band Edge (100MHz-2CC – DFT-s-OFDM π/2 BPSK 1 RB)

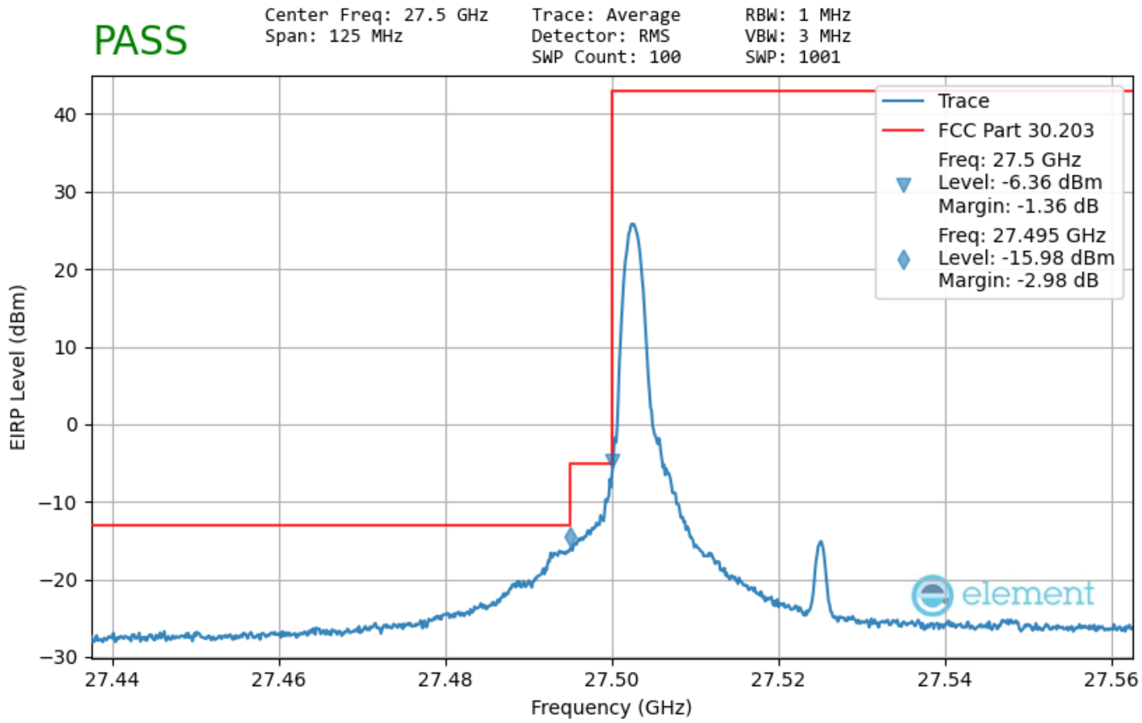


Plot 7-129. Lower Band Edge - TRP (100MHz-3CC – DFT-s-OFDM π/2 BPSK 1 RB)

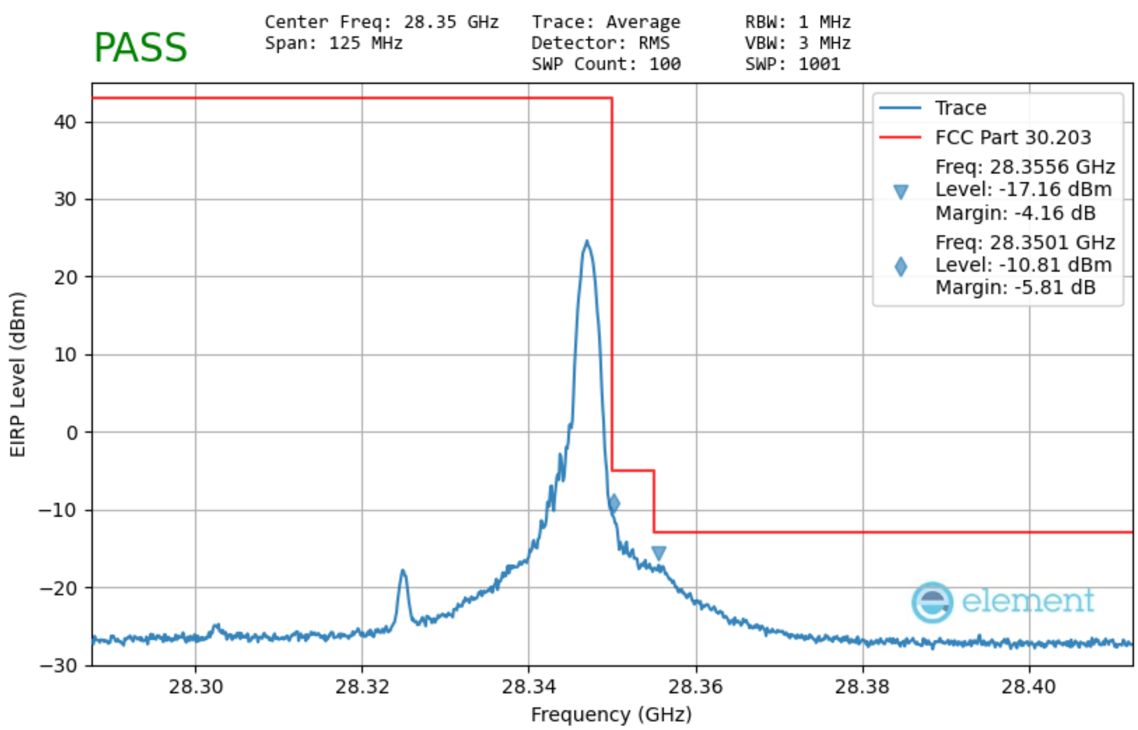


Plot 7-130. Upper Band Edge (100MHz-3CC – DFT-s-OFDM QPSK 1 RB)

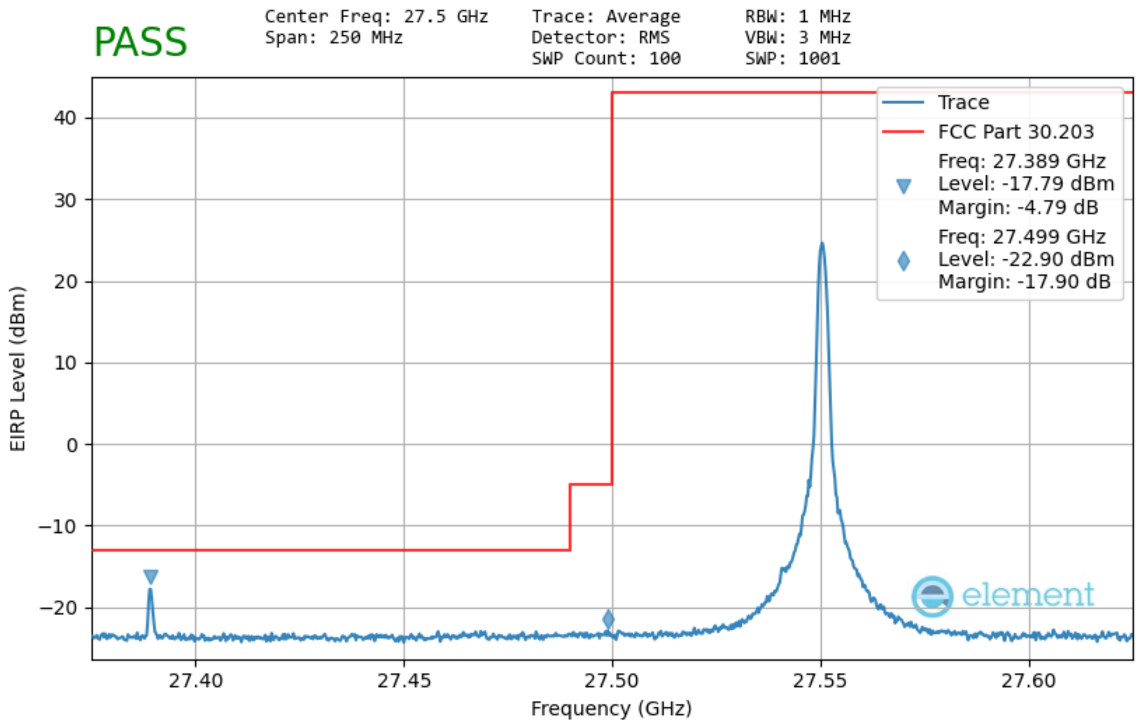
Band n261 – Worst Case



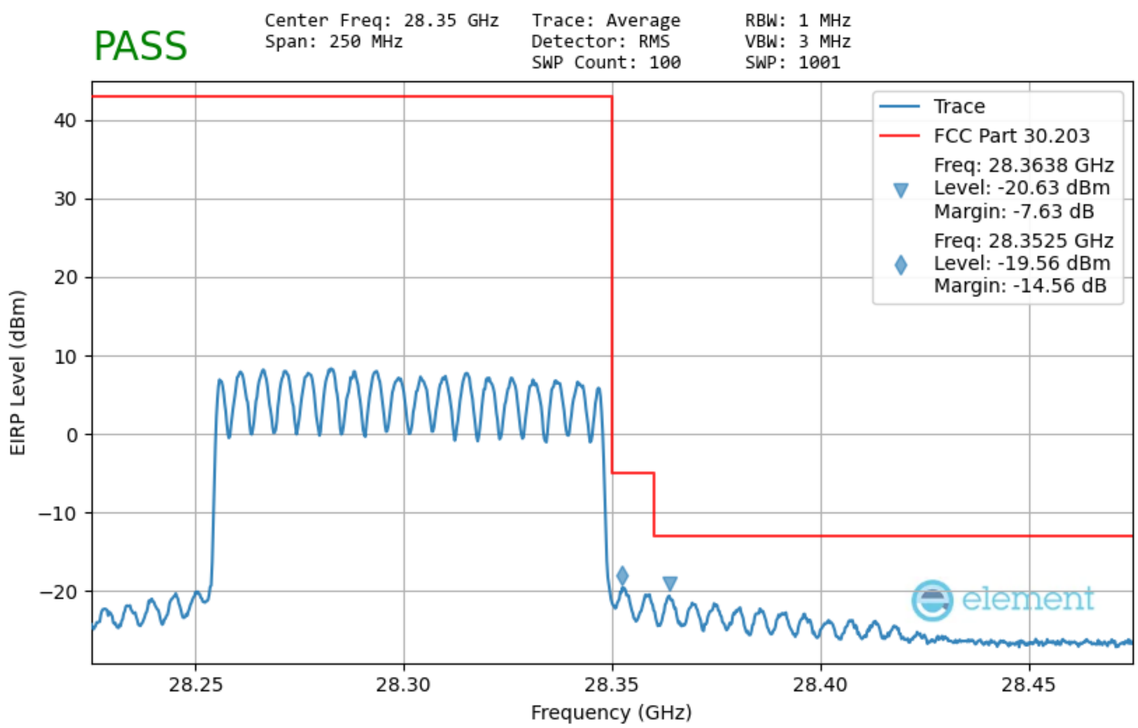
Plot 7-131. Lower Band Edge (50MHz-1CC – DFT-s-OFDM π/2 BPSK 1 RB)



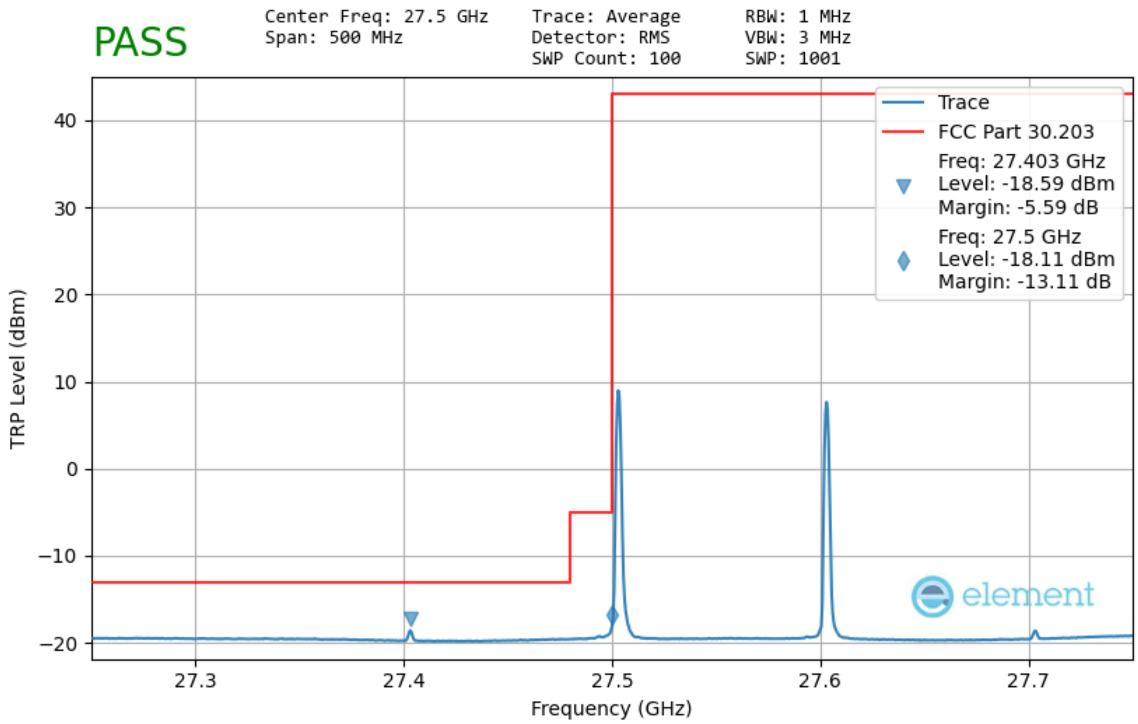
Plot 7-132. Upper Band Edge (50MHz-1CC – DFT-s-OFDM QPSK 1 RB)



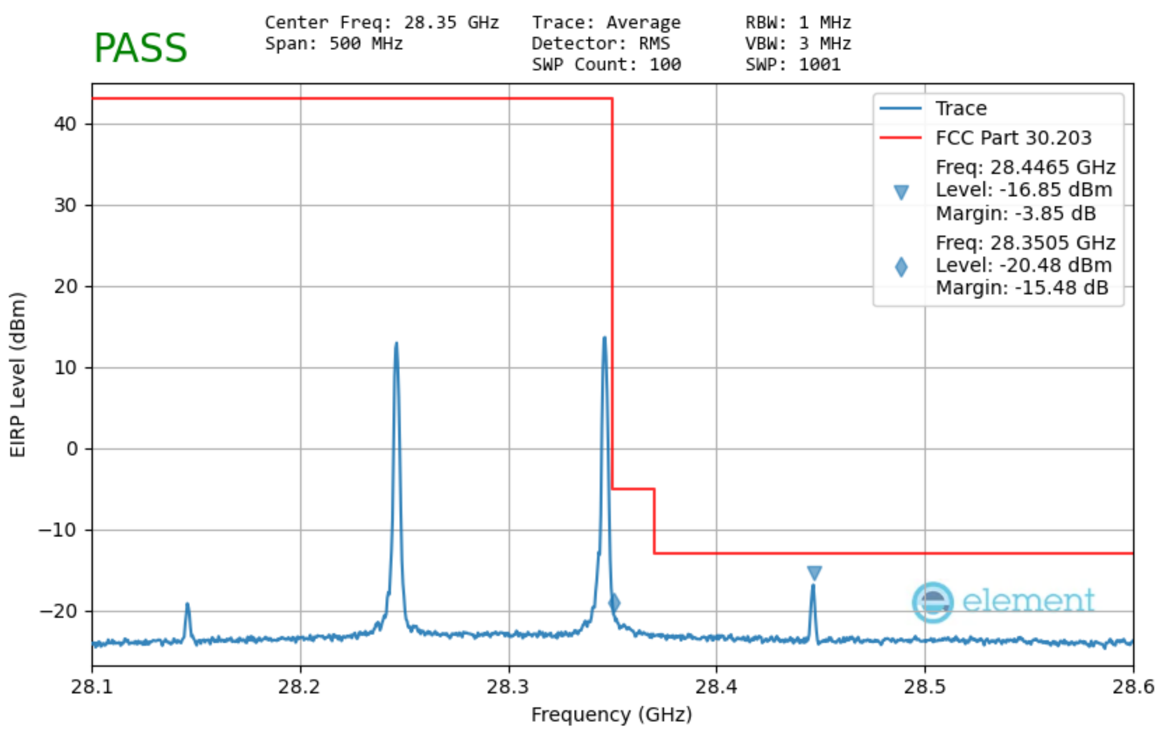
Plot 7-133. Lower Band Edge (100MHz-1CC – DFT-s-OFDM QPSK 1 RB)



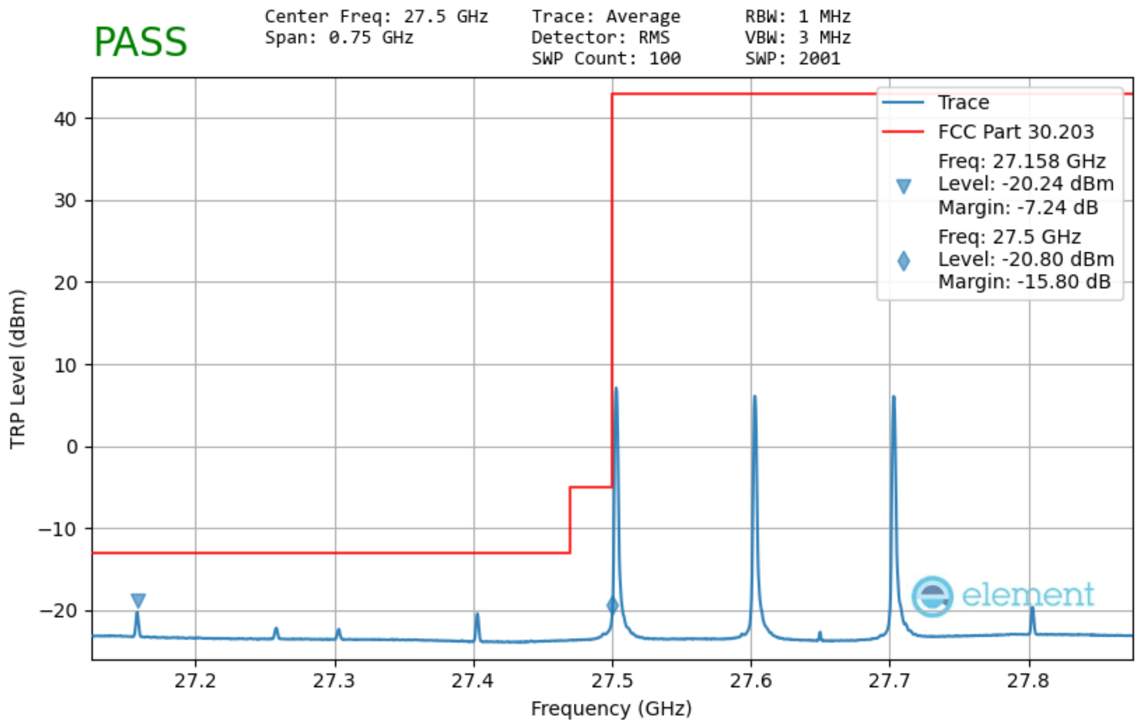
Plot 7-134. Upper Band Edge (100MHz-1CC – DFT-s-OFDM QPSK Full RB)



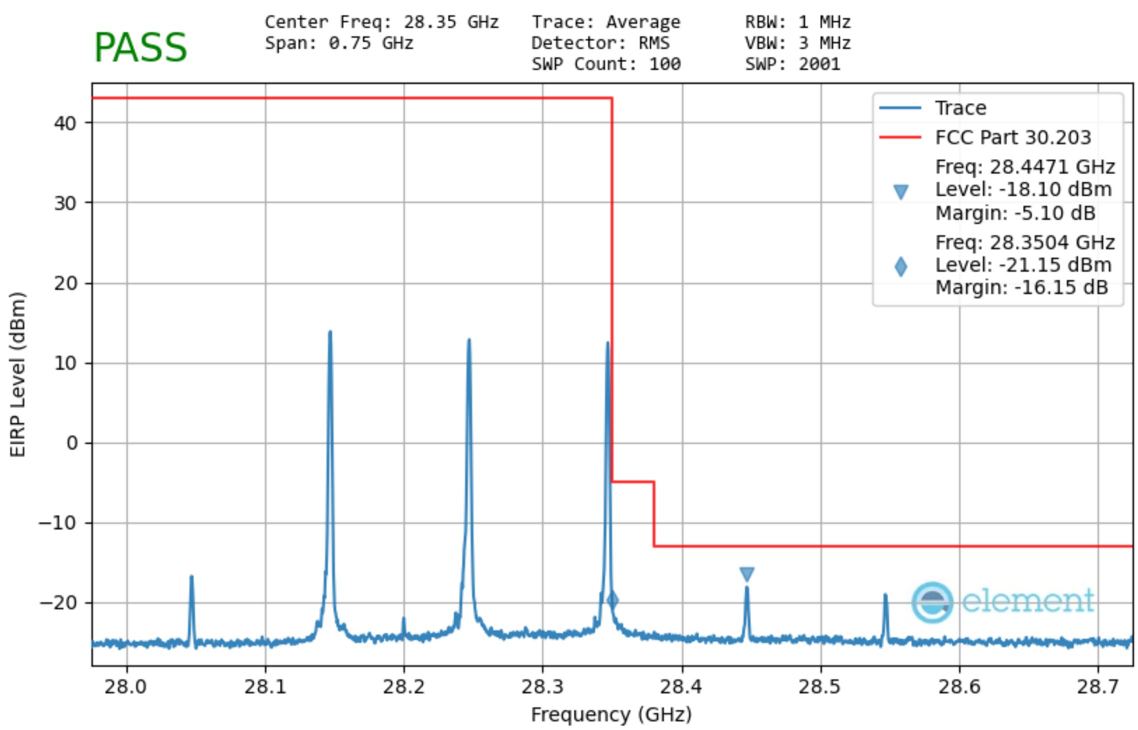
Plot 7-135. Lower Band Edge - TRP (100MHz-2CC – CP-OFDM QPSK 1 RB)



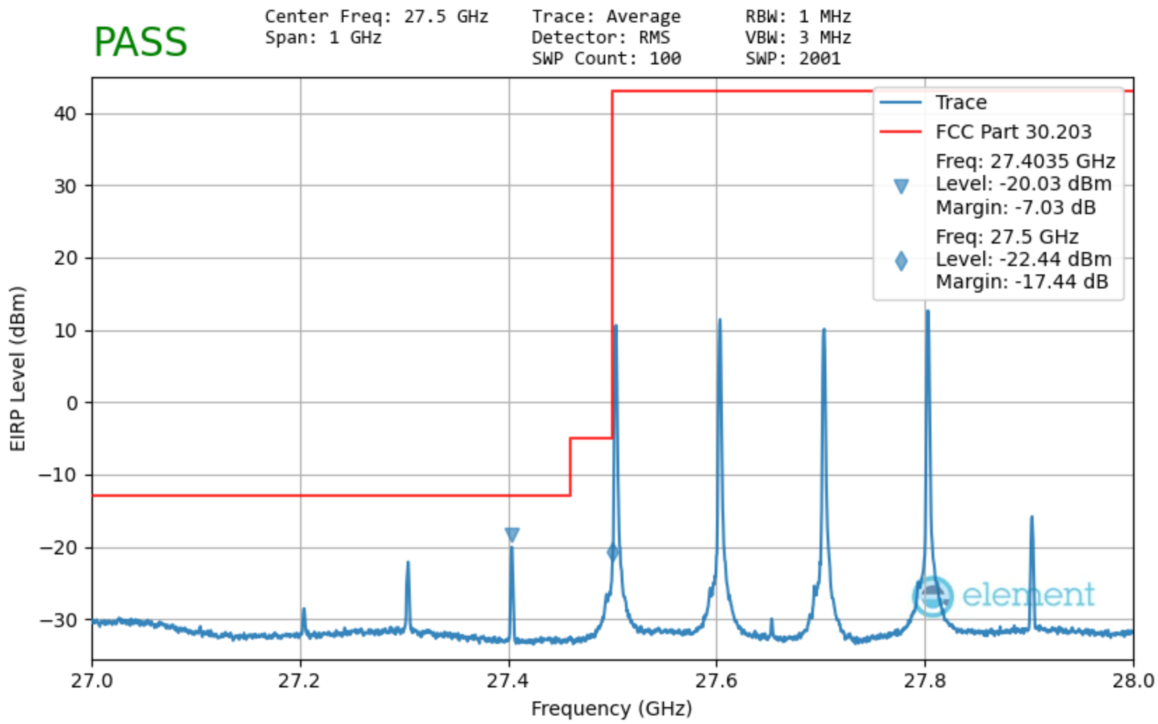
Plot 7-136. Upper Band Edge (100MHz-2CC – CP-OFDM QPSK 1 RB)



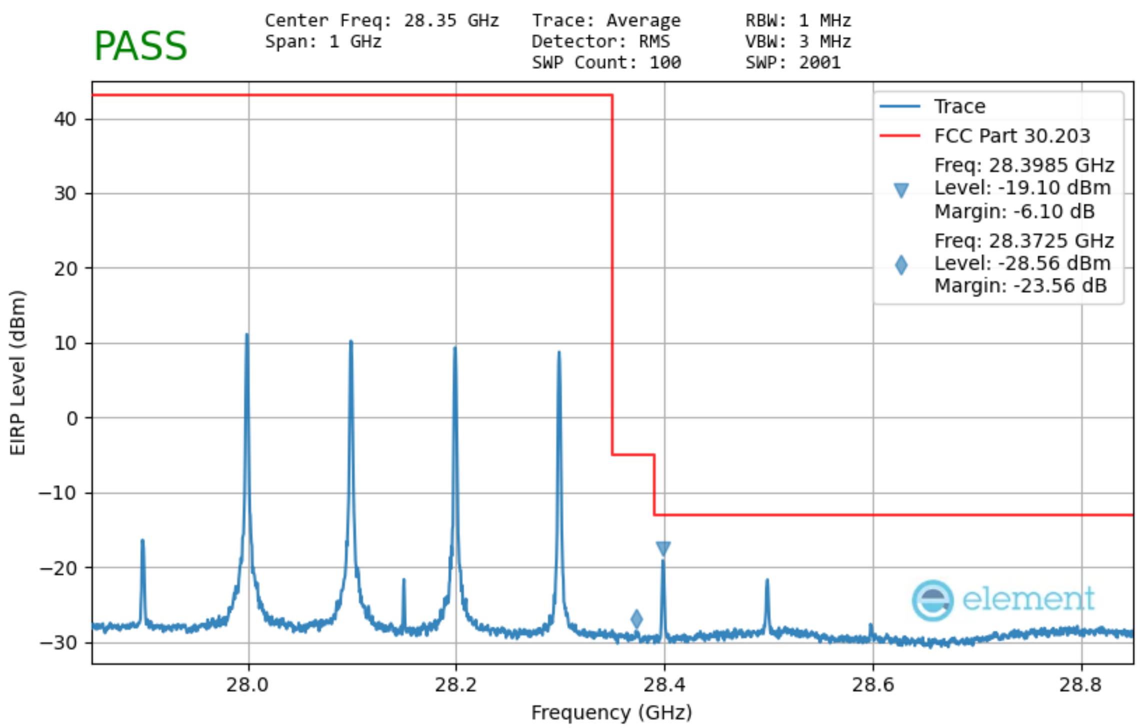
Plot 7-137. Lower Band Edge - TRP (100MHz-3CC – DFT-s-OFDM QPSK 1 RB)



Plot 7-138. Upper Band Edge (100MHz-3CC – CP-OFDM QPSK 1 RB)

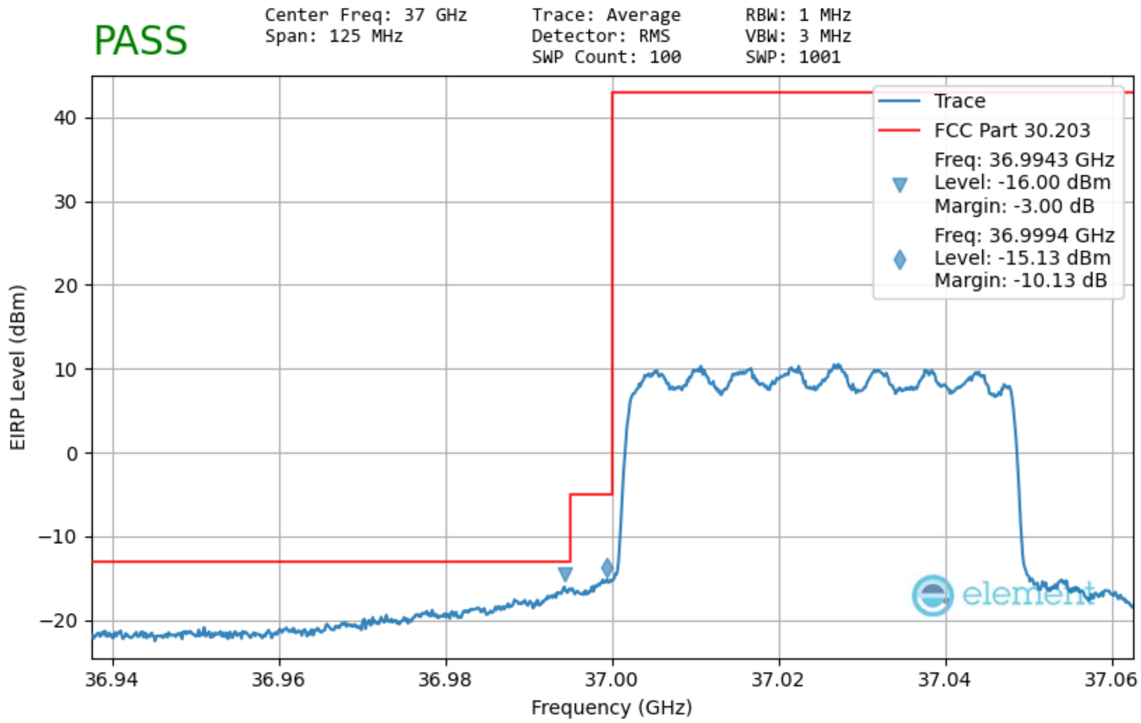


Plot 7-139. Lower Band Edge (100MHz-4CC – CP-OFDM QPSK 1 RB)

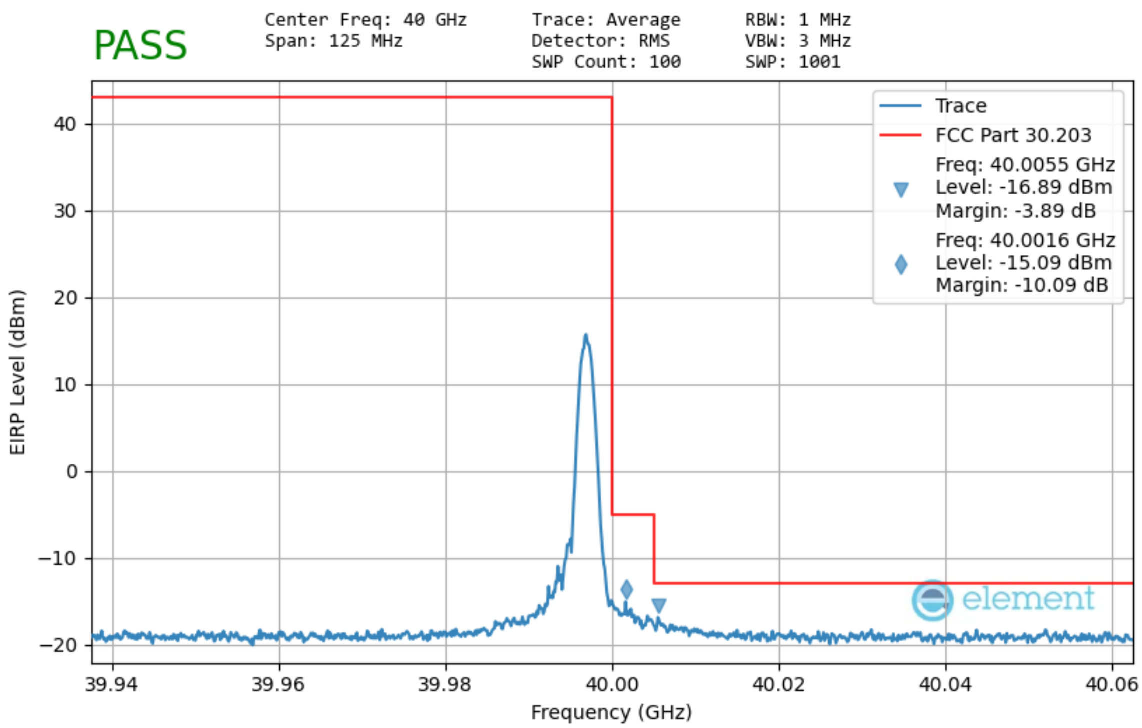


Plot 7-140. Upper Band Edge (100MHz-4CC – DFT-s-OFDM QPSK 1 RB)

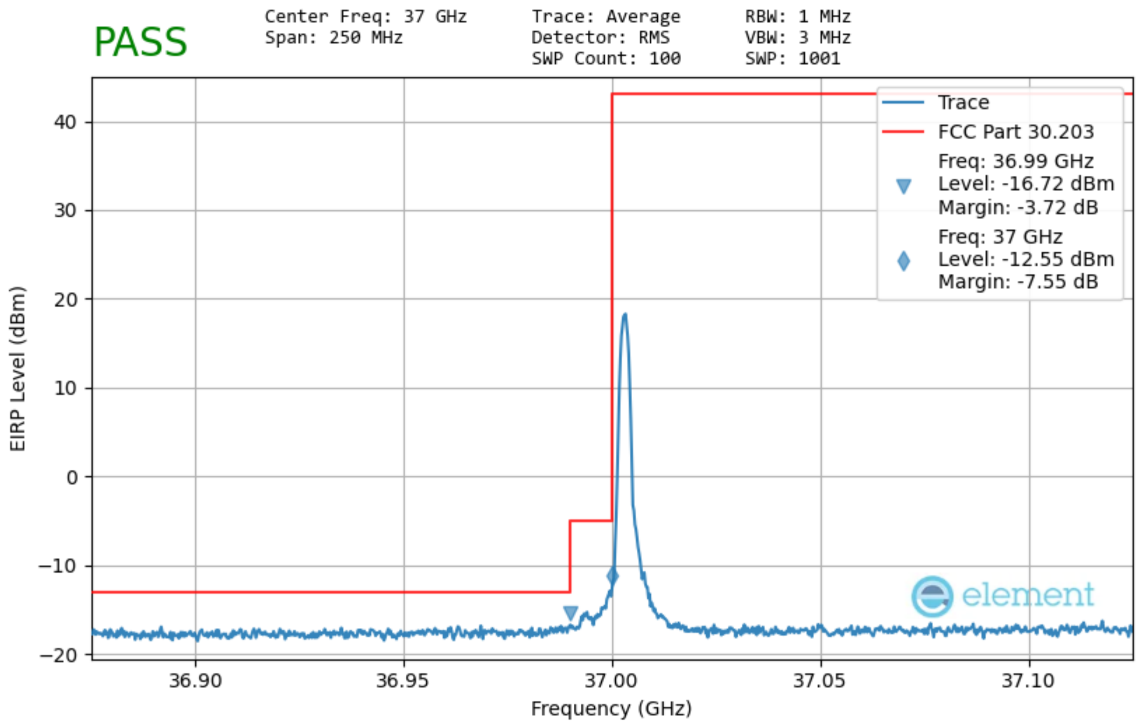
Band n260 – Worst Case



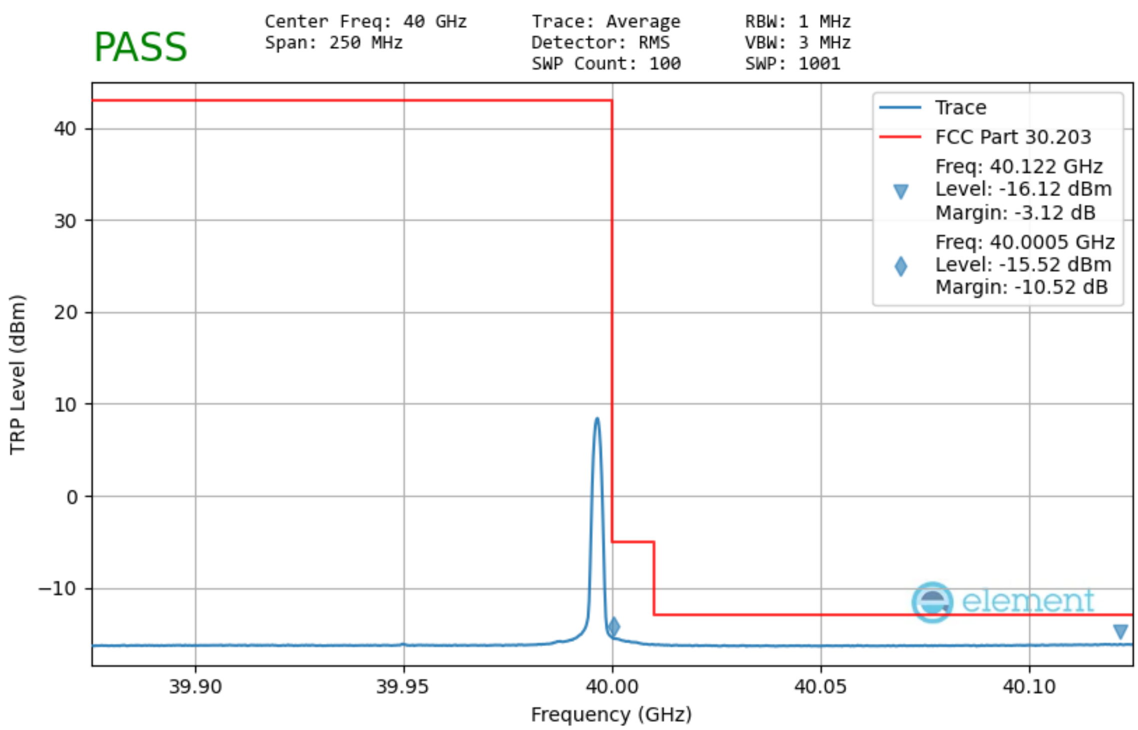
Plot 7-141. Lower Band Edge (50MHz-1CC – DFT-s-OFDM QPSK Full RB)



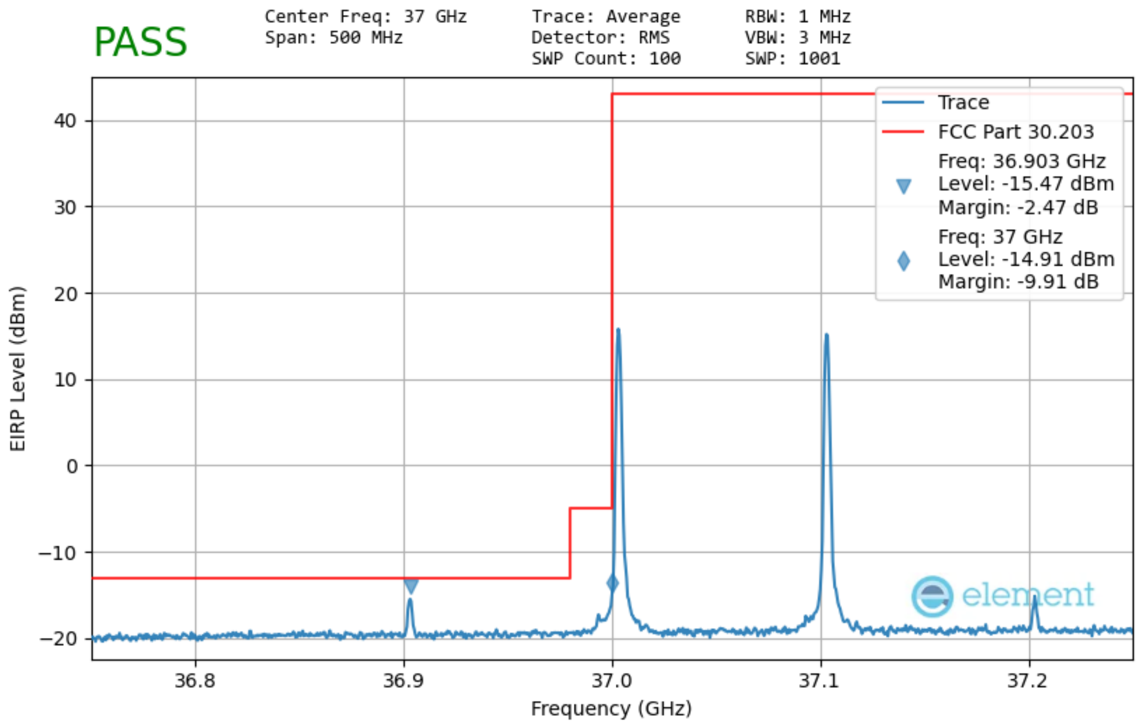
Plot 7-142. Upper Band Edge (50MHz-1CC – DFT-s-OFDM QPSK 1 RB)



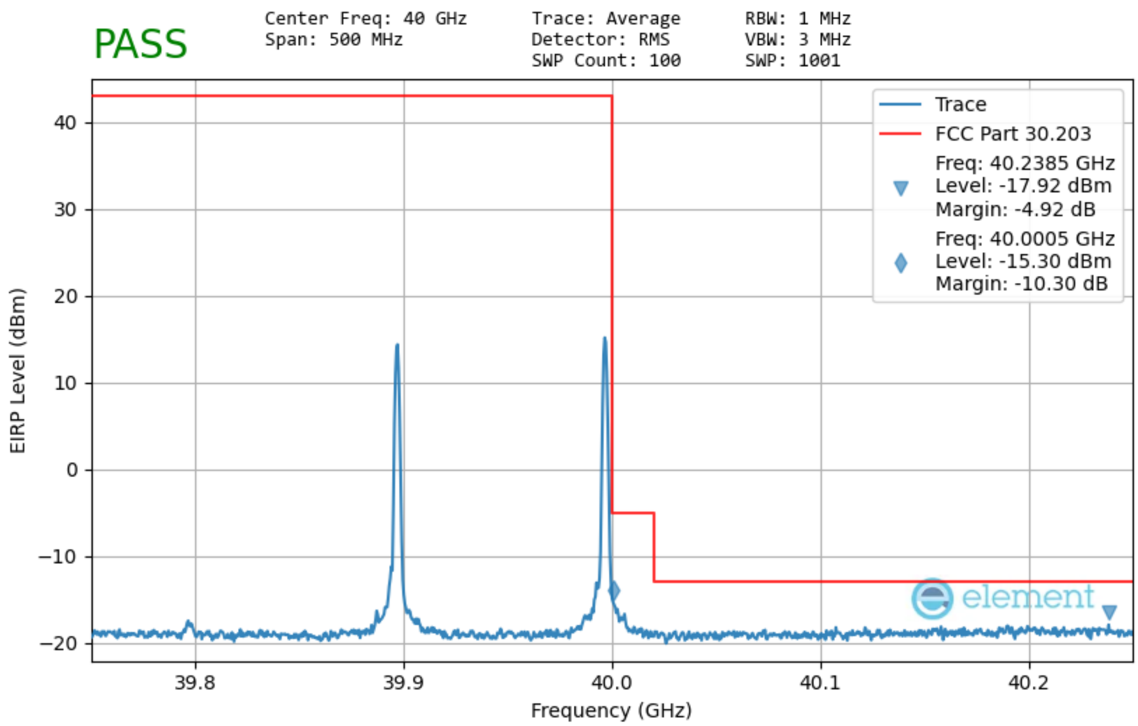
Plot 7-143. Lower Band Edge (100MHz-1CC – DFT-s-OFDM QPSK 1 RB)



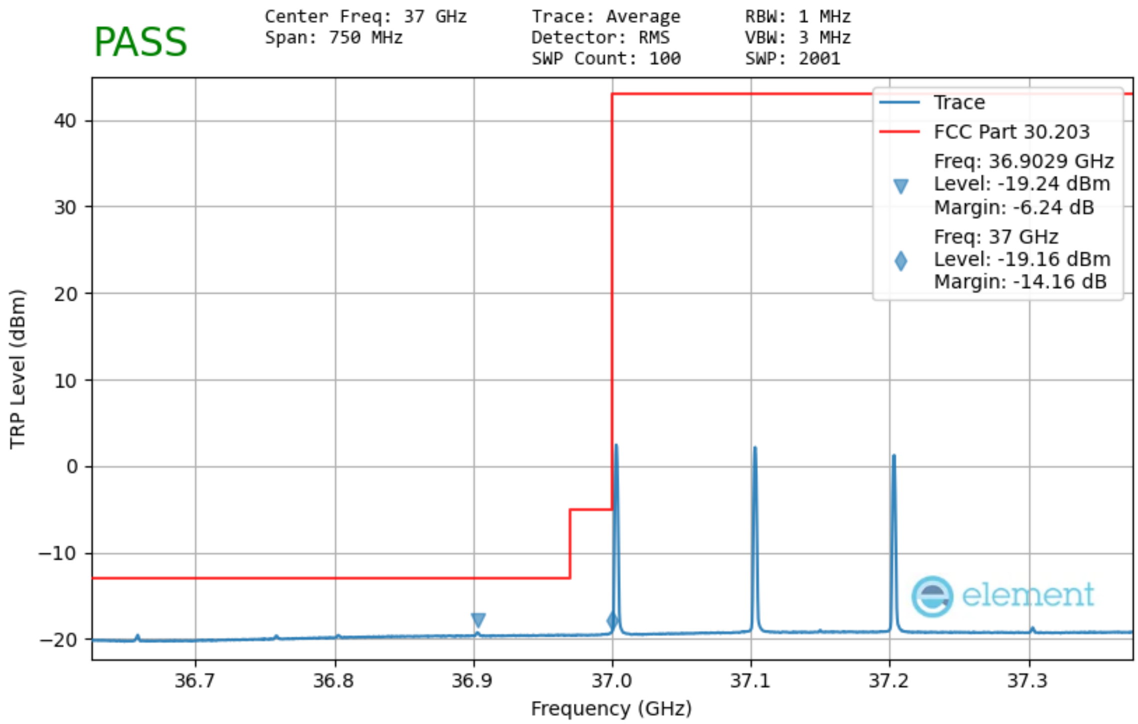
Plot 7-144. Upper Band Edge - TRP (100MHz-1CC – DFT-s-OFDM π/2 BPSK 1 RB)



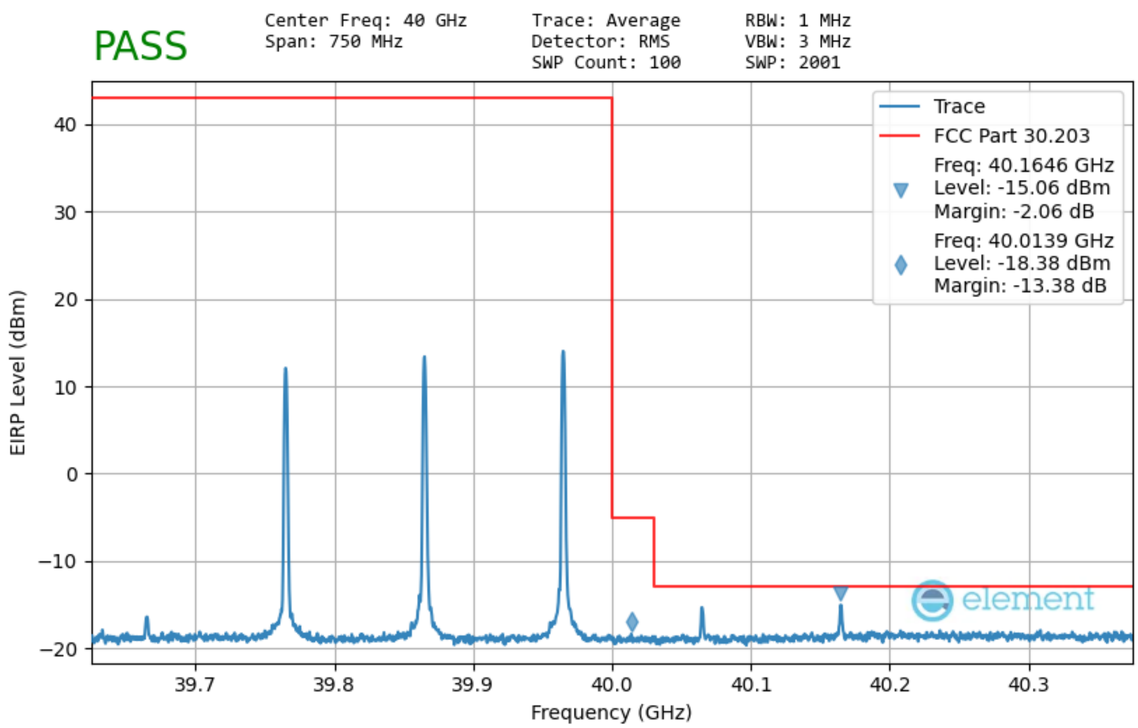
Plot 7-145. Lower Band Edge (100MHz-2CC – CP-OFDM QPSK 1 RB)



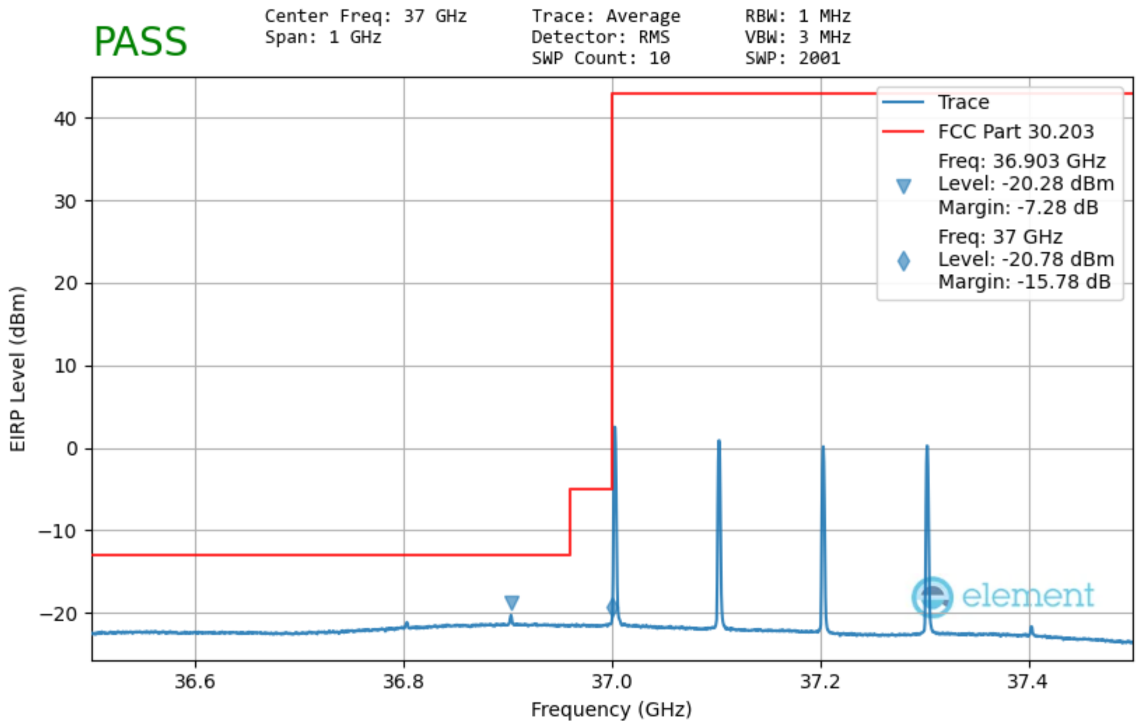
Plot 7-146. Upper Band Edge (100MHz-2CC – DFT-s-OFDM QPSK 1 RB)



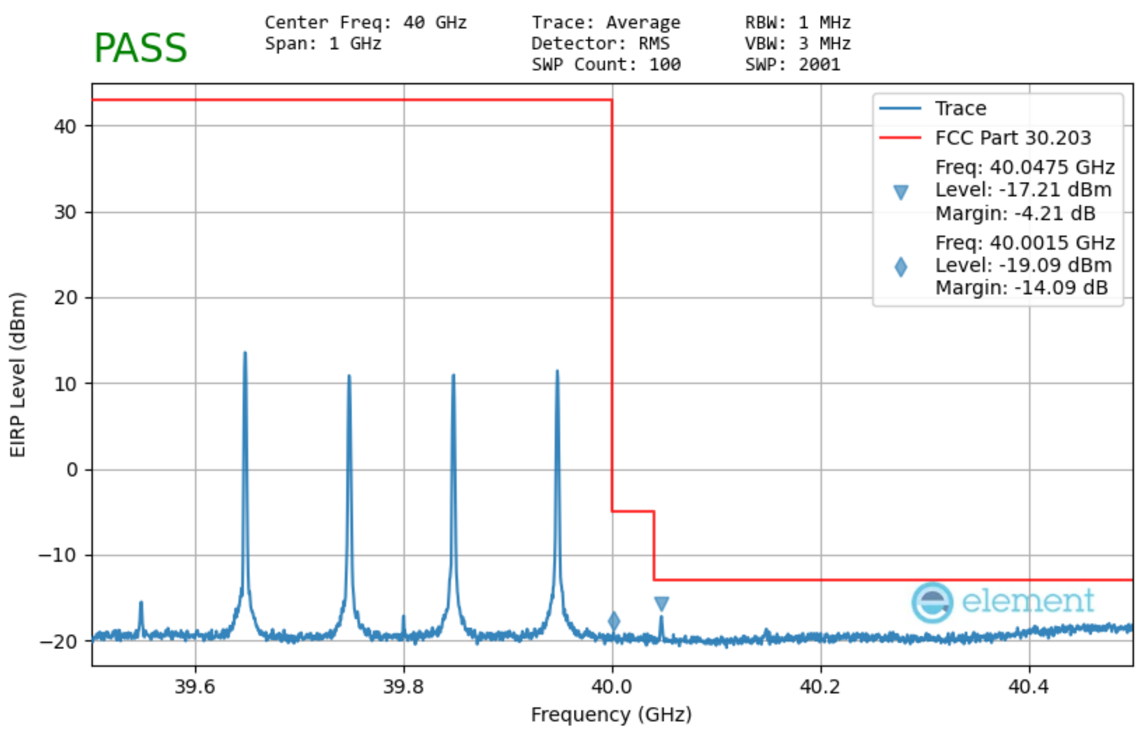
Plot 7-147. Lower Band Edge - TRP (100MHz-3CC – CP-OFDM QPSK 1 RB)



Plot 7-148. Upper Band Edge (100MHz-3CC – CP-OFDM QPSK 1 RB)



Plot 7-149. Lower Band Edge (100MHz-4CC – DFT-s-OFDM π/2 BPSK 1 RB)



Plot 7-150. Upper Band Edge (100MHz-4CC – DFT-s-OFDM π/2 BPSK 1 RB)

7.6 Frequency Stability / Temperature Variation
§2.1055

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.56-2015. 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.

Test Procedure Used

ANSI C63.26-2015 Section 5.6
KDB 842590 D01 v01r02 Section 4.5

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 measured using horn antenna connected to a spectrum analyzer. The EUT was placed inside an environmental chamber that uses a foam plug to maintain the temperature condition inside the chamber. The horn antenna measured the frequency of the fundamental signal.

Test Notes

The Frequency Deviation column in the table below is the amount of deviation measured from the center frequency of the Reference measurement (first row).

Frequency Stability Measurements (Band n258)

§2.1055

OPERATING FREQUENCY:	24,350,040,000	Hz
CHANNEL:	2018333	
REFERENCE VOLTAGE:	4.33	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (^{o}C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.33	+ 20 (Ref)	24,350,687,249	0	0.0000000
100 %		- 30	24,350,637,744	49,505	0.0002033
100 %		- 20	24,350,629,293	57,956	0.0002380
100 %		- 10	24,350,630,162	57,087	0.0002344
100 %		0	24,350,641,206	46,043	0.0001891
100 %		+ 10	24,350,658,676	28,573	0.0001173
100 %		+ 30	24,350,695,415	-8,166	-0.0000335
100 %		+ 40	24,350,709,546	-22,297	-0.0000916
100 %		+ 50	24,350,715,587	-28,338	-0.0001164
BATT. ENDPOINT	3.71	+ 20	24,350,672,175	15,074	0.0000619

Table 7-39. Frequency Stability Data (n258)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Frequency Stability Measurements (Band n258)
§2.1055

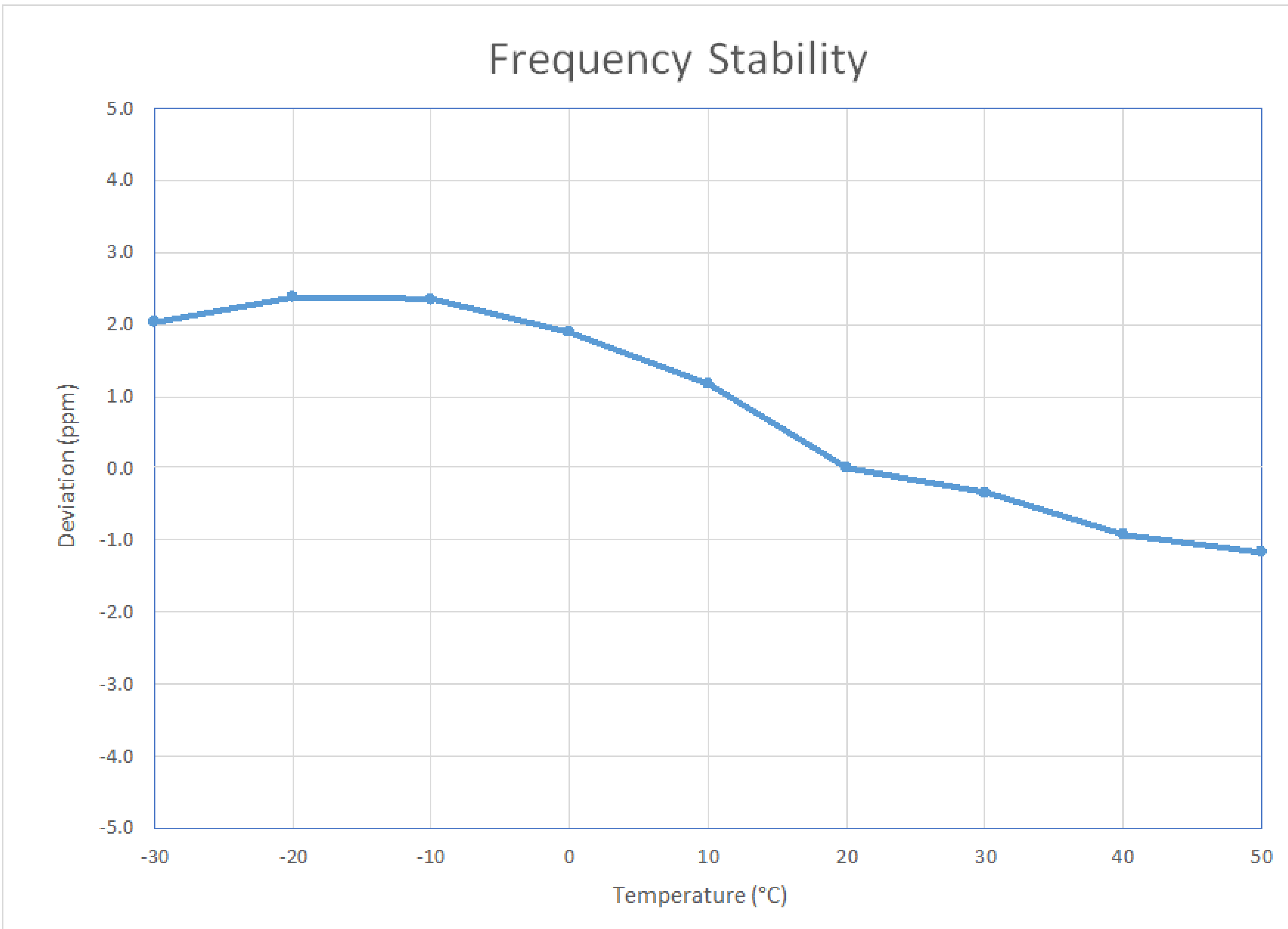


Table 7-40. Frequency Stability Graph (n258)

Frequency Stability Measurements (Band n261)

§2.1055

OPERATING FREQUENCY:	27,924,960,000	Hz
CHANNEL:	2077915	
REFERENCE VOLTAGE:	4.33	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.33	+ 20 (Ref)	27,925,780,554	0	0.0000000
100 %		- 30	27,925,726,505	54,049	0.0001935
100 %		- 20	27,925,711,576	68,978	0.0002470
100 %		- 10	27,925,713,729	66,825	0.0002393
100 %		0	27,925,730,807	49,747	0.0001781
100 %		+ 10	27,925,756,051	24,503	0.0000877
100 %		+ 30	27,925,814,218	-33,664	-0.0001205
100 %		+ 40	27,925,831,736	-51,182	-0.0001833
100 %		+ 50	27,925,847,425	-66,871	-0.0002395
BATT. ENDPOINT	3.71	+ 20	27,925,784,967	-4,413	-0.0000158

Table 7-41. Frequency Stability Data (n261)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Frequency Stability Measurements (Band n261)
§2.1055

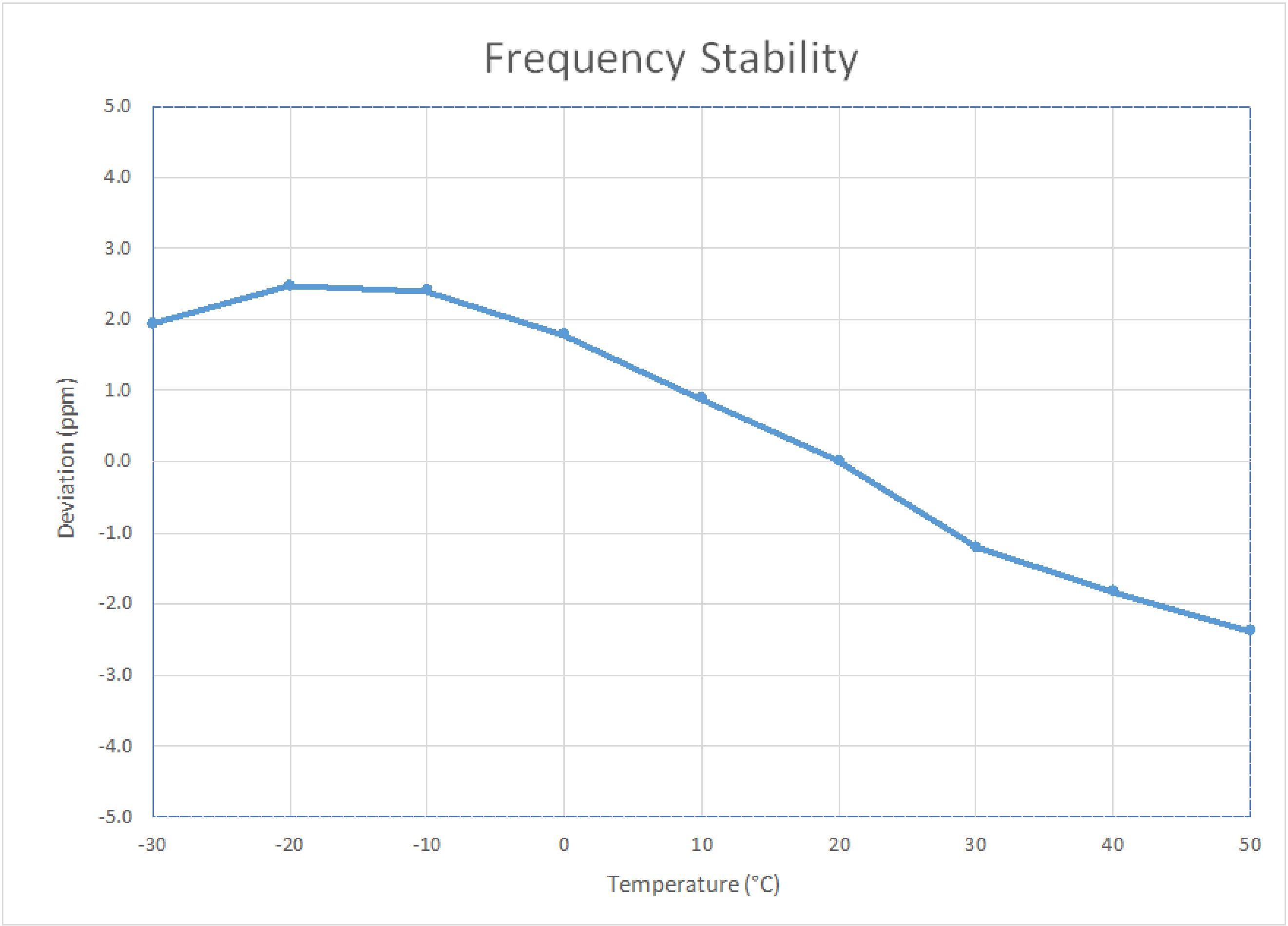


Table 7-42. Frequency Stability Graph (n261)

Frequency Stability Measurements (Band n260)

§2.1055

OPERATING FREQUENCY:	38,499,960,000	Hz
CHANNEL:	2254165	
REFERENCE VOLTAGE:	4.33	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.33	+ 20 (Ref)	38,500,897,480	0	0.0000000
100 %		- 30	38,500,827,230	70,250	0.0001825
100 %		- 20	38,500,813,550	83,930	0.0002180
100 %		- 10	38,500,816,180	81,300	0.0002112
100 %		0	38,500,835,520	61,960	0.0001609
100 %		+ 10	38,500,868,140	29,340	0.0000762
100 %		+ 30	38,500,927,810	-30,330	-0.0000788
100 %		+ 40	38,500,958,140	-60,660	-0.0001576
100 %		+ 50	38,500,966,650	-69,170	-0.0001797
BATT. ENDPOINT	3.71	+ 20	38,500,896,600	880	0.0000023

Table 7-43. Frequency Stability Data (n260)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Frequency Stability Measurements (Band n260)
§2.1055

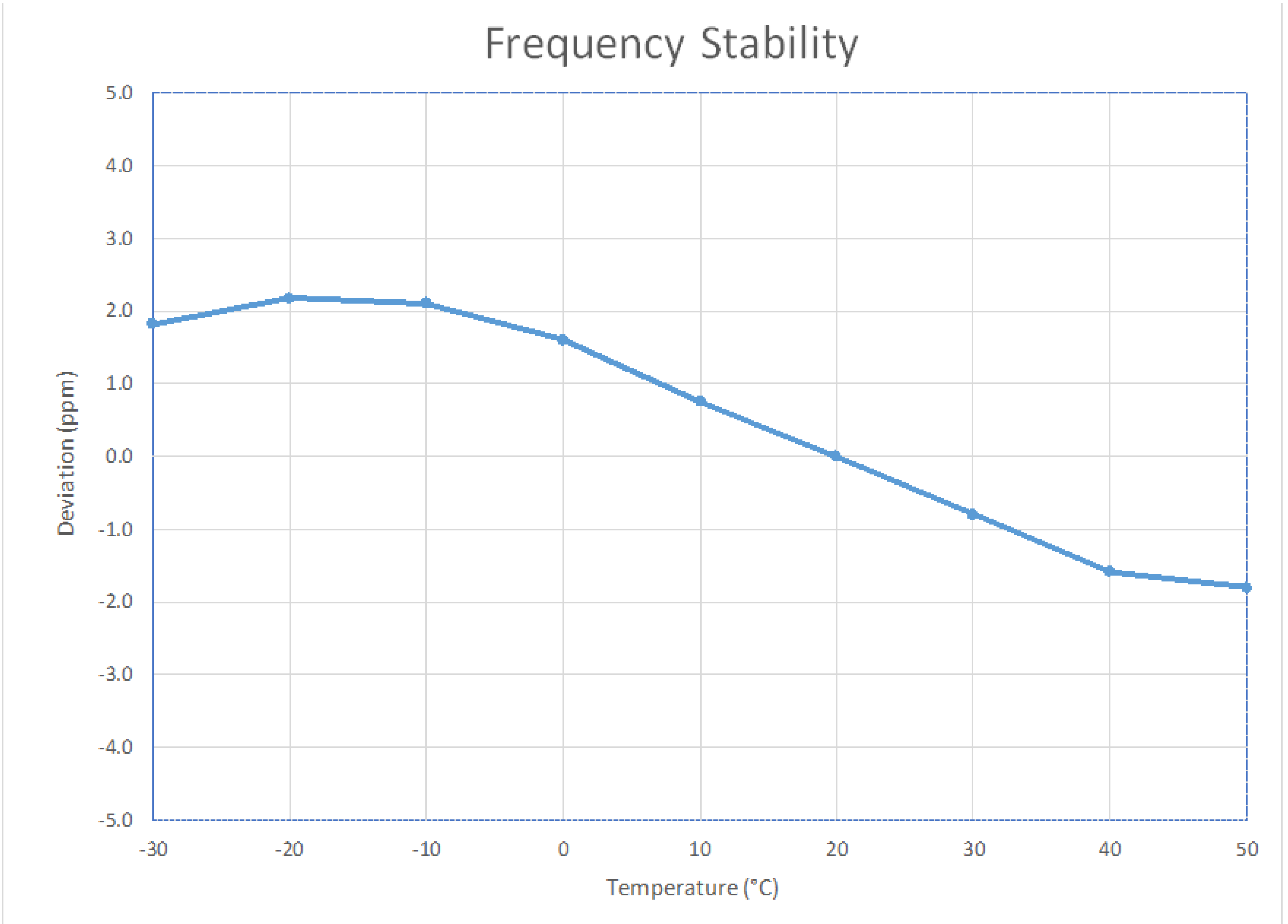


Table 7-44. Frequency Stability Graph (n260)

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMF731U** complies with all the requirements of Part 30.