

Peak level under the average limit – no additional measures need

Figure 8.6-40: Radiated spurious emissions on mid channel with antenna in vertical polarization – EUT in vertical position

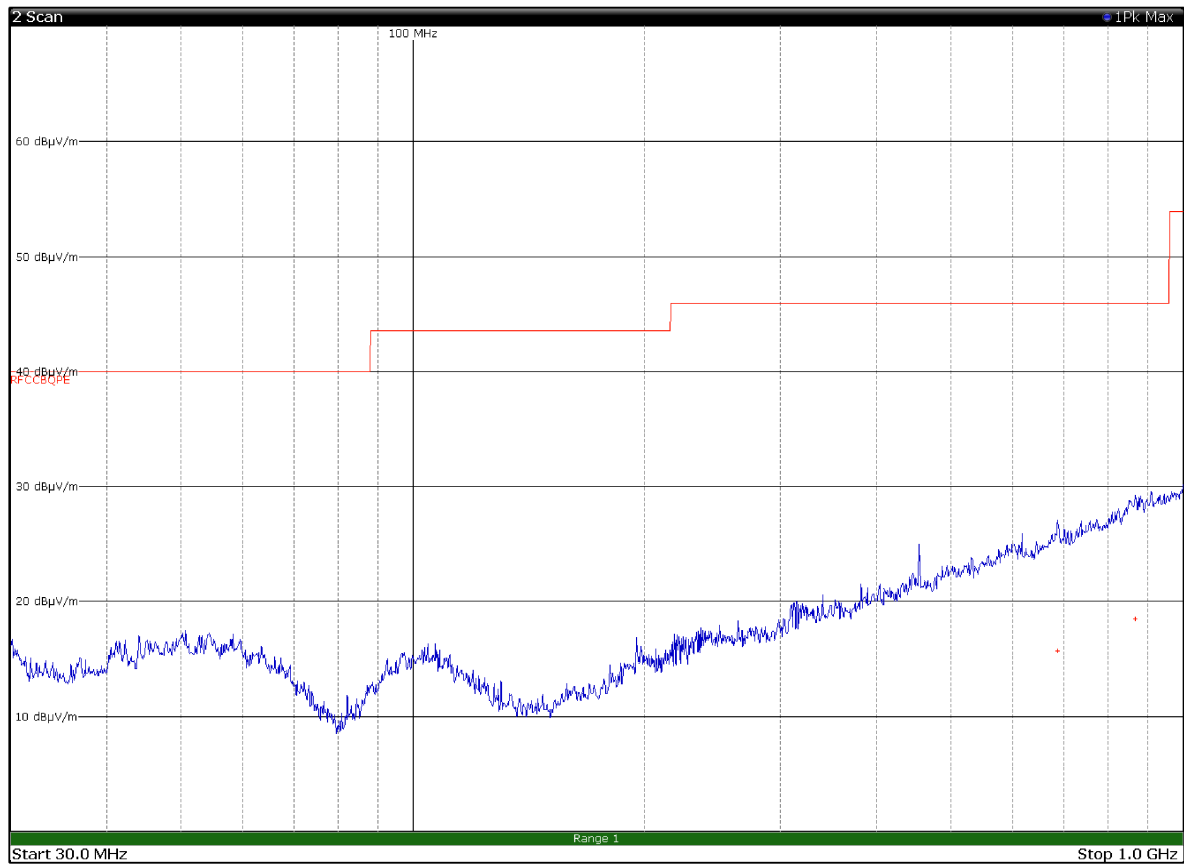


Figure 8.6-41: Radiated spurious emissions on high channel with antenna in horizontal polarization – EUT in vertical position

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
686.5800	15.8	46.0	-30.2	QP
866.8200	18.5	46.0	-27.5	QP

Notes: Field strength includes correction factor of antenna, cable loss, amplifier, and attenuators where applicable.

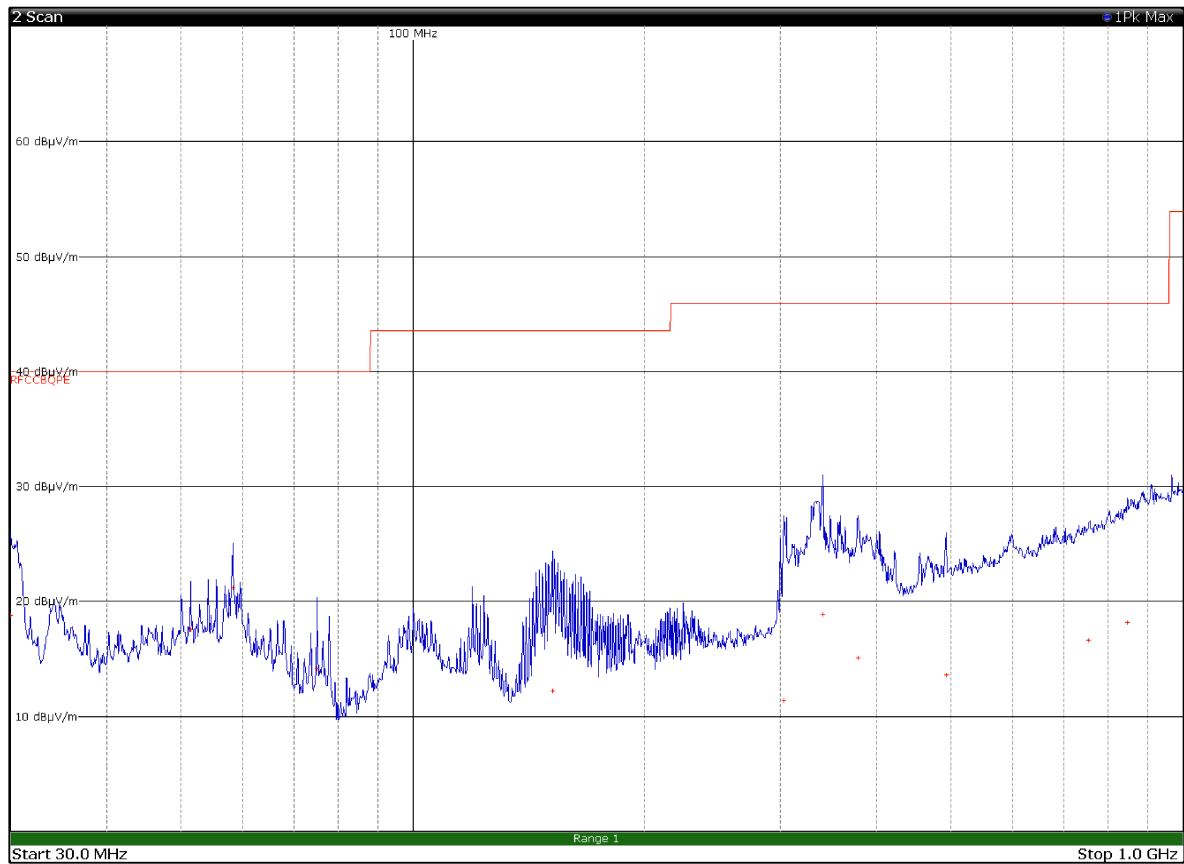
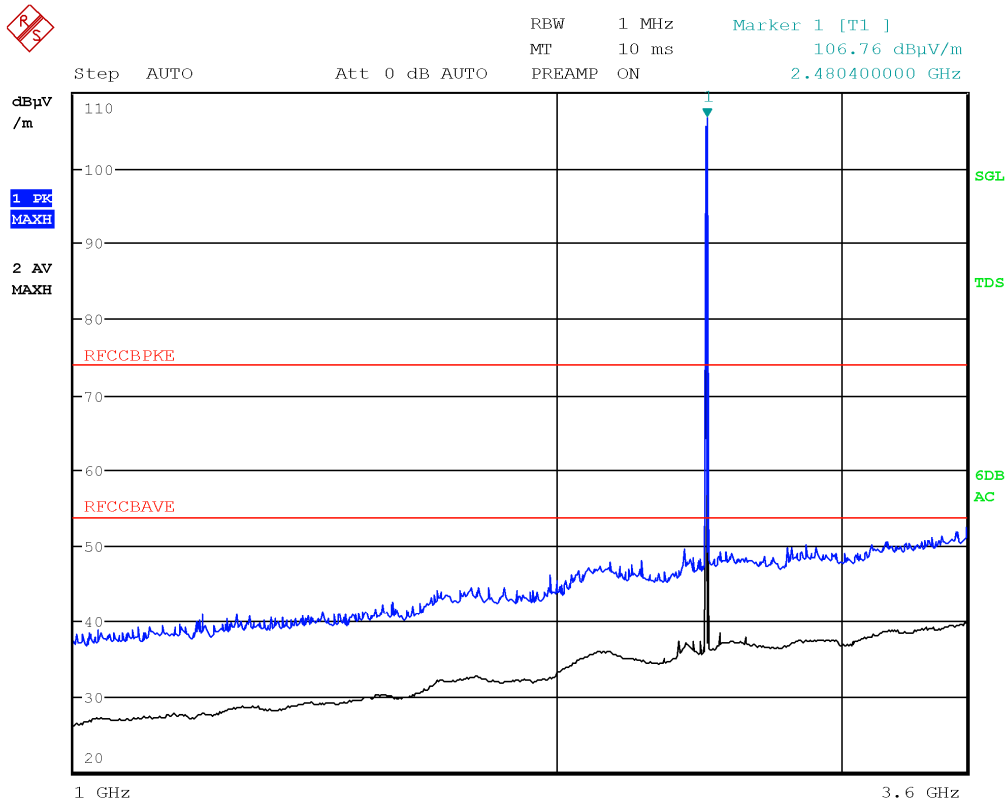


Figure 8.6-42: Radiated spurious emissions on high channel with antenna in vertical polarization – EUT in vertical position

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
30.0000	18.9	40.0	-21.1	QP
51.3900	17.6	40.0	-22.4	QP
58.3200	21.2	40.0	-18.8	QP
74.9700	14.2	40.0	-25.8	QP
151.6800	12.3	43.5	-31.2	QP
303.2100	11.4	46.0	-34.6	QP
340.7700	18.9	46.0	-27.1	QP
378.6000	15.1	46.0	-30.9	QP
492.6000	13.7	46.0	-32.3	QP
754.6500	16.7	46.0	-29.3	QP
847.6800	18.3	46.0	-27.7	QP

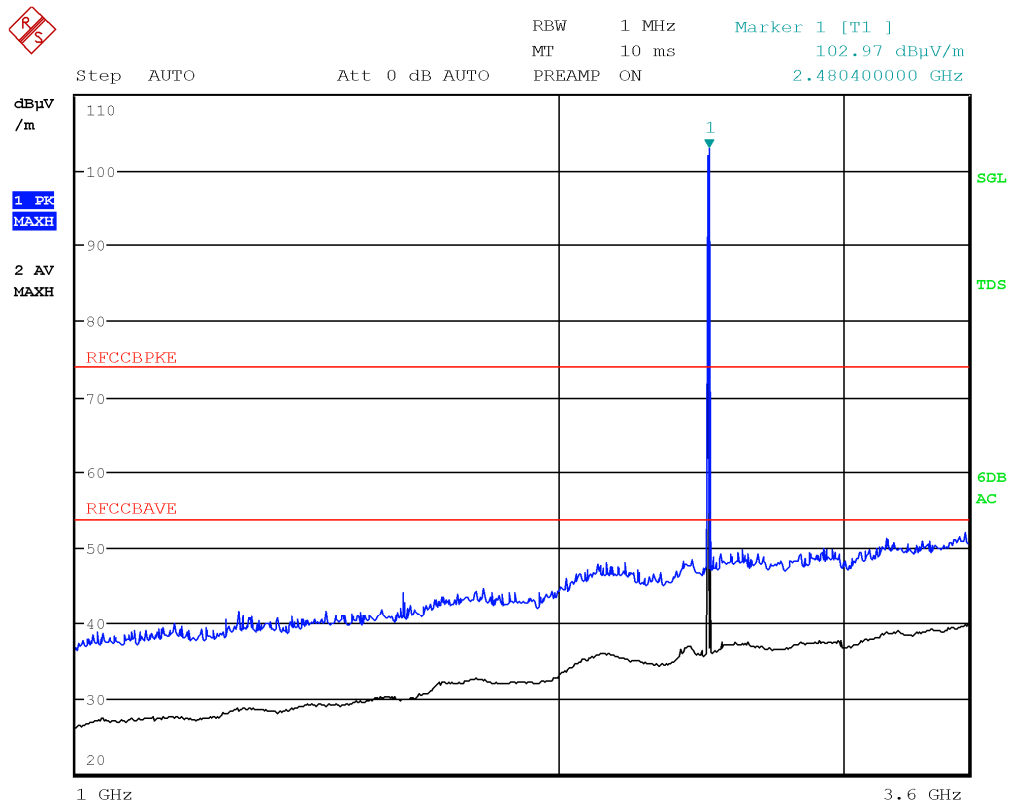
Notes: Field strength includes correction factor of antenna, cable loss, amplifier, and attenuators where applicable.



Peak level under the average limit – no additional measures need

Limit exceeded by the carrier

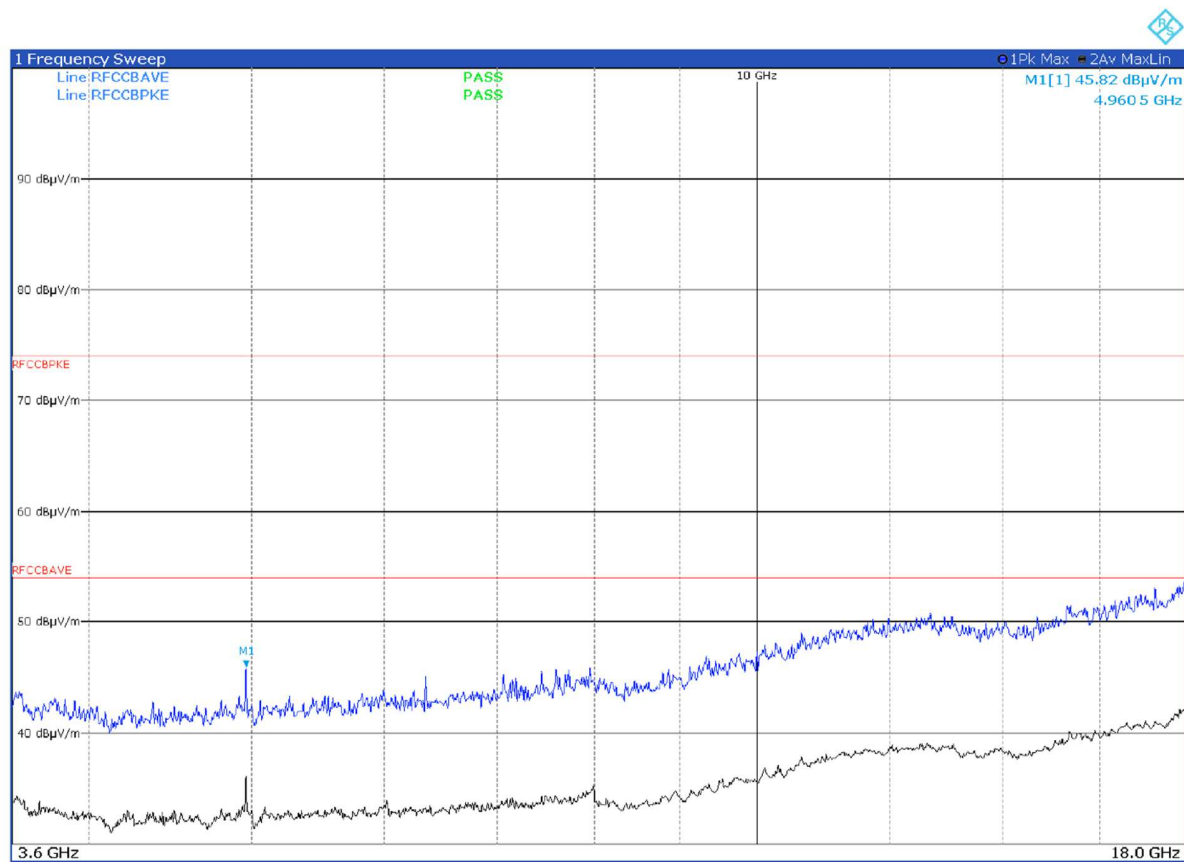
Figure 8.6-43: Radiated spurious emissions on high channel with antenna in horizontal polarization – EUT in vertical position



Peak level under the average limit – no additional measures need

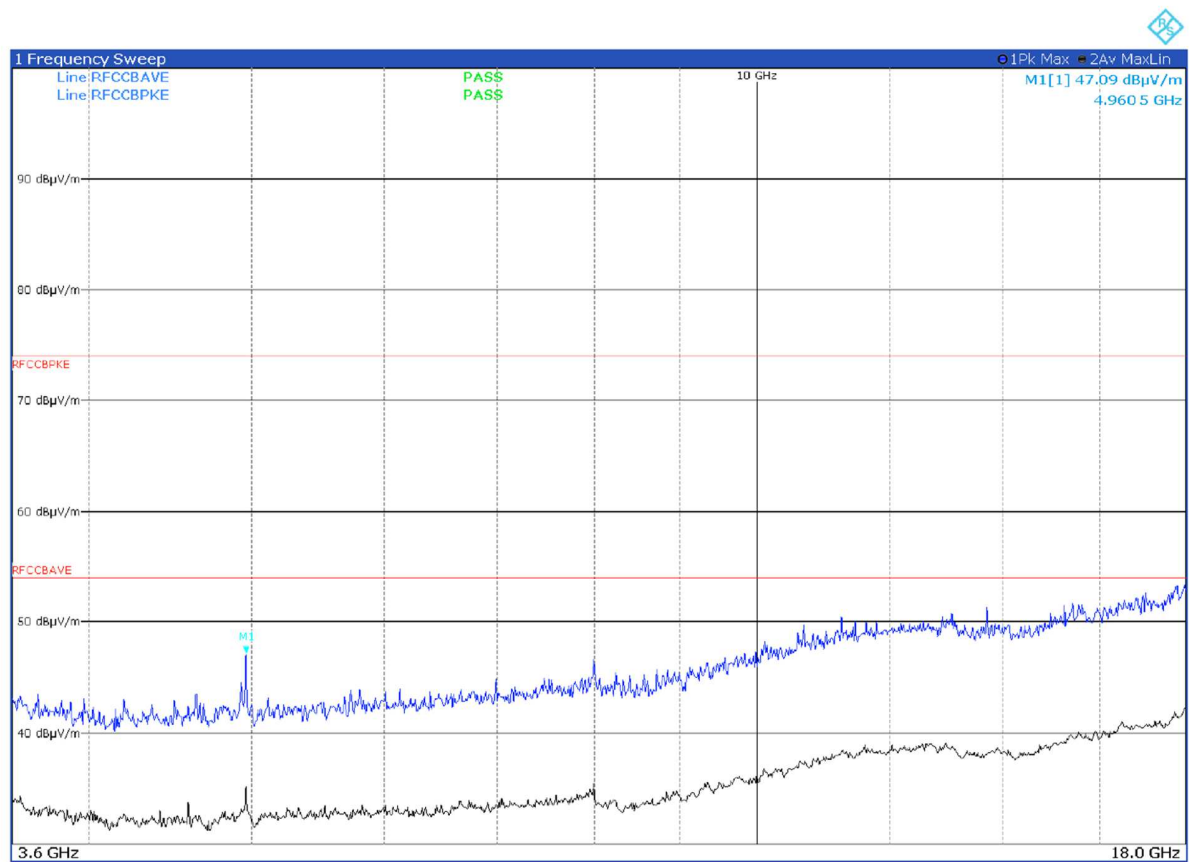
Limit exceeded by the carrier

Figure 8.6-44: Radiated spurious emissions on high channel with antenna in vertical polarization – EUT in vertical position



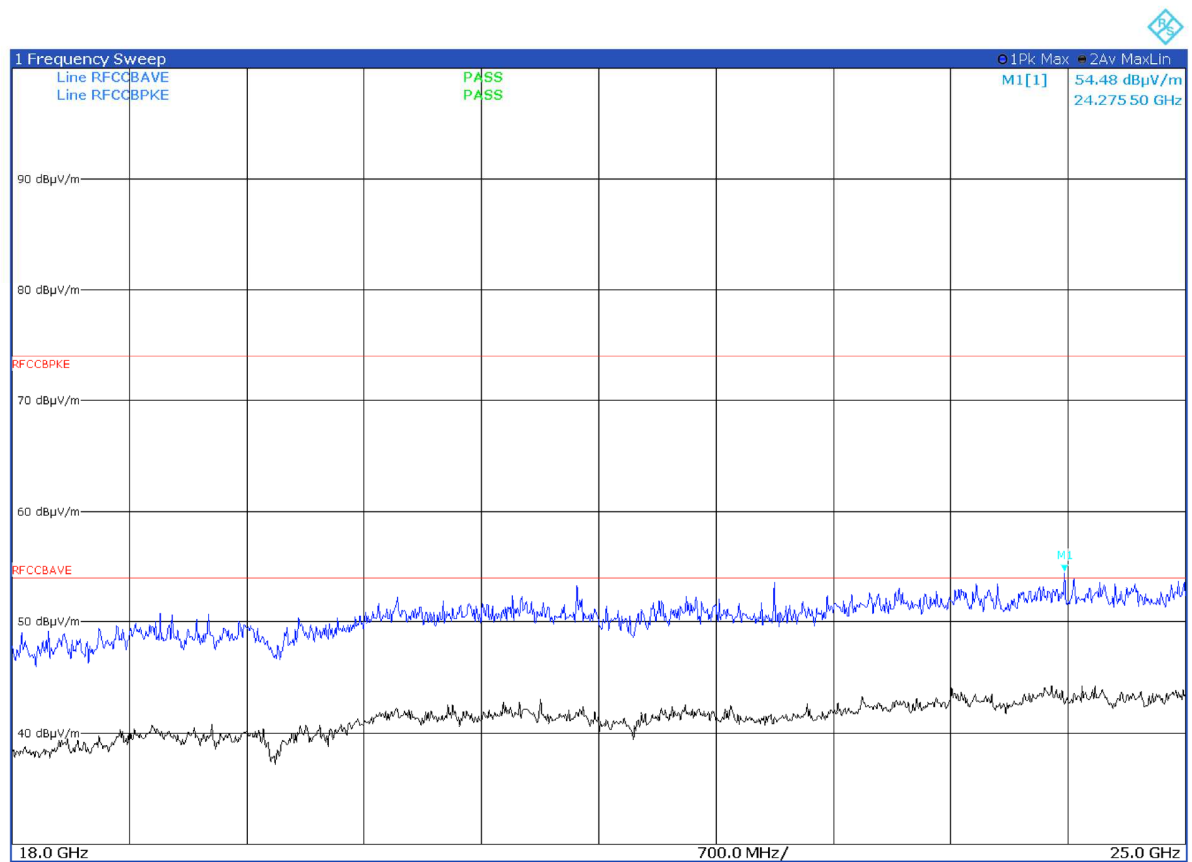
Peak level under the average limit – no additional measures need

Figure 8.6-45: Radiated spurious emissions on high channel with antenna in horizontal polarization – EUT in vertical position



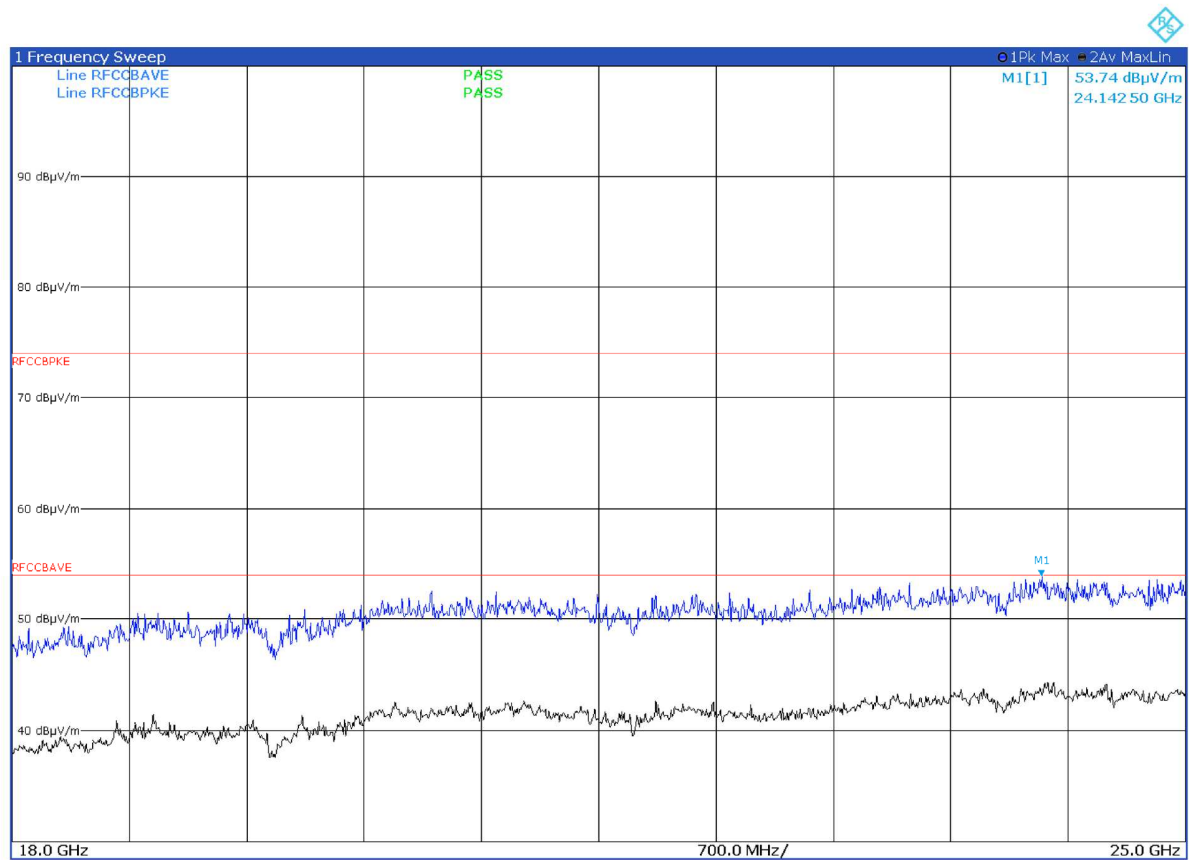
Peak level under the average limit – no additional measures need

Figure 8.6-46: Radiated spurious emissions on high channel with antenna in vertical polarization – EUT in vertical position



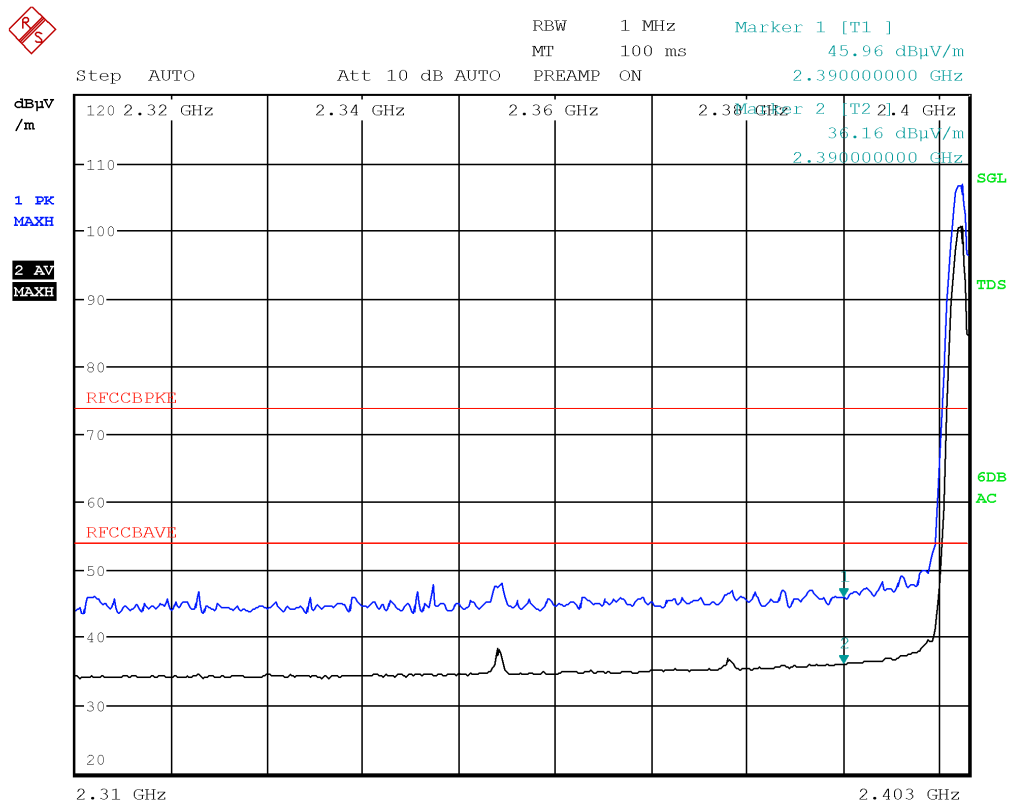
Peak level under the average limit – no additional measures need

Figure 8.6-47: Radiated spurious emissions on high channel with antenna in horizontal polarization – EUT in vertical position



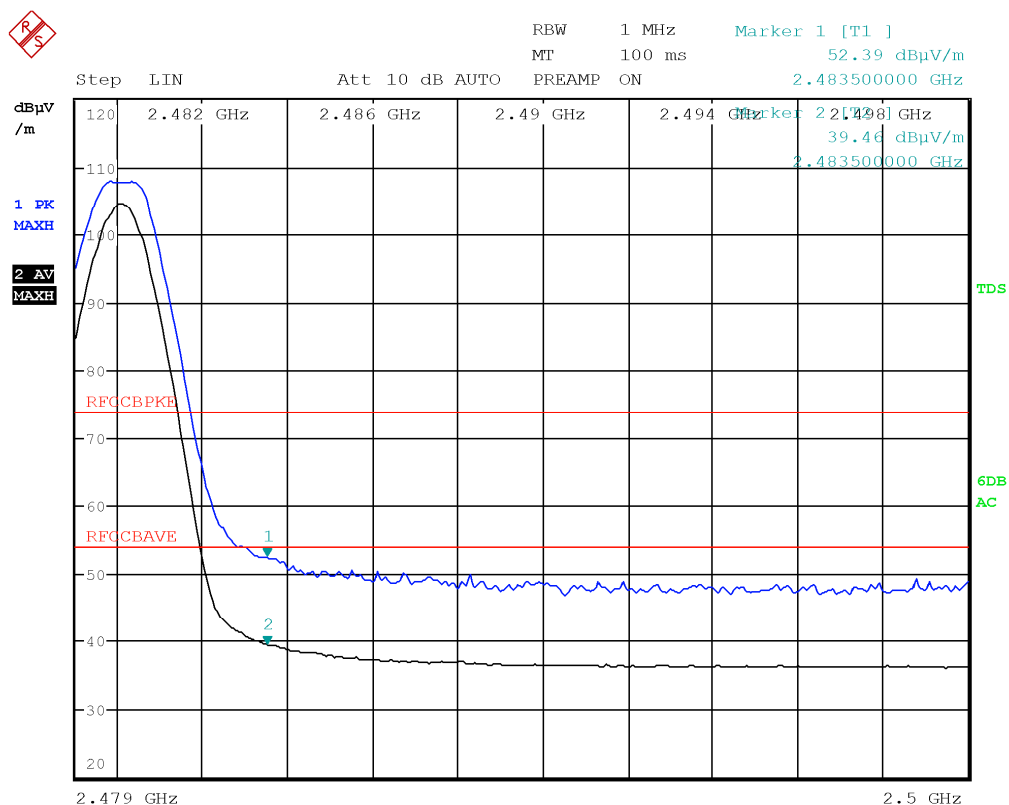
Peak level under the average limit – no additional measures need

Figure 8.6-48: Radiated spurious emissions on high channel with antenna in vertical polarization – EUT in vertical position



Peak level under the average limit – no additional measures need

Figure 8.6-49: Band edge spurious emissions at 2400 MHz for restricted frequency bands



Peak level under the average limit – no additional measures need

Figure 8.6-50: Band edge spurious emissions at 2483.5 MHz for restricted frequency bands

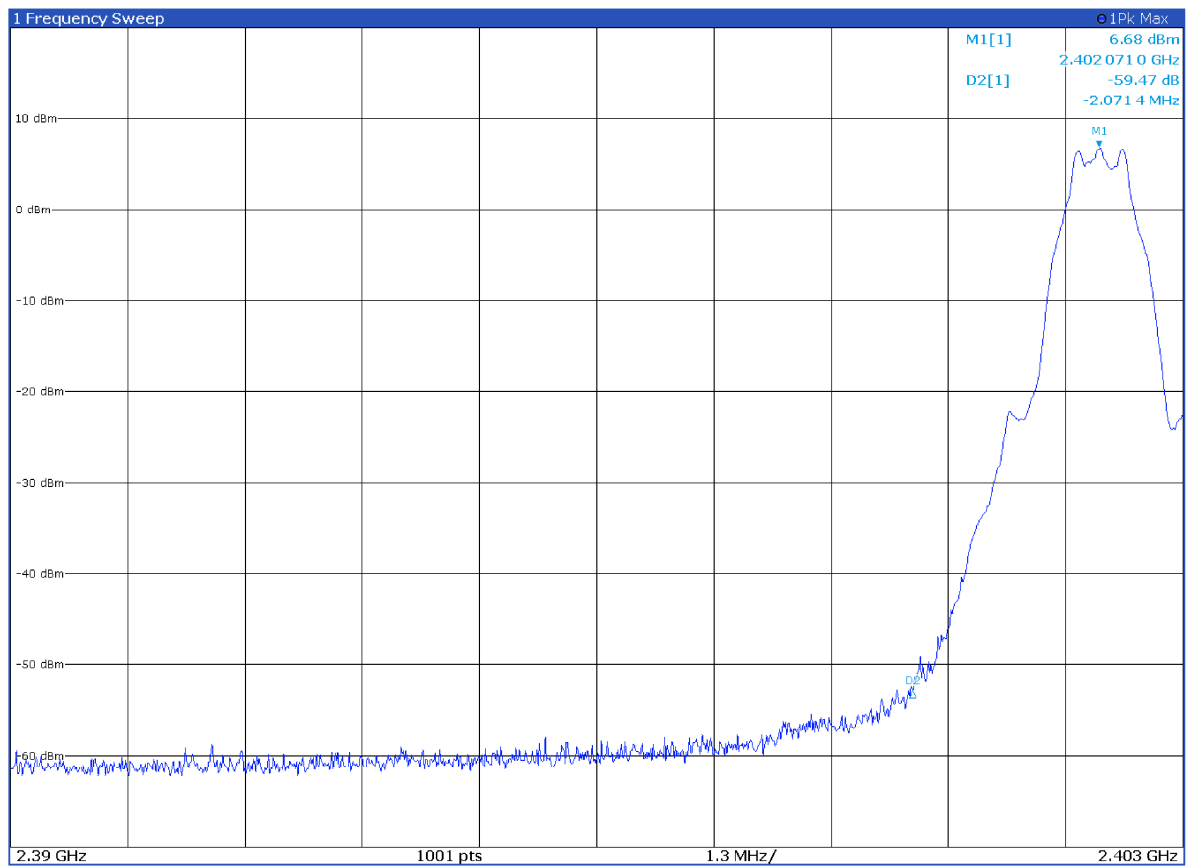


Figure 8.6-51: Band edge spurious emissions at 2400 MHz for non-restricted frequency bands

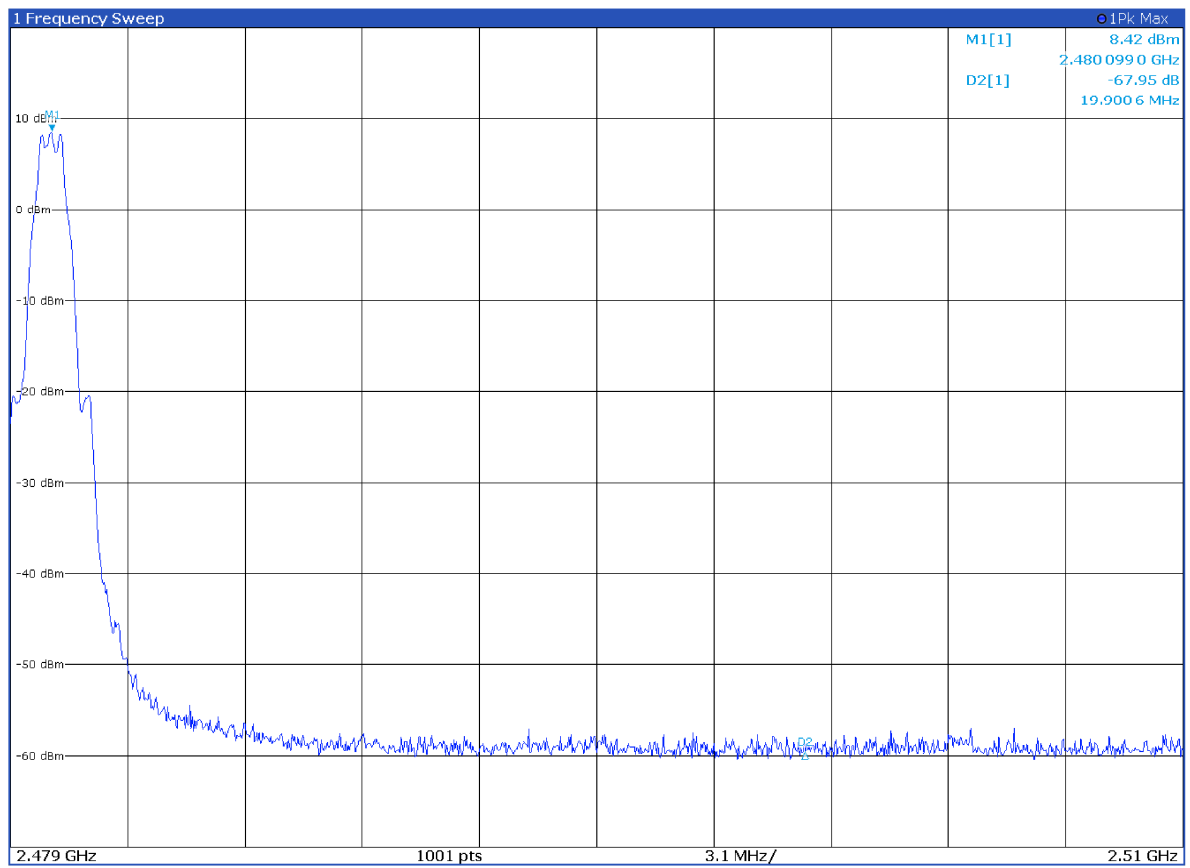


Figure 8.6-52: Band edge spurious emissions at 2483.5 MHz for non-restricted frequency bands

8.7 Power spectral density for digitally modulated devices

8.7.1 References, definitions and limits

FCC §15.247:

- (e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
- (f) For the purposes of this section, hybrid systems are those that employ a combination of both frequency hopping and digital modulation techniques. The frequency hopping operation of the hybrid system, with the direct sequence or digital modulation operation turned-off, shall have an average time of occupancy on any frequency not to exceed 0.4 seconds within a time period in seconds equal to the number of hopping frequencies employed multiplied by 0.4. The power spectral density conducted from the intentional radiator to the antenna due to the digital modulation operation of the hybrid system, with the frequency hopping operation turned off, shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RSS-247, Clause 5.2:

DTSs include systems that employ digital modulation techniques resulting in spectral characteristics similar to direct sequence systems. The following applies to the bands 902-928 MHz and 2400-2483.5 MHz:

- b. The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of section 5.4(d), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

RSS-247, Clause 5.3:

Hybrid systems employ a combination of both frequency hopping and digital transmission techniques and shall comply with the following:

- b. With the frequency hopping turned off, the digital transmission operation shall comply with the power spectral density requirements for digital modulation systems set out in of section 5.2(b) or section 6.2.4 for hybrid devices operating in the band 5725–5850 MHz.

8.7.2 Test summary

Verdict	Pass				
Tested by	P. Barbieri	Test date	March 22, 2021	Sample tested	4318570002

8.7.3 Observations, settings and special notes

Power spectral density test was performed as per KDB 558074, section 8.4 with reference to ANSI C63.10 subclause 11.10.

The test was performed using method PKPSD (peak PSD).

Spectrum analyser settings:

Resolution bandwidth:	3 kHz
Video bandwidth:	$\geq 3 \times \text{RBW}$
Frequency span:	1.5 times the DTS BW (Peak)
Detector mode:	Peak
Trace mode:	Max hold

8.7.4 Test equipment list

Equipment	Manufacturer	Model no.	Asset no.	Cal cycle	Next cal.
Spectrum Analyzer (2 Hz ÷ 43 GHz)	Rohde & Schwarz	FSW43	101767	01/2021	01/2022
Shielded room	Siemens	10m control room	1947	NCR	NCR



8.7.5 Test data

Table 8.7-1: PSD results (antenna port measurement)

Frequency, MHz	PSD, dBm/3 kHz	PSD limit, dBm/3 kHz	Margin, dB
2402	-6.6	8	-14.6
2440	-5.5	8	-13.5
2480	-4.9	8	-12.9

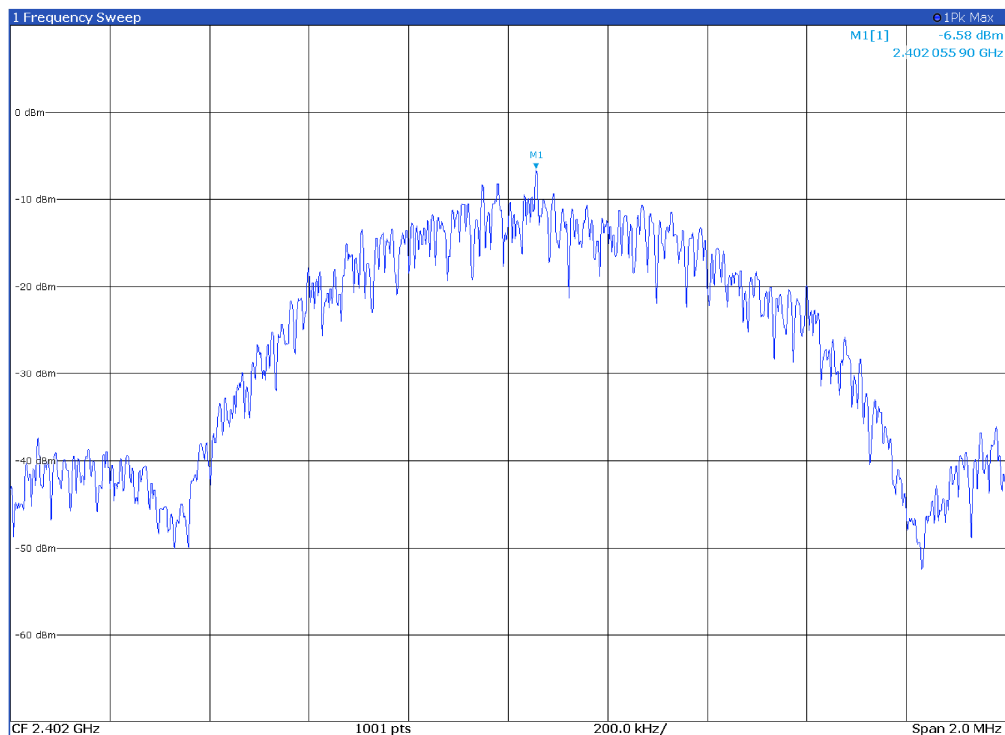


Figure 8.7-1: PSD on low channel

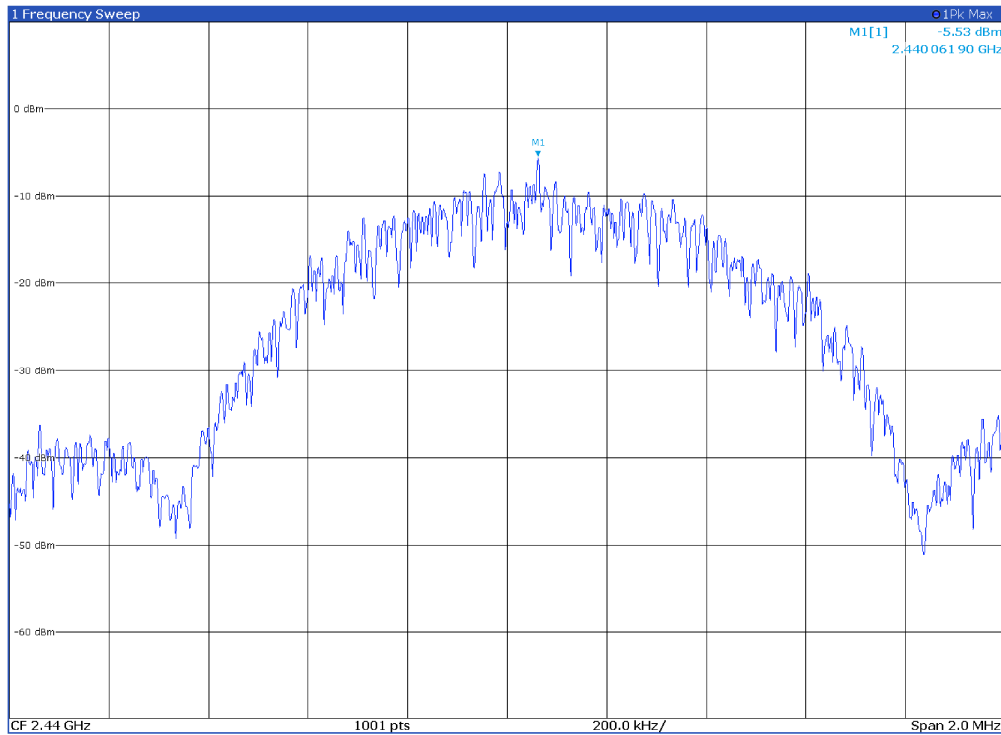


Figure 8.7-2: PSD on mid channel

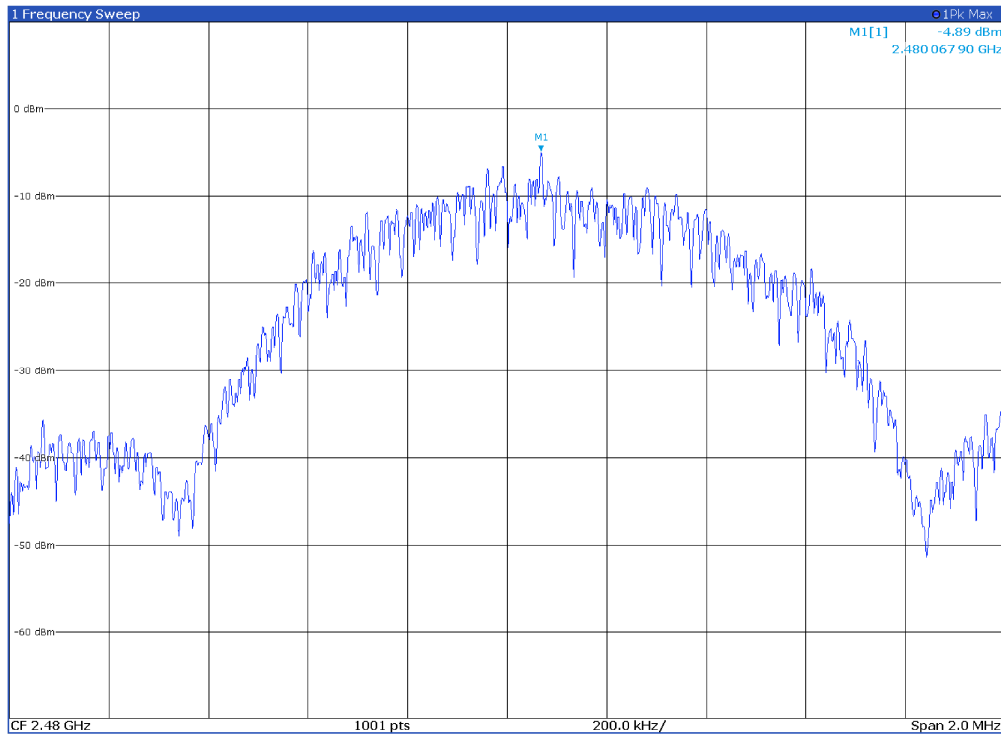


Figure 8.7-3: PSD on high channel

Section 9 EUT photos

9.1 External photos



Figure 9.1-1: Top view photo



Figure 9.1-2: Bottom view photo

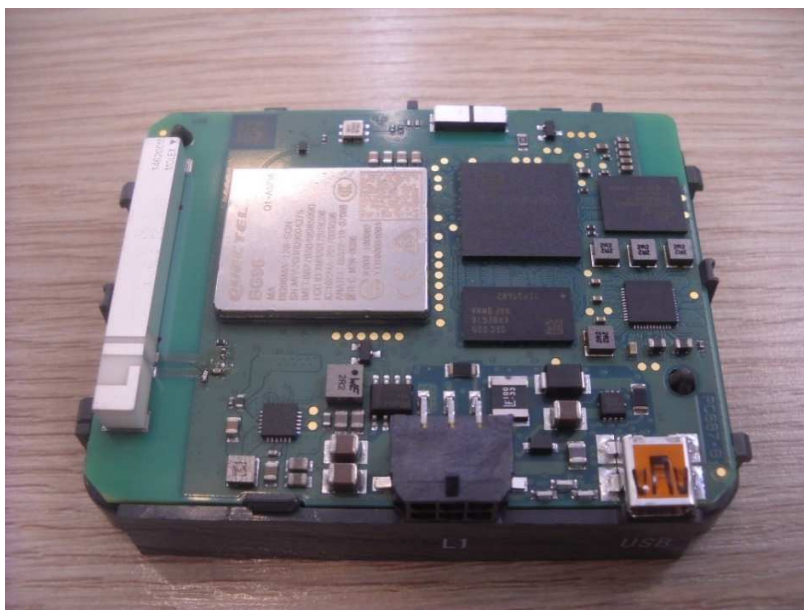


Figure 9.1-3: Internal view photo



Figure 9.1-4: Internal view photo

9.2 Set-up photos



Figure 9.2-1: Radiated emission testing below 1 GHz



Figure 9.2-2: Radiated emission testing above 1 GHz



Figure 9.2-3: Antenna port testing

End of the test report