

Figure 8.7-35: Radiated spurious emissions 1 to 3.6 GHz, High channel with antenna in horizontal polarization

Limit exceeded by the carrier

Frequency (GHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1.0750	51.8	74.0	-22.2	PK
1.0750	42.3	54.0	-11.7	AV
1.4340	52.5	74.0	-21.5	PK
1.4340	42.2	54.0	-11.8	AV
2.5050	55.7	74.0	-18.3	PK
2.5050	44.6	54.0	-9.4	AV

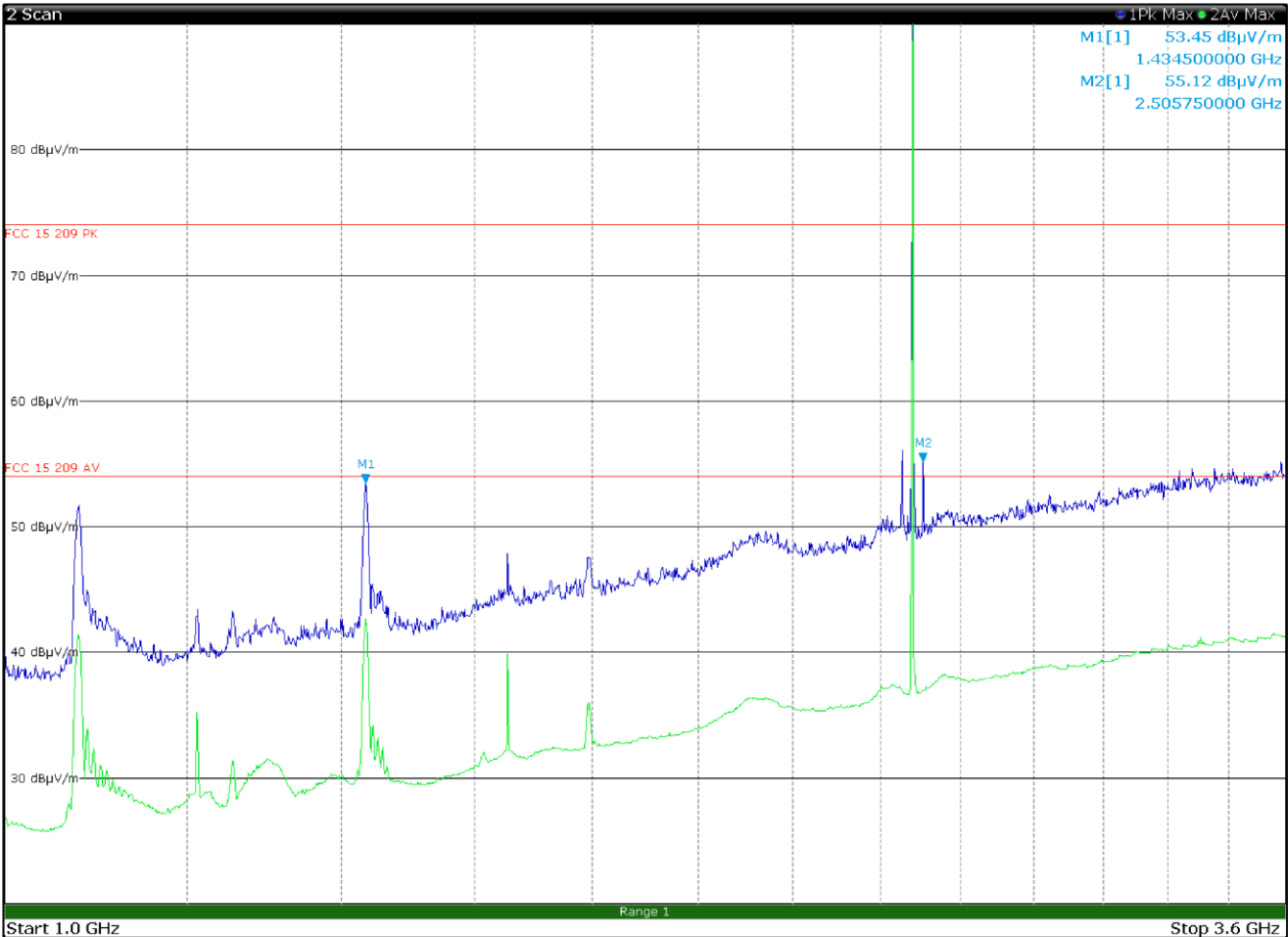


Figure 8.7-36: Radiated spurious emissions 1 to 3.6 GHz, High channel with antenna in vertical polarization

Limit exceeded by the carrier

Frequency (GHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1.0750	52.1	74.0	-21.9	PK
1.0750	42.3	54.0	-11.7	AV
1.4340	53.5	74.0	-20.5	PK
1.4340	43.1	54.0	-10.9	AV
2.5057	55.2	74.0	-18.8	PK
2.5057	44.9	54.0	-9.1	AV

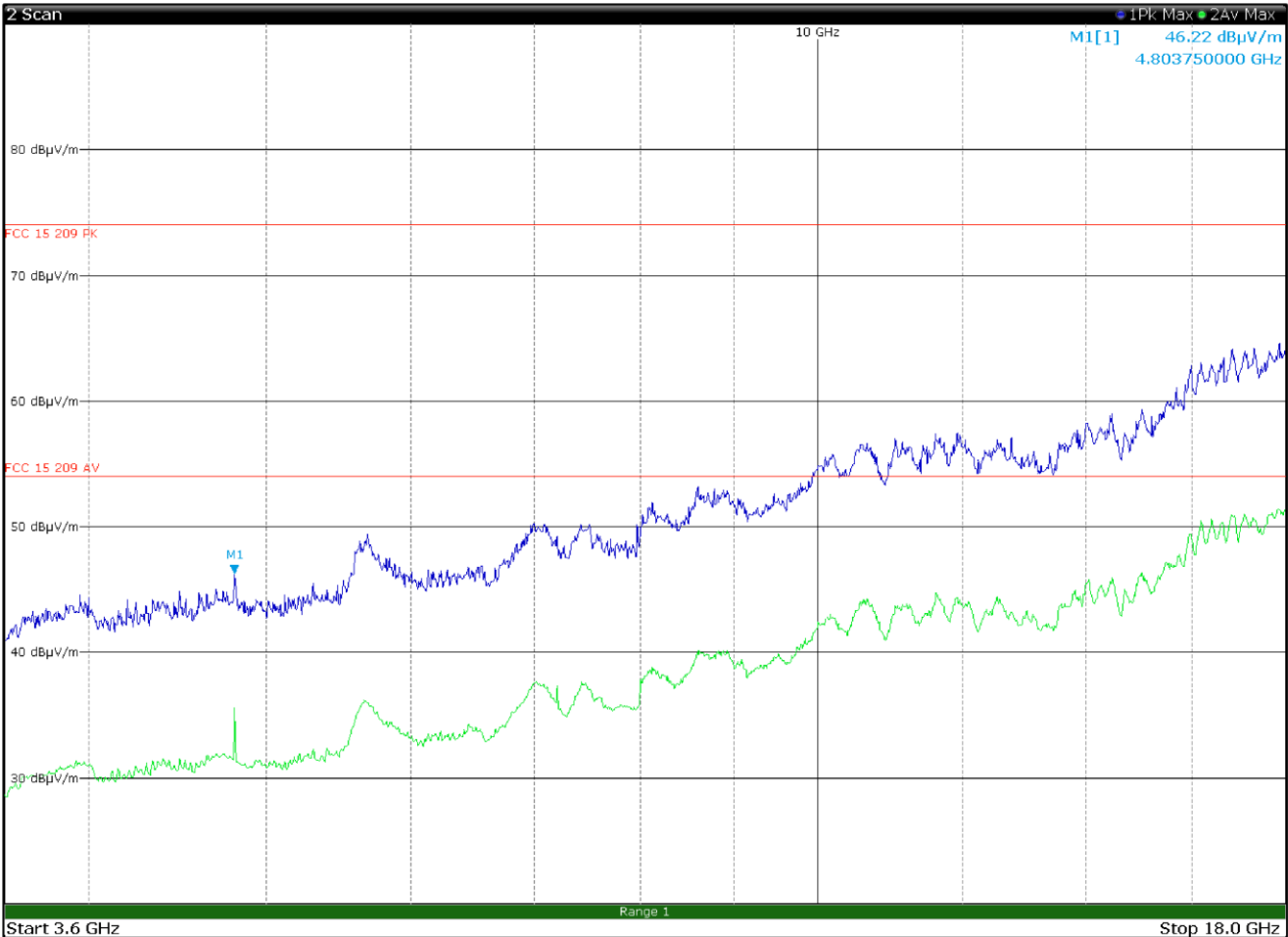


Figure 8.7-37: Radiated spurious emissions 3.6 to 18 GHz, Low channel with antenna in horizontal polarization

Frequency (GHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
4.804	46.3	74	-27.7	PK
4.804	35.8	54	-18.2	AV

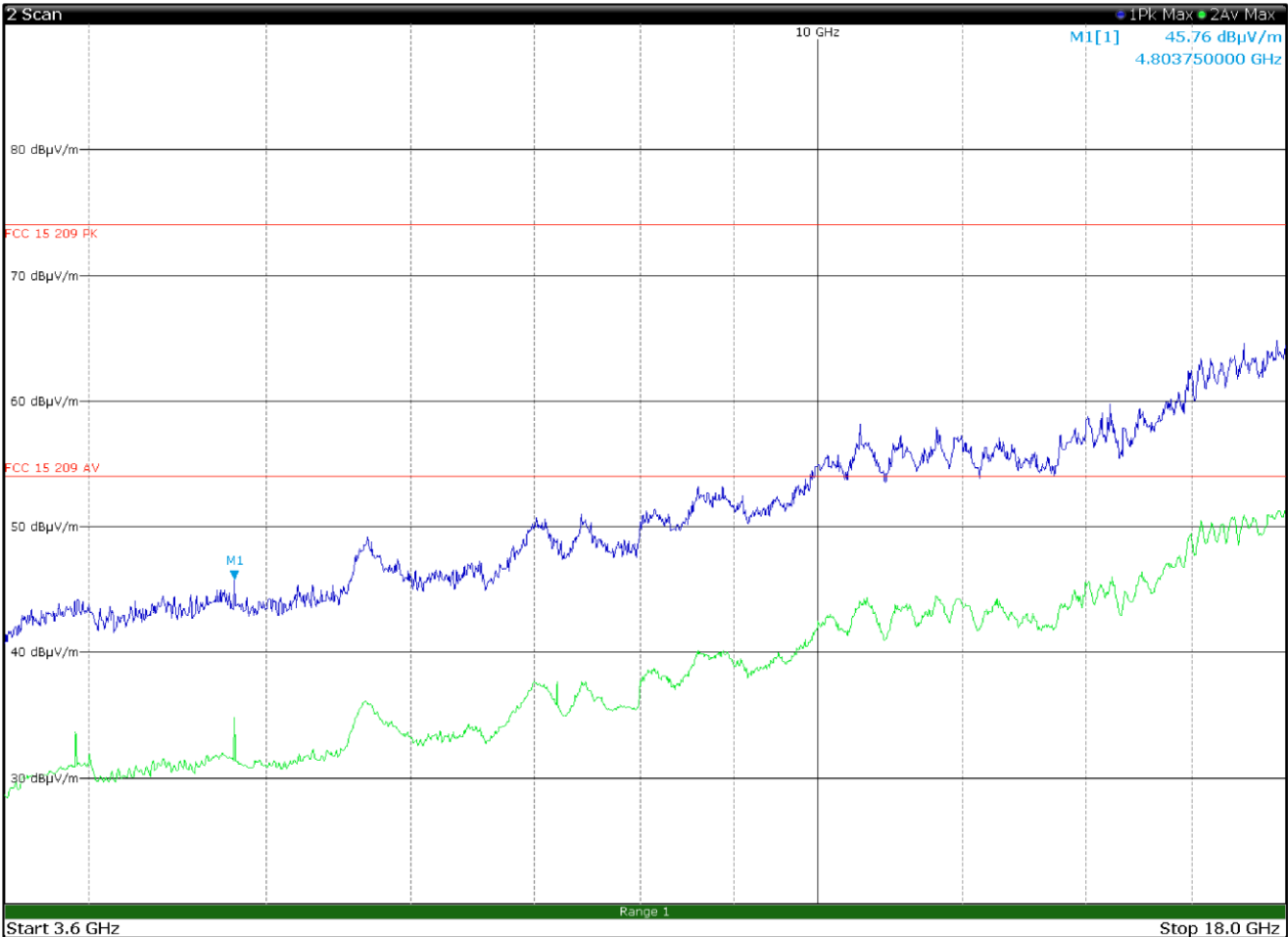


Figure 8.7-38: Radiated spurious emissions 3.6 to 18 GHz, Low channel with antenna in vertical polarization

Frequency (GHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
4.804	45.8	74	-28.2	PK
4.804	35.1	54	-18.9	AV

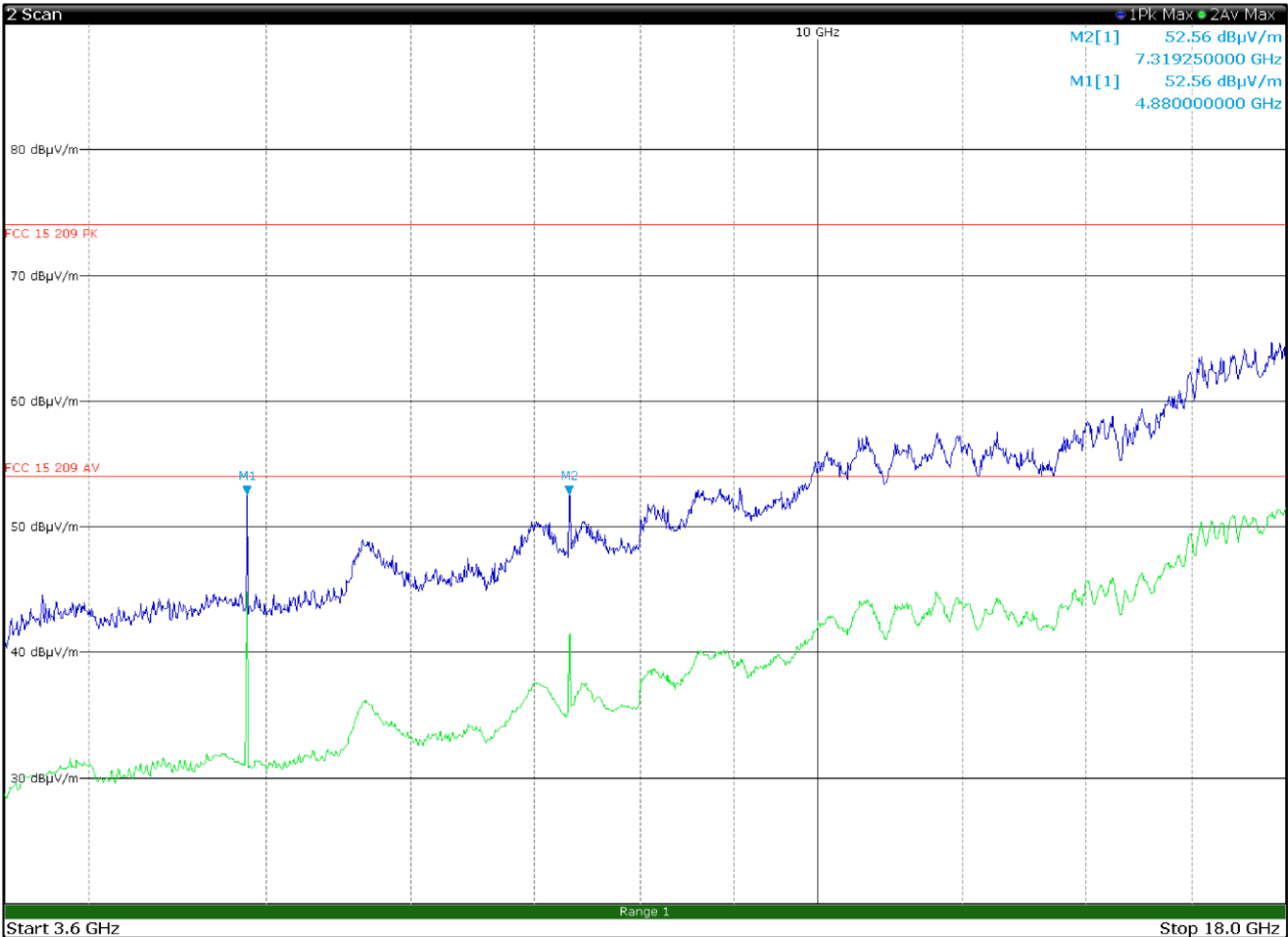


Figure 8.7-39: Radiated spurious emissions 3.6 to 18 GHz, Mid channel with antenna in horizontal polarization

Frequency (GHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
4.880	52.6	74	-21.4	PK
4.880	41.3	54	-12.7	AV
7.320	52.6	74	-21.4	PK
7.320	41.5	54	-12.5	AV

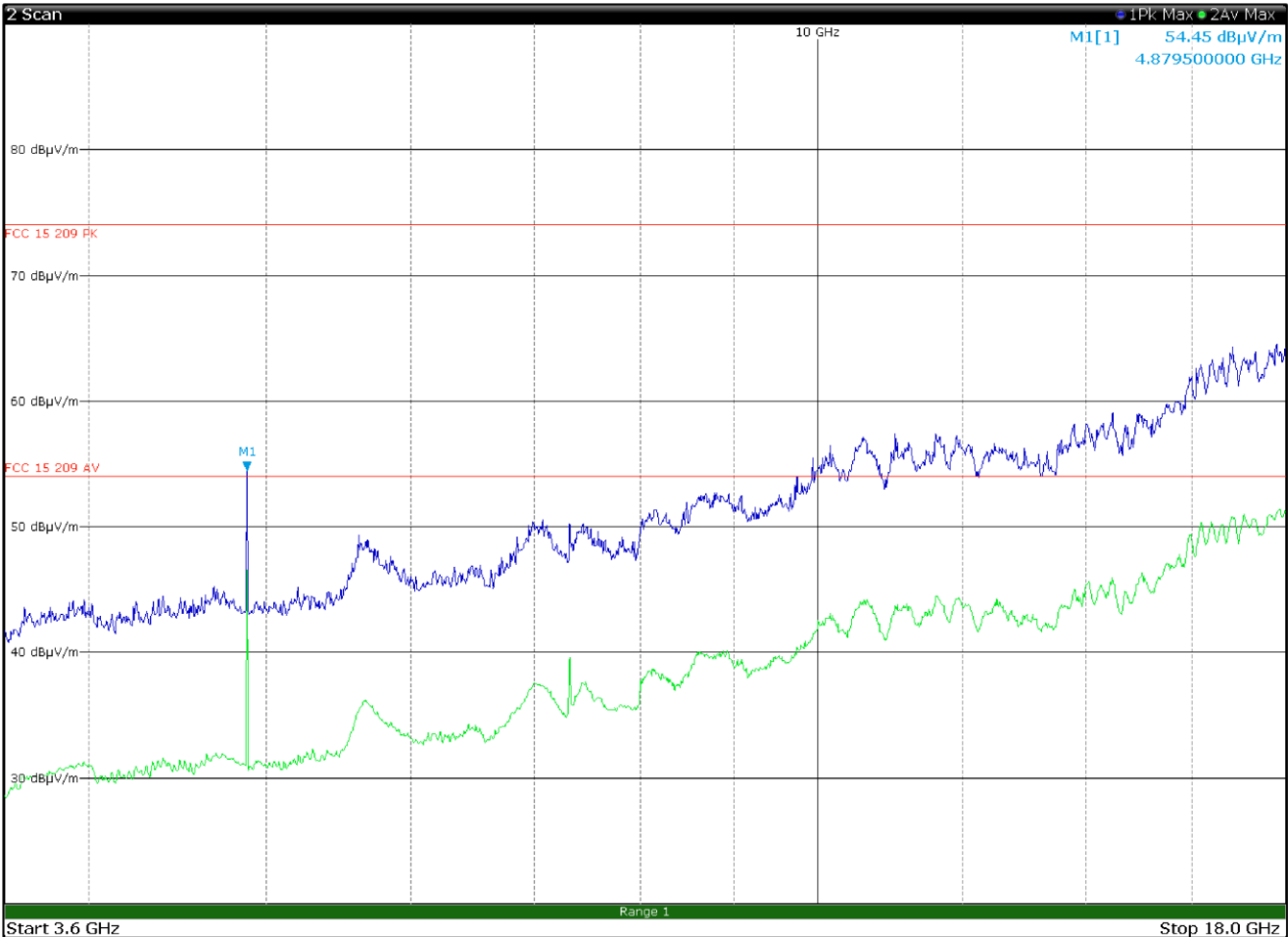


Figure 8.7-40: Radiated spurious emissions 3.6 to 18 GHz, Mid channel with antenna in vertical polarization

Frequency (GHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
4.880	54.5	74	-19.5	PK
4.880	44.1	54	-9.9	AV

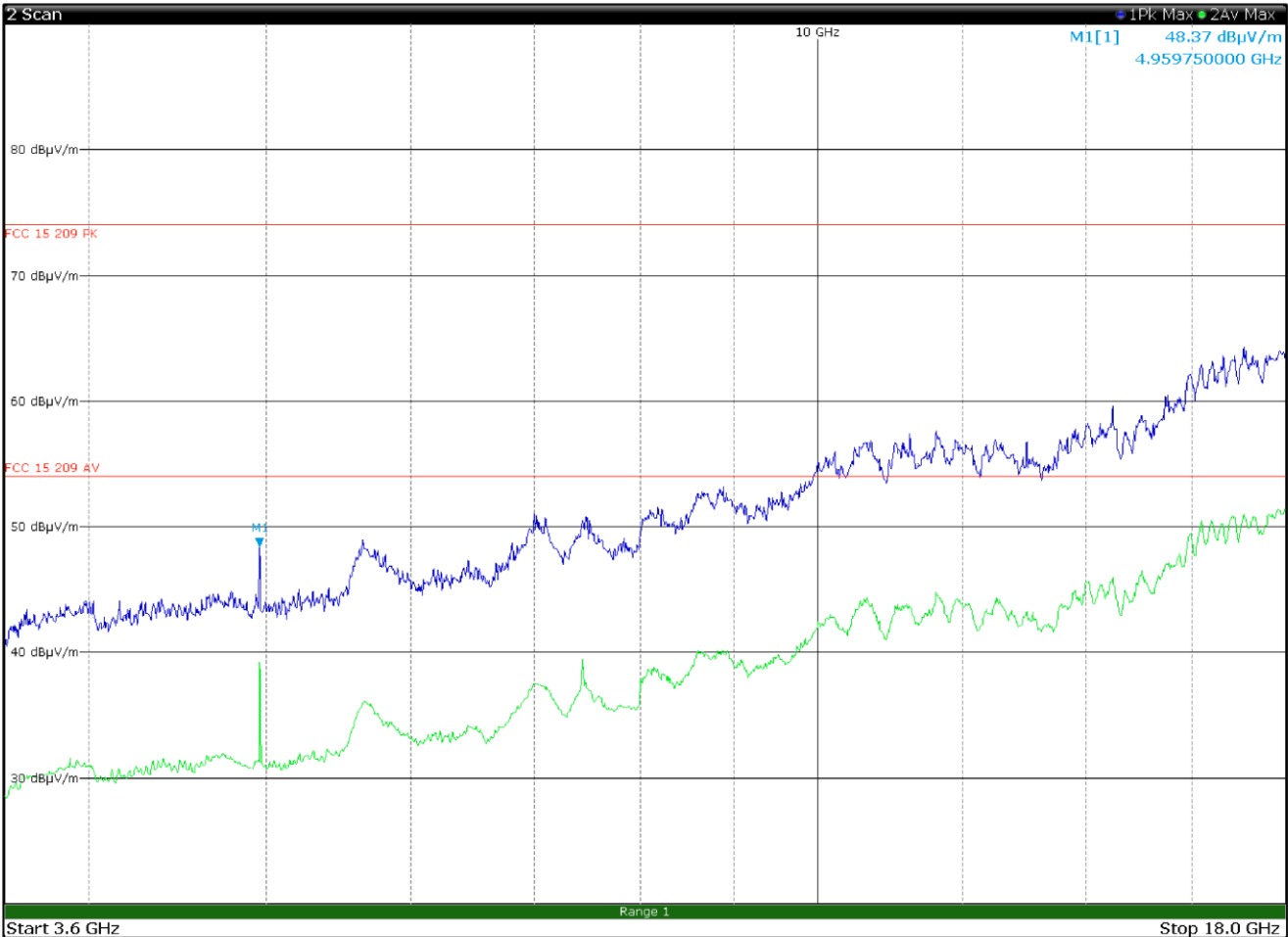


Figure 8.7-41: Radiated spurious emissions 3.6 to 18 GHz, High channel with antenna in horizontal polarization

Frequency (GHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
4.960	48.4	74	-25.6	PK
4.960	37.9	54	-16.1	AV

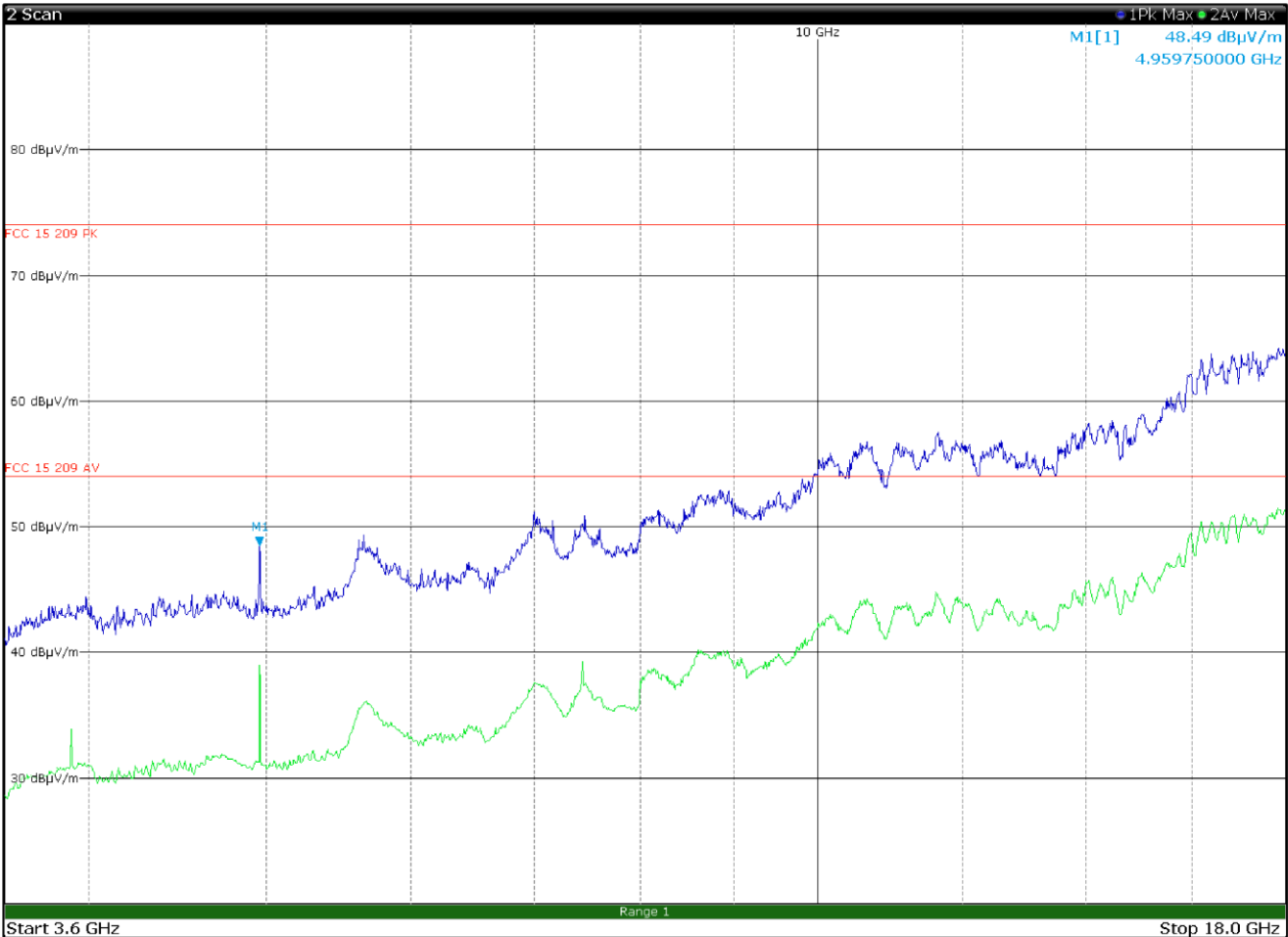


Figure 8.7-42: Radiated spurious emissions 3.6 to 18 GHz, High channel with antenna in vertical polarization

Frequency (GHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
4.960	48.5	74	-25.5	PK
4.960	37.9	54	-16.1	AV



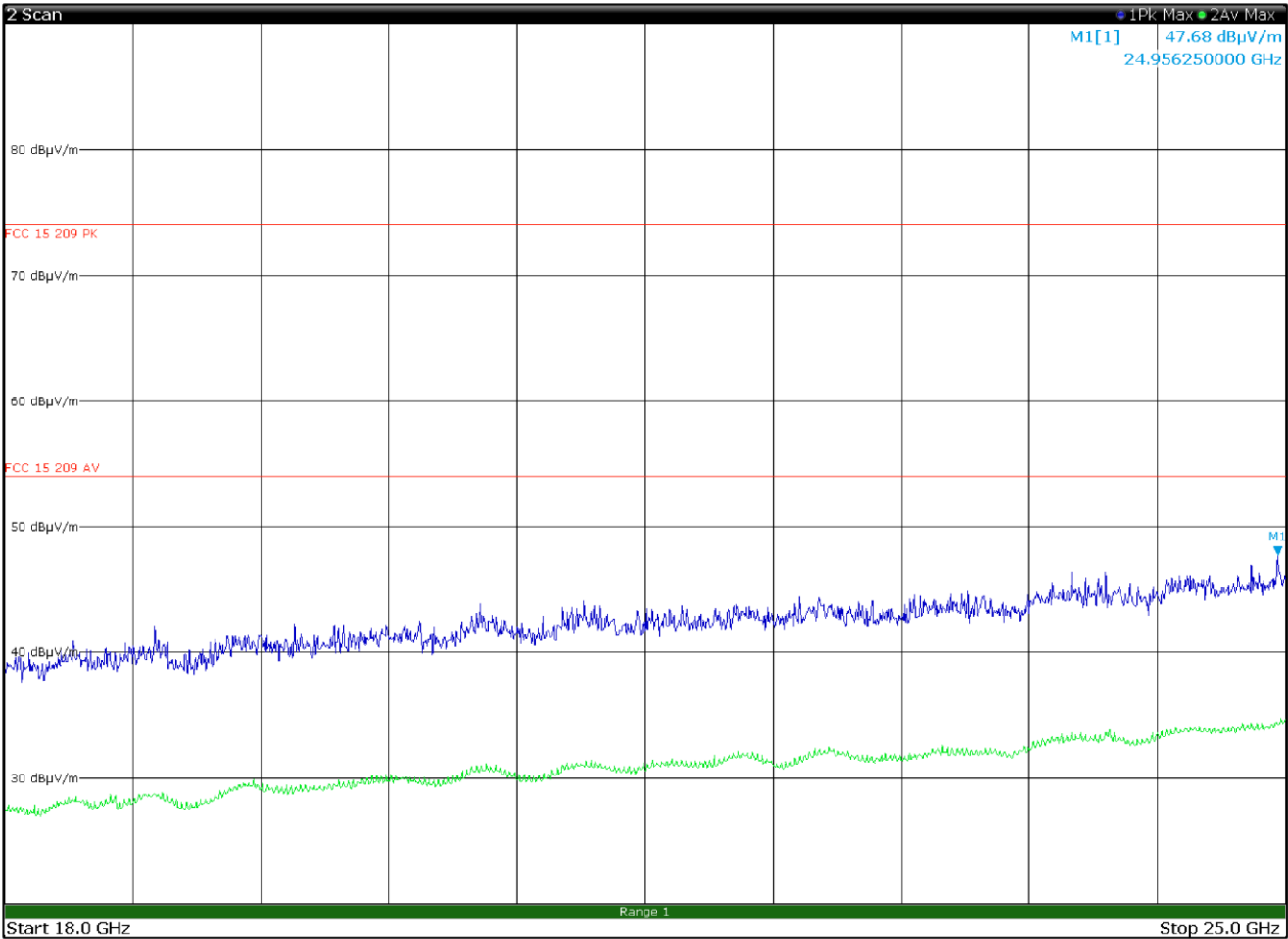


Figure 8.7-43: Radiated spurious emissions 18 to 25 GHz, Low channel with antenna in horizontal polarization

Section 8  
Test name  
Specification

Testing data  
FCC 15.247(d) and RSS-247 5.5 Spurious (out-of-band) unwanted emissions  
FCC Part 15 Subpart C and RSS-247, Issue 2

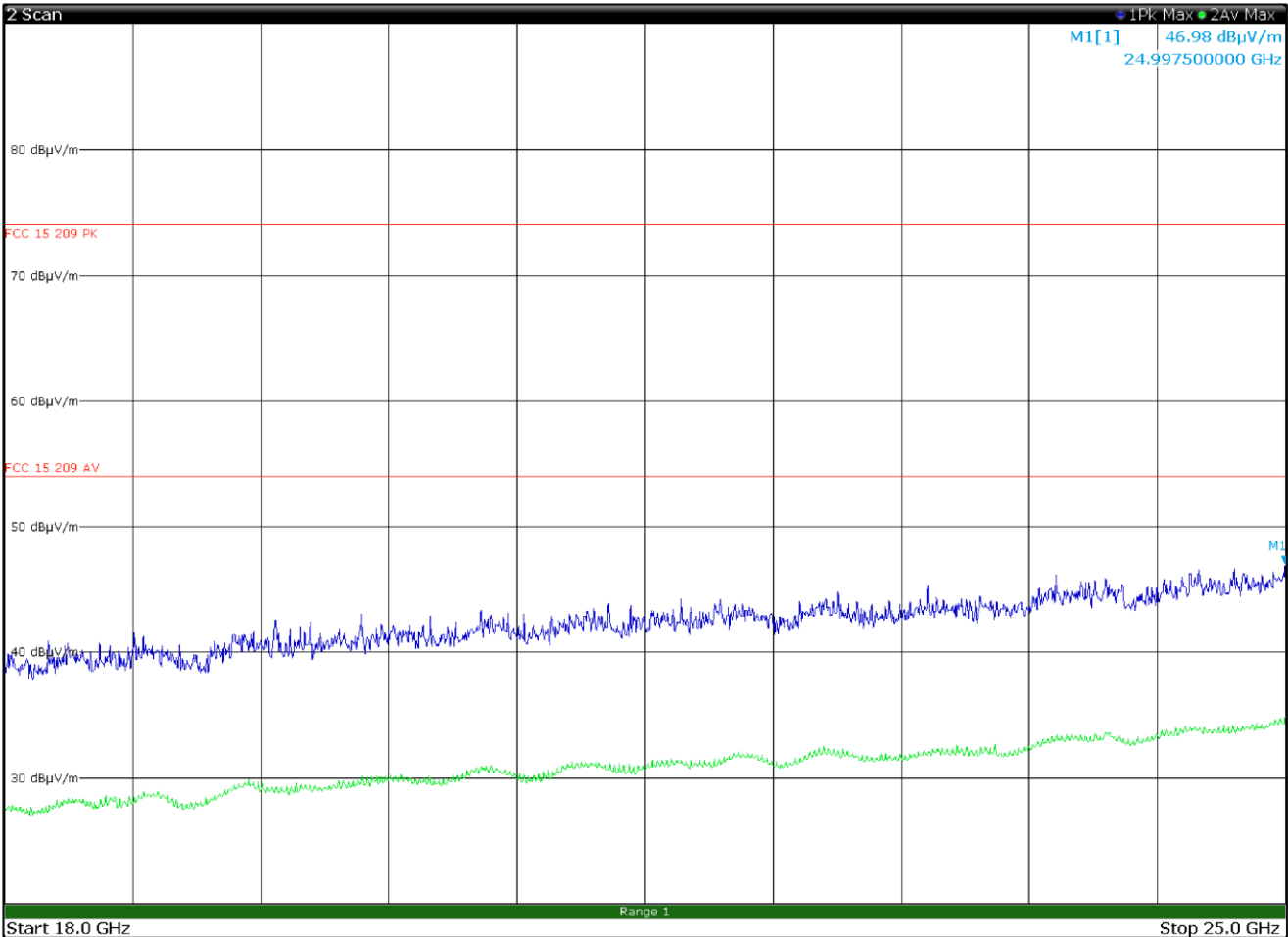


Figure 8.7-44: Radiated spurious emissions 18 to 25 GHz, Low channel with antenna in vertical polarization

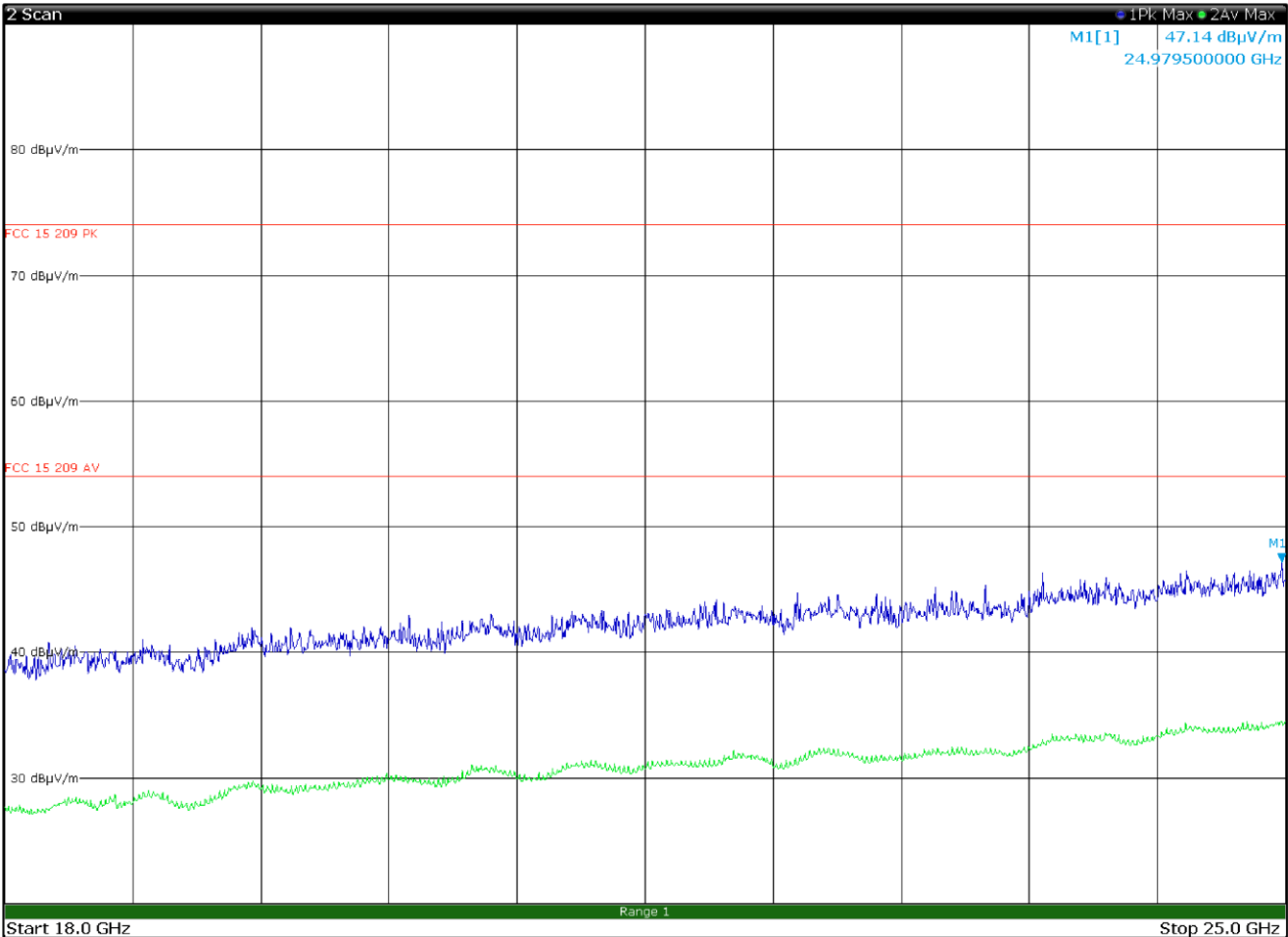


Figure 8.7-45: Radiated spurious emissions 18 to 25 GHz, Mid channel with antenna in horizontal polarization

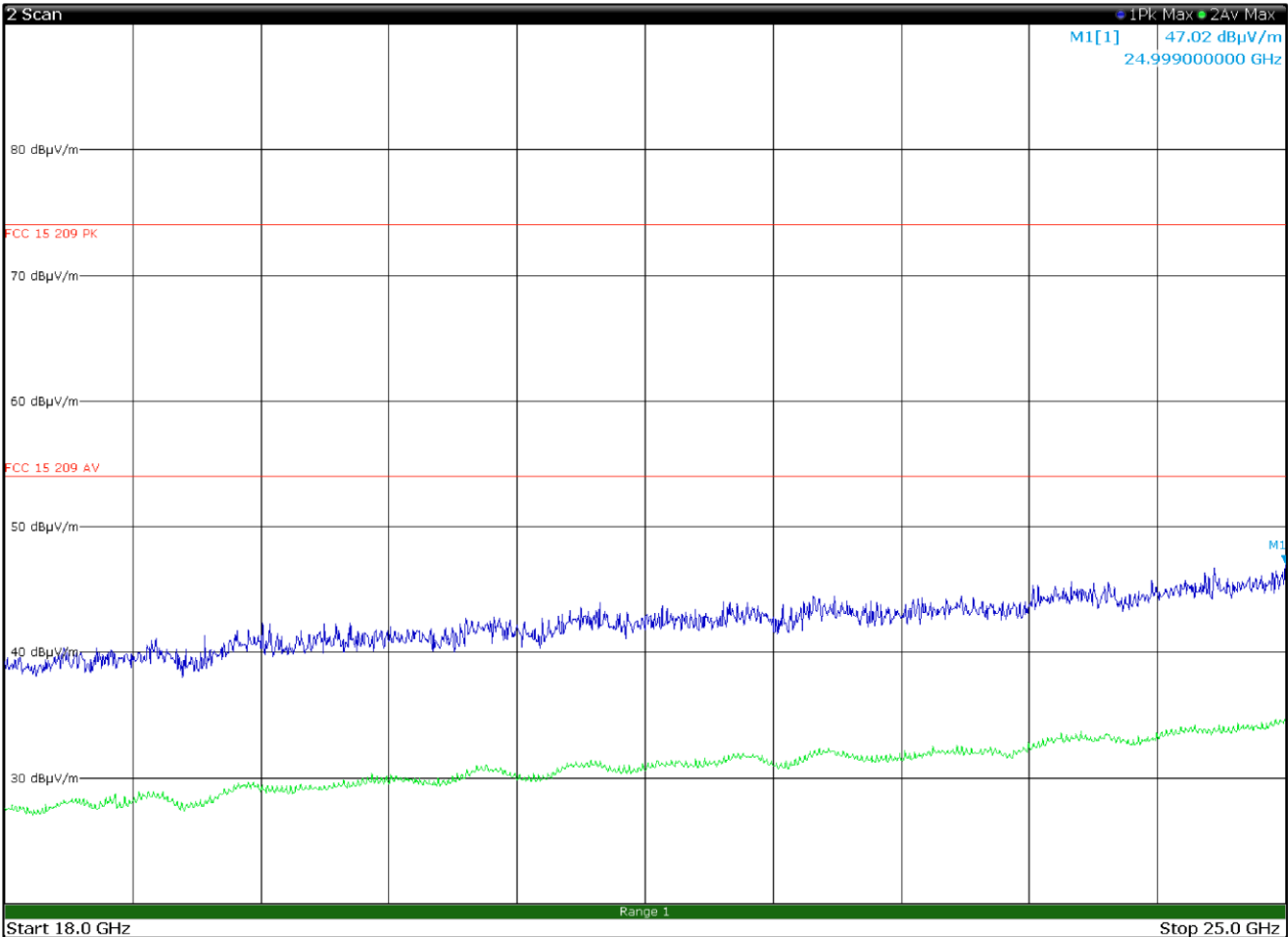


Figure 8.7-46: Radiated spurious emissions 18 to 25 GHz, Mid channel with antenna in vertical polarization

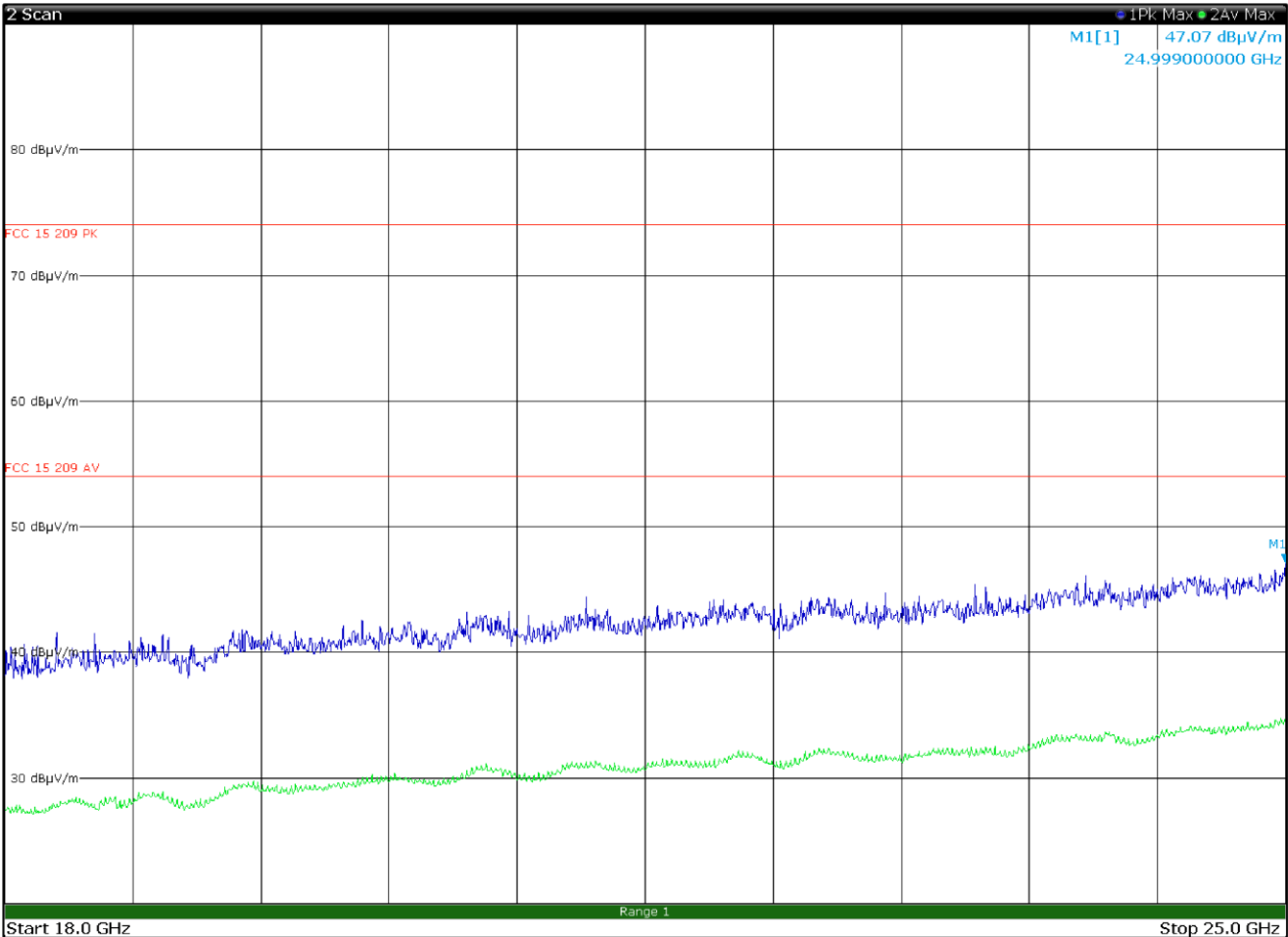


Figure 8.7-47: Radiated spurious emissions 18 to 25 GHz, High channel with antenna in horizontal polarization

Section 8  
Test name  
Specification

Testing data  
FCC 15.247(d) and RSS-247 5.5 Spurious (out-of-band) unwanted emissions  
FCC Part 15 Subpart C and RSS-247, Issue 2

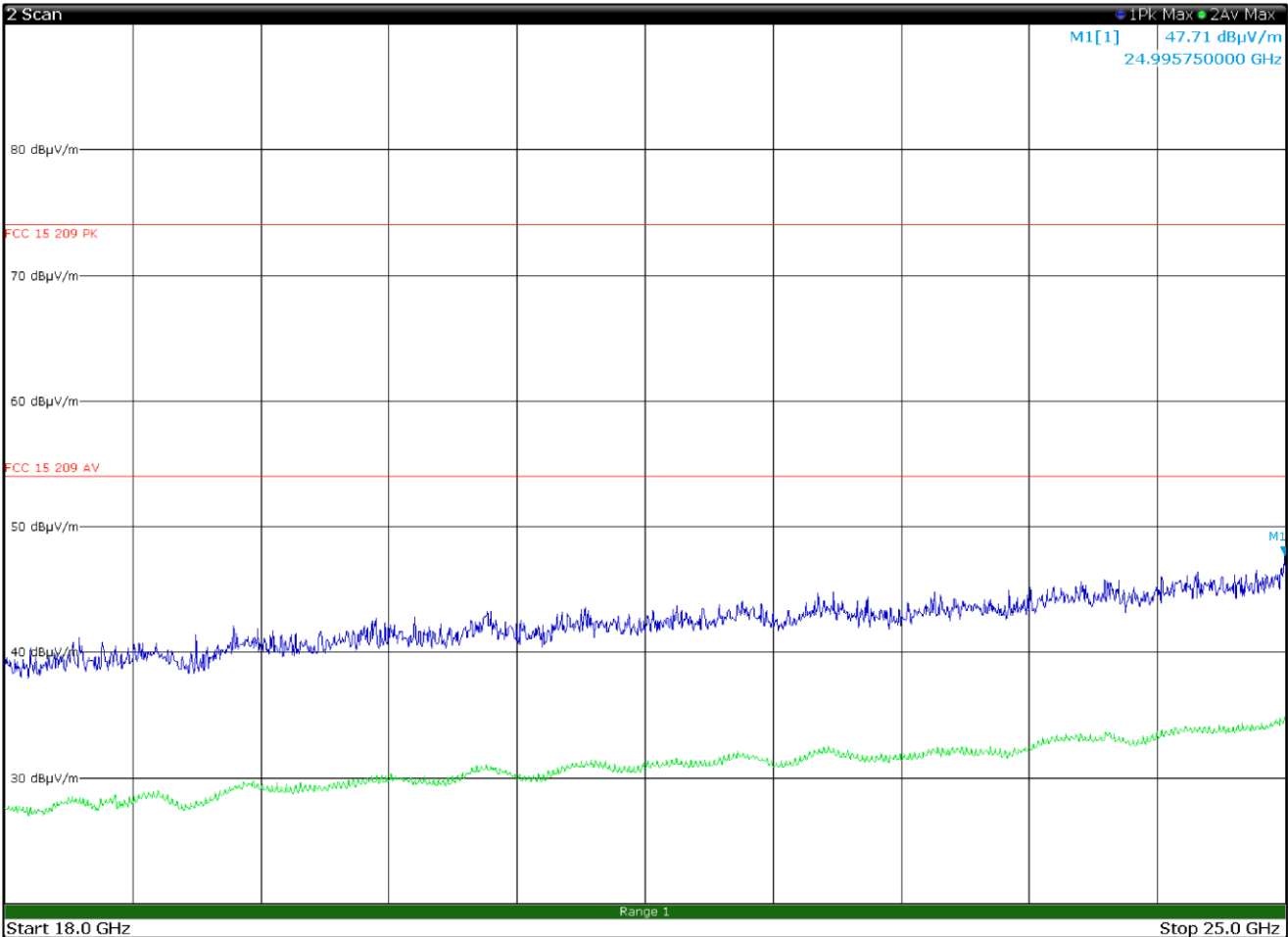


Figure 8.7-48: Radiated spurious emissions 18 to 25 GHz, High channel with antenna in vertical polarization

## 8.8 FCC 15.247(e) and RSS-247 5.2(b) Power spectral density for digitally modulated devices

### 8.8.1 Definitions and limits

**FCC:**

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.

**ISED:**

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).

### 8.8.2 Test date

Start date                      April 15, 2020

### 8.8.3 Observations, settings and special notes

The test was performed using method PKPSD (peak PSD).  
Spectrum analyser settings:

Resolution bandwidth:	3 kHz ≤ RBW ≤ 100 kHz
Video bandwidth:	≥ 3 × RBW
Frequency span:	2 MHz
Detector mode:	Peak
Trace mode:	Maxhold

### 8.8.4 Test data

**Table 8.8-1: PSD measurements results**

Modulation	Frequency, MHz	PSD, dBm/3 kHz	PSD limit, dBm/3 kHz	Margin, dB
BLE	2402	-5.4	8	13.4
	2440	-5.6	8	13.6
	2480	-5.8	8	13.8

8.8.4 Test data

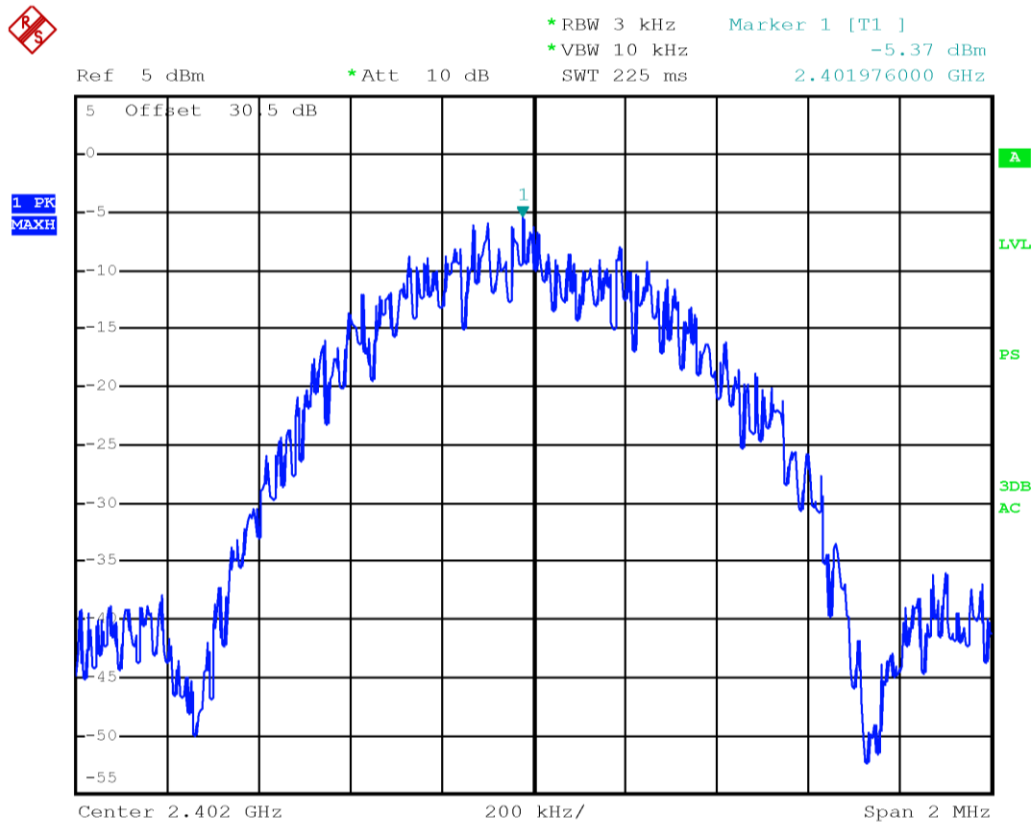


Figure 8.8-1: PSD sample plot on BLE - Low channel



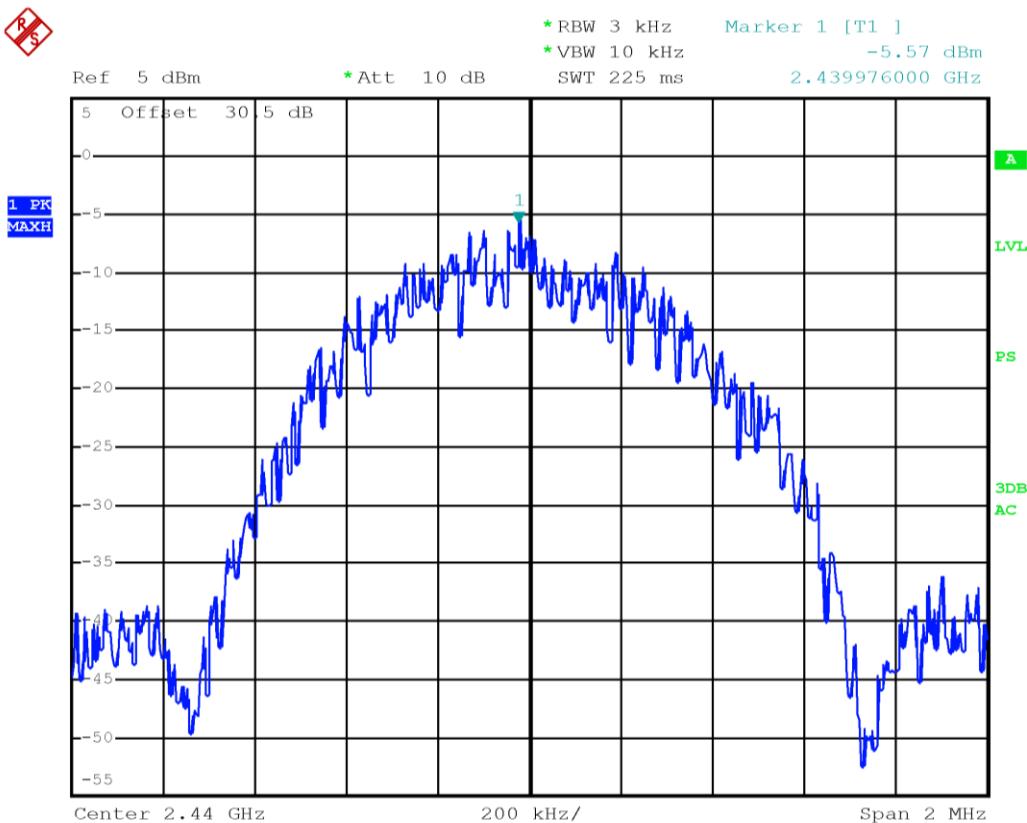


Figure 8.8-2: PSD sample plot on BLE - Mid channel

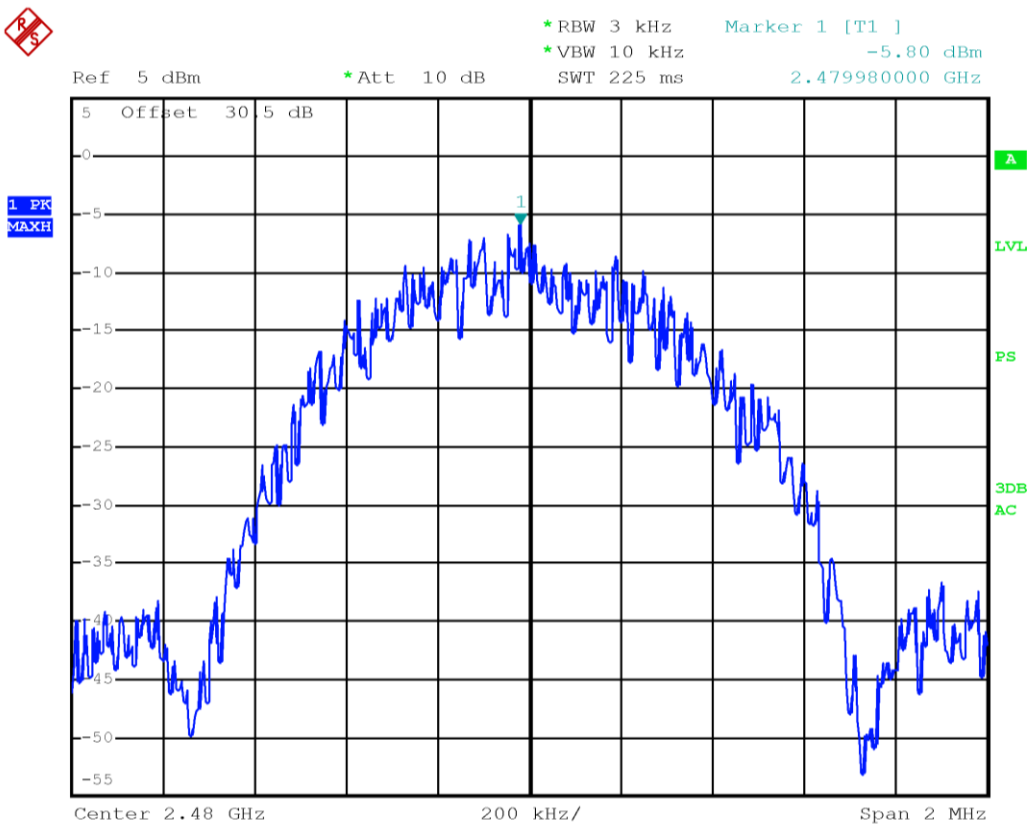
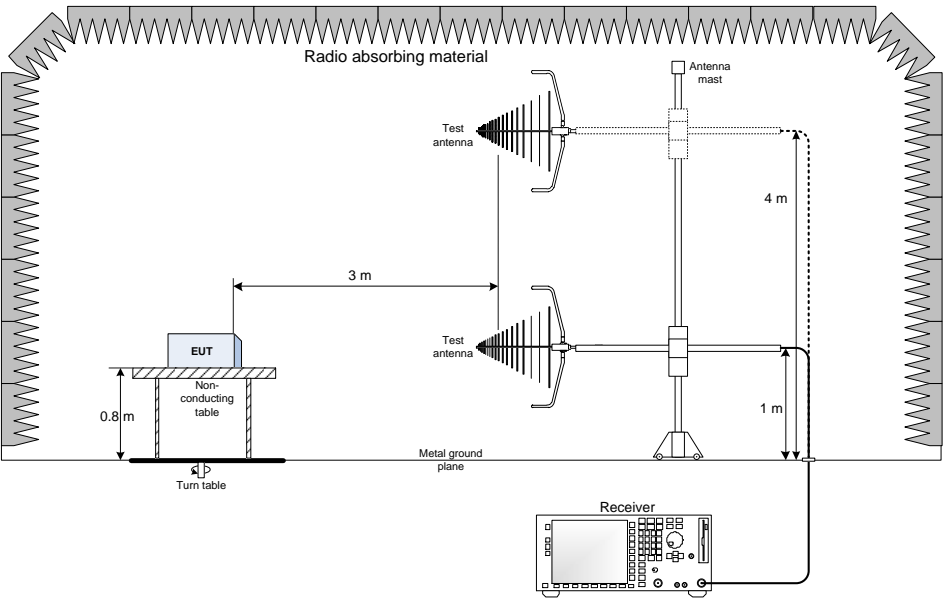


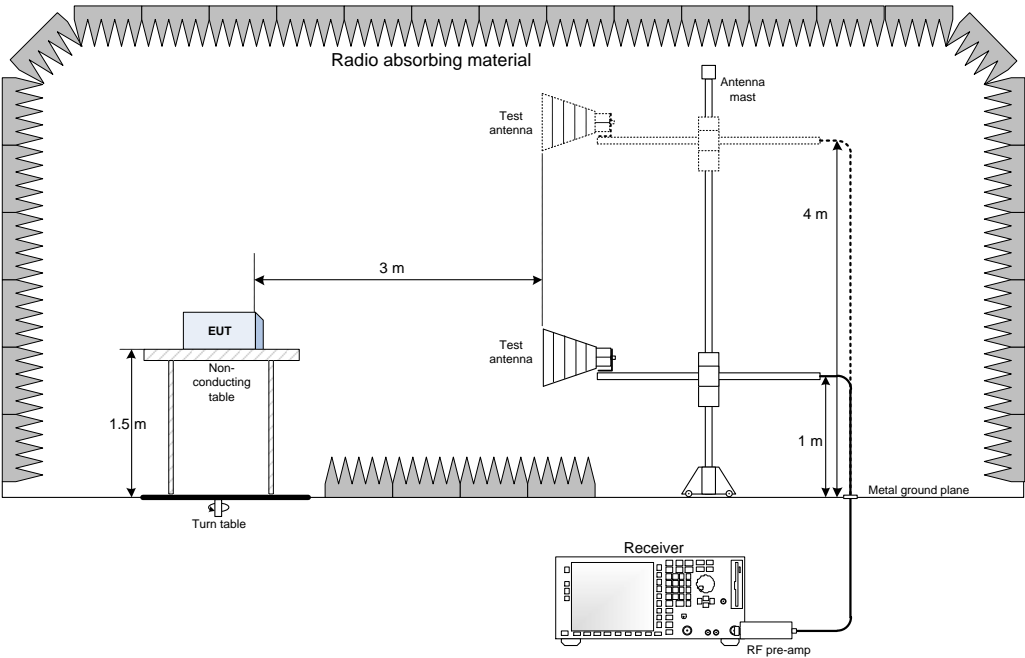
Figure 8.8-3: PSD sample plot on BLE - High channel

# Section 9. Block diagrams of test set-ups

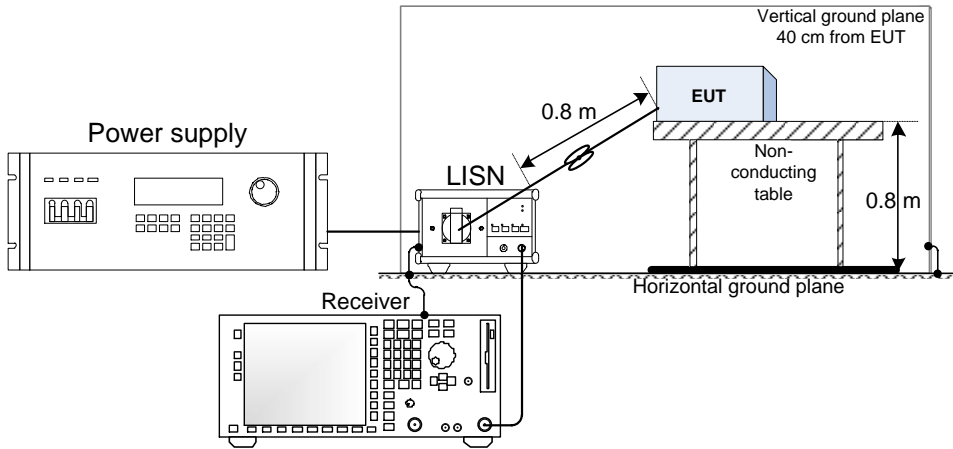
## 9.1 Radiated emissions set-up for frequencies below 1 GHz



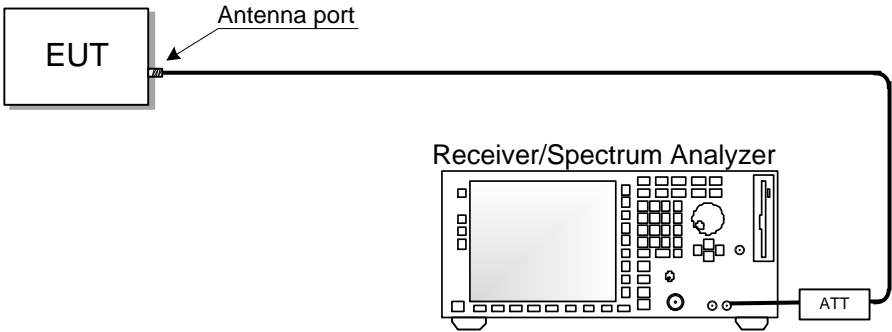
## 9.2 Radiated emissions set-up for frequencies above 1 GHz



9.3 Conducted emissions set-up



9.4 Antenna port set-up

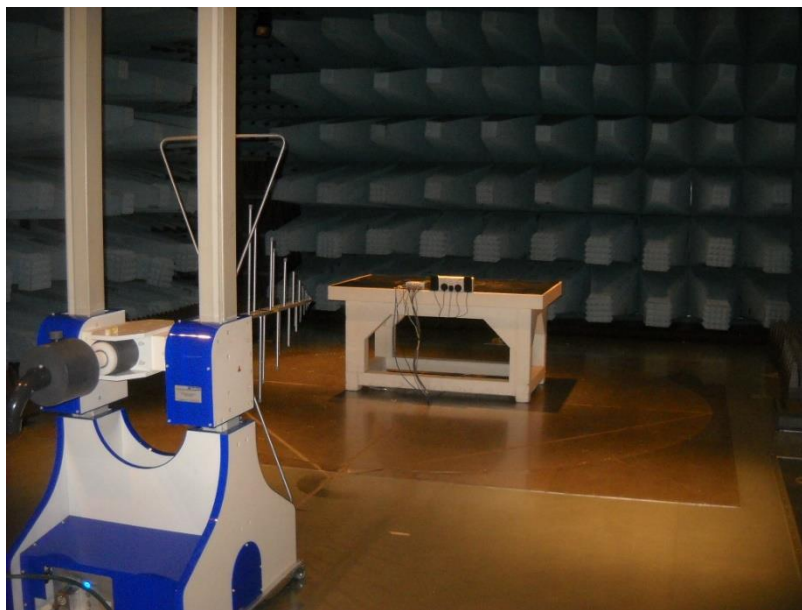


## Section 10. Photos

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### 10.1 Photos of the test set-up

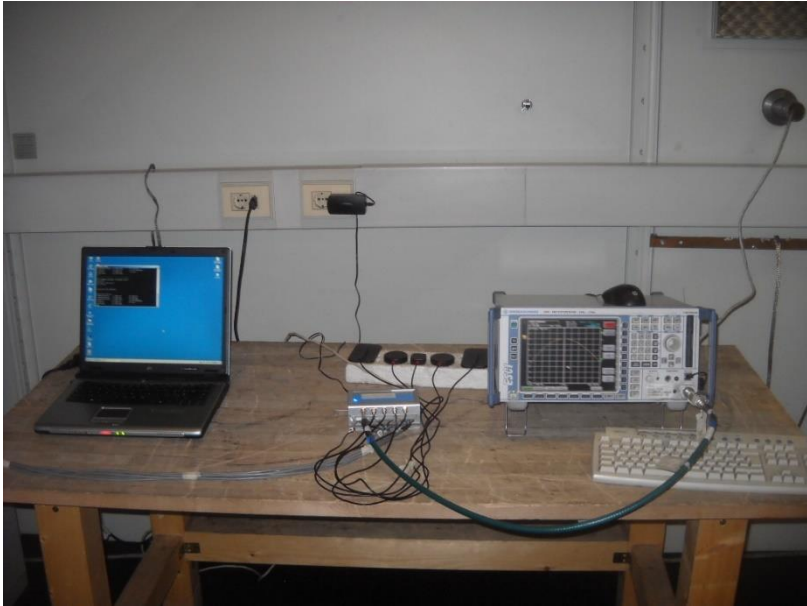
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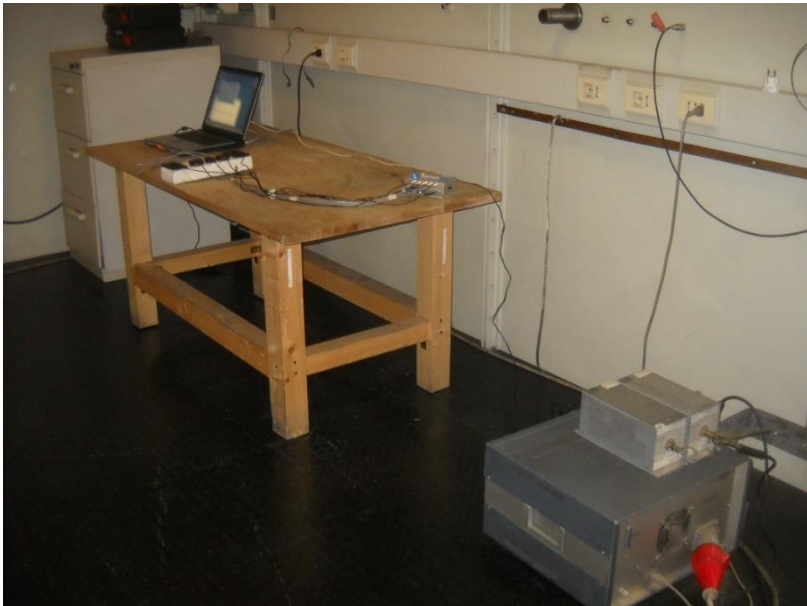
Radiated emission below 1 GHz



Radiated emission above 1 GHz



Conducted emission on the antenna port



Conducted emission on the AC Mains

10.2 Photos of the EUT



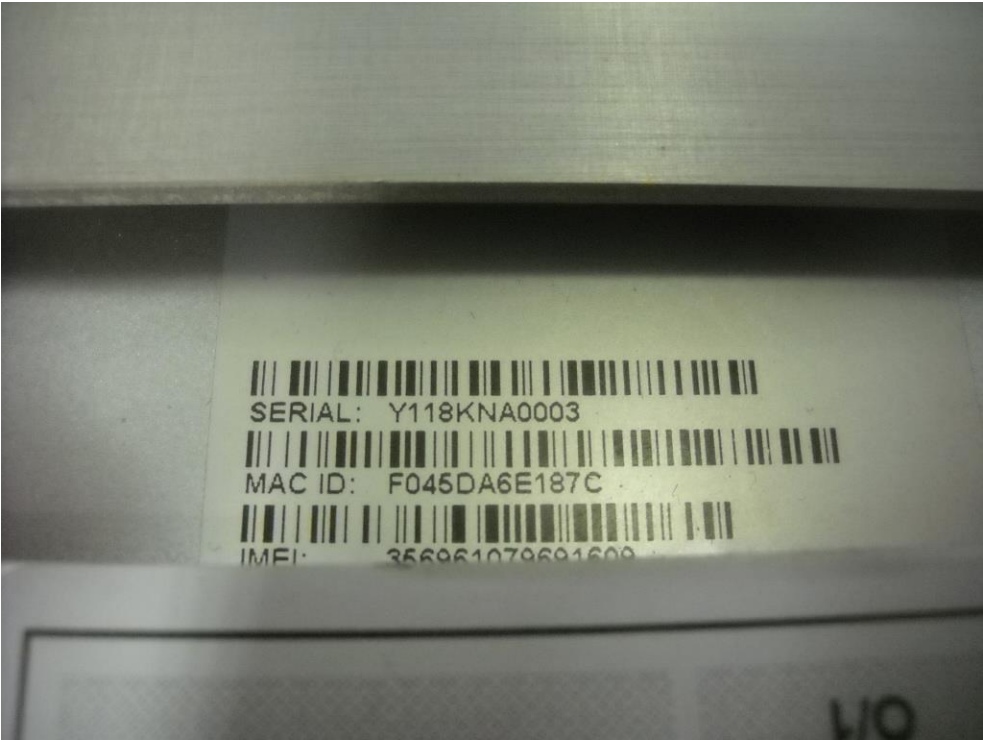
REGATE-10-12-GS04







REGATE-10-12-GS04







DYGATE-10-12-GS04





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(End of report)