

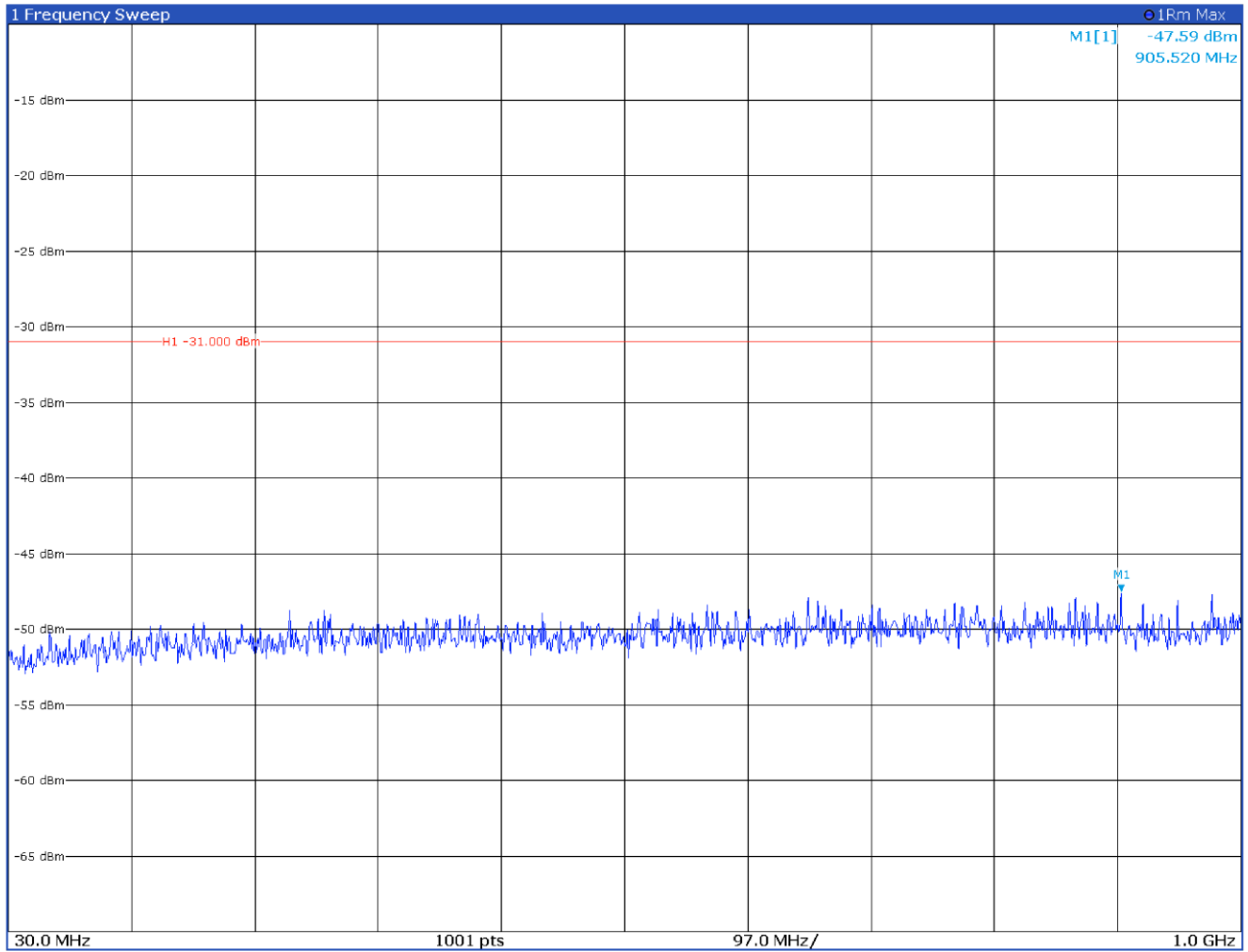
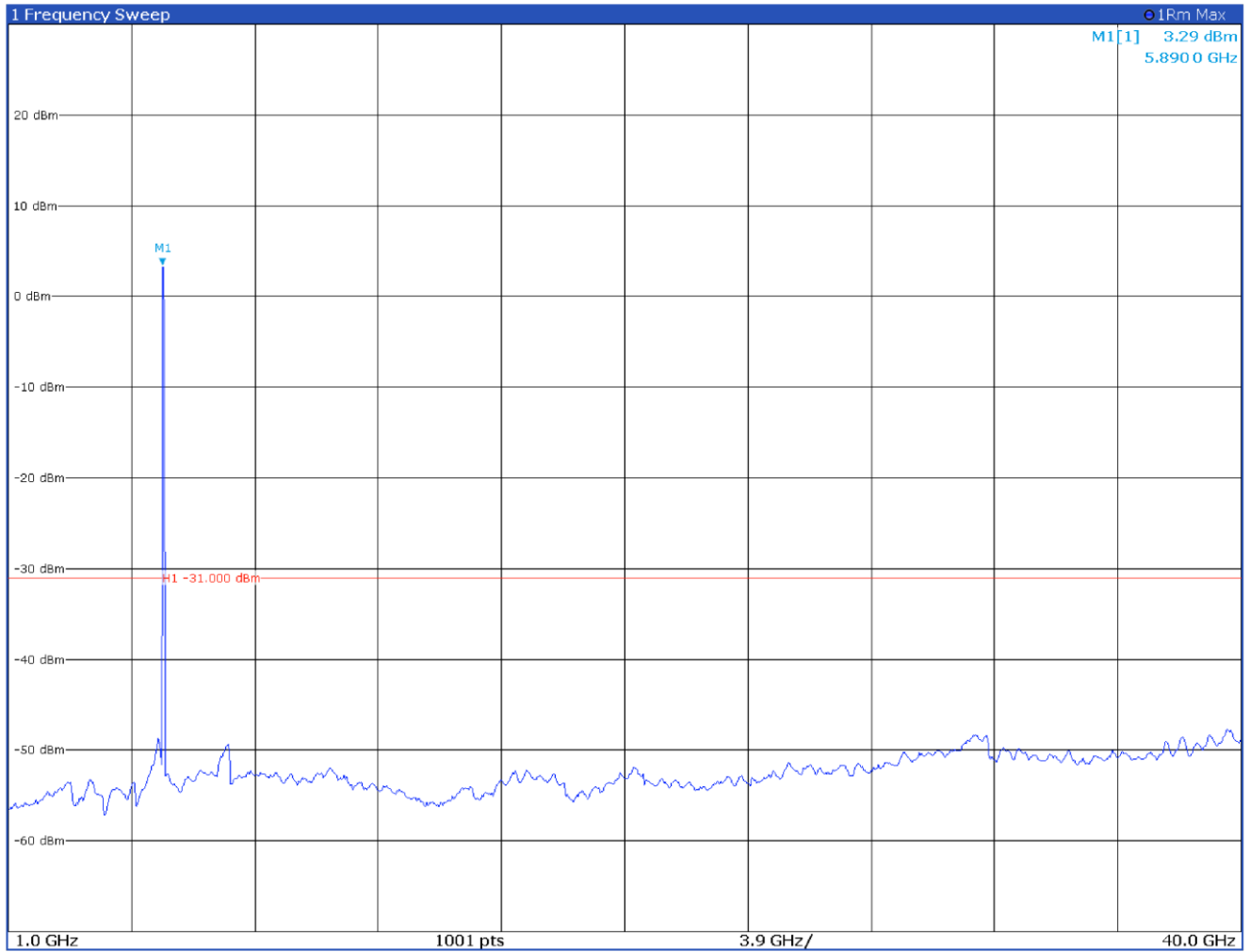
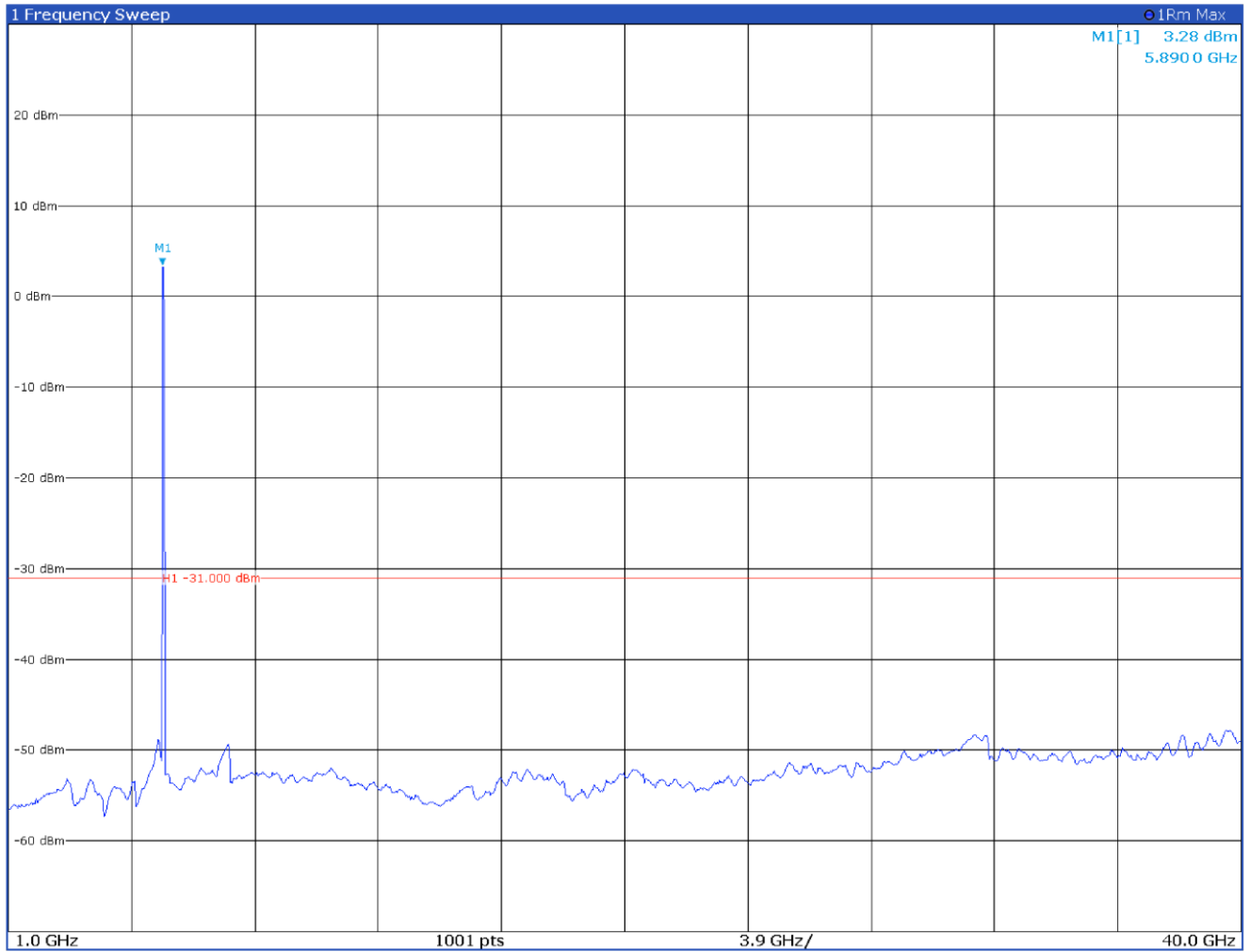


Figure 8.4-14: Conducted spurious emissions 30 to 1000 MHz, 5905 MHz, 20 MHz OBW, Antenna port 2



Limit exceeded by the carrier

Figure 8.4-15: Conducted spurious emissions 1 to 40 GHz, 5905 MHz, 20 MHz OBW, Antenna port 1



Limit exceeded by the carrier

Figure 8.4-16: Conducted spurious emissions 1 to 40 GHz, 5905 MHz, 20 MHz OBW, Antenna port 2

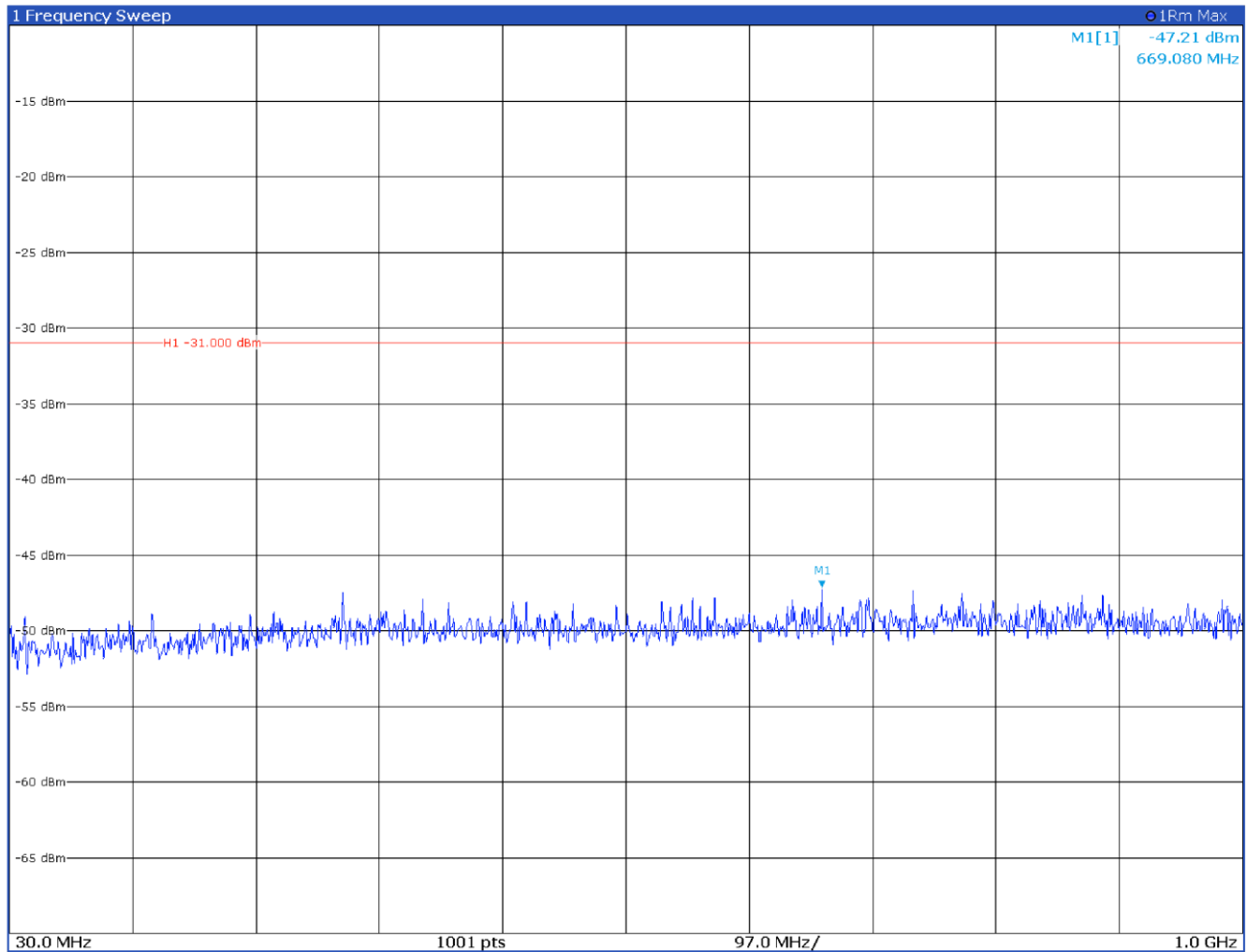


Figure 8.4-17: Conducted spurious emissions 30 to 1000 MHz, 5915 MHz, 20 MHz OBW, Antenna port 1

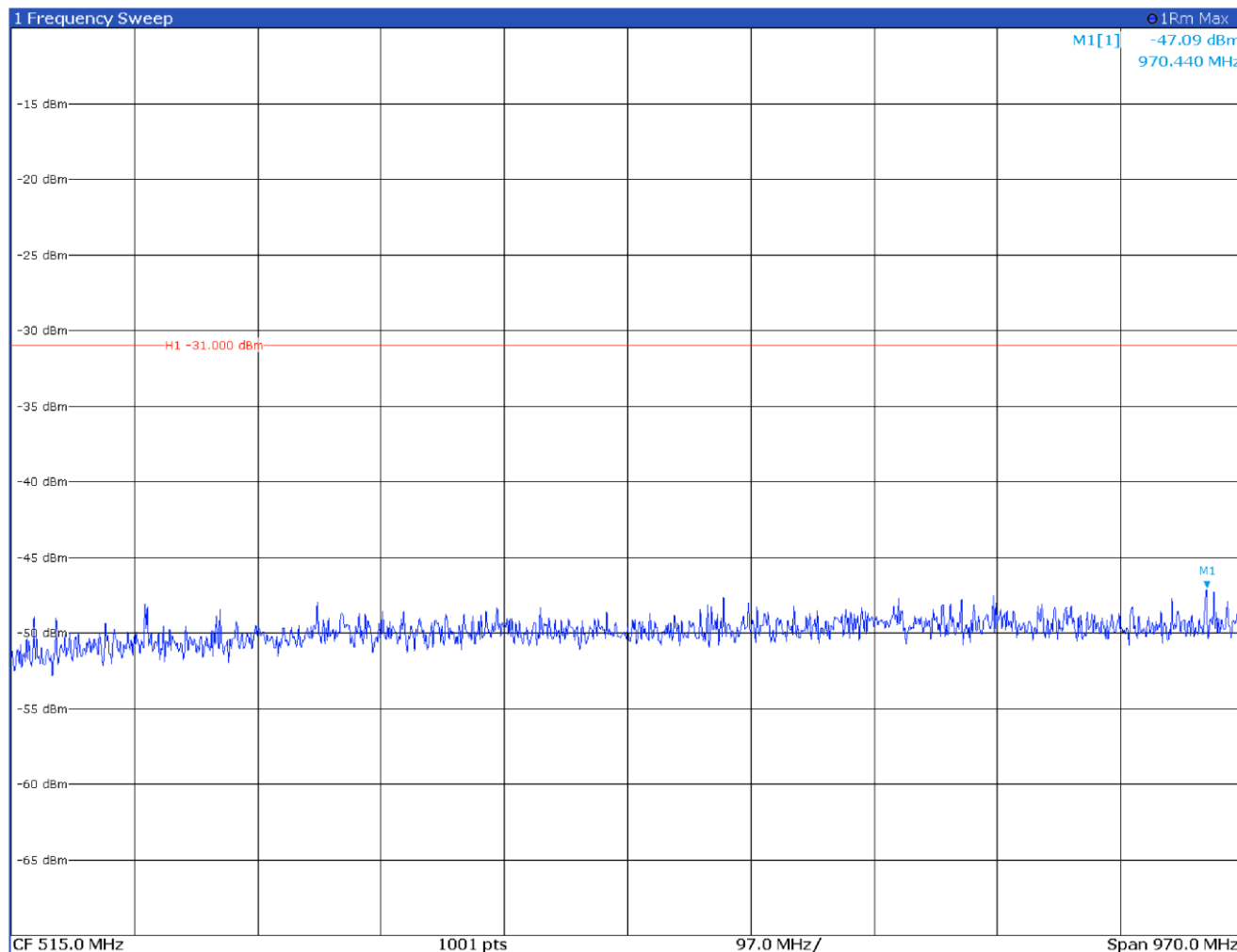
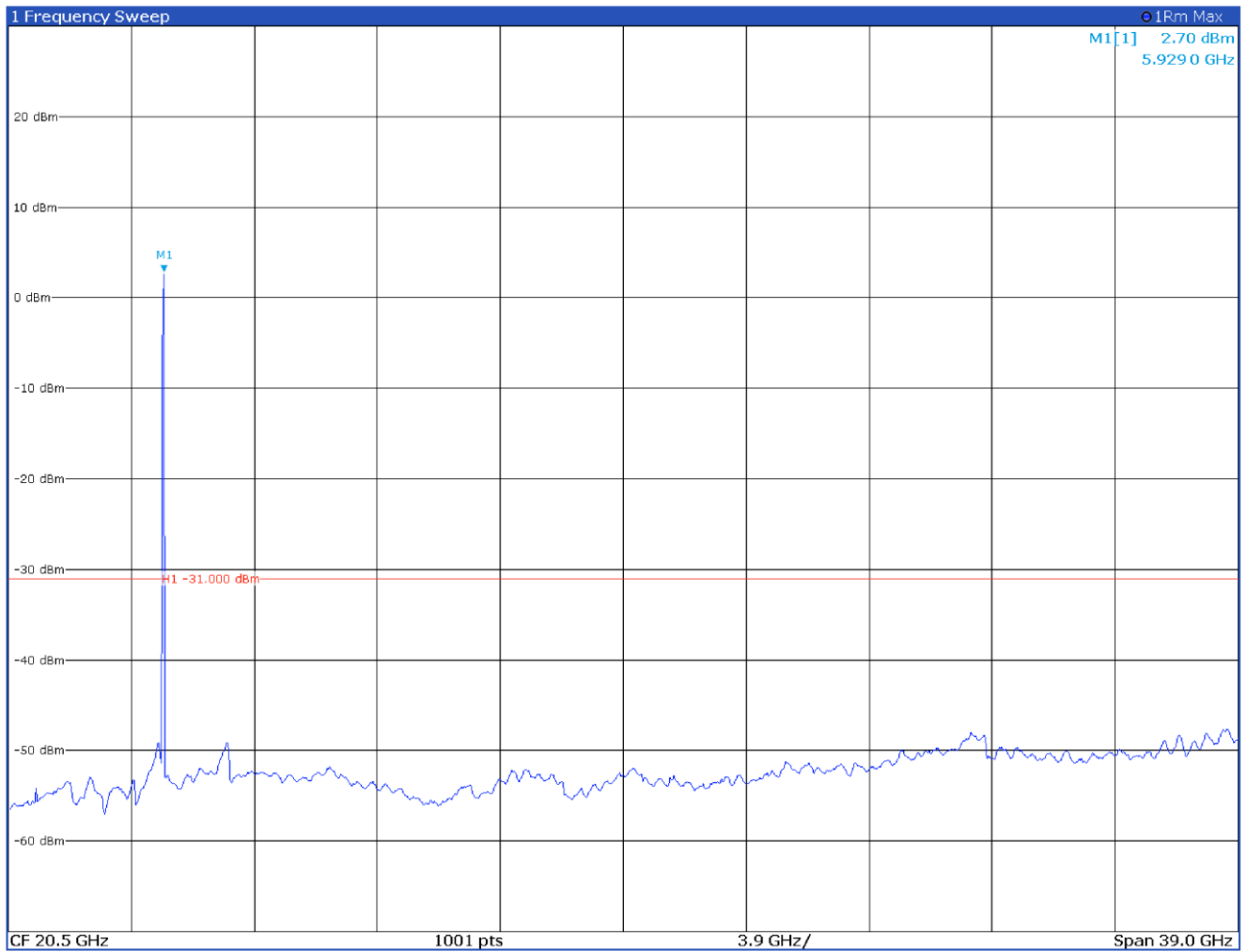
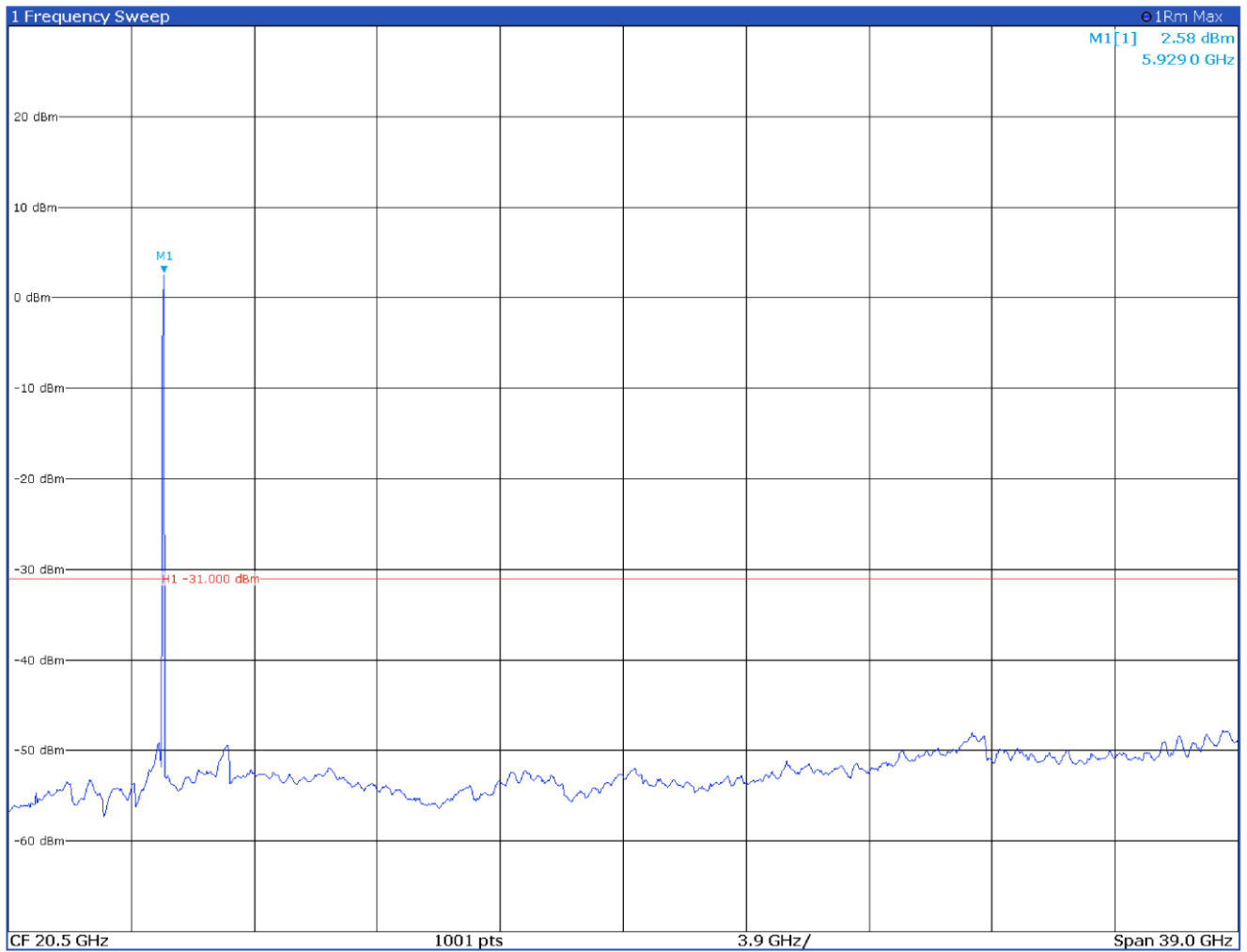


Figure 8.4-18: Conducted spurious emissions 30 to 1000 MHz, 5915 MHz, 20 MHz OBW, Antenna port 2



Limit exceeded by the carrier

Figure 8.4-19: Conducted spurious emissions 1 to 40 GHz, 5915 MHz, 20 MHz OBW, Antenna port 1



Limit exceeded by the carrier

Figure 8.4-20: Conducted spurious emissions 1 to 40 GHz, 5915 MHz, 20 MHz OBW, Antenna port 2

8.5 Spurious emissions radiated measurements

§ 2.1053 Measurements required: Field strength of spurious radiation.

(a) Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal conditions of installation and operation. Curves or equivalent data shall be supplied showing the magnitude of each harmonic and other spurious emission. For this test, single sideband, independent sideband, and controlled carrier transmitters shall be modulated under the conditions specified in paragraph (c) of § 2.1049, as appropriate. For equipment operating on frequencies below 890 MHz, an open field test is normally required, with the measuring instrument antenna located in the far-field at all test frequencies. In the event it is either impractical or impossible to make open field measurements (e.g. a broadcast transmitter installed in a building) measurements will be accepted of the equipment as installed. Such measurements must be accompanied by a description of the site where the measurements were made showing the location of any possible source of reflections which might distort the field strength measurements. Information submitted shall include the relative radiated power of each spurious emission with reference to the rated power output of the transmitter, assuming all emissions are radiated from halfwave dipole antennas.

(b) The measurements specified in paragraph (a) of this section shall be made for the following equipment:

- (1) Those in which the spurious emissions are required to be 60 dB or more below the mean power of the transmitter.
- (2) All equipment operating on frequencies higher than 25 MHz.
- (3) All equipment where the antenna is an integral part of and attached directly to the transmitter.
- (4) Other types of equipment as required, when deemed necessary by the Commission

8.5.1 Test summary

Verdict	Pass		
Tested by	O. Frau	Test date	May 13, 2025

8.5.2 Observations, settings and special notes

The spectrum was searched from 30 MHz to 40 GHz.

Testing was performed with RF ports terminated with 50 Ohm load.

In the graphics below, no radiated spurious emissions were found, and the limit is exceeded only by the carrier.

Spectrum analyser settings:

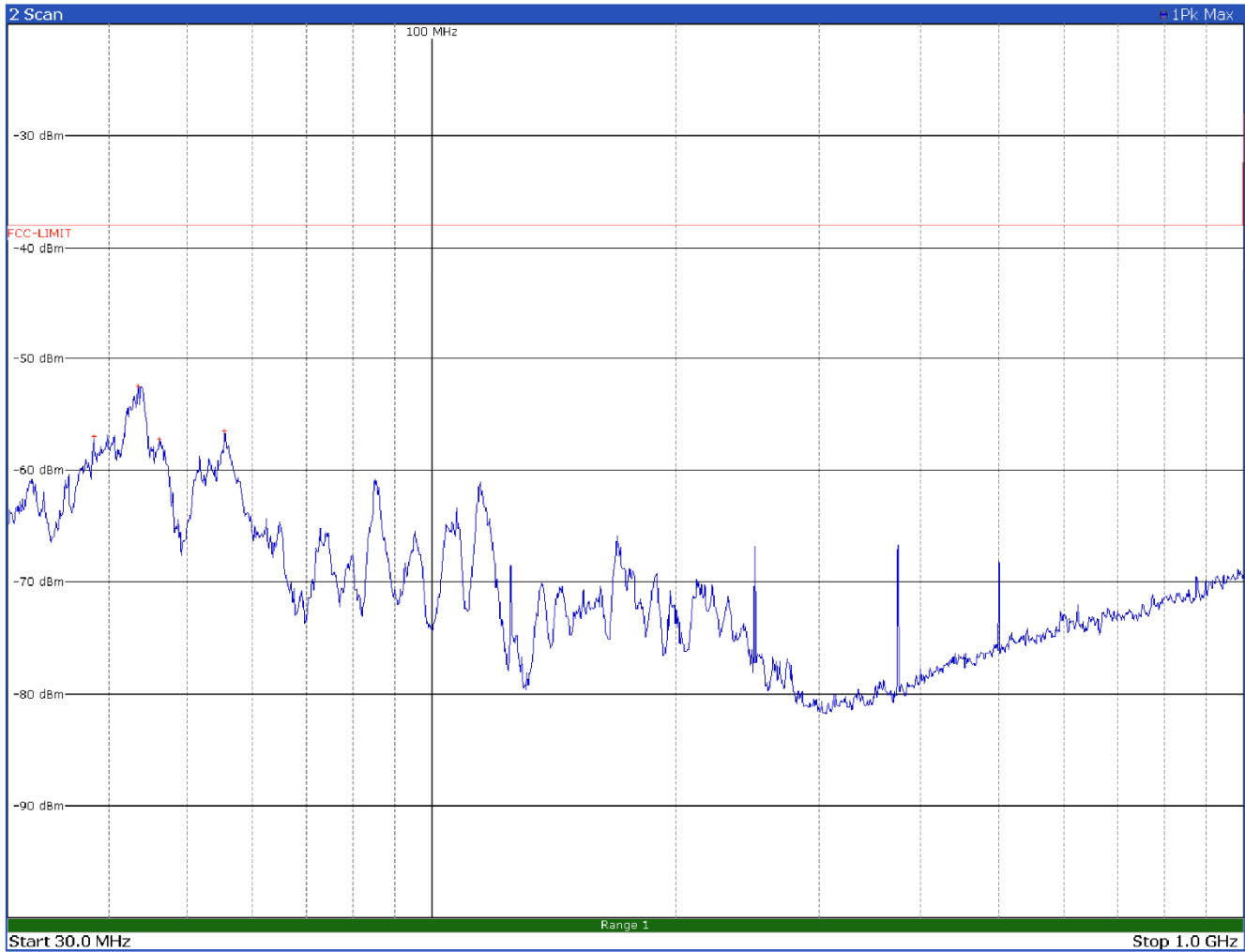
Resolution bandwidth:	100 kHz and 1 MHz
Video bandwidth:	VBW $\geq 3 \times$ RBW
Detector mode:	Peak
Trace mode:	Max Hold

8.5.3 Test equipment used

Equipment	Manufacturer	Model no.	Asset no.
EMI Receiver	Rohde & Schwarz	ESW44	101620
Antenna Trilog 25MHz - 8GHz	Schwarzbeck Mess-Elektronik	VULB9162	9162-025
Antenna 1 - 18 GHz	Schwarzbeck Mess-Elektronik	STLP9148	STLP 9148-152
Double Ridge Horn Antenna	RFSpin	DRH40	061106A40
Controller	Maturo	FCU3.0	10041
Tilt antenna mast	Maturo	TAM4.0-E	10042
Turntable	Maturo	TT4.0-5T	2.527
Controller	Maturo	FCU3.0	10237
Tilt antenna mast	Maturo	TAM4.0-E	3466.01
Turntable	Maturo	TT4.0	-
Semi-anechoic chamber	Nemko S.p.a.	10m semi-anechoic chamber	530
3m Semi anechoic chamber	Comtest	SAC-3	1711-150
Coaxial cable	Rosenberger+Huber-Suhner	RE04+RE05	1.511+1.512
Coaxial cable	Rosenberger+Huber-Suhner	RE01+RE02	1.654+1.655

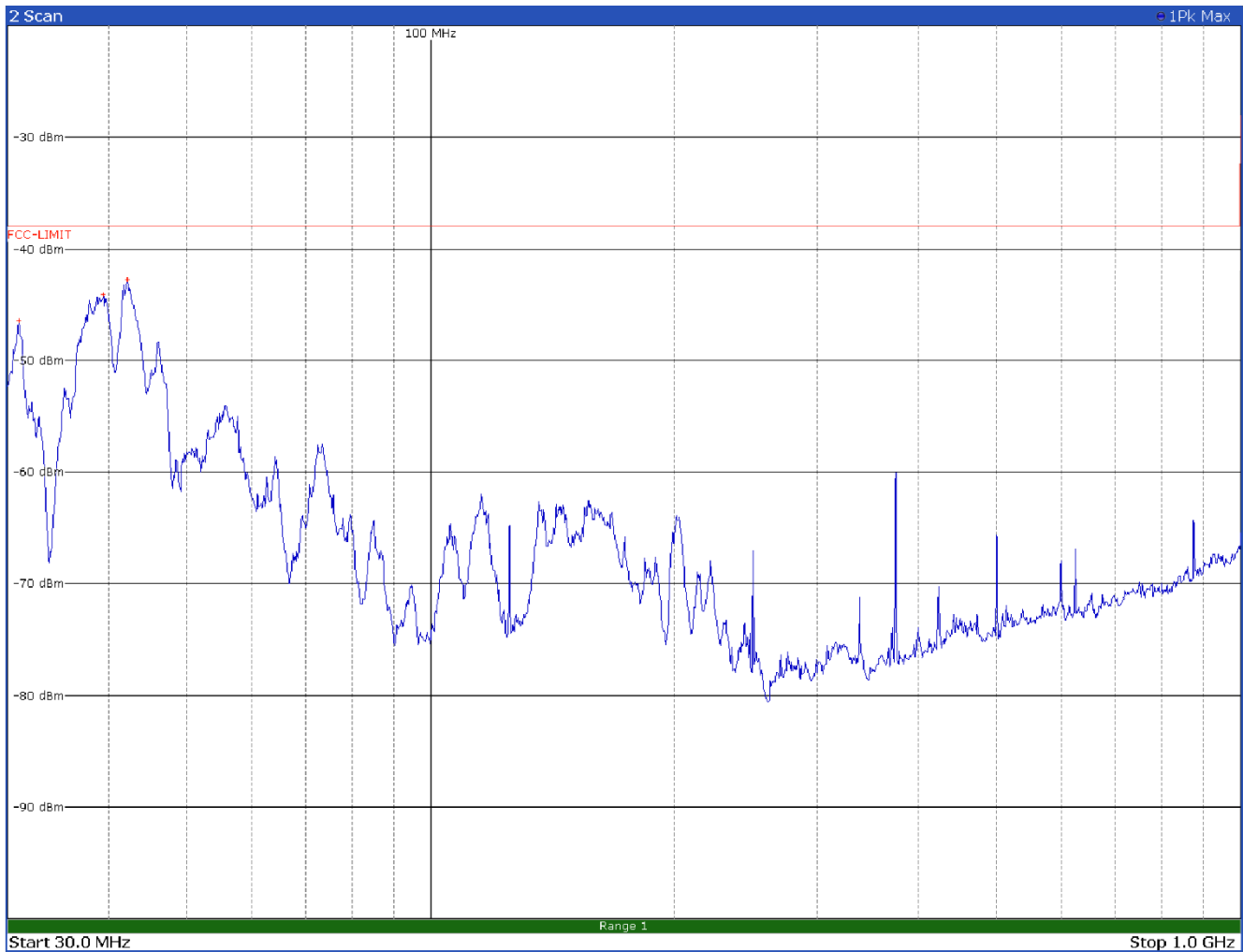
Notes: NCR - no calibration required, VOU - verify on use

8.5.4 Test data



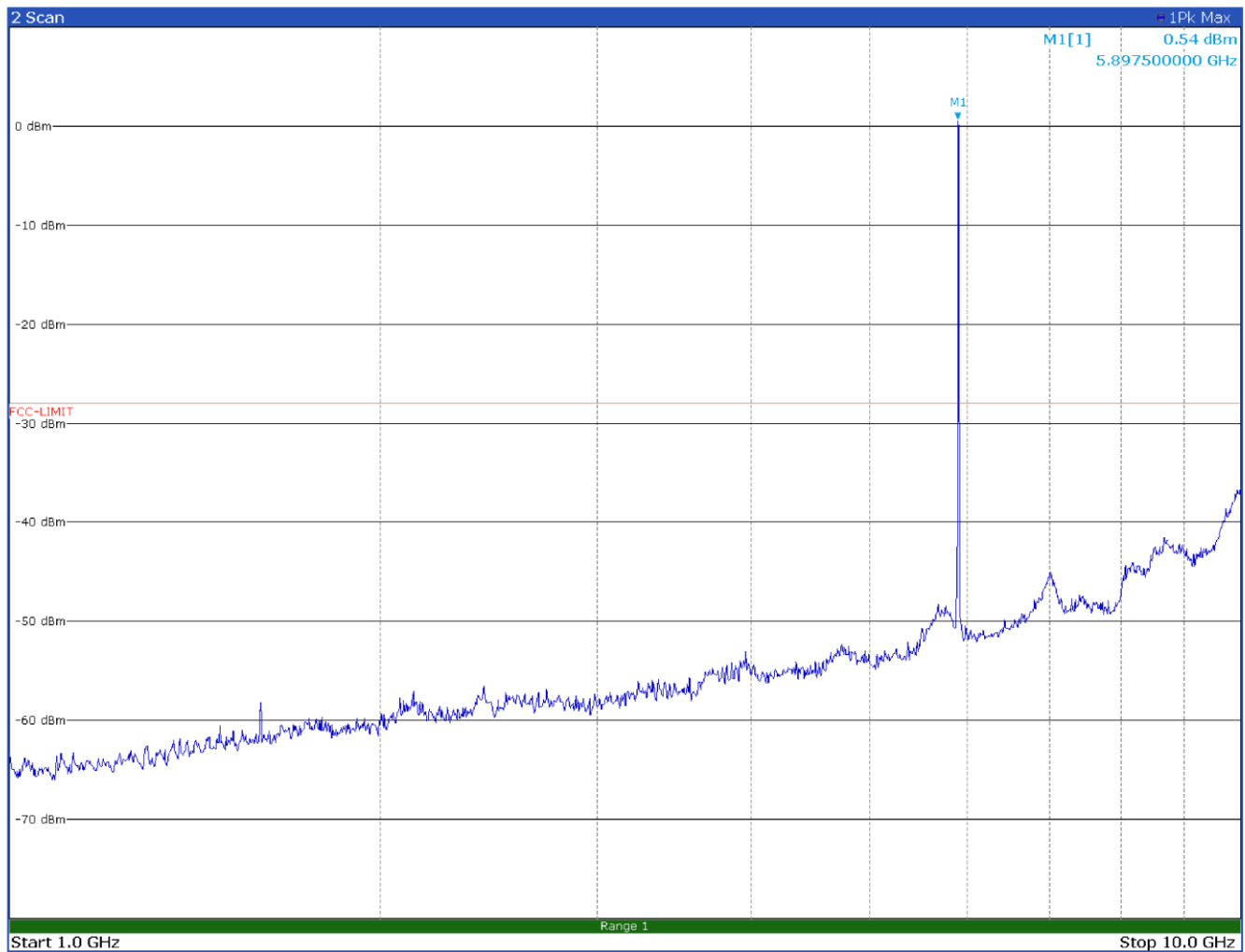
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
38.3700	-57.0	-38.0	-19.0
43.4700	-52.5	-38.0	-14.5
46.1100	-57.3	-38.0	-19.3
55.5300	-56.5	-38.0	-18.5

Figure 8.5-1: Radiated spurious emissions 30 to 1000 MHz, 5900 MHz, 10 MHz OBW, horizontal polarization



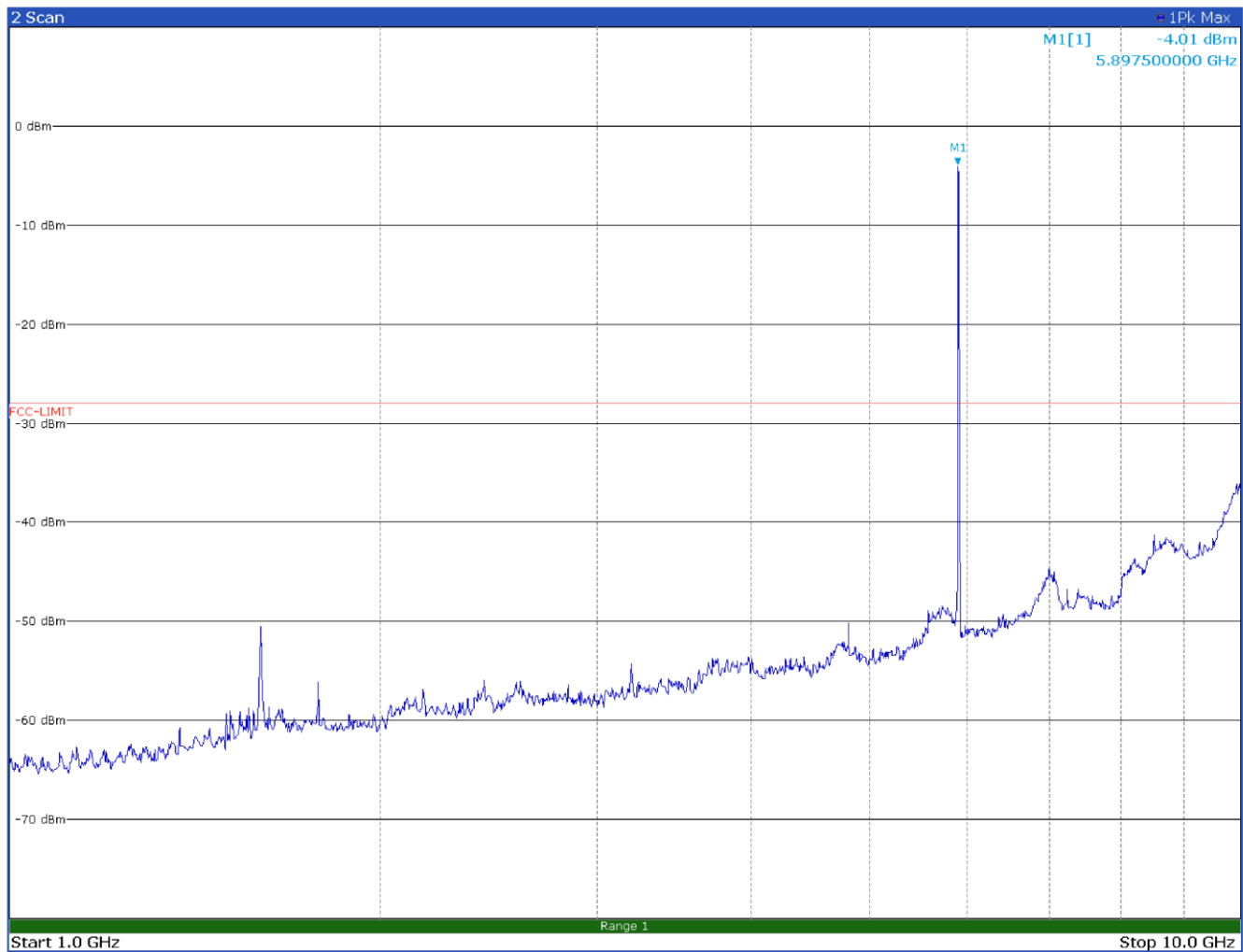
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
30.9600	-46.5	-38.0	-8.5
39.4200	-44.2	-38.0	-6.2
42.1800	-42.8	-38.0	-4.8

Figure 8.5-2: Radiated spurious emissions 30 to 1000 MHz, 5900 MHz, 10 MHz OBW, vertical polarization



Limit exceeded by the carrier

Figure 8.5-3: Radiated spurious emissions 1 to 10 GHz, 5900 MHz, 10 MHz OBW, horizontal polarization



Limit exceeded by the carrier

Figure 8.5-4: Radiated spurious emissions 1 to 10 GHz, 5900 MHz, 10 MHz OBW, vertical polarization

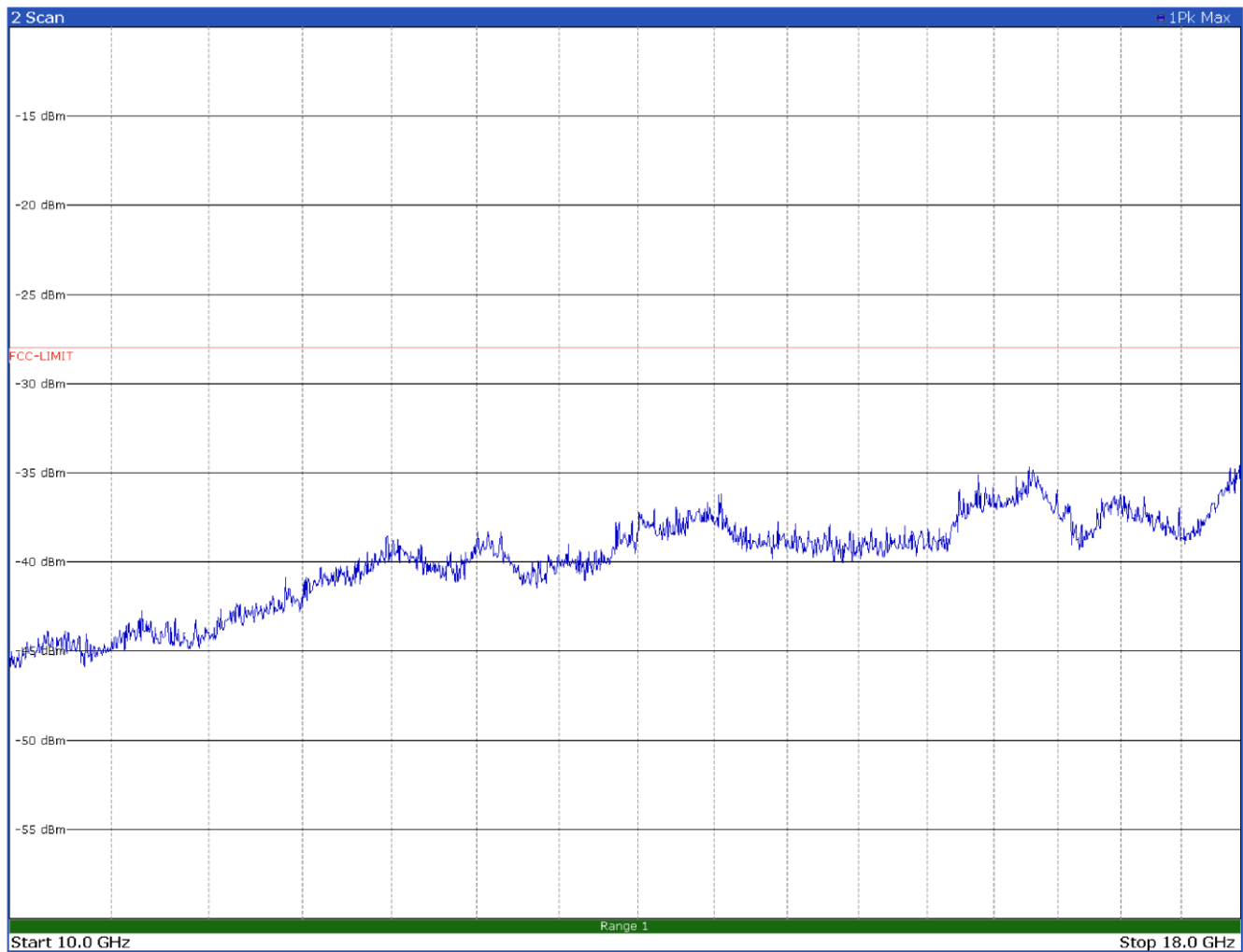


Figure 8.5-5: Radiated spurious emissions 10 to 18 GHz, 5900 MHz, 10 MHz OBW, horizontal polarization

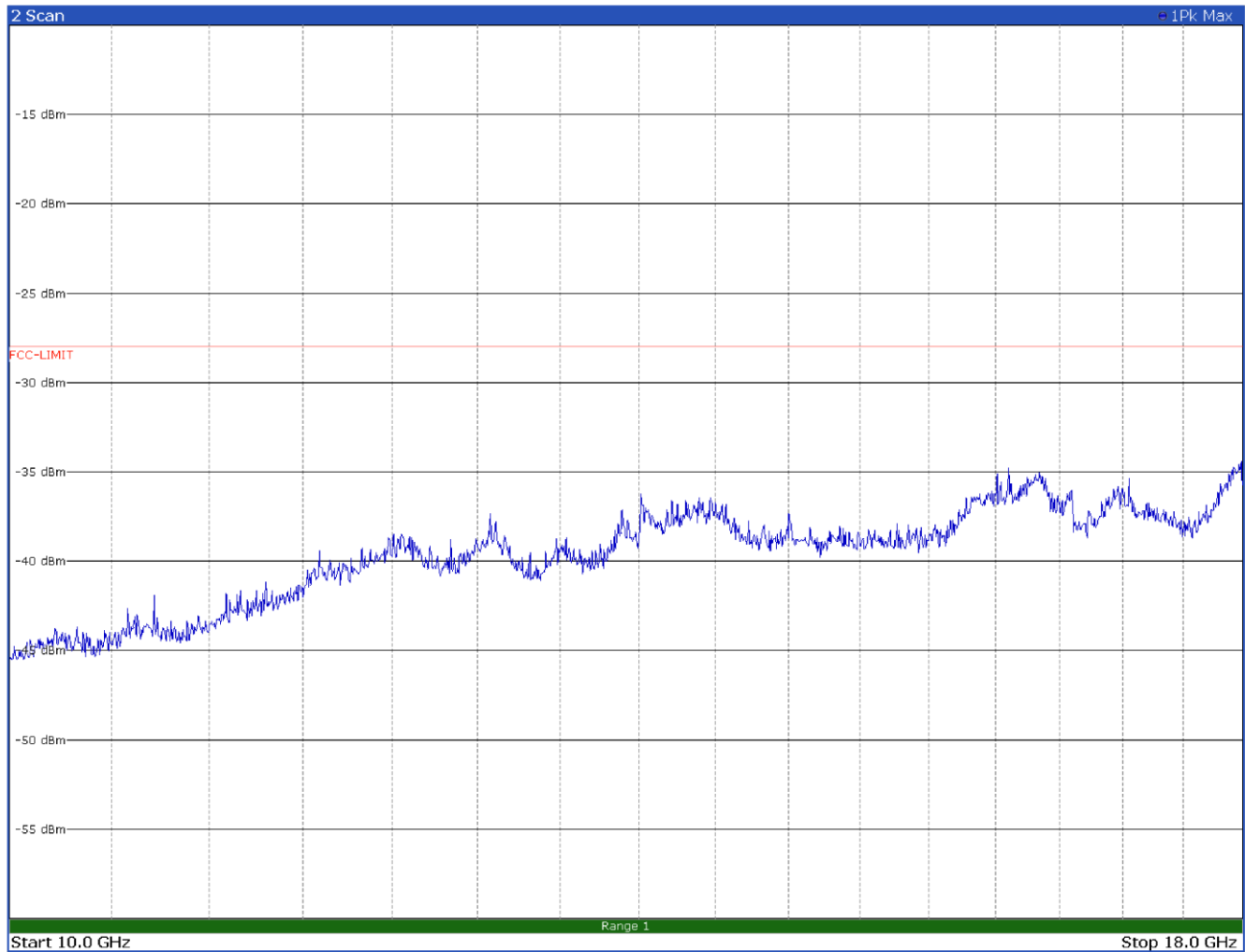


Figure 8.5-6: Radiated spurious emissions 10 to 18 GHz, 5900 MHz, 10 MHz OBW, vertical polarization

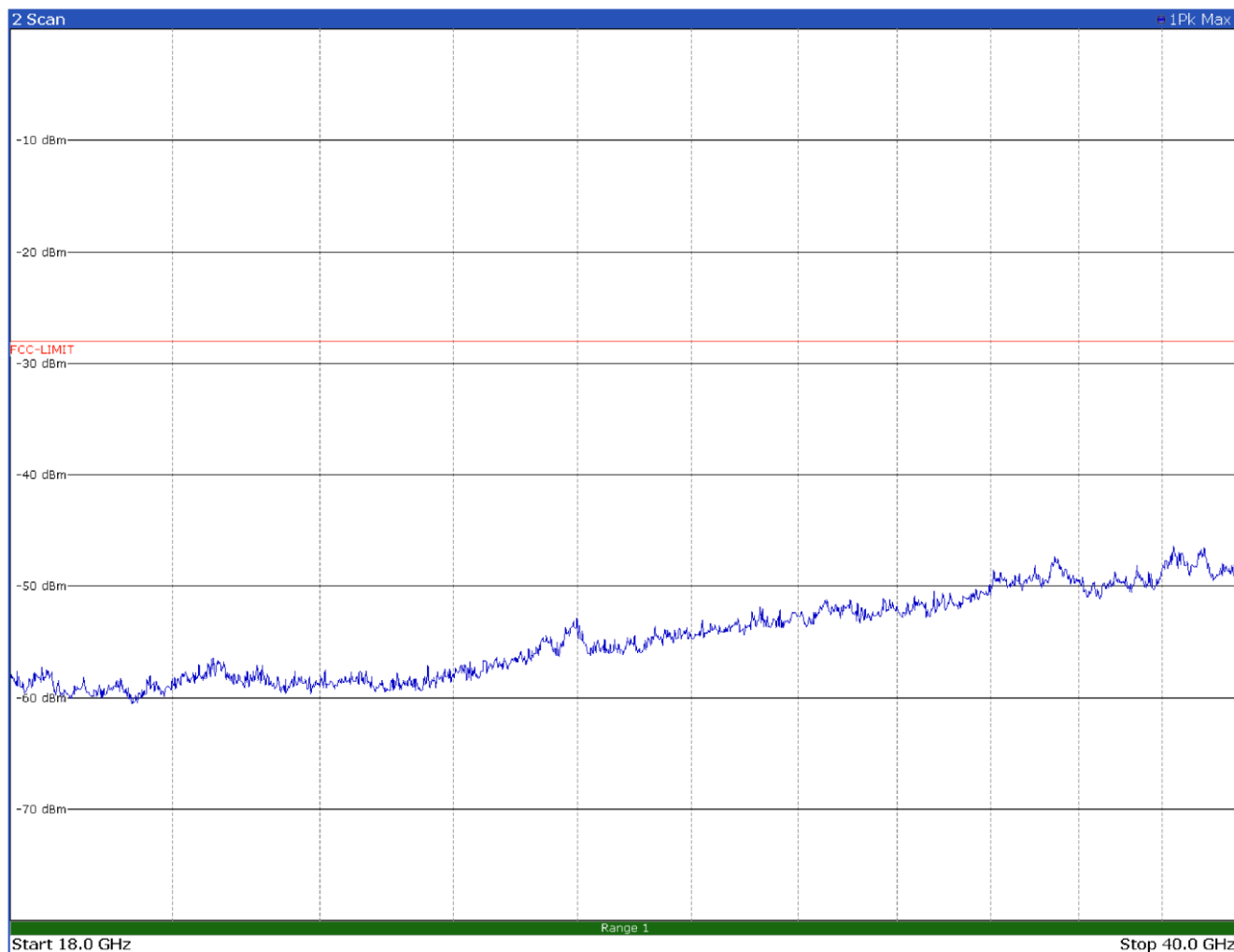


Figure 8.5-7: Radiated spurious emissions 18 to 40 GHz, 5900 MHz, 10 MHz OBW, horizontal polarization

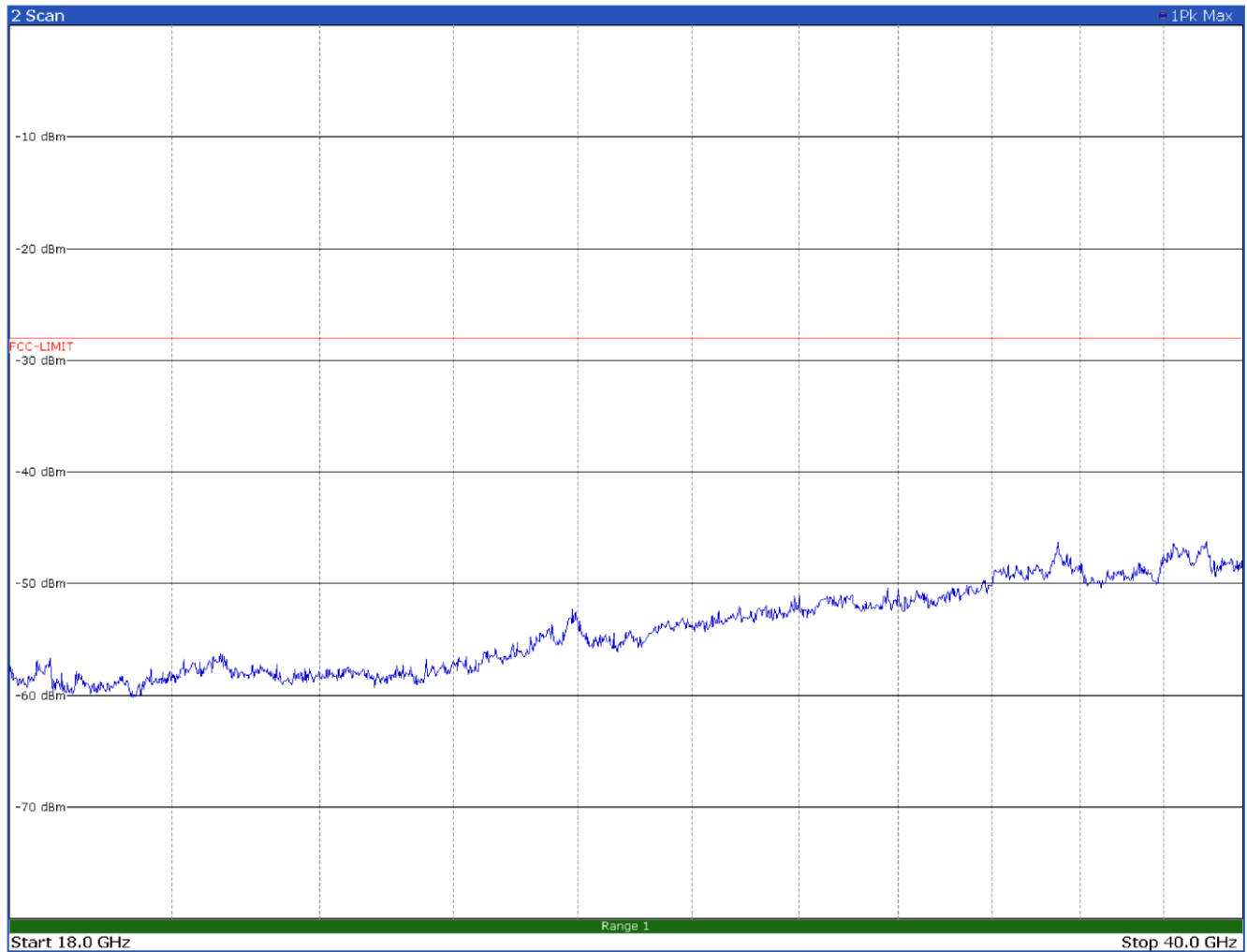
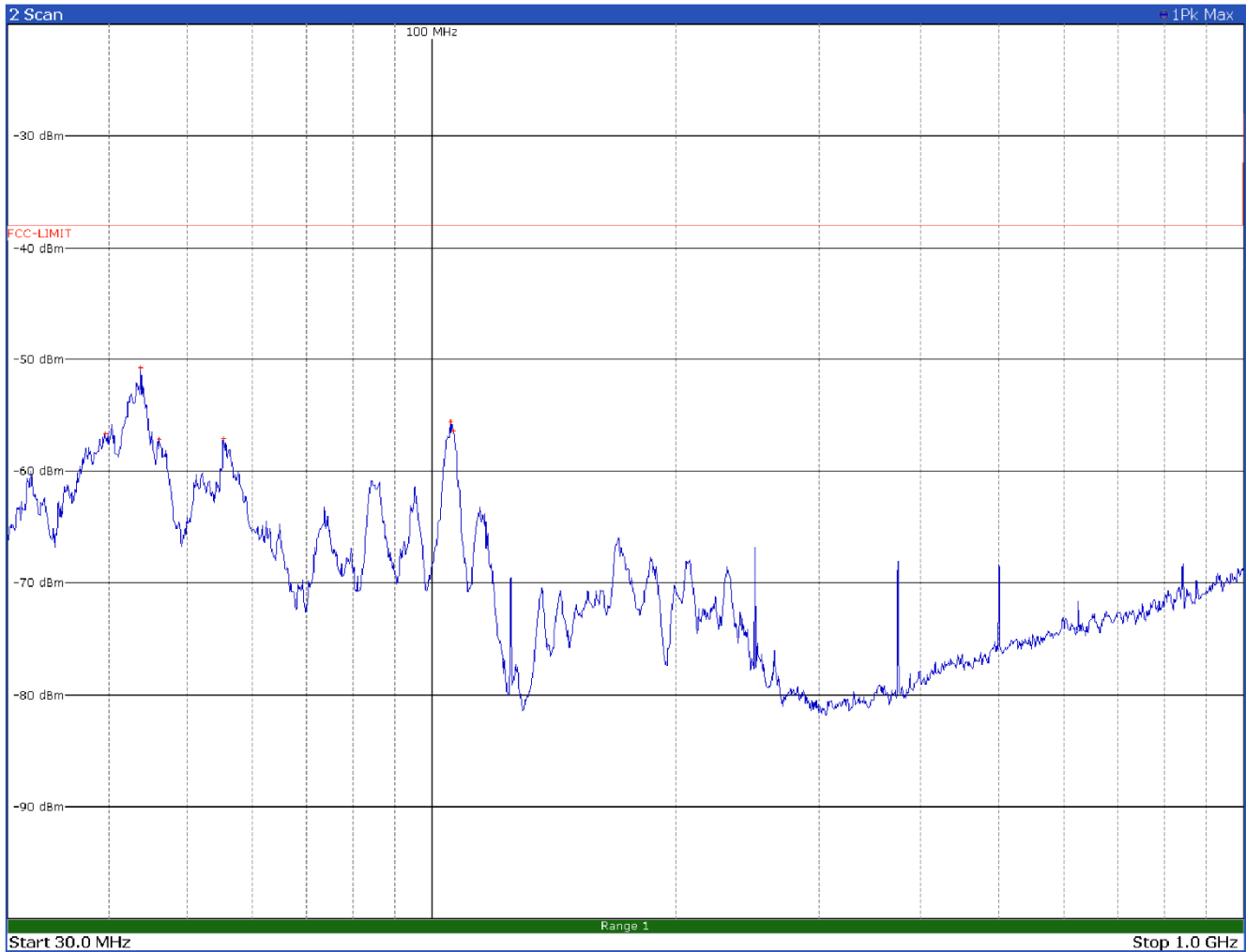
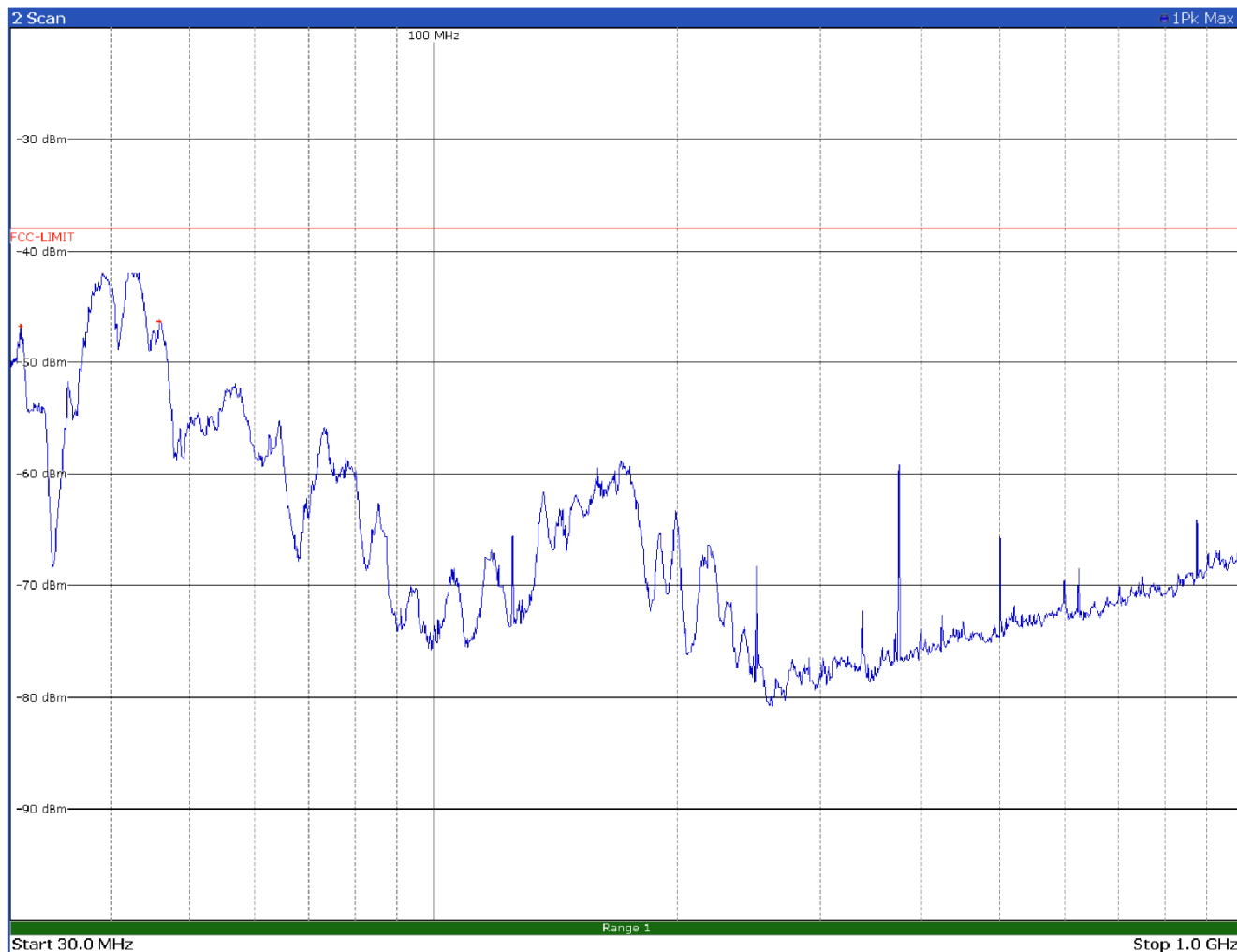


Figure 8.5-8: Radiated spurious emissions 18 to 40 GHz, 5900 MHz, 10 MHz OBW, vertical polarization



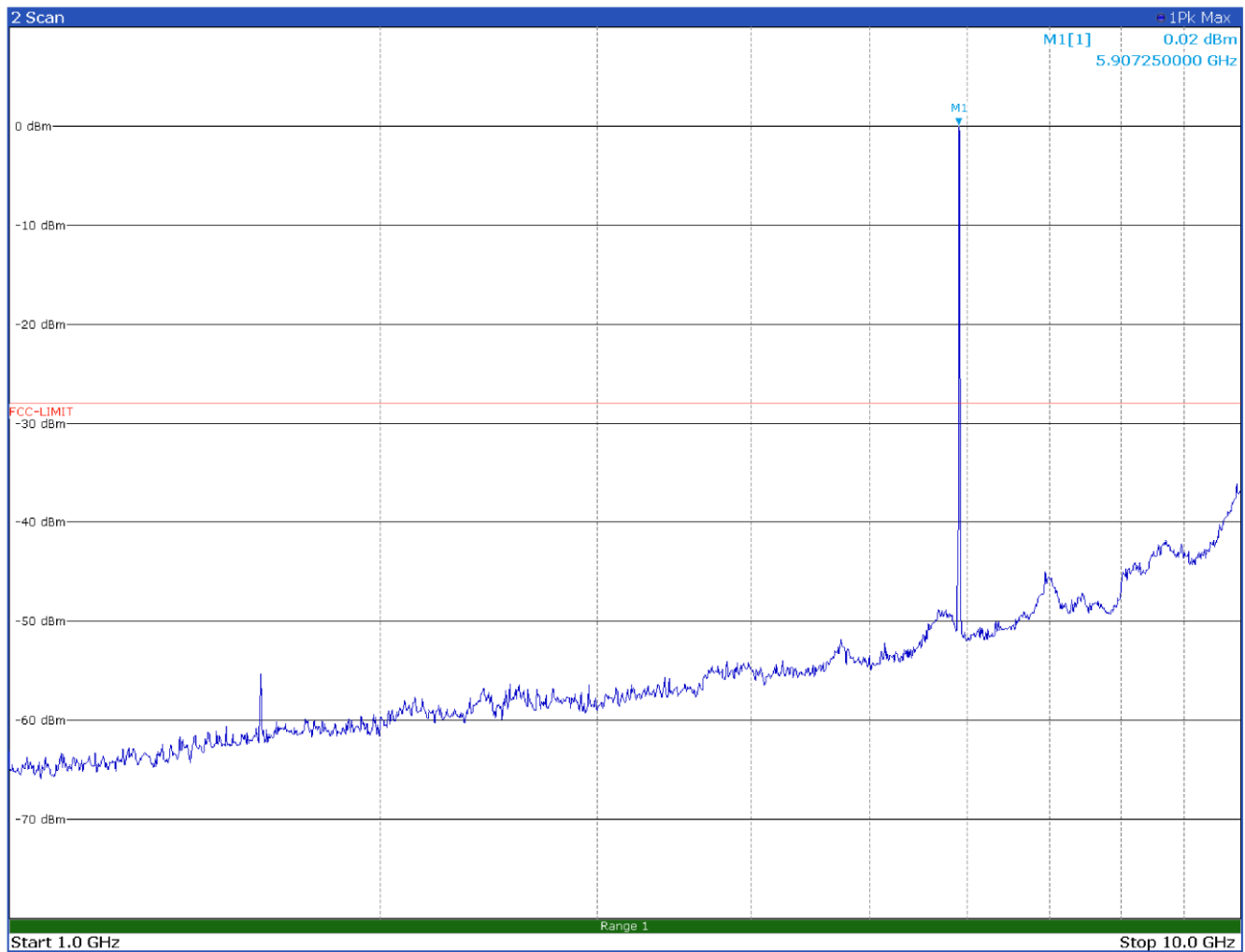
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
39.5400	-56.7	-38.0	-18.7
43.8000	-50.8	-38.0	-12.8
46.0800	-57.3	-38.0	-19.3
55.2900	-57.1	-38.0	-19.1
105.3900	-55.7	-38.0	-17.7
106.2600	-56.5	-38.0	-18.5

Figure 8.5-9: Radiated spurious emissions 30 to 1000 MHz, 5910 MHz, 10 MHz OBW, horizontal polarization



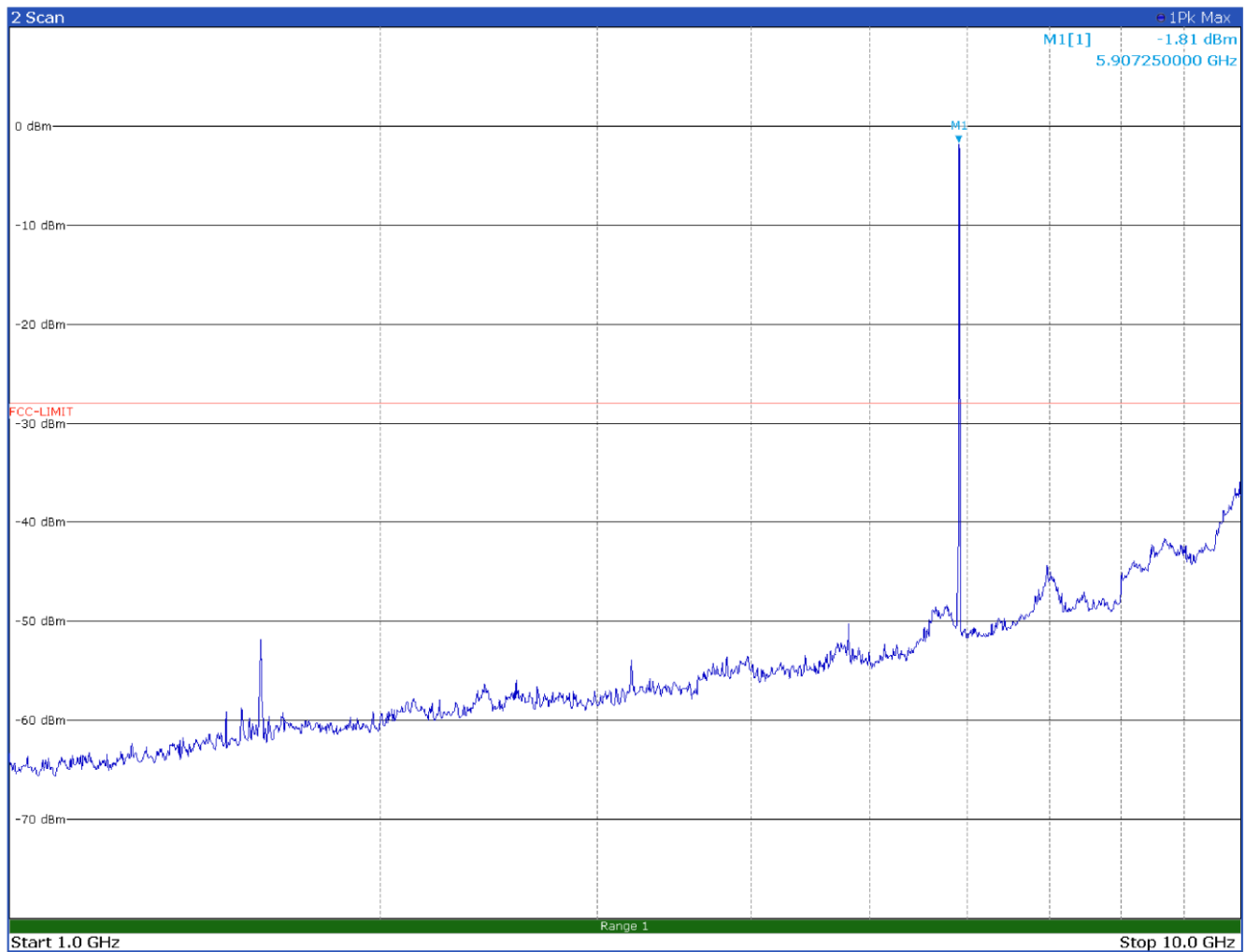
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
30.8700	-46.8	-38.0	-8.8
38.9700	-41.9	-38.0	-3.9
42.2700	-41.2	-38.0	-3.2
45.8100	-46.4	-38.0	-8.4

Figure 8.5-10: Radiated spurious emissions 30 to 1000 MHz, 5910 MHz, 10 MHz OBW, vertical polarization



Limit exceeded by the carrier

Figure 8.5-11: Radiated spurious emissions 1 to 10 GHz, 5910 MHz, 10 MHz OBW, horizontal polarization



Limit exceeded by the carrier

Figure 8.5-12: Radiated spurious emissions 1 to 10 GHz, 5910 MHz, 10 MHz OBW, vertical polarization

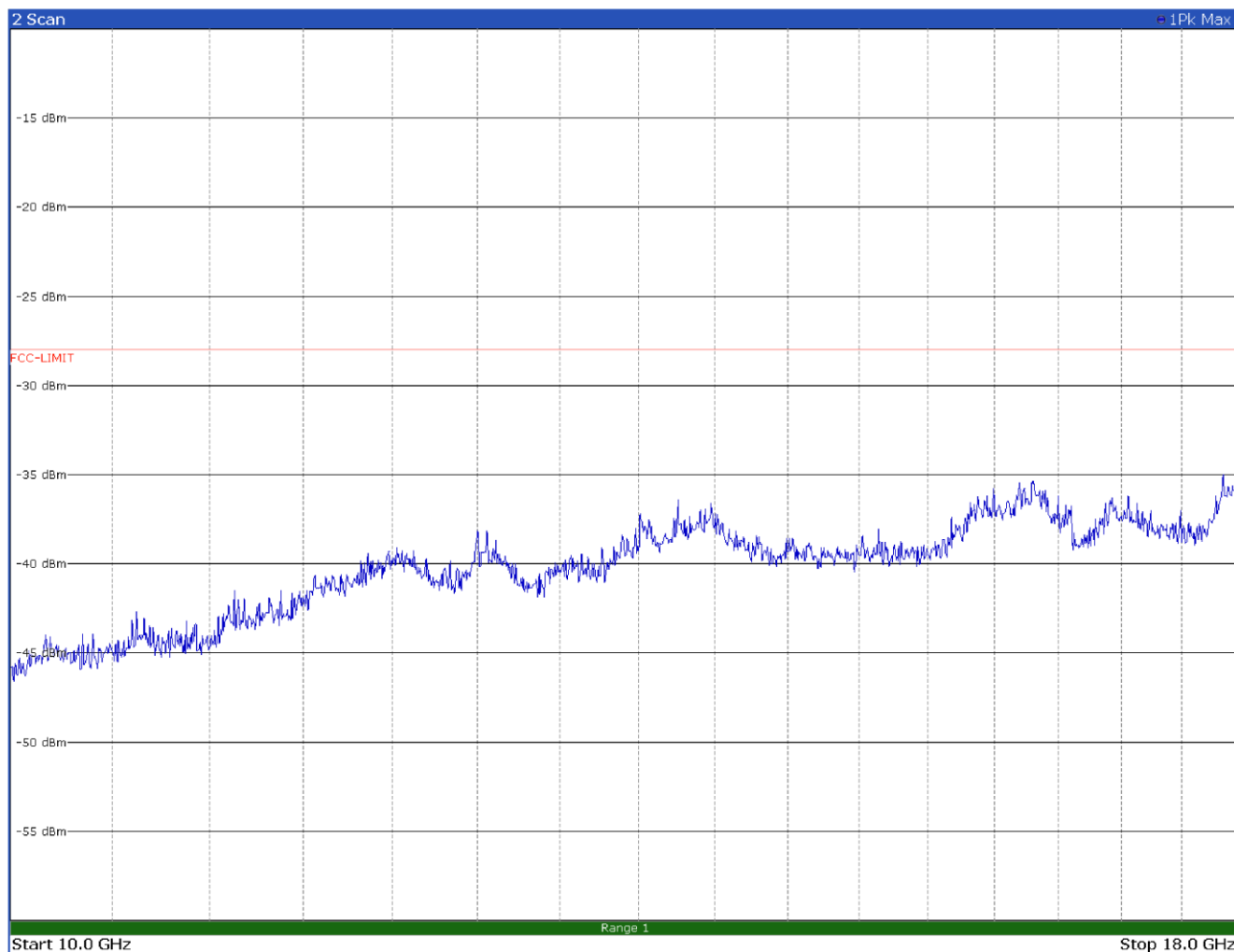


Figure 8.5-13: Radiated spurious emissions 10 to 18 GHz, 5910 MHz, 10 MHz OBW, horizontal polarization

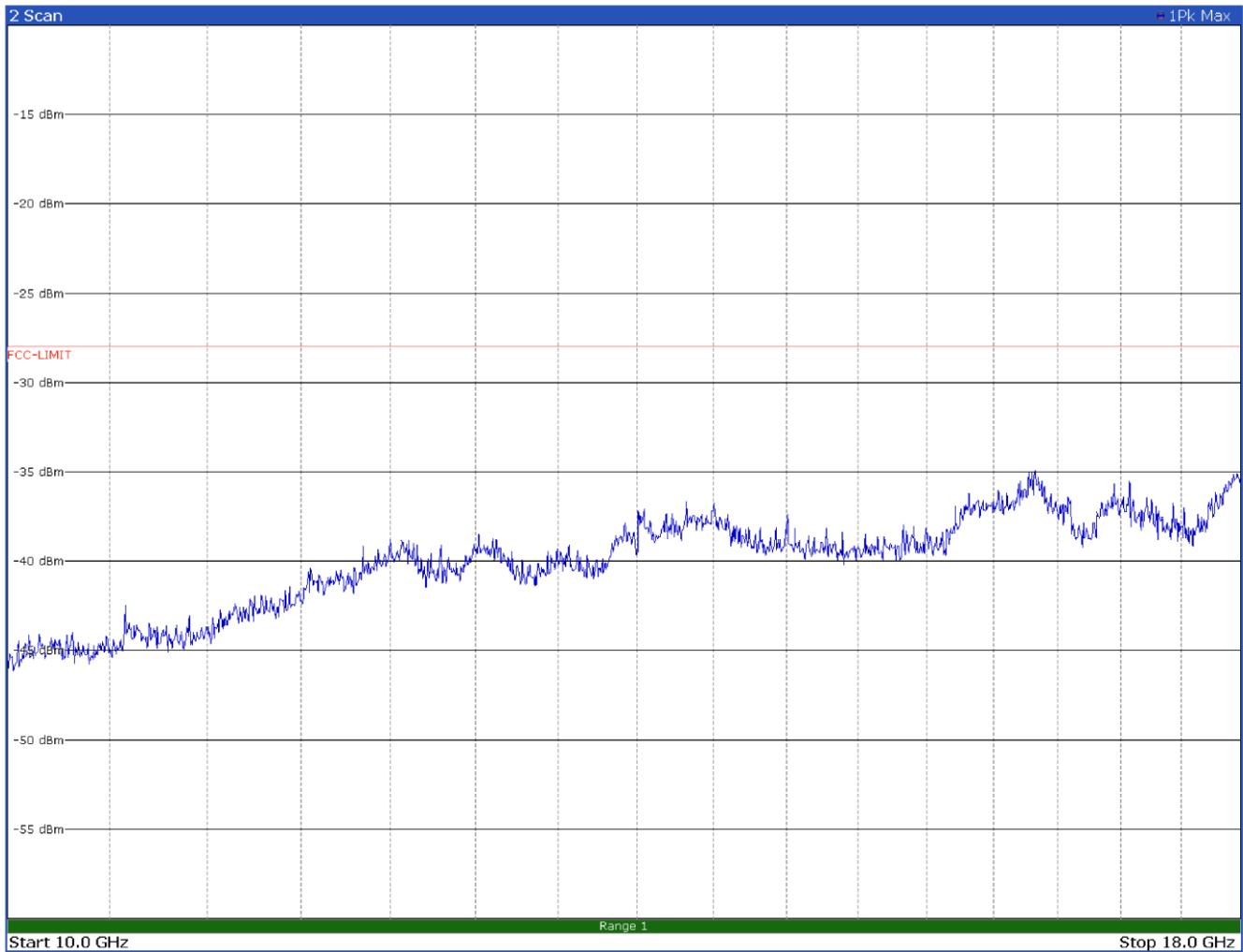


Figure 8.5-14: Radiated spurious emissions 10 to 18 GHz, 5910 MHz, 10 MHz OBW, vertical polarization

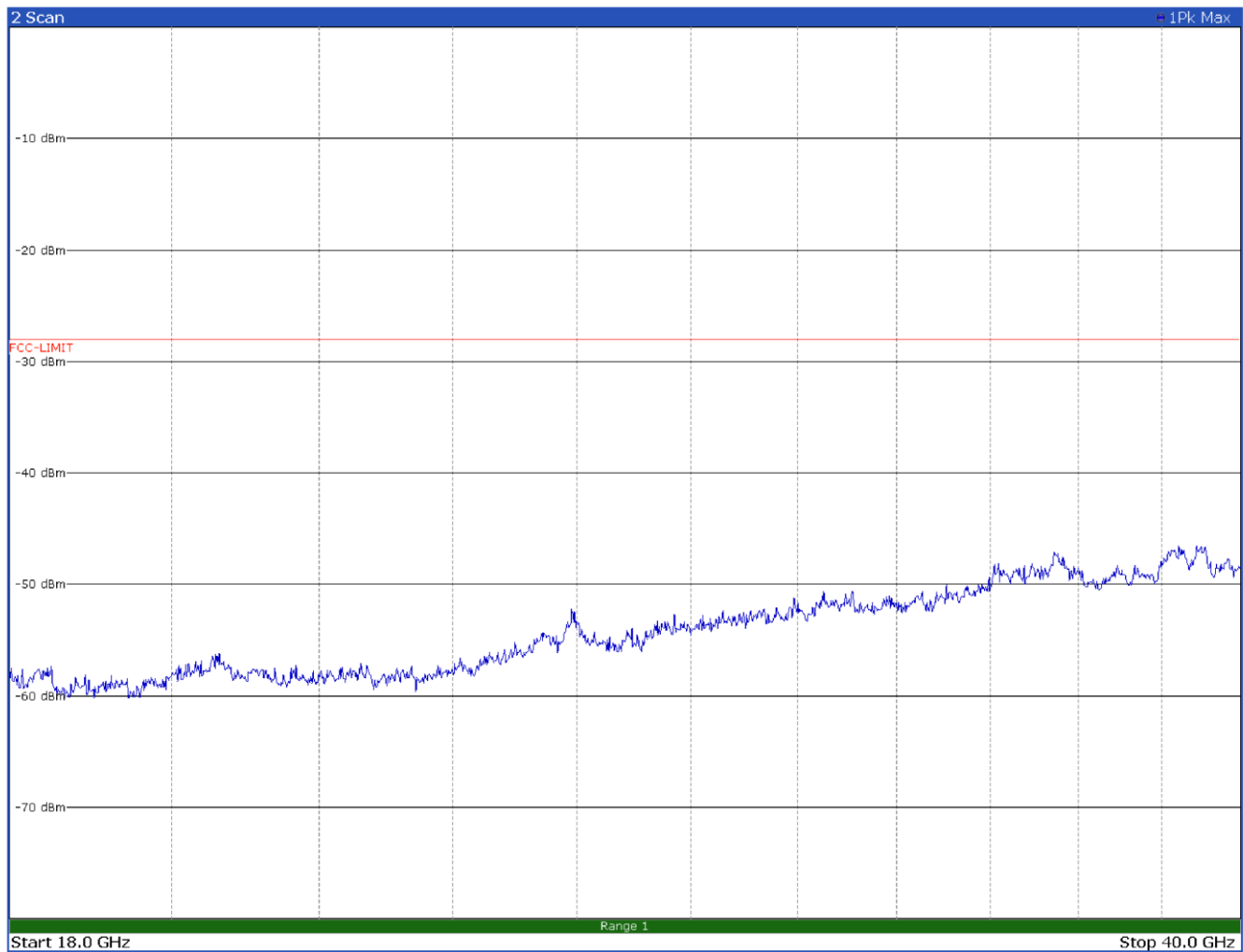


Figure 8.5-15: Radiated spurious emissions 18 to 40 GHz, 5910 MHz, 10 MHz OBW, horizontal polarization

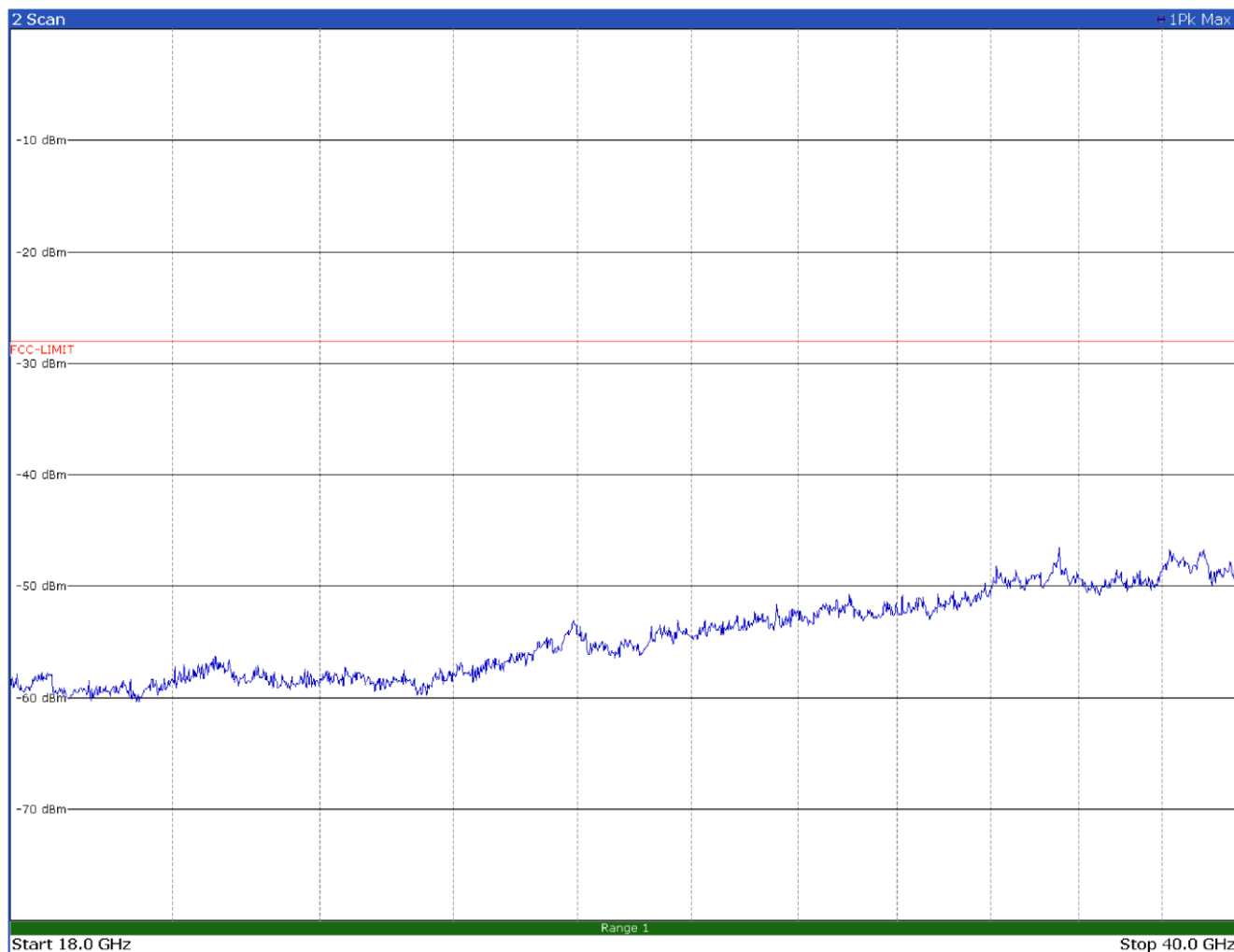
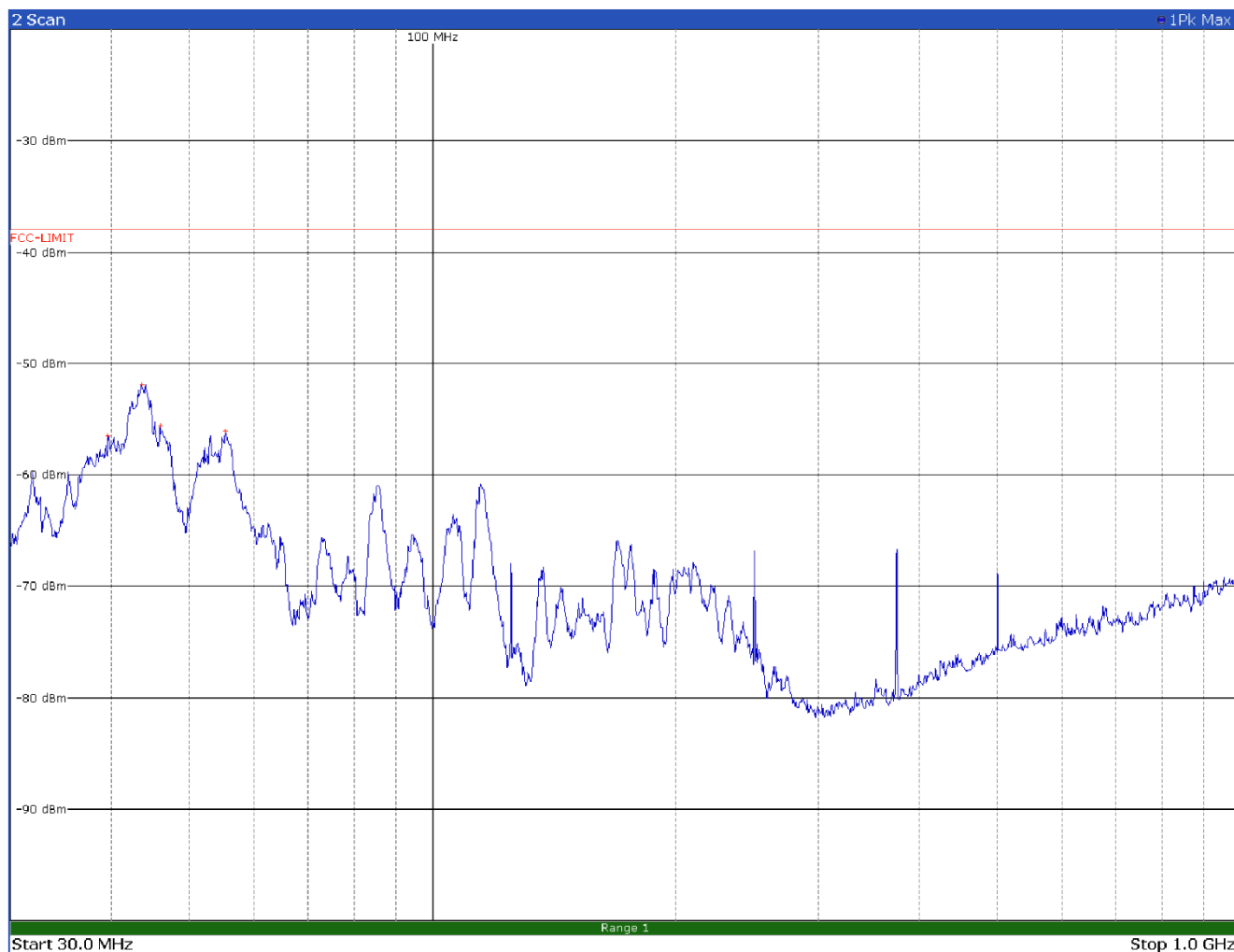
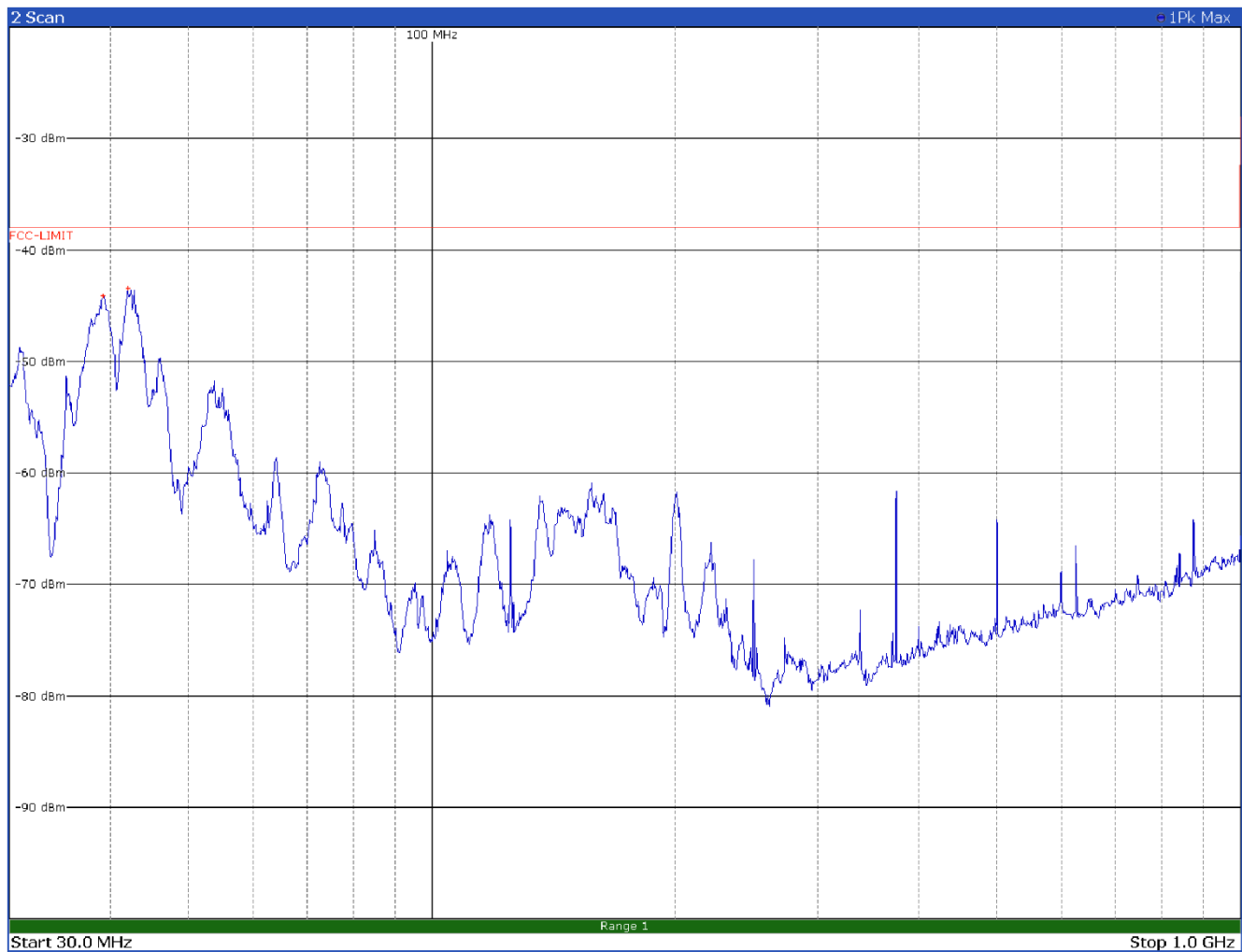


Figure 8.5-16: Radiated spurious emissions 18 to 40 GHz, 5910 MHz, 10 MHz OBW, vertical polarization



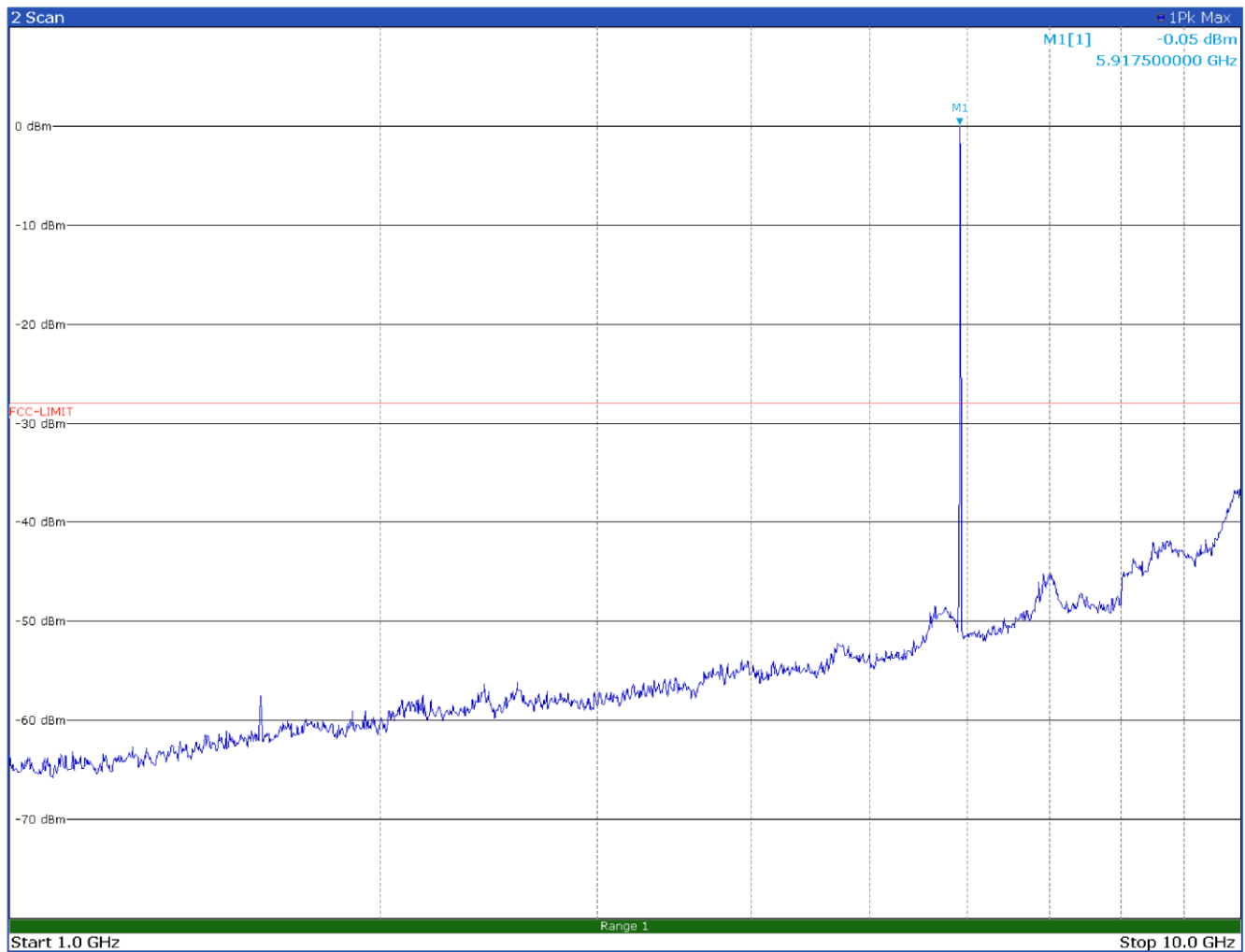
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
39.6300	-56.5	-38.0	-18.5
43.6200	-51.9	-38.0	-13.9
45.9600	-55.6	-38.0	-17.6
55.3800	-56.1	-38.0	-18.1

Figure 8.5-17: Radiated spurious emissions 30 to 1000 MHz, 5920 MHz, 10 MHz OBW, horizontal polarization



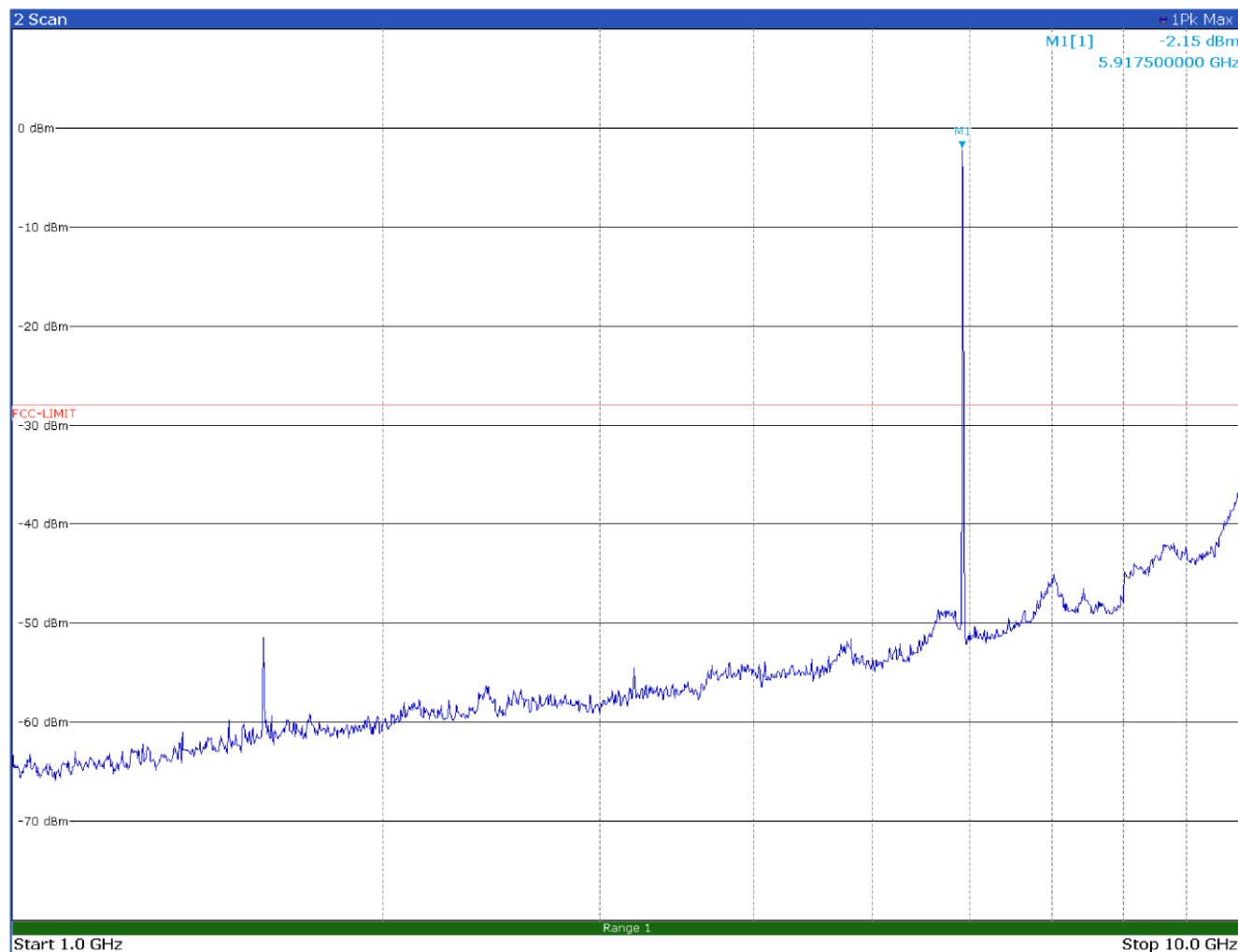
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
39.2100	-44.2	-38.0	-6.2
42.0300	-43.5	-38.0	-5.5

Figure 8.5-18: Radiated spurious emissions 30 to 1000 MHz, 5920 MHz, 10 MHz OBW, vertical polarization



Limit exceeded by the carrier

Figure 8.5-19: Radiated spurious emissions 1 to 10 GHz, 5920 MHz, 10 MHz OBW, horizontal polarization



Limit exceeded by the carrier

Figure 8.5-20: Radiated spurious emissions 1 to 10 GHz, 5920 MHz, 10 MHz OBW, vertical polarization

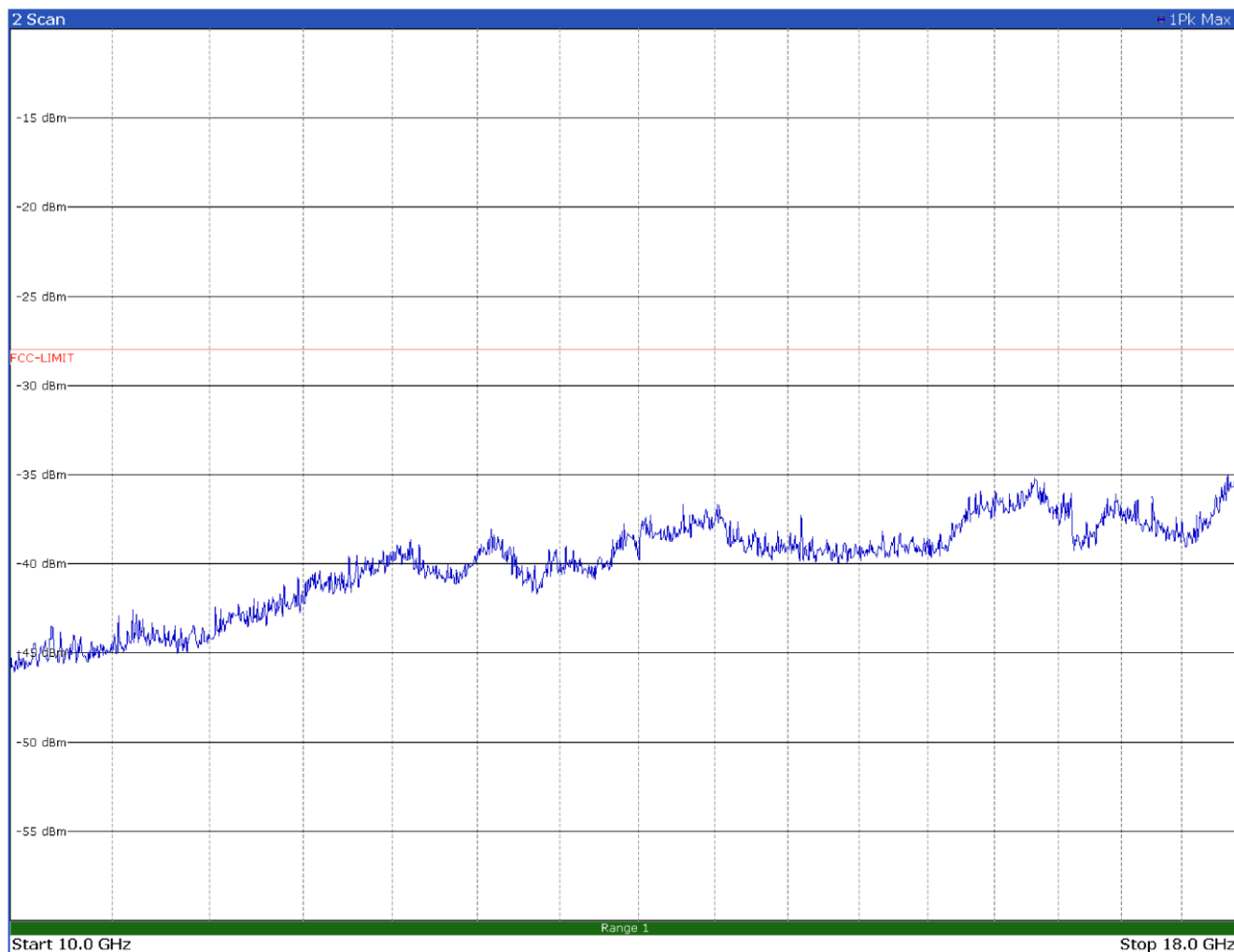


Figure 8.5-21: Radiated spurious emissions 10 to 18 GHz, 5920 MHz, 10 MHz OBW, horizontal polarization

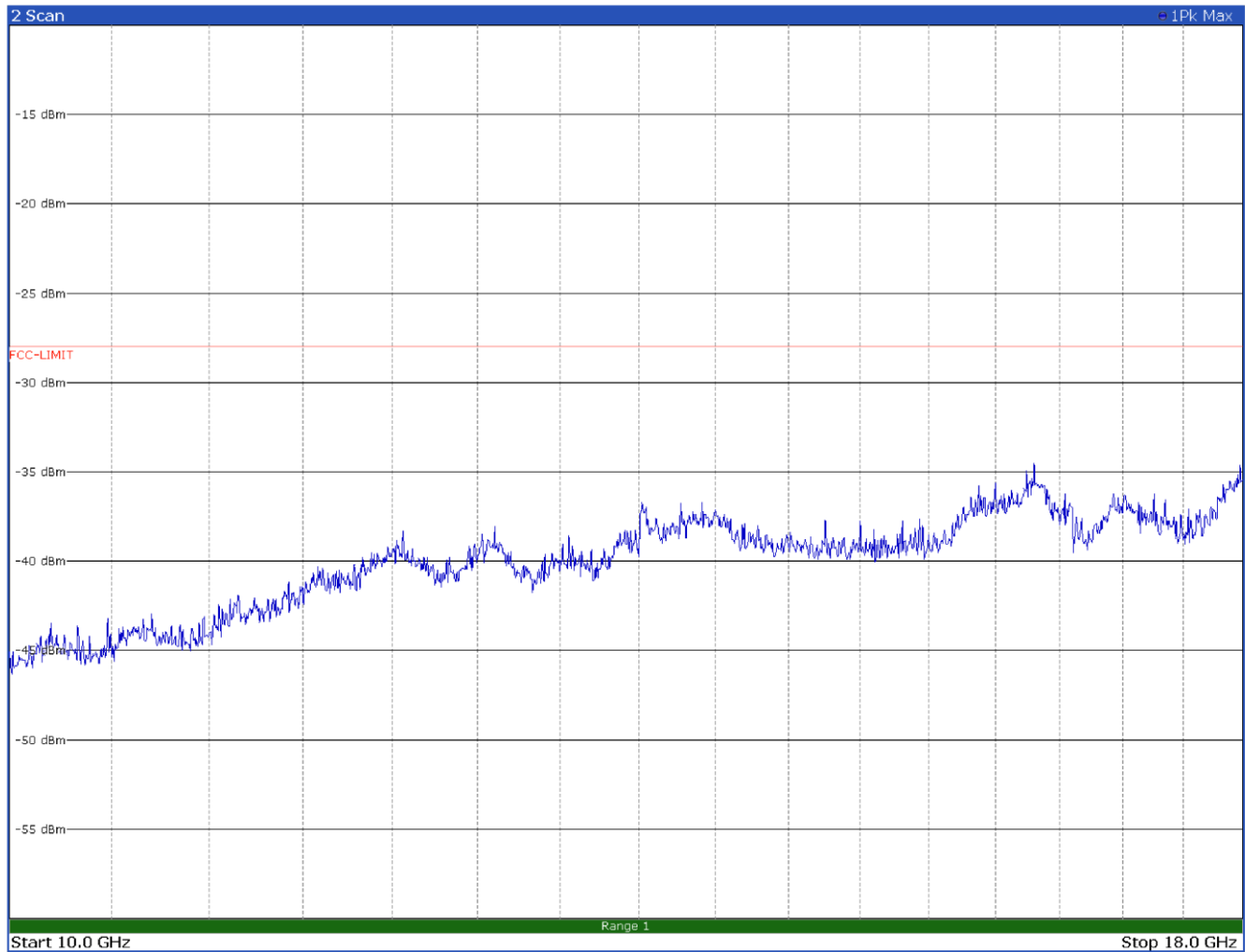


Figure 8.5-22: Radiated spurious emissions 10 to 18 GHz, 5920 MHz, 10 MHz OBW, vertical polarization

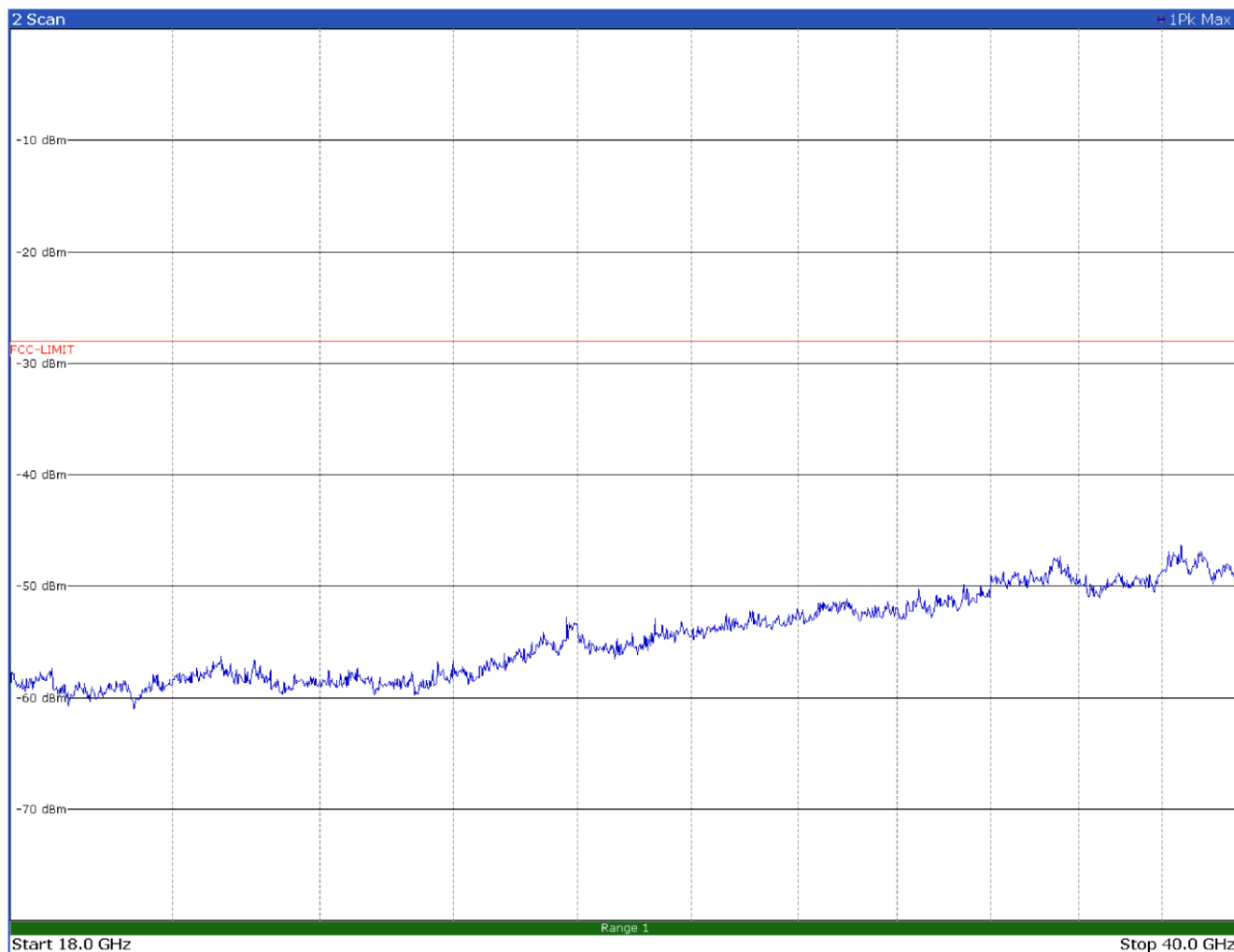


Figure 8.5-23: Radiated spurious emissions 18 to 40 GHz, 5920 MHz, 10 MHz OBW, horizontal polarization

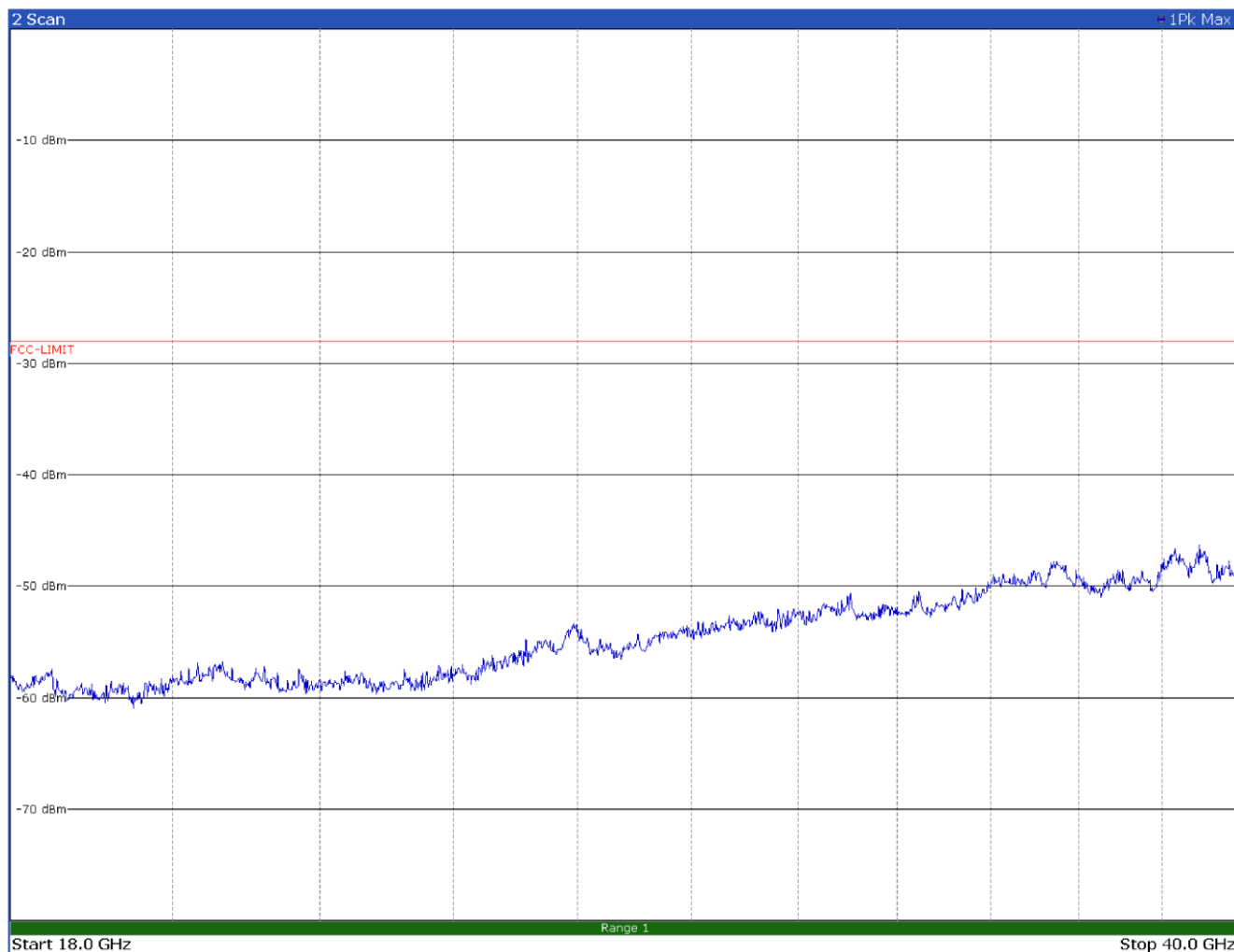
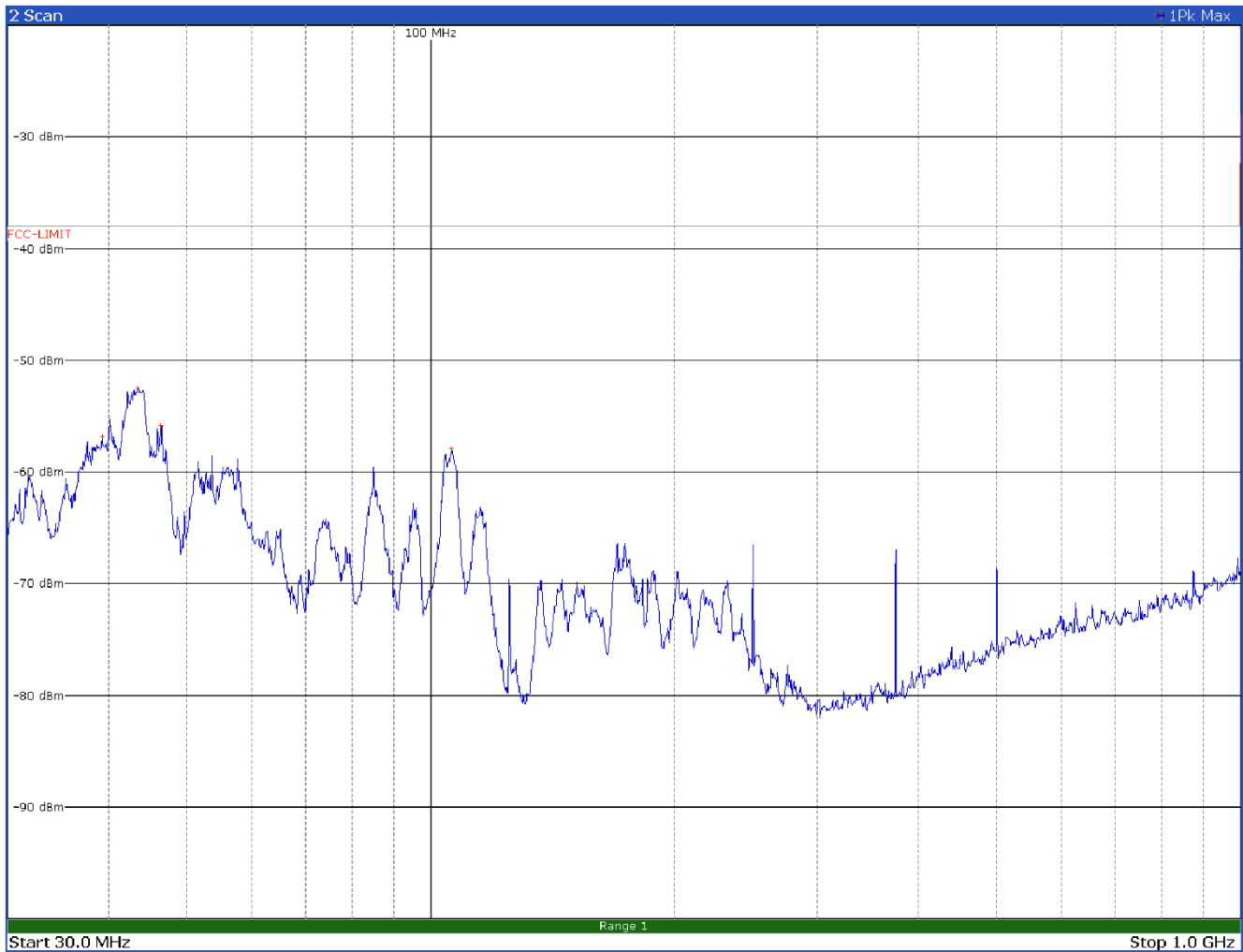
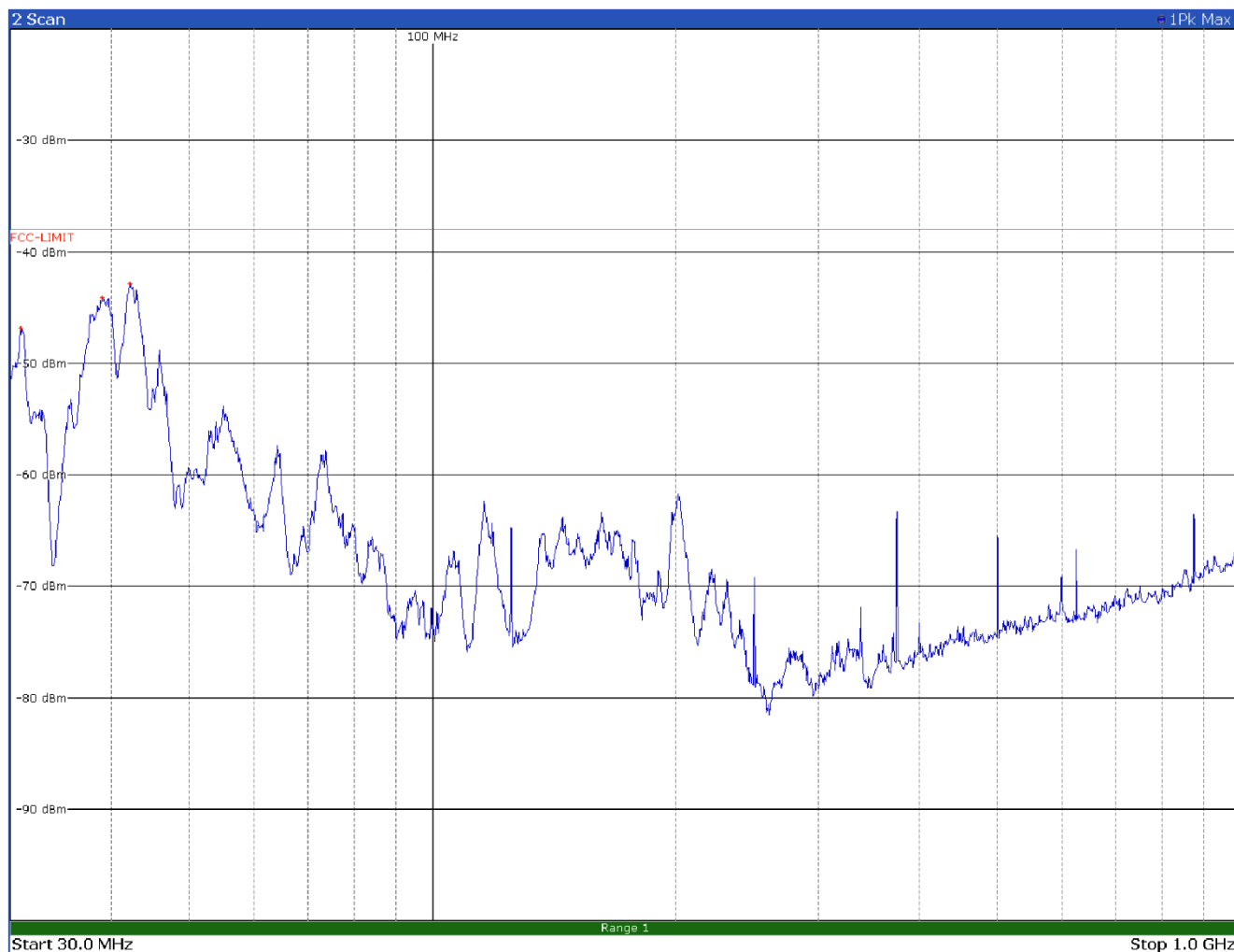


Figure 8.5-24: Radiated spurious emissions 18 to 40 GHz, 5920 MHz, 10 MHz OBW, vertical polarization



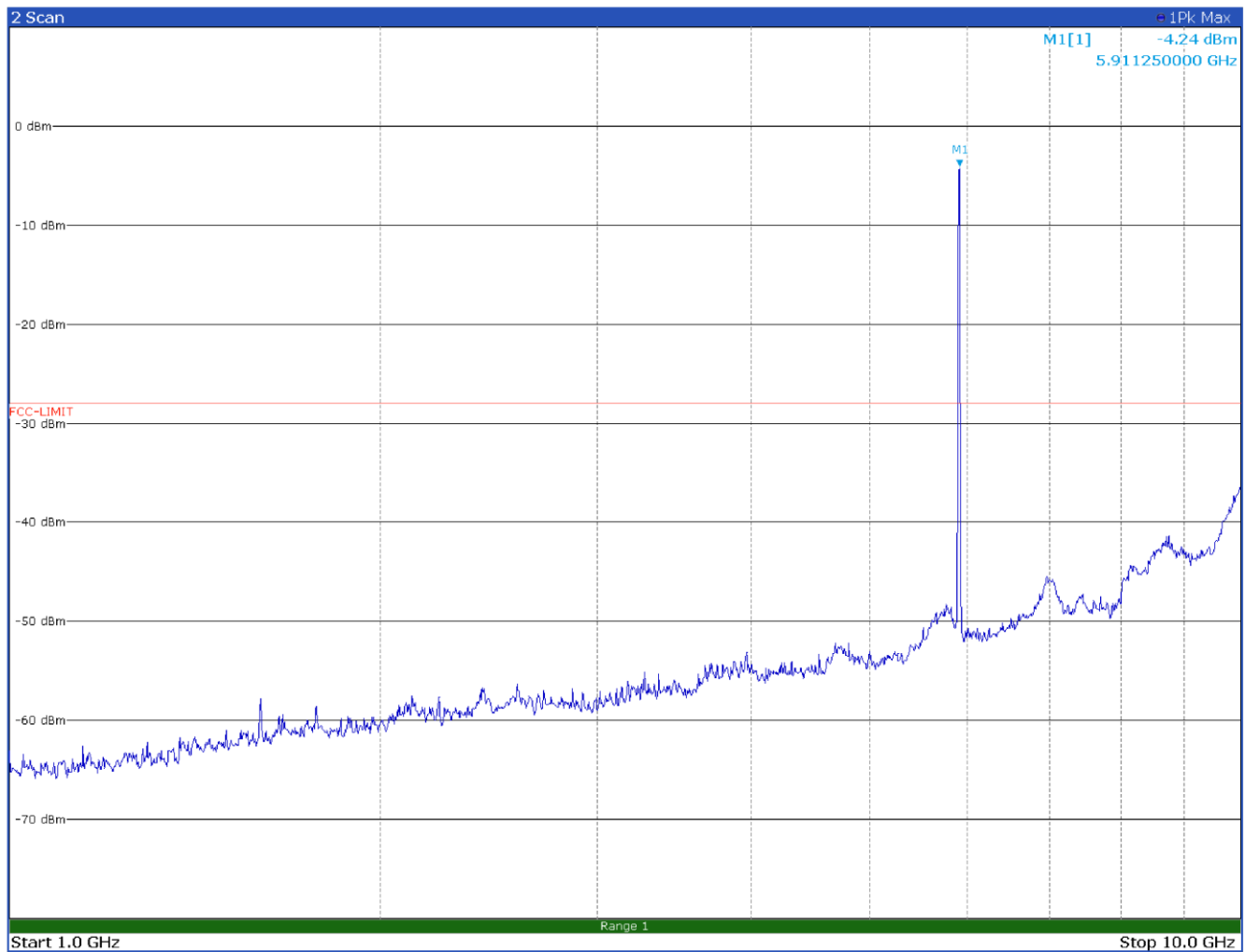
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
39.2400	-56.8	-38.0	-18.8
43.4400	-52.6	-38.0	-14.6
46.4400	-55.9	-38.0	-17.9
106.0800	-58.0	-38.0	-20.0

Figure 8.5-25: Radiated spurious emissions 30 to 1000 MHz, 5905 MHz, 20 MHz OBW, horizontal polarization



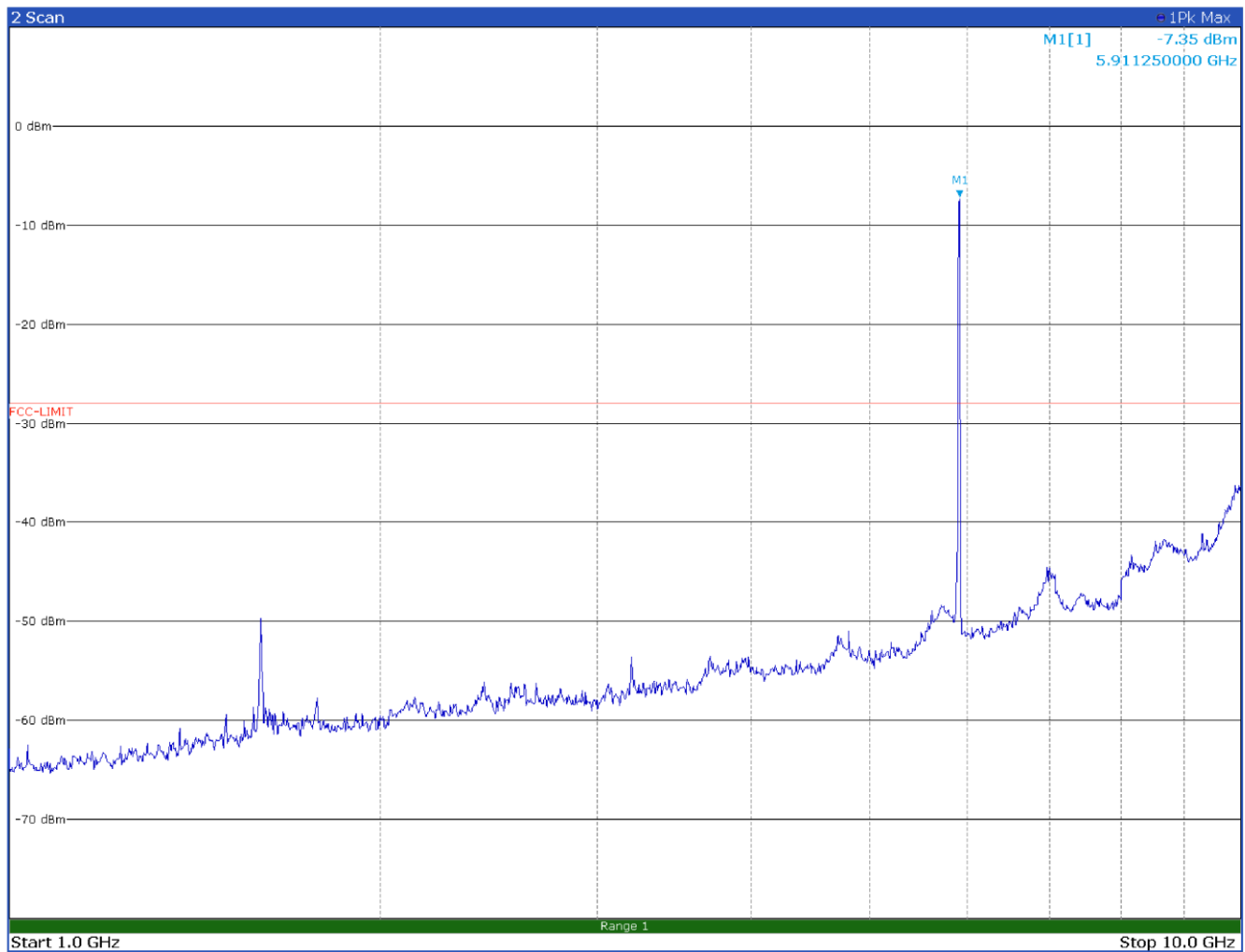
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
30.8700	-46.9	-38.0	-8.9
39.0000	-44.1	-38.0	-6.1
42.1800	-42.9	-38.0	-4.9

Figure 8.5-26: Radiated spurious emissions 30 to 1000 MHz, 5905 MHz, 20 MHz OBW, vertical polarization



Limit exceeded by the carrier

Figure 8.5-27: Radiated spurious emissions 1 to 10 GHz, 5905 MHz, 20 MHz OBW, horizontal polarization



Limit exceeded by the carrier

Figure 8.5-28: Radiated spurious emissions 1 to 10 GHz, 5905 MHz, 20 MHz OBW, vertical polarization

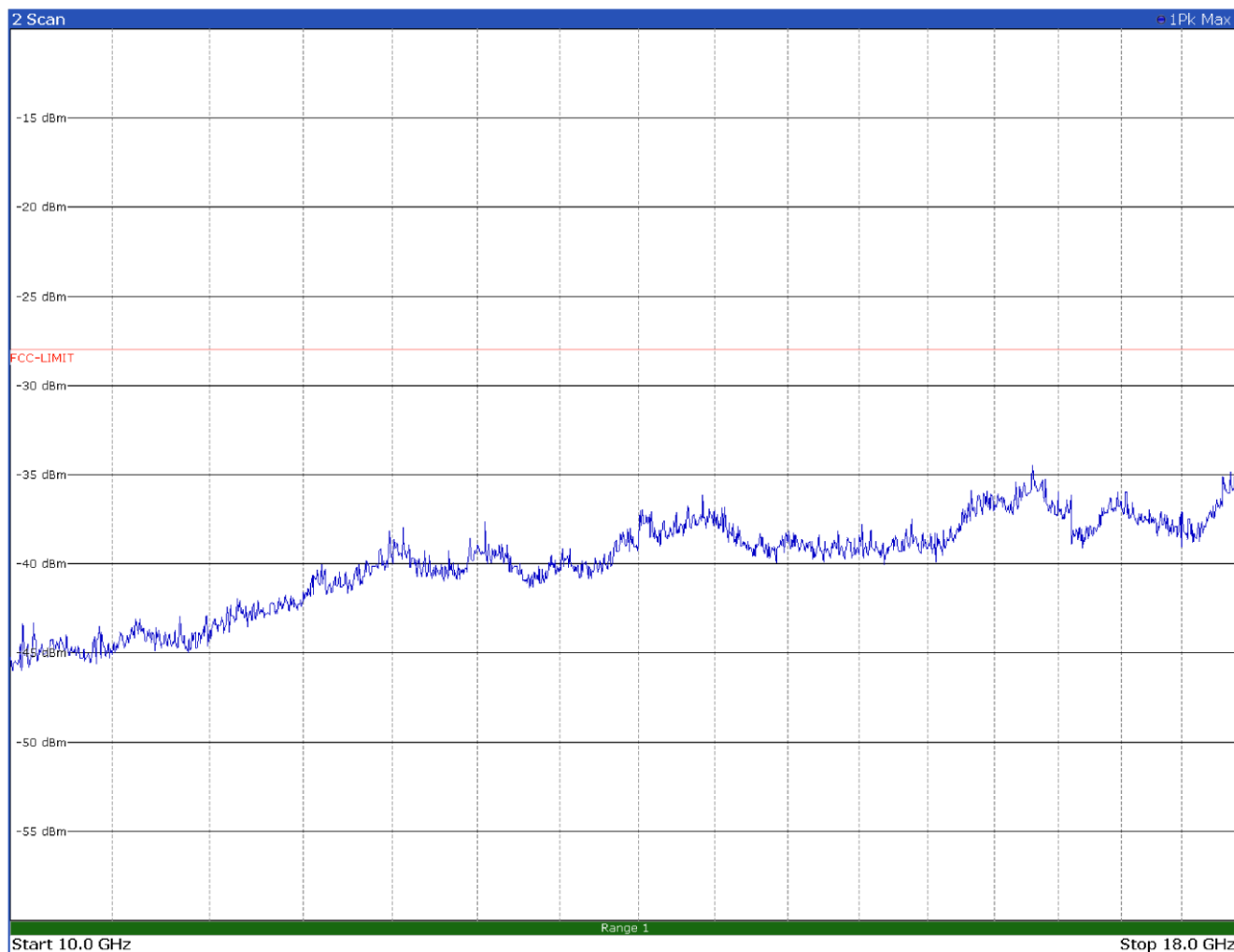


Figure 8.5-29: Radiated spurious emissions 10 to 18 GHz, 5905 MHz, 20 MHz OBW, horizontal polarization

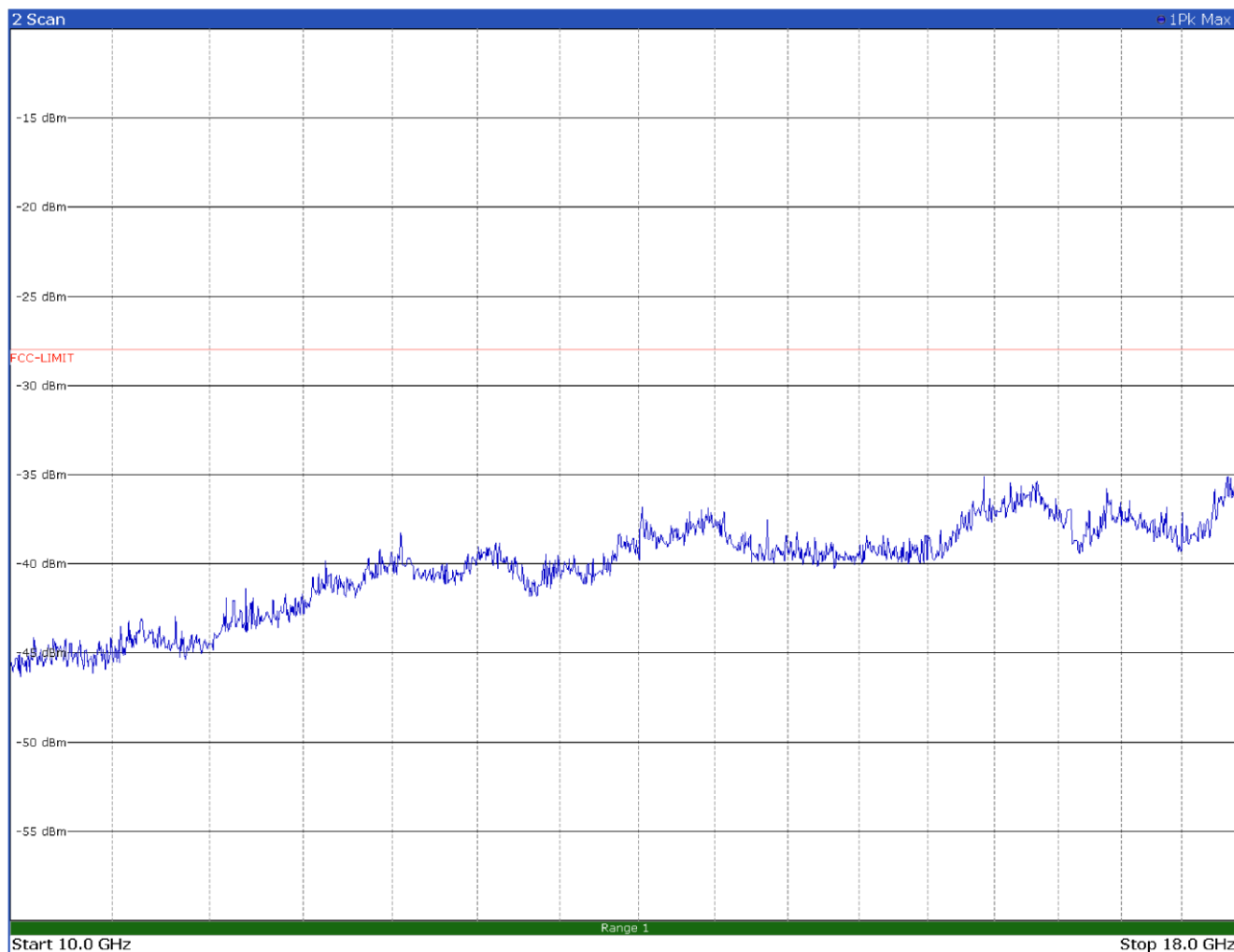


Figure 8.5-30: Radiated spurious emissions 10 to 18 GHz, 5905 MHz, 20 MHz OBW, vertical polarization

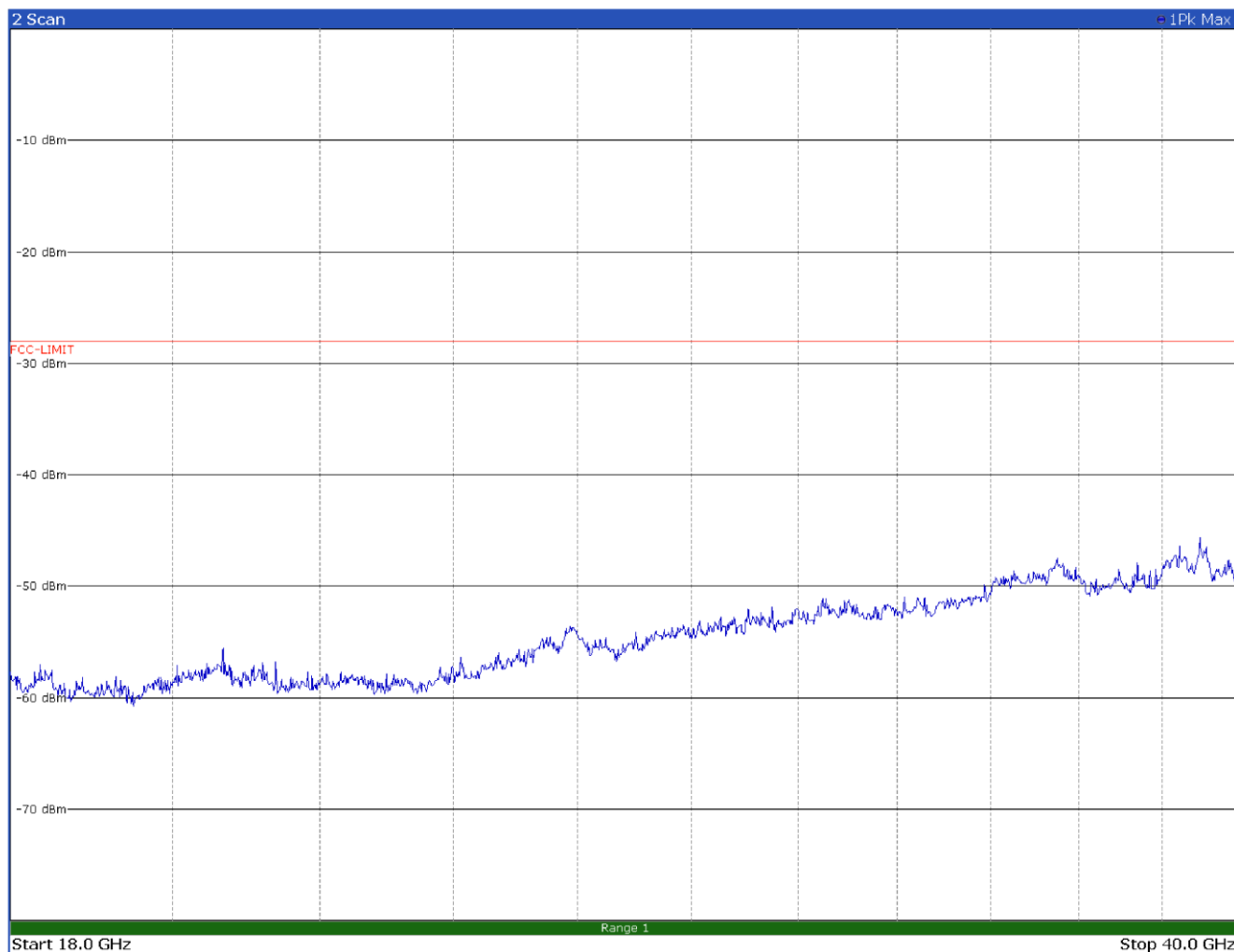


Figure 8.5-31: Radiated spurious emissions 18 to 40 GHz, 5905 MHz, 20 MHz OBW, horizontal polarization

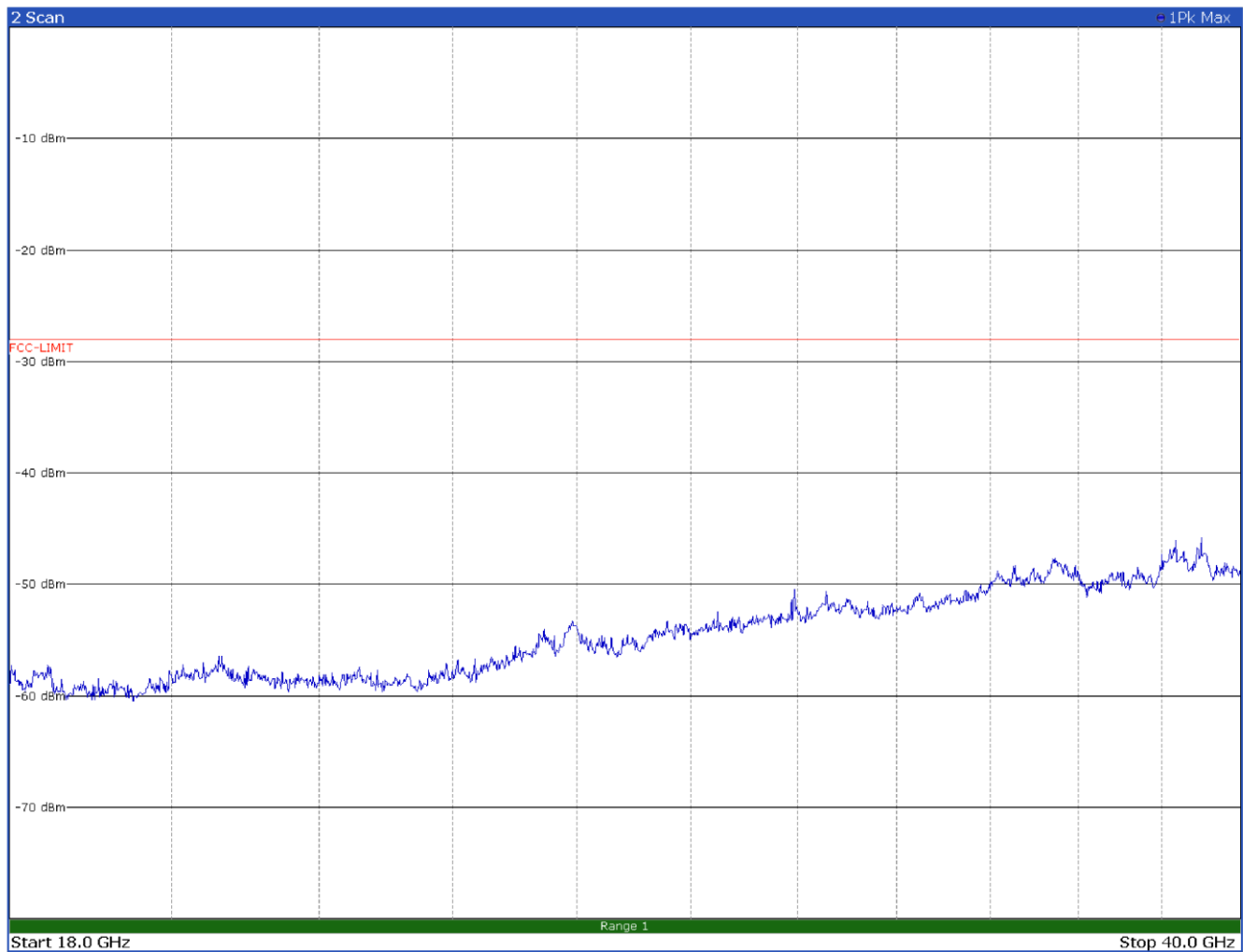
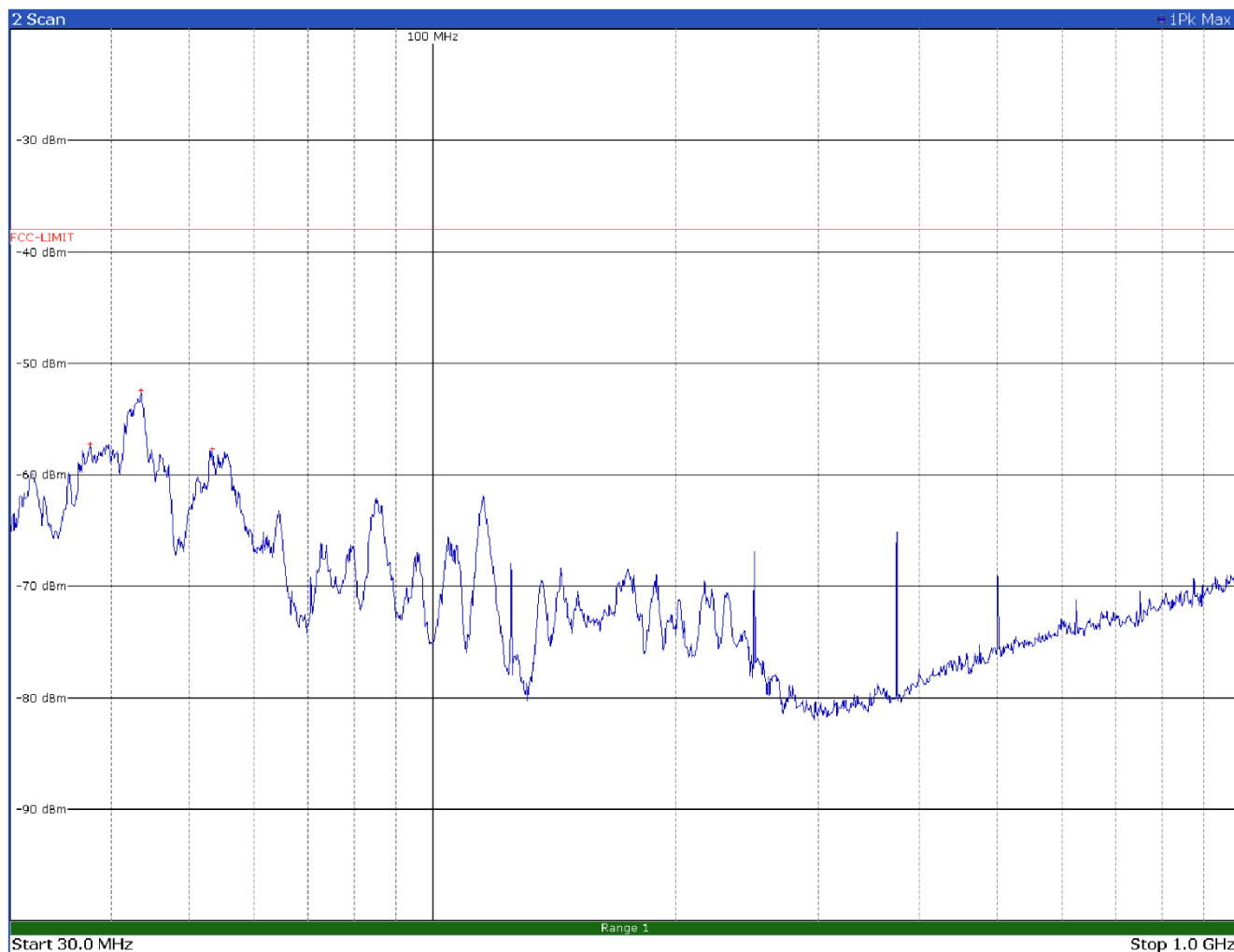
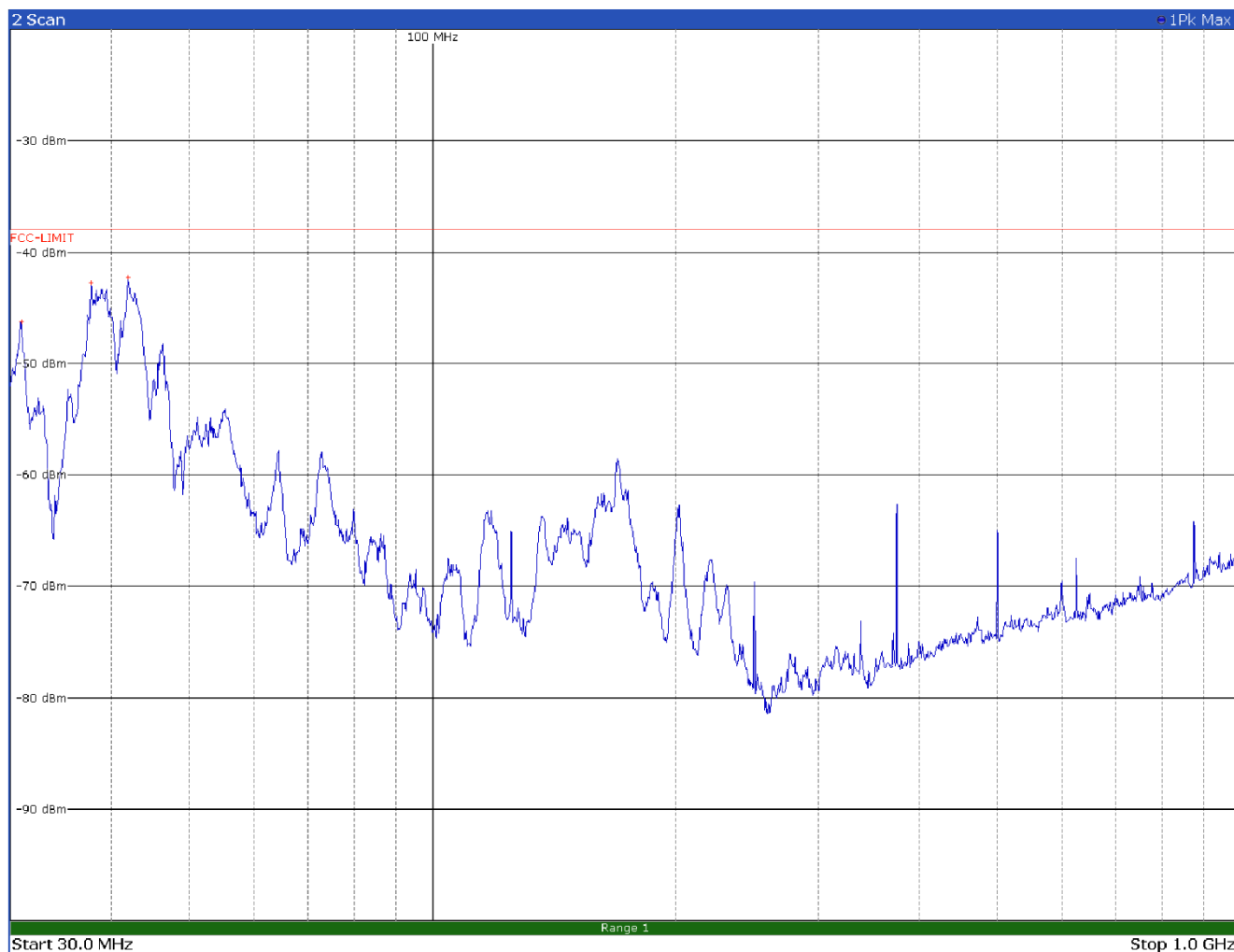


Figure 8.5-32: Radiated spurious emissions 18 to 40 GHz, 5905 MHz, 20 MHz OBW, vertical polarization



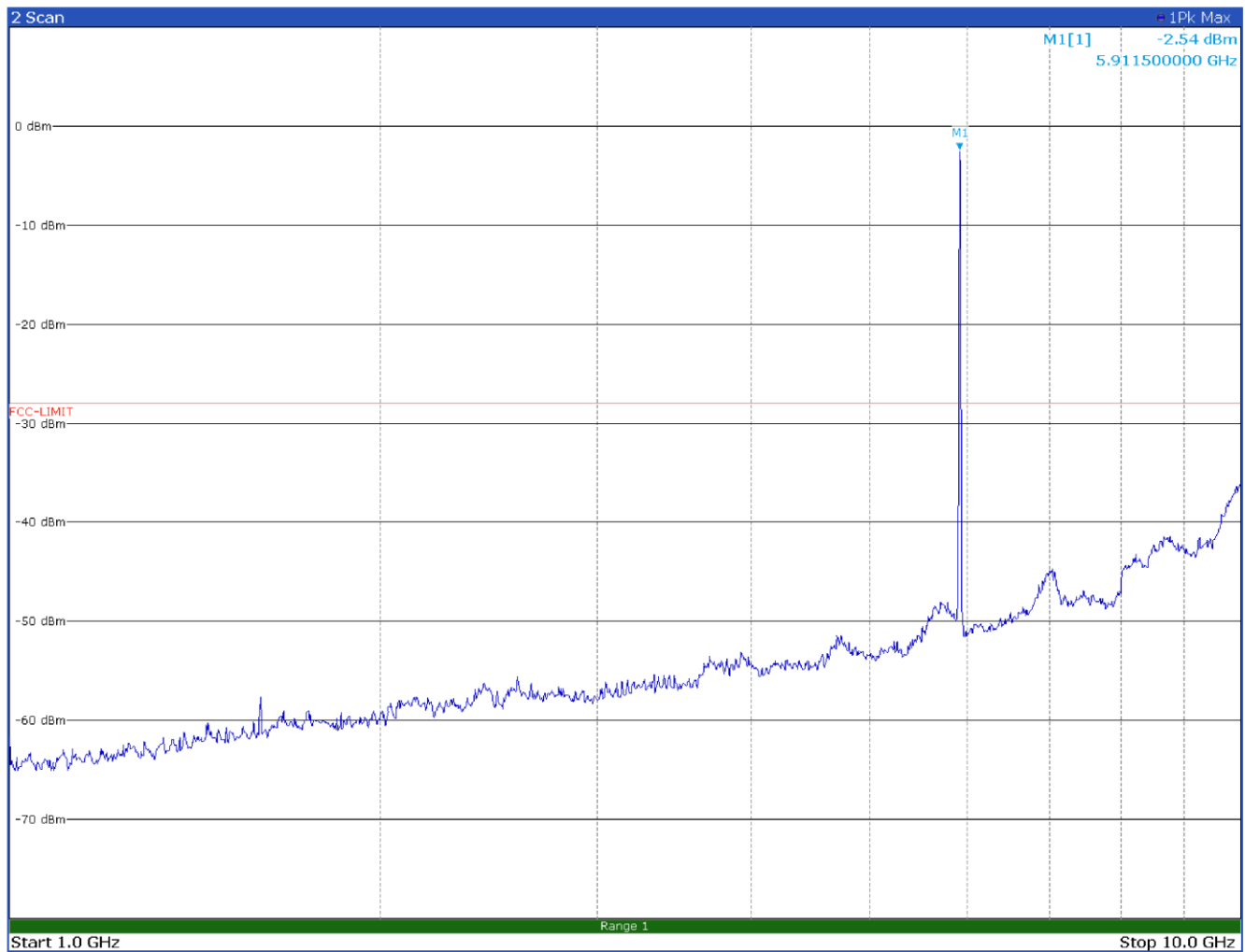
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
37.6800	-57.3	-38.0	-19.3
43.5600	-52.5	-38.0	-14.5
53.3400	-57.7	-38.0	-19.7

Figure 8.5-33: Radiated spurious emissions 30 to 1000 MHz, 5915 MHz, 20 MHz OBW, horizontal polarization



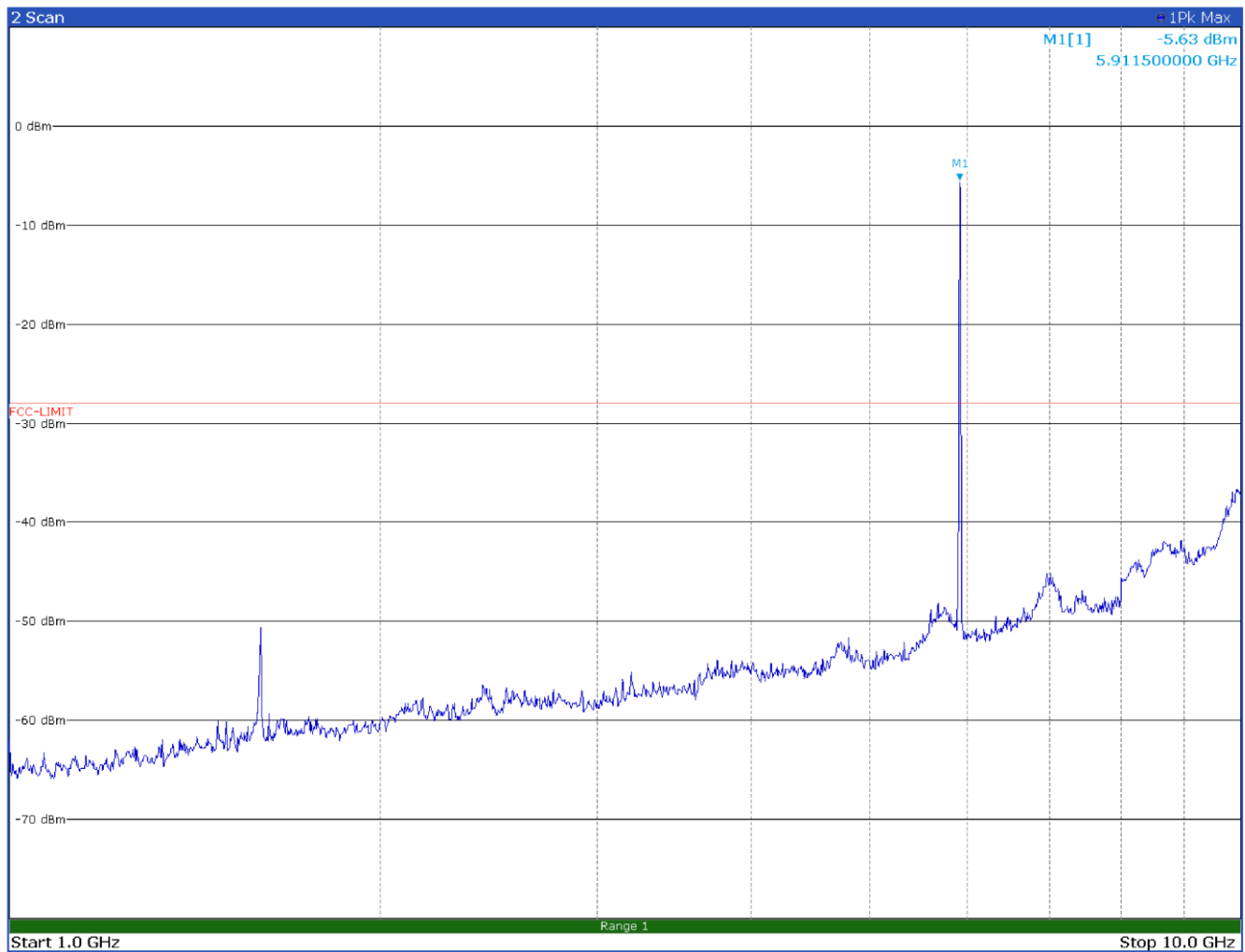
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
30.9300	-46.3	-38.0	-8.3
37.7700	-42.8	-38.0	-4.8
41.9400	-42.3	-38.0	-4.3

Figure 8.5-34: Radiated spurious emissions 30 to 1000 MHz, 5915 MHz, 20 MHz OBW, vertical polarization



Limit exceeded by the carrier

Figure 8.5-35: Radiated spurious emissions 1 to 10 GHz, 5915 MHz, 20 MHz OBW, horizontal polarization



Limit exceeded by the carrier

Figure 8.5-36: Radiated spurious emissions 1 to 10 GHz, 5915 MHz, 20 MHz OBW, vertical polarization

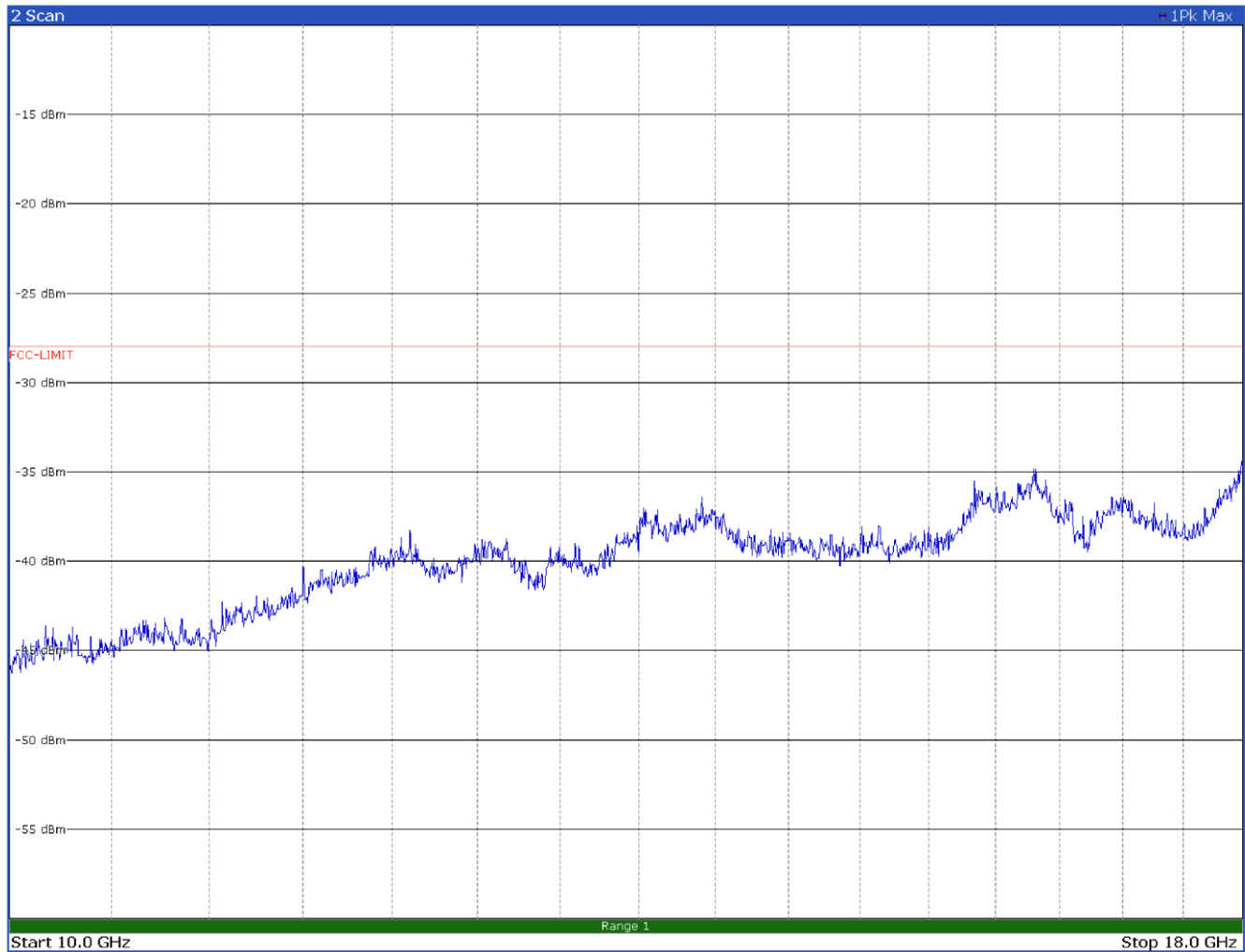


Figure 8.5-37: Radiated spurious emissions 10 to 18 GHz, 5915 MHz, 20 MHz OBW, horizontal polarization

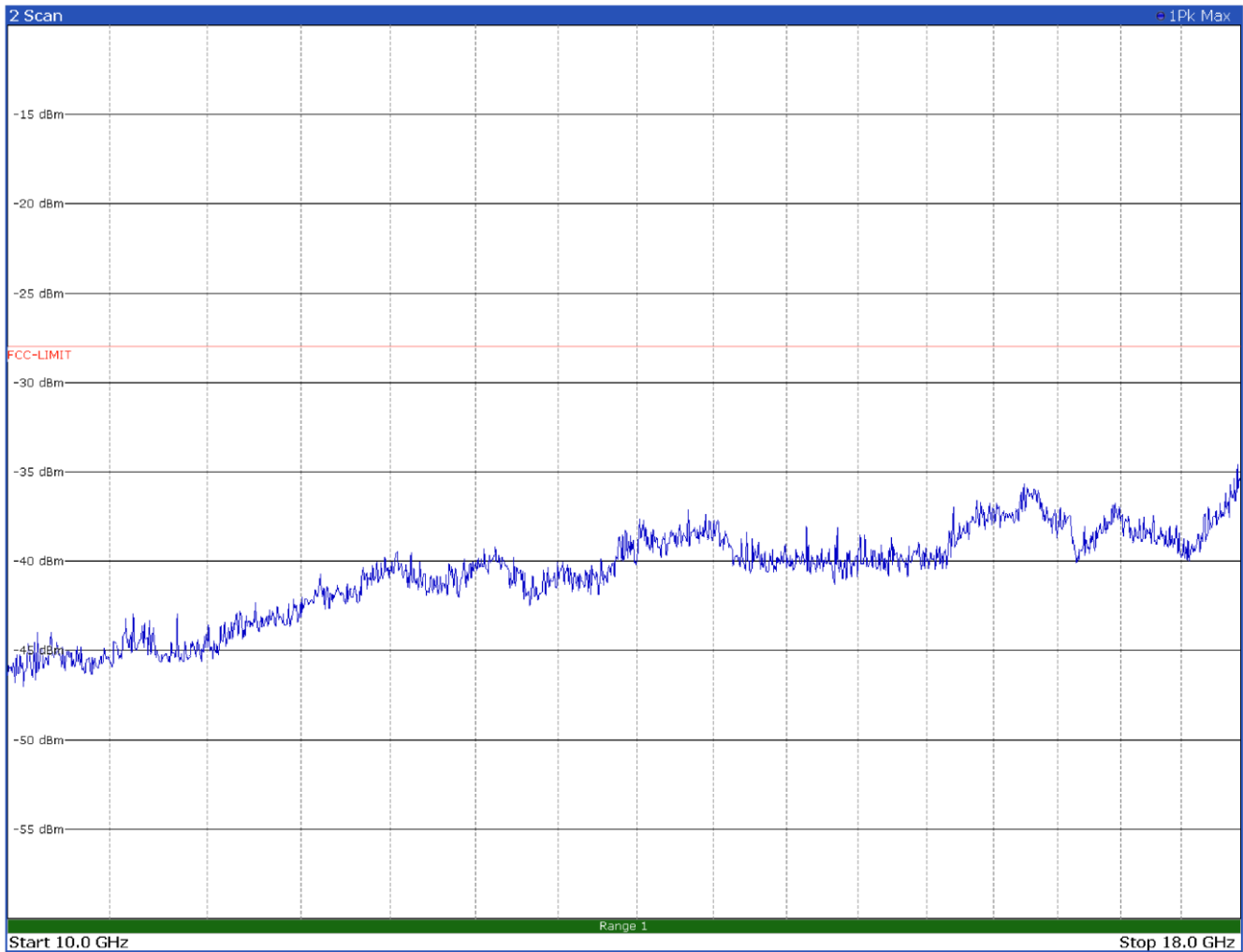


Figure 8.5-38: Radiated spurious emissions 10 to 18 GHz, 5915 MHz, 20 MHz OBW, vertical polarization

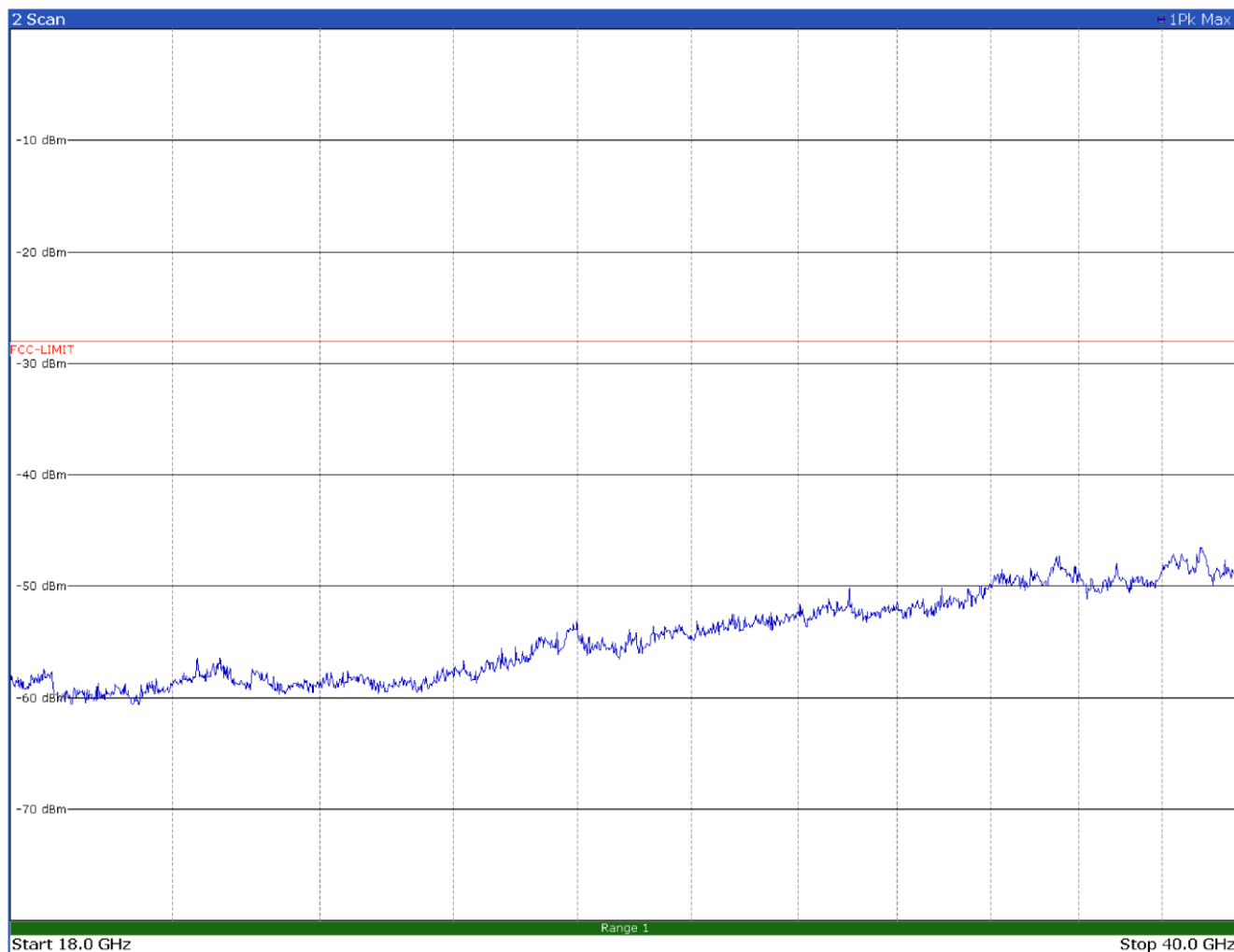


Figure 8.5-39: Radiated spurious emissions 18 to 40 GHz, 5915 MHz, 20 MHz OBW, horizontal polarization

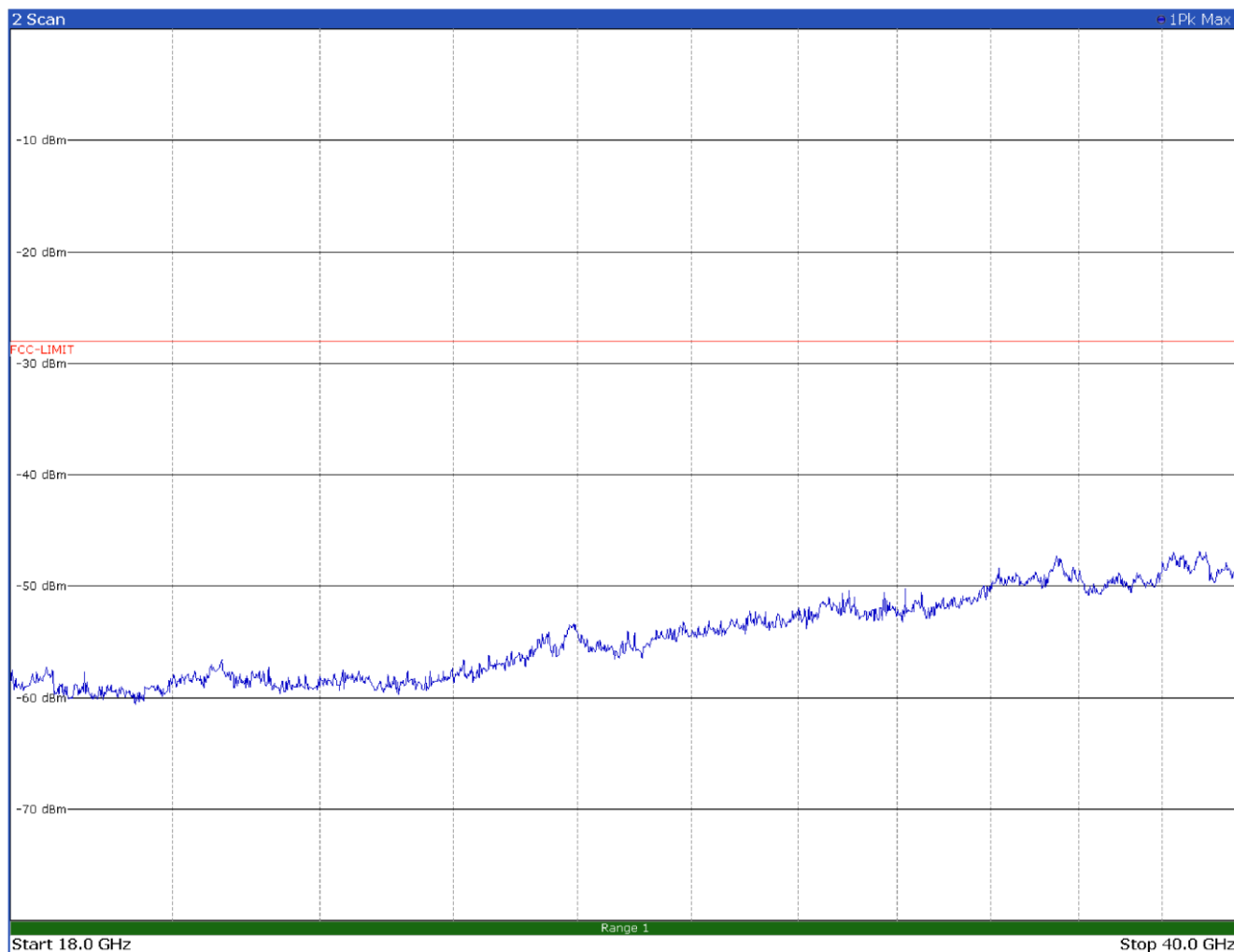


Figure 8.5-40: Radiated spurious emissions 18 to 40 GHz, 5915 MHz, 20 MHz OBW, vertical polarization

8.6 Frequency stability measurements

8.6.1 References, definitions and limits

§ 90.379 Technical standards for Roadside Units.

DSRCS Roadside Units (RSUs) operating in the 5895-5925 MHz band must comply with the technical standard Institute of Electrical and Electronics Engineers (IEEE) 802.11p-2010 (incorporated by reference, see § 90.395).

§ 2.1055 Measurements required: Frequency stability.

(a) The frequency stability shall be measured with variation of ambient temperature as follows:

(1) From -30° to + 50° centigrade for all equipment except that specified in paragraphs (a) (2) and (3) of this section.

8.6.2 Test summary

Verdict	Pass		
Tested by	O. Frau	Test date	May 12, 2025

8.6.3 Observations, settings and special notes

Testing was performed per ANSI C63.26 Paragraphs 5.6.3, 5.6.4 and 5.6.5 methods.

8.6.4 Test equipment used

Equipment	Manufacturer	Model no.	Asset no.
EMI Receiver	Rohde & Schwarz	ESW44	101620
Climatic Chamber	MSL	EC500DA	15022

Notes: NCR - no calibration required, VOU - verify on use

8.6.5 Test data

Table 8.6-1: Transmitter frequency stability results for antenna port 1, OBW 20 MHz, 5915 MHz

Test conditions	Frequency, Hz	Drift, Hz	Drift, ppm	Limit $\pm$ ppm	Margin, $\pm$ ppm
+50 °C, Nominal	5915000626.6	1235	0.21	20	-19.79
+40 °C, Nominal	5915000524.0	1132	0.19	20	-19.81
+30 °C, Nominal	5915000247.0	855	0.14	20	-19.86
+20 °C, -15% voltage	5914999392.0	0	0.00	20	-20.00
+20 °C, Nominal	5914999392.0	Reference	Reference	Reference	Reference
+20 °C, +15% voltage	5914999392.0	0	0.00	20	-20.00
+10 °C, Nominal	5914999257.0	-135	-0.02	20	-20.02
0 °C, Nominal	5915000379.0	987	0.17	20	-19.83
-10 °C, Nominal	5915001642.0	2250	0.38	20	-19.62
-20 °C, Nominal	5915004718.0	5326	0.90	20	-19.10
-30 °C, Nominal	5915006247.3	6855	1.16	20	-18.84

Table 8.6-2: Transmitter frequency stability results for antenna port 2, OBW 20 MHz, 5915 MHz

Test conditions	Frequency, Hz	Drift, Hz	Drift, ppm	Limit $\pm$ ppm	Margin, $\pm$ ppm
+50 °C, Nominal	5915000617.0	1225	0.21	20	-19.79
+40 °C, Nominal	5914999504.0	112	0.02	20	-19.98
+30 °C, Nominal	5915000258.0	866	0.15	20	-19.85
+20 °C, -15% voltage	5914999392.0	0	0.00	20	-20.00
+20 °C, Nominal	5914999392.0	Reference	Reference	Reference	Reference
+20 °C, +15% voltage	5914999392.0	0	0.00	20	-20.00
+10 °C, Nominal	5914999249.0	-143	-0.02	20	-20.02
0 °C, Nominal	5915000375.0	983	0.17	20	-19.83
-10 °C, Nominal	5915001632.0	2240	0.38	20	-19.62
-20 °C, Nominal	5915004649.0	5257	0.89	20	-19.11
-30 °C, Nominal	5915006237.0	6845	1.16	20	-18.84

Section 9 EUT photos

9.1 Setup photos

See “Annex A” exhibit.

9.2 External photos

See “Annex A” exhibit.