



TEST REPORT

Eurofins KCTL Co.,Ltd. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea TEL: 82-70-4904-0113 FAX: 82-505-299-8311 www.kctl.co.kr	Report No.: KR26-SRF0127-A Page(1) of (41)	eurofins KCTL
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1. Client

- Name : ORBRO Inc.
- Address : B-12F, uspace 1, 660 Daewangpangyo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
- Date of Receipt : 2026-05-12

2. Use of Report : Certification

3. Name of Product / Model : UWB Transceiver Module / MDUW9991

4. Manufacturer / Country of Origin : ORBRO Inc. / Korea

5. FCC ID : 2BVUOMDUW9991

6. Date of Test : 2026-05-26 to 2026-06-25

7. Location of Test : ☒ Permanent Testing Lab ☐ On Site Testing
 (Address: 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea)

8. Test method used : FCC Part 15 Subpart F, 15.519

9. Test Result : Refer to the test result in the test report

Affirmation	Tested by Name : Jungwon Seo (Signature)	Technical Manager Name : Bobae Lee (Signature)
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2026-06-30

Eurofins KCTL Co.,Ltd.

As a test result of the sample which was submitted from the client, this report does not guarantee the whole product quality. This test report should not be used and copied without a written agreement by Eurofins KCTL Co.,Ltd.

Eurofins KCTL Co.,Ltd. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea TEL: 82-70-4904-0113 FAX: 82-505-299-8311 www.kctl.co.kr	Report No.: KR26-SRF0127-A Page (2) of (41)	
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REPORT REVISION HISTORY

Date	Revision	Page No
2026-06-19	Originally issued	-
2026-06-30	Updated	6, 39~40

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Note. The report No. KR26-SRF0127 is superseded by the report No. KR26-SRF0127-A.

General remarks for test reports

Statement concerning the uncertainty of the measurement systems used for the tests

(may be required by the product standard or client)

☐ Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:

Procedure number, issue date and title:

Calculations leading to the reported values are on file with the testing laboratory that conducted the testing.

☒ Statement not required by the standard or client used for type testing

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1. General information

Client : ORBRO Inc.
 Address : B-12F, uspace 1, 660 Daewangpangyo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
 Manufacturer : ORBRO Inc.
 Address : B-12F, uspace 1, 660 Daewangpangyo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
 Laboratory : Eurofins KCTL Co.,Ltd.
 Address : 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea
 Accreditations : FCC Site Designation No: KR0040, FCC Site Registration No: 687132
 VCCI Registration No. : R-20080, G-20078, C-20059, T-20056
 CAB Identifier: KR0040, ISED Number: 8035A
 KOLAS No.: KT231

2. Device information

Equipment under test : UWB Transceiver Module
 Model : MDUW9991
 Frequency range : 6 489.6 MHz, 7 987.2 MHz
 Modulation technique : BPSK
 Number of channels : 2 ch
 Power source : DC 3.3 V
 Antenna type : PCB antenna
 Antenna gain : 6 489.6 MHz -14.34 dBi
 7 987.2 MHz -20.14 dBi
 Software version : 0.0.1
 Hardware version : 0.1
 Test device serial No. : UMmmdd000001
 Operation temperature : -40 °C ~ 85 °C

2.1. Accessory information

Equipment	Manufacturer	Model	Serial No.	Power Source
Test jig	ORBRO Inc.	OTR-UTUW2062_V01	-	DC 3.3 V

2.2. Frequency/channel operations

This device contains the following capabilities:
 Ultra-Wideband

Ch.	Frequency (MHz)
5	6 489.6
9	7 987.2

Table 2.2.1. Ultra-Wideband

2.3. EUT Description

Equipment Description	Channel	Configuration	Packet Length [Bytes]	Preamble
Handheld Device	5	SP0	128	9
	9	SP0	128	9

2.4. RF power setting in TEST SW

Channel	Configuration	Preamble	Frequency (MHz)	Power Setting
5	SP0	9	6 489.6	-
9	SP0	9	7 987.2	-

3. Antenna requirement

Requirement of FCC part section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

- The transmitter has attached PCB Antenna(internal antenna) on the board.
- The E.U.T Complies with the requirement of §15.203

4. Summary of tests

FCC Part section(s)	Parameter	Test Condition	Test results
15.503(a)	10 dB Bandwidth	Radiated	Pass
15.519(c)(e)	Peak Power & Maximum Average Emission		Pass
15.519(c)	Radiated Emissions Above 960 MHz		Pass
15.519(d)	Radiated Emission in the 1 164 – 1 240 MHz and 1 559 – 1 610 MHz GPS Bands		Pass
15.209	Radiated Emissions Below 960 MHz		Pass
15.519(a)(1)	Cease Transmission Time		Pass
15.207	AC Line Conducted Emission		Pass

Notes:

1. All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
2. According to exploratory test no any obvious emission were detected from 9 kHz to 30 MHz. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30 m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.
3. The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z. It was determined that X orientation was worst-case orientation. Therefore, all final radiated testing was performed with the EUT in X orientation
4. The test procedure(s) in this report were performed in accordance as following.
 - ◆ ANSI C63.10-2020+Cor.1-2023
 - ◆ KDB 393764 D01 UWB FAQ v02

5. Measurement uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2020.

All measurement uncertainty values are shown with a coverage factor of $k=2$ to indicated a 95 % level of confidence. The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded uncertainty ($\pm$)	
Radiated Emissions	Below 30 MHz	2.4 dB
	30 MHz to 1 000 MHz	2.6 dB
	1 000 MHz to 18 000 MHz	4.7 dB
	Above 18 000 MHz	4.8 dB

6. Test results

6.1. 10 dB Bandwidth

Limit

According to §15.503(a), For the purpose of this subpart, the UWB bandwidth is the frequency band bounded by the points that are 10 dB below the highest radiated emission, as based on the complete transmission system including the antenna. The upper boundary is designated f_H and the lower boundary is designated f_L . The frequency at which the highest radiated emission occurs is designated f_M .

Center frequency. The center frequency, f_C , equals $(f_H + f_L) / 2$.

Fractional bandwidth. The fractional bandwidth equals $2(f_H - f_L) / (f_H + f_L)$.

Ultra-wideband (UWB) transmitter. An intentional radiator that, at any point in time, has a fractional bandwidth equal to or greater than 0.20 or has a UWB bandwidth equal to or greater than 500 MHz, regardless of the fractional bandwidth.

According to §15.519(b), The UWB bandwidth of a device operating under the provisions of this section must be contained between 3 100 MHz and 10 600 MHz.

Test procedure

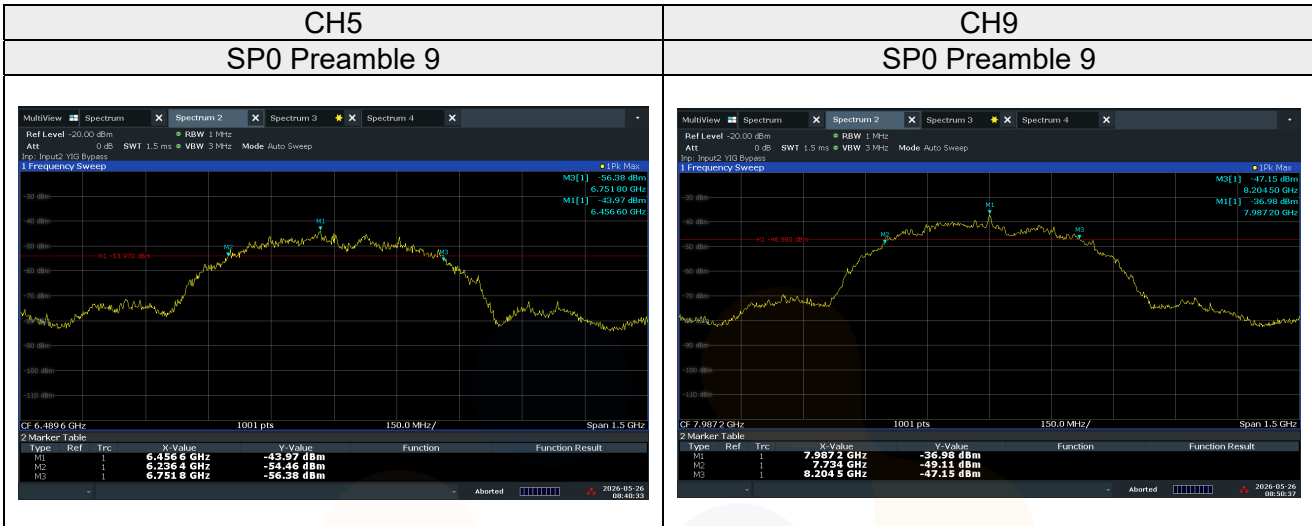
ANSI C63.10 - Section 10.1

Test settings

RBW	1 MHz
VBW	1 MHz or greater.
Detector	Peak
Trace mode	Max-hold
Sweep	Auto couple
The trace was allowed to stabilize	

Test results

Channel	Configure	Preamble	F _M [MHz]	F _L [MHz]	F _H [MHz]	F _C [MHz]	BW [MHz]	Limit [MHz]
5	SP0	9	6 456.60	6 236.40	6 751.80	6 494.10	515.40	500.00
9	SP0	9	7 987.20	7 732.50	8 238.90	7 985.70	506.40	500.00



Notes:

- $F_c = (F_H + F_L) / 2$
 $BW = F_H - F_L$
- Limit : 10 dB BW $\geq$ 500 MHz

6.2. Peak Power & Maximum Average Emission

Limit

According to §15.519(c), The radiated emissions at or below 960 MHz from a device operating under the provisions of this section shall not exceed the emission levels in §15.209. The radiated emissions above 960 MHz from a device operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz:

Frequency in MHz	EIRP in dBm
3 100-10 600	-41.3

According to §15.519(e) peak level of the emissions contained within a 50 MHz bandwidth centered on the frequency at which the highest radiated emission occurs, f_M . That limit is 0 dBm EIRP

Test procedure

ANSI C63.10 – Section 10.3.5 and 10.3.7

Test settings

Peak EIRP Measurements

RBW 50 MHz
 VBW 50 MHz
 Detector Peak
 Trace mode Max-hold
 Sweep Auto couple
 The trace was allowed to stabilize

Average EIRP Measurements

RBW 1 MHz
 VBW 3 MHz
 Detector Average(RMS)
 Trace mode Max-hold
 Sweep time No more than a 1 ms integration period over each measurement bin
 The trace was allowed to stabilize

Test results

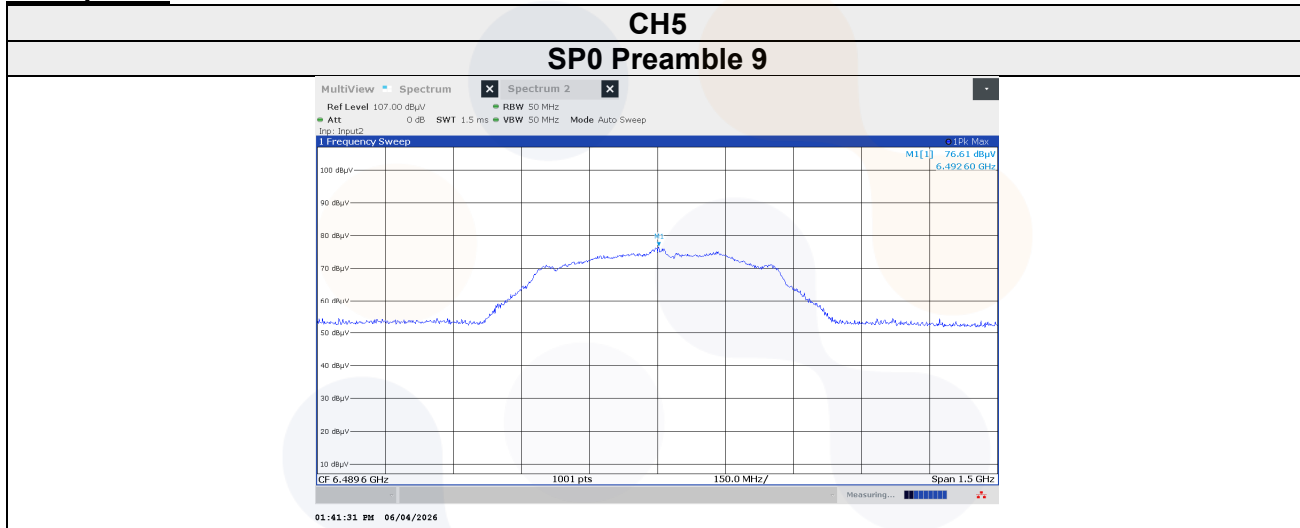
[CH 5_SP0_Preamble 9_Peak Power]

Frequency [MHz]	Pol. [V/H]	Reading [dBμV/50MHz]	Ant. Factor [dB]	Amp. + Cable [dB]	Conv. Factor [dB]	Result [dBμV/50MHz]	Result [dBm/50MHz]	Limit [dBm/50MHz]	Margin [dB]
6 489.60	V	76.61	35.59	-42.17	-	70.03	-25.27	0.00	25.27

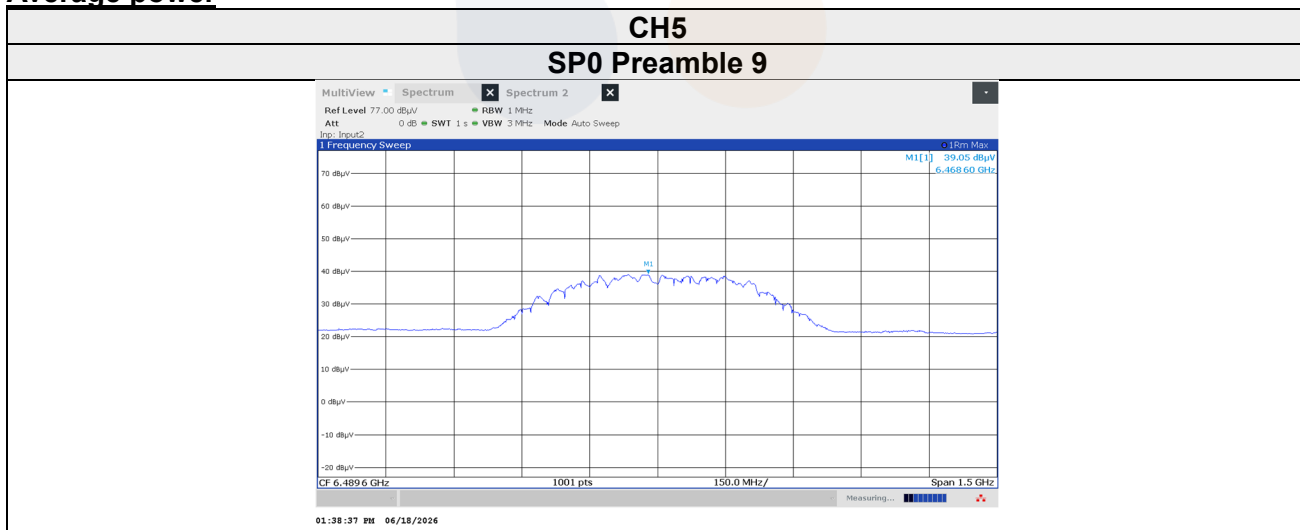
[CH 5_SP0_Preamble 9_Average Power]

Frequency [MHz]	Pol. [V/H]	Reading [dBμV/MHz]	Ant. Factor [dB]	Amp. + Cable [dB]	Conv. Factor [dB]	Result [dBμV/MHz]	Result [dBm/MHz]	Limit [dBm/MHz]	Margin [dB]
6 489.60	V	39.05	35.59	-42.17	-	32.47	-62.83	-41.30	21.53

Peak power



Average power



Notes:

1. Result [dBμV/MHz] = Reading + Ant. Factor + Amp. + Cable Loss
2. EIRP[dBm] = E [dBμV/m] – 95.3

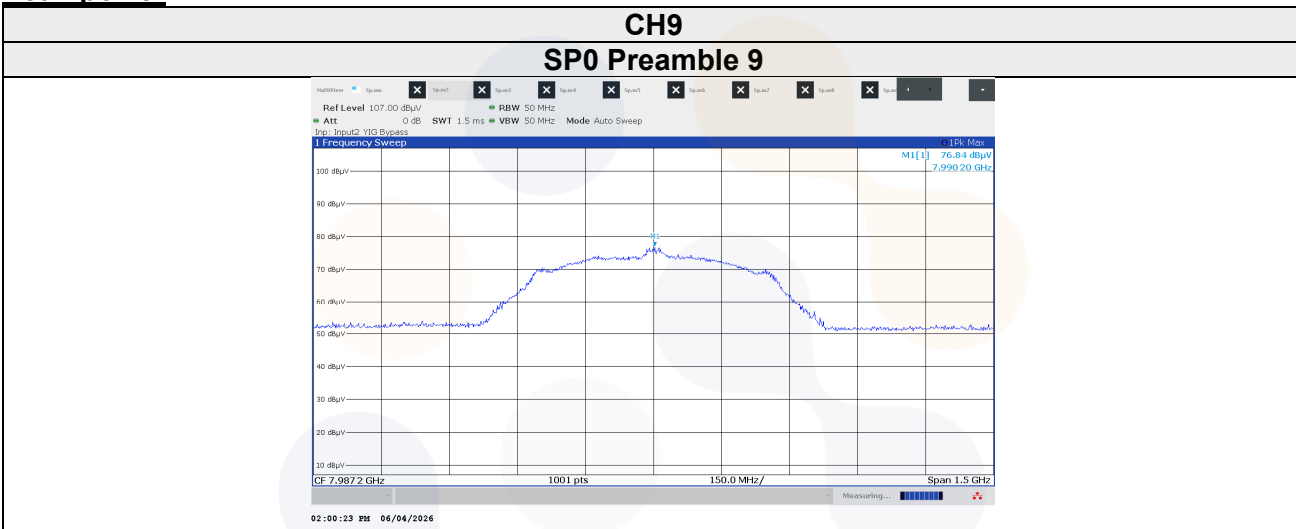
[CH 9_SP0 Preamble 9_Peak Power]

Frequency [MHz]	Pol. [V/H]	Reading [dBμV/MHz]	Ant. Factor [dB]	Amp. + Cable [dB]	Conv. Factor [dB]	Result [dBμV/MHz]	Result [dBm/MHz]	Limit [dBm/MHz]	Margin [dB]
7 987.20	V	76.84	35.80	-40.06	-	72.58	-22.72	0.00	22.72

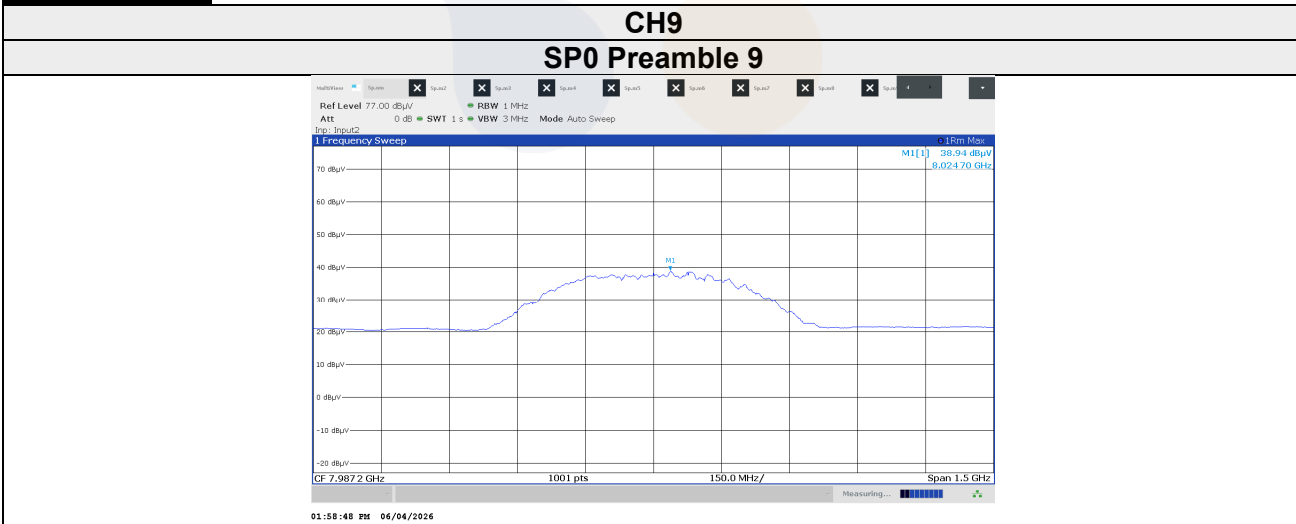
[CH 9_SP0 Preamble 9_Average Power]

Frequency [MHz]	Pol. [V/H]	Reading [dBμV/MHz]	Ant. Factor [dB]	Amp. + Cable [dB]	Conv. Factor [dB]	Result [dBμV/MHz]	Result [dBm/MHz]	Limit [dBm/MHz]	Margin [dB]
7 987.20	V	38.94	35.80	-40.06	-	34.68	-60.62	-41.30	19.32

Peak power



Average power



Notes:

1. Result [dBm/MHz] = Reading + Ant. Factor + Amp. + Cable Loss
2. EIRP[dB m] = E[dBμV/m] – 95.3

6.3. Cease Transmission Time

Limit

According to section §15.519(a)(1), A UWB device operating under the provisions of this section shall transmit only when it is sending information to an associated receiver. The UWB intentional radiator shall cease transmission within 10 seconds unless it receives an acknowledgement from the associated receiver that its transmission is being received. An acknowledgment of reception must continue to be received by the UWB intentional radiator at least every 10 seconds or the UWB device must cease transmitting.

Test Procedure

KDB 393764 D01 v02

Test settings

RBW 1 MHz

VBW 3 MHz

Span Zero Span Mode

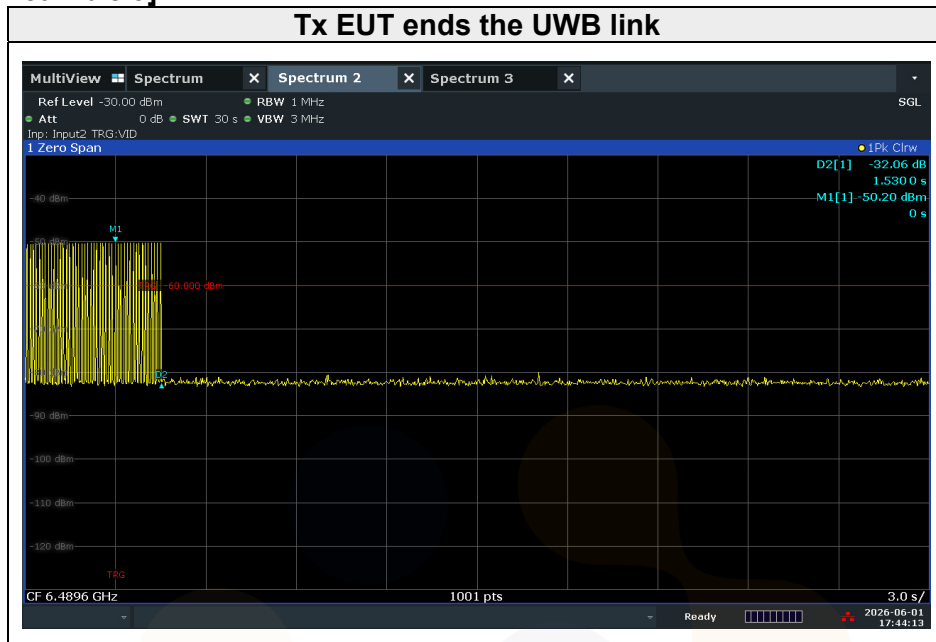
Sweep time shall be sufficient to demonstrate EUT's compliance with the rule part.

- Companion Device information

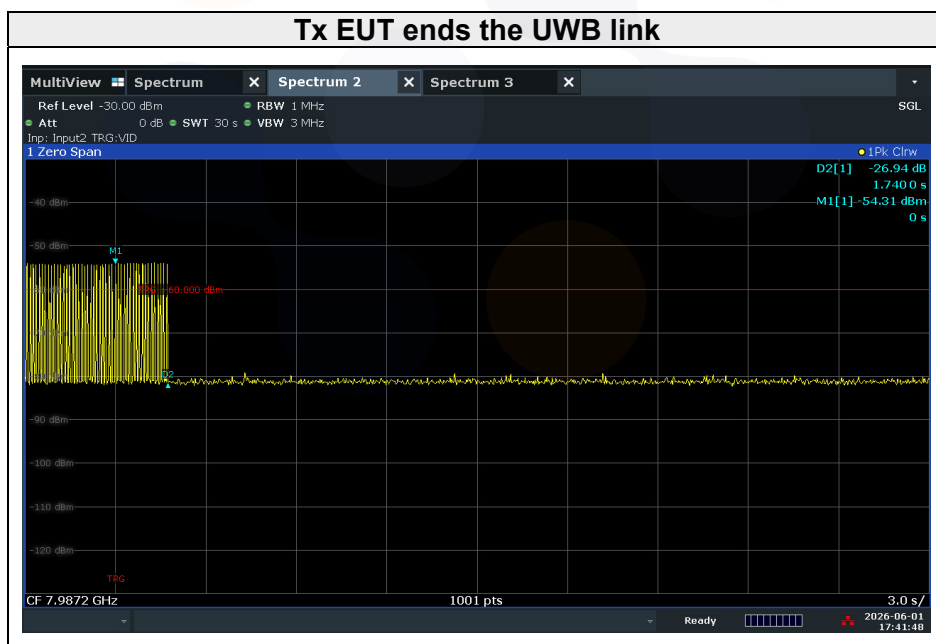
Equipment Name	Manufacturer	Model No.	Serial No.
Anchor	ORBRO Inc.	TTUW0001	TTmmdd000001

Test results

[CH 5_SP0_Preamble 9]



[CH 9_SP0_Preamble 9]



Notes:

1. The EUT transmit only 1.530 s / 1.740s when sending information to an associated receiver

6.4. Radiated Spurious Emission – Above 960 MHz

Limit

According to §15.519(c) The radiated emissions at or below 960 MHz from a device operating under the provisions of this section shall not exceed the emission levels in §15.209. The radiated emissions above 960 MHz from a device operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz:

Frequency[MHz]	EIRP[dBm]
960-1 610	-75.3
1 610-1 990	-63.3
1 990-3 100	-61.3
3 100-10 600	-41.3
Above 10 600	-61.3

*FCC Radiated Spurious Emission Limit

Frequency[MHz]	EIRP[dBm]
1 164-1 240	-85.3
1 559-1 610	-85.3

*FCC Radiated Spurious Emission Limit for GPS Frequency bands

Test procedure

ANSI C63.10-2013 - Section 10.3
 KDB 393764 D01 v02

*The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1 GHz and 150 cm for above 1 GHz. The antenna to EUT distance is 0.5 or 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

Test settings

RBW	1 MHz (30 kHz for emissions in the GPS band)
VBW	3 MHz (100 kHz for emissions in the GPS band)
Detector	Average (RMS)
Trace mode	Max-hold
Sweep time	No more than a 1 ms integration period over each measurement bin
The trace was allowed to stabilize	

*Emission was scanned up to 40 GHz; No emissions were detected above the noise floor which was at least 20 dB below the specification limit.

Test results

[CH 5_SP0_Preamble 9]

960 MHz ~ 6 000 MHz

Frequency [MHz]	Pol. [V/H]	Reading [dBμV/MHz]	Ant. Factor [dB]	Amp. + Cable [dB]	Result [dBμV/m]	Result [dBm]	Limit [dBm]	Margin [dB]
1 105.13	H	37.63	27.83	-49.72	15.74	-79.56	-75.30	4.26
1 433.05	V	38.06	28.22	-49.17	17.11	-78.19	-75.30	2.89
1 654.61	H	37.28	29.35	-49.46	17.17	-78.13	-63.30	14.83
1 694.47	V	36.87	29.62	-49.57	16.92	-78.38	-63.30	15.08
2 150.20	H	36.17	31.85	-47.52	20.50	-74.80	-61.30	13.50
2 311.00	V	36.51	32.01	-47.71	20.81	-74.49	-61.30	13.19
3 544.70	H	31.92	32.93	-45.70	19.15	-76.15	-41.30	34.85
3 831.50	V	32.20	33.10	-44.22	21.08	-74.22	-41.30	32.92

9 000 MHz ~ 40 000 MHz

Frequency [MHz]	Pol. [V/H]	Reading [dBμV/MHz]	Ant. Factor [dB]	Amp. + Cable [dB]	Result [dBμV/m]	Result [dBm]	Limit [dBm]	Margin [dB]
9 395.60	H	29.61	36.57	-39.31	26.87	-68.43	-41.30	27.13
9 442.00	V	29.25	36.63	-39.34	26.54	-68.76	-41.30	27.46
17 574.90	H	24.44	40.81	-33.91	31.34	-63.96	-61.30	2.66
17 160.90	V	23.91	41.63	-34.55	30.99	-64.31	-61.30	3.01
38 042.00	H	8.40	44.83	-32.01	21.22	-74.08	-61.30	12.78
38 350.00	V	9.56	44.89	-31.99	22.46	-72.84	-61.30	11.54

1 164 MHz ~ 1 240 MHz(For GPS Band)

Frequency [MHz]	Pol. [V/H]	Reading [dBμV/MHz]	Ant. Factor [dB]	Amp. + Cable [dB]	Result [dBμV/m]	Result [dBm]	Limit [dBm]	Margin [dB]
1 236.93	H	20.44	27.98	-49.04	-0.62	-95.92	-85.30	10.62
1 227.66	V	21.06	27.97	-49.09	-0.06	-95.36	-85.30	10.06

1 559 MHz ~ 1 610 MHz(For GPS Band)

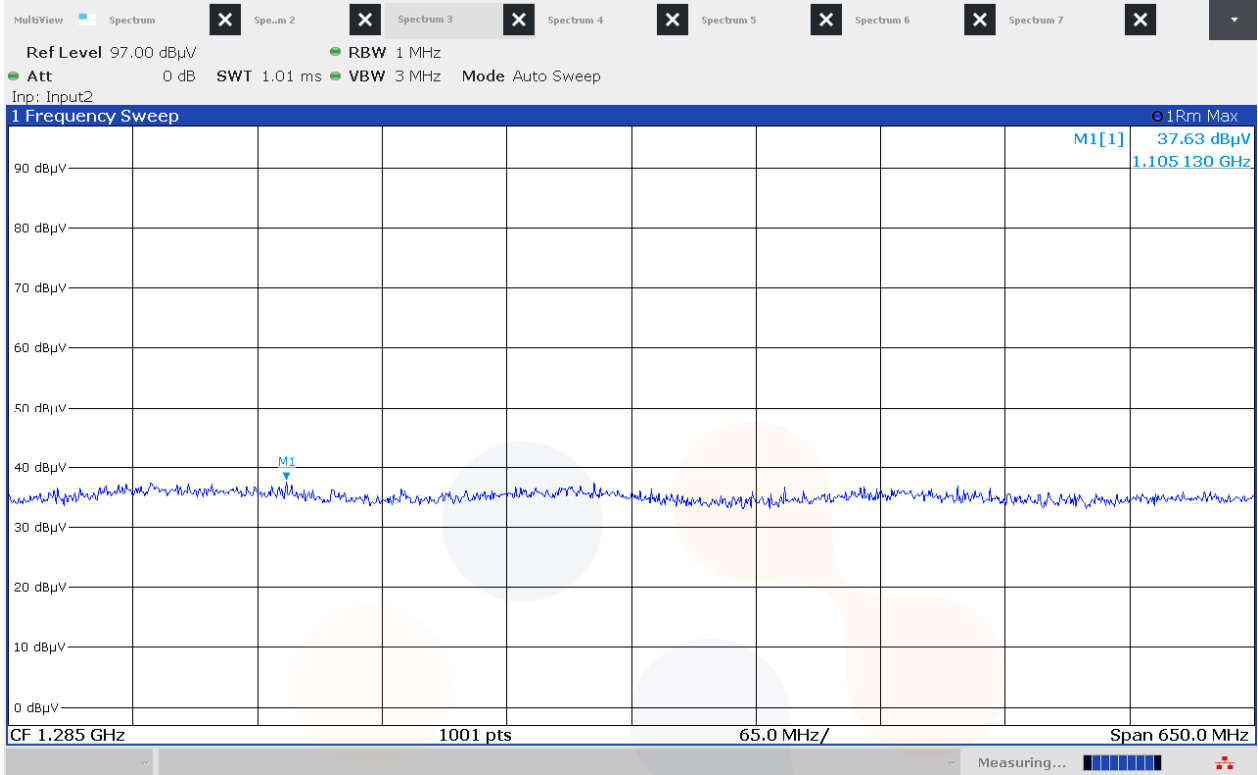
Frequency [MHz]	Pol. [V/H]	Reading [dBμV/MHz]	Ant. Factor [dB]	Amp. + Cable [dB]	Result [dBμV/m]	Result [dBm]	Limit [dBm]	Margin [dB]
1 608.34	H	22.06	29.04	-49.33	1.77	-93.53	-85.30	8.23
1 587.15	V	21.04	28.89	-49.32	0.61	-94.69	-85.30	9.39

Notes:

1. Result [dBm] = Reading + Ant. Factor + Amp. + Cable Loss

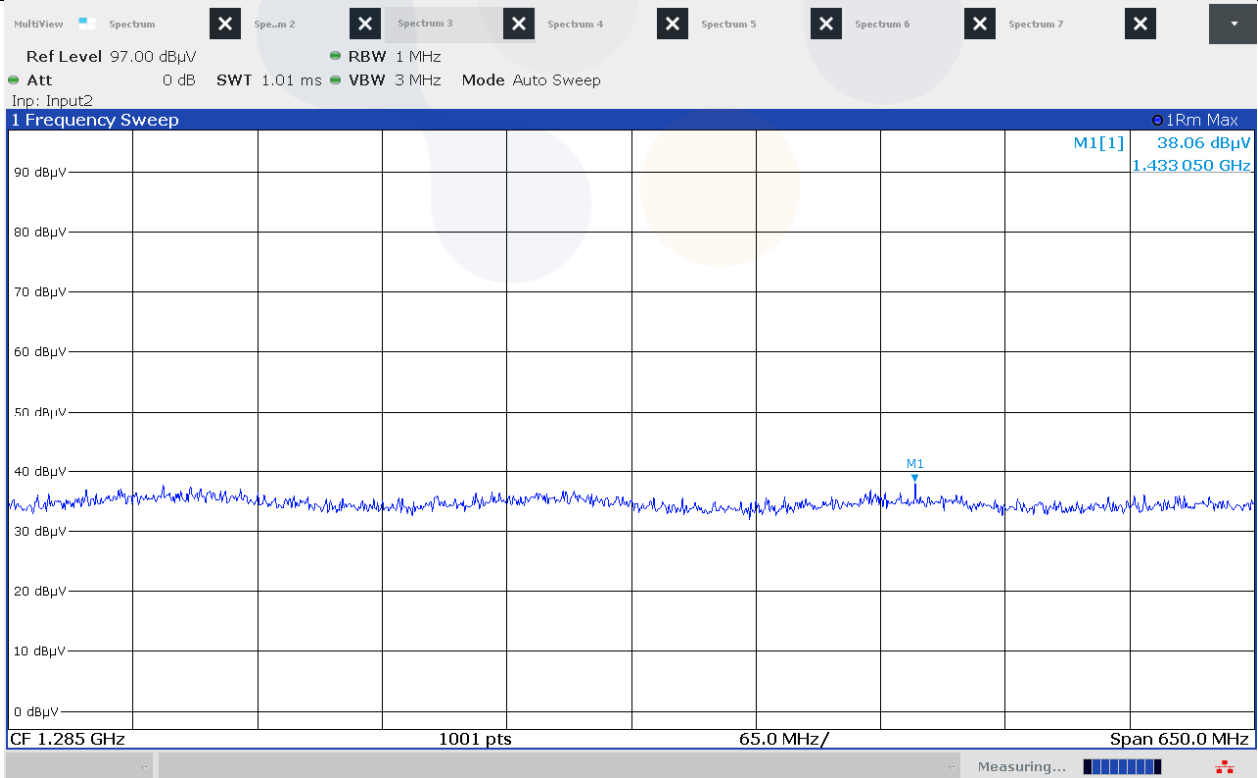
2. EIRP[dBm] = E[dBμV/m] – 95.3

960 MHz ~ 1 610 MHz Horizontal



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960 MHz ~ 1 610 MHz Vertical



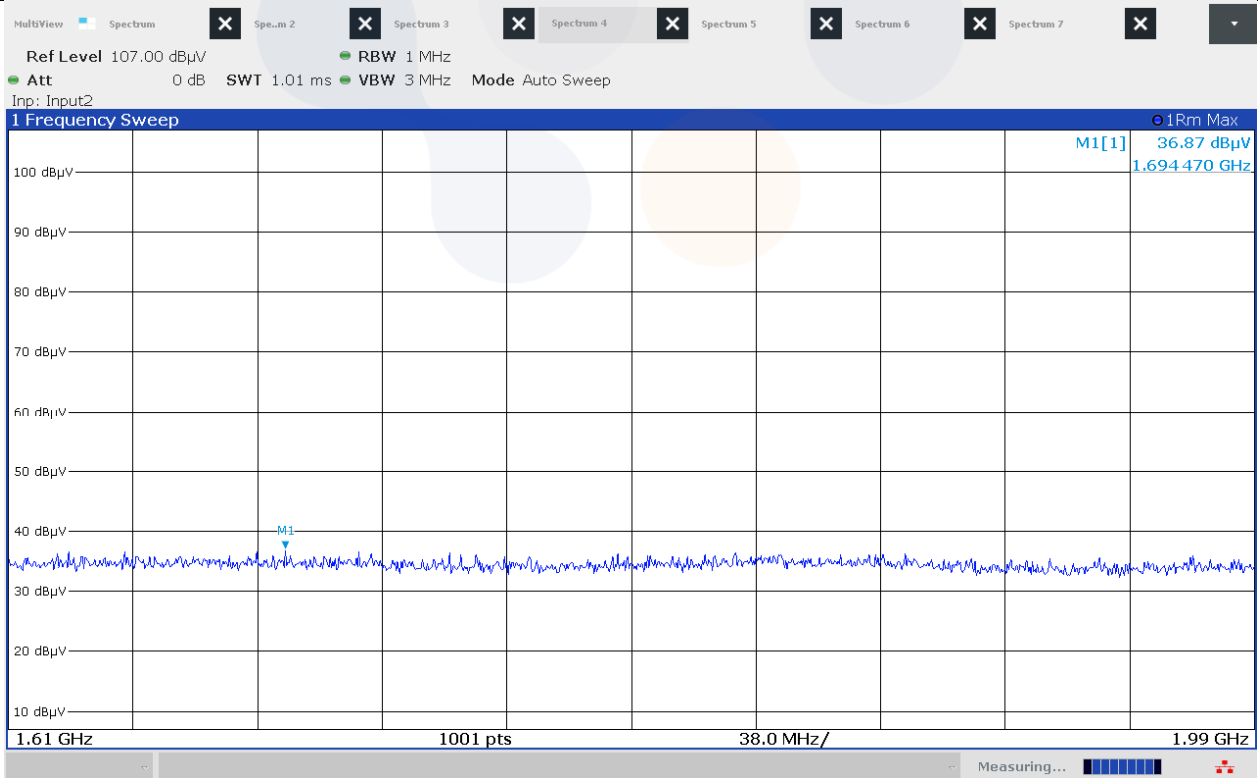
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1 610 MHz ~ 1 990 MHz Horizontal



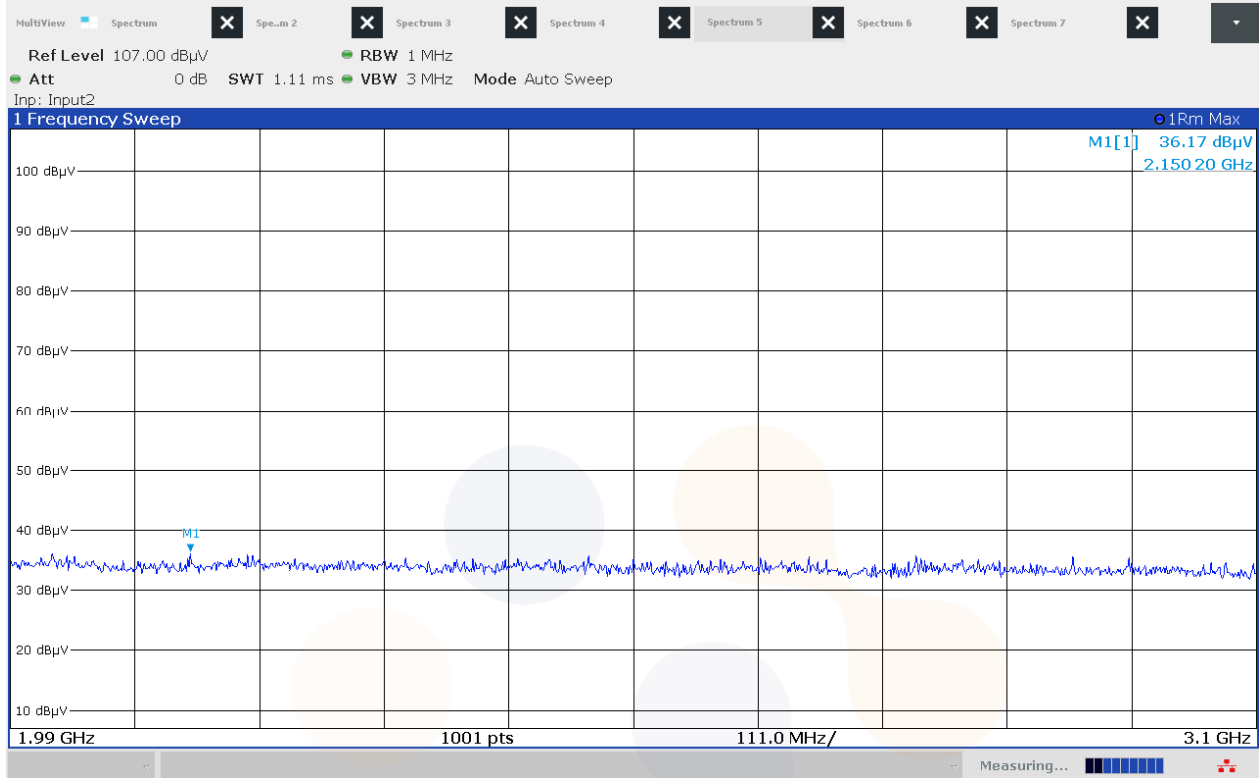
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1 610 MHz ~ 1 990 MHz Vertical



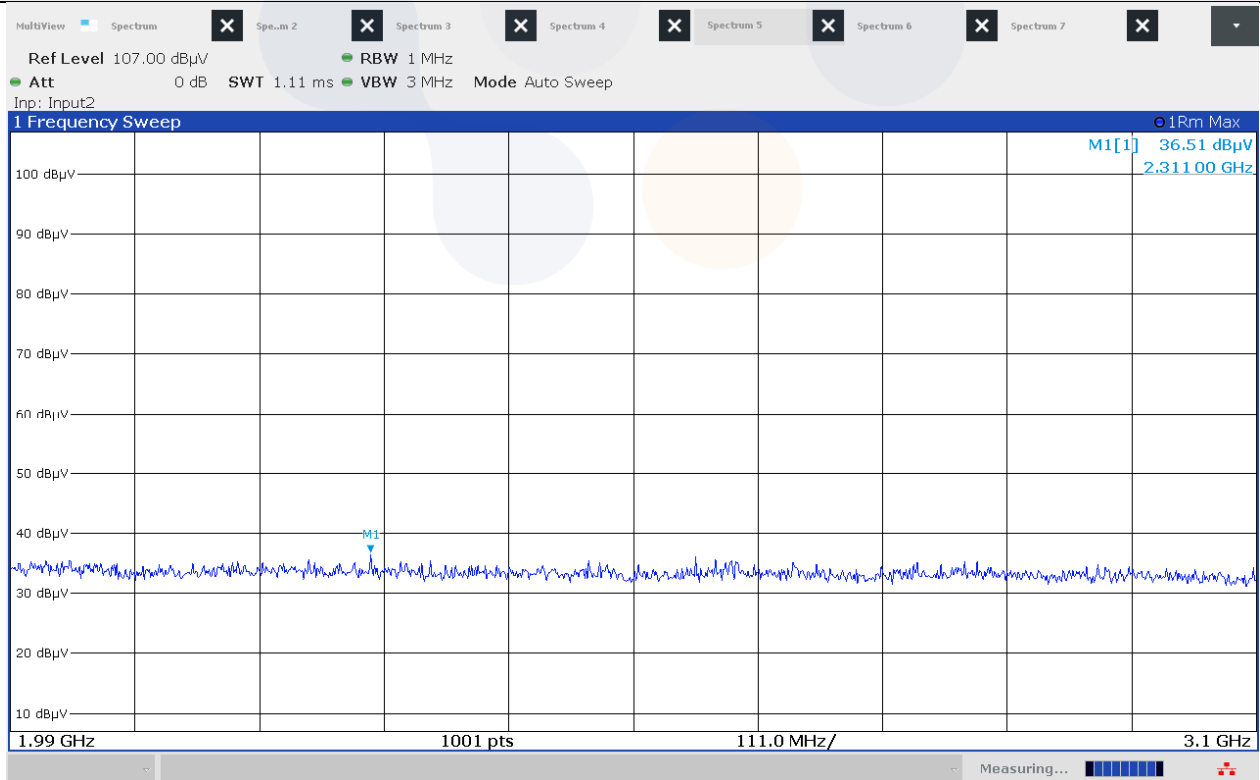
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1 990 MHz ~ 3 100 MHz Horizontal



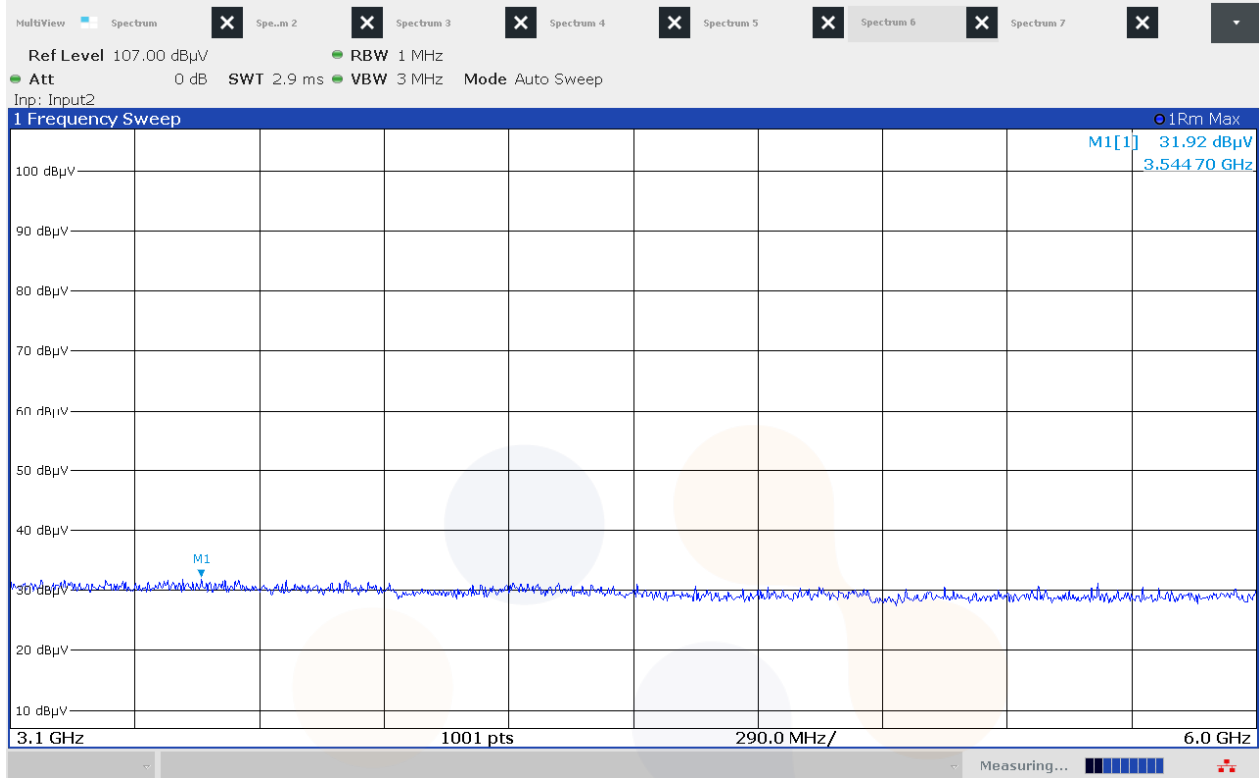
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1 990 MHz ~ 3 100 MHz Vertical



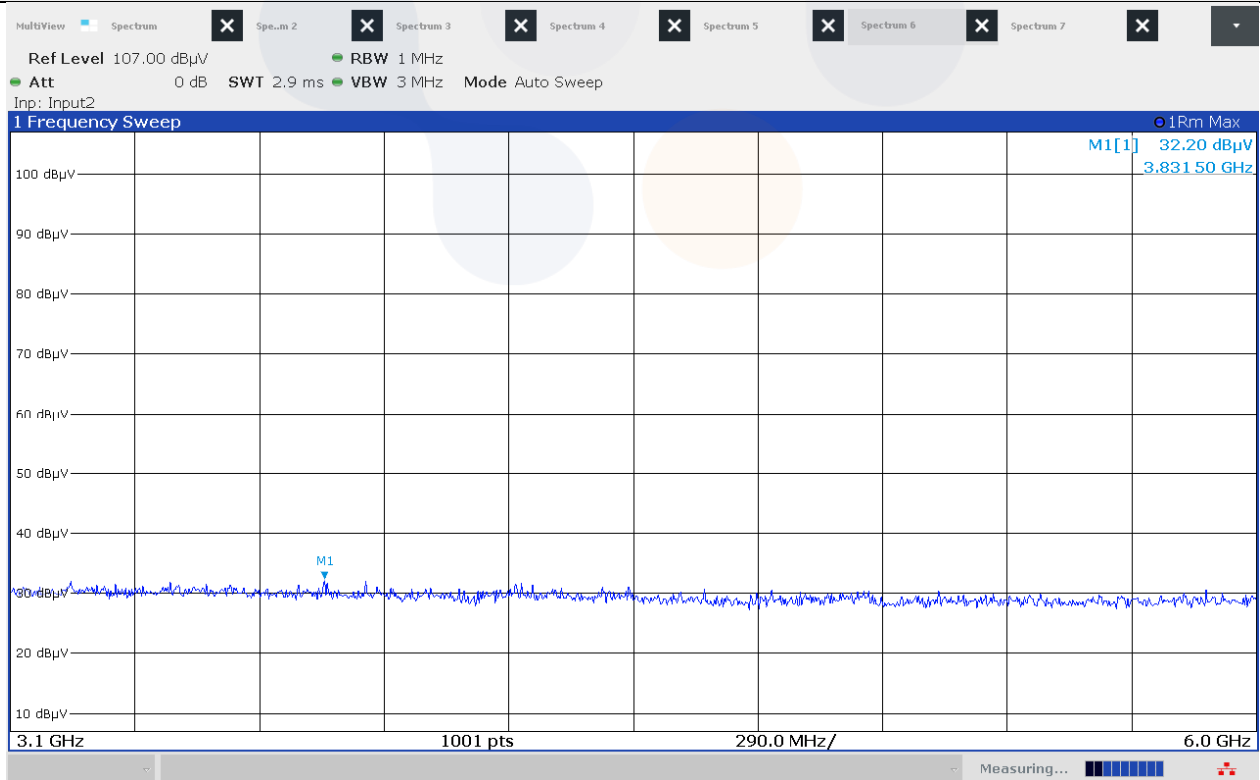
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3 100 MHz ~ 6 000 MHz Horizontal



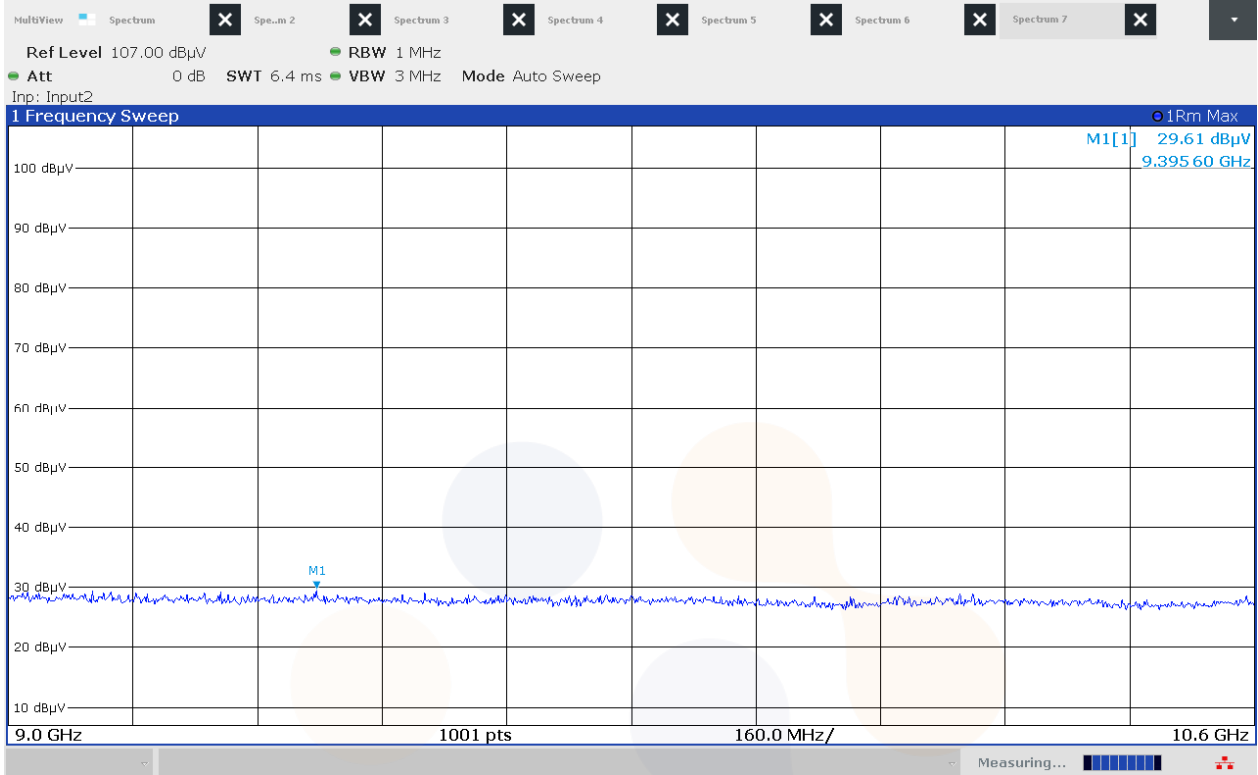
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3 100 MHz ~ 6 000 MHz Vertical

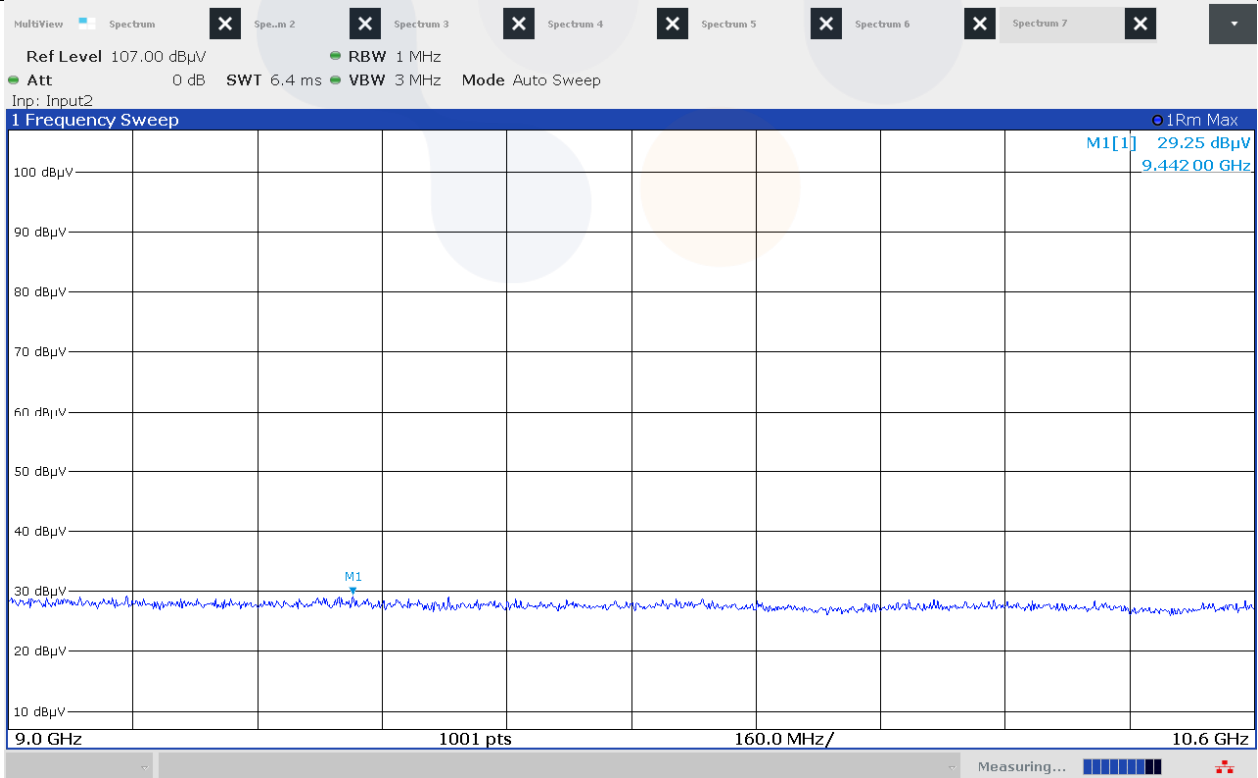


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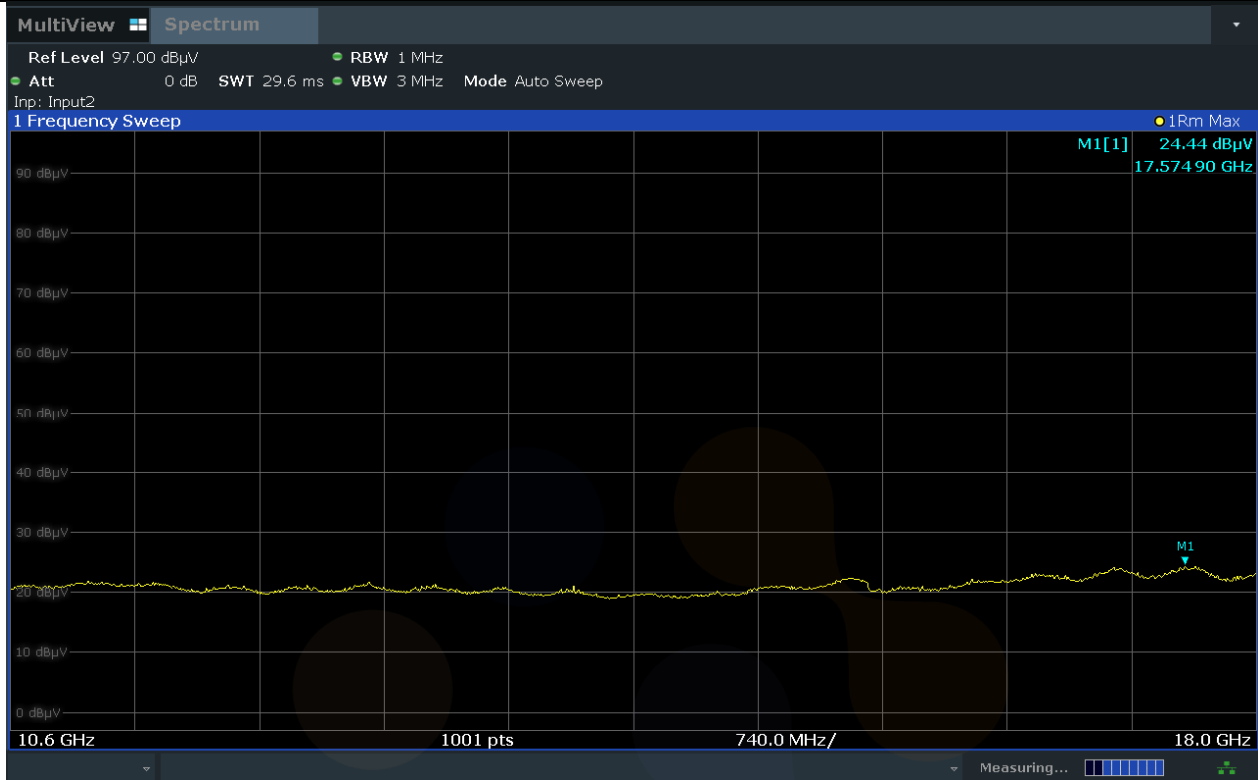
9 000 MHz ~ 10 600 MHz Horizontal



9 000 MHz ~ 10 600 MHz Vertical

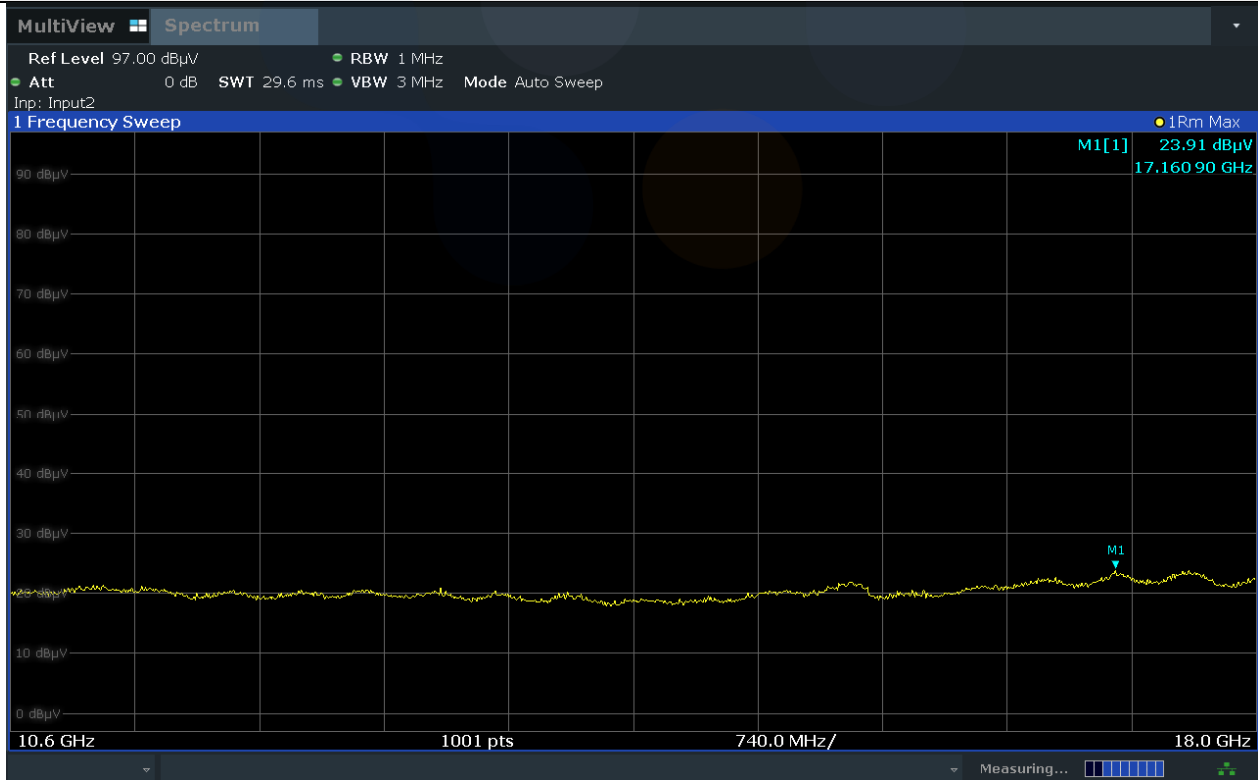


10 600 MHz ~ 18 000 MHz Horizontal



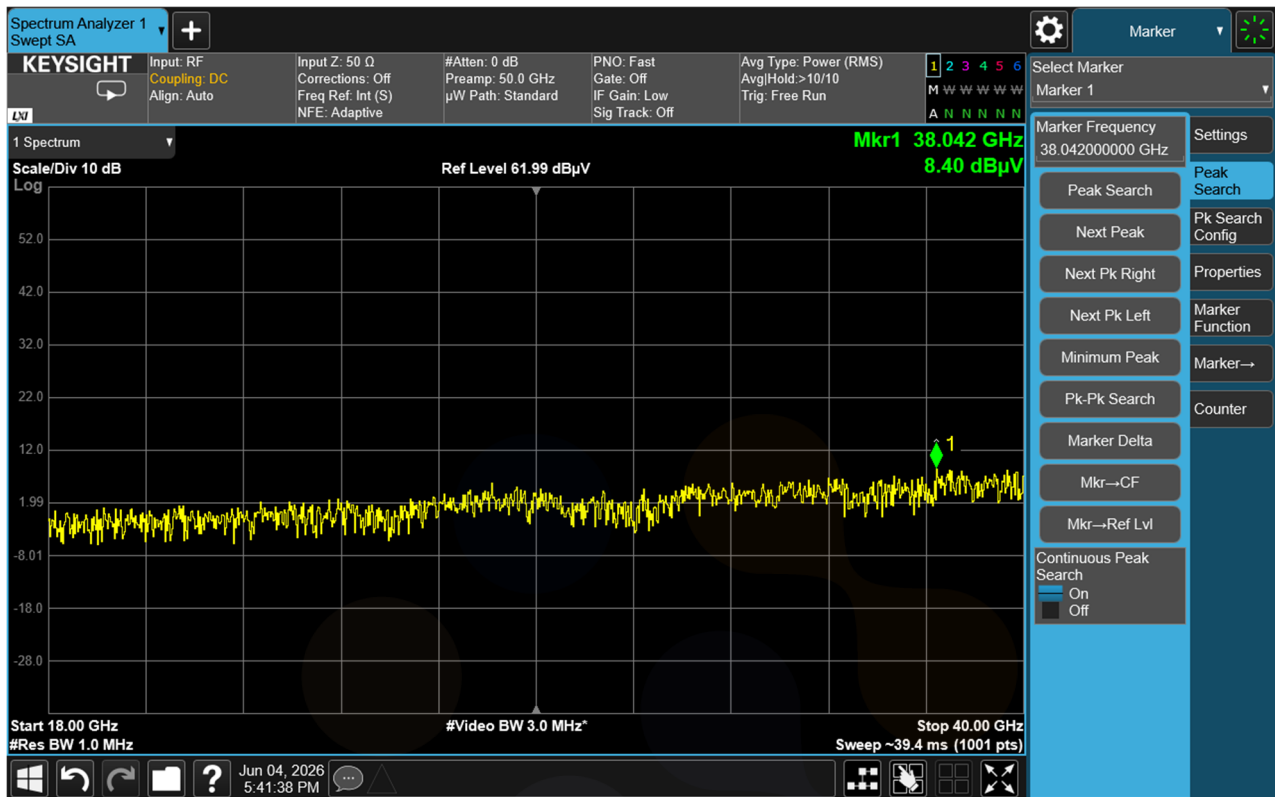
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10 600 MHz ~ 18 000 MHz Vertical

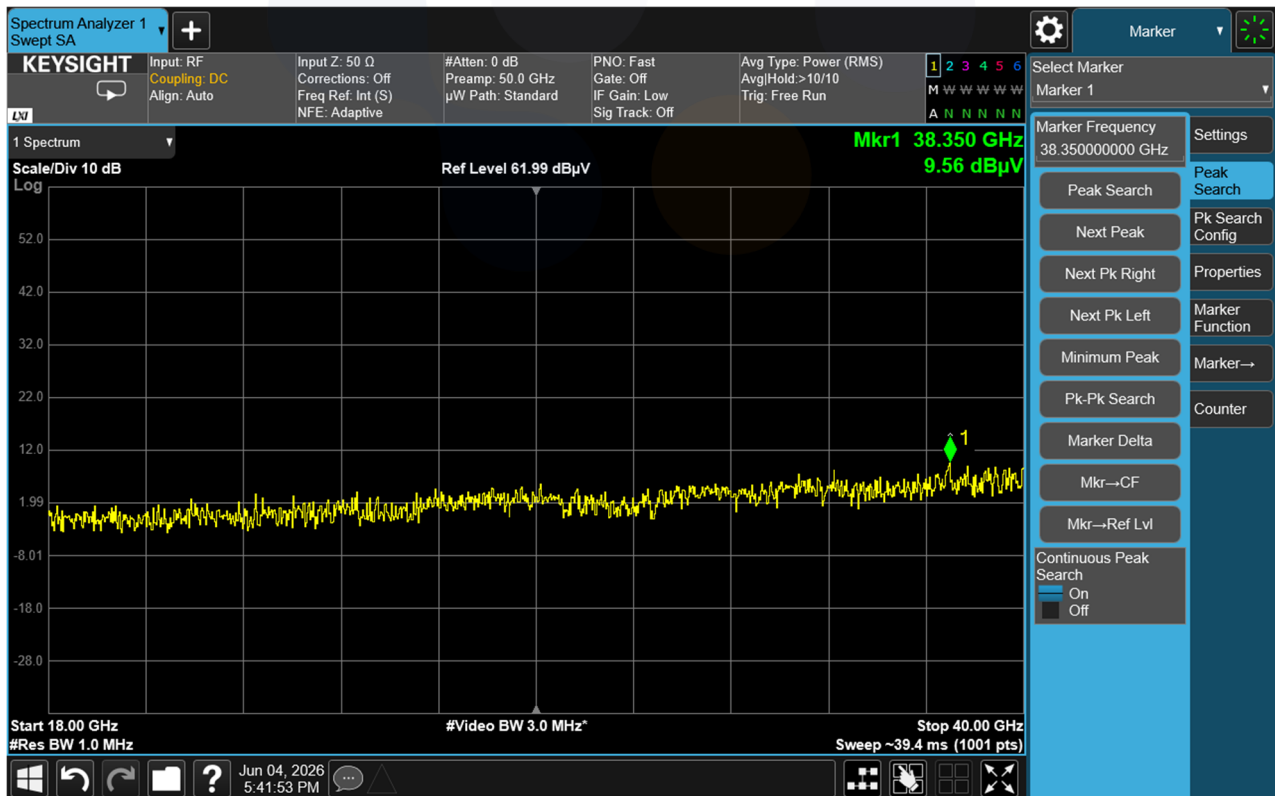


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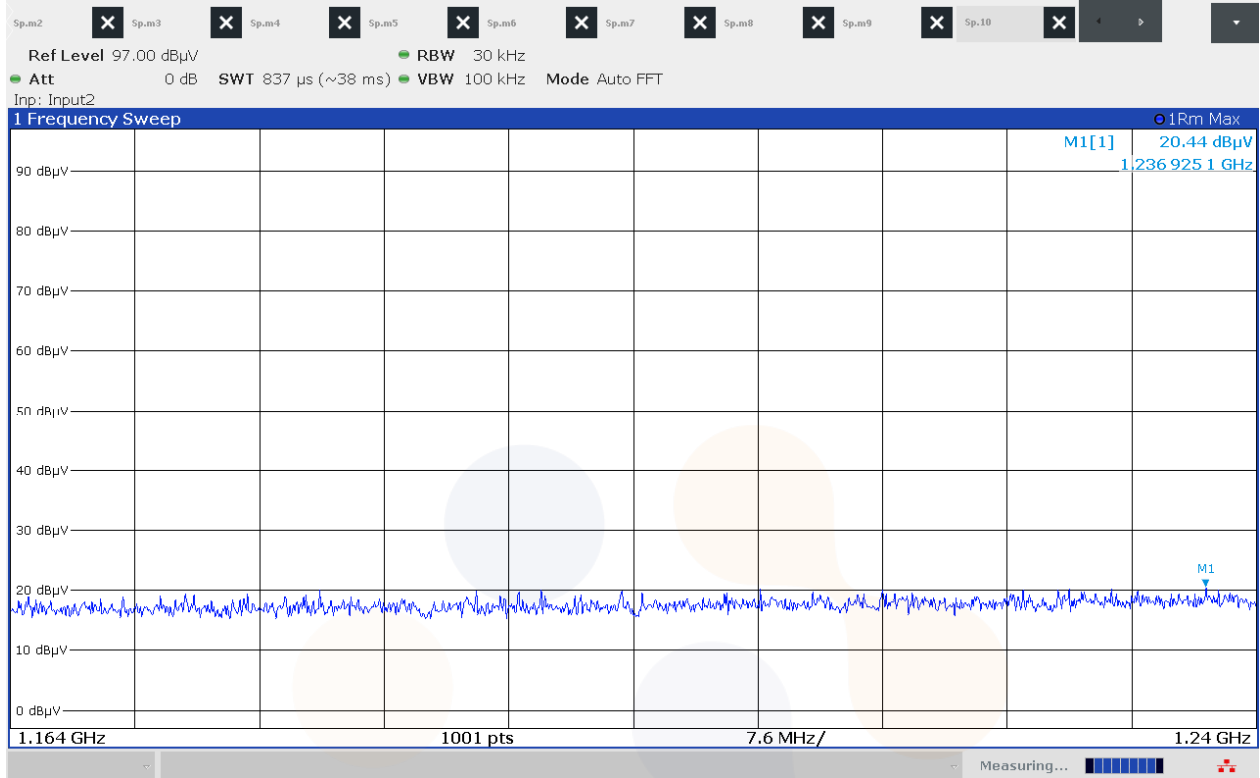
18 000 MHz ~ 40 000 MHz Horizontal



18 000 MHz ~ 40 000 MHz Vertical

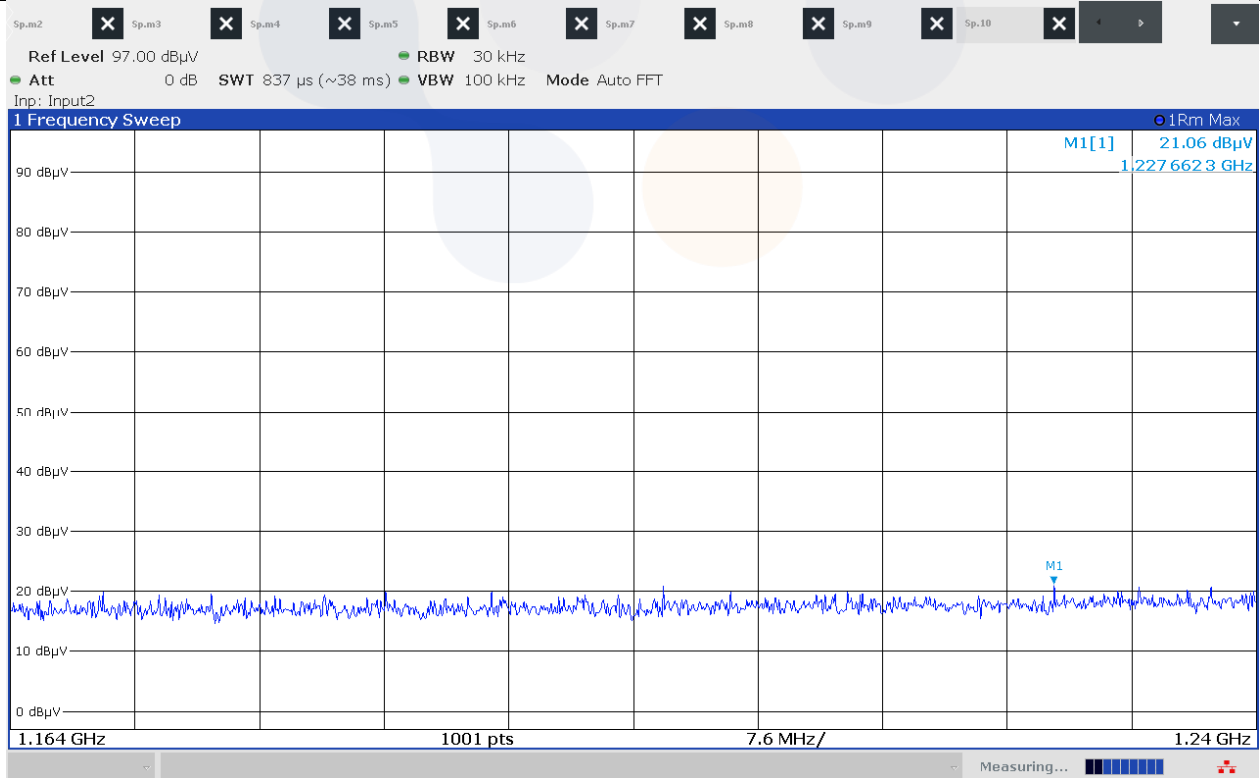


1 164 MHz ~ 1 240 MHz Horizontal



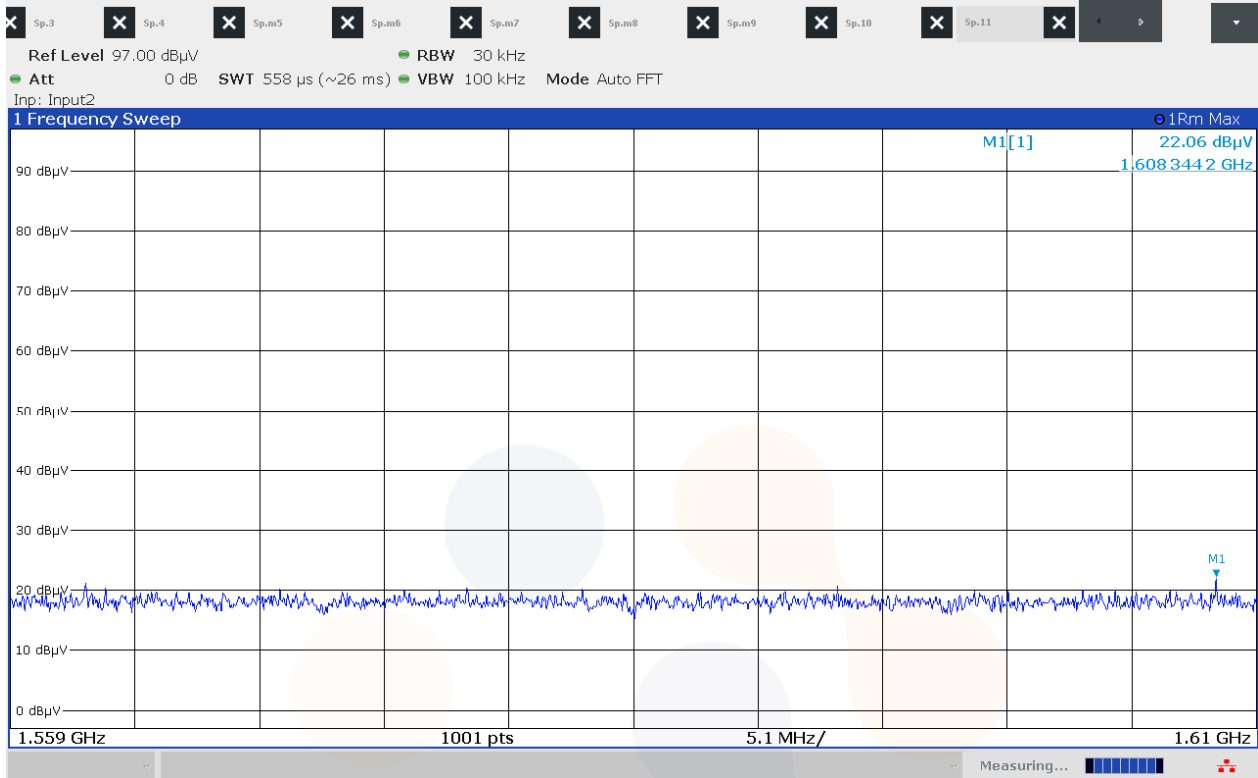
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1 164 MHz ~ 1 240 MHz Vertical



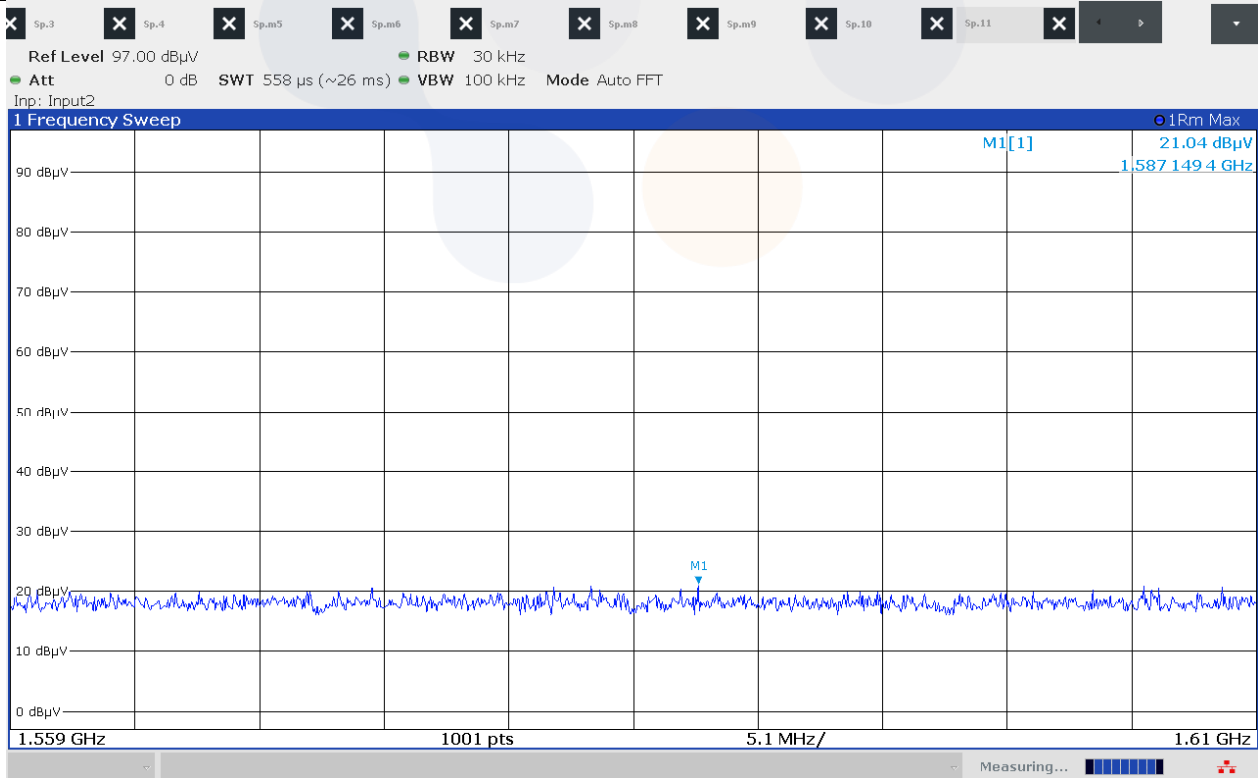
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1 559 MHz ~ 1 610 MHz Horizontal



02:04:10 PM 06/04/2026

1 559 MHz ~ 1 610 MHz Vertical



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[CH 9_SP0_Preamble 9]

960 MHz ~ 6 000 MHz

Frequency [MHz]	Pol. [V/H]	Reading [dBμV/MHz]	Ant. Factor [dB]	Amp. + Cable [dB]	Result [dBμV/m]	Result [dBm]	Limit [dBm]	Margin [dB]
1 059.68	H	38.09	27.77	-50.09	15.77	-79.53	-75.30	4.23
1 062.27	V	37.56	27.77	-50.07	15.26	-80.04	-75.30	4.74
1 624.24	H	37.45	29.14	-49.37	17.22	-78.08	-63.30	14.78
1 629.55	V	37.34	29.18	-49.39	17.13	-78.17	-63.30	14.87
2 182.40	H	36.15	31.88	-47.40	20.63	-74.67	-61.30	13.37
2 471.80	V	36.30	32.17	-48.12	20.35	-74.95	-61.30	13.65
3 252.10	H	32.17	32.75	-46.07	18.85	-76.45	-41.30	35.15
4 807.80	V	32.36	33.98	-43.22	23.12	-72.18	-41.30	30.88

9 000 MHz ~ 40 000 MHz

Frequency [MHz]	Pol. [V/H]	Reading [dBμV/MHz]	Ant. Factor [dB]	Amp. + Cable [dB]	Result [dBμV/m]	Result [dBm]	Limit [dBm]	Margin [dB]
9 000.80	H	29.83	36.10	-39.01	26.92	-68.38	-41.30	27.08
9 036.00	V	29.76	36.14	-39.04	26.86	-68.44	-41.30	27.14
17 597.10	H	23.92	40.78	-33.95	30.75	-64.55	-61.30	3.25
17 611.90	V	23.86	40.77	-33.97	30.66	-64.64	-61.30	3.34
38 350.00	H	9.72	44.88	-32.00	22.60	-72.70	-61.30	11.40
39 890.00	V	8.92	44.71	-32.03	21.60	-73.70	-61.30	12.40

1 164 MHz ~ 1 240 MHz(For GPS Band)

Frequency [MHz]	Pol. [V/H]	Reading [dBμV/MHz]	Ant. Factor [dB]	Amp. + Cable [dB]	Result [dBμV/m]	Result [dBm]	Limit [dBm]	Margin [dB]
1 227.81	H	20.48	27.97	-49.08	-0.63	-95.93	-85.30	10.63
1 226.90	V	20.27	27.97	-49.09	-0.85	-96.15	-85.30	10.85

1 559 MHz ~ 1 610 MHz(For GPS Band)

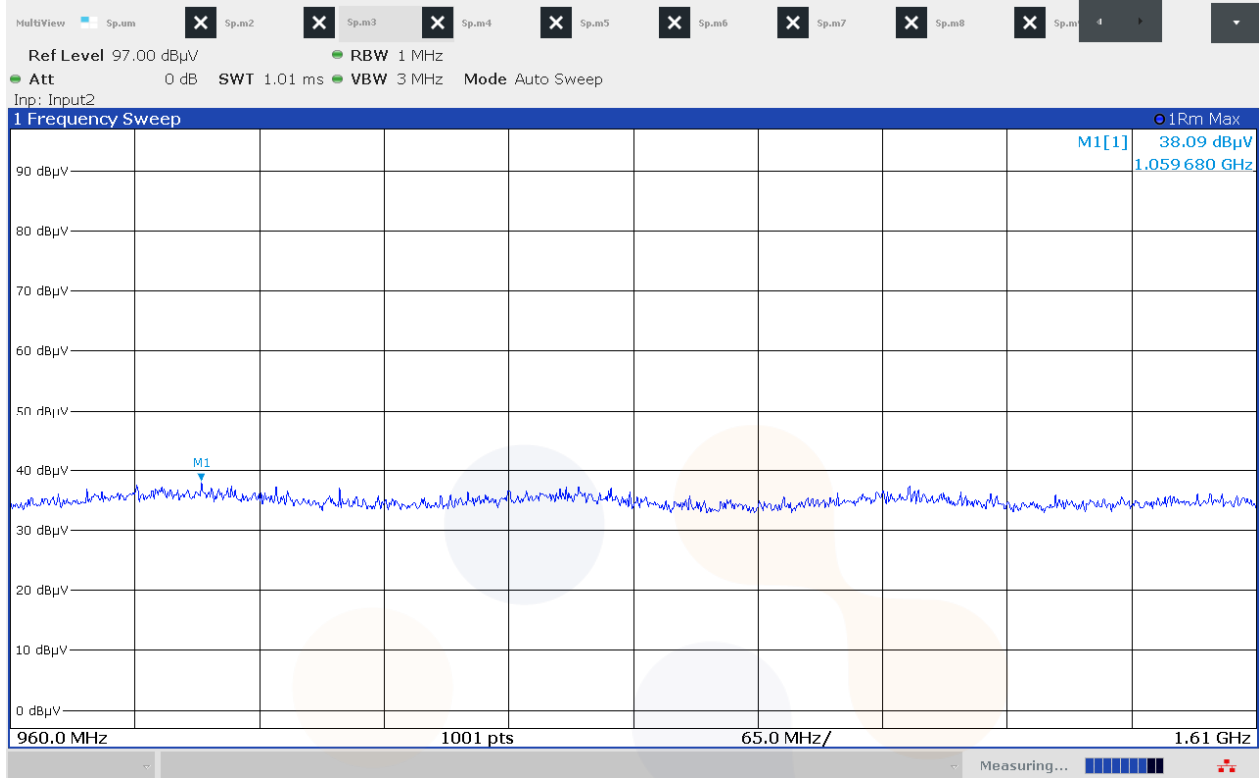
Frequency [MHz]	Pol. [V/H]	Reading [dBμV/MHz]	Ant. Factor [dB]	Amp. + Cable [dB]	Result [dBμV/m]	Result [dBm]	Limit [dBm]	Margin [dB]
1 572.58	H	20.96	28.79	-49.34	0.41	-94.89	-85.30	9.59
1 604.52	V	21.33	29.01	-49.32	1.02	-94.28	-85.30	8.98

Notes:

1. Result [dBm] = Reading + Ant. Factor + Amp. + Cable Loss

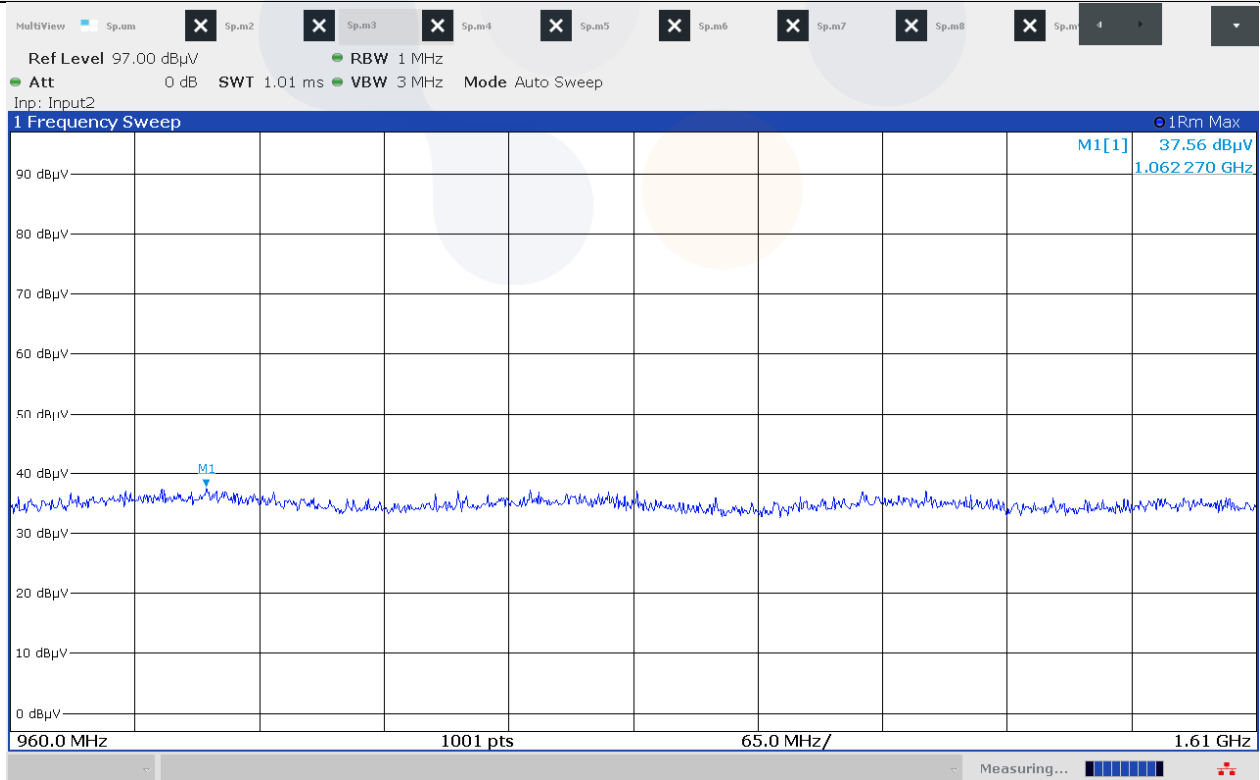
2. EIRP[dBm] = E[dBμV/m] – 95.3

960 MHz ~ 1 610 MHz Horizontal



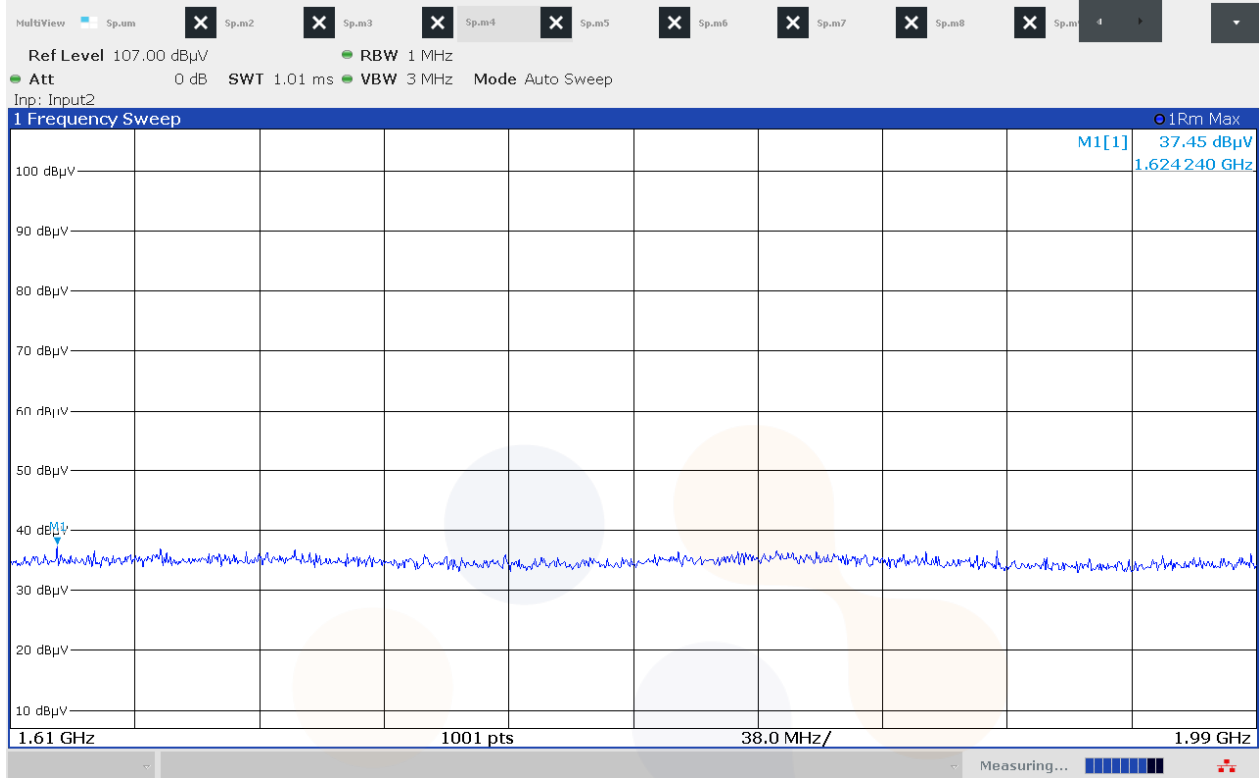
02:00:38 PM 06/04/2026

960 MHz ~ 1 610 MHz Vertical



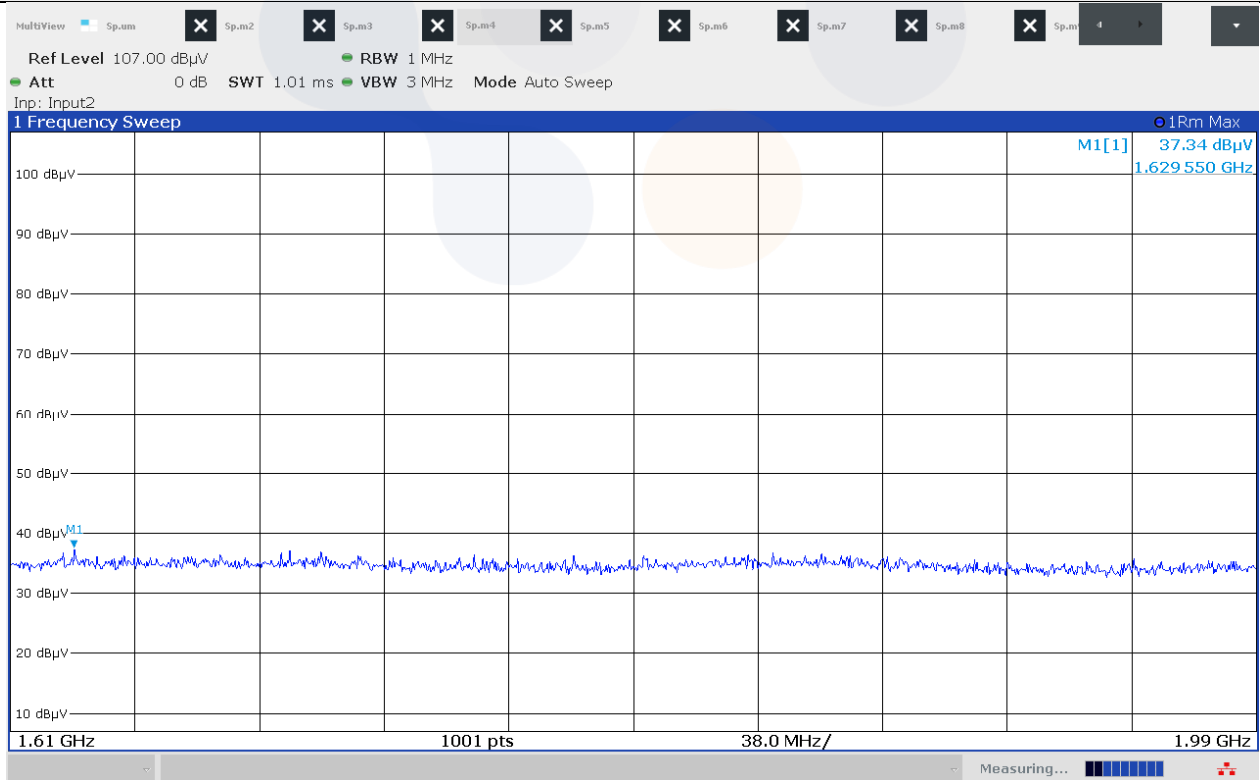
02:01:07 PM 06/04/2026

1 610 MHz ~ 1 990 MHz Horizontal



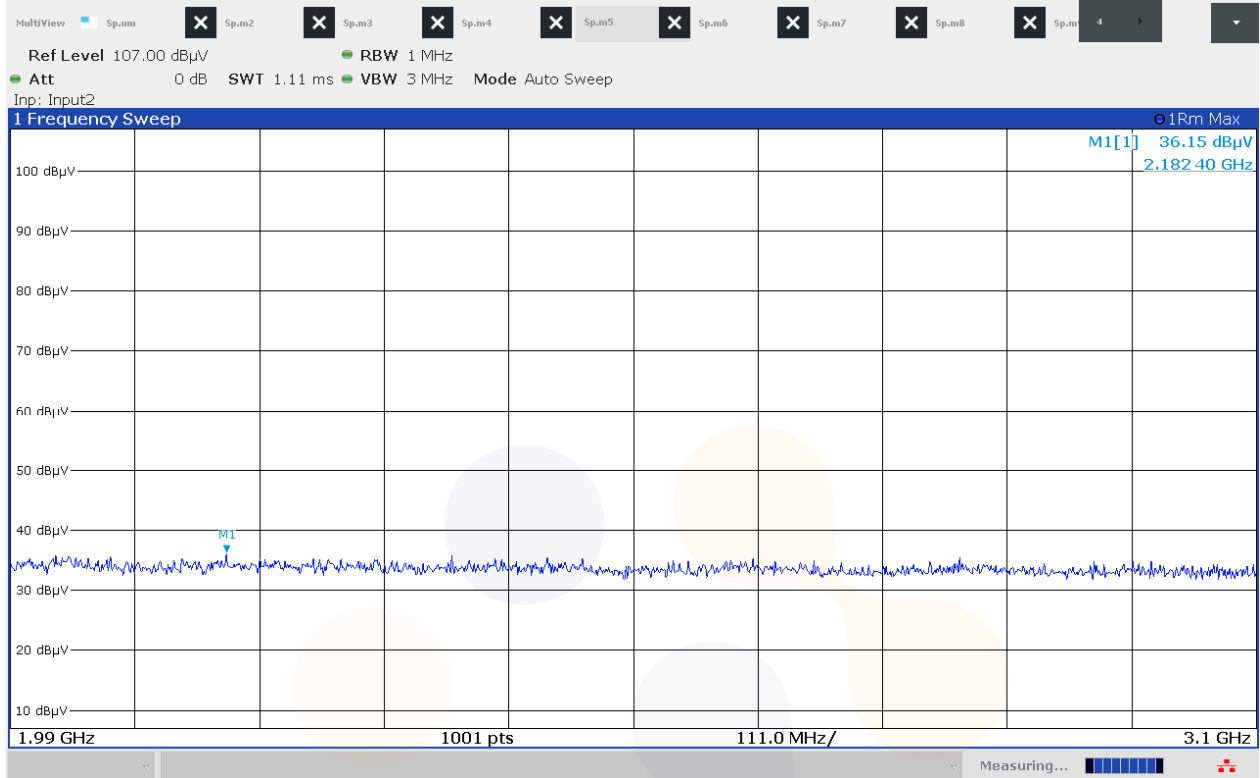
02:01:21 PM 06/04/2026

1 610 MHz ~ 1 990 MHz Vertical



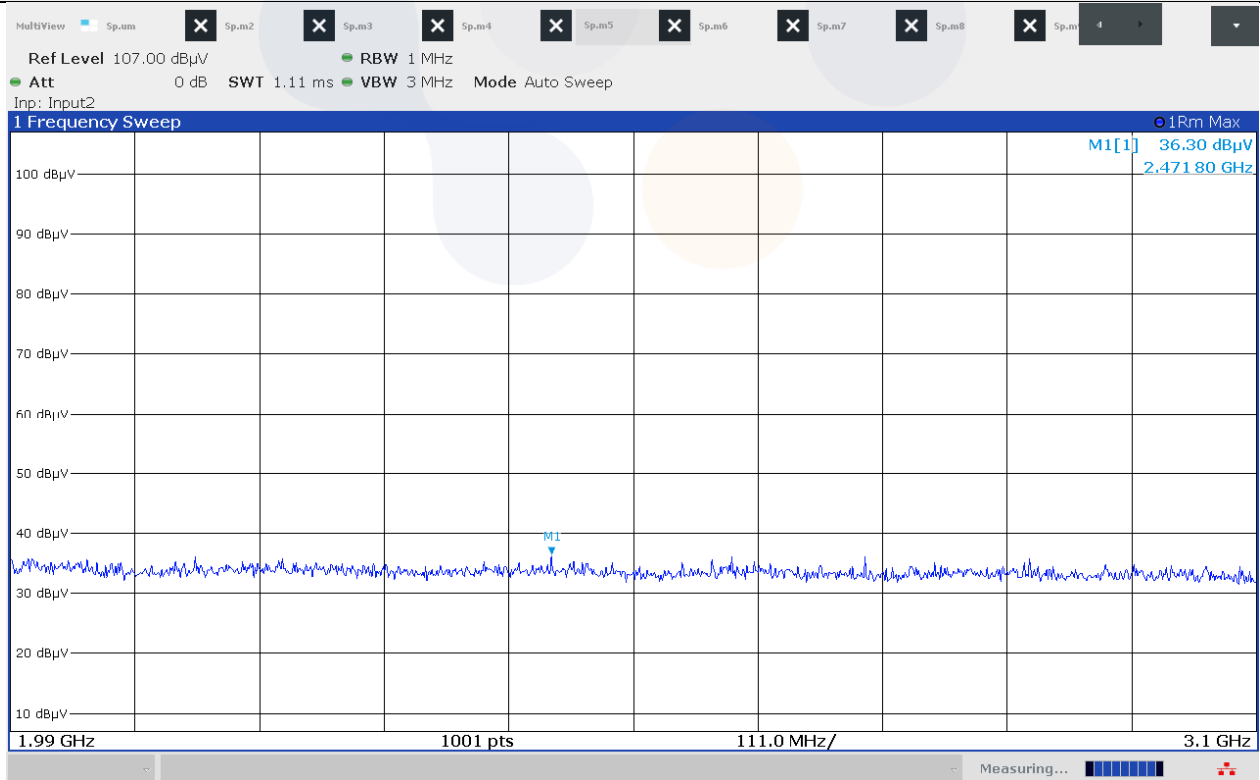
02:01:33 PM 06/04/2026

1 990 MHz ~ 3 100 MHz Horizontal



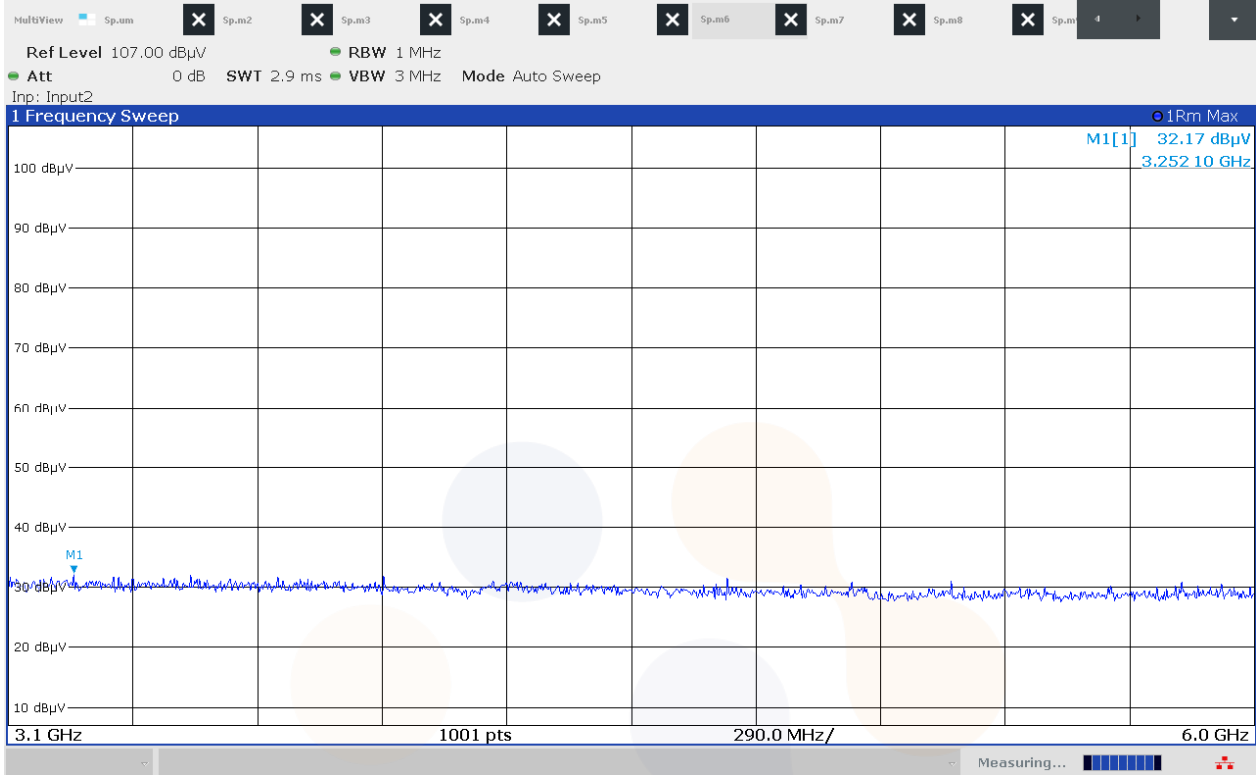
02:01:44 PM 06/04/2026

1 990 MHz ~ 3 100 MHz Vertical



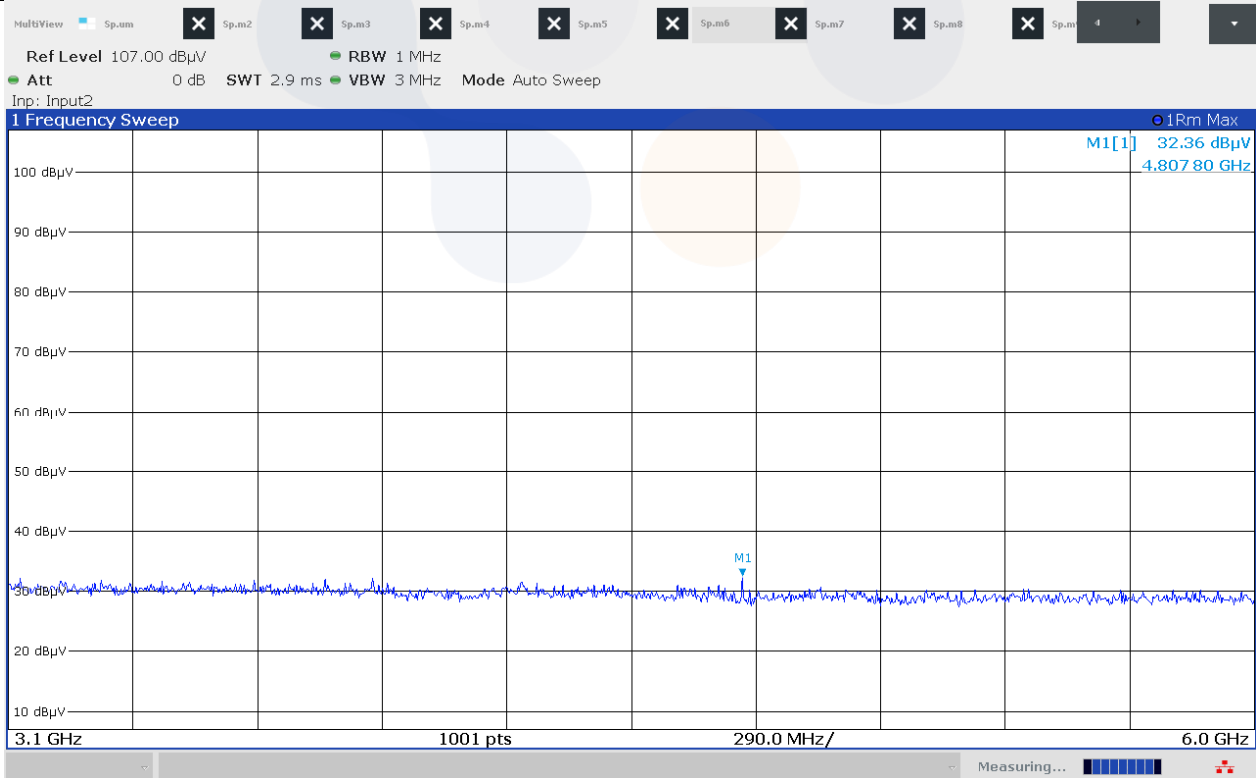
02:01:52 PM 06/04/2026

3 100 MHz ~ 6 000 MHz Horizontal



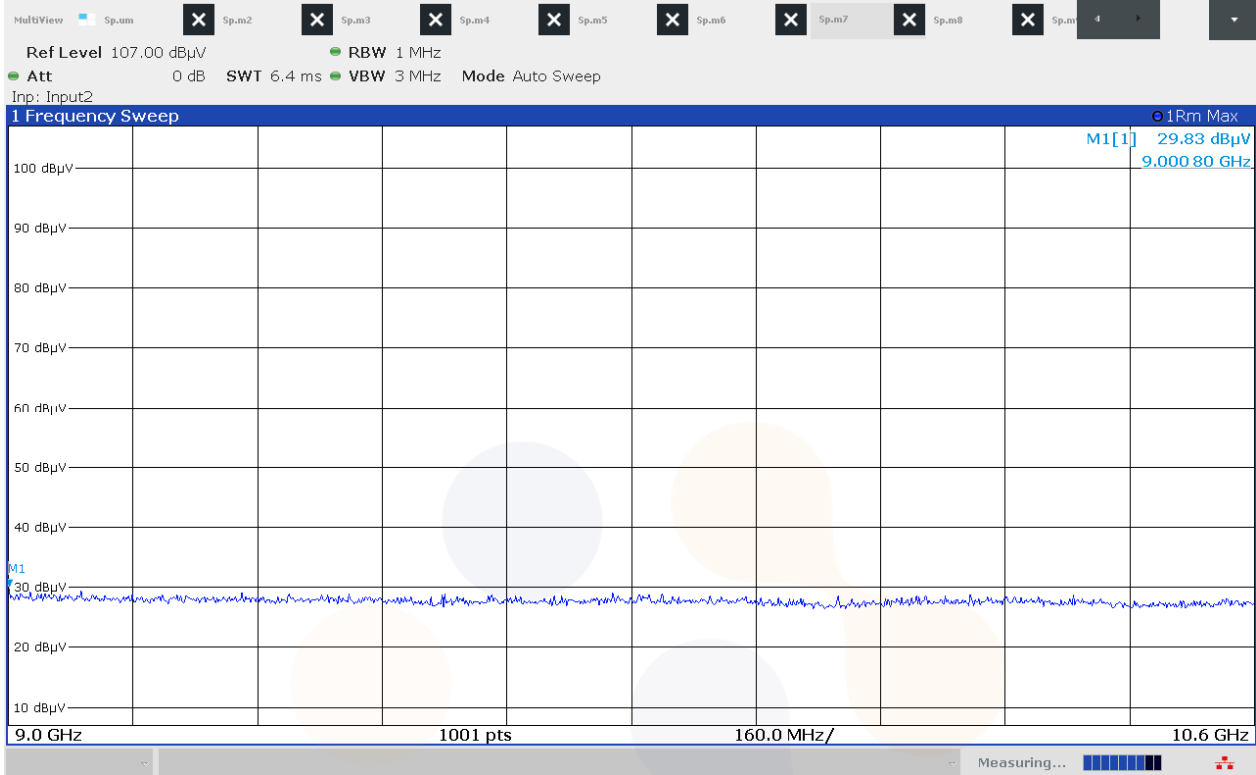
02:02:03 PM 06/04/2026

3 100 MHz ~ 6 000 MHz Vertical



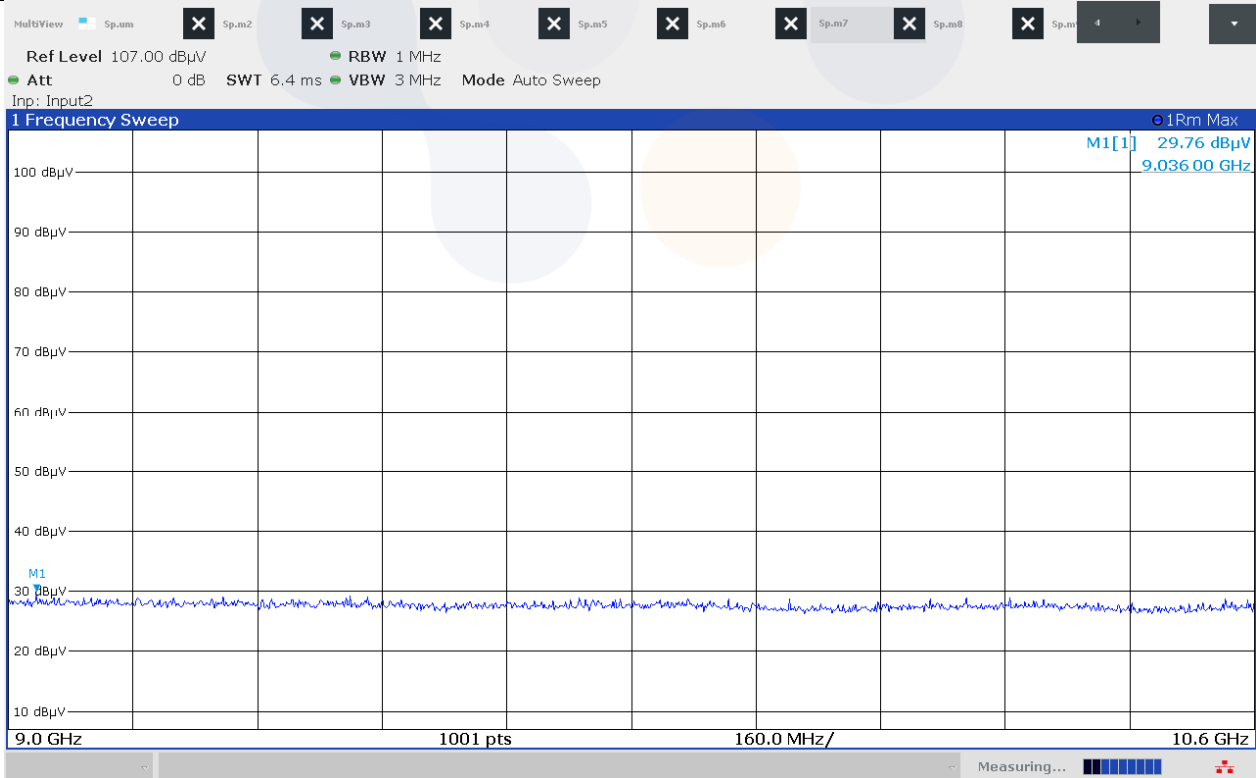
02:02:11 PM 06/04/2026

9 000 MHz ~ 10 600 MHz Horizontal



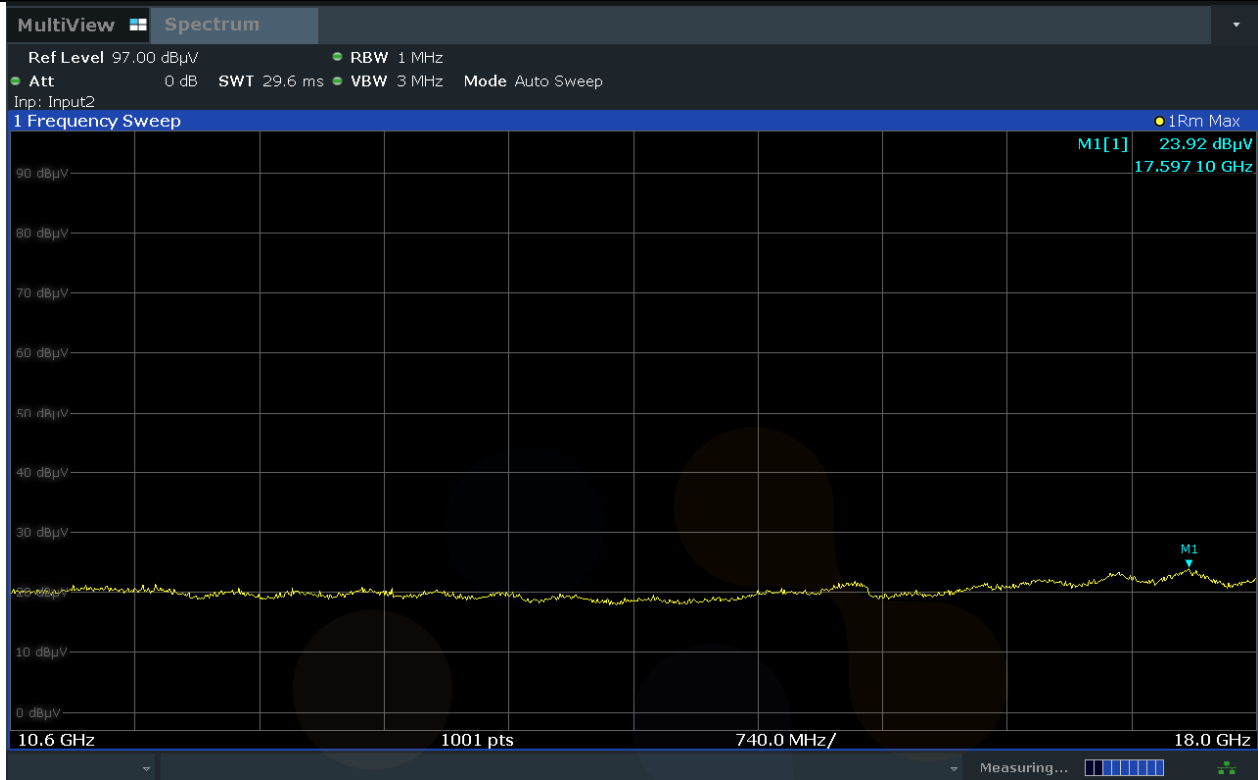
02:02:28 PM 06/04/2026

9 000 MHz ~ 10 600 MHz Vertical



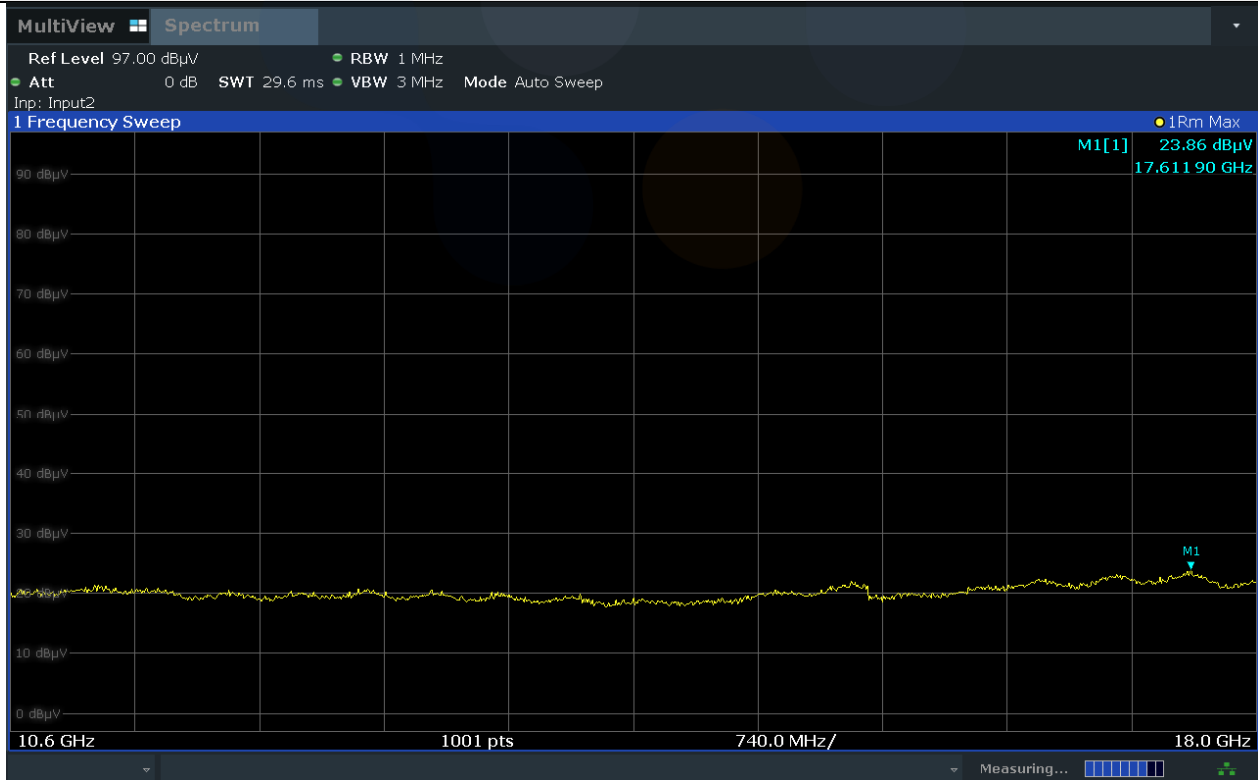
02:02:40 PM 06/04/2026

10 600 MHz ~ 18 000 MHz Horizontal



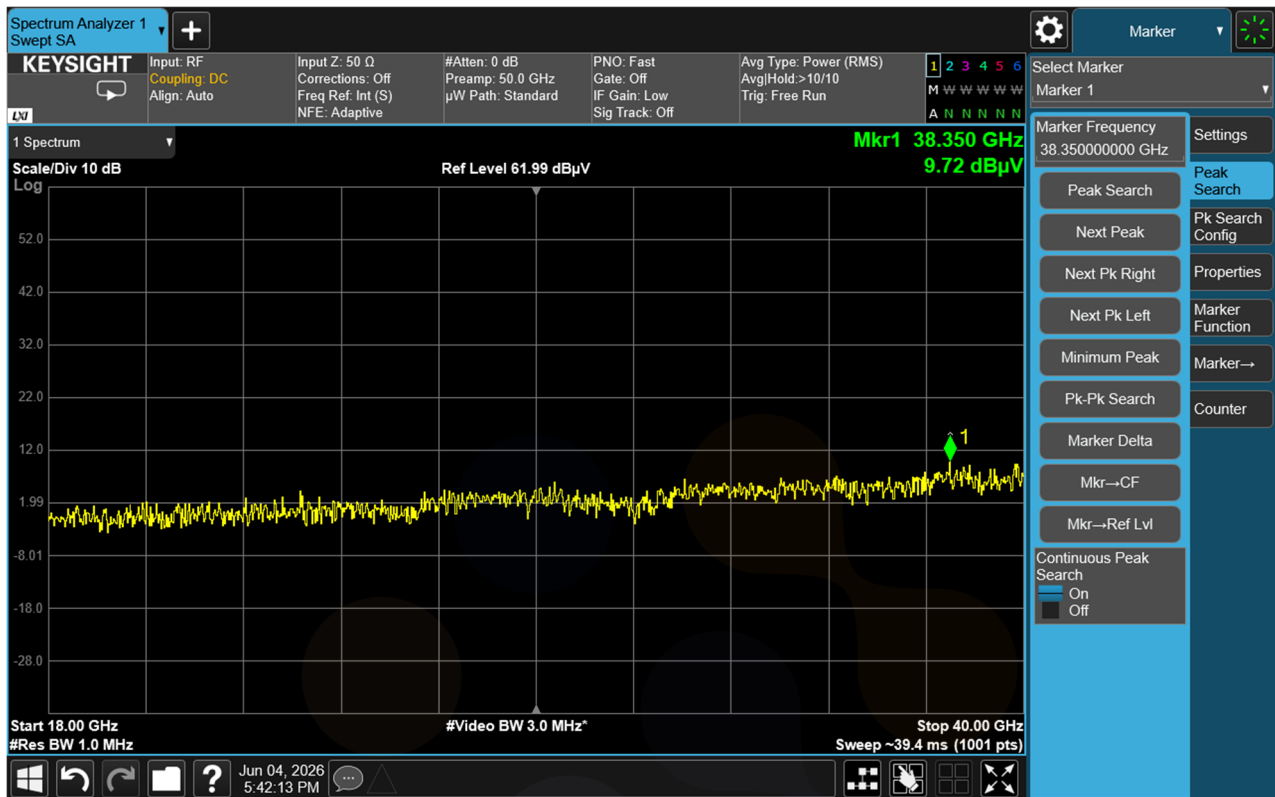
05:23:35 PM 06/04/2026

10 600 MHz ~ 18 000 MHz Vertical

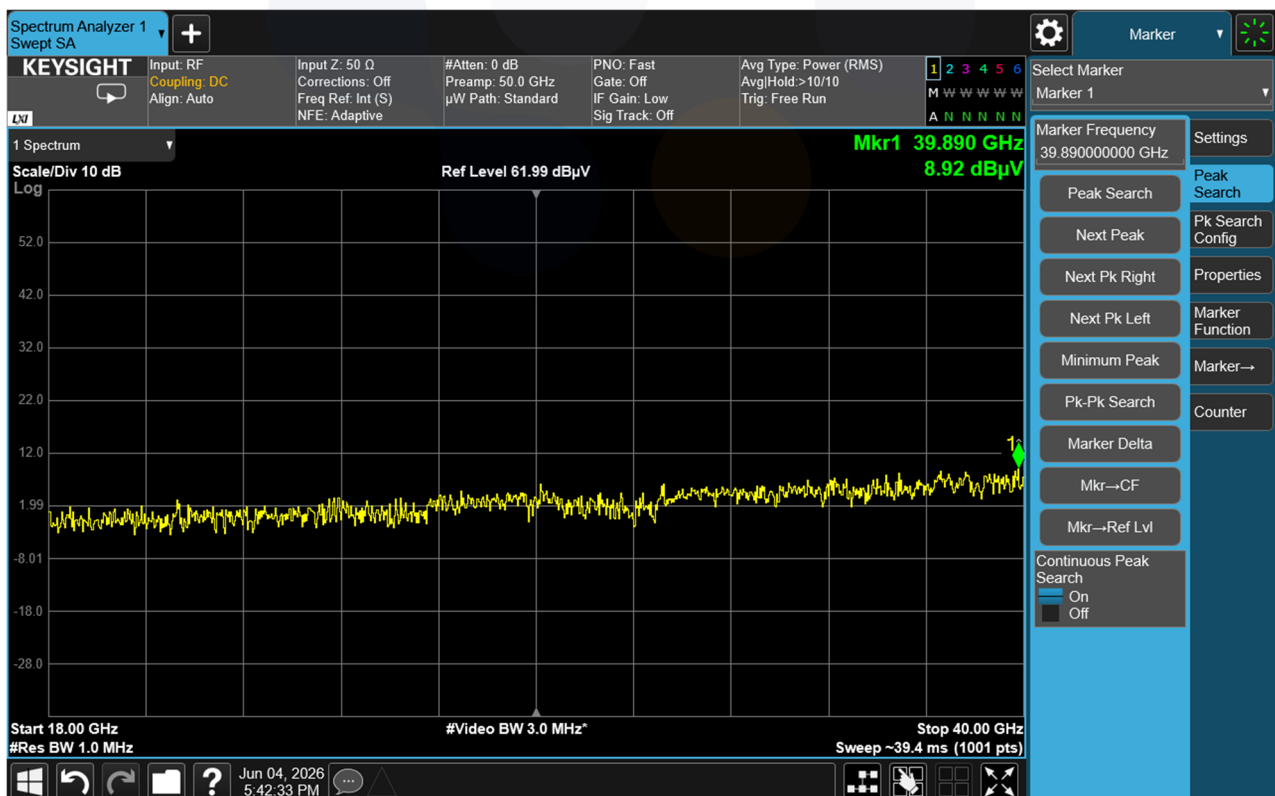


05:23:40 PM 06/04/2026

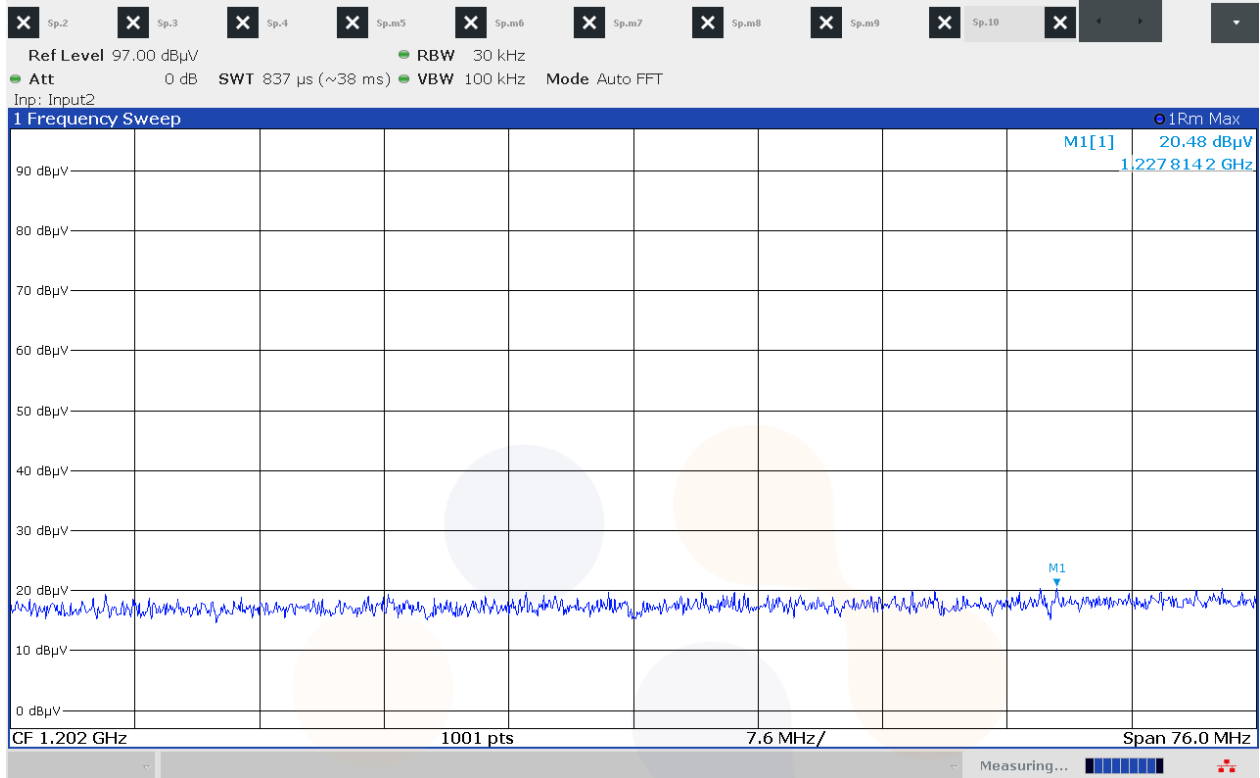
18 000 MHz ~ 40 000 MHz Horizontal



18 000 MHz ~ 40 000 MHz Vertical

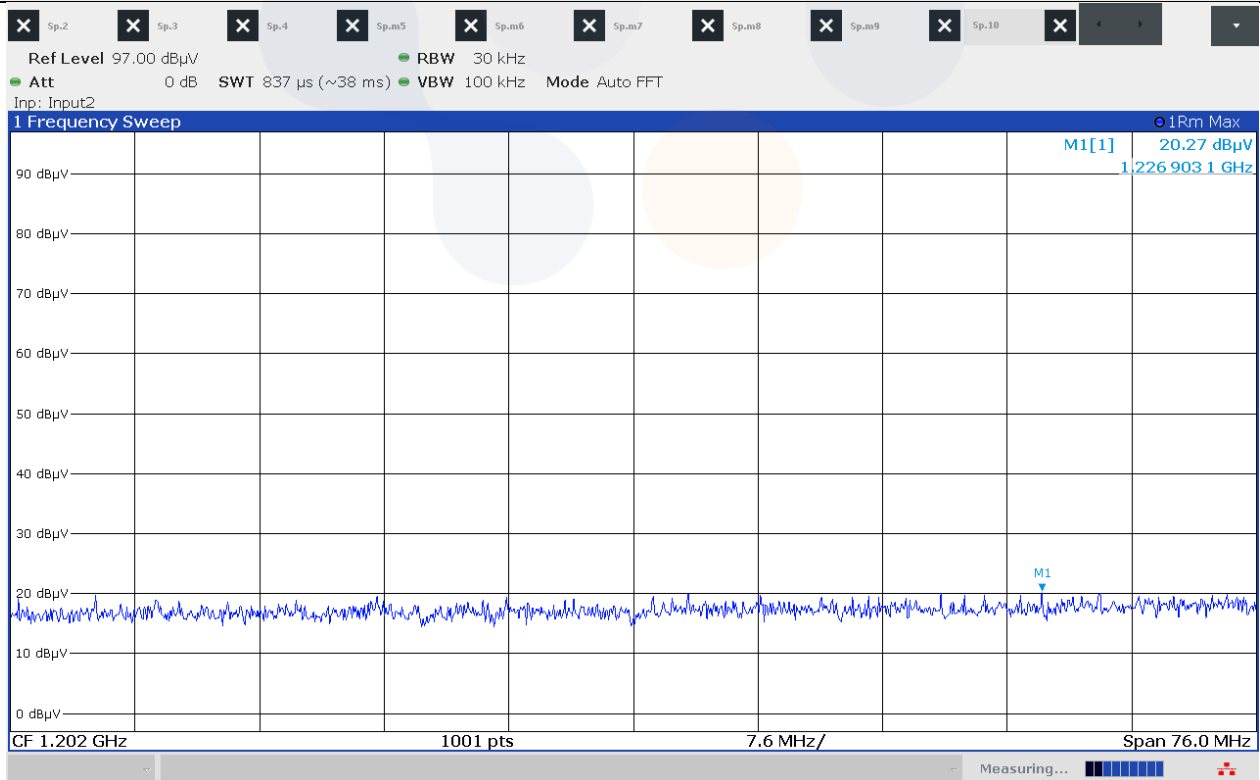


1 164 MHz ~ 1 240 MHz Horizontal



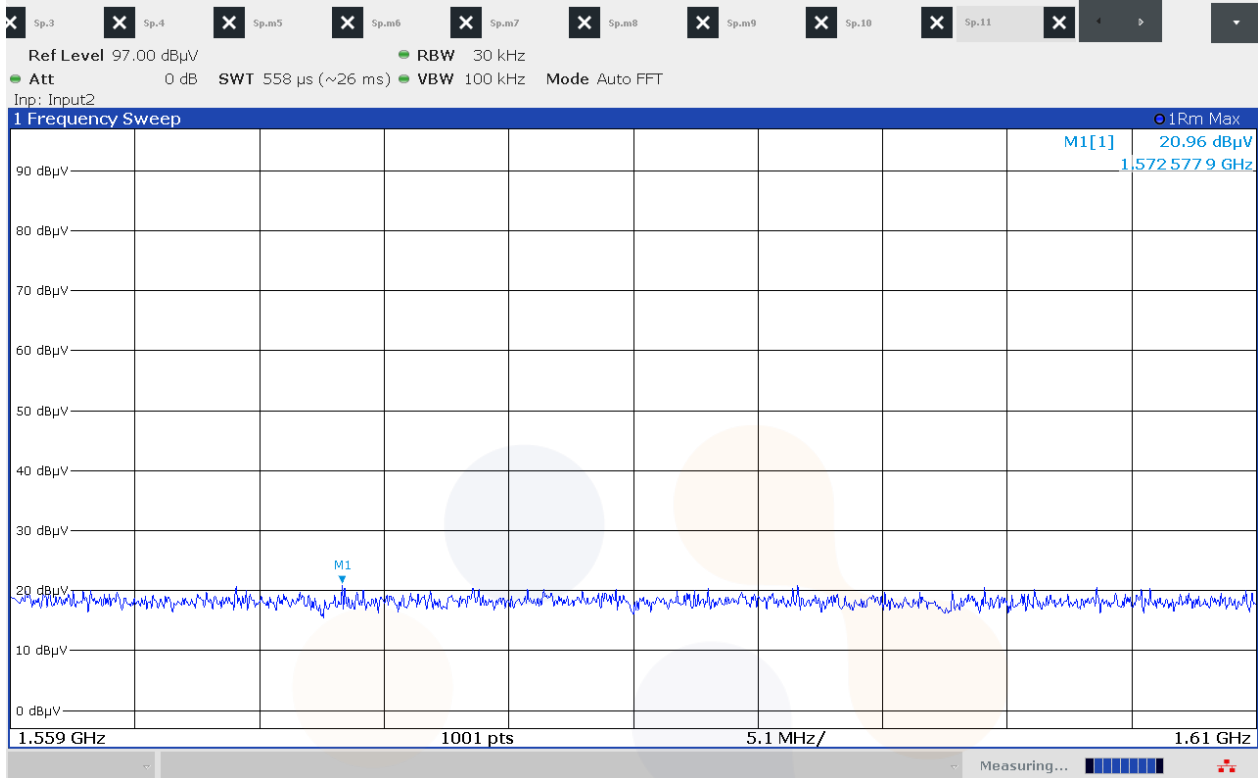
02:04:32 PM 06/04/2026

1 164 MHz ~ 1 240 MHz Vertical



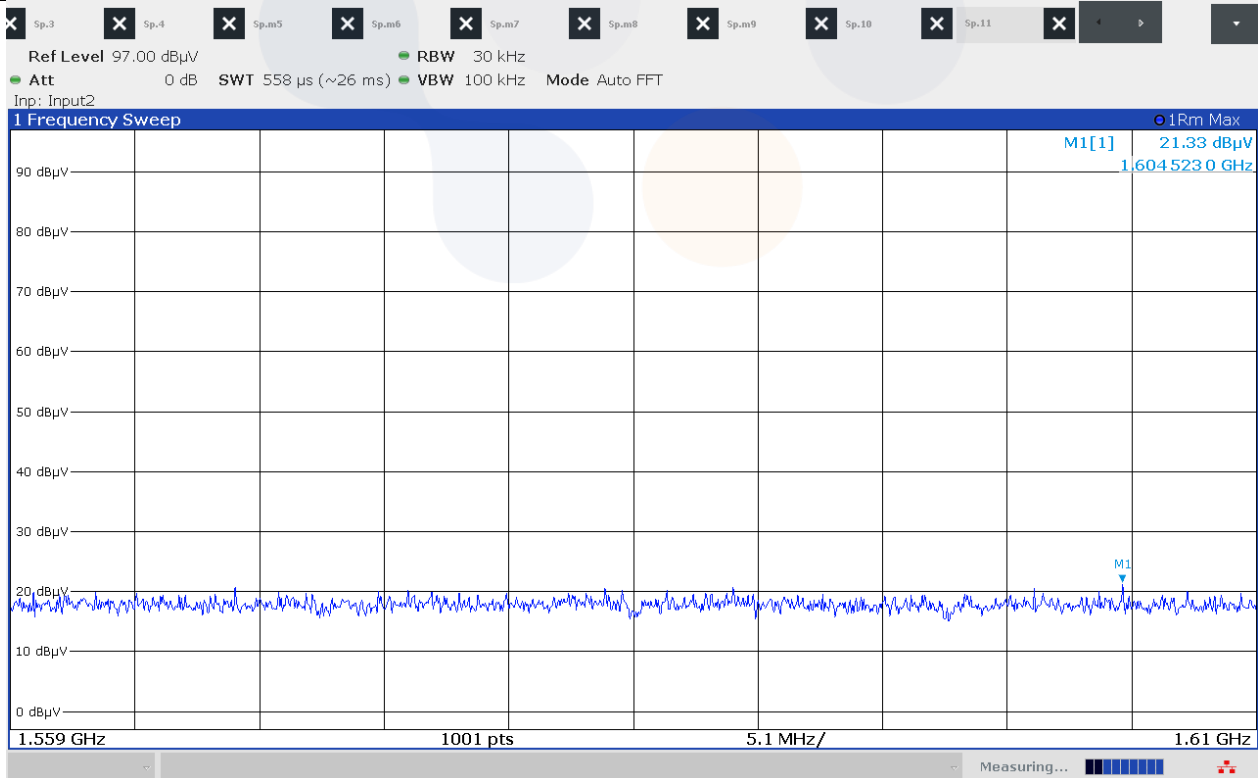
02:04:39 PM 06/04/2026

1 559 MHz ~ 1 610 MHz Horizontal



02:04:55 PM 06/04/2026

1 559 MHz ~ 1 610 MHz Vertical



02:05:02 PM 06/04/2026

6.5. Radiated Spurious Emission – Below 960 MHz

Limit

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency[MHz]	Field strength [$\mu V/m$]	Measurement distance[m]
0.009-0.490	2400/F	300
0.490-1.705	24000/F	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

***Radiated Limit**

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§15.231 and 15.241.

Test procedure

ANSI C63.10-2013

Test settings

Below 30 MHz

RBW 120 kHz (for emissions from 30 MHz – 1 GHz)
 Detector Quasi-peak
 Trace mode Max-hold
 Sweep time Auto couple
 The trace was allowed to stabilize

Below 960 MHz

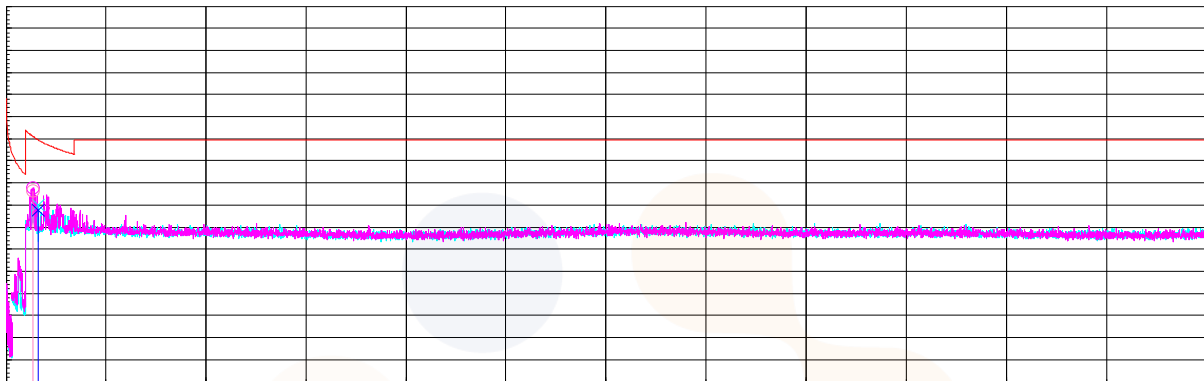
RBW 120 kHz (for emissions from 30 MHz – 1 GHz)
 VBW 300 kHz
 Detector Peak
 Trace mode Max-hold
 Sweep time Auto couple
 The trace was allowed to stabilize

*The Limits in CFR 47, Part 15, Subpart C, paragraph 15.209(a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field Strength levels (as reported in the table) using the free space impedance of 377Ω . For example, the measurement frequency X kHz resulted in a level of Y dB($\mu V/m$), which is equivalent to $Y-51.5 = Z$ dB($\mu A/m$), which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to the 15.209(a) limit

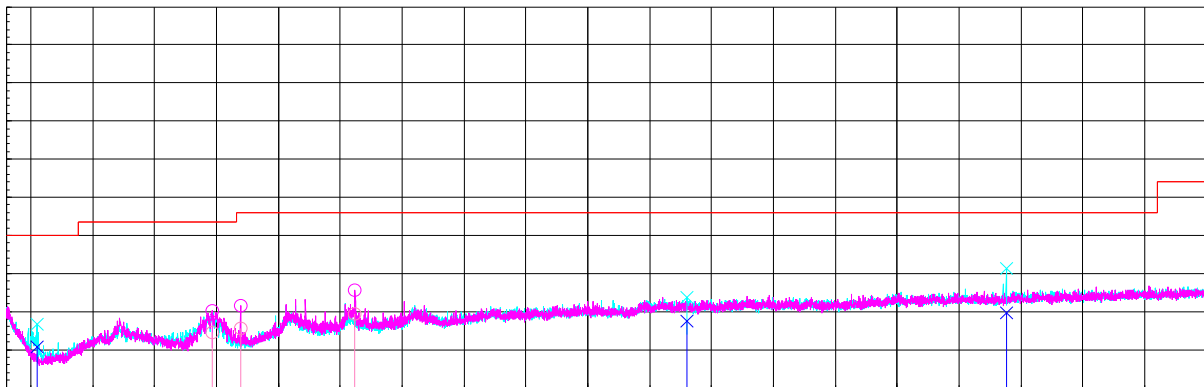
*Result [dB($\mu V/m$)] = Reading + Ant. Factor + Amp. + Cable Loss

Test results

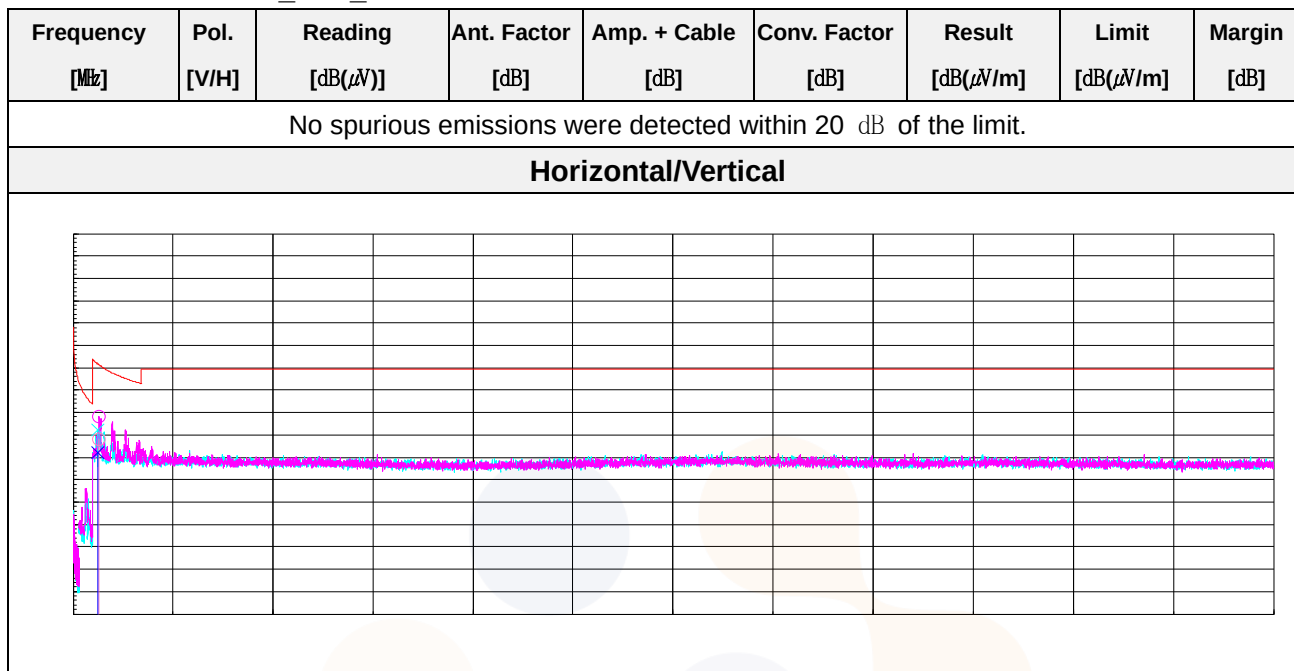
Below 30 MHz : CH 5_SP0_Preamble 9

Frequency [MHz]	Pol. [V/H]	Reading [dB(μV)]	Ant. Factor [dB]	Amp. + Cable [dB]	Conv. Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
No spurious emissions were detected within 20 dB of the limit.								
Horizontal/Vertical								
								

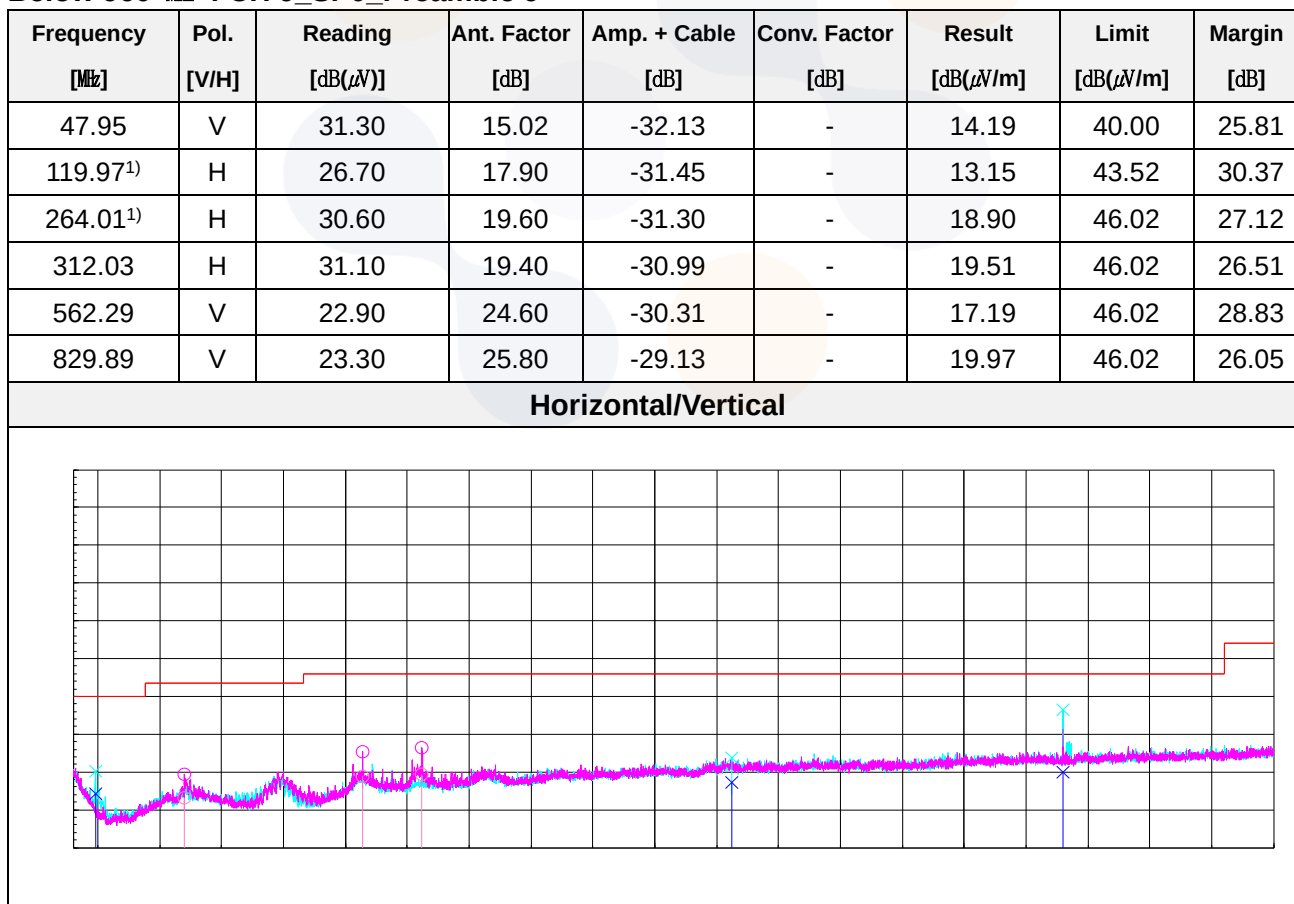
Below 960 MHz : CH 5_SP0_Preamble 9

Frequency [MHz]	Pol. [V/H]	Reading [dB(μV)]	Ant. Factor [dB]	Amp. + Cable [dB]	Conv. Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
54.74	V	30.20	12.58	-32.10	-	10.68	40.00	29.32
196.84	H	30.40	15.40	-31.39	-	14.41	43.52	29.11
219.27	H	31.60	15.16	-31.03	-	15.73	46.02	30.29
312.03	H	30.90	19.40	-30.99	-	19.31	46.02	26.71
580.23	V	23.10	24.50	-30.23	-	17.37	46.02	28.65
838.25	V	23.20	25.91	-29.37	-	19.74	46.02	26.28
Horizontal/Vertical								
								

Below 30 MHz : CH 9_SP0_Preamble 9

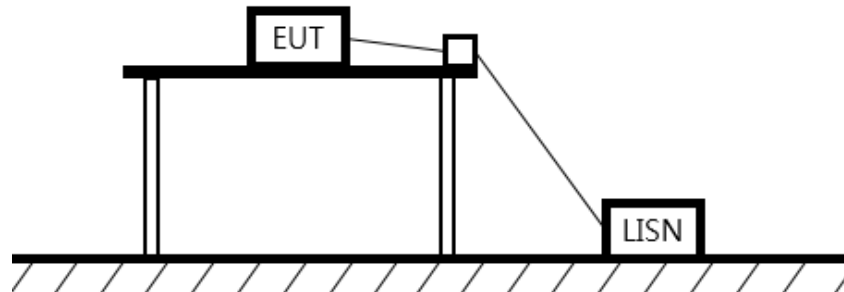


Below 960 MHz : CH 9_SP0_Preamble 9



6.6. AC Conducted Emission

Test setup



Limit

According to 15.207(a),

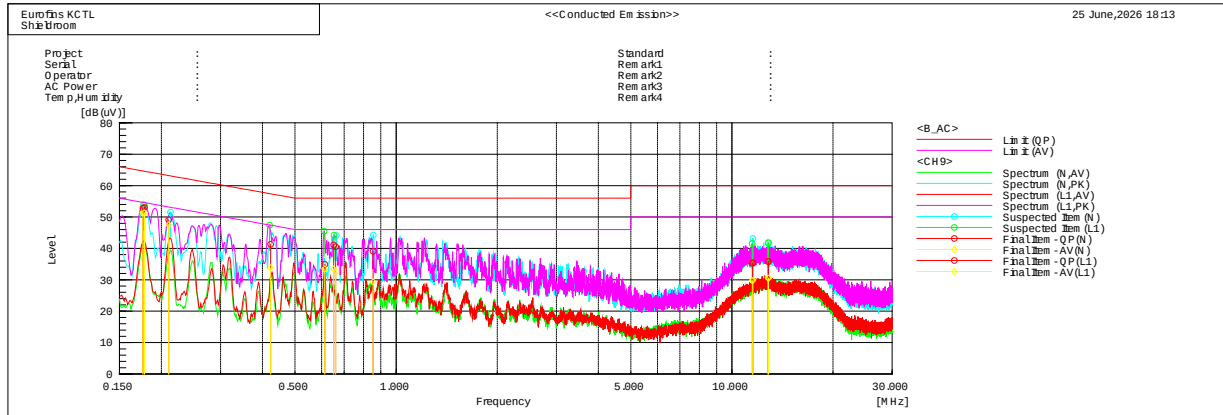
For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50uH/50 ohm line impedance stabilization network (LISN). Compliance with the provision of this paragraph shall be on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequencies ranges.

Frequency of Emission (MHz)	Conducted limit (dBμV/m)	
	Quasi-peak	Average
0.15 – 0.50	66 - 56*	56 - 46*
0.50 – 5.00	56	46
5.00 – 30.0	60	50

Measurement procedure

1. The EUT was placed on a wooden table of size, 1 m by 1.5 m, raised 80 cm in which is located 40 cm away from the vertical wall and 1.5m away from the side wall of the shielded room.
2. Each current-carrying conductor of the EUT power cord was individually connected through a 50Ω/50μH LISN, which is an input transducer to a spectrum analyzer or an EMI/Field Intensity — Meter, to the input power source.
3. Exploratory measurements were made to identify the frequency of the emission that had the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable position, and with a typical system equipment configuration and arrangement. Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that had produced the emission with the highest amplitude relative to the limit was selected for the final measurement.
4. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment is the system) was then performed over the frequency range of 0.15 MHz to 30 MHz.
5. The measurements were made with the detector set to peak amplitude within a bandwidth of 10 kHz or to quasi-peak and average within a bandwidth of 9 kHz. The EUT was in transmitting mode during the measurements.

Test results - Worst case: CH 9_SP0_Preamble 9



Final Result

--- N Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result CAV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin CAV [dB]
1	0.17624	42.5	41.0	10.3	52.8	51.3	64.7	54.7	11.9	3.4
2	0.21017	39.1	37.5	10.0	49.1	47.5	63.2	53.2	14.1	5.7
3	0.66022	30.5	22.5	10.0	40.5	32.5	56.0	46.0	15.5	13.5
4	0.85363	29.1	19.5	9.9	39.0	29.4	56.0	46.0	17.0	16.6
5	11.54749	25.2	19.7	10.3	35.5	30.0	60.0	50.0	24.5	20.0
6	12.80852	25.6	20.3	10.3	35.9	30.6	60.0	50.0	24.1	19.4

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result CAV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin CAV [dB]
1	0.17813	42.7	41.0	10.3	53.0	51.3	64.6	54.6	11.6	3.3
2	0.4228	31.2	23.7	10.1	41.3	33.8	57.4	47.4	16.1	13.6
3	0.61319	24.8	23.3	10.1	34.9	33.4	56.0	46.0	21.1	12.6
4	0.65194	31.1	23.5	10.0	41.1	33.5	56.0	46.0	14.9	12.5
5	11.49653	24.9	19.4	10.3	35.2	29.7	60.0	50.0	24.8	20.3
6	12.847	25.4	20.2	10.3	35.7	30.5	60.0	50.0	24.3	19.5

Eurofins KCTL Co.,Ltd. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea TEL: 82-70-4904-0113 FAX: 82-505-299-8311 www.kctl.co.kr	Report No.: KR26-SRF0127-A Page (41) of (41)	 
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7. Measurement equipment

Equipment Name	Manufacturer	Model No.	Serial No.	Next Cal. Date
Signal & Spectrum Analyzer	R&S	FSW85	101975	27.05.06
PXA Signal Analyzer	KEYSIGHT	N9040B	US55230151	26.07.01
DC Power Supply	TOYOTECH	TL305TP	20100121	27.04.23
Horn antenna	ETS.lindgren	3117	251528	27.01.23
Horn antenna	ETS.lindgren	3116	86635	27.01.20
Amplifier	B&Z Technologies	BZR-0050400-551028-252525	27736	27.04.27
Amplifier	L-3 Narda-MITEQ	JS44-18004000-33-8P	2000996	27.01.26
Signal Generator	R&S	SMB100A	176206	27.01.15
Antenna Mast	Innco Systems	MA4640-XP-ET	MA4000/396/30810213/L	-
Controller	Innco Systems	CO3000	1175/45850319/P	-
Spectrum Analyzer	R&S	FSV40	100988	27.04.06
Amplifier	SONOMA INSTRUMENT	310N	421910	26.07.01
Bi-log Antenna	Teseq GmbH	CBL 6112D	61521	26.12.11
Loop Antenna	R&S	HFH2-Z2	100355	26.06.25
DC Power Supply	POWERCOM	DCP-50100A	20220610-01	27.01.16
Vector Signal Generator	R&S	SMBV100A	257566	26.07.01
Controller	INNCO SYSTEMS	CO3000	1442/54370322/P	-
Antenna Mast	INNCO SYSTEMS	MA4640-XP-ET	AM002	-
Turn Device	INNCO SYSTEMS	DS1200-S-1t	1	-
Broadband PreAmplifier	SCHWARZBECK	BBV9718D	57	27.01.15
Low Noise Amplifier	TESTEK	TK-PA18H	220124-L	26.09.29
Low Noise Amplifier	TESTEK	TK-PA1840H	220133-L	26.10.13
Horn Antenna	SCHWARZBECK	BBHA9170	1267	26.10.02
High Pass Filter	QOTANA TECHNOLOGIES	DBHF0508004000A	23041800061	27.04.28

End of test report