



Engineering Solutions & Electromagnetic Compatibility Services

**FCC Part 15.255
Class II Permissive Change Report**

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FCC ID	2ASUJ-SII-SK63102	Test Report Date	April 12, 2024
Platform	N/A	RTL Work Order #	2024139
Model	Endoscope	RTL Quote #	QRTL24-139A
FCC Classification	DXX – Part 15 Low Power Communication Device Transmitter		
FCC Rule Part(s)/Guidance	Part 15C, 15.255: Operation within the band 57– 71 GHz.		
Test Procedures	ANSI C63.10-2020: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices		
Industry Canada	N/A		
Digital Interface Information	Digital Interface was found to be compliant		
Frequency Range (GHz)	Output Power (W) EIRP	Frequency Stability	Emission Designator
60.163-62.957	0.782	1.6 MHz/20.4 PPM	N/A

I, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described in this test report. No modifications were made to the equipment during testing in order to achieve compliance with these standards. Furthermore, there was no deviation from, additions to, or exclusions from, the applicable parts of FCC Part 2, FCC Part 15, ANSI C63.10, and ANSI C63.4.

Signature: 

Date: April 12, 2024

Typed/Printed Name: Desmond A. Fraser

Position: President

This report may not be reproduced, except in full, without the written approval of Rhein Tech Laboratories, Inc. and Airbeam 60 GHz Holdings Ltd. The test results relate only to the item(s) tested.

These tests are accredited and meet the requirements of ISO/IEC 17025 as verified by ANAB. Refer to certificate and scope of accreditation AT-1445.

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1 General Information

1.1 Scope

This Class II measurement report is prepared on behalf of RF Safety Laboratory in accordance with the applicable Federal Communications Commission.

The Equipment Under Test (EUT) is a Wireless HD Source radio transmitter module designed to operate as part of a Wireless Video Audio Network (WVAN) in the 57 to 64 GHz band endoscope system. The EUT sends High-Definition Audio/Video to a Wireless HD Sink radio receiver device with FCC ID: 2ASUJ-SII-SK63101, tested with one antenna.

This FCC §15.255 report supports a Class II application for an ENDOSCOPE incorporating the EUT with an LCD and a receiver that displays endoscopic images on a monitor. The EUT transmits HD Audio/Video data at channels between 60.163-62.957 GHz using an adaptive beam-steering array with 18 dBi maximum gain. The 1080p video mode at 60.48 GHz was determined to be the worst-case emissions mode.

1.2 Typical Usage of the Host Integrating the EUT

The host system, an endoscopic device used in the healthcare industry to perform endoscopic examinations, integrates the Equipment Under Test (EUT), a Wireless HD Source radio transmitter module. The EXAMPLE photograph below is taken from the internet for illustrative purposes only. It depicts a typical use case setting.

An endoscopic device with an attached light source can be seen. One healthcare provider stands next to a cart, and the patient lies on the bed in preparation for the examination. A second healthcare provider is next to a monitor.

The monitor is presumed to connect to a receiver display device similar to the Wireless HD Sink radio receiver device described in this application. The distance between the endoscopic device and the receiver display device is approximately 6 to 8 feet.



Example Photograph Source: Internet

1.3 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located in the parking lot of Rhein Tech Laboratories, Inc., 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170. This site has been fully described in a report submitted to and approved by the Federal Communications Commission to perform AC line conducted and radiated emissions testing.

1.4 Related Submittal(s) and Grant(s)

Display receiver FCC ID: 2ASUJ-SII-SK63101

1.5 Modifications

None.

2 Tested System Details

The test sample was received on March 22, 2024. Below are the identifiers and descriptions of all equipment, cables, and internal devices used with the EUT for this testing, as applicable.

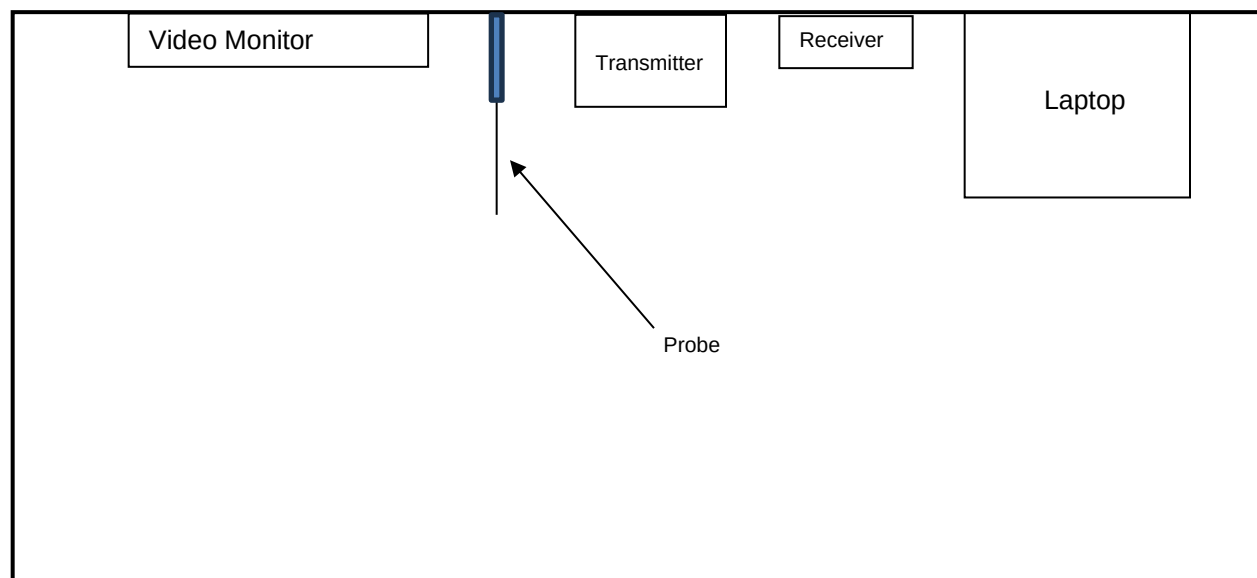
Table 2-1: Equipment under Test (EUT)

Part	Manufacturer	Model	Serial Number	FCC ID	Cable Type	RTL Bar Code
Versa Control One Handheld Display transmitter	Airbeam 60 GHz Holdings Ltd.	60 GHz WIRELESS HD TRANSMITTER (8100850)	8100850-012	2ASUJ-SII-SK63102	1.8m shielded μ USB	24319
AC Adapter 5VDC	GlobTek	GTM86100-1005-W2	3322HB	N/A	1.4m unshielded	24403
Endoscopic Probe	Airbeam 60 GHz Holdings Ltd.	8100817	DVT0027	N/A	3.3m shielded I/O	24320

Table 2-2: Additional Test Equipment Used

Part	Manufacturer	Model	Serial Number	FCC ID	Cable Type	RTL Bar Code
Versa One System Wireless HDMI Receiver	Airbeam 60 GHz Holdings Ltd.	8101016	81000881-013	2ASUJ-SII-SK63101	HDMI 1.7m	24313
AC Adapter 5/9/12/15/20 VDC	CUI Inc	SWI60-C-V-N	N/A	N/A	1.8m shielded USBC	24321
Monitor	ACER	V247Y	92313097342	N/A	Unshielded power	N/A
Laptop	Dell	Inspiron 3793	25596680403	N/A	N/A	N/A

Figure 2-1: Configuration of Tested System



2.1 Test Distance

The final radiated emissions tests were performed at a 3-meter horizontal distance from the edge of the radar to the test antenna. The EUT was also investigated at closer test distances in order to discern any emissions.

3 Modulated Bandwidth – §15.255(e)(1)

3.1 Bandwidth Test Procedure

ANSI C63.10 6.9

The minimum 6 dB bandwidth was measured using a 50-ohm spectrum analyzer with the resolution bandwidth set at 100 kHz and the video bandwidth set at $\geq 3 \times$ RBW. Max hold was used until the spectrum was adequately filled to portray the bandwidth and a plot was taken.

3.2 Bandwidth Limits

(1) Transmitters with an emission bandwidth of less than 100 MHz must limit their peak transmitter conducted output power to the product of 500 mW times their emission bandwidth divided by 100 MHz. For the purposes of this paragraph, emission bandwidth is defined as the instantaneous frequency range occupied by a steady state radiated signal with modulation, outside which the radiated power spectral density never exceeds 6 dB below the maximum radiated power spectral density in the band, as measured with a 100 kHz resolution bandwidth spectrum analyzer. The center frequency must be stationary during the measurement interval, even if not stationary during normal operation (e.g., for frequency hopping devices).

3.3 Modulated Bandwidth Test Data

Table 3-1: Environmental Conditions

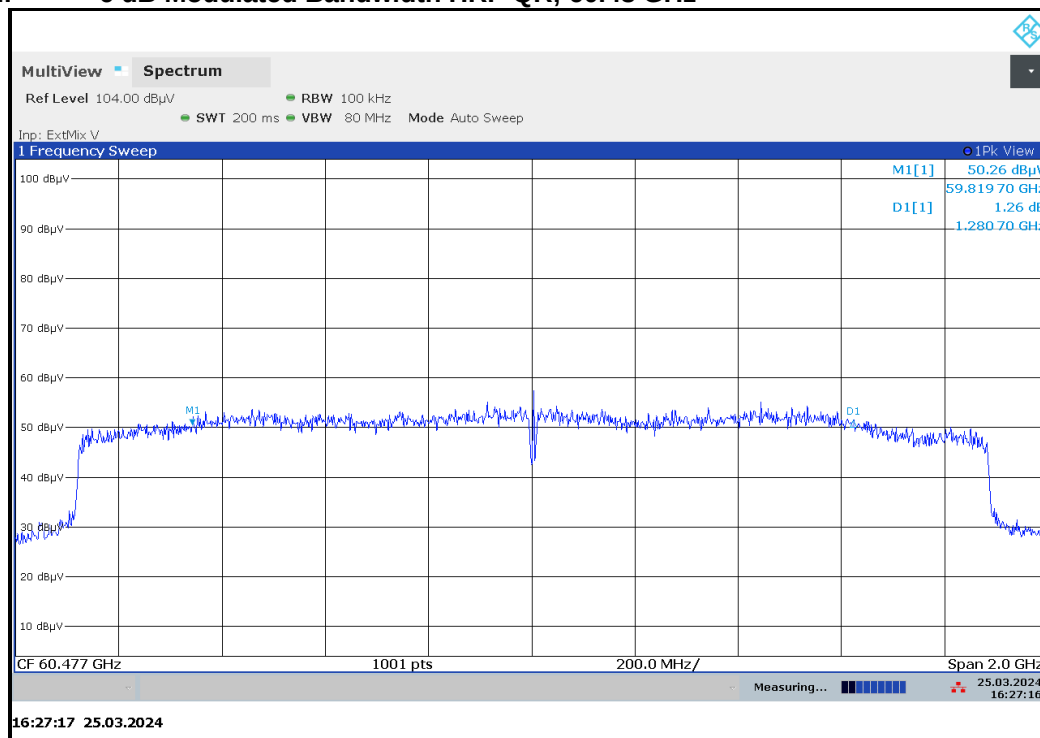
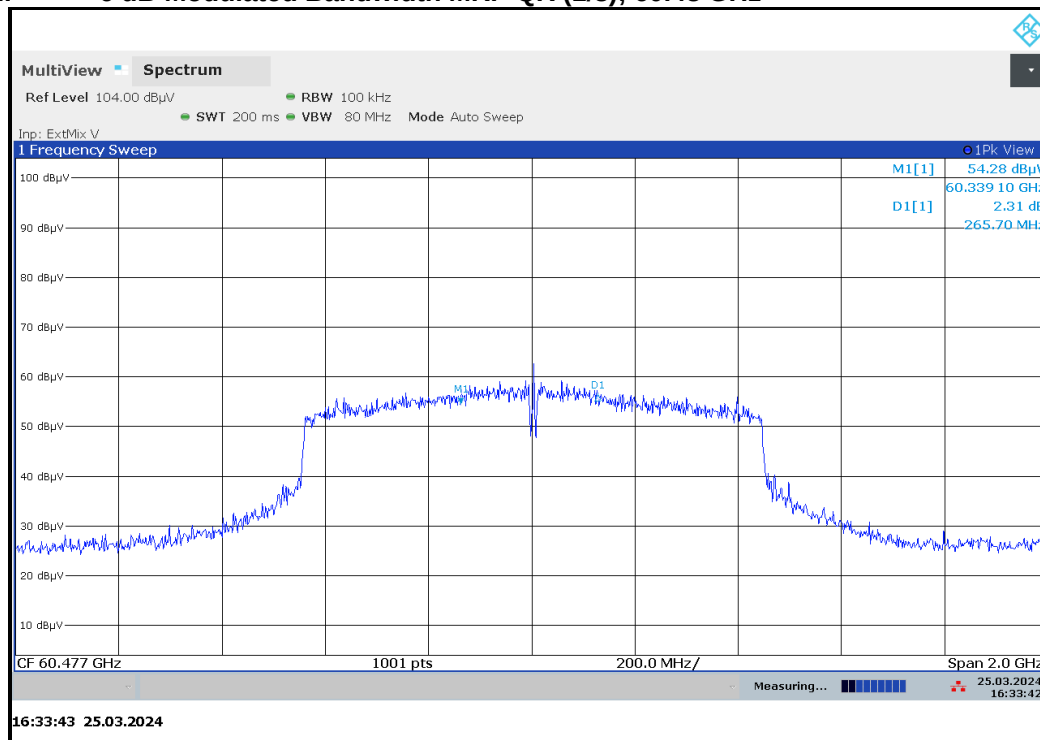
Date	Temperature (°C)	Humidity (%)	Pressure (kPa)
03/26/24	22	23	100.8

Table 3-2: 6 dB Modulated Bandwidth

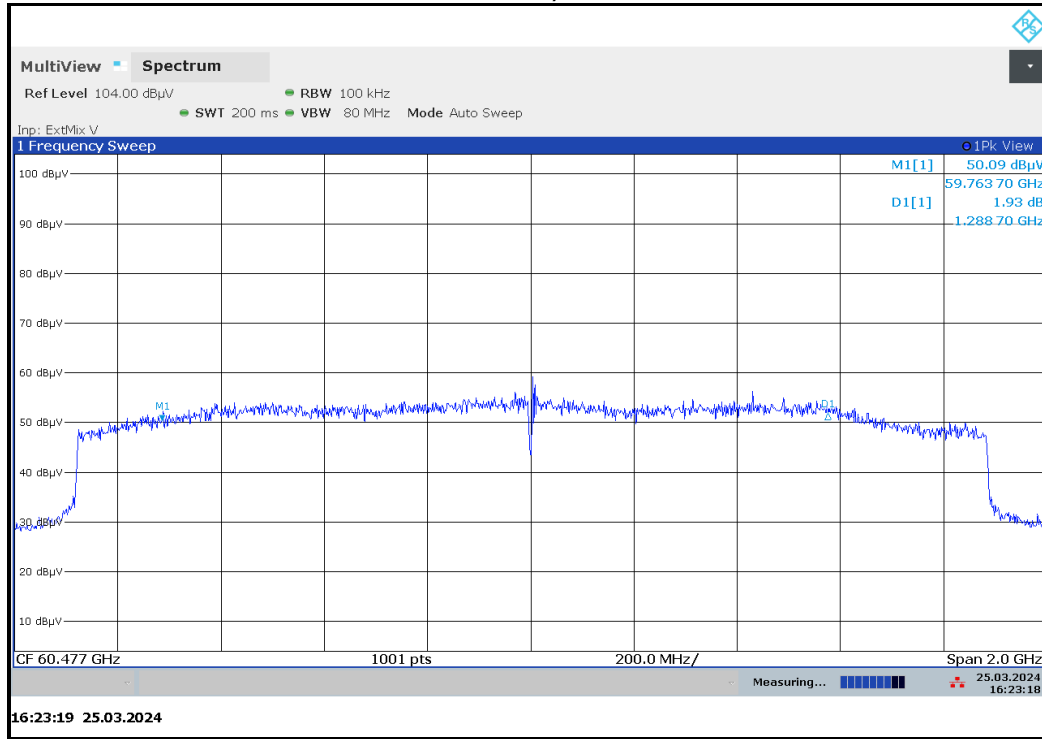
Rate Adaptation	60.48 GHz 6 dB Bandwidth (MHz)	62.64 GHz 6 dB Bandwidth (MHz)	Limit In Band
MRP QR (1/8)	265.7	839.8	Pass
HRP QR	1280.7	1639.0	Pass
HRP HR	1288.7	1609.1	Pass
HRP FR	1648.4	1598.8	Pass
HRP FR QR	1176.8	1437.8	Pass
HRP FR HR/QR	1140.9	1247.1	Pass

Table 3-3: 99% Modulated Bandwidth

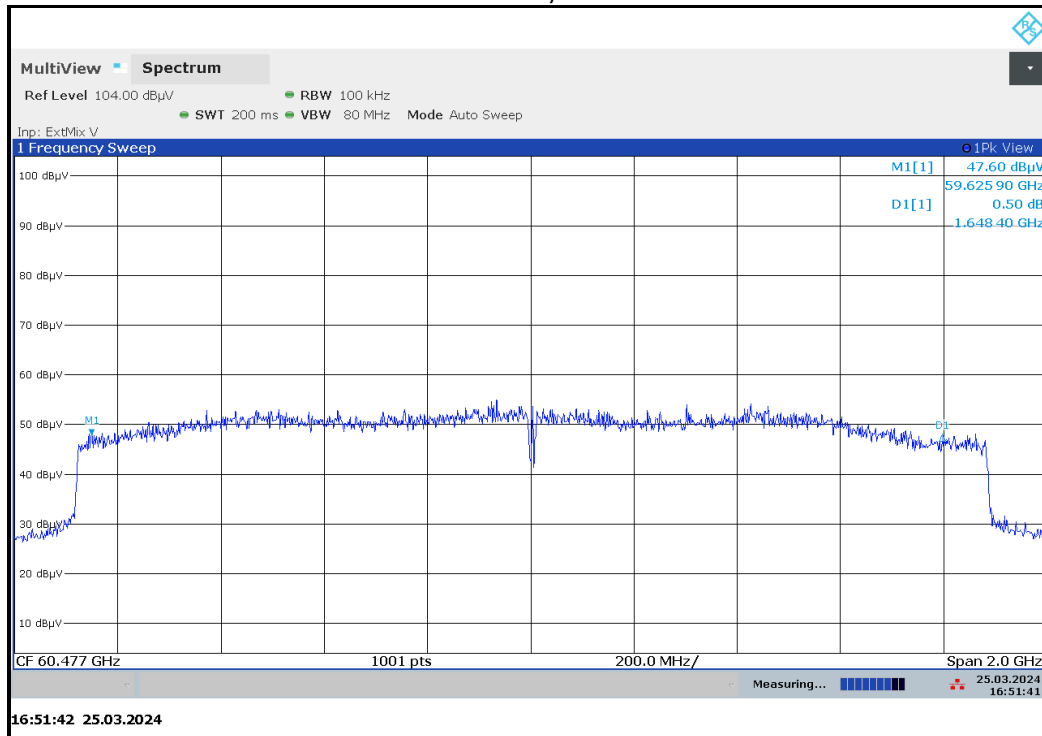
Rate Adaptation	60.48 GHz 99% Bandwidth (MHz)	62.64 GHz 99% Bandwidth (MHz)
MRP QR (1/8)	881.1	883.5
HRP QR	1728.5	1737.5
HRP HR	1725.1	1734.2
HRP FR	1725.8	1735.4
HRP FR QR	1723.9	1739.8
HRP FR HR/QR	1723.5	1735.9



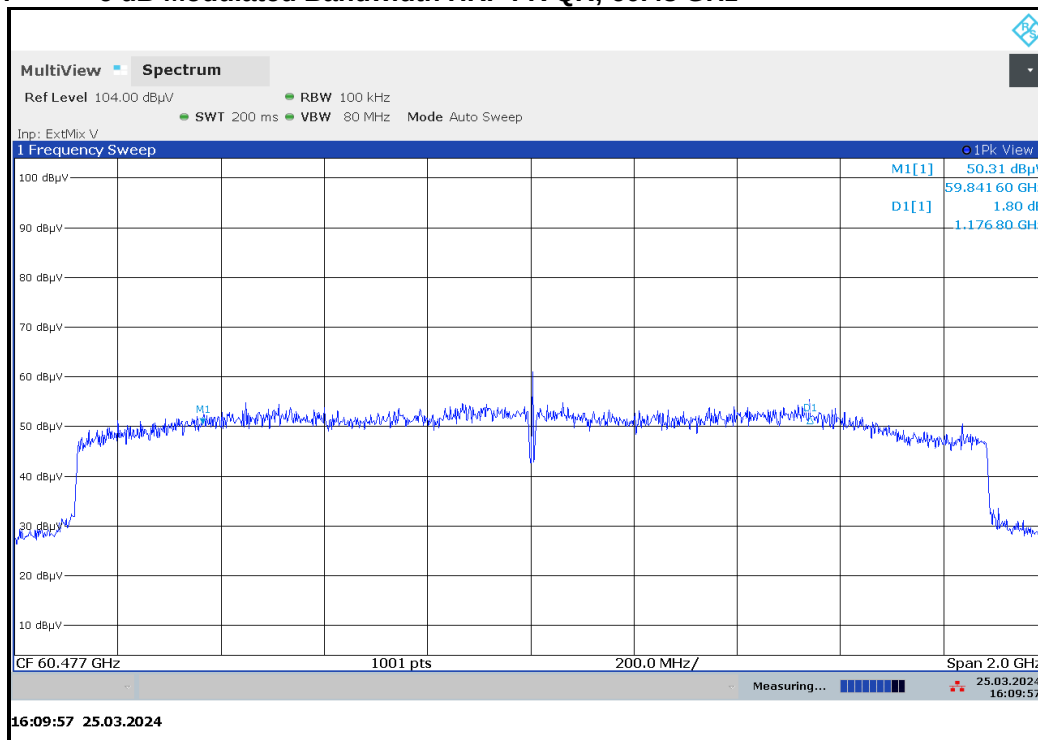
Plot 3-3: 6 dB Modulated Bandwidth HRP HR; 60.48 GHz



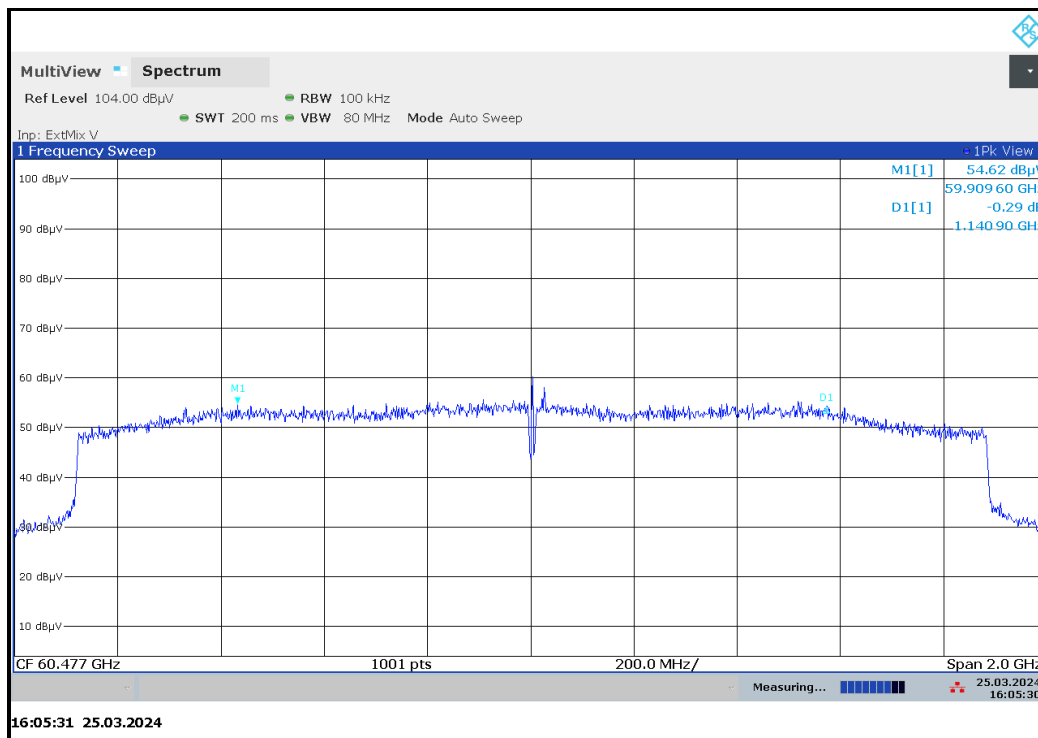
Plot 3-4: 6 dB Modulated Bandwidth HRP FR; 60.48 GHz



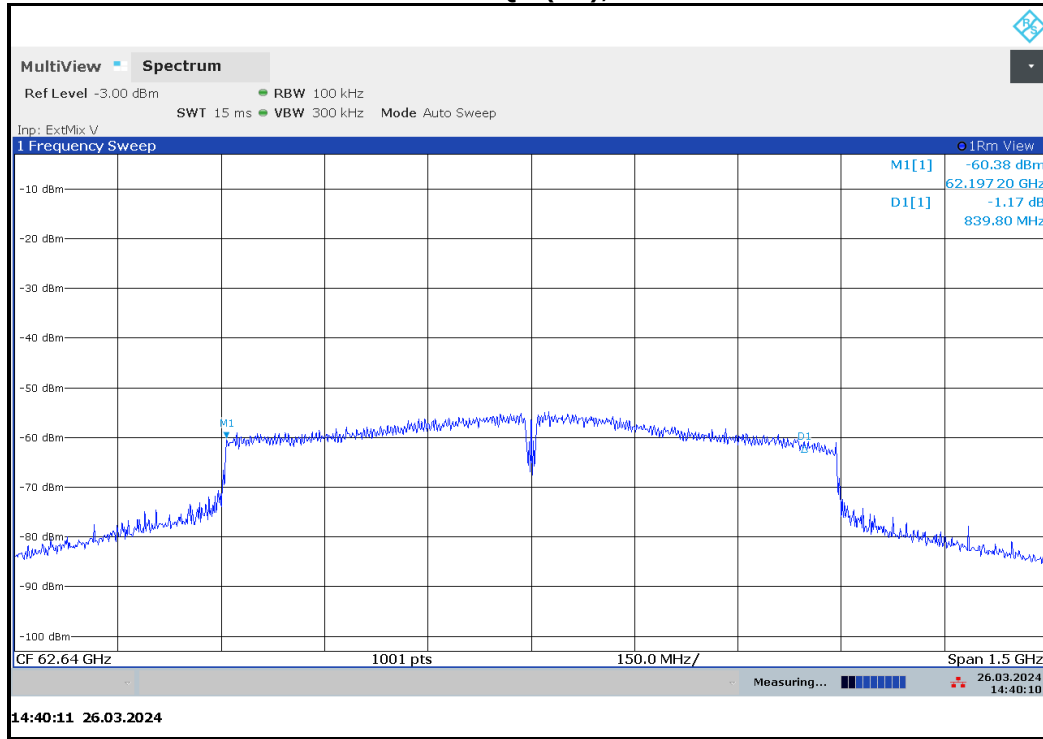
Plot 3-5: 6 dB Modulated Bandwidth HRP FR QR; 60.48 GHz



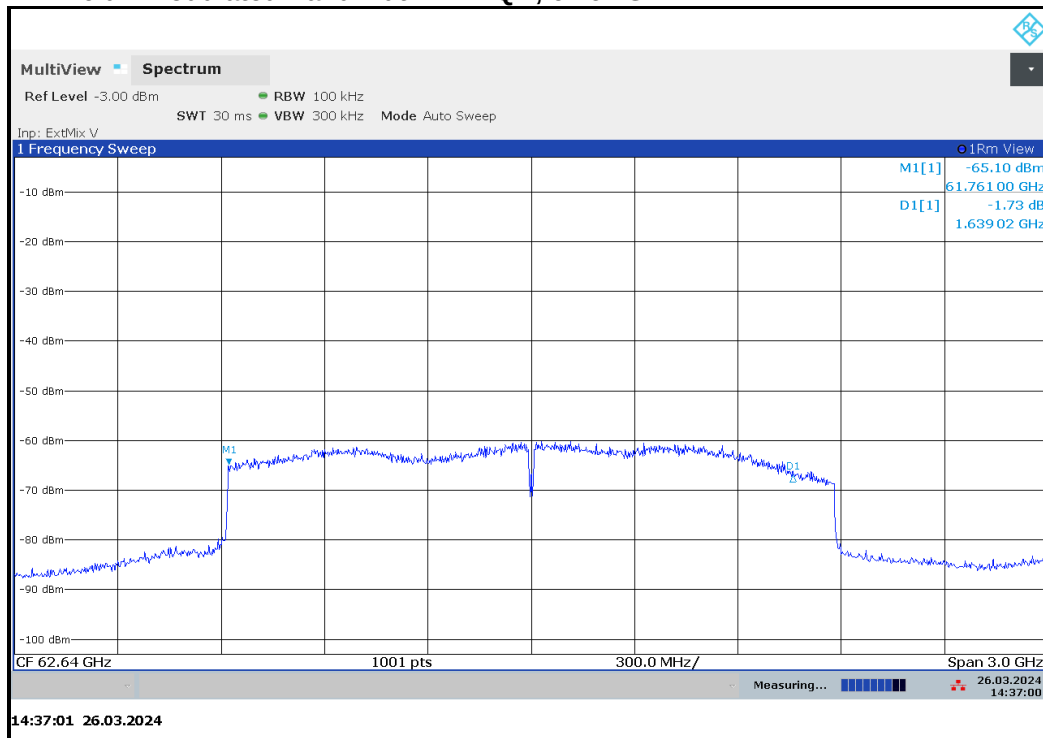
Plot 3-6: 6 dB Modulated Bandwidth HRP FR HR/QR; 60.48 GHz



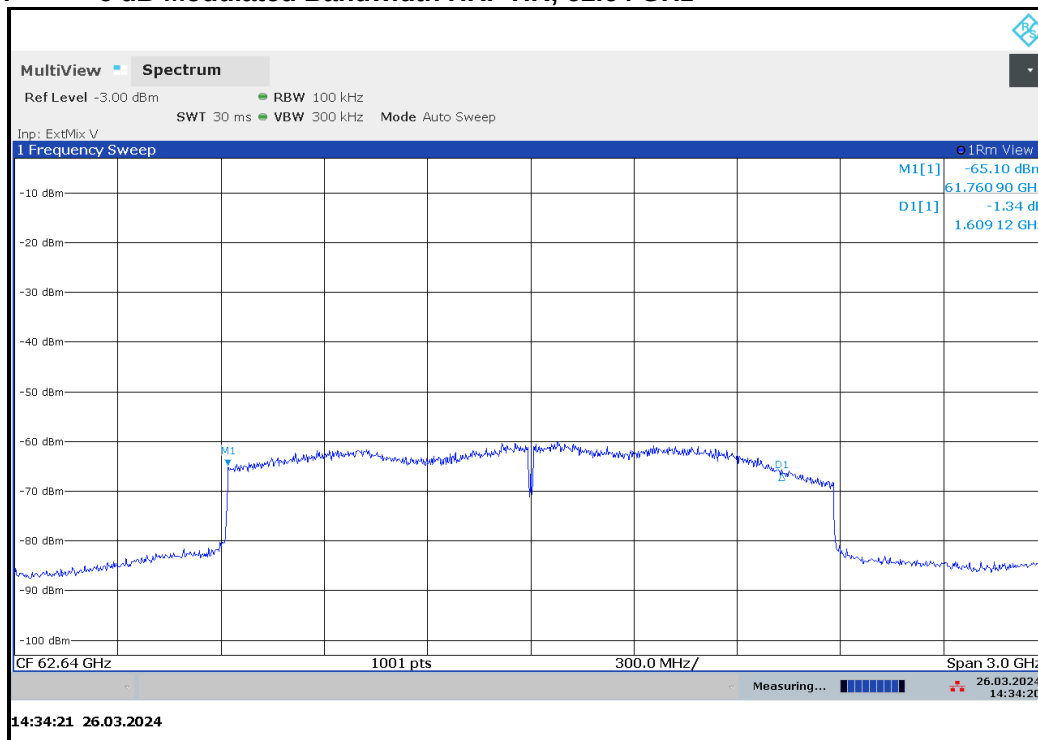
Plot 3-7: 6 dB Modulated Bandwidth MRP QR (1/8); 62.64 GHz



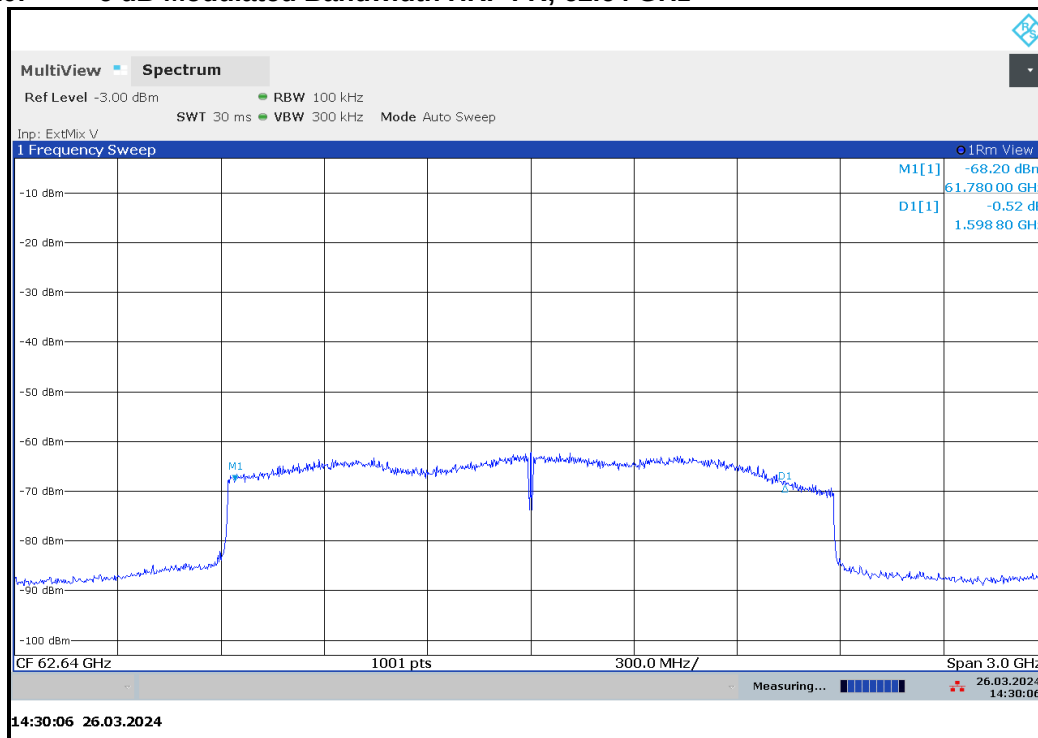
Plot 3-8: 6 dB Modulated Bandwidth HRP QR; 62.64 GHz



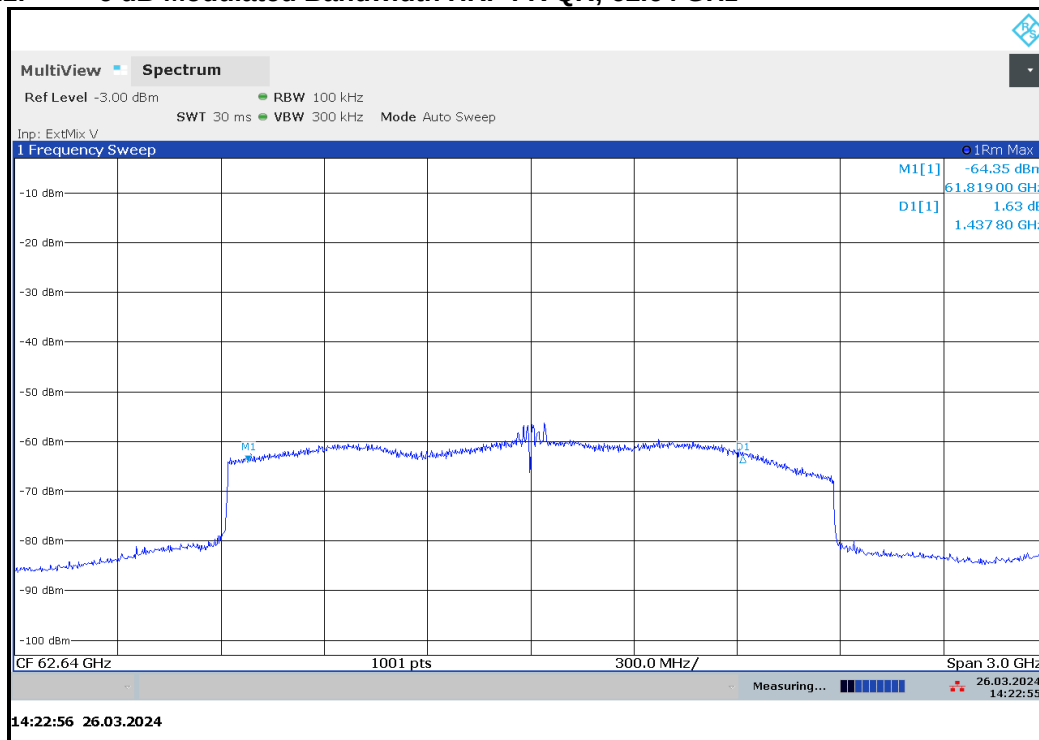
Plot 3-9: 6 dB Modulated Bandwidth HRP HR; 62.64 GHz



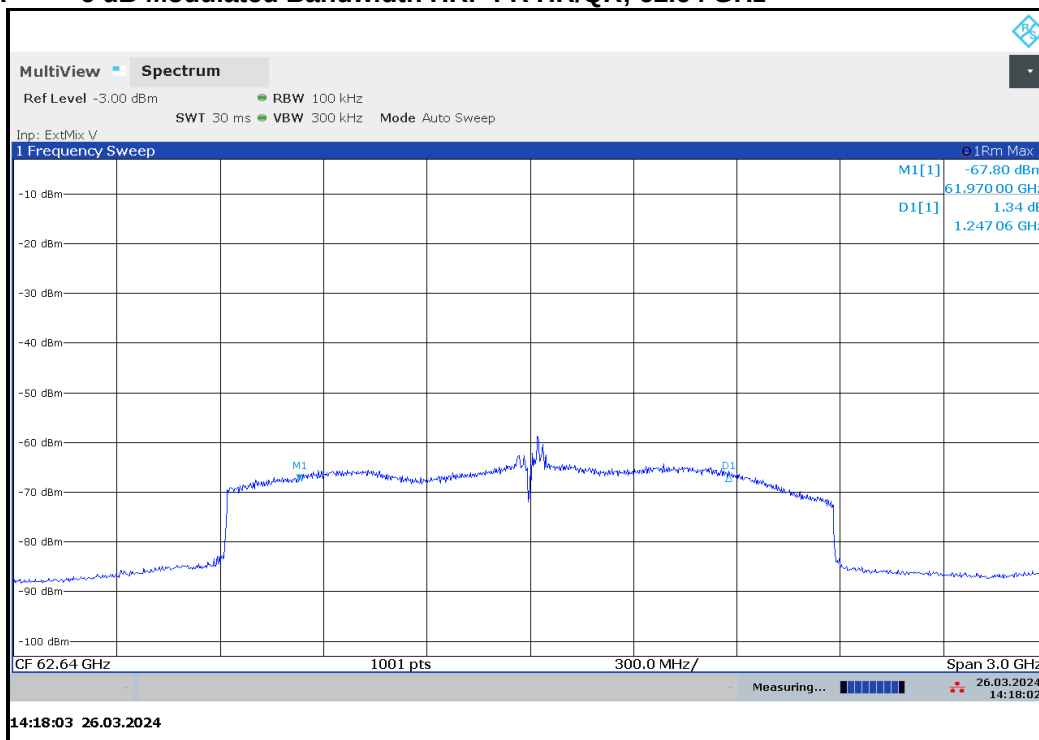
Plot 3-10: 6 dB Modulated Bandwidth HRP FR; 62.64 GHz



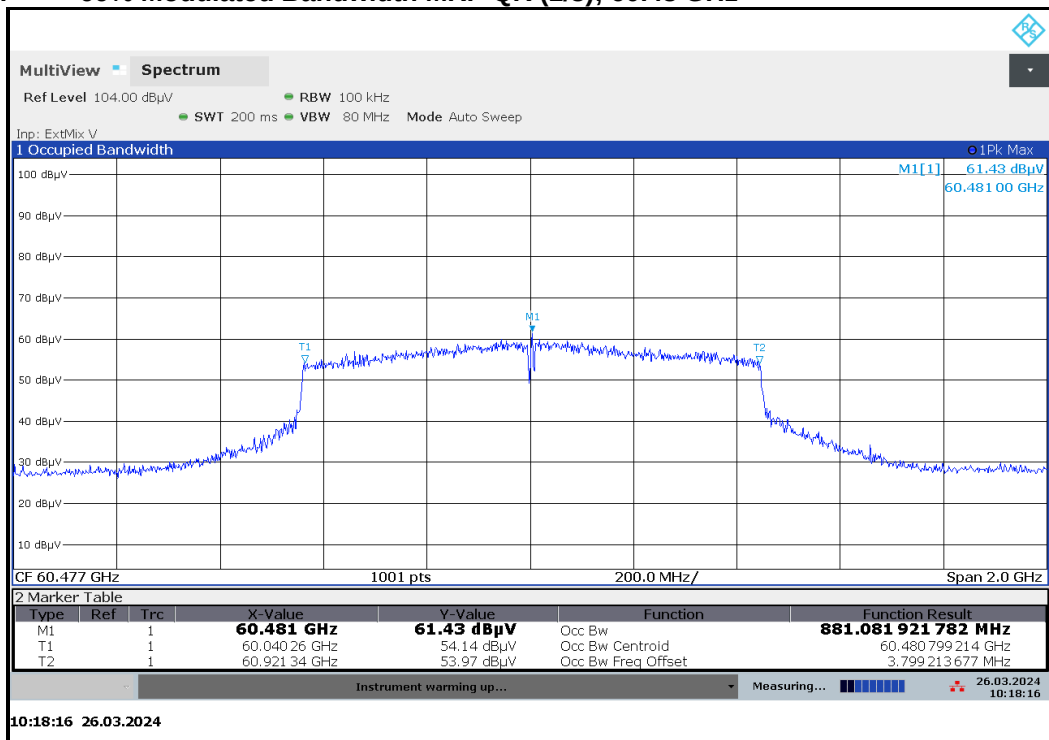
Plot 3-11: 6 dB Modulated Bandwidth HRP FR QR; 62.64 GHz



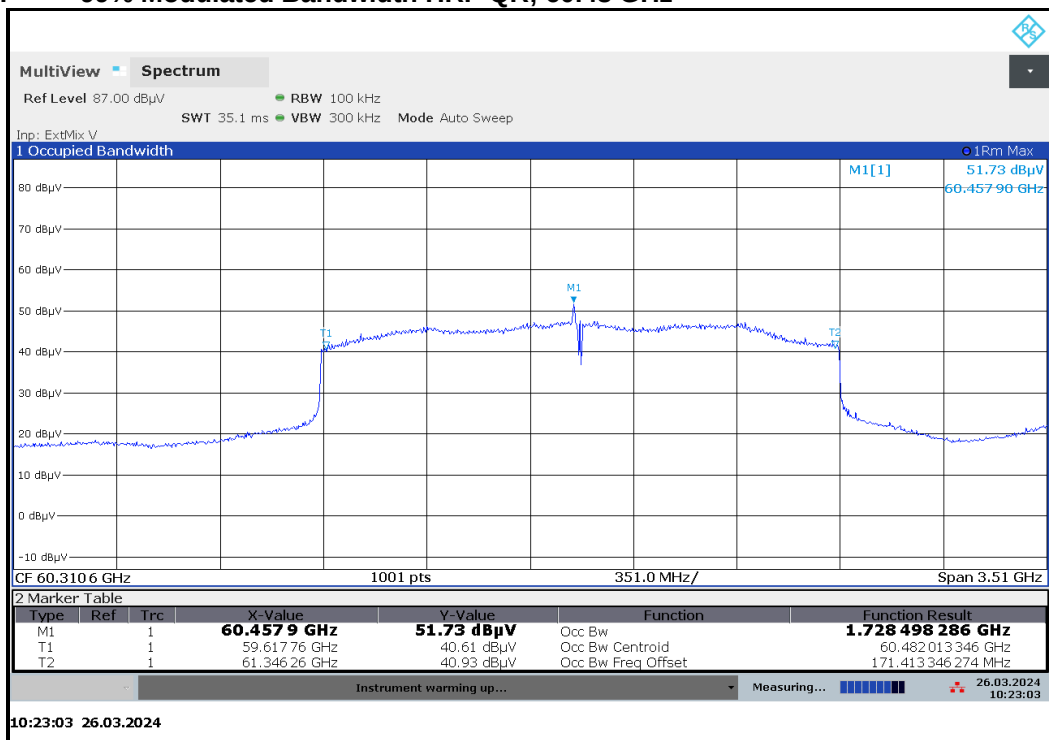
Plot 3-12: 6 dB Modulated Bandwidth HRP FR HR/QR; 62.64 GHz



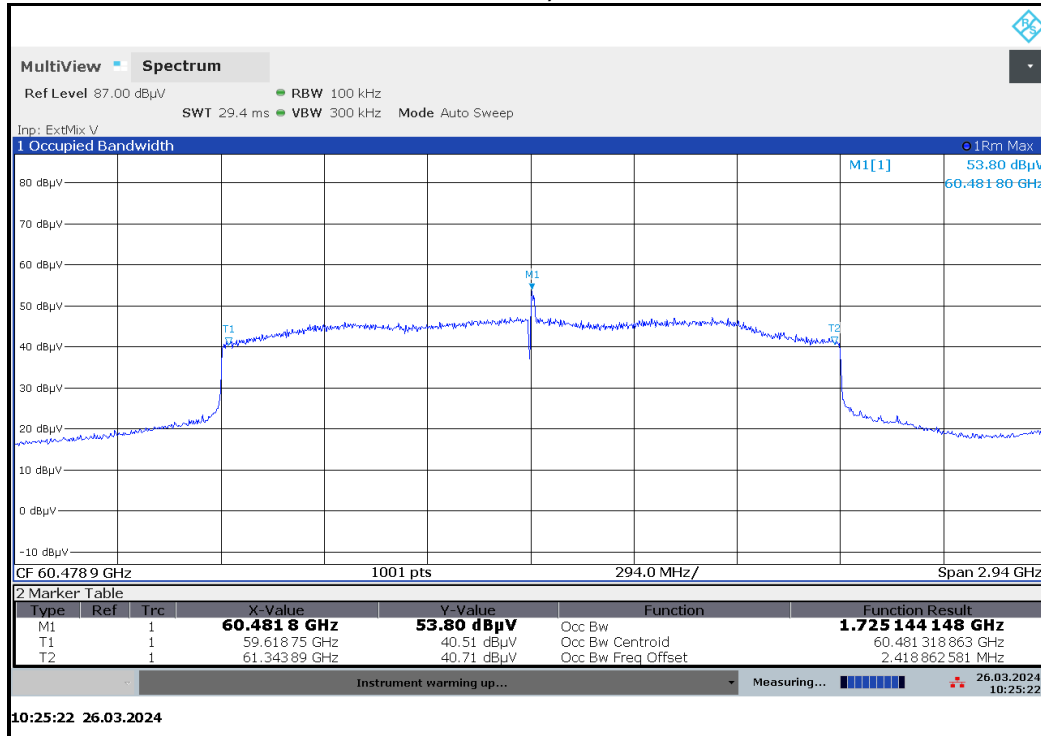
Plot 3-13: 99% Modulated Bandwidth MRP QR (1/8); 60.48 GHz



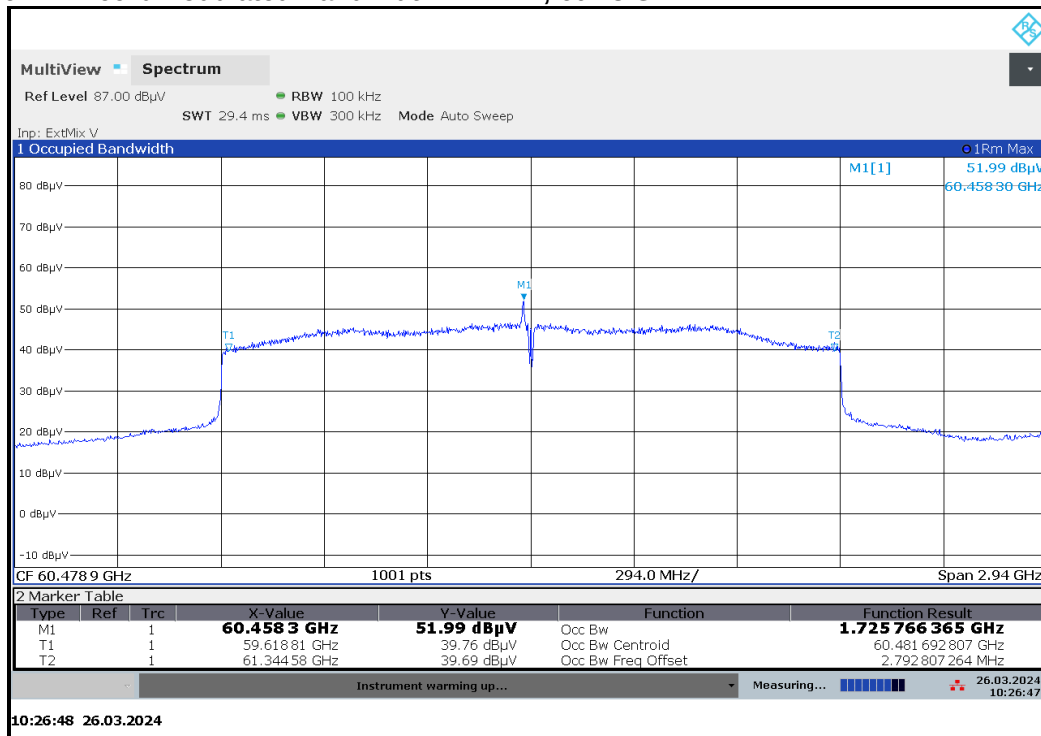
Plot 3-14: 99% Modulated Bandwidth HRP QR; 60.48 GHz



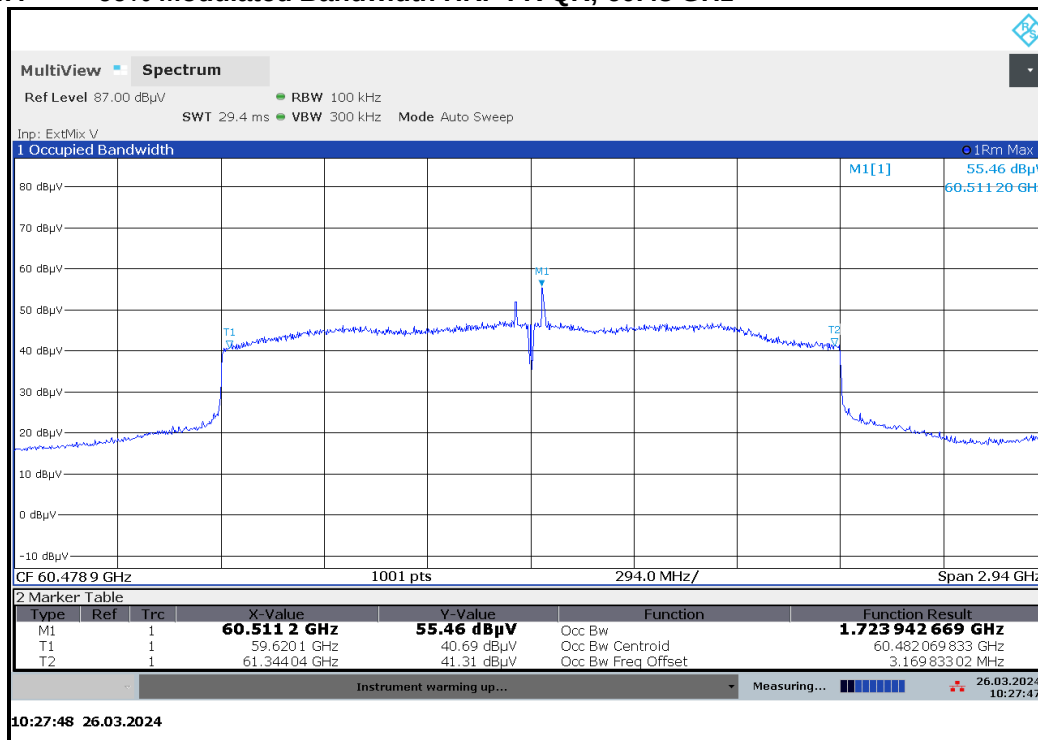
Plot 3-15: 99% Modulated Bandwidth HRP HR; 60.48 GHz



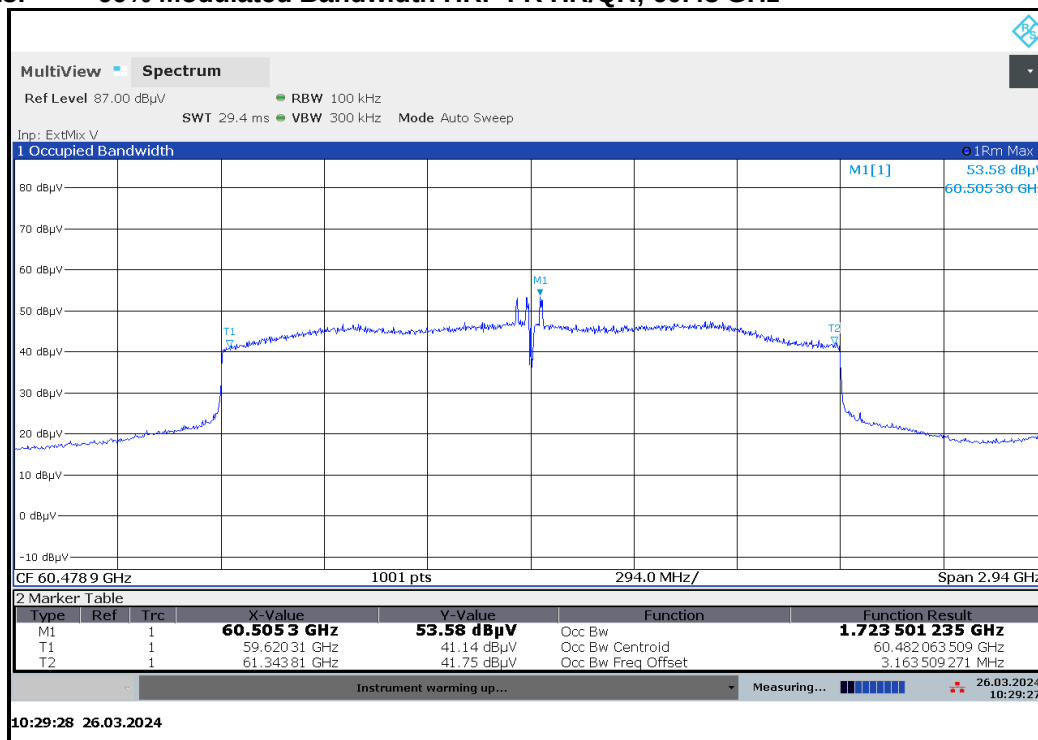
Plot 3-16: 99% Modulated Bandwidth HRP FR; 60.48 GHz



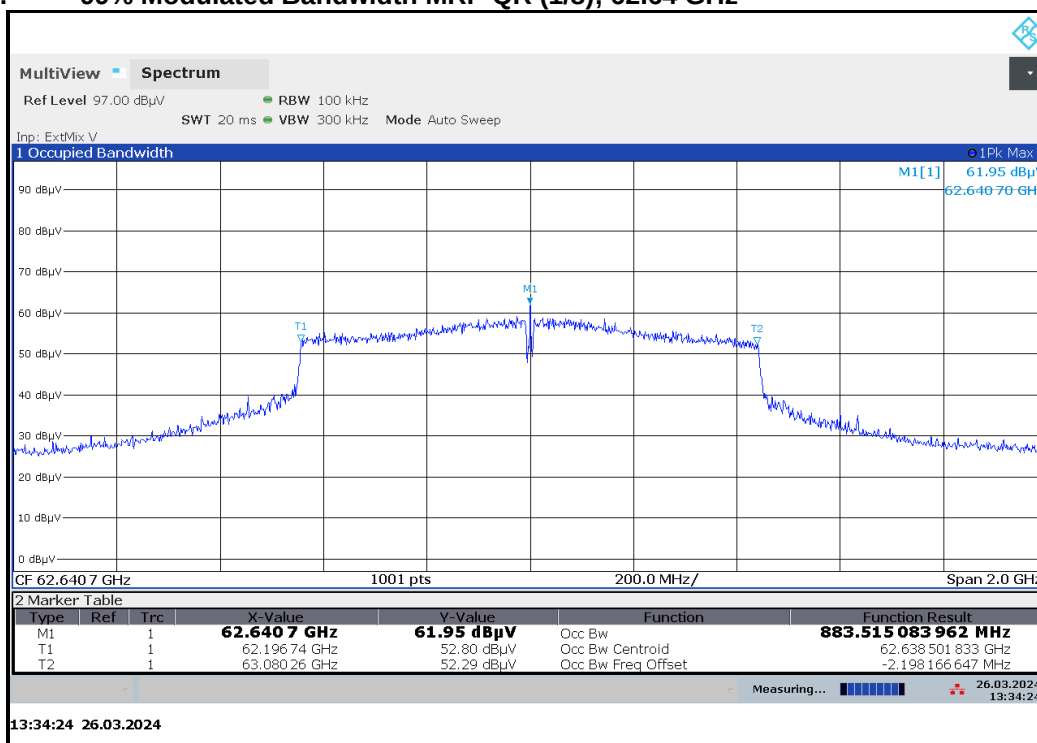
Plot 3-17: 99% Modulated Bandwidth HRP FR QR; 60.48 GHz



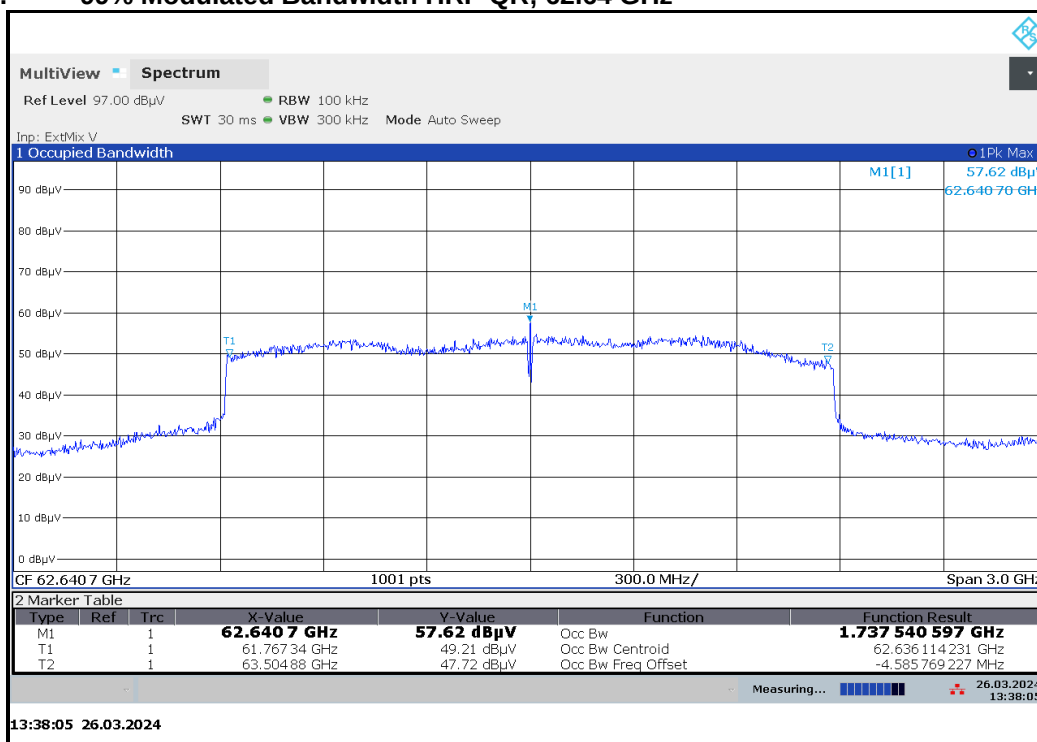
Plot 3-18: 99% Modulated Bandwidth HRP FR HR/QR; 60.48 GHz



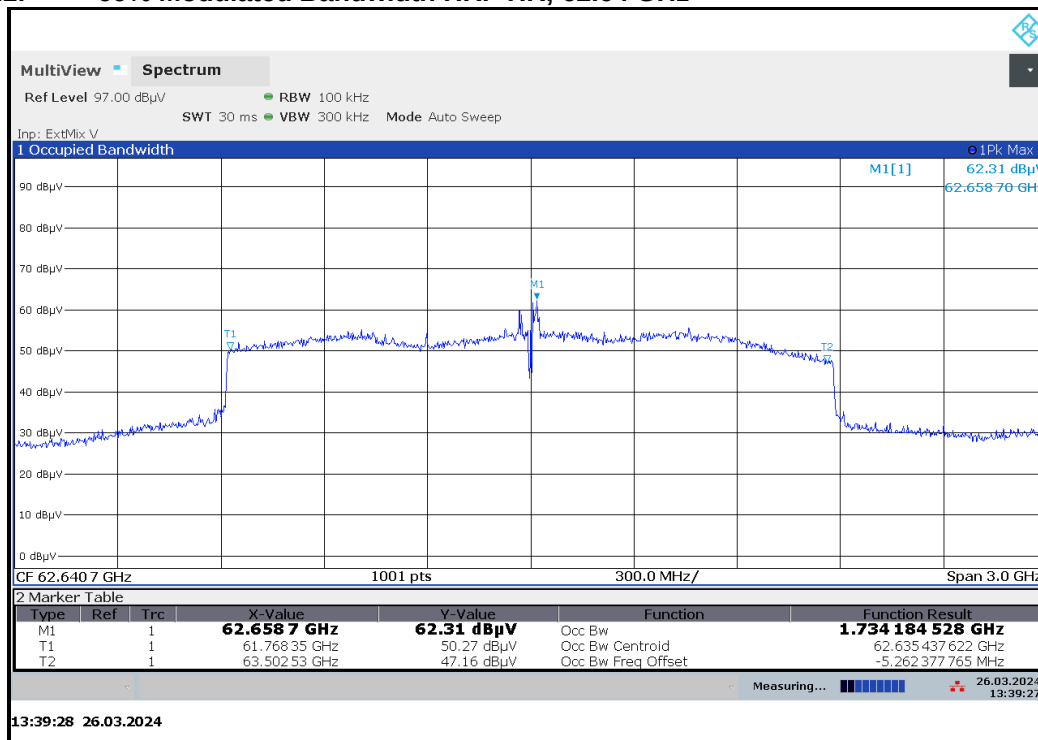
Plot 3-19: 99% Modulated Bandwidth MRP QR (1/8); 62.64 GHz



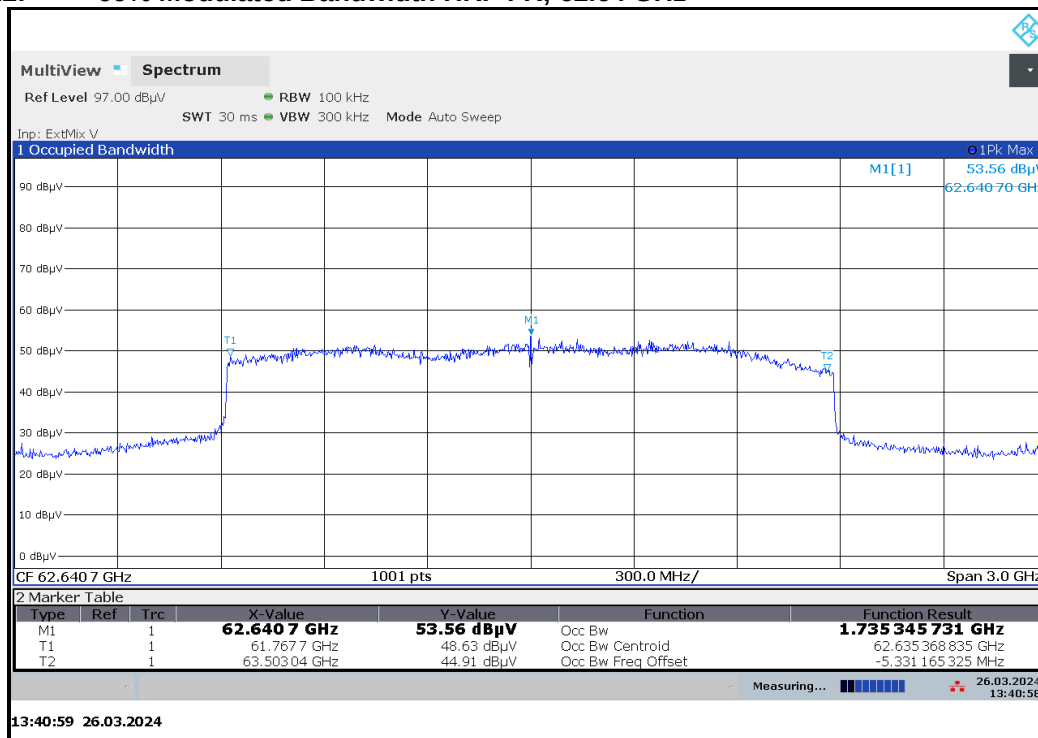
Plot 3-20: 99% Modulated Bandwidth HRP QR; 62.64 GHz



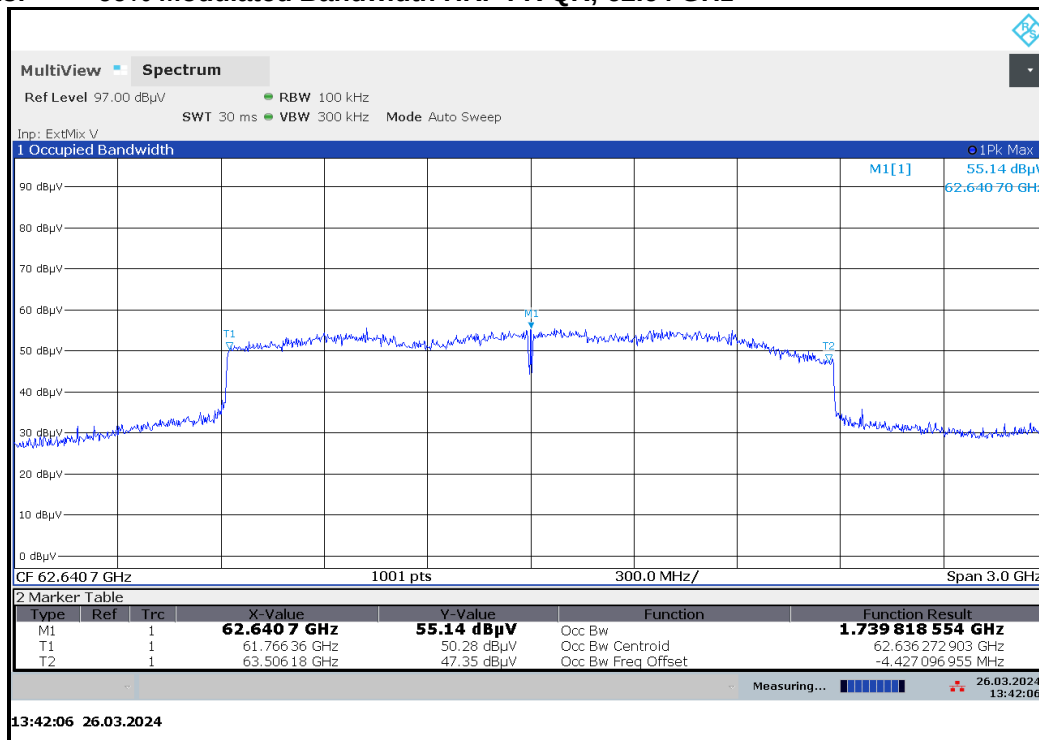
Plot 3-21: 99% Modulated Bandwidth HRP HR; 62.64 GHz



Plot 3-22: 99% Modulated Bandwidth HRP FR; 62.64 GHz



Plot 3-23: 99% Modulated Bandwidth HRP FR QR; 62.64 GHz



Plot 3-24: 99% Modulated Bandwidth HRP FR HR/QR; 62.64 GHz

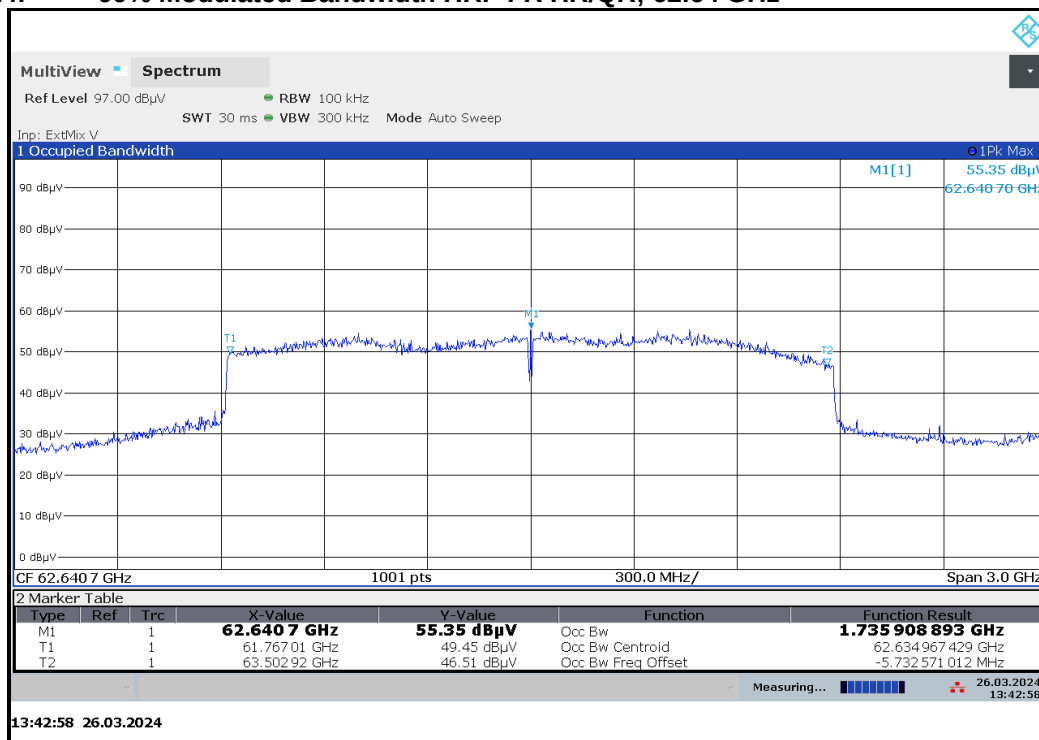


Table 3-4: Modulated Bandwidth Test Equipment

RTL Asset #	Manufacturer	Model	Partp Type	Serial Number	Calibration Due Date
901773	Rohde & Schwarz	FSW50	Spectrum Analyzer	101021	02/02/2025
901586	Rohde & Schwarz	FS-Z75	Mixer (50-75 GHz)	100098	06/23/25
900712	ATM	15-443-6R	Horn Antenna (50-75 GHz)	8051805-1	06/23/25

Result: Pass

Test Personnel:

Dan Baltzell		March 26, 2024
Test Engineer	Signature	Date of Test

4 Radiated Emissions –FCC §15.255(d)

4.1 Radiated Fundamental Emissions Test Procedure

ANSI C63.10 6.3

Radiated emissions of the fundamental was tested. The EUT was also checked in all three orthogonal planes. Measurement was based on an average detector .

Limits: 15.255(c) Within the 57–71 GHz band, emission levels shall not exceed the following equivalent isotropically radiated power (EIRP): (1) Products other than fixed field disturbance sensors and short-range devices for interactive motion sensing shall comply with one of the following emission limits, as measured during the transmit interval: (i) The average power of any emission shall not exceed 40 dBm and the peak power of any emission shall not exceed 43 dBm.

Table 4-1: Environmental Conditions

Date	Temperature (°C)	Humidity (%)	Pressure (kPa)
03/26/24	23	32	100.8

4.2 Radiated Fundamental Emissions Test Data

Radiated measurements are converted from EIRP (dBuV/m to dBm)

$EIRP (dBm) = \text{field strength (dB}\mu\text{V/m)} - 104.8 + 20 \text{ Log } D$

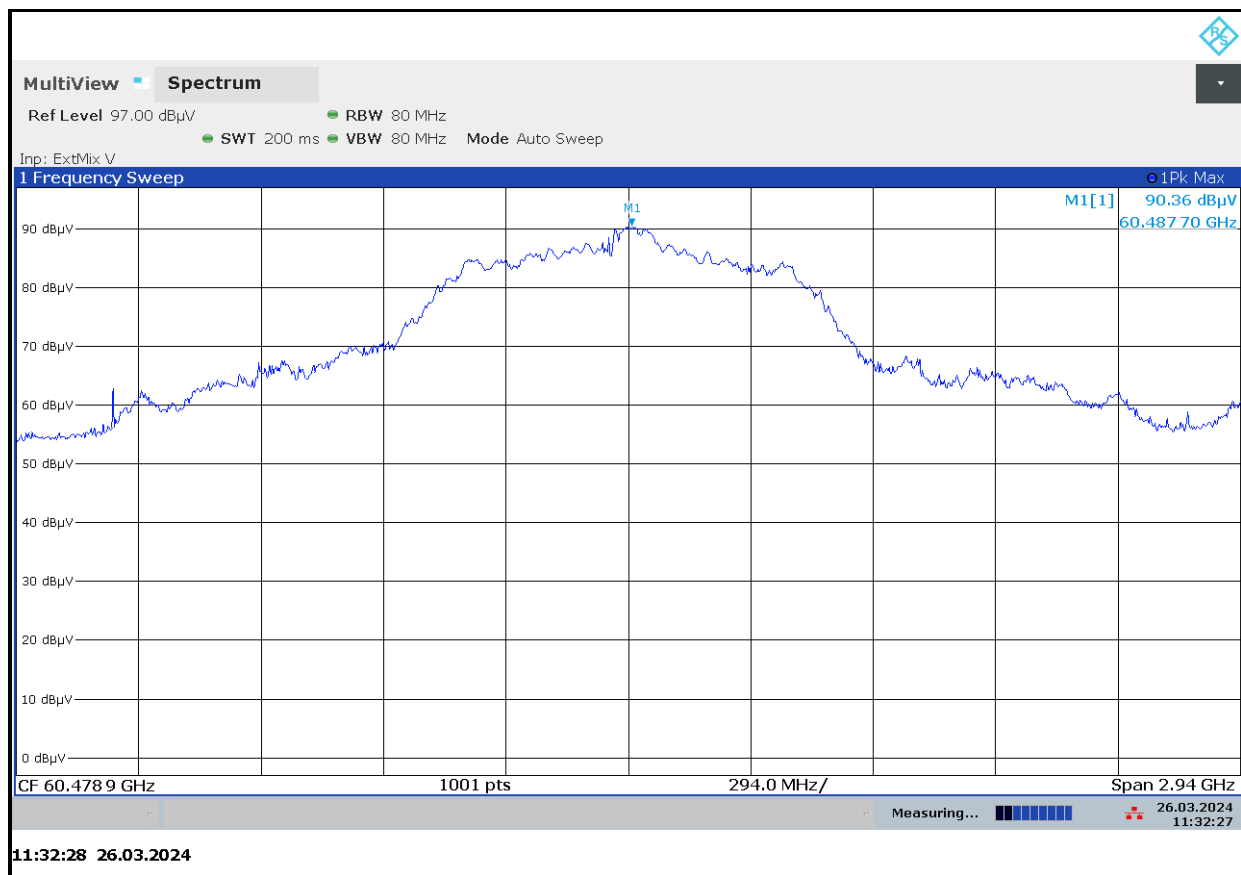
where:

D is the measurement distance

Table 4-2: EIRP Measurements

Rate Adaptation	60.48 GHz	62.64 GHz
MRP QR (1/8)	740 mW	324 mW
HRP QR	679 mW	267 mW
HRP HR	802 mW	228 mW
HRP FR	702 mW	292 mW
HRP FR QR	782 mW	225 mW
HRP FR HR/QR	703 mW	237 mW

Plot 4-1: EIRP MRP QR (1/8); 60.48 GHz

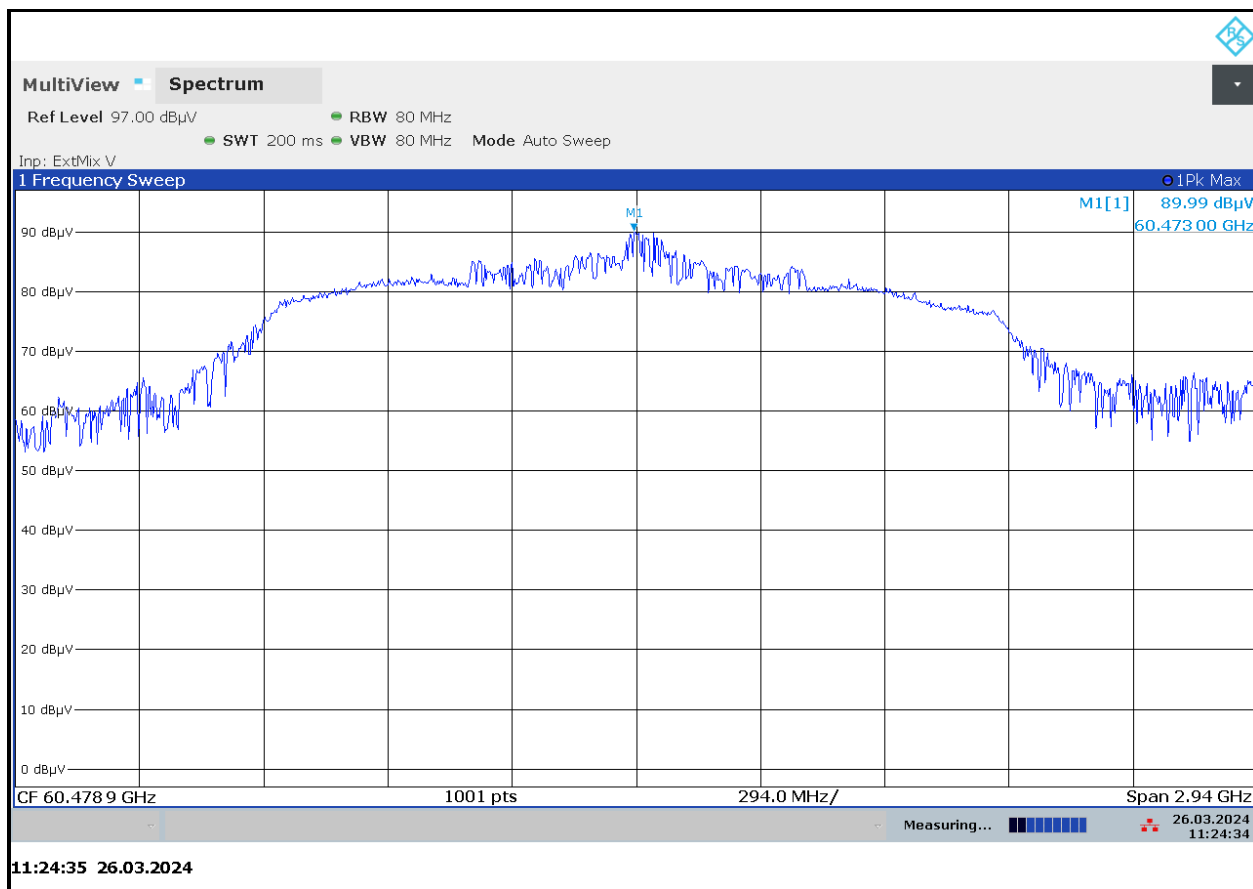


$$90.36 \text{ dBuV} + 43.1 \text{ dB/m} = 133.5 \text{ dBuV/m} = 28.7 \text{ dBm} (740 \text{ mW})$$

Table 4-3: EIRP MRP QR (1/8); 60.48 GHz

Frequency (GHz)	Spectrum Analyzer Level (dBuV)	Antenna Correction Factor (dB/m)	Corrected Measurement (dBuV/m)	Converted to dBm	Peak Limit (dBm)	Margin (dB)
60.479	90.4	43.1	133.5	28.7	43.0	-14.3

Plot 4-2: EIRP HRP QR; 60.48 GHz

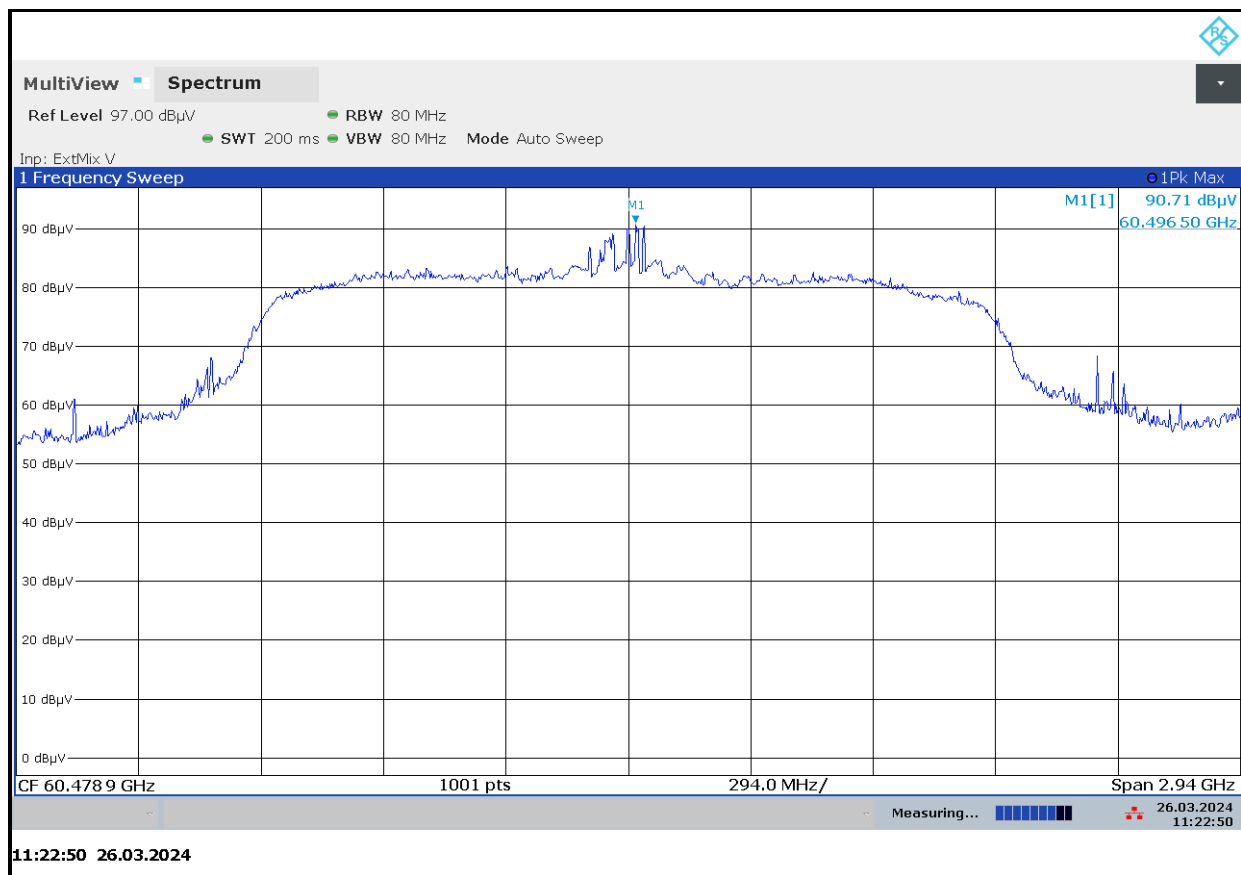


$$89.99 \text{ dBuV} + 43.1 \text{ dB/m} = 133.1 \text{ dBuV/m} = 28.3 \text{ dBm} (679 \text{ mW})$$

Table 4-4: EIRP HRP QR; 60.48 GHz

Frequency (GHz)	Spectrum Analyzer Level (dBuV)	Antenna Correction Factor (dB/m)	Corrected Measurement (dBuV/m)	Converted to dBm	Peak Limit (dBm)	Margin (dB)
60.479	90.0	43.1	133.1	28.3	43.0	-14.7

Plot 4-3: EIRP HRP HR; 60.48 GHz

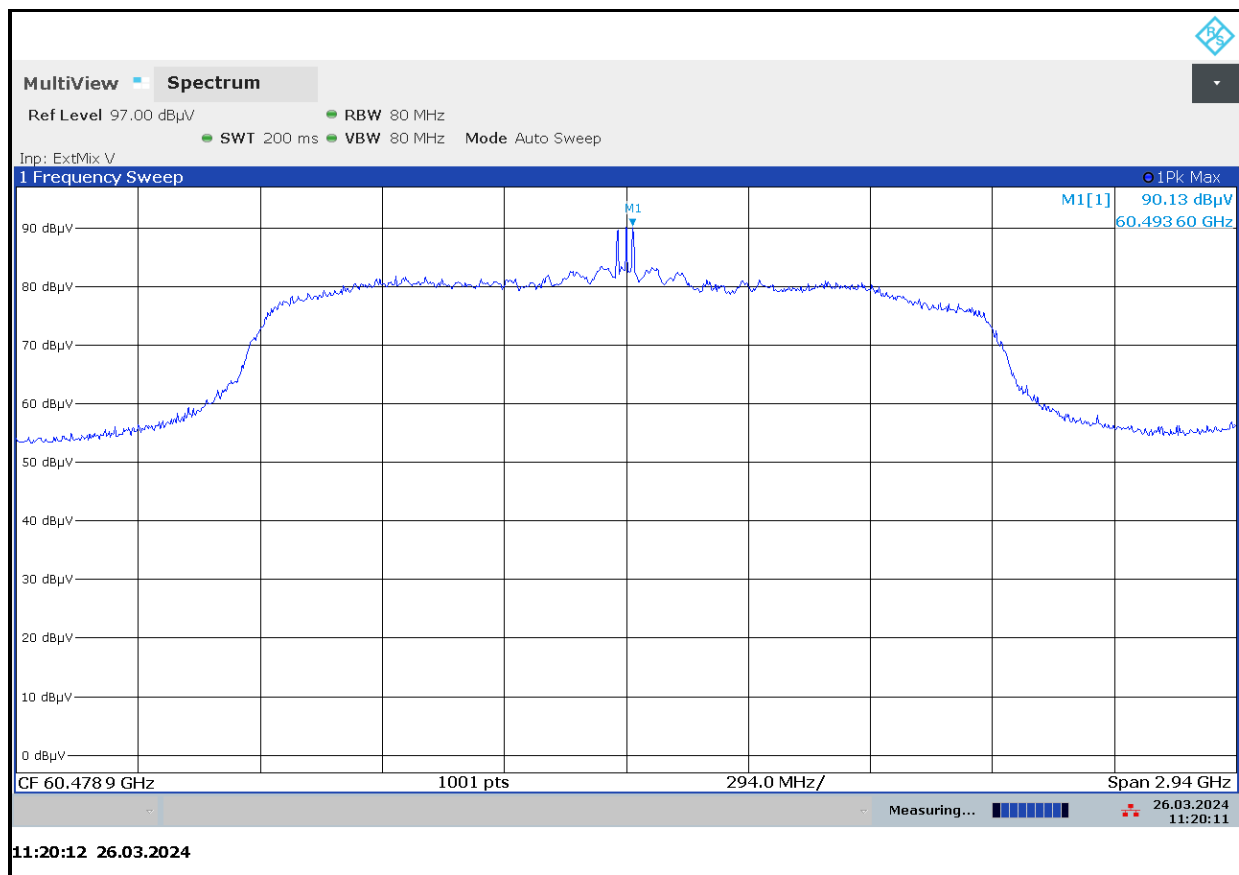


$$90.71 \text{ dBuV} + 43.1 \text{ dB/m} = 133.8 \text{ dBuV/m} = 29 \text{ dBm} (802 \text{ mW})$$

Table 4-5: EIRP HRP HR; 60.48 GHz

Frequency (GHz)	Spectrum Analyzer Level (dBuV)	Antenna Correction Factor (dB/m)	Corrected Measurement (dBuV/m)	Converted to dBm	Peak Limit (dBm)	Margin (dB)
60.479	90.7	43.1	133.8	29.0	43.0	-14.0

Plot 4-4: EIRP HRP FR; 60.48 GHz

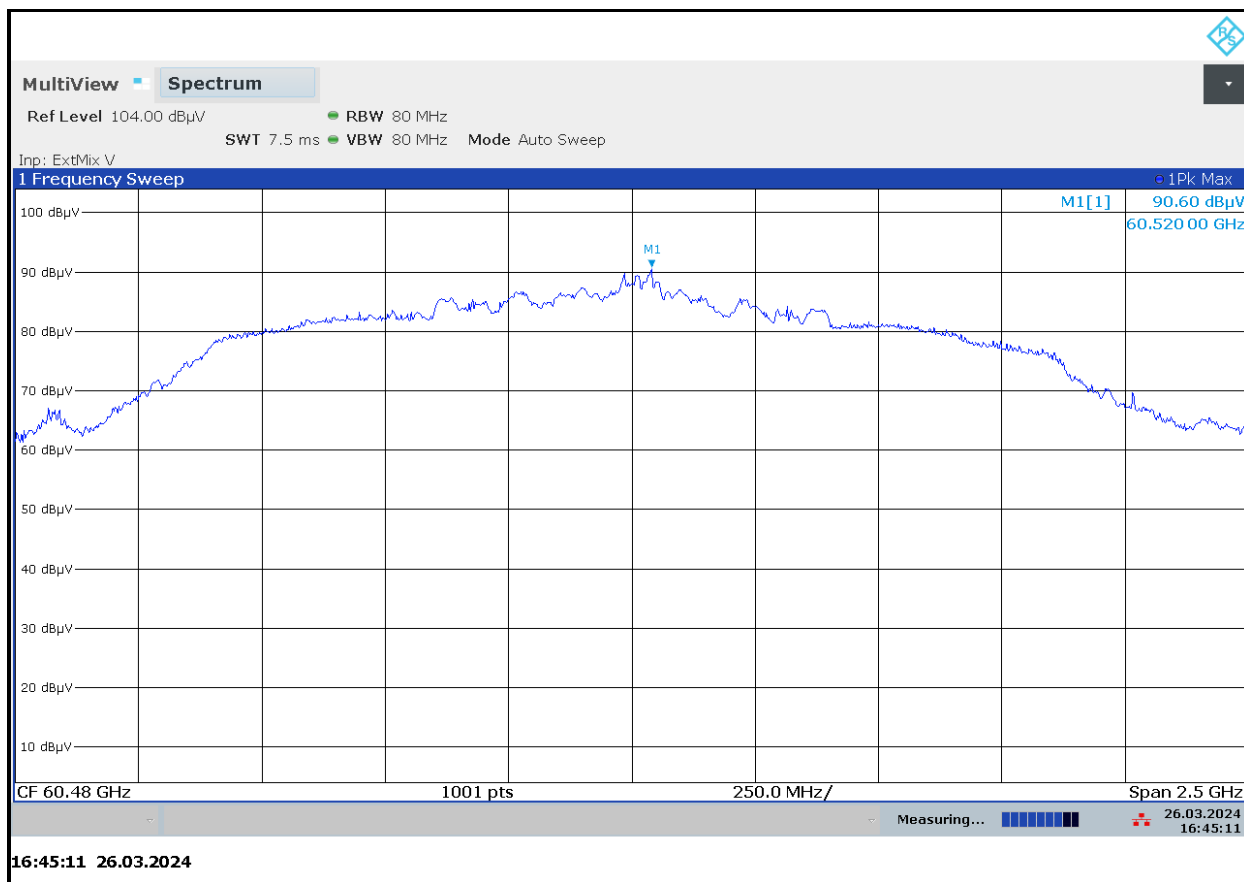


$$90.13 \text{ dBuV} + 43.1 \text{ dB/m} = 133.2 \text{ dBuV/m} = 28.5 \text{ dBm (702 mW)}$$

Table 4-6: EIRP HRP FR; 60.48 GHz

Frequency (GHz)	Spectrum Analyzer Level (dBuV)	Antenna Correction Factor (dB/m)	Corrected Measurement (dBuV/m)	Converted to dBm	Peak Limit (dBm)	Margin (dB)
60.479	90.1	43.1	133.2	28.5	43.0	-14.5

Plot 4-5: EIRP HRP FR QR; 60.48 GHz

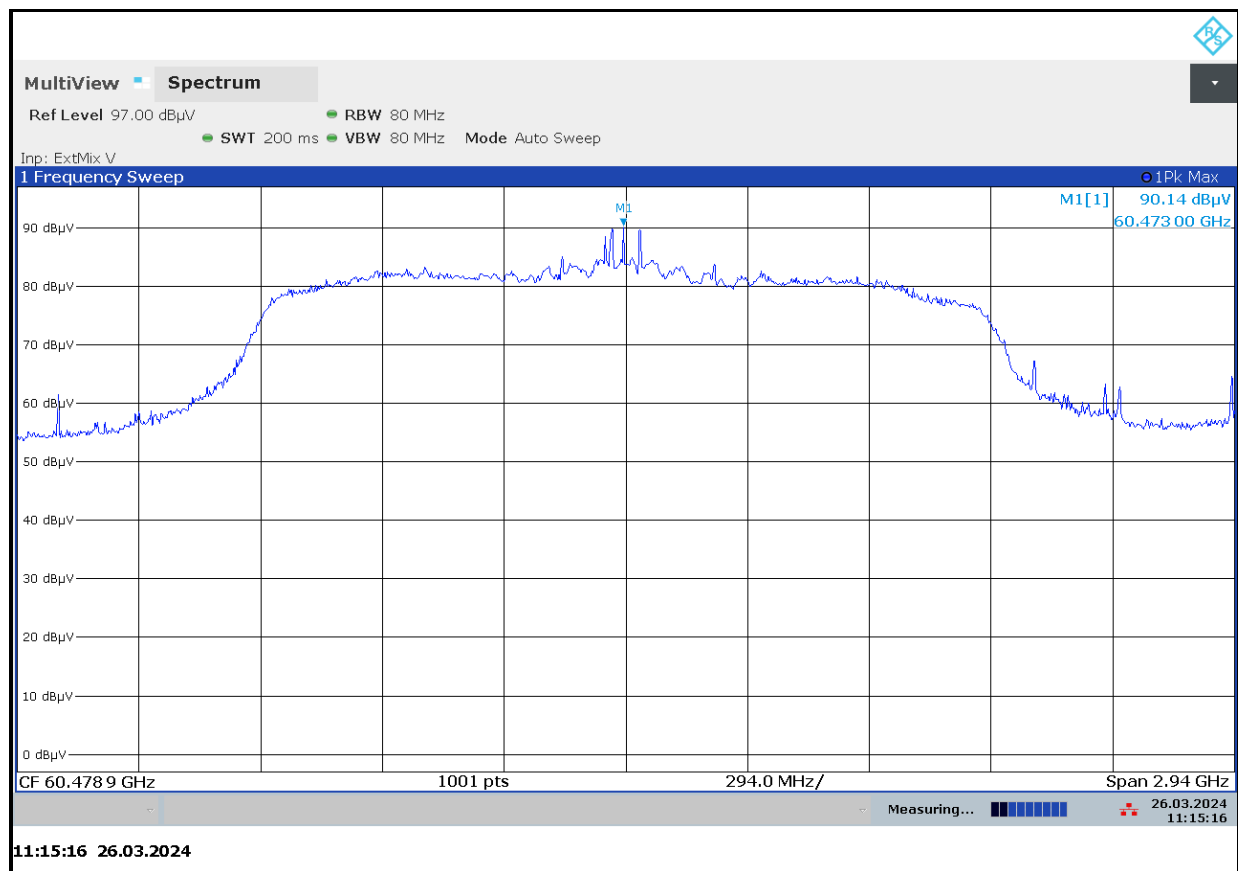


$$90.6 \text{ dB}\mu\text{V} + 43.1 \text{ dB/m} = 133.7 \text{ dB}\mu\text{V/m} = 28.9 \text{ dBm} (782 \text{ mW})$$

Table 4-7: EIRP HRP FR QR; 60.48 GHz

Frequency (GHz)	Spectrum Analyzer Level (dBμV)	Antenna Correction Factor (dB/m)	Corrected Measurement (dBμV/m)	Converted to dBm	Peak Limit (dBm)	Margin (dB)
60.479	90.6	43.1	133.7	28.9	43.0	-14.1

Plot 4-6: EIRP HRP FR HR/QR; 60.48 GHz

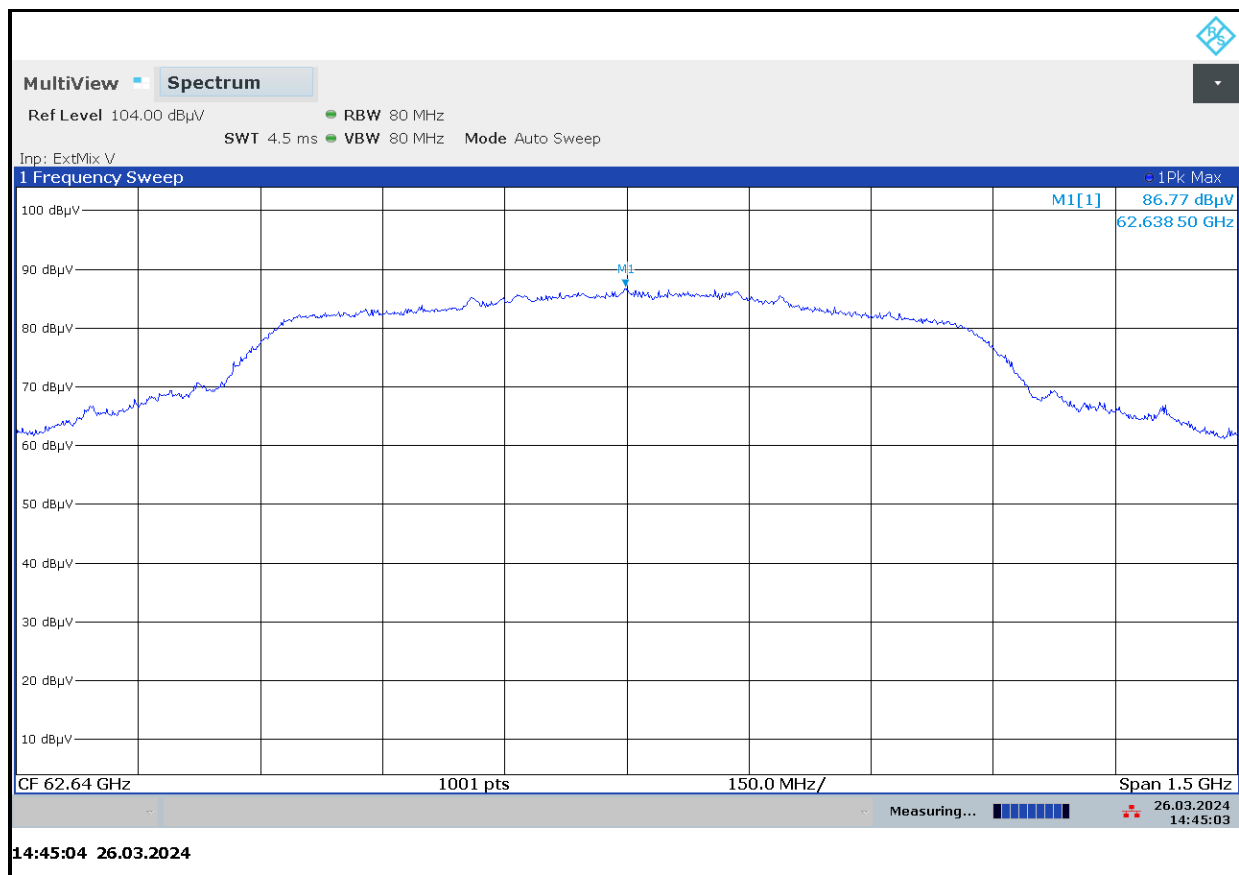


$$90.14 \text{ dBuV} + 43.1 \text{ dB/m} = 133.2 \text{ dBuV/m} = 28.5 \text{ dBm} (703 \text{ mW})$$

Table 4-8: EIRP HRP FR HR/QR; 60.48 GHz

Frequency (GHz)	Spectrum Analyzer Level (dBuV)	Antenna Correction Factor (dB/m)	Corrected Measurement (dBuV/m)	Converted to dBm	Peak Limit (dBm)	Margin (dB)
60.479	90.1	43.1	133.2	28.5	43.0	-14.5

Plot 4-7: EIRP MRP QR (1/8); 62.64 GHz

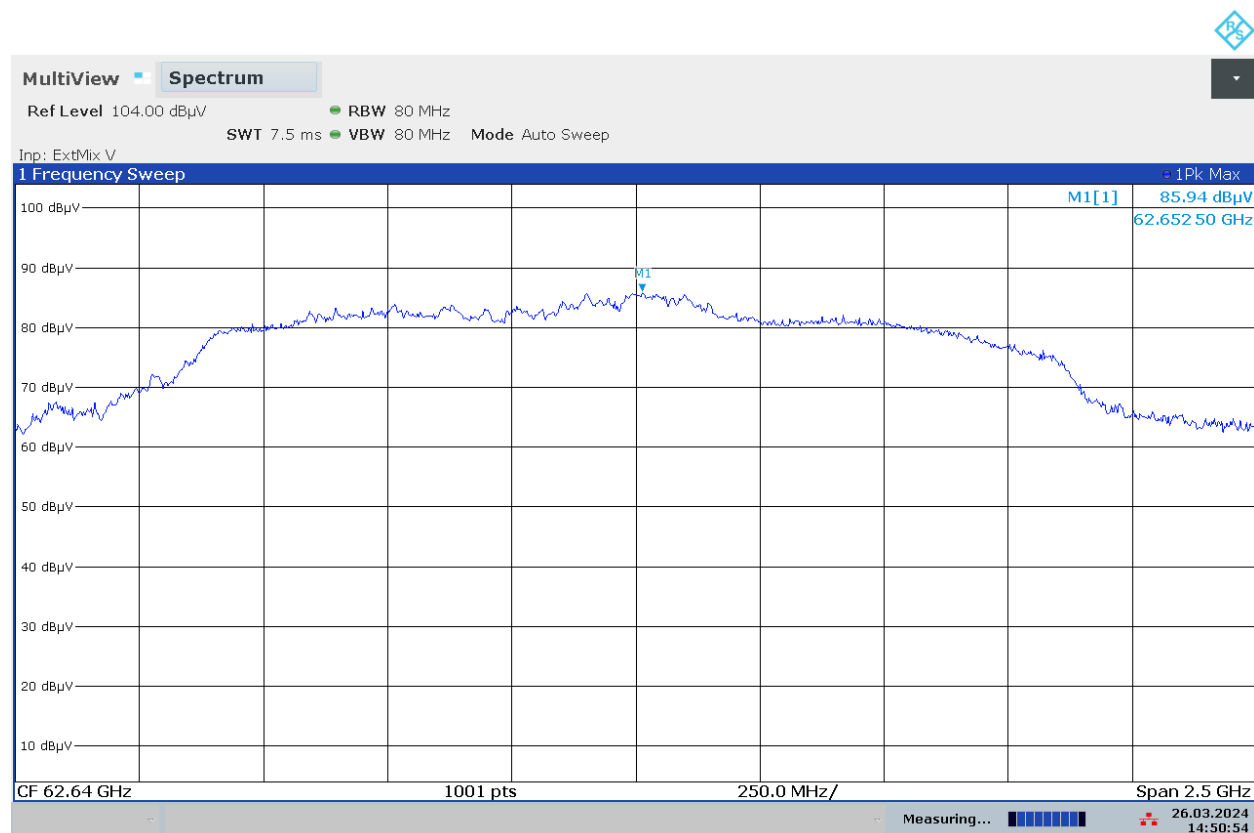


$$86.77 \text{ dBuV} + 43.1 \text{ dB/m} = 129.9 \text{ dBuV/m} = 25.1 \text{ dBm} (324 \text{ mW})$$

Table 4-9: EIRP MRP QR (1/8); 62.64 GHz

Frequency (GHz)	Spectrum Analyzer Level (dBuV)	Antenna Correction Factor (dB/m)	Corrected Measurement (dBuV/m)	Converted to dBm	Peak Limit (dBm)	Margin (dB)
62.64	86.8	43.1	129.9	25.1	43.0	-17.9

Plot 4-8: Power HRP QR; 62.64 GHz



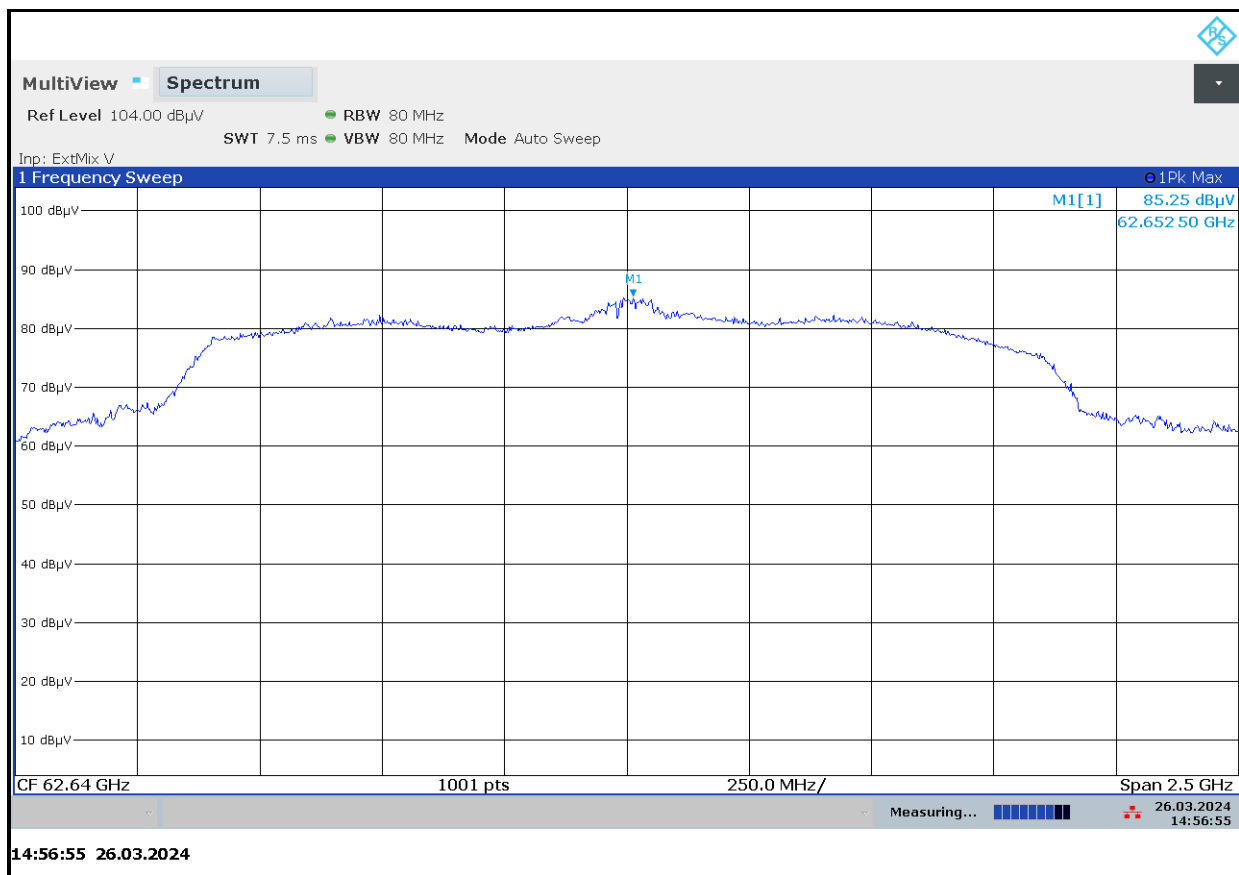
14:50:54 26.03.2024

$$85.94 \text{ dBuV} + 43.1 \text{ dB/m} = 129.0 \text{ dBuV/m} = 24.3 \text{ dBm} (267 \text{ mW})$$

Table 4-10: Power HRP QR; 62.64 GHz

Frequency (GHz)	Spectrum Analyzer Level (dBuV)	Antenna Correction Factor (dB/m)	Corrected Measurement (dBuV/m)	Converted to dBm	Peak Limit (dBm)	Margin (dB)
62.64	85.9	43.1	129.0	24.3	43.0	-18.7

Plot 4-9: EIRP HRP HR; 62.64 GHz

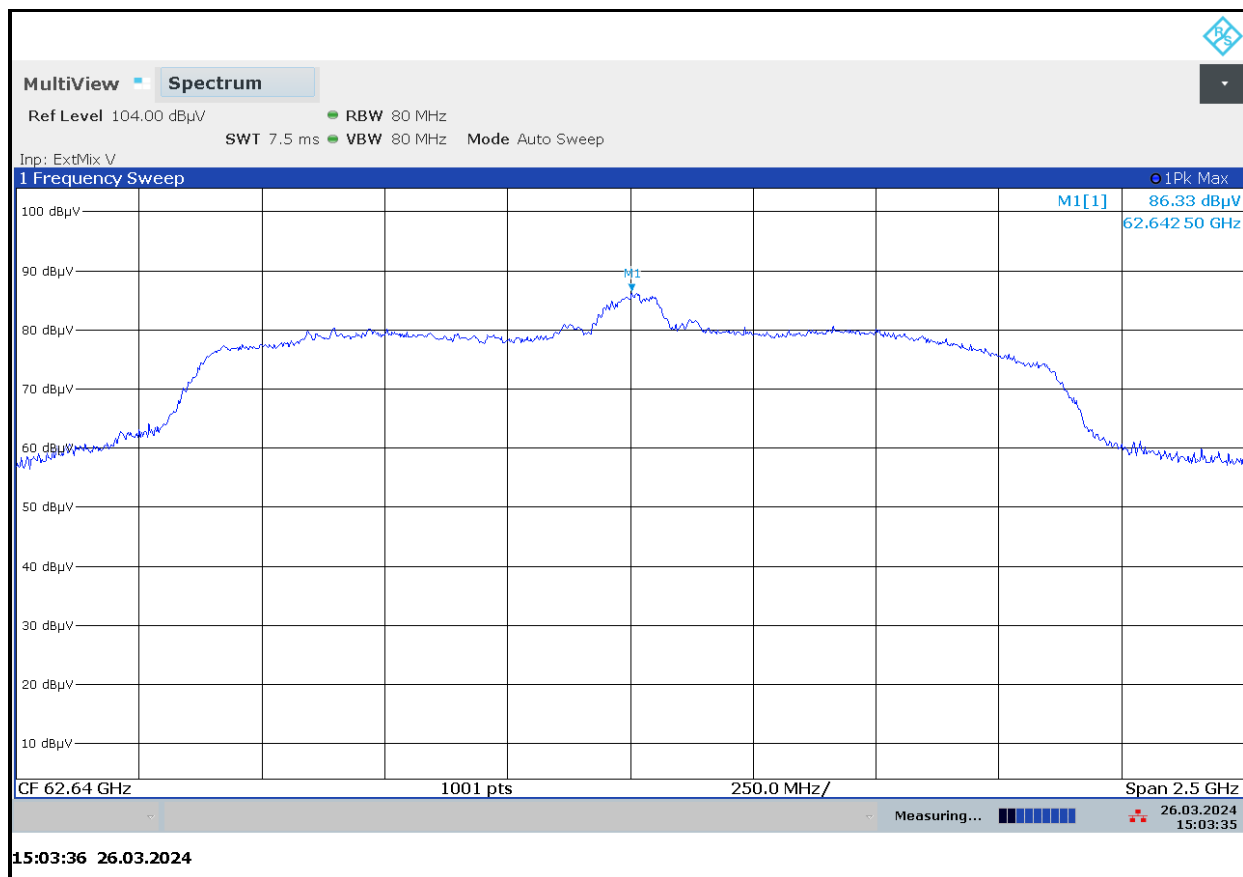


$$85.25 \text{ dBuV} + 43.1 \text{ dB/m} = 128.4 \text{ dBuV/m} = 23.6 \text{ dBm} (228 \text{ mW})$$

Table 4-11: EIRP HRP HR; 62.64 GHz

Frequency (GHz)	Spectrum Analyzer Level (dBuV)	Antenna Correction Factor (dB/m)	Corrected Measurement (dBuV/m)	Converted to dBm	Peak Limit (dBm)	Margin (dB)
62.64	85.3	43.1	128.4	23.6	43.0	-19.4

Plot 4-10: EIRP HRP FR; 62.64 GHz

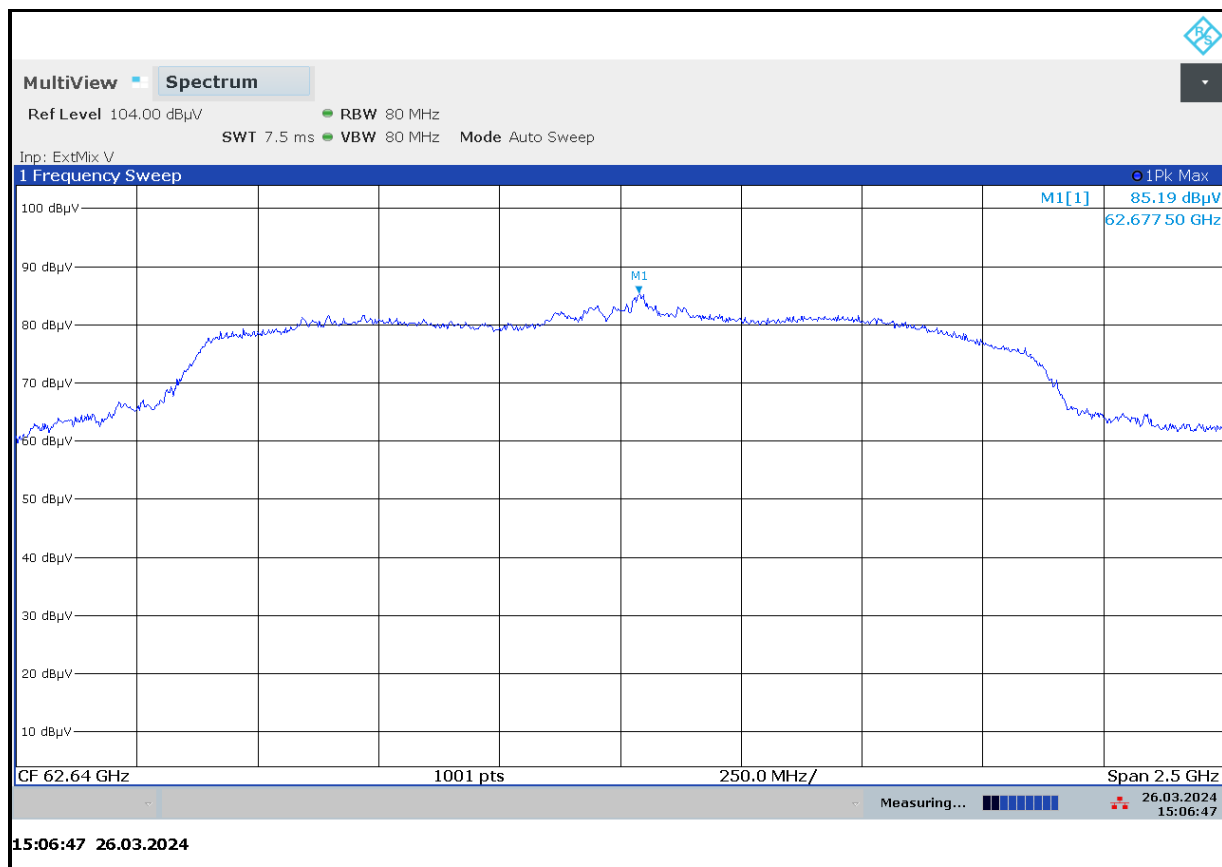


$$86.33 \text{ dBuV} + 43.1 \text{ dB/m} = 129.4 \text{ dBuV/m} = 24.7 \text{ dBm (292 mW)}$$

Table 4-12: EIRP HRP FR; 62.64 GHz

Frequency (GHz)	Spectrum Analyzer Level (dBuV)	Antenna Correction Factor (dB/m)	Corrected Measurement (dBuV/m)	Converted to dBm	Peak Limit (dBm)	Margin (dB)
62.64	86.3	43.1	129.4	24.7	43.0	-18.3

Plot 4-11: EIRP HRP FR QR; 62.64 GHz

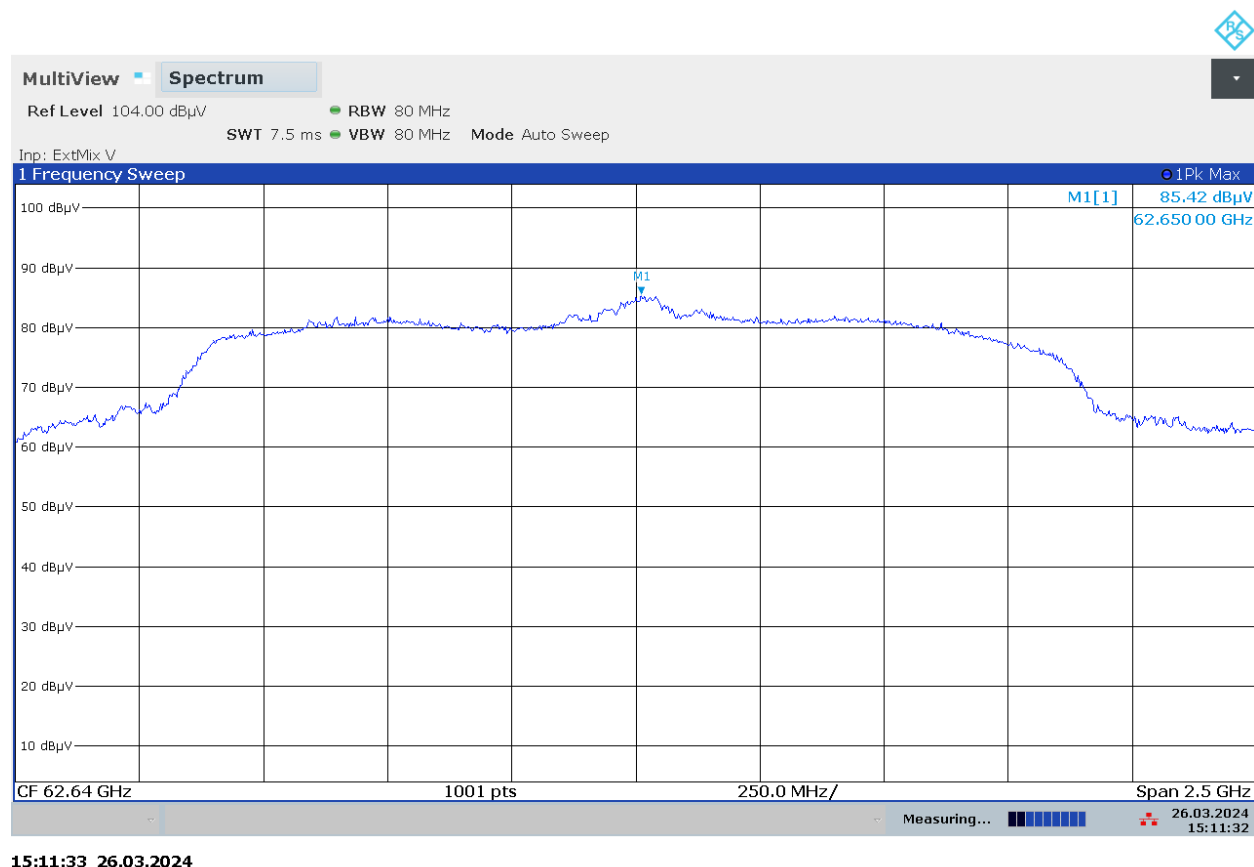


$$85.19 \text{ dBuV} + 43.1 \text{ dB/m} = 128.3 \text{ dBuV/m} = 23.5 \text{ dBm} (225 \text{ mW})$$

Table 4-13: EIRP HRP FR QR; 62.64 GHz

Frequency (GHz)	Spectrum Analyzer Level (dBuV)	Antenna Correction Factor (dB/m)	Corrected Measurement (dBuV/m)	Converted to dBm	Peak Limit (dBm)	Margin (dB)
62.64	85.2	43.1	128.3	23.5	43.0	-19.5

Plot 4-12: EIRP HRP FR HR/QR; 62.64 GHz



15:11:33 26.03.2024

$$85.42 \text{ dBuV} + 43.1 \text{ dB/m} = 128.5 \text{ dBuV/m} = 23.8 \text{ dBm} (237 \text{ mW})$$

Table 4-14: EIRP HRP FR HR/QR; 62.64 GHz

Frequency (GHz)	Spectrum Analyzer Level (dBuV)	Antenna Correction Factor (dB/m)	Corrected Measurement (dBuV/m)	Converted to dBm	Peak Limit (dBm)	Margin (dB)
62.64	85.4	43.1	128.5	23.8	43.0	-19.2

4.2.1 Measurement Uncertainty

Measurement uncertainties shown for these tests are expanded uncertainties expressed at 95% confidence level using a coverage factor $k = 2$.

Radiated Emissions: $\pm 4.6 \text{ dB}$

15.255 (c)(1)(i) The average power of any emission shall not exceed 40 dBm and the peak power of any emission shall not exceed 43 dBm.

(4) The peak power shall be measured with an RF detector that has a detection bandwidth that encompasses the 57–71 GHz band and has a video bandwidth of at least 10 MHz. The average emission levels shall be measured over the actual time period during which transmission occurs. (d) Limits on spurious emissions:

(d) Limits on spurious emissions:

(1) The power density of any emissions outside the 57–71 GHz band shall consist solely of spurious emissions.

(2) Radiated emissions below 40 GHz shall not exceed the general limits in §15.209.

(3) Between 40 GHz and 200 GHz, the level of these emissions shall not exceed 90 pW/cm² at a distance of 3 meters.

(4) The levels of the spurious emissions shall not exceed the level of the fundamental emission.

(e) Except as specified paragraph (e)(1) of this section, the peak transmitter conducted output power shall not exceed 500 mW. Depending on the gain of the antenna, it may be necessary to operate the intentional radiator using a lower peak transmitter output power in order to comply with the EIRP limits specified in paragraph (b) of this section.

(1) Transmitters with an emission bandwidth of less than 100 MHz must limit their peak transmitter conducted output power to the product of 500 mW times their emission bandwidth divided by 100 MHz. For the purposes of this paragraph, emission bandwidth is defined as the instantaneous frequency range occupied by a steady state radiated signal with modulation, outside which the radiated power spectral density never exceeds 6 dB below the maximum radiated power spectral density in the band, as measured with a 100 kHz resolution bandwidth spectrum analyzer. The center frequency must be stationary during the measurement interval, even if not stationary during normal operation

(2) Peak transmitter conducted output power shall be measured with an RF detector that has a detection bandwidth that encompasses the 57–71 GHz band and that has a video bandwidth of at least 10 MHz. (3) For purposes of demonstrating compliance with this paragraph, corrections to the transmitter conducted output power may be made due to the antenna and circuit loss.

Table 4-15: Radiated Fundamental Emissions Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901773	Rohde & Schwarz	FSW50	Spectrum Analyzer	101021	02/02/2025
901640	Rohde & Schwarz	FS-Z110	Mixer (75–110 GHz)	100010	4/2/25
900711	ATM	10-443-6R	Horn Antenna (75-110 GHz)	8051905-1	12/5/25

Result: Pass

Test Personnel:

Dan Baltzell		March 26, 2024
Test Engineer	Signature	Date of Test

4.3 Radiated Emissions –FCC §15.255

4.4 Radiated Emissions Harmonics/Spurious Test Procedure

ANSI C63.10 6.3

Data was taken at distances within 3 meters and corrected to three meters. The EUT was checked in the three orthogonal planes with the receive antenna in both polarities. A resolution bandwidth of 100 kHz was used for frequencies less than 1000 MHz, and a resolution bandwidth of 1 MHz was used for frequencies greater than or equal to 1000 MHz.

Table 4-16: Environmental Conditions

Date	Temperature (°C)	Humidity (%)	Pressure (kPa)
04/01/24	25.6	23	100.1
04/10/24	22.8	53	100.4

4.5 Radiated Emissions Harmonics/Spurious Test Data

Table 4-17: Radiated Emissions Table

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Site Correction (dB/m)	Corrected Analyzer (dBuV/m)	Limit (dBuV/m)	Margin (dB)
65.909	57.3	-22.5	34.7	40.0	-5.3
74.840	57.0	-22.2	34.9	40.0	-5.1
110.990	56.2	-19.8	36.4	43.5	-7.1
197.300	48.3	-14.7	33.6	43.5	-9.9
198.202	47.9	-14.5	33.4	43.5	-10.1
249.076	55.7	-11.3	44.4	46.0	-1.6
264.000	56.6	-12.1	44.4	46.0	-1.6
329.570	51.5	-11.5	40.1	46.0	-5.9
333.017	54.8	-11.3	43.5	46.0	-2.5
395.100	46.0	-8.6	37.4	46.0	-8.6
444.260	46.1	-7.6	38.5	46.0	-7.5
445.430	51.3	-7.5	43.8	46.0	-2.2
526.720	40.4	-3.9	36.5	46.0	-9.5
655.090	38.9	-1.7	37.2	46.0	-8.8
704.550	37.1	0.5	37.6	46.0	-8.4
707.040	38.0	0.5	38.5	46.0	-7.5
1038.000	31.6	5.9	37.5	54.0	-16.5
1311.290	28.9	9.9	38.8	54.0	-15.2
1756.720	25.2	20.8	46.0	54.0	-8.0
2227.500	40.8	-9.4	31.4	54.0	-22.6
2537.999	36.5	-8.9	27.6	54.0	-26.4
2970.076	58.8	-8.1	50.7	54.0	-3.3
8883.000	39.3	8.6	47.9	54.0	-6.1
10152.021	39.7	9.3	49.0	54.0	-5.0
11421.000	39.7	9.7	49.4	54.0	-4.6
12531.400	35.8	13.9	49.7	54.0	-4.3
12690.020	35.9	13.9	49.8	54.0	-4.2
12848.660	34.7	14.0	48.7	54.0	-5.3

4.5.1 Measurement Uncertainty

Measurement uncertainties shown for these tests are expanded uncertainties expressed at 95% confidence level using a coverage factor $k = 2$. Radiated Emissions: ± 4.6 dB

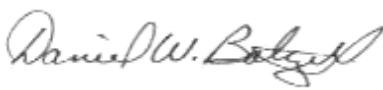
Table 4-18: Radiated Emissions Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901592	Insulated Wire Inc.	KPS-1503-3600-KPR	SMK RF Cables 20'	NA	8/3/25
901593	Insulated Wire Inc.	KPS-1503-360-KPR	SMK RF Cables 36"	NA	8/1/25
900151	Rohde and Schwarz	HFH2-Z2	Loop Antenna, (9 kHz - 30 MHz)	827525/019	3/4/25
900717	Hewlett Packard	11970U	Harmonic Mixer (40 – 60 GHz)	2332A01110	5/20/25
901639	Wiltron	35WR19F	Waveguide (40 – 50 GHz)	N/A	6/18/25
901640	Rohde & Schwarz	FS-Z110	Mixer (75 – 110 GHz)	100010	4/02/25
901773	Rohde & Schwarz	FSW50	Analyzer	101021	02/02/25
901586	Rohde & Schwarz	FS-Z75	Harmonic Mixer (50 – 75 GHz)	100098	1/23/25
901256	ATM	19-443-6R	Horn Antenna (40-60 GHz, WR-19)	8041704-01	1/23/25
901303	EMCO	3160-10	Horn Antenna (26.5-40.0 GHz) WR-28	960452-007	12/25/25
901161	ATM	28-25K-6	Waveguide (26.5 – 40 GHz)	B082304	12/25/25
900711	ATM	10-443-6R	Horn Antenna (75 - 110 GHz)	8051905-1	12/5/25
900712	ATM	15-443-6R	Horn Antenna (50 GHz - 75 GHz)	8051805-1	3/16/25
901669	Antenna (26 MHz – 6 GHz)	Chase	3142E	00166065	07/11/25
900772	EMCO	3161-02	Horn Antenna (2 - 4 GHz)	9804-1044	4/9/25
900321	EMCO	3161-03	Horn Antenna (4.0 - 8.2 GHz)	9508-1020	4/9/25
901587	Radiometer Physics GmbH	SAM-220	140-220 GHz Mixer	20005	2/13/25
900713	ATM	05-443-6R	Horn Antenna, 140-220	S0685	5/20/25
900323	EMCO	3160-07	Horn Antenna (8.2 - 12.4 GHz)	9605-1054	4/19/25
900356	EMCO	3160-08	Horn Antenna (12.4 - 18 GHz)	9607-1044	4/9/25
901218	EMCO	3160-09	Horn Antenna (18 - 26.5 GHz)	960281-003	4/14/25

Limit: 15.255 (4) The peak power shall be measured with an RF detector that has a detection bandwidth that encompasses the 57–71 GHz band and has a video band width of at least 10 MHz. The average emission levels shall be measured over the actual time period during which transmission occurs. (d) Limits on spurious emissions: (1) The power density of any emissions outside the 57–71 GHz band shall consist solely of spurious emissions. (2) Radiated emissions below 40 GHz shall not exceed the general limits in §15.209. (3) Between 40 GHz and 200 GHz, the level of these emissions shall not exceed 90 pW/cm² at a distance of 3 meters. (4) The levels of the spurious emissions shall not exceed the level of the fundamental emission.

Result: Pass

Test Personnel:

Daniel W. Baltzell		April 1-10, 2024
Test Engineer	Signature	Dates of Test

5 Frequency Stability FCC §15.255(f)

5.1 Frequency Stability Test Procedure

ANSI C63.10 6.8

The carrier frequency stability is the ability of the transmitter to maintain an assigned carrier frequency.

The EUT was evaluated over the temperature range -30°C to +50°C.

The temperature was initially set to -30°C and a 1-hour period was observed for stabilization of the EUT. The frequency stability was measured within one minute after application of primary power to the transmitter. The temperature was raised at intervals of 10 degrees centigrade through the range. A ½-hour period was observed to stabilize the EUT at each measurement step and the frequency stability was measured within one minute after application of primary power to the transmitter. Additionally, the power supply voltage of the EUT was varied +/-15% nominal input voltage, +15% of minimum voltage and -15% of maximum voltage.

5.2 Limit

FCC 15.255(f) Frequency stability. Fundamental emissions must be contained within the frequency bands specified in this section during all conditions of operation. Equipment is presumed to operate over the temperature range -20 to + 50 degrees Celsius with an input voltage variation of 85% to 115% of rated input voltage, unless justification is presented to demonstrate otherwise.

5.3 Temperature-Voltage Frequency Stability Test Data

Table 5-1: Environmental Conditions

Date	Temperature (°C)	Humidity (%)	Pressure (kPa)
03/27/24	23	25	100.7

Table 5-2: Temperature Frequency Stability

Temp. (°C)	Measured Frequency (MHz)	ppm
-30	60481.231957	20.37
-20	60481.184694	19.59
-10	60480.879596	14.54
0	60479.682979	-5.24
10	60480.029071	0.48
20	60480.000000	0.00
30	60480.620849	10.27
40	60479.865481	-2.22
50	60479.633274	-6.06

Table 5-3: Frequency Stability/Voltage Variation –60480 MHz

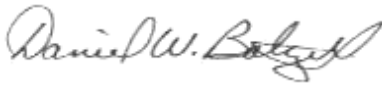
Voltage (VDC)	Measured Frequency (MHz)	ppm
4.25	60480.522916	8.65
5.0 (reference)	60480.000000	0.00
5.75	60480.391452	6.47

Results: Pass. The EUT is within band and compliant.

Table 5-4: Frequency Stability Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900946	Tenney Engineering, Inc.	TH65	Temperature Chamber with Humidity	11380	6/23/25
901773	Rohde & Schwarz	FSW50	Spectrum Analyzer	101021	02/02/2025
901350	Meterman	33XR	Multimeter	040402802	10/18/24

Test Personnel:

Daniel Baltzell Test Engineer	 Signature	March 27-28, 2024 Date of Tests
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6 AC Conducted Emissions - Part §15.207

6.1 Test Methodology for Conducted Line Emissions Measurements

ANSI C63.10 6.2

The power line conducted emission measurements were performed in a Series 81 type shielded enclosure manufactured by Rayproof. The EUT was placed on a wooden table. Power was fed to the EUT through a 50-ohm/50 μ Henry Line Impedance Stabilization Network (LISN). The EUT LISN was fed power through an AC filter box on the outside of the shielded enclosure. The filter box and EUT LISN housing are bonded to the ground plane of the shielded enclosure. A second LISN, the peripheral LISN, provides isolation for the EUT's auxiliary equipment. This peripheral LISN was also fed AC power.

The spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the EUT LISN was connected to the spectrum analyzer input through a Solar 100 kHz high-pass filter. The filter is used to prevent overload of the spectrum analyzer from noise below 100 kHz. Conducted emission levels were measured on each current-carrying line with the spectrum analyzer operating in the CISPR quasi-peak mode (or peak mode if applicable). The analyzer's 6 dB bandwidth was set to 9 kHz. Video filter less than 10 times the resolution bandwidth is not used. Average measurements are performed in linear mode using a 10 kHz resolution bandwidth, a 1 Hz video bandwidth, by increasing the sweep time in order to obtain a calibrated measurement. The emission spectrum was scanned from 150 kHz to 30 MHz. The highest emission amplitudes relative to the appropriate limits were measured and have been recorded.

6.2 Conducted Line Emissions Test Procedure

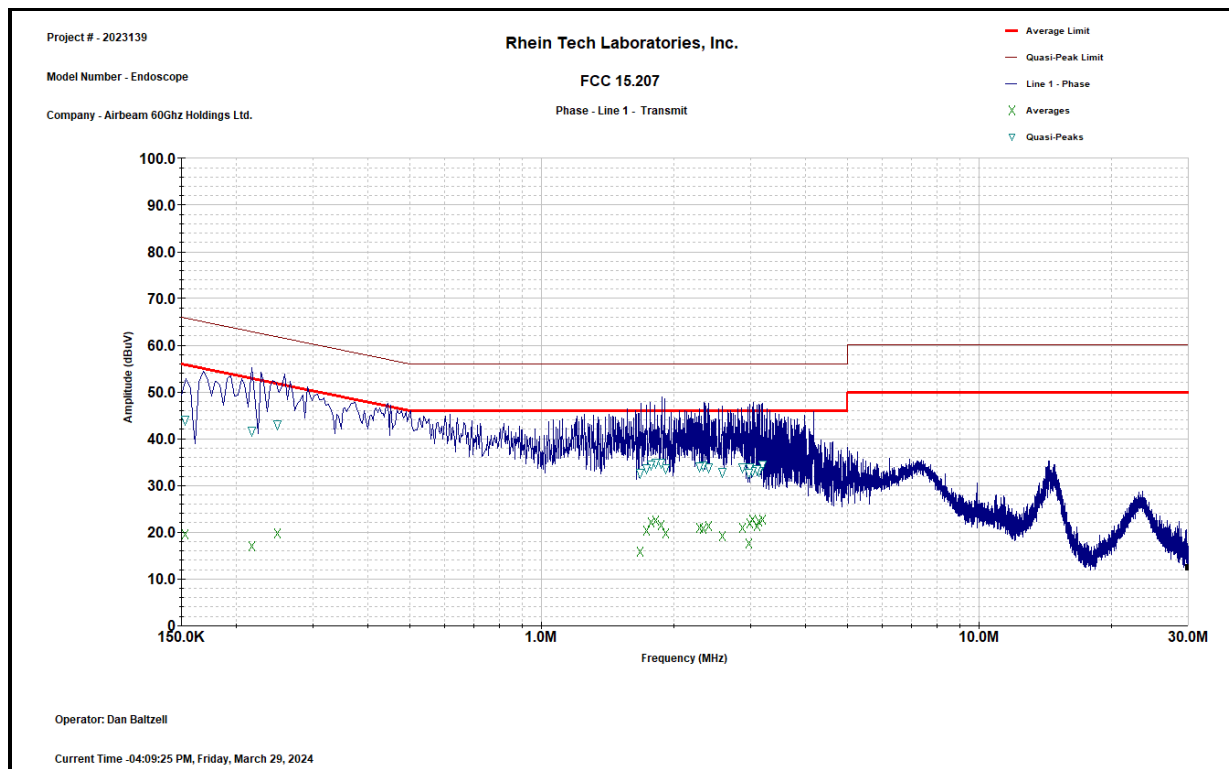
Conducted emissions were performed on the EUT using an off-the-shelf power supply. The general conducted limit under Part 15.207 was applied. The emissions were scanned between 150 kHz to 30 MHz on the neutral and phase conductors.

Environmental Conditions

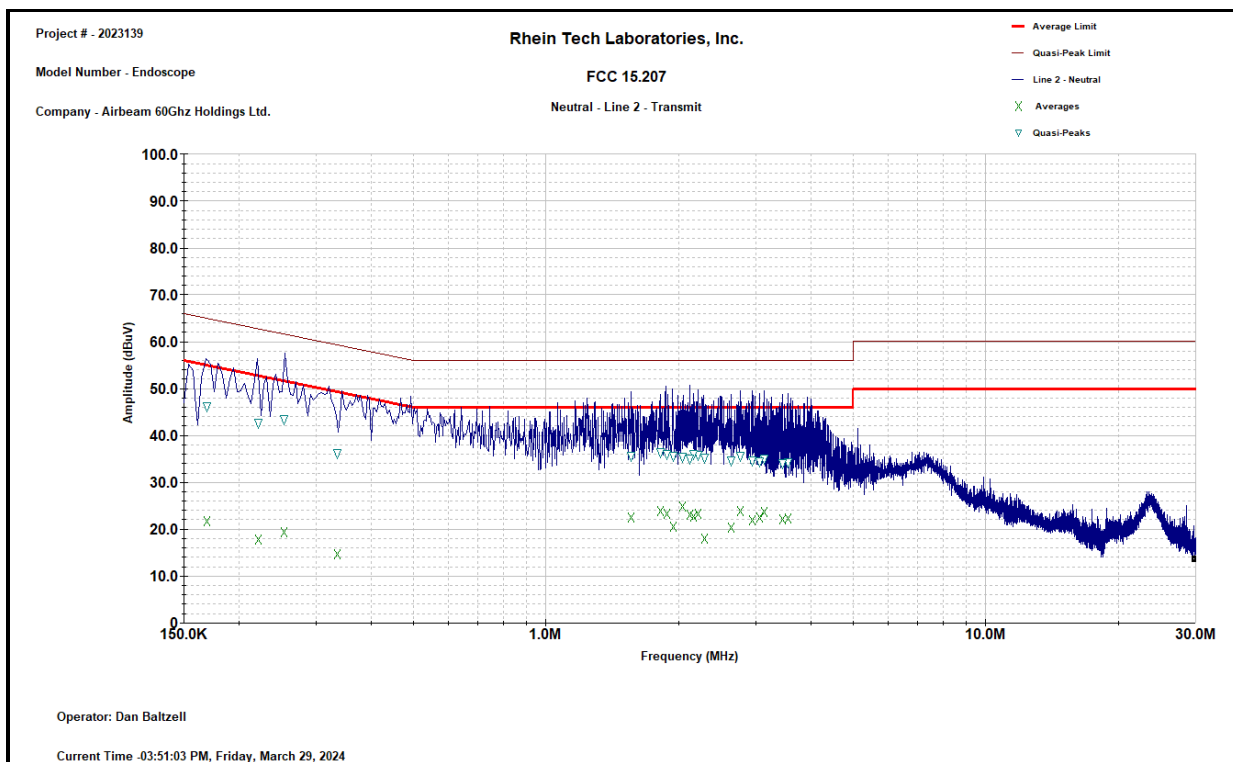
Date	Temperature (°C)	Humidity (%)	Pressure (kPa)
03/29/24	29	25	100.7

6.3 Conducted Line Emissions Test Data

Plot 6-1: Conducted Emissions Transmit - Phase



Plot 6-2: Conducted Emissions Transmit – Neutral



6.3.1 Measurement Uncertainty

Measurement uncertainties shown for these tests are expanded uncertainties expressed at 95% confidence level using a coverage factor $k = 2$.

Conducted Emissions: ± 3.6 dB

Table 6-1: Conducted Line Emissions Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901773	Rohde & Schwarz	FSW50	Spectrum Analyzer	101021	02/02/2025
901083	AFJ International	LS16	16A LISN	16010020080	02/16/2025
N/A	Rhein Tech Laboratories, Inc.	Automated Emissions Tester	Emissions Testing Software Rev. 14.0.2	N/A	N/A

Rhein Tech Laboratories
360 Herndon Parkway
Suite 1400
Herndon, VA 20170
<http://www.rheintech.com>

Client: Airbeam 60 GHz Holdings Ltd.
Model: 60 GHz WIRELESS HD TRANSMITTER
FCC ID: 2ASUJ-SII-SK63102
Standards: FCC 15.255
Report Number: 2024139

Result: Pass

Test Personnel:

Daniel W. Baltzell
Test Engineer



Signature

March 29, 2024
Date of Test

Rhein Tech Laboratories
360 Herndon Parkway
Suite 1400
Herndon, VA 20170
<http://www.rheintech.com>

Client: Airbeam 60 GHz Holdings Ltd.
Model: 60 GHz WIRELESS HD TRANSMITTER
FCC ID: 2ASUJ-SII-SK63102
Standards: FCC 15.255
Report Number: 2024139

7 Conclusion

The data in this measurement report shows that the Airbeam 60 GHz Holdings Ltd. transmitter, FCC ID: 2ASUJ-SII-SK63102, complies with the applicable requirements of Parts 2 and 15 of the FCC Rules and Regulations.

Rhein Tech Laboratories
360 Herndon Parkway
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Herndon, VA 20170
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Client: Airbeam 60 GHz Holdings Ltd.
Model: 60 GHz WIRELESS HD TRANSMITTER
FCC ID: 2ASUJ-SII-SK63102
Standards: FCC 15.255
Report Number: 2024139

Appendix A: Agency Authorization Letter

Please refer to the following page.

Rhein Tech Laboratories
360 Herndon Parkway
Suite 1400
Herndon, VA 20170
<http://www.rheintech.com>

Client: Airbeam 60 GHz Holdings Ltd.
Model: 60 GHz WIRELESS HD TRANSMITTER
FCC ID: 2ASUJ-SII-SK63102
Standards: FCC 15.255
Report Number: 2024139

Appendix B: FCC Confidentiality Request Letter

Please refer to the following page.

Rhein Tech Laboratories
360 Herndon Parkway
Suite 1400
Herndon, VA 20170
<http://www.rheintech.com>

Client: Airbeam 60 GHz Holdings Ltd.
Model: 60 GHz WIRELESS HD TRANSMITTER
FCC ID: 2ASUJ-SII-SK63102
Standards: FCC 15.255
Report Number: 2024139

Appendix C: Technical Operational Description

Please refer to the following pages.

Rhein Tech Laboratories
360 Herndon Parkway
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<http://www.rheintech.com>

Client: Airbeam 60 GHz Holdings Ltd.
Model: 60 GHz WIRELESS HD TRANSMITTER
FCC ID: 2ASUJ-SII-SK63102
Standards: FCC 15.255
Report Number: 2024139

Appendix D: Block Diagram

Please refer to the original grant filing.

Rhein Tech Laboratories
360 Herndon Parkway
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<http://www.rheintech.com>

Client: Airbeam 60 GHz Holdings Ltd.
Model: 60 GHz WIRELESS HD TRANSMITTER
FCC ID: 2ASUJ-SII-SK63102
Standards: FCC 15.255
Report Number: 2024139

Appendix E: Schematics

Please refer to original grant filing.

Rhein Tech Laboratories
360 Herndon Parkway
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<http://www.rheintech.com>

Client: Airbeam 60 GHz Holdings Ltd.
Model: 60 GHz WIRELESS HD TRANSMITTER
FCC ID: 2ASUJ-SII-SK63102
Standards: FCC 15.255
Report Number: 2024139

Appendix F: Manual

Please refer to the original grant filing.

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Client: Airbeam 60 GHz Holdings Ltd.
Model: 60 GHz WIRELESS HD TRANSMITTER
FCC ID: 2ASUJ-SII-SK63102
Standards: FCC 15.255
Report Number: 2024139

Appendix G: Internal Photographs

Please refer to the following pages.

Appendix H: Test Configuration Photographs

Photograph 1: Radiated Emissions – Front View – < 1 GHz



Photograph 2: Radiated Emissions – Rear View - < 1 GHz



Photograph 3: Radiated Emissions – Front View – > 1 GHz



Photograph 4: Radiated Emissions – Rear View - > 1 GHz



Photograph 5: AC Conducted Emissions – Front View



Photograph 6: AC Conducted Emissions - Rear View

