RF Test Report

Applicant	:	Vaisala Oyj
Product Name	:	Vaisala PRECICAP Radar Precipitation Sensor RM60
Trade Name	:	Vaisala
Model Number	:	RM60
Applicable Standard	:	FCC 47 CFR PART 15 SUBPART C
Received Date	:	Jun. 02, 2026
Test Period	:	Jul. 02, 2026 ~ Aug. 11, 2026
Issued Date	:	Aug. 14, 2026

Issued by

Eurofins E&E Wireless Taiwan Co., Ltd.
No. 140-1, Changan Street, Bade District,
Taoyuan City, Taiwan (R.O.C.)
Tel：+886-3-2710188 / Fax：+886-3-2710190

Testing Laboratory
1330

Taiwan Accreditation Foundation accreditation number: 1330
Frequency Range: 9 kHz to 325 GHz
Bade test site：
Test Firm Registration Number: 226252
Test Firm Designation Number: TW0010
Wugu test site：
Test Firm Registration Number: 191812
Test Firm Designation Number: TW0034

Note:
1.The test results are valid only for samples provided by customers and under the test conditions described in this report.
2.This report shall not be reproduced except in full, without the written approval of Eurofins E&E Wireless Taiwan Co., Ltd.
3.The relevant information is provided by customers in this test report. According to the correctness, appropriateness or completeness of the information provided by the customer, if there is any doubt or error in the information which affects the validity of the test results, the laboratory does not take the responsibility.

Revision History

Rev.	Issued Date	Description	Revised by
00	Aug. 14, 2026	Initial Issue	Nina Lin

Verification of Compliance

Applicant	:	Vaisala Oyj
Product Name	:	Vaisala PRECICAP Radar Precipitation Sensor RM60
Trade Name	:	Vaisala
Model Number	:	RM60
FCC ID	:	2AO39-RM60
Applicable Standard	:	FCC 47 CFR PART 15 SUBPART C
Test Result	:	Complied
Issued By	:	Eurofins E&E Wireless Taiwan Co., Ltd. No. 140-1, Changan Street, Bade District, Taoyuan City, Taiwan (R.O.C.) Tel：+886-3-2710188 / Fax：+886-3-2710190 Taiwan Accreditation Foundation accreditation number: 1330

Testing Laboratory 1330

Eurofins E&E Wireless Taiwan Co., Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by Eurofins E&E Wireless Taiwan Co., Ltd. based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Approved By：

Kai Yu Yang / RF Supervisor

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1 General Information

1.1. Summary of Test Result

FCC Standard	Item	Result	Remark
15.207	AC Power Conducted Emission	PASS	-----
15.205, 15.209	Transmitter Radiated Emissions (Below 40 GHz)	PASS	-----
15.255(d)	Transmitter Radiated Emissions (Above 40 GHz)	PASS	-----
15.255(c)(2)(v)	EIRP (Peak & Avg)	PASS	-----
15.255(e)	Peak Conducted Output Power	PASS	-----
15.255(e)(2)	6 dB Emission Bandwidth	Reference only	-----
2.1049	99 % Occupied Bandwidth	Reference only	-----
15.255(f)	Frequency Stability	PASS	-----
15.203	Antenna Requirement	PASS	-----

Standard	Description
CFR47, Part 15, Subpart C	Intentional Radiators
ANSI C63.10-2020+Cor.1-2023	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
KDB 364244 D01 Meas 15.255 Radars v01r01	FIELD DISTURBANCE SENSORS AND RADAR DEVICES CERTIFYING UNDER THE PROVISIONS OF §15.255

Decision Rule

■ Uncertainty is not included.

□ Uncertainty is included.

1.2. Testing Location

Lab Name: Eurofins E&E Wireless Taiwan Co., Ltd.

Site Address: ■ No. 140-1, Changan Street, Bade District, Taoyuan City, Taiwan (R.O.C.)

Site Address: □ No. 2, Wuquan 5th Rd. Wugu Dist., New Taipei City, Taiwan (R.O.C.)

1.3. Measurement Uncertainty

Test Item	Frequency	Uncertainty	
		BD	WG
Conducted Emission	150 kHz ~ 30 MHz	2.7 dB	2.6 dB

Test Item	Frequency	Uncertainty				
		96601-BD	96603-BD	96602-WG	96603-WG	96604-WG
Radiated Emission	9 kHz ~ 30 MHz	1.8 dB	1.8 dB	1.6 dB	1.6 dB	1.7 dB
	30 MHz ~ 1000 MHz	4.7 dB	4.6 dB	4.7 dB	4.7 dB	4.5 dB
	1000 MHz ~ 18000 MHz	4.4 dB	4.5 dB	4.5 dB	4.7 dB	5.0 dB
	18000 MHz ~ 26500 MHz	3.6 dB	3.8 dB	3.8 dB	4.0 dB	4.3 dB
	26500 MHz ~ 40000 MHz	3.9 dB	3.9 dB	4.0 dB	4.0 dB	4.4 dB
	40000 MHz ~ 325000 MHz	3.0 dB	3.0 dB	3.0 dB	3.0 dB	2.9 dB

1.4. Test Site Environment

Items	Required (IEC 60068-1)	Interval(*)
Temperature (°C)	15-35	20-30
Humidity (%RH)	25-75	45-75

(*)The measurement ambient temperature is within this range.

2 EUT Description

The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity (except Max. RF Output Power, Max. EIRP).

Applicant	Vaisala Oyj Vanha Nurmijärventie 21, 01670 Vantaa, Finland	
Product Name	Vaisala PRECICAP Radar Precipitation Sensor RM60	
Trade Name	Vaisala	
Model Number	RM60	
FCC ID	2AO39-RM60	
Frequency Range	61 - 61.5 GHz	
Modulation Type	FMCW	
Number of Channel	1 CH	
Antenna Type	Integrated lens Antenna	
Operate Temp. Range	-40 ~ +60 ℃	
EUT Power Rating	24 VDC nominal (9 ~ 32 VDC absolute range)	
Max. EIRP	Peak	20.29 dBm

Testing Sample No.	
Test Item	Sample Number
Radiated Emissions	C266029_A001
Conducted	C266029_A001

3 Test Methodology

3.1. Mode of Operation

Decision of Test Eurofins has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Pre-Test Mode	Final-Test Mode
Radar_61-61.5 GHz	V

By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that “X axis” position was the worst, then the final test was executed the worst condition and test data were recorded in this report.

Power settings configuration:

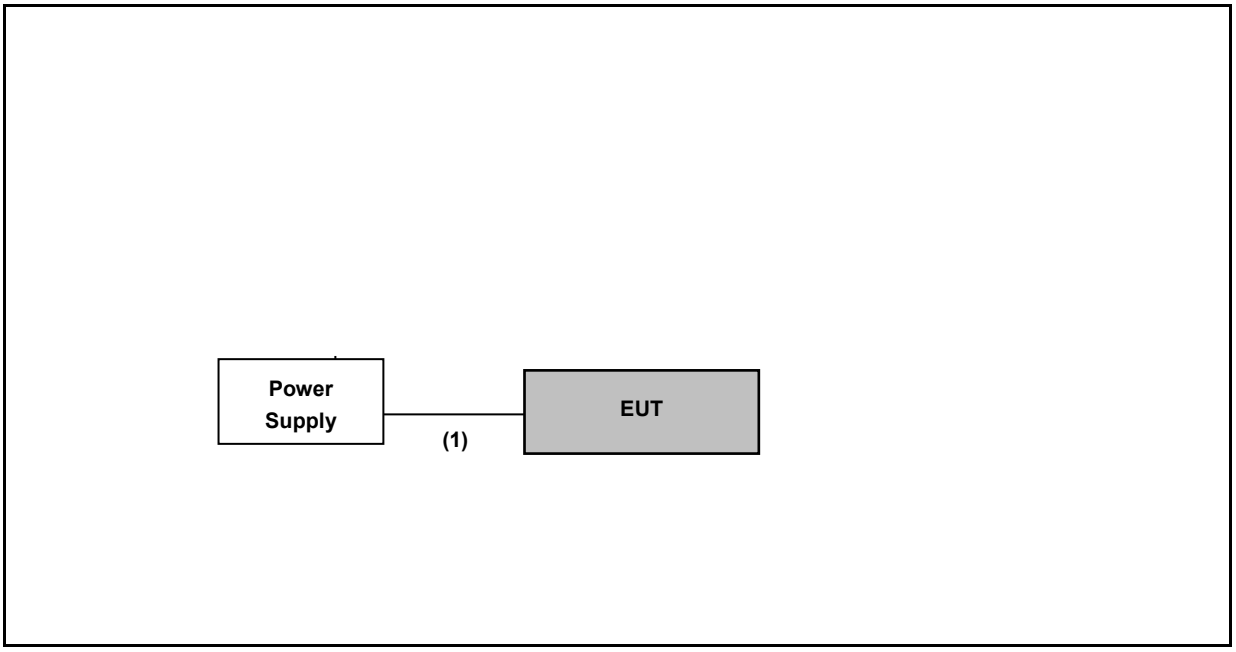
Test Mode	Frequency (GHz)	RF Power setting in Test Software	Test Software Version
Transmit Mode	61-61.5	---	---

3.2. EUT Test Step

1	Setup the EUT shown on “Configuration of Test System Details”.
2	Turn on the power of EUT.

3.3. Configuration of Test System Details

Radiated Emission



Product		Manufacturer	Model Number
(1)	I/O Cable (10m)	Phoenix Contact	1440046

3.4. Test Instruments

For Conducted Emission
Test Period: Jul. 16, 2026
Testing Engineer: Jayson Hsieh

Test Site		Conduction01-BD				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☒	Test Receiver	R&S	ESCI	100367	May 22, 2026	1 year
☒	LISN	R&S	ENV216	101040	Feb. 24, 2026	1 year
☒	RF Cable	Woken	00100D1380194M	TE-02-03	Jun. 08, 2026	1 year
☒	Software	EZ EMC	1.1.4.3	N/A	N.C.R.	---

For Radiated Emissions
Test Period: Jul. 02, 2026 ~ Jul. 26, 2026
Testing Engineer: Bruce Chen

Test Site		96603-BD				
Radiation test sites		Semi Anechoic Room				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☒	Spectrum Analyzer (10 Hz~44 GHz)	Keysight	N9020B	MY60112363	Jan. 09, 2026	1 year
☒	Amplifier (100 kHz~1.3 GHz)	Agilent	8447D	2944A11119	Jan. 09, 2026	1 year
☒	Loop Antenna (9 kHz~30 MHz)	COM-POWER CORPORATION	AL-130	121014	Mar. 30, 2026	1 year
☒	Trilog Broadband Antenna (30 kHz~1 GHz)	Schwarzbeck Mess-Elektronik	VULB9168	841	Mar. 23, 2026	1 year
☒	Coaxial Cable	Titan	T0710AT327A10A 100	J11005	Aug. 06, 2025	1 year
☒	Coaxial Cable	Titan	T0710AT327A10A 900	J11003	Aug. 06, 2025	1 year
☒	Coaxial Cable	Titan	CFD400NL-LW	171219	Aug. 06, 2025	1 year
☒	Millimeter-Wave Signal Analyzer Frequency Extension Module (50-75GHz)	VDI	N9029AV15 (SAX 410)	US54250165	Aug. 28, 2025	3 years
☒	Millimeter-Wave Signal Analyzer Frequency Extension Module (60-90GHz)	VDI	N9029AV12 (SAX 409)	US54250171	Aug. 28, 2025	3 years
☒	Millimeter-Wave Signal Analyzer Frequency Extension Module (90-140GHz)	VDI	N9029AV08 (SAX 406)	US53250013	Aug. 28, 2023	3 years

Note: N.C.R. = No Calibration Request.

For Radiated Emissions
Test Period: Jul. 02, 2026 ~ Jul. 26, 2026
Testing Engineer: Bruce Chen

Test Site		96603-BD				
Radiation test sites		Semi Anechoic Room				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☒	Millimeter-Wave Signal Analyzer Frequency Extension Module (140-220GHz)	VDI	N9029AV05 (SAX 407)	US53250020	Aug. 28, 2023	3 years
☒	Millimeter-Wave Signal Analyzer Frequency Extension Module (220-330GHz)	VDI	N9029AV03 (SAX 408)	US53250022	Aug. 28, 2023	3 years
☒	Horn Antenna (33-50GHz)	QuinStar	QWH-QPRR00	1231900027	Aug. 21, 2025	3 years
☒	Std Gain Horn Antenna Std Gain (50-75GHz)	VDI	N9029AH15 (WR15)	WR15-01	Aug. 22, 2025	3 years
☒	Std Gain Horn Antenna Std Gain (60-90GHz)	VDI	N9029AH12 (WR12)	WR12-01	Aug. 21, 2025	3 years
☒	Std Gain Horn Antenna Std Gain (90-140GHz)	VDI	N9029AH08 (WR8.0)	WR08-01	Aug. 22, 2025	3 years
☒	Std Gain Horn Antenna Std Gain (140-220GHz)	VDI	N9029AH05 (WR5.0)	WR05-01	Aug. 22, 2025	3 years
☒	Std Gain Horn Antenna Std Gain (220-330GHz)	VDI	N9029AH03 (WR3.4)	WR3.4-01	Aug. 22, 2025	3 years
☒	Power Supply	KEITHLEY	2303	4045290	Dec. 18, 2025	1 year
☒	Software	R_RAN	1.4	N/A	N.C.R.	---

Note: N.C.R. = No Calibration Request.

For Radiated Emissions
Test Period: Aug. 11, 2026
Testing Engineer: Bruce Chen

Test Site		96603-BD				
Radiation test sites		Semi Anechoic Room				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☒	Oscilloscope	RIGOL	DS2302A	DS2D202601873	Aug. 28, 2025	1 year
☒	Std Gain Horn Antenna Std Gain (50-75GHz)	VDI	N9029AH15 (WR15)	WR15-01	Aug. 22, 2025	3 years

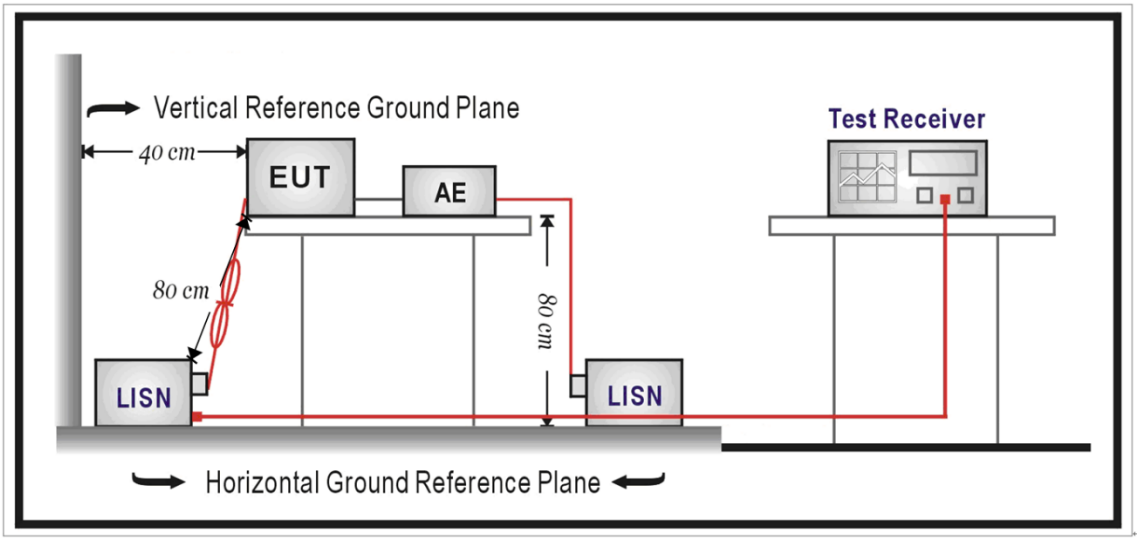
4 Measurement Procedure

4.1. AC Power Line Conducted Emission Measurement

■ **Limit**

Frequency (MHz)	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

■ **Test Setup**



■ **Test Procedure**

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 Ω// 50 uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50 Ω// 50 uH coupling impedance with 50 ohm termination.

Tabletop device shall be placed on a non-conducting platform, of nominal size 1 m by 1.5 m, raised 80 cm above the reference ground plane. The wall of screened room shall be located 40 cm to the rear of the EUT. Other surfaces of tabletop or floor standing EUT shall be at least 80 cm from any other ground conducting surface including one or more LISNs. For floor-standing device shall be placed under the EUT with a 12 mm insulating material.

Conducted emissions were investigated over the frequency range from 0.15 MHz to 30 MHz using a resolution bandwidth of 9 kHz. The equipment under test (EUT) shall be meet the limits in section 4.1, as applicable, including the average limit and the quasi-peak limit when using respectively, an average detector and quasi-peak detector measured in accordance with the methods described of related standard. When all of peak value were complied with quasi-peak and average limit from 150 kHz to 30 MHz then quasi-peak and average measurement was unnecessary.

The AMN shall be placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for AMNs mounted on top of the ground reference plane. This distance is between the closest points of the AMN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8 m from the AMN. If the mains power cable is longer than 1 m then the cable shall be folded back and forth at the centre of the lead to form a bundle no longer than 0.4 m. All of interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long. All of EUT and AE shall be separate place more than 0.1 m. All 50 Ω ports of the LISN shall be resistively terminated into 50 Ω loads when not connected to the measuring instrument.

If the reading of the measuring receiver shows fluctuations close to the limit, the reading shall be observed for at least 15 s at each measurement frequency; the higher reading shall be recorded with the exception of any brief isolated high reading which shall be ignored.

4.2. Radiated Emission Measurement

■ **Limit**

(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/cm^2 at a distance of 3 meters.

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

Limits of Radiated Emission Measurement (FCC 15.209):

Frequency (MHz)	Field Strength (μV/m at meter)	Measurement Distance (meter)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
30 - 88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Note: (1) The tighter limit applies at the band edges.

(2) Emission level (dBuV/m)=20 log Emission level (uV/m).

Radiated emissions above 40 GHz:

Frequency Range (GHz)	Limit (pW/cm^2) @ 3 m	Equivalent to EIRP limit (dBm)
40-200	90	-9.92

Note: (1) PD = $EIRP_{Linear}$ / (4 * π * d^2)

Where:

PD is the power density at the distance specified by the limit, in W/m2

$EIRP_{Linear}$ is the equivalent isotropically radiated power, in watts

d is the distance at which the power density limit is specified, in m

Within the 57–71 GHz band, emission levels shall not exceed the following equivalent isotropically radiated power (EIRP):

Standard		Limit
■	Part 15.255(c)(2)(v)	For field disturbance sensors/radars that occupy 500 MHz bandwidth or less that are contained wholly within the frequency band 61.0–61.5 GHz, the average power of any emission, measured during the transmit interval, shall not exceed 40 dBm, and the peak power of any emission shall not exceed 43 dBm. In addition, the average power of any emission outside of the 61.0–61.5 GHz band, measured during the transmit interval, but still within the 57–71 GHz band, shall not exceed 10 dBm, and the peak power of any emission shall not exceed 13 dBm.

Peak transmitter conducted output power:

Except as specified in paragraph (e)(2) of this section, the peak transmitter conducted output power of devices other than field disturbance sensors/radars 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 (c) of this section.

Devices other than field disturbance sensors/radars with an emission bandwidth of less than 100 megahertz must limit their peak transmitter conducted output power to the product of 500 mW times their emission bandwidth divided by 100 megahertz. 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 kilohertz 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).

Calculate the conducted output power (in watts) from the EIRP (in watts) using Equation:

$P_{cond} = EIRP_{Linear} / G_{EUT}$

Where:

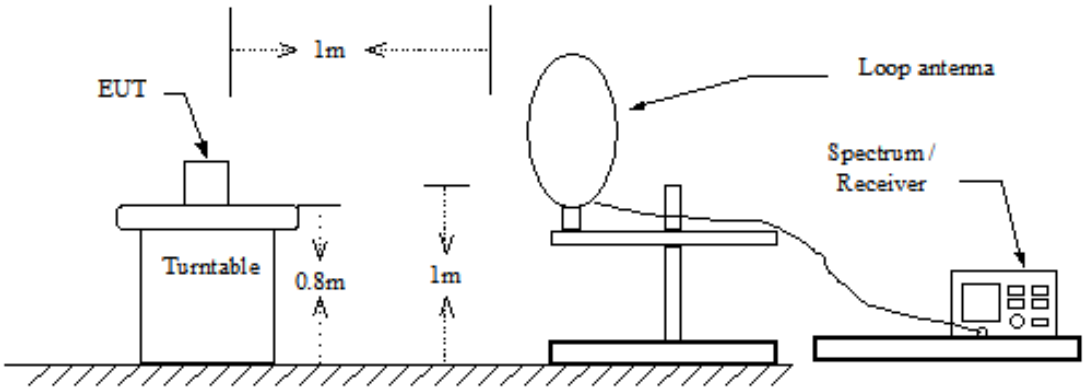
P_{cond} is the conducted output power, in W

$EIRP_{Linear}$ is the equivalent isotropically radiated power, in W

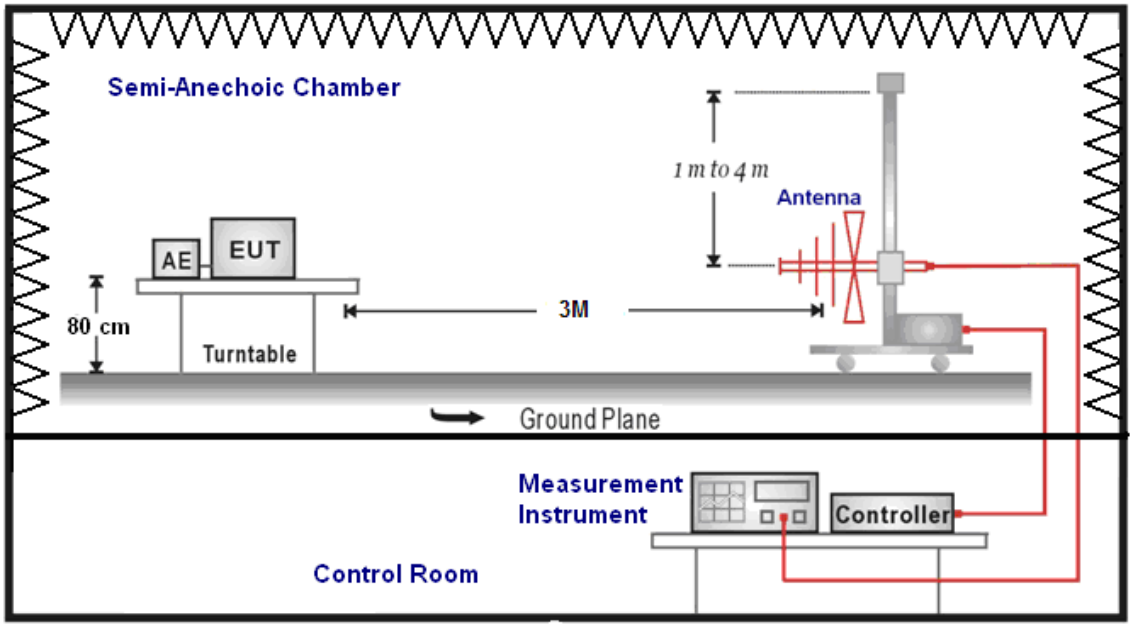
G_{EUT} is numeric gain of the EUT radiating element (antenna)

■ **Setup**

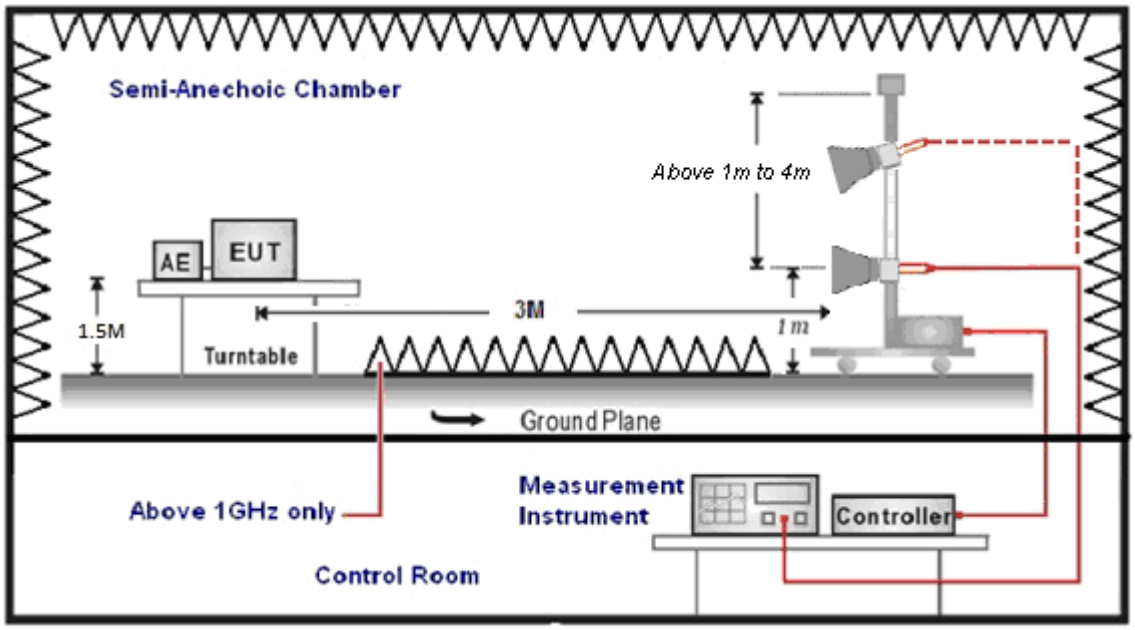
Below 30 MHz



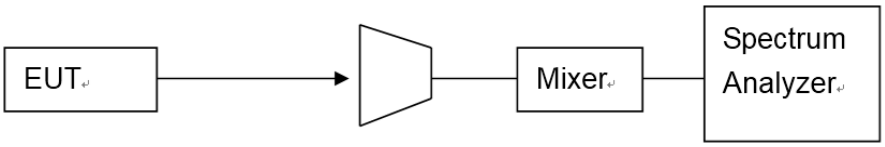
30 MHz ~ 1 GHz



Above 1 GHz



Above 50 GHz



Note: The receive measurement antenna or EUT antenna is in the far field of the EUT per formula (2*D^2)/λ.

For fundamental and out-of-band emissions the largest far-field distance of either the EUT antenna or measurement antenna shall be used. For spurious emissions the far-field distance is based only on the measurement antenna.

■ **Test Procedure**

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter. The EUT was set to transmit continuously & Measurements range from 9 kHz to 10th harmonic is investigated.

For measurements below 30 MHz the resolution bandwidth is set to 10 kHz for peak detection measurements or 9 kHz for quasi-peak detection measurements. The video bandwidth is 3 times of the resolution bandwidth.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 3 MHz for peak (detector for peak) measurements and average (detector for average) measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on tree orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

Biconilog/Horn Antenna were used in frequency 30 MHz to 18 GHz at a distance of 3 meter. Loop/Horn Antenna was used in frequency 9 kHz to 30 MHz and 18 to 40 GHz at a distance of 1 meter. The antenna at an angle toward the source of the emission. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20 dB/decade).

For testing above 1 GHz, the emission level of the EUT in peak mode was 20 dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Result (dBuV/m) = Reading (dBuV) + Correct Factor (dB/m)

Correct Factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) - Pre-Amplifier gain (dB)

Above 40 GHz: $E = 126.8 - 20\log(\lambda) + P - G$

E is the field strength of the emission at the measurement distance, in dBuV/m

P is the power measured at the output of the test antenna, in dBm

λ is the wavelength of the emission under investigation [300/f MHz], in m

G is the gain of the test antenna, in dBi

Note: The measured power P includes all applicable instrument correction factors up to the connection to the test antenna.

Measurement distance conversion calculation formula:

$E_{Space\ Limit} = E_{Meas} + 20\log(D_{Meas} / D_{Space\ Limit})$

E_{Space} Limit is the field strength of the emission at the distance specified by the limit, in dBuV/m

E_{Meas} is the field strength of the emission at the distance specified by the limit, in dBuV/m

D_{Meas} is the measurement distance, in m

D_{Space} Limit is the distance specified by the limit, in m

Field strength to EIRP calculation formula:

$EIRP = E + 20\log(d) – 104.7$

EIRP is the equivalent isotropically radiated power, in dBm

E is the field strength of the emission at the measurement distance, in dBuV/m

d is the measurement distance, in m

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable. The measurement antenna is in the far field of the EUT per formula 2D2/λ where D is the larger between the dimension of the measurement antenna and the transmitting antenna of the EUT. In this case, "D" is the largest dimension of the transmitting antenna of the EUT. For fundamental and out-of-band emissions the largest far-field distance of either the EUT antenna or measurement antenna shall be used. For spurious emissions the far-field distance is based only on the measurement antenna. The EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer.

To comply with ANSI C63.10 Clause 9.7, exploratory scans were executed across three orthogonal axes (X/Y/Z) and dual polarizations (H/V) to maximize the radar's narrow beam emission. Final measurements were performed and recorded exclusively under the identified worst-case configuration.

Far Field Distance Evaluation:

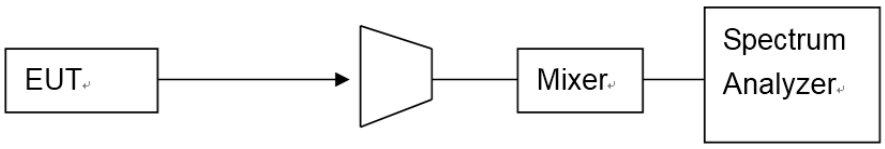
Rx Antenna	Frequency (GHz)	Wavelength λ (m)	Measurement Antenna D (m)	Far field Rm (m) ≧ $2*D^2/\lambda$	Measurement Distance d_1 (m)	Distance specified by the limit d_2 (m)	Distance Factor = 20* log (D) (dB)
9170	18	0.0167	0.06	0.43	1	3	-9.54
	40	0.0075	0.06	0.96	1	3	-9.54
QWH-QPRR00	40	0.0075	0.0389	0.40	1	3	-9.54
	50	0.0060	0.0389	0.50	1	3	-9.54
N9029AH15	50	0.0060	0.0241	0.19	1	3	-9.54
	75	0.0040	0.0241	0.29	1	3	-9.54
N9029AH12	60	0.0050	0.0199	0.16	1	3	-9.54
	90	0.0033	0.0199	0.24	1	3	-9.54
N9029AH08	90	0.0033	0.0136	0.11	1	3	-9.54
	140	0.0021	0.0136	0.17	1	3	-9.54
N9029AH05	140	0.0021	0.0084	0.07	1	3	-9.54
	220	0.0014	0.0084	0.10	1	3	-9.54
N9029AH03	220	0.0014	0.0056	0.05	1	3	-9.54
	325	0.0009	0.0056	0.07	1	3	-9.54

4.3. 99 % Occupied Bandwidth Measurement

■ **Limit**

NA

■ **Test Setup**



■ **Test Procedure**

99 % Occupied Bandwidth:

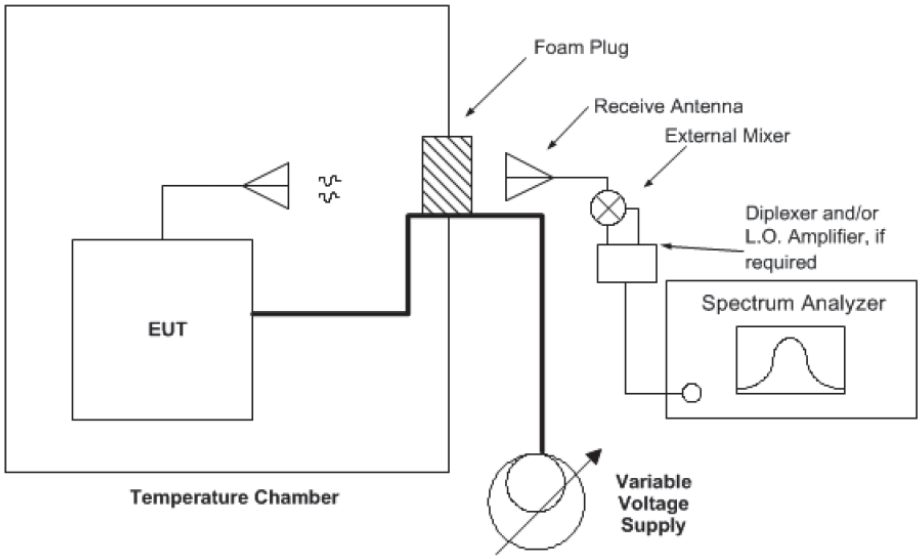
The testing follows ANSI C63.10-2020+Cor.1-2023 Section 9.4.

4.4. Frequency Stability Measurement

■ **Limit**

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.

■ **Test Setup**



■ **Test Procedure**

The testing follows ANSI C63.10-2020+Cor.1-2023 Section 9.5.

4.5. Antenna Measurement

■ **Limit**

FCC Part 15.203:

For intentional device, according to 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.

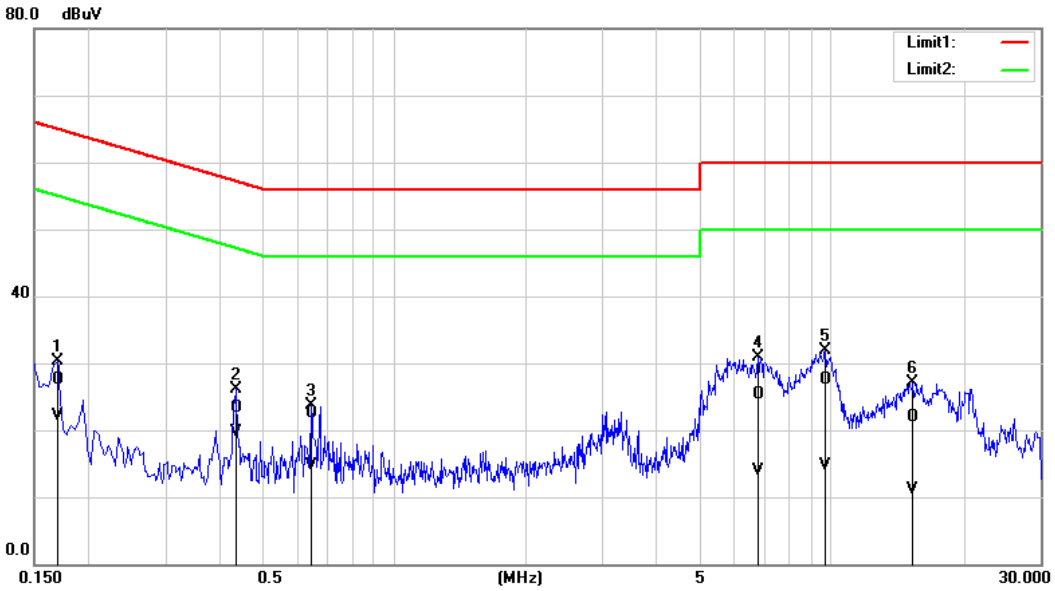
■ **Antenna Connector Construction**

See section 2 – antenna information.

5 Test Results

5.1. Conducted Emission

Standard:	FCC Part 15.255	Line:	L1
Test item:	Conducted Emission	Power:	DC 24 V/2 A
Mode:	Transmit Mode		
Description:			

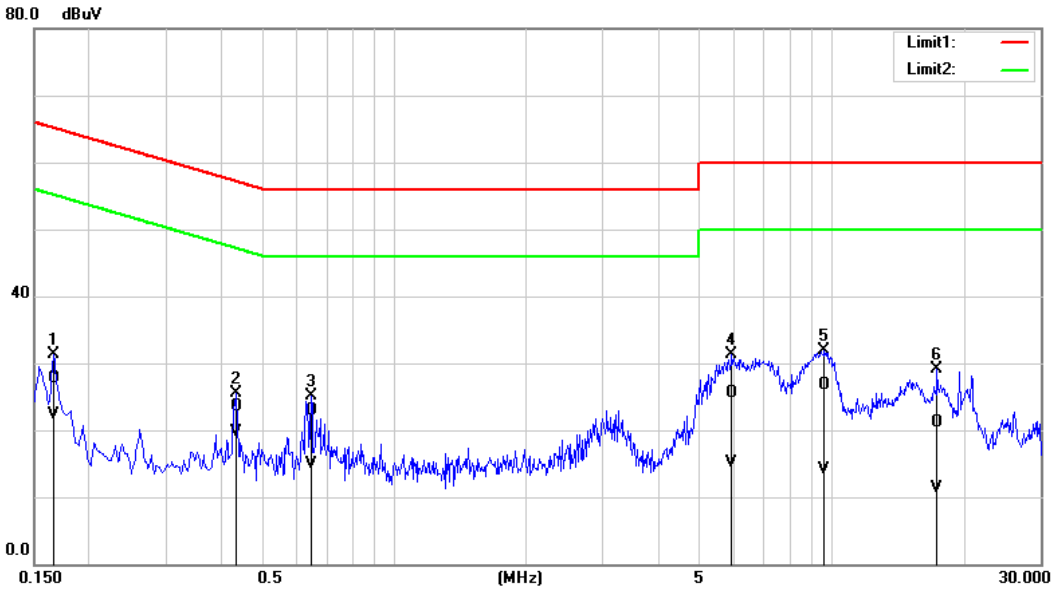


No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1700	17.91	12.46	9.67	27.58	22.13	64.96	54.96	-37.38	-32.83	Pass
2	0.4340	13.64	9.92	9.71	23.35	19.63	57.18	47.18	-33.83	-27.55	Pass
3	0.6460	12.70	4.94	9.71	22.41	14.65	56.00	46.00	-33.59	-31.35	Pass
4	6.7740	15.48	4.09	9.86	25.34	13.95	60.00	50.00	-34.66	-36.05	Pass
5	9.7020	17.64	4.75	9.91	27.55	14.66	60.00	50.00	-32.45	-35.34	Pass
6	15.3580	11.81	0.95	10.13	21.94	11.08	60.00	50.00	-38.06	-38.92	Pass

Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

2.Correction factor (dB) = Cable loss (dB) + L.I.S.N. factor (dB).

Standard:	FCC Part 15.255	Line:	N
Test item:	Conducted Emission	Power:	DC 24 V/2 A
Mode:	Transmit Mode		
Description:			



No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1660	18.18	12.59	9.62	27.80	22.21	65.16	55.16	-37.36	-32.95	Pass
2	0.4340	13.84	10.07	9.66	23.50	19.73	57.18	47.18	-33.68	-27.45	Pass
3	0.6460	13.15	5.24	9.67	22.82	14.91	56.00	46.00	-33.18	-31.09	Pass
4	5.9220	15.62	5.18	9.84	25.46	15.02	60.00	50.00	-34.54	-34.98	Pass
5	9.6300	16.87	4.17	9.93	26.80	14.10	60.00	50.00	-33.20	-35.90	Pass
6	17.4660	11.03	1.10	10.15	21.18	11.25	60.00	50.00	-38.82	-38.75	Pass

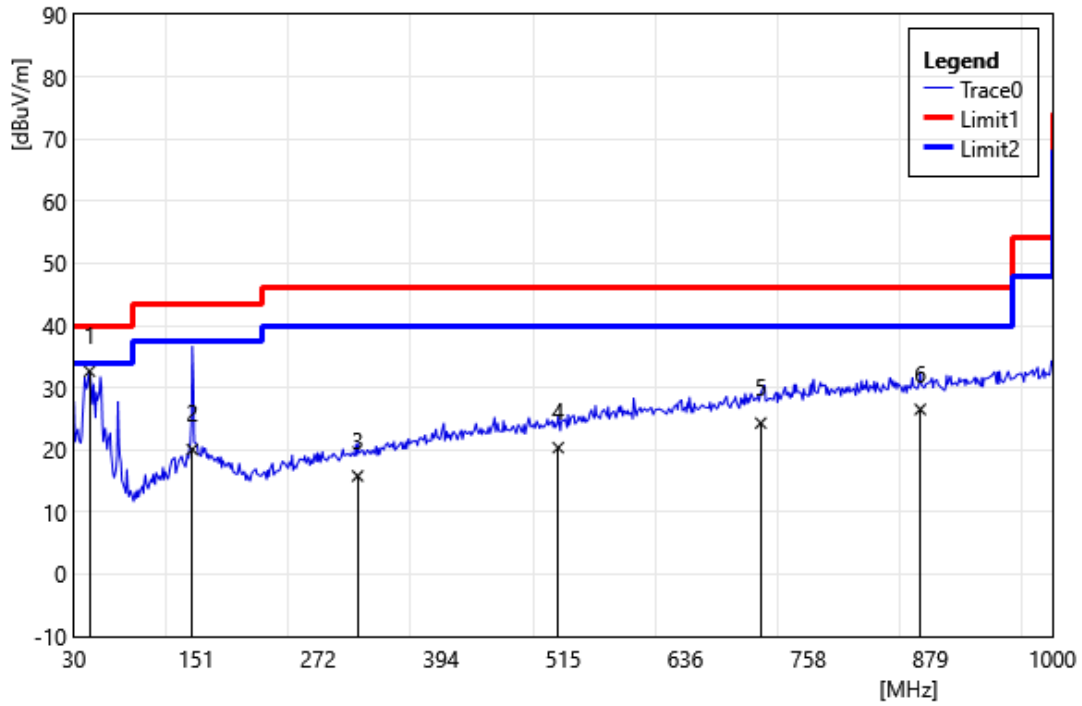
Note:1.Result (dBuV) = Correction factor (dB) + Reading(dBuV).

2.Correction factor (dB) = Cable loss (dB) + L.I.S.N. factor (dB).

5.2. Radiated Emission Test Results

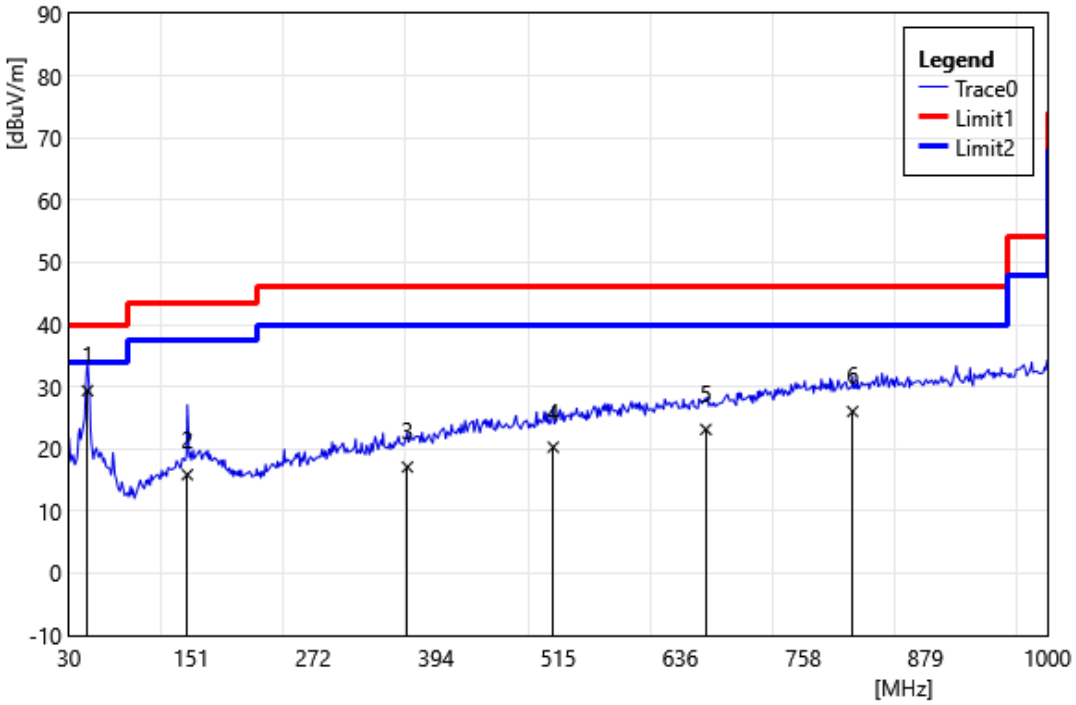
Radiated Emissions (below 1 GHz)

Test Site:	966 Chamber	Standard:	Part 15.255
Test Mode:	Transmit Mode		
Polarization:	Vertical		
Remark:			



ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	45.52	41.64	-8.98	32.66	40.00	-7.34	QP
2	147.37	27.40	-7.33	20.07	43.50	-23.43	QP
3	311.30	21.70	-5.90	15.80	46.00	-30.20	QP
4	510.15	22.04	-1.68	20.36	46.00	-25.64	QP
5	710.94	21.82	2.48	24.30	46.00	-21.70	QP
6	869.05	21.84	4.67	26.51	46.00	-19.49	QP

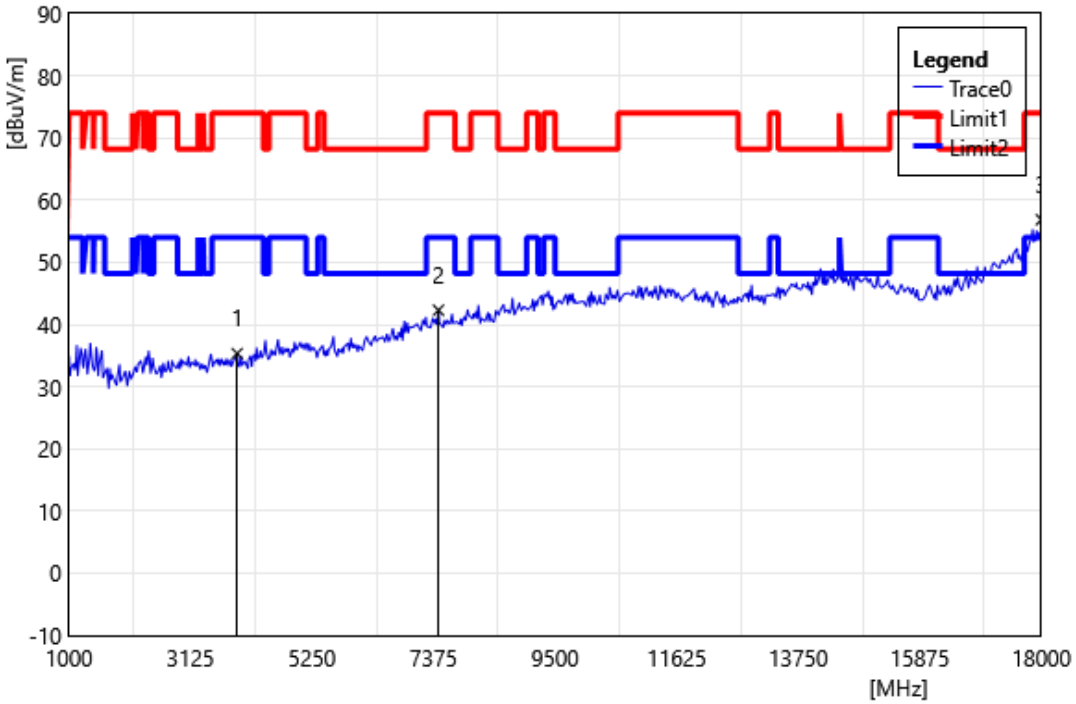
Test Site:	966 Chamber	Standard:	Part 15.255
Test Mode:	Transmit Mode		
Polarization:	Horizontal		
Remark:			



ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	48.43	37.27	-7.91	29.36	40.00	-10.64	QP
2	147.37	23.18	-7.33	15.85	43.50	-27.65	QP
3	365.62	21.55	-4.46	17.09	46.00	-28.91	QP
4	510.15	21.95	-1.68	20.27	46.00	-25.73	QP
5	661.47	21.99	1.14	23.13	46.00	-22.87	QP
6	806.97	22.21	3.80	26.01	46.00	-19.99	QP

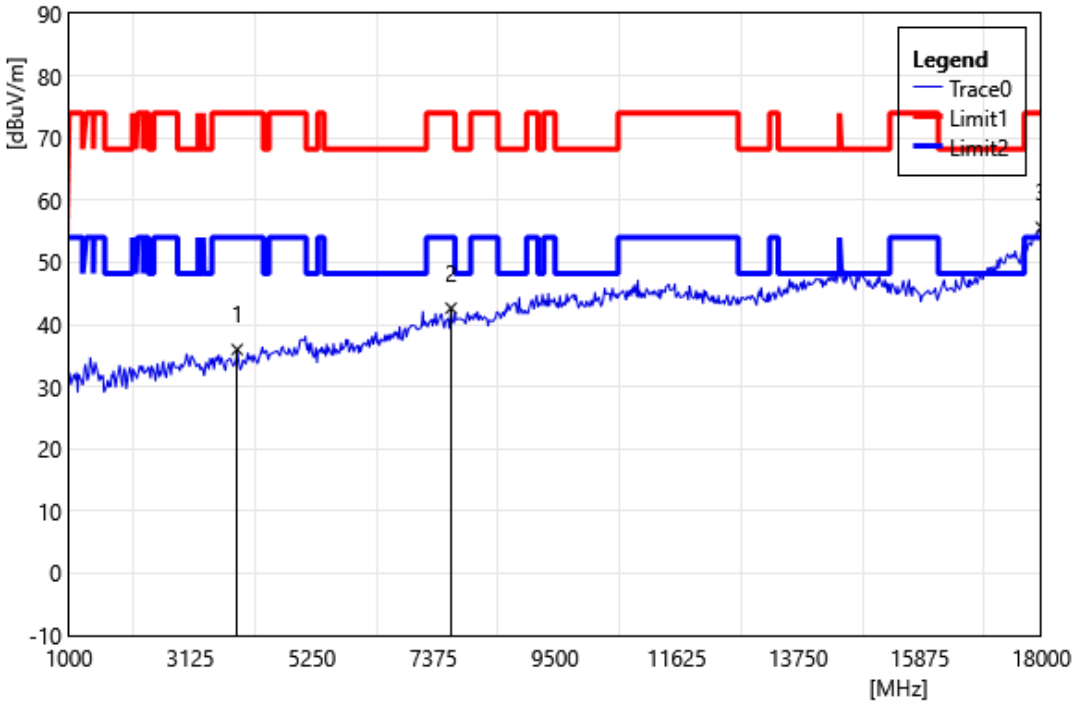
Radiated Emissions (Above 1 GHz)

Test Site:	966 Chamber	Standard:	Part 15.255
Test Mode:	62 GHz		
Polarization:	Vertical		
Remark:			



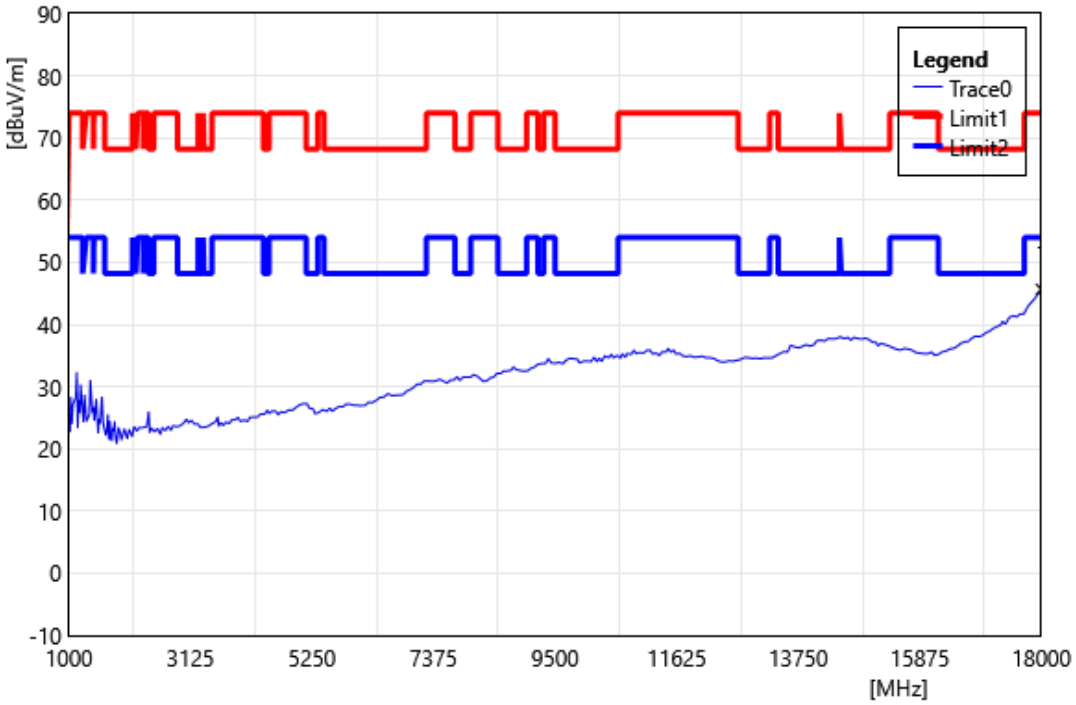
ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	3941.00	39.60	-4.27	35.33	74.00	-38.67	PEAK
2	7460.00	36.47	5.83	42.30	74.00	-31.70	PEAK
3	18000.00	32.05	24.81	56.86	74.00	-17.14	PEAK

Test Site:	966 Chamber	Standard:	Part 15.255
Test Mode:	62 GHz		
Polarization:	Horizontal		
Remark:			



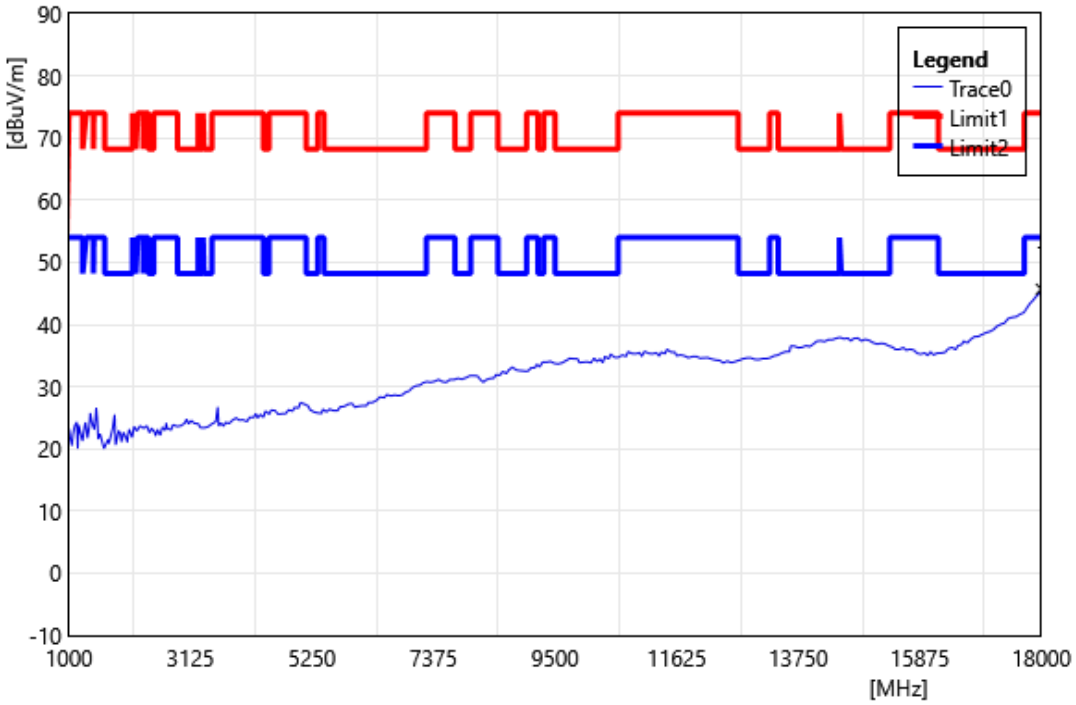
ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	3941.00	40.25	-4.27	35.98	74.00	-38.02	PEAK
2	7681.00	37.16	5.46	42.63	74.00	-31.38	PEAK
3	18000.00	30.81	24.81	55.62	74.00	-18.38	PEAK

Test Site:	966 Chamber	Standard:	Part 15.255
Test Mode:	62 GHz		
Polarization:	Vertical		
Remark:			



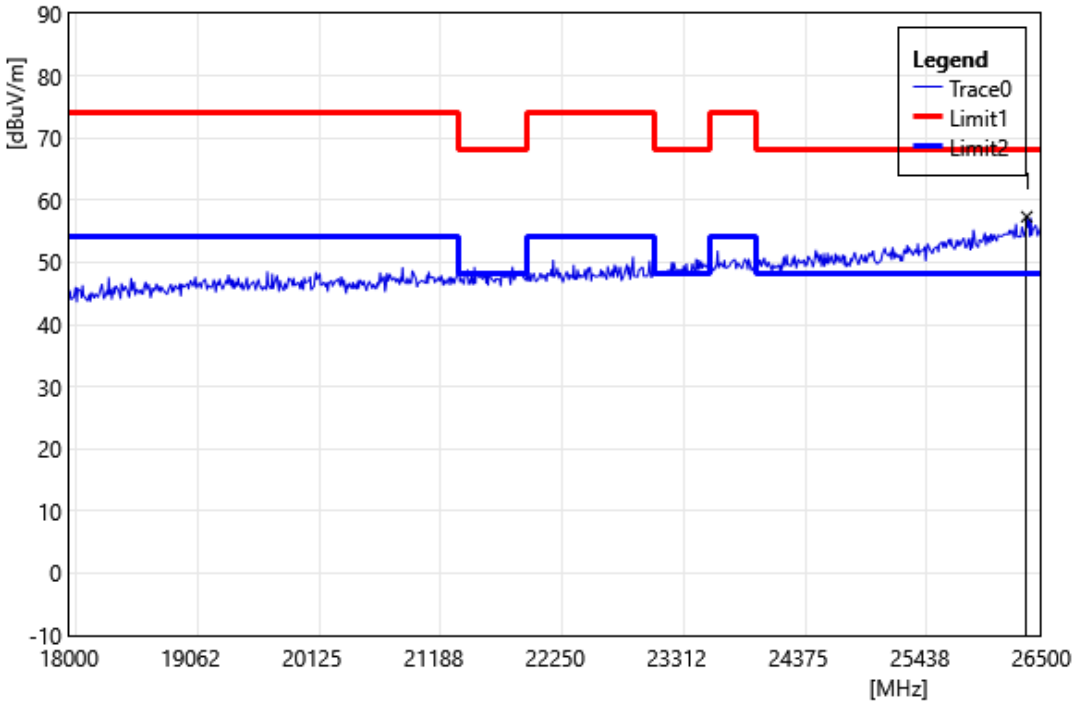
ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	18000.00	20.85	24.81	45.66	54.00	-8.34	AVG

Test Site:	966 Chamber	Standard:	Part 15.255
Test Mode:	62 GHz		
Polarization:	Horizontal		
Remark:			



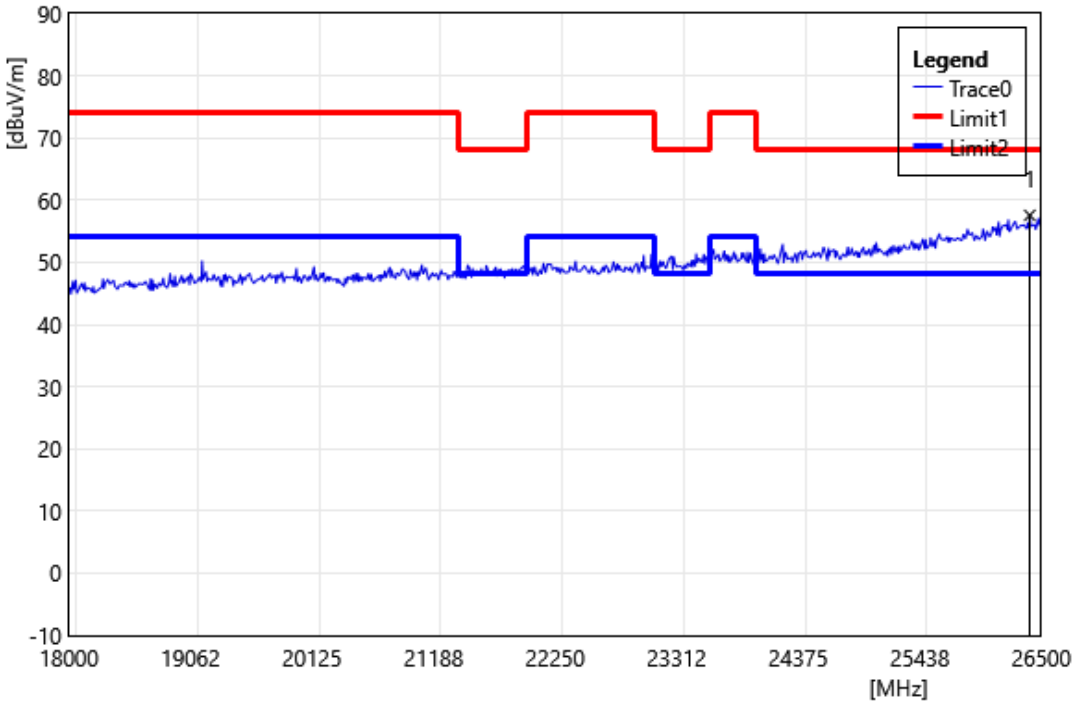
ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	18000.00	20.87	24.81	45.68	54.00	-8.32	AVG

Test Site:	966 Chamber	Standard:	Part 15.255
Test Mode:	62 GHz		
Polarization:	Vertical		
Remark:			



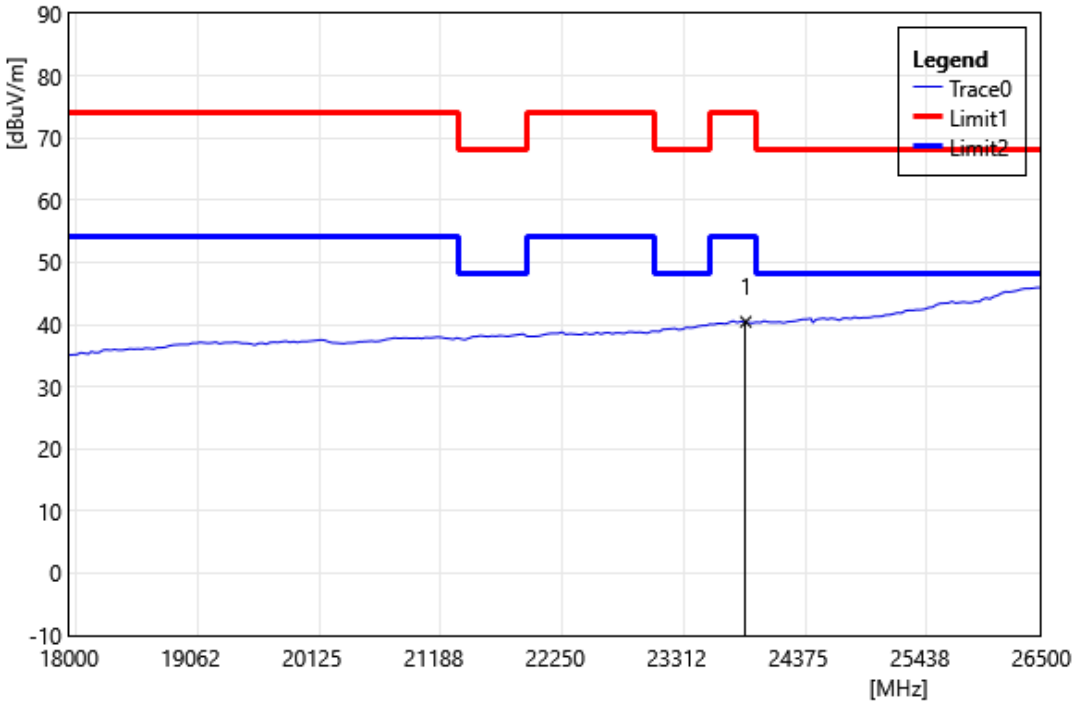
ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	26372.50	32.68	24.65	57.33	68.20	-10.87	PEAK

Test Site:	966 Chamber	Standard:	Part 15.255
Test Mode:	62 GHz		
Polarization:	Horizontal		
Remark:			



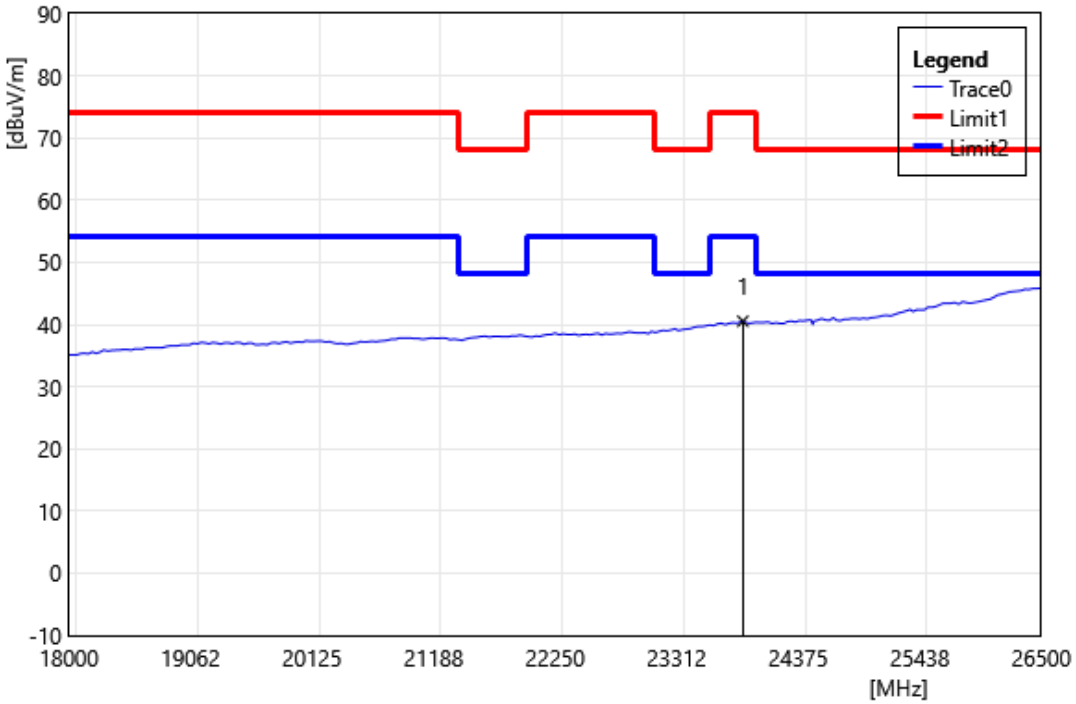
ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	26398.00	32.88	24.69	57.57	68.20	-10.64	PEAK

Test Site:	966 Chamber	Standard:	Part 15.255
Test Mode:	62 GHz		
Polarization:	Vertical		
Remark:			



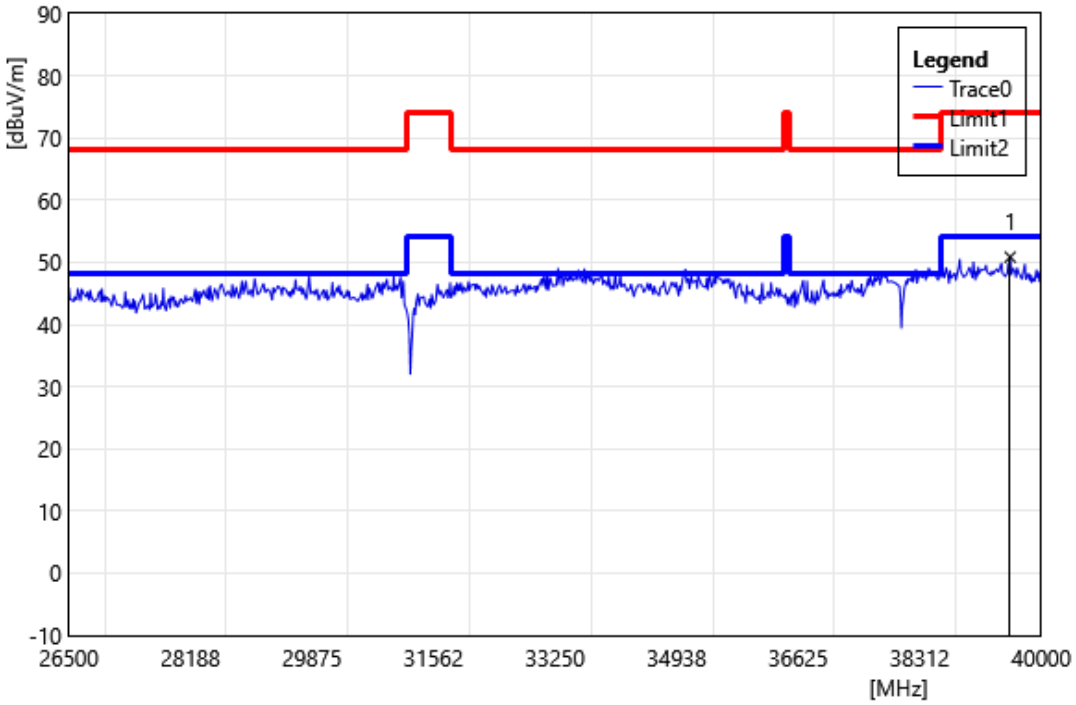
ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	23916.00	21.90	18.54	40.44	54.00	-13.56	AVG

Test Site:	966 Chamber	Standard:	Part 15.255
Test Mode:	62 GHz		
Polarization:	Horizontal		
Remark:			



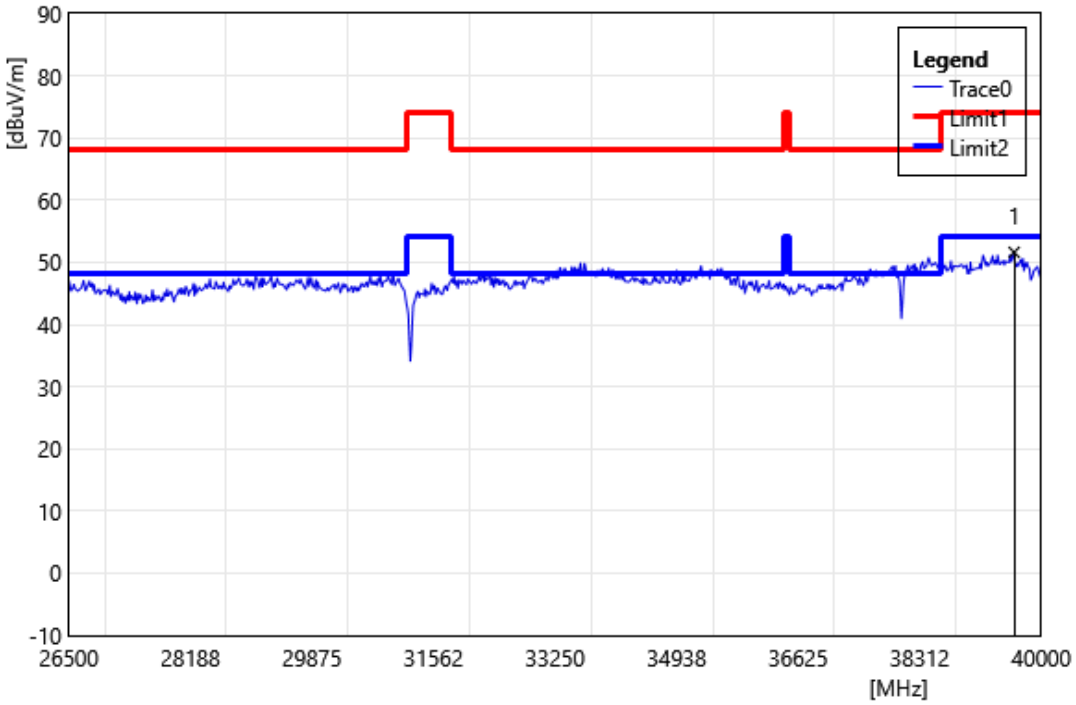
ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	23890.50	22.01	18.52	40.53	54.00	-13.47	AVG

Test Site:	966 Chamber	Standard:	Part 15.255
Test Mode:	62 GHz		
Polarization:	Vertical		
Remark:			



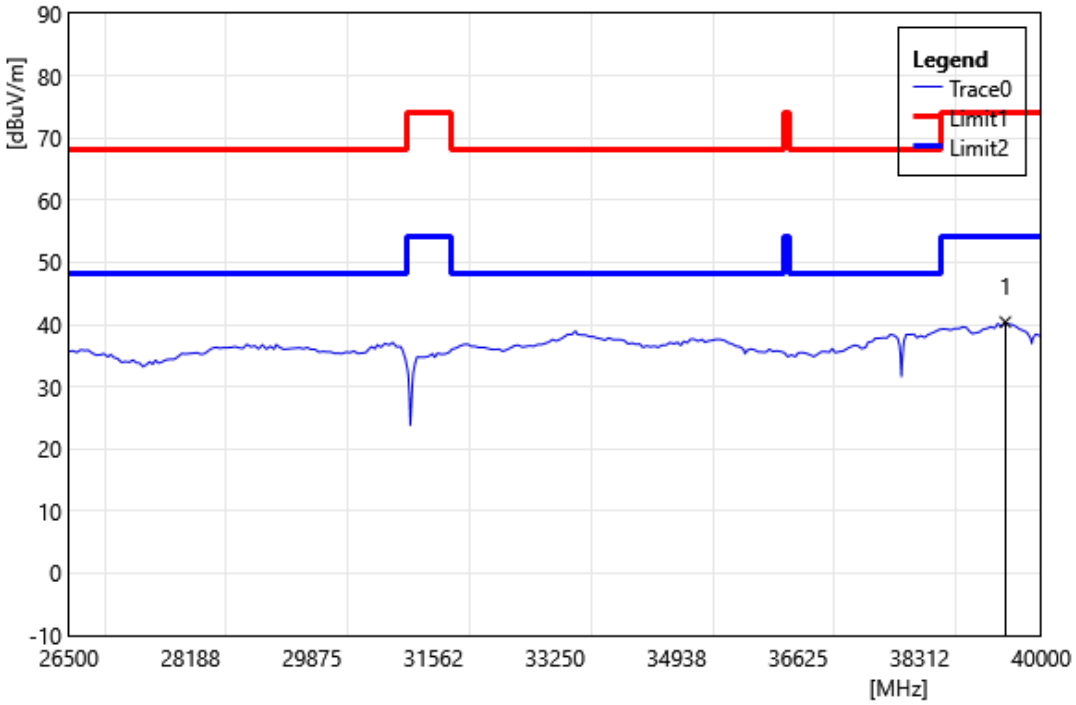
ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	39568.00	49.52	1.32	50.84	74.00	-23.16	PEAK

Test Site:	966 Chamber	Standard:	Part 15.255
Test Mode:	62 GHz		
Polarization:	Horizontal		
Remark:			



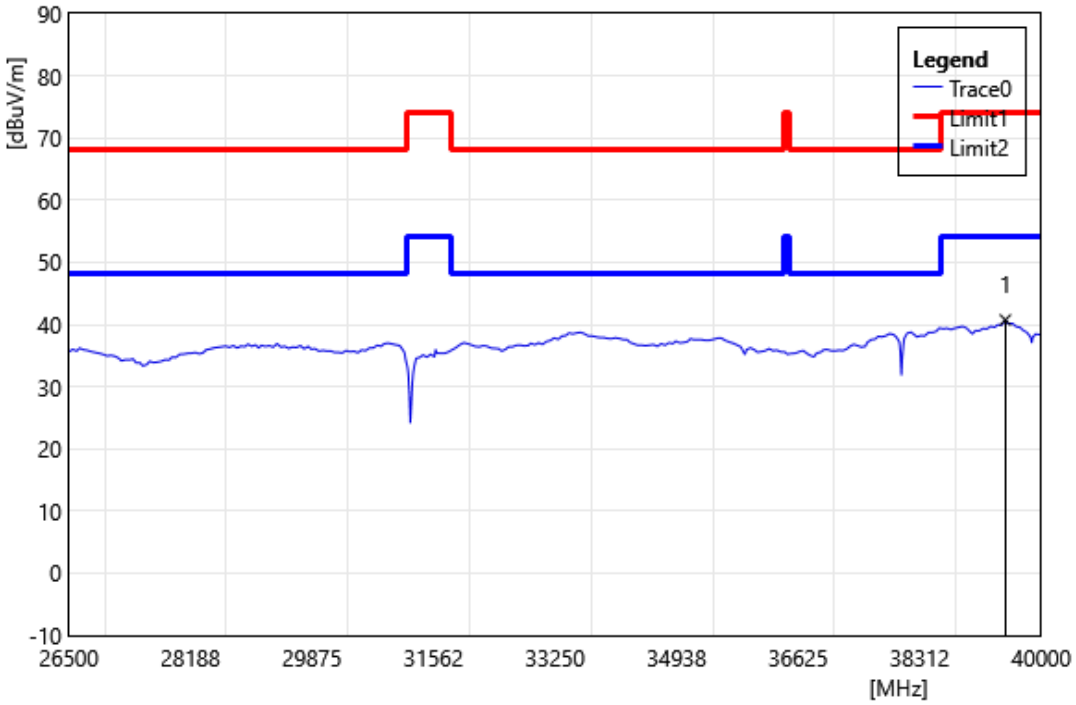
ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	39622.00	50.37	1.24	51.61	74.00	-22.39	PEAK

Test Site:	966 Chamber	Standard:	Part 15.255
Test Mode:	62 GHz		
Polarization:	Vertical		
Remark:			



ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	39500.50	38.99	1.42	40.41	54.00	-13.59	AVG

Test Site:	966 Chamber	Standard:	Part 15.255
Test Mode:	62 GHz		
Polarization:	Horizontal		
Remark:			

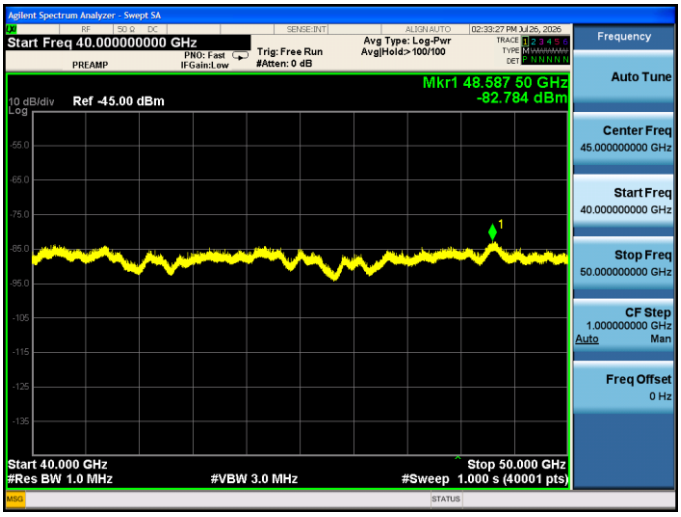


ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	39500.50	39.32	1.42	40.74	54.00	-13.26	AVG

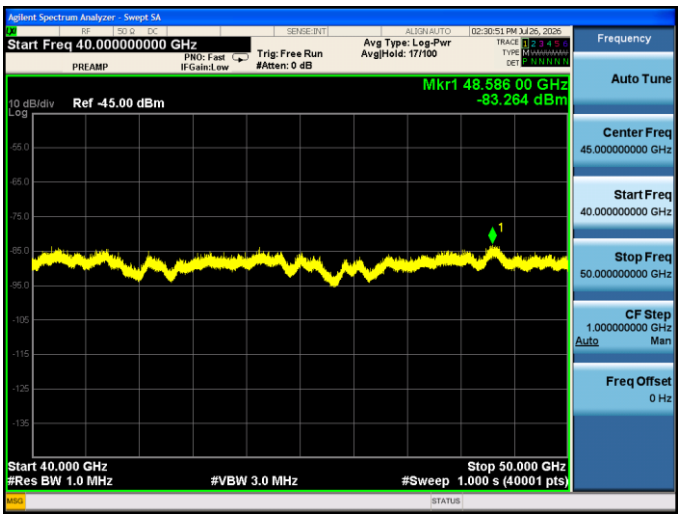
5.3. Power density Test Results

Transmit Mode (61-61.5GHz)								
Frequency (GHz)	Reading (dBm)	Distance Factor = 20*log(1m/3m) (dB)	Ant. Pol.	AF (dB/m)	CL+ML (dB)	Result (dBm)	Power Density (pW/cm²)	Limit (pW/cm²)
48.587	-82.784	-9.54	H	43.53	6.59	-42.21	0.0532	90
48.586	-83.264	-9.54	V	43.53	6.59	-42.69	0.0476	
63.836	-91.483	-9.54	H	46.90	13.37	-40.75	0.0743	
72.105	-91.91	-9.54	V	47.36	13.81	-40.28	0.0828	
87.894	-91.5	-9.54	H	49.18	14.96	-36.90	0.1804	
88.776	-91.281	-9.54	V	49.27	14.66	-36.90	0.1806	
105.771	-91.353	-9.54	H	51.89	16.32	-32.69	0.4761	
123.467	-91.391	-9.54	V	52.83	15.31	-32.79	0.4648	
189.306	-91.12	-9.54	H	56.34	16.40	-27.92	1.4277	
163.296	-91.626	-9.54	V	55.76	14.81	-30.60	0.7703	

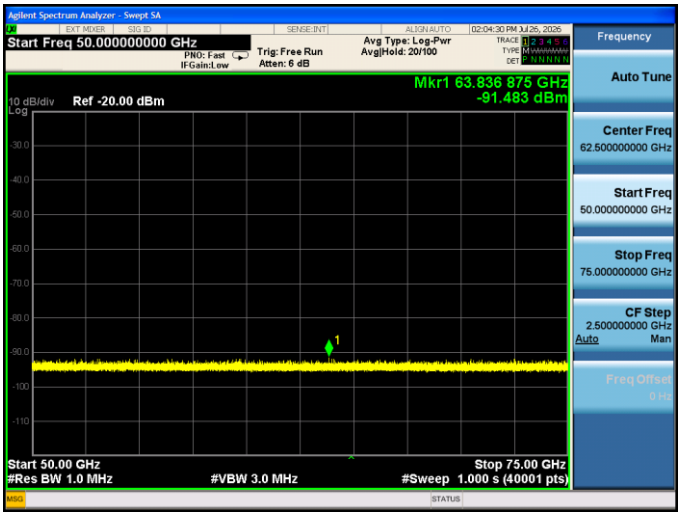
Standard:	Part 15.255	Test Site:	966 Chamber
Polarization:	Horizontal		
Test Mode:	Transmit Mode		
Remark:	40-50 G		



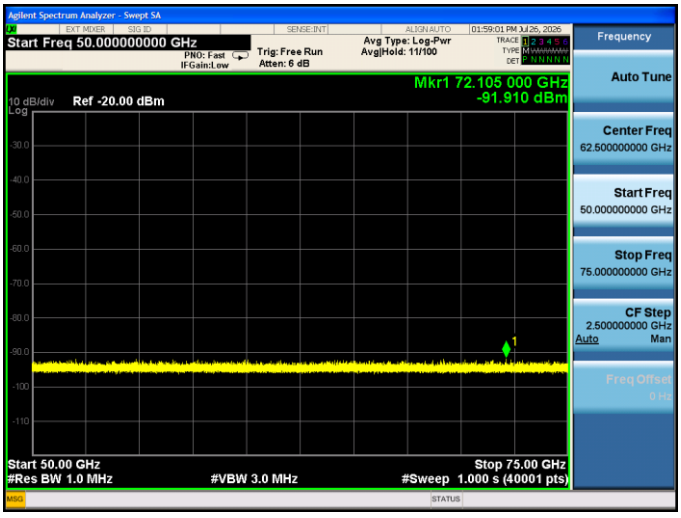
Standard:	Part 15.255	Test Site:	966 Chamber
Polarization:	Vertical		
Test Mode:	Transmit Mode		
Remark:	40-50 G		



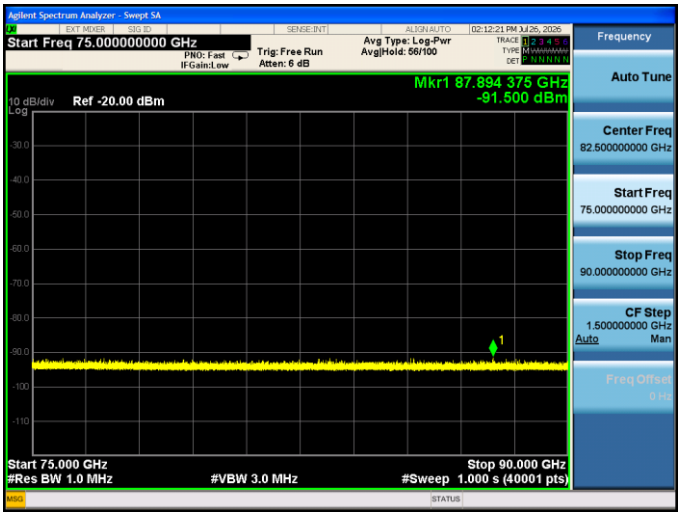
Standard:	Part 15.255	Test Site:	966 Chamber
Polarization:	Horizontal		
Test Mode:	Transmit Mode		
Remark:	50-75 G		



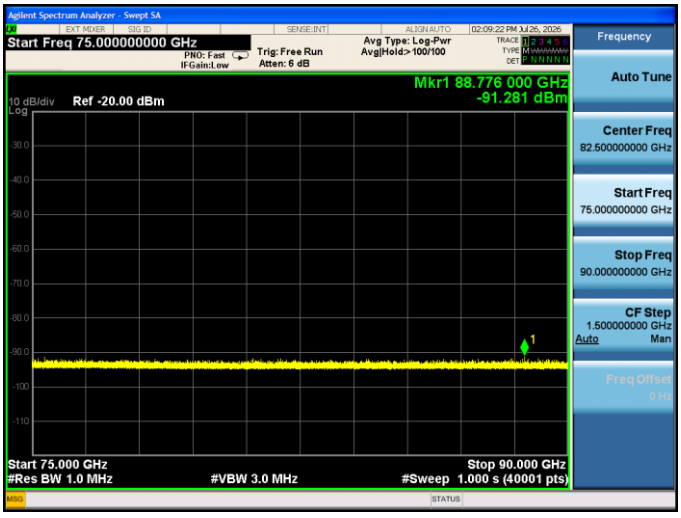
Standard:	Part 15.255	Test Site:	966 Chamber
Polarization:	Vertical		
Test Mode:	Transmit Mode		
Remark:	50-75 G		



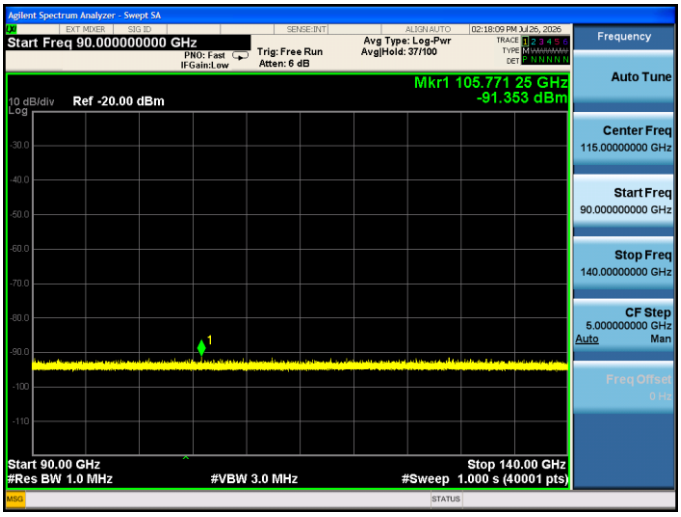
Standard:	Part 15.255	Test Site:	966 Chamber
Polarization:	Horizontal		
Test Mode:	Transmit Mode		
Remark:	75-90 G		



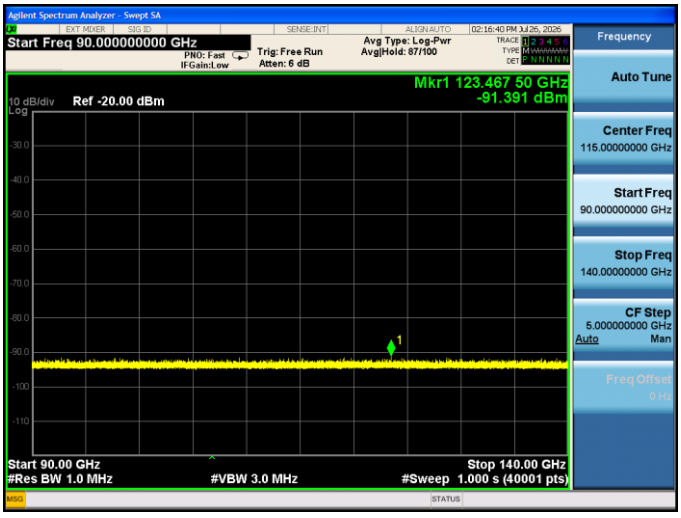
Standard:	Part 15.255	Test Site:	966 Chamber
Polarization:	Vertical		
Test Mode:	Transmit Mode		
Remark:	75-90 G		



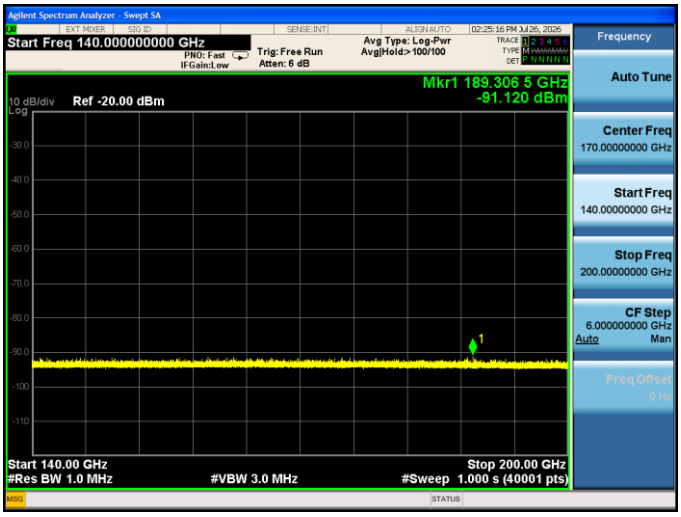
Standard:	Part 15.255	Test Site:	966 Chamber
Polarization:	Horizontal		
Test Mode:	Transmit Mode		
Remark:	90-140 G		



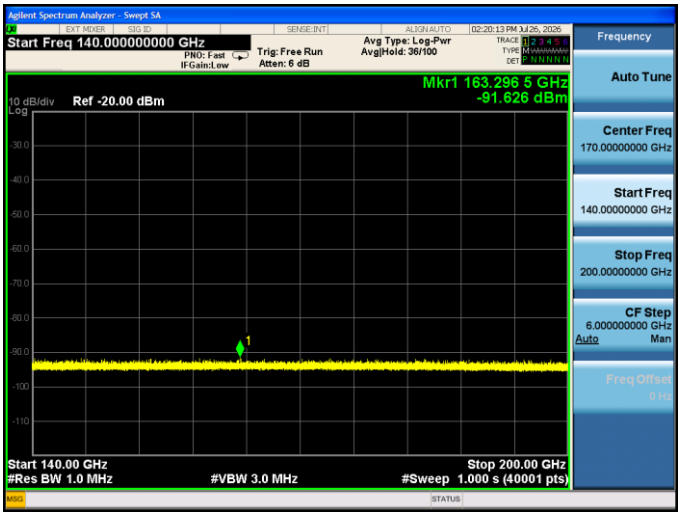
Standard:	Part 15.255	Test Site:	966 Chamber
Polarization:	Vertical		
Test Mode:	Transmit Mode		
Remark:	90-140 G		



Standard:	Part 15.255	Test Site:	966 Chamber
Polarization:	Horizontal		
Test Mode:	Transmit Mode		
Remark:	140-200 G		



Standard:	Part 15.255	Test Site:	966 Chamber
Polarization:	Vertical		
Test Mode:	Transmit Mode		
Remark:	140-200 G		



5.4. Output Power Test Results

Peak Power (E.I.R.P)								
Mode	Measurement Distance (m)	Frequency (GHz)	Reading (dBm)	Antenna Gain (dBi)	E (dBuV/m)	Peak E.I.R.P (dBm)	Limit (dBm)	Result
Transmit Mode (61-61.5 GHz)	1	61.25	-26.436114	21.6	124.99	20.29	43	PASS

Note: The EIRP was evaluated on vertical and horizontal polarization, the worst case is Horizontal polarization.

Average Power (E.I.R.P)						
Mode	Frequency (GHz)	Peak E.I.R.P (dBm)	Duty Factor (dB)	AVG E.I.R.P (dBm)	Limit	Result
Transmit Mode (61-61.5 GHz)	61.25	20.29	0.97	19.32	40.00	PASS

Note: AVG E.I.R.P = Peak E.I.R.P – 10*log(1/duty cycle in the transmit interval).

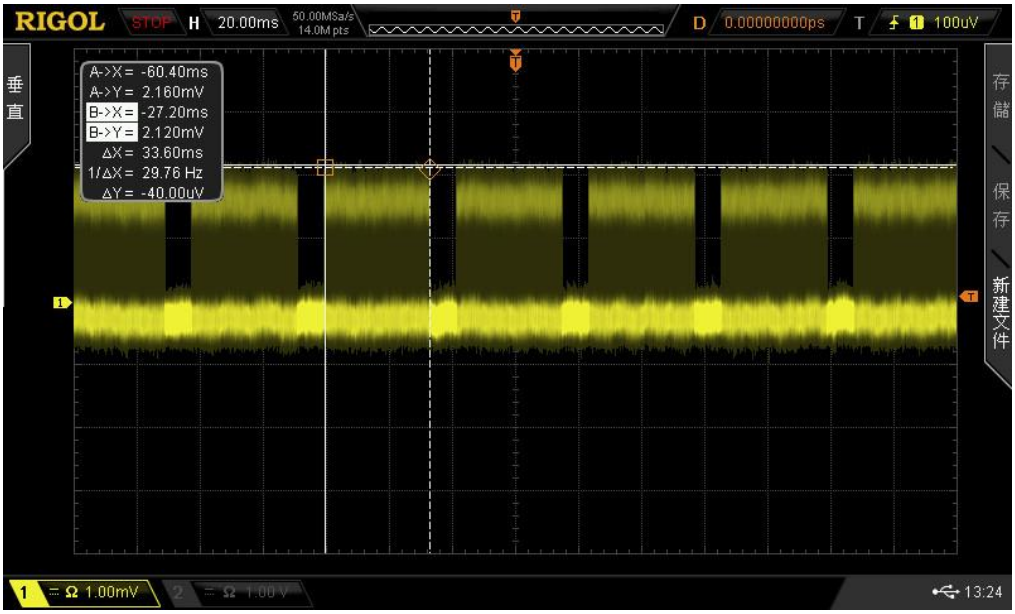
In Band Emission

Transmit Mode 57 GHz ~61 GHz 61.5 GHz ~ 71 GHz						
Peak						
Frequency (GHz)	Reading (dBm)	Ant. Pol.	AF (dB/m)	CL+ML (dB)	EIRP Result (dBm)	Limit (dBm)
61.000	-84.659	H	46.61	12.95	-25.10	13
61.000	-73.043	V	46.61	12.95	-13.49	
61.500	-77.955	H	46.68	13.17	-18.11	
61.500	-67.892	V	46.68	13.17	-8.04	

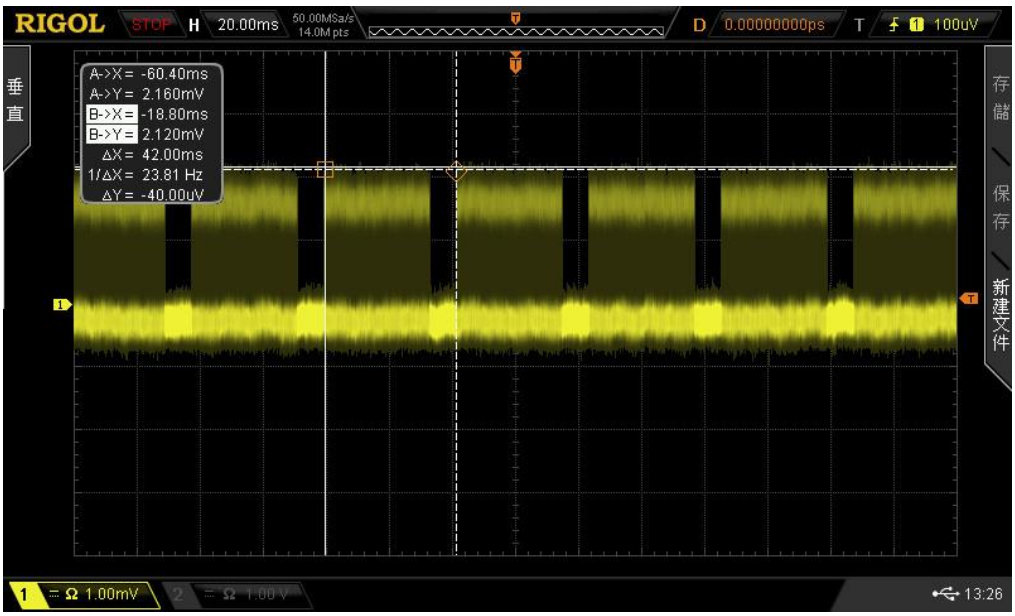
Average						
Frequency (GHz)	Reading (dBm)	Ant. Pol.	AF (dB/m)	CL+ML (dB)	EIRP Result (dBm)	Limit (dBm)
61.000	-101.639	H	46.61	12.95	-42.08	10
61.000	-96.5	V	46.61	12.95	-36.94	
61.500	-93.587	H	46.68	13.17	-33.74	
61.500	-77.955	V	46.68	13.17	-18.11	

Duty Cycle					
Mode	Frequency (GHz)	On time (ms)	On+off time (ms)	Duty cycle (%)	Duty Factor (dB)
Transmit Mode (61-61.5 GHz)	61.25	33.6	42	80.00	0.97

Duty cycle_ ON Time

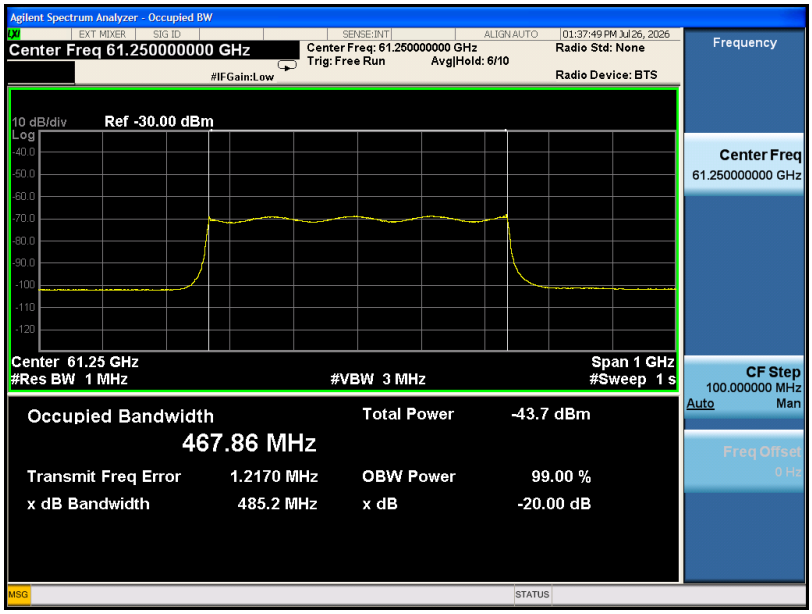


Duty cycle_ ON+OFF Time



5.5. 99 Occupied Bandwidth Test Results

Mode	Frequency (GHz)	99% Occupied Bandwidth (MHz)
Transmit Mode	61.25	467.86

99 Occupied Bandwidth


5.6. Frequency Stability Test Results

Test Mode	:	Radar_61-61.5 GHz
Frequency	:	61.25 GHz
V_{Nom}	:	24 Vdc

Environment Temperature (°C)	Power Supplied (Vdc)	Measured Frequency (GHz)				Result
		0 min	2 min	5 min	10 min	
-20	V_{Nom}	61.2499	61.2492	61.2488	61.2496	PASS
-10	V_{Nom}	61.2472	61.2482	61.2485	61.2492	PASS
0	V_{Nom}	61.2479	61.2476	61.2488	61.2486	PASS
10	V_{Nom}	61.2488	61.2475	61.2482	61.2485	PASS
20(Normal)	V_{Nom}	61.2471	61.2483	61.2467	61.2476	PASS
30	V_{Nom}	61.2477	61.2472	61.2483	61.2473	PASS
40	V_{Nom}	61.2468	61.2462	61.2475	61.2463	PASS
50	V_{Nom}	61.2457	61.2452	61.2458	61.2466	PASS

Environment Temperature (°C)	Power Supplied (Vdc)	Measured Frequency (GHz)				Result
		0 min	2 min	5 min	10 min	
20	V_{Low}	61.2476	61.2465	61.2472	61.2481	PASS
	V_{Nom}	61.2471	61.2483	61.2467	61.2476	PASS
	V_{High}	61.2473	61.2475	61.2482	61.2478	PASS

Note 1: $V_{Low}=V_{Nom}-15$ % ; $V_{High}=V_{Nom}+15$ %

---END---