RF Test Report

Applicant	:	PETKIT Network Technology (Shanghai) Co., Ltd.
Product Name	:	PETKIT PUROBOT ULTRA WITH CAMERA SELF-CLEANING CAT LITTER BOX
Trade Name	:	PETKIT
Model Number	:	P9903
Applicable Standard	:	FCC 47 CFR PART 15 SUBPART C ANSI C63.10:2013
Received Date	:	Oct. 21, 2024
Test Period	:	Mar. 20, 2025 ~ Mar. 27, 2025
Issued Date	:	May 15, 2025

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	May 15, 2025	Initial Issue	Snow Wang

Verification of Compliance

Applicant	:	PETKIT Network Technology (Shanghai) Co., Ltd.
Product Name	:	PETKIT PUROBOT ULTRA WITH CAMERA SELF-CLEANING CAT LITTER BOX
Trade Name	:	PETKIT
Model Number	:	P9903
FCC ID	:	2A72N-P9903
Applicable Standard	:	FCC 47 CFR PART 15 SUBPART C ANSI C63.10:2013
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

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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	-----
15.245(b)	Transmitter Radiated Emissions (Above 40 GHz)	PASS	-----
15.245(b)	Field Strength of Fundamental	PASS	-----
15.215 (c)	20 dB Emission Bandwidth	PASS	-----
15.203	Antenna Requirement	PASS	-----

Note. The measured data from 40 GHz to 100 GHz complies with the Field strength of harmonics Limit and Emissions of the specified frequency bands outside Limit.

Standard	Description
CFR47, Part 15, Subpart C	Intentional Radiators
ANSI C63. 10: 2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

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	1.9 dB	1.9 dB	1.9 dB
	30 MHz ~ 1000 MHz	4.7 dB	4.7 dB	4.7 dB	4.7 dB	4.5 dB
	1000 MHz ~ 18000 MHz	4.7 dB	4.8 dB	4.6 dB	4.7 dB	5.1 dB
	18000 MHz ~ 26500 MHz	4.0 dB	4.1 dB	3.9 dB	4.1 dB	4.3 dB
	26500 MHz ~ 40000 MHz	4.2 dB	4.2 dB	4.2 dB	4.2 dB	4.6 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 99% Occupied Bandwidth, Max. Field Strength of Fundamental).

Applicant	PETKIT Network Technology (Shanghai) Co., Ltd. Room 4139, Building 2, 588 Zixing Road, Minhang District, Shanghai
Product Name	PETKIT PUROBOT ULTRA WITH CAMERA SELF-CLEANING CAT LITTER BOX
Trade Name	PETKIT
Model Number	P9903
FCC ID	2A72N-P9903
Frequency Range	24.075 ~ 24.175 GHz
Modulation Type	FMCW
Number of Channel	1 CH
Antenna Type	Fixed Internal
Antenna Gain	3.3 dBi
Operate Temp. Range	0 ~ +40 ℃
EUT Power Rating	INPUT:100-240 Vac, 50/60 Hz, 1.5 A OUTPUT:12 Vdc, 4 A, 48 W
Max. Field Strength of Fundamental	92.24 dBuV@3m

Testing Sample No.	
Test Item	Sample Number
Radiation	C24O254_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
Transmit Mode	V

Power settings configuration:

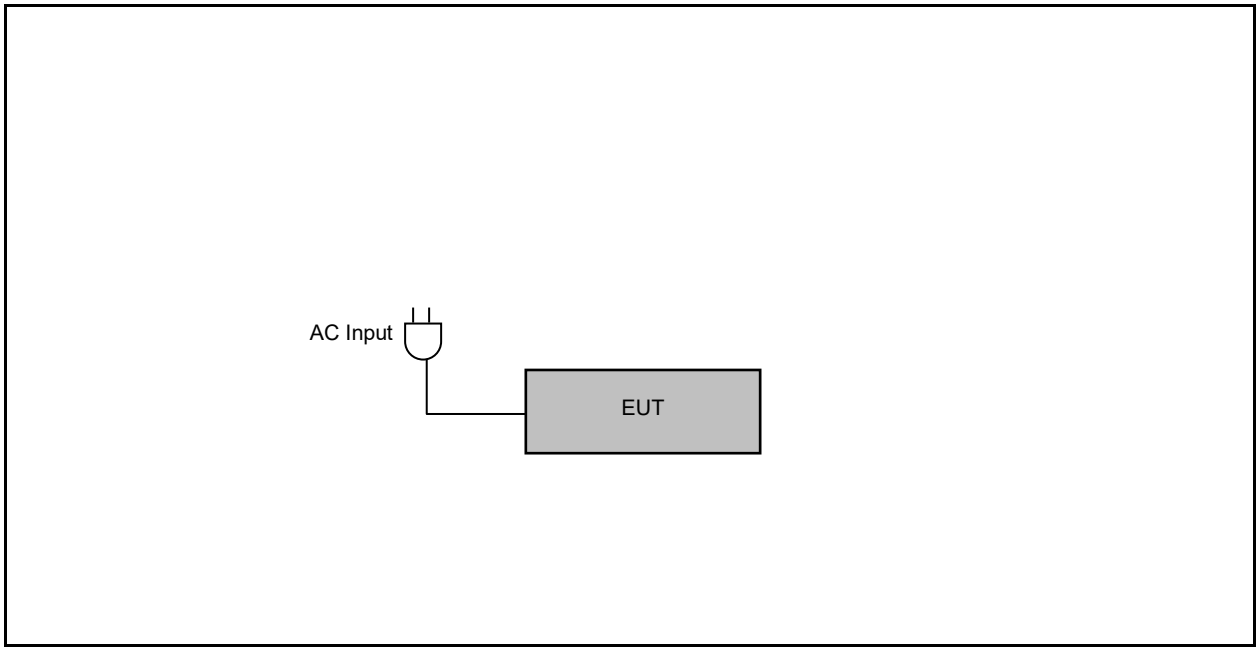
Test Mode	Frequency (GHz)	RF Power setting in Test Software	Test Software Version
Transmit Mode	24.075 ~ 24.175	---	---

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

Conducted Emission & Radiated Emission



3.4. Test Instruments

For Conducted Emission
Test Period: Mar. 27, 2025
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 21, 2024	1 year
☐	Test Receiver	R&S	ESCI	100722	Oct. 24, 2024	1 year
☐	Test Receiver	R&S	ESCI	101000	Nov. 21, 2024	1 year
☒	LISN	R&S	ENV216	101040	Mar. 25, 2025	1 year
☐	LISN	R&S	ENV216	101140	Jan. 23, 2025	1 year
☒	RF Cable	Woken	00100D1380194M	TE-02-03	Jun. 05, 2024	1 year
☒	Software	EZ EMC	1.1.4.3	N/A	N.C.R.	---

For Radiated Emissions
Test Period: Mar. 20, 2025 ~ Mar. 21, 2025
Testing Engineer: Hung Chou

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	N9010A	MY52221312	Jan. 04, 2024	1 year
☒	Spectrum Analyzer (3 Hz~50 GHz)	Agilent	N9030A	MY53120541	Mar. 07, 2025	1 year
☐	Spectrum Analyzer (2 Hz~50 GHz)	Keysight	N9030B	MY57143537	Apr. 18, 2023	1 year
☒	Spectrum Analyzer (10 Hz~44 GHz)	Keysight	N9020B	MY60112363	Jan. 13, 2025	1 year
☒	Amplifier (100 kHz~1.3 GHz)	Agilent	8447D	2944A11119	Jan. 14, 2025	1 year
☐	Amplifier (100 kHz~1.3 GHz)	Agilent	8447D	2944A10961	Jul. 10, 2023	1 year
☐	Broadband Amplifier (100 kHz~1 GHz)	Titan	T0910E00014330 A1F	001	Jul. 31, 2024	1 year
☐	Amplifier (1 GHz~26.5 GHz)	Agilent	8449B	3008A02237	Oct. 31, 2023	1 year

☒ means with testing used ;
☐ means without testing used
Note: N.C.R. = No Calibration Request.

For Radiated Emissions
Test Period: Mar. 20, 2025 ~ Mar. 21, 2025
Testing Engineer: Hung Chou

Test Site		96603-BD				
Radiation test sites		Semi Anechoic Room				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☐	Pre Amplifier (1~26.5 GHz)	Agilent	8449B	3008A02455	Jul. 10, 2024	1 year
☒	Broadband Amplifier (1 GHz~26.5 GHz)	Titan	T0912E01263025 A1F	002	Jul. 31, 2024	1 year
☒	Preamplifier (26.5 GHz~40 GHz)	EMCI	EMC2654045	980028	Sep. 02, 2024	1 year
☐	Loop Antenna (9 kHz~30 MHz)	COM-POWER CORPORATION	AL-130	121014	Mar. 27, 2024	1 year
☐	Active Loop Antenna (9 kHz~30 MHz)	Schwarzbeck Mess-Elektronik	FMZB 1513-60	1513-60-031	Feb. 23, 2024	1 year
☒	Trilog Broadband Antenna (30 kHz~1 GHz)	Schwarzbeck Mess-Elektronik	VULB9168	01146	Jun. 28, 2024	1 year
☐	Trilog Broadband Antenna (30 kHz~1 GHz)	Schwarzbeck Mess-Elektronik	VULB9168	416	Jun. 14, 2024	1 year
☒	Broadband Horn Antenna (1 GHz~18 GHz)	Schwarzbeck Mess-Elektronik	9120D	02207	Aug. 30, 2024	1 year
☐	Broadband Horn Antenna (1 GHz~18 GHz)	Schwarzbeck Mess-Elektronik	9120D	9120D-550	Jul. 22, 2024	1 year
☒	Broadband Horn Antenna (18 GHz~40 GHz)	Schwarzbeck Mess-Elektronik	9170	9170-320	Jul. 22, 2024	1 year
☐	Horn Antenna (18 GHz~40 GHz)	ETS	3116	00086467	Dec. 05, 2024	1 year
☒	Coaxial Cable	Titan	T0710AT327A10A 100	J11006	Aug. 08, 2024	1 year
☒	Coaxial Cable	Titan	T0710AT327A10A 900	J11003	Aug. 08, 2024	1 year
☒	Coaxial Cable	Titan	EMCCFD400-NM-NM-13000	210302	Aug. 08, 2024	1 year

☒ means with testing used ;
☐ means without testing used
Note: N.C.R. = No Calibration Request.

For Radiated Emissions
Test Period: Mar. 20, 2025 ~ Mar. 21, 2025
Testing Engineer: Hung Chou

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 (50-75GHz)	VDI	N9029AV15 (SAX 410)	US54250165	Aug. 23, 2023	2 years
☒	Millimeter-Wave Signal Analyzer Frequency Extension Module (60-90GHz)	VDI	N9029AV12 (SAX 409)	US54250171	Aug. 23, 2023	2 years
☒	Millimeter-Wave Signal Analyzer Frequency Extension Module (90-140GHz)	VDI	N9029AV08 (SAX 406)	US53250013	Aug. 24, 2023	2 years
☐	Millimeter-Wave Signal Analyzer Frequency Extension Module (140-220GHz)	VDI	N9029AV05 (SAX 407)	US53250020	Aug. 28, 2023	2 years
☐	Millimeter-Wave Signal Analyzer Frequency Extension Module (220-330GHz)	VDI	N9029AV03 (SAX 408)	US53250022	Aug. 28, 2023	2 years
☒	Horn Antenna (33-50GHz)	QuinStar	QWH-QPRR00	1231900027	Aug. 21, 2023	2 years
☒	Std Gain Horn Antenna Std Gain (50-75GHz)	VDI	N9029AH15 (WR15)	WR15-01	Aug. 22, 2023	2 years
☒	Std Gain Horn Antenna Std Gain (60-90GHz)	VDI	N9029AH12 (WR12)	WR12-01	Aug. 22, 2023	2 years
☒	Std Gain Horn Antenna Std Gain (90-140GHz)	VDI	N9029AH08 (WR8.0)	WR08-01	Aug. 22, 2023	2 years
☐	Std Gain Horn Antenna Std Gain (140-220GHz)	VDI	N9029AH05 (WR5.0)	WR05-01	Aug. 28, 2023	2 years
☐	Std Gain Horn Antenna Std Gain (220-330GHz)	VDI	N9029AH03 (WR3.4)	WR3.4-01	Aug. 28, 2023	2 years
☐	Power Supply	KEITHLEY	2303	4045290	Jan. 03, 2025	1 year
☐	Software	EZ EMC	1.1.4.4	N/A	N.C.R.	---

☒ means with testing used ;
☐ means without testing used
Note: N.C.R. = No Calibration Request.

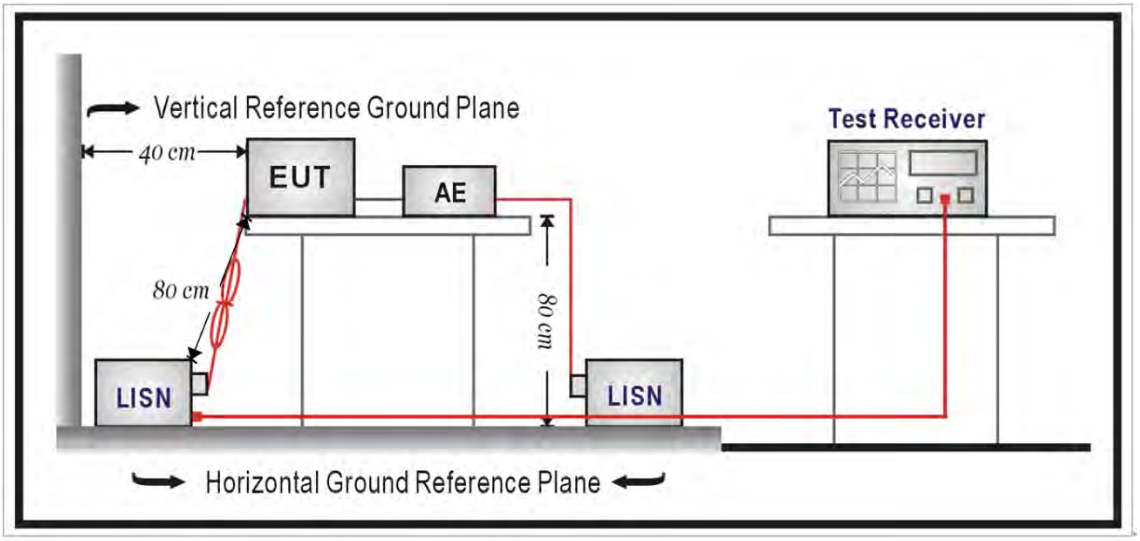
4 Measurement Procedure

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 field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency (MHz)	Field strength of fundamental (mV/m at meter)	Field strength of harmonics (mV/m at meter)
902 – 928	500	1.6
2435 – 2465	500	1.6
5785 – 5815	500	1.6
10500 - 10550	2500	25.0
24075 -24175	2500	25.0

(2) Regardless of the limits shown in the above table, harmonic emissions in the restricted bands below 17.7 GHz, as specified in § 15.209, shall not exceed the field strength limits shown in § 15.209. Harmonic emissions in the restricted bands at and above 17.7 GHz shall not exceed the following field strength limits:

(i) For the second and third harmonics of field disturbance sensors operating in the 24075-24175 MHz band and for other field disturbance sensors designed for use only within a building or to open building doors, 25.0 mV/m.

(ii) For all other field disturbance sensors, 7.5 mV/m.

(3) Field strength limits are specified at a distance of 3 meters.

(4) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.

(5) The emission limits shown above are based on measurement instrumentation employing an average detector. The provisions in § 15.35 for limiting peak emissions apply.

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

Limits of Radiated Emission Measurement (FCC 15.209):

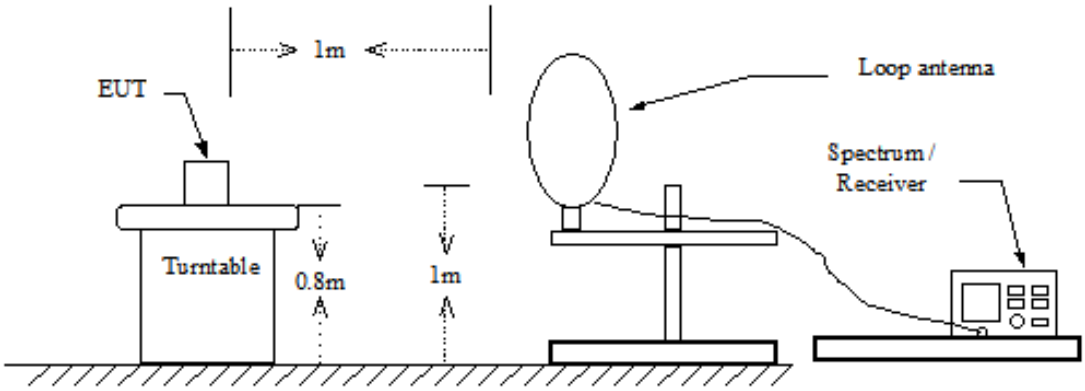
Frequency (MHz)	Field Strength (μV/m at meter)	Measurement Distance (meter)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
30 - 88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

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

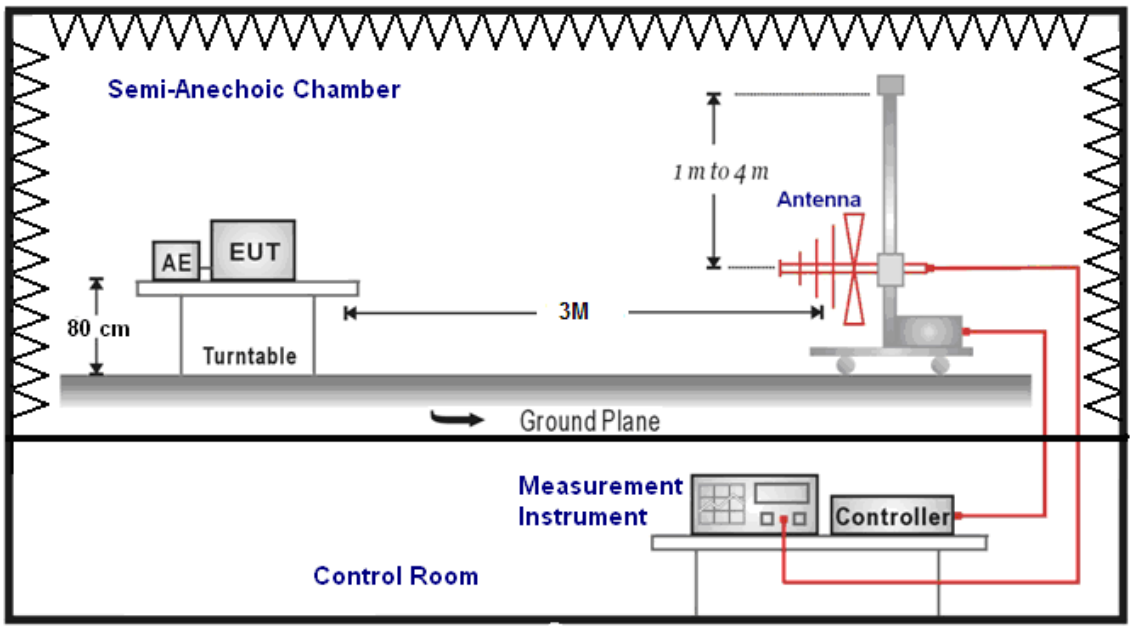
(2) Emission level (dBuV/m)=20 log Emission level (uV/m).

■ **Setup**

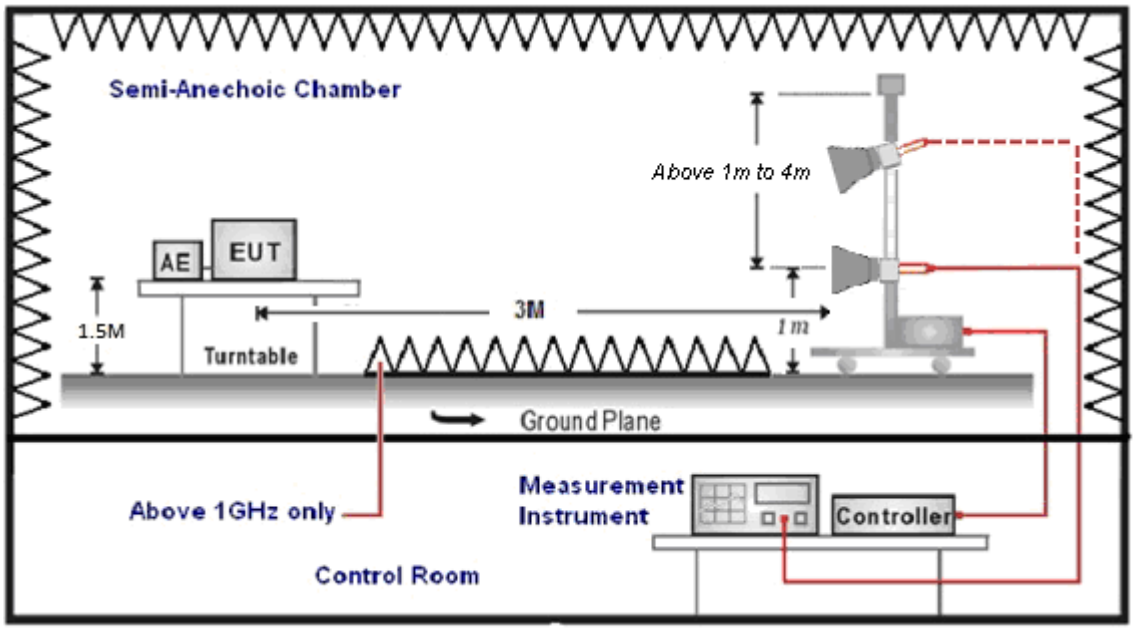
Below 30 MHz



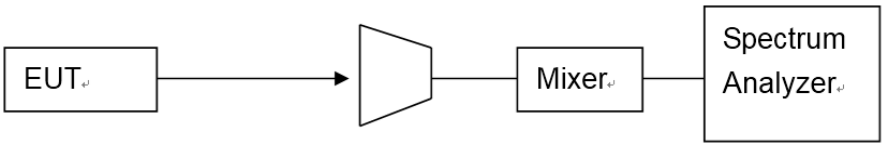
30 MHz ~ 1 GHz



Above 1 GHz



Above 50 GHz



■ **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 peak) 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 Antenna at 3 Meter and the Horn Antenna was used in frequencies 18 – 40 GHz at a distance of 1 meter. 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.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts pre meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro colts per meter (dBuV/m).

The actual field is intensity in referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

(1) Amplitude (dBuV/m) = FI (dBuV) +AF (dBuV) +CL (dBuV)-Gain (dB)
FI= Reading of the field intensity.
AF= Antenna factor.
CL= Cable loss.
P.S Amplitude is auto calculate in spectrum analyzer.

(2) Actual Amplitude (dBuV/m) = Amplitude (dBuV)-Dis(dB)
The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:
(a) For fundamental frequency : Transmitter Output < +30 dBm
(b) For spurious frequency : Spurious emission limits = fundamental emission limit /10

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

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/fMHz], 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

Far Field Distance Evaluation:

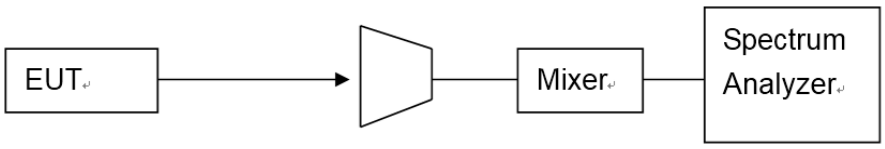
Rx Antenna	Frequency (GHz)	Wavelength λ (m)	Measurement Antenna D (m)	Far field Rm (m) ≧ $2*D^2/\lambda$	Measurement Distance d_1 (m)	Distance specified by the limit d_2 (m)	Distance Factor = 20* log (d_1/d_2) (dB)
9170	18	0.0167	0.06	0.43	1	3	-9.54
	40	0.0075	0.06	0.96	1	3	-9.54
QWH-QPRR00	40	0.0075	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. 20 dB Emission Bandwidth Measurement

■ **Limit**

The 20 dB bandwidth shall be contained within the designated frequency band.

■ **Test Setup**



■ **Test Procedure**

20 dB Emission Bandwidth:

The testing follows ANSI C63.10-2013 Section 6.9.2.

4.4. 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.

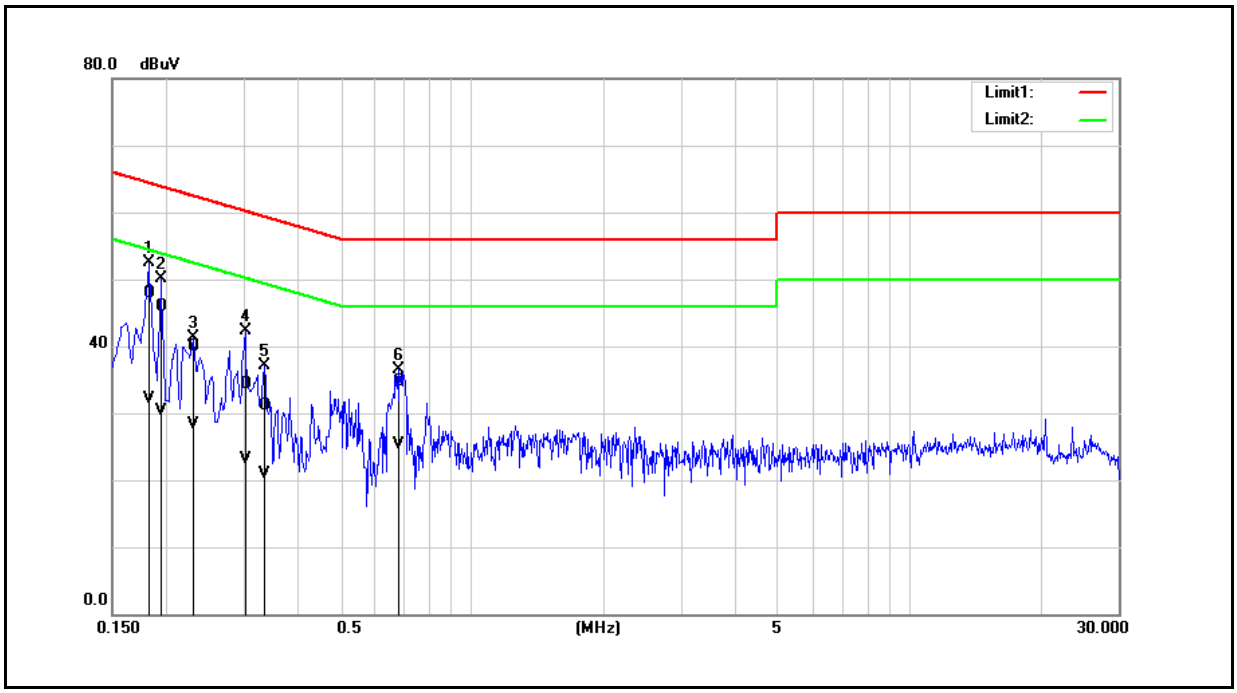
■ **Antenna Connector Construction**

See section 2 – antenna information.

5 Test Results

5.1. Conducted Emission

Standard:	FCC Part 15.245	Line:	L1
Test item:	Conducted Emission	Power:	AC 120 V/60 Hz
Mode:	Transmit Mode		
Description:			

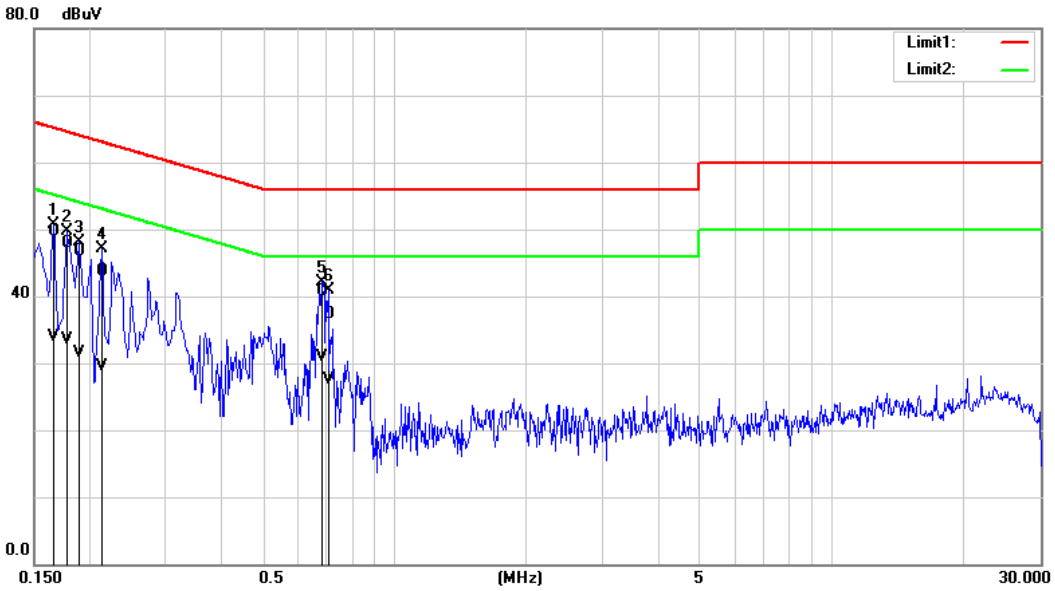


No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1820	38.38	22.50	9.53	47.91	32.03	64.39	54.39	-16.48	-22.36	Pass
2	0.1940	36.41	20.69	9.53	45.94	30.22	63.86	53.86	-17.92	-23.64	Pass
3	0.2300	30.33	18.73	9.53	39.86	28.26	62.45	52.45	-22.59	-24.19	Pass
4	0.3020	24.73	13.49	9.55	34.28	23.04	60.19	50.19	-25.91	-27.15	Pass
5	0.3340	21.54	11.30	9.55	31.09	20.85	59.35	49.35	-28.26	-28.50	Pass
6	0.6820	25.14	15.75	9.58	34.72	25.33	56.00	46.00	-21.28	-20.67	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 15.245	Line:	N
Test item:	Conducted Emission	Power:	AC 120 V/60 Hz
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	40.09	24.35	9.56	49.65	33.91	65.16	55.16	-15.51	-21.25	Pass
2	0.1780	38.38	23.95	9.57	47.95	33.52	64.58	54.58	-16.63	-21.06	Pass
3	0.1900	37.15	21.90	9.58	46.73	31.48	64.04	54.04	-17.31	-22.56	Pass
4	0.2140	34.13	19.98	9.59	43.72	29.57	63.05	53.05	-19.33	-23.48	Pass
5	0.6860	31.02	21.21	9.61	40.63	30.82	56.00	46.00	-15.37	-15.18	Pass
6	0.7060	27.73	17.95	9.62	37.35	27.57	56.00	46.00	-18.65	-18.43	Pass

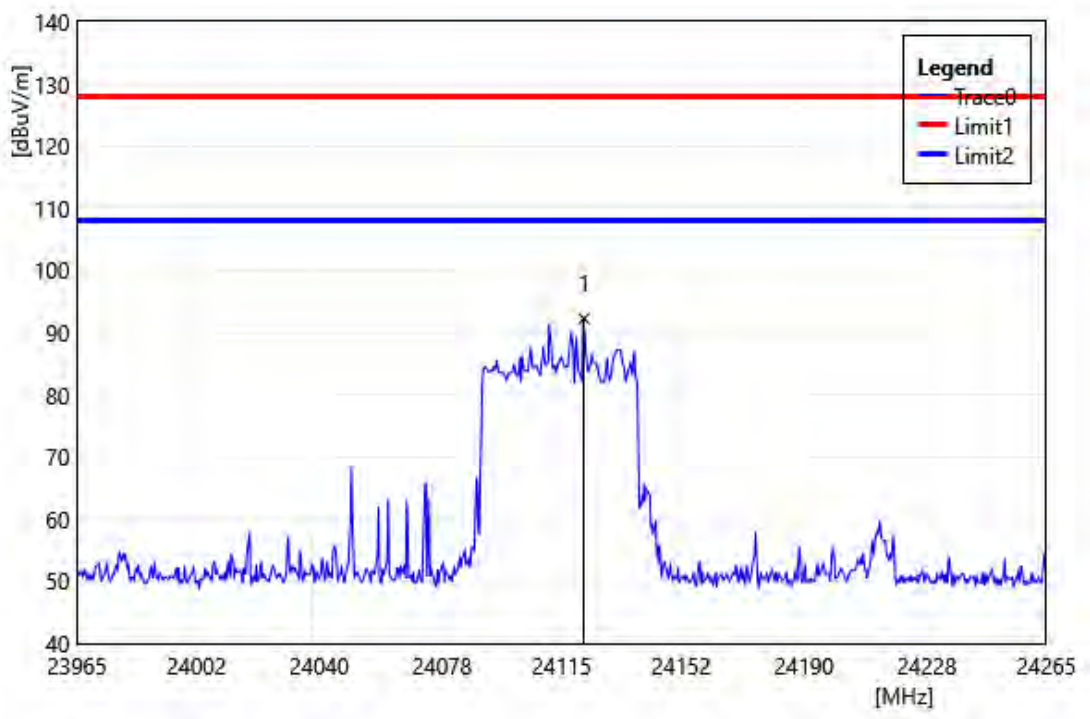
Note:1.Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

5.2. Radiated Emission Test Results

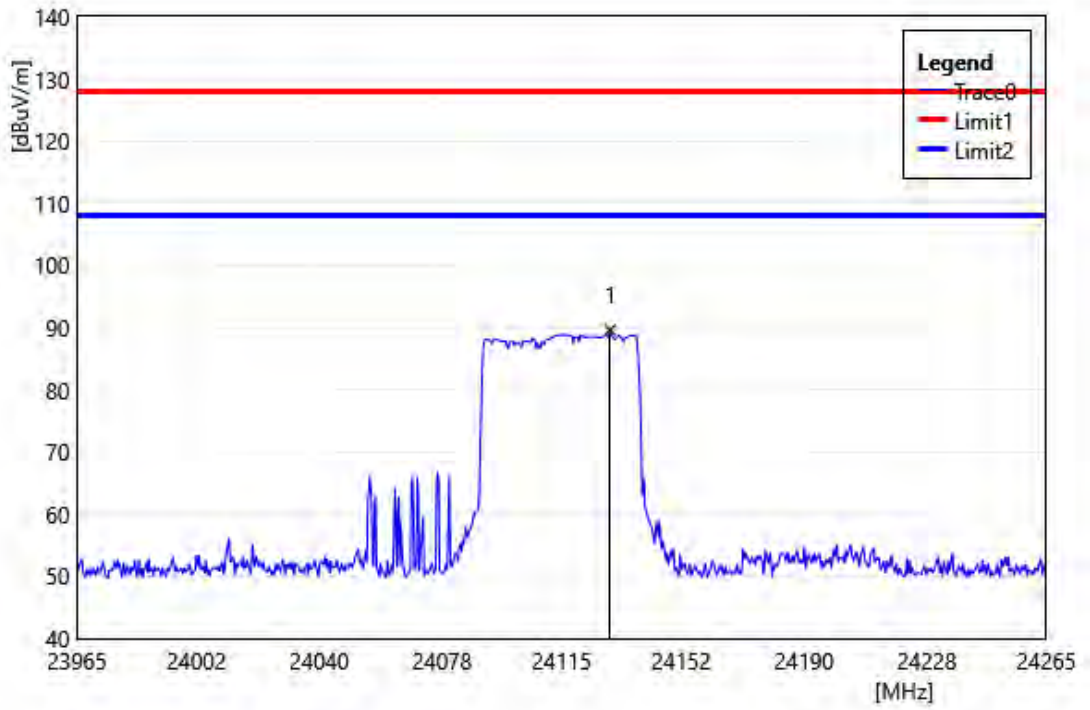
Field Strength of Fundamental

Test Site:	966 Chamber	Standard:	Part 15C
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	24121.90	73.84	18.40	92.24	128.00	-35.76	PEAK

Test Site:	966 Chamber	Standard:	Part 15C
Test Mode:	Transmit Mode		
Polarization:	Horizontal		
Remark:			

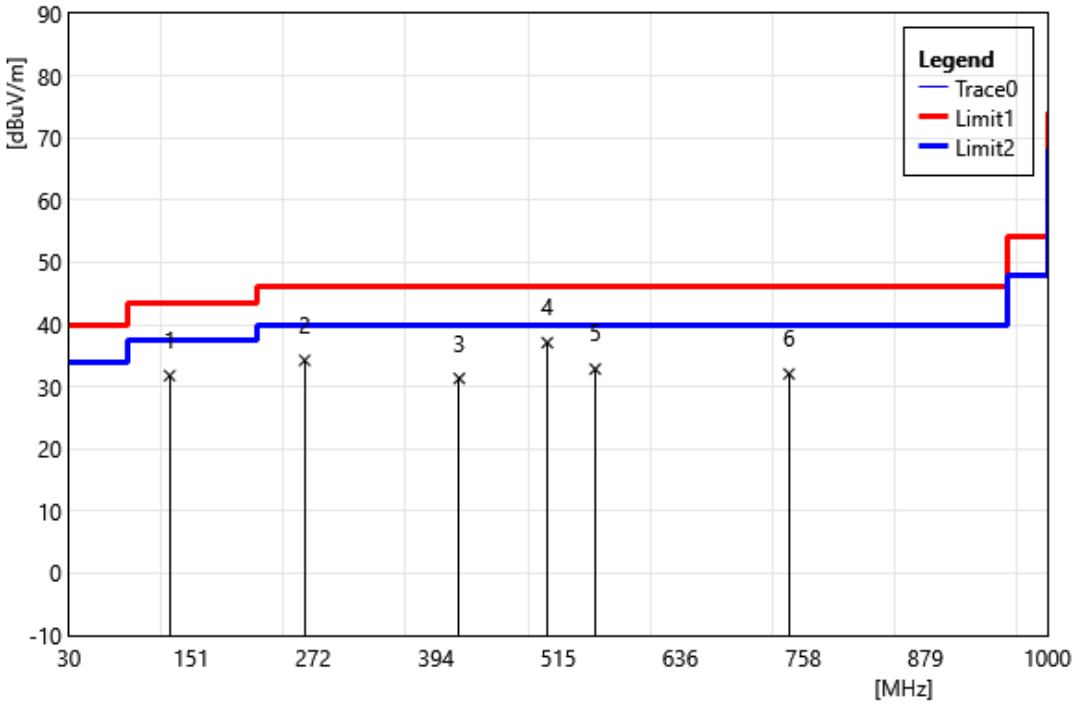


ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	24130.00	71.18	18.41	89.60	128.00	-38.41	PEAK

Transmitter Radiated Emissions (Below 40 GHz)

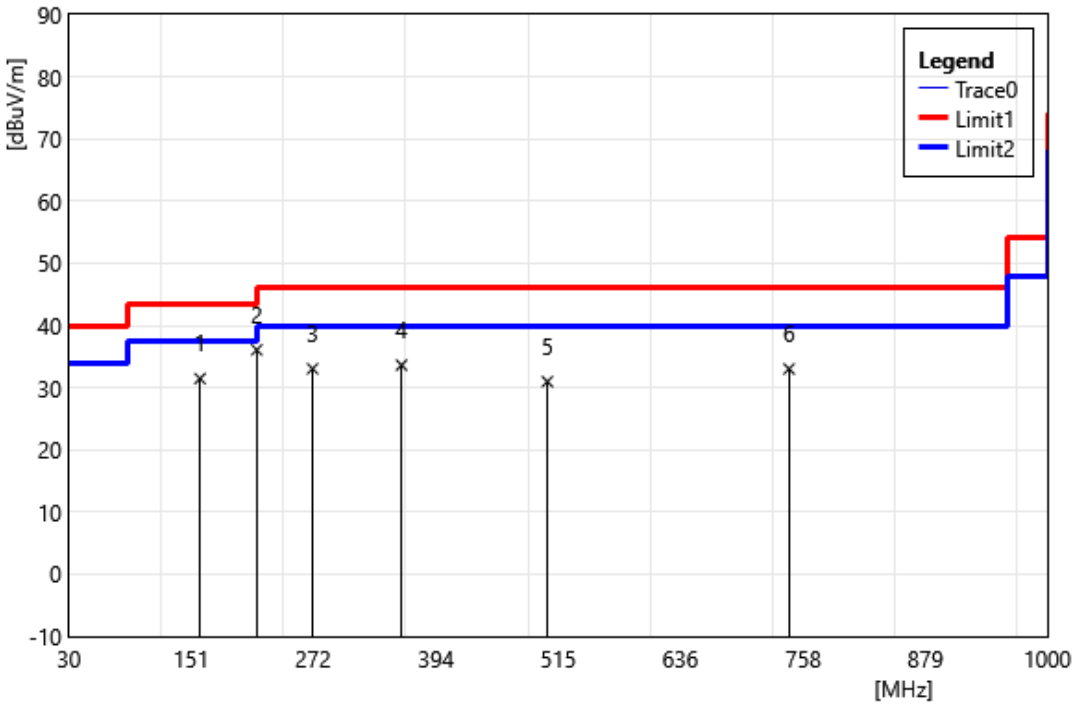
Radiated Emissions (below 1 GHz)

Test Site:	966 Chamber	Standard:	Part 15C
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	129.91	40.41	-8.62	31.79	43.50	-11.71	QP
2	263.77	41.01	-6.77	34.24	46.00	-11.76	QP
3	417.03	34.67	-3.35	31.33	46.00	-14.68	QP
4	504.33	39.15	-2.06	37.09	46.00	-8.91	QP
5	551.86	33.69	-0.86	32.83	46.00	-13.17	QP
6	743.92	29.18	2.88	32.07	46.00	-13.94	QP

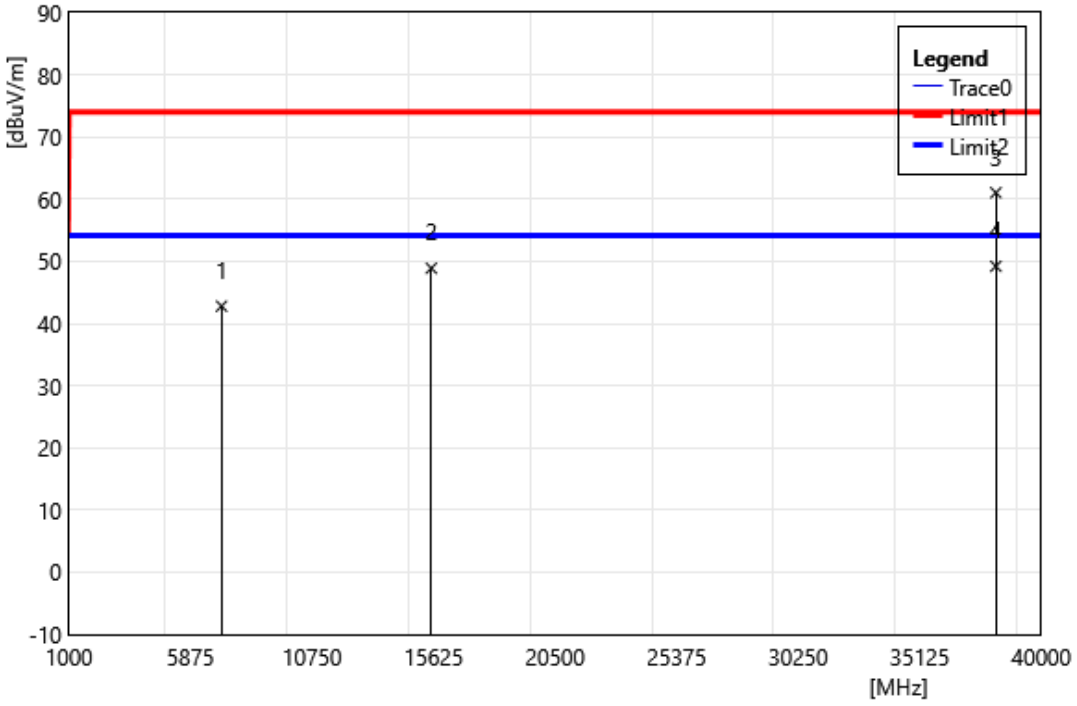
Test Site:	966 Chamber	Standard:	Part 15C
Test Mode:	Transmit Mode		
Polarization:	Horizontal		
Remark:			



ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	159.98	37.98	-6.52	31.46	43.50	-12.04	QP
2	216.24	45.05	-8.96	36.09	46.00	-9.91	QP
3	271.53	39.34	-6.29	33.05	46.00	-12.95	QP
4	359.80	38.16	-4.53	33.63	46.00	-12.37	QP
5	504.33	33.04	-2.06	30.99	46.00	-15.02	QP
6	743.92	30.14	2.88	33.02	46.00	-12.98	QP

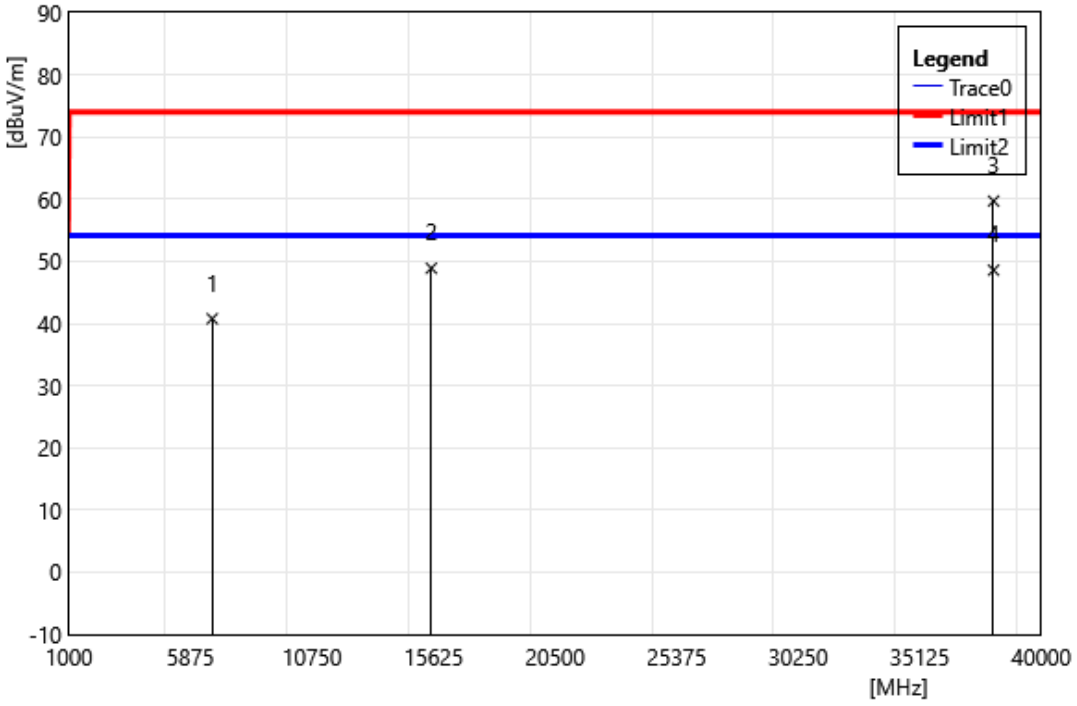
Field strength of harmonics (1 GHz - 40 GHz)

Test Site:	966 Chamber	Standard:	Part 15C
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	7120.00	37.82	4.97	42.79	74.00	-31.21	PEAK
2	15535.00	34.79	14.10	48.89	74.00	-25.11	PEAK
3	38177.50	-15.42	76.47	61.05	74.00	-12.95	PEAK
4	38177.50	-27.27	76.47	49.20	54.00	-4.80	AVG

Test Site:	966 Chamber	Standard:	Part 15C
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	6746.00	37.61	3.16	40.77	74.00	-33.23	PEAK
2	15535.00	34.79	14.10	48.89	74.00	-25.11	PEAK
3	38083.00	-16.58	76.28	59.70	74.00	-14.30	PEAK
4	38083.00	-27.69	76.28	48.59	54.00	-5.41	AVG

Transmitter Radiated Emissions (Above 40 GHz)

Field strength of harmonics (40 GHz - 100 GHz)

Field strength of harmonics 40 GHz -100 GHz												
Fequency Range	Fequency (GHz)	Ant. Pol.	SA Reading (dBm)	FS Loss(dB)	Horn Gain (dBi)	Mixer Loss (dB)	Cable Loss (dB)	Peak EIRP (dBm)	Result	Measure Distance (m)	Peak EIRP Limit	
40 GHz - 50 GHz	48.587	V	-83.049	75.77282678	22.7	-	-6.12	-36.0962	PASS	3	12.731	dBm
50 GHz - 60 GHz	51.456	V	-92.578	76.27114555	20.3	12.09	-1.98	-26.4969	PASS	3	12.731	dBm
60 GHz - 90 GHz	76.929	H	-92.375	79.76422684	21.7	9.56	-2.31	-27.0608	PASS	3	12.731	dBm
90 GHz - 100 GHz	90.533	H	-93.342	81.17856333	20	11.64	-2.45	-22.9734	PASS	3	12.731	dBm

EIRP(dBm) = SA Reading(dBm)+FS Loss(dB)-Horn Gain(dBi)+Mixer Loss(dB)+Cable Loss(dB)

AVG EIRP limit: -7.269 dBm = 25 mV/m >> 87.959 dBµV/m conversion

Peak EIRP limit: 12.731 dBm = -7.269 dBm + 20 dB

Emissions of the specified frequency bands outside

Emissions of the specified frequency bands outside 40 GHz -100 GHz												
Fequency Range	Fequency (GHz)	Ant. Pol.	SA Reading (dBm)	FS Loss(dB)	Horn Gain (dBi)	Mixer Loss (dB)	Cable Loss (dB)	Peak EIRP (dBm)	Result	Measure Distance (m)	Peak EIRP Limit	
40 GHz - 50 GHz	48.587	V	-83.049	75.77282678	22.7	-	-6.12	-36.0962	PASS	3	-21.23	dBm
50 GHz - 60 GHz	51.456	V	-92.578	76.27114555	20.3	12.09	-1.98	-26.4969	PASS	3	-21.23	dBm
60 GHz - 90 GHz	76.929	H	-92.375	79.76422684	21.7	9.56	-2.31	-27.0608	PASS	3	-21.23	dBm
90 GHz - 100 GHz	90.533	H	-93.342	81.17856333	20	11.64	-2.45	-22.9734	PASS	3	-21.23	dBm

EIRP(dBm) = SA Reading(dBm)+FS Loss(dB)-Horn Gain(dBi)+Mixer Loss(dB)+Cable Loss(dB)

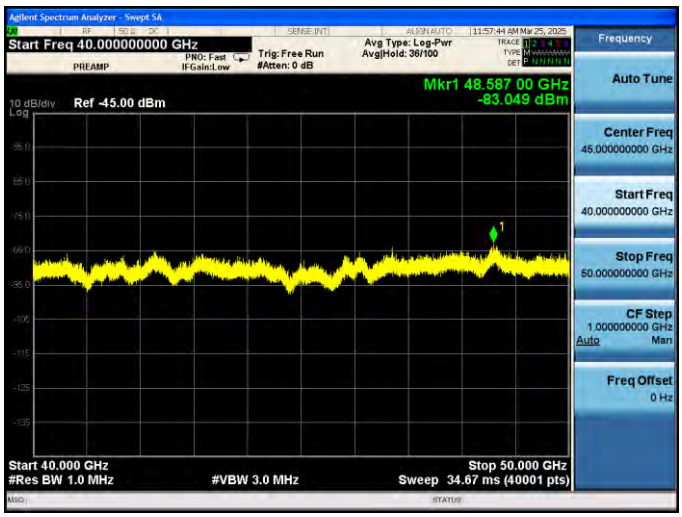
AVG EIRP limit: -41.23 dBm = 54 dBµV/m conversion

Peak EIRP limit: -21.23 dBm = 74 dBµV/m conversion

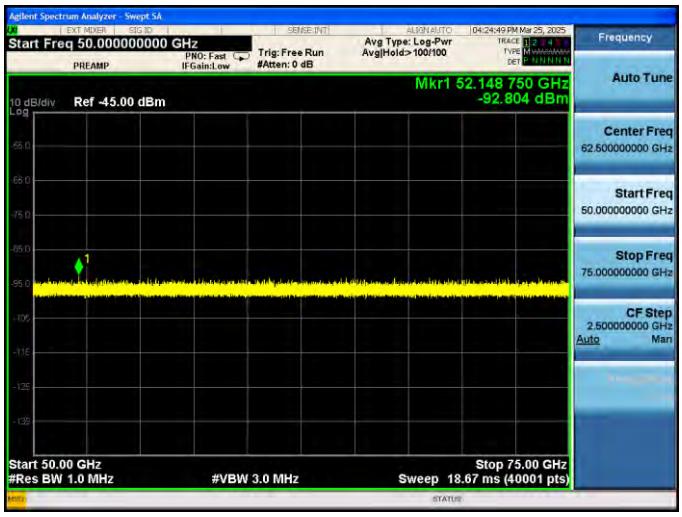
FS Loss(dB) = 20*LOG(Frequency(MHz))+20*LOG(distance(m))-27.5

Standard:	Part 15C	Test Site:	966 Chamber
Test Mode:	Transmit Mode	Polarization:	Horizontal
Remark:	40 GHz - 50 GHz		

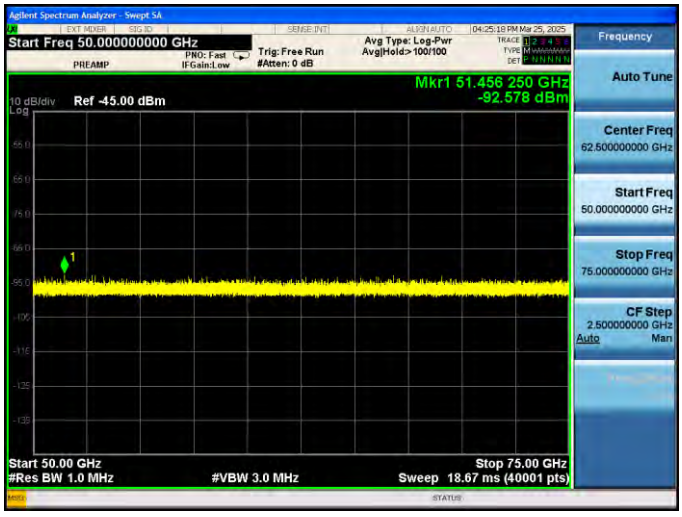
Standard:	Part 15C	Test Site:	966 Chamber
Test Mode:	Transmit Mode	Polarization:	Vertical
Remark:	40 GHz - 50 GHz		



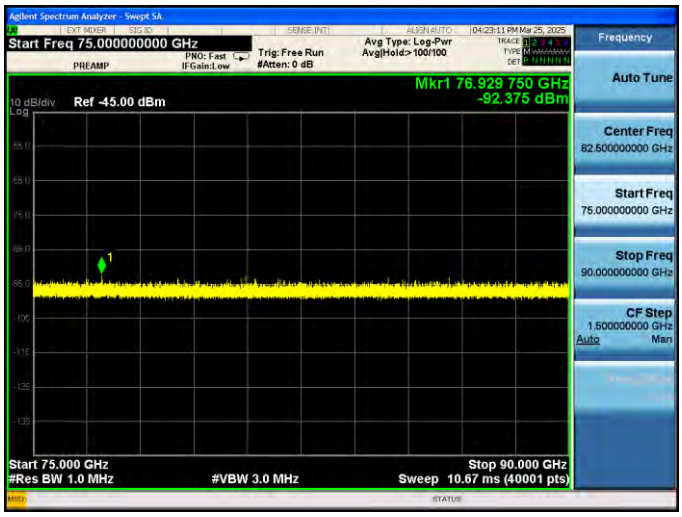
Standard:	Part 15C	Test Site:	966 Chamber
Test Mode:	Transmit Mode	Polarization:	Horizontal
Remark:	50 GHz - 75 GHz		



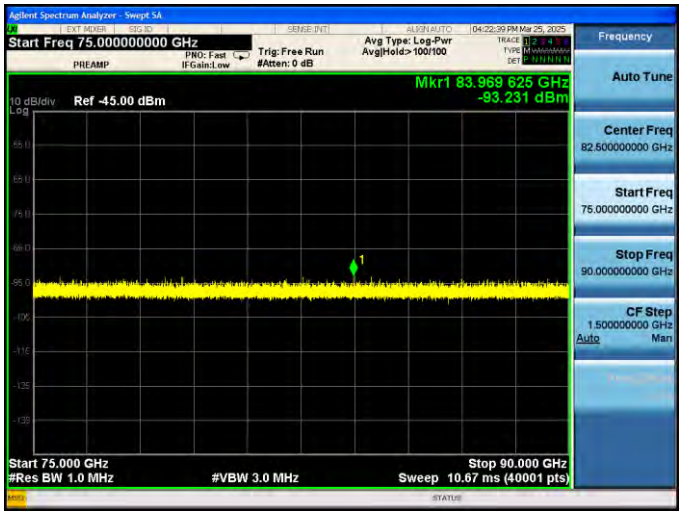
Standard:	Part 15C	Test Site:	966 Chamber
Test Mode:	Transmit Mode	Polarization:	Vertical
Remark:	50 GHz - 75 GHz		



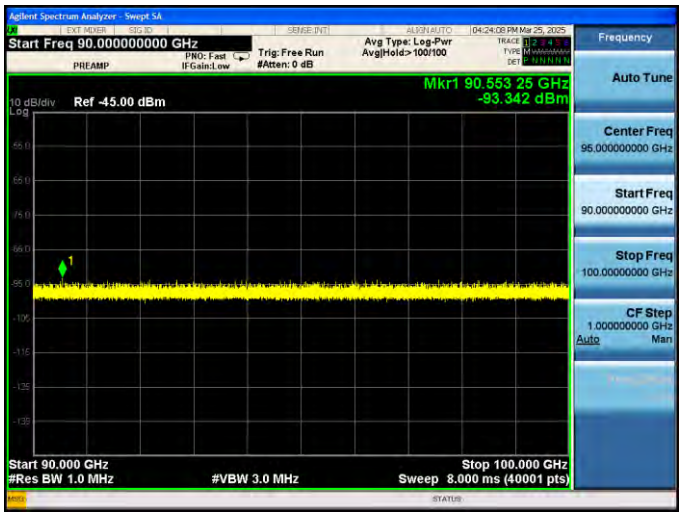
Standard:	Part 15C	Test Site:	966 Chamber
Test Mode:	Transmit Mode	Polarization:	Horizontal
Remark:	75 GHz - 90 GHz		



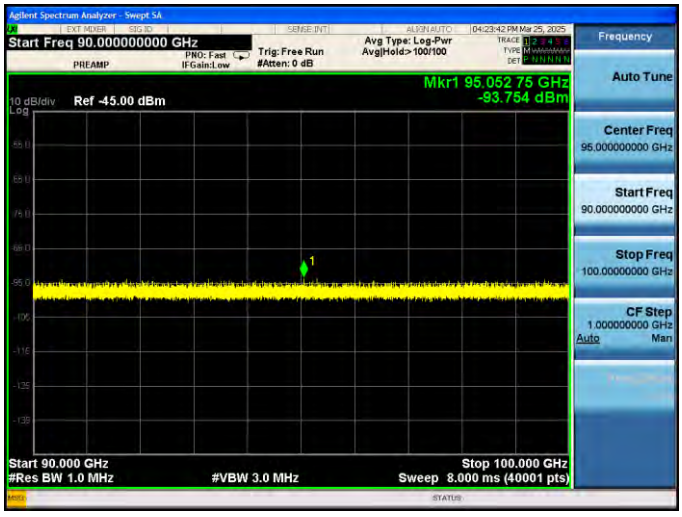
Standard:	Part 15C	Test Site:	966 Chamber
Test Mode:	Transmit Mode	Polarization:	Vertical
Remark:	75 GHz - 90 GHz		



Standard:	Part 15C	Test Site:	966 Chamber
Test Mode:	Transmit Mode	Polarization:	Horizontal
Remark:	90 GHz - 100 GHz		



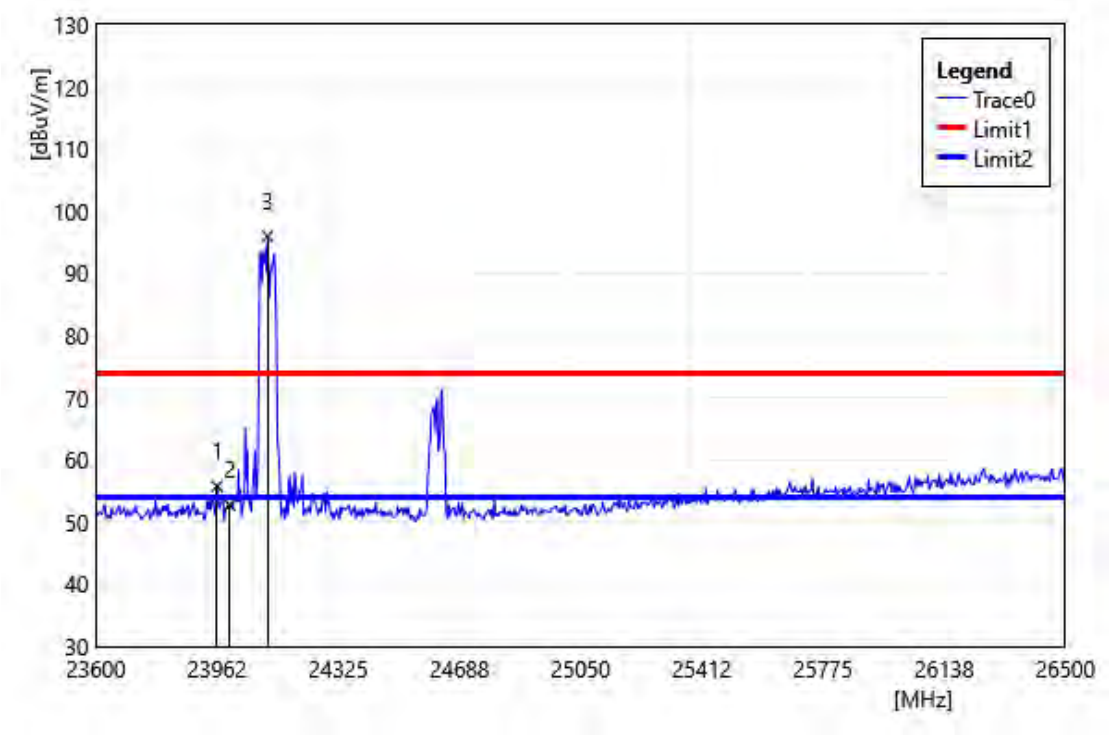
Standard:	Part 15C	Test Site:	966 Chamber
Test Mode:	Transmit Mode	Polarization:	Vertical
Remark:	90 GHz - 100 GHz		



Band Edge

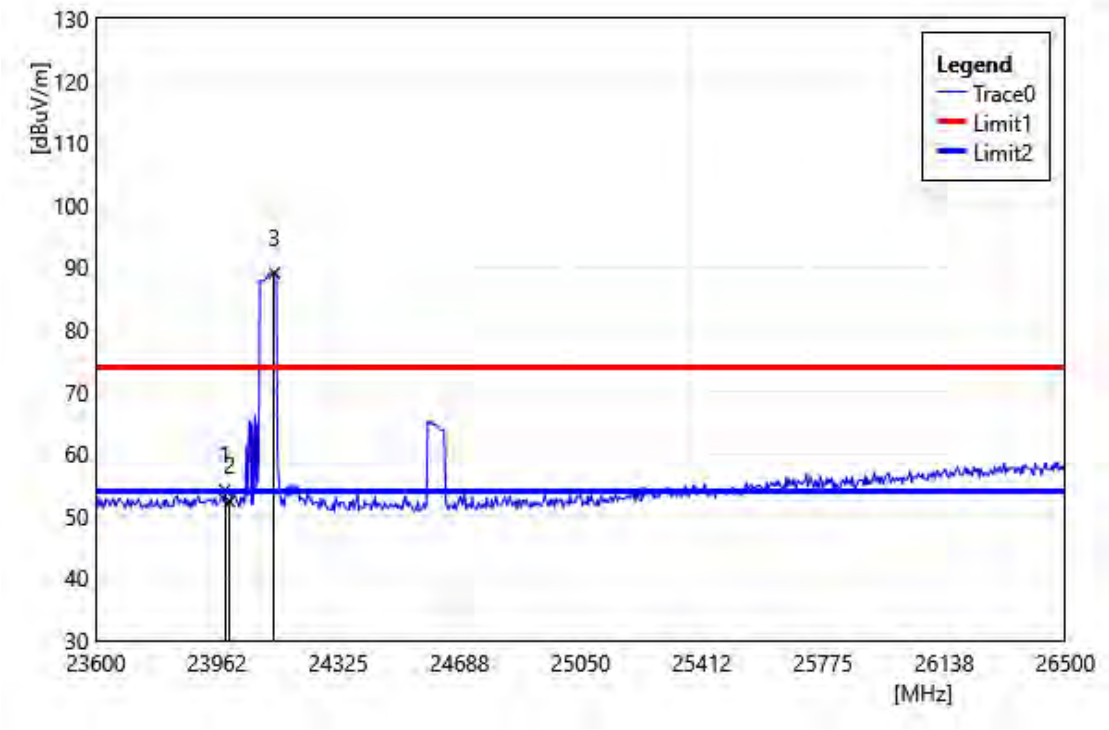
23600 MHz ~ 26500 MHz

Test Site:	966 Chamber	Standard:	Part 15C
Test Mode:	Transmit Mode		
Polarization:	Vertical		
Remark:			



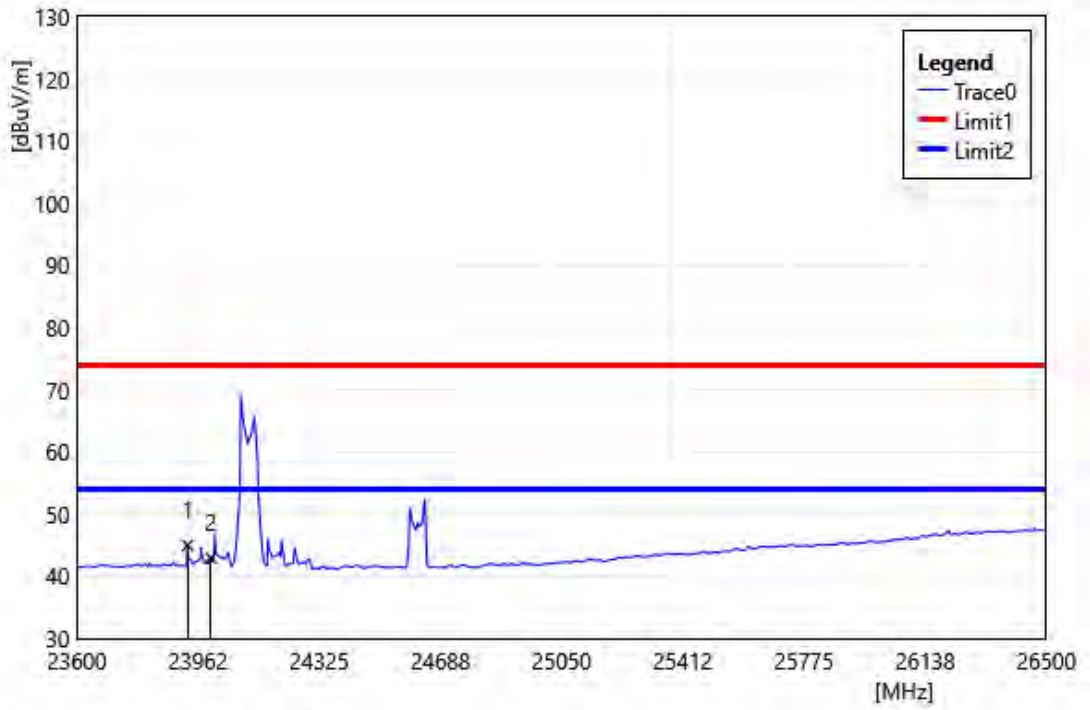
ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	23962.50	37.20	18.55	55.75	74.00	-18.25	PEAK
2	24000.00	34.15	18.58	52.73	74.00	-21.27	PEAK
3	24113.30	77.59	18.40	95.99	74.00	21.99	PEAK

Test Site:	966 Chamber	Standard:	Part 15C
Test Mode:	Transmit Mode		
Polarization:	Horizontal		
Remark:			



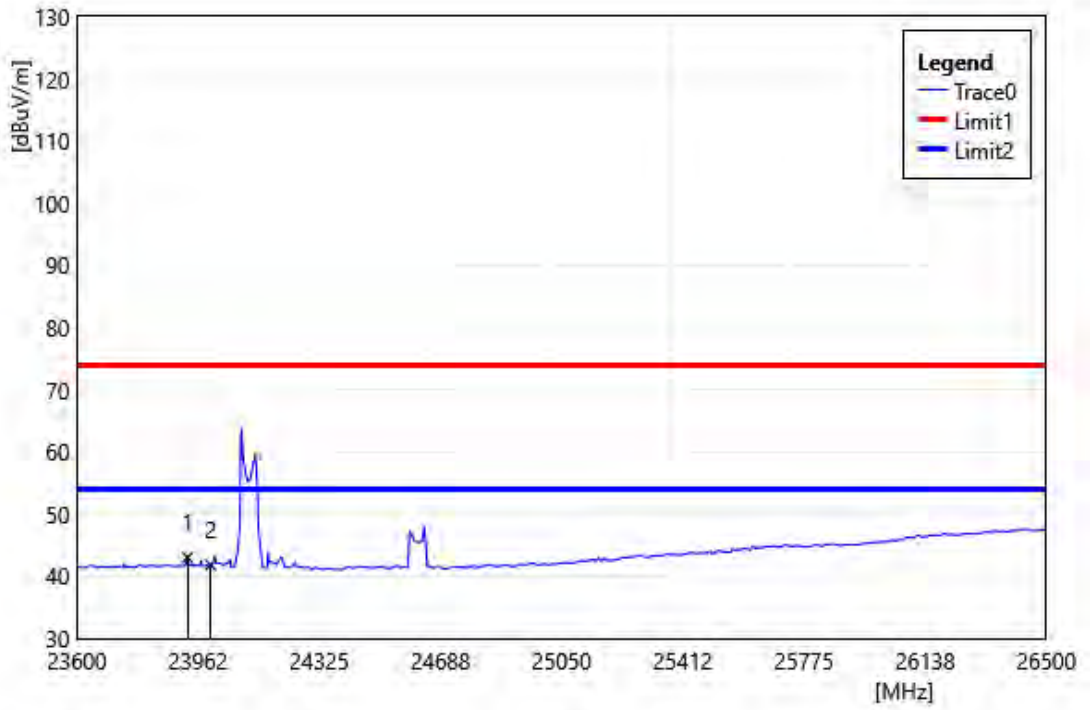
ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	23985.70	35.61	18.57	54.18	74.00	-19.82	PEAK
2	24000.00	33.76	18.58	52.34	74.00	-21.66	PEAK
3	24133.60	70.68	18.41	89.09	74.00	15.09	PEAK

Test Site:	966 Chamber	Standard:	Part 15C
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	23930.60	26.46	18.52	44.98	54.00	-9.02	AVG
2	24000.00	24.35	18.58	42.93	54.00	-11.07	AVG

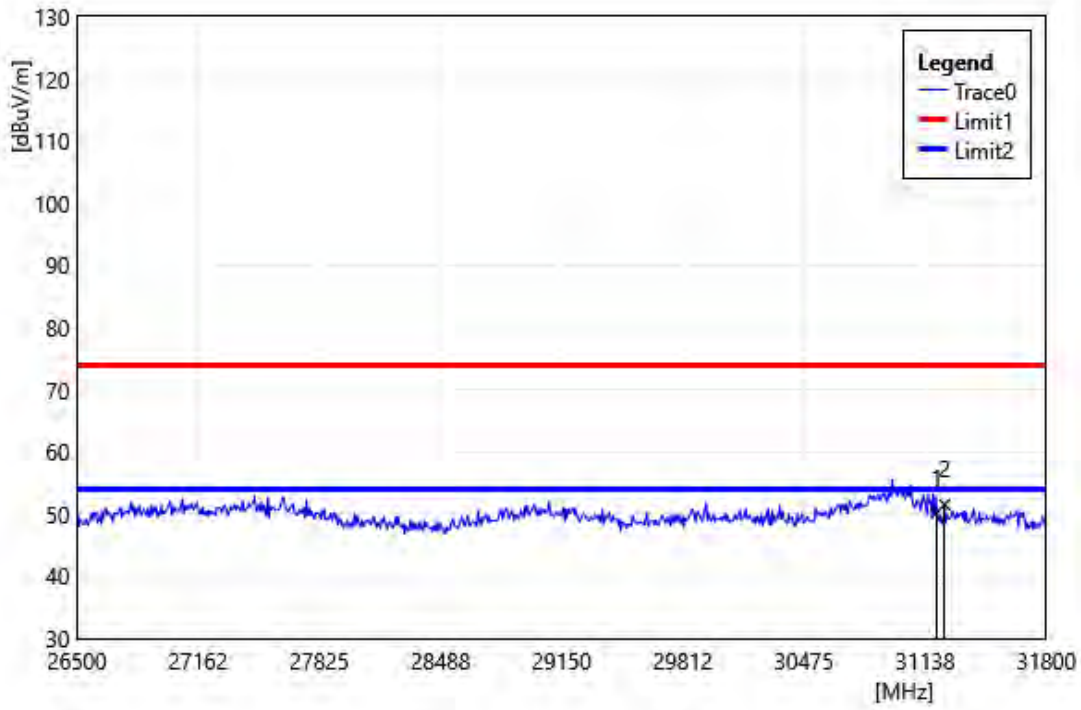
Test Site:	966 Chamber	Standard:	Part 15C
Test Mode:	Transmit Mode		
Polarization:	Horizontal		
Remark:			



ID	Frequency MHz	Reading dBuV	Correct Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
1	23930.60	24.49	18.52	43.01	54.00	-10.99	AVG
2	24000.00	23.25	18.58	41.83	54.00	-12.17	AVG

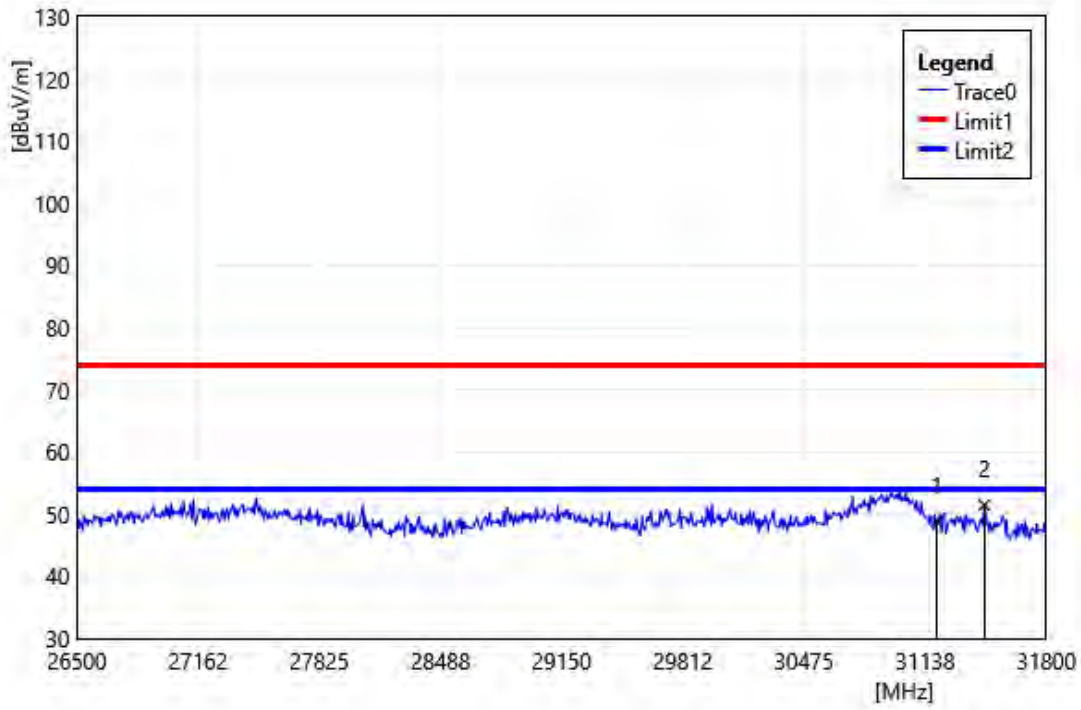
26500 MHz ~ 31800 MHz

Test Site:	966 Chamber	Standard:	Part 15C
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	31200.00	38.06	12.14	50.20	74.00	-23.80	PEAK
2	31243.50	39.80	11.73	51.54	74.00	-22.47	PEAK

Test Site:	966 Chamber	Standard:	Part 15C
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	31200.00	36.61	12.14	48.75	74.00	-25.25	PEAK
2	31460.80	41.78	9.68	51.46	74.00	-22.54	PEAK

5.3. 20dB Bandwidth Test Results

20dB Bandwidth				
Result	MK.1	MK.2	Total	
	24.09	24.139	0.0492	GHz

Transmit Mode


---END---