FCC ID TEST REPORT

Under:
FCC 15 Subpart C, Paragraph 15.249
Operation within the band
☒24,00 GHz to 24,25 GHz
☒DXX - Part 15 Low Power Communication Device Transmitter

Applicant:

SUZHOU EAVISION ROBOTIC TECHNOLOGIES CO., LTD

Room 504&505, Building 2, Nanopolis District II, No.333, Xingpu Road, SIP Suzhou, Jiangsu, China

FCC ID: 2AXLB-EA-J100

EUT: EA-J100 Agricultural Spraying Drone

Model: EA-J100, 3WWDZ-45A

May 29, 2024
Issue Date:

Original Report
Report Type:

Prepared by: Jason Xiong / Engineer

Reviewed & Approved by: Apollo Liu / Manager

Table of Contents

Report Revision History

Report #	Version	Description	Issued Date
KSZ2024040301J	Rev.01	Initial issue of report	April 25, 2024
KSZ2024040301J	Rev.02	Update section 2.4 & 10 and appendix of report	May 27, 2024
KSZ2024040301J	Rev.03	Update section 10 and appendix of report	May 29, 2024

1. General Information

1. 1 Notes

The test results of this report relate exclusively to the test item specified in 1.6. The Ke Mei Ou Laboratory does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the Ke Mei Ou Laboratory.

1. 2 Testing Laboratory

Test Firm Name:	**Ke Mei Ou Lab Co., Ltd.**
Test Firm Address:	2013-2016, 20th Floor, Business Center, Jiahui Xin Cheng, No 3027, Shen Nan Road, Fu Tian, Shen Zhen, Guang Dong, P. R. China
FCC Designation Number:	CN1532
Test Firm Registration Number:	344480
Internet:	www.kmolab.com
Email:	kmo@kmolab.com
ANSI-ASQ National Accreditation Board/ANAB ISO/IEC 17025 Accredited Lab for telecommunication standards. The Registration Number is AT-1532. The testing quality system meets with ISO/IEC-17025 requirements, This approval results is accepted by MRA of ILAC.	

1. 3 Details of Applicant

Name	**SUZHOU EAVISION ROBOTIC TECHNOLOGIES CO., LTD**
Address	**Room 504&505, Building 2, Nanopolis District II, No.333, Xingpu Road, SIP Suzhou, Jiangsu, China**

1. 4 Application Details

Date of Receipt of Application	: April 2, 2024
Date of Receipt of Test Item	: April 2, 2024
Date of Test	: April 2, 2024 ~ April 25, 2024

1. 5 Details of Manufacturer & Factory

Name	**SUZHOU EAVISION ROBOTIC TECHNOLOGIES CO., LTD**
Address	**Room 504&505, Building 2, Nanopolis District II, No.333, Xingpu Road, SIP Suzhou, Jiangsu, China**

&

Name	**SUZHOU EAVISION ROBOTIC TECHNOLOGIES CO., LTD**
Address	**Unit 1-A, No.3 Workshop, 28 Xiasheng Road, SIP, Suzhou, China**

1. 6 Test Item

EUT Feature				
EUT Description:	EA-J100 Agricultural Spraying Drone			
Brand Name:	EAVISION			
Basic Model:	EA-J100			
Family Model:	3WWDZ-45A			
HW Version:	-			
SW Version:	-			
Equipment Class:	☒DXX - Part 15 Low Power Communication Device Transmitter			
EUT Stage:	☒Identical Prototype			
Note:	The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.			

Additional Information

Standard Product Specification				
Tx/Rx Frequency Range	☒24,00 GHz to 24,25 GHz			
Number of Channels	1			
Tx Frequency of radio transmission:	Single Carrier			
Antenna Type / Gain	Chain Number	Antenna Gain	☒Internal	☐External
	1	18.3 dBi	Microstrip planar	Dipole
Type of Modulation	☒FMCW			
EUT Operational Condition	☐AC **à** ☐Other			
	☒DC **à** ☐Other **à** ☐From Battery ☒52.2Vdc			
Specification of Accessory				
☐**AC/DC Adapter # (Charger)**	**Brand Name**	N/A	**Model Name**	N/A
	Power Rating	N/A		

1. 7 Applicable Standards

Applicable Standards	
According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards: FCC Part 15 Subpart C 15.249 ANSI C63.10-2013	
Note:	All test items were verified and recorded according to the standards and without any deviation during the test.

2. Technical Test

2. 1 Summary of Test Results

The EUT has been tested according to the following specifications:

FCC Rules	Test Type	Limit	Result	Notes
15.215(c)	20dB Occupied Bandwidth	N/A	NT	-
15.249(a)	Field Strength of Fundamental	FCC 15.209(a) & 15.249(a)	NT	-
15.249(a)(d)	Transmitter Spurious Emissions	FCC 15.209(a) & 15.249(a)(d)	Pass	Complies
15.207	AC Power Conducted Emission	FCC15.207(a)	NT	-
15.203	Antenna Requirement	N/A	Pass	Complies
2.1091	Maximum Permissible Exposure (MPE)	< 1mW/cm^2	NT	-
Remark:	NT is Not test; N/A is Not applicable			

2. 2 Antenna Requirement

Regulation	
Per § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§ 15.211, 15.213, 15.217, 15.219, 15.221, or § 15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.	
Result	☒EUT has one internal microstrip planar antenna, which was permanently attached. ☒EUT has not any provisions for connect to an external antenna. Therefore, the EUT complies with Section 15.203 of the FCC rules.

2. 3 Measurement Uncertainty

Measurement	Frequency	Uncertainty
Conducted emissions	0.15MHz ~ 30MHz	3.20
Radiated emissions	9kHz ~ 30MHz	4.20
Radiated emissions	30MHz ~ 300MHz	4.62
Radiated emissions	300MHz ~1000MHz	4.62
Radiated emissions	1GHz ~ 18GHz	4.86
Radiated emissions	18GHz ~ 40GHz	3.80
Note:	This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2	

Conformity Decision Rule
The applied conformity decision rule is based on ILAC G8:09/2019 clause 4.2.1 Binary Statement for Simple Acceptance Rule (w = 0).

2. 4 Test Configuration

Tx Test Mode

The following summary table is showing all test modes to demonstrate in compliance with the standard.

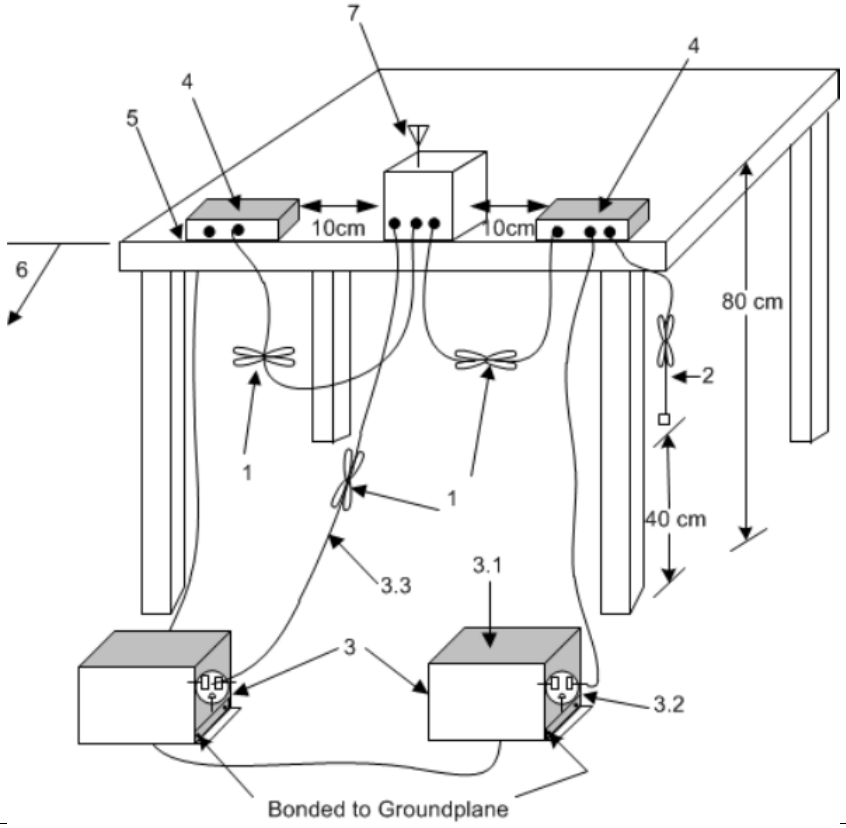
Summary Tables of Test Mode			
Test Item	**Modulation**	**Data Rate**	**Channel Plan**
Conducted Cases	☒FMCW	☐N/A	☒1
Radiated Cases	☒FMCW	☐N/A	☒1
AC Conducted Emission	Test Mode: EUT link with Controller (DC Power)		
Note: For Radiated case, the tests were performed with PCB antenna.			

EUT Operation Test Setup		
Pre-Scan has been conducted to determine the worst-case mode from all possible combinations. Only the worst test mode data was reported. For Tx function, the engineering test program was provided and enabled to make EUT link with controller to continuous transmit/receive. For AC power line conducted emissions, the EUT was set to working normal.		
Pre-Scan Mode		
Test Mode	**Operating Description**	
1	☒FMCW ☐**1**	
Conducted Emissions à Final		
Transmitter Spurious Emission	**Test Mode**	1
☐AC Conducted Emissions à Final		
Test Mode	1	
☒Radiated Emissions à Final		
Test Mode	1	
Note: The test modes were carried out for all operation modes (include link and idle). The final test mode of the EUT was the worst test mode for Mode 1, and its test data was reported.		

Far field consideration for measurements above 40GHz -> Spurious emision measurement				
Antenna	**Frequency Range (GHz)**	**L (m)**	**R $_{Far\ Field}$ (m)**	**Measurement Distance (m)**
M19RH	40-60	0.04625	0.57	0.6
M12RH	60-90	0.03002	0.36	0.5
M08RH	90-140	0.01969	0.23	0.5
Note:	For radiated emission measurements, calculate the distance to the far field boundary of the fundamental emission using following equation: $R_{far\ field} = (2 * L^2) / \lambda$ where: L = Largest Antenna Dimension, including the reflector, in meters λ= wavelength in meters			

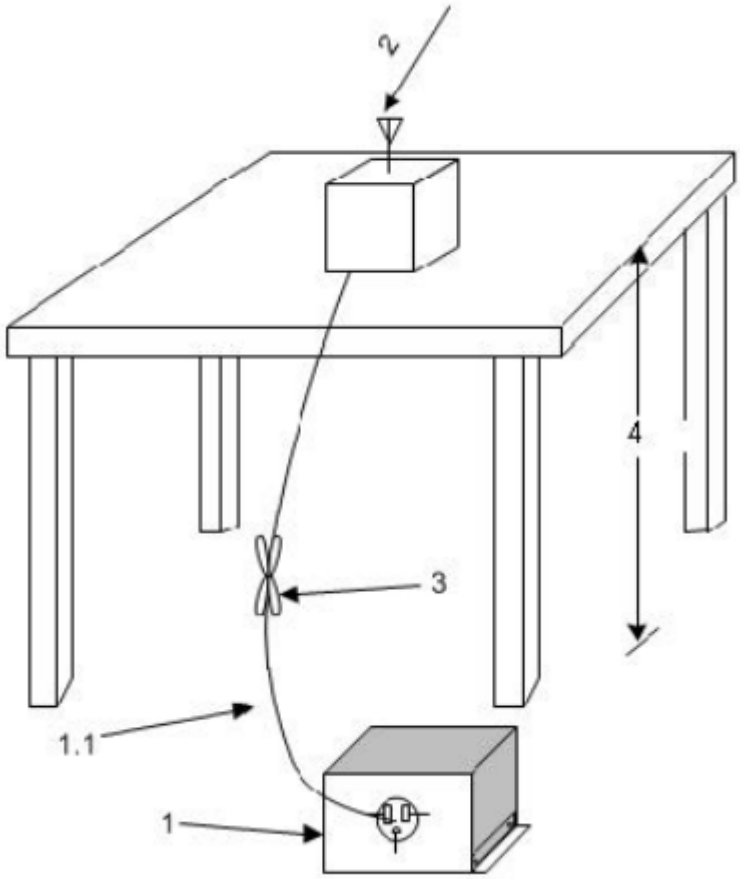
Summary Tables of Test Mode				
Device Manufacturer	**Model # Serial #**	**FCC ID/**	**DoC**	**Cable**
-	-	-	-	-

☐ANSI C63.10:2013 - Test arrangement for power-line conducted emissions (product with accessories)



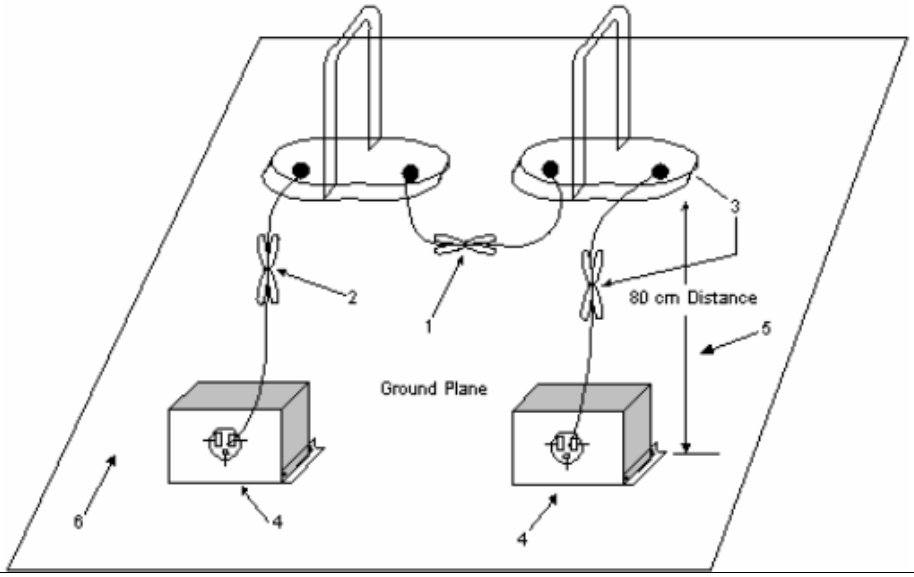
1—Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.
2—The I/O cables that are not connected to an accessory shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
3—EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω loads. LISN may be placed on top of, or immediately beneath, reference ground plane.
3.1—All other equipment powered from additional LISN(s).
3.2—A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.
3.3—LISN at least 80 cm from nearest part of EUT chassis.
4—Non-EUT components of EUT system being tested.
5—Rear of EUT, including peripherals, shall all be aligned and flush with edge of tabletop.
6—Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.
7—Antenna can be integral or detachable. If detachable, then the antenna shall be attached for this test.

☒ANSI C63.10:2013 - Test arrangement for radiated emissions (tabletop product)



1—A LISN is optional for radiated measurements between 30 MHz and 1000 MHz but not allowed for measurements below 30 MHz and above 1000 MHz. If used, then connect EUT to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω loads. The LISN may be placed on top of, or immediately beneath, the reference ground plane.
1.1—LISN spaced at least 80 cm from the nearest part of the EUT chassis.
2—Antenna can be integral or detachable, depending on the EUT.
3—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.
4—For emission measurements at or below 1 GHz, the table height shall be 80 cm. For emission measurements above 1 GHz, the table height shall be 1.5 m for measurements, except as otherwise specified.

☐ANSI C63.10:2013 - Test arrangement for radiated and conducted emissions for floor-standing unlicensed wireless devices



1—Excess I/O cables shall be bundled in the center. If bundling is not possible, then the cables shall be arranged in serpentine fashion. Bundling shall not exceed 40 cm in length.
2—Excess power cords shall be bundled in the center or shortened to an appropriate length.
3—EUT and all cables shall be insulated, if required, from the ground plane by up to 12 mm of insulating material.
4—EUT connected to one LISN. LISN may be placed on top of, or immediately beneath, the ground plane.
i All other equipment powered from a second LISN or additional LISN(s).
ii A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.
5—Horizontal projection from the closest point of EUT to the nearest point of the LISN. For radiated emission testing, the LISNs shall be removed.
6—Ground reference plane.

3. EUT Modifications

No modification by test lab.

4. Conducted Power Line Test

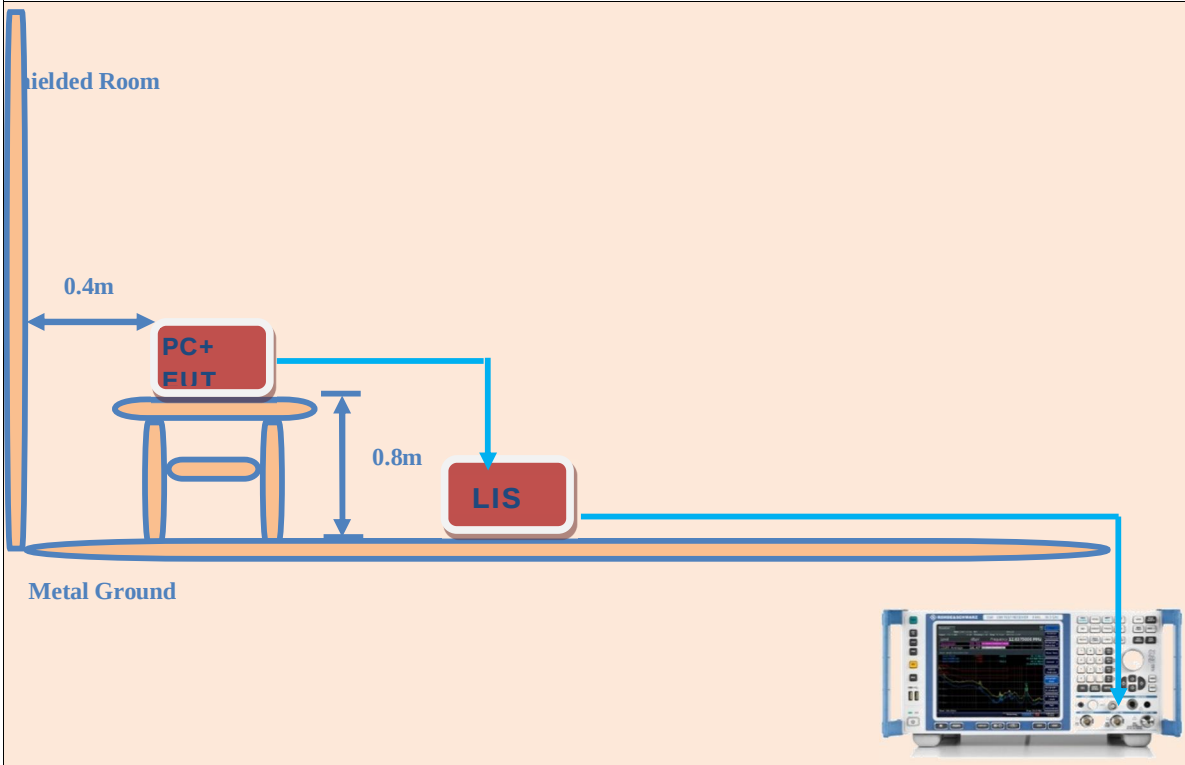
4. 1 Test Equipment

Please refer to Section 10 this report.

4. 2 Test Procedure

Test Method	
☐	The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission., the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement. Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

4. 3 Test Setup

Test Setup
AC Line Conducted Emissions

This test is applicable for radio equipment and/or ancillary equipment for fixed use powered by the AC mains. This test shall be performed on a representative configuration of the radio equipment, the associated ancillary equipment, or a representative configuration of the combination of radio and ancillary equipment. This test assesses the level of internally generated electrical noise present on the AC power input/output ports.

4. 4 Configuration of the EUT

Refer to section 2.4 of this test report.

4. 5 EUT Operating Condition

Refer to section 2.4 of this test report.

4. 6 Conducted Power Line Emission Limits

FCC Part 15 Paragraph 15.207 (dBuV)	
Frequency Range (MHz)	**QP/AV**
0.15 – 0.5	66-56/56-46
0.5 – 5.0	56/46
5.0 - 30	60/50

Note: In the above table, the tighter limit applies at the band edges.

4. 7 Conducted Power Line Test Result

Test Results:	Not Test

5. Radiated Emission Test for FCC Part 15.249

5. 1 Test Equipment

Please refer to Section 10 this report.

5. 2 Test Procedure

The radiated emissions test below 30 MHz is performed in the following steps:					
Frequency (MHz)	**RBW(kHz)**	**Step Size(kHz)**	**Pre-Scan**	**Pre-Scan with FFT**	**Final Scan**
0.009 ~ 0.15	0.2	≤0.1	Peak, Average	Peak Quasi-Peak, Average	Peak Quasi-Peak, Average
0.15 ~ 30	9	≤4.5	Peak, Average	Peak Quasi-Peak, Average	Peak Quasi-Peak, Average

The EUT was tested according to ANSI C63.10:2013.
a) The loop antenna is positioned with its plane perpendicular to the ground with the lowest height of the antenna 1 m above the ground.
b) The EUT is placed in its standard position on a turntable capable of rotation through 360° in the horizontal plane and arranged as tabletop or floor-standing equipment, as applicable. The EUT is switched on.
c) The measurement equipment is connected to the loop antenna and set-up according to the specifications of the test.
d) The EUT is turned to a position likely to get the maximum and the test antenna is rotated to detect the maximum of the fundamental in this EUT position.
e) Then the EUT is rotated in a horizontal plane through 360° in steps of 45°. Starting at 0°, at each table position the spectrum for the full frequency range is recorded. If the emission at a certain frequency is higher than the levels already recorded, the current table position is noted as the maximum position.
f) After the last pre-scan, the significant maximum emissions and their table positions are determined and collected in a list.
g) With the test receiver set to the first frequency of the list, the EUT is rotated by ±45° around the table position found during pre-scans while measuring the emission level continuously. For final scan, the worst-case table position is set and the maximum emission level is recorded.
h) Step g) is repeated for all other frequencies in the list.
i) Finally, for frequencies with critical emissions the loop antenna is rotated again to find the maximum of emission. At least, frequency and level of the six highest emissions relative to the limit have to be recorded. However, emissions more than 20 dB below the limit do not need to be reported.
If the EUT may be used in various positions, steps a) to i) are repeated in two other orthogonal positions. If the EUT may be used in one position only, steps a) to i) are repeated in one orthogonal position.

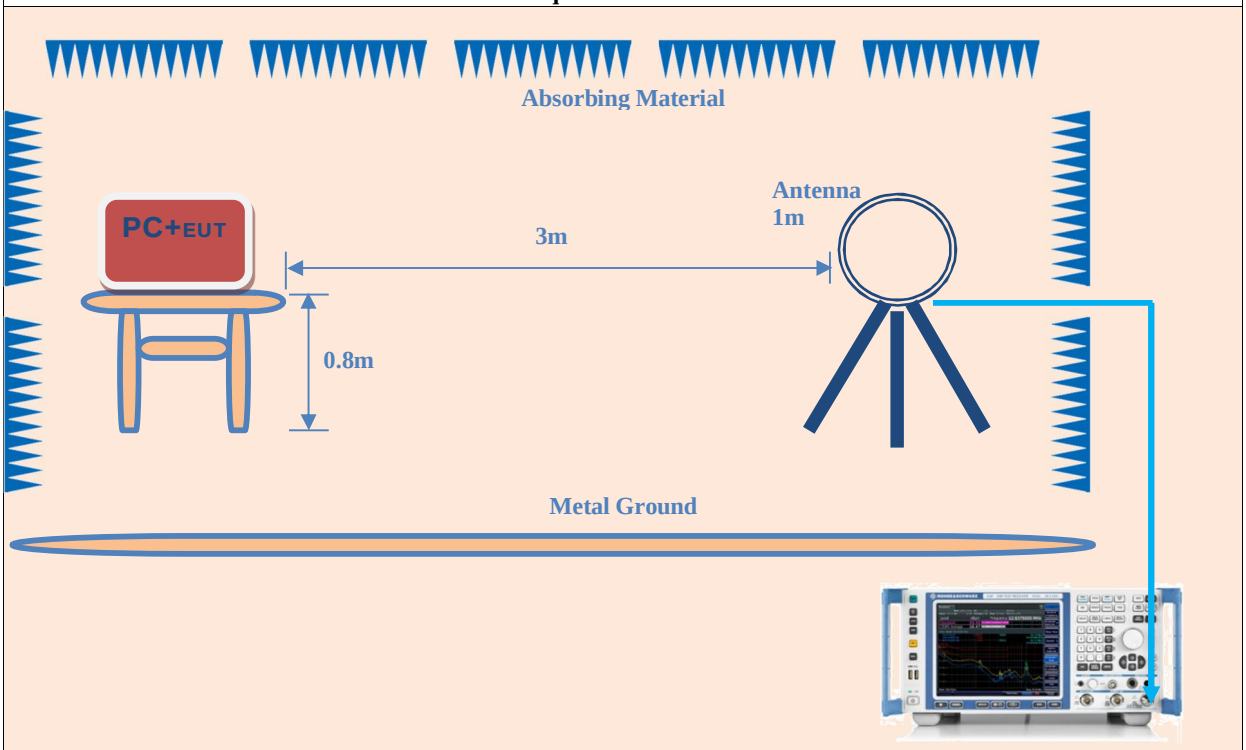
The radiated emissions test from 30 MHz to 960 MHz is performed in the following steps:					
Frequency (MHz)	**RBW(kHz)**	**Step Size(kHz)**	**Pre-Scan**	**Pre-Scan with FFT**	**Final Scan**
30 ~ 960	120	≤60	Peak	Quasi-Peak	Quasi-Peak

The EUT was tested according to ANSI C63.10:2013.
a) The measurement antenna is oriented initially for vertical polarization.
b) The EUT is placed in its standard position on a turntable capable of rotation through 360° in the horizontal plane and arranged as tabletop or floor-standing equipment, as applicable. The EUT is switched on.
c) The measurement equipment is connected to the measurement antenna and set-up according to the specifications of the test
d) The table position is set to 0°.
e) The antenna height is set to 1 m.
f) The spectrum for the full frequency range is recorded. If the emission at a certain frequency is higher than the levels already recorded, the polarization and height of the measurement antenna as well as the current table position are noted as the maximum position.
g) The antenna height is increased to 4 m in steps of 50 cm. At each height, step f) is repeated.
h) The polarization of the measurement antenna is changed to horizontal.
i) The antenna height is decreased from 4 m to 1 m in steps of 50 cm. At each height, step f) is repeated.
j) The EUT is rotated in a horizontal plane through 360° in steps of 60°. At each table position, steps e) to i) are repeated.
k) After the last pre-scan, the significant maximum emissions with their polarizations and heights of the measurement antenna as well as their table positions are determined and collected in a list.
l) With the test receiver set to the first frequency of the list, the measurement antenna is set to the polarization and height and the table is moved to the position as determined during pre-scans.
m) The antenna is moved by ±50 cm around this height and the EUT is rotated by ±60° around this table position while measuring the emission level continuously.
n) For final scan, the worst-case positions of antenna and table are set and the maximum emission level is recorded.
o) Steps l) to n) are repeated for all other frequencies in the list. At least, frequency and level of the six highest emissions relative to the limit have to be recorded. However, emissions more than 20 dB below the limit do not need to be reported.
If the EUT may be used in various positions, steps a) to o) are repeated in two other orthogonal positions.

The radiated emissions test above 960 MHz to 40 GHz is performed in the following steps:					
Frequency (MHz)	**RBW(kHz)**	**VBW(kHz)**	**Sweep Time**	**Detector**	**Trace Mode**
960~40000	1000	3000	AUTO	PK/AV	Max Hold
Radiated emissions above 960 MHz are measured according to clause 6.6 of ANSI C63.10 by conducting exploratory and final radiated emission tests. According to clause 6.6.4.1 of ANSI C63.10, measurements may be performed at a distance closer than that specified in the requirements. However, an attempt shall be made to avoid making final measurements in the near field of both the measurement antenna and the EUT. Final radiated emissions above 1 GHz are measured in a semi-anechoic chamber (SAC) with RF absorbing material on the floor between measurement antenna and EUT. The measurement distance is shown in the appropriate tests. The emissions of the EUT are recorded with an EMI test receiver.					

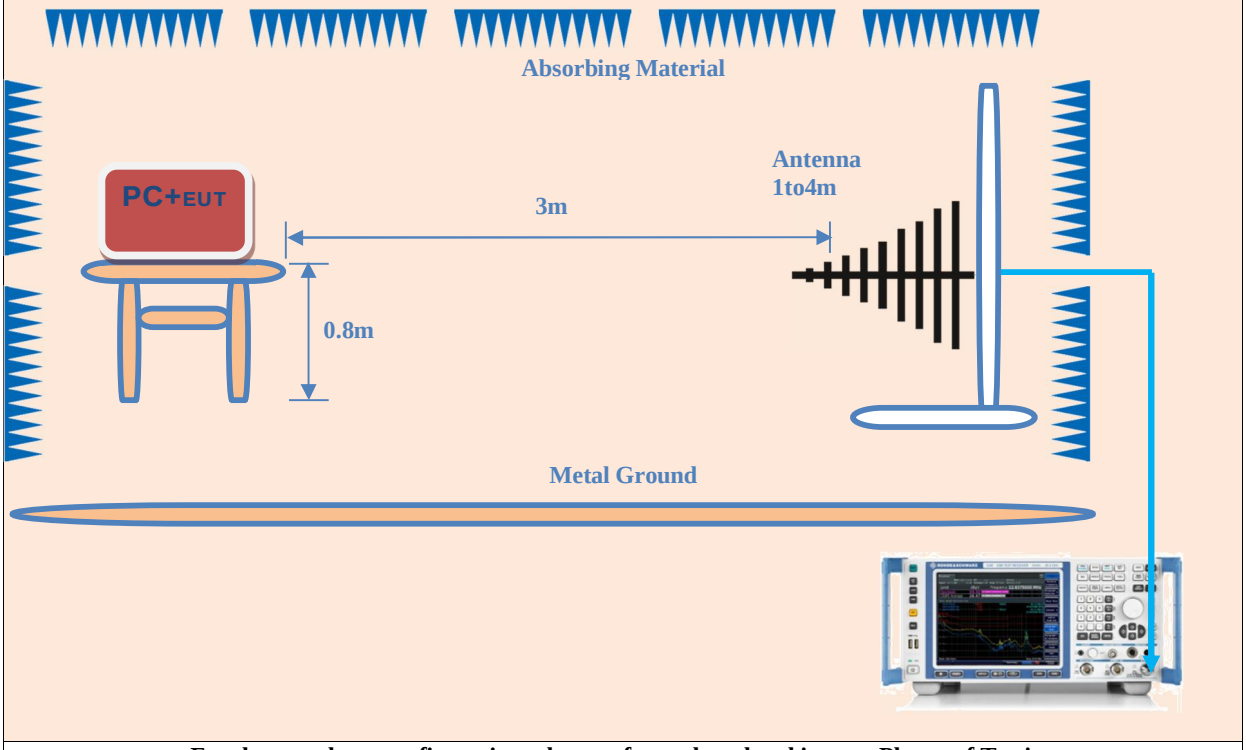
5. 3 Radiated Test Setup

For Frequencies below 30MHz



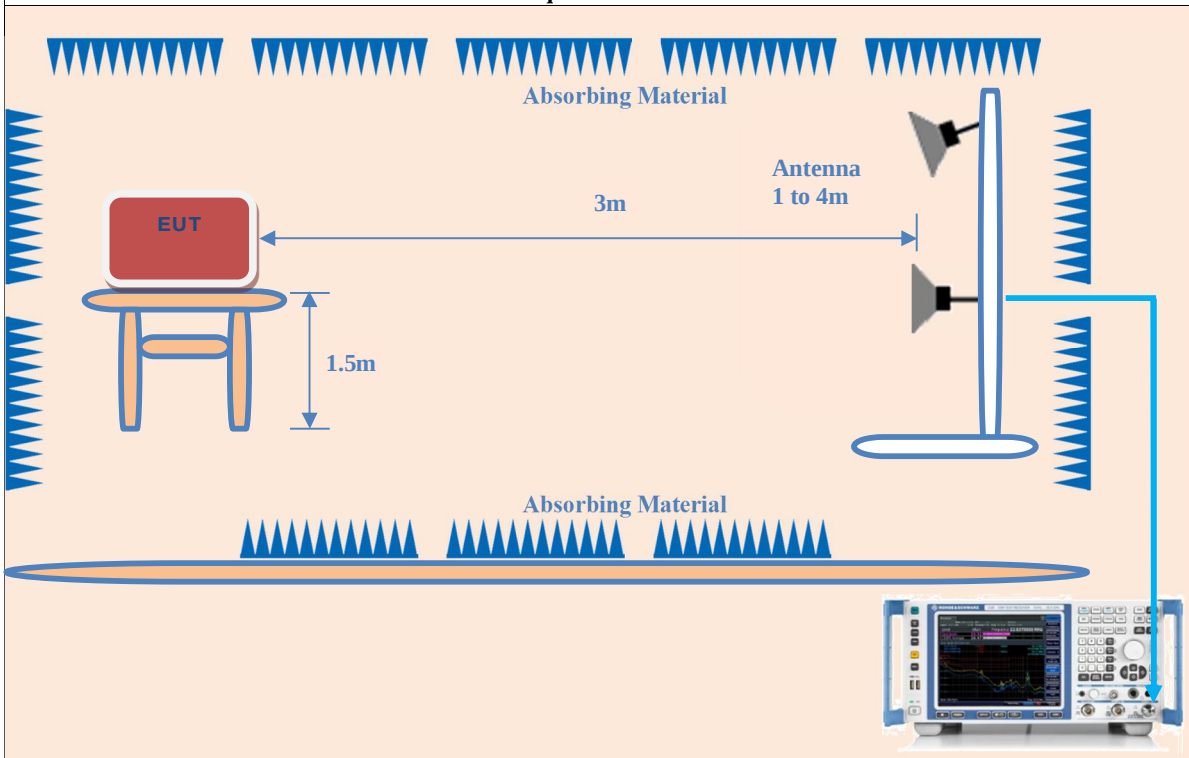
For the actual test configuration, please refer to the related items – Photos of Testing

For Frequencies below 1GHz



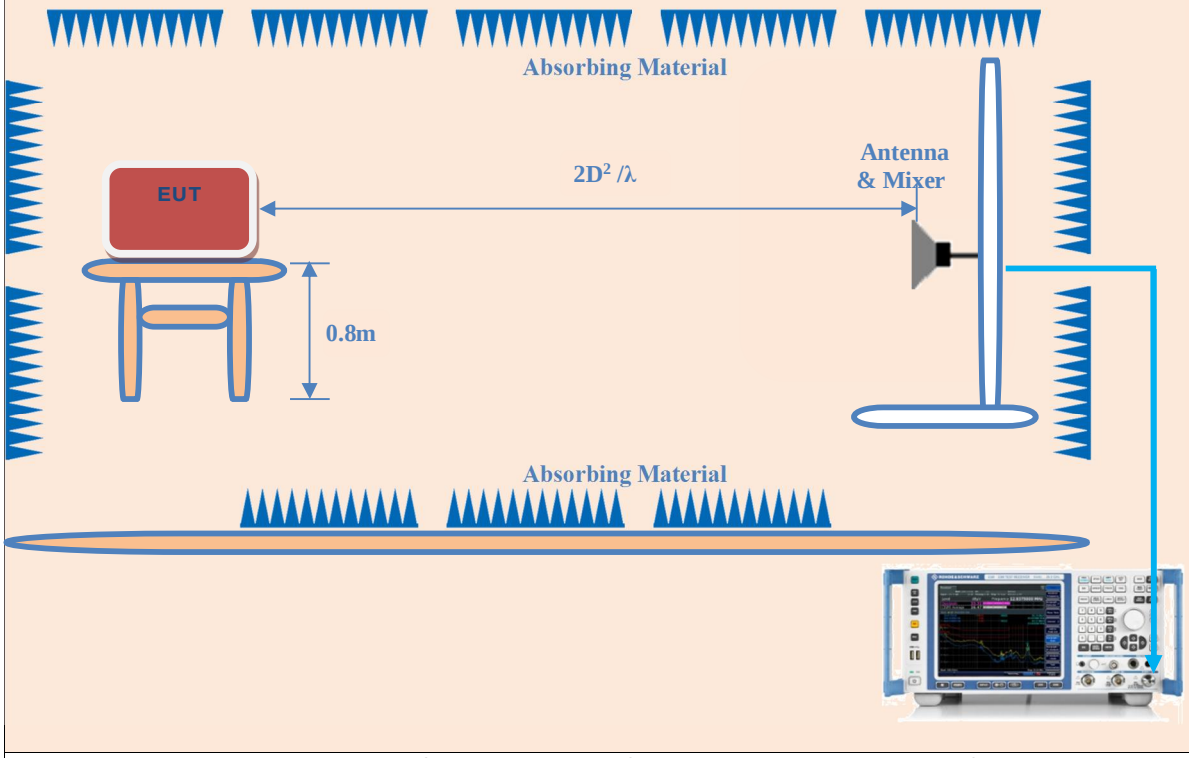
For the actual test configuration, please refer to the related items – Photos of Testing

For Frequencies 1GHz ~ 40GHz



For the actual test configuration, please refer to the related items – Photos of Testing

For Frequencies Above 40GHz



For the actual test configuration, please refer to the related items – Photos of Testing

Although it is preferred that measurements are made in the far field or at the distance at which the applicable limit is specified (e.g., 3 m), this is not always practicable. The far-field boundary distance formula ($\lambda/2\pi$) presented elsewhere in this document for measurements below 30 MHz is applicable where D (largest antenna dimension) << λ (wavelength). For many mm-wave measurements, D >> λ and a more suitable formula for the far-field boundary distance is $2D^2/\lambda$. Even for mm-wave measurements not made in the far field, a linear distance attenuation factor (field strength decay of 20 dB/decade of distance) has been determined to be generally representative and is the default specified by regulatory authorities.

5. 4 Configuration of the EUT

Same as section 2.4 of this report

5. 5 EUT Operating Condition

Same as section 2.4 of this report

5. 6 Radiated Emission Limit

5. 6.1 Field strength of fundamental (15.249(a))

Frequency (MHz)	Field Strength @3m (mV/m)		Field Strength @3m (dBuV/m)	
			Peak	Average
☐902 ~ 928	500	50	113.98	93.98
☐2400 ~ 2483.5	500	50	113.98	93.98
☐5725 ~ 5875	500	50	113.98	93.98
☐24.0 ~ 24.25 GHz.	2500	250	127.96	107.96

5. 6.2 Field strength of harmonics (15.249(a))

Frequency (MHz)	Field Strength @3m (uV/m)		Field Strength @3m (dBuV/m)	
			Peak	Average
☐902 ~ 928	5000	500	73.98	53.98
☐2400 ~ 2483.5	5000	500	73.98	53.98
☐5725 ~ 5875	5000	500	73.98	53.98
☒24.0 ~ 24.25 GHz.	25000	2500	87.96	67.96

5. 6.3 Tx spurious emissions (15.249(d), 15.209)

FCC CFR 47, Part 15, Subpart C, Para, 15.205(a) – Restricted Frequency Bands

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 – 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41	--	--	--

[1]Until February 1, 1999, this restricted band shall be 0.490–0.510MHz.
[2]Above 38.6

FCC 47 CFR, Part 15.209(a) – Field Strength Limits within Restricted Frequency Bands

Frequency (MHz)	Field Strength (μV/m)	Field Strength @3m (dBuV/m)
0.009 ~ 0.490	2,400/F (F in kHz)	128.5 ~ 93.8
0.490 ~ 1.705	24,000/F (F in kHz)	73.8 ~ 63
1.705 ~ 30	30	69.5
30 ~ 88	100	40
88 ~ 216	150	43.5
216 ~ 960	200	46
Above 960	500	53.9

5. 7 Radiated Emission Test Result

Test Results:	Refer to Appendix

6. Band Edge

6. 1 Test Equipment

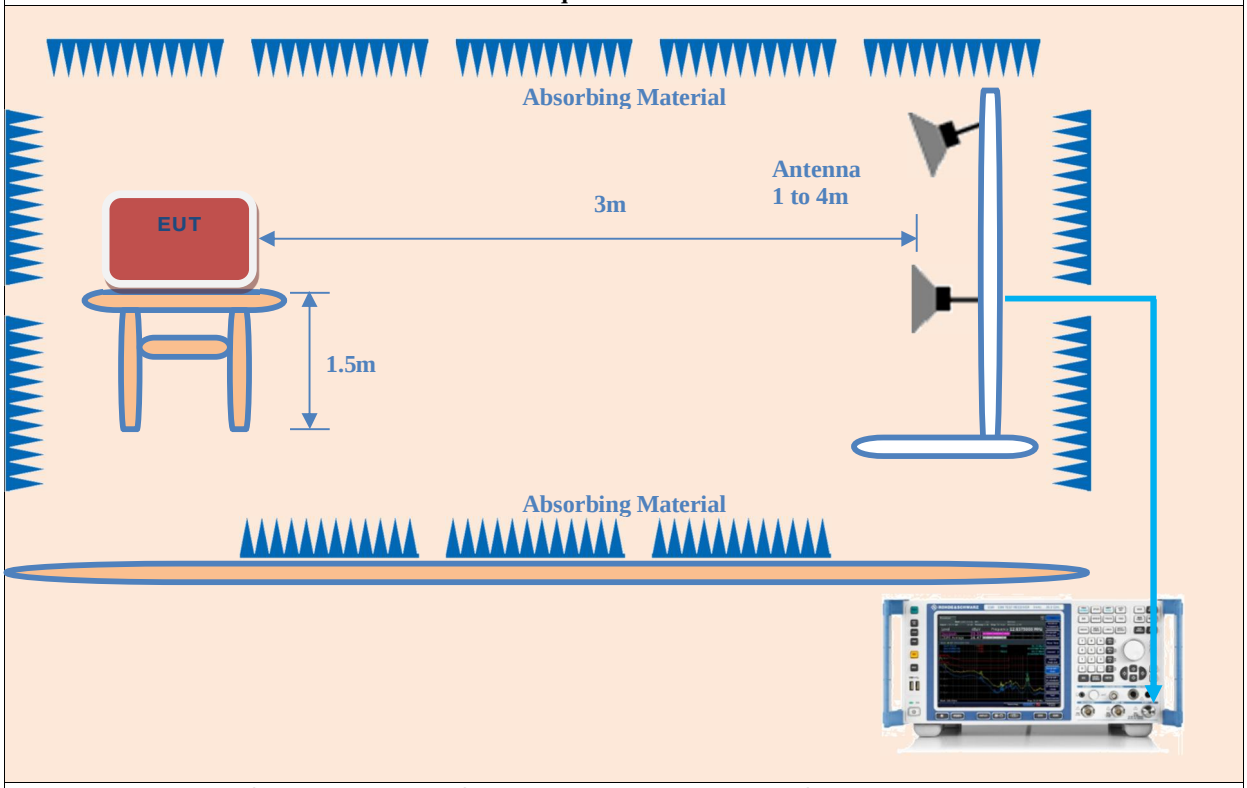
Please refer to Section 10 this report.

6. 2 Test Procedure

Test Method
1. The EUT was tested according to ANSI C63.10, clause 6.9.3 for occupied bandwidth testing. 2. For radiated measurement. Loop antenna was rotated about the horizontal and vertical axis and the equipment to be measured and the test antenna shall be oriented to obtain the maximum emitted field strength level

6. 3 Radiated Test Setup

For Frequencies above 1GHz



For the actual test configuration , please refer to the related items – Photos of Testing

6. 4 Configuration of the EUT

Same as section 2.4 of this report

6. 5 EUT Operating Condition

Same as section 2.4 of this report.

6. 6 Band Edge FCC 15.215(c) Limit

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §15.217 through §15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the 20 dB bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

6. 7 Band Edge Test Result

Test Results:	Not Test

7. Photographs - Test Setup

Refer to Exhibits _ Test Setup Photos

8. Photographs - EUT

Refer to Exhibits _ External Photos & Internal Photos

9. Label

Refer to Exhibits _ Label & Location Info

10. Test Equipment

Equipment/ Facilities	Manufacturer	Model #	Serial No.	Cal/Char Date	Due Date
Spectrum Analyzer	Rohde & Schwarz	FSV40	KMO-SZ025M	2021/11/22	2024/11/22
Mixer	OML INC.	M19HWD	KMO-SZ360	NCR[Note]	NCR[Note]
Antenna, Horn	OML INC.	M19RH WR-19	KMO-SZ361	NCR[Note]	NCR[Note]
Mixer	OML INC.	M12HWD	KMO-SZ362	NCR[Note]	NCR[Note]
Antenna, Horn	OML INC.	M12RH WR-12	KMO-SZ363	NCR[Note]	NCR[Note]
Mixer	OML INC.	M08HWD	KMO-SZ364	NCR[Note]	NCR[Note]
Antenna, Horn	OML INC.	M08RH WR-08	KMO-SZ365	NCR[Note]	NCR[Note]
Note:	Calibrated by the manufacturer for daily use and testing is performed within calibration interval of mm-wave antenna.				

----------End of Report ----------

5. Radiated Emission Test for FCC Part 15.249
5. 7 Radiated Emission Test Result

☒Test Mode 1 -> H & V			Field strength of fundamental & harmonic (up to 100GHz)								
Freq. (MHz)	Read Level (dBuV)		Factor (dB)	Emission (dBuV/m)		Horiz./ Vert.	@m	Limit (dBuV/m)		Margin (dB)	
	PK	AV		PK	AV			PK	AV	PK	AV
-	-	-	-	-	-	Horiz./	3.00	128.00	108.00	-	-
-	-	-	-	-	-	Vert.	3.00	128.00	108.00	-	-
50777.81	0.91	-	42.11	43.02	-	Horiz./	3.00	88.00	68.00	-44.98	-
50781.56	0.67	-	42.11	42.78	-	Vert.	3.00	88.00	68.00	-45.22	-
62117.34	-1.29	-	44.71	43.41	-	Horiz./	3.00	88.00	68.00	-44.59	-
72486.09	-1.87	-	45.30	43.43	-	Vert.	3.00	88.00	68.00	-44.57	-
99692.97	8.88	-	48.62	57.49	-	Horiz./	3.00	88.00	68.00	-30.51	-
99744.22	8.66	-	48.62	57.27	-	Vert.	3.00	88.00	68.00	-30.73	-

Note:

☒**EUT is the continue transmitters, 100% (Duty Cycle).**

☐EUT is the pulsed transmitters, the average value shall consider the peak value plus the duty cycle factor.

According to ANSI C63.10-2013 clause 9.4

$$E_{SpecLimit} = E_{Meas} + 20\log\left\{\frac{d_{Meas}}{d_{SpecLimit}}\right\}$$

where:

$E_{SpecLimit}$ is the field strength of the emission at the distance specified by the limit, in dBμV/m

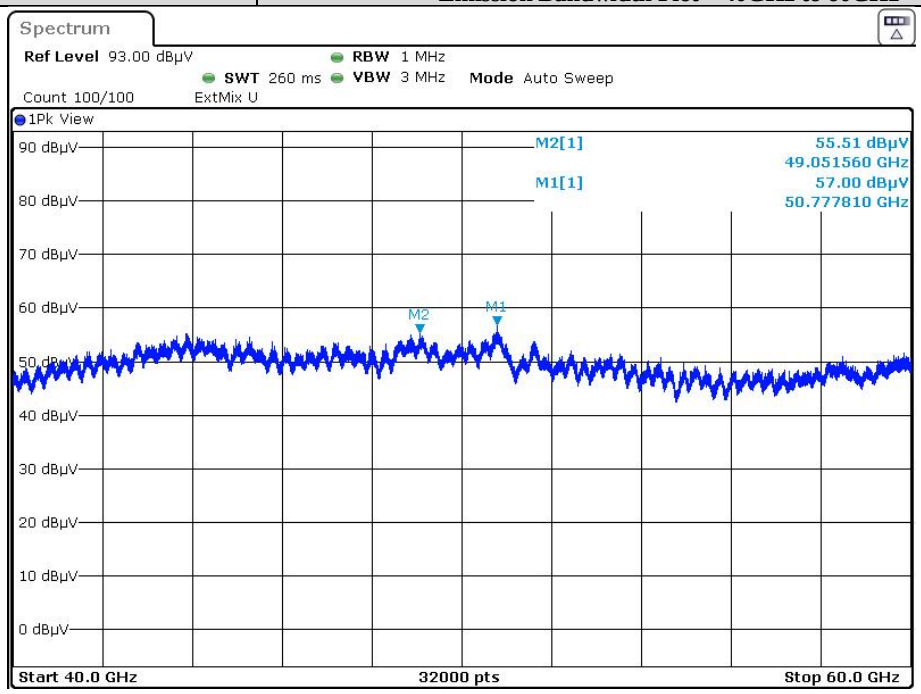
E_{Meas} is the field strength of the emission at the measurement distance, in dBμV/m

d_{Meas} is the measurement distance, in m

$d_{SpecLimit}$ is the distance specified by the limit, in m

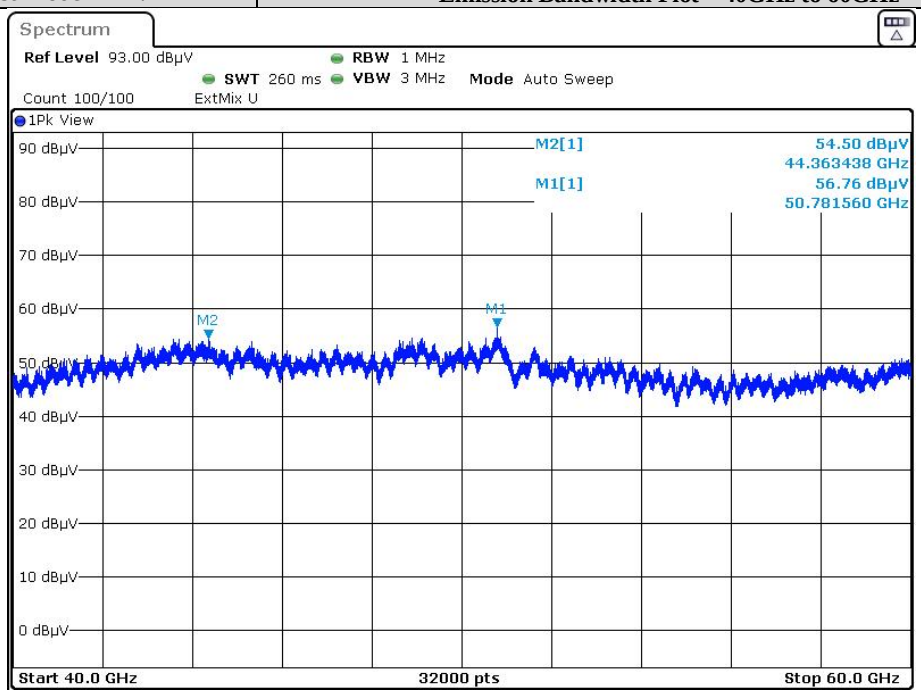
T'he 40-60GHz test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB/ decade from 3m to 0.6m.
Distance extrapolation factor =20 log (specific distance [3m]/test distance [0.6m]) dB=13.98 dB.
The 60-100GHz test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB decade from 3m to 0.5m.
Distance extrapolation factor =20 log (specific distance [3m]/test distance [0.5m]) dB=15.56 dB.

☒Test Mode 1 -> H	Emission Bandwidth Plot – 40GHz to 60GHz



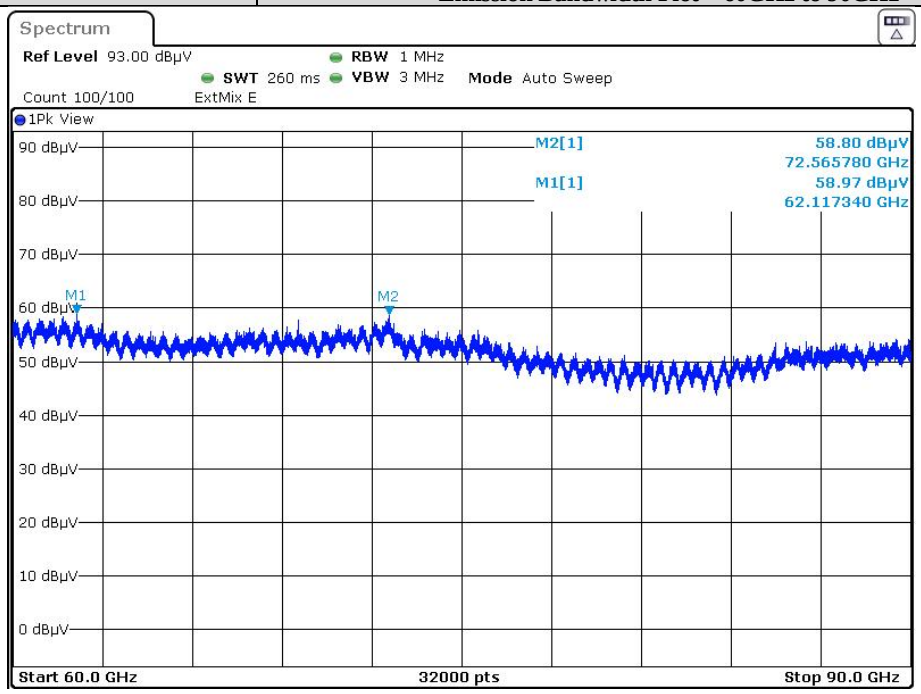
Date: 23.APR.2024 17:07:58

☒Test Mode 1 -> V	Emission Bandwidth Plot – 40GHz to 60GHz



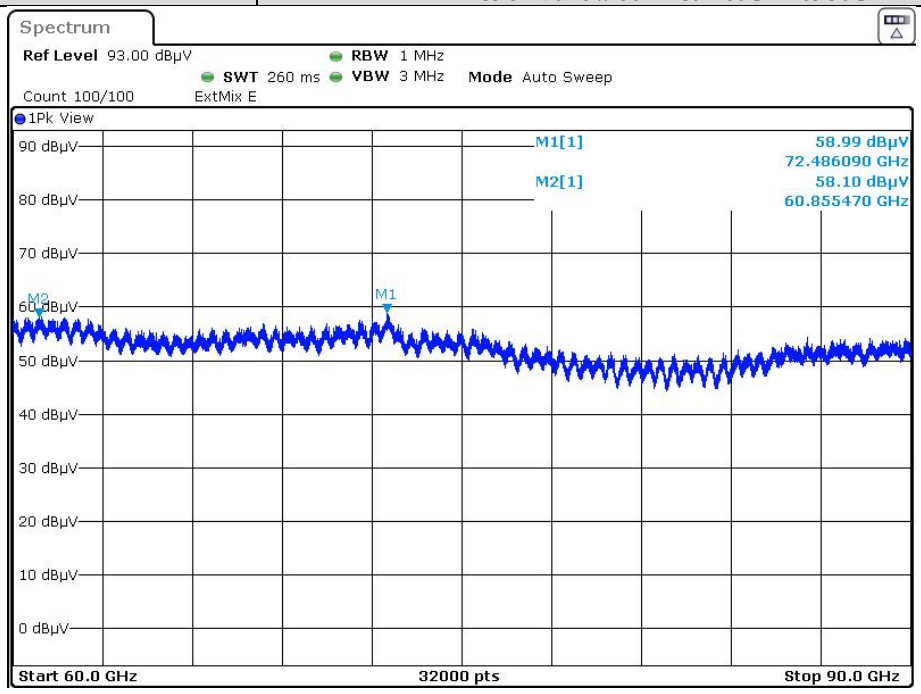
Date: 23.APR.2024 17:03:16

☒Test Mode 1 -> H	Emission Bandwidth Plot – 60GHz to 90GHz



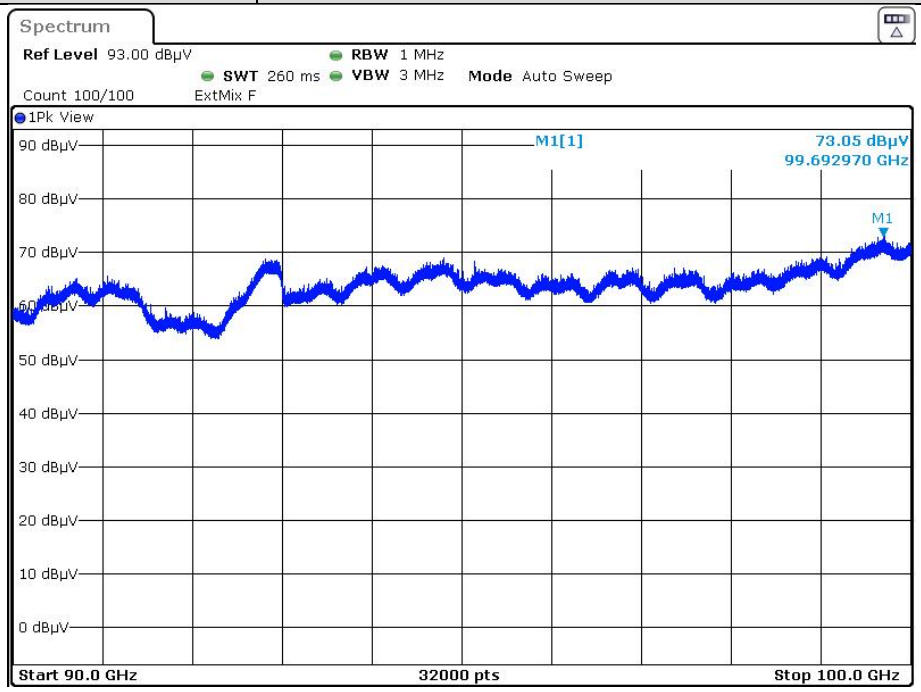
Date: 23.APR.2024 17:17:03

☒Test Mode 1 -> V	Emission Bandwidth Plot – 60GHz to 90GHz



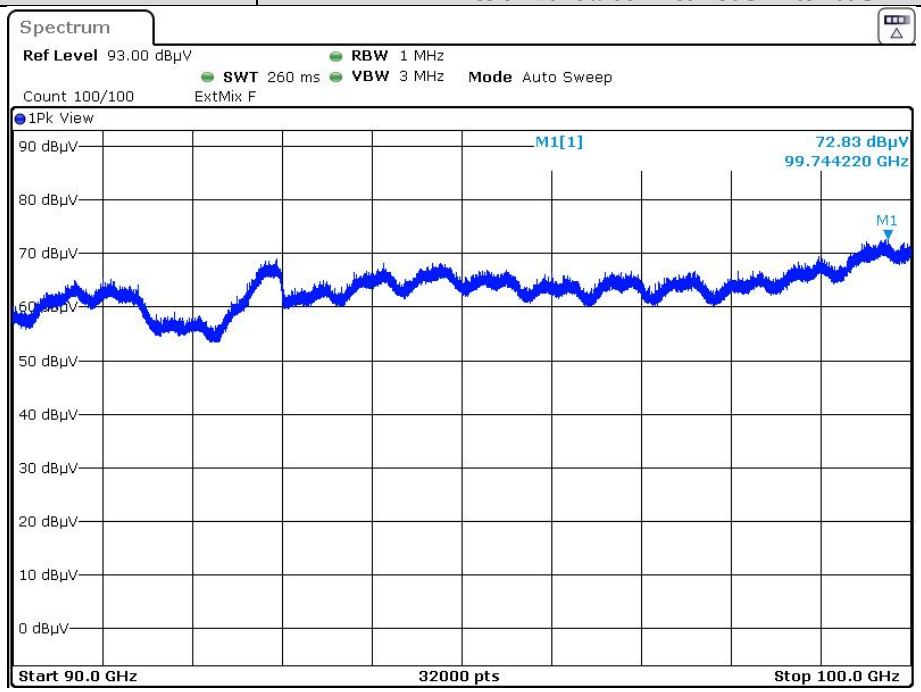
Date: 23.APR.2024 17:20:14

☒Test Mode 1 -> H	Emission Bandwidth Plot – 90GHz to 100GHz



Date: 23.APR.2024 17:31:47

☒Test Mode 1 -> V	Emission Bandwidth Plot – 90GHz to 100GHz



Date: 23.APR.2024 17:29:21

----------**End of Report** ----------