

TEST REPORT

Reference No...... : WTX24X12298425W004
FCC ID..... : 2ASIVPGH260UA
Applicant..... : PIN GENIE, INC. DBA LOCKLY
Address..... : 2024 Macopin Rd., Unit E, West Milford, NJ 07480 United States
Manufacturer..... : Smart Electronic Industrial (Dong Guan) Co., Ltd.
Address..... : Qing Long Road, Long Jian Tian Village, Huang Jiang Town, Dong Guan,
Guang Dong, China
Product Name..... : MATTER LINK
Model No...... : PGH260
Standards..... : FCC Part 15.231
Date of Receipt sample..... : 2024-12-17
Date of Test..... : 2024-12-17 to 2024-12-30
Date of Issue..... : 2024-12-30
Test Report Form No...... : WTX_Part 15_231W
Test Result..... : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of approver.

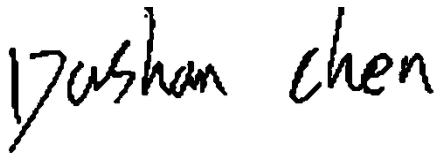
Prepared By:

Waltek Testing Group (Shenzhen) Co., Ltd.

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road,
Block 70 Bao'an District, Shenzhen, Guangdong, China

Tel.: +86-755-33663308 Fax.: +86-755-33663309 Email: sem@waltek.com.cn

Tested by:



Dashan Chen

Approved by:



Jason Su

TABLE OF CONTENTS

1. GENERAL INFORMATION	4
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	4
1.2 TEST STANDARDS	5
1.3 TEST METHODOLOGY	5
1.4 TEST FACILITY	5
1.5 EUT SETUP AND TEST MODE	6
1.6 MEASUREMENT UNCERTAINTY	7
1.7 TEST EQUIPMENT LIST AND DETAILS	8
2. SUMMARY OF TEST RESULTS	12
3. ANTENNA REQUIREMENT	13
3.1 STANDARD APPLICABLE	13
3.2 TEST RESULT	13
4. RADIATED EMISSIONS	14
4.1 STANDARD APPLICABLE	14
4.2 TEST PROCEDURE	15
4.3 CORRECTED AMPLITUDE & MARGIN CALCULATION	16
4.4 SUMMARY OF TEST RESULTS/PLOTS	16
5. 20DB BANDWIDTH	21
5.1 STANDARD APPLICABLE	21
5.1 TEST PROCEDURE	21
5.2 SUMMARY OF TEST RESULTS/PLOTS	21
6. TRANSMISSION TIME	23
6.1 STANDARD APPLICABLE	23
6.2 TEST PROCEDURE	23
6.3 SUMMARY OF TEST RESULTS/PLOTS	23
7. DUTY CYCLE	25
7.1 STANDARD APPLICABLE	25
7.2 TEST PROCEDURE	25
7.3 SUMMARY OF TEST RESULTS/PLOTS	25
8. CONDUCTED EMISSIONS	27
8.1 TEST PROCEDURE	27
8.2 BASIC TEST SETUP BLOCK DIAGRAM	27
8.3 TEST RECEIVER SETUP	27
8.4 SUMMARY OF TEST RESULTS/PLOTS	27
APPENDIX PHOTOGRAPHS	30

Report version

Version No.	Date of issue	Description
Rev.00	2024-12-30	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

General Description of EUT	
Product Name:	MATTER LINK
Trade Name:	LOCKLY
Model No.:	PGH260
Adding Model(s):	/
Rated Voltage:	DC5V
Power Adaptor :	/
<i>Note: The test data is gathered from a production sample provided by the manufacturer.</i>	

Technical Characteristics of EUT	
Frequency Range:	433.97MHz -443.97MHz
Max. Field Strength:	90.99dBuV/m(3m)
Data Rate:	/
Quantity of Channels:	41
Channel Separation:	250kHz
Modulation:	FSK
Antenna Type:	Integral Antenna
Antenna Gain:	1.44dBi
<i>Note The Antenna Gain is provided by the customer and can affect the validity of results.</i>	

1.2 Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.231: Periodic operation in the band 40.66-40.70MHz and above 70MHz.

ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission/immunity, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, the equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted accordingly in reference to the Operating Instructions.

1.4 Test Facility

Address of the test laboratory

Laboratory: Waltek Testing Group (Shenzhen) Co., Ltd.

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road, Block 70 Bao'an District, Shenzhen, Guangdong, China

FCC – Registration No.: 125990

Waltek Testing Group (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. The Designation Number is CN5010, and Test Firm Registration Number is 125990.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Waltek Testing Group (Shenzhen) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A and the CAB identifier is CN0057.

1.5 EUT Setup and Test Mode

The EUT was operated at continuous transmitting mode that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, and to measure its highest possible emissions level, more detailed description as follows:

Test Mode List		
Test Mode	Description	Remark
TM1	Transmitting	433.97MHz
TM2	Transmitting	443.97MHz

Test Conditions	
Temperature:	22~25 °C
Relative Humidity:	45~75 %
ATM Pressure:	1019 mbar

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
Adapter	LOCKLY	617058	/

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Occupied Bandwidth	Conducted	$\pm 1.5\%$
Conducted Spurious Emission	Conducted	$\pm 2.17\text{dB}$
Transmission Time	Conducted	$\pm 5\%$
Conducted Emissions	Conducted	9-150kHz $\pm 3.74\text{dB}$
		0.15-30MHz $\pm 3.34\text{dB}$
Transmitter Spurious Emissions	Radiated	30-200MHz $\pm 4.52\text{dB}$
		0.2-1GHz $\pm 5.56\text{dB}$
		1-6GHz $\pm 3.84\text{dB}$
		6-18GHz $\pm 3.92\text{dB}$

1.7 Test Equipment List and Details

Fixed asset Number	Description	Manufacturer	Model	Serial No.	Cal Date	Due. Date
WTXE1004A 1-001	Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2024-02-27	2025-02-26
WTXE1103A 1003	Attenuator	Pasternack	PE4007-4	/	2024-02-24	2025-02-23
WTXE1003A 1-005	Coaxial Cable	/	0M4RFC	/	2024-07-03	2025-01-03
☐ Chamber A: Below 1GHz						
WTXE1005A 1003	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/03 5	2024-02-24	2025-02-23
WTXE1001A 1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2024-03-19	2025-03-18
WTXE1007A 1001	Amplifier	HP	8447F	2805A034 75	2024-02-24	2025-02-23
WTXE1010A 1007	Loop Antenna	Schwarz beck	FMZB 1516	9773	2024-02-26	2025-02-25
WTXE1010A 1006	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2024-02-24	2025-02-23
WTXE1104A 1032-1	Coaxial Cable	/	RC_6G-N-M	/	2024-03-15	2025-03-14
WTXE1104A 1032-2	Coaxial Cable	/	RC_6G-N-M	/	2024-03-15	2025-03-14
WTXE1104A 1032-3	Coaxial Cable	/	RC_6G-N-M	/	2024-03-15	2025-03-14
☐ Chamber A: Above 1GHz						
WTXE1005A 1003	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/03 5	2024-02-24	2025-02-23
WTXE1001A 1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2024-03-19	2025-03-18
WTXE1065A 1001	Amplifier	C&D	PAP-1G18	2002	2024-02-27	2025-02-26
WTXE1010A 1005	Horn Antenna	ETS	3117	00086197	2024-02-26	2025-02-25
WTXE1010A 1010	DRG Horn Antenna	A.H. SYSTEMS	SAS-574	571	2024-03-17	2025-03-16
WTXE1003A 1001	Pre-amplifier	Schwarzbeck	BBV 9721	9721-031	2024-02-29	2025-02-28
WTXE1104A 1033-1	Coaxial Cable	/	C16-07-07	/	2024-03-15	2025-03-14
WTXE1104A	Coaxial Cable	/	C16-07-07	/	2024-03-15	2025-03-14

1033-2						
WTXE1104A 1033-3	Coaxial Cable	/	C16-07-07	/	2024-03-15	2025-03-14
☐ Chamber B:Below 1GHz						
WTXE1010A 1006	Trilog Broadband Antenna	Schwarz beck	VULB9163(B)	9163-635	2024-03-17	2027-03-16
WTXE1038A 1001	Amplifier	Agilent	8447D	2944A104 57	2024-02-24	2025-02-23
WTXE1001A 1002	EMI Test Receiver	Rohde & Schwarz	ESPI	101391	2024-02-24	2025-02-23
WTXE1104A 1031-1	Coaxial Cable	/	1.5MRFC-LWB3	/	2024-07-03	2025-07-02
WTXE1104A 1031-2	Coaxial Cable	/	RG 316	/	2024-07-03	2025-07-02
WTXE1104A 1031-3	Coaxial Cable	/	RG 316	/	2024-07-03	2025-07-02
☒ Chamber C:Below 1GHz						
WTXE1093A 1001	EMI Test Receiver	Rohde & Schwarz	ESIB 26	100401	2024-02-27	2025-02-26
WTXE1010A 1013-1	Trilog Broadband Antenna	Schwarz beck	VULB 9168	1194	2024-04-18	2027-04-17
WTXE1007A 1002	Amplifier	HP	8447F	2944A038 69	2024-02-24	2025-02-23
WTXE1010A 1007	Loop Antenna	Schwarz beck	FMZB 1516	9773	2024-02-26	2025-02-25
WTXE1104A 1034-1	Coaxial Cable	/	RC_6G-N-M	/	2024-07-03	2025-07-02
WTXE1104A 1034-2	Coaxial Cable	/	RC_6G-N-M	/	2024-07-03	2025-07-02
WTXE1104A 1034-3	Coaxial Cable	/	RC_6G-N-M	/	2024-07-03	2025-07-02
☒ Chamber C: Above 1GHz						
WTXE1093A 1001	EMI Test Receiver	Rohde & Schwarz	ESIB 26	100401	2024-02-27	2025-02-26
WTXE1103A 1005	Horn Antenna	POAM	RTF-118A	1820	2023-03-10	2026-03-09
WTXE1103A 1006	Amplifier	Tonscend	TAP01018050	AP22E806 235	2024-02-27	2025-02-26
WTXE1010A 1010	DRG Horn Antenna	A.H. SYSTEMS	SAS-574	571	2024-03-17	2025-03-16

WTXE1003A 1001	Pre-amplifier	Schwarzbeck	BBV 9721	9721-031	2024-02-29	2025-02-28
WTXE1104A 1035-1	Coaxial Cable	/	RC-18G-N-M	/	2024-07-03	2025-07-02
WTXE1104A 1035-2	Coaxial Cable	/	RC-18G-N-M	/	2024-07-03	2025-07-02
WTXE1104A 1035-3	Coaxial Cable	/	RC-18G-N-M	/	2024-07-03	2025-07-02
☐ Conducted Room 1#						
WTXE1104A 1029	EMI Test Receiver	Rohde & Schwarz	ESCI	100525	2024-12-08	2025-12-07
WTXE1002A 1001	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2024-02-24	2025-02-23
WTXE1003A 1001	AC LISN	Schwarz beck	NSLK8126	8126-279	2024-02-24	2025-02-23
WTXE1104A 1036	Coaxial Cable	/	RG 316	/	2024-07-03	2025-07-02
WTXE1104A 1038	Coaxial Cable	/	6MRFC-DP	/	2024-07-03	2025-07-02
☒ Conducted Room 2#						
WTXE1001A 1004	EMI Test Receiver	Rohde & Schwarz	ESPI	101259	2024-02-24	2025-02-23
WTXE1003A 1003	LISN	Rohde & Schwarz	ENV 216	100097	2024-02-24	2025-02-23
WTXE1104A 1037	Coaxial Cable	/	RG 316	/	2024-07-03	2025-07-02

Software List			
Description	Manufacturer	Model	Version
EMI Test Software (Radiated Emission A)	Farad	EZ-EMC	RA-03A1 (1.1.4.2)
EMI Test Software (Radiated Emission B)	Farad	EZ-EMC	RA-03A1 (1.1.4.2)
EMI Test Software (Radiated Emission C)	Farad	EZ-EMC	RA-03A1-2 (1.1.4.2)
EMI Test Software (Conducted Emission Room 1#)	Farad	EZ-EMC	3A1*CE-RE 1.1.4.3
EMI Test Software (Conducted Emission Room 2#)	Farad	EZ-EMC	3A1*CE-RE 1.1.4.3

*Remark: indicates software version used in the compliance certification testing.

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§15.203	Antenna Requirement	Compliant
§15.205	Restricted Band of Operation	Compliant
§15.209	Radiated Spurious Emissions	Compliant
§15.231(a)	Deactivation Testing	Compliant
§15.231(b)	Radiated Emissions	Compliant
§15.231(c)	20dB Bandwidth Testing	Compliant
§15.207(a)	Conducted Emission	Compliant

N/A: not applicable.

3. Antenna Requirement

3.1 Standard Applicable

According to FCC Part 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.

3.2 Test Result

This product has an Integral antenna, fulfill the requirement of this section.

4. Radiated Emissions

4.1 Standard Applicable

According to §15.231(b), the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emissions (microvolts/meter)
40.66 - 40.70	2,250	225
70 - 130	1,250	125
130 - 174	1,250 to 3,750 **	125 to 375 **
174 - 260	3,750	375
260 - 470	3,750 to 12,500 **	375 to 1,250 **
Above 470	12,500	1,250

** linear interpolations

The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in §15.209, whichever limit permits a higher field strength.

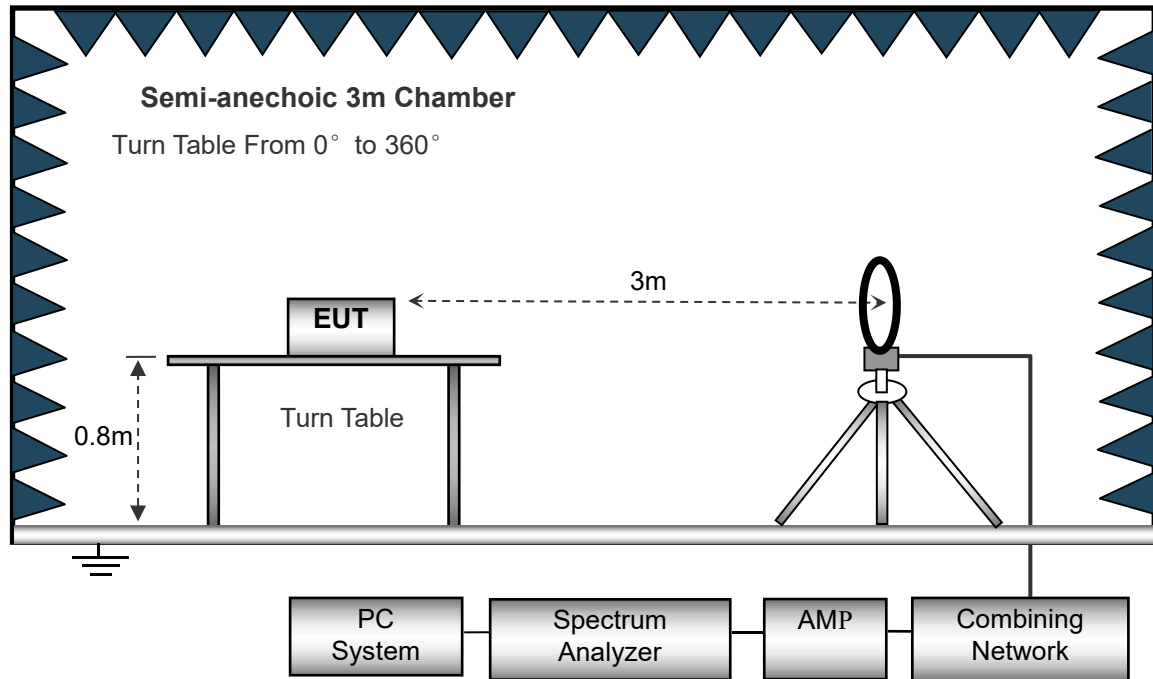
The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply. Spurious Radiated Emissions measurements starting below or at the lowest crystal frequency.

Compliance with the provisions of §15.205 shall be demonstrated using the measurement instrumentation specified in that section.

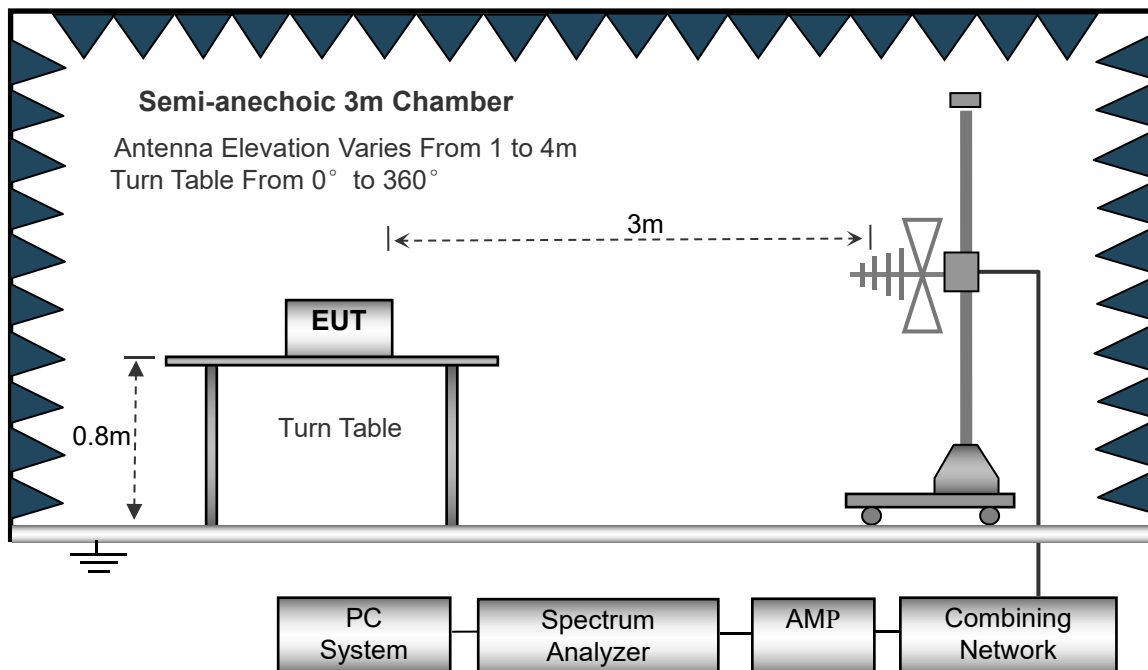
4.2 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.205 15.231(b) and FCC Part 15.209 Limit.

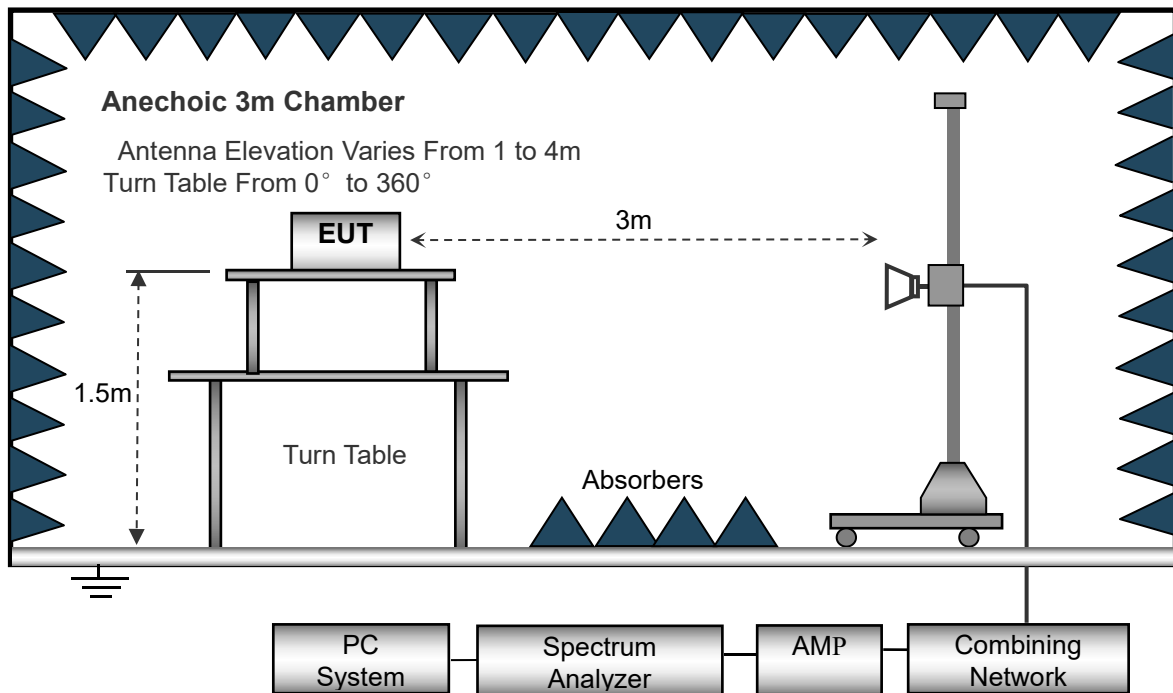
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30MHz to 1GHz.



The test setup for emission measurement above 1GHz.



4.3 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Ant. Loss} + \text{Cab. Loss} - \text{Ampl. Gain}$$

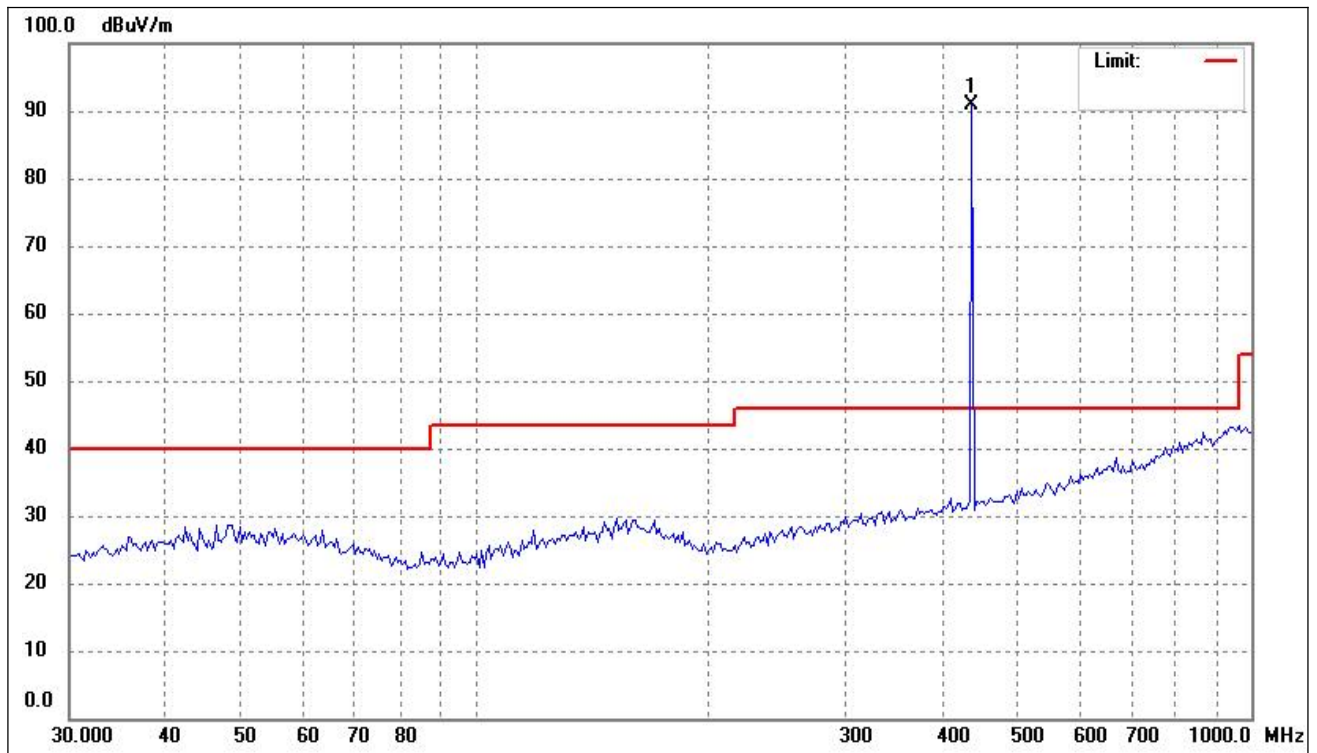
The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB μ V means the emission is 6dB μ V below the maximum limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15C Limit}$$

4.4 Summary of Test Results/Plots

Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.

Test Mode	TM1	Polarity:	Horizontal
-----------	-----	-----------	------------

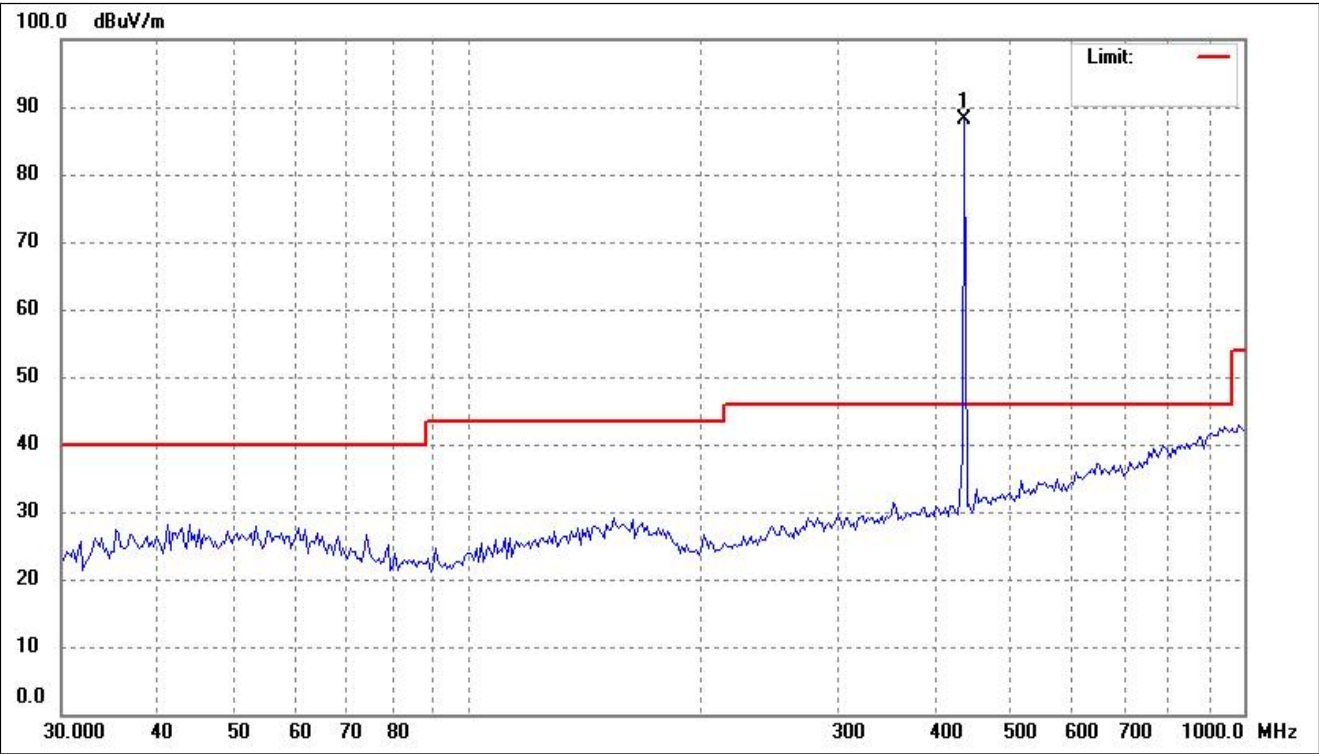


No.	Frequency	Reading	Corr.	Duty cycle	Result	Limit	Margin	Deg.	Height	Remark
	MHz	dBuV/m	Factor(dB)	Factor (dB)	dBuV/m	dBuV/m	(dB)	(°)	(cm)	
1	436.3956	96.46	-5.47	N/A	90.99	100.83	-9.84	-	-	peak
/	/	/	/	-14.61	76.38	80.83	-4.45	-	-	Ave

Above 1GHz

No.	Frequency	Reading	Corr.	Duty cycle	Result	Limit	Margin	Deg.	Height	Remark
	MHz	dBuV/m	Factor (dB)	Factor (dB)	dBuV/m	dBuV/m	dB	(°)	(cm)	
1	1299.684	65.72	-23.40	N/A	42.32	80.83	-38.51	-	-	Peak
/	/	/	/	-14.61	27.71	60.83	-33.12	-	-	Ave
2	2171.876	67.79	-19.97	N/A	47.82	80.83	-33.01	-	-	Peak
/	/	/	/	-14.61	33.21	60.83	-27.62	-	-	Ave
3	3476.316	61.21	-14.91	N/A	46.30	80.83	-34.53	-	-	Peak
/	/	/	/	-14.61	31.69	60.83	-29.14	-	-	Ave

Test Mode	TM1	Polarity:	Vertical
-----------	-----	-----------	----------

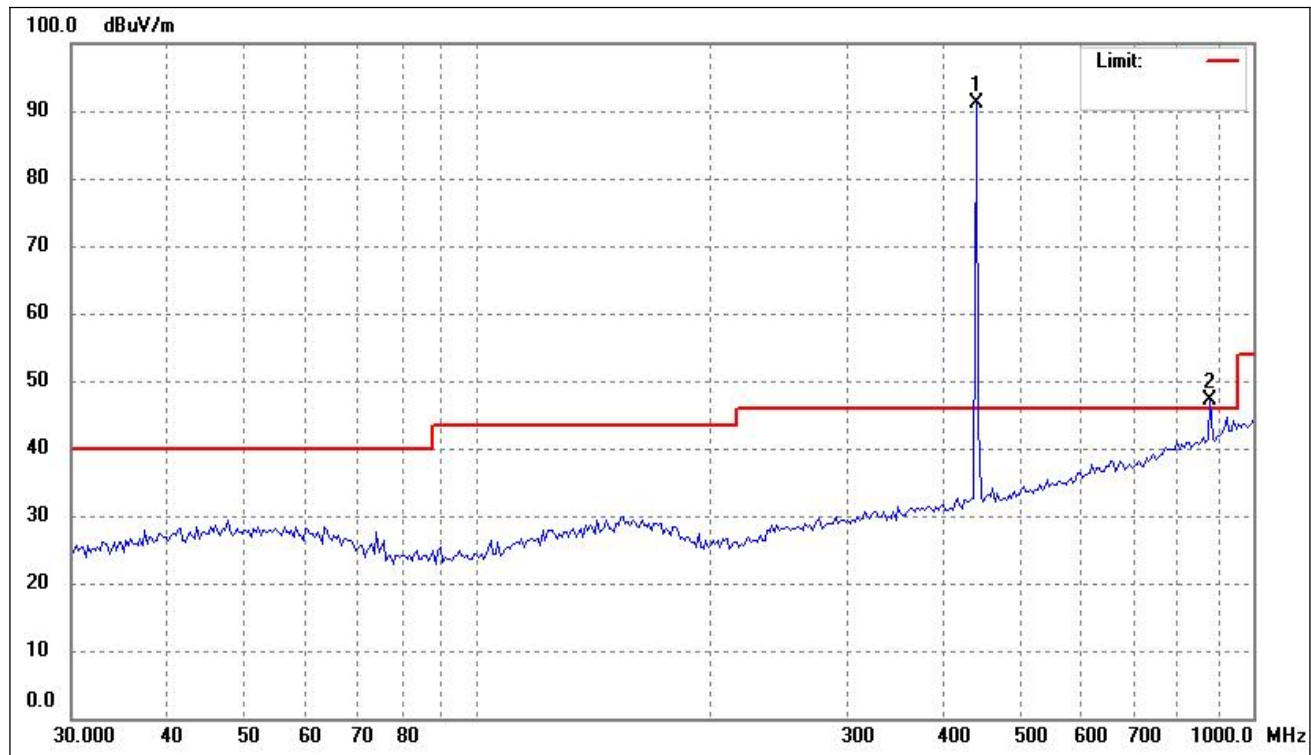


No.	Frequency MHz	Reading dBuV/m	Corr. Factor (dB)	Dutycycle Factor (dB)	Result dBuV/m	Limit dBuV/m	Margin (dB)	Deg. (°)	Height (cm)	Remark
1	436.3956	93.59	-5.47	N/A	88.12	100.83	-12.71	-	-	peak
/	/	/	/	-14.61	73.51	80.83	-7.32	-	-	Ave

Above 1GHz

No.	Frequency MHz	Reading dBuV/m	Corr. Factor (dB)	Dutycycle Factor (dB)	Result dBuV/m	Limit dBuV/m	Margin dB	Deg. (°)	Height (cm)	Remark
1	1299.684	62.82	-23.40	N/A	39.42	80.83	-41.41	-	-	Peak
/	/	/	/	-14.61	24.81	60.83	-36.02	-	-	Ave
2	2171.876	60.38	-19.97	N/A	40.41	80.83	-40.42	-	-	Peak
/	/	/	/	-14.61	25.8	60.83	-35.03	-	-	Ave
3	3476.316	58.30	-14.91	N/A	43.39	80.83	-37.44	-	-	Peak
/	/	/	/	-14.61	28.78	60.83	-32.05	-	-	Ave

Test Mode	TM2	Polarity:	Horizontal
-----------	-----	-----------	------------

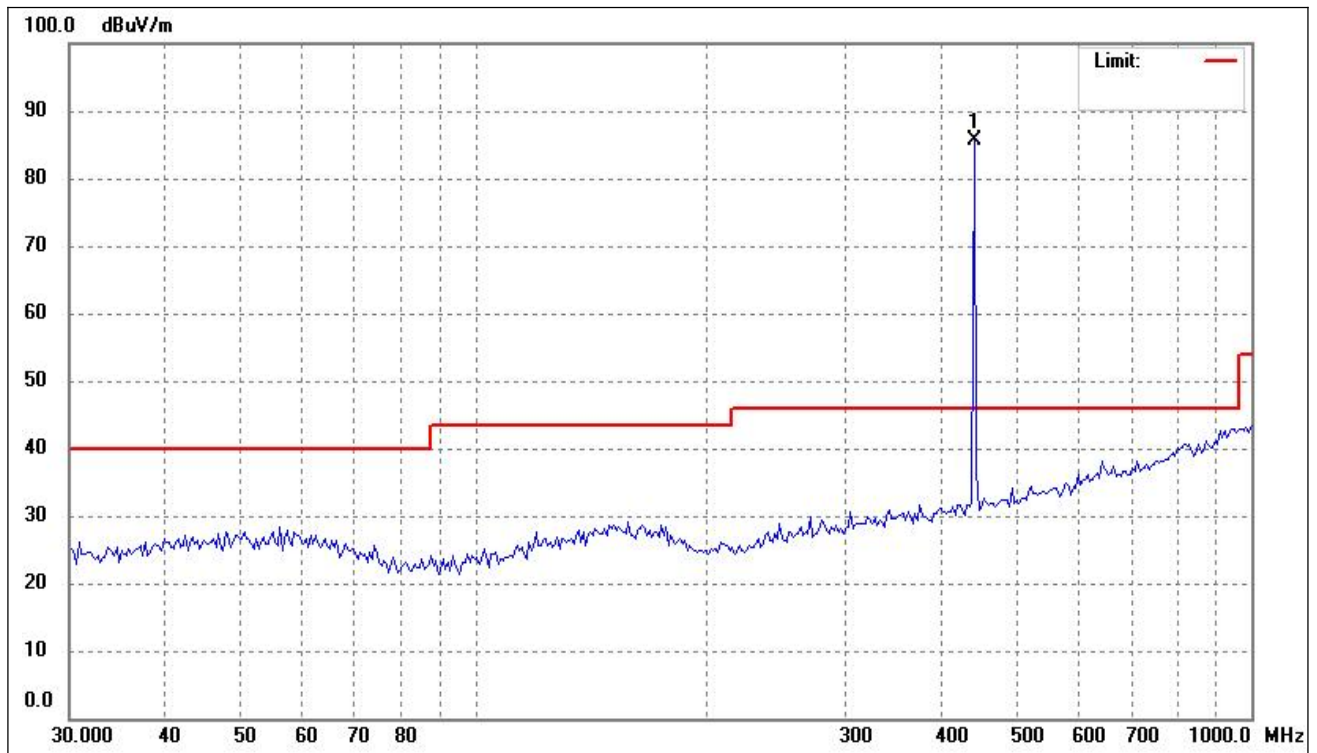


No.	Frequency MHz	Reading dBuV/m	Corr. Factor (dB)	Dutycycle Factor (dB)	Result dBuV/m	Limit dBuV/m	Margin (dB)	Deg. (°)	Height (cm)	Remark
1	441.4730	96.51	-5.42	N/A	91.09	101.15	-10.06	-	-	peak
/	/	/	/	-14.61	76.46	81.15	-4.69	-	-	Ave
2	881.1838	45.15	1.88	N/A	47.03	81.15	-34.12	-	-	peak
/	/	/	/	-14.61	32.42	61.15	-28.73	-	-	Ave

Above 1GHz

No.	Frequency MHz	Reading dBuV/m	Corr. Factor (dB)	Dutycycle Factor (dB)	Result dBuV/m	Limit dBuV/m	Margin dB	Deg. (°)	Height (cm)	Remark
1	1313.760	60.60	-23.36	N/A	37.24	74.00	-36.76	-	-	Peak
/	/	/	/	-14.61	22.63	54.00	-31.37	-	-	Ave
2	2195.398	62.65	-19.93	N/A	42.72	81.15	-38.43	-	-	Peak
/	/	/	/	-14.61	28.11	61.15	-33.04	-	-	Ave
3	3956.019	61.45	-15.38	N/A	46.07	74.00	-27.93	-	-	Peak
/	/	/	/	-14.61	31.46	54.00	-22.54	-	-	Ave

Test Mode	TM2	Polarity:	Vertical
-----------	-----	-----------	----------



No.	Frequency MHz	Reading dBuV/m	Corr. Factor (dB)	Dutycycle Factor (dB)	Result dBuV/m	Limit dBuV/m	Margin (dB)	Deg. (°)	Height (cm)	Remark
1	441.4730	91.14	-5.42	N/A	85.72	101.15	-15.43	-	-	peak
/	/	/	/	-14.61	71.11	81.15	-10.01	-	-	Ave

Above 1GHz

No.	Frequency MHz	Reading dBuV/m	Corr. Factor (dB)	Dutycycle Factor (dB)	Result dBuV/m	Limit dBuV/m	Margin dB	Deg. (°)	Height (cm)	Remark
1	1313.760	62.05	-23.36	N/A	38.69	74.00	-35.31	-	-	Peak
/	/	/	/	-14.61	24.08	54.00	-29.92	-	-	Ave
2	2195.398	58.68	-19.93	N/A	38.75	81.15	-42.40	-	-	Peak
/	/	/	/	-14.61	24.14	61.15	-37.01	-	-	Ave
3	3956.019	58.97	-15.38	N/A	43.59	74.00	-30.41	-	-	Peak
/	/	/	/	-14.61	28.98	54.00	-25.02	-	-	Ave

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

5. 20dB Bandwidth

5.1 Standard Applicable

According to FCC Part 15.231(c), the bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70MHz and below 900MHz. Bandwidth is determined at the points 20dB down from the modulated carrier.

5.1 Test Procedure

With the EUT's antenna attached, the EUT's 20dB Bandwidth power was received by the test antenna, which was connected to the spectrum analyzer with the START, and STOP frequencies set to the EUT's operation band.

5.2 Summary of Test Results/Plots

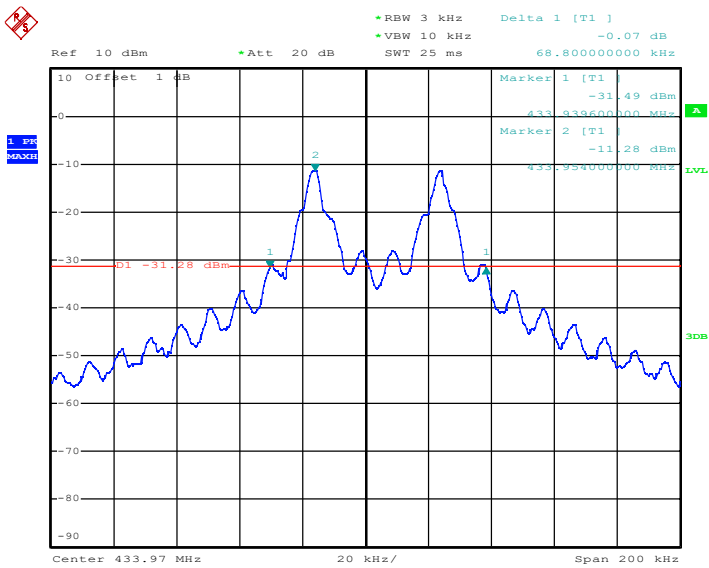
Test Frequency MHz	20dB Bandwidth kHz	Limit kHz	Result
433.97	68.80	1084.93	Pass
443.97	68.80	1087.43	Pass

Limit = Fundamental Frequency * 0.25% = 433.97MHz * 0.25% = 1084.93 kHz

Limit = Fundamental Frequency * 0.25% = 443.97MHz * 0.25% = 1109.93 kHz

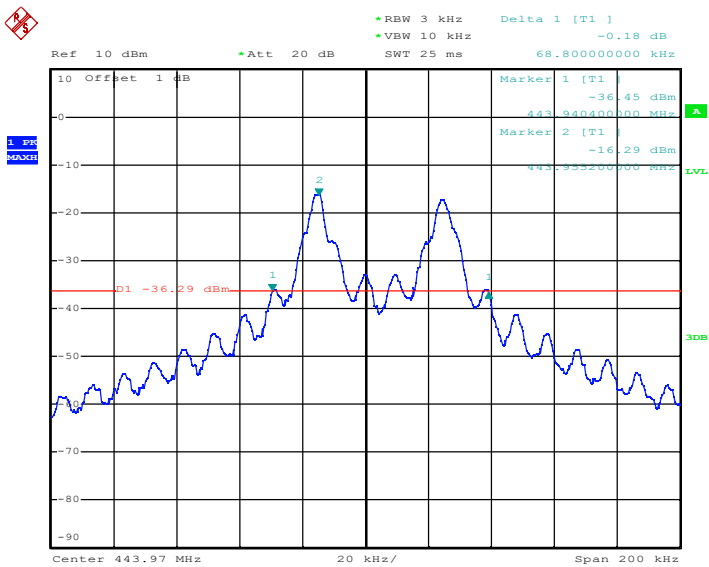
Please refer to the attached plots.

433.97MHz



Date: 29.DEC.2024 10:40:37

443.97MHz



Date: 29.DEC.2024 10:52:47

6. Transmission Time

6.1 Standard Applicable

According to FCC Part 15.231(a), the transmitter shall be complied the following requirements:

- 1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.
- (2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.
- (3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.

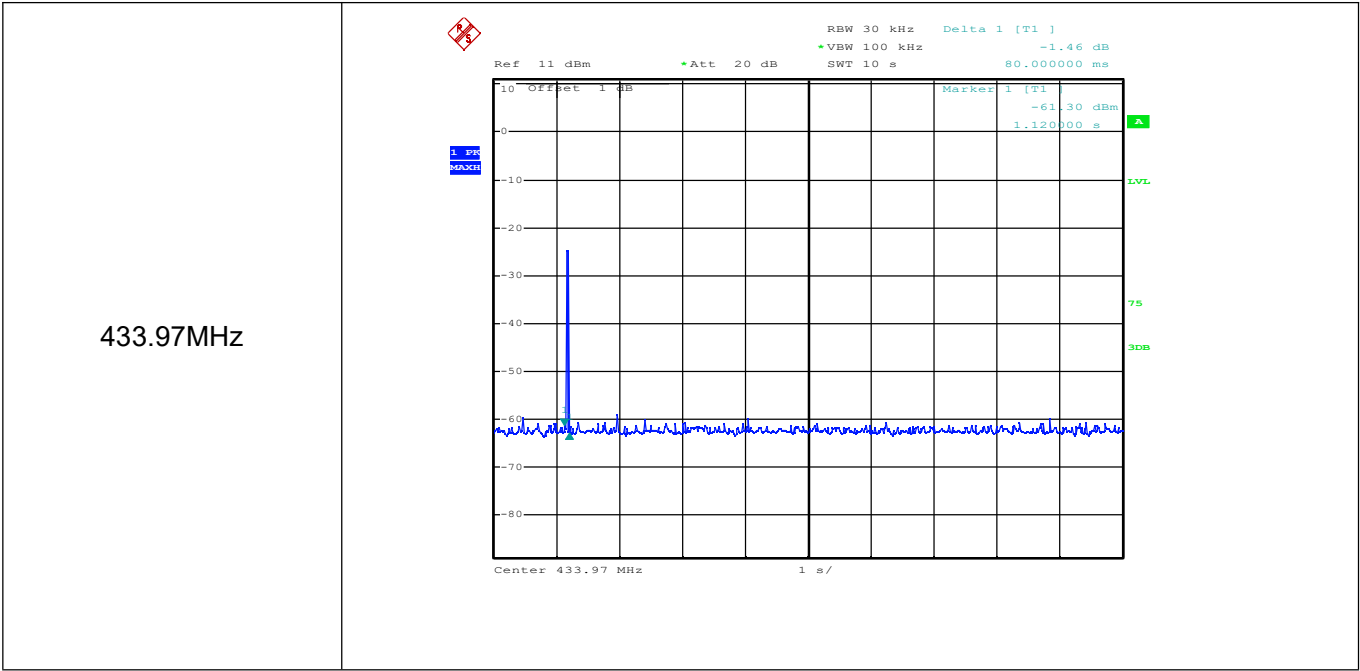
6.2 Test Procedure

With the EUT's antenna attached, the EUT's output signal was received by the test antenna, which was connected to the spectrum analyzer. Set the center frequency to 433.97MHz, than set the spectrum analyzer to Zero Span for the release time reading. During the testing, the switch was released then the EUT automatically deactivated.

6.3 Summary of Test Results/Plots

Transmission Type	Test Frequency(MHz)	Transmission Time(s)	Limit(s)	Result
Manually	433.97	0.08	5	Pass

Please refer to the attached plots.



7. Duty Cycle

7.1 Standard Applicable

According to FCC Part 15.231 (b)(2) and 15.35 (c), for pulse operation transmitter, the averaging pulsed emissions are calculated by peak value of measured emission plus duty cycle factor.

7.2 Test Procedure

With the EUT's antenna attached, the EUT's output signal was received by the test antenna, which was connected to the spectrum analyzer. Set the center frequency to 433.97MHz, than set the spectrum analyzer to Zero Span for the release time reading. During the testing, the switch was released then the EUT automatically deactivated.

7.3 Summary of Test Results/Plots

433.97MHz:

Test Frequency	Test Period (T_p)	Total Time (T_{on})	Duty Cycle	Duty Cycle Factor
(MHz)	ms	ms	%	dB
433.97	100	18.60	18.60	-14.61

Remark: Duty Cycle Factor= $20 \cdot \log(\text{Duty Cycle})$

Please refer to the attached test plots:

Test Period

433.97MHz

RBW 30 kHz Delta 1 [T1]

-0.15 dB

+VSW 100 kHz

SWT 150 ms

18.600000 ms

Ref 10 dBm Att 20 dB

Marker 1 [T1]
-65.41 dBm
88.500000 ms

1. Att

Spectrum

PNG
LVL

30dB

Center 433.97 MHz 15 ms/

Date: 29.DEC.2024 11:08:37

Pulse Number

433.97MHz

RBW 30 kHz Marker 1 [T1]

-66.51 dBm

+VSW 100 kHz

SWT 150 ms

99.500000 ms

Ref 10 dBm Att 20 dB

Delta 1 [T1]
0.04 dB
1.8.500000 ms

1. Pk

Spectrum

PNG
LVL

30dB

Center 433.97 MHz 15 ms/

Date: 29.DEC.2024 11:10:02

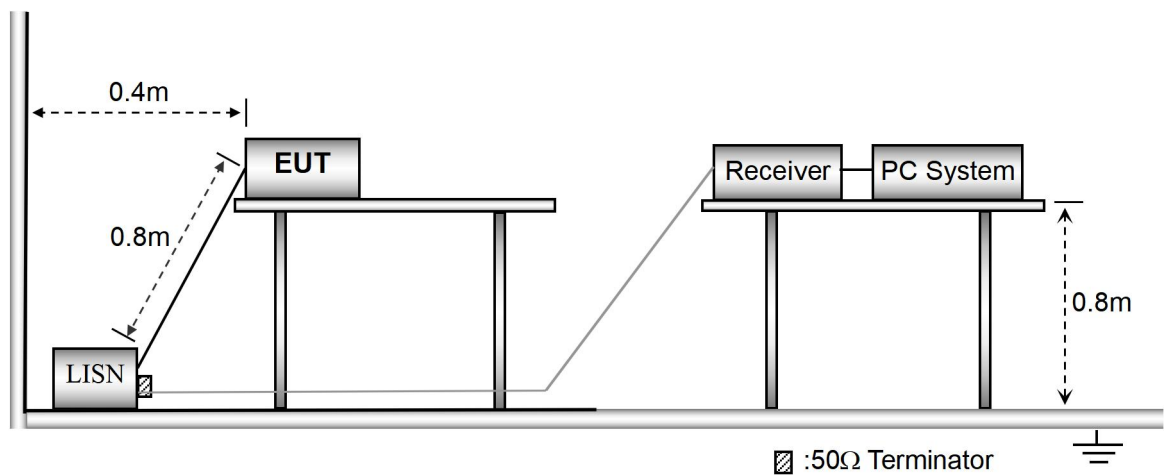
8. Conducted Emissions

8.1 Test Procedure

The setup of EUT is according with per ANSI C63.10:2013 measurement procedure. The specification used was with the FCC Part 15.207 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40cm long in the middle. The spacing between the peripherals was 10cm.

8.2 Basic Test Setup Block Diagram



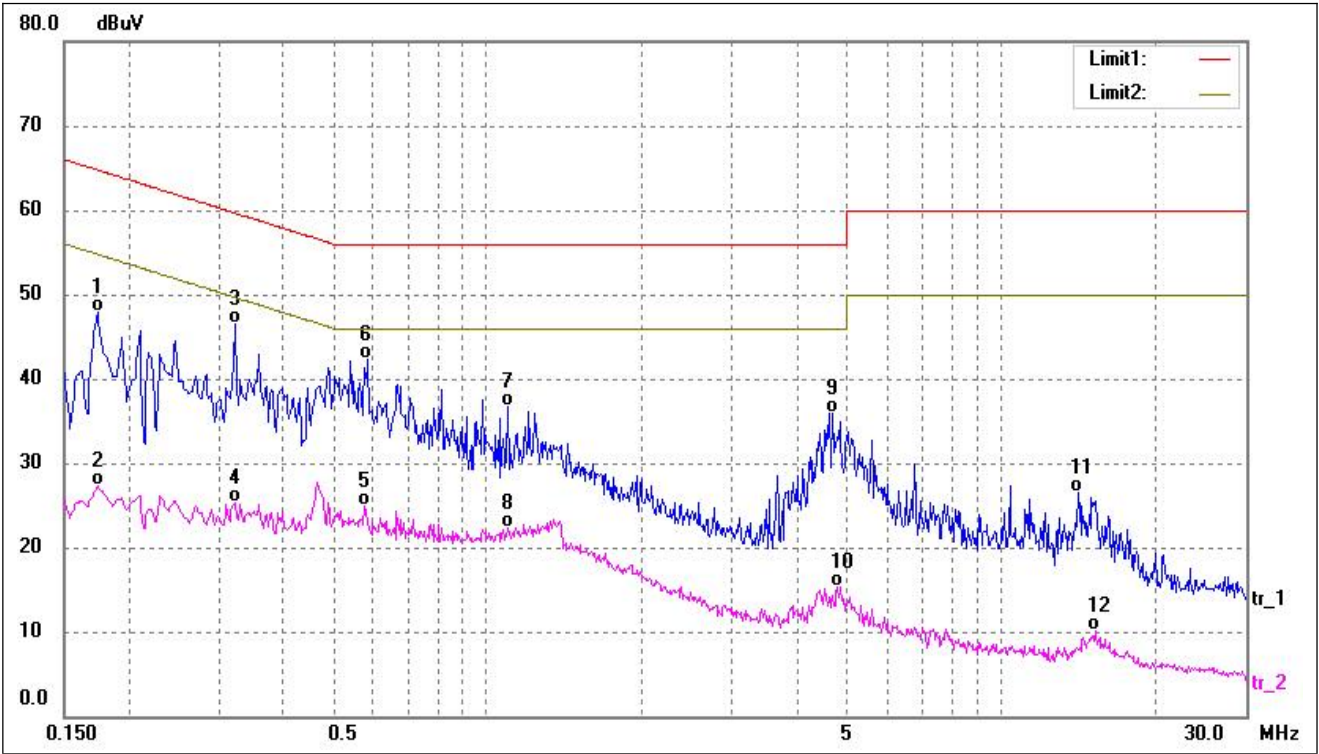
8.3 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

Start Frequency.....	150kHz
Stop Frequency.....	30MHz
Sweep Speed.....	Auto
IF Bandwidth.....	10kHz
Quasi-Peak Adapter Bandwidth.....	9kHz
Quasi-Peak Adapter Mode.....	Normal

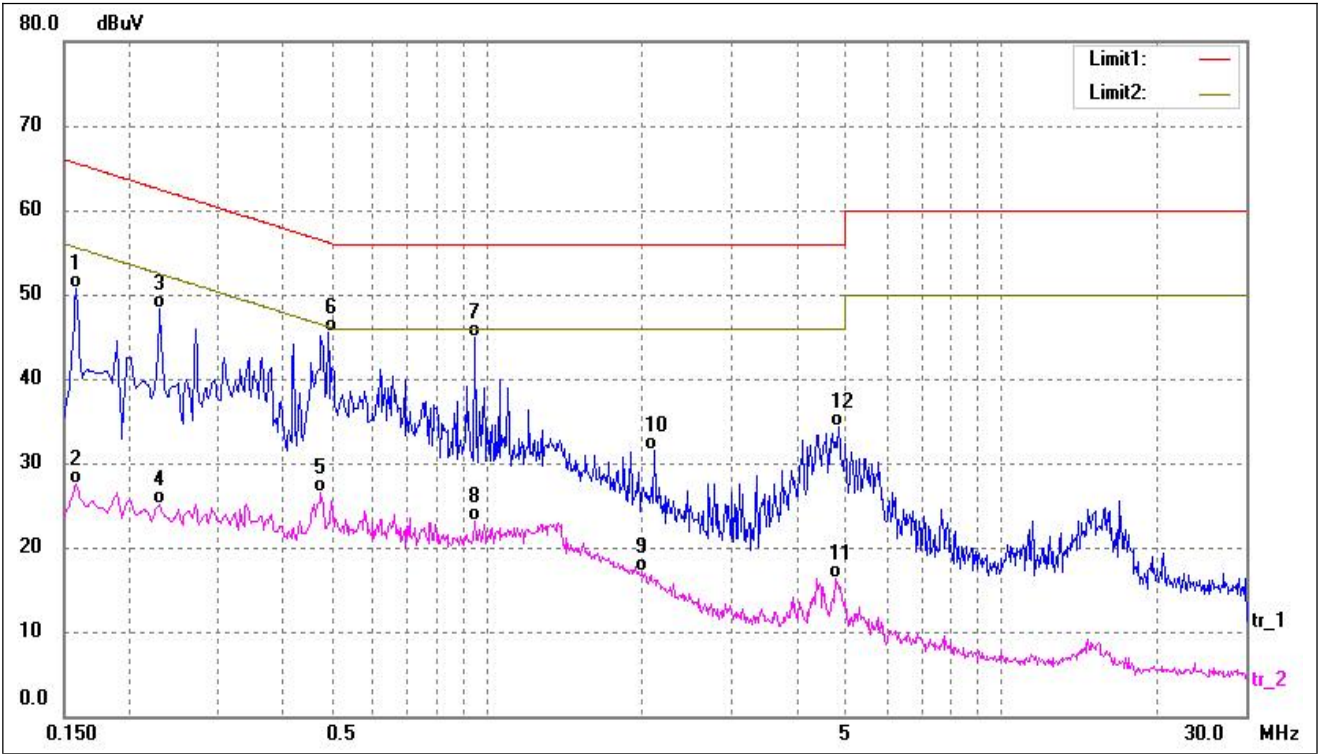
8.4 Summary of Test Results/Plots

Test Mode	TM1(AC120V 60Hz)	Polarity:	Neutral
-----------	------------------	-----------	---------



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1739	38.16	9.67	47.83	64.77	-16.94	QP
2	0.1739	17.54	9.67	27.21	54.77	-27.56	AVG
3*	0.3220	36.77	9.65	46.42	59.65	-13.23	QP
4	0.3220	15.67	9.65	25.32	49.65	-24.33	AVG
5	0.5779	15.18	9.72	24.90	46.00	-21.10	AVG
6	0.5859	32.51	9.72	42.23	56.00	-13.77	QP
7	1.0940	26.95	9.67	36.62	56.00	-19.38	QP
8	1.0940	12.69	9.67	22.36	46.00	-23.64	AVG
9	4.7019	26.24	9.70	35.94	56.00	-20.06	QP
10	4.8179	5.58	9.70	15.28	46.00	-30.72	AVG
11	14.1419	16.50	9.94	26.44	60.00	-33.56	QP
12	15.2739	0.16	9.96	10.12	50.00	-39.88	AVG

Test Mode	TM1(AC120V 60Hz)	Polarity:	Line
-----------	------------------	-----------	------



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1580	41.01	9.73	50.74	65.56	-14.82	QP
2	0.1580	17.83	9.73	27.56	55.56	-28.00	AVG
3	0.2300	38.63	9.59	48.22	62.45	-14.23	QP
4	0.2300	15.44	9.59	25.03	52.45	-27.42	AVG
5	0.4740	16.73	9.73	26.46	46.44	-19.98	AVG
6*	0.4900	35.73	9.74	45.47	56.17	-10.70	QP
7	0.9460	35.15	9.68	44.83	56.00	-11.17	QP
8	0.9460	13.45	9.68	23.13	46.00	-22.87	AVG
9	2.0020	7.53	9.62	17.15	46.00	-28.85	AVG
10	2.1140	21.87	9.62	31.49	56.00	-24.51	QP
11	4.7580	6.68	9.70	16.38	46.00	-29.62	AVG
12	4.8300	24.51	9.70	34.21	56.00	-21.79	QP

APPENDIX PHOTOGRAPHS

Please refer to “ANNEX”

***** END OF REPORT *****