



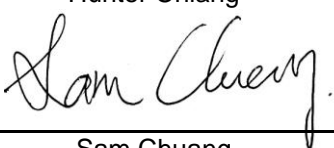
# FCC Radio Test Report

## FCC ID: 2BFPW-DT201A

This report concerns: Original Grant

**Report No.** : eLab-FCCP-1-2401X002  
**Equipment** : Creo Compact Hand Held Combo Bar-code/RFID Scanner  
**Model Name** : FHR-004, FXR-XXX(x=0~9,A~Z,a~z,"-" or blank ,for marketing use only, with no impact on RADIO compliance of the product)  
**Brand Name** :  **Diamond Technologies**  
**Applicant** : Diamond Technologies Inc.  
**Address** : 43 Broad Street, Unit C103 Hudson, MA 01749 United States  
**Radio Function** : NFC (13.56 MHz)  
**FCC Rule Part(s)** : FCC CFR Title 47, Part 15, Subpart C (15.225)  
**Measurement Procedure(s)** : ANSI C63.10-2013  
**Date of Receipt** : 2024/1/9  
**Date of Test** : 2024/2/21 ~ 2024/3/1  
**Issued Date** : 2024/5/20

The above equipment has been tested and found in compliance with the requirement of the above standards by eLab Inc.

**Prepared by** :   
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### Declaration

**BTL** represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

**BTL's** reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

**BTL's** laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

**BTL** is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

### Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

**CONTENTS**

REVISION HISTORY	5
1 SUMMARY OF TEST RESULTS	6
1.1 TEST FACILITY	7
1.2 MEASUREMENT UNCERTAINTY	7
1.3 TEST ENVIRONMENT CONDITIONS	7
2 GENERAL INFORMATION	8
2.1 DESCRIPTION OF EUT	8
2.2 TEST MODES	9
2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	10
2.4 SUPPORT UNITS	11
3 AC POWER LINE CONDUCTED EMISSIONS TEST	12
3.1 LIMIT	12
3.2 TEST PROCEDURE	12
3.3 DEVIATION FROM TEST STANDARD	13
3.4 TEST SETUP	13
3.5 TEST RESULT	13
4 RADIATED EMISSIONS TEST	14
4.1 LIMIT	14
4.2 TEST PROCEDURE	15
4.3 DEVIATION FROM TEST STANDARD	15
4.4 TEST SETUP	15
4.5 EUT OPERATING CONDITIONS	16
4.6 TEST RESULT – 9 KHZ TO 30 MHZ – FCC PART 15.209	16
4.7 TEST RESULT – 30 MHZ TO 1 GHZ – FCC PART 15.209	16
4.8 TEST RESULT – FCC PART 15.225	16
5 FREQUENCY STABILITY	17
5.1 LIMIT	17
5.2 TEST PROCEDURE	17
5.3 DEVIATION FROM TEST STANDARD	17
5.4 EUT OPERATING CONDITIONS	17
5.5 TEST RESULT	17
6 20 DB BANDWIDTH	18
6.1 LIMIT	18
6.2 TEST PROCEDURE	18
6.3 DEVIATION FROM TEST STANDARD	18
6.4 TEST SETUP	18
6.5 EUT OPERATING CONDITIONS	18
6.6 TEST RESULT	18
7 LIST OF MEASURING EQUIPMENTS	19
8 EUT TEST PHOTO	20
9 EUT PHOTOS	20

APPENDIX A	AC POWER LINE CONDUCTED EMISSIONS	21
APPENDIX B	RADIATED EMISSIONS - 9 KHZ TO 30 MHZ	26
APPENDIX C	RADIATED EMISSIONS - 30 MHZ TO 1 GHZ	29
APPENDIX D	RADIATED EMISSIONS - FCC PART 15.225	32
APPENDIX E	FREQUENCY STABILITY MEASUREMENT	35
APPENDIX F	20 DB BANDWIDTH	37

## REVISION HISTORY

Report No.	Version	Description	Issued Date	Note
eLab-FCCP-1-2401X002	R00	Original Report.	2024/5/20	Valid

## 1 SUMMARY OF TEST RESULTS

Test procedures according to the technical standards.

Standard(s) Section	Description	Test Result	Judgment	Remark
15.207	AC Power Line Conducted Emissions	APPENDIX A	Pass	-----
15.35 15.205 15.209 15.225	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	Pass	-----
15.225(e)	Frequency Stability	APPENDIX E	Pass	-----
15.203	Antenna Requirement	-----	Pass	<b>Note(2)</b>
15.215(c)	20 dB Bandwidth	APPENDIX F	Pass	-----

NOTE:

- (1) "N/A" denotes test is not applicable in this Test Report.
- (2) The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203.

## 1.1 TEST FACILITY

The test facilities used to collect the test data in this report:

No.64, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

The test sites and facilities are covered under FCC RN: 681248 and DN: TW4045.

☒ C01      ☒ CB01      ☒ TR01

## 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k = 2$ , providing a level of confidence of approximately 95 %.

The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2. The eLab measurement uncertainty is less than the CISPR 16-4-2  $U_{\text{CISPR}}$  requirement.

A. AC Power Line Conducted Emissions test:

Test Site	Method	Measurement Frequency Range	$U$ , (dB)
C01	CISPR	150 kHz ~ 30MHz	1.2249

B. Radiated emissions test :

Test Site	Measurement Frequency Range	$U$ , (dB)
CB01	0.03 GHz ~ 0.2 GHz	2.08
	0.2 GHz ~ 1 GHz	2.36
	1 GHz ~ 6 GHz	2.60
	6 GHz ~ 18 GHz	2.75
	18 GHz ~ 26 GHz	1.85
	26 GHz ~ 40 GHz	2.12

C. Conducted test:

Test Item	$U$ , (dB)
Frequency Stability	0.2667
Occupied Bandwidth	0.2670

NOTE:


Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

## 1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Environment Condition	Test Voltage	Tested by
AC Power Line Conducted Emissions	Refer to data	DC 5V	Hunter Chiang
Radiated emissions (9KHz-30MHz)	Refer to data	AC 120V/60Hz	Hunter Chiang
Radiated emissions (30MHz TO 1000MHz)	Refer to data	AC 120V/60Hz	Hunter Chiang
Frequency Stability	23°C, 55%	AC 120V/60Hz	Cheng Tsai
20 dB Bandwidth	23°C, 55%	AC 120V/60Hz	Cheng Tsai

## 2 GENERAL INFORMATION

### 2.1 DESCRIPTION OF EUT

Equipment	Creo Compact Hand Held Combo Bar-code/Rfid Scanner
Model Name	FHR-004, FXR-XXX(x=0~9,A~Z,a~z,"-" or blank ,for marketing use only, with no impact on RADIO compliance of the product)
Brand Name	 <b>Diamond</b> TECHNOLOGIES <small>Getting data where it needs to be.</small>
Model Difference	Differ in marketing purpose and case color.
Power Supply	5VDC form USB Port, 200mA / 3.3VDC for Digital I/O Level
Operation Frequency	13.56 MHz
Max E-field strength	48.89dBuV/m
Test Model	FHR-004
Sample Status	Engineering Sample
EUT Modification(s)	N/A

**NOTE:**

(1) The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

(2) Channel List:

Channel	Frequency (MHz)
01	13.56

(3) Table for Filed Antenna:

Ant.	Brand Name	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Internal	N/A	N/A

(4) The above Antenna information are derived from the antenna data sheet provided by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.



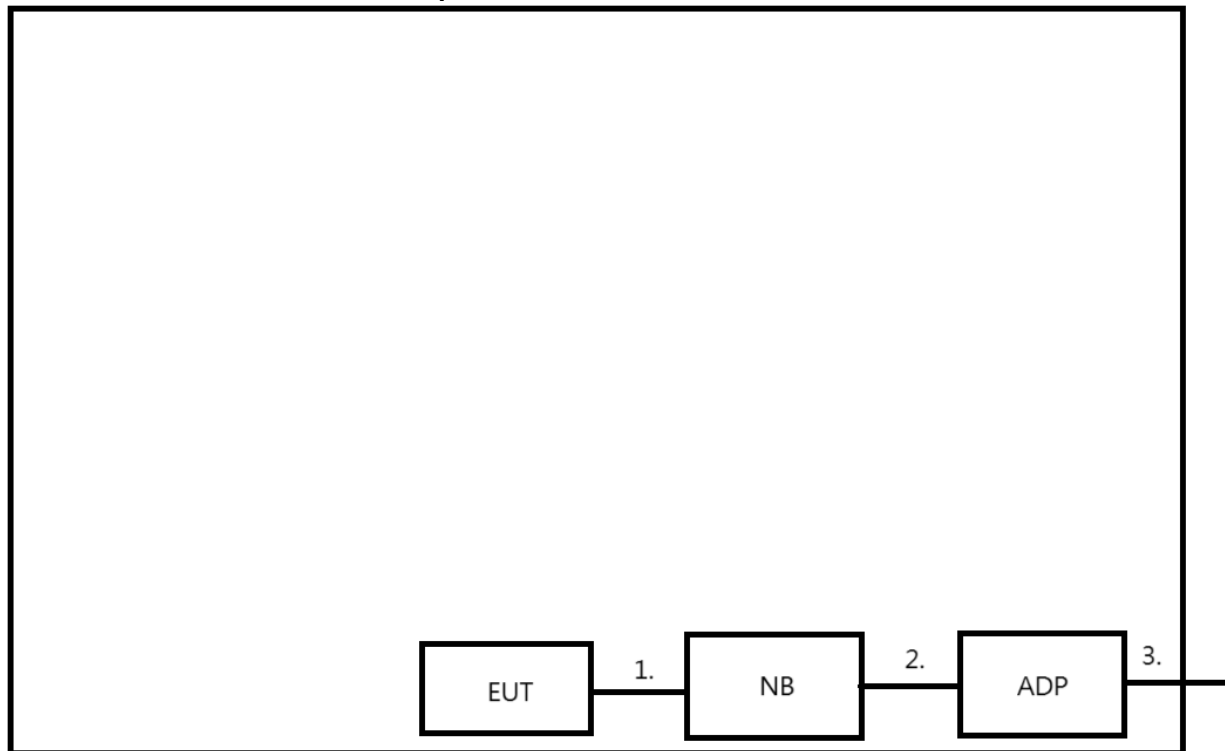
## 2.2 TEST MODES

Test Items	Test mode	Channel	Note
AC power line conducted emissions	Normal/Idle	-	-
Radiated emissions (9KHz-30MHz)	TX	01	-
Radiated emissions (30MHz TO 1000MHz)	TX	01	
Frequency Stability	TX	01	-
20 dB Bandwidth	TX	01	-

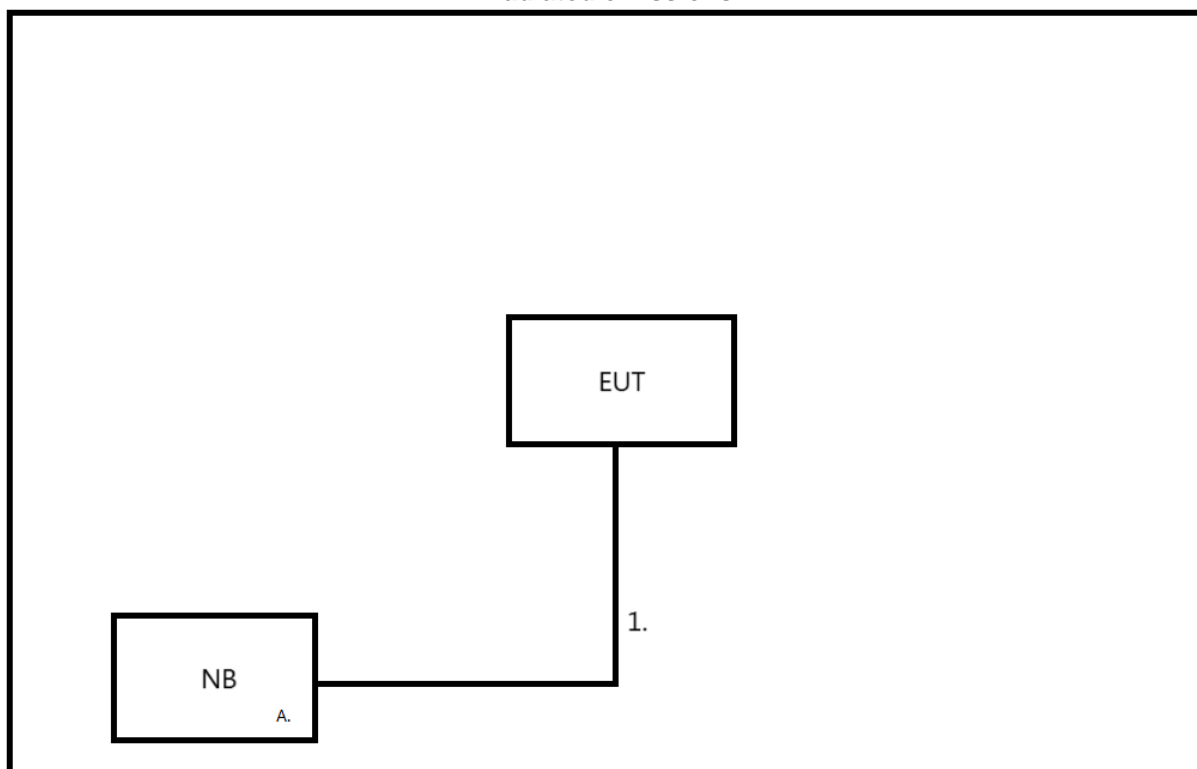
## 2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Equipment letters and Cable numbers refer to item numbers described in the tables of clause 2.4.

**AC power line conducted emissions**



**Radiated emissions**



## 2.4 SUPPORT UNITS

### AC power line conducted emissions

Item	Equipment	Brand	Model No.	Series No.	Remarks
A	NB	Lenovo	ThinkBook 14 G4 IAP	N/A	Furnished by test lab.
B	ADP	Lenovo	ADLX65YCC3D	N/A	Furnished by test lab.

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	NO	NO	2m	RJ45 to USB Cable	Supplied by test requester.
2	NO	NO	1.5m	Power Cable	Furnished by test lab.
3	NO	NO	1m	Power Cable	Furnished by test lab.

### Radiated emissions

Item	Equipment	Brand	Model No.	Series No.	Remarks
A	NB	Lenovo	ThinkBook 14 G4 IAP	N/A	Furnished by test lab.

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	NO	NO	2m	RJ45 to USB Cable	Supplied by test requester.

### 3 AC POWER LINE CONDUCTED EMISSIONS TEST

#### 3.1 LIMIT

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

**NOTE:**

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.
- (3) The test result calculated as following:  
 Measurement Value = Reading Level + Correct Factor  
 Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor (if use)  
 Margin Level = Measurement Value – Limit Value  
 Calculation example:

Reading Level (dBμV)		Correct Factor (dB)		Measurement Value (dBμV)
38.22	+	3.45	=	41.67

Measurement Value (dBμV)		Limit Value (dBμV)		Margin Level (dB)
41.67	-	60	=	-18.33

The following table is the setting of the receiver.

Receiver Parameter	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

#### 3.2 TEST PROCEDURE

- a. The EUT was placed 0.8 m above the horizontal ground plane with the EUT being connected to the power mains through a line impedance stabilization network (LISN).  
 All other support equipment were powered from an additional LISN(s).  
 The LISN provides 50 Ohm/50uH of impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle to keep the cable above 40 cm.
- c. Excess I/O cables that are not connected to a peripheral shall be bundled in the center.  
 The end of the cable will be terminated, using the correct terminating impedance.  
 The overall length shall not exceed 1 m.
- d. The LISN is spaced at least 80 cm from the nearest part of the EUT chassis.
- e. For the actual test configuration, please refer to the related Item - EUT TEST PHOTO.

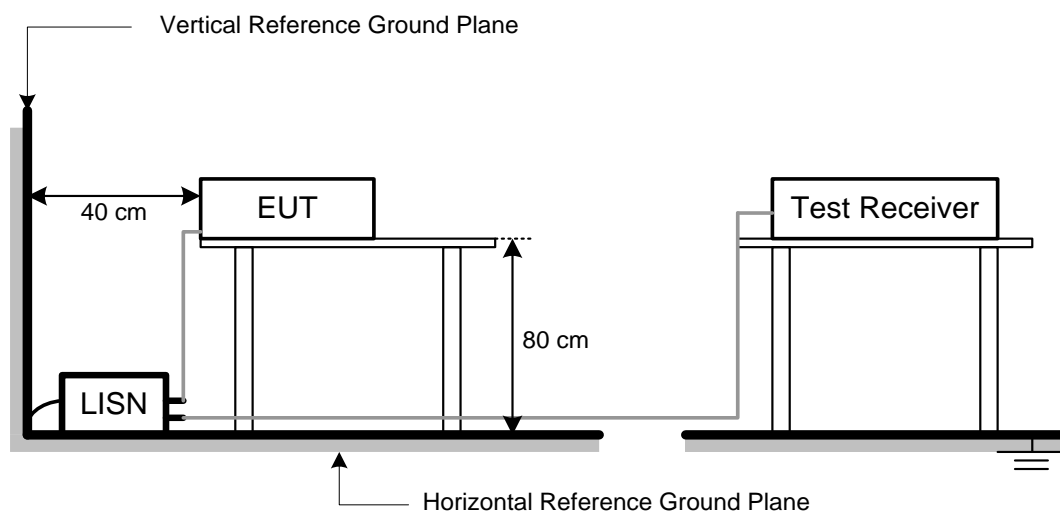
**NOTE:**

- (1) In the results, each reading is marked as Peak, QP or AVG per the detector used.  
 BW=9 kHz (6 dB Bandwidth)
- (2) All readings are Peak unless otherwise stated QP or AVG in column of Note. Both the QP and the AVG readings must be less than the limit for compliance.

### 3.3 DEVIATION FROM TEST STANDARD

No deviation.

### 3.4 TEST SETUP



### 3.5 TEST RESULT

Please refer to the APPENDIX A.

## 4 RADIATED EMISSIONS TEST

### 4.1 LIMIT

FCC Part 15.209				
Frequency (MHz)	Field Strength Limitation		Field Strength Limitation at 3m Measurement Dist	
	(uV/m)	Dist	(uV/m)	(dBuV/m)
0.009 – 0.490	2400 / F(KHz)	300m	10000 * 2400/F(KHz)	20log 2400/F(KHz) + 80
0.490 – 1.705	24000 / F(KHz)	30m	100 * 24000/F(KHz)	20log 24000/F(KHz) + 40
1.705 – 30.00	30	30m	100 * 30	20log 30 + 40
30.0 – 88.0	100	3m	100	20log 100
88.0 – 216.0	150	3m	150	20log 150
216.0 – 960.0	200	3m	200	20log 200
Above 960.0	500	3m	500	20log 500
FCC Part 15.225(a)/(b)/(c)				
Frequency (MHz)	Field Strength Limitation		Field Strength Limitation at 3m Measurement Dist	
	(uV/m)	Dist	(uV/m)	(dBuV/m)
13.553 – 13.567	15,848	30 m	15,848*100	124
13.410 – 13.553 13.567 – 13.710	334	30 m	334*100	90.5
13.110 – 13.410 13.710 – 14.010	106	30 m	106*100	80.5

**NOTE:**

- (1) The tighter limit shall apply at the boundary between two frequency range.
- (2) Limitation expressed in dBuV/m is calculated by 20log Emission Level (uV/m).
- (3) If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula of  $L_{d1} = L_{d2} * (d_2/d_1)^2$ .  
Example:  
F.S Limit at 30m distance is 30uV/m , then F.S Limitation at 3m distance is adjusted as  $L_{d1} = L_1 = 30uV/m * (10)^2 = 100 * 30 uV/m$
- (4) The test result calculated as following:  
Measurement Value = Reading Level + Correct Factor  
Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)  
Margin Level = Measurement Value – Limit Value

## 4.2 TEST PROCEDURE

- The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz).
- The height of the equipment or of the substitution antenna shall be 0.8 m or 1.5m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

### NOTE: (FCC PART 15.209)

- Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode with Detector BW=120 kHz.
- All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.

### NOTE: (FCC PART 15.225)

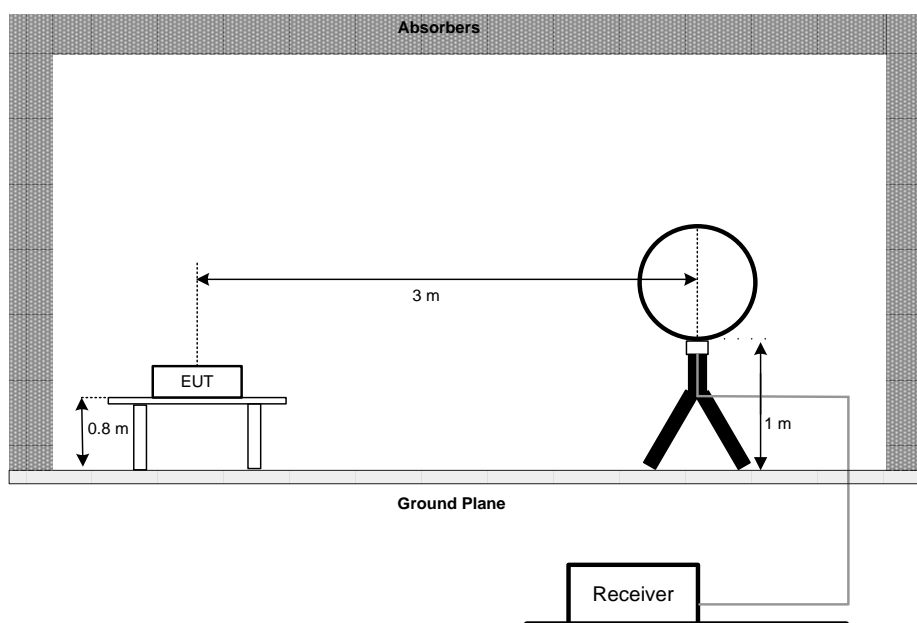
- Spectrum Setting:  
9 KHz – 150 KHz, RBW= 200Hz, VBW=200Hz, Sweep time = 200 ms.  
150 K Hz – 30 MHz, RBW= 10 KHz, VBW=10 KHz, Sweep time = 200 ms.  
30 MHz – 1000 MHz, RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms.
- All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- The Log-Bicon Antenna will use to test frequency range from 30MHz to 1000MHz and the Loop Antenna will use to test frequency below 30MHz.

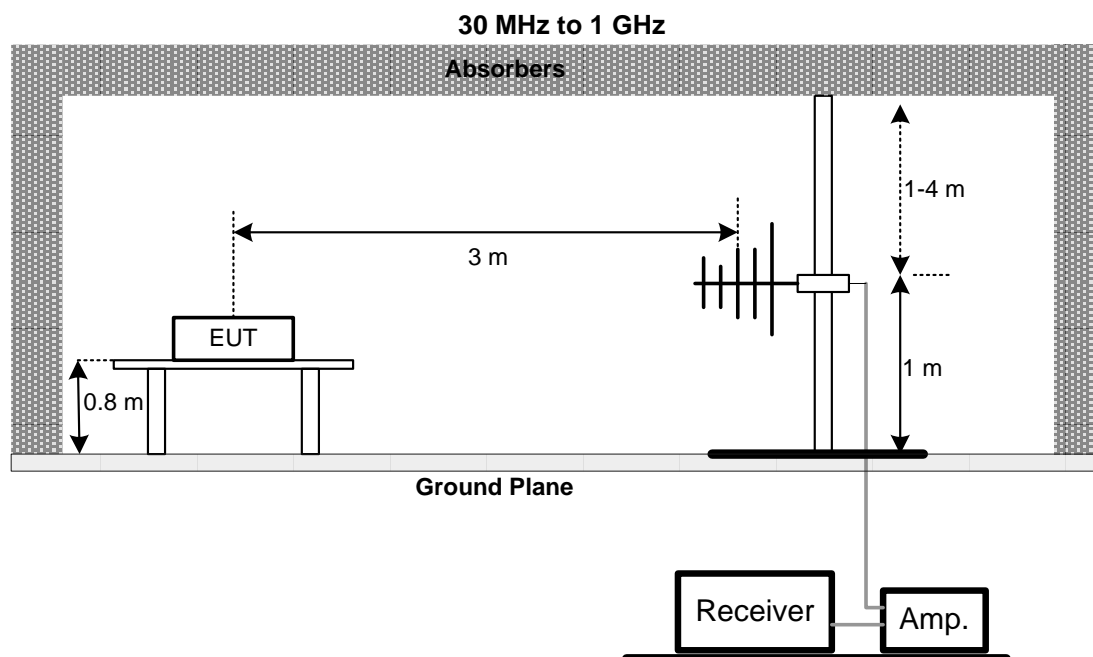
## 4.3 DEVIATION FROM TEST STANDARD

No deviation.

## 4.4 TEST SETUP

### 9 KHz to 30 MHz





#### 4.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

#### 4.6 TEST RESULT – 9 kHz TO 30 MHz– FCC PART 15.209

Please refer to the APPENDIX B

#### 4.7 TEST RESULT – 30 MHz TO 1 GHz – FCC PART 15.209

Please refer to the APPENDIX C.

#### 4.8 TEST RESULT – FCC PART 15.225

Please refer to the APPENDIX D.

#### NOTE:

- (1) No limit: This is fundamental signal, the judgment is not applicable.  
For fundamental signal judgment was referred to Peak output test.



## 5 FREQUENCY STABILITY

### 5.1 LIMIT

FCC Part 15.225(e)
The frequency tolerance of the carrier signal shall be maintained within +/-0.01% of the operating frequency over a temperature variation of - 20 degrees to + 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

### 5.2 TEST PROCEDURE

- a. The equipment under test was connected to an external AC power supply and the RF output was connected to a frequency counter via feed through attenuators. The EUT was placed inside the temperature chamber.
- b. At room temperature ( $20\pm5^{\circ}\text{C}$ ), an external variable AC power supply was connected to the EUT. The frequency of the transmitter was measured for 115%, 100% and 85% of the nominal operating input voltage.

### 5.3 DEVIATION FROM TEST STANDARD

No deviation.

### 5.4 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 5.5 TEST RESULT

Please refer to the APPENDIX E.

## 6 20 DB BANDWIDTH

### 6.1 LIMIT

FCC Part 15.215(c)
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, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

### 6.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- Spectrum Setting : RBW= 1 kHz, VBW=3 kHz, Sweep time = 10 ms.

### 6.3 DEVIATION FROM TEST STANDARD

No deviation.

### 6.4 TEST SETUP



### 6.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 6.6 TEST RESULT

Please refer to the APPENDIX F.

## 7 LIST OF MEASURING EQUIPMENTS

AC Power Line Conducted Emissions						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Two-Line V-Network	R&S	ENV216	101051	2023/7/21	2024/7/20
2	EMI Test Receiver	Keysight	N9038A	MY54130009	2023/6/26	2024/6/25
3	Test Cable	EMCI	EMCRG58-BM-B M-9000	210501	2023/12/11	2024/12/10

Radiated Emissions						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Pre-Amplifier	EMCI	EMC001330-202 01222	980807	2023/12/11	2024/12/10
2	Pre-Amplifier	EMCI	EMC001340	980555	2023/12/1	2024/11/30
3	EMI Test Receiver	Keysight	N9038A	MY54130009	2023/6/26	2024/6/25
4	Loop Ant.	Electro-Metrics	EMCI-LPA600	274	2023/6/28	2024/6/27
5	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	01207	2023/12/18	2024/12/17
6	6dB Attenuator	EMCI	EMCI-N-6-05	N/A	2023/12/18	2024/12/17
7	Test Cable	EMCI	EMC-8D-NM-NM -5000	150106	2023/12/11	2024/12/10
8	Test Cable	EMCI	EMC-CFD-400-N M-NM-8000	200348	2023/12/11	2024/12/10
9	Test Cable	EMCI	EMC-CFD-400-N M-NM-3300	200343	2023/12/11	2024/12/10

Frequency Stability Measurement						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	High and low temperature storage testing machine	HOLINK	H-T-1F-D	BA03101701	2023/6/5	2024/6/4
2	Spectrum Analyzer	R&S	FSP 30	100854	2023/6/26	2024/6/25

20 dB Bandwidth Measurement						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSP 30	100854	2023/6/26	2024/6/25

Remark: "N/A" denotes no model name, no serial no. or no calibration specified.  
All calibration period of equipment list is one year.

## **8 EUT TEST PHOTO**

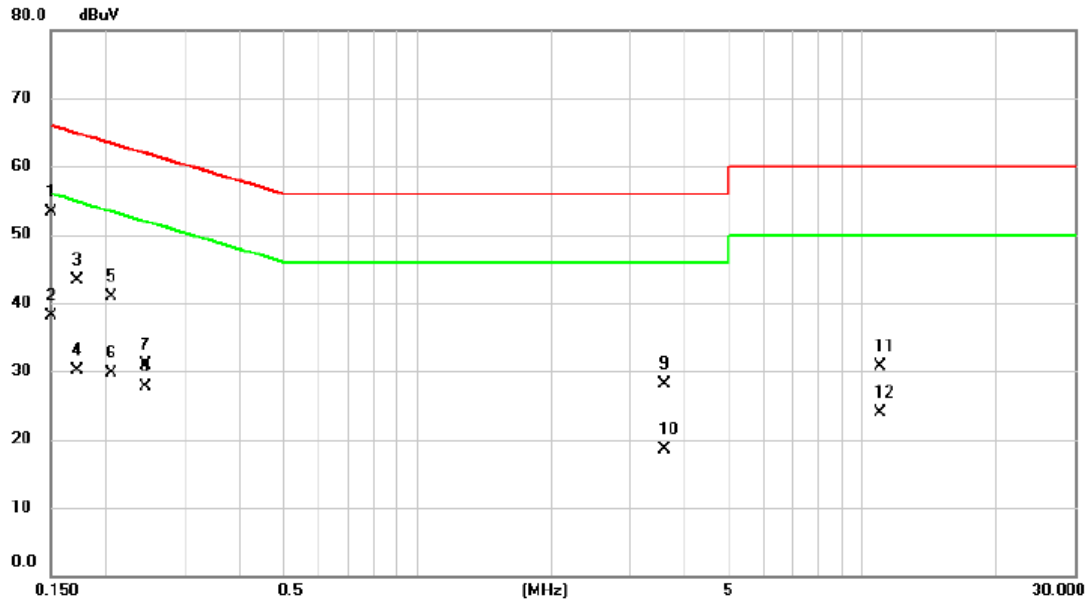
Please refer to document Appendix No.: TP-2401X002-FCCP-1 (APPENDIX-TEST PHOTOS).

## **9 EUT PHOTOS**

Please refer to document Appendix No.: EP-2401X002-1/EP-2401X002-2 (APPENDIX-EUT PHOTOS).

## APPENDIX A AC POWER LINE CONDUCTED EMISSIONS

Test Mode	Normal	Tested Date	2024/3/1
Test Frequency	-	Phase	Line
Temp.	25°C	Hum.	45%

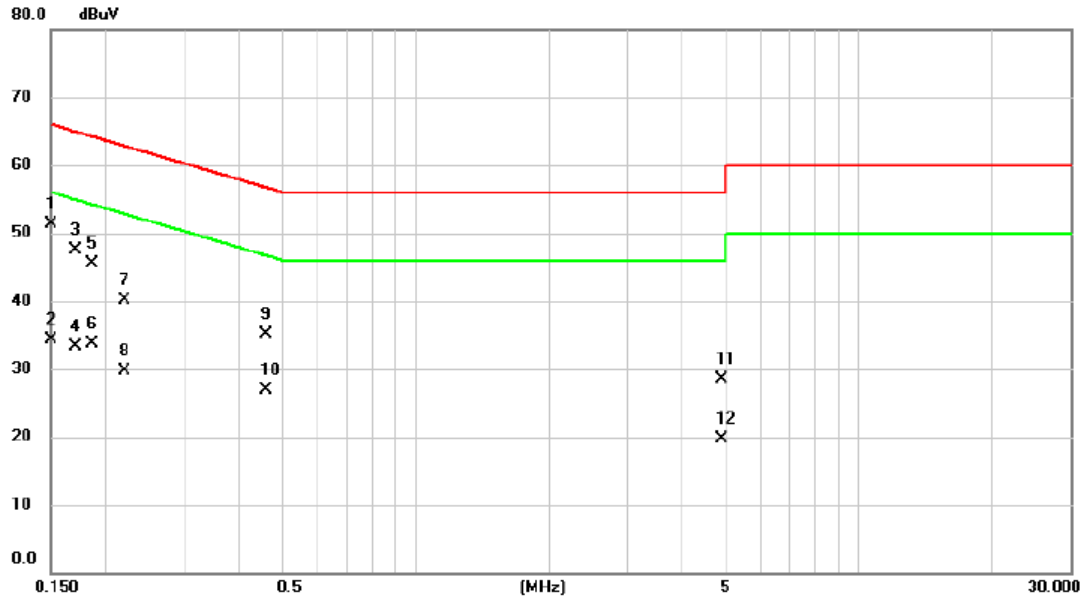


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	0.1500	43.56	9.67	53.23	66.00	-12.77	QP	
2		0.1500	28.52	9.67	38.19	56.00	-17.81	AVG	
3		0.1724	33.67	9.67	43.34	64.84	-21.50	QP	
4		0.1724	20.45	9.67	30.12	54.84	-24.72	AVG	
5		0.2053	31.22	9.67	40.89	63.39	-22.50	QP	
6		0.2053	20.00	9.67	29.67	53.39	-23.72	AVG	
7		0.2445	21.24	9.67	30.91	61.94	-31.03	QP	
8		0.2445	18.09	9.67	27.76	51.94	-24.18	AVG	
9		3.5825	18.28	9.86	28.14	56.00	-27.86	QP	
10		3.5825	8.57	9.86	18.43	46.00	-27.57	AVG	
11		11.0000	20.70	10.07	30.77	60.00	-29.23	QP	
12		11.0000	13.78	10.07	23.85	50.00	-26.15	AVG	

#### REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.  
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	Normal	Tested Date	2024/3/1
Test Frequency	-	Phase	Neutral
Temp.	25°C	Hum.	45%

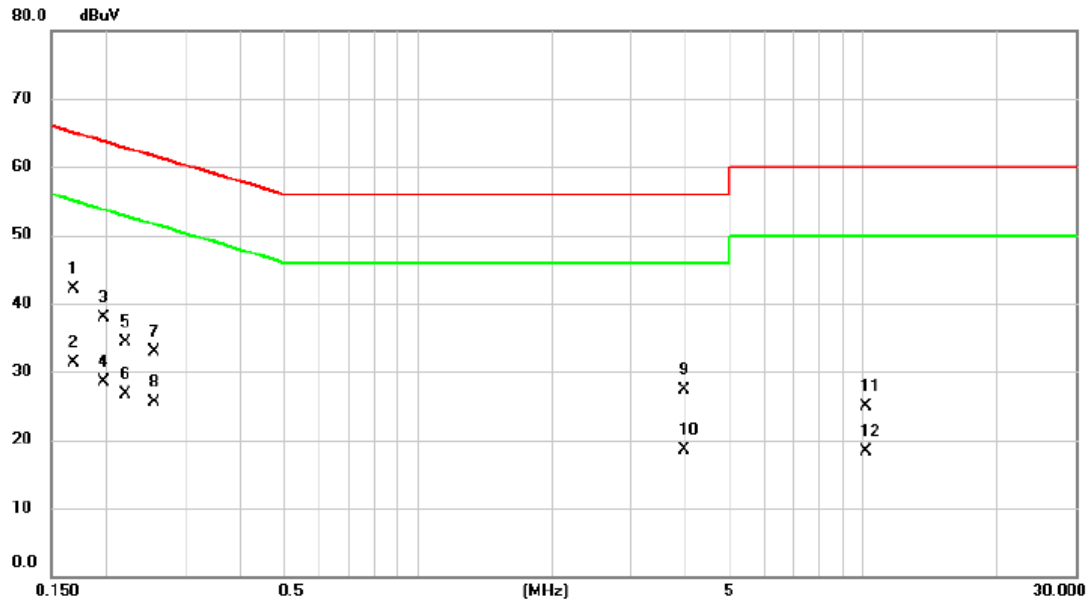


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	0.1507	41.54	9.67	51.21	65.96	-14.75	QP	
2		0.1507	24.65	9.67	34.32	55.96	-21.64	AVG	
3		0.1710	37.89	9.67	47.56	64.91	-17.35	QP	
4		0.1710	23.72	9.67	33.39	54.91	-21.52	AVG	
5		0.1864	35.80	9.66	45.46	64.20	-18.74	QP	
6		0.1864	23.99	9.66	33.65	54.20	-20.55	AVG	
7		0.2210	30.45	9.66	40.11	62.78	-22.67	QP	
8		0.2210	20.12	9.66	29.78	52.78	-23.00	AVG	
9		0.4587	25.51	9.68	35.19	56.72	-21.53	QP	
10		0.4587	17.26	9.68	26.94	46.72	-19.78	AVG	
11		4.8920	18.70	9.90	28.60	56.00	-27.40	QP	
12		4.8920	9.87	9.90	19.77	46.00	-26.23	AVG	

#### REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.  
 (2) Margin Level = Measurement Value - Limit Value.

Test Mode	Idle	Tested Date	2024/3/1
Test Frequency	-	Phase	Line
Temp.	25°C	Hum.	45%



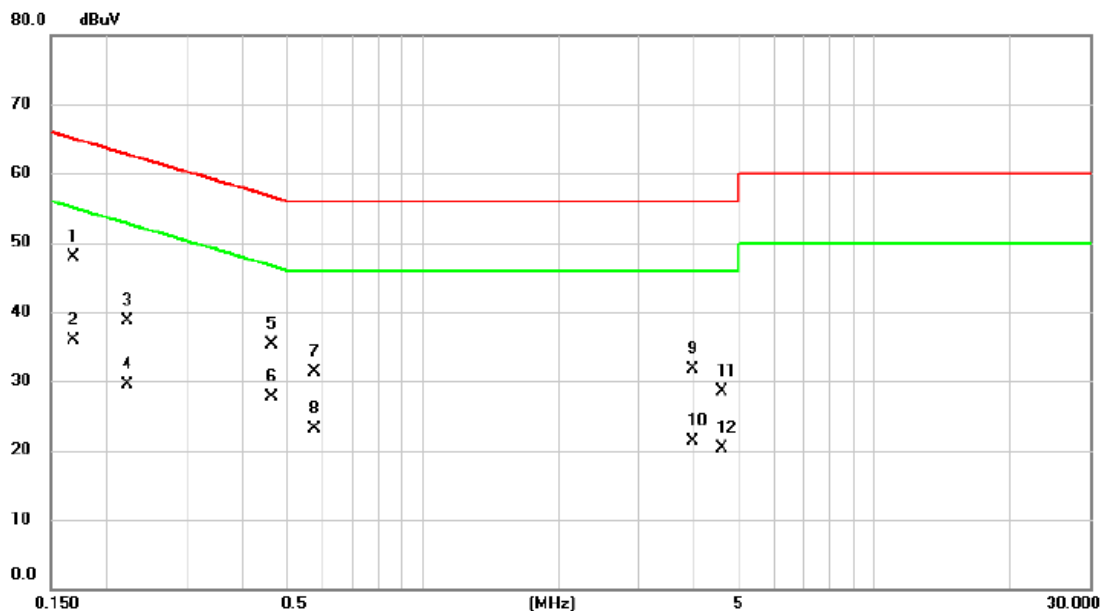
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	0.1682	32.53	9.67	42.20	65.05	-22.85	QP	
2		0.1682	21.62	9.67	31.29	55.05	-23.76	AVG	
3		0.1970	28.31	9.67	37.98	63.74	-25.76	QP	
4		0.1970	18.90	9.67	28.57	53.74	-25.17	AVG	
5		0.2210	24.56	9.67	34.23	62.78	-28.55	QP	
6		0.2210	17.01	9.67	26.68	52.78	-26.10	AVG	
7		0.2550	23.31	9.66	32.97	61.59	-28.62	QP	
8		0.2550	15.75	9.66	25.41	51.59	-26.18	AVG	
9		3.9650	17.51	9.87	27.38	56.00	-28.62	QP	
10		3.9650	8.57	9.87	18.44	46.00	-27.56	AVG	
11		10.1500	14.75	10.06	24.81	60.00	-35.19	QP	
12		10.1500	8.32	10.06	18.38	50.00	-31.62	AVG	

#### REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.  
(2) Margin Level = Measurement Value - Limit Value.



Test Mode	Idle	Tested Date	2024/3/1
Test Frequency	-	Phase	Neutral
Temp.	25°C	Hum.	45%



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	0.1690	38.15	9.67	47.82	65.01	-17.19	QP	
2		0.1690	26.31	9.67	35.98	55.01	-19.03	AVG	
3		0.2221	29.06	9.66	38.72	62.74	-24.02	QP	
4		0.2221	19.94	9.66	29.60	52.74	-23.14	AVG	
5		0.4615	25.59	9.68	35.27	56.67	-21.40	QP	
6		0.4615	17.98	9.68	27.66	46.67	-19.01	AVG	
7		0.5765	21.61	9.69	31.30	56.00	-24.70	QP	
8		0.5765	13.47	9.69	23.16	46.00	-22.84	AVG	
9		3.9515	21.90	9.87	31.77	56.00	-24.23	QP	
10		3.9515	11.44	9.87	21.31	46.00	-24.69	AVG	
11		4.6130	18.66	9.89	28.55	56.00	-27.45	QP	
12		4.6130	10.32	9.89	20.21	46.00	-25.79	AVG	

#### REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

## APPENDIX B RADIATED EMISSIONS - 9 KHZ TO 30 MHZ

Test Mode	TX	Test Date	2024/2/16
Test Frequency	13.56MHz	Polarization	Vertical
Temp.	25°C	Hum.	60%

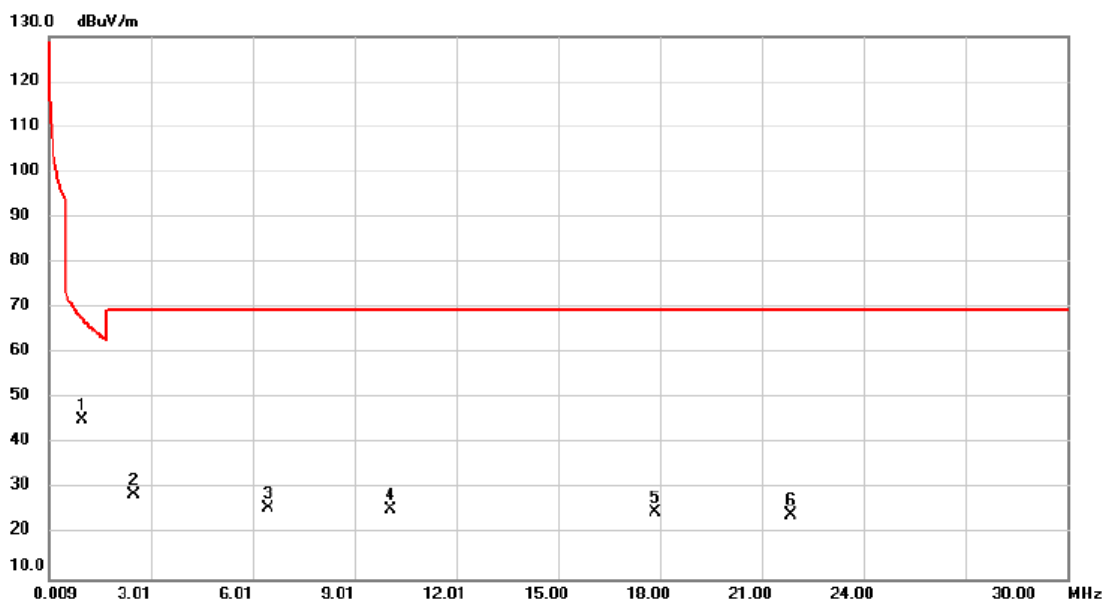


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	0.5188	39.96	2.86	42.82	73.30	-30.48	peak		
2		1.9884	35.59	-3.59	32.00	69.54	-37.54	peak		
3		7.1768	29.67	-3.77	25.90	69.54	-43.64	peak		
4		10.5958	29.53	-4.18	25.35	69.54	-44.19	peak		
5		20.8827	29.77	-4.93	24.84	69.54	-44.70	peak		
6		28.1406	31.86	-5.55	26.31	69.54	-43.23	peak		

## REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX	Test Date	2024/2/16
Test Frequency	13.56MHz	Polarization	Vertical
Temp.	25°C	Hum.	60%



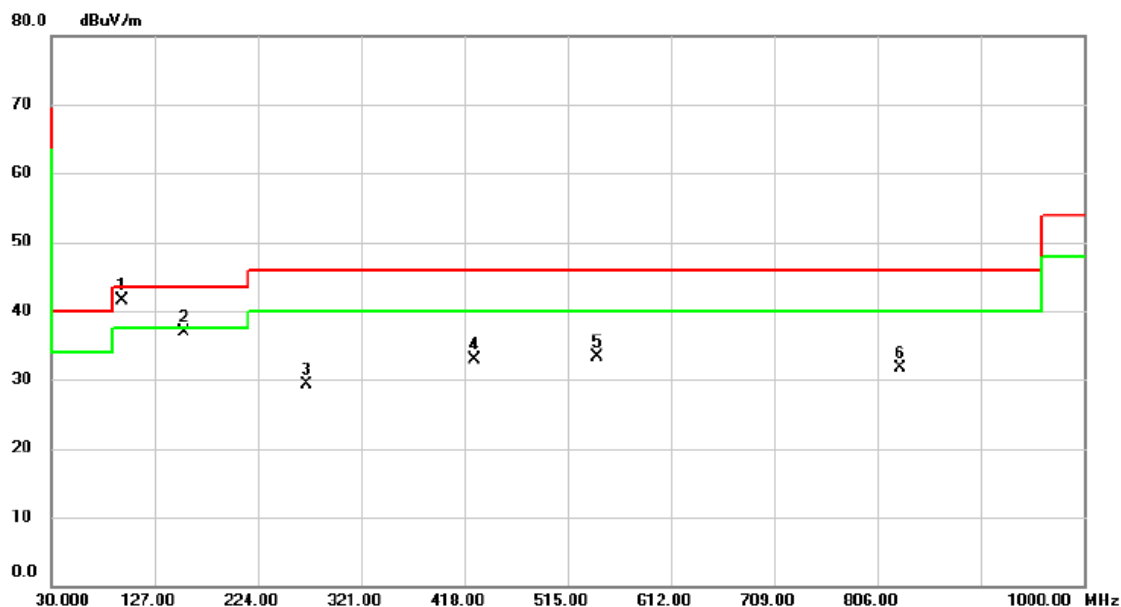
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	0.9987	46.22	-0.84	45.38	67.61	-22.23	peak		
2		2.5282	33.24	-4.37	28.87	69.54	-40.67	peak		
3		6.4570	29.85	-3.98	25.87	69.54	-43.67	peak		
4		10.0560	29.70	-4.14	25.56	69.54	-43.98	peak		
5		17.8836	29.34	-4.53	24.81	69.54	-44.73	peak		
6		21.8724	29.99	-5.68	24.31	69.54	-45.23	peak		

## REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

## APPENDIX C RADIATED EMISSIONS - 30 MHZ TO 1 GHZ

Test Mode	TX	Test Date	2024/2/16
Test Frequency	13.56MHz	Polarization	Vertical
Temp.	25°C	Hum.	60%



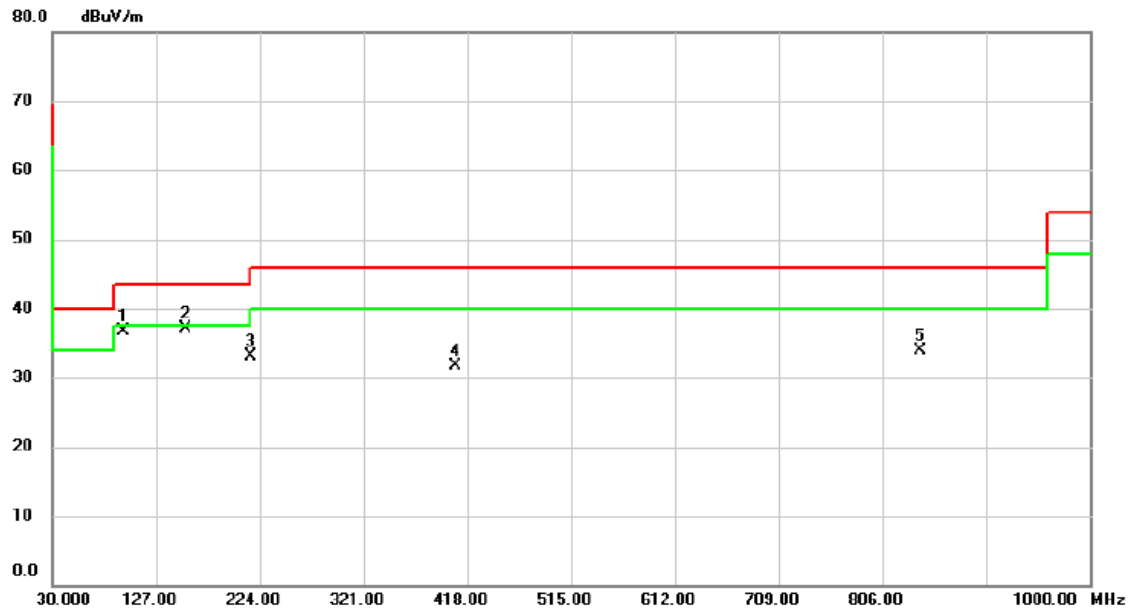
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	95.9600	58.17	-16.64	41.53	43.50	-1.97	peak	100	280
2		155.1300	48.01	-11.09	36.92	43.50	-6.58	peak	100	35
3		269.5900	40.58	-11.30	29.28	46.00	-16.72	peak	100	143
4		427.7000	39.54	-6.66	32.88	46.00	-13.12	peak	100	336
5		542.1600	37.69	-4.38	33.31	46.00	-12.69	peak	100	261
6		827.3400	30.75	1.05	31.80	46.00	-14.20	peak	100	237

## REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX	Test Date	2024/2/16
Test Frequency	13.56MHz	Polarization	Horizontal
Temp.	25°C	Hum.	60%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		95.9600	53.25	-16.64	36.61	43.50	-6.89	peak	200	240
2	*	155.1300	48.23	-11.09	37.14	43.50	-6.36	peak	100	94
3		215.2700	47.16	-14.14	33.02	43.50	-10.48	peak	100	103
4		406.3600	38.92	-7.29	31.63	46.00	-14.37	peak	100	126
5		840.9200	32.75	1.23	33.98	46.00	-12.02	peak	100	250

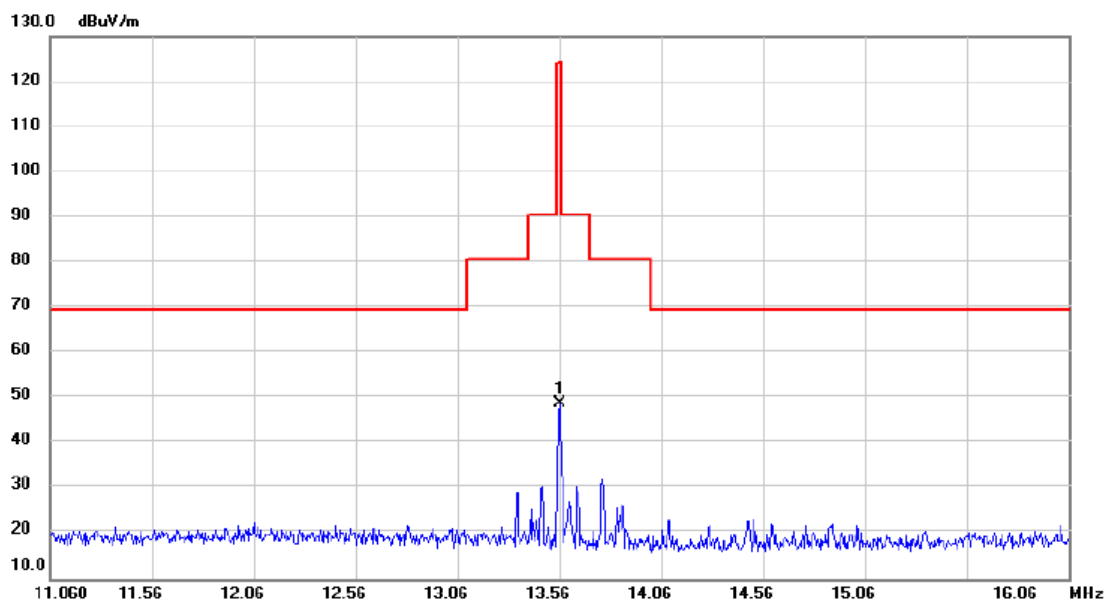
## REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

## APPENDIX D    RADIATED EMISSIONS - FCC PART 15.225



Test Mode	TX	Test Date	2024/2/16
Test Frequency	13.56MHz	Polarization	Vertical
Temp.	25°C	Hum.	60%

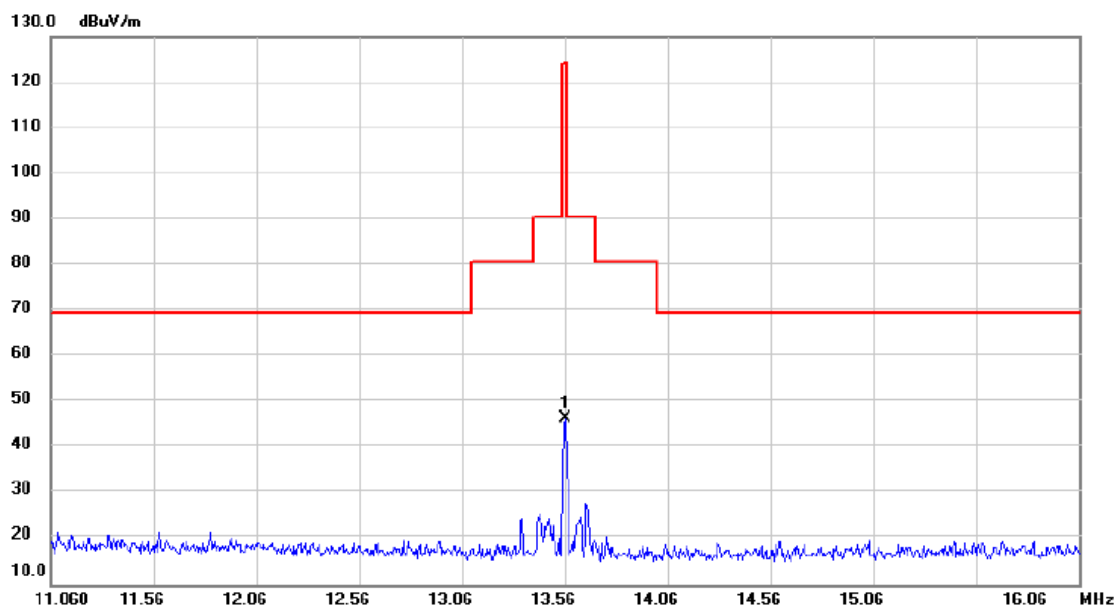


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree
1	*	13.5600	53.34	-4.45	48.89	124.00	-75.11	peak	

## REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX	Test Date	2024/2/16
Test Frequency	13.56MHz	Polarization	Horizontal
Temp.	25°C	Hum.	60%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	13.5600	50.80	-4.45	46.35	124.00	-77.65	peak		

#### REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

## APPENDIX E FREQUENCY STABILITY MEASUREMENT

Test Mode	TX	Tested Date	2024/1/8
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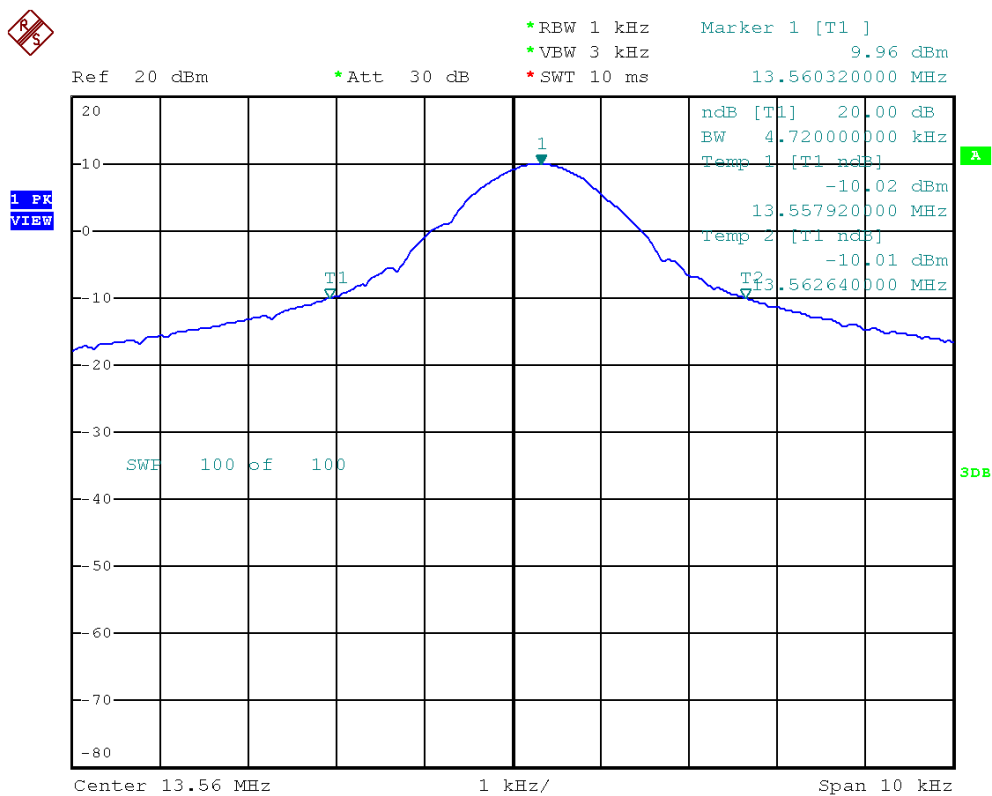
Condition			Frequency Error (ppm)										Limit (ppm)	Result
Temperature	Modulation Mode	Test Freq.	0 min	2 min	5 min	10 min	0 min	2 min	5 min	10 min				
			Normal										100	
T <sub>20°C</sub> V <sub>max</sub>	CW	13.56	13.560320	13.560320	13.560270	13.560270	23.60	23.60	19.91	19.91	Pass			
T <sub>20°C</sub> V <sub>min</sub>	CW	13.56	13.560320	13.560320	13.560270	13.560320	23.60	23.60	19.91	23.60	Pass			
			Extreme										100	
T <sub>45°C</sub> V <sub>nom</sub>	CW	13.56	13.560270	13.560270	13.560270	13.560270	19.91	19.91	19.91	19.91	Pass			
T <sub>40°C</sub> V <sub>nom</sub>	CW	13.56	13.560270	13.560270	13.560270	13.560270	19.91	19.91	19.91	19.91	Pass			
T <sub>30°C</sub> V <sub>nom</sub>	CW	13.56	13.560270	13.560270	13.560270	13.560270	19.91	19.91	19.91	19.91	Pass			
T <sub>20°C</sub> V <sub>nom</sub>	CW	13.56	13.560320	13.560320	13.560320	13.560320	23.60	23.60	23.60	23.60	Pass			
T <sub>10°C</sub> V <sub>nom</sub>	CW	13.56	13.560270	13.560270	13.560270	13.560270	19.91	19.91	19.91	19.91	Pass			
T <sub>5°C</sub> V <sub>nom</sub>	CW	13.56	13.560270	13.560270	13.560270	13.560270	19.91	19.91	19.91	19.91	Pass			

NOTE: 0.01 % = 100 ppm.

## APPENDIX F 20 DB BANDWIDTH

Test Mode	TX
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Frequency (MHz)	20 dB Bandwidth (MHz)	Result
13.56	0.00472	Complied



Date: 27.FEB.2024 20:45:17

## End of Test Report