FCC Radio Test Report

FCC ID: XHM-A59KU87F1

Report No.	:	BTL-FCCP-2-2308T051
Equipment	:	Panel PC
Model Name	:	K95A(F87U), K95A
Brand Name	:	FLYTECH
Applicant	:	FLYTECH TECHNOLOGY CO., LTD
Address	:	No. 168, Sing-ai Rd., Neihu District, Taipei City,Taiwan
Radio Function	:	RFID (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	:	2023/10/5
Date of Test	:	2023/11/9 ~ 2024/7/9
Issued Date	:	2024/7/31

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

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Testing Laboratory 0659

BTL Inc.

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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 assumes no responsibility for the data provided by the Customer, any statements, inferences or generalizations drawn by the customer or others from the reports issued by BTL.

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.

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REVISION HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-2-2308T051	R00	Original Report.	2024/7/31	Valid

1 SUMMARY OF TEST RESULTS

Test procedures according to the technical standards.

Standard(s) Section	Description	Test Result	Judgement	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	------
15.215(c)	20 dB Bandwidth	APPENDIX F	Pass	------

NOTE:
(1) ”N/A” denotes test is not applicable in this Test Report.
(2) The report format version is TP.1.1.1.

1.1 TEST FACILITY

The test locations stated below are under the TAF Accreditation Number 0659.
The test location(s) used to collect the test data in this report are:
No. 68-1, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan
(FCC DN: TW0659)
☐ C05 ☐ CB08 ☐ CB11 ☐ SR10 ☒ SR11
No. 72, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan
(FCC DN: TW0659)
☐ C06 ☒ CB21 ☐ CB22
No. 68-2, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan
(FCC DN: TW0659)
☒ SR05

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y ± 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 %**.

A. AC power line conducted emissions test:

Test Site	Method	Measurement Frequency Range	U (dB)
SR05	CISPR	150 kHz ~ 30MHz	3.44

B. Radiated emissions test :

Test Site	Method	Measurement Frequency Range	U (dB)
CB21	CISPR	9 kHz ~ 150 kHz	2.82
		150 kHz ~ 30 MHz	2.58

Test Site	Measurement Frequency Range	U (dB)
CB21	0.03 GHz ~ 0.2 GHz	4.17
	0.2 GHz ~ 1 GHz	4.72
	1 GHz ~ 6 GHz	5.21
	6 GHz ~ 18 GHz	5.51
	18 GHz ~ 26 GHz	3.69
	26 GHz ~ 40 GHz	4.23

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	31 °C, 41 %	AC 120V	Tim Lian
Radiated emissions (9KHz-30MHz)	Refer to data	AC 120V	Mark Wang
Radiated emissions (30MHz TO 1000MHz)	Refer to data	AC 120V	Mark Wang
Frequency Stability	23.2 °C, 43 %	AC 120V	Jerry Chuang
20 dB Bandwidth	23.2 °C, 43 %	AC 120V	Jerry Chuang

2 GENERAL INFORMATION

2.1 DESCRIPTION OF EUT

Equipment	Panel PC
Model Name	K95A(F87U), K95A
Brand Name	FLYTECH
Model Difference	Different model distribute to different area.
Power Source	DC voltage supplied from AC/DC Adapter.
Power Rating	For Adapter: (1) A17-120P1A: I/P: 100-240V~, 1.8A, 50-60Hz / O/P: 19V⎓6.32A (2) ADP-120RH BB: I/P: 100-240V~, 2.0A, 50-60Hz / O/P: 19V⎓6.32A (3) GSM120A20: I/P: 100-240V~, 1.4-0.7A, 50-60Hz / O/P: 20V⎓6A (4) ADP-120VH D: I/P: 100-240V~, 2.5A, 50-60Hz / O/P: 20V⎓6A For Battery: (1) DR-202-35E: DC 10.8V, 10050mAh 108.5Wh (2) DR-202W2: DC 10.8V, 7500mAh 81Wh (3) DR-202-GA: DC 10.8V, 10350mAh 111.78Wh
Products Covered	1 * Mother Board: F87U 1 * CPU: INTEL / i7-1185G7E 2.8G 1 * Main Display: 23.8" 1 * RFID (Rear) 1 * RFID (Front) 1 * Wlan card: intel / AX210NGW 1 * Smart card 1 * HDD/SSD: M.2 SSD 3 * Battery: (1) DR-202-35E (2) DR-202-GA (3) DR-202W2 4 * Adapter: (1) Delta / ADP-120RH BB (2) Delta / ADP-120VH D (3) Chicony / A17-120P1A (4) MEAN WELL / GSM120A20
RFID module	HID / OMNIKEY 5122
Operation Frequency	13.56 MHz
Max H-field strength	87.82 dBuV/m@1m(Peak)
Test Model	K95A(F87U)
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:

Antenna	Brand Name	Model Name	Antenna Type	Connector	Gain (dBi)
1	HID	OMNIKEY 5122	PCB	N/A	NA

(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

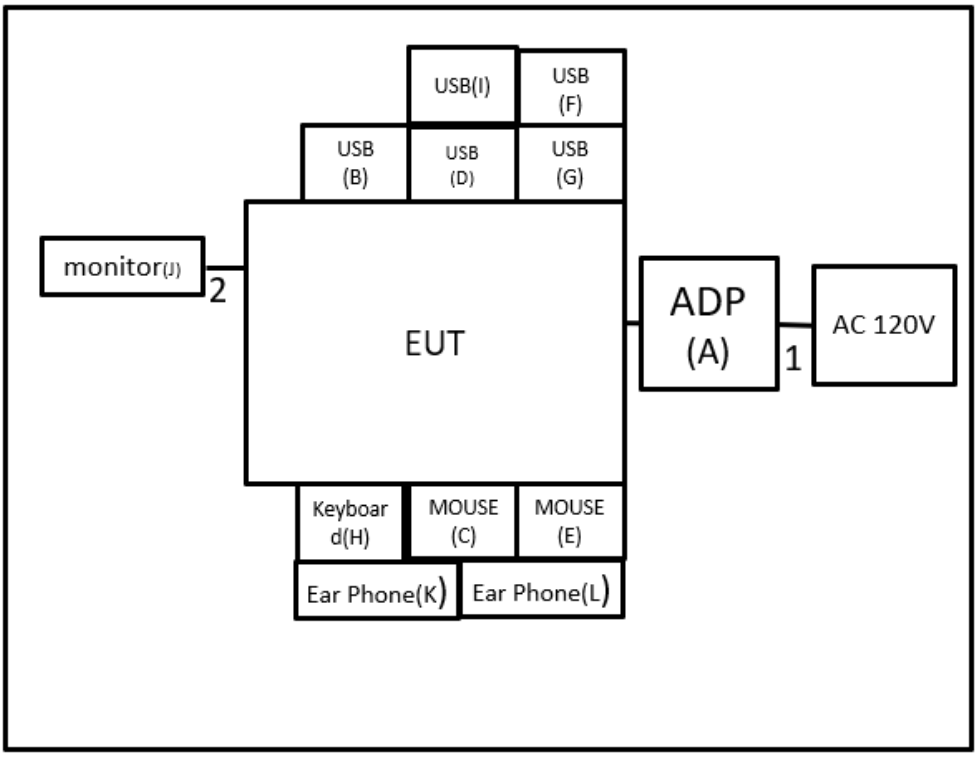
Test Items	Test mode	Channel	Note
AC power line conducted emissions	Normal/Idle	-	-
Radiated emissions (9KHz-30MHz)	TX	01	-
Radiated emissions (30MHz TO 1000MHz)	TX	01	
Frequency Stability	TX	01	-
20 dB Bandwidth	TX	01	-

NOTE:
(1) The Radiated emissions test was verified based on the worst conducted power and Bandwidth test results reported in the original report.
(2) All adapter are evaluated, the adapter(ADP-120VH D) is the worst and recorded as below test data.
(3) All battery are evaluated, the battery(DR-202-GA) is the worst and recorded as below test data.

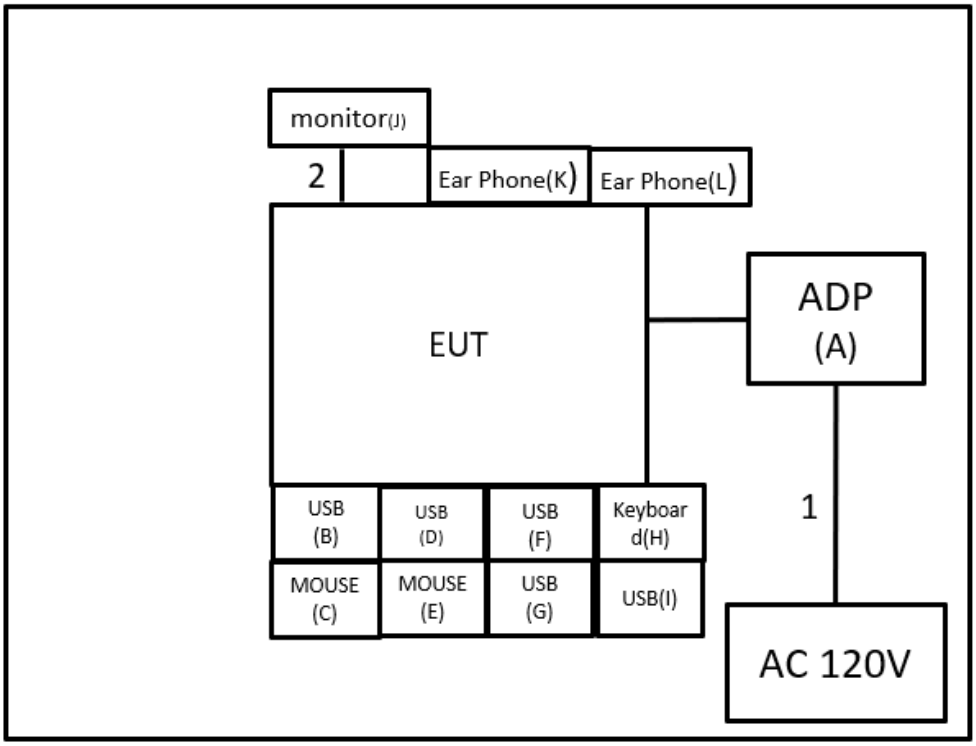
2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

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

AC Power Line Conducted Emissions Test



Radiated Emissions Test



2.4 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.	Remarks
A	Adapter	DELTA	ADP-120VH D	N/A	Supplied by test requester.
B	USB 3.2	KINGSTON	N/A	N/A	Furnished by test lab.
C	Mouse	Lenovo	SM-8823	N/A	Furnished by test lab.
D	USB	KINGSTON	DT50	N/A	Furnished by test lab.
E	Mouse	Lenovo	SM-8823	N/A	Furnished by test lab.
F	USB	SONY	USM4GL	N/A	Furnished by test lab.
G	USB	ADATA	UV150	N/A	Furnished by test lab.
H	Keyboard	Bloody	KB-8	N/A	Furnished by test lab.
I	USB 3.2	KINGSTON	DT50	N/A	Furnished by test lab.
J	Monitor	DELL	U2720Q	N/A	Furnished by test lab.
K	Ear Phone	HTC	N/A	N/A	Furnished by test lab.
L	Ear Phone	Samsung	N/A	N/A	Furnished by test lab.

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	N/A	N/A	1.7M	Power Cord	Furnished by test lab.
2	N/A	N/A	1.8M	HDMI	Furnished by test lab.

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

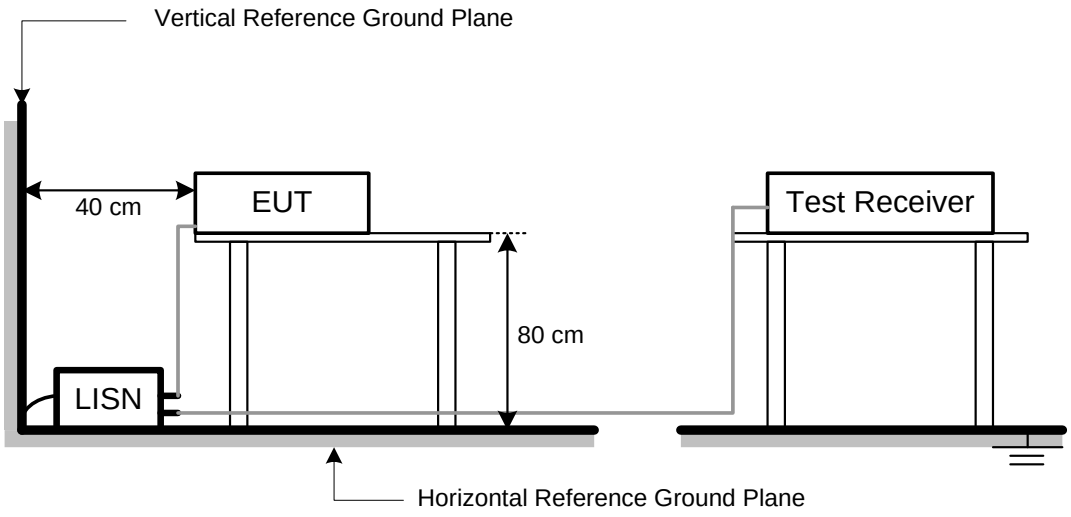
a. The EUT was placed 0.8 m above the horizontal ground plane with the EUT being connected to the power mains through a line impedance stabilization network (LISN).
All other support equipment were powered from an additional LISN(s).
The LISN provides 50 Ohm/50uH of impedance for the measuring instrument.
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
13.567 – 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

a. The measuring distance of 1 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 30MHz)
b. 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).
c. 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.
d. 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.
e. 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.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

NOTE: (FCC PART 15.209)

a. Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode with Detector BW=120 kHz.
b. 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)

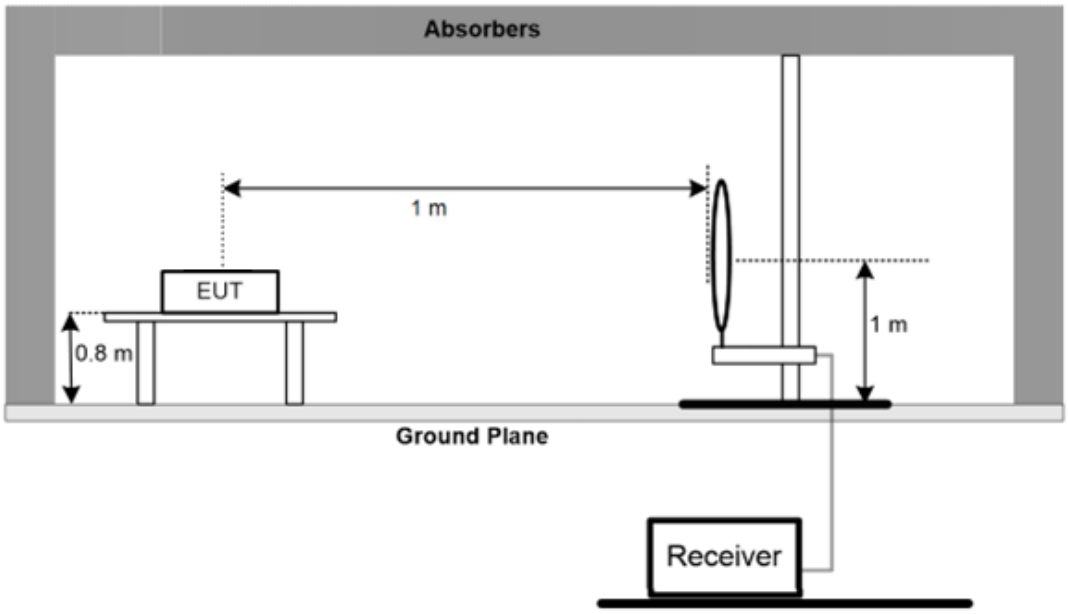
a. Spectrum Setting:
   9 KHz – 150 KHz, RBW= 200Hz, VBW=200Hz, Sweep time = 200 ms.
   150 K Hz – 30 MHz, RBW= 10 KHz, VBW=10 KHz, Sweep time = 200 ms.
   30 MHz – 1000 MHz, RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms.
b. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn‘t perform.
c. 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.

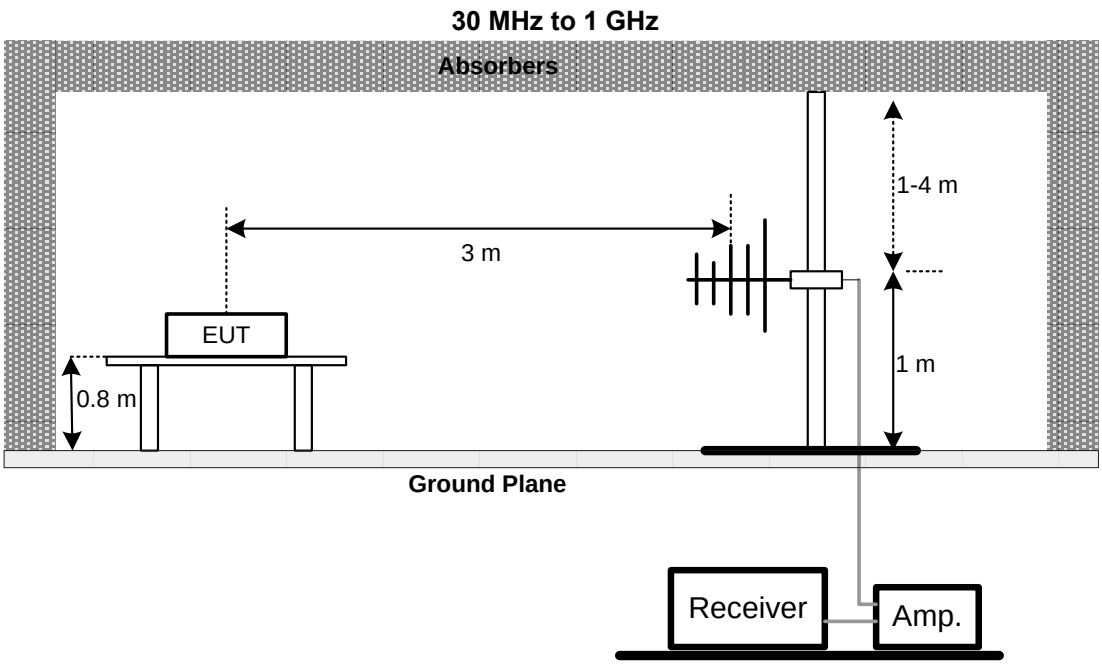
4.3 DEVIATION FROM TEST STANDARD

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 (25±5°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.

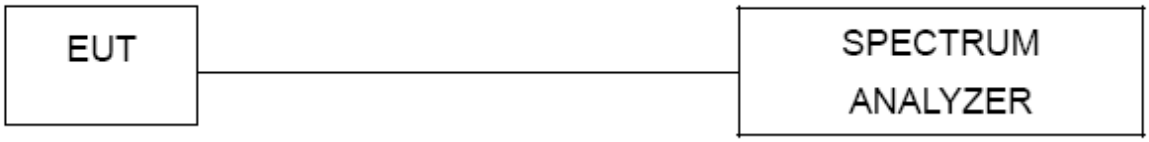
6.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 1 kHz, VBW=1 kHz, Sweep time = 20 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	101521	2023/9/13	2024/9/12
2	Test Cable	EMCI	EMCCFD300-BM -BMR-5000	220331	2024/3/30	2025/3/29
3	EMI Test Receiver	R&S	ESR 7	101433	2023/11/10	2024/11/9
4	Measurement Software	EZ	EZ_EMC (Version NB-03A1-01)	N/A	N/A	N/A

Radiated Emissions						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Preamplifier	EMCI	EMC330N	980850	2023/9/6	2024/9/5
2	Preamplifier	EMCI	EMC001340	980579	2023/9/6	2024/9/5
3	Test Cable	EMCI	EMC104-SM-100 0	180809	2023/7/10	2024/7/9
4	Test Cable	EMCI	EMC104-SM-SM-3000	220322	2023/3/14	2024/3/13
5	Test Cable	EMCI	EMC104-SM-SM-7000	220324	2023/3/14	2024/3/13
6	EXA Signal Analyzer	keysight	N9020B	MY57120120	2023/2/24	2024/2/23
7	Loop Ant	Electro-Metrics	EMCI-LPA600	291	2023/9/12	2024/9/11
8	Log-bicon Antenna	Schwarzbeck	VULB9168	1369	2023/5/9	2024/5/8
9	6dB Attenuator	EMCI	EMCI-N-6-06	AT-06001	2023/5/9	2024/5/8
10	Measurement Software	EZ	EZ_EMC (Version NB-03A1-01)	N/A	N/A	N/A

Frequency Stability Measurement						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSP 40	101139	2023/3/9	2024/3/8

20 dB Bandwidth Measurement						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSP 40	101139	2023/3/9	2024/3/8

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

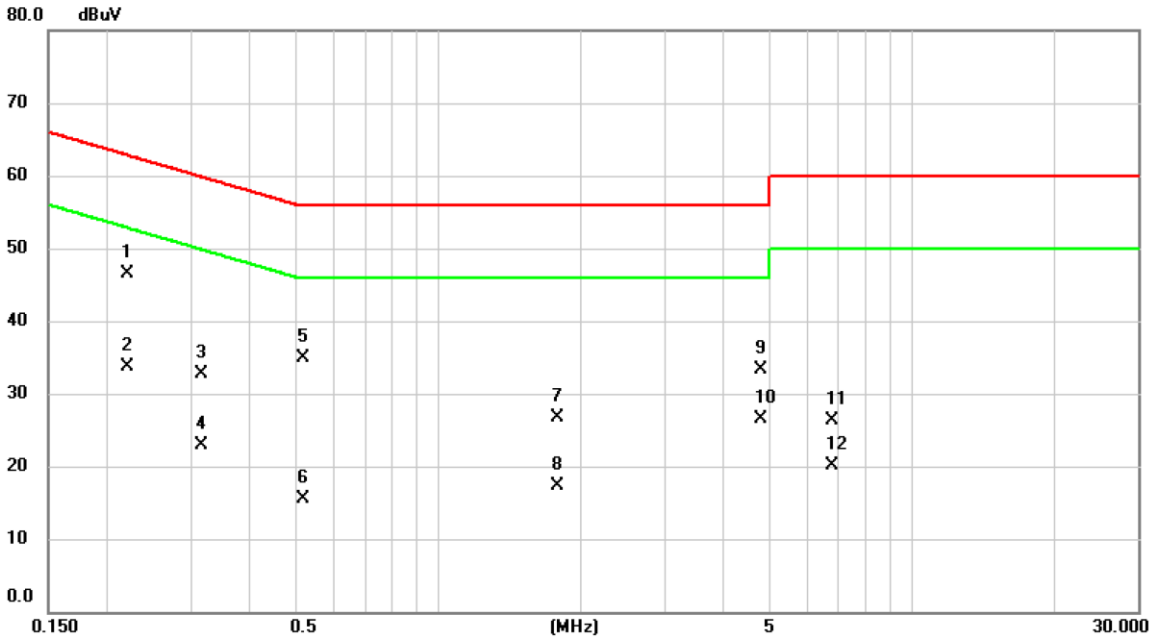
Please refer to document Appendix No.: TP-2308T051-FCCP-1 (APPENDIX-TEST PHOTOS).

9 EUT PHOTOS

Please refer to document Appendix No.: EP-2308T051-2 (APPENDIX-EUT PHOTOS).

APPENDIX A AC POWER LINE CONDUCTED EMISSIONS

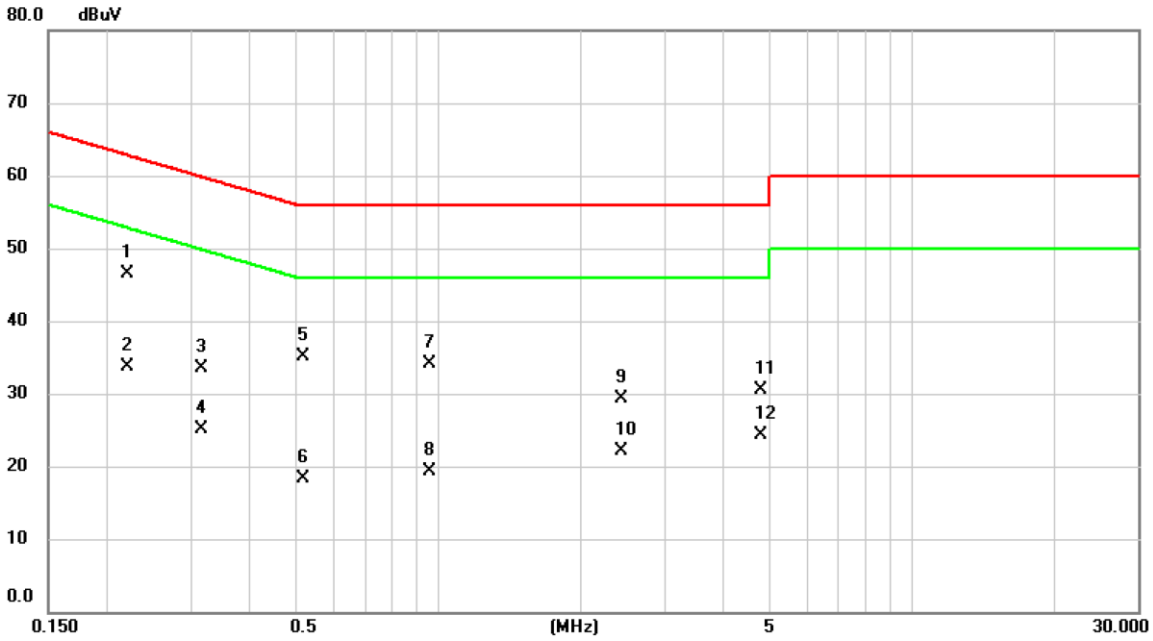
Test Mode	Normal	Tested Date	2024/7/9
Test Frequency	-	Phase	Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.2198	36.91	9.59	46.50	62.83	-16.33	QP	
2		0.2198	24.20	9.59	33.79	52.83	-19.04	AVG	
3		0.3165	23.07	9.58	32.65	59.80	-27.15	QP	
4		0.3165	13.36	9.58	22.94	49.80	-26.86	AVG	
5		0.5167	25.40	9.59	34.99	56.00	-21.01	QP	
6		0.5167	5.94	9.59	15.53	46.00	-30.47	AVG	
7		1.7858	16.99	9.64	26.63	56.00	-29.37	QP	
8		1.7858	7.62	9.64	17.26	46.00	-28.74	AVG	
9		4.7850	23.51	9.73	33.24	56.00	-22.76	QP	
10		4.7850	16.69	9.73	26.42	46.00	-19.58	AVG	
11		6.8033	16.48	9.76	26.24	60.00	-33.76	QP	
12		6.8033	10.37	9.76	20.13	50.00	-29.87	AVG	

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

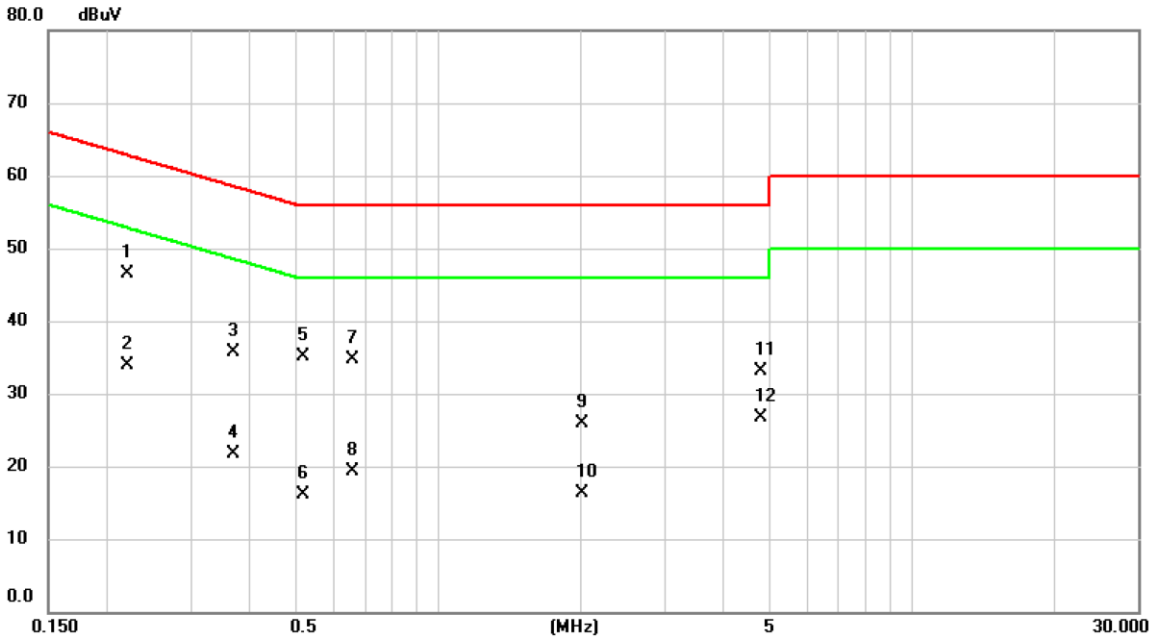
Test Mode	Normal	Tested Date	2024/7/9
Test Frequency	-	Phase	Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.2198	36.87	9.57	46.44	62.83	-16.39	QP	
2		0.2198	24.15	9.57	33.72	52.83	-19.11	AVG	
3		0.3165	23.97	9.58	33.55	59.80	-26.25	QP	
4		0.3165	15.58	9.58	25.16	49.80	-24.64	AVG	
5		0.5167	25.45	9.59	35.04	56.00	-20.96	QP	
6		0.5167	8.80	9.59	18.39	46.00	-27.61	AVG	
7		0.9555	24.41	9.63	34.04	56.00	-21.96	QP	
8		0.9555	9.72	9.63	19.35	46.00	-26.65	AVG	
9		2.4338	19.69	9.67	29.36	56.00	-26.64	QP	
10		2.4338	12.48	9.67	22.15	46.00	-23.85	AVG	
11		4.7850	20.77	9.76	30.53	56.00	-25.47	QP	
12		4.7850	14.47	9.76	24.23	46.00	-21.77	AVG	

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

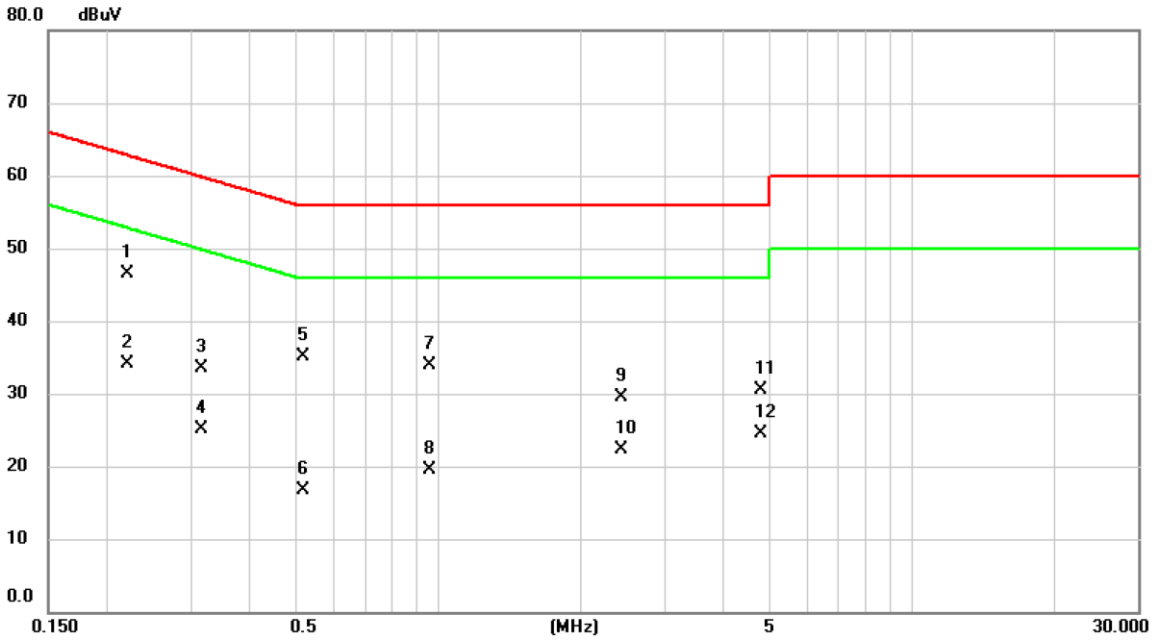
Test Mode	Idle	Tested Date	2024/7/9
Test Frequency	-	Phase	Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.2198	36.97	9.59	46.56	62.83	-16.27	QP	
2		0.2198	24.36	9.59	33.95	52.83	-18.88	AVG	
3		0.3682	26.13	9.58	35.71	58.54	-22.83	QP	
4		0.3682	12.03	9.58	21.61	48.54	-26.93	AVG	
5		0.5167	25.42	9.59	35.01	56.00	-20.99	QP	
6		0.5167	6.60	9.59	16.19	46.00	-29.81	AVG	
7		0.6607	25.04	9.60	34.64	56.00	-21.36	QP	
8		0.6607	9.61	9.60	19.21	46.00	-26.79	AVG	
9		2.0108	16.23	9.64	25.87	56.00	-30.13	QP	
10		2.0108	6.61	9.64	16.25	46.00	-29.75	AVG	
11		4.7850	23.47	9.73	33.20	56.00	-22.80	QP	
12		4.7850	16.98	9.73	26.71	46.00	-19.29	AVG	

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

Test Mode	Idle	Tested Date	2024/7/9
Test Frequency	-	Phase	Neutral

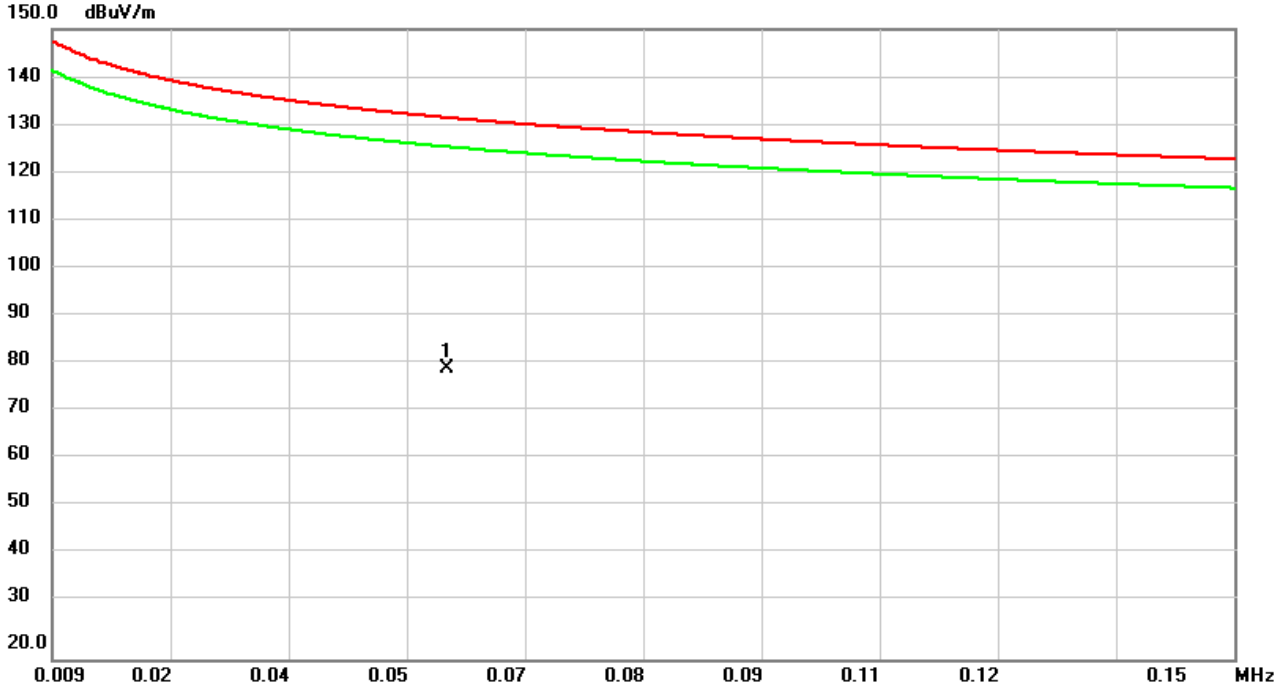


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.2198	36.88	9.57	46.45	62.83	-16.38	QP	
2		0.2198	24.45	9.57	34.02	52.83	-18.81	AVG	
3		0.3165	23.91	9.58	33.49	59.80	-26.31	QP	
4		0.3165	15.50	9.58	25.08	49.80	-24.72	AVG	
5		0.5167	25.44	9.59	35.03	56.00	-20.97	QP	
6		0.5167	7.13	9.59	16.72	46.00	-29.28	AVG	
7		0.9555	24.32	9.63	33.95	56.00	-22.05	QP	
8		0.9555	9.90	9.63	19.53	46.00	-26.47	AVG	
9		2.4338	19.74	9.67	29.41	56.00	-26.59	QP	
10		2.4338	12.66	9.67	22.33	46.00	-23.67	AVG	
11		4.7850	20.69	9.76	30.45	56.00	-25.55	QP	
12		4.7850	14.78	9.76	24.54	46.00	-21.46	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	2023/11/23
Test Frequency	13.56MHz	Polarization	Vertical
Temp	23°C	Hum.	57%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0560	57.36	22.52	79.88	131.72	-51.84	peak	

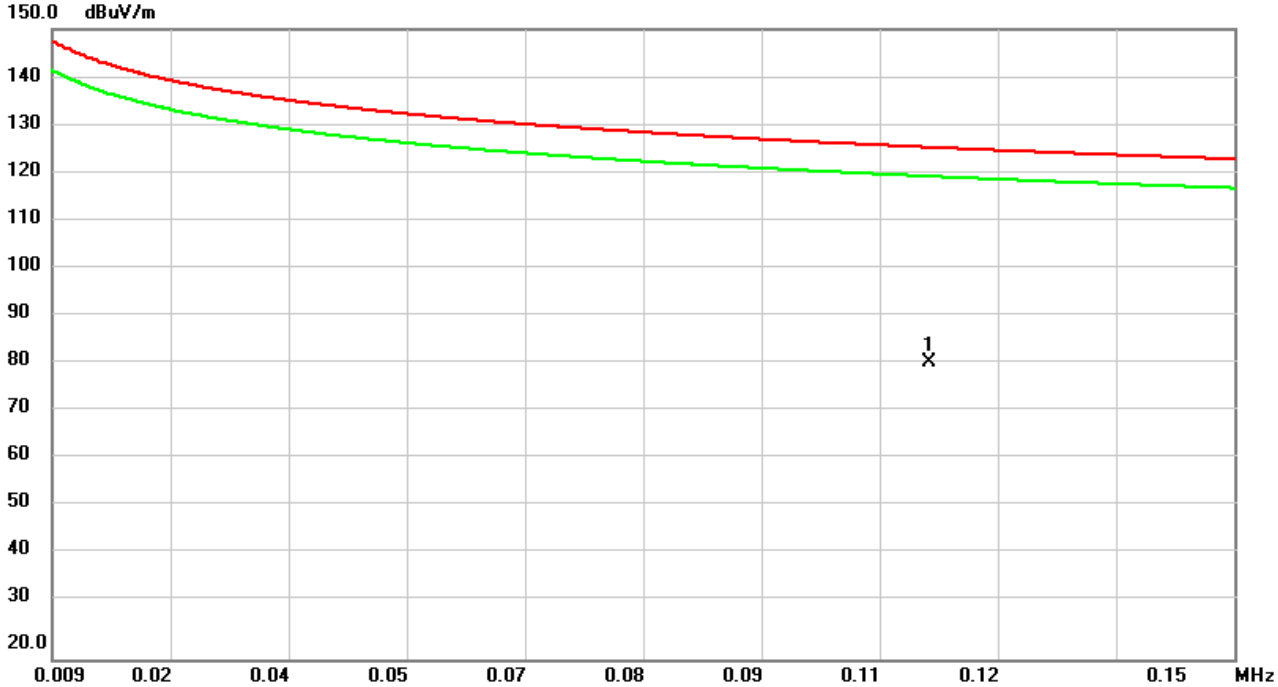
REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX	Test Date	2023/11/23
Test Frequency	13.56MHz	Polarization	Vertical
Temp	23°C	Hum.	57%

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.1500	58.85	14.42	73.27	123.16	-49.89	peak	
2	*	2.1221	54.62	-2.04	52.58	88.62	-36.04	peak	
3		3.4723	52.87	-3.95	48.92	88.62	-39.70	peak	
4		9.3488	48.84	-3.37	45.47	88.62	-43.15	peak	
5		20.5395	48.95	-3.87	45.08	88.62	-43.54	peak	
6		26.7473	45.79	-0.90	44.89	88.62	-43.73	peak	

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

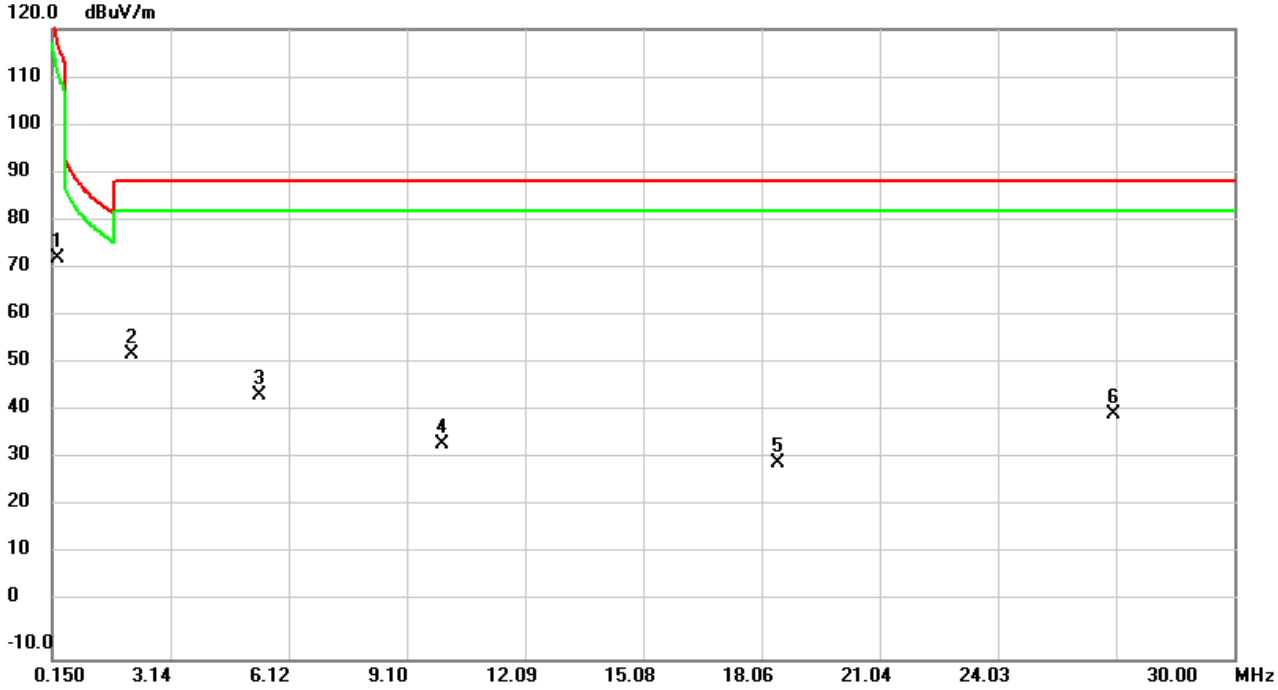
Test Mode	TX	Test Date	2023/11/23
Test Frequency	13.56MHz	Polarization	Horizontal
Temp	23°C	Hum.	57%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.1137	65.15	16.00	81.15	125.57	-44.42	peak	

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

Test Mode	TX	Test Date	2023/11/23
Test Frequency	13.56MHz	Polarization	Horizontal
Temp	23°C	Hum.	57%

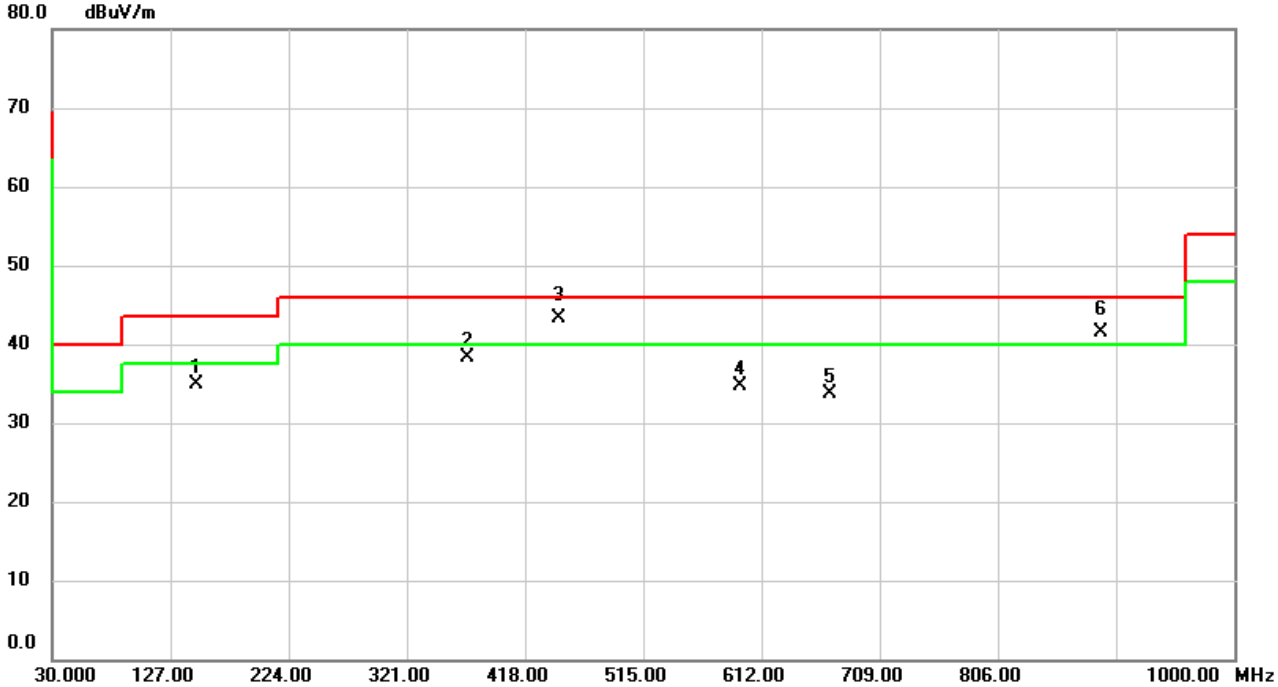


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.3032	64.84	7.89	72.73	117.05	-44.32	peak	
2	*	2.1650	55.16	-2.12	53.04	88.62	-35.58	peak	
3		5.4026	48.92	-4.36	44.56	88.62	-44.06	peak	
4		10.0095	37.44	-3.20	34.24	88.62	-54.38	peak	
5		18.4610	34.36	-3.97	30.39	88.62	-58.23	peak	
6		26.9712	41.25	-0.79	40.46	88.62	-48.16	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

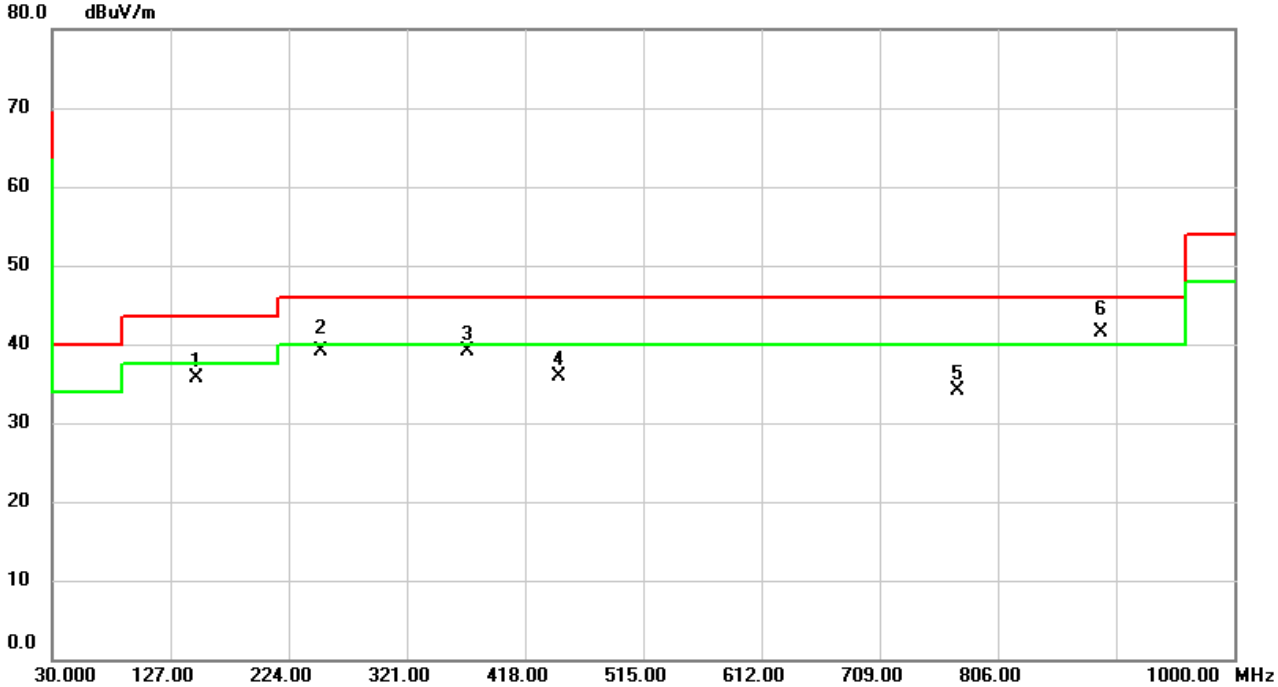
Test Mode	TX	Test Date	2024/4/30
Test Frequency	13.56MHz	Polarization	Vertical
Temp	24°C	Hum.	61%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		148.5012	46.73	-11.88	34.85	43.50	-8.65	peak	
2		371.2460	47.81	-9.51	38.30	46.00	-7.70	peak	
3	*	445.5156	50.62	-7.33	43.29	46.00	-2.71	QP	
4		593.9580	39.11	-4.32	34.79	46.00	-11.21	peak	
5		668.2600	36.74	-3.08	33.66	46.00	-12.34	peak	
6	!	891.0043	41.32	0.09	41.41	46.00	-4.59	QP	

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

Test Mode	TX	Test Date	2024/4/30
Test Frequency	13.56MHz	Polarization	Horizontal
Temp	24°C	Hum.	61%

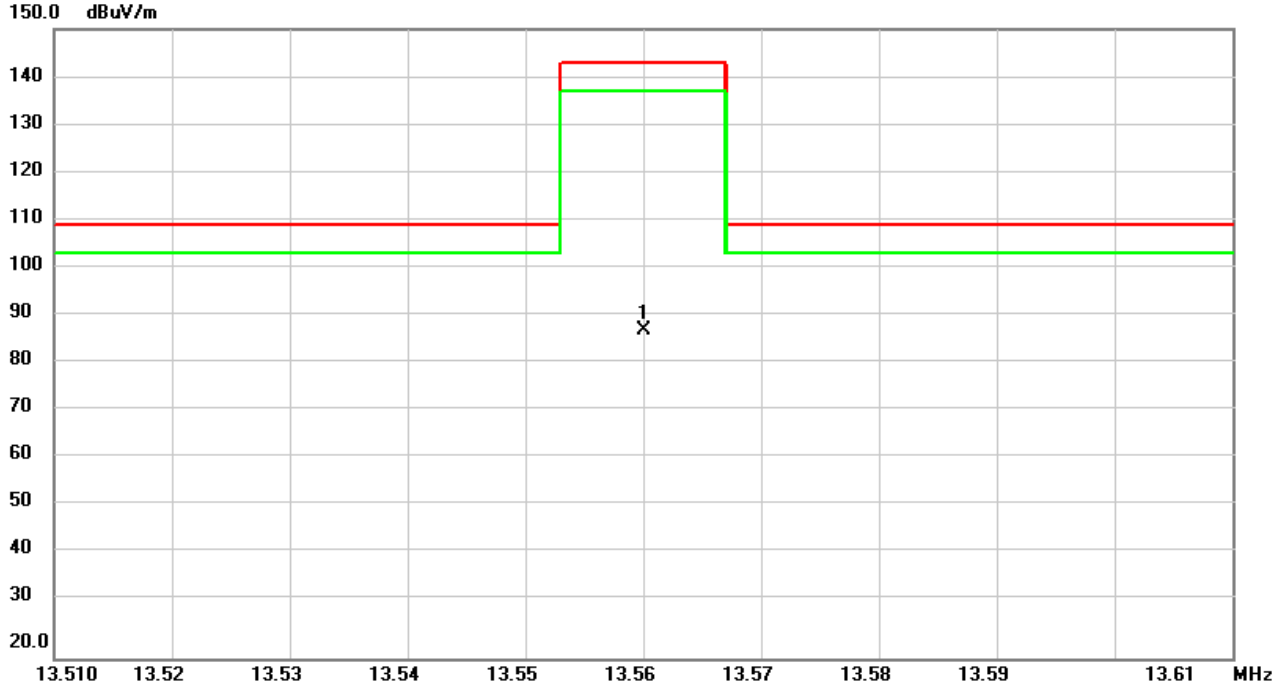


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		148.5012	47.61	-11.88	35.73	43.50	-7.77	peak	
2		250.2870	52.12	-12.96	39.16	46.00	-6.84	QP	
3		371.2135	48.59	-9.51	39.08	46.00	-6.92	peak	
4		445.5156	43.23	-7.33	35.90	46.00	-10.10	peak	
5		772.9230	35.37	-1.29	34.08	46.00	-11.92	peak	
6	*	891.0043	41.32	0.09	41.41	46.00	-4.59	QP	

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

APPENDIX D RADIATED EMISSIONS - FCC PART 15.225

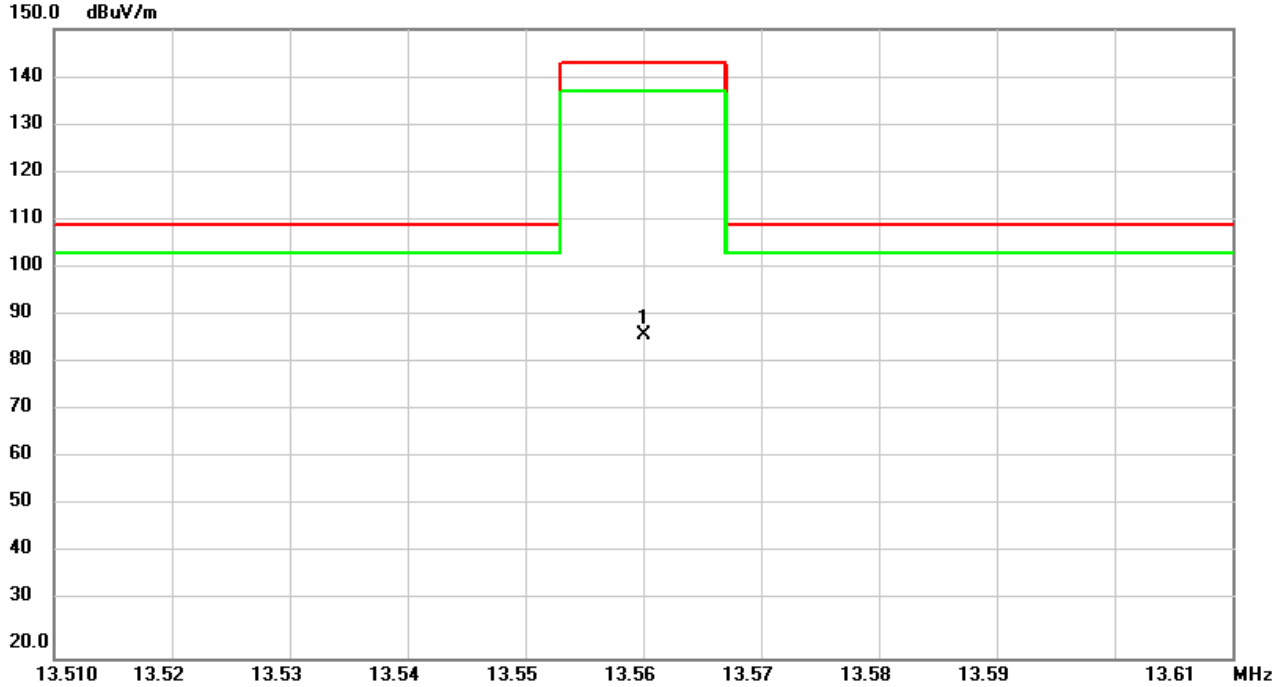
Test Mode	TX	Test Date	2023/11/23
Test Frequency	13.56MHz	Polarization	Vertical
Temp	23°C	Hum.	57%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	13.5601	91.35	-3.53	87.82	143.07	-55.25	peak	

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

Test Mode	TX	Test Date	2023/11/23
Test Frequency	13.56MHz	Polarization	Horizontal
Temp	23°C	Hum.	57%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	13.5601	90.25	-3.53	86.72	143.07	-56.35	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	2023/11/24

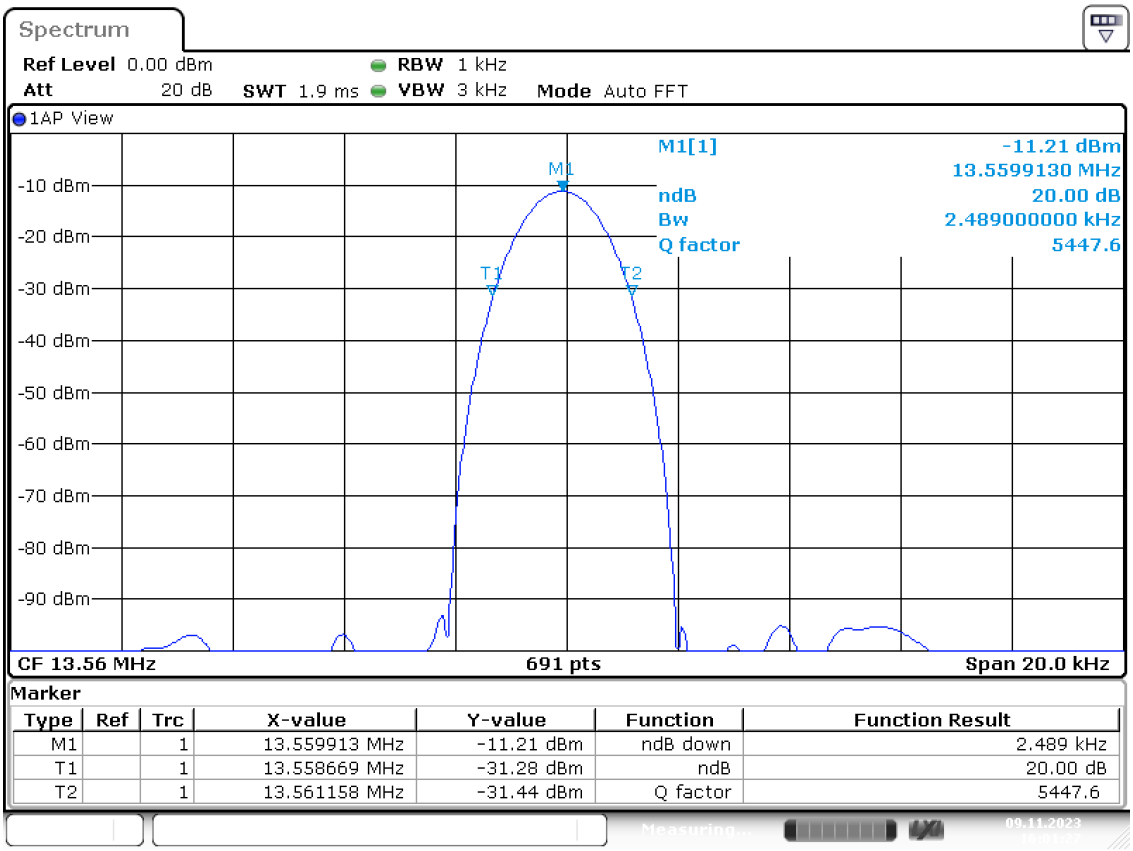
Condition			Frequency Error (ppm)									
Temperature	Modulation Mode	Test Freq.	0 min	2 min	5 min	10 min	0 min	2 min	5 min	10 min	Limit (ppm)	Result
			Normal									
$T_{20°C}$Vmax	CW	13.56	13.559800	13.559800	13.559800	13.559800	-14.75	-14.75	-14.75	-14.75	100	Pass
$T_{20°C}$Vmin	CW	13.56	13.559800	13.559800	13.559800	13.559800	-14.75	-14.75	-14.75	-14.75		Pass
			Extreme									
$T_{35°C}$Vnom	CW	13.56	13.559800	13.559800	13.559800	13.559800	-14.75	-14.75	-14.75	-14.75	100	Pass
$T_{30°C}$Vnom	CW	13.56	13.559800	13.559800	13.559800	13.559800	-14.75	-14.75	-14.75	-14.75		Pass
$T_{20°C}$Vnom	CW	13.56	13.559800	13.559800	13.559800	13.559800	-14.75	-14.75	-14.75	-14.75		Pass
$T_{10°C}$Vnom	CW	13.56	13.559600	13.559800	13.559800	13.559800	-29.50	-14.75	-14.75	-14.75		Pass
$T_{0°C}$Vnom	CW	13.56	13.559800	13.559800	13.559800	13.559800	-14.75	-14.75	-14.75	-14.75		Pass

NOTE: 0.01 % = 100 ppm.

APPENDIX F 20 DB BANDWIDTH

Test Mode	TX

Frequency (MHz)	20 dB Bandwidth (MHz)	Operated Frequency Range (MHz)	Designated Frequency Band (MHz)	Result
13.56	13.56	0.002489	0.014	Complied



Date: 9.NOV.2023 16:01:27

End of Test Report