

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen. China

Telephone: +86-755-26648640 Fax: +86-755-26648637

Website: www.cga-cert.com

Report Template Version: V03 Report Template Revision Date: Mar.1st, 2017

Test Report

Report No.: CQASZ20250300711E-01

Applicant: Shenzhen PioCreat 3d Technology Co., Ltd.

Address of Applicant: 3rd Floor, Building 1, No. 156 Huawang Road, Langkou Community, Dalang

Street, Longhua District, Shenzhen, China

Equipment Under Test (EUT):

Product: Auto Feed Unit

Model No.: AFU
Test Model No.: AFU
Brand Name: N/A

FCC ID: 2A2DOAFU

Standards: 47 CFR Part 15, Subpart C

Date of Receipt: 2025-3-31

Date of Test: 2025-3-31 to 2025-5-15

Date of Issue: 2025-5-30
Test Result: PASS*

lewis 2hou Tested By:

(Lewis Zhou)

Reviewed By:

(Timo Lei)

Approved By:

(Jack Ai)



The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

^{*} In the configuration tested, the EUT complied with the standards specified above.



Report No.: CQASZ20250300711E-01

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20250300711E-01	Rev.01	Initial report	2025-5-30



Report No.: CQASZ20250300711E-01

2 Contents

	Page
1 VERSION	2
2 CONTENTS	3
3 TEST SUMMARY	4
4 GENERAL INFORMATION	5
4.1 CLIENT INFORMATION 4.2 GENERAL DESCRIPTION OF E.U.T. 4.3 TEST ENVIRONMENT 4.4 DESCRIPTION OF SUPPORT UNITS 4.5 STATEMENT OF THE MEASUREMENT UNCERTAINTY 4.6 TEST LOCATION 4.7 TEST FACILITY 4.8 EQUIPMENT LIST	
5 TEST RESULT AND MEASUREMENT DATA	10
5.1 Antenna Requirement 5.2 Electric Field Strength of Fundamental and Outside the Allocated bands 5.3 Radiated Emissions 5.4 Frequency Tolerance 5.5 Occupied Bandwidth	11 14 20
6 PHOTOGRAPHS - EUT TEST SETUP	28
6.1 Radiated Emission	28
7 PHOTOGRAPHS - EUT CONSTRUCTIONAL DETAILS	30





3 Test Summary

Test Item	Test Requirement	Test Method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203	ANSI C63.10 2013	Pass
Conducted Emission (150KHz to 30MHz)			Pass
Electric Field Strength of Fundamental and Outside the Allocated bands	47 CFR Part 15, Subpart C Section 15.225(a)/(b)/(c)	ANSI C63.10 2013 Section 6.10	Pass
Radiated Emission	47 CFR Part 15, Subpart C Section 15.225(d)/15.209	ANSI C63.10 2013 Section 6.4 & 6.5	Pass
Frequency Tolerance	47 CFR Part 15, Subpart C Section 15.225(e)	ANSI C63.10 2013 Section 6.8	Pass
Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.215	ANSI C63.10 2013 Section 6.9	Pass



Report No.: CQASZ20250300711E-01

4 General Information

4.1 Client Information

Applicant:	Shenzhen PioCreat 3d Technology Co., Ltd.
Address of Applicant:	3rd Floor, Building 1, No. 156 Huawang Road, Langkou Community,
	Dalang Street, Longhua District, Shenzhen, China
Manufacturer:	Shenzhen PioCreat 3d Technology Co., Ltd.
Address of Manufacturer:	3rd Floor, Building 1, No. 156 Huawang Road, Langkou Community,
	Dalang Street, Longhua District, Shenzhen, China
Factory:	Shenzhen PioCreat 3d Technology Co., Ltd.
Address of Factory:	3rd Floor, Building 1, No. 156 Huawang Road, Langkou Community,
	Dalang Street, Longhua District, Shenzhen, China

4.2 General Description of E.U.T.

Product Name:	Auto Feed Unit
Model No.:	AFU
Test Model No.:	AFU
Trade Mark:	N/A
Software Version:	V2.1
Hardware Version:	V2.0
Operation Frequency:	13.56MHz
Modulation Type:	ASK
Product Type:	⊠ Mobile ☐ Portable
Antenna Type:	FPC antenna
Antenna Gain:	0dBi
Power Supply:	Power supply adapter



Report No.: CQASZ20250300711E-01

4.3 Test Environment

Temperature:	25.3 °C
Humidity:	55 % RH
Atmospheric Pressure:	1009mbar
Test mode:	Transmitting mode

4.4 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.	Remark	Supplied
/	1	1	1	1



Report No.: CQASZ20250300711E-01

4.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the **Shenzhen Huaxia Testing Technology Co., Ltd.** quality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CQA laboratory is reported:

No.	Item	Uncertainty	Notes
1	Radiated Emission (Below 1GHz)	±5.12dB	(1)
2	Radiated Emission (Above 1GHz)	±4.60dB	(1)
3	Conducted Disturbance (0.15~30MHz)	±3.34dB	(1)
4	Radio Frequency	3×10 ⁻⁸	(1)
5	Duty cycle	0.6 %.	(1)
6	Occupied Bandwidth	1.1%	(1)
7	RF conducted power	0.86dB	(1)
8	RF power density	0.74	(1)
9	Conducted Spurious emissions	0.86dB	(1)
10	Temperature test	0.8℃	(1)
11	Humidity test	2.0%	(1)
12	Supply voltages	0.5 %.	(1)
13	time	0.6 %.	(1)
14	Frequency Error	5.5 Hz	(1)

⁽¹⁾This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



Report No.: CQASZ20250300711E-01

4.6 Test Location

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

4.7 Test Facility

• A2LA (Certificate No. 4742.01)

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

• FCC Registration No.: 522263

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen 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. Registration No.:522263



Report No.: CQASZ20250300711E-01

4.8 Equipment List

Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2024/9/2	2025/9/1
Spectrum analyzer	R&S	FSU26	CQA-038	2024/9/2	2025/9/1
Preamplifier	MITEQ	AFS4-00010300-18-10P- 4	CQA-035	2024/9/2	2025/9/1
Preamplifier	MITEQ	AMF-6D-02001800-29- 20P	CQA-036	2023/11/01	2026/10/31
Loop antenna	Schwarzbeck	FMZB1516	CQA-087	2023/9/7	2026/9/6
Bilog Antenna	R&S	HL562	CQA-011	2023/11/01	2026/10/31
Coaxial Cable (Below 1GHz)	CQA	N/A	C020	2023/11/01	2026/10/31
EMI Test Receiver	R&S	ESPI3	CQA-013	2024/9/2	2025/9/1
LISN	R&S	ENV216	CQA-003	2024/9/2	2025/9/1
Coaxial cable	CQA	N/A	CQA-C009	2024/9/2	2025/9/1
high-low temperature chamber	Auchno	OJN-9606	CQA-CB2	2024/9/2	2025/9/1
DC power	KEYSIGHT	E3631A	CQA-028	2024/9/2	2025/9/1



Report No.: CQASZ20250300711E-01

5 Test Result and Measurement Data

5.1 Antenna Requirement

Standard requirement:	47 CFR Part15 C Section 15.203
15.203 requirement:	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, 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.
EUT Antenna:	S MESSA NFC ANT
The antenna is FPC anter	nna. The best case gain of the antenna is 0 dBi.



5.2 Electric Field Strength of Fundamental and Outside the Allocated bands

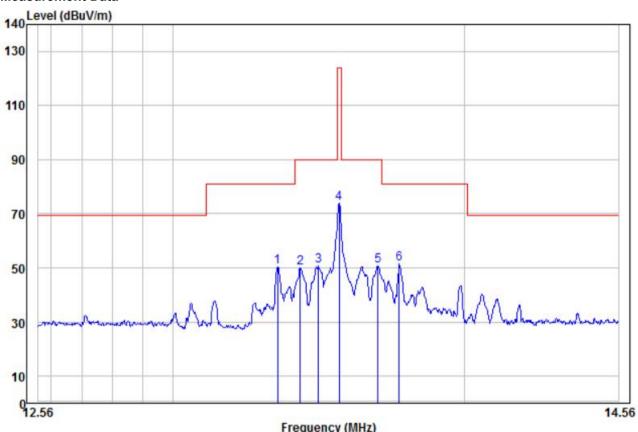
Test Requirement:	47 CFR Part 15, Subpart C Section 15.225(a)/(b)/(c)				
Test Method:	ANSI C63.10: 2013				
Test Site:	3m (Semi-Anechoic Chamber)				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
Limit:	Frequency Range(MHz)	E-field Strengt @ 30 m (μ\			Strength Limit m (dBµV/m)
	13.560 ± 0.007	15848			124
	13.410 to 13.553 13.567 to 13.710	334			90
	13.110 to 13.410 13.710 to 14.010	106			81
	measured at and following formula: Extrapolation(dB)=40log			•	· ·
Test Setup:	RX Antenna 3 m Ground Plane Receiver Figure 1. Below 30MHz				
Test Procedure:	The EUT was placed on the top of a rotating table 0.8 meters above the				
	ground at a 3 meter semi-anechoic camber. The table was rotated 360				
	degrees to determine	•	_		
	2. The EUT was set 3 meters away from the interference-receiving antenna,			•	
	which was mounted on the top of a variable-height antenna tower. 3. For each suspected emission, the EUT was arranged to its worst case and				
	3. For each suspected of	emission, the EU i	was arran	ged to its	worst case and



	 then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. 7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.
Test Mode: Test Result:	Transmitting mode Pass
Test Mode: Test Result:	·



Measurement Data



			110	quency (iiii	12)		
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	13.35	30.69	19.90	50.59	81.00	-30.41	Peak
2	13.43	29.98	19.90	49.88	90.00	-40.12	Peak
3	13.49	30.98	19.90	50.88	90.00	-39.12	Peak
4	13.56	53.86	19.90	73.76	124.00	-50.24	Peak
5	13.70	30.82	19.90	50.72	90.00	-39.28	Peak
6 pp	13.77	31.76	19.90	51.66	81.00	-29.34	Peak

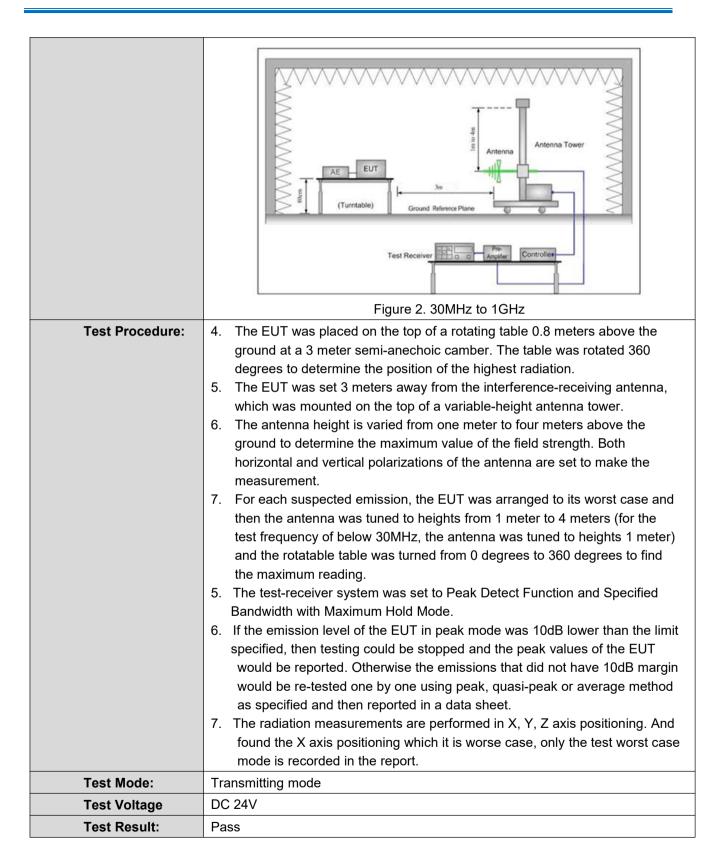


Report No.: CQASZ20250300711E-01

5.3 Radiated Emissions

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.225(d)							
Test Method:	ANSI C63.10: 2013							
Test Site:								
Receiver Setup:	3m (Semi-Anechoic Chamber) Frequency Detector RBW VBW Remark							
Receiver Setup.	Frequency	Detector			Remark			
	0.009MHz-0.090MH		10kF		Peak			
	0.009MHz-0.090MH		10kF		Average			
	0.090MHz-0.110MH	· · · · · · · · · · · · · · · · · · ·	10kH		Quasi-peak			
	0.110MHz-0.490MH	+	10kF		Peak			
	0.110MHz-0.490MH		10kF		Average			
	0.490MHz -30MHz	<u> </u>	10kF		Quasi-peak			
	30MHz-1GHz	Peak	100 k	Hz 300kHz	Peak			
Limit:	Frequency	Field strength (microvolt/mete		Limit (dBuV/m) @ 3 m	Remark			
	0.009MHz-0.490MHz	2400/F(kHz) @3	00m	129-94	Quasi-peak			
	0.490MHz-1.705MHz	24000/F(kHz) @3	30m	74-63	Quasi-peak			
	1.705MHz-30MHz	30 @30m		70	Quasi-peak			
	30MHz-88MHz	100 @3m		40.0	Quasi-peak			
	88MHz-216MHz	150 @3m		43.5	Quasi-peak			
	216MHz-960MHz	200 @3m		46.0	Quasi-peak			
	960MHz-1GHz	500 @3m		54.0	Quasi-peak			
	Note: Where the limits have been defined at one distance, and a signal measured at another, the limits have been extrapolated using following formula: Extrapolation(dB)=40log ₁₀ (Measurement Distance/Specification Distance)							
Test Setup:	RX Antenna							
	Turn Table							
	Receiver Figure 1. Below 30MHz							









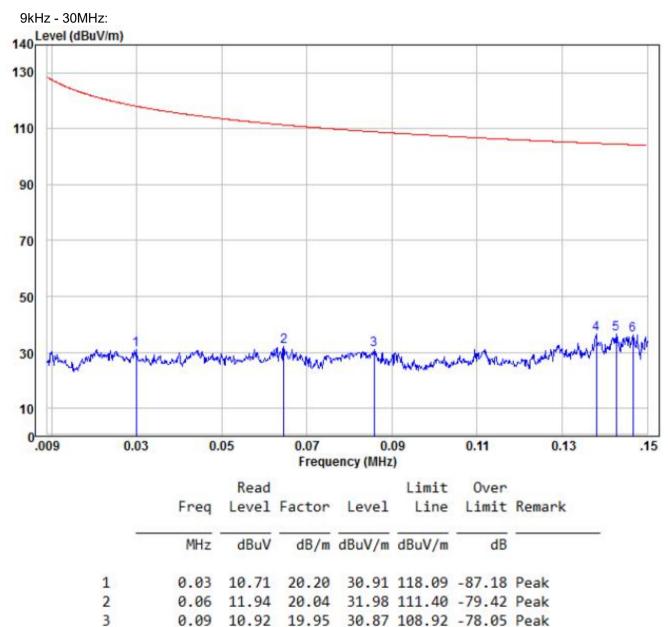
Measurement Data

4

5 pp

0.14

0.15



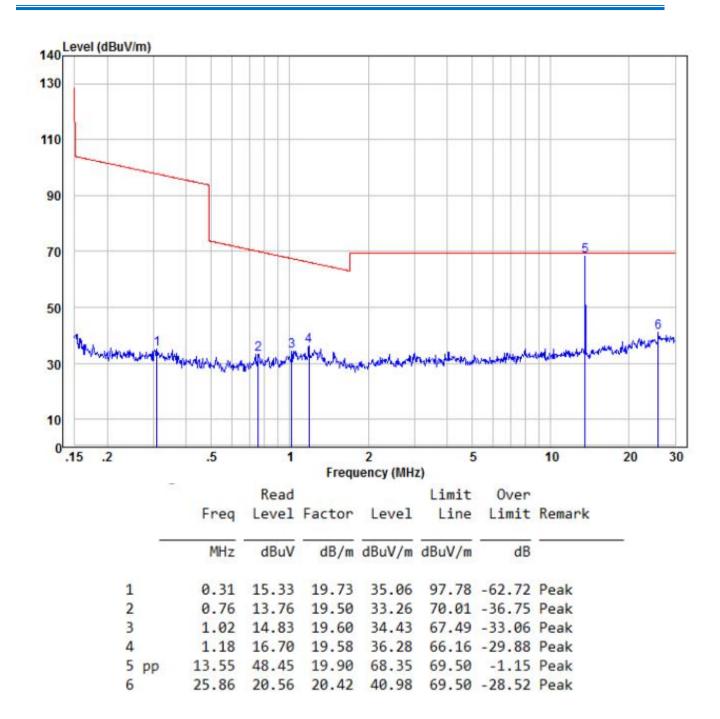
0.14 16.61 19.82 36.43 104.80 -68.37 Peak

16.28 19.81 36.09 104.27 -68.18 Peak

36.42 104.51 -68.09 Peak

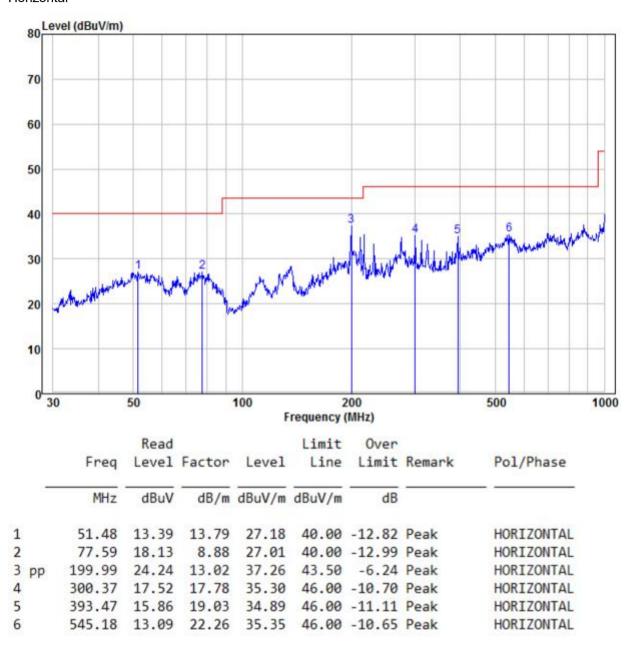
16.61 19.81





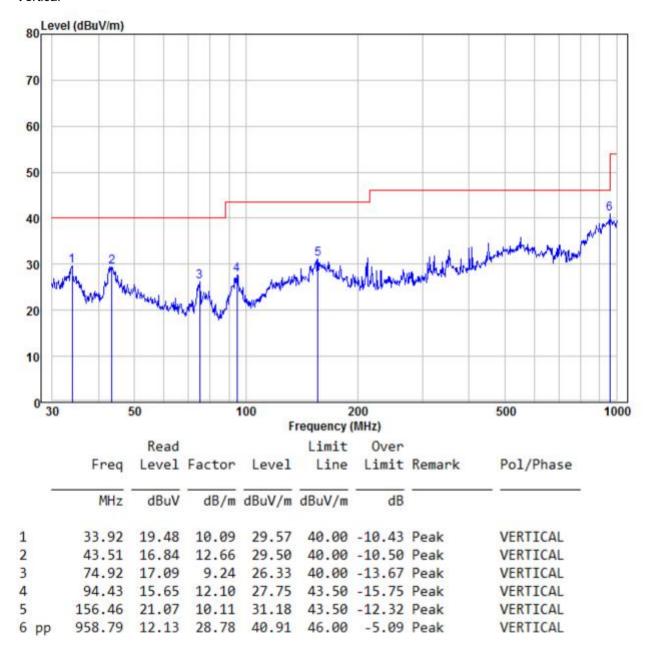


30MHz-1GHz Horizontal



Report No.: CQASZ20250300711E-01

Vertical



Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Factor = Antenna Factor + Cable Factor - Preamplifier Factor,

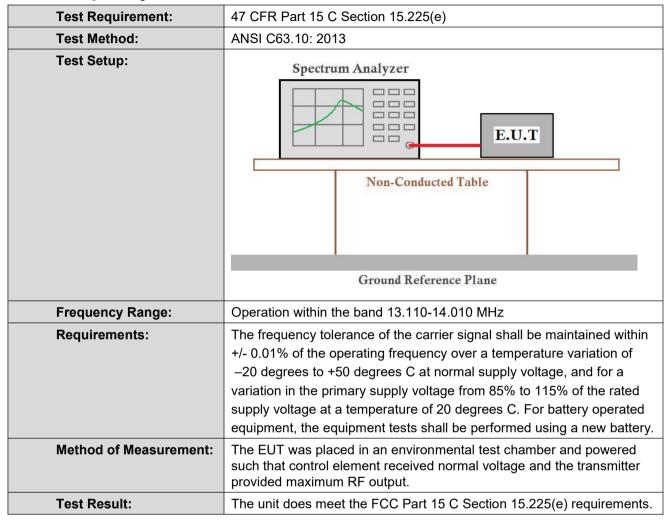
Level = Read Level + Factor,

Over Limit=Level-Limit Line.



Report No.: CQASZ20250300711E-01

5.4 Frequency Tolerance





Report No.: CQASZ20250300711E-01

Test Frequency: 13.56MHz Temperature:20°C								
Supply Voltage (V) DC	Test Result (MHz)	Limit ±0.01% (kHz)	Result					
5	13.5612931	1.293	1.3560	Pass				
4.25	13.5612931	1.293	1.3560	Pass				
5.75	13.5612931	1.293	1.3560	Pass				

Test Frequency: 13.56MHz Normal Voltage:DC24V							
Temperature (℃)	Test Result (MHz)	Deviation (kHz)	Limit ±0.01% (kHz)	Result			
-20	13.5612832	1.2832	1.3560				
-10	13.5612825	1.2825	1.3560				
0	13.5612874	1.2874	1.3560				
10	13.5612828	1.2828	1.3560	Door			
20	13.5612836	1.2836	1.3560	Pass			
30	13.5612887	1.2887	1.3560				
40	13.5612835	1.2835	1.3560				
50	13.5612842	1.2842	1.3560				

Note: Deviation (KHz) = (Test Result-13.56MHz)*1000



Report No.: CQASZ20250300711E-01

5.5 Occupied Bandwidth

Test Requirement:	47 CFR Part 15 C Section 15.215 (C)
Test Method:	ANSI C63.10: 2013
Test Setup:	Coil Antenna Spectrum Analyzer
Frequency Range:	Operation within the band 13.110 – 14.010 MHz
Requirements:	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.
Limit:	For 13.56 MHz the permitted frequency band is 14kHz, so the limit is 11.2 kHz.

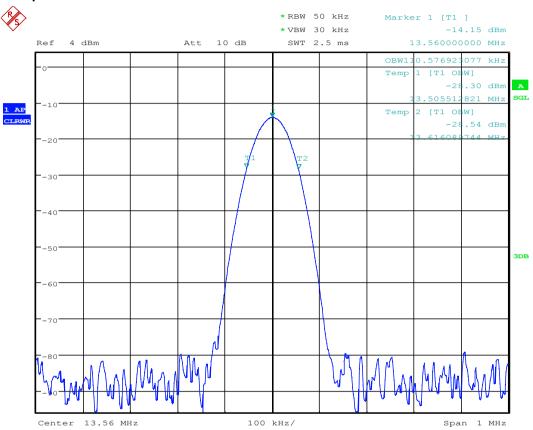
Test Data:

20dB bandwidth (kHz)	FL (MHz)	FH (MHz)	Limit(MHz)	Result
110.577	13.5	13.6	13.110 - 14.010	Pass



Report No.: CQASZ20250300711E-01

Test plot as follows:



Date: 15.MAY.2025 09:41:54



Report No.: CQASZ20250300711E-01

Conducted Emission

Test Requirement: 47 CFR Part 15B
Test Method: ANSI C63.4
Test frequency range: 150kHz to 30MHz

Limit:

Fraguency range (MHz)	Limit (dBμV)				
Frequency range (MHz)	Quasi-peak	Average			
0.15-0.5	66 to 56*	56 to 46*			
0.5-5	56	46			
5-30	60	50			

^{*} Decreases with the logarithm of the frequency.

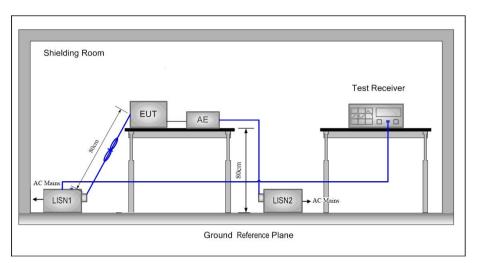
Test Procedure:

- 1) The mains terminal disturbance voltage test was conducted in a shielded room
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu H + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4 on conducted measurement.



Report No.: CQASZ20250300711E-01

Test Setup:



Instruments Used: Refer to section 5 for details

Test Mode: Transmitting mode

Test Voltage DC 24V
Test Results: Pass



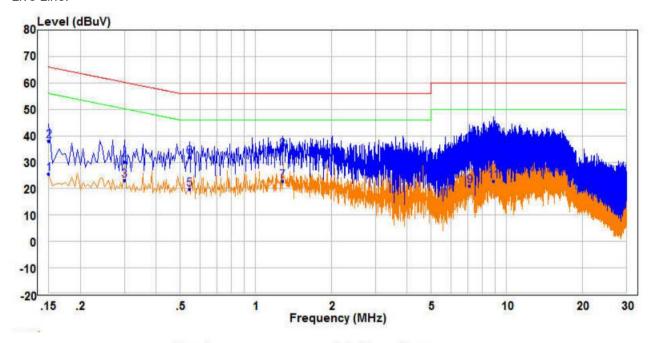
Report No.: CQASZ20250300711E-01

Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live Line:

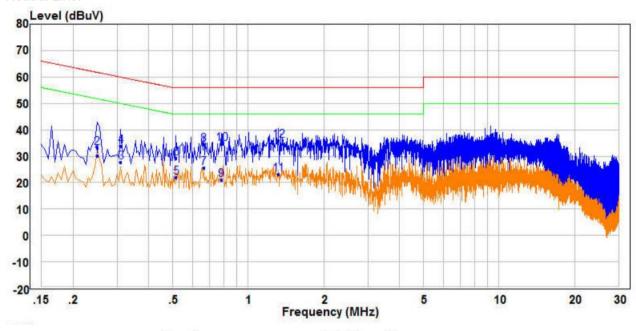


			Read			Limit	Over		
		Freq	Level	Factor	Level	Line	Limit	Remark	Pol/Phase
	-	MHz	dBuV	dB	dBuV	dBuV	dB	A. 	-
1		0.150	15.89	9.70	25.59	56.00	-30.41	Average	Line
2		0.150	28.25	9.70	37.95	66.00	-28.05	QP	Line
3		0.300	13.74	9.49	23.23	50.24	-27.01	Average	Line
3 4 5		0.300	20.58	9.49	30.07	60.24	-30.17	QP	Line
5		0.545	10.20	9.75	19.95	46.00	-26.05	Average	Line
6		0.545	22.32	9.75	32.07	56.00	-23.93	QP	Line
7	AV	1.280	12.41	10.39	22.80	46.00	-23.20	Average	Line
8		1.280	24.47	10.39	34.86	56.00	-21.14	QP	Line
9		7.115	11.24	9.80	21.04	50.00	-28.96	Average	Line
10		7.115	26.85	9.80	36.65	60.00	-23.35	QP	Line
11		8.865	12.97	9.86	22.83	50.00	-27.17	Average	Line
12	PP	8.865	30.41	9.86	40.27	60.00	-19.73	QP	Line





Neutral Line:



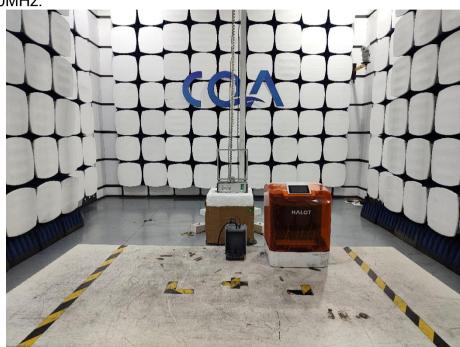
		Read			Limit	Over		
	Freq	Level	Factor	Level	Line	Limit	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	-	
1	0.250	20.68	9.54	30.22	51.76	-21.54	Average	Neutral
2	0.250	23.52	9.54	33.06	61.76	-28.70	QP	Neutral
3	0.310	18.14	9.49	27.63	49.97	-22.34	Average	Neutral
3 4 5	0.310	24.33	9.49	33.82	59.97	-26.15	QP	Neutral
5	0.515	12.37	9.72	22.09	46.00	-23.91	Average	Neutral
6	0.515	19.53	9.72	29.25	56.00	-26.75	QP	Neutral
7 AV	0.665	15.83	9.87	25.70	46.00	-20.30	Average	Neutral
8	0.665	24.58	9.87	34.45	56.00	-21.55	QP	Neutral
9	0.780	11.26	9.85	21.11	46.00	-24.89	Average	Neutral
10	0.780	24.86	9.85	34.71	56.00	-21.29	QP	Neutral
11	1.315	13.56	9.72	23.28	46.00	-22.72	Average	Neutral
12 PP	1.315	26.23	9.72	35.95	56.00	-20.05	OP	Neutral



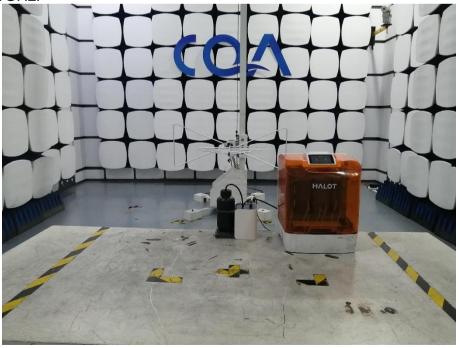
6 Photographs - EUT Test Setup

6.1 Radiated Emission

9KHz~30MHz:



30MHz~1GHz:











7 Photographs - EUT Constructional Details

















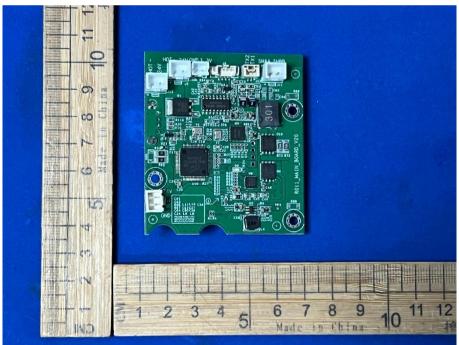




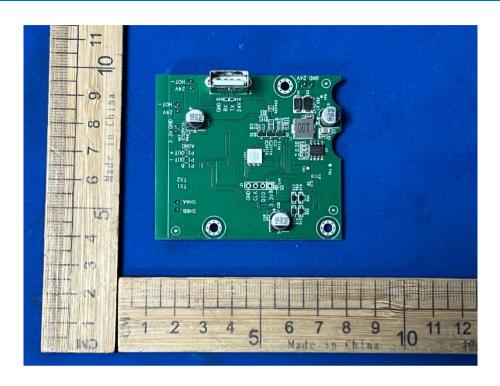


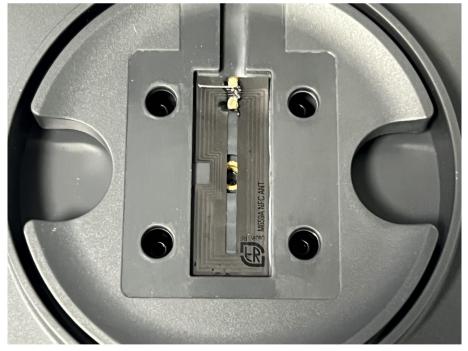




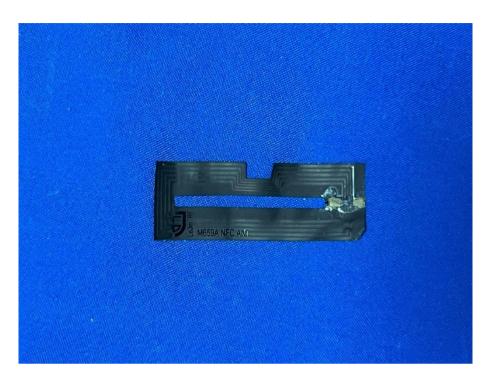














The End