

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

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

Website: <a href="https://www.cga-cert.com">www.cga-cert.com</a> Report Template Revision Date: 2021-11-03

Report Template Version: V05

# **Test Report**

**Report No.:** CQASZ20240901940E-01

Applicant: Shenzhen ICHECKEY Technology Co., Ltd.

Address of Applicant:
B302, Building 4, TianYanXuan, No.1 Lane14, Bantian East Village, Bantian Street,

LongGang District, Shenzhen China. 518000

**Equipment Under Test (EUT):** 

**Product:** 2 in 1 Foldable Magnetic Wireless Charger Power Bank

Model No.: T16
Test Model No.: T16

Brand Name: ICHECKEY FCC ID: 2AYA5-T16

Standards: 47 CFR Part 15, Subpart C

Date of Receipt: 2024-9-6

**Date of Test:** 2024-9-6 to 2024-9-13

Date of Issue: 2024-9-24
Test Result: PASS\*

\*In the configuration tested, the EUT complied with the standards specified above

( Joe Wang )

Reviewed By:

(Timo Lei)

Approved By:

( Alex Wang )







# 1 Version

## **Revision History Of Report**

Report No.	Version	Description	Issue Date
CQASZ20240901940E-01	Rev.01	Initial report	2024-9-24



Report No.: CQASZ20240901940E-01

# 2 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
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 2013	PASS
20dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.215	ANSI C63.10 2013	PASS
Radiated Emission , Radiated Spurious Emissions	47 CFR Part 15, Subpart C Section 15.209	ANSI C63.10 2013	PASS



# 3 Contents

	Page
1 VERSION	2
2 TEST SUMMARY	3
3 CONTENTS	4
4 GENERAL INFORMATION	5
4.1 CLIENT INFORMATION	
4.2 GENERAL DESCRIPTION OF EUT	5
4.4 TEST ENVIRONMENT	
4.6 STATEMENT OF THE MEASUREMENT UNCERTAINTY	7
4.8 TEST FACILITY	7
4.9 DEVIATION FROM STANDARDS	7
5 TEST RESULTS AND MEASUREMENT DATA	
5.1 Antenna Requirement	
5.2 CONDUCTED EMISSIONS	
5.4 RADIATED SPURIOUS EMISSION & RESTRICTED BANDS	
6 PHOTOGRAPHS - EUT TEST SETUP	
6.1 Radiated Emission	28
6.2 CONDUCTED EMISSION	30
7 PHOTOGRAPHS - FUT CONSTRUCTIONAL DETAILS	31



Report No.: CQASZ20240901940E-01

## 4 General Information

### 4.1 Client Information

Applicant:	Shenzhen ICHECKEY Technology Co., Ltd.
Address of Applicant:	B302, Building 4, TianYanXuan, No.1 Lane14, Bantian East Village, Bantian Street, LongGang District, Shenzhen China. 518000
Manufacturer:	Shenzhen ICHECKEY Technology Co., Ltd.
Address of Manufacturer:	B302, Building 4, TianYanXuan, No.1 Lane14, Bantian East Village, Bantian Street, LongGang District, Shenzhen China. 518000
Factory:	Shenzhen ICHECKEY Technology Co., Ltd.
Address of Factory:	B302, Building 4, TianYanXuan, No.1 Lane14, Bantian East Village, Bantian Street, LongGang District, Shenzhen China. 518000

## 4.2 General Description of EUT

Product Name:	2 in 1 Foldable Magnetic Wireless Charger Power Bank
Model No.:	T16
Test Model No.:	T16
Brand Name:	ICHECKEY
Software Version:	V2
Hardware Version:	V05
EUT Power Supply:	Battery: 5000mAh(19.25Wh/3.85V) Charging by Adapter DC 5.0V, 1.0A DC 5V=3A/9V=2A/DC 12V = 1.5A

## 4.3 Product Specification subjective to this standard

Equipment Category:	Non-ISM frequency
Operation Frequency range:	115kHz~205kHz, 315kHz~330kHz
Modulation Type:	ASK
Antenna Type:	Induction coil
Antenna Gain:	0dBi

#### Note:

1. In section 15.31(m), regards to the operating frequency range less 1 MHz.



### 4.4 Test Environment

Operating Environment				
Radiated Emissions:				
Temperature:	25.5 °C			
Humidity:	53 % RH			
Atmospheric Pressure:	1009 mbar			
Conducted Emissions:				
Temperature:	25.8 °C			
Humidity:	58 % RH			
Atmospheric Pressure:	100.9 mbar			
Radio conducted item t	est (RF Conducted test room):			
Temperature:	27.1 °C			
Humidity:	56 % RH			
Atmospheric Pressure:	100.9 mbar			
Test Mode:				
Mode a:	Keep the EUT Charging+ Out Put for Watch 2.5W			
Mode b:	Keep the EUT Charging+Wireless Charging load Out Put for Phone 5W			
Mode c:	Keep the EUT Charging+Keep the EUT Wireless Out Put for Phone 5W+ for Watch 2.5W 7.5W			
Mode d:	Keep the EUT at Wireless Out Put for Watch 2.5W			
Mode e:	Keep the EUT Wireless Charging load Out Put for Phone 5W			
Mode f:	Keep the EUT Wireless Charging load Out Put for Phone 7.5W			
Mode g:	Keep the EUT Wireless Charging load Out Put for Phone 10W			
Mode h:	Keep the EUT Wireless Charging load Out Put for Phone 15W (Max)			
Mode i:	Keep the EUT Wireless Out Put for Phone 15W+for Watch 2.5W 17.5W (Total MAX)			
Note: The above test modes all	Note: The above test modes all include full load,empty load,and half load, The worst-case state			
reflected in this report is the full	y loaded state			

# 4.5 Description of Support Units

The EUT has been tested with associated equipment below.

1) Support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
Adapter	XIAOMI	MDY-12-ED	/	CQA
Apple Watch	Apple	S7	/	CQA
Wireless charge load	/	1	/	CQA

2) Cable

Cable No.	Description	Manufacturer	Cable Type/Length	Supplied by
1	1	1	1	/



Report No.: CQASZ20240901940E-01

### 4.6 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	Occupied Bandwidth	1.1%	(1)
4	Temperature test	0.8℃	(1)
5	Humidity test	2.0%	(1)

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

#### 4.7 Test Location

Shenzhen Huaxia Testing Technology Co., Ltd.

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

## 4.8 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

#### 4.9 Deviation from Standards

None.

### 4.10 Other Information Requested by the Customer

None.





# 4.11 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	PA5001	CQA-036	2024/9/2	2025/9/1
Loop antenna	SCHWARZB ECK	FMZB 1516	CQA-060	2023/9/8	2026/9/7
Horn Antennaz	R&S	BBHA 9170	CQA-088	2023/11/01	2026/10/31
Horn Antenna	R&S	HF906	CQA-012	2023/11/01	2026/10/31
Bilog Antenna	R&S	HL562	CQA-011	2023/9/7	2026/9/6
Coaxial cable (1GHz~40GHz)	CQA	N/A	C007	2024/9/2	2025/9/1
Coaxial cable (9KHz~1GHz)	CQA	N/A	C013	2024/9/2	2025/9/1
Antenna Connector	CQA	RFC-01	CQA-080	2024/9/2	2025/9/1
RF cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2024/9/2	2025/9/1
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	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
DC power	KEYSIGHT	E3631A	CQA-028	2024/9/2	2025/9/1





## 5 Test results and Measurement Data

### 5.1 Antenna Requirement

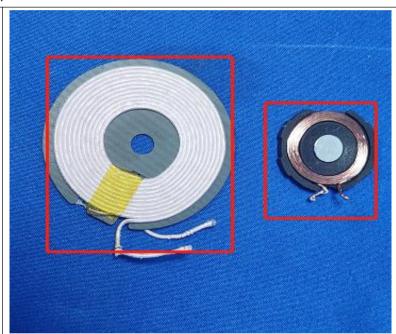
**Standard requirement:** 47 CFR Part 15C Section 15.203

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.

(b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### **EUT Antenna:**



The antenna is Induction coil. The best case gain of the antenna is 0dBi.





## 5.2 Conducted Emissions

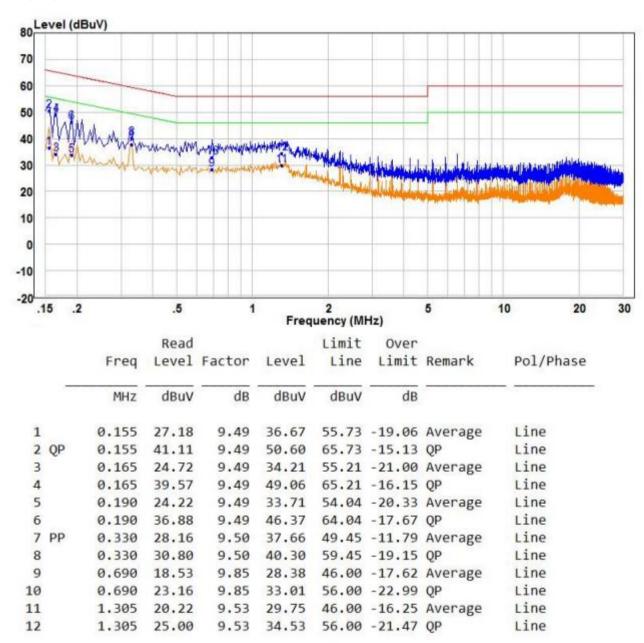
Tast Danishana anti	47 OFD David 450 October 45 (	207			
Test Requirement:	47 CFR Part 15C Section 15.207				
Test Method:	ANSI C63.10: 2013				
Test Frequency Range:	150kHz to 30MHz				
Limit:	Frequency range (MHz)	Limit (c	dBuV)		
	, , , ,	Quasi-peak	Average		
	0.15-0.5	66 to 56*	56 to 46*		
	0.5-5	56	46		
	5-30	60	50		
	* Decreases with the logarithn	n of the frequency.			
Test Procedure:	<ol> <li>The mains terminal disturb room.</li> <li>The EUT was connected Impedance Stabilization N</li> </ol>	to AC power source	through a LISN 1 (	(Line	
	impedance. The power connected to a second LIS plane in the same way a multiple socket outlet strip single LISN provided the ra	cables of all other SN 2, which was bonde as the LISN 1 for the was used to connect rating of the LISN was r	units of the EUT of the to the ground reference unit being measure multiple power cables not exceeded.	were ence ed. A s to a	
	The tabletop EUT was pla ground reference plane. A placed on the horizontal gr	nd for floor-standing a	rrangement, the EUT		
	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 maximu and all of the interface cal			ment	
	ANSI C63.10: 2013 on cor	-	-		
Test Setup:				1	
	Shielding Room  EUT  AC Mains  LISN1	AE  LISN2  AC Ma  Ground Reference Plane	Test Receiver		
			9		
Test Results:	Pass				



#### **Measurement Data**

The worst case:mode a

Live line:

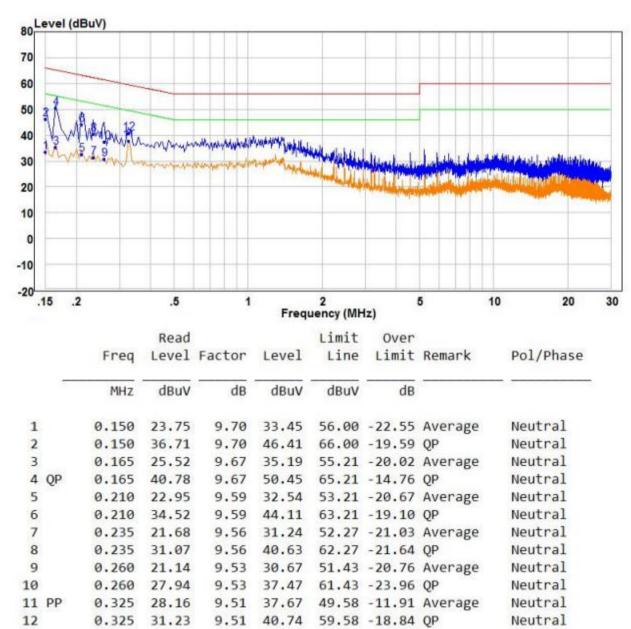


- 1. The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
- 3. If the Peak value under Average limit, the Average value is not recorded in the report.



The worst case:mode a:

#### Neutral line:

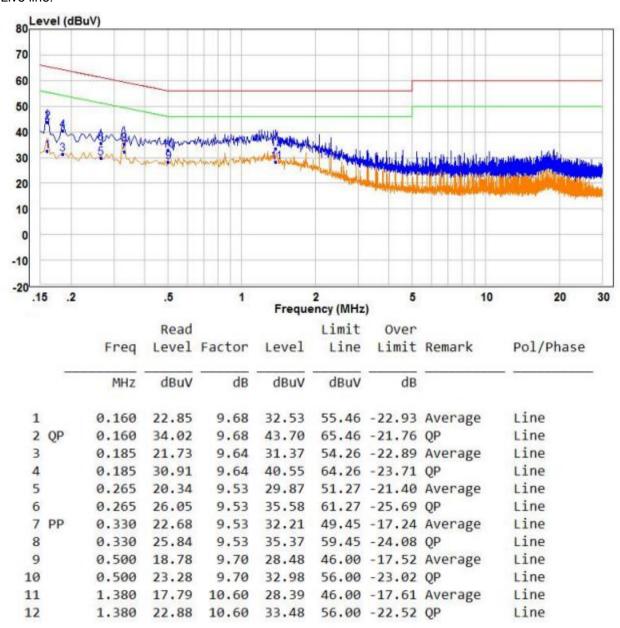


- 1. The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
- 3. If the Peak value under Average limit, the Average value is not recorded in the report.



#### The worst case:mode c

#### Live line:

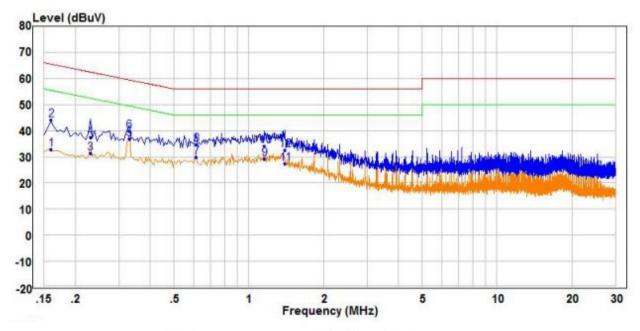


- 1. The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
- 3. If the Peak value under Average limit, the Average value is not recorded in the report.



#### The worst case:mode c:

#### Neutral line:

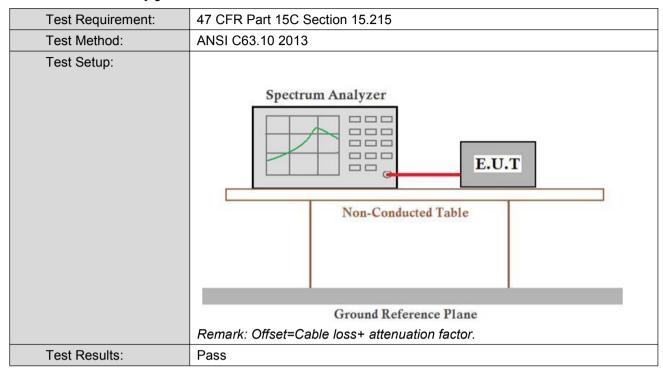


		Read			Limit	Over		
	Freq	Level	Factor	Level	Line	Limit	Remark	Pol/Phase
_	MHz	dBuV	dB	dBuV	dBuV	dB		-
1	0.160	23.18	9.68	32.86	55.46	-22.60	Average	Neutral
2	0.160	34.38	9.68	44.06	65.46	-21.40	QP	Neutral
3	0.230	21.70	9.56	31.26	52.45	-21.19	Average	Neutral
4	0.230	28.01	9.56	37.57	62.45	-24.88	QP	Neutral
5 PP	0.330	27.46	9.52	36.98	49.45	-12.47	Average	Neutral
6 QP	0.330	30.22	9.52	39.74	59.45	-19.71	QP	Neutral
7	0.615	19.99	9.82	29.81	46.00	-16.19	Average	Neutral
8	0.615	24.83	9.82	34.65	56.00	-21.35	QP	Neutral
9	1.160	19.51	9.71	29.22	46.00	-16.78	Average	Neutral
10	1.160	24.46	9.71	34.17	56.00	-21.83	QP	Neutral
11	1.400	17.83	9.72	27.55	46.00	-18.45	Average	Neutral
12	1.400	22.74	9.72	32.46	56.00	-23.54	QP	Neutral

- 1. The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
- 3. If the Peak value under Average limit, the Average value is not recorded in the report.



## 5.3 20dB Occupy Bandwidth



#### **Measurement Data**

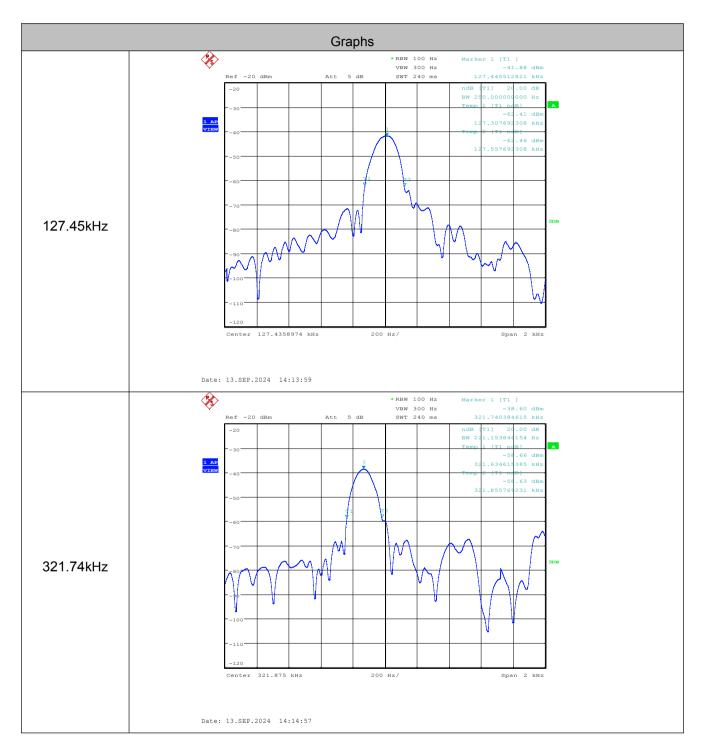
Mode i						
Test Frequency (kHz) 20dB Occupy Bandwidth (Hz) Result						
127.45	250.00	Pass				

#### **Measurement Data**

Mode d							
Test Frequency (kHz) 20dB Occupy Bandwidth (Hz) Result							
321.74	221.15	Pass					



### Test plot as follows:





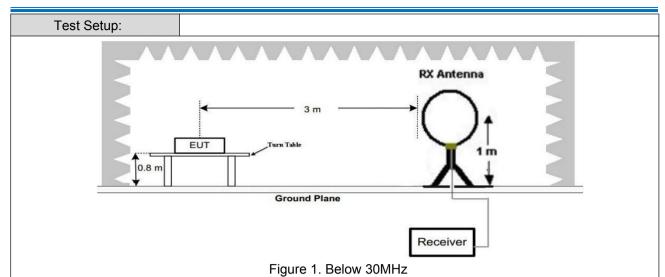


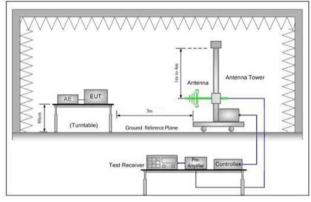
# 5.4 Radiated Spurious Emission & Restricted bands

5.4.1 Spurious Emissions									
Test Requirement:	47 CFR Part 15C Secti	on 1	5.209 and 15	.205					
Test Method:	ANSI C63.10 2013	ANSI C63.10 2013							
Test Site:	Measurement Distance	Measurement Distance: 3m (Semi-Anechoic Chamber)							
Receiver Setup:	Frequency		Detector	RBW		VBW	Remark		
	0.009MHz-0.090MH	z	Peak	10kHz	<u>z</u>	30kHz	Peak		
	0.009MHz-0.090MH	z	Average	10kHz	z	30kHz	Average		
	0.090MHz-0.110MH	z	Quasi-peak	10kHz	<u>z</u>	30kHz	Quasi-peak		
	0.110MHz-0.490MH	z	Peak	10kHz	<u>z</u>	30kHz	Peak		
	0.110MHz-0.490MH	z	Average	10kHz	2	30kHz	Average		
	0.490MHz -30MHz		Quasi-peak	10kHz	2	30kHz	Quasi-peak		
	30MHz-1GHz		Quasi-peak	100 kH	lz 3	300kHz	Quasi-peak		
	Above 1GHz		Peak	1MHz	2	3MHz	Peak		
	Above 1GHz		Peak	Peak 1MHz		10Hz	Average		
Limit:	Frequency		eld strength crovolt/meter)	Limit (dBuV/m)	R	temark	Measuremer distance (m		
	0.009MHz-0.490MHz	2	400/F(kHz)	-			300		
	0.490MHz-1.705MHz	24	1000/F(kHz)	0/F(kHz) -		-	30		
	1.705MHz-30MHz		30	-			30		
	30MHz-88MHz		100	40.0	Quasi-peak		3		
	88MHz-216MHz		150	43.5	Qua	asi-peak	3		
	216MHz-960MHz		200	46.0	6.0 Quasi-peak		3		
	960MHz-1GHz		500	54.0	Qua	asi-peak	3		
	Above 1GHz	500	54.0	A۱	verage	3			
	Note: 15.35(b), frequency emissions is limit applicable to the epeak emission level race	20c quip	dB above the oment under t	maximum est. This p	perm	nitted ave	erage emission		



Report No.: CQASZ20240901940E-01





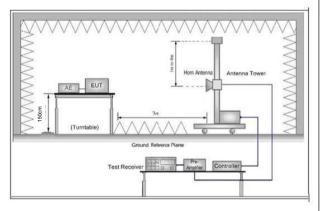


Figure 2. 30MHz to 1GHz

Figure 3. Above 1 GHz

#### Test Procedure:

- a. 1) Below 1G: 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 the position of the highest radiation.
  - 2) Above 1G: The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.

Note: For the radiated emission test above 1GHz:

Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the

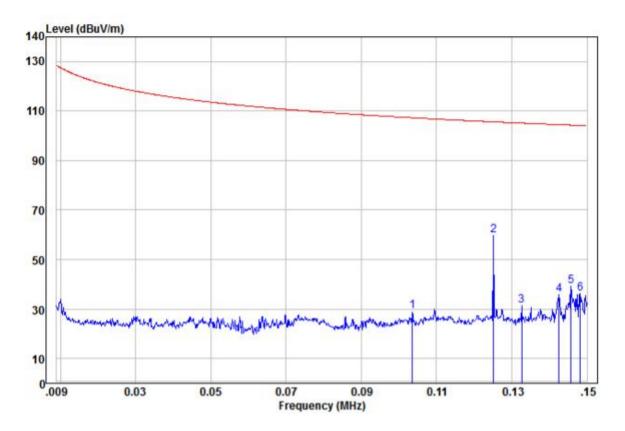


		measurement.
		For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
	e.	The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
	f.	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.
	g.	Repeat above procedures until all frequencies measured was complete.
Test Results:	Pas	SS SS



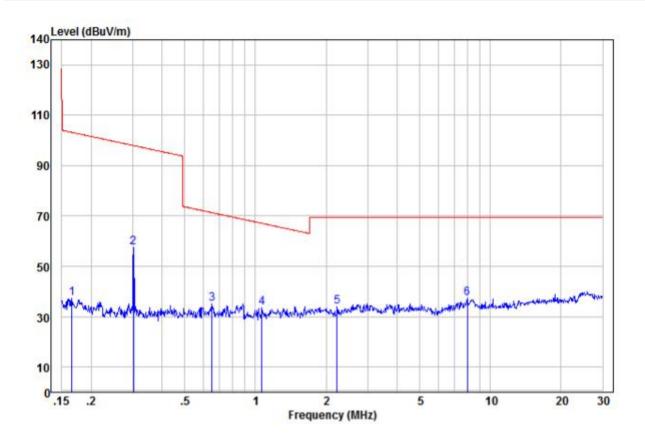


Radiated Emission below 9k~30MHz				
the worst case				
Test mode: Mode c				



	Freq	Read Level	Factor	Level	Limit Line		Remark	Pol/Phase
_	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	0.10	9.70	19.59	29.29	107.29	-78.00	Peak	HORIZONTAL
2 pp	0.13	40.34	19.57	59.91	105.65	-45.74	Peak	HORIZONTAL
3	0.13	11.79	19.56	31.35	105.14	-73.79	Peak	HORIZONTAL
4	0.14	16.23	19.55	35.78	104.52	-68.74	Peak	HORIZONTAL
5	0.15	19.66	19.55	39.21	104.32	-65.11	Peak	HORIZONTAL
6	0.15	16.70	19.54	36.24	104.18	-67.94	Peak	HORIZONTAL



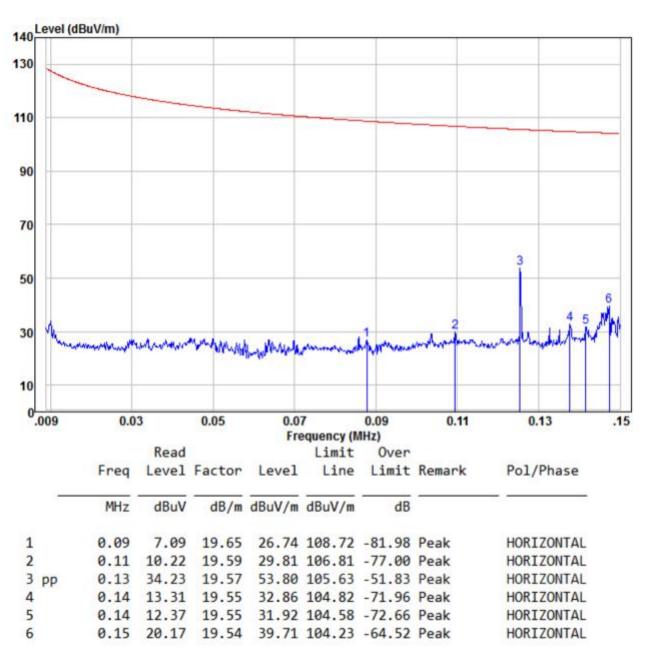


	Freq	Read Level	Factor	Level	Line		Remark	Pol/Phase
8	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	-	
1	0.17	17.64	19.53	37.17	103.20	-66.03	Peak	HORIZONTAL
2	0.30	38.02	19.60	57.62	97.96	-40.34	Peak	HORIZONTAL
3	0.65	15.15	19.77	34.92	71.30	-36.38	Peak	HORIZONTAL
4	1.07	13.65	19.91	33.56	67.07	-33.51	Peak	HORIZONTAL
5	2.22	14.12	19.97	34.09	69.50	-35.41	Peak	HORIZONTAL
6 pp	7.98	17.35	19.90	37.25	69.50	-32.25	Peak	HORIZONTAL

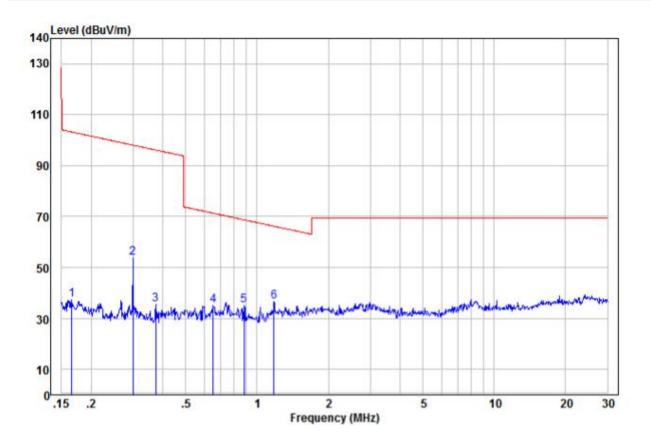




Radiated Emission below 9k~30MHz					
the worst case					
Test mode: Mode i					







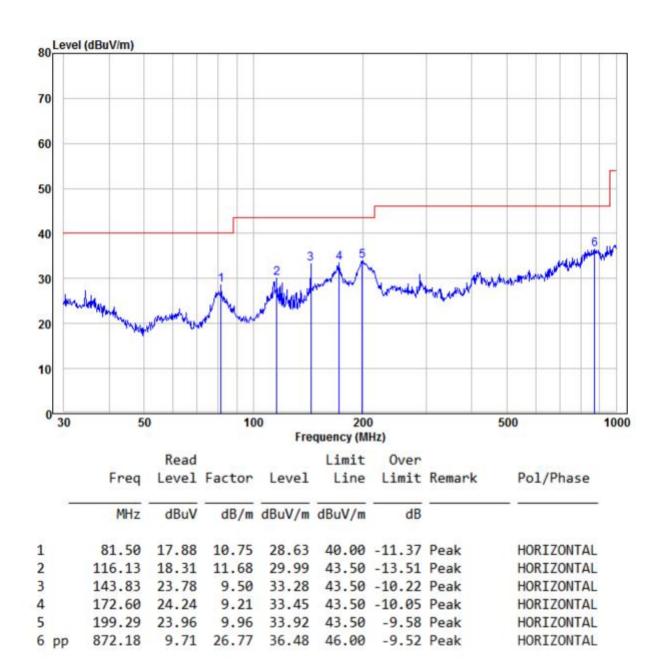
	Freq	Read Level	Factor	Level	Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	-	
1	0.17	17.64	19.53	37.17	103.20	-66.03	Peak	HORIZONTAL
2	0.30	34.23	19.60	53.83	98.05	-44.22	Peak	HORIZONTAL
3	0.38	15.99	19.64	35.63	96.12	-60.49	Peak	HORIZONTAL
4	0.65	15.15	19.77	34.92	71.30	-36.38	Peak	HORIZONTAL
5	0.88	15.24	19.86	35.10	68.73	-33.63	Peak	HORIZONTAL
6 рр	1.18	16.82	19.92	36.74	66.20	-29.46	Peak	HORIZONTAL

Note: No other emissions found between lowest internal used/generated frequencies to 30MHz. The peak level of the emission is less than the average limit, so the average level shall be less than 1 the limit without test.



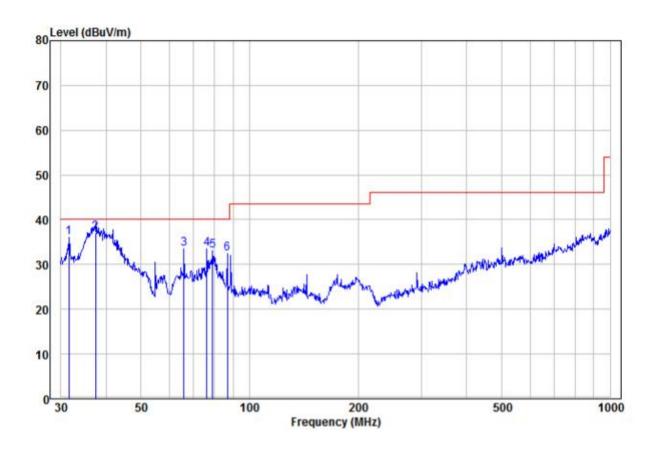


Radiated Emission						
30MHz~1GHz, the worst case						
Test mode: Mode c Horizontal						





30MHz~1GHz, the worst case					
Test mode:	Mode c	Vertical			

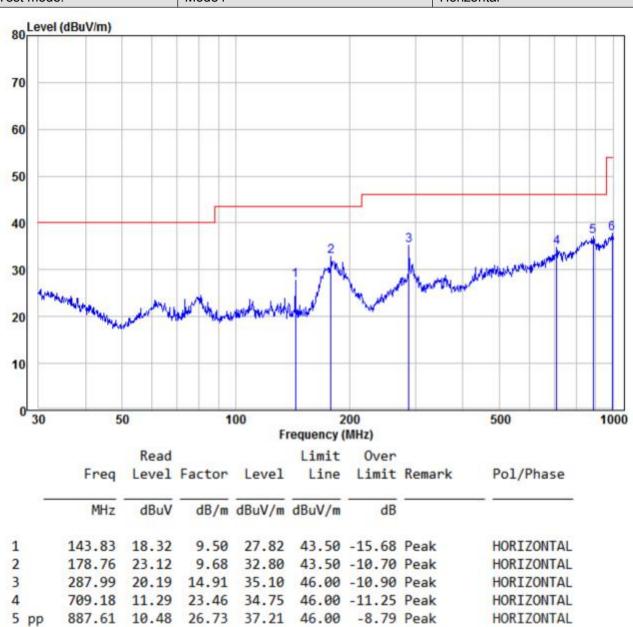


	Freq	Read Level		Level	Limit Line	Over Limit	Remark	Pol/Phase
£	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	-	
1 pk	31.51	20.19	15.76	35.95	40.00	-4.05	Peak	VERTICAL
2 pp	37.42	22.80	14.27	37.07	40.00	-2.93	QP	VERTICAL
3	65.80	25.85	7.69	33.54	40.00	-6.46	Peak	VERTICAL
4	76.24	23.33	10.09	33.42	40.00	-6.58	Peak	VERTICAL
5	78.97	22.44	10.53	32.97	40.00	-7.03	Peak	VERTICAL
6	86.81	21.62	10.91	32.53	49.99	-7.47	Peak	VERTICAL



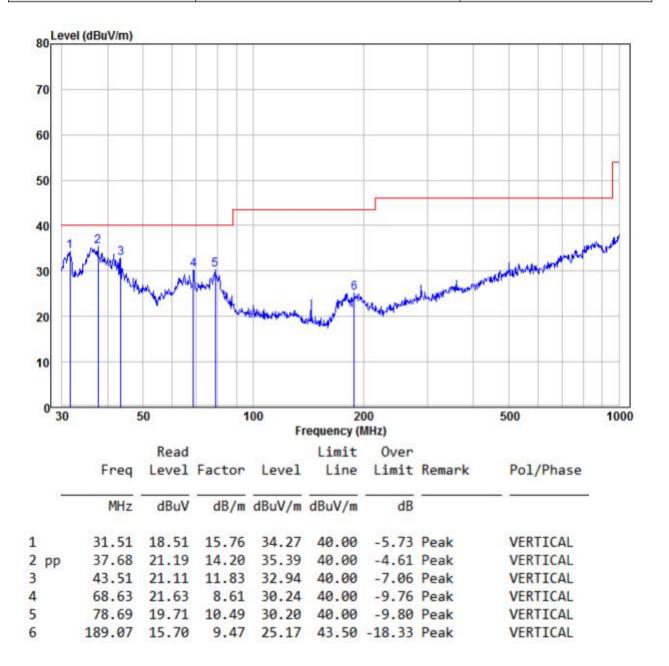
HORIZONTAL





996.50 10.16 27.62 37.78 54.00 -16.22 Peak

30MHz~1GHz, the worst case					
Test mode:	Mode i	Vertical			



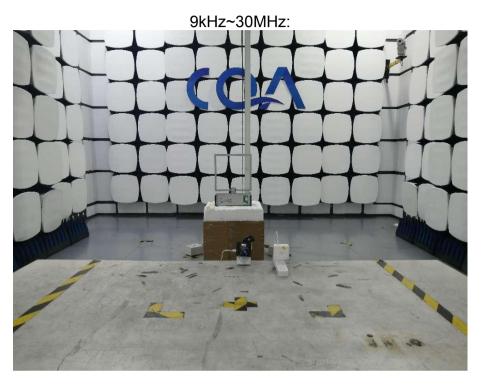
#### Remark:

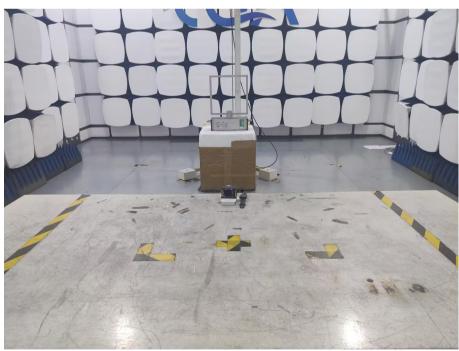
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor

# 6 Photographs - EUT Test Setup

## 6.1 Radiated Emission

















## **6.2** Conducted Emission



# 7 Photographs - EUT Constructional Details









