Test Report issued under the responsibility of:

Supplier's Declaration of Conformity Report

Report Reference No. ..... :	EP2307231F01
Engineer (name + signature) ..... :	Sam Gan
Approved by (name + signature) ..... :	Eric Liu
Date of Receipt of EUT ..... :	2023-08-04
Date of Test ..... :	2023-08-05 to 2023-08-10
Date of issue ..... :	2023-08-11
Testing Laboratory..... :	Dongguan Pubiao Testing Technology Co., Ltd.
Address ..... :	No. 3, 1/F., Building A, No.30, Minghua Road, Juzhou, Shijie, Dongguan, Guangdong, China.
Applicant's name..... :	Guangzhou Xingyi Electronic Technology Co., Ltd.
Address ..... :	8th Floor, Baiyun Torch Building, No.1 Kesheng Road, Taihe Town, Baiyun District, Guangzhou City, Guangdong Province, China
Manufacturer's name ..... :	Same as applicant
Address ..... :	Same as applicant
Factory's name.....:	Same as applicant
Address.....:	Same as applicant

Test specification:

EUT description	:	Core-board
Trade Mark	:	正点原子
Model/Type reference	:	ATK-CLRK3568F
Test Sample	:	ATK-CLRK3568F
Ratings	:	Input: DC 5V 1A and DC 3.3V 1A
Standards	:	FCC Part 15 Subpart B ANSI C63.4:2014

The device described above was tested by Dongguan Pubiao Testing Technology Co., Ltd. to determine the maximum emission levels emanated from the device and severity levels of the device endure and its performance criterion. The measurement results are contained in this test report and Dongguan Pubiao Testing Technology Co., Ltd. assumes full responsibility for the accuracy and completeness of these measurements. This report shows the EUT is technically compliance with the above official standards.

This report applies to the above sample only and shall not be reproduced in part without written approval of Dongguan Pubiao Testing Technology Co., Ltd.

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1 GENERAL INFORMATION

1.1 GENERAL PRODUCT INFORMATION

All tests were performed on model ATK-CLRK3568F.

The EUT passed the test.

1.2 DETAILS ABUT THE TEST LABORATORY

Test Site 1:

Company name: Dongguan Pubiao Testing Technology Co., Ltd

Address: No. 3, 1/F., Building A, No.30, Minghua Road, Juzhou, Shijie, Dongguan, Guangdong, China.

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

Emission				
Standard	Test Item	Limit	Judgment	Remark
FCC Part15 Subpart B ANSI C63.4:2014	Conducted Emission	Class B	PASS	
	Radiated Emission Below 1 GHz	Class B	PASS	
	Radiated Emission Above 1 GHz	Class B	N/A	NOTE (1) NOTE (2)

NOTE:

(1) "N/A"denotes test is not applicable in this Test Report

(2) If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2GHz. If the highest frequency of the internal sources of the EUT is between 500 MHz and 1GHz, measurement shall only be made up to 5 GHz. If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 40 GHz, whichever is less.

2.1 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**，where expended 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. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U (dB)	NOTE
Conducted Emission	ANSI	150 KHz ~ 30MHz	3.19	

B. Radiated Measurement :

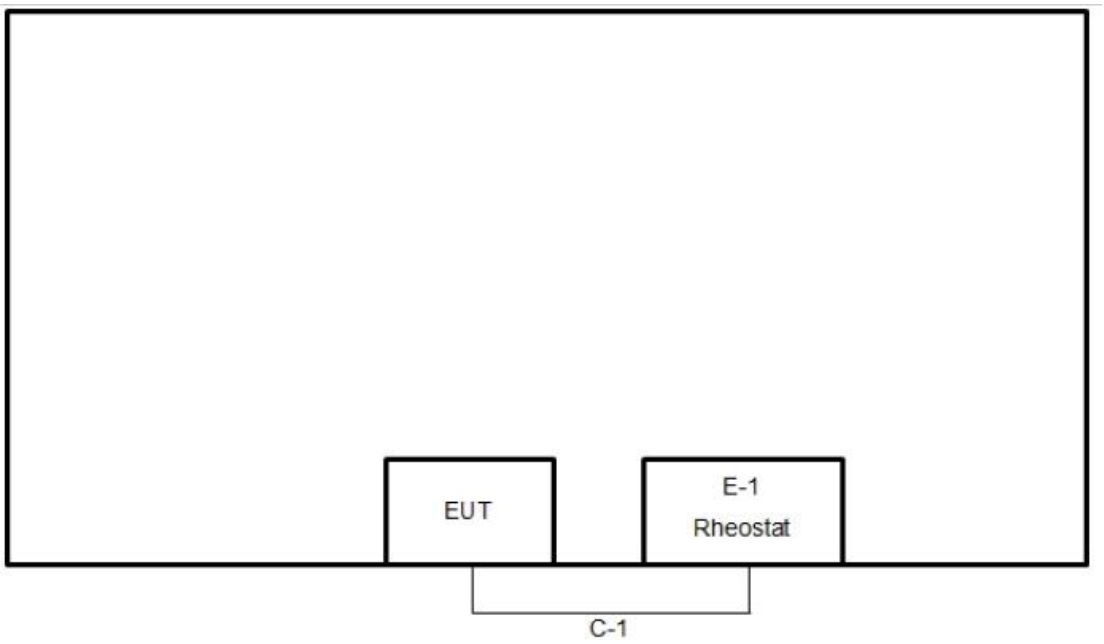
Test Site	Method	Measurement Frequency Range	Ant. H / V	U(dB)	NOTE
Radiated Emission	ANSI	30MHz ~ 1000MHz	V	4.70	
		30MHz ~ 1000MHz	H	4.84	

2.2 DESCRIPTION OF TEST MODES

Test Mode	Description
Mode 1	Routine work

Remark: All test modes were pre-mtested, but we only recorded the worst case in this report.

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Specification
/	/

Type of cable
DC Cable

3. CONDUCTED EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 LIMITS OF CONDUCTED EMISSION (MAINS PORT) (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79	66	66 to 56	56 to 46
0.50 -5.0	73	60	56	46
5.0 -30.0	73	60	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:

Factor = insertion loss (dB) + Cable Loss (dB)

Measurement (dBuV)= Factor (dB)+ Reading Level (dBuV)

Margin (dB) = Limit (dBuV) – QuasiPeak/Average Measurement (dBuV)

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI Test Receiver	ROHDE&SCHWARZ	ESCI	101315	2024-06-30
2	LISN	ROHDE&SCHWARZ	ENV216	102331	2024-06-30
3	Test Cable	HUBER+SUHNER	RG 223/U	1-1#	2024-06-30

Remark: ” N/A” denotes No Model No. , Serial No. or No Calibration specified.

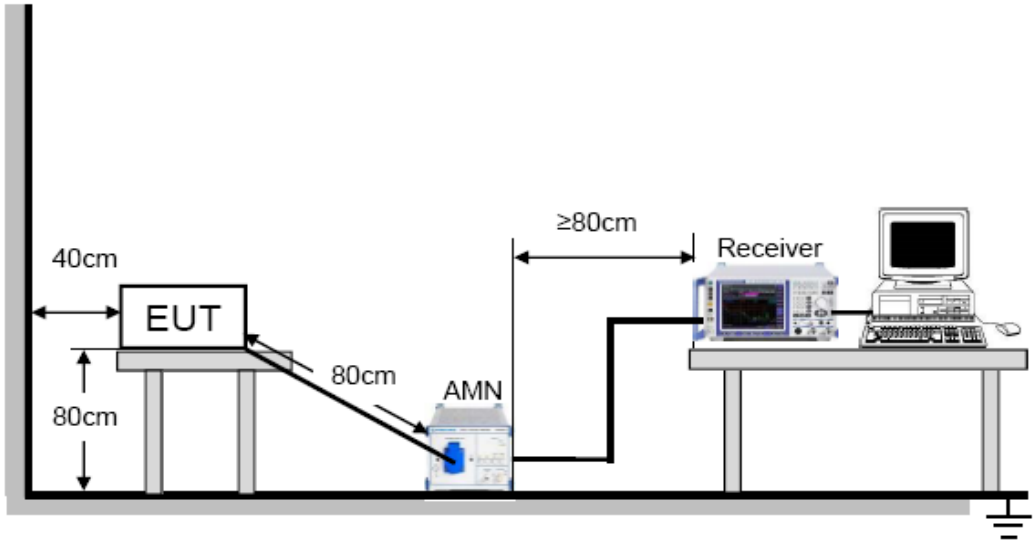
3.1.3 TEST PROCEDURE

a. The EUT was plOwend 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling 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 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item:EUT Test Photos.

3.1.4 DEVIATION FROM TEST STANDARD

No deviation

3.1.5 TEST SETUP



For the actual test configuration, please refer to Appendix: Photographs of the Conducted Emission Test.

3.1.6 EUT OPERATING CONDITIONS

The EUT exercise program used during radiated and/or conducted emission measurement was designed to exercise the various system components in a manner similar to a typical use.

3.1.7 TEST RESULTS

Model No.:	ATK-CLRK3568F
Temperature:	24℃
Relative Humidity:	55 %
Pressure:	1009 hPa

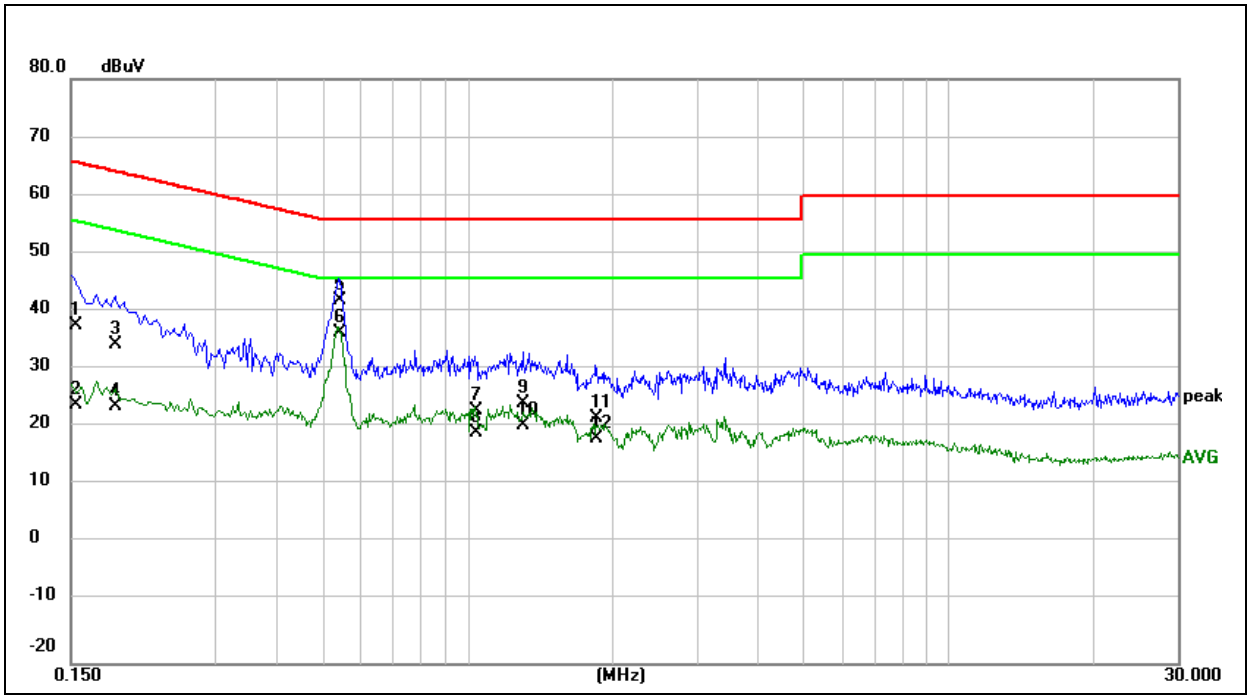
Remark:

(1) Reading in which marked as QP means measurements by using Quasi-Peak Detector, and AV means measurements by using Average Detector.

(2) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform. In this case, a " * " marked in AVG Mode column of Interference Voltage Measured.

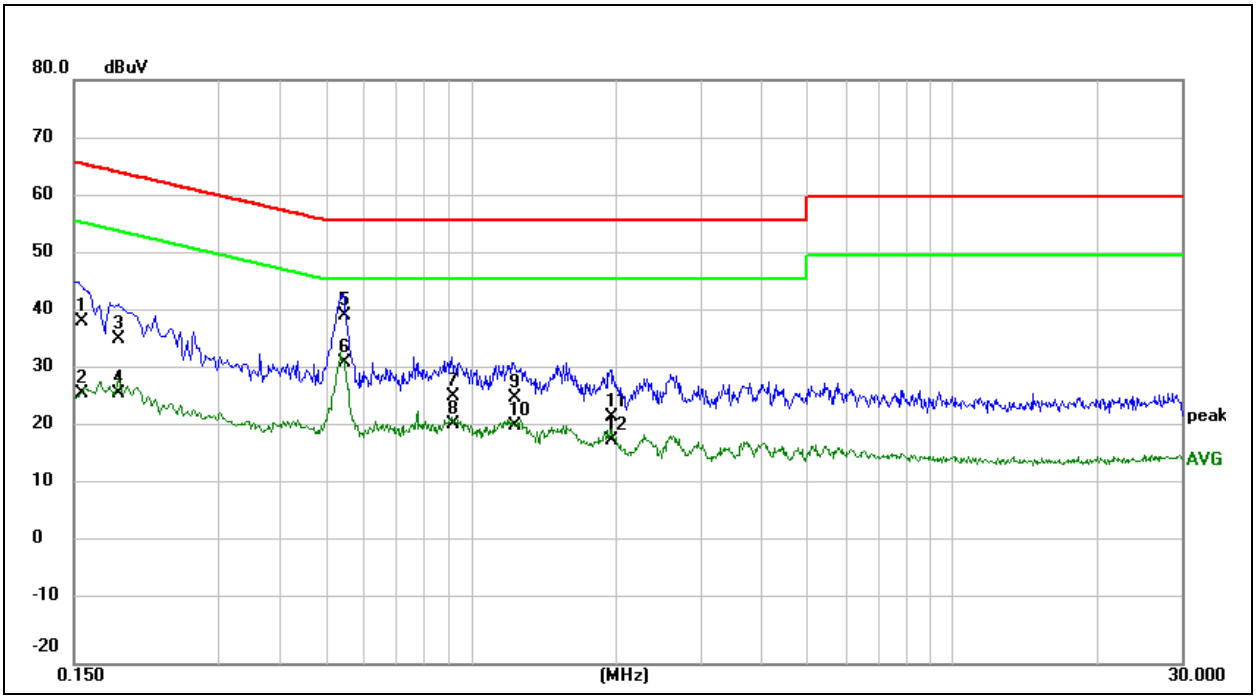
(3) Measuring frequency range from 150KHz to 30MHz.

Model No.:	ATK-CLRK3568F
Phase:	L1
Test Power :	AC 120V/60Hz
Standard:	FCC Part15 B Conduction
Operating Mode :	Mode 1



No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measure-ment(dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1539	17.96	19.94	37.90	65.79	-27.89	QP
2	0.1539	4.51	19.94	24.45	55.79	-31.34	AVG
3	0.1860	13.32	21.24	34.56	64.21	-29.65	QP
4	0.1860	2.79	21.24	24.03	54.21	-30.18	AVG
5	0.5420	20.20	21.89	42.09	56.00	-13.91	QP
6	0.5420	14.84	21.89	36.73	46.00	-9.27	AVG
7	1.0380	1.47	21.84	23.31	56.00	-32.69	QP
8	1.0380	-2.32	21.84	19.52	46.00	-26.48	AVG
9	1.3060	3.06	21.57	24.63	56.00	-31.37	QP
10	1.3060	-0.73	21.57	20.84	46.00	-25.16	AVG
11	1.8580	0.98	21.02	22.00	56.00	-34.00	QP
12	1.8580	-2.45	21.02	18.57	46.00	-27.43	AVG

Model No.:	ATK-CLRK3568F
Phase:	N
Test Power :	AC 120V/60Hz
Standard:	FCC Part15 B Conduction
Operating Mode :	Mode 1



No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measure-ment(dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1556	18.43	20.21	38.64	65.70	-27.06	QP
2	0.1556	6.12	20.21	26.33	55.70	-29.37	AVG
3	0.1860	14.24	21.40	35.64	64.21	-28.57	QP
4	0.1860	4.84	21.40	26.24	54.21	-27.97	AVG
5	0.5460	17.73	21.89	39.62	56.00	-16.38	QP
6	0.5460	9.77	21.89	31.66	46.00	-14.34	AVG
7	0.9140	4.02	21.88	25.90	56.00	-30.10	QP
8	0.9140	-0.69	21.88	21.19	46.00	-24.81	AVG
9	1.2300	3.94	21.65	25.59	56.00	-30.41	QP
10	1.2300	-0.81	21.65	20.84	46.00	-25.16	AVG
11	1.9540	1.40	20.93	22.33	56.00	-33.67	QP
12	1.9540	-2.62	20.93	18.31	46.00	-27.69	AVG

3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT (Below 1000MHz)

Frequency MHz	Class A		Class B	
	10m (dBuV/m) Field strength	3m (dBuV/m) Field strength	10m (dBuV/m) Field strength	3m (dBuV/m) Field strength
30 ~ 88	39.1	49.5	29.5	40.0
88 ~ 216	43.5	54.0	33.1	43.5
216 ~ 960	46.4	56.4	35.6	46.0
960 ~ 1000	54.0	64.0	44.0	54.0

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (GHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000MHz	80	60	74	54

Notes:

(1) The limit for radiated test was performed according to as following:
FCC PART 15B

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

(4) The test result calculated as following:
Factor = Absorbing clamp insertion loss (dB) + Cable Loss (dB)
Level (dBuV/m)= Factor (dB)+ Reading Level (dBpW)
Margin (dB) = Limit (dBpW) – Level (dBuV/m)

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5^{th} harmonic of the highest frequency or 40 GHz, whichever is lower

3.2.2 MEASUREMENT INSTRUMENTS LIST

3m Radiated Emission Measurement 30MHz-1GHz

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI Test Receiver	Rohde & Schwarz	ESPI	101109	2024-06-30
2	preamplifier	ROHDE & SCHWARZ	8447E	2945A02763	2024-06-30
3	Antenna	Schwarzbeck	CBL6111C	N/A	2024-07-01
4	The RF cable	HUBER+SUHNER	RG 223/U	1-3#	2024-06-30
5	The RF cable	HUBER+SUHNER	RG 223/U	1-4#	2024-06-30
6	The RF cable	HUBER+SUHNER	RG 223/U	1-5#	2024-06-30

Remark: ” N/A” denotes No Model No. / Serial No. and No Calibration specified.

3.2.3 TEST PROCEDURE

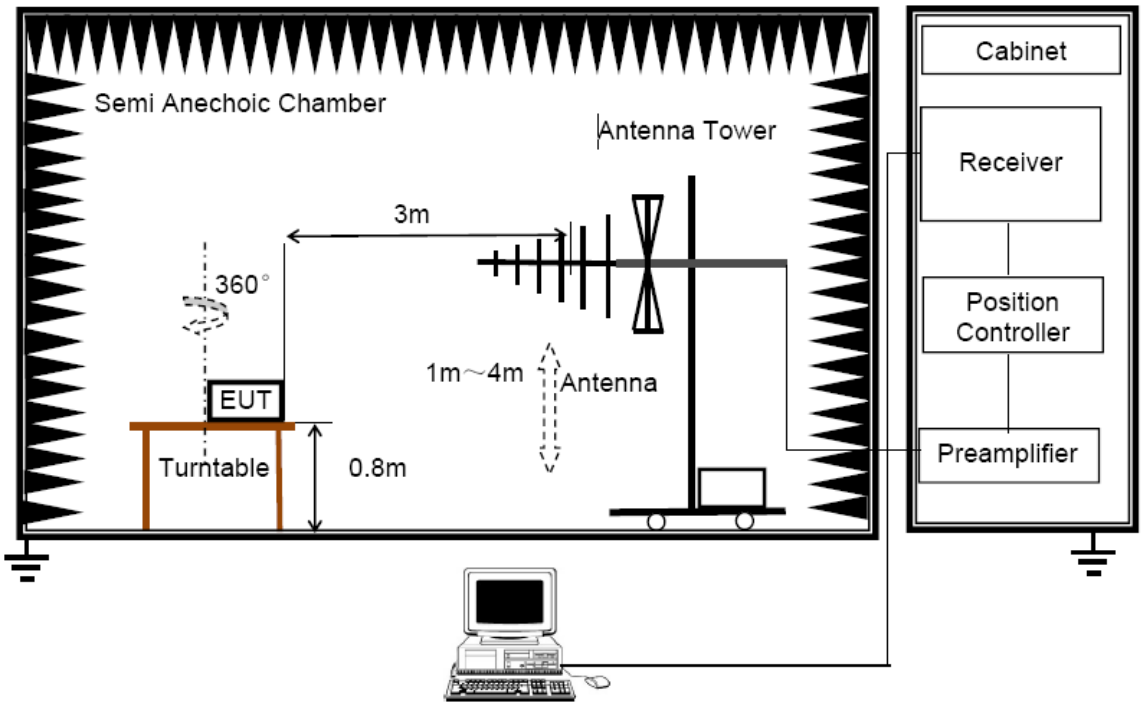
a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was plOwend on the top of a rotating table 0.8 meters above the ground at a 3m or 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; 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 conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.2.4 DEVIATION FROM TEST STANDARD

No deviation

3.2.5 TEST SETUP

Radiated Emissions Test Set-Up Frequency 30MHz - 1GHz



For the actual test configuration, please refer to Appendix: Photographs of the Radiated Emission Test.

3.2.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 3.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.7 TEST RESULTS

Model No.:	ATK-CLRK3568F
Temperature:	24℃
Relative Humidity:	55 %
Pressure:	1009 hPa

Remark :

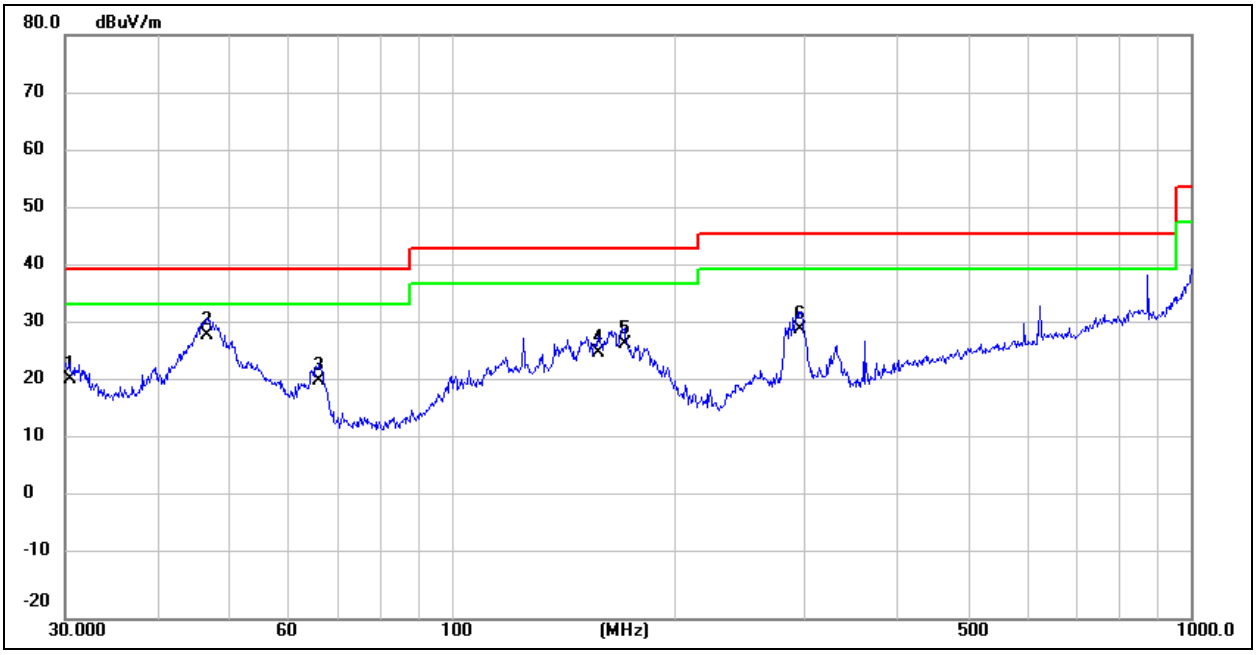
(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Detector or Peak Detector.

(2) 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.

(3) Measuring frequency range from 30MHz to 1000MHz.

(4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table.

Model No.:	ATK-CLRK3568F
Phase:	Vertical
Test Power :	AC 120V/60Hz
Standard:	FCC Part15 B Radiation
Operating Mode :	Mode 1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	30.4237	21.13	-0.08	21.05	40.00	-18.95	QP
2	46.6663	36.25	-7.60	28.65	40.00	-11.35	QP
3	66.2661	32.10	-11.37	20.73	40.00	-19.27	QP
4	158.1123	29.85	-4.28	25.57	43.50	-17.93	QP
5	171.3925	32.51	-5.51	27.00	43.50	-16.50	QP
6	296.1836	30.87	-1.15	29.72	46.00	-16.28	QP

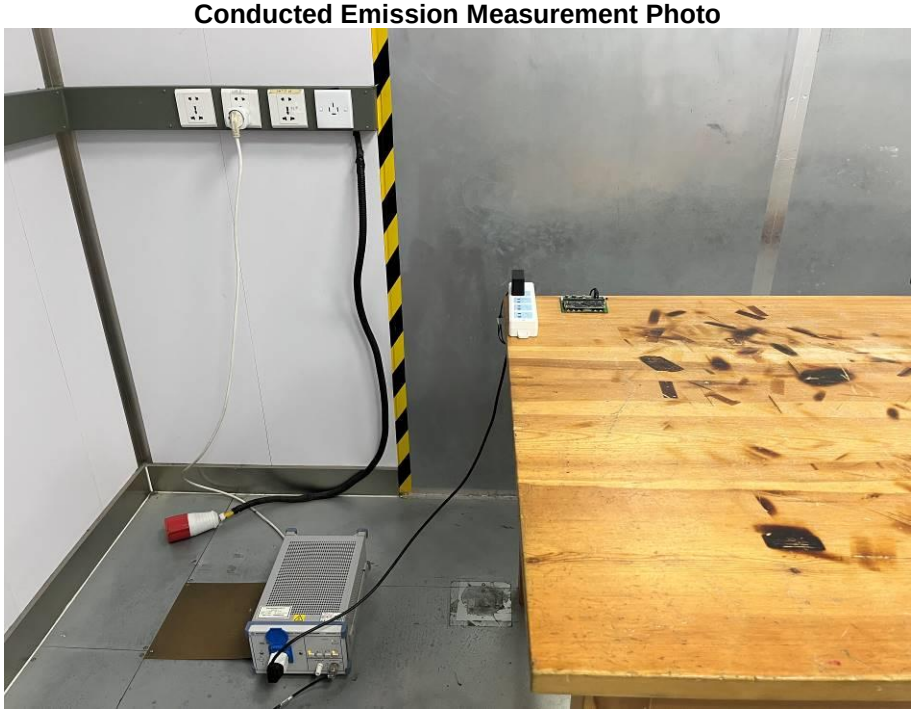
Model No.:	ATK-CLRK3568F
Phase:	Horizontal
Test Power :	AC 120V/60Hz
Standard:	FCC Part15 B Radiation
Operating Mode :	Mode 1

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	30.1053	20.18	0.26	20.44	40.00	-19.56	QP
2	46.8302	27.62	-7.65	19.97	40.00	-20.03	QP
3	125.0065	23.52	-3.22	20.30	43.50	-23.20	QP
4	157.0073	31.05	-4.17	26.88	43.50	-16.62	QP
5	181.2834	28.59	-6.98	21.61	43.50	-21.89	QP
6	281.9945	35.39	-2.52	32.87	46.00	-13.13	QP

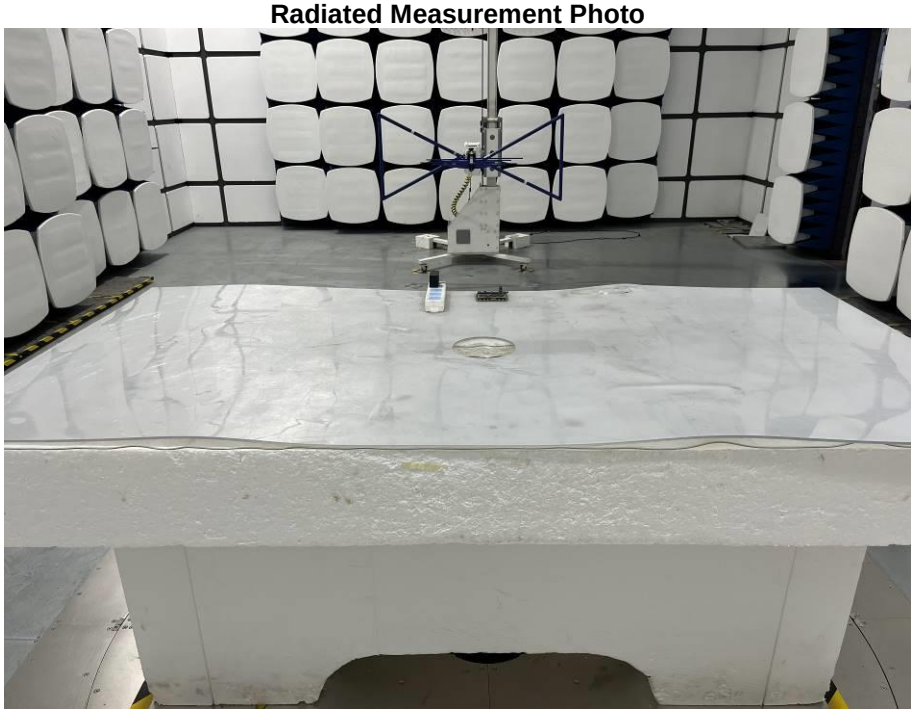
4. ATTACHMENT

4.1. EUT TEST PHOTO

Conducted Emission Measurement Photo



Radiated Measurement Photo



4.2. EUT PRODUCT PHOTO

Figure 1 External view

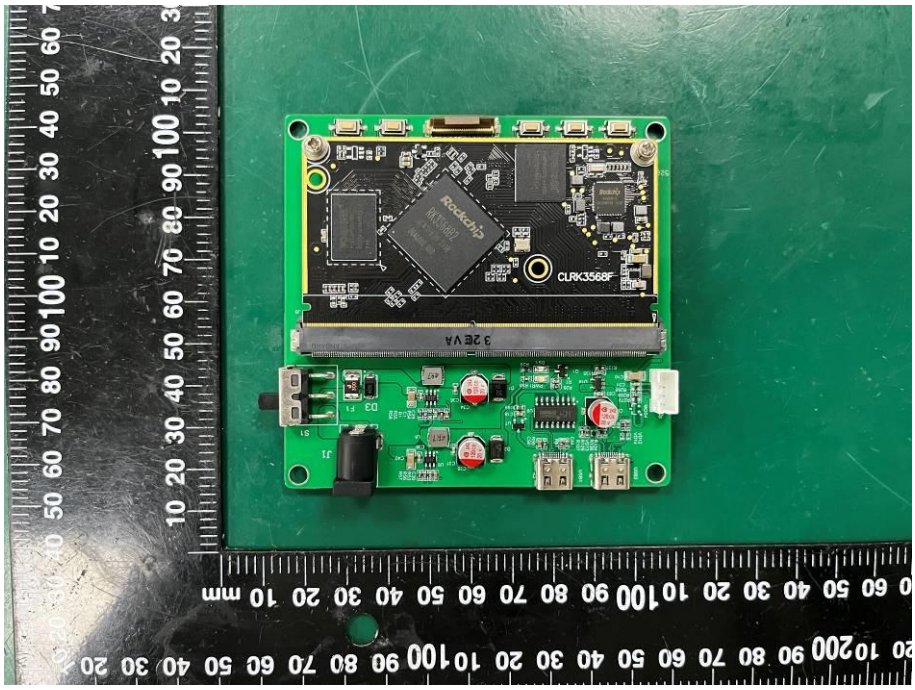


Figure 2 External view

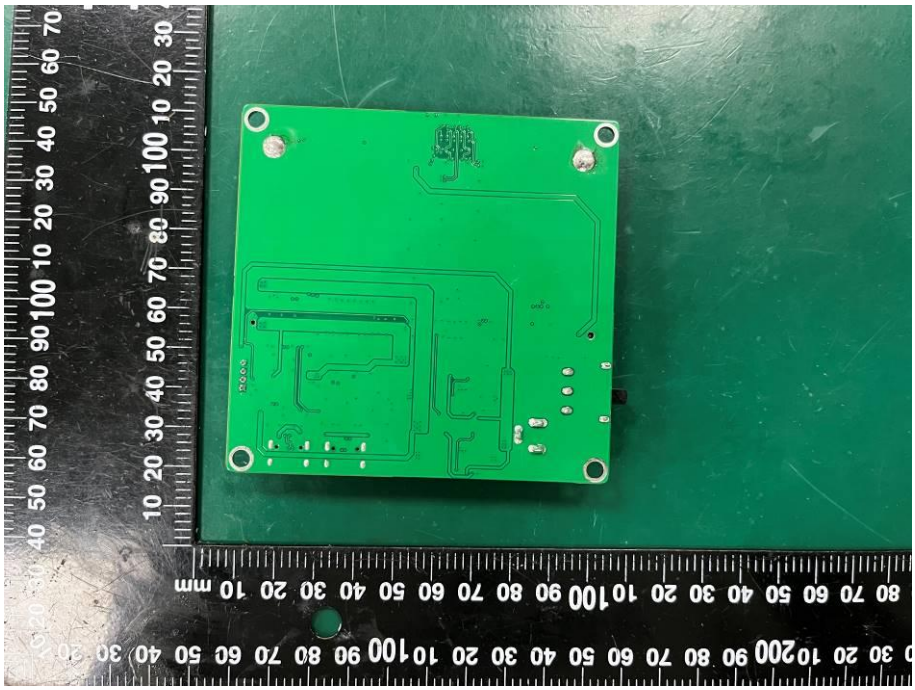


Figure 3 Internal view

********** End of Report**********