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Uni-Trend Technology (China) Co., Ltd

TEST REPORT

SCOPE OF WORK
EMC TESTING– UTi120Mobile

REPORT NUMBER
211119098GZU-002

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Applicant Name & Address	:	Uni-Trend Technology (China) Co., Ltd No 6, Gong Ye Bei 1st Road Songshan Lake National High-Tech Industrial Development Zone, Dongguan City Guangdong Province, CHINA
Manufacturing Site	:	Same as applicant
Intertek Report No:		211119098GZU-002

Test standards

CFR 47, FCC Part 15, Subpart B:2019

Sample Description

Product	:	Thermal Imager for Smart Phone
Model No.	:	UTi120Mobile
Electrical Rating	:	5Vdc from USB (Powered by smartphone)
Serial No.		Not Labeled
Date Received	:	19 November 2021
Date Test Conducted	:	19 November 2021 to 22 December 2021

Prepared and Checked By

Jed Guo

Engineer

Approved By:

Sky Zhu

Team Leader

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1. TEST RESULTS SUMMARY

Classification of EUT: Class B

Test Item	Standard	Result
Conducted disturbance voltage at mains ports	**CFR 47, FCC Part 15, Subpart B**	**N/A**
Radiated emission (30 MHz–1 GHz)	**CFR 47, FCC Part 15, Subpart B**	**Pass**
Radiated emission (Above 1 GHz)	**CFR 47, FCC Part 15, Subpart B**	**N/A**
Remark: Reference publication is used for methods of measurement: ANSI C63.4:2014		

Remark:
1. The symbol “N/A” in above table means Not Applicable.
2. When determining the test results, measurement uncertainty of tests has been considered.

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2. EMC RESULTS CONCLUSION

RE: EMC Testing Pursuant to FCC part 15 performed on the Thermal Imager for Smart Phone, Model: UTi120Mobile.

We tested the Thermal Imager for Smart Phone, Model: UTi120Mobile to determine if it was in compliance with the relevant standards as marked on the Test Results Summary. We found that the unit met the requirement of FCC part 15 standard when tested as received. The worst case's test data was presented in this test report.

The production units are required to conform to the initial sample as received when the units are placed on the market.

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3. LABORATORY MEASUREMENTS

Configuration Information

Support Equipment:

Equipment	Model No.	Rating	Supplier
Smartphone	Iphone8	Battery	Intertek

Rated Voltage and frequency under test: Powered by Iphone8
Condition of Environment: Temperature: 22~28°C
Relative Humidity:35~60%
Atmosphere Pressure:86~106kPa

Notes:
1. The EMI measurements had been made in the operating mode produced the largest emission in the frequency band being investigated consistent with normal applications. An attempt had been made to maximize the emission by varying the configuration of the EUT.

2. Test Facility accreditation:
A2LA Certificate Number 0078.10
Intertek Testing Services Shenzhen Ltd. Guangzhou Branch is accredited by A2LA and Listed in FCC website. FCC accredited test labs may perform both Certification testing under Parts 15 and 18 and Declaration of Conformity testing.

3. Test Location:
Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
All tests were performed at:
Room 02, & 101/E201/E301/E401/E501/E601/E701/E801 of Room 01 1-8/F., No. 7-2. Caipin Road, Science City, GETDD, Guangzhou, Guangdong, China
Except Radiated Emissions was performed at:
Room 102/104, No 203, KeZhu Road, Science City, GETDD Guangzhou, China

4. Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conducted Emission (9 kHz-150 kHz)	2.79 dB
2	Conducted Emission (150 kHz-30 MHz)	2.55 dB
3	Disturbance Power (30 MHz-300 MHz)	3.04 dB
4	Radiated Emission (30 MHz-1 GHz)	4.80 dB
5	Radiated Emission (1 GHz-6 GHz)	4.97 dB
6	Radiated Emission (6 GHz-18 GHz)	4.89 dB

The measurement uncertainty describes the overall uncertainty of the given measured value during the operation of the EUT.
Measurement uncertainty is calculated in accordance with CISPR16-4-2:2011+A1:2014 +A2:2018.
The measurement uncertainty is given with a confidence of 95%, k=2.
Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.

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4. EQUIPMENT USED DURING TEST

Radiated Disturbance（30 MHz-1 GHz）

Equipment No.	Equipment	Model	Manufacturer	Calibration Interval
EM030-04	3m Semi-Anechoic Chamber	9×6×6 m3	ETS-LINDGREN	1Y
EM031-02	EMI Test Receiver (9 kHz~7 GHz)	R&S ESR7	R&S	1Y
EM033-01	TRILOG Super Broadband test Antenna(30 MHz-3 GHz)	VULB 9163	SCHWARZBECK	1Y
EM031-02-01	Coaxial cable	/	R&S	1Y
EM036-01	Common-mode absorbing clamp	CMAD 20B	TESEQ	1Y
SA047-118	Digital Temperature-Humidity Recorder	RS210	YIJIE	1Y
EM045-01-01	EMC32 software (RE/RS)	V10.01.00	R&S	N/A

Detail of the equipment calibration due date:

Equipment No.	Cal. Due date (DD-MM-YYYY)
Radiated Disturbance (30 MHz-1 GHz)	
EM030-04	06/04/2022
EM031-02	02/09/2022
EM033-01	18/10/2022
EM031-02-01	05/04/2022
EM036-01	18/07/2022
SA047-118	21/07/2022
EM045-01-01	N/A

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5. EMI TEST

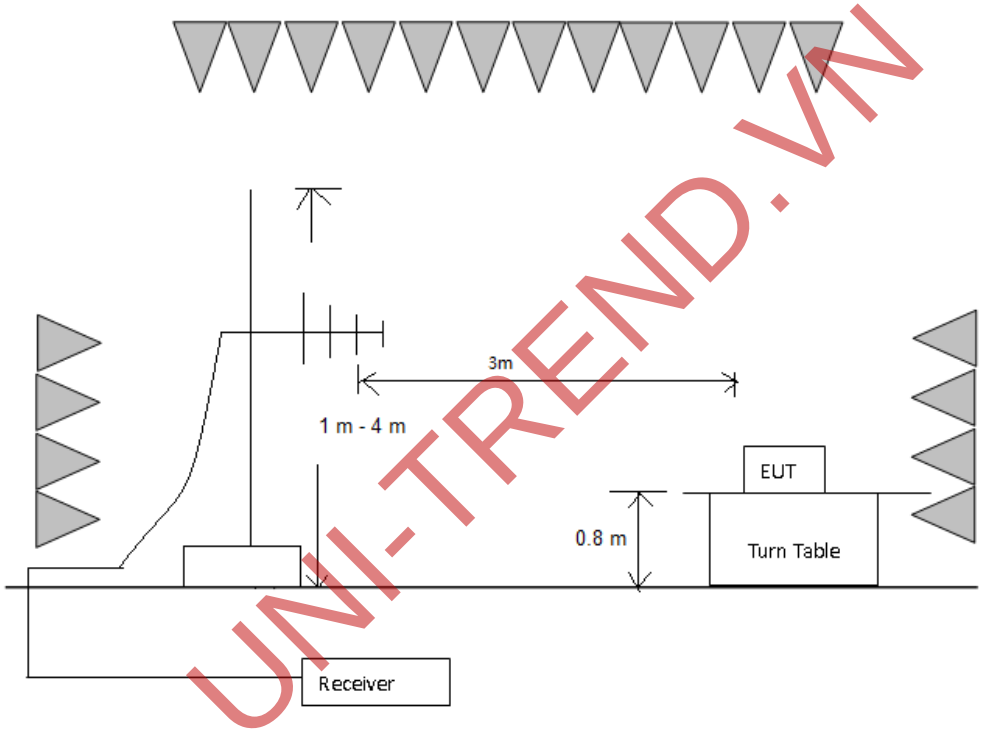
5.1 Conducted Disturbance Voltage at mains ports

Test Result: N/A

5.2 Radiated Emission 30 MHz -1000 MHz

Test Result: Pass

5.2.1 Block Diagram of Test Setup



5.2.2 Test Setup and Procedure

The measurement was applied in a semi-anechoic chamber. The EUT and simulators were placed on a 0.8 m high foamed table above the horizontal metal ground plane. The turn table rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on an antenna mask. The antenna moved up and down between from 1 meter to 4 meters to find out the maximum emission level.

Broadband antenna was used as receiving antenna. Both horizontal and vertical polarization of the antenna was set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4 requirement during radiated test. The bandwidth setting on R&S Test Receiver was 120 kHz.

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For an unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	**Upper Frequency of Radiated Measurement**
Below 1.705 MHz	30MHz
1.705 MHz – 108 MHz	1 GHz
108 MHz – 500 MHz	2 GHz
500 MHz – 1 GHz	5 GHz
Above 1 GHz	5th harmonic of the highest frequency or 40 GHz, whichever is lower.
At transitional frequencies the lower limit applies.	

Remark: Radiated Emission was performed from 30 MHz to 1 GHz.

5.2.3 Limit

Class B limit at 3m test distance:

Frequency range MHz	**Quasi-peak limits** dB (µV/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
960 to 1000	54
At transitional frequencies the lower limit applies.	

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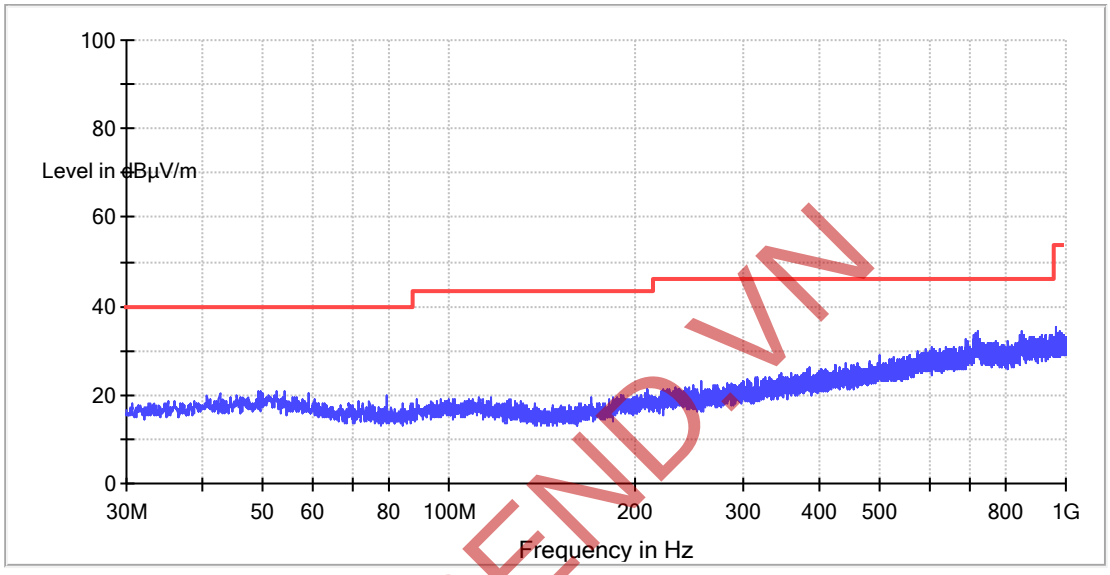
5.2.4 Test Data and Curve

Operation Mode: working and connect to phone directly
Horizontal



All emission levels are more than 10 dB below the limit.

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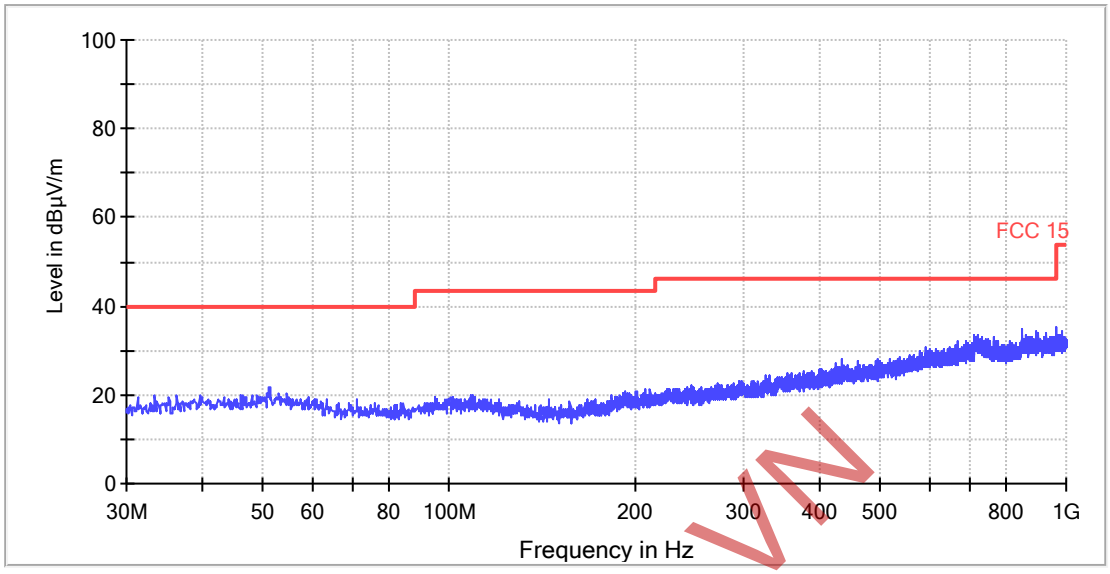
Vertical



All emission levels are more than 10 dB below the limit.

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5.3 Radiated Emission above 1 GHz

Test Result: Not Applicable
Remark:
The highest internal source of the EUT is not more than 108 MHz, so the measurement above 1000 MHz is not applicable.

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6. APPENDIX I - PHOTOS OF TEST SETUP

Radiated Emission (30 MHz–1000 MHz)


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7. APPENDIX II – PHOTOS OF EUT

Overall view

Overall view


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Internal view

PCB view


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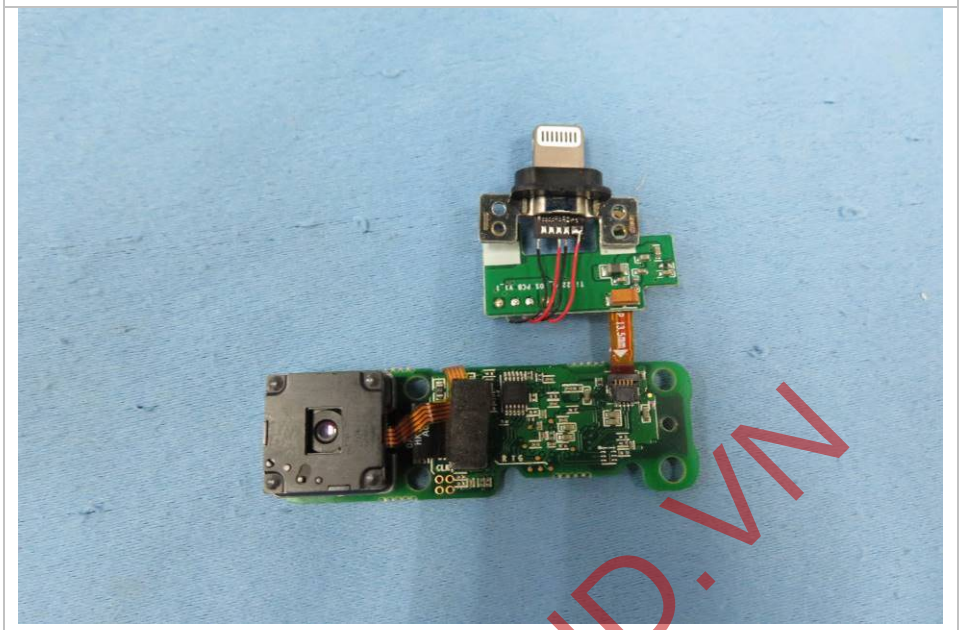
PCB view


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