

FCC TEST REPORT

For

Autel Intelligent Tech. Corp., Ltd.

Professional Scan Tool

Model No.: TS401

Prepared For : Autel Intelligent Tech. Corp., Ltd.

Address : 7th-8th, 10th Floor, Bldg. B1, Zhiyuan, Xueyuan Rd. Xili, Nanshan,

Shenzhen, China

Prepared By : Shenzhen Anbotek Compliance Laboratory Limited

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Report Number : SZAWW181225002-01

Date of Receipt : Dec. 25, 2018

Date of Test : Dec. 25, 2018~Mar. 12, 2019

Date of Report : Apr. 22, 2019



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TEST REPORT

Applicant : Autel Intelligent Tech. Corp., Ltd.

Manufacturer : Autel Intelligent Tech. Corp., Ltd.

Product Name : Professional Scan Tool

Model No. : TS401

Trade Mark : AUTEL

Rating(s) : Input: DC 5V, 1A(Via adapter Input: AC 100~240V, 50/60Hz, Max: 0.35A; DC 3.7V,

1800 mAh battery inside)

Test Standard(s) : FCC Part15 Subpart C 2018, Paragraph 15.209

Test Method(s) : **ANSI C63.10: 2013**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Prepared By Anbotek Approved Approved (Engineer / Oliay Yang) Shary Mary (Supervisor / Snowy Meng) Approved & Authorized Signer (Manager / Sally Zhang)	Date of Test	Dec. 25, 2018~Mar. 12, 2019
Reviewer (Supervisor / Snowy Meng) Approved & Authorized Signer	Anbotek 1	Anbotek Anbotek Anbotek
Reviewer (Supervisor / Snowy Meng) Approved & Authorized Signer	TOK TOOLS (Ex) ST	(Engineer / Oliay Yang)
Reviewer (Supervisor / Snowy Meng) Sally Zlong Approved & Authorized Signer	* Approved *	Up ok hor Al.
(Supervisor / Snowy Meng) Sally Zhang Approved & Authorized Signer	Anbotek Anbotek Anbotek	AAcaa
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Approved & Authorized Signer		
Approved & Authorized Signer		Callet Thomason
(Manager / Sally Zhang)	Ammuorrad C. Arrelaniand Ciaman	Anbo otek Anbotek Wee Will hotek Anbotek
	Anbotek Anbotek Anbotek	(Manager / Sally Zhang)



1. General Information

1.1. Client Information

Applicant	: Autel Intelligent Tech. Corp., Ltd.
Address	7th-8th, 10th Floor, Bldg. B1, Zhiyuan, Xueyuan Rd. Xili, Nanshan, Shenzhen, China
Manufacturer	: Autel Intelligent Tech. Corp., Ltd.
Address	: 7th-8th, 10th Floor, Bldg. B1, Zhiyuan, Xueyuan Rd. Xili, Nanshan, Shenzhen, China
Factory	: Autel Intelligent Technology Corp.,Ltd.
Address	6th Floor, Building 1, Yanxiang Zhigu, NO.11 Gaoxin West Rd., Guangming New District, Shenzhen City, Guangdong Province, China.
Factory	: AUTEL VIETNAM COMPANY LIMITED
Address	: 4th Floor, Factory#6, Land#CN1, An Duong Industrial Zone, Hong Phong Township, An Duong County, Hai Phong, Viet Nam

1.2. Description of Device (EUT)

Product Name	:	Professional Scan Tool	otek Anbotek Anbotek Anbotek
Model No.	:	TS401	Anbotek Anbotek Anbotek Anbotek
Trade Mark	:	AUTEL	Anbotek Anbotek Anbote Anbo
Test Power Supply	:	AC 240V, 60Hz for adapter/ AC DC 3.7V By battery	120V, 60Hz for adapter
Test Sample No.	:	S1(Normal Sample), S2(Enginee	ring Sample)
		Operation Frequency:	125KHz
Product		Modulation Type:	RFID of the Ambolish Ambolish Ambolish
Description	•	Antenna Type:	Inductive loop coil Antenna
		Antenna Gain(Peak):	0 dBi

Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



1.3. Auxiliary Equipment Used During Test

10	Adapter	:	Model: HK-AR-050A200-US	Anbo	abotek	Anbore An	
2."			Input: 100-240V~50/60Hz 0.35A				Anb
de			Output: DC 5V, 2000mA				P

1.4. Description of Test Modes

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretes	st Mode	Description	n	
And tek Mo	ode 1	TX Mode	Anbos	abotek

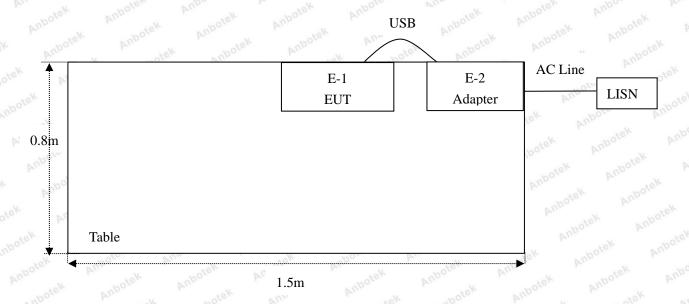
	For Conducted Emission
Final Test Mode	Description
Mode 1	TX Mode

	For Radiated Emission
Final Test Mode	Description
Mode 1	TX Mode

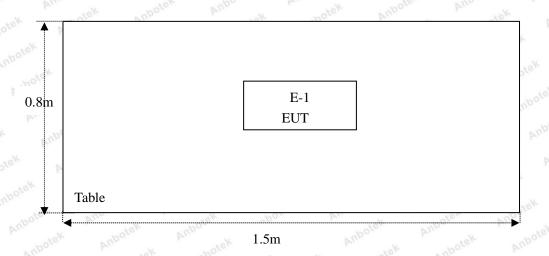


1.5. Description Of Test Setup

CE



RE





1.6. Test Equipment List

Pr-	-V ~00	VILLE	rok you	PC	2,6	V U D
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
itek 1. nbotek	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	Nov. 05, 2018	1 Year
2.00	EMI Test Receiver	Rohde & Schwarz	ESPI3	101604	Nov. 05, 2018	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Nov. 05, 2018	1 Year
4.	Spectrum Analysis	Agilent	E4407B	US39390582	Nov. 05, 2018	1 Year
5.	MAX Spectrum Analysis	Agilent	N9020A	MY51170037	Nov. 05, 2018	1 Year
6.	Preamplifier	SKET Electronic	BK1G18G30D	KD17503	Nov. 05, 2018	1 Year
7.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Nov. 19, 2018	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Nov. 19, 2018	1 Year
9.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Nov. 19, 2018	1 Year
10.	Horn Antenna	A-INFO	LB-180400-KF	J211060628	Nov. 20, 2018	1 Year
MI.	Pre-amplifier	SONOMA	310N	186860	Nov. 05, 2018	1 Year
12.	EMI Test Software EZ-EMC	SHURPLE	N/A Anbox	N/A	N/A	N/A
13.	RF Test Control System	YIHENG	YH3000	2017430	Nov. 05, 2018	1 Year
14.	Power Sensor	DAER	RPR3006W	15I00041SN045	Nov. 05, 2018	1 Year
15.	Power Sensor	DAER	RPR3006W	15I00041SN046	Nov. 05, 2018	1 Year
16.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Nov. 05, 2018	1 Year
17.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Nov. 05, 2018	1 Year
18.	Signal Generator	Agilent	E4421B	MY41000743	Nov. 05, 2018	1 Year
19.	DC Power Supply	IVYTECH	IV3605	1804D360510	Apr. 02, 2018	1 Year
20.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	Nov. 01, 2018	1 Year



1.7. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 184111

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registed 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. 184111, July 31, 2017.

ISED-Registration No.: 8058A-1

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A-1, June 13, 2016.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.

1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518102



2. Summary of Test Results

Standard Section	Test Item	Result	
FCC Part 15, Paragraph 15.207	Conducted Emission Test	PASS	
FCC Part 15, Paragraph 15.209(a)(f)	Spurious Emission	PASS	
Part 15.203	Antenna Requirement	PASS	



3. Conducted Emission Test

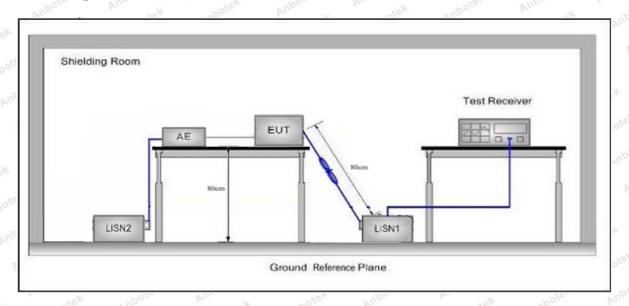
3.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.20	7 Anbote Ans botek	Anbotek Anbo stek
	F	Maximum RF	Line Voltage (dBuV)
Test Limit	Frequency	Quasi-peak Level	Average Level
	150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
	500kHz~5MHz	56	46 And
	5MHz~30MHz	60	50 bote Ar

Remark: (1) *Decreasing linearly with logarithm of the frequency.

(2) The lower limit shall apply at the transition frequency.

3.2. Test Setup



3.3. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.10-2013 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

Please to see the following pages



Conducted Emission Test Data

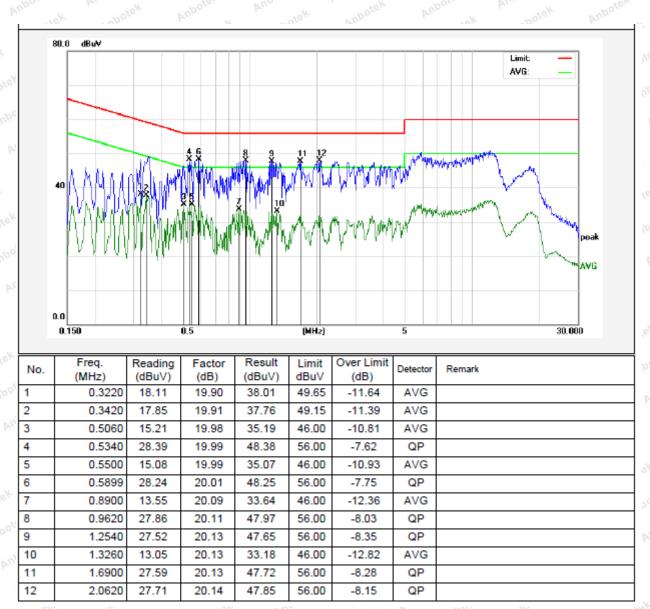
Test Site: 1# Shielded Room

Operating Condition: TX Mode

Test Specification: AC 240V, 60Hz for adapter

Comment: Live Line

Tem.: 17.5℃ Hum.: 60%





9

10

11

12

1.3420

1.6660

1.7260

2.0740

26.86

16.96

27.04

20.13

20.13

20.13

20.14

46.99

37.09

47.17

46.48

56.00

46.00

56.00

-9.01

-8.91

-8.83

-9.52

QP

AVG

QP

QP

Conducted Emission Test Data

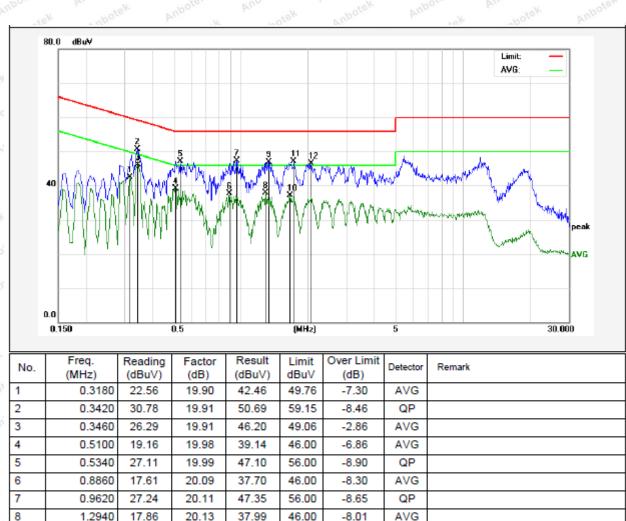
Test Site: 1# Shielded Room

Operating Condition: TX Mode

Test Specification: AC 240V, 60Hz for adapter

Comment: Neutral Line

Tem.: 17.5℃ Hum.: 60%





Conducted Emission Test Data

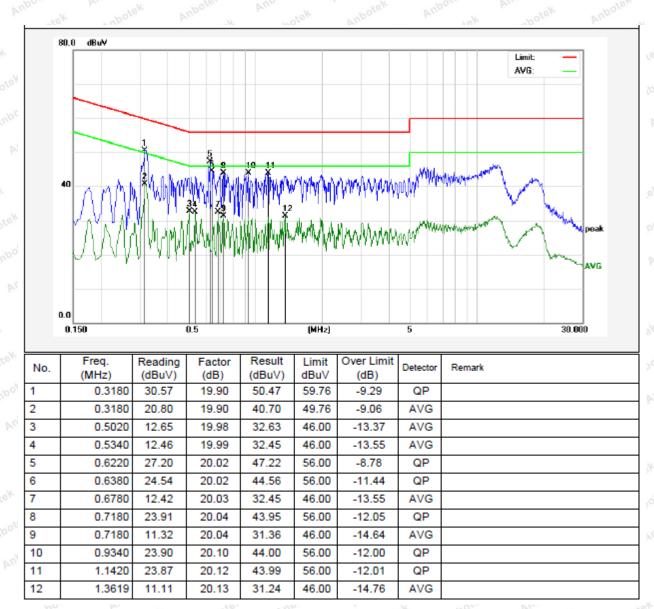
Test Site: 1# Shielded Room

Operating Condition: TX Mode

Test Specification: AC 120V, 60Hz for adapter

Comment: Live Line

Tem.: 17.5°C Hum.: 60%





11

12

1.3700

1.7660

23.17

23.01

20.13

20.14

43.30

43.15

56.00

56.00

-12.70

-12.85

QP

Conducted Emission Test Data

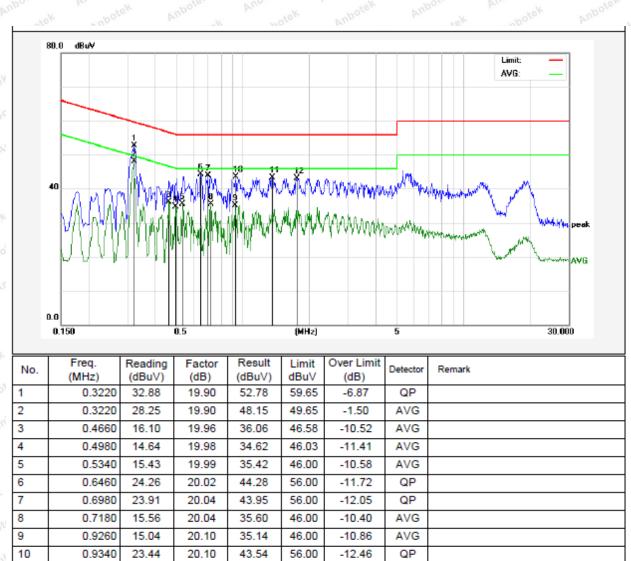
Test Site: 1# Shielded Room

Operating Condition: TX Mode

Test Specification: AC 120V, 60Hz for adapter

Comment: Neutral Line

Tem.: 17.5°C Hum.: 60%





4. Radiation Spurious Emission and Band Edge

4.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.20	09 and 15.205	Ambotek	Anbotek	'upo stek
	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz~0.490MHz	2400/F(kHz)	otek - Anbor	ek abotel	300
	0.490MHz-1.705MHz	24000/F(kHz)	upotek - Aupr	rek wh	30 Magazine
	1.705MHz-30MHz	30	Anbotek A	loo tek	abotek 30 Anb
Test Limit	30MHz~88MHz	100 notes	40.0	Quasi-peak	Anbote3 p
	88MHz~216MHz	150	43.5	Quasi-peak	3
	216MHz~960MHz	200	46.0	Quasi-peak	3 ooten
	960MHz~1000MHz	500	54.0	Quasi-peak	tek 3 Anbote
	A1 1000MI	500	54.0	Average	botek 3 Anbe
	Above 1000MHz	Lak Ann	74.0	Peak	anbote 3

Remark:

- (1)The lower limit shall apply at the transition frequency.
- (2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

4.2. Test Setup

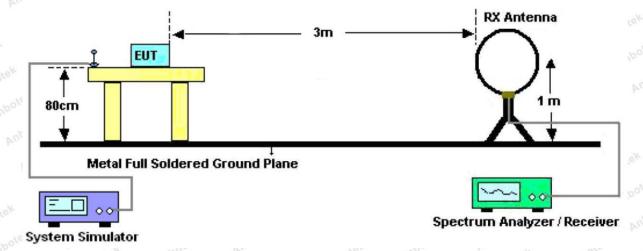


Figure 1. Below 30MHz

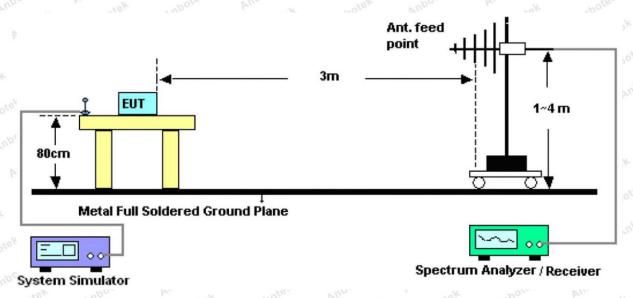


Figure 2. 30MHz to 1GHz

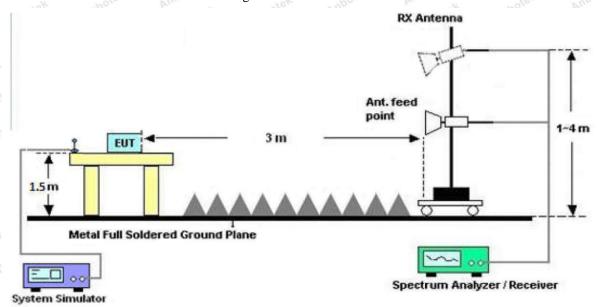


Figure 3. Above 1 GHz

4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane.

For above 1GHz: The EUT is placed on a turntable, which is 1.5m above the ground plane.

The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9*6*6 Chamber. The device is evaluated in xyz orientation.

For 9kHz to 150kHz, Set the spectrum analyzer as:

RBW = 200Hz, VBW = 1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:

RBW = 9KHz, VBW = 30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:

RBW = 100kHz, VBW =300kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

4.4. Test Data

PASS

During the test, pre-scan xyz orientation, and found x orientation is the worst case, only the worst case is recorded in the report.



Test Results

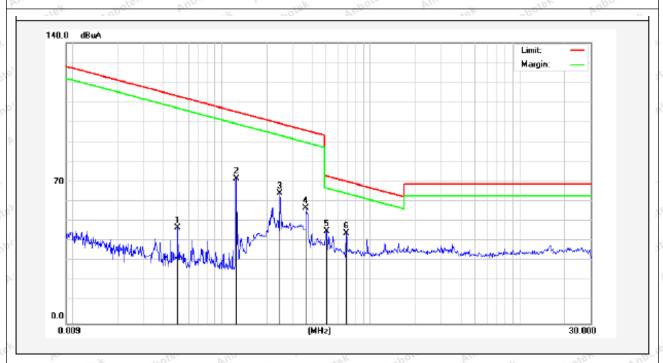
(Between 9KHz - 30MHz)

Job No.: SZAWW181225002-01

Standard: FCC PART15 C _3m Power Source: AC 120V, 60Hz for adapter

Test item: Radiation Test Temp.(C)/Hum.(%RH): 22.2°C/57%RH

Test Mode: Mode 1 Distance: 3m



	3.7						2.2		V 6.6 1.	
0	Frequency (MHz)	Read Level (dBuV)	Antenna Factor	Cable Loss (dB)	Preamp Factor	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	degree
S.	` ,	, ,	(dB/m)	` '	(dB)	,	,	` '		(dge)
	0.5090	33.51	19.53	2.59	0	55.63	133.36	-77.73	Peak	139
	0.5090	25.60	19.53	2.59	0	47.72	113.36	-65.64	AV	139
	0.1250	61.82	19.30	2.54	0	83.66	125.60	-41.94	Peak	308
	0.1250	50.27	19.30	2.54	0	72.11	105.60	-33.49	AV	308
	0.2500	52.66	19.53	2.59	0	74.78	119.61	-44.83	Peak	42
10	0.2500	42.94	19.53	2.59	0	65.06	99.61	-34.55	AV	42
)	0.3750	44.27	19.53	2.59	0	66.39	116.11	-49.72	Peak	284
	0.3750	35.29	19.53	2.59	0	57.41	96.11	-38.70	AV	284
0	0.5060	23.23	20.34	2.59	0	46.16	73.52	-27.36	QP	351
	0.6895	22.07	20.34	2.59	0	45.00	70.83	-25.83	QP	63
	F	07.	1177		No.	WA	DV.		16 (5)	WA.

Remark: According to FCC PART 15.209 (d), the emission limits for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz, Radiated emission limits in these three bands are based on measurements employing an average detector.

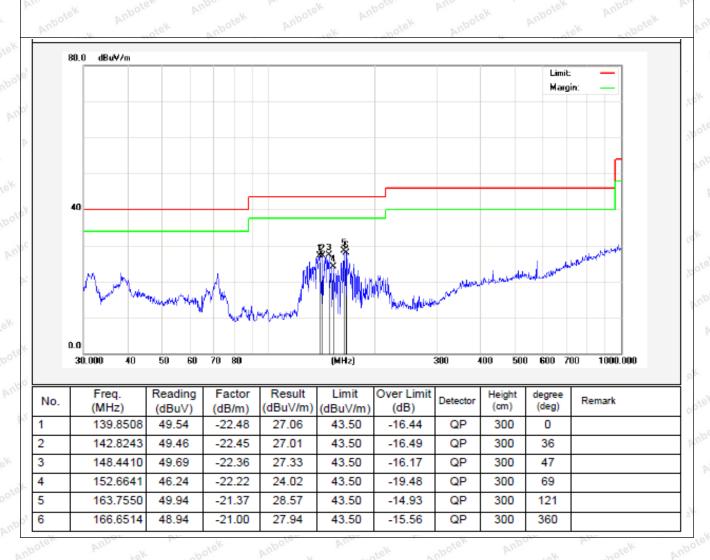


(Between 30MHz -1000 MHz)

Job No.: SZAWW181225002-01 Polarization: Horizontal

Standard: FCC PART15 C _3m Power Source: AC 120V, 60Hz for adapter

Test item: Radiation Test Temp.(C)/Hum.(%RH): 22.2 °C/57 %RH

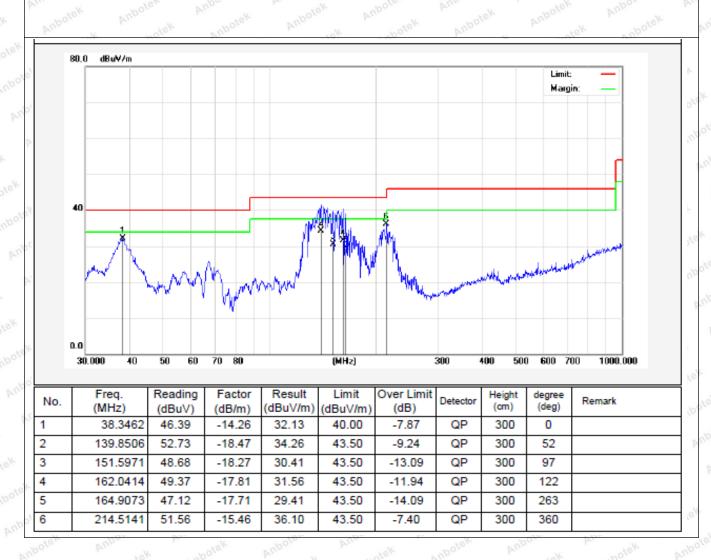




Job No.: SZAWW181225002-01 Polarization: Vertical

Standard: FCC PART15 C _3m Power Source: AC 120V, 60Hz for adapter

Test item: Radiation Test Temp.(C)/Hum.(%RH): 22.2°C/57%RH

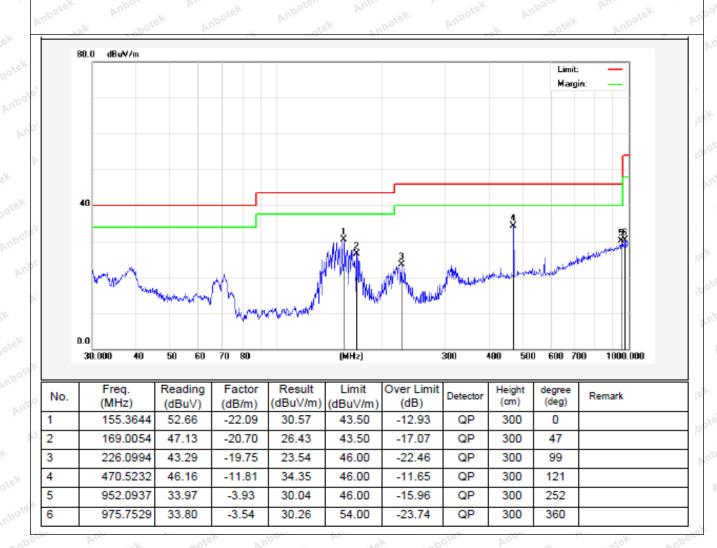




Job No.: SZAWW181225002-01 Polarization: Horizontal

Standard: FCC PART15 C _3m Power Source: AC 240V, 60Hz for adapter

Test item: Radiation Test Temp.(C)/Hum.(%RH): 22.2°C/57%RH

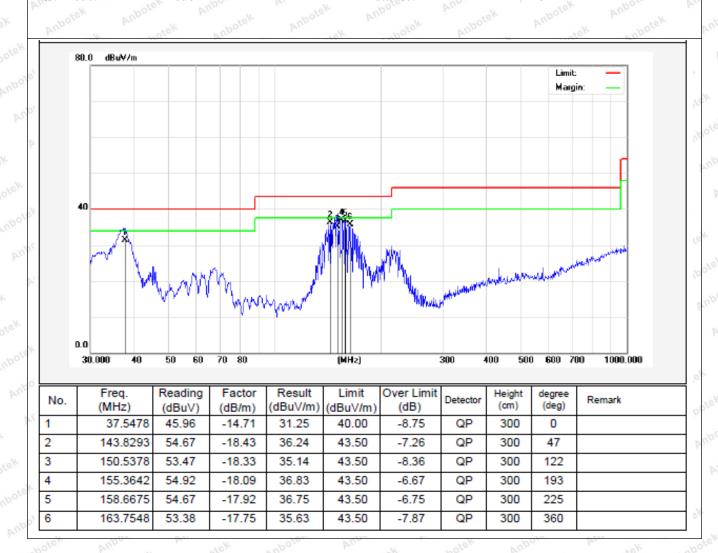




Job No.: SZAWW181225002-01 Polarization: Vertical

Standard: FCC PART15 C _3m Power Source: AC 240V, 60Hz for adapter

Test item: Radiation Test Temp.(C)/Hum.(%RH): 22.2°C/57%RH





5. Antenna Requirement

5.1. Test Standard and Requirement

Test Standard	FCC Part15 Section 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

5.2. Antenna Connected Construction

The antenna is a Inductive loop coil Antenna which permanently attached, and the best case gain of the antenna is 0 dBi. It complies with the standard requirement.





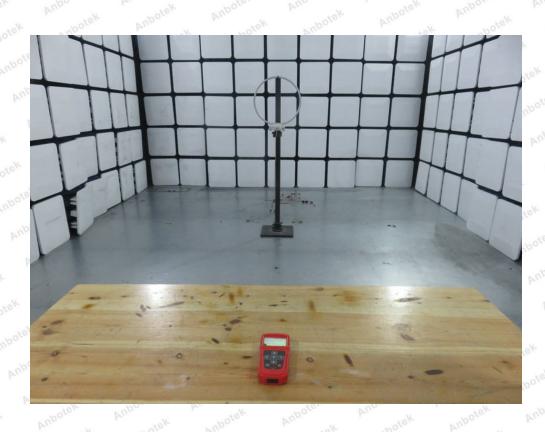
APPENDIX I -- TEST SETUP PHOTOGRAPH





Photo of Radiation Emission Test







APPENDIX II -- EXTERNAL PHOTOGRAPH





























APPENDIX III -- INTERNAL PHOTOGRAPH



















----- End of Report -----