FCC TEST REPORT

For

Shenzhen Libre Technology Limited Company

Product Name:	Libre Computer Board AML-S905X-CC
Trademark:	N/A
Model Number:	AML-S905X-CC
Prepared For: Address:	Shenzhen Libre Technology Limited Company 634.Block B,Tianhui Building,Yousong Road,Longhua New Area,Shenzhen CHINA.
Prepared By: Address:	Shenzhen BCTC Testing Co., Ltd. BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
Report No.:	BCTC-FY170805898E

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Shenzhen BCTC Testing Co., Ltd.

Applicant	:	Shenzhen Libre Technology Limited Company
Address	:	634.Block B,Tianhui Building,Yousong Road,Longhua New Area,Shenzhen CHINA.
Manufacturer	:	Shenzhen Libre Technology Limited Company
Address	:	634.Block B,Tianhui Building,Yousong Road,Longhua New Area,Shenzhen CHINA.
EUT	:	Libre Computer Board AML-S905X-CC
Model Number	:	AML-S905X-CC
Trademark:	:	N/A
Test Date	:	Jul. 04 – Jul. 10, 2017
Date of Report	:	Jul. 10, 2017
Test Result:	:	The equipment under test was found to be compliance with the requirements of the standards applied.

Test Procedure Used:

FCC Part 15 B

ANSI C63.4:2014

Prepared by(Engineer):	Jack Bu	Jack Bu
Reviewer(Supervisor):	Jade Yang	Jade Yang
Approved(Manager):	Carson Zhang	Carson Zhang

BCTC APPROVED SHENZHEN BCTC TESTING CO., LTD

This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen BCTC Testing Co., Ltd.

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Libre Computer Board AML-S905X-CC
Trademark	:	N/A
Model Number	:	AML-S905X-CC
Power Supply	:	DC5V 10W 2A

1.2. Tested System Details

None.

1.3. Test Uncertainty

Conducted Emission Uncertainty	:	±1.82dB
Radiated Emission Uncertainty	:	±2.51dB

1.4. Test Facility

Site Description

Name of Firm	:	Shenzhen BCTC Testing Co., Ltd.
Site Location	:	BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
Lab Qualifications	:	Certificated by Industry Canada Registration No.: 12655A Date of registration: January 19, 2015 Certificated by FCC, USA Registration No.: 187086 Date of registration: November 28, 2014 Certificated by CNAS China Registration No.: CNAS L6046 Date of registration: February 3, 2013

2. TEST INSTRUMENT USED

For Conducted Emission at the mains terminals Test

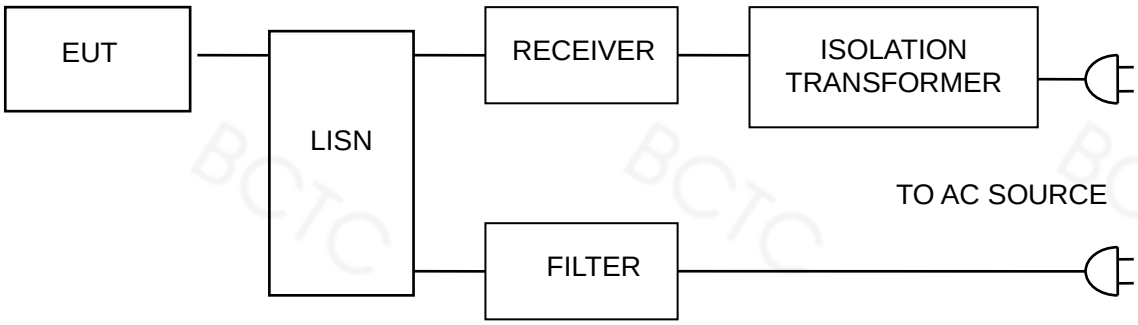
Conducted Emission Test (A --- site)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
843 Shielded Room	ChengYu	843 Room	843	Aug. 25, 2016	Aug. 24, 2017
EMI Receiver	R&S	ESCI	101421	Aug. 27, 2016	Aug. 26, 2017
LISN	Schwarzbeck	NSLK8127	8127739	Sep. 07, 2016	Sep. 06, 2017
Attenuator	R&S	ESH3-Z2	BCTC021E	Aug. 25, 2016	Aug. 24, 2017
843 Cable 1#	FUJIKURA	843C1#	001	Aug. 25, 2016	Aug. 24, 2017

For Radiated Emission Test

Radiation Emission Test (966 chamber)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
966 chamber	ChengYu	966 Room	966	Aug. 25, 2016	Aug. 24, 2017
Spectrum Analyzer	Agilent	E4407B	MY45109572	Aug. 27, 2016	Aug. 26, 2017
Amplifier	Schwarzbeck	BBV9743	9743-119	Aug. 25, 2016	Aug. 24, 2017
Amplifier	Schwarzbeck	BBV9718	9718-270	Aug. 25, 2016	Aug. 24, 2017
Log-periodic Antenna	Schwarzbeck	VULB9160	VULB9160-3369	Sep. 07, 2016	Sep. 06, 2017
EMI Receiver	R&S	ESCI	101421	Aug. 27, 2016	Aug. 26, 2017
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1275	Aug. 25, 2016	Aug. 24, 2017
966 Cable 1#	CHENGYU	966	004	Aug. 25, 2016	Aug. 24, 2017
966 Cable 2#	CHENGYU	966	003	Aug. 25, 2016	Aug. 24, 2017

3. CONDUCTED EMISSION AT THE MAINS TERMINALS TEST

3.1. Block Diagram Of Test Setup



3.2. Test Standard

FCC PART 15 B

3.3. Power Line Conducted Emission Limit

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

3.4. EUT Configuration on Test

The following equipments are installed on conducted emission test to meet FCC PART 15 B requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

3.5. Operating Condition of EUT

3.5.1 Setup the EUT and simulators as shown in Section 3.1.
3.5.2 Turn on the power of all equipments.
3.5.3 Let the EUT work in test modes and test it.

3.6. Test Procedure

The EUT is put on the ground and connected to the AC mains through a Artificial Mains Network (AMN). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission levels according to the **FCC PART 15 B** regulations during conducted emission test.

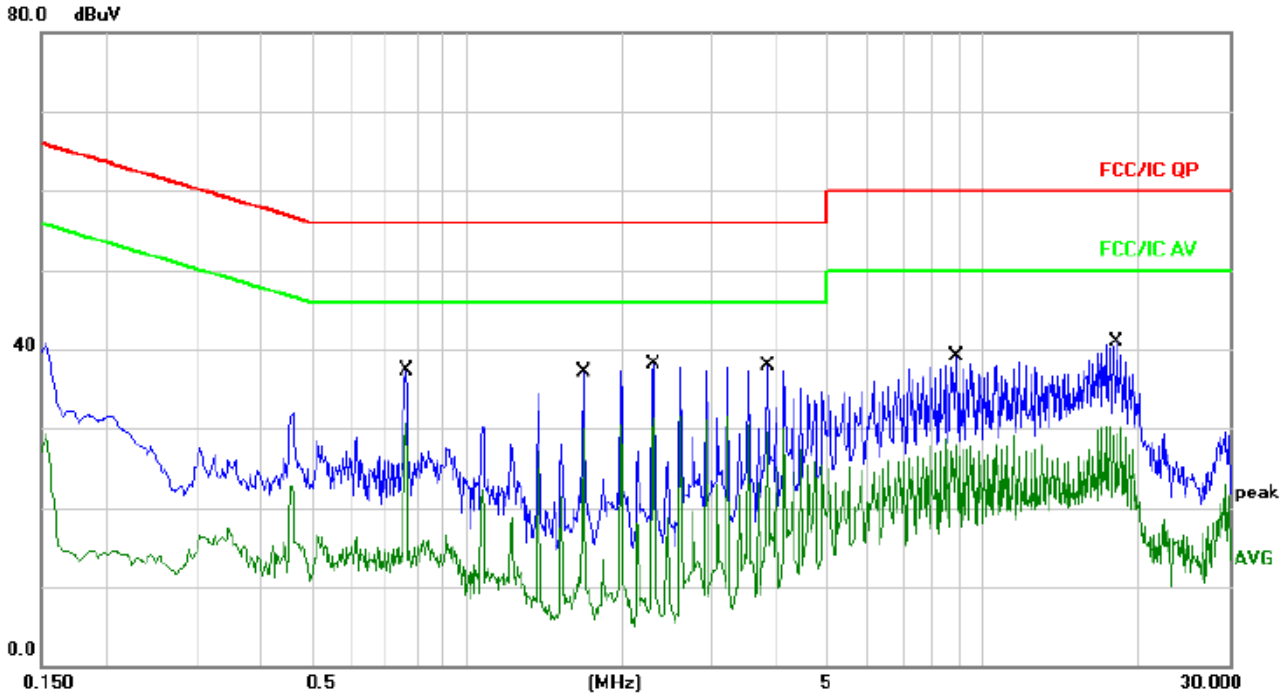
The bandwidth of the test receiver (R&S Test Receiver ESCI) is set at 10KHz.

The frequency range from 150 KHz to 30 MHz is investigated.

3.7. Test Result

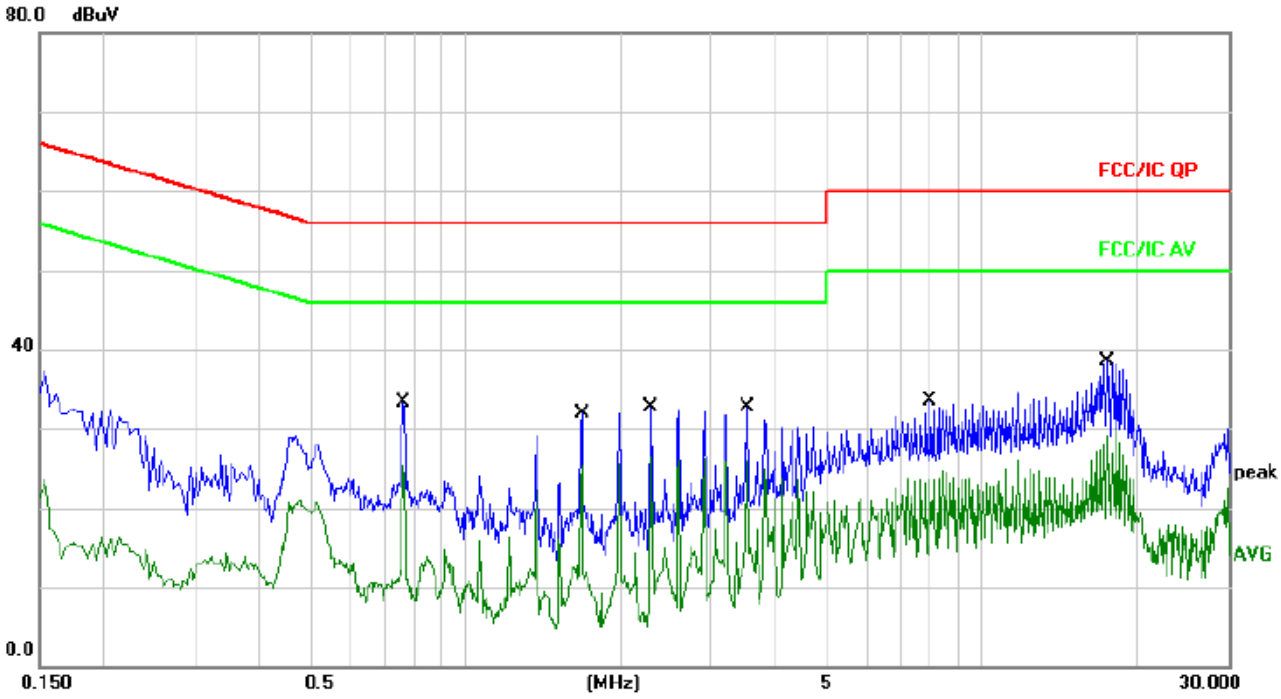
PASS
Please refer to the following page.

Conducted Emission At The Mains Terminals Test Data			
Temperature:	24.5 ℃	Relative Humidity:	54%
Pressure:	1009hPa	Phase :	Line
Test Voltage :	DC 5V from adapter Input AC120V/60Hz	Test Mode:	ON Mode



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.7660	27.71	9.68	37.39	56.00	-18.61	QP	
2		0.7660	21.02	9.68	30.70	46.00	-15.30	AVG	
3		1.6860	27.50	9.70	37.20	56.00	-18.80	QP	
4		1.6860	20.25	9.70	29.95	46.00	-16.05	AVG	
5		2.2980	28.29	9.72	38.01	56.00	-17.99	QP	
6	*	2.2980	21.83	9.72	31.55	46.00	-14.45	AVG	
7		3.8300	28.10	9.73	37.83	56.00	-18.17	QP	
8		3.8300	20.82	9.73	30.55	46.00	-15.45	AVG	
9		8.8820	29.23	9.82	39.05	60.00	-20.95	QP	
10		8.8820	18.91	9.82	28.73	50.00	-21.27	AVG	
11		18.2220	31.10	9.87	40.97	60.00	-19.03	QP	
12		18.2220	20.43	9.87	30.30	50.00	-19.70	AVG	

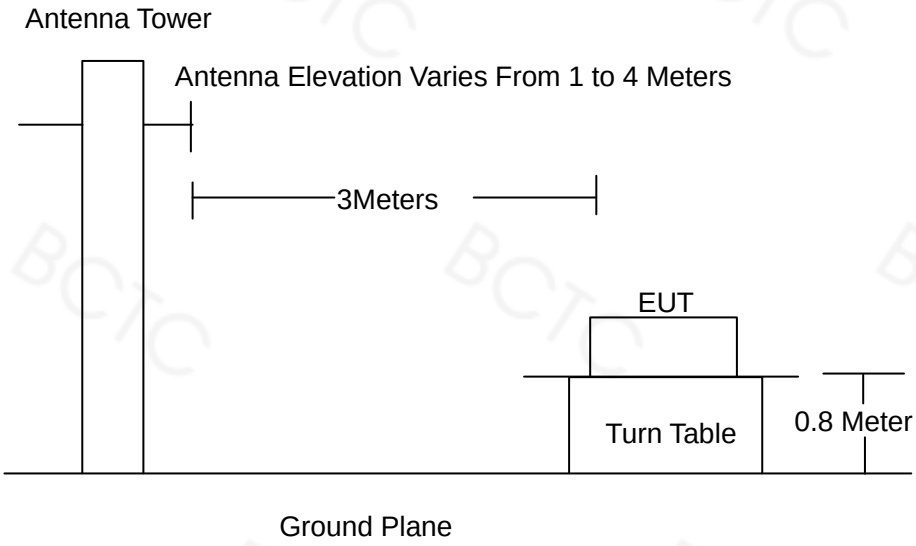
Conducted Emission At The Mains Terminals Test Data			
Temperature:	24.5 ℃	Relative Humidity:	54%
Pressure:	1009hPa	Phase :	Neutral
Test Voltage :	DC 5V from adapter Input AC120V/60Hz	Test Mode:	ON Mode



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.7620	23.61	9.68	33.29	56.00	-22.71	QP	
2		0.7620	15.57	9.68	25.25	46.00	-20.75	AVG	
3		1.6820	22.23	9.70	31.93	56.00	-24.07	QP	
4		1.6820	15.75	9.70	25.45	46.00	-20.55	AVG	
5		2.2900	22.98	9.72	32.70	56.00	-23.30	QP	
6	*	2.2900	16.72	9.72	26.44	46.00	-19.56	AVG	
7		3.5140	22.91	9.73	32.64	56.00	-23.36	QP	
8		3.5140	16.21	9.73	25.94	46.00	-20.06	AVG	
9		7.9420	23.69	9.81	33.50	60.00	-26.50	QP	
10		7.9420	13.80	9.81	23.61	50.00	-26.39	AVG	
11		17.5660	28.52	9.88	38.40	60.00	-21.60	QP	
12		17.5660	19.80	9.88	29.68	50.00	-20.32	AVG	

4. RADIATION EMISSION TEST

4.1. Block Diagram of Test Setup



4.2. Test Standard

FCC PART 15 B

4.3. Radiation Limit

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dBμV/m)
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
960 ~ 1000	3	54.0

4.4. EUT Configuration on Test

The FCC PART 15 B regulations test method must be used to find the maximum emission during radiated emission test.
The configuration of EUT is the same as used in conducted emission test. Please refer to Section 2.2.

4.5. Operating Condition of EUT

Same as conducted emission test, which is listed in Section 2.2 except the test set up replaced as Section 4.1.

4.6. Test Procedure

The EUT and its simulators are placed on a turned table that is 0.8 meter above the ground. The turned 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 that is mounted on the antenna tower. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated biconical and log periodical antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on test. In order to find the maximum emission levels, the interface cable must be manipulated according to FCC PART 15 B on radiated emission test.
The bandwidth setting on the field strength meter (R&S Test Receiver ESCI) is set at 120KHz below 1GHz, set at 1MHz above 1GHz
The frequency range from 30MHz to 1000MHz is checked.

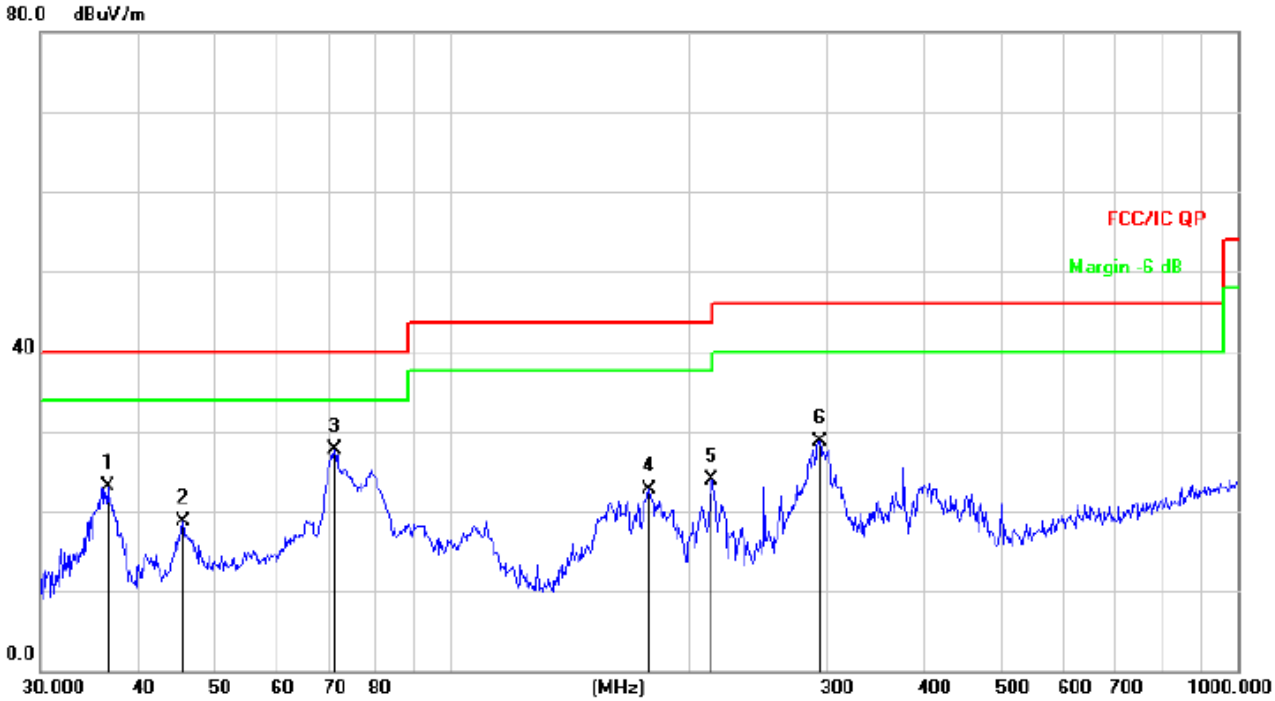
The highest frequency of the internal sources of the EUT was below 108MHz, so the measurement was only made up to 1GHz.

4.7. Test Result

PASS

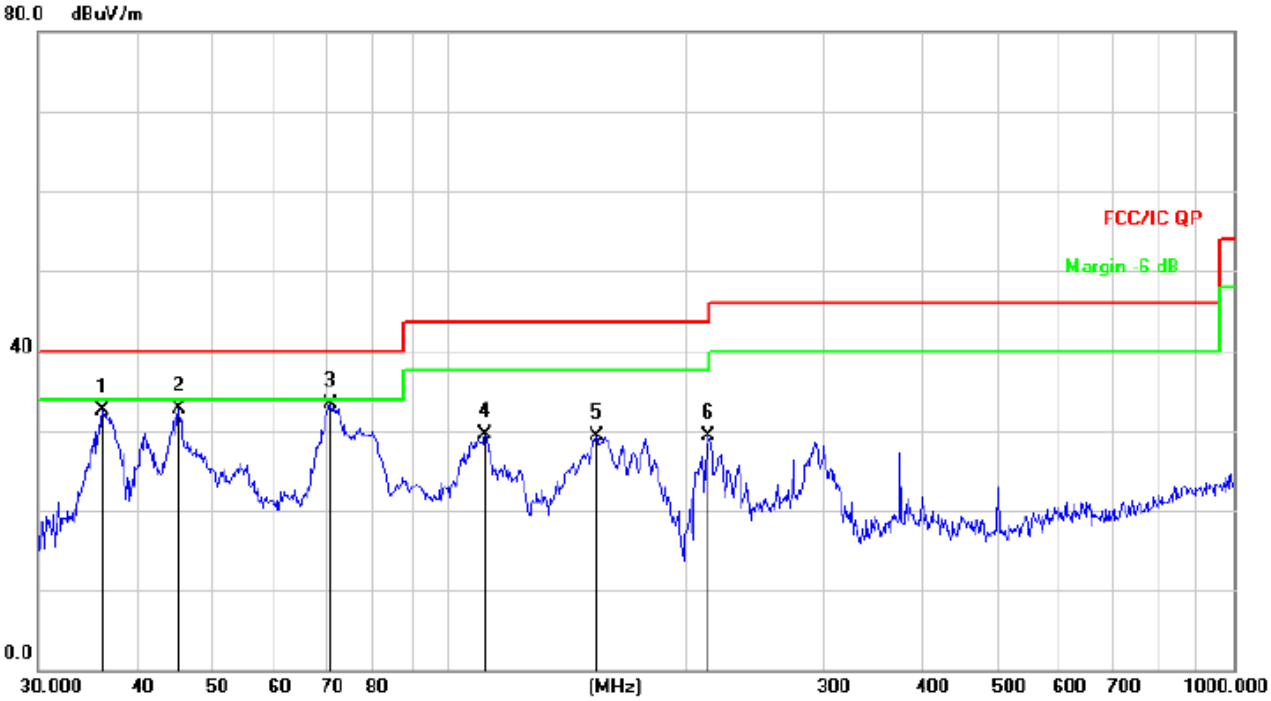
Please refer to the following page.

Radiation Emission Test Data			
Temperature:	24.5 ℃	Relative Humidity:	54%
Pressure:	1009hPa	Phase :	Horizontal
Test Voltage :	DC 5V from adapter Input AC120V/60Hz	Test Mode:	On Mode



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		36.5092	40.00	-16.85	23.15	40.00	-16.85	QP			
2		45.5348	33.56	-14.78	18.78	40.00	-21.22	QP			
3	*	71.0803	46.93	-19.30	27.63	40.00	-12.37	QP			
4		178.1327	40.70	-17.93	22.77	43.50	-20.73	QP			
5		214.5143	39.64	-15.69	23.95	43.50	-19.55	QP			
6		294.1137	40.92	-12.23	28.69	46.00	-17.31	QP			

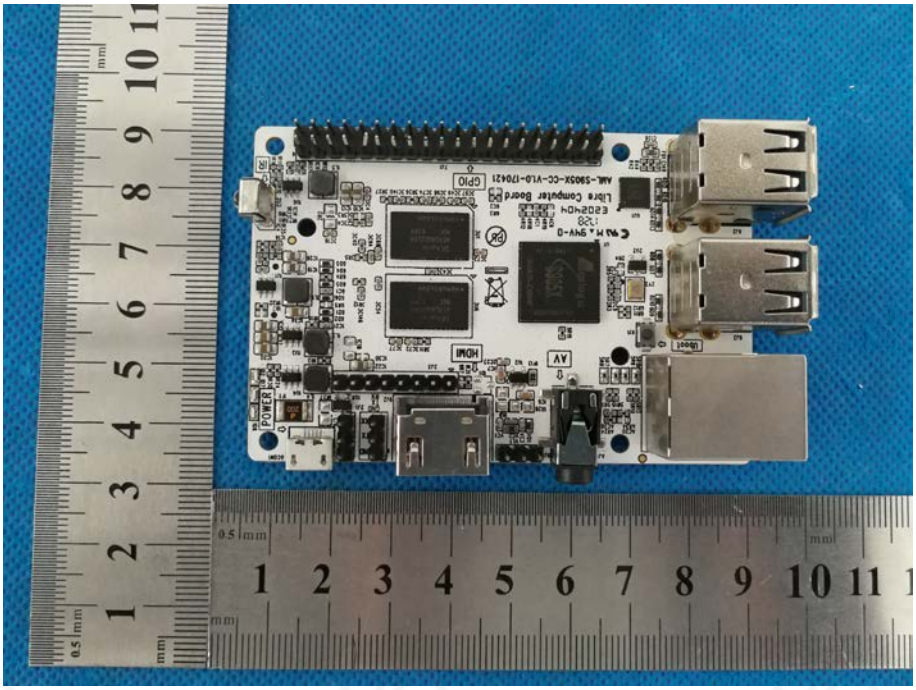
Radiation Emission Test Data			
Temperature:	24.5 ℃	Relative Humidity:	54%
Pressure:	1009hPa	Phase :	Vertical
Test Voltage :	DC 5V from adapter Input AC120V/60Hz	Test Mode:	On Mode



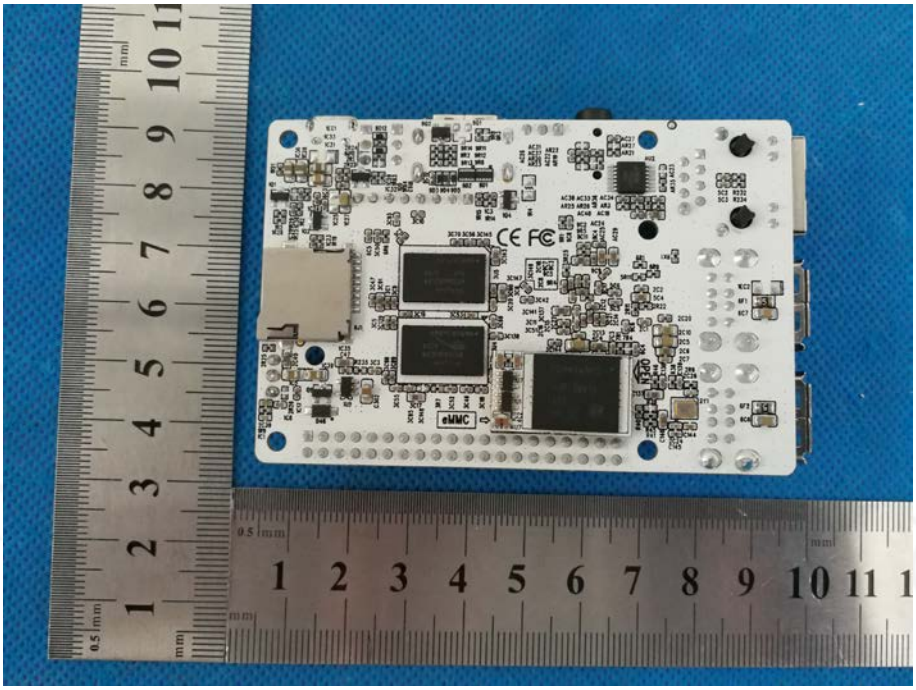
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		36.2541	49.47	-16.97	32.50	40.00	-7.50	QP			
2		45.3755	47.44	-14.79	32.65	40.00	-7.35	QP			
3	*	70.5836	52.31	-19.08	33.23	40.00	-6.77	QP			
4		111.3468	46.21	-16.68	29.53	43.50	-13.97	QP			
5		154.2786	48.70	-19.39	29.31	43.50	-14.19	QP			
6		213.7634	44.97	-15.73	29.24	43.50	-14.26	QP			

5. EUT PHOTOGRAPHS

EUT Photo 1



EUT Photo 2



6. EUT TEST PHOTOGRAPHS

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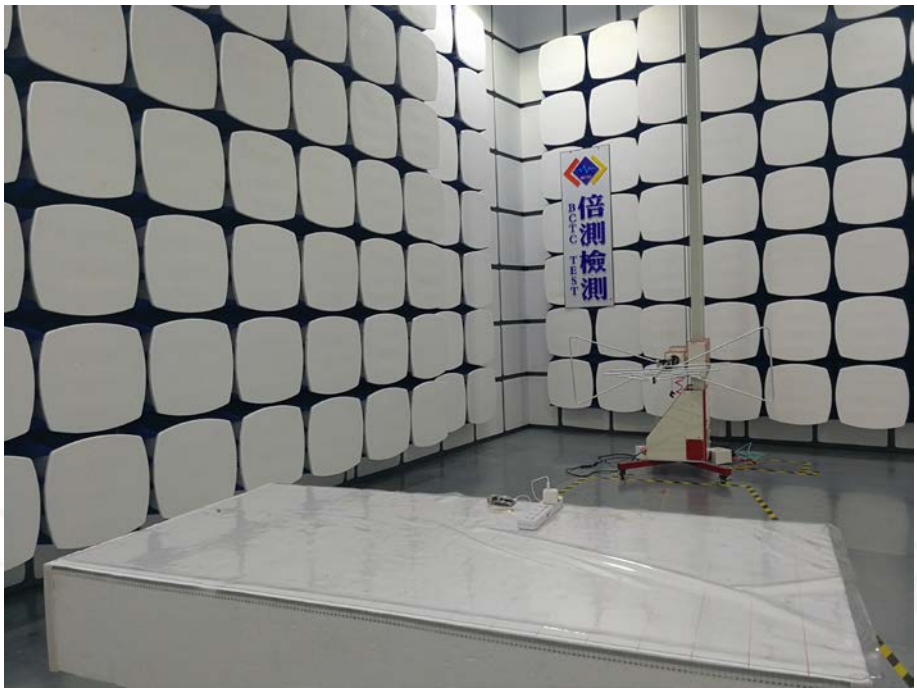

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