TEST REPORT

Applicant:	Cubietech Co., Ltd.
Address of Applicant:	303,1st Bldg, A Zone, Baoan Internet Industry Base, No.1009, Baoyuan Road, Baoan District, Shenzhen, China.

Equipment Under Test (EUT)

Product Name:	Cubieboard2
Model No.:	Cubieboard2
Trade Mark:	Cubieboard
Applicable standards:	EN 55022:2010/AC:2011 EN 55024:2010 EN 61000-3-2:2006+A1:2009+A2:2009 EN 61000-3-3:2008
Date of sample receipt:	February. 13, 2014
Date of Test:	Feb. 13-19, 2014
Date of report issued:	Feb. 19, 2014
Test Result :	PASS *

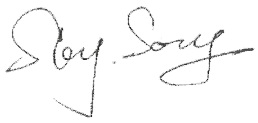
* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo
Laboratory Manager

2 Version

Version No.	*Date*	*Description*
00	*Feb. 19, 2013*	*Original*

Prepared by:  ***Date:*** *February 19, 2014*

Project Engineer

Reviewed by:  ***Date:*** *February 19, 2014*

Reviewer

3 Contents

4 Test Summary

Test item	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission #	EN 55022	EN 55022	Class B	Pass
Conducted Emission	EN 55022	EN 55022	Class B	Pass
Harmonic Emission	EN 61000-3-2	EN 61000-3-2	N/A	N/A
Flicker Emission	EN 61000-3-3	EN 61000-3-3	Clause 5	Pass
Electrostatic discharge	EN 55024	EN 61000-4-2:2009	Contact ±2,±4 kV Air ±2,±4,±8 kV	Pass
Radio-frequency electromagnetic field Amplitude modulated	EN 55024	EN 61000-4-3: 2006+A1: 2008 +A2: 2010	3V/m 80%, 1kHz, AM	Pass
Electrical fast transients	EN 55024	EN 61000-4-4: 2004+A1:2010	AC ± 1.0kV	Pass
Surges	EN 55024	EN 61000-4-5: 2006	±1kV D.M ±2kV C.M	Pass
Radio-frequency continuous conducted	EN 55024	EN 61000-4-6: 2009	3Vrms (emf), 80%, 1kHz Amp. Mod.	Pass
Voltage dips and Voltage interruptions	EN 55024	EN 61000-4-11: 2004	0 % U_T* for 0.5per 0 % U_T* for 250per 70 % U_T* for 25per	Pass

Remark:

1. *Pass:Comply with the essential requirements in the standard.*
2. *N/A: not applicable*
3. *U_T: the nominal supply voltage; D.M: Differential Mode; C.M: Common Mode.*
4. *# Refer to EN55022 clause 6.2 conditional testing procedure :*

The highest frequency generated or used in the EUT	*Test frequency range of Radiated emission*
<108MHz	*30MHz ~ 1GHz*
108MHz ~ 500MHz	*30MHz ~ 2GHz*
500MHz ~ 1GHz	*30MHz ~ 5GHz*
>1GHz	*30MHz ~ 5times the highest frequency or* *30MHz ~ 6 GHz, whichever is less*

The highest frequency of the internal sources of the EUT is above 1 GHz.

5 General Information

5.1 Client Information

Applicant:	Cubietech Co., Ltd.
Address of Applicant:	303,1st Bldg, A Zone, Baoan Internet Industry Base, No.1009, Baoyuan Road, Baoan District, Shenzhen, China.
Manufacturer/ Factory:	Cubietech Co., Ltd.
Address of Manufacturer / Factory:	303,1st Bldg, A Zone, Baoan Internet Industry Base, No.1009, Baoyuan Road, Baoan District, Shenzhen, China.

5.2 General Description of E.U.T.

Product Name:	Cubieboard2
Model No.:	Cubieboard2
Test Model No.:	Cubieboard2
Remark:	Cubieboard
Power supply:	Adapter :Input:100-240V 50-60Hz 0.8A Output:5V 2.0A

5.3 Test mode and Test voltage

Test mode:
Keep the EUT USB playing, Removable disk 1kHz color bar
Test voltage:
Adapter AC 230V 50Hz
The USB Playing mode is the worst emission mode.

5.4 Description of Support Units

Description	Manufacturer	Model	Serial Number
TV	AOC	TFT24660AG	T49A5JA000660B9
MOUSE	DELL	N/A	N/A
Adapter	Provide by client	N/A	N/A

5.5 Deviation from Standards

None.

5.6 Abnormalities from Standard Conditions

None.

5.7 Monitoring of EUT for All Immunity Test

	Visual:	Monitor of the display
	Audio:	Monitor of the sound

5.8 Test Facility

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

● **CNAS —Registration No.: CNAS L5775**

CNAS has accredited Global United Technology Services Co., Ltd. To ISO/IEC 17025 General Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

● **FCC —Registration No.: 600491**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fuly described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, June 28, 2013.

● **Industry Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, June 26, 2013.

5.9 Test Location

RI and CI tests were performed at:
China Shenzhen Academy of Metrology and Quality Inspection, Metrology and Quality Inspection building, Central Section of LongZhu Road, Nan Shan, Shenzhen
All other test items were performed at:
Global United Technology Services Co., Ltd. Address: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China Tel: 0755-27798480; Fax: 0755-27798960

6 Test Instruments List

Radiated Emission						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.0(L)*6.0(W)* 6.0(H)	GTS250	Mar. 29 2013	Mar. 28 2014
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	ESU EMI Test Receiver	R&S	ESU26	GTS203	Jun. 29 2013	Jun. 29 2014
4	BiConiLog Antenna	SCHWARZBECK	VULB9163	GTS214	Jun. 29 2013	Jun. 29 2014
5	Double -ridged waveguide horn	SCHWARZBECK	9120D	GTS208	Jun. 29 2013	Jun. 29 2014
6	RF Amplifier	HP	8347A	GTS204	Jun. 29 2013	Jun. 29 2014
7	Preamplifier	HP	8349B	GTS206	Jun. 29 2013	Jun. 29 2014
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial cable	GTS	N/A	GTS210	Jul. 07 2013	Jul. 06 2014
10	Coaxial Cable	GTS	N/A	GTS211	Jul. 07 2013	Jul. 06 2014
11	Thermo meter	N/A	N/A	GTS256	Jul. 01 2013	Jul. 01 2014

Conducted Emission						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	Jul. 06 2014
2	2	EMI Test Receiver	R&S	ESCS30	GTS223	Jul. 06 2014
3	3	Pulse Limiter	R&S	ESH3-Z2	GTS224	Jul. 06 2014
4	4	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	Jul. 06 2014
5	5	Artificial Mains Network	SCHWARZBECK MESS	NSLK8127	GTS226	Jul. 06 2014
6	6	Coaxial Cable	GTS	N/A	GTS227	Jul. 06 2014
7	7	EMI Test Software	AUDIX	E3	N/A	N/A
8	8	Thermo meter	KTJ	TA328	GTS233	Jul. 06 2014

Electrical fast transients/ Surges/ Voltage dips and interruptions						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	EMTEST system	EMTEST	UCS500N	GTS239	Jun. 29 2013	Jun. 29 2014
2	Thermo meter	KTJ	TA328	GTS238	Jul. 01 2013	Jul. 01 2014

Electrostatic discharge						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	ESD Simulator	EMPEK	ESD-2030A	GTS242	Jul.03 2013	Jul. 03 2014
2	Thermo meter	KTJ	TA328	GTS243	Jul. 01 2013	Jul. 01 2014

Flicker						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Power Analyzer	EMTEST	DPA500	GTS235	Jun. 29 2013	Jun. 29 2014
2	AC Power Source	EMTEST	ACS500	GTS236	Jun. 29 2013	Jun. 29 2014
3	Test software	EMTEST	ACS	N/A	N/A	N/A
4	Thermo meter	KTJ	TA328	GTS256	Jul. 01 2013	Jul. 01 2014

Conducted Immunity:					
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial NO.**	**Cal.Due Date (mm-dd-yy)**
1	CW sine Generator	EMTEST	CWS500	0399-11	Jan. 18 2014
2	CDN	EMTEST	CDN-M2	9907105C	Jan. 18 2014
3	CDN	EMTEST	CDN-M3	9905170C	Jan. 18 2014

Radio-frequency electromagnetic fields:					
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial NO.**	**Cal.Due Date (mm-dd-yy)**
1	Signal Generator	Rohde & Schwarz	SMT03	100059	Jan. 18 2014
2	Power Amplifier	AR	150W1000	300999	Jan. 18 2014
3	Power Amplifier	AR	25S1G4AM1	305993	Jan. 20 2014
4	Power Amplifier	AR	150A220M6	305965	Mar. 07 2014
5	Broadband antenna	CHASE	CBL6111C	2576	Jan. 18 2014
6	Horn Antenna	AR	AT4002A	#N/A	#N/A
7	Anechoic Chamber	Albatross Projects	MCDC	----	Oct. 08 2014

General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
1	Barometer	ChangChun	DYM3	GTS257	Jul. 27 2013	Jul. 27 2014

7 Emission Test Results

7.1 Radiated Emission

Test Requirement:	EN 55022
Test Method:	EN 55022
Test Frequency Range:	30MHz to 6GHz
Class / Severity:	Class B
Test site:	Measurement Distance: 3m
Receiver setup:	

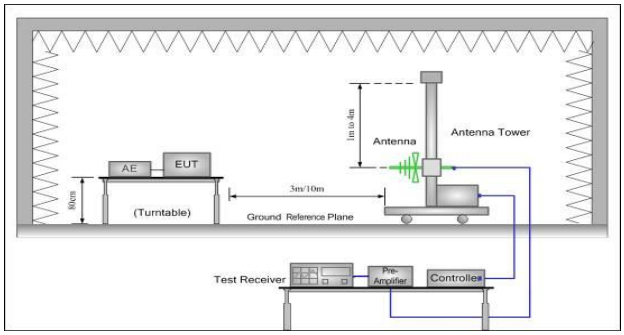
Frequency	Detector	RBW	VBW	Value
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	3MHz	Average

Limit:

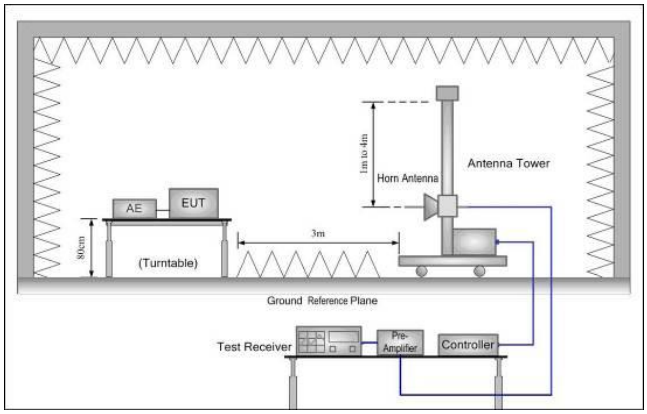
Frequency	Limit (dBμV/m @3m)	Value
30MHz-230MHz	40.00	Quasi-peak
230MHz-1GHz	47.00	Quasi-peak
1GHz-3GHz	70.00	Peak
1GHz-3GHz	50.00	Average

Test setup:

Below 1GHz:



Above 1GHz:



Test Procedure:

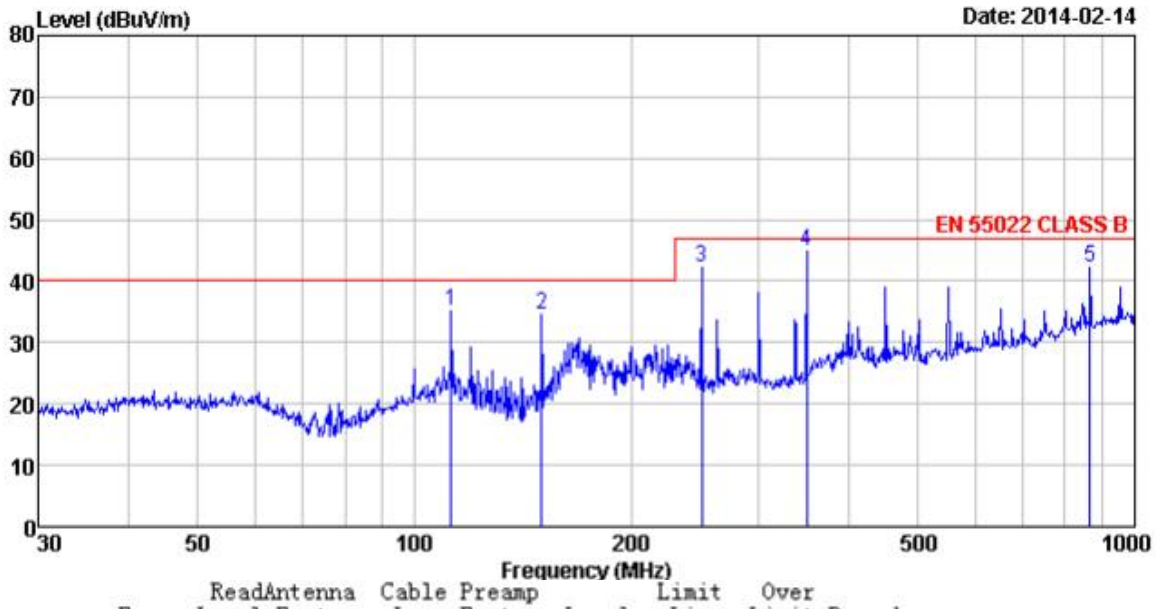
From 30MHz to 1GHz:

1. The radiated emissions test was conducted in a semi-anechoic

	chamber. 2. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation. 3. Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT. 4. The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization. **Above 1GHz:** 1. The radiated emissions test was conducted in a fully-anechoic chamber. 2. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation. 3. Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emission spectrum plots of the EUT. 4. The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.
Test environment:	Temp.: 25 °C Humid.: 52% Press.: 1 012mbar
Measurement Record:	Uncertainty: ± 4.50dB
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

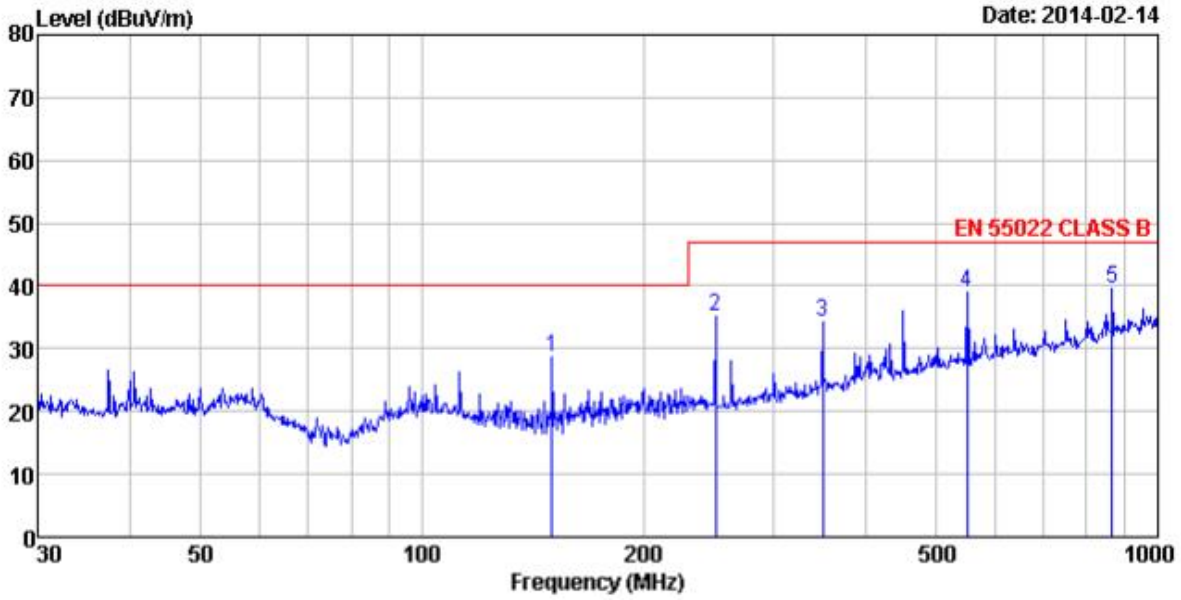
Measurement Data
Below 1GHz:

Test mode:	USB playing 1kHz color bar	Antenna Polarity:	Horizontal



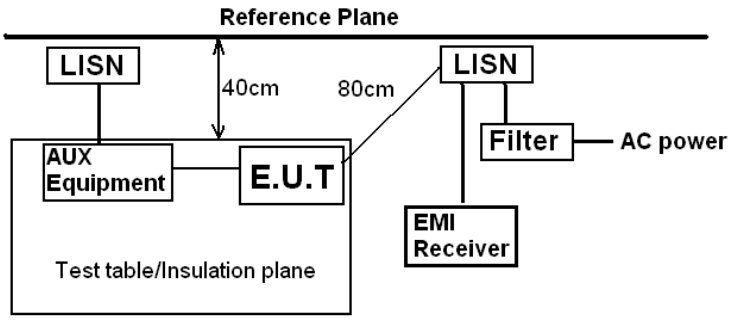
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	112.524	51.70	13.83	1.30	31.82	35.01	40.00	-4.99	Peak
2	150.011	54.66	10.26	1.57	31.98	34.51	40.00	-5.49	Peak
3	250.301	58.23	14.07	2.12	32.16	42.26	47.00	-4.74	Peak
4	350.477	57.93	16.27	2.62	32.02	44.80	47.00	-2.20	Peak
5	866.088	46.02	22.78	4.73	31.23	42.30	47.00	-4.70	Peak

Test mode:	USB playing 1kHz color bar	Antenna Polarity:	Vertical



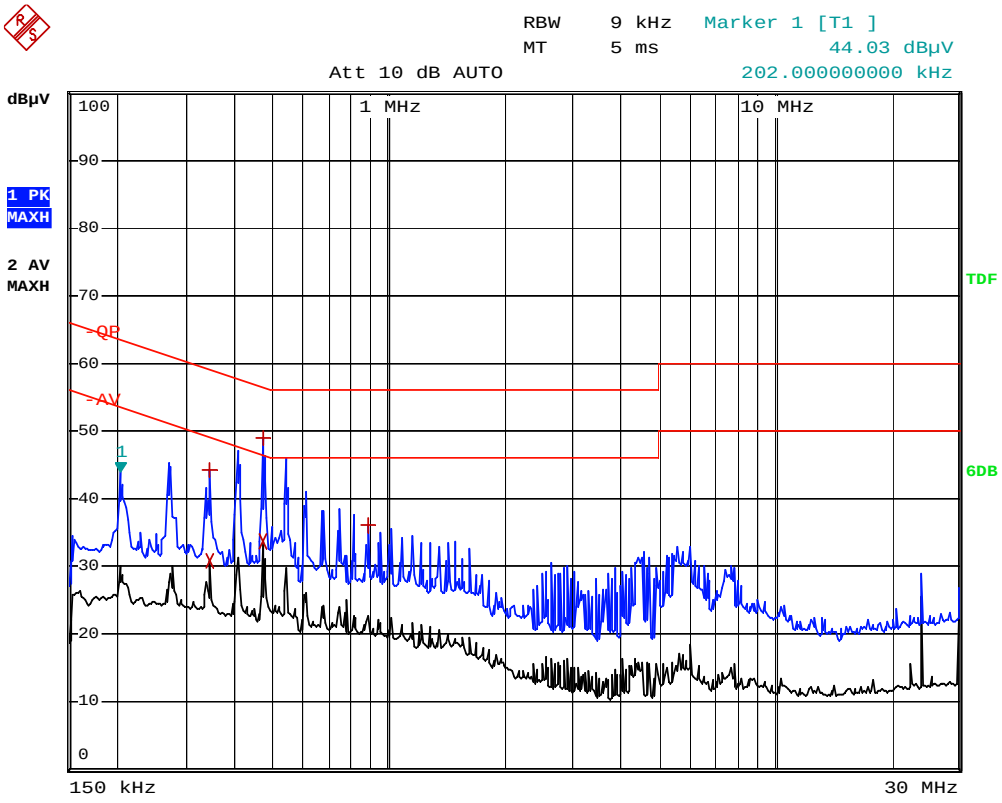
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	150.011	48.83	10.26	1.57	31.98	28.68	40.00	-11.32	Peak
2	250.301	51.12	14.07	2.12	32.16	35.15	47.00	-11.85	Peak
3	350.477	47.40	16.27	2.62	32.02	34.27	47.00	-12.73	Peak
4	550.948	47.07	19.57	3.53	31.28	38.89	47.00	-8.11	Peak
5	866.088	43.34	22.78	4.73	31.23	39.62	47.00	-7.38	Peak

7.2 Conducted Emission

Test Requirement:	EN 55022
Test Method:	EN 55022
Test Frequency Range:	150kHz to 30MHz
Class / Severity:	Class B
Receiver setup:	RBW=9kHz, VBW=30kHz
Limit:	Frequency range (MHz) / Limit (dBµV): 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 logarithm of the frequency.
Test setup:	 *Remark:* *E.U.T: Equipment Under Test* *LISN: Line Impedence Stabilization Network* *Test table height=0.8m*
Test procedure	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to EN55022 Class B on conducted measurement.
Test environment:	Temp.: 24 °C | Humid.: 51% | Press.: 1012mbar
Measurement Record:	Uncertainty: ±3.45dB
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data

Test mode:	USB playing 1kHz color bar	Phase Polarity:	Line

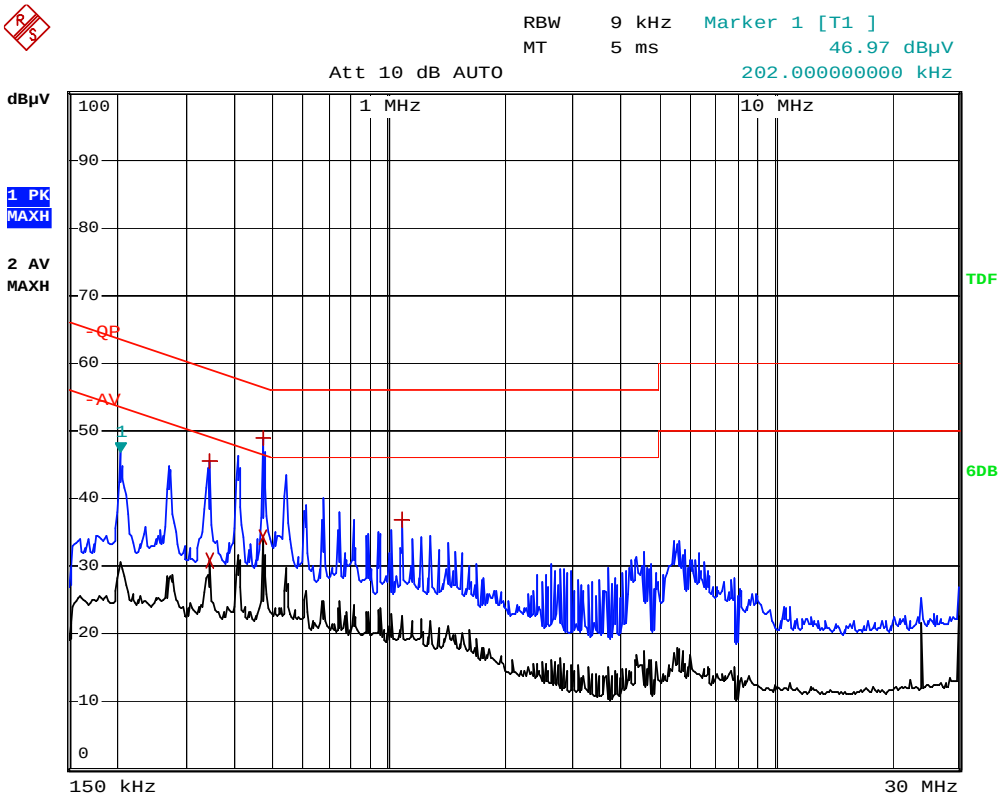


EDIT PEAK LIST (Prescan Results)

Trace1:	-QP
Trace2:	-AV
Trace3:	---

TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	342 kHz	44.21	-14.93
2 Average	342 kHz	30.94	-18.21
1 Max Peak	474 kHz	48.83	-7.60
2 Average	474 kHz	33.78	-12.65
1 Max Peak	882 kHz	36.03	-19.96

Test mode:	USB playing 1kHz color bar	Phase Polarity:	Neutral



EDIT PEAK LIST (Prescan Results)

Trace1:	-QP
Trace2:	-AV
Trace3:	---

TRACE		FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1	Max Peak	342 kHz	45.60	-13.54
2	Average	342 kHz	30.75	-18.40
1	Max Peak	474 kHz	48.95	-7.49
2	Average	474 kHz	34.19	-12.24
1	Max Peak	1.086 MHz	36.91	-19.08

7.3 Harmonic Emission

Test Requirement:	EN 61000-3-2
Test Method:	N/A: See Remark Below
Remark	There is no need for Harmonics test to be performed on this product (rated power is less than 75W) in accordance with EN 61000-3-2. For further details, please refer to Clause 7, Note 1 of EN 61000-3-2 which states: "For the following categories of equipment limits are not specified in this edition of the standard. Note 1: Equipment with a rated power of 75W or less, other than lighting equipment."

7.4 Flicker Emission

Test Requirement:	EN 61000-3-3					
Test Method:	EN 61000-3-3					
Class/Severity:	Clause 5 of EN 61000-3-3					
Measurement Time:	10 min					
Detector:	As per EN 61000-3-3					
Test environment:	Temp.:	24 °C	Humid.:	51%	Press.:	1 012mbar
Test Instruments:	Refer to section 6 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Pass					

Measurement Data

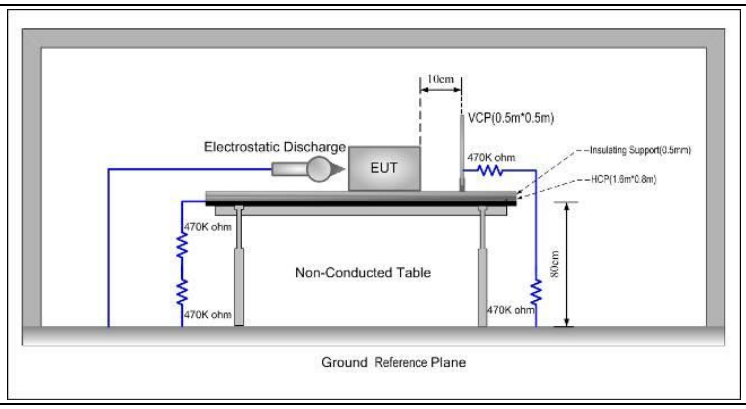
Test Item	EUT values	Limit	Result
Pst	0.008	1.00	PASS
dc [%]	0.007	0.65	PASS
dmax [%]	0.000	3.30	PASS
dt [s]	0.002	4.00	PASS

8 Immunity Test Results

8.1 Performance Criteria Description in Clause 7 of EN 55024

Criterion A:	The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Criterion B:	After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Criterion C:	Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

8.2 Electrostatic discharge

Test Requirement:	EN 55024
Test Method:	EN 61000-4-2
Discharge Voltage:	Contact Discharge: ±2kV, ±4kV Air Discharge: ±2kV, ±4kV, ±8kV HCP/VCP: ±2kV, ±4kV
Polarity:	Positive & Negative
Number of Discharge:	Contact Discharge: Minimum 25 times at each test point, Air Discharge: Minimum 10 times at each test point.
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum
Performance Criterion:	Criterion B
Test setup:	
Test Procedure:	**1. Air discharge:** The test was applied on non-conductive surfaces of EUT. The round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT. After each discharge, the discharge electrode was removed from the EUT. The generator was re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure was repeated until all the air discharge completed **2. Contact Discharge:** The test was applied on conductive surfaces of EUT. the generator was re-triggered for a new single discharge and repeated 25 times for each pre-selected test point. the tip of the discharge electrode was touch the EUT before the discharge switch was operated. **3. Indirect discharge for horizontal coupling plane** At least 10 single discharges shall be applied at the front edge of each HCP opposite the centre point of each unit of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge. Consideration should be given to exposing all sides of the EUT. **4. Indirect discharge for vertical coupling plane**

	At least 10 single discharges were applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, was placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges were applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.					
Test environment:	Temp.:	24 °C	Humid.:	51%	Press.:	1 012mbar
Test mode:	Refer to section 6 for details					
Test Instruments:	Refer to section 5.3 for details					
Test results:	Pass					

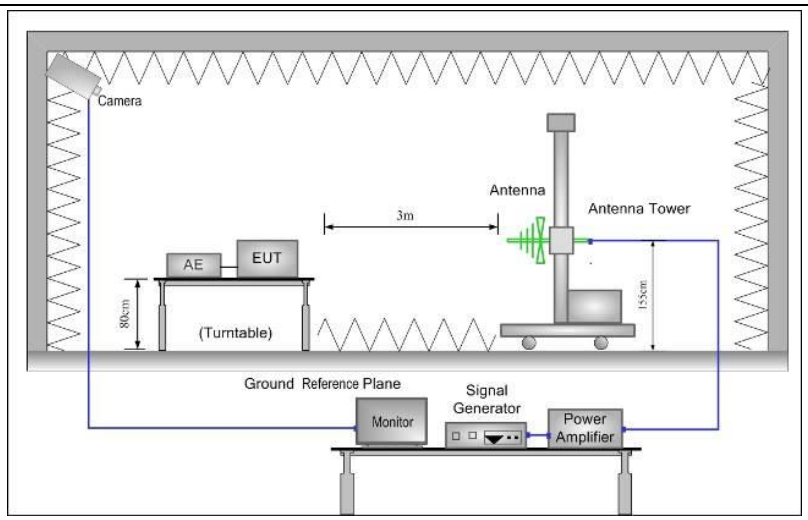
Measurement Record:

Test points:	I: Metal cover, USB port, HDMI port			
	II: All plastic seams			
Direct discharge				
Discharge Voltage (KV)	**Type of discharge**	**Test points**	**Observations (Performance Criterion)**	**Result**
± 2, ± 4	Contact	I	A	Pass
± 2, ± 4,± 8	Air	II	A	Pass
Indirect discharge				
Discharge Voltage (KV)	**Type of discharge**	**Test points**	**Observation Performance**	**Result**
± 2, ± 4	HCP-Bottom/Top/ Front/Back/Left/Right	Edge of the HCP	A	Pass
± 2, ± 4	VCP-Front/Back /Left/Right	Center of the VCP	A	Pass

Remark:

A: No degradation in performance of the EUT was observed.

8.3 Radio-frequency electromagnetic field Amplitude modulated

Test Requirement:	EN 55024
Test Method:	EN 61000-4-3
Frequency range:	80MHz to 1GHz
Test Level:	3V/m
Modulation:	80%, 1kHz Amplitude Modulation
Performance Criterion:	Criterion A
Test setup:	
Test Procedure:	1. For table-top equipment, the EUT was placed in the chamber on a non-conductive table 0.8m high. For arrangement of floor-standing equipment, the EUT was mounted on a non-conductive support 0.1m above the supporting plane. For human body-mounted equipment, the EUT may be tested in the same manner as table top items. 2. If possible, a minimum of 1 m of cable is exposed to the electromagnetic field. Excess length of cables interconnecting units of the EUT shall be bundled low-inductively in the approximate center of the cable to form a bundle 30 cm to 40 cm in length. 3. The EUT was initially placed with one face coincident with the calibration plane. The EUT face being illuminated was contained within the UFA (Uniform Field Area). 4. The frequency ranges to be considered were swept with the signal modulated and pausing to adjust the RF signal level or to switch oscillators and antennas as necessary.Where the frequency range was swept incrementally, the step size was not exceed 1 % of the preceding frequency value. 5. The dwell time of the amplitude modulated carrier at each frequency was not be less than the time necessary for the EUT to be exercised and to respond, and was not less than 0,5 s. 6. The test normally was performed with the generating antenna facing each side of the EUT. 7. The polarization of the field generated by each antenna necessitates testing each selected side twice, once with the antenna positioned

	vertically and again with the antenna positioned horizontally. 8. The EUT was performed in a configuration to actual installation conditions, a video camera and/or a audio monitor were used to monitor the performance of the EUT.					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1 012mbar
Test Instruments:	Refer to section 6 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Pass					

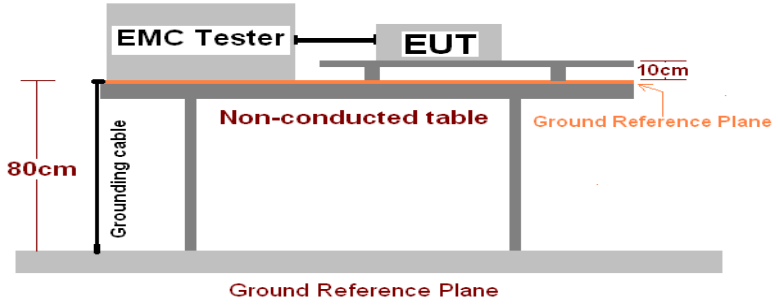
Measurement Record:

Frequency	Level	Modulation	Antenna Polarization	EUT Face	Observations (Performance Criterion)	Result
80 MHz-1 GHz	3 V/m	1 kHz, 80 % Amp. Mod, 1 % increment, dwell time=3seconds	V	Front	A	Pass
			H		A	Pass
			V	Rear	A	Pass
			H		A	Pass
			V	Left	A	Pass
			H		A	Pass
			V	Right	A	Pass
			H		A	Pass
			V	Top	A	Pass
			H		A	Pass
			V	Bottom	A	Pass
			H		A	Pass

Remark:

A: No degradation in performance of the EUT was observed.

8.4 Electrical fast transients

Test Requirement:	EN 55024
Test Method:	EN 61000-4-4
Test Level:	1.0kV on AC port
Polarity:	Positive & Negative
Test signal specification:	Rise time=5ns, Duration time=50ns; Burst Duration=15ms, Burst Period=300ms; Repetition Frequency=5KHz
Test Duration:	2 minute per level & polarity
Performance Criterion:	Criterion B
Test setup:	
Test Procedure:	1. The EUT and its simulators were placed on the ground reference plane and were insulated from it by a wood support 0.1m + 0.01m thick. The ground reference plane was 1m*1m metallic sheet with 0.65mm minimum thickness. 2. This reference ground plane was project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane was more than 0.5m. 3. All cables to the EUT was placed on the wood support, cables not subject to EFT/B was routed as far as possible from the cable under test to minimize the coupling between the cables. 4. The length of the signal and power lines between the coupling device and the EUT is 0.5m 5. The EUT is connected to the power mains through a coupling device that directly couples the EFT/B interference signal. 6. Each of the Line and Neutral conductors is impressed with burst noise for 2 minutes.
Test environment:	Temp.: 26 °C Humid.: 54% Press.: 1 012mbar
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

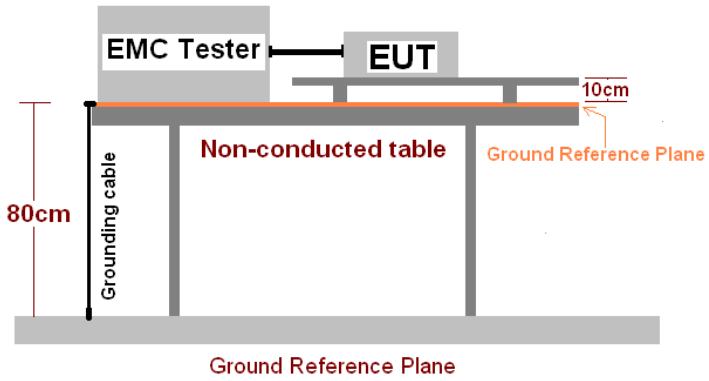
Measurement Record:

Lead under Test	Level (±kV)	Coupling Direct/Clamp	Observations (Performance Criterion)	Result
L	± 1.0	Direct	A	Pass
N	± 1.0	Direct	A	Pass
PE	± 1.0	Direct	A	Pass
L-N	± 1.0	Direct	A	Pass
L-PE	± 1.0	Direct	A	Pass
N-PE	± 1.0	Direct	A	Pass
L-N-PE	± 1.0	Direct	A	Pass

Remark:

A: No degradation in performance of the EUT was observed.

8.5 Surges

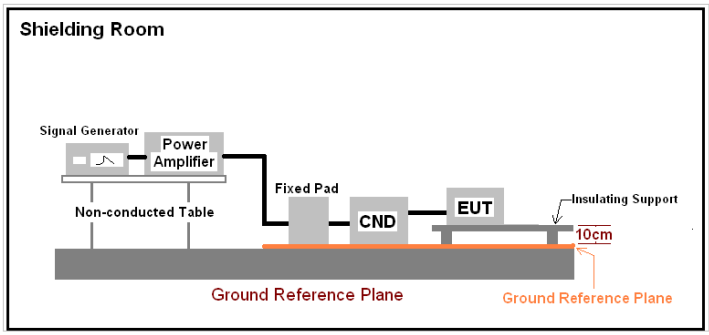
Test Requirement:	EN 55024
Test Method:	EN 61000-4-5
Test Level:	1kV line to line: Differential mode 2kV Line to Earth or Neutral to Earth: Common mode
Polarity:	Positive & Negative
Generator source impedance:	2Ω (line-line coupling) 12Ω (line-earth coupling)
Test signal specification:	Rise time=1.2us, Duration time=50us; Test Interval: 60s between each surge;
No. of surges:	5 positive, 5 negative at 0°, 90°, 180°, 270°.
Performance Criterion:	Criterion B
Test setup:	
Test Procedure:	1. For line-to-line coupling mode, provide a 1kV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points, and for active line / neutral lines to ground are same except test level is 2kV. 2. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are applied during test. 3. Different phase angles are done individually. 4. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.
Test environment:	Temp.: 26 °C | Humid.: 53% | Press.: 1 012mbar
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Record:

Location	Level(kV)	Pulse No	Surge Interval	Phase(deg)	Observations (Performance Criterion)	Result
L-N	± 1	5	60s	0°	A	Pass
				90°	A	Pass
				180°	A	Pass
				270°	A	Pass
L-PE	± 2	5	60s	0°	---	---
				90°	---	---
				180°	---	---
				270°	---	---
N-PE	± 2	5	60s	0°	---	---
				90°	---	---
				180°	---	---
				270°	---	---

Remark:
A: No degradation in performance of the EUT was observed.

8.6 Radio-frequency continuous conducted

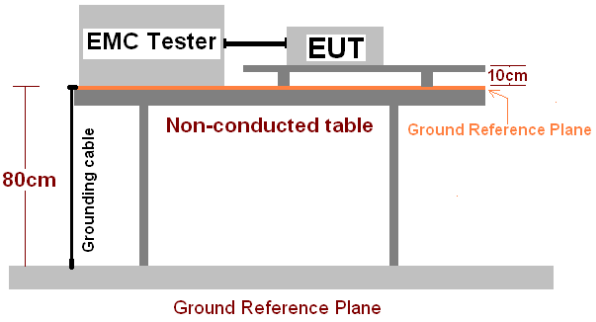
Test Requirement:	EN 55024
Test Method:	EN 61000-4-6
Frequency range:	0.15MHz to 80MHz
Test Level:	3V rms on AC Ports (unmodulated emf into 150 Ω)
Modulation:	80%, 1kHz Amplitude Modulation
Performance Criterion:	Criterion A
Test setup:	
Test Procedure:	1. The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible). 2. The disturbance signal described below is injected to EUT through CDN. 3. The EUT operates within its operational mode(s) under intended climatic conditions after power on. 4. Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.
Test environment:	Temp.: 24 °C Humid.: 51% Press.: 1 012mbar
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Record:

Frequency	Injected Position	Level	Modulation	Observations (Performance Criterion)	Result
150kHz to 80MHz	AC Mains	3Vrms	1 kHz, 80 % Amp. Mod, 1 % increment, dwell time=2seconds	A	Pass

Remark:
A: No degradation in performance of the EUT was observed.

8.7 Voltage dips and Voltage interruptions

Test Requirement:	EN 55024
Test Method:	EN 61000-4-11
Test Level:	0% of VT(Supply Voltage) for 0.5 period 70% of VT(Supply Voltage) for 25 period 0% of VT(Supply Voltage) for 250 period
Number of Dips / Interruptions:	3 per Level
Performance Criterion:	>95% VD, 0.5 period----Performance criterion: B 30% VD, 25 period----Performance criterion: C >95% VI, 250 period----Performance criterion: C
Test setup:	
Test Procedure:	1. The EUT and test generator were setup as shown on above setup photo. 2. The interruptions are introduced at selected phase angles with specified duration. 3. Record any degradation of performance.
Test environment:	Temp.: 26 °C Humid.: 53% Press.: 1 012mbar
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

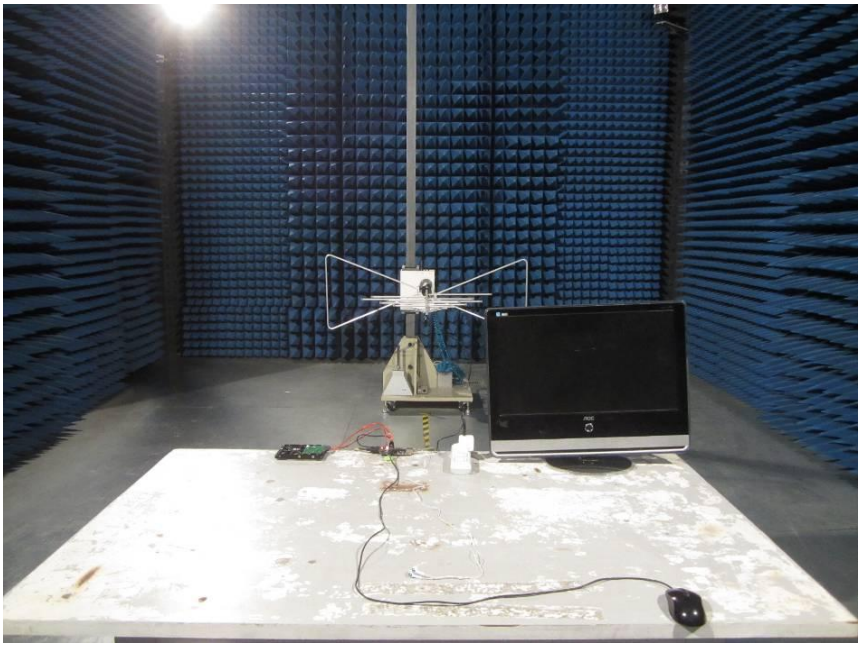
Measurement Record:

Test Level % U_T	Duration (Periods)	Phase angle	No. of drop out	Time between dropout	Observations (Performance Criterion)	Result
0	0.5	0°, 90°, 180°, 270°	3	10s	A	Pass
70	25	0°, 90°, 180°, 270°	3	10s	A	Pass
0	250	0°, 90°, 180°, 270°	3	10s	A	Pass

Remark:
A: No degradation in performance of the EUT was observed.

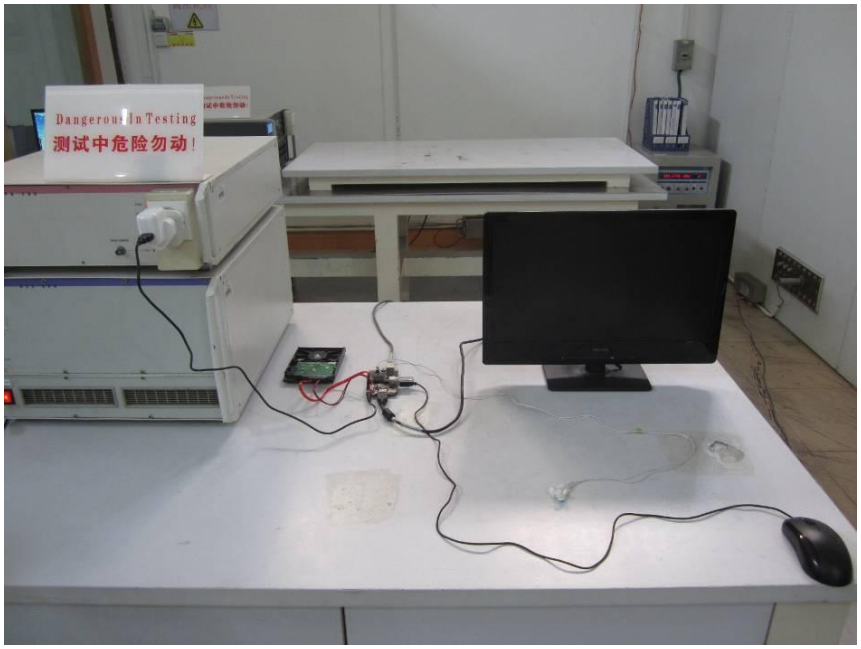
9 Test Setup Photo

Radiated Emission



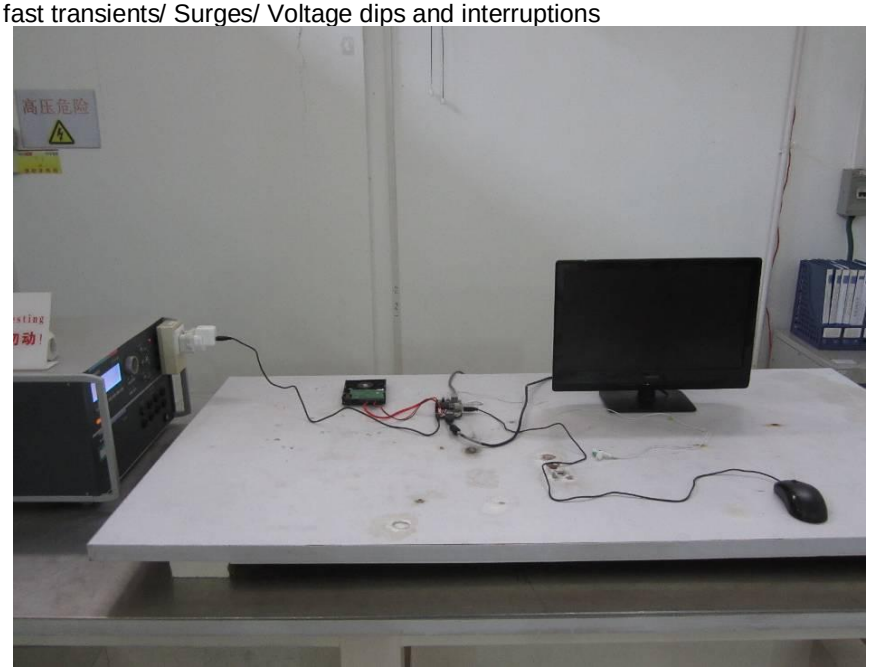
Conducted Emissions

Flicker

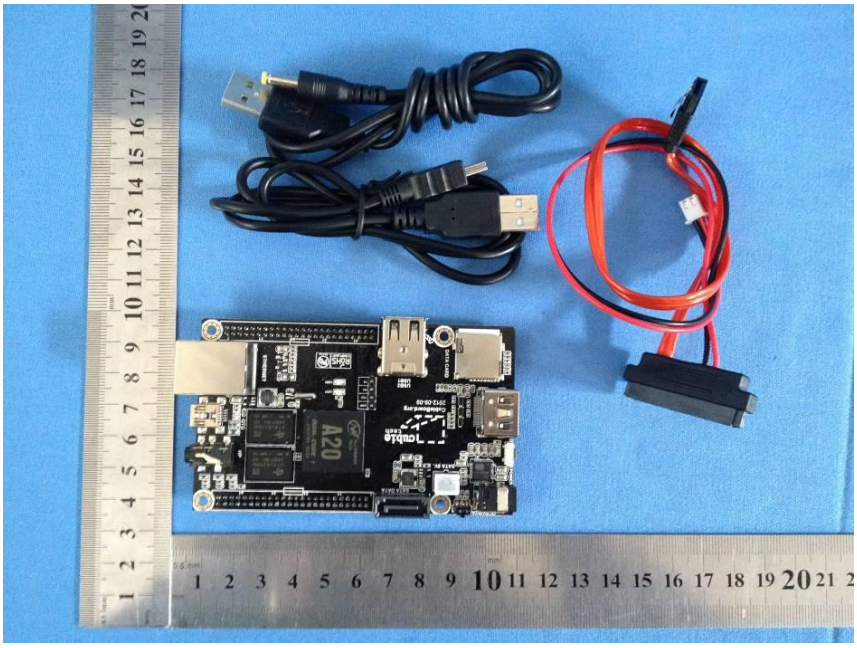


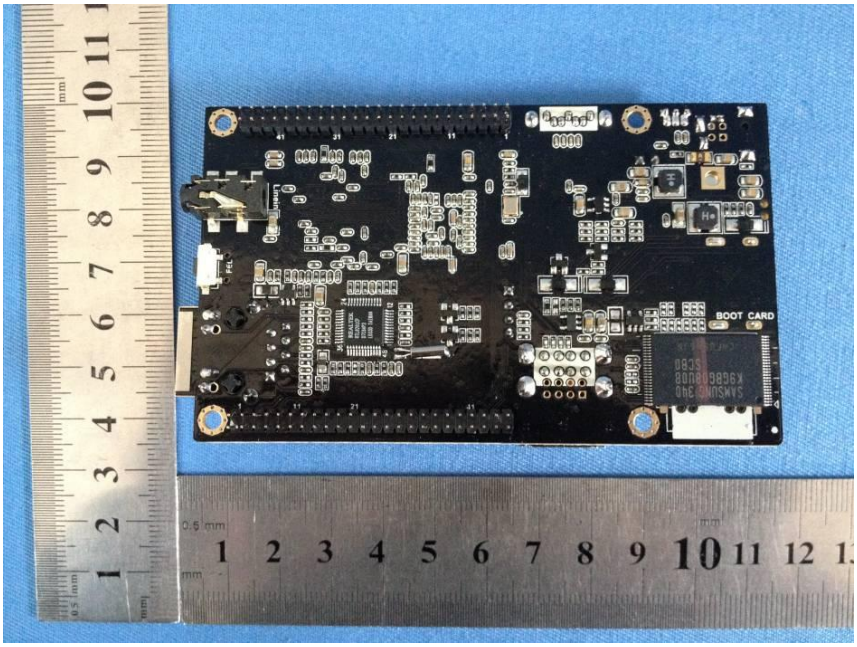
Electrostatic discharge

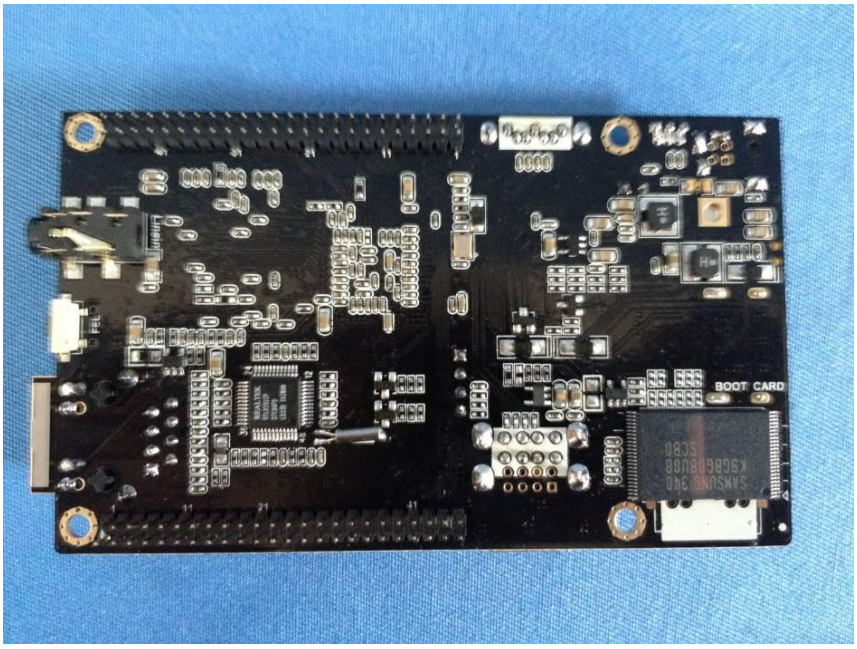
Electrical fast transients/ Surges/ Voltage dips and interruptions

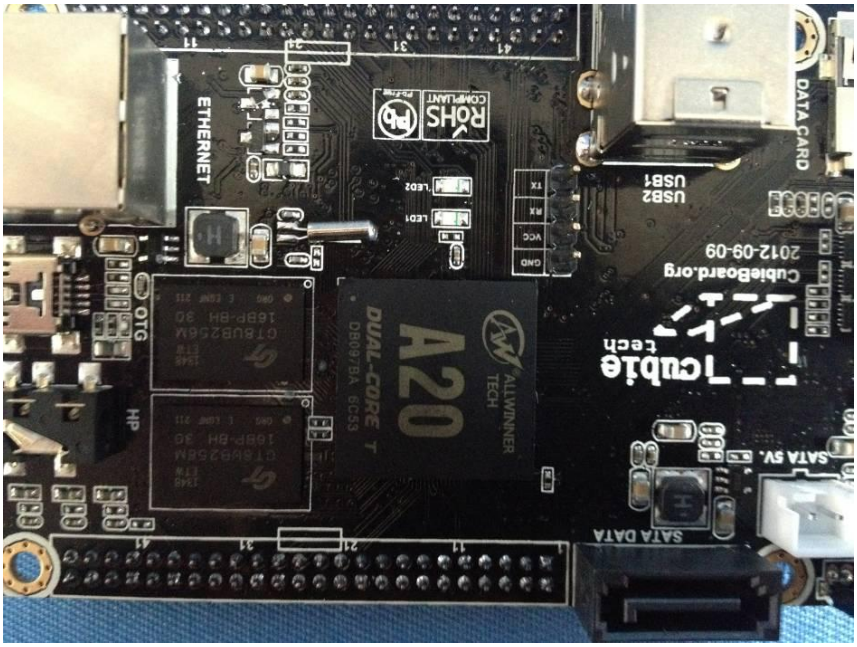


10 EUT Constructional Details






BOOT CARD


ETHERNET
RoHS COMPLIANT
DATA CARD
USB2
USB1
2012-09-09
CubieBoard.org
CubieTech
A20
DUAL-CORE
ALLWINNER TECH
OTG
HP
SATA 5V
SATA DATA

------End------