



RoHS TEST REPORT

Report No.: VTC-201106019R1
Product: dash cam
Model No.: H19, H2, H3, H5, H6, H7, H8, H9, H10, H11, H12, H13, H15, H16, H17, H18, H20, H26, H28, H29
Applicant: Dinghangda Technology (Shenzhen) Co., Ltd.
Address: 2nd Floor, Building M, Hongwan Industrial Park, No. 3 Xishu Road, Gushu, Xixiang, Bao'an District, Shenzhen
Issued by: Shenzhen VTC Testing Technology Co., Ltd.
Lab Location: 211 Factory Room, No.96, Yangchong Road, Tangxiachong Community, Yanluo Street, Bao'an District, Shenzhen, Guangdong, China
Date of Receipt: Nov.06,2020
Date of Test: Nov.06,2020 to Nov.16,2020
Date of Issue: Nov.16,2020
Test Result: Pass

Testing Engineer :

Jake Wang

(Jake Wang)

Technical Manager :

Ada Li

(Ada Li)

Authorize Signatory :

Can Liu

(Can Liu)



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TEST REPORT

Applicant : Dinghangda Technology (Shenzhen) Co., Ltd.
Applicant Address : 2nd Floor, Building M, Hongwan Industrial Park, No. 3 Xishu Road, Gushu, Xixiang, Bao'an District, Shenzhen

The following sample was submitted by the client as:

Product Name : dash cam

Mode No. : H19, H2, H3, H5, H6, H7, H8, H9, H10, H11, H12, H13, H15, H16, H17, H18, H20, H26, H28, H29

Trade Mark. : N/A

Manufacturer : Dinghangda Technology (Shenzhen) Co., Ltd.
2nd Floor, Building M, Hongwan Industrial Park, No. 3 Xishu Road, Gushu, Xixiang, Bao'an District, Shenzhen

Test Requested : EU RoHS Directive 2011/65/EU and its amendment directives 2015/863/EU (RoHS 2.0) on Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs, DEHP, BBP, DBP & DIBP content

Test Standard : IEC 62321-4-2013+A1:2017 IEC 62321-5-2013
IEC 62321-7-2-2017 IEC 62321-6-2015
IEC 62321-8-2017

Test Results : Pass



Test Method (s) :

Chemical testing methods & Equipments

Testing Item	Testing Method	Equipment	Equipment No.	Cal Date	Due Date
Lead (Pb)	IEC 62321-5-2013 (Ed1.0)	ICP-OES	YQ-174	July.11, 2020	July.10, 2021
Cadmium (Cd)	IEC 62321-5-2013 (Ed1.0)	ICP-OES	YQ-174	July.11, 2020	July.10, 2021
Mercury (Hg)	IEC 62321-4-2013 +A1:2017	ICP-OES	YQ-174	July.11, 2020	July.10, 2021
Hexavalent chromium (Cr(VI))	IEC 62321-7-2-2017 (Ed1.0)*	UV-VIS	YQ-177	July.11, 2020	July.10, 2021
PBBs	IEC 62321-6-2015 (Ed1.0)	GC-MS	YQ-211	July.11, 2020	July.10, 2021
PBDEs	IEC 62321-6-2015 (Ed1.0)	GC-MS	YQ-211	July.11, 2020	July.10, 2021
DBP	IEC 62321-8-2017 (Ed1.0)	GC-MS	YQ-211	July.11, 2020	July.10, 2021
BBP	IEC 62321-8-2017 (Ed1.0)	GC-MS	YQ-211	July.11, 2020	July.10, 2021
DEHP	IEC 62321-8-2017 (Ed1.0)	GC-MS	YQ-211	July.11, 2020	July.10, 2021
DIBP	IEC 62321-8-2017 (Ed1.0)	GC-MS	YQ-211	July.11, 2020	July.10, 2021



Seq. No.	Tested Part(s)		
1	Plastic	10	White plastic
2	Black plastic case	11	SMD IC
3	Glass	12	SMD capacitance
4	White material	13	SMD resistor
5	Battery	14	SMD inductance
6	Battery tape	15	Cooper Wire
7	Red line	16	Coating of PCB
8	Black line	17	PCB
9	Metal interface	18	Tin



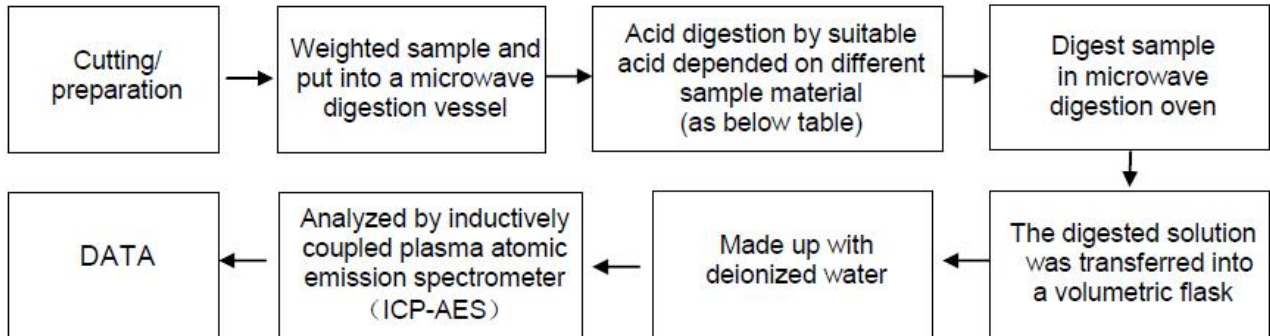
Test Item(s):	RESULT							MDL
	17	18						
Cadmium(Cd)	N.D	N.D						2
Lead(Pb)	N.D	N.D						2
Mercury(Hg)	N.D	N.D						2
Hexavalent Chromium Cr(VI) by alkaline extraction	N.D	N.D						8
Sum of PBBs	N.D	N.A						—
Monobromo biphenyl	N.D	N.A						5
Dibromo biphenyl	N.D	N.A						5
Tribromo biphenyl	N.D	N.A						5
Tetrabromo biphenyl	N.D	N.A						5
Pentabromo biphenyl	N.D	N.A						5
Hexabromo biphenyl	N.D	N.A						5
Heptabromo biphenyl	N.D	N.A						5
Octabromo biphenyl	N.D	N.A						5
Nonabromo biphenyl	N.D	N.A						5
Decabromo biphenyl	N.D	N.A						5
Sum of PBDEs	N.D	N.A						—
Monobromobiphenyl ether	N.D	N.A						5
Dibromobiphenyl ether	N.D	N.A						5
Tribromobiphenyl ether	N.D	N.A						5
Tetrabromobiphenyl ether	N.D	N.A						5
Pentabromobiphenyl ether	N.D	N.A						5
Hexabromobiphenyl ether	N.D	N.A						5
Heptabromobiphenyl ether	N.D	N.A						5
Octabromobiphenyl ether	N.D	N.A						5
Nonabromobiphenyl ether	N.D	N.A						5
Decabromobiphenyl ether	N.D	N.A						5
Dibutyl Phthalate(DBP)	N.D	N.A						50
Benzyl butyl phthalate (BBP)	N.D	N.A						50
Bis-(2-ethylhexyl)-Phthalate (DEHP)	N.D	N.A						50
Diisobutyl Phthalate(DIBP)	N.D	N.A						50

Appendix

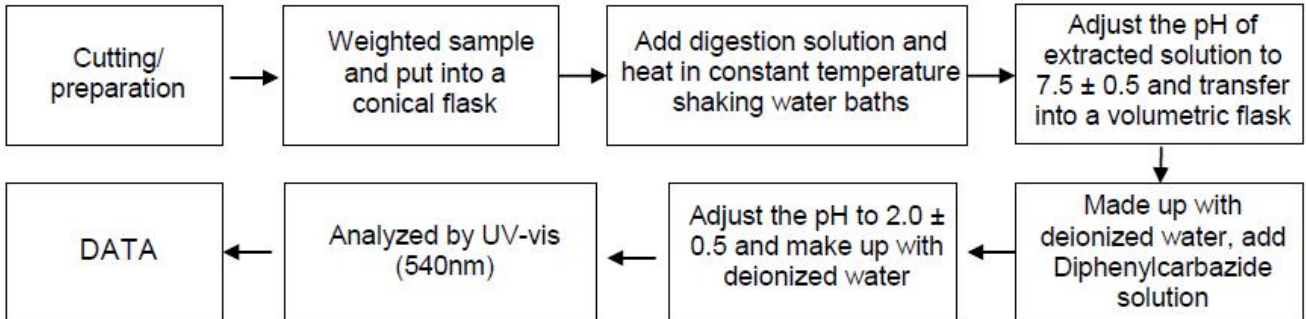
Test Flow chart

1. Test Flowchart for Cd / Pb /Hg content

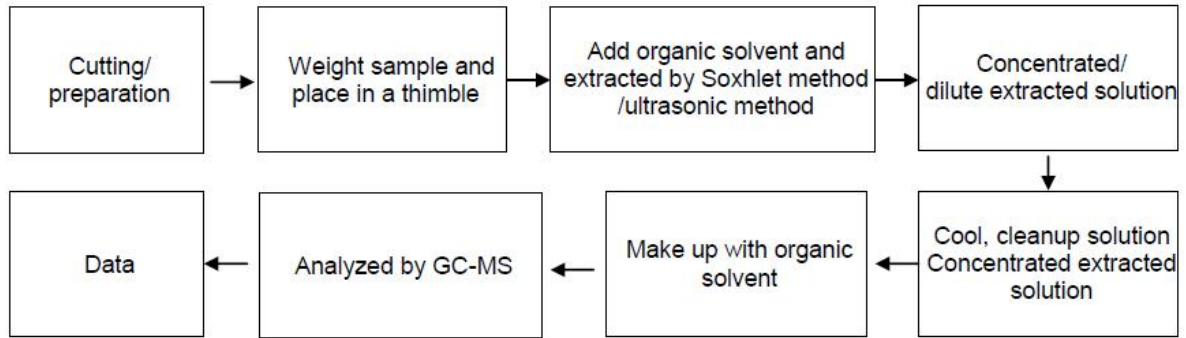
These samples were dissolved totally by pre-conditioning method according to below flow chart.



2. Test Flowchart for Cr₆₊ content



3. Test Flowchart for PBBs & PBDEs content



4. Test Flowchart for DEHP, BBP, DBP & DIBP content

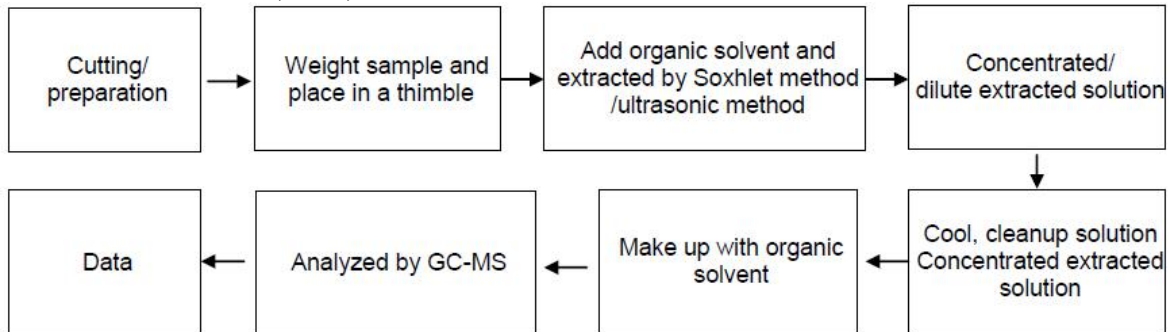
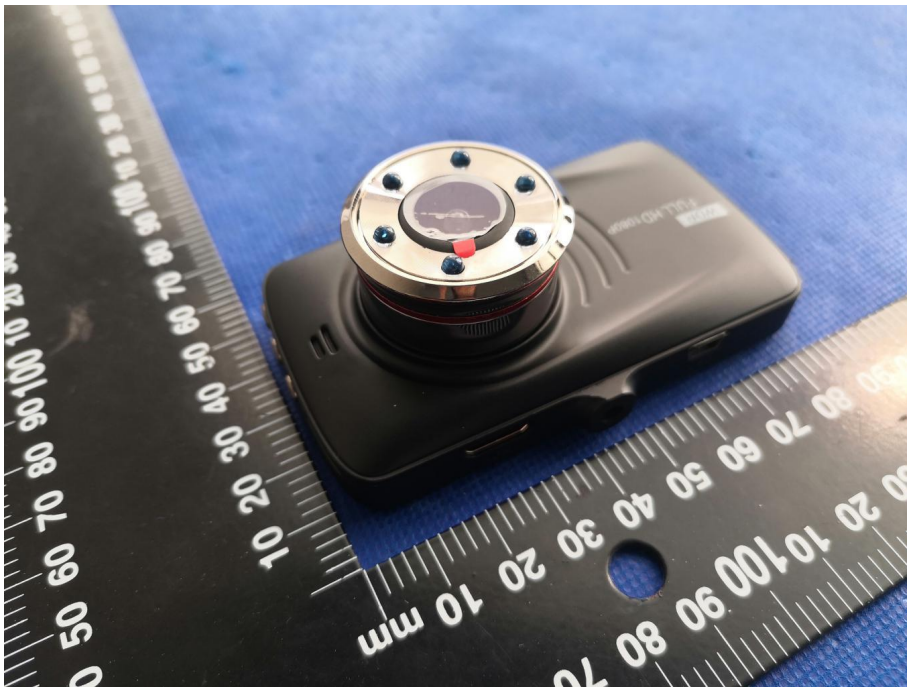
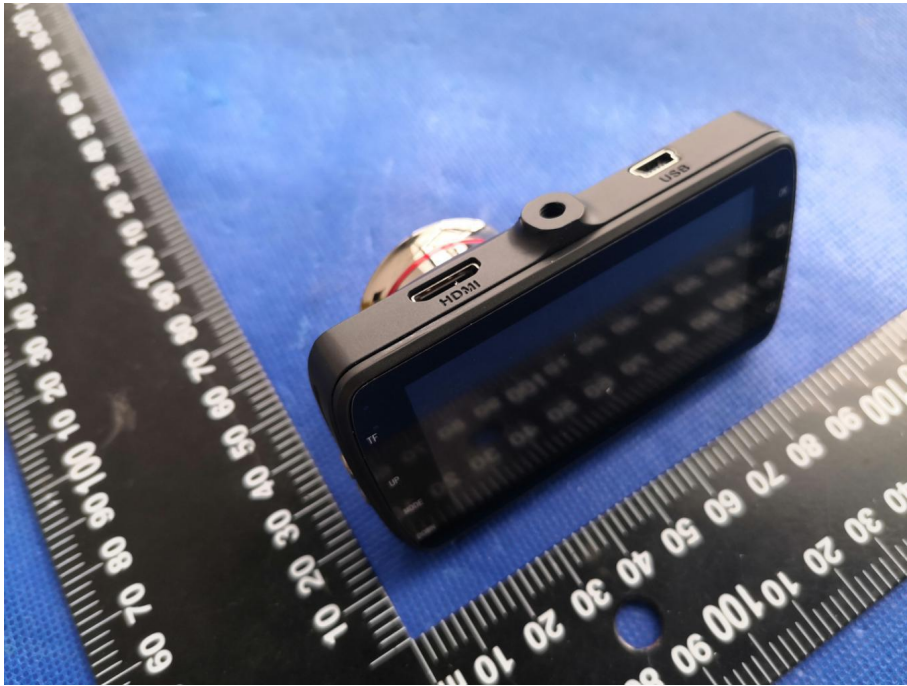
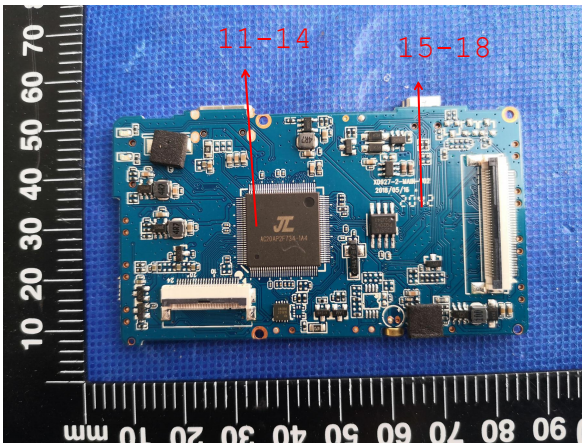
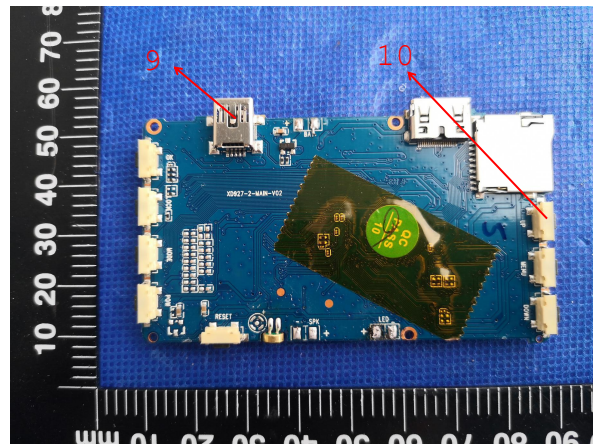
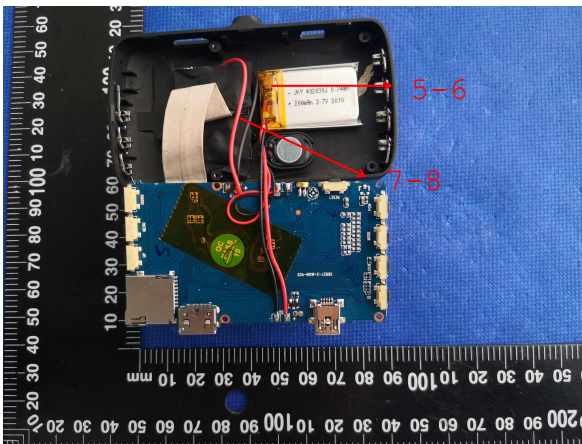
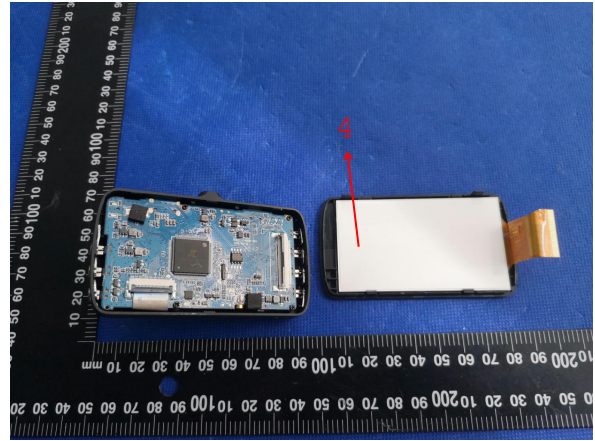
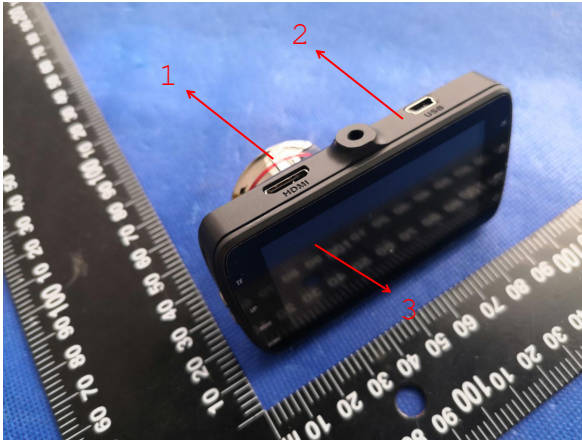


Table:

Sample material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
Glass	HNO ₃ /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO ₃
Plastic	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
Others	Any acid to total digestion

EUT Photo





---End of Report---



FCC SDOC TEST REPORT

Report No.: VTC-201106018F1
Product: dash cam
Model No.: H19, H2, H3, H5, H6, H7, H8, H9, H10, H11, H12, H13, H15, H16, H17, H18, H20, H26, H28, H29
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Testing Engineer :

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Authorize Signatory :

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INFORMATION

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Manufacturer : Dinghangda Technology (Shenzhen) Co., Ltd.

Address : 2nd Floor, Building M, Hongwan Industrial Park, No. 3 Xishu Road,
Gushu, Xixiang, Bao'an District, Shenzhen

EUT : dash cam

Model Number : H19, H2, H3, H5, H6, H7, H8, H9, H10, H11, H12, H13,
H15, H16, H17, H18, H20, H26, H28, H29

Trademark : N/A

Test Standard : FCC Part 15 B:2016
ANSI C63.4:2014

Test Result: : Pass



1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT : dash cam
Trademark : N/A
Model Number : H19, H2, H3, H5, H6, H7, H8, H9, H10, H11, H12, H13,
H15, H16, H17, H18, H20, H26, H28, H29
Model Difference : Apart from the name of the model, the others are the same
Power Supply : DC 5.0V, 1.0A

Note: H19 was selected as the test model and the data have been recorded in this report.

1.2. Tested System Details

Personal Computer : ASUS
M/N : D6-02

1.3. Test Summary

Test Item	Condition	Standard	Result
Conducted disturbance at mains terminals	150kHz to 30MHz	FCC Part 15, Subpart B: 2016 ANSI C63.4:2014	N/A
Radiated Emission (below 1 GHz)	30MHz to 1GHz	FCC Part 15, Subpart B: 2016 ANSI C63.4:2014	Pass
Radiated Emission (above 1 GHz)	Above 1GHz	FCC Part 15, Subpart B: 2016 ANSI C63.4:2014	N/A
Remark: 1. The symbol "N/A" in above table means <u>Not Applicable</u> . 2. When determining the test results, measurement uncertainty of tests has been considered.			
System Measurement Uncertainty			
Test Items		Extended Uncertainty	
Uncertainty for Radiated Emission in 3m chamber		3.60dB	
Uncertainty for Conducted Emission.		2.60dB	



2. TEST INSTRUMENT USED

For Conducted Emission at the mains terminals Test

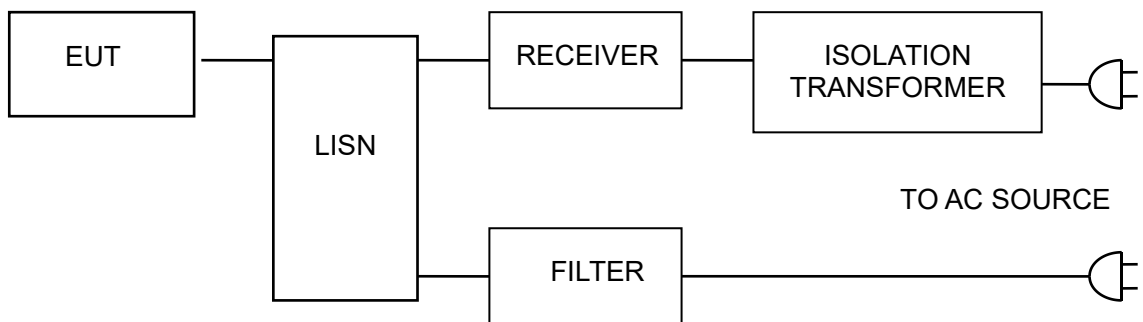
Conducted Emission Test (A --- site)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
843 Shielded Room	ChengYu	843 Room	843	July.11, 2020	July.10, 2021
EMI Receiver	R&S	ESCI	101421	July.11, 2020	July.10, 2021
LISN	Schwarzbeck	NSLK8127	8127739	July.11, 2020	July.10, 2021
Attenuator	R&S	ESH3-Z2	BCTC021E	July.11, 2020	July.10, 2021
843 Cable 1#	FUJIKURA	843C1#	001	July.11, 2020	July.10, 2021

For Radiated Emission Test

Radiation Emission Test (966 chamber)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
966 chamber	ChengYu	966 Room	966	July.11, 2020	July.10, 2021
Spectrum Analyzer	Agilent	E4407B	MY45109572	July.11, 2020	July.10, 2021
Amplifier	Schwarzbeck	BBV9743	9743-119	July.11, 2020	July.10, 2021
Amplifier	Schwarzbeck	BBV9718	9718-270	July.11, 2020	July.10, 2021
Log-periodic Antenna	Schwarzbeck	VULB9160	VULB9160-3369	July.11, 2020	July.10, 2021
EMI Receiver	R&S	ESCI	101421	July.11, 2020	July.10, 2021
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1275	July.11, 2020	July.10, 2021
966 Cable 1#	CHENGYU	966	004	July.11, 2020	July.10, 2021
966 Cable 2#	CHENGYU	966	003	July.11, 2020	July.10, 2021

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(μ V)	
	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 equipment.

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 equipment. 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.

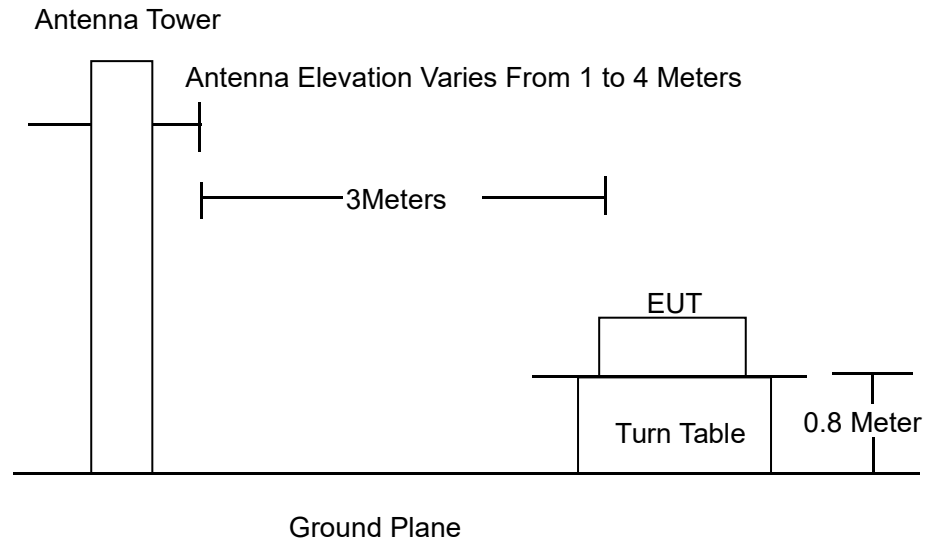
The frequency range from 150 KHz to 30 MHz is investigated.

3.7. Test Result

The EUT is powered by the DC only, the test item is not applicable.

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 (dB μ V/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 1.3GHz, so the measurement was only made up to 6GHz.

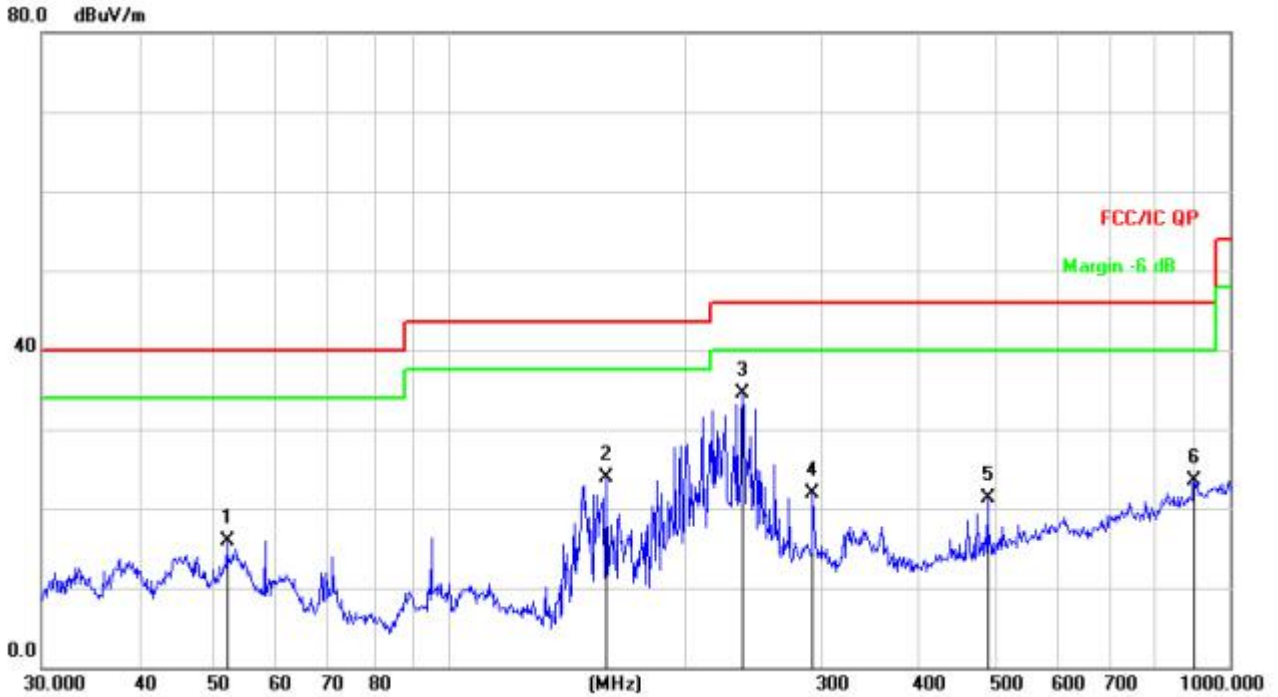
4.7. Test Result

PASS

Please refer to the following page.



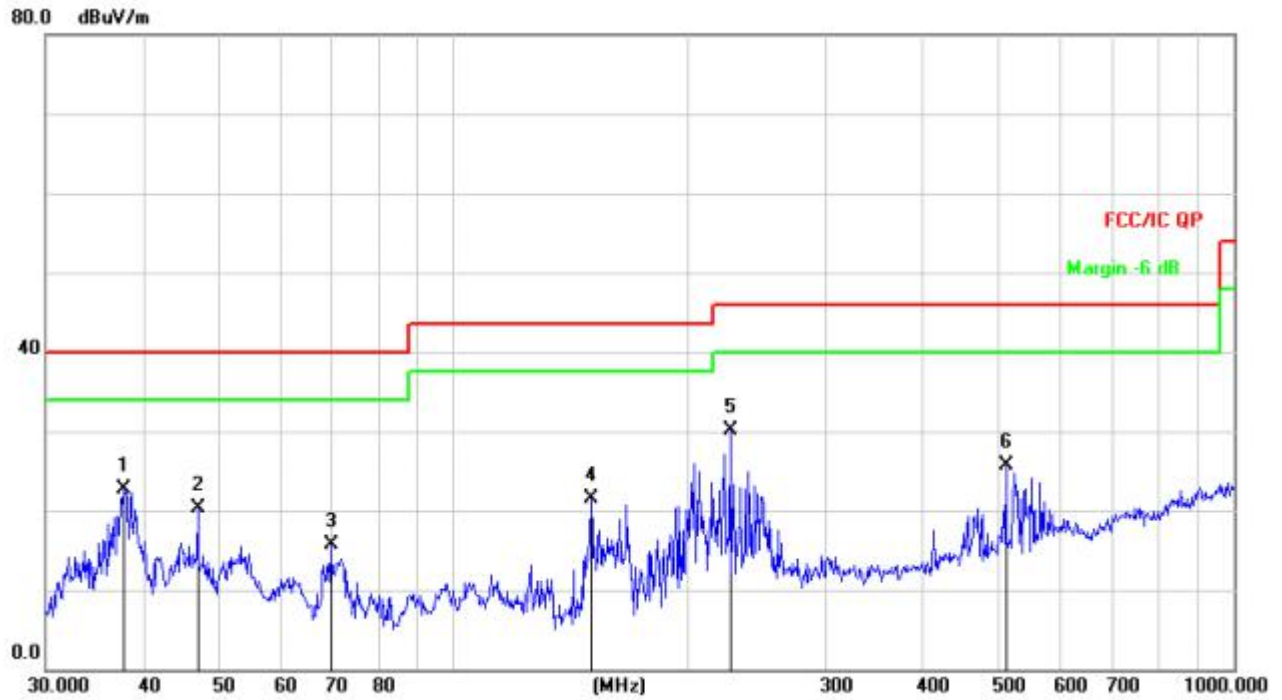
Radiation Emission Test Data			
Temperature:	24.5 °C	Relative Humidity:	56%
Pressure:	1009hPa	Phase :	Horizontal
Test Voltage :	DC 5.0V	Test Mode:	ON Mode



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1		51.8430	29.49	-13.63	15.86	40.00	-24.14			QP
2		158.6677	42.04	-18.10	23.94	43.50	-19.56			QP
3	*	237.4760	49.06	-14.53	34.53	46.00	-11.47			QP
4		292.0583	34.59	-12.63	21.96	46.00	-24.04			QP
5		489.0269	29.58	-8.24	21.34	46.00	-24.66			QP
6		900.1474	23.51	-0.09	23.42	46.00	-22.58			QP



Radiation Emission Test Data			
Temperature:	24.5 °C	Relative Humidity:	56%
Pressure:	1009hPa	Phase :	Vertical
Test Voltage :	DC 5.0V	Test Mode:	ON Mode



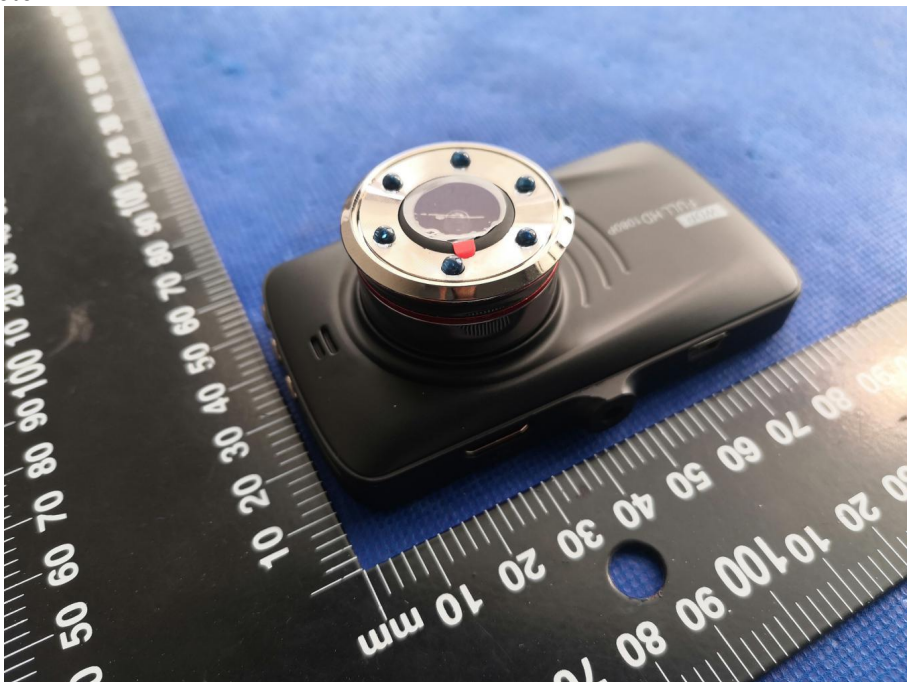
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		37.8121	37.72	-15.02	22.70	40.00	-17.30	QP		
2		46.9948	33.66	-13.42	20.24	40.00	-19.76	QP		
3		69.6005	32.46	-16.71	15.75	40.00	-24.25	QP		
4		150.0108	39.49	-17.97	21.52	43.50	-21.98	QP		
5	*	226.0994	45.15	-15.02	30.13	46.00	-15.87	QP		
6		510.0436	33.24	-7.52	25.72	46.00	-20.28	QP		

5. EUT PHOTOGRAPHS

EUT Photo 1



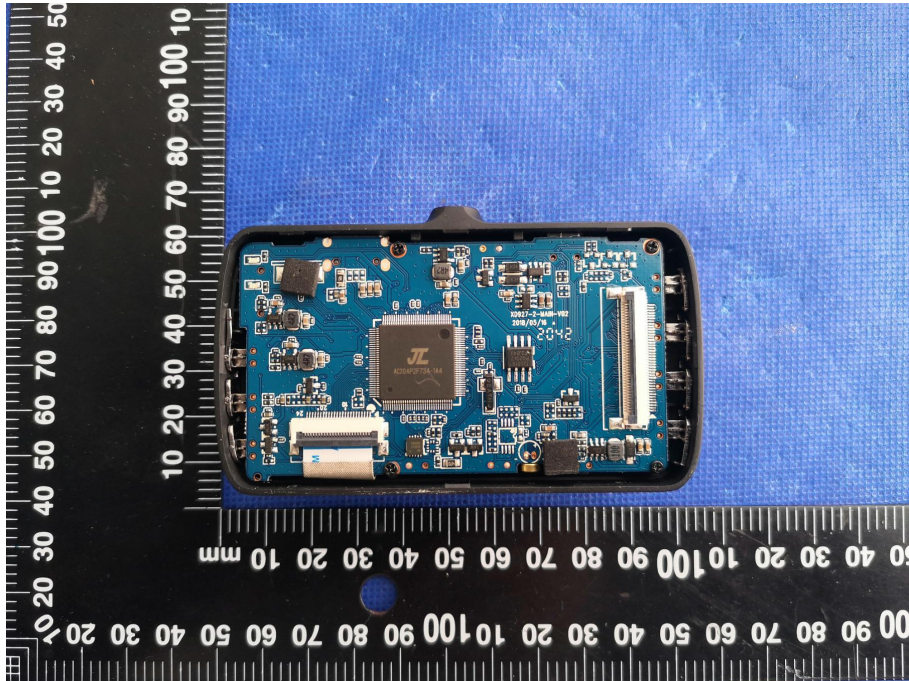
EUT Photo 2



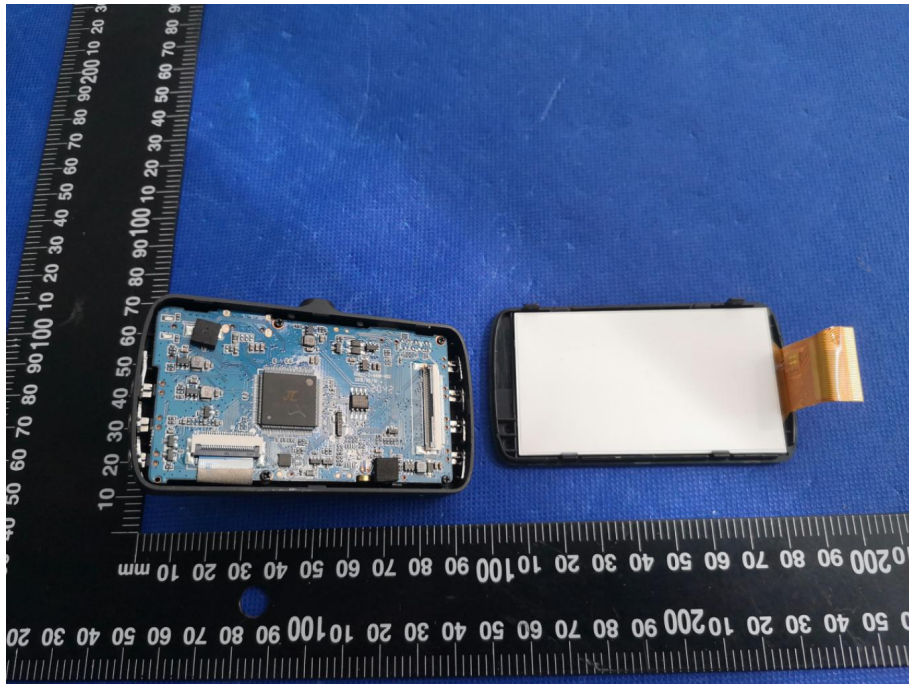
EUT Photo 3



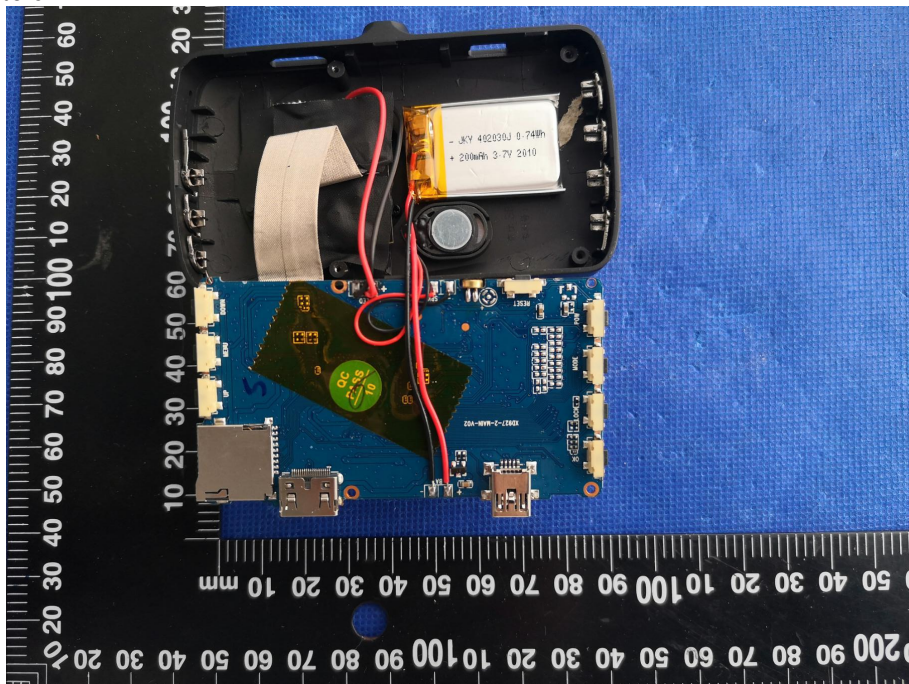
EUT Photo 4



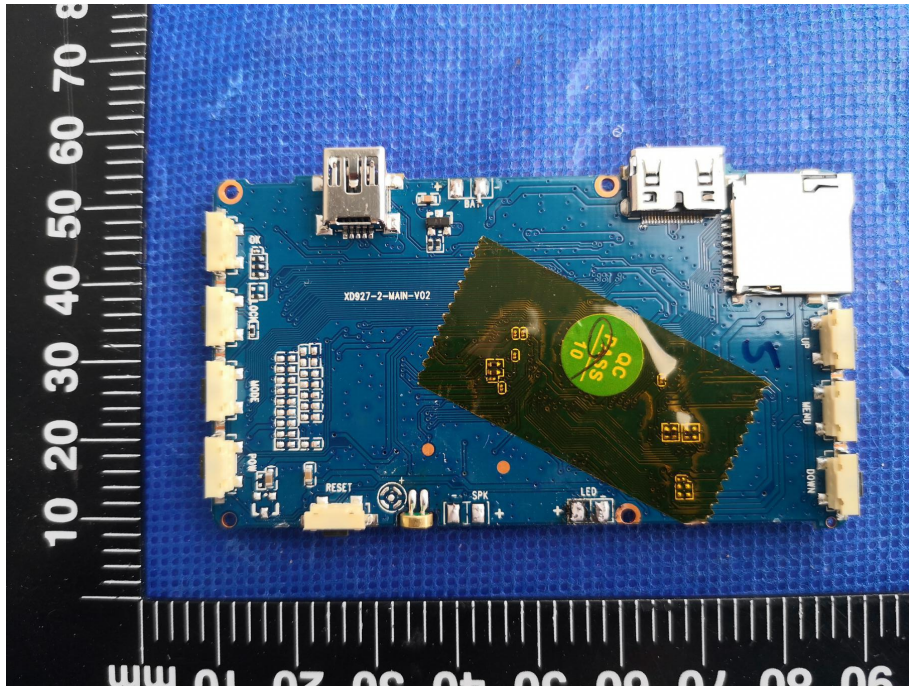
EUT Photo 5



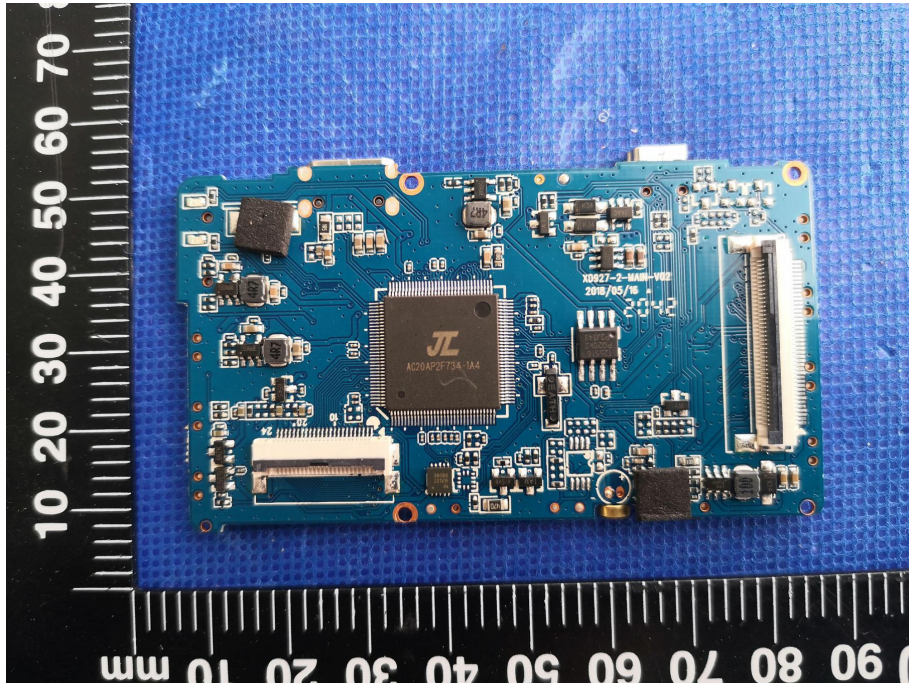
EUT Photo 6



EUT Photo 7



EUT Photo 8



***** END OF REPORT *****



Shenzhen VTC Testing Technology Co., Ltd.
211 Factory Room, No. 96, Yangchong Road, Tangxiachong Community,
Yanluo Street, Bao'an District, Shenzhen, Guangdong, China

Attestation of Conformity

Certification number: VTC-201106019

Issue date: Nov. 16, 2020

In accordance with the following Applicable RoHS Directives:

2011/65/EU and its amendment directive 2015/863/EU

The test results are traceable to the international or national standards.

Applicant: Dinghangda Technology (Shenzhen) Co., Ltd.
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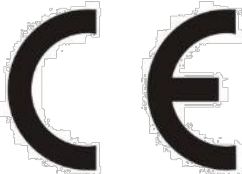
Equipment under test: dash cam

Trade Mark: N/A

Model number: H19, H2, H3, H5, H6, H7, H8, H9, H10, H11, H12, H13,
H15, H16, H17, H18, H20, H26, H28, H29

Applied Standards and Test Reports

Directive 2011/65/EU and 2015/863/EU ■ RoHS	IEC 62321-4-2013+A1:2017 IEC 62321-5-2013 IEC 62321-7-2-2017 IEC 62321-6-2015 IEC 62321-8-2017	VTC-201106019R1
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Note:

The certification is only valid for the equipment and configuration described, in conjunction with the test data detailed above. The CE mark as shown beside can be used, under the responsibility of the manufacturer, after completion of an EU Directive of Conformity and compliance with all relevant EC Directive.

Authorized by:

Manager



Tel: 0755-33586220 Fax: 0755-33586220
Http://www.vtc-test.com.cn E-mail: vtc-sz@vtc-test.com





Shenzhen VTC Testing Technology Co., Ltd.
 211 Factory Room, No. 96, Yangchong Road, Tangxiachong Community,
 Yanluo Street, Bao'an District, Shenzhen, Guangdong, China

SUPPLIER'S DECLARATION OF CONFORMITY

Certification number: VTC-201106018

Issue date: Nov. 16, 2020

In accordance with the following Applicable Directives:

47 CFR FCC Part 15 Subpart B (Class B)

ANSI C63.4: 2014

The test results are traceable to the international or national standards.

Applicant: Dinghangda Technology (Shenzhen) Co., Ltd.
 2nd Floor, Building M, Hongwan Industrial Park, No. 3 Xishu Road,
 Gushu, Xixiang, Bao'an District, Shenzhen

Manufacturer: Dinghangda Technology (Shenzhen) Co., Ltd.
 2nd Floor, Building M, Hongwan Industrial Park, No. 3 Xishu Road,
 Gushu, Xixiang, Bao'an District, Shenzhen

Equipment under test: dash cam

Trade mark: N/A

Model number: H19, H2, H3, H5, H6, H7, H8, H9, H10, H11, H12, H13,
 H15, H16, H17, H18, H20, H26, H28, H29

Applied Standards and Test Reports		
■ FCC Standards	FCC Part 15, Subpart B:2016 ANSI C63.4:2014	VTC-201106018F1

Note:

The device is tested to determine the maximum emission levels, and the results are compared to the radiated emission limits listed in FCC Rules and Regulations Part 15 Subpart B. The results in this report are applicable only to the equipment tested. This report shall not be reproduced in full or in part without written approval



Authorized by:

Jaicks

Manager





CE EMC TEST REPORT

Report No.: VTC-201106017E1
Product: dash cam
Model No.: H19, H2, H3, H5, H6, H7, H8, H9, H10, H11, H12, H13, H15, H16, H17, H18, H20, H26, H28, H29
Applicant: Dinghangda Technology (Shenzhen) Co., Ltd.
Address: 2nd Floor, Building M, Hongwan Industrial Park, No. 3 Xishu Road, Gushu, Xixiang, Bao'an District, Shenzhen
Issued by: Shenzhen VTC Testing Technology Co., Ltd.
Lab Location: 211 Factory Room, No.96, Yangchong Road, Tangxiachong Community, Yanluo Street, Bao'an District, Shenzhen, Guangdong, China
Date of Receipt: Nov.06,2020
Date of Test: Nov.06,2020 to Nov.16,2020
Date of Issue: Nov.16,2020
Test Result: Pass

Testing Engineer :

Jake Wang

(Jake Wang)

Technical Manager :

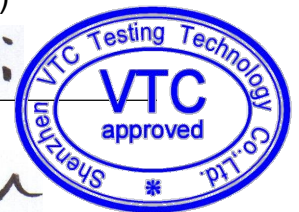
Ada Li

(Ada Li)

Authorize Signatory :

Can Liu

(Can Liu)



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TEST REPORT

Applicant : Dinghangda Technology (Shenzhen) Co., Ltd.

Address : 2nd Floor, Building M, Hongwan Industrial Park, No. 3 Xishu Road,
Gushu, Xixiang, Bao'an District, Shenzhen

Manufacturer : Dinghangda Technology (Shenzhen) Co., Ltd.

Address : 2nd Floor, Building M, Hongwan Industrial Park, No. 3 Xishu Road,
Gushu, Xixiang, Bao'an District, Shenzhen

EUT : dash cam

Model Number : H19, H2, H3, H5, H6, H7, H8, H9, H10, H11, H12, H13,
H15, H16, H17, H18, H20, H26, H28, H29

Trademark : N/A

Test Standard : EN 55032:2015
EN 55035:2017
EN 61000-3-2: 2014
EN 61000-3-3: 2013

Test Result: : Pass



1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	: dash cam
Trademark	: N/A
Model Number	: H19, H2, H3, H5, H6, H7, H8, H9, H10, H11, H12, H13, H15, H16, H17, H18, H20, H26, H28, H29
Model Difference	: Apart from the name of the model, the others are the same
Power Supply	: DC 5.0V,1.0A

Note:H19 was selected as the test model and the datas have been recorded in this report.

1.2. Tested System Details

Personal Computer	: ASUS
M/N	: A1580TW

1.3. TEST SUMMARY

Conducted Emission : ± 2.66 dB
Uncertainty

Radiated Emission Uncertainty : ± 4.26 dB



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	July.11, 2020	July.10, 2021
EMI Receiver	R&S	ESCI	101421	July.11, 2020	July.10, 2021
LISN	Schwarzbeck	NSLK8127	8127739	July.11, 2020	July.10, 2021
Attenuator	R&S	ESH3-Z2	021E	July.11, 2020	July.10, 2021
843 Cable 1#	FUJIKURA	843C1#	001	July.11, 2020	July.10, 2021

For Conducted Emission at the telecom port Test

Conducted Emission Test (A --- site)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
843 Shielded Room	ChengYu	843 Room	843	July.11, 2020	July.10, 2021
EMI Receiver	R&S	ESCI	101421	July.11, 2020	July.10, 2021
Coupling/ Decoupling Network	PH	ISN T800	S1509001	July.11, 2020	July.10, 2021
Attenuator	R&S	ESH3-Z2	021E	July.11, 2020	July.10, 2021
843 Cable 1#	FUJIKURA	843C1#	001	July.11, 2020	July.10, 2021

For Radiated Emission Test

Radiation Emission Test (966 chamber)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
966 chamber	ChengYu	966 Room	966	July.11, 2020	July.10, 2021
Spectrum Analyzer	Agilent	E4407B	MY45109572	July.11, 2020	July.10, 2021
Amplifier	Schwarzbeck	BBV9743	9743-119	July.11, 2020	July.10, 2021
Amplifier	Schwarzbeck	BBV9718	9718-270	July.11, 2020	July.10, 2021
Log-periodic Antenna	Schwarzbeck	VULB9160	VULB9160-3369	July.11, 2020	July.10, 2021
EMI Receiver	R&S	ESCI	101421	July.11, 2020	July.10, 2021
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1275	July.11, 2020	July.10, 2021
966 Cable 1#	CHENGYU	966	004	July.11, 2020	July.10, 2021
966 Cable 2#	CHENGYU	966	003	July.11, 2020	July.10, 2021



For Harmonic & Flicker Test

For Harmonic / Flicker Test (A --- site)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Harmonic / Flicker Analyzer	KIKUSUI	KHA1000	VA002445	July.11, 2020	July.10, 2021
AC Power Supply	KIKUSUI	PCR4000M	UK001879	July.11, 2020	July.10, 2021
Line Impedance network	KIKUSUI	LIN1020JF	UL001611	July.11, 2020	July.10, 2021

For Electrostatic Discharge Immunity Test

For Electrostatic Discharge Immunity Test (A --- site)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
ESD Tester	KIKUSUI	KES4201A	UH002321	July.11, 2020	July.10, 2021

For RF Field Strength Susceptibility Test(SMQ)

For RF Field Strength Susceptibility Test (SMQ --- site)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Signal Generator	HP	8648A	3625U00573	July.11, 2020	July.10, 2021
Amplifier	A&R	500A100	17034	July.11, 2020	July.10, 2021
Amplifier	A&R	100W/1000M1	17028	July.11, 2020	July.10, 2021
Audio Analyzer (20Hz~1GHz)	Panasonic	2023B	202301/428	July.11, 2020	July.10, 2021
Isotropic Field Probe	A&R	FP2000	16755	July.11, 2020	July.10, 2021
Antenna	EMCO	3108	9507-2534	July.11, 2020	July.10, 2021
Log-periodic Antenna	A&R	AT1080	16812	July.11, 2020	July.10, 2021



For Electrical Fast Transient /Burst Immunity Test

For Electrical Fast Transient/Burst Immunity Test (A --- site)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Burst Tester	Prima	EFT61004AG	PR14054467	July.11, 2020	July.10, 2021
Coupling Clamp	Prima	EFT61004AG	009E	July.11, 2020	July.10, 2021

For Surge Test

For Surge Test (A --- site)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Surge Tester	Prima	SUG61005BX	PR12045446	July.11, 2020	July.10, 2021

For Injected Currents Susceptibility Test

For Injected Currents Susceptibility Test (A --- site)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
C/S Test System	SCHLODER	CDG600	126B1281	July.11, 2020	July.10, 2021
CDN	SCHLODER	CDN-M2+3	A2210320/2015	July.11, 2020	July.10, 2021
Injection Clamp	SCHLOBER	EMCL-20	132A1214/2015	July.11, 2020	July.10, 2021

For Magnetic Field Immunity Test

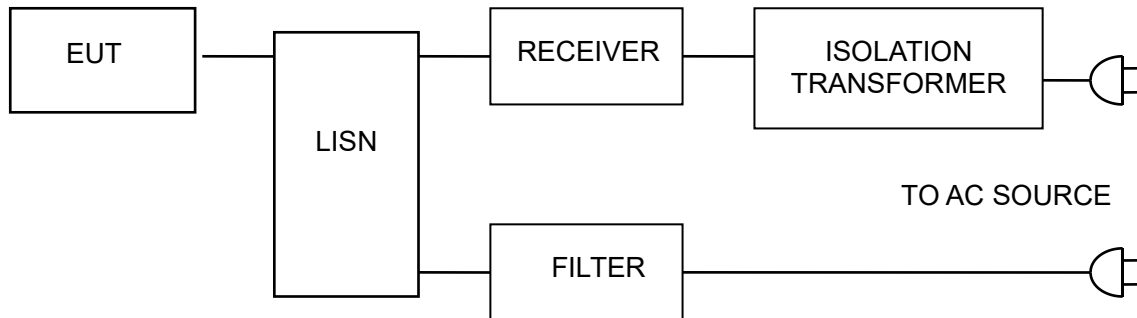
For Magnetic Field Immunity Test (A --- site)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Magnetic field generator	HTEC	HPFMF	15701	July.11, 2020	July.10, 2021

For Voltage Dips Interruptions Test

For Voltage Dips Interruptions Test (A --- site)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Dips Tester	Prima	DRP61011AG	PR14086284	July.11, 2020	July.10, 2021

3. CONDUCTED EMISSION AT THE MAINS TERMINALS TEST

3.1. Block Diagram Of Test Setup



3.2. Test Standard

EN 55032:2015

3.3. Power Line Conducted Emission Limit

Frequency MHz	Limits dB(μ V)	
	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 EN 55032 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 **EN 55032** regulations during conducted emission test.

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

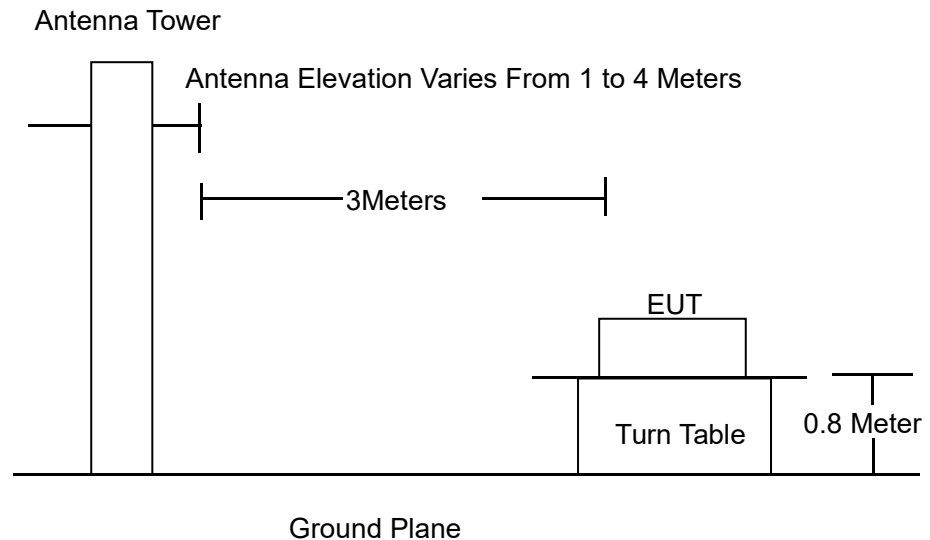
The frequency range from 150 KHz to 30 MHz is investigated.

3.7. Test Result

The EUT is powered by the DC only, the test item is not applicable.

4. RADIATION EMISSION TEST

4.1. Block Diagram of Test Setup



4.2. Test Standard

EN 55032:2015

4.3. Radiation Limit

Frequency MHz	Distance (Meters)	Field Strengths Limits dB(μ V)/m	Detector
30 ~ 230	3	40.0	QP
230 ~ 1000	3	47.0	QP
1000 ~ 3000	3	76.0	PEAK
1000 ~ 3000	3	56.0	AVERAGE
3000 ~ 6000	3	80.0	PEAK
3000 ~ 6000	3	60.0	AVERAGE

Remark:

- (1) Emission level (dB(μ V)/m) = 20 log Emission level (μ V/m)
- (2) The smaller limit shall apply at the cross point between two frequency bands.
- (3) Distance refers to the distance in meters between the measuring instrument, antenna and the closed point of any part of the device or system.



4.4. EUT Configuration on Test

The EN 55032 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 EN 55032 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.



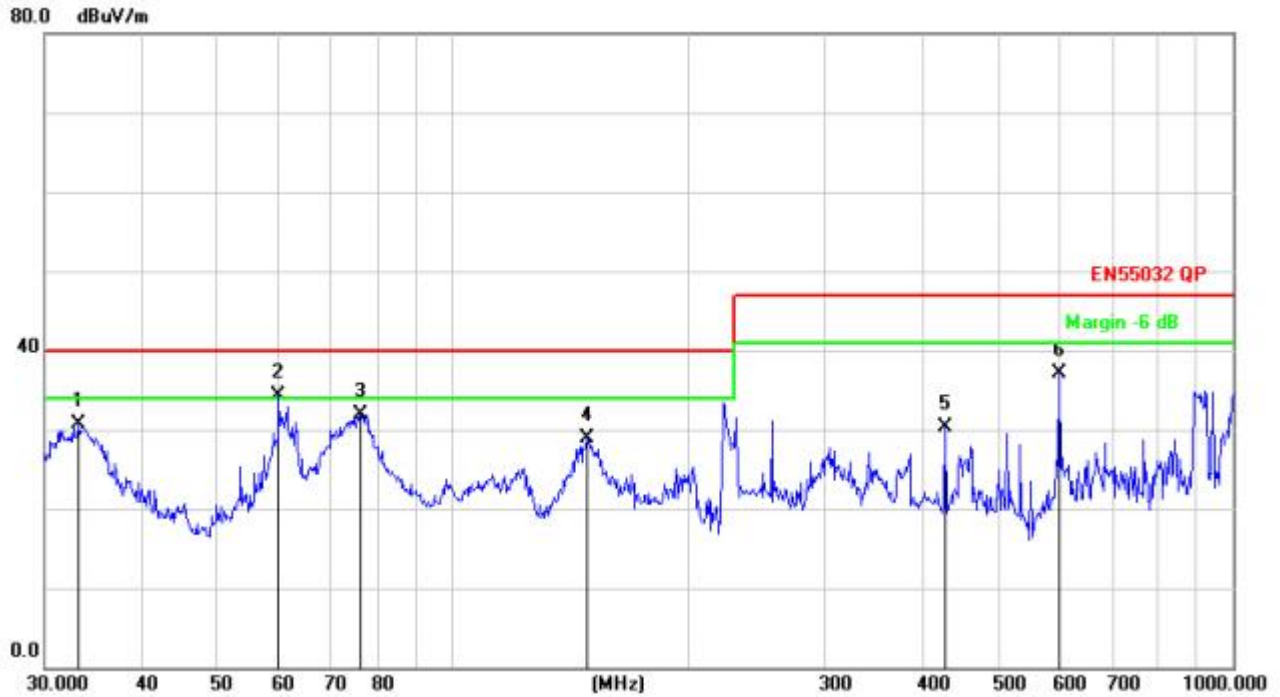
Radiation Emission Test Data			
Temperature:	24.5 °C	Relative Humidity:	56%
Pressure:	1009hPa	Phase :	Horizontal
Test Voltage :	DC 5.0V	Test Mode:	ON Mode



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Antenna Height cm	Table Degree	Detector	Comment
1 !	61.3463	51.24	-15.86	35.38	40.00	-4.62			peak	
2 *	150.0108	56.29	-18.97	37.32	40.00	-2.68			peak	
3 !	222.1698	51.01	-16.16	34.85	40.00	-5.15			peak	
4	428.0193	48.24	-10.91	37.33	47.00	-9.67			peak	
5	599.3212	40.95	-6.74	34.21	47.00	-12.79			peak	
6	801.7863	36.33	-4.85	31.48	47.00	-15.52			peak	



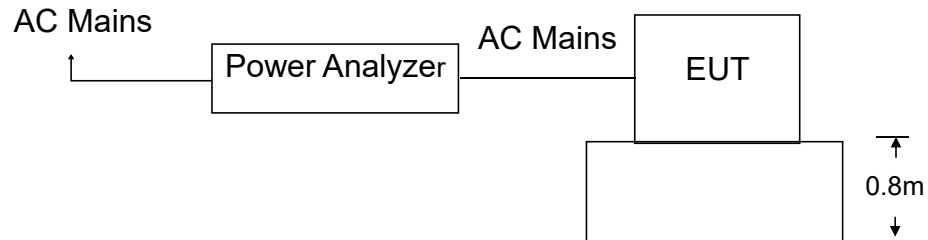
Radiation Emission Test Data			
Temperature:	24.5 °C	Relative Humidity:	56%
Pressure:	1009hPa	Phase :	Vertical
Test Voltage :	DC5.0V	Test Mode:	ON Mode



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1		33.2112	47.33	-16.61	30.72	40.00	-9.28			peak
2	*	59.8588	49.83	-15.57	34.26	40.00	-5.74			peak
3		76.2442	50.78	-18.86	31.92	40.00	-8.08			peak
4		148.4410	48.01	-19.05	28.96	40.00	-11.04			peak
5		428.0193	41.12	-10.91	30.21	47.00	-16.79			peak
6		599.3212	43.80	-6.74	37.06	47.00	-9.94			peak

5. HARMONIC CURRENT EMISSION TEST

5.1. Block Diagram of Test Setup



5.2. Test Standard

EN 61000-3-2:2014

5.3. Operating Condition of EUT

- 5.3.1 Setup the EUT as shown in Section 5.1.
- 5.3.2 Turn on the power of all equipments.
- 5.3.3 Let the EUT work in test mode and test it.

5.4. Test Procedure

The power cord of the EUT is connected to the output of the test system. Turn on the power of the EUT and use the test system to test the harmonic current level.

5.5. Test Results

The EUT is powered by the DC only, the test item is not applicable.



6. VOLTAGE FLUCTUATIONS & FLICKER TEST

6.1. Block Diagram of Test Setup

Same as Section 6.1..

6.2. Test Standard

EN 61000-3-3:2013

6.3. Operating Condition of EUT

Same as Section 5.3.. The power cord of the EUT is connected to the output of the test system. Turn on the power of the EUT and use the test system to test the harmonic current level.

Flicker Test Limit

Test items	Limits
Pst	1.0
dc	3.3%
dmax	4.0%
dt	Not exceed 3.3% for 500ms

6.4. Test Procedure

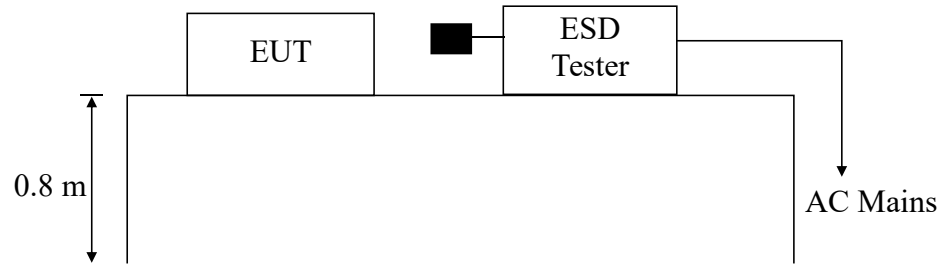
The power cord of the EUT is connected to the output of the test system. Turn on the power of the EUT and use the test system to test the harmonic current level.

6.5. Test Results

The EUT is powered by the DC only, the test item is not applicable.

7. ELECTROSTATIC DISCHARGE IMMUNITY TEST

7.1. Block Diagram of Test Setup



7.2. Test Standard

EN 55035:2017, EN 61000-4-2:2009

Severity Level: 3 / Air Discharge: $\pm 8\text{KV}$

Level: 2 / Contact Discharge: $\pm 4\text{KV}$

7.3. Severity Levels and Performance Criterion

7.3.1 Severity level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	± 2	± 2
2.	± 4	± 4
3.	± 6	± 8
4.	± 8	± 15
X	Special	Special



7.3.2 Performance criterion : B

- A. The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.
- B. The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
- C. Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

7.4.EUT Configuration

The following equipments are installed on Electrostatic Discharge Immunity test to meet EN 55035:2017, EN 61000-4-2:2009, requirement and operating in a manner which tends to maximize its emission characteristics in a normal application. The configuration of EUT is the same as used in conducted emission test.

Please refer to Section 2.4.

7.5.Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 3.5 except the test setup replaced by Section 7.1.2.

7.6.Test Procedure

7.6.1 Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

7.6.2 Contact Discharge:

All the procedure shall be same as Section 7.6.1. Except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

7.6.3 Indirect discharge for horizontal coupling plane

At least 10 single discharges (in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit (if applicable) 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.

7.6.4 Indirect discharge for vertical coupling plane

At least 10 single discharges (in the most sensitive polarity) shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are complete illuminated.

7.7. Test Results

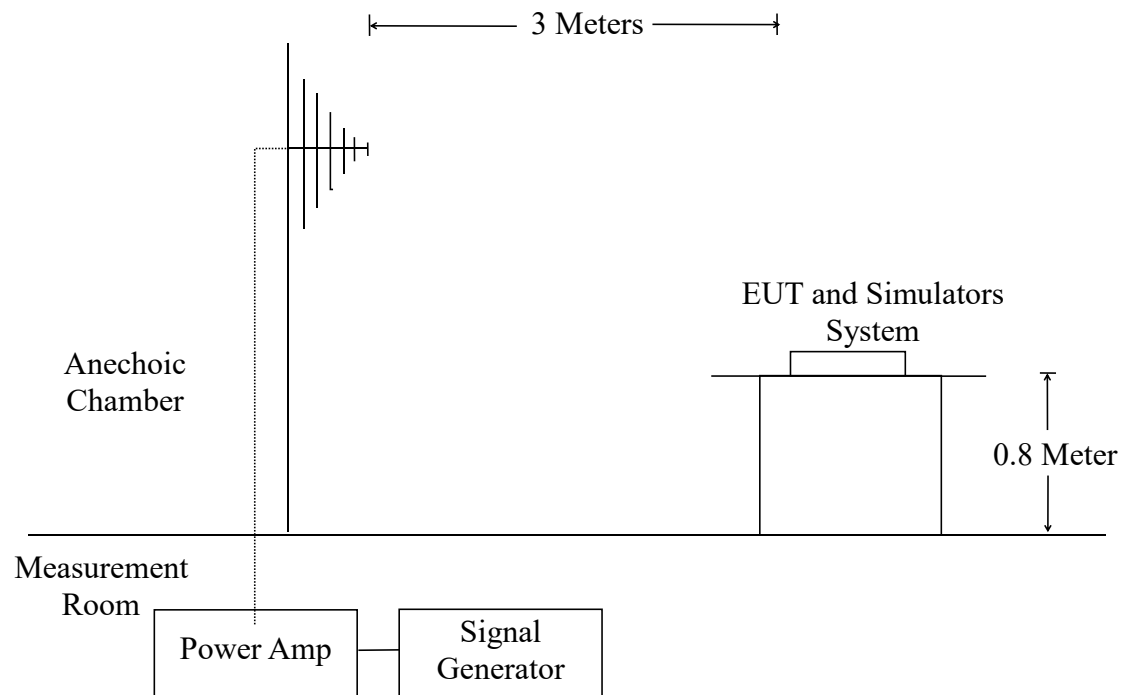
PASS

Please refer to the following page.

ESD Test Data				
Temperature:	24.5°C	Humidity:	56%	
Power Supply :	DC 5.0V	Test Mode:	On	
Air Discharge: ± 8KV Contact Discharge: ± 4KV # For each point positive 25 times and negative 25 times discharge				
Test Points	Air Discharge	Contact Discharge	Performance Criterion	Result
Enclosure	±2,4,8KV	N/A	B	PASS
Slit	N/A	N/A	B	PASS
Metal Part	N/A	±2,4 KV	B	PASS
VCP	N/A	±2,4 KV	B	PASS
HCP	N/A	±2,4 KV	B	PASS
Note: N/A				

8. RF FIELD STRENGTH SUSCEPTIBILITY TEST

8.1. Block Diagram of Test Setup



8.2. Test Standard

EN 55035:2017, EN 61000-4-3: 2006+A1:2008+A2:2010
Severity Level 2, 3V / m

8.3. Severity Levels and Performance Criterion

8.3.1. Severity level

Level	Field Strength V/m
1.	1
2.	3
3.	10
X.	Special

8.3.2. Performance criterion: A

- A、 The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.
- B、 The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
- C、 Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

8.4. EUT Configuration on Test

The following equipments are installed on Electrical Fast Transient/Burst Immunity test to meet EN 55035:2017, EN 61000-4-4:2012, requirement and operating in a manner which tends to maximize its emission characteristics in a normal application. The configuration of EUT is the same as used in conducted emission test.

Please refer to Section 3.4.

8.5. Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 2.5 except the test setup replaced by Section 8.1.



8.6. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. EUT is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually.

All the scanning conditions are as follows:

Condition of Test	Remarks
1. Fielded Strength	3 V/m (Severity Level 2)
2. Radiated Signal	Modulated
3. Scanning Frequency	80 – 1000 MHz
4. Dwell time of radiated	0.0015 decade/s
5. Waiting Time	1 Sec.

8.7. Test Results

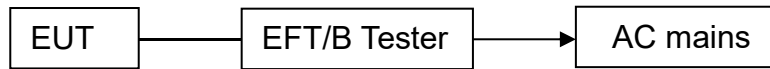
PASS

Please refer to the following page.

R/S Test Data			
Temperature : 25°C		Humidity : 56%	
Field Strength: 3 V/m		Criterion: A	
Power Supply: DC5.0V		Frequency Range: 80 MHz to 1000 MHz	
Modulation: <input checked="" type="checkbox"/> AM <input type="checkbox"/> Pulse <input type="checkbox"/> none 1 KHz 80%			
Test Mode : On			
Frequency Range : 80-1000MHz			
Steps		1 %	
	Horizontal	Vertical	Result
Front	A	A	Pass
Right	A	A	Pass
Rear	A	A	Pass
Left	A	A	Pass
Note: N/A			

9. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

9.1. Block Diagram of EUT Test Setup



9.2. Test Standard

EN 55035:2017, EN 61000-4-4:2012

9.3. Severity Levels and Performance Criterion

Severity Level 2 at 1KV, Pulse Rise time & Duration: 5 nS / 50 nS

Severity Level:

Open Circuit Output Test Voltage $\pm 10\%$		
Level	On power ports	On I/O(Input/Output) Signal data and control ports
1.	0.5KV	0.25KV
2.	1KV	0.5KV
3.	2KV	1KV
4.	4KV	2KV
X.	Special	Special

Performance criterion: B

- A. The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.
- B. The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
- C. Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.



9.4.EUT Configuration on Test

The following equipments are installed on Electrical Fast Transient/Burst Immunity test to meet EN 55035:2017, EN 61000-4-4:2012, requirement and operating in a manner which tends to maximize its emission characteristics in a normal application. The configuration of EUT is the same as used in conducted emission test.

Please refer to Section 3.4.

9.5.Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 2.6 except the test setup replaced by Section 9.1.

9.6.Test Procedure

EUT shall be placed 0.8m high above the ground reference plane which is a min.1m*1m metallic sheet with 0.65mm minimum thickness. This reference ground plane shall 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 beneath the EUT, shall be more than 0.5m

9.6.1. For input and output AC power ports:

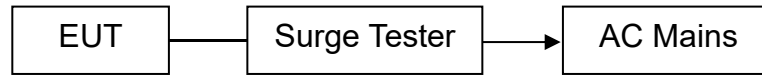
The EUT is connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 minutes.

9.7.Test Results

The EUT is powered by the DC only, the test item is not applicable.

10. SURGE TEST

10.1. Block Diagram of EUT Test Setup



10.2. Test Standard

EN 55035:2017, EN61000-4-5:2014

10.3. Severity Levels and Performance Criterion

Severity Level: Line to Line, Level 2 at 1KV;

Severity Level: Line to Earth, Level 3 at 2KV.

Severity Level	Open-Circuit Test Voltage (KV)
1.	0.5
2.	1.0
3.	2.0
4.	4.0
X.	Special

Performance criterion: B

- A. The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.
- B. The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
- C. Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

10.4. EUT Configuration on Test

The following equipments are installed on Electrical Fast Transient/Burst Immunity test to meet EN 55035:2017, EN61000-4-5:2014, requirement and operating in a manner which tends to maximize its emission characteristics in a normal application

The configuration of EUT is the same as used in conducted emission test. Please refer to Section 3.4.

10.5. Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 2.7 except the test setup replaced by Section 10.1.

10.6. Test Procedure

- 1) Set up the EUT and test generator as shown on section 10.1
- 2) 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.
- 3) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 4) Different phase angles are done individually.
- 5) Repeat procedure 2) to 4) except the open-circuit test voltage change from 1KV to 2KV for line to earth coupling mode test.
- 6) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

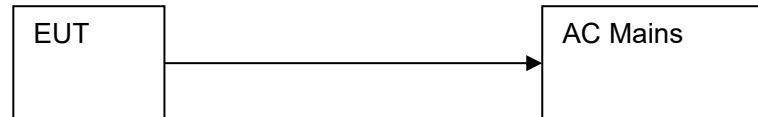
10.7. Test Result

The EUT is powered by the DC only, the test item is not applicable.

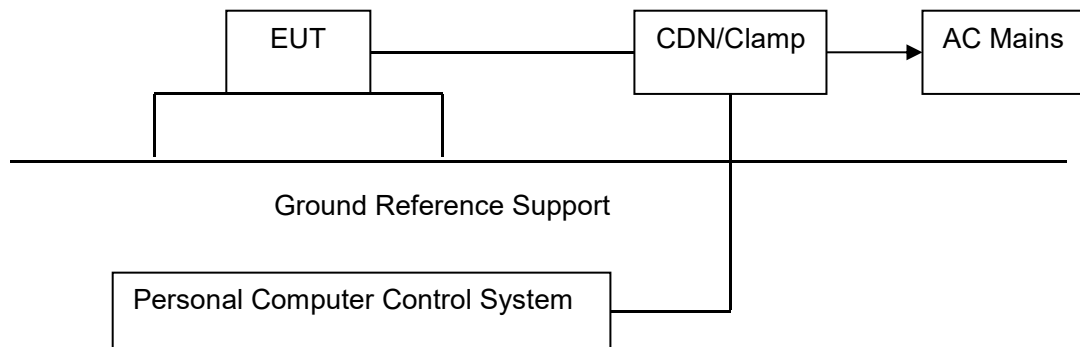
11. INJECTED CURRENTS SUSCEPTIBILITY TEST

11.1. Block Diagram of EUT Test Setup

11.1.1. Block Diagram of EUT Test Setup



11.1.2. Block Diagram of Test Setup



11.2. Test Standard

EN 55035:2017, EN61000-4-6:2014

11.3. Severity Levels and Performance Criterion

Severity Level 2: 3V(rms), 150KHz ~ 80MHz

Severity Level:

Level	Field Strength V
1.	1
2.	3
3.	10
X.	Special

Performance criterion: A

- A. The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.
- B. The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.



- C. Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

11.4. EUT Configuration on Test

The configuration of EUT is the same as used in conducted emission test. Please refer to Section 2.8.

11.5. Operating Condition of EUT

Same as conducted emission test, which is listed in Section 2.8 except the test set up replaced as Section 11.1.

11.6. Test Procedure

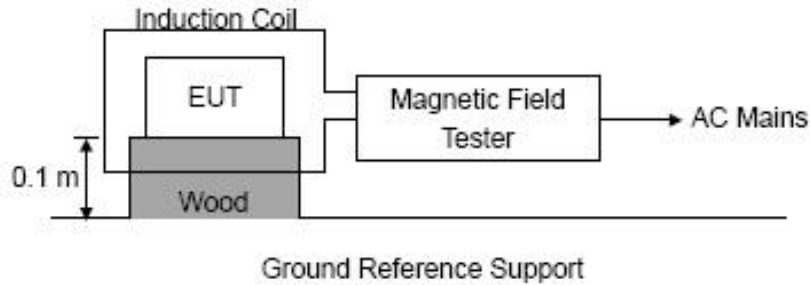
- 1) Set up the EUT, CDN and test generator as shown on section 11.1
- 2) Let EUT work in test mode and measure.
- 3) The EUT and supporting equipments are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane at above 0.1-0.3m 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).
- 4) The disturbance signal described below is injected to EUT through CDN.
- 5) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- 6) The frequency range is swept from 150KHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1KHz sine wave
- 7) The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
- 8) Recording the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

11.7. Test Result

The EUT is powered by the DC only, the test item is not applicable.

12. AGNETIC FIELD IMMUNITY TEST

12.1. Block Diagram of Test Setup



12.2. Test Standard

EN 55035:2017, EN61000-4-8:2010
Severity Level 1 at 1A/m

12.3. Severity Levels and Performance Criterion

12.3.1 Severity level

Level	Magnetic Field Strength A/m
1.	1
2.	3
3.	10
4.	30
5.	100
X.	Special

12.3.2 Performance criterion: B

- A. The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.
- B. The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
- C. Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.



12.4. EUT Configuration on Test

The configuration of EUT is listed in Section 2.9.

12.5. Operating Condition of EUT

Same as conducted emission test, which is listed in Section 2.9 except the test set up replaced as Section 12.1.

12.6. Test Procedure

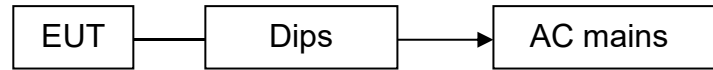
The EUT shall be subjected to the test magnetic field by using the induction coil of standard dimensions (1m*1m) and shown in Section 10.1. The induction coil shall then be rotated by 90° in order to expose the EUT to the test field with different orientations.

12.7. Test Results

The EUT is powered by the DC only, the test item is not applicable.

13. VOLTAGE DIPS AND INTERRUPTIONS TEST

13.1. Block Diagram of EUT Test Setup



13.2. Test Standard

EN 55035:2017, EN61000-4-11:2004

13.3. Severity Levels and Performance Criterion

Severity Level:

Input and Output AC Power Ports.

- Voltage Dips.
- Voltage Interruptions.

Environmental Phenomena	Test Specification	Units	Performance Criterion
Voltage Dips	>95 0.5	% Reduction period	B
	30 25	% Reduction period	C
Voltage Interruptions	>95 250	% Reduction period	C

Performance criterion: B, C, C

- A. The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.
- B. The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
- C. Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.



13.4. EUT Configuration on Test

The configuration of EUT is the same as used in conducted emission test. Please refer to Section 2.10.

13.5. Operating Condition of EUT

Same as conducted emission test, which is listed in Section 2.10 except the test set up replaced as Section 13.1.

13.6. Test Procedure

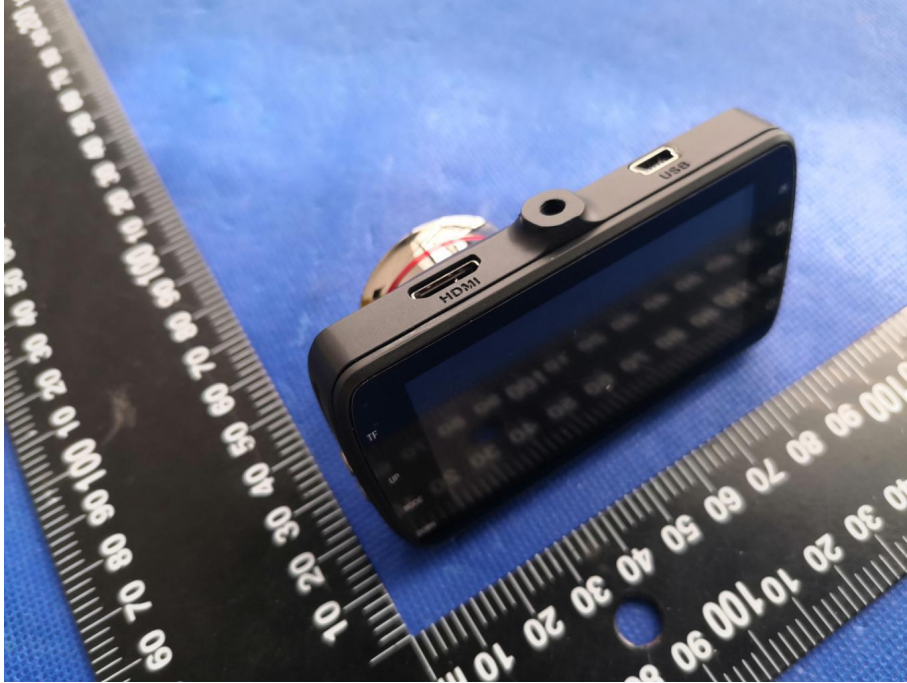
- 1) Set up the EUT and test generator as shown on section 13.1
- 2) The interruption is introduced at selected phase angles with specified duration. There is a 3mins minimum interval between each test event.
- 3) After each test a full functional check is performed before the next test.
- 4) Repeat procedures 2 & 3 for voltage dips, only the level and duration is changed.
- 5) Record any degradation of performance.

13.7. Test Result

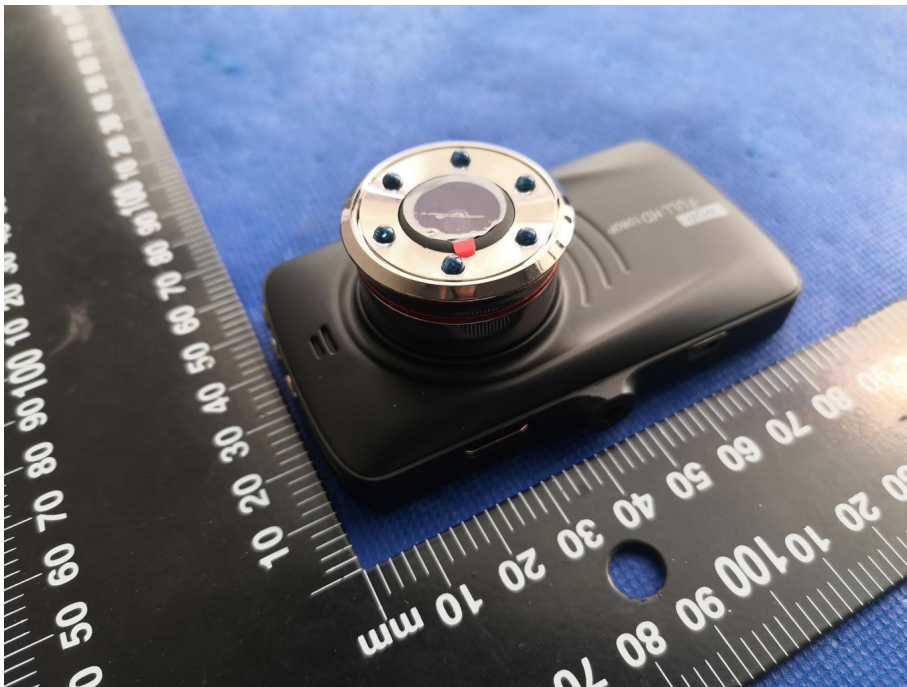
The EUT is powered by the DC only, the test item is not applicable.

14. EUT PHOTOGRAPHS

EUT Photo 1



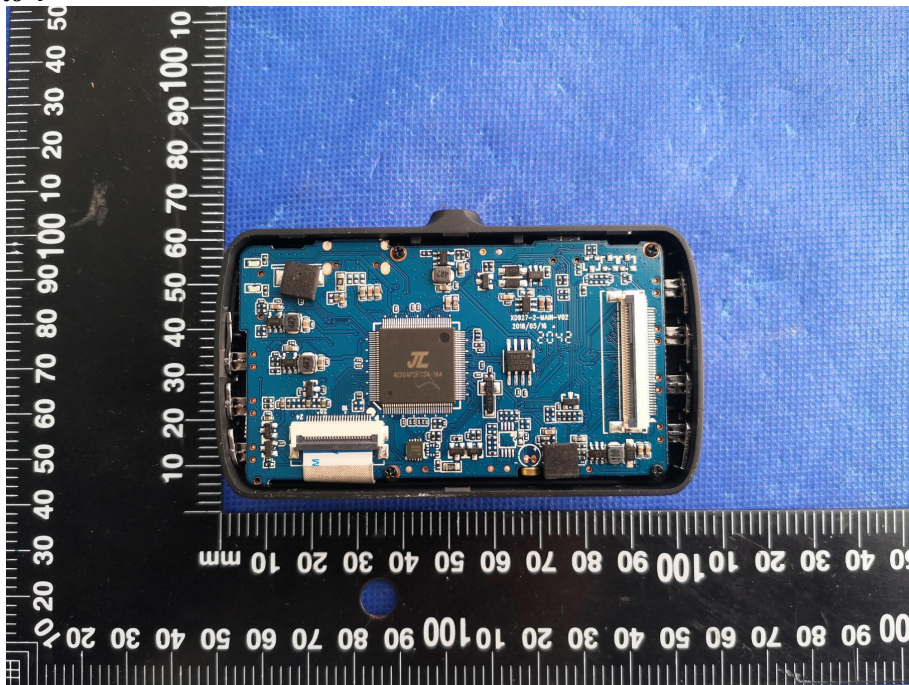
EUT Photo 2



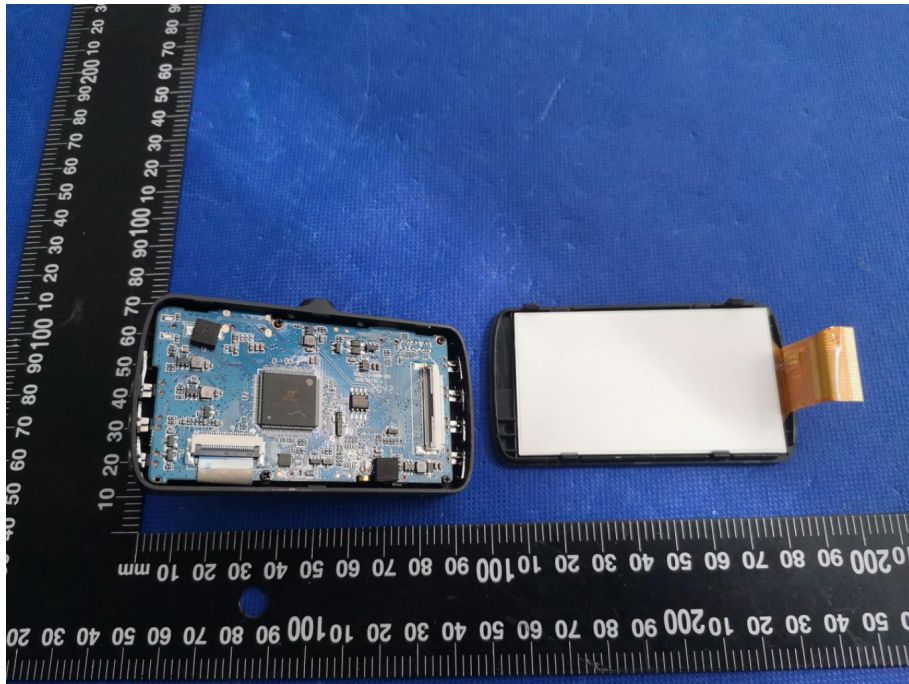
EUT Photo 3



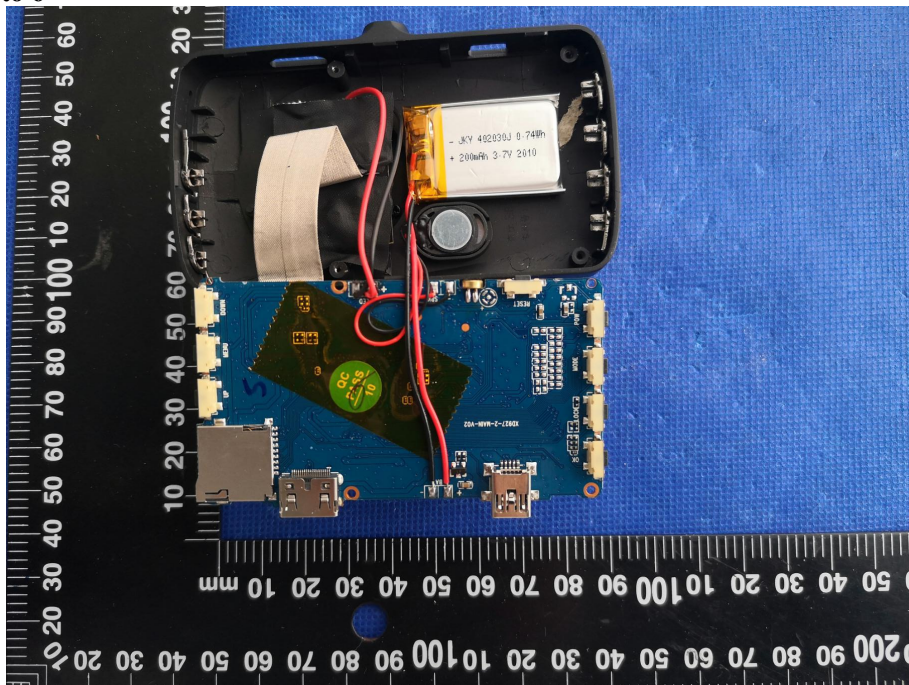
EUT Photo 4



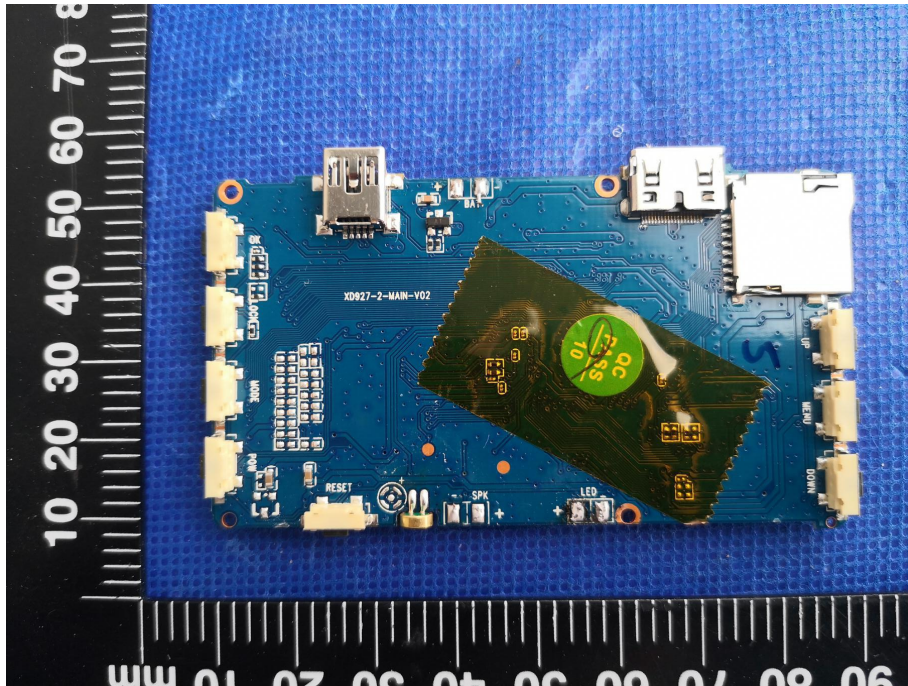
EUT Photo 5



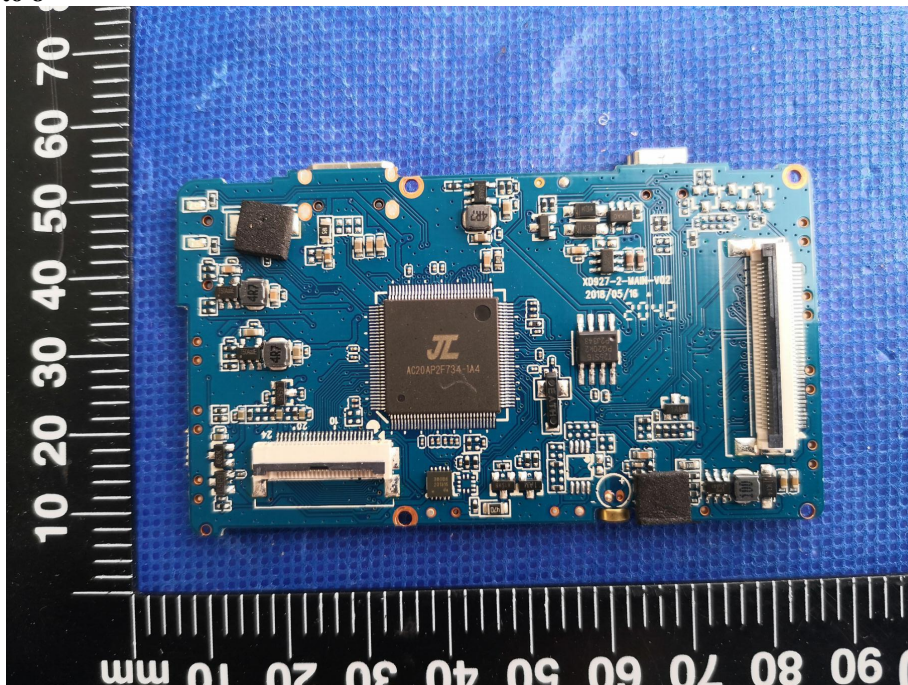
EUT Photo 6



EUT Photo 7



EUT Photo 8



***** END OF REPORT *****



Shenzhen VTC Testing Technology Co., Ltd.
211 Factory Room, No. 96, Yangchong Road, Tangxiachong Community,
Yanluo Street, Bao'an District, Shenzhen, Guangdong, China

Declaration of Conformity

Certification number: VTC-201106017

Issue date: Nov. 16, 2020

In accordance with the following Applicable Directives:

2014/30/EU

Electromagnetic Compatibility

The test results are traceable to the international or national standards.

Applicant: Dinghangda Technology (Shenzhen) Co., Ltd.
2nd Floor, Building M, Hongwan Industrial Park, No. 3 Xishu Road,
Gushu, Xixiang, Bao'an District, Shenzhen

Manufacturer: Dinghangda Technology (Shenzhen) Co., Ltd.
2nd Floor, Building M, Hongwan Industrial Park, No. 3 Xishu Road,
Gushu, Xixiang, Bao'an District, Shenzhen

Equipment under test: dash cam

Trade Mark: N/A

Model number: H19, H2, H3, H5, H6, H7, H8, H9, H10, H11, H12, H13,
H15, H16, H17, H18, H20, H26, H28, H29

Applied Standards and Test Reports

Directive 2014/30/EU ■ EMC	EN 55032:2015 EN 55035:2017 EN 61000-3-2: 2014 EN 61000-3-3: 2013	VTC-201106017E1
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Note:

The certification is only valid for the equipment and configuration described, in conjunction with the test data detailed above. The CE mark as shown beside can be used, under the responsibility of the manufacturer, after completion of an EC Directive of Conformity and compliance with all relevant EC Directive.

Authorized by:

Jackson

Manager

