

IC TEST REPORT

For

Azlan Logistics Limited

TC-HDMIIP

Model No.: TC-HDMIIP

Prepared for : Azlan Logistics Limited
Address : Redwood 2, Chineham Business Park, Crockford Lane,
Basingstoke RG24 8WQ, United Kindom

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : Mar 22, 2018
Number of tested samples : 3
Serial number : Prototype
Date of Test : Mar 26, 2018 ~ Apr 02, 2018
Date of Report : Apr 11, 2018

IC TEST REPORT

**ICES-003 ISSUE 6: 2016
ANSI C63.4: 2014**

Report Reference No.: LCS180322031AEA

Date Of Issue: Apr 11, 2018

Testing Laboratory Name.....: Shenzhen LCS Compliance Testing Laboratory Ltd.

Address: 1/F., Xingyuan Industrial Park, Tongda Road, Bao' an Avenue, Bao' an District, Shenzhen, Guangdong, China

Testing Location/ Procedure: Full application of Harmonised standards
 Partial application of Harmonised standards
 Other standard testing method

Applicant's Name: Azlan Logistics Limited

Address: Redwood 2, Chineham Business Park, Crockford Lane, Basingstoke RG24 8WQ, United Kindom

Test Specification:

**Standard: ICES-003 ISSUE 6: 2016
ANSI C63.4: 2014**

Test Report Form No.....: LCSEMC-1.0

TRF Originator: Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF: Dated 2011-03

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Test Item Description.....: TC-HDMIIP

Trade Mark: VISION

Model/ Type Reference: TC-HDMIIP

**Ratings: Input:100-240V~, 50/60Hz, 0.4A
Output:5V^{DC}, 2A**

Result: Positive

Compiled by:

Calvin Weng

Calvin Weng/ Administrators

Supervised by:

Dick Su

Dick Su/ Technique principal

Approved by:



Gavin Liang/ Manager

IC -- TEST REPORT**Test Report No. : LCS180322031AEA**Apr 11, 2018

Date of issue

Type / Model..... : TC-HDMIIP

EUT..... : TC-HDMIIP

Applicant..... : Azlan Logistics LimitedAddress..... : Redwood 2, Chineham Business Park, Crockford Lane,
Basingstoke RG24 8WQ, United Kindom

Telephone..... : /

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Manufacturer..... : Azlan Logistics LimitedAddress..... : Redwood 2, Chineham Business Park, Crockford Lane,
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Telephone..... : /

Fax..... : /

Factory..... : Azlan Logistics LimitedAddress..... : Redwood 2, Chineham Business Park, Crockford Lane,
Basingstoke RG24 8WQ, United Kindom

Telephone..... : /

Fax..... : /

Test Result according to the standards on page 6:**Positive**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Revision	Issue Date	Revisions	Revised By
000	Apr 11, 2018	Initial Issue	Gavin Liang

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1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	ICES-003 ISSUE 6: 2016	Class B	PASS
Radiated disturbance	ICES-003 ISSUE 6: 2016	Class B	PASS
N/A is an abbreviation for Not Applicable.			

Test mode:		
Mode 1	HDMI input & HDMI output	Pre-scan

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT	: TC-HDMIIP
Trade Mark	: VISION
Model Number	: TC-HDMIIP
Power Supply	: Input:100-240V~, 50/60Hz, 0.4A Output:5V $\overline{\text{---}}$, 2A
Highest working frequency	: 400MHz

2.2. Description of Test Facility

Site Description EMC Lab.	: FCC Registration Number. is 254912. Industry Canada Registration Number. is 9642A-1. ESMD Registration Number. is ARCB0108. UL Registration Number. is 100571-492. TUV SUD Registration Number. is SCN1081. TUV RH Registration Number. is UA 50296516-001. NVLAP Registration Code is 600167-0.
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2.3. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

2.4.Measurement Uncertainty

Test	Parameters	Expanded uncertainty (U _{lab})	Expanded uncertainty (U _{cispr})
Conducted Emission	Level accuracy (9kHz to 150kHz)	± 2.63 dB	± 4.0 dB
	(150kHz to 30MHz)	± 2.35 dB	± 3.6 dB
Power disturbance	Level accuracy (30MHz to 300MHz)	± 2.90dB	± 4.5 dB
Electromagnetic Radiated Emission (3-loop)	Level accuracy (9kHz to 30MHz)	± 3.60 dB	± 2.63 dB
Radiated Emission	Level accuracy (9kHz to 30MHz)	± 3.68 dB	± 2.63 dB
Radiated Emission	Level accuracy (30MHz to 1000MHz)	± 3.48 dB	± 2.63 dB
Radiated Emission	Level accuracy (above 1000MHz)	± 3.90 dB	N/A
Mains Harmonic	Voltage	± 0.510%	N/A
Voltage Fluctuations & Flicker	Voltage	± 0.510%	N/A
EMF		± 21.59%	N/A

- (1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.
- (2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

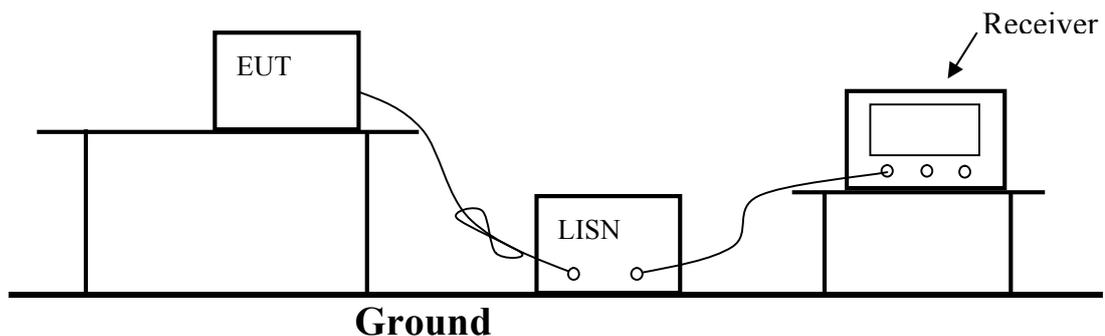
3. POWER LINE CONDUCTED EMISSION MEASUREMENT

3.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESR 7	101181	2017-06-17
2	10dB Attenuator	SCHWARZBECK	MTS-IMP136	261115-001-00 32	2017-06-17
3	Artificial Mains	ROHDE & SCHWARZ	ENV216	101288	2017-06-17
4	EMI Test Software	AUDIX	E3	N/A	N/A
5	ISN	SCHWARZBECK	NTFM 8158	NTFM 8158 0120	2017-06-17

3.2. Block Diagram of Test Setup



3.3. Test Standard

ICES-003 ISSUE 6: 2016

Power Line Conducted Emission Limits (Class B)

Frequency (MHz)	Limit (dB μ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66.0 ~ 56.0 *	56.0 ~ 46.0 *
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0

NOTE1-The lower limit shall apply at the transition frequencies.

NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

3.4. EUT Configuration on Test

The following equipments are installed on Conducted Emission Measurement to see ICES-003 ISSUE 6 requirements and operating in a manner which tends to maximize its emission characteristics in normal application.

3.5. Operating Condition of EUT

3.5.1. Setup the EUT as shown on Section 3.2.

3.5.2. Turn on the power of all equipments.

3.5.3. Let the EUT work in measuring mode (Full Load) and measure it.

3.6. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and connected to the AC mains through Line Impedance Stability Network (L.I.S.N). This provided 50-ohm coupling impedance for the tested equipments. Both sides of AC line are investigated to find out the maximum conducted emission according to the ICES-003 ISSUE 6 regulations during conducted emission measurement.

The bandwidth of the field strength meter is set at 9kHz in 150kHz~30MHz.

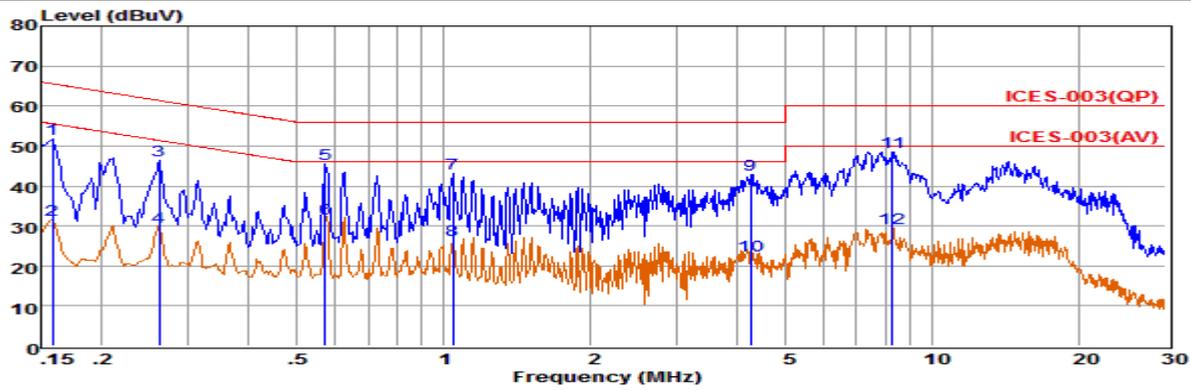
The frequency range from 150kHz to 30MHz is investigated

3.7. Test Results

PASS.

The test result please refer to the next page.

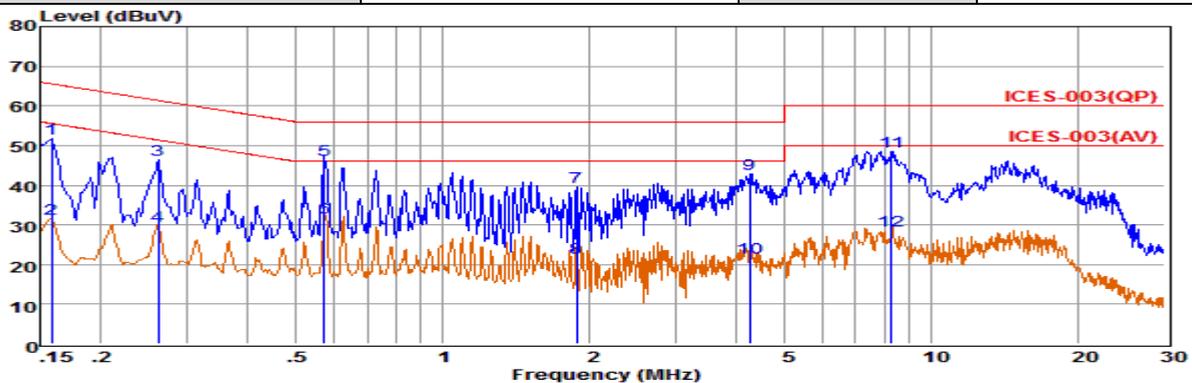
Model No.	TC-HDMIIP	Test Mode	Mode 1
Environmental Conditions	22.6°C, 50.3% RH	Test Engineer	Tom Liu
Pol	Line		



Env. Ins: 22.6*/50.3%									
	Freq	Reading	LISNFac	CabLos	Aux2Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.16	32.16	9.58	0.02	10.00	51.76	65.56	-13.80	QP
2	0.16	11.92	9.58	0.02	10.00	31.52	55.55	-24.03	Average
3	0.26	26.74	9.63	0.03	10.00	46.40	61.38	-14.98	QP
4	0.26	10.01	9.63	0.03	10.00	29.67	51.38	-21.71	Average
5	0.57	25.73	9.63	0.04	10.00	45.40	56.00	-10.60	QP
6	0.57	12.18	9.63	0.04	10.00	31.85	46.00	-14.15	Average
7	1.04	23.49	9.63	0.05	10.00	43.17	56.00	-12.83	QP
8	1.04	6.65	9.63	0.05	10.00	26.33	46.00	-19.67	Average
9	4.25	23.20	9.65	0.06	10.00	42.91	56.00	-13.09	QP
10	4.25	2.86	9.65	0.06	10.00	22.57	46.00	-23.43	Average
11	8.28	28.85	9.68	0.07	10.00	48.60	60.00	-11.40	QP
12	8.28	9.76	9.68	0.07	10.00	29.51	50.00	-20.49	Average

Remarks: 1. Measured = Reading + LISNFac + Cable Loss + Aux2 Fac.
 2. The emission levels that are 20dB below the official limit are not reported.

Model No.	TC-HDMIIP	Test Mode	Mode 1
Environmental Conditions	22.6°C, 50.3% RH	Test Engineer	Tom Liu
Pol	Neutral		



Env. Ins: 22.6*/50.3%									
	Freq	Reading	LISNFac	CabLos	Aux2Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.16	32.06	9.68	0.02	10.00	51.76	65.56	-13.80	QP
2	0.16	11.82	9.68	0.02	10.00	31.52	55.55	-24.03	Average
3	0.26	26.77	9.60	0.03	10.00	46.40	61.38	-14.98	QP
4	0.26	10.04	9.60	0.03	10.00	29.67	51.38	-21.71	Average
5	0.57	26.74	9.62	0.04	10.00	46.40	56.00	-9.60	QP
6	0.57	12.19	9.62	0.04	10.00	31.85	46.00	-14.15	Average
7	1.88	19.99	9.63	0.05	10.00	39.67	56.00	-16.33	QP
8	1.88	2.08	9.63	0.05	10.00	21.76	46.00	-24.24	Average
9	4.25	23.20	9.65	0.06	10.00	42.91	56.00	-13.09	QP
10	4.25	1.86	9.65	0.06	10.00	21.57	46.00	-24.43	Average
11	8.28	28.83	9.70	0.07	10.00	48.60	60.00	-11.40	QP
12	8.28	8.74	9.70	0.07	10.00	28.51	50.00	-21.49	Average

Remarks: 1. Measured = Reading + LISNFac + Cable Loss + Aux2 Fac.
 2. The emission levels that are 20dB below the official limit are not reported.

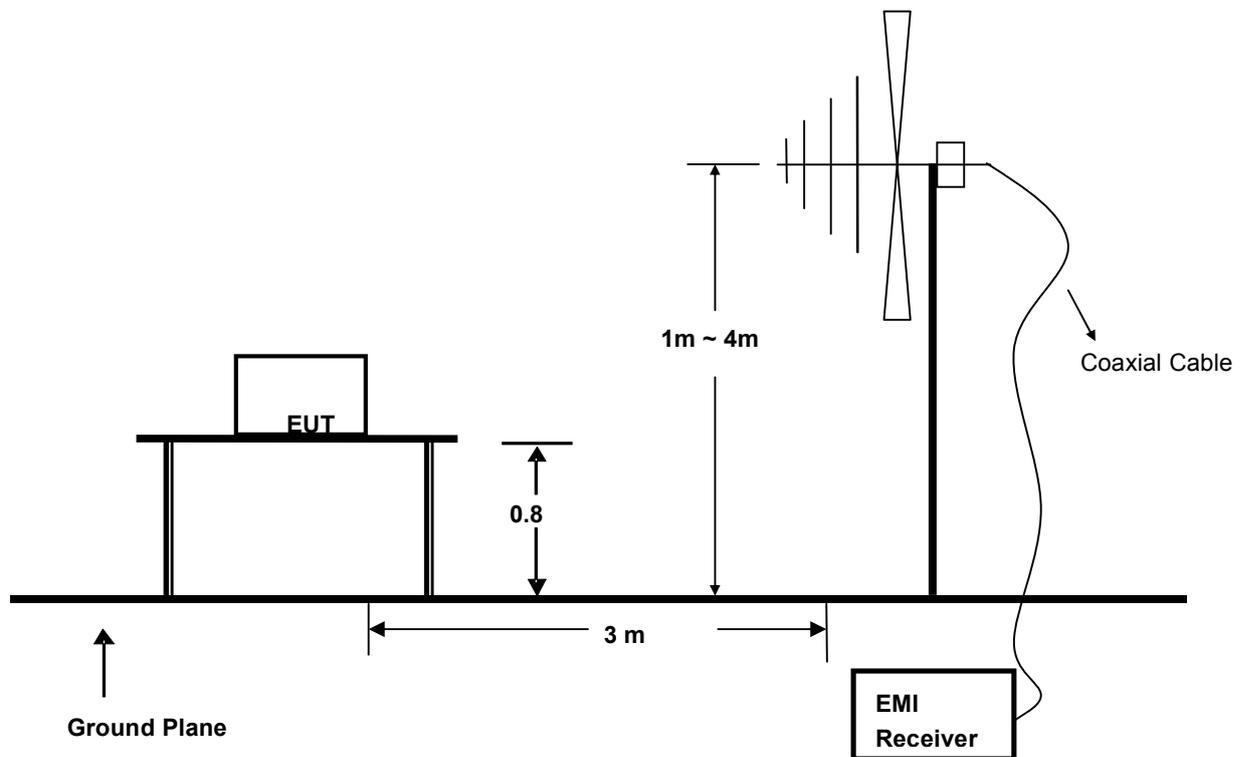
4. RADIATED EMISSION MEASUREMENT

4.1. Test Equipment

The following test equipments are used during the radiated emission measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2017-06-17
2	EMI Test Receiver	ROHDE & SCHWARZ	ESR 7	101181	2017-06-17
3	Log per Antenna	SCHWARZBECK	VULB9163	9163-470	2017-04-17
4	EMI Test Software	AUDIX	E3	N/A	2017-06-17
5	Positioning Controller	MF	MF-7082	/	2017-06-17

4.2. Block Diagram of Test Setup



4.3. Test Standard

ICES-003 ISSUE 6: 2016

4.4. Radiated Emission Limits

All emanations from a class B device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY MHz	DISTANCE Meters	RADIATED LIMIT dB(μ V)/m
		Quasi-peak
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
960 ~ 1000	3	54.0

- Note: (1) The smaller limit shall apply at the combination point between two frequency bands.
- (2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.

4.5. EUT Configuration on Test

The ICES-003 ISSUE 6 regulations test method must be used to find the maximum emission during radiated emission measurement.

4.6. Operating Condition of EUT

4.6.1 Turn on the power.

4.6.2 After that, let the EUT work in test mode (Full Load) and measure it.

4.7. Test Procedure

The EUT is placed on a turntable, which is 0.8 meter high above the ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. By-log antenna (calibrated by Dipole Antenna) is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.

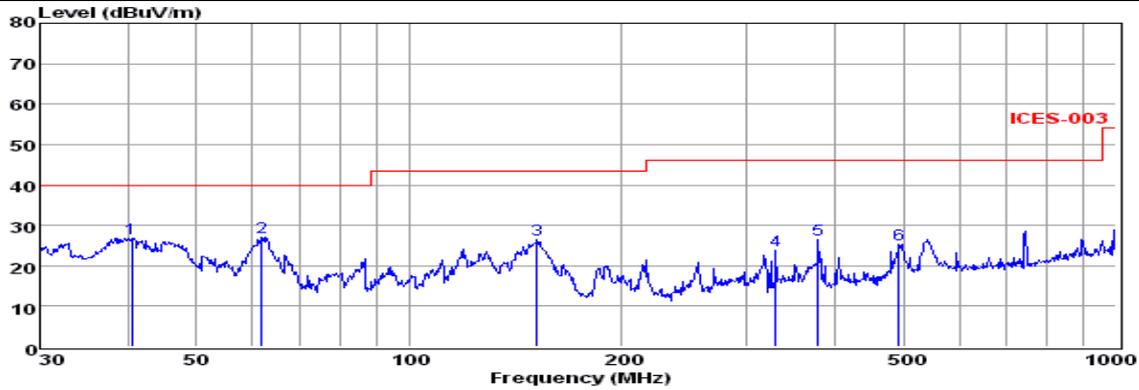
The bandwidth of the Receiver is set at 120kHz.

The frequency range from 30MHz to 1000MHz is investigated.

4.8. Test Results

PASS. For test data, please refer to the next page.

Model No.	TC-HDMIIP	Test Mode	Mode 1
Environmental Conditions	23.1°C, 51.3% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	Tom Liu		

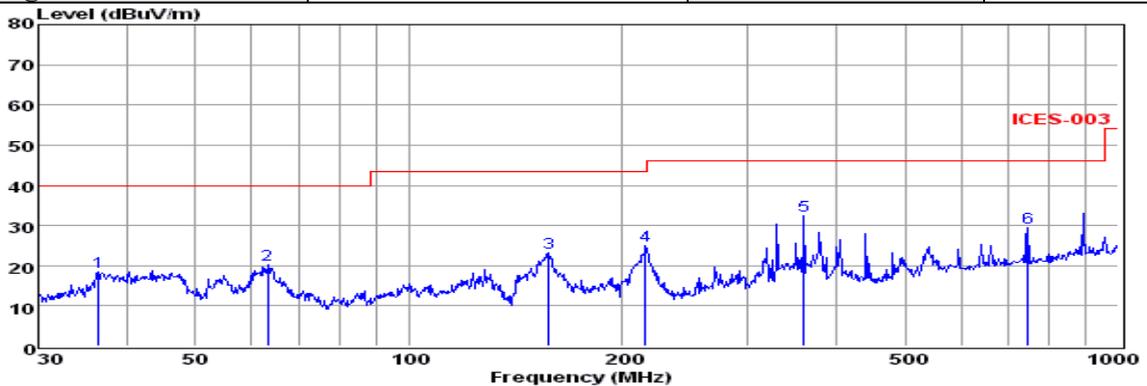


Env./Ins: 23.1°C/51.3%

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	40.42	12.81	0.50	13.58	26.89	40.00	-13.11	QP
2	61.78	14.55	0.48	11.99	27.02	40.00	-12.98	QP
3	151.60	17.41	0.73	8.33	26.47	43.50	-17.03	QP
4	330.19	8.96	1.17	13.73	23.86	46.00	-22.14	QP
5	378.58	10.69	1.30	14.58	26.57	46.00	-19.43	QP
6	492.47	7.39	1.50	16.39	25.28	46.00	-20.72	QP

Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that are 20db below the official limit are not reported

Model No.	TC-HDMIIP	Test Mode	Mode 1
Environmental Conditions	23.1°C, 51.3% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	Tom Liu		



Env./Ins: 23.1°C/51.3%

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	36.51	5.44	0.41	12.69	18.54	40.00	-21.46	QP
2	63.09	8.14	0.48	11.47	20.09	40.00	-19.91	QP
3	157.56	13.78	0.83	8.57	23.18	43.50	-20.32	QP
4	215.27	12.98	0.95	11.05	24.98	43.50	-18.52	QP
5	360.45	16.80	1.18	14.43	32.41	46.00	-13.59	QP
6	744.87	8.48	1.61	19.37	29.46	46.00	-16.54	QP

Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that are 20db below the official limit are not reported

Test Mode: TM1(above 1GHz)	Tested by: Tom Liu
Test voltage: AC 230V/50Hz	Test Distance: 3m
Detector Function: Peak+AV	Test Results: Passed

Polarization	Frequency MHz	Emission Level dB μ V/m		Limits dB μ V/m		Margin dB μ V/m	
		Peak	AV	Peak	AV	Peak	AV
Horizontal	1397.66	55.28	37.55	74.00	54.00	-18.72	-16.45
	1327.59	51.64	30.04	74.00	54.00	-22.36	-23.96
	1563.20	55.14	32.69	74.00	54.00	-18.86	-21.31
	1699.07	57.77	37.15	74.00	54.00	-16.23	-16.85
	1868.69	52.97	34.69	74.00	54.00	-21.03	-19.31
	1973.22	54.89	31.93	74.00	54.00	-19.11	-22.07
Vertical	1397.68	56.08	37.07	74.00	54.00	-17.92	-16.93
	1327.31	51.34	29.63	74.00	54.00	-22.66	-24.37
	1563.62	55.96	31.82	74.00	54.00	-18.04	-22.18
	1699.69	58.39	37.77	74.00	54.00	-15.61	-16.23
	1869.67	53.74	34.32	74.00	54.00	-20.26	-19.68
	1972.72	54.68	31.67	74.00	54.00	-19.32	-22.33

1. Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.

2. Measurements above show only up to 6 maximum emissions noted.

3. Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

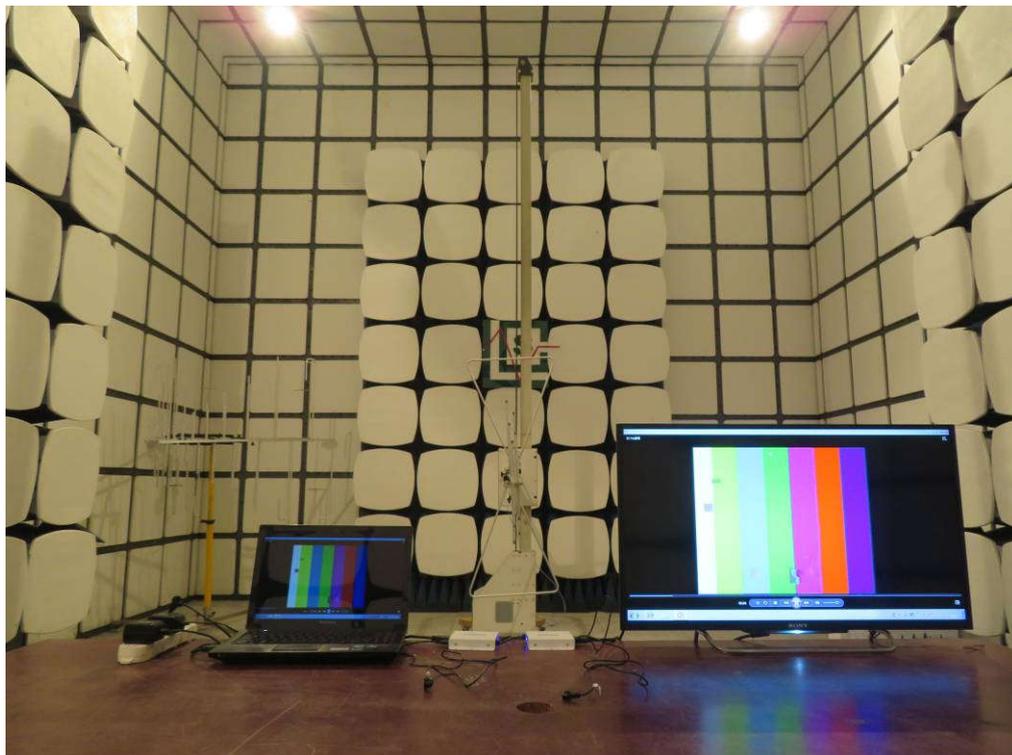
4. According to FCC Part 15.33, as the highest working frequency is 400MHz, the highest investigated frequency is 2GHz.

5. PHOTOGRAPH

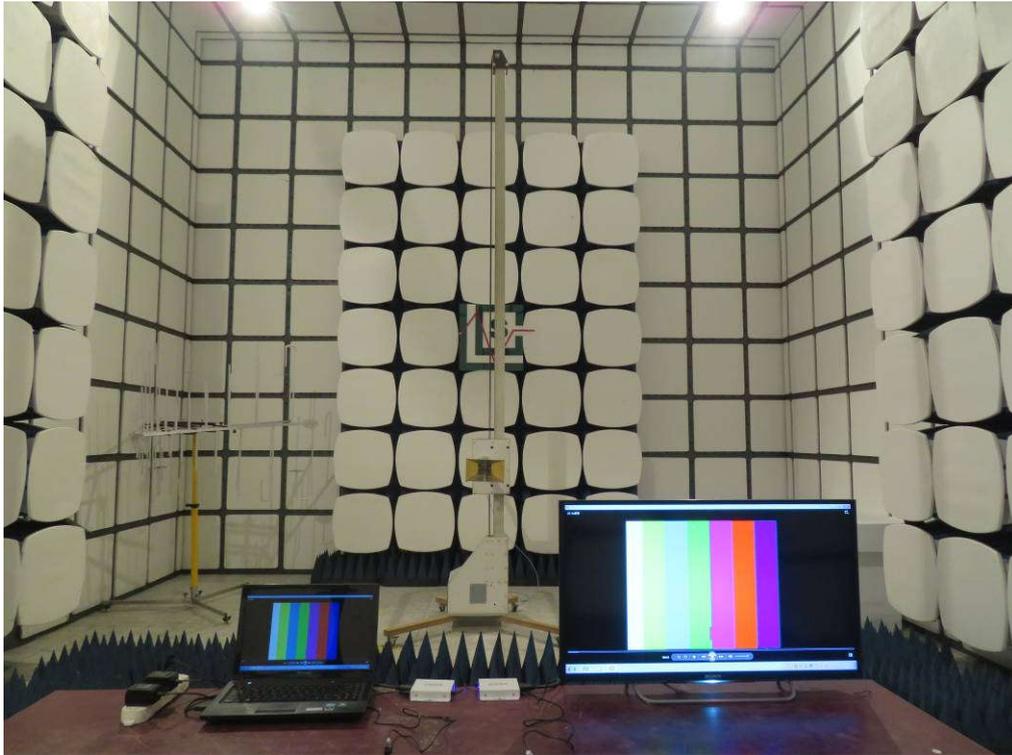
5.1. Photo of Power Line Conducted Measurement



5.2. Photo of Radiated Measurement



Radiated Emission below 1GHz



Radiated Emission above 1GHz

6. EXTERNAL AND INTERNAL PHOTOS OF THE EUT



Fig. 1



Fig. 2

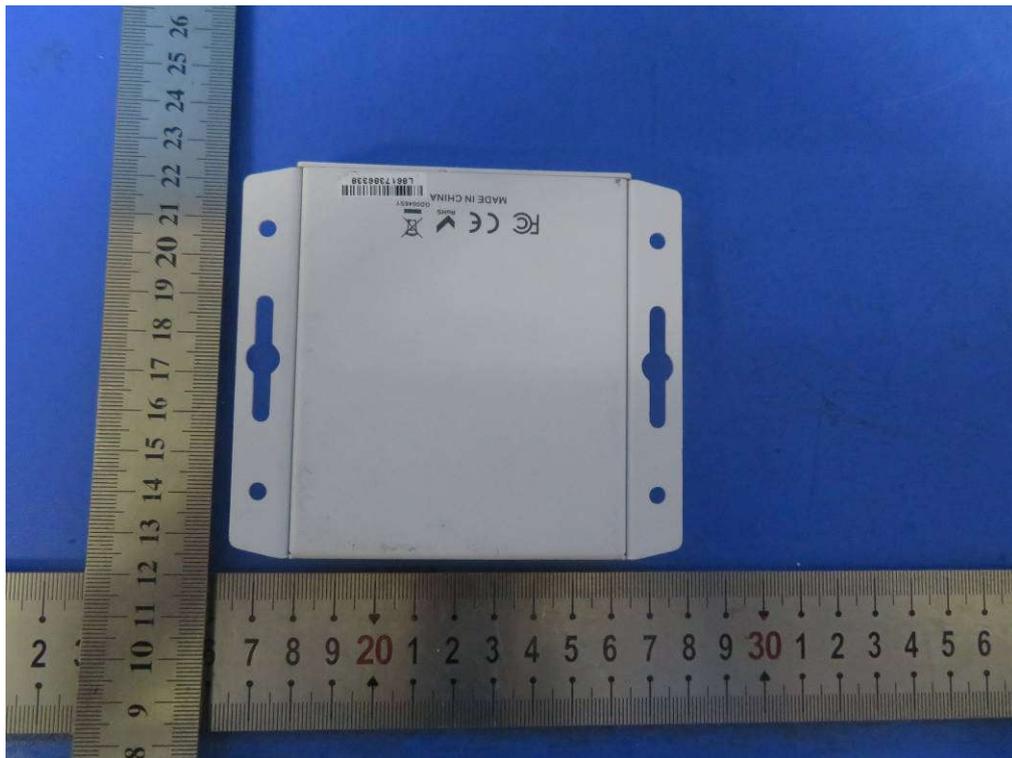


Fig. 3

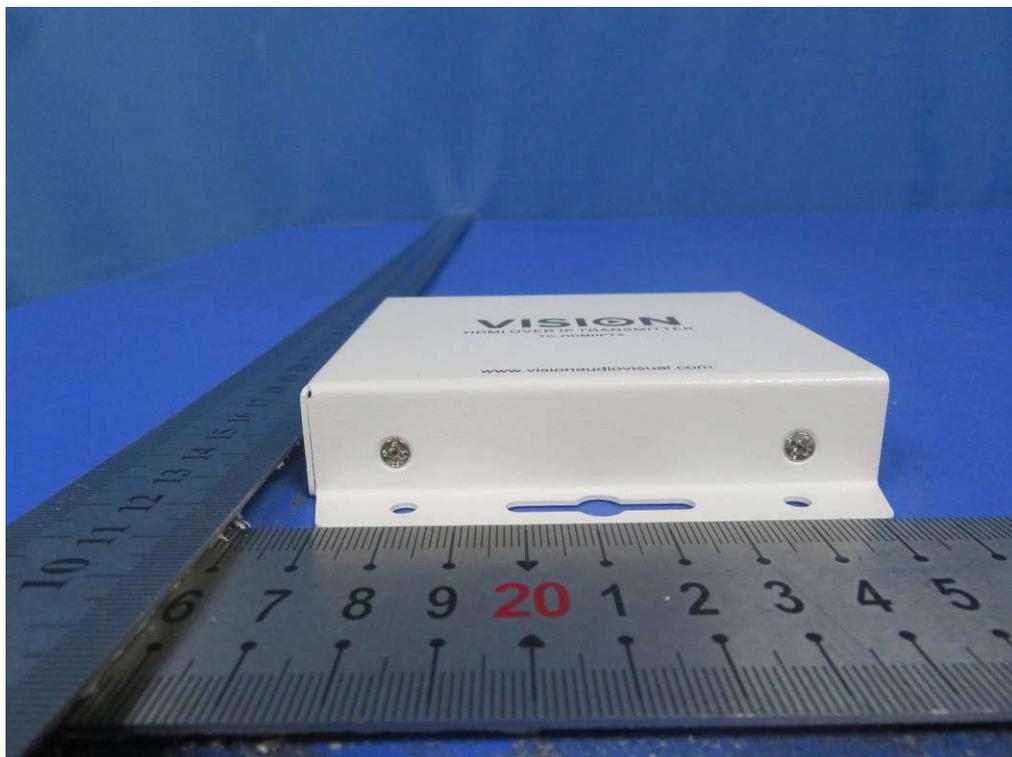


Fig. 4



Fig. 5

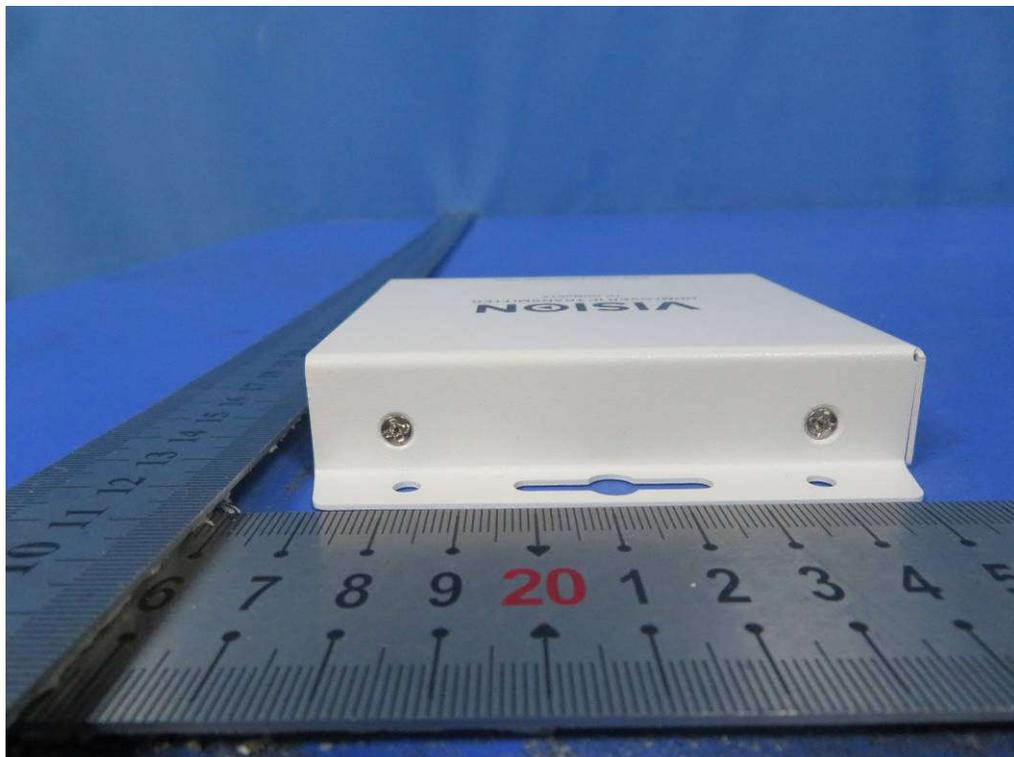


Fig. 6

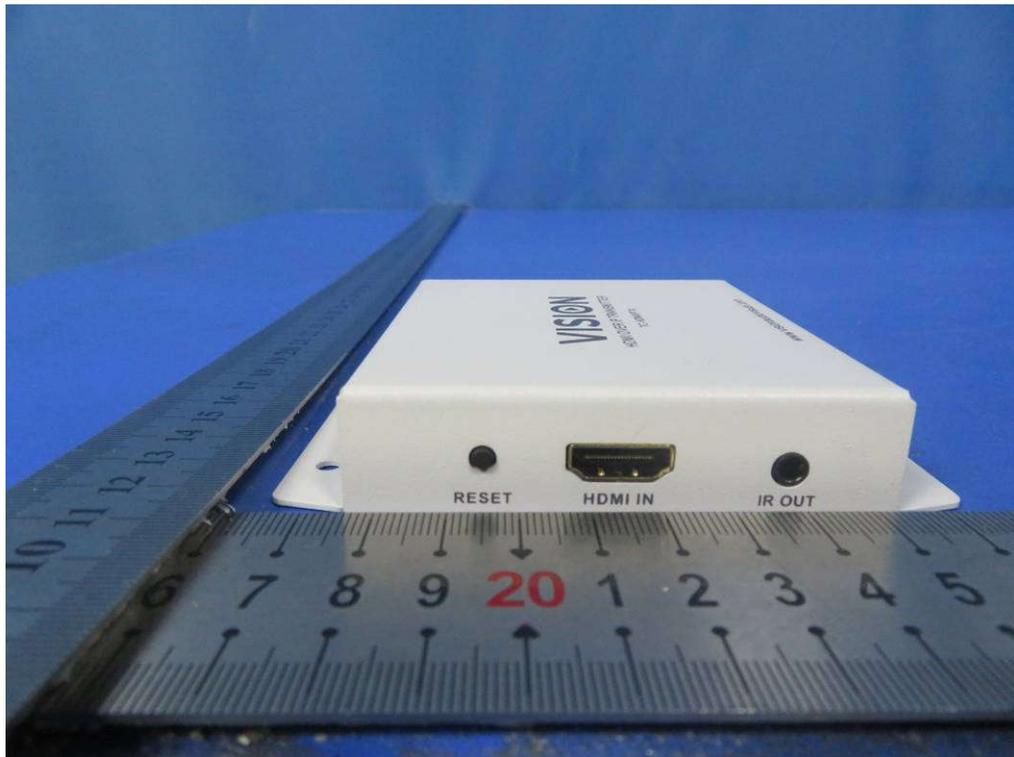


Fig.7

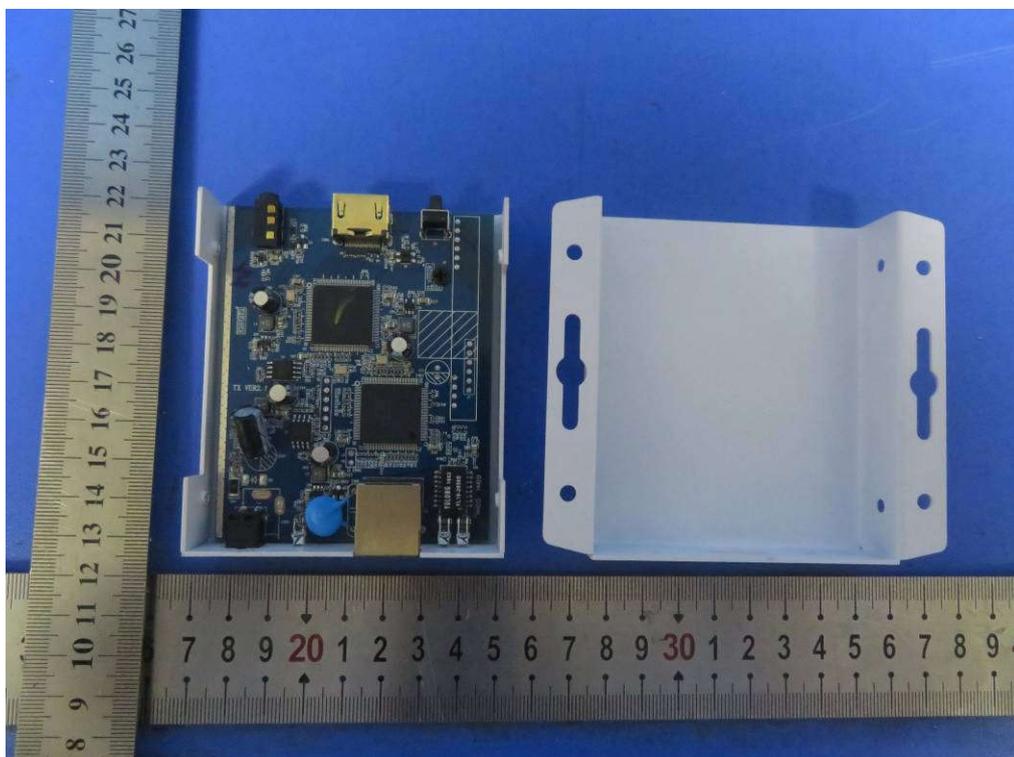


Fig.8

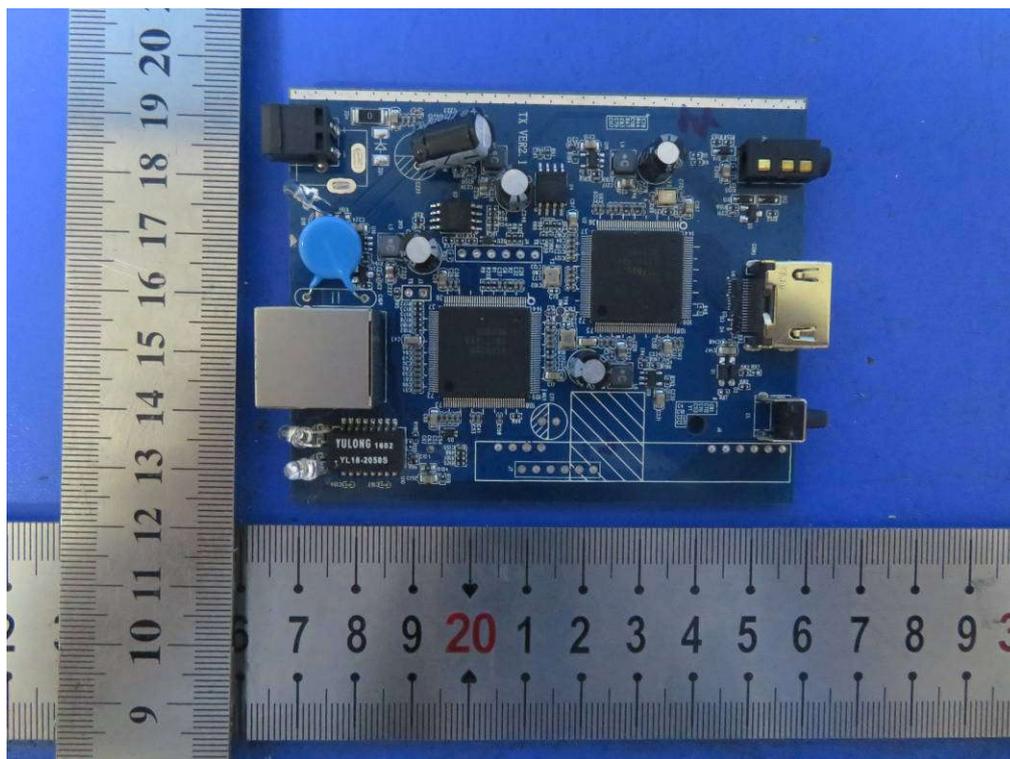


Fig.9

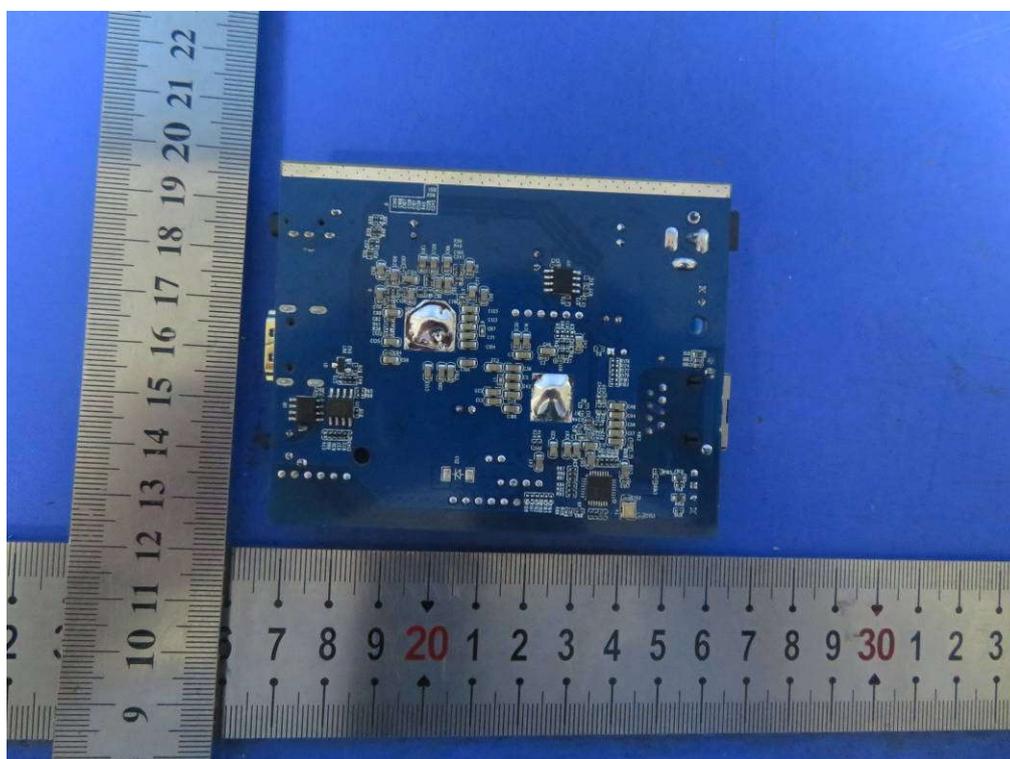


Fig.10

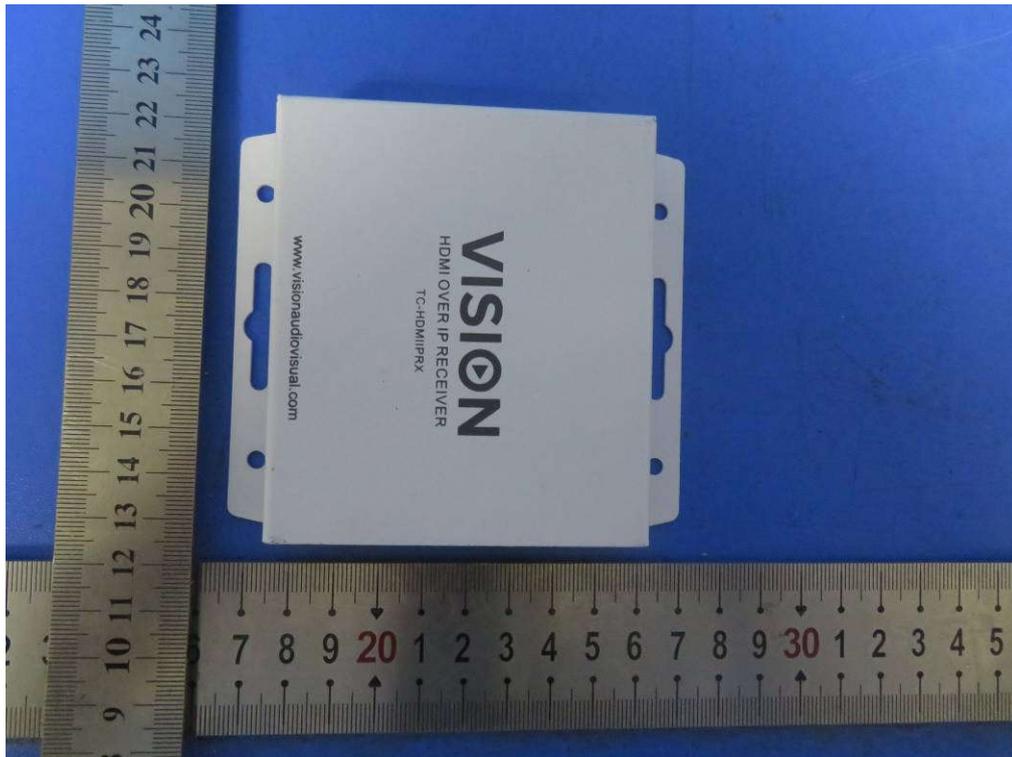


Fig.11

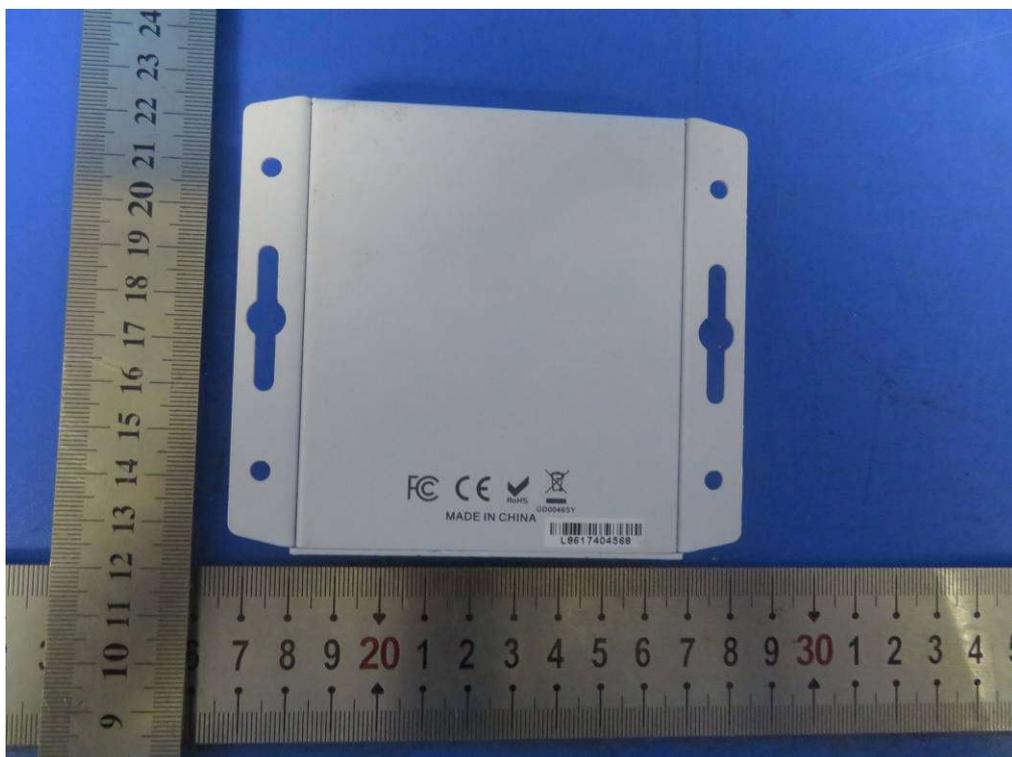


Fig.12

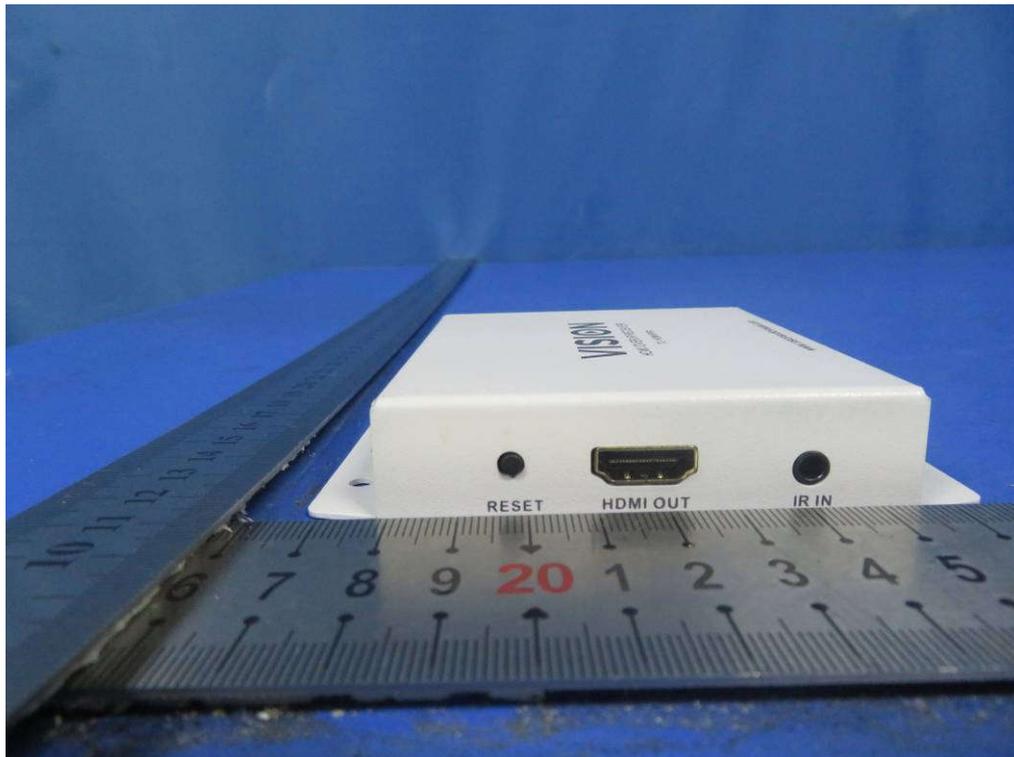


Fig.13

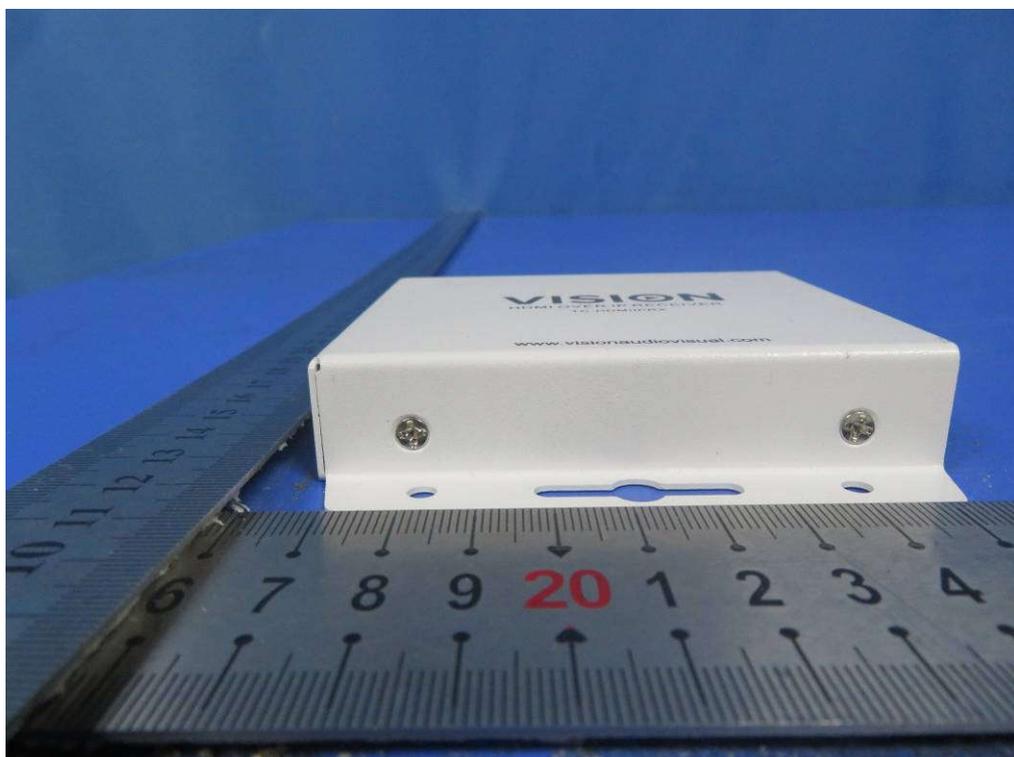


Fig.14



Fig.15

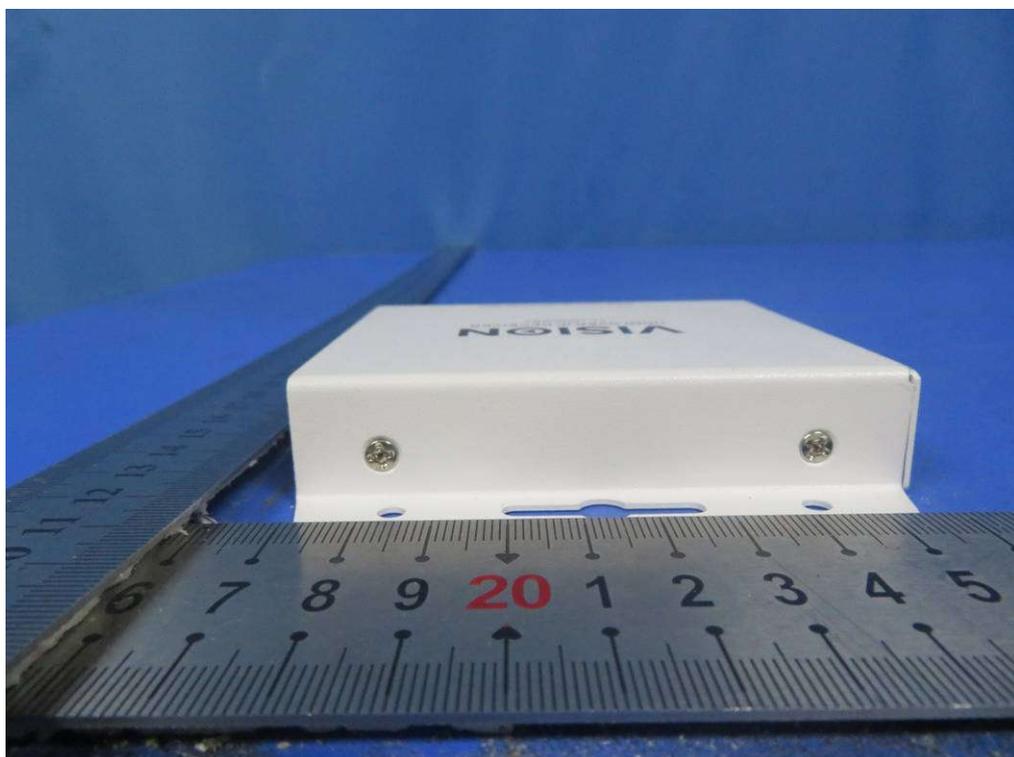


Fig.16



Fig.17

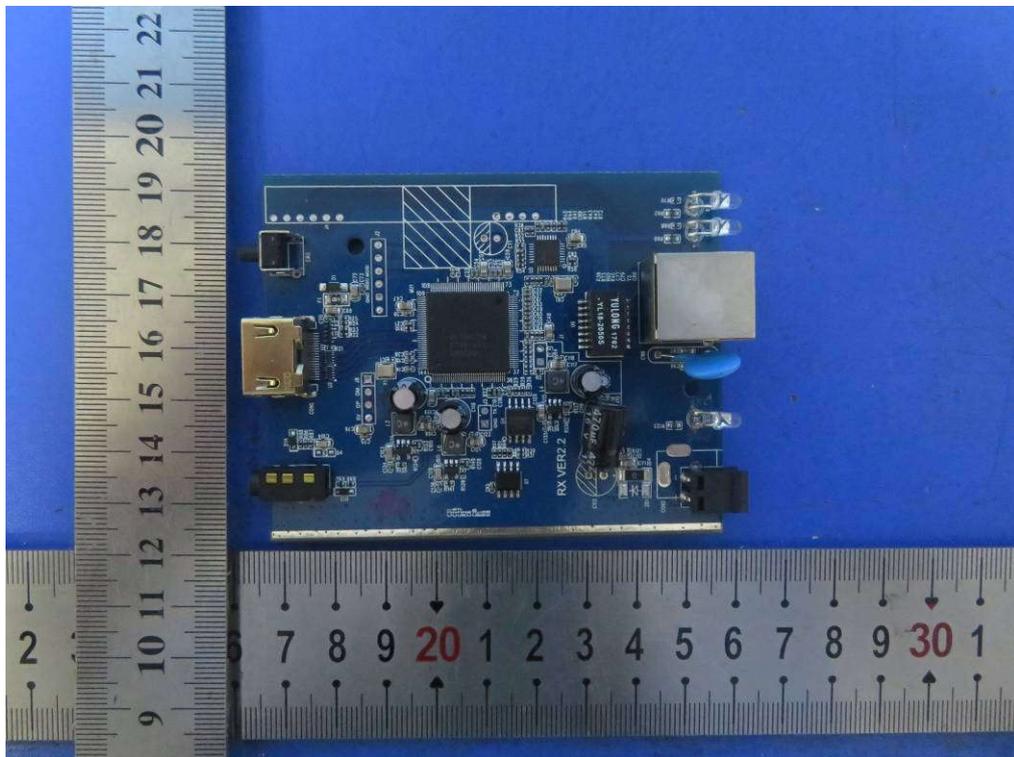


Fig.18

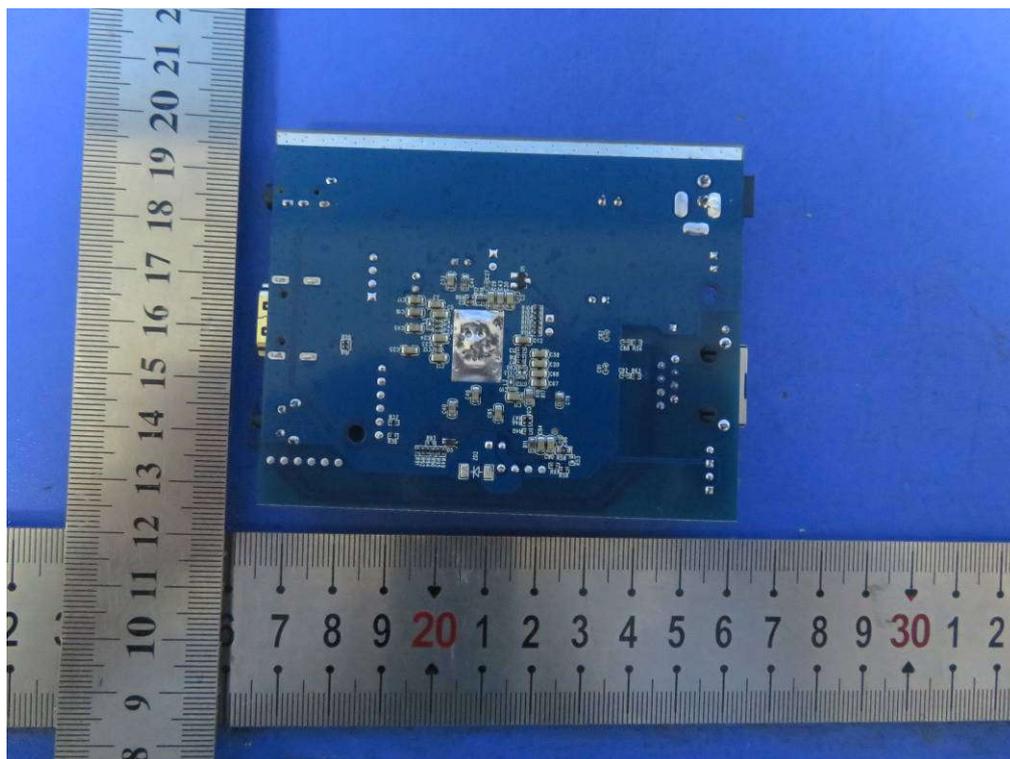


Fig.19

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