SHENZHEN JHC TECHNOLOGY DEVELOPMENT CO.,LTD

FCC REPORT

Prepared For :	SHENZHEN JHC TECHNOLOGY DEVELOPMENT CO.,LTD B,3rd Fl,A Block Junxiangda Bldg., Zhongshanyuan Rd.West,Tongle Village,Nanshan District,Shenzhen City,China 518052
Product Name:	INDUSTRIAL EMBEDDED COMPUTER
Trade Name:	JHCTECH
Model :	KMDA-3602-S001 KMDA-3602-XXXXXXX (Where "X" may be any alphanumeric, blank or "-")
Prepared By :	BST Technology (Shenzhen) Co.,Ltd. No.7,New Era Industrial Zone, Guantian, Bao'an District, Shenzhen, Guangdong, China
Test Date:	Jul.18 - Jul. 23, 2018
Date of Report :	Jul. 24, 2018
Report No.:	BST180711320201Y-1ER-3

TABLE OF CONTENTS

TEST REPORT DECLARATION

Applicant	:	SHENZHEN JHC TECHNOLOGY DEVELOPMENT CO.,LTD
Address	:	B,3rd Fl,A Block Junxiangda Bldg., Zhongshanyuan Rd.West,Tongle Village,Nanshan District,Shenzhen City,China 518052
EUT Description	:	INDUSTRIAL EMBEDDED COMPUTER
Model Number	:	KMDA-3602-S001 KMDA-3602-XXXXXXX (Where "X" may be any alphanumeric, blank or "-") **(Note: The series products have the same circuit diagram, PCB layout and functionality. the differences are the model name and appearance, so, we select KMDA-3602-S001to test.)**

Test Standards:

FCC Part 15:2016

The EUT described above is tested by US to determine the maximum emission levels emanating from the EUT, the maximum emission levels are compared to the FCC Part 15 limits.The measurement results are contained in this test report.and BST Technology (Shenzhen) Co.,Ltd. is assumed of full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT is to be technically compliant with the FCC requirements.
This report applies to above tested sample only and shall not be reproduced in part without written approval of BST Technology (Shenzhen) Co.,Ltd.

Prepared by :	Jacky Zhang	Assistant
Tested by:	Toby zhong	Test Engineer
Reviewer :	Tom chen	Supervisor
Approved & Authorized Signer :	APPROVED	Salon/Manager

1. GENERAL INFORMATION

1.1.Report information

1.1.1.This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that BST approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that BST in any way guarantees the later performance of the product/equipment.

1.1.2.The sample/s mentioned in this report is/are supplied by Applicant, BST therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

1.1.3.Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through BST, unless the applicant has authorized BST in writing to do so.

1.2.Test Facility

The test site used to collect the data is located on the address of

BSL Testing Co.,LTD.

(FCC Registered Test Site Number: 191509) on

NO. 24, ZH Park, Nantou, Shenzhen, 518000 China

The Test Site is constructed and calibrated to meet the FCC requirements.

1.3.Test Uncertainty

(95% confidence levels, k=2)

Test Item	**Uncertainty**
Uncertainty for Radiation emission test (30MHz to 1GHz)	4.0dB

2. PRODUCT DESCRIPTION

2.1.EUT Description

Description	:	INDUSTRIAL EMBEDDED COMPUTER
Applicant	:	SHENZHEN JHC TECHNOLOGY DEVELOPMENT CO.,LTD B,3rd Fl,A Block Junxiangda Bldg., Zhongshanyuan Rd.West,Tongle Village,Nanshan District,Shenzhen City,China 518052
Manufacturer	:	SHENZHEN JHC TECHNOLOGY DEVELOPMENT CO.,LTD B,3rd Fl,A Block Junxiangda Bldg., Zhongshanyuan Rd.West,Tongle Village,Nanshan District,Shenzhen City,China 518052
Model Number	:	KMDA-3602-S001

2.2.Test Conditions

Temperature: 23~25 ℃

Relative Humidity: 55~63 %

3. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	Test Results
Conducted disturbance	Pass
Radiated disturbance	Pass

Remark: “N/A” means “Not applicable.”

4. TEST EQUIPMENT USED

4.1.For Conducted Emission Test

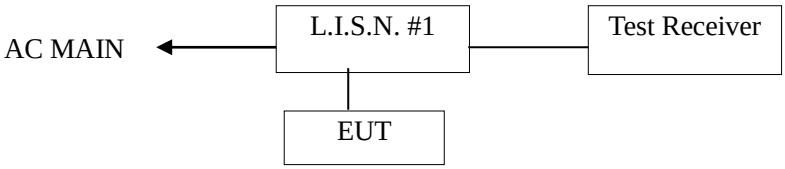
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS30	828985/018	Oct. 11, 18	1 Year
2.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	Oct. 11, 18	1 Year
3.	L.I.S.N.	Rohde & Schwarz	ESH2-Z5	834549/005	Oct. 11, 18	1 Year
4.	Conical	Emtek	N/A	N/A	N/A	N/A
5.	Voltage Probe	Schwarzbeck	TK9416	N/A	Oct. 11, 18	1 Year
6.	Coaxial Switch	Anritsu	MP59B	6100214550	Oct. 11, 18	1 Year

4.2.For Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	ANRITSU	MS2661C	6200140915	Oct. 11, 18	1 Year
2.	Test Receiver	Rohde&Schwarz	ESC830	828982/018	Oct. 11, 18	1 Year
3.	Bilog Antenna	Schwarzbeck	VULB9163	142	Oct. 11, 18	1 Year
4.	50 Coaxial Switch	Anritsu Corp	MP59B	6100237248	Oct. 11, 18	1 Year
5.	Cable	Schwarzbeck	AK9513	ACRX1	Oct. 11, 18	1 Year
6.	Cable	Rosenberger	N/A	FR2RX2	Oct. 11, 18	1 Year
7.	Cable	Schwarzbeck	AK9513	CRRX2	Oct. 11, 18	1 Year
8.	Cable	Schwarzbeck	AK9513	CRRX2	Oct. 11, 18	1 Year
9.	Single Phase Power Line Filter	MPE	23332C	N/A	Oct. 11, 18	1 Year
10.	Single Phase Power Line Filter	MPE	23333C	N/A	Oct. 11, 18	1 Year
11.	Signal Generator	HP	864A	3625U00573	Oct. 11, 18	1 Year

5. CONDUCTED EMISSION TEST

5.1.Block Diagram of Test Setup



(EUT: INDUSTRIAL EMBEDDED COMPUTER *)*

5.2.Test Standard

FCC Part 15: 2016

5.3.Conducted Emission Limit(Class B)

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

Notes: 1. *Decreasing linearly with logarithm of frequency.

5.4.EUT Configuration on Test

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

5.4.1.EUT Information

Model Number **:** KMDA-3602-S001
Serial Number **:** **N/A**

5.5.Operating Condition of EUT

5.5.1.Setup the EUT and simulators as shown in Section 5.1.

5.5.2.Turn on the power of all equipments.

5.5.3.Let the EUT work in test modes (On) and test it.

5.6.Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver is used to test the emissions form both sides of AC line. The bandwidth of EMI test receiver is set at 9kHz.

The bandwidth of the test receiver is set at 9kHz.

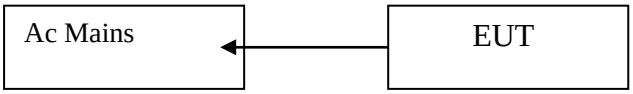
5.7.Test Result

PASS

6. RADIATED EMISSION MEASUREMENT

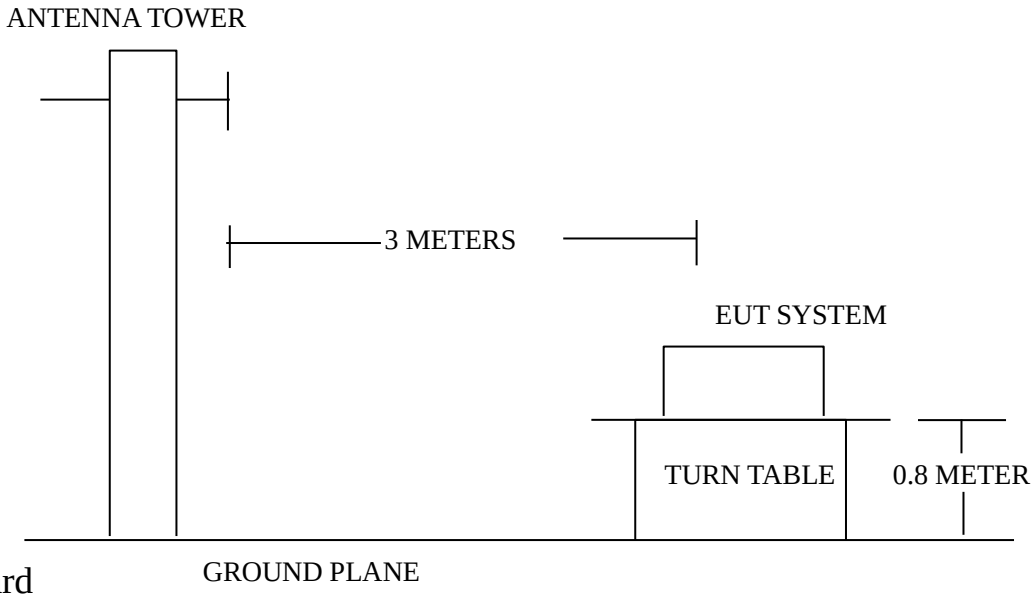
6.1.Block Diagram of EUT Configuration

6.1.1.Block Diagram of connection between the EUT and the simulators



(EUT: INDUSTRIAL EMBEDDED COMPUTER)

6.1.2.Semi-Anechoic Chamber Test Setup Diagram



6.2.Test Standard

FCC Part 15: 2016

6.3.Radiated Emission Limit(Class B)

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

Note**:**(1) The smaller limit shall apply at the edge 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 or system.

6.4.EUT Configuration on Test

The following equipment are installed on Radiated Emission Measurement to meet the Commission requirements and operating regulations in a manner which tends to maximize Its emission characteristics in normal application.

6.5.Operating Condition of EUT

6.5.1.Setup the EUT as shown on Section 6.1.2

6.5.2.Turn on the power of all equipments.

6.5.3.Let the EUT work in test mode(On) and measure it.

6.6.Test Procedure

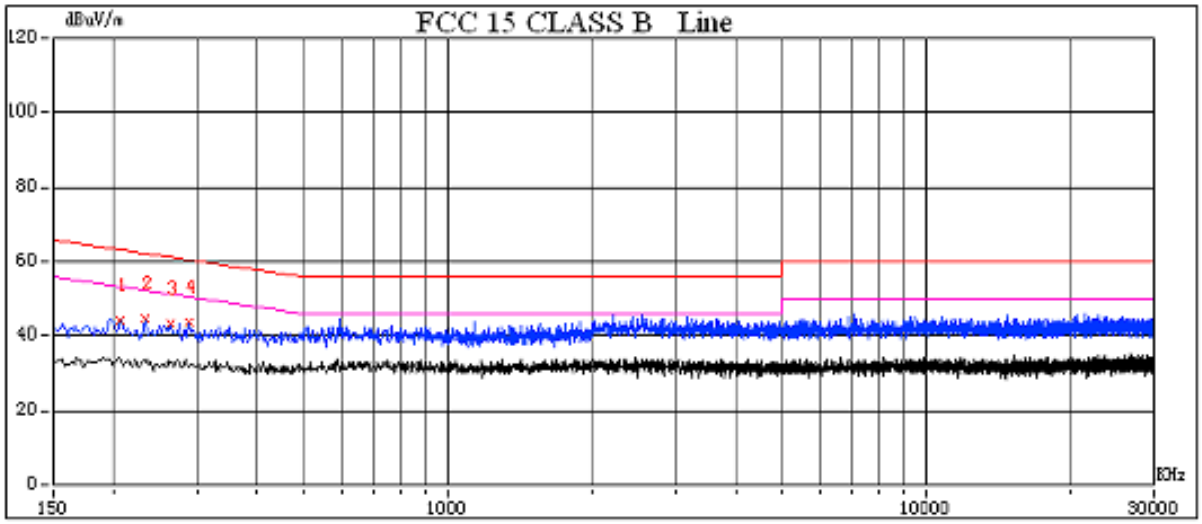
The EUT is placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna (calibrated by dipole antenna) are used as a receiving antenna. Both horizontal and vertical polarization of the antenna are set on measurement.

The bandwidth setting on the test receiver is 120 KHz.
The EUT is tested in Semi-Anechoic Chamber. The frequency range from 30MHz to 1000 MHz is checked.All the test results are listed in Section 6.7. and all the scanning waveform are attached within **Appendix I**.

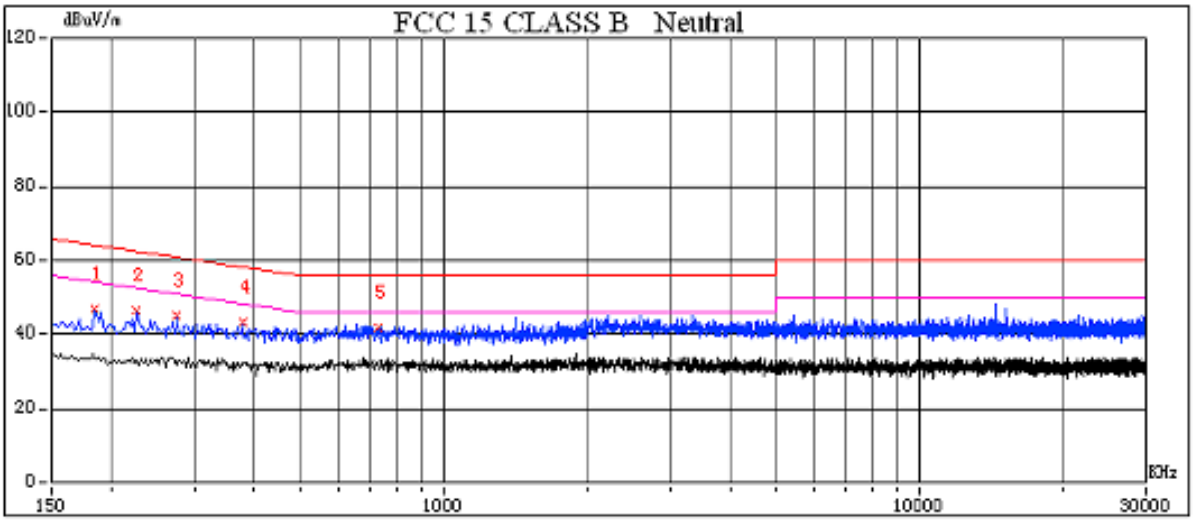
6.7.Test Result

PASS

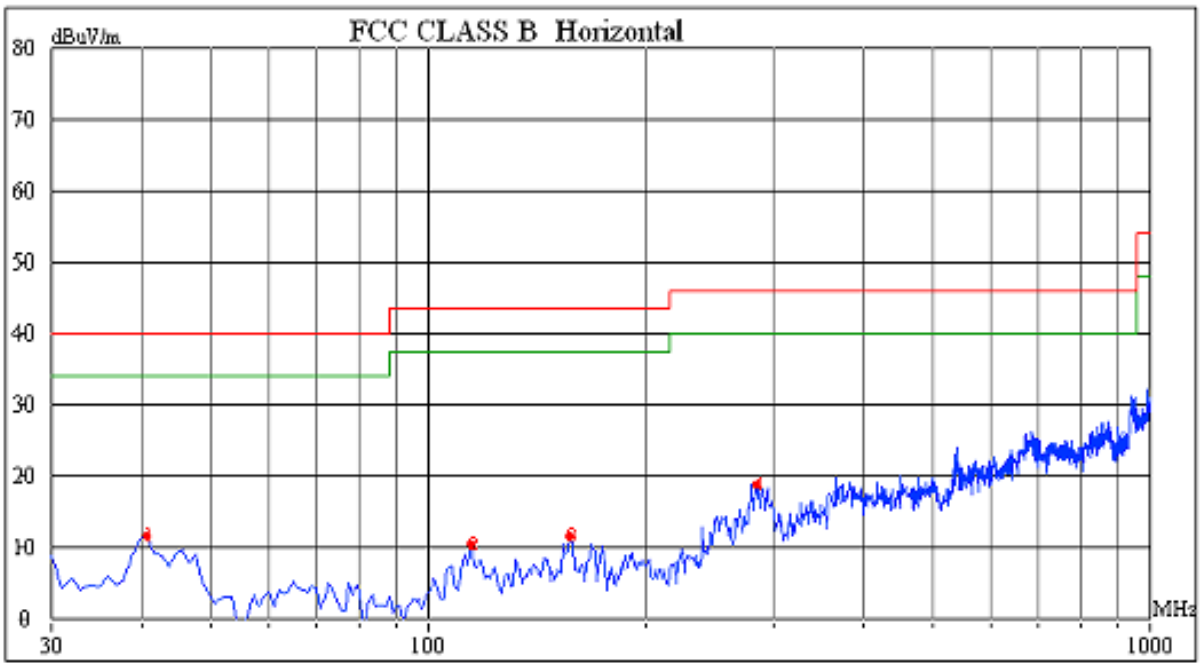
APPENDIX I Test Curves



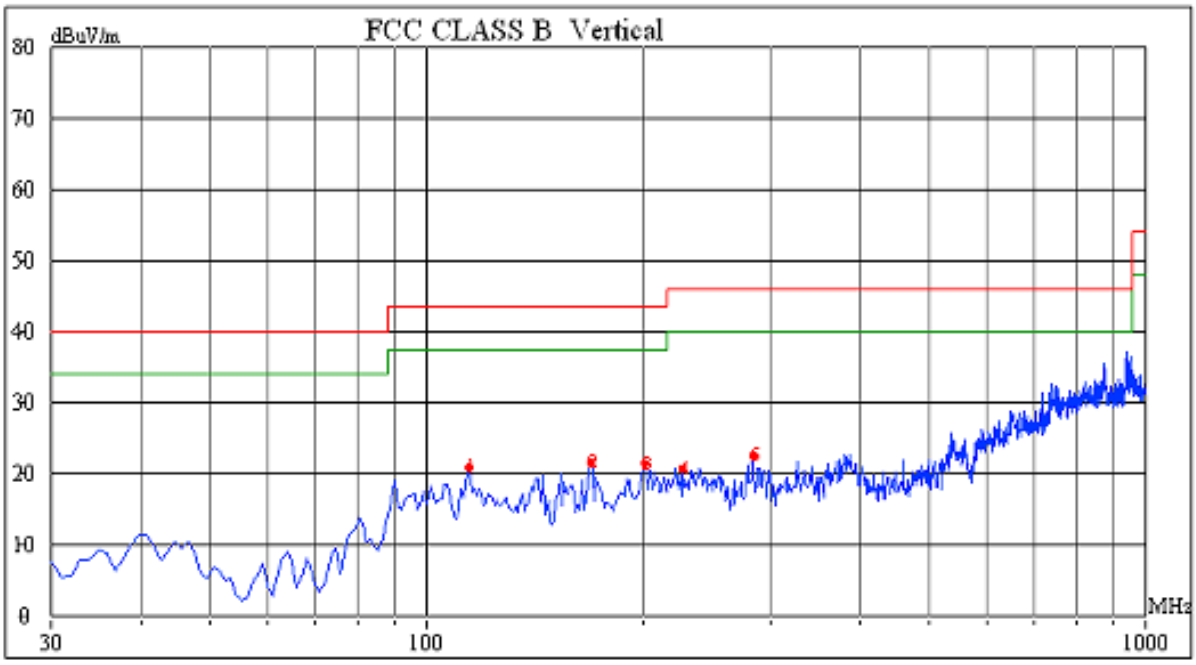
	Freq(KHz)	Peak Ampltd(dBuV)	QP Ampltd(dBuV)	Avg Ampltd(dBuV)	QP Limit(dBuV)	Avg Limit(dBuV)	QP Margin(dB)	Avg Margin(dB)	Factor(dB)
1	207.3500	44.32	---	---	64.36	54.36	-20.04	-10.04	11.55
2	233.2500	44.54	---	---	63.62	53.62	-19.08	-9.08	11.59
3	264.7000	43.49	---	---	62.72	52.72	-19.24	-9.24	11.59
4	288.7500	43.65	---	---	62.04	52.04	-18.38	-8.38	11.53



	Freq(MHz)	Peak Ampltd(dBuV)	QP Ampltd(dBuV)	Avg Ampltd(dBuV)	QP Limit(dBuV)	Avg Limit(dBuV)	QP Margin(dB)	Avg Margin(dB)	Factor(dB)
1	185.1500	46.81	---	---	65.00	55.00	-18.19	-8.19	11.68
2	225.8500	46.61	---	---	63.83	53.83	-17.22	-7.22	11.74
3	275.8000	45.13	---	---	62.41	52.41	-17.27	-7.27	12.18
4	379.4000	43.25	---	---	59.45	49.45	-16.20	-6.20	11.87
5	729.0500	42.17	---	---	56.00	46.00	-13.83	-3.83	12.42



	Freq(MHz)	Level(dBuV/m)	Margin(dB)	Limit(dBuV/m)	Reading(dBuV)	Factor(dB)	Remark
1	40.6700	11.69	-28.31	40.00	1.55	10.14	
2	114.3900	10.57	-32.93	43.50	-0.05	10.62	
3	157.0700	11.59	-31.91	43.50	0.72	10.87	
4	284.1400	18.77	-27.23	46.00	-0.37	19.14	



	Freq(MHz)	Level(dBuV/m)	Margin(dB)	Limit(dBuV/m)	Reading(dBuV)	Factor(dB)	Remark
1	114.3900	20.94	-22.56	43.50	0.01	20.93	
2	168.7100	21.64	-21.86	43.50	1.08	20.56	
3	200.7200	21.42	-22.08	43.50	-2.48	23.90	
4	226.9100	20.77	-25.23	46.00	-1.36	22.13	
5	284.1400	22.72	-23.28	46.00	1.00	21.72	

APPENDIX II
(Photos of the EUT)

Photo 1 General Appearance of the EUT

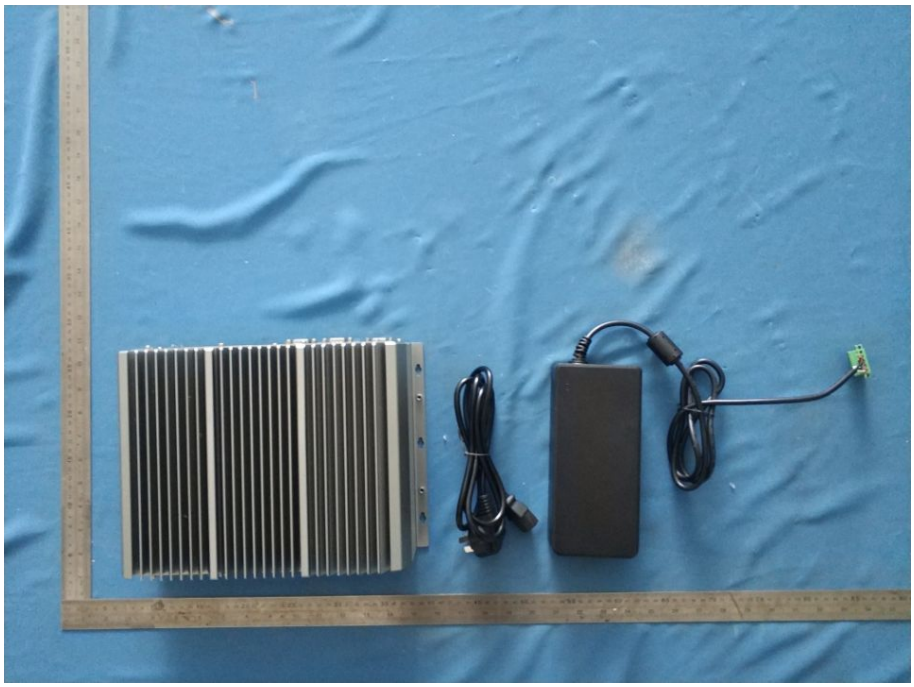


Photo 2 General Appearance of the EUT

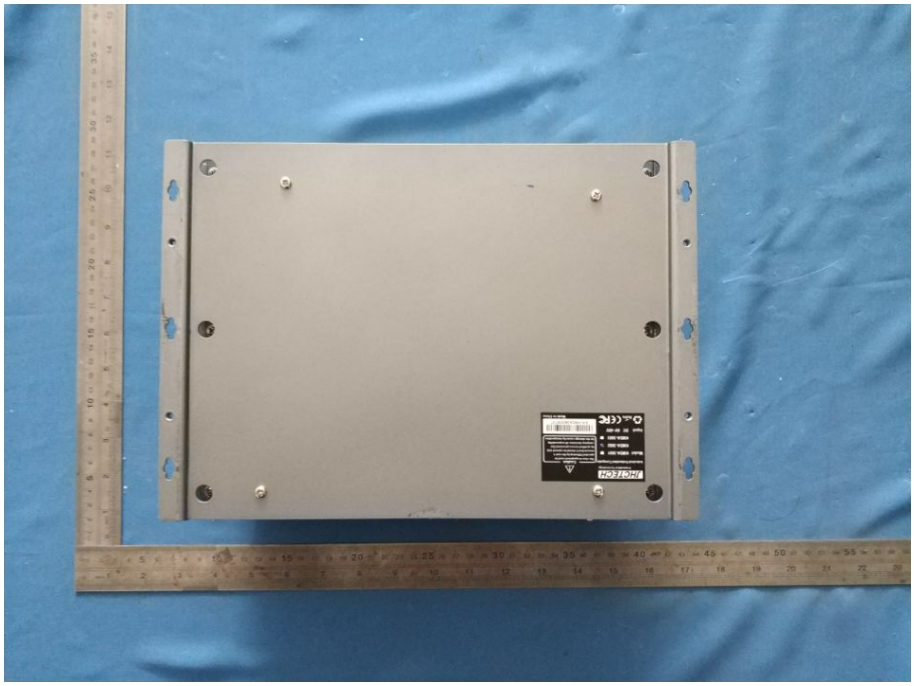


Photo 3 General Appearance of the EUT

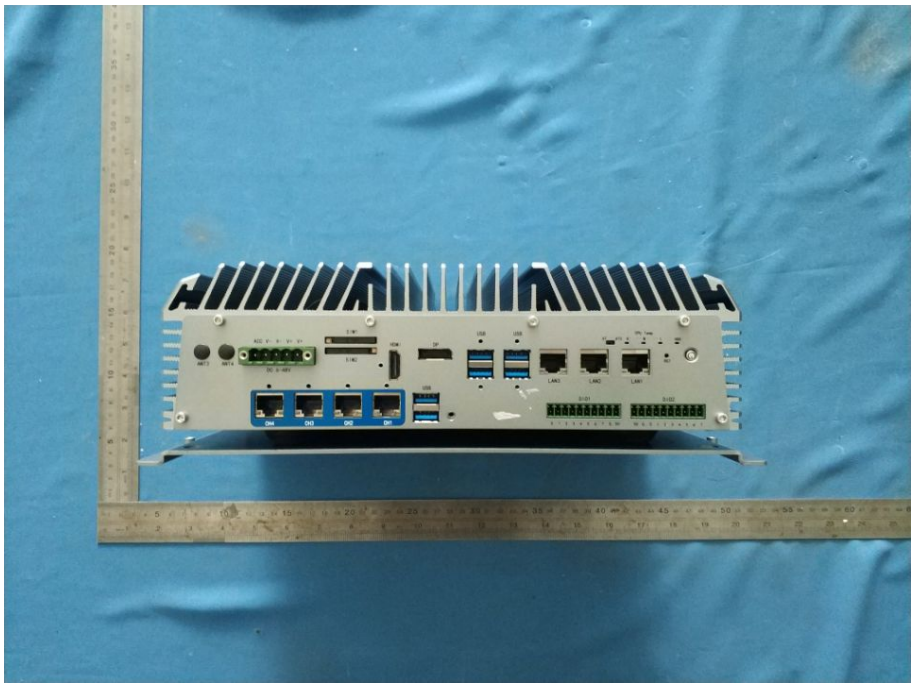


Photo 4 General Appearance of the EUT

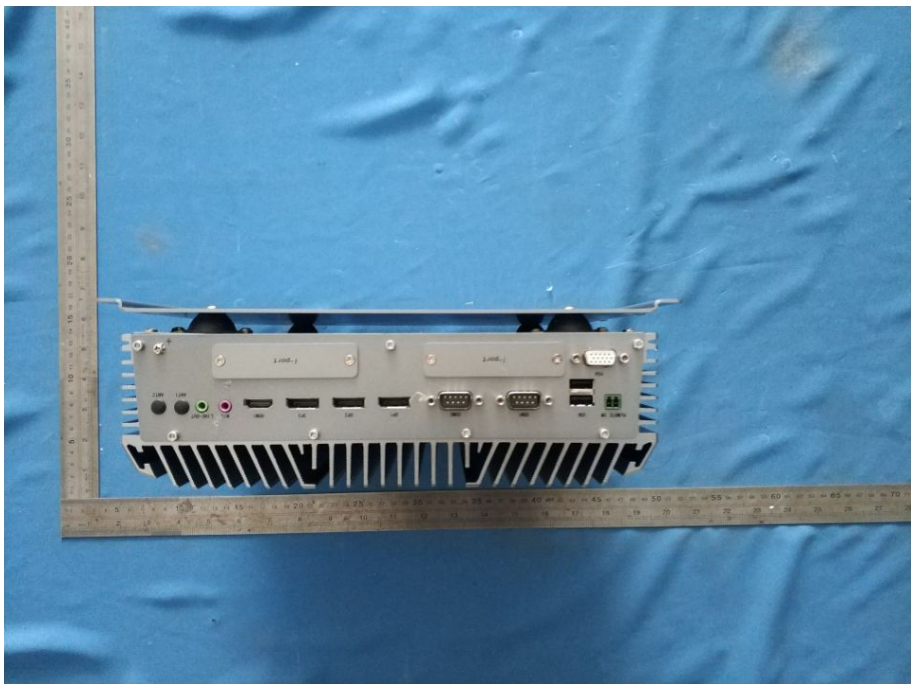


Photo 5 Test scene

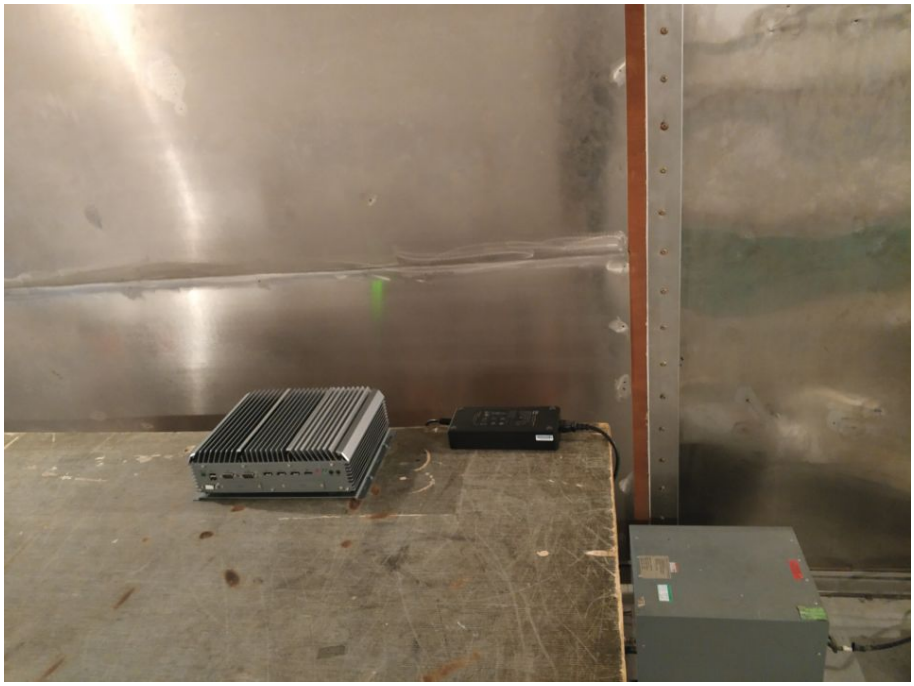


Photo 6 Test scene