

# CE/EMC COMPLIANCE REPORT

For

CHIPSEE CO., LIMITED.

Embedded Industrial Computer

Prepared for : CHIPSEE CO., LIMITED.

Address : Xinyuan Science Park B406, 97 Changping Road, Changping  
District, Beijing, 102206, China

Prepared by : EST Technology Co., Ltd.

Address : Chilingxiang, Qishantou, Santun, Houjie, Dongguan,  
Guangdong, China

Tel: 86-769-83081888

Fax: 86-769-83081878



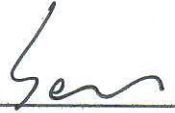

Report Number : ESTE-E2102010

Date of Report : Feb. 04, 2021

## TABLE OF CONTENTS

Test Report Declaration	Page
<b>1. GENERAL PRODUCT INFORMATION.....</b>	<b>4</b>
1.1. Product Function .....	4
1.2. Description of Device (EUT) .....	4
1.3. Difference between Model Numbers .....	4
1.4. Independent Operation Modes .....	4
1.5. Test Supporting System .....	4
<b>2. TEST SITES.....</b>	<b>5</b>
2.1. Description of Standards and Results.....	5
2.2. Test Facilities .....	6
2.3. List of Test and Measurement Instruments .....	7
<b>3. TEST SET-UP AND OPERATION MODES .....</b>	<b>8</b>
3.1. Principle of Configuration Selection.....	8
3.2. Block Diagram of Test Set-up.....	8
3.3. Test Operation Mode and Test Software.....	8
3.4. Special Accessories and Auxiliary Equipment .....	8
3.5. Countermeasures to Achieve EMC Compliance.....	9
<b>4. EMISSION TEST RESULTS.....</b>	<b>10</b>
4.1. Asymmetric Mode Conducted Emissions Test .....	10
4.2. Radiated Emission Test.....	13
4.3. Radiated Emission Test (above 1GHz) .....	26
<b>5. IMMUNITY TEST RESULT .....</b>	<b>39</b>
5.1. Description of Performance Criteria: .....	39
5.2. Electrostatic Discharge Immunity Test .....	40
5.3. Radio Frequency Electromagnetic Field Immunity(R/S) Test.....	42
5.4. Power Frequency Magnetic Field Immunity Test.....	45
<b>6. PHOTOGRAPHS OF TEST SET-UP .....</b>	<b>46</b>
6.1. Set-up for Radiated Emission Test.....	46
6.2. Set-up for Radiated Emission Test(above 1GHz) .....	47
6.3. Set-up for Electrostatic Discharge Immunity Test .....	48
6.4. Set-up for Radio Frequency Electromagnetic Field Immunity(R/S) Test.....	48
6.5. Set-up for Power Frequency Magnetic Field Immunity Test.....	49
<b>7. PHOTOGRAPHS OF THE EUT.....</b>	<b>50</b>

## EST Technology Co., Ltd.

<b>Applicant:</b>	CHIPSEE CO., LIMITED.		
<b>Address:</b>	Xinyuan Science Park B406,97 Changping Road, Changping District, Beijing, 102206, China		
<b>Manufacturer:</b>	CHIPSEE CO., LIMITED.		
<b>Address:</b>	Xinyuan Science Park B406,97 Changping Road, Changping District, Beijing, 102206, China		
<b>Factory:</b>	CHIPSEE CO., LIMITED.		
<b>Address:</b>	Xinyuan Science Park B406,97 Changping Road, Changping District, Beijing, 102206, China		
<b>E.U.T:</b>	Embedded Industrial Computer		
<b>Model Number:</b>	CS10600RA4070E, CS10600RA4070P		
<b>Trade Name:</b>	Chipsee	<b>Serial No:</b>	-----
<b>Date of Receipt:</b>	Jan. 22, 2021	<b>Date of Test:</b>	Jan. 26~Feb. 02, 2021
<b>Test Specification:</b>	EN 55032:2015+A11:2020 EN 55035:2017		
<b>Test Result:</b>	The equipment under test was found to be compliance with the requirements of the standards applied.		
	<b>Issue Date: Feb. 04, 2021</b>		
<b>Prepared by:</b>	<b>Reviewed by:</b>		
 _____ Lena / Assistant	 _____ Sean / Engineer	 _____ Iceman Hu / Manager	
<b>Other Aspects:</b>	None.		
<b>Abbreviations:</b> OK/P=passed    fail/F=failed    n.a/N=not applicable    E.U.T=equipment under tested			
<i>This test report is based on a single evaluation of one sample of above mentioned products, It is not permitted to be duplicated in extracts without written approval of EST Technology Co., Ltd. The statement of compliance in this report is based on the limit in the test standard, the measurement uncertainty is not considered.</i>			

# 1. GENERAL PRODUCT INFORMATION

## 1.1. Product Function

Refer to Technical Construction Form and User Manual.

## 1.2. Description of Device (EUT)

Description	: Embedded Industrial Computer
Model No.	: CS10600RA4070E, CS10600RA4070P
System Input Voltage	: DC 9-36V
Power	: 8.4 W
LAN Line	: Unshielded, Detachable 0.8m
AC Line	: Unshielded, Detachable 1.5m
DC Line	: Unshielded, Detachable 1.0m

## 1.3. Difference between Model Numbers

**Note:** E stands for embedded IPC, P stands for flat panel IPC.

## 1.4. Independent Operation Modes

The basic operation modes are:

1.4.1. LAN Mode

1.4.2. USB Play

1.4.3. TF Play

## 1.5. Test Supporting System

## 2. TEST SITES

### 2.1. Description of Standards and Results

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

EMISSION(EN 55032:2015+A11:2020)				
Description of Test Item	Standard	Limits		Results
Conducted emissions (AC mains power ports)	EN 55032:2015+A11:2020	----		N/A
		Minimum passing margin is **dB at **MHz		
Asymmetric mode conducted emissions	EN 55032:2015+A11:2020	Class A		PASS
		Minimum passing margin is 16.03dB at 0.39MHz		
Conducted differential voltage emissions	EN 55032:2015+A11:2020	----		N/A
		More than ** dB below the limit line.		
Radiated Emission	EN 55032:2015+A11:2020	Class A		PASS
		Minimum passing margin is 14.81dB at 156.10MHz		
Radiated Emission Test (above 1GHz)	EN 55032:2015+A11:2020	Class A		PASS
		Minimum passing margin is 13.23dB at 2080.00MHz		
Harmonic current emissions	EN IEC 61000-3-2:2019	---		N/A
Voltage fluctuations & flicker	EN 61000-3-3:2013+A1:2019	---		N/A
IMMUNITY (EN 55035:2017)				
Description of Test Item	Basic Standard	Performanc e Criteria	Observation Criteria	Results
Electrostatic discharge (ESD)	EN 61000-4-2:2009	B	B	PASS
Radio-frequency,Continuous radiated disturbance	EN 61000-4-3:2006+A1: 2008+A2:2010	A	A	PASS
Electrical fast transient (EFT)	EN 61000-4-4:2012	B	**	N/A
Surge (Input a.c. power port)	EN 61000-4-5:2014	B	**	N/A
Radio-frequency, Continuous conducted disturbance	EN 61000-4-6:2014	A	**	N/A
Power frequency magnetic field	EN 61000-4-8:2010	A	A	PASS
Voltage dips, >95% reduction	EN 61000-4-11:2004	B	**	N/A
Voltage dips, 30% reduction		C	**	N/A
Voltage interruptions		C	**	N/A
N/A is an abbreviation for Not Applicable.				

## 2.2. Test Facilities

EMC Lab : Certificated by CNAS, CHINA  
Registration No.: L5288  
This Certificate is valid until: November 12, 2023

Certificated by FCC, USA  
Designation Number: CN1215  
This Certificate is valid until: January 31, 2022

Certificated by A2LA, USA  
Registration No.: 4366.01  
This Certificate is valid until: January 31, 2022

Certificated by Industry Canada  
CAB identifier No.: CN0035  
This Certificate is valid until: January 31, 2022

Certificated by VCCI, Japan  
Registration No.: C-14103; T-20073; R-13663;  
R-20103; G-20097  
Date of registration: Apr. 20, 2020  
This Certificate is valid until: Apr. 19, 2023

Certificated by TUV Rheinland, Germany  
Registration No.: UA 50413872 0001  
Date of registration: July 31, 2018

Certificated by Intertek  
Registration No.: 2011-RTL-L2-64  
Date of registration: November 08, 2018

Name of Firm : EST Technology Co., Ltd.

Site Location : Chilingxiang, Qishantou, Santun, Houjie, Dongguan,  
Guangdong, China

## 2.3.List of Test and Measurement Instruments

### 2.3.1. For asymmetric mode conducted emissions test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESPR3	EST-E070	June 13,20	1 Year
ISN	Teseq	T8	EST-E041	June 13,20	1 Year
Current Transformer	SCHWARZBECK	SW9605	EST-E045	June 13,20	1 Year
Voltage Probe	SCHWARZBECK	TK9420	EST-E046	June 13,20	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A

### 2.3.2. For radiated emission test (2# 966 radiation)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESCI3	EST-E071	June 13,20	1 Year
Bilog Antenna	Teseq	CBL 6111D	EST-E053	June 13,20	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A

### 2.3.3. For radiated emission test (above 1GHz )

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	EST-E047	June 13,20	1 Year
Horn Antenna	SCHWARZBECK	BBHA 9120 D	EST-E031	June 13,20	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A

### 2.3.4. For electrostatic discharge immunity test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
ESD Generator	HAEFELY	ONYX16	EST-E013	June 13,20	1 Year

### 2.3.5. Radio Frequency Electromagnetic Field Immunity (R/S) Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Signal Generator	Agilent	N5181A	EST-E060	June 13,20	1 Year
Power Amplifier	SKET	HAP801000M-250W	EST-E061	N/A	N/A
Power Amplifier	SKET	HAP0103G-75W	EST-E062	N/A	N/A
Power Amplifier	SKET	HAP0306G-50W	EST-E063	N/A	N/A
Power Meter	Agilent	E4419B	EST-E064	June 13,20	1 Year
Power sensor	Agilent	E9301A	EST-E065	June 13,20	1 Year
Power sensor	HP	E9301A	EST-E066	June 13,20	1 Year
Antenna	Schwarzbeck	STLP 9129	EST-E059	N/A	N/A
E-Field Probe	Narda	EP-601	EST-E067	June 13,20	1 Year
Audio Analyzer	Rohde &Schwarz	UPV	EST-E024	June 13,20	1 Year
Test Software	SKET	EMC-S	V1.2.0.48	N/A	N/A

### 2.3.6.For power frequency magnetic field immunity test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Magnetic Field Tester	HAEFELY	MFS 100	EST-E018	June 13,20	1 Year

Note: All calibration reports of the equipment were provided by LiSai calibration and Testing



### 3. TEST SET-UP AND OPERATION MODES

#### 3.1. Principle of Configuration Selection

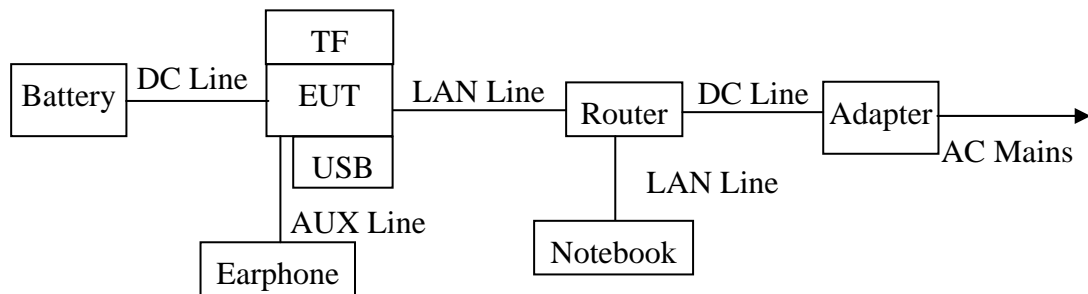
**Emission:** The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the Operating Instructions.

**Immunity:** The equipment under test (EUT) was configured to the representative operating mode and conditions.

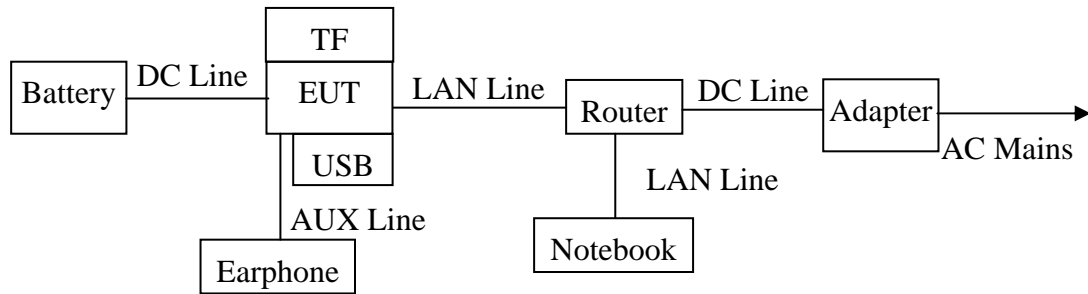
#### 3.2. Block Diagram of Test Set-up

System Diagram of Connections Between EUT and Simulators

##### 3.2.1. For emission test



##### 3.2.2. For immunity test



(EUT: Embedded Industrial Computer)

#### 3.3. Test Operation Mode and Test Software

Refer to Test Setup in clause 4 & 5.

#### 3.4. Special Accessories and Auxiliary Equipment

##### 3.4.1. Router

M / N	:	RT-AC66U
S / N	:	G1ICGG000260
Manufacturer	:	ASUS
Ethernet Line	:	Shielded, Detachable 1.5m



#### 3.4.2.Notebook

M / N : Lutitude 3379  
S / N : 73CMNA00DPC  
Manufacturer : DELL

#### 3.4.3.SD Card

M / N : SDSQUNC-032G-ZN6MA  
Manufacturer : SanDisk

#### 3.4.4.Earphone

M / N : KDM-430  
Manufacturer : KEENION  
Data Cable : Unshielded, Undetachable, 1.6m

### 3.5. Countermeasures to Achieve EMC Compliance

None.

## 4. EMISSION TEST RESULTS

### 4.1. Asymmetric Mode Conducted Emissions Test

**RESULT** : **Pass**  
Test procedure : EN 55032:2015+A11:2020  
Frequency range : 0.15~30MHz  
Test Site : Shielded Room  
Limits : EN 55032:2015+A11:2020 Class A

#### **Test Setup**

Date of test : Jan. 29, 2021  
Model No. : CS10600RA4070E, CS10600RA4070P  
Input Voltage : DC 12V  
Operation Mode : LAN Mode

The frequency range from 150 kHz to 30 MHz was investigated.

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

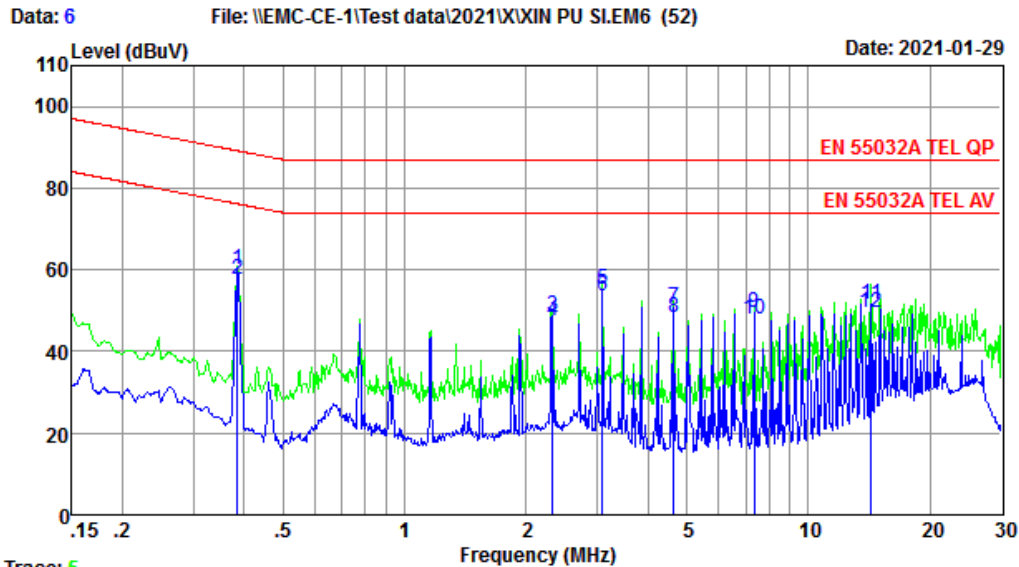
The test data of the worst case condition(s) was reported on the following page.

**Note: Test uncertainty:  $\pm 4.18\text{dB}$  at a level of confidence of 95%.**

## Test Data

EST Technology

Chilingxiang, Qishantou, Santun,  
Houjie, Dongguan, Guangdong, China  
Tel: +86-769-83081888  
Fax: +86-769-83081878



Site no : 844 Shield Room Data no. : 6  
Env. / Ins. : Temp:24.6°C Humi:58% Press:101.50kPa LINE Phase :  
Limit : EN 55032A TEL QP  
Engineer : JACK  
EUT : Embedded Industrial Computer  
Power : DC 12V  
M/N : CS10600RA4070E  
Test Mode : LAN Mode

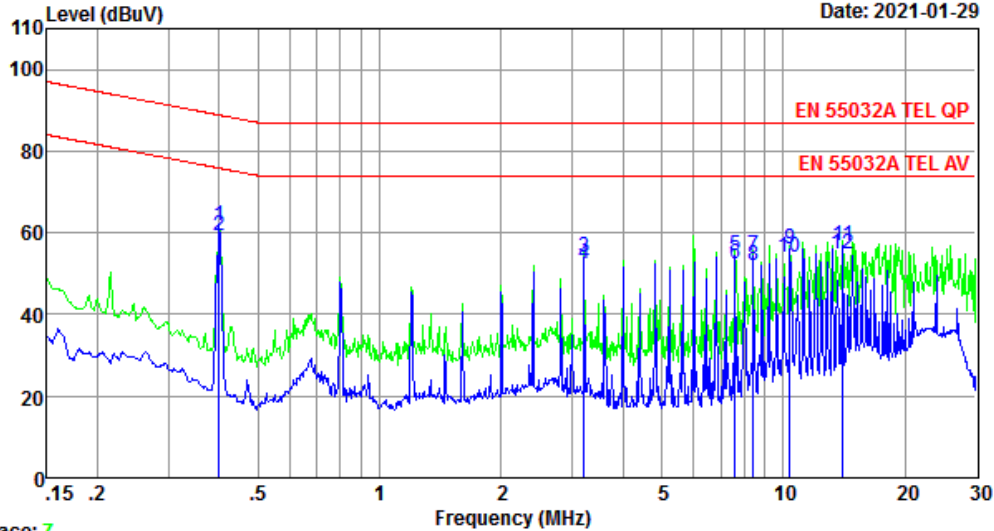
	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.39	10.18	9.92	40.04	60.14	76.17	16.03	Average
2	0.39	10.18	9.92	37.62	57.72	89.17	31.45	QP
3	2.32	9.87	9.96	29.06	48.89	74.00	25.11	Average
4	2.32	9.87	9.96	27.77	47.60	87.00	39.40	QP
5	3.09	9.86	9.98	35.32	55.16	74.00	18.84	Average
6	3.09	9.86	9.98	33.75	53.59	87.00	33.41	QP
7	4.65	9.84	10.00	30.95	50.79	74.00	23.21	Average
8	4.65	9.84	10.00	28.66	48.50	87.00	38.50	QP
9	7.33	9.82	10.03	29.61	49.46	74.00	24.54	Average
10	7.33	9.82	10.03	27.92	47.77	87.00	39.23	QP
11	14.29	9.80	10.12	31.82	51.74	74.00	22.26	Average
12	14.29	9.80	10.12	29.63	49.55	87.00	37.45	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.  
2. Margin= Limit - Emission Level.  
3. If the average limit is met when using a quasi-peak detector,  
the EUT shall be deemed to meet both limits and measurement  
with average detector is unnecessary.

Data: 8

File: \\EMC-CE-1\Test data\2021\X\XIN PU SLEM6 (52)

Date: 2021-01-29



Trace: 7

Site no : 844 Shield Room Data no. : 8  
 Env. / Ins. : Temp:24.6°C Humi:58% Press:101.50kPa LINE Phase :  
 Limit : EN 55032A TEL QP  
 Engineer : JACK  
 EUT : Embedded Industrial Computer  
 Power : DC 12V  
 M/N : CS10600RA4070P  
 Test Mode : LAN Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.40	10.18	9.92	41.56	61.66	75.86	14.20	Average
2	0.40	10.18	9.92	39.18	59.28	88.86	29.58	QP
3	3.21	9.86	9.98	34.02	53.86	74.00	20.14	Average
4	3.21	9.86	9.98	32.69	52.53	87.00	34.47	QP
5	7.61	9.82	10.04	34.48	54.34	74.00	19.66	Average
6	7.61	9.82	10.04	32.67	52.53	87.00	34.47	QP
7	8.41	9.82	10.06	34.64	54.52	74.00	19.48	Average
8	8.41	9.82	10.06	32.16	52.04	87.00	34.96	QP
9	10.40	9.81	10.07	36.28	56.16	74.00	17.84	Average
10	10.40	9.81	10.07	34.27	54.15	87.00	32.85	QP
11	14.06	9.80	10.11	36.88	56.79	74.00	17.21	Average
12	14.06	9.80	10.11	34.92	54.83	87.00	32.17	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.

## 4.2. Radiated Emission Test

**RESULT** : **Pass**  
Test procedure : EN 55032:2015+A11:2020  
Frequency range : 30~1000MHz  
Test Site : 2#966 Chamber  
Limits : EN 55032:2015+A11:2020 Class A

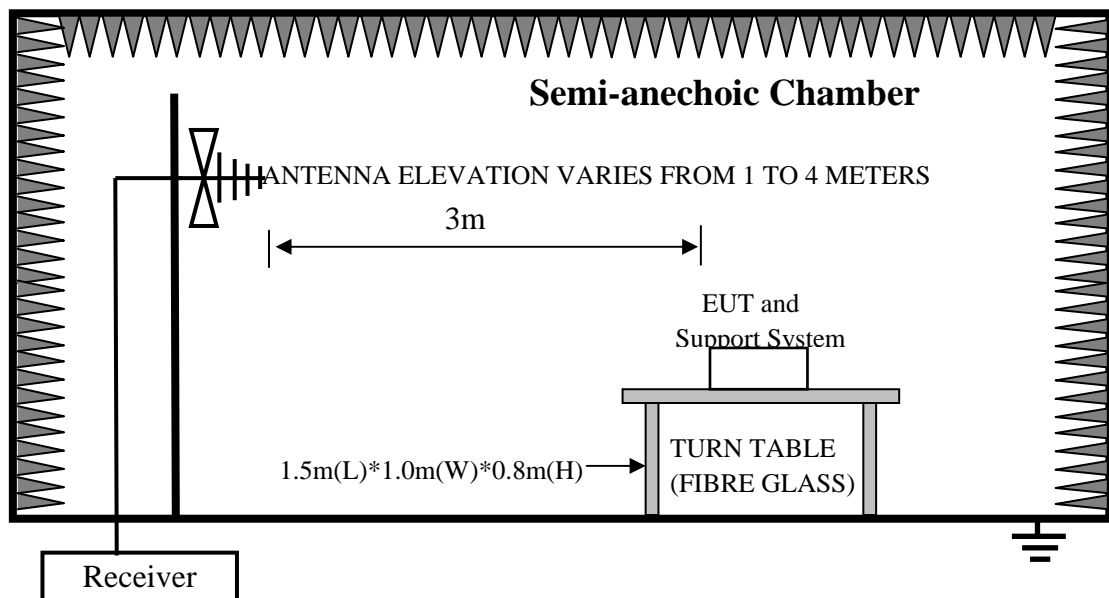
### Test Setup

Date of test : Jan. 26, 2021  
Model No. : CS10600RA4070E, CS10600RA4070P  
Input Voltage : DC 12V  
Operation Mode : LAN Mode, USB Play, TF Play

The EUT was placed on a turn table which was 0.8 m above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 m away from the receiving antenna which was mounted on an antenna tower. The measuring antenna moved up and down to find out the maximum emission level. It moved from 1 m to 4 m for both horizontal and vertical polarizations.

The EUT was tested in the Chamber Site. It was pre-scanned with a Peak detector from the spectrum, and all the final readings from the test receiver were measured with the Quasi-Peak detector.

The bandwidth setting on the test receiver was 120 kHz.



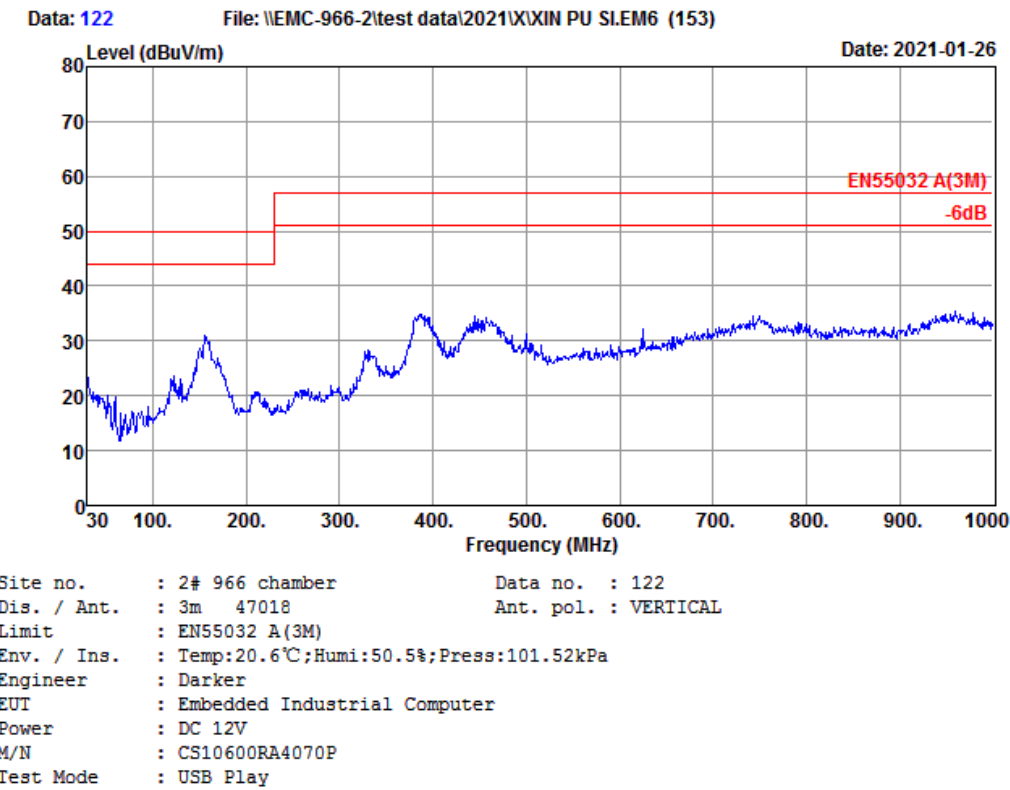
### Note:

Test uncertainty:  $\pm 4.26$  dB (H);  $\pm 4.74$  dB (V) at a level of confidence of 95%.(2#966)

Test Data

EST Technology

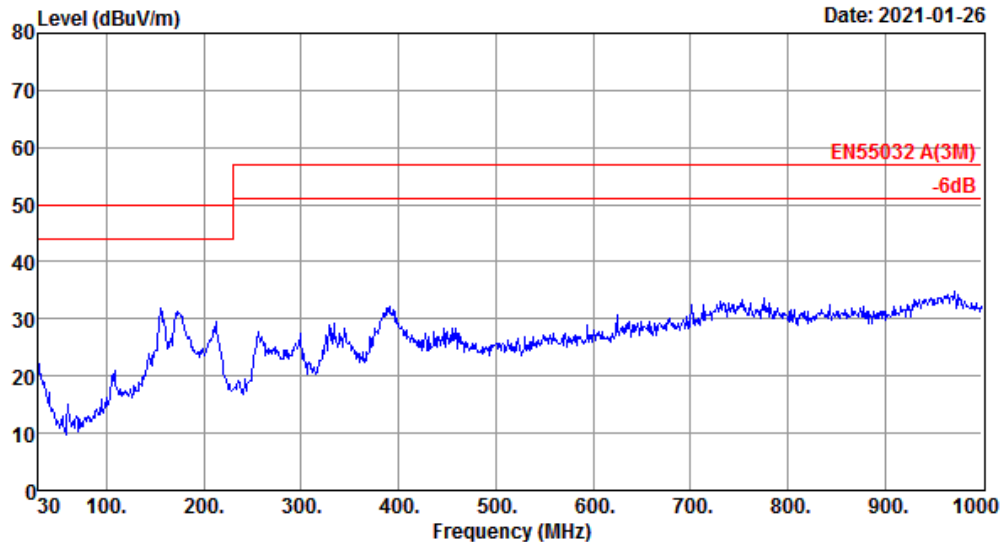
Chilingxiang, Qishantou, Santun,  
Houjie, Dongguan, Guangdong, China  
Tel: +86-769-83081888  
Fax: +86-769-83081878



Data: 123

File: \\EMC-966-2\\test data\\2021\\XIN PU SLEM6 (153)

Date: 2021-01-26



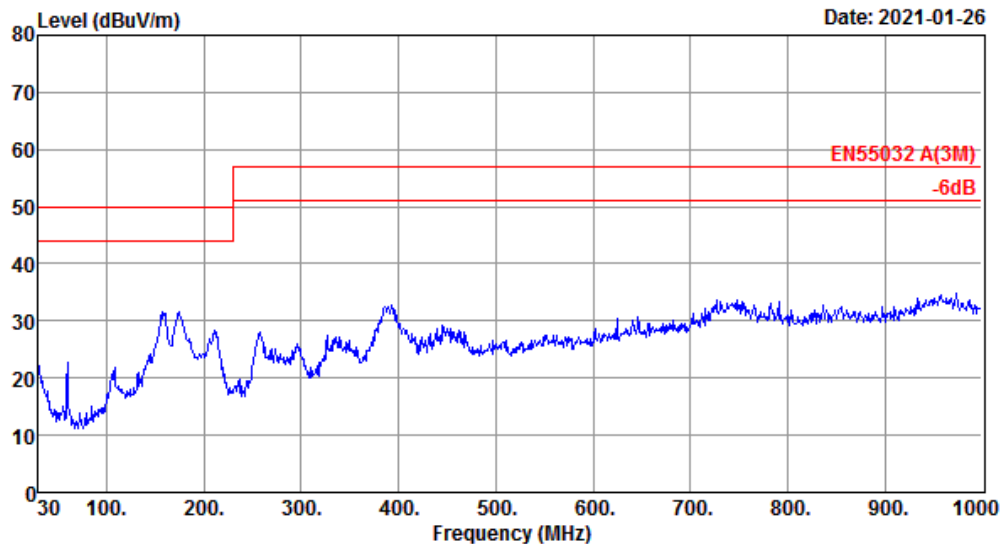
Site no. : 2# 966 chamber                      Data no. : 123  
Dis. / Ant. : 3m 47018                      Ant. pol. : HORIZONTAL  
Limit : EN55032 A(3M)  
Env. / Ins. : Temp:20.6℃;Humi:50.5%;Press:101.52kPa  
Engineer : Darker  
EUT : Embedded Industrial Computer  
Power : DC 12V  
M/N : CS10600RA4070P  
Test Mode : USB Play



Data: 124

File: \\EMC-966-2\\test data\\2021\\XIN PU SLEM6 (153)

Date: 2021-01-26

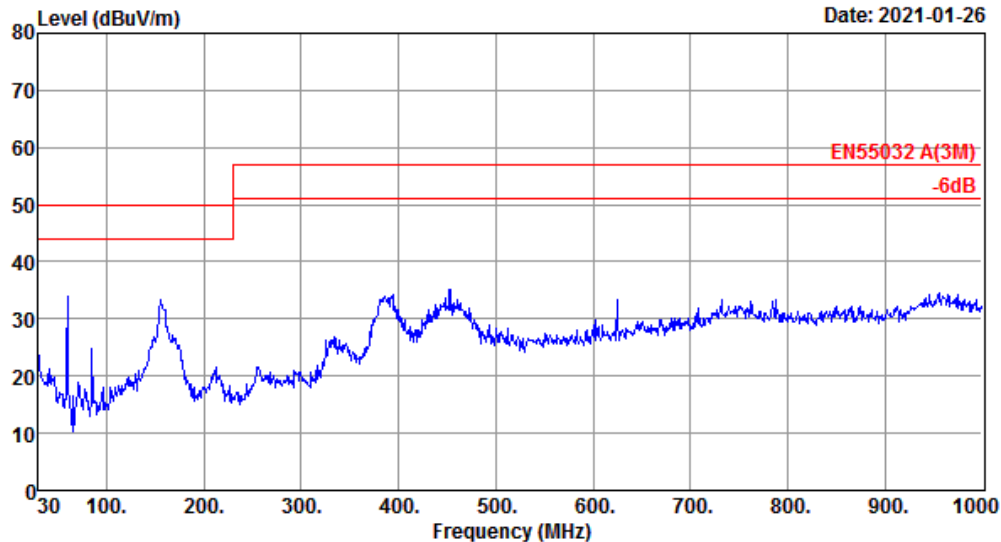


Site no.	: 2# 966 chamber	Data no.	: 124
Dis. / Ant.	: 3m 47018	Ant. pol.	: HORIZONTAL
Limit	: EN55032 A(3M)		
Env. / Ins.	: Temp:20.6℃;Humi:50.5%;Press:101.52kPa		
Engineer	: Darker		
EUT	: Embedded Industrial Computer		
Power	: DC 12V		
M/N	: CS10600RA4070P		
Test Mode	: LAN Mode		

Data: 125

File: \\EMC-966-2\\test data\\2021\\X\\XIN PU SLEM6 (153)

Date: 2021-01-26

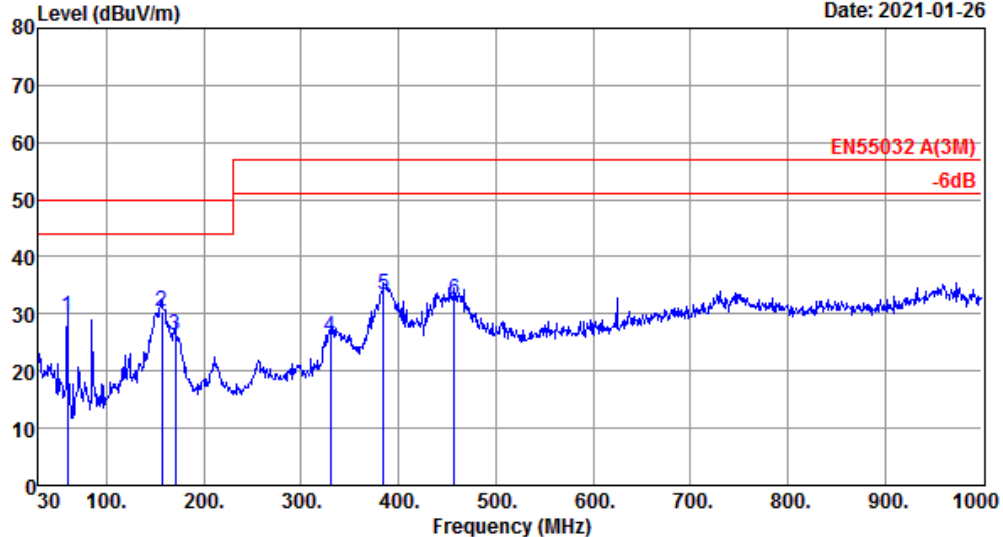


Site no. : 2# 966 chamber Data no. : 125  
Dis. / Ant. : 3m 47018 Ant. pol. : VERTICAL  
Limit : EN55032 A(3M)  
Env. / Ins. : Temp:20.6℃;Humi:50.5%;Press:101.52kPa  
Engineer : Darker  
EUT : Embedded Industrial Computer  
Power : DC 12V  
M/N : CS10600RA4070P  
Test Mode : LAN Mode

Data: 126

File: \\EMC-966-2\\test data\\2021\\XIN PU SLEM6 (153)

Date: 2021-01-26



Site no. : 2# 966 chamber Data no. : 126  
 Dis. / Ant. : 3m 47018 Ant. pol. : VERTICAL  
 Limit : EN55032 A(3M)  
 Env. / Ins. : Temp:20.6°C;Humi:50.5%;Press:101.52kPa  
 Engineer : Darker  
 EUT : Embedded Industrial Computer  
 Power : DC 12V  
 M/N : CS10600RA4070P  
 Test Mode : TF Paly

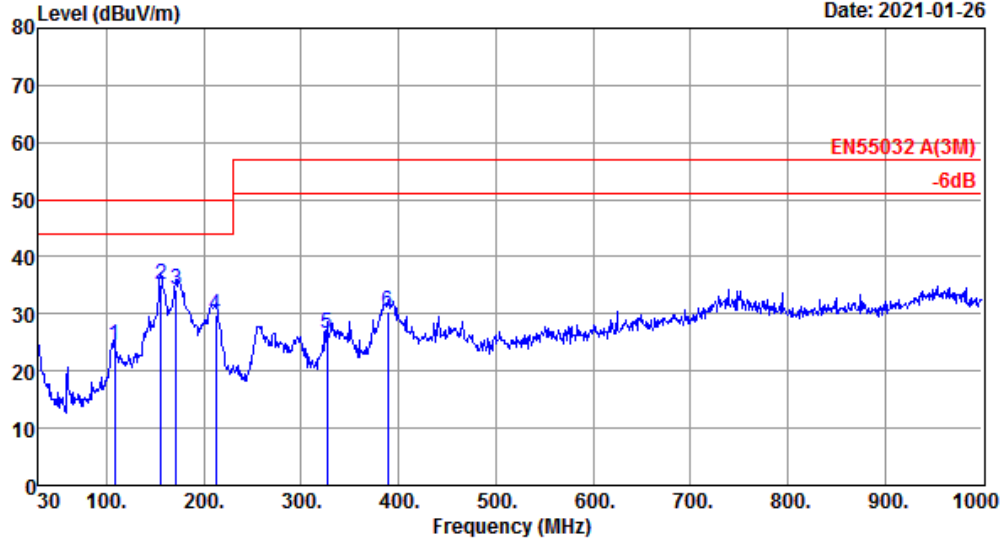
	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	60.07	4.70	0.38	24.59	29.67	50.00	20.33	QP
2	157.07	10.35	1.03	19.11	30.49	50.00	19.51	QP
3	170.65	9.05	1.05	16.17	26.27	50.00	23.73	QP
4	329.73	14.06	1.70	10.14	25.90	57.00	31.10	QP
5	385.02	15.32	1.84	16.25	33.41	57.00	23.59	QP
6	457.77	17.08	2.22	13.29	32.59	57.00	24.41	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

Data: 127

File: \\EMC-966-2\\test data\\2021\\XIN PU SLEM6 (153)

Date: 2021-01-26



Site no. : 2# 966 chamber Data no. : 127  
 Dis. / Ant. : 3m 47018 Ant. pol. : HORIZONTAL  
 Limit : EN55032 A(3M)  
 Env. / Ins. : Temp:20.6°C;Humi:50.5%;Press:101.52kPa  
 Engineer : Darker  
 EUT : Embedded Industrial Computer  
 Power : DC 12V  
 M/N : CS10600RA4070P  
 Test Mode : TF Paly

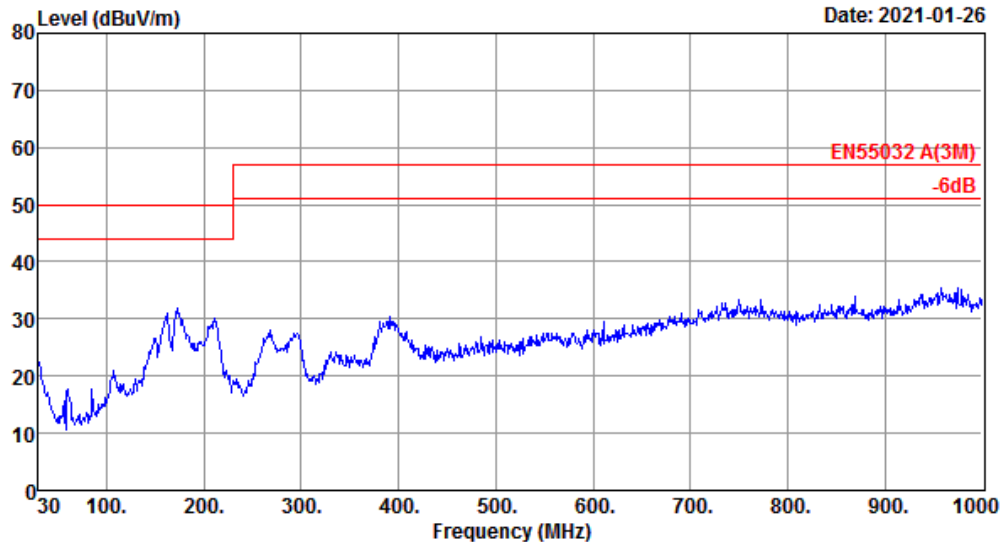
	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	108.57	10.81	0.84	12.91	24.56	50.00	25.44	QP
2	156.10	10.43	1.04	23.72	35.19	50.00	14.81	QP
3	171.62	9.02	1.06	24.05	34.13	50.00	15.87	QP
4	212.36	8.54	1.18	20.05	29.77	50.00	20.23	QP
5	326.82	13.95	1.69	10.94	26.58	57.00	30.42	QP
6	388.90	15.56	1.83	12.98	30.37	57.00	26.63	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

Data: 128

File: \\EMC-966-2\\test data\\2021\\X\\XIN PU SLEM6 (153)

Date: 2021-01-26

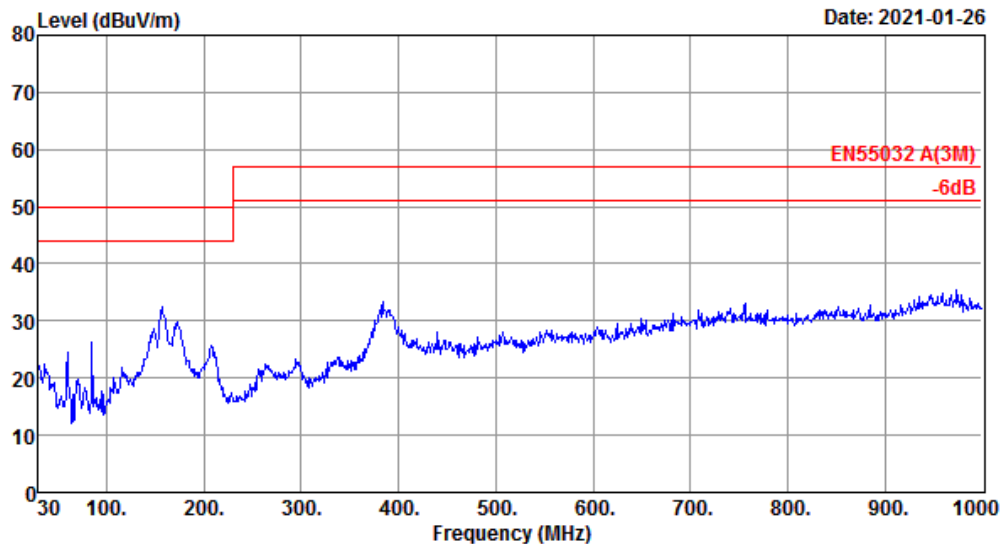


Site no.	: 2# 966 chamber	Data no.	: 128
Dis. / Ant.	: 3m 47018	Ant. pol.	: HORIZONTAL
Limit	: EN55032 A(3M)		
Env. / Ins.	: Temp:20.6℃;Humi:50.5%;Press:101.52kPa		
Engineer	: Darker		
EUT	: Embedded Industrial Computer		
Power	: DC 12V		
M/N	: CS10600RA4070E		
Test Mode	: TF Paly		

Data: 129

File: \\EMC-966-2\\test data\\2021\\X\\XIN PU SLEM6 (153)

Date: 2021-01-26

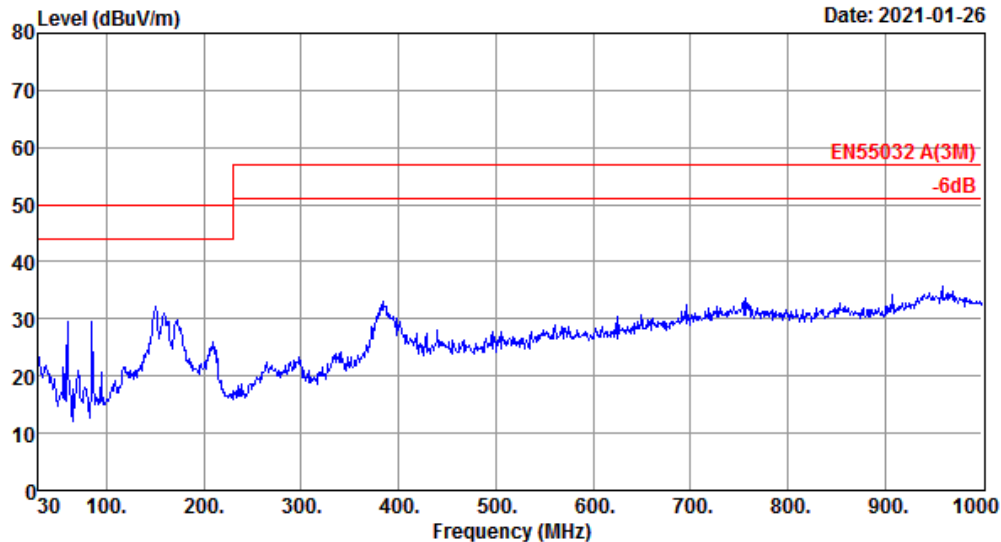


Site no.	: 2# 966 chamber	Data no.	: 129
Dis. / Ant.	: 3m 47018	Ant. pol.	: VERTICAL
Limit	: EN55032 A(3M)		
Env. / Ins.	: Temp:20.6℃;Humi:50.5%;Press:101.52kPa		
Engineer	: Darker		
EUT	: Embedded Industrial Computer		
Power	: DC 12V		
M/N	: CS10600RA4070E		
Test Mode	: TF Paly		

Data: 130

File: \\EMC-966-2\\test data\\2021\\X\\XIN PU SLEM6 (153)

Date: 2021-01-26



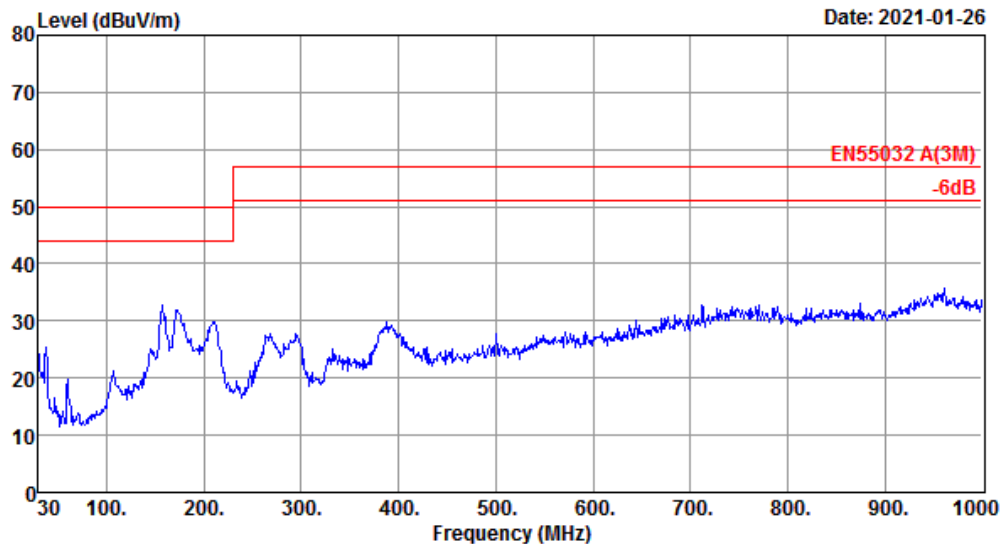
Site no. : 2# 966 chamber Data no. : 130  
Dis. / Ant. : 3m 47018 Ant. pol. : VERTICAL  
Limit : EN55032 A(3M)  
Env. / Ins. : Temp:20.6℃;Humi:50.5%;Press:101.52kPa  
Engineer : Darker  
EUT : Embedded Industrial Computer  
Power : DC 12V  
M/N : CS10600RA4070E  
Test Mode : LAN Mode



Data: 131

File: \\EMC-966-2\\test data\\2021\\XIN PU SLEM6 (153)

Date: 2021-01-26

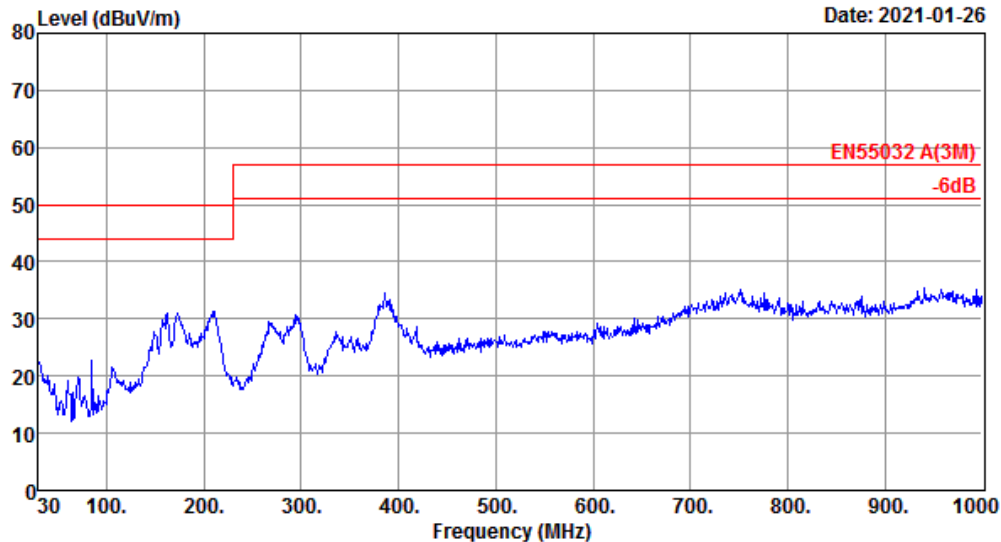


Site no.	: 2# 966 chamber	Data no.	: 131
Dis. / Ant.	: 3m 47018	Ant. pol.	: HORIZONTAL
Limit	: EN55032 A(3M)		
Env. / Ins.	: Temp:20.6℃;Humi:50.5%;Press:101.52kPa		
Engineer	: Darker		
EUT	: Embedded Industrial Computer		
Power	: DC 12V		
M/N	: CS10600RA4070E		
Test Mode	: LAN Mode		

Data: 132

File: \\EMC-966-2\\test data\\2021\\XIN PU SLEM6 (153)

Date: 2021-01-26

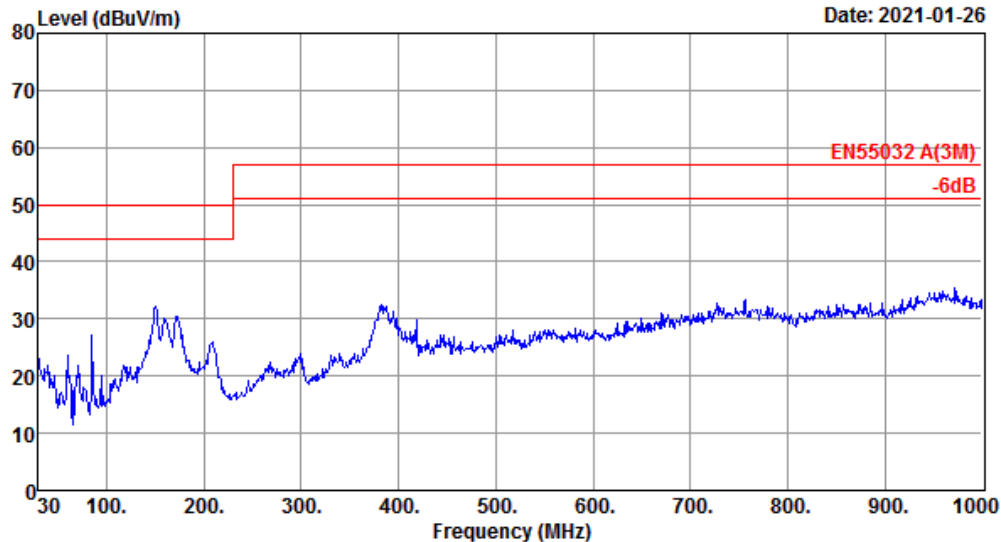


Site no. : 2# 966 chamber                      Data no. : 132  
Dis. / Ant. : 3m 47018                      Ant. pol. : HORIZONTAL  
Limit : EN55032 A(3M)  
Env. / Ins. : Temp:20.6℃;Humi:50.5%;Press:101.52kPa  
Engineer : Darker  
EUT : Embedded Industrial Computer  
Power : DC 12V  
M/N : CS10600RA4070E  
Test Mode : TF Play

Data: 133

File: \\EMC-966-2\\test data\\2021\\XIN PU SLEM6 (153)

Date: 2021-01-26



Site no. : 2# 966 chamber Data no. : 133  
Dis. / Ant. : 3m 47018 Ant. pol. : VERTICAL  
Limit : EN55032 A(3M)  
Env. / Ins. : Temp:20.6℃;Humi:50.5%;Press:101.52kPa  
Engineer : Darker  
EUT : Embedded Industrial Computer  
Power : DC 12V  
M/N : CS10600RA4070E  
Test Mode : TF Play

#### 4.3. Radiated Emission Test (above 1GHz)

**RESULT** : **Pass**  
Test procedure : EN 55032:2015+A11:2020  
Frequency range : 1GHz-6GHz  
Test Site : 966 Chamber  
Limits : EN 55032:2015+A11:2020 Class A

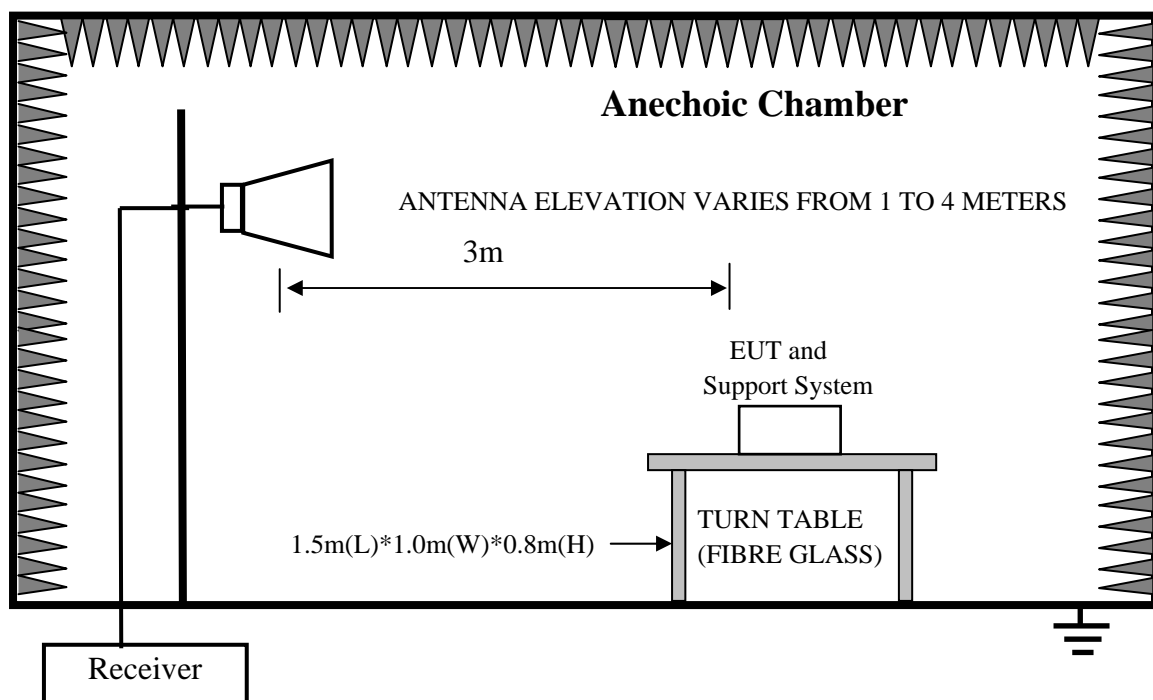
##### Test Setup

Date of test : Jan. 27, 2021  
Model No. : CS10600RA4070E, CS10600RA4070P  
Input Voltage : DC 12V  
Operation Mode : LAN Mode, USB Play, TF Play

The EUT was placed on a turn table which was 0.8 m above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 m away from the receiving antenna which was mounted on an antenna tower. The measuring antenna moved up and down to find out the maximum emission level. It moved from 1 m to 4 m for both horizontal and vertical polarizations.

The EUT was tested in the Chamber Site. It was pre-scanned with a Peak detector and Average detector from the spectrum, and all the final readings from the test receiver were measured with the Peak detector and Average detector.

The bandwidth setting on the test receiver was 1MHz(above 1GHz).

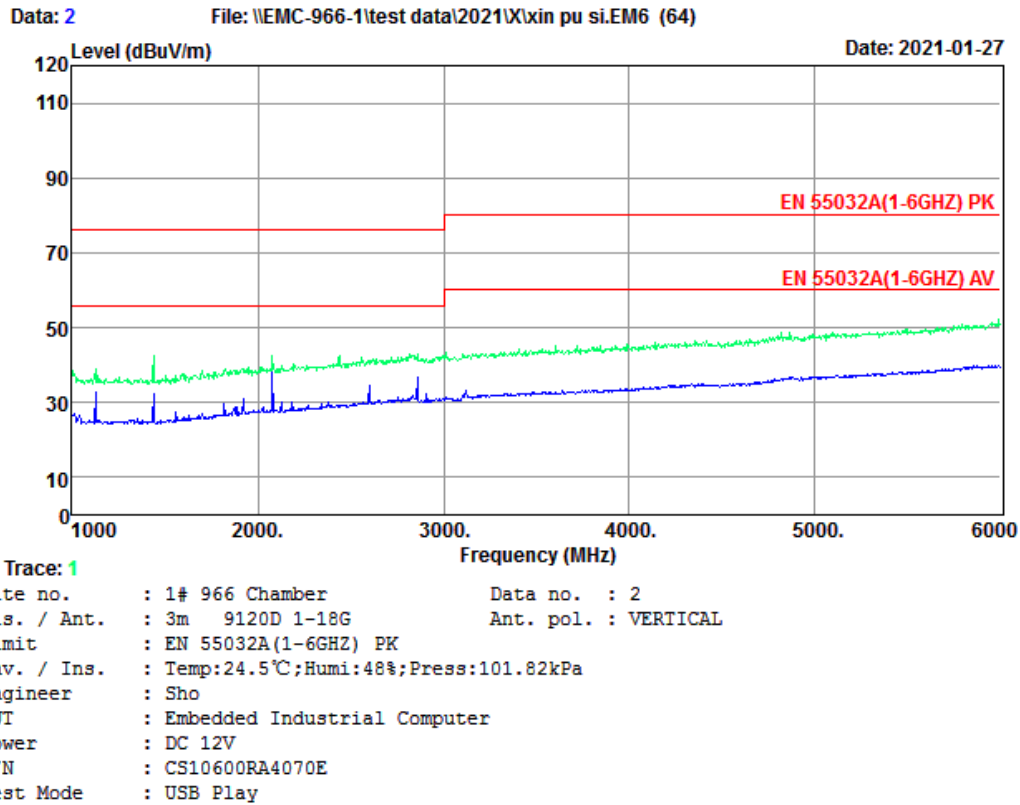


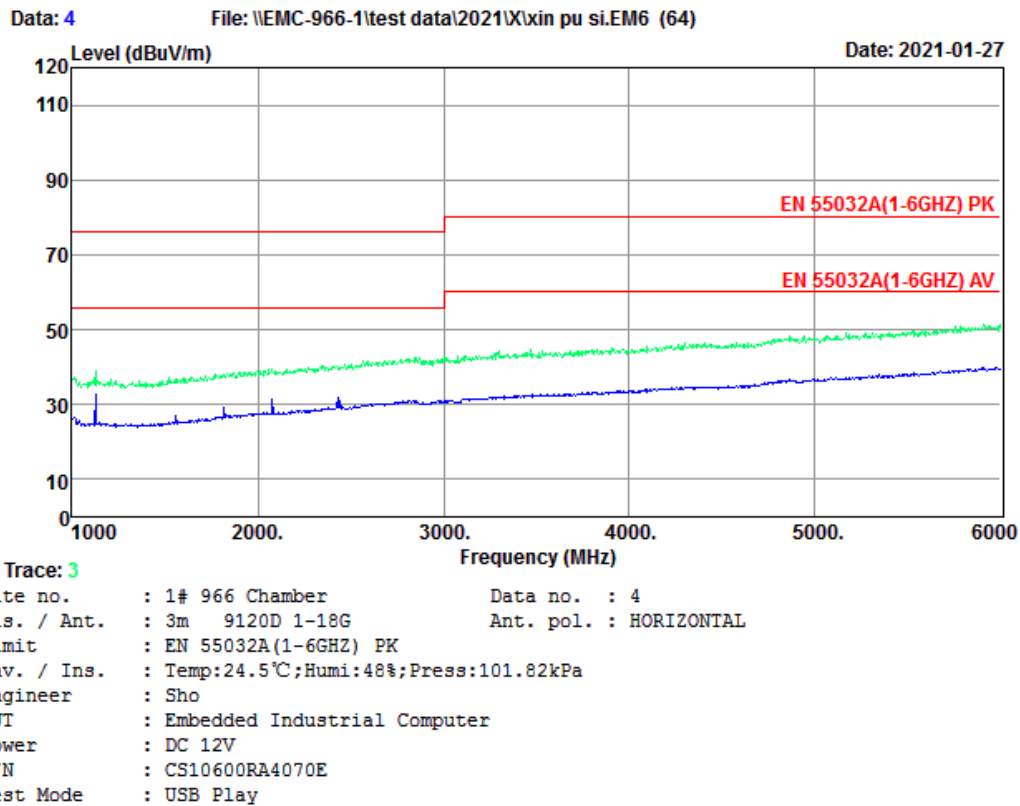
**Note: Test uncertainty:  $\pm 4.72\text{dB}$  at a level of confidence of 95%.**

## Test Data

EST Technology

Chilingxiang, Qishantou, Santun,  
Houjie, Dongguan, Guangdong, China  
Tel: +86-769-83081888  
Fax: +86-769-83081878

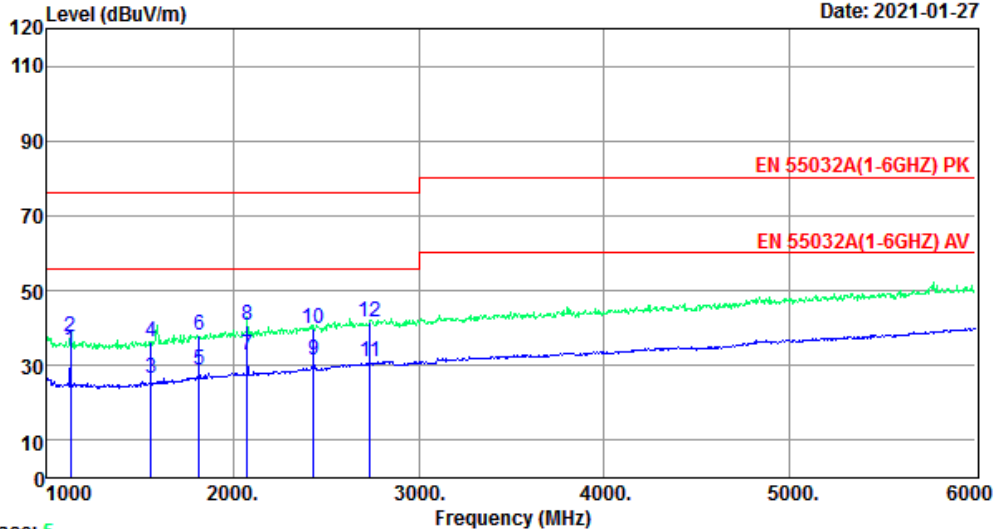




Data: 6

File: \\EMC-966-1\test data\2021\X\in pu si.EM6 (64)

Date: 2021-01-27



Trace: 5

Site no. : 1# 966 Chamber Data no. : 6  
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
 Limit : EN 55032A(1-6GHZ) PK  
 Env. / Ins. : Temp:24.5°C;Humi:48%;Press:101.82kPa  
 Engineer : Sho  
 EUT : Embedded Industrial Computer  
 Power : DC 12V  
 M/N : CS10600RA4070E  
 Test Mode : TF Play

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1125.00	24.59	1.07	8.35	34.01	56.00	21.99	Average
2	1125.00	24.59	1.07	11.96	37.62	76.00	38.38	Peak
3	1560.00	25.07	1.16	0.46	26.69	56.00	29.31	Average
4	1560.00	25.07	1.16	10.28	36.51	76.00	39.49	Peak
5	1820.00	25.88	1.24	1.66	28.78	56.00	27.22	Average
6	1820.00	25.88	1.24	11.17	38.29	76.00	37.71	Peak
7	2080.00	26.82	1.32	4.65	32.79	56.00	23.21	Average
8	2080.00	26.82	1.32	12.73	40.87	76.00	35.13	Peak
9	2435.00	27.30	1.46	2.64	31.40	56.00	24.60	Average
10	2435.00	27.30	1.46	11.29	40.05	76.00	35.95	Peak
11	2740.00	27.96	1.82	1.37	31.15	56.00	24.85	Average
12	2740.00	27.96	1.82	11.96	41.74	76.00	34.26	Peak

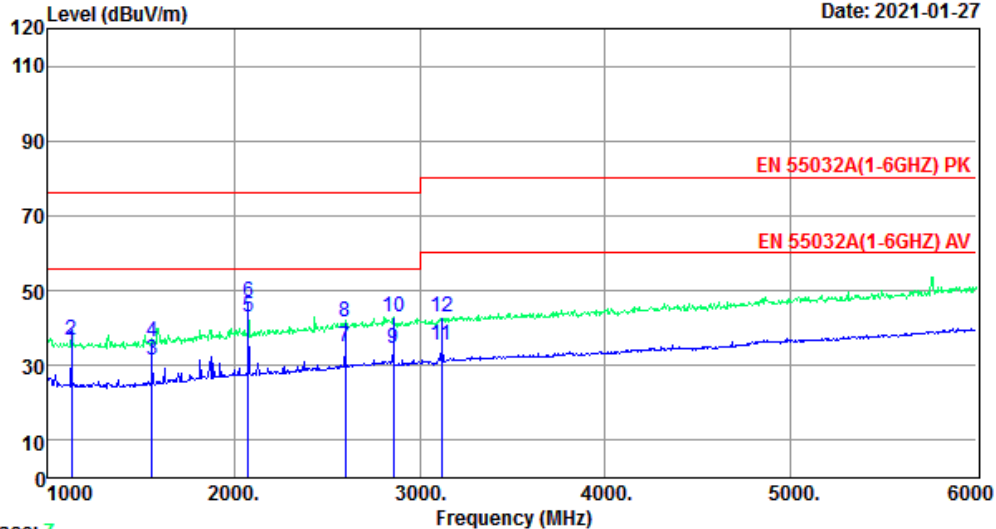
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.



Data: 8

File: \\EMC-966-1\test data\2021\Xin pu si.EM6 (64)

Date: 2021-01-27



Trace: 7

Site no. : 1# 966 Chamber Data no. : 8  
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL  
 Limit : EN 55032A(1-6GHZ) PK  
 Env. / Ins. : Temp:24.5°C;Humi:48%;Press:101.82kPa  
 Engineer : Sho  
 EUT : Embedded Industrial Computer  
 Power : DC 12V  
 M/N : CS10600RA4070E  
 Test Mode : TF Play

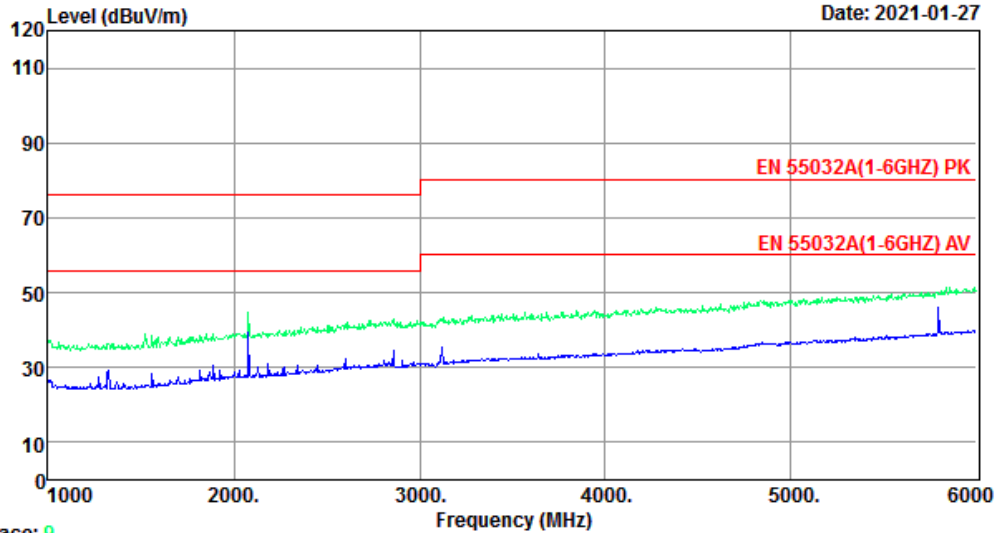
	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1125.00	24.59	1.07	8.39	34.05	56.00	21.95	Average
2	1125.00	24.59	1.07	11.18	36.84	76.00	39.16	Peak
3	1560.00	25.07	1.16	5.20	31.43	56.00	24.57	Average
4	1560.00	25.07	1.16	9.96	36.19	76.00	39.81	Peak
5	2080.00	26.82	1.32	14.63	42.77	56.00	13.23	Average
6	2080.00	26.82	1.32	18.94	47.08	76.00	28.92	Peak
7	2600.00	27.64	1.63	5.92	35.19	56.00	20.81	Average
8	2600.00	27.64	1.63	12.18	41.45	76.00	34.55	Peak
9	2860.00	28.24	1.98	4.40	34.62	56.00	21.38	Average
10	2860.00	28.24	1.98	12.52	42.74	76.00	33.26	Peak
11	3120.00	28.67	2.36	4.57	35.60	60.00	24.40	Average
12	3120.00	28.67	2.36	11.72	42.75	80.00	37.25	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

Data: 10

File: \\EMC-966-1\\test data\\2021\\X\\xin pu si.EM6 (64)

Date: 2021-01-27



Trace: 9

Site no. : 1# 966 Chamber Data no. : 10

Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL

Limit : EN 55032A(1-6GHZ) PK

Env. / Ins. : Temp:24.5°C;Humi:48%;Press:101.82kPa

Engineer : Sho

EUT : Embedded Industrial Computer

Power : DC 12V

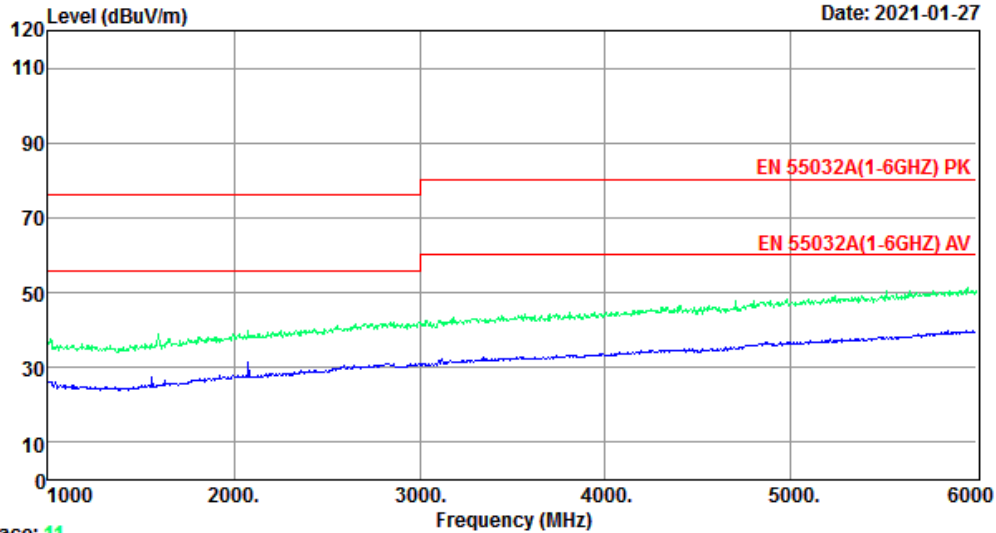
M/N : CS10600RA4070E

Test Mode : LAN Mode

Data: 12

File: \\EMC-966-1\test data\2021\X\xin pu si.EM6 (64)

Date: 2021-01-27



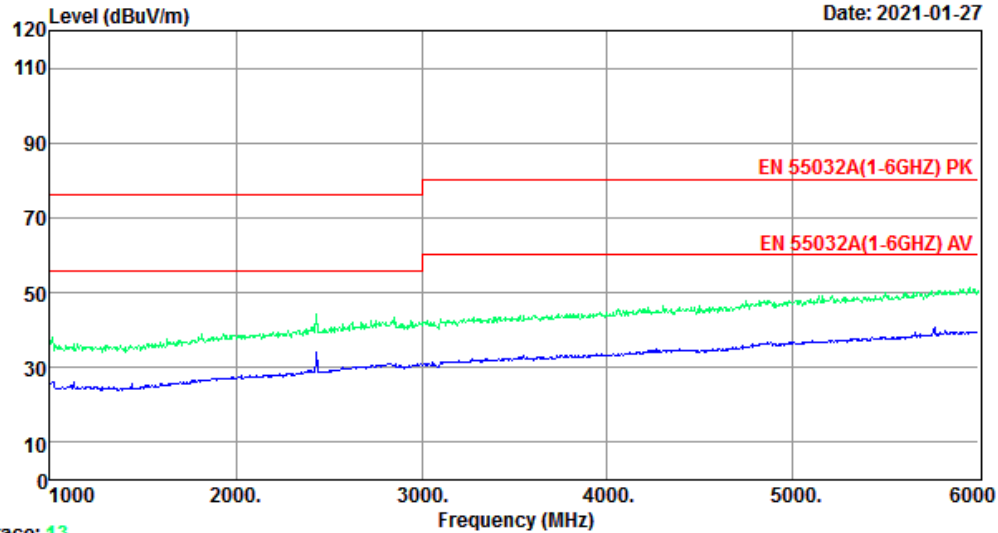
Trace: 11

Site no. : 1# 966 Chamber Data no. : 12  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
Limit : EN 55032A(1-6GHZ) PK  
Env. / Ins. : Temp:24.5°C;Humi:48%;Press:101.82kPa  
Engineer : Sho  
EUT : Embedded Industrial Computer  
Power : DC 12V  
M/N : CS10600RA4070E  
Test Mode : LAN Mode

Data: 14

File: \\EMC-966-1\test data\2021\X\xin pu si.EM6 (64)

Date: 2021-01-27



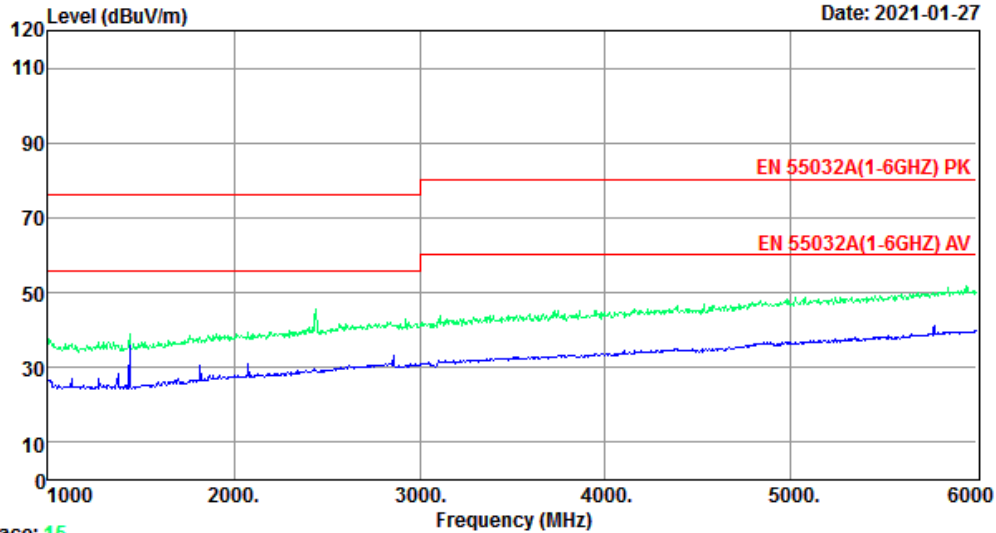
Trace: 13

Site no. : 1# 966 Chamber Data no. : 14  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
Limit : EN 55032A(1-6GHZ) PK  
Env. / Ins. : Temp:24.5°C;Humi:48%;Press:101.82kPa  
Engineer : Sho  
EUT : Embedded Industrial Computer  
Power : DC 12V  
M/N : CS10600RA4070P  
Test Mode : USB Play

Data: 16

File: \\EMC-966-1\\test data\\2021\\X\\xin pu si.EM6 (64)

Date: 2021-01-27

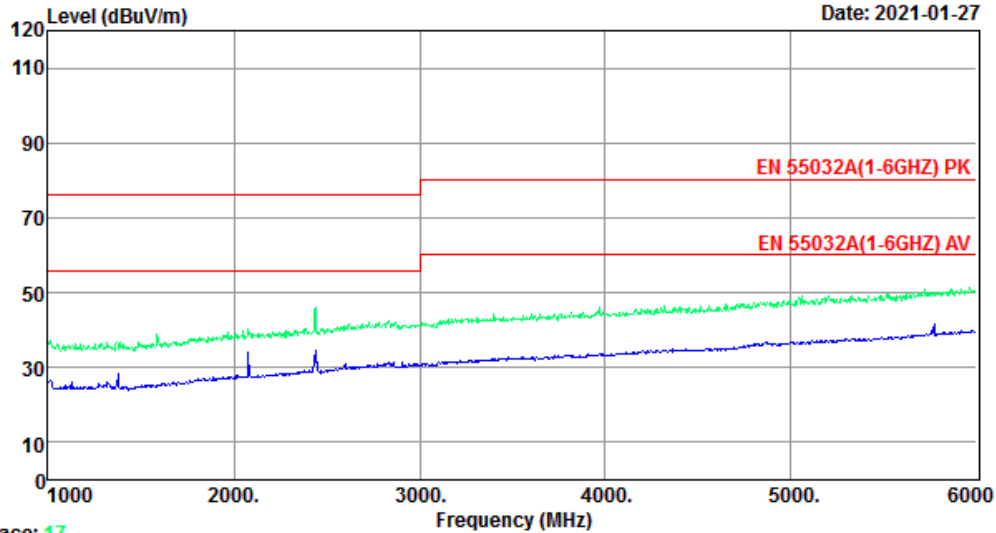


Trace: 15

Site no. : 1# 966 Chamber Data no. : 16  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL  
Limit : EN 55032A(1-6GHZ) PK  
Env. / Ins. : Temp:24.5°C;Humi:48%;Press:101.82kPa  
Engineer : Sho  
EUT : Embedded Industrial Computer  
Power : DC 12V  
M/N : CS10600RA4070P  
Test Mode : USB Play

Data: 18 File: \\EMC-966-1\test data\2021\X\xin pu si.EM6 (64)

Date: 2021-01-27

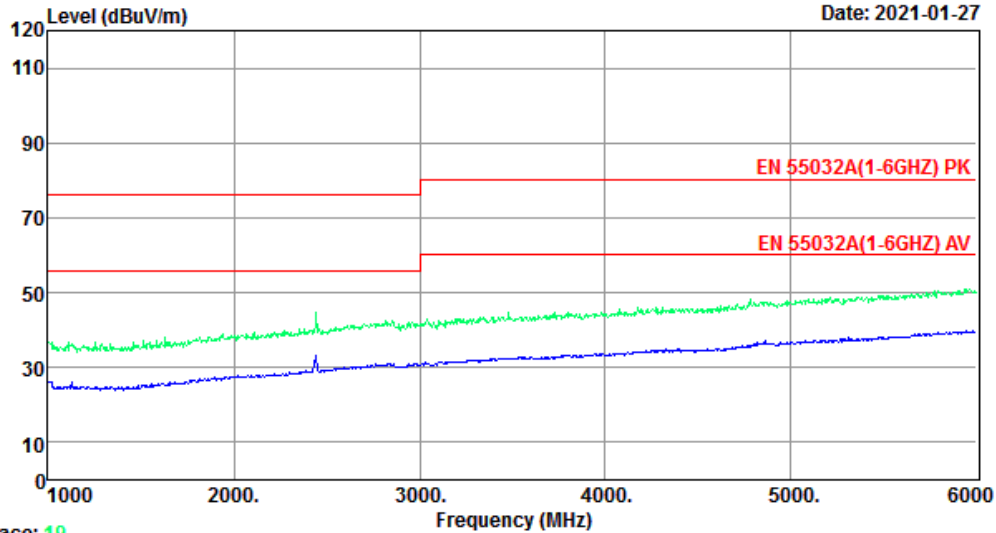


Site no. : 1# 966 Chamber Data no. : 18  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL  
Limit : EN 55032A(1-6GHZ) PK  
Env. / Ins. : Temp:24.5°C;Humi:48%;Press:101.82kPa  
Engineer : Sho  
EUT : Embedded Industrial Computer  
Power : DC 12V  
M/N : CS10600RA4070P  
Test Mode : TF Play

Data: 20

File: \\EMC-966-1\test data\2021\X\xin pu si.EM6 (64)

Date: 2021-01-27



Trace: 19

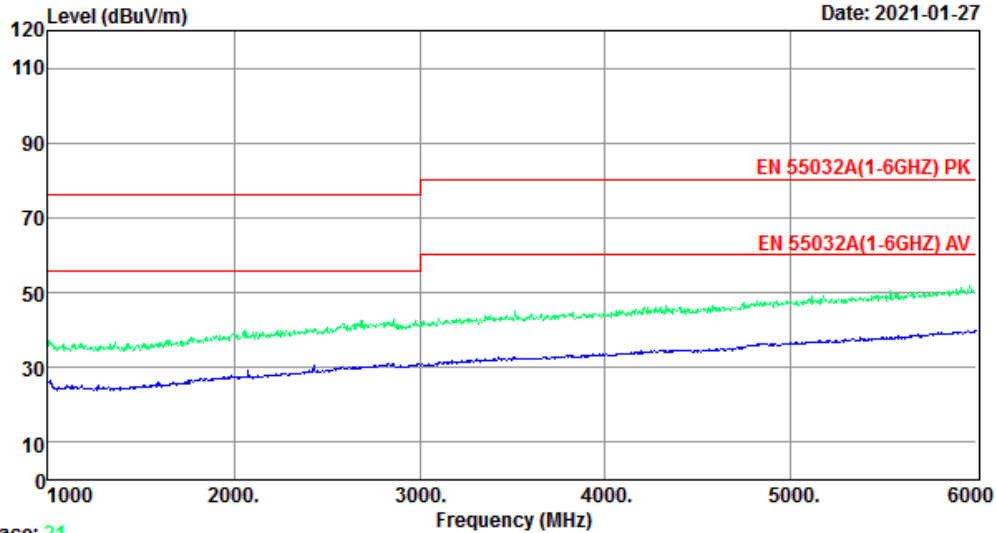
Site no. : 1# 966 Chamber Data no. : 20  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
Limit : EN 55032A(1-6GHZ) PK  
Env. / Ins. : Temp:24.5°C;Humi:48%;Press:101.82kPa  
Engineer : Sho  
EUT : Embedded Industrial Computer  
Power : DC 12V  
M/N : CS10600RA4070P  
Test Mode : TF Play



Data: 22

File: \\EMC-966-1\\test data\\2021\\X\\xin pu si.EM6 (64)

Date: 2021-01-27



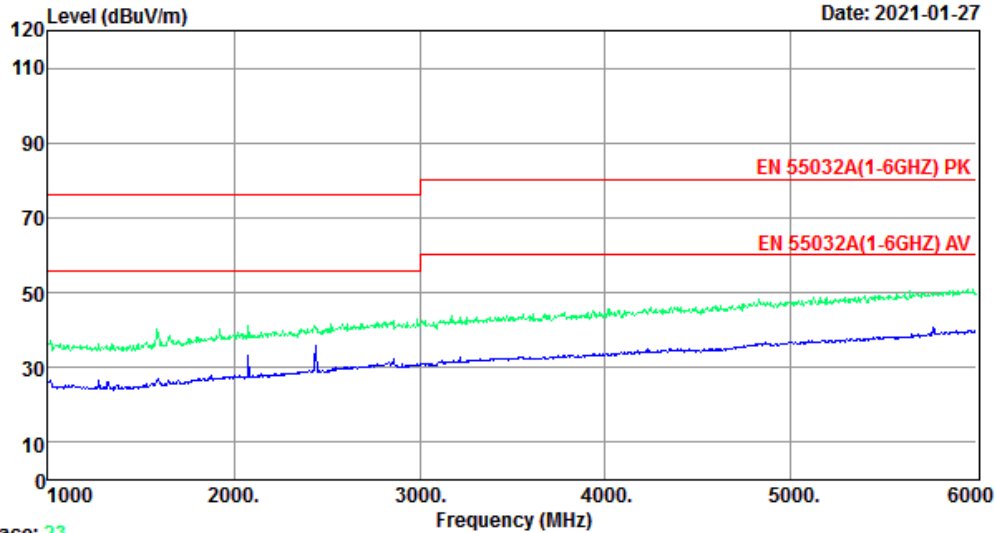
Trace: 21

Site no. : 1# 966 Chamber Data no. : 22  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
Limit : EN 55032A(1-6GHZ) PK  
Env. / Ins. : Temp:24.5°C;Humi:48%;Press:101.82kPa  
Engineer : Sho  
EUT : Embedded Industrial Computer  
Power : DC 12V  
M/N : CS10600RA4070P  
Test Mode : LAN Mode

Data: 24

File: \\EMC-966-1\\test data\\2021\\X\\xin pu si.EM6 (64)

Date: 2021-01-27



Trace: 23

Site no. : 1# 966 Chamber Data no. : 24  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL  
Limit : EN 55032A(1-6GHZ) PK  
Env. / Ins. : Temp:24.5°C;Humi:48%;Press:101.82kPa  
Engineer : Sho  
EUT : Embedded Industrial Computer  
Power : DC 12V  
M/N : CS10600RA4070P  
Test Mode : LAN Mode

## 5. IMMUNITY TEST RESULT

### 5.1. Description of Performance Criteria:

#### Performance criteria A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operating state 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.

For audio output device: The measured acoustic interference ratio and/or the measured electrical interference during the test shall be -20dB or better(see note1)

#### Performance criteria B

During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test.

After the test, 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), or recovery time, 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.

#### Performance criteria 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. A reboot or re-start operation is allowed.

Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

**Note 1:** This performance criterion only using for Continuous inducted RF disturbances and Continuous RF electromagnetic field disturbances item.

## 5.2. Electrostatic Discharge Immunity Test

**RESULT** : **Pass**

Test procedure : EN 55035:2017

Basic standard : EN 61000-4-2:2009

Test specification : +/-4.0kV(Contact discharge)  
+/-8.0kV(Air discharge)

Number of discharges :  $\geq 10$ (Air discharge for single polarity discharge)  
 $\geq 10$  (Contact discharge for single polarity discharge)

Polarity : Positive/Negative

Performance criterion : B

### Test Setup

Date of test : Feb. 02, 2021

Model No. : CS10600RA4070E, CS10600RA4070P

Input Voltage : DC 12V

Operation Mode : LAN Mode, USB Play, TF Play

Temperature : 21.1°C

Humidity : 52%

Pressure : 101.10kPa

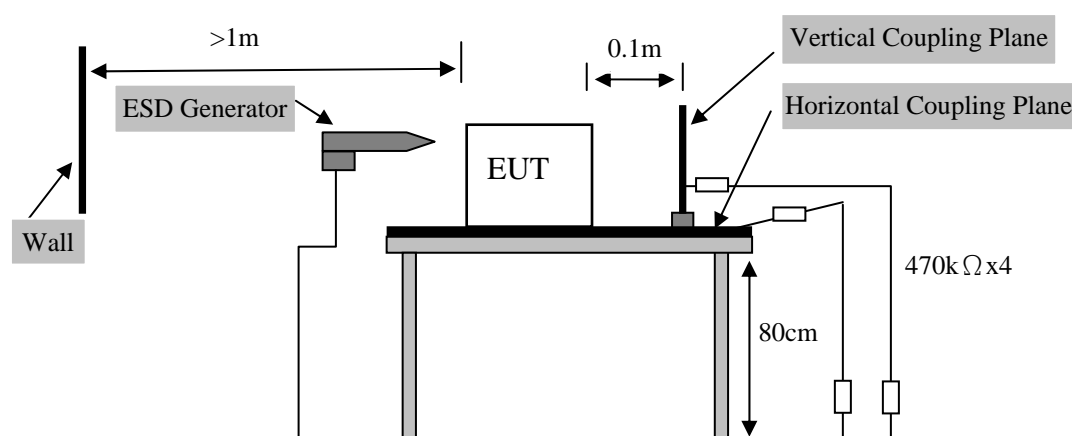


Table 1: Electrostatic Discharge Immunity Test Result

Discharge Location		Type of discharge	Result
HCP	4 points	Contact	Pass
VCP	4 points	Contact	Pass
USB Port	2 points	Contact	Pass
TF Port	1 points	Air	Pass
LAN Port	1 point	Contact	Pass
Screen	1 point	Air	Pass
Metal decking	4 points	Contact	Pass
AUX Port	1 point	Air	Pass

*Remark: 1. The screen was flashing during the test, but self-recoverable after the test.  
2. Discharge should be considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).*

### 5.3. Radio Frequency Electromagnetic Field Immunity(R/S) Test

**RESULT** : **Pass**  
Test procedure : EN 55035:2017  
Basic standard : EN 61000-4-3:2006+A1:2008+A2:2010  
Frequency Range : 80-1000MHz,1800MHz, 2600MHz, 3500MHz, 5000MHz  
Performance criterion : A  
Test site : 866 Chamber

#### Test Setup

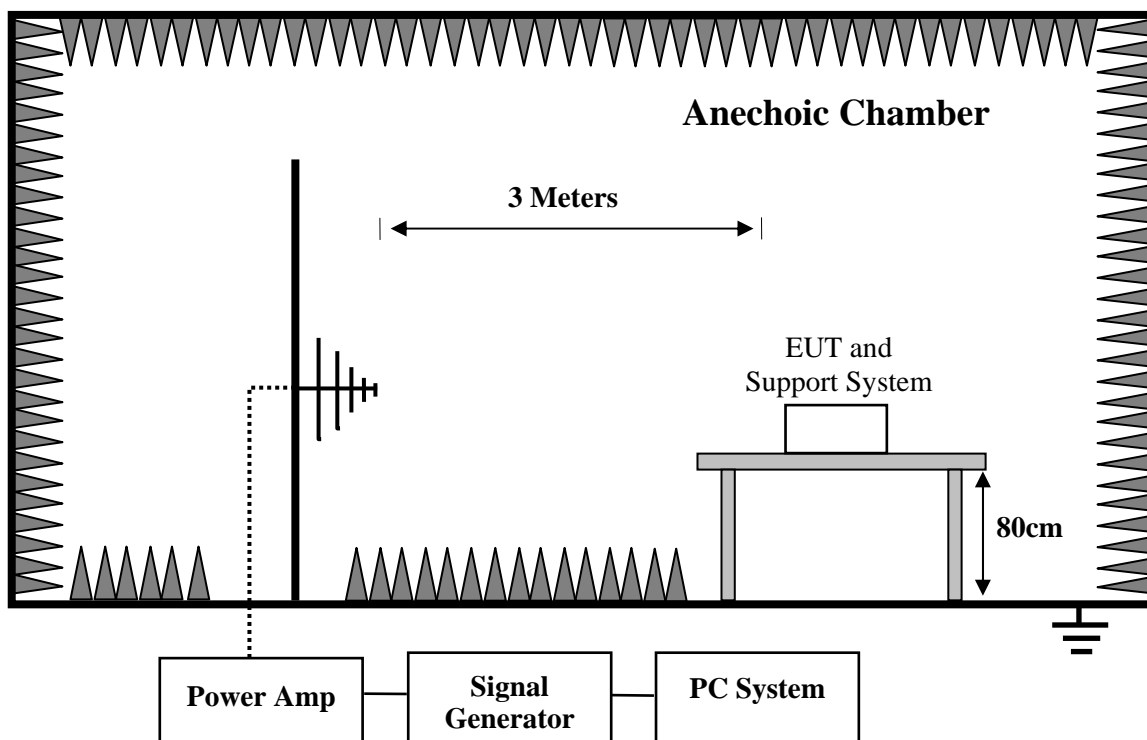
Date of test : Feb. 02, 2021  
Model No. : CS10600RA4070E, CS10600RA4070P  
Input Voltage : DC 12V  
Operation Mode : LAN Mode, USB Play, TF Play  
Temperature : 20.3°C  
Humidity : 52%  
Pressure : 101.10kPa

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

In order to judge the EUT performance, a CCD camera was used to monitor EUT screen.

All the scanning conditions were as follows:

Condition of Test	Remarks
1. Field Strength	3 V/m (Severity Level 2)
2. Radiated Signal	Modulated
3. Scanning Frequency	80 - 1000 MHz
4. Sweeping time of radiated	0.0015 decade/s
5. Dwell Time	at least 3 seconds



Condition of Test

Remarks

6. Field Strength	3 V/m (Severity Level 2)
7. Radiated Signal	Modulated
8. Scanning Frequency	1800MHz,2600MHz,3500MHz,5000MHz
9. Sweeping time of radiated	0.0015 decade/s
10. Dwell Time	at least 3 seconds

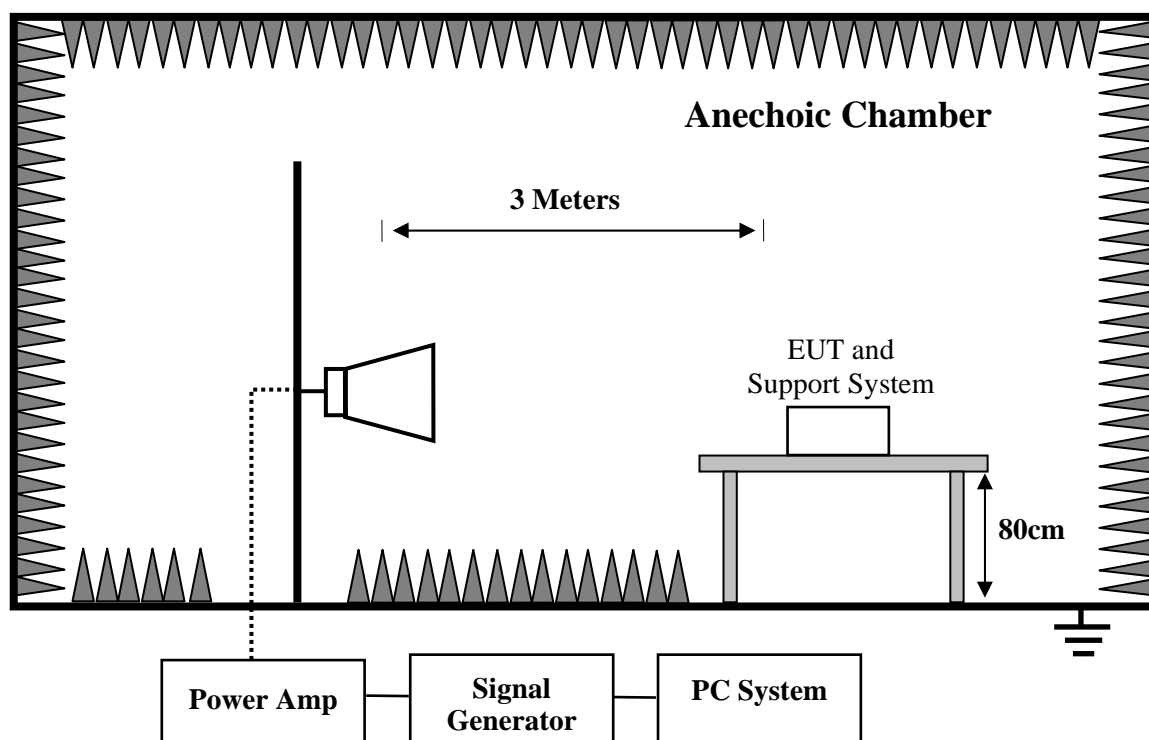


Table 2: Radio Frequency Electromagnetic Field Immunity Test Result

Field Strength (V/m)	Test Frequency (MHz)	Test mode	Polarization of antenna	Reference Level	Audio output	Limit	Interference Ratio (worst case)
3	80-1000MHz, 1800MHz, 2600MHz, 3500MHz, 5000MHz	Wi-Fi Mode	H	75dBSPL	Speaker	$\leq$ -20dB	-35 dB
			V	75dBSPL	Speaker		-38 dB



#### 5.4. Power Frequency Magnetic Field Immunity Test

**RESULT** : **Pass**  
Test procedure : EN 55035:2017  
Basic standard : EN 61000-4-8:2010  
Test specification : 1 A/m  
Performance criterion : A

##### Test Setup

Date of test : Feb. 02, 2021  
Model No. : CS10600RA4070E, CS10600RA4070P  
Input Voltage : DC 12V  
Operation Mode : LAN Mode, USB Play, TF Play  
Temperature : 101.10kPa  
Humidity : 52%  
Pressure : 101.10kPa

The EUT was subjected to the test magnetic field by using the induction coil of standard dimensions (1m\*1m). The induction coil then was rotated by 90° in order to expose the EUT to the test field with different orientations.

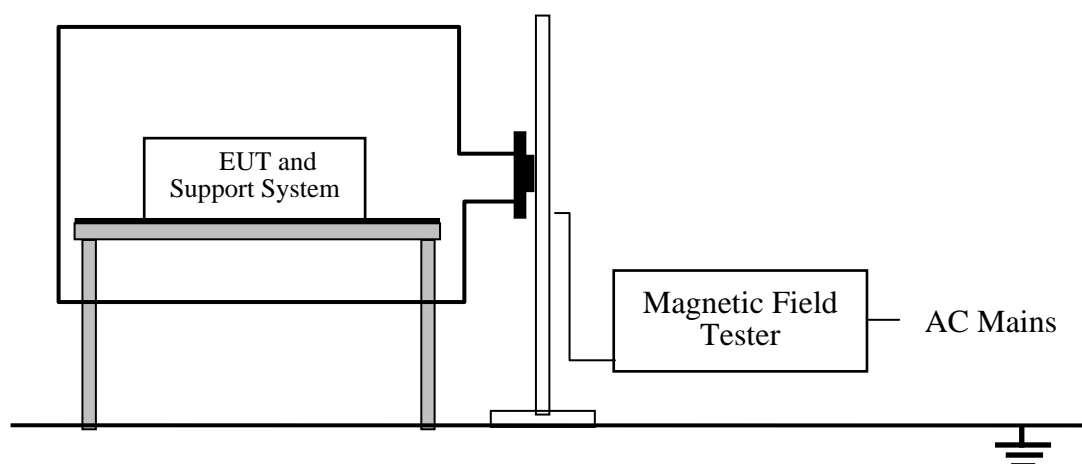


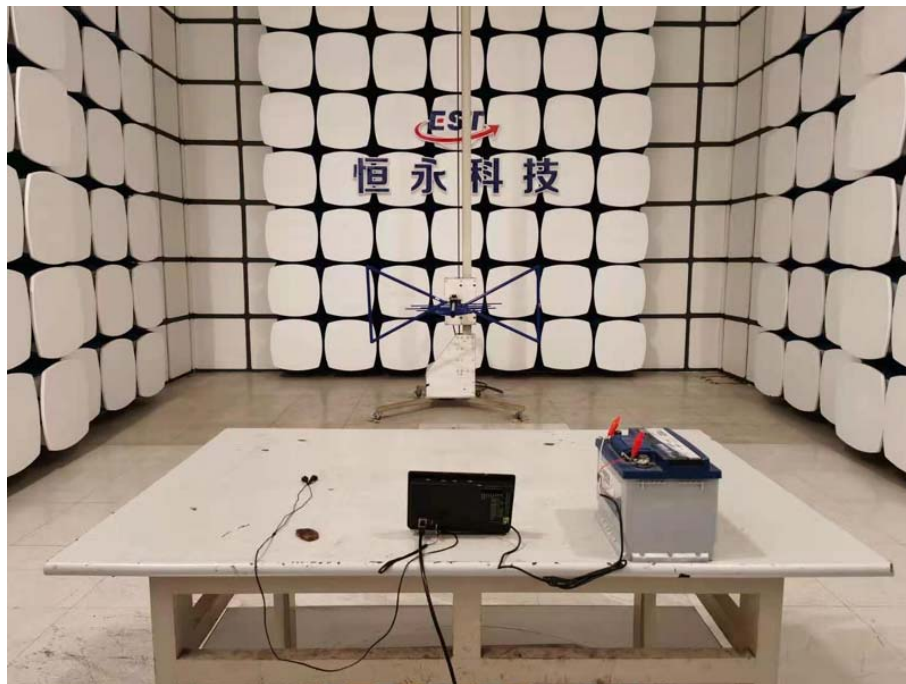
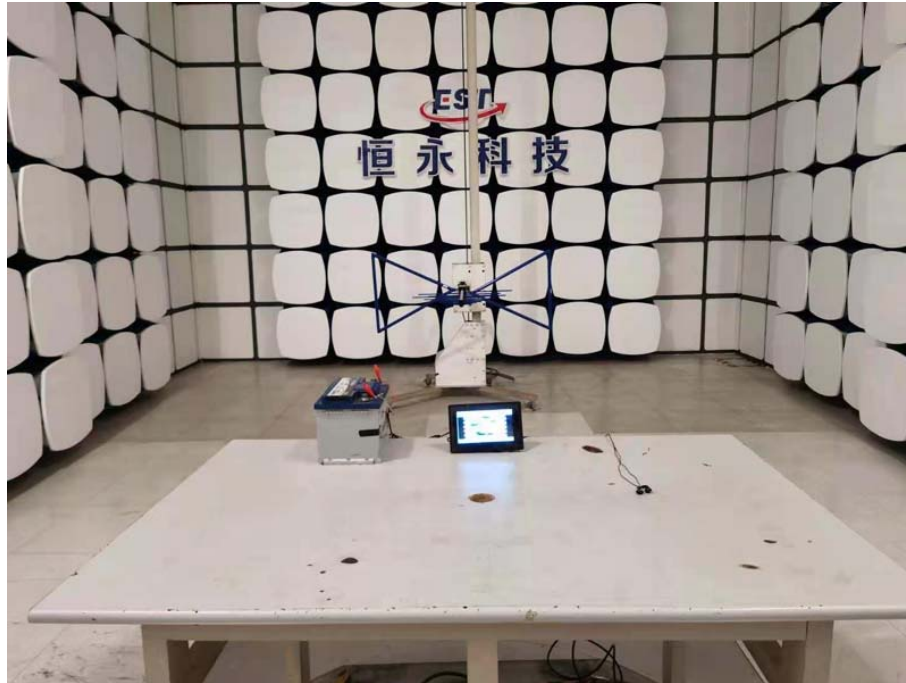
Table 6: Power Frequency Magnetic Field Immunity Test Result

Test Level	Testing Duration	Coil Orientation	Criterion	Result
1A/m	5 mins	X	A	Pass
1A/m	5 mins	Y	A	Pass
1A/m	5 mins	Z	A	Pass

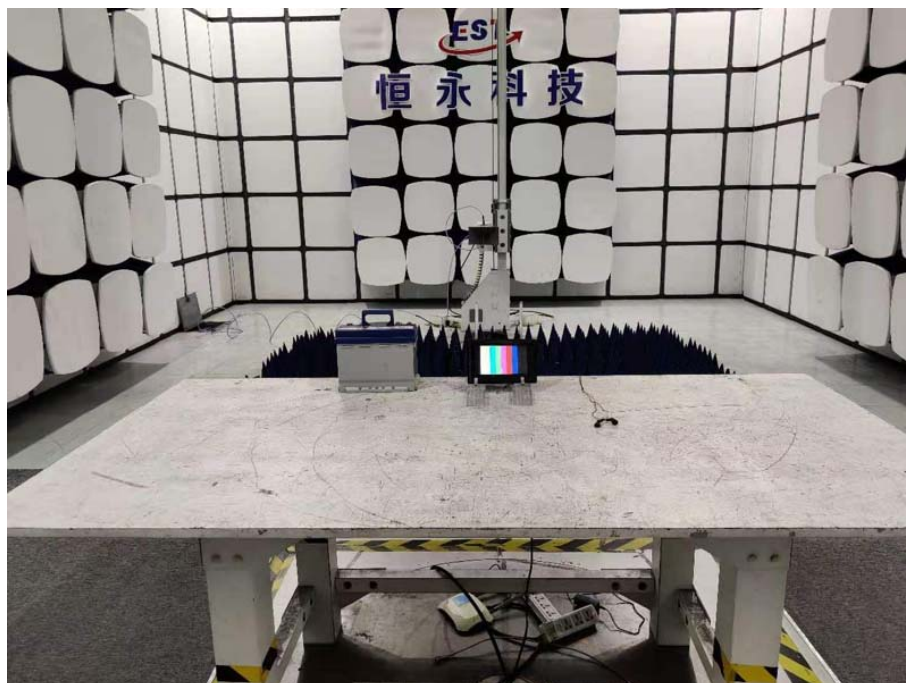
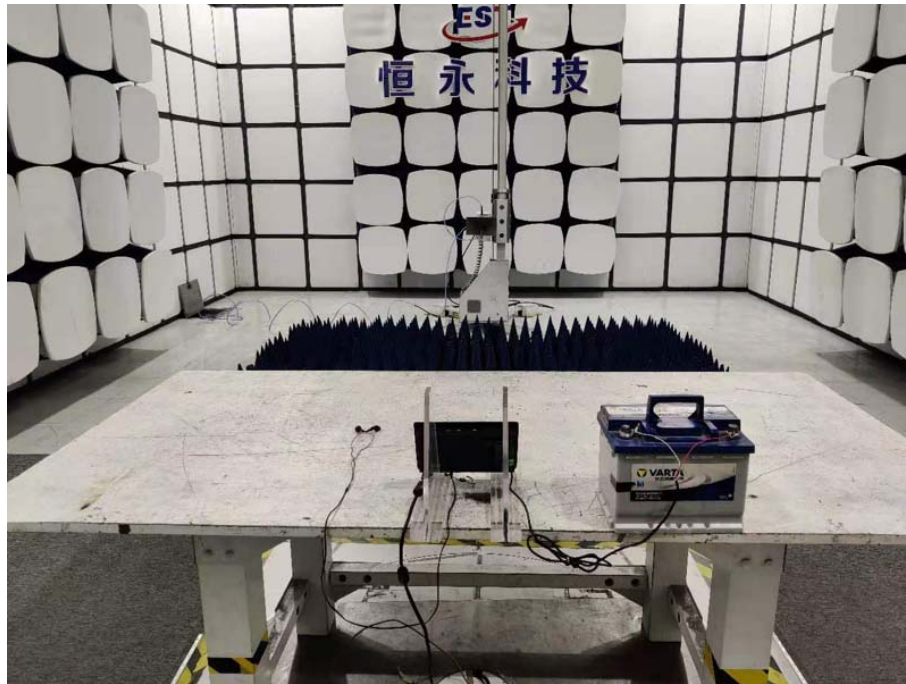
*Remark: There was no change compared with initial operation during the test*

## 6. PHOTOGRAPHS OF TEST SET-UP

### 6.1.Set-up for Radiated Emission Test



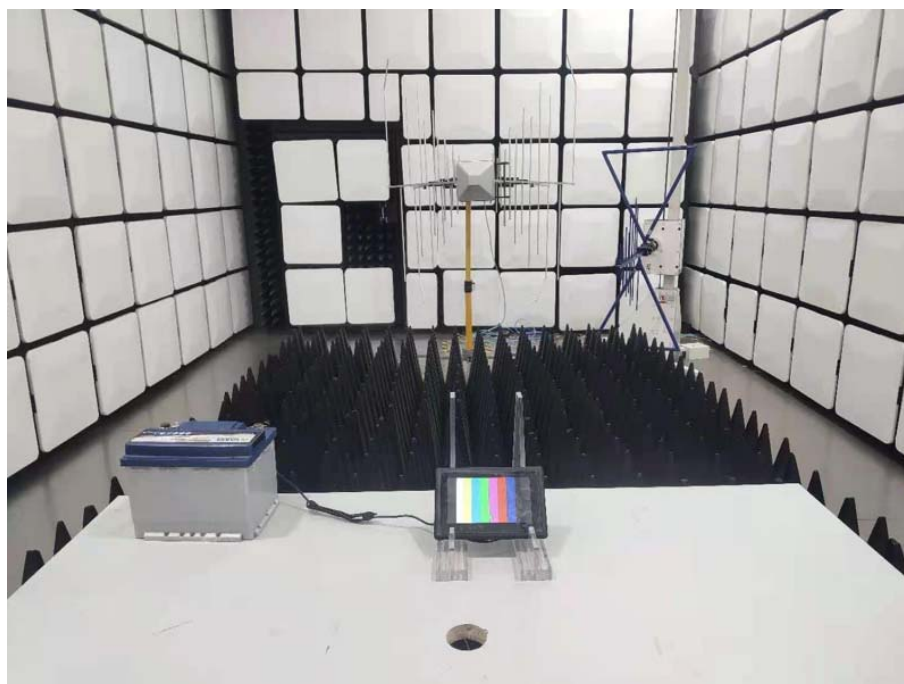
## 6.2.Set-up for Radiated Emission Test(above 1GHz)



### 6.3.Set-up for Electrostatic Discharge Immunity Test

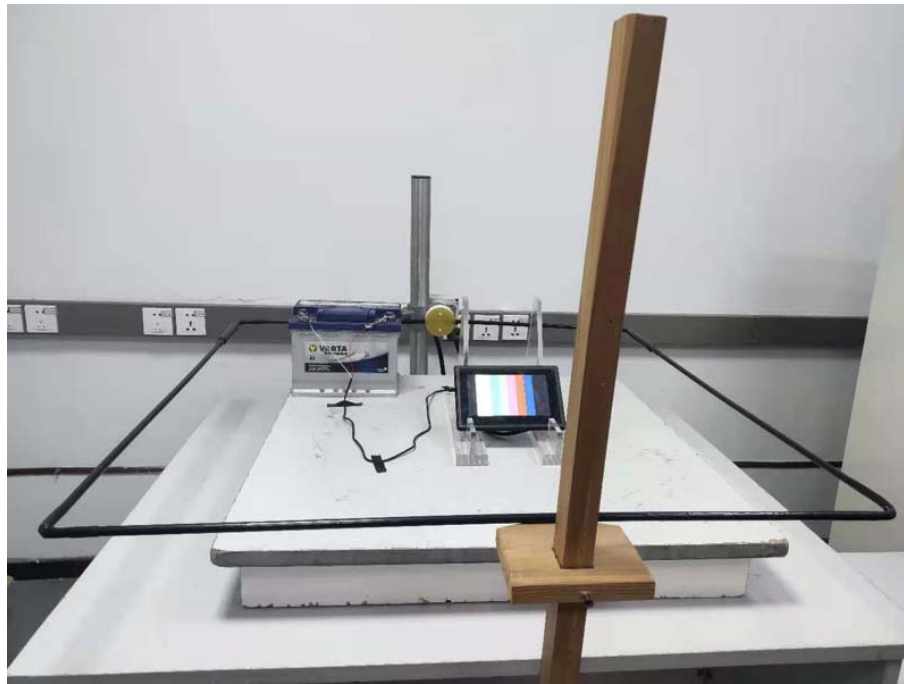


### 6.4.Set-up for Radio Frequency Electromagnetic Field Immunity(R/S) Test





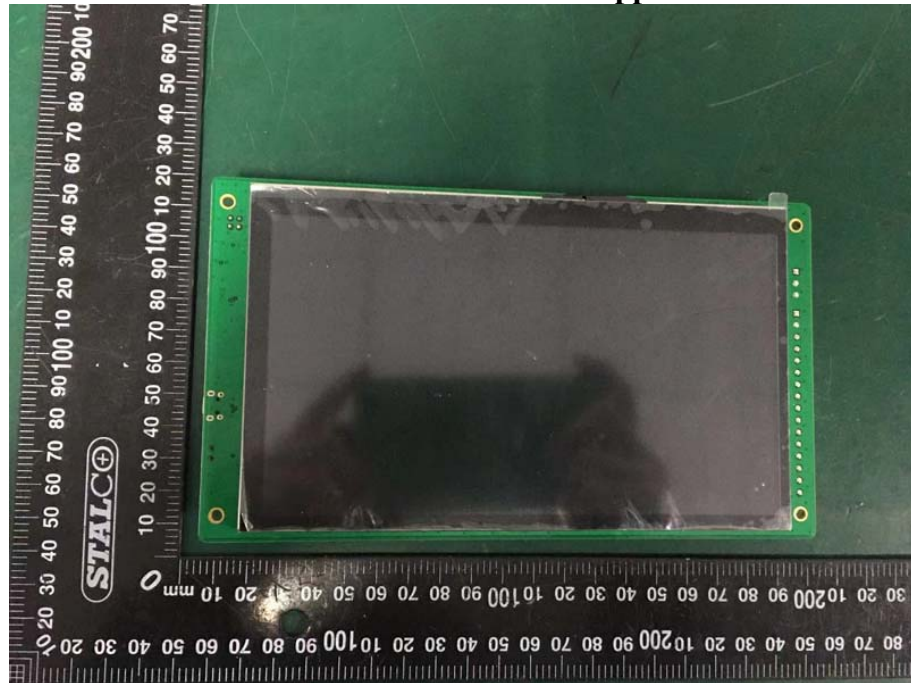
### 6.5.Set-up for Power Frequency Magnetic Field Immunity Test



## 7. PHOTOGRAPHS OF THE EUT

M/N: CS10600RA4070E

**Figure 1**  
**General Appearance of the EUT**



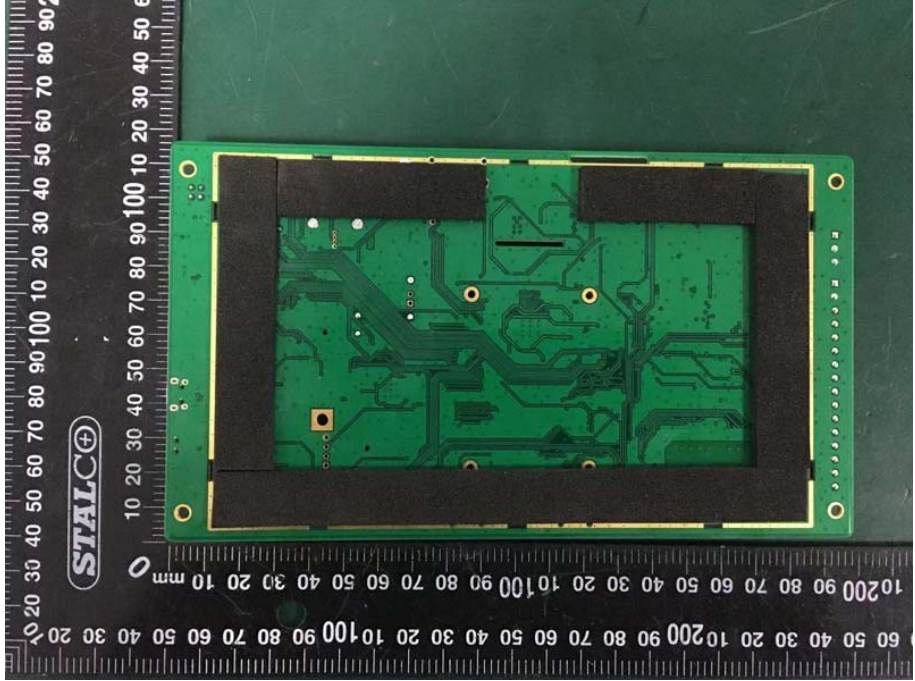
**Figure 2**  
**Inside View of the EUT**



**Figure 3**  
**Inside View of the EUT**

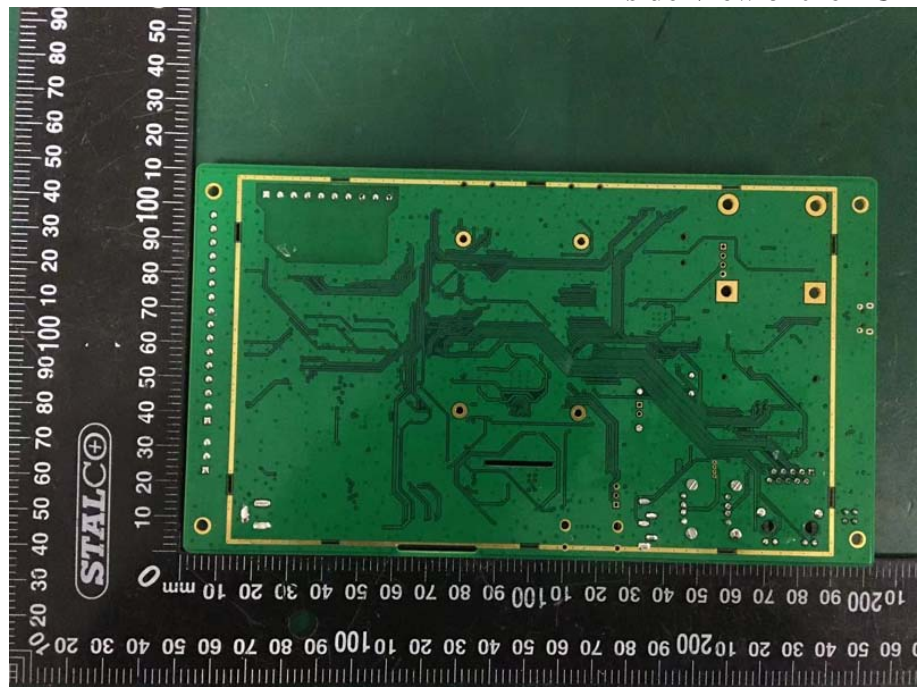


**Figure 4**  
**Inside View of the EUT**





**Figure 5**  
**Inside View of the EUT**





M/N: CS10600RA4070P

Figure 6  
General Appearance of the EUT

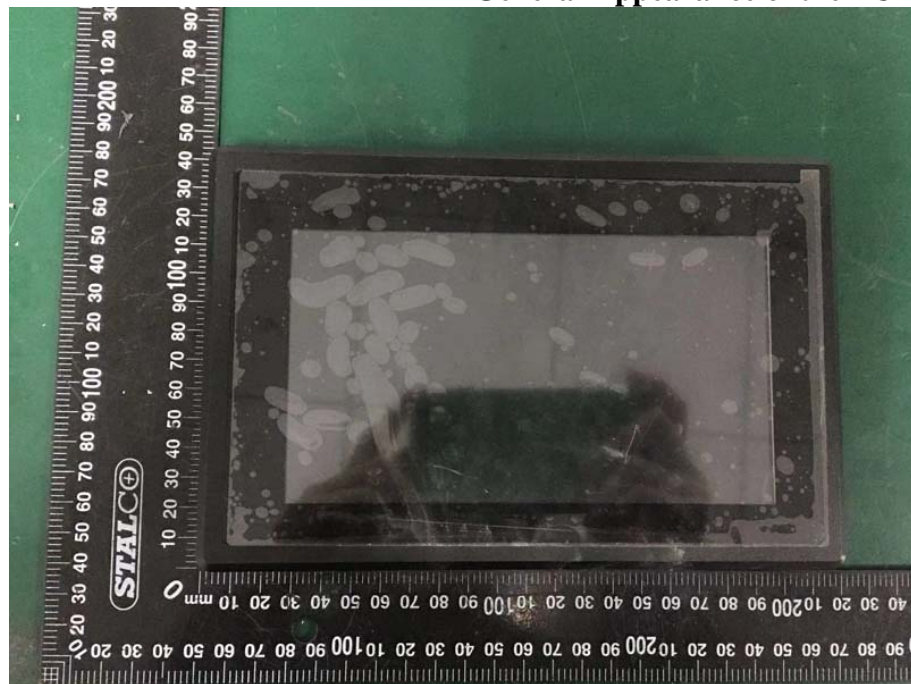
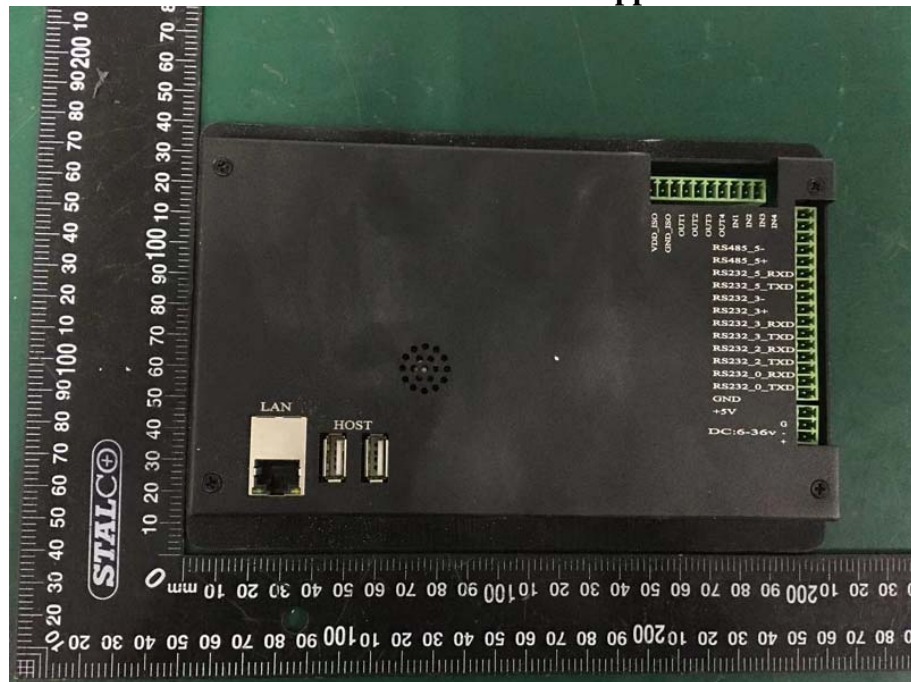


Figure 7  
General Appearance of the EUT



**Figure 8**  
**Inside View of the EUT**

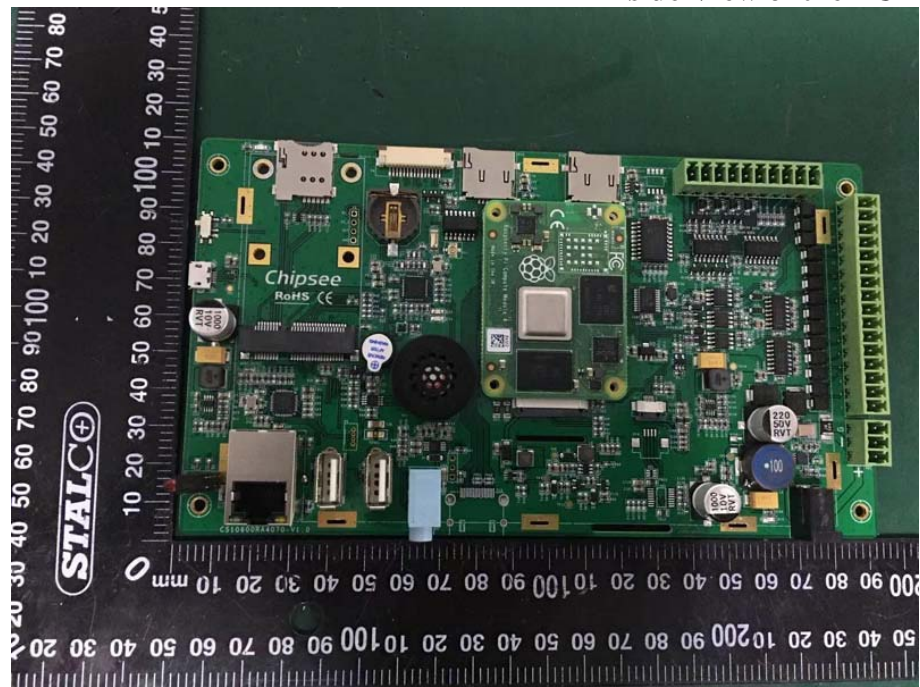


**Figure 9**  
**Inside View of the EUT**

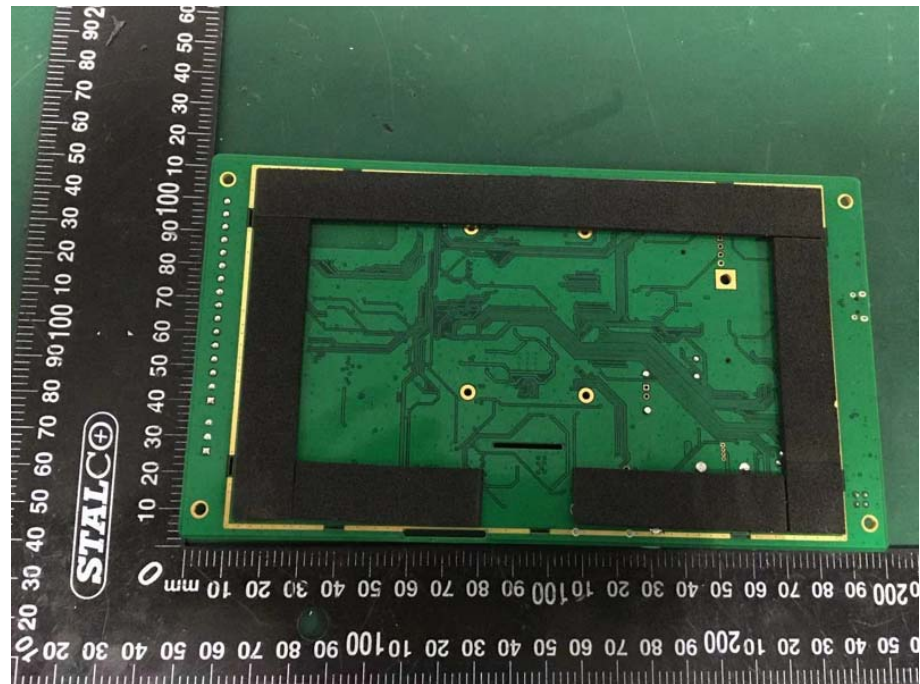




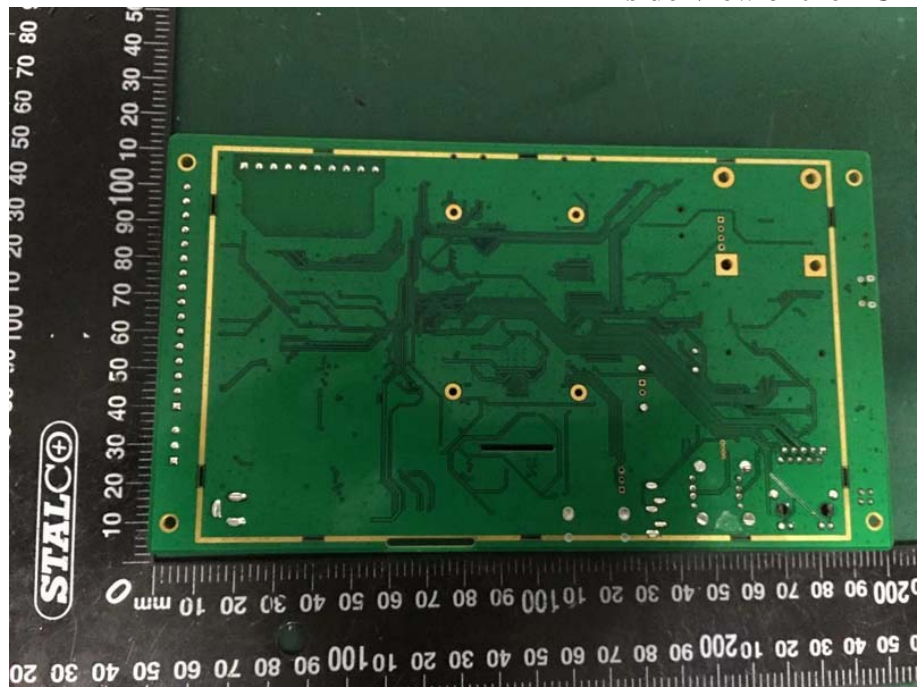
**Figure 10**  
**Inside View of the EUT**



**Figure 11**  
**Inside View of the EUT**



**Figure 12**  
**Inside View of the EUT**



**End of Test Report**