

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,
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Report Number : ESTE-E2205016

Date of Report : May 09, 2022

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EST Technology Co., Ltd.

Applicant:	CHIPSEE CO., LIMITED.		
Address:	Xinyuan Science Park B406, 97 Changping Road, Changping District, Beijing, 102206, China		
Manufacturer:	CHIPSEE CO., LIMITED.		
Address:	Xinyuan Science Park B406, 97 Changping Road, Changping District, Beijing, 102206, China		
Factory:	CHIPSEE CO., LIMITED.		
Address:	Xinyuan Science Park B406, 97 Changping Road, Changping District, Beijing, 102206, China		
E.U.T:	Embedded Industrial Computer		
Model Number:	CS12800RA4101P		
Trade Name:	Chipsee	Serial No:	-----
Date of Receipt:	Apr. 24, 2022	Date of Test:	Apr. 24, ~May 06, 2022
Test Specification:	EN 55032:2015+A11:2020 EN 55035:2017+A11:2020 EN IEC 61000-3-2:2019+A1:2021 EN 61000-3-3:2013+A1:2019		
Test Result:	The equipment under test was found to be compliance with the requirements of the standards applied.		
		Issue Date: May 09, 2022	
Prepared by:	Reviewed by:	Approved by:	
 _____ Lena / Assistant	 _____ Sean / Engineer	 _____ Iceman Hu / Manager	
Other Aspects:			
None.			
Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested			
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.			

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.	: CS12800RA4101P
System Input Voltage	: AC 100-240V, 50/60Hz, 0.8A
Output	: DC 12V/2.0A
DC Line	: Unshielded, Detachable 1.5m

1.3. Difference between Model Numbers

None.

1.4. Independent Operation Modes

The basic operation modes are:

1.4.1. TF Play

1.4.2. USB Play

1.4.3. LAN Mode

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	Class A		PASS
		Minimum passing margin is 24.39dB at 0.15MHz		
Asymmetric mode conducted emissions	EN 55032:2015+A11:2020	Class A		PASS
		Minimum passing margin is 19.27dB at 0.42MHz		
Conducted differential voltage emissions	EN 55032:2015+A11:2020	Class A		N/A
		More than *** dB below the limit line.		
Radiated Emission	EN 55032:2015+A11:2020	Class A		PASS
		Minimum passing margin is 6.95dB at 869.05MHz		
Radiated Emission Test (above 1GHz)	EN 55032:2015+A11:2020	Class A		PASS
		Minimum passing margin is 2.71dB at 1305MHz		
Harmonic current emissions	EN IEC 61000-3-2:2019+A1:2021	Class A		N/A
Voltage fluctuations & flicker	EN 61000-3-3:2013+A1:2019	Section 4.6		PASS
IMMUNITY (EN 55035:2017+A11:2020)				
Description of Test Item	Basic Standard	Performance 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	B	PASS
Surge (Input a.c. power port)	EN 61000-4-5:2014	B	B	PASS
Radio-frequency, Continuous conducted disturbance	EN 61000-4-6:2014	A	A	PASS
Power frequency magnetic field	EN 61000-4-8:2010	A	A	PASS
Voltage dips, >95% reduction	EN 61000-4-11:2004	B	A	PASS
Voltage dips, 30% reduction		C	B	PASS
Voltage interruptions		C	B	PASS
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, 2024

Certificated by A2LA, USA
Registration No.: 4366.01
This Certificate is valid until: January 31, 2024

Certificated by Industry Canada
CAB identifier No.: CN0035
This Certificate is valid until: January 31, 2024

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 conducted emission at the mains terminals test (2# conduction)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESRP3	EST-E070	June 13,21	1 Year
Artificial Mains Network	Rohde & Schwarz	ENV216	EST-E048	June 13,21	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	EST-E078	June 13,21	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A

2.3.2. For asymmetric mode conducted emissions test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESRP3	EST-E070	June 13,21	1 Year
ISN	Teseq	T8	EST-E041	June 13,21	1 Year
Current Transformer	SCHWARZBECK	SW9605	EST-E045	June 13,21	1 Year
Voltage Probe	SCHWARZBECK	TK9420	EST-E046	June 13,21	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A

2.3.3. For radiated emission test (1# 966 radiation)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	EST-E047	June 13,21	1 Year
Bilog Antenna	Teseq	CBL 6111D	EST-E034	June 13,21	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A

2.3.4. 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 13,21	1 Year
Horn Antenna	SCHWARZBECK	BBHA 9120 D	EST-E031	June 13,21	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A

2.3.5. For harmonic current emissions and voltage fluctuations/flicker test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Analyzer	California Instruments	3001IX-208-CTS	EST-E011	June 13,21	1 Year
Voltage Source	California Instruments	3001IX-208	EST-E012	June 13,21	1 Year
Test Software	California Instruments	CTS	N/A	N/A	N/A

2.3.6. For electrostatic discharge immunity test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
ESD Generator	Teseq	NSG437	EST-E073	June 13,21	1 Year

2.3.7. For electrical fast transient/burst immunity test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EFT Generator	EMC PARTNER	TRANSIENT 2000	EST-E074	June 13,21	1 Year
Capacitive Coupling Clamp	HAEFELY	IP4A	EST-E040	June 13,21	1 Year

2.3.8. 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 13,21	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 13,21	1 Year
Power sensor	Agilent	E9301A	EST-E065	June 13,21	1 Year
Power sensor	HP	E9301A	EST-E066	June 13,21	1 Year
Antenna	Schwarzbeck	STLP 9129	EST-E059	N/A	N/A
E-Field Probe	Narda	EP-601	EST-E067	June 13,21	1 Year
Audio Analyzer	Rohde &Schwarz	UPV	EST-E024	June 13,21	1 Year
Test Software	SKET	EMC-S	V1.2.0.48	N/A	N/A

2.3.9. For surge immunity test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Surge Controller	HAEFELY	PSURGE8000	EST-E015	June 13,21	1 Year
Surge Impulse Module	HAEFELY	PIM100	EST-E016	June 13,21	1 Year
Surge Coupling Network	HAEFELY	PCD100	EST-E017	June 13,21	1 Year

2.3.10.For injected currents susceptibility test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Signal Generator	Rohde &Schwarz	SMB100A	EST-E025	June 13,21	1 Year
Power Amplifier	FRANKONIA	CIT-10	EST-E021	N/A	N/A
Power Meter	Rohde &Schwarz	NRVS	EST-E027	June 13,21	1 Year
Audio Analyzer	Rohde &Schwarz	UPV	EST-E024	June 13,21	1 Year
CDN	FRANKONIA	CDN-M2+M3	EST-E022	June 13,21	1 Year
EM-Clamp	FRANKONIA	EMCL-20	EST-E042	June 13,21	1 Year
Test Software	SKET	EMC-S	V1.2.0.80	N/A	N/A

2.3.11.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 13,21	1 Year

2.3.12.For voltage dips and short interruptions immunity test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
DIPS Tester	EMC PARTNER	TRANSIENT 2000	EST-E074	June 13,21	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

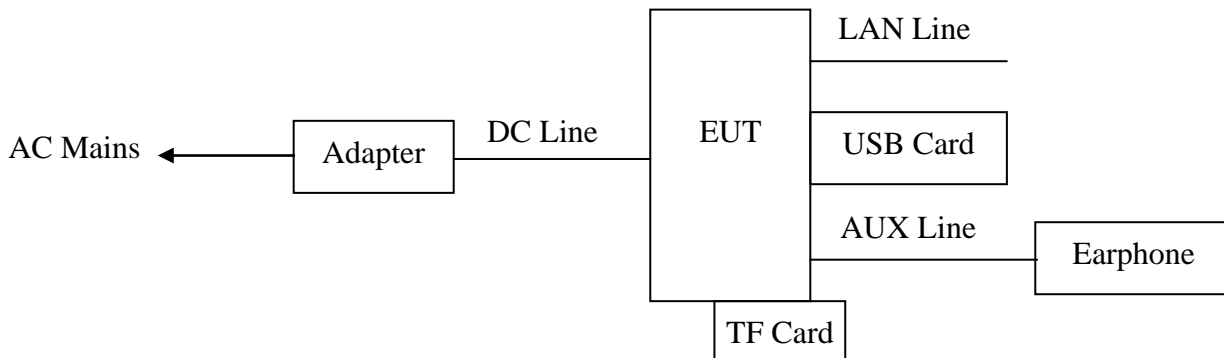
Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the Operating Instructions.

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

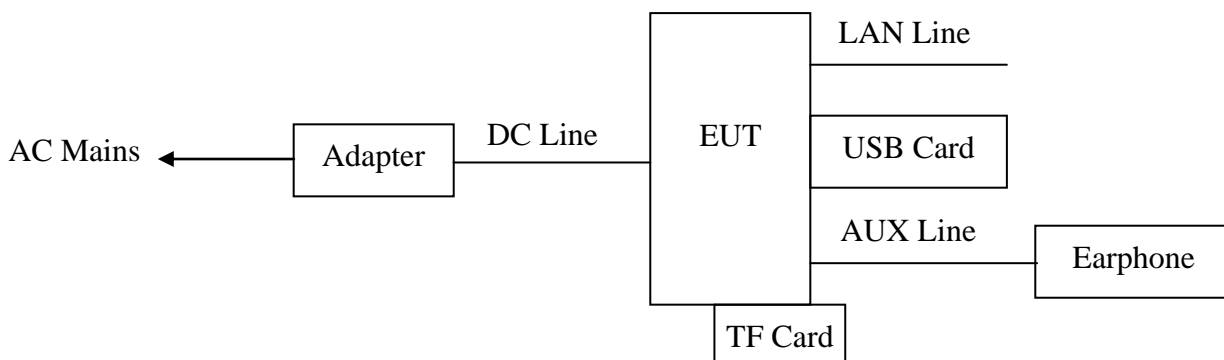
3.2. Block Diagram of Test Set-up

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.U Disc

M / N : SDCZ7-4096
S / N : BH0701AGOB
Manufacturer : SanDisk

3.4.2.Earphone

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

3.4.3.TF Card

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

3.4.4.Adapter

M / N : SDSQUNC-032G-ZN6MA
Input : 100-240V~, 50/60Hz, 0.8A
Output : DC 12V/2.0A

3.5. Countermeasures to Achieve EMC Compliance

None.

4. EMISSION TEST RESULTS

4.1. Conducted Emission at the Mains Terminals Test

RESULT : **Pass**
Test procedure : EN 55032:2015+A11:2020
Frequency range : 0.15 ~ 30MHz
Test Site : 2# Conduction Shielded Room
Limits : EN 55032:2015+A11:2020 Class A

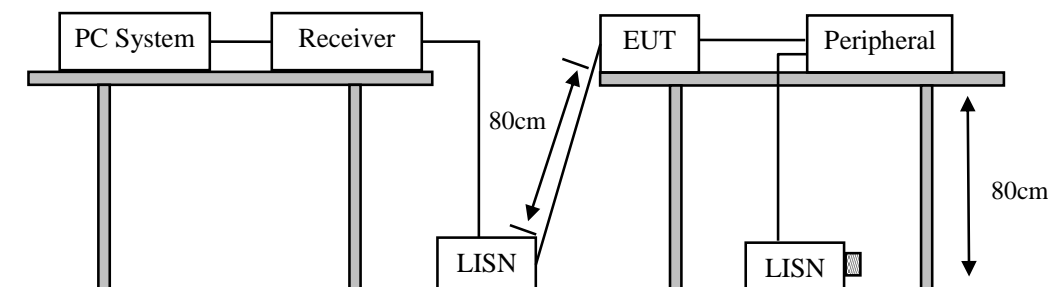
Test Setup

Date of test : Apr. 25, 2022
Model No. : CS12800RA4101P
Input Voltage : DC 12V From Adapter Input AC 230V/50Hz,
DC 12V From Adapter Input AC 110V/60Hz
Operation Mode : TF Play, USB Play, LAN Mode

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

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

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

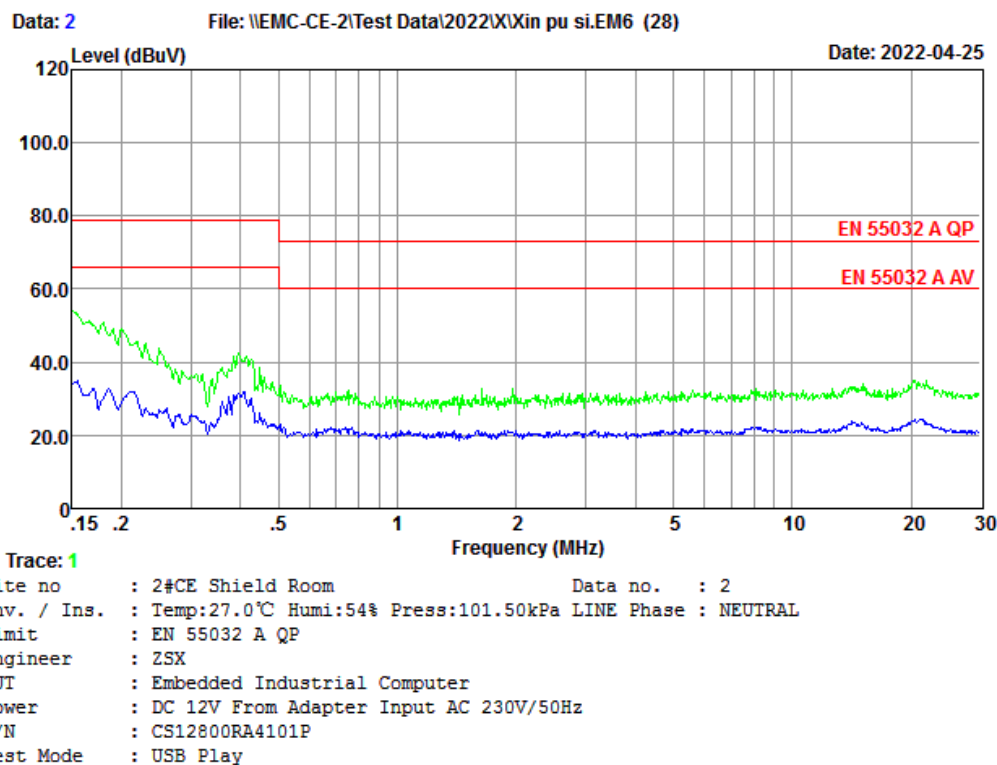


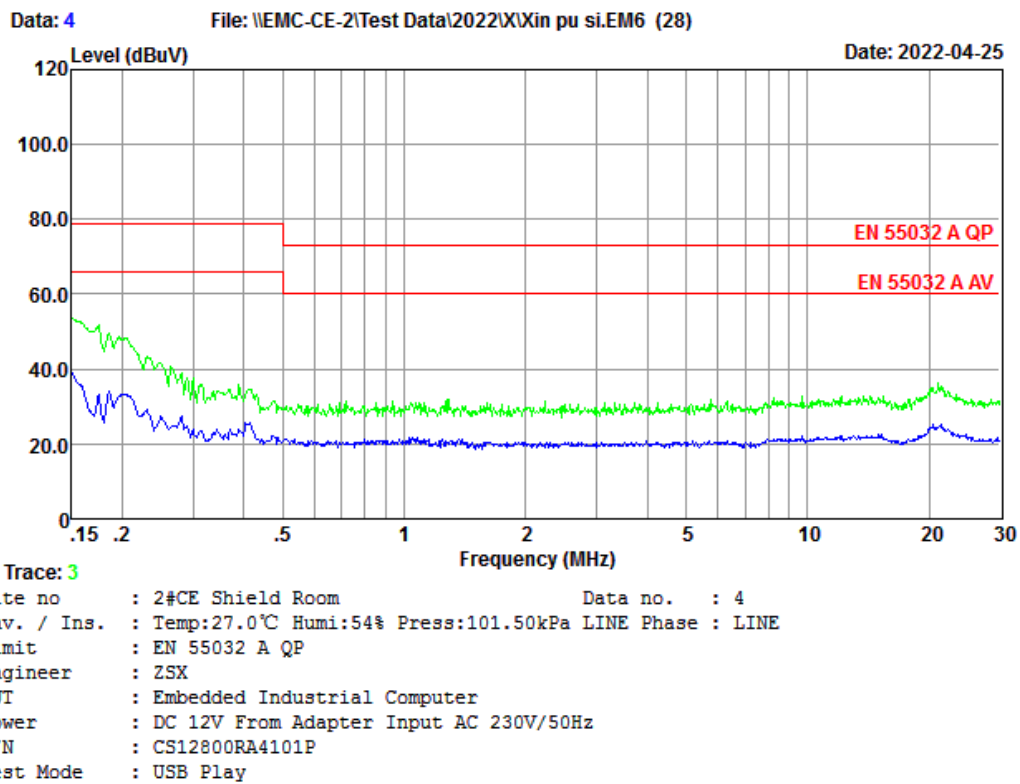
Note: Test uncertainty: $\pm 3.40\text{dB}$ at a level of confidence of 95%.(2#CE)

Test Data

EST Technology

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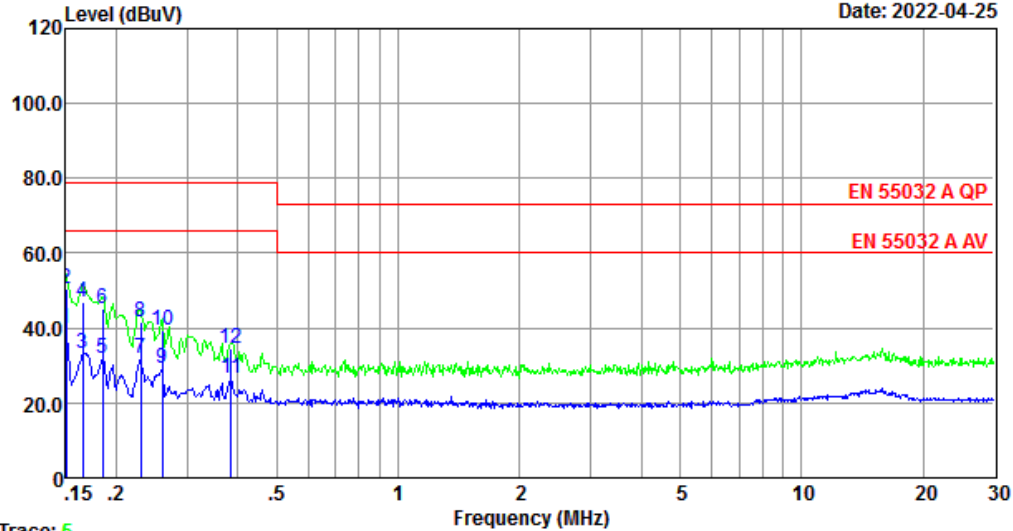




Data: 6

File: \\EMC-CE-2\Test Data\2022\X\Xin pu si.EM6 (28)

Date: 2022-04-25



Trace: 5

Site no : 2#CE Shield Room Data no. : 6
 Env. / Ins. : Temp:27.0°C Humi:54% Press:101.50kPa LINE Phase : LINE
 Limit : EN 55032 A QP
 Engineer : ZSX
 EUT : Embedded Industrial Computer
 Power : DC 12V From Adapter Input AC 110V/60Hz
 M/N : CS12800RA4101P
 Test Mode : USB Play

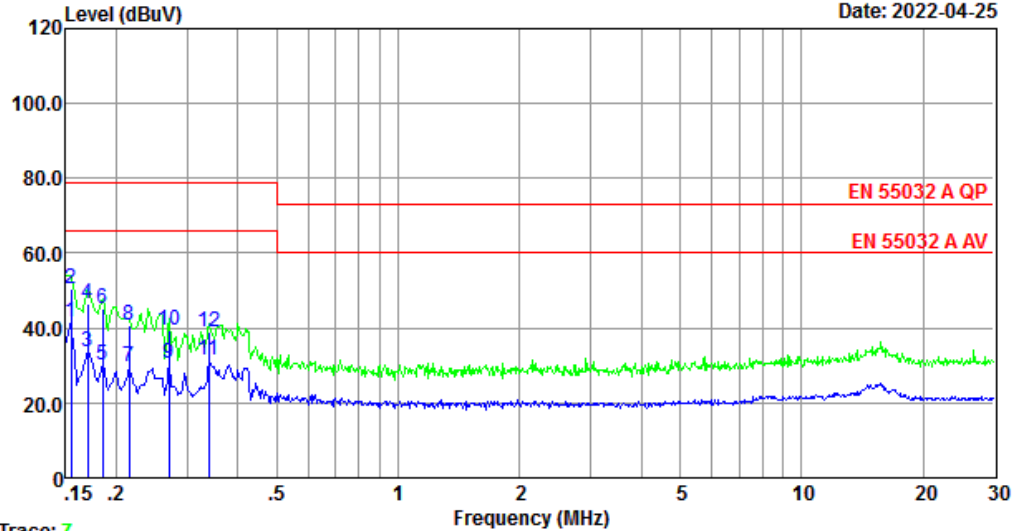
	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15	9.82	9.69	20.40	39.91	66.00	26.09	Average
2	0.15	9.82	9.69	31.19	50.70	79.00	28.30	QP
3	0.17	9.82	9.69	13.76	33.27	66.00	32.73	Average
4	0.17	9.82	9.69	27.62	47.13	79.00	31.87	QP
5	0.19	9.84	9.77	12.31	31.92	66.00	34.08	Average
6	0.19	9.84	9.77	25.65	45.26	79.00	33.74	QP
7	0.23	9.78	9.84	12.08	31.70	66.00	34.30	Average
8	0.23	9.78	9.84	22.16	41.78	79.00	37.22	QP
9	0.26	9.73	9.92	9.46	29.11	66.00	36.89	Average
10	0.26	9.73	9.92	19.62	39.27	79.00	39.73	QP
11	0.39	9.85	9.92	6.62	26.39	66.00	39.61	Average
12	0.39	9.85	9.92	14.79	34.56	79.00	44.44	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-2\Test Data\2022\X\Xin pu si.EM6 (28)

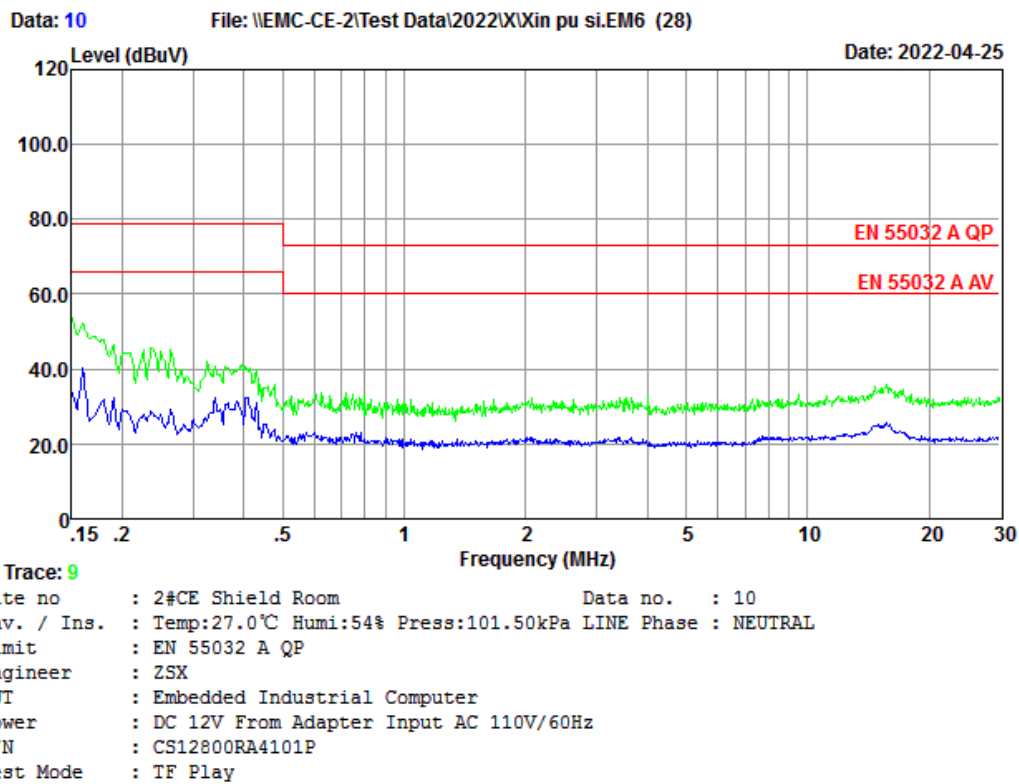
Date: 2022-04-25

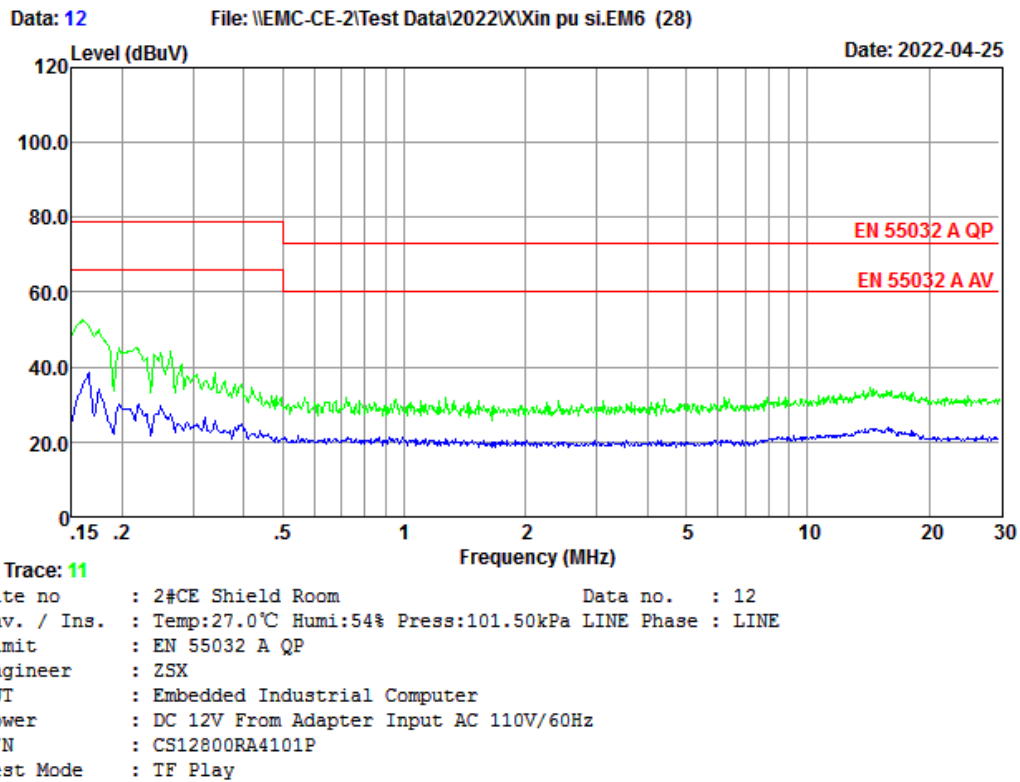


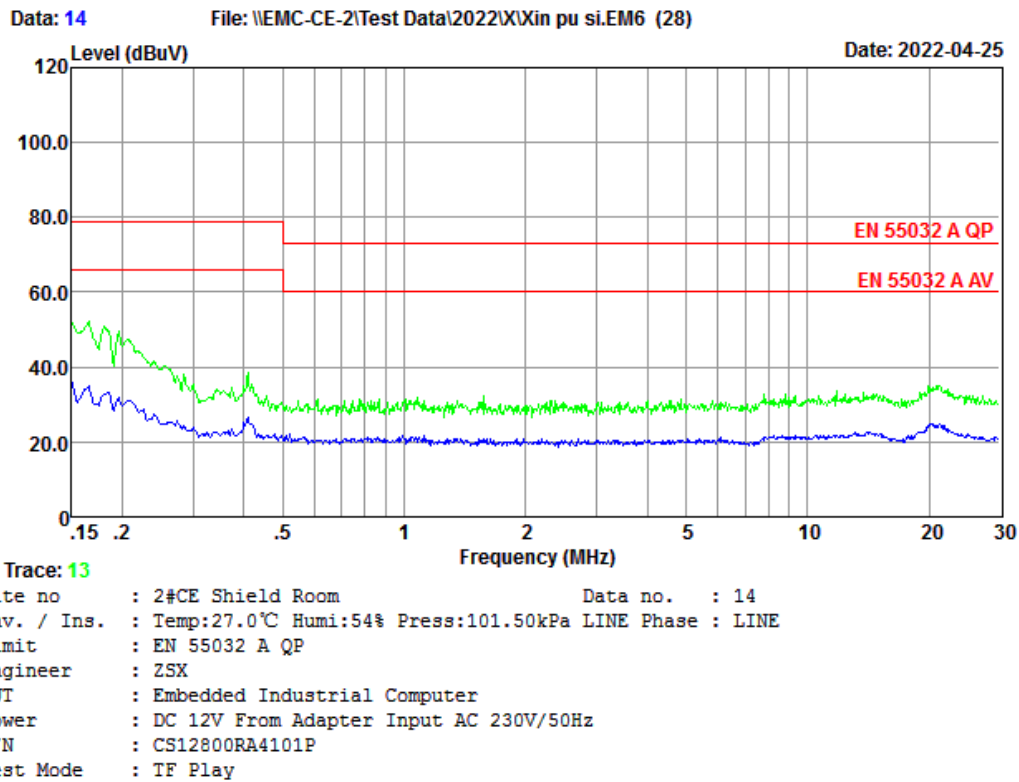
Trace: 7
 Site no : 2#CE Shield Room Data no. : 8
 Env. / Ins. : Temp:27.0°C Humi:54% Press:101.50kPa LINE Phase : NEUTRAL
 Limit : EN 55032 A QP
 Engineer : ZSX
 EUT : Embedded Industrial Computer
 Power : DC 12V From Adapter Input AC 110V/60Hz
 M/N : CS12800RA4101P
 Test Mode : USB Play

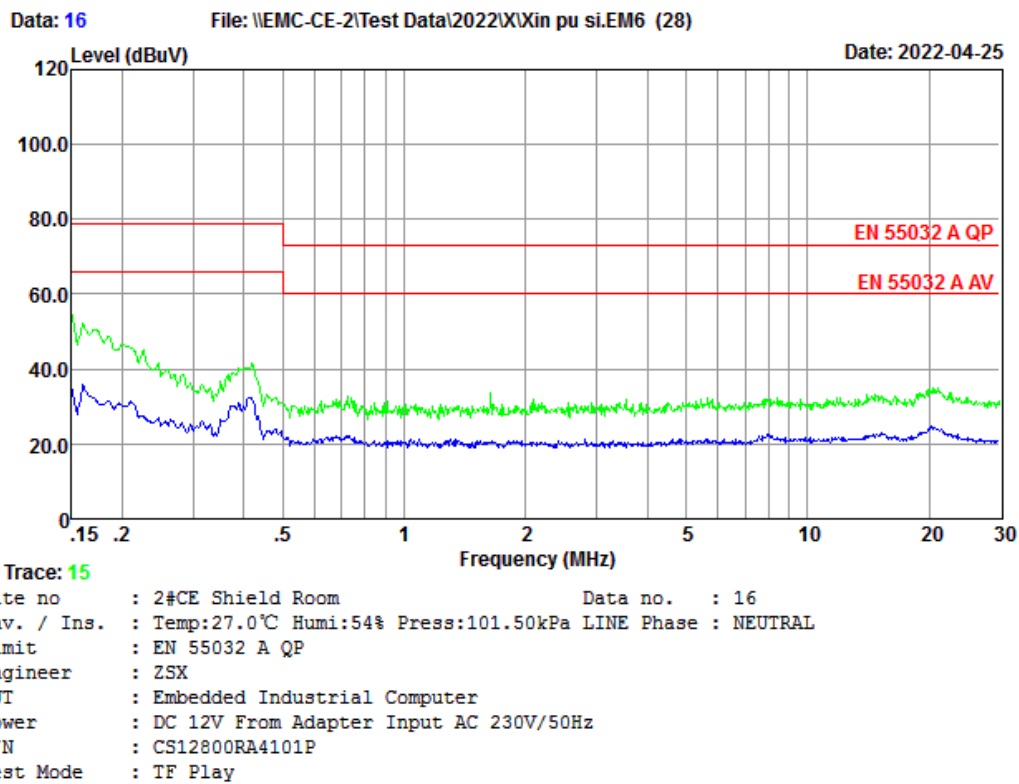
	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15	9.78	9.69	22.14	41.61	66.00	24.39	Average
2	0.15	9.78	9.69	30.92	50.39	79.00	28.61	QP
3	0.17	9.78	9.69	14.22	33.69	66.00	32.31	Average
4	0.17	9.78	9.69	26.92	46.39	79.00	32.61	QP
5	0.19	9.72	9.77	10.44	29.93	66.00	36.07	Average
6	0.19	9.72	9.77	25.65	45.14	79.00	33.86	QP
7	0.22	9.78	9.84	9.95	29.57	66.00	36.43	Average
8	0.22	9.78	9.84	21.28	40.90	79.00	38.10	QP
9	0.27	9.84	9.92	10.87	30.63	66.00	35.37	Average
10	0.27	9.84	9.92	19.60	39.36	79.00	39.64	QP
11	0.34	9.76	9.92	11.62	31.30	66.00	34.70	Average
12	0.34	9.76	9.92	19.19	38.87	79.00	40.13	QP

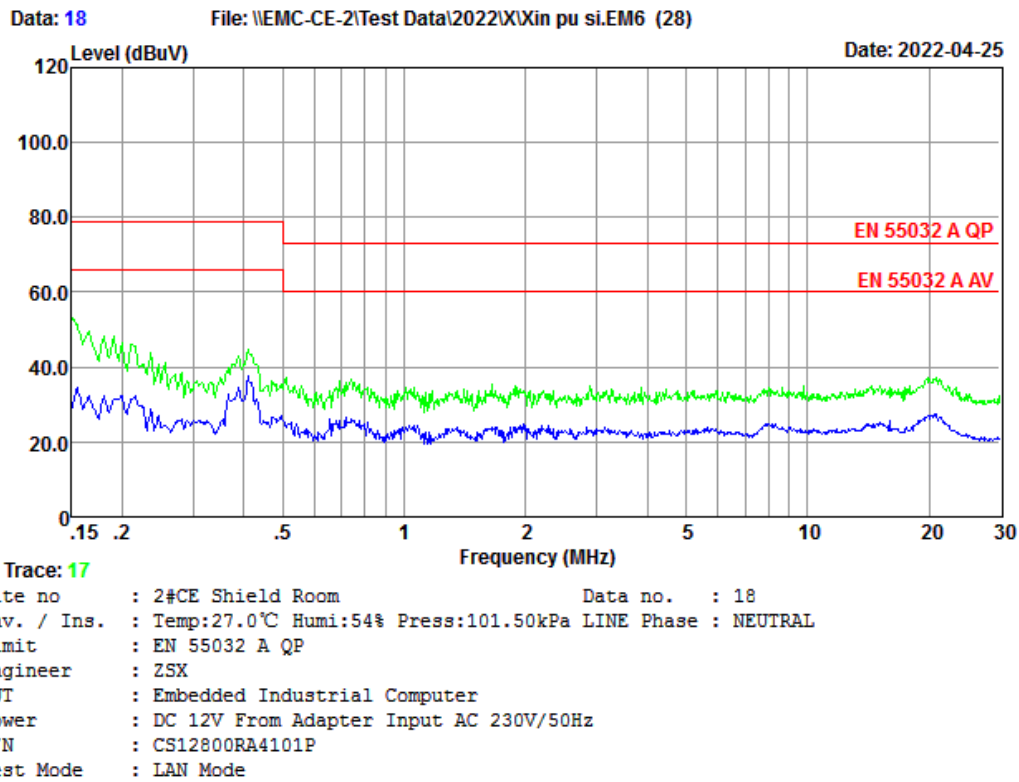
Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.







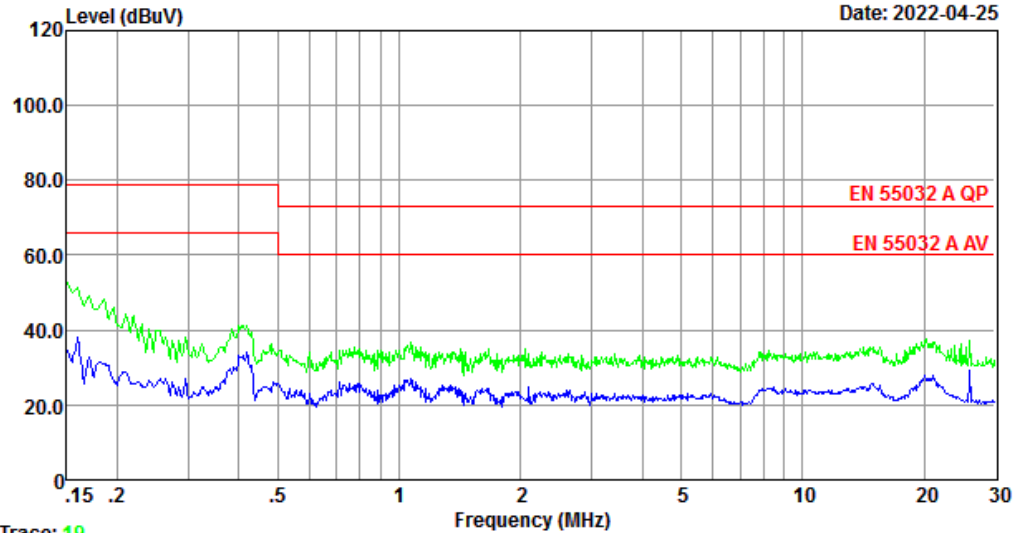




Data: 20

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Date: 2022-04-25



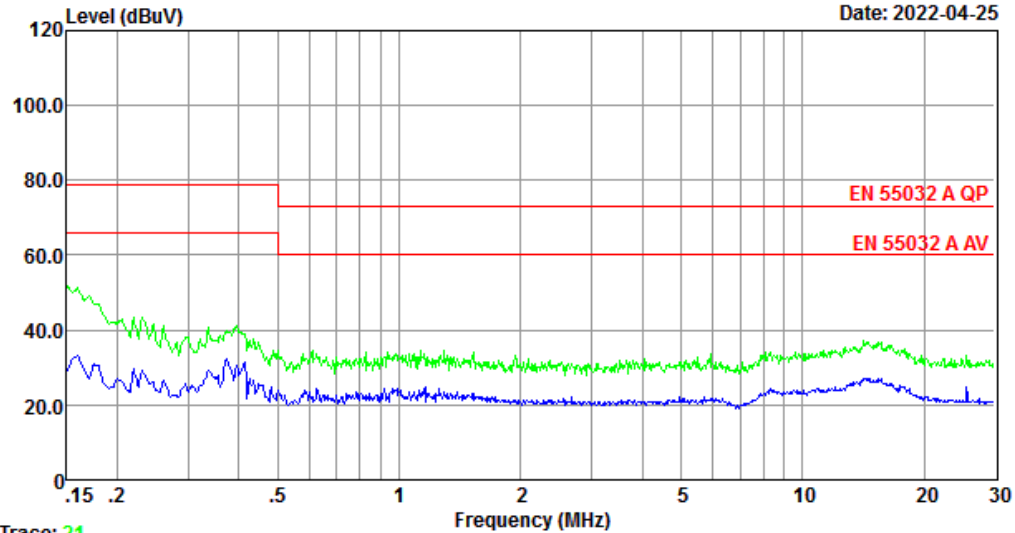
Trace: 19

Site no : 2#CE Shield Room Data no. : 20
Env. / Ins. : Temp:27.0°C Humi:54% Press:101.50kPa LINE Phase : LINE
Limit : EN 55032 A QP
Engineer : ZSX
EUT : Embedded Industrial Computer
Power : DC 12V From Adapter Input AC 230V/50Hz
M/N : CS12800RA4101P
Test Mode : LAN Mode

Data: 22

File: \\EMC-CE-2\Test Data\2022\X\Xin pu si.EM6 (28)

Date: 2022-04-25



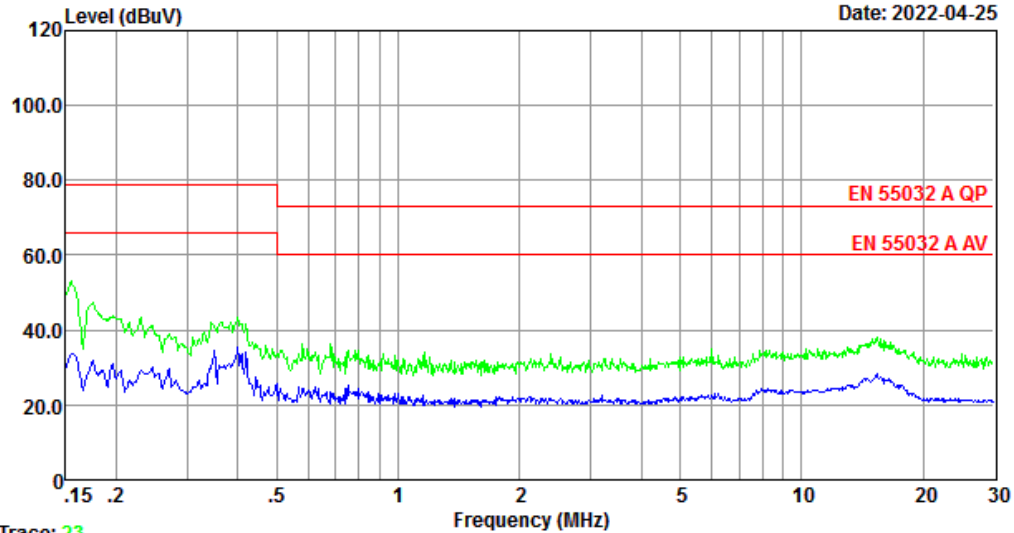
Trace: 21

Site no : 2#CE Shield Room Data no. : 22
Env. / Ins. : Temp:27.0°C Humi:54% Press:101.50kPa LINE Phase : LINE
Limit : EN 55032 A QP
Engineer : ZSX
EUT : Embedded Industrial Computer
Power : DC 12V From Adapter Input AC 110V/60Hz
M/N : CS12800RA4101P
Test Mode : LAN Mode

Data: 24

File: \\EMC-CE-2\Test Data\2022\X\Xin pu si.EM6 (28)

Date: 2022-04-25



Trace: 23

Site no : 2#CE Shield Room Data no. : 24
Env. / Ins. : Temp:27.0°C Humi:54% Press:101.50kPa LINE Phase : NEUTRAL
Limit : EN 55032 A QP
Engineer : ZSX
EUT : Embedded Industrial Computer
Power : DC 12V From Adapter Input AC 110V/60Hz
M/N : CS12800RA4101P
Test Mode : LAN Mode

4.2. 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

Test Setup

Date of test : Apr. 25, 2022

Model No. : CS12800RA4101P

Input Voltage : DC 12V From Adapter Input AC 230V/50Hz,
DC 12V From Adapter Input AC 110V/60Hz

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.

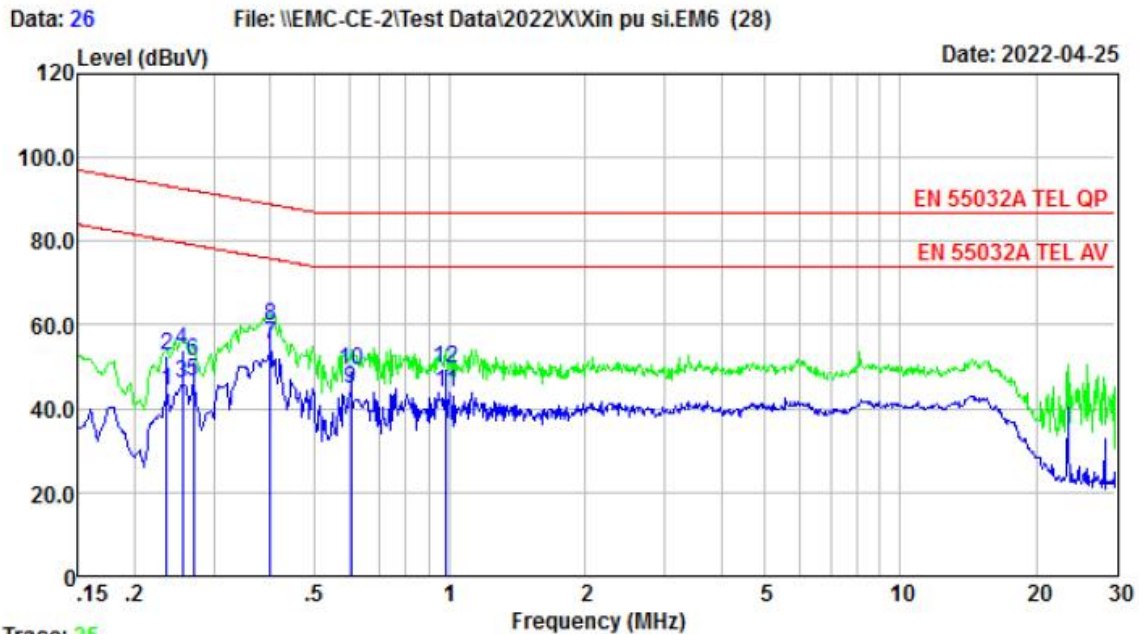
The test data of the worst case condition(s) was reported on the following page.

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



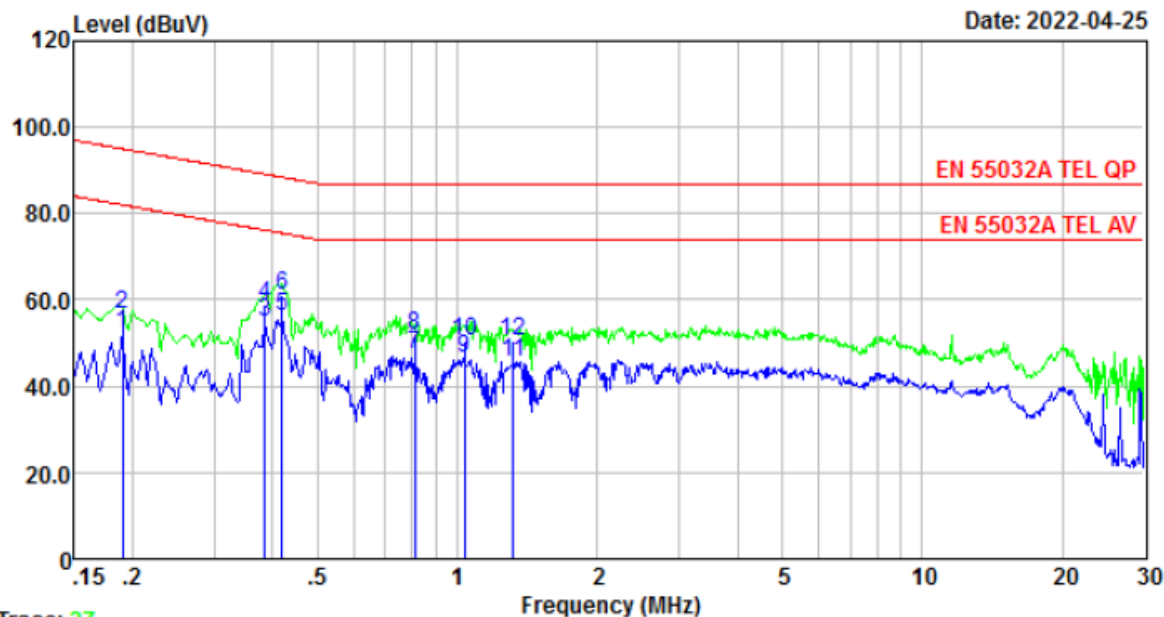
Site no : 2#CE Shield Room Data no. : 26
Env. / Ins. : Temp:27.0°C Humi:54% Press:101.50kPa LINE Phase :
Limit : EN 55032A TEL QP
Engineer : ZSX
EUT : Embedded Industrial Computer
Power : DC 12V From Adapter Input AC 110V/60Hz
M/N : CS12800RA4101P
Test Mode : LAN Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.24	9.82	9.92	24.60	44.34	80.26	35.92	Average
2	0.24	9.82	9.92	32.79	52.53	93.26	40.73	QP
3	0.25	9.80	9.92	26.22	45.94	79.60	33.66	Average
4	0.25	9.80	9.92	34.29	54.01	92.60	38.59	QP
5	0.27	9.80	9.92	26.84	46.56	79.12	32.56	Average
6	0.27	9.80	9.92	31.61	51.33	92.12	40.79	QP
7	0.40	9.83	9.92	35.82	55.57	75.86	20.29	Average
8	0.40	9.83	9.92	40.16	59.91	88.86	28.95	QP
9	0.60	9.87	9.92	24.83	44.62	74.00	29.38	Average
10	0.60	9.87	9.92	29.15	48.94	87.00	38.06	QP
11	0.98	9.81	9.94	24.14	43.89	74.00	30.11	Average
12	0.98	9.81	9.94	29.98	49.73	87.00	37.27	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: 28 File: \\EMC-CE-2\Test Data\2022\X\Xin pu si.EM6 (28)

Date: 2022-04-25



Trace: 27

Site no : 2#CE Shield Room Data no. : 28
Env. / Ins. : Temp:27.0°C Humi:54% Press:101.50kPa LINE Phase :
Limit : EN 55032A TEL QP
Engineer : ZSX
EUT : Embedded Industrial Computer
Power : DC 12V From Adapter Input AC 230V/50Hz
M/N : CS12800RA4101P
Test Mode : LAN Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBUV)	Emission Level (dBUV)	Limits (dBUV)	Margin (dB)	Remark
1	0.19	9.85	9.77	32.49	52.11	82.02	29.91	Average
2	0.19	9.85	9.77	36.90	56.52	95.02	38.50	QP
3	0.39	9.83	9.92	35.02	54.77	76.17	21.40	Average
4	0.39	9.83	9.92	39.26	59.01	89.17	30.16	QP
5	0.42	9.84	9.92	36.43	56.19	75.46	19.27	Average
6	0.42	9.84	9.92	41.32	61.08	88.46	27.38	QP
7	0.81	9.84	9.93	27.43	47.20	74.00	26.80	Average
8	0.81	9.84	9.93	31.98	51.75	87.00	35.25	QP
9	1.04	9.81	9.94	26.89	46.64	74.00	27.36	Average
10	1.04	9.81	9.94	30.91	50.66	87.00	36.34	QP
11	1.32	9.80	9.95	25.91	45.66	74.00	28.34	Average
12	1.32	9.80	9.95	30.62	50.37	87.00	36.63	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.

4.3. Radiated Emission Test

RESULT : **Pass**
Test procedure : EN 55032:2015+A11:2020
Frequency range : 30 ~ 1000MHz
Test Site : 1#966 Chamber
Limits : EN 55032:2015+A11:2020 Class A

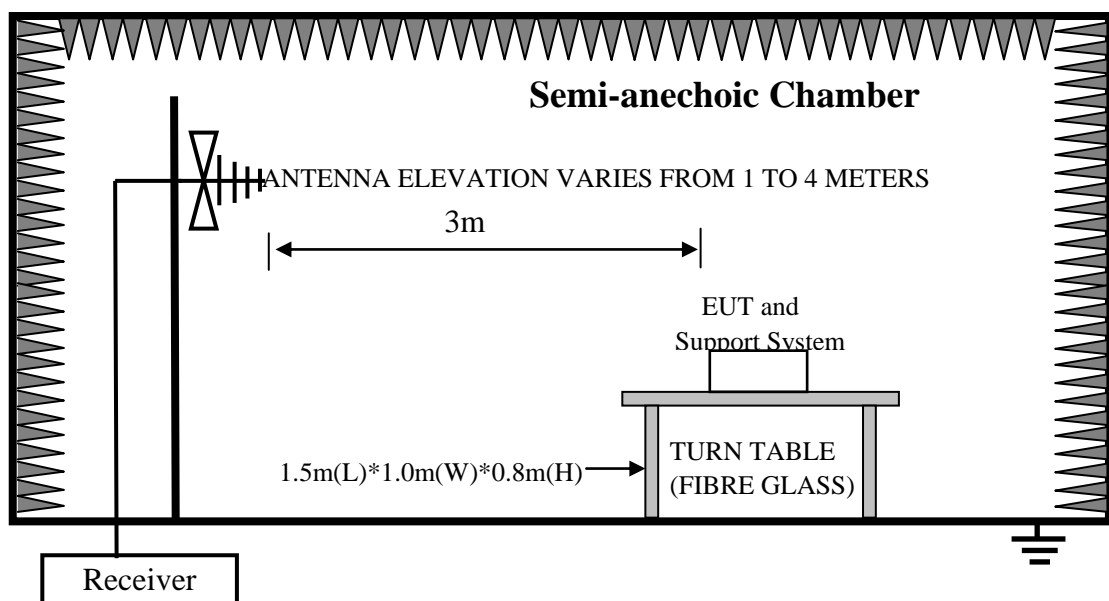
Test Setup

Date of test : Apr. 25, 2022
Model No. : CS12800RA4101P
Input Voltage : DC 12V From Adapter Input AC 230V/50Hz,
DC 12V From Adapter Input AC 110V/60Hz
Operation Mode : TF Play, USB Play, LAN Mode

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.



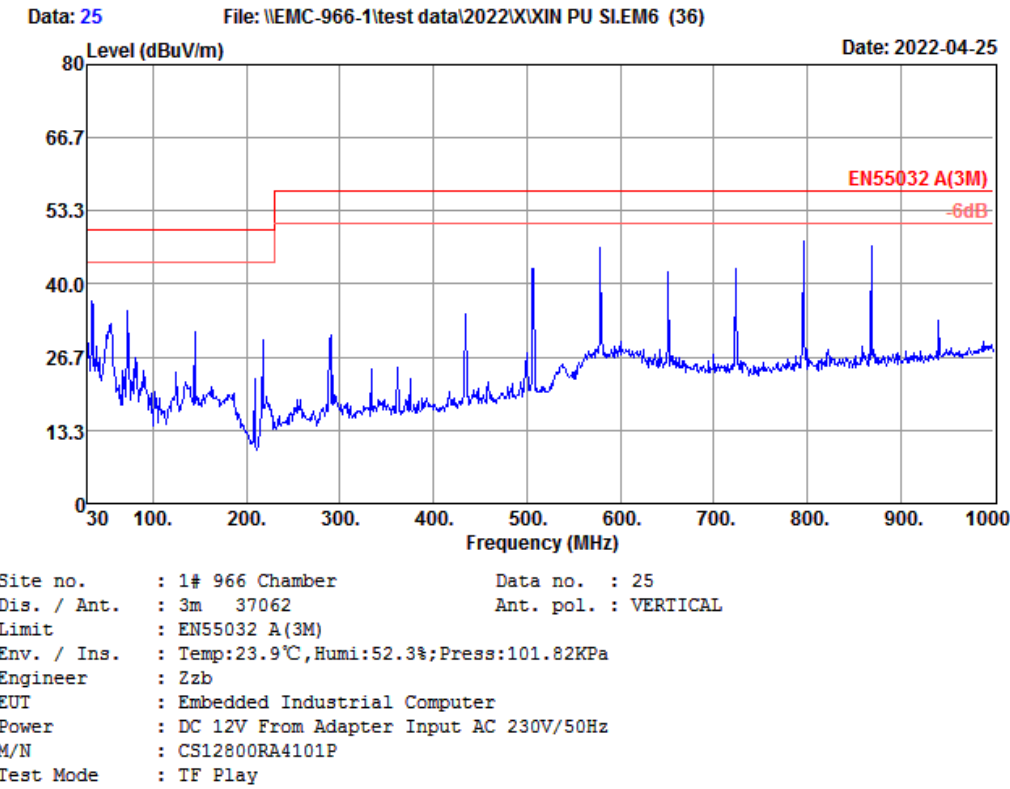
Note:

Test uncertainty: ± 4.48 dB (H); ± 4.58 dB (V) at a level of confidence of 95%.(1#966)

Test Data

EST Technology

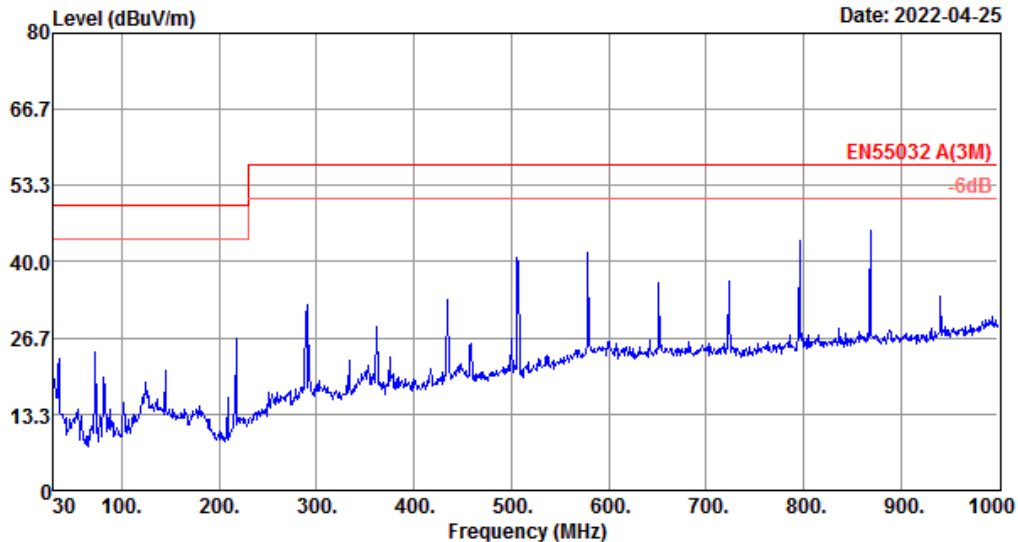
Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878



Data: 26

File: \\EMC-966-1\\test data\\2022\\X\\XIN PU SLEM6 (36)

Date: 2022-04-25

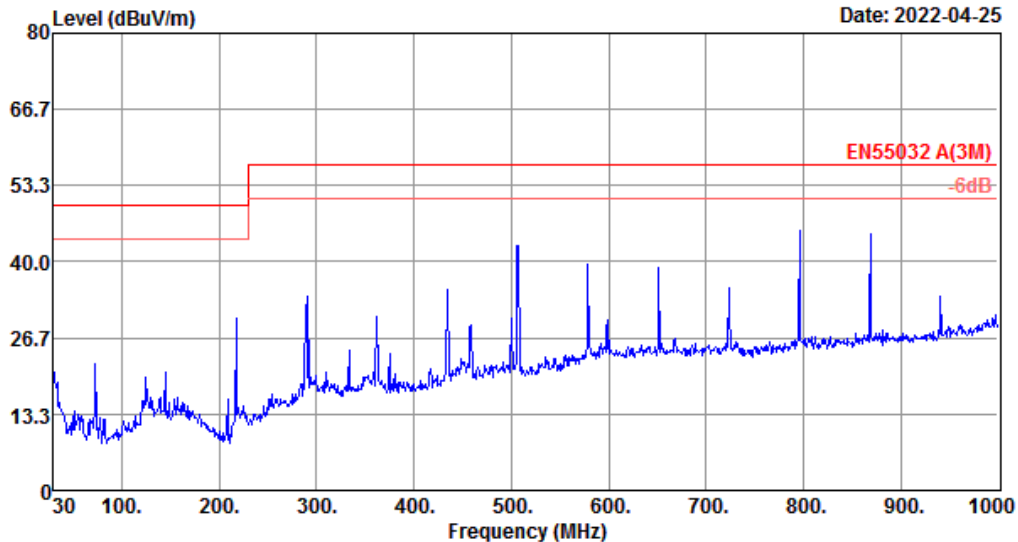


Site no. : 1# 966 Chamber Data no. : 26
Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
Limit : EN55032 A(3M)
Env. / Ins. : Temp:23.9℃, Humi:52.3%; Press:101.82KPa
Engineer : Zzb
EUT : Embedded Industrial Computer
Power : DC 12V From Adapter Input AC 230V/50Hz
M/N : CS12800RA4101P
Test Mode : TF Play

Data: 27

File: \\EMC-966-1\\test data\\2022\\X\\XIN PU SLEM6 (36)

Date: 2022-04-25

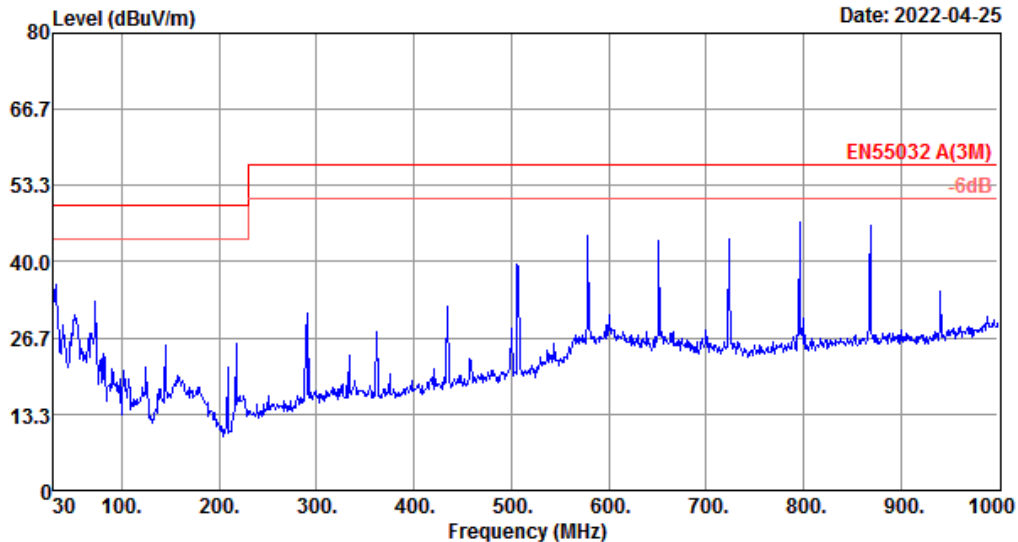


Site no. : 1# 966 Chamber Data no. : 27
Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
Limit : EN55032 A(3M)
Env. / Ins. : Temp:23.9℃,Humi:52.3%;Press:101.82KPa
Engineer : Zzb
EUT : Embedded Industrial Computer
Power : DC 12V From Adapter Input AC 110V/60Hz
M/N : CS12800RA4101P
Test Mode : TF Play

Data: 28

File: \\EMC-966-1\test data\2022\X\XIN PU SLEM6 (36)

Date: 2022-04-25

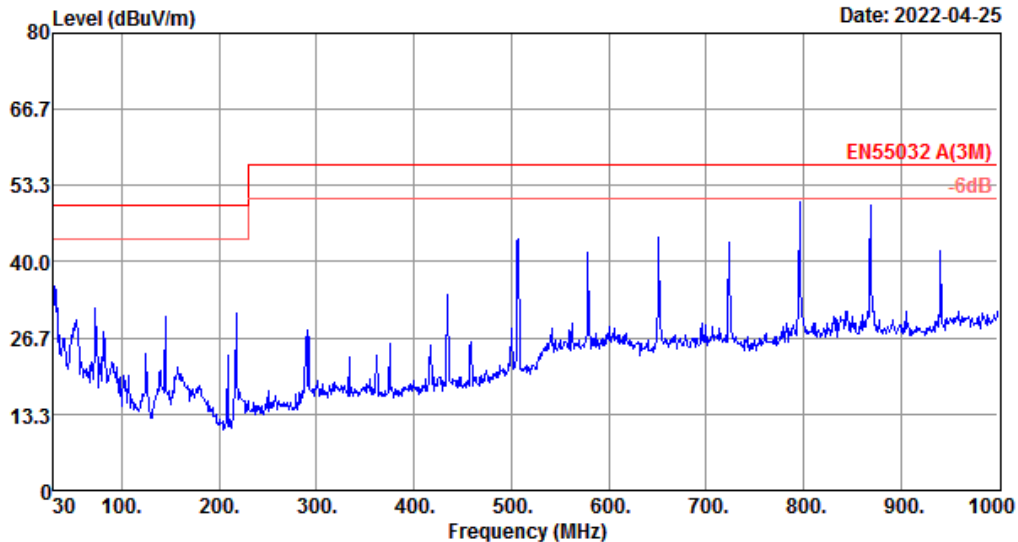


Site no. : 1# 966 Chamber Data no. : 28
Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL
Limit : EN55032 A(3M)
Env. / Ins. : Temp:23.9℃,Humi:52.3%;Press:101.82KPa
Engineer : Zzb
EUT : Embedded Industrial Computer
Power : DC 12V From Adapter Input AC 110V/60Hz
M/N : CS12800RA4101P
Test Mode : TF Play

Data: 29

File: \\EMC-966-1\\test data\\2022\\X\\XIN PU SLEM6 (36)

Date: 2022-04-25

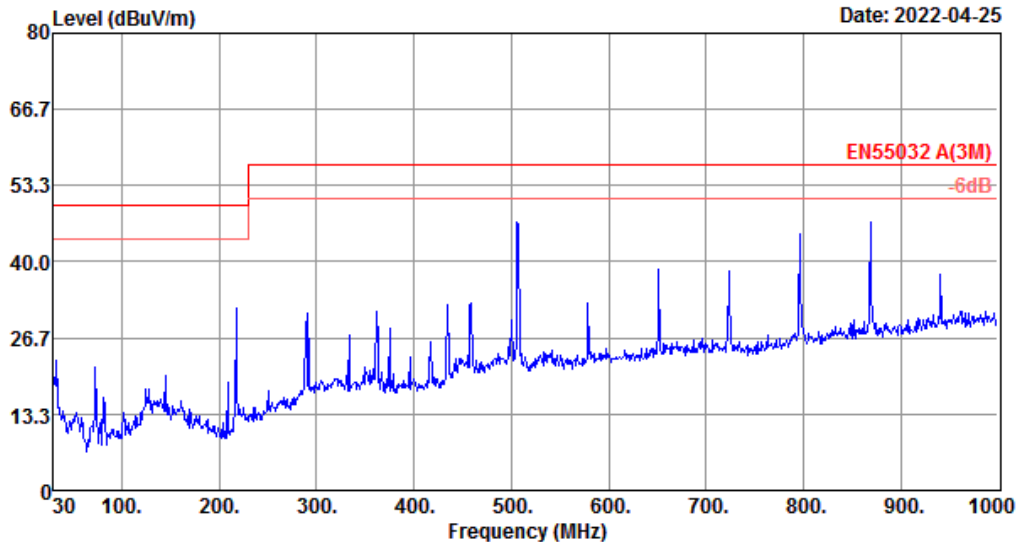


Site no. : 1# 966 Chamber Data no. : 29
Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL
Limit : EN55032 A(3M)
Env. / Ins. : Temp:23.9℃,Humi:52.3%;Press:101.82KPa
Engineer : Zzb
EUT : Embedded Industrial Computer
Power : DC 12V From Adapter Input AC 110V/60Hz
M/N : CS12800RA4101P
Test Mode : USB Play

Data: 30

File: \\EMC-966-1\\test data\\2022\\X\\XIN PU SLEM6 (36)

Date: 2022-04-25

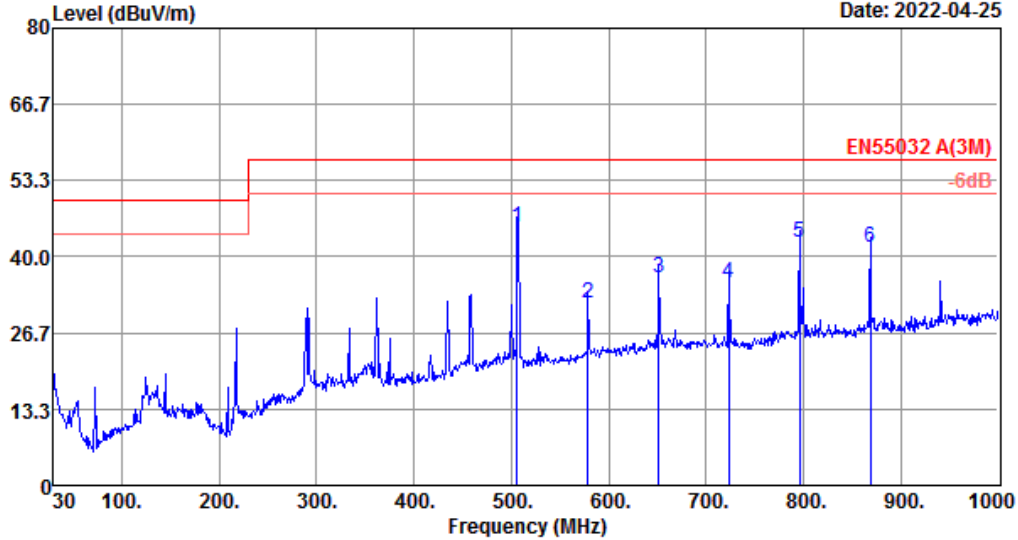


Site no. : 1# 966 Chamber Data no. : 30
Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
Limit : EN55032 A(3M)
Env. / Ins. : Temp:23.9℃,Humi:52.3%;Press:101.82KPa
Engineer : Zzb
EUT : Embedded Industrial Computer
Power : DC 12V From Adapter Input AC 110V/60Hz
M/N : CS12800RA4101P
Test Mode : USB Play

Data: 31

File: \\EMC-966-1\test data\2022\X\XIN PU SLEM6 (36)

Date: 2022-04-25



Site no. : 1# 966 Chamber Data no. : 31
 Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
 Limit : EN55032 A(3M)
 Env. / Ins. : Temp:23.9℃, Humi:52.3%; Press:101.82KPa
 Engineer : Zzb
 EUT : Embedded Industrial Computer
 Power : DC 12V From Adapter Input AC 230V/50Hz
 M/N : CS12800RA4101P
 Test Mode : USB Play

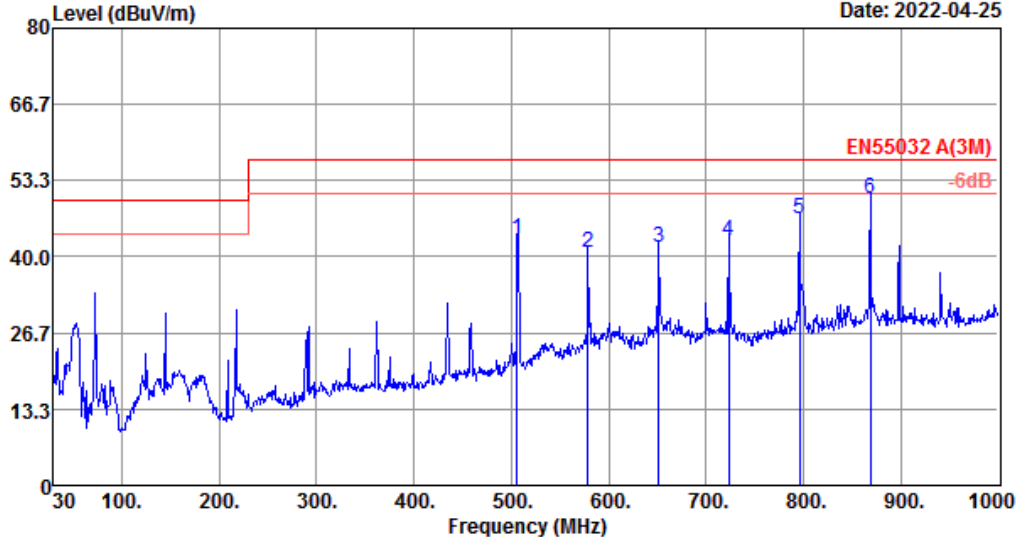
	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	506.27	18.56	2.15	24.33	45.04	57.00	11.96	QP
2	579.02	20.28	2.20	9.30	31.78	57.00	25.22	QP
3	651.77	21.72	2.49	12.18	36.39	57.00	20.61	QP
4	723.55	21.90	2.61	10.92	35.43	57.00	21.57	QP
5	796.30	22.96	2.73	16.95	42.64	57.00	14.36	QP
6	869.05	24.01	2.75	14.73	41.49	57.00	15.51	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: 32

File: \\EMC-966-1\\test data\\2022\\X\\XIN PU SLEM6 (36)

Date: 2022-04-25



Site no. : 1# 966 Chamber Data no. : 32
 Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL
 Limit : EN55032 A(3M)
 Env. / Ins. : Temp:23.9℃, Humi:52.3%; Press:101.82KPa
 Engineer : Zzb
 EUT : Embedded Industrial Computer
 Power : DC 12V From Adapter Input AC 230V/50Hz
 M/N : CS12800RA4101P
 Test Mode : USB Play

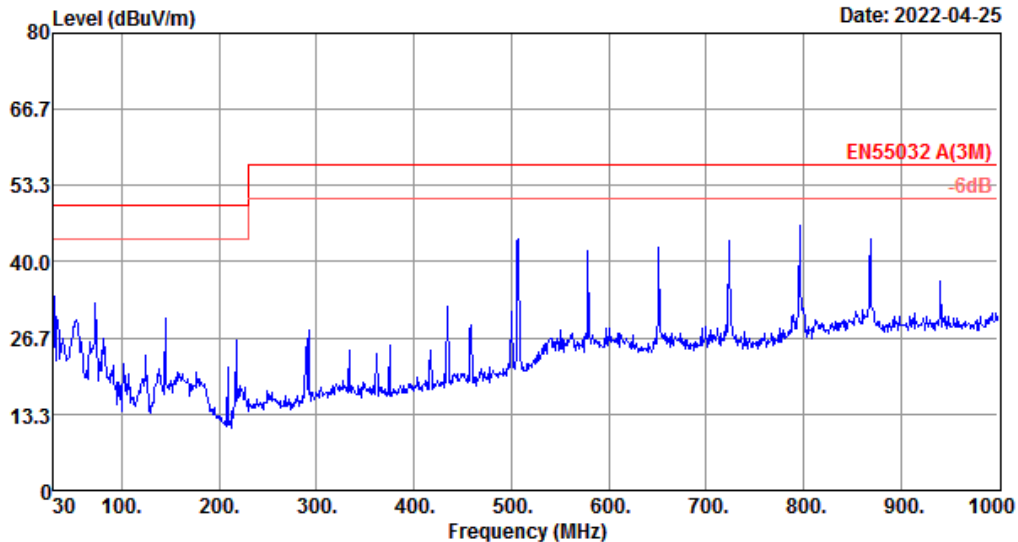
	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	506.27	18.56	2.15	22.40	43.11	57.00	13.89	QP
2	579.02	20.28	2.20	18.32	40.80	57.00	16.20	QP
3	651.77	21.72	2.49	17.38	41.59	57.00	15.41	QP
4	723.55	21.90	2.61	18.37	42.88	57.00	14.12	QP
5	796.30	22.96	2.73	20.87	46.56	57.00	10.44	QP
6	869.05	24.01	2.75	23.29	50.05	57.00	6.95	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: 33

File: \\EMC-966-1\\test data\\2022\\X\\XIN PU SLEM6 (36)

Date: 2022-04-25

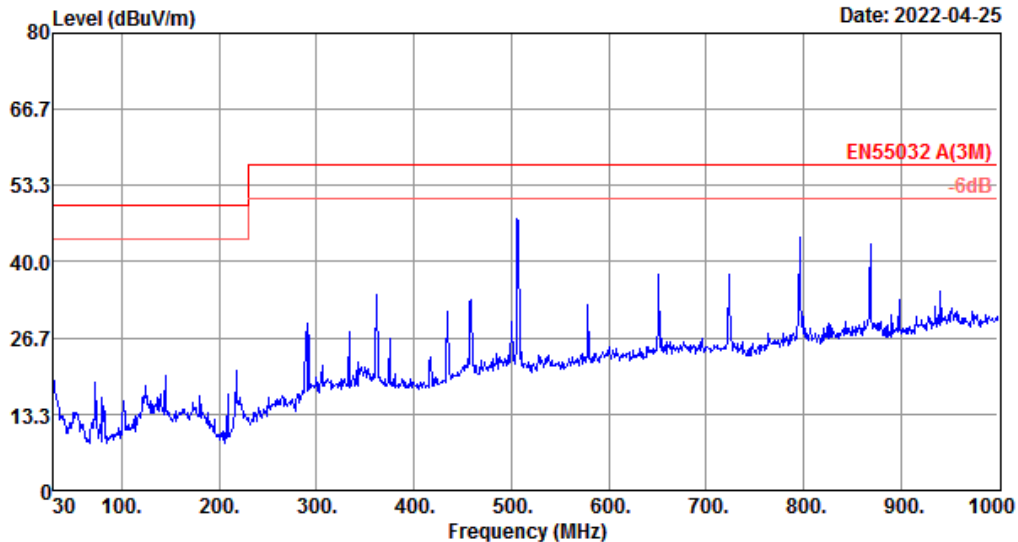


Site no. : 1# 966 Chamber Data no. : 33
Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL
Limit : EN55032 A(3M)
Env. / Ins. : Temp:23.9℃,Humi:52.3%;Press:101.82KPa
Engineer : Zzb
EUT : Embedded Industrial Computer
Power : DC 12V From Adapter Input AC 230V/50Hz
M/N : CS12800RA4101P
Test Mode : LAN Mode

Data: 34

File: \\EMC-966-1\\test data\\2022\\X\\XIN PU SLEM6 (36)

Date: 2022-04-25

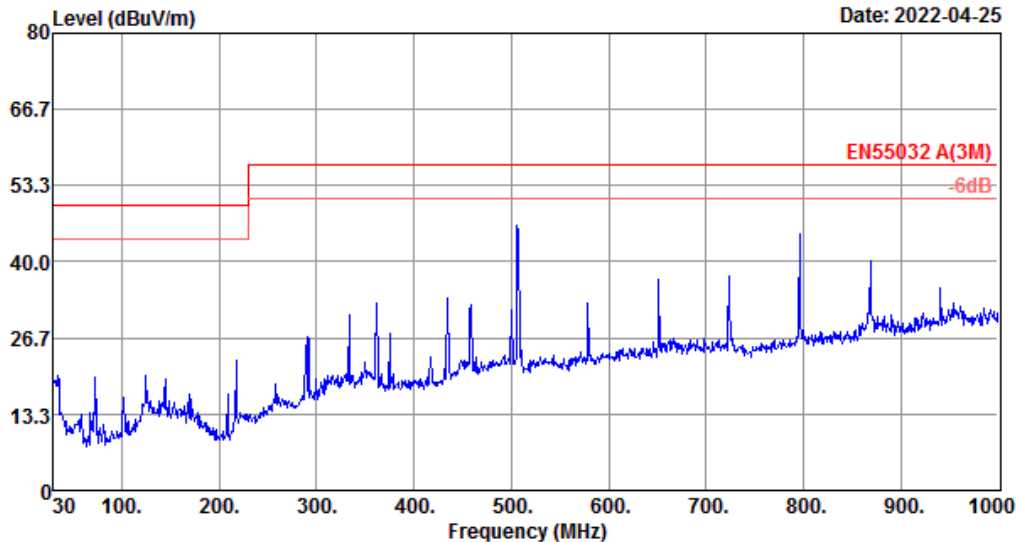


Site no. : 1# 966 Chamber Data no. : 34
Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
Limit : EN55032 A(3M)
Env. / Ins. : Temp:23.9℃, Humi:52.3%; Press:101.82KPa
Engineer : Zzb
EUT : Embedded Industrial Computer
Power : DC 12V From Adapter Input AC 230V/50Hz
M/N : CS12800RA4101P
Test Mode : LAN Mode

Data: 35

File: \\EMC-966-1\\test data\\2022\\X\\XIN PU SLEM6 (36)

Date: 2022-04-25

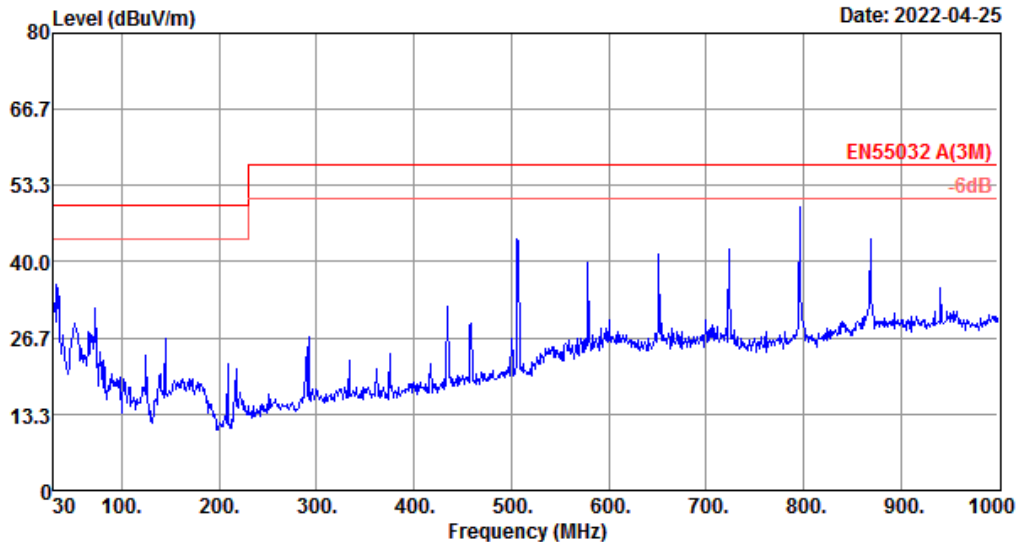


Site no. : 1# 966 Chamber Data no. : 35
Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
Limit : EN55032 A(3M)
Env. / Ins. : Temp:23.9℃,Humi:52.3%;Press:101.82KPa
Engineer : Zzb
EUT : Embedded Industrial Computer
Power : DC 12V From Adapter Input AC 110V/60Hz
M/N : CS12800RA4101P
Test Mode : LAN Mode

Data: 36

File: \\EMC-966-1\\test data\\2022\\X\\XIN PU SLEM6 (36)

Date: 2022-04-25



Site no. : 1# 966 Chamber Data no. : 36
Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL
Limit : EN55032 A(3M)
Env. / Ins. : Temp:23.9℃,Humi:52.3%;Press:101.82KPa
Engineer : Zzb
EUT : Embedded Industrial Computer
Power : DC 12V From Adapter Input AC 110V/60Hz
M/N : CS12800RA4101P
Test Mode : LAN Mode

4.4. 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

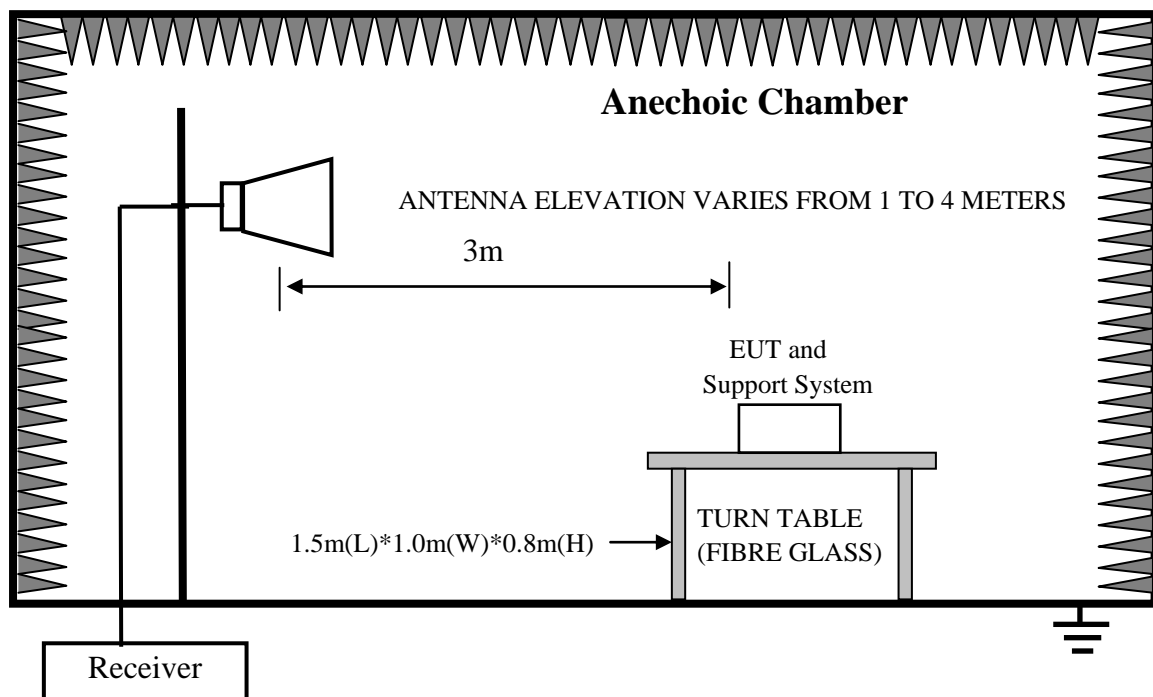
Test Setup

Date of test : Apr. 24, 2022
Model No. : CS12800RA4101P
Input Voltage : DC 12V From Adapter Input AC 230V/50Hz,
DC 12V From Adapter Input AC 110V/60Hz
Operation Mode : TF Play, USB Play, LAN Mode

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).

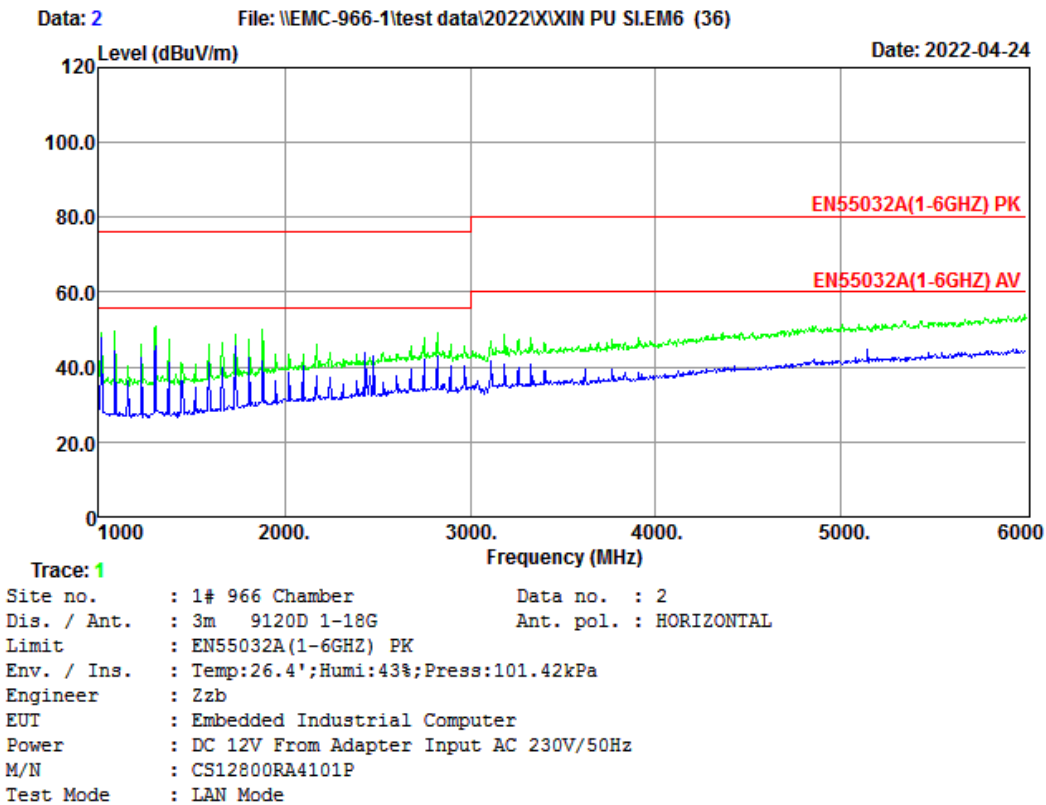


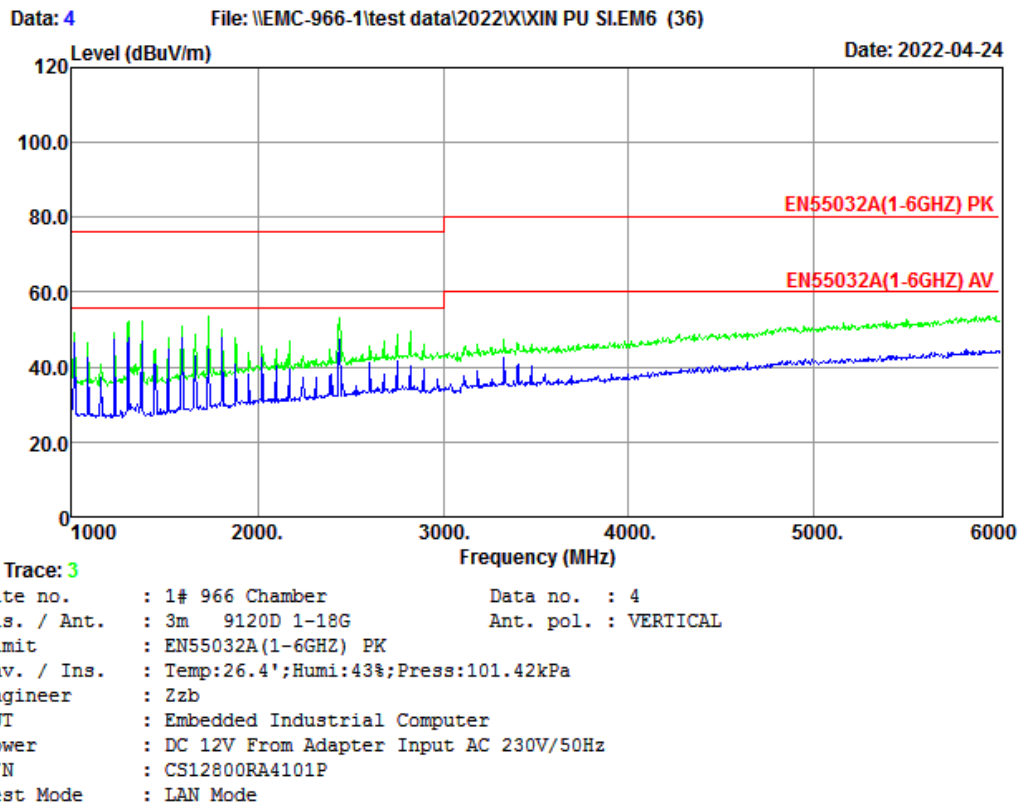
Note: Test uncertainty: $\pm 4.72\text{dB}$ at a level of confidence of 95%.

Test Data

EST Technology

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

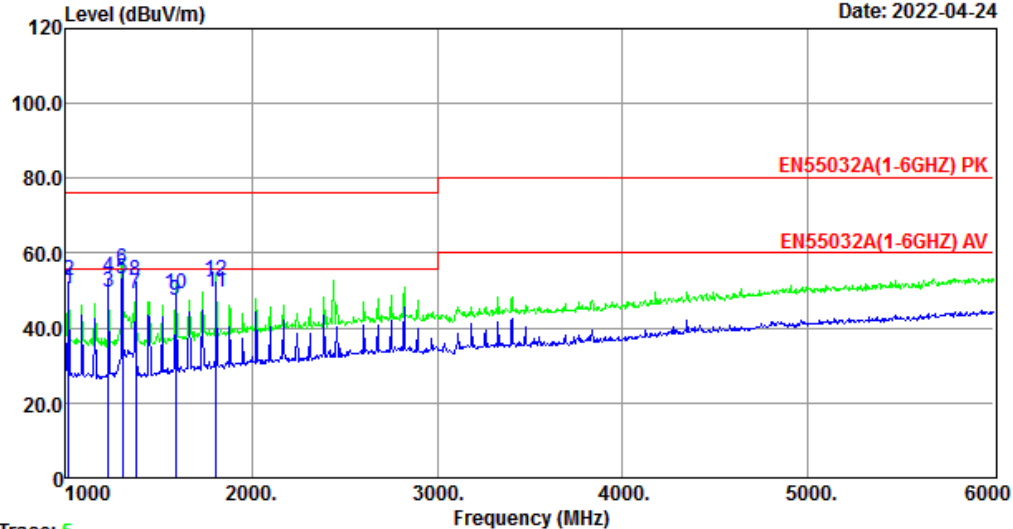




Data: 6

File: \\EMC-966-1\test data\2022\XIN PU SLEM6 (36)

Date: 2022-04-24



Trace: 5

Site no. : 1# 966 Chamber Data no. : 6
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL
 Limit : EN55032A(1-6GHZ) PK
 Env. / Ins. : Temp:26.4'; Humi:43%; Press:101.42kPa
 Engineer : Zzb
 EUT : Embedded Industrial Computer
 Power : DC 12V From Adapter Input AC 230V/50Hz
 M/N : CS12800RA4101P
 Test Mode : TF Play

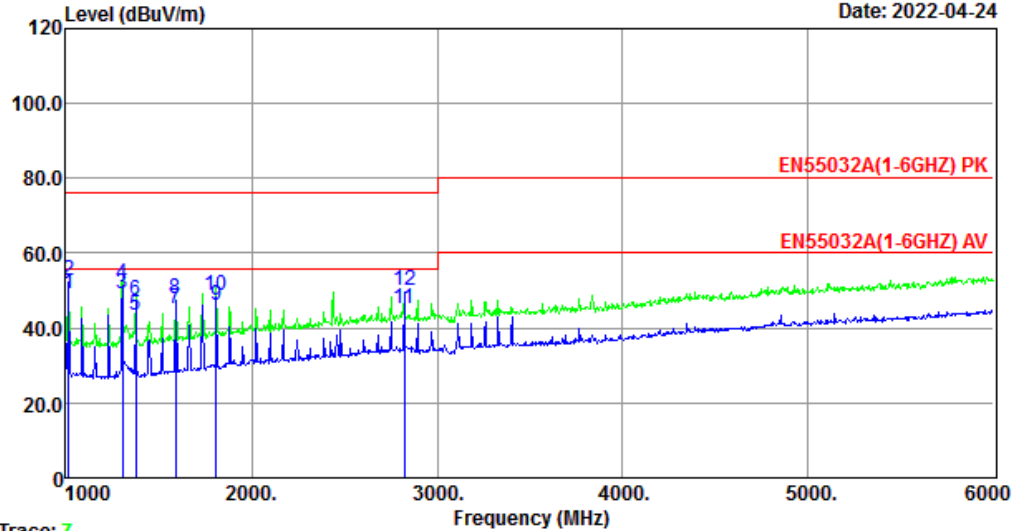
	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1015.00	24.12	2.17	24.35	50.64	56.00	5.36	Average
2	1015.00	24.12	2.17	26.61	52.90	76.00	23.10	Peak
3	1230.00	24.32	2.30	23.12	49.74	56.00	6.26	Average
4	1230.00	24.32	2.30	26.97	53.59	76.00	22.41	Peak
5	1305.00	24.35	2.34	26.60	53.29	56.00	2.71	Average
6	1305.00	24.35	2.34	29.29	55.98	76.00	20.02	Peak
7	1375.00	24.38	2.38	22.42	49.18	56.00	6.82	Average
8	1375.00	24.38	2.38	25.81	52.57	76.00	23.43	Peak
9	1590.00	25.20	2.50	19.90	47.60	56.00	8.40	Average
10	1590.00	25.20	2.50	21.26	48.96	76.00	27.04	Peak
11	1810.00	25.62	2.63	21.40	49.65	56.00	6.35	Average
12	1810.00	25.62	2.63	24.29	52.54	76.00	23.46	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\2022\X\XIN PU SLEM6 (36)

Date: 2022-04-24



Trace: 7

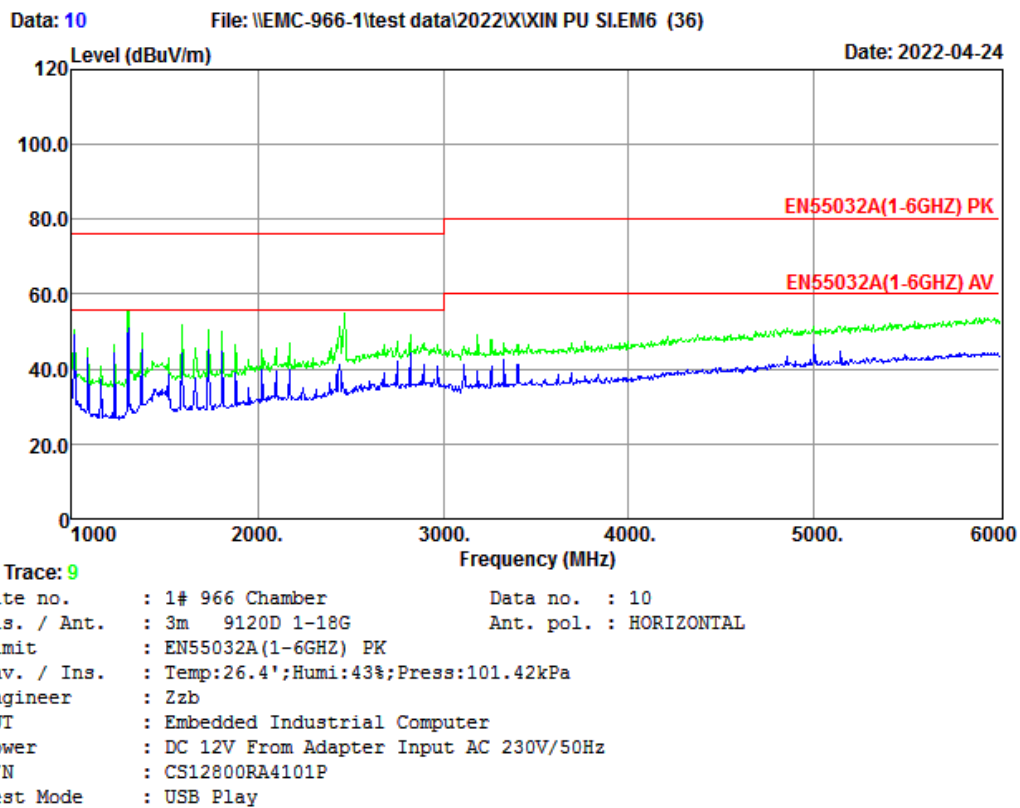
Site no. : 1# 966 Chamber Data no. : 8
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL
 Limit : EN55032A(1-6GHZ) PK
 Env. / Ins. : Temp:26.4';Humi:43%;Press:101.42kPa
 Engineer : Zzb
 EUT : Embedded Industrial Computer
 Power : DC 12V From Adapter Input AC 230V/50Hz
 M/N : CS12800RA4101P
 Test Mode : TF Play

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1015.00	24.12	2.17	22.96	49.25	56.00	6.75	Average
2	1015.00	24.12	2.17	26.62	52.91	76.00	23.09	Peak
3	1305.00	24.35	2.34	22.56	49.25	56.00	6.75	Average
4	1305.00	24.35	2.34	25.19	51.88	76.00	24.12	Peak
5	1375.00	24.38	2.38	16.82	43.58	56.00	12.42	Average
6	1375.00	24.38	2.38	20.61	47.37	76.00	28.63	Peak
7	1590.00	25.20	2.50	17.65	45.35	56.00	10.65	Average
8	1590.00	25.20	2.50	20.25	47.95	76.00	28.05	Peak
9	1810.00	25.62	2.63	17.75	46.00	56.00	10.00	Average
10	1810.00	25.62	2.63	20.31	48.56	76.00	27.44	Peak
11	2825.00	28.35	3.51	13.51	45.37	56.00	10.63	Average
12	2825.00	28.35	3.51	18.26	50.12	76.00	25.88	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.

2. Margin= Limit - Emission Level.

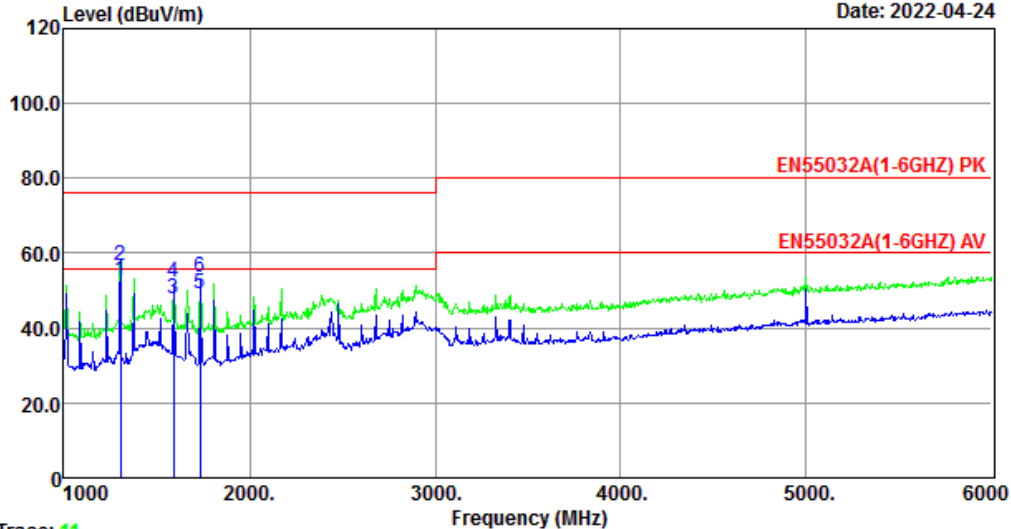
3. The emission levels that are 20dB below the official limit are not reported.



Data: 12

File: \\EMC-966-1\test data\2022\XIN PU SLEM6 (36)

Date: 2022-04-24

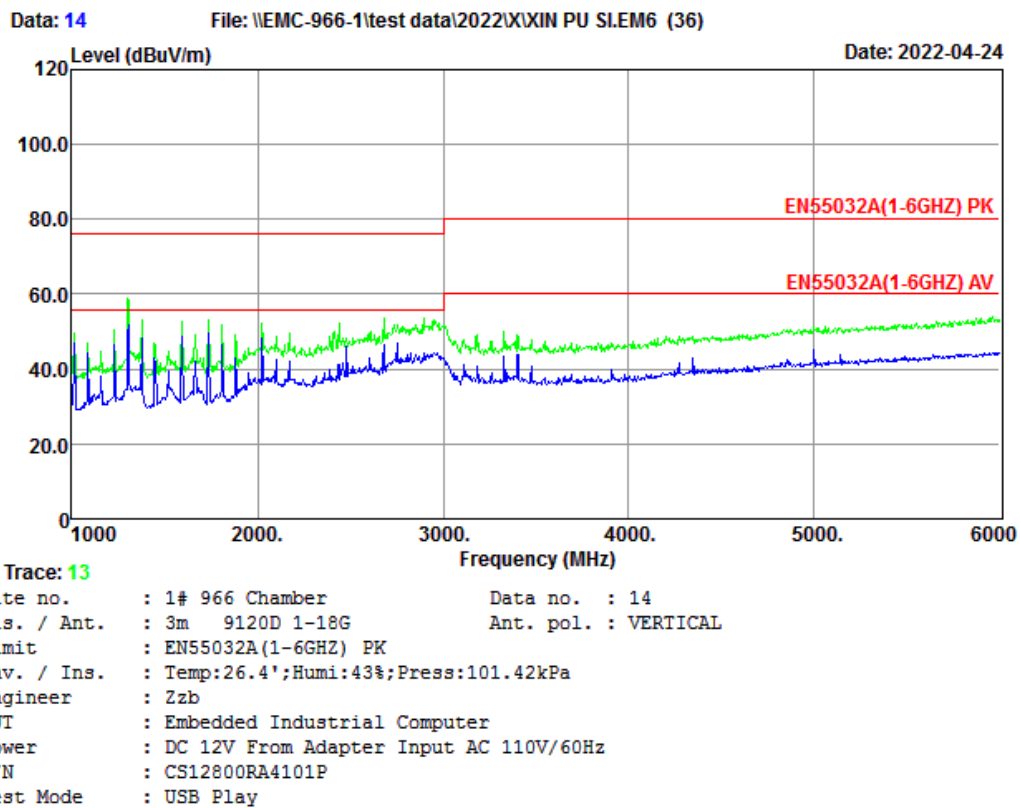


Trace: 11

Site no. : 1# 966 Chamber Data no. : 12
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL
 Limit : EN55032A(1-6GHZ) PK
 Env. / Ins. : Temp:26.4';Humi:43%;Press:101.42kPa
 Engineer : Zzb
 EUT : Embedded Industrial Computer
 Power : DC 12V From Adapter Input AC 230V/50Hz
 M/N : CS12800RA4101P
 Test Mode : USB Play

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1305.00	24.35	2.34	26.04	52.73	56.00	3.27	Average
2	1305.00	24.35	2.34	29.95	56.64	76.00	19.36	Peak
3	1590.00	25.20	2.50	20.17	47.87	56.00	8.13	Average
4	1590.00	25.20	2.50	24.76	52.46	76.00	23.54	Peak
5	1735.00	25.40	2.58	21.17	49.15	56.00	6.85	Average
6	1735.00	25.40	2.58	25.61	53.59	76.00	22.41	Peak

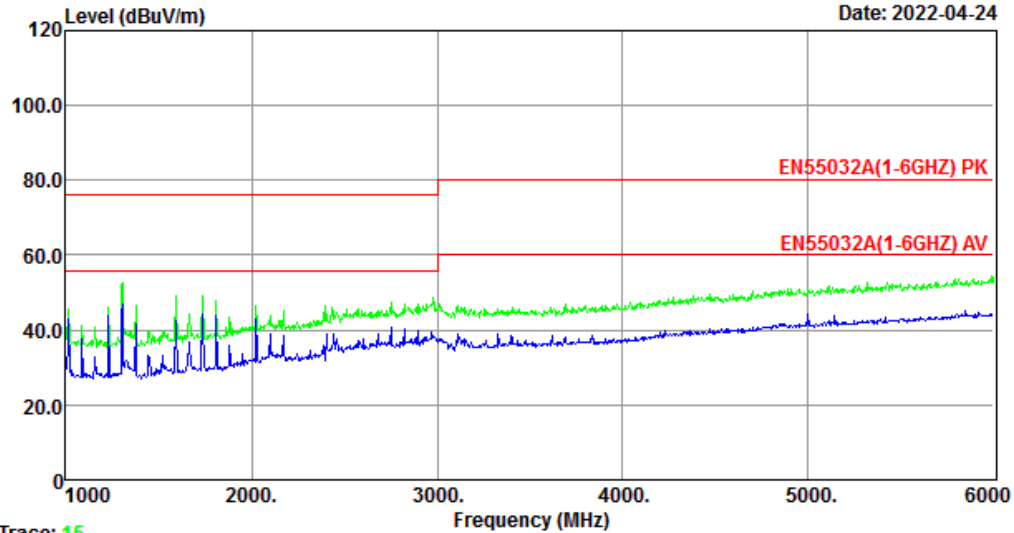
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.



Data: 16

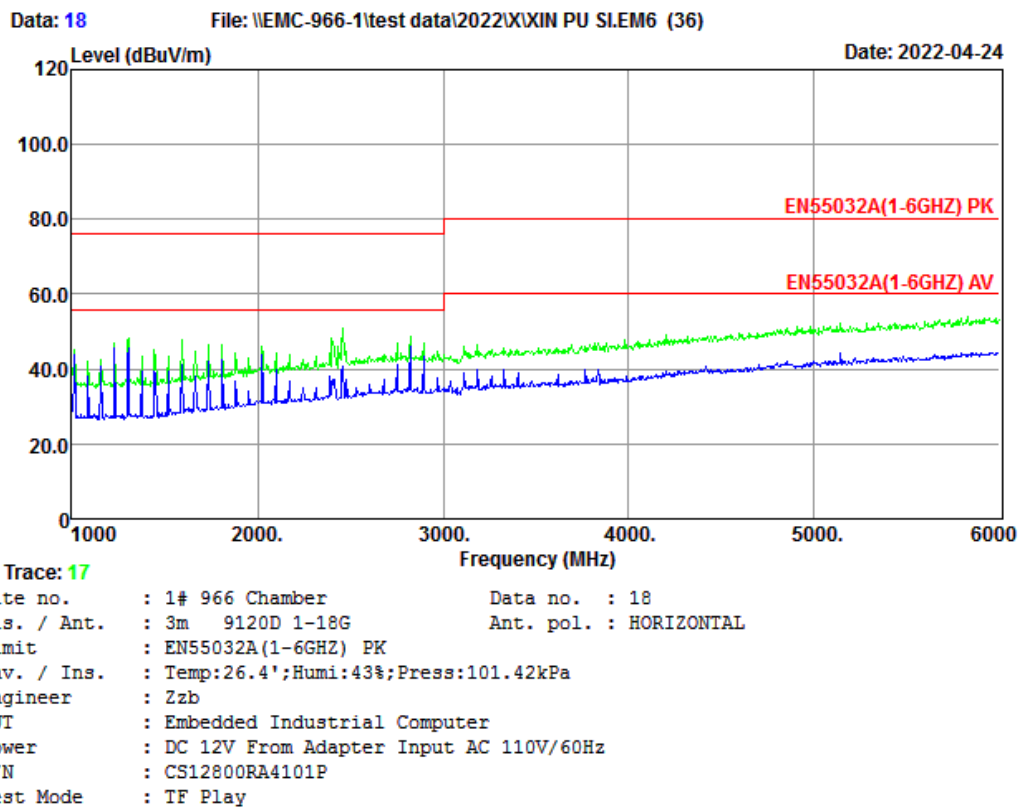
File: \\EMC-966-1\test data\2022\X\XIN PU SLEM6 (36)

Date: 2022-04-24



Trace: 15

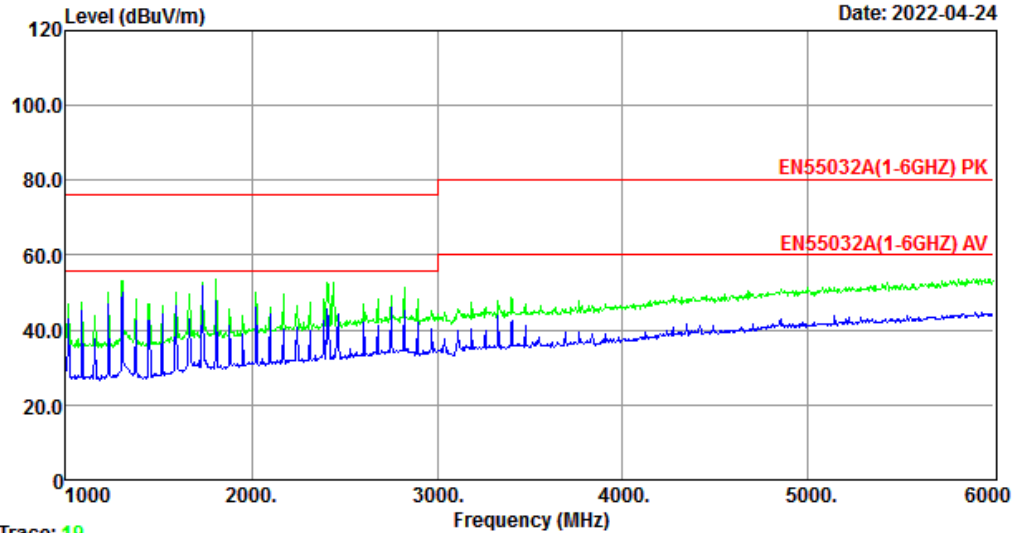
Site no. : 1# 966 Chamber Data no. : 16
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL
Limit : EN55032A(1-6GHZ) PK
Env. / Ins. : Temp:26.4';Humi:43%;Press:101.42kPa
Engineer : Zzb
EUT : Embedded Industrial Computer
Power : DC 12V From Adapter Input AC 110V/60Hz
M/N : CS12800RA4101P
Test Mode : USB Play



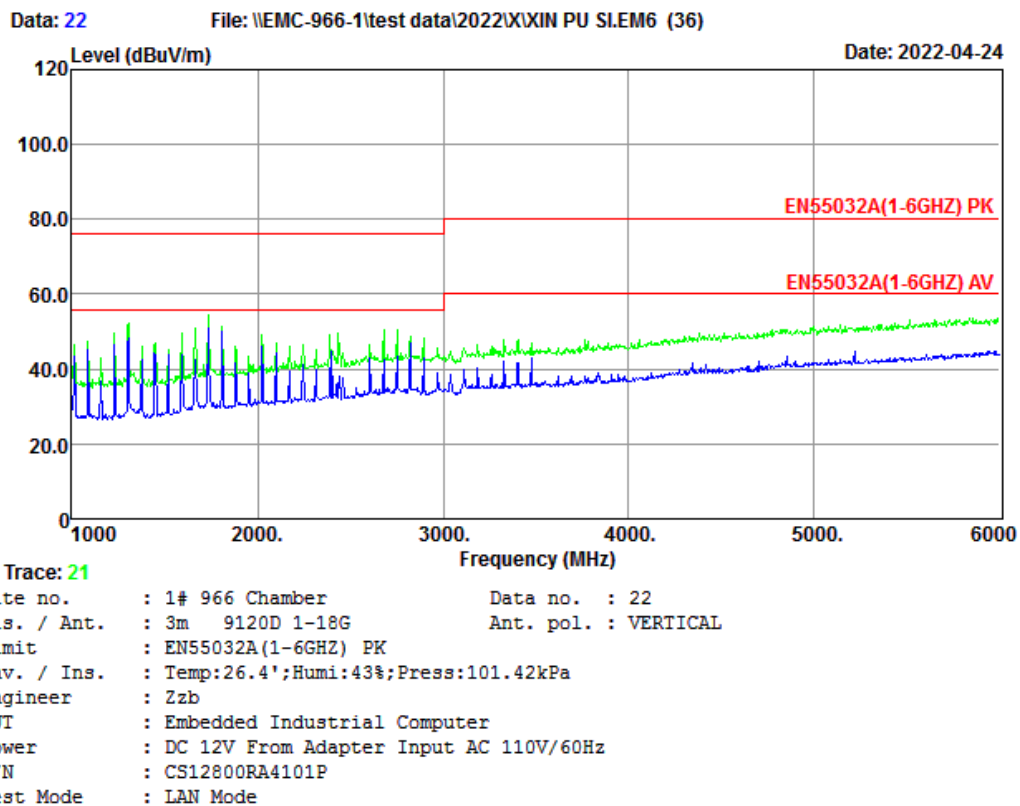
Data: 20

File: \\EMC-966-1\test data\2022\X\XIN PU SLEM6 (36)

Date: 2022-04-24



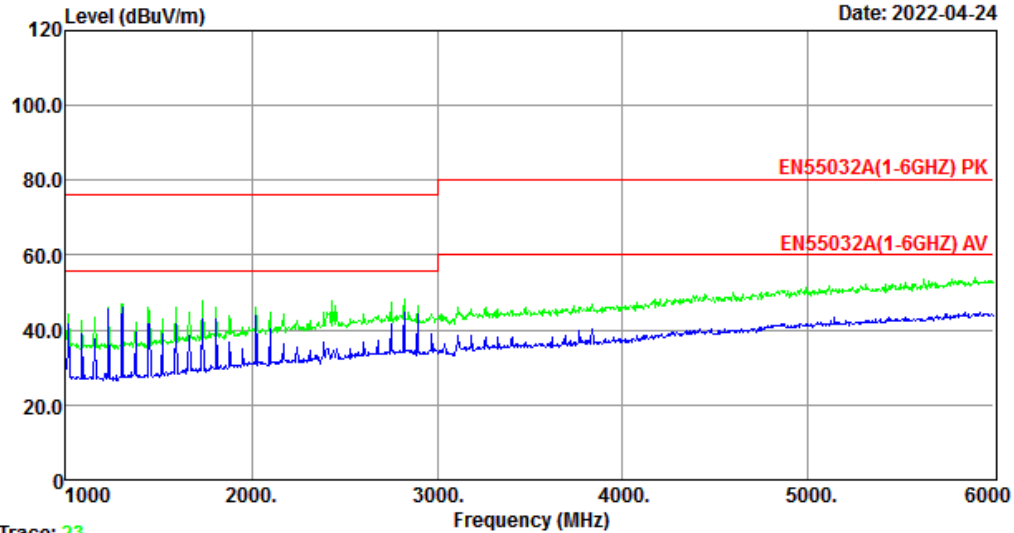
Trace: 19
Site no. : 1# 966 Chamber Data no. : 20
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL
Limit : EN55032A(1-6GHZ) PK
Env. / Ins. : Temp:26.4';Humi:43%;Press:101.42kPa
Engineer : Zzb
EUT : Embedded Industrial Computer
Power : DC 12V From Adapter Input AC 110V/60Hz
M/N : CS12800RA4101P
Test Mode : TF Play



Data: 24

File: \\EMC-966-1\test data\2022\X\XIN PU SLEM6 (36)

Date: 2022-04-24

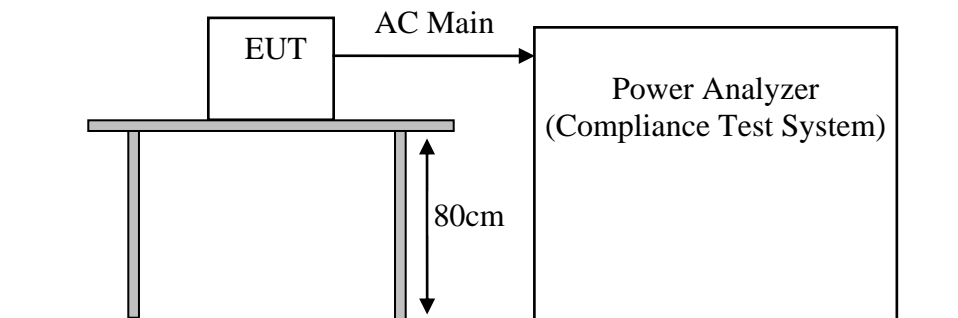


Trace: 23

Site no. : 1# 966 Chamber Data no. : 24
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL
Limit : EN55032A(1-6GHZ) PK
Env. / Ins. : Temp:26.4';Humi:43%;Press:101.42kPa
Engineer : Zzb
EUT : Embedded Industrial Computer
Power : DC 12V From Adapter Input AC 110V/60Hz
M/N : CS12800RA4101P
Test Mode : LAN Mode

4.5. Harmonic Current Emissions on AC Mains Test

RESULT : N/A
Test procedure : EN IEC 61000-3-2:2019+A1:2021
Measured harmonics : 1 ~ 40th
Limits : EN IEC 61000-3-2:2019+A1:2021



There is no need for Harmonics test to be performed on this product (rated power is less than 75W) in accordance with EN IEC 61000-3-2:2019+A1:2021

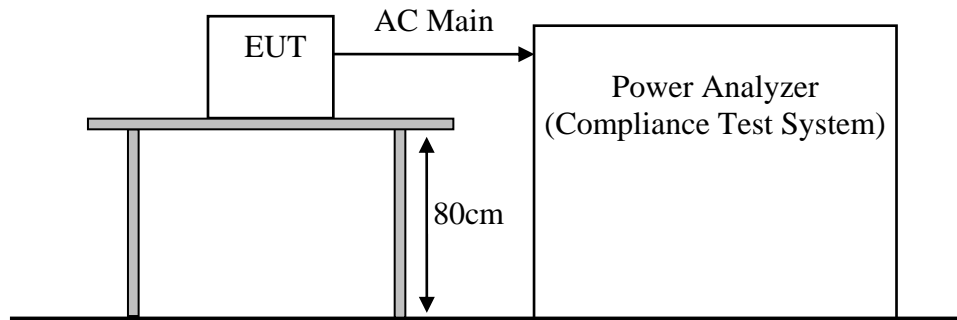
For further details, please refer to Clause 7 of EN IEC 61000-3-2:2019+A1:2021 which states:

“For the following categories of equipment, limits are not specified in this edition of the standard:

- equipment with a rated power of 75W or less, other than lighting equipment.”

4.6. Voltage Fluctuations and Flicker on AC Mains Test

RESULT : **Pass**(Please refer to the following page)
Test procedure : EN 61000-3-3:2013+A1:2019
Limits : EN 61000-3-3:2013+A1:2019



Test Data

EUT: Embedded Industrial Computer M/N: CS12800RA4101P
Test category: All parameters (European limits)
Test date: 2022/4/27 Start time: 17:05:10
Test duration (min): 10 Data file name: F-000047.cts_data
Comment: USB Play
Customer: xinpusi

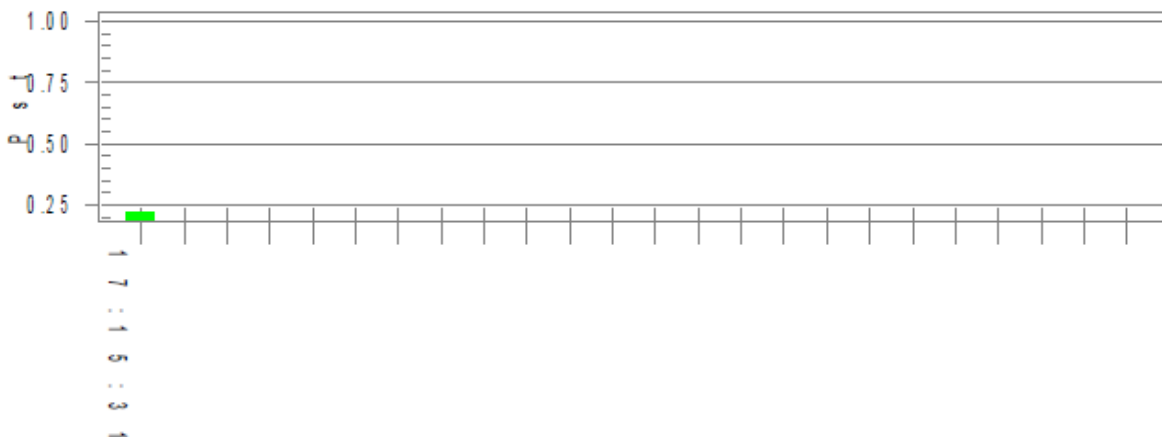
Tested by: ZANE
Test Margin: 100
End time: 17:15:37

Test Result: Pass

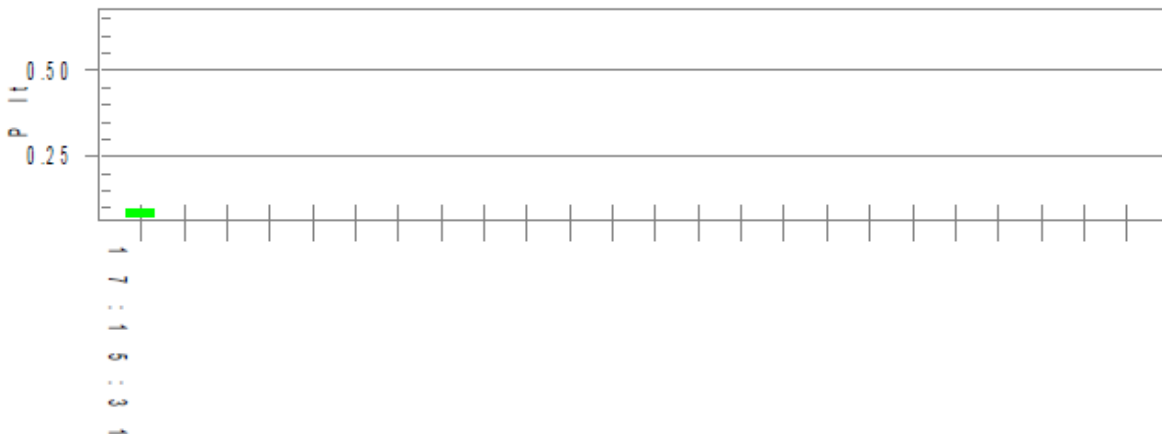
Status: Test Completed

Pst, and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt): 230.62

Highest dt (%):

T-max (mS): 0

Highest dc (%): 0.00

Highest dmax (%): 0.00

Highest Pst (10 min. period): 0.219

Highest Plt (2 hr. period): 0.096

Test limit (%):

Test limit (mS): 500.0 Pass

Test limit (%): 3.30 Pass

Test limit (%): 4.00 Pass

Test limit: 1.000 Pass

Test limit: 0.650 Pass

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+A11:2020
Basic standard	: EN 61000-4-2:2009
Test specification	: +/-4.0kV(Contact discharge) +/-8.0kV(Air discharge)
Number of discharges	: ≥ 10 (Air discharge for single polarity discharge) ≥ 10 (Contact discharge for single polarity discharge)
Polarity	: Positive/Negative
Performance criterion	: B

Test Setup

Date of test	: May 06, 2022
Model No.	: CS12800RA4101P
Input Voltage	: DC 12V From Adapter Input AC 230V/50Hz
Operation Mode	: TF Play, USB Play, LAN Mode
Temperature	: 22.5°C
Humidity	: 52%
Pressure	: 101.10kPa

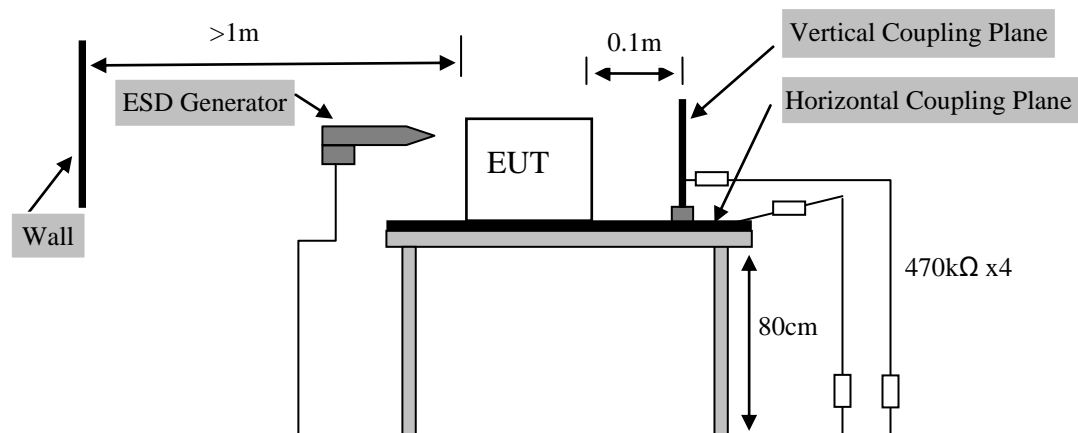


Table 1: Electrostatic Discharge Immunity Test Result

Discharge Location		Type of discharge	Result
HCP	4 points	Contact	Pass
VCP	4 points	Contact	Pass
USB Port	2 points	Contact	Pass
Type-C Port	1 point	Contact	Pass
LAN Port	1 point	Contact	Pass
AUX Port	1 point	Air	Pass
Screw	4 points	Contact	Pass
Metal safe	1 point	Contact	Pass
Screen	1 point	Air	Pass
Slot	4 points	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+A11:2020
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

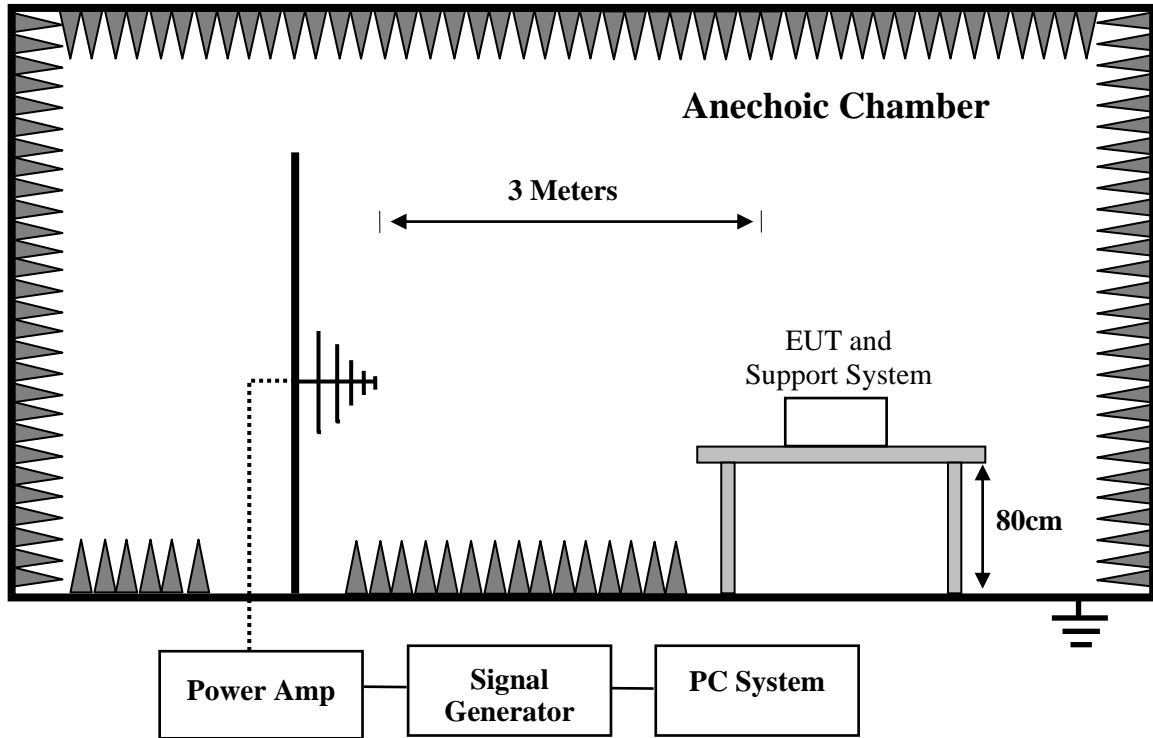
Date of test : May 06, 2022
Model No. : CS12800RA4101P
Input Voltage : DC 12V From Adapter Input AC 230V/50Hz
Operation Mode : TF Play, USB Play, LAN Mode
Temperature : 22.5°C
Humidity : 55%
Pressure : 101.10kPa

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

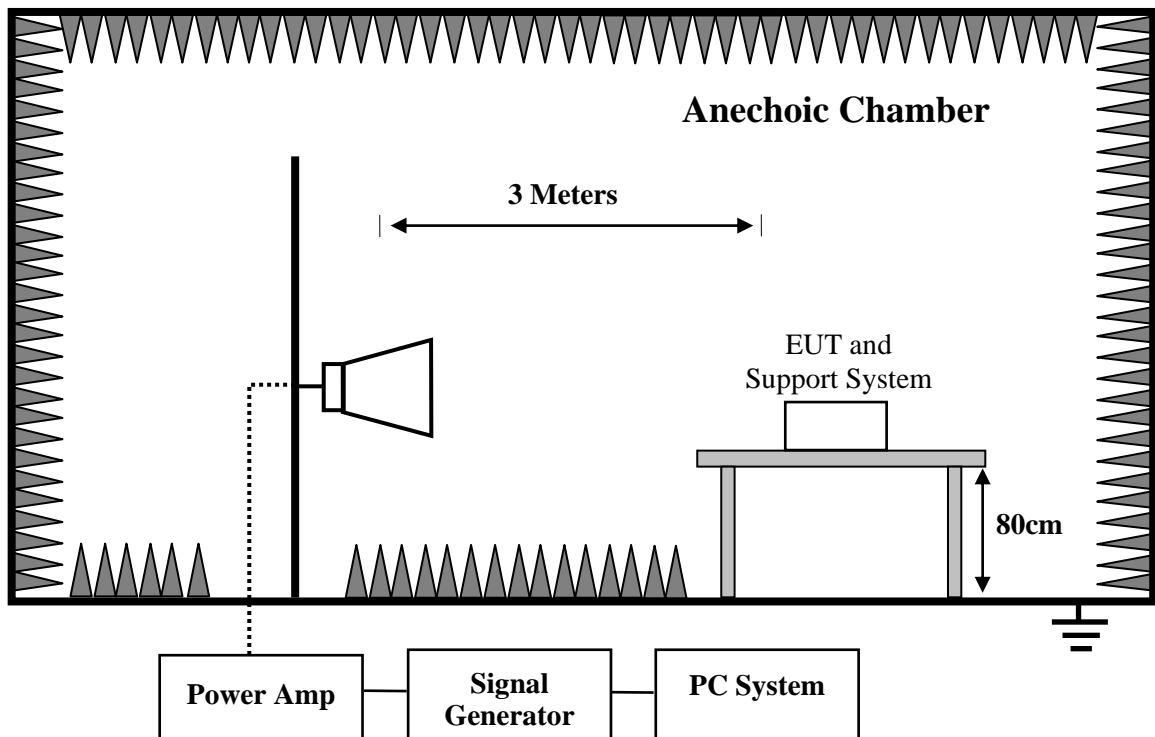


Table 2: Radio Frequency Electromagnetic Field Immunity Test Result

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	TF Play, USB Play, LAN Mode	H	75dBSPL	Speaker	\leq -20dB	-28 dB
			V	75dBSPL	Speaker		-30 dB

: Pass

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Table 5: Electrical Fast Transient/Burst Immunity Test Result

Coupling Ports		Coupling Voltage	Inject Method	Result
AC Power Ports	L	± 1 kV	Direct	Pass
	N	± 1 kV		Pass
	L-N	± 1 kV		Pass
B+		± 0.5 kV		Pass
B-		± 0.5 kV		Pass

Remark: The screen was flashing during the test, but self-recoverable after the test

5.5. Surge Immunity Test

RESULT : **Pass**
Test procedure : EN 55035:2017+A11:2020
Basic standard : EN 61000-4-5:2014
Pulse form : $T_r/T_d = 1.2/50\mu s$
Test Duration : 60s
Performance criterion : B

Test Setup

Date of test : May 06, 2022
Model No. : CS12800RA4101P
Input Voltage : DC 12V From Adapter Input AC 230V/50Hz
DC 12V From Adapter Input AC 110V/60Hz
Operation Mode : TF Play, USB Play, LAN Mode
Temperature : 23.5°C
Humidity : 52%
Pressure : 101.10kPa

2 Ω effective output impedance of the generator was used for L-N test. 12 Ω effective output impedance of the generator was used for L-PE, N-PE test.

5 positive and 5 negative (polarity) tests were applied successively synchronized to the voltage phase 90°, 270° to L-N respectively. The repetition rate was 1 per minute during test.

1. For input and AC power ports:

The EUT was connected to the power mains by using a coupling device which coupled the surge interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration was 1 minute.

2. For signal lines and control lines ports:

None.

3. For DC input and DC output power ports:

None.

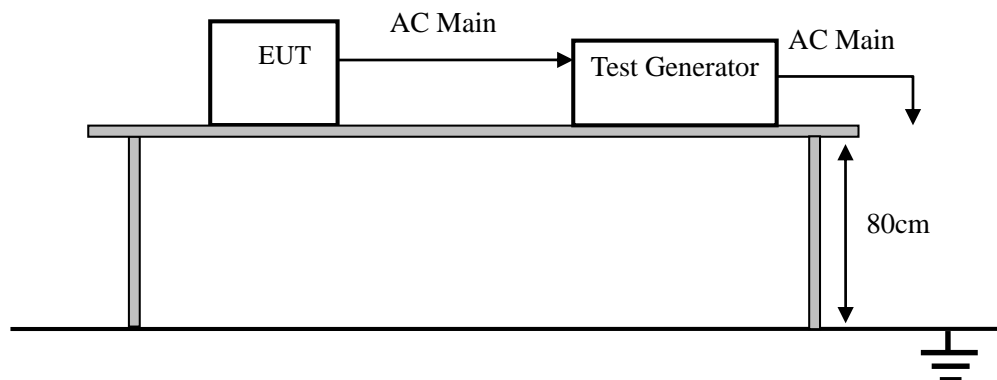


Table 4: Surge Immunity Test Result

Coupling Ports		Coupling Voltage	Coupling Phase / Result			
			0°	90°	180°	270°
AC power ports	L-N	+/-1kV Direct	/	Pass	/	Pass
B+		+/-0.5kV Direct	Pass			
B-		+/-0.5kV Direct	Pass			

Remark: The screen was flashing during the test, but self-recoverable after the test

5.6. Injected Currents Susceptibility Test

RESULT : **Pass**

Test procedure : EN 55035:2017+A11:2020

Basic standard : EN 61000-4-6:2014

Test specification : 3 Vr.m.s, 3 Vr.m.s - 1Vr.m.s, 1Vr.m.s,
AM 80%, 0.15 MHz - 10 MHz, 10 MHz – 30 MHz,
30 MHz – 80MHz

Performance criterion : A

Test Setup

Date of test : May 06, 2022

Model No. : CS12800RA4101P

Input Voltage : DC 12V From Adapter Input AC 230V/50Hz
DC 12V From Adapter Input AC 110V/60Hz

Operation Mode : TF Play, USB Play, LAN Mode

Temperature : 21.5°C

Humidity : 52%

Pressure : 101.10kPa

The EUT were placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) was placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT were as short as possible, and their height above the ground reference plane were between 30 and 50 mm (where possible).

The frequency range was swept from 0.15 MHz - 10 MHz, 10 MHz – 30 MHz and 30 MHz – 80MHz using 3V, 3 V - 1V, 1V signal level, and with the disturbance signal 80% amplitude modulated with a 1KHz sine wave.

The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency was swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.

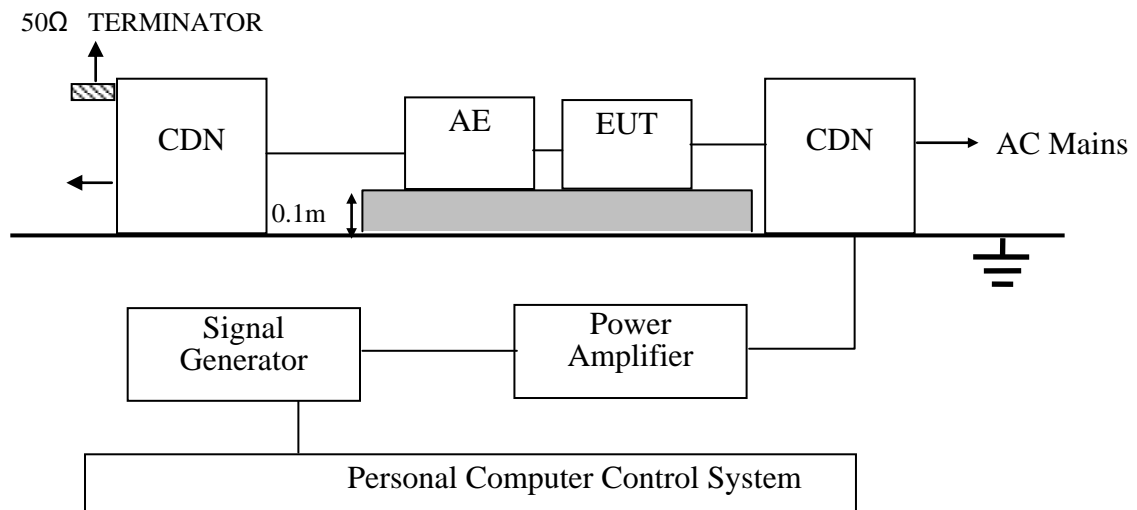


Table 5: Injected Currents Susceptibility Test Result

Voltage (V)	Test Frequency (MHz)	Test mode	Injection Method	Reference Level	Audio output	Limit	Interference Ratio (worst case)
3	0.15 –10 MHz	TF Play, USB Play, LAN Mode	CDN-M2	75dBSPL	Speaker	\leq -20dB	-35 dB
3 -1	10 –30 MHz						-37 dB
1	30 –80 MHz						-38 dB
3	0.15 –10 MHz	TF Play, USB Play, LAN Mode	EM Clamp	75dBSPL	Speaker	\leq -20 dB	-32 dB
3 -1	10 –30 MHz						-34 dB
1	30 –80 MHz						-36 dB

5.7. Power Frequency Magnetic Field Immunity Test

RESULT : **Pass**
Test procedure : EN 55035:2017+A11:2020
Basic standard : EN 61000-4-8:2010
Test specification : 1 A/m
Performance criterion : A

Test Setup

Date of test : May 06, 2022
Model No. : CS12800RA4101P
Input Voltage : DC 12V From Adapter Input AC 230V/50Hz
Operation Mode : TF Play, USB Play, LAN Mode
Temperature : 22.7°C
Humidity : 53%
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.

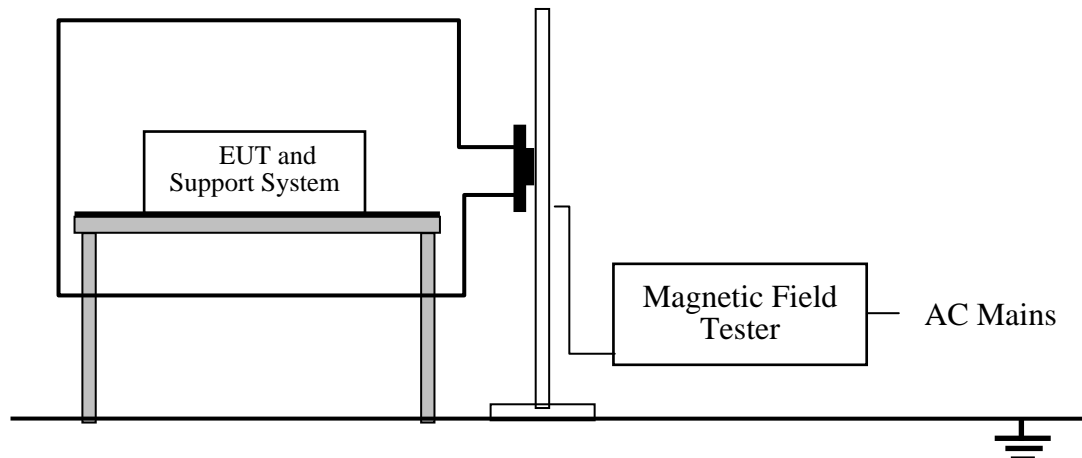


Table 6: Power Frequency Magnetic Field Immunity Test Result

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

5.8. Voltage Dips and Short Interruptions Immunity Test

RESULT : **Pass**

Test procedure : EN 55035:2017+A11:2020

Basic standard : EN 61000-4-11:2004

Test specification : 0% UT ; 0.5P, Criterion: B
70% UT; 25P/30P, Criterion: C
0% UT; 250P/300P, Criterion: C

Test Setup

Date of test : May 06, 2022

Model No. : CS12800RA4101P

Input Voltage : DC 12V From Adapter Input AC 230V/50Hz
DC 12V From Adapter Input AC 110V/60Hz

Operation Mode : TF Play, USB Play, LAN Mode

Temperature : 22.3°C

Humidity : 53%

Pressure : 101.10kPa

The interruptions was introduced at selected phase angles with specified duration.
Recorded any degradation of performance.

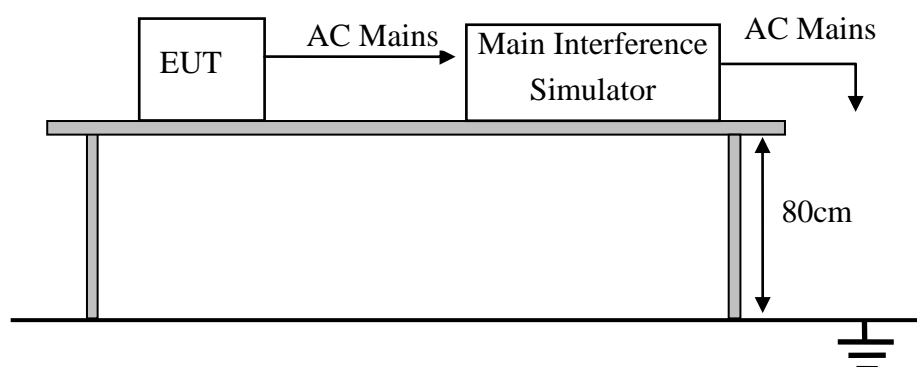


Table 7: Voltage Dips and Short Interruptions Immunity Test Result AC 230V/50Hz

Test Level % UT	Voltage Dips & Short Interruptions % UT	Duration (in period)	Criterion	Result
0	100	0.5P	B	PASS
70	30	25P	C	PASS
0	100	250P	C	PASS

Remark: The screen was flashing during the test, but self-recoverable after the test

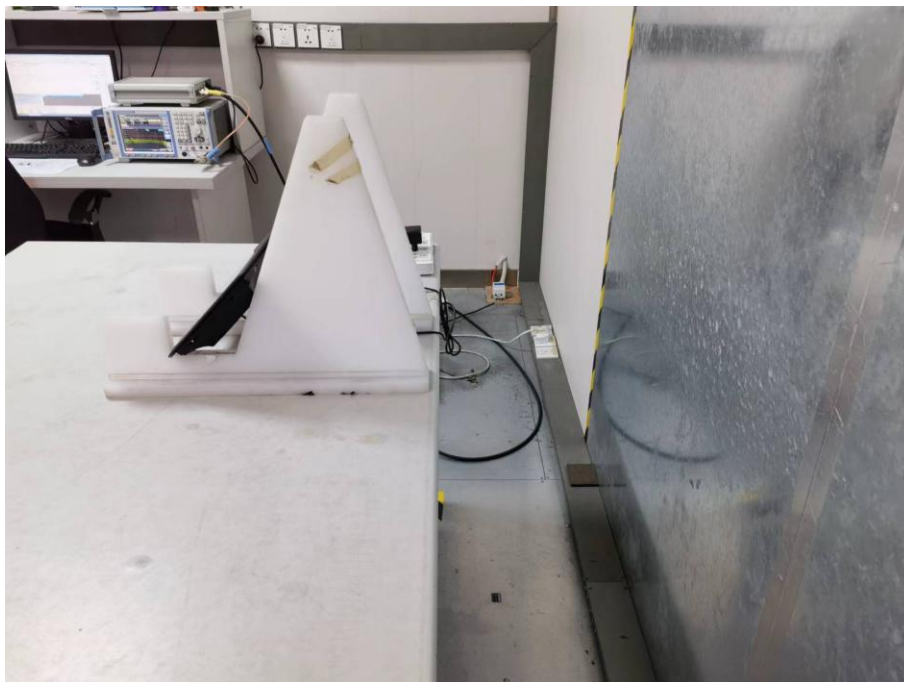
Table 8: Voltage Dips and Short Interruptions Immunity Test Result AC 110V/60Hz

Test Level % UT	Voltage Dips & Short Interruptions % UT	Duration (in period)	Criterion	Result
0	100	0.5P	B	PASS
70	30	30P	C	PASS
0	100	300P	C	PASS

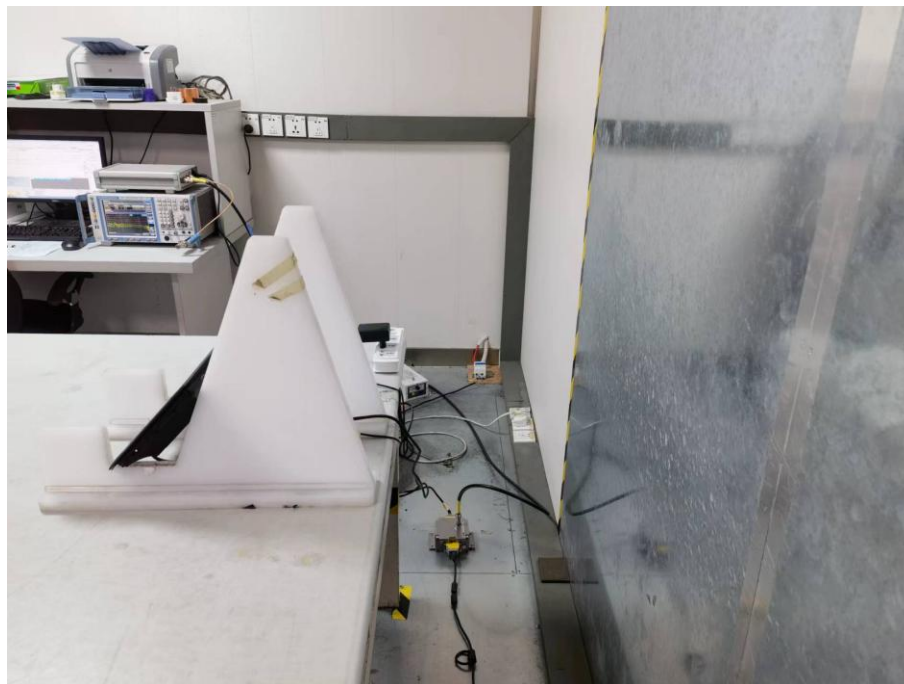
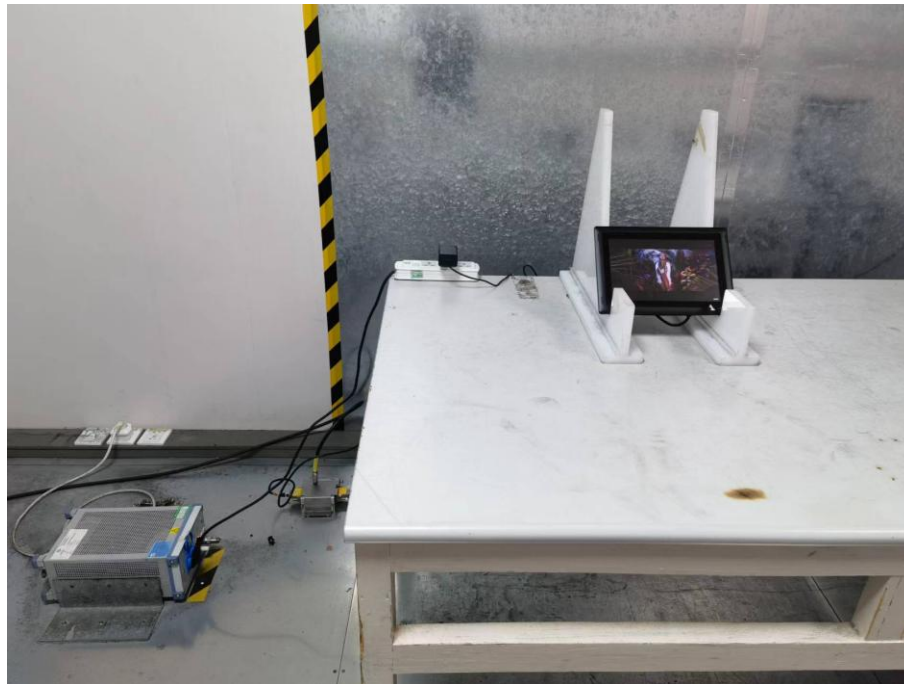
Remark: The screen was flashing during the test, but self-recoverable after the test

6. PHOTOGRAPHS OF TEST SET-UP

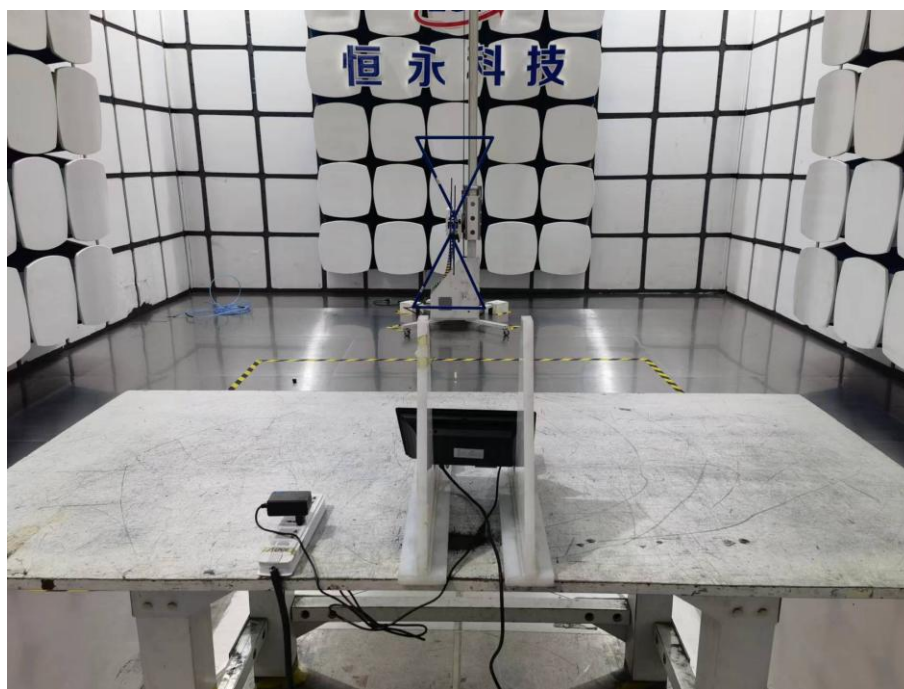
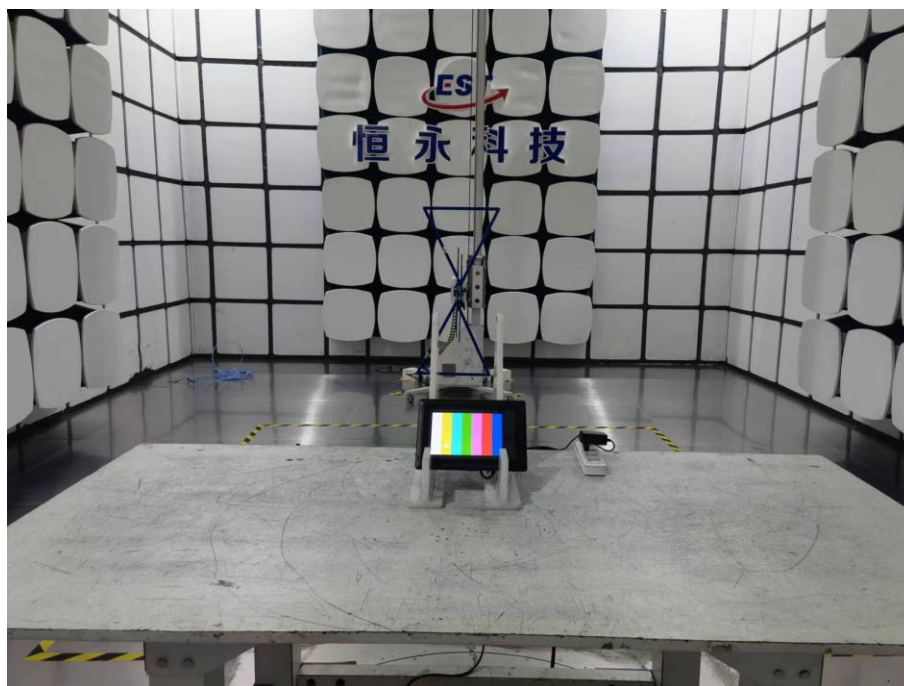
6.1. Set-up for Conducted Emission at the Mains Terminals Test



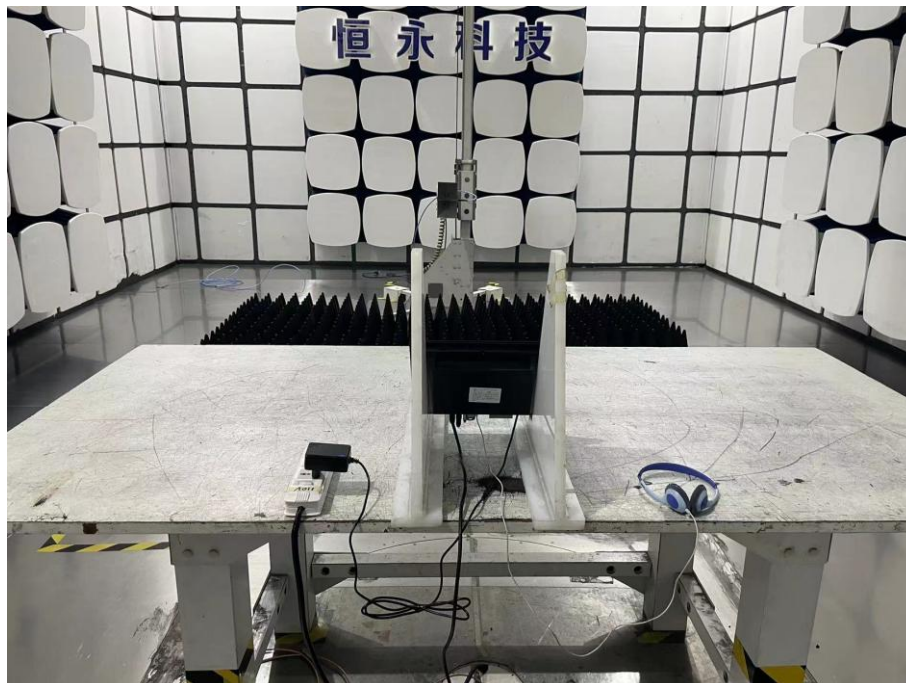
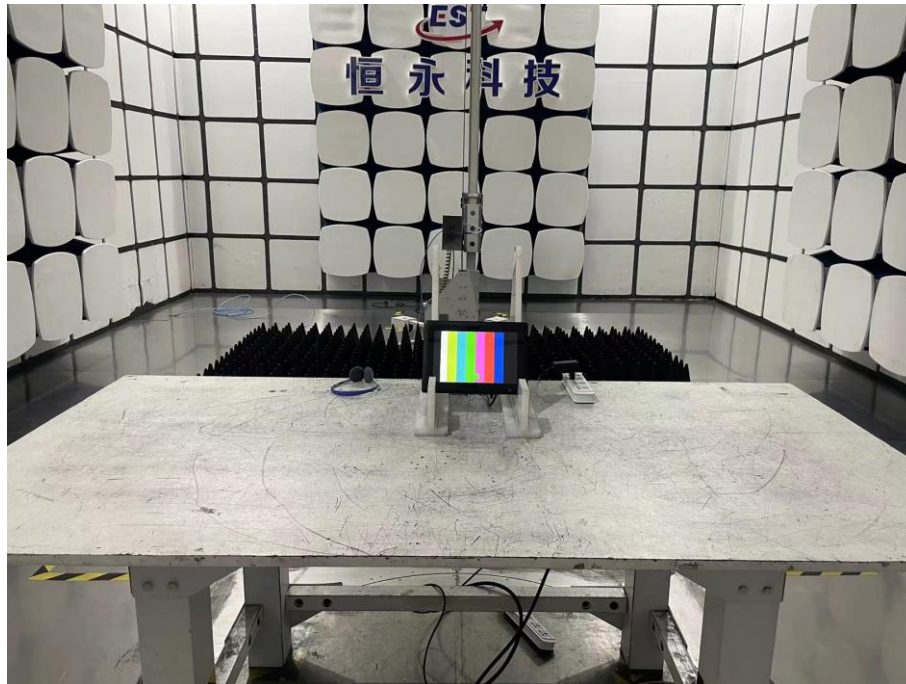
6.2.Set-up for Asymmetric Mode Conducted Emissions Test



6.3.Set-up for Radiated Emission Test



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



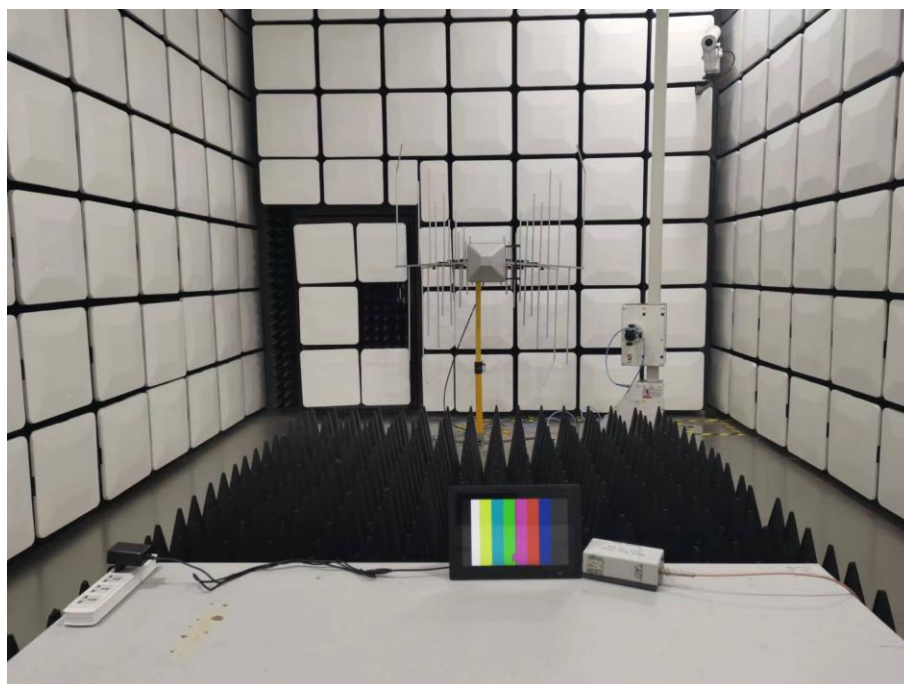
6.5.Set-up for Harmonic Current Emissions and Flicker on AC Mains Test



6.6.Set-up for Electrostatic Discharge Immunity Test



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



6.8.Set-up for Surge Immunity Test



6.9.Set-up for Electrical Fast Transient/Burst Immunity Test

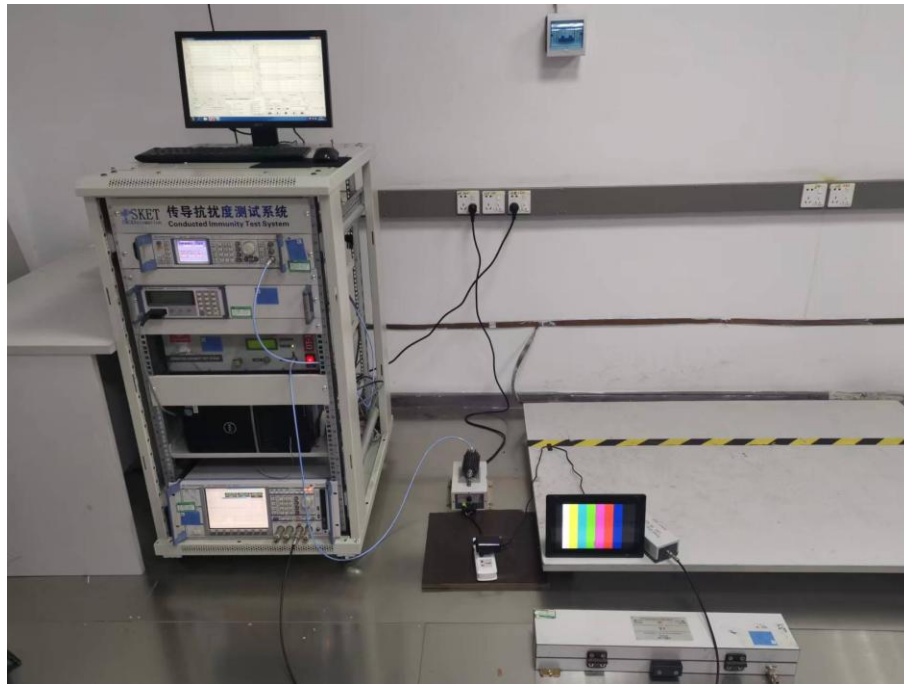


(AC Port)



(Signal Port)

6.10.Set-up for Injected Currents Susceptibility Test



AC Port



Signal Port

6.11.Set-up for Power Frequency Magnetic Field Immunity Test



6.12.Set-up for Voltage Dips and Short Interruptions Immunity Test



7. PHOTOGRAPHS OF THE EUT

Figure 1
General Appearance of the EUT



Figure 2
General Appearance of the EUT

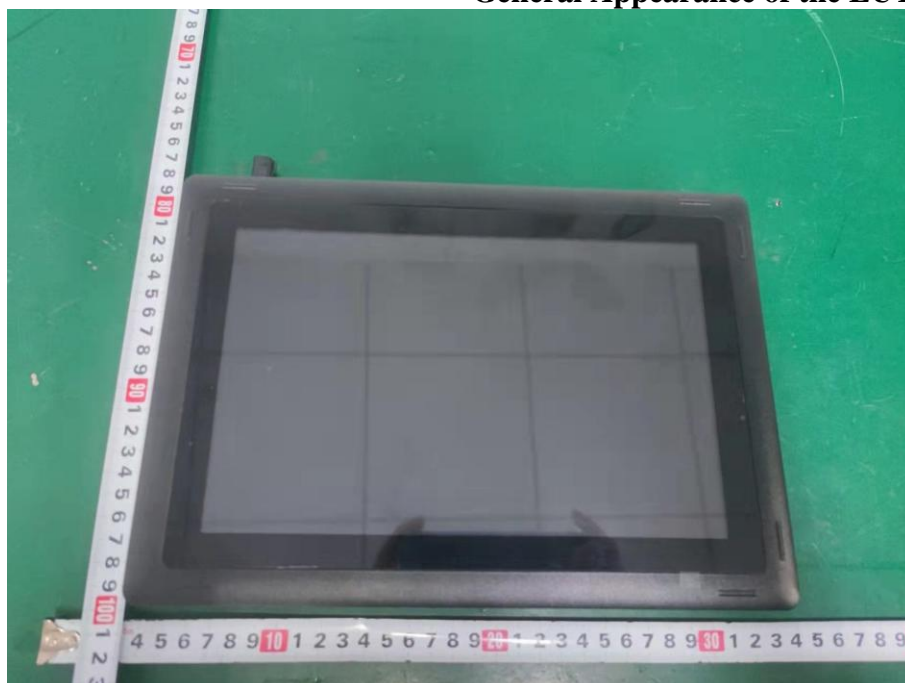


Figure 3
General Appearance of the EUT

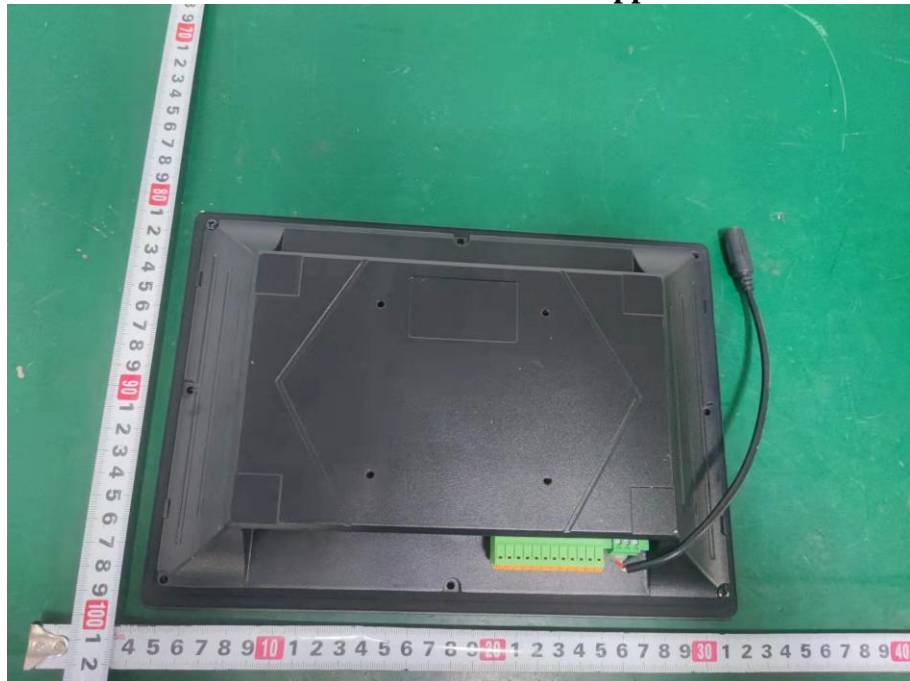


Figure 4
General Appearance of the EUT



Figure 5
General Appearance of the EUT



Figure 6
General Appearance of the EUT



Figure 7
Inside View of the EUT



Figure 8
Inside View of the EUT

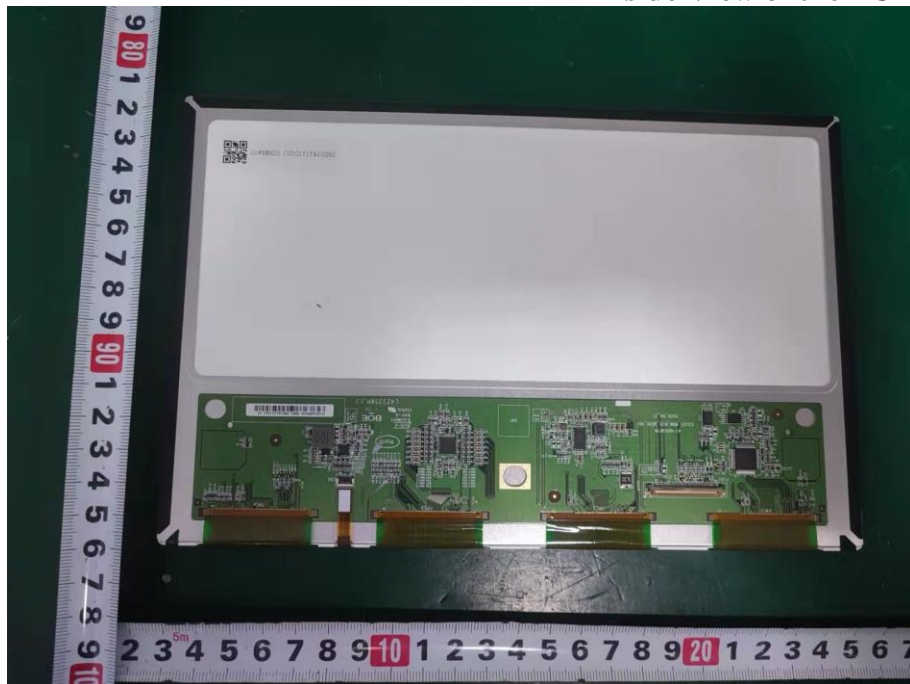


Figure 9
Inside View of the EUT



Figure 10
Inside View of the EUT

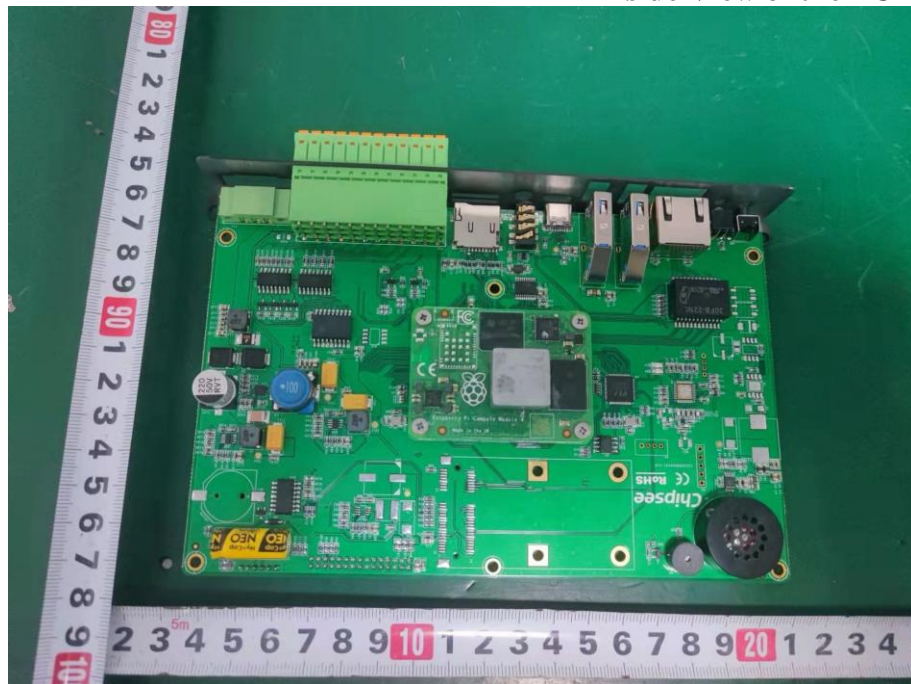
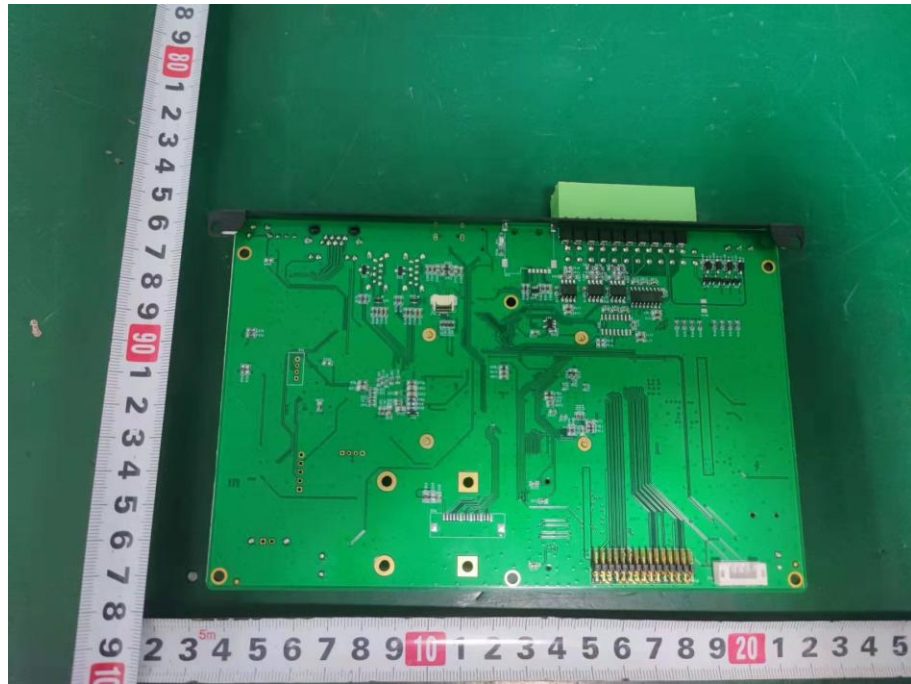


Figure 11
Inside View of the EUT



End of Test Report