EN 55032:2015+A11:2020
EN 55035:2017+A11:2020
EN IEC 61000-3-2:2019
EN 61000-3-3: 2013+A1:2019

TEST REPORT

For

XonTel Technology Trd. Co. W.L.L

Office 21 - Justice Tower - Ali Al Salem St. - Qibla - Kuwait City - State Of Kuwait
P.O. Box 20065 Safat 13061 KUWAIT

Tested Model: XT-13P

Report Type:	**Product Type:**
Amended Report	Indoor Monitor

Report Number:	RXM201124056-01A
Report Date:	2020-11-27
Reviewed By:	Oscar Ye EMC Manager
Prepared By:	Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road, Kunshan,Jiangsu province, China Tel: +86-0512-86175000 Fax: +86-0512-88934268 www.baclcorp.com.cn

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Issue
1	RXM200909055-01A	Original Report	2020-10-10
2	RXM201124056-01A	Amended Report	2020-11-25

Note:

This is an Amended Report application based on RXM200909055-01A, the details as below:

1. Change the company name to “XonTel Technology Trd. Co. W.L.L”.

2. Change the company address to “Office 21 - Justice Tower - Ali Al Salem St. - Qibla - Kuwait City - State Of Kuwait P.O. Box 20065 Safat 13061 KUWAIT”.

3. Change the tested model to “XT-13P”.

4. Change the Appearance photo

The above changes will affect nothing, all test data and photos were referred to the original report RXM200909055-01A that issued on 2020-10-10.

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	XonTel Technology Trd. Co. W.L.L
Test Model	XT-13P
Product	Indoor Monitor
Rate Voltage	DC 12V from adapter or DC 48 V from POE
*Highest Operating Frequency	1200 MHz

Note: The highest operating frequency was provided by the applicant.

**All measurement and test data in this report was gathered from production sample serial number: 20200909055. (Assigned by the BACL. The EUT supplied by the applicant was received on 2020-09-09)*

EXHIBIT A - EUT PHOTOGRAPHS


XonTel

Declarations

1: BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk '*'. Customer model name, addresses, names, trademarks etc. are not considered data.

2: Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

3: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

4: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

5: This report cannot be reproduced except in full, without prior written approval of the Company.

6: This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

BELOW IS THE ORIGINAL REPORT

EN 55032:2015+A11:2020
EN 55035:2017+A11:2020
EN IEC 61000-3-2:2019
EN 61000-3-3: 2013+A1:2019

TEST REPORT

For

AKUVOX (XIAMEN) NETWORKS CO., LTD.

10/F, No.56, Software Park II , Xiamen, China

Tested Model: C313S
Series Model: C313E, C313N, C313L, C313D, C313P

Report Type:	**Product Type:**
Original Report	Indoor Monitor

Test Engineer:	Gerry Xing
Report Number:	RXM200909055-01A
Report Date:	2020-10-10
Reviewed By:	Oscar Ye EMC Manager
Prepared By:	Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road, Kunshan, Jiangsu province, China Tel: +86-0512-86175000 Fax: +86-0512-88934268 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	AKUVOX (XIAMEN) NETWORKS CO., LTD.
Test Model	C313S
Series Model	C313E, C313N, C313L, C313D, C313P
Product	Indoor Monitor
Rate Voltage	DC 12V from adapter or DC 48 V from POE
*Highest Operating Frequency	1200 MHz

Note: The highest operating frequency was provided by the applicant.

Note: The difference between test model and series model was explained in the attached declaration letter.

**All measurement and test data in this report was gathered from production sample serial number: 20200909055. (Assigned by the BACL. The EUT supplied by the applicant was received on 2020-09-09)*

Objective

This test report is prepared on behalf of *AKUVOX (XIAMEN) NETWORKS CO., LTD.* in accordance with

EN 55032: Electromagnetic compatibility of multimedia equipment - Emission requirements.

EN 55035: Electromagnetic compatibility of multimedia equipment - Immunity requirements.

EN IEC 61000-3-2, Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase), and also in accordance with EN 61000-3-3, Limits Section 3; Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current<16A.

The objective of the manufacturer is to determine compliance with EN 55032, EN 55035, EN IEC 61000-3-2 and EN 61000-3-3.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

CISPR 16-1-1:2015, Specification for radio disturbance and immunity measuring apparatus and methods Part 1-1: Radio disturbance and immunity measuring apparatus - Measuring apparatus.

CISPR 16-1-4:2010+A2:2017, Specification for radio disturbance and immunity measuring apparatus and methods-Part 1-4: Radio disturbance and immunity measuring apparatus -Antennas and test sites for radiated disturbance measurements

CISPR 16-2-1:2014, Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-1: Methods of measurement of disturbance and immunity - Conducted disturbance measurements.

CISPR 16-2-3:2016, Specification for radio disturbance and immunity measuring apparatus and methods-Part 2-3: Methods of measurement of disturbances and immunity - Radiated disturbance measurements.

CISPR 16-4-2:2011+A1-2014, Specification for radio disturbance and immunity measuring apparatus and methods-Part 4-2: Uncertainties, statistics and limit modeling-Measurement instrumentation uncertainty.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Kunshan).

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu province, China.

Bay Area Compliance Laboratories Corp. (Kunshan) Lab is accredited to ISO/IEC 17025 by A2LA (Lab code: 4323.01) and the FCC designation No. CN1185 under the FCC KDB 974614 D01and CAB identifier CN0004 under the ISED requirement. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a typical fashion (as normally used by a typical user)

Test mode 1: Powered by Adapter & RJ45 Communication
Test mode 2: Powered by PoE & RJ45 Communication

Equipment Test Software

No software was used to test

Support Equipment List and Details

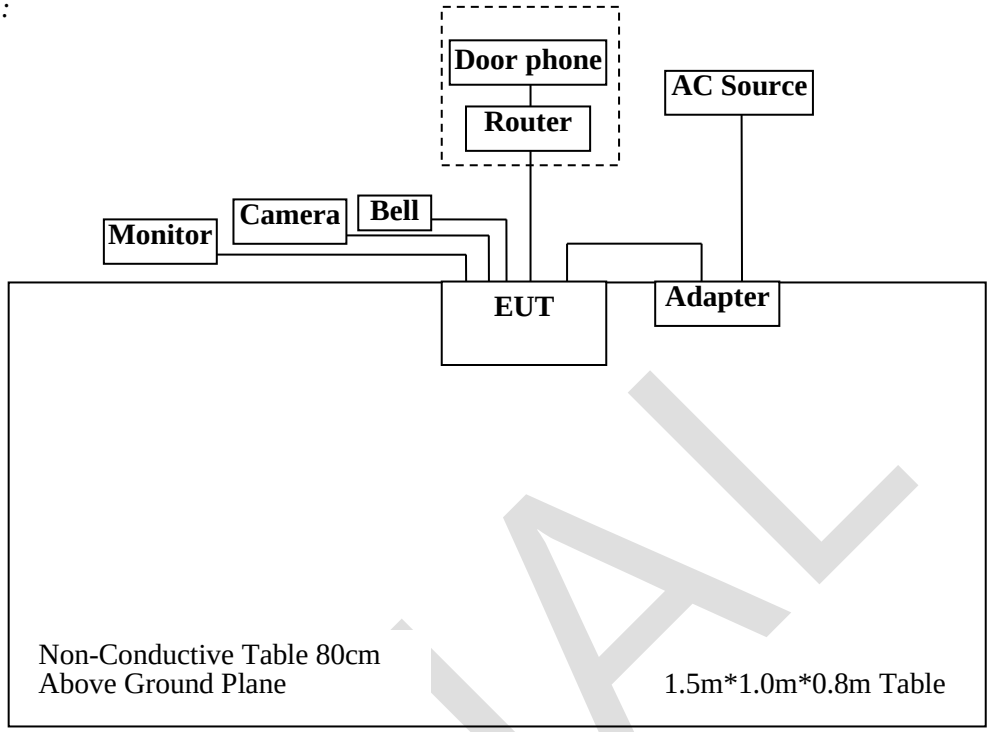
Manufacturer	Description	Model	Serial Number
Shenzhen Keyu Power Supply Technology Co.,Ltd	Adapter	KA1201A-1201000EU	/
NETGEAR	PoE	GS308P	4F217B5000891
HUAWEI	Router	WS5102	74Y7S19B2900971210
AKUVOX	Door phone	E10R	/
Hangzhou Meari Technology Co., Ltd.	Bell	VCM200	/
Hangzhou Meari Technology Co., Ltd.	Camera	/	/
Hangzhou Meari Technology Co., Ltd.	Monitor	M19S1	/

External I/O Cable

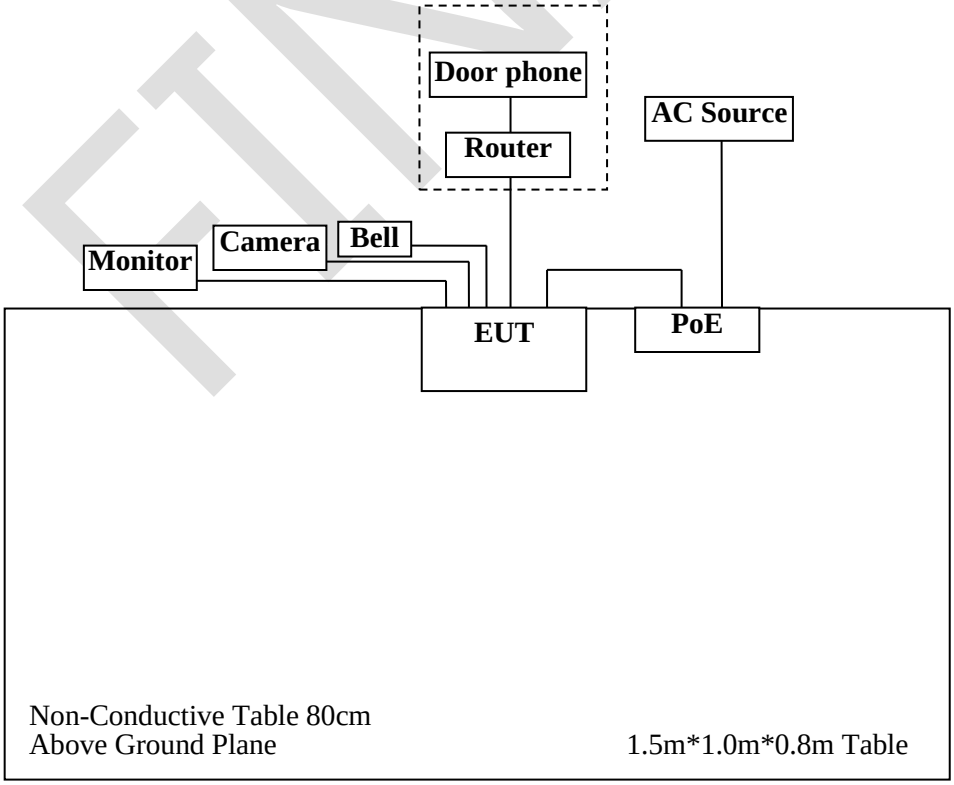
Cable Description	Length (m)	From/Port	To
USB cable	2.0	EUT	Adapter
Power cable	1.0	Adapter	AC Source
Power cable	1.0	EUT	Router
Power cable	1.0	EUT	Door phone
USB cable	2.0	EUT	PoE
Power cable	1.0	PoE	AC Source
Power cable	1.0	EUT	Monitor
Power cable	1.0	EUT	Bell
Power cable	1.0	EUT	Camera

Block Diagram of Radiated Test Setup

Test mode 1:



Test mode 2:



SUMMARY OF TEST RESULTS

EN 55032

RULE	DESCRIPTION	RESULTS
§ 5	Requirements ,Refer to Annex A A.3 Requirements for conducted emissions	Compliant
§ 5	Requirements ,Refer to Annex A A.2 Requirements for radiated emissions	Compliant

EN 55035

RULE	DESCRIPTION	RESULTS
§4.2.1	Electrostatic discharges IEC 61000-4-2	Compliant
§4.2.4	Electrical fast transients/burst IEC 61000-4-4	Compliant
§4.2.2.2	Continuous RF electromagnetic field disturbances IEC 61000-4-3	Compliant
§4.2.2.3	Continuous induced RF disturbances IEC 61000-4-6	Compliant
§4.2.3	Power frequency magnetic field IEC 61000-4-8	Compliant
§4.2.5	Surges IEC 61000-4-5	Compliant
§4.2.6	Voltage dips and interruptions IEC 61000-4-11	Compliant

EN IEC 61000-3-2

RULE	DESCRIPTION	RESULTS
§6, §7	Harmonic Current Emissions	Not Applicable (See Note 1)

EN 61000-3-3

RULE	DESCRIPTION	RESULTS
§5, §6	Voltage Fluctuations and Flicker	Compliant

Note 1: The Equipment with a rated power of 75 W or less, other than lighting equipment, are not included in this standard.

EN 55032 §5 Requirements ,Refer to Annex A A.3 Requirements for Conducted Emissions

Measurement Uncertainty

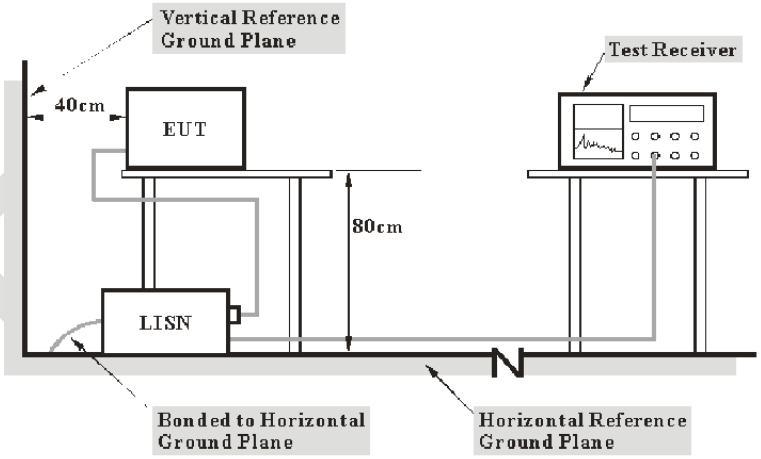
Compliance or non- compliance with a disturbance limit shall be determined in the following manner：

If U_{lab} is less than or equal to U_{cispr} of Table 1, then:
–compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
–Non - compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.
If U_{lab} is greater than U_{cispr} of Table 1, then:
–compliance is deemed to occur if no measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit;
–Non - compliance is deemed to occur if any measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit.

Table 1 - Values of U_{cispr}

Item		Measurement Uncertainty	U_{cispr}
AMN	150kHz~30MHz	3.19 dB	3.4 dB

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per EN 55032 measurement procedures. The specification used was with the EN 55032 Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz - 30 MHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESR	1316.3003K03-101746-zn	2020-08-05	2021-08-04
Rohde & Schwarz	LISN	ENV216	3560655016	2019-11-30	2020-11-29
Audix	Test Software	e3	V9	--	--
MICRO-COAX	Coaxial Cable	Cable-6	006	2020-09-08	2021-09-07
Rohde & Schwarz	Pluse limiter	ESH3-Z2	100552	2020-09-08	2021-09-07

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Test Procedure

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Factor & Over Limit Calculation

The Factor is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)

The "**Over Limit**" column of the following data tables indicates the degree of compliance within the applicable limit. For example, an over limit of 7dB means the emission is 7dB below the limit. The equation for over Limit calculation is as follows:

Over Limit = Limit - Corrected Amplitude

Test Data

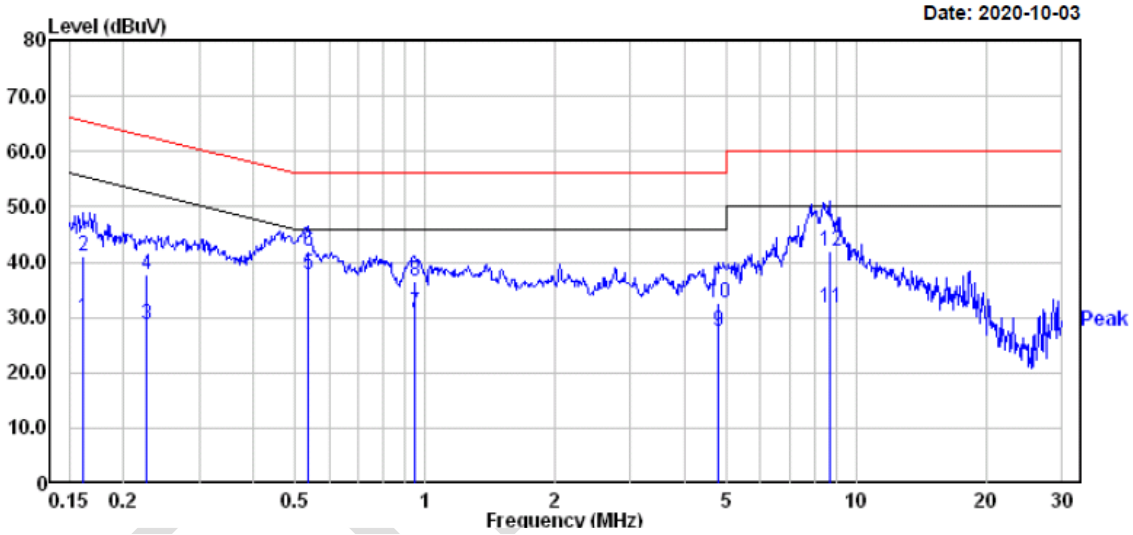
Environmental Conditions

Temperature:	25.5℃
Relative Humidity:	54 %
ATM Pressure:	102 kPa

The testing was performed by Gerry Xing on 2020 -10-03.

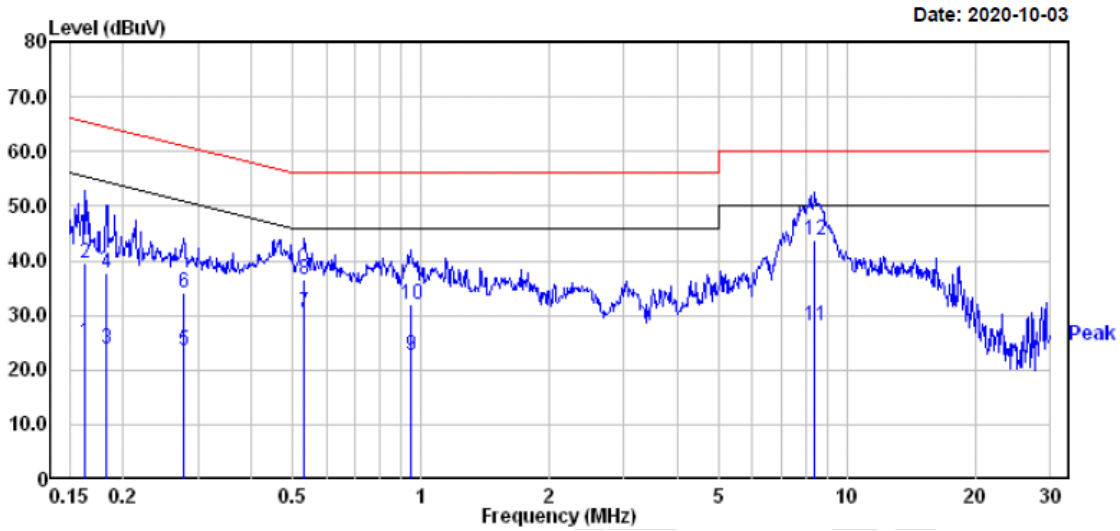
Test mode 1:

Line:



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.162	10.00	19.83	29.83	55.38	-25.55	Average
2	0.162	21.20	19.83	41.03	65.38	-24.35	QP
3	0.226	8.90	19.82	28.72	52.61	-23.89	Average
4	0.226	18.00	19.82	37.82	62.61	-24.79	QP
5	0.538	18.01	19.75	37.76	46.00	-8.24	Average
6	0.538	22.11	19.75	41.86	56.00	-14.14	QP
7	0.948	11.10	19.77	30.87	46.00	-15.13	Average
8	0.948	16.90	19.77	36.67	56.00	-19.33	QP
9	4.797	8.00	19.49	27.49	46.00	-18.51	Average
10	4.797	13.00	19.49	32.49	56.00	-23.51	QP
11	8.683	12.30	19.54	31.84	50.00	-18.16	Average
12	8.683	22.40	19.54	41.94	60.00	-18.06	QP

Neutral:



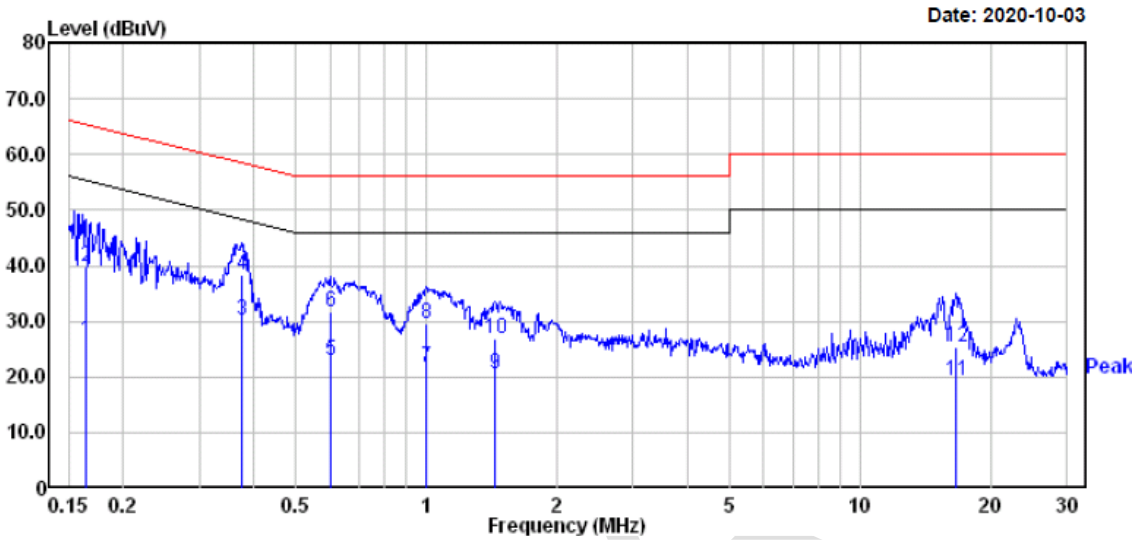
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.163	5.20	19.81	25.01	55.30	-30.29	Average
2	0.163	19.80	19.81	39.61	65.30	-25.69	QP
3	0.182	3.90	19.82	23.72	54.37	-30.65	Average
4	0.182	18.00	19.82	37.82	64.37	-26.55	QP
5	0.277	3.90	19.76	23.66	50.90	-27.24	Average
6	0.277	14.30	19.76	34.06	60.90	-26.84	QP
7	0.532	10.90	19.73	30.63	46.00	-15.37	Average
8	0.532	16.80	19.73	36.53	56.00	-19.47	QP
9	0.948	2.90	19.79	22.69	46.00	-23.31	Average
10	0.948	12.30	19.79	32.09	56.00	-23.91	QP
11	8.412	8.80	19.42	28.22	50.00	-21.78	Average
12	8.412	24.40	19.42	43.82	60.00	-16.18	QP

Note:

1) Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation
2) Over Limit (dB) = Read level (dBµV) + Factor (dB) - Limit (dBµV)

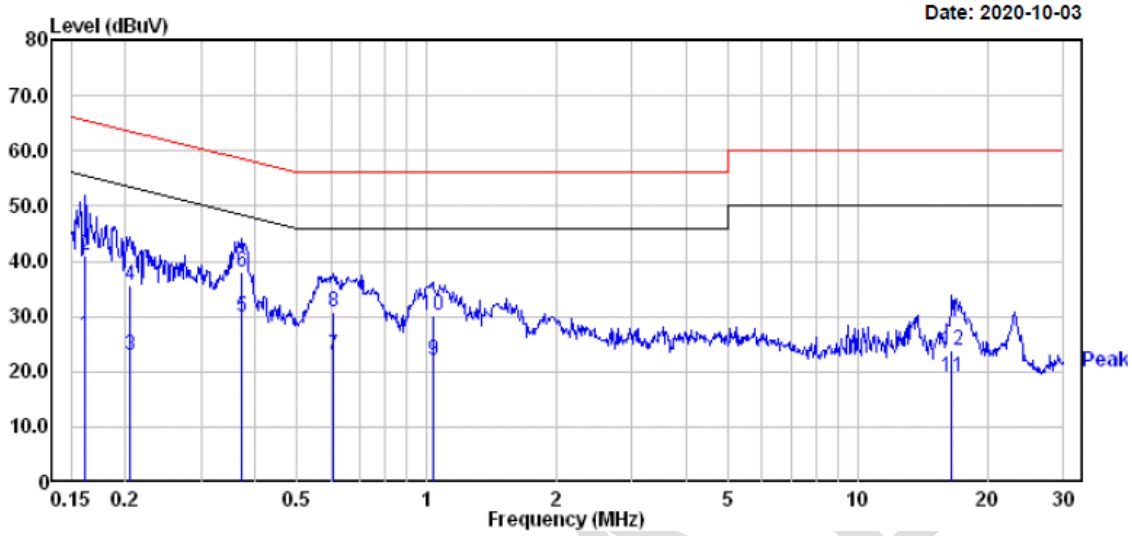
Test mode 2:

Line:



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.164	6.60	19.83	26.43	55.25	-28.82	Average
2	0.164	20.10	19.83	39.93	65.25	-25.32	QP
3	0.375	10.30	19.77	30.07	48.39	-18.32	Average
4	0.375	18.60	19.77	38.37	58.39	-20.02	QP
5	0.601	3.30	19.75	23.05	46.00	-22.95	Average
6	0.601	11.80	19.75	31.55	56.00	-24.45	QP
7	1.000	2.00	19.82	21.82	46.00	-24.18	Average
8	1.000	9.70	19.82	29.52	56.00	-26.48	QP
9	1.441	0.61	19.83	20.44	46.00	-25.56	Average
10	1.441	7.01	19.83	26.84	56.00	-29.16	QP
11	16.661	-0.30	19.75	19.45	50.00	-30.55	Average
12	16.661	5.50	19.75	25.25	60.00	-34.75	QP

Neutral:



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.162	6.70	19.81	26.51	55.38	-28.87	Average
2	0.162	21.30	19.81	41.11	65.38	-24.27	QP
3	0.205	3.20	19.81	23.01	53.40	-30.39	Average
4	0.205	15.80	19.81	35.61	63.40	-27.79	QP
5	0.371	10.10	19.72	29.82	48.47	-18.65	Average
6	0.371	18.40	19.72	38.12	58.47	-20.35	QP
7	0.608	3.10	19.73	22.83	46.00	-23.17	Average
8	0.608	11.20	19.73	30.93	56.00	-25.07	QP
9	1.032	2.10	19.85	21.95	46.00	-24.05	Average
10	1.032	10.30	19.85	30.15	56.00	-25.85	QP
11	16.573	-0.69	19.63	18.94	50.00	-31.06	Average
12	16.573	4.11	19.63	23.74	60.00	-36.26	QP

Note:

1) Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation
2) Over Limit (dB) = Read level (dBµV) + Factor (dB) - Limit (dBµV)

§8.7 - Wired Network Ports

Measurement Uncertainty

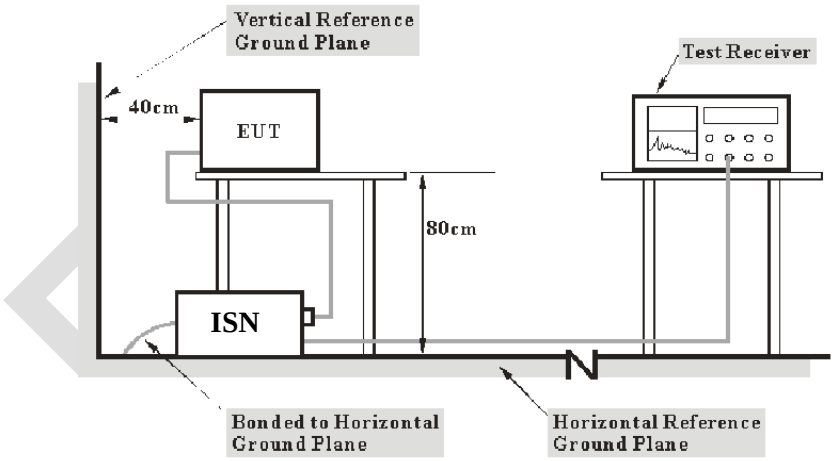
Compliance or non- compliance with a disturbance limit shall be determined in the following manner:

If U_{lab} is less than or equal to U_{cispr} of Table 1, then:
–compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
–Non - compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.
If U_{lab} is greater than U_{cispr} of Table 1, then:
–compliance is deemed to occur if no measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit;
–Non - compliance is deemed to occur if any measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit.

Table 1 – Values of U_{cispr}

Item		Measurement Uncertainty	U_{cispr}
AAN	150kHz~30MHz	4.69 dB	5.0 dB

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per EN 301489-1 measurement procedures. The specification used was with the EN 301 489-1 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESR	1316.3003K03-101746-zn	2020-08-05	2021-08-04
Rohde & Schwarz	LISN	ENV216	3560655016	2019-12-14	2020-12-13
Audix	Test Software	e3	V9	/	/
MICRO-COAX	Coaxial Cable	Cable-6	006	2020-09-08	2021-09-07
COM-POWER	ISN	ISN-T8	ISN-T8	2020-04-11	2021-04-10

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Test Procedure

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Factor & Over Limit Calculation

The Corrected Factor is calculated by adding ISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

Factor (dB) = ISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)

The "**Over Limit**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB above the limit. The equation for margin calculation is as follows:

Over Limit (dB) = Read level (dBμV) + Factor (dB) - Limit (dBμV)

Test Data

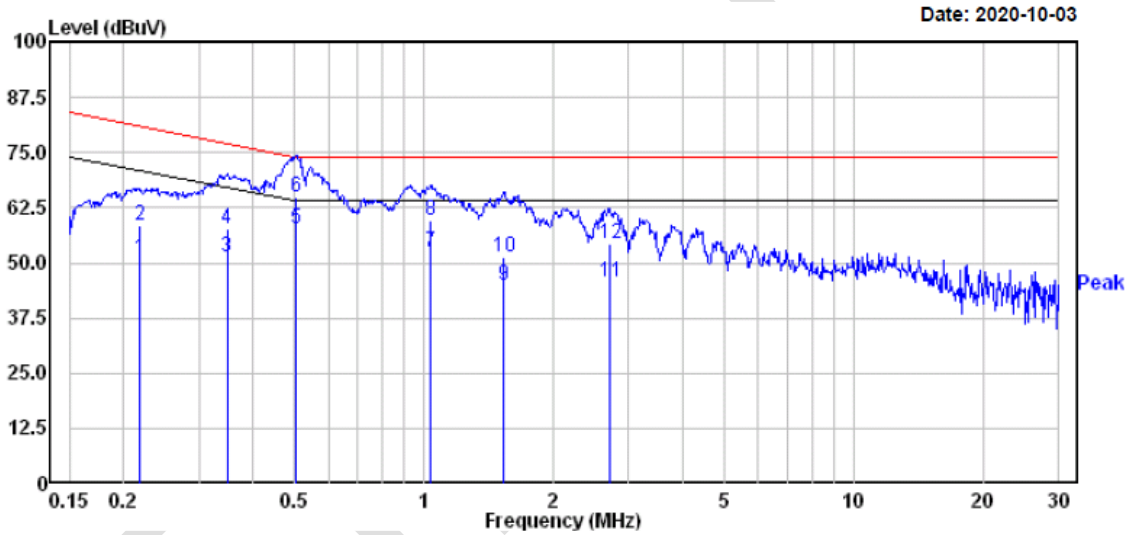
Environmental Conditions

Temperature:	25.1 ℃
Relative Humidity:	53 %
ATM Pressure:	101.2 kPa

The testing was performed by Gerry Xing on 2020-10-03.

Test mode 1:

ISN-LAN (100Mbps):

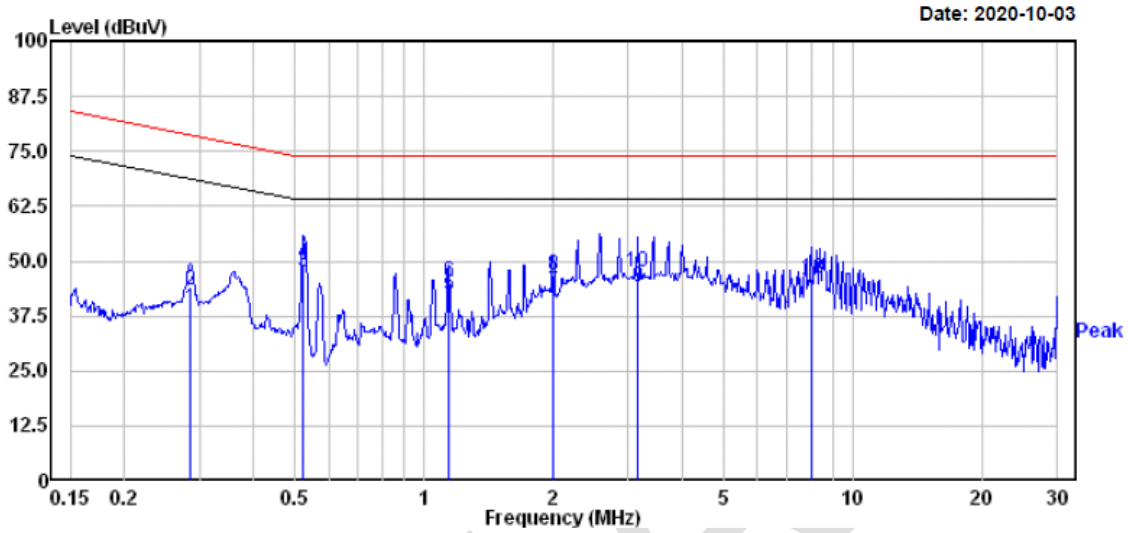


	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.217	31.40	19.65	51.05	70.92	-19.87	Average
2	0.217	39.00	19.65	58.65	80.92	-22.27	QP
3	0.348	31.50	19.66	51.16	67.00	-15.84	Average
4	0.348	38.20	19.66	57.86	77.00	-19.14	QP
5	0.505	38.00	19.67	57.67	64.00	-6.33	Average
6	0.505	45.30	19.67	64.97	74.00	-9.03	QP
7	1.037	32.90	19.70	52.60	64.00	-11.40	Average
8	1.037	40.10	19.70	59.80	74.00	-14.20	QP
9	1.535	25.10	19.74	44.84	64.00	-19.16	Average
10	1.535	31.60	19.74	51.34	74.00	-22.66	QP
11	2.707	25.90	19.78	45.68	64.00	-18.32	Average
12	2.707	34.50	19.78	54.28	74.00	-19.72	QP

Note:
1) Factor (dB) = ISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)
2) Over Limit (dB) = Read level (dBμV) + Factor (dB) - Limit (dBμV)

Test mode 2:

ISN-LAN (100Mbps):



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.285	19.50	19.66	39.16	68.68	-29.52	Average
2	0.285	23.90	19.66	43.56	78.68	-35.12	QP
3	0.524	27.70	19.67	47.37	64.00	-16.63	Average
4	0.524	29.90	19.67	49.57	74.00	-24.43	QP
5	1.141	22.40	19.71	42.11	64.00	-21.89	Average
6	1.141	25.70	19.71	45.41	74.00	-28.59	QP
7	2.001	23.30	19.76	43.06	64.00	-20.94	Average
8	2.001	27.20	19.76	46.96	74.00	-27.04	QP
9	3.140	24.20	19.80	44.00	64.00	-20.00	Average
10	3.140	27.80	19.80	47.60	74.00	-26.40	QP
11	8.062	23.49	19.98	43.47	74.00	-30.53	QP
12	8.062	26.19	19.98	46.17	74.00	-27.83	QP

Note:
1) Factor (dB) = ISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)
2) Over Limit (dB) = Read level (dBμV) + Factor (dB) - Limit (dBμV)

EN 55032 §5 Requirements ,Refer to Annex A A.2 Requirements for Radiated Emissions

Measurement Uncertainty

Compliance or non- compliance with a disturbance limit shall be determined in the following manner:

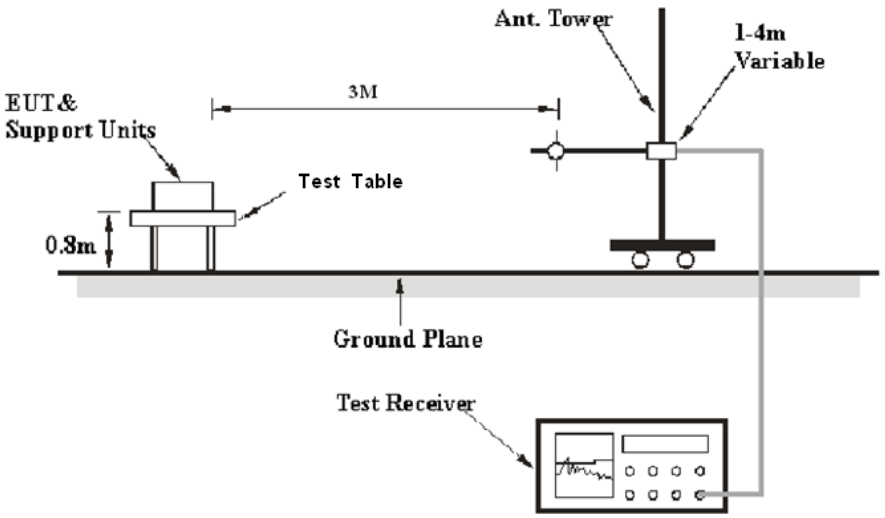
If U_{lab} is less than or equal to U_{cispr} of Table 1, then:
–compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
–Non - compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.
If U_{lab} is greater than U_{cispr} of Table 1, then:
–compliance is deemed to occur if no measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit;
–Non - compliance is deemed to occur if any measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit.

Table 1 - Values of U_{cispr}

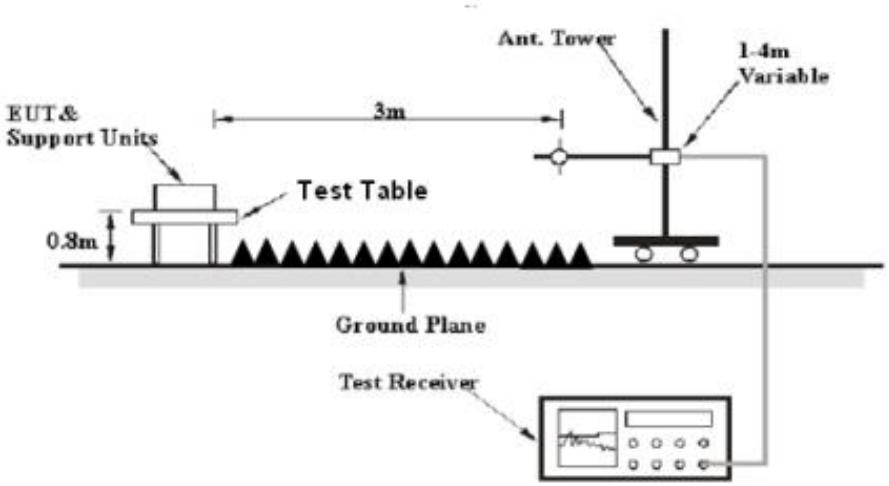
Item		Measurement Uncertainty	U_{cispr}
Radiated Emission	30MHz~1GHz	5.91dB	6.3 dB
	1GHz~6GHz	4.68dB	5.2 dB

Test System Setup

Below 1GHz:



Above 1GHz:



Radiated Top View:

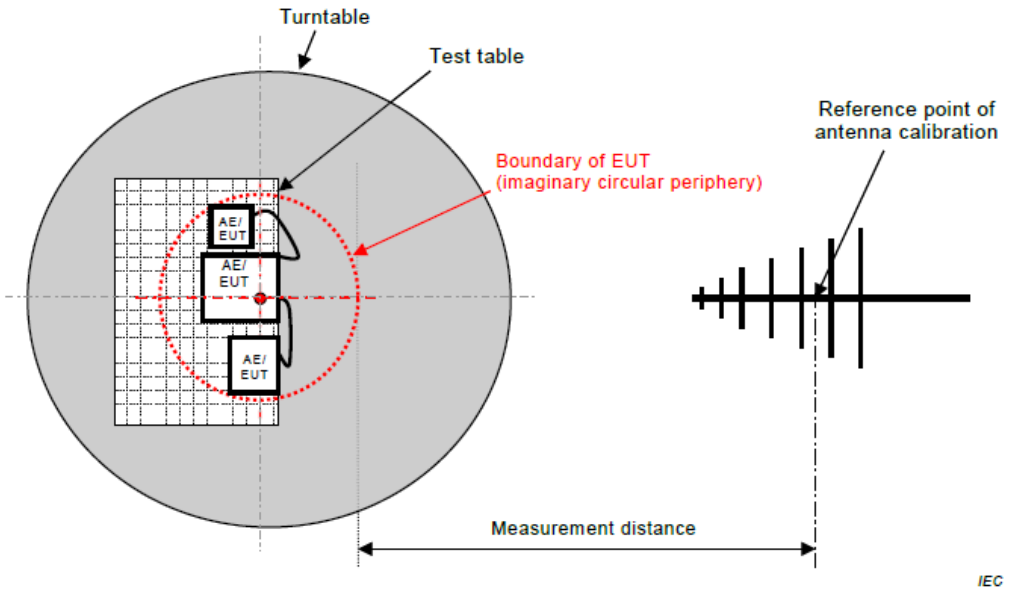


Figure C.1 – Measurement distance

The radiated emission tests below 1GHz was performed in the 3 meters chamber test site using the setup accordance with the CISPR 16-1-1:2015, CISPR16-1-4:2010+A2-2017, CISPR 16-2-3:2016. The specification used was EN 55032 Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 6 GHz.

During the radiated emission test, the EMI test receiver Setup was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector Type
30MHz – 1000 MHz	120 kHz	300 kHz	120kHz	QP
Above 1 GHz	1MHz	3 MHz	/	Peak
	1MHz	3 MHz	1MHz	AVG

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sonoma Instrument	Amplifier	310N	171205	2020-08-14	2021-08-14
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2019-11-30	2020-11-29
Sunol Sciences	Broadband Antenna	JB3	A090314-2	2019-01-09	2022-01-08
Champrotek	Chamber 1#	3m-SAC 966	NA	2020-05-08	2022-05-07
Albatross	Chamber 2#	3m-SAC 966	NA	2019-05-08	2022-05-07
A.H.Systems,inc	Amplifier	PAM-0118P	512	2020-02-20	2021-02-19
R&S	Auto test Software	EMC32	100361	/	/
ETS	Horn Antenna	3115	6229	2019-12-12	2022-12-11
Rohde & Schwarz	EMI Receiver	ESU40	100207	2020-08-27	2021-08-26
MICRO-COAX	Coaxial Cable	Cable-8	008	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-9	009	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-10	010	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-4	004	2019-12-12	2020-12-11
MICRO-COAX	Coaxial Cable	Cable-5	005	2019-12-12	2020-12-11

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter reading. The basic equation is as follows:

Corr. Amp. =Meter Reading + Antenna Factor+ Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amp

Test Data

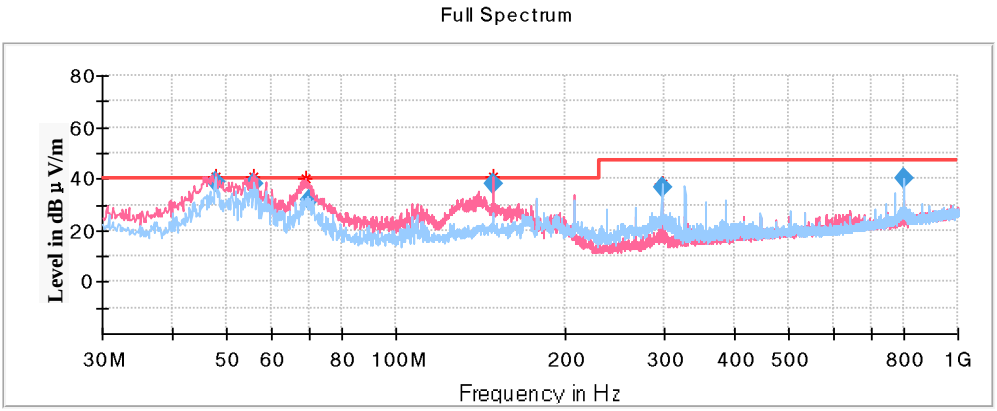
Environmental Conditions

Temperature:	25.1 ℃
Relative Humidity:	53 %
ATM Pressure:	101.2 kPa

The testing was performed by Gerry Xing on 2020-10-03.

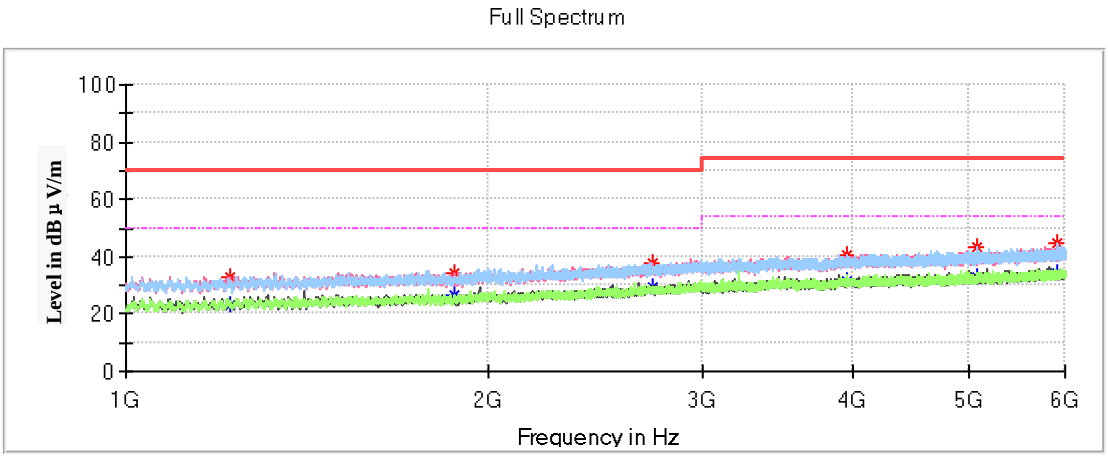
Test mode 1:

Below 1 GHz:



Frequency (MHz)	Corrected Amplitude Quasi Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
47.791950	38.73	40.00	1.27	100.0	V	0.0	-22.5
55.975400	38.38	40.00	1.62	100.0	V	108.0	-24.0
69.962300	31.59	40.00	8.41	200.0	V	294.0	-23.0
148.523350	37.82	40.00	2.18	100.0	V	163.0	-18.3
296.995250	36.57	47.00	10.43	100.0	H	163.0	-17.1
801.948950	40.22	47.00	6.78	100.0	H	202.0	-7.4

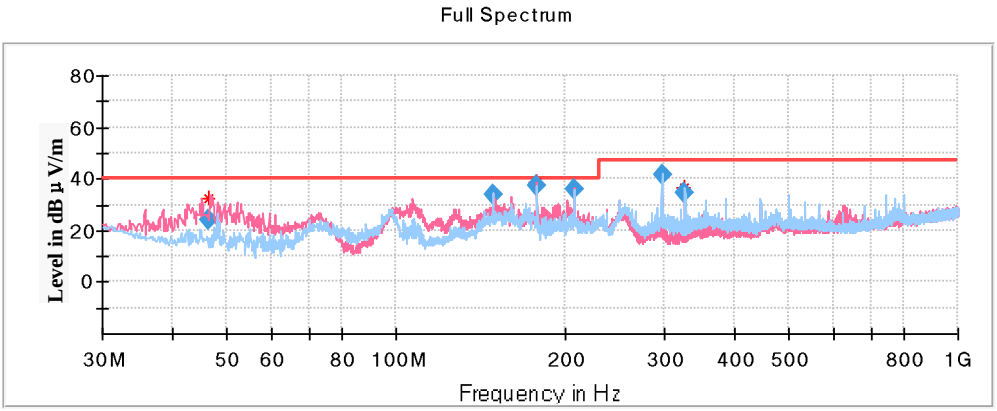
2) Above 1 GHz:



Frequency (MHz)	Corrected Amplitude MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1220.000000	---	22.81	50.00	27.19	100.0	V	101.0	-17.9
1220.000000	32.96	---	70.00	37.04	100.0	V	101.0	-17.9
1873.000000	---	26.31	50.00	23.69	100.0	H	162.0	-15.0
1873.000000	34.14	---	70.00	35.86	100.0	H	162.0	-15.0
2734.500000	---	29.35	50.00	20.65	100.0	H	337.0	-11.3
2734.500000	37.60	---	70.00	32.40	100.0	H	337.0	-11.3
3953.000000	---	31.12	54.00	22.88	100.0	V	150.0	-7.2
3953.000000	40.38	---	74.00	33.62	100.0	V	150.0	-7.2
5073.500000	---	33.04	54.00	20.96	100.0	H	301.0	-5.0
5073.500000	43.08	---	74.00	30.92	100.0	H	301.0	-5.0
5920.000000	---	34.11	54.00	19.89	100.0	H	223.0	-3.1
5920.000000	44.46	---	74.00	29.54	100.0	H	223.0	-3.1

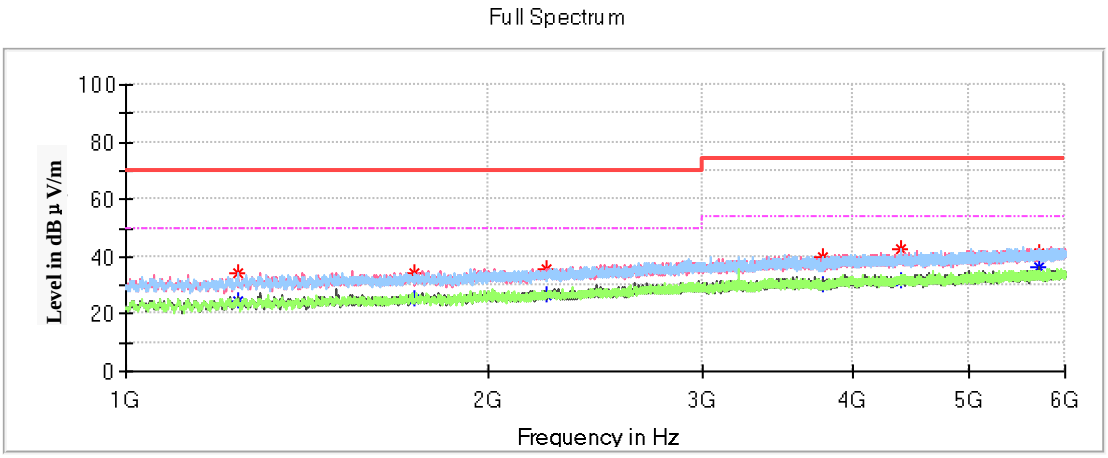
Test mode 2:

Below 1 GHz:



Frequency (MHz)	Corrected Amplitude Quasi Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
46.376650	24.37	40.00	15.63	100.0	V	178.0	-21.5
148.489150	34.14	40.00	5.86	200.0	H	177.0	-18.3
178.215500	37.28	40.00	2.72	100.0	V	95.0	-19.2
207.898050	35.71	40.00	4.29	100.0	V	127.0	-18.2
297.039600	41.23	47.00	5.77	100.0	H	113.0	-17.1
326.747050	34.85	47.00	12.15	100.0	H	266.0	-16.4

2) Above 1 GHz:



Frequency (MHz)	Corrected Amplitude MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1237.500000	---	24.57	50.00	25.43	100.0	H	248.0	-17.8
1237.500000	34.08	---	70.00	35.92	100.0	H	248.0	-17.8
1736.500000	---	25.31	50.00	24.69	100.0	H	345.0	-15.5
1736.500000	34.61	---	70.00	35.39	100.0	H	345.0	-15.5
2229.500000	---	26.87	50.00	23.13	100.0	V	352.0	-13.5
2229.500000	35.88	---	70.00	34.12	100.0	V	352.0	-13.5
3780.500000	---	30.23	54.00	23.77	100.0	H	236.0	-7.8
3780.500000	40.14	---	74.00	33.86	100.0	H	236.0	-7.8
4382.000000	---	31.25	54.00	22.75	100.0	H	358.0	-6.4
4382.000000	42.61	---	74.00	31.39	100.0	H	358.0	-6.4
5708.500000	41.45	---	74.00	32.55	100.0	V	0.0	-3.5
5708.500000	---	36.13	54.00	17.87	100.0	V	0.0	-3.5

EN 55035 §4.2.1 ELECTROSTATIC DISCHARGE (IEC 61000-4-2)

Measurement Uncertainty

U_{lab} (measurement uncertainty of lab) and U_{EN} (measurement uncertainty of EN 61000-4-2) please refer to the following:

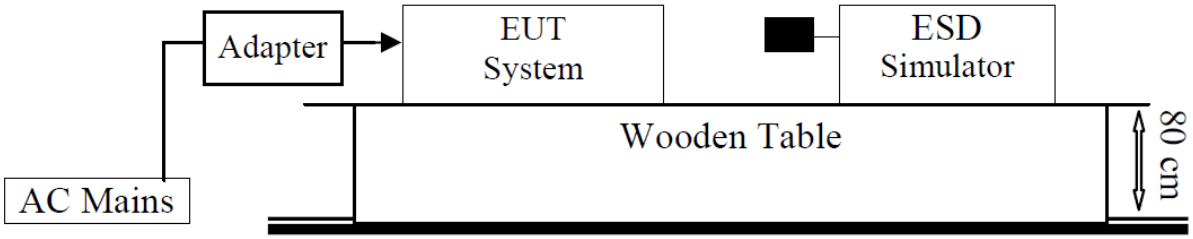
Parameter	U_{EN}	U_{lab}
Rise time t_r	≤ 15%	15%
Peak current I_p	≤ 7%	6.30%
Current at 30 ns	≤ 7%	6.30%
Current at 60 ns	≤ 7%	6.30%

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	ESD Simulator	NSG 438	1079	2020-05-17	2021-05-16

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test System Setup



Remark: ■ is the tip of the electrode

IEC 61000-4-2 specifies that a tabletop EUT shall be placed on a non-conducting table which is 80 centimeters above a ground reference plane and that floor mounted equipment shall be placed on a insulating support approximately 10 centimeters above a ground plane. During the tests, the EUT is positioned over a ground reference plane in conformance with this requirement.

For tabletop equipment, a 1.6 by 0.8-meter metal sheet (HCP) is placed on the table and connected to the ground plane via a metal strap with two 470 k Ohms resistors in series. The EUT and attached cables are isolated from this metal sheet by *0.5-millimeter* thick insulating material. A Vertical Coupling Plane (VCP) grounded on the ground plane through the same configuration as in the HCP is used.

Test Standard

EN 55035+A11:2020 (IEC 61000-4-2:2008)
Test level 3 for Air Discharge at ±8 kV
Test level 2 for Contact Discharge at ±4 kV

Test Level

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

Performance criteria: B

Test Procedure

Air Discharge:

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

Contact Discharge:

All the procedure shall be same as Section 8.3.1 of IEC 61000-4-2, except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

Indirect discharge for horizontal coupling plane:

At least 50 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1 m from the EUT and with the discharge electrode touching the coupling plane.

Indirect discharge for vertical coupling plane:

At least 50 single discharges shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m * 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

Test Data

Environmental Conditions

Temperature:	25.1 ℃
Relative Humidity:	53 %
ATM Pressure:	101.2 kPa

The testing was performed by Gerry Xing on 2020-10-03.

Test Mode 1&2:

Table 1: Electrostatic Discharge Immunity (Air Discharge)

EN 61000-4-2 Test Points Location	Test Levels								
	-2 kV	+2 kV	-4 kV	+4 kV	-8 kV	+8 kV	-15 kV	+15 kV	X
1~4	A	A	A	A	A	A	/	/	/

Table 2: Electrostatic Discharge Immunity (Contact Discharge)

EN 61000-4-2 Test Points Location	Test Levels								
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	X
/	/	/	/	/	/	/	/	/	/

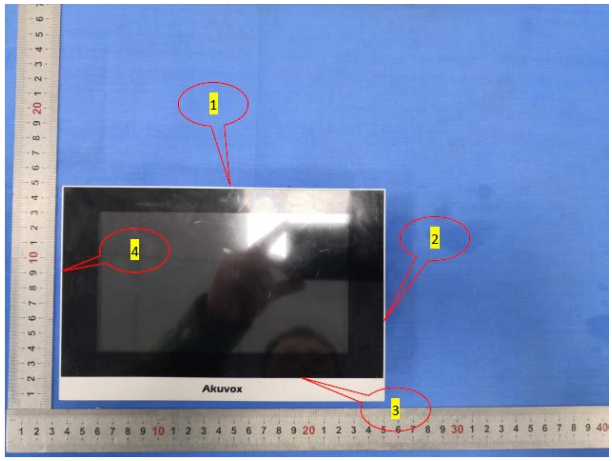
Table 3: Electrostatic Discharge Immunity (Indirect Contact HCP)

EN 61000-4-2 Test Points Location	Test Levels								
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	X
Front Side	A	A	A	A	/	/	/	/	/
Back Side	A	A	A	A	/	/	/	/	/
Left Side	A	A	A	A	/	/	/	/	/
Right Side	A	A	A	A	/	/	/	/	/

Table 4: Electrostatic Discharge Immunity (Indirect Contact VCP)

EN 61000-4-2 Test Points Location	Test Levels								
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	X
Front Side	A	A	A	A	/	/	/	/	/
Back Side	A	A	A	A	/	/	/	/	/
Left Side	A	A	A	A	/	/	/	/	/
Right Side	A	A	A	A	/	/	/	/	/

Test point as follows:



Note: “A” stands for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function, no loss of stored data or user programmable functions.

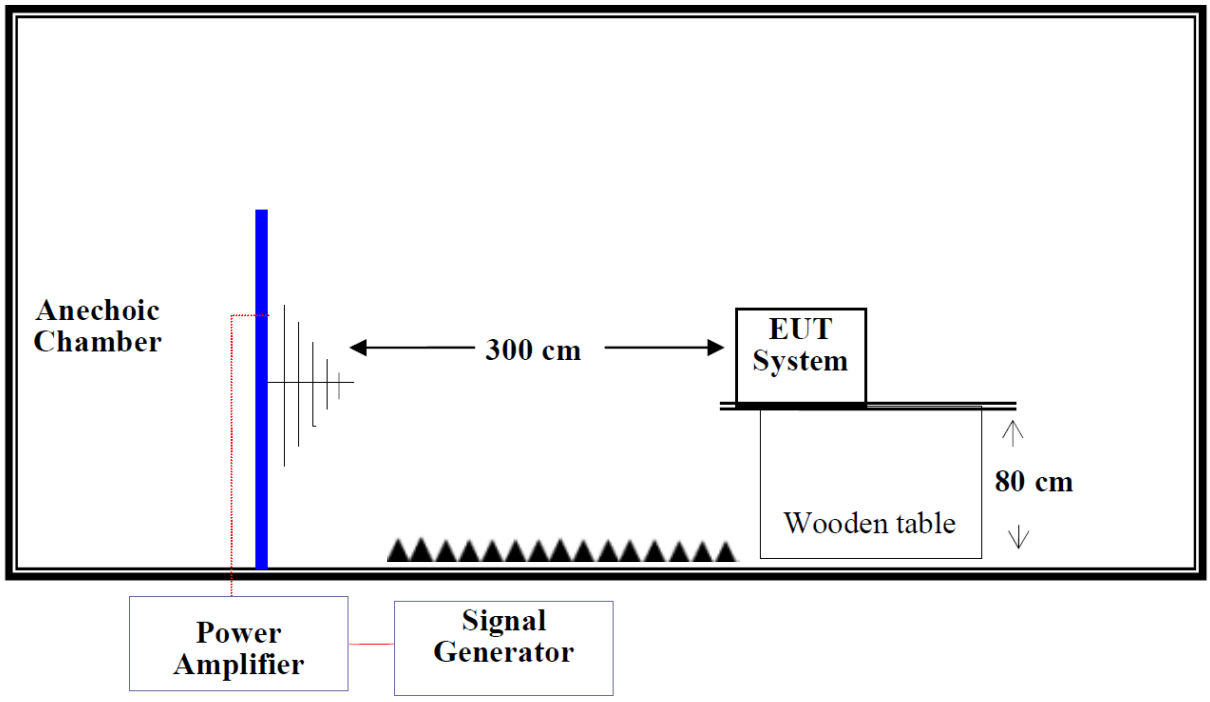
EN 55035 §4.2.2.2 CONTINUOUS RF ELECTROMAGNETIC FIELD DISTURBANCES (IEC 61000-4-3)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Signal Generator	E4428C	MY49070179	2020-08-05	2021-08-04
A&R	Power Amplifier	60S1G6	0349442	NCR	NCR
Amplifier Research	Power Amplifier	200W1000M3A	18062	NCR	NCR
Ar	Log Periodic Antenna	ATL80M1G	350122	NCR	NCR
Ar	Log Periodic Antenna	ATT700M12G	350307	NCR	NCR
BK Precision	Sound Level meter	735	0735 0087 309110025	2020-05-16	2021-05-15
R&S	Audio Analyzer	UPV	1146.2003K02-101782-XP	2020-08-11	2021-08-10

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements, traceable to National Primary Standards and International System of Units (SI).

Test System Setup



Test Standard

EN 55035+A11:2020 (IEC 61000-4-3:2006 + A1:2007, A2:2010)
Test level 2 at 3V / m

Test Level

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

Performance criteria: A

Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above the ground. The EUT is set 3 meters away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarizations of the antenna are 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 is used to monitor EUT.

All the scanning conditions are as follows:

Condition of Test	Remarks
1. Field Strength	3 V/m (Test Level 2)
2. Radiated Signal	AM 80% , 1kHz sin wave
3. Scanning Frequency	80 - 1000 MHz ,
4. Dwell Time	3 Sec.
5. Test step	1%
6. Field Strength	3 V/m (Test Level 2)
7. Radiated Signal	AM 80%, 1kHz sin wave
8. Scanning Frequency	1800MHz, 2600MHz, 3500MHz, 5000MHz
9. Dwell Time	3 Sec.
10. Test step	1%

Test Data

Environmental Conditions

Temperature:	25.1 ℃
Relative Humidity:	53 %
ATM Pressure:	101.2 kPa

The testing was performed by Gerry Xing on 2020-10-03.

Test Mode 1&2:

Frequency Range (MHz)	Front Side (3 V/m)		Rear Side (3 V/m)		Left Side (3 V/m)		Right Side (3 V/m)	
	VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
80-1000	A	A	A	A	A	A	A	A
1800	A	A	A	A	A	A	A	A
2600	A	A	A	A	A	A	A	A
3500	A	A	A	A	A	A	A	A
5000	A	A	A	A	A	A	A	A

Note: “A” stands for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function, no loss of stored data or user programmable functions.

EN 55035 §4.2.4 ELECTRICAL FAST TRANSIENT/BUSRST (IEC 61000-4-4)

Measurement Uncertainty

U_{lab} (measurement uncertainty of lab) and U_{EN} (measurement uncertainty of EN 61000-4-4) please refer to the following:

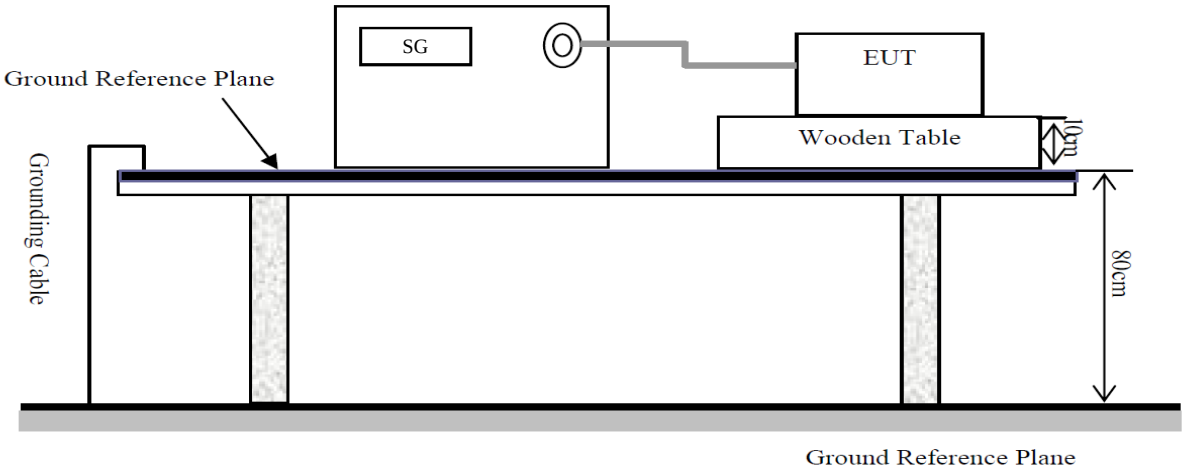
Parameter	U_{EN}	U_{lab}
Rise time t_r	6.20%	6.20%
Peak voltage value V_p	8.60%	8.60%
Voltage pulse width t_w	5.90%	5.90%

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM TEST	Auto Transformer	MV2616	V0939105172	NCR	NCR
EM TEST	Ultra Compact Generator	UCS 500 N5	P1406130994	2020-08-05	2021-08-04

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Test System Setup



Test Standard

EN 55035:2017+A11:2020 (IEC 61000-4-4:2012)
AC Mains: Test level 2 at 1 kV
Signal port: Test level 2 at 0.5 kV

Test Level

Open Circuit Output Test Voltage ±10%				
Level	Power ports,earth port(PE)		Signal and control ports	
	Voltage(kV)	Repetition frequency(kHz)	Voltage(kV)	Repetition frequency(kHz)
1	0.5	5 or 100	0.25	5 or 100
2	1		0.5	
3	2		1	
4	4		2	
X	Special	Special	Special	Special

Performance Criterion: B

Test Procedure

The EUT was arranged for Power Line Coupling and for I/O Line Coupling through a capacitive clamp, where applicable. (Note: The I/O coupling test using a capacitive clamp is performed on the I/O interface cables that are longer in length than 3 meters.) A metal ground plane 2.4 meter by 2.0 meter was placed between the floor and the table and is connected to the earth by a 2.0 meter ground rod. The ground rod is connected to the test facility's electrical earth.

Test Data

Environmental Conditions

Temperature:	25.1 ℃
Relative Humidity:	53 %
ATM Pressure:	101.2 kPa

The testing was performed by Gerry Xing on 2020-10-03.

Test Mode 1:

EN 61000-4-4 Test Points		Test Levels (kV) Repetition frequency(5kHz)							
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0	+4.0	-4.0
AC Mains Power Input Ports	L	/	/	A	A	/	/	/	/
	N	/	/	A	A	/	/	/	/
	L+N	/	/	A	A	/	/	/	/
Signal Port	Network	A	A	/	/	/	/	/	/

Test Mode 2:

EN 61000-4-4 Test Points		Test Levels (kV) Repetition frequency(5kHz)							
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0	+4.0	-4.0
AC Mains Power Input Ports	L	/	/	A	A	/	/	/	/
	N	/	/	A	A	/	/	/	/
	L+PE	/	/	A	A	/	/	/	/
	N+PE	/	/	A	A	/	/	/	/
	L+N+PE	/	/	A	A	/	/	/	/
Signal Port	Network	A	A	/	/	/	/	/	/

Note: “A” stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function or user programmable functions

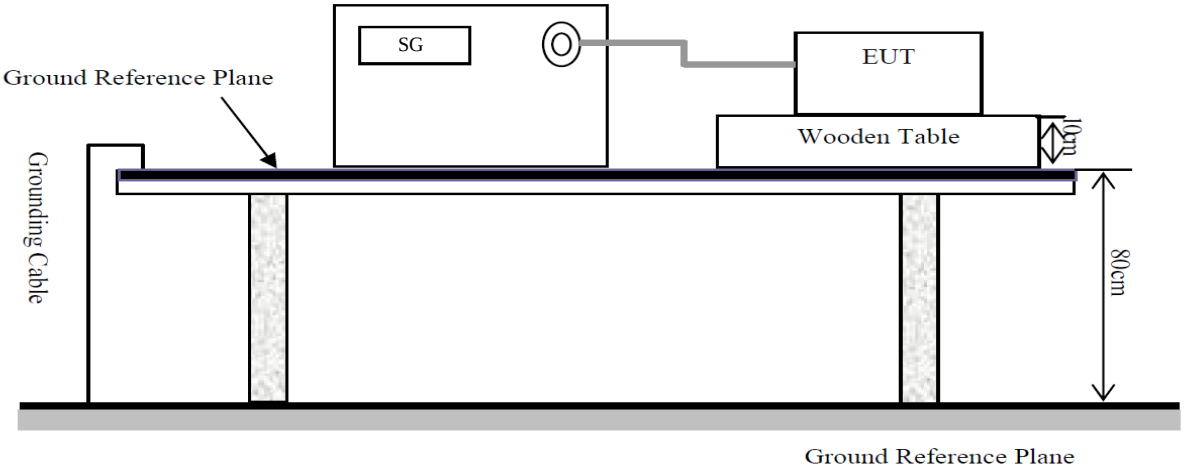
EN 55035 §4.2.5 SURGES (IEC 61000-4-5)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM TEST	Auto Transformer	MV2616	V0939105172	N/A	N/A
EM TEST	Ultra Compact Generator	UCS500-N	P1406130994	2020-08-05	2021-08-04

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Test System Setup



Test Standard

EN 55035:2017+A11:2020 (IEC 61000-4-5:2014)
AC Mains: L-N: Test level 3 at 1 kV
L-PE; N-PE: Test level 3 at 2 kV

Test Level

Level	Open Circuit Output Test Voltage ±10%(kV)		Performance Criterion	
	Line-to-line	Line-to-ground	AC Mains	Signal Port
1	---	0.5	---	B
2	0.5	1	---	---
3	1	2	B	---
4	2	4	---	---
X	Special	Special	---	---

Test Procedure

1) For line to line coupling mode, provide a 1 kV 1.2/50us voltage surge (at open-circuit condition).
2) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
3) Different phase angles are done individually.
4) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

Test Data

Environmental Conditions

Temperature:	25.1 ℃
Relative Humidity:	53 %
ATM Pressure:	101.2 kPa

The testing was performed by Gerry Xing on 2020-10-03.

Test Mode 1:

IEC61000-4-5 Test Points		Test Levels (kV)							
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0	+4.0	-4.0
AC Mains Power Input Ports	L-N	/	/	A	A	/	/	/	/
Signal port	Network	/	/	A	A	/	/	/	/

Test Mode 2:

IEC61000-4-5 Test Points		Test Levels (kV)							
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0	+4.0	-4.0
AC Mains Power Input Ports	L-N	/	/	A	A	/	/	/	/
	L-PE	/	/	/	/	A	A	/	/
	N-PE	/	/	/	/	A	A	/	/
Signal port	Network	/	/	A	A	/	/	/	/

Note: “A” stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function or user programmable functions

EN 55035 §4.2.2.3 CONTINUOUS INDUCED RF DISTURBANCES (IEC 61000-4-6)

Measurement Uncertainty

U_{lab} (measurement uncertainty of lab) and U_{EN} (measurement uncertainty of EN 61000-4-6) please refer to the following:

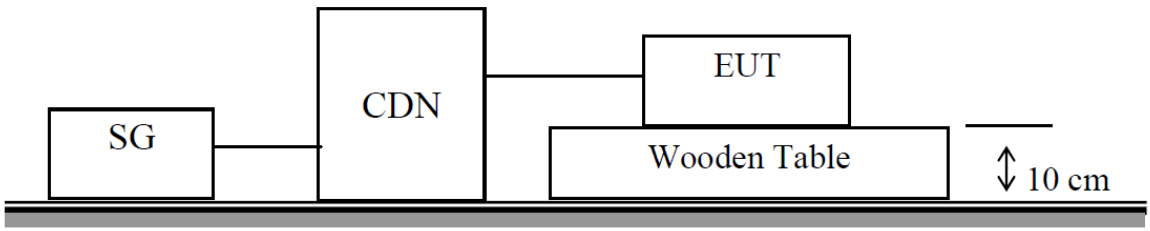
Parameter	U_{EN}	U_{lab}
CDN calibration process	1.27 dB	1.27 dB
CDN test process	1.36 dB	1.36 dB

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	Signal Generator	8648C	3537A01810	2020-08-05	2021-08-04
R&S	Power Amplifier	500A100M2	18117	NCR	NCR
Dressler	Attenuator	ATT 6/75	510020010004	NCR	NCR
COM-POWER	CDN	CDN M325E	521164	2020-04-01	2021-03-31

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Test Setup



Test Standard

EN 55035:2017+A11:2020 (IEC 61000-4-6:2013)
Test level 2 at 3 V (r.m.s.), 0.15 MHz ~ 10 MHz,
Test level X at 3 V -1V(r.m.s.), 10 MHz ~ 30 MHz,
Test level 1 at 1 V (r.m.s.), 30 MHz ~ 80 MHz

Test Level

Level	Voltage Level (r.m.s.) (U_0)
1	1
2	3
3	10
X	Special

Performance Criterion: A

Test Procedure

1) Let the EUT work in test mode and test it.
2) The EUT are placed on an insulating support 0.1 m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3 m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
3) The disturbance signal described below is injected to EUT through CDN.
4) The EUT operates within its Charingal mode(s) under intended climatic conditions after power on.
5) The frequency range is swept from 150 kHz to 80 MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1 kHz sine wave.
6) The rate of sweep shall not exceed 1.5*10-3decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
7) Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

Test Data

Environmental Conditions

Temperature:	25.1 ℃
Relative Humidity:	53 %
ATM Pressure:	101.2 kPa

The testing was performed by Gerry Xing on 2020-10-03.

Test Mode 1:

EN55035 Test Ports	Test equipment	Frequency Range (MHz)	Voltage Level (e.m.f.) U0			
			1V	3V	10V	1V~3V
AC mains power input ports	M2	0.15-10	/	A	/	/
	M2	10-30	/	/	/	A
	M2	30-80	A	/	/	/
Signal Port	Network	0.15-10	/	A	/	/
	Network	10-30	/	/	/	A
	Network	30-80	A	/	/	/

Test Mode 2:

EN55035 Test Ports	Test equipment	Frequency Range (MHz)	Voltage Level (e.m.f.) U0			
			1V	3V	10V	1V~3V
AC mains power input ports	M3	0.15-10	/	A	/	/
	M3	10-30	/	/	/	A
	M3	30-80	A	/	/	/
Signal Port	Network	0.15-10	/	A	/	/
	Network	10-30	/	/	/	A
	Network	30-80	A	/	/	/

Note: “A” stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function or user programmable functions

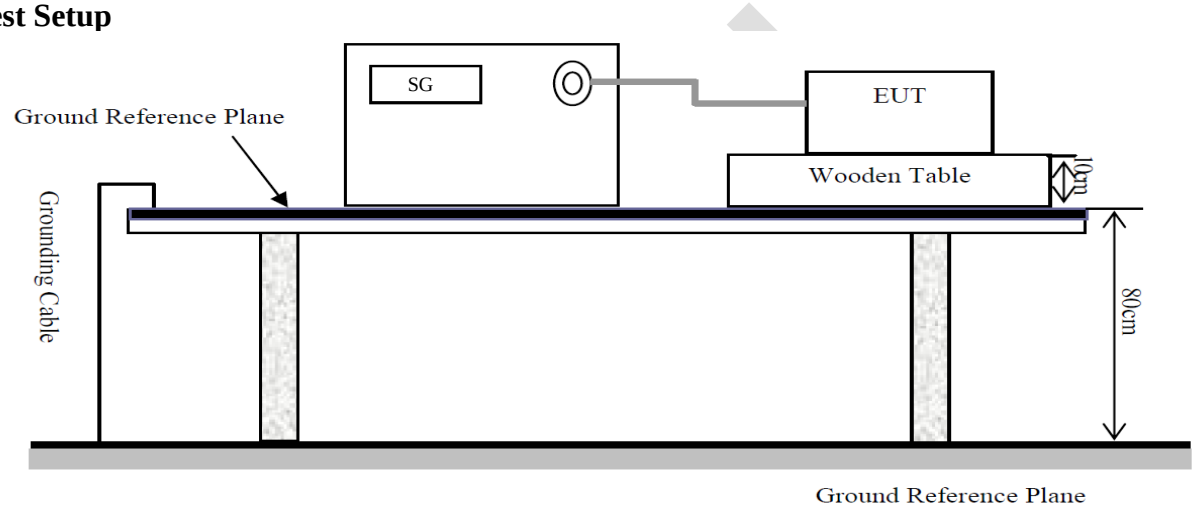
EN 55035 §4.2.6 VOLTAGE DIPS AND INTERRUPTIONS (IEC 61000-4-11)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM TEST	Auto Transformer	MV2616	V0939105172	N/A	N/A
EM TEST	Ultra Compact Generator	UCS500-N5	P1406130994	2020-08-05	2021-08-04

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Test Setup



Test Standard

EN 55035:2017+A11:2020 (IEC 61000-4-11:2004)
Test levels and Performance Criterion

Test Level

Test Level	Test Level	Cycle	Performance criterion
1	Voltage dip : 0 % residual voltage	0.5	B
2	Voltage dip : 70 % residual voltage	25	C
3	Voltage interruptions : 0 % residual voltage	250	C

Test Procedure

1) The interruption is introduced at selected phase angles with specified duration.
2) Record any degradation of performance.

Test Data

Environmental Conditions

Temperature:	25.1 ℃
Relative Humidity:	53 %
ATM Pressure:	101.2 kPa

The testing was performed by Gerry Xing on 2020-10-03.

Test Mode 1&2:

Test Level	Cycle	Phase Angle	Result
Voltage dip : 0 % residual voltage	0.5	0º/90º/180º/270º	A
Voltage dip : 70 % residual voltage	25	0º/90º/180º/270º	A
Voltage interruptions : 0 % residual voltage	250	0º/90º/180º/270º	C

Note:
1. “A” stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function or user programmable functions
2. “C” stand for, in case of short-time voltage interruption, power failure will occur. After manual restart, it can work normally without loss of function.

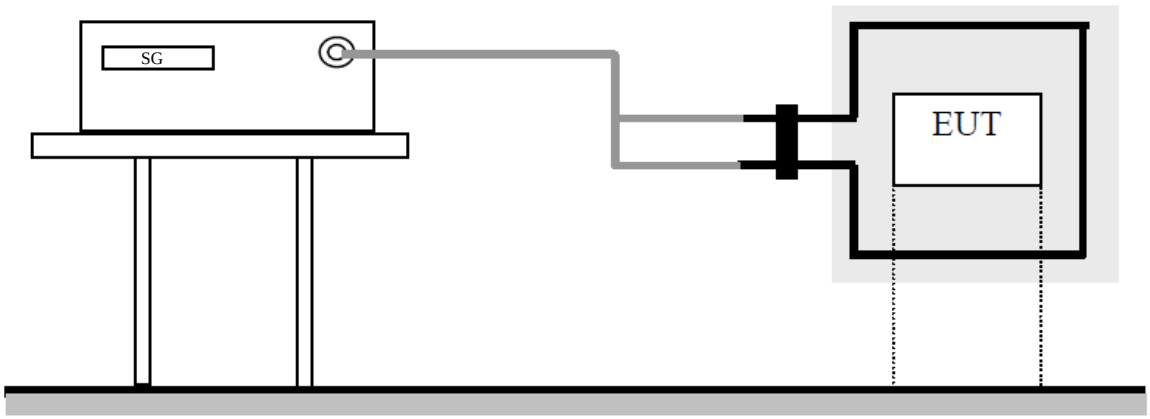
EN 55035 §4.2.3 POWER FREQUENCY MAGNETIC FIELD (IEC 61000-4-8)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM TEST	Loop Antenna	MS100	P1334123835	2020-02-14	2021-02-13
EM TEST	Current Transformer	MC2630	P1303109259	2019-02-14	2022-02-13
EM TEST	AC Power Source	ACS 500N	P1251107475	2019-11-30	2020-11-29

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Setup



Test Standard

EN 55035:2017+A11:2020 (IEC 61000-4-8:2009)
Test level 1 at 1A/m

Test Level

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

Performance Criteria: A

Test Procedure

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

Test Data

Environmental Conditions

Temperature:	25.1 ℃
Relative Humidity:	53 %
ATM Pressure:	101.2 kPa

The testing was performed by Gerry Xing on 2020-10-03.

Test Mode 1&2:

Level	Magnetic Field Strength A/M	X (Horizontal)	Y (Vertical)	Z (Special)
1	1	A	A	A
2	3	/	/	/
3	10	/	/	/
4	30	/	/	/
5	100	/	/	/
X	Special	/	/	/

Note: “A” stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function or user programmable functions

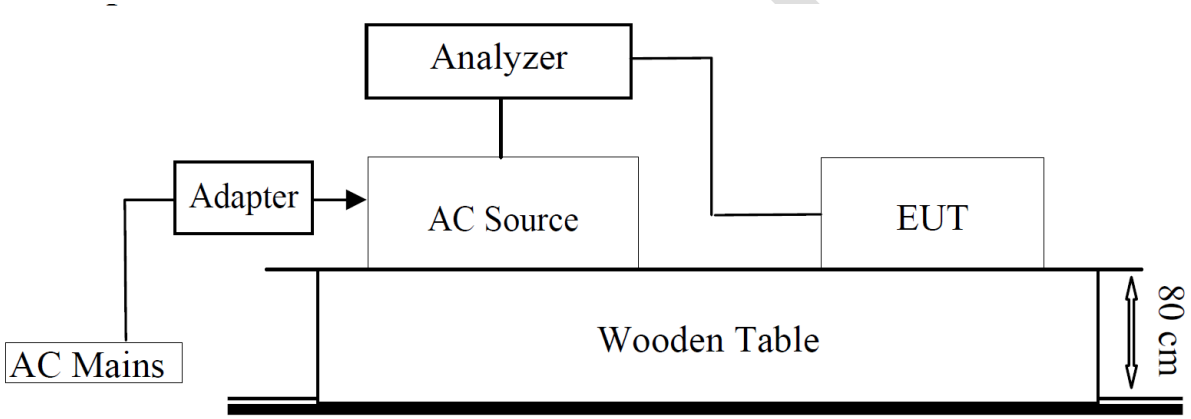
EN 61000-3-3 VOLTAGE FLUCTUATION AND FLICKER

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM TEST	Harmonic & Flicker Analyzer	DPA 500N	P1402129120	2019-11-30	2020-11-30
EM TEST	AC Power Source	ACS 500N	P1251107475	2019-11-30	2020-11-30

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements, traceable to National Primary Standards and International System of Units (SI).

Test System Setup



Test Standard

EN 61000-3-3: 2013+A1:2019

Flicker Test Limits:

The limits shall be applicable to voltage fluctuations and flicker at the supply terminals of the equipment under test, measured or calculated according to clause 4 under test conditions described in clause 6 and annex A. Tests made to prove compliance with the limits are considered to be type tests.
The following limits apply:
– the value of Pst shall not be greater than 1,0;
– the value of Plt shall not be greater than 0,65;
–Tmax, the accumulated time value of d(t) with a deviation exceeding 3,3 % during a single voltage change at the EUT terminals, shall not exceed 500 ms;
– the relative steady-state voltage change, dc, shall not exceed 3,3 %;
– the maximum relative voltage change dmax, shall not exceed
a) 4 % without additional conditions;
b) 6 % for equipment which is:
– switched manually;
– switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.

Note: The cycling frequency will be further limited by the Pst and Plt limit. For example: a dmax of 6 % producing a rectangular voltage change characteristic twice per hour will give a Plt of about 0.65. c) 7 % for equipment which is - attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or– switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.

In the case of equipment having several separately controlled circuits in accordance with 6.6, limits b) and c) shall apply only if there is delayed or manual restart after a power supply interruption; for all equipment with automatic switching which is energized immediately on restoration of supply after a power supply interruption, limits a) shall apply; for all equipment with manual switching, limits b) or c) shall apply depending on the rate of switching. Pst and Plt requirements shall not be applied to voltage changes caused by manual switching. The limits shall not be applied to voltage changes associated with emergency switching or emergency interruptions.

Test Data

Environmental Conditions

Temperature:	25.3 ℃
Relative Humidity:	54 %
ATM Pressure:	102.0 kPa

Date of test:	8:03 4.Oct 2020
Tester:	Gerry Xing
Standard used:	EN/IEC 61000-3-3 Flicker
Short time (Pst):	10 min
Observation time:	120 min (12 Flicker measurement)
Flicker meter:	230V / 50Hz
Flicker Impedance:	Zref (IEC 60725)
Customer:	AKUVOX (XIAMEN) NETWORKS CO., LTD.
E. U. T.:	Indoor Monitor
Model:	C313S
EUT operation mode	*Test mode 1*

Maximum Flicker results

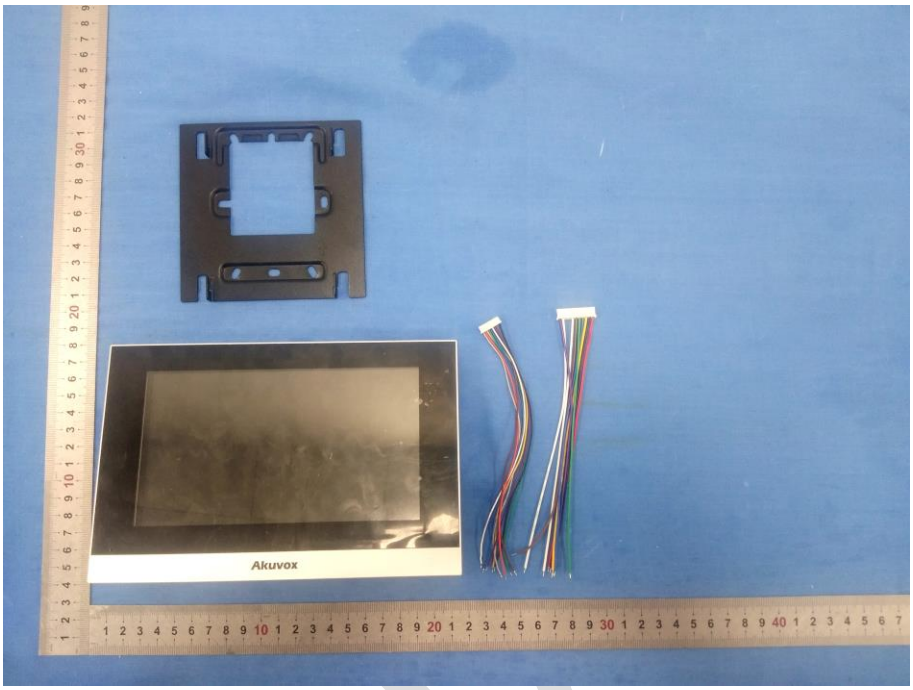
	EUT values	Limit	Result
Pst	0.028	1.00	Pass
Plt	0.028	0.65	Pass
dc [%]	0.000	3.30	Pass
dmax [%]	0.071	4.00	Pass
Tmax[s]	0.000	0.50	Pass

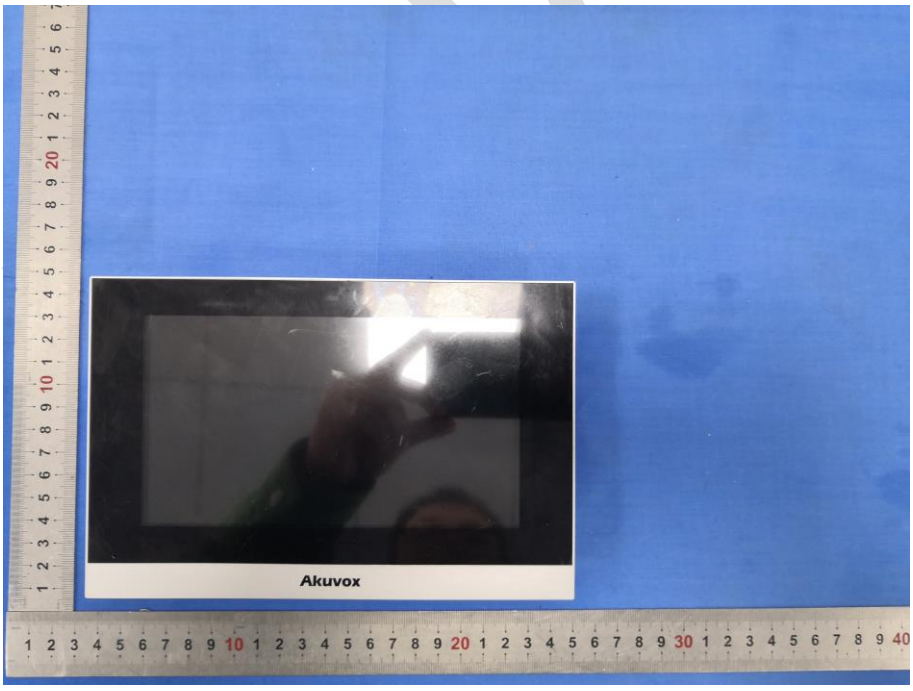
Date of test:	17:18 4.Oct 2020
Tester:	Gerry Xing
Standard used:	EN/IEC 61000-3-3 Flicker
Short time (Pst):	10 min
Observation time:	120 min (12 Flicker measurement)
Flicker meter:	230V / 50Hz
Flicker Impedance:	Zref (IEC 60725)
Customer:	AKUVOX (XIAMEN) NETWORKS CO., LTD.
E. U. T.:	Indoor Monitor
Model:	C313S
EUT operation mode	*Test mode 2*

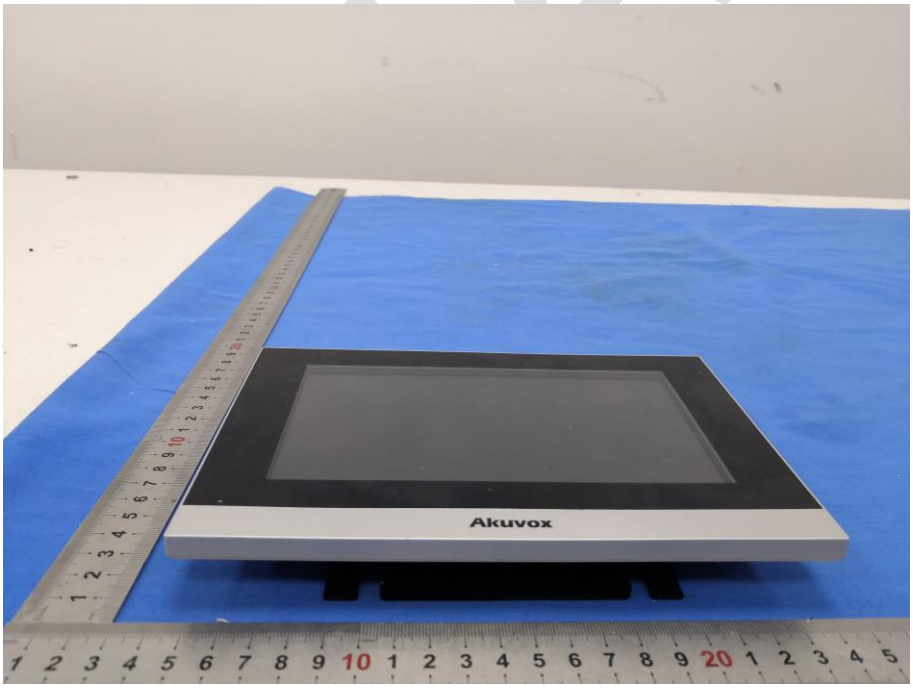
Maximum Flicker results

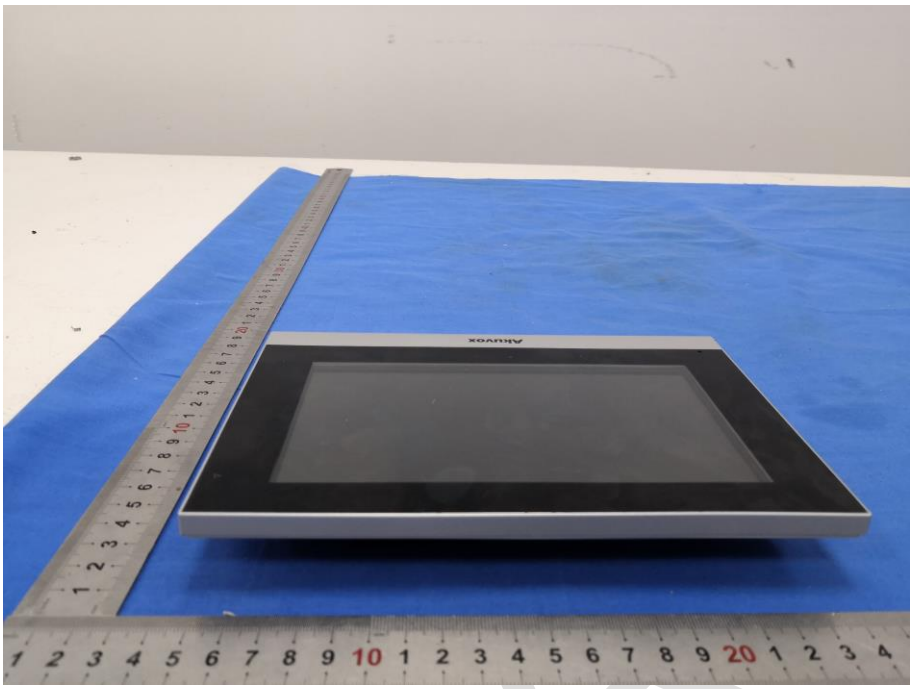
	EUT values	Limit	Result
Pst	0.028	1.00	Pass
Plt	0.028	0.65	Pass
dc [%]	0.000	3.30	Pass
dmax [%]	0.064	4.00	Pass
Tmax[s]	0.000	0.50	Pass

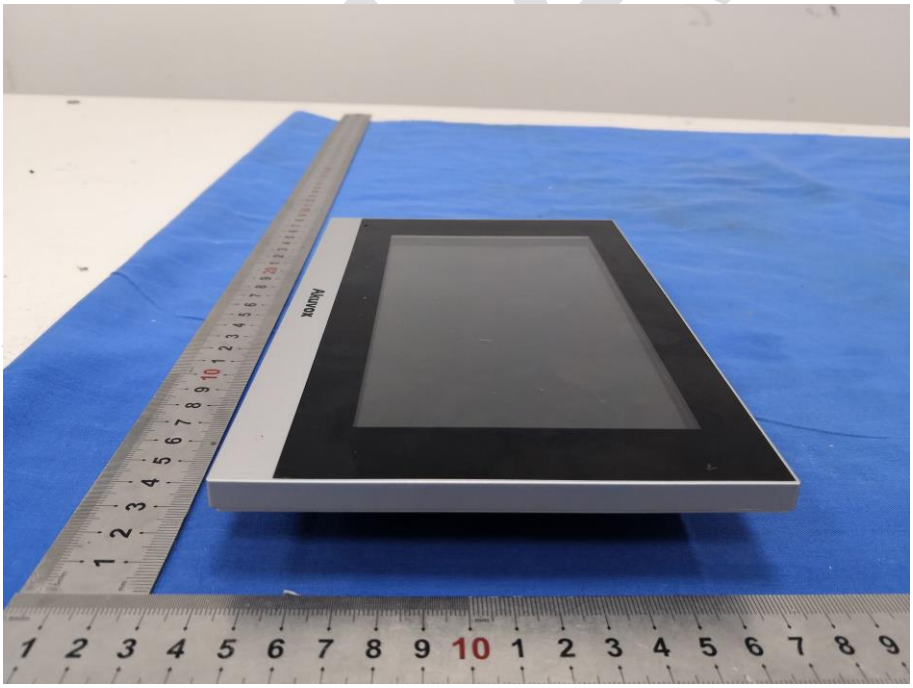
EXHIBIT A - EUT PHOTOGRAPHS

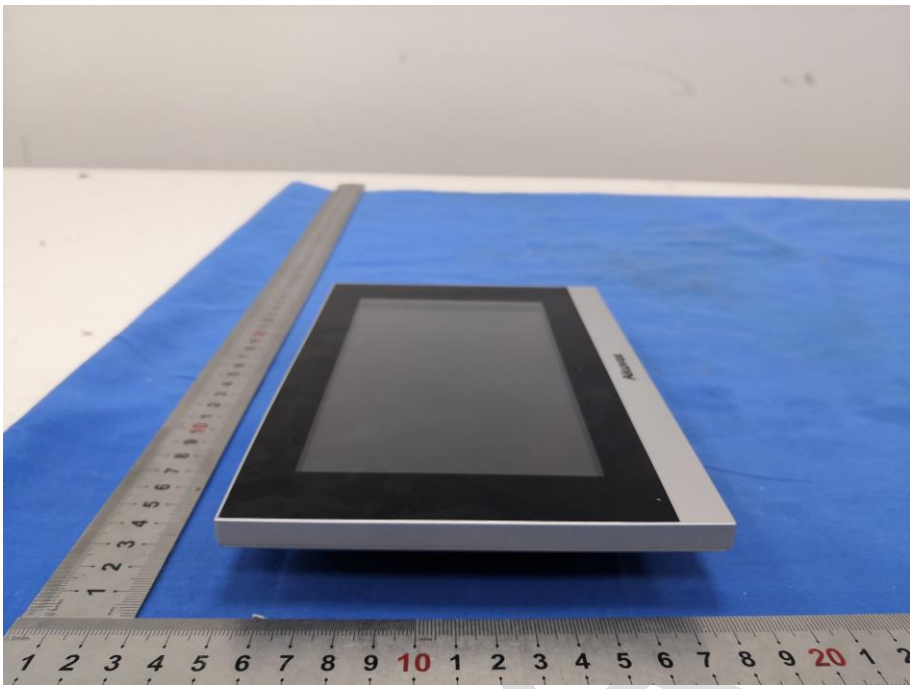


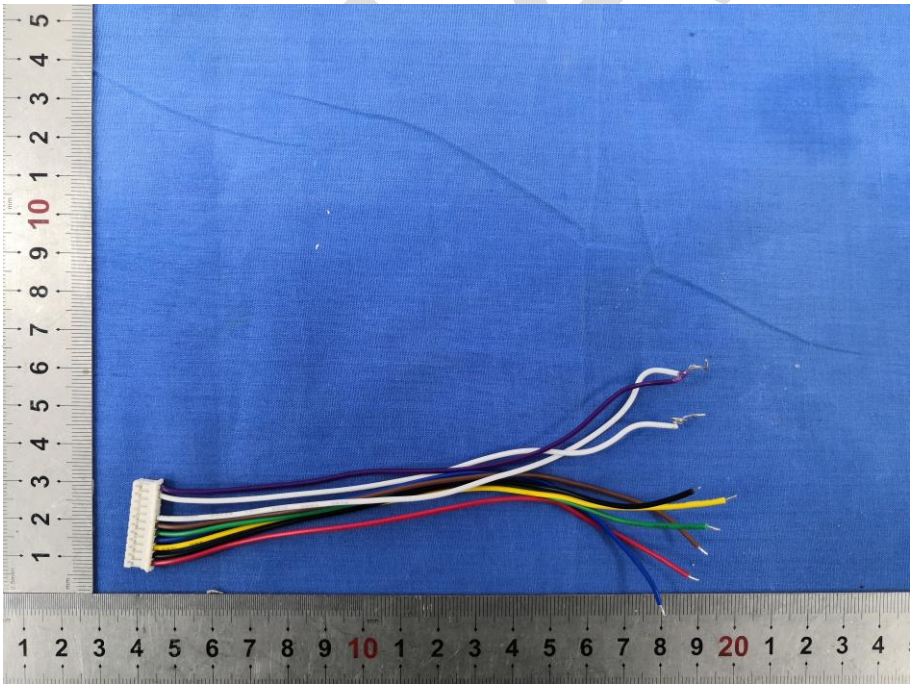


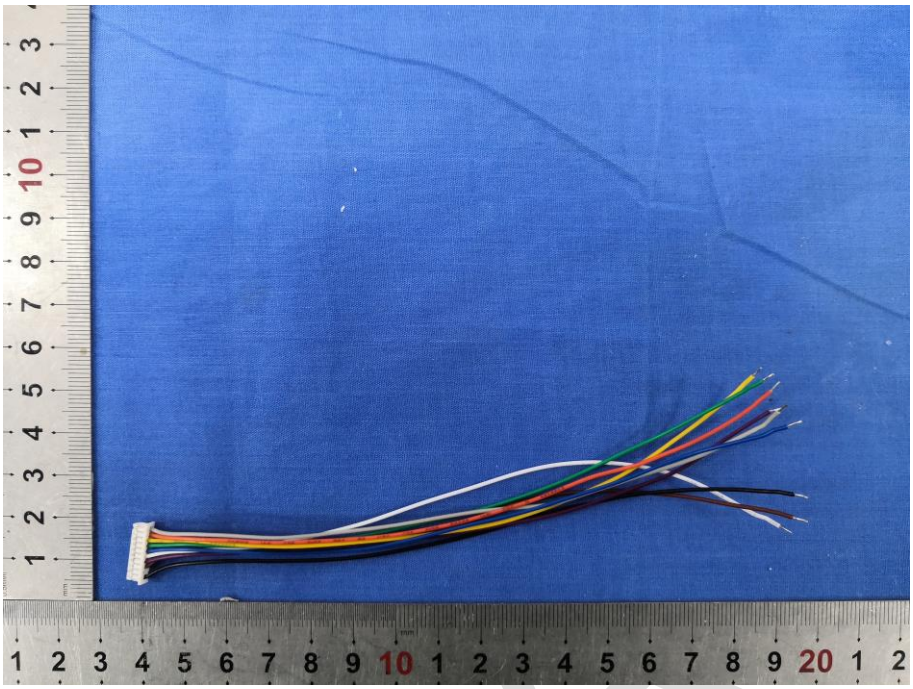

Akuvox

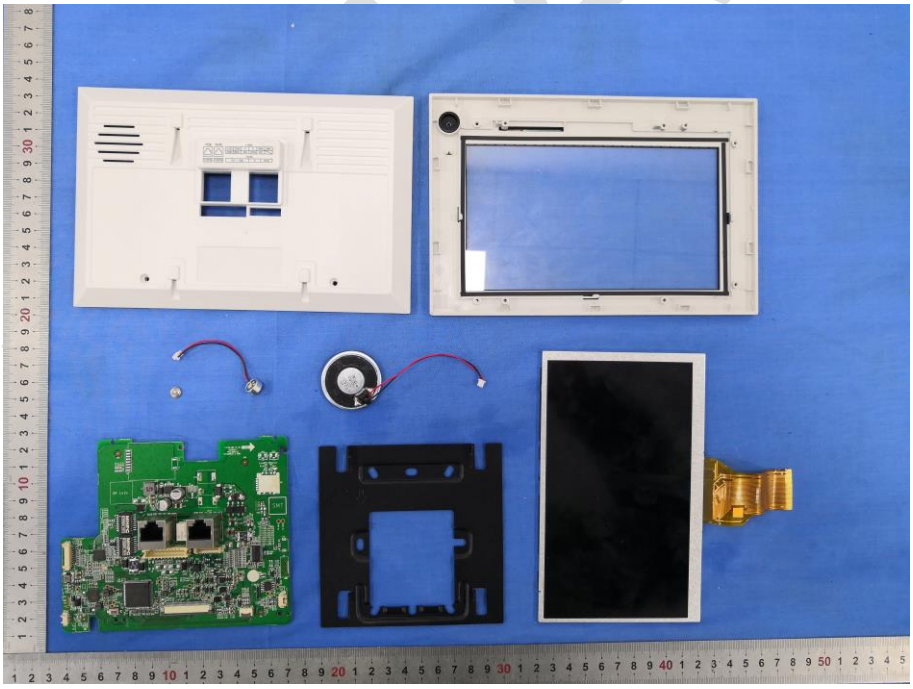


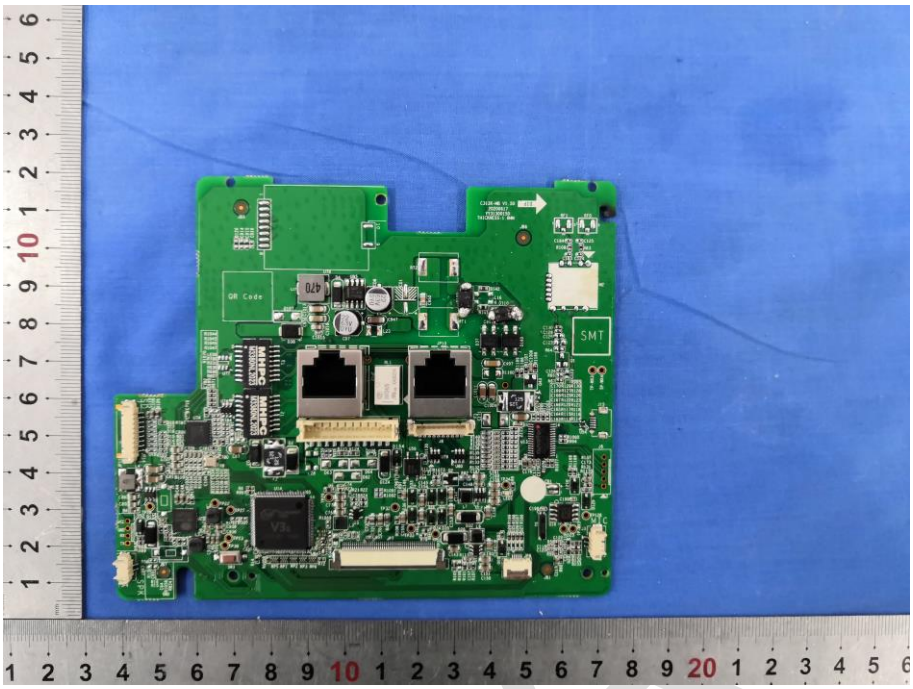


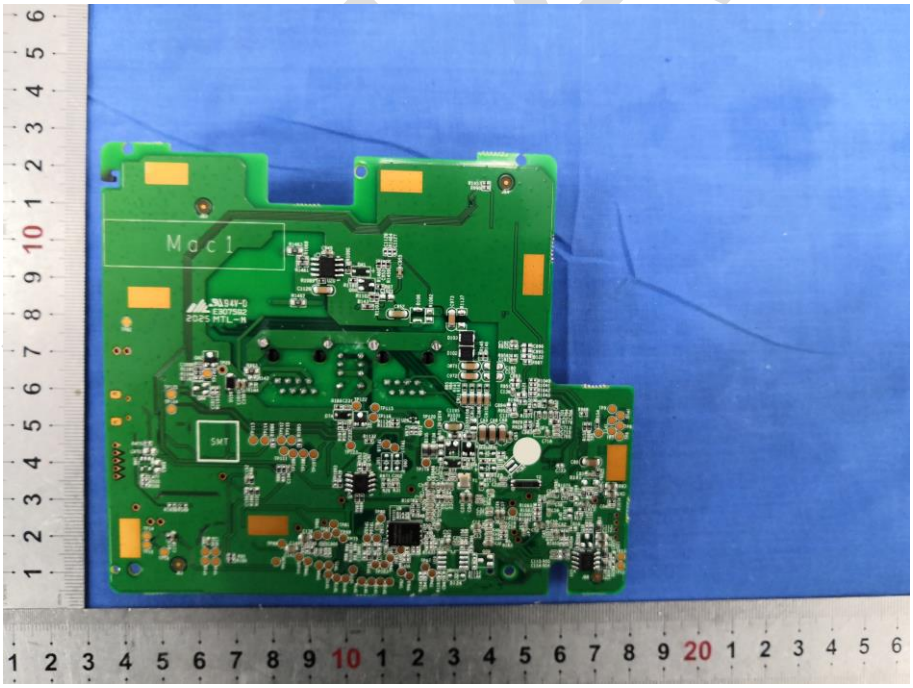




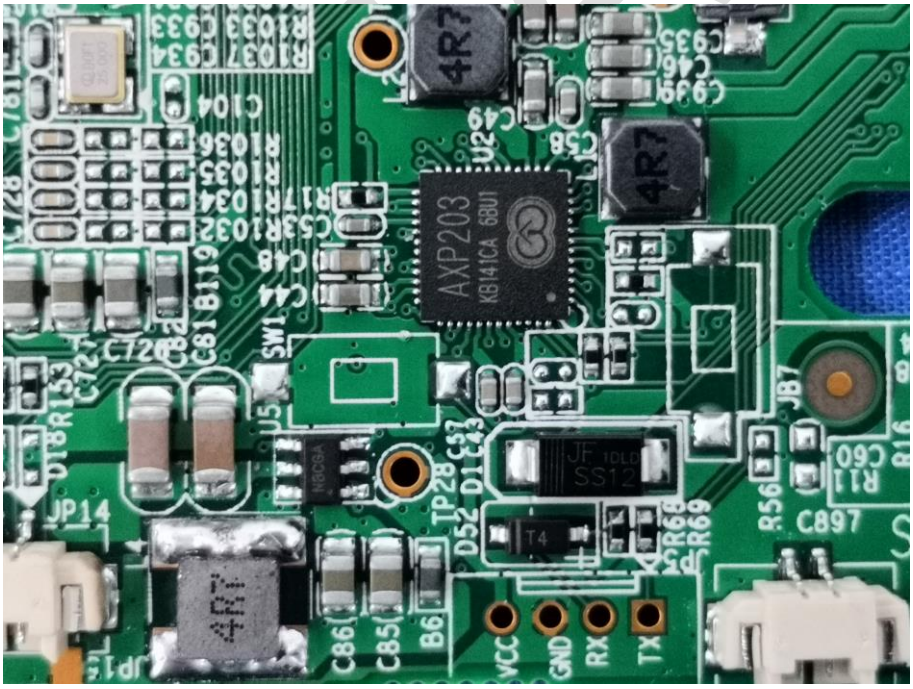





SMT


Mac1
SMT


U14
ALLWINNER
TECH
V3s
L2128BA 26M2
TP22
TP27
TP23
TP30
C938
C936
C42
SW3
R14
R1059
RP5 RP1 RP2 RP3 RP6
R72
R74
R1069
C77
C75
C74
TP29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SW1
JP14
SS12
D52
TP28
R56
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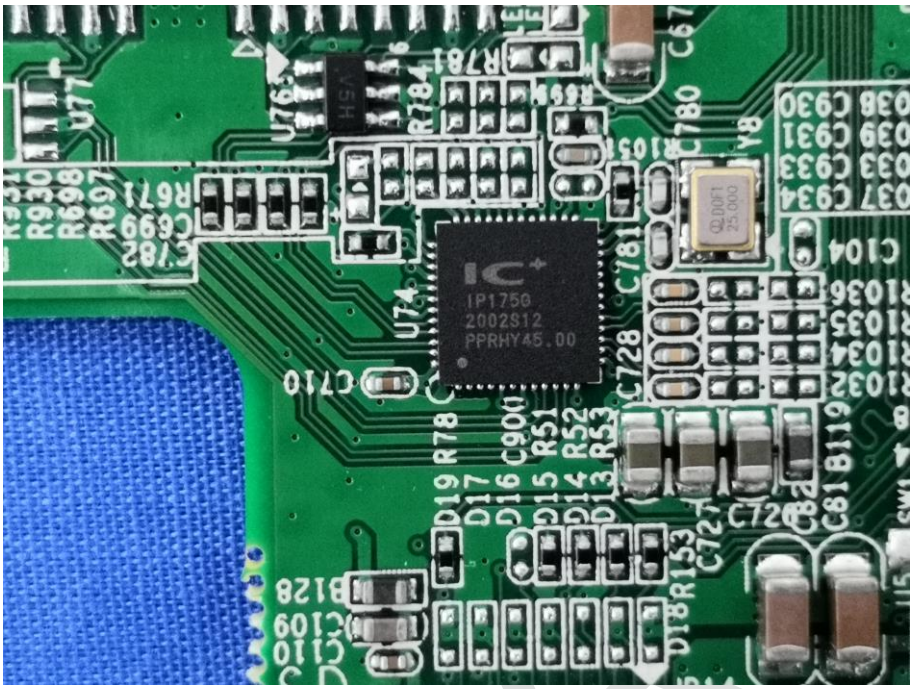
VCC
GND
RX
TX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2002S12
PPRHY45.00

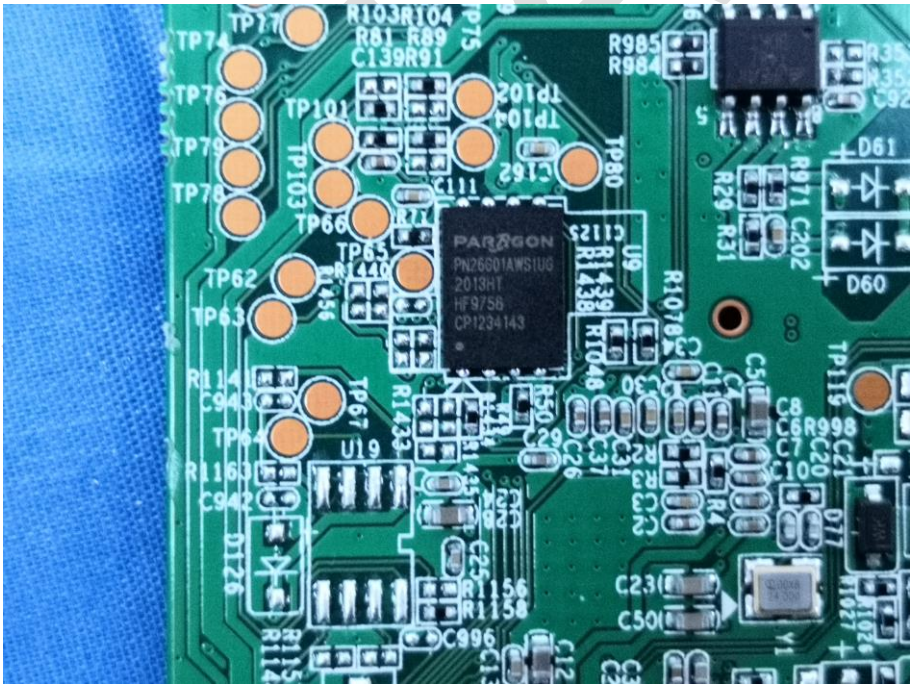

PARAGON
PN26G01AWSIUG
2013HT
HF9758
CP1234143

EXHIBIT B – TEST SETUP PHOTOGRAPHS

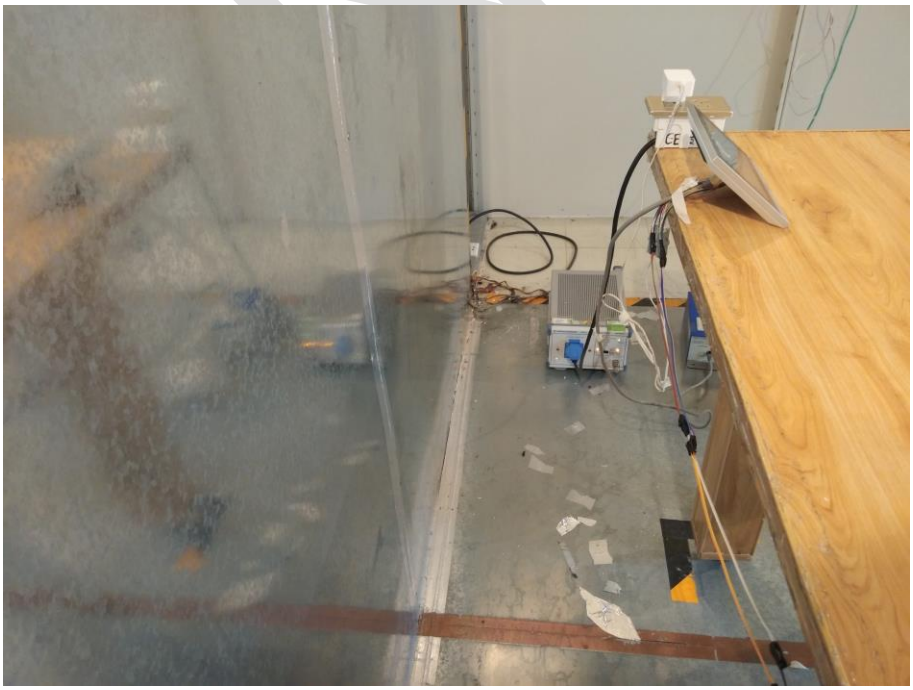
Test Mode 1:

Conducted Emissions - Front View

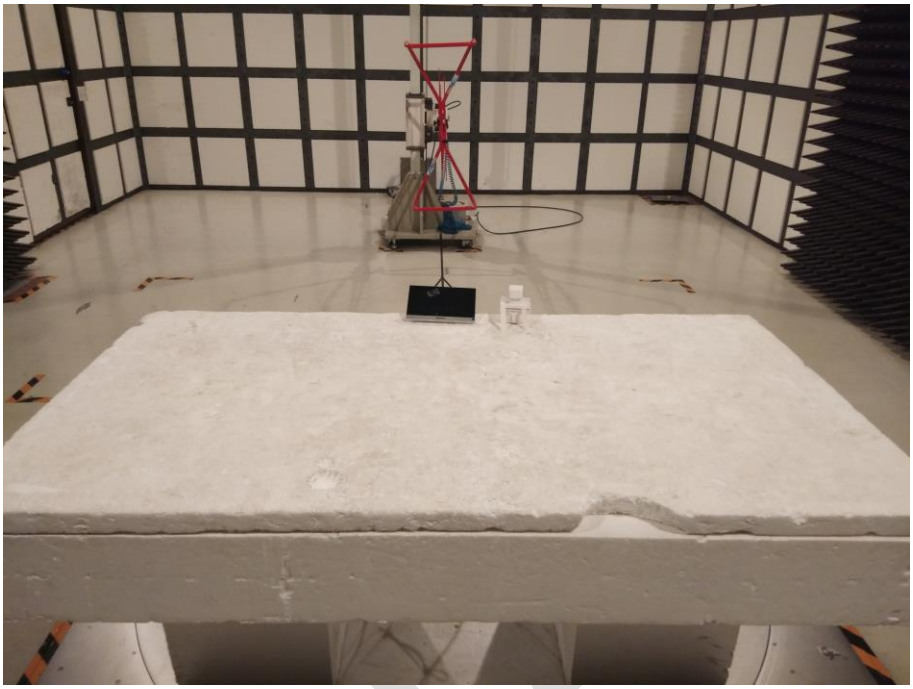
Conducted Emissions - Rear View

Conducted Emissions - Front Side(ISN)

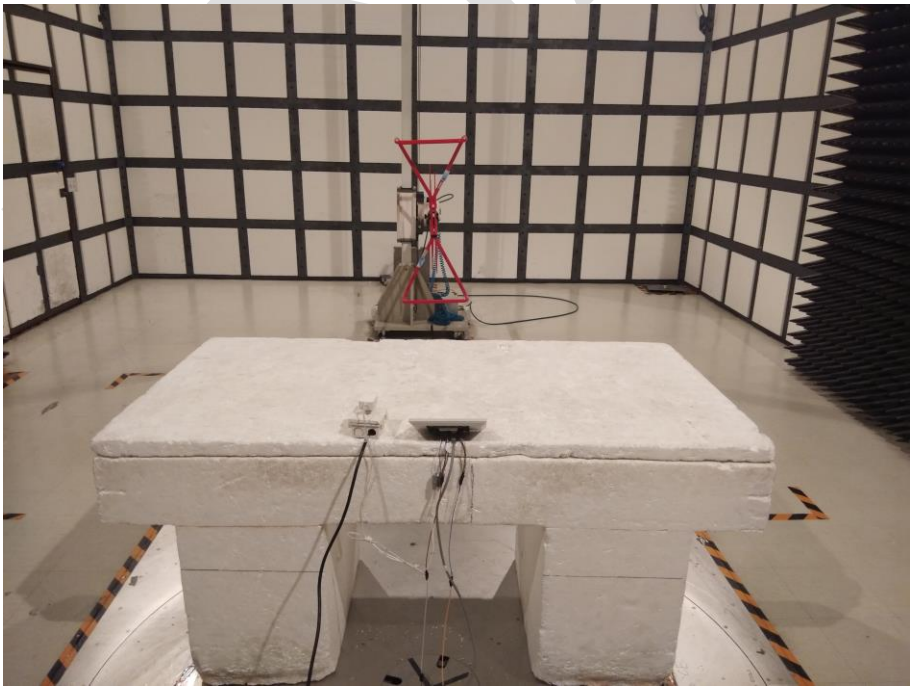
Conducted Emissions - Rear Side(ISN)



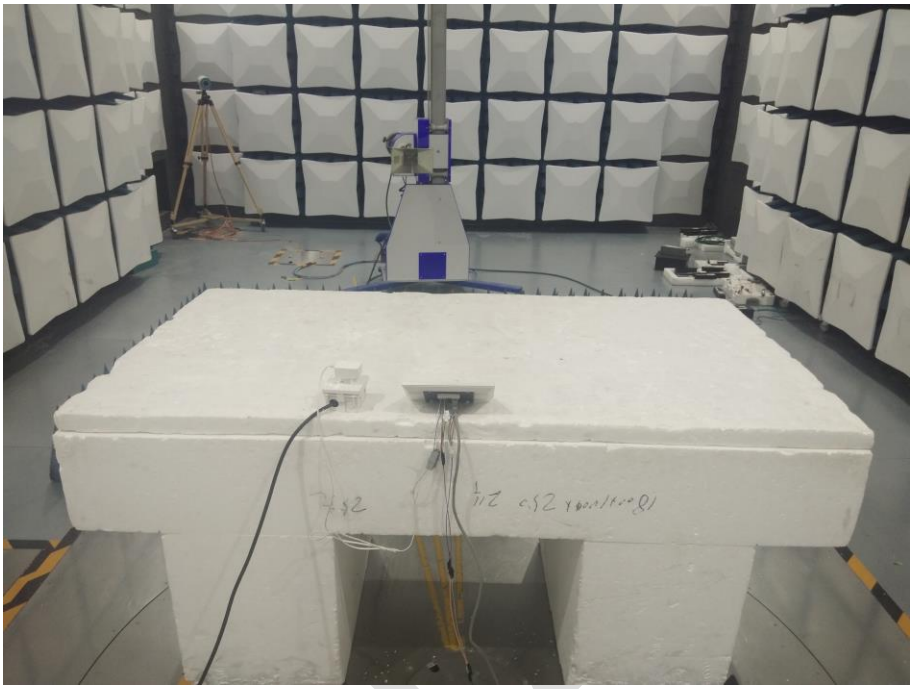
Radiated Emissions - Front View (Below 1GHz)



Radiated Emissions - Rear View (Below 1GHz)

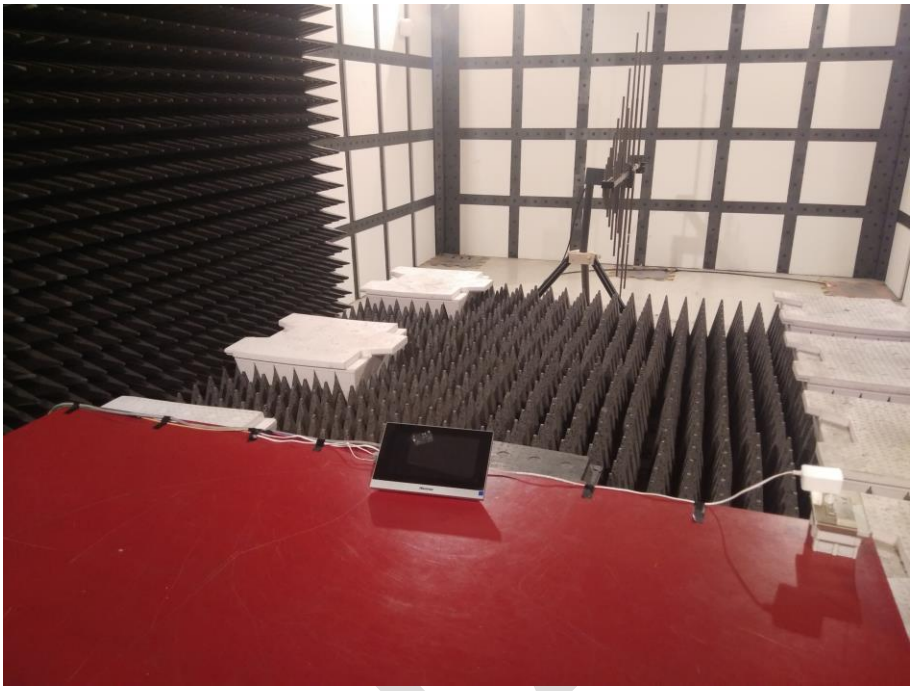


Radiated Emissions - Rear View (Above 1GHz)

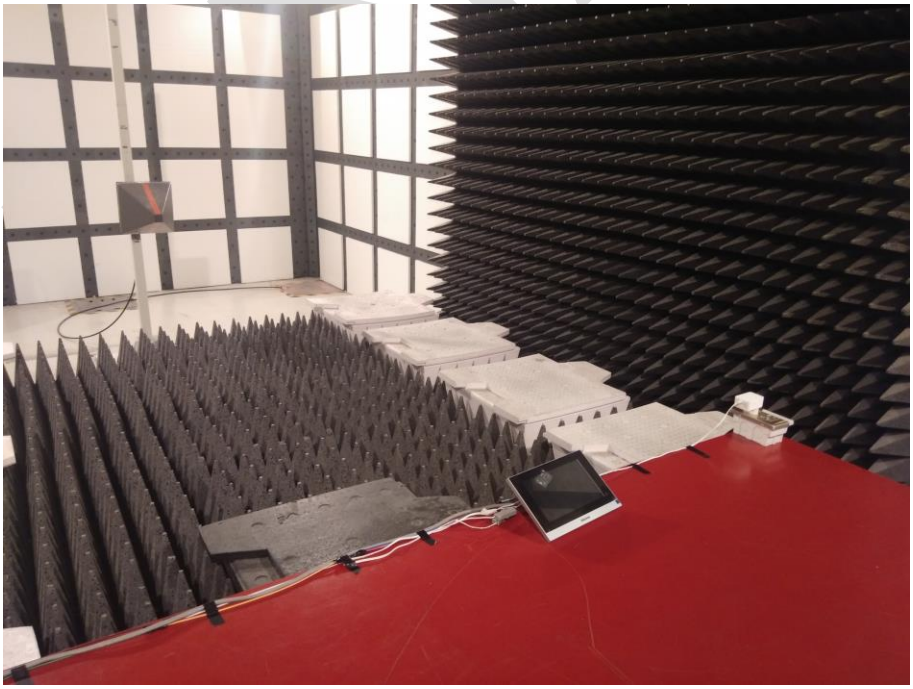


Flicker Test Setup Photo

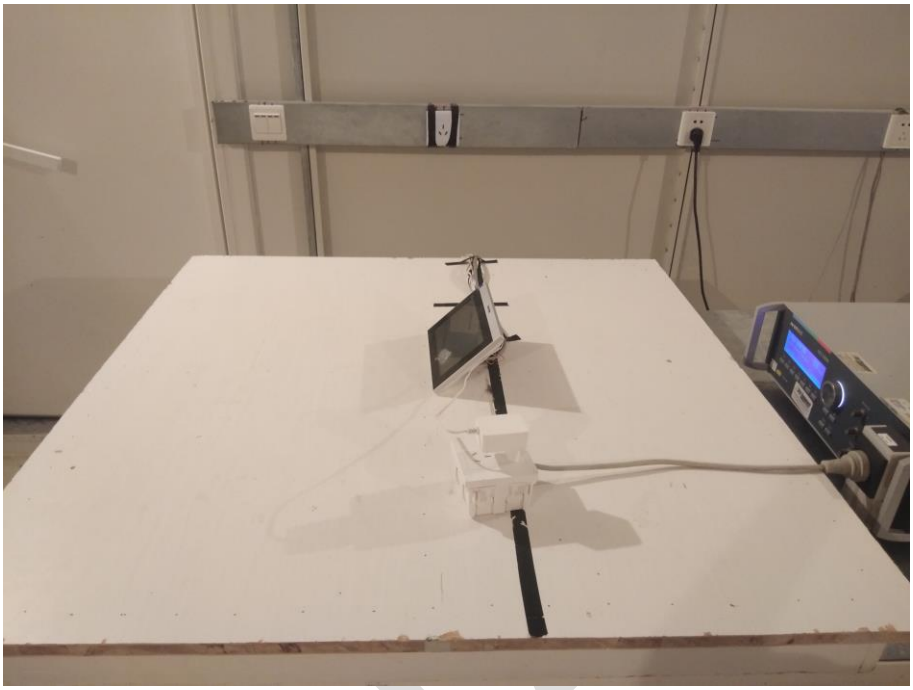
RS Test Setup Photo (Below 1GHz)



RS Test Setup Photo (Above 1GHz)

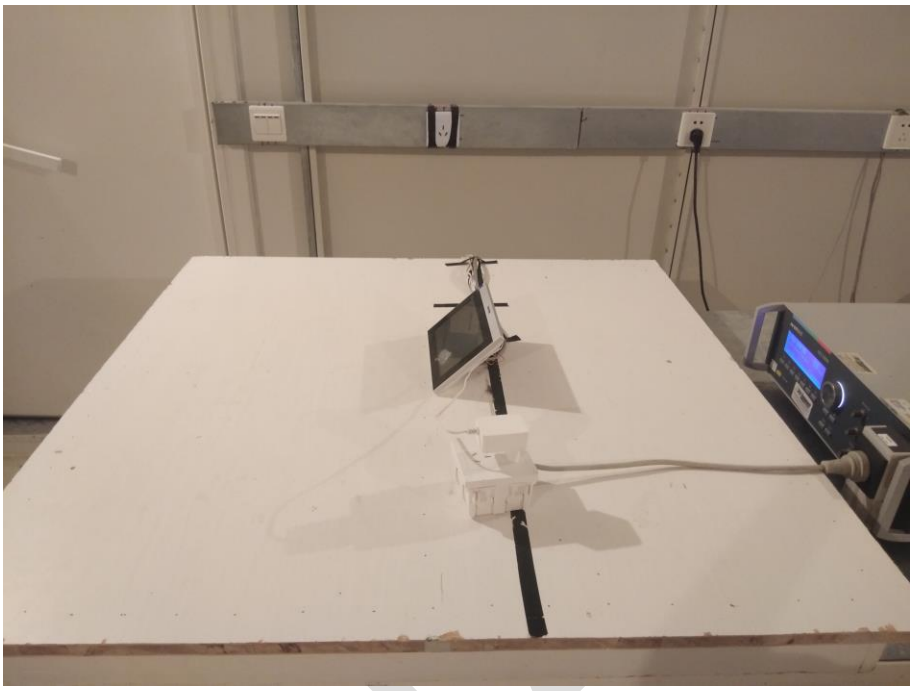


EFT Test Setup Photo

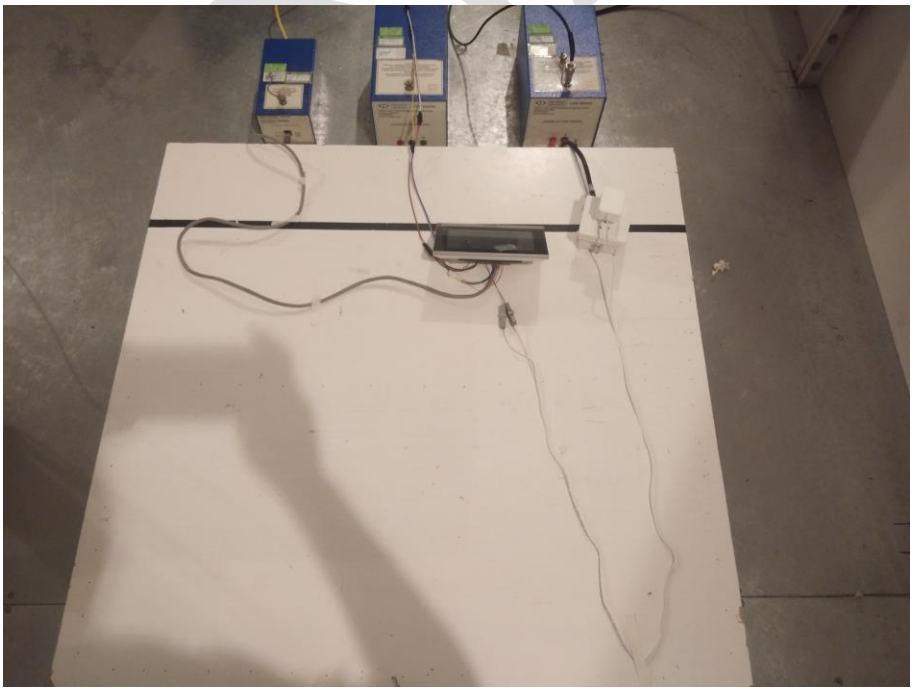


EFT Test Setup Photo-ISN

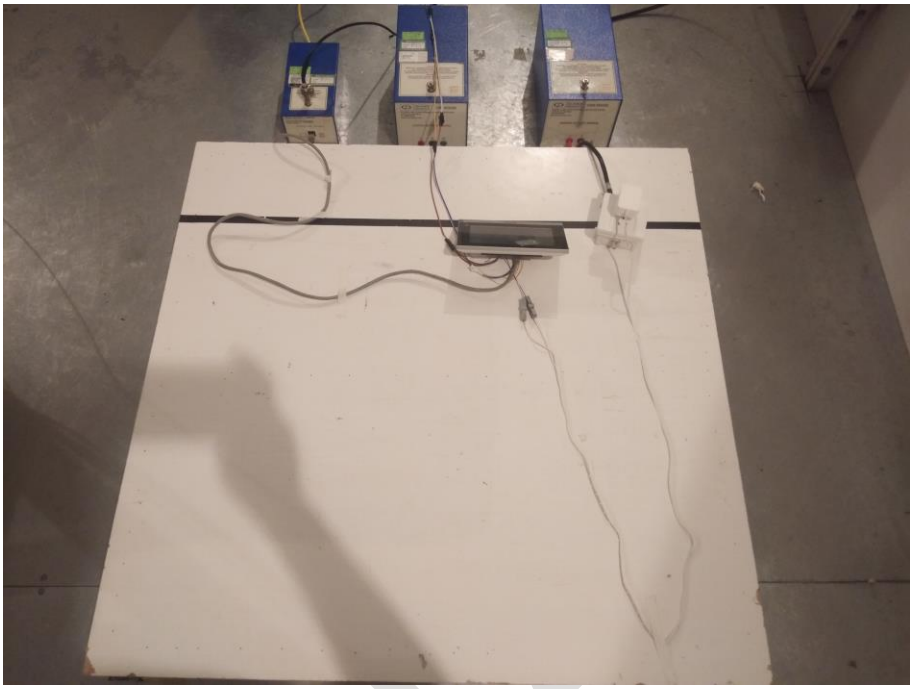
SURGE Test Setup Photo



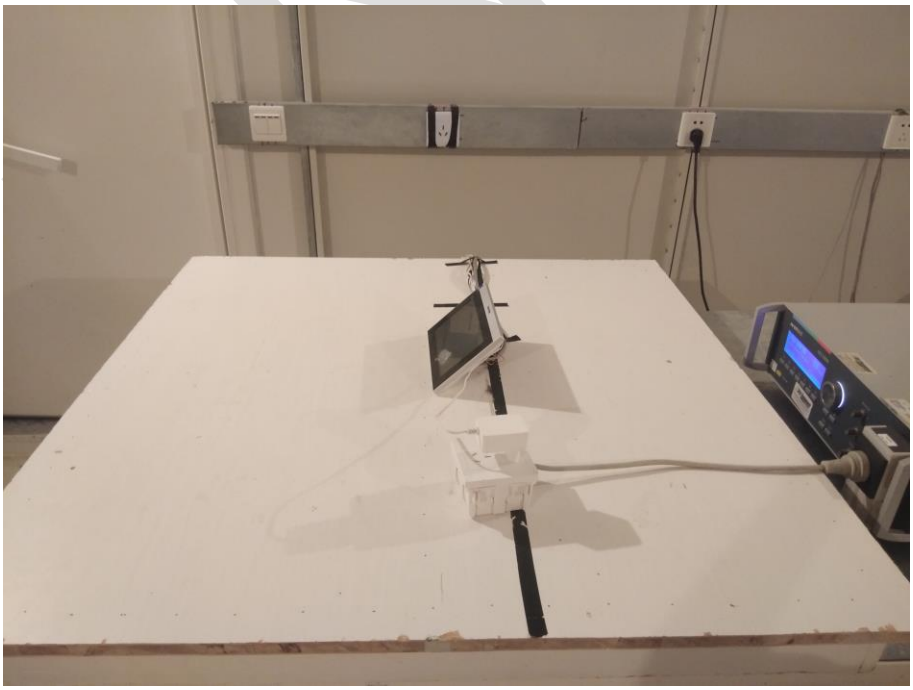
CS Test Setup Photo



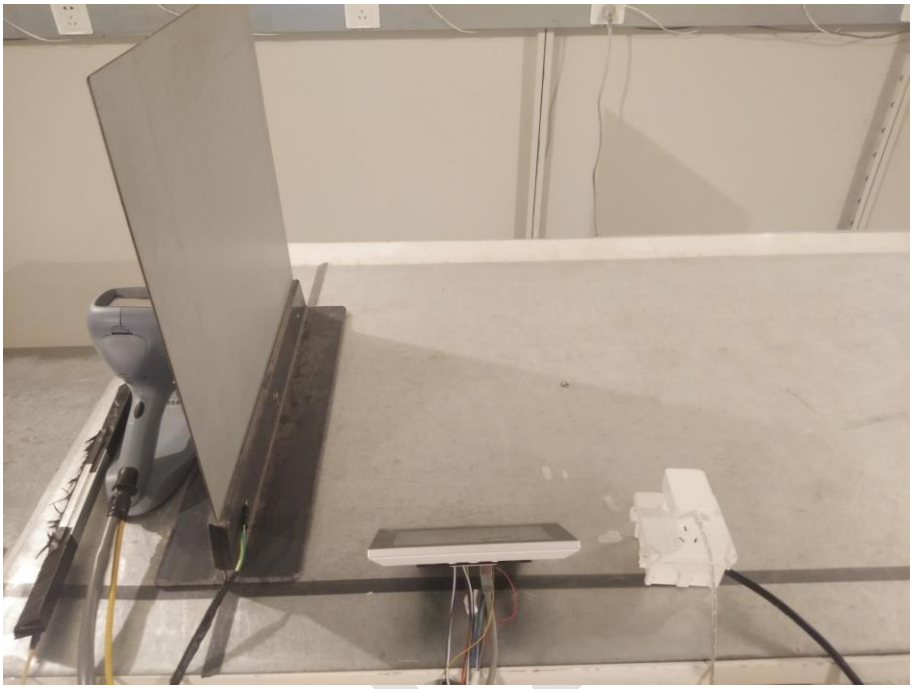
CS Test Setup Photo-ISN



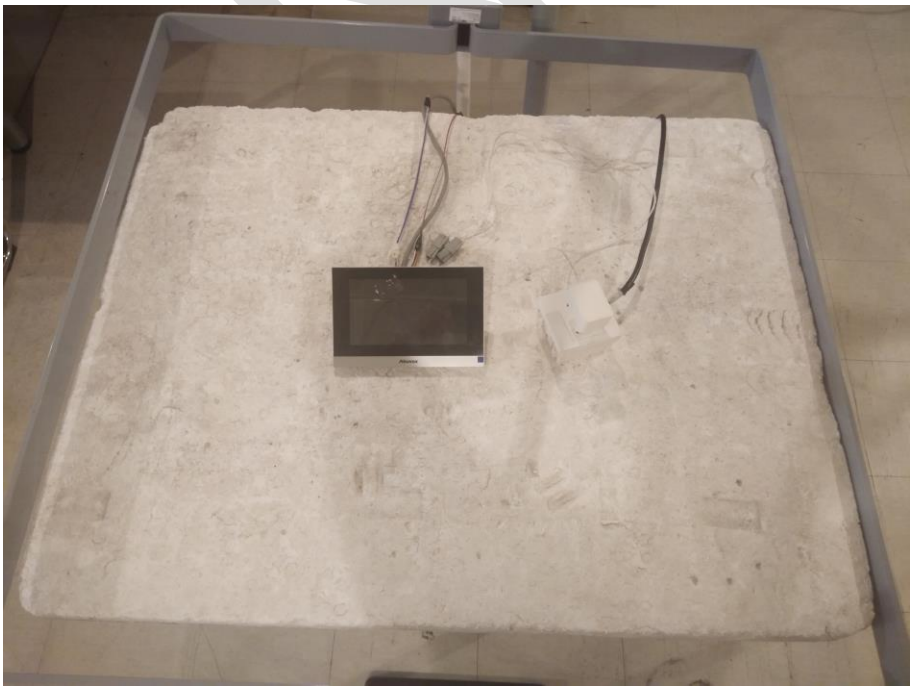
DIPS Test Setup Photo



ESD Test Setup Photo



PFMF Test Setup Photo



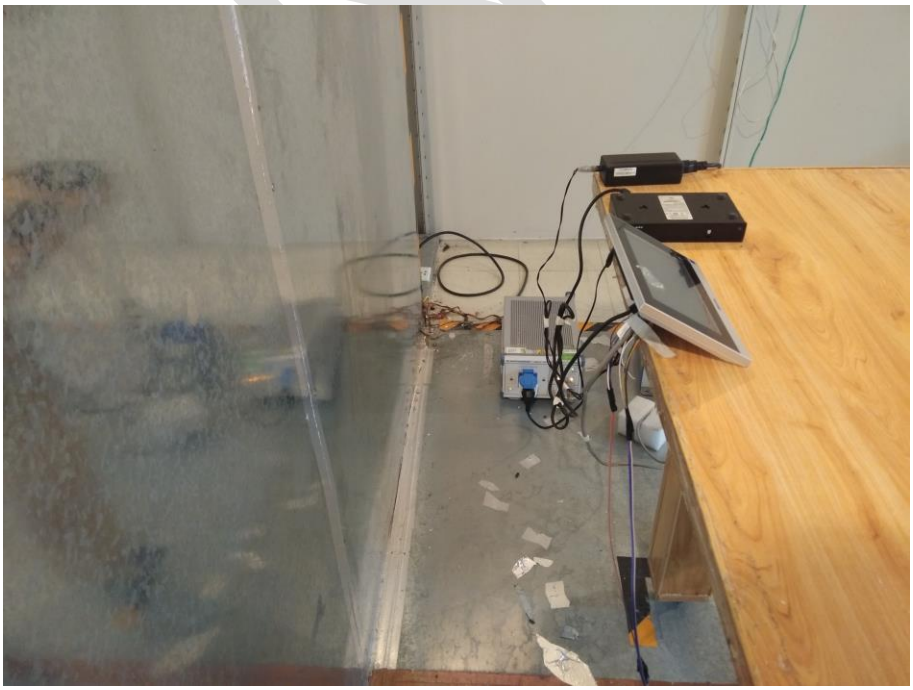
Test Mode 2:

Conducted Emissions - Front View

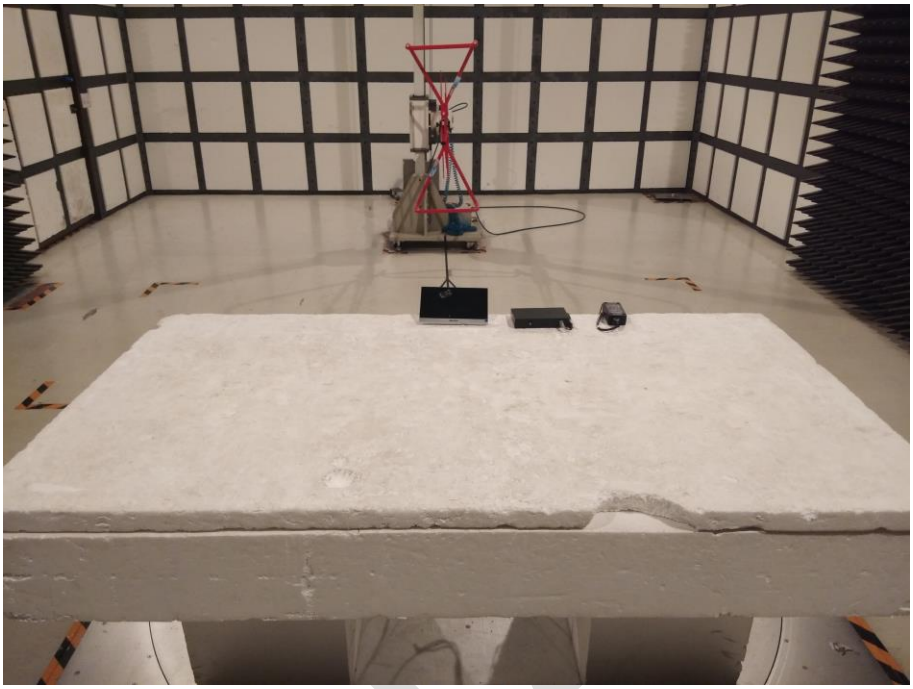
Conducted Emissions - Rear View

Conducted Emissions - Front Side(ISN)

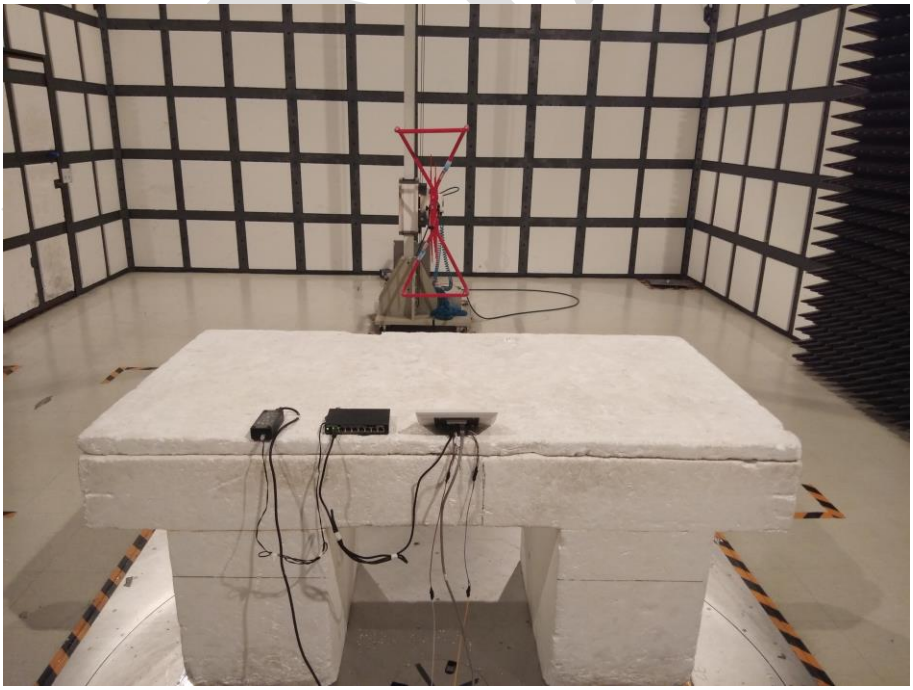
Conducted Emissions - Rear Side(ISN)



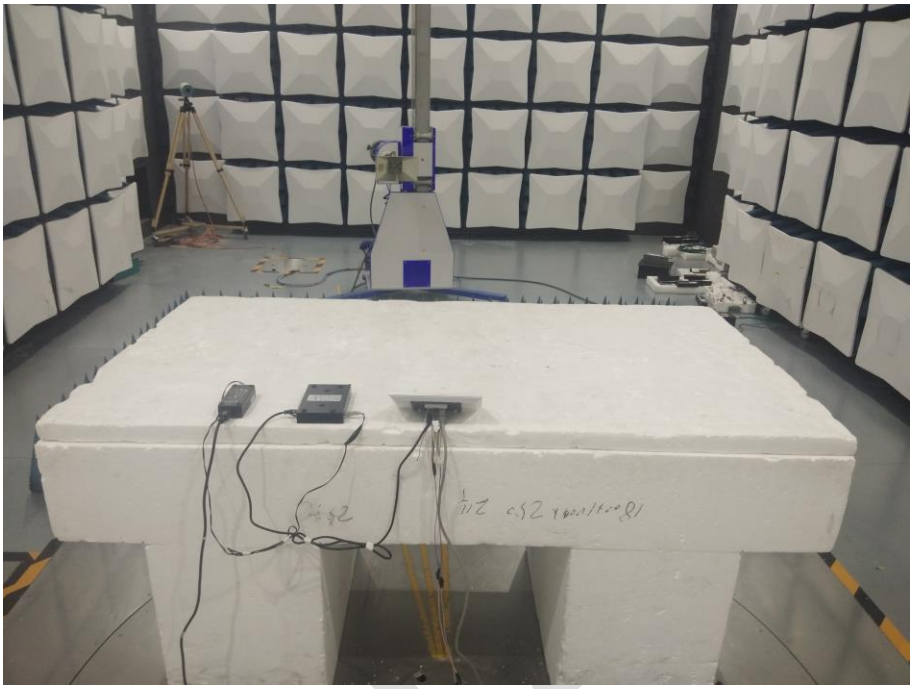
Radiated Emissions - Front View (Below 1GHz)



Radiated Emissions - Rear View (Below 1GHz)

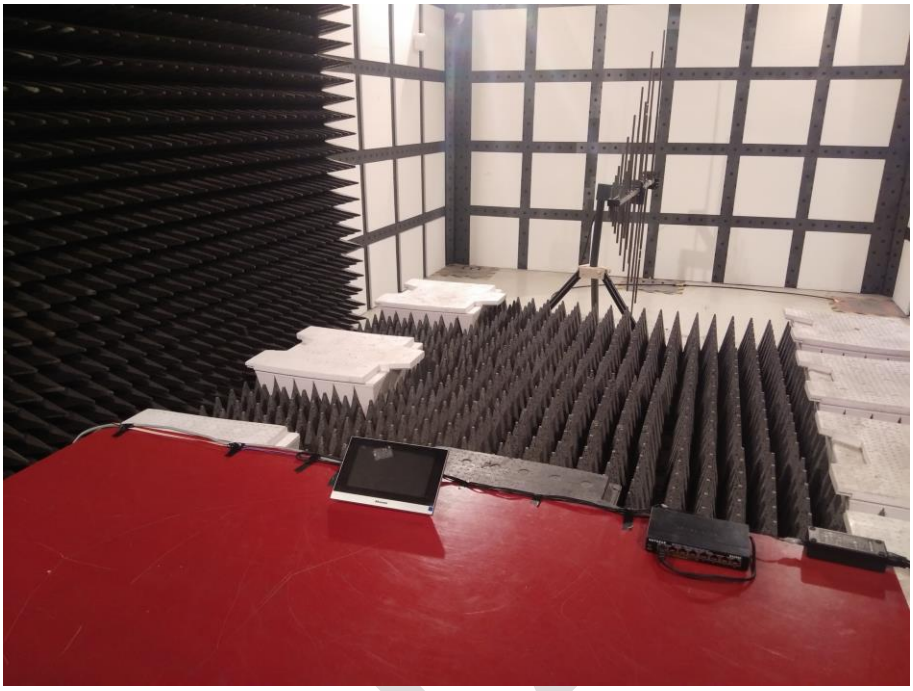


Radiated Emissions - Rear View (Above 1GHz)

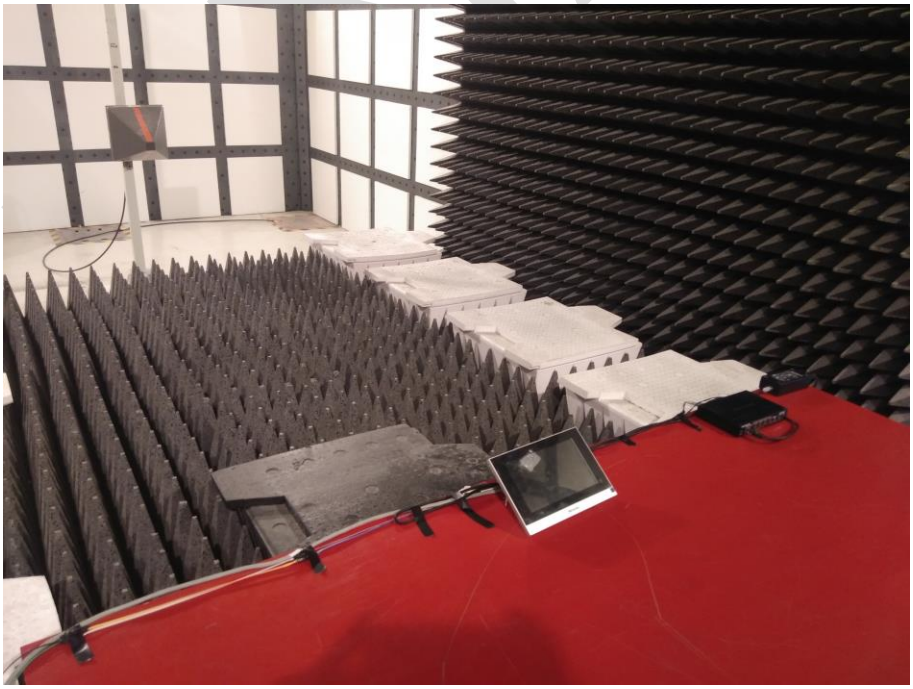


Flicker Test Setup Photo

RS Test Setup Photo (Below 1GHz)

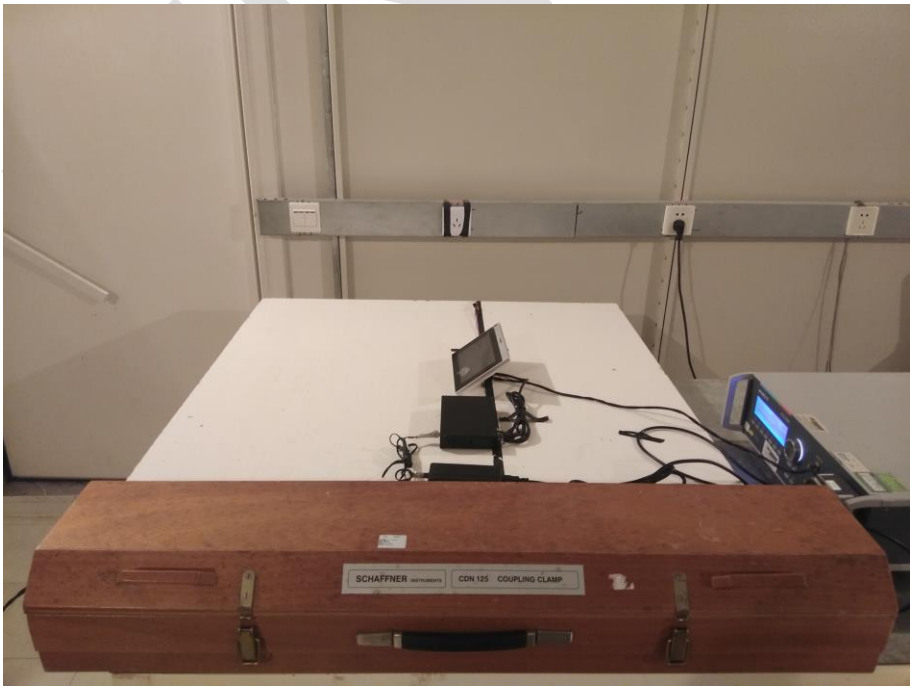


RS Test Setup Photo (Above 1GHz)



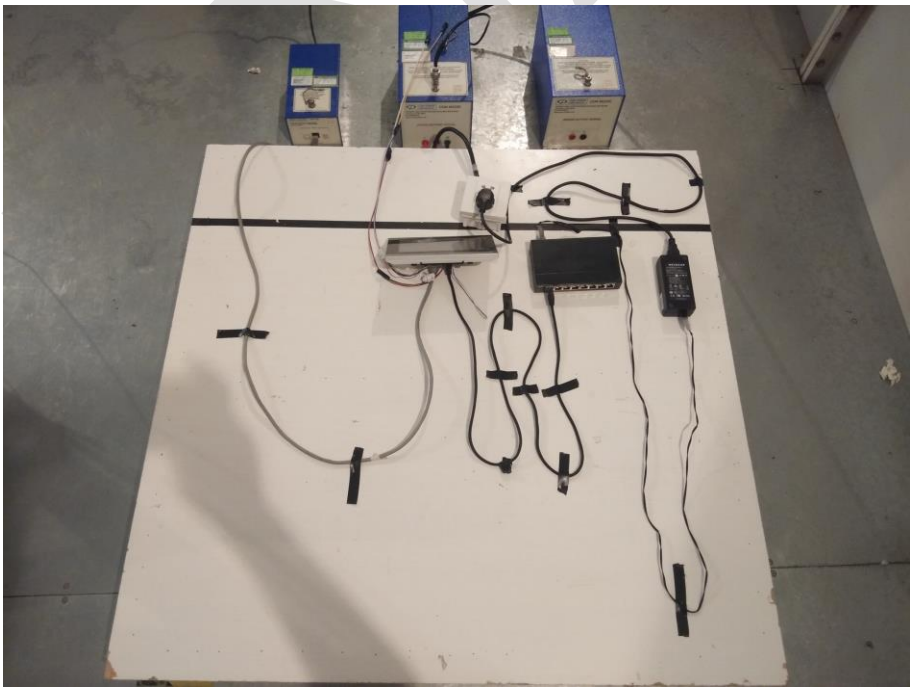
EFT Test Setup Photo

EFT Test Setup Photo-ISN

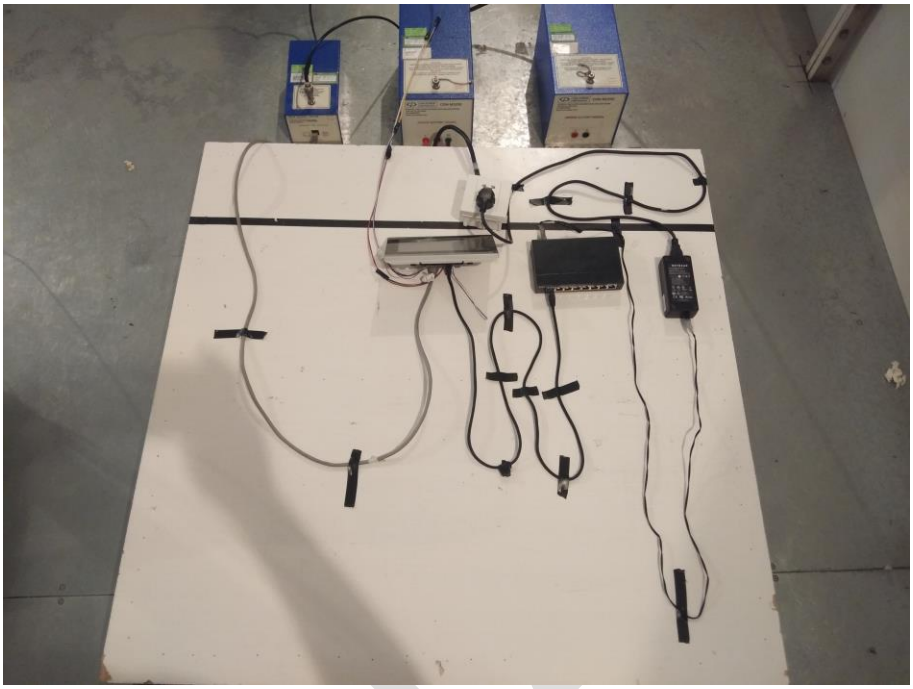


SURGE Test Setup Photo

CS Test Setup Photo

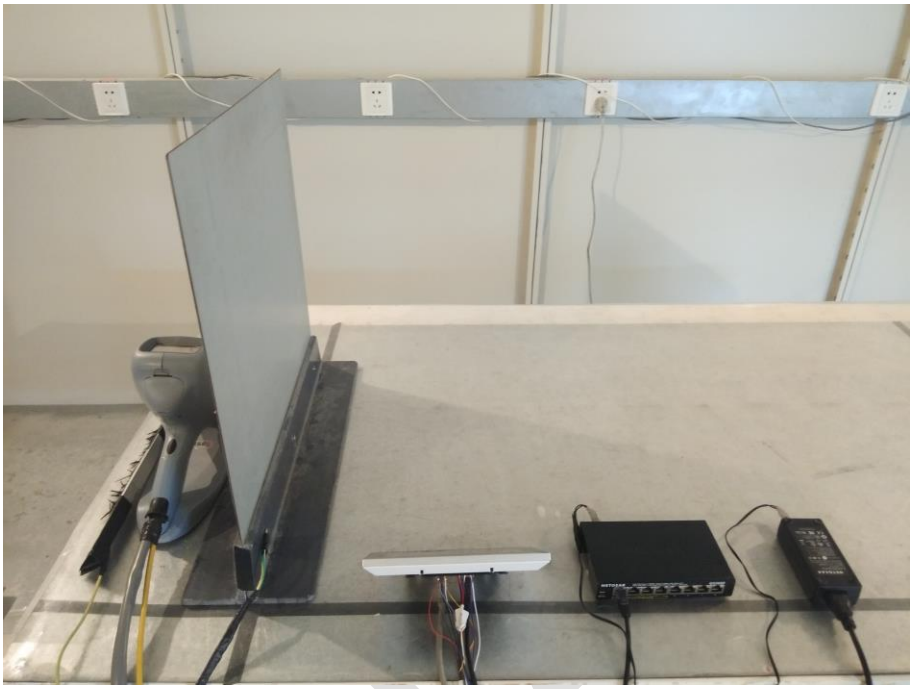


CS Test Setup Photo-ISN

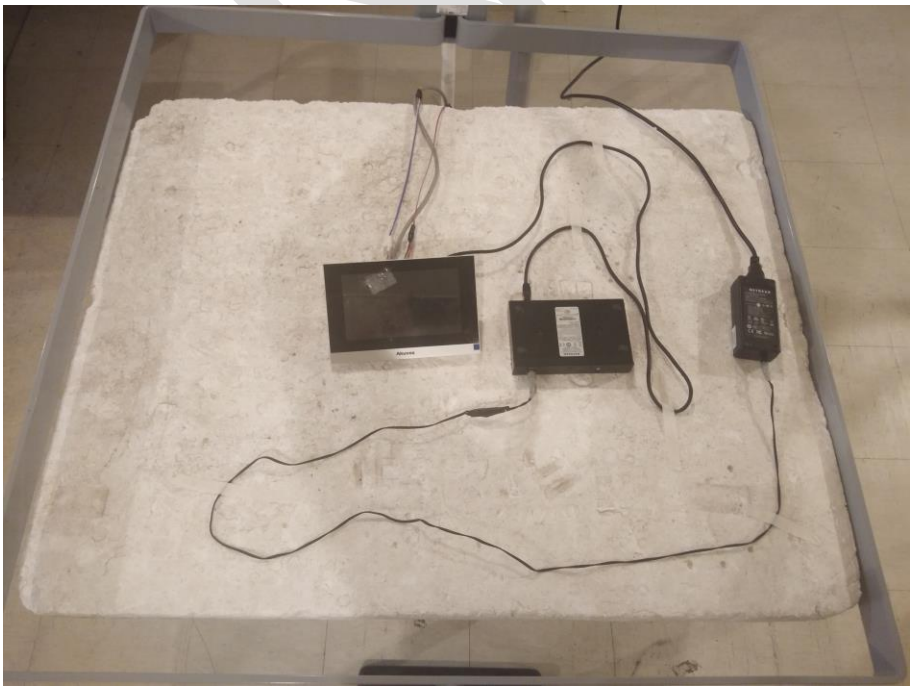


DIPS Test Setup Photo

ESD Test Setup Photo



PFMF Test Setup Photo



Declarations

1: BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk '*'. Customer model name, addresses, names, trademarks etc. are not considered data.

2: Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

3: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

4: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

5: This report cannot be reproduced except in full, without prior written approval of the Company.

6: This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

PRODUCT SIMILARITY DECLARATION LETTER

AKUVOX (XIAMEN) NETWORKS CO., LTD.
Add: 10/F, No.56, Software Park II , Xiamen, China
TEL: 086-0591-83057798 FAX: 086-0591-83057798
Mail: yang@akuvox.com

To:
Bay Area Compliance Labs Corp.(Kunshan)
No.69, Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China
Tel: +86 769 86858888ext. Fax: +86 769 86858891
http://www.baclcorp.com

Declaration of Similarity

Dear Sir or Madam,
We, AKUVOX(XIAMEN)NETWORKS CO.,LTD. hereby declare that all products C313S, C313E, C313N,C313L,C313D and C313P have the same PCB. About the differences, please the following table for details:

Description / Model	Network port			RTC	RS458	Relay	Alarm	Bell
	Qty	Function						
		POE	PON_out					
C313S	2	√	√	√	√	√	√	√
C313E	2	×	×	√	√	√	√	√
C313N	1	√	×	×	×	×	×	√
C313L	2	×	√	√	√	√	√	√
C313D	1	×	×	√	√	√	√	√
C313P	1	√	×	√	√	√	√	√

Please contact me should there be need for any additional clarification or information.

Signature :
Name : Bo,Yang
Title : Manager

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