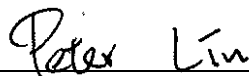


CE EMC Test Report

Equipment : Sona IF513 802.11ax Wi-Fi 6E Module with Bluetooth 5.4
Model No. : Sona IF513
Brand Name : Ezurio
Applicant : Ezurio LLC
Address : W66N220 Commerce Court, Cedarburg, WI 53012 United States Of America
Standard : EN 301 489-1 V2.2.3 (2019-11)
EN 301 489-3 V2.3.2 (2023-01)
EN 301 489-17 V3.2.4 (2020-09)
Received Date : Jun. 06, 2024
Tested Date : Jul. 08 ~ Jul. 30, 2024

We, International Certification Corporation, would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by:

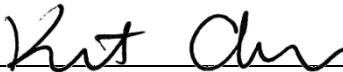


Peter Lin / Assistant Manager



JN Chen / Supervisor

Approved by:



Kent Chen / Manager

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Appendix A. Conducted Emissions from the AC mains power ports

Appendix B. Radiated Emissions below 1GHz

Appendix C. Radiated Emissions above 1GHz

Appendix D. Test Photos

Release Record

Report No.	Version	Description	Issued Date
EW460601	Rev. 01	Initial issue	Dec. 06, 2024
EW460601	Rev. 02	Modified antenna gain	Dec. 17, 2024
EW460601	Rev. 03	Modified antenna gain	Dec. 25, 2024
EW460601	Rev. 04	Typing error is corrected (page 6.)	Dec. 27, 2024

Summary of Test Results

EN 301 489-1 Emission Tests				
Ref. Std. Clause	Test Standard	Test Items	Measured	Result
8.3/8.4	EN 55032:2015/A1:2020, Class B	Conducted Emissions from the AC mains power ports	Under limit 15.24dB @ 342kHz.	Pass
8.7	EN 55032:2015/A1:2020, Class B	Asymmetric Mode Conducted Emissions	Note ¹	N/A
8.2	EN 55032:2015/A1:2020, Class B	Radiated Emissions	Under limit 3.69dB @ 200.02MHz.	Pass
8.5	EN IEC 61000-3-2:2019/A1:2021, Class A	Harmonic Current Emissions	Note ²	Pass
8.6	EN 61000-3-3:2013/A1:2019 EN 61000-3-3:2013/A2:2021	Voltage Fluctuations and Flicker	Note ²	Pass
<p>N/A means Not Applicable. Note¹: The EUT w/o telecom port. Note²: The EUT consumes DC power, so the test is not required.</p>				

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

EN 301 489-1 Immunity Tests					
Ref. Std. Clause	Test Standard	Description of Test		Pass Criterion	Result
9.3	EN 61000-4-2:2009	Electrostatic Discharge (ESD)		A	Pass
9.2	EN IEC 61000-4-3:2020	Radio Frequency Electromagnetic Field (RS)		A	Pass
9.4	EN 61000-4-4:2012	Electrical Fast Transient/Burst (EFT)		Note ¹	N/A
9.8	EN 61000-4-5:2014+A1:2017	Surge		Note ²	N/A
9.5	EN IEC 61000-4-6:2023	Conducted Disturbances (CS)		Note ¹	N/A
9.7	EN IEC 61000-4-11:2020	Voltage Dips	0% residual for 0.5 cycle	Note ²	N/A
			0% residual for 1 cycle	Note ²	N/A
			70% residual for 25 cycle	Note ²	N/A
		Voltage Interruption	0% residual for 250 cycle	Note ²	N/A
N/A means Not Applicable. Note ¹ : The EUT consumes DC power, and it is not intended to be used with cables longer than 3m. So this test is not carried out. Note ² : The EUT consumes DC power, so the test is not required.					
Comments and Explanations:					
None.					

1 General Description

1.1 Information

1.1.1 Product Details

The four configurations of the EUT are shown on the following:

Model Name	Part No.	Description
Sona IF513	453-00184	Module, Sona IF513, MHF4L
	453-00185	Module, Sona IF513, Trace Pin
	453-00193	Module, Sona IF513, Antenna Diversity, MHF4L
	453-00194	Module, Sona IF513, Antenna Diversity, Trace Pin
	453-00186	Module, Sona IF513, M.2, Key E, SDIO, UART
	453-00195	Module, Sona IF513, Antenna Diversity, M.2, Key E, SDIO, UART
	453-00213	Module, Sona IF513, M.2, Key E, SDIO, UART, Ext. OSC
	453-00214	Module, Sona IF513, Antenna Diversity, M.2, Key E, SDIO, UART, Ext. OSC

1.1.2 Specification of the Equipment under Test (EUT)

Operating Frequency	802.11b/g/n: 2412 MHz ~ 2472 MHz 802.11a/n/ac/ax: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500 MHz ~ 5700 MHz; 5945 MHz ~ 6425 MHz
Modulation Type	802.11b: DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n/ac/ax: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024 QAM)
S/W Version	v28.10.301

1.1.3 Antenna Details

Ant. No.	Brand	Model	Part Number	Type	Connector	Operating Frequencies / Antenna Gain (dBi)		
						2.4GHz	5GHz	6GHz
1	Joymax Inc.	TWX-100B RS3B	NA	Dipole	RP-SMA	2	4	4
2	Ezurio	FlexMIMO 6E	EFD2471A3 S-10MH4L	PIFA	MHF4L	2.2	3.8	3.3
3	Ezurio	Mini NanoBlade Flex 6 GHz	EMF2471A 3S-10MH4L	PCB Dipole	MHF4L	2.4	4.4	5.2
4	Ezurio	FlexPIFA 6E	EFB2471A3 S-10MH4L	PIFA	MHF4L	2.2	3.9	3.8

1.1.4 Power Supply Type of the Equipment under Test (EUT)

Power Supply Type	3.3Vdc from host
-------------------	------------------

1.1.5 Accessories

N/A

1.2 Test Equipment and Calibration Data

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Jul. 08, 2024				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101658	Feb. 23, 2024	Feb. 22, 2025
LISN	R&S	ENV216	101579	May 09, 2024	May 08, 2025
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 11, 2023	Oct. 10, 2024
LISN (Support Unit)	SCHWARZBECK	Schwarzbeck 8127	8127667	Jan. 10, 2024	Jan. 09, 2025
50 ohm terminal (Support Unit)	NA	50	03	Aug. 08, 2023	Aug. 07, 2024
Measurement Software	Sporton	SENSE-EMI	V5.11.8	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission below 1GHz				
Test Site	966 chamber 2 / (03CH02-WS)				
Tested Date	Jul. 17, 2024				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	Agilent	N9038A	MY53290044	Sep. 19, 2023	Sep. 18, 2024
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-562	May 17, 2024	May 16, 2025
Preamplifier	EMC	EMC02325	980194	Sep. 19, 2023	Sep. 18, 2024
LF cable 1M	EMC	EMCCFD400-NM-NM-1000	160501	Oct. 03, 2023	Oct. 02, 2024
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-003	Oct. 03, 2023	Oct. 02, 2024
LF cable 10M	EMC	CFD400-E	CFD400-001	Oct. 03, 2023	Oct. 02, 2024
Measurement Software	Sporton	SENSE-EMI	V5.11.8	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission above 1GHz				
Test Site	966 chamber 2 / (03CH02-WS)				
Test Date	Jul. 19, 2024				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101063	Dec. 21, 2023	Dec. 20, 2024
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1095	Sep. 01, 2023	Aug. 31, 2024
Preamplifier	EMC	83017A	MY39501309	Sep. 07, 2023	Sep. 06, 2024
RF Cable	EMC	EMC105-SM-SM-8000	180512	Oct. 03, 2023	Oct. 02, 2024
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16018/4	Oct. 03, 2023	Oct. 02, 2024
Measurement Software	Sporton	SENSE-EMI	V5.11.8	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	ESD				
Test Site	ESD room 1 / (ES01-WS)				
Tested Date	Jul. 23, 2024				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
ESD Generator	TESEQ	NSG437	P2321276435	Jan. 24, 2024	Jan. 23, 2025
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Immunity (80 MHz - 6 GHz)				
Test Site	RS room 1 / (RS01-WS)				
Tested Date	Jul. 30, 2024				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Signal Generator	R&S	SMB100A	103924HA	Oct. 04, 2023	Oct. 03, 2024
Power Sensor	R&S	NRP-Z91	101094	Sep 26, 2023	Sep 25, 2024
Power Sensor	R&S	NRP-Z91	101095	Sep. 26, 2023	Sep 25, 2024
Power Amplifier	BONN	BLWA 0810-250	2213941A	N/A	N/A
Power Amplifier	BONN	BLMA 1060-150W	2213941B	N/A	N/A
Antenna	SCHWARZBECK MESS-ELEKTRONIK	STLP 9149	9149-073	N/A	N/A
Antenna	R&S	HL046E	100076-Cd	N/A	N/A
Note: Calibration Interval of instruments listed above is one year.					

1.3 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

EN 301 489-1 V2.2.3 (2019-11)
 EN 301 489-3 V2.3.2 (2023-01)
 EN 301 489-17 V3.2.4 (2020-09)

1.4 Deviation from Test Standard and Measurement Procedure

None

1.5 Measurement Uncertainty

The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor ($k=2$)).

Measurement Uncertainty		
Test Item	Frequency	Uncertainty
Conducted Emissions from the AC mains power ports	150kHz ~ 30MHz	± 2.92 dB
Radiated Emissions	30MHz ~ 1GHz	± 4.32 dB
	Above 1GHz	± 4.57 dB

Note: The results of measurements of emissions shall reference the measurement uncertainty considerations contained in CISPR 16-4-2.

2 Test Configuration

2.1 Testing Facility

Test Laboratory	International Certification Corporation
Test Site	CO01-WS, 03CH02-WS, RS01-WS
Address of Test Site	No.3-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)
Test Site	ES01-WS
Address of Test Site	No.2-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)

2.2 The Worst Case Measurement Configuration

Radiation Pretested Mode	
Pretest Mode	Operating Description
1	PN: 453-00214, EUT orientation: X-axis + Ant.: TWX-100BRS3B, BT scan, with fixture 230V/50Hz
2	PN: 453-00214, EUT orientation: X-axis + Ant.: Mini NanoBlade Flex 6 GHz, BT scan, with fixture 230V/50Hz
3	PN: 453-00214, EUT orientation: X-axis + Ant.: FlexMIMO 6E, BT scan, with fixture 230V/50Hz
4	PN: 453-00214, EUT orientation: X-axis + Ant.: FlexPIFA 6E, BT scan, with fixture 230V/50Hz
5	PN: 453-00214, EUT orientation: Y-axis + Ant.: Mini NanoBlade Flex 6 GHz, BT scan, with fixture 230V/50Hz
6	PN: 453-00214, EUT orientation: Z-axis + Ant.: Mini NanoBlade Flex 6 GHz, BT scan, with fixture 230V/50Hz
7	PN: 453-00214, EUT orientation: Z-axis + Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 2.4G, with fixture 230V/50Hz
8	PN: 453-00214, EUT orientation: Z-axis + Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 5G(U-NII 1), with fixture 230V/50Hz
9	PN: 453-00214, EUT orientation: Z-axis + Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 5G(U-NII 3), with fixture 230V/50Hz
10	PN: 453-00214, EUT orientation: Z-axis + Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 6G, with fixture 230V/50Hz
11	PN: 453-00214, EUT orientation: Z-axis + Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 5G(U-NII 1), with fixture 110V/60Hz
12	PN: 453-00213, EUT orientation: Z-axis + Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 5G(U-NII 1), with fixture 230V/50Hz
13	PN: 453-00195, EUT orientation: Z-axis + Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 5G(U-NII 1), with fixture 230V/50Hz
14	PN: 453-00186, EUT orientation: Z-axis + Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 5G(U-NII 1), with fixture 230V/50Hz
15	PN: 453-00193, EUT orientation: Z-axis + Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 5G(U-NII 1), with fixture 230V/50Hz
16	PN: 453-00184, EUT orientation: Z-axis + Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 5G(U-NII 1), with fixture 230V/50Hz
17	PN: 453-00214, EUT orientation: Z-axis + Ant.: Mini NanoBlade Flex 6 GHz, Standby mode, with fixture 230V/50Hz
For Pretest Mode 8 is the worst case and only its data was record in this test report.	

The Worst Test Configurations	
Conducted Emissions from the AC mains power ports	
Test Mode	Operating Description
1	PN: 453-00214, EUT orientation: X-axis + Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 5G(U-NII 1), with fixture 230V/50Hz
2	PN: 453-00214, EUT orientation: X-axis + Ant.: FlexMIMO 6E, Ping WiFi 5G(U-NII 1), with fixture 230V/50Hz
3	PN: 453-00214, EUT orientation: X-axis + Ant.: TWX-100BRS3B, Ping WiFi 5G(U-NII 1), with fixture 230V/50Hz
4	PN: 453-00214, EUT orientation: X-axis + Ant.: FlexPIFA 6E, Ping WiFi 5G(U-NII 1), with fixture 230V/50Hz
5	PN: 453-00214, EUT orientation: X-axis + Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 5G(U-NII 1), with fixture 110V/60Hz
Radiated Emissions	
Test Mode ≤1GHz	Operating Description
1	PN: 453-00214, EUT orientation: Z-axis + Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 5G(U-NII 1), with fixture 230V/50Hz
Test Mode >1GHz	Operating Description
1	PN: 453-00214, EUT orientation: Z-axis + Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 5G(U-NII 1), with fixture 230V/50Hz
ESD & RS Tests	
Test Mode	Operating Description
1	PN: 453-00193, Ant.: TWX-100BRS3B, Ping WiFi 2.4G
2	PN:453-00184, Ant.: FlexMIMO 6E, Ping WiFi 5G (U-NII 1)
3	PN:453-00186, Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 6G
4	PN:453-00195, Ant.: FlexPIFA 6E, BT link
5	PN:453-00213, Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 6G link
6	PN:453-00214, Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 6G link
7	PN: 453-00193, Ant.: TWX-100BRS3B, Ping WiFi 5G (U-NII 3)
8	PN:453-00184, Ant.: FlexMIMO 6E, Ping WiFi 5G (U-NII 3)
9	PN:453-00186, Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 5G (U-NII 3)
10	PN:453-00195, Ant.: FlexPIFA 6E, Ping WiFi 5G (U-NII 3)
11	PN:453-00213, Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 5G (U-NII 3)
12	PN:453-00214, Ant.: Mini NanoBlade Flex 6 GHz, Ping WiFi 5G (U-NII 3)

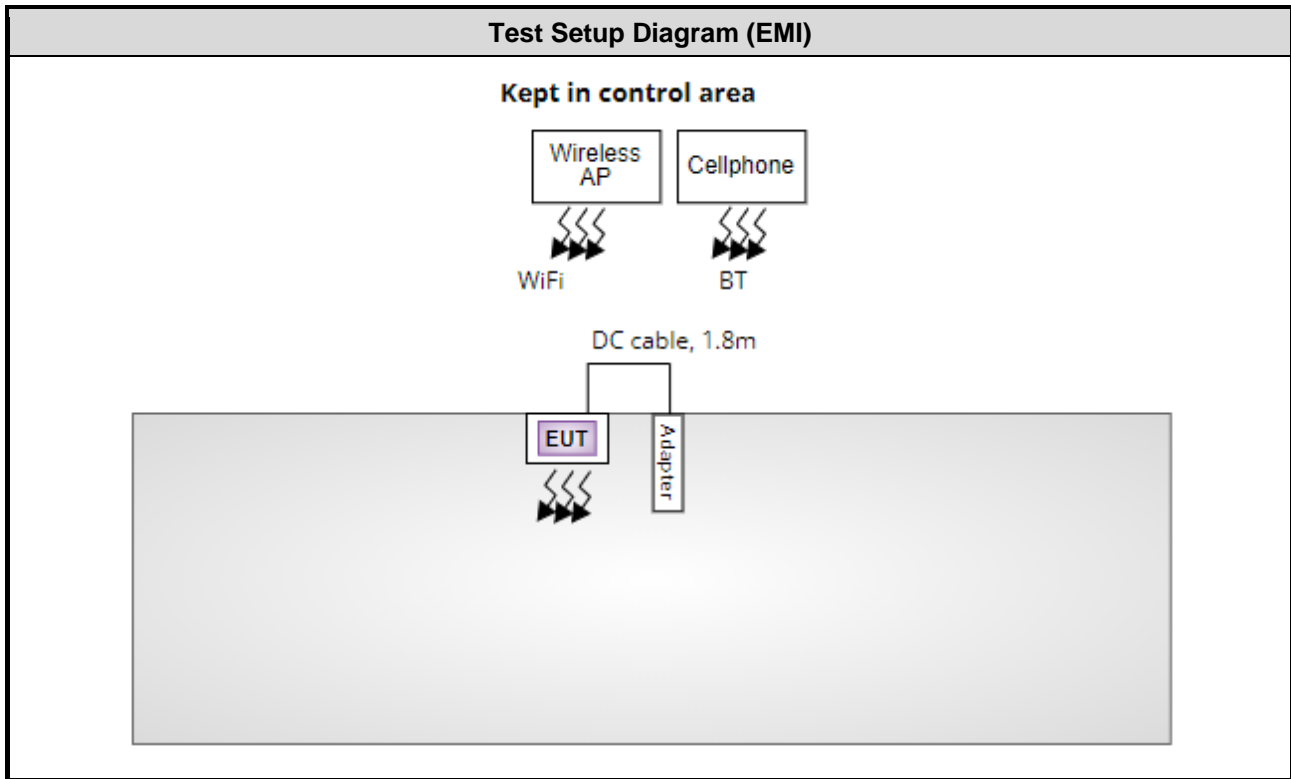
2.3 Local Support Equipment List

Support Equipment List (EMI)					
No.	Equipment	Brand	Model	S/N	Remarks
1	Fixture board	---	---	---	Provided by applicant
2	Fixture board Adapter	I.T.E	MU12AY12010 0-A1	---	Provided by applicant
3	Laptop	DELL	Latitude 5400	CZYCM33	---
4	Wireless AP	NETGEAR	RAXE500	---	---
5	Cellphone	SAMSUNG	SM-A530F/DS	R58K14493LK	Provided by applicant

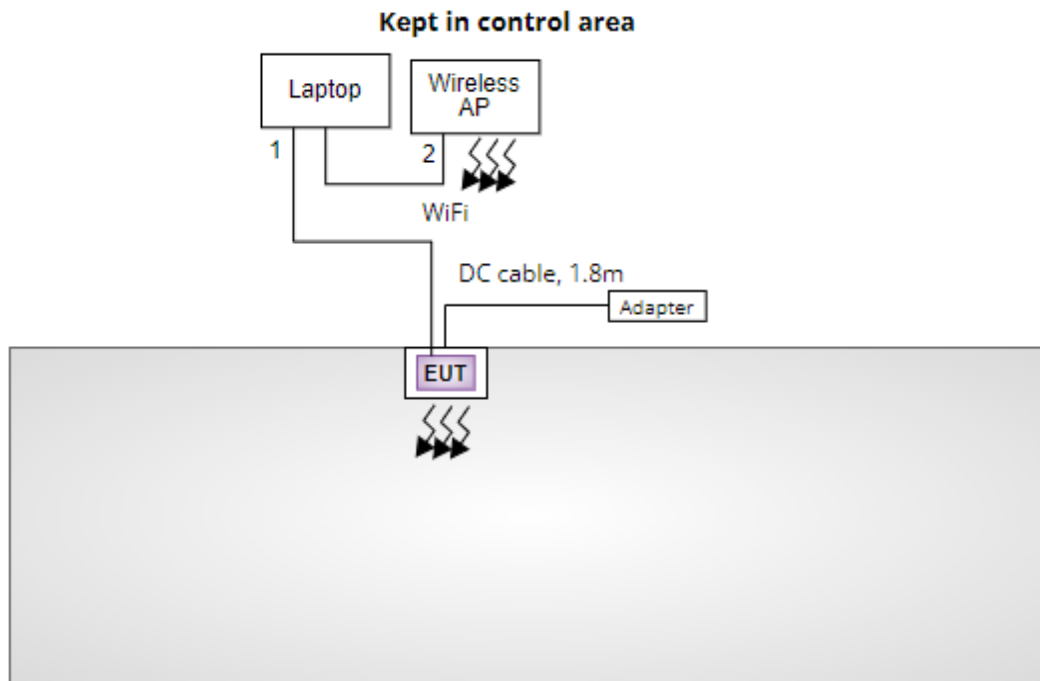
Note: The support laptop is disconnected from EUT and removed from test table after executing "Tera Term.exe" through fixture to give command for BT and WiFi link.

Support Equipment List (EMS)					
No.	Equipment	Brand	Model	S/N	Remarks
1	Laptop	DELL	Latitude 3400	DKZLWZ2	---
2	Wireless AP	TP-Link	Archer AX55	22272C5001540	---
3	Wireless AP	NETGEAR	RAXE500	---	Provided by applicant (Only for U-NII 3 use)
4	Fixture board	---	---	---	Provided by applicant
5	Fixture board Adapter	I.T.E	MU12AY12010 0-A1	---	Provided by applicant
6	Wireless connectivity tester	R&S	CMW270	100856	---

2.4 Test Setup Chart

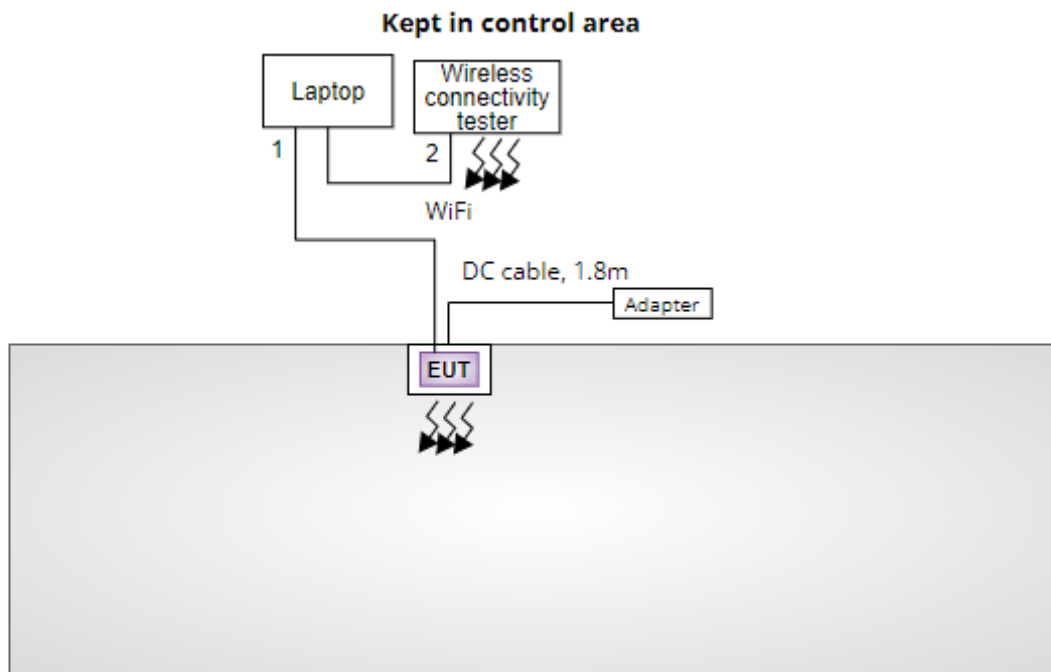


Test Setup Diagram (EMS, Test Mode 1 ~ 3, 5 ~ 12)



No.	Signal cable / Length (m)
1	USB, 1.2m shielded.
2	RJ45, 3m non-shielded.

Test Setup Diagram (EMS, Test Mode4)



No.	Signal cable / Length (m)
1	USB, 1.2m shielded.
2	RJ45, 3m non-shielded.

2.5 Test Software and Operating Condition

- To enable all function of test system.
- The support laptop executes "Tera Term.exe" through fixture to give command to EUT for WiFi link.
- The support laptop executes "Tera Term.exe" through fixture to give command to EUT for BT link.

BT PER

- The EUT linked with CMW270 to observe packet error rate below 10%.

WIFI PER

- The support laptop executed ping command to monitor the WLAN packet error rate below 10%.

3 Emission Test Results

3.1 Conducted Emissions from the AC mains power ports

3.1.1 Limits of Conducted Emissions from the AC mains power ports

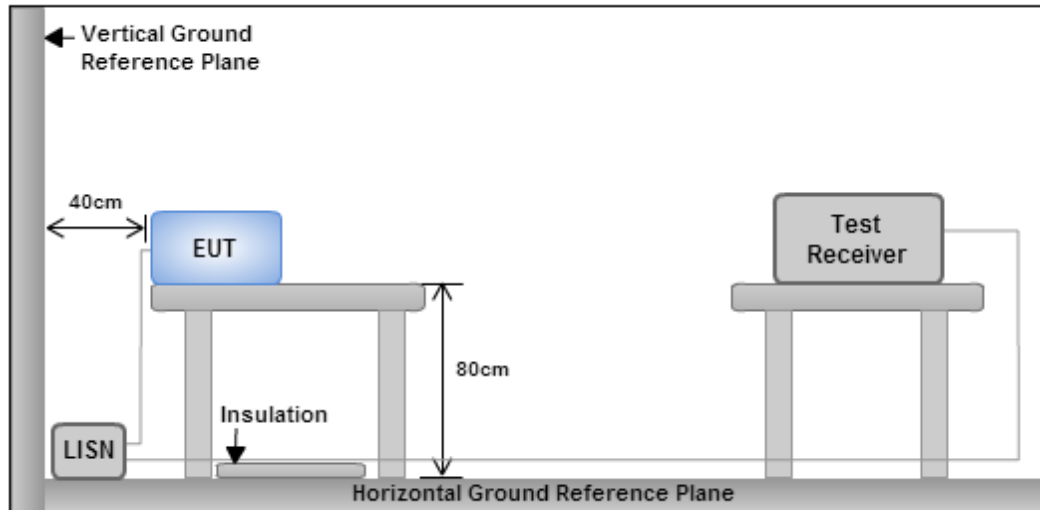
Frequency range (MHz)	Limits values (dBμV)			
	Class A		Class B	
	Quasi-peak	Average	Quasi-peak	Average
0.15 to 0,50	79	66	66 to 56 *	56 to 46 *
0,50 to 5	73	60	56	46
5 to 30	73	60	60	50

Note 1: “*” Decreasing linearly with the logarithm of the frequency.
 Note 2: If the limits for the average detector are met when using the quasi-peak detector, then the limits for the measurements with the average detector are considered to be met.
 Note 3: The higher value measured with and without the outer conductor screen of the antenna terminal connected to earth is considered.

3.1.2 Test Procedures

- The EUT was placed on a desk 0.8 meters height from the metal ground plane and 0.4 meter from the conducting wall of the shielding room and it was kept at least 0.8 meters from any other grounded conducting surface.
- A thickness of $\leq 0.15\text{m}$ insulation should be placed between local AE and associated cabling and the RGP.
- Connect EUT to the power mains through a line impedance stabilization network (LISN).
- All the support units are connecting to the other LISN.
- The LISN provides 50 ohm coupling impedance for the measuring instrument.
- The CISPR states that a 50 ohm, 50 microhenry LISN should be used.
- Both sides of AC line were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

3.1.3 Test Setup



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.1.4 Measurement Formula and Calculation

Level (dBuV) = Raw (Read level) + LISN (LISN factor) + CL (Cable loss) + AT (Attenuator)

Margin (dB) = Level (dBuV) – Limit (dBuV)

3.1.5 Test Results

Refer to Appendix A.

3.2 Radiated Emissions

3.2.1 Limit of Radiated Emissions

Frequency Range (MHz)	Class A		Class B	
	10m	3m	10m	3m
	Quasi-peak limits (dB μ V/m)			
30 to 230	40	50	30	40
230 to 1000	47	57	37	47

Note 1: The lower limit shall apply at the transition frequency.
Note 2: Additional provisions may be required for cases where interference occurs.

Frequency range (GHz)	Class A (3m)		Class B (3m)	
	Average limit (dB μ V/m)	Peak limit (dB μ V/m)	Average limit (dB μ V/m)	Peak limit (dB μ V/m)
1 to 6	60	80	54	74

Note: Additional provisions may be required for cases where interference occurs.

For an unintentional radiator is shown in the table below.

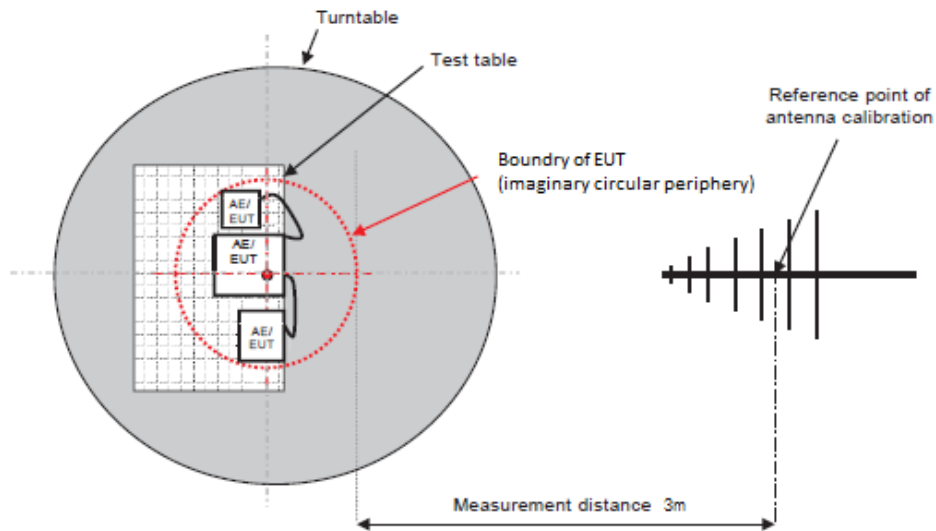
The highest internal source of an EUT is defined as the highest frequency generated or used within the EUT or on which the EUT operates or tunes.	Upper frequency of measurement range
Below 108 MHz	1 GHz
108 MHz to 500 MHz	2 GHz
500 MHz to 1 GHz	5 GHz
Above 1 GHz	5 times the highest frequency or 6 GHz, whichever is less.

3.2.2 Test Procedures

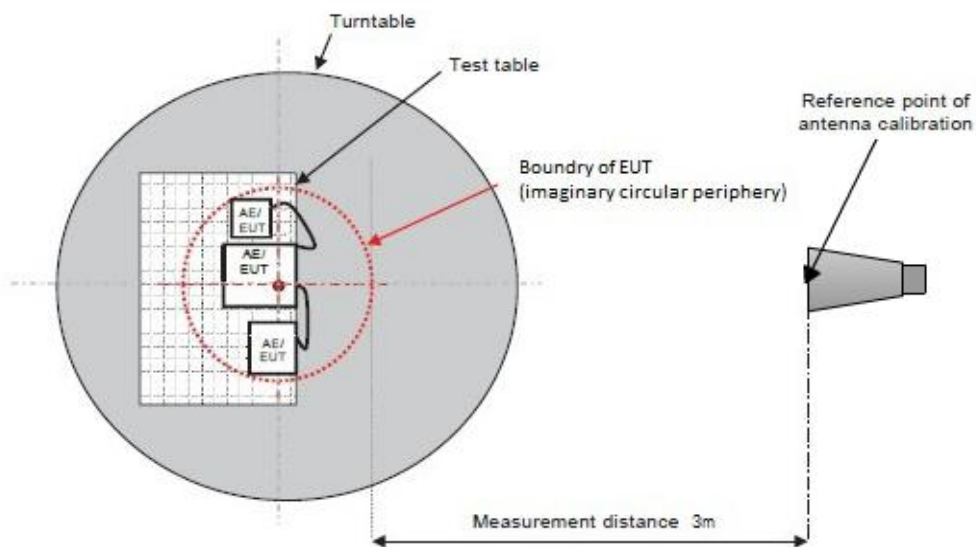
- a. The EUT was placed on a rotatable table top with a height of 0.8 meters which is placed on the ground plane.
- b. A thickness of $\leq 0.15\text{m}$ insulation should be placed between local AE and associated cabling and the RGP.
- c. The EUT received DC power source from the outlet socket under the turntable. All support equipment power received from another socket under the turntable.
- d. The EUT and local AE shall be arranged in the most compact practical arrangement within the test volume. The central point of the arrangement shall be positioned at the centre of the turntable. The measurement distance is the shortest horizontal distance between an imaginary circular periphery just encompassing this arrangement and calibration point of the antenna.
- e. The table was rotated 360 degrees to determine the position of the highest radiation.
- f. The antenna is a half wave dipole and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- g. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 to 4 meters) and turn table (from 0 to 360 degrees) to find the maximum reading.
- h. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
- i. If the emission level of the EUT in peak mode was 2 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 2 dB margin will be repeated one by one using the quasi-peak method and reported.

3.2.3 Test Setup

Radiated Emissions below 1GHz



Radiated Emissions above 1GHz



3.2.4 Measurement Formula and Calculation

Level (dBuV/m) = Raw (Read level) + AF (Antenna factor) + CL (Cable loss) – PA (Preamp factor)

Margin (dB) = Level (dBuV/m) – Limit (dBuV/m)

3.2.5 Test Results (Below 1GHz)

Refer to Appendix B.

3.2.6 Test Results (Above 1GHz)

Refer to Appendix C.

4 Immunity Tests

4.1 General Description

Product Standard: EN 301 489-1 , EN 301 489-3 , EN 301 489-17		
Basic Standard	Spec. Requirement	Performance Criteria
EN 61000-4-2 (ESD)	Contact Discharge: ± 4 kV Air Discharge: ± 8 kV	B
EN 61000-4-3 (RS)	80 MHz to 6000 MHz 3 V/m, 1 kHz Sine Wave 80%, AM Modulation	A

4.2 Performance Criteria Description

EN 301 489-3 Performance Criteria
Performance Criteria For Continuous Phenomena
<p>During the test, the equipment shall:</p> <ul style="list-style-type: none"> - continue to operate as intended; - not unintentionally transmit; - not unintentionally change its operating state; - not unintentionally change critical stored data.
Performance Criteria For Transient Phenomena
<p>For all ports and transient phenomena with the exception described below, the following applies:</p> <ul style="list-style-type: none"> - The application of the transient phenomena shall not result in a change of the mode of operation (e.g. unintended transmission) or the loss of critical stored data. - After application of the transient phenomena, the equipment shall operate as intended. <p>For surges applied to symmetrically operated wired network ports intended to be connected directly to outdoor lines the following criteria applies:</p> <ul style="list-style-type: none"> - For products with only one symmetrical port intended for connection to outdoor lines, loss of function is allowed, provided the function is self-recoverable, or can be otherwise restored. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost. - For products with more than one symmetrical port intended for connection to outdoor lines, loss of function on the port under test is allowed, provided the function is self-recoverable. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.
Continuous and Non-Continuous Operation
<p>Latency is the time delay between the initiation and the completion of operation of the EUT. Correct functioning requires completing the relevant operation within the maximum latency time.</p> <p>Where the maximum latency is specified in the applicable harmonised radio standard (in the wanted performance criterion, or an acknowledge requirement), that value shall be used.</p> <p>Where this is not the case, then the maximum latency is that required by the intended use of the EUT.</p>
Operating Mode
<p>Where the EUT has more than one mode of operation, an unplanned transition from one mode to another is considered as an unintentional response. The EUT shall be tested in all modes to confirm there are no such unintentional responses.</p>

EN 301 489-17 Performance Criteria

Criteria	During test	After test (i.e. as a result of the application of the test)
A	Shall operate as intended. (see note). Shall be no loss of function. Shall be no unintentional transmissions.	Shall operate as intended. Shall be no degradation of performance Shall be no loss of function. Shall be no loss of critical stored data.
B	May be loss of function.	Functions shall be self-recoverable. Shall operate as intended after recovering. Shall be no loss of critical stored data.
C	May be loss of function.	Functions shall be recoverable by the operator. Shall operate as intended after recovering. Shall be no loss of critical stored data.

Note: Operate as intended during the test allows a level of degradation in accordance with clause 6.2.2.

Clause 6.2.2 Minimum performance level

For equipment that supports a PER or FER, the minimum performance level shall be a PER or FER less than or equal to 10%.

For equipment that does not support a PER or FER, the minimum performance level shall be no loss of wireless transmission function needed for the intended use of the equipment.

4.3 Special Conditions for EMC Measurements

4.3.1 Special Conditions for Emission Measurements

EN 301 489-3

Reference to clauses in EN 301 489-1	Special product-related conditions, additional to or modifying the test conditions in EN 301 489-1, clause 8
8.3 DC power input/output ports	The requirements of ETSI EN 301 489-1, clause 8.3 shall be applied where the cable length exceeds 3 m or is connected to a vehicle power supply.

EN 301 489-17

No special conditions.

4.3.2 Special Conditions for Immunity Measurements

EN 301 489-3

Reference to clauses in EN 301 489-1	Special product-related conditions, additional to or modifying the test conditions in EN 301 489-1, clause 9
9.2.2: Test method; Radio frequency electromagnetic field	Where the EUT is subject to EMC Immunity testing under a Harmonised Standard of a Directive other than the Directive 2014/53/EU then the modulating signal frequency specified in that Harmonised Standard may be used. If this alternative modulating frequency is used, then the applicable Directive, Harmonised Standard & modulating frequency shall be noted in the test report.
9.4: Fast transients common mode	The requirements of ETSI EN 301 489-1, clauses 9.4.1 and 9.4.2 shall be applied with the exception of clause 7.4 of EN 61000-4-4.
9.5.2: Test method; Radio frequency, common mode	Where the EUT is subject to EMC Immunity testing under a Harmonised Standard of a Directive other than the Directive 2014/53/EU then the modulating signal frequency specified in that Harmonised Standard may be used. If this alternative modulating frequency is used, then the applicable Directive, Harmonised Standard & modulating frequency shall be noted in the test report.

EN 301 489-17

No special conditions.

4.4 Electrostatic Discharge (ESD)

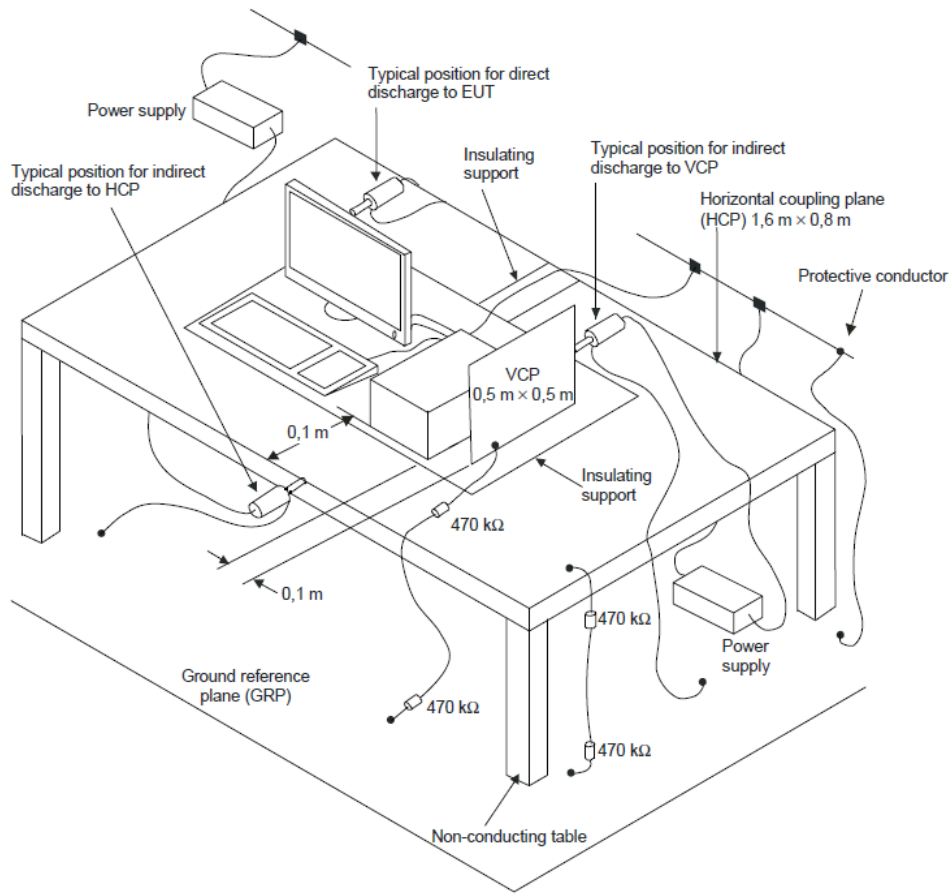
4.4.1 Test Specification of Electrostatic Discharge (ESD)

Basic Standard	EN 61000-4-2
Discharge Voltage	Contact Discharge: ± 2 kV / ± 4 kV Air Discharge: ± 2 kV / ± 4 kV / ± 8 kV
Discharge Impedance	330 ohm / 150 pF
Number of Discharge	Air Discharge: minimum 20 times at each test point Contact Discharge: minimum 20 times at each test point
Discharge Mode	Single Discharge
Discharge Period	1 second minimum

4.4.2 Test Procedures

- a. In the case of air discharge testing the climatic conditions shall be within the following ranges:
 - ambient temperature: 15°C to 35°C;
 - relative humidity : 30% to 60%;
 - atmospheric pressure : 86 kPa (860 mbar) to 106 kPa (1060 mbar).
- b. Test programs and software shall be chosen so as to exercise all normal modes of operation of the EUT. The use of special exercising software is encouraged, but permitted only where it can be shown that the EUT is being comprehensively exercised.
- c. The test voltage shall be increased from the minimum to the selected test severity level, in order to determine any threshold of failure. The final severity level should not exceed the product specification value in order to avoid damage to the equipment.
- d. The test shall be performed with both air discharge and contact discharge. On preselected points at least 10 single discharges (in the most sensitive polarity) shall be applied on air discharge. On preselected points at least 10 single discharges (in the most sensitive polarity) shall be applied on contact discharge.
- e. For the time interval between successive single discharges an initial value of one second is recommended. Longer intervals may be determined whether a system failure has occurred.
- f. In the case of contact discharges, the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.
- g. In the case of painted surface covering a conducting substrate, the following procedure shall be adopted:
 - If the coating is not declared to be an insulating coating by the equipment manufacturer, then the pointed tip of the generator shall penetrate the coating so as to make contact with the conducting substrate.
 - Coating declared as insulating by the manufacturer shall only be submitted to the air discharge.
 - The contact discharge test shall not be applied to such surfaces.
- h. In the case of air discharges, the round discharge tip of the discharge electrode shall be approached as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator (discharge electrode) shall be removed from the EUT. The generator is then retriggered for a new single discharge. This procedure shall be repeated until the discharges are completed. In the case of an air discharge test, the discharge switch, which is used for contact discharge, shall be closed.

4.4.3 Test Setup



The test setup shall consist of a non-conductive table, (0.8 ± 0.08) m high, standing on the ground reference plane.

A horizontal coupling plane (HCP), (1.6 ± 0.02) m \times (0.8 ± 0.02) m, shall be placed on the table. The EUT and its cables shall be isolated from the coupling plane by an insulating support (0.5 ± 0.05) mm in thickness.

4.4.4 Test Result of Electrostatic Discharge (ESD)

Test Site	ES01-WS	Ambient Condition	22°C/52%/100kPa
Tested By	Ian Yan		

Test Mode	1, 7				
Direct Application					
Test Voltage (kV)	Polarity	Test Point	Contact Discharge	Air Discharge	Performance Criteria
2, 4, 8	+/-	1	N/A	Note	A
Indirect Application					
Test Voltage (kV)	Polarity	Test Point	Horizontal Coupling Plane (HCP)	Vertical Coupling Plane (VCP)	Performance Criteria
2, 4	+/-	At front, rear, left and right side	Note	Note	A

Note: There was no abnormal situation during the test compared with initial operation.

Test Mode	2-6, 8-12				
Indirect Application					
Test Voltage (kV)	Polarity	Test Point	Horizontal Coupling Plane (HCP)	Vertical Coupling Plane (VCP)	Performance Criteria
2, 4	+/-	At front, rear, left and right side	Note	Note	A

Note: There was no abnormal situation during the test compared with initial operation.

4.4.5 Test Point Photo

Test Mode1, 7



4.5 Radio Frequency Electromagnetic Field (RS)

4.5.1 Test Specification of Radio Frequency Electromagnetic Field (RS)

Basic Standard	EN 61000-4-3
Frequency Range	80 MHz ~ 6000 MHz
Field Strength	3 V/m
Modulation	1 kHz Sine Wave, 80%, AM Modulation
Frequency Step	1 % of preceding frequency value
Polarity of Antenna	Horizontal and Vertical
Antenna Height	1.5 m
Antenna Distance	80 MHz ~ 1000 MHz: 3 m 1000 MHz ~ 6000 MHz: 1 m
Dwell Time	3 seconds

4.5.2 Test Procedures

- The test level shall be 3 V/m (measured unmodulated). The test signal shall be amplitude modulated to a depth of 80 % by a sinusoidal audio signal of 1000 Hz. If the wanted signal is modulated at 1000 Hz, then an audio signal of 400 Hz shall be used.
- The test shall be performed over the frequency range 80 MHz to 6000 MHz with the exception of the exclusion band for transmitters, receivers and duplex transceivers, as appropriate.
- For receivers and transmitters the stepped frequency increments shall be 1 % frequency increment of the momentary used frequency, unless specified otherwise in the part of EN 301 489 series dealing with the relevant type of radio equipment.
- Further product related spot frequency tests may be specified in the relevant part of EN 301 489 series dealing with the particular type of radio equipment.
- Responses on receivers occurring at discrete frequencies, which are narrow band responses, shall be disregarded from the test.
- The frequencies selected and used during the test shall be recorded in the test report.
- When testing at frequencies above 1 GHz, the test distance shall be 1 m when using the independent windows method. Compliance with the field uniformity requirement shall be verified for the selected test distance.
- The alternative method for frequencies above 1 GHz divides the calibration area into a suitable array of 0,5 m × 0,5 m windows such that the whole area to be occupied by the face of the EUT is covered. The field uniformity shall be independently calibrated over each window.
- During the test, at each frequency the forward power shall be applied to the field-generating antenna. The test shall be repeated with the field-generating antenna repositioned to illuminate each of the required windows in turn.

4.5.3 Exclusion bands

EN 301 489-3

- Transmitters

Where the applicable harmonised radio standard specifies an Operating Channel and an Out of Band domain, then these together shall form the exclusion band.

Where this is not so specified the exclusion bands shall be as below:

For transmitters operating, or intended to operate, in a channelized frequency band, the exclusion band is five times (i.e. $\pm 250\%$) the maximum operating channel width (OCW) allowed for that service, centred around the operating frequency.

For all other transmitters, the exclusion band is twice the intended operating frequency band centred around the centre frequency of the intended operating frequency band.

The exclusion band shall only apply when the EUT is in transmit mode of operation.

- Receivers

The exclusion band is based on the lower edge (FOClow) and the upper edge (FOChigh) and the centre (f0) of the Operating Channel (OC).

Where the OC is defined in the applicable harmonised radio standard, the values for that shall be used and f0 shall be the centre of the OC. In all other cases, f0 shall be the receiver operating frequency and the OC shall be $\pm 0,05\%$ around f0.

Lower limit of exclusion band

Lower edge of OC, FOClow	Lower limit of exclusion band
< 3 MHz	0
3 MHz to < 30 MHz	FOClow - 3 MHz
30 MHz to < 42 MHz	27 MHz
42 MHz to < 1 GHz	FOClow - 15 MHz, or FOClow - $0,05 \times f_0$, whichever is lower
1 GHz to < 1.05 GHz	950 MHz
1.05 GHz to < 6 GHz	FOClow - 100 MHz
6 GHz to < 6.3 GHz	5,9 GHz
≥ 6.3 GHz	FOClow - $0,05 \times f_0$

Upper limit of exclusion band

Upper edge of OC, FOChigh	Upper limit of exclusion band
< 300 kHz	FOChigh + 300 kHz
300 kHz to < 30 MHz	FOChigh + 3 MHz
30 MHz to < 42 MHz	FOChigh + 5 MHz
42 MHz to < 1 GHz	FOChigh + 15 MHz, or FOChigh + $0,05 \times f_0$, whichever is higher
1 GHz to < 6 GHz	FOChigh + 100 MHz
≥ 6 GHz	FOChigh + $0.05\% \times f_0$

- Duplex and multi-mode equipment

In the case of EUT tested with a simultaneous transmit and receive mode, the exclusion band used shall be the combination of the exclusion band for the transmitter and the exclusion band for the receiver. I.e. both exclusion bands shall be applied.

In the case of transmitters capable of operating on more than one frequency band, testing shall be carried out

on each band separately.

In the case of receivers operating on more than one frequency, the exclusion band used shall be the combination of the exclusion bands for each frequency, i.e. an exclusion band for each frequency shall be applied.

NOTE: Where the frequencies are in the same operational frequency band, the result will usually be an enlarged single exclusion band. Where the frequencies are widely spaced, e.g. in different bands, the result will be to create multiple separate exclusion bands.

EN 301 489-17

The frequencies on which the transmitter part of the EUT is intended to operate shall be excluded from radiated emission measurements when performed in transmit mode of operation.

There shall be no frequency exclusion band applied to emission measurements of the receiver part of transceivers or the stand alone receiver under test, and/or associated ancillary equipment.

The exclusion band for immunity testing of equipment operating in the 2,4 GHz band shall be:

- lower limit of exclusion band = lowest allocated band edge frequency -120 MHz, i.e. 2 280 MHz;
- upper limit of exclusion band = highest allocated band edge frequency +120 MHz, i.e. 2 603,5MHz.

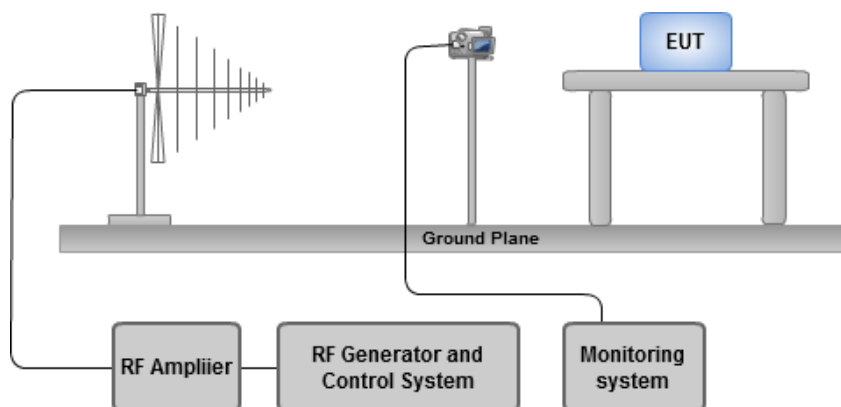
The exclusion band for immunity testing of equipment operating in the 5 GHz Wi-Fi band shall be:

- lower limit of exclusion band = lowest allocated band edge frequency -320 MHz, i.e. 4 830 MHz;
- as the immunity requirements have an upper frequency range of 6 GHz and any upper edge exclusion band would be greater than this for both the 5 470 MHz - 5 725 MHz and 5 725 MHz - 5 850 MHz bands. Therefore the test stops at the lower limit of exclusion band (i.e. 4 830 MHz).

The exclusion band for immunity testing of equipment operating in the 5,8 GHz band shall be:

- lower limit of exclusion band = lowest allocated band edge frequency -440 MHz, i.e. 5 285 MHz;
- as the immunity requirements have an upper frequency range of 6 GHz and any upper edge exclusion band would be greater than this for the 5,8 GHz band. The above frequency shall also be regarded as the upper end of the test range.

4.5.4 Test Setup



Note: The procedure defined in this part requires the generation of electromagnetic fields within which the test sample is placed and its operation observed. To generate fields that are useful for simulation of actual (field) conditions may require significant antenna drive power and the resultant high field strength levels. To comply with local regulations and to prevent biological hazards to the testing personnel, it is recommended that these tests be carried out in a shielded enclosure or semi-anechoic chamber.

4.5.5 Test Result of Radio Frequency Electromagnetic Field (RS)

Test Site	RS01-WS	Ambient Condition	23°C/59%/101kPa
Tested By	Ian Yan		

Test Mode	1-3, 5-12				
Frequency Range (MHz)	Azimuth	Polarity	Test Field Strength (V/m)	Observation	Performance Criteria
80 - 6000	0	V&H	3	Note 1, 2	A
80 - 6000	90	V&H	3	Note 1, 2	A
80 - 6000	180	V&H	3	Note 1, 2	A
80 - 6000	270	V&H	3	Note 1, 2	A

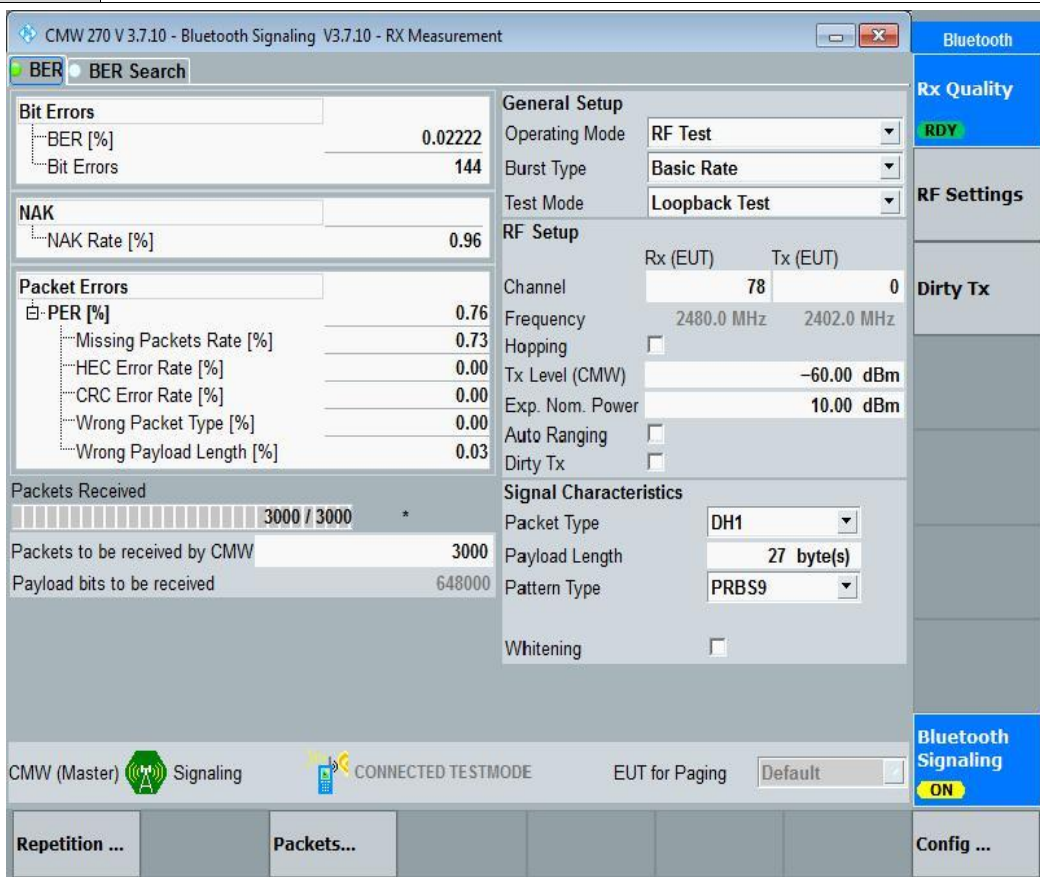
Note:

- 1) There was no abnormal situation during the test compared with initial operation.
- 2) The WiFi PER shall be less than or equal to 10%.

Test Mode	4				
Frequency Range (MHz)	Azimuth	Polarity	Test Field Strength (V/m)	Observation	Performance Criteria
80 - 6000	0	V&H	3	Note 1, 2	A
80 - 6000	90	V&H	3	Note 1, 2	A
80 - 6000	180	V&H	3	Note 1, 2	A
80 - 6000	270	V&H	3	Note 1, 2	A

Note:

- 1) There was no abnormal situation during the test compared with initial operation.
- 2) The BT PER shall be less than or equal to 10%.

Test Mode		BT PER mode
 <p>The screenshot shows the CMW 270 V 3.7.10 - Bluetooth Signaling V3.7.10 - RX Measurement interface. The 'BER' tab is selected. The 'General Setup' section shows 'Operating Mode' as 'RF Test', 'Burst Type' as 'Basic Rate', and 'Test Mode' as 'Loopback Test'. The 'RF Setup' section shows 'Channel' as '78', 'Frequency' as '2480.0 MHz', 'Tx Level (CMW)' as '-60.00 dBm', and 'Exp. Nom. Power' as '10.00 dBm'. The 'Signal Characteristics' section shows 'Packet Type' as 'DH1', 'Payload Length' as '27 byte(s)', and 'Pattern Type' as 'PRBS9'. The 'Bit Errors' section shows 'BER [%]' as '0.02222' and 'Bit Errors' as '144'. The 'NAK' section shows 'NAK Rate [%]' as '0.96'. The 'Packet Errors' section shows 'PER [%]' as '0.76', 'Missing Packets Rate [%]' as '0.73', 'HEC Error Rate [%]' as '0.00', 'CRC Error Rate [%]' as '0.00', 'Wrong Packet Type [%]' as '0.00', and 'Wrong Payload Length [%]' as '0.03'. The 'Packets Received' section shows 'Packets Received' as '3000 / 3000' and 'Packets to be received by CMW' as '3000'. The 'Payload bits to be received' section shows 'Payload bits to be received' as '648000'. The 'Bluetooth' status bar at the bottom shows 'Bluetooth Signaling' as 'ON'.</p>		
PER (%)=	100*(1-Packets Received number / Packets Sent number)	
Packet Sent Numbrs	3000	
Packet Received Numbrs	2977	
PER (%)=	0.766666667 %	

```
Test Mode WiFi 2.4G PER mode

COM22:115200baud - Tera Term VT
File Edit Setup Control Window Help

64 bytes from 192.168.1.1: seq=963 ttl=64 time=10.727 ms
64 bytes from 192.168.1.1: seq=964 ttl=64 time=2.476 ms
64 bytes from 192.168.1.1: seq=965 ttl=64 time=12.151 ms
64 bytes from 192.168.1.1: seq=966 ttl=64 time=10.672 ms
64 bytes from 192.168.1.1: seq=967 ttl=64 time=8.835 ms
64 bytes from 192.168.1.1: seq=968 ttl=64 time=11.001 ms
64 bytes from 192.168.1.1: seq=969 ttl=64 time=10.264 ms
64 bytes from 192.168.1.1: seq=970 ttl=64 time=10.783 ms
64 bytes from 192.168.1.1: seq=971 ttl=64 time=7.511 ms
64 bytes from 192.168.1.1: seq=972 ttl=64 time=10.259 ms
64 bytes from 192.168.1.1: seq=973 ttl=64 time=10.814 ms
64 bytes from 192.168.1.1: seq=974 ttl=64 time=9.379 ms
64 bytes from 192.168.1.1: seq=975 ttl=64 time=11.669 ms
64 bytes from 192.168.1.1: seq=976 ttl=64 time=11.491 ms
64 bytes from 192.168.1.1: seq=977 ttl=64 time=12.278 ms
64 bytes from 192.168.1.1: seq=978 ttl=64 time=12.120 ms
64 bytes from 192.168.1.1: seq=979 ttl=64 time=9.687 ms
64 bytes from 192.168.1.1: seq=980 ttl=64 time=10.726 ms
64 bytes from 192.168.1.1: seq=981 ttl=64 time=10.873 ms
64 bytes from 192.168.1.1: seq=982 ttl=64 time=11.236 ms
64 bytes from 192.168.1.1: seq=983 ttl=64 time=11.794 ms
64 bytes from 192.168.1.1: seq=984 ttl=64 time=7.725 ms
64 bytes from 192.168.1.1: seq=985 ttl=64 time=10.999 ms
64 bytes from 192.168.1.1: seq=986 ttl=64 time=12.193 ms
64 bytes from 192.168.1.1: seq=987 ttl=64 time=8.029 ms
64 bytes from 192.168.1.1: seq=988 ttl=64 time=8.558 ms
64 bytes from 192.168.1.1: seq=989 ttl=64 time=11.822 ms
64 bytes from 192.168.1.1: seq=990 ttl=64 time=9.767 ms
64 bytes from 192.168.1.1: seq=991 ttl=64 time=8.438 ms
64 bytes from 192.168.1.1: seq=992 ttl=64 time=9.986 ms
64 bytes from 192.168.1.1: seq=993 ttl=64 time=10.535 ms
64 bytes from 192.168.1.1: seq=994 ttl=64 time=10.629 ms
64 bytes from 192.168.1.1: seq=995 ttl=64 time=9.994 ms
64 bytes from 192.168.1.1: seq=996 ttl=64 time=10.103 ms
64 bytes from 192.168.1.1: seq=997 ttl=64 time=7.184 ms
64 bytes from 192.168.1.1: seq=998 ttl=64 time=10.600 ms
64 bytes from 192.168.1.1: seq=999 ttl=64 time=11.336 ms

--- 192.168.1.1 ping statistics ---
1000 packets transmitted, 1000 packets received, 0% packet loss
round-trip min/avg/max = 1.237/11.466/1299.907 ms
#
```



```

Test Mode    WiFi 5G PER mode

COM18:115200baud - Tera Term VT
File Edit Setup Control Window Help

64 bytes from 192.168.1.1: seq=963 ttl=64 time=11.122 ms
64 bytes from 192.168.1.1: seq=964 ttl=64 time=9.645 ms
64 bytes from 192.168.1.1: seq=965 ttl=64 time=10.965 ms
64 bytes from 192.168.1.1: seq=966 ttl=64 time=8.402 ms
64 bytes from 192.168.1.1: seq=967 ttl=64 time=11.512 ms
64 bytes from 192.168.1.1: seq=968 ttl=64 time=9.203 ms
64 bytes from 192.168.1.1: seq=969 ttl=64 time=10.204 ms
64 bytes from 192.168.1.1: seq=970 ttl=64 time=9.989 ms
64 bytes from 192.168.1.1: seq=971 ttl=64 time=10.297 ms
64 bytes from 192.168.1.1: seq=972 ttl=64 time=10.088 ms
64 bytes from 192.168.1.1: seq=973 ttl=64 time=10.172 ms
64 bytes from 192.168.1.1: seq=974 ttl=64 time=11.079 ms
64 bytes from 192.168.1.1: seq=975 ttl=64 time=10.202 ms
64 bytes from 192.168.1.1: seq=976 ttl=64 time=11.087 ms
64 bytes from 192.168.1.1: seq=977 ttl=64 time=11.247 ms
64 bytes from 192.168.1.1: seq=978 ttl=64 time=11.275 ms
64 bytes from 192.168.1.1: seq=979 ttl=64 time=7.207 ms
64 bytes from 192.168.1.1: seq=980 ttl=64 time=10.598 ms
64 bytes from 192.168.1.1: seq=981 ttl=64 time=10.176 ms
64 bytes from 192.168.1.1: seq=982 ttl=64 time=9.779 ms
64 bytes from 192.168.1.1: seq=983 ttl=64 time=10.513 ms
64 bytes from 192.168.1.1: seq=984 ttl=64 time=9.717 ms
64 bytes from 192.168.1.1: seq=985 ttl=64 time=10.254 ms
64 bytes from 192.168.1.1: seq=986 ttl=64 time=11.454 ms
64 bytes from 192.168.1.1: seq=987 ttl=64 time=6.941 ms
64 bytes from 192.168.1.1: seq=988 ttl=64 time=10.818 ms
64 bytes from 192.168.1.1: seq=989 ttl=64 time=10.969 ms
64 bytes from 192.168.1.1: seq=990 ttl=64 time=10.544 ms
64 bytes from 192.168.1.1: seq=991 ttl=64 time=10.354 ms
64 bytes from 192.168.1.1: seq=992 ttl=64 time=7.558 ms
64 bytes from 192.168.1.1: seq=993 ttl=64 time=10.922 ms
64 bytes from 192.168.1.1: seq=994 ttl=64 time=9.813 ms
64 bytes from 192.168.1.1: seq=995 ttl=64 time=9.099 ms
64 bytes from 192.168.1.1: seq=996 ttl=64 time=10.293 ms
64 bytes from 192.168.1.1: seq=997 ttl=64 time=11.087 ms
64 bytes from 192.168.1.1: seq=998 ttl=64 time=11.636 ms
64 bytes from 192.168.1.1: seq=999 ttl=64 time=3.452 ms

--- 192.168.1.1 ping statistics ---
1000 packets transmitted, 1000 packets received, 0% packet loss
round-trip min/avg/max = 1.251/9.607/12.615 ms
#

```

5 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corporation (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <http://www.icertifi.com.tw>.

Linkou

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Kwei Shan

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St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)
No.2-1, Lane 6, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)

Kwei Shan Site II

Tel: 886-3-271-8640

No.14-1, Lane 19, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)

If you have any suggestion, please feel free to contact us as below information.

Tel: 886-3-271-8666

Fax: 886-3-318-0345

Email: ICC_Service@icertifi.com.tw

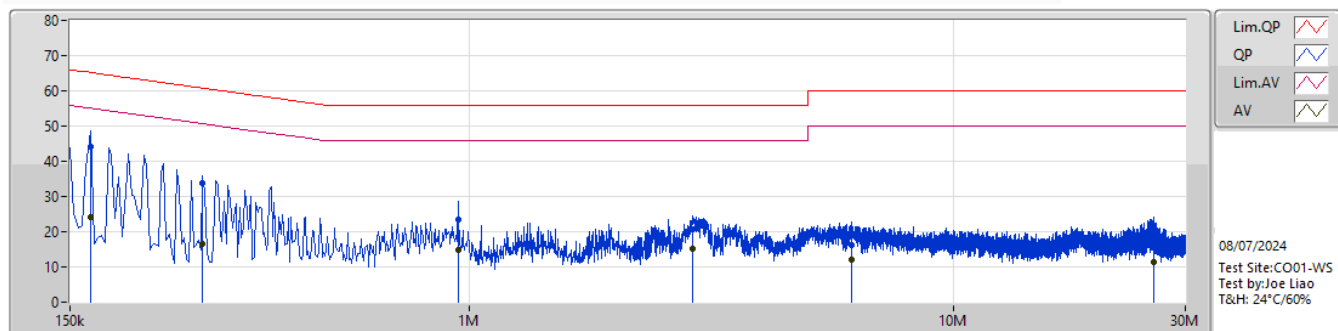
==END==

**Summary**

Mode	Type	Freq (Hz)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Factor (dB)	Condition
Mode 1	AV	342k	32.60	49.15	-16.55	9.95	Neutral
Mode 2	AV	366k	31.35	48.60	-17.25	9.96	Neutral
Mode 3	AV	345k	32.01	49.08	-17.07	9.95	Neutral
Mode 4	QP	150k	46.61	66.00	-19.39	9.86	Neutral
Mode 5	AV	342k	33.91	49.15	-15.24	9.95	Neutral



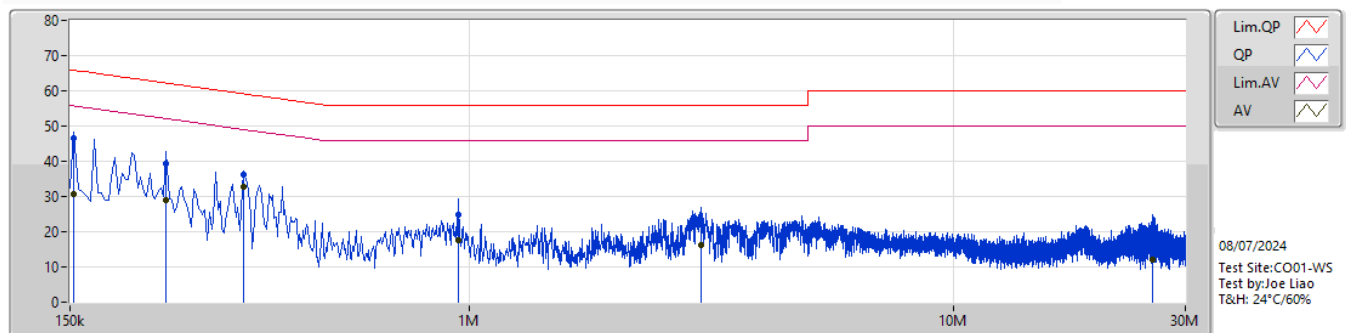
Mode 1



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	165k	44.11	65.22	-21.11	9.94	Line	"Worst"	34.17	9.65	0.07	0.22						
AV	165k	24.17	55.22	-31.05	9.94	Line	-	14.23	9.65	0.07	0.22						
QP	282k	33.96	60.76	-26.80	10.01	Line	-	23.95	9.65	0.07	0.29						
AV	282k	16.54	50.76	-34.22	10.01	Line	-	6.53	9.65	0.07	0.29						
QP	948k	23.47	56.00	-32.53	10.10	Line	-	13.37	9.65	0.09	0.36						
AV	948k	14.92	46.00	-31.08	10.10	Line	-	4.82	9.65	0.09	0.36						
QP	2.895M	20.72	56.00	-35.28	10.22	Line	-	10.50	9.67	0.15	0.40						
AV	2.895M	15.13	46.00	-30.87	10.22	Line	"Worst"	4.91	9.67	0.15	0.40						
QP	6.132M	16.30	60.00	-43.70	10.38	Line	-	5.92	9.69	0.26	0.43						
AV	6.132M	12.04	50.00	-37.96	10.38	Line	-	1.66	9.69	0.26	0.43						
QP	25.887M	16.20	60.00	-43.80	10.92	Line	-	5.28	9.66	0.55	0.71						
AV	25.887M	11.32	50.00	-38.68	10.92	Line	-	0.40	9.66	0.55	0.71						



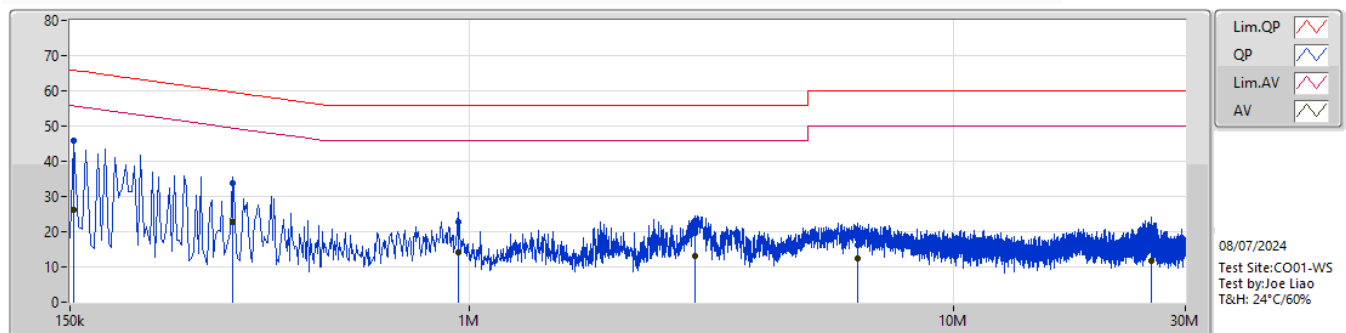
Mode 1



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	153k	46.69	65.83	-19.14	9.86	Neutral	"Worst"	36.83	9.66	0.08	0.12						
AV	153k	30.52	55.83	-25.31	9.86	Neutral	-	20.66	9.66	0.08	0.12						
QP	237k	39.30	62.20	-22.90	9.90	Neutral	-	29.40	9.65	0.06	0.19						
AV	237k	28.83	52.20	-23.37	9.90	Neutral	-	18.93	9.65	0.06	0.19						
QP	342k	36.37	59.15	-22.78	9.95	Neutral	-	26.42	9.64	0.08	0.23						
AV	342k	32.60	49.15	-16.55	9.95	Neutral	"Worst"	22.65	9.64	0.08	0.23						
QP	951k	24.92	56.00	-31.08	10.04	Neutral	-	14.88	9.65	0.09	0.30						
AV	951k	17.44	46.00	-28.56	10.04	Neutral	-	7.40	9.65	0.09	0.30						
QP	3M	22.05	56.00	-33.95	10.20	Neutral	-	11.85	9.67	0.15	0.38						
AV	3M	16.30	46.00	-29.70	10.20	Neutral	-	6.10	9.67	0.15	0.38						
QP	25.689M	17.82	60.00	-42.18	11.04	Neutral	-	6.78	9.85	0.55	0.64						
AV	25.689M	12.05	50.00	-37.95	11.04	Neutral	-	1.01	9.85	0.55	0.64						



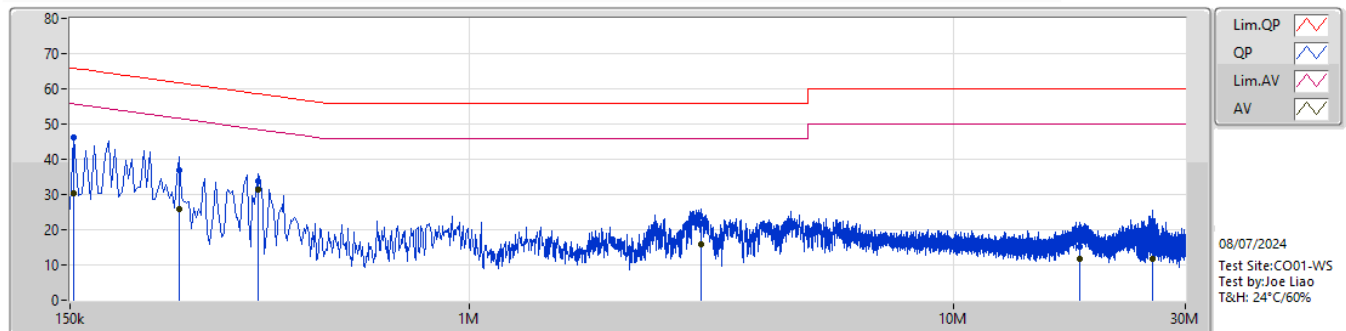
Mode 2



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT						
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)						
QP	153k	45.91	65.83	-19.92	9.93	Line	"Worst"	35.98	9.65	0.08	0.20						
AV	153k	26.05	55.83	-29.78	9.93	Line	-	16.12	9.65	0.08	0.20						
QP	324k	33.86	59.59	-25.73	10.02	Line	-	23.84	9.64	0.07	0.31						
AV	324k	22.73	49.59	-26.86	10.02	Line	"Worst"	12.71	9.64	0.07	0.31						
QP	948k	22.62	56.00	-33.38	10.10	Line	-	12.52	9.65	0.09	0.36						
AV	948k	14.00	46.00	-32.00	10.10	Line	-	3.90	9.65	0.09	0.36						
QP	2.922M	19.63	56.00	-36.37	10.22	Line	-	9.41	9.67	0.15	0.40						
AV	2.922M	13.13	46.00	-32.87	10.22	Line	-	2.91	9.67	0.15	0.40						
QP	6.342M	16.17	60.00	-43.83	10.39	Line	-	5.78	9.69	0.27	0.43						
AV	6.342M	12.43	50.00	-37.57	10.39	Line	-	2.04	9.69	0.27	0.43						
QP	25.593M	16.99	60.00	-43.01	10.92	Line	-	6.07	9.66	0.55	0.71						
AV	25.593M	11.84	50.00	-38.16	10.92	Line	-	0.92	9.66	0.55	0.71						



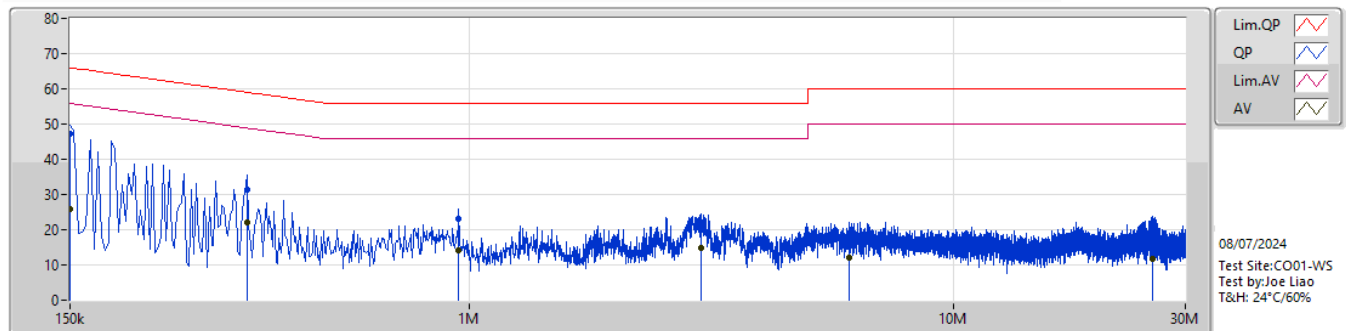
Mode 2



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	153k	46.17	65.83	-19.66	9.86	Neutral	"Worst"	36.31	9.66	0.08	0.12						
AV	153k	30.36	55.83	-25.47	9.86	Neutral	-	20.50	9.66	0.08	0.12						
QP	252k	37.03	61.70	-24.67	9.92	Neutral	-	27.11	9.65	0.07	0.20						
AV	252k	25.86	51.70	-25.84	9.92	Neutral	-	15.94	9.65	0.07	0.20						
QP	366k	33.80	58.60	-24.80	9.96	Neutral	-	23.84	9.64	0.08	0.24						
AV	366k	31.35	48.60	-17.25	9.96	Neutral	"Worst"	21.39	9.64	0.08	0.24						
QP	3.003M	21.56	56.00	-34.44	10.20	Neutral	-	11.36	9.67	0.15	0.38						
AV	3.003M	15.85	46.00	-30.15	10.20	Neutral	-	5.65	9.67	0.15	0.38						
QP	18.186M	15.20	60.00	-44.80	10.87	Neutral	-	4.33	9.82	0.49	0.56						
AV	18.186M	11.57	50.00	-38.43	10.87	Neutral	-	0.70	9.82	0.49	0.56						
QP	25.602M	16.93	60.00	-43.07	11.04	Neutral	-	5.89	9.85	0.55	0.64						
AV	25.602M	11.88	50.00	-38.12	11.04	Neutral	-	0.84	9.85	0.55	0.64						



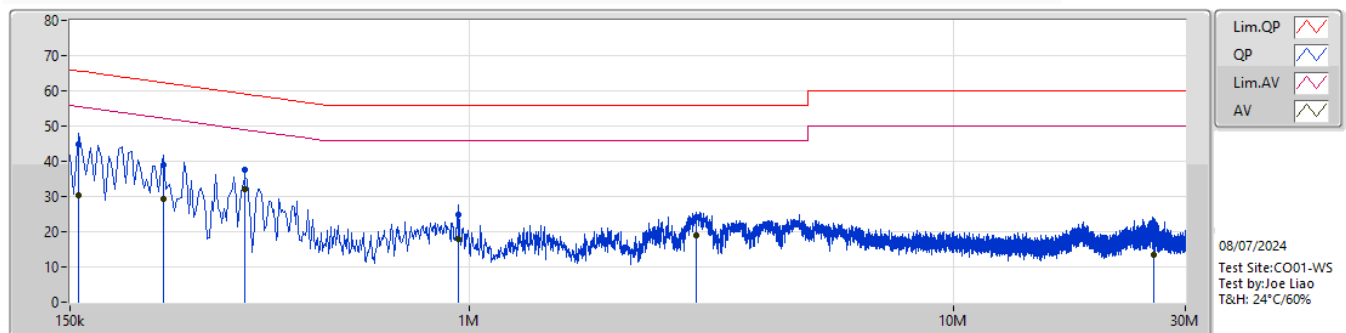
Mode 3



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT						
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)						
QP	150k	47.10	66.00	-18.90	9.93	Line	"Worst"	37.17	9.65	0.08	0.20						
AV	150k	25.96	56.00	-30.04	9.93	Line	-	16.03	9.65	0.08	0.20						
QP	348k	31.40	59.00	-27.60	10.03	Line	-	21.37	9.64	0.08	0.31						
AV	348k	22.13	49.00	-26.87	10.03	Line	"Worst"	12.10	9.64	0.08	0.31						
QP	951k	23.26	56.00	-32.74	10.10	Line	-	13.16	9.65	0.09	0.36						
AV	951k	14.31	46.00	-31.69	10.10	Line	-	4.21	9.65	0.09	0.36						
QP	3.009M	19.90	56.00	-36.10	10.22	Line	-	9.68	9.67	0.15	0.40						
AV	3.009M	14.78	46.00	-31.22	10.22	Line	-	4.56	9.67	0.15	0.40						
QP	6.072M	15.93	60.00	-44.07	10.38	Line	-	5.55	9.69	0.26	0.43						
AV	6.072M	12.13	50.00	-37.87	10.38	Line	-	1.75	9.69	0.26	0.43						
QP	25.728M	17.01	60.00	-42.99	10.92	Line	-	6.09	9.66	0.55	0.71						
AV	25.728M	11.63	50.00	-38.37	10.92	Line	-	0.71	9.66	0.55	0.71						



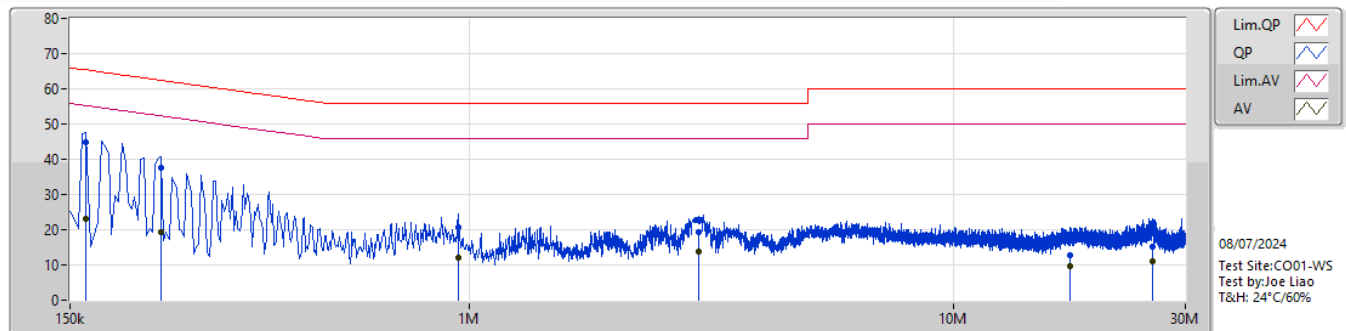
Mode 3



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	156k	44.76	65.67	-20.91	9.87	Neutral	"Worst"	34.89	9.66	0.08	0.13						
AV	156k	30.47	55.67	-25.20	9.87	Neutral	-	20.60	9.66	0.08	0.13						
QP	234k	39.10	62.31	-23.21	9.90	Neutral	-	29.20	9.65	0.06	0.19						
AV	234k	29.46	52.31	-22.85	9.90	Neutral	-	19.56	9.65	0.06	0.19						
QP	345k	37.42	59.08	-21.66	9.95	Neutral	-	27.47	9.64	0.08	0.23						
AV	345k	32.01	49.08	-17.07	9.95	Neutral	"Worst"	22.06	9.64	0.08	0.23						
QP	948k	24.82	56.00	-31.18	10.04	Neutral	-	14.78	9.65	0.09	0.30						
AV	948k	18.03	46.00	-27.97	10.04	Neutral	-	7.99	9.65	0.09	0.30						
QP	2.943M	24.12	56.00	-31.88	10.19	Neutral	-	13.93	9.67	0.15	0.37						
AV	2.943M	18.84	46.00	-27.16	10.19	Neutral	-	8.65	9.67	0.15	0.37						
QP	25.89M	20.07	60.00	-39.93	11.05	Neutral	-	9.02	9.85	0.55	0.65						
AV	25.89M	13.29	50.00	-36.71	11.05	Neutral	-	2.24	9.85	0.55	0.65						



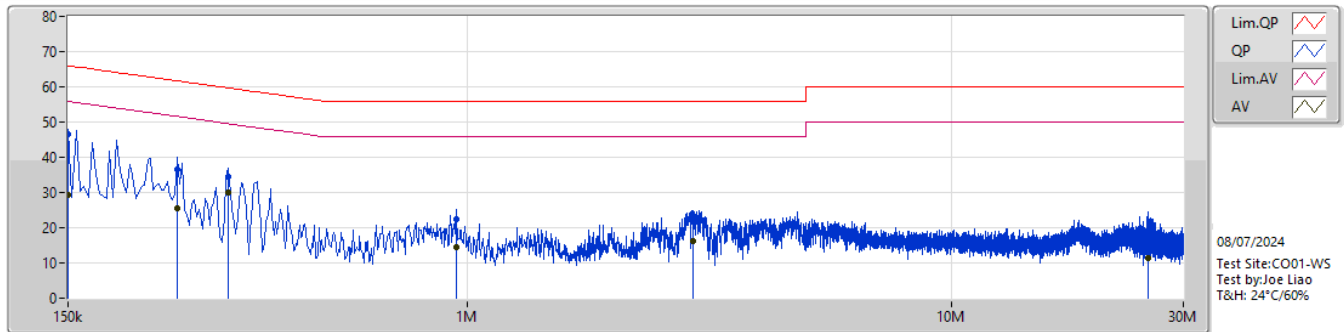
Mode 4



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	162k	44.83	65.35	-20.52	9.93	Line	"Worst"	34.90	9.65	0.07	0.21						
AV	162k	23.15	55.35	-32.20	9.93	Line	"Worst"	13.22	9.65	0.07	0.21						
QP	231k	37.53	62.41	-24.88	9.98	Line	-	27.55	9.65	0.06	0.27						
AV	231k	19.41	52.41	-33.00	9.98	Line	-	9.43	9.65	0.06	0.27						
QP	948k	20.81	56.00	-35.19	10.10	Line	-	10.71	9.65	0.09	0.36						
AV	948k	12.00	46.00	-34.00	10.10	Line	-	1.90	9.65	0.09	0.36						
QP	2.976M	19.44	56.00	-36.56	10.22	Line	-	9.22	9.67	0.15	0.40						
AV	2.976M	13.72	46.00	-32.28	10.22	Line	-	3.50	9.67	0.15	0.40						
QP	17.301M	12.62	60.00	-47.38	10.70	Line	-	1.92	9.69	0.47	0.54						
AV	17.301M	9.51	50.00	-40.49	10.70	Line	-	-1.19	9.69	0.47	0.54						
QP	25.608M	15.26	60.00	-44.74	10.92	Line	-	4.34	9.66	0.55	0.71						
AV	25.608M	10.88	50.00	-39.12	10.92	Line	-	-0.04	9.66	0.55	0.71						



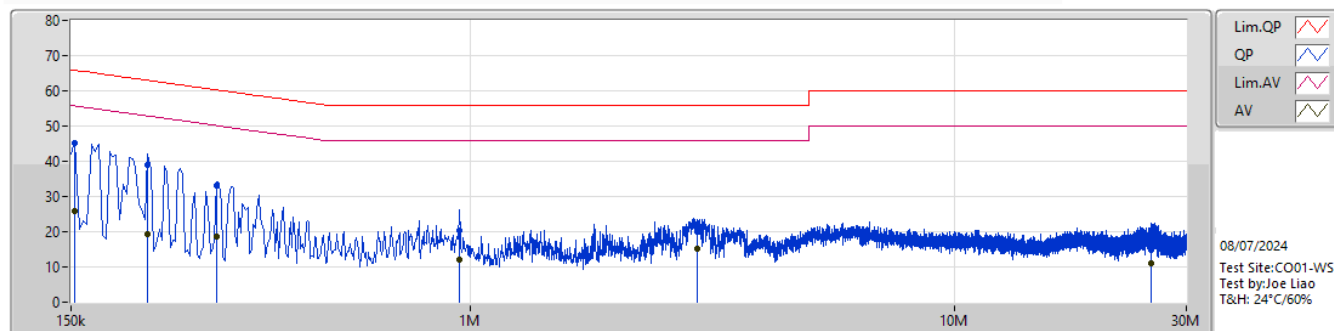
Mode 4



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	150k	46.61	66.00	-19.39	9.86	Neutral	"Worst"	36.75	9.66	0.08	0.12						
AV	150k	29.48	56.00	-26.52	9.86	Neutral	-	19.62	9.66	0.08	0.12						
QP	252k	36.50	61.70	-25.20	9.92	Neutral	-	26.58	9.65	0.07	0.20						
AV	252k	25.66	51.70	-26.04	9.92	Neutral	-	15.74	9.65	0.07	0.20						
QP	321k	34.57	59.67	-25.10	9.93	Neutral	-	24.64	9.64	0.07	0.22						
AV	321k	29.96	49.67	-19.71	9.93	Neutral	"Worst"	20.03	9.64	0.07	0.22						
QP	948k	22.29	56.00	-33.71	10.04	Neutral	-	12.25	9.65	0.09	0.30						
AV	948k	14.53	46.00	-31.47	10.04	Neutral	-	4.49	9.65	0.09	0.30						
QP	2.925M	21.66	56.00	-34.34	10.19	Neutral	-	11.47	9.67	0.15	0.37						
AV	2.925M	16.15	46.00	-29.85	10.19	Neutral	-	5.96	9.67	0.15	0.37						
QP	25.413M	15.70	60.00	-44.30	11.03	Neutral	-	4.67	9.85	0.55	0.63						
AV	25.413M	11.21	50.00	-38.79	11.03	Neutral	-	0.18	9.85	0.55	0.63						



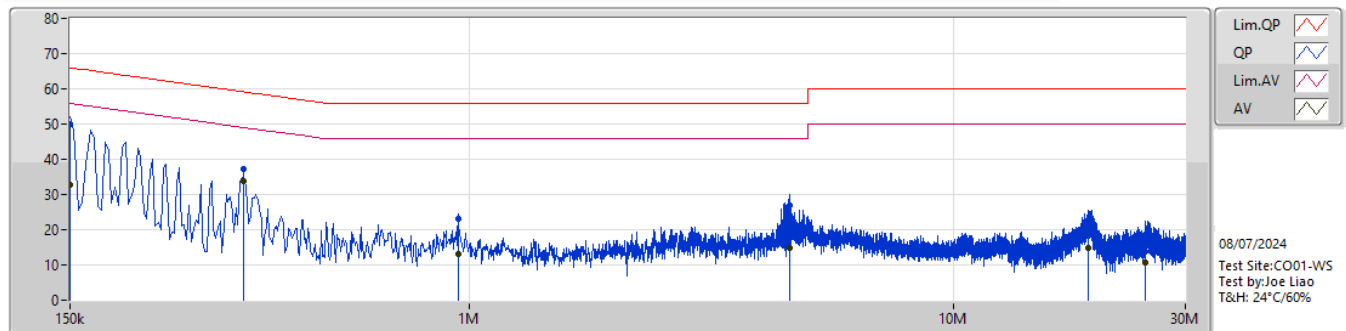
Mode 5



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	153k	45.14	65.83	-20.69	9.93	Line	"Worst"	35.21	9.65	0.08	0.20						
AV	153k	25.73	55.83	-30.10	9.93	Line	"Worst"	15.80	9.65	0.08	0.20						
QP	216k	39.01	62.98	-23.97	9.97	Line	-	29.04	9.65	0.06	0.26						
AV	216k	19.27	52.98	-33.71	9.97	Line	-	9.30	9.65	0.06	0.26						
QP	300k	32.96	60.24	-27.28	10.01	Line	-	22.95	9.64	0.07	0.30						
AV	300k	18.55	50.24	-31.69	10.01	Line	-	8.54	9.64	0.07	0.30						
QP	951k	20.49	56.00	-35.51	10.10	Line	-	10.39	9.65	0.09	0.36						
AV	951k	12.01	46.00	-33.99	10.10	Line	-	1.91	9.65	0.09	0.36						
QP	2.94M	19.91	56.00	-36.09	10.22	Line	-	9.69	9.67	0.15	0.40						
AV	2.94M	15.04	46.00	-30.96	10.22	Line	-	4.82	9.67	0.15	0.40						
QP	25.359M	14.80	60.00	-45.20	10.90	Line	-	3.90	9.66	0.54	0.70						
AV	25.359M	11.05	50.00	-38.95	10.90	Line	-	0.15	9.66	0.54	0.70						



Mode 5



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	150k	49.88	66.00	-16.12	9.86	Neutral	"Worst"	40.02	9.66	0.08	0.12						
AV	150k	32.77	56.00	-23.23	9.86	Neutral	-	22.91	9.66	0.08	0.12						
QP	342k	37.33	59.15	-21.82	9.95	Neutral	-	27.38	9.64	0.08	0.23						
AV	342k	33.91	49.15	-15.24	9.95	Neutral	"Worst"	23.96	9.64	0.08	0.23						
QP	948k	22.98	56.00	-33.02	10.04	Neutral	-	12.94	9.65	0.09	0.30						
AV	948k	13.00	46.00	-33.00	10.04	Neutral	-	2.96	9.65	0.09	0.30						
QP	4.569M	26.88	56.00	-29.12	10.29	Neutral	-	16.59	9.69	0.20	0.40						
AV	4.569M	14.89	46.00	-31.11	10.29	Neutral	-	4.60	9.69	0.20	0.40						
QP	18.939M	19.58	60.00	-40.42	10.89	Neutral	-	8.69	9.82	0.50	0.57						
AV	18.939M	14.94	50.00	-35.06	10.89	Neutral	-	4.05	9.82	0.50	0.57						
QP	24.834M	13.80	60.00	-46.20	11.01	Neutral	-	2.79	9.85	0.54	0.62						
AV	24.834M	10.65	50.00	-39.35	11.01	Neutral	-	-0.36	9.85	0.54	0.62						

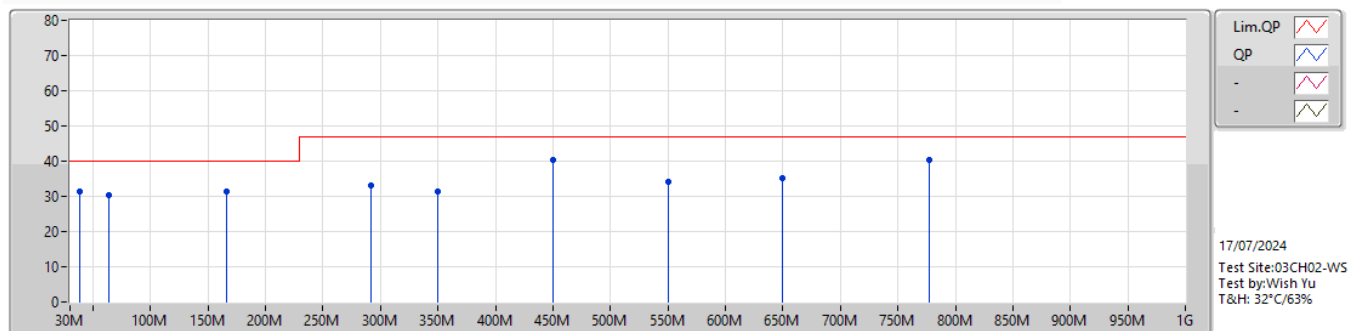


Summary

Mode	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Condition	Azimuth (°)	Height (m)
Mode 1	PK	200.02M	36.31	40.00	-3.69	-11.47	Horizontal	-	-

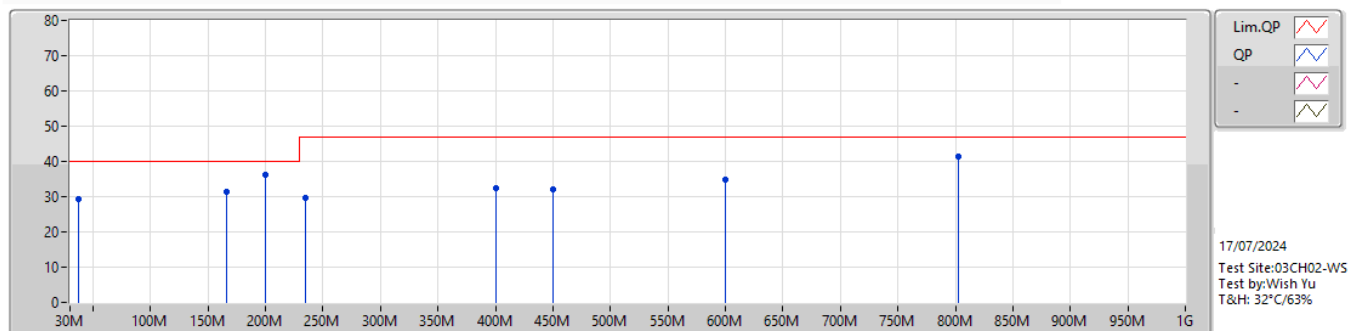


Mode 1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB/m)	CL (dB)	PA (dB)		
PK	38.35M	31.49	40.00	-8.51	-9.48	3	Vertical	-	-	-	40.97	17.87	0.83	28.18		
PK	64.05M	30.49	40.00	-9.51	-9.34	3	Vertical	-	-	-	39.83	17.79	1.06	28.19		
PK	165.97M	31.38	40.00	-8.62	-9.04	3	Vertical	-	-	-	40.42	17.70	1.70	28.44		
PK	292.11M	33.01	47.00	-13.99	-7.55	3	Vertical	-	-	-	40.56	18.34	2.50	28.39		
PK	349.99M	31.47	47.00	-15.53	-6.09	3	Vertical	-	-	-	37.56	19.40	2.83	28.32		
PK	449.99M	40.45	47.00	-6.55	-2.99	3	Vertical	-	-	-	43.44	22.00	3.21	28.20		
PK	550.04M	34.02	47.00	-12.98	-0.85	3	Vertical	-	-	-	34.87	23.50	3.71	28.06		
PK	650.03M	35.16	47.00	-11.84	1.78	3	Vertical	-	-	-	33.38	25.40	4.28	27.90		
PK	777.11M	40.48	47.00	-6.52	4.43	3	Vertical	-	-	"Worst"	36.05	27.34	4.74	27.65		

Mode 1



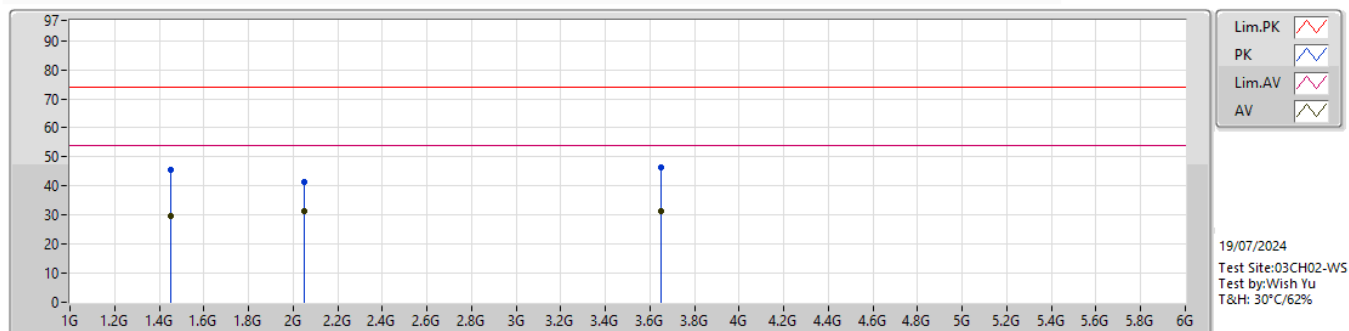
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB/m)	CL (dB)	PA (dB)		
PK	37.57M	29.45	40.00	-10.55	-9.59	3	Horizontal	-	-	-	39.04	17.76	0.83	28.18		
PK	165.92M	31.51	40.00	-8.49	-9.04	3	Horizontal	-	-	-	40.55	17.70	1.70	28.44		
PK	200.02M	36.31	40.00	-3.69	-11.47	3	Horizontal	-	-	"Worst"	47.78	15.10	1.90	28.47		
PK	234.52M	29.78	47.00	-17.22	-10.14	3	Horizontal	-	-	-	39.92	16.23	2.07	28.44		
PK	400.02M	32.33	47.00	-14.67	-4.39	3	Horizontal	-	-	-	36.72	20.70	3.17	28.26		
PK	449.99M	32.12	47.00	-14.88	-2.99	3	Horizontal	-	-	-	35.11	22.00	3.21	28.20		
PK	600.01M	34.79	47.00	-12.21	0.66	3	Horizontal	-	-	-	34.13	24.70	3.95	27.99		
PK	802.31M	41.49	47.00	-5.51	4.61	3	Horizontal	-	-	-	36.88	27.40	4.80	27.59		



Summary

Mode	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Condition	Azimuth (°)	Height (m)
Mode 1	AV	3.649G	32.17	54.00	-21.83	1.91	Horizontal	230	1.00

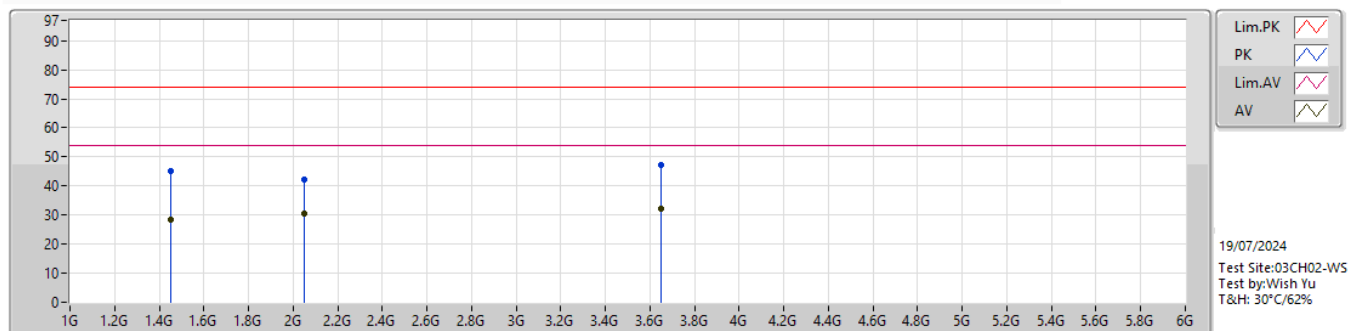
Mode 1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB/m)	CL (dB)	PA (dB)		
PK	1.449G	45.56	74.00	-28.44	-6.16	3	Vertical	280	1.00	-	51.72	25.91	3.31	35.38		
AV	1.449G	29.66	54.00	-24.34	-6.16	3	Vertical	280	1.00	-	35.82	25.91	3.31	35.38		
PK	2.05G	41.38	74.00	-32.62	-3.53	3	Vertical	80	1.00	-	44.91	26.60	4.03	34.16		
AV	2.05G	31.22	54.00	-22.78	-3.53	3	Vertical	80	1.00	-	34.75	26.60	4.03	34.16		
PK	3.649G	46.52	74.00	-27.48	1.91	3	Vertical	170	1.00	"Worst"	44.61	29.40	5.66	33.15		
AV	3.649G	31.47	54.00	-22.53	1.91	3	Vertical	170	1.00	"Worst"	29.56	29.40	5.66	33.15		

Note: The emission levels of the other frequencies were significantly within the prescribed regulatory limits.

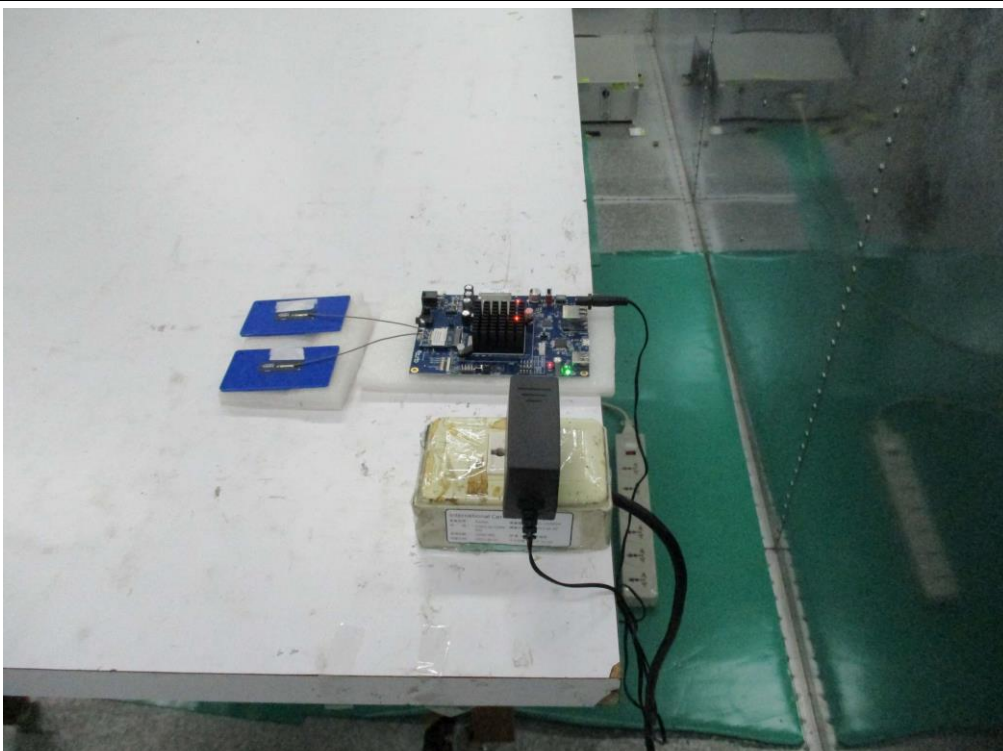
Mode 1



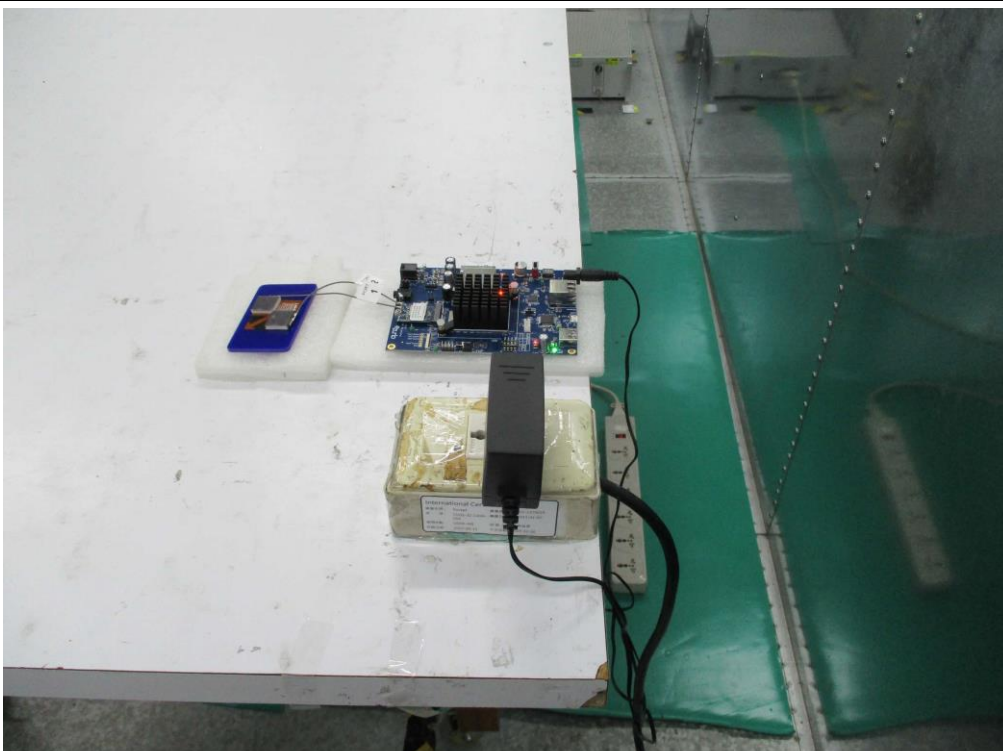
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB/m)	CL (dB)	PA (dB)		
PK	1.45G	45.23	74.00	-28.77	-6.17	3	Horizontal	150	1.20	-	51.40	25.90	3.31	35.38		
AV	1.45G	28.41	54.00	-25.59	-6.17	3	Horizontal	150	1.20	-	34.58	25.90	3.31	35.38		
PK	2.05G	42.18	74.00	-31.82	-3.53	3	Horizontal	30	1.00	-	45.71	26.60	4.03	34.16		
AV	2.05G	30.62	54.00	-23.38	-3.53	3	Horizontal	30	1.00	-	34.15	26.60	4.03	34.16		
PK	3.649G	47.12	74.00	-26.88	1.91	3	Horizontal	230	1.00	"Worst"	45.21	29.40	5.66	33.15		
AV	3.649G	32.17	54.00	-21.83	1.91	3	Horizontal	230	1.00	"Worst"	30.26	29.40	5.66	33.15		

Note: The emission levels of the other frequencies were significantly within the prescribed regulatory limits.

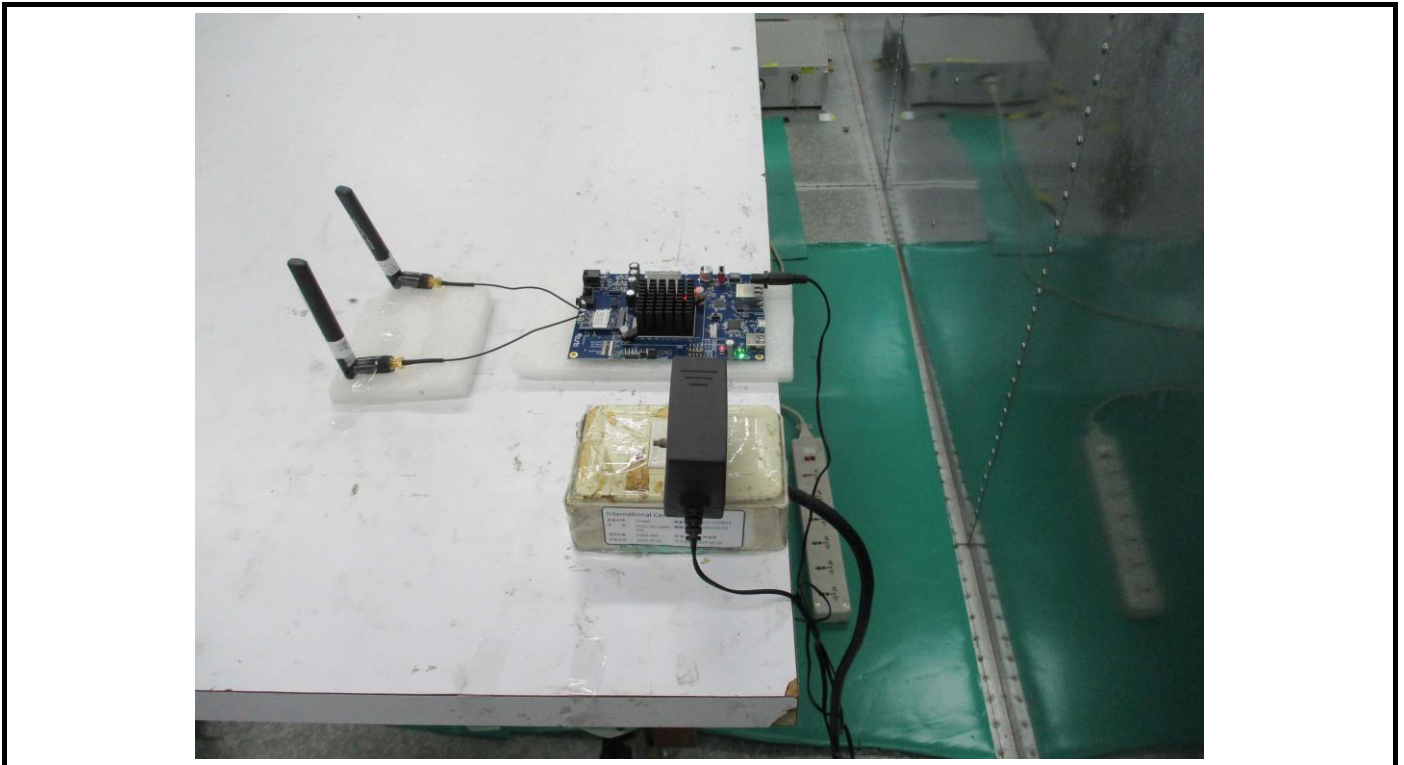
Conducted Emissions from the AC mains power ports (Test Mode 1)



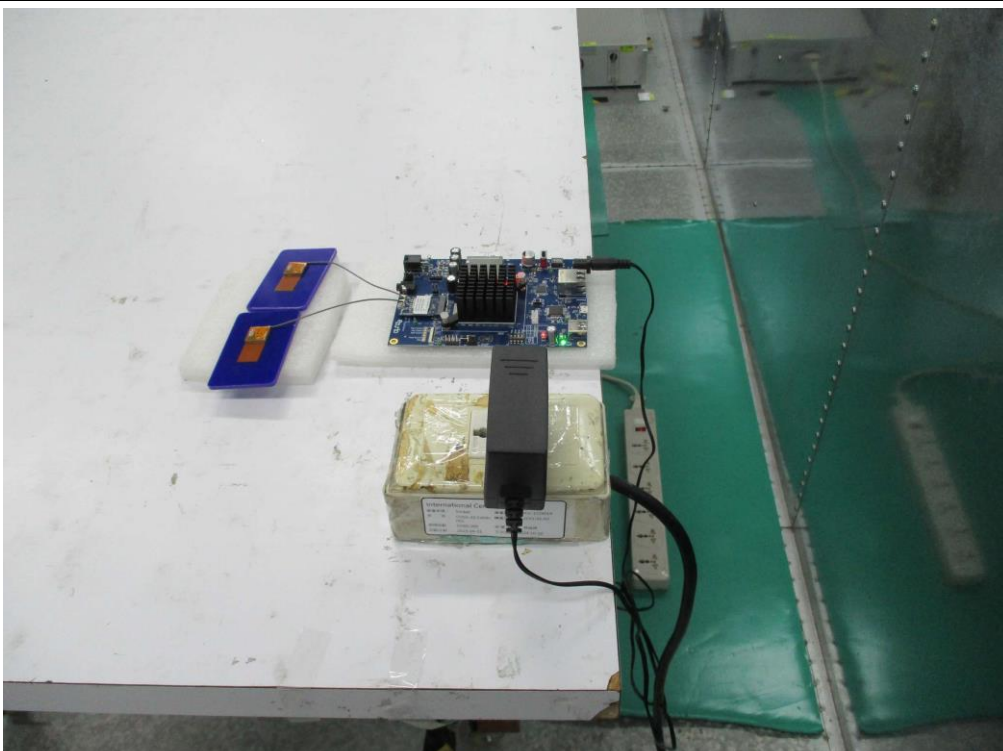
Conducted Emissions from the AC mains power ports (Test Mode 2, 5)



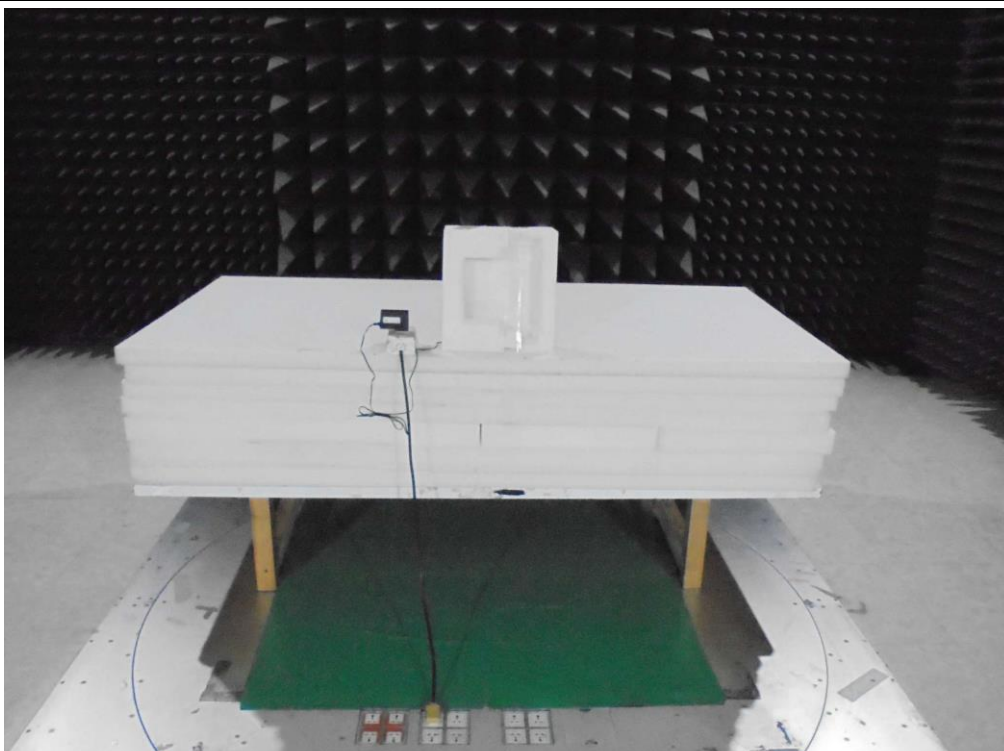
Conducted Emissions from the AC mains power ports (Test Mode 3)



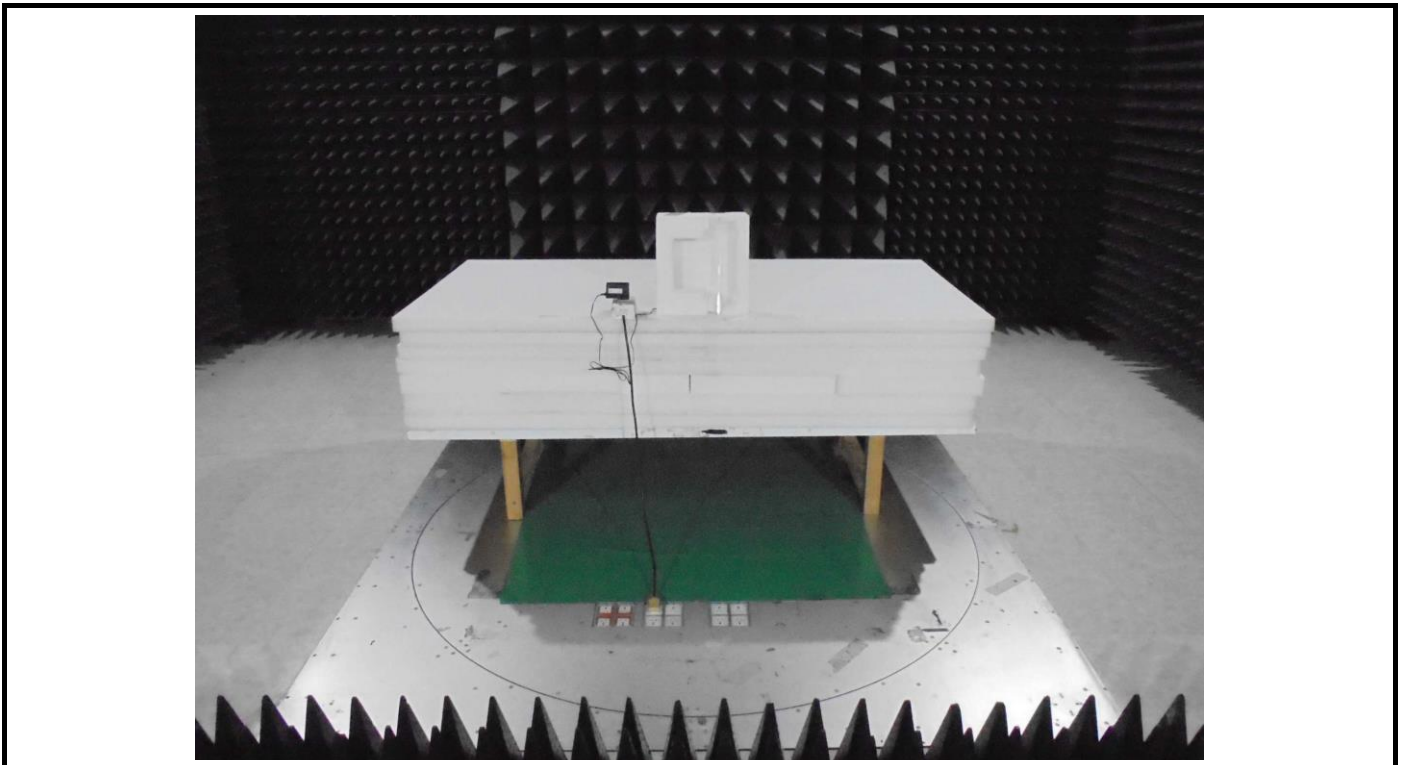
Conducted Emissions from the AC mains power ports (Test Mode 4)



Radiated Emission Below 1GHz Test



Radiated Emission Above 1GHz Test



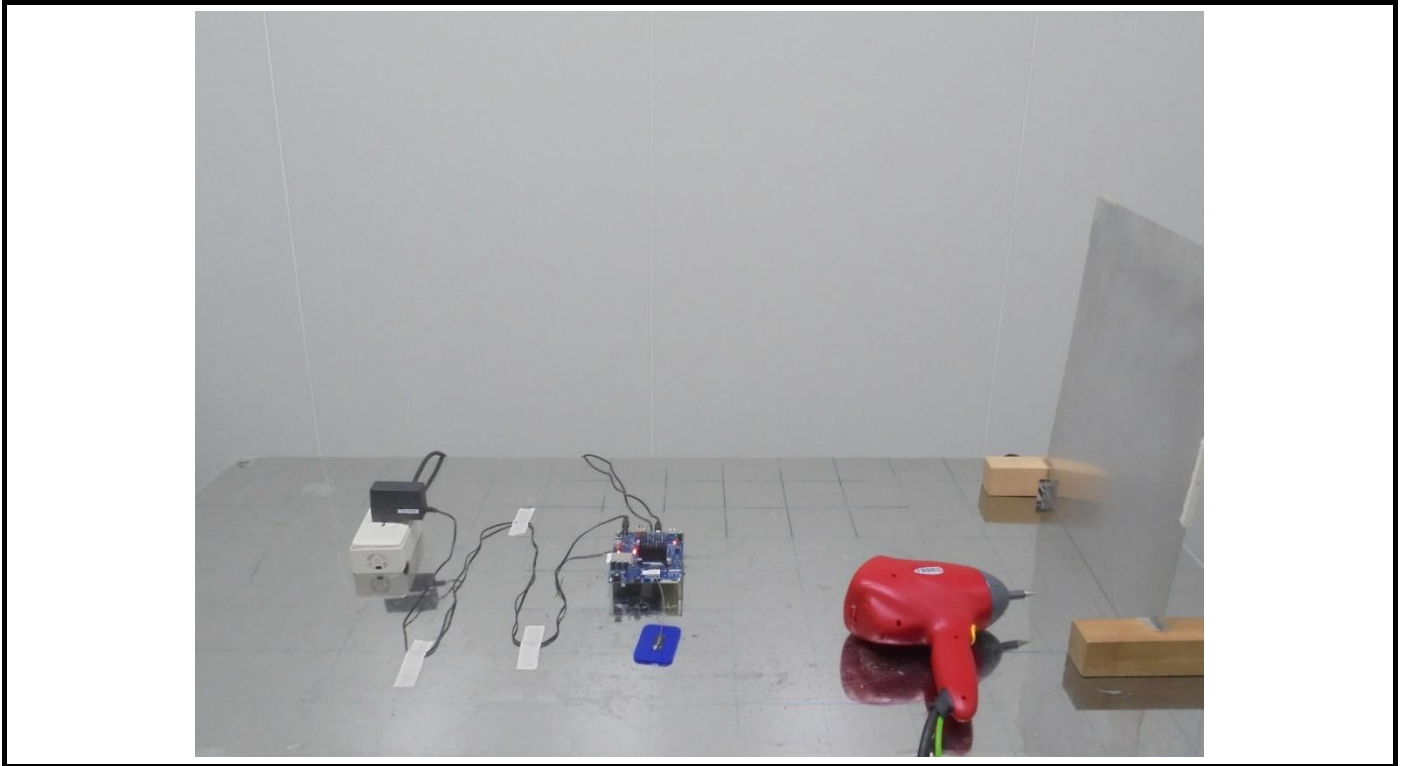
ESD Test (Test Mode 1, 7)



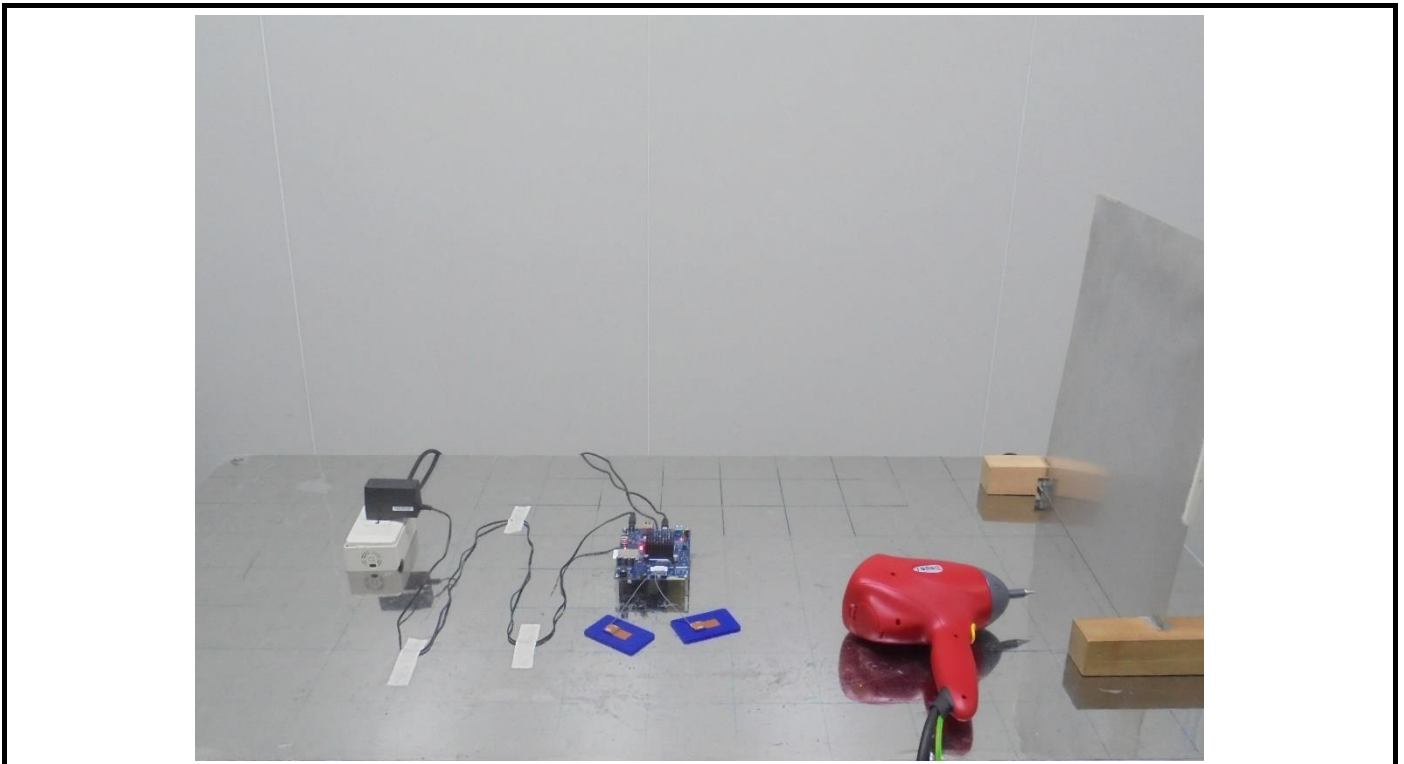
ESD Test (Test Mode 2, 8)



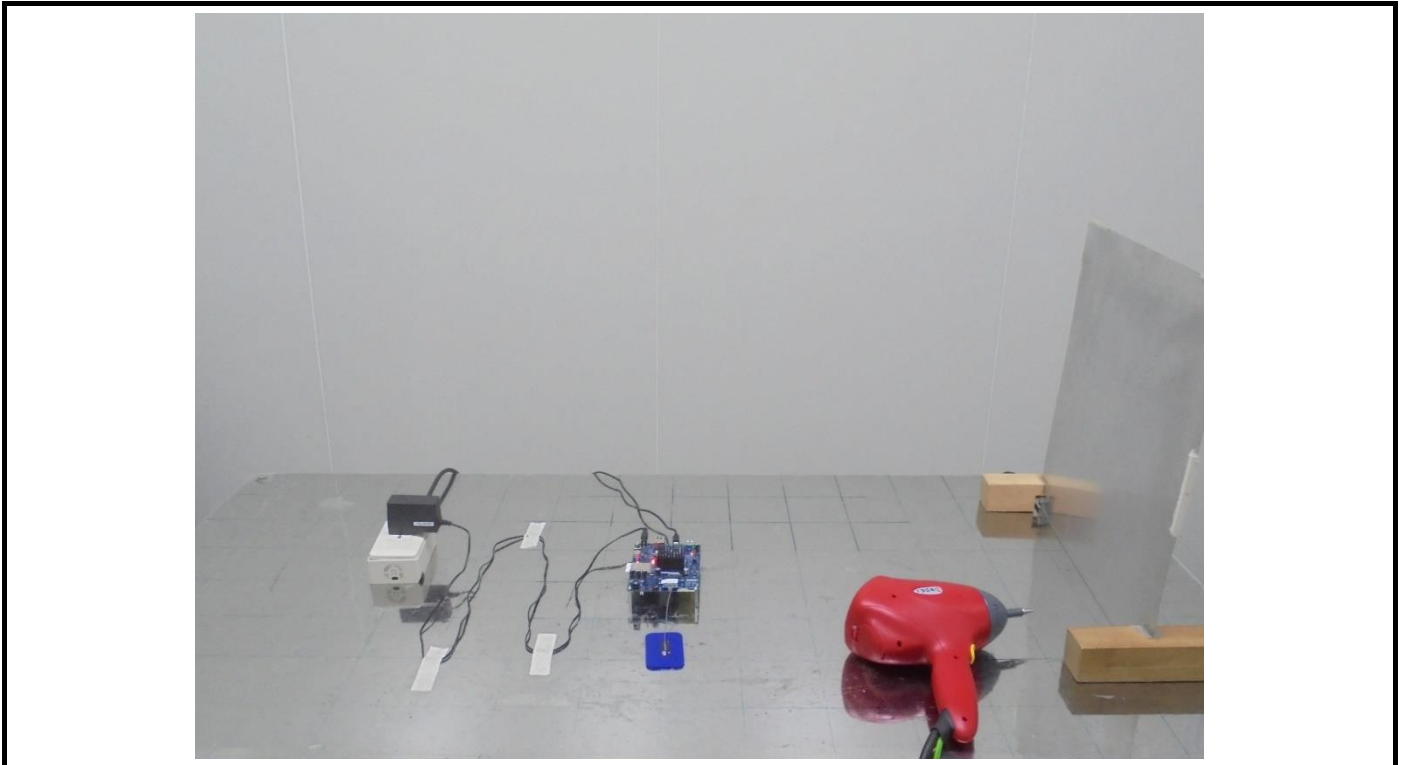
ESD Test (Test Mode 3, 9)



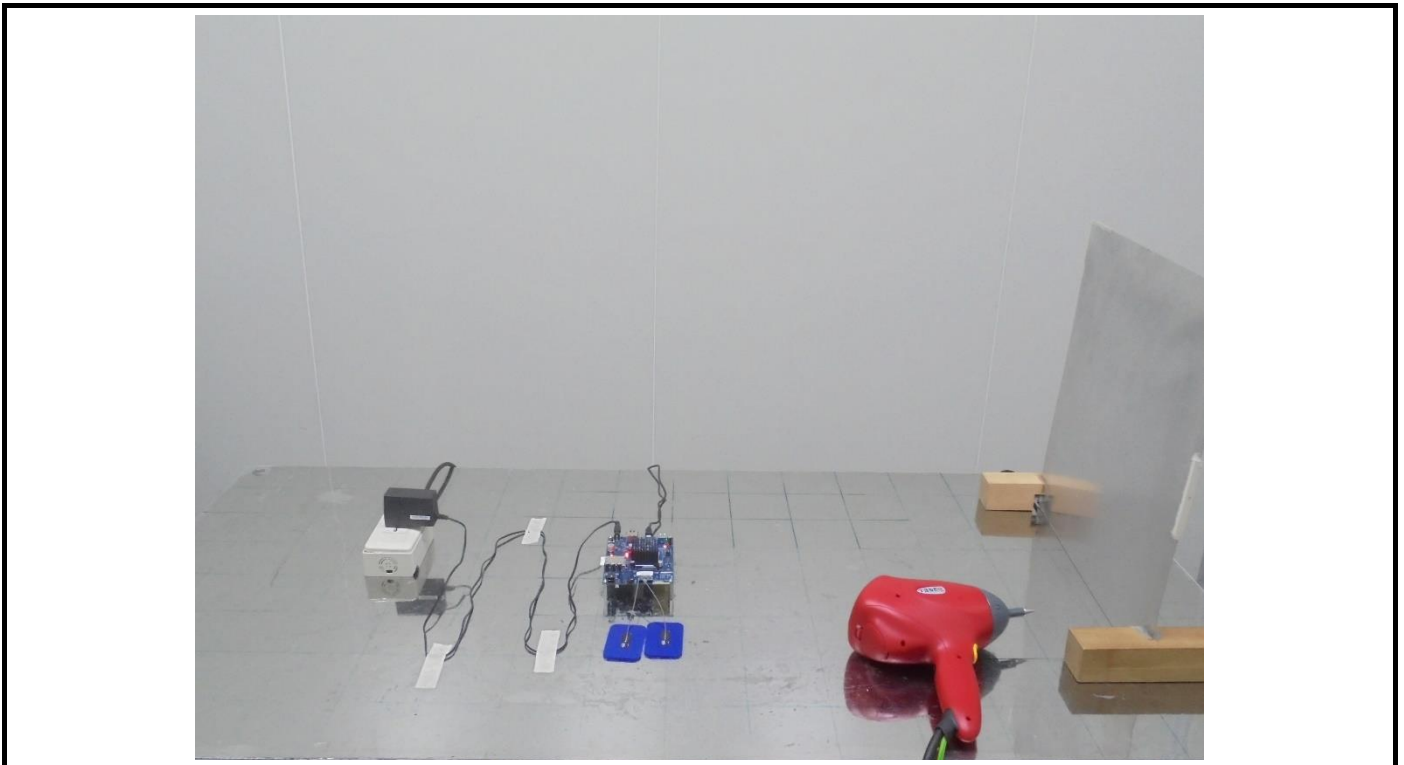
ESD Test (Test Mode 4, 10)



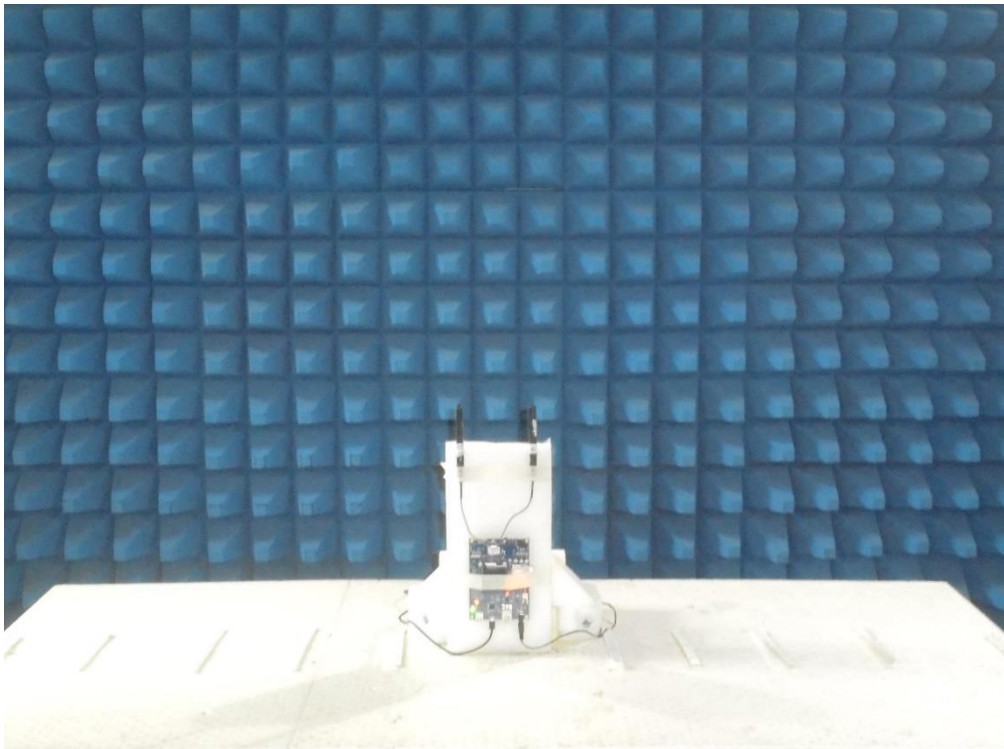
ESD Test (Test Mode 5, 11)



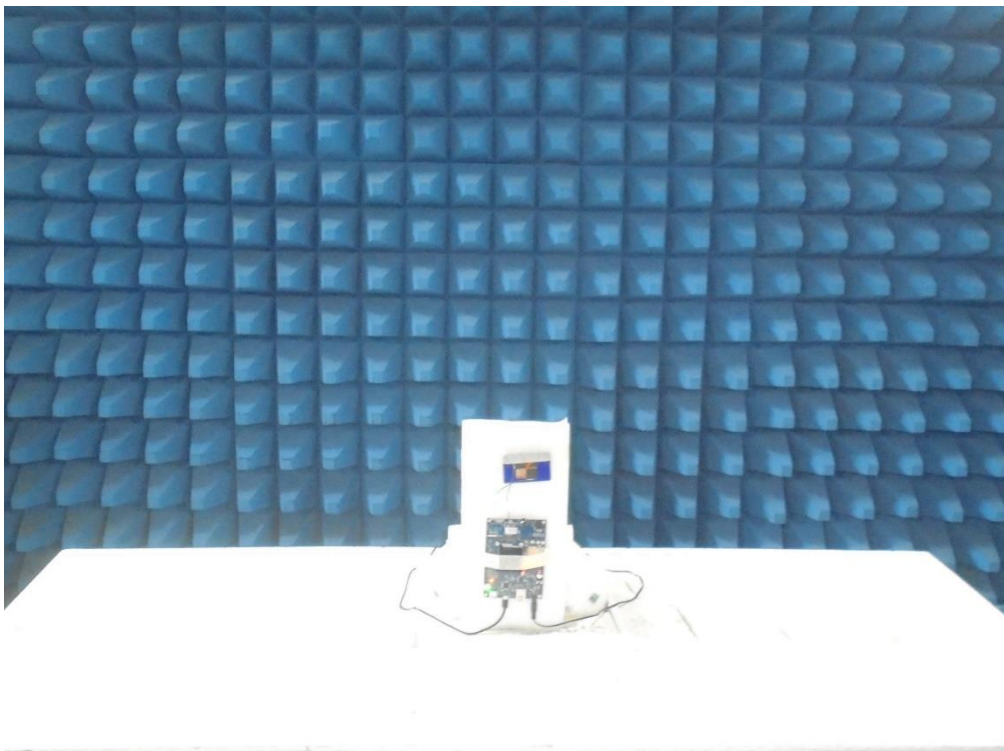
ESD Test (Test Mode 6, 12)



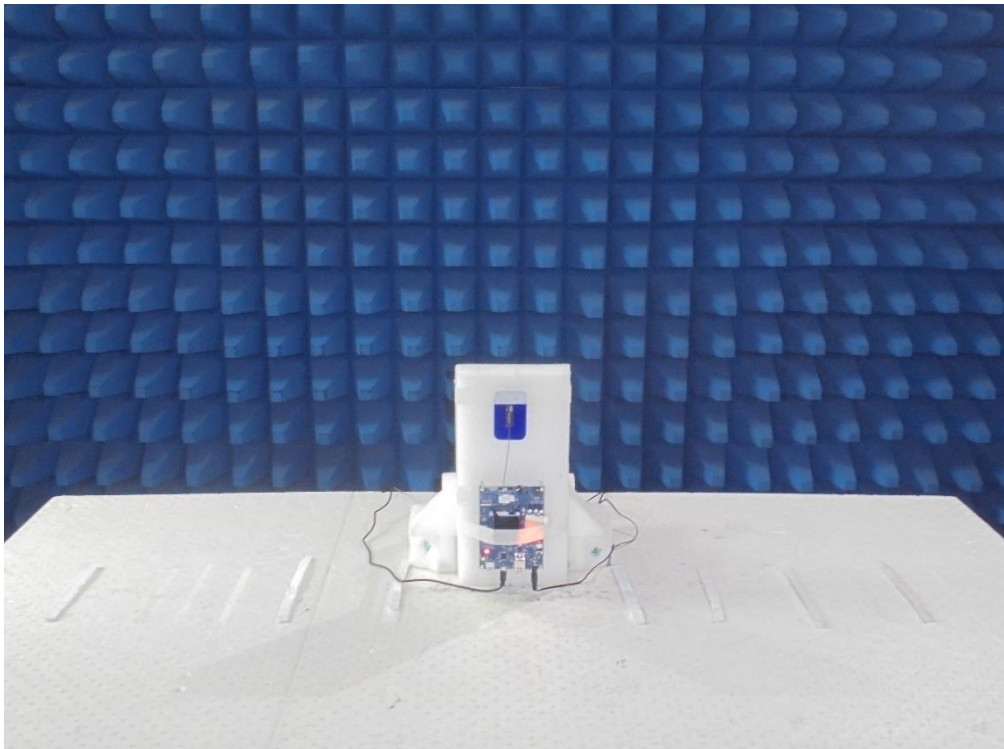
RS Test (Test Mode 1, 7)



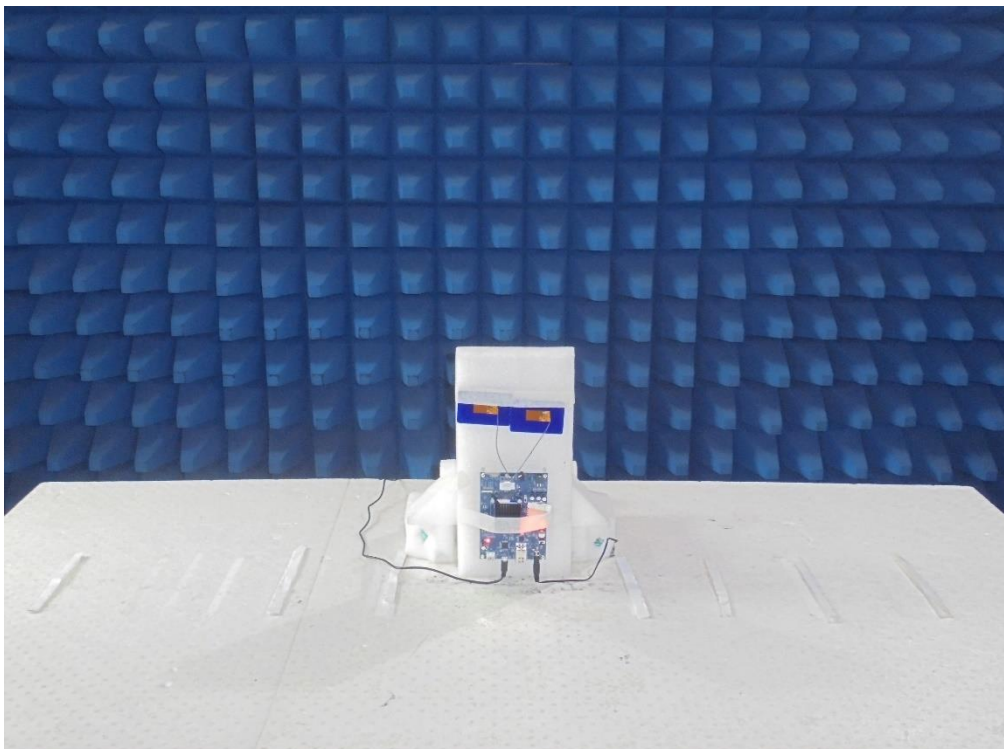
RS Test (Test Mode 2, 8)



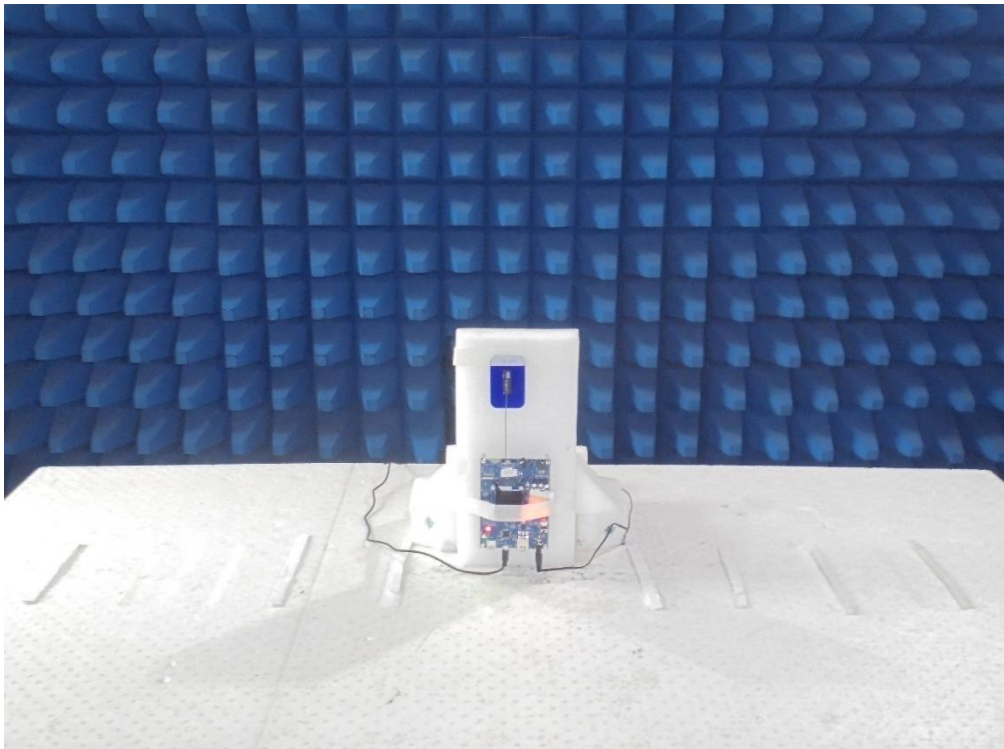
RS Test (Test Mode 3, 9)



RS Test (Test Mode 4, 10)



RS Test (Test Mode 5, 11)



RS Test (Test Mode 6, 12)

