



TEST REPORT

Report Number : TZ0413260501FEM01
Product Name : Two Way Radio
Model/Type reference : HD-2
FCC ID : 2AN62-HD2
Prepared for : SAIN3 LLC
36 Berkley Drive Newark, DE 19702 United States

Prepared By : Shenzhen Tongzhou Testing Co.,Ltd.
1st Floor, Building 1, Haomai High-tech Park, Huating Road 387, Dalang Street,
Longhua, Shenzhen, China
Standards : FCC CFR Title 47 Part 15 Subpart B, ANSI C63.4: 2014
Date of Test : 2026-05-06 ~ 2026-05-08
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(Authorized Officer)



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**** Report Revise Record ****

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	2026-06-09	Valid	Initial release





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1. GENERAL INFORMATION

1.1. Client Information

Applicant	: SAIN3 LLC
Address	: 36 Berkley Drive Newark, DE 19702 United States
Manufacturer	: SAIN3 LLC
Address	: 36 Berkley Drive Newark, DE 19702 United States

1.2. Description of Device (EUT)

Product Name	: Two Way Radio
Trade Mark	: Radioddity
Model Number	: HD-2
Power Supply	: DC 3.7V by battery or DC 5V via USB Type-C port
Hardware version	: Ver 1.0
Software version	: Ver 1.0

1.3. Wireless Function Tested in this Report

Receiver	
Operation Frequency	CH01~CH07: 462.5625~462.7125MHz
	CH08~CH14: 467.5625~467.7125MHz
	CH15~CH22: 462.5500~462.7250MHz
Modulation Technology	: FM
Antenna Type And Gain	: Fixed antenna, 1.5dBi

Note 1: Antenna position refer to EUT Photos.

Note 2: the above information was supplied by the applicant.





1.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

● supplied by the manufacturer

○ supplied by the lab

○	Adapter	Model:	MDY-10-EH
		Input:	Input 100-240VAC 50/60Hz 0.7A
		Output:	Output 5V-3A

1.5. Description of Test Facility

FCC

Designation Number: CN1275

Test Firm Registration Number: 167722

Shenzhen Tongzhou Testing Co.,Ltd has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA

Certificate Number: 5463.01

Shenzhen Tongzhou Testing Co.,Ltd has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

IC

ISED#: 22033

CAB identifier: CN0099

Shenzhen Tongzhou Testing Co.,Ltd has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.4 and CISPR 16-1-4:2010





1.6. Statement of the Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the Shenzhen Tongzhou Testing Co., Ltd’s quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

1.7. Measurement Uncertainty

Test Item		Uncertainty	Note
Radiation Uncertainty(9KHz~30MHz)	:	±3.26dB	(1)
Radiation Uncertainty(30MHz~1000MHz)	:	±3.92dB	(1)
Radiation Uncertainty(1GHz~40GHz)	:	±5.62dB	(1)
Conduction Uncertainty	:	±2.71dB	(1)
Unwanted Emissions, conducted	:	±1.3dB	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1.8. Description of Test Modes

The EUT has been tested under typical operating condition.

Test Item	
EMI	
Mode 1	Charging Mode
Mode 2	Receiver at FRS Band

Measured all modes and recorded worst case (Mode 1).





2. TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

The radiated testing was performed at an antenna-to-EUT distance of 3 meters. All radiated and conducted emissions measurement was performed at Shenzhen Tongzhou Testing Co.,Ltd

2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

2.2. EUT Exercise

The EUT was operated in the engineering mode to fix the RX frequency that was for the purpose of the measurements.

2.3. Test Sample

Sample ID	Description
TZ0413260501-1#	Normal sample





3. SYSTEM TEST CONFIGURATION

3.1. Justification

The system was configured for testing in a continuous receiver condition.

3.2. Special Accessories

No.	Equipment	Manufacturer	Model No.	Serial No.	Length	shielded/ unshielded	Notes
/	/	/	/	/	/	/	/

3.3. Block Diagram/Schematics

Please refer to the related document

3.4. Equipment Modifications

Shenzhen Tongzhou Testing Co.,Ltd has not done any modification on the EUT.

3.5. Test Setup

Please refer to the test setup photo.





4. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Sample ID	Result
§15.107	Conduction Emission	TZ0413260501-1#	Compliant
§15.109	Radiated Emission	TZ0413260501-1#	Compliant





5. TEST RESULT

5.1. Radiated Emissions Measurement

5.1.1. Standard Applicable

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

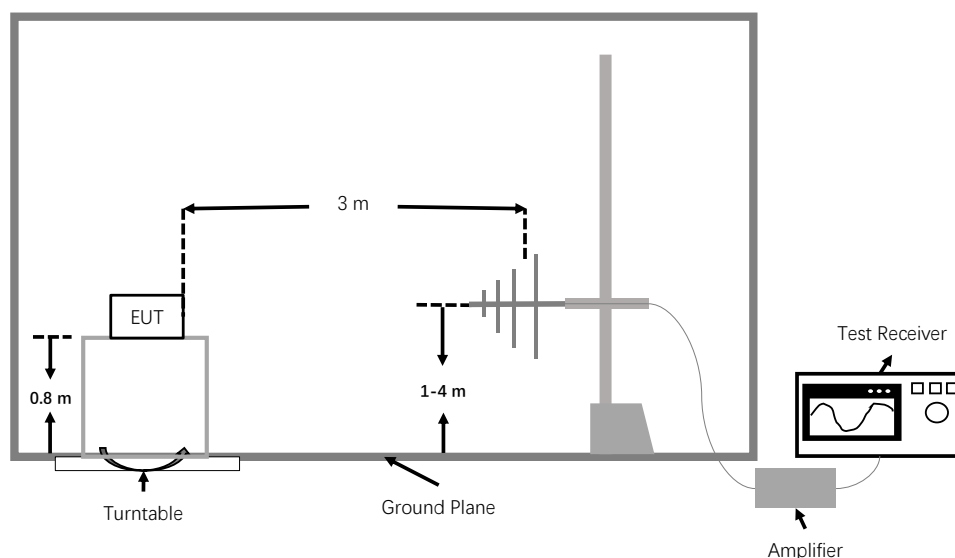
5.1.2. Measuring Instruments and Setting

The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	5 th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 3 MHz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz for Peak, 1 MHz / 3 MHz for Average

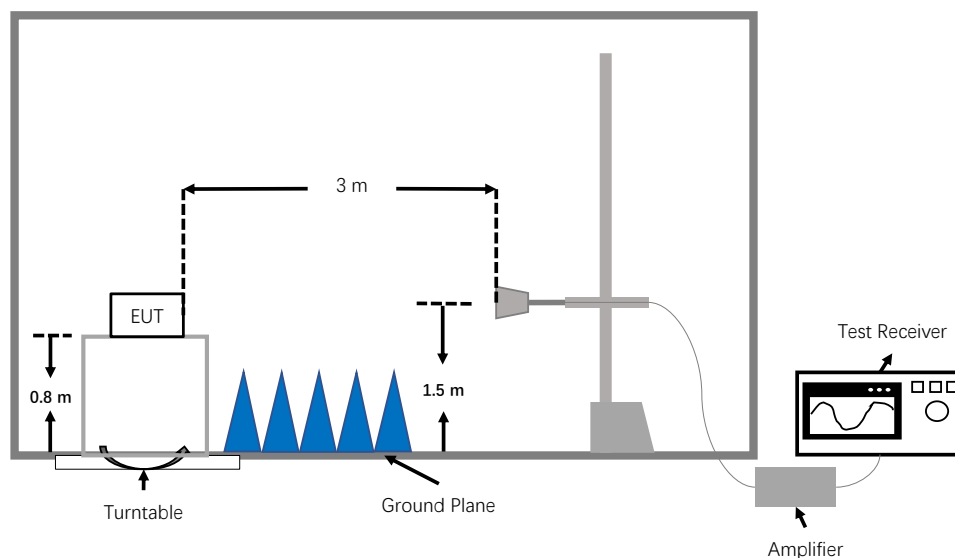
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB/VB 200Hz/1KHz for QP/AVG
Start ~ Stop Frequency	150kHz~30MHz / RB/VB 9kHz/30KHz for QP/AVG
Start ~ Stop Frequency	30MHz~1000MHz / RB/VB 120kHz/1MHz for QP

5.1.3. Block Diagram of Test Setup



Radiated Emission Test Set-Up, Frequency below 1000MHz





Radiated Emission Test Set-Up, Frequency above 1000MHz

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	





5.1.4. Test Procedures

1) Sequence of testing 30 MHz to 1 GHz

Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 3 meter.
- The EUT was set into operation.

Premeasurement:

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna is polarized vertical and horizontal.
- The antenna height changes from 1 to 3 meter.
- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

- The final measurement will be performed with minimum the six highest peaks.
- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position ($\pm 45^\circ$) and antenna movement between 1 and 4 meter.
- The final measurement will be done with QP detector with an EMI receiver.
- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

2) Sequence of testing 1 GHz to 40 GHz

Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 3 meter.
- The EUT was set into operation.

Premeasurement:

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna is polarized vertical and horizontal.
- The antenna height scan range is 1 meter to 2.5 meter.
- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

- The final measurement will be performed with minimum the six highest peaks.
- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position ($\pm 45^\circ$) and antenna movement between 1 and 4 meters. This procedure is repeated for both antenna polarizations.
- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.





5.1.5. EUT Operation during Test

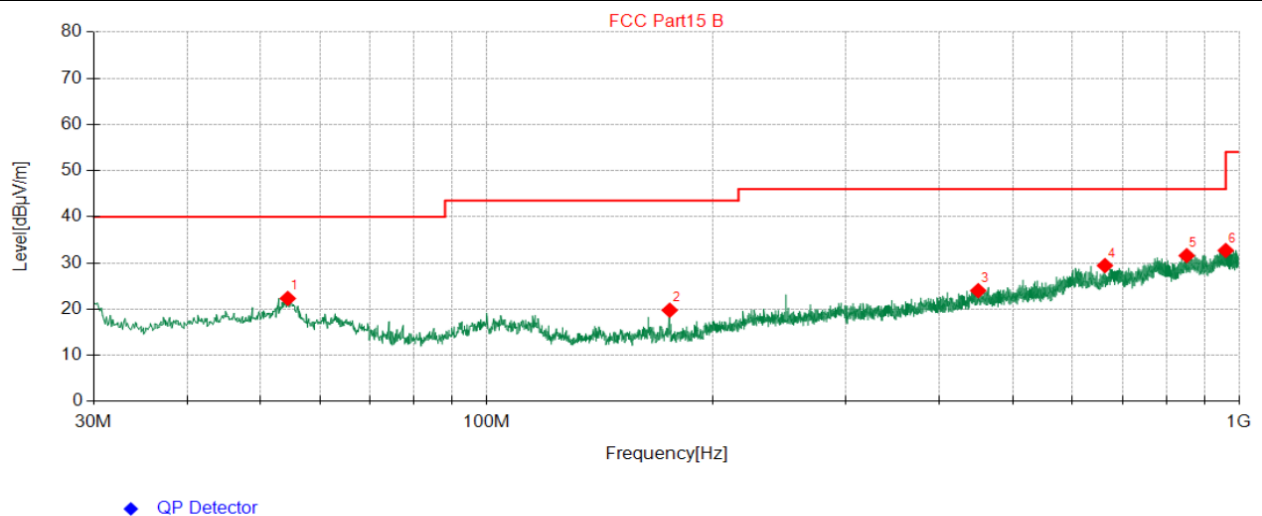
The EUT was programmed to be in continuously receiving mode.

5.1.6. Test Results

Results of Radiated Emissions (30MHz~1GHz)

Temperature	22.5℃	Humidity	56%
Test Engineer	Tony Luo	Configurations	Mode 1
Test Voltage	AC 120V/60Hz	/	/

Vertical



Suspected Data List

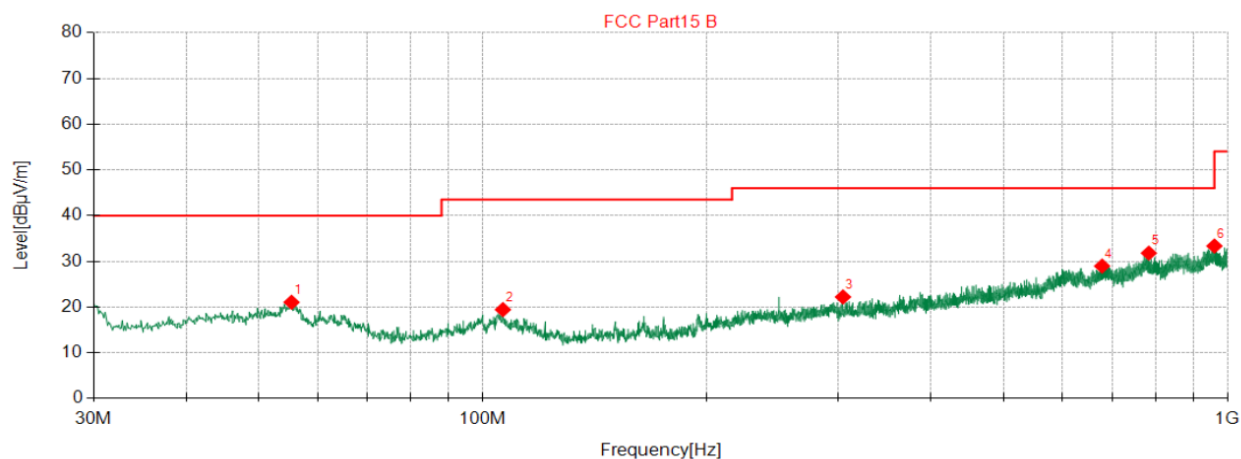
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	54.37	7.59	14.72	22.31	40.00	17.69	100	323	Vertical
2	175.0	8.53	11.24	19.77	43.50	23.73	100	293	Vertical
3	450.0	4.31	19.68	23.99	46.00	22.01	100	185	Vertical
4	663.2	6.31	23.12	29.43	46.00	16.57	100	305	Vertical
5	851.8	5.34	26.24	31.58	46.00	14.42	100	96	Vertical
6	960.1	5.15	27.54	32.69	54.00	21.31	100	351	Vertical

***Note:

1. Level [dBμV/m] = Reading [dBμV] + Factor [dB]

2. Margin [dB] = Limit [dBμV/m] - Level [dBμV/m]



**Horizontal**

◆ QP Detector

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/ m]	Limit [dBμV/ m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	55.34	6.55	14.49	21.04	40.00	18.96	100	209	Horizontal
2	106.3	6.74	12.69	19.43	43.50	24.07	100	221	Horizontal
3	304.5	6.05	16.16	22.21	46.00	23.79	100	15	Horizontal
4	678.4	5.00	23.96	28.96	46.00	17.04	100	18	Horizontal
5	784.0	6.47	25.33	31.80	46.00	14.20	100	92	Horizontal
6	960.2	5.82	27.53	33.35	54.00	20.65	100	39	Horizontal

***Note:

1. Level [dBμV/m] = Reading [dBμV] + Factor [dB/m]

2. Margin [dB] = Limit [dBμV/m] - Level [dBμV/m]

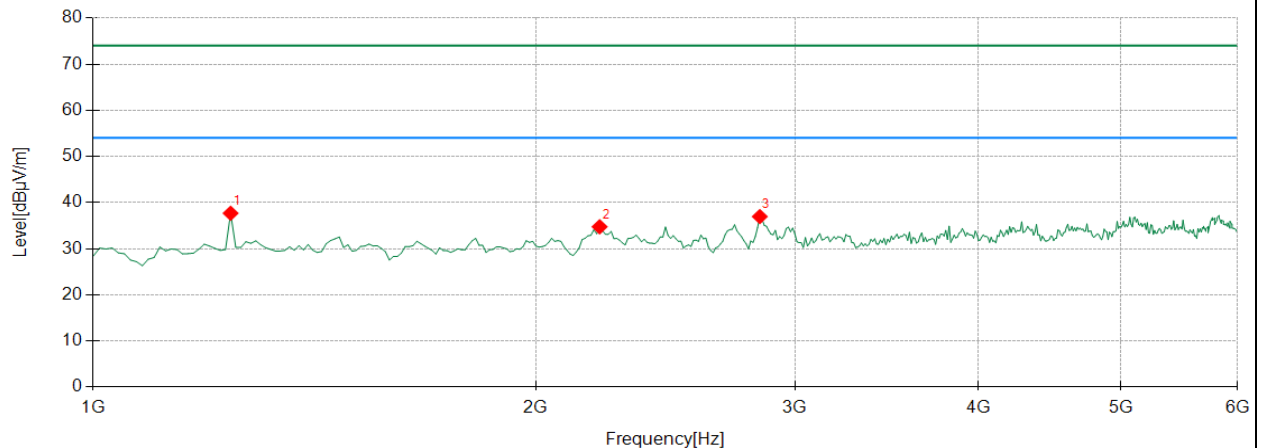




Results for Radiated Emissions (1GHz to 6GHz)

Temperature	24℃	Humidity	55.2%
Test Engineer	Tony Luo	Configurations	Mode 1
Test Voltage	AC 120V/60Hz	/	/

Vertical



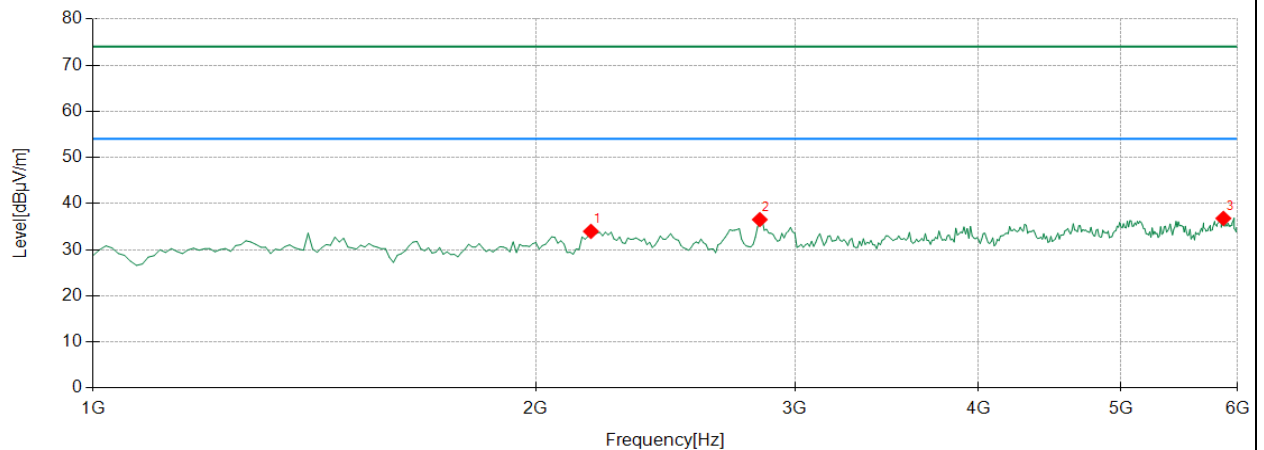
◆ PK Detector ◆ AV Detector

NO.	Freq. [MHz]	Level [dBμV/m]	Reading [dBμV]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1240	52.57	-14.89	37.68	74.00	36.32	100	200	Vertical
2	2210	45.76	-11.01	34.75	74.00	39.25	100	340	Vertical
3	2840	47.41	-10.46	36.95	74.00	37.05	100	40	Vertical

***Note:

1. Level [dBμV/m] = Reading [dBμV] + Factor [dB/m]
2. Margin [dB] = Limit [dBμV/m] - Level [dBμV/m]
3. Since the peak emission levels are below the average limits, the average emission measurements are not required.



**Horizontal**

◆ PK Detector ◆ AV Detector

NO.	Freq. [MHz]	Level [dBμV/m]	Reading [dBμV]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2180	45.85	-11.89	33.96	74.00	40.04	100	240	Horizontal
2	2840	46.98	-10.46	36.52	74.00	37.48	100	240	Horizontal
3	5870	40.55	-3.77	36.78	74.00	37.22	100	230	Horizontal

*****Note:**

1. Level [dBμV/m] = Reading [dBμV] + Factor [dB/m]
2. Margin [dB] = Limit [dBμV/m] - Level [dBμV/m]
3. Since the peak emission levels are below the average limits, the average emission measurements are not required.





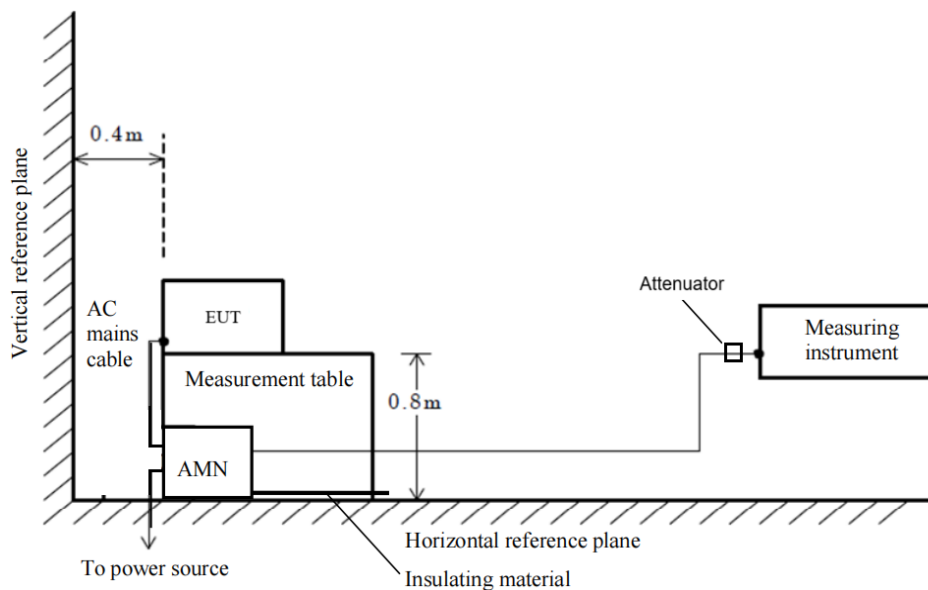
5.2. AC Power line conducted emissions

5.2.1. Standard Applicable

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

* Decreasing linearly with the logarithm of the frequency

5.2.2. Block Diagram of Test Setup



Note: the distance between LISN and Vertical reference plane is 40 cm and the distance between LISN and EUT is 80 cm.

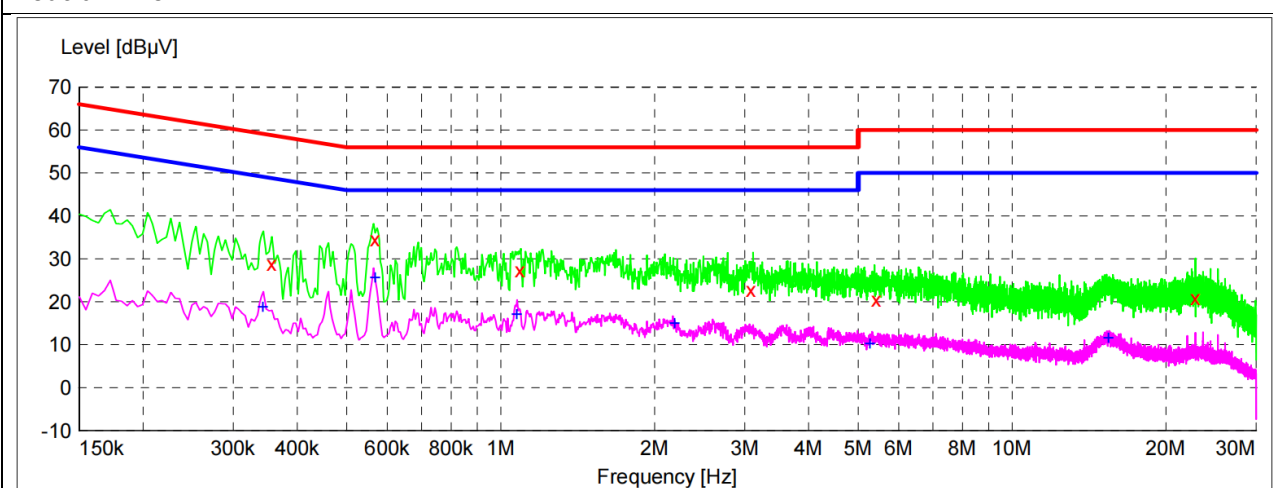
5.2.3. Test Results

Temperature	22.5°C	Humidity	56%
Test Engineer	Allen Lai	Configurations	Mode 1
Test Voltage	AC 120V/60Hz	/	/

PASS

The test data please refer to following page.



**Neutral Line**

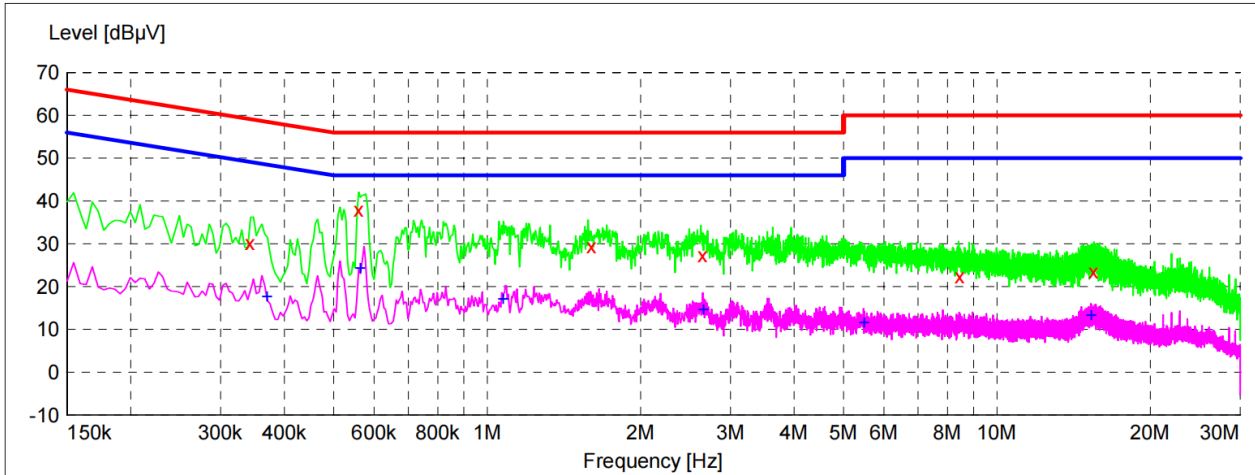
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.357000	28.80	9.7	59	30.0	QP	N	GND
0.568500	34.60	9.6	56	21.4	QP	N	GND
1.090500	27.40	9.7	56	28.6	QP	N	GND
3.093000	22.70	9.7	56	33.3	QP	N	GND
5.428500	20.50	9.7	60	39.5	QP	N	GND
22.825500	20.80	9.8	60	39.2	QP	N	GND

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.343500	18.80	9.7	49	30.3	AV	N	GND
0.568500	25.70	9.6	46	20.3	AV	N	GND
1.077000	17.00	9.7	46	29.0	AV	N	GND
2.188500	15.00	9.7	46	31.0	AV	N	GND
5.280000	10.30	9.7	50	39.7	AV	N	GND
15.468000	11.50	9.8	50	38.5	AV	N	GND

Note:

1. $\text{Margin(dB)} = \text{Limit(dB}\mu\text{V)} - \text{Level(dB}\mu\text{V)}$
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 9 kHz (150 kHz—30 MHz), Step size: 4 kHz, Scan time: auto.



**Live Line**

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.343500	30.10	9.7	59	29.0	QP	L1	GND
0.559500	37.90	9.6	56	18.1	QP	L1	GND
1.603500	29.40	9.7	56	26.6	QP	L1	GND
2.647500	27.40	9.7	56	28.6	QP	L1	GND
8.452500	22.40	9.7	60	37.6	QP	L1	GND
15.517500	23.60	9.8	60	36.4	QP	L1	GND
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.370500	17.60	9.7	49	30.9	AV	L1	GND
0.564000	24.30	9.6	46	21.7	AV	L1	GND
1.077000	17.00	9.7	46	29.0	AV	L1	GND
2.661000	14.60	9.7	46	31.4	AV	L1	GND
5.500500	11.60	9.7	50	38.4	AV	L1	GND
15.328500	13.30	9.8	50	36.7	AV	L1	GND

Note:

1. $\text{Margin(dB)} = \text{Limit(dB}\mu\text{V)} - \text{Level(dB}\mu\text{V)}$
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 9 kHz (150 kHz—30 MHz), Step size: 4 kHz, Scan time: auto.





6. LIST OF MEASURING EQUIPMENT

Conducted emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI-7	100849/003	2026-01-11	2027-01-10
2	Artificial Mains	ROHDE & SCHWARZ	ENV 216	101333-IP	2026-01-11	2027-01-10
3	EMI Test Software	ROHDE & SCHWARZ	ESK1	V1.71	N/A	N/A

Radiated emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due
1	Test Receiver	R&S	ESCI-7	100849/003	2026-01-11	2027-01-10
2	wideband Antenna	Schwarzbeck	VULB 9163	958	2025-10-18	2028-10-17
3	Horn Antenna	Schwarzbeck	BBHA 9120D	01989	2025-10-18	2028-10-17
4	Amplifier	Schwarzbeck	BBV 9743	209	2026-01-11	2027-01-10
5	Amplifier	Tonscend	TSAMP-0518SE	--	2026-01-11	2027-01-10
6	Spectrum Analyzer	R&S	FSV40	101321	2026-01-11	2027-01-10
7	Postional Controller	MF	MF7802	--	--	--
8	RE test software	Tonscend	JS32-RE	V5.0.0.0	--	--





7. TEST SETUP PHOTOGRAPHS OF EUT

Please refer to separated files for Test Setup Photos of the EUT.

8. EXTERIOR PHOTOGRAPHS OF EUT

Please refer to separated files for External Photos of the EUT.

9. INTERIOR PHOTOGRAPHS OF EUT

Please refer to separated files for Internal Photos of the EUT.

-----THE END OF REPORT-----

