



Co-location Report

FCC ID: 2BMDV-WAW1
Application: Shenzhen Aiper Intelligent Co., Ltd.
Product: SMART IRRIGATION
Model No.: WAW1
Brand Name: Aiper
FCC Rule Part(s): Part 15 Subpart C (Section 15.247)
Result: Complies
Received Date: 2025-02-14
Test Date: 2025-03-30

Reviewed By:

Denise Zhou

Approved By:

Robin Wu



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.26-2015. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
R25S1034028-U203	V01	Initial Report	2025-04-09	Valid

CONTENTS

Description	Page
1. General Information	4
1.1. Applicant	4
1.2. Manufacturer	4
1.3. Testing Facility	5
1.4. Product Information.....	6
2. Test Configuration	7
2.1. Test Mode.....	7
2.2. Test System Connection Diagram.....	7
2.3. Applied Standards.....	7
2.4. Test Environment Condition	7
3. Measuring Instrument	8
4. Decision Rules and Measurement Uncertainty.....	9
4.1. Decision Rules	9
4.2. Measurement Uncertainty.....	9
5. Radiated Spurious Emissions Measurement (Co-location)	10
5.1. Test Limit	10
5.2. Test Procedure	10
5.3. Test Setting	10
5.4. Test Setup	12
5.5. Test Result	14
Appendix A - Test Setup Photograph.....	17
Appendix B - EUT Photograph	18

1. General Information

1.1. Applicant

Shenzhen Aiper Intelligent Co., Ltd.

Units 3201, 3203A and 3205, 32nd Floor, Block C, Minle Community, Minzhi Street, Longhua District,
Shenzhen China

1.2. Manufacturer

Shenzhen Aiper Intelligent Co., Ltd.

Units 3201, 3203A and 3205, 32nd Floor, Block C, Minle Community, Minzhi Street, Longhua District,
Shenzhen China

1.3. Testing Facility

☒	Test Site – MRT Suzhou Laboratory				
	Laboratory Location (Suzhou - Wuzhong)				
	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China				
	Laboratory Location (Suzhou - SIP)				
	4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China				
	Laboratory Location (Suzhou - Wujiang)				
	Building 1, No.1 Xingdong Road, Wujiang, Suzhou, Jiangsu, People's Republic of China				
☐	Laboratory Accreditations				
	A2LA: 3628.01		CNAS: L10551		
	FCC: CN1166		ISED: CN0001		
	VCCI:	☐ R-20025	☐ G-20034	☐ C-20020	☐ T-20020
		☐ R-20141	☐ G-20134	☐ C-20103	☐ T-20104
☐	Test Site – MRT Shenzhen Laboratory				
	Laboratory Location (Shenzhen)				
	1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China				
	Laboratory Accreditations				
	A2LA: 3628.02		CNAS: L10551		
FCC: CN1284		ISED: CN0105			
☐	Test Site – MRT Taiwan Laboratory				
	Laboratory Location (Taiwan)				
	No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)				
	Laboratory Accreditations				
	TAF: 3261				
FCC: 291082, TW3261		ISED: TW3261			

1.4. Product Information

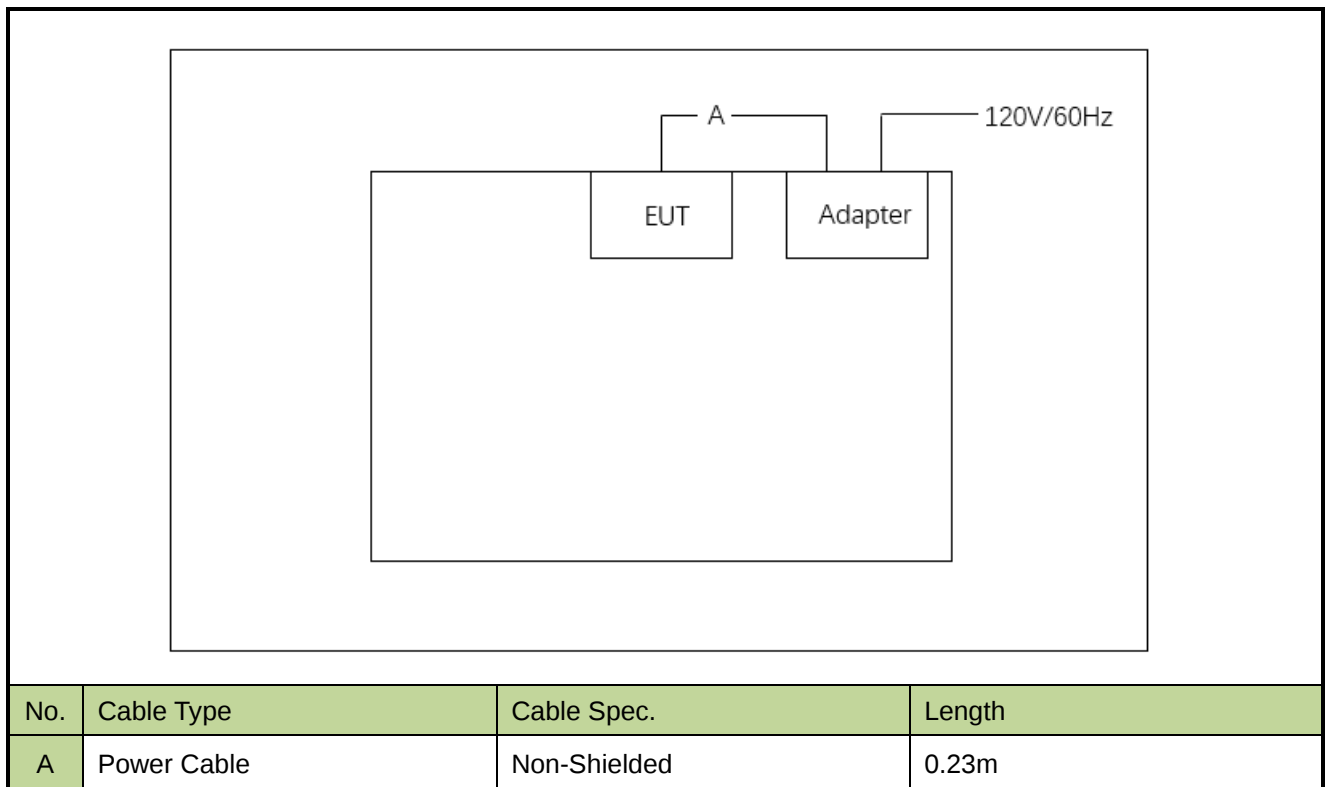
Product Name	SMART IRRIGATION
Model No.	WAW1
EUT Identification No.	20250318Sample#02
Wi-Fi Specification	802.11b/g/n
Bluetooth Specification	BLE only
Operating Temp.	0~40 °C
Power Type	AC Adapter Input
Accessories	
AC Adapter	Model: GC44-210180-1DG Input: 120V ~ 50-60Hz, 1.5A Output: 21.0V, 1.8A, 37.8W
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

2. Test Configuration

2.1. Test Mode

Mode 1: Transmit by 802.11b at 2462MHz + Transmit by BLE 2Mbps at 2440MHz

2.2. Test System Connection Diagram



2.3. Applied Standards

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

- FCC Part 15 Subpart C §15.247
- KDB 558074 D01v05r02
- ANSI C63.10-2013

2.4. Test Environment Condition

Ambient Temperature	15 ~ 35°C
Relative Humidity	20% ~ 75%RH

3. Measuring Instrument

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
Active Loop Antenna	Schwarzbeck	FMZB 1519-60 D	MRTSUE07076	1 year	2025-11-19	WJ-AC2
EXA Signal Analyzer	Keysight	N9010B	MRTSUE07147	1 year	2025-04-28	WJ-AC2
TRILOG Broad Band Antenna	Schwarzbeck	VULB 9163	MRTSUE07097	1 year	2025-04-24	WJ-AC2
Preamplifier	EMCI	EMC118A45SE	MRTSUE07102	1 year	2025-04-11	WJ-AC2
Preamplifier	EMCI	EMC184045SE	MRTSUE07103	1 year	2025-04-14	WJ-AC2
Horn Antenna	RFSPIN	DRH18-E	MRTSUE07105	1 year	2025-05-12	WJ-AC2
Anechoic Chamber	TDK	WJ-AC2	MRTSUE07117	1 year	2025-05-14	WJ-AC2
Thermohygrometer	testo	608-H1	MRTSUE11315	1 year	2025-06-24	WJ-AC2
Thermohygrometer	testo	608-H1	MRTSUE11332	1 year	2025-06-24	WJ-AC2
Broadband Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE07100	1 year	2025-04-24	WJ-AC2
EMI Test Receiver	R&S	ESR3	MRTSUE07111	1 year	2025-04-18	WJ-AC2

Software	Version	Function
e3	230711	RE & CE
CONTROLLER CO3000	v 1.03.02	RE Antenna & Turntable

4. Decision Rules and Measurement Uncertainty

4.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2.
(Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

4.2. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Radiated Spurious Emissions

The maximum measurement uncertainty is evaluated as:

Coaxial: 9kHz~30MHz: 2.35dB

Coplanar: 9kHz~30MHz: 2.37dB

Horizontal: 30MHz~200MHz: 3.47dB

200MHz~1GHz: 4.17dB

1GHz~40GHz: 4.97dB

Vertical: 30MHz~200MHz: 4.07dB

200MHz~1GHz: 5.28dB

1GHz~40GHz: 4.84dB

5. Radiated Spurious Emissions Measurement (Co-location)

5.1. Test Limit

For 15.247(d) requirement

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [μV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

5.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.11 & 11.12

ANSI C63.10 - 2013 - Section 6.3 (General Requirements)

ANSI C63.10 - 2013 - Section 6.4 (Standard test method below 30MHz)

ANSI C63.10 - 2013 - Section 6.5 (Standard test method above 30MHz to 1GHz)

ANSI C63.10 - 2013 - Section 6.6 (Standard test method above 1GHz)

5.3. Test Setting

Table 1 - RBW as a function of frequency

Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000MHz	1MHz

Quasi-Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = as specified in Table 1
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Peak Measurements above 1GHz

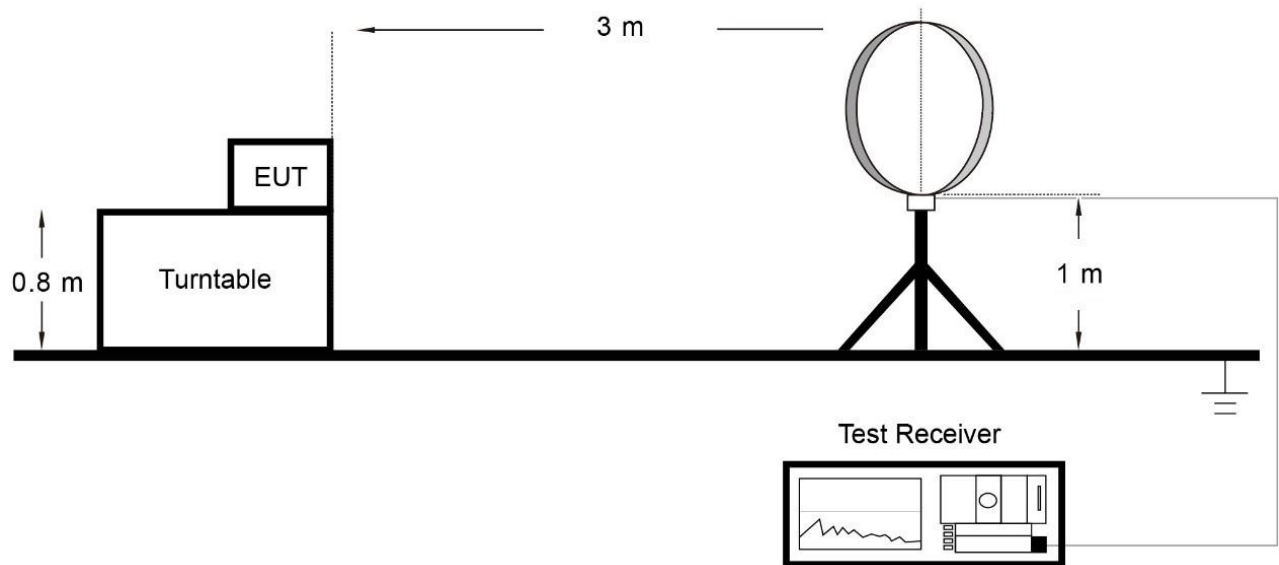
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = Peak
5. Sweep time = Auto couple
6. Trace mode = Max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz (Method VB)

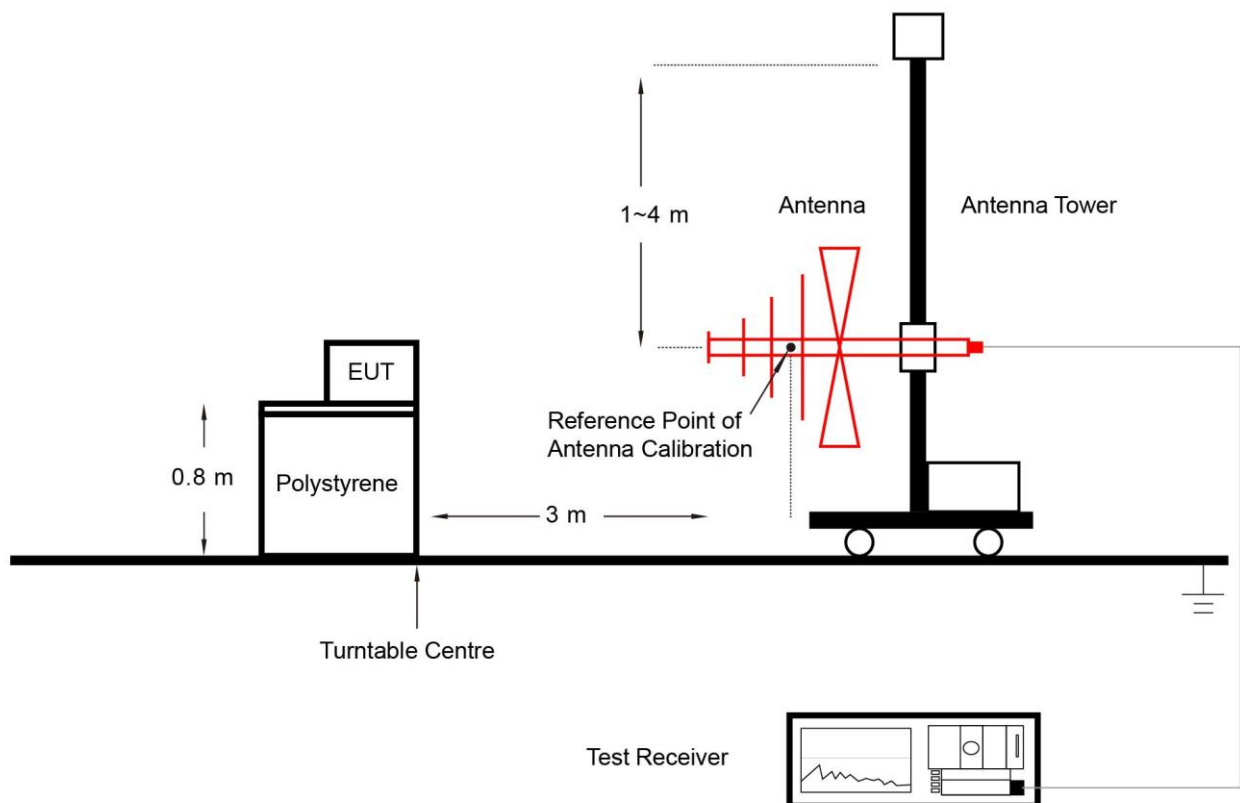
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; if the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10Hz
If the EUT duty cycle is $< 98\%$, set $VBW \geq 1/T$. T is the minimum transmission duration.
4. As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode
5. Detector = Peak
6. Sweep time = Auto
7. Trace mode = Max hold
8. Trace was allowed to stabilize

5.4. Test Setup

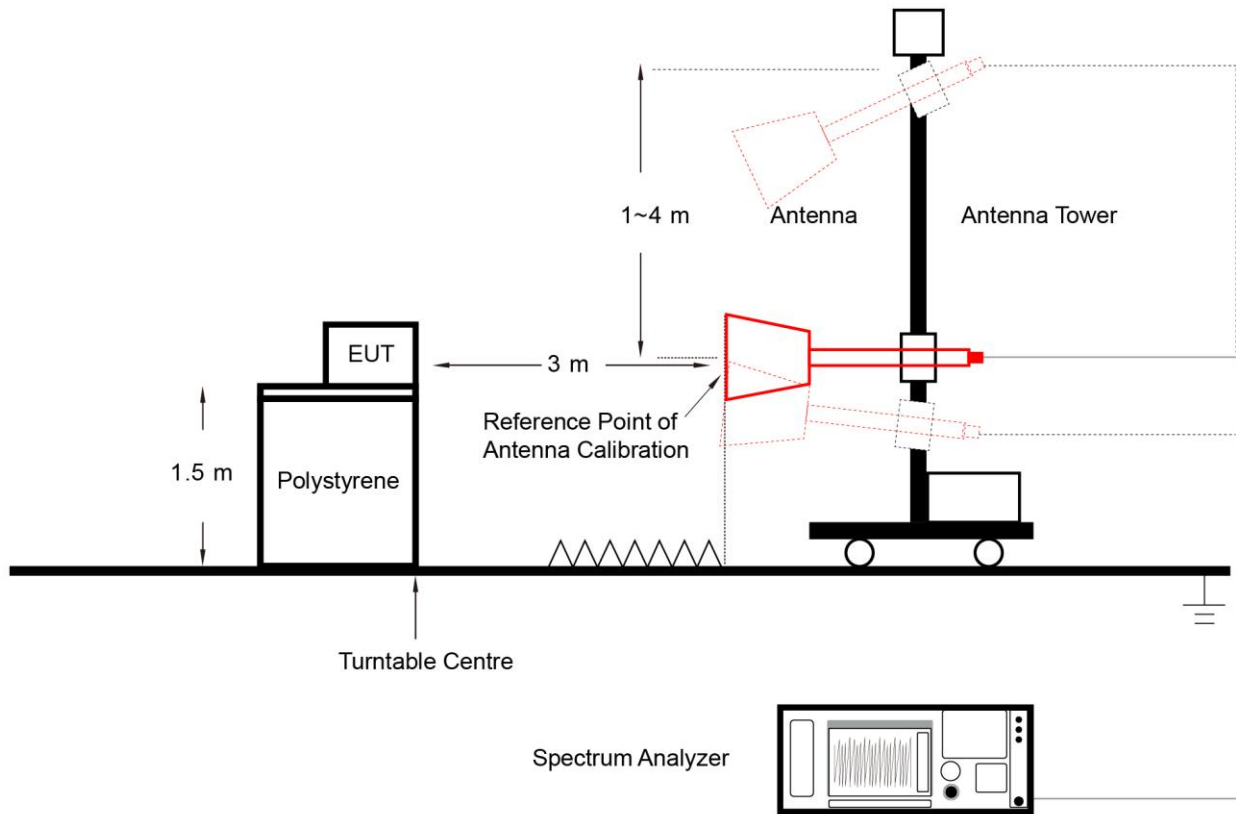
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



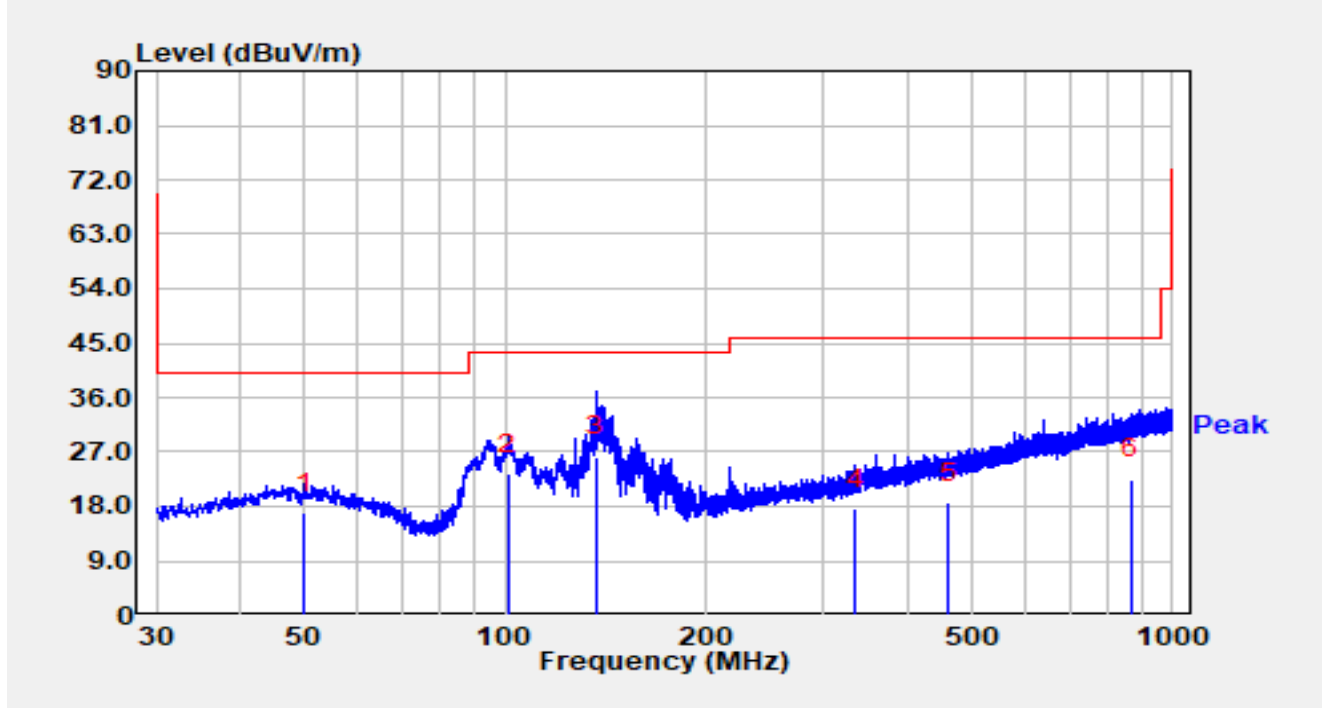
5.5. Test Result

Test Site	WJ-AC2	Test Engineer	Bob Zhang
Test Date	2025-03-30	Test Mode	1
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
4879.40	47.84	0.02	47.86	54.00	-6.14	Average	Horizontal
4879.40	50.84	0.02	50.86	74.00	-23.14	Peak	Horizontal
7322.30	45.21	4.95	50.16	54.00	-3.84	Average	Horizontal
7322.30	49.05	4.95	54.00	74.00	-20.00	Peak	Horizontal
11886.80	44.06	4.92	48.98	74.00	-25.02	Peak	Horizontal
4879.40	49.85	0.02	49.87	54.00	-4.13	Average	Vertical
4879.40	53.41	0.02	53.43	74.00	-20.57	Peak	Vertical
7322.30	43.46	4.95	48.41	74.00	-25.59	Peak	Vertical
11898.70	43.53	4.88	48.41	74.00	-25.59	Peak	Vertical
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m) Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)							

The Result of Radiated Emission below 1GHz:

Site	WJ-AC2	Test Date	2025-03-30
Temperature	17.9 °C	Humidity	34.3 %
Limit	FCC_Part 15.209_RSE (3m)	Test Engineer	Bob Zhang
Factor	VULB 9163_07097	Polarity	Horizontal
EUT	SMART IRRIGATION	Test Voltage	AC 120V/60Hz
Test Mode	Mode 1		

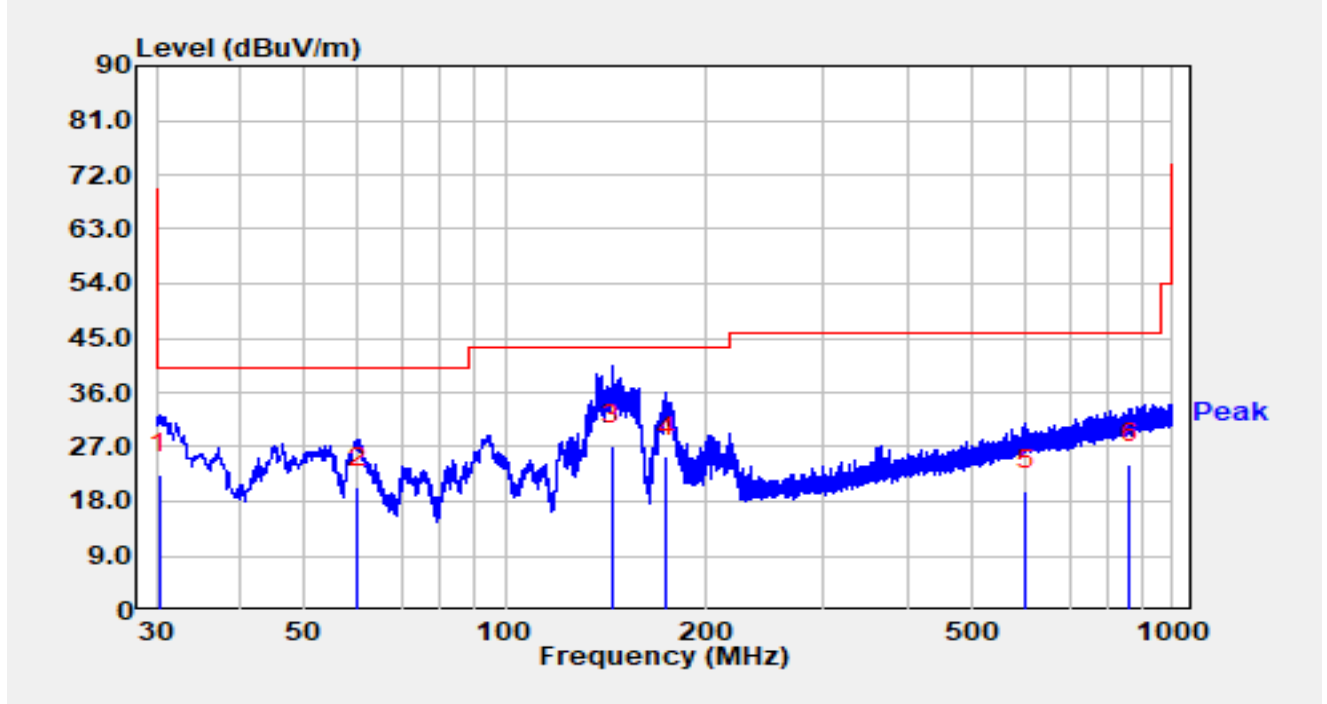


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		50.079	-2.60	19.48	16.88	-23.12	40.00	QP
2		100.810	5.90	17.42	23.32	-20.18	43.50	QP
3	*	136.894	12.40	13.79	26.19	-17.31	43.50	QP
4		335.356	-3.50	21.16	17.66	-28.34	46.00	QP
5		462.426	-4.80	23.36	18.56	-27.44	46.00	QP
6		865.849	-6.80	29.23	22.43	-23.57	46.00	QP

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement(dBμV/m) = Reading(dBμV) + C.F (dB/m).
4. The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 25GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

Site	WJ-AC2	Test Date	2025-03-30
Temperature	17.9 °C	Humidity	34.3 %
Limit	FCC_Part 15.209_RSE (3m)	Test Engineer	Bob Zhang
Factor	VULB 9163_07097	Polarity	Vertical
EUT	SMART IRRIGATION	Test Voltage	AC 120V/60Hz
Test Mode	Mode 1		



No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		30.291	5.90	16.52	22.42	-17.58	40.00	QP
2		60.070	2.50	17.85	20.35	-19.65	40.00	QP
3	*	144.654	13.50	13.71	27.21	-16.29	43.50	QP
4		174.530	10.20	15.15	25.35	-18.15	43.50	QP
5		602.979	-6.60	26.32	19.72	-26.28	46.00	QP
6		862.357	-5.04	29.17	24.13	-21.87	46.00	QP

Notes:

- " * ", means this data is the worst emission level.
- C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
- Measurement(dBμV/m) = Reading(dBμV) + C.F (dB/m).
- The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 25GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

Appendix A - Test Setup Photograph

Refer to "R25S1034028-UT" file.

Appendix B - EUT Photograph

Refer to "R25S1034028-UE" file.

_____ The End _____