

RF TEST REPORT

FCC ID: 2BPAA-YZ-101

Test Report No.: RF250506008-01-001

Product(s) Name: LED Plug-in Card Projector lamp

Model(s): YZ-051, YZ-061, YZ-101

Trade Mark: N/A

Applicant: DONGGUAN YOURZOR LIGHTING CO., LTD

Address: No.611, Tangxia Section, Shitanpu Dongshen Road, Tangxia Town,
Dongguan City, Guangdong Province, China

Receipt Date: 2025.05.06

Test Date: 2025.05.07~2025.05.09

Issued Date: 2025.05.12

Standards: 47 CFR FCC Part 15, Subpart C(Section 15.231)
ANSI C63.10:2013

Testing Laboratory: Shenzhen Haiyun Standard Technical Co., Ltd.

Prepared By:	Checked By:	Approved By:	
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History of the test report

Original Report Issue Date: 2025.05.12

- No additional attachment
- Additional attachments were issued following record

Attachment No.	Issue Date	Description

1. General information

1.1. Basic information of EUT

Test sample No.	POC250506008-S001
Product name	LED Plug-in Card Projector lamp
Model name	YZ-051, YZ-061, YZ-101
Test Model	YZ-101
Model difference	Only the model name and appearance colors are different
Trade mark	N/A
Power supply	DC 3V from battery
Operation Frequency	433.92 MHz
Modulation	FSK
Antenna Designation	PCB antenna
Antenna gain	0dBi
Field Strength	78.34dBuV/m@3m
Applicant	DONGGUAN YOURZOR LIGHTING CO., LTD No.611, Tangxia Section, Shitanpu Dongshen Road, Tangxia Town, Dongguan City, Guangdong Province, China
Manufacturer	DONGGUAN YOURZOR LIGHTING CO., LTD No.611, Tangxia Section, Shitanpu Dongshen Road, Tangxia Town, Dongguan City, Guangdong Province, China

Note:

1. For more detailed features description, please refer to the User manual.

2. Measured equipment list

2.1. Test facility

Company:	Shenzhen Haiyun Standard Technical CO., Ltd.
Address:	No. 110, 111, 112, 113, 115, 116, Block B, Jinyuan business Building, No. 302, Xixiang Avenue, Laodong Community, Xixiang Street, Bao'an District, Shenzhen P.R.C.
CNAS Registration Number:	CNAS L18252
CAB identifier:	CN0145
Company Number	30427
A2LA Certificate Number:	6823.01
Telephone:	0755-26024411

2.2. Test instruments list

Radiated Emissions							
No.	Equipment	Manufacturer	Type No.	Serial No.	Inventory No.	Cal. date (yyyy/mm/dd)	Cal. Due date (yyyy/mm/dd)
1	Test receiver	Rohde&Schwarz	ESU	100184	JLE011	2025/3/1	2026/2/28
2	Log periodic antenna	Schwarzbeck	VULB 9168	1151	JLE012	2025/4/12	2026/4/11
3	Low frequency amplifier	/	LNA 0920N	2014	JLE023	2025/3/1	2026/2/28
4	High frequency amplifier	Schwarzbeck	BBV 9718	9718-284	JLE024	2025/3/1	2026/2/28
5	Horn Antenna	SCHWARZBECK	BBHA 9120 D	02670	JLE028	2025/4/12	2026/4/11
6	Temp&Humidity Recorder	Meideshi	JR900	/	JLE021	2025/4/15	2026/4/14
7	Horn Antenna	SCHWARZBECK	BBHA 9170	9170#685	JLE029	2024/7/15	2025/7/14
8	Loop Antenna	SCHWARZBECK	FMZB151 9B	00029	JLE030	2024/7/15	2025/7/14
9	Broadband preamplifier	Schwarzbeck	BBV9721	9721-019	JLE025	2025/3/1	2026/2/28
10	Test software	Farad Technology Co., Ltd	EZ-EMC Ver.TW-03A2				
RF Conducted Emission							
1	MXA Signal Analyzer	Keysight	N9021B	MY600801 69	JLE050	2025/3/1	2026/2/28

2.3. Measurement uncertainty

Where relevant, the following measurement 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.

Parameter	Uncertainty
Occupied Channel Bandwidth	±102kHz
RF power conducted	±0.243dB
Power Spectral Density	±0.743dB
Conducted Spurious Emission	±1.328dB
Conducted emission(9kHz~30MHz) AC main	±2.68dB
Radiated emission(9kHz~30MHz)	±3.50dB
Radiated emission (30MHz ~ 1GHz)	±4.20dB
Radiated emission (1GHz ~ 18GHz)	±5.10dB
Radiated emission (18GHz ~ 40GHz)	±5.26dB

3. Test system information

3.1. Test result summary

47 CFR FCC Part 15, Subpart C(Section 15.231)			
Test item	Standard(s) Section	Results	Remarks
AC Power Conducted Emission	15.207(a)	N/A	---
Radiated Emissions	15.205; 15.209; 15.231(b)	Pass	Meet the requirement of the limit
Bandwidth	15.231(c)	Pass	Meet the requirement of the limit
Timing Testing	15.231(a)	Pass	Meet the requirement of the limit
Antenna requirement	15.203	Compliance	Note2

Note:

- “N/A” denotes test is not applicable in this test report.
- According to the manufacturer declared, the EUT has one PCB antenna arrangement which was permanently attached.

3.2. Description of test mode

Operating mode	
Test mode 1	433.92MHz Transmitting

3.3. Power setting and test software

Power setting	Default power
Test software	Button control

3.4. Description of support units

No.	Equipment	Model	Manufacturer	Length	Provide By
/	/	/	/	/	/

4. Summary of Test Projects

4.1. Conducted emission test

4.1.1. Limit

FREQUENCY (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	59 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note:

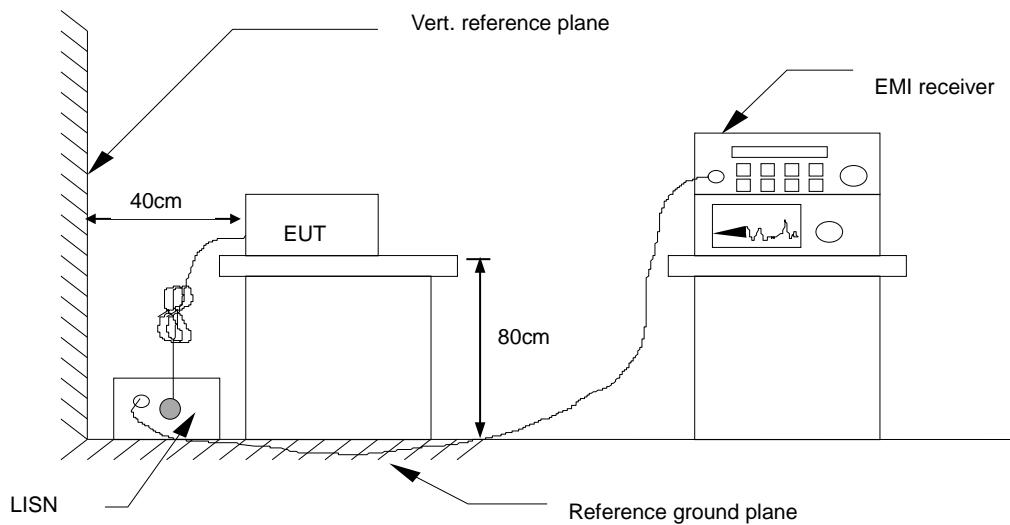
1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

4.1.2. Test procedures

1. Test limits and test methods reference ANSI C63.10:2013.
2. The EUT was placed 0.8 m from the horizontal ground plane and 0.4 m from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (AMN). All other support equipment powered from additional AMN. The AMN provide 50 Ohm/ 50 μ H of coupling impedance for the measuring instrument.
3. Interconnecting cables that hang closer than 0.4 m to the ground plane shall be folded back and forth in the center forming a bundle 0.3 m to 0.4 m long.
4. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance.
5. The frequency range from 150 kHz to 30 MHz was searched.
6. Actual test configuration, please refer to the related Item – EUT Test Photos.
7. AAN, CP or CVP at least 0.8 m from nearest part of EUT chassis.
8. The thickness of the insulation shall not be more than 150 mm.



4.1.3. Test set-up



For the actual test configuration, please refer to the related item – Photographs of the test configuration

4.1.4. Test results

The EUT is powered by battery, so this test is not applicable.

4.2. Radiated emission test

4.2.1. Limit

In addition to the provisions of § 15.205, the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emissions (microvolts/meter)
40.66-40.70	2,250	225
70-130	1,250	125
130-174	¹ 1,250 to 3,750	¹ 125 to 375
174-260	3,750	375
260-470	¹ 3,750 to 12,500	¹ 375 to 1,250
Above 470	12,500	1,250

¹ Linear interpolations.

Note: (1) Emission level dB μ V = 20 log Emission level μ V/m

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges

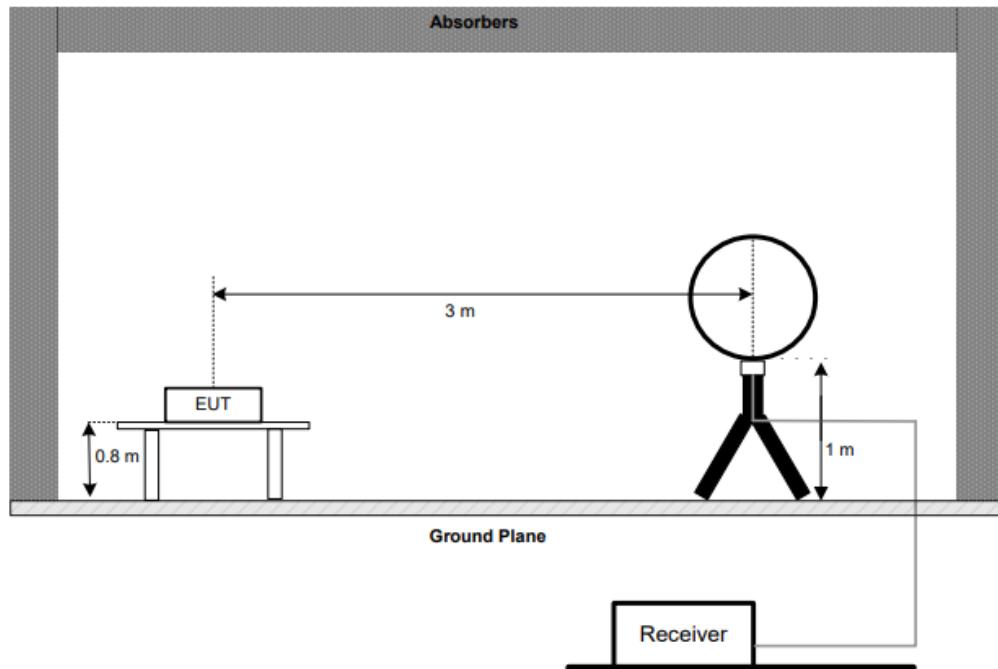
4.2.2. Test procedures

1. Test limits and test methods reference ANSI C63.10:2013.
2. Below 1GHz, the measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 m above the ground at a 3 m semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
3. Above 1GHz, the measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 m above the ground at a 3 m semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
5. The initial step in collecting radiated emission data is a receiver peak detector mode.
6. Pre - scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
7. For above 1GHz, If the emission level of the EUT In “Peak Detection” mode is 20 dB lower than the “Average” limit (means that the emission level in “Peak Detection” mode also complies with the limit in “Average Mode”), testing will be stopped and “Peak” values of the EUT will be reported, otherwise, the emissions of the EUT will be measured in “Average Mode” again and then reported.
8. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (below 1GHz).
9. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform.(above 1GHz)

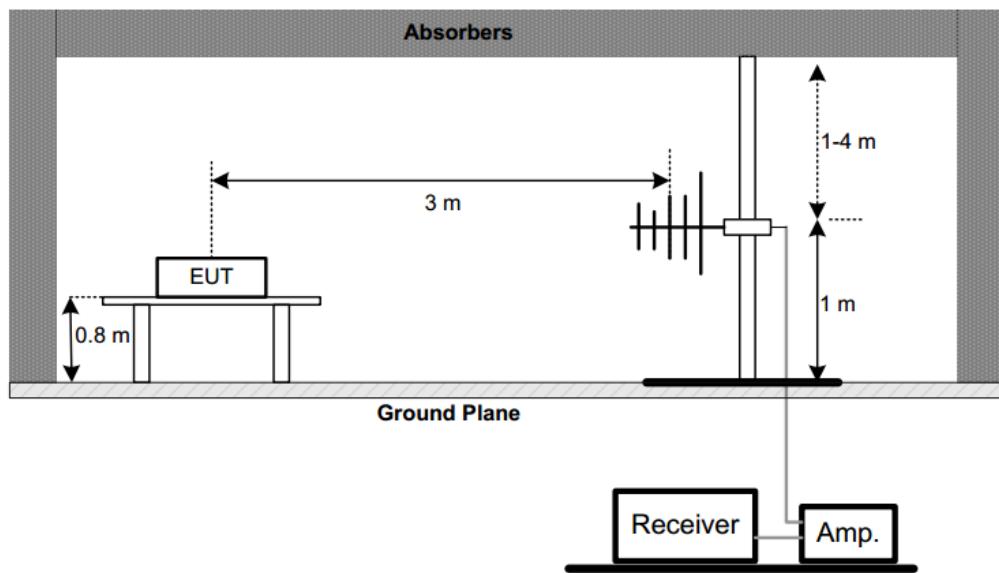


4.2.3. Test set-up

- 1) Radiated Emission Test Set-Up Frequency 9 kHz-30 MHz

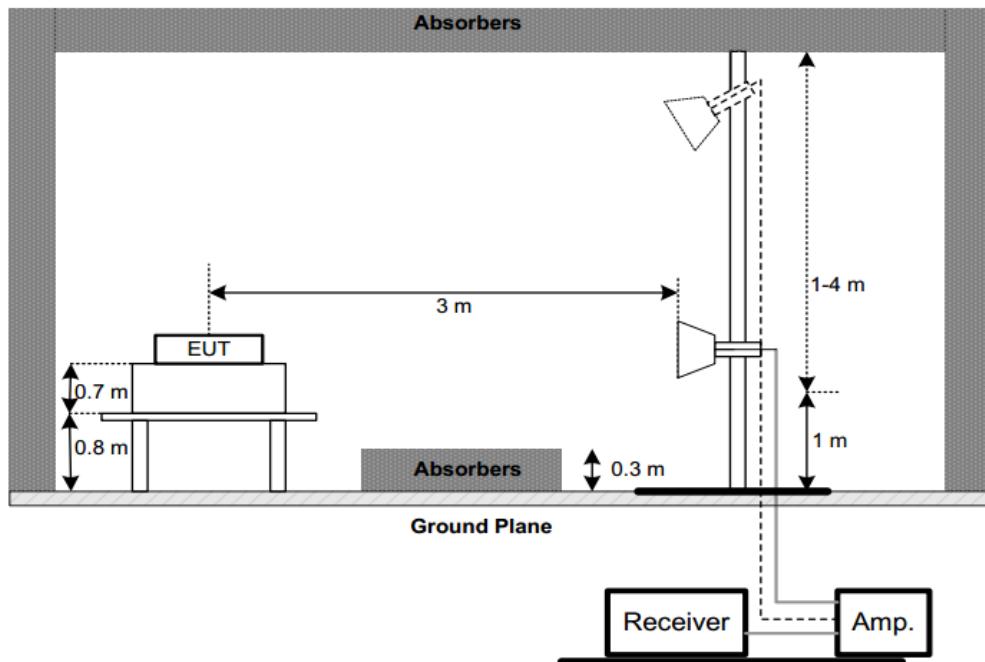


- 2) Radiated Emission Test Set-Up Frequency 30 MHz-1000 MHz





3) Radiated Emission Test Set-Up Frequency Above 1 GHz



4.2.4. Test results

1) Radiated emission: 9kHz-30MHz

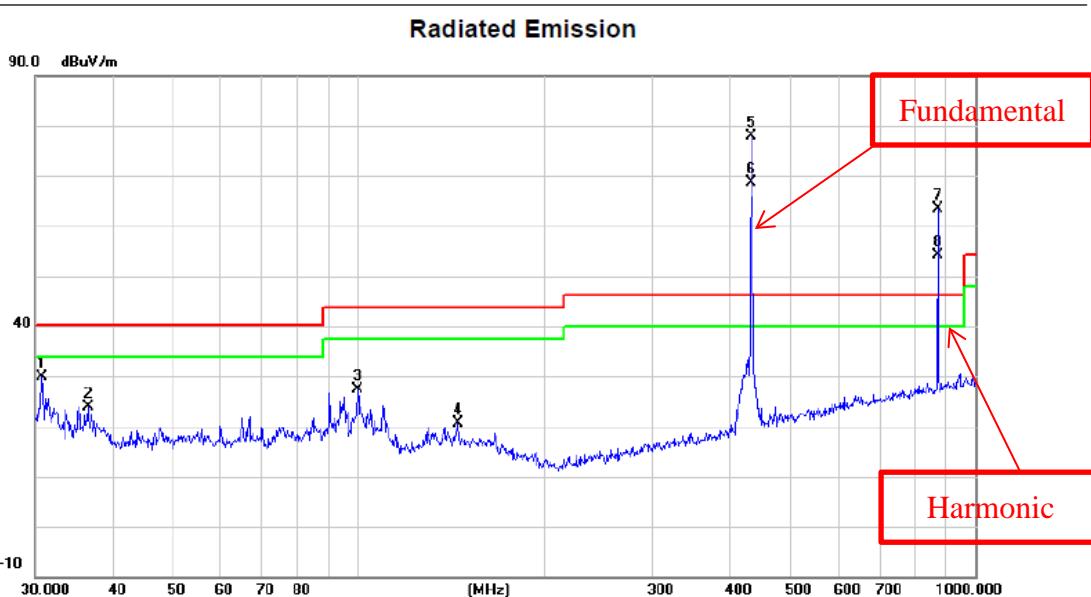
The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.



2) Radiated emission: 30MHz-1G

EUT Model	YZ-101	Location	3m chamber
Environmental Conditions	23.4°C, 51% RH	Test Mode	433.92MHz TX
Antenna Pole	Vertical	RBW	120 kHz
Tested by	Albert Fan	Test Results	PASS
Test Date	2025-05-09		

Note: DC 3V



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over
			Level	Factor	ment		
		MHz	dBuV	dB/m	dBuV/m	dB	Detector
1		30.7454	40.72	-11.00	29.72	40.00	-10.28 peak
2		36.5092	34.05	-10.30	23.75	40.00	-16.25 peak
3		99.8777	40.36	-13.10	27.26	43.50	-16.24 peak
4		145.3505	29.55	-8.91	20.64	43.50	-22.86 peak
5 *		433.9200	84.43	-6.54	77.89	100.83	-22.94 peak
6 X		433.9200			68.63	80.83	-12.20 AVG
7 X		867.8400	63.17	0.27	63.44	80.83	-17.39 peak
8 X		867.8400			54.18	60.83	-6.65 AVG

Note: 1.QP= Quasi-peak Reading.

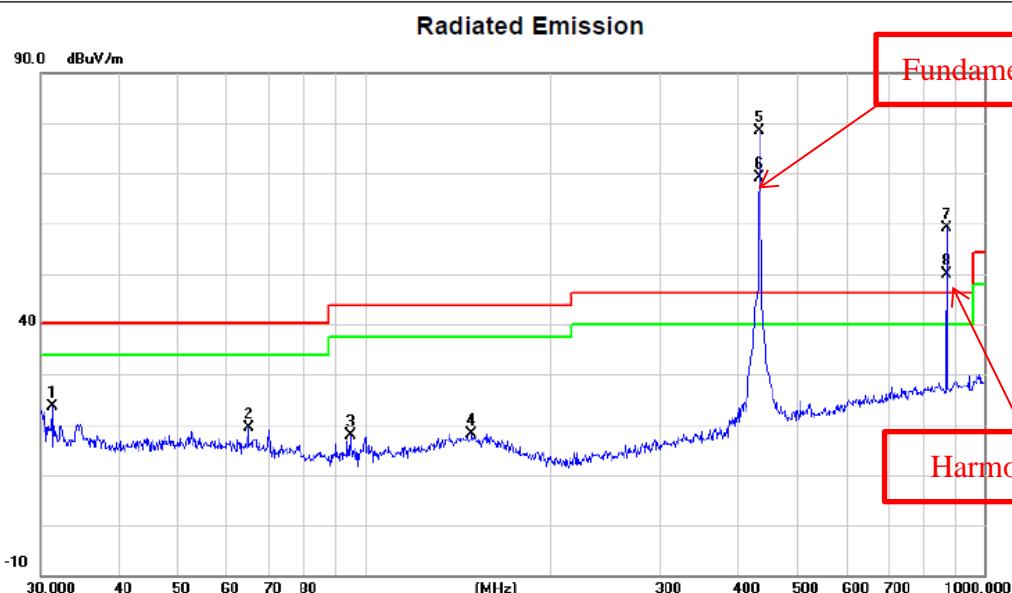
2.The other emission levels were very low against the limit.

3. Measurement = Reading Level+Correct Factor, Over = Measurement- Limit



EUT Model	YZ-101	Location	3m chamber
Environmental Conditions	23.4°C, 51% RH	Test Mode	433.92MHz TX
Antenna Pole	Horizontal	RBW	120 kHz
Tested by	Albert Fan	Test Results	PASS
Test Date	2025-05-09		

Note: DC 3V



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over
		MHz	dBuV	dB/m	dBuV/m	dB	Detector
1		31.2893	34.64	-10.97	23.67	40.00	-16.33 peak
2		64.8865	30.88	-11.43	19.45	40.00	-20.55 peak
3		94.7600	31.78	-13.81	17.97	43.50	-25.53 peak
4		148.9625	26.84	-8.69	18.15	43.50	-25.35 peak
5 *		433.9200	84.88	-6.54	78.34	100.83	22.49 peak
6 X		433.9200			69.08	80.83	11.75 AVG
7 X		867.8400	58.94	0.27	59.21	80.83	21.62 peak
8 X		867.8400			49.95	60.83	10.88 AVG

Note: 1.QP= Quasi-peak Reading.

2.The other emission levels were very low against the limit.

3. Measurement = Reading Level+ Correct Factor, Over = Measurement- Limit



3) Radiated emission: Above 1G

EUT Model	YZ-101	Location	3m chamber
Environmental Conditions	23.4°C, 51% RH	Test Mode	433.92MHz TX
Antenna Pole	Vertical	RBW	120 kHz
Tested by	Albert Fan	Test Results	PASS
Test Date	2025-05-09		

Note: DC 3V

Radiated Emission



No.	Mk.	Reading Level	Correct Factor	Measurement	Limit	Over		
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	
1	*	1301.760	68.96	-15.18	53.78	74.00	-20.22	peak
2		1375.680	65.65	-14.92	50.73	74.00	-23.27	peak
3		2169.600	62.36	-12.51	49.85	74.00	-24.15	peak
4		2603.520	56.53	-9.94	46.59	74.00	-27.41	peak
5		3037.440	55.54	-8.99	46.55	74.00	-27.45	peak
6		3471.360	53.71	-8.09	45.62	74.00	-28.38	peak

Note: 1.QP= Quasi-peak Reading.

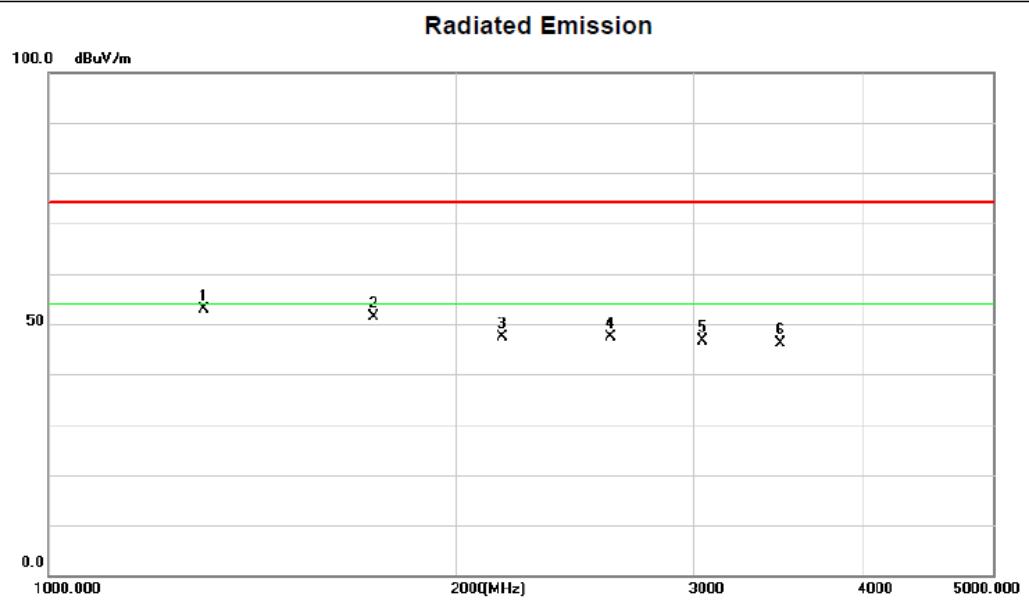
2.The other emission levels were very low against the limit.

3. Measurement = Reading Level+Correct Factor, Over = Measurement- Limit



EUT Model	YZ-101	Location	3m chamber
Environmental Conditions	23.4°C, 51% RH	Test Mode	433.92MHz TX
Antenna Pole	Horizontal	RBW	1MHz
Tested by	Albert Fan	Test Results	PASS
Test Date	2025-05-09		

Note: DC 3V



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
			Level	Factor	ment			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	1301.760	68.15	-15.18	52.97	74.00	-21.03	peak
2		1736.788	65.69	-14.32	51.37	74.00	-22.63	peak
3		2168.725	59.83	-12.52	47.31	74.00	-26.69	peak
4		2605.476	57.21	-9.98	47.23	74.00	-26.77	peak
5		3040.803	55.52	-8.99	46.53	74.00	-27.47	peak
6		3475.384	54.25	-8.09	46.16	74.00	-27.84	peak

Note: 1.QP= Quasi-peak Reading.

2.The other emission levels were very low against the limit.

3. Measurement = Reading Level+ Correct Factor, Over = Measurement- Limit

4.3. 20dB Bandwidth & 99% Bandwidth

4.3.1. Limit

The bandwidth of the emissions shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. So the emission bandwidth limits have been calculated in below table

Fundamental Frequency	Limits (MHz)
433.92 MHz	1.0848

4.3.2. Test Procedure

Test Method	
● Conducted Measurement	<input type="radio"/> Radiated Measurement
Test Channels	
● 314.9MHz	<input type="radio"/> Lowest and Highest Channel
Environmental conditions	
● Normal	<input type="radio"/> Normal and Extreme
Note: ● : Test <input type="radio"/> : No Test	

a) The EUT shall be connected to the spectrum analyser, and the spectrum analyser is set as follow:

Centre Frequency	The centre frequency of the channel under test
RBW	1%-5% OCB
VBW	3*RBW
Frequency span	2x Nominal Channel Bandwidth
Detector Mode	Peak
Trace Mode	Max Hold
Sweep Time	Auto Couple

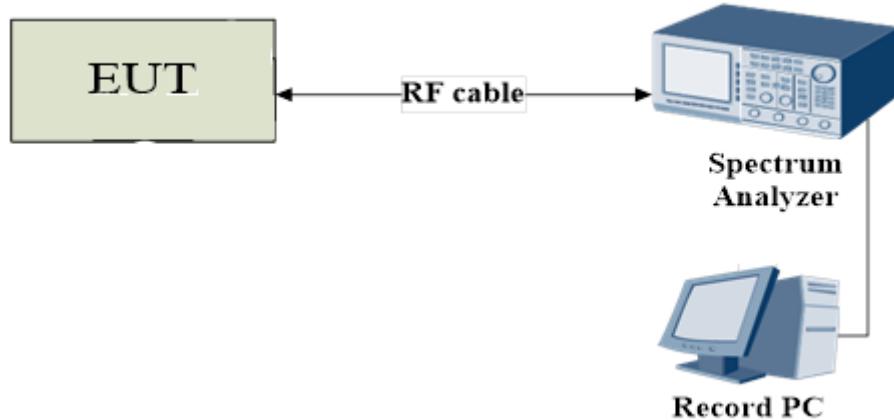
b) The EUT was programmed to be in continuously transmitting mode, Wait for the trace to stabilize then find the peak value of the trace and place the analyser marker on this peak.

c) Use the -20dB bandwidth function of the spectrum analyser to measure the 20dB Bandwidth of the EUT. This value shall be recorded.

d) Make sure that the power envelope is sufficiently above the noise floor of the analyser to avoid the noise signals left and right from the power envelope being taken into account by this measurement.

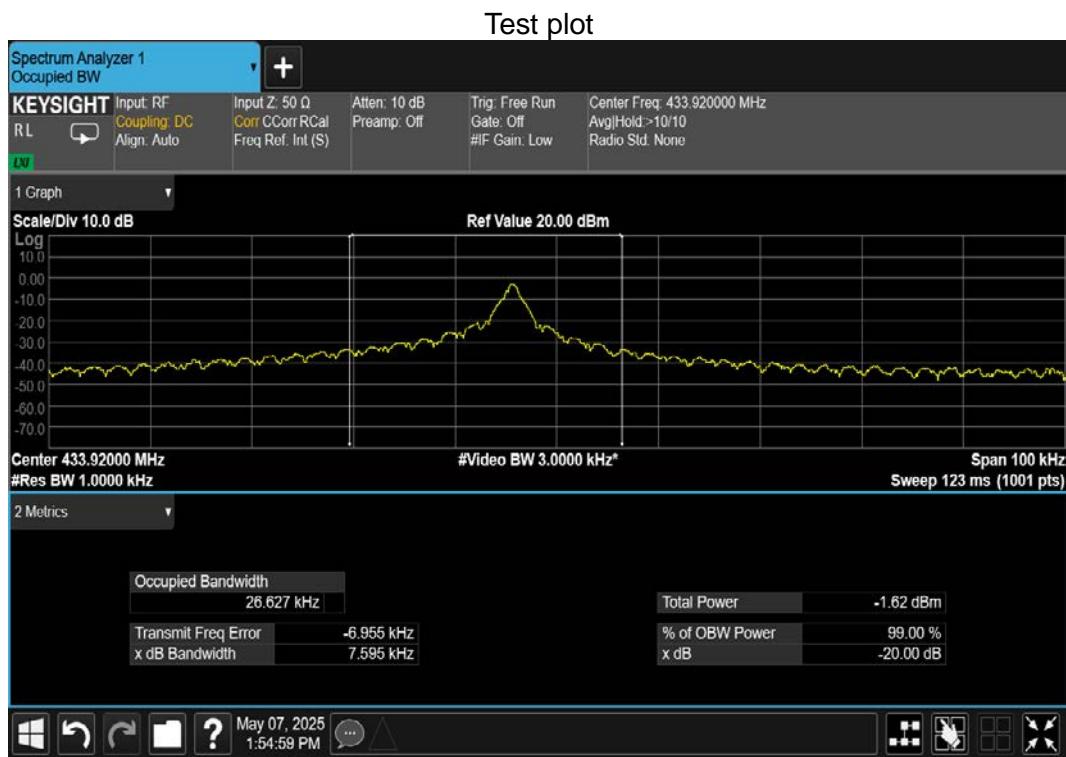


4.3.3. Test set-up



4.3.4. Test Result

Frequency(MHz)	20dB Bandwidth(kHz)	99% Occupied BW(kHz)	20dB bandwidth Limits (kHz)
433.92	7.595	26.627	1084.8



4.4. TIMING TESTING

4.4.1. Limit

A manually operated transmitter shall be equipped with a push-to-operate switch and be under manual control at all times during transmission. When released, the transmitter shall cease transmission within no more than 5 seconds of being released.

4.4.2. Test procedures

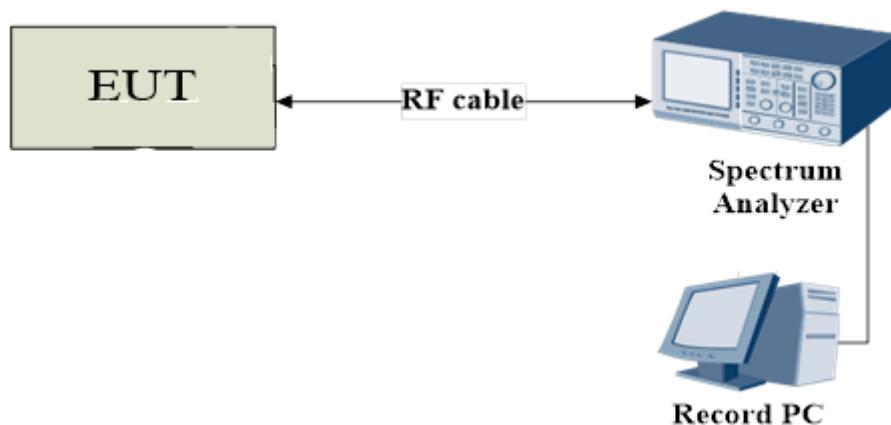
Test Method	
● Conducted Measurement	<input type="radio"/> Radiated Measurement
Test Channels	
● 314.9MHz	<input type="radio"/> Lowest and Highest Channel
Environmental conditions	
● Normal	<input type="radio"/> Normal and Extreme
Note: ● : Test ○ : No Test	

a) The EUT shall be connected to the spectrum analyser, and the spectrum analyser is set as follow:

Centre Frequency	The centre frequency of the channel under test
RBW	1MHz
VBW	3MHz
Frequency span	Zero Span
Detector Mode	Peak
Trace Mode	Max Hold
Sweep Time	10 seconds

b) The EUT was programmed to be in normal mode.

4.4.3. Test set-up

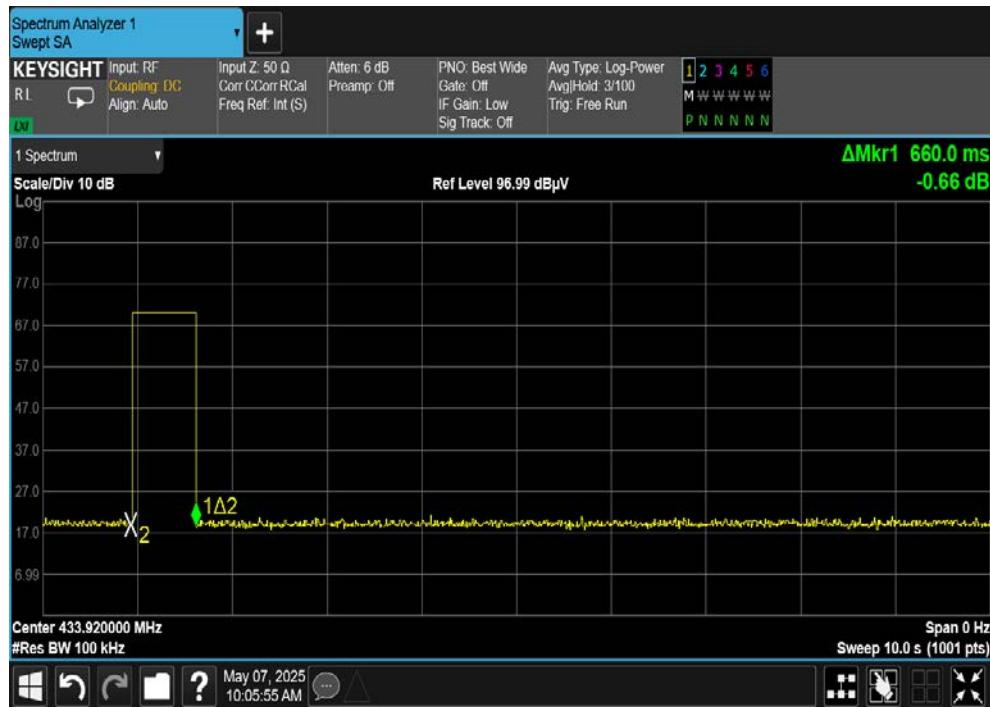




4.4.4. Test results

Frequency(MHz)	On Time(Sec)	Limits (Sec)
433.92	0.66	<5

Test plot



4.5. Duty Cycle of Test Signal

4.5.1. Test procedures

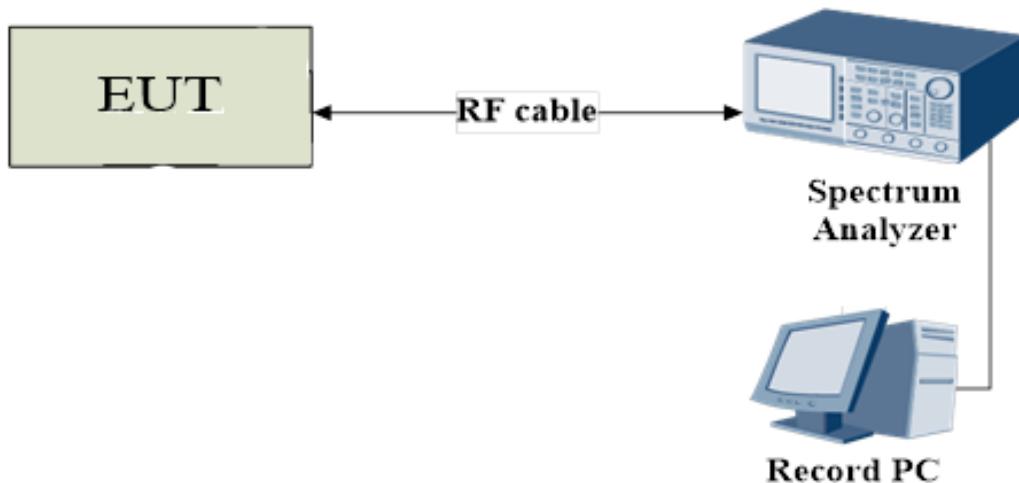
Test Method	
●Conducted Measurement	<input type="radio"/> Radiated Measurement
Test Channels	
●314.9MHz	<input type="radio"/> Lowest and Highest Channel
Environmental conditions	
●Normal	<input type="radio"/> Normal and Extreme
Note: ● : Test ○ : No Test	

c) The EUT shall be connected to the spectrum analyser, and the spectrum analyser is set as follow:

Centre Frequency	The centre frequency of the channel under test
RBW	1MHz
VBW	3MHz
Frequency span	Zero Span
Detector Mode	Peak
Trace Mode	Max Hold
Sweep Time	0.1 seconds

d) The EUT was programmed to be in normal mode.

4.5.2. Test set-up





4.5.3. Test results

All the duty factor of other test mode have been considered.

The duty cycle is measured in 100 ms or the repetition cycle period, whichever is a shorter time frame. The duty cycle is measured by placing the spectrum analyzer to set zero span at 100kHz resolution bandwidth.

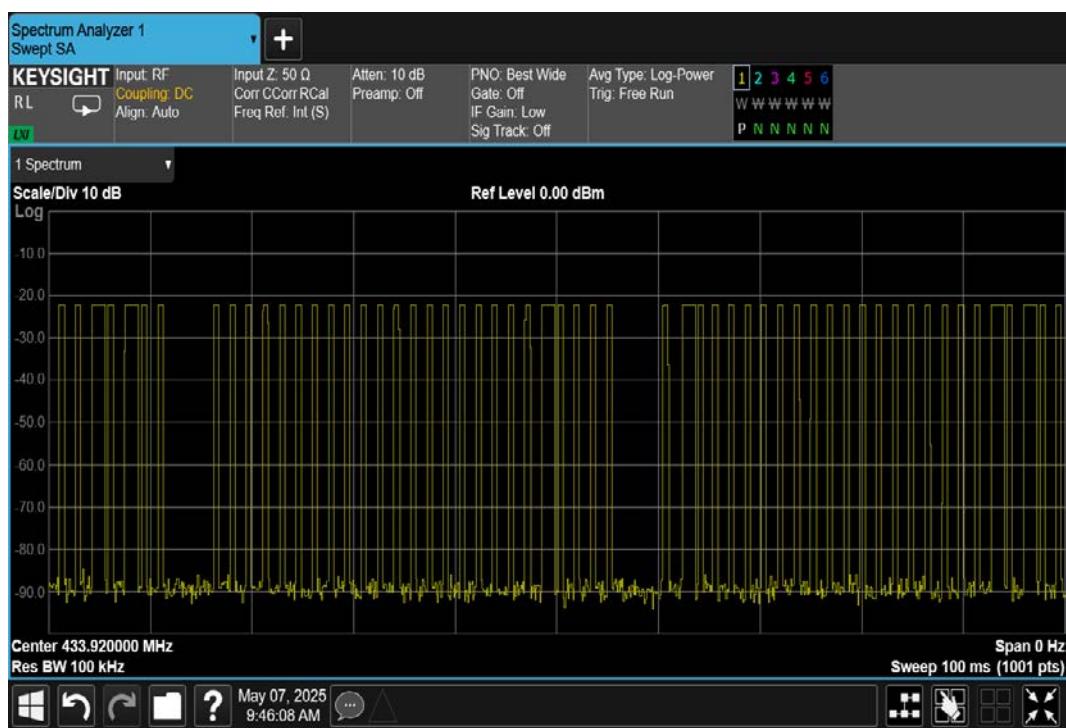
Averaging factor in dB = $20\log(\text{duty cycle})$

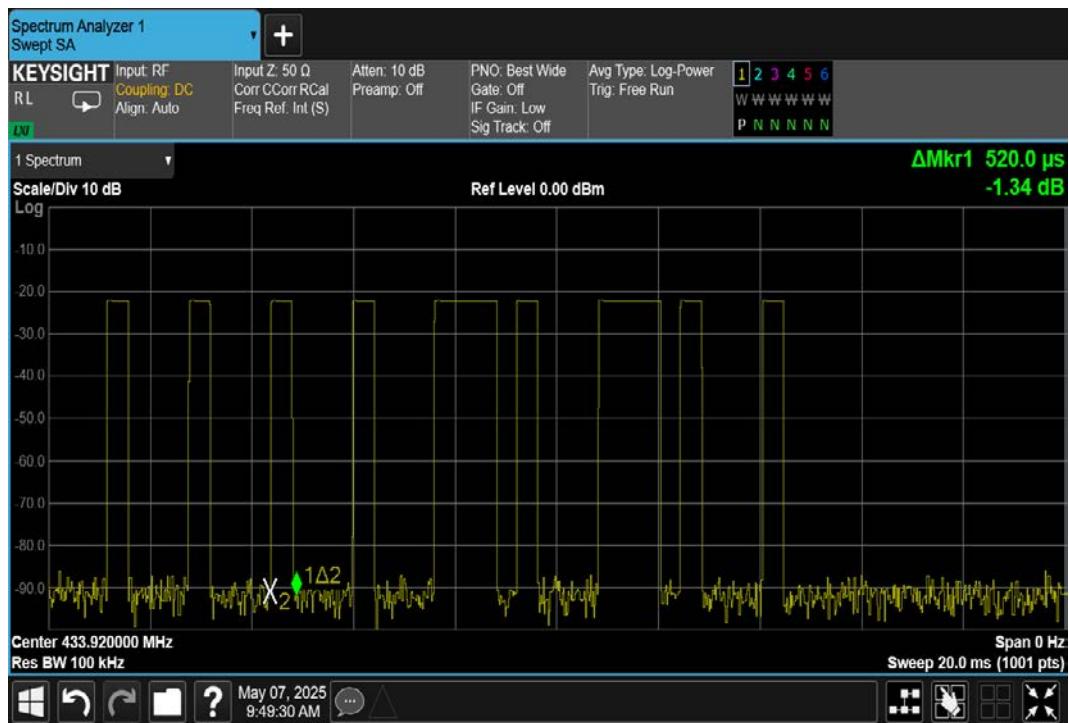
On time = $51 \times 0.52 + 6 \times 1.32 = 34.44$

Duty Cycle = $34.44/100 = 0.3444$

Therefore, the averaging factor is found by $20\log(0.3444) = -9.26$ dB

Test plot





Statement

1. The report is invalid without the official seal or special seal of Shenzhen Haiyun Standard Technology Co., Ltd. (hereinafter referred to as the unit).
2. The report is invalid without the signature of the approver.
3. The report is invalid if altered arbitrarily.
4. The report shall not be partially copied without the written approval of the unit.
5. The reported test results are only valid for the tested samples.
6. If there is any objection to the test report, it shall be submitted to the test unit within 15 days from the date of receiving the report, and the overdue shall not be accepted.

Shenzhen Haiyun Standard Technology Co., Ltd.

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(END OF REPORT)