



RF Exposure Evaluation FOR

Hangzhou Jilu Tchnology Co., Ltd.

Aeronode Indoor Air Quality Monitor

Test Model: A100

Prepared for	:	Hangzhou Jilu Tchnology Co., Ltd.
Address	:	Room115, Building #3, Xixi Bafangcheng, Wuchang Street, Yuhang District, Hangzhou, Zhejiang, China
Prepared by	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample	:	March 04, 2025
Number of tested samples	:	2
Sample No.	:	A250303159-1, A250303159-2
Serial number	:	Prototype
Date of Test	:	March 04, 2025 ~ March 18, 2025
Date of Report	:	March 18, 2025



**RF Exposure Evaluation****Report Reference No.** : **LCSA03035166EC**

Date of Issue..... : March 18, 2025

Testing Laboratory Name..... : **Shenzhen LCS Compliance Testing Laboratory Ltd.**

Address..... : 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

Testing Location/ Procedure..... : Full application of Harmonised standards ☒
Partial application of Harmonised standards ☐
Other standard testing method ☐**Applicant's Name**..... : **Hangzhou Jilu Technology Co., Ltd.**

Address..... : Room115, Building #3, Xixi Bafangcheng, Wuchang Street, Yuhang District, Hangzhou, Zhejiang, China

Test SpecificationStandard..... : ANSI C95.1-2019
FCC KDB publication 447498 D01 General 1 RF Exposure
Guidance v06
FCC CFR 47 part1 1.1310
FCC CFR 47 part2 2.1091**Test Report Form No**..... : TRF-4-E-214 A/0

TRF Originator..... : Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF..... : Dated 2011-03

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EUT Description..... : **Aeronode Indoor Air Quality Monitor**

Trade Mark..... : Aeropulse

Test Model..... : A100

Ratings..... : DC Input: 5V---500mA or 4.5V by 3*AAA battery
POE Input: 48V---350mA**Result** : **Positive****Compiled by:**

Diamond Lu/ Administrator

Supervised by:

Jack Liu/ Technique principal

Approved by:

Gavin Liang/ Manager



**FCC -- RF Exposure Evaluation**

Test Report No. :	LCSA03035166EC	<u>March 18, 2025</u> Date of issue
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EUT..... : Aeronode Indoor Air Quality Monitor

Test Model..... : A100

Applicant..... : Hangzhou Jilu Tchnology Co., Ltd.

Address..... : Room115, Building #3, Xixi Bafangcheng, Wuchang Street, Yuhang District, Hangzhou, Zhejiang, China

Manufacturer..... : Hangzhou Jilu Tchnology Co., Ltd.

Address..... : Room115, Building #3, Xixi Bafangcheng, Wuchang Street, Yuhang District, Hangzhou, Zhejiang, China

Test Result	Positive
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.



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Revision History

Report Version	Issue Date	Revision Content	Revised By
000	March 18, 2025	Initial Issue	--





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1. Product Information

EUT	:	Aeronode Indoor Air Quality Monitor
Test Model	:	A100
Ratings	:	DC Input: 5V $\pm$ 500mA or 4.5V by 3*AAA battery POE Input: 48V $\pm$ 350mA
Hardware Version	:	V3
Software Version	:	V1.00.68
Bluetooth		
Frequency Range	:	2402MHz~2480MHz
Channel Number	:	79 channels for Bluetooth V5.1 (DSS) 40 channels for Bluetooth V5.1 (DTS)
Channel Spacing	:	1MHz for Bluetooth V5.1 (DSS) 2MHz for Bluetooth V5.1 (DTS)
Modulation Type	:	GFSK, $\pi/4$ -DQPSK, 8-DPSK for Bluetooth V5.1 (DSS) GFSK for Bluetooth V5.1 (DTS)
Bluetooth Version	:	V5.1
Antenna Description	:	FPC Antenna, -2.34dBi(Max.)
WIFI(2.4G Band)		
Frequency Range	:	2412MHz~2462MHz
Channel Number	:	5MHz
Channel Spacing	:	11 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2422~2452MHz)
Modulation Type	:	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax: OFDM (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	:	FPC Antenna, -2.34dBi(Max.)
Exposure category	:	General population/uncontrolled environment
EUT Type	:	Production Unit
Device Type	:	Mobile Device



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2. Evaluation Method

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

In accordance with KDB447498D01 for Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modelled or measured field strengths or power density, is ≤ 1.0 . The MPE ratio of each antenna is determined at the minimum test separation distance required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to MPE limit, at the test frequency. Either the maximum peak or spatially averaged results from measurements or numerical simulations may be used to determine the MPE ratios. Spatial averaging does not apply when MPE is estimated using simple calculations based on far-field plane-wave equivalent conditions. The antenna installation and operating requirements for the host device must meet the minimum test separation distances required by all antennas, in both standalone and simultaneous transmission operations, to satisfy compliance.

3. Limit

3.1 Refer Evaluation Method

[ANSI C95.1-2019](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz

[FCC KDB publication 447498 D01 General 1 RF Exposure Guidance v06](#): Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

[FCC CFR 47 part1 1.1310](#): Radiofrequency radiation exposure limits.

[FCC CFR 47 part2 2.1091](#): Radiofrequency radiation exposure evaluation: mobile devices.

3.2 Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f ²)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Uncontrolled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f ²)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

F=frequency in MHz

*=Plane-wave equivalent power density



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4. Description of Test Facility

NVLAP Accreditation Code is 600167-0.
FCC Designation Number is CN5024.
CAB identifier is CN0071.
CNAS Registration Number is L4595.
Test Firm Registration Number: 254912.

5. MPE Calculation Method

Predication of MPE limit at a given distance
Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=PG/4\pi R^2$$

Where: S=power density
P=power input to antenna
G=power gain of the antenna in the direction of interest relative to an isotropic radiator
R=distance to the center of radiation of the antenna

6. Antenna Information

EUT can only use antennas certificated as follows provided by manufacturer;

Internal/ External Identification	Antenna type and antenna number	Operate frequency band	Maximum antenna gain	Notes
Internal	FPC Antenna	2400MHz ~ 2500MHz	-2.34dBi	BT/WIFI Antenna

7. Conducted Power

[BLE]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
BLE 1M	0	2402	0.40
	19	2440	0.95
	39	2480	-0.33
BLE 2M	0	2402	0.30
	19	2440	0.78
	39	2480	-0.17

[2.4G WIFI]

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
11B	1	2412	14.87
	6	2437	14.25
	11	2462	14.18



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11G	1	2412	13.82
	6	2437	13.28
	11	2462	13.28
11N20 SISO	1	2412	12.93
	6	2437	13.45
	11	2462	13.12
11N40 SISO	3	2422	11.50
	6	2437	10.31
	9	2452	11.10
11AX20 SISO	1	2412	12.85
	6	2437	12.01
	11	2462	12.22
11AX40 SISO	3	2422	11.63
	6	2437	11.50
	9	2452	10.99

8. Manufacturing Tolerance

[BLE]

BT LE (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	0	0	0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
BT 2LE (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	0	0	-1.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

[2.4G WIFI]

11B (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	14.0	14.0	14.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11G (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	13.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20(Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	12.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40(Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	11.0	10.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX20(Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	12.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0



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11 AX40(Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	11.0	11.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

9. Measurement Results

9.1 Standalone MPE Evaluation

As declared by the Applicant, the EUT is a wireless device used in a fix application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance, $r=20\text{cm}$, as well as the gain of the used antenna refer to antenna information, the RF power density can be obtained.

[BT LE]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
BLE 1M	1.0	1.2589	-2.34	0.5834	0.0001	1.0000
BLE 2M	1.0	1.2589	-2.34	0.5834	0.0001	1.0000

[2.4G WIFI]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11b	15.0	31.6228	-2.34	0.5834	0.0037	1.0000
IEEE 802.11g	14.0	25.1189	-2.34	0.5834	0.0029	1.0000
IEEE 802.11n HT20	14.0	25.1189	-2.34	0.5834	0.0029	1.0000
IEEE 802.11n HT40	12.0	15.8489	-2.34	0.5834	0.0018	1.0000
IEEE 802.11ax HT20	13.0	19.9526	-2.34	0.5834	0.0023	1.0000
IEEE 802.11ax HT40	12.0	15.8489	-2.34	0.5834	0.0018	1.0000

Remark:

1. Output power including tune-up tolerance;
2. Output power was adjusted to duty cycle at 100% if measured duty cycle less than 98%;
3. MPE evaluate distance is 20cm from user manual provide by manufacturer.



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9.2 Simultaneous Transmission MPE Evaluation

The EUT equipped with one antenna. So no need consider simultaneous transmission.

10. Measurement Uncertainty

Test Item		Frequency Range	Uncertainty	Note
Output power	:	1GHz-40GHz	$\pm 0.57\text{dB}$	(1)

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

11. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

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

