

FCC RF Exposure

Applicant : Shenzhen Lingchuangxun Technology Co., Ltd
Address : 6th floor, building C, ideemonto Industrial Park, 7002 Songbai
RoadGuangming District, ShenZhen
Product Name : WIFI REPEATER
Brand Mark : N/A
Model no. : LCX-ZJ1200-003
Series model : LCX-ZJ1200-003-01, LCX-ZJ1200-003-02, LCX-ZJ1200-003-03,
LCX-ZJ1200-003-04, LCX-ZJ1200-003-05, LCX-ZJ1200-003-06,
LCX-ZJ1200-003-07, LCX-ZJ1200-003-08
FCC ID : 2A4AOLCX-ZJ1200003
Report Number : BLA-EMC-202503-A3503
Date of Receipt : Mar. 14, 2025
Date of Test : Mar. 14, 2025 to Mar. 26, 2025
Test Standard : 47 CFR Part 15, Part1.1307
47 CFR Part 15, Part2.1093
KDB447498D04 General RF Exposure Guidance v01
Test Result : Pass

Compiled by: Mark Chen

Review by: Sueda

Approved by: Blue Zheng

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BlueAsia of Technical Services(Shenzhen) Co.,Ltd.

Address: Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District,
Shenzhen, Guangdong Province, China



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Revise Record

Version No.	Date	Description
01	Apr. 01, 2025	Original

1 General information

1.1 General information

Applicant	Shenzhen Lingchuangxun Technology Co., Ltd
Address	6th floor, building C, ideemonto Industrial Park, 7002 Songbai RoadGuangming District, ShenZhen
Manufacturer	Shenzhen Lingchuangxun Technology Co., Ltd
Address	6th floor, building C, ideemonto Industrial Park, 7002 Songbai RoadGuangming District, ShenZhen
Factory	Shenzhen Lingchuangxun Technology Co., Ltd
Address	6th floor, building C, ideemonto Industrial Park, 7002 Songbai RoadGuangming District, ShenZhen

1.2 General description of EUT

Product Name	WIFI REPEATER
Model No.	LCX-ZJ1200-003
Series model	LCX-ZJ1200-003-01, LCX-ZJ1200-003-02, LCX-ZJ1200-003-03, LCX-ZJ1200-003-04, LCX-ZJ1200-003-05, LCX-ZJ1200-003-06, LCX-ZJ1200-003-07, LCX-ZJ1200-003-08
Differences of Series model	The above models are identical in PCB layout,internal structure and components.only model no, the appearance color and shape is different.
Operation Frequency	2.4GWIFI: 802.11b/g/n(HT20): 2412MHz to 2462MHz 802.11n(HT40): 2422MHz to 2452MHz 5GWIFI: 5150MHz-5250MHz
Modulation Type	2.4GWIFI: 802.11b: DSSS(CCK/QPSK/BPSK) 802.11g: OFDM(BPSK/QPSK/16QAM/64QAM) 802.11n (HT20 and HT40): OFDM (64QAM, 16QAM, QPSK, BPSK) 5GWIFI: IEEE 802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM) IEEE 802.11n(HT20/HT40): OFDM (BPSK, QPSK, 16QAM, 64QAM) IEEE for 802.11ac: OFDM(256QAM, 64QAM, 16QAM, QPSK, BPSK)
Number of Channels	802.11b/g/n(HT20):11 802.11n(HT40):7 802.11a/802.11n(HT20)/802.11ac(HT20): 4, 802.11n(HT40)/802.11ac(HT40):2, 802.11ac(HT80): 1
Antenna Type	2.4GWIFI: PCB Antenna 5GWIFI: FPC Antenna

Antenna Gain	2.4G WIFI Ant 1: 2.21dBi 2.4G WIFI Ant 2: 2.21dBi 5G WIFI Ant 1: -0.52dBi 5G WIFI Ant 2: -0.52dBi
Power supply	Input:AC 100-240V Output: DC 5V $\approx$ 1A
Test voltage	AC 120V
Hardware Version	N/A
Software Version	N/A
<i>Note: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.</i>	

2 RF Exposure Compliance Requirement

2.1 Standard Requirement

According to 447498 D04 Interim General RF Exposure Guidance v01

Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

2.2 Limits

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B. 2})$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1).

Example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)										
		5	10	15	20	25	30	35	40	45	50
	300	39	65	88	110	129	148	166	184	201	217
	450	22	44	67	89	112	135	158	180	203	226
	835	9	25	44	66	90	116	145	175	207	240
	1900	3	12	26	44	66	92	122	157	195	236
	2450	3	10	22	38	59	83	111	143	179	219
	3600	2	8	18	32	49	71	96	125	158	195
	5800	1	6	14	25	40	58	80	106	136	169

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B. 1})$$

2.3 Result

$$\text{EIRP} = \text{pt} \times \text{gt} = (\text{E} \times \text{d})^{2/30}$$

Where:

pt = transmitter output power in watts,

gt = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m

d = measurement distance in meters (m)

$$\text{Spot} = (\text{E} \times \text{d})^{2/30} \times \text{gt}$$

2.4G WIFI Ant 1: 2.21dBi, 2.4G WIFI Ant 2: 2.21dBi Directional gain = 5.22dBi

5G WIFI Ant 1: -0.52dBi, 5G WIFI Ant 2: -0.52dBi Directional gain = 2.49dBi

2.4G WIFI worse case: 15.08dBm @ 802.11n20

$$\text{ERP} = 15.08 + 5.22 - 2.15 = 18.15 \text{ dBm} = 65.313 \text{ mW} < 3060 \text{ mW}$$

$$\text{MPE ratio}(2.4\text{GWIFI}) = 65.313 / 3060 = 0.0213$$

5G WIFI worse case: 16.695dBm @ 802.11n40

$$\text{ERP} = 16.695 + 2.49 - 2.15 = 17.035 \text{ dBm} = 50.524 \text{ mW} < 3060 \text{ mW}$$

$$\text{MPE ratio}(5\text{GWIFI}) = 50.524 / 3060 = 0.0165$$

For Simultaneous Transmission:

$$\text{As MPE ratio}(2.4\text{GWIFI} + 5\text{GWIFI}) = 0.0213 + 0.0165 = 0.0378 < 1,$$

Comply with RF exposure exemption limit.

----END OF REPORT----

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