RF Exposure Evaluation

For

Shenzhen Limpet Technology Co., Ltd.

Wali Smart Pet Feeder With AI Camera

Test Model: P-LFP01

Prepared for	:	Shenzhen Limpet Technology Co., Ltd.
Address	:	Room 401, Building 11, Jiangganshan No.1 Garden, Buxin Community, Xin'an Sub-district, Bao'an District, Shenzhen City
Prepared by	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample	:	February 25, 2025
Number of tested samples	:	2
Sample No.	:	A250221007-1, A250221007-2
Serial number	:	Prototype
Date of Test	:	February 25, 2025 ~ March 17, 2025
Date of Report	:	March 18, 2025

RF Exposure Evaluation

Report Reference No.	:	**LCSA02225048EG**
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.....	:	**Shenzhen Limpet Technology Co., Ltd.**
Address.....	:	Room 401, Building 11, Jiangganshan No.1 Garden, Buxin Community, Xin'an Sub-district, Bao'an District, Shenzhen City
Test Specification		
Standard	:	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.....	:	**Wali Smart Pet Feeder With AI Camera**
Trade Mark.....	:	Limpet
Test Model	:	P-LFP01
Ratings.....	:	Please Refer to Page 6
Result	:	**Positive**

Compiled by:	**Supervised by:**	**Approved by:**
Ling Zhu/ Administrator	Jack Liu/ Technique principal	Gavin Liang/ Manager

RF Exposure Evaluation

Test Report No. : **LCSA02225048EG**	March 18, 2025 Date of issue

EUT.....	: Wali Smart Pet Feeder With AI Camera
Test Model.....	: P-LFP01
Applicant.....	**: Shenzhen Limpet Technology Co., Ltd.**
Address.....	: Room 401, Building 11, Jiangganshan No.1 Garden, Buxin Community, Xin'an Sub-district, Bao'an District, Shenzhen City
Telephone.....	: /
Fax.....	: /
Manufacturer.....	**: Shenzhen Limpet Technology Co., Ltd.**
Address.....	: Room 401, Building 11, Jiangganshan No.1 Garden, Buxin Community, Xin'an Sub-district, Bao'an District, Shenzhen City
Telephone.....	: /
Fax.....	: /
Factory.....	**: /**
Address.....	: /
Telephone.....	: /
Fax.....	: /

Test Result:	**Positive**

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.

Revision History

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

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1. Product Information

EUT	:	Wali Smart Pet Feeder With AI Camera
Test Model	:	P-LFP01
Ratings	:	Input: 5.0V⎓2.0A For Adapter Model: Input: 100-240V~ 50/60Hz 0.5A Max Output: 5.0.0V⎓2.0A
Hardware Version	:	RCV:03
Software Version	:	Linux 4.19.164-tag-DK_VERSION armv7l
Bluetooth		
Frequency Range	:	2402MHz~2480MHz
Channel Number	:	40 channels for Bluetooth V4.0 (DTS)
Channel Spacing	:	2MHz for Bluetooth V4.0 (DTS)
Modulation Type	:	GFSK for Bluetooth V4.0 (DTS)
Bluetooth Version	:	V4.0
Antenna Description	:	PCB Antenna, 1.85dBi (Max.)
WIFI (2.4G Band)		
Frequency Range	:	2412MHz~2462MHz
Channel Spacing	:	5MHz
Channel Number	:	11 Channels for 20MHz bandwidth (2412~2462MHz)
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)
Antenna Description	:	FPC Antenna, 3.54dBi (Max.)
WIFI (5.2G Band)		
Frequency Range	:	5180MHz~5240MHz
Channel Number	:	4 Channels for 20MHz bandwidth(5180MHz~5240MHz)
Modulation Type	:	IEEE 802.11a/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Antenna Description	:	FPC Antenna, 5.26dBi (Max.)
WIFI (5.3G Band)		
Frequency Range	:	5260MHz~5320MHz
Channel Number	:	4 Channels for 20MHz bandwidth(5260MHz~5320MHz)
Modulation Type	:	IEEE 802.11a/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Antenna Description	:	FPC Antenna, 5.26dBi (Max.)
WIFI (5.5G Band)		
Frequency Range	:	5500MHz~5700MHz

Channel Number	:	11 Channels for 20MHz bandwidth(5500MHz~5700MHz)
Modulation Type	:	IEEE 802.11a/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Antenna Description	:	FPC Antenna, 5.26dBi (Max.)
WIFI (5.8G Band)		
Frequency Range	:	5745MHz~5825MHz
Channel Number	:	5 channels for 20MHz bandwidth(5745MHz~5825MHz)
Modulation Type	:	IEEE 802.11a/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Antenna Description	:	FPC Antenna, 5.26dBi (Max.)
Exposure category	:	General population/uncontrolled environment
EUT Type	:	Production Unit
Device Type	:	Mobile Devices

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/cm²)	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/f2)*	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/cm²)	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/f2)*	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

4. 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

5. 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	Internal Antenna	2400 – 2500 MHz	1.85 dBi	BT Antenna
Internal	Internal Antenna	2400 – 2500 MHz	3.54 dBi	WIFI Antenna
		5150 – 5850 MHz	5.26 dBi	WIFI Antenna

6. Conducted Power

[BLE 1M]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
BLE	0	2402	2.03
	19	2440	2.06
	39	2480	1.86

[2.4G WIFI]

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
IEEE 802.11b	1	2412	15.64
	6	2437	15.91
	11	2462	15.05
IEEE 802.11g	1	2412	14.48
	6	2437	14.51
	11	2462	14.42
IEEE 802.11n HT20	1	2412	13.5
	6	2437	13.43
	11	2462	13.43

[5.2G WIFI]

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
IEEE 802.11a	36	5180	12.72
	40	5200	12.89
	48	5240	12.03
IEEE 802.11n HT20	36	5180	12.24
	40	5200	11.37
	48	5240	10.44

[5.3G WIFI]

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
IEEE 802.11a	52	5260	12.57
	60	5300	12.64
	64	5320	13.17
IEEE 802.11n HT20	52	5260	11.5
	60	5300	11.85
	64	5320	10.9

[5.5G WIFI]

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
IEEE 802.11a	100	5500	12.06
	116	5580	11.93
	140	5700	11.17
IEEE 802.11n HT20	100	5500	10.9
	116	5580	10.59
	140	5700	10.95

[5.8G WIFI]

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
IEEE 802.11a	149	5745	12.28
	157	5785	11.62
	165	5825	11.2
IEEE 802.11n HT20	149	5745	11.14
	157	5785	10.32
	165	5825	9.83

7. Manufacturing Tolerance

[BLE 1M]

BT LE (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	2.0	2.0	1.0
Tolerance ±(dB)	1.0	1.0	1.0

[2.4G WIFI]

IEEE 802.11b (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	15.0	15.0	15.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11g (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	14.0	14.0	14.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	13.0	13.0	13.0
Tolerance ±(dB)	1.0	1.0	1.0

[5.2G WIFI]

IEEE 802.11a (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	12.0	12.0	12.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	12.0	11.0	10.0
Tolerance ±(dB)	1.0	1.0	1.0

[5.3G WIFI]

IEEE 802.11a (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	12.0	12.0	13.0
Tolerance ± (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	11.0	11.0	10.0
Tolerance ± (dB)	1.0	1.0	1.0

[5.5G WIFI]

IEEE 802.11a (Peak)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	12.0	11.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Peak)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	10.0	10.0	10.0
Tolerance ± (dB)	1.0	1.0	1.0

[5.8G WIFI]

IEEE 802.11a (Peak)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	11.0	11.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Peak)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	11.0	10.0	9.0
Tolerance ±(dB)	1.0	1.0	1.0

8. Measurement Results

8.1 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 =20cm, as well as the gain of the used antenna refer to antenna information, the RF power density can be obtained.

[BLE]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
BLE 1M	3.0	1.9953	1.85	1.5311	0.0006	1.0000

[2.4G WIFI]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11b	16.0	39.8107	5.26	3.3574	0.0266	1.0000
IEEE 802.11g	15.0	31.6228	5.26	3.3574	0.0211	1.0000
IEEE 802.11n HT20	14.0	25.1189	5.26	3.3574	0.0168	1.0000

[5.2G WIFI]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	13.0	19.9526	5.26	3.3574	0.0133	1.0000
IEEE 802.11n HT20	13.0	19.9526	5.26	3.3574	0.0133	1.0000

[5.3G WIFI]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	13.0	19.9526	5.26	3.3574	0.0133	1.0000
IEEE 802.11n HT20	12.0	15.8489	5.26	3.3574	0.0106	1.0000

[5.5G WIFI]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	13.0	19.9526	5.26	3.3574	0.0133	1.0000
IEEE 802.11n HT20	11.0	12.5893	5.26	3.3574	0.0084	1.0000

[5.8G WIFI]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	13.0	19.9526	5.26	3.3574	0.0133	1.0000
IEEE 802.11n HT20	12.0	15.8489	5.26	3.3574	0.0106	1.0000

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

8.2 Simultaneous Transmission MPE Evaluation

The sample support one BT transmit antenna, another one WIFI transmit antenna, so need consider simultaneous transmission;

Simultaneous transmission MPE
According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;
∑∑of MPE ratios ≤ 1.0

Mode	BT MPE (mW/cm^2)	2.4GWIFI MPE (mW/cm^2)	5.2GWIFIMPE (mW/cm^2)	∑MPE ratios	Limit	Results
BT+2.4GWIFI+5GWIFI	0.0006	0.0266	0.0133	0.0405	1.0	PASS

9. Conclusion

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

10. 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.

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