

Land America Health & Fitness Co., Ltd

MPE ASSESSMENT REPORT

Report Type:

FCC MPE assessment report

Model:

700-0554, 700-0555

REPORT NUMBER:

2410B0258SHA-005

ISSUE DATE:

April 8, 2025

DOCUMENT CONTROL NUMBER:

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Applicant: Land America Health & Fitness Co., Ltd
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Manufacturer: Land America Health & Fitness Co., Ltd
No. 25 North 2nd Road, Xinglin, Jimei, Xiamen, 361022, China

Manufacturer Site: Land America Health & Fitness Co., Ltd
No. 25 North 2nd Road, Xinglin, Jimei, Xiamen, 361022, China

Product Name: Embedded Console

Type/Model: 700-0554, 700-0555

FCC ID: 2BNWO-700554

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

KDB447498 D01 General RF Exposure Guidance v06
FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

PREPARED BY:**REVIEWED BY:**

Project Engineer
Scout Gong



Reviewer
Eric Li

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Revision History

Report No.	Version	Description	Issued Date
2410B0258SHA-005	Rev. 01	Initial issue of report	April 8, 2025

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Embedded console
Type/Model:	700-0554, 700-0555
Description of EUT:	<p>The EUT is an embedded console which supports Wi-Fi/BT/BLE function. There are two models, the key components and electrical schematics of the product are the same, the only difference is the size of the display screen.</p> <p>There is also a BT+NFC module designed which is certificated. The information of the BT+NFC module is:</p> <p>FCC ID: XRH-NPE105</p> <p>IC: 11922A-NPE105</p>
Rating:	12V DC, 5A
Category of EUT:	Class B
EUT type:	<input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing
Software Version:	-
Hardware Version:	-
Serial numbers:	A241024-36-001
Sample received date:	October 24, 2024
Date of test:	January 12, 2025, to March 20, 2025

1.2 Technical Specification

Frequency Range:	2402-2480MHz
Support Standards:	Bluetooth LE 5.0
Type of Modulation:	GFSK
Channel Number:	40
Data Rate:	1Mbps
Antenna Information:	1.57 dBi, FPCB antenna

Frequency Range:	2400MHz ~ 2483.5MHz
Support Standards:	Bluetooth 5.2 (BR+EDR)
Modulation Technique:	Frequency Hopping Spread Spectrum (FHSS)
Type of Modulation:	GFSK, $\pi/4$ DQPSK, 8DPSK
Channel Number:	79 (0 - 78)
Data Rate:	1Mbps
Channel Separation:	1 MHz
Antenna:	FPCB Antenna, 1.57 dBi Gain

Frequency Band:	2400MHz ~ 2483.5MHz
Support Standards:	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n(HT20), IEEE 802.11n(HT40)
Type of Modulation:	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n(HT20): OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n(HT40): OFDM (64-QAM, 16-QAM, QPSK, BPSK)
Operating Frequency:	2412MHz to 2462MHz for IEEE 802.11b/g/n(HT20) 2422MHz to 2452MHz for IEEE 802.11n(HT40)
Channel Number:	11 Channels for 802.11b, 802.11g ,802.11n(HT20) 7 Channels for 802.11n(HT40)
Channel Separation:	5 MHz
Antenna:	FPCB antenna (Wi-Fi 0): 1.93 dBi Gain FPCB antenna (Wi-Fi 1): 1.89 dBi Gain

Frequency Range:	5150 ~ 5250MHz 5250 ~ 5350MHz 5470 ~ 5725MHz 5725 ~ 5850MHz
Support Standards:	802.11a, 802.11n(HT20), 802.11n(HT40), 802.11ac (VHT20), 802.11ac (VHT40), 802.11ac (VHT80)
Type of Modulation:	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM,1024QAM)
Channel Number:	For 5180 ~ 5240MHz band: Channel 36 - 48 For 5260 ~ 5320MHz Band: Channel 52 - 64 For 5500 ~ 5700MHz Band: Channel 100 - 140 For 5745 ~ 5825MHz band: Channel 149 - 165
Antenna:	FPCB antenna (Wi-Fi 0): 1.80 dBi Gain FPCB antenna (Wi-Fi 1): 0.53 dBi Gain

1.3 Description of Test Facility

Name:	Intertek Testing Services (Shanghai FTZ) Co., Ltd
Address:	Building 86, No. 1198 Qinzhou Road (North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L21189
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab CAB identifier.: CN0014
	VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252
	A2LA Accreditation Lab Certificate Number: 3309.02

2 MPE Assessment

Test Result: Pass

2.1 MPE Assessment Limit

Mobile device exposure for standalone operations:

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (uT)	Equivalent plane wave power density S_{eq} (W/m ²)
0-1 Hz	-	$3,2 \times 10^4$	4×10^4	-
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	-
8-25 Hz	10 000	$4\,000/f$	$5\,000/f$	-
0,025-0,8 kHz	$250/f$	$4/f$	$5/f$	-
0,8-3 kHz	$250/f$	5	6,25	-
3-150 kHz	87	5	6,25	-
0,15-1 MHz	87	$0,73/f$	$0,92/f$	-
1-10 MHz	$87/f^{1/2}$	$0,73/f$	$0,92/f$	-
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375 f^{1/2}$	$0,0037 f^{1/2}$	$0,0046 f^{1/2}$	$f/200$
2-300 GHz	61	0,16	0,20	10

Mobile device exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0**

2.2 Assessment Results

Power density (S) is calculated according to the formula:

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

Where S = power density in mW/cm²

P = Radiated transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

As we can see from the test report 2410B0258SHA-001, 2410B0258SHA-002, 2410B0258SHA-003, 2410B0258SHA-004 and CTC20200069E01, CTC20200069E02:

The calculations in the table below use the highest gain of antenna for client EUT. These

Mode	Work Frequency	Power		Antenna Gain		R	S	Limits
	(MHz)	dBm	mW	dBi	(Numeric)	(cm)	(mW/cm ²)	(mW/cm ²)
BLE	2402 – 2480	1.62	1.46	1.57	1.44	20	0.0004	1.0000
BT	2402 – 2480	8.76	7.52	1.57	1.44	20	0.0022	1.0000
2.4G Wi-Fi	2412 – 2462	14.77	30.00	1.93	1.56	20	0.0094	1.0000
5G Wi-Fi	5180 – 5825	18.19	65.92	1.80	1.52	20	0.0200	1.0000
XRH-NPE105 (ANT+)	2402 – 2480	0.11	1.03	5.46	3.52	20	0.0007	1.0000
XRH-NPE105 (GFSK)	2457 – 2472	1.56	1.44	5.46	3.52	20	0.0010	1.0000

calculations represent worst case in terms of the exposure levels.

Note: 1 mW/cm² from 1.310 Table 1.

BT/BLE, 2.4G WIFI and module XRH-NPE105 can simultaneous transmitting, so the maximum rate of MPE is,

$$0.0022/1 + 0.0094/1 + 0.0010/1 = 0.0126 \leq 1.0$$

BT/BLE, 5G WIFI and module XRH-NPE105 can simultaneous transmitting, so the maximum rate of MPE is,

$$0.0022/1 + 0.0200/1 + 0.0010/1 = 0.0232 \leq 1.0$$

Appendix I

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation.
To ensure compliance, operations at closer than this distance is not recommended.

*****END*****