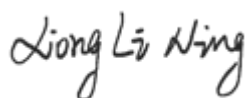


TEST REPORT

Applicant: Heilongjiang Huida Technology Co., Ltd
Building 1. Science and Technology Innovation
Headquarters, Shenzhen (Harbin) industrial Park,
Address: No.288 Zhigu Street, Songbei District, Harbin,
China
Equipment Type: Wireless Data Terminal
Model Name: HD200B (refer to section 2.3)
Brand Name: HUIDA TECH
FCC ID: 2BBNT- HD200B
Test Standard: 47 CFR Part 2.1091
KDB 447498 D04 v01
Sample Arrival Date: Nov. 27, 2024
Test Date: Dec. 04, 2024 - Jan. 15, 2025
Date of Issue: Mar. 28, 2025

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Xiong Lining**Checked by:** Xu Rui**Approved by:** Tolan Tu
(Testing Director)

Revision History

<u>Version</u>	<u>Issue Date</u>	<u>Revisions Content</u>
<u>Rev. 01</u>	<u>Mar. 28, 2025</u>	<u>Initial Issue</u>

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1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	☐ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	☒ 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Heilongjiang Huida Technology Co., Ltd
Address	Building 1. Science and Technology Innovation Headquarters, Shenzhen (Harbin) industrial Park, No.288 Zhigu Street, Songbei District, Harbin, China

2.2 Manufacturer Information

Manufacturer	Heilongjiang Huida Technology Co., Ltd
Address	Building 1. Science and Technology Innovation Headquarters, Shenzhen (Harbin) industrial Park, No.288 Zhigu Street, Songbei District, Harbin, China

2.3 General Description for Equipment under Test (EUT)

EUT Name	Wireless Data Terminal
Model Name Under Test	HD200B
Series Model Name	HD200
Description of Model name differentiation	All models are same with electrical parameters and internal circuit structure, but only differ in model name. (this information provided by the applicant)
Hardware Version	GNSS_MAIN_International_P1
Software Version	N/A
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Technical Information

Network and Wireless connectivity	2G Network GPRS 850/1900 MHz 4G Network FDD LTE Band 2/4/5/7/12/13/18/19/25/26/66 TDD LTE Band 38/41 WIFI 802.11b, 802.11g, 802.11n Radio, BDS, GPS, GLONASS, Galileo, QZSS
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The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	GPRS, LTE, WIFI, Radio		
Frequency Range	GPRS 850	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	GPRS 1900	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	LTE Band 2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	LTE Band 4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	LTE Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 7	TX: 2500 ~ 2570 MHz	RX: 2620 ~ 2690 MHz
	LTE Band 12	TX: 699 ~ 716 MHz	RX: 729 ~ 746 MHz
	LTE Band 13	TX: 777 ~ 787 MHz	RX: 746 ~ 756 MHz
	LTE Band 18	TX: 815 ~ 824 MHz	RX: 860 ~ 869 MHz
		TX: 824 ~ 830 MHz	RX: 869 ~ 875 MHz
	LTE Band 19	TX: 830 ~ 845 MHz	RX: 875 ~ 890 MHz
	LTE Band 25	TX: 1850 ~ 1915 MHz	RX: 1930 ~ 1995 MHz
	LTE Band 26	TX: 814 ~ 824 MHz	RX: 859 ~ 869 MHz
		TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 66	TX: 1710 ~ 1780 MHz	RX: 2110 ~ 2180 MHz
	LTE Band 38	TX: 2570 ~ 2620 MHz	RX: 2570 ~ 2620 MHz
	LTE Band 41	TX: 2496 ~ 2690 MHz	RX: 2496 ~ 2690 MHz
	WIFI	2412 ~ 2462 MHz	
	Radio	450 ~ 470 MHz	
Antenna Type	WWAN	PCB Antenna	
	WIFI	PCB Antenna	
	Radio	External Antenna	
Exposure Category	General Population/Uncontrolled Exposure		
Product Type	Mobile Device		

3 SUMMARY OF TEST RESULT

3.1 Test Standards

No.	Identity	Document Title
1	KDB 447498 D04 v01	447498 D04 Interim General RF Exposure Guidance v01

3.2 Limit Standards

No.	Identity	Document Title
1	47 CFR Part 2.1091	Radiofrequency radiation exposure evaluation: mobile devices

4 DEVICE CATEGORY AND LEVELS LIMITS

Mobile Devices:

CFR Title 47 §2.1091(b)

(b) For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons.

FCC KDB 447498 D04 General RF Exposure Guidance v01 Limit

Frequencies above 300 kHz but at distances $R > \lambda/2\pi$, R is the antenna-person separation distance.

λ =wavelength of transmitted signal.

Can calculate from the frequency of operation using $v=f*\lambda$

v =speed of light= $3*10^8$ m/s

f =frequency(Hz)

Primarily an MPE-based exclusion but also SAR-based where $\lambda/2\pi$ is <20 cm.

TABLE B.1—THRESHOLDS FOR SINGLE RF SOURCES
SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION

RF Source Frequency			Minimum Distance			Threshold ERP
f_L MHz		f_H MHz	$\lambda_L / 2\pi$		$\lambda_H / 2\pi$	W
0.3	–	1.34	159 m	–	35.6 m	$1,920 R^2$
1.34	–	30	35.6 m	–	1.6 m	$3,450 R^2/f^2$
30	–	300	1.6 m	–	159 mm	$3.83 R^2$
300	–	1,500	159 mm	–	31.8 mm	$0.0128 R^2 f$
1,500	–	100,000	31.8 mm	–	0.5 mm	$19.2 R^2$
Subscripts L and H are low and high; λ is wavelength. From § 1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.						

5 ASSESSMENT RESULT

5.1 Output Power

Mode	GPRS 850	GPRS 1900	GPRS 850	GPRS 1900
	Burst Average Power (dBm)		Frame-Averaged power (dBm)	
GPRS (GMSK, 1-Slot)	32.29	28.23	23.10	19.04
GPRS (GMSK, 2-Slot)	29.99	28.06	23.86	21.93
GPRS (GMSK, 3-Slot)	27.75	25.46	27.75	21.04
GPRS (GMSK, 4-Slot)	25.70	23.23	22.52	20.05

Note 1: This report listed the worst case conducted power value, please refer to BL-SZ24B1363-501 report for more details.

Note 2: The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:

Frame-averaged power = Burst averaged power (1 Tx Slot) - 9.19 dB

Frame-averaged power = Burst averaged power (2 Tx Slots) - 6.13 dB

Frame-averaged power = Burst averaged power (3 Tx Slots) - 4.42 dB

Frame-averaged power = Burst averaged power (4 Tx Slots) - 3.18 dB

Mode	GPRS 850	GPRS 1900
Conducted Power (dBm)	27.75	21.93
Antenna Gain (dBi)	2.72	4.35
EIRP/ERP (dBm)	28.32	26.28

Note: This report listed the worst case conducted power value, please refer to BL-SZ24B1363-501 report for more details.

Mode	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12
Conducted Power (dBm)	23.97	23.65	23.93	25.12	24.14
Antenna Gain (dBi)	4.35	2.85	2.72	3.07	0.19
EIRP/ERP (dBm)	28.32	26.50	24.50	28.19	22.18
Mode	LTE Band 13	LTE Band 18 (part22)	LTE Band 18 (part90)	LTE Band 19	LTE Band 25
Conducted Power (dBm)	24.04	23.52	23.72	23.99	24.64
Antenna Gain (dBi)	0.86	2.37	2.37	2.72	4.69
EIRP/ERP (dBm)	22.75	23.74	23.94	24.56	29.33
Mode	LTE Band 26 (part22)	LTE Band 26 (part90)	LTE Band 66	LTE Band 38	LTE Band 41
Conducted Power (dBm)	24.00	22.85	24.33	23.74	24.33
Antenna Gain (dBi)	2.72	2.37	3.11	2.91	4.34
EIRP/ERP (dBm)	24.57	23.07	27.44	26.65	28.67

Note: This report listed the worst case conducted power value, please refer to BL-SZ24B1363-501 report for more details.

Mode	WIFI	Radio
Conducted Power (dBm)	15.69	30.65
Antenna Gain (dBi)	3.14	2.0
EIRP (dBm)	18.83	32.65
Note: This report listed the worst case conducted power value, please refer to BL-SZ24B1363-601, 2502Q33410E-RF-00 report for more details.		

5.2 Tune-up power

Mode	Conducted Power Range (dBm)	EIRP Range (dBm)	ERP Range (dBm)
GPRS 850	[26.00, 28.00]	/	[26.57, 28.57]
GPRS 1900	[20.00, 22.00]	[24.35, 26.35]	[22.20, 24.20]
LTE Band 2	[22.00, 24.00]	[26.35, 28.35]	[24.20, 26.20]
LTE Band 4	[22.00, 24.00]	[24.85, 26.85]	[22.70, 24.70]
LTE Band 5	[22.00, 24.00]	/	[22.57, 24.57]
LTE Band 7	[23.50, 25.50]	[26.57, 28.57]	[24.42, 26.42]
LTE Band 12	[22.50, 24.50]	/	[20.54, 22.54]
LTE Band 13	[22.50, 24.50]	/	[21.21, 23.21]
LTE Band 18 (part22)	[22.00, 24.00]	/	[22.22, 24.22]
LTE Band 18 (part90)	[22.00, 24.00]	/	[22.22, 24.22]
LTE Band 19	[22.00, 24.00]	/	[22.57, 24.57]
LTE Band 25	[23.00, 25.00]	[27.69, 29.69]	[25.54, 27.54]
LTE Band 26 (part22)	[22.00, 24.00]	/	[22.57, 24.57]
LTE Band 26 (part90)	[21.00, 23.00]	/	[21.22, 23.22]
LTE Band 66	[22.50, 24.50]	[25.61, 27.61]	[23.46, 25.46]
LTE Band 38	[22.00, 24.00]	[24.91, 26.91]	[22.76, 24.76]
LTE Band 41	[22.50, 24.50]	[26.84, 28.84]	[24.69, 26.69]
WIFI	[14.00, 16.00]	[17.14, 19.14]	[14.99, 16.99]
Radio	[29.00, 31.00]	[31.00, 33.00]	[28.85, 30.85]
Note1: ERP= EIRP -2.15dB.			
Note2: According KDB 447498 D04, used the greater of maximum conducted power and ERP to compare with the threshold value Pth.			

5.3 RF Exposure Evaluation Result

Evolution Mode	Frequency (MHz)	Distance (mm)	$\lambda / 2 \pi$ (mm)	$R > \lambda / 2 \pi$
GPRS 850	824	500	58	Yes
GPRS 1900	1850	500	26	Yes
LTE Band 2	1850	500	26	Yes
LTE Band 4	1710	500	28	Yes
LTE Band 5	824	500	58	Yes
LTE Band 7	2500	500	19	Yes
LTE Band 12	699	500	68	Yes
LTE Band 13	746	500	64	Yes
LTE Band 18 (part22)	815	500	59	Yes
LTE Band 18 (part90)	824	500	58	Yes
LTE Band 19	830	500	58	Yes
LTE Band 25	1850	500	26	Yes
LTE Band 26 (part22)	814	500	59	Yes
LTE Band 26 (part90)	824	500	58	Yes
LTE Band 66	1710	500	28	Yes
LTE Band 38	2570	500	19	Yes
LTE Band 41	2496	500	19	Yes
WIFI	2462	500	19	Yes
Radio	450	500	106	Yes
Note: According to the product instructions, the distance between the product and the human body is not less than 500mm.				

Evolution Mode	Maximum power (dBm)	Maximum power (W)	Distance (mm)	Threshold Power (W)	Power / Limit	Verdict
GPRS 850	28.57	0.719	500	263.680	0.0027	Pass
GPRS 1900	24.20	0.263	500	480.000	0.0005	Pass
LTE Band 2	26.20	0.417	500	480.000	0.0009	Pass
LTE Band 4	24.70	0.295	500	480.000	0.0006	Pass
LTE Band 5	24.57	0.286	500	263.680	0.0011	Pass
LTE Band 7	26.42	0.439	500	480.000	0.0009	Pass
LTE Band 12	24.50	0.282	500	223.680	0.0013	Pass
LTE Band 13	24.50	0.282	500	238.720	0.0012	Pass
LTE Band 18 (part22)	24.22	0.264	500	260.800	0.0010	Pass
LTE Band 18 (part90)	24.22	0.264	500	263.680	0.0010	Pass
LTE Band 19	24.57	0.286	500	265.600	0.0011	Pass
LTE Band 25	27.54	0.568	500	480.000	0.0012	Pass
LTE Band 26 (part22)	24.57	0.286	500	260.480	0.0011	Pass
LTE Band 26 (part90)	23.22	0.210	500	263.680	0.0008	Pass
LTE Band 66	25.46	0.352	500	480.000	0.0007	Pass
LTE Band 38	24.76	0.299	500	480.000	0.0006	Pass
LTE Band 41	26.69	0.467	500	480.000	0.0010	Pass
WIFI	16.99	0.050	500	480.000	0.0001	Pass
Radio	30.85	1.216	500	144.000	0.0084	Pass

5.4 Collocated Power Calculation

Evolution mode	Frequency (MHz)	Power /Limit	$\Sigma(\text{Power} / \text{Limit})$ of GPRS 850 + WIFI + Radio	Verdict
GPRS 850	824	0.0027	0.0112	Pass
WIFI	2462	0.0001		
Radio	450	0.0084		

Note:

1. $\Sigma(\text{Power} / \text{Limit})$: This is a summation of [(power for each transmitter/ antenna included in the simultaneous transmission)/ (corresponding Power limit)], for GPRS 850 + WIFI + Radio.
2. Both of the 0.824GHz/2.462GHz/0.45GHz can transmit simultaneously, the formula of calculated the Power is

$$\text{CP1} / \text{LP1} + \text{CP2} / \text{LP2} + \dots \text{etc.} < 1$$

CP = Calculation power
LP = Limit of power
3. The worst-case situation is 0.0112, which is less than "1". This confirmed that the device comply with FCC KDB 447498 D04 Power limit.
4. The DUT work frequency range used is 824 MHz ~ 849 MHz, 2412 MHz ~ 2462 MHz and 450 MHz ~ 470 MHz the result close to the limit by the above formula, so we select worst case power to calculate the exclusion power threshold.

5.5 Conclusion

This EUT is deemed to comply with the reference level limits, therefore the basic restrictions are compliant with human exposure limits.

Statement

1. The laboratory guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
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--END OF REPORT--