

EMC Test Report

Applicant's name : Hongbaoda Science and Education Culture Co., Ltd., Chenghai Dist., Shantou City

Address : No.9, West Yiheng, Longtian Road, Guangyi Street, Chenghai District, Shantou City, Guangdong Province

Manufacture's Name : Hongbaoda Science and Education Culture Co., Ltd., Chenghai Dist., Shantou City

Address : No.9, West Yiheng, Longtian Road, Guangyi Street, Chenghai District, Shantou City, Guangdong Province

Product description

Trader mark : N/A

Product Name: : remote control football toy

Model and/or type reference : HBD88-ZQ01

Serial Model : HBD88-ZQ02 , HBD88-ZQ03

Rating(s) : N/A

Standards : FCC 47CFR § 2.1093
447498 D01 General RF Exposure Guidance v06

The EUT described above has been tested by us with the listed standards and found in compliance with the FCC requirements. It is possible to use FCC marking to demonstrate the compliance with this FCC requirements.

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Date of Test

Date (s) of performance of tests : 2026-03-09 ~ 2026-03-18

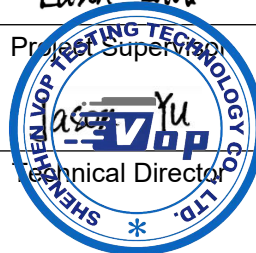
Date of Issue : 2026-03-18

Test Result : **Pass**

Prepared by: Jide Huang
Project Engineer

Reviewed by: Eason Zhou
Project Supervisor

Approved by: Jason Yu
Technical Director



REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	2026-03-18	Valid	Initial Release



Contents

Contents.....	3
1. TEST SUMMARY.....	4
2. TEST FACILITY	4
2.1. Deviation from Standard	4
2.2. Abnormalities from Standard Conditions	4
3. GENERAL INFORMATION.....	5
3.1. General Description of EUT	5
3.2. EUT Test Mode.....	5
3.3. Auxiliary Equipment Used During Test	5
4. TEST RESULTS	6
4.1. Radiofrequency radiation exposure evaluation: portable devices.....	6
4.1.1. Conclusion:	9



1. TEST SUMMARY

No.	Test Item	Basic Standard	Result
1	Radiofrequency radiation exposure evaluation: portable devices	FCC 47CFR § 2.1093	PASS

2. TEST FACILITY

Shenzhen VOP Testing Technology Co., Ltd.

Add:103, Building 5, Wanyan Industrial Park Qiaotou Community, Fuhai Street, Baoan District Shenzhen,
Guangdong People's Republic of China

FCC:Designation Number:CN1438,Certificate Number: 7579.01

2.1. Deviation from Standard

None

2.2. Abnormalities from Standard Conditions

None

3. GENERAL INFORMATION

3.1. General Description of EUT

Manufacturer:	Hongbaoda Science and Education Culture Co., Ltd.,Chenghai Dist.,Shantou City
Manufacturer Address:	No.9, West Yiheng, Longtian Road, Guangyi Street,ChenghaiDistrict, Shantou City, Guangdong Province
EUT Name:	remote control football toy
Model No:	HBD88-ZQ01
Serial Model:	HBD88-ZQ02 , HBD88-ZQ03
FCC ID:	2BQZP-HBD88-ZQ01
Brand Name:	N/A
Difference Description:	All models are identical to each other except for model name and appearance.

3.2. EUT Test Mode

TM1	TX
Note:All above mode have been measurement, only worst data was reported.	

3.3. Auxiliary Equipment Used During Test

No.	Equipment	Manufacturer	Model No.	Serial No.	Remark
1	N/A	N/A	N/A	N/A	N/A

4. TEST RESULTS

4.1. Radiofrequency radiation exposure evaluation: portable devices

Test Requirement:	CFR 47 Part 2.1093																																																	
Test Limit:	Blanket 1 mW Blanket Exemption The 1 mW Blanket Exemption of §1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance. The 1-mW blanket exemption applies at separation distances less than 0.5 cm, including where there is no separation. This exemption shall not be used in conjunction with other exemption criteria other than those for multiple RF sources in paragraph §1.1307(b)(3)(ii)(A). The 1-mW exemption is independent of service type and covers the full range of 100 kHz to 100 GHz, but it shall not be used in conjunction with other exemption criteria or in devices with higher-power transmitters operating in the same time-averaging period. Exposure from such higher-power transmitters would invalidate the underlying assumption that exposure from the lower-power transmitter is the only contributor to SAR in the relevant volume of tissue. MPE-based Exemption General frequency and separation-distance dependent MPE-based effective radiated power (ERP) thresholds are in Table B.1 [Table 1 of §1.1307(b)(1)(i)(C)] to support an exemption from further evaluation from 300 kHz through 100 GHz.																																																	
	Table B.1—Thresholds For Single RF Sources Subject to Routine Environmental Evaluation																																																	
	<table><tr><th colspan="3">RF Source Frequency</th><th colspan="3">Minimum Distance</th><th>Threshold ERP</th></tr><tr><td>f_L MHz</td><td></td><td>f_H MHz</td><td>$\lambda_L / 2\pi$</td><td></td><td>$\lambda_H / 2\pi$</td><td>W</td></tr><tr><td>0.3</td><td>–</td><td>1.34</td><td>159 m</td><td>–</td><td>35.6 m</td><td>1,920 R²</td></tr><tr><td>1.34</td><td>–</td><td>30</td><td>35.6 m</td><td>–</td><td>1.6 m</td><td>3,450 R²/f ²</td></tr><tr><td>30</td><td>–</td><td>300</td><td>1.6 m</td><td>–</td><td>159 mm</td><td>3.83 R²</td></tr><tr><td>300</td><td>–</td><td>1,500</td><td>159 mm</td><td>–</td><td>31.8 mm</td><td>0.0128 R²f</td></tr><tr><td>1,500</td><td>–</td><td>100,000</td><td>31.8 mm</td><td>–</td><td>0.5 mm</td><td>19.2R²</td></tr></table>	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	19.2R ²
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Subscripts L and H are low and high; λ is wavelength. From §1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.																																																		
The table applies to any RF source (i.e. single fixed, mobile, and portable transmitters) and specifies power and distance criteria for each of the five frequency ranges used for the MPE limits. These criteria apply at separation distances from any part of the radiating structure of at least $\lambda/2\pi$. The thresholds are																																																		
based on the general population MPE limits with a single perfect reflection, outside of the reactive near-field, and in the main beam of the radiator.																																																		
For mobile devices that are not exempt per Table B.1 [Table 1 of §1.1307(b)(1)(i)(C)] at																																																		

distances from 20 cm to 40 cm and in 0.3 GHz to 6 GHz, evaluation of compliance with the exposure limits in §1.1310 is necessary if the ERP of the device is greater than ERP_{20cm} in Formula (B.1) [repeated from §2.1091(c)(1); also in §1.1307(b)(1)(i)(B)].

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

If the ERP is not easily obtained, then the available maximum time-averaged power may be used (i.e., without consideration of ERP only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole.

SAR-based exemptions are constant at separation distances between 20 cm and 40 cm to avoid discontinuities in the threshold when transitioning between SAR-based and MPE-based exemption criteria at 40 cm, considering the importance of reflections.

Limit calculation			
Frequency range	Frequency(MHz)	$R(\lambda/2\pi)(m)$	Threshold ERP(W)
300~1500MHz	915	0.0522	0.032
1500~100000MHz	2480	0.0193	0.007

SAR-based Exemption

SAR-based thresholds are derived based on frequency, power, and separation distance of the RF source. The formula defines the thresholds in general for either available maximum time-averaged power or maximum time-averaged ERP, whichever is greater. If the ERP of a device is not easily determined, such as for a portable device with a small form factor, the applicant may use the available maximum time-averaged power exclusively if the device antenna or radiating structure does not exceed an electrical length of $\lambda/4$.

As for devices with antennas of length greater than $\lambda/4$ where the gain is not well defined, but always less than that of a half-wave dipole (length $\lambda/2$), the available maximum time-averaged power generated by the device may be used in place of the maximum time-averaged ERP, where that value is not known.

The separation distance is the smallest distance from any part of the antenna or radiating structure for all persons, during operation at the applicable ERP. In the case of mobile or portable devices, the separation distance is from the outer housing of the device where it is closest to the antenna.

The SAR-based exemption formula of §1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula (B.2).

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

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).
RF Exposure Test Exemptions for Simultaneous Transmission Sources

1-mW Test Exemption for Multiple Sources

The 1-mW exemption intended for single transmitters may be also applied to simultaneous transmission conditions, within the same host device, according one of the following criteria:

- When maximum available power each individual transmitting antenna within the same time averaging period is ≤ 1 mW, and the nearest parts of the antenna structures of the simultaneously operating transmitters are separated by at least 2 cm.
- When the aggregate maximum available power of all transmitting antennas is ≤ 1 mW in the same time-averaging period.

Simultaneous Transmission with both SAR-based and MPE-Based Test Exemptions

For these cases, a device with multiple RF sources transmitting simultaneously will be considered an *RF exempt device* if the condition of Formula (1) is satisfied.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure\ Limit_k} \leq 1 \quad (1)$$

For these test exemptions to apply, the maximum output power, duty factor, and other applicable parameters used in the standalone ERP determination tests, must be the same, or corresponding to a more conservative choice, than those required for simultaneous transmission.

The power level of the standalone SAR used to qualify for SAR test exemption, or additional test exemption, must be clearly explained in the SAR report. When simultaneous transmission SAR- based test exemptions, or when the *SPLSR* test exemption cannot be applied, *enlarged zoom scan* SAR measurements must be performed at the maximum output power required for the applicable simultaneous transmission scenarios. This power level shall account for the *tune-up tolerance* requirements of all transmitters, but not more than 2 dB lower than the maximum tune-up tolerance limit.

4.1.1. Conclusion:

F (GHz)	Antenna Distance	Field Strength	erp	limit
	(mm)	(dBuv/m@3m)	mW	mW
2.460	5	87.33	0.0916	2.79

According to ANSI C63.10:

EIRP (dBm) = E(dBμV/m) - 95.2

ERP (dBm) = EIRP (dBm) - 2.15

For E = 87.33 dBμV/m @ 2460 MHz, 3m distance:

EIRP = 87.33 - 95.2 = -7.87 dBm

ERP = -7.87 - 2.15 = -10.02 dBm

ERP (mW) = $10^{(-10.02/10)} \approx 0.0916$ mW

Since 0.0916 mW < limit (2.79 mW) at 5 mm antenna distance, SAR evaluation is not required.

****End of the report****