

TEST REPORT

Product Name : Render
Model Number : HPT-50
FCC ID : 2BVWZ-REN50

Prepared for : HP Tuners LLC
Address : 700 Eastwood In, Buffalo Grove, Illinois 60089, United States

Prepared by : EMTEK (SHENZHEN) CO., LTD.
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Modified Information

Version	Report No.	Revision Date	Summary
Ver.1.0	ENS2603120002W00506R	/	Original Report

1 TEST RESULT CERTIFICATION

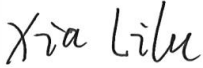
Applicant : HP Tuners LLC
Address : 700 Eastwood In, Buffalo Grove, Illinois 60089, United States
Manufacturer : HP Tuners LLC
Address : 700 Eastwood In, Buffalo Grove, Illinois 60089, United States
EUT : Render
Model Name : HPT-50
Trademark : 

Measurement Procedure Used:

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 2, Subpart J § 2.1091	PASS

The device described above is tested by EMTEK (Shenzhen) Co., Ltd. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and EMTEK (Shenzhen) Co., Ltd. is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the above table standards requirement.

This report applies to above tested sample only and shall not be reproduced in part without written approval of EMTEK (Shenzhen) Co., Ltd.

Date of Test : April 14, 2026 to May 11, 2026
Prepared by : 
Yu Xiaolan/Editor
Reviewer : 
Xia Lili/Supervisor
Approved & Authorized Signer : 
Wang Li/Manager



2 EUT TECHNICAL DESCRIPTION

Product Name:	Render
Model Number:	HPT-50
Power Supply:	(1) Input: 12V, 1A (2) Type C port 5V input (Note: The EUT has two power supply methods, DC 12V supply and Type C port supply, pre testing all power supplies, and find the DC 12V supply is the worst, so only the worst data is shown in the report.)
Temperature Range:	-20°C~60°C
Date of Received:	April 12, 2026
Sample Number:	ENS2603120002W005-01

Bluetooth Version:	V5.2
Data Rate:	1Mbps for GFSK modulation 2Mbps for pi/4-DQPSK modulation 3Mbps for 8DPSK modulation
Modulation:	GFSK, pi/4-DQPSK, 8DPSK
Operating Frequency Range:	2402-2480MHz
Number of Channels:	79 channels

BLE Version:	V5.2
Device Type:	Bluetooth with BLE mode
Data Rate :	1Mbps and 2Mbps
Modulation:	GFSK
Operating Frequency Range:	2402-2480MHz
Number of Channels:	40 Channels

IEEE 802.11 WLAN Mode Supported:	802.11b 802.11g 802.11n(20)
Modulation:	DSSS, OFDM
Operating Frequency Range:	2412-2462MHz for 802.11b/g/n(20)
Number of Channels:	11 channels for 802.11b/g/n(20)

WIFI Type:	UNII-1: 5150MHz-5250MHz Band UNII-2A: 5250MHz-5350MHz Band UNII-2C: 5470MHz-5725MHz Band UNII-3: 5725MHz-5850MHz Band
WLAN Supported:	IEEE 802.11a IEEE 802.11n(20MHz channel bandwidth) IEEE 802.11n(40MHz channel bandwidth) IEEE 802.11ac(20MHz channel bandwidth) IEEE 802.11ac(40MHz channel bandwidth) IEEE 802.11ac(80MHz channel bandwidth)
Frequency Range:	5150MHz-5250MHz Band: 5180-5240MHz for 802.11a 5180-5240MHz for 802.11n(20) 5190-5230MHz for 802.11n(40) 5180-5240MHz for 802.11ac(20) 5190-5230MHz for 802.11ac(40) 5210MHz for 802.11ac(80) 5250MHz-5350MHz Band: 5260-5320MHz for 802.11a 5260-5320MHz for 802.11n(20) 5270-5310MHz for 802.11n(40) 5260-5320MHz for 802.11ac(20) 5270-5310MHz for 802.11ac(40) 5290MHz for 802.11ac(80) 5470MHz-5725MHz Band: 5500-5700MHz for 802.11a 5500-5700MHz for 802.11n(20) 5510-5670MHz for 802.11n(40) 5500-5700MHz for 802.11ac(20) 5510-5670MHz for 802.11ac(40) 5530-5610MHz for 802.11ac(80)

	5725MHz-5850MHz Band: 5745-5825MHz for 802.11a 5745-5825MHz for 802.11n(20) 5755-5795MHz for 802.11n(40) 5745-5825MHz for 802.11ac(20) 5755-5795MHz for 802.11ac(40) 5775MHz for 802.11ac(80)
Modulation:	OFDM
TPC Function:	Support
Beamforming:	Not Support
DFS Function:	Slave
Smart System:	SISO

2.1 FEATURE OF EUT

a) Antenna information

Specification	Antenna	Brand	Model	Antenna Type	Gain
BT	1	/	/	FPC Antenna	2.34dBi
BLE	1	/	/	FPC Antenna	2.34dBi
2.4G WIFI	1	/	/	FPC Antenna	2.34dBi
5G WIFI	1	/	/	FPC Antenna	4.66dBi

Note: The antenna information provided by the manufacturer will have a certain impact on the test results.

b) Modification Record

There were no modifications required for compliance.

c) For more details, please refer to the user's manual of the EUT.

3 FACILITIES AND ACCREDITATIONS

3.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

Bldg 69, Majialong Industry Zone District, Nanshan District, Shenzhen, China

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.26 and CISPR Publication 22.

3.2 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description

EMC Lab.

: **Accredited by CNAS**

The Certificate Registration Number is L2291

The Laboratory has been assessed and proved to be in compliance with CNAS-CL01 (identical to ISO/IEC 17025:2017)

Accredited by FCC

Designation Number: CN1204

Test Firm Registration Number: 882943

Accredited by A2LA

The Certificate Number is 4321.01

Accredited by Industry Canada

The Conformity Assessment Body Identifier is CN0008

Name of Firm

: EMTEK (SHENZHEN) CO., LTD.

Site Location

: Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China

4 RF EXPOSURE EVALUATION

According to FCC 47 CFR Part 2, Subpart J § 2.1091: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation.

Limits for Maximum Permissible Exposure (MPE).

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm ²)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

4.1 Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where

P_d = Power density in mW/cm².

P_{out} =output power to antenna in mW.

G = Numeric gain of the antenna relative to isotropic antenna.

π =3.1416.

R = distance between observation point and center of the radiator in 20cm.

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

5 MEASUREMENT RESULT

Mode	Frequency	Max Conducted Power (dBm)	Tune up (dBm)	Antenna gain (dBi)	R (cm)	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
BT	2441	6.97	8	2.34	20	0.0022	1.0000
BLE	2440	5.94	7	2.34	20	0.0017	1.0000
2.4G WIFI	2462	16.29	18	2.34	20	0.0215	1.0000
5G WIFI	5550	15.39	17	4.66	20	0.0292	1.0000

NOTE: All the modulation modes were tested, the data of the worst mode are described in the table.

Conclusion of simultaneous transmitter:

They can transmit simultaneously, the formula of calculated the MPE is:

$CPD1/LPD1 + CPD2/LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

Therefore the worst-case situation is $0.0022/1 + 0.0017/1 + 0.0215/1 + 0.0292/1 = 0.0546$, which is less than 1, this confirmed that the device comply with FCC 1.1310 MPE limit.

--- End of Report ---

声 明

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6. Objections shall be raised within 20 days from the date receiving the report.