

Test report

Applicant:

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Test report no.:

200268-AU01+W04

for:

Hero Workout GmbH
Activity tracker
HW-HB100



according to:

Part 2
RSS 102



All test results relate to the items tested only.
For reproduction of extracts of this test report, the written approval of EMV **TESTHAUS** GmbH is required.

Accreditation:



FCC test firm accreditation expiration date: 2021-05-30
MRA US-EU, FCC designation number: DE0010
FCC registration number: 97268
BnetzA-CAB-02/21-02/5 Valid until 2023-11-26



Recognized on March 14th, 2019 by the
Department of Innovation, Science and Economic Development (ISED) Canada
as a wireless testing laboratory
CAB identifier: DE0011
ISED#: 3472A

Location of Testing:



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The technical accuracy is guaranteed through the quality management of the
EMV **TESTHAUS** GmbH.



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Hero Workout GmbH
Activity tracker
HW-HB100

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1 Test regulations

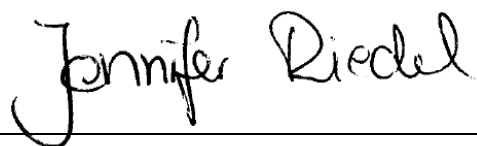
Standard	Title
RSS-102 Issue 5 March 2015	Spectrum Management and Telecommunications Radio Standards Specification Radio Frequency (RF) Exposure Compliance of Radio communication Apparatus (All Frequency Bands)
SPR-002 Issue 1 September 2016	Spectrum Management and Telecommunications Supplementary Procedure Supplementary Procedure for Assessing Compliance with RSS-102 Nerve Stimulation Exposure Limits
Safety Code 6 (2015)	Limits of Human Exposure to Radiofrequency Electromagnetic Energy in the Frequency Range from 3 kHz to 300 GHz
IEEE C95.3-2002 (R2008) Approved December 11, 2002 Reaffirmed June 12, 2008	IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz–300 GHz
KDB 680106 D01 May 31, 2013 (published by the Federal Communications Commission FCC)	RF Exposure Considerations for Low Power Consumer Wireless Power Transfer Applications
OET Bulletin 65, 65A, 65B Edition 97-01, August 1997	Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields
Part 1, Subpart I, Section 1.1310	Radiofrequency radiation exposure limits
Part 1, Subpart 2, Section 2.1091	Radiofrequency radiation exposure evaluation: mobile devices.
Part 1, Subpart 2, Section 2.1093	Radiofrequency radiation exposure evaluation: portable device
KDB 447498 D01 v06	Mobile and portable devices RF Exposure procedures and equipment authorisation policies, October 23, 2015.
KDB 865664 D01	SAR Measurement Requirements for 100 MHz to 6 GHz, August 7, 2015.
ANSI C95.1: 2005	IEEE Standard for Safety Levels with respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
ANSI C63.10 June 2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

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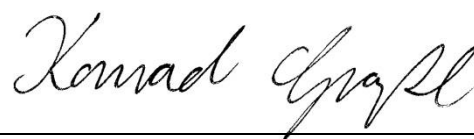
Summary of test results

Standard	Result	Remark
Part 2	Passed	---
RSS-102 Issue 5	Passed	---

Straubing, August 26, 2020



Jennifer Riedel
Test engineer
EMV **TESTHAUS** GmbH



Konrad Graßl
Head of Radio department
EMV **TESTHAUS** GmbH

3 Equipment under test (EUT)

Product type: Activity tracker
Model Name: HW-HB100
Manufacturer: Hero Workout GmbH
Serial number: 20373347-4D4E5001-002D004D-002026EE
Version: Hardware: 2.200.0-E
Software: 0.1.0
Short description: EUT is an activity tracker for recording of sport exercises that transmits its recorded data to a smartphone via Bluetooth 5.0.
FCC ID: 2AWRN-HB100
IC certification number: 26246-HB100
Application frequency band: 2400 MHz to 2483.5 MHz
Frequency range: 2402 MHz to 2480 MHz
Number of RF channels: 40
Modulation: GFSK
Antenna types: PCB antenna
☐ detachable ☒ not detachable
Power supply: Battery supply
nominal voltage: 3.7 V
Type of device: ☐ Body-supported device
☐ Body-worn (or body-mount) radio
☒ Limb-Worn device
☐ other
Separation distance: ☒ ≤ 20 cm
☐ > 20 cm
Evaluated against exposure limits: ☒ General public use
☐ Controlled use

4 Photographs of EUT

See Annex B of test report 200268-AU01+W03 of the test laboratory EMV Testhaus GmbH.

5 Test results

This clause gives details about the test results as collected on page 6.

The climatic conditions are recorded during the tests. It is ensured that the climatic conditions are within the following ranges:

<i>Ambient temperature</i>	<i>Ambient humidity</i>	<i>Ambient pressure</i>
15°C to 35°C	30 % to 75 %	86 kPa to 106 kPa

5.1 FCC

5.1.1 Evaluation for separation distance ≤ 20 cm, except WPT

Reference: Part 2, Section 2.1093

Basic standard: n/a

Performed by:	Jennifer Riedel	Date of test:	August 26, 2020
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Result:	<input checked="" type="checkbox"/> Limits kept	<input type="checkbox"/> Limits not kept
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5.1.1.1 Data of equipment under test (EUT)

Note(s):

1. The data for the RF technology is taken out of the Test report 200268-AU01+W03 Test report of the test laboratory EMV Testhaus GmbH.
2. Regarding the tune-up tolerance: According to the manufacturer the power amplifier on the STM32WB is always saturated. So there is almost no variation regarding the max output level (+6dBm typical).

RF technology :

Application: Bluetooth low energy

Operation frequency range: 2400 MHz – 2483.5 MHz

Antenna model SMD antenna

Antenna connector: none

Antenna type: internal
not detachable

Antenna gain: 1.5 dBi

Maximum conducted output power: 4.96 dBm at 2402 MHz

Tune-up tolerance: 0 dB

5.1.1.2 Requirements and limits for separation distance ≤ 20 cm

This estimation follows the general guidelines for RF Exposure according to KDB 447498.

As noted in §2.103(b) For purposes of this section, a portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user.

According §2.1093 (d)(i)(2): The SAR limits for general population/uncontrolled exposure are 0.08 W/kg, as averaged over the whole body, and a peak spatial-average SAR of 1.6 W/kg, averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the parts of the human body treated as extremities, such as hands, wrists, feet, ankles, and pinnae, where the peak spatial-average SAR limit is 4 W/kg, averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). Exposure may be averaged over a time period not to exceed 30 minutes to determine compliance with general population/uncontrolled SAR limits.

5.1.1.3 Results

Information related to Exposure:

Separation distance: 0 mm

Exposure tier: general public

Power averaging over time: Not applied

<i>Separation distance (mm)</i>	<i>Channel Frequency (MHz)</i>	<i>rated power + tolerance (dBm)</i>	<i>rated power + tolerance (mW)</i>	<i>10-g SAR</i>	<i>Limit 10-g SAR</i>	<i>Fraction of limit (%)</i>
0	2402	4.96	3.13	0.97	7.5	12.95

Table 1: Exposure to the limbs

5.2 Canada

5.2.1 Evaluation for separation distance ≤ 20 cm, except 3 kHz -10 MHz

Reference: RSS 102 clause

Basic standard: n/a

Performed by:	Jennifer Riedel	Date of test:	August 26, 2020
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Result:	<input type="checkbox"/> Limits kept	<input type="checkbox"/> Limits not kept
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5.2.1.1 Data of equipment under test (EUT)

Note(s):

3. The data for the RF technology is taken out of the Test report 200268-AU01+W03 Test report of the test laboratory EMV Testhaus GmbH.
4. Regarding the tune-up tolerance: According to the manufacturer the power amplifier on the STM32WB is always saturated. So there is almost no variation regarding the max output level (+6dBm typical).

RF technology :

Application: Bluetooth low energy

Operation frequency range: 2400 MHz – 2483.5 MHz

Antenna model SMD antenna

Antenna connector: none

Antenna type: internal
not detachable

Antenna gain: 1.5 dBi

Maximum conducted output power: 4.96 dBm at 2402 MHz

Tune-up tolerance: 0 dB

5.2.1.2 Exemption Limits for Routine Evaluation – SAR Evaluation

According RSS 102 clause 2.5.1:

SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table 1.

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
≤300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW

- ⁴ The exemption limits in Table 1 are based on measurements and simulations of half-wave dipole antennas at separation distances of 5 mm to 25 mm from a flat phantom, providing a SAR value of approximately 0.4 W/kg for 1 g of tissue. For low frequencies (300 MHz to 835 MHz), the exemption limits are derived from a linear fit. For high frequencies (1900 MHz and above), the exemption limits are derived from a third order polynomial fit.
- ⁵ Transmitters operating between 0.003-10 MHz, meeting the exemption from routine SAR evaluation, shall demonstrate compliance to the instantaneous limits in Section 4.

Output power level shall be the higher of the maximum conducted or equivalent isotropically radiated power (e.i.r.p.) source-based, time-averaged output power. For controlled use devices where the 8 W/kg for 1 gram of tissue applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 5. For limb-worn devices where the 10 gram value applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 2.5. If the operating frequency of the device is between two frequencies located in Table 1, linear interpolation shall be applied for the applicable separation distance. For test separation distance less than 5 mm, the exemption limits for a separation distance of 5 mm can be applied to determine if a routine evaluation is required. For medical implants devices, the exemption limit for routine evaluation is set at 1 mW. The output power of a medical implants device is defined as the higher of the conducted or e.i.r.p to determine whether the device is exempt from the SAR evaluation.

5.2.1.3 Results

Information related to Exposure:

Separation distance: 0 mm

Exposure tier: general public

Power averaging over time: Not applied

<i>Separation distance (mm)</i>	<i>Channel Frequency (MHz)</i>	<i>EIRP + tolerance (dBm)</i>	<i>EIRP + tolerance (mW)</i>	<i>Limit 1-g SAR (mW)</i>	<i>Fraction of limit (%)</i>
0	2402	6.46	4.43	10.0	44.3

Table 2: Exposure to the limbs

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Revision history

<i>Revision</i>	<i>Date</i>	<i>Issued by</i>	<i>Description of modifications</i>
0	2020-08-26	Jennifer Riedel	First edition