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Report No.: SZEM171201263203

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RF Exposure Evaluation Report

Application No.: SZEM1712012632RG
Applicant: Anima AB
Address of Applicant: Vastra Varvsgatan 19, S21177 Malmö SWEDEN
Manufacturer: Anima AB
Address of Manufacturer: Vastra Varvsgatan 19, S21177 Malmö SWEDEN
Factory: GoerTek Inc.
Address of Factory: Yingqian Street, High-Tech Industrial Development District, Weifang, Shandong, 261031, P.R. China
Equipment Under Test (EUT):
Product Name: Wireless connected hybrid smart watch movement
Model No.: BT003
Trade Mark: Kronaby
FCC ID: 2AKPL- BT003
IC ID: 22272- BT003
Standards: 47 CFR Part 1.1310(2018)
47 CFR Part 2.1091(2018)
RSS-102 Issue 5
Date of Receipt: 2017-12-21
Date of Test: 2017-12-27 to 2017-12-28
Date of Issue: 2018-01-31

Test Result:	PASS*
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* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Derek Yang
Wireless Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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2 Version

<i>Revision Record</i>				
<i>Version</i>	<i>Chapter</i>	<i>Date</i>	<i>Modifier</i>	<i>Remark</i>
01		2018-01-31		Original

Authorized for issue by:				
				2018-01-26
		<hr/>		Date
		(Mike Hu) /Project Engineer		
				2018-01-31
		<hr/>		Date
		(Jim Huang) /Reviewer		



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4 General Information

4.1 General Description of EUT

Product Name:	Wireless connected hybrid smart watch movement
Model No.:	BT003
Bluetooth Version:	5.0 BT Signal mode
Frequency Range:	2402MHz to 2480MHz
Type of Modulation:	BLE: GFSK
Antenna Type:	PIFA Antenna
Antenna Gain:	BLE: 2dBi

4.2 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China
518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

4.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

4.4 Deviation from Standards

None.

4.5 Abnormalities from Standard Conditions

None.

4.6 Other Information Requested by the Customer

None.

5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Limits

According to KDB447498D01 General RF Exposure Guidance v06

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0$$
 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

f(GHz) is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

According to RSS-102 Issue 5, section 2.5.1 Exemption.

RF exposure evaluation is required if the separation distance between the user and the device's radiating element 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. as follows:

Table 1: SAR evaluation — Exemption limits for routine evaluation based on frequency and separation distance^{4,5}

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

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.

5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit data at lowest, middle and highest channel individually.



For BLE

Antenna Gain: 2dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1 in linear scale.

According to RSS-102 Issue 5, section 2.5.1 Exemption.

Frequency (MHz)	Max Conducted Peak Output Power (dBm)	EIRP (mW)	Limit (mW)	Result
2402	4.14	4.11	9.75	PASS

According to KDB447498D01 General RF Exposure Guidance v06

The Max. power (including tune-up tolerance) is 5.00 dBm on the highest channel 2.48 GHz (*)		
5.00 dBm logarithmic terms convert to numeric result is nearly 3.16 mW		
According to the formula. calculate the test exclusion thresholds:		
$General\ RF\ Exposure = \frac{Max.\ Power\ of\ channel,\ including\ tune\ -up\ tolerance,\ mW}{(min.\ test\ separation\ distance,\ mm) * \sqrt{f\ (GHz)}}$		
$General\ RF\ Exposure = (3.16\ mW / 5\ mm) * \sqrt{2.48\ GHz} = 1.00$	(1)	
SAR requirement:		
$S = 3.0$	(2)	
(1) < (2)		
So the SAR report is not required.		
(*) Max. power refer to Report No.:SZEM171201263201		