



RF Exposure Evaluation Report

Application No.: SZEM2005004343CR
Applicant: Garmin International Inc
Address of Applicant: 1200 E. 151st. Street, Olathe, Kansas 66062, United States
Manufacturer: Measurement Ltd
Address of Manufacturer: Block A, 19/F., Prince Industrial building, 106 King Fuk Street, San Po Kong, Kowloon, Hong Kong
Factory: Display Electronics(Shenzhen)Co., Ltd
Address of Factory: No.1, Fifth Road, Yangyong Industrial Park, Shapu Community Songgang, Baoan District, Shenzhen, Guangdong Province, China

Equipment Under Test (EUT):
EUT Name: Smart Scale
Model No.: Index™ S2
Trade Mark: Garmin
FCC ID: IPH-37408
Standards: 47 CFR PART 1, Subpart I, Section 1.1310
47 CFR PART 2, Subpart J, Section 2.1093
KDB 447498 D01 General RF Exposure Guidance v06

Date of Receipt: 2020-05-28
Date of Test: 2020-05-29 to 2020-06-22
Date of Issue: 2020-06-22

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

Keny Xu

Keny Xu
EMC Laboratory Manager



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

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2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2020-06-22		Original

Authorized for issue by:			
			
		Calvin Weng /Project Engineer	
			
		Eric Fu /Reviewer	



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4 General Information

4.1 General Description of EUT

For BT	
Power Supply:	DC6V by 1.5V AAA battery*4
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	5.0
Modulation Type:	GFSK
Number of Channels:	40
Channel Spacing:	2MHz
Antenna Gain:	Integral antenna
Antenna Type:	-2.35dBi
For 2.4G WIFI	
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz 802.11n(HT40): 2422MHz to 2452MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20):11 802.11n(HT40):7
Channel Spacing:	5MHz
Antenna Gain:	-3.78dBi
Antenna Type:	Integral antenna
For 2.4G Proprietary	
Operation Frequency:	2466MHz
Modulation Type:	GFSK
Number of Channels:	1
Antenna Gain:	-2.35dBi
Antenna Type:	Integral antenna



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:

• 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 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 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.

• Innovation, Science and Economic Development Canada

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

CAB identifier: CN0006.

IC#: 4620C.

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 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

5.1.2 Limits

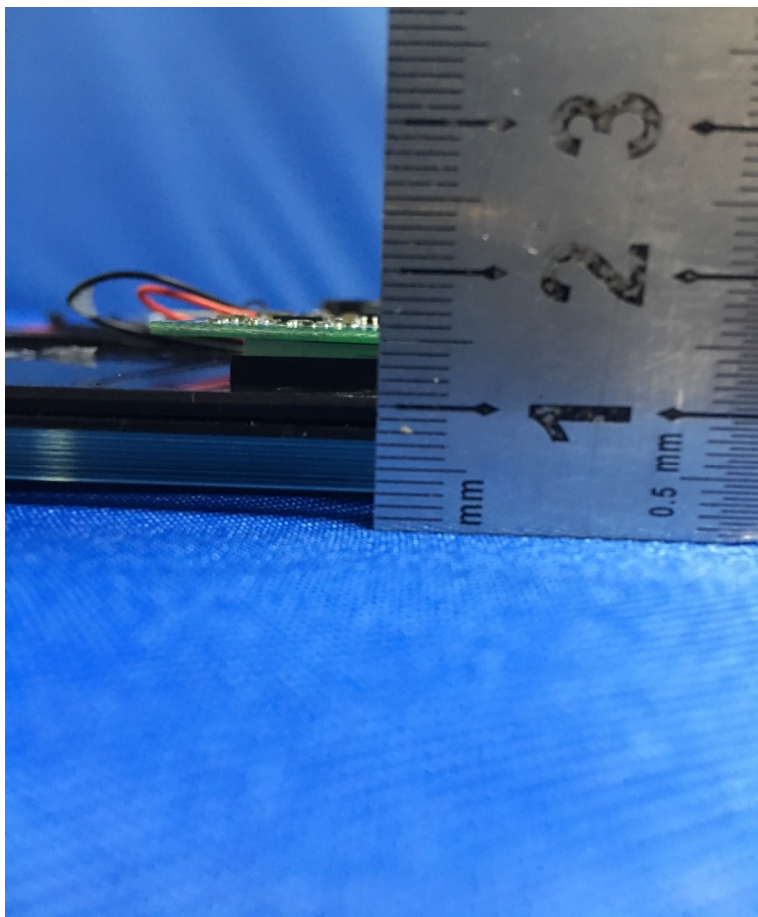
The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

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

- $f(\text{GHz})$ 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

5.1.3 EUT RF Exposure



Distance from antenna to the top surface is about 1.5cm.

For BLE

Antenna : -2.35dB

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 0.58 in linear scale.

The Max. power (including tune-up toleranc -5.21 dBm on the lowest channe 2.402 GHz (*)
-5.21 dBm logarithmic terms convert to numeric result is nearly 0.30 mW

According to the formula. calculate the test exclusion thresholds:

$$\text{General RF Exposure} = \frac{(\text{Max. Power of channel, including tune-up tolerance, mW}) * \sqrt{f \text{ (GHz)}}}{(\text{min. test separation distance, mm})}$$

$$\text{General RF Exposure} = (0.30 \text{ mW} / 15 \text{ mm}) * \sqrt{2.402 \text{ GHz}} = 0.03 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

$$(1) < (2)$$

So the SAR report is not required.

(*) Max. power refer to Report No.:SZEM200500434302



For 2.4G WiFi

Antenna Gain: -3.78dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 0.42 in linear scale.

The Max. power (including tune-up tolerance) 14.14 dBm on the lowest channel 2.412 GHz (*)
14.14 dBm logarithmic terms convert to numeric result is nearly 25.94 mW

According to the formula, calculate the test exclusion thresholds:

$$\text{General RF Exposure} = \frac{(\text{Max. Power of channel, including tune-up tolerance, mW}) * \sqrt{f \text{ (GHz)}}}{(\text{min. test separation distance, mm})}$$

$$\text{General RF Exposure} = (25.94 \text{ mW} / 15 \text{ mm}) * \sqrt{2.412 \text{ GHz}} = 2.69 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

$$(1) < (2)$$

So the SAR report is not required.

(*) Max. power refer to Report No.:SZEM200500434303

- End of the Report -



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