


## 1 Cover Page

# ***RF Exposure Evaluation Report***

**Application No.:** SHCR2312002541ME  
**FCC ID:** PQC-WPIM  
**IC:** 3549B-WPIM  
**Applicant:** Philips Medical Systems North America Co. (For FCC)  
Philips Medical Systems (For IC)  
**Address of Applicant:** 222 Jacobs Street, Cambridge, Massachusetts 02141, United States  
**Manufacturer:** Philips Medical Systems  
**Address of Manufacturer:** 3000 Minuteman Road Andover, MA 01810-1099 USA  
**Factory:** Philips North America LLC  
**Address of Factory:** 1, 1001 Murry Ridge Lane, STE A, Murrysville PA 15668, USA  
2, 1003 Corporate Lane STE B, Export PA 15632, USA

**Equipment Under Test (EUT):**  
**EUT Name:** Wireless PIM  
**Model No.:** WPIM-001  
**Trade Mark:**   
**Standard(s) :** FCC Rules 47 CFR §2.1093  
KDB447498 D01 General RF Exposure Guidance v06  
RSS-102 Issue 6 (December 15, 2023)  
**Date of Receipt:** 2023-12-07  
**Date of Test:** 2023-12-11 to 2023-12-14  
**Date of Issue:** 2024-01-09

<b>Test Result:</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



**SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.**

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR231200254102

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Revision Record			
Version	Description	Date	Remark
00	Original	2024-01-09	/

<b>Authorized for issue by:</b>			
<b>Tested By</b>	<i>Wade Zhang</i>		
	_____ <b>Wade Zhang/Project Engineer</b>		
<b>Approved By</b>	<i>Parlam Zhan</i>		
	_____ <b>Parlam Zhan /Reviewer</b>		



# SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

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### 3 General Information

#### 3.1 General Description of E.U.T.

Power supply:	DC 1.5V (AA Battery*1)
Product Type:	<input checked="" type="checkbox"/> Portable device
	<input type="checkbox"/> Mobile device
	<input type="checkbox"/> Fixed device

#### 3.2 Details of E.U.T.

Operation Frequency:	2405MHz to 2480MHz
Modulation Type:	O-QPSK
Number of Channels:	16(Channel:11~26)
Channel Spacing:	5MHz
Antenna Type:	Ceramic Antenna
Antenna Gain:	3 dBi (Provided by manufacturer)
S/N:	CN42111005
Firmware Version:	7.38

### 3.3 Separation Distance

Separation distance between the antenna to person (R):	<5mm
Remark: This minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander.	

### 3.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China.

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g. max. clock frequency, highest internal frequency, antenna gain, cable loss, etc ) is provided by the applicant. (if applicable).
2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (if applicable).
3. Sample source: sent by customer.

### 3.5 Test Facility

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

• **A2LA (Certificate No. 6332.01)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the American Association for Laboratory Accreditation(A2LA).

• **FCC (Designation Number: CN1301)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

• **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

Company Number: 8617A

• **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

## 4 FCC Radiofrequency radiation exposure limits

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

$[(\text{max power of channel})/(\text{min test separation distance})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$  for 1-g SAR and  $\leq 7.5$  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
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds

The test exclusions are applicable only when the minimum test separation distance is  $\leq$  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 according to 4.1 f) is applied to determine SAR test exclusion.

For 2.4G band device, the limit of worse case is

$$P_{\text{max}} \leq 3.0 \cdot D_{\text{min}} / \sqrt{f} = 3.0 \cdot 5 / \sqrt{2.480} = 9.525 \text{mW}$$

## 5 IC SAR exemption limits

According to RSS-102 issue 6 section 6.3, devices operating at or below the applicable output power levels (adjusted for tune-up tolerance) specified in table 1, based on the separation distance, are exempt from SAR evaluation. The separation distance, defined as the distance between the user and/or bystander and the antenna and/or radiating element of the device or the outer surface of the device, shall be less than or equal to 20 cm for these exemption limits to apply.

Table 1: Power limits for exemption from routine SAR evaluation based on the separation distance

MHz	5	10	15	20	25	30	35	40	45	50	mm
≤300	45	116	139	163	189	216	246	280	319	362	mW
450	32	71	87	104	124	147	175	208	248	296	
835	21	32	41	54	72	96	129	172	228	298	
1900	6	10	18	33	57	92	138	194	257	323	
2450	3	7	16	32	56	89	128	170	209	245	
3500	2	6	15	29	50	72	94	114	134	158	
5800	1	5	13	23	32	41	54	74	102	128	

The exemption limits in table 1 are based on measurements and simulations of half-wave dipole antennas at separation distances of 5 mm to 50 mm from a flat phantom, which provides a SAR value of approximately 0.4 W/kg for 1 g of tissue. For limb-worn devices where the 10 gram of tissue applies, the exemption limits for routine evaluation in table 1 are multiplied by a factor of 2.5. 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.

When the operating frequency of the device is between two frequencies located in table 1, linear interpolation shall be applied for the applicable separation distance. If the separation distance of the device is between two distances located in table 1, linear interpolation may be applied for the applicable frequency. Alternatively, the limit corresponding to the smaller distance may be employed. For example, in case of a 7 mm separation distance, either use the exception value for a 5 mm separation distance or interpolate between the limits corresponding to 5 mm and 10 mm separation distances.

For implanted medical devices, the exemption limit for routine SAR evaluation is set at an output power of 1 mW, regardless of frequency.

The practical use condition for this device is as a hand hold accessories. So the applicable limit is 10-g extremity SAR

For 2.4G band device, the limit is  $P_{max} \leq 2.5 \times 3 = 7.5 \text{mW}$

## 6 Measurement and Calculation

### 6.1 Maximum transmit power

The Power Data is based on the RF Test Report SHCR231200254101.

TestMode	Antenna	Channel	Result [dBm]	Result [mW]
ZIGBEE	Ant1	2405	-1.31	0.74
		2440	-0.62	<b>0.87</b>
		2480	-0.98	0.80

### 6.2 RF Exposure Calculation

The Max Conducted Peak Output Power is 0.87 mW. The best case gain of the antenna is 3dBi.

3dBi logarithmic terms convert to numeric result is nearly 1.995

#### For FCC:

According to the formula. calculate the EIRP test result:

$$EIRP = P \times G = 0.87 \text{ mW} \times 1.995 = 1.74\text{mW} < 9.525\text{mW} \text{ (For FCC limit)}$$

**Remark:** we used the maximum power between the conducted power and ERP/EIRP to perform RF exposure exemption evaluation.

#### For IC:

$$EIRP = P \times G = 0.87 \text{ mW} \times 1.995 = 1.74\text{mW} < 7.5\text{mW} \text{ (For IC limit)}$$

So, the device is to qualify for FCC & IC SAR test exemption, the exemption report is in lieu of the SAR report.

**--End of the Report--**