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RF Exposure Evaluation Report

Application No.:	SHEM1911018604CR
FCC ID:	OU5B1X501
Applicant:	GE Medical System Information Technologies, Inc.
Address of Applicant:	9900 Innovation Drive, Wauwatosa, WI 53226 USA
Manufacturer:	GE Medical System Information Technologies, Inc.
Address of Manufacturer:	9900 Innovation Drive, Wauwatosa, WI 53226 USA
Factory:	GE Medical Systems (China) Co., Ltd.
Address of Factory:	No.19 Changjiang Road, Wuxi, Jiangsu, China
Equipment Under Test (EUT):	
EUT Name:	B1X5 Wi-Fi Module
Model No.:	B1X5-01
Standard(s) :	FCC Rules 47 CFR §2.1091 KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt:	2019-11-06
Date of Test:	2020-01-15 to 2020-03-19
Date of Issue:	2020-04-01
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Parlam Zhan
E&E Section 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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Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

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Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2020-04-01	/

Authorized for issue by:				
		Bill Wu **Bill Wu / Project Engineer**		
		Parlam Zhan **Parlam Zhan /Reviewer**		

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3 General Information

3.1 General Description of E.U.T.

Power supply: DC 5V from test board
Test voltage: DC 5V

2.4G WiFi

Max Antenna Gain	Antenna 1:3.2dBi Antenna 2:3.2dBi
Antenna Type	FPC Antenna
Channel Spacing	5MHz
Modulation Type	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels	802.11b/g/n(HT20): 13 802.11n(HT40):9
Operation Frequency	802.11b/g/n(HT20): 2412MHz to 2472MHz 802.11n(HT40): 2422MHz to 2462MHz
Power Class	>=10mW

5G WiFi

Operation Frequency:	Band	Mode	Frequency Range(MHz)	Number of channels
	Band 1	802.11a/n(HT20)	5180-5240	4
		802.11n(HT40)	5190-5230	2
	Band 2A	802.11a/n(HT20)	5260-5320	4
		802.11n(HT40)	5270-5310	2
	Band 2C	802.11a/n(HT20)	5500-5700	11
		802.11n(HT40)	5510-5670	5
	Band 3	802.11a/n(HT20)	5745-5825	5
		802.11n(HT40)	5755-5795	2
Modulation Type:	802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM)			
Channel Spacing:	802.11a/n(HT20): 20MHz 802.11n(HT40): 40MHz			
Adaptive Type	Load Based & Responding & Supervised device			
Max Antenna Gain	Antenna 1:4.5dBi			
Antenna Type	FPC Antenna			
DFS Function	Slave without Radar detection			

3.2 Test Location

All tests were performed at:

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

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

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

3.3 Test Facility

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

- **CNAS (No. CNAS L0599)**
  CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2017 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.
- **NVLAP (LAB CODE: 201034-0)**
  SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).
- **FCC (Designation Number: CN5033)**
  SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory. Test Firm Registration Number: 479755.
- **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. ISED#: 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 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure limits:

According to§1.1310, the limit for general population/uncontrolled exposures

Frequency	Power density(mW/cm^2)	Averaging time(minutes)
300MHz~1.5GHz	f/1500	30
1.5GHz~100GHz	1.0	30

5 Measurement and Calculation

5.1 Maximum transmit power

For 2.4G WiFi

The Power Data is based on the RF Test Report SZEM180800762101

802.11b mode				
Test channel	Peak Output Power (dBm)		Limit (dBm)	Result
Lowest	14.06		30.00	Pass
Middle	13.86		30.00	Pass
Highest	13.72		30.00	Pass
802.11g mode				
Test channel	Peak Output Power (dBm)		Limit (dBm)	Result
Lowest	15.83		30.00	Pass
Middle	15.77		30.00	Pass
Highest	15.49		30.00	Pass
802.11n(HT20)mode				
Test channel	Peak Output Power (dBm)		Limit (dBm)	Result
Lowest	16.33		30.00	Pass
Middle	15.89		30.00	Pass
Highest	15.83		30.00	Pass
802.11n(HT20)mode				
Test channel	Peak Output Power (dBm)			Limit (dBm)	Result
	Antenna 1	Antenna 2	Total		
Lowest	16.33	14.96	18.71	30.00	Pass
Middle	15.89	15.03	18.49	30.00	Pass
Highest	15.83	15.08	18.48	30.00	Pass
802.11n(HT40)mode				
Test channel	Peak Output Power (dBm)		Limit (dBm)	Result
Lowest	15.06		30.00	Pass
Middle	15.00		30.00	Pass
Highest	14.94		30.00	Pass

For 5G WiFi

The Power Data is based on the RF Test Report SZEM180800762102

802.11a mode			
Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)	Result
5180	10.69	24.00	Pass
5200	9.72	24.00	Pass
5240	10.41	24.00	Pass
5260	7.41	24.00	Pass
5300	7.94	24.00	Pass
5320	7.88	24.00	Pass
5500	7.31	24.00	Pass
5580	12.92	24.00	Pass
5600	13.70	24.00	Pass
5700	5.50	24.00	Pass
5745	4.55	30.00	Pass
5785	9.63	30.00	Pass
5825	5.76	30.00	Pass

802.11n(HT20) mode			
Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)	Result
5180	9.49	24.00	Pass
5200	9.72	24.00	Pass
5240	10.53	24.00	Pass
5260	7.58	24.00	Pass
5300	8.88	24.00	Pass
5320	9.26	24.00	Pass
5500	10.03	24.00	Pass
5600	13.20	24.00	Pass
5700	4.97	24.00	Pass
5745	4.57	30.00	Pass
5785	9.23	30.00	Pass
5825	5.78	30.00	Pass

802.11n(40) mode			
Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)	Result
5190	7.73	24.00	Pass
5230	7.08	24.00	Pass
5270	6.41	24.00	Pass
5310	6.29	24.00	Pass
5510	8.11	24.00	Pass
5590	8.16	24.00	Pass
5670	6.96	24.00	Pass
5755	1.74	30.00	Pass
5795	4.43	30.00	Pass

5.2 MPE Calculation

For FCC:

According to the formula $S=P/4\pi R^2$, we can calculate S which is MPE.

Note:

1) P (mW)

2) R = distance to the center of radiation of antenna (in meter) = 20cm

3) MPE limit = 1mW/cm²

For 2.4G WiFi

The max output power is 18.71dBm

The max. antenna gain is 3.2 dBi

Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
74.3	2.089	20	0.03088	1	Pass

For 5G WiFi

The max output power is 13.7dBm

The max. antenna gain is 4.5 dBi

Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
23.4	2.818	20	0.01312	1	Pass

The WiFi module can simultaneous transmitting at 2.4G and 5G band, But the maximum MPE is 0.03/1+0.01/1=0.04<=1.0.So the device is exclusion from SAR test.

--End of the Report--