FCC RF EXPOSURE REPORT

CERTIFICATION TEST REPORT

For

Gateway

MODEL NUMBER: SIMATIC FDE Gateway

FCC ID: 2BC5R-FDEV1

REPORT NUMBER: 4790956043-1-RF-5

ISSUE DATE: November 28, 2023

Prepared for

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Prepared by

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Revision History

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V0	November 28, 2023	Initial Issue	

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	Siemens Industrial Automation Products Ltd., Chengdu
Address:	Tianyuan road 99, Chengdu High Tech Zone West, Chengdu, Sichuan Province, China

Manufacturer Information

Company Name:	Siemens Industrial Automation Products Ltd., Chengdu
Address:	Tianyuan road 99, Chengdu High Tech Zone West, Chengdu, Sichuan Province, China

EUT Information

EUT Name:	Gateway
Model:	SIMATIC FDE Gateway
Sample Received Date:	September 1, 2023
Sample Status:	Normal
Sample ID:	6408936
Date of Tested:	September 8, 2023 to November 28, 2023

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC 47CFR§2.1091	PASS

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 and KDB 447498 D01 General RF Exposure Guidance v06.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	**A2LA (Certificate No.: 4102.01)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. **FCC (FCC Designation No.: CN1187)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules **ISED (Company No.: 21320)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with Industry Canada. The Company Number is 21320. **VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004 Shielding Room B, the VCCI registration No. is C-20012 and T-20011

Note: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China.

4. DESCRIPTION OF EUT

EUT Name	Gateway
FCC&ISED Model	SIMATIC FDE Gateway

Product Description (BLE)	Frequency Range:	2402 MHz to 2480 MHz
	Type of Modulation:	GFSK
	Data Rate:	1Mbps/2Mbps
Product Description (2.4G WLAN)	Frequency Range:	2412 MHz to 2462 MHz
	Type of Modulation:	IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11g/n: OFDM(64-QAM, 16-QAM, QPSK, BPSK)
	Radio Technology:	IEEE 802.11b/g/n HT20
Product Description (5G RLAN)	Frequency Range:	5180 MHz to 5240 MHz 5260 MHz to 5320 MHz 5500 MHz to 5720 MHz 5745 MHz to 5825 MHz
	Type of Modulation:	IEEE 802.11a: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM(64QAM, 16QAM, QPSK, BPSK)
	Radio Technology:	IEEE802.11a/n-HT20
Normal Test Voltage:		DC 12 V/ DC 24 V

Note: We have pre-tested two power supplies, only the worst data DC 12 V usage was recorded in the report.

5. REQUIREMENT

LIMIT AND CALCULATION METHOD

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

Limits for General Population/Uncontrolled Exposure

RF EXPOSURE LIMIT

Frequency Range (MHz)	E-field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (Minutes)
0.3 -- 1.34	614	1.63	(100)*	30
1.34 -- 30	824/f	2.19/f	($180/f^2$)*	30
30 -- 300	27.5	0.073	0.2	30
300 -- 1500	--	--	f/1500	30
1500 -- 100,000	--	--	1.0	30

CALCULATION METHOD

$S=PG/4\pi R^2$

Where:

S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

CALCULATED RESULTS

External Antenna:

Mode	Max Tune Up Power	Max Antenna Gain	Power Density	Power Density Limit	Test Result
	dBm	dBi	mW/cm^2	mW/cm^2	--
WIFI 2.4G	14.5	1.47	0.00787	1.0	Complies

Mode	Max Tune Up Power	Max Antenna Gain	Power Density	Power Density Limit	Test Result
	dBm	dBi	mW/cm^2	mW/cm^2	--
WIFI 5G	13	1.17	0.00520	1.0	Complies

Mode	Max Tune Up Power	Max Antenna Gain	Power Density	Power Density Limit	Test Result
	dBm	dBi	mW/cm2	mW/cm2	--
BLE	4	1.47	0.00070	1.0	Complies

Internal Antenna:

Mode	Max Tune Up Power	Max Antenna Gain	Power Density	Power Density Limit	Test Result
	dBm	dBi	mW/cm^2	mW/cm^2	--
WIFI 2.4G	3	2.1	0.00064	1.0	Complies

Mode	Max Tune Up Power	Max Antenna Gain	Power Density	Power Density Limit	Test Result
	dBm	dBi	mW/cm^2	mW/cm^2	--
WIFI 5G	9	2.2	0.00262	1.0	Complies

Mode	Max Tune Up Power	Max Antenna Gain	Power Density	Power Density Limit	Test Result
	dBm	dBi	mW/cm^2	mW/cm^2	--
BLE	-11	3.7	0.00004	1.0	Complies

Co-Location Conditions:

Condition	Technology		Total Power Density mW/cm^2	Limit mW/cm^2
1	BLE (Internal antenna)	WLAN (2.4G) SISO (Internal antenna)	0.00068	1.0
2	BLE (Internal antenna)	WLAN (5G) SISO (Internal antenna)	0.00266	1.0
3	BLE (Internal antenna)	WLAN (2.4G) SISO (External antenna)	0.00791	1.0
4	BLE (Internal antenna)	WLAN (5G) SISO (External antenna)	0.00524	1.0
5	BLE (External antenna)	WLAN (2.4G) SISO (Internal antenna)	0.00134	1.0
6	BLE (External antenna)	WLAN (5G) SISO (Internal antenna)	0.00332	1.0

Note: 1. The calculated distance is 20cm.
2. The maximum calculations of above situations are less than the “1” limit.

END OF REPORT