RF EXPOSURE REPORT

CERTIFICATE OF CONFORMITY

Standard:	**RSS-102 (Issue 6) (December 15, 2023)**
Report No.:	MCBGDY-WTW-P24100607
IC:	267AA-MSAX65V1
Product:	Intustrial WLAN Access Point / Client
Brand:	SIEMENS
Model No.:	MSAX65-W1-M12-E2
Received Date:	2024/10/25
Test Date:	2024/10/28
Issued Date:	2024/11/6
Applicant:	SIEMENS AG
Address:	Östliche Rheinbrückenstr. 50 76187 Karlsruhe Germany
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
ISED# / CAB identifier:	7450F / TW2021

Approved by: Jeremy Lin , **Date:** 2024/11/6

Jeremy Lin / Project Engineer

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Prepared by : Lena Wang / Specialist

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Release Control Record

Issue No.	Description	Date Issued
MCBGDY-WTW-P24100607	Original Release	2024/11/6

1 Certificate

Product:	Intustrial WLAN Access Point / Client
Brand:	SIEMENS
Test Model:	MSAX65-W1-M12-E2
Sample Status:	Engineering sample
Applicant:	SIEMENS AG
Test Date:	2024/10/28
Standard:	RSS-102 (Issue 6) (December 15, 2023)

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2 Applicable RF Exposure Limit

RF field strength and power density limits for devices used by the general public (uncontrolled environment)

Frequency range (MHz)	Electric field (V_{RMS}/m)	Magnetic field (A_{RMS}/m)	Power density (W/m^2)	Reference period (minutes)
10-20	27.46	0.0728	2	6
20-48	58.07 / $f^{0.25}$	0.1540 / $f^{0.25}$	8.944 / $f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 $f^{0.3417}$	0.008335 $f^{0.3417}$	0.02619 $f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ $f^{1.2}$
150000-300000	0.158 $f^{0.5}$	4.21×10^{-4} $f^{0.5}$	6.67×10^{-5} f	616000/ $f^{1.2}$

Note: f is frequency in MHz.

RF field strength and power density limits for controlled-use devices (controlled environment)

Frequency range (MHz)	Electric field (V_{RMS}/m)	Magnetic field (A_{RMS}/m)	Power density (W/m^2)	Reference period (minutes)
10-20	61.4	0.163	10	6
20-48	129.8 / $f^{0.25}$	0.3444 / $f^{0.25}$	44.72 / $f^{0.5}$	6
48-100	49.33	0.1309	6.455	6
100-6000	15.60 $f^{0.25}$	0.04138 $f^{0.25}$	0.6455 $f^{0.5}$	6
6000-15000	137	0.364	50	6
15000-150000	137	0.364	50	616000 / $f^{1.2}$
150000-300000	0.354 $f^{0.5}$	9.40×10^{-4} $f^{0.5}$	3.33×10^{-4} f	616000 / $f^{1.2}$

Note: f is frequency in MHz.

3 Applicable Evaluation Criteria

Per RSS-102 issue 6, section 6.6 as reproduced below:
6.6 Field reference level exposure exemption limits
Field reference level (FRL) exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm (i.e. mobile devices), except when the device operates as follows:
• below 20 MHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than 1 W (adjusted for tune-up tolerance)
• at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than $4.49/f^{0.5}$W (adjusted for tune-up tolerance), where f is in MHz
• at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance)
• at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than $1.31\times10^{-2}f^{0.6834}$W (adjusted for tune-up tolerance), where f is in MHz
• at or above 6 GHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than 5 W (adjusted for tune-up tolerance)

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the EIRP was derived.

Total exposure

The various $ER_{therm\leq10\ mHz}$ and $ER_{therm<10\ mHz}$ from each of the different transmitters and different exposure metrics can be combined to determine the TER for all transmitters (TER_{therm}) using equation:

$$TER_{\{therm\}} = ER_{\{therm\ \leq 10\ MHz\}} + \sum_{\{t=1\}}^{T} ER_{\{therm>\ 10\ MHz,t\}} + \sum_{\{u=1\}}^{U} ER_{\{therm>\ 10\ MHz,u\}} + \sum_{\{v=1\}}^{V} ER_{\{therm>\ 10\ MHz,v\}} + \sum_{\{w=1\}}^{W} ER_{\{therm>\ 10\ MHz,w\}} + \sum_{\{x=1\}}^{X} ER_{\{therm>\ 10\ MHz,x\}} + \sum_{\{y=1\}}^{Y} ER_{\{therm>\ 10\ MHz,y\}} + \sum_{\{z=1\}}^{Z} ER_{\{exempted_{\{1\ mW\}}\},z}$$

where:

- T is the number of simultaneously operating transmitters for which an assessment against the basic restriction for SAR may have been performed
- U is the number of simultaneously operating exempted transmitters for which an estimate against the basic restriction for SAR may have been performed
- V is the number of simultaneously operating transmitters for which an assessment against the basic restriction for APD may have been performed
- W is the number of simultaneously operating exempted transmitters for which an estimate against the basic restriction for APD may have been performed
- X is the number of simultaneously operating transmitters (operating between 6 GHz and 30 GHz) for which an assessment against the IPD level may have been performed
- Y is the number of simultaneously operating transmitters (operating between 30 GHz and 300 GHz) for which an assessment against the IPD level may have been performed and
- Z is the number of simultaneously operating transmitters for which the 1 mW exemption as outlined in section 6.5 applies

Only contributions from unique transmitters shall be included in the calculation of the TER_{therm}. For instance, both APD and psPD evaluations in the 6 GHz to 10 GHz frequency range for the same transmitter should not be summed; the maximum ER is to be employed in this instance.
Compliance with the SAR-PD-based RF exposure limits is achieved if $TER_{therm} \leq 1$. Refer to RSS-102 issue 6 section 8.2.4 if $TER_{therm} > 1$ and if the device contains multiple antennas or multiple transmitters.

4 Test Results

Environmental Conditions:	25°C, 60% RH	Tested By:	Ted Lin

For Single RF Source

Field Reference Level Exposure Exemption							
Operation Mode	Frequency Band (MHz)	Average Power (W)	Antenna Gain (dBi)	Maximum EIRP (W)	Distance (cm)	Exemption Limit (W)	Test Result
WLAN 2.4GHz	2412-2462	0.087096	9	0.69183	20	2.684033	Pass
WLAN 2.4GHz	2412-2462	0.027542	14	0.69182	20	2.684033	Pass
WLAN 5GHz	5180-5240	0.018197	8	0.11482	20	4.525267	Pass
WLAN 5GHz	5745-5825	0.301995	8	1.9055	20	4.857022	Pass
WLAN 5GHz	5180-5240	0.017782	9	0.14125	20	4.525267	Pass
WLAN 5GHz	5745-5825	0.120226	9	0.955	20	4.857022	Pass
WLAN 5GHz	5180-5240	0.003467	14.2	0.091191	20	4.525267	Pass
WLAN 5GHz	5745-5825	0.134896	14.2	3.5481	20	4.857022	Pass
WLAN 5GHz	5260-5320	0.112201	8	0.7079	20	4.572913	Pass
WLAN 5GHz	5510-5710	0.114543	8	0.7227	20	4.720351	Pass
WLAN 5GHz	5260-5320	0.09525	9	0.7566	20	4.572913	Pass
WLAN 5GHz	5500-5700	0.097723	9	0.77624	20	4.714494	Pass
WLAN 5GHz	5260-5320	0.029512	14.2	0.77624	20	4.572913	Pass
WLAN 5GHz	5500-5700	0.028183	14.2	0.74129	20	4.714494	Pass

Note:
1. The Average power refer to BV 7layers RF test report no.: MDE_SIEM_1911_FCC_01, MDE_SIEM_1911_FCC_02 and MDE_SIEM_1911_FCC_05.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

For Multiple RF Sources (Simultaneous Operations)

Multiple RF Sources (Simultaneous Operations)							
Exemption Evaluation					Sum of Ratios	Limit of Ratios	Test Result
Operation Mode	Frequency Band (MHz)	Maximum EIRP (W)	Limit Threshold (W)	Ratio			
WLAN 2.4GHz	2412-2462	0.69182	2.684033	0.258	0.989	1	Pass
WLAN 5GHz	5745-5825	3.5481	4.857022	0.731			

5 Conclusion

Since EIRP and/or Source-base time average power is below Exemption and/or RF field strength limits established in Health Canada's RF exposure guideline, Safety Code 6 of RF Exposure Evaluation limit, therefore device is compliant ISED RF exposure requirement.

6 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

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