

RF EXPOSURE REPORT



Applicant: silex technology, Inc.
2-3-1 Hikaridai, Seika-cho, Soraku-gun, Kyoto 619-0237,
Japan

Manufacturer: silex technology, Inc.
2-3-1 Hikaridai, Seika-cho, Soraku-gun, Kyoto 619-0237,
Japan

Product Name: AP-800AX

Brand Name: Silex Technology

Model No.: AP-800AX

Model Difference: N/A

Report Number: TESA2303000181ES

FCC ID N6C-AP800AX

Issue Date: July 20, 2023

Date of EUT Received: March 29, 2023

Approved By _____

John Yeh

We hereby certify that:

The above equipment was evaluate by SGS Taiwan Ltd. The evaluation in this report is in compliance with FCC Rule Part §1.1307.

The results of this report relate to the specific sample identified in this report.

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Revision History

Report Number	Revision	Description	Issue Date	Revised By	Remark
TESA2303000181ES	00	Original.	July 20, 2023	Susan Lin	

Note:

- The remark "*" indicates modification of the report upon requests from certification body.

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1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

1.1 Product Description

Product Name:	AP-800AX
Brand Name:	Silex Technology
Model No.:	AP-800AX
Model Difference:	N/A
Hardware Version:	N/A
Firmware Version:	N/A
EUT Series No.:	000001814
Power Supply:	12Vdc

1.2 Evaluation site

Laboratory	Site Address	FCC Designation number	ISED Company Number	CAB Identifier
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	<input checked="" type="checkbox"/> No. 134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, 24803, Taiwan.	TW0027	4620A	TW3702
	<input type="checkbox"/> No. 2, Keji 1st Rd., Guishan Township, Taoyuan County, 333 Taiwan.	TW0028	4620E	
	<input type="checkbox"/> 1F, No. 8, Alley 15, Lane 120, Sec. 1, Nei Hu Road, Nei Hu District, Taipei City, 222 Taiwan.	TW0029	23862	

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1.3 Antenna Information:

1.3.1 WLAN 2.4GHz

Antenna Type	Chain0 / Chain1	Antenna Part No.	Freq. (MHz)	Peak Antenna Gain (dBi)
Dipole	Ch0	ANTDP-039A0	2.4GHz	1.20
	Ch1			1.20

1.3.2 WLAN 5GHz

Antenna Type	Antenna Part No.	Chain0 / Chain1
Dipole	ANTDP-039A0	Ch0
		Ch1

Operating Frequency (MHz)	Ch0 Peak Gain (dBi)	Ch1 Peak Gain (dBi)
5150.0 ~ 5250.0	1.10	1.10
5250.0 ~ 5350.0	1.10	1.10
5470.0 ~ 5725.0	1.20	1.20
5725.0 ~ 5850.0	1.30	1.30

Note: Antenna information is provided by the applicant.

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2 DETERMINATION OF MPE EXEMPTION

2.1 FCC

2.1.1 Single RF Source

As per §1.1307(b)(3)(i),

- (A) The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);
- (B) Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

d = the separation distance (cm);

Note: when 10-g extremity SAR applies, SAR test exemption may be considered by applying a factor of 2.5 to the SAR-based exemption thresholds.

- (C) Or using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

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**Table 1 to § 1.1307(b)(3)(i)(C) –
Single RF Sources Subject to Routine Environmental Evaluation**

RF Source frequency (MHz)		Minimum Distance			Threshold ERP (W)
fL	fH	$\lambda L / 2\pi$		$\lambda H / 2\pi$	
0.3	- 1.34	159m	-	35.6m	1920 R ²
1.34	- 30	35.6m	-	1.6m	3450 R ² /f ²
30	- 300	1.6m	-	159mm	3.83 R ²
300	- 1500	159mm	-	31.8mm	0.0128 R ² f
1500	- 100000	31.8mm	-	0.5mm	19.2R ²

R= minimum separation distance in meter

f = frequency in MHz

2.1.2 Multiple RF Sources

In the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

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2.1.3 Single RF Source Evaluation Results

Chain 0	Frequency (MHz)	Max. tune-up power (dBm)	Peak gain (dBi)	ERP (dBm)	ERP (W)	Permissible Minimum separation distance ($\lambda/2\pi$) (m)	R = actual Minimum separation distance(m)	ERP _{th} (W)	ERP/ERP _{th}	Simultaneous transmission modes					
										1	2	3	4	5	6
WiFi 2.4GHz	2442	20	1.2	19.05	0.080	0.0196	0.200	0.768	0.104	V					
WiFi 5GHz	5755	20	1.3	19.15	0.082	0.0083	0.200	0.768	0.107	V					

Chain 1	Frequency (MHz)	Max. tune-up power (dBm)	Peak gain (dBi)	ERP (dBm)	ERP (W)	Permissible Minimum separation distance ($\lambda/2\pi$) (m)	R = actual Minimum separation distance(m)	ERP _{th} (W)	ERP/ERP _{th}	Simultaneous transmission modes					
										1	2	3	4	5	6
WiFi 2.4GHz	2427	20	1.2	19.05	0.080	0.0197	0.200	0.768	0.104	V					
WiFi 5GHz	5795	20	1.3	19.15	0.082	0.0082	0.200	0.768	0.107	V					

Note: All the single RF source results (P or ERP) are less than their corresponding threshold (P_{th} or ERP_{th}), so they are exempt from RF exposure testing.

2.2 Multiple RF Sources Evaluation Results

Simultaneous transmission modes	Σ ERP/ERP _{th}	Criteria
1	0.422	1

Note:

1. $\Sigma(ERP/ERP_{th})$: This is a summation of [(ERP of RF source / exemption threshold ERP for RF source)].
Considering the collocated transmitters, the aggregated (ERP/ERP_{th}) is smaller than 1, and MPE of collocated transmitters is compliant.

~ End of Report ~

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