

RF EXPOSURE REPORT



Applicant: Seiko Epson Corporation
3-3-5 Owa Suwa-shi, Nagano-Ken 392-8502 Japan
Manufacturer: Seiko Epson Corporation
6925 Tazawa, Toyoshina, Azumino-shi, (Toyoshina Branch),
Nagano, 399-8285 Japan
Product Name: WLAN BT Module
Brand Name: EPSON
Model No.: NH7
FCC ID BKMAE-NH7
Date of EUT Received: Jun. 7, 2024
Issue Date: Aug. 22, 2024

Approved By

John Yeh

We hereby certify that:

The above equipment was evaluated by SGS Taiwan Ltd. The evaluation in this report is in compliance with FCC Rule Part §2.1091, KDB 447498 D01 v06.

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

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
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Revision History

Report Number	Revision	Description	Issue Date	Revised By	Remark
TESA2406000376ES	00	Original	Aug. 22, 2024	Cindy Chou	

Note:

- 1、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:	WLAN BT Module
Brand Name:	EPSON
Model No.:	NH7

1.2 Evaluation site

Laboratory	Site Address		FCC Designation number	ISED Company Number	CAB Identifier
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	☒	No. 134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, 24803, Taiwan.	TW0027	4620A	TW3702
	☐	No. 2, Keji 1st Rd., Guishan Township, Taoyuan County, 333 Taiwan.	TW0028	4620E	
	☐	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:

The antenna information is provided by the applicant.

1.3.1 BT / WLAN 2.4GHz

Antenna Type	ANT	Freq.	Peak Antenna Gain (dBi)	MIMO Antenna Gain (dBi)
PIFA	ANT0	2.4GHz	-0.28	3.32
PIFA	ANT1	2.4GHz	0.31	3.32
PIFA	BT	2.4GHz	-3.76	3.32

1.3.2 WLAN 5GHz

Antenna Type	ANT	Freq.	Peak Antenna Gain (dBi)	MIMO Antenna Gain (dBi)
PIFA	ANT0	5GHz	2.42	6.25
PIFA	ANT1	5GHz	3.24	6.25

Antenna Type	ANT	Freq.	Peak Antenna Gain (dBi)	MIMO Antenna Gain (dBi)
PIFA	ANT0	6GHz	3.07	6.08
PIFA	ANT1	6GHz	1.71	6.08

Note: Antenna information is provided by the applicant.

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2 FCC MAXIMUM PERMISSIBLE EXPOSURE (MPE)

2.1 FCC Standard Applicable

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
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
1500-100000	/	/	1.0	30

f = frequency in MHz

* = Plane-wave equipment power density

Prediction of MPE limit at a given distance

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

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

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2.2 Power Density Calculation (Worst Case)

FCC Standalone MPE

Operation Mode	Evaluation Frequency (MHz)	Operation Distance (cm)	Max. Output Power Include Tolerance (dBm)	Antenna Gain (dBi)	Max. EIRP (mW)	Power Density (PD) (mW/cm ²)	Limit (mW/cm ²)	Pass / Fail	Power Density / Limit	Collocated MPE
BT	2480.00	20	3	-3.76	0.84	0.0002	1.000	Pass	0.000	V
WLAN 2.4G	2442.00	20	22.5	3.32	381.94	0.076	1.000	Pass	0.076	V
WLAN 5G	5180.00	20	20	6.25	421.70	0.084	1.000	Pass	0.084	V
WLAN 6G	5925.00	20	12.5	6.08	72.11	0.014	1.000	Pass	0.014	V

Note: For conservativeness, the lowest uplink frequency of each band is used to determine the MPE limit of that band.

2.3 Collocated Power Density Calculation

FCC Collocated MPE

Operation Mode	Σ (Power Density / Limit)
BT+2.4G	0.076
BT+5G	0.084
BT+6G	0.014

Note:

1. Σ (Power Density / Limit): This is a summation of [(Power Density for each transmitter/antenna included in the simultaneous transmission) / (corresponding MPE limit)].
2. Considering the collocated transmitters, the aggregated (Power Density /limit) is smaller than 1, and MPE of collocated transmitters is compliant

~ End of Report ~

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