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Report No.: 2304ESU022-U2
Report Version: V01
Issue Date: 2023-06-17

RF Exposure Evaluation Declaration

FCC ID: 2A82LHS-ATI6-O

Applicant: Nova Labs, Inc.

Product: Wi-Fi Access Point

Model No.: HMHS-ATI6USOB

FCC Classification: Digital Transmission System (DTS)

Unlicensed National Information Infrastructure (NII)

FCC Rule Part(s): Part 2.1091

Result: Complies

Reviewed By:

Kevin Guo

Approved By:

Robin Wu

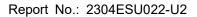ilac-MRA

A2LA ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.
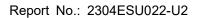
Revision History

Report No.	Version	Description	Issue Date	Note
2304ESU022-U2	V01	Initial Report	2023-06-17	Valid

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1. General Information

1.1. Applicant

Nova Labs, Inc.

2202 South Figueroa #408, Los Angeles, California 90007, United States

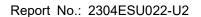## 1.2. Manufacturer

Nova Labs, Inc.

2202 South Figueroa #408, Los Angeles, California 90007, United States

1.3. Testing Facility

☐	**Test Site – MRT Suzhou Laboratory**			
	Laboratory Location (Suzhou - Wuzhong)			
	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China			
	Laboratory Location (Suzhou - SIP)			
	4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China			
	Laboratory Accreditations			
	A2LA: 3628.01		CNAS: L10551	
	FCC: CN1166		ISED: CN0001	
	VCCI:	☐R-20025 ☐R-20141	☐G-20034 ☐G-20134	☐C-20020 ☐C-20103	☐T-20020 ☐T-20104
☐	**Test Site – MRT Shenzhen Laboratory**			
	Laboratory Location (Shenzhen)			
	1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China			
	Laboratory Accreditations			
	A2LA: 3628.02		CNAS: L10551	
	FCC: CN1284		ISED: CN0105	
☐	**Test Site – MRT Taiwan Laboratory**			
	Laboratory Location (Taiwan)			
	No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)			
	Laboratory Accreditations			
	TAF: L3261-190725			
	FCC: 291082, TW3261		ISED: TW3261	

1.4. Product Information

Product Name	Wi-Fi Access Point
Model No.	HMHS-ATI6USOB
Wi-Fi Specification	802.11a/b/g/n/ac/ax
Bluetooth Specification	V5.0, Single mode only (LE)
Antenna Information	Refer to section 1.5
Power Type	AC-DC Adapter or PoE Adapter
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

1.5. Antenna Details

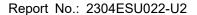| Antenna Type	Frequency (MHz)	TX Path	Antenna Gain (dBi)		Directional Gain (dBi)	
			Ant 0	Ant 1	Correlated	Uncorrelated
Wi-Fi Antenna						
PIFA	2412 ~ 2462	2	3.1	4.3	6.47	3.46
	5150 ~ 5250	2	4.1	5.1	7.62	4.63
	5250 ~ 5350	2	3.9	4.8	7.37	4.37
	5470 ~ 5725	2	4.3	5.6	7.89	4.91
	5725 ~ 5850	2	3.3	4.0	6.67	3.66
Bluetooth Antenna						
PIFA	2402 ~ 2480	1	-0.6		--	

Remark:

1. The antenna gain and directional gain refer to manufacturer's antenna specification.

2. The device supports CDD Mode and STBC mode, details refer to the table as below.

3. CDD signals are correlated, the directional gain as follows,

   For power measurements: Array Gain = 0 dB for $N_{ANT} \leq 4$, the directional gain = max antenna gain + array gain

   For power spectral density (PSD) measurements: the max directional gain (each frequency) = 10 $\log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}]$

4. STBC signals are uncorrelated, the directional gain as follows,

   the max directional gain (each frequency) = 10 $\log[(10^{G1/10} + 10^{G2/10} + \ldots + 10^{GN/10})/N_{ANT}]$

Test Mode	T$_X$ Paths	CDD Mode	STBC Mode
Wi-Fi 2.4G			
802.11b/g	2	√	X
802.11n/ax	2	X	√
Wi-Fi 5G			
802.11a	2	√	X
802.11n/ac/ax	2	X	√
Remark: "√" means "Support", "X" means "Not support".			

1.6. Device Classification

According to the user manual, the antenna of this device is at least 20cm away from the body of the user, this device is classified as a Mobile Device. So, the RF exposure evaluation requirements of § 2.1091 for mobile device exposure conditions subject to MPE limits.

1.7. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

● FCC Part 2.1091 & KDB 447498 D04 Interim General RF Exposure Guidance v01

2. RF Exposure Evaluation

2.1. Test Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment

impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

Limits For Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*(900/f^2)	<6
30-300	61.4	0.163	1.0	<6
300-1,500	--	--	f/300	<6
1,500-100,000	--	--	5	<6
(B) Limits for General Population/ Uncontrolled Exposures				
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
300-1,500	--	--	f/1500	<30
1,500-100,000	--	--	1.0	<30

f= frequency in MHz. * = Plane-wave equivalent power density.

2.1. MPE Exemptions

For single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph §1.1307(b)(2) of this section): A single RF source is exempt if:

(Option 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 §1.1307(b)(3)(ii)(A) of this section.

Medical implant devices may only use this exemption and that in paragraph §1.1307(b)(3)(ii)(A);

(Option 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 (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 is given by:

$$P\,th(mW) = \{ERP_{20cm}(d\,/\,20cm)^{x} \quad d \leq 20cm$$

$$P\,th(mW) = \{ERP_{20cm} \quad 20cm < d \leq 40cm$$

Where

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

and

$$ERP_{20cm}(mW) = \{2040f \quad 0.3GHz \leq f < 1.5GHz$$

$$ERP_{20cm}(mW) = \{3060 \quad 1.5GHz \leq f \leq 6GHz$$

(Option 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 λ/2π, 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 λ/4 or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

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

RF Source Frequency (MHz)	Threshold ERP (watts)
0.3-1.34	$1920R^2$
1.34-30	$3450R^2/f^2$
30-300	$3.83R^2$
300-1,500	$0.0128R^2/f$
1,500-100,000	$19.2R^2$

For multiple RF sources: Multiple RF sources are exempt if:

(A) The available maximum time-averaged power of each source is no more than 1 mW and there is a separation distance of two centimeters between any portion of a radiating structure operating and the nearest portion of any other radiating structure in the same device, except if the sum of multiple sources is less than 1 mW during the time-averaging period, in which case they may be treated as a single source (separation is not required). This exemption may not be used in conjunction with other exemption criteria other than those is paragraph §1.1307(b)(3)(i)(A) of this section. Medical implant devices may only use this exemption and that in paragraph §1.1307(b)(3)(i)(A).

(B) 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.

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

Where:

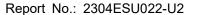a = number of fixed, mobile, or portable RF sources claiming exemption using paragraph §1.1307(b)(3)(i)(B) of this section for P_{th}, including existing exempt transmitters and those being added.

b = number of fixed, mobile, or portable RF sources claiming exemption using paragraph §1.1307(b)(3)(i)(C) of this section for Threshold ERP, including existing exempt transmitters and those being added.

c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance including existing evaluated transmitters.

P_i = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm (inclusive).

$P_{th,i}$ = the exemption threshold power (P_{th}) according to paragraph §1.1307(b)(3)(i)(B) of this section for fixed, mobile, or portable RF source i.

ERP$_j$ = the ERP of fixed, mobile, or portable RF source *j*.

ERP$_{th,j}$ = exemption threshold ERP for fixed, mobile, or portable RF source *j*, at a distance of at least $\lambda/2\pi$ according to the applicable formula of paragraph §1.1307(b)(3)(i)(C) of this section.

Evaluated$_k$ = the maximum reported SAR or MPE of fixed, mobile, or portable RF source *k* either in the device or at the transmitter site from an existing evaluation at the location of exposure.

Exposure Limit$_k$ = either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source *k*, as applicable from §1.1310 of this chapter.

2.2. Calculated Result

Product	Wi-Fi Access Point
Test Item	RF Exposure Evaluation

Antenna Gain: Refer to clause 1.5.

Test Mode	Frequency Band (MHz)	Conducted Power (dBm)	Tune-up Power (dBm)	Antenna Gain (dBi)	Tune-up EIRP (dBm)
BLE	2402 ~ 2480	3.71	4.0	-0.6	3.4
802.11b/g/n/ax	2412 ~ 2462	24.89	25.0	4.3	29.3
802.11a/n/ac/ax	5180 ~ 5240 5260 ~ 5320 5500 ~ 5720 5745 ~ 5825	24.56	25.0	5.1	30.1

Note: Tune-up power was declared by manufacturer.

For single RF source, Option B

Test Mode	$\lambda / 2\pi$ (m)	R (m)	Turn-up ERP (mW)	Threshold ERP (mW)	Power Density (mW/cm^2)	Limit (mW/cm^2)
BLE (DTS)	0.0199	0.20	1.3	3060	0.0004	< 1
Wi-Fi (DTS)	0.0198	0.20	518.8	3060	0.1693	< 1
Wi-Fi (NII)	0.0092	0.20	623.7	3060	0.2036	< 1

Note: R is from user manual.

For multiple RF sources

BLE, WLAN 2.4GHz Band and WLAN 5GHz can transmit simultaneously.

So the Max Simultaneous Transmission = 1.3/3060 + 518.8/3060 + 623.7/3060 = 0.3738 < 1

— The End —