Safety Human Exposure

1.1 Radio Frequency Exposure Compliance

1.1.1 Electromagnetic Fields

RESULT: **Pass**

Test Specification

Test item	:	WIFI Module
Identification / Type No.	:	W2LM2200
FCC ID	:	2AC23-W2L
IC	:	12290A-W2L
Test standard	:	CFR47 FCC Part 2: Section 2.1091 CFR47 FCC Part 1: Section 1.1310 FCC KDB Publication 447498 v06 FCC KDB Publication 865664 D02 v01r02 RSS-102

➢ **Product Classification**

This device defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at 20 cm is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons.

Max 2.00 dBi for 2.4GHz Wi-Fi antenna.

➢ **Radio Frequency Exposure Limit**

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)
300-1,500	--	--	f/1500
1,500-100,000	--	--	1.0

➢ **Radio Frequency Exposure Calculation Formula**

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density (in appropriate units, e.g. mW/cm^2)
P = power input to the antenna (in appropriate units, e.g., mW)
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 (appropriate units, e.g., cm)

or:

$$S = \frac{EIRP}{4\pi R^2}$$

where: EIRP = equivalent (or effective) isotropically radiated power

a) RF Exposure Evaluation (worse case)

Mode	*Measured RF Output Power (dBm)	EIRP (dBm)	Distance (cm)	Power Density (mW/cm²)	FCC Limit (mW/cm²)
2.4G Wi-Fi	24.61	26.61	20	0.091	1.0

Note:

*2.4GHz Band RF Output Power: Refer to NN22KPLT 001

- **Conclusion**

Therefore the maximum calculations result of above are meet the requirement of Radio Frequency Exposure (MPE) limit.

1.1.2 RF Exposure Compliance Requirement for IC

The EUT shall comply with the requirement of RSS-102 section 2.5.2.

Exemption from Routine Evaluation Limits – RF Exposure Evaluation

RF 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, except when the device operates as follows:
at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1.31 x 10-2 f0.6834 W (adjusted for tune-up tolerance), where f is in MHz;

The nominal maximum conducted output power specified:

The Max. e.i.r.p. for WIFI: 26.61 dBm = 0.458 W

RF exposure evaluation exempted power for 2.4GHz: 2.67 W

The Max. e.i.r.p. for WIFI is less than the RF exposure evaluation exempted power.
So RF exposure evaluation is not required

"RF Radiation Exposure Statement Caution: This Transmitter must be installed to provide a separation distance of at least 20 cm from all persons."