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Client: Nisshinbo Micro Devices Inc.
1-1, Fukuoka 2-Chome, Fujimino-City, Saitama, 356-8510 Japan

Test item: K-Band Doppler Sensor Module (Movement Sensor)

Identification: NJR4266F2B2

FCC Requirement

According to FCC §2.1093 (d)(1), Portable Devices that transmit at frequencies above 6 GHz must comply with the following applicable limit for **Maximum Permissible Exposure (MPE)** specified in FCC §1.1310 (e)(1), Table 1:

Equipment Use	Frequency Range [MHz]	Power Density Limit [mW/cm ²]	Averaging Time [minutes]
General Population / Uncontrolled Exposure	1,500 – 100,000	1.0	<30

Note:

This evaluation was conducted at 5.0cm test separation distance (variable r in the statement). It was specified by the customer at the original application in 2018.

Evaluation Result

The maximum measured E-field strength and estimated EIRP from the transmitter taking the specification range of EIRP stated by the manufacture into consideration as the worst case, are given in the following table:

Measured E-Field Strength E		Meas. Distance R [m]	Calculated EIRP	Evaluated Distance r [cm]	Calculated Power Density S [mW/cm ²]
[dBuV/m]	[V/m]		[mW]		
101.68	0.12134	3.0	4.417	5.0	0.014060

Note:

The EIRP in mW is calculated in conjunction with the following formula:

$$\text{EIRP} = (E \times R)^2 / 30 = (0.12134 \times 3.0)^2 / 30 = 0.044170 \text{ [W]} = 4.417 \text{ [mW]}$$

The power density S in mW/cm² is calculated in conjunction with the next formula:

$$S = \text{EIRP} / (4 \times \pi \times r^2) = 4.417 / (4 \times \pi \times 5.0^2) = \mathbf{0.014060 \text{ [mW/cm}^2\text{]}}$$

Since the shortest wave length λ of transmitter is 1.24009cm, above mentioned calculations are considered in far field condition.

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Normal mode (i.e. 100% duty cycle operation) is the worst case configuration of this transmitter, therefore above mentioned condition is considered as the most severe estimation. For details, refer to the submitted test report JP25M1XN 001 by TÜV Rheinland Japan Ltd.

Conclusion

This transmitter module is classified as Portable Devices by the client.

SAR evaluation is not required since nominal frequency of the transmitter is higher than 6GHz, therefore, RF exposure evaluation (MPE) was conducted by the above-mentioned calculated method.

As a result, the calculated Power Density S is below FCC limit at the separation distance of 5.0cm.

The separation distance of 5cm is **un-changed** from the original filling on this C2PC application, See the original RF Exposure Statement (No. 50149844 002) for details.