

Produkte
Products

RF Exposure Statement: 50073207 002

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Client: **New Japan Radio Co., Ltd.**
 1-1, Fukuoka 2-Chome, Fujimino City Saitama, 356-8510 Japan

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

Identification: **NJR4265RTF3**

FCC Requirement

According to FCC 2.1093, 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:

Equipment Use	Frequency Range	Power Density	Average Time [min]
General Population / Uncontrolled Exposure	1.5 – 100GHz	1.0 [mW/cm ²]	30

Note:
 This evaluation was conducted at 2cm test distance instead of 5cm test distance specified by the FCC 2.1093 (d), since expected minimum distance is 2cm.

ISED Requirement

According to RSS-102 (Issue 5), clause 3, RF exposure evaluation is required if the transmitter operates above 6GHz regardless of the separation distance. Therefore, power density limit in the Table 4 at the section 4 is applied:

Equipment Use	Frequency Range	Power Density
General Public / Uncontrolled Exposure	15000 – 150000MHz	10 [W/m ²] (i.e. 1.0 [mW/cm²])

Note:
 As expected minimum separation distance is 2cm, this evaluation was conducted at 2cm.

Measurement Result

The maximum measured E-field strength and corresponded estimated EIRP from the transmitter are given in the following table:

Measured E-Field Strength E		Meas. Distance R [m]	Calculated EIRP		EIRP as worst case		Evaluated Distance r [cm]	Calculated Power Density S [mW/cm ²]
[dBuV/m]	[V/m]		[mW]	[dBm]	[dBm]	[mW]		
105.4	0.1862	3.0	10.4	10.2	13.5	22.4	2.0	0.44563

Note:

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

$$EIRP = (E \times R)^2 / 30 = (0.1862 \times 3.0)^2 / 30 = 0.01040 [W] = 10.40 [mW]$$

According to the manufacturer, variations of EIRP is expected from 8.5 to 13.5dBm during mass productions. Then, maximum value of 13.5dBm is applied as the worst case in this evaluation.

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

$$S = EIRP / (4 \times \pi \times r^2) = 22.4 / (4 \times \pi \times 2.0^2) = 0.44563 [mW/cm^2] = 4.4563 [W/m^2]$$

Since one wave length λ of the transmitter is 1.25cm, above mentioned calculations are considered in far field condition.

CW operation (100% duty cycle) 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 50073207 001.

Conclusion

This transmitter module is classified as a portable device by the client.

SAR evaluation is not required since nominal frequency of the transmitter is higher than 6GHz (i.e. 24.125GHz). Therefore, RF exposure evaluation was conducted by the above-mentioned calculations method.

As a result, calculated Power Density S is below both FCC and ISED limits at 2cm distance. This separation distance of 2cm shall be mentioned in accompanying documents for host manufacturer.