

US Tech Test Report:
FCC ID:
IC:
Test Report Number:
Issue Date:
Customer:
Model:

FCC Part 15/ RSS 247 Class 2 Permissive Change
P2SR900M
4171B-R900M
18-0103
June 29, 2018
Neptune Technology Group Inc.
R900M

Maximum Public Exposure to RF (MPE) CFR 15.247 (i), CFR 1.1310 (e)

The following is MPE results for the module with Neptune Technology Group, Pit Antenna Model: R900 (13586-000)

The maximum exposure level to the public from the RF power of the EUT shall not exceed a power density, **S** as per the respective limits in Table 1 below, at a distance, d, of 20 cm (Mobile condition) from the EUT.

TABLE 1—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 (minutes)
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
300-1,500			f/1500	30
1,500-100,000			1.0	30

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

Therefore, for:

MPE for 902 MHz – 928 MHz

Limit: 0.61 mW/cm²

Peak Power (Watts) = 0.998 W

Gain of Transmit Antenna = 1.2 dB_i = 1.3, numeric

d = Distance = 20 cm = 0.2 m

$$\begin{aligned} S &= (PG/4\pi d^2) = \text{EIRP}/4A = 0.998(1.3)/4*\pi*0.2*0.2 \\ &= 1.2974/0.5030 = 2.5793 \text{ W/m}^2 \\ &= (2.5793 \text{ W/m}^2) (1\text{m}^2/\text{W}) (0.1 \text{ mW/cm}^2) \\ &= 0.2579 \text{ mW/cm}^2 \end{aligned}$$

which is << less than S = 0.61 mW/cm²

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RF Exposure Evaluation – IC

According to RSS-102, Table 4

At or above 300 MHz and below 6 GHz the Power Density (W/m^2) shall be less than $0.02619 \times f^{0.6834}$ (adjusted for tune up tolerance where applicable), where f = frequency in MHz

For 902-928 MHz Band:

$$\text{Limit} = 0.02619 \times 915^{0.6834} = 2.77 \text{ (W/m}^2\text{)}$$

Peak Power (Watts) = 0.998 W

Gain of Transmit Antenna = 1.2 dBi = 1.3, numeric

d = Distance = 20 cm = 0.2 m

$$\begin{aligned} \mathbf{S} &= (\mathbf{PG} / 4\pi d^2) = \text{EIRP} / 4A = 0.998(1.3) / 4 * \pi * 0.2 * 0.2 \\ &= 1.2974 / 0.5030 = 2.5793 \text{ W/m}^2 \end{aligned}$$

which is less than $S = 2.77 \text{ (W/m}^2\text{)}$