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FCC MPE Report

# RF Solutions LAMDA Module FCC ID P9OLAMDA9

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FCC MPE Report:

# Lamda9

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FCC MPE Report:

# Lamda9

| | |
|---|---|
| Equipment : | Lora Type Module |
| Model No. : | Lamda9 |
| FCC ID : | P9OLAMDA9 |
| Manufacturer: | RF Solutions Limited<br>William Alexander House<br>William Way<br>Burgess Hill<br>RH15 9AG<br>UK<br>Tel: +44 (0)1444 227910<br>Website: www.rfsolutions .co.uk |

## 1. General information

The RF Solutions Lamda9 is a Lora based module, operating in the 902 – 928MHz frequency band. The module is a single frequency centred on 915MHz.

## 2. Typical brief product specification

| | |
|---|---|
| Frequency: | 915MHz |
| Transmit power: | +13 dBm |
| Power supply: | 3.3 volt |
| Operating temperature range: | Commercial 0°C to +55°C |
| Storage temperature range: | Commercial -25°C to +65°C |
| Dimensions: | 19.95 x 26.95mm (not including antenna) |

## 3. FCC Radiofrequency radiation limits

| Frequency | Power density (mW/cm²) | Averaging time (minutes) |
|---|---|---|
| 300MHz – 1.5GHz | f/1500 | 30 |
| 1.5GHz – 100GHz | 1.0 | 30 |

## 4. Filed Antenna

Maxium gain of the supplied antenna is unity (1dBi). Any antenna used that has a gain of more than 1dBi is not approved for use with this module, as explained in the user manual. See Annex A.

## 5. Test Results

The maximum output power as 16.7dBm a stated in the FCC Part 15C test report Number: 18R084 FR.

## 6. EMF Exposure Levels Calculated

The field calculation does not take into account the antenna size, which is assumed to be a point source. An ideal isotropic antenna is used as a reference to compare the performance of practical antennas: P watts is radiated, from a point, uniformly over the surface of sphere of radius r. The POINTING VECTOR gives the power density: Assumed use distance from EUT to Human, 0.2m separation distance warning is required. In this section, the power density at 0.2m location is calculated to examine if it is lower than the limit.

$E\ (V/m) = \sqrt{30 \times P \times G}$

Power Density: *Pd* ($W/m^2$) $= E^2 / 377$

**E** = Electric field (V/m)

**P** = Peak RF output power (W)

**G** = EUT Antenna numeric gain (numeric)

**d** = Separation distance between radiator and human body (0.2m) *

The formula can be changed to

$Pd = 30 \times P \times G / 377 \times d^2$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

| Operating Frequency (MHz) | Max EIRP Average Output Power (dBm) | Max EIRP Average Output Power (W) | Power Density ($mW/cm^2$) | Limit of Power Density ($mW/cm^2$) | |
|---|---|---|---|---|---|
| 915 | 16.7 | 0.047 | 0.0122 | 0.61 | Pass |

* Operating distance must be greater than 20cm for any person.

## 7. Additional information

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