863-870 MHz 5 dBi Fiberglass Antenna Datasheet

Overview

Product Description

RAK's 5 dBi fiberglass antenna is an outdoor, high-performance antenna, designed to withstand harsh outdoor conditions. It is specially designed for LoRa in the 863-870MHz band – EU868, IN865, and RU864.

The antenna connector is one with the antenna body - this design further increases the resistance of the antenna to external conditions.

With a length of only 480 mm, this antenna will be the best fit for your LPWAN gateway or outdoor deployed RAK Hotspot.

> 📝 **NOTE:**
>
> This antenna is designed to be directly mounted on the enclosure of the Gateway. It is suitable for the following RAK products:
>
> - RAK7240
> - RAK7249
>
> The antenna is also compatible with the following:
>
> - Outdoor Enclosure for RAK Hotspot
> - Bobcat Outdoor Enclosure Kit
> - Antenna Magnetic Base

Product Features

- **Frequency:** 863-870MHz
- **Gain:** 5.0dBi
- **VSWR:** ≤1.63
- **Beamwidth:** 360 degrees
- **Impedance:** 50 Ohms
- **Polarization:** Vertical
- **Radome Body:** Fiberglass
- **Connector:** N-Type Male
- **Dimensions:** Φ 27.0 mm x 480.0 mm
- **Operation Temperature:** -40°C~+75°C
- **Storage Temperature:** -40°C~+85°C
- **IP67 rated**

Figure 1: RAKARG18 Antenna

Specification

Parameter	Value
Model	RAKARG18
Frequency range	863 ~ 870 MHz
Peak gain	5.0 dBi
VSWR	≤ 1.63
Efficiency	≤ 83%
Feed impedance	50 Ohms
Radiation pattern	Omni-directional
Polarization	Vertical
Cover material (color)	Fiberglass (white)
Connector type	N-type male
Dimensions (mm)	Φ 27.0 mm x 480.0 mm
Operation temp (°C)	-40 °C ~ +75 °C
Storage temperature	-40 °C ~ +85 °C
Humidity range	5% ~ 95%

VSWR and Return Loss

Frequency (MHz)	VSWR	Return loss (dB)
863 MHz	1.40	-15.6
870 MHz	1.63	-12.4

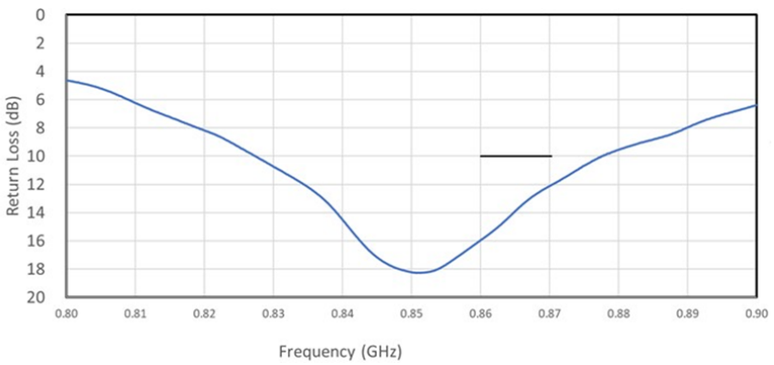

Figure 2: RAKARG18 VSWR graph

Peak Gain & Efficiency

Frequency (MHz)	Gain (dBi)	Efficiency (%)
863	5.0	83
864	5.0	83
865	5.0	83
866	5.0	83
867	5.0	83
868	5.0	83
869	5.0	82
870	4.9	81
	Average:	82.62

Radiation Patterns

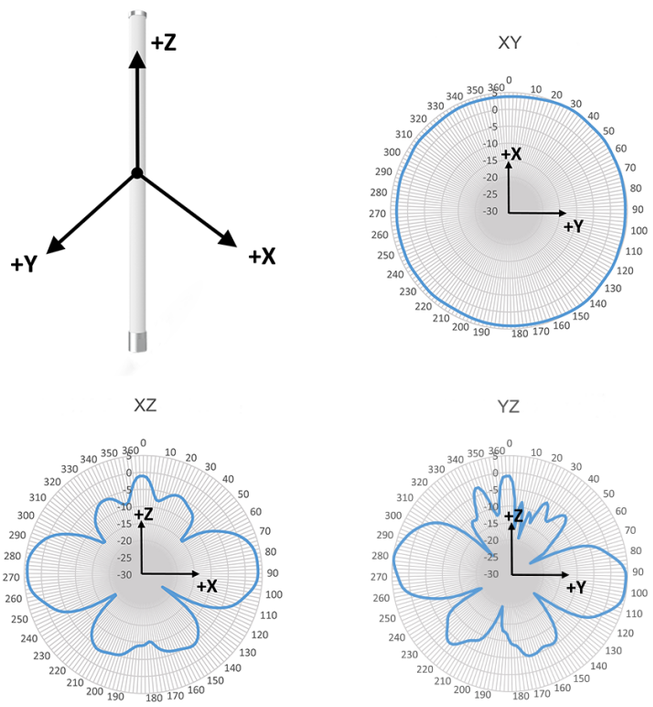

Figure 3: RAKARG18 radiation patterns

Mechanical Specifications

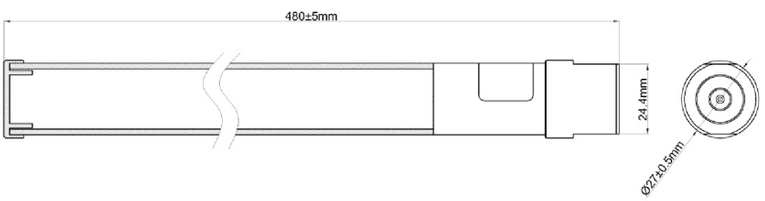

Figure 4: RAKARG18 mechanical specifications

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