

# RAK PCB Antenna for LoRa<sup>®</sup> 863-870 MHz (RAKARB04)

## Datasheet



# Overview

## Description

RAKARB04 PCB antenna is a small antenna, suitable for all LoRa and LoRaWAN end devices. It comes with an IPEX connector for easy attachment. It is compatible with all WisTrio, WisDuo, and WisBlock products with IPEX interface.

## Features

- Frequency range: 863 ~ 870 MHz
- Peak gain: 0.7 dBi
- VSWR:  $\leq 2$
- Dimensions: 35x7x0.5 mm
- Impedance: 50  $\Omega$
- Connector type: IPEX

# Specifications

## Electrical Specifications

| Parameter       | Value         |
|-----------------|---------------|
| Frequency range | 863 ~ 870 MHz |
| Peak gain       | 0.7 dBi       |
| VSWR            | $\leq 2$      |
| Polarization    | Linear        |
| Efficiency      | 41.6%         |
| Feed impedance  | 50 $\Omega$   |
| Connector type  | IPEX          |

## Mechanical Specifications

| Parameters          | Value                                     |
|---------------------|---|
| Product dimensions  | 35x7x0.5 mm                               |
| Operating humidity  | 10% ~ 95% RH non condensing               |
| Base material       | ABS+PC                                    |
| Installation method | Adhesive strip attached to the base       |
| Use environment     | Indoor use / In enclosure for outdoor use |
| Cable length        | 100 mm                                    |

## Return Loss & Smith Chart

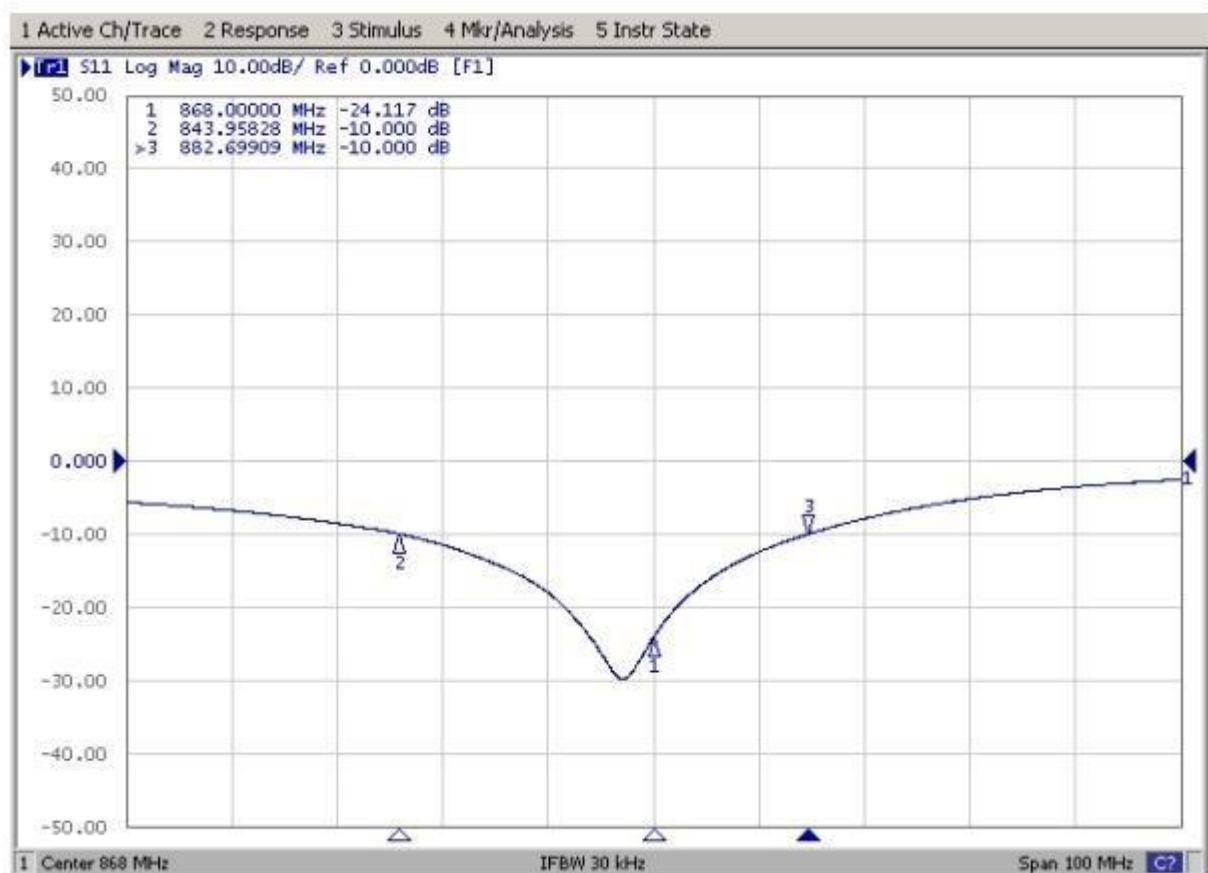
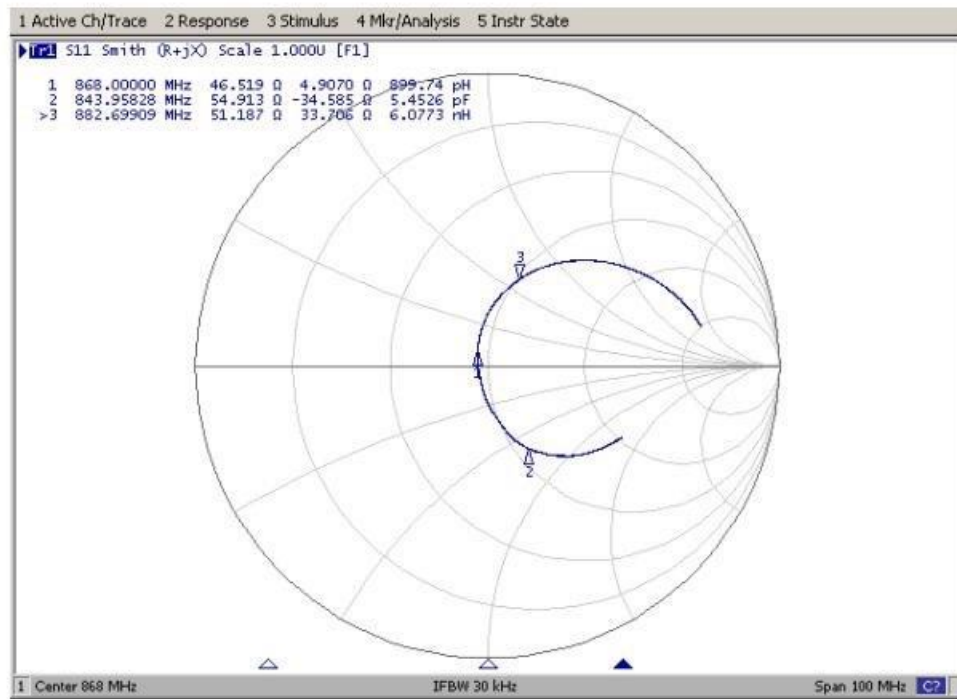
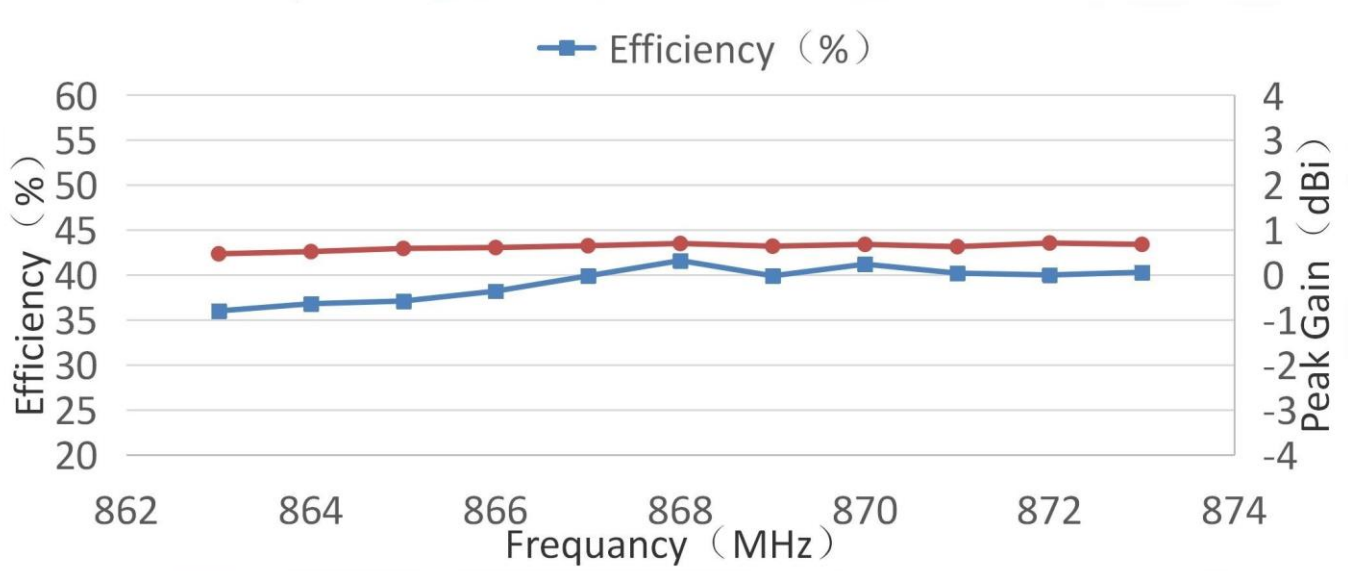


Figure 1: Return loss



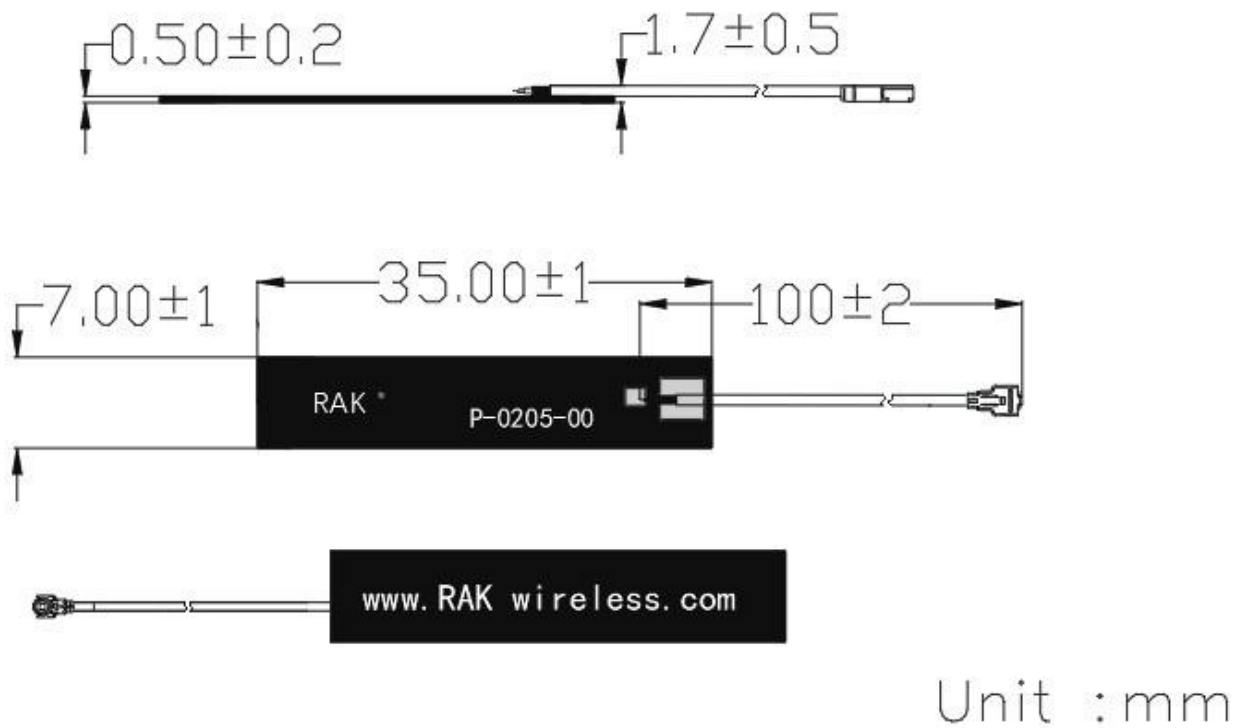
**Figure 2: Smith chart ## Efficiency**

| Frequency (MHz) | Efficiency (%) | Peak gain (dBi) |
|-----------------|----------------|-----------------|
| 863             | 36             | 0.47            |
| 864             | 36.8           | 0.52            |
| 865             | 37.1           | 0.59            |
| 866             | 38.2           | 0.61            |
| 867             | 39.9           | 0.65            |
| 868             | 41.6           | 0.7             |
| 869             | 39.9           | 0.64            |
| 870             | 41.2           | 0.68            |
| 871             | 40.2           | 0.63            |
| 872             | 40             | 0.71            |
| 873             | 40.3           | 0.68            |



**Figure 3:** Efficiency vs. Frequency chart

## Antenna dimensions



**Figure 4:** Antenna dimensions