

Development Kit : RF200 circuit with integrated Compact Right Hand Circularly Polarized Antenna

Part No. RT-DK-XXX-Y-Z

Version 0.01

FEATURES

- Tri-illiar configation
- 23dBm max EIRP
- Right Hand Circular Polarization
- 110° wide beamwidth radiation pattern
- Frequency: 868, 915 or 923 MHz
- 73 x 73 x 20 (mm) without casing
- 94 x 94 x 45 (mm) with casing

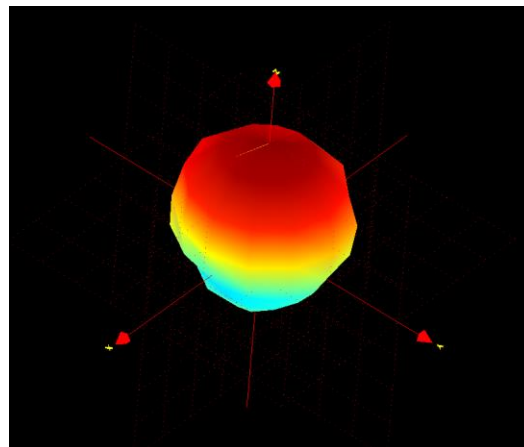
APPLICATIONS

- Tracking terminal
- Sensor platform
- Relay

TECHNICAL SUPPORT

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1. Description:

Communicating terminal integrating LP-WAN transceiver (SX1262), GPS receiver (L96) and several sensors.

A Right Hand Circularly Polarized (RHCP) antenna is integrated with the electronics. The antenna provides a 110° wide beam angle RHCP radiation. The device can be ordered for 3 different frequency bands : 868, 915 or 923 MHz.

2. Applications:

The terminal is perfect for low-power tracking application with ultra fast GPS positioning and long-range communication.

This system is compatible with LoRaWAN® terrestrial network.

The kit will include a IP65 protective enclosure. The board include a fast connection header to connect any additional sensors and components required in your experiment.

Two battery options are available. 3*AA alkaline battery support is recommended. The terminal can also be powered by one or two 18650 lithium batteries..

1. Part Number

RT-DK-XXX-Y

Note.

-XXX refers to frequency option:

-Y refers to type of battery holder (18650 lithium (L) or 14550 Alkaline (A))

Part Number	Freq (MHz)	Battery
RT-DK-868-L	868	18650 support
RT-DK-915-A	915	3*AA battery support

2. General Data

Parameter	Value	Comments
Polarization	RHCP	
Operating temperature	-40°C to +85°C	
Characteristic Impedance	50 ohm	
Weight	< 300g	
Dimensions (Board)	73*73*20 (mm)	Battery support not considered
Dimensions (Casing)	94*94*45 (mm)	Include casing and battery
Battery	2*18650 lithium or 3*AA Alkaline	Use Protected lithium battery
Mounting holes	M3	

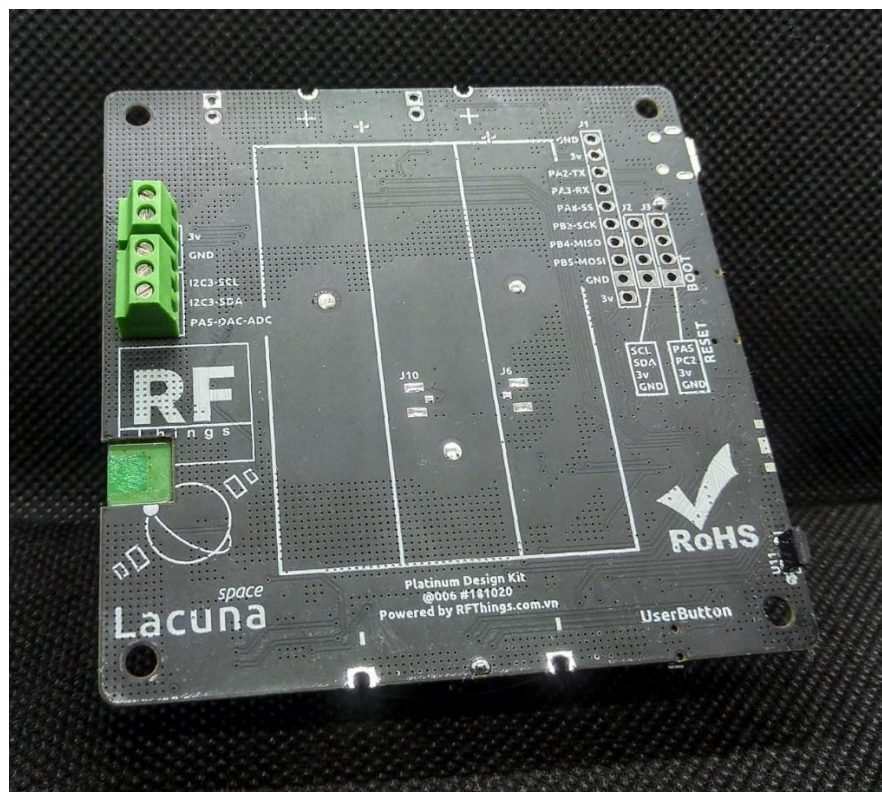
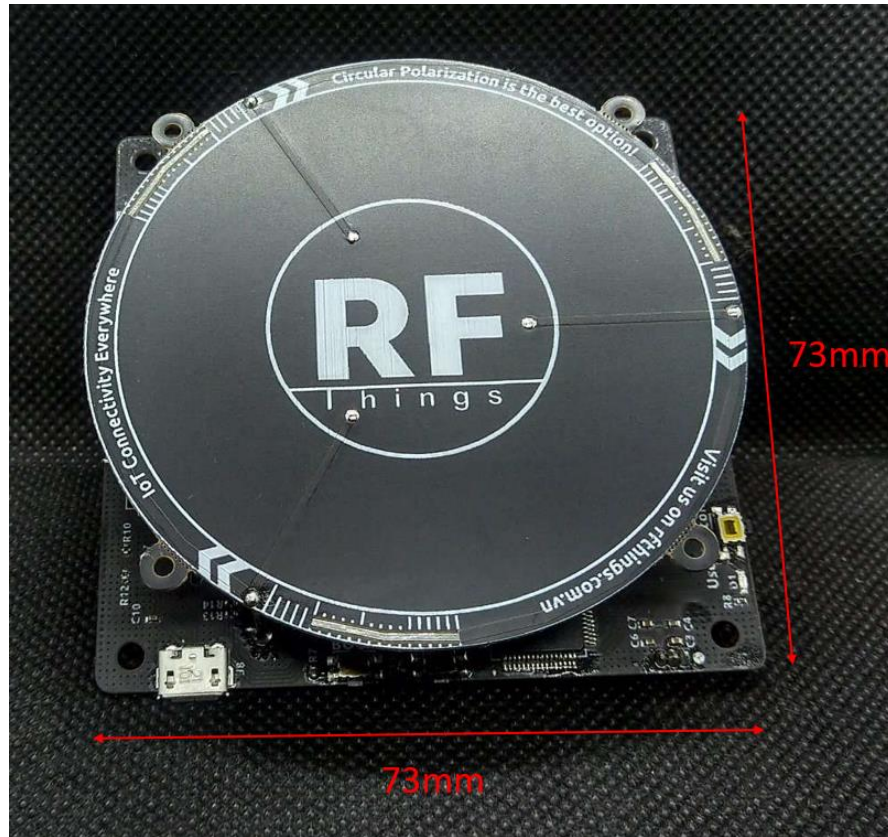
3. RF Characteristics

Parameter	862-868MHz	915MHz
Peak Gain (dBic)	> 2.8 dBic	> 2.8 dBic
Average Gain (dBi)	-1.2dB	-1.2dB
Total Efficiency	>75%	>75%
Axial Ratio	< 2 dB	< 2 dB
Reflection coefficient	< -10dB	< -10dB
Peak EIRP (21dBm mode)	23 dBm	23 dBm

4. Main Parts included

Description	MPN	Manufacturer
GPS Modules GNSS	L96-M33	Quectel
ARM® Cortex®-M4 STM32L4 Microcontroller IC 32-Bit 80MHz 256KB (256K x 8) FLASH 64-LQFP (10x10)	STM32L476RCT6	STMicroelectronics
LoRa SX1262 Module	E22-900M22S	Ebyte
Accelerometer X, Y, Z Axis ±2g, 4g, 8g 0.39Hz ~ 800Hz	KX023-1025-FR	Kionix Inc.
Temperature & Humidity Sensors RoHS	AHT10	Aosong (Guangzhou) Elec
Optical Sensor Ambient I ² C 6-VDFDN	LTR-303ALS-01	Lite-On Inc.
Pressure Sensors RoHS	HP203B	HopeRF Micro-electronics
Charger IC Lithium Ion/Polymer SOT-23-5	MCP73831T-2ATI/OT	Microchip Technology
Digital Switch Hall Effect	DRV5023AJQLPGM	Texas Instruments

5. Terminal dimensions



6. Casing

The casing include a vents in bottom. The vents can be replaced by a cable gland to connect external sensors. The top cover is sealed to the bottom part using M3 screw.

The casing is available in three different configuration :

- White color using ABS material
- Transparent using Polycarbonate material
- Purple using Polycarbonate material

