MNDB1 Dual Band Bridge

Datasheet

PRODUCT OVERVIEW

Wiliot bridges serve 3 operational tasks: energizing Wiliot IoT Pixels, receiving and filtering packets from Pixels, and echoing the filtered packets to gateways. The Minew Dual Band Reference Bridge runs Wiliot firmware and is optimized for Wiliot deployments. It features a Sub-1 GHz antenna for energizing Pixels and a 2.4 GHz antenna for echoing Wiliot Bluetooth packets.

DETAILED SPECIFICATION

	Parameter	Description
Functionality	Common Uses	Asset Tracking, Inventory, Temperature Sensing, Proximity
	Supported Products	Dual Band Pixel, Single Band Pixel, Battery Assisted Pixel
	Key Functions	Energizing Pixels, Rebroadcast (Echo) Pixel Packets to gateway, Pacing Data
Hardware	Antennas	2.4GHz: 2dBi, dual linear polarization, 80*80deg beamwidth (3dB) 915MHz: 2.5dBic, circular polarization (right hand) 100*100deg beamwidth (3dB)
	LED Indicators	Blue and Red (Power and Data)
	Firmware	Firmware provided by Wiliot
	Power	5 volt, 1 amp, USB C 3.7 volt Battery
Package	Detailed Dimensions	12.3 x 12 x 3.1 cm
	Weight	7.7 oz
	Installation	IScrew sockets, cable tie slots, ¼-20 threaded insert
	Certifications	WIP
	Operating temperature	-20~65℃

DETAILED SPECIFICATION

RADIO

| Parameter		Pixel Packet Echo	Pixel Energizing
	Function	Retransmit Wiliot Pixel packets, calibrate nearby Wiliot Pixels	Energize nearby pixels
Broadcast	Signal Protocol	Bluetooth® Low Energy (LE) 5.2 (2.4 GHz)	FSK\CSS (915MHz)
	Signal Strength	EIRP +20dBm@2.4GHz Max	EIRP +26dBm@915MHz Max
	Range	50-100 meters to gateway	15 meters
Payload	Broadcast Packet	Standard Bluetooth Low Energy Packet (PDU), payload: Wiliot Ephemeral ID (WEID)	--
	Security	AES-128, encryption and authentication	
	Pixel Calibration Beacons	3 BLE advertisements every 90ms (default)	
	Default Echo Pacing Interval	15 s (configurable)	

BRIDGE AND TAG ORIENTATION

The relative orientation of the bridge and tag antenna will affect energizing and broadcasting performance. The Dual Linear antenna in the Minew Dual Band Bridge makes it agnostic to in-plane (zy) tag orientation, and more capable of out-of-plane tag (xz and xy) energizing.

Bridge   Pixels
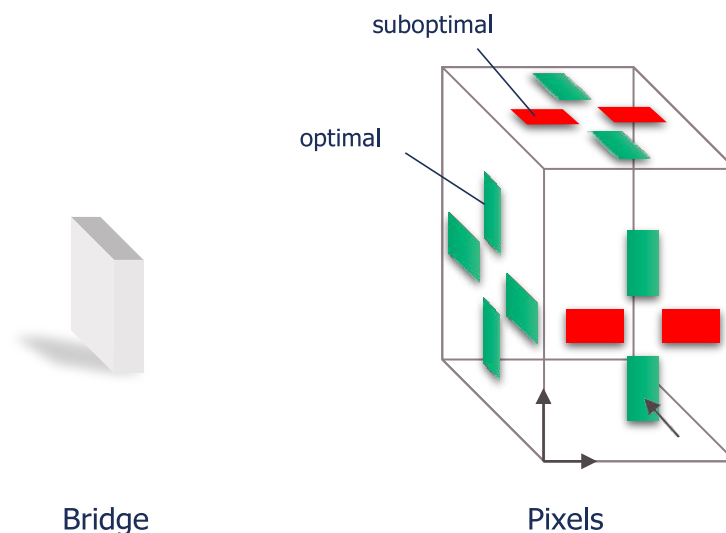
Optimal pixel orientation shown in green, and suboptimal in red, relative to the energizing bridge antenna. In the drawing, the antenna's dual linear polarizations are aligned with the y axis and z axis.

DETAILED DRAWINGS
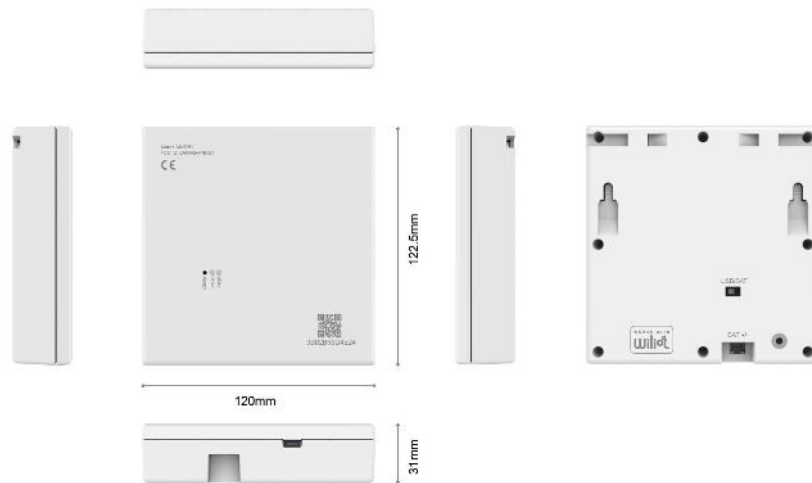
QUALITY ASSURANCE

The factory has already obtained the certification of ISO9001 Quality System. Each product has been strictly tested (tests include transmission power, sensitivity, power consumption, stability, aging, etc.).
Warranty Period: 12 months from the date of shipping (other accessories excluded).

DECLARATION

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