

Technical Datasheet

1 Key Features

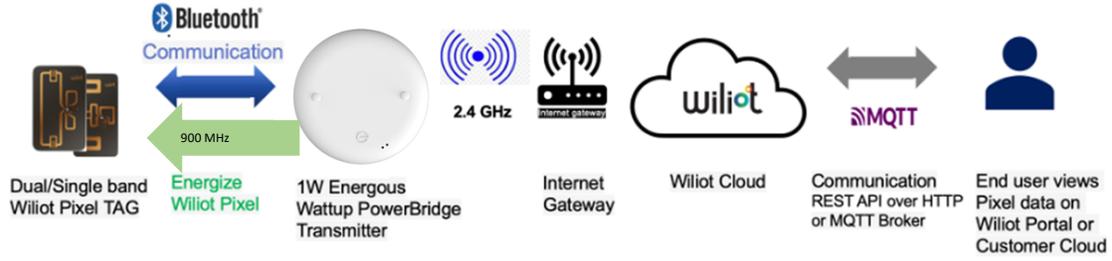
- Works with Wiliot®
 - Up to +30 dBm 900 MHz band energizing signal
 - Up to +20 dBm 2.4 GHz band energizing signal
 - BLE beacon filter and repeater functionality
- Circular polarized 900 MHz and 2.4 GHz antennas
- 5V/1A Operation
- Option for external omni-directional antenna



2 Characteristics

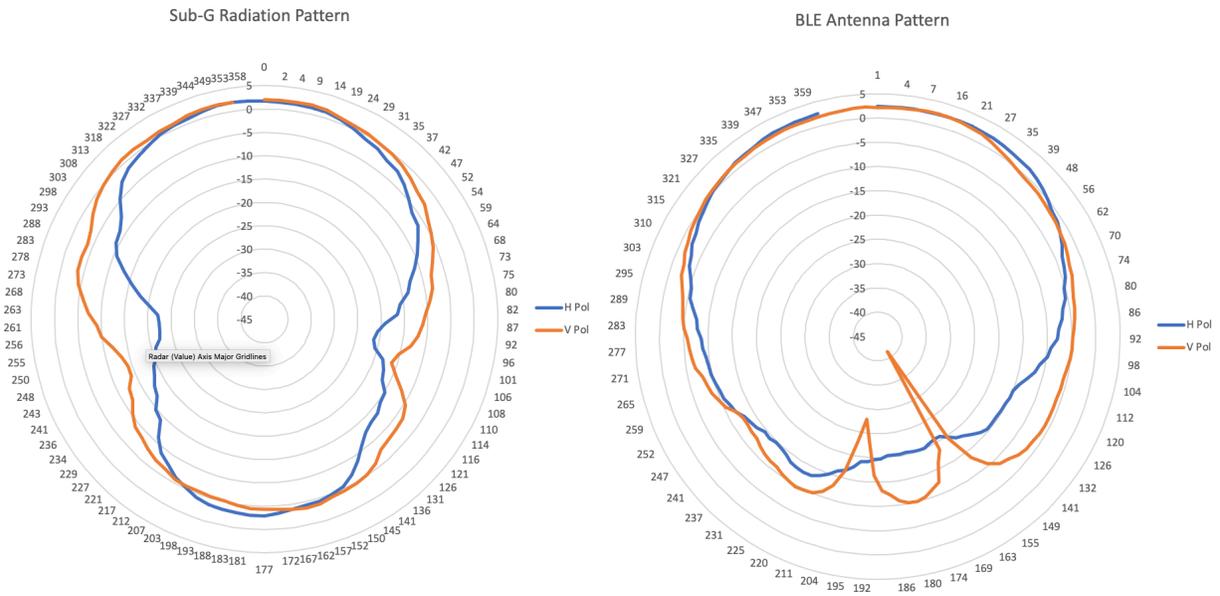
Specification	Description
Supported products	Wiliot Single band IoT Pixels Wiliot Dual band IoT Pixels
Energizing*	Up to +30 dBm in 900 MHz band Up to +20 dBm in 2.4 GHz band
Echo function*	Scan for Wiliot beacons, filter non-Wiliot BLE beacons, and re-broadcast
Antennas	Circular polarized Sub-1 GHz and 2.4 GHz External optional omni-directional 900 MHz and 2.4 GHz
Typical antenna gain	Sub-1 GHz: Dual 2 dBi linear 2.4 GHz: Dual 2.5 dBi linear Sub-1 GHz Dipole antenna: 2 dBi 2.4 GHz Dipole antenna: 4.5 dBi
Internal antenna 3 dB beam width	Sub-1 GHz: ±35° 2.4 GHz: ±35°
LED indicators	Echo LED: blue LED blinks = Wiliot Pixel Packets are echo'd Energizing LED: white LED on = bridge is energizing Blink action: blue and white LEDs blink rapidly = bridge receives blink action Keep alive: Echo LED blinks 3 times every 30 seconds = transmission of management packets by bridge if no Pixel Packets are being sent Advertisement mode (BLE services): constant Echo LED = bridge is in Advertisement mode 30 seconds after wake up and can be connect for BLE services
Software updates	Via OTA from Wiliot management portal
Power supply	5V/1A via USB-C connector
Certifications	FCC Part 15, ISED (Canada), EU, UK
Operating temperature	-20°C ~ +70°C
Dimensions	15.4 cm diameter, 2.6 cm thick

*Programmable from Wiliot Management portal

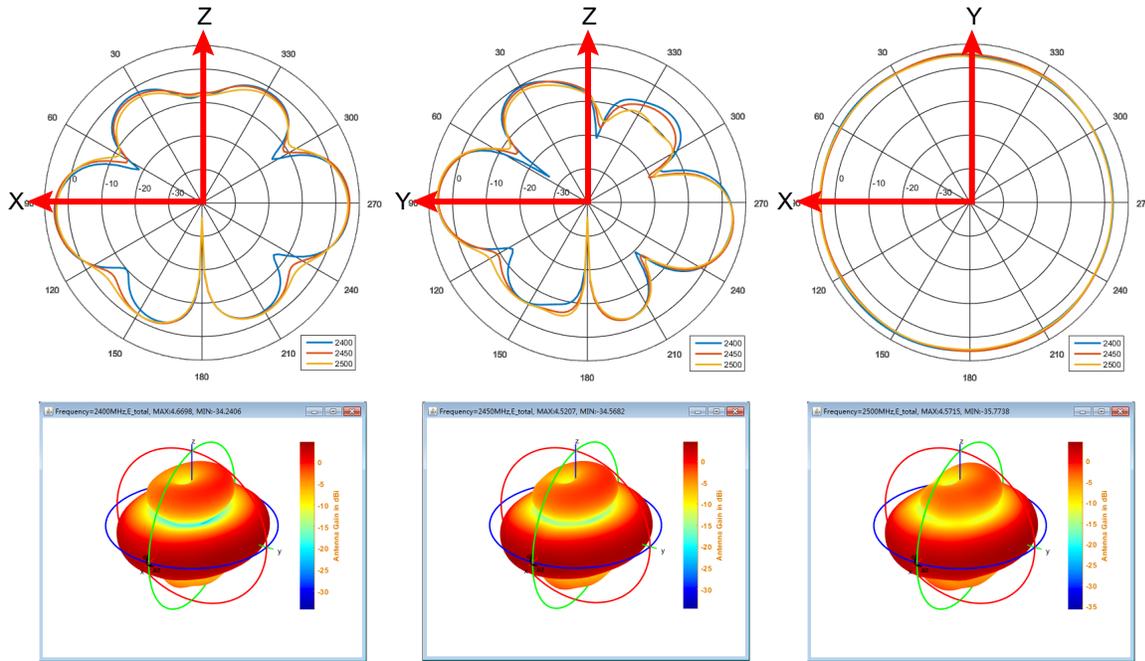


1W WattUp® Power Bridge within the Works with Wiliot® Ecosystem

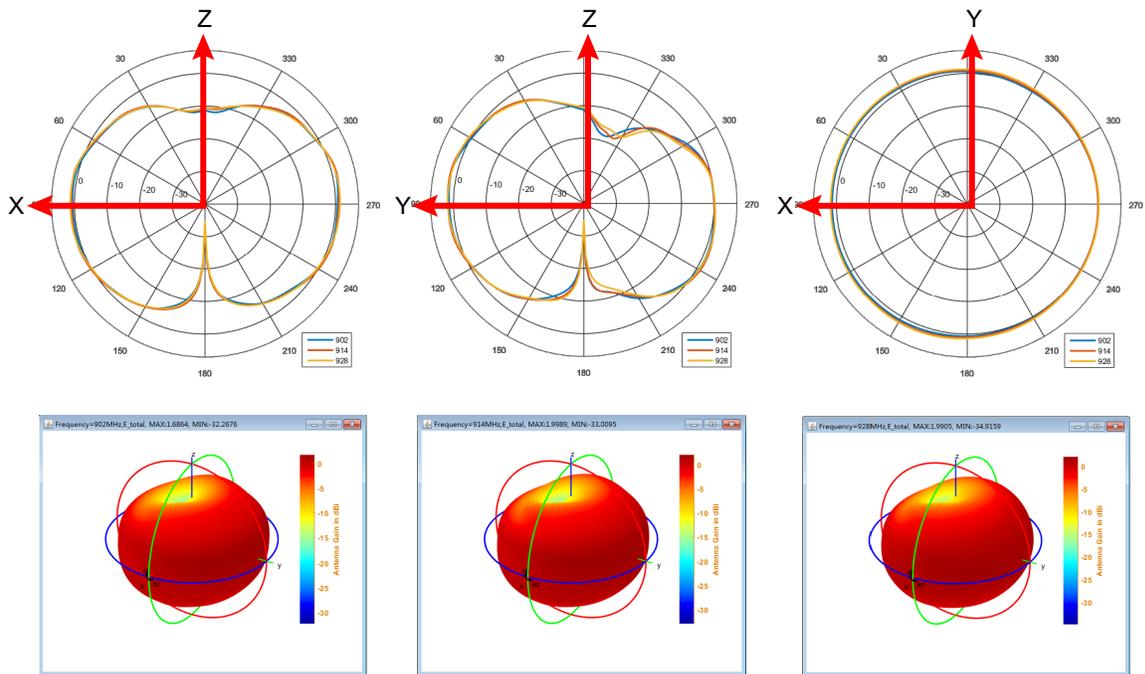
3 Antenna Radiation Patterns



900 MHz and 2.4 GHz Radiation Pattern



2.4 GHz Omni-Directional Radiation Pattern



900 MHz Omni-Directional Radiation Pattern

4 Operational Range

The WattUp PowerBridge energizes Pixels over a distance. Packets received from Pixels are rebroadcast by the PowerBridge at a higher power level; this is called *Echoing*. The distance over which Pixels can be energized is defined as *Energizing Range* and the distance over which the rebroadcast packet can be received is defined as *Echo Range*. This allows Pixel deployments to be meshed, with fewer gateways and “dead zones”. Being an RF technology, the operating environment plays a critical role in determining the range; the following data is reported for nominal, over-the-air conditions.

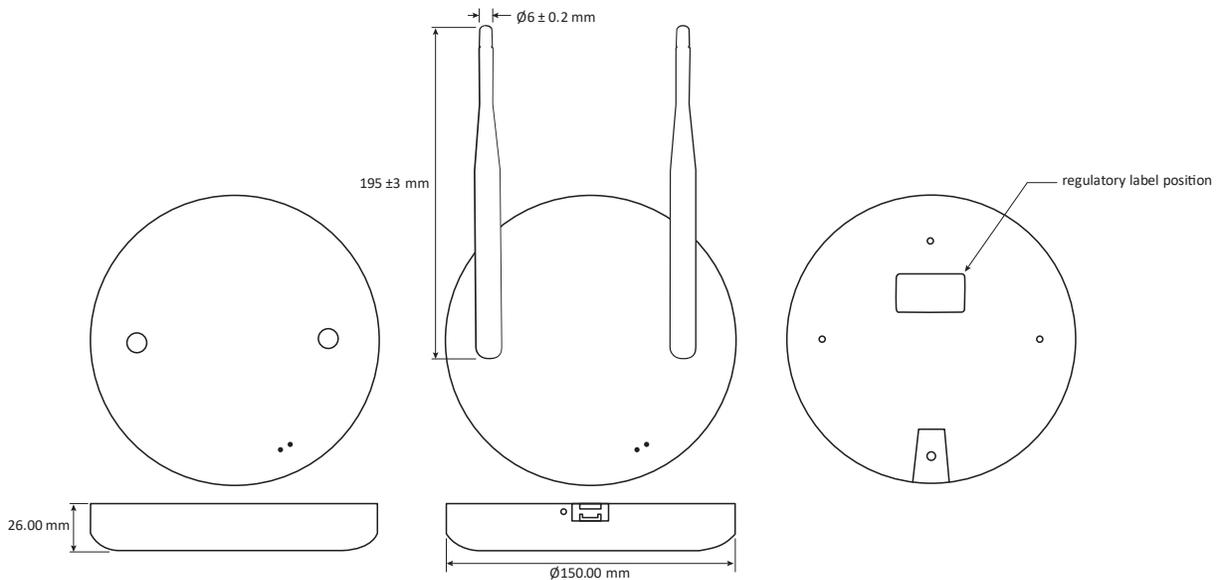
IoT Pixel	Energizing Range*	Echo Range
(single band) 2.4 GHz harvesting band	3 to 5 meters	10 to 15 meters
(dual band) 915 MHz harvesting band	10 to 15 meters	10 to 15 meters

*Energizing range may vary by SKU.

5 Pacing

PowerBridge can reduce the amount of over-the-air traffic and throttle the amount of data pushed to the cloud. This feature is known as *Pacing* and refers to how often data packets received from Pixels are echoed by the bridge which is programmable via the Wiliot management portal.

6 1W WattUp PowerBridge Diagram



7 Regulatory Certification

The following countries are covered by 900 MHz band versions regulatory certification:

- US
- Canada
- United Kingdom
- European Union

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8 Part Number Information

Part Number	Description
TBD	TBD

9 Revision History

Version #	Date	Description of Changes
Version 1.0	07/25/23	-Initial release