# Selecting the right IoT Pixel for your application

Wiliot has developed both a Single Band and Dual Band tags to satisfy a variety of applications. Dual band tags are characterized by harvesting both the 2.4GHz WiFi Spectrum as well as "Sub 1 GHz" (915MHz in the US and most regions, 868MHz in part of EU).

Dual band tags have an advantage in range, and since they can energize from two different frequencies, overall reliability is increased. Many customers choose to utilize the dual band tag for use cases where a great deal of square footage, and when tracking or anomaly detection is needed. Single band tags have a slightly smaller form factor and are appropriate when gateways are either closer or where bridges can be deployed nearby, they are used for sensing as well as for tracking.

Trade-offs to consider when selecting a tag include:

- the cost of devices - while the difference may not be dramatic, dual band bridges tend to carry a slightly higher cost than single band ones, given they include 2 radios and antennas.
- the geographies a tag will be used - while dual band tags can harvest from both frequencies, their performance harvesting 2.4GHz tends to be slightly *less* than a single band tag. For international use case (example - logistics), a single band tag may be preferable given the regional fragmentation in the sub GHz radio spectrum.
- the necessary precision to locate items - using a dual band architecture provides more range, therefore reducing the number of devices "hearing" a given pixel, but also providing less data to the cloud therefore potentially reducing the precision at which a pixel can be located.

For Spec data on our tags please visit:

Single Band Tag Spec Sheet

Dual Band Tag Spec Sheet

For more details on Range and how to optimize tag performance please visit: Optimal Range Considerations .