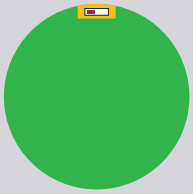
Antenna Chip Selection

Mounting Guidelines, Selection Info, & Optimization Process

Antenna Mounting Guidelines

PCB End Mounting

PCB Corner Mounting



PCB Circular Mounting

PCB Center-Edge Mounting

Legend

	Antenna Chip		Mounting Area
			PC Board

Selection Guide Information:

Note: Refer to the website for latest version of selection guide

Antenna Chip Selection Guide is a useful tool early in the design process when a decision on which Johanson antenna chip/s will be selected.

First, the designer must choose, what type of layout is desired based on the product shape and potential allowable antenna chip placement:

The mounting plays a critical role in antenna chip selection.

It is important that the designer understands that the **"Antenna Optimization Process"** is composed of the following:

All four of these features work together to determine the final system performance. As such, changes to the **no-ground area** or **chip locations** relative to the edge of the circuit board can result in substandard performance.

Once the layout type has been selected, then determine the desired **operational frequency**.

In some cases, the selection guide will provide two antenna chip options. We have identified features that should lead the designer to a specific selection.

Antenna Optimization Process

1. **Chip's associated internal circuitry,**
2. **the top RF ground plane,**
3. **geometry of the no-ground area,**
4. **and the edge of the circuit board.**

RESOURCE ▶ **Note:** Refer to the website for latest version of selection guide
https://www.johansontechnology.com/chip-antenna-selection

Antenna Chip Selection: Application, frequency, physical size, mount location, part number & description

Application Legend & Bluetooth / Wi-Fi / Zigbee Applications

Application Specific Antenna Selection Guidelines

Legend

- Application Type
  1. Bluetooth / Wi-Fi / Zigbee
  2. Wi-Fi (ONLY)
  3. GPS / GLONASS / BDS / GALILEO
  4. ISM
  5. Dual-Band
  6. WiMAX
  7. Ultra Wide-Band
- Frequency
- Mounting Location
- Physical Size Small / Medium / Large
- Part Number Description

1. Bluetooth, Wi-Fi, & Zigbee

2.4 GHz

Note: Refer to the website for latest version of selection guide. See the resource link at bottom of this page.

End Mount and/or Corner Mount

Small	Medium	Large
2450AT14A0100001T Ultra-low profile, smallest corner mount	2450AT42B0100001E Exceptional gain for medium size	2450AT42A0100001E Great performance, large size
2450AT18B0100001E Great small monopole antenna	2450AT43B0100001E Larger size, higher gain	2450AT43F0100001E Wide Band
		2450AT45A0100001E High gain, largest antenna

Center-Edge Mount	Circular Mount	Patch Antenna
2450AT07A0100001T Low profi le, resistant to capacitive de-uning	2450AT07A0100001T High gain, resistant to capacitive detuning	2440AT62A0085001E Does not require PCB edge
2450AT18D0100001E High gain, resistant to capacitive detuning	2450AT18D0100001E High gain, resistant to capacitive detuning	
2450AT42E010B001E Mounts directly above GND/metal	2450AT42E010B001E Mounts directly above GND/metal	

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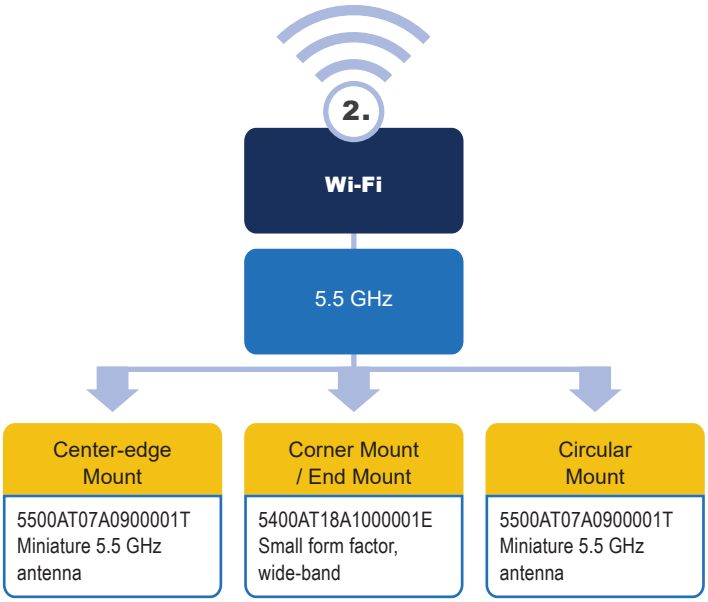
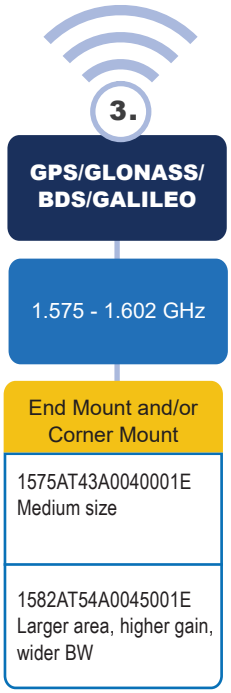
Antenna Chip Selection: Application, frequency, mount location, part number & description

Wi-Fi, GPS / GLONASS / BDS / GALILEO, & ISM Applications





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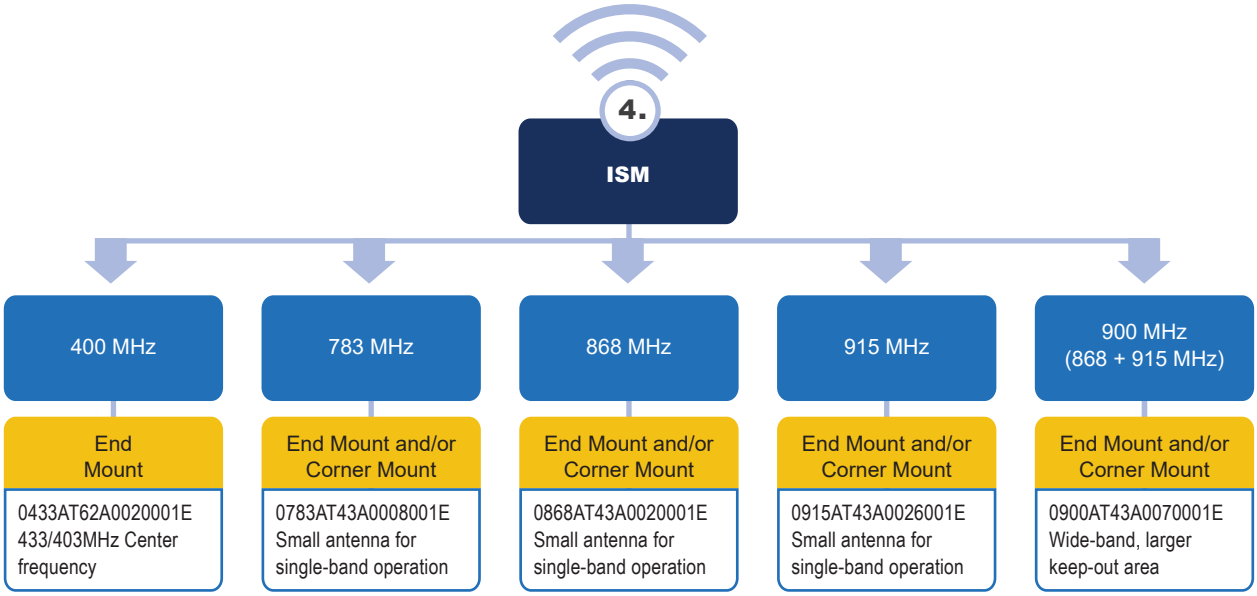

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Antenna Chip Selection: Application, frequency, mount location, part number & description

Dual-Band, WiMAX, & Ultra Wide-Band Selections Applications

Note: Refer to the website for latest version of selection guide. See the resource link at bottom of this page.

5. Dual-Band

830 MHz / 2.2 GHz	900 MHz / 2.4 GHz	GPS / 2.4 GHz	2.4 GHz / UWB	2.4 / 5.5 GHz
End Mount	End Mount and/or Corner Mount	Corner-edge Mount	Corner Mount	Corner Mount
0433AT62A0020001E 433/403MHz Center frequency	0783AT43A0008001E Small antenna for single-band operation	0868AT43A0020001E Small antenna for single-band operation	0915AT43A0026001E Small antenna for single-band operation	0900AT43A0070001E Wide-band, larger keep-out area
			0915AT43A0026001E Small antenna for single-band operation	Corner-edge Mount
				0900AT43A0070001E Wide-band, larger keep-out area

6. WiMAX

2.5 GHz	2.6 GHz
End Mount and/or Corner Mount	End Mount and/or Corner Mount
2500AT44M0400001E Wide-band	2600AT44A0600001E Wide-band

7. Ultra Wide-Band

6.2 - 8.24 GHz	3.1 - 10.3 GHz
Corner Mount	Corner Mount
7000AT18A1600001E UWB channels 5-8	3100AT51A7200001E UWB antenna

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