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Americas: +1.847.839.6907  
Europe: +1.32.80.7866.12  
Asia: +1.65.6.243.8022

[www.lairdtech.com](http://www.lairdtech.com)

#### IAS-BRO-WIMAX 0411

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# WiMAX Antenna

## WIRELESS SOLUTIONS

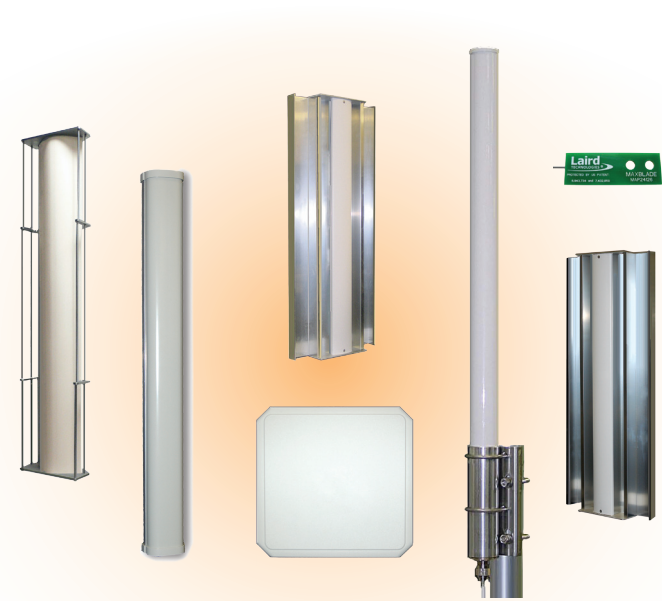


## World-Leading Solutions

Laird Technologies' world class engineering teams utilize proprietary, state-of-the-art design tools to create antenna products that maximize total system performance and user satisfaction. Laird Technologies' WiMAX product line features antennas that easily meet the European Telecommunications Standards Institute's (ETSI) most stringent compliance standards while still being competitively priced.

## Depend on Laird Technologies

Laird Technologies' WiMAX antennas meet stringent compliance standards and are competitively priced. Its worldwide engineering teams, using proprietary artificial intelligence antenna design software, create antenna designs with the tightest patterns and highest gain in the most compact package. With Laird Technologies' proven expertise in high-capacity manufacturing operations, its WiMAX product line exhibits a good value/performance ratio.



## A Brief Introduction to WiMAX

WiMAX is a telecommunications technology aimed at providing wireless data over long distances in a variety of ways, from point-to-point links to full mobile cellular type access. WiMAX operates over greater distances and for a greater number of users and is used in a variety of applications including banking and education networks, public safety, offshore communications and military communications.

## Benefits of WiMAX Technology

Some benefits of using Laird Technologies' WiMAX antennas include:

- Maximum spectral efficiency
- Reutilization of channels in the next over-adjacent sector antenna
- Reduced crosstalk
- Reduced interference, improved S/N ratio, improved C/I ratio
- Most uniform energy distribution across the entire coverage area
- Reduced system overhead compensating for nulls and hot spots in the coverage area
- Highest quality of service (QoS) and subscriber satisfaction

# WiMAX External ANTENNAS



## 700 MHz

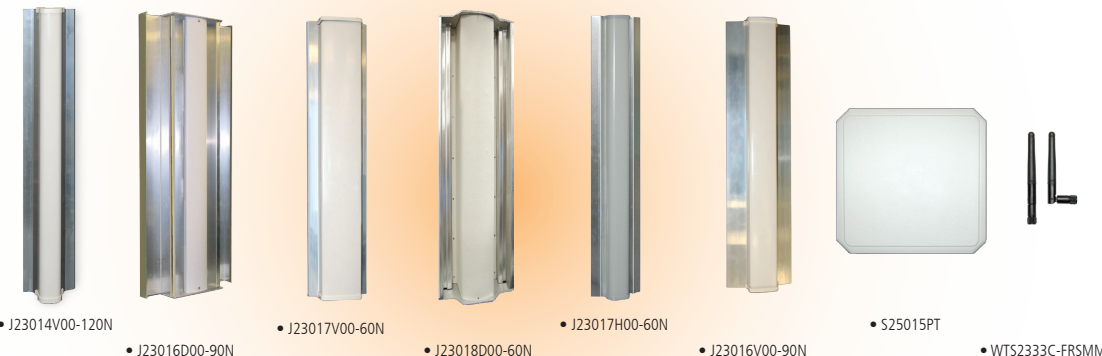
The Laird Technologies high-performance 700 MHz band external WiMAX antenna provides non-line-of-sight broadband wireless access. It affords service providers with a heavy-duty, easy-to-install sector antenna with low side lobe performance and uniform coverage characteristics.

| PART NUMBER   | FREQUENCY (MHz) | ANTENNA TYPE | PATTERN TYPE | VSWR | GAIN | BEAMWIDTH |    | POLARIZATION | DIMENSIONS (INCHES) |       |        | CONNECTOR TYPES | MOUNT STYLE | INDOOR/ OUTDOOR |
|---------------|-----------------|--------------|--------------|------|------|-----------|----|--------------|---------------------|-------|--------|-----------------|-------------|-----------------|
|               |                 |              |              |      |      | EL        | AZ |              | LENGTH              | WIDTH | HEIGHT |                 |             |                 |
| J71014V00-70N | 710-790         | Sector       | Directional  | 1.5  | 16.0 | 14        | 60 | Vertical     | 63                  | 13.2  | 11.7   | Type N(f)       | Mast        | Outdoor         |

• J71014V00-70N

## 2.5 GHz

Laird Technologies' 2.5 GHz external WiMAX antennas offer extremely low-side lobes, null fill below the horizon, and uniform energy distribution with the coverage area are achieved thanks to our highly skilled engineering staff and the utilization of our proprietary Artificial Intelligence RF Optimizing development tool. These antennas meet all aspects of ETSI EN 301.525 CS.



• J23014V00-120N

• J23016D00-90N

• J23017V00-60N

• J23018D00-60N

• J23017H00-60N

• J23016V00-90N

• S25015PT

• WTS2333C-FRSMM

| PART NUMBER    | FREQUENCY (MHz) | ANTENNA TYPE | PATTERN TYPE     | VSWR | GAIN  | BEAMWIDTH |     | POLARIZATION  | DIMENSIONS (INCHES) |       |        | CONNECTOR TYPES | MOUNT STYLE | INDOOR/ OUTDOOR |
|----------------|-----------------|--------------|------------------|------|-------|-----------|-----|---------------|---------------------|-------|--------|-----------------|-------------|-----------------|
|                |                 |              |                  |      |       | EL        | AZ  |               | LENGTH              | WIDTH | HEIGHT |                 |             |                 |
| J23014V00-120N | 2300/2500       | Sector       | Directional      | 1.8  | 15.5  | 7         | 120 | Vertical      | 39.9                | 4.3   | 8      | Type N(f)       | Mast        | Outdoor         |
| J23016D00-90N  | 2300/2500       | Sector       | Directional      | 1.8  | 16.5  | 7         | 90  | H/V           | 39.8                | 15.7  | 8.3    | Type N(f)       | Mast        | Outdoor         |
| J23016H00-90N  | 2300/2500       | Sector       | Directional      | 1.8  | 16.5  | 7         | 90  | Horizontal    | 39.9                | 3.8   | 8.3    | Type N(f)       | Mast        | Outdoor         |
| J23016S00-90N  | 2300/2500       | Sector       | Directional      | 1.8  | 16.5  | 7         | 90  | Dual Slant 45 | 40                  | 8.2   | 4.5    | Type N(f)       | Mast        | Outdoor         |
| J23016V00-90N  | 2300/2500       | Sector       | Directional      | 1.8  | 16.5  | 7         | 90  | Vertical      | 39.9                | 4     | 8.4    | Type N(f)       | Mast        | Outdoor         |
| J23017H00-60N  | 2300/2500       | Sector       | Directional      | 1.8  | 18.0  | 7         | 60  | Horizontal    | 39.9                | 3.8   | 8.3    | Type N(f)       | Mast        | Outdoor         |
| J23017S00-65N  | 2300/2500       | Sector       | Directional      | 1.8  | 18.0  | 7         | 65  | Dual Slant 45 | 40.1                | 6.3   | 4      | Type N(f)       | Mast        | Outdoor         |
| J23017V00-60N  | 2300/2500       | Sector       | Directional      | 1.8  | 18.0  | 7         | 60  | Vertical      | 39.9                | 4     | 8.4    | Type N(f)       | Mast        | Outdoor         |
| J23018D00-60N  | 2300/2500       | Sector       | Directional      | 1.8  | 18.5  | 7         | 60  | H/V           | 39.9                | 4     | 8.4    | Type N(f)       | Mast        | Outdoor         |
| S25015PT       | 2400-2700       | Panel        | Directional      | 2    | 14,15 | 25        | 25  | H/V           | 10.2                | 1.3   | 10.2   | Type N(m)       | Mast        | Indoor/ Outdoor |
| WTS2333C-FRSMM | 2300-2700       | Dipole       | Omni-directional | 2    | 2.3   | 90        | 360 | Vertical      | 3.78                | 0.37  | —      | Type RPSMA      | Rubber Duck | Indoor          |

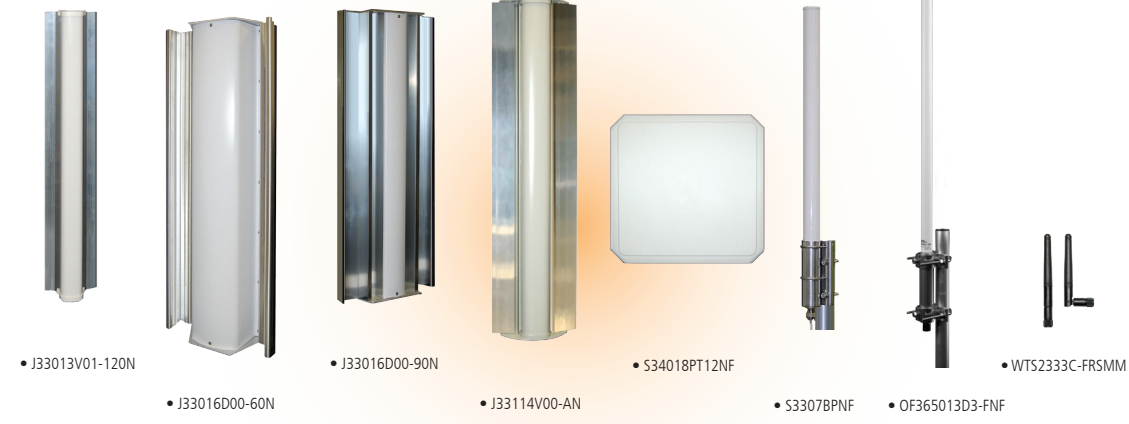


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# WiMAX External ANTENNAS

## 3.5 GHz

Laird Technologies' suite of high-performance 3.5 GHz WiMAX antennas feature proprietary design elements resulting in extremely high levels of system performance and ruggedness while maintaining very slim profiles with low wind and ice loading.



• J33013V01-120N

• J33016D00-60N

• J33016D00-90N

• J33114V00-AN

• S34018PT12NF

• S3307BPNF

• OF365013D3-FNF

• WTS2333C-FRSMM

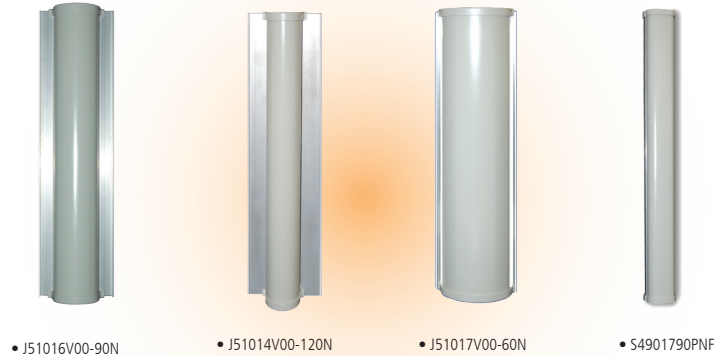
| PART NUMBER    | FREQUENCY (MHz) | ANTENNA TYPE      | PATTERN TYPE     | VSWR | GAIN | BEAMWIDTH |                             | POLARIZATION  | DIMENSIONS (INCHES) |       |        | CONNECTOR TYPES | MOUNT STYLE | INDOOR/ OUTDOOR |
|----------------|-----------------|-------------------|------------------|------|------|-----------|-----------------------------|---------------|---------------------|-------|--------|-----------------|-------------|-----------------|
|                |                 |                   |                  |      |      | EL        | AZ                          |               | LENGTH              | WIDTH | HEIGHT |                 |             |                 |
| J33013V01-120N | 3300/3500       | Sector            | Directional      | 1.8  | 15.5 | 7         | 120                         | Vertical      | 30.2                | 5.7   | 3.3    | Type N(f)       | Mast        | Outdoor         |
| J33015V01-90N  | 3300/3500       | Sector            | Directional      | 1.8  | 16.5 | 7         | 90                          | Vertical      | 30.2                | 5.9   | 3.4    | Type N(f)       | Mast        | Outdoor         |
| J33016D00-60N  | 3300/3500       | Sector            | Directional      | 1.8  | 18.5 | 7         | 60                          | H/V           | 28.3                | 6.4   | 10.8   | Type N(f)       | Mast        | Outdoor         |
| J33016D00-90N  | 3300/3500       | Sector            | Directional      | 1.8  | 16.5 | 7         | 90                          | H/V           | 28.2                | 6.3   | 11.3   | Type N(f)       | Mast        | Outdoor         |
| J33017S00-65N  | 3300/3500       | Sector            | Directional      | 1.8  | 17.0 | 7         | 65                          | Dual Slant 45 | 28.2                | 4.8   | 2.7    | Type N(f)       | Mast        | Outdoor         |
| J33017V01-60N  | 3300/3500       | Sector            | Directional      | 1.8  | 17.5 | 7         | 60                          | Vertical      | 30.2                | 5.9   | 3.4    | Type N(f)       | Mast        | Outdoor         |
| J33114V00-AN   | 3300-3700       | Sector            | Directional      | 1.7  | 18.5 | 7         | Mechanical Field Adjustable | Vertical      | 28.2                | 7.1   | 3.3    | Type N(f)       | Mast        | Outdoor         |
| J34114V01-120N | 3400-3700       | Sector            | Directional      | 1.5  | 15.5 | 7         | 120                         | Vertical      | 30.2                | 5.7   | 3.3    | Type N(f)       | Mast        | Outdoor         |
| J34216V00-120N | 3400-3800       | Sector            | Directional      | 1.7  | 17.5 | 3.5       | 120                         | Vertical      | 52.2                | 5.7   | 3.3    | Type N(f)       | Mast        | Outdoor         |
| J34218V00-90N  | 3400-3800       | Sector            | Directional      | 1.7  | 18.5 | 3.5       | 90                          | Vertical      | 52.2                | 5.9   | 3.4    | Type N(f)       | Mast        | Outdoor         |
| J34220V00-60N  | 3400-3800       | Sector            | Directional      | 1.7  | 20.0 | 3.5       | 60                          | Vertical      | 52.2                | 5.9   | 3.4    | Type N(f)       | Mast        | Outdoor         |
| S34018PT12NF   | 3400-3600       | Panel             | Directional      | 1.5  | 18.0 | 19        | 20                          | H/V           | 259.1               | 33.5  | 259.1  | Type N(m)       | Mast        | Indoor/ Outdoor |
| S3307BPNF      | 3300/3500       | Collinear (Stick) | Omni-directional | 2    | 9.0  | 8         | Omni-directional            | Vertical      | 28.2                | —     | 1.7    | Type N(f)       | Mast        | Outdoor         |
| OF365013D3-FNF | 3650-3700       | Collinear (Stick) | Omni-directional | 1.8  | 13.0 | 4.8       | Omni-directional            | Vertical      | 43.1                | —     | 1.3    | Type N(f)       | Mast        | Outdoor         |
| WTS2333C-FRSMM | 3300-3900       | Dipole            | Omni-directional | 2    | 2.7  | 90        | 360                         | Vertical      | 3.78                | 0.37  | —      | Type RPSMA      | Rubber Duck | Indoor          |

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# WiMAX External ANTENNAS

## 5 GHz

Laird Technologies offers WiMAX antennas that cover the 5 GHz frequency band. They are designed to provide wide angle directional coverage from a wall or mast mounting location. Applications include any 802.11a enterprise access point system deployment including educational or industrial campuses, healthcare, and transportation terminals.



• J51016V00-90N

• J51014V00-120N

• J51017V00-60N

• S4901790PNF

| PART NUMBER    | FREQUENCY (MHz) | ANTENNA TYPE | PATTERN TYPE | VSWR | GAIN | BEAMWIDTH |     | POLARIZATION | DIMENSIONS (INCHES) |       |        | CONNECTOR TYPES | MOUNT STYLE | INDOOR/ OUTDOOR |
|----------------|-----------------|--------------|--------------|------|------|-----------|-----|--------------|---------------------|-------|--------|-----------------|-------------|-----------------|
|                |                 |              |              |      |      | EL        | AZ  |              | LENGTH              | WIDTH | HEIGHT |                 |             |                 |
| J51014V00-120N | 4900-5900       | Sector       | Directional  | 1.7  | 15.0 | 7         | 120 | Vertical     | 18.2                | 4.7   | 2.9    | Type N(f)       | Mast        | Outdoor         |
| J51016V00-90N  | 4900-5900       | Sector       | Directional  | 1.7  | 16.0 | 7         | 90  | Vertical     | 18.2                | 4.7   | 3.1    | Type N(f)       | Mast        | Outdoor         |
| J51017V00-60N  | 4900-5900       | Sector       | Directional  | 1.7  | 17.5 | 7         | 60  | Vertical     | 18.2                | 4.7   | 2.8    | Type N(f)       | Mast        | Outdoor         |
| S49016120PNF   | 4900-5850       | Sector       | Directional  | 2    | 15.5 | 5.5       | 15  | Vertical     | 24.6                | 2     | 2.7    | Type N(f)       | Mast        | Outdoor         |
| S4901790PNF    | 4900-5850       | Sector       | Directional  | 2    | 16.5 | 5.5       | 7   | Vertical     | 24.6                | 2     | 2.7    | Type N(f)       | Mast        | Outdoor         |

# WiMAX Internal ANTENNAS

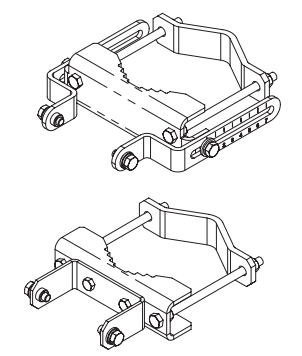
Laird Technologies' internal wireless device antennas feature wide bandwidth to enhance the performance and application of portable wireless devices based on standards such as 802.11 and Bluetooth. The antennas are specifically designed to be embedded inside devices for aesthetically pleasing integration with high durability.



| PART NUMBER     | FREQUENCY (MHz) | ANTENNA TYPE | PATTERN TYPE    | VSWR | GAIN                                                             | POLARIZATION | DIMENSIONS (INCHES) |       | CONNECTOR TYPES | MOUNT STYLE   | INDOOR/ OUTDOOR |
|-----------------|-----------------|--------------|-----------------|------|------------------------------------------------------------------|--------------|---------------------|-------|-----------------|---------------|-----------------|
|                 |                 |              |                 |      |                                                                  |              | LENGTH              | WIDTH |                 |               |                 |
| EMX2360A1-10UFL | 2300-6000       | Embedded     | Omnidirectional | 2    | 4 dBi (2.3-2.7 GHz), 2.1 dBi (3.3 GHz) and 4 dBi (4.9-5.875 GHz) | Vertical     | 2                   | 0.65  | IPEX MHF        | Surface Mount | Indoor          |
| EMX2360A1-15UFL | 2300-6000       | Embedded     | Omnidirectional | 2    |                                                                  | Vertical     | 2                   | 0.65  | IPEX MHF        | Surface Mount | Indoor          |
| EMX2360A1-20UFL | 2300-6000       | Embedded     | Omnidirectional | 2    |                                                                  | Vertical     | 2                   | 0.65  | IPEX MHF        | Surface Mount | Indoor          |
| EMX2360A1-25UFL | 2300-6000       | Embedded     | Omnidirectional | 2    |                                                                  | Vertical     | 2                   | 0.65  | IPEX MHF        | Surface Mount | Indoor          |

## Accessories

Laird Technologies supplies accessories that are the perfect complement to its antenna systems. Cable assemblies, surge suppressors, lightning arrestors, POE inserters and splitters, wall and roof-top antenna mounts, connector adapters and die-cast aluminum enclosures are available.



| PART NUMBER  | DESCRIPTION                               |
|--------------|-------------------------------------------|
| JBXRX-01-TM5 | Bracket for J Series WiMAX Sector Antenna |

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