Airgain Embedded Antenna
Product Datasheet

Profile20

Model N2420M Series

## Revision History

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>189-02-00-001-1 Rev A</td>
<td>March 6, 2012</td>
<td>Initial Draft</td>
</tr>
<tr>
<td>189-02-00-001-1 Rev B</td>
<td>October 9, 2012</td>
<td>Update Antenna Dimensions</td>
</tr>
</tbody>
</table>
Table of Contents

1. Model N2420M Embedded Antenna ................................................................................. 4
2. Features .......................................................................................................................... 4
3. Specification and Interface ............................................................................................ 5
4. Radiation Patterns .......................................................................................................... 5
5. Dimensions .................................................................................................................... 6
6. ROHS ............................................................................................................................ 6
7. Mounting Guidelines ........................................................................................................ 6
8. Supporting Documents ..................................................................................................... 8
9. Feature and Options Information ................................................................................... 8
9.1. Part number information .............................................................................................. 9

Disclaimers

The information in this document is provided in connection with Airgain Antenna products and is proprietary and confidential. Airgain may make changes to at anytime, without notice.

Please verify with Airgain before finalizing a product design.
1. Model N2420M Embedded Antenna

Based on Airgain’s patented technology, the Model N2420M Embedded Antenna provides a high efficiency, low gain, embedded antenna solution for Wi-Fi and ISM band applications, such as WLAN products in Europe. As embedded antenna solutions become the focus of next generation wireless product design, the Model N2420M provides the flexibility of an embedded antenna with top performance. The Model N2420M Embedded Antenna was designed to accommodate most WLAN access point applications, such as routers and gateways. The product can be easily integrated into an ID package design.

2. Features

The Model N2420M Embedded Antennas are defined by the following features:

- IEEE 802.11 b/g/n standards
- Case mount
- 2.8 dBi peak gain,
- High efficiency
- Quick integration

![Model N2420M-T Antenna](image)
3. Specification and Interface

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>IEEE 802.11n and 802.11 b/g</td>
</tr>
<tr>
<td>Frequency Range</td>
<td>2.4 to 2.49 GHz</td>
</tr>
<tr>
<td>Peak Gain</td>
<td>2.8 dBi</td>
</tr>
<tr>
<td>VSWR</td>
<td>2:1</td>
</tr>
<tr>
<td>Feed Impedance</td>
<td>50 Ohms</td>
</tr>
<tr>
<td>Power Handling</td>
<td>30 dBm</td>
</tr>
<tr>
<td>Interface</td>
<td>50 ohm, 1.13mm diameter, micro coax cable, U.FL compatible cable connector (optional), cable mounted EMI ferrites (optional)</td>
</tr>
<tr>
<td>Antenna Dimensions</td>
<td>46.0 x 7.3 x 0.5 (mm)</td>
</tr>
<tr>
<td>Weight</td>
<td>0.5 g (0.018 oz)</td>
</tr>
</tbody>
</table>

4. Radiation Patterns

Patterns taken with Model N2420M mounted in testing AP.

Figure 2
Model N2420M Measured Radiation Patterns
5. Dimensions

![Antenna Dimensions Diagram](image)

Figure 3
Model N2420M Embedded Antenna Dimensions, RF cable connections and connector orientation and cable stripping dimensions, if required

6. ROHS
Model N2420M Embedded Antennas are RoHS compliant.

7. Mounting Guidelines
Model N2420M Embedded Antennas can be simply mounted on a case. This simplifies ID design and also shortens the product cycle. For a case wall mount, tape mount a N2420M in an application case by using 6.0mm x 46.0 mm x 1.6 mm thick double sided tape placed behind the antenna PCB, as shown in Figure 4 and Figure 5. Place the N2420M on the case side wall at a height where the lowest antenna PCB edge is 5 mm above the application PCBA top plane. A space of 5 mm is recommended between the PCBA edge near the N2420M and the case wall mounting location (Figure 4).

![Mounting Guidelines Diagram](image)

Figure 4
Side View: Case side wall mounting considerations for Model N2420M
Figure 5
Top View: Case side wall mounting considerations when mounting Model N2420M

Ensure that a space of 1.6 mm minimum is maintained between the N2420M and any case walls or case top as shown in Figure 6.

Figure 6
Case top considerations when wall mounting Model N2420M

For a case top location, ensure that a space of 1.6 mm minimum is maintained between the N2420M and the case top. A tall component keep-out area beneath the N2420M antenna is defined in Figure 7 below. No portion of any tall components on the application PCBA should come within 5 mm of the N2420M. This helps assure a quality antenna performance.
8. Supporting Documents

The following design documents are used as references for design implementation of the Airgain Model N2420M Embedded Antenna products:

<table>
<thead>
<tr>
<th>Document Type</th>
<th>File Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly Drawings</td>
<td>189-07-00-001-1_A_ASSY.pdf</td>
</tr>
<tr>
<td>Cable Datasheet</td>
<td>000-22-00-006-1E Colored RF Cable Datasheet.pdf</td>
</tr>
</tbody>
</table>

9. Feature and Options Information

Airgain Model N2420M Series antennas are equipped with a RF cable I/O interface. Optional cable termination such as U.FL compatible micro coax connectors and cable mounted EMI ferrite cores are available. A -T- suffix specifies tape, typically 1.6 mm thick, applied for mounting in bottom antenna as shown in the diagram below.
9.1. Part number information

The Model N2420M series antennas are equipped with an RF cable I/O interface attached to the antenna. Airgain standard RF cables use 1.13 mm diameter, micro coax cables, and are available in a variety of lengths and interface options.

Airgain uses a five-staged standard number system for our part numbers, which serially define the antenna type, cable length and connector type/interface, as detailed below:

| Antenna # | Tape Type  
| ~XX (if required) | Cable Type  
| ~X | Cable Length ~XXX | Connector Type  
| ~XX (if required) |
|---|---|---|---|---|
| N2420M | Blank = No Tape  
|  | T = Tape on bottom of element  
|  | G = Grey (Standard)  
|  | B = Black (Non Standard) | Cable length in millimeters (mm)  
|  | Sample Lengths*: 65, 100, 130, 150, 190, 230, 250, 300, 400 | Blank = Stripped Cable  
|  | U = U.FL connector  
|  | C = U.FL connector plus Ferrite Core  
|  | CS = stripped cable plus Ferrite Core |

* Standard Cable Lengths listed in RF Cable Datasheet

Example part number:

**N2420M -T- G100U**  
N2420M antenna with 1.6mm double-sided adhesive tape with 100mm cable plus U.FL connector.