

# Airgain Embedded Antenna Product Datasheet

## Profile20

### Model N2420 Series



Coverage. Performance. Smart.

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## Revision History

Revision	Date	Note
063-02-00-001-1 Rev A	November 6, 2007	Initial Draft
063-02-00-001-1 Rev C	January 15, 2009	Update Cable Information
063-02-00-001-1 Rev D	March 20, 2009	Correct Cable Specification
063-02-00-001-1 Rev E	April 20, 2009	Rewrite Sec. 7: mounting
063-02-00-001-1 Rev F	May 18, 2009	Update Cover Sheet
063-02-00-001-1 Rev G	Oct 15, 2009	Update format and cable specs
063-02-00-001-1 Rev H	Oct. 21, 2009	Create Section for "Banned Substances"
063-02-00-001-1 Rev I	January 12, 2010	Remove Section for "Banned Substances". Clean up Figures. Add -T- parts to Ordering numbers
063-02-00-001-1 Rev J	January 18, 2010	Amend the standard cable lengths in Sec. 9.2. Remove 50mm, add 150 mm.
063-02-00-001-1 Rev K	December 27, 2010	Add -T10-, N2420 with 1mm Tape to Sec. 9.
063-02-00-001-1 Rev L	February 25, 2011	Add cable stripping dimensions to Fig. 3
063-02-00-001-1 Rev M	August 15, 2011	Update Sec 8 and Sec 9 for colored jacketed RF cables
063-02-00-001-1 Rev N	August 23, 2012	Update antenna's dimensions

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## 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.*

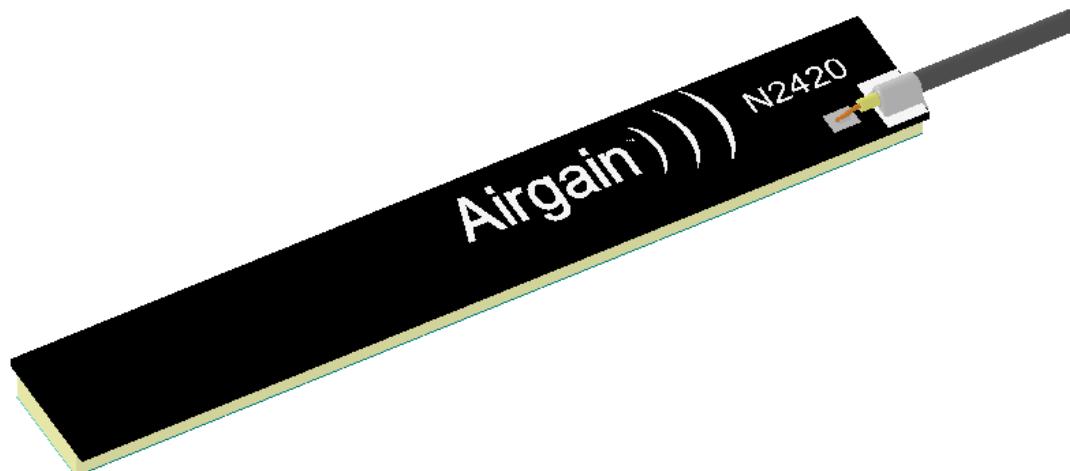
## 1. Model N2420 Embedded Antenna

Based on Airgain's patented technology, the Model N2420 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 N2420 provides the flexibility of an embedded antenna with top performance. The Model N2420 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 N2420 Embedded Antennas are defined by the following features:

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



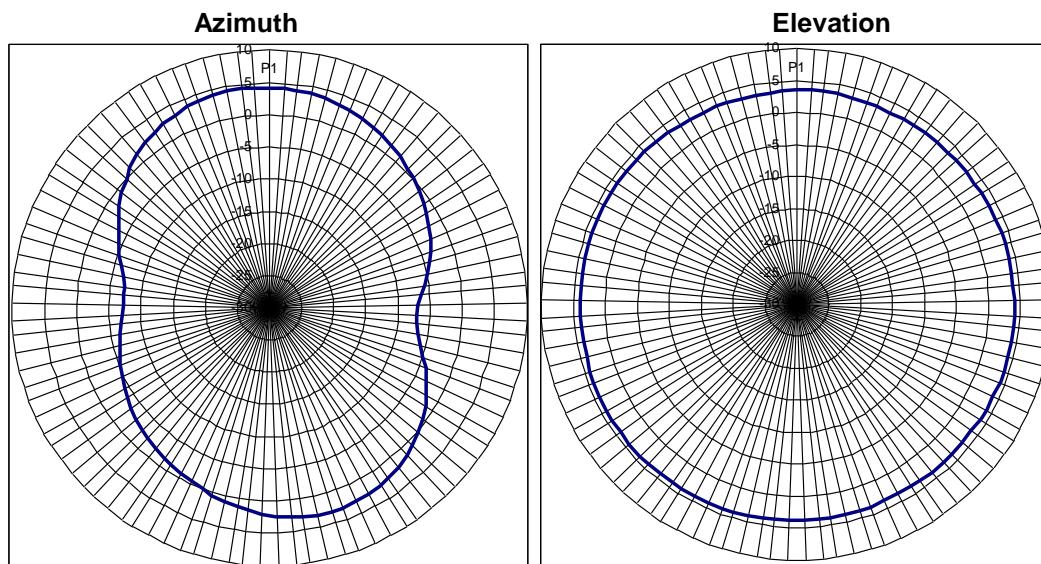
**Figure 1**  
Model N2420 Antenna

### 3. Specification and Interface

<b>Standard</b>	IEEE 802.11n and 802.11 b/g
<b>Frequency Range</b>	2.4 to 2.49 GHz
<b>Peak Gain</b>	3.3 dBi
<b>VSWR</b>	2:1
<b>Feed Impedance</b>	50 Ohms
<b>Power Handling</b>	30 dBm
<b>Interface</b>	50 ohm, 1.13mm diameter, micro coax cable, U.FL compatible cable connector (optional), cable mounted EMI ferrites (optional)
<b>Antenna Dimensions</b>	47.8 x 7.4 x 0.5 (mm)
<b>Weight</b>	0.8 g (0.028 oz)

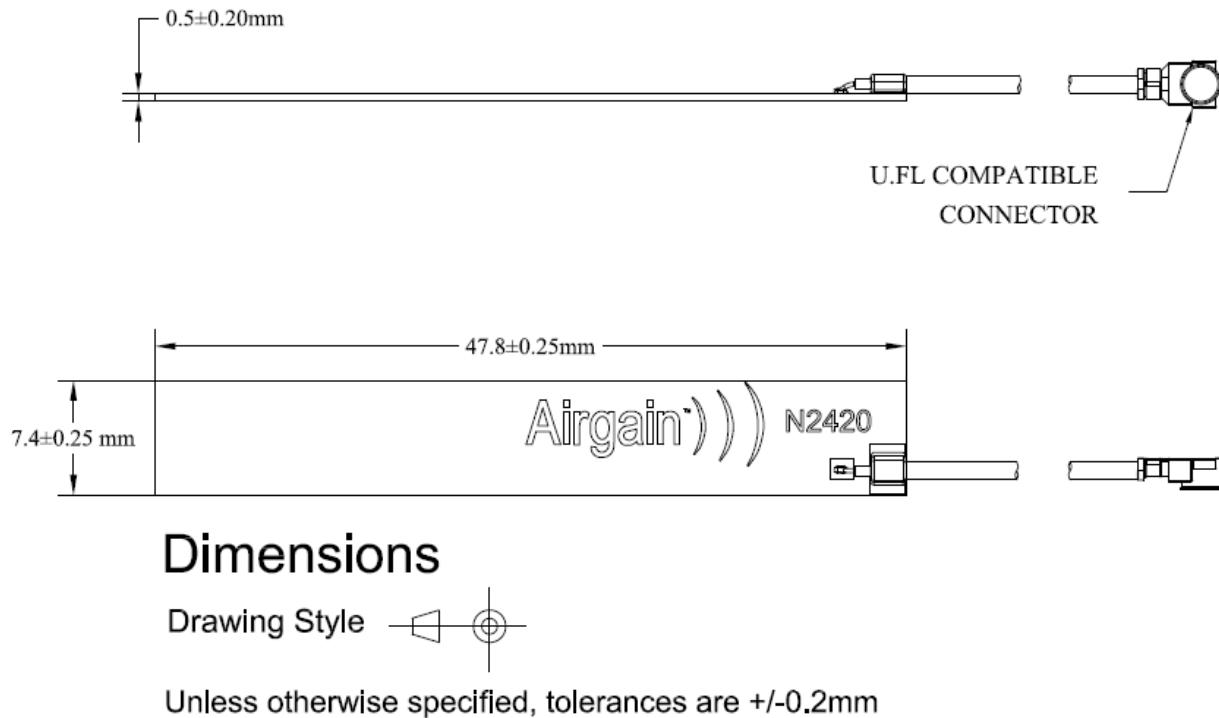
### 4. Radiation Patterns

Patterns taken with Model N2420 mounted on 90mm x 90mm x 2.2mm thick, ABS Plastic sheet using 1.6mm double sided tape



**Figure 2**  
Model N2420 Measured Radiation Patterns

## 5. Dimensions



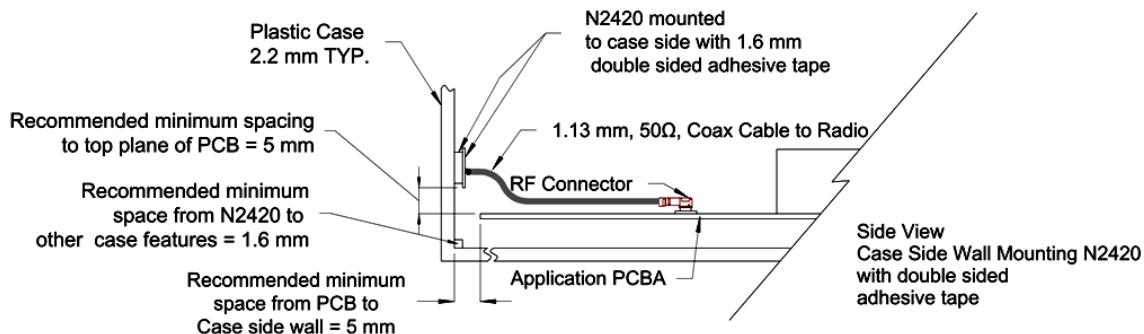
**Figure 3**  
Model N2420 Embedded Antenna Dimensions,

## 6. ROHS

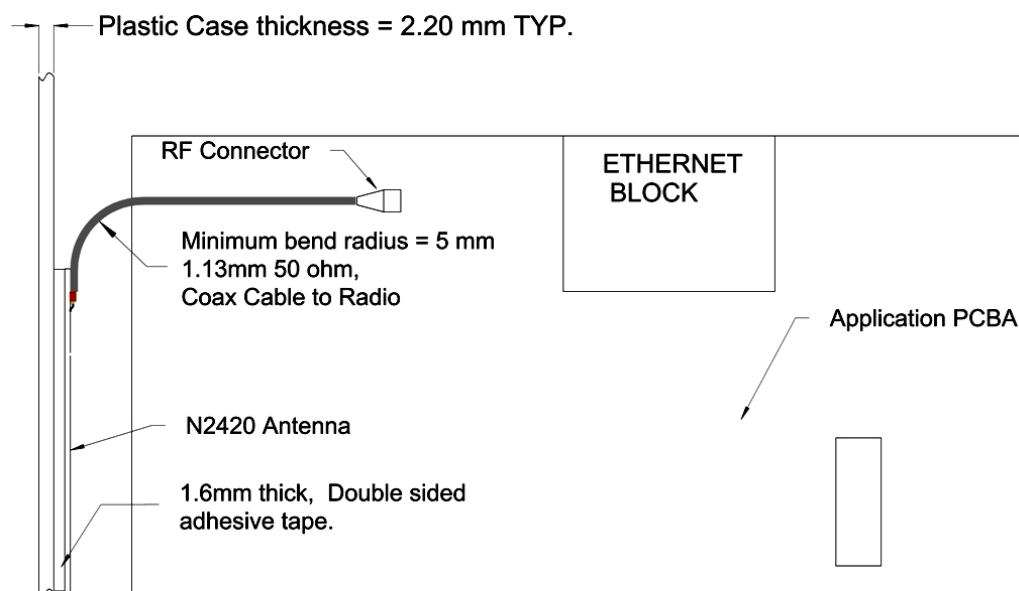
Model N2420 Embedded Antennas are RoHS compliant.

## 7. Mounting Guidelines

Model N2420 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 N2420 in an application case by using two 6mm x 6 mm pieces of 1.6 mm thick double sided tape placed behind the antenna PCB, as shown in Figure 4 and Figure 5. Place the N2420 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 N2420 and the case wall mounting location (Figure 4).

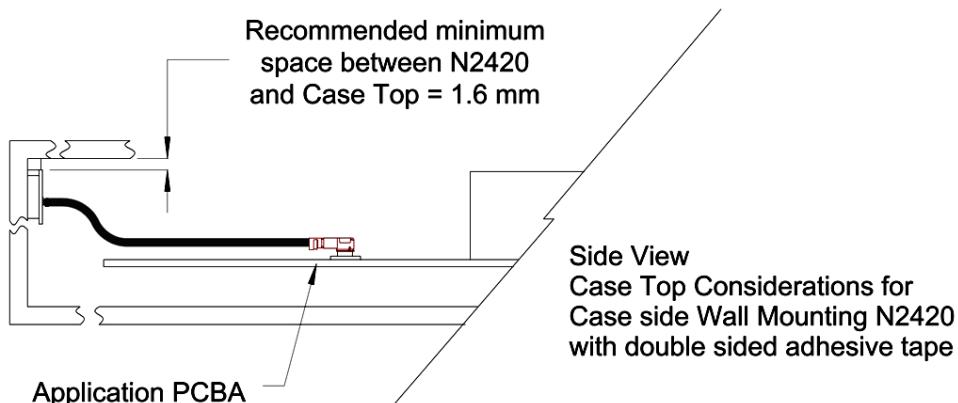


**Figure 4**  
Side View: Case side wall mounting considerations for Model N2420



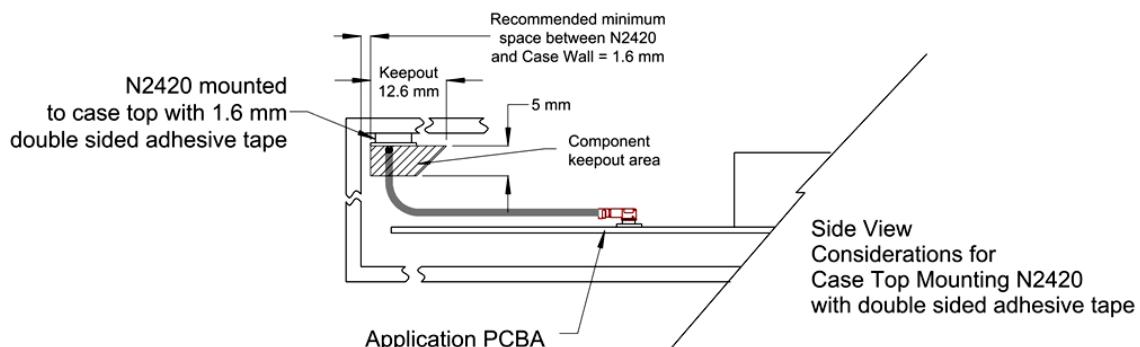
**Figure 5**  
Top View: Case side wall mounting considerations when mounting Model N2420

Ensure that a space of 1.6 mm minimum is maintained between the N2420 and any case walls or case top as shown in shown in Figure 6.



**Figure 6**  
Case top considerations when wall mounting Model N2420

For a case top location, ensure that a space of 1.6 mm minimum is maintained between the N2420 and the case top. A tall component keep-out area beneath the N2420 antenna is defined in Figure 7 below. No portion of any tall components on the application PCBA should come within 5 mm of the N2420. This helps assure a quality antenna performance.



**Figure 7**  
Side View: Clearance considerations when top mounting Model N2420

## 8. Supporting Documents

The following design documents are used as references for design implementation of the Airgain Model N2420 Embedded Antenna products:

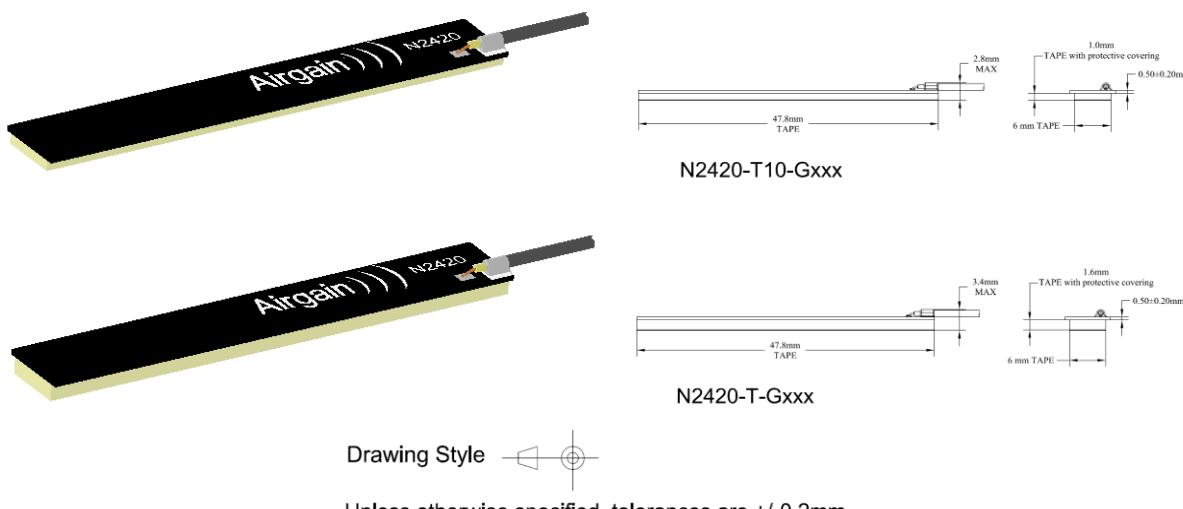
Assembly Drawings	063-07-00-001-1_D_ASSY.pdf
Cable Datasheet	000-22-00-006-1E RF Cable Datasheet.pdf

## 9. Feature and Options Information

Airgain Model N2420 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. To aid mounting the N2420, two thicknesses of pre-applied double sided adhesive tapes are available on the N2420 -T , and -T10 Series.

### 9.1. Pre-applied Mounting Tape Information

Airgain Model N2420 -T, and N2420-T10 Series antennas are supplied with pre-applied double sided adhesive tape. This mounting method has been tested and verified at Airgain Inc. to provide a RF interference-free attachment technique. The -T- suffix specifies 1.6 mm thick, and the -T10- suffix specifies 1.0 mm thick tape pre applied for mounting in desired orientations as described in Sections 7 and 9.3, and shown in the diagrams below.



**Figure 8**  
Example of a N2420-T10, (TOP) and N2420-T, (BOTTOM)

## 9.2. Part number information

The Model N2420 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.

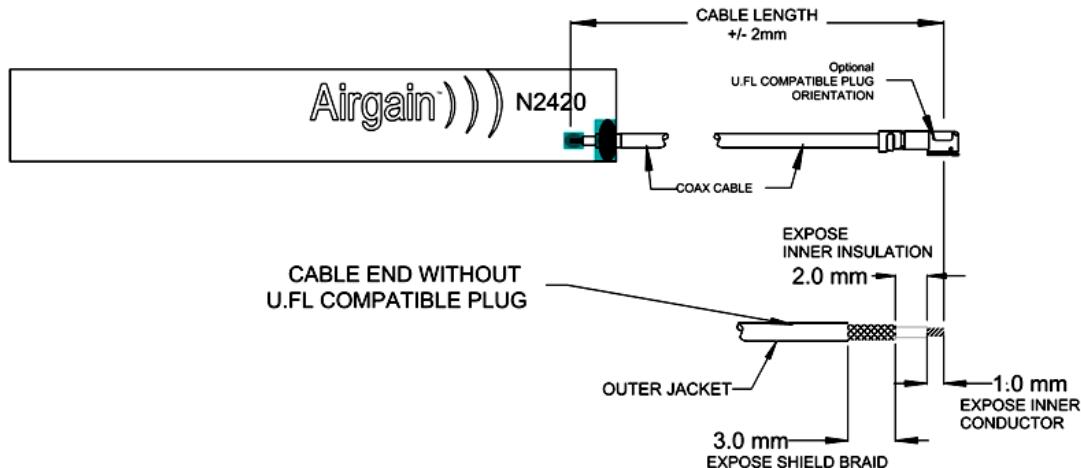
Airgain uses a five-staged standard number system for our part numbers, which serially define the antenna type, tape type, cable length and connector type/interface, as detailed below:

Antenna #	Tape Type -XX (if required)	Cable Type -X	Cable Length - XXX	Connector Type -XX (if required)
N2420	Blank = No Tape T = Tape on bottom of element T10= 1mm thick Tape on bottom 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:*

**N2420-T-G100U** – N2420 antenna with 1.6mm double-sided adhesive tape with 100mm cable plus U.FL connector.



**Figure 9**  
N2420 with connector or stripped cable