

Airgain™



Coverage.

Performance.

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**Profile Series
N01FVAAD**

**Airgain
Embedded
Antenna**

**Engineering
Data Sheet**

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Revision History (Required)

Revision	Date	Note
4177C-02-00-002-1 Rev 1.0	June 30, 2023	Preliminary Datasheet 1.0

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1. Airgain N01FVAAD Embedded Antenna

The Model N01FVAAD Embedded Antenna provides a high efficiency, 2.4GHz band embedded antenna solution for Wi-Fi and ISM band applications, such as WLAN products. As embedded antenna solutions become the focus of next generation wireless product design, the Model N01FVAAD provides the flexibility of an embedded antenna with top performance. The Model N01FVAAD Embedded Antenna is a center fed version of its predecessor, the N01FVAAD, allowing it to fit in spaces where center feeding is better suited. It is designed to accommodate most WLAN access point applications, such as routers and gateways and can be easily integrated into an ID package design.

2. Features

The Airgain N01FVAAD embedded antenna includes the following features:

- IEEE 802.11 /b/g/n/ standards
- Single 2.4GHz Band operation
- Case mount
- High efficiency
- Quick integration

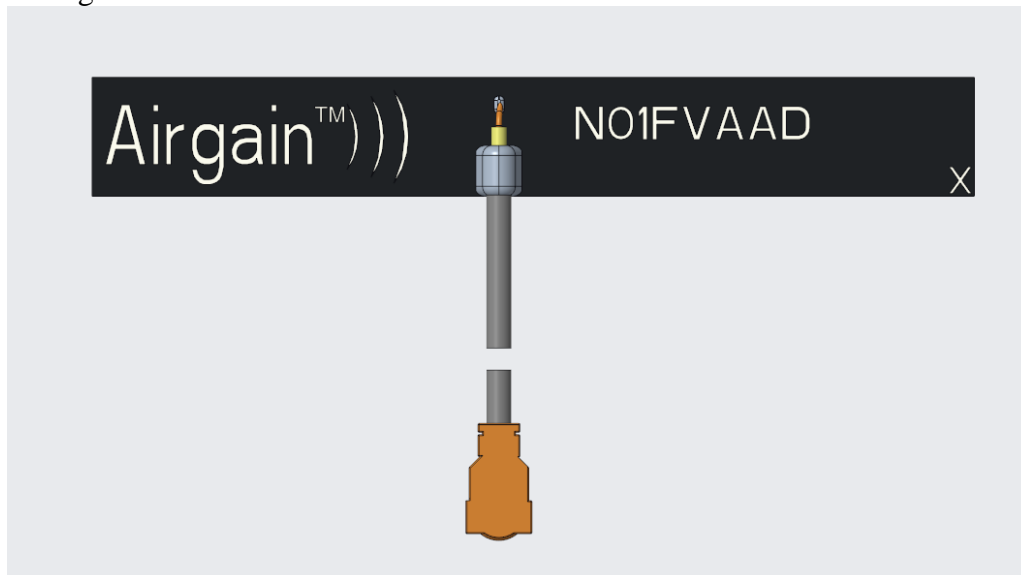


Figure 1: Model N01FVAAD Embedded Antenna

3. Specifications and Interface

Standard	IEEE 802.11 b/g/n
Frequency range	2.4 to 2.49 GHz
Peak gain	4.9 dBi @2.44 GHz,
VSWR	< 2:1
Feed impedance	50 ohms
Power handling	30 dBm
Interface	50 ohms, 1.13 mm diameter, micro coax cable (available with optional U.FL-compatible cable connector and/or cable-mounted EMI ferrites)
Antenna dimensions	40 x 5.4 x 0.8 mm
Weight	TBD g
Temperature range	Operating: -40° C to +75° C (-40° F to +167° F) Storage: -40° C to +85° C (-40° F to +185° F)
Humidity range	0% to 95% non-condensing

4. Radiation Patterns

Radiation patterns for the Airgain N01FVAAD were measured with the antenna mounted in testing AP.

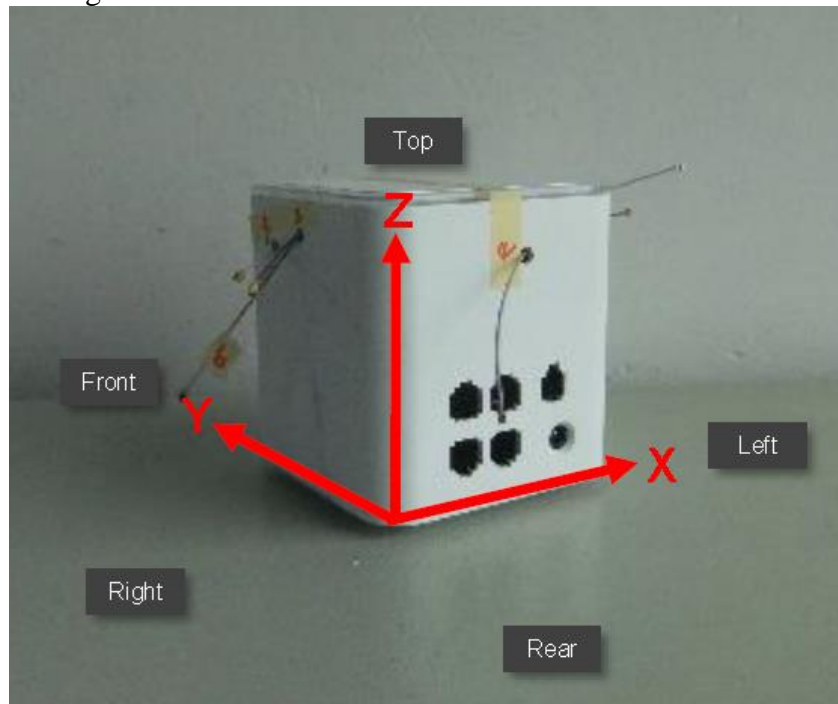
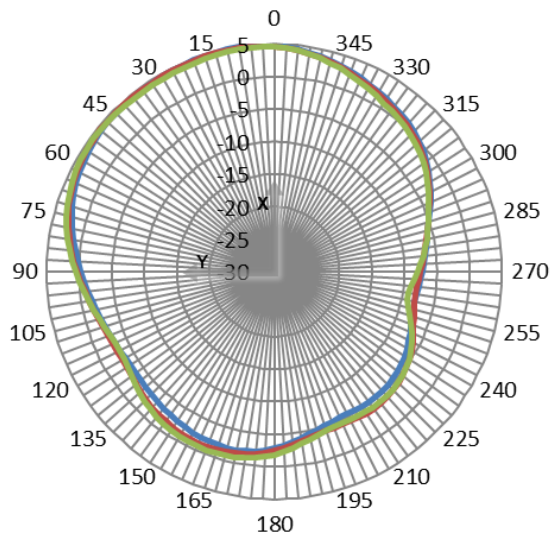


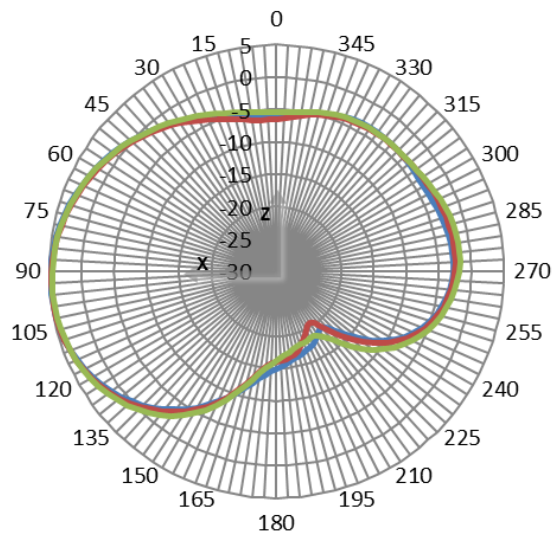
Figure 2: Model N01FVAAD Measurement axes

Ant1_2G4 Azimuth XY



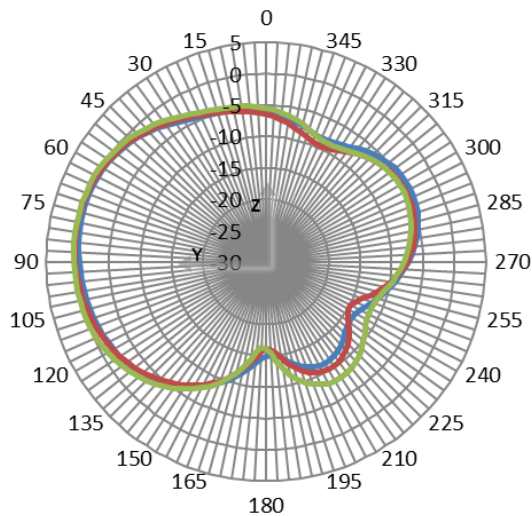
— 2400MHz: Max=4.97 Avg=0.57
 — 2440MHz: Max=4.82 Avg=0.73
 — 2480MHz: Max=4.66 Avg=0.66

Ant1_2G4 Elevation XZ



— 2400MHz: Max=4.82 Avg=-1.24
 — 2440MHz: Max=4.69 Avg=-1.28
 — 2480MHz: Max=4.61 Avg=-1.06

Ant1_2G4 Elevation YZ



— 2400MHz: Max=0.18 Avg=-4.49
 — 2440MHz: Max=0.61 Avg=-4.42
 — 2480MHz: Max=0.74 Avg=-3.92

Figure 3: Model N01FVAAD Radiation Patterns at 2.4 GHz & 2.44 GHz & 2.48 GHz

5. Dimensions

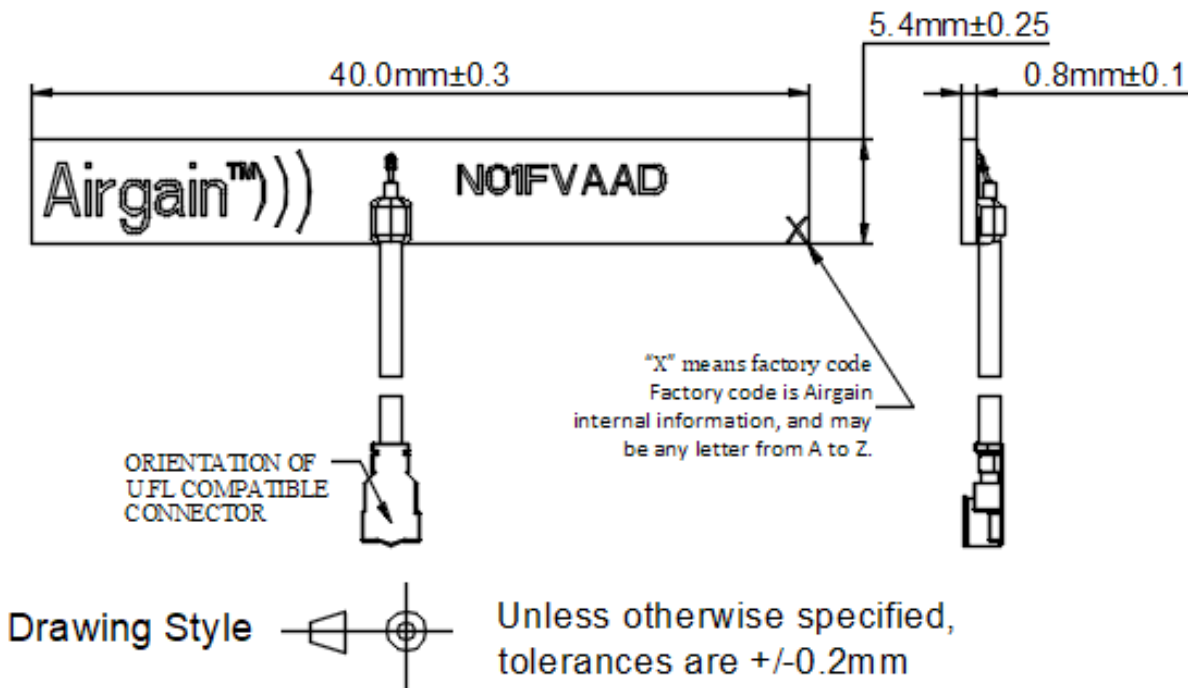


Figure 4: Model N01FVAAD Dimensions

6. ROHS

Airgain N01FVAAD embedded antennas are RoHS compliant.

7. Feature and Options Information

Airgain N01FVAAD antennas are equipped with an 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 N01FVAAD, pre-applied, double-sided adhesive tape is available on the N01FVAAD -T Series.

7.1 Part Number Conventions

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

Antenna #	Tape type -XX (if required)	Packaging type -XX	Cable Assembly Type -xxxxxx		
			Cable Color -x	Cable length XXX	Connector type XX (if required)
N01FVAAD	Blank = No Tape T = Tape on bottom of element T10 = 1mm thick PE Tape affixed to bottom surface of antenna	PK1= singulated (individual) antennas (PK1 is mandatory)	G = Grey (Standard) B = Black (Non Standard) W = White (Non Standard) A = Blue(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, core size: 3.5mm * 9.0mm * 1.5mm CS = stripped cable plus Ferrite Core, core size: 3.5mm * 9.0mm * 1.5mm UR2 = U.FL compatible connector, rotated 180°

* Standard cable lengths listed in RF Cable Datasheet

7.2 Part Number Example

N01FVAAD-T-PK1-G100U – N01FVAAD antenna with 1.6-mm double-sided adhesive tape, 100-mm cable, and U.FL-compatible connector.

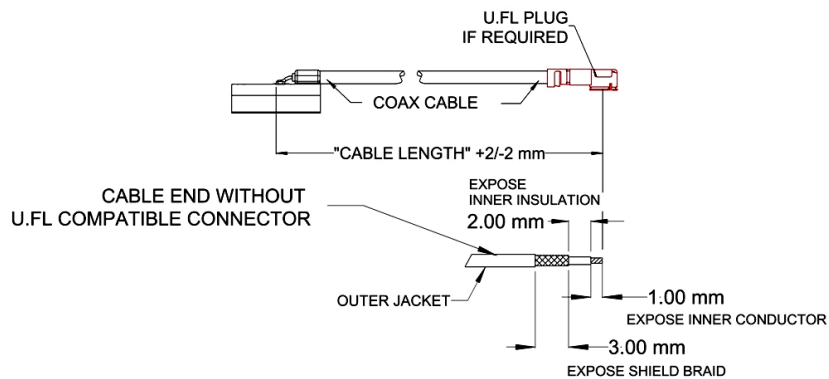
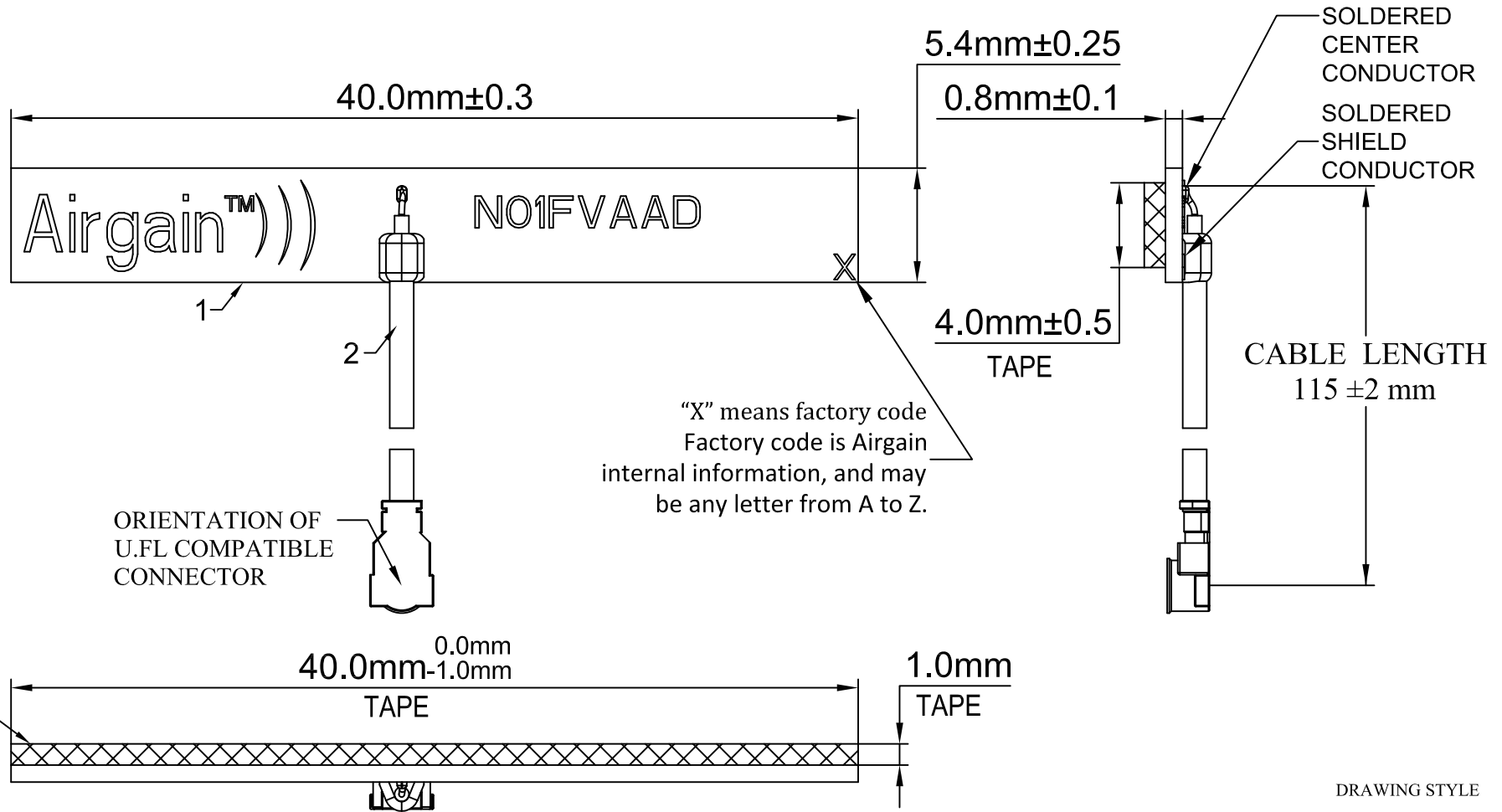


Figure 5: N01FVAAD with connector or stripped cable

8. Cable Data Sheet

Item	Specification	
Cable type	OD1.13	
Impedance	50 ± 3 ohms	
Inner conductor	Material	Tin-coated copper
	Conductor numbers	7
	Conductor size	0.08 mm
	Outer diameter	0.24 ± 0.02 mm
Dielectric layer	Material	FEP
	Color	Clear
	Average thickness	0.22 mm
	Diameter	0.7 ± 0.03 mm
Braid (shielding)	Material	Tin-coated copper
	Conductor size :total / O.D. of every wire(mm)	16*4/0.05 mm
	Coverage	90%± 5%
	Diameter	0.92 ± 0.05 mm
Outer cover	Material	FEP
	Color	Black / white / grey
	Average thickness	0.10 mm
	Diameter	1.13 ± 0.05 mm
VSWR testing	< 1.3@0-6GHz	
Attenuation (dB/1meter)	1GHz	≤2.2
	2GHz	≤3.1
	3GHz	≤3.8
	4GHz	≤4.4
	5GHz	≤4.9
	6GHz	≤5.4
Operating temperature	-55°C~+150°C	

REV	DESCRIPTION	BY	DATE
A	Initial Design	BWU	30/June/2023



- Notes:
- The processes used to assemble this antenna shall comply with the following specifications ,unless otherwise specified.
 - 1.Solder:use lead free solder if applies for lead free soldering process to assemble the antenna , unless otherwise specified.
 - 2.Bom:use the bom file for assembling the antenna.this table is provided for reference only.
 - 3.Unless otherwise specified dimension, tolerances are +/-0.2mm,tape's tolerances are +/-0.5mm
 - 4.Packaging type: break up panel packaging

ITEM#	DESIGNATOR	QUANTITY	NOTE
1	Antenna	1	
2	Coax Cable	1	1. 13mm OD,Grey Cable
3	Tape	1	Size:40 x 4 x 1.0 mm

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BOM No. 4177C-06-00-001-1	3611 Valley Centre Drive, Suite 150 San Diego, CA 92130 USA		Airgain™)))	
PCB No. 4177C-12-00-001-1	Project PROFILE EMBEDDED ANTENNA			
Drawn by BWU	Date 30/June/2023	Title N01FVAAD-T10-PK1-G115U		
Checked by	Date	Size B	Number 4177C-07-00-001-3	Rev. A
Approved by	Date	Layer File	Scale	
			Sheet 1 of 1	