



Coverage.
Performance.
Smart.

**Profile Series
N02AZAAD
Airgain, Inc.**

**Airgain
Embedded
Antenna
Engineering
Data Sheet**

3611 Valley Centre Drive, Suite 150
San Diego, CA 92130 USA
Tel: +1 760 579 0200
Fax: +1 760 579 0892
Information: info@airgain.com
Sales: sales@airgain.com
Support: support@airgain.com

Revision History

Revision	Date	Note
4795C-02-00-001-1 Rev 1.0	July 29, 2024	Preliminary Datasheet 1.0
4795C-02-00-001-1 Rev 1.1	September 29,2024	Added version number screen printing

Disclaimers

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

Please verify with Airgain before finalizing a product design.

Contents

1.	Airgain N02AZAAD Embedded Antenna	4
2.	Features.....	4
3.	Specifications and Interface.....	5
4.	Radiation Patterns.....	5
5.	Dimensions	7
6.	ROHS.....	7
7.	Feature and Options Information.....	7
7.1	Part Number Conventions	8
7.2	Part Number Example	8
8.	Cable Data Sheet	9

Figures

Figure 1:	Model N02AZAAD Embedded Antenna.....	4
Figure 2:	Model N02AZAAD Measurement axes.....	5
Figure 3:	Airgain N02AZAAD radiation patterns at 5.15 GHz & 5.5 GHz & 5.85 GHz.....	6
Figure 4:	N02AZAAD Antenna dimensions.....	7
Figure 5:	N02AZAAD with connector or stripped cable.....	8

1. Airgain N02AZAAD Embedded Antenna

The Model N02AZAAD Embedded Antenna provides a high efficiency, 5GHz 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 N02AZAAD provides the flexibility of an embedded antenna with top performance. N02AZAAD has a (patent pending) perfectly balanced design, which makes the antenna decoupled from the feeding cable, making its behaviors independent of the details of the cable routing and improving noise rejection.

2. Features

The Model N02AZAAD Embedded Antenna is defined by the following features:

- IEEE 802.11 a/n/ac standards
- Case mount
- Single 5GHz Band operation
- Truly balanced operation
- High efficiency
- Quick integration

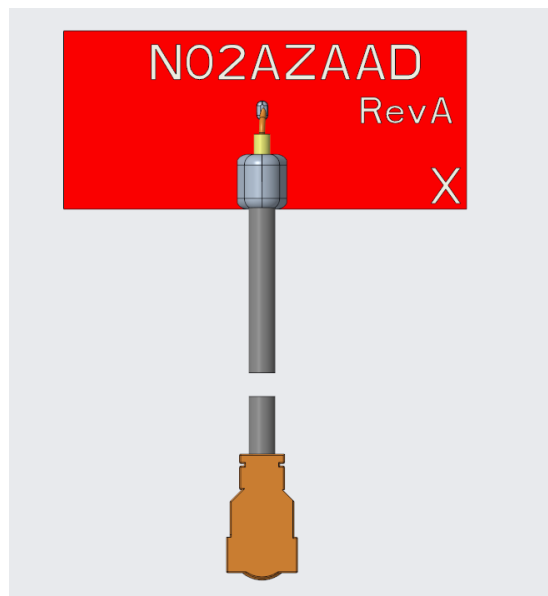


Figure 1: Model N02AZAAD Embedded Antenna

3. Specifications and Interface

Standard	IEEE 802.11 a/n/ac
Frequency range	5.15 to 5.85 GHz
Peak gain	5.3 dBi @ 5.5 GHz;
Feed impedance	50 ohms
Power handling	30 dBm
Interface	50 ohms, 1.37 mm diameter, micro coax cable (available with optional U.FL-compatible cable connector and/or cable-mounted EMI ferrites)
Antenna dimensions	17 x 7.5 x 0.5 (mm)
Weight	TBD
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

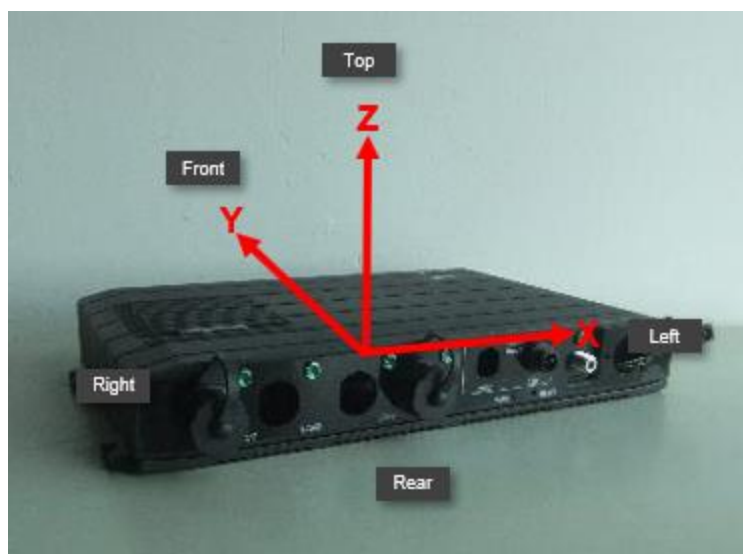


Figure 2:Model N02AZAAD Measurement axes

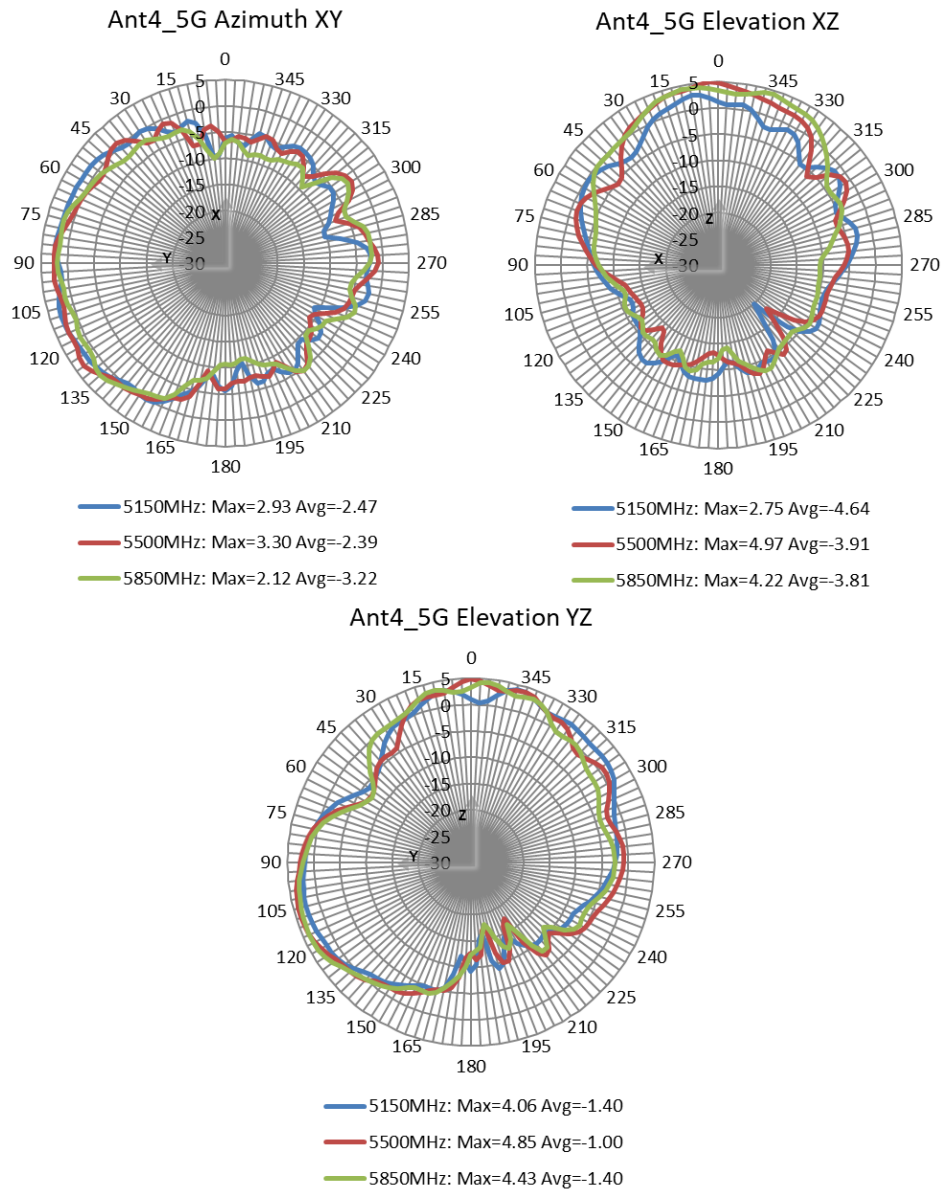
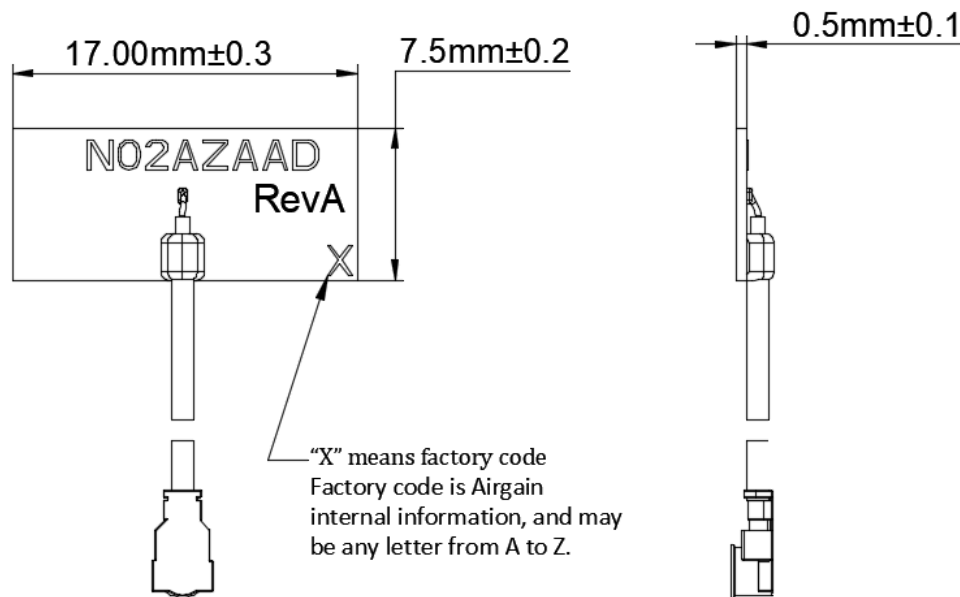


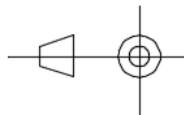
Figure 3: Airgain N02AZAAD radiation patterns at 5.15 GHz & 5.5 GHz & 5.85 GHz

5. Dimensions



Dimensions

Drawing Style



Unless otherwise specified,
tolerances are $\pm 0.2\text{mm}$

Figure 4: N02AZAAD Antenna dimensions

6. ROHS

Airgain N02AZAAD embedded antennas are RoHS compliant.

7. Feature and Options Information

Airgain N02AZAAD 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 N02AZAAD, pre-applied, double-sided adhesive tape is available on the N02AZAAD -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)
N02AZAAD	Blank = No tape T = Tape on bottom of element T6 = 0.5mm thick PE Tape affixed to bottom surface of antenna	PK1= singulated (PK1 is mandatory)	G = Grey (Standard) R = Red (Non Standard) Y = Yellow (Non Standard) K = Orange(Non Standard)	Cable length in millimeters (mm) Commonly used Lengths*: 65, 100, 130, 150, 190, 230, 250, 300,400, etc.	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

* Standard cable lengths listed in RF Cable Datasheet

7.2 Part Number Example

N02AZAAD-T-PK1-G100U – N02AZAAD antenna with 1.6-mm double-sided adhesive tape, 100-mm cable, and U.FL-compatible connector.

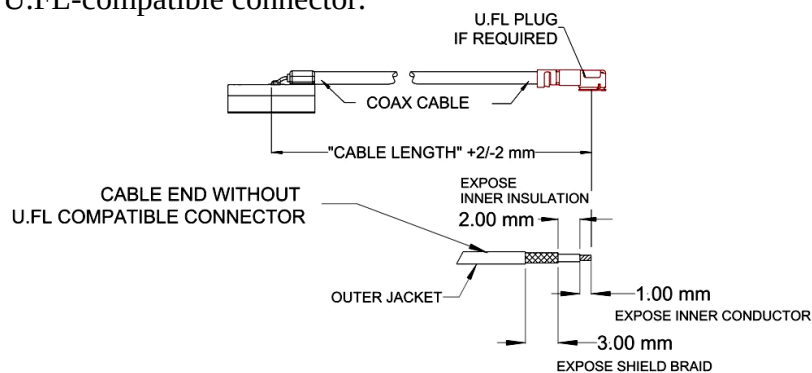
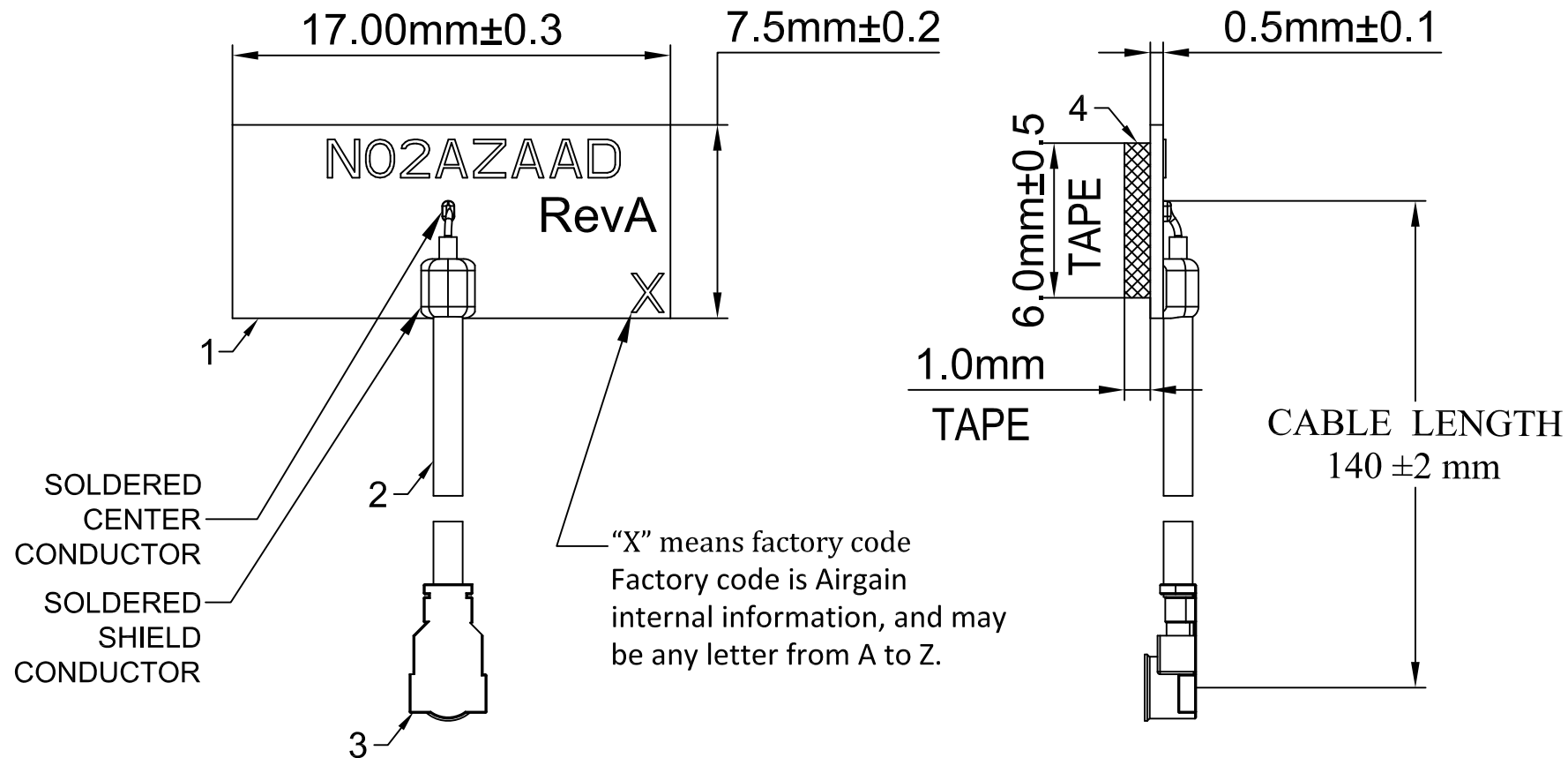


Figure 5: N02AZAAD with connector or stripped cable

8. Cable Data Sheet

Item	Specification	
Cable type	OD1.37	
Impedance	50 ± 2 ohms	
Inner conductor	Material	Tinned copper wire
	Conductor numbers	7
	Conductor size	0.102 mm
	Outer diameter	0.306 ± 0.02 mm
Insulation	Material	FEP
	Color	Clarity
	NOM.O.D	0.9 ± 0.03 mm
Outer conductor	Material	Tinned copper wire
	Makeup: total / O.D. of every wire(mm)	5/0.05 mm
	NOM.O.D	1.13± 0.05mm
	Coverage ratio	90%± 5%
Jacket	Material	FEP
	Color	Gray
	NOM.O.D	1.37 ± 0.05 mm
VSWR testing	< 1.3@0~6GHz	
Attenuation (dB/1meter)	1GHz	≤1.82
	2GHz	≤2.67
	3GHz	≤3.21
	4GHz	≤3.74
	5GHz	≤4.27
	6GHz	≤4.8
Operating temperature	-55°C~+150°C	

REV	DESCRIPTION	BY	DATE
A	Initial Design	BWU	29/JUL/2024



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.

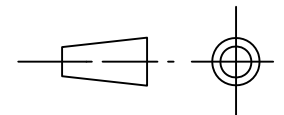
3. Unless otherwise specified dimension, tolerances are $\pm 0.2\text{mm}$

4. Packaging type: break up panel packaging

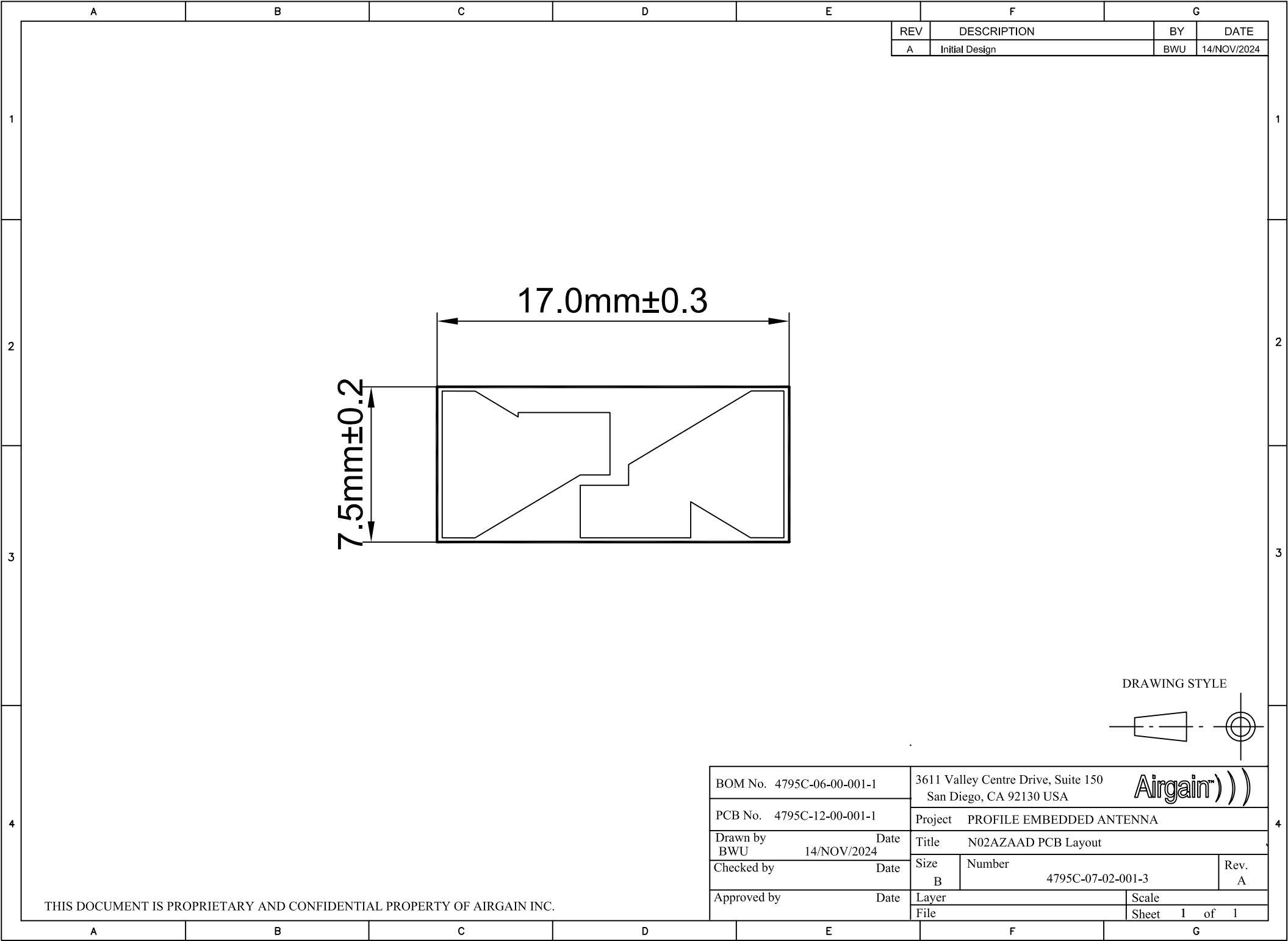
ITEM#	DESIGNATOR	QUANTITY	NOTE
1	Antenna	1	
2	Coax Cable	1	1. 37mm OD, Blue RF Cable
3	Connector	1	Connector for 1.37mm cable
4	Tape	1	Size:17 x 6 x 1.0mm

THIS DOCUMENT IS PROPRIETARY AND CONFIDENTIAL PROPERTY OF AIRGAIN INC.

DRAWING STYLE

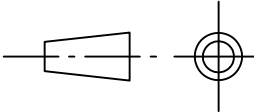


BOM No. 4795C-06-00-001-1		3611 Valley Centre Drive, Suite 150 San Diego, CA 92130 USA		Airgain®)))	
PCB No. 4795C-12-00-001-1		Project PROFILE EMBEDDED ANTENNA			
Drawn by BWU Date 29/JUL/2024		Title N02AZAAD-T10-PK1-A1X140BU			
Checked by Date		Size B	Number 4795C-07-02-001-3		Rev. A
Approved by Date		Layer File		Scale Sheet 1 of 1	



REV	DESCRIPTION	BY	DATE
A	Initial Design	BWU	14/NOV/2024

DRAWING STYLE



THIS DOCUMENT IS PROPRIETARY AND CONFIDENTIAL PROPERTY OF AIRGAIN INC.

BOM No. 4795C-06-00-001-1		3611 Valley Centre Drive, Suite 150 San Diego, CA 92130 USA			Airgain)))	
PCB No. 4795C-12-00-001-1		Project PROFILE EMBEDDED ANTENNA				
Drawn by BWU		Date 14/NOV/2024		Title N02AZAAD PCB Layout		
Checked by		Date		Size B	Number 4795C-07-02-001-3	Rev. A
Approved by		Date		Layer		Scale
				File		Sheet 1 of 1