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Profile Series N02YCABB

Airgain Embedded Antenna Engineering Data Sheet

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Revision History

Revision	Date	Note
4016C-02-00-001-1 Rev1.0	September 6,2022	Initial Draft
4016C-02-00-001-1 Rev1.1	September 20,2022	Released
4016C-02-00-001-1 Rev1.2	October 28, 2022	Updated peak gain and Radiation Pattern

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 N02YCABB 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	7
7.2	Part Number Example	8
8.	Cable Data Sheet	9

Figures

Figure 1:	Model N02YCABB-F1 Embedded Antenna	4
Figure 2:	Model N02YCABB Measurement axes	5
Figure 3:	Airgain N02YCABB radiation patterns at 5.5 GHz & 5.5 GHz & 5.85 GHz	6
Figure 4:	N02YCABB-F1 Antenna dimensions.....	7
Figure 5:	N02YCABB with connector or stripped cable.....	8

1. Airgain N02YCABB Embedded Antenna

The Model N02YCABB 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 N02YCABB provides the flexibility of an embedded antenna with top performance. N02YCABB 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 N02YCABB Embedded Antenna is defined by the following features:

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



Figure 1: Model N02YCABB Embedded Antenna

3. Specifications and Interface

Standard	IEEE 802.11 a/n/ac/ax
Frequency range	5.15 to 5.85 GHz
Peak gain	3.7 dBi @ 5.5GHz
VSWR	< 2:1
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	31.7 x 14.4 x 1.0 (mm)
Weight	0.65 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

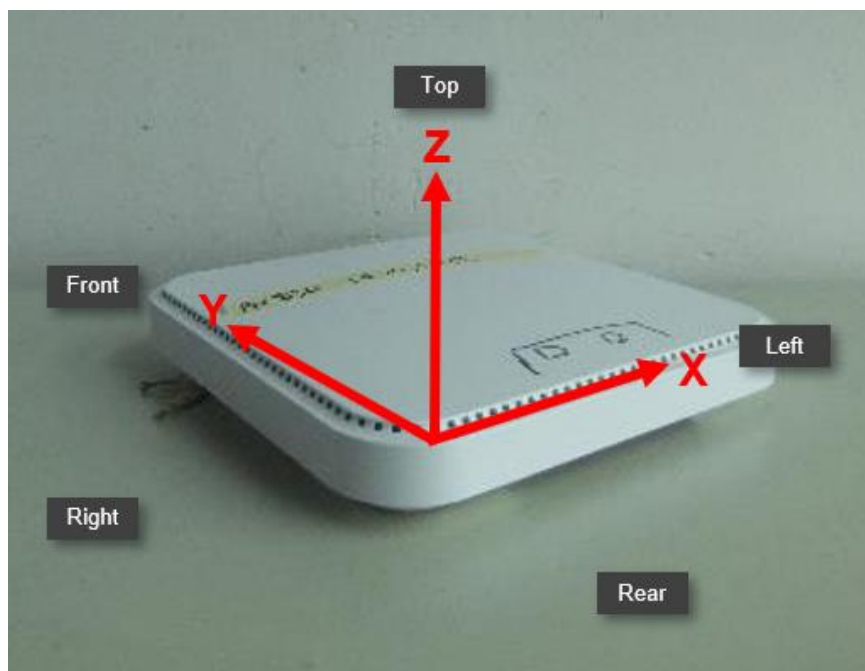


Figure 2:Model N02YCABB Measurement axes

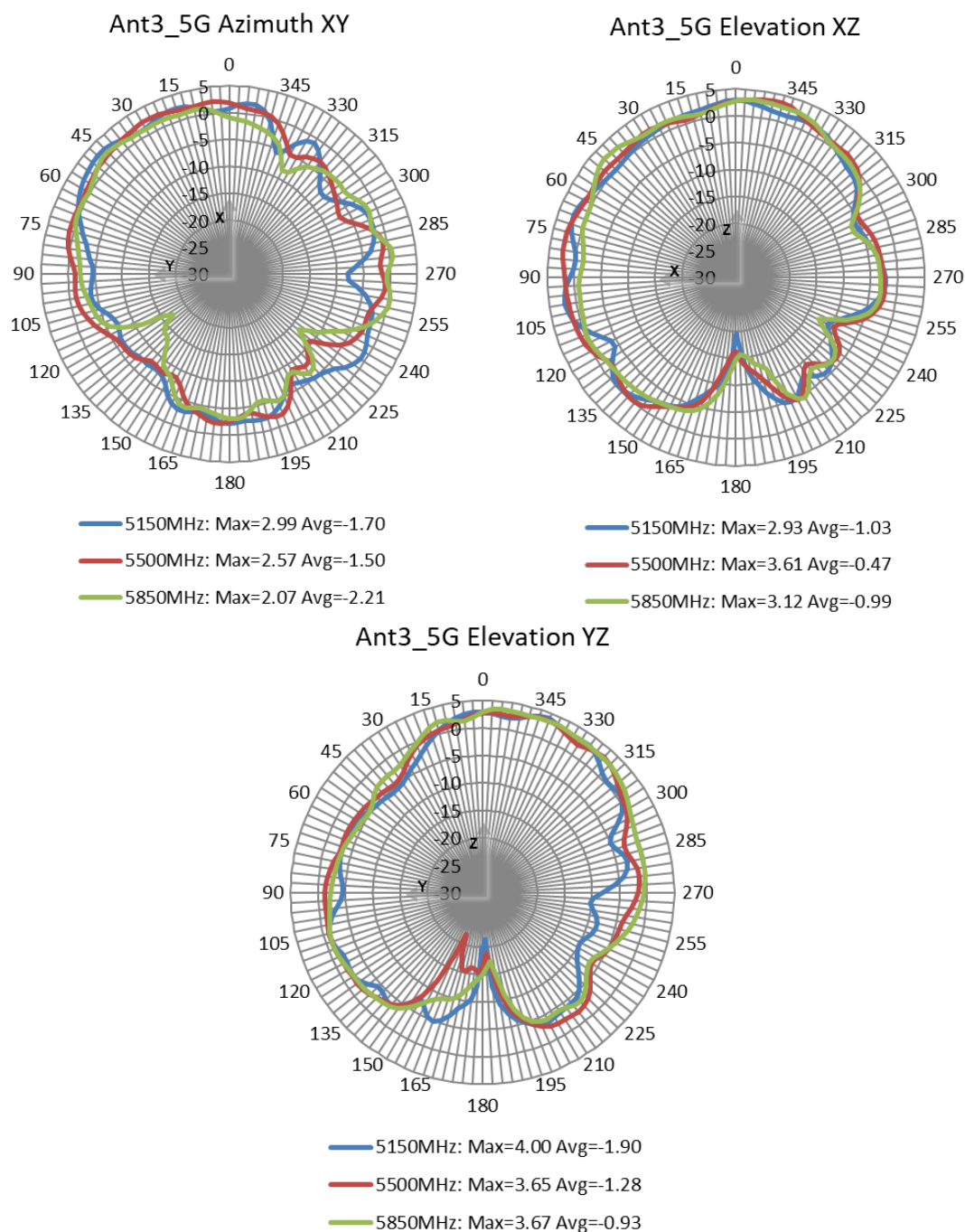


Figure 3: Airgain N02YCABB radiation patterns at 5.15 GHz & 5.5 GHz & 5.85 GHz

5. Dimensions

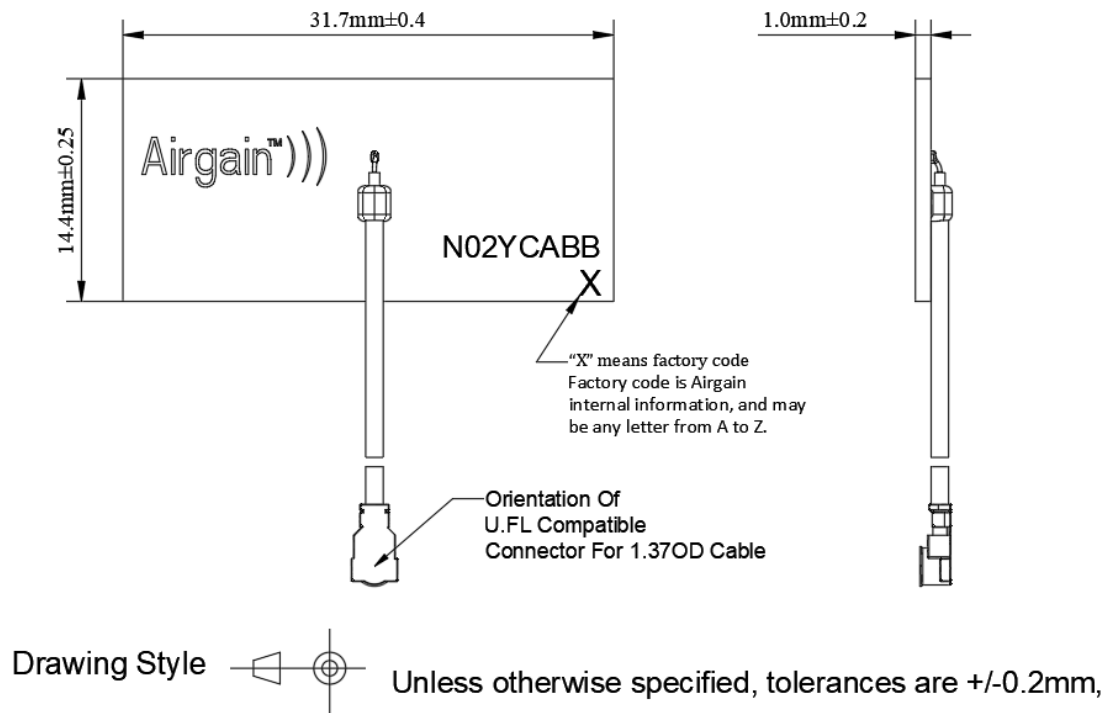


Figure 4: N02YCABB Antenna dimensions

6. ROHS

Airgain N02YCABB embedded antennas are RoHS compliant.

7. Feature and Options Information

Airgain N02YCABB 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 N02YCABB, pre-applied, double-sided adhesive tape is available on the N02YCABB -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)
N02YCABB	Blank = No tape T = Tape on bottom of element F1 = Special size Foam	PK1= singulated (individual) antennas (PK1 is mandatory)	G = Grey (Standard) B = Black (Non Standard) W = White (Non Standard) A = Blue (Non Standard) E = Green (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 UR1 = U.FL compatible connector, rotated cw 90° UR2 = U.FL compatible connector, rotated cw 180° UR3 = U.FL compatible connector, rotated cw 270°

* Standard cable lengths listed in RF Cable Datasheet

7.2 Part Number Example

N02YCABB-T-PK1-G100U – N02YCABB antenna with 1.6-mm double-sided adhesive tape, 100-mm cable, and U.FL-compatible connector.

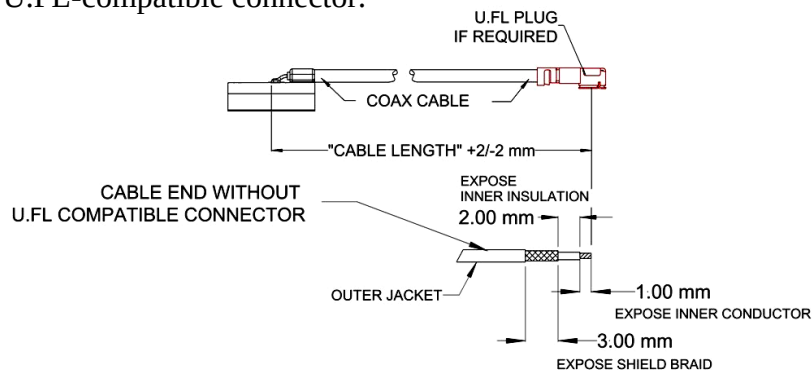


Figure 5: N02YCABB with connector or stripped cable

8. Cable Data Sheet

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

