Airgain™

Coverage.
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Profile Series

N01TCAFP& N01TCAFM

Airgain Embedded Antenna

Engineering Data Sheet

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Revision History (Required)

Revision	Date	Note
3643-02-00-002-1 Rev 1.0	October 29, 2021	Preliminary Datasheet 1.0
3643-02-00-002-1 Rev 1.1	December 1, 2021	Updated peak gain and Radiation Patterns
3643-02-00-002-1 Rev 1.2	November 2, 2022	Updated peak gain
3643-02-00-002-1 Rev 1.3	November 22, 2022	Modify according to customer requirements

Contents

Figures

1. Airgain N01TCAFP & N01TCAFM Embedded Antenna

The Model N01TCAFP& N01TCAFM 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 N01TCAFP& N01TCAFM provides the flexibility of an embedded antenna with top performance. The Model N01TCAFP& N01TCAFM Embedded Antenna is a center fed version of its predecessor, the N01TCAFP& N01TCAFM, 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 N01TCAFP& N01TCAFM embedded antenna includes the following features:

- IEEE 802.11 /b/g/n/ standards
- Single 2.4GHz Band operation
- Case mount
- 2.5 dBi peak gain @2.44 GHz
- High efficiency
- Quick integration

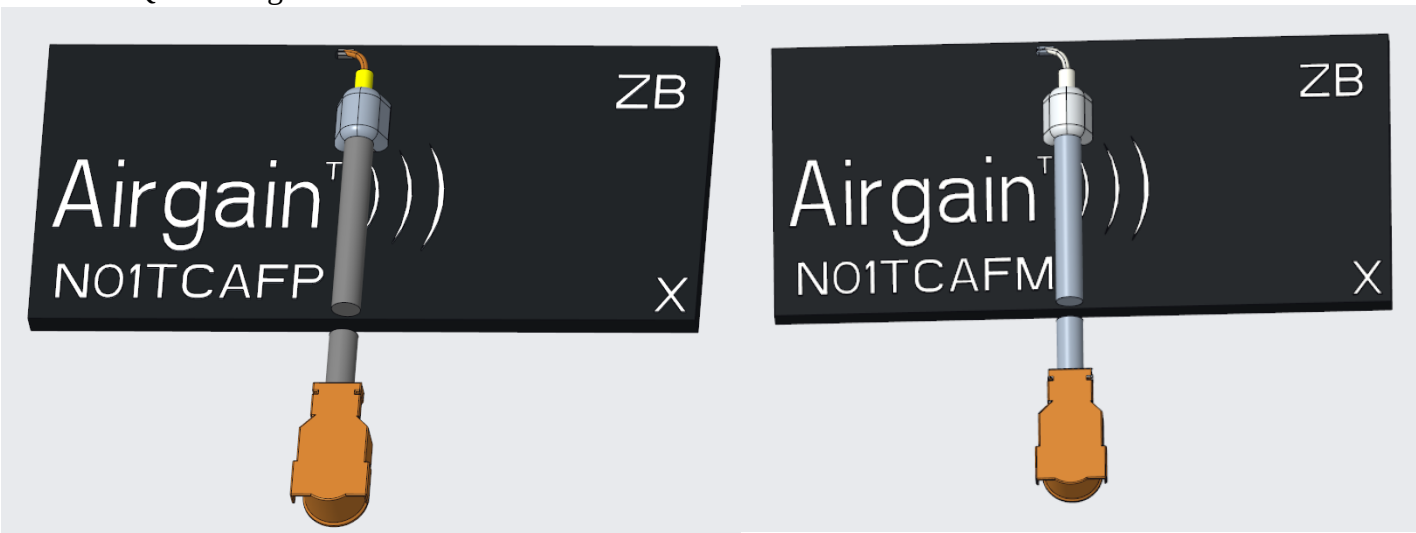


Figure 1: Model N01TCAFP & N01TCAFM Embedded Antenna

3. Specifications and Interface

Standard	IEEE 802.11 b/g/n
Frequency range	2.4 to 2.49 GHz
Peak gain	2.5 dBi
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	26.1 x 12.1 x 1.0 mm
Weight	1.39 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 N01TCAFP & N01TCAFM were measured with the antenna mounted in testing AP.

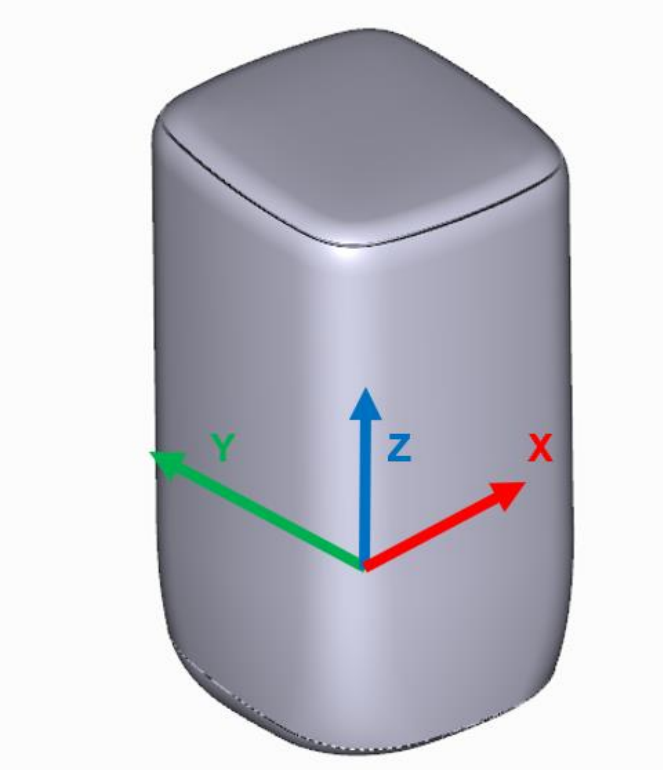


Figure 2: Model N01TCAFP & N01TCAFM Measurement axes

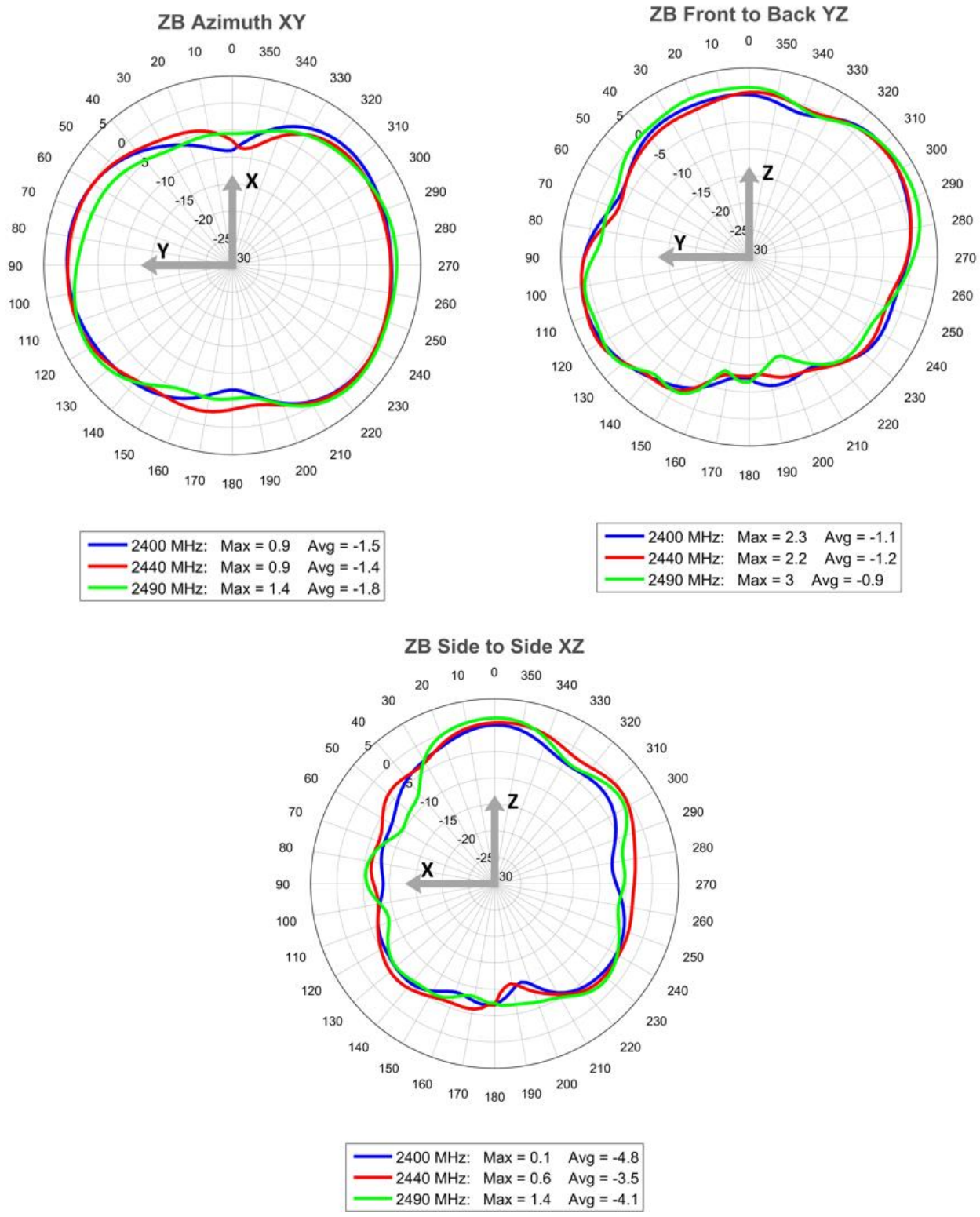


Figure 3: Model N01TCAFP& N01TCAFM Radiation Patterns at 2.4 GHz &2.44 GHz &2.49 GHz

5. Dimensions

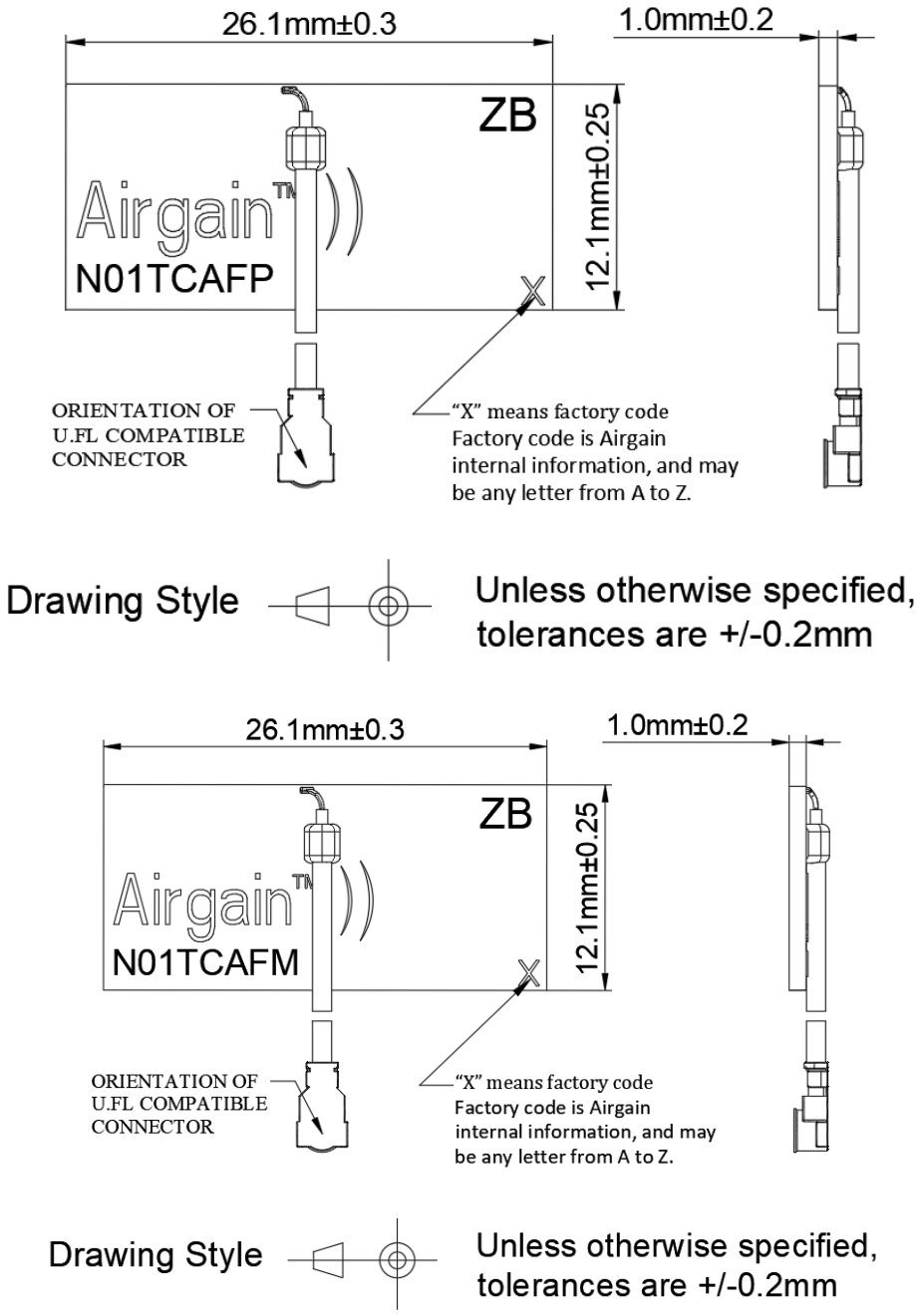


Figure 4: Model N01TCAFP& N01TCAFM Pre-applied Tape Dimensions

6. ROHS

Airgain N01TCAFP& N01TCAFM embedded antennas are RoHS compliant.

7. Feature and Options Information

Airgain N01TCAFP& N01TCAFM 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 N01TCAFP& N01TCAFM, pre-applied, double-sided adhesive tape is available on the N01TCAFP& N01TCAFM -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)
N01TCAFP& N01TCAFM	Blank = No Tape T = Tape on bottom of element	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

** Standard cable lengths listed in RF Cable Datasheet*

7.2 Part Number Example

N01TCAFP& N01TCAFM-T-PK1-G100U – N01TCAFP& N01TCAFM antenna with 1.6-mm double-sided adhesive tape, 100-mm cable, and U.FL-compatible connector.

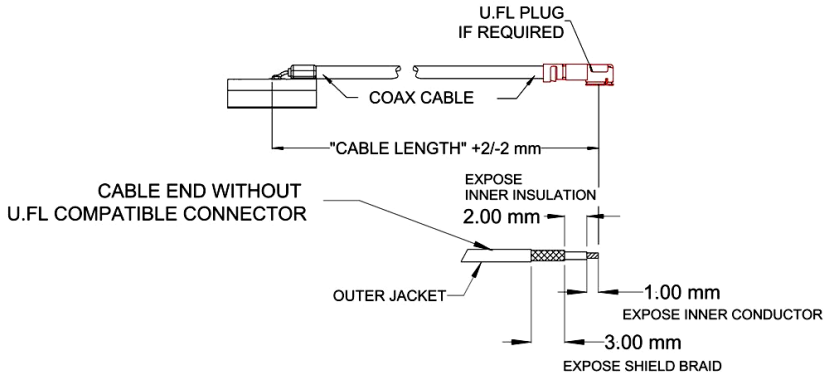
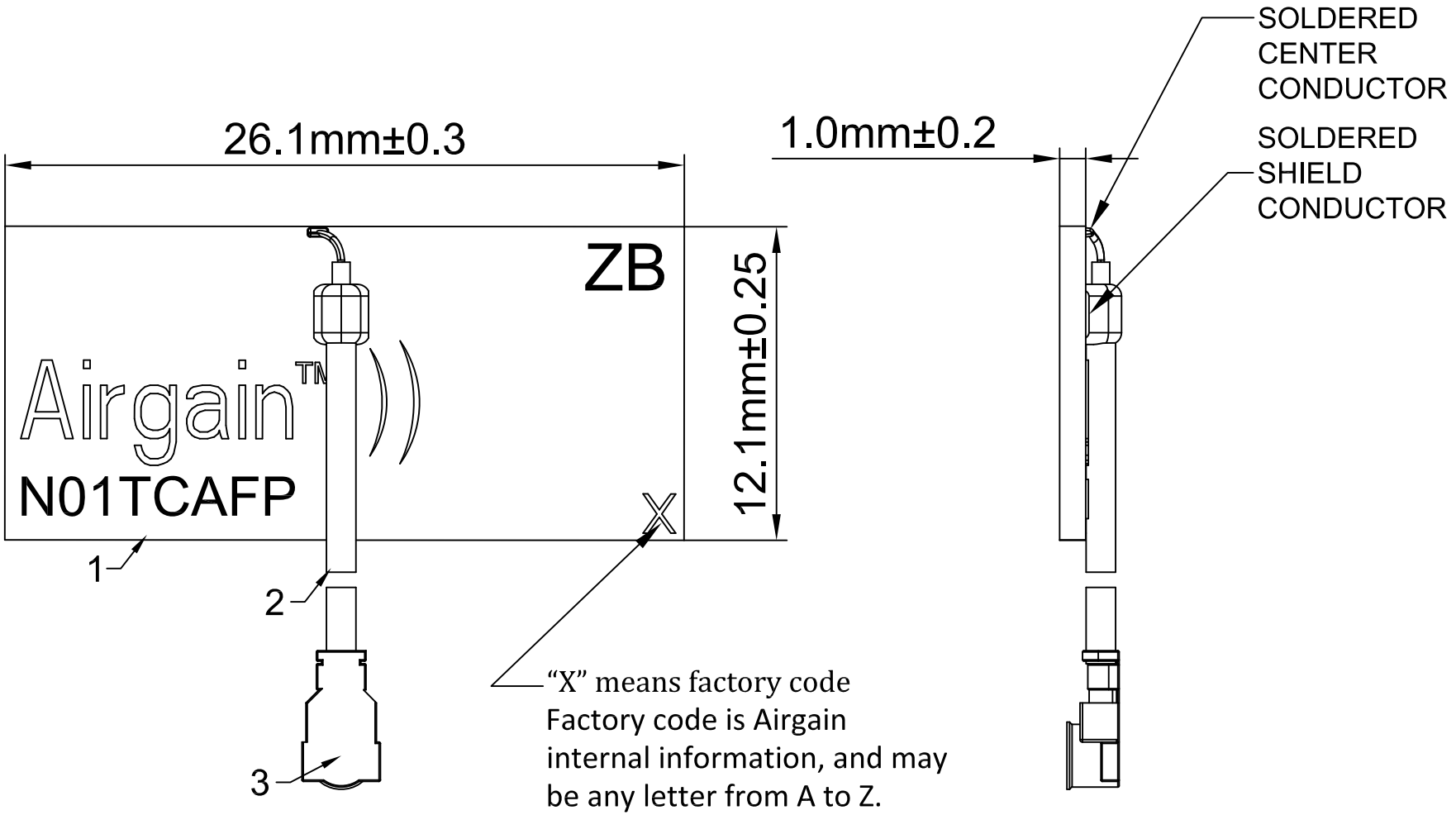


Figure 5: N01TCAFP& N01TCAFM with connector or stripped cable

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 / blue
	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℃~+150℃	

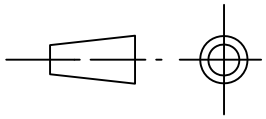
REV	DESCRIPTION	BY	DATE
A	Initial Design	BWU	29/OCT/2021



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
4.Packaging type: break up panel packaging

ITEM#	DESIGNATOR	QUANTITY	NOTE
1	Antenna	1	
2	Coax Cable	1	1.13mm OD, White RF Cable
3	Connector	1	connector for 1.13mm cable

DRAWING STYLE



BOM No. 3643-06-00-001-1	3611 Valley Centre Drive, Suite 150 San Diego, CA 92130 USA	Airgain™
PCB No. 3643-12-00-001-1	Project PROFILE EMBEDDED ANTENNA	
Drawn by BWU Date 29/OCT/2021	Title N01TCAFP-PK1-W230U	
Checked by Date	Size B / Number 3643-07-00-001-3 / Rev. A	
Approved by Date	Layer / Scale	
	File / Sheet 1 of 1	

REV	DESCRIPTION	BY	DATE
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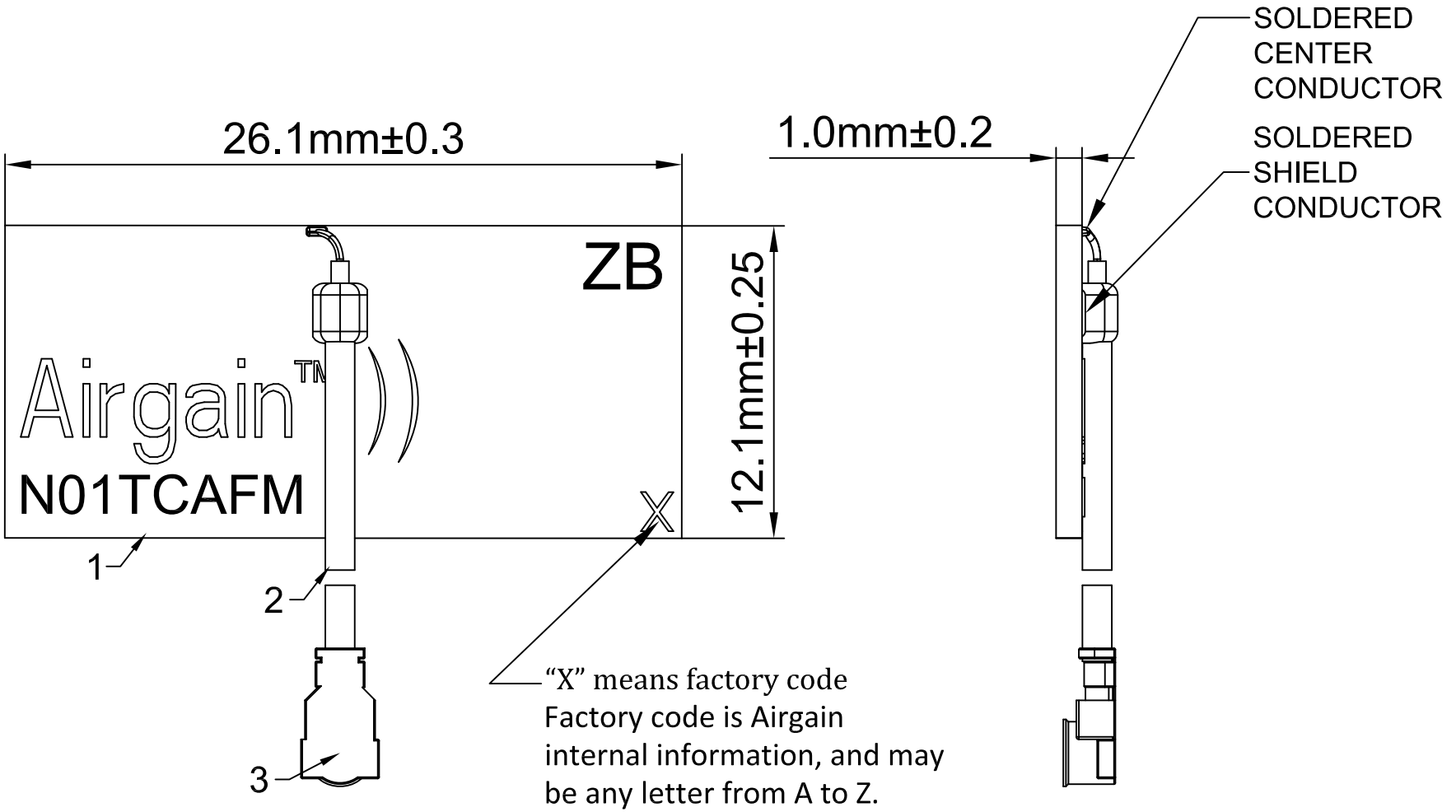

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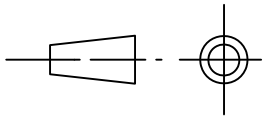

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Drawn by BWU Date 29/SEP/2021	Title N01TCAFM-PK1-W190U
Checked by Date	Size B / Number 3512-07-00-001-3 / Rev. A
Approved by Date	Layer / Scale
	File / Sheet 1 of 1