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## Ultra Series M01YCABA

## 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](mailto:info@airgain.com)  
Sales: [sales@airgain.com](mailto:sales@airgain.com)  
Support: [support@airgain.com](mailto:support@airgain.com)

## Revision History (Required)

| Revision                 | Date               | Note                                    |
|--------------------------|--------------------|-----------------------------------------|
| 4015C-02-00-001-1 Rev1.0 | September 6, 2022  | Preliminary Datasheet 1.0               |
| 4015C-02-00-001-1 Rev1.1 | September 20, 2022 | Released                                |
| 4015C-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.***

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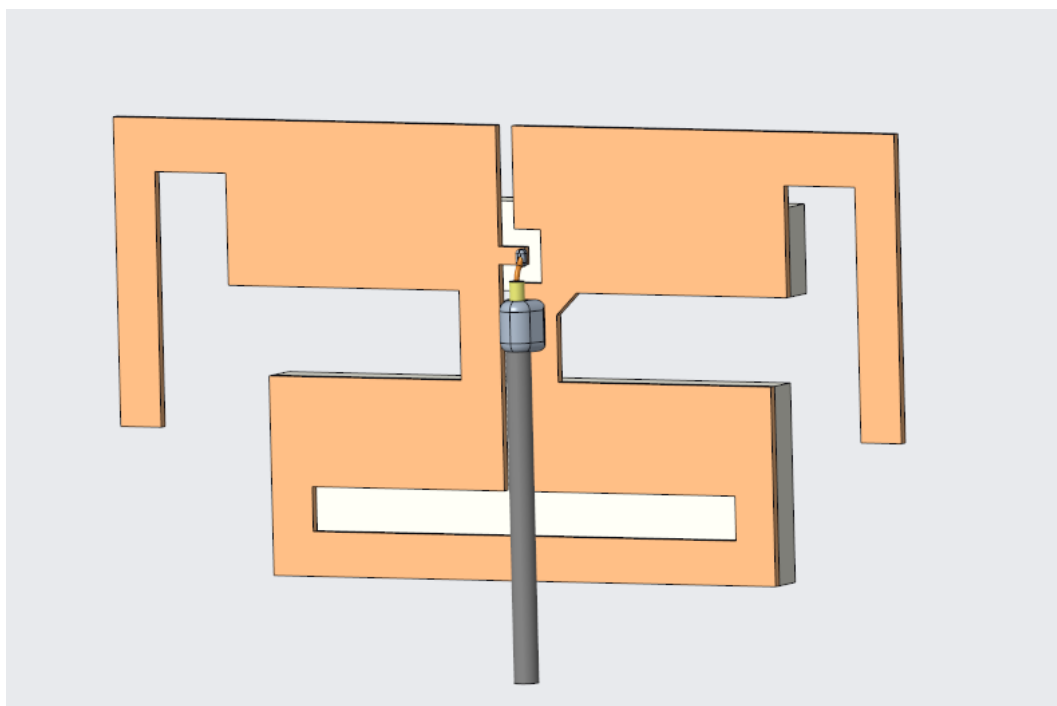
## 1. Airgain M01YCABA Embedded Antenna

The Model M01YCABA Embedded Antenna provides a high efficiency, single frequency 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 M01YCABA provides the flexibility of an embedded antenna with top performance.

## 2. Features

The Airgain M01YCABA embedded antenna includes the following features:

- IEEE 802.11 b/g/n/ax standards
- Case mount
- 3.9 dBi peak gain @2.44 GHz
- High efficiency
- Quick integration

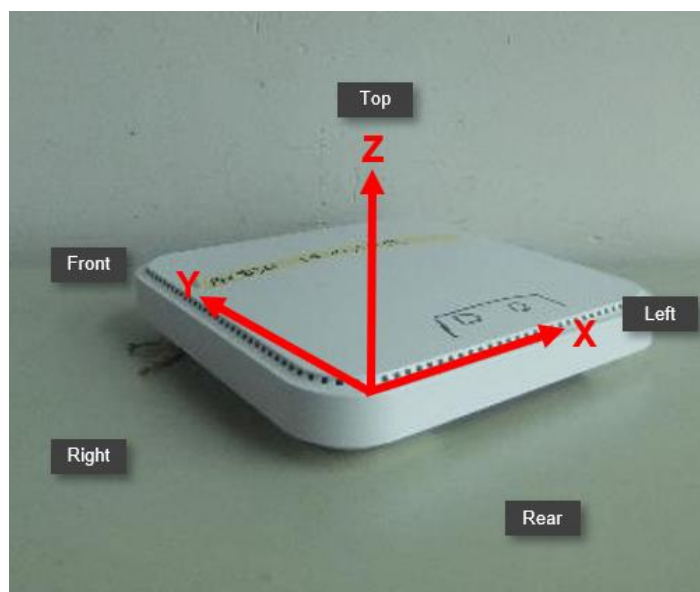


**Figure 1:** Model M01YCABA Embedded Antenna

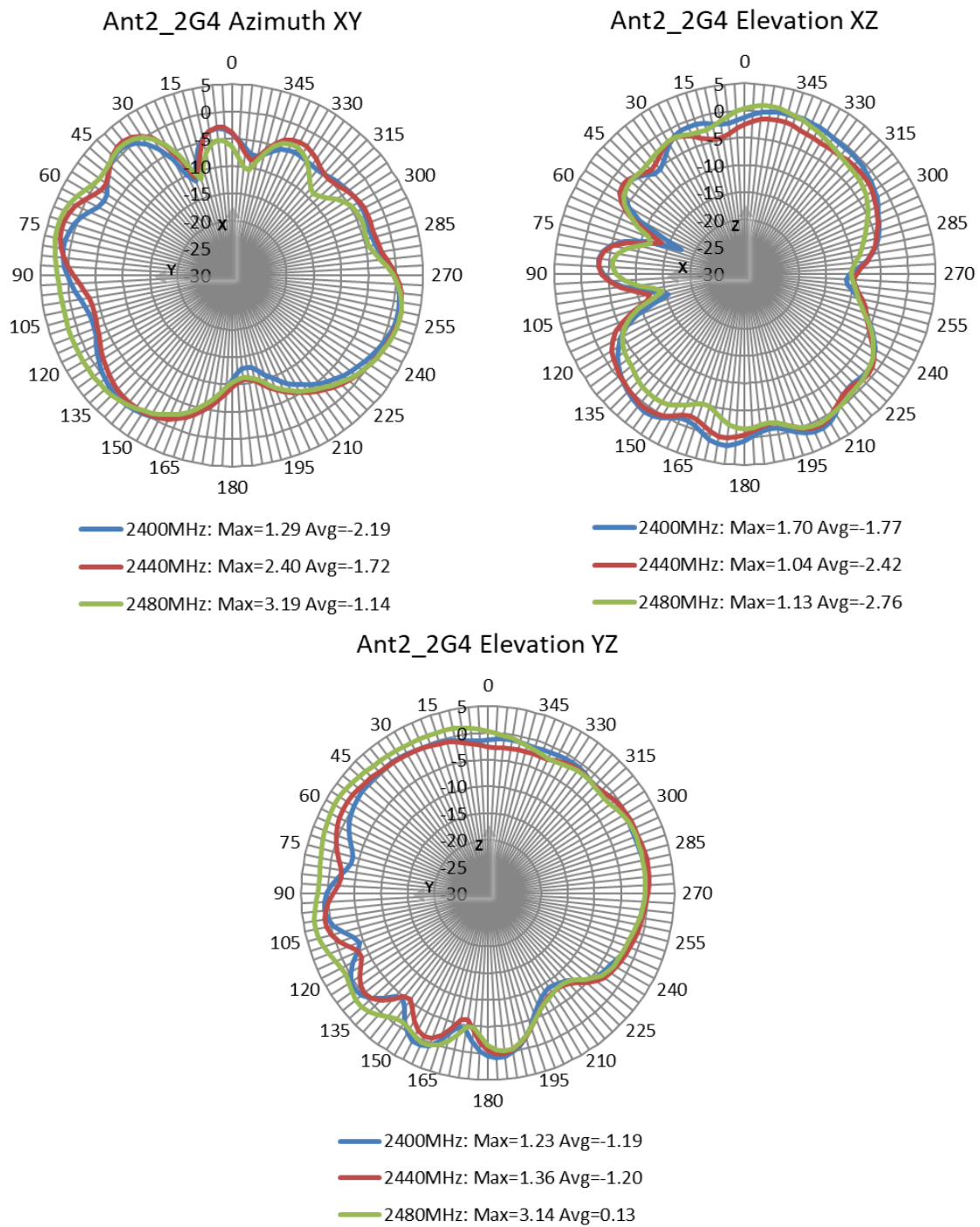
### 3. Specifications and Interface

|                    |                                                                                                                                         |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Standard           | IEEE 802.11 b/g/n/ax                                                                                                                    |
| Frequency range    | 2.4 to 2.49 GHz                                                                                                                         |
| Peak gain          | 3.9 dBi @2.44 GHz,                                                                                                                      |
| 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 | 38.6 x 20.3 x 0.4 mm                                                                                                                    |
| Weight             | 2.42 g                                                                                                                                  |
| Temperature range  | Operating: -40° C to +75° C (-40° F to +167° F)<br>Storage: -40° C to +85° C (-40° F to +185° F)                                        |
| Humidity range     | 0% to 95% non-condensing                                                                                                                |

### 4. Radiation Patterns

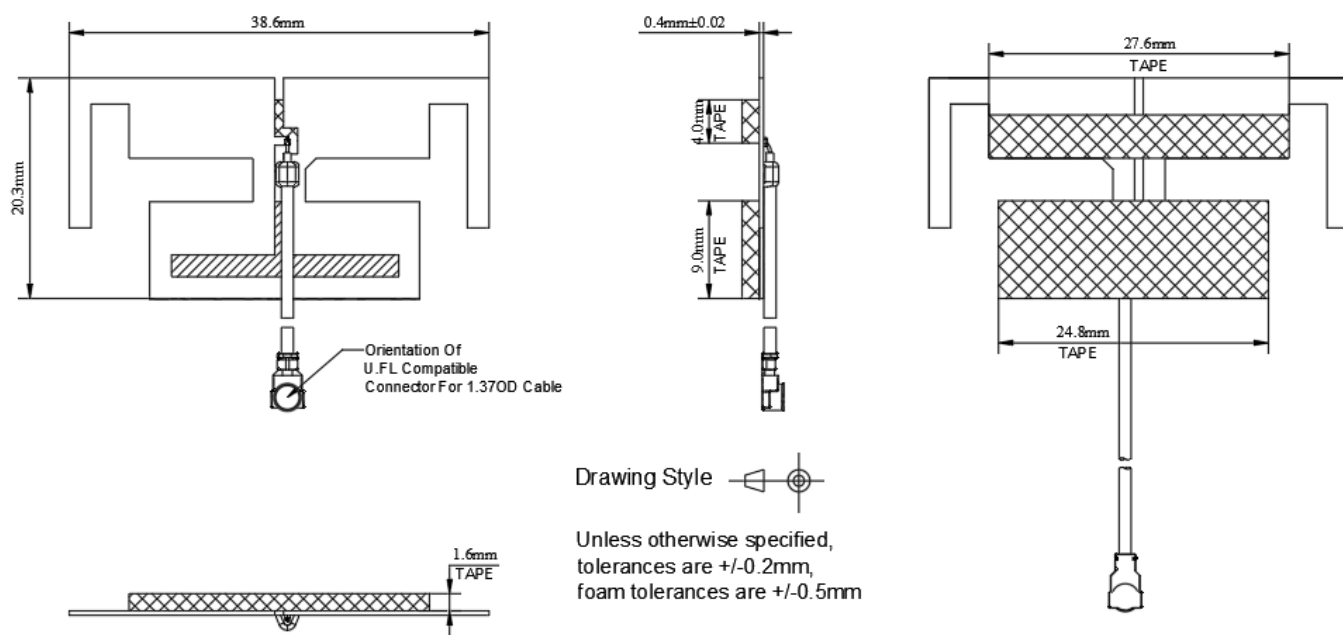


**Figure 2:** Model M01YCABA Measurement axes



**Figure 3:** Model M01YCABA Radiation Patterns at 2.4 GHz & 2.44 GHz & 2.48 GHz

## 5. Dimensions



**Figure 4:** Model M01YCABA-T2 Pre-applied Tape Dimensions

## 6. ROHS

Airgain M01YCABA embedded antennas are RoHS compliant.

## 7. Feature and Options Information

Airgain M01YCABA antennas are equipped with an RF cable I/O interface. Optional cable termination such as U.F.L-compatible micro coax connectors and cable mounted EMI ferrite cores are available. To aid mounting the M01YCABA, pre-applied, double-sided adhesive tape is available on the M01YCABA -T Series.

### 7.1 Part Number Conventions

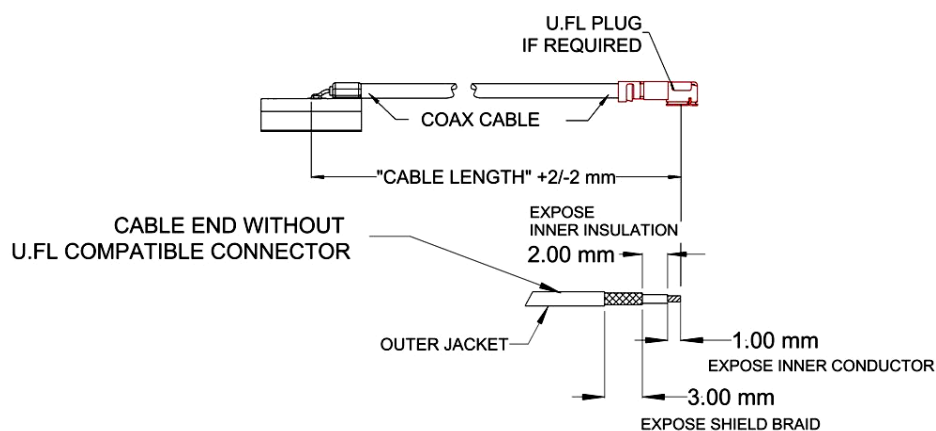
Airgain uses a five-staged standard number system for our part numbers, which serially define the antenna type, tape type, cable type/length, and connector type/interface, as described below:

| Antenna # | Tape type<br>-XX (if required)                                             | Packaging<br>type -xx                                    | Cable Assembly Type -xxxxxx                                                                                                        |                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                              |
|-----------|----------------------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|           |                                                                            |                                                          | Cable color -X                                                                                                                     | Cable length<br>XXX                                                                                             | Connector type XX<br>(if required)                                                                                                                                                                                                                                                                                                                           |
| M01YCABA  | Blank = No tape<br>T = Tape on bottom of element<br>F1 = Special size Foam | PK1= singulated (individual) antennas (PK1 is mandatory) | G = Grey (Standard)<br>B = Black (Non Standard)<br>W = White (Non Standard)<br>A = Blue (Non Standard)<br>E = Green (Non Standard) | Cable length in millimeters (mm)<br><br>Commonly used Lengths*: 65, 100, 130, 150, 190, 230, 250, 300,400, etc. | Blank = Stripped Cable<br>U = U.FL connector<br>C = U.FL connector plus Ferrite Core, core size: 3.5mm * 9.0mm * 1.5mm<br>CS = stripped cable plus Ferrite Core, core size: 3.5mm * 9.0mm * 1.5mm<br>UR1 = U.FL compatible connector, rotated cw 90°<br>UR2 = U.FL compatible connector, rotated cw 180°<br>UR3 = U.FL compatible connector, rotated cw 270° |

\* Standard cable lengths listed in RF Cable Datasheet

## 7.2 Part Number Example

**M01YCABA-T-G100U** – M01YCABA antenna with 1.6-mm double-sided adhesive tape, 100-mm cable, and U.FL-compatible connector.

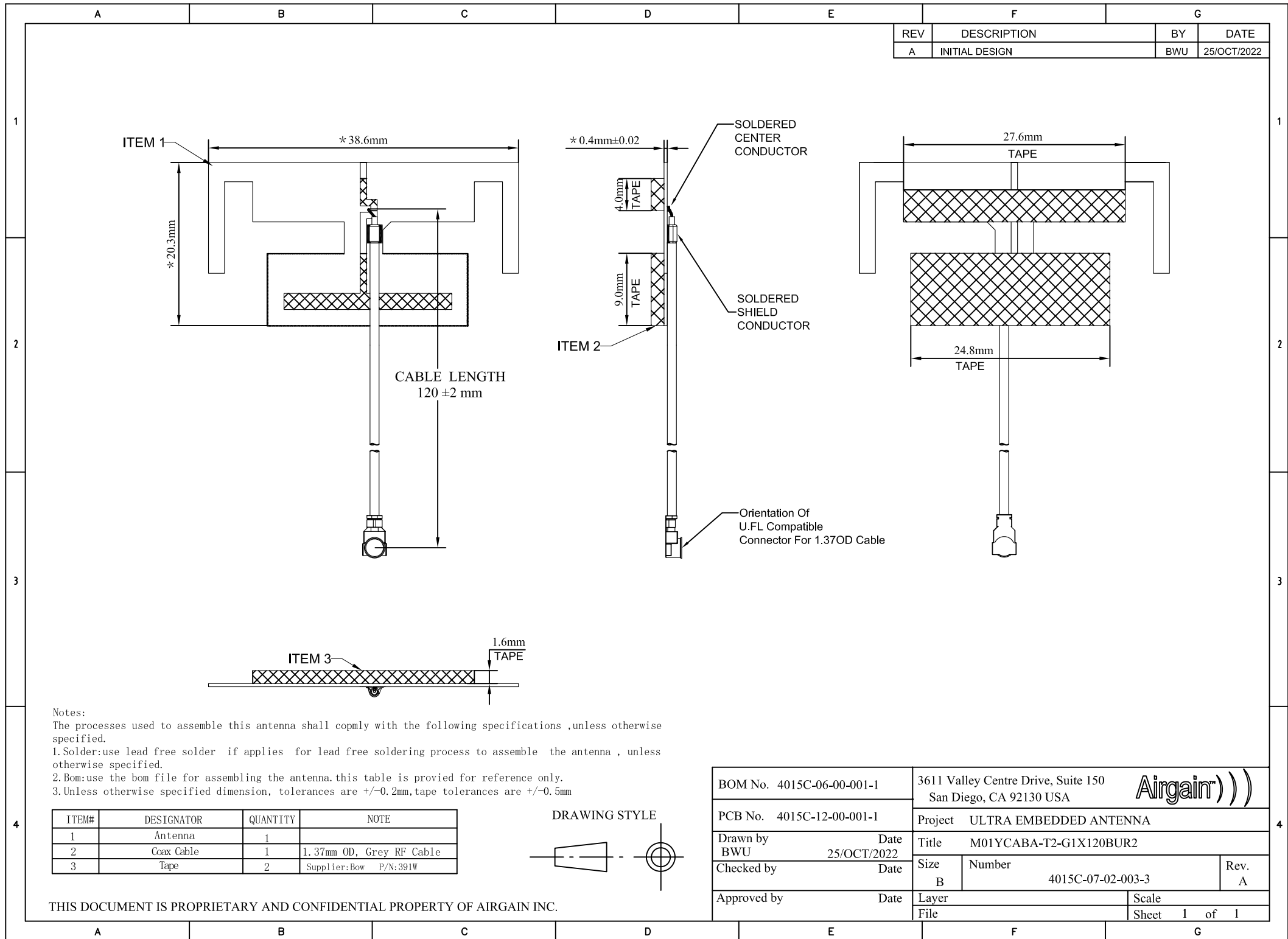


**Figure 5:** Airgain M01YCABA with connector or stripped cable



## 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                           |                     |



|                           |  |                                                                |  |                              |                          |
|---------------------------|--|----------------------------------------------------------------|--|------------------------------|--------------------------|
| BOM No. 4015C-06-00-001-1 |  | 3611 Valley Centre Drive, Suite 150<br>San Diego, CA 92130 USA |  | Airgain)))                   |                          |
| PCB No. 4015C-12-00-001-1 |  | Project ULTRA EMBEDDED ANTENNA                                 |  |                              |                          |
| Drawn by BWU              |  | Date 25/OCT/2022                                               |  | Title M01YCABA-T2-G1X120BUR2 |                          |
| Checked by                |  | Date                                                           |  | Size B                       | Number 4015C-07-02-003-3 |
| Approved by               |  | Date                                                           |  | Layer File                   | Scale Sheet 1 of 1       |