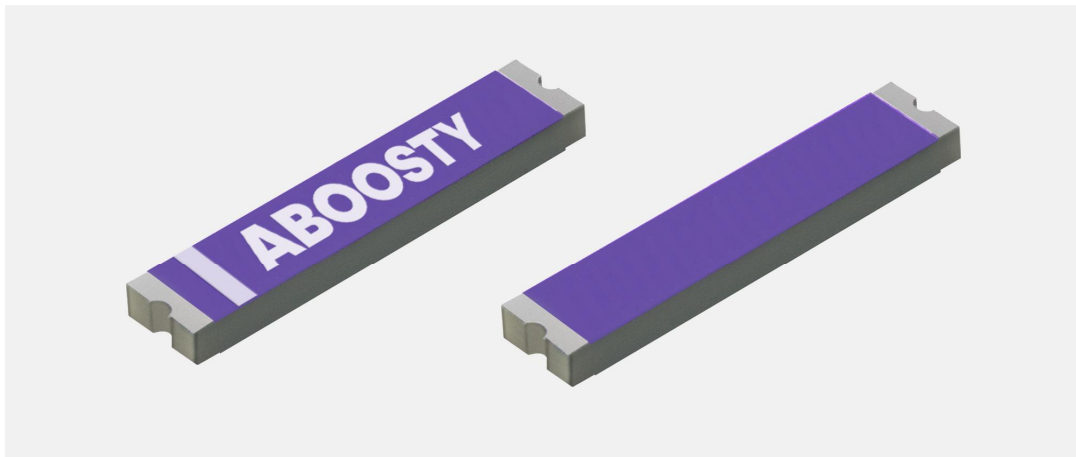


470-510 MHz LoRa SMD Antenna

 470-510MHz

Dimensions : 15.0 x 3.0 x 1.2 mm

Clearance Area: 10 x 80 mm



Model: ADLH004





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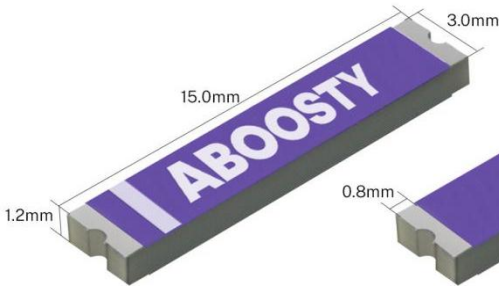
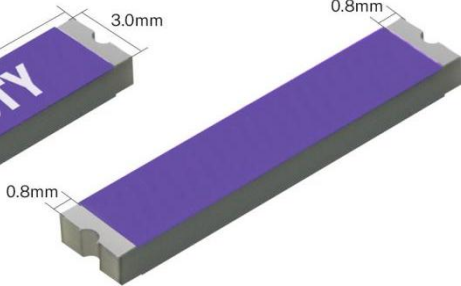


1 FEATURES & BENEFITS

- Low Profile
- Light Weight
- Easy to Integrate
- Intended for SMD Mounting
- Reduced Cost and Time-to-Market

2 APPLICATIONS

- IoT Devices
- Smart Cities
- Smart Agriculture
- Consumer Tracking
- Smart Metering
- Smart Agriculture

Top  Bottom 	
Items	Dimensions (mm)
Length	15.0±0.15
Width	3.0±0.15
Thickness	1.2±0.15

3 ORDER INFORMATION

Product Name	470-510MHz Chip Antenna
Part Number	ADLH004
Dimensions	15.0 x 3.0 x 1.2 mm
Mounting	SMT
Packaging	Tape & Reel
MOQ	2000 pcs/reel

4 REFERENCE GUIDE

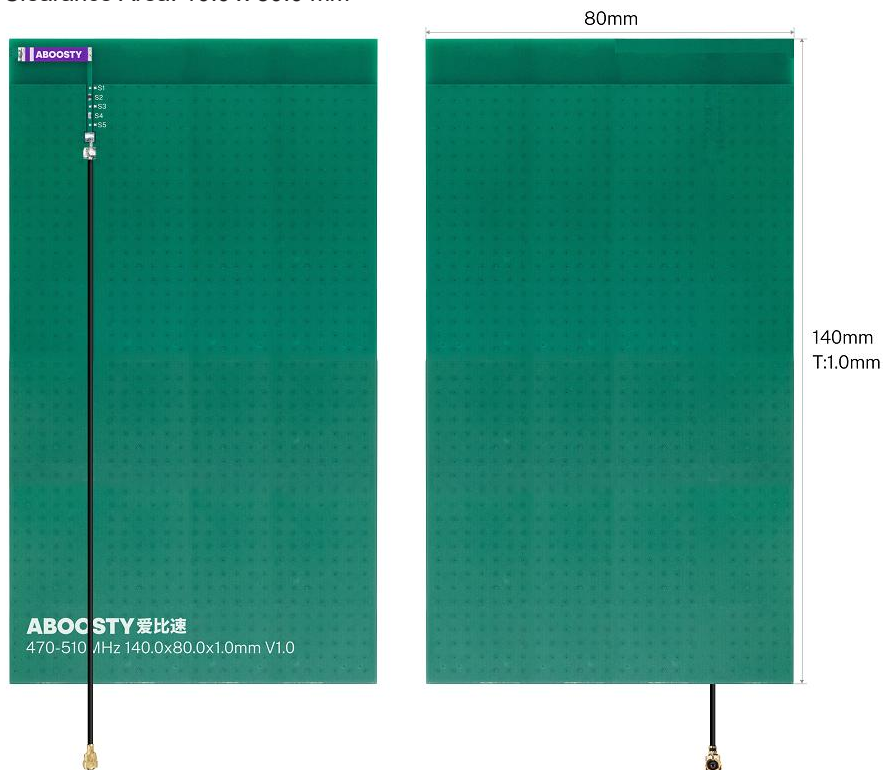
Technical Features	470-510 MHz
Input Impedance	50Ω
Peak Gain	-0.97 dBi
Peak Efficiency	35.32%
VSWR	<3.0
Operating Temperature	-40°C to +85°C
Power Capacity	3W
Dimensions (L x W x H)	15.0 x 3.0 x 1.2 mm
All data were measured in free space and on a reference ground plane of 140 mm length, 80 mm width, and 1.0 mm thickness. Application data might vary.	

5 EVALUATION BOARD WITH THE ANTENNA

The evaluation board provides operation at 470-510 MHz.

Evaluation Board dimension: 140 x 80 x 1.0 mm

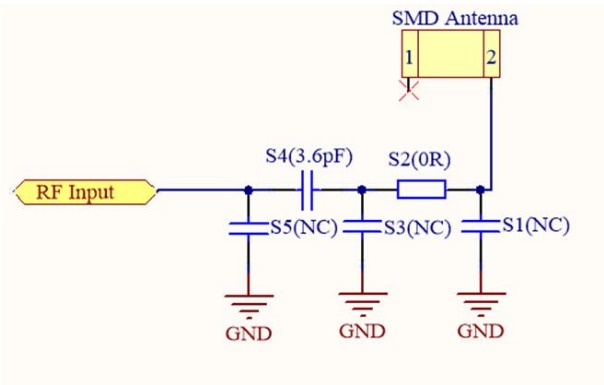
Clearance Area: 10.0 x 80.0 mm



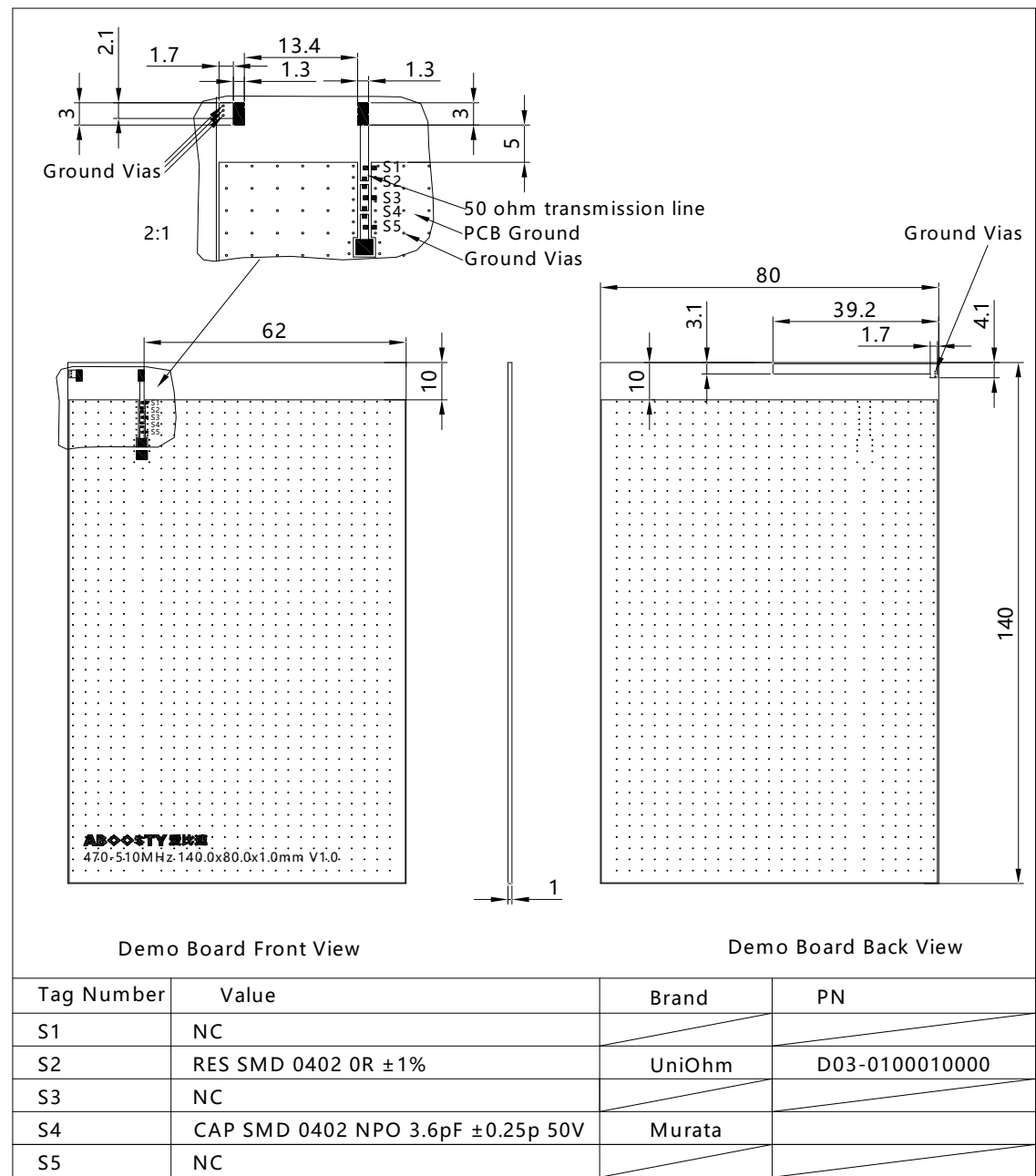
It's strongly recommended to place the antenna near the edge of the board. Maximum antenna performance is achieved by placing the antenna towards one of the corners of the PCB and with the feed point of the antenna as close to same corner of the PCB as possible.



6 MATCHING NETWORK



7 RECOMMENDED LAYOUT

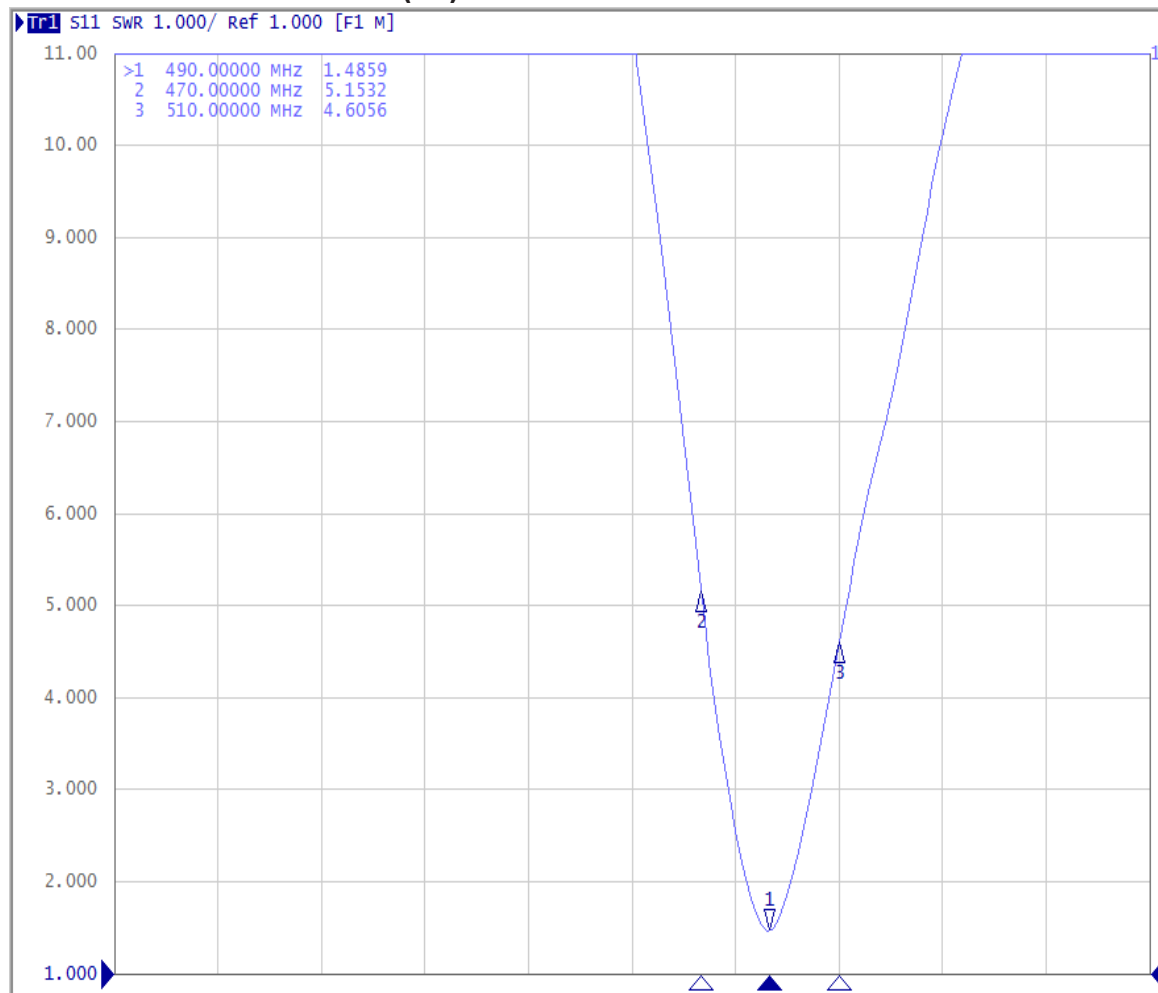


8 ELECTRICAL PERFORMANCE

© Note

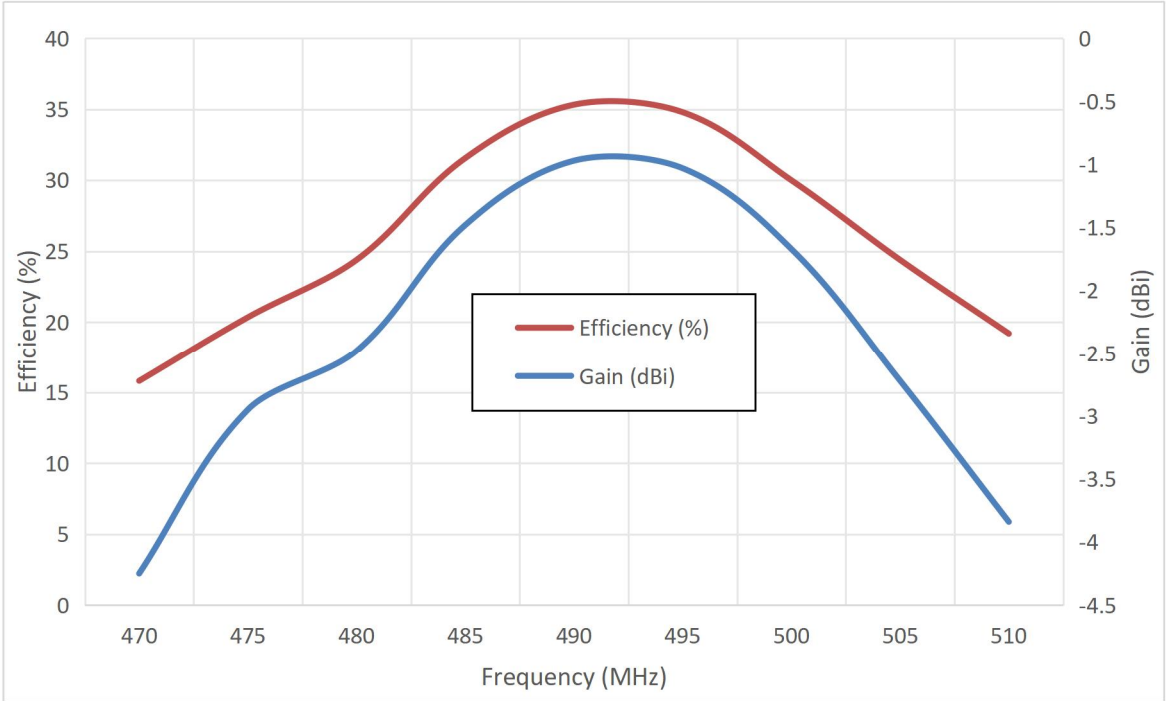
The data displayed in Chapter 8 were measured in free space and on a reference ground plane of 140 mm length, 80 mm width, and 1.0 mm thickness.

8.1 VSWR and Return Loss (dB)





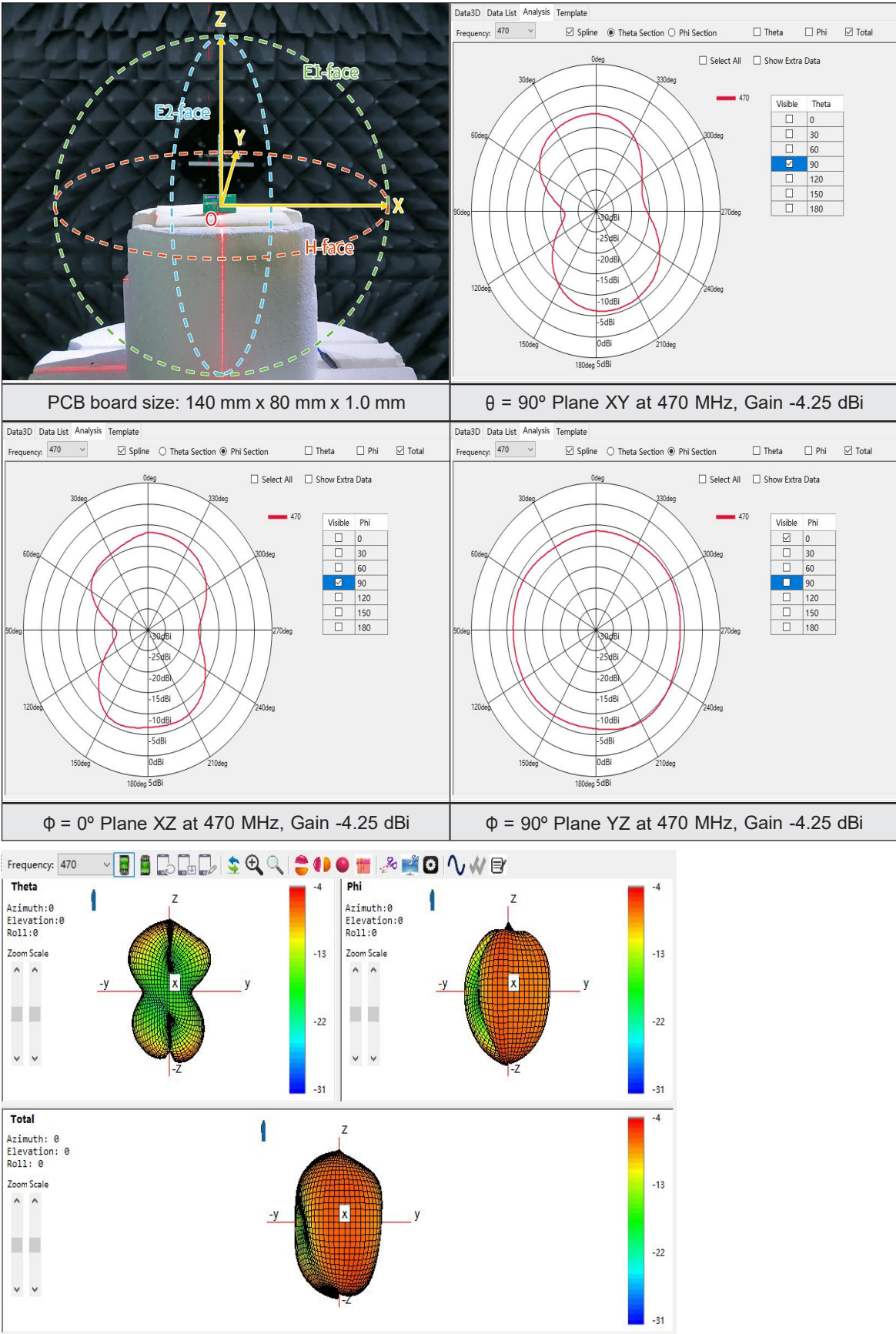
8.2 Gain (dBi) and Total Efficiency (%)

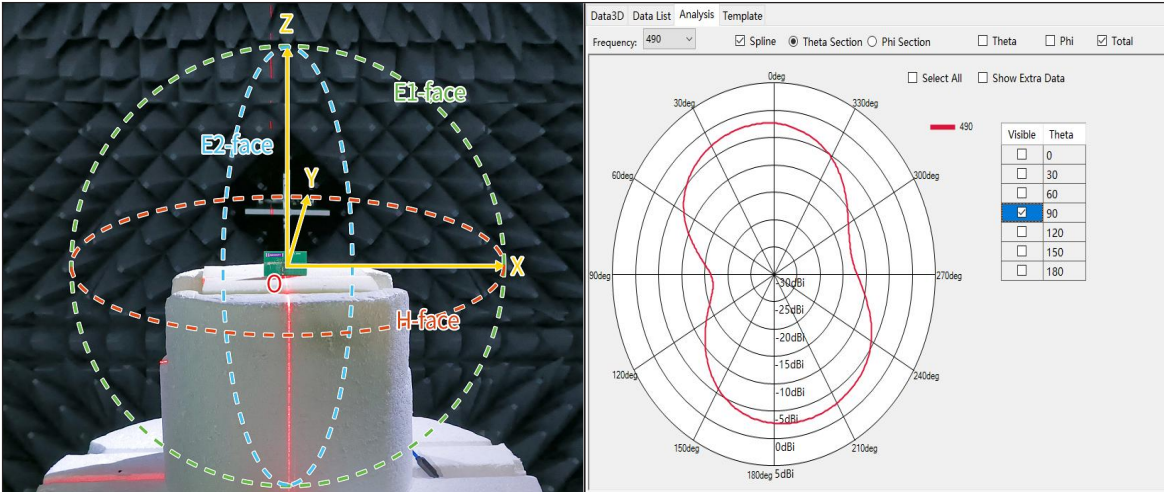


Frequency (MHz)	Gain (dBi)	Efficiency (%)
470	-4.25	15.81
475	-2.95	20.34
480	-2.48	24.39
485	-1.48	31.56
490	-0.97	35.32
495	-1.03	34.79
500	-1.67	30.00
505	-2.72	24.39
510	-3.84	19.19



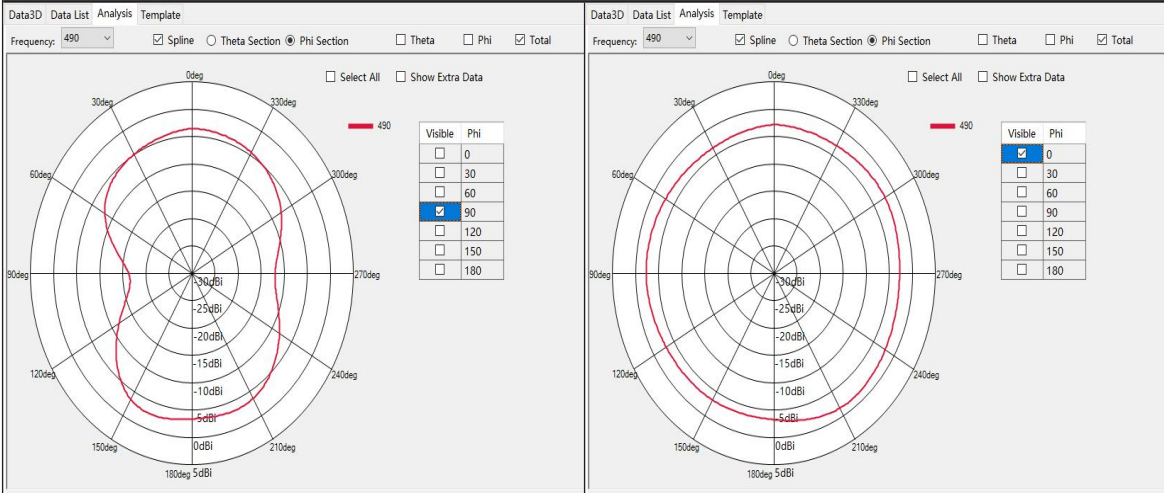
8.3 Radiation Patterns





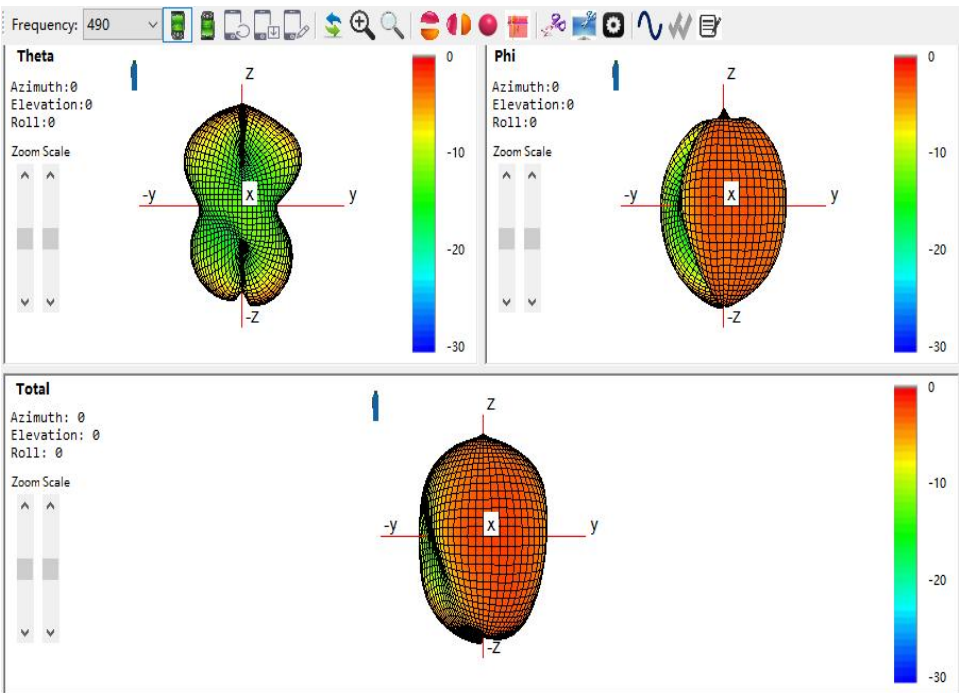
PCB board size: 140 mm x 80 mm x 1.0 mm

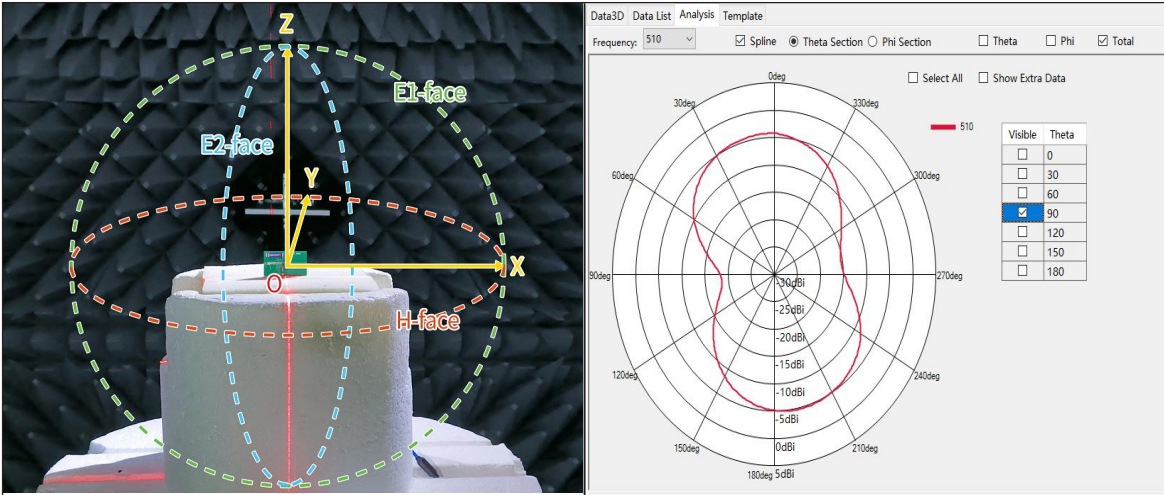
$\theta = 90^\circ$ Plane XY at 490 MHz, Gain -0.97 dBi



$\phi = 0^\circ$ Plane XZ at 490 MHz, Gain -0.97 dBi

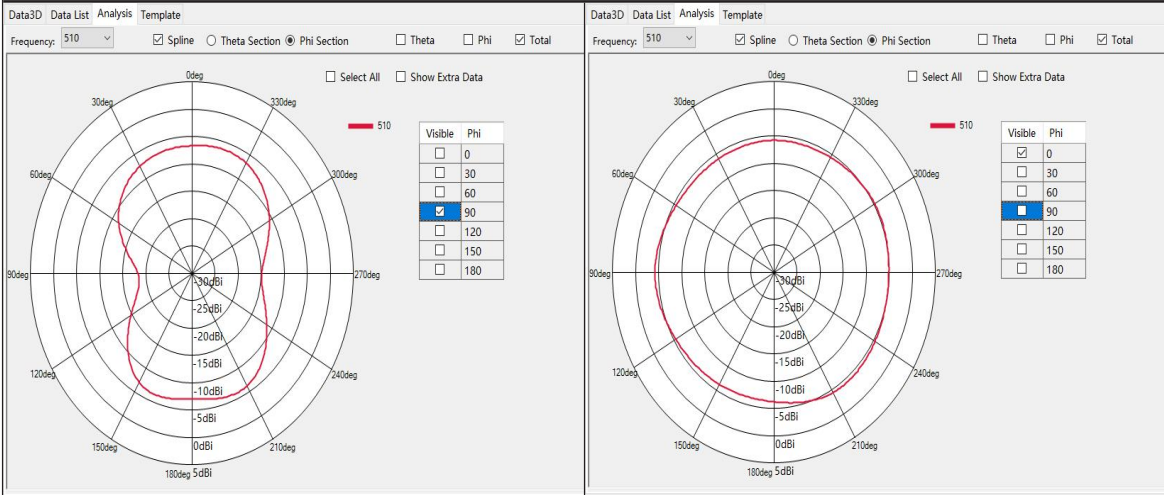
$\phi = 90^\circ$ Plane YZ at 490 MHz, Gain -0.97 dBi





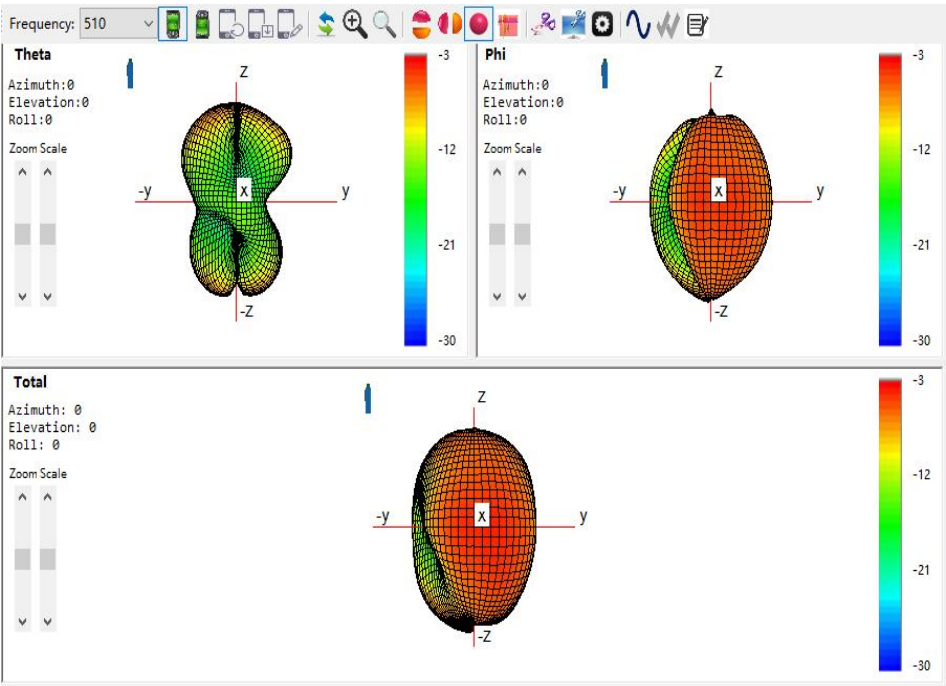
PCB board size: 140 mm x 80 mm x 1.0 mm

$\theta = 90^\circ$ Plane XY at 510 MHz, Gain -3.84 dBi



$\phi = 0^\circ$ Plane XZ at 510 MHz, Gain -3.84 dBi

$\phi = 90^\circ$ Plane YZ at 510 MHz, Gain -3.84 dBi

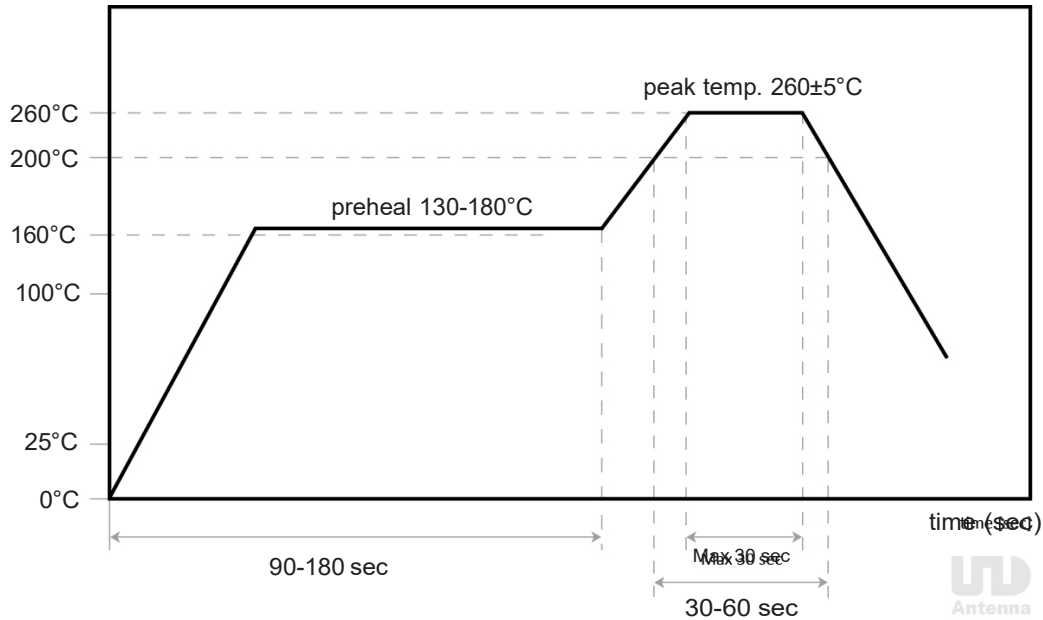


9 SOLDERING CONDITIONS

This antenna is suitable for lead free soldering.

The reflow duration should be adjusted to create good solder joints without raising the antenna temperature beyond the allowed maximum of 260°C.

The figure below shows the temperature profile for soldering.



10 PACKAGING

10.1 Optimal Storage Conditions for Packaged Reels

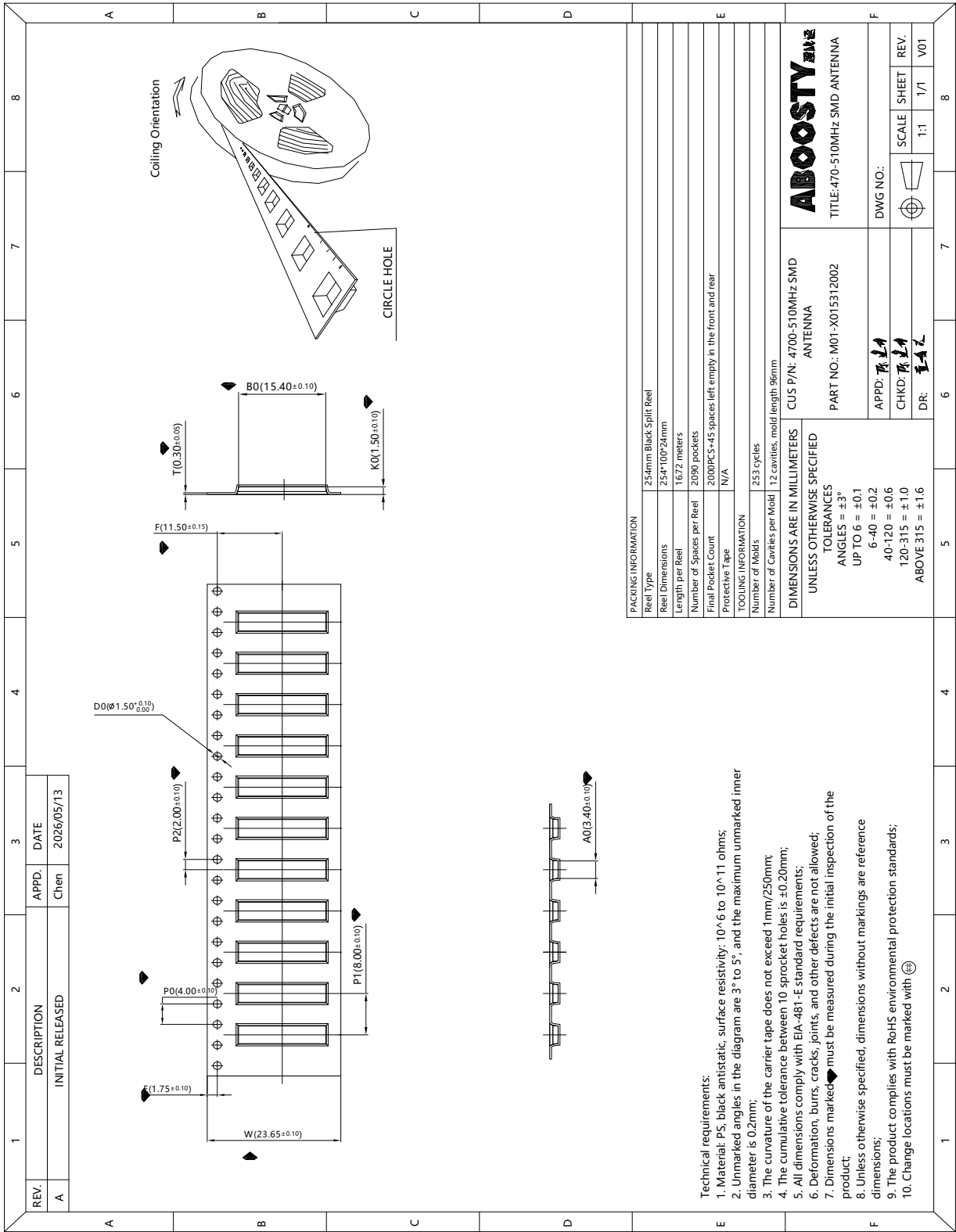
Temperature	-5°C to 40°C
Humidity	Less than 70% RH
Shelf life	18 months
Storage place	Away from corrosive gas and direct sunlight
Packaging	Reels should be stored in unopened sealed manufacturer's plastic packaging.

© Note

Storage of open reels of antennas is not recommended due to possible oxidization of pads on antennas. If short-term storage is necessary, then it is highly recommended that the bag containing the antenna reel is re-sealed and stored in like storage conditions as in the above table.



10.2 Packagings and Dimensions (Unit: mm)





11 ANTENNA CERTIFICATION

RoHS Approval	Compliant [2011/65/EU&2015/863]
REACH Approval	Conform or declared [(EC)1907/2006]
Hazardous material regulation conformance: A certificate of conformance is available upon request. Feel free to consult us for details.	



12 WELCOME ALL ANTENNA OEM/ODM PROJECTS

About ABOOSTY



10+ years in antenna R&D, production, and OEM/ODM



House of Aboosty: 1 M+ units annual output capacity



Factory directly competitive price



Industry-leading quality levels



Professional team-work & support



Quick price and lead time estimation

Why Choose ABOOSTY



Innovative and patented design solutions



Full terminal devices anechoic chamber test



Co-location with its custom



Competitive price



Strict inspection



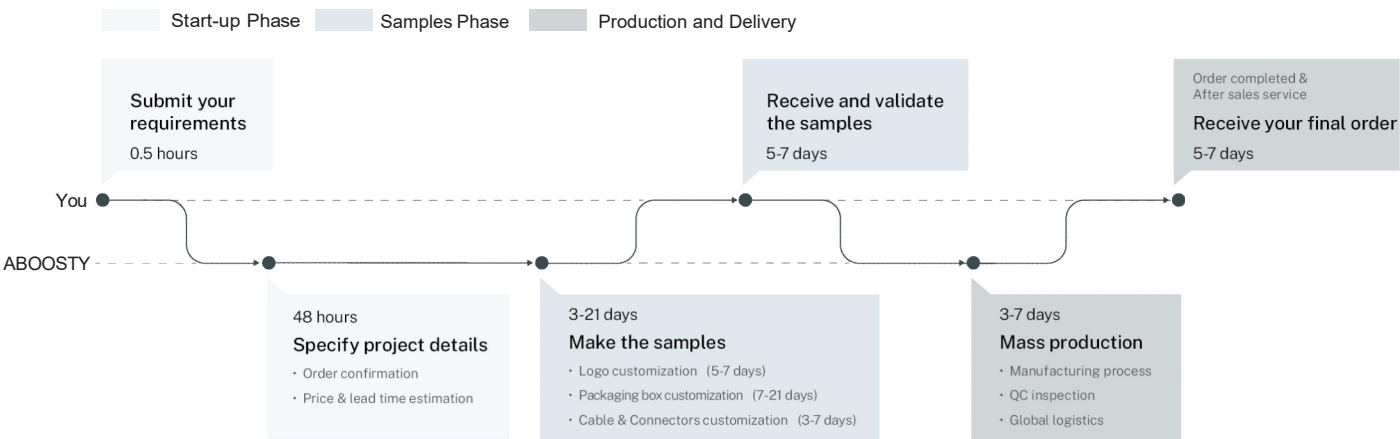
Prompt reply within 24h

What We Provide

OEM/ODM Services	
Light Customization	Deep Customization
• Logo • Packaging • Cables&Connectors	• In-depth tailoring for specific applications • Functional enhancements • Environmental adaptations • Vertical certifications • ...

Custom Process

Light Customization Process



Deep Customization Process

