

2.2-8.5GHz WIFI

UWB MIMO ONBOARD SMD ANTENNA

2.4-2.5 | 5.1-5.8 | 5.925-7.125 | 6.1-6.9 | 7.1-8.5 GHz



Dimensions: 12.0 x 10.46 x 3.0 mm

Clearance Area: 45.0 x 15.7 mm



PN: M01-X01210U230





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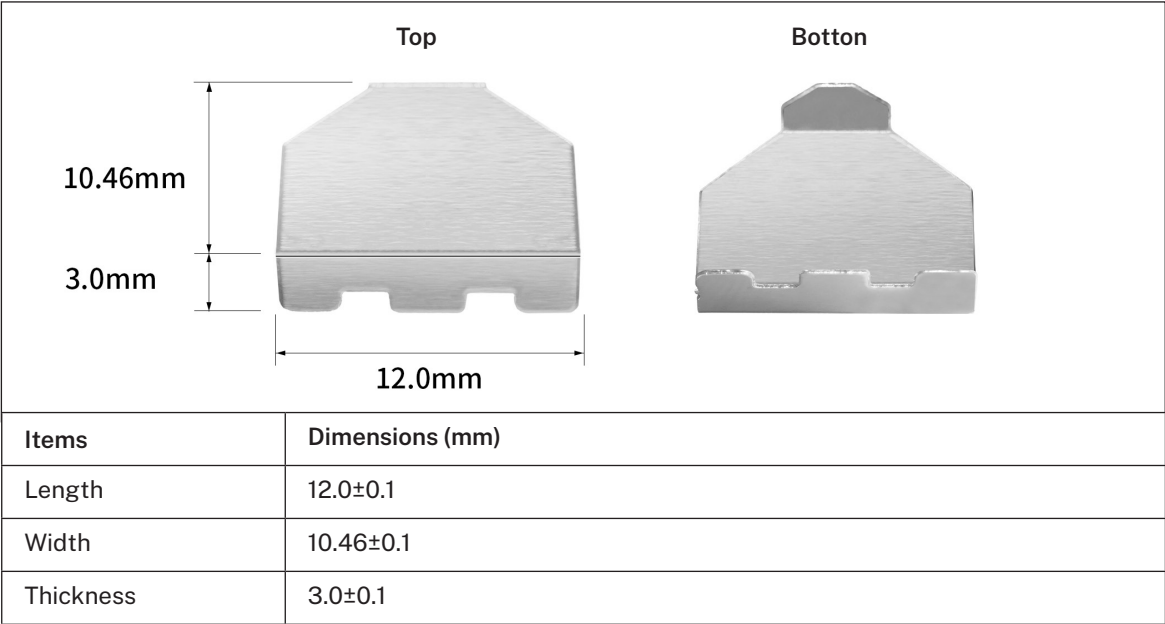


1 FEATURES & BENEFITS

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

2 APPLICATIONS

- WIFI 6E UWB MIMO Antenna
- Wireless Routers and Modems
- Internet of Things (IoT) Devices, M2M
- Indoor Location Tracking and Positioning
- Consumer Tracking
- Smart Metering
- Virtual Reality (VR) and Augmented Reality (AR)



3 ORDER INFORMATION

Product Name	2.2-8.5GHz WIFI UWB MIMO ONBOARD SMD ANTENNA
Part Number	M01-X01210U230
Dimensions	12.0 x 10.46 x 3.0 mm
Weight	0.35 g
Mounting	SMT
Packaging	Tape & Reel
MOQ	1000 pcs/reel



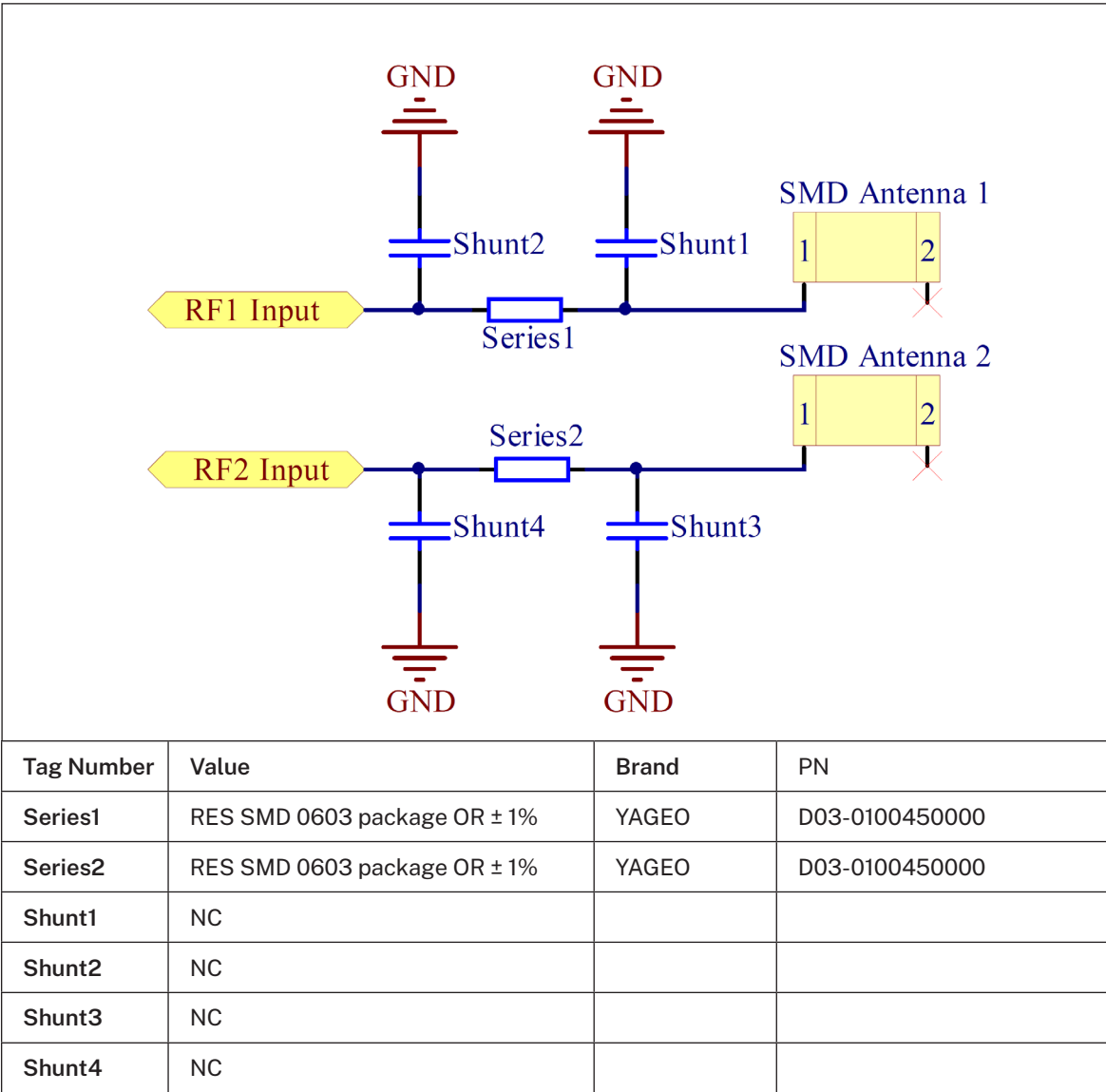
4 REFERENCE GUIDE

Antenna	Antenna-Left			Antenna-Right		
Technical Features (GHz)	2.2-2.5	3.0-5.0	5.0-8.5	2.2-2.5	3.0-5.0	5.0-8.5
Max VSWR	3.74:1	1.8:1	2.29:1	3.71:1	1.71:1	2.53:1
Max Efficiency	88.43%			92.17%		
Max Return Loss	-6.13 dB			-4.96 dB		
Peak Gain	Up to 5.43 dBi (Typ)			Up to 5.64 dBi (Typ)		
Max Input Power	2 Watts CW					
Polarization	Linear					
Input Impedance	50 Ω					
Operating Temperature	-40°C to +80°C					
Relative Humidity	10 to 70%					
Dimensions (L x W x H)	12.0 x 10.46 x 3.0 mm					

All data were measured in free space and on a reference wground plane of 45 mm length, 35 mm width, and 1.0 mm thickness. Application data might vary.

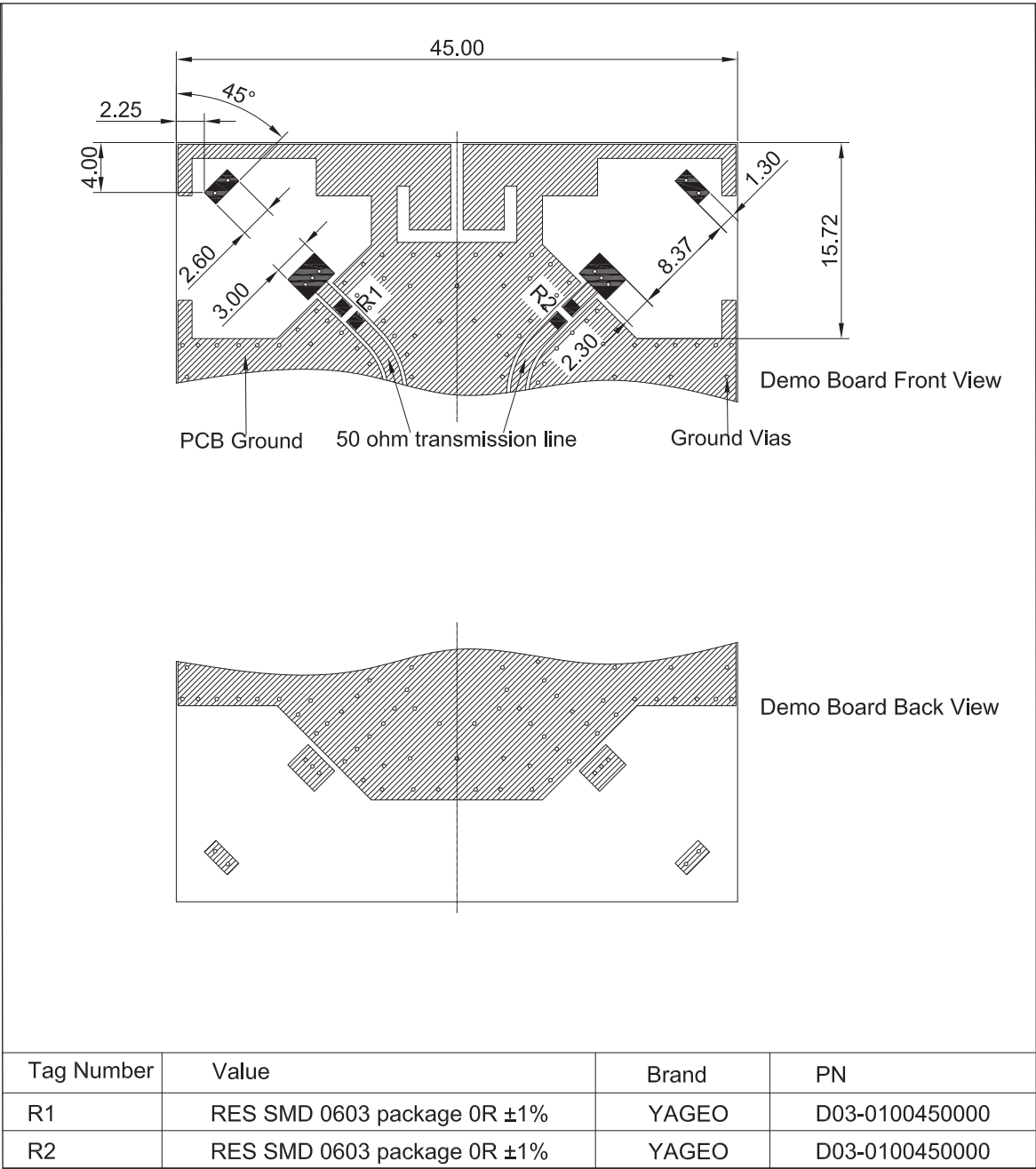


6 MATCHING NETWORK





7 RECOMMENDED FOOTPRINT AND LAYOUT

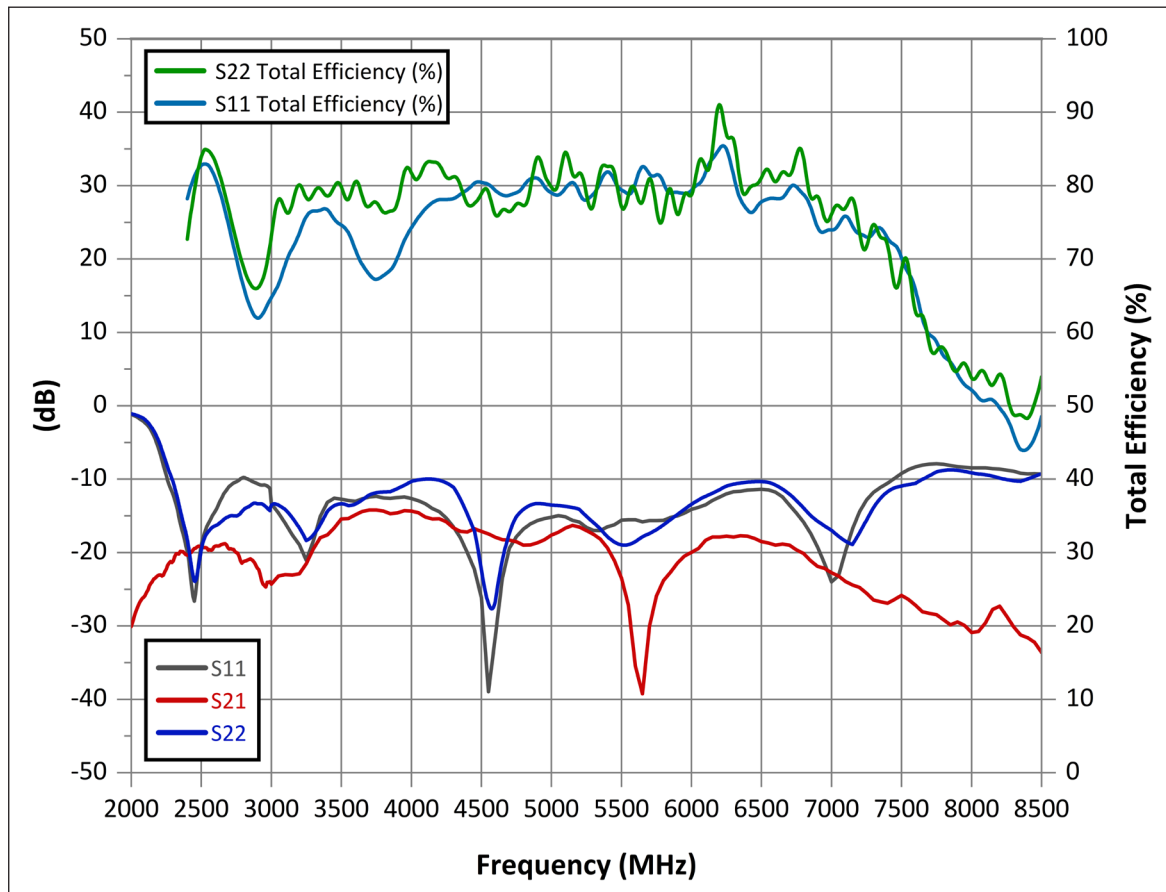


8 ELECTRICAL PERFORMANCE

© Note

All data displayed in Chapter 8 were measured in free space and on a reference ground plane of 45 mm length, 35 mm width, and 1.0 mm thickness.

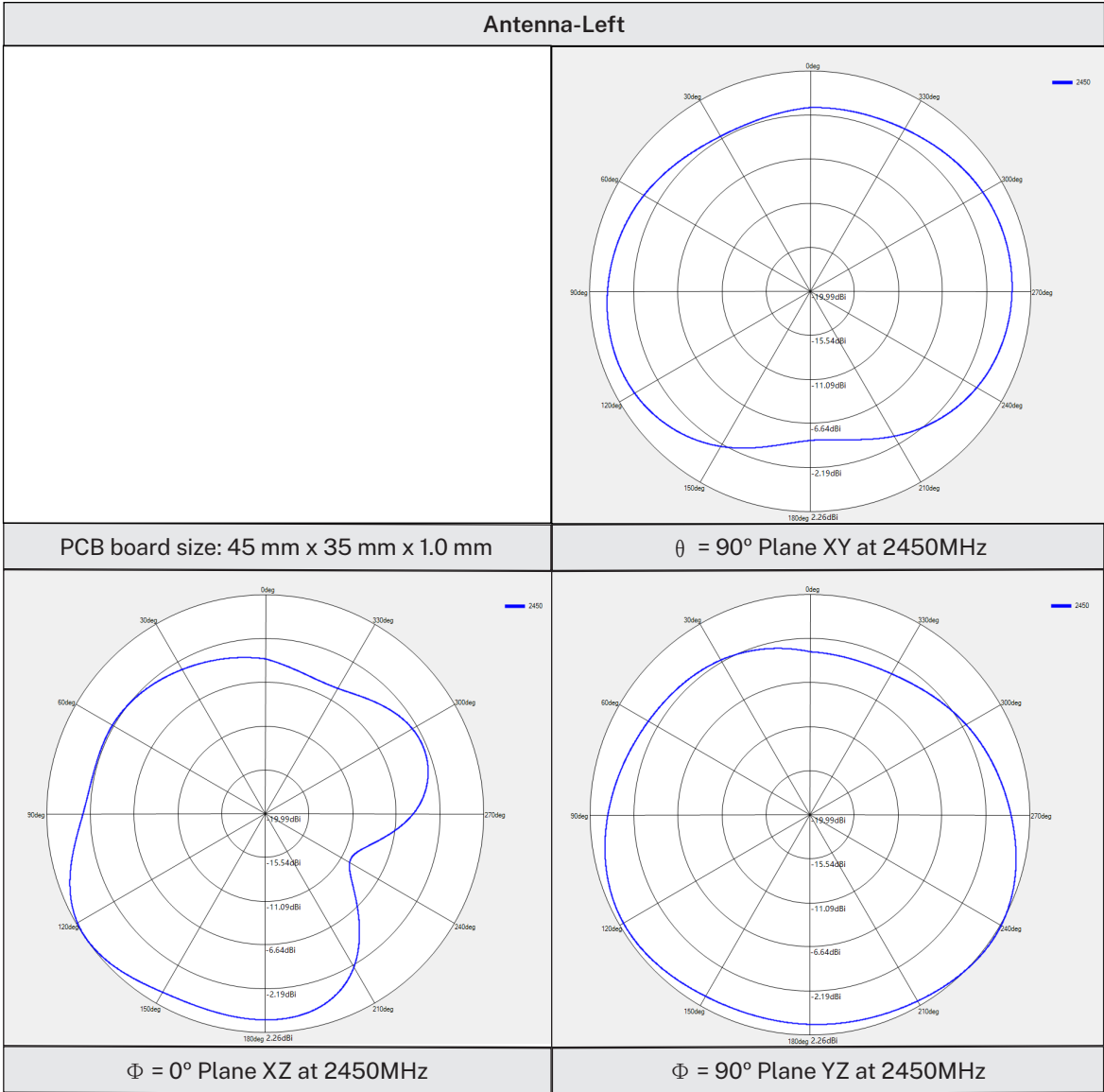
8.1 Return Loss(S11, S22), Isolation(S21) and Total Efficiency



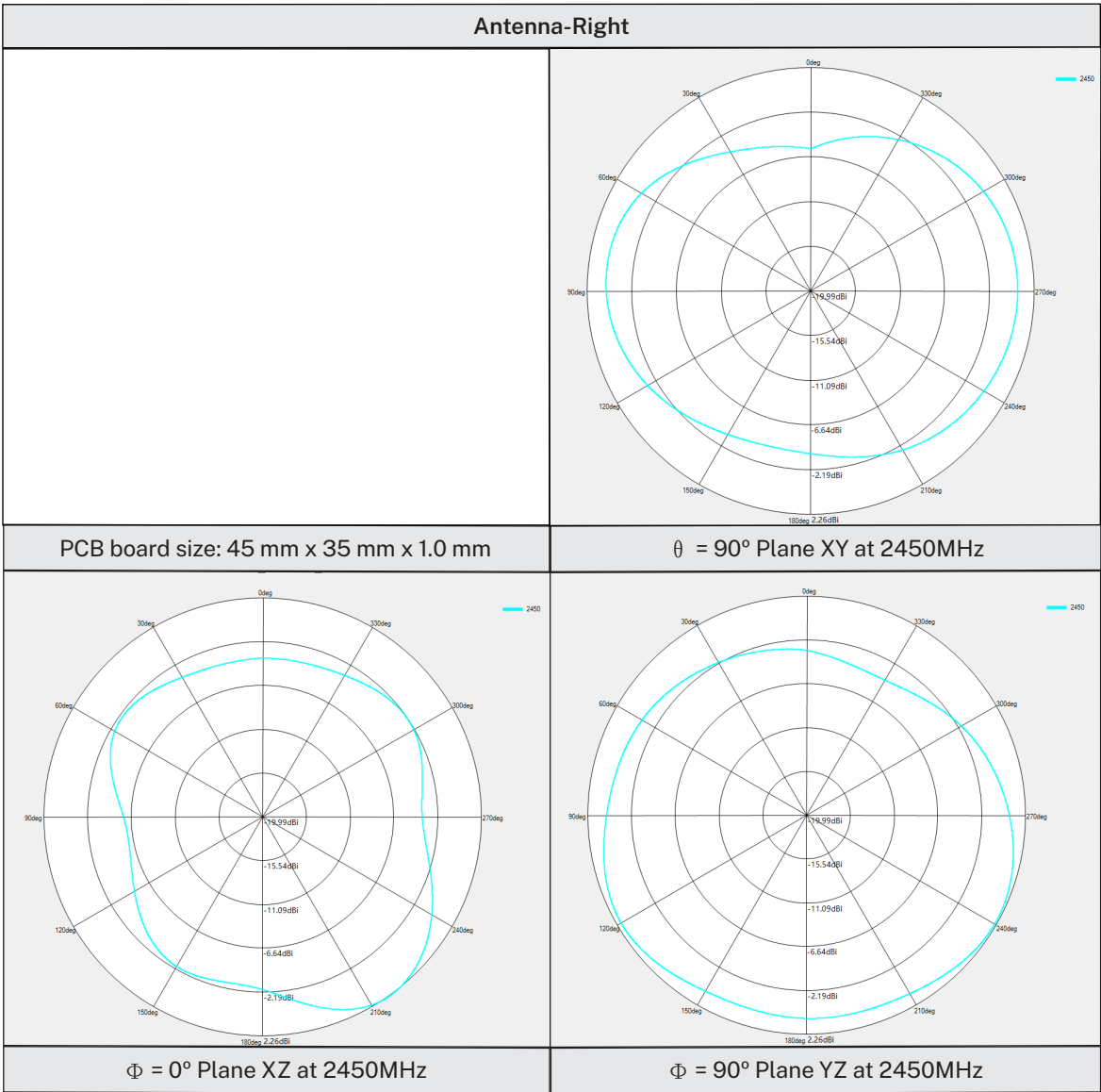


8.2 Antenna for WIFI

8.2.1 Radiation Patterns (2.4-2.5 GHz), Efficiency (%) and Gain (dBi)



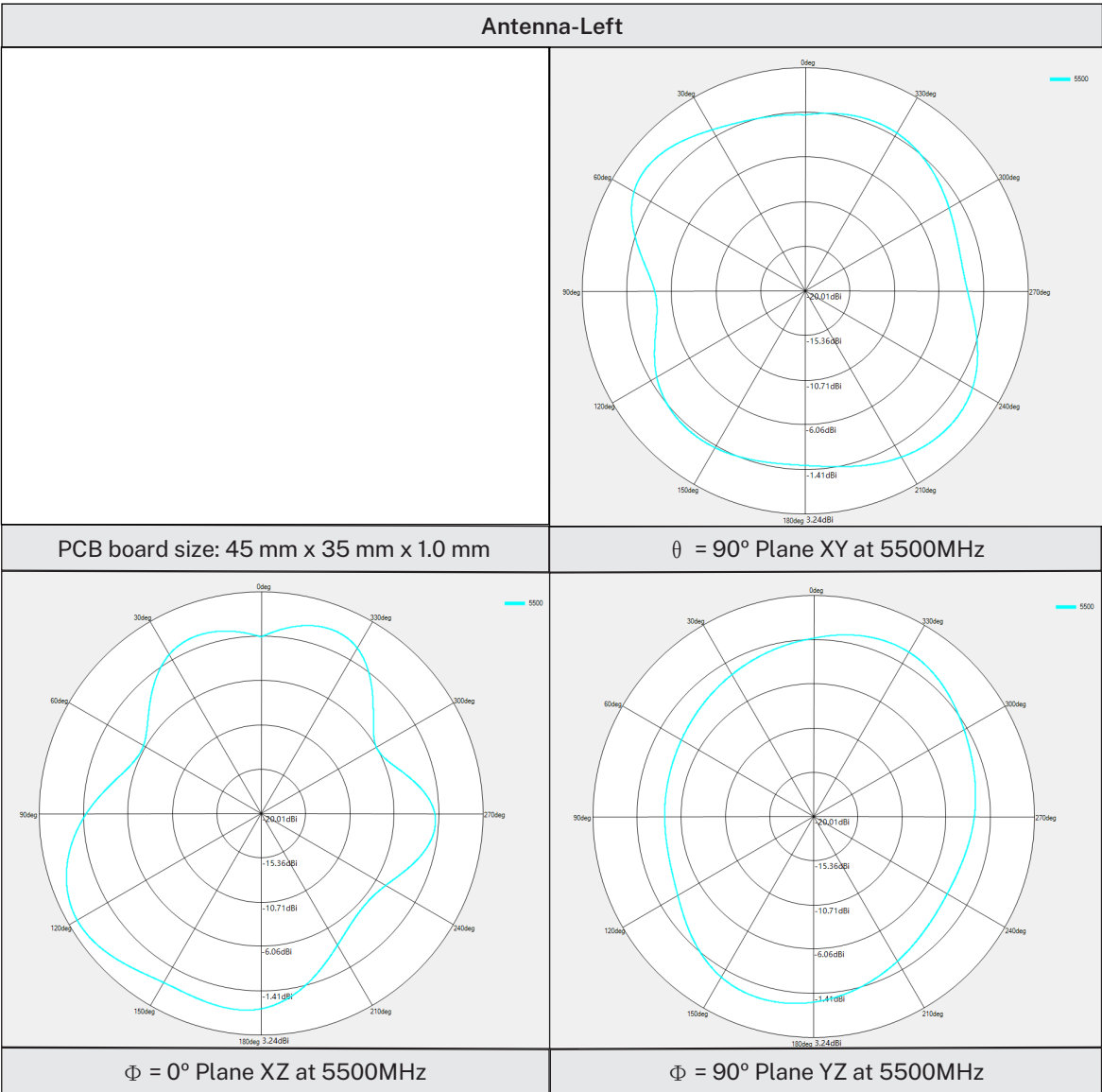
Gain	Peak Gain	2.48 dBi
	Average Gain across the band	2.25 dBi
	Gain Range across the band (min, max)	2.04 to 2.48dBi
Efficiency	Peak Efficiency	82.77%
	Average Efficiency across the band	80.97%
	Efficiency Range across the band (min, max)	78.27 to 82.77%



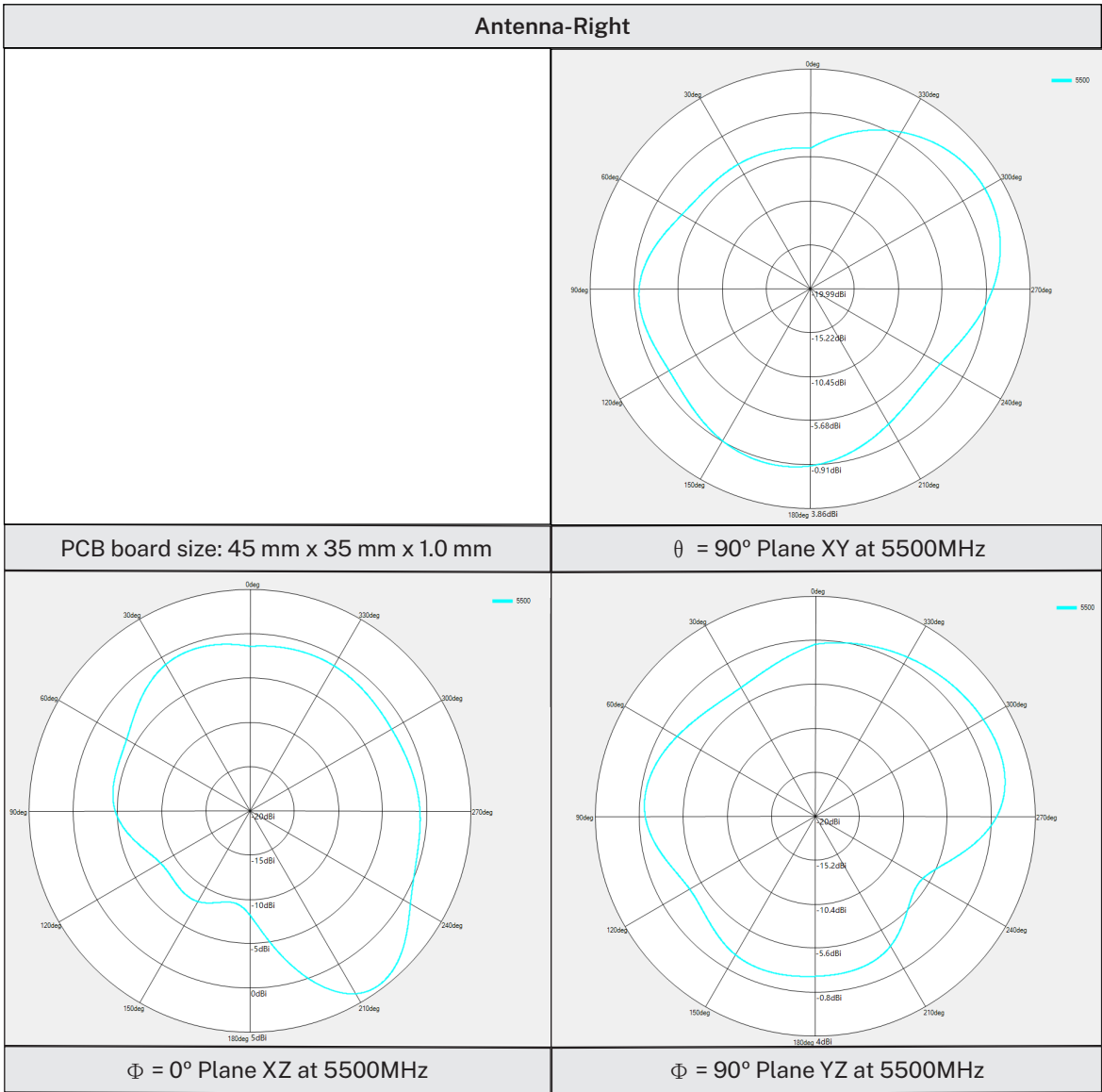
Gain	Peak Gain	2.13 dBi
	Average Gain across the band	2.05 dBi
	Gain Range across the band (min, max)	1.96 to 2.05 dBi
Efficiency	Peak Efficiency	84.18%
	Average Efficiency across the band	78.90%
	Efficiency Range across the band (min, max)	73.36 to 84.18%



8.2.2 Radiation Patterns (5.1-5.8 GHz), Efficiency (%) and Gain (dBi)



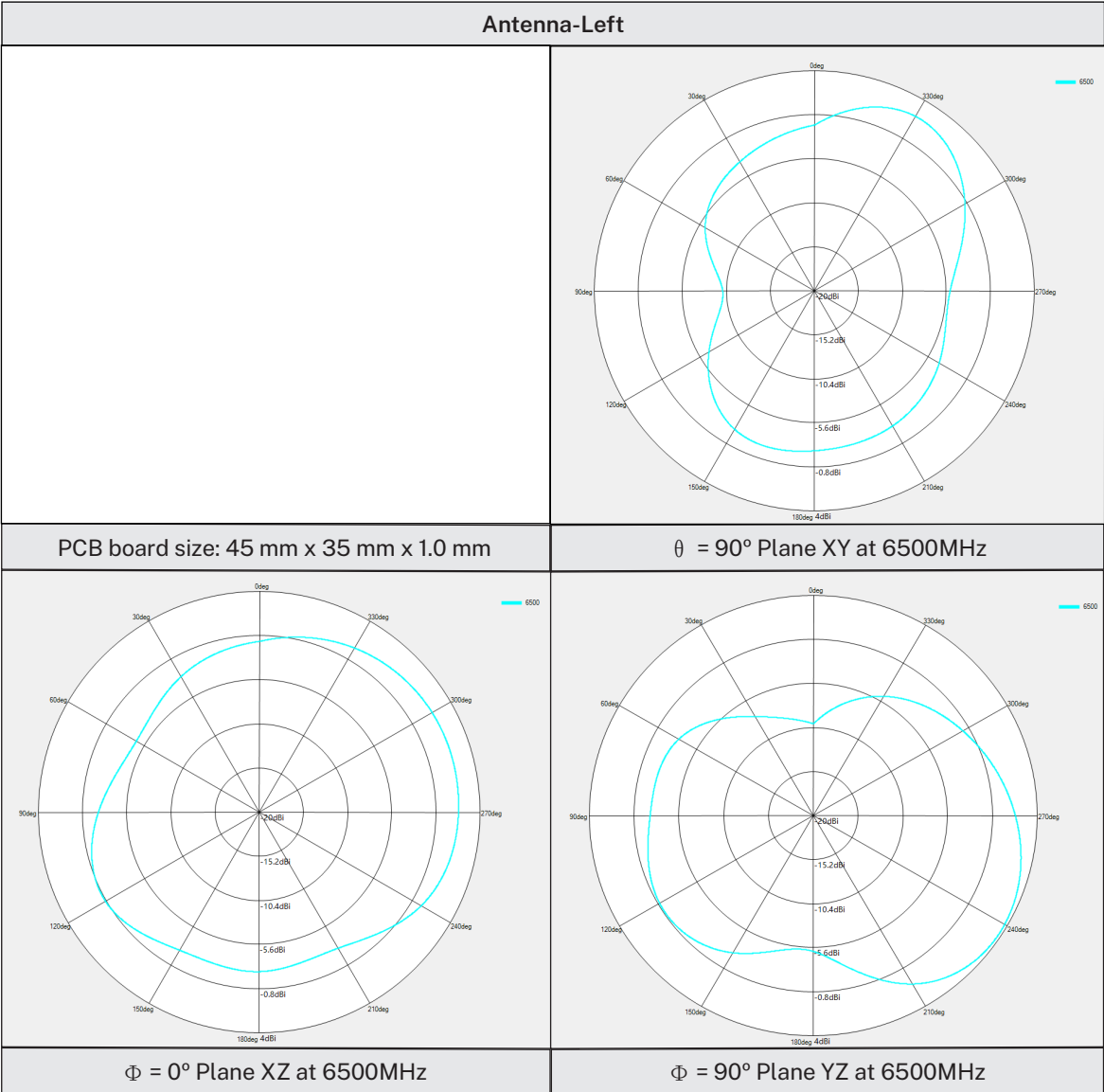
Gain	Peak Gain	4.37 dBi
	Average Gain across the band	3.93 dBi
	Gain Range across the band (min, max)	2.89 to 4.37 dBi
Efficiency	Peak Efficiency	85.81%
	Average Efficiency across the band	82.77%
	Efficiency Range across the band (min, max)	75.65 to 85.81%



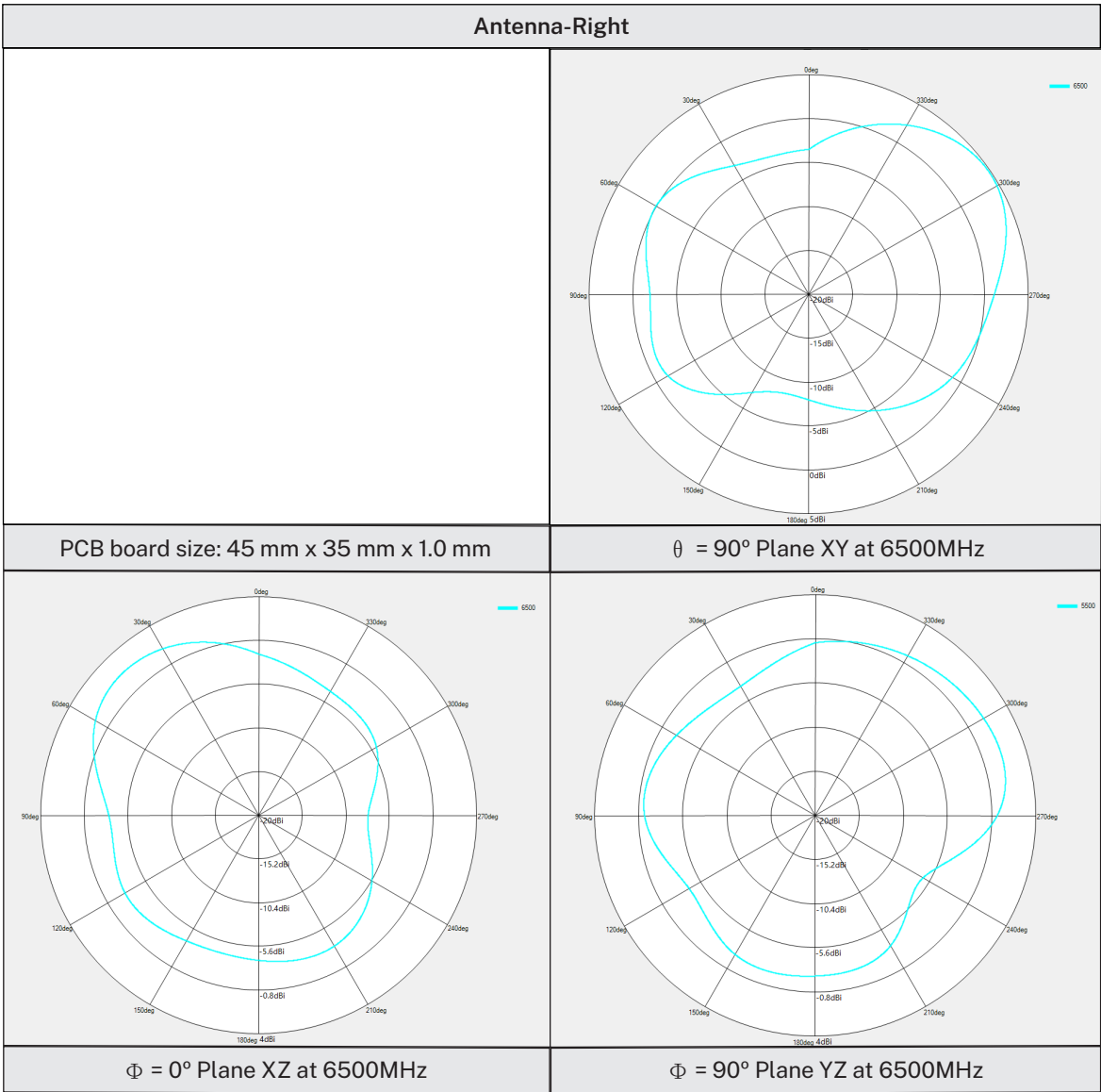
Gain	Peak Gain	4.19 dBi
	Average Gain across the band	3.70 dBi
	Gain Range across the band (min, max)	3.34 to 4.19 dBi
Efficiency	Peak Efficiency	82.77%
	Average Efficiency across the band	79.82%
	Efficiency Range across the band (min, max)	75.39 to 85.42%



8.2.3 Radiation Patterns (5.925-7.125 GHz), Efficiency (%) and Gain (dBi)



Gain	Peak Gain	4.49 dBi
	Average Gain across the band	3.73 dBi
	Gain Range across the band (min, max)	2.72 to 4.49 dBi
Efficiency	Peak Efficiency	88.43%
	Average Efficiency across the band	78.46%
	Efficiency Range across the band (min, max)	72.82 to 88.43%

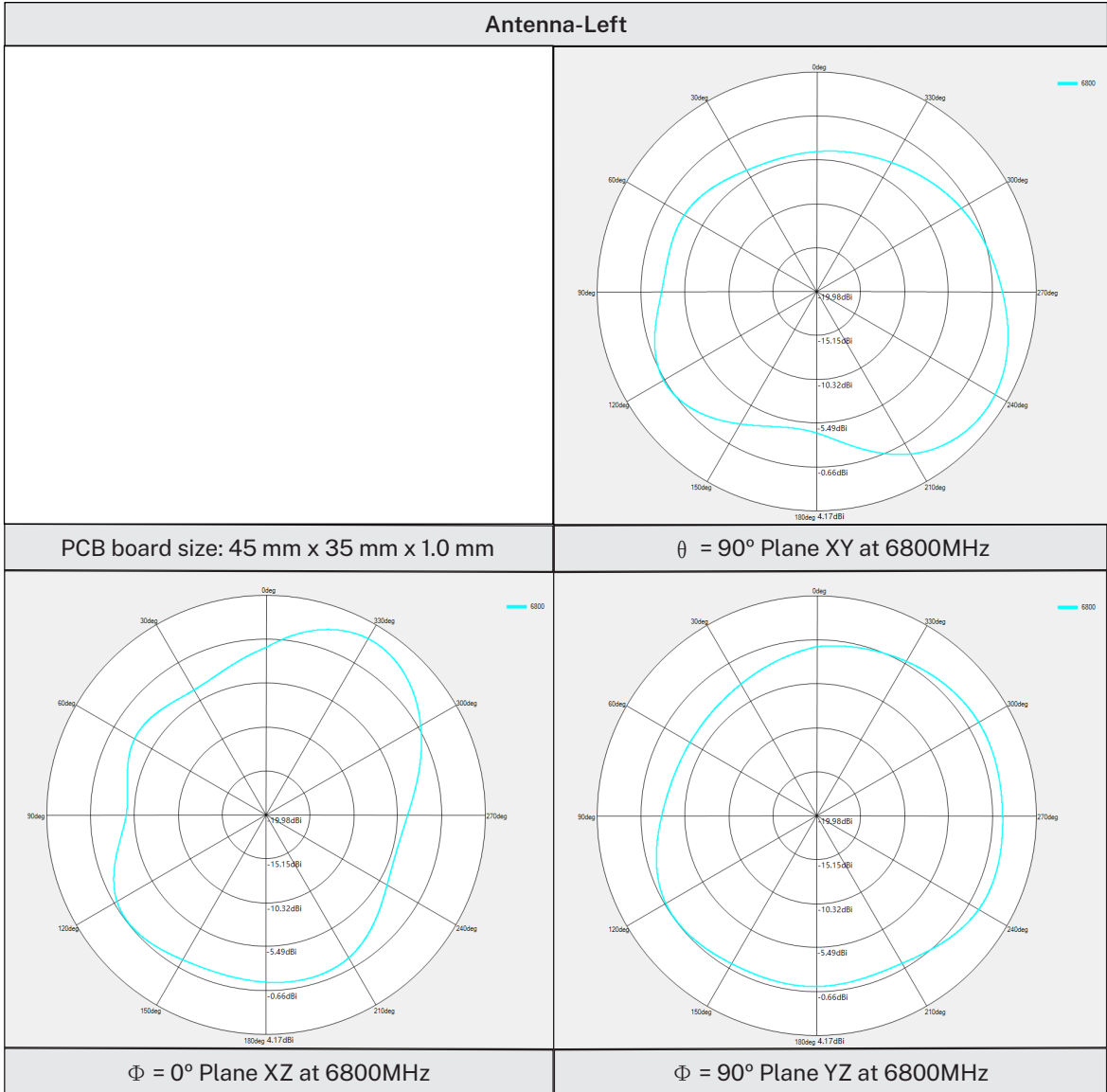


Gain	Peak Gain	5.64 dBi
	Average Gain across the band	5.24 dBi
	Gain Range across the band (min, max)	2.44 to 5.64 dBi
Efficiency	Peak Efficiency	92.17%
	Average Efficiency across the band	80.97%
	Efficiency Range across the band (min, max)	74.95 to 92.17%

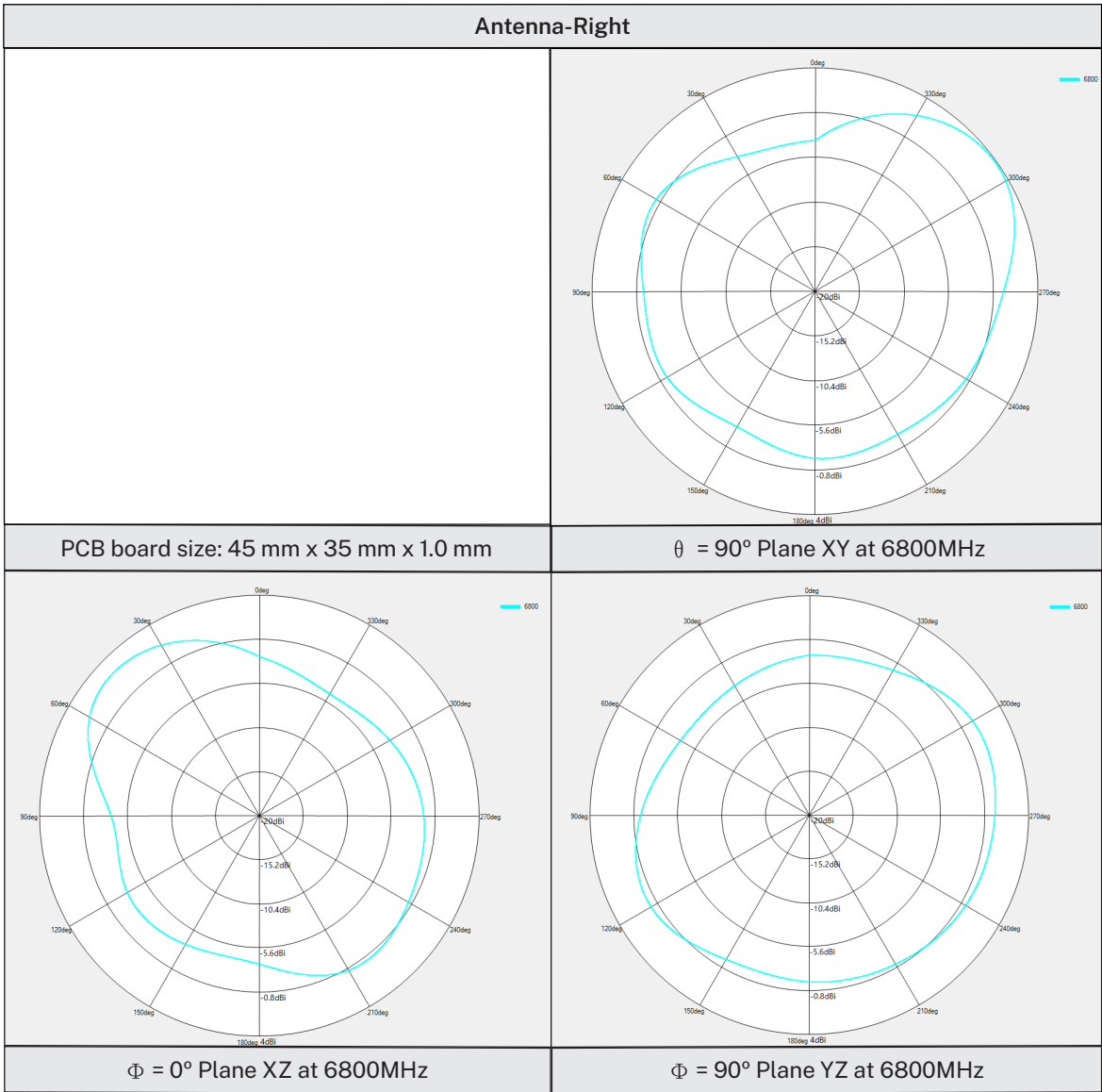


8.3 Antenna for UWB

8.3.1 Radiation Patterns (6.1-6.9 GHz), Efficiency (%) and Gain (dBi)



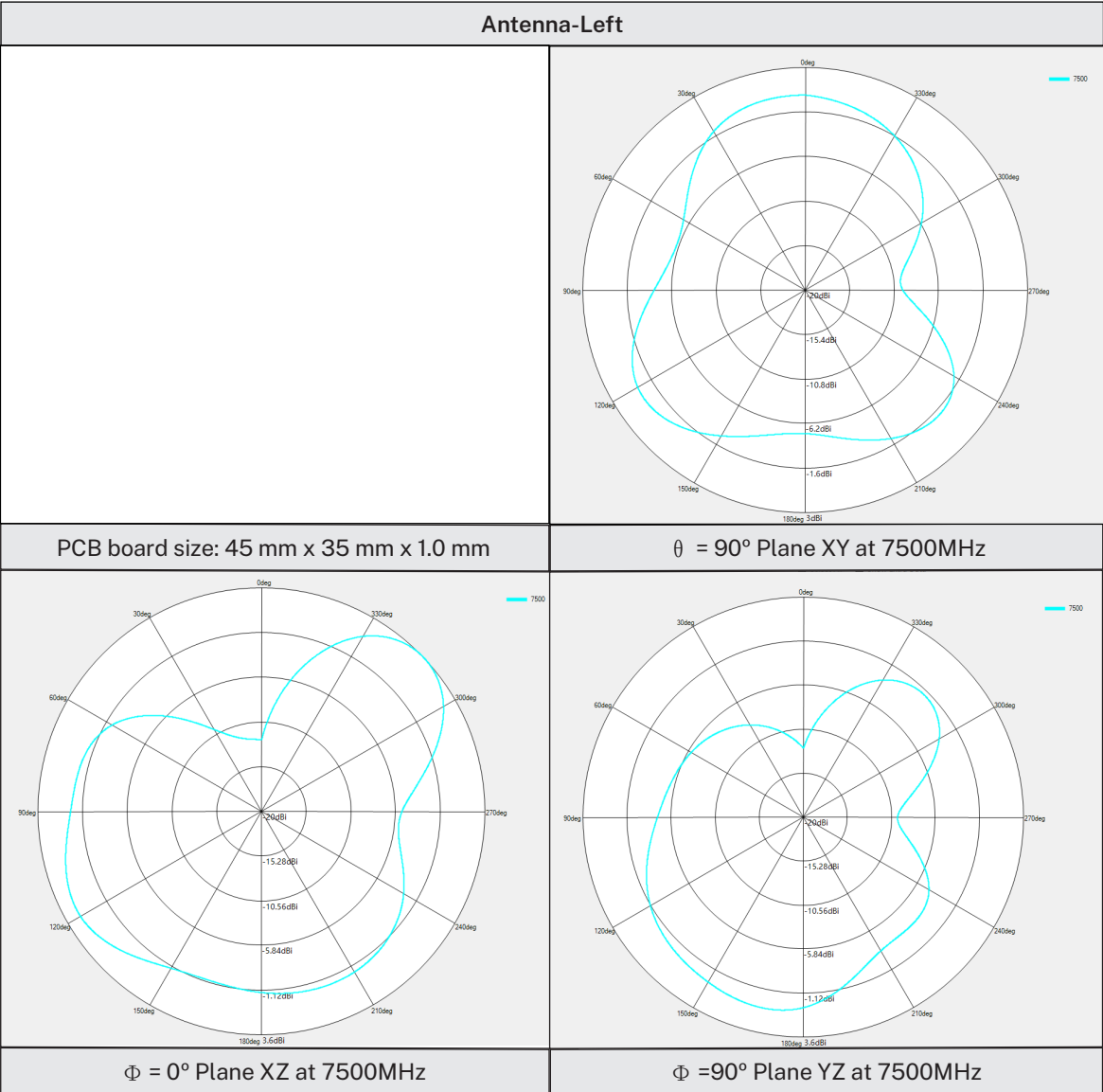
Gain	Peak Gain	5.64 dBi
	Average Gain across the band	4.02 dBi
	Gain Range across the band (min, max)	3.23 to 5.64 dBi
Efficiency	Peak Efficiency	88.43%
	Average Efficiency across the band	79.04%
	Efficiency Range across the band (min, max)	74.31 to 88.43%



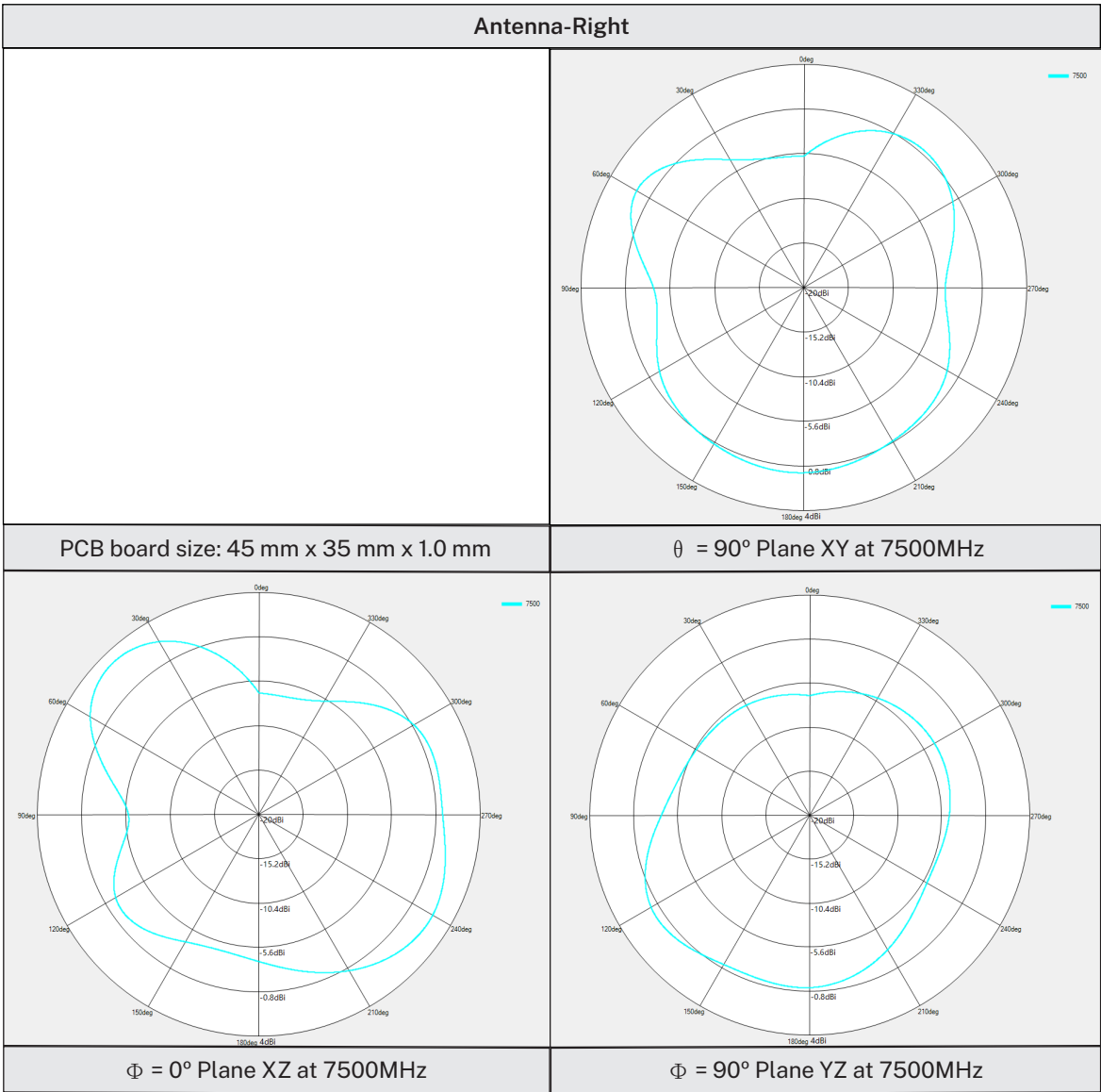
Gain	Peak Gain	5.64 dBi
	Average Gain across the band	4.58 dBi
	Gain Range across the band (min, max)	3.23 to 5.64 dBi
Efficiency	Peak Efficiency	92.17%
	Average Efficiency across the band	82.45%
	Efficiency Range across the band (min, max)	77.74 to 92.17%



8.3.2 Radiation Patterns (7.1-8.5 GHz), Efficiency (%) and Gain (dBi)



Gain	Peak Gain	3.94 dBi
	Average Gain across the band	3.19 dBi
	Gain Range across the band (min, max)	2.16 to 3.94 dBi
Efficiency	Peak Efficiency	77.33%
	Average Efficiency across the band	59.12%
	Efficiency Range across the band (min, max)	43.09 to 73.33%



Gain	Peak Gain	3.2 dBi
	Average Gain across the band	2.52 dBi
	Gain Range across the band (min, max)	2.15 to 3.2 dBi
Efficiency	Peak Efficiency	78.69%
	Average Efficiency across the band	61.34%
	Efficiency Range across the band (min, max)	48.09 to 78.69%

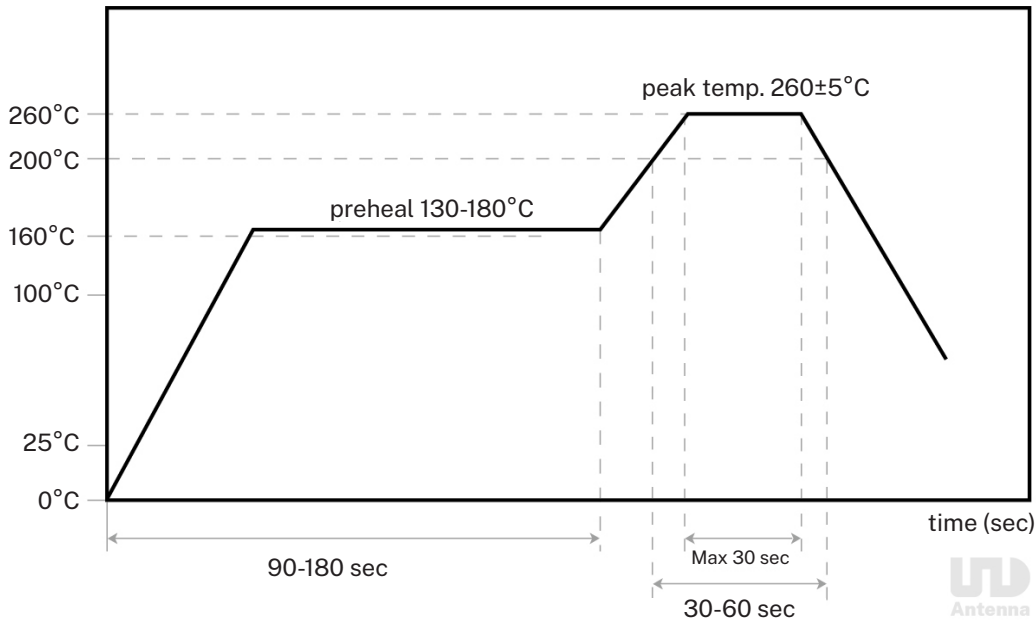


9 SOLDERING CONDITIONS

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

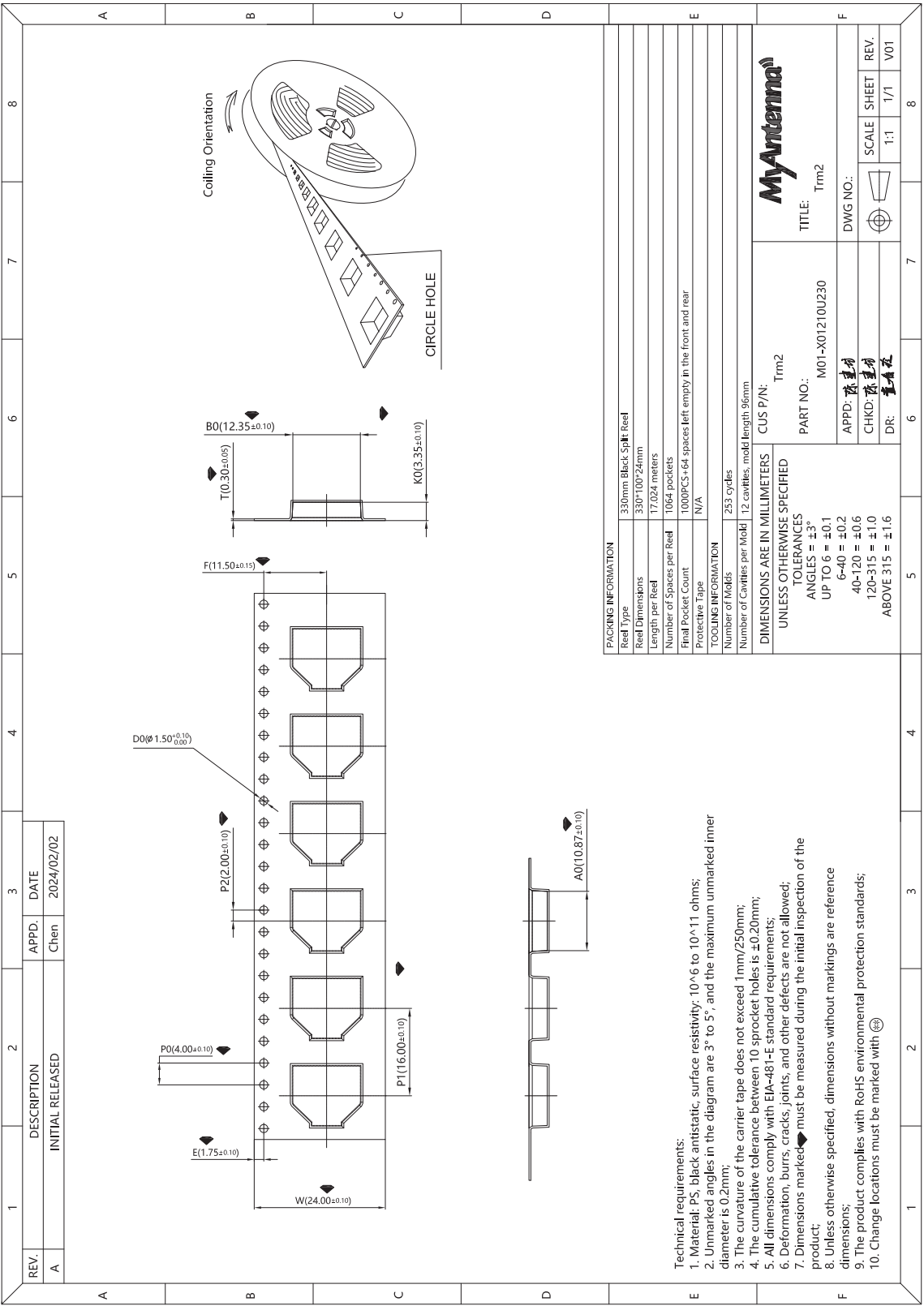
Temperature	-5°C to 40°C
Humidity	Less than 70% RH
Shelf life	18 months
Storage place	Away from corrosive gas and direct sunlight
Packaging	Reels should be stored in unopened sealed manufacturer's plastic packaging.

© 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.	

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12 WELCOME ALL ANTENNA OEM/ODM PROJECTS

About ABOOSTY



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



House of Aboosty: 450,000 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



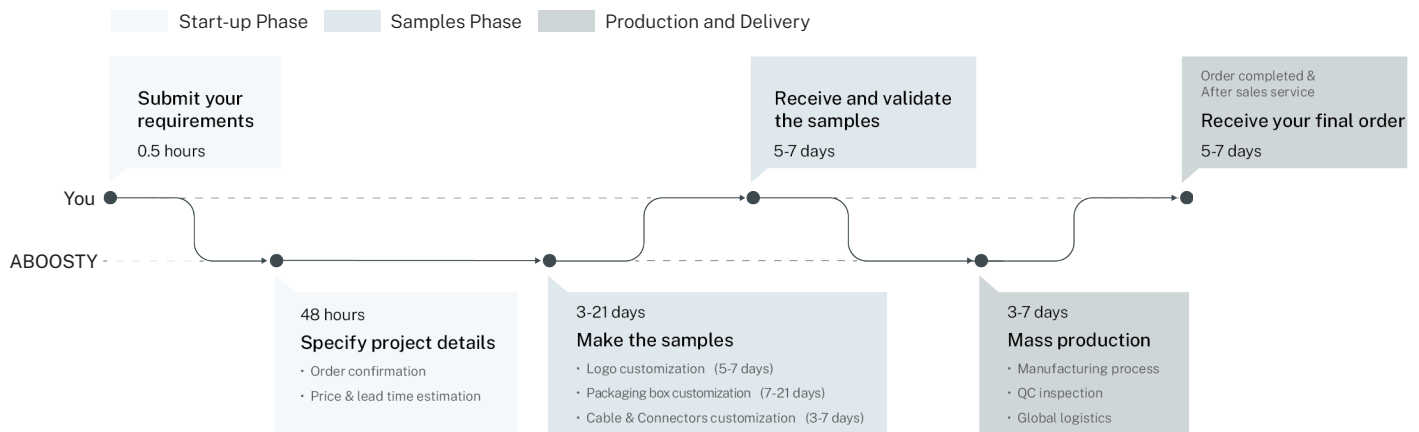
Prompt reply within 24h

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 • ...

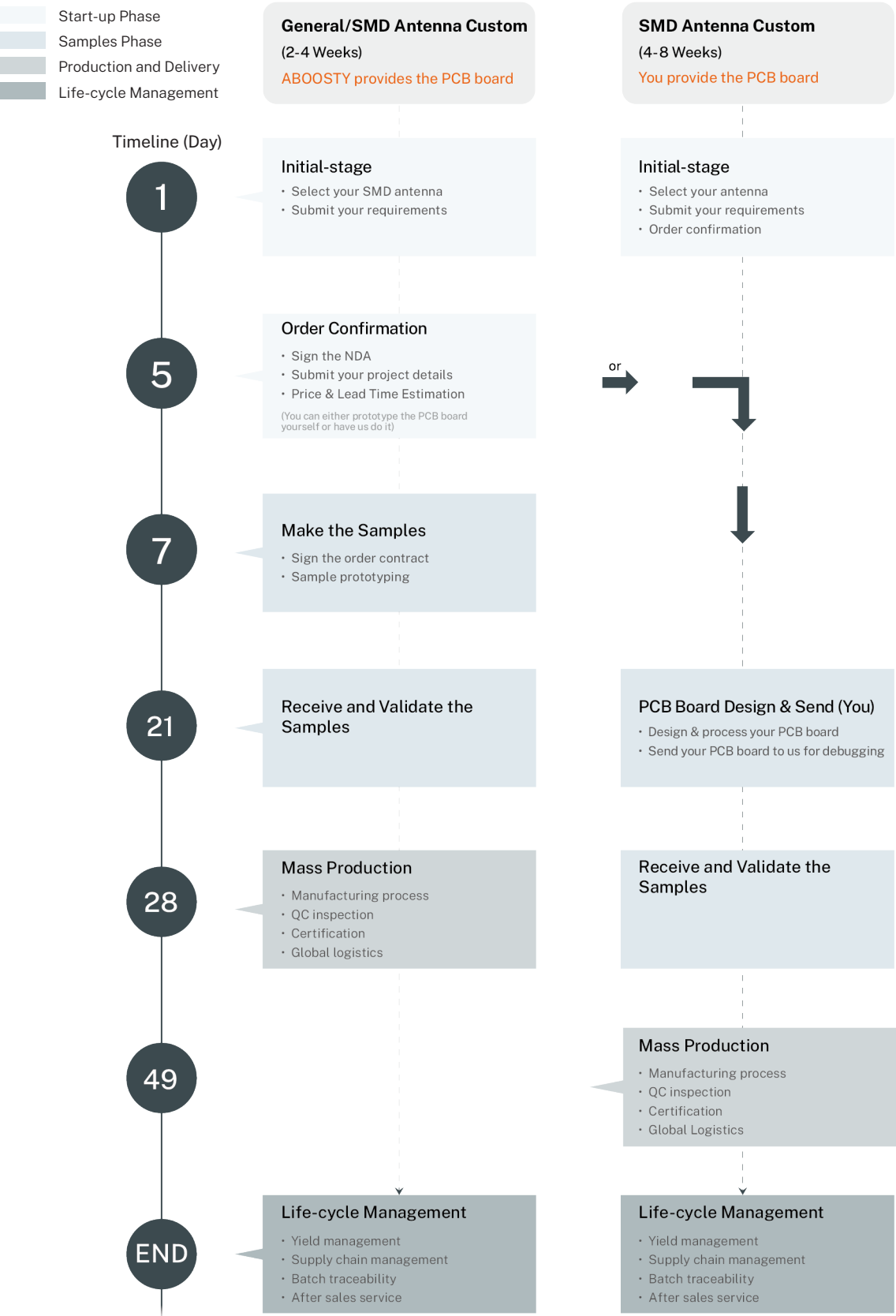
Custom Process

Light Customization Process





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