

2.4 GHZ FPC

ARA

Wi-Fi / Bluetooth Flexible Self-Adhesive Antenna

SZK-C-5W34

FREQUENCY
2400 to 2500 MHz

PEAK GAIN
3.62 dBi

CONNECTOR
MHF2, 50 mm

SIZE
5.9 × 4.0 × 0.2 mm

2.4 GHZ

2400 to 2500 MHz

Covers Wi-Fi 2.4 GHz, Bluetooth, BLE, Zigbee, Thread

Key Features

- Ultra compact size of 5.9 × 4.0 mm
- Flexible printed circuit construction
- 0.81 mm diameter coaxial cable with MHF2 connector
- Operating frequency range: 2400 to 2500 MHz
- Peak efficiency: 61.94 percent at 2415 MHz
- Peak gain: 3.62 dBi
- Lightweight and easy to integrate into tight mechanical designs

1 Introduction

ARA antenna (SZK-C-5W34) is an ultra compact high performance flexible (FPC) antenna designed for 2.4 GHz wireless applications. Operating over the 2400 to 2500 MHz band, ARA delivers excellent efficiency and gain performance in a footprint of just 5.9×4.0 mm.

The antenna is supplied with a 0.81 mm diameter coaxial cable and an MHF2 connector for easy integration into space constrained devices. Its size and performance make it ideal for high density layouts where space and weight are critical design factors.

Measured performance data demonstrates consistently high efficiency across the operating band.

— Features

- ◆ Ultra compact size of 5.9×4.0 mm
- ◆ Flexible printed circuit construction
- ◆ 0.81 mm diameter coaxial cable with MHF2 connector
- ◆ Operating frequency range: 2400 to 2500 MHz
- ◆ Peak efficiency: 61.94 percent at 2415 MHz
- ◆ Peak gain: 3.62 dBi
- ◆ Lightweight and easy to integrate into tight mechanical designs

— Applications

- ◆ Bluetooth and Bluetooth Low Energy (BLE) devices
- ◆ Wi-Fi 2.4 GHz modules and systems
- ◆ Zigbee, Thread, and other 2.4 GHz ISM band protocols
- ◆ IoT sensors and smart home devices
- ◆ Wearable electronics
- ◆ Handheld and portable equipment

2 Mechanical Specifications

Part Number	SZK-C-5W34
Name	ARA
Dimensions (mm)	5.9 × 4.0 × 0.2
Weight	<1.0 g
Antenna Type	FPC + Cable
Cable Length*	50.0 mm, Ø 0.81 mm
Connector*	MHF2 (U.FL compatible)
Part Number with Cable + Connector	SZK-C-5W34-050-02
Adhesive Backing	3M 868

*Alternate cable length and connectors available on request

3 Electrical / RF Specifications

Band	Frequency Range (MHz)	Average Efficiency (%)	Peak Gain (dBi)	VSWR (worst case)	Impedance
Wi-Fi 2.4 GHz	2400 to 2500	58.0	3.62	2.14:1	50 Ω

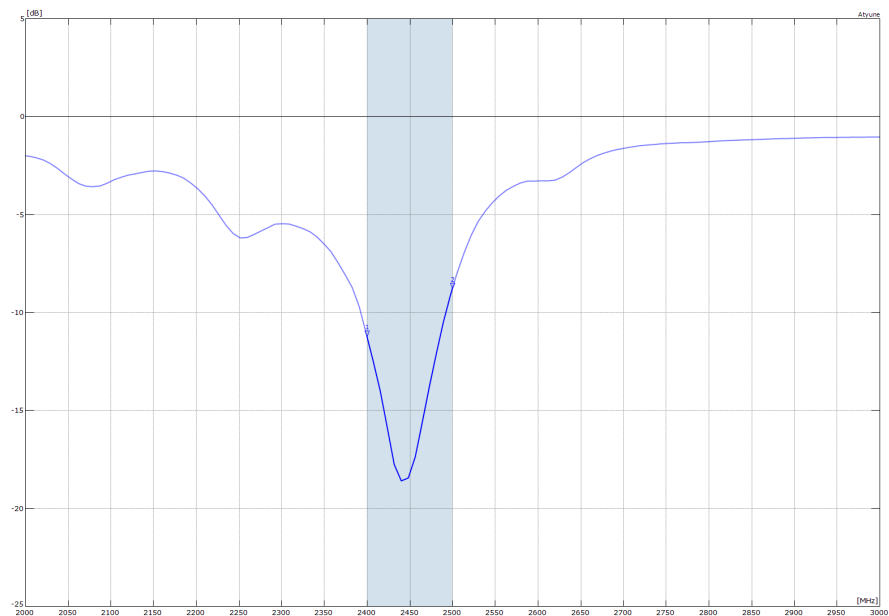
Note: The antenna performance was measured on a 2 mm thick ABS plastic sheet.

4 Environmental

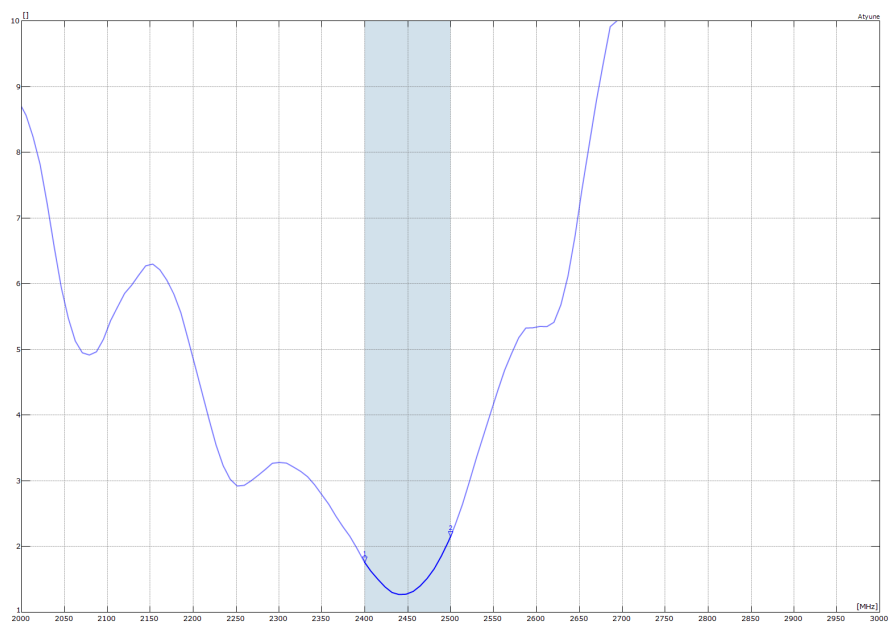
Operational Temperature	-40 to +85°C
Storage Temperature	-10 to +85°C
Relative Humidity (Storage)	65 ±20% RH
Moisture Sensitivity Level (MSL)	1
RoHS and REACH compliant	Yes

5 RF Characteristics

S11 Parameter

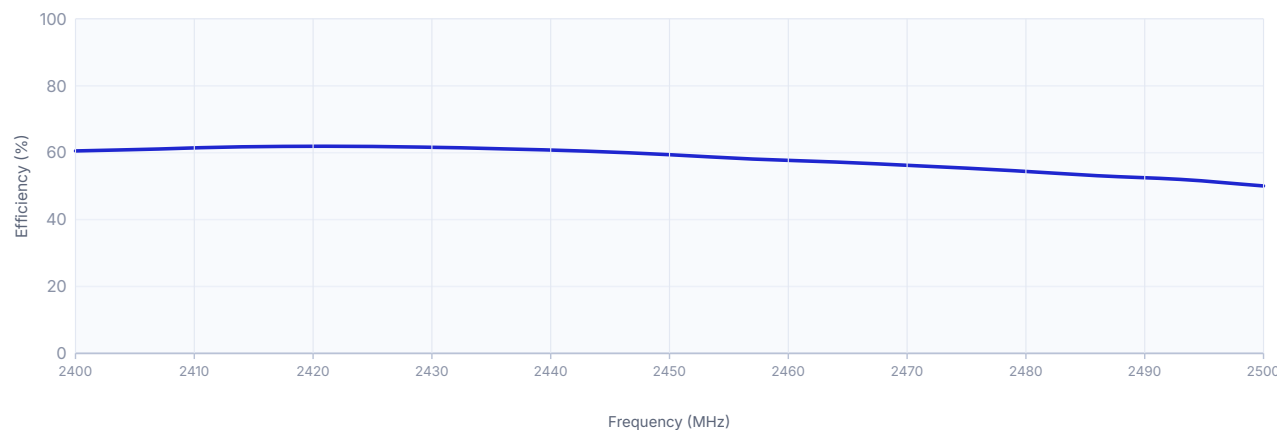


VSWR

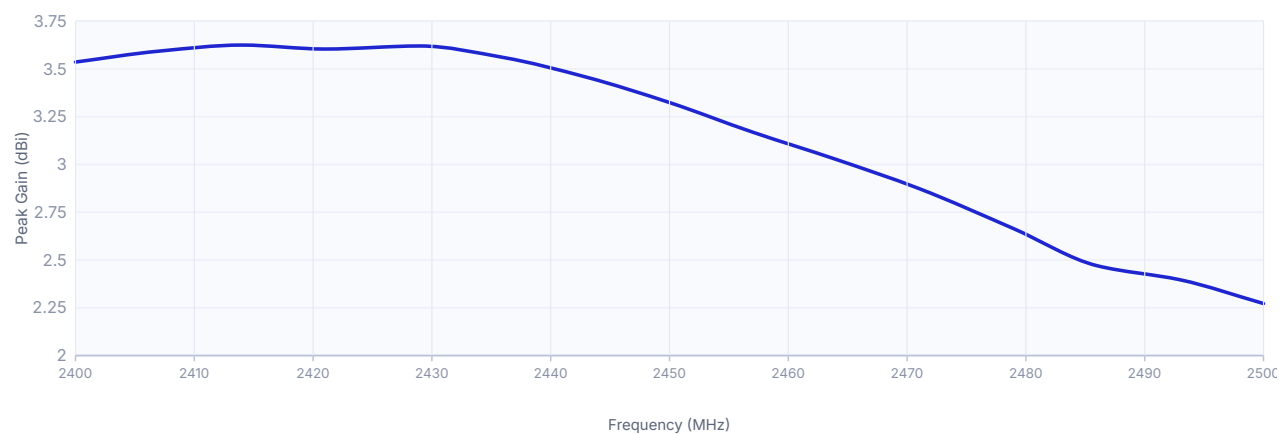


6 Antenna Performance

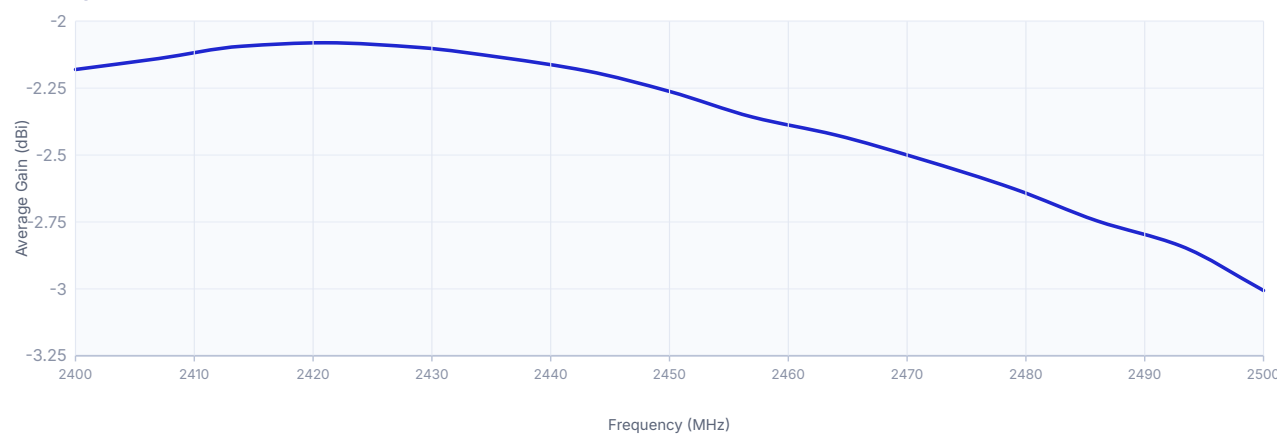
Efficiency



Peak Gain



Average Gain



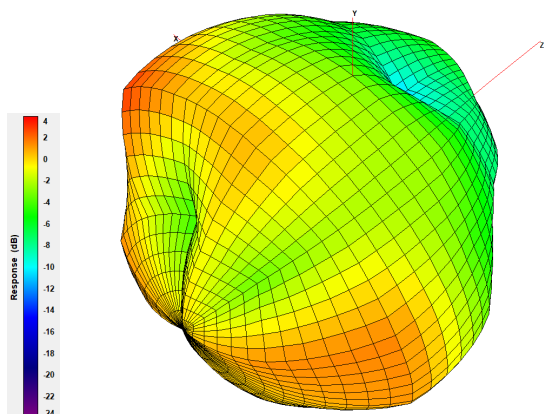
7 Radiation Patterns at 2450 MHz

MEASURED ON A 2 MM THICK ABS PLASTIC SHEET

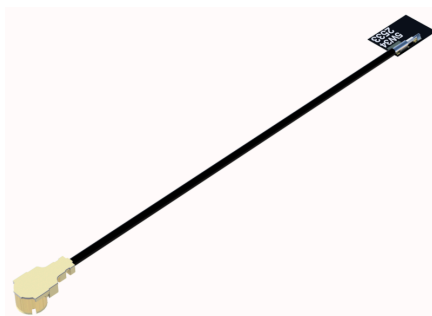
— 2400 MHz — 2450 MHz — 2500 MHz

Max 5, Min -30, Scale 5/div

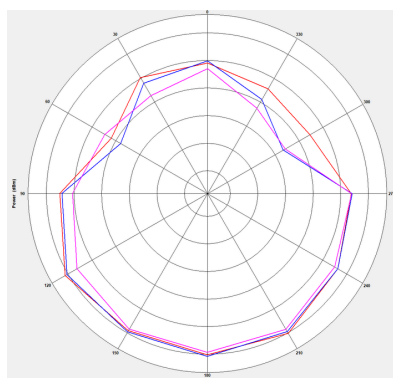
3D pattern



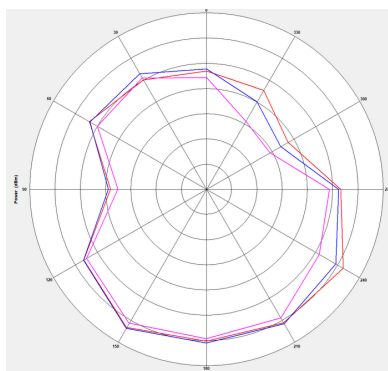
Antenna orientation



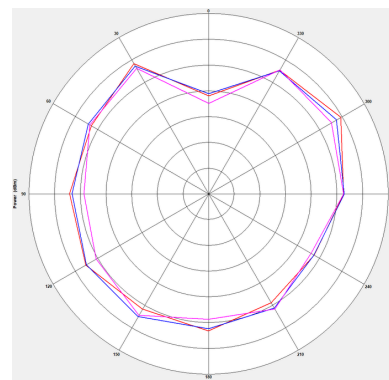
XY plane



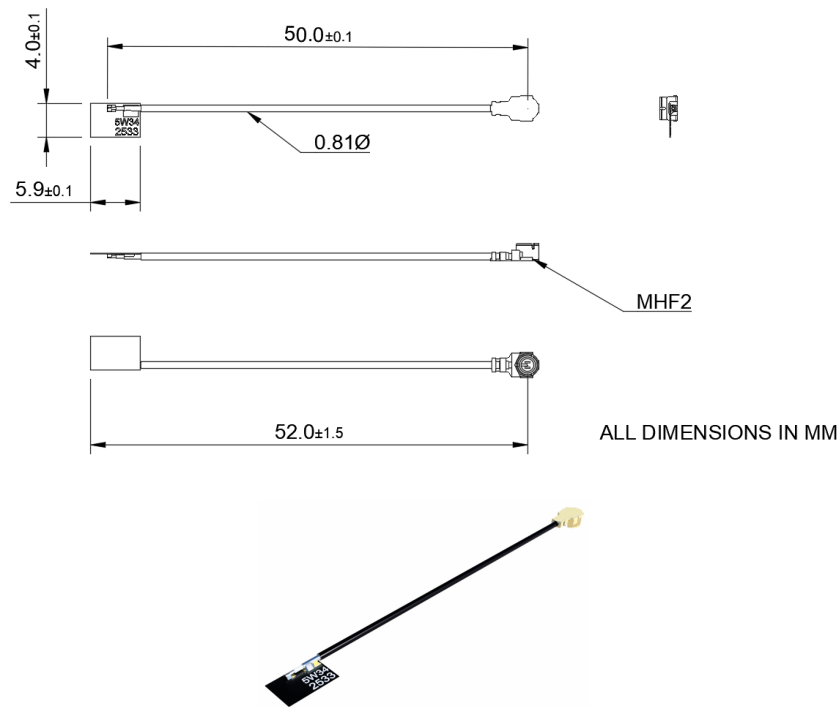
XZ plane



YZ plane



8 Mechanical Drawing



9 Packaging

- Antennas packed in PE bag (20 per bag). Small bag dimensions: 28.5 × 9.5 cm
- 100 pcs per larger PE bag with product label. Bag dimensions: 30 × 19 cm

10 Compliance

ROHS

Compliant

Conforms to EU RoHS Directive 2011/65/EU as amended by Delegated Directive (EU) 2015/863.

REACH

Compliant

Conforms to EU REACH Regulation (EC) No 1907/2006.

CERTIFICATE

On request

A certificate of conformance is available upon request from sales@synzen.com.tw.

Synzen Precision Technology Ltd makes no warranties based on the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Synzen reserves all rights to this document and the information contained herein. Reproduction, use or disclosure to third parties without express permission is strictly prohibited.