

2G / NB-IOT SMD

CETI

2G / NB-IoT Cellular SMD Antenna

SZP-C-0C01

FREQUENCY

824 to 960, 1710 to 1990 MHz

PEAK GAIN

Up to 2.4 dBi

MOUNTING

SMD, PCB edge center

SIZE

25.0 × 10.0 × 3.3 mm

LOW BAND	824 to 960 MHz	Covers 2G, NB-IoT B5, B8
HIGH BAND	1710 to 1990 MHz	Covers 2G

Key Features

- For 2G and NB-IoT applications 824 to 1990 MHz
- Covers NB-IoT bands 5 and 8
- Resistant to detuning
- Ultra-compact design (only 25 mm long)
- Clean resonance with no unwanted out of band response
- SMD component supplied in tape and reel
- Ideal for smaller designs
- Simple design in process
- Patent pending design

1 Introduction

A highly compact yet high-performance solution for embedded design. Synzen have created the optimal solution for 2G/NB-IoT applications that simplify the design in process and allows you to focus on the product.

This antenna resonates best placed at the center of the longest PCB edge and produces a near omnidirectional pattern, unlike patch antennas, meaning the device orientation is less critical.

— Features

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— Applications

- | | |
|--------------------|--------------|
| ◆ Asset Tracking | ◆ Healthcare |
| ◆ M2M Industrial | ◆ Drones |
| ◆ Tablets | ◆ Telematics |
| ◆ Wearable Devices | ◆ OBD-II |
| ◆ Headsets | |

2 Mechanical Specifications

Part Number	SZP-C-0C01
Name	CETI
Dimensions (mm)	25.0 × 10.0 × 3.3
Required Clearance Area (mm)	25.0 × 12.0
Weight	<2 g
Antenna Type	Surface Mount Device

3 Electrical / RF Specifications

Frequency Range (MHz)	Average Efficiency	Peak Gain (dBi)	S11 (max) dB	VSWR (max)	Impedance
824 to 960	>50%	0.6	<-6	3.2:1	50 Ω
1710 to 1990	>50%	2.4	<-8	3.7:1	

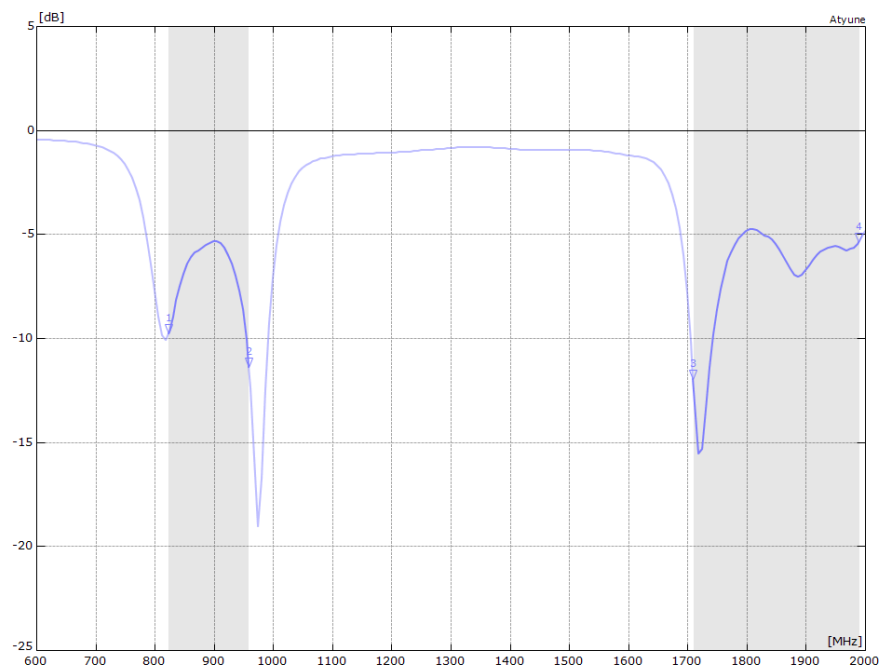
Polarization: Linear. The data shown was measured on Synzen EVK (SZDV-C-0C01).

4 Environmental

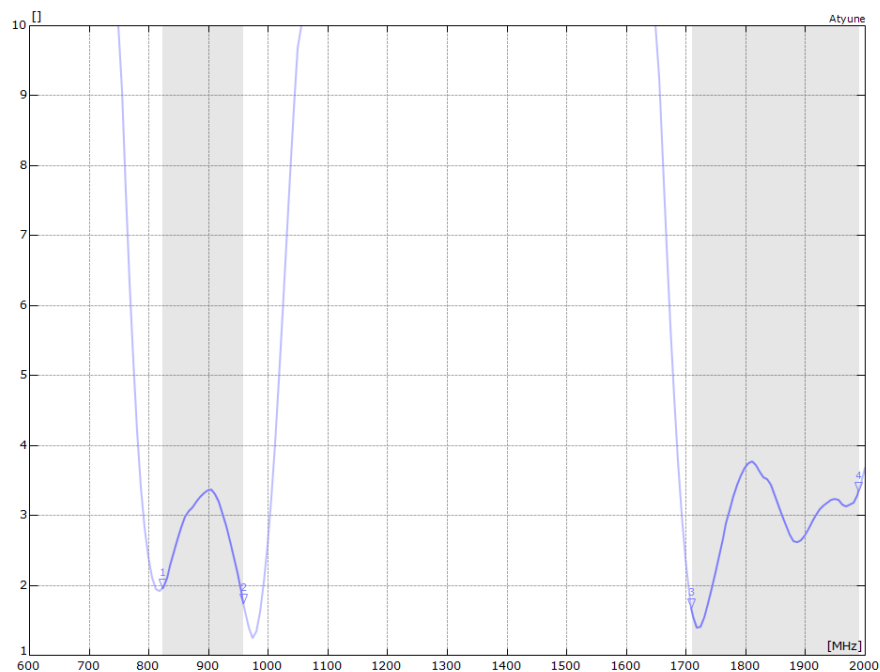
Operational Temperature	-40 to +125°C
Storage Temperature	-10 to +40°C
Relative Humidity	≤75%

5 RF Characteristics

S11 Parameter



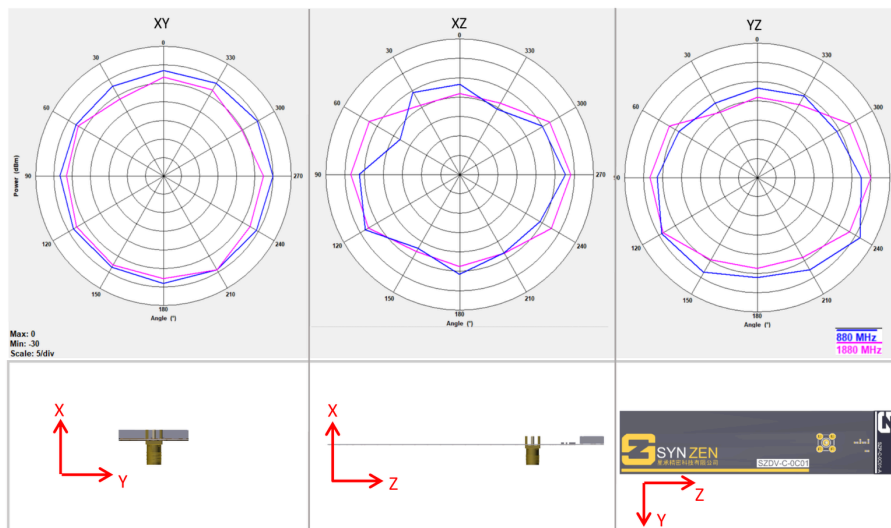
VSWR



6

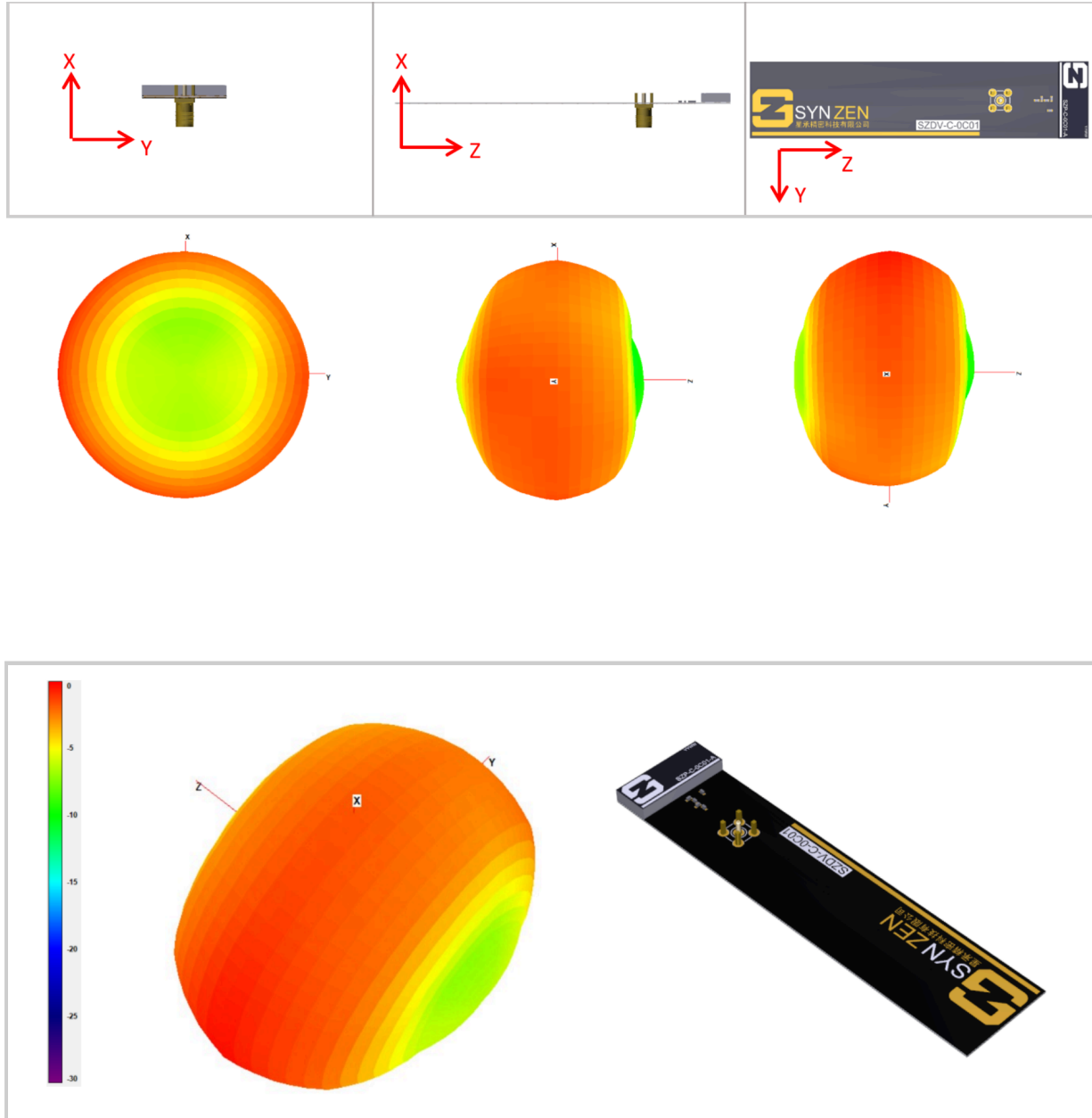
2D Polar Plot

MEASURED ON SYNZEN EVK (SZDV-C-0C01)



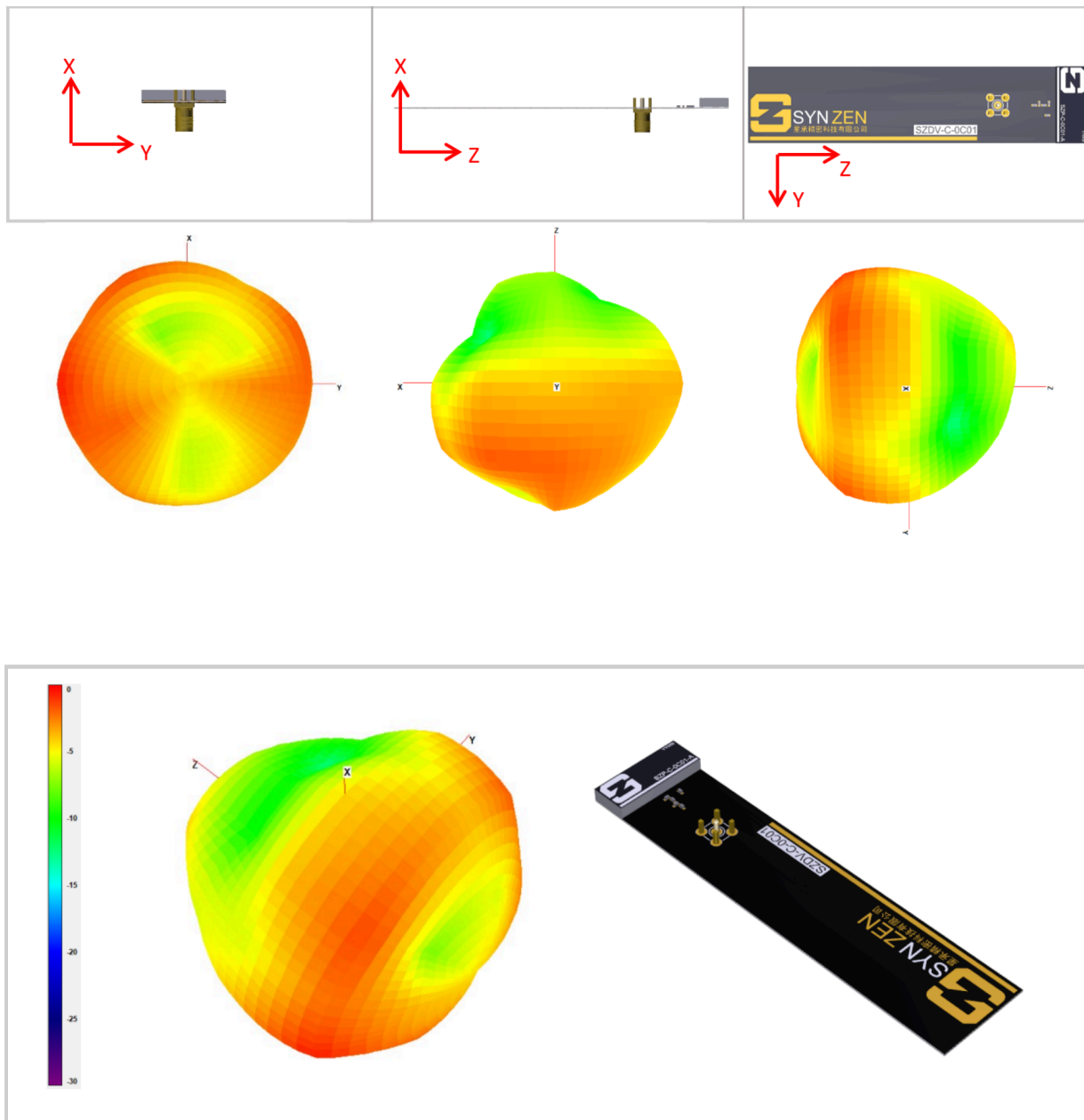
7 3D Radiation Pattern at 880 MHz

MEASURED ON SYNZEN EVK (SZDV-C-0C01), FREQUENCY POINT 880 MHZ

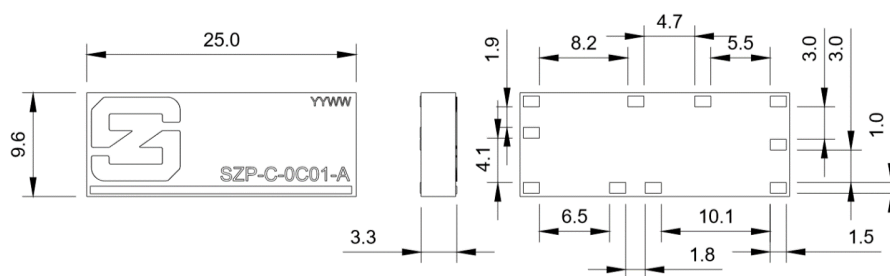


8 3D Radiation Pattern at 1880 MHz

MEASURED ON SYNZEN EVK (SZDV-C-0C01), FREQUENCY POINT 1880 MHz

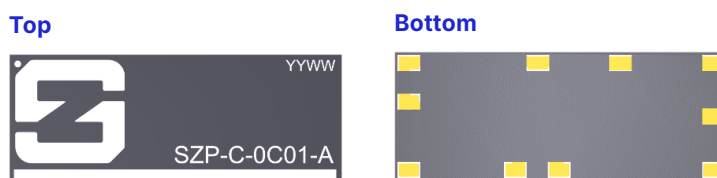


9 Antenna Mechanical Drawing

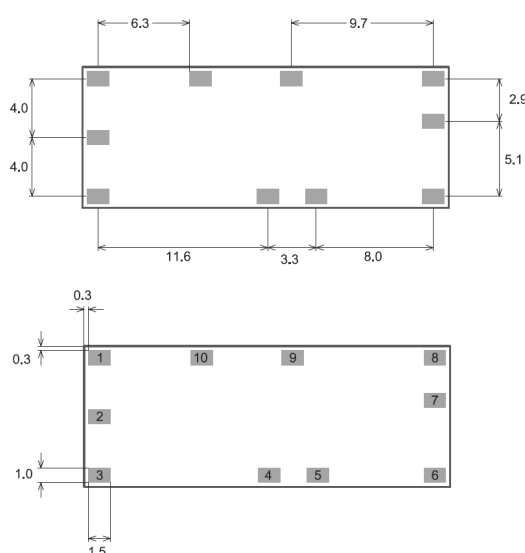


All dimensions in mm

10 Top and Bottom View



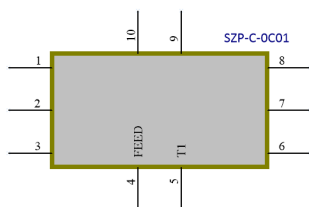
11 Required Host PCB Footprint



The host PCB requires the footprint shown above. PCB library files and DXF are available from our website www.synzen.com.tw/products.

12 SZP-C-0C01 Schematic Symbol

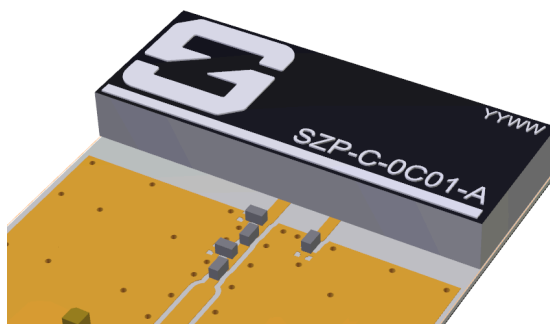
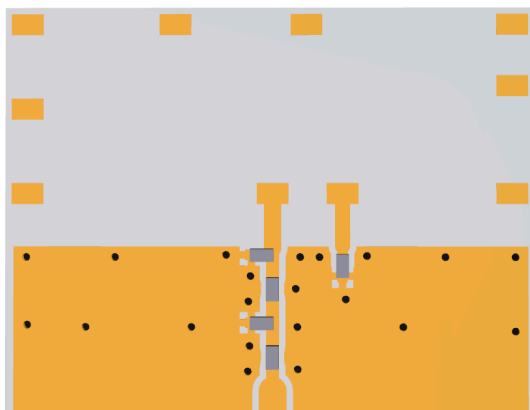
The schematic symbol for the antenna is shown below with a description of each pin.



Pin	Description
4	Feed to matching network
5	Tuning pin to GND
1, 2, 3, 6, 7, 8, 9, 10	Not connected

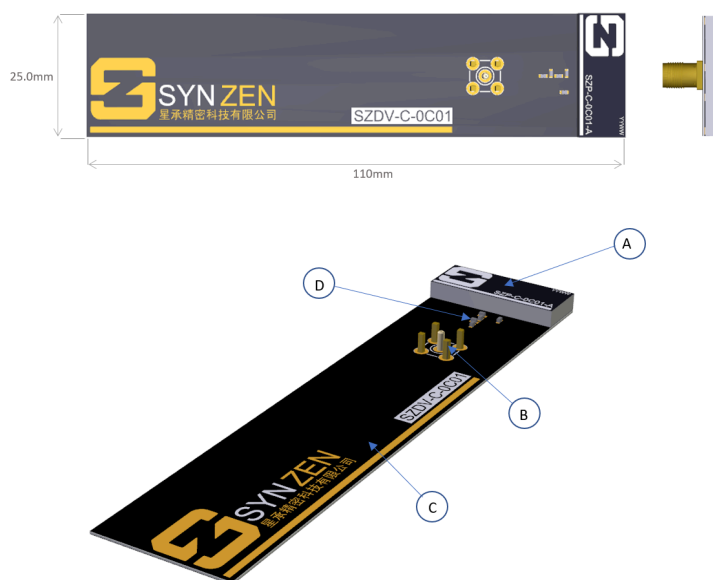
13 Clearance Requirement

The clearance required for the antenna is 25 × 12 mm in total, with a 2 mm gap between the host PCB ground plane and the antenna edge.



14 SZDV-C-0C01 Evaluation Kit

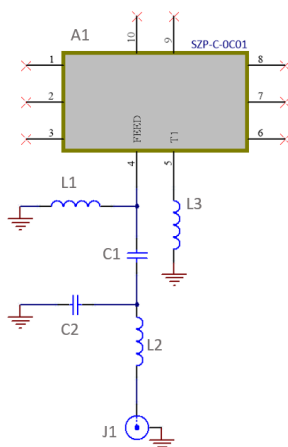
The SZDV-C-0C01 evaluation kit is a PCBA with the antenna (SZP-C-0C01) fitted and optimized with a matching network. Connection to the antenna is made using the fitted female SMA connector.



Item	Description
A	SZP-C-0C01 (Antenna)
B	Host PCB
C	SMA Connector
D	Matching Circuit

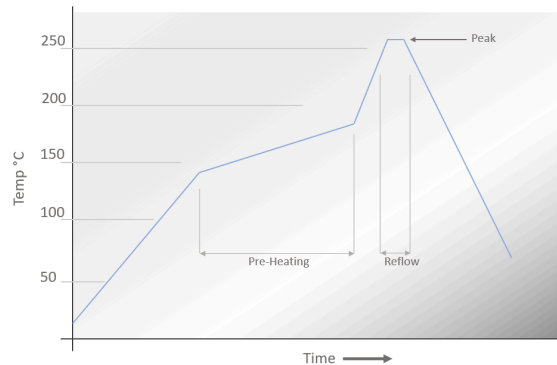
15 Evaluation Kit Matching Circuit

The circuit of the EVK along with the BOM is shown below. The matching network topology should be used on the device host PCB, although the matching values will be dependent on the host PCB and device environment. Synzen provide a matching service to optimize your device to ensure the best performance. Please contact sales@synzen.com.tw for more information.



Designator	Component Type	Value	Size	Manufacturing Part No.
A1	Antenna	CETI		SZP-C-0C01
C1	Capacitor	1.8 pF	0402	GJM1555C1H1R8BB01D
L1	Inductor	27 nH	0402	LQG15HS27NJ02D
L2	Resistor	0R	0402	Nonspecific part
L3	Inductor	1 nH	0402	LQG15HS1N0S02D
C2	Not Fitted		0402	Not Fitted
J1	SMA Connector			ACE solution A3SAFTST135

16 Reflow Profile



Stage	Temperature	Time
Pre-Heating	130 to 180°C	50 to 190 seconds
Reflow	>220°C	50 to 160 seconds
Peak Temperature	260°C	15 to 45 seconds

17 Halogen Free

This product is halogen free.

18 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.

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