



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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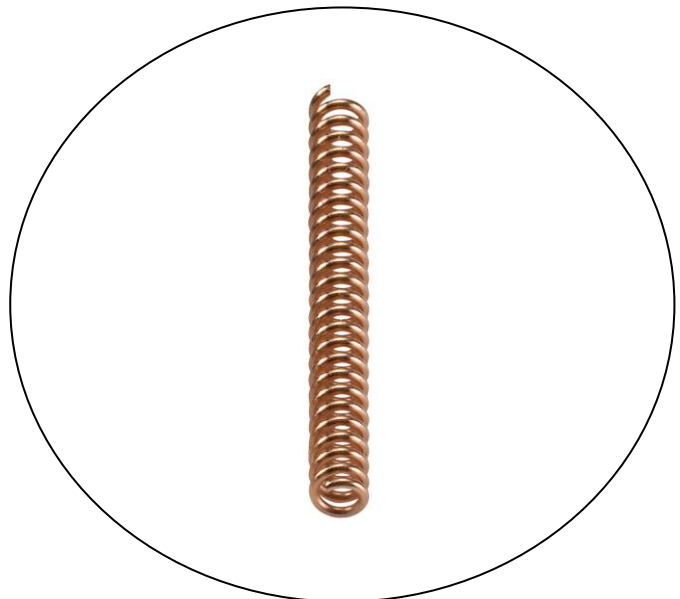
## SPECIFICATION

Part No. : **HA.10.A**

Product Name : 169MHz Helical Monopole Antenna

Features : Quarter wave-length Monopole type Helical Antenna  
Low profile  
Direct Mounted on Board Design  
Compact Size  
Length:25.5mm Ø2.8mm  
**RoHS Compliant**

Photo:



## 1. Introduction

The HA.10.A antenna is a 169MHz ISM band quarter wave-length monopole helical. Small and compact in dimensions , it is ideal for typical 169 MHz applications such as

- Wireless M-Bus metering
- Remote asset monitoring
- Alarms
- Paging systems
- Private mobile radio systems

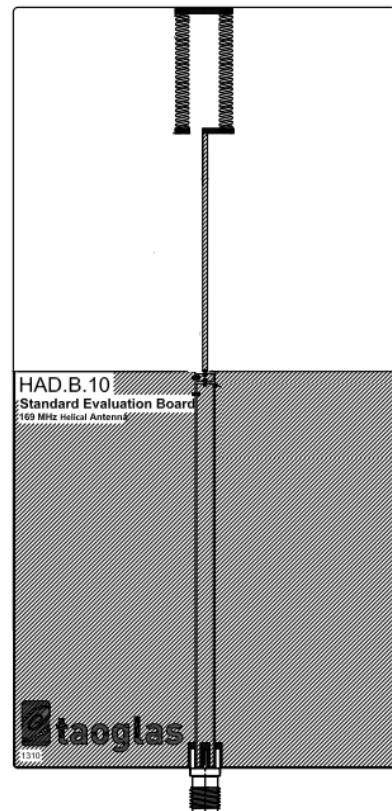
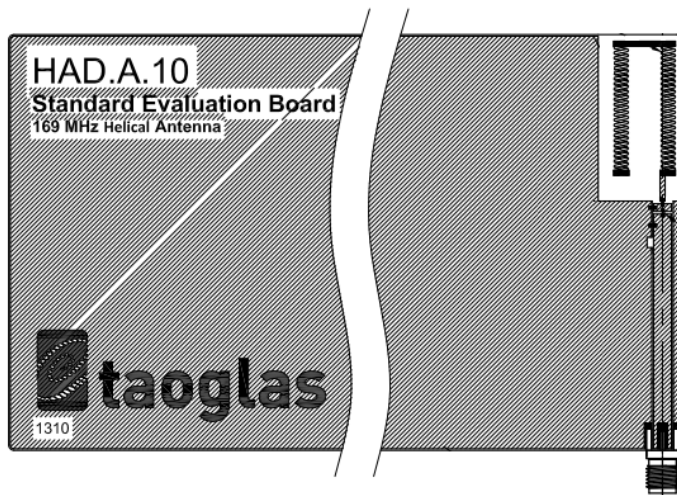
Taoglas offers a testing and tuning service for these antennas. Please contact your regional Taoglas office for support.

## 2. Specification

ELECTRICAL	
Frequency (MHz)	169
Return loss	<-10
Impedance ( $\Omega$ )	50
Polarization	Linear
Radiation Pattern	Omni
MECHANICAL	
Dimensions	Length:25.5mm $\varnothing$ 2.8mm
Weight	4g
ENVIRONMENTAL RATINGS	
Temperature Range	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH
RoHS Compliant	Yes

### 3. Antenna Characteristics

The antenna tuning depends on different antenna ground plane applications and the environment it is placed in. Taoglas provides HAD.A.10 and HAD.B.10 evaluation boards to show performance when two antennas are parallel mounted to the ground plane or when one antenna is orthogonally mounted to the ground-plane.



## 4. HAD.A.10 Antenna Characteristics

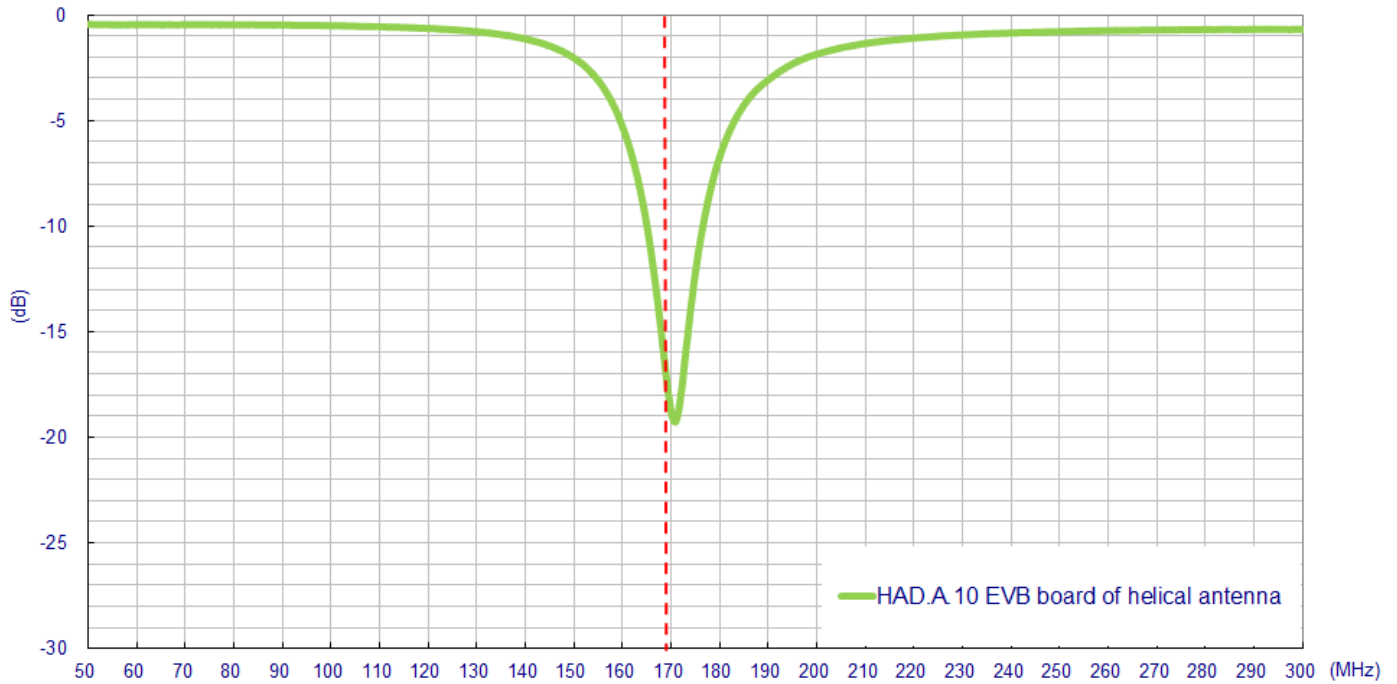


### 4.1 Testing setup

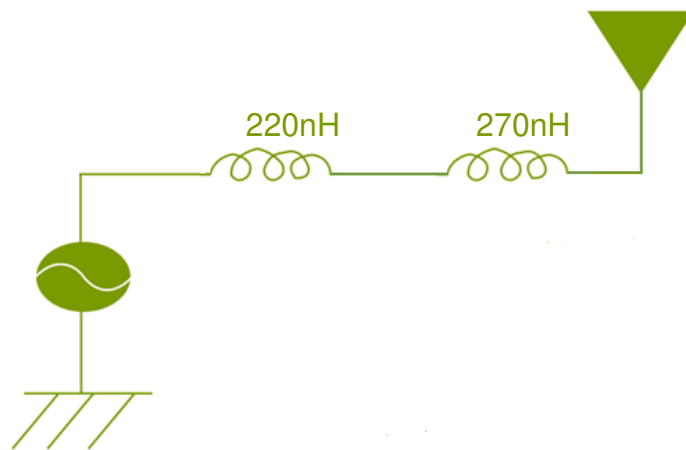


In Free Space

## 4.2 Return Loss



## 4.3 Antenna Matching Circuits



## 5. HAD.B.10 Antenna Characteristics



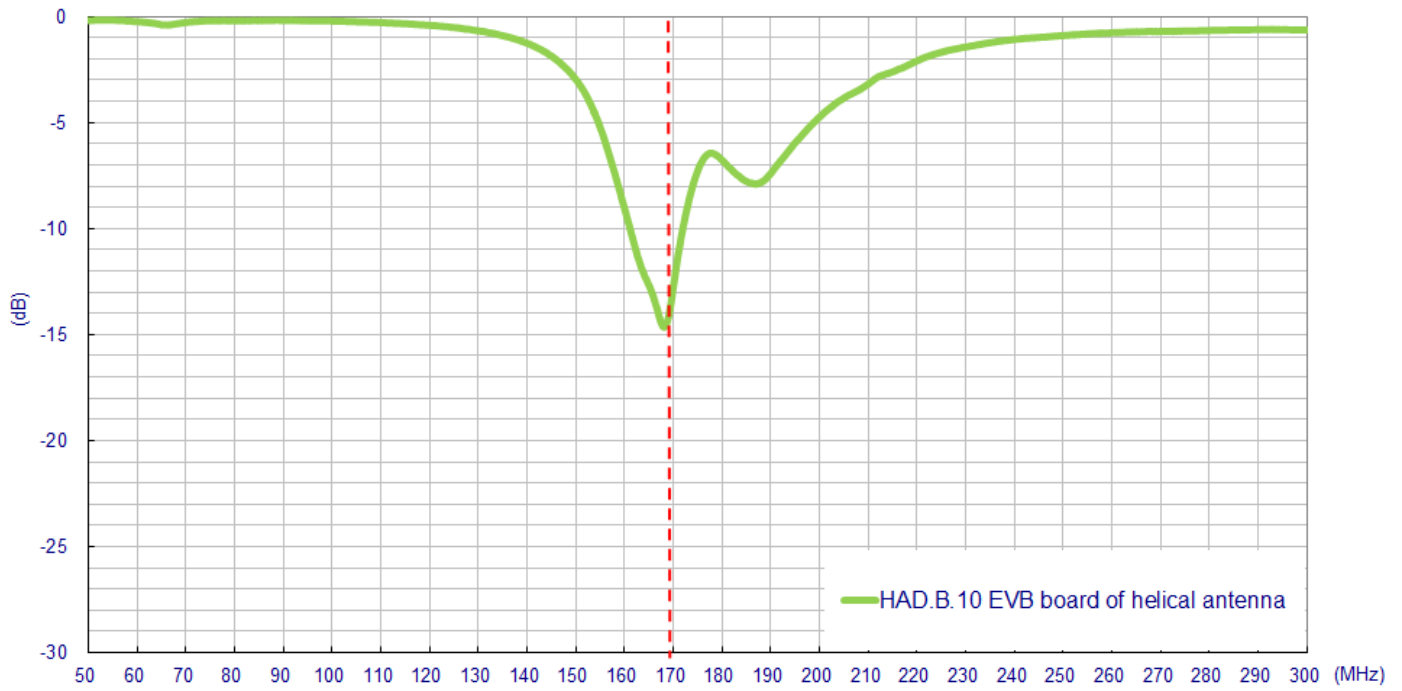
### 5.1 Testing setup



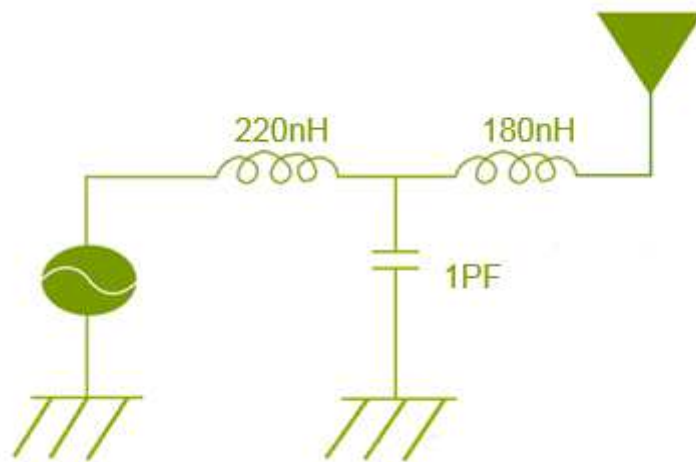
### In Free Space



### 5.2 Return Loss

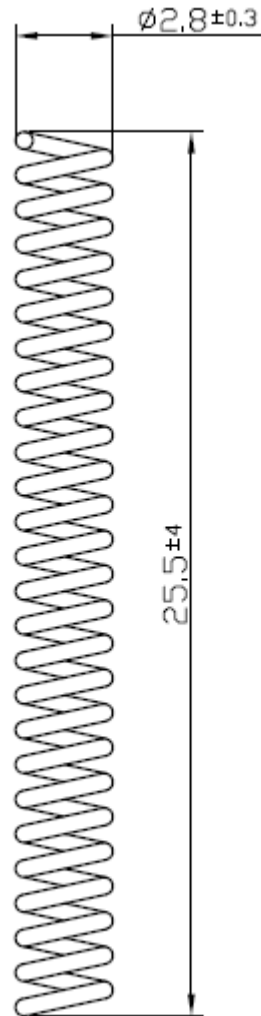


### 5.3 Antenna Matching Circuits

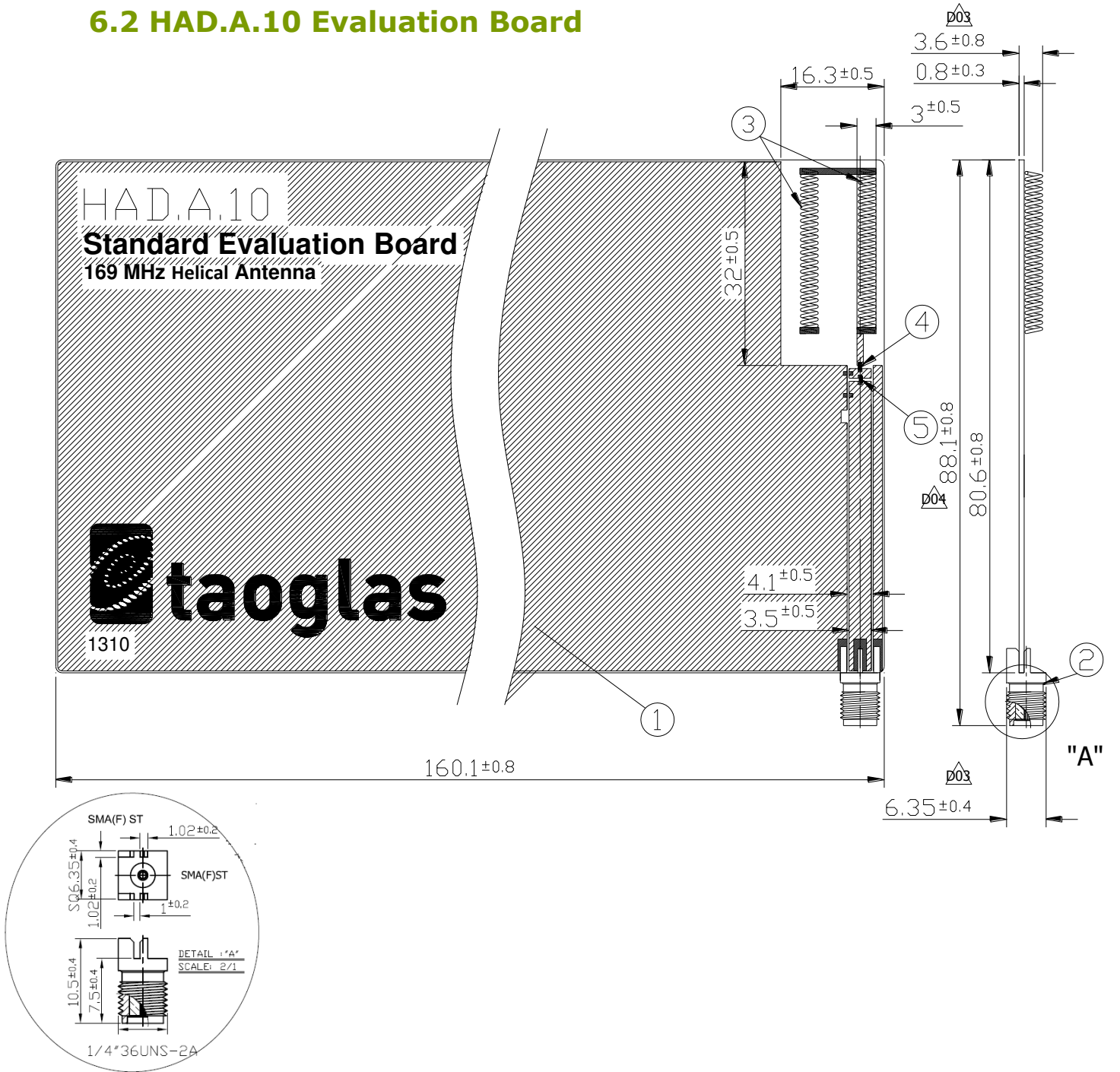


## 6. Mechanical Drawing




### 6.1 HA.10.A Antenna



## 6.2 HAD.A.10 Evaluation Board

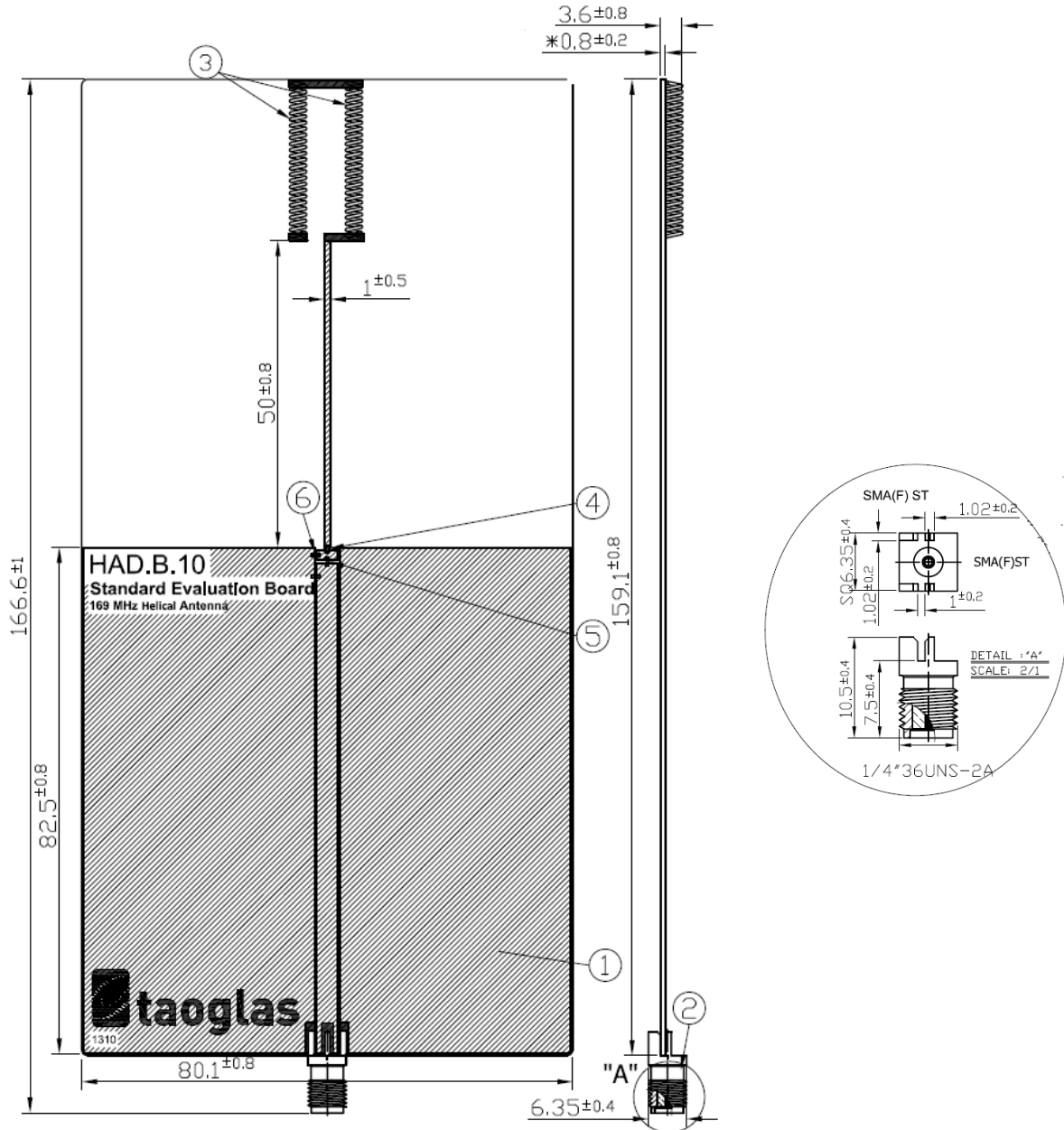


**Note:**





1. Week Batch Code  
Example: 2010 Week 1=01.10
2. Soldered area   $\varnothing 03$
3. Copper area 
4. Logo & Text Ink Printing : Black
5. Ground Clearance Area 
6. All Material Must Be RoHS Compliant.

	Name	P/N	Material	Finish	QTY
1	HAD.A.10 EVB PCB	100213K000011A	FR4 0.8t	Black	1
2	SMA(F) ST	200413H000002A	Brass	Gold	1
3	HA.10.A Antenna	000813G000058A	$\varnothing 02$ Phosphor bronze $\varnothing 03$	N/A	2
4	Inductor (L=270nH)0402	001513J000055A	$\varnothing 05$ Ceramic	N/A	1
5	Inductor (L=220nH) 0402	001513G030055A	$\varnothing 05$ Ceramic	N/A	1

### 6.3 HAD.B.10 Evaluation Board

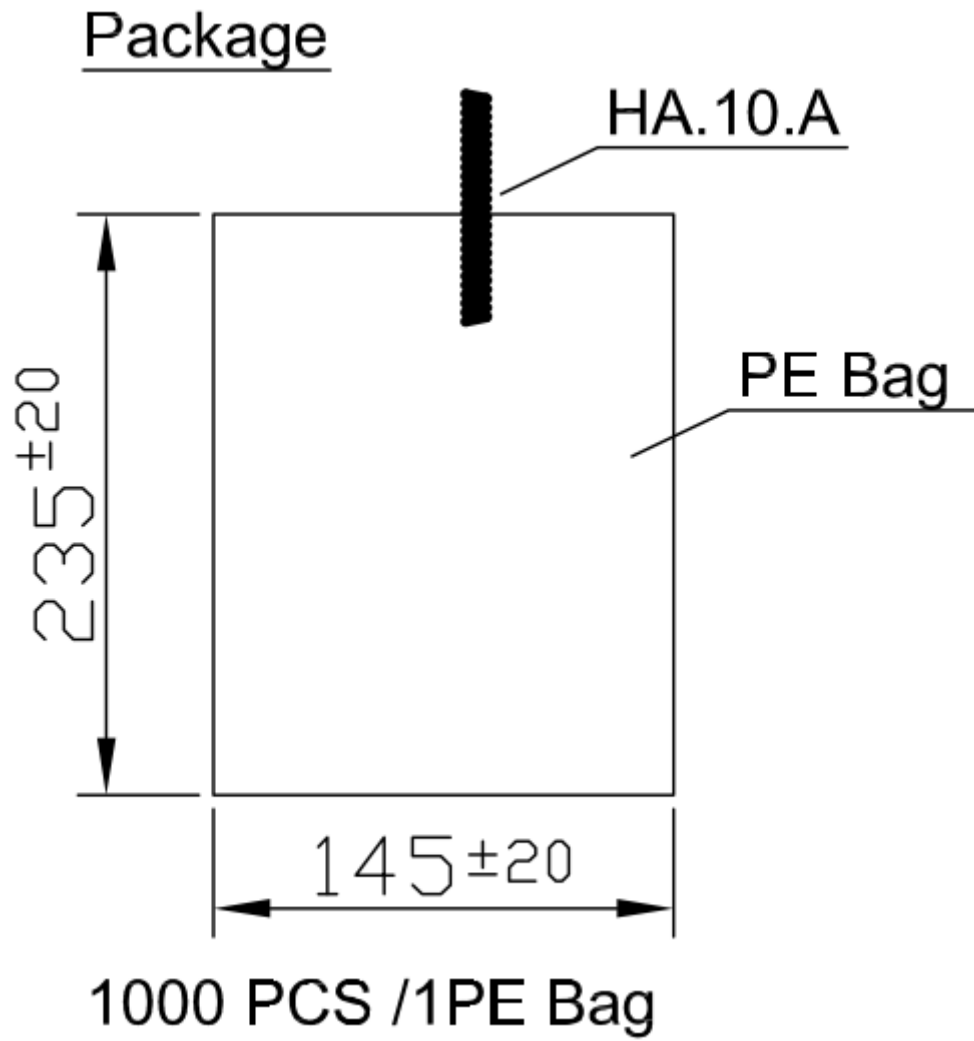


	Name	P/N	Material	Finish	QTY
1	HAD.B.10 EVB PCB	100213K010011A	FR4 0.8t	Black	1
2	SMA(F) ST	200413H000002A	Brass	Gold	1
3	HA.10.A Antenna	001513E020012A	Phosphor bronze	N/A	2
4	Inductor (L=180nH) 0402	001513E010012A	Ceramic	N/A	1
5	Inductor (L=220nH) 0402	001513G030055A	Ceramic	N/A	1
6	Capacitor (C=1pF) 0402	001513G010055A	Ceramic	N/A	1

Note:  
 1. Week Batch Code  
 Example: 2010 Week 1=01.10  
 2. Soldered area    
 3. Copper area   
 4. Logo & Text Ink Printing : Black  
 5. Ground Clearance Area   
 6. All Material Must Be RoHS Compliant.

## 7. PACKAGING

### 7.1 HA.10.A Antenna

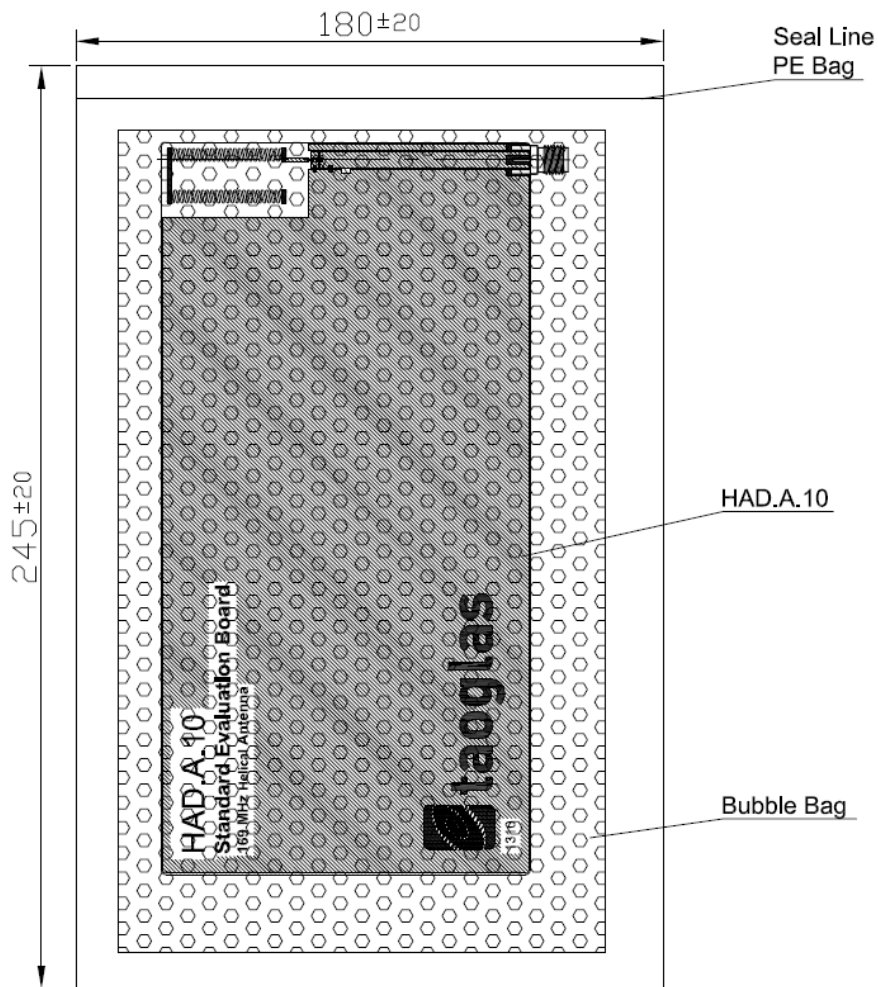


## 7.2 HAD.A.10 Evaluation Board

Weight: 50g

Package

1 PCS 1 PE Bag  
With 1 Bubble Bag



### 7.3 HAD.B.10 Evaluation Board

Weight: 50g

Package

1 PCS 1 PE Bag  
With 1 Bubble Bag

