

# APPROVAL SHEET

## (RoHS)

CUSTOMER : 啟基  
CUSTOMER'S PART NO. :  
DESCRIPTION : RF ANTENNA ASSEMBLY  
PART NO. : BTEAWT213025GC4A10  
MT PID :  
DATE :  
AUTHORIZED BY : *Cheng Lin*

	FULLY APPROVED	PARTIALLY APPROVED	REJECTED
SIGN			
SUGGESTION			

美磊科技股份有限公司

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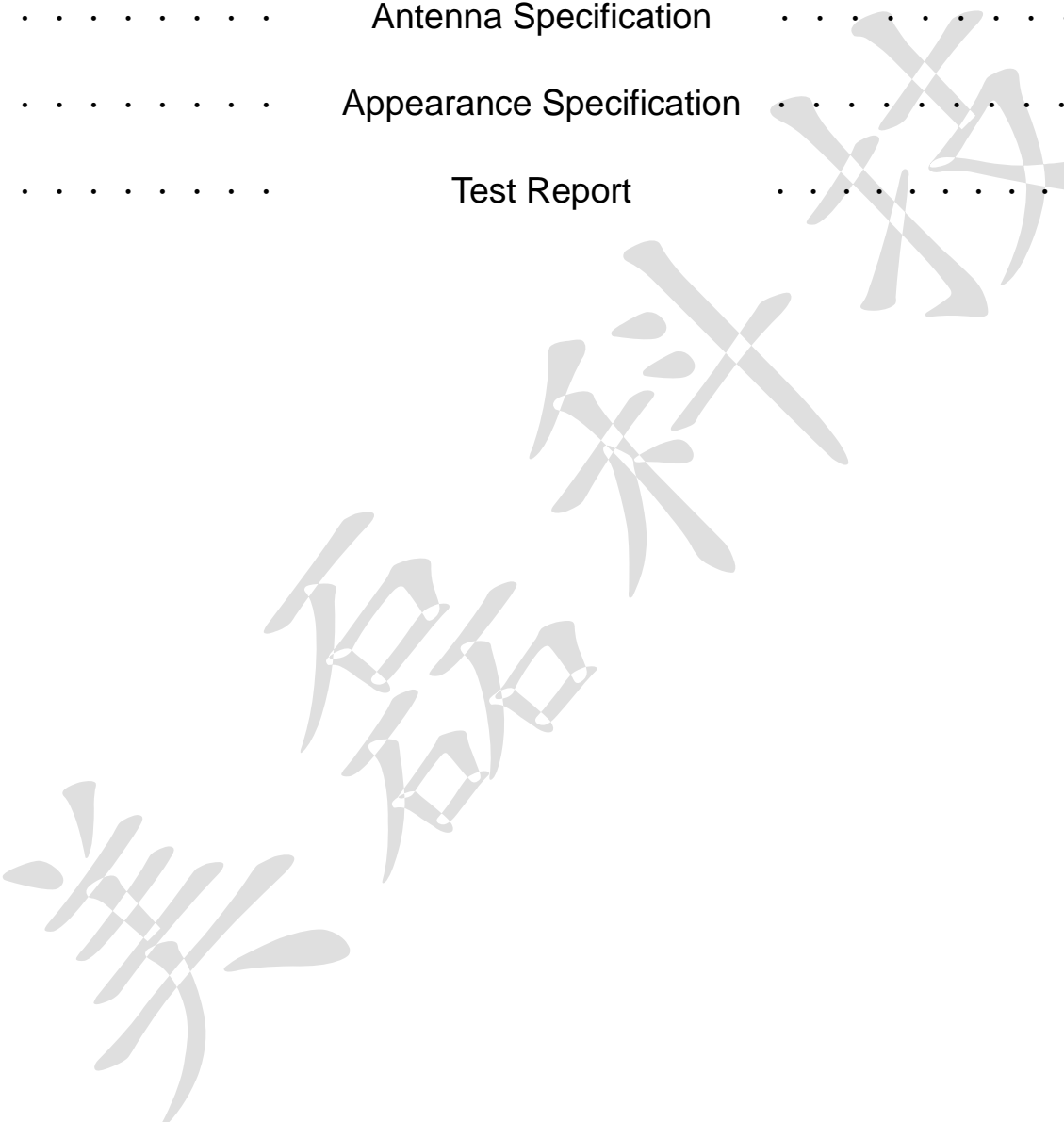
# Revisions

REV.	Description	Date	Prepared by	Approved by
V01	New Release	2022/12/30	<i>Sheng</i>	<i>Cheng</i>



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# Mechanical Specification

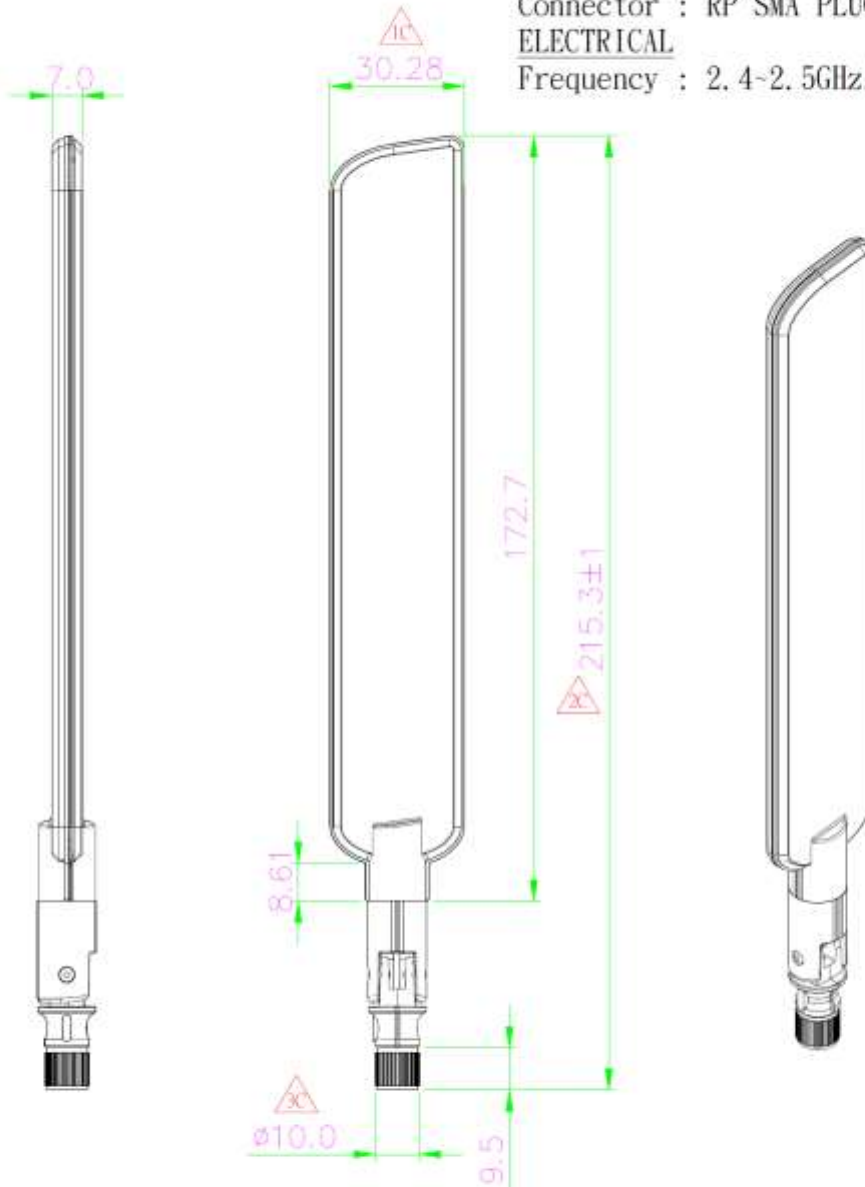
RoHS COMPLIANT

MECHANICAL

Antenna Cover : PC110U  
 Antenna Upper Fixed Base : ABS  
 Antenna Bottom Fixed Base : PC110U  
 Color : Black  
 Coaxial Cable :  $\phi 1.37$  (Green)  
 Connector : RP SMA PLUG(公頭母針)

ELECTRICAL

Frequency : 2.4~2.5GHz/



△	New Release	02/15/22	Sheng
LTR	DESCRIPTION	DATE	REQ. BY

※凡標記△記號者, 為品管檢驗之尺寸

設計 DR.	核准 APP.
Sheng	Alvin
2022/02/15	2022/02/15
版本說明	REVISION NOTE

容許公差	TOLERANCE
.XXX	±0.20
.XX	±0.35
.X	±0.50
X	±1.00
ANG	±5

品名
ARTICLE
<b>BTEAWT213025GC4A10</b>

**MAGLAYERS**



單位 UNIT	比例 SCALE	張數 SHEET	版本 REV.
mm	****	1	A

# Antenna Specification

## **ELECTRICAL PROPERTIES**

- 1.1 Frequency Range ..... 2.4~2.5GHz
- 1.2 Impedance ..... 50 Ohm Nominal
- 1.3 Return Loss ..... 2.4~2.5GHz / -10dB (Max)
- 1.4 VSWR ..... 2.4~2.5GHz / 2(Max)
- 1.5 Radiation ..... Omni-directional
- 1.6 Peak Gain ..... 2.4~2.5GHz / 3.46dBi
- 1.7 Efficiency..... 2.4~2.5GHz / 63.41%
- 1.8 Polarization ..... Linear
- 1.9 Admitted Power ..... 1W

## **PHYSICAL PROPERTIES**

- 2.1 Antenna Cover..... PC110U (Black)
- 2.2 Antenna Upper Fixed Base..... ABS (Black)
- 2.3 Antenna Bottom Fixed Base..... PC110U (Black)
- 2.4 Coaxial Cable ..... Ø1.37 (Green)
- 2.5 Connector ..... RP SMA PLUG
- 2.6 Operating Temp..... -20°C ~ +65°C
- 2.7 Storage Temp..... -30°C ~ +75°C

# Appearance Specification

The product can be broken down into distinct classes of surfaces:

## Surface

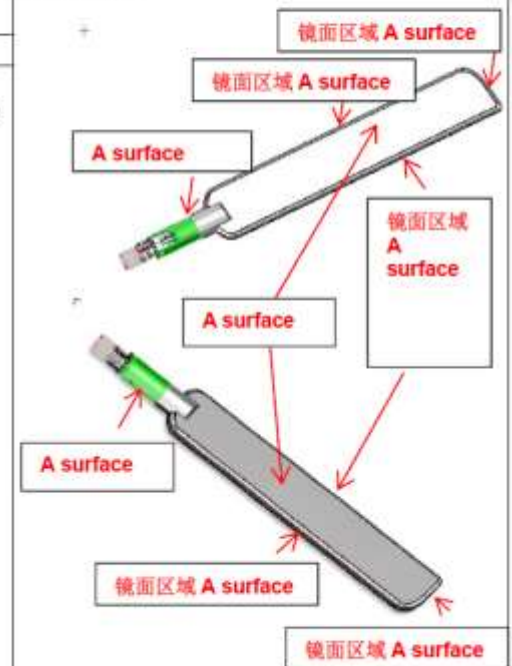
Surface of Class	Surface Areas
A	The all direction of the cover where people can see directly.
B	The all direction of the connector where people can see directly.

## A surface

Inspect Position : **A surface**

Critical Item	Specification	Remark
Extra Point with Same Color	Accept if $D < 0.4\text{mm}$ No closer than 25mm Allowable range $0.4\text{mm} < D < 0.5\text{mm}$ Allow 4 per $100\text{cm}^2$ No closer than 25mm Reject $> 0.5\text{mm}$	a) Limit sample provided by customer will be the standard. b) L: Length, W: width, DS: Distance, D: Diameter
Extra Point with Different Color	Accept if $D < 0.4\text{mm}$ No closer than 25mm Allowable range $0.4\text{mm} < D < 0.5\text{mm}$ Allow 4 per $100\text{cm}^2$ No closer than 25mm Reject $> 0.5\text{mm}$	
No-sensitive Scratch	Accept if $W < 0.05\text{mm}$ Cumulative length = 12mm Width is $> 0.05\text{mm}$ to $\leq 0.5\text{mm}$ Length $\leq 1.27\text{mm}$ Allow 4 per $100\text{cm}^2$ No closer than 25mm Reject $> 0.5\text{mm} * 1.27\text{mm}$	
Bump/Dent Point	Ignore defects: $D < 0.4\text{mm}$ , Accepted 2 defect: $0.4\text{mm} < D < 0.6\text{mm}$ , $DS \geq 30\text{mm}$	
Sensitive Scratch	Not accepted	
Shine/Painting Disproportionate	Not accepted	
Fingerprint/Dust	Not accepted	
Peer off/ Surface Roughening	Not accepted	
Sink/ Flow mark	Not accepted	
Burr	Not accepted	
Short shot/ Crack/ Deformation	Not accepted	
Label/Peel/Dust	Not accepted	
Dimension Measurement	1). All the dimensions must meet specifications. 2). The dimensions unable measure judge by assembly.	

Definition :



- (1) Illumination: Inspection is carried out with the natural light of 800 – 1200Lux. or the fluorescent light.
- (2) Inspection distance 30cm.
- (3) Viewing Times: 3~5 sec
- (4) Viewing Angle:  $\pm 45^\circ$




The product can be broken down into distinct classes of surfaces:

Surface

Surface of Class	Surface Areas
A	The all direction of the cover where people can see directly.
B	The all direction of the connector where people can see directly.

Color Measurement	The materials not paints: 目前不可有明显差异		
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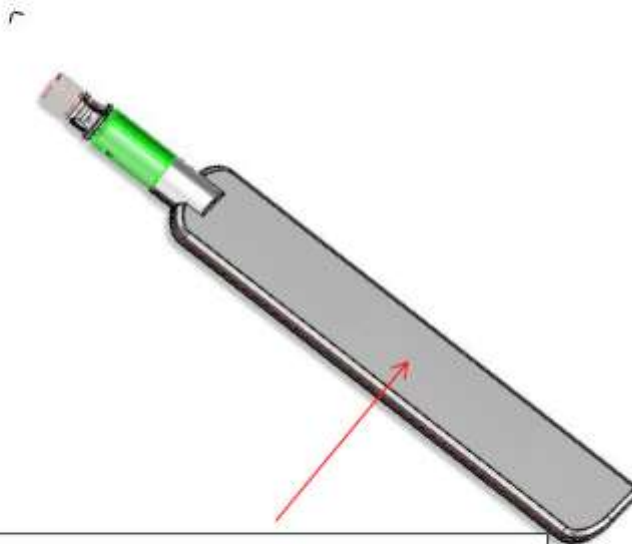
B surface

Inspect Position : <b>B surface</b>			Definition :
Critical Item	Specification	Remark	
Extra Point with Same Color	Accept if $D < 0.4\text{mm}$ No closer than 25mm Allowable range $0.4\text{mm} < D < 0.5\text{mm}$ Allow 4 per $100\text{cm}^2$ No closer than 25mm Reject $> 0.5\text{mm}$	a) Limit sample provided by customer will be the standard. b) L: Length, W: width, DS: Distance, D: Diameter	 <p><b>B surface</b></p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">             镜面下方区域 <b>B surface</b> </div> <p>(1) Illumination: Inspection is carried out with the natural light of 800 – 1200Lux, or the fluorescent light. (2) Inspection distance 30cm. (3) Viewing Times: 3~5 sec (4) Viewing Angle: <math>\pm 45^\circ</math></p>
Extra Point with Different Color	Accept if $D < 0.4\text{mm}$ No closer than 25mm Allowable range $0.4\text{mm} < D < 0.5\text{mm}$ Allow 4 per $100\text{cm}^2$ No closer than 25mm Reject $> 0.5\text{mm}$		
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Shine/Painting Disproportionate	Not accepted		
Fingerprint/Dust	Not accepted		
Peer off/ Surface Roughening	Not accepted		
Sink/ Flow mark	Not accepted		
Burr	Not accepted		

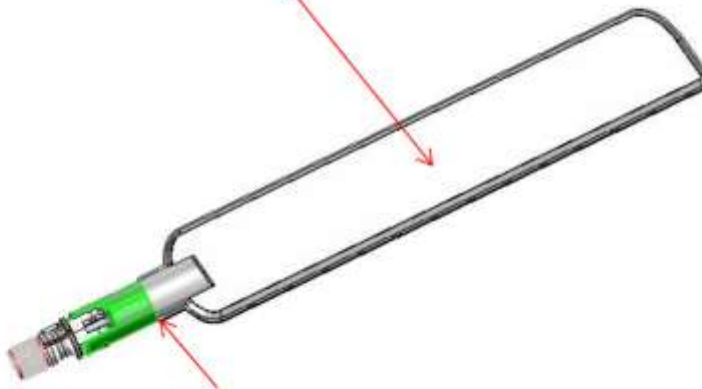
The product can be broken down into distinct classes of surfaces:

Surface

Surface of Class	Surface Areas
A	The all direction of the cover where people can see directly.
B	The all direction of the connector where people can see directly.



Case 与 case bottom 组装段差间隙 $\leq 0.3\text{mm}$  (不含美工缝  $0.3\text{mm}$ )



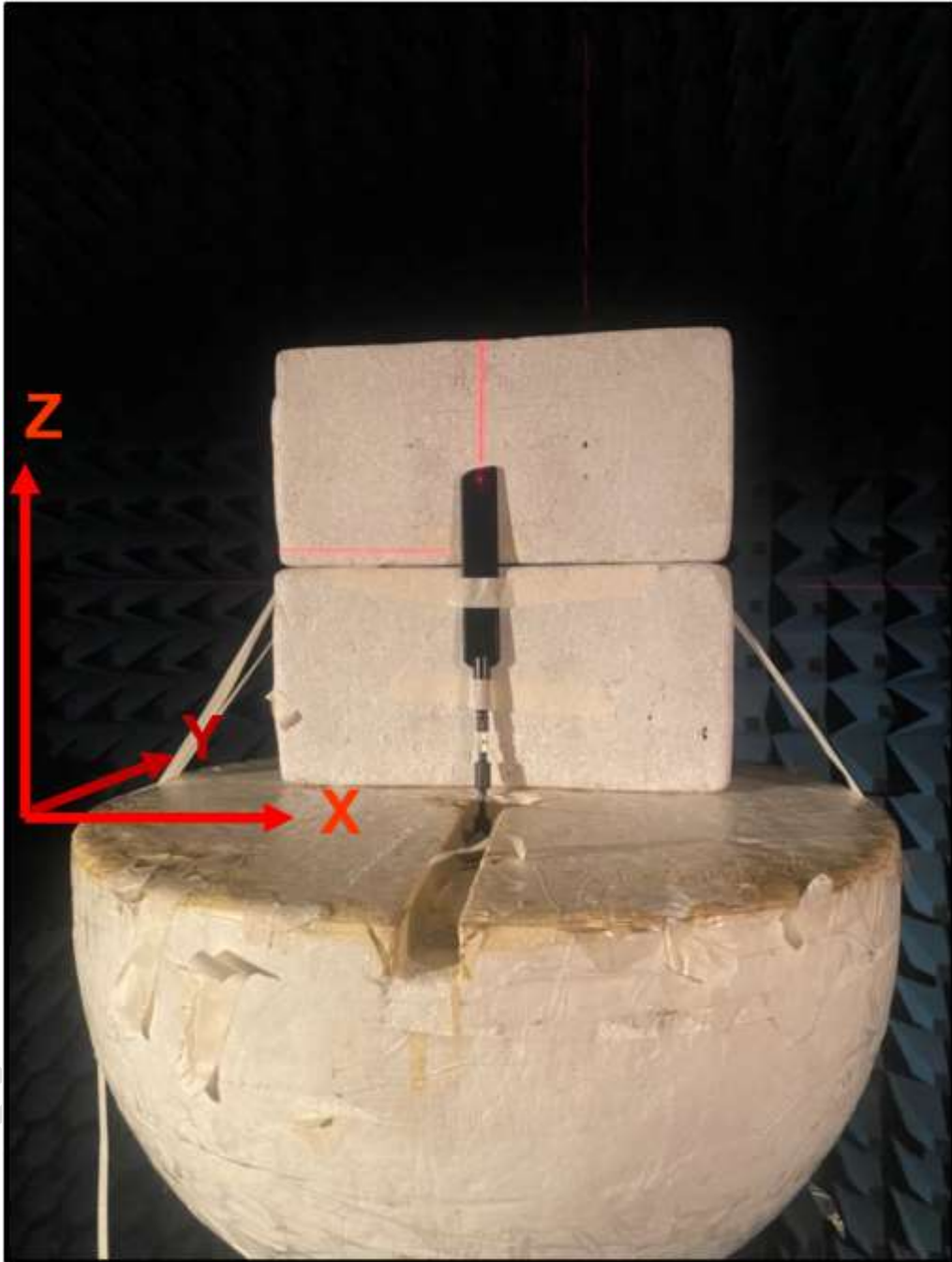
Case 和 case bottom 与 HGO\_ANTENNA\_SMA\_MOUNTING 组装段差间隙 $\leq 0.3\text{mm}$





# Test Report

## ■ EXPERIMENTAL SETUP

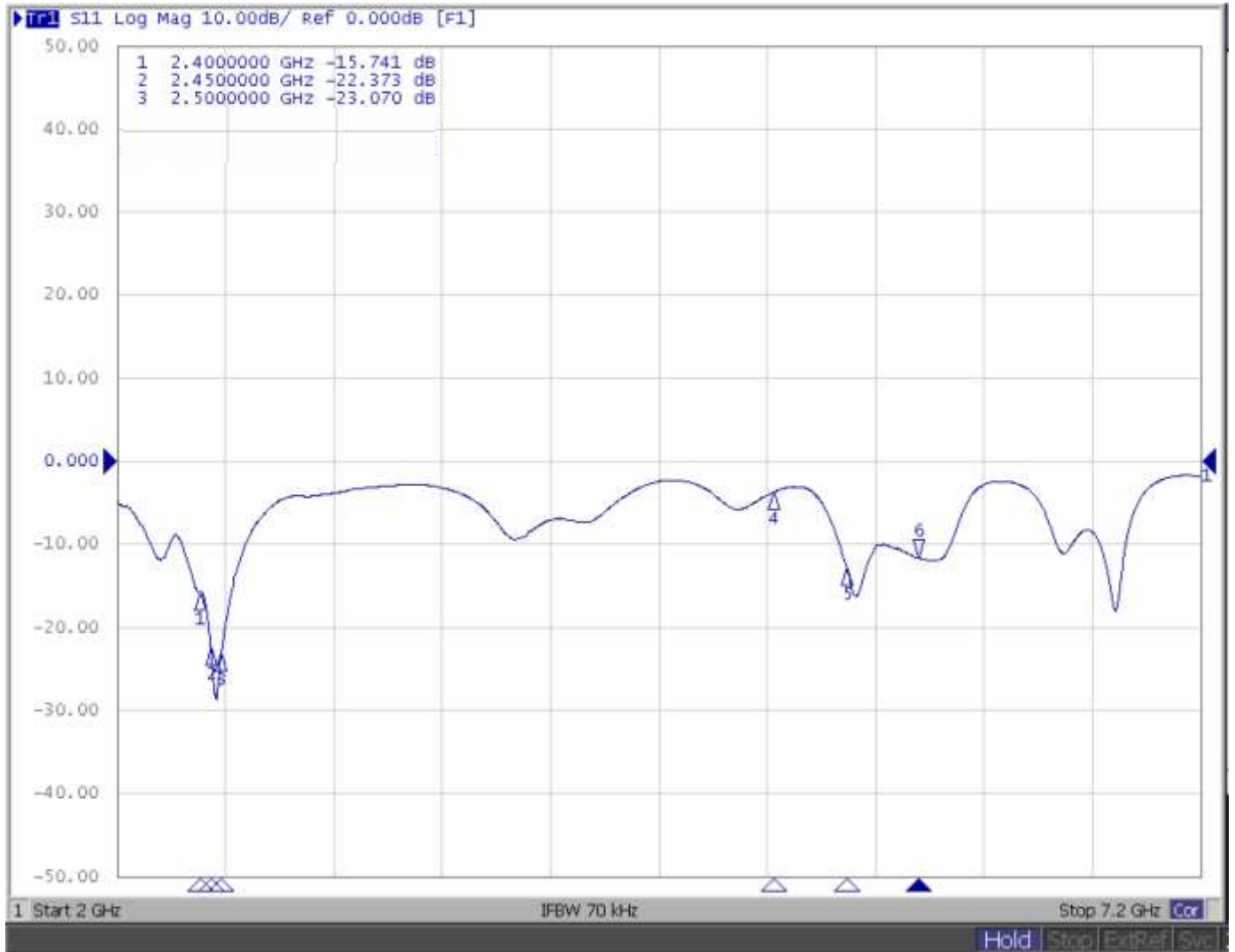


# ELECTRICAL CHARACTERISTICS

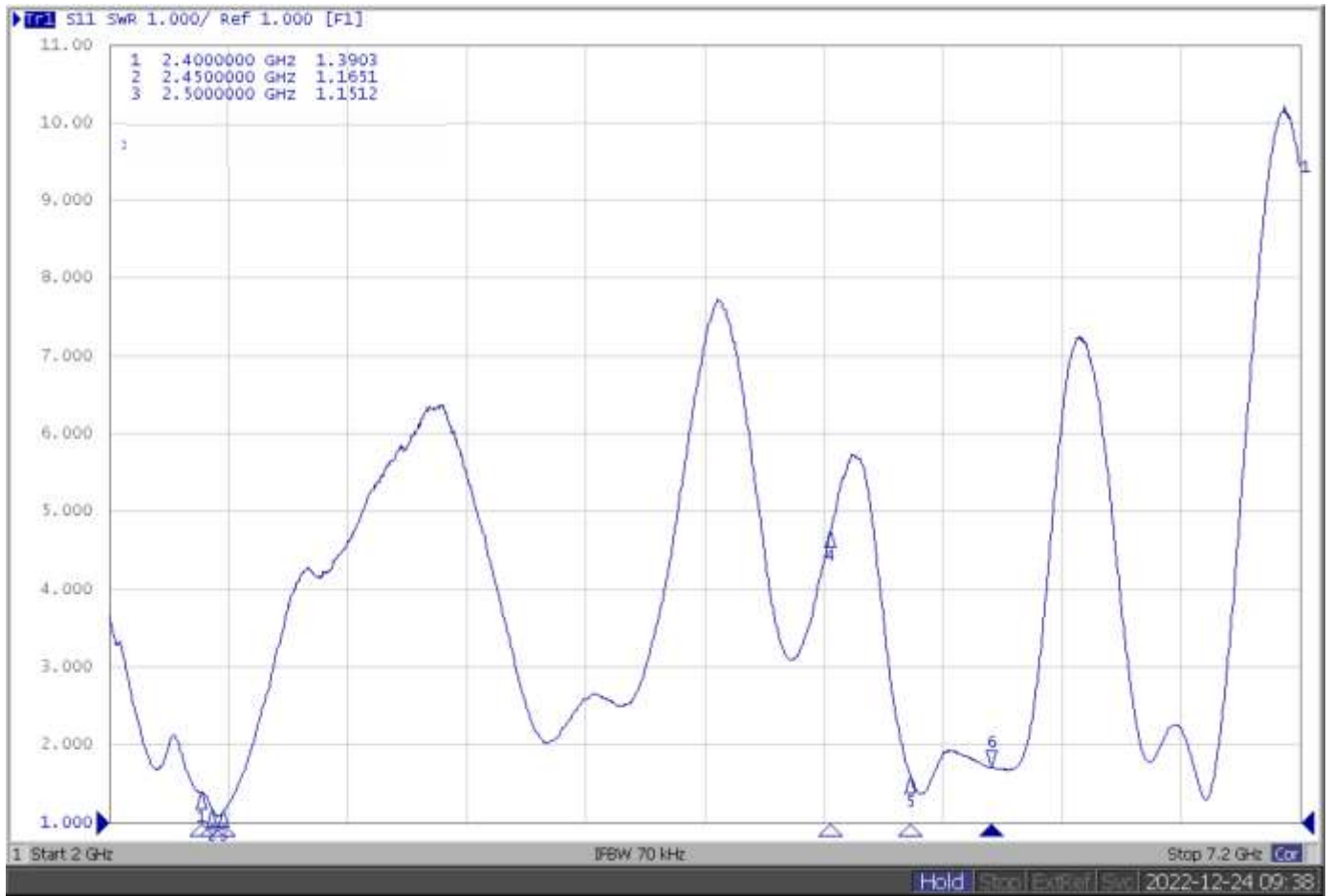
P/NO: BTEAWT213025GC4A10

Spec: 2.4~2.5GHz

Return Loss



# VSWR



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## 2D Gain Pattern\_2450MHz

Phi = 0

Phi = 90

Theta = 90

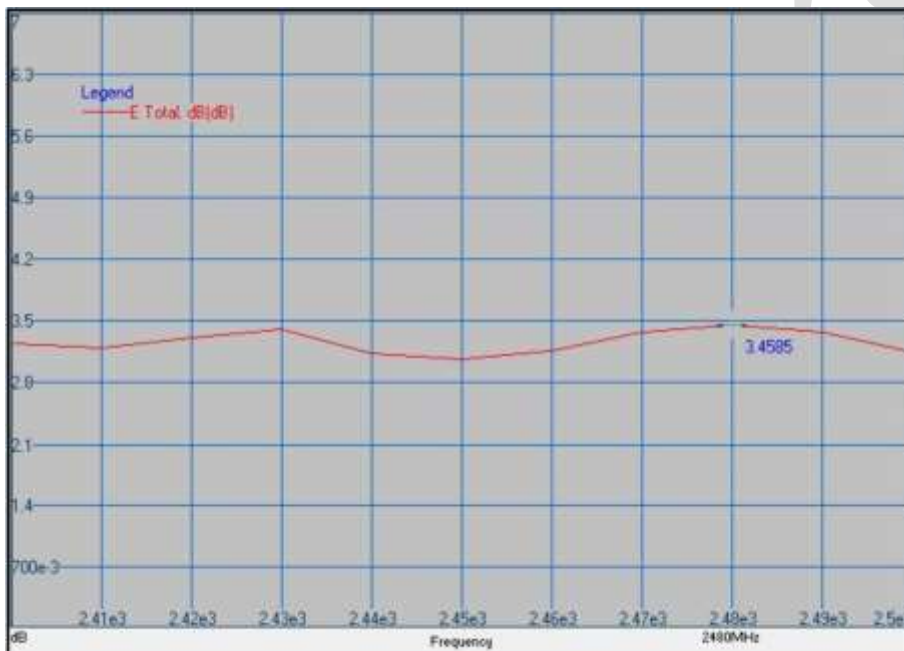


Layer	Max value	Min value	Average
2400MHz	2.46 dB	-23.17 dB	-4.02 dB
2450MHz	2.33 dB	-26.09 dB	-4.00 dB
2500MHz	2.27 dB	-25.86 dB	-4.12 dB

Layer	Max value	Min value	Average
2400MHz	3.24 dB	-32.39 dB	-3.39 dB
2450MHz	3.06 dB	-29.44 dB	-3.57 dB
2500MHz	3.15 dB	-31.84 dB	-3.37 dB

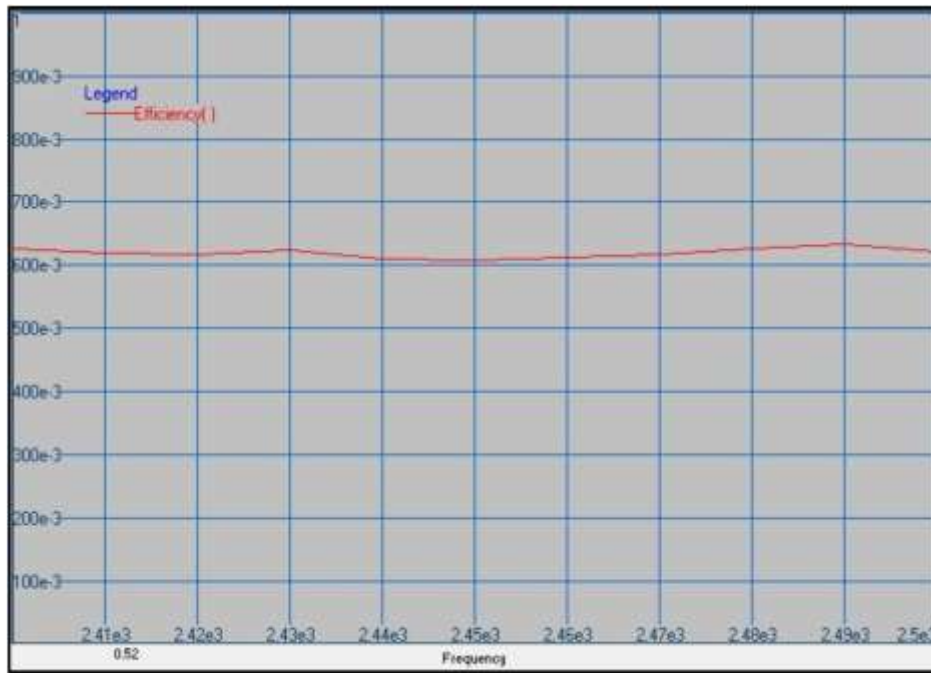
Layer	Max value	Min value	Average
2400MHz	3.13 dB	1.80 dB	2.50 dB
2450MHz	2.79 dB	1.63 dB	2.27 dB
2500MHz	2.79 dB	1.30 dB	2.29 dB

## 3D Peak Gain\_25G Antenna(2G)



Frequency	Peak Gain(dB)
2400MHz	3.25
2410MHz	3.19
2420MHz	3.32
2430MHz	3.41
2440MHz	3.13
2450MHz	3.06
2460MHz	3.17
2470MHz	3.39
2480MHz	3.46
2490MHz	3.39
2500MHz	3.15

## 3D Efficiency\_25G Antenna(2G)



Frequency	Efficiency
2400MHz	62.64%
2410MHz	61.98%
2420MHz	61.63%
2430MHz	62.40%
2440MHz	61.04%
2450MHz	60.83%
2460MHz	61.38%
2470MHz	61.80%
2480MHz	62.65%
2490MHz	63.41%
2500MHz	62.29%

