

# Smart Approach Co., Ltd.

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## Approval Sheet

Customer : 大眾電腦科技有限公司

Product Description : WiFi+BT Antenna

Smart Approach P/N : PE-240220 PE-AB0370

Customer P/N : 21-92711-01 21-92710-01



### 客戶確認簽章欄

核准	審核	主辦

### 供應商確認簽章欄

核准	審核	主辦

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# 1. Introduction

## 1.1 Antennas for BT and WiFi system antenna (PIFA type)

### Electrical Specification ↕

Frequency range	2400 MHz ~2500 MHz ↕
Efficiency	>40% ↕
Peak gain	<3.0dBi ↕
VSWR	2.5: 1 Max. ↕
Power handling	1W (cw) ↕
Impedance	50 Ohms ↕
Connector	I-PEX ↕
Cable	↕ ∅ 1.13 , 323 mm, Blue ↕ ↕ ∅ 1.13 , 613 mm, Black ↕ ↕ ∅ 1.13 , 438 mm, White ↕

### Environmental Specification ↕

Temperature	-10°C to +55°C
Composite	95% ∅ -10°C to +55°C ↕
Weight	1.0g ↕
Dimensions	31 x 27.5 x 4.5 mm ↕



**WiFi Main**



**WiFi Aux**



**BT**

**WiFi Main**



**WiFi AUX**

**BT**

## 2. Revision History

Date	Version	Revision History
10/30/2008	A01	New Release

## 3. Product Specifications

### 3.1 Specifications of Antenna Design

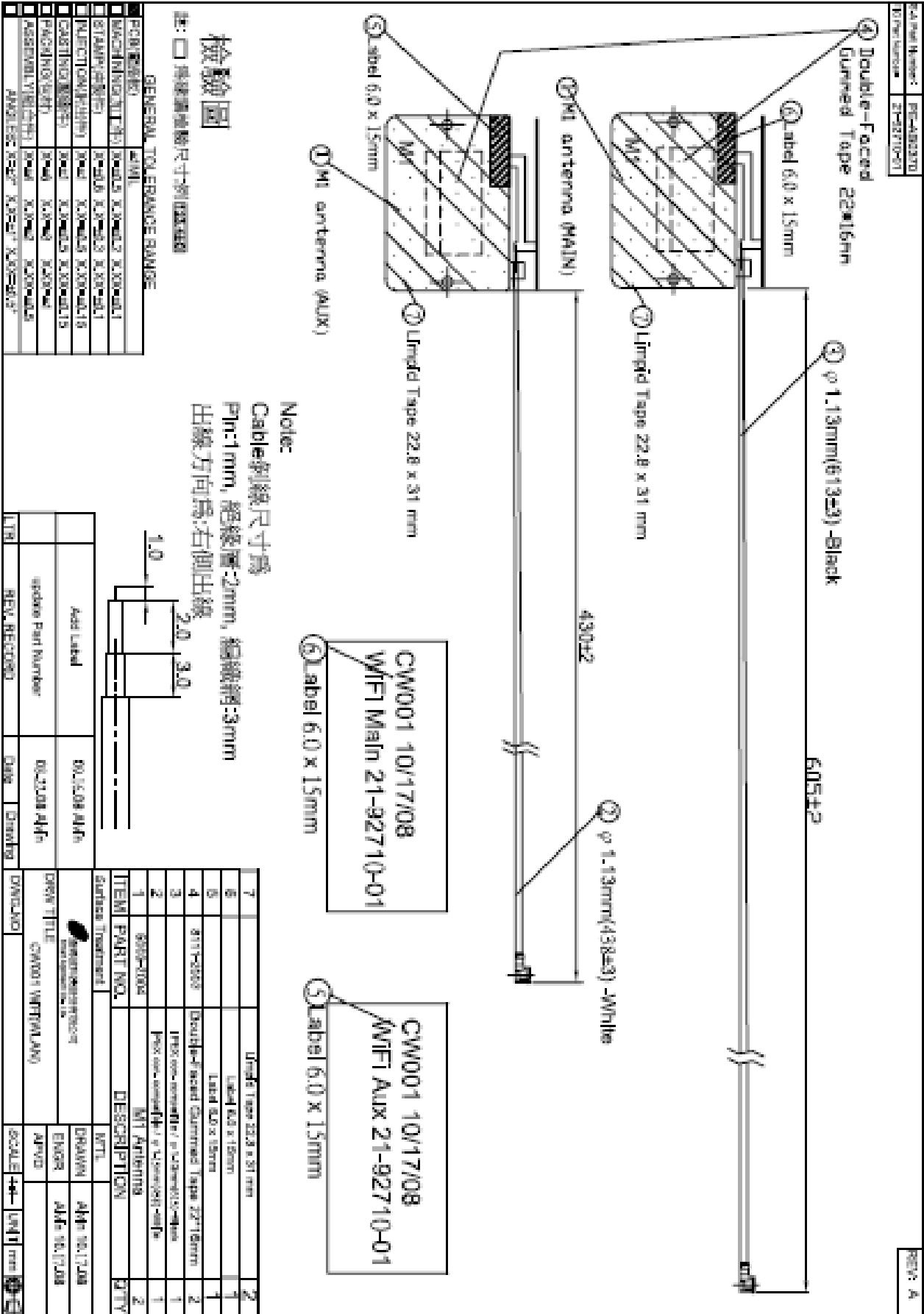
#### 3.1.1 VSWR

VSWR	2.4 GHz (2.400 GHz - 2.500 GHz)	
	2.40 GHz	2.50GHz
MAIN/AUX	<2.5	
VSWR	824MHz - 960MHz	
	2.40 GHz	2.50GHz
MAIN/AUX	<3.5	

#### 3.1.2 Average gain and peak gain

Antenna Gain		2.4 GHz (2.400 GHz - 2.500 GHz)			
		2.40 GHz	2.45 GHz	2.50GHz	
MAIN/AUX	Peak dBi	<3.0			
	Avg dBi	>-4.0			
Antenna Gain		824MHz - 960MHz		1.17 GHz - 2.17 GHz	
		824	960	1710	2170
MAIN/AUX	Peak dBi	<6.0			
	Avg dBi	>-4.0			

WiFi antenna ASSEMBLY





### 3.3 Antenna Material List

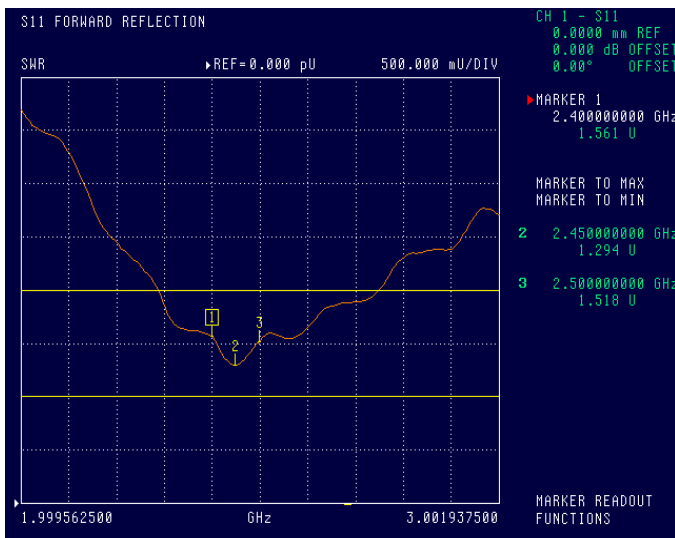
#### antenna

1. Tinplate antenna
2. Coaxial cable and IPEX connector
3. SPONG 15 x 4.5 x 6.9 mm(For 3.5G Main)
4. Double-Faced Tape 22x16mm  
(For WiFi Main ; WiFi Aux ; BT )
5. Weight: WiFi            4.2 g     ; BT     4.2 g

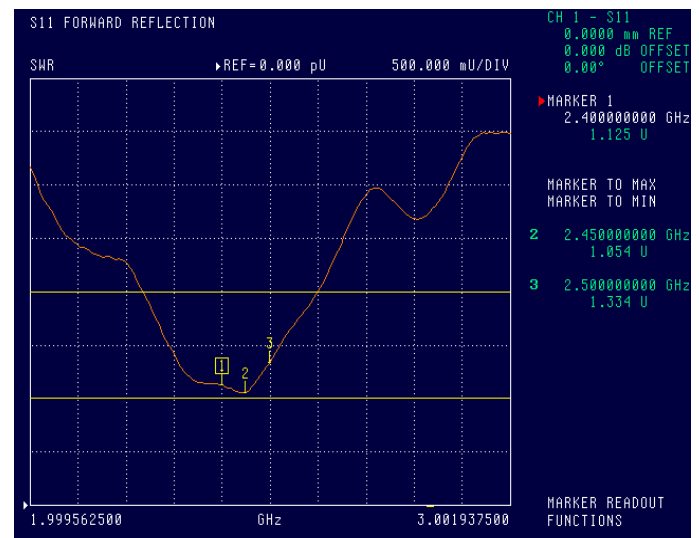
## 4 Antenna Performance

### 4.1 VSWR

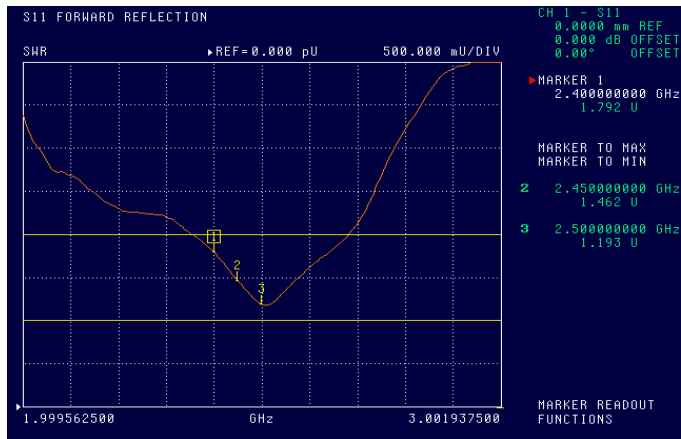
#### WiFi Main



#### WiFi Aux



### BT





## 4.2 Peak Gain and Average Gain

### 4.2-1 Peak Gain And Average Gain

#### WiFi Main (2400~2500MHz)

frequency(MHz)	Avg. Gain(dBi)	Peak Gain(dB)	Efficiency(%)
2400	-3.55	2.95	44
2450	-3.77	2.82	42
2500	-3.95	2.82	40

#### WiFi Aux (2400~2500MHz)

frequency(MHz)	Avg. Gain(dBi)	Peak Gain(dB)	Efficiency(%)
2400	-3.64	0.52	43
2450	-3.49	0.94	45
2500	-3.85	0.74	41

#### BT (2400~2500MHz)

frequency(MHz)	Avg. Gain(dBi)	Peak Gain(dB)	Efficiency(%)
2400	-3.91	2.90	41
2450	-3.46	2.88	45
2500	-3.50	2.62	45

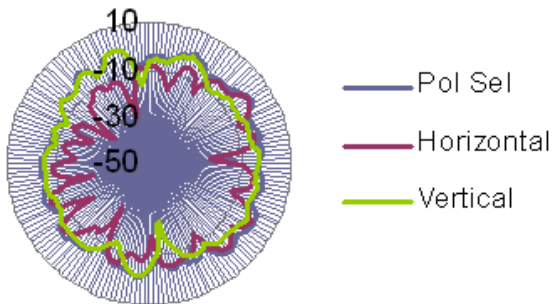
1805	-4.05	0.60	39
1840	-4.36	-0.50	37
1850	-4.22	-0.41	38
1880	-3.43	0.58	45
1910	-3.10	0.93	49
1920	-3.15	0.88	48
1930	-3.24	0.73	47
1950	-3.26	0.87	47
1960	-3.41	0.81	46
1980	-3.59	0.97	44
1990	-3.70	1.08	43
2110	-3.49	1.54	45
2140	-3.48	1.68	45
2170	-3.83	2.04	41

## 4.3 Antenna Pattern

### WiFi Main

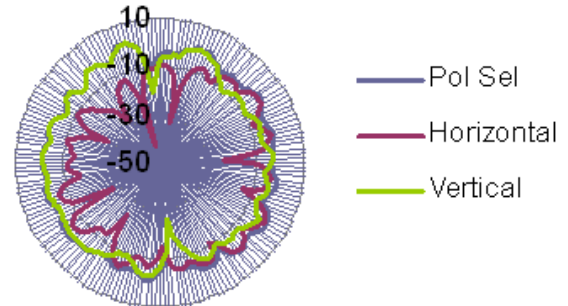
WiFi + BT WiFi Main (2400~2500MHz)

#### 2400MHz



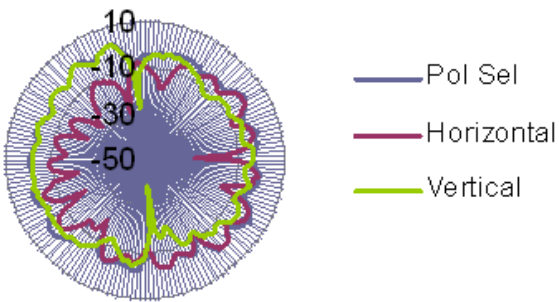
frequency	Horizontal	Vertical
2400	-0.18(dBi)	-0.30(dBi)

#### 2450MHz



frequency	Horizontal	Vertical
2450	-1.00(dBi)	1.17(dBi)

#### 2500MHz



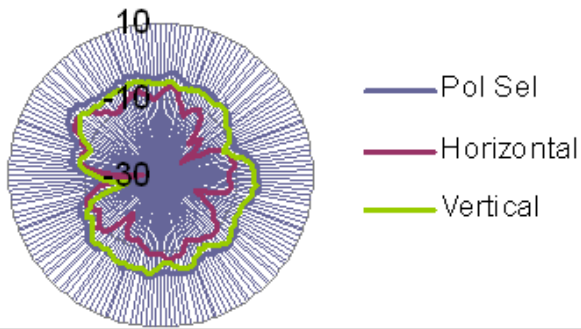
frequency	Horizontal	Vertical
2500	-0.01(dBi)	1.10(dBi)

## WiFi Aux

WiFi

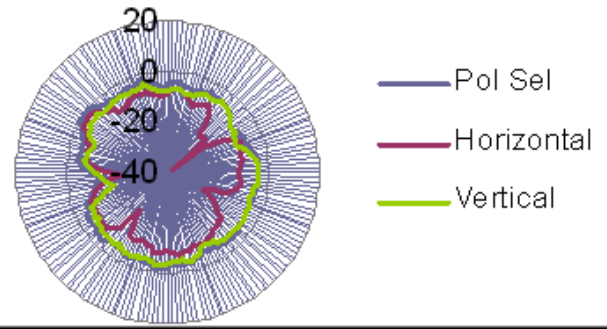
+ BT WiFi Aux (2400~2500MHz)

### 2400MHz



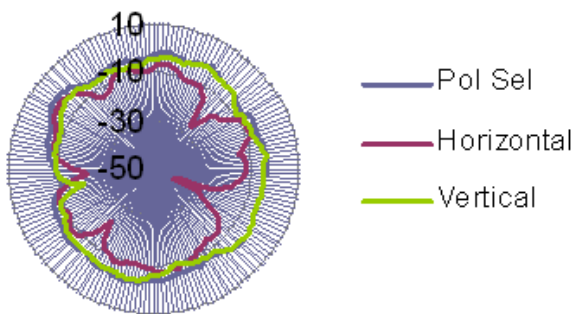
frequency	Horizontal	Vertical
2400	-4.19(dBi)	-3.58(dBi)

### 2450MHz



frequency	Horizontal	Vertical
2450	-2.02(dBi)	-1.78(dBi)

### 2500MHz

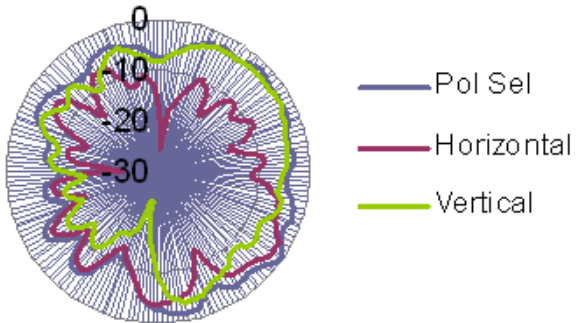


frequency	Horizontal	Vertical
2500	-3.11(dBi)	-2.96(dBi)

# BT

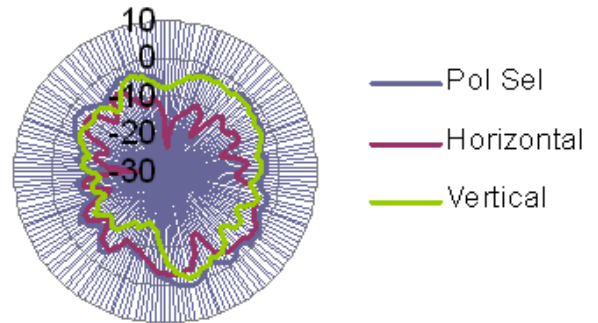
WiFi + BT BT (2400~2500MHz)

## 2400MHz



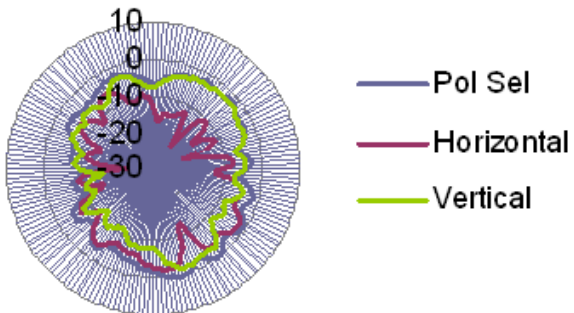
frequency	Horizontal	Vertical
2400	-2.29(dBi)	-2.04(dBi)

## 2450MHz



frequency	Horizontal	Vertical
2450	-1.87(dBi)	-1.46(dBi)

## 2500MHz



frequency	Horizontal	Vertical
2500	-2.06(dBi)	-1.57(dBi)