



# Inventek Systems

Embedding Connectivity Everywhere

## Inventek Systems

**Wi-Fi Dual Band Antennas  
2.4 & 5 Ghz**

**P/N: W2.4-5P-U**



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## 1 General Description

The [Inventek](#) 2400-2500 and 4900-5900 MHz Dual Band Wi-Fi PCB (40 x 6.0 mm) antennas let you integrate Wi-Fi functionality into your product quickly and easily. It's suitable for a wide range of applications and recommended for use with Inventek eS-Wi-Fi modules.

## 2 Part Number Detail Description

### 2.1 Ordering Information

Device	Description	Ordering Number
W2.4-5P-U	2400-2500 & 4900-5900 MHz Dual Band Wi-Fi PCB antenna with U.FI connector and 90 mm cable length	W2.4-5P-U

## 3 General Features

- Stable and reliable in performances
- PCB antenna has excellent sensitivity to consistently provide high signal reception efficiency
- Compact size
- RoHS compliance

## 4 Applications

- IEEE802.11 (b/g/n).
- Hand-held devices when WiFi (802.11 b/g/n) functions are needed.

## 5 Electrical Specifications

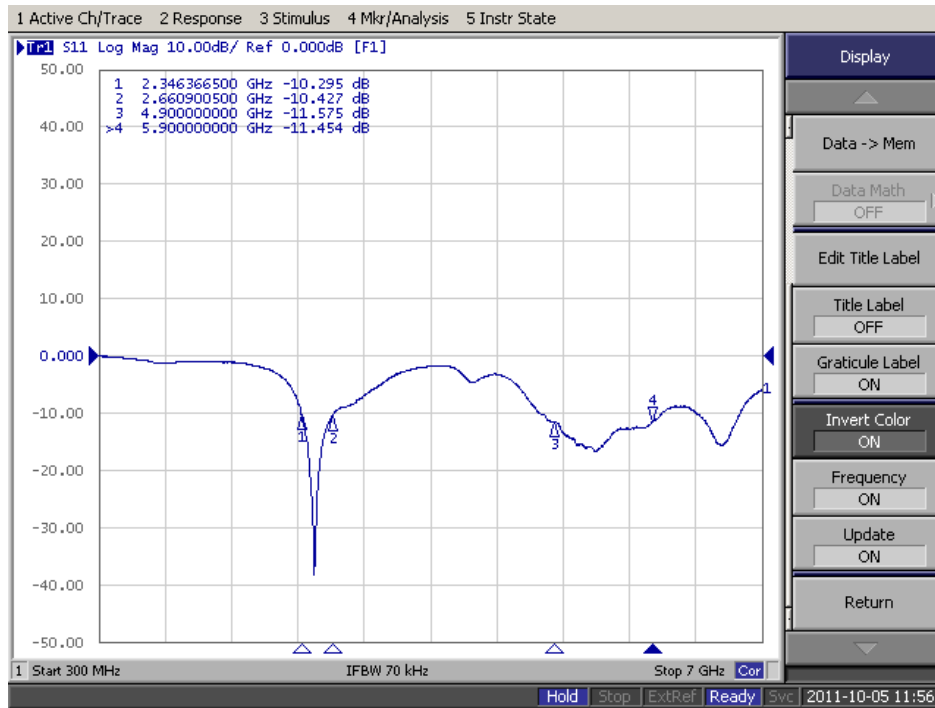
### 5.1 2400-2500 MHz Band

Characteristics		Specifications	Unit
Outline Dimensions		40 x 6.0 x 0.5	mm
Center Frequency		2442	MHz
Bandwidth		100 min.	MHz
VSWR		2 max.	
Impedance		50	$\Omega$
Polarization		Linear Polarization	
Gain	Peak	2.6 (typical)	dBi
	Efficiency	79 (typical)	%

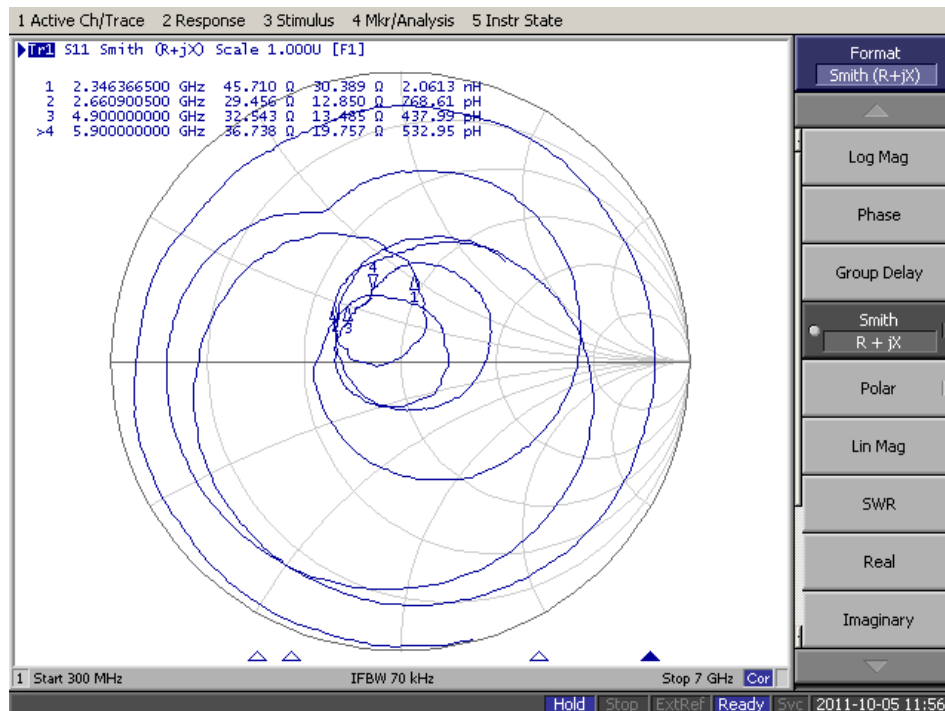
### 5.2 4900-5900 MHz Band

Characteristics		Specifications	Unit
Center Frequency		5400	MHz
Bandwidth		1000 min.	MHz
VSWR		2 max.	
Impedance		50	$\Omega$
Polarization		Linear Polarization	
Gain	Peak	3.3 (typical)	dBi
	Efficiency	79 (typical)	%

### 5.3 Return Loss ( $S_{11}$ )

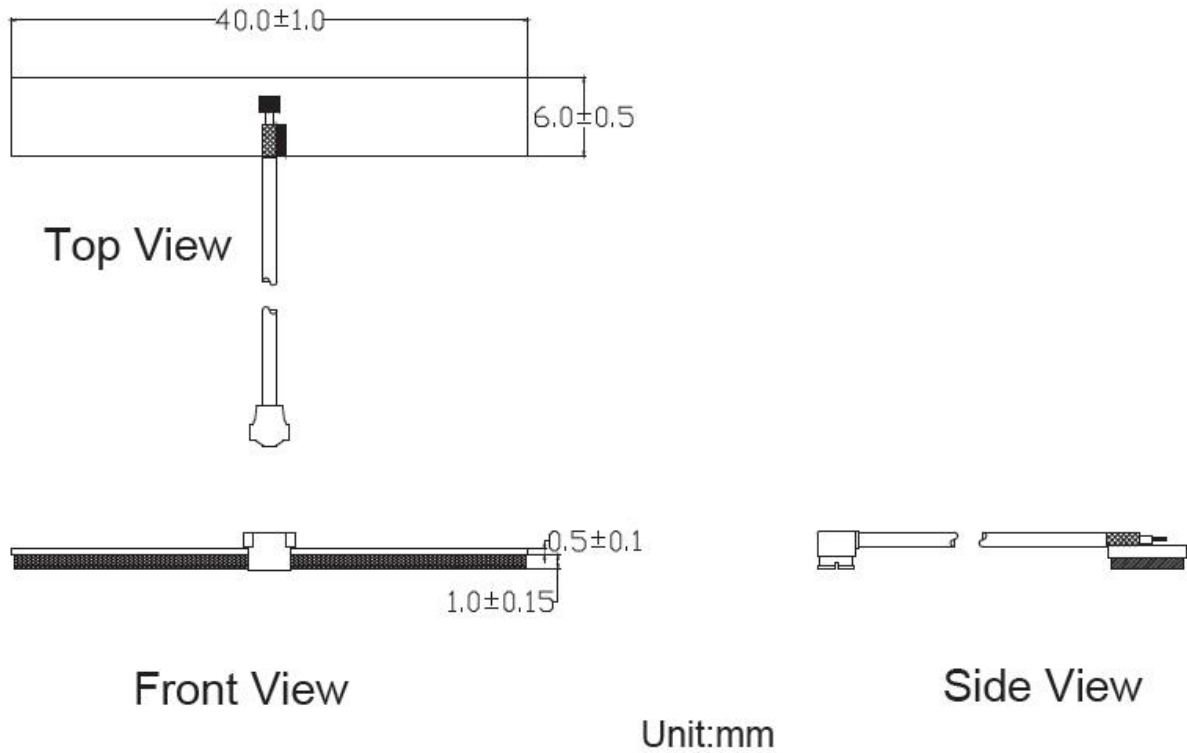


### 5.4 Smith Chart ( $S_{11}$ )



## 6 Antenna Dimensions (unit: mm)

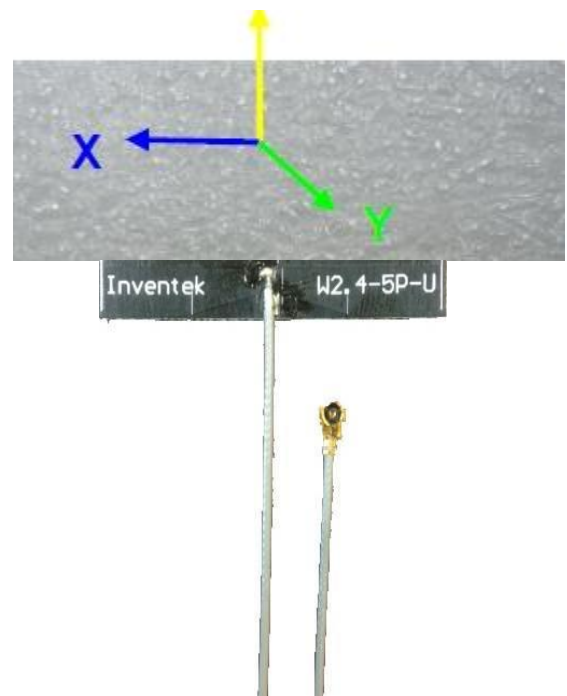
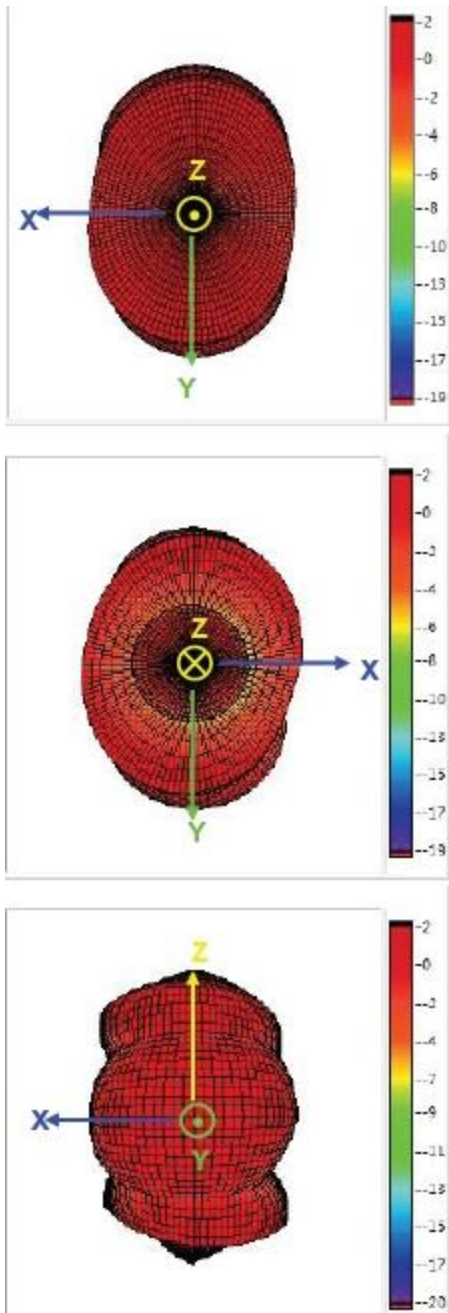
Our standard cable length is 90mm long. Custom cable lengths can be special order by request.



## 7 Radiation Pattern

### 7.1 2400-2500 MHz Band

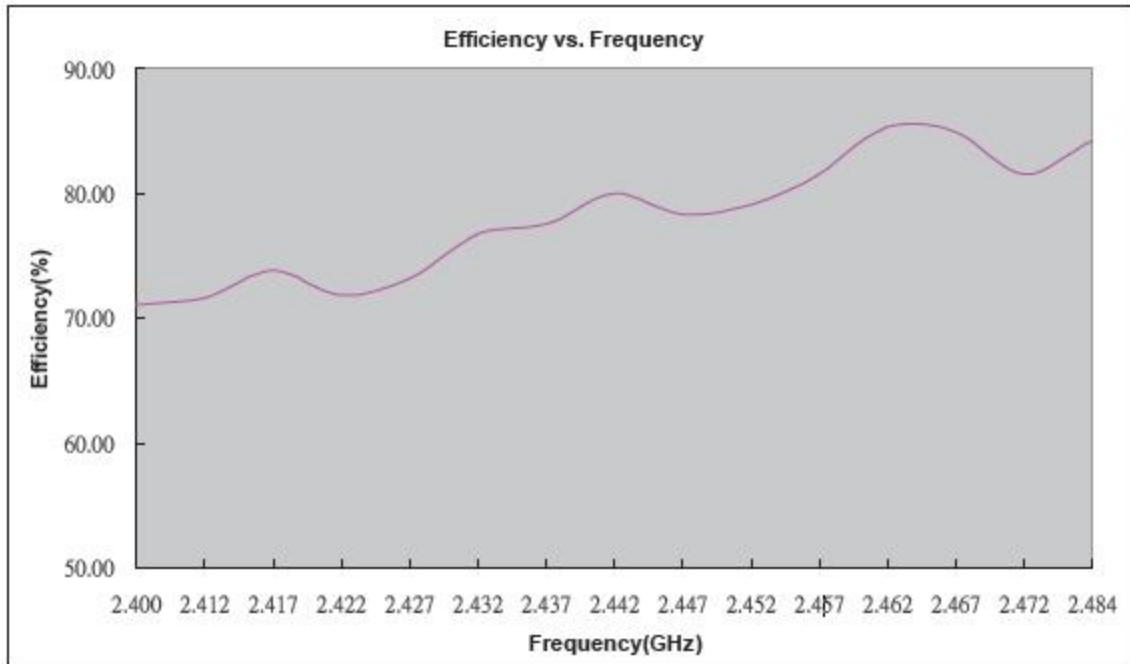
#### 7.1.1 3D Gain Pattern at 2442 MHz



### 7.1.2 Efficiency Table

Frequency(GHz)	2.400	2.412	2.417	2.422	2.427	2.432	2.437	2.442	2.447	2.452	2.457	2.462	2.467	2.472	2.484
Efficiency(dB)	-1.49	-1.45	-1.32	-1.44	-1.36	-1.15	-1.11	-0.97	-1.06	-1.02	-0.89	-0.69	-0.71	-0.89	-0.75
Efficiency (%)	70.96	71.61	73.79	71.78	73.11	76.74	77.45	79.98	78.31	79.10	81.51	85.26	84.83	81.51	84.20
Gain(dBi)	2.11	2.21	2.34	2.26	2.33	2.49	2.52	2.68	3.07	3.21	3.50	3.73	3.69	3.39	3.42

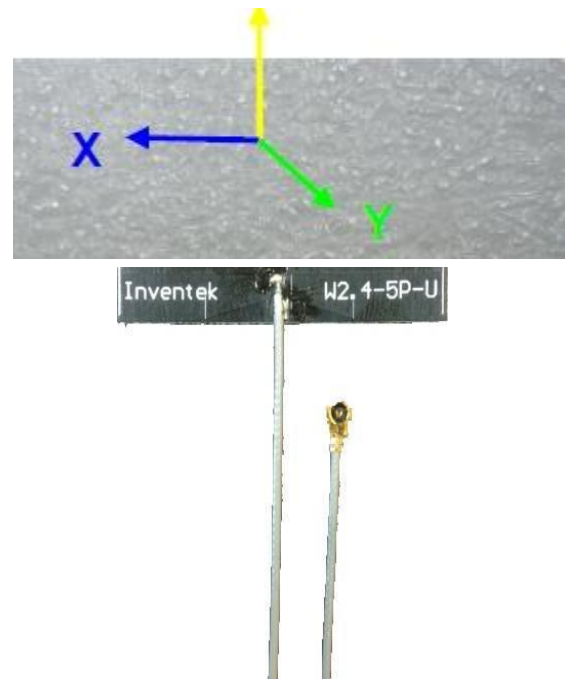
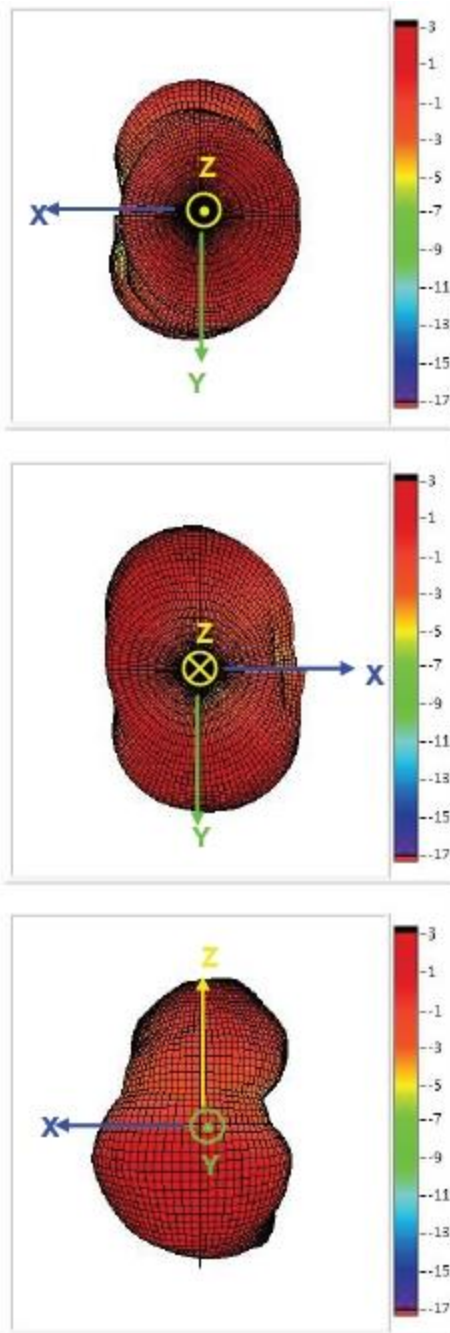
### 7.1.3 Efficiency vs. Frequency



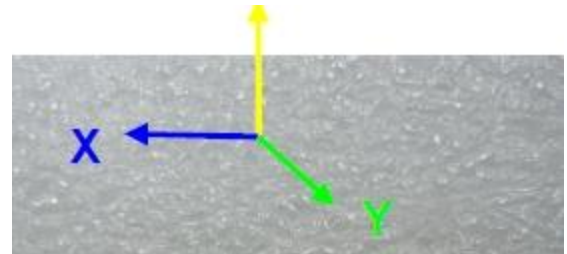
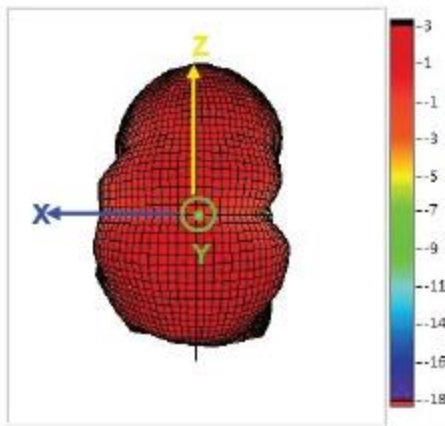
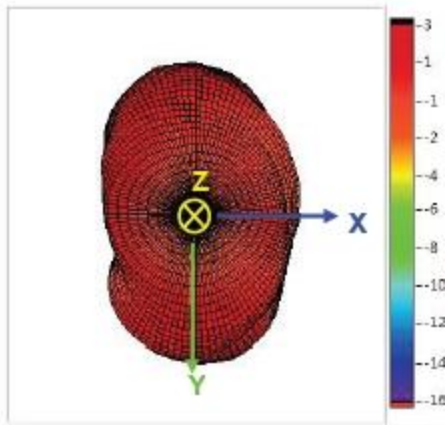
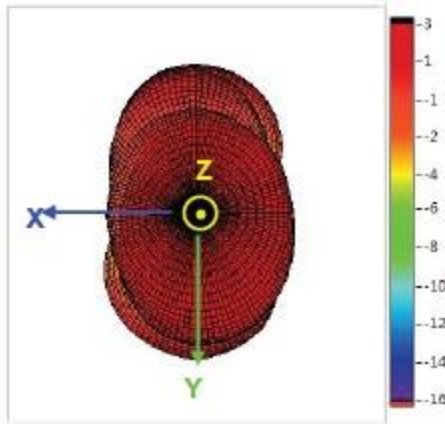


## 7.2 4900-5900 MHz Band

### 7.2.1 3D Gain Pattern at 5150 MHz



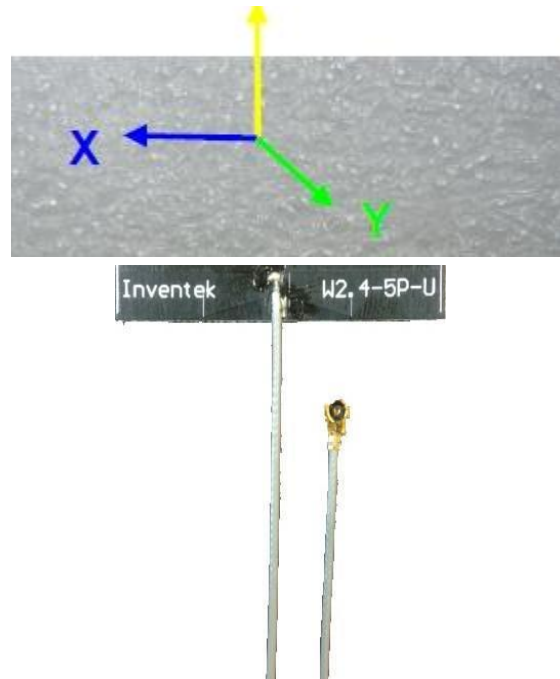
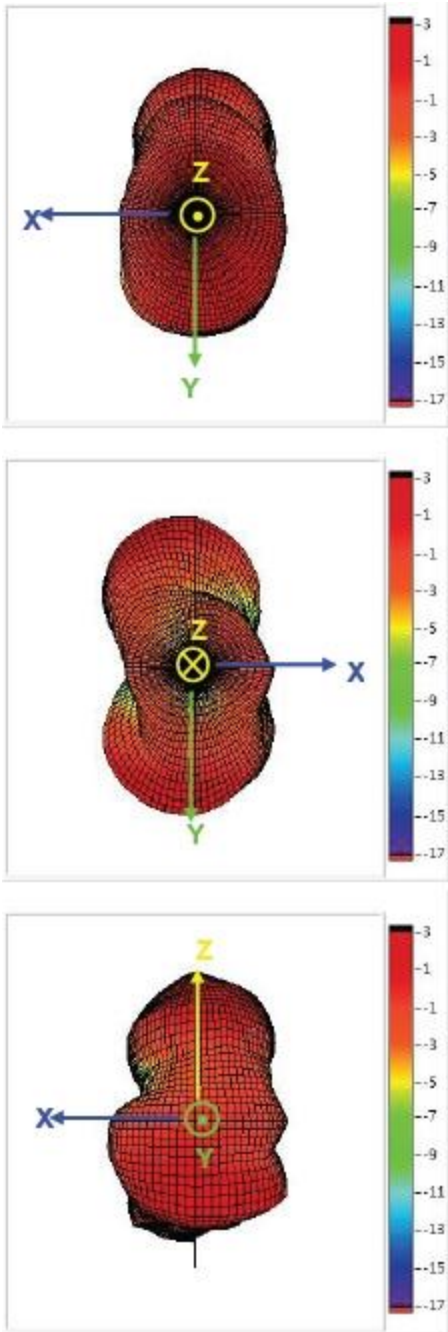
### 7.2.2 3D Gain Pattern at 5350 MHz



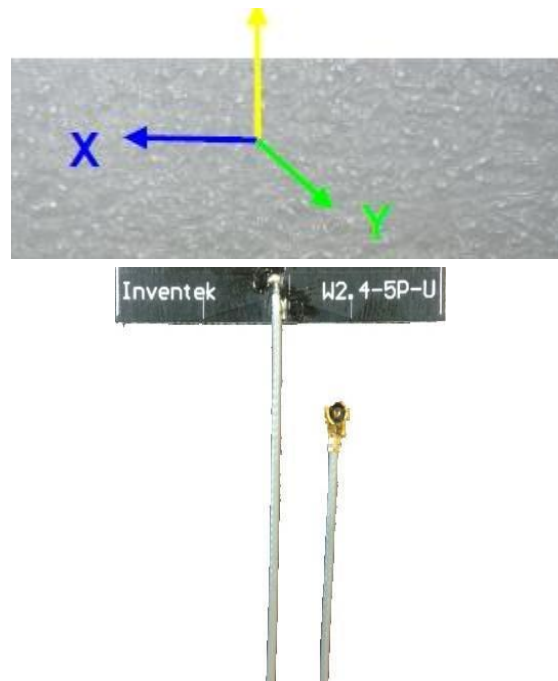
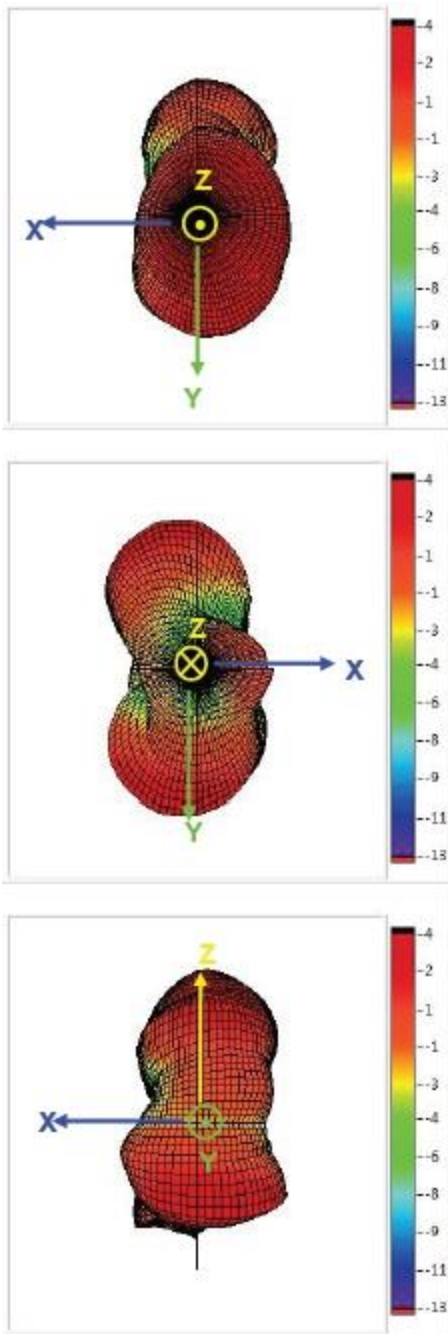
Inventek W2, 4-5P-U



### 7.2.3 3D Gain Pattern at 5700 MHz



### 7.2.4 3D Gain Pattern at 5850 MHz

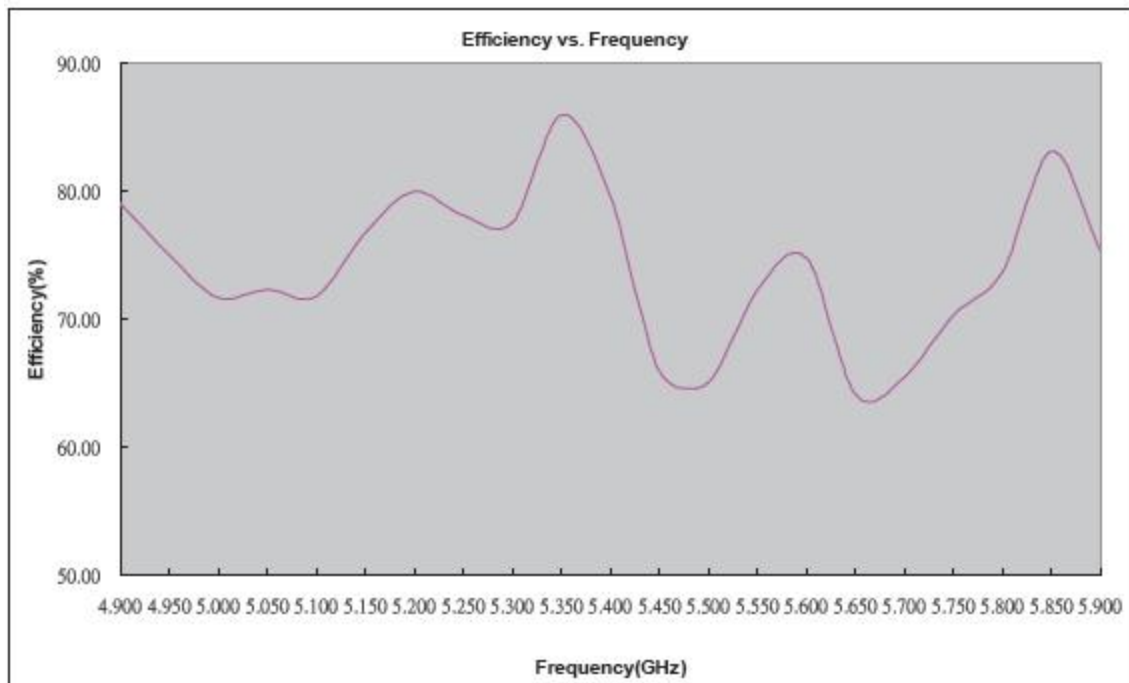


### 7.2.5 Efficiency Table

Frequency(GHz)	4.900	4.950	5.000	5.050	5.100	5.150	5.200	5.250	5.300	5.350	5.400
Efficiency(dB)	-1.02	-1.25	-1.45	-1.41	-1.44	-1.15	-0.97	-1.07	-1.11	-0.66	-0.99
Efficiency (%)	79.07	74.99	71.61	72.28	71.78	76.74	79.98	78.10	77.50	85.95	76.62
Gain(dBi)	3.23	2.74	2.30	2.56	2.83	3.20	3.46	3.72	3.30	3.39	3.36

Frequency(GHz)	5.450	5.500	5.550	5.600	5.650	5.700	5.750	5.800	5.850	5.900
Efficiency(dB)	-1.81	-1.87	-1.41	-1.26	-1.93	-1.85	-1.53	-1.33	-0.80	-1.23
Efficiency (%)	65.92	65.01	72.28	74.82	64.09	65.37	70.31	73.62	83.11	75.34
Gain(dBi)	2.47	2.97	3.49	3.79	2.60	3.06	3.74	3.91	5.18	3.98

### 7.2.6 Efficiency vs. Frequency



## 8 RoHS

Restriction of Hazardous Substances (RoHS) directive has come into force since 1st July 2006 all electronic products sold in the EU must be free of hazardous materials, such as lead.

## 9 Revision Control

Document : W2.4-5P-U	2.4_5GHz Dual Band Wi-Fi antenna
Internal Release	DOC-DS-20080

Date	Author	Revision	Comment
7/16/2014	KMT	1.0	Preliminary

## 10 Contact Information

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