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Inventek Systems

Embedding Connectivity Everywhere

Inventek Systems

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

P/N: W245-SC

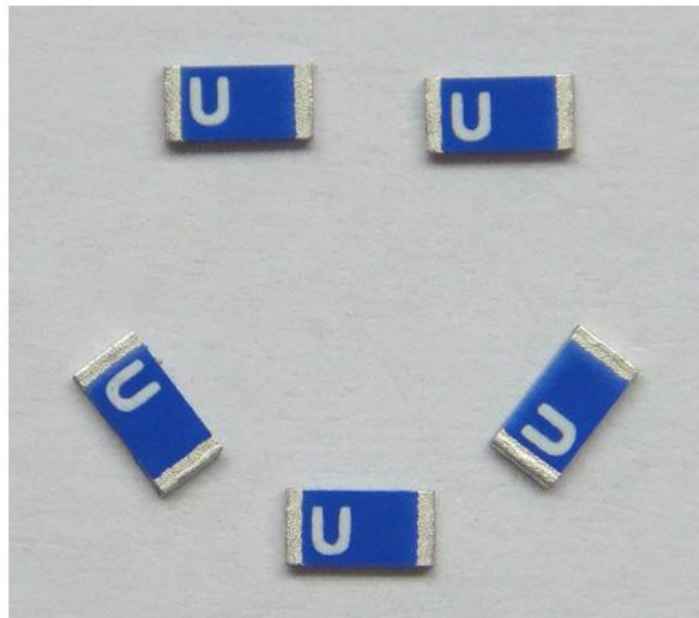


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1 General Description

The [Inventek](#) 2400-2500 and 4900-5900 MHz Dual Band Wi-Fi Chip 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 ISM4334x module family.

2 Part Number Detail Description

2.1 Ordering Information

Device	Description	Ordering Number
W245-SC	2400-2500 & 4900-5900 MHz Dual Band Wi-Fi chip antenna	W245-SC

3 General Features

- Stable and reliable in performances
- Reference layout guideline for Inventek modules available
- Compact size
- RoHS compliance
- SMT Process compatible

4 Applications

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

5 Electrical Specifications

5.1 2400-2500 MHz Band

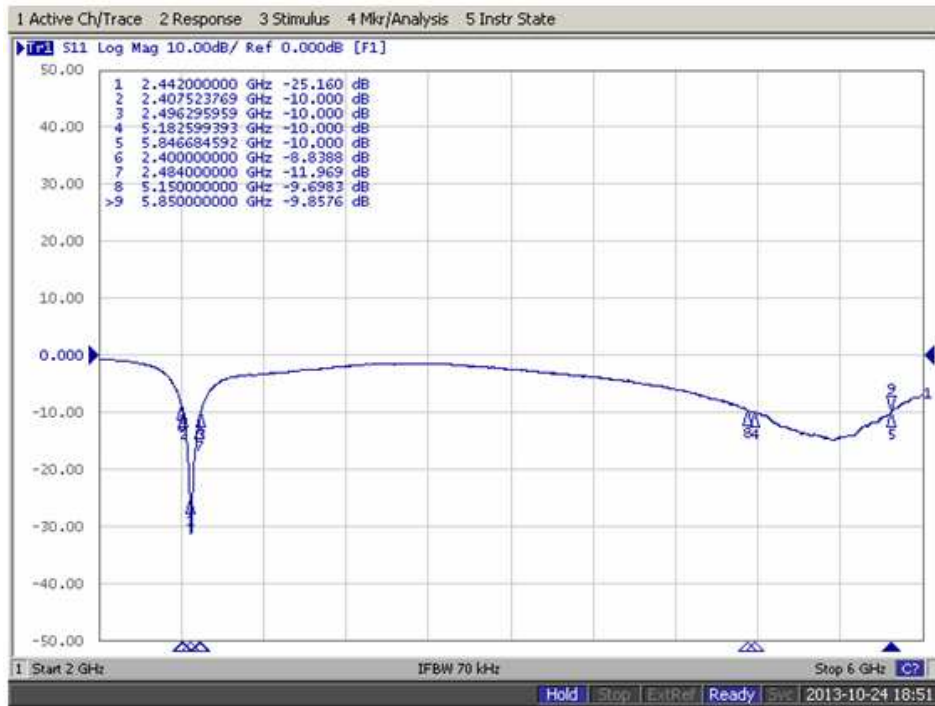
Characteristics		Specifications	Unit
Outline Dimensions		3.2 x 1.6 x 0.5	mm
Working Frequency		2400~2500	MHz
Bandwidth		90 (typical)	MHz
VSWR		2 max.	
Impedance		50	Ω
Polarization		Linear Polarization	
Gain	Peak	1.4 (typical)	dBi
	Efficiency*	79 (typical)	%

5.2 4900-5900 MHz Band

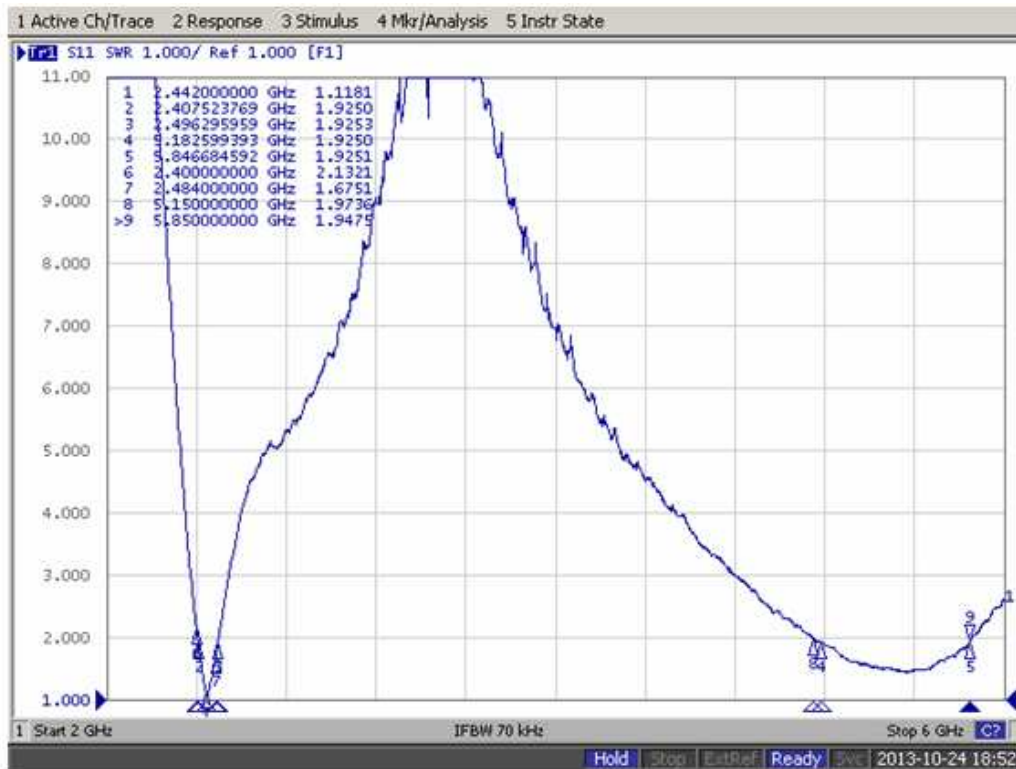
Characteristics		Specifications	Unit
Working Frequency		5150~5850	MHz
Bandwidth		700 (typical)	MHz
VSWR		2 max.	
Impedance		50	Ω
Polarization		Linear Polarization	
Gain	Peak	2.3 (typical)	dBi
	Efficiency*	71 (typical)	%

*Efficiency may vary depending on size of the user's ground plane

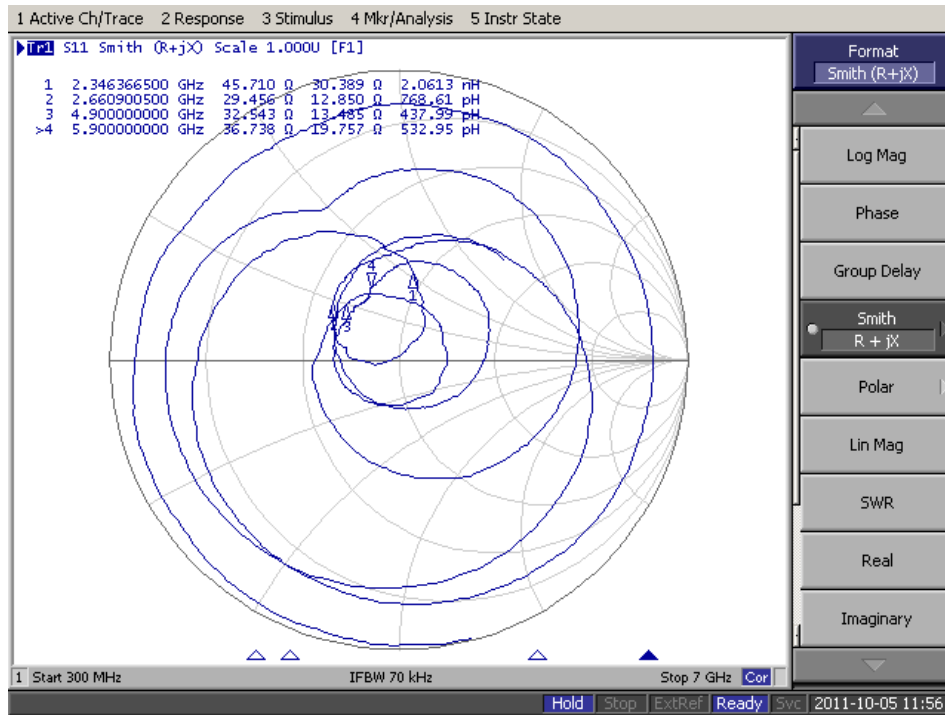
5.3 Return Loss (S_{11})



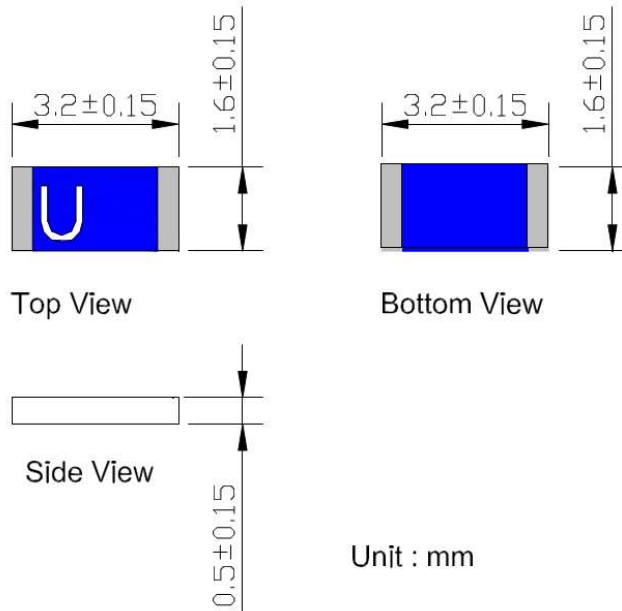
5.4 VSWR (S_{11})



5.5 Smith Chart (S_{11})



6 Antenna Dimensions (unit: mm)

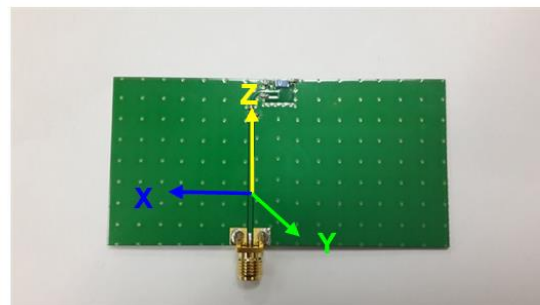
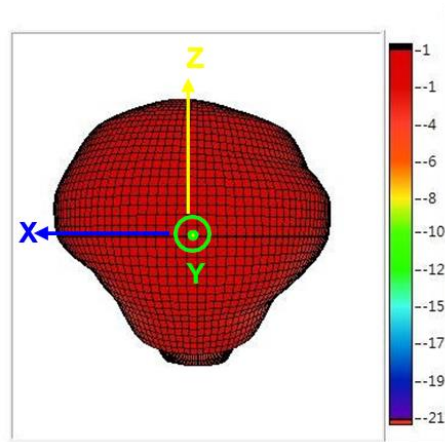
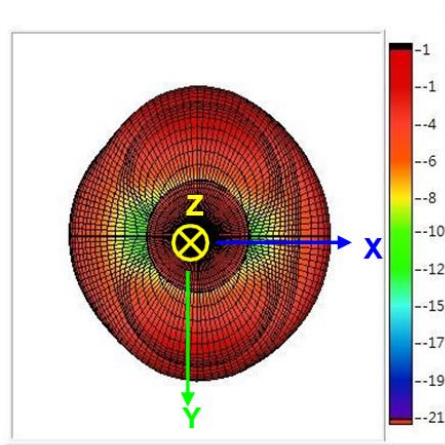
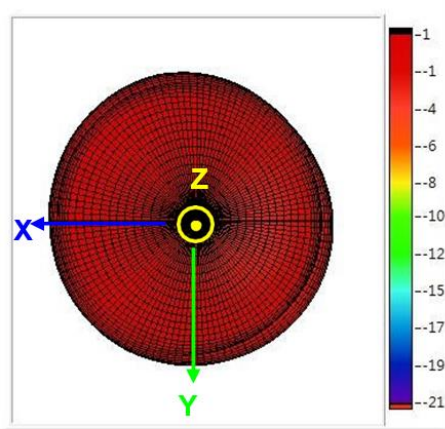


7 Radiation Pattern

All Radiation patterns were measured with the antenna on a 80 x 40 mm ground plane

7.1 2400-2500 MHz Band

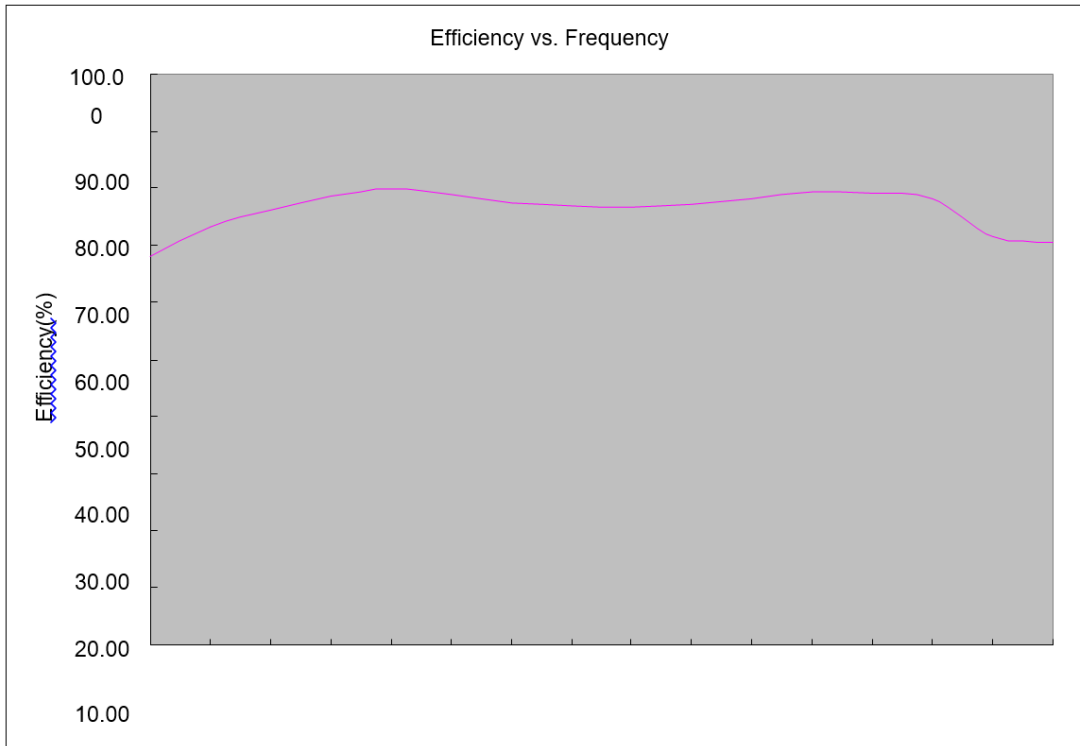
7.1.1 3D Gain Pattern at 2442 MHz



7.1.2 Efficiency Table

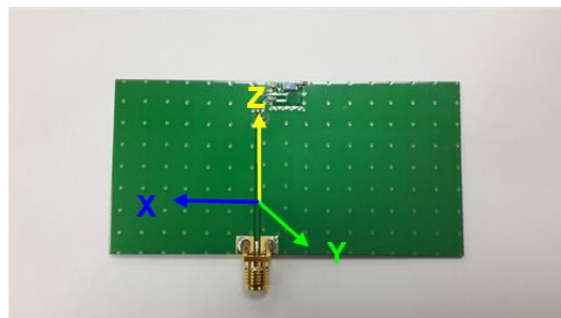
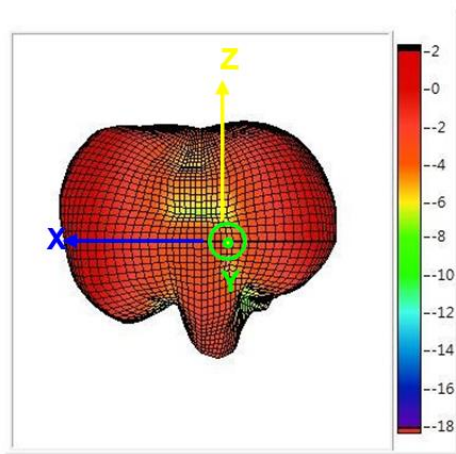
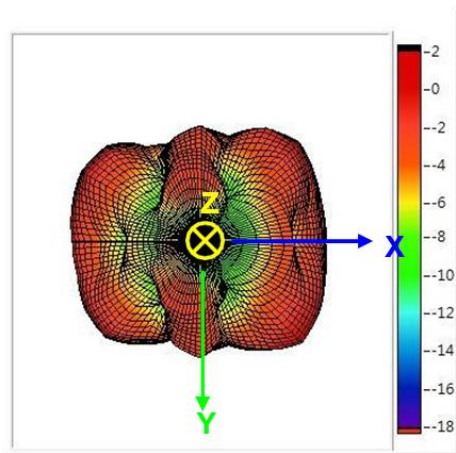
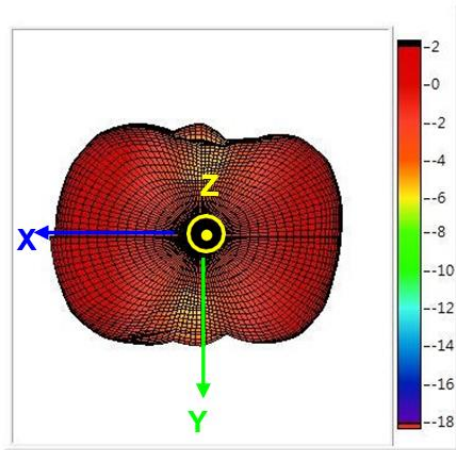
Frequency(GHz)	2.400	2.412	2.417	2.422	2.427	2.432	2.437	2.442	2.447	2.452	2.457	2.462	2.467	2.472	2.484
Efficiency(dB)	-1.68	-1.35	-1.18	-1.04	-0.98	-1.04	-1.11	-1.14	-1.15	-1.12	-1.07	-1.01	-1.01	-1.07	-1.46
Efficiency(%)	67.94	73.21	76.13	78.67	79.87	78.75	77.37	76.83	76.75	77.20	78.09	79.28	79.18	78.13	71.45
Gain(dBi)	0.75	1.17	1.32	1.38	1.40	1.30	1.32	1.40	1.48	1.45	1.44	1.46	1.39	1.32	1.17

7.1.3 Efficiency vs. Frequency

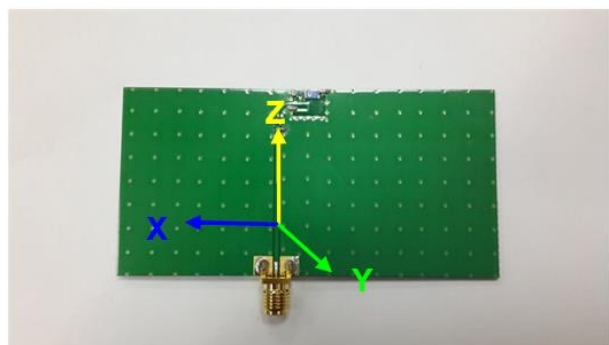
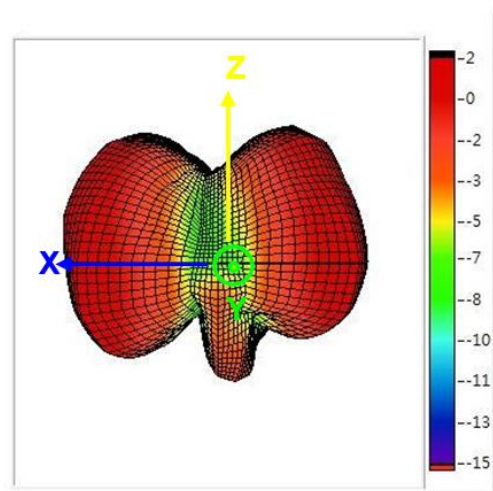
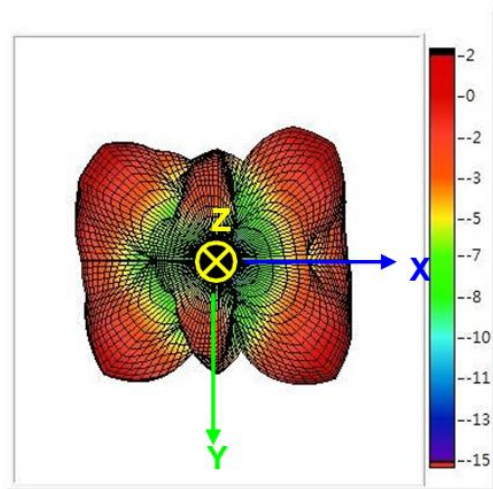
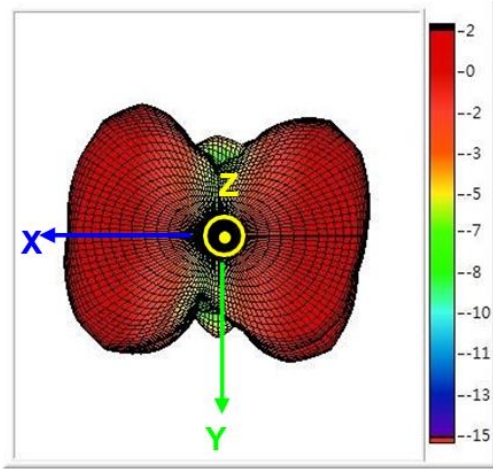


7.2 4900-5900 MHz Band

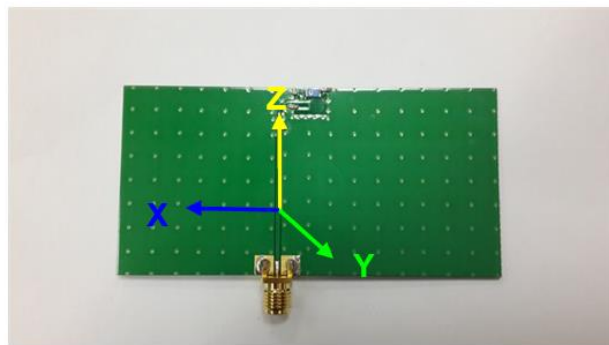
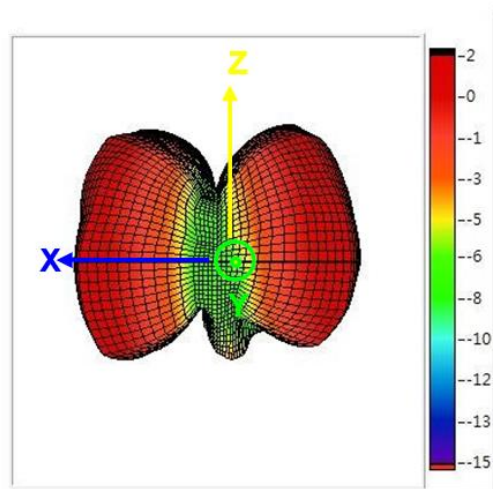
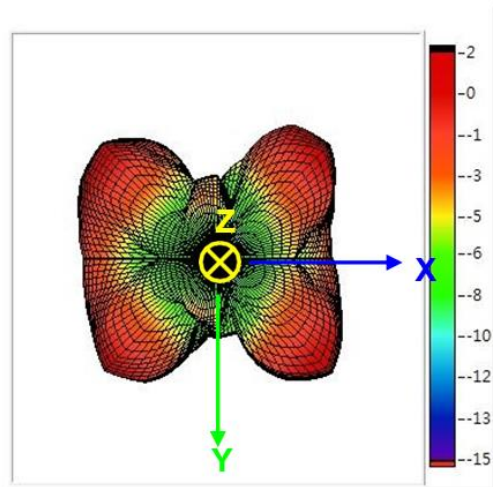
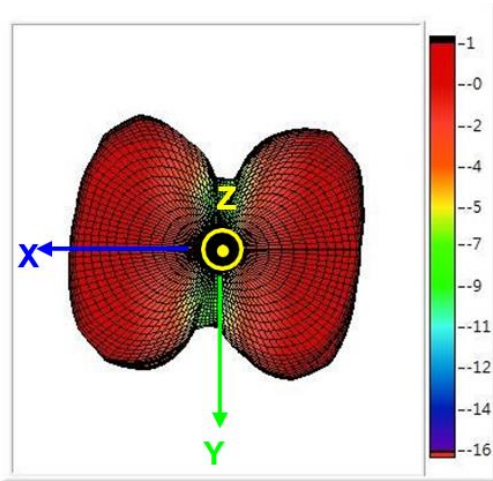
7.2.1 3D Gain Pattern at 5150 MHz



7.2.2 3D Gain Pattern at 5550 MHz



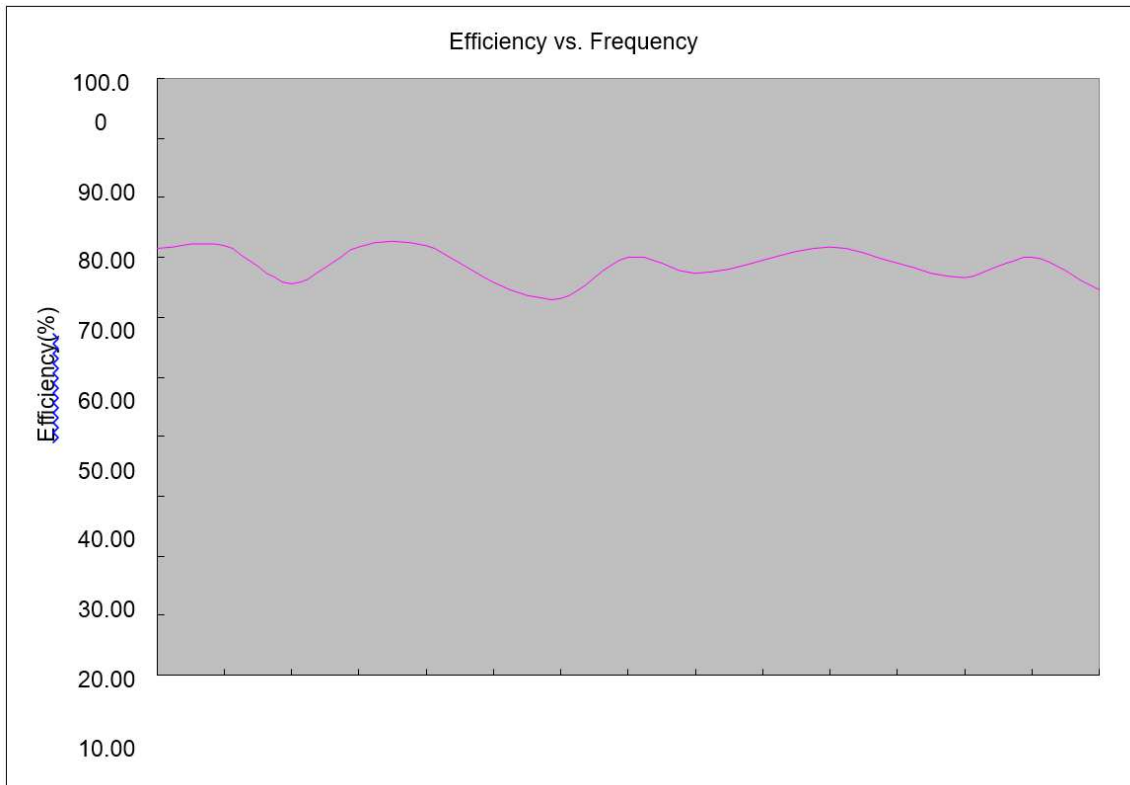
7.2.3 3D Gain Pattern at 5850 MHz



7.2.4 Efficiency Table

Frequency(GHz)	5.150	5.200	5.250	5.300	5.350	5.400	5.450	5.500	5.550	5.600	5.650	5.700	5.750	5.800	5.850
Efficiency(dB)	-1.46	-1.43	-1.83	-1.45	-1.43	-1.82	-1.99	-1.55	-1.72	-1.58	-1.44	-1.62	-1.77	-1.54	-1.90
Efficiency(%)	71.45	71.88	65.67	71.64	71.90	65.78	63.19	69.92	67.32	69.56	71.73	68.92	66.58	70.09	64.56
Gain(dBi)	2.15	2.30	2.00	2.28	2.14	2.06	1.98	2.39	2.34	2.75	2.88	2.56	2.48	2.55	2.16

7.2.5 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 : W245-SC	2.4_5GHz Dual Band Wi-Fi antenna
Internal Release	DOC-DS-20105

Date	Author	Revision	Comment
5/10/2016	KMT	1.0	Preliminary

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