

Measurement of Maximum Permissible Exposure

1. Foreword

In adopt with the Human Exposure IEEE C95.1, and according to the FCC 1.1310. The *Maximum Permissible Exposure (MPE)* is obligated to measure in order to prove the safety of radiation harmfulness to the human body.

The *Gain* of the antenna used is measured in an *Anechoic chamber*. The *maximum total power to the antenna* is to be recorded. By adopting the *Friis Transmission Formula* and the *power gain of the antenna*, we can find the distance right away from the product, where the limit of the MPE is.

2. Description of EUT

| | | |
|--------------------------|---|---|
| Granted FCC ID | : | MSQWL120G |
| Product name | : | Wireless LAN Mini-PCI Card |
| Model name | : | WL-120g |
| Classification | : | Mobile Device (i) Under normal use condition, the antenna is at least 20cm away from the user; (ii) Warning statement for keeping 20cm separation distance and the prohibition of operating next to the person has been printed in the user' s manual |
| Frequency Range | : | 2.412 GHz ~ 2.462GHz |
| Supported Channel | : | 11 Channel |
| Modulation Skill | : | DBPSK, DQPSK, CCK, OFDM |
| Power Type | : | Powered by Mini-PCI interface of client' s device |

3. Limits for Maximum Permissible Exposure (MPE)

| Frequency Range (MHz) | Electric Field Strength (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm ²) | Averaging Time E ² , H ² or S (minutes) |
|--|-------------------------------|-----------------------------------|---|---|
| (A) Limits for Occupational/Controlled Exposure | | | | |
| 0.3-3.0 | 614 | 1.63 | 100 | 6 |
| 3.0-30 | 1842/f | 4.89/f | 900/f ² | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | -- | -- | f/300 | 6 |
| 1500-100,000 | -- | -- | 5 | 6 |
| (B) Limits for General Population/Uncontrolled Exposure | | | | |
| 0.3-1.34 | 614 | 1.63 | 100 | 30 |
| 1.34-30 | 824/f | 2.19/f | 180/f ² | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | -- | -- | f/1500 | 30 |
| 1500-100,000 | -- | -- | 1.0 | 30 |

[The EUT is tested in transmit and receive modes and in the first, middle and the last channel separately. The following shows only our observation have the greatest emissions.]

According to OET BULLETIN 56 Fourth Edition/August 1999, Equation for Predicting RF Fields:

Friis Transmission Formula:
$$S = \frac{PG}{4\pi R^2} = \frac{133.968 \times 1.995}{4\pi(20)^2} = 0.053 \text{ mW/cm}^2$$

Estimated safe separation:
$$R = \sqrt{\frac{PG}{4\pi}} = \sqrt{\frac{133.968 \times 1.995}{4\pi}} = 4.612 \text{ cm}$$

Remarks: "The safe estimated separation that the user must maintain from the antenna is at least 4.612 cm."

Where: S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

The Numeric gain G of antenna with a gain specified in dB is determined by:

$G = \text{Log}^{-1} (\text{dB antenna gain} / 10)$

$G = \text{Log}^{-1} (3 / 10) = 1.995$

APPROVAL SHEET

PCB ANTENNA
ISM BAND Series
2.4 GHz Band Working Frequency

Component A: RFPCA530661IFABA01

Component B: RFPCA530645IFABA02

Customer : ASUSTeK Computer Inc.

Module Name : Notebook L5C

Approval No : 14-152016112 (L5 WLAN ANTENNA_L/BLACK)

14-152016012 (L5 WLAN ANTENNA_R/GRAY)

Issue Date : July, 16 2003

Customer Approval :

WALSIN Technology Corp.

Authorized By : 



REVISION HISTORY

| REV | Date | Description | CHK | APVD | Date |
|------------|-------------|--|------------|-------------|-------------|
| 1 | 16-July | Walsin P/N change according to cable dimension | Jo | Kevin | 16-July |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |

ELECTRICAL CHARACTERISTICS

| Item | Specification |
|-----------------|-----------------|
| Frequency Range | 2.4 ~2.4835 GHz |
| Peak Gain | < 3dBi |
| Average Gain | > -5 dBi |
| VSWR | 2.5 max |
| Polarization | Linear |
| Impedance | 50Ω |

*note: Electrical characteristics will depend on customer's final application. Data provided in this sheet has been approved on ASUS L5C model.

MATERIAL TABLE

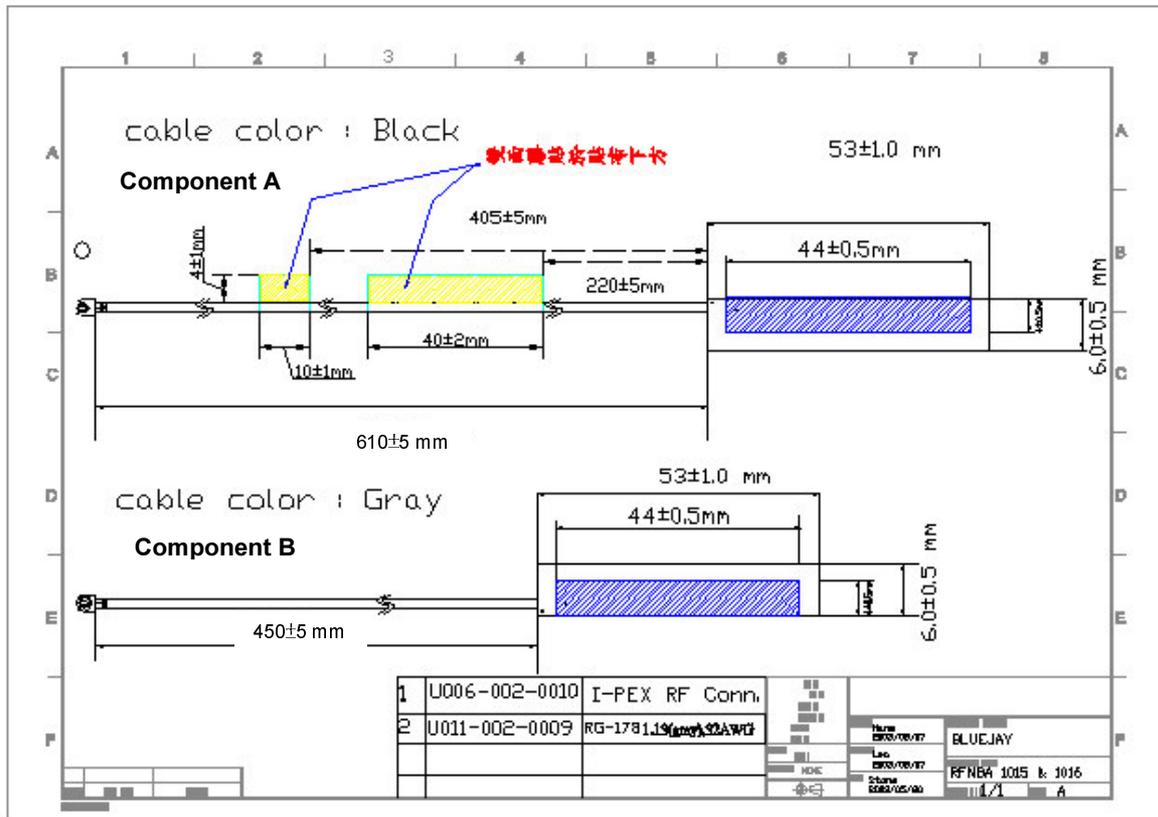
| Items | Vendor | Part number | Description |
|-----------|----------------------|---------------|--|
| Connector | I-PEX | 22078-111R-13 | MHF series micro coaxial connector plug vertical |
| Cable | Hitachi | UL1745 | AWG#32x1C |
| Adhesive | Sony Chemicals Corp. | T4000 | Industrial Adhesive Tape |

Note: Hitachi cable is replaceable by AXON or HannStar while Hitachi is short of supply.

CODING RULE

| RF | PCA | 5010 | 60 | I | F | A | B | A | 01 |
|------------------|------------------|--|--|---------------------------------|----------------------|--|---------------------------|----------|---------------------|
| Type Code | Product Code | PCB Dimension (Unit: mm) | Cable Length (unit: cm) | Connector Brand | Type of Connector | Application | Packing | Customer | Project |
| Walsin RF Device | PCA: PCB Antenna | Per 2 digits of length, width e.g.: 5010 Length 50mm, Width 10mm | 2 digits for cable length e.g.: 60 Length 60cm | I: IPEX H: Hirose M: MMCX | F: Female M: Male | A: 2.4GHz ISM band B: GSM 900/1800 dual band L: 2.4/5.2/5.8 GHz tri-band | B: Bulk X: SFC product | — | 01~99 series number |

DIMENSIONS



DATA SHEET

2.45/5GHz M6N Multi Band Antenna with Cable & Connector for IEEE802.11b, 11g, 11a & UNII

Product specification: Version x02

Oct 24, 2003

| | | | | | | | | | | | |
|--|--------------|-----------------|--|------------------------------------|---------------|------------|---|-----------|-----|------------|--|
| 2.45/5GHz M6N Multi Band Antenna with Cable & Connector for IEEE802.11b, 11g, 11a, UNII | | | | M6N Antenna (14.1”&15”) | | | | — | x01 | Aug 27, 03 | |
| | | | | Left Part NO: CAN4313 342 012501B | | | | — | x02 | Oct 24, 03 | |
| | | | | Right Part NO: CAN4313 342 022501B | | | | — | 3 | | |
| BY / 製定者 | Cliff/Howard | SUPER / 原圖編號 | | TLLSH/ 共頁 | 9 | PAGE/ 頁 | 1 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | Oct. 24, 2003 | | | — | 5 | | |

**M6N Multi Band Antenna
FOR WLAN IEEE 802.11b/11g/11a, UNII
(With Cable & Mini PCI Connector)**

Product Specification

QUICK REFERENCE DATA

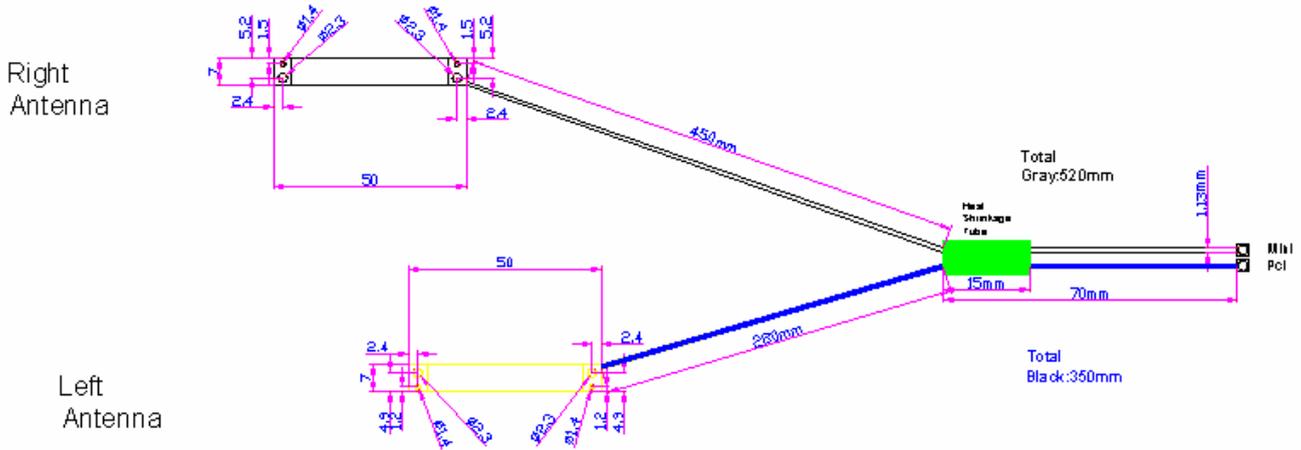
| | | |
|-------------------------|---|---|
| Antenna Patch Dimension | 50*7*0.5 mm Left Antenna 50*7*0.5 mm Right Antenna |  |
| Left LCD Cable Length | 350 mm, Color Black (CAN4313342012501B) | |
| Right LCD Cable Length | 520 mm, Color White or Grey (CAN4313342022501B) | |
| MiniPCI Connector | Ipex / Hirose or Compatible | |
| Peak Gain | 1.1 dBi/2.45GHz Band (14.1") | |
| | 0.6 dBi/2.45GHz Band (15") | |
| | 4.6 dBi/2.45GHz Band (14.1") | |
| | 4.4 dBi/5GHz Band (15") | |
| VSWR | 2.5 for 2.45GHz band | |
| | 2.85 for 5GHz band | |
| Polarization | Linear | |
| Impedance | 50Ω | |
| Operating Temperature | -40~90 °C | |
| Maximum Power | 1W | |

| | |
|------------------|--|
| Supplier Address | Yageo/Phycomp (Taiwan) Ltd. 16, west 3rd Street, N.E.P.Z Kaohsiung, 811 Taiwan, R.O.C. Yegeo/Phycomp Electronics (China) Co, Ltd No. 10, Zhu Yuan Road, Suzhou New District, Suzhou, PRC |
|------------------|--|

| | | | | | | | | | | | | |
|--|--------------|--------------|--|------------------------------------|---|---------------|---|--------|-----|------------|--|--|
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| CHECK | | | | DATE / 日期 | | Oct. 24, 2003 | | — 5 | | | | |

DIMENSIONAL DATA and Connector/Cable Information (Tolerance:± 0.25 mm)

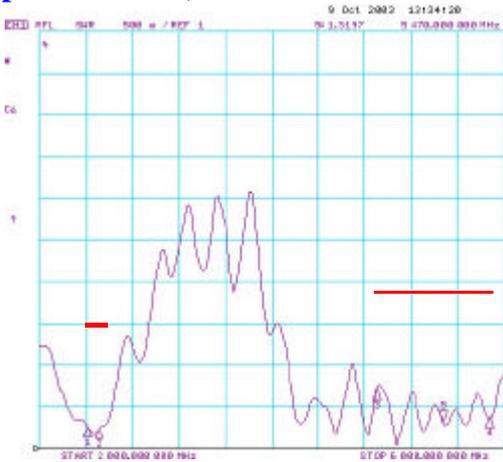
- Antenna Body (Main and Aux, Copper Metal Material):



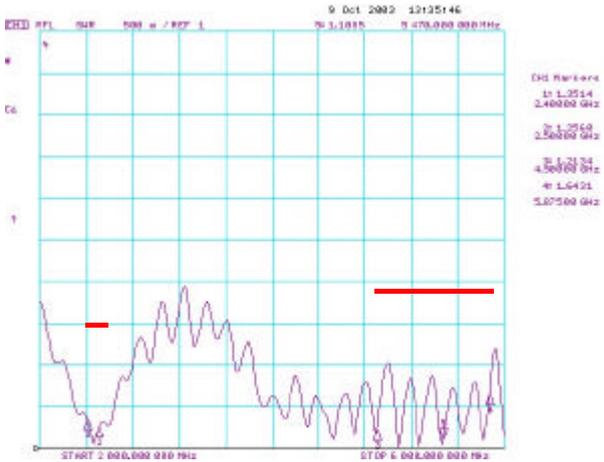
Note: The coaxial cable will be a 1.13mm diameter cable, single shielded, cable. It's inner conductor of the cable is silver-coated annealed copper wire or tin-copper plated alloy, the dielectric is a flouro-plastic (FEP) with a nominal diameter of 0.68mm and a nominal thickness of 0.22mm, the outer conductor is silver plated annealed copper wire with a nominal diameter of 0.93mm, and the jacket is a flouro-plastic (FEP) with an outer diameter of 1.13mm with a nominal thickness of 0.1mm. The cable has a characteristic impedance of 50ohm, an insulation resistance of 1500meg-ohm/km maximum, and no breakdown for a dielectric withstanding voltage of 2000VAC for 1 minute. The insertion loss of a 250mm long cable assembled on both ends shall be no more than 0.85dB at 2.45GHz and no more than -1.5dB at 6.0GHz.

| | | | | | | | | | | | |
|---|--------------|--------------|--|---|---|---------------|---|--------|-----|------------|--|
| <p>2.45/5GHz M6N Multi Band Antenna with Cable & Connector for IEEE802.11b, 11g, 11a, UNII</p> | | | | <p>M6N Antenna (14.1”&15”) Left Part NO: CAN4313 342 012501B Right Part NO: CAN4313 342 022501B</p> | | | | — | x01 | Aug 27, 03 | |
| | | | | | | | | — | x02 | Oct 24, 03 | |
| | | | | | | | | — | 3 | | |
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| CHECK | | | | DATE / 日期 | | Oct. 24, 2003 | | — | 5 | | |

Typical VSWR (After Installation in Notebook)



Left Antenna



Right Antenna

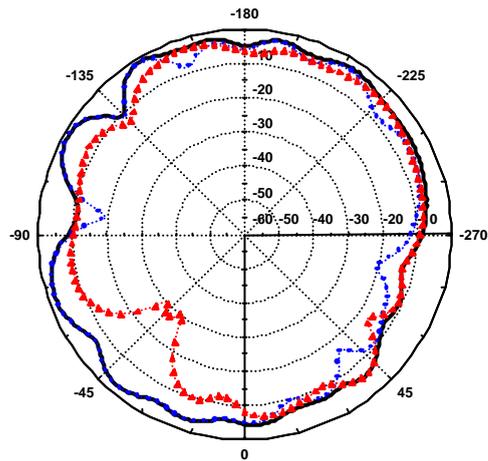
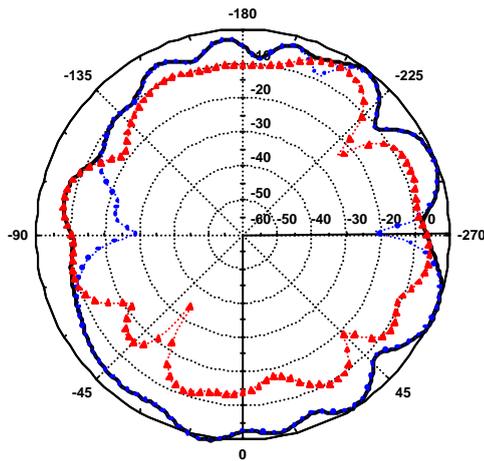
Note: May vary for different devices

Typical Radiation Pattern Polar Plot (Based on After Antenna Installation)

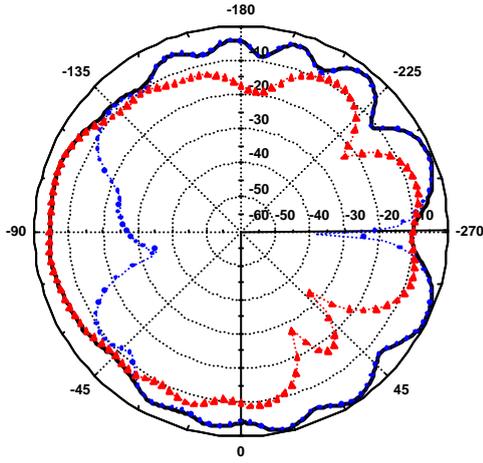
- Left

- Right Antenna

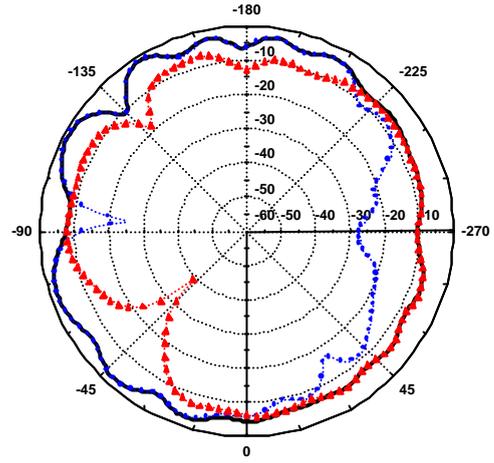
14.1" LCD



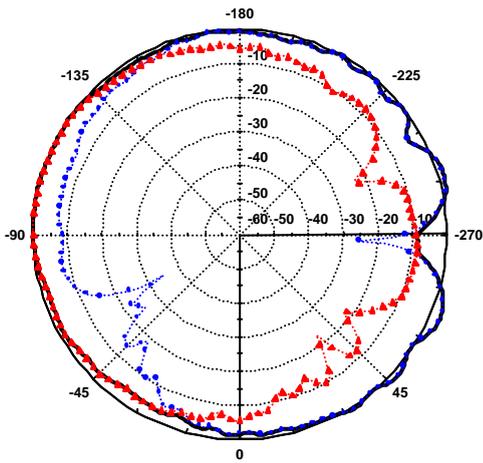
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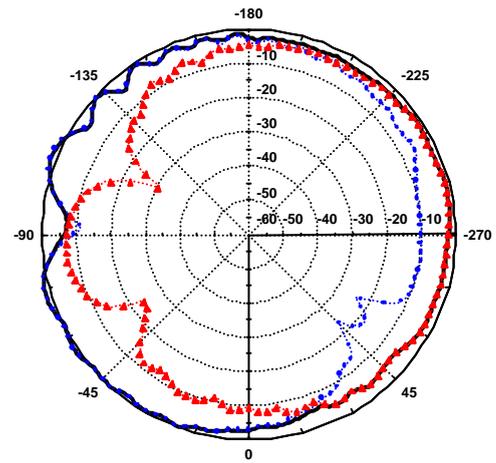
2500 MHz (Max Gain: -0.6dBi)



2500 MHz (Max Gain: -1.1dBi)

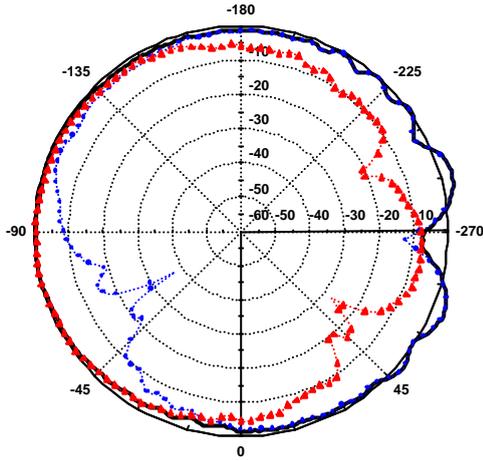


5150 MHz (Max Gain: 3.0dBi)

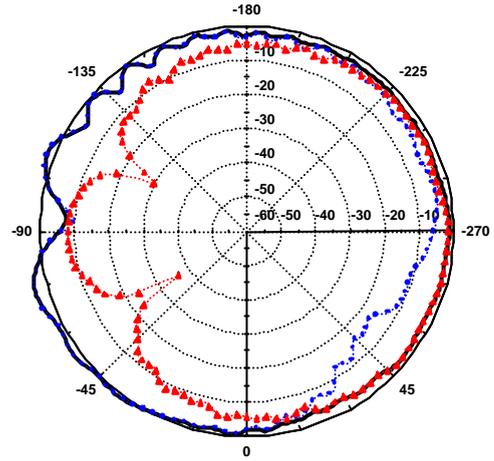


5150 MHz (Max Gain: 1.7dBi)

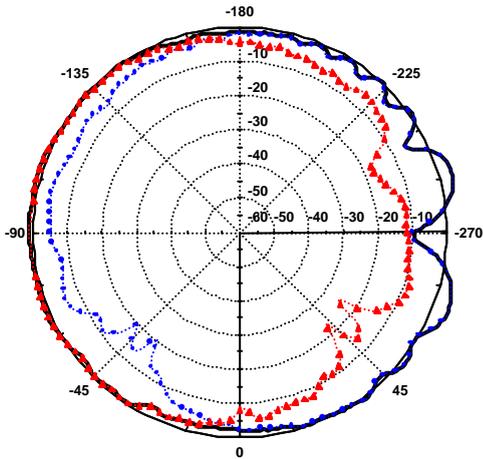
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| | | | | | | | | — | x02 | Oct 24, 03 | |
| | | | | | | | | — | 3 | | |
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| CHECK | | | | DATE / 日期 | | Oct. 24, 2003 | | — | 5 | | |



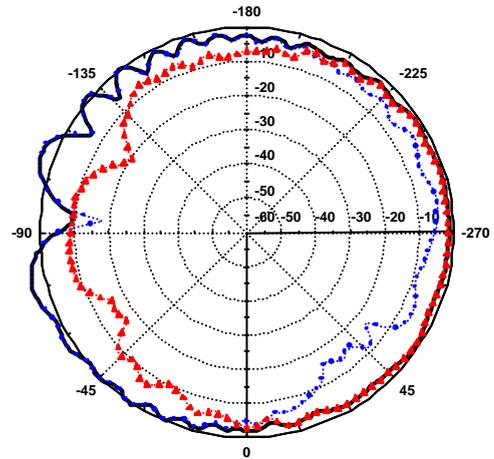
5350 MHz (Max Gain: 3.7dBi)



5350 MHz (Max Gain: 3.9dBi)



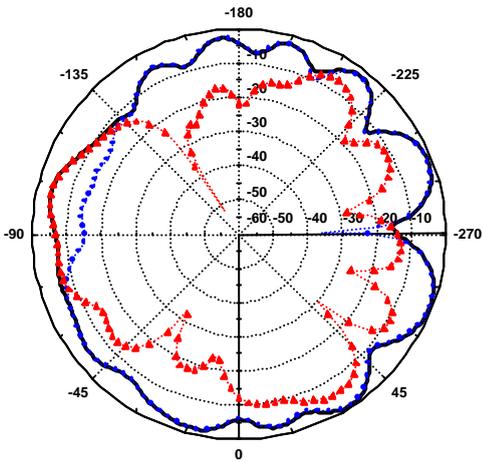
5725 MHz (Max Gain: 4.6dBi)



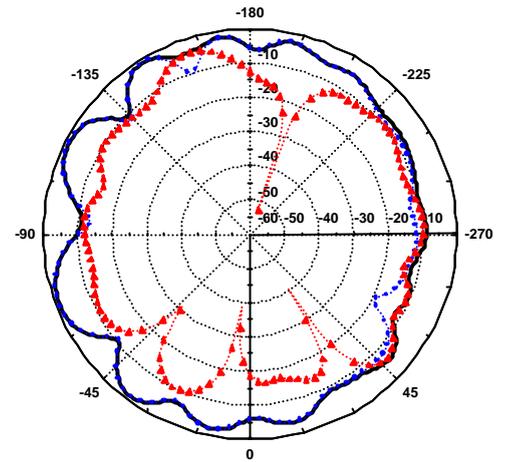
5725 MHz (Max Gain: 4.3dBi)

| | | | | | | | | | | |
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| CHECK | | | | DATE / 日期 | | Oct. 24, 2003 | | — | 5 | |

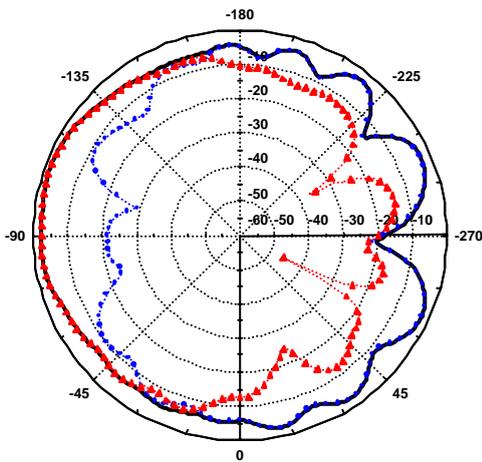
15" LCD



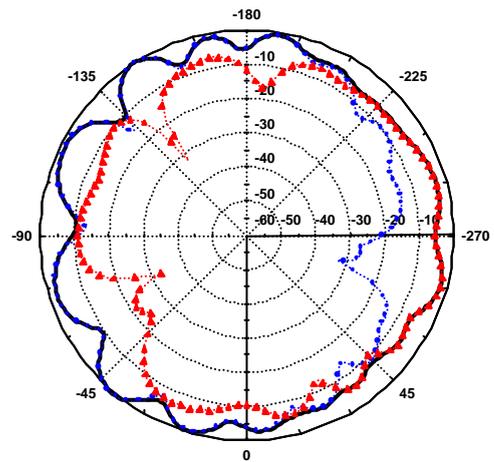
2400 MHz (Max Gain: -0.2dBi)



2400 MHz (Max Gain: -0.9dBi)

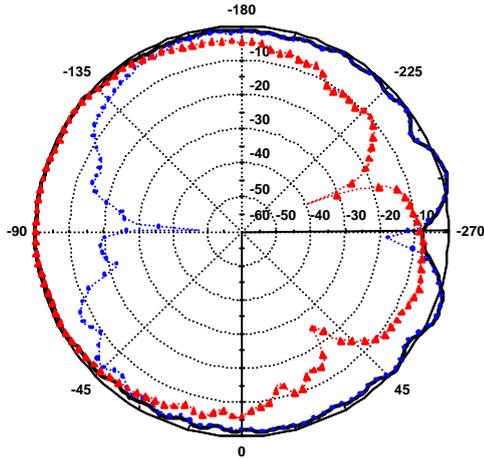


2500 MHz (Max Gain: -1.4dBi)

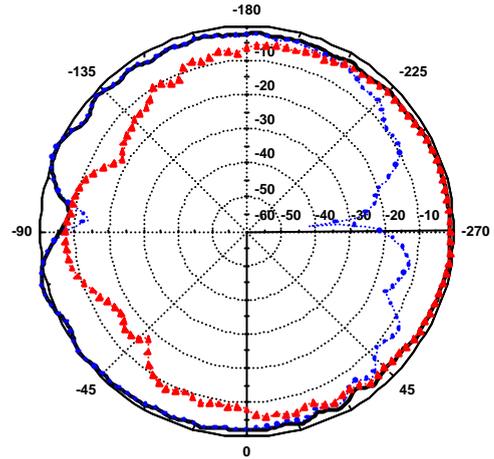


2500 MHz (Max Gain: 0.6dBi)

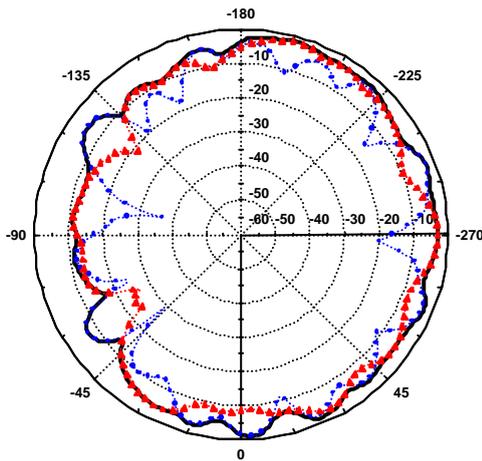
| | | | | | | | | | | |
|--|--------------|--------------|--|------------------------------------|---------------|----------|---|--------|-----|------------|
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| CHECK | | | | DATE / 日期 | Oct. 24, 2003 | | — | 5 | | |



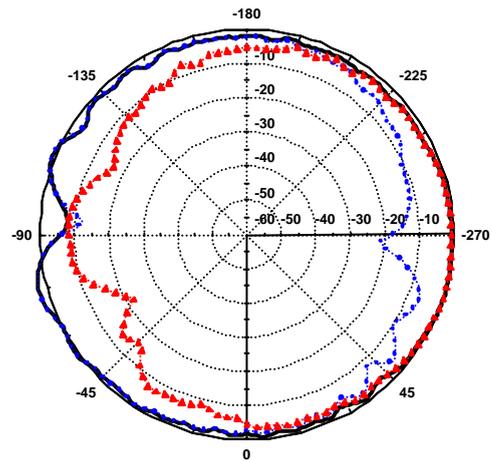
5150 MHz (Max Gain: 1.9dBi)



5150 MHz (Max Gain: 1.5dBi)

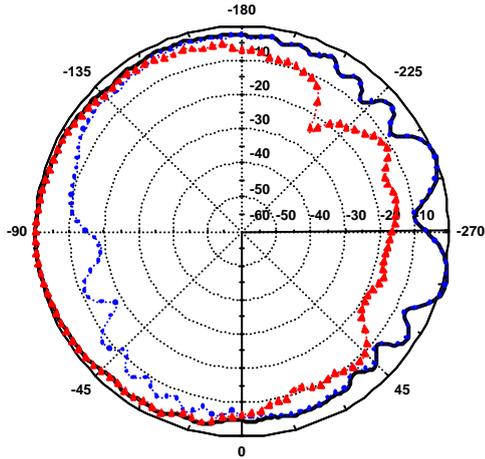


5350 MHz (Max Gain: 2.9dBi)

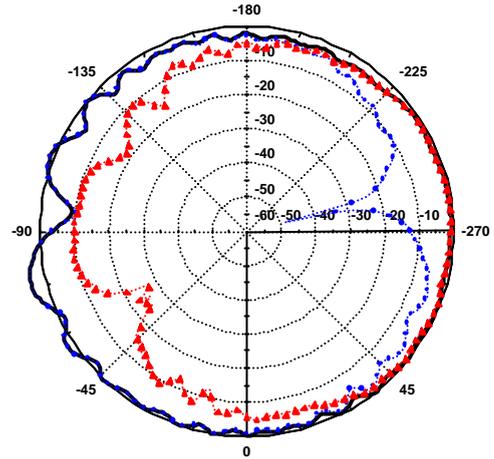


5350 MHz (Max Gain: 2.6dBi)

| | | | | | | | | | | | |
|--|--------------|-----------------|--|--|---|---------------|---|-----------|-----|------------|--|
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| | | | | | | | | — | 3 | | |
| BY / 製定者 | Cliff/Howard | SUPER / 原圖編號 | | TLLSH/ 共頁 | 9 | PAGE/ 頁 | 8 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | | Oct. 24, 2003 | | — | 5 | | |



5725 MHz (Max Gain: 1.2dBi)



5725 MHz (Max Gain: 4.4dBi)

| | | | | | | | | | | | |
|--|--------------|--------------|--|--|---|---------------|---|--------|-----|------------|--|
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| | | | | | | | | — | x02 | Oct 24, 03 | |
| | | | | | | | | — | 3 | | |
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| CHECK | | | | DATE / 日期 | | Oct. 24, 2003 | | — | 5 | | |

DATA SHEET

2.45/5GHz A2H Dual Band Antenna with Cable & Connector for IEEE802.11b/g/a, Bluetooth, UNII

Preliminary product specification
Supersedes data of April 21th 2003

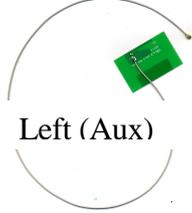
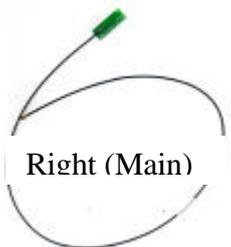
June 16, 2003

| | | | | | | | | | | | |
|---|-------------------|-----------------|--|---|---------------|------------|---|--------|--------------|---|--------------|
| 2.45/5GHz A2H Dual Band Antenna with Cable & Connector for IEEE802.11b, 11a, Bluetooth, UNII | | | | 4313 347 01252 (Right, Main, Black) 4313 347 02252 (Left, White or Gray) | | | — | 1 | April 14, 03 | | |
| | | | | | | | — | 2 | April 15, 03 | | |
| | | | | | | | — | 3 | April 16, 03 | | |
| BY / 製定者 | YM Shen/ Cliff | SUPER / 原圖編號 | | TLLSH / 共頁 | 5 | PAGE/ 頁 | 1 | SH nr. | — | 4 | April 21, 03 |
| CHECK | | | | DATE / 日期 | June 16, 2003 | | — | 5 | June 16, 03 | | |

**A2H Dual Band Antenna
FOR WLAN IEEE 802.11b/g/a, Bluetooth, UNII
(With Cable & Mini PCI Connector)**

Product Specification

QUICK REFERENCE DATA

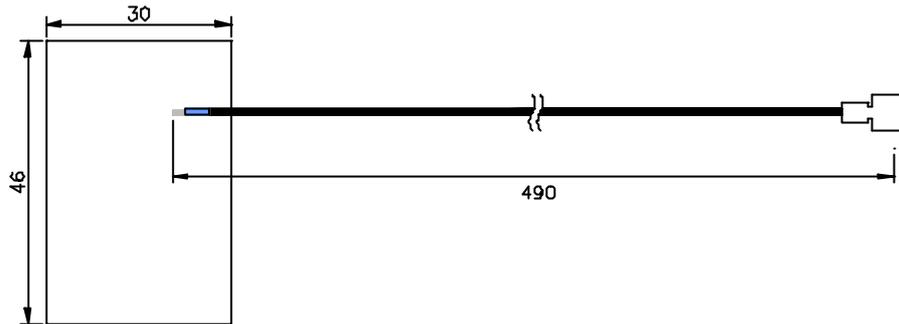
| | | |
|-----------------------------------|--|---|
| Antenna Patch Dimension | 46*30*0.4 mm Left Antenna (Aux, White or Gray) 28*10*0.4 mm Right Antenna (Main, Black) |  <p>Left (Aux)</p> |
| Coaxial Cable Length Aux (Left) | 490 mm, Color Gray or White | |
| Coaxial Cable Length Main (Right) | 590 mm, Color Black (Black is Main!) |  <p>Right (Main)</p> |
| MiniPCI Connector | Ipex/Hirose or Compatible | |
| Max Gain | 1.3 dBi/2.45GHz; 1.0 dBi/5GHz | |
| VSWR | 2.85 for 2.45GHz band 2.85 for 5.15~5.35 GHz band | |
| Polarization | Linear | |
| Impedance | 50Ω | |
| Operating Temperature | -40~90 °C | |
| Maximum Power | 1W | |

| | | | | | | | | | | | |
|---|---------------------------|-----------------|--|--|---------------|------------|---|--------|--------------|---|--------------|
| <p align="center">2.45/5GHz A2H Dual Band Antenna with Cable & Connector for IEEE802.11b, 11a, Bluetooth, UNII</p> | | | | <p align="center">4313 347 01252 (Right, Main, Black) 4313 347 02252 (Left, White or Gray)</p> | | | — | 1 | April 14, 03 | | |
| | | | | | | | — | 2 | April 15, 03 | | |
| | | | | | | | — | 3 | April 16, 03 | | |
| BY / 製定者 | YM Shen/ Cliff | SUPER / 原圖編號 | | TLLSH / 共頁 | 5 | PAGE/ 頁 | 2 | SH nr. | — | 4 | April 21, 03 |
| CHECK | | | | DATE / 日期 | June 16, 2003 | | — | 5 | June 16, 03 | | |

DIMENSIONAL DATA and Connector/Cable Information (PCB Tolerance +0.25 mm)



Main Antenna (Right, Cable Color: Black); Cable Length 590 mm +6mm -0 mm

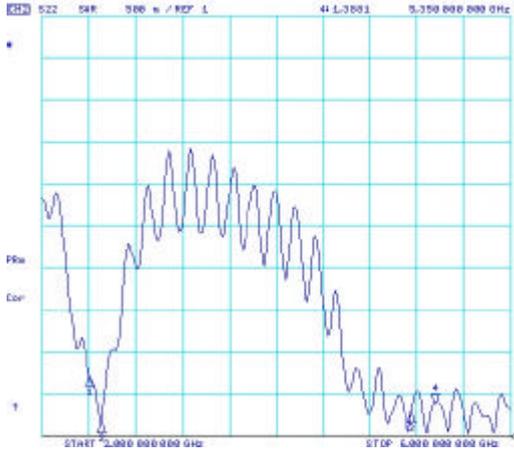


Aux Antenna (Left, Cable Color: White or Gray); Cable Length 490 mm +6mm -0 mm

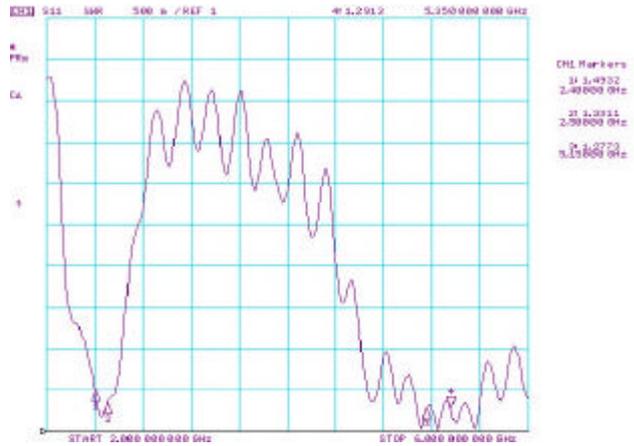
Note: The coax cable will be a 1.13mm diameter cable, single shielded, cable. It's inner conductor of the cable is silver-coated annealed copper wire or silver plated tin-copper alloy, the dielectric is a flouro-plastic (FEP) with a nominal diameter of 0.68mm and a nominal thickness of 0.22mm, the outer conductor is silver plated annealed copper wire with a nominal diameter of 0.93mm, and the jacket is a flouro-plastic (FEP) with an outer diameter of 1.13mm with a nominal thickness of 01.mm. The cable has a characteristic impedance of 50ohm, an insulation resistance of 1500meg-ohm/km maximum, and no breakdown for a dielectric withstanding voltage of 2000VAC for 1 minute. The insertion loss of a 250mm long cable assembled on both ends shall be no more than 0.85dB at 2.45GHz and no more than -1.5dB at 6.0GHz.

| | | | | | | | | | | | |
|---|-------------------|-----------------|--|---|---------------|----------|---|--------|--------------|---|--------------|
| 2.45/5GHz A2H Dual Band Antenna with Cable & Connector for IEEE802.11b, 11a, Bluetooth, UNII | | | | 4313 347 01252 (Right, Main, Black) 4313 347 02252 (Left, White or Gray) | | | — | 1 | April 14, 03 | | |
| | | | | | | | — | 2 | April 15, 03 | | |
| | | | | | | | — | 3 | April 16, 03 | | |
| BY / 製定者 | YM Shen/ Cliff | SUPER / 原圖編號 | | TLLSH / 共頁 | 5 | PAGE / 頁 | 3 | SH nr. | — | 4 | April 21, 03 |
| CHECK | | | | DATE / 日期 | June 16, 2003 | | — | 5 | June 16, 03 | | |

Typical VSWR (After Installation in Notebook)



Main Antenna VSWR (Right)



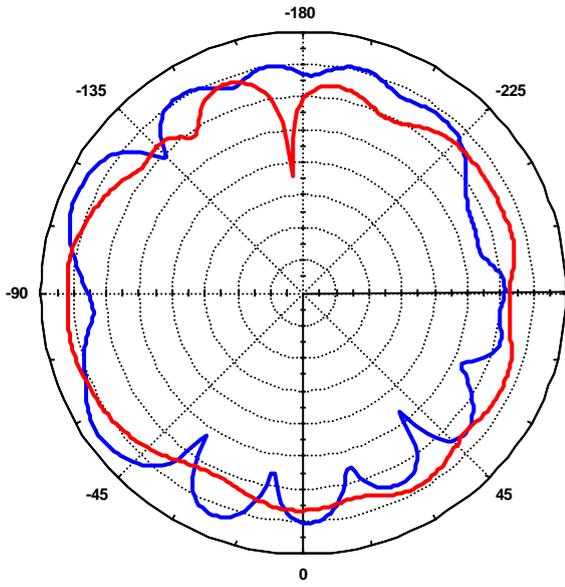
Aux Antenna VSWR (Left)

Note: May vary for different devices

| | | | | | | | | | | | |
|---|-------------------|-----------------|--|---|---------------|----------|---|--------|--------------|---|--------------|
| 2.45/5GHz A2H Dual Band Antenna with Cable & Connector for IEEE802.11b, 11a, Bluetooth, UNII | | | | 4313 347 01252 (Right, Main, Black) 4313 347 02252 (Left, White or Gray) | | | — | 1 | April 14, 03 | | |
| | | | | | | | — | 2 | April 15, 03 | | |
| | | | | | | | — | 3 | April 16, 03 | | |
| BY / 製 定 者 | YM Shen/ Cliff | SUPER / 原圖編號 | | TLLSH / 共 頁 | 5 | PAGE / 頁 | 4 | SH nr. | — | 4 | April 21, 03 |
| CHECK | | | | DATE / 日期 | June 16, 2003 | | — | 5 | June 16, 03 | | |

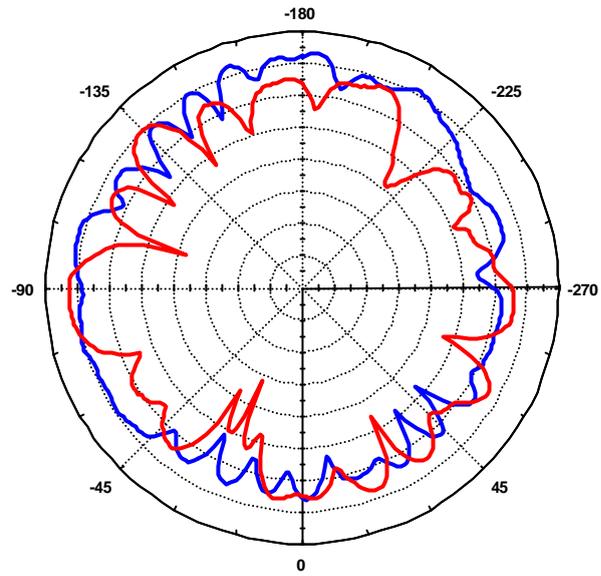
Typical Radiation Pattern Polar Plot

- Main Antenna (Right Antenna: **Red**-Vertical Polarization; **Blue**-Horizontal Polarization)



LCD Open 2450 MHz

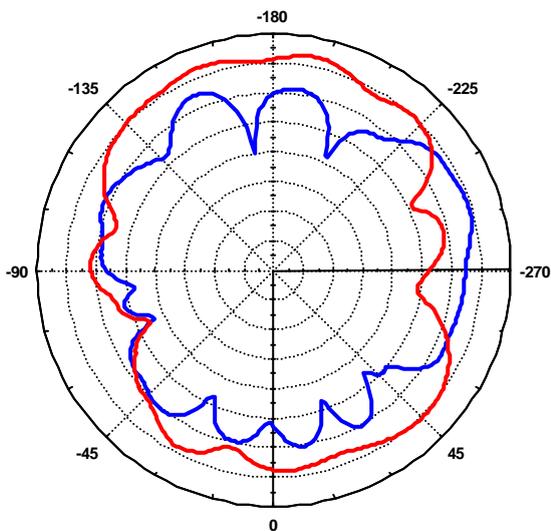
(Total Max. Gain: 1.3dBi; Average Gain: -4.6 dBi)



LCD Open 5250 MHz

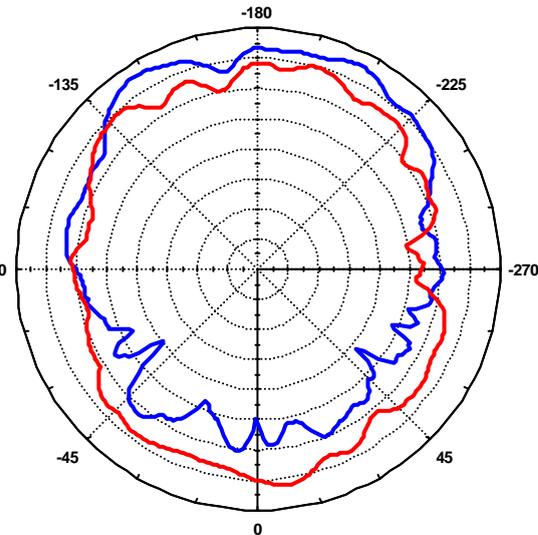
(Total Max. Gain: -1.4dBi; Average Gain: -6.9 dBi)

- Aux Antenna (Left Antenna)



LCD Open 2450 MHz

(Total Max. Gain: -1.7dBi; Average Gain: -6.6 dBi)



LCD Open 5250 MHz

(Total Max. Gain: 1.0dBi; Average Gain: -5.5 dBi)

Note: May vary for different devices

| | | | | | | | | | | | |
|---|-------------------|-----------------|--|---|---------------|------------|---|--------|--------------|-------------|--------------|
| 2.45/5GHz A2H Dual Band Antenna with Cable & Connector for IEEE802.11b, 11a, Bluetooth, UNII | | | | 4313 347 01252 (Right, Main, Black) 4313 347 02252 (Left, White or Gray) | | | — | 1 | April 14, 03 | | |
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| BY / 製定者 | YM Shen/ Cliff | SUPER / 原圖編號 | | TLLSH / 共頁 | 5 | PAGE/ 頁 | 5 | SH nr. | — | 4 | April 21, 03 |
| CHECK | | | | DATE / 日期 | June 16, 2003 | | | — | 5 | June 16, 03 | |

DATA SHEET

2.45/5GHz S5 Multi Band Antenna with Cable & Connector for IEEE802.11b, 11g, 11a & UNII

Product specification: Version x02

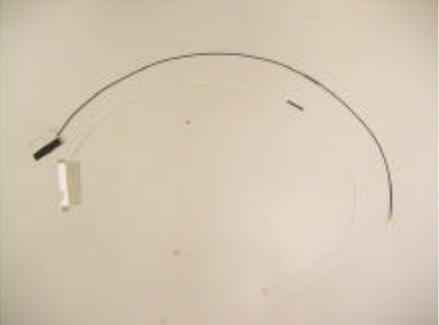
Oct 13, 2003

| | | | | | | | | | | | |
|---|--------------|-----------------|--|-----------------------------------|---------------|------------|---|-----------|-----|------------|--|
| 2.45/5GHz S5 Multi Band Antenna with Cable & Connector for IEEE802.11b, 11g, 11a, UNII | | | | S5 Antenna | | | | — | x01 | Aug 23, 03 | |
| | | | | Main Part NO: CAN4313 340 012501B | | | | — | x02 | Oct 13, 03 | |
| | | | | Aux Part NO: CAN4313 340 022501B | | | | — | 3 | | |
| BY / 製定者 | Cliff/Howard | SUPER / 原圖編號 | | TLLSH/ 共頁 | 8 | PAGE/ 頁 | 1 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | Oct. 13, 2003 | | | — | 5 | | |

**S5 Multi Band Antenna
FOR WLAN IEEE 802.11b/11g/11a, UNII
(With Cable & Mini PCI Connector)**

Product Specification

QUICK REFERENCE DATA

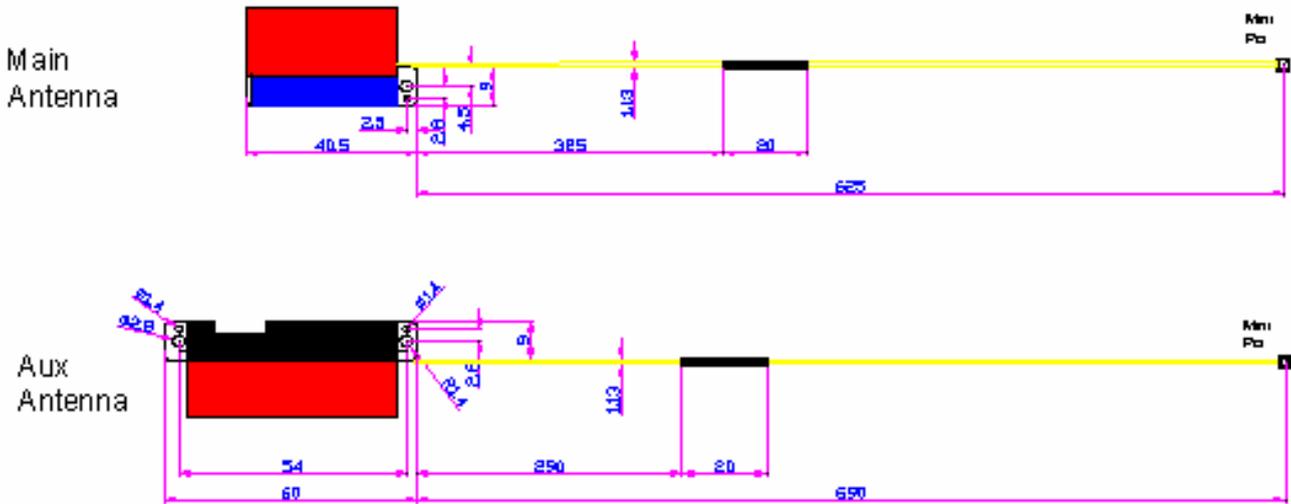
| | | |
|-------------------------|---|---|
| Antenna Patch Dimension | 40.5*9*0.5 mm Main Antenna 60.0*9*0.5 mm Aux Antenna |  |
| Main LCD Cable Length | 625 mm, Color Black (CAN4313340012501B) | |
| Aux LCD Cable Length | 690 mm, Color White or Grey (CAN4313340022501B) | |
| MiniPCI Connector | Ipex / Hirose or Compatible | |
| Peak Gain | 0.0 dBi/2.45GHz Band 1.8 dBi/5GHz Band | |
| VSWR | 2.5 for 2.45GHz band 2.85 for 5GHz band | |
| Polarization | Linear | |
| Impedance | 50Ω | |
| Operating Temperature | -40~90 °C | |
| Maximum Power | 1W | |

| | |
|------------------|--|
| Supplier Address | Yageo/Phycomp (Taiwan) Ltd. 16, west 3rd Street, N.E.P.Z Kaohsiung, 811 Taiwan, R.O.C. Yegeo/Phycomp Electronics (China) Co, Ltd No. 10, Zhu Yuan Road, Suzhou New District, Suzhou, PRC |
|------------------|--|

| | | | | | | | | | | | |
|---|--------------|-----------------|--|-----------------------------------|---------------|------------|---|-----------|-----|------------|--|
| 2.45/5GHz S5 Multi Band Antenna with Cable & Connector for IEEE802.11b, 11g, 11a, UNII | | | | S5 Antenna | | | | — | x01 | Aug 23, 03 | |
| | | | | Main Part NO: CAN4313 340 012501B | | | | — | x02 | Oct 13, 03 | |
| | | | | Aux Part NO: CAN4313 340 022501B | | | | — | 3 | | |
| BY / 製定者 | Cliff/Howard | SUPER / 原圖編號 | | TLLSH/ 共頁 | 8 | PAGE/ 頁 | 2 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | Oct. 13, 2003 | | | — | 5 | | |

DIMENSIONAL DATA and Connector/Cable Information (Tolerance:± 0.25 mm)

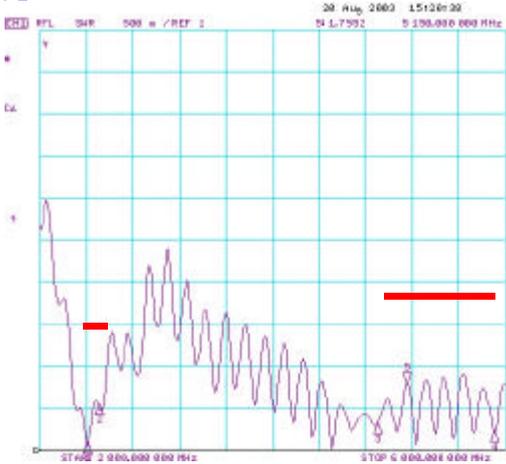
- Antenna Body (Main and Aux, Copper Metal Material):



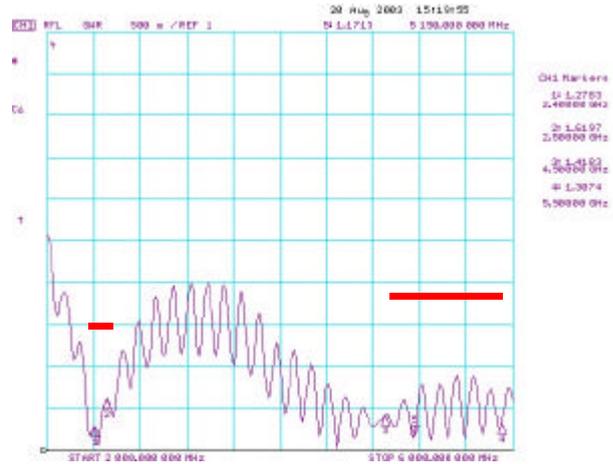
Note: The coaxial cable will be a 1.13mm diameter cable, single shielded, cable. It's inner conductor of the cable is silver-coated annealed copper wire or tin-copper plated alloy, the dielectric is a fluoro-plastic (FEP) with a nominal diameter of 0.68mm and a nominal thickness of 0.22mm, the outer conductor is silver plated annealed copper wire with a nominal diameter of 0.93mm, and the jacket is a fluoro-plastic (FEP) with an outer diameter of 1.13mm with a nominal thickness of 0.1mm. The cable has a characteristic impedance of 50ohm, an insulation resistance of 1500meg-ohm/km maximum, and no breakdown for a dielectric withstanding voltage of 2000VAC for 1 minute. The insertion loss of a 250mm long cable assembled on both ends shall be no more than 0.85dB at 2.45GHz and no more than -1.5dB at 6.0GHz.

| | | | | | | | | | | | |
|---|--------------|--------------|--|---|---------------|---------|---|--------|-----|------------|--|
| 2.45/5GHz S5 Multi Band Antenna with Cable & Connector for IEEE802.11b, 11g, 11a, UNII | | | | S5 Antenna Main Part NO: CAN4313 340 012501B Aux Part NO: CAN4313 340 022501B | | | | — | x01 | Aug 23, 03 | |
| | | | | | | | | — | x02 | Oct 13, 03 | |
| | | | | | | | | — | 3 | | |
| BY / 製定者 | Cliff/Howard | SUPER / 原圖編號 | | TLLSH/ 共頁 | 8 | PAGE/ 頁 | 3 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | Oct. 13, 2003 | | | — | 5 | | |

Typical VSWR (After Installation in Notebook)



Main Antenna

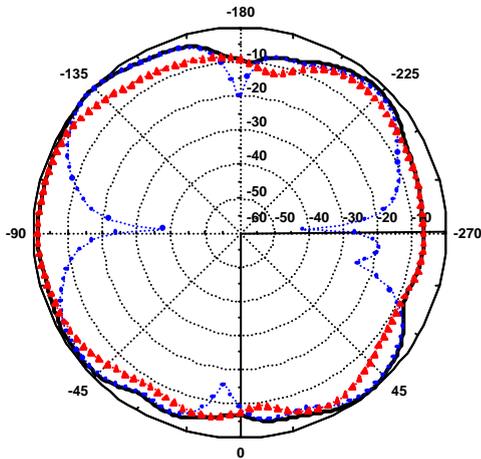


Aux Antenna

Note: May vary for different devices

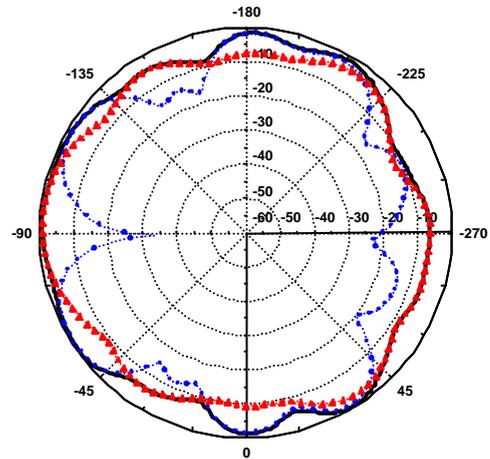
Typical Radiation Pattern Polar Plot (Based on After Antenna Installation)

- Main



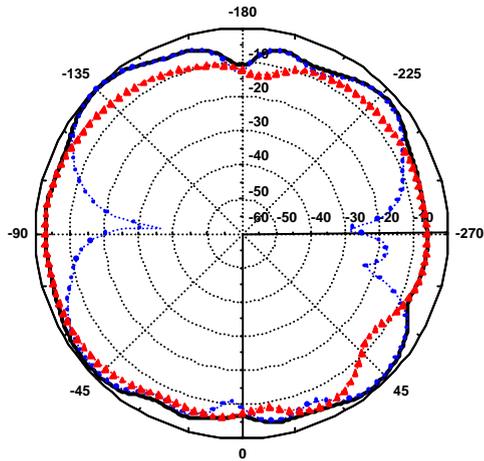
2400 MHz (Max Gain: 0.0dBi)

-Aux Antenna

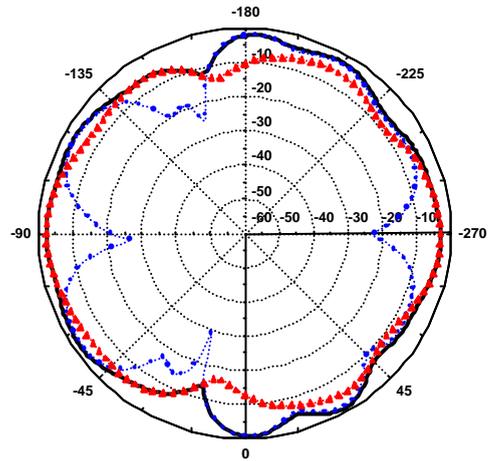


2400 MHz (Max Gain: -0.2dBi)

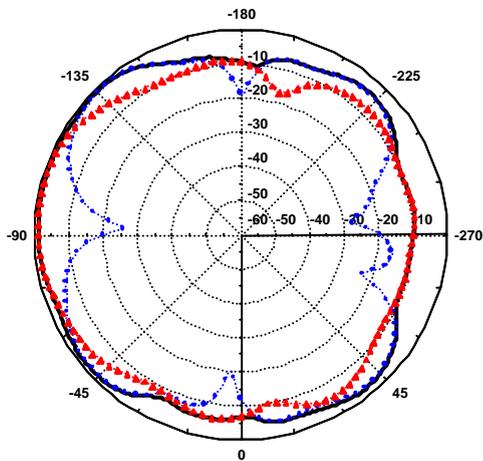
| | | | | | | | | | | |
|---|--------------|--------------|--|-----------------------------------|---|---------------|---|--------|-----|------------|
| 2.45/5GHz S5 Multi Band Antenna with Cable & Connector for IEEE802.11b, 11g, 11a, UNII | | | | S5 Antenna | | | | — | x01 | Aug 23, 03 |
| | | | | Main Part NO: CAN4313 340 012501B | | | | — | x02 | Oct 13, 03 |
| | | | | Aux Part NO: CAN4313 340 022501B | | | | — | 3 | |
| BY / 製定者 | Cliff/Howard | SUPER / 原圖編號 | | TLLSH / 共頁 | 8 | PAGE / 頁 | 4 | SH nr. | 4 | |
| CHECK | | | | DATE / 日期 | | Oct. 13, 2003 | | | 5 | |



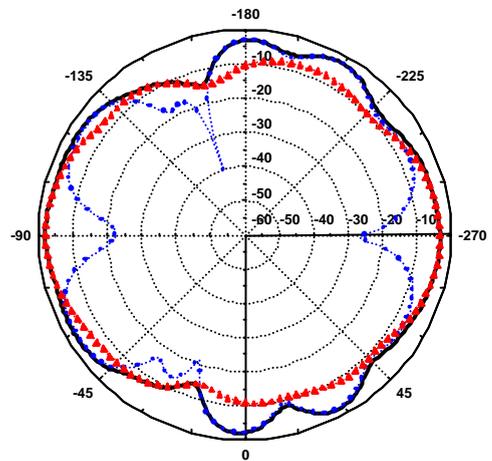
2450 MHz (Max Gain: -0.4dBi)



2450 MHz (Max Gain: -0.5dBi)

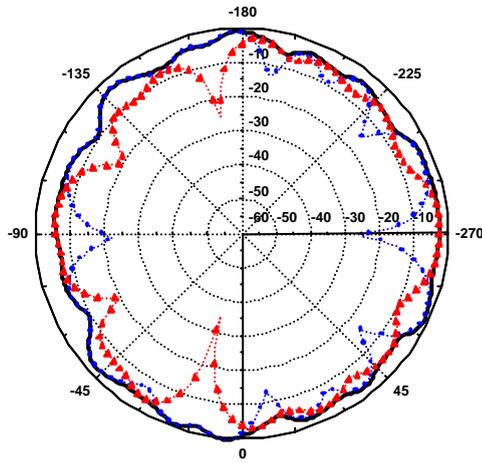


2500 MHz (Max Gain: -0.7dBi)

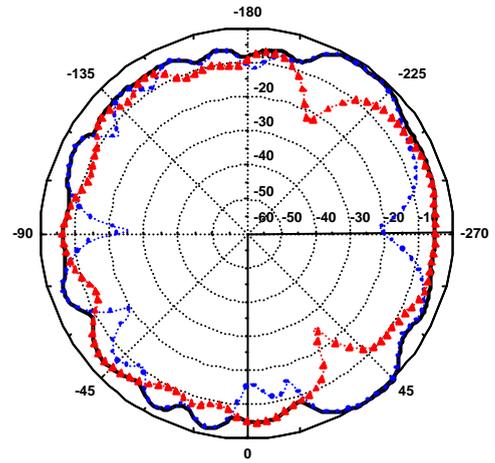


2500 MHz (Max Gain: -1.9dBi)

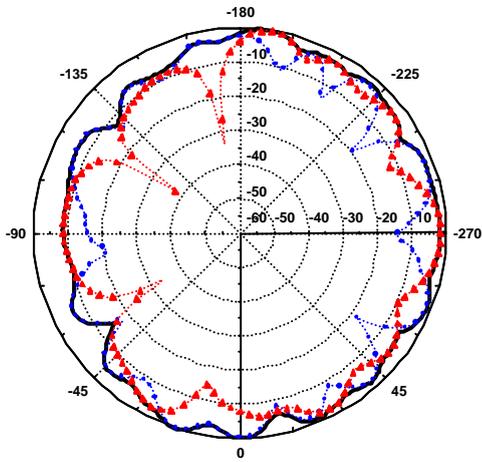
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|---|--------------|-----------------|--|-----------------------------------|---------------|------------|---|-----------|-----|------------|--|
| 2.45/5GHz S5 Multi Band Antenna with Cable & Connector for IEEE802.11b, 11g, 11a, UNII | | | | S5 Antenna | | | | — | x01 | Aug 23, 03 | |
| | | | | Main Part NO: CAN4313 340 012501B | | | | — | x02 | Oct 13, 03 | |
| | | | | Aux Part NO: CAN4313 340 022501B | | | | — | 3 | | |
| BY / 製定者 | Cliff/Howard | SUPER / 原圖編號 | | TLLSH/ 共頁 | 8 | PAGE/ 頁 | 5 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | Oct. 13, 2003 | | | — | 5 | | |



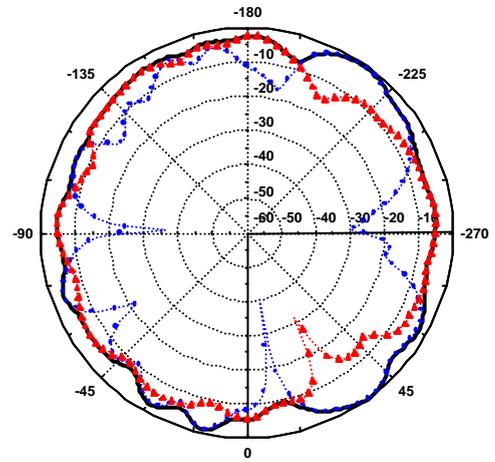
4900 MHz (Max Gain: 0.6dBi)



4900 MHz (Max Gain: 0.7dBi)

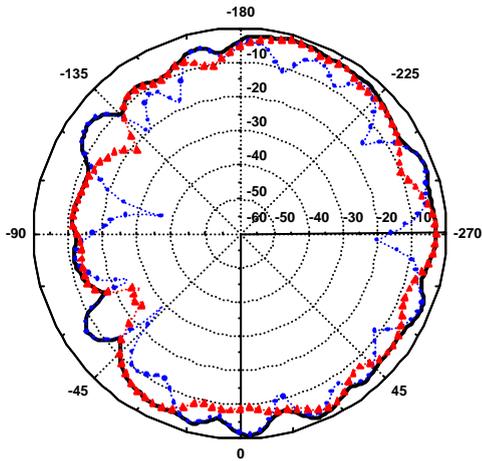


5150 MHz (Max Gain: 0.2dBi)

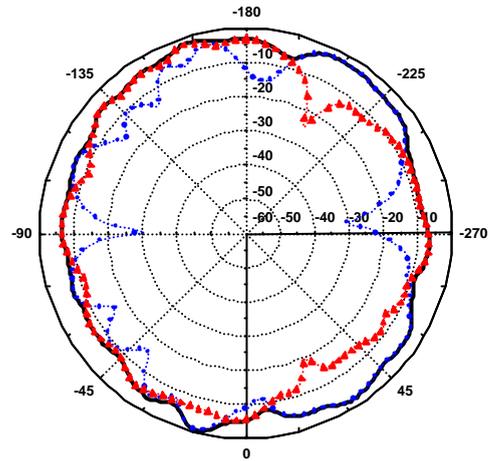


5150 MHz (Max Gain: 0.0dBi)

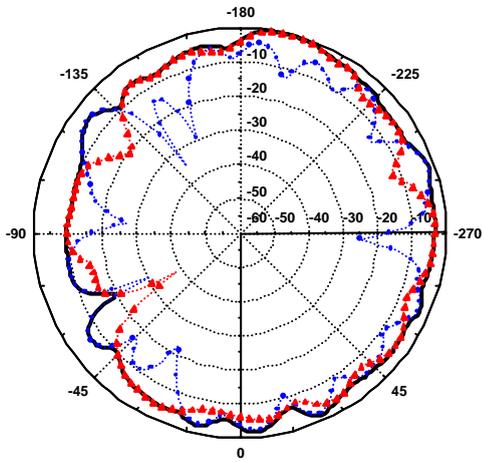
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|---|--------------|-----------------|--|-----------------------------------|---|---------------|---|-----------|-----|------------|--|
| 2.45/5GHz S5 Multi Band Antenna with Cable & Connector for IEEE802.11b, 11g, 11a, UNII | | | | S5 Antenna | | | | — | x01 | Aug 23, 03 | |
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| BY / 製定者 | Cliff/Howard | SUPER / 原圖編號 | | TLLSH/ 共頁 | 8 | PAGE/ 頁 | 6 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | | Oct. 13, 2003 | | | — | 5 | |



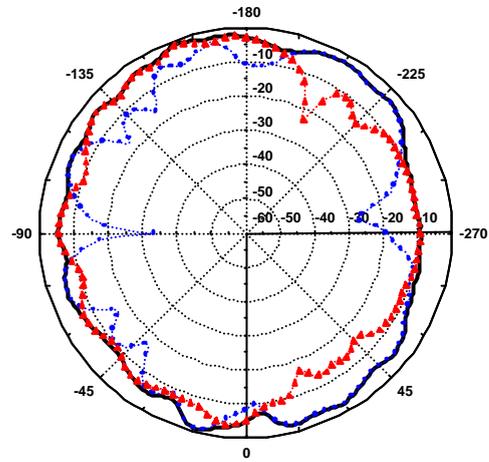
5350 MHz (Max Gain: -0.9dBi)



5350 MHz (Max Gain: -0.5dBi)

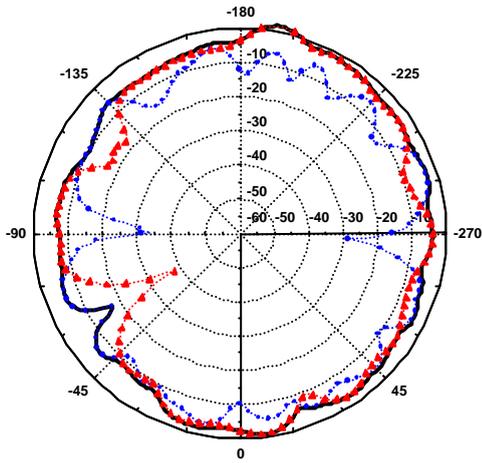


5470 MHz (Max Gain: -0.1dBi)

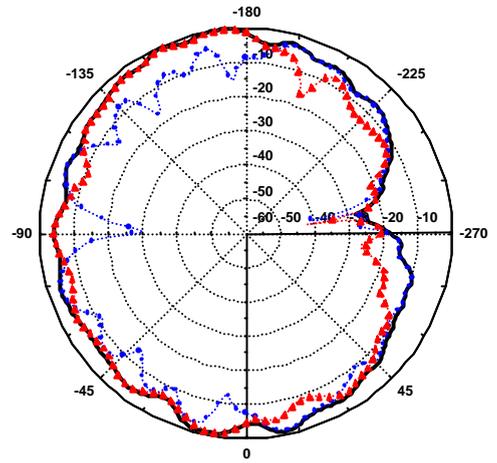


5470 MHz (Max Gain: -0.7dBi)

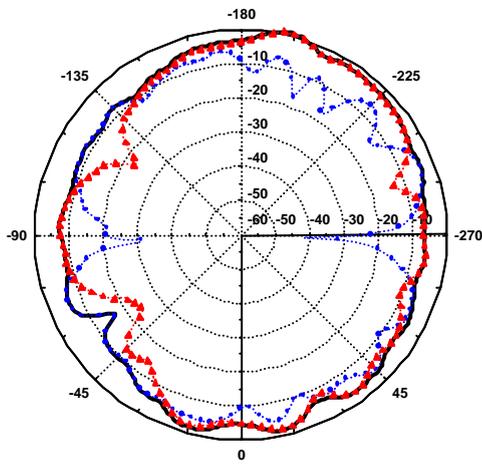
| | | | | | | | | | | | |
|---|--------------|-----------------|--|-----------------------------------|---|---------------|---|-----------|-----|------------|--|
| 2.45/5GHz S5 Multi Band Antenna with Cable & Connector for IEEE802.11b, 11g, 11a, UNII | | | | S5 Antenna | | | | — | x01 | Aug 23, 03 | |
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| BY / 製定者 | Cliff/Howard | SUPER / 原圖編號 | | TLLSH/ 共頁 | 8 | PAGE/ 頁 | 7 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | | Oct. 13, 2003 | | | — | 5 | |



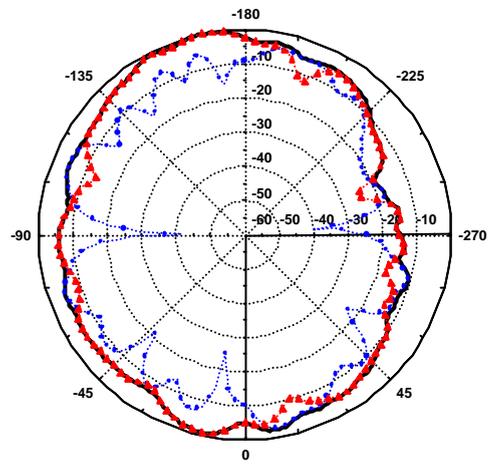
5725 MHz (Max Gain: 1.8dBi)



5725 MHz (Max Gain: 0.1dBi)



5900 MHz (Max Gain: 0.9dBi)



5900 MHz (Max Gain: 0.2dBi)

| | | | | | | | | | | | |
|---|--------------|-----------------|--|-----------------------------------|---|---------------|---|-----------|-----|------------|--|
| 2.45/5GHz S5 Multi Band Antenna with Cable & Connector for IEEE802.11b, 11g, 11a, UNII | | | | S5 Antenna | | | | — | x01 | Aug 23, 03 | |
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| BY / 製定者 | Cliff/Howard | SUPER / 原圖編號 | | TLLSH/ 共頁 | 8 | PAGE/ 頁 | 8 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | | Oct. 13, 2003 | | — | 5 | | |