DATA SHEET

2.45/5GHz Triple Band Antenna with Cable & Connector for IEEE802.11b, 11a, Bluetooth, UNII, and HyperLAN

Preliminary product specification
Supersedes data of 18th December 2002

2003 Jan 8 Rev.A00

2.45/5GHz Triple Band Antenna with Cable & Connector for IEEE802.11b, 11a Bluetooth, UNII, and HyperLAN				**4313 334 01250 Left Antenna (Dell 9W033, Compal DC330005700) 4313 334 02250 Right Antenna (Dell 1X011, Compal: DC330005710)**					— ▶	1	Dec. 18, 02
									— ▶	2	Jan. 8, 03
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WPI Reference Part No. WPANTFR4005C/WPANTFR4005D

Phicomp

2.45/5GHz Triple Band Antenna (Abacus Model BDW00) FOR WLAN IEEE 802.11b/11a, Bluetooth, UNII, and HyperLan (With Cable & mini PCI Connector)

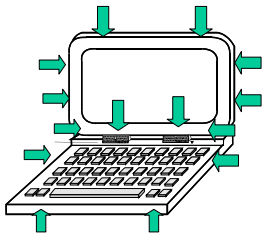
Product Specification

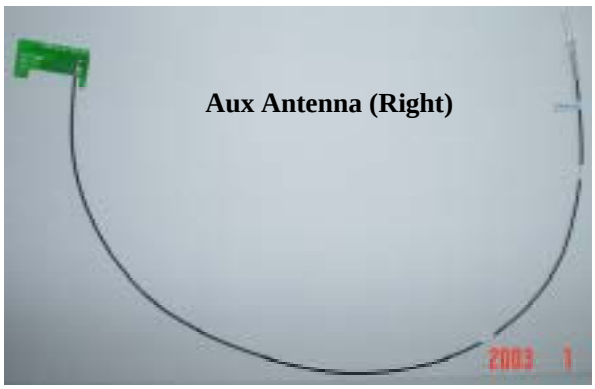
QUICK REFERENCE DATA

Antenna Patch Dimension	33*13 mm Main (1X011), White Cable
	30*17 mm Aux (9W033), Black Cable
miniPCI Connector	Hirose or Ipex Compatible
Max Gain	2.2 dBi/2.45GHz; 3.9 dBi/5GHz
VSWR	2.5 for 2.45GHz band
	3 for 5GHz band
Polarization	Linear
Impedance	50Ω
Operating Temperature	-40~90 ^{o}C
Maximum Power	1W
Antenna Flammability Grade	Antenna Patch: UL94V0; Antenna Cable: E56198

APPLICATION

The antenna is used for RF communication by attaching antenna inside notebook's or PC's non-metal parts such as LCD frame, hinge, plastic case, main board, and etc. (possible antenna positions are shown below). The coaxial cable is further arranged inside notebook or PC and then connects to RF board (such as mini PCI card in notebook) by a connector.





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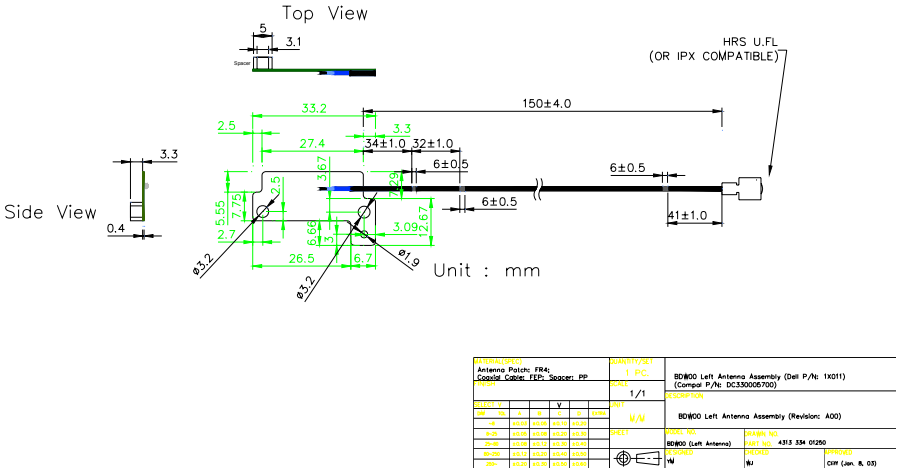
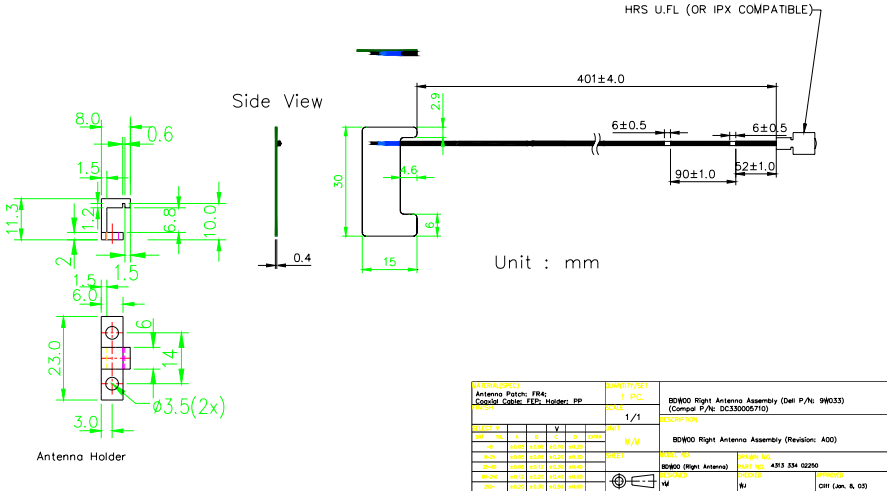
DIMENSIONAL DATA and Connector/Cable Information (unit: mm)



Main Left Antenna (Cable Color: White)



Aux Right Antenna (Cable Color: Black)

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. Connector type is UFL-LP-066, after mating, maximum height is 2.5 mm max.

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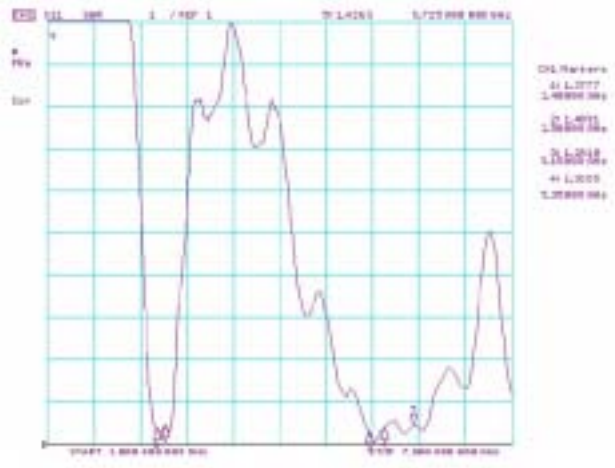
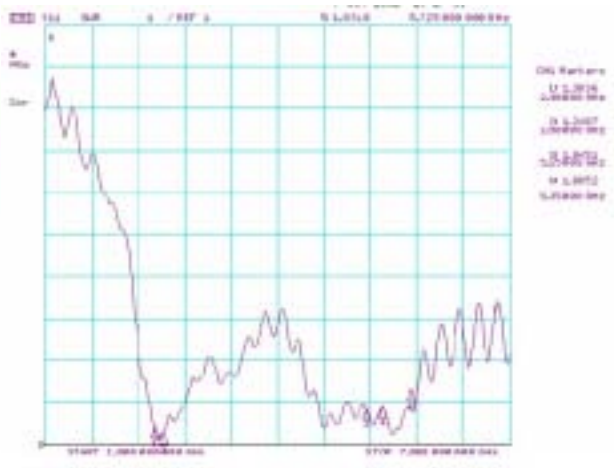
Typical VSWR & Return Loss S11 (After Installation in Notebook coupling in notebook)



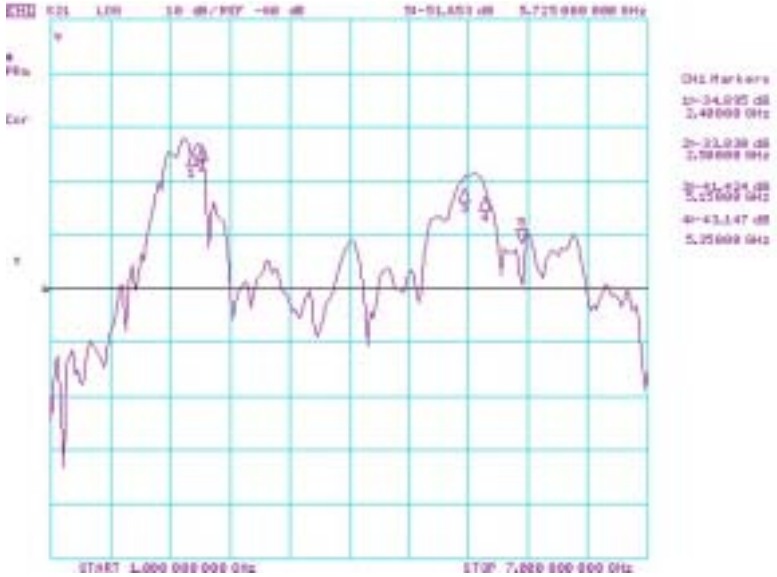
Main Antenna



Aux Antenna

Note: May vary for different devices

Typical isolation between two antennas



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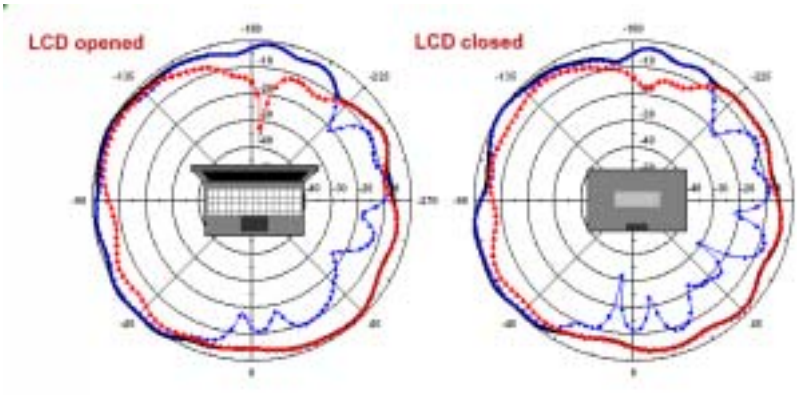
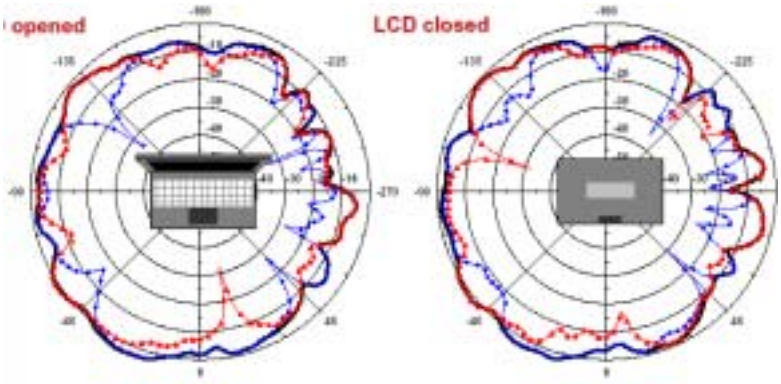
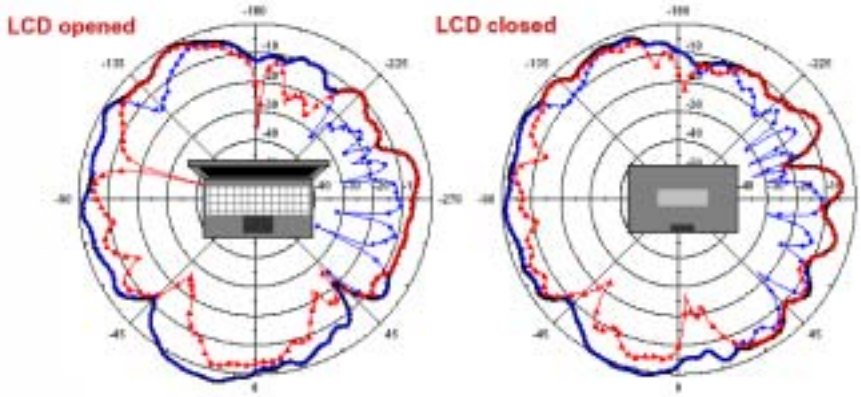
Typical Radiation Pattern Polar Plot (Based on After Antenna Installation)



Main Antenna: 2.45 GHz



Main Antenna: 5.25 GHz



Main Antenna: 5.6 GHz

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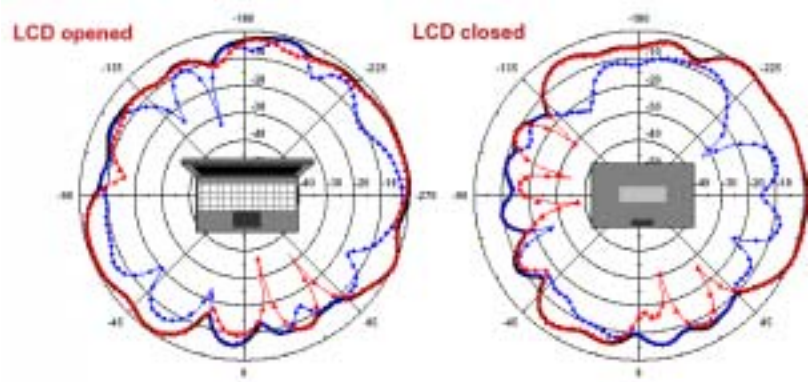
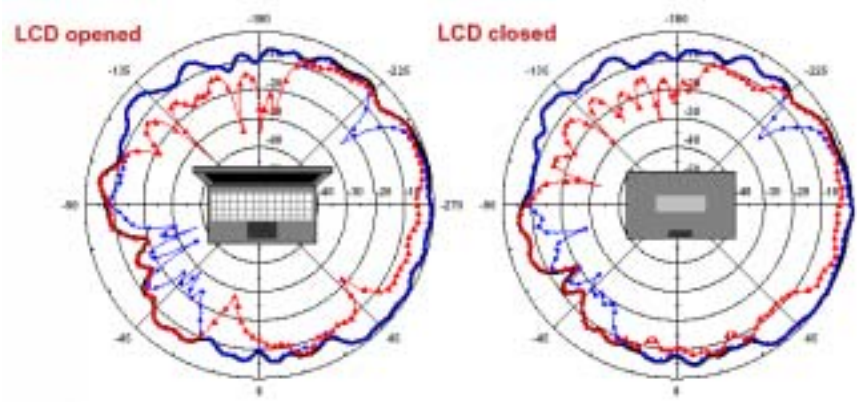
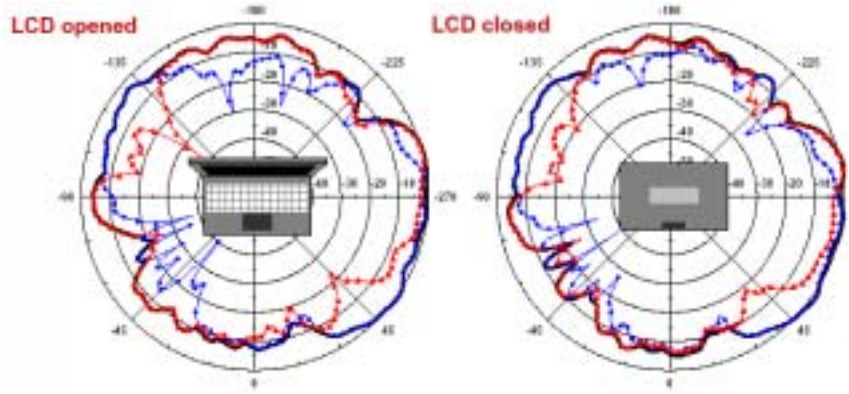


Aux Antenna: 2.45 GHz



Aux Antenna: 5.25 GHz



Aux Antenna: 5.6 GHz

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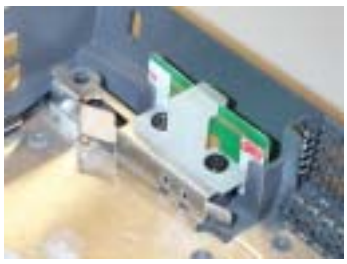
Installation Removal Antenna

Main Antenna



Aux Antenna

Reliability Data for Connector

Item	Specification		Conditions
1. Contact resistance	Center: 20 mΩ max. Outside: 10 mΩ max.		Measured at 10 mA max.
2. Insulation resistance	500 MΩ min.		Measured at 100 V DC
3. Withstand voltage	No line or insulation breakdown		200 V AC for 1 minute
4. V.S.W.R.*	1.3 max.		DC to 3 GHz
	Dia.0.81Cable	1.35	3 to 6 GHz
	Dia.1.13Cable	1.4	
	Dia.1.32Cable	1.5	
5. Female contact holding force	0.15 N min.		Measured with a ϕ 0.475 pin gauge
6. Repetitive operation	Contact resistance 25 mΩ max. (Center) 15 mΩ max. (Outside)		30 cycles of insertion and disengagement
7. Vibration	No momentary disconnections of 1 µs min. No damage, cracks, or parts looseness min.		Frequency of 10 to 100 Hz, single amplitude of 1.5 mm, acceleration of 59 m/s², for 5 cyles in the direction of each of the 3 axes
8. Shock	No momentary disconnections of 1 µs min. No damage, cracks, or parts looseness		Acceleration of 735 m/s², 11 ms duration, sine half-wave waveform, for 6 cycles in the direction of each of the 3 axes
9. Humidity resistance (Steady state)	No damage, cracks, or parts looseness Insulation resistance 100 MΩ min.(High temperature) Insulation resistance 500 MΩ min.(Dry)		Temperature of 40 C, humidity of 95%, let stand for 96 hours
10. Temperature cycle	No damage, cracks, or parts looseness Contact resistance 25 mΩ max. (Center) 15 mΩ max. (Outside)		Temperature: +40°C → 5 to 35°C → +80°C → 5 to 35°C Time: 30 min. → Within 5 min. → 30 min. → Within 5 min. Cycles: 5
11. Salt spray test	No excessive corrosion		48 hours continuous exposure to 5% salt water

RELIABILITY DATA for Antenna Patch (Reference to IEC Specification)

IEC 384-10/ CECC 32 100 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
4.12	4(Na)	Rapid change of temperature	-40 °C (30 minutes) to +90 °C (30 minutes); 100 cycles	No visible damage Central Freq. Change ± 6%
4.14	3(Ca)	Damp heat	500 ± 12 hours at 60 °C; 90 to 95 % RH	No visible damage 2 hours recovery Central Freq. Change ± 6%
4.15		Endurance	500 ± 12 hours at 90 °C;	No visible damage 2 hours recovery Central Freq. Change ± 6%

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ORDERING INFORMATION: Method I- by 12NC Ordering Code

The antennas may be ordered by using the 12 NC ordering code. These code numbers can be determined by the following rules:

4313 3 34 01 250 — 4313 3 34 02 250

F C M S T A

F. Family Code

43 = Antenna

C. Packing Type Code

13 = Bulk (1000 pcs)

M. Materials Code

3 = High Frequency Material

S. Size Code

34 = 33*13 mm Main Antenna; 30*17 mm Aux Antenna

T. Tolerance/Cable

01 = Cable 1 Main Antenna (Gray); **02** = Cable 2 Aux Antenna (Black)

A. Working Frequency

250 = 2.45/5 GHz Triple Band

Example: 12NC 4313 334 01250
Product description: Antenna (43) by bulk 1000 pcs (13) of High Frequency Material (3), Size 33*13 mm (34) ; Cable (01) of for cable 1 main antenna, Working Frequency (252) = 2.45/5.2G Hz

ORDERING INFORMATION: Method II- by Clear Text Code

The antennas may be ordered by using the 16-digit clear text ordering code. These code numbers can be determined by the following rules:

AN2500010433131B (Left Main Antenna) AN2500020430201B (Right Aux Antenna)						
AN	2500	01 02	04	3313 3020	1	B
Product	Central Frequency	Bandwidth & Cable	Material	Size	Quantities	Packing
AN= Antenna	2500=2.45/ 5G Hz	01= Cable 1 02= Cable 2	04=K4	3313=33*13 3020=30*15	1 = 1K	B = Bulk

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Revision Control:

Revision	Date	Content	Remark
2A	Dec. 18, 2002	Dimension, clear text code, and radiation pattern update	
A00	Jan. 8, 03	Dimension, and right antenna holder	

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