Product External Spec
For
802.11a/g Dual Band Access Point

Model Number: DWL-7100AP

Revision: 1.4

Revision History

Rev.	Date	Author	Reason for Changes
1.0	Jun 10, 2003	Alex Lei	• New released
1.1	Sep. 10, 2003	Beny Chen, Tommy Yue	• Modify software feature
1.2	Nov. 03,2003	Meihuei Lin	• Add super G feature and Photo.
1.3	Dec.24,2003	Meihuei Lin	• Add D-View Module and AP Manager function
1.4	Sep. 11 2006	Simon Hsu	• Modify some typo

Contents

1.0 Scope

1.1 Document

The DWL-7100AP Dual Band Access Point simultaneously connects to both 802.11a and 802.11b/g wireless networks. The DWL-7100AP is the ideal solution for any network administrator who needs to expand the capacity of the wireless network and allow users on different frequencies to connect.

Featuring the latest dual-band technology in 2.4GHz and 5GHz, it is also a best-of-both-worlds solution for those operating wireless networks in public areas where the extra bandwidth can attract additional paying customers.

This is especially applicable to wireless networks in high traffic areas such as airports, coffee shops, shopping centers, sporting venues, and university campus deployments.

At transfer rates of up to 54Mbps and 108Mbps turbo mode in the 5GHz and 2.4GHz frequency range, users connected to the DWL-7100AP will enjoy faster downloads and truly instant email communication.

In addition to 802.11a and 802.11b/g wireless networks, the DWL-7100AP can bridge to wire networks with its integrated 10/100M Ethernet port.

For more secure communication, DWL-7100AP supports encryption settings up to 152-bit WEP, and advanced security of WPA and future 802.11i software upgradeable. With its web-based configuration the DWL-7100AP is easy to install, alter or activate advanced setting, or update with the latest firmware.

1.2 Product Features

- Provide Ethernet to Wireless LAN bridge fully IEEE 802.3 compatible on the Ethernet side and fully interoperable with IEEE 802.11a/b/g compliant equipment.

- Compatible with IEEE 802.11a high rate standard to provide wireless 54Mbps data rate, and the turbo mode of 108Mbps (for USA)

- Compatible with IEEE 802.11b high rate standard to provide wireless 11Mbps data rate

- Compatible with IEEE 802.11g higher speed standard to provide wireless 54Mbps data rate, and the turbo mode of 108Mbps

- Operation at 2.4~2.5GHz and 5.15 ~ 5.85GHz frequency band to meet worldwide regulations

- Allows auto fallback data rate for reliability, optimized throughput and transmission range

- Supports IEEE 802.11a/b/g wireless data encryption with 64/128/152-bit WEP for security

- Web-based configuration and management

- Dual diversity antennas for the multi-path environment

- Supports enhanced security – WPA, RADIUS client, and Cipher negotiation.

- Supports DFS/TPC for European operations

- Supports 10/100M Ethernet port

- Type approval compliant with USA, Japan, and Europe regulation

2.0 Requirements

The following sections identify the detailed requirements of the **802.11a/b/g Dual Band Access Point.**

2.1 Functional Block Diagram
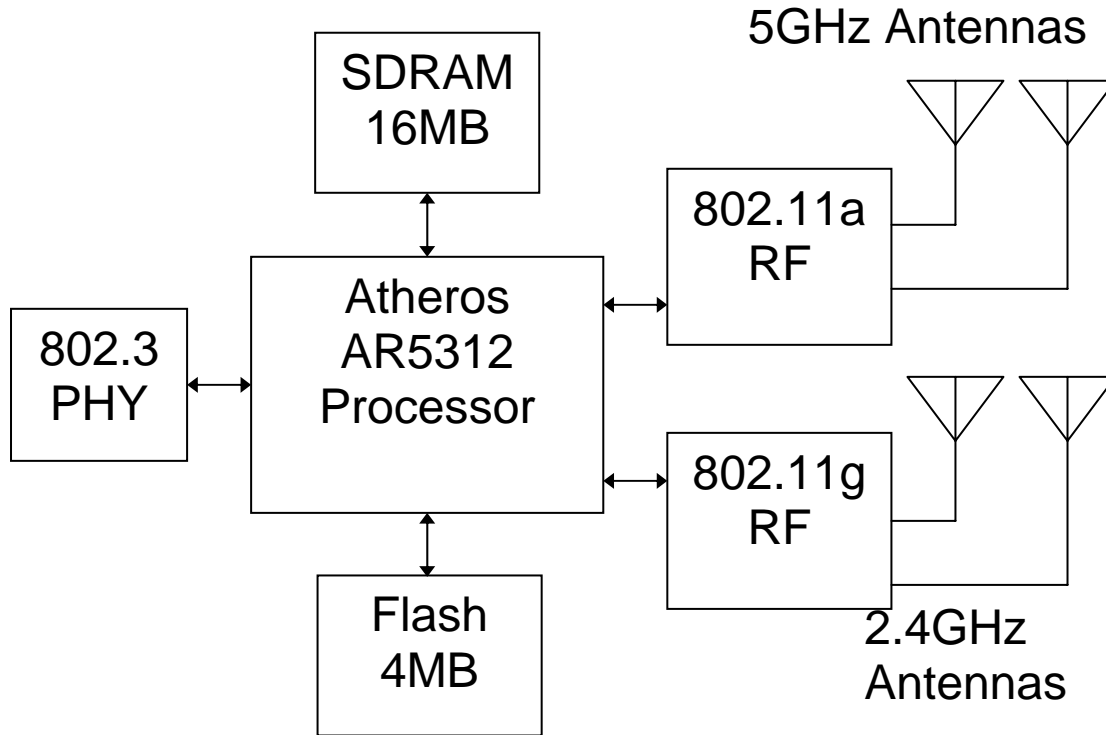
2.2 General Requirements

2.2.1 IEEE 802.11a Section

#	Feature	Detailed Description
2.2.1.1	Standard	• IEEE 802.11a
2.2.1.2	Radio and Modulation Type	• BPSK, QPSK, 16QAM, 64QAM, OFDM
2.2.1.3	Operating Frequency	• 5.15 ~ 5.35GHz and 5.725 ~ 5.825GHz for US and Canada • 5.15 ~ 5.25GHz for Japan • 5.15 ~ 5.35GHz and 5.47 ~ 5.725GHz for Europe • 5.725~5.85GHz for China
2.2.1.4	Channel Numbers	• 12 non-overlapping channels for US and Canada • 4 non-overlapping channels for Japan • 19 non-overlapping channels for Europe • 4 non-overlapping channels for China
2.2.1.5	Data Rate	• 108, 54, 48, 36, 24, 18, 12, 9 and 6Mbps
2.2.1.6	Media Access Protocol	• CSMA/CA with ACK
2.2.1.7	Transmitter Output Power	• Typical RF Output Power at each Data Rate • +14 ~ 15dBm at 54Mbps and 108Mbps • +14 ~ 16dBm at 48Mbps • +16 ~ 18dBm at 36, 24, 18, 12, 9, and 6Mbps
2.2.1.8	Receiver Sensitivity	• Typical Sensitivity at Which Frame (1000-byte PDUs) Error Rate = 10% • –87dBm at 6Mbps

#	Feature	Detailed Description
		• –86dBm at 9Mbps • –85dBm at 12Mbps • –83dBm at 18Mbps • –80dBm at 24Mbps • –76dBm at 36Mbps • –71dBm at 48Mbps • –66dBm at 54Mbps • –73dBm at 108Mbps (Turbo Mode)

2.2.2 IEEE 802.11b Section

#	Feature	Detailed Description
2.2.2.1	Standard	• IEEE 802.11b
2.2.2.2	Radio and Modulation Schemes	• DQPSK, DBPSK and CCK
2.2.2.3	Operating Frequency	• 2400 ~ 2497MHz ISM band
2.2.2.4	Channel Numbers	• 11 channels for United States • 13 channels for Europe Countries • 14 channels for Japan
2.2.2.5	Data Rate	• 11, 5.5, 2, and 1Mbps
2.2.2.6	Media Access Protocol	• CSMA/CA with ACK
2.2.2.7	Transmitter Output Power	• Typical 18dBm at 11, 5.5, 2 and 1Mbps
2.2.2.8	Receiver Sensitivity	• Typical –83dBm for 11Mbps @ 8% PER(Packet Error Rate) • Typical –89dBm for 2Mbps @ 8% PER(Packet Error Rate)

2.2.3 IEEE 802.11g Section

#	Feature	Detailed Description
2.2.3.1	Standard	• IEEE 802.11g
2.2.3.2	Radio and Modulation Type	• BPSK, QPSK, 16QAM, 64QAM, OFDM
2.2.3.3	Operating Frequency	• 2400 ~ 2483.5MHz ISM band
2.2.3.4	Channel Numbers	• 11 channels for United States • 13 channels for Europe Countries • 13 channels for Japan
2.2.3.5	Data Rate	• 108, 54, 48, 36, 24, 18, 12, 9 and 6Mbp
2.2.3.6	Media Access Protocol	• CSMA/CA with ACK
2.2.3.7	Transmitter Output Power	• Typical RF Output Power at each Data Rate • +14 ~ 15dBm at 54Mbps and 108Mbps • +14 ~ 16dBm at 48Mbps • +16 ~ 18dBm at 36, 24, 18, 12, 9, and 6Mbps
2.2.3.8	Receiver Sensitivity	• Typical Sensitivity at Which Frame (1000-byte PDUs) Error Rate = 10% • –87dBm at 6Mbps • –86dBm at 9Mbps • –85dBm at 12Mbps • –83dBm at 18Mbps • –80dBm at 24Mbps • –76dBm at 36Mbps • –71dBm at 48Mbps • –66dBm at 54Mbps

2.2.4 General Section

#	Feature	Detailed Description
2.2.4.1	Interface	• Power Jack

		•	Factory Reset Button
		•	10/100M Base-T (UTP)
		•	Wireless Dipole Antenna
2.2.4.2	Antenna Type	•	Dipole antennas with 2dBi gain for 2.4GHz/5GHz
		•	PIFA antennas with 2dBi gain for 2.4GHs/5GHz
2.2.4.3	Ethernet Standard	•	IEEE 802.3, IEEE 802.3u, IEEE 802.3x
2.2.4.4	Operating Voltage	•	5VDC +/- 10%
2.2.4.5	Current Consumption	•	Max. 6W
2.2.4.6	LEDs	•	Power LED
		•	10M LED
		•	100M LED
		•	802.11a LED
		•	802.11b/g LED

2.3 Software Requirements

The configuration of AP can be done through the Ethernet port by using the Web Manager application.

2.3.1 Network Setting

#	Feature	Detailed Description
2.3.1.1	Get IP From	• Dynamic (DHCP) • Static (Manual)
2.3.1.2	IP Address	• The IP address of the AP can be viewed and set
2.3.1.3	Subnet Mask	• The Ethernet station and the AP is on the same subnet. The IP address for the AP is correspond to the Subnet Mask
2.3.1.4	Default Gateway	• The Ethernet station and the AP are on the same Gateway. The IP address for the AP is correspond to the Gateway

2.3.2 Wireless Setting

#	Feature	Detailed Description
2.3.2.1	Wireless Band	• The Wireless Band of the AP can be viewed and set
2.3.2.2	SSID	• SSID is a group of AP. SSID is the name of the WLAN used for identifying the WLAN
2.3.2.3	Channel	• Can select the radio channel. The permissible channels dependent on the Wireless Band
2.3.2.4	Transmit Power Control	• Control TX power level from full, 50%, 25%, 12.5%, and min.
2.3.2.5	Radio control	• Radio on/off supported.
2.3.2.6	Auto Channel selection	• Scan channel and find a clear channel.
2.3.2.7	WDS	• AP Repeater mode, AP Client (Phase II)
2.3.2.8	DFS/TPC	• Dynamic Frequency Selection and Transmit Power Control (802.11a, Europe only)
2.3.2.9	Super G	• Support super g with high through up to 108Mbps

2.3.3 Security Setting

#	Feature	Detailed Description
2.3.3.1	WEP Enable/Disable	• Enable or disable WEP for security function
2.3.3.2	Authentication Type	• Open System Authentication, Shared Key Authentication or both enabled
2.3.3.3	WEP Key Type	• WEP Key Format: Option for both Hex and ASCII
2.3.3.4	WEP Key Size	• Four WEP keys can be selected for 64-bit, 128-bit and 152-bit WEP encryption for 802.11a • Four WEP keys can be selected for 64-bit, 128-bit and 152-bit WEP encryption for 802.11g
2.3.3.5	WPA	• TKIP
2.3.3.6	RADIUS client	• Supported EAP-MD5, EAP-TLS, and EAP-TTLS, EAP-PEAP

#	Feature	Detailed Description
		(Phase II)
2.3.3.7	ACL	• Mac address access control.
2.3.3.8	AES	• Support WLAN AES-CCM.

2.3.4 Management

#	Feature	Detailed Description
2.3.4.1	WEB	• Configuration via WEB
2.3.4.2	Telnet	• Configuration via Telnet. Telnet time out supported.
2.3.4.3	Remote upgrade	• You can use WEB or Telnet to remote upgrade f/w via Ethernet or Wireless
2.3.4.4	SNMP	• Support SNMP v3.
2.3.4.5	System status	• Display Device system status, like f/w version, device Mac address, UP time, etc.
2.3.4.6	Download/Upload configuration data	• You can use WEB or Telnet to download/upload configuration data via Ethernet or Wireless
2.3.4.7	Administrator	• One user name/password.
2.3.4.8	AP statistic	• Display AP Tx/Rx counter, error counter …etc
2.3.4.9	AP Manager	• Wireless management tool for easily configuring and setting
2.3.4.10	D-View Module	• Wireless management tool for easily configuring and setting(Phase II)

2.3.5 Others

#	Feature	Detailed Description
2.3.5.1	AP hidden	• The STA can't found the AP when enable.
2.3.5.2	DHCP Server	• Offer Dynamic IP
2.3.5.3	WLAN STA partition	• The WLAN STA can't access each other when enable.
2.3.5.4	Bridge Forwarding	• Support TCP/IP, IPX, and AppleTalk.
2.3.5.5	Link Integrity	• The WLAN disable when Ethernet link down or fail.

2.4 Mechanical Requirements

#	Feature	Detailed Description
2.4.1	Length of PCBA	• 175mm
2.4.2	Width of PCBA	• 105mm
2.4.3	High of PCBA	• 20mm

2.5 Compatibility Requirements

The Wireless Access Point will pass the following compatibility requirements.

#	Feature	Detailed Description
2.5.1	Wi-Fi	• Conform with Wi-Fi certification
2.5.2	Physical Layer and Functionality	• Pass D-Link Engineering Test Plan and Test Report

2.6 Regulatory Requirements

#	Feature	Detailed Description
2.6.1	USA	IEEE 802.11a: • EMI: FCC Part 15.407(b) • Power Limits: FCC Part 15.407(a) IEEE 802.11b/g: • FCC part 15.247, 15.205, 15.209 Safety: • UL1950-3 for CSA mark

#	Feature	Detailed Description
2.6.2	European Countries	IEEE 802.11a: • EMC: EN 301 489-1 and –17, EN 60950 • DFS/TPC: 301 893 Draft IEEE 802.11b/g: • EMC: EN 300 328, EN 300 826, EN 60950
2.6.3	Japan	IEEE 802.11a: • ARIB STD-T71 IEEE 802.11b/g: • ARIB STD-T66 and RCR STD-33A EMI: • VCCI
2.6.4	Canada	IEEE 802.11a/b/g: • Power Limits: RSS-210 6.2.2 (91) Safety: • CSA

2.7 Requirements of Reliability, Maintainability and Quality

#	Feature	Detailed Description
2.7.1	MTBF	• Mean Time Between Failure > 30,000 hours
2.7.2	Maintainability	• There is no scheduled preventive maintenance required
2.7.3	Quality	• The product quality followed D-Link quality control system

2.8 Environmental Requirements

#	Feature	Detailed Description
2.8.1	Operating Temperature Conditions	• The product is capable of continuous reliable operation when operating in ambient temperature of 0 ℃ to +40℃.
2.8.2	Non-Operating Temperature Conditions	• Neither subassemblies is damaged nor the operational performance be degraded when restored to the operating temperature after exposing to storage temperature in the range of -20 ℃ to +65 ℃.
2.8.3	Operating Humidity conditions	• The product is capable of continuous reliable operation when subjected to relative humidity in the range of 10% and 90% non-condensing.
2.8.4	Non-Operating Humidity Conditions	• The product is not be damaged nor the performance be degraded after exposure to relative humidity ranging from 5% to 95% non-condensing