Huawei

Agile Distributed Wi-Fi Solution

Datasheet

Product Overview

As ICT construction is taking place in various industries, such as the education, business, and enterprise, Wi-Fi technology has also found a wide application. Traditional settled AP or indoor distributed AP face the problems of poor signals or insufficient performance when providing coverage for dormitories, hotels, or offices. To resolve these problems, Huawei reforms the architecture of the traditional network and launches the innovative agile distributed Wi-Fi solution which can provide 1.167/1.267 Gbit/s high bandwidth for each room and comprehensive coverage without coverage holes. The agile distributed Wi-Fi solution is composed of the central AP (AD9430DN-24 or AD9430DN-12) and remote unit (R250D-E, R250D, R240D, or R230D). The central AP can be deployed in the equipment room, weak-current well, or on the corridor. The remote units (RUs) are placed in rooms, and signals are transmitted over wired cables, without wall penetration loss, delivering high-quality wireless access services.

AD9430DN-24

AD9430DN-12

R250D-E

R250D

R240D

R230D

- AD9430DN-12/24

  - The AD9430DN-24 central AP can be connected to 24 RUs directly and a maximum of 48 RUs through a switch.
  - The AD9430DN-12 central AP can be connected to 12 RUs directly and a maximum of 24 RUs through a switch.

- R250D-E

  - The R250D-E supports 802.11ac Wave 2, 2x2 MIMO (2SU-2MU), and two spatial streams. It can provide services simultaneously on both 2.4 GHz and 5 GHz frequency bands and support a highest rate of 400 Mbit/s at 2.4 GHz, 867 Mbit/s at 5 GHz, and 1.267 Gbit/s for the device.
  - The R250D-E has built-in Bluetooth, working with eSight to achieve Bluetooth location.
  - The R250D-E supports PoE OUT and can supply power to STAs such as IP phones.
  - The R250D-E has built-in antennas and supports PoE power supply in compliance with IEEE 802.3af/at and power supply of –48 V DC.
  - The R250D-E can be installed on a plate or desk.

- R250D

  - The R250D supports 802.11ac Wave 2, 2x2 MIMO (2SU-2MU), and two spatial streams. It can provide services simultaneously on both 2.4 GHz and 5 GHz frequency bands and support a highest rate of 400 Mbit/s at 2.4 GHz, 867 Mbit/s at 5 GHz, and 1.267 Gbit/s for the device.
  - The R250D has built-in antennas and supports PoE power supply in compliance with IEEE 802.3af/at.
  - The R250D can be installed on a ceiling, wall, or plate.

- R240D

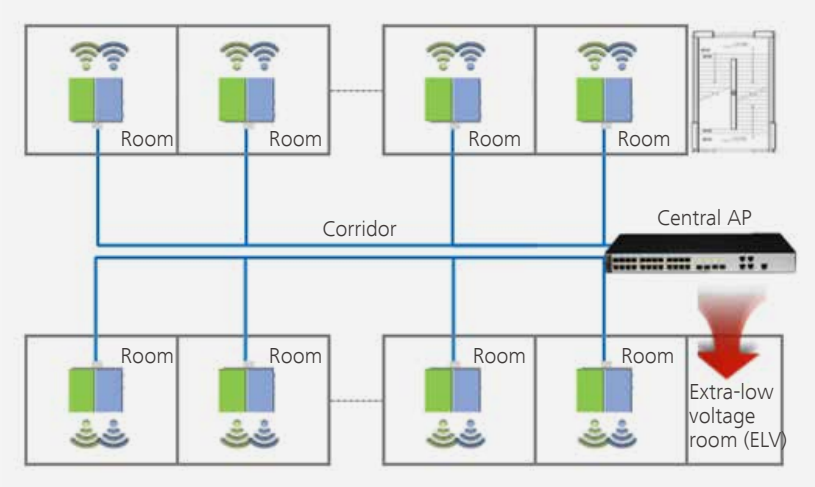
  - The R240D supports 802.11ac Wave 1, 2x2 MIMO, and two spatial streams. It can provide services simultaneously on both 2.4 GHz and 5 GHz frequency bands and support a highest rate of 300 Mbit/s at 2.4 GHz, 867 Mbit/s at 5 GHz, and 1.167 Gbit/s for the device.
  - The R240D has built-in antennas and supports PoE power supply in compliance with IEEE 802.3af/at and power supply of 12 V DC.
  - The R240D can be installed on a ceiling, wall, or plate.
  - An R240D provides one GE interface and four 100M interfaces for Ethernet connections or wired terminal connections, and one phone interface for phone connections.

- R230D

  - The R230D supports 802.11ac Wave 1, 2x2 MIMO, and two spatial streams. It can provide services simultaneously on both 2.4 GHz and 5 GHz frequency bands and support a highest rate of 300 Mbit/s at 2.4 GHz, 867 Mbit/s at 5 GHz, and 1.167 Gbit/s for the device.
  - The R230D has built-in antennas and supports PoE power supply in compliance with IEEE 802.3af/at, simplifying deployment and extending the installation range.
  - The R230D can be installed on a ceiling, wall, or plate.

Typical Networking

Typical networking of the central AP and RUs



The downlink GE interfaces of the central AP support PoE power supply and can be directly connected to RUs. This solution is applicable to scenarios with a high density of rooms, such as dormitories, hotels, and offices.

Feature Descriptions

Easy to Manage

- The RUs do not occupy AC licenses. The AC only needs to manage central APs, so nearly 10,000 rooms require merely about 200 APs.

Flexible Deployment Modes Ensure Full Signal Coverage Without Coverage Holes

- A central AP connects to indoor RUs through network cables without wall penetration loss and feeder loss, implementing high-quality signal coverage. The RUs can be flexibly mounted to a wall plate, wall, or ceiling

Long-Distance Coverage

- Unlike the traditional distributed AP which allows for a maximum feeder length of 15 m, the central AP uses network cables to replace feeder cables and supports up to 100 m distance from the RUs. The network coverage range is therefore expanded by several times.

Link Disconnection Survival

- When the link between the central AP and AC disconnects, the central AP and RUs can maintain the current working states, preventing service interruptions of users and ensuring high-reliability transmission.

Hierarchical Processing Technology, High Wireless Forwarding Capability

- Huawei agile distributed Wi-Fi solution uses innovative hierarchical processing technology. The central AP manages RUs in a centralized manner and concurrently forwards service traffic, while the RUs only process radio signals. The hierarchical design makes the network structure clearer and reduces the processing burden on the central AP and RUs, improving efficiency and optimizing the overall wireless forwarding performance.

Cloud-based management

- Huawei Cloud Managed Network (CMN) Solution consists of the cloud management platform and a full range of cloud managed network devices. The cloud management platform provides various functions including management of APs, tenants, applications, and licenses, network planning and optimization, device monitoring, network service configuration, and value-added services.

Basic Specifications

Hardware specifications (central AP)

Item		AD9430DN-24	AD9430DN-12
Physical specifications	Dimensions (H x W x D)	442 mm x 312 mm x 43.6 mm	220 mm x 220 mm x 53 mm
	Weight	4.4 kg	0.8 kg
Power specifications	Power input	100 V AC to 24 V AC	48 V DC or PoE
	Power output	24-port standard PoE output	62.5 W (maximum PoE output power)
Environmental specifications	Operating temperature	0°C to +45°C	–10°C to +50°C
	Storage temperature	–40°C to +70°C	–40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)	5% to 95% (non-condensing)
	Altitude	–60 m to +5,000 m	–60 m to +5,000 m
	Atmospheric pressure	70 kPa to 106 kPa	70 kPa to 106 kPa

Item		AD9430DN-24	AD9430DN-12
Performance specifications	Forwarding capability	4 Gbit/s	1.2 Gbit/s
	Interface type	4 uplink GE combo interfaces 24 downlink GE electrical interfaces (PoE OUT)	2 uplink GE electrical interfaces (one UPoE IN) 12 downlink GE electrical interfaces (PoE OUT)
	Maximum number of users	Maximum number of associated users: 4096 Maximum number of concurrent users: 1024	Maximum number of associated users: 2048 Maximum number of concurrent users: 512
	Number of managed RUs	Directly connected RUs: 24 RUs connected through a switch: 48	Directly connected RUs: 12 R230Ds or 6 R240Ds/R250Ds NOTE: Hybrid access of the R230D and R240D is not supported. RUs connected through a switch: 24

Hardware specifications (R250D-E/R250D)

Item		R250D-E	R250D
Physical specifications	Dimensions (H x W x D)	140 mm x 86 mm x 36 mm	120 mm x 86 mm x 26 mm
	Interfaces	Uplink: 1 x GE Downlink: 4 x GE Pass-through: 2 x RJ45 (compatible with RJ11) Other: 1 x USB	Uplink: 1 x GE Downlink: 1 x GE
	Mounting mode	Wall plate mounting, desk mounting	Wall mounting, ceiling mounting, wall plate mounting

Item		R250D-E	R250D
Power specifications	Power input	PoE power supply in compliance with IEEE 802.3af/at Adapter power supply: –48 V ± 5%	PoE power supply in compliance with IEEE 802.3af/at
	PoE OUT	Supported	Not supported
Environmental specifications	Operating temperature	0°C to +40°C	0°C to +40°C
	Storage temperature	–40°C to +70°C	–40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)	5% to 95% (non-condensing)
	Altitude	–60 m to +5,000 m	–60 m to +5,000 m
	Atmospheric pressure	53 kPa to 106 kPa	53 kPa to 106 kPa
Radio specifications	Standards compliance	802.11b/g/n/a/ac Wave 2	802.11b/g/n/a/ac Wave 2
	MIMO	2 x 2 (MU-MIMO)	2 x 2 (MU-MIMO)
	Bandwidth	1.267 Gbit/s	1.267 Gbit/s
	Antenna type	Built-in antenna	Built-in antenna
	Antenna gain	2.4G: 4 dBi 5G: 5 dBi	2.4G: 4 dBi 5G: 6 dBi
	Maximum number of users	≤ 256	≤ 256
	Maximum transmit power	2.4 GHz: 21 dBm (combined power) 5 GHz: 20 dBm (combined power) NOTE: The actual transmit power depends on local laws and regulations.	2.4 GHz: 21 dBm (combined power) 5 GHz: 20 dBm (combined power) NOTE: The actual transmit power depends on local laws and regulations.
	Power increment	1 dBm	1 dBm
	Receiver sensitivity	2.4 GHz 802.11b: -97dBm @ 1 Mbit/s; -91dBm @ 11 Mbit/s	2.4 GHz 802.11b: -99dBm @ 1 Mbit/s; -92dBm @ 11 Mbit/s
		2.4 GHz 802.11g: -93dBm @ 6 Mbit/s; -78dBm @ 54 Mbit/s	2.4 GHz 802.11g: -94dBm @ 6 Mbit/s; -78dBm @ 54 Mbit/s

Item		R250D-E	R250D
Radio specifications	Receiver sensitivity	2.4 GHz 802.11n (HT20): -93 dBm @ MCS0; -72 dBm @ MCS15	2.4 GHz 802.11n (HT20): -93 dBm @ MCS0; -72 dBm @ MCS15
		2.4 GHz 802.11n(HT40): -90 dBm @ MCS0; -71 dBm @ MCS15	2.4 GHz 802.11n(HT40): -91 dBm @ MCS0; -70 dBm @ MCS15
		5 GHz 802.11a: -93 dBm @ 6 Mbit/s; -77dBm @ 54 Mbit/s	5 GHz 802.11a: -91 dBm @ 6 Mbit/s; -76dBm @ 54 Mbit/s
		5 GHz 802.11n (HT20): -92 dBm @ MCS0; -72 dBm @ MCS15	5 GHz 802.11n (HT20): -91 dBm @ MCS0; -70 dBm @ MCS15
		5 GHz 802.11n (HT40): -89 dBm @ MCS0; -70dBm @ MCS15	5 GHz 802.11n (HT40): -88 dBm @ MCS0; -67dBm @ MCS15
		5 GHz 802.11ac (VTH20): -92 dBm @ MCS0NSS1; -71 dBm @ MCS8NSS2	5 GHz 802.11ac (VHT20): -91 dBm @ MCS0NSS1; -67 dBm @ MCS8NSS2
		5 GHz 802.11ac (VTH40): -90 dBm @ MCS0NSS1; -63 dBm @ MCS9NSS2	5 GHz 802.11ac (VHT40): -88 dBm @ MCS0NSS1; -62 dBm @ MCS9NSS2
		5 GHz 802.11ac (VTH80): -86 dBm @ MCS0NSS1; -60 dBm @ MCS9NSS2	5 GHz 802.11ac (VHT80): -85 dBm @ MCS0NSS1; -59 dBm @ MCS9NSS2

Hardware specifications (R240D/R230D)

Item		R240D	R230D
Technical specifications	Dimensions (H x W x D)	140 mm x 86 mm x 41.5 mm	120 mm x 86 mm x 26 mm
	Interfaces	Uplink: 1 x GE Downlink: 4 x FE Pass-through: 2 x RJ11	1 x FE
	Mounting mode	Wall mounting, ceiling mounting, wall plate mounting	Wall mounting, ceiling mounting, wall plate mounting

Item		R240D	R230D
Power specifications	Power input	PoE power supply in compliance with IEEE 802.3af/at Adapter power supply: 12 V ± 10%	PoE power supply in compliance with IEEE 802.3af/at
Environmental specifications	Operating temperature	0°C to +40°C	0°C to +40°C
	Storage temperature	–40°C to +70°C	–40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)	5% to 95% (non-condensing)
	Altitude	–60 m to +5,000 m	–60 m to + 5,000 m
	Atmospheric pressure	70 kPa to 106 kPa	70 kPa to 106 kPa
Radio specifications	Standards compliance	802.11b/g/n/a/ac	802.11b/g/n/a/ac
	MIMO	2 x 2	2 x 2
	Bandwidth	1.167 Gbit/s	1.167 Gbit/s
	Antenna type	Built-in antenna	Built-in antenna
	Antenna gain	2.4G: 2 dBi 5G: 3 dBi	2.4G: 3 dBi 5G: 4 dBi
	Maximum number of users	≤ 256	≤ 256
	Maximum transmit power	20 dBm NOTE: The actual transmit power depends on local laws and regulations.	20 dBm NOTE: The actual transmit power depends on local laws and regulations.
	Power increment	1 dBm	1 dBm

Item		R240D	R230D
Radio specifications	Receiver sensitivity	2.4 GHz 802.11b (CCK): -101dBm @ 1 Mbit/s; -90dBm @ 11 Mbit/s	2.4 GHz 802.11b (CCK): -101dBm @ 1 Mbit/s; -90dBm @ 11 Mbit/s
		2.4 GHz 802.11g (non-HT20): -95dBm @ 6 Mbit/s; -79dBm @ 54 Mbit/s	2.4 GHz 802.11g (non-HT20): -95dBm @ 6 Mbit/s; -79dBm @ 54 Mbit/s
		2.4 GHz 802.11n (HT20): -95 dBm @ MCS0; -77 dBm @ MCS7	2.4 GHz 802.11n (HT20): -95 dBm @ MCS0; -77 dBm @ MCS7
		2.4 GHz 802.11n(HT40): -93 dBm @ MCS0; -74 dBm @ MCS7	2.4 GHz 802.11n(HT40): -93 dBm @ MCS0; -74 dBm @ MCS7
		5 GHz 802.11a (non-HT20): -94 dBm @ 6 Mbit/s; -78dBm @ 54 Mbit/s	5 GHz 802.11a (non-HT20): -94 dBm @ 6 Mbit/s; -78dBm @ 54 Mbit/s
		5 GHz 802.11n (HT20): -94 dBm @ MCS0; -76 dBm @ MCS7	5 GHz 802.11n (HT20): -94 dBm @ MCS0; -76 dBm @ MCS7
		5 GHz 802.11n (HT40): -91 dBm @ MCS0; -73dBm @ MCS7	5 GHz 802.11n (HT40): -91 dBm @ MCS0; -73dBm @ MCS7
		5 GHz 802.11ac (VTH20): -95 dBm @ MCS0NSS1; -71 dBm @ MCS8NSS1	5 GHz 802.11ac (VTH20): -95 dBm @ MCS0NSS1; -71 dBm @ MCS8NSS1
		5 GHz 802.11ac (VTH40): -91 dBm @ MCS0NSS1; -66 dBm @ MCS9NSS1	5 GHz 802.11ac (VTH40): -91 dBm @ MCS0NSS1; -66 dBm @ MCS9NSS1
		5 GHz 802.11ac (VTH80): -88 dBm @ MCS0NSS1; -63 dBm @ MCS9NSS1	5 GHz 802.11ac (VTH80): -88 dBm @ MCS0NSS1; -63 dBm @ MCS9NSS1

Software specifications

Item	Description
WLAN features	Compliance with IEEE 802.11a/b/g/n/ac Maximum rate: 1.267 Gbit/s (R250D/R250D-E) Maximum rate: 1.167 Gbit/s (R240D/R230D) Layer 2 network between the central AP and RUs Direct connection between the central AP and RUs Maximum Ratio Combining (MRC) Cyclic Delay Diversity (CDD)/Cyclic Shift Diversity (CSD) Maximum Likelihood Detection (MLD) Data unit aggregation, including A-MPDU (Tx/Rx) and A-MSDU (Rx only) 802.11 Dynamic Frequency Selection (DFS) Short Guard Interval (GI) in 20 MHz, 40 MHz, and 80 MHz modes Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile to implement priority-based data processing and forwarding Automatic and manual rate adjustment (the rate is adjusted automatically by default) WLAN channel management and channel rate adjustment Automatic channel scanning and interference avoidance Service Set Identifier (SSID) hiding, support for SSIDs in Chinese Signal Sustain Technology (SST) Unscheduled Automatic Power Save Delivery (U-APSD) Control and Provisioning of Wireless Access Points (CAPWAP) in Fit AP mode Automatic access Hotspot2.0 802.11k and 802.11v smart roaming
Network features	Compliance with IEEE 802.3u Auto-negotiation of the rate and duplex mode; automatic switchover between the Media Dependent Interface (MDI) and Media Dependent Interface Crossover (MDI-X) SSID-based VLAN assignment 4,094 VLAN IDs (1 to 4,094) and a maximum of 16 virtual APs (VAPs) for each radio AP control channel in tagged and untagged mixed mode DHCP client, obtaining IP addresses through DHCP Tunnel forwarding and direct forwarding STA isolation in the same VLAN Multicast Domain Name Service (mDNS) gateway protocol: supports AirPlay and AirPrint service sharing between users of different VLANs Access control lists (ACLs) Link Layer Discovery Protocol (LLDP) Service holding upon CAPWAP link disconnection Unified authentication on the AC Soft GRE

Item	Description
QoS features	Priority mapping and packet scheduling based on a WMM profile to implement priority-based data processing and forwarding WMM parameter management for each radio WMM power saving Priority mapping for upstream packets and flow-based mapping for downstream packets Queue mapping and scheduling User-based bandwidth limiting Adaptive bandwidth management (the system dynamically adjusts bandwidth based on the number of users and radio environment to improve user experience) Support for Microsoft Lync APIs and high voice call quality through Lync API identification and scheduling
Security features	Open system authentication WEP authentication/encryption WPA/WPA2-PSK authentication and encryption WPA/WPA2-802.1x authentication and encryption WPA-WPA2 authentication WAPI authentication and encryption WIDS including rogue AP and STA detection, attack detection, STA/AP blacklist and whitelist 802.1x authentication, MAC address authentication, and Portal authentication 802.11w Protected Management Frames (PMFs) Application identification in Fat AP mode URL filtering in Fat AP mode Antivirus in Fat AP mode Intrusion prevention in Fat AP mode
Maintenance features	Unified management and maintenance on the AC Plug-and-Play (PnP): automatic ally going online and loading configurations Batch upgrade Local AP management through the serial port or using Telnet Real-time configuration monitoring and fast fault location using the NMS System status alarm
BYOD	Identifies the device type according to the Organizationally Unique Identifier (OUI) in the MAC address. Identifies the device type according to the User Agent (UA) information in an HTTP packet Identifies the device type according to DHCP options. The RADIUS server delivers packet forwarding, security, and QoS policies according to the device type carried in the RADIUS authentication and accounting packets.
Spectrum analysis	Identifies interference sources such as baby monitors, Bluetooth devices, digital cordless phones (at 2.4 GHz frequency band only), wireless audio transmitters (at both the 2.4 GHz and 5 GHz frequency bands), wireless game controllers, and microwave ovens. Works with Huawei eSight to locate and perform spectrum analysis on interference sources.

Standards compliance

Item	Description
Safety standards	UL 60950–1 IEC 60950–1 EN 60950–1 GB 4943
Radio standards	ETSI EN 300 328 ETSI EN 301 893 RSS-210 AS/NZS 4268
EMC standards	EN 301 489–1 EN 301 489–17 ETSI EN 60601-1-2 ICES-003 YD/T 1312.2-2004 ITU k.21 GB 9254 GB 17625.1 EN 55022 EN 55024 CISPR 22 CISPR 24 IEC61000-4-6 IEC61000-4-2
IEEE standards	IEEE 802.11a/b/g IEEE 802.11n IEEE 802.11ac IEEE 802.11h IEEE 802.11d IEEE 802.11e IEEE 802.11k IEEE 802.11u IEEE 802.11v IEEE 802.11w

Item	Description
Security standards	802.11i, Wi-Fi Protected Access 2(WPA2), WPA 802.1x Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP), and EAP Type (s)
Environmental standards	ETSI 300 019-2-1 ETSI 300 019-2-2 ETSI 300 019-2-3 ETSI 300 019-1-1 ETSI 300 019-1-2 ETSI 300 019-1-3
EMF	CENELEC EN 62311 CENELEC EN 50385 RSS-102
RoHS	Directive 2002/95/EC & 2011/65/EU
Reach	Regulation 1907/2006/EC
WEEE	Directive 2002/96/EC & 2012/19/EU

Professional Service and Support

Huawei WLAN planning tools deliver expert network design and optimization services using the most professional simulation platform in the industry. Backed by fifteen years of continuous investment in wireless technologies, extensive network planning and optimization experience, and rich expert resources, Huawei helps customers:

- Design, deploy, and operate a high-performance network that is reliable and secure.
- Maximize return on investment and reduce operating expenses.

More Information

For more information, please visit http://e.huawei.com/en/ or contact your local Huawei office.

Enterprise Services

Product Overview

Marketing Documentation

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