



Nebula FWA505

5G NR Indoor Router

Nebula FWA505: Your all-in-one 5G NR indoor router. Elevate your connectivity effortlessly with seamless network and cost-effective solutions. Achieve cost efficiency, effort, and time savings. Enjoy worry-free connectivity with professional support, empowering your network's future success!

Benefits

Unleash the Power of 5G & WiFi 6

Nebula FWA505 offers plug-and-play convenience, harnessing the power of 5G & WiFi 6 to replace traditional wired connections. Say goodbye to lagging home networks and enjoy smooth conference calls and live streaming for SOHO and business. Plus, as an on-the-go network solution, it's perfect for provisional needs like construction sites, exhibitions, and pop-up stores. Saving you valuable time on setup.



5G NR with up to 4.67 Gbps* download rate



AX1800 WiFi 6 speeds up to 1.77 Gbps*



2.4/5GHz dual concurrent WiFi sharing with up to 64 devices



Nebula cloud app for easy set up & management



Full LAN Gigabit ports



Connection failover between both WAN interfaces

Commercial-Grade Connectivity

Experience optimized connectivity with WiFi 6, supporting up to 64 devices. Enjoy diverse network options with both 5GHz and 2.4GHz for optimal performance. Benefit from commercial-grade connectivity with Nebula FWA505, featuring dual Gigabit Ethernet LAN ports.



Cost Effective Mobile Internet

Nebula FWA505 outperforms mobile phone internet sharing for tenants, offering better performance, heat dissipation, and stability. It's also more cost-effective than wired internet setups, eliminating the need for wired networks while delivering superior speed.



Effortless Setup & Control with Nebula

Effortlessly simplify tasks with the Nebula app – quick setup and cloud management, no IT expertise required.

- Easy device onboarding with QR code scan & installation wizard
- Network and device status at a glance
- WiFi sharing via QR code or mobile messaging apps
- Network client access control
- Live troubleshooting tools
- Push notifications for abnormal network events

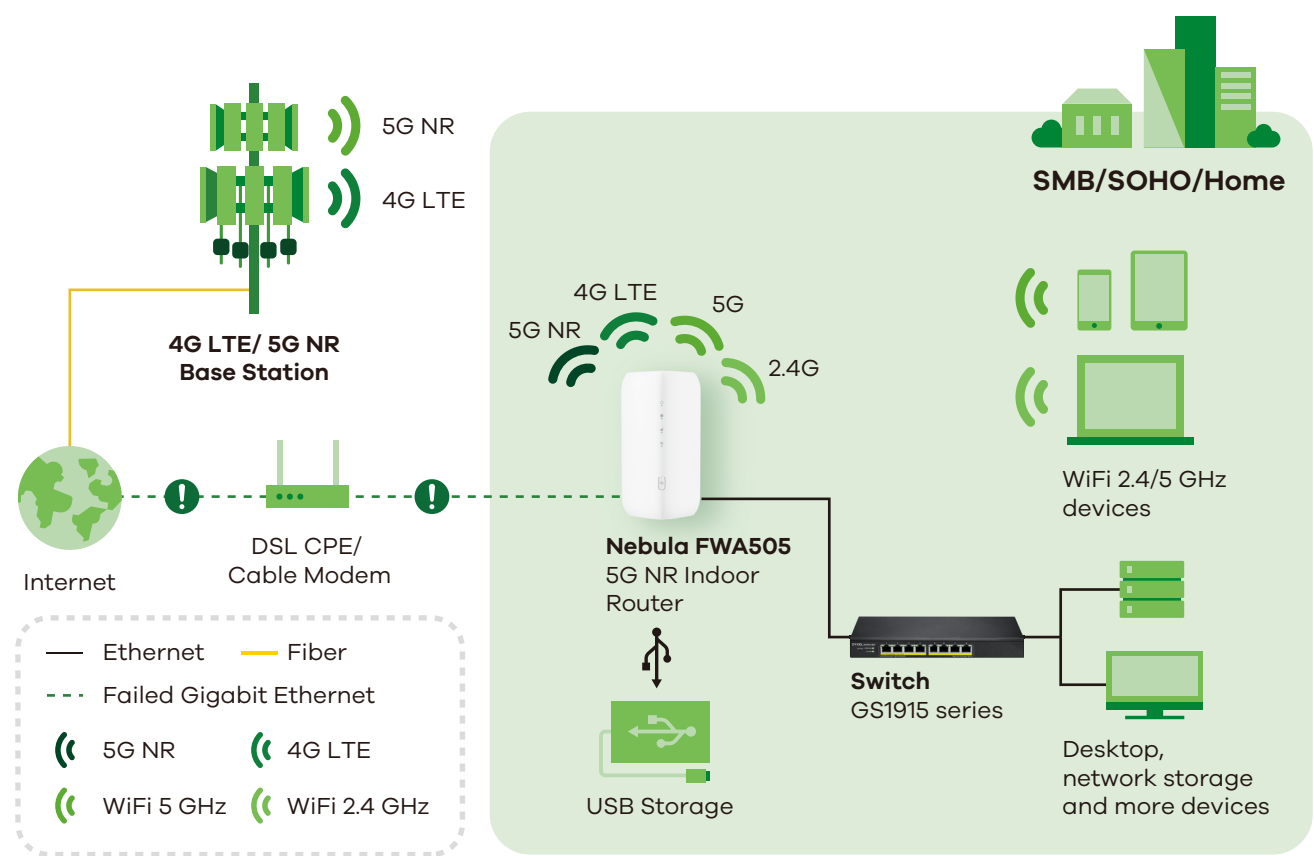
Security without Compromise

Nebula FWA505 is deployed with simple yet essential security and protection functions to help you reduce the risk of falling a victim of data theft and sabotage.

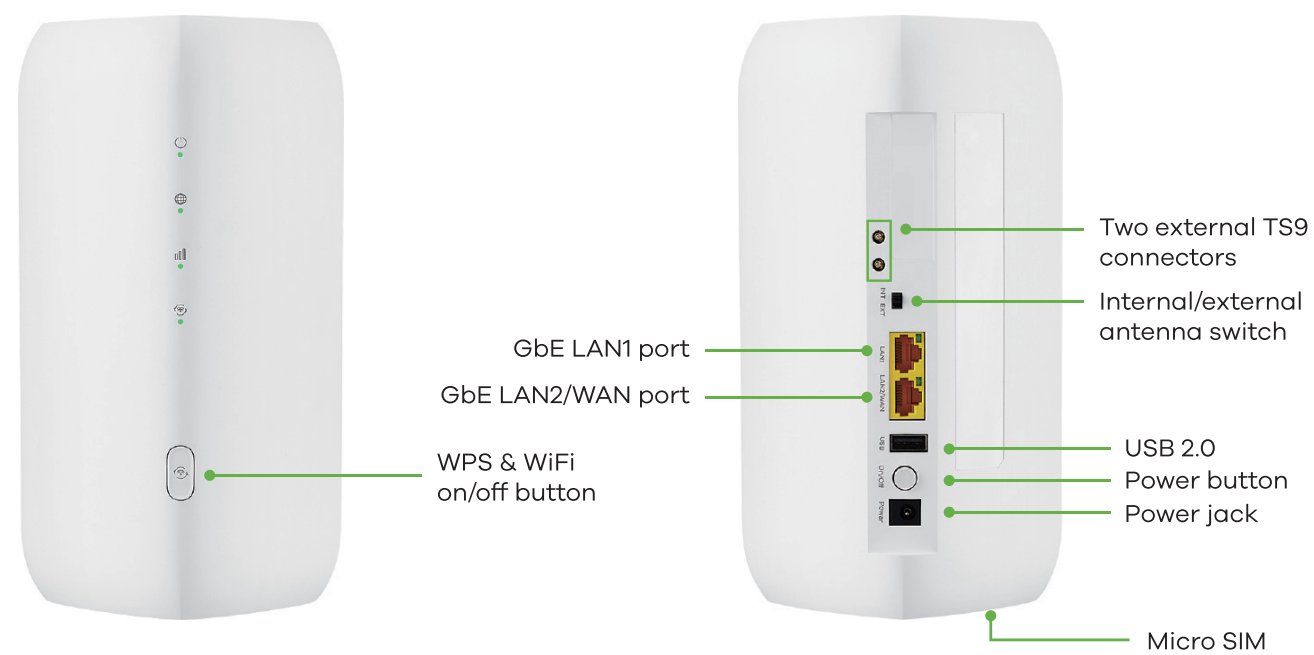
- Multiple/Hidden SSIDs
- NAT/NAPT firewall
- DoS attack detection
- WPA2 and WPA3
- SPI (Stateful Packet Inspection)
- Application-level firewall
- WLAN/LAN MAC filtering
- IP filtering
- URL filtering



Application Diagram



Interface Description



Specifications

System specifications

IP networking

- Supports IPv4/IPv6 dual stack (NDP IPv6)
- DHCP Client/server
- Virtual Private Network (VPN) pass-through
- Supports NAT/NAPT
- Supports DMZ
- Multiple APNs
- Supports port forwarding

Routing

- Supports bridge and router modes
- Supports remote management under bridge mode
- Static/dynamic route setting

IP firewall

- DoS attack detection
- Supports SPI
- Application-level firewall (LAN to WAN such as FTP, HTTP, Telnet, Ping)
- Filters LAN MAC address
- Filters LAN IP address

Management

- Supports local/remote device management and firmware upgrade via TR-069 and web GUI
- PIN/PUK management
- APN management
- Operating frequency band selection
- CLI/SSH (local and remote SSH access)
- Supports UPnP IGD
- Supports web server API to support APPs
- Supports Zyxel Nebula app (iOS and Android) for easy installation and local management

WLAN feature

- Auto channel selection
- WiFi Protected Setup (WPS)
- WiFi Multimedia (WMM)
- WiFi-enabled devices: up to 64
- Security: none, WPA2-Personal, WPA/WPA2, WPA3
- MAC address filtering with 64 address supported
- Multiple SSIDs/hide SSIDs
- WLAN scheduling

Hardware specifications

5G NR interface

- 3GPP Release 15 standard-compliant
- Supports both NSA and SA modes
 - FDD: n1/n3/n5/n7/n8/n20/n28/n77/n78

- TDD: n38/n40/n41
- Supports DL 4x4 MIMO: n1/n3/n7/n38/n40/n41/n77/n78
- Data rates:
 - 5G SA: DL 4.7 Gbps; UL 2.5 Gbps*
 - 5G NSA: DL 3.7 Gbps; UL 1.5 Gbps*
- Supports DL modulation QPSK, 16-QAM, 64-QAM, and 256-QAM
- Supports UL modulation QPSK, 16-QAM, 64-QAM, and 256-QAM
- Output power:
 - Class 2 (26 dBm) for 5G NR n41/n77/n78
 - Class 3 (23 dBm) for rest FDD/TDD NR bands

4G LTE interface

- 3GPP UE Category 19 standard-compliant
- Supports frequencies:
 - LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32
 - LTE-TDD: B38/B40/B41/B42/B43
- Supports DL 4x4 MIMO: B1/B3/B7/B38/B40/B41/B42/B43
- Peak data rates:
 - Max. DL 1.6 Gbps/UL 211 Mbps*
- Supports DL modulation QPSK, 16-QAM, 64-QAM, and 256-QAM
- Supports UL modulation QPSK, 16-QAM, 64-QAM, and 256-QAM
- Output power:
 - Class 3 (23 dBm ±2 dBm) for rest FDD/TDD LTE bands

WiFi air Interface

- Wireless standard: IEEE 802.11b/g/n/a/ac/ax
- Wireless speeds:
 - Link rates up to 1,774 Mbps* for 802.11ax DBDC
- Internal WiFi antenna:
 - Dual-band & concurrent 2x2 + 2x2
- WiFi antenna gain:
 - ≤ 4 dBi for 2.4 GHz
 - ≤ 5 dBi for 5 GHz

5G/4G antennas

- Two TS9 connectors for external antennas**
- Four embedded omni-directional antennas
- Antenna Spec (Peak Gain)
 - 700 MHz ~ 960 MHz: 2 dBi
 - 1.4 GHz ~ 2.7 GHz: 5 dBi
 - 3.3 GHz ~ 4.2 GHz: 5 dBi

Hardware interface

- Two 100/1000 Mbps Ethernet RJ-45 LAN ports, LAN2 can be configured

- for Ethernet WAN port
- LED indicators:
 - Power indication
 - Signal strength
 - Internet connection status
 - WiFi AP status
 - WPS status
- Two external antenna connectors (TS9 type)
- One 3FF/Micro SIM card slot
- One power on/off button
- One WPS/WiFi on/off button
- One reset button
- One Int/Ext antenna switch
- One USB 2.0 host port for file sharing

Power consumption

- 24 W (peak)

Physical specifications

- Item dimensions (WxDxH): 103 x 103 x 222 mm (4.06" x 4.06" x 8.74")
- Item weight: 1145 g (2.53 lb.)
- Packing dimensions (WxDxH): 252 x 171 x 110 mm (9.92" x 6.73" x 4.33")
- Packing weight: 2450 g (5.40 lb.)

Environmental specifications

Operating environment

- Temperature: -10°C to 40°C (14°F to 104°F)
- Humidity: 10% to 90% RH (non-condensing)

Storage environment

- Temperature: -30°C to 70°C (-22°F to 158°F)
- Humidity: 0% to 95% (non-condensing)

Certification

- CE
- NCC
- BSMI
- NBTC Certification

Package contents

- Power adapter
- Ethernet cable 1.8 m 8P8C

* The maximum data rates is a theoretical value. The actual data rates depend on the network environment.

** The TS9 connectors support 698 ~ 4200 MHz frequency.

Nebula FWA505 License Pack



Nebula provides flexible options to meet your needs, offering complimentary, enhanced, and advanced cloud networking solutions. Your chosen plan determines the level of service you receive from Nebula Cloud.

Feature Name	Base Pack	Plus Pack	Pro Pack
Unlimited Registration & Central Management (Configuration, Monitoring, Dashboard, Location Map & Floor Plan Visual) of Nebula Devices	•	•	•
Over-the-air Firmware Management	•	•	•
Admin Accounts per Organization (Full Access for Administration Rights)	5	8	No Limit
Advanced Firmware Scheduling (Org/Site/Device)		•	•
Automatic Network Topology (Visual and Actionable)		•	•
Email users and alert Notifications		•	•
Organizational User Audit / Change Logs			•
Backup/Restore Configuration			•
Priority Nebula Support Request (Direct NCC incl. Web Chat)			•

* Search Nebula Control Center ([https://www.zyxel.com/products_services/NCC-Nebula Control-Center/subscribe-nebula](https://www.zyxel.com/products_services/NCC-Nebula%20Control-Center/subscribe-nebula)) for more Nebula license plan.

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Success Story

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