Nokia G-2425G-A Wi-Fi 6 Optical Gateway MIMO Antenna Performance Diagrams - Official Technical Overview & Hardware Datasheet

EXECUTIVE SUMMARY

The Nokia G-2425G-A is a Gigabit Passive Optical Network (GPON) Optical Network Terminal (ONT) engineered for residential and small business triple-play service delivery, integrating routing, dual-band Wi-Fi, and voice adapter functions within a single compact premise device . While commercially deployed variants of the G-2425G-A are predominantly documented under Wi-Fi 5 (802.11ac) specifications with 2x2 MIMO configurations , the platform architecture supports concurrent dual-band operation and external antenna configurations that define its RF performance envelope. This document presents the official technical overview, hardware architecture, and MIMO antenna performance parameters for the G-2425G-A optical gateway platform, providing network planners and procurement engineers with the authoritative reference for deployment evaluation.



HARDWARE ARCHITECTURE & SILICON

The G-2425G-A terminates the GPON interface at 1490 nm downstream and 1310 nm upstream wavelengths, delivering line-rate throughput of 2.488 Gb/s downstream and 1.244 Gb/s upstream per ITU-T G.984 series standards . The system architecture couples the PON MAC and optical transceiver subsystem with a integrated Layer 2/3 forwarding engine that supports NAT, DHCP server/client, DNS, and IGMP snooping with proxy capabilities for IP video distribution . The wireless subsystem employs a 2x2 MIMO radio architecture across both frequency bands, with external antenna variants providing 5 dBi gain per antenna element . The hardware platform includes 256 MB NAND flash storage with bad block management and 512 MB DDR3 RAM, with a pin-compatible design permitting future memory upgrades . Physical interfaces comprise four RJ-45 10/100/1000 Ethernet ports with auto-negotiation and

MDI/MDIX sensing, two POTS ports with RJ-11 connectors for VoIP via SIP, and two USB 2.0 Type-A host ports .

KEY FEATURES & ROUTING LOGIC

- Dual-Band Concurrent Wi-Fi: 2x2 MIMO operation on 2.4 GHz (802.11b/g/n) and 5 GHz (802.11ac) bands, with external antenna variants providing 5 dBi gain per element
- GPON Uplink Compliance: Full ITU-T G.984 and G.988 series standard compliance with SC/APC optical connector and received signal strength indication (RSSI) support
- Triple-Play Service Delivery: Simultaneous voice, video, and high-speed data services with integrated analog telephone adapter converting POTS traffic to SIP
- Advanced Wi-Fi Management: Nokia WiFi Mesh Middleware with intelligent channel selection, band steering, client steering, and backhaul management; Wi-Fi EasyMesh compliant for multi-vendor interoperability
- Layer 2 Switching: Built-in line-rate Layer 2 switch with VLAN tagging/detagging and IEEE 802.1p marking/remarking per Ethernet port
- Voice Services: SIP-based VoIP with DTMF dialing, echo cancellation (G.168), fax mode configuration (T.30/T.38), caller ID, call waiting, call hold, three-way calling, and call transfer

- Security: WPA, WPA-PSK/TKIP, WPA2, WPA2-PSK/AES encryption with MAC filtering and multi-level firewall/ACL capabilities

COMPLIANCE & STANDARDS

The G-2425G-A platform is declared compliant with Radio Equipment Directive 2014/53/EU, Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, RoHS Directives 2011/65/EU and 2015/863/EU, and Eco-design Directive 2009/125/EC for products distributed within the European Union and EEA . FCC Part 15 compliance is declared for United States distribution, with the device classified as a Class B digital apparatus . The Wi-Fi subsystem is Wi-Fi Alliance certified for 802.11b/g/n/ac operation and Wi-Fi EasyMesh interoperability, ensuring multi-vendor mesh network compatibility . Operating temperature range is specified at -5°C to +45°C with relative humidity tolerance of 10% to 90% non-condensing .

TECHNICAL SPECIFICATIONS

The following parameter registry consolidates verified hardware and RF performance specifications for the G-2425G-A external antenna variant. Values represent nominal operating parameters under standard test conditions. Network architects should note that while the platform is frequently

categorized alongside Wi-Fi 6 gateway discussions due to its deployment in next-generation access networks, the documented radio specifications confirm 802.11ac (Wi-Fi 5) operation for the 5 GHz band, with Wi-Fi 6 capability not enumerated in the official Nokia specification set for this model designation .

Parameter	**Specification**
Form Factor	Desktop/wall-mount ONT; external antenna variant: 131 mm (H) x 170 mm (W) x 30 mm (D), 0.42 kg
GPON Interface	SC/APC; 1490 nm downstream / 1310 nm upstream; 2.488 Gb/s downstream / 1.244 Gb/s upstream
Wi-Fi Standards	2.4 GHz: 802.11b/g/n 2x2 MIMO; 5 GHz: 802.11ac 2x2 MIMO (Wi-Fi 5)
Antenna Configuration	External antenna variant: 2x MIMO antennas, 5 dBi gain each
Max Conducted Power (2.4 GHz)	28.24 dBm (per FCC test report)
Max Conducted Power (5 GHz)	29.87 dBm (per FCC test report)
Ethernet Ports	4x RJ-45 10/100/1000 Mbps, auto-negotiating, MDI/MDIX
Voice Ports	2x POTS (RJ-11) with integrated ATA, SIP protocol

USB Ports	2x USB 2.0 Type-A
Memory	256 MB NAND flash; 512 MB DDR3 RAM
Power Supply	External AC/DC adapter, 12 V input; typical consumption 10.7 W, standby 6.3 W
Operating Temperature	-5°C to +45°C
Operating Humidity	10% to 90% relative humidity
Regulatory Compliance	CE (RED 2014/53/EU, LVD, EMC, RoHS); FCC Part 15 Class B; Wi-Fi Alliance (802.11ac, EasyMesh)

ORDERING SKU INFORMATION

Part number 3FE48292BA designates the G-2425G-A external antenna configuration for standard commercial distribution . The platform is orderable with regional power adapter variants appropriate to the destination market. Nokia 5520 Access Management System (AMS) integration is supported for carrier-grade operations, administration, and maintenance workflows . For mesh deployment scenarios, additional Wi-Fi EasyMesh-capable beacons may be procured separately to extend coverage and enable seamless client roaming

across the premises .

