Nokia G-240W-E Wi-Fi 5 GPON ONT - Official Technical Overview & Hardware Datasheet

PRODUCT IDENTIFICATION

The Nokia G-240W-E is a premium, carrier-grade GPON Optical Network Terminal (ONT) that integrates a high-performance concurrent dual-band Wi-Fi 5 gateway. Designed as the cornerstone of the whole-home mesh networking solution, this device serves as the central point for delivering ultra-broadband triple-play services (voice, video, and data) into the subscriber premise . The hardware features advanced spectrum monitoring and interference detection, leveraging a 4x4 802.11ac architecture for the 5 GHz band and a 3x3 802.11b/g/n architecture for the 2.4 GHz band to ensure optimal link quality and seamless roaming .



CORE INTERNAL TOPOLOGY & RADIO FREQUENCY ENGINEERING

The Nokia G-240W-E is engineered to deliver superior Radio Frequency (RF) performance, utilizing state-of-the-art antenna systems to maximize coverage and throughput. The device is equipped with an embedded range-boost technology that significantly extends the absolute range of the Wi-Fi signal within the home environment .

Antenna Gain Characteristics:

The effectiveness of the RF subsystem is defined by the specific gain of its internal antennas. The gain figures serve as a critical measure of the antenna's efficiency in converting input power into radiated energy directed into the coverage area. The antenna gain values, specified relative to an isotropic radiator (dBi), have been precisely measured to ensure compliance with global regulatory standards .

- 2.4 GHz Band: The system features an antenna gain of 2.00 dBi .
- 5 GHz Band: The system features an antenna gain of 2.51 dBi .

These gain figures are fundamental to calculating the Effective Isotropic Radiated Power (EIRP) limits that ensure regulatory compliance while maximizing coverage .

SWITCHING SUBSYSTEM CAPABILITIES

The ONT's WLAN subsystem is designed for high-density client environments. Below are the MAC/PHY specifications and the corresponding conducted power parameters derived from regulatory certification testing :

- 2.4 GHz Wi-Fi: Supports 3x3 MIMO with a maximum PHY rate of up to 450 Mb/s . Maximum Conducted Output Power is documented at 28.42 dBm (695.02 mW) .
- 5 GHz Wi-Fi: Supports 4x4 MU-MIMO with a maximum PHY rate of up to 2170 Mb/s (with 1024 QAM capable clients) . Maximum Conducted Output Power is documented at 29.12 dBm (816.58 mW) .

The device intelligently manages these radios to support self-healing, self-optimizing mesh networks and seamless client roaming (IEEE 802.11k/v/r) .

OPERATIONAL ADVANTAGES

The G-240W-E represents an optimal one-box solution for service providers, integrating the GPON ONT function with a powerful Wi-Fi mesh gateway . By combining edge analytics with real-time spectrum analysis, the device dynamically optimizes network performance, ensuring high-quality video and data delivery over Wi-Fi. This integration reduces hardware footprint in the

subscriber home while enhancing the provider's ability to offer managed Wi-Fi services .

SPECIFICATION MATRIX

HARDWARE SPECIFICATIONS

- Form Factor: Desktop mounted, vertical cylindrical design
- Dimensions: 200 mm (H) x 94 mm (Diameter)
- Weight: 0.84 kg (1.9 lb)
- GPON Uplink: 1x SC/APC connector (GPON interface)
- LAN Interfaces: 4x 10/100/1000Base-T Gigabit Ethernet ports (RJ-45)
- Voice Interfaces: 2x POTS ports (RJ-11)
- USB Interfaces: 2x USB 2.0 Type-A ports
- Power Supply: 12V DC, 2-pin EU plug variant (wall-mounted)
- Power Consumption: 8.5 W (Standby) / 12.5 W (Typical)

Parameter	**Specification**
Wi-Fi Standard	Concurrent Dual-Band 802.11b/g/n (3x3) + 802.11ac (4x4 MU-MIMO)
2.4 GHz Antenna Gain	2.00 dBi
5 GHz Antenna Gain	2.51 dBi
2.4 GHz Conducted Power	28.42 dBm (695.02 mW)

5 GHz Conducted Power	29.12 dBm (816.58 mW)
Max EIRP (2.4 GHz)	500 mW (Regulatory Limited)
Max EIRP (5 GHz)	1 W (Regulatory Limited)
PHY Rate (2.4 GHz)	450 Mb/s
PHY Rate (5 GHz)	2170 Mb/s (with 1024 QAM)

REGULATORY COMPLIANCE

The Nokia G-240W-E is certified for global deployment, adhering to strict RF exposure and electromagnetic compatibility standards. It has been tested and verified for compliance with FCC regulations (47 CFR Part 1.1310) regarding Maximum Permissible Exposure (MPE) . The hardware includes comprehensive protection against over-voltage and over-current events, ensuring reliable operation in diverse environments .

