Nokia FastMile 5G Gateway 12

The Nokia FastMile 5G Gateway 12 (5G31-03W-B) is designed to help operators capitalize on the growing 5G FWA market. The solution delivers an indoor device, built with multi-band omni-directional antenna, that is easy to deploy and connects wirelessly to the mobile network. With extensive carrier aggregation (CA) and dual connectivity (EN-DC) support, the device improves performance and reliability by using the best 4G and 5G signals available.

The plug-and-play solution is simple to install and uses the Nokia WiFi Mobile App and a LED visual guide to help the subscriber identify the right location in the home to achieve the best performance. Compatibility with Nokia's in-home WiFi 7 solution ensures a seamless ultra- broadband experience in every corner of the home.

Features

- Self-contained, full featured, 5G residential gateway
- 3GPP Release 17 compliant based on Qualcomm SDX72-0 modem chipset solution for FWA
- 5G NR and 4G LTE WAN connections
- Multi-band omni-directional antenna up to 8 dBi gain
- Supports Sounding Reference Signal (SRS), Antenna Switching Diversity (ASDiv) technologies, High Power UE (HPUE) and 8 Rx diversity for NR TDD band to enable excellent radio performance
- Wi-Fi 7 support with 2.4/5/6 GHz tri-band 2+4+2 connectivity

Benefits

- Delivers Gigabit home broadband services with 5G new radio and 4G LTE
- Reduces radio network deployment costs with mobile application guided end-user self-installation for maximum received signal strength
- Extends 5G speeds throughout the home with Wi-Fi 7 and Nokia WiFi Beacons
- Support for multiple APN and 5G network slicing
- Support for containerized Nokia and third-party LXC based applications
- Green design, no plastic in packaging
- Refurbish-oriented, easy to change enclosure

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Technical specifications

- Integrates Qualcomm SoC based modem and Wi-Fi chipset
- Multiband omni-directional antenna for 5G NR and 4G LTE with up to 8dBi gain
- Integrated residential gateway based on OpenWRT HomeOS platform
- 2 GB/8 GB RAM/Flash for containerized application support (LXC)
- Wi-Fi EasyMesh support interoperable with Nokia WiFi Beacons

Connectivity interfaces

- Wi-Fi 2.4 GHz/5 GHz/6GHz (2+4+2) tri-band simultaneous operation (802.11 a/b/g/n/ac/ax/be, 20/40/80/160/320 MHz RF bandwidth)

Physical

- 3 Gigabit Ethernet LAN ports, one of them is configurable LAN/WAN port
- USB 3.1 Type-C

Hardware variants

- 5G Gateway 12
    - 5G31-03W-B: NAR

Network termination

- 3GPP Release 17 Compliant 4G LTE and 5G NR SIM slot (size: 4FF/nano)
- Gigabit Ethernet (GigE) WAN

5G New Radio

- 3GPP Release 17 – 5G NR NSA: Option 3X, Option 3A, Option 3 and 5G NR SA: Option 2
- 5G31-03W-B supported 5G NR radio bands:
    - Sub-6 GHz (FDD): n2, n5, n7, n12, n25, n26, n66, n71
    - Sub-6 GHz (TDD): n38, n41, n48, n77, n78

- 5G NR antenna gains
    - n48/n77/n78: 3-8 dBi
    - n7/n38/n41: 3-6 dBi
    - n2/n25/n66: 1-7 dBi
    - n5/n12/n26/n71: 0-4 dBi
- 5G NR DL/UL highest order modulation: 256 QAM/256QAM
- 5G NR DL MIMO (SA/NSA):
    - 4x4 MIMO: n2/n5/n7/n12/n25/n26/n38/n41/n48/n66/n71/n77/n78
- 5G NR UL 2x2 MIMO (SA): n2/n5/n7/n25/n38/n41/n48/n66/n71/n77/n78
- Support Antenna Switching Diversity (ASDiv):
    - SA: 8-way: n38/n41/n48/n77/n78
    - NSA : 8-way: n38/n41/n48/n77/n78
- Support for Sounding Reference Signal (SRS):
    - SA UL SISO: 1T4R: n38/n41/n48/n77/n78
    - SA UL 2x2 MIMO: 2T4R: n38/n41/n48/n77/n78
    - NSA : 1T4R: n38/n41/n48/n77/n78
- Support of 8Rx:
    - n38/n41/n48/n77/n78
    - SA:
        - 1CC TDD 100 MHz (4x8)
        - 2CC: 2CC TDD max 100 MHz (4x8)
        - 2CC: 1CC TDD (40MHz 4x4)+1CC TDD(100MHz 4x8)
        - 2CC: 1CC FDD (40MHz 4x4)+ 1CC TDD(100MHz 4x8)
        - 3CC: 2CC FDD (40 MHz 4x4)+ 1CC TDD(100MHz 4x8)
    - NSA:
        - LTE 8L + NR 1CC TDD (100MHz 4x8)
        - LTE 20L + NR 1CC TDD (50MHz 4x8)

Data sheet

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- Support for HPUE:
  - PC2 (UL SISO): n41/n77/n78
  - PC2 (UL 2x2 MIMO): n2/n5/n7/n25/n41/n66/ n71/n77/n78
  - PC1.5 (UL 2x2 MIMO): n41/n77/n78
- Maximum 5G NR Sub-6 GHz aggregate bandwidth: DL max 200MHz (3CC) in SA
- Extensive EN-DC and Carrier Aggregation (CA) support

LTE

- 5G31-03W-B supported LTE radio bands:
  - FDD: B2, B4, B5, B7, B12, B13, B25, B26, B66, B71
  - TDD: B38, B41, B42, B43, B46, B48
  - LTE antenna gains:
    - B42/B43/B46/B48: 3-8 dBi
    - B7/B38/B41: 3-6 dBi
    - B2/B4/B25/B66: 1-7 dBi
    - B5/B12/B13/B26/B71: 0-4 dBi
  - LTE DL/UL highest order modulation: 256 QAM/256 QAM
  - LTE UE category DL/UL: 20/18 LTE MIMO
    - DL 4x4 MIMO (1T4R): B2/B4/B5/B7/B12/ B13/B25/B26/B38/B41/B42/B43/B48/ B66/ B71
    - DL 2x2 MIMO (1T2R): B46
  - Support Antenna Switching Diversity (ASDiv):
    - 1T4R: B38/B41/B42/B43/B48
  - Support for HPUE
    - PC2 (UL SISO): B38/B41/B42
  - Support for LTE UL 2 CA

Wi-Fi

- Tri-band simultaneous operation 5G31-03W-B (Wi-Fi 7)
  - 2.4GHz: 802.11 b/g/n/ax/be, 2x2 with MU-MIMO, RF bandwidth 20/40 MHz
  - 5GHz: 802.11 a/n/ac/ax/be, 4x4 with MU-MIMO, RF bandwidth 20/40/80/160 MHz
  - 6GHz: 802.11 ax/be, 2x2 with MU-MIMO, RF bandwidth 20/40/80/160/320MHz
- Theoretical PHY rate:
  - 5G31-03W-B (Wi-Fi 7): 688 Mb/s for 2.4 GHz band, 5.76 Gb/s for 5 GHz band and 5.76 Gb/s for 6GHz band
- UL/DL MU-MIMO over oFDMA
- MU-OFDMA and 4K QAM
- The device supports up to 128 clients for a single setup and up to 256 clients for a mesh setup
- Band steering and seamless roaming (IEEE 802.11k and 802.11v)
- Intelligent channel selection optimization
- Support for explicit beamforming
- Support for Nokia WiFi EasyMesh, self-optimizing network
- Mesh topology interoperable with Nokia WiFi Beacons
- Supports ease of setup and user intuitive information via Nokia WiFi Mobile App

Security

- Security support against common security threats for networking equipment and DOS attacks
- ACL and firewall are built-in and auto-enabled
- WPA support including WPA-PSK (TKIP, AES) and WPA3

Operations, administration, and maintenance (OAM)

- One LED for 5G NR/4G LTE radio status view and signal strength indication
- TR-069 with ACS access for remote device management
- TR-369 (USP)
- TR-181 data model
- TR-143 support for device diagnostics
- WebGUI support for status view and configuration

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- Integrated with FastMile FWA Controller supporting Point-of-Sales, Service fullfilment and guided install and Service assurance and optimization functions
- Nokia WiFi Mobile App support for device onboarding
- Support for Corteca Home Controller
- TR-157 support for third party containerized applications

Buttons

- Power on/off
- WPS
- Reset

Physical

- Height: 199 mm (7.8 in)
- Length: 170 mm (6.7 in)
- Thickness: 65mm (2.6 in)
- Weight: 1 kg (2.2 lb)

Powering

- Powering: 12V DC power supply
- Typical power consumption: 26 W

Operating Environment

- Indoor 0°C to +40°C (32F to 104F)
- Operational up to +45°C with reduced performance
- IP20 compliant

Certification

- 5G31-03W-B:
  – FCC certification
  – CBRS EUD certification
  – ISED certification
  – PTCRB certification
  – GCF (delta part)
  – WFA Wi-Fi 7 certification