



7368 Intelligent Services Access Manager ONT

7368 ISAM ONT BGW320-505 Product Guide

3FE-47753-AAAA-TCZZA

Issue: 01

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1 Preface

This preface provides general information about the documentation set for optical network terminals (ONTs).

1.1 Scope

This documentation set provides information about safety, features and functionality, ordering, hardware installation and maintenance, and software installation procedures for the current release.

1.2 Audience

This documentation set is intended for planners, administrators, operators, and maintenance personnel involved in installing, upgrading, or maintaining the ONTs.

1.3 Required knowledge

The reader must be familiar with general telecommunications principles.

1.4 Acronyms and initialisms

The expansions and optional descriptions of most acronyms and initialisms appear in the glossary.

1.5 Assistance and ordering phone numbers

Nokia provides global technical support through regional call centers. Phone numbers for the regional call centers are available at the following URL: <https://customer.nokia.com/support/s/>

For ordering information, contact your Nokia sales representative.

1.6 Nokia quality processes

Nokia's ONT quality practices are in compliance with TL 9000 requirements. These requirements are documented in the Fixed Networks Quality Manual 3FQ-30146-6000-QRZZA. The quality practices adequately ensure that technical requirements and customer end-point requirements are met. The customer or its representatives may be allowed to perform on-site quality surveillance audits, as agreed upon during contract negotiations

1.7 Safety information

For safety information, see the appropriate safety guidelines chapter.

1.8 Documents

Documents are available using ALED or OLCS.

Procedure 1 To download a ZIP file package of the customer documentation

-
- 1 Navigate to <https://customer.nokia.com/support/s/> and enter your user name and password. If you are a new user and require access to this service, please contact your Nokia sales representative.

 - 2 From the Technical Content for drop-down menu, choose the product.

 - 3 Click on Downloads: Electronic Delivery.

 - 4 Choose Documentation from the drop-down menu and click Next.

 - 5 Select the image from the drop-down menu and click Next.

 - 6 Follow the on-screen directions to download the file.
-

Procedure 2 To access individual documents

Individual PDFs of customer documents are also accessible through the Nokia Customer Support website.

- 1 Navigate to <https://customer.nokia.com/support/s/> and enter your user name and password. If you are a new user and require access to this service, please contact your Nokia sales representative.
 - 2 From the Technical Content for drop-down menu, choose the product.
 - 3 Click on Manuals and Guides to display a list of customer documents by title and part number. You can filter this list using the Release drop-down menu.
 - 4 Click on the PDF to open or save the file.
-

1.9 Special information

The following are examples of how special information is presented in this document.



Danger — Danger indicates that the described activity or situation may result in serious personal injury or death; for example, high voltage or electric shock hazards.



Warning — Warning indicates that the described activity or situation may, or will, cause equipment damage or serious performance problems.



Caution — Caution indicates that the described activity or situation may, or will, cause service interruption.



Note — A note provides information that is, or may be, of special interest.

1.9.1 Procedures with options or substeps

When there are options in a procedure, they are identified by letters. When there are required substeps in a procedure, they are identified by roman numerals.

Procedure 3 Example of options in a procedure

At step 1, you can choose option a or b. At step 2, you must do what the step indicates.

-
- 1 This step offers two options. You must choose one of the following:
 - a This is one option.
 - b This is another option.
-

- 2 You must perform this step.
-

Procedure 4 Example of required substeps in a procedure

At step 1, you must perform a series of substeps within a step. At step 2, you must do what the step indicates.

-
- 1 This step has a series of substeps that you must perform to complete the step. You must perform the following substeps:
 - i This is the first substep.
 - ii This is the second substep.
 - iii This is the third substep.
-

- 2 You must perform this step.
-

1.10 Multiple PDF document search

You can use Adobe Reader Release 6.0 and later to search multiple PDF files for a common term. Adobe Reader displays the results in a single display panel. The results are grouped by PDF file, and you can expand the entry for each file.



Note — The PDF files in which you search must be in the same folder.

Procedure 5 To search multiple PDF files for a common term

-
- 1 Open Adobe Acrobat Reader.

 - 2 Choose Edit→Search from the Acrobat Reader main menu. The Search PDF panel appears.

 - 3 Enter the search criteria.

 - 4 Click on the All PDF Documents In radio button.

 - 5 Select the folder in which to search using the drop-down menu.

 - 6 Click on the Search button.

Acrobat Reader displays the search results. You can expand the entries for each document by clicking on the + symbol.

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2 ANSI ONT safety guidelines

This chapter provides information about the mandatory regulations that govern the installation and operation of the optical network terminals or units (ONTs or ONUs) in the North American or ANSI market.

2.1 Safety instructions

This section describes the safety instructions that are provided in the ONT customer documentation and on the equipment.

2.1.1 Safety instruction boxes in customer documentation

The safety instruction boxes are provided in the ONT customer documentation. Observe the instructions to meet safety requirements.

The following is an example of the Danger box.



Danger — Possibility of personal injury.

The Danger box indicates that the described activity or situation may pose a threat to personal safety. It calls attention to a situation or procedure which, if not correctly performed or adhered to, may result in death or serious physical harm.

Do not proceed beyond a Danger box until the indicated conditions are fully understood and met.

The following is an example of the Warning box.



Warning 1 — Possibility of equipment damage.

Warning 2 — Possibility of data loss.

The Warning box indicates that the described activity or situation may, or will, cause equipment damage, loss of data, or serious performance problems. It identifies a possible equipment-damaging situation or provides essential information to avoid the degradation of system operations or data.

Do not proceed beyond a warning until the indicated conditions are fully understood and met.

The following is an example of the Caution box.



Caution 1 — Possibility of service interruption.

Caution 2 — Service interruption.

The Caution box indicates that the described activity or situation may, or will, cause service interruption.

Do not proceed beyond a caution until the indicated conditions are fully understood and met.

The following is an example of the Note box.



Note — Information of special interest.

The Note box provides information that assists the personnel working with ONTs. It does not provide safety-related instructions.

2.1.2 Safety-related labels

The ONT equipment is labeled with specific safety compliance information and instructions that are related to a variant of the ONT. Observe the instructions on the safety labels.

Table 1 provides examples of the text in the various ONT safety labels.

Table 1 Safety labels

Description	Label text
CE marking	There are various CE symbols for CE compliance.

2.2 Safety standards compliance

This section describes the ONT compliance with North American safety standards.



Warning — Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

2.2.1 EMC, EMI, and ESD standards compliance

The ONT equipment complies with the following requirements:

- Federal Communications Commission (FCC) CFR 47, Part 15, Subpart B, Subpart C, and Subpart E, Class A requirements for OLT equipment
- SPS-1019_Reliability_Env_Mech v2_5_REL_07-17-17, including sections:
 - 3.3 ESD Test
 - 3.4 Surge Test
 - 6.8 EMC Shielding
 - 8.13 FCC Certification - Intentional Radiators
 - 8.14 FCC Certification - Unintentional Radiators
- EN 61000-4-4 Testing and measurement techniques - Electrical fast transient/burst immunity test

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is needed.
- Consult the dealer or an experienced radio/TV technician for help.

2.2.2 Equipment safety standard compliance

The ONT equipment complies with the requirements of UL60950-1 and Indoor ONTs to Information Technology Equipment (ITE).

2.2.3 Environmental standards compliance

The ONT equipment complies with the following standards:

- SPS-1019_Reliability_Env_Mech v2_5_REL_07-17-17 Section 6 Environmental Requirements

2.2.4 Resistibility requirements compliance

The ONT equipment complies with the requirements of ITU Recommendation K.21 for resistibility of telecommunication equipment installed in customer premises to overvoltage and overcurrents.

2.3 Electrical safety guidelines

This section provides the electrical safety guidelines for the ONT equipment.



Note — The ONTs comply with the U.S. National Electrical Code. However, local electrical authorities have jurisdiction when there are differences between the local and U.S. standards.

2.3.1 Power supplies

The use of any non-Nokia approved power supplies or power adapters is not supported or endorsed by Nokia. Such use will void any warranty or support contract with Nokia. Such use greatly increases the danger of damage to equipment or property.

2.3.2 Cabling

The following are the guidelines regarding cables used for the ONT equipment:

- Use only cables approved by the relevant national electrical code.
- The ONTs have been evaluated for use with external POTS wiring without primary protection that may not exceed 140 ft (43 m) in reach. However, the power cable must not exceed 100 ft (31 m).

2.3.3 Protective earth

Earthing and bonding of the ONTs must comply with the requirements of NEC article 250 or local electrical codes.

2.4 ESD safety guidelines

The ONT equipment is sensitive to ESD. Operations personnel must observe the following ESD instructions when they handle the ONT equipment.



Caution — This equipment is ESD sensitive. Proper ESD protections should be used when entering the TELCO Access portion of the ONT.

During installation and maintenance, service personnel must wear wrist straps to prevent damage caused by ESD.

Nokia recommends that you prepare the site before you install the ONT equipment. In addition, you must control relative humidity, use static dissipating material for furniture or flooring, and restrict the use of air conditioning.

2.5 Laser safety guidelines

Observe the following instructions when you perform installation, operations, and maintenance tasks on the ONT equipment.

Only qualified service personnel who are extremely familiar with laser radiation hazards should install or remove the fiber optic cables and units in this system.



Danger — There may be invisible laser radiation at the fiber optic cable when the cable is removed from the connector. Avoid direct exposure to the laser beam.

Observe the following danger for laser hazard. Eyes can be damaged when they are exposed to a laser beam. Take necessary precautions before you plug in the optical modules.



Danger — Possibility of equipment damage. Risk of eye damage by laser radiation.

2.5.1 Normal laser operation

In normal operation, fiber cable laser radiation is always off until it receives signal from the line terminal card.

Eyes can be damaged when they are exposed to a laser beam. Operating personnel must observe the instructions on the laser explanatory label before plugging in the optical module.



Danger — Risk of eye damage by laser radiation.

2.5.2 Location class

Use cable supports and guides to protect the receptacles from strain.

2.6 Environmental requirements

See the ONT technical specification documentation for temperature ranges for ONTs.

3 BGW320-505 unit data sheet

3.1 BGW320-505 part numbers and identification

3.2 BGW320-505 general description

3.3 BGW320-505 software and installation feature support

3.4 BGW320-505 interfaces and interface capacity

3.5 BGW320-505 service LEDs

3.6 BGW320-505 detailed specifications

3.7 BGW320-505 GEM ports and T-CONTs

3.8 BGW320-505 standards compliance

3.9 BGW320-505 special considerations

3.1 BGW320-505 part numbers and identification

Table 2 provides part numbers and identification information for the BGW320-505 indoor ONT.

Table 2 Identification of BGW320-505 indoor ONT

Ordering kit part number	Provisioning number	Description	CLEI	CPR	ECI/ Bar code
3FE 47753 AA (Customer-specific variant)	3FE 47753 AA	Package P ONT unit with one RJ-14 POTS port, three 10/100/1000 BaseT Ethernet interfaces, and one 5G/2.5G/1G Ethernet port. This ONT has one USB 2.0 port with a Type A connector. This ONT also supports tri-band Wi-Fi: 5 GHz low-band, 5 GHz high-band, and 2.4 GHz.	—	—	—
3FE 48263 AA (Customer-specific variant)	3FE 48263 AA	Package P ONT unit with one RJ-14 POTS port, three 10/100/1000 BaseT Ethernet interfaces, and one 5G/2.5G/1G Ethernet port. This ONT has one USB 2.0 port with a Type A connector. This ONT also supports tri-band Wi-Fi: 5 GHz low-band, 5 GHz high-band, and 2.4 GHz. Comes with a 3-pin AC/DC U.S. power adapter with AC cable.	BVMG400 BRA	—	474079

3.2 BGW320-505 general description

BGW320-505 ONTs are designed to cater to business and residential customer requirements. The ONT offers data and video services to the subscriber.

When used with an appropriate SFP PON module, the BGW320-505 indoor ONT provides the subscriber interface for the network by terminating the PON interface and converting it to user interfaces that directly connect to subscriber devices.

The ONT is compatible with all existing subscriber equipment, including analog phones with both tone and rotary dial capabilities, cordless phones, modems, fax machines, and caller ID boxes (Type I, Type II, and Type III).

BGW320-505 ONTs feature one 5G Ethernet port. The BGW320-505 also provides three 10/100/1000 BaseT Ethernet ports, 5 GHz low-band, 5 GHz high-band, and 2.4 GHz.

The ONT provides one POTS port each with an RJ-14 connector.

The ONT also features a power supply connection, a reset button, one USB 2.0 Type A port, and WPS button.

BGW320-505 ONTs can be placed on a flat surface, such as a desk or shelf.

Figure 1 shows the ONT unit.

Figure 1 BGW320-505 ONT unit



Figure 2 shows the bottom of the ONT.

Figure 2 BGW320-505 ONT bottom view

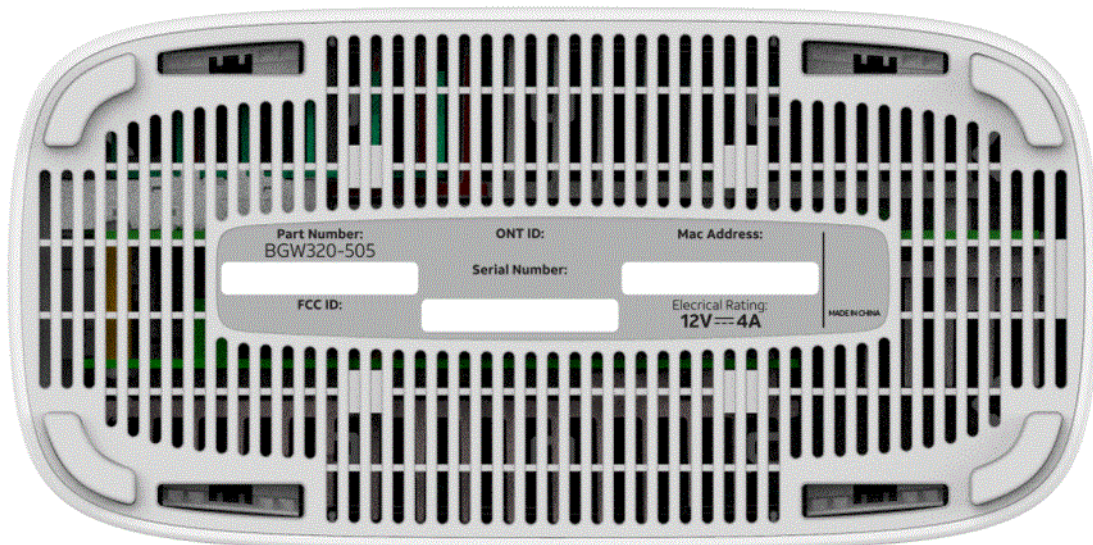
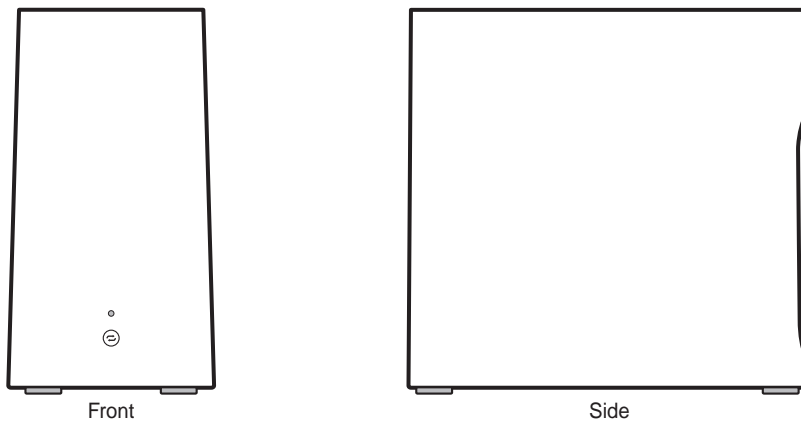


Figure 3 shows the front and side views of the BGW320-505 ONT. A WPS button is visible on the front of the unit.

Figure 3 BGW320-505 ONT front and side view



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Figure 4 shows the physical connections for the BGW320-505 indoor ONT.

Figure 4 BGW320-505 ONT connections

BGW320-505 indoor ONTs provide the following functions:

- 5 Gbps interface supports 100M/1G/2.5G/5G auto negotiation
- Three 10/100/1000 Base T Ethernet ports with auto negotiation and MDI/MDIX auto sensing
- One POTS port for carrier grade voice services
- One USB 2.0 Type A port
- Triple-Play services, including voice, video and high-speed Internet access; the maximum transmit power is 9 dBm.
- Traffic classification and QoS capability
- Support for fax services
- Built-in layer 2 switch; Line Rate L2 traffic
- 1 GB RAM and 4 GB EMMC memory card in the board
- IP video distribution
- Optics that support received signal strength indication (RSSI)
- Supports 802.11ac, 802.11g, 802.11n, and 802.11ax

-
- WPS
 - 64/128 WEP encryption
 - WPA, WPA-PSK/TKIP
 - WPA2, WPA2-PSK/AES
 - VLAN tagging/detagging and marking/remarking of IEEE 802.1p per Ethernet port
 - Dying gasp support
 - SIP voice support
 - DTMF dialing
 - Echo cancellation (G.168)
 - Caller ID, call waiting, call hold, 3-way calling, call transfer, message waiting
 - Forward Error Correction (FEC)
 - Frame Check Sequence (FCS) error counter
 - Support for multiple SSIDs (private and public instances)
 - Routed mode per LAN port
 - DHCP client/server
 - DNS server/client
 - Network Address Translation (NAT)
 - Network Address Port Translation (NAPT)
 - IGMP snooping and proxy (v2/v3)
 - Traffic classification and QoS capability
 - OMCI, TR-069, and Web GUI management support
 - Performance monitoring and alarm reporting
 - Remote software image downloading and activation
 - IP/MAC/URL filter
 - Multi-level firewall and ACL

3.2.1 TR69 authentication using TLS and CA certificates

BGW320-505 ONTs support TLS, as well as ACS authentication using SHA-256 pre-installed certificates.

If the URL is set to the https://... format, by default, the connection will use TLS without authentication mode. The ONT can also authenticate the ACS using a pre-installed CA certificate.

3.3 BGW320-505 software and installation feature support

For information on installing or replacing the BGW320-505, see:

- [Install an BGW320-505 indoor ONT](#)
- [Replace an BGW320-505 indoor ONT](#)

For information on the following topics, see the *7368 ISAM ONT Product Overview Guide*:

- Ethernet interface specifications
- POTS interface specifications
- RSSI specifications
- Wi-Fi specifications
- ONT optical budget
- ONT management using an ONT interface

3.4 BGW320-505 interfaces and interface capacity

Table 3 describes the supported interfaces and interface capacity for BGW320-505 indoor ONTs.

Table 3 BGW320-505 indoor ONT interface connection capacity

ONT type and model	Maximum capacity						
	10/100/1000 BaseT	5G Ethernet port	5 GHz low-band Wi-Fi ⁽¹⁾	5 GHz high-band Wi-Fi ⁽¹⁾	2.4 GHz Wi-Fi ⁽¹⁾	SFP+	ONT
BGW320-505	3	1	1	1	1	1	1

Notes

⁽¹⁾ Supported wirelessly.

3.4.1 BGW320-505 connections and components

Table 4 describes the physical connections for the BGW320-505 indoor ONT.

Table 4 BGW320-505 indoor ONT physical connections

Connection	Description
ONT	One ONT connection is supported through an RJ-45 cable. The ONT connection provides Ethernet access to home, Internet access, and POTS services.
Ethernet ports (LAN 1 to 4—three GE and one 5 GE)	These connections are provided through Ethernet RJ-45 cables. Up to three 10/100/1000 Base-T Ethernet interfaces are supported. The Ethernet ports can support both data and in-band video services on all four interfaces. The 5G Ethernet port is also provided through an RJ-45 cable. One 5G connection is supported.

(1 of 2)

Connection	Description
Reset button	Pressing the Reset button for less than 10 seconds reboots the ONT; pressing the Reset button for 10 seconds resets the ONT to its factory defaults.
Phone (POTS)	This connection is provided through one RJ-14 POTS port.
Power input	This connection is provided through a power cable with a Delta Electronics EPS48R0-16 2-pin connector. Use only power adapters supplied by AT&T. The use of any non-approved power adapter may cause damage to persons or equipment. Make sure that all power cord connectors are securely and completely plugged into receptacles. Do not use the power adapter in an outdoor environment or any wet locations. Protect the power adapter from liquids. The conditions above may cause fire, short circuit, electrocution or shock injury.
USB	This connection is provided through one USB 2.0 Type A port. The voltage rate is 5V.
SFP	This connection is provided through a SFP+ cage that uses an optical fiber cable. One SFP+ connection is supported.
WPS button	Located on the front of the ONT, the Wi-Fi Protected Setup button enables and disables WLAN data encryption. Supports 802.11ac, 802.11g, 802.11n, and 802.11ax.

(2 of 2)

3.5 BGW320-505 service LEDs

The front of the BGW320-505 functions as a multi-color service LED indicator. The LED color and pulse rate acts as a signal to the user, which indicates the state of the BGW320 and the quality of its backhaul link.

Table 5 provides the service LED descriptions for the BGW320-505.

Table 5 BGW320-505 service LED indications

LED color	LED behavior	LED behavior description
Off	Off	Power off
White	White solid	IP service is established
	White flashing (Slow)	Attempting a broadband connection; for example, the DSL is attempting to synchronize for the DSL.
	White flashing (Fast)	Attempting an IEEE 802.1X authentication, or trying to obtain DHCP information.
Orange	Orange flashing	A software upgrade is in progress. A Power-On Self-Test (POST) is in progress.

(1 of 2)

LED color	LED behavior	LED behavior description
Yellow	Yellow flashing	One or more configured VoIP lines are not registered with a SIP proxy server. No signal on a particular broadband connection. The connection is configured for use. No signal on one pair of a bonded-pair connection (as identified through manual or G.997.1 communication).
Red	Red flashing (Slow)	Broadband connection fails to be established for more than three consecutive minutes, or there is no signal on all broadband connections.
	Red flashing (Fast)	The device is attempting to connect to an IP and failed.
	Red—POST failure (Not bootable)	A device malfunction has occurred or the device is overheating.

(2 of 2)

3.6 BGW320-505 detailed specifications

Table 6 lists the physical specifications for the BGW320-505 indoor ONT.

Table 6 BGW320-505 indoor ONT physical specifications

Description	Specification
Length	7.8 in. (200 mm)
Width	3.9 in. (100 mm)
Height	7.5 in. (191 mm)
Weight [within ± 0.5 lb (0.23 kg)]	3.8 lb (1.742 kg)

Table 7 lists the power consumption specifications for the BGW320-505 indoor ONT.

Table 7 BGW320-505 indoor ONT power consumption specifications

Mnemonic	Maximum power (Not to exceed)	Condition	Minimum power	Condition
BGW320-505	41.73 W	All ports operating with full loading, dual 5x REN	4.66 W	Idle

Table 8 lists the environmental specifications for the BGW320-505 indoor ONT.

Table 8 BGW320-505 indoor ONT environmental specifications

Mounting method	Temperature range and humidity	Altitude
Desk or shelf	Operating: 32°F to 107°F (0°C to +41.7°C) ambient temperature 5% to 95% relative humidity, non-condensing at 40°C	Contact your Nokia technical support representative for more information

3.7 BGW320-505 GEM ports and T-CONTs

Table 9 lists the maximum number of supported T-CONTs and GEM ports.

Table 9 BGW320-505 indoor ONT capacity for GEM ports and T-CONTs

BGW320-505 ONT	Maximum	Notes
GEM ports per indoor ONT	256	—
T-CONTs per indoor ONT	40	—

3.8 BGW320-505 standards compliance

BGW320-505 indoor ONTs are compliant with the following standards:

- EN 61000-4-2 Testing and measurement techniques - Electrical fast transient/burst immunity test
- EN 61000-4-2 Testing and measurement techniques - Electrostatic discharge immunity test
- EN 61000-4-2 Testing and measurement techniques - Immunity to conducted disturbances induced by radio frequency fields
- EN 61000-4-2 Testing and measurement techniques - Radiated, radio frequency, electromagnetic field immunity test
- FCC CFR 47, Part 15, Subparts B, C, and E.

3.8.1 Responsible party

Table 10 lists the party in the US responsible for this ONT.

Table 10 Responsible party contact information

Legal Company name	Nokia USA Inc.
Address	2301 SUGAR BUSH RD. STE 300, RALEIGH, NC 27612
Phone, Fax	+1 866 582-3688

3.8.2 Energy-related products standby and off modes compliance

Hereby, Nokia declares that the BGW320-505 ONTs are in compliance with the essential requirements and other relevant provisions of Directive 2009/125/EC together with Commission Regulation (EC) No 1275/2008 and Commission Regulation (EC) No 801/2013.

The BGW320-505 ONTS qualify as equipment with high network availability (HiNA) functionality. Since the main purpose of BGW320-505 ONTs is to provide network functionality with HiNA 7 days /24 hours, the modes Off/Standby, Power Management, and Networked Standby are inappropriate.

For information about the type and number of network ports, see [“BGW320-505 interfaces and interface capacity”](#) in this chapter.

For information about power consumption, see [“BGW320-505 detailed specifications”](#) in this chapter.

3.8.3 FCC statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

3.8.4 FCC Radiation Exposure Statement

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment and it also complies with Part 15 of the FCC RF Rules. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 30 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and consider removing the no-collocation statement.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1 this device may not cause harmful interference, and
- 2 this device must accept any interference received, including interference that may cause undesired operation.



Caution — Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

3.9 BGW320-505 special considerations

BGW320-505 are package P ONTs.

3.9.1 Wi-Fi service

BGW320-505 indoor ONTs feature Wi-Fi service as well as voice and data services. Wi-Fi is a wireless networking technology that uses radio waves to provide wireless HSI and network connections. This ONT complies with the IEEE 802.11 standards, which the Wi-Fi Alliance defines as the basis for Wi-Fi technology.

3.9.1.1 Wi-Fi physical features

BGW320-505 indoor ONTs have one Wi-Fi Protected Setup (WPS) push button (located on the front of the ONT) to enable and disable WLAN data encryption.

3.9.1.2 Wi-Fi standards and certifications

The Wi-Fi service on BGW320-505 indoor ONTs supports the following IEEE standards and Wi-Fi Alliance certifications:

- Certified for Wi-Fi 802.11ac/b/g/n/ax standards
- WPA support including WPA-PSK
- Certified for WPA2-Personal

3.9.1.3 Wi-Fi GUI features

BGW320-505 indoor ONTs have HTML-based Wi-Fi configuration GUIs.

3.9.2 BGW320-505 ONT considerations and limitations

Table 11 lists the considerations and limitations for Package P BGW320-505 ONTs.

Table 11 BGW320-505 ONT considerations and limitations

Considerations and limitations
This device is restricted to indoor use in accordance with proper ventilation (as described in Step 1 of Section 4.5 of the chapter Install an BGW320-505 indoor ONT , and temperature requirements, as described in Section 3.6.

4 Install an BGW320-505 indoor ONT

4.1 Purpose

4.2 General

4.3 Prerequisites

4.4 Safety information

4.5 Procedure

4.1 Purpose

This chapter provides the steps to install a BGW320-505 indoor ONT.

4.2 General

The steps listed in this chapter describe mounting and cabling for BGW320-505 indoor ONTs.

4.3 Prerequisites

You need the following items before beginning the installation:

- all required cables

4.4 Safety information

Read the following safety information before installing the unit.



Danger 1 — Hazardous electrical voltages and currents can cause serious physical harm or death. Always use insulated tools and follow proper safety precautions when connecting or disconnecting power circuits.

Danger 2 — Make sure all sources of power are turned off and have no live voltages present on feed lines or terminals. Use a voltmeter to measure for voltage before proceeding.

Danger 3 — Always contact the local utility company before connecting the enclosure to the utilities.



Warning 1 — This equipment is ESD sensitive. Proper ESD protections should be used when removing the fiber access cover of the indoor ONT.

Warning 2 — Do not directly connect the 10G PON ONT to the 10G PON OLT.



Caution — Keep indoor ONTs out of direct sunlight. Prolonged exposure to direct sunlight can damage the unit.



Note 1 — Observe the local and national laws and regulations that may be applicable to this installation.

Note 2 — Observe the following:

- The indoor ONT should be installed in accordance with the applicable requirements of the NEC or CEC. Local authorities and practices take precedent when there is conflict between the local standard and the NEC or CEC.
- The indoor ONT may require the presence of a fiber termination, which must be installed by qualified service personnel.
- Indoor ONTs must be installed with cables that are suitably rated and listed for indoor use.
- See the detailed specifications in the [BGW320-505 unit data sheet](#) for the temperature ranges for these ONTs.

4.5 Procedure

Use this procedure to install an BGW320-505 indoor ONT.

-
- 1 Place the indoor ONT unit on a flat surface, such as a desk or shelf.



Note — The BGW320-505 ONT cannot be stacked with another ONT or with other equipment. The ONT mounting requirements are:

- place the unit in a vertical upright position with the feet and grill facing down and the flat top facing up
- allow a minimum 100 mm clearance above the top cover
- do not place any heat source directly above the top cover or below the bottom cover

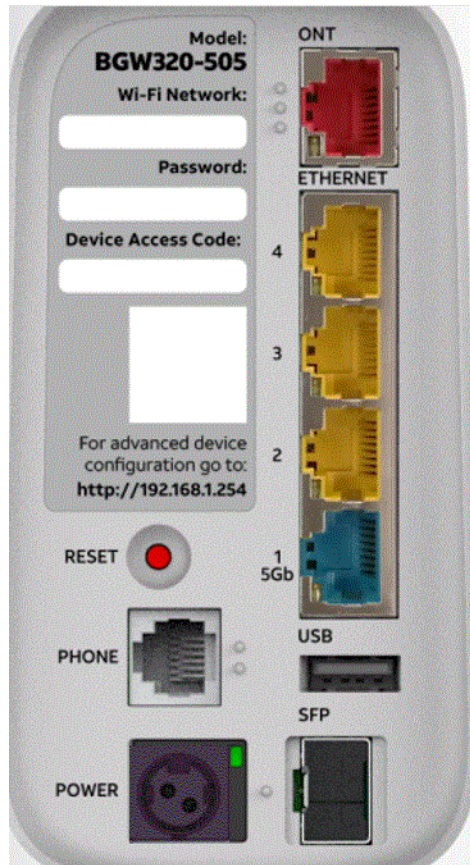


Warning — There is a risk of overheating if the BGW320 is not properly ventilated. The unit should not be placed in an enclosed cabinet or location without proper ventilation.

Make sure the temperature requirement described in Section 3.6 are adhered to.

-
- 2 Review the connection locations, as shown in Figure 5.

Figure 5 BGW320-505 ONT connections



3 Connect the Ethernet cables to the ONT and GE ports; see Figure 5 for the location of these ports.

4 Connect a telephone to the RJ-14 POTS port.

Contact your service provider for details, especially if you have an alarm system.

-
- 5 Connect the fiber optic cable with an SFP adapter into the SFP+ connector; see Figure 5 for the location of the SFP connector.



Danger — Fiber cables transmit invisible laser light. To avoid eye damage or blindness, never look directly into fibers, connectors, or adapters.



Warning — Be careful to maintain a bend radius of no less than 1.5 in. (3.8 cm) when connecting the fiber optic cable. Too small of a bend radius in the cable can result in damage to the optic fiber.



Note — Fiber cable preparation varies depending on the type and size of the inside or outside plant fiber cable being spliced to the SC/APC fiber optic pigtail cable.

-
- 6 Install the power supply according to manufacturer specifications.



Note — Observe the following:

- Units must be powered by a Listed or CE approved and marked limited power source power supply with a minimum output rate of 12VDC, 4A.

-
- 7 Power up the ONT unit by inserting the power cable.

-
- 8 If applicable, use the WPS button to connect additional Wi-Fi devices to the ONT.

-
- 9 Verify the ONT LEDs, voltage status, and optical signal levels; see the *7368 Hardware and Cabling Installation Guide*.

-
- 10 Activate and test the services; see the *7368 Hardware and Cabling Installation Guide*.

-
- 11 If necessary, reset the ONT.

i Locate the Reset button on a BGW320-505 indoor ONT as shown in Figure 5.

ii Press the Reset button for less than 10 seconds to reboot the ONT.

Press the Reset button for 10 seconds to reset the ONT to its factory defaults.

-
- 12 STOP. This procedure is complete.

5 Replace an BGW320-505 indoor ONT

5.1 Purpose

5.2 General

5.3 Prerequisites

5.4 Safety information

5.5 Procedure

5.1 Purpose

This chapter provides the steps to replace BGW320-505 indoor ONTs.

5.2 General

The steps listed in this chapter describe mounting and cabling for BGW320-505 indoor ONTs.

5.3 Prerequisites

You need the following items before beginning the installation:

- all required cables

5.4 Safety information

Read the following safety information before replacing the unit.



Danger 1 — Hazardous electrical voltages and currents can cause serious physical harm or death. Always use insulated tools and follow proper safety precautions when connecting or disconnecting power circuits.

Danger 2 — Make sure all sources of power are turned off and have no live voltages present on feed lines or terminals. Use a voltmeter to measure for voltage before proceeding.

Danger 3 — Always contact the local utility company before connecting the enclosure to the utilities.



Warning 1 — This equipment is ESD sensitive. Proper ESD protections should be used when removing the fiber access cover of the indoor ONT.

Warning 2 — Do not directly connect the 10G PON ONT to the 10G PON OLT.



Caution — Keep indoor ONTs out of direct sunlight. Prolonged exposure to direct sunlight can damage the unit.



Note 1 — Observe the local and national laws and regulations that may be applicable to this installation.

Note 2 — Observe the following:

- The indoor ONT should be installed in accordance with the applicable requirements of the NEC or CEC. Local authorities and practices take precedent when there is conflict between the local standard and the NEC or CEC.
- The indoor ONT may require the presence of fiber termination, which must be installed by qualified service personnel.
- Indoor ONTs must be installed with cables that are suitably rated and listed for indoor use.
- See the detailed specifications in the [BGW320-505 unit data sheet](#) for the ONT temperature ranges for these ONTs.

5.5 Procedure

Use this procedure to replace an BGW320-505 indoor ONT.

1 Deactivate the ONT services at the P-OLT.

If you are using the SLID feature, this step is not required. The ONT and the services can remain in service (IS).

- i Use the RTRV-ONT command to verify the ONT status and th associated services. Record the serial number or the SLID of the ONT displayed in the command output.

Example:

```
RTRV-ONT::ONT-1-1-1-1-1;
```

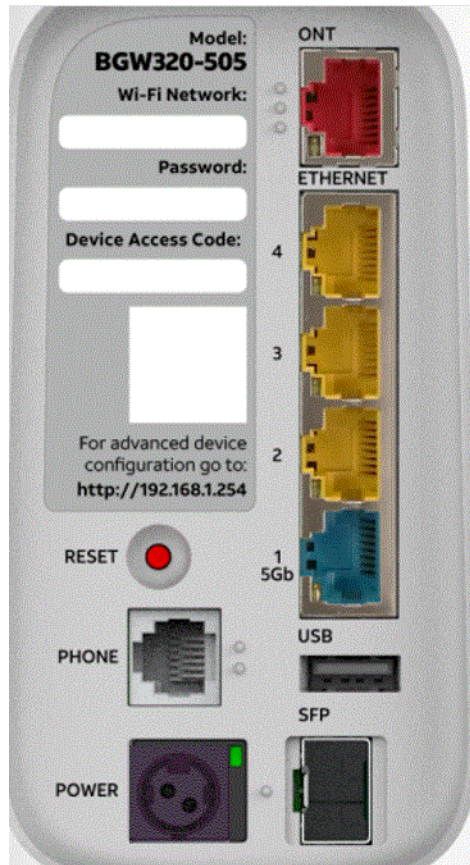
- ii If the ONT is in service, place the ONT in OOS state.

Example:

```
ED-ONT::ONT-1-1-1-1-1;
```

2 Power down the unit by disconnecting the power cable; see Figure 6 for the power input.

Figure 6 BGW320-505 ONT connections



3 Disconnect the telephone from the RJ-14 POTS port.

4 Disconnect the fiber optic cable with an SFP adapter from the SFP+ connector.



Danger — Fiber cables transmit invisible laser light. To avoid eye damage or blindness, never look directly into fibers, connectors, or adapters.

- i Unplug the fiber optic cable from the SFP+ connector.
- ii Attach a fiber dust cover to the end of the SFP+ connector.

5 Replace the ONT with a new unit. For details, [Install an BGW320-505 indoor ONT](#).

6 Connect the Ethernet cables to the ONT and GE ports; see Figure 6 for the location of these ports.

-
- 7 Connect a telephone to the RJ-14 POTS port.

Contact your service provider for details, especially if you have an alarm system.

-
- 8 Connect the fiber optic cable with the SFP adapter into the SFP connector. Figure 6 shows the location of the fiber optic connector.



Danger — Fiber cables transmit invisible laser light. To avoid eye damage or blindness, never look directly into fibers, connectors, or adapters.



Warning — Be careful to maintain a bend radius of no less than 1.5 in. (3.8 cm) when connecting the fiber optic cable. Too small of a bend radius in the cable can result in damage to the optic fiber.

-
- 9 Install the power supply according to manufacturer specifications.



Note — Observe the following:

- Units must be powered by a Listed or CE approved and marked limited power source power supply with a minimum output rate of 12VDC, 4A.

-
- 10 Power up the unit by connecting the power cable; see Figure 6 for the location of the power input.

-
- 11 If applicable, use the WPS button to connect additional Wi-Fi devices to the ONT.

- i If applicable, use the WPS button to connect additional Wi-Fi devices to the ONT.
- ii Press the WPS buttons to change the status of the Wi-Fi Protected Service.

-
- 12 Verify the ONT LEDs, voltage status, and optical signal levels; see the *7368 Hardware and Cabling Installation Guide*.

-
- 13 Activate and test the services; see the *7368 Hardware and Cabling Installation Guide*.

-
- 14 If necessary, reset the ONT.

- i Locate the Reset button on a BGW320-505 indoor ONT as shown in Figure 6.
- ii Press the Reset button for less than 10 seconds to reboot the ONT.
Press the Reset button for 10 seconds to reset the ONT to its factory defaults.

-
- 15 STOP. This procedure is complete.

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