ELTEX
Integrated networking solutions

— **1 GPON port**
— **4 LAN Gigabit Ethernet ports**
— **1 FXS port for analogue phone connection**[1]
— **USB 3.0 for network drive or printer connection**
— **Dual-band Wi-Fi (802.11a/b/g/n/ac/ax)**
— **EasyMesh technology**
— **Smart home controller**[2]

NTU series ONTs are high performance multifunctional subscriber terminals designed to access modern IPTV, OTT and Internet services. NTU-RG series terminals enable providers to offer users a wide range of services and local network features.

PON technology

PON technology is one of the most modern and efficient last mile problem solutions. The technology helps to reduce costs for cable infrastructure and providing data rates of up to 2.5 Gbps in downlink and 1.25 Gbps in uplink direction. The use of PON technology in access networks allows providing end users with access to IP-based services.

Universal devices

The integrated gigabit router with four 10/100/1000BASE-T ports ensures high-speed connection of network devices. The USB port can be used for USB devices (USB flash drive, external HDD, printer).

Provided services

• High-speed access to the Internet
• Video streaming/High Definition TV/IPTV, video on demand (VoD), video conferences
• VoIP[1]
• Online entertainment and educational programmes

Application

• Providing broadband access services to subscribers in apartment blocks, residential estates, campuses and suburban settlements
• Building corporate networks in large strategic enterprises and in business centers with high requirements to security and data transfer rates

Smart home controller[2]

The device includes a Smart home controller that supports Z-Wave radio communication with sensors and devices.

Advantages of EasyMesh technology

• Network intelligence: a self-organizing and self-optimizing network collects information and responds to network conditions for maximum performance
• Efficient load balancing: allows devices to switch to a better connection and avoid interference
• Scalability: allows adding multi-vendor Wi-Fi EasyMesh access points

Wireless connection

The NTU-RG-5520G-Wax, NTU-RG-5520G-Wax-Z and NTU-RG-5521G-Wax subscriber terminals support the 802.11ax standard that provides data rates up to 2400 Mbps and delivers modern high-speed services to subscriber equipment via the wireless network.

Two integrated Wi-Fi controllers ensure simultaneous dual-band operation in 2.4 GHz and 5 GHz.

Interfaces configuration

	WAN	LAN	FXS	Wi-Fi	USB	Smart home interface
NTU-RG-5520G-Wax	1 × GPON	4 × 1G	—	802.11ax, 2*2 – 574 Mbps – 2.4 GHz + 802.11.ax, 2*2 – 2400 Mbps – 5 GHz	1 × USB 3.0	no
NTU-RG-5520G-Wax-Z	1 × GPON	4 × 1G	—	802.11ax, 2*2 – 574 Mbps – 2.4 GHz + 802.11.ax, 2*2 – 2400 Mbps – 5 GHz	1 × USB 3.0	yes
NTU-RG-5521G-Wax	1 × GPON	4 × 1G	1	802.11ax, 2*2 – 574 Mbps – 2.4 GHz + 802.11.ax, 2*2 – 2400 Mbps – 5 GHz	1 × USB 3.0	no

[1] Only for NTU-RG-5521G-Wax.
[2] Only for NTU-RG-5520G-Wax-Z.

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Features and capabilities

PON interface parameters
– 1 × GPON
– Compliance with ITU-T G.984.2, ITU-T G.984.5 Filter, FSAN
  Class B+, SFF-8472
– SC/APC connector type
– Transmission media: SMF 9/125 fiber-optic cable, G.652
– Maximum operating distance: 20 km
– Transmitter: 1310 nm DFB Pulse Mode Output Transmitter
    – Data rate: 1244 Mbps
    – Average power output: +0.5..+5 dBm
    – Spectral line width: 1 nm (-20 dB)
– Receiver: 1490 nm APD/TIA CW Mode Digital Receiver
    – Data rate: 2488 Mbps
    – Receiver sensitivity: -28 dBm, BER≤1.0×10^{-10}
    – Receiver optical overload: -8 dBm

LAN interface parameters
– 4 × Ethernet 10/100/1000BASE-T (RJ-45)

Wireless interface parameters
– 802.11a/b/g/n/ac/ax
– Frequency range 2400–2483.5 MHz, 5150–5350 MHz,
  5650–5850 MHZ
– EasyMesh
– Simultaneous Dual Band
– CCK, BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM, 1024QAM
  modulation

Operating channels
– 802.11b/g/n/ax: 1–13
– 802.11a/n/ac/ax: 36–64, 132–165

Data rate[3]
2.4 GHz:
– 802.11b: up to 11 Mbps
– 802.11g: up to 54 Mbps
– 802.11n: up to 300 Mbps (40 MHz channel)
– 802.11ax: up to 574 Mbps (40 MHz channel)
5 GHz:
– 802.11a: up to 54 Mbps
– 802.11n: up to 300 Mbps (40 MHz channel)
– 802.11ac: up to 866 Mbps (80 MHz channel)
– 802.11ax: up to 1201 Mbps (80 MHz channel)
– 802.11ax: up to 2402 Mbps (160 MHz channel)

Maximum power output of the transmitter[2]
2.4 GHz:
– 802.11b (1 Mbps): 21 dBm
– 802.11b (11 Mbps): 21 dBm
– 802.11g (54 Mbps): 19 dBm
– 802.11ax (MCS0): 21 dBm
– 802.11n (MCS7): 19 dBm
– 802.11ax (MCS11): 17 dBm

5 GHz:
– 802.11a (6 Mbps): 26 dBm
– 802.11ax (MCS0): 24 dBm
– 802.11n (MCS7): 22 dBm
– 802.11ac (MCS9): 20 dBm
– 802.11ax (MCS11): 19 dBm

USB interface parameters
– 1 × USB 3.0

Smart home interface[3]
– Radio interface for Smart home system management
Physical specifications
– Dimensions (W × H × D):
    – NTU-RG-5520G-Wax, NTU-RG-5520G-Wax-Z:
      230 × 37 × 140 mm, desktop case, wall mounting option
– Power supply via 12 V/2 A DC power adapter
– Power consumption: no more than 18 W
– Operating temperature: from +5 to +40 °C
– Weight: 0.383 kg
– Relative humidity: up to 80 %

Functional specifications
– TR-069
– Bridge and router (including virtual ones) operation modes
– PPPoE (auto, PAP, MSCHAP and CHAP authorization)
– IPoE (DHCP-client and static)
– DHCP server on LAN side
– Multicast traffic transmission via Wi-Fi
– DNS (Domain Name System)
– DynDNS (Dynamic DNS)
– UPnP (Universal Plug and Play)
– NAT (Network Address Translation)
– NTP (Network Time Protocol)
– Quality of Service (QoS)
– IGMP Snooping
– IGMP Proxy
– UPnP, SMB, FTP/FTP-alg, Print Server
– VLAN in compliance with IEEE 802.1Q
– VPN in L2TP mode
– L2TP over IPSec

Security features
– Rate limiting on ports
– FEC coding

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[1] Only for NTU-RG-5521G-Wax.

[2] Frequency ranges, number of channels and maximum transmitter power will vary according to the rules of radio frequency regulation in your country.

[3] The maximum wireless transmission data rate depends on the IEEE 802.11n/ax standard. The real bandwidth can be different. Network operation conditions, environment, traffic volume, building materials and constructions as well as network service data can decrease the real bandwidth and reduce the network coverage radius.

[4] Only for NTU-RG-5520G-Wax-Z.
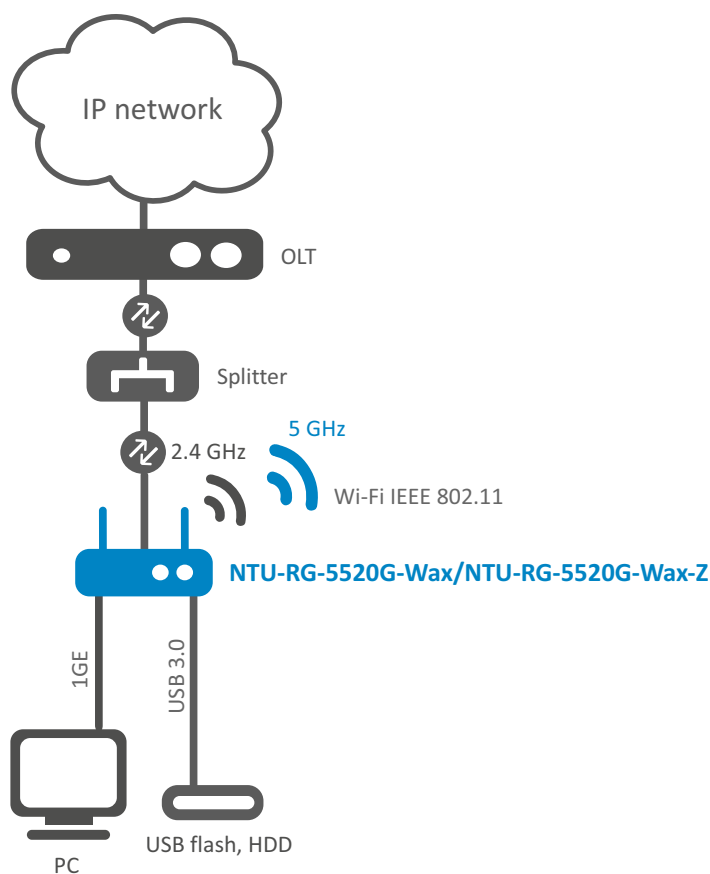
Features and capabilities (continuation)

Configuration and monitoring
– According to TR-142:
  – Remote management via OMCI
  – Remote management via TR-069
– Local management via web
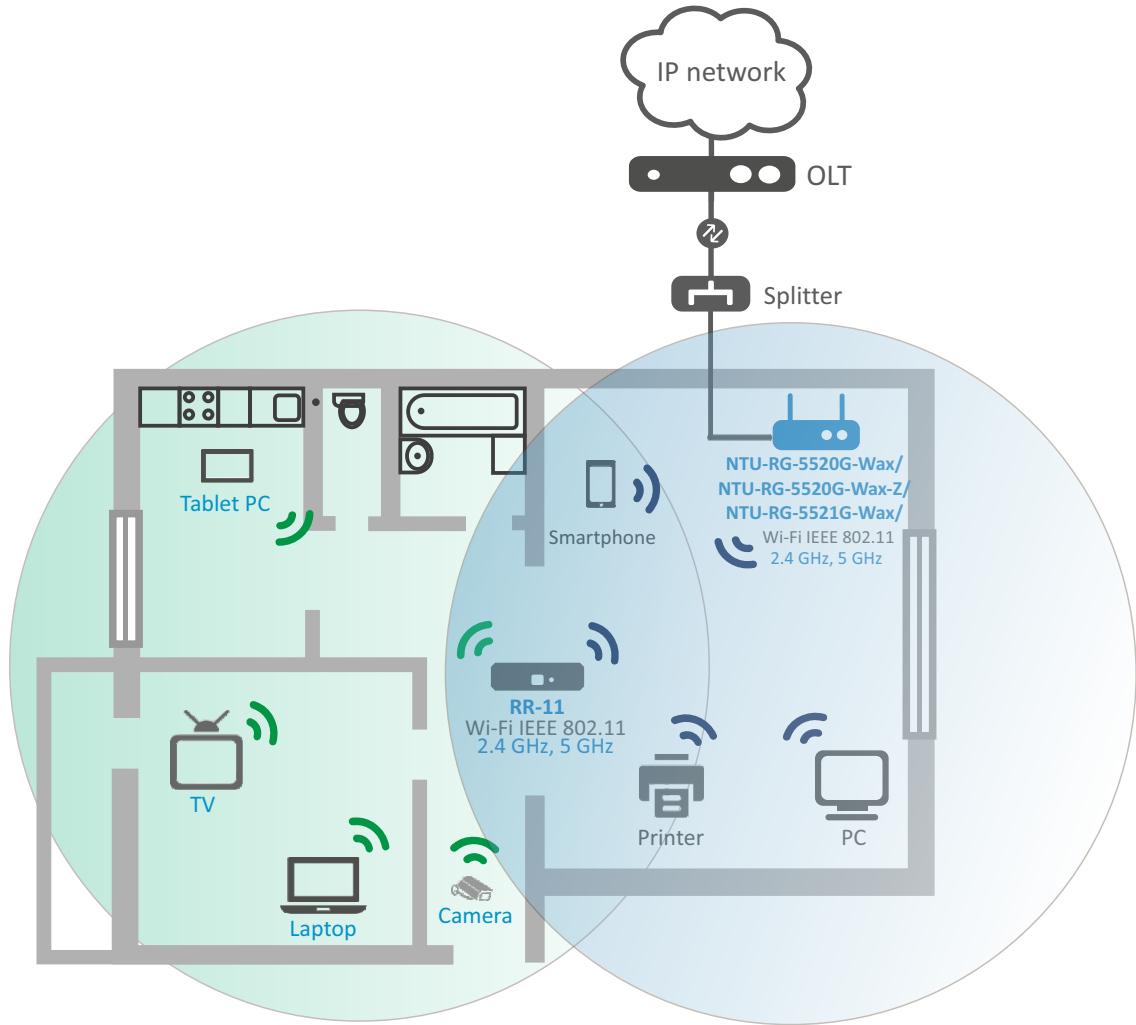– Firmware updating via OMCI, TR-069, HTTP, TFTP

Standards
– ITU-T G.984.x — GPON
– ITU-T G.988 OMCI specification
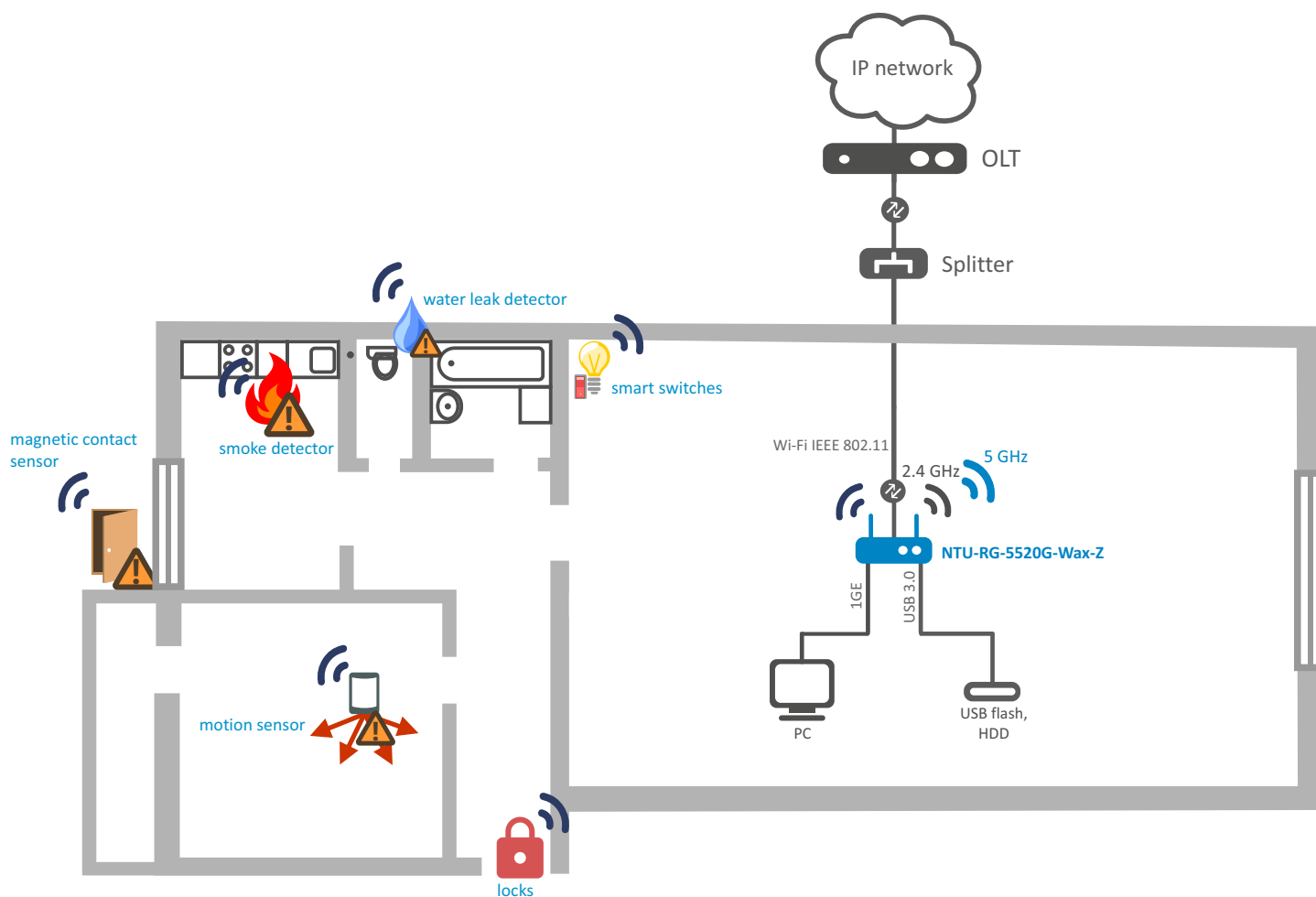– IEEE 802.1D
– IEEE 802.1Q
– IEEE 802.1P

Use case

IP network

OLT

Splitter

2.4 GHz

5 GHz

Wi-Fi IEEE 802.11

NTU-RG-5520G-Wax/NTU-RG-5520G-Wax-Z

1GE

USB 3.0

PC

USB flash, HDD

EasyMesh technology application diagram

IP network

OLT

Splitter

Tablet PC

Smartphone

NTU-RG-5520G-Wax/
NTU-RG-5520G-Wax-Z/
NTU-RG-5521G-Wax/
Wi-Fi IEEE 802.11
2.4 GHz, 5 GHz

RR-11
Wi-Fi IEEE 802.11
2.4 GHz, 5 GHz

TV

Printer

PC

Laptop

Camera

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Smart home technology application diagram for NTU-RG-5520G-Wax-Z

IP network

OLT

Splitter

water leak detector

smart switches

magnetic contact sensor

smoke detector

Wi-Fi IEEE 802.11

2.4 GHz   **5 GHz**

NTU-RG-5520G-Wax-Z

1GE   USB 3.0

motion sensor

PC   USB flash, HDD

locks

Ordering information

Name	Description
NTU-RG-5520G-Wax	ONT NTU-RG-5520G-Wax, 1 × GPON, 4 × LAN 10/100/1000BASE-T, 1 × USB 3.0, Wi-Fi (802.11ax, 2*2 — 574 Mbps — 2.4 GHz + 802.11ax, 2*2 — 2400 Mbps — 5 GHz)
NTU-RG-5520G-Wax-Z	ONT NTU-RG-5520G-Wax-Z, 1 × GPON, 4 × LAN 10/100/1000BASE-T, 1 × USB 3.0, Wi-Fi (802.11ax, 2*2 — 574 Mbps — 2.4 GHz + 802.11ax, 2*2 — 2400 Mbps — 5 GHz), Smart Home interface
NTU-RG-5521G-Wax	ONT NTU-RG-5521G-Wax, 1 × GPON, 4 × LAN 10/100/1000BASE-T, 1 x USB 3.0, 1 × FXS, Wi-Fi (802.11ax, 2*2 — 574 Mbps — 2.4 GHz + 802.11ax, 2*2 — 2400 Mbps — 5 GHz)
Related products	
RR-11	Wireless signal repeater
Related software	
ACS-CPE-512	ACS-CPE-512 option of Eltex.ACS system for Eltex CPE autoconfiguration: 512 subscriber devices
ACS-CPE-1024	ACS-CPE-1024 option of Eltex.ACS system for Eltex CPE autoconfiguration: 1024 subscriber devices

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