



RTL9607F HSGQ X400AXF

Issued 2026-08-10 . 161 case(s) passed, 0 failed

Firmware build r34658-a3bc821970 . Linux 6.18.31

Device

This unit is a GPON optical network unit built on **RTL9607F** and supplied by **HSGQ** as model **X400AXF**. It was tested on a **live GPON line** against a real operator OLT, with its wired LAN, WiFi and internet paths all driven under load. Both firmwares were measured on the **same bench with the same instrument**; where two runs could not be compared like for like the table says so and gives no percentage.

Why OpenWrt on this device

OpenWrt replaces a vendor image that stopped being updated with one that **keeps receiving security fixes**. The device stays **as fast as it shipped** -- the hardware acceleration is still in use, so openness costs no speed -- and it is **harder to reach from the internet**: where the vendor firmware leaves management ports open to the outside, this one answers nothing there. Its settings are plain text, so a unit can be reproduced or restored exactly, and it runs **far fewer network services**, which is less that can go wrong or be attacked.

Reachable from the internet

Nothing on this device answers from the internet side: management (SSH, telnet, web) and a full sweep of the ports CPEs are commonly exploited on -- including remote-management 7547 -- are all closed. The vendor firmware, on the same line, leaves **telnet and the web interface open to the internet**. On the LOCAL network both SSH and telnet answer, deliberately: that is where a technician works.

Watchdog (automatic restart)

Only the stock firmware exposes a watchdog.

This states the presence of the watchdog device node; it is not a measurement of self-recovery.

WiFi -- a declared difference, against OpenWrt

On the 2.4 GHz band, channel 11 / 2462 MHz, 40 MHz, 802.11ax, CCMP, 2 spatial streams, the vendor firmware carried 274.2 Mbit/s from a WiFi client out to the internet on SSID HS-6CAFCB

(98:c7:a4:6c:af:d2), where OpenWrt carried 162.8 Mbit/s on SSID ONU-6CAFCB (98:c7:a4:6c:af:cd) -- 59% of the vendor figure. The cause is the rate the radio link negotiated, not the forwarding path: OpenWrt carried 167.8 Mbit/s of the 172.0 Mbit/s its link had negotiated (97.6%), while the vendor firmware carried 282.5 of 516.0 (54.7%). OpenWrt did so with the stronger signal of the two, -17 dBm against -23 dBm. In the other direction on the same link OpenWrt measured 404.0 Mbit/s against the vendor firmware's 404.0. This difference is declared and published rather than treated as a failure, and it does not refuse this certificate.

Security figures -- scope and limits

No vulnerability database covers the vendor image's 29 proprietary kernel modules, so every count here UNDERCOUNTS the vendor firmware. In the OpenWrt port that code is open and reviewable.

With no package manager, 10 vendor component(s) are of undetermined version: reported as unknown, never as clean.

Figures are valid only as of the feed date recorded with them; a raw count favours the smaller image, so it is read beside the exposed-service count, never alone.

Vendor firmware vs OpenWrt

Functional coverage

Category	Passed	Not applicable
Identity & provisioning	27	6
Security & management	7	4
WiFi	32	10
Endpoint capacity & footprint	5	-
Wired LAN	18	2
WAN / routing	33	7
Hardware acceleration	18	3
Stability & recovery	9	2
Other verified behaviour	12	-

Not applicable = the case could not apply on this rig or deployment (a band the radio lacks, a mode the vendor never shipped, IPv6 with no delegated prefix, a step needing someone at the board). Never a failure and never a zero: the run artifact records each with its reason.

Key performance (packets/s)

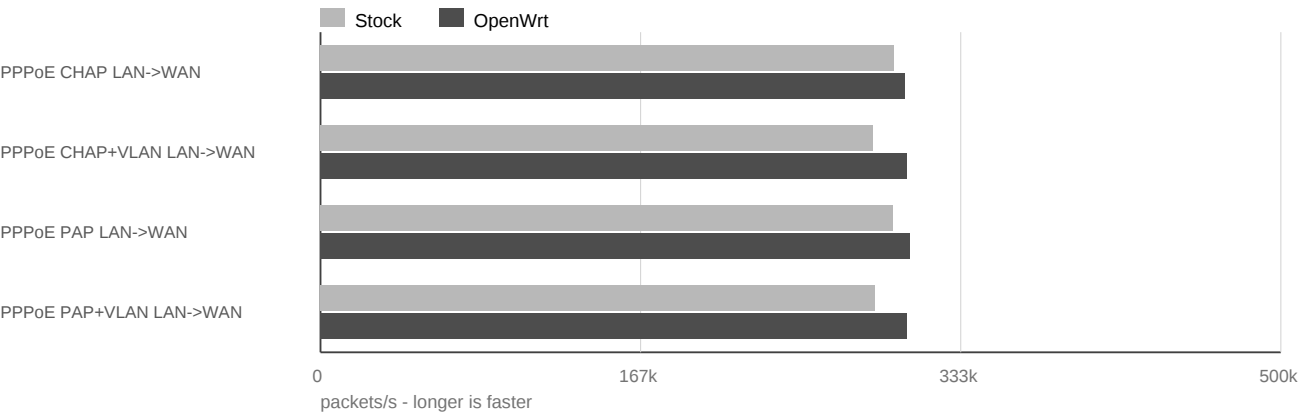
Measurement	Stock	OpenWrt	Difference
DHCP LAN->WAN 150 B	416.4kpps*	429.6kpps	n/a
DHCP WAN->LAN 150 B	277.1kpps*	388.1kpps	+40.1%
DHCP LAN->WAN 1400 B	87.8kpps*	87.8kpps	n/a
DHCP WAN->LAN 1400 B	40.4kpps*	87.8kpps	+117.3%
PPPoE LAN->WAN 150 B	269.9kpps*	275.2kpps	+2.0%
PPPoE WAN->LAN 150 B	265.4kpps*	275.7kpps	n/a
PPPoE LAN->WAN 1400 B	87.6kpps*	87.7kpps	n/a
PPPoE WAN->LAN 1400 B	72.8kpps*	73.9kpps	n/a
WiFi LAN->WAN 1400 B	25.2kpps*	15.0kpps*	n/a
WiFi WAN->LAN 1400 B	36.7kpps*	37.3kpps*	n/a
DHCP+VLAN LAN->WAN 1400 B	7.5kpps*	87.8kpps	+1068.0%
DHCP+VLAN WAN->LAN 1400 B	87.8kpps*	87.8kpps	n/a
PPPoE+VLAN LAN->WAN 1400 B	87.5kpps*	87.7kpps	n/a
PPPoE+VLAN WAN->LAN 1400 B	71.3kpps*	73.9kpps	n/a

Each figure is what the bench delivered. Where the two runs are not measured the same way no percentage is given, because it would be invented.

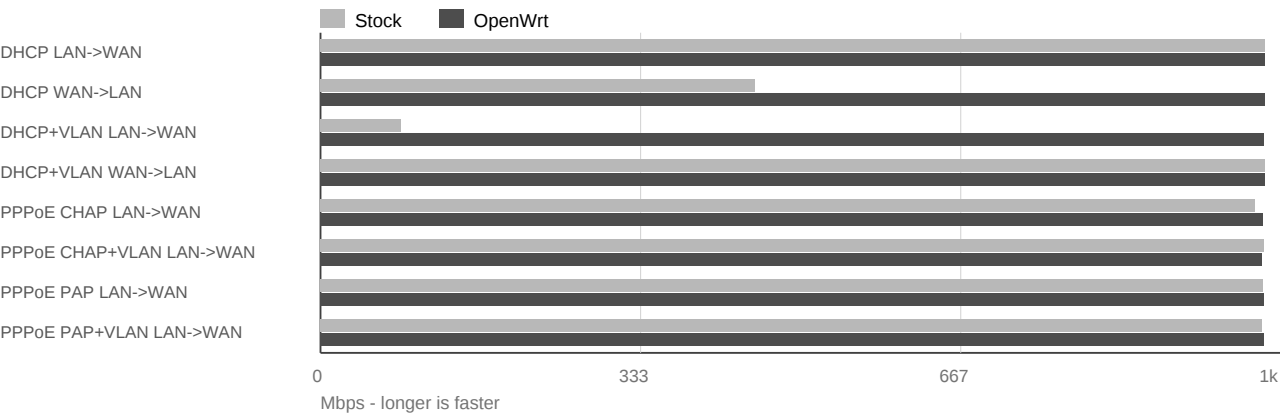
Bold marks a difference larger than 10% against the vendor firmware. A figure tagged * was captured earlier than the rest; which capture it came from is recorded in the run artifact.

Measured side by side, this device

Packet rate, 60 B frames



Bandwidth, 1400 B frames



Both firmwares on the same bench, the same instrument and the same operating point. A bar is drawn only where both halves are real measurements of the device; the axis starts at zero, so a bar twice as long is twice the rate. Every figure the run measured, with the qualifiers it was measured under, is in the dated record this page is drawn from.

Two frame sizes are published. At 1400 B the gigabit cable itself runs out first - 1424 B of wire time per frame caps any device on the link at about 87.8 thousand frames per second - so the packet count there measures the WIRE, and those points are shown as bandwidth. At 60 B the link is far from full and the device is the limit, so those stay in packets per second.