

FRITZ!Box 7490

Graham Morrison's distrust of his ISP's standard router has led him to a German alternative with a rather self-deprecating name.

DATA

Web
<http://en.avm.de>
Manufacturer
 AVM Computersysteme
Price
 £240

SPECIFICATIONS

VDSL or ADSL
 IP or analog phones
 4 x gigabit Ethernet
 WAN on LAN 1
 Wireless AC (1300 Mbit/s)
 Wireless N (450 Mbit/s)
 2 x USB
 Handles 6 DECT handsets
 ISDN S bus
 Average power: 9.3W

This is a beast of a router. It's also quite expensive and nowhere near as open as a device running the OpenWrt distro for embedded devices. But it's worth considering for a couple of reasons.

Most importantly, it can be used to replace the devices supplied by the UK's biggest fibre provider, BT Infinity. BT provides a proprietary and vendor specific unit it calls the 'HomeHub 5' to its customers – a wireless access point and VDSL modem combined. They're powerful, stable and more than adequate, especially in the fifth revision now being sent out. But BT also has a dubious record with its customer's privacy, including reports of 'remote diagnostic tests', its collusion with a commercial service that scanned your network packets to deliver tailored advertising, and rumours of BT allowing a government backdoor, NSA-style, into its hardware. The second and less tinfoil-hat reason is that the FRITZ!Box 7490 is much more powerful, giving you far greater control and feedback over your connection and replacing a multitude of devices within your home.

The most important feature for a device like this is the speed and stability of its internet connection. Every other feature hangs off its success, and we'd even forgo our privacy issues and stick with the HomeHub if it made the difference between watching Taylor Swift's videos in 1080p/60Hz, 24 hours a day, or ordinary standard definition at tea time. We've tested the unit with both a slower ADSL connection and a fibre-based VDSL connection, and we had good results over weeks of use. VDSL suffered from

occasional unrecoverable errors that the HomeHub didn't, but equally, it could go for weeks without a single problem. A firmware update that came late October (6.20) seemed to improve stability again, and added more feedback about the connection.

Such numbers, wow!

The feedback you get from the FRITZ!Box is fantastic. There are more geeky statistics on the quality of your connection than on any other router we've seen. An online monitor shows both a downstream and an upstream chart split by category of the data flowing into and out of your network. This is very useful if you want to immediately see how much bandwidth Netflix is consuming, as well as how much headroom you've got for playing *Borderlands 2* with your friends. There are charts showing the signal-to-noise ratio across the broadband spectrum, a page of statistics, and a page that allows you to adjust the signal-to-noise ratio, impulse noise protection and radio frequency interference to create a faster or more stable connection. These had no effect with VDSL, but they were able to make a troubled ADSL connection more stable for us.

We also like the simplicity of Access Profiles. These are a basic whitelist/blacklist system that can be grouped into profiles and applied to specific devices, or guest networks, on your network. You can filter on applications and by websites and block them completely or for a specific day and time. These lists provide a no-fuss way of locking down a child's device or cutting off their connections at a specific time. The firewall is equally well specified, allowing services and ports of your own creation through to specific devices, and there's a great overview of what devices are connected, what they're doing across the network, and at what speed they're connected. Other network features include access to the NAS and a portal that can make your router configurable from the internet. The NAS feels a little simplistic, and we don't think it's going to challenge QNAP and Synology devices, but it offers most features you'd expect, including access control and UPnP for media streaming. Just plug in a USB storage device and go.

Cable metropolis

The unit has four Gigabit Ethernet ports, and the 4th can be used to access the 'Guest' profile to limit access to any services running on your LAN. Wireless is via both a 2.4GHz frequency network and a 5GHz network. Without scientific testing, we'd say coverage wasn't as good as the HomeHub, but we had better throughput performance, especially after restricting

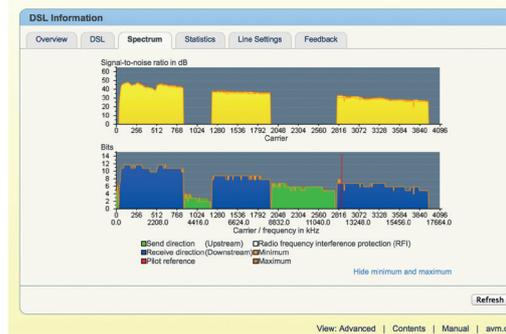


It looks like something out of *Elite Dangerous*, and the FRITZ!Box 7490 connected to our VDSL at the native speed for our line – 80 kbit/s download and 20 kbit/s upload.

Hack your FRITZ!box

There's a surprising amount you can do with the FRITZ!box if you're willing to hack around a little. Telnet can be enabled, for instance, by pressing '#' on a connected phone, and dialling 96*7*. You'll even see a message to tell you it's enabled (switch the 7 to an 8 to disable it). You can now connect to your router from the command line by typing **telnet ip_address**, and entering your web admin password. You'll now find yourself in a fairly recognisable Linux command line environment. You can **ls** or type **top** and take a look around the filesystem. **wget** is also available and there are ways of installing user-compiled packages like 'DropBear', but we wouldn't suggest doing this.

Instead, we'd recommend taking a look at the Freetz. This is a collection of open source modifications that can be made to your router's default firmware, turning it into a much more flexible and hackable device (and likely voiding the warranty at the same time). You need to create a virtual machine with a specific build environment and then pull the latest files from a GitHub account before building it all from a basic menu system. Nearly all the important and relevant information is in German, making the task that much harder if you don't speak the language. But if you want greater control over your



If the default firmware doesn't give you enough control, you can access the OS with Telnet or install an open source update called Freetz.

hardware, and the ability to make your own firmware changes, it's worth the effort. We found it particularly useful to add wider VPN functionality, including OpenVPN, as well as easily adding SSH and other applications.

5GHz to our faster devices. You can also turn the wireless off to a schedule and create a separate network for guests, which is a feature we really like.

There are several supporting apps you can install on your Android phone, and one is called 'WLAN'. This gives exceptional diagnostic information about the strength and frequencies of any networks overlapping yours, including the field strength over time and the ability to beep when it gets out of range. We found this an excellent tool for fine-tuning the network and making up for the weaker performance on the router.

As mentioned earlier, you can also pair the router with your DECT-compatible phones and connect your land line to your router to accept calls. You need to make sure you get the UK version for the UK cable, as it's a weird mix of broadband and phone that might not be easily found otherwise. You can enable both a fax and an answer machine on the FRITZ!box, and best of all, another app on your Android device will turn your mobile into yet another phone. When connected to the WLAN, the app will allow you to answer and make landline calls, listen to messages, make internal calls and see any missed messages, as can any other connected phone. This system works brilliantly, and we forgot we were answering a landline call from our mobile thanks to the app being so transparent. You can also add internet telephony



There are two USB 3 ports for printers and storage media, as well as analogue phone ports for telephones, answering machines and a fax.

to your configuration, turning any connected phone into an IP phone. We tested this with a free account from www.voiptalk.org and it also worked perfectly. You can block, divert and forward calls, depending on simple rules, and manage which network is used for dialling. If you want to trust the internet portal forwarding, you can even see your missed calls and messages from outside your network, making the box a good contender for a small business.

The best thing about the FRITZ!box is the huge amount of information and control it provides, and it's a refreshing change from the limited data

“The best thing about the FRITZ!box is the huge amount of information and control it provides.”

spat out by the routers shipped with most ISPs. For example, there's plenty of control over power usage, allowing you to reduce the speed of the network, or the wireless, or the DECT phones to save electricity. There are still trust issues with proprietary firmware, of course, and we missed specific 'Quality of Service' controls, but we feel a lot less paranoid while running the 7490 in place of our normal HomeHub 5.

This is an expensive router, but if you're looking to replace an old DECT phone system, a NAS server and media player, in a box that can handle FTTC and ADSL connection (including Annex M), or you run a small business, it pays for itself. 📺

LINUX VOICE VERDICT

Expensive, but more Linux-friendly than your ISP's default, and it can replace more than one device.

