

How fast is my broadband?

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Introduction

This document explains exactly what “Superfast Broadband” is, what you can expect from your service and how you can measure it.

How fast should it be?

Overview

Tove Valley Broadband delivers broadband to villages and scattered properties in the upper Tove Valley. Properties are connected to our hub in Wappenham in one of two ways:

- via fixed wireless access (FWA) by microwave radio to a local “Access Point” (AP) in their village which is then connected to the hub by fibre-optic cable**
- by direct fibre-optic cable into the premises (FTTP).

The fibres in the network can run at 2,500Mbps; the FWA runs at between 100Mbps and 300Mbps.

The hub in Wappenham is connected to the internet by two separate links to London, with a total capability of 11,000Mbps (as of spring, 2023)

Since the FWA links to properties have a maximum capacity of between 100Mbps and 300Mbps and this depends upon distance and the line-of-sight quality of the signal, generally speaking, these are the maximum speeds you could expect in your home.

A fibre FTTP connection uses equipment that can run at 1,000Mbps at the termination device in your home.

However, our network infrastructure is shared with your neighbours and so in reality the speeds you will enjoy are somewhat lower than these.

To test the speed, [look at the section later in this document](#).

** Some APs are linked via other APs to give FWA coverage. Each “relay” drops the speed capabilities by about 10Mbps.

Definition

There are three broadly used definitions of the term “Superfast Broadband”.

- According to Broadband Delivery UK (BDUK), the Government’s national target is for 95% of people in each local authority area to be put within reach of a “*superfast broadband*” service by 2017, which is described as a service that offers “*speeds of greater than 24 Megabits per second*” (note, download only!).
- Broadband suppliers such as BT deliver Fibre to the Cabinet (FTTC) and connect this service to premises using the copper wires already in place. These suppliers currently always quote an “*up to xxMbps*” but still manage to claim it is “*superfast*” broadband. Recent legislation is forcing suppliers to give “*at least*” figures but they are finding ways around this for marketing purposes.
- Tove Valley Broadband has installed the infrastructure to provide superfast broadband using a grant from the government which was partly funded from the European Community. The European Commission’s (EC) digital agenda defines superfast broadband as being at least 30Mbps. Therefore this is the speed that TVB seeks to deliver to the core area of Abthorpe, Bradden, Slapton, Lois Weedon, Wappenham, Weston and Woodend.

Of course it’s not quite as straightforward as that. There are very complicated formulas to determine exactly what speed the client will actually see. Simply put, that means that we will provide better than 30Mbps to **most** clients **most** of the time. *(This caters for the situation where, for example, the network gets heavily used as soon as school’s out and the kids hit the Internet, or for whatever technical reason it proves impossible to supply a service of the required speed to a particular property)*

All these caveats are exactly the same for all Internet Service Providers (ISP’s) because it is impossible to guarantee a constant level and quality of service for broadband to every property.

Upload and Download speeds

When you are connected to the Internet you are receiving and transmitting data. For example when you want to get Google up you send data to the Internet (Upload) requesting that webpage. When Google sends you the page you are receiving data from the internet (Download). In normal use there is much more download traffic and this is mainly what affects your surfing experience. For this reason most ISP’s optimise their service for Download. It’s rather like having 5 of the six lanes on the M1 taking traffic into London and just one lane taking traffic out. This asynchronous service

makes the best use of the network but does result in a much lower speed for upload. You only really see this when uploading a lot of data (eg uploading photos in an email or to eBay; a video to Youtube; the use of or backing up data to a Cloud service.) Even BT Infinity will often only give 1 or 2 Mbps upload speed, even when the download speed is over 20 or 30 Mbps or more.

In contrast, the TVB service is a synchronous service, meaning that upload and download speeds are not biased towards one or the other. When measuring the TVB speed you will see that both upload and download are broadly similar. In fact upload is sometimes faster than download due to contention.

TVB, in common with all ISP's, consider just the download speed for measuring quality of service.

What affects the speed that you see?

Any device between the service coming into your property and the device you are using will adversely affect (slow down) the speed that you measure.

Routers

Most clients will use a router to distribute the service (wired and WiFi) around the house. The router itself should not affect the speed very much unless it is an old model. Consider the power of the model handling all your connections. The cheaper routers will just about handle 4 or 5 devices so if you have TV streaming, laptops, phones and tablets, it is going to struggle, causing loss of speed and interruptions. Look carefully for how many devices a router can handle when shopping. With certainty, you will need a "gigabit" router.

Wi-Fi

Almost everyone these days uses wireless in their home to connect the internet to phones, tablets, TVs, computers and other devices. Wi-Fi is never going to be as fast as a wired connection and users are often surprised that their Wi-Fi speed is **very significantly slower** than a wired connection. This is normally a fact of life, although some steps can be taken to improve Wi-Fi in the home (see our document – "Home Wi-Fi network issues" for advice)

Homeplugs

Homeplugs or Powerline devices are often used to distribute broadband around the house. These are a great way to solve problems, but they do have a detrimental effect on speed (not normally as severe as wireless)

WiFi extenders

Don't use these. They are misunderstood, misused and cause grief where not deployed with intelligence.

Computer

Your computer, tablet or phone can have a big effect on the measurement of broadband speed. For example, if your PC/laptop is very old, then it may not be able to handle speeds greater than even 10Mbps.

Measuring your broadband speed

To obtain an accurate reading of your broadband speed it is important that there are no other users on your home network. If you sit in your study and measure the speed while someone is in the lounge watching iPlayer and the teenagers are playing on-line games with their mates, then the results are not going to be accurate.

For all the reasons discussed above, when measuring your speed, it is vital to connect to your incoming service.

For FWA this means plugging a PC or laptop into the socket labelled LAN on the power injector connected to the CPE device on the outside of your property. DO NOT UNPLUG THE LEAD FROM THE SOCKET LABELLED PoE. (If you cannot reach your injector and you have a router connected, then take the cable going to the WAN (blue?) socket out and plug it into your computer)



For FTTP the fibre is connected to an optical network termination (ONU) and you should connect your computer to the LAN socket shown – DO NOT UNPLUG THE YELLOW / GREEN FIBRE CABLE.



Performing the measurement involves using a website that measures the time taken to download and upload a defined size of file. There are many websites offering this service. TVB use the following 'Sam Knows' service:

- <http://www.broadbandperformance.co.uk>

Run several tests, one after the other, to get a good feel for the reading.

Your results should look something like this (connection to fibre):



Latency is a measure of the speed of a message over the internet. For example, when gaming with others over the internet this is of paramount importance and (for gaming) should be less than 20ms. WiFi and radio can affect this.

If, after running tests according to these guidelines, you feel your service is not as you would expect, please contact us for advice using our website -

<https://www.tovevalley.com/ContactUs>