The UK’s Fastest Whole-Home WiFi

The Evidence behind Vodafone’s Pro 4 Claim

An independent test report

Prepared by Cartesian for Vodafone. October 2026.

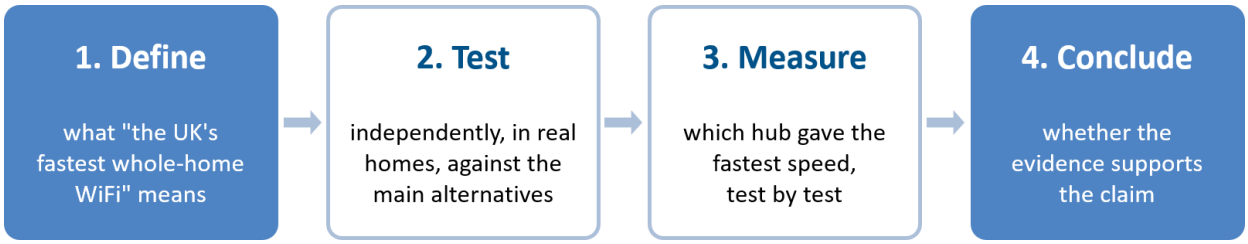
Summary

Vodafone's advertising for Pro 4 says it is **the UK's fastest whole-home WiFi**. Vodafone asked Cartesian, an independent telecoms consultancy, to assess the evidence for that claim. This report explains what the claim means, how we tested it, what we found, and why the evidence supports it.

We define whole-home WiFi as WiFi that performs well throughout the home, close to the hub and far from it, not just in the room where the hub sits. We tested Vodafone's Ultra Hub 7+ and its booster against the hubs EE and Sky give their customers and against Amazon's eero Pro 7, in two real UK homes, at five locations in each home, with 15 everyday devices, under quiet and busy conditions.

In 340 head-to-head speed tests, the Vodafone hub was the fastest in 232, or 68%. It was the fastest more often than any other hub in every set-up, at every one of the five locations, and for both downloads and uploads. On this evidence, the claim is supported.

This is a short report written for consumers. A fuller technical report is available on request.



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1. What the Claim Means

Before we can test a claim we have to say exactly what it means. Here is how we read each part of it.

- **WiFi** is the wireless link between your devices and the hub, the box your broadband provider gives you. This claim is about that link, not about the broadband line coming into the house.
- **Whole-home** means coverage beyond the hub's room: neighbouring rooms, other floors and the far end of the house. A system quick nearby but slow in a distant bedroom cannot justify the whole-home description. A fair test must include easy and difficult locations and report how results vary between them.
- **Fastest** means the highest speed in an individual download or upload test. Across the home, we assess it by counting how often each hub comes first with different devices, locations and conditions. This measures how consistently a hub is fastest, not the size of its winning margin.
- **The UK's** means compared with the main alternatives a UK household could choose instead: the hubs supplied by other large broadband providers, and a leading WiFi system people buy for themselves.

Put together: we assess whether Vodafone comes first most often against the main alternatives, near and far from the hub, with older and newer devices, for downloads and uploads, under quiet and busy conditions. This does not mean Vodafone has to win every test.

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2. How We Tested, and Why This Way

There is more than one way to test WiFi. For each part of the method we explain what we did, what else we could have done, and why our choice is the right one for this claim.

2.1 Real homes, not a laboratory

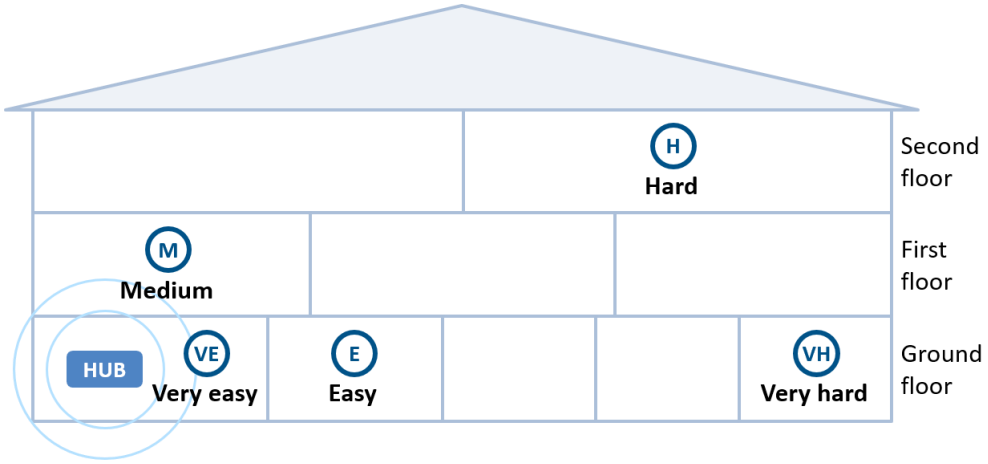
We tested in two real houses. House A is a large, older detached house over three floors with many solid internal walls: a hard test for any WiFi system. House B is a modern four-bedroom detached house over three floors with plasterboard walls, typical of newer family homes. Both are in the UK. During the tests no other devices in the house were using the WiFi.

Other ways we could have done this, and why we did not. A laboratory test chamber gives very repeatable numbers, but it removes the walls and floors that matter most to whole-home WiFi. A single house would be simpler, but results from two houses provide a better diversity.

Why our way fits the claim. The claim is about homes. Real walls, floors, furniture and distances are what weaken WiFi, and no laboratory reproduces them faithfully. Using two different houses also shows the result does not depend on one building.

2.2 Five test locations, from very easy to very hard

In each house we selected five fixed test spots, from very easy to very hard, representing different combinations of walls, floors and distance from the hub. (Received signal strength can help describe those conditions, but depends on the device, band and hub.) The grades describe relative difficulty within each house, not identical radio conditions between houses.



VE Very easy: in the same room as the hub
E Easy: same floor, one wall in the way
M Medium: two or more walls away, or directly above or below the hub
H Hard: a different floor and across the house
VH Very hard: the far end of the house, several solid walls away

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The hub stayed in one place in each house, where a customer would normally put it, and each other hub was placed in exactly the same spot. The very hard location was the most awkward place in each house: in House A, behind four solid walls at the back of the ground floor; in House B, at the far end of the top floor.

Other ways we could have done this, and why we did not. Testing in one or two places would be quicker but would provide weak evidence for a whole-home claim. Distance in metres alone is a poor guide to WiFi difficulty: ten metres through plasterboard differs from ten metres through brick. Choosing arbitrary rooms could leave important conditions untested.

Why our way fits the claim. The five graded spots cover easier and more difficult WiFi conditions. Each hub was compared at the same fixed spots within a house. The grades allow results to be grouped by difficulty, but do not mean the two houses have identical radio conditions. Results are shown by grade in section 4.2.

2.3 Fifteen everyday devices, old and new

A hub is only as good as the WiFi it gives to the things people actually own. We used 15 devices: the newest WiFi 7 phones and laptops, a tablet, four TV devices, two older phones, a games console and two smart-home devices. The newest devices show the top speed a hub can give. The older ones show how well it serves the equipment many homes already have.

Device	WiFi standard	Locations tested	What it stands for
Apple iPhone 17	WiFi 7	All five	The newest phones
Samsung Galaxy S26	WiFi 7	All five	The newest phones
Apple MacBook Air (M5)	WiFi 7	All five	A new laptop
Lenovo laptop	WiFi 6E	All five	A Windows laptop
Apple iPad Air (M4)	WiFi 7	Very easy, medium, very hard	A tablet
Apple MacBook Pro (M4)	WiFi 6E	Very easy, medium, very hard	A recent laptop
Sony Bravia Android TV	WiFi 6	Medium, very hard	A smart TV
Apple TV 4K	WiFi 6	Medium, very hard	A streaming box
Amazon Fire TV Stick	WiFi 6	Medium, very hard	A streaming stick
Vodafone TV set top box	WiFi 6	Medium, very hard	A TV box
Samsung Galaxy S9 (2018)	WiFi 5	Medium, very hard	An older phone

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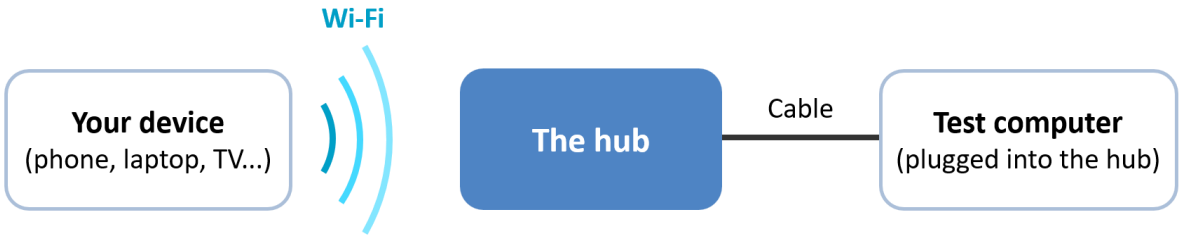
Device	WiFi standard	Locations tested	What it stands for
Apple iPhone 7 (2016)	WiFi 5	Medium, very hard	An old phone
Sony PlayStation 5 Pro	WiFi 7	Medium, very hard	A games console (game streaming test)
Amazon Echo Show 11	WiFi 6	Medium, very hard	A smart speaker with a screen
Blink Mini camera	WiFi 4	Very hard only	A small smart-home camera

The four main devices were tested at all five spots. Devices that people use in fewer places were tested at fewer spots, and TV devices where TVs usually sit. That gives 40 device-and-location combinations in each house (36 in House B, where two Amazon devices could not be tested on the Sky hub, so those were left out of the comparison).

Other ways we could have done this, and why we did not. A single test instrument, or one reference laptop, would give cleaner numbers, but it would say nothing about how a hub serves a five-year-old phone, a smart TV or a camera. Using only the newest WiFi 7 devices would flatter every hub and hide weaknesses with older equipment.

Why our way fits the claim. The claim is made to ordinary households, so the test should use the devices ordinary households own. A mix of ages and types shows whether a hub is fast for everyone in the house, not only for someone with the newest phone.

2.4 How we measured speed



60 seconds of downloading, then 60 seconds of uploading. Each run three times. We use the average.

For each device at each spot we measured download speed and upload speed through the hub, using iperf3, a standard engineering tool for measuring network speed. A test computer was plugged into the hub with a cable, so the measurement was of the WiFi only. Each run lasted 60 seconds with eight data streams at once, which is how real apps load data. Every run was repeated three times and we used the average. The same device ran the same test at the same spot on every hub, one hub at a time.

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Two devices, the Fire TV Stick and the Echo Show, cannot run iperf3. For those we used a speed-test web page running on the same local test computer, again three times with the average taken. The games console and the camera were tested in their own way (section 2.5).

Other ways we could have done this, and why we did not. An internet speed-test site is familiar, but it also measures the broadband line and the internet beyond it, which would muddle the comparison. A single short run is quicker but WiFi speed varies second by second, so one run can mislead. Measuring download only would miss half of what people do online.

Why our way fits the claim. A local test computer measures the hub's WiFi and nothing else. Sixty-second runs, eight streams and three repeats smooth out the moment-to-moment variation WiFi always has. Measuring upload as well as download matters because video calls and cloud back-ups depend on upload.

2.5 Quiet and busy conditions

Most of the tests were run with one device at a time and the house otherwise quiet. A hub that is fast in a quiet house may struggle when the whole family is online, so we added four busy-home tests:

- **A neighbour's router on the same channel.** A separate router was set up nearby, sending data on the same WiFi channel, as a neighbour's WiFi often does. A Galaxy S26 was then tested at the very easy, medium and very hard spots.
- **Five devices at once.** A MacBook Air, the Lenovo laptop, an iPhone 17, a Galaxy S26 and an iPad Air, each at a different spot from very easy to very hard, all downloading and uploading at the same time.
- **A full household.** The five devices again, plus an Apple TV and a Fire TV Stick both streaming video, plus a smart-home device sending regular check-in messages.
- **Everything at once, plus the neighbour.** The full household with the neighbour's router running at full tilt on the same channel: the worst case we expect a home to meet.

We also ran two tests that measure smoothness rather than speed. A PlayStation 5 Pro streamed a game to a phone over WiFi while we recorded the delay, picture quality and decoding time. A Blink Mini camera sat at the very hard spot while the test computer sent it 60 short messages, one a second, and we counted how many replies came back and how quickly.

Other ways we could have done this, and why we did not. Quiet single-device tests alone would be a fair test of top speed but not of everyday life. Mixing the console and camera results into the speed count would mean adding together things measured in different units.

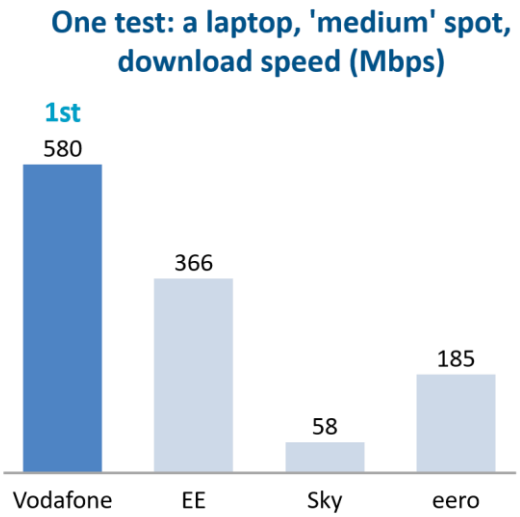
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Why our way fits the claim. Real homes are busy. Adding busy-home tests shows whether a hub keeps its lead when it is sharing its time between many devices and coping with a neighbour's WiFi. Keeping the console and camera tests separate means the headline count compares like with like.

2.6 How we scored: counting first places

Hundreds of tests produce hundreds of numbers. To compare the hubs fairly we used one simple rule: for each test, the hub with the highest average speed gets a first place.

A test is one device, at one spot, in one direction (download or upload). If two hubs recorded exactly the same speed, both got a first place. If a device could not connect to a hub at a spot at all, that hub could not win that test.



Across the three set-ups described in section 3 there were 340 tests: 232 single-device tests and 108 busy-home tests.

Other ways we could have done this, and why we did not. An overall average or total speed can conceal weak performance away from the hub if very high nearby results dominate. Counting first places shows how often a system leads, but not by how much: a narrow win and a large win each count once.

Why our way fits the claim. Each device, location and direction comparison contributes one result. Because different numbers of devices were tested at each location, the grades do not carry equal overall weight. We therefore show results separately for all five grades (section 4.2), as well as overall. The full technical report retains the underlying speeds.

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3. Who We Compared Against, and Why the Test Is Fair

3.1 The hubs

Hub	Who supplies it	WiFi standard	Booster used in the 'with boosters' tests
Vodafone Ultra Hub 7+	Vodafone, with Pro 4	WiFi 7	Vodafone Super WiFi 7+ booster
EE Smart Hub 7 Pro	EE, with its full-fibre plans	WiFi 7	EE WiFi Extender 7 Pro
Sky Gigafast+ Hub	Sky, with its full-fibre plans	WiFi 7	Sky Max Pod
Amazon eero Pro 7	Sold separately, works with any broadband	WiFi 7	A second eero Pro 7

Why these? EE and Sky are the large broadband providers whose hubs a household is most likely to compare with Vodafone's, and both give new customers a WiFi 7 hub, the newest WiFi standard. The eero Pro 7 is a popular WiFi 7 system that people buy to replace or improve the hub their provider gives them. TalkTalk and BT did not offer a comparable WiFi 7 hub when the tests were set up in August 2026. All hubs and boosters were the latest models available in August 2026, bought or obtained as standard units, and each ran the software it was supplied with at the time.

A fair fight. All four are current WiFi 7 systems using the same three WiFi bands, making them relevant competitors, although their hardware and mesh designs differ. Each system was tested alone where applicable, and with the booster or additional eero identified in section 3.1.

Who we did not test, and why. TalkTalk and BT did not offer a WiFi 7 hub when the tests were set up. Virgin Media's hub is a cable hub that only works on a Virgin Media line, so it could not be put in the same houses as the others and tested like for like.

3.2 Three set-ups

A booster, sometimes called a mesh extender or a pod, is a second box placed elsewhere in the house to spread the WiFi further. Pro 4 comes with a Super WiFi 7+ booster, and other providers offer boosters too, so we tested with and without them:

1. **Test House A, hub on its own:** all four hubs, no boosters.
2. **Test House A, hub with its booster:** Vodafone, EE and Amazon eero, each with its own booster.
3. **Test House B, hub with its booster:** Vodafone and Sky, each with its own booster. The Sky booster only works on a Sky broadband connection, so this comparison was run in a second house that has one.

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3.3 Why the test is independent and fair

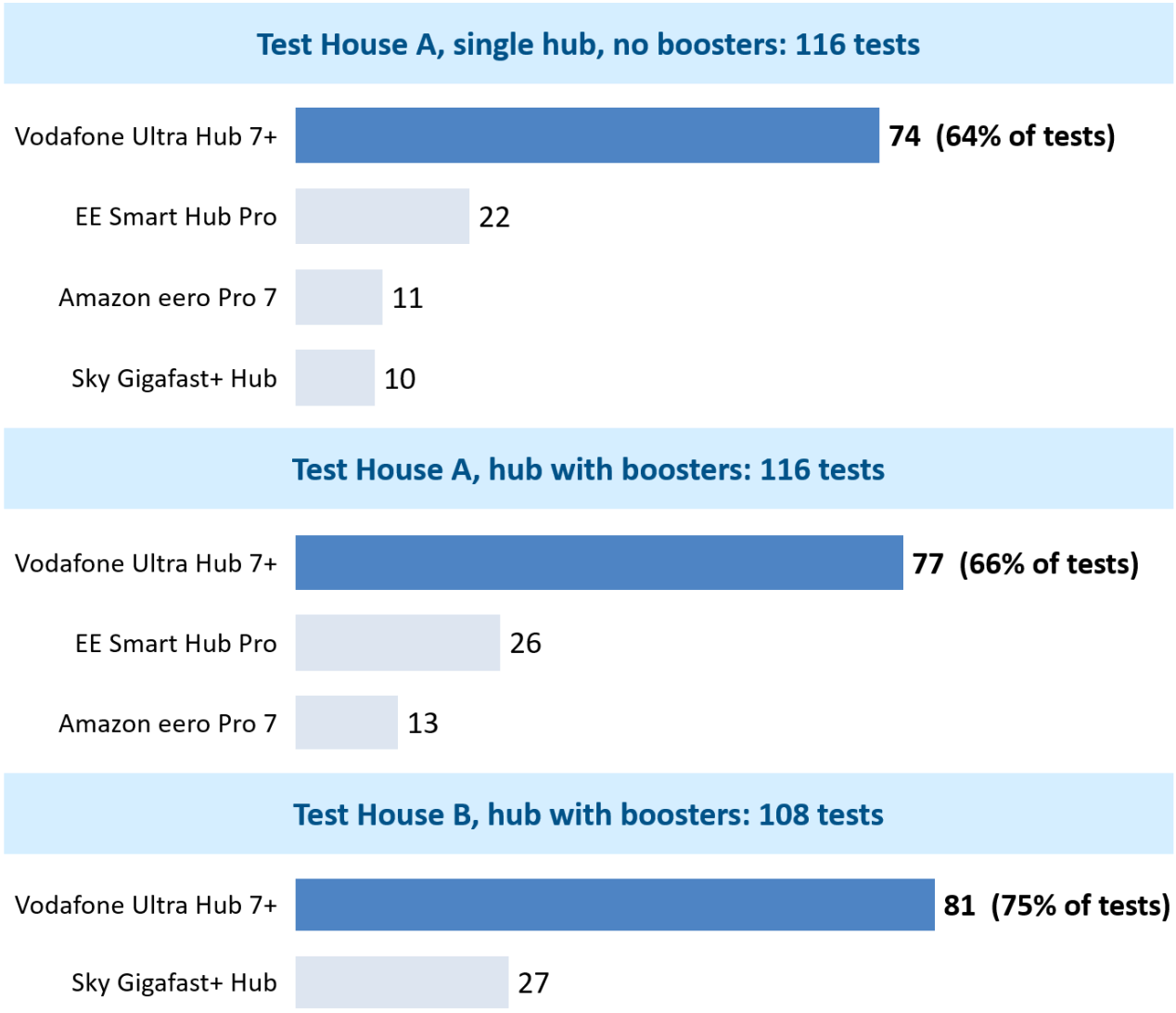
- **Independent.** Cartesian is an independent consultancy that specialises in telecoms. Our engineers designed the tests, set up the equipment, ran every test and recorded every result. Vodafone commissioned the work and did not take part in the testing.
- **Like for like.** Within each set-up, the systems were tested at the same fixed spots, with the same devices, test procedures and scoring, one system at a time. The competitors and houses differed between set-ups, as set out in section 3.2.
- **Repeated.** Every speed run was done three times and averaged, to even out the natural variation in WiFi.
- **Recorded.** Every measurement is held in test workbooks and in our full technical report, so each number in this document can be traced back to the runs behind it.
- **Large.** The tests ran from August to October 2026 and produced the evidence base below.

3,066	51 hours	340	15	2 homes
one-minute speed runs	of speed measurement	head-to-head tests scored	devices	five locations in each

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4. What the Results Show

4.1 Overall: fastest in 232 of 340 tests



Number of tests in which each hub gave the fastest speed (ties counted for both).
Each test is one device at one location, downloading or uploading.

In each of the three set-ups the Vodafone hub won far more tests than any other hub:

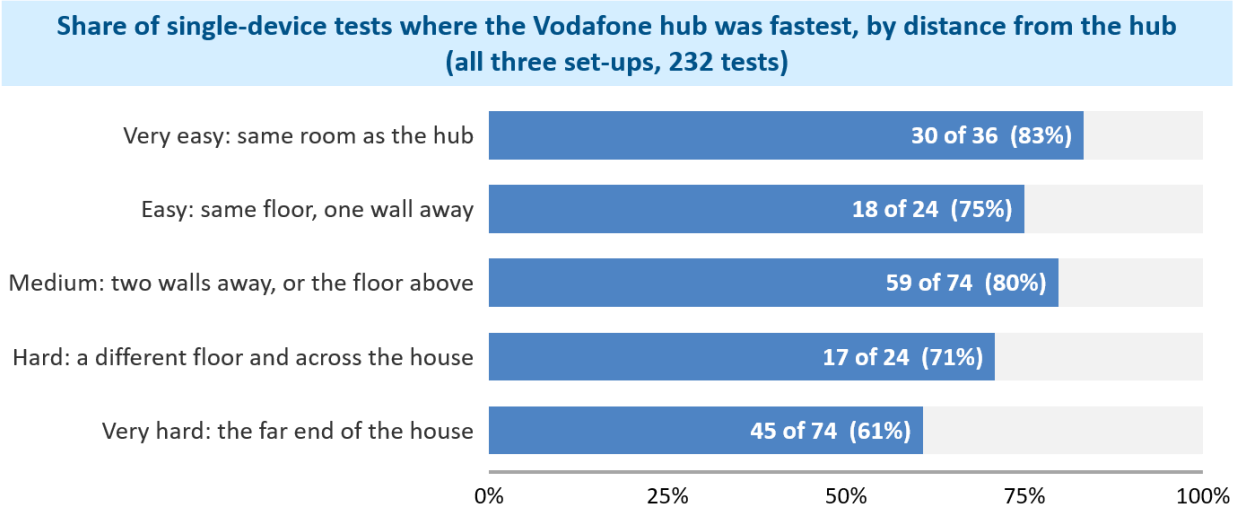
- **House A, hub on its own:** 74 of 116 tests (64%). The next best hub, EE, won 22. That is 3.4 times as many wins.
- **House A, with boosters:** 77 of 116 tests (66%). EE won 26. That is 3 times as many wins.
- **House B, with boosters:** 81 of 108 tests (75%). Sky won 27. That is 3 times as many wins.

Put together, that is 232 first places out of 340, or 68%. The Vodafone hub also won more download tests and more upload tests than any other hub in every set-up.

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4.2 Throughout the home: fastest at every location grade

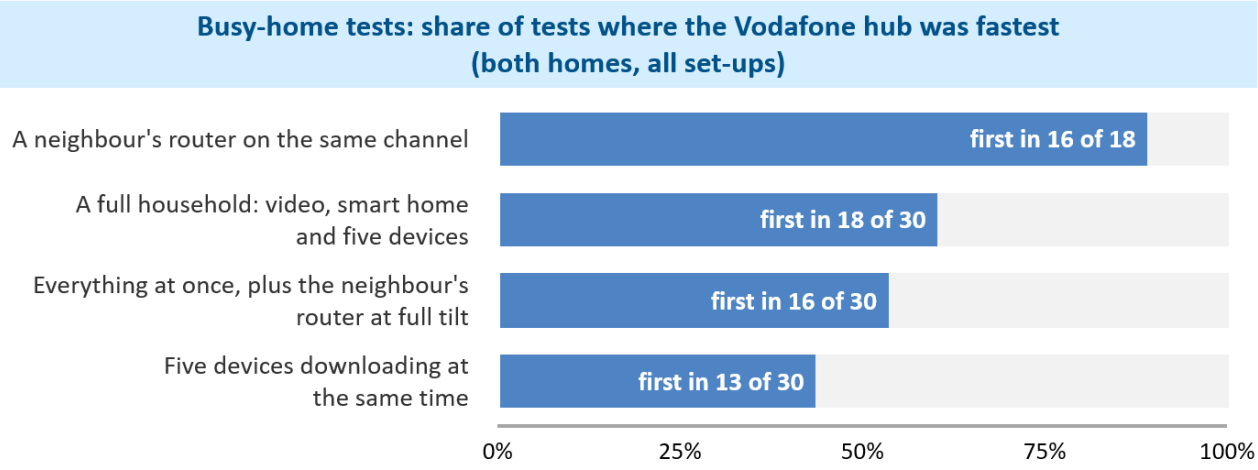
Because the claim is about the whole home, here are the 232 single-device comparisons grouped by the five test-location grades. The groups contain different numbers of tests because not every device was used at every location.



At every one of the five spots, the Vodafone hub was the fastest more often than any other hub. In the same room as the hub it won 30 of 36 tests. At the very hard spot, the most awkward place in each house, it still won 45 of 74 tests; the next best hub there won 12.

Looked at by device, there were 37 device-and-set-up combinations. The Vodafone hub had the most first places in 27 of them outright and shared the lead in 6. Another hub led in 4: the Apple TV in both House A set-ups, the Galaxy S9 with boosters in House A, and the TV set top box in House B.

4.3 When the house is busy



In the busy-home tests the Vodafone hub was fastest in 63 of the 108 tests (58%). It was fastest in 16 of the 18 tests with a neighbour's router on the same channel, it led the full-household test in all three set-ups, and its upload speeds led in every set-up.

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5. Why the Evidence Supports the Claim

Section 1 set out what the claim would need to be true. Here is how the evidence answers each part.

For the claim to be true...	What the tests showed
Fastest more often than the alternatives	First in 232 of 340 speed comparisons (68%), with at least three times as many first places as the next-best system in each set-up. For context, if every hub had an equal chance of being fastest in each comparison, Vodafone would have been expected to win approximately 122 of the 340 comparisons, allowing for the different numbers of hubs tested. It actually won 232. This measures how often each system recorded the highest speed, not the size of the winning margins.
Throughout the home, near and far	Fastest more often than any other hub at every one of the five locations, from 30 of 36 tests in the hub's own room to 45 of 74 at the very hard spot, where the next best hub won 12.
With everyday devices	Most first places for 27 of 37 device-and-set-up combinations outright, and a shared lead in 6 more, across phones, laptops, tablets, TV devices and smart-home devices, old and new.
Download and upload	The most download wins and the most upload wins in every set-up.
Quiet and busy	Fastest in 73% of single-device tests and 58% of busy-home tests, including 16 of 18 with a neighbour's router on the same channel.
Against the main alternatives	Ahead of EE, Sky and Amazon eero, with and without boosters, in two different houses.

The results consistently favoured Vodafone across the three set-ups, all five location grades, and both download and upload tests. This pattern provides stronger support for the claim than any individual result. Subject to the scope and methodology explained in this report, we conclude that the evidence supports Vodafone's claim that Pro 4 provides the UK's fastest whole-home WiFi.

What the evidence does not say. Vodafone did not win every comparison: it came first in 232 of 340. First-place counts do not measure the size of each speed advantage. The results do not establish that Vodafone is fastest in every home or against every hub sold in the UK. They concern the systems and conditions described in sections 2 and 3, and in-home WiFi rather than the incoming broadband line.

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6. Words Used in This Report

Word	What it means here
Hub	The box your broadband provider gives you. It connects to the broadband line and creates the WiFi in your home. Also called a router.
Booster	A second box that spreads WiFi further through the house. Also called a mesh extender or a pod. Pro 4 comes with a Super WiFi 7+ booster.
WiFi 7, 6E, 6, 5, 4	Generations of WiFi. WiFi 7 is the newest and fastest. Older devices use older generations, and a hub has to serve all of them.
Download and upload	Download is data coming to your device, such as a video you are watching. Upload is data going from your device, such as your side of a video call.
First place	In one test, the hub with the highest average speed. If two hubs tie, both get a first place.
Set-up	One of the three comparisons: House A with hubs on their own, House A with boosters, House B with boosters.
iperf3	A standard engineering tool for measuring how fast data moves across a network.

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7. The Sub-Headline: The Most Reliable Broadband Technology

Vodafone's advertising also says Pro 4 lets you 'power every room with the most reliable broadband technology'. That part of the claim concerns the incoming broadband connection, not in-home WiFi, so it was not part of our tests. Ofcom's published consumer descriptions provide context for this separate, technology-level statement.

Pro 4 is delivered over full fibre, also called fibre to the premises or FTTP: a glass fibre cable all the way from the exchange into the home. In its Broadband terminology research (fieldwork November 2022, published March 2023), Ofcom described the four main kinds of fixed broadband in plain terms for consumers. Its description of full fibre says:

> *“Fibre-to-the-premises is less prone to faults and is not usually affected by poor weather. This makes it the most reliable technology to deliver broadband.”*
>
> Ofcom, Broadband terminology research, Annex A: detailed technology descriptions

By contrast, Ofcom's descriptions of the other kinds say that copper broadband 'can be affected by poor weather and can be more prone to faults' and that its speed 'can decrease as distance from the exchange increases'; that fibre-to-the-cabinet still uses a copper telephone line for the final stretch, so 'speeds may decrease the further the customer's home is from the street cabinet'; and that cable broadband 'can become busy and speeds can slow at certain times of day'.

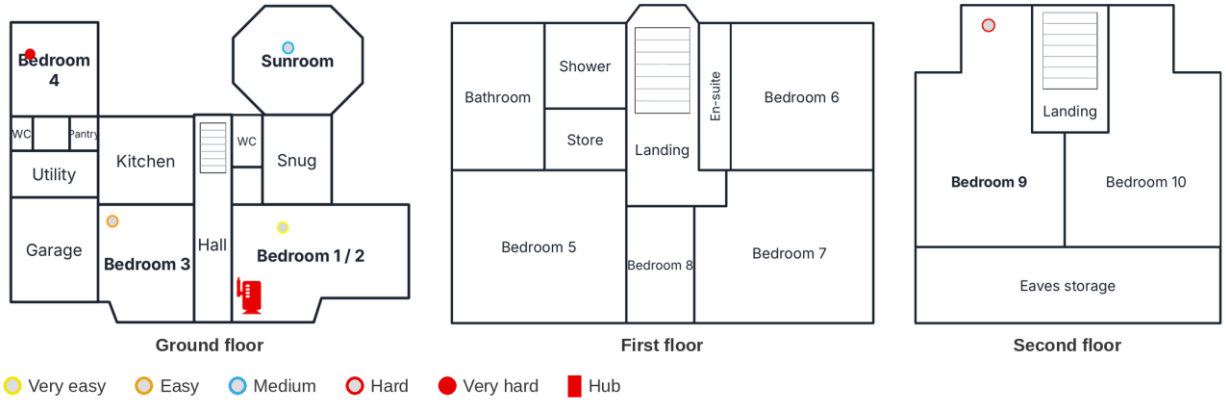
The sub-headline therefore reflects wording in Ofcom's consumer terminology research. The quotation describes FTTP as a technology; it is not an Ofcom endorsement of Vodafone, an assessment of this advertisement, or an independent measurement of Pro 4 service availability.

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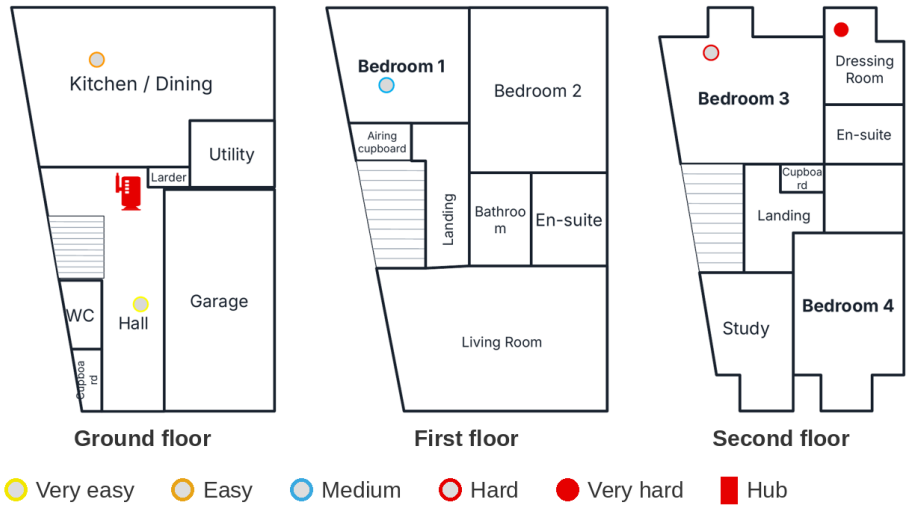
Appendix: The Two Test Houses, Floor by Floor

The plans below show every floor of both houses, the position of the hub, and the five test locations. The hub, and each rival hub in turn, sat in the same spot.

Test House A. A large, older detached house over three floors with many solid internal walls. The very hard location is in Bedroom 4, at the opposite end of the ground floor from the hub, behind four solid walls. The hard location is on the second floor.



Test House B. A modern four-bedroom detached house over three floors with plasterboard walls. The hub is in the hall. The hard and very hard locations are both on the second floor, at the far end of the house from the hub.



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About This Report

This report was written by Cartesian, an independent telecoms consultancy, for Vodafone. The tests were designed, run and recorded by Cartesian between August and October 2026.

A fuller technical report is available at:
https://www.vodafone.co.uk/broadband/pro4-substantiation

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