

## Which Wi-Fi Channel to Use

### 2.4GHz vs 5GHz

The trade-off between 2.4GHz and 5GHz isn't hard to understand at all: 2.4GHz gives you more range but a weaker signal, whereas 5GHz offers a stronger (and faster) signal but can't travel as far around your home. In other words, get anything that's going to be using a lot of bandwidth as close to the router as possible.

This is simple physics—waves attenuate (reduce in force) [faster at higher frequencies](#), and that's the same with wifi signal as it is with anything else. **Devices using the 5GHz band will also have more trouble with walls and other objects when connecting to wifi.**

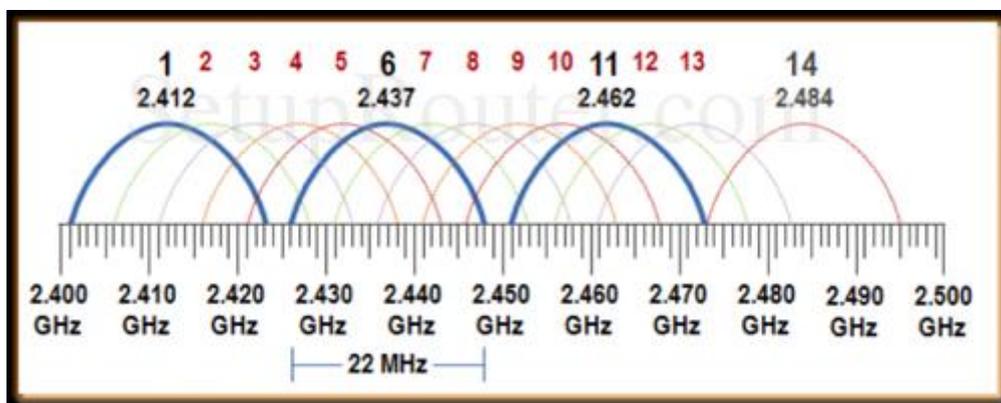
Of course you're still limited by the speed of your incoming broadband, but 5GHz is more likely to serve that broadband up faster and more reliably than its 2.4GHz counterpart. In theory, data can be shifted around twice as fast on the 5GHz band, but the actual difference you'll notice at home will depend on a variety of other factors (like how many devices are hooked up to your wifi network).

The other difference is in the number of devices you can have on each band without running into problems. 2.4GHz has fewer channels, just three of which don't overlap, while 5GHz supports 23 non-overlapping channels and can therefore support more wireless devices without them interfering with each other.

**Plenty of older kit only supports the 2.4GHz frequency, which is why many wifi tips guides recommend switching away from it to boost speed and reliability—it's just less congested. Devices like microwaves, baby monitors, and cordless phones often use the same 2.4GHz band too,** causing more problems with interference (it might be why [YouTube goes down](#) every time you try to cook a TV dinner)

If you live in an area without any neighbours, then you can pretty much use whatever channel you wish and not receive interference. If you happen to be one of the millions living in cities, where most everyone has wireless internet, you will need to figure out which Wi-Fi channel to use. When your Wi-Fi channel overlaps other nearby networks, neither you nor your neighbours get a very good internet connection.

Each of the 14 channels on the frequency band are separated by 5MHz. A Wi-Fi network signal takes up about 20 MHz of bandwidth, so it overlaps with the two channels on either side of it. When you pick a channel for your Wi-Fi network, you're actually picking the centre of 5 different channels. So, if I were to choose channel 6 for my Wi-Fi network, I would actually be using channels 4,5,6,7, and 8.



In the U.S. there is only room in the spectrum for three channels that do not overlap each other, channels **1, 6,** and **11.** So if a neighbour decides to start using channel 4 (which really uses channels 2,3,4,5, and 6) they create and receive interference from your channel 6 network. So to get away from their channel interference you would want to get as far away as possible and set up your Wi-Fi network on channel 11.

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Since most everyone uses channels 1,6, and 11, some of you may be thinking that it may be better to choose a different channel like channel 3, or 4. The answer to that question is no. When wireless routers partially share bandwidth, they are not able to cooperate very well which causes internet performance to be significantly slower and data may become corrupted. It is much better to completely share a channel with a neighbour than to only partially overlap. Built into our routers is channel sharing software, which allows our routers to be polite with each other and take turns when another network is completely sharing our bandwidth.

When you have several neighbours using different Wi-Fi channels you can choose to set up your network on the channel (1, 6, or 11) that is furthest away from them or the one that is used the least frequently. You should also look at the signal strength of the surrounding Wi-Fi networks and stay away from those that are the strongest.

### Manual vs. Automatic

Some wireless routers have the option of automatically configuring the channel to the one that has the best quality. Automatically configuring the channel is much easier, but you have no control over which channel you are on. Manually setting your channel is obviously more time consuming, but you have complete control over which channel to use. If you have a router that automatically chooses a channel for you, unless you are having trouble with interference, you may want to just let the router take care of it.

### Our Recommendations

While setting up your wireless router, choose a channel that is one of the three non-overlapping channels, either 1,6, or 11. You may want to avoid channel 6 because of its heavy usage as a default channel. There are tools readily available on the internet to scan your area for the best channel.