

# Six Things That Block Your Wi-Fi, and How to Fix Them

Fix your Wi-Fi woes with these simple tips from the experts.



Does your wireless network seem slow? A recent study by Epiteiro, a UK-based broadband-analysis firm, shows that consumers lose an average of 30 percent of the data speed their broadband connection supplies when they use Wi-Fi connections in the home.

Why the slowdown? You've probably heard that some household electronic devices, including microwave ovens, baby monitors, and cordless phones, hamper Wi-Fi performance. To separate fact from fiction, we did some research and consulted an expert on the topic: Nandan Kalle, networking business unit manager for router manufacturer Belkin.

## 1. Public Enemy Number One: Your Neighbors' Wi-Fi Networks

"I'd say the biggest source of interference today for most people is their neighbors' Wi-Fi networks," says Kalle. The problem is that most existing Wi-Fi equipment operates on the crowded 2.4GHz band. "There are basically three nonoverlapping channels. I always describe it as a three-lane road that's really, really busy," Kalle adds.

If you use a 2.4GHz router and live in a densely populated area, your neighbors' Wi-Fi networks could interfere with yours, hindering the performance and range of your wireless network.



**The solution:** Buy a dual-band router that operates simultaneously at 2.4GHz and 5GHz. While the 2.4GHz band is necessary for supporting older

Wi-Fi devices, 5GHz "is almost like an 11-lane highway that nobody's heard about yet," Kalle says. "There's much less congestion."

Newer Wi-Fi devices, including tablets such as the Apple iPad and Motorola Xoom, Internet-ready TVs with built-in Wi-Fi, gaming consoles, and business laptops, are all dual-band. "They all play in the 5GHz band. They can take advantage of that empty highway, and that's really going to help," Kalle says.

It's important to get a router that supports *simultaneous* 2.4GHz and 5GHz, such as the \$100 Cisco Linksys E2500. Some older dual-band routers allow only one band at a time; that's a problem if you have older Wi-Fi devices (as most people do), because you'll have to leave your router at 2.4GHz. "You won't get any benefit from the 5GHz mode," says Kalle.

When you're shopping for a new router, look for a dual-band, 802.11n MIMO device, which typically has an "N600" label. The "N" refers to 802.11n, an international Wi-Fi standard approved in 2009. MIMO (multiple input, multiple output) technology provides greater range by using multiple antennas to transmit and receive data. And "600" refers to two bands, each transmitting at 300 megabits per second.

## 2. Household Electronics

Is your microwave oven, cordless phone, or baby monitor sabotaging your Netflix stream? Perhaps.

Most problems with cordless phones and microwaves involve products that use the 2.4GHz band. Many baby monitors operate at 900MHz and won't interfere with Wi-Fi. However, some wireless monitors are 2.4GHz, which can interfere with 802.11g or single-band 802.11n routers.

**The solution:** When choosing a wireless baby monitor, look for a 900MHz model such as the Sony 900MHz BabyCall Nursery Monitor (\$45). Alternatively, get a Wi-Fi-friendly system such as the WiFi Baby 3G (\$279), which connects to your existing wireless network.

Newer cordless phone systems like the Panasonic KX-TG6545B (\$140) use DECT 6.0 technology and the 1.9GHz band, not the 2.4GHz or 5.8GHz bands

## 3. Bluetooth Devices



Older Bluetooth devices did interfere with Wi-Fi networks--but those days have passed.

"Over the past several years, Bluetooth and Wi-Fi manufacturers have implemented specific techniques to minimize interference," says Kalle.

**The solution:** "Most people replace their phones every couple of years, so unless you have a really old phone or Bluetooth device, it's unlikely that [Bluetooth] will interfere with Wi-Fi," says Kalle.

## 4. Humans

You might recall from science class that the human body is mostly water, anywhere from 45 percent to 75 percent depending on your age and fitness level. Water can hamper Wi-Fi speeds, too.

"For example, say your room is very crowded and you're having a party. That can actually dampen your Wi-Fi signal--but that's an extreme case," says Kalle.

"When we're doing Wi-Fi testing in the lab and trying to get very accurate results, we have to make sure that we're not standing in front of the antenna, because we'll measurably impact the performance," he adds.

Humidity can affect Wi-Fi speeds too, but not enough for the average user to notice.

**The solution:** Relax. Don't worry about humidity, or those bags of water called people. After all, you can't control the weather, and it's unwise to be antisocial just to get better Wi-Fi performance.

## 5. Security Settings



In some low-end routers, a stronger security setting can moderately affect performance. However, that doesn't mean you should turn off security completely, or downgrade to weaker protection.

In recent years, the WPA (Wireless Protected Access) and WPA2 protocols have displaced the older and less-secure WEP (Wireless Encryption Protocol). On inexpensive routers that use WEP, upgrading to WPA may impede performance a bit. In contrast, more-robust devices generally have hardware specifically designed for WPA and WPA2 encryption; as a result, the stronger security protocols shouldn't slow Wi-Fi speeds on higher-end routers.

**The solution:** Kalle stresses the importance of router encryption. "You always hear about data theft, and it's so easy to enable security these days," he says. Since today's routers have security

enabled out of the box, users don't have to worry about configuring it. But don't disable encryption, even if doing so may speed up your Wi-Fi a little.

## 6. Old Firmware

Why upgrade your router's firmware? Well, for performance improvements and occasionally a new feature or two.

"Whenever you have a problem, check to see if you have good firmware. Sometimes there are little bugs out there, and the router manufacturer may already have a fix," says Kalle.

When you buy a new router, it's always a good idea to check for the latest firmware as well.

**The solution:** Keep your firmware up-to-date. With older devices, you'll have to access the router's administrative interface--typically through a Web browser--to check for updates. The process is getting easier, though. "Our routers have an application--it's almost like iTunes--that tells you whenever there's new firmware available," says Kalle. "The user can update by just pushing a button."

Although the workings of your router may seem mysterious, following these simple tips can go a long way toward keeping your home wireless network in working order.