

# Wireless Network Differences

## Understanding Modern Wi-Fi: 2.4GHz, 5GHz & 6GHz

### Why Does My Wi-Fi Use Different Frequencies?

Modern Wi-Fi networks operate on different "bands" or frequencies. Think of them as different roads that your devices can use to reach the internet.

Some roads are long and wide-reaching but slower, while others are extremely fast but don't travel as far.

---

## Visual Comparison

### 2.4GHz – The Long-Distance Road

**Best for:**

- Smart home devices
- Security cameras
- Smart plugs
- Doorbells

- Devices far away from the router

**Advantages:**

- ✓ Travels furthest through a property
- ✓ Penetrates walls and floors well
- ✓ Reliable over long distances

**Disadvantages:**

- ✗ Slower speeds
- ✗ More interference from neighbours
- ✗ Used by many household devices

Think of 2.4GHz as a country road that reaches everywhere but isn't particularly fast.

---

## 5GHz – The Fast Motorway

**Best for:**

- Phones
- Tablets
- Laptops
- Smart TVs
- Streaming services
- Video calls

**Advantages:**

- ✓ Much faster than 2.4GHz
- ✓ Less interference
- ✓ Excellent for streaming and general internet use

**Disadvantages:**

- ✗ Doesn't travel as far
- ✗ Walls reduce performance more significantly

Think of 5GHz as a motorway. It's much faster than 2.4GHz but doesn't reach quite as far.

---

## 6GHz – The Private Express Lane

**Best for:**

- New Wi-Fi 6E and Wi-Fi 7 devices
- High-performance laptops

- Gaming systems
- Large file transfers
- Future-proof networking

**Advantages:**

- ✓ Fastest Wi-Fi available today
- ✓ Very little interference
- ✓ More wireless capacity
- ✓ Excellent performance in busy households

**Disadvantages:**

- ✗ Shortest range
- ✗ Requires newer devices
- ✗ Struggles most with walls and obstacles

Think of 6GHz as a private express lane with almost no traffic. It offers the highest performance but only over shorter distances.

---

## Real-World Example

If you're standing:

### In the same room as the Wi-Fi Access Point

Your device will usually use:

**6GHz → Fastest**

### One or two rooms away

Your device will usually use:

**5GHz → Best balance of speed and range**

### At the end of the garden or furthest bedroom

Your device may switch to:

**2.4GHz → Best range and reliability**

---

# Why Doesn't Everything Just Use 6GHz?

While 6GHz is the fastest, it doesn't travel very far.

A good Wi-Fi system automatically allows devices to move between 2.4GHz, 5GHz and 6GHz depending on:

- Distance from the access point
- Signal strength
- Device capability
- Current network conditions

This happens automatically and usually requires no user interaction.

---

# Which Band Should I Use?

Usage	Recommended Band
Smart Home Devices	2.4GHz
Security Cameras	2.4GHz / 5GHz
Phones & Tablets	5GHz / 6GHz
Smart TVs	5GHz
Video Calls	5GHz / 6GHz
Gaming	5GHz / 6GHz
Large Downloads	6GHz
Devices Far From Wi-Fi	2.4GHz

---

# The Automated Integrations Recommendation

For most homes, the best experience comes from a professionally designed Wi-Fi system that broadcasts all three bands simultaneously.

Your devices will automatically connect to the most suitable frequency, ensuring the best combination of:

- Speed
- Reliability
- Coverage
- Future compatibility

In most cases, there is no need to manually select a specific Wi-Fi band, as modern systems are designed to make these decisions automatically.

---

Revision #2

Created 2026-01-16 23:28:11 UTC by Editor

Updated 2026-06-03 07:44:48 UTC by Editor