

What is Ultra Wideband and its effect on iPhone 11

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New Apple iPhone 11 devices include the U1 chip with ultra-wideband (UWB) technology. This is not a new technology but it was first introduced in a modern smartphone. Not only iPhones, Android phones also have UWB.

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So what is ultra-wideband used for?

Apple did not mention this feature during the iPhone 11 release event but noted on its website. According to Apple, ultra-wideband technology brings 'spatial awareness'.

Initially, Apple only advertised a UWB feature: when the iOS 13.1 update arrived on September 24, AirDrop would be better off with a direction-aware suggestion. In other words, you can point your iPhone to someone else's iPhone and AirDrop will know you want to send something to them. Today, the iPhone only uses Bluetooth to know who is near you, it doesn't know exactly who you are looking at or where.

In other words, this feature allows iPhones or other smartphones to accurately detect the location of other objects in physical space. That's what today's smartphones lack.

How ultra-wideband works

Like Bluetooth and Wifi, ultra-wideband is a wireless communication protocol that uses radio waves.

Ultra-wideband offers high bandwidth with low power usage, but it only works over short distances. That's why other wireless technologies like Bluetooth and Wifi are still more useful because they have a wider range. Unlike narrowband technology, UWB transmits data over a wider frequency (over 500 MHz).

Bluetooth and Wifi are not reliable in detecting distance and location. A device with a stronger signal is closer than a device with a weaker signal, but if it's something you can detect, it's not perfect because the signal can be boosted to fool the system. . Instead of depending on signal strength, the iPhone measures the signal's return time to determine the distance from another device. Through multiple antennas, UWB can also measure incoming signal angle. An exact angle associated with the correct distance means that the iPhone can identify an object to a reasonably accurate position in space.

The exact information about how Apple's U1 chip and ultra-wideband works is unclear because there are different standard versions. Apple has not disclosed all the specifications. But Infsoft, the company that provides indoor positioning services for industrial environments using ultra-wideband, said the system's accuracy is 10-30cm compared to 1-3m with Bluetooth beacons or 5-15m with Wifi. .

What does it do for iPhone 11?



This technology is part of iPhone 11, iPhone 11 Pro and iPhone 11 Pro Max. Better prioritizing people nearby to share AirDrop is only the first feature UWB can do. According to Apple, it will lead to great new possibilities.

The greatest possibility is tracking physical objects. Apple is said to be creating its own hardware tracking tag. When attaching a tag, such as a key chain, wallet, or bag, you can use your phone to track the location of these items. And it is said to use UWB technology although Apple has not officially announced this product.

Today, tracking tools like Tile use Bluetooth. When you're nearby, you have to "call" the tracker to find and identify it by listening to the sound it makes. In the future, UWB could allow the iPhone to detect tracking tools much more accurately without sound. On the other hand, the iPhone can tell you the key that falls on the sofa and can even show its position on the screen using augmented reality.

That is just a use. Jason Snell writes that the U1 chip is the beginning of an ultra wideband revolution. SmartHome technology can accurately know where a person is (bring UWB-enabled phones) indoors. Devices that are not trackers can integrate better into augmented reality applications. A phone can be used to open a car door without a key. The car can use UWB to identify you standing next to it before opening the door.

So what about Ultra-Wideband on Android phones?

This feature first appeared on Apple's new iPhones, but nothing prevented Android phones from deploying similar ultra wideband features.

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