ANATECH ELECTRONICS INC

AT THE CENTER FREQUENCY

An e-Newsletter from Anatech Electronics

September 2023

What's News...

France Says iPhone 12 Exceeds Radiation Limits

French regulators ordered Apple to stop selling the iPhone 12 because it emits electromagnetic radiation above EU standards. Apple disputes the findings and says the phone has been certified by multiple international bodies and complies with all applicable regulations and standards for radiation worldwide. The National Frequency Agency (ANFR) said it will monitor device updates, and if they do not work, Apple will have to recall the phones. The iPhone 12's radiation levels are safe, according to France's digital minister, and acknowledged that its tests don't reflect typical phone use but said the phone's radiation levels are still well below levels that could cause harm. An update will be released to prevent iPhone 12 radiation exposure from surpassing the limit.

LoRaWAN Sets New Transmission Record

The LoRaWAN world record for transmission distance of 517 mi has just been surpassed, with the new record standing at 830 miles with

A Word from Sam Benzacar

Wi-Fi: More Than High-Speed Connectivity

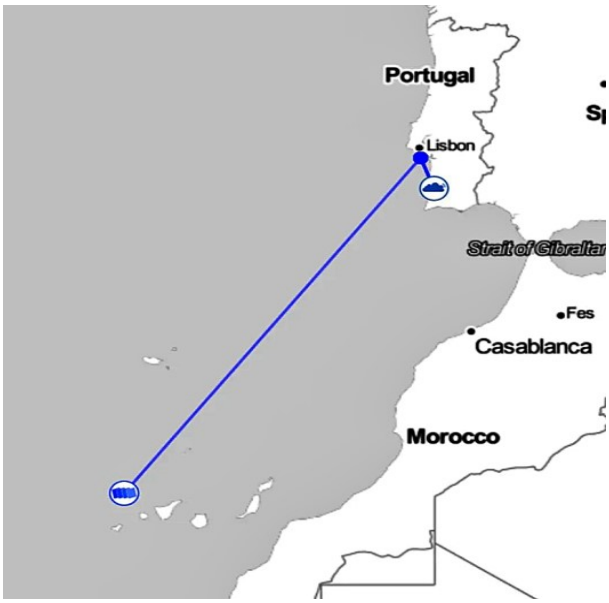
By Sam Benzacar

As Wi-Fi data rates get faster with each generation, the technology is often faster than the broadband sources supporting it. However, there's a lot more going on with Wi-Fi than speed. For example, Wi-Fi has recently gotten a lot of attention for its ability to track the presence and movement of people and objects. This capability, called Wi-Fi sensing, detects signal reflections and other disruptions, and uses machine learning algorithms to analyze them to determine who (or what) is moving and in what direction. As Wi-Fi sensing uses existing hardware and doesn't require cameras or other sensors for detection, it's a lot less expensive and almost effortless to deploy.

While multiple sensing technologies have been available for many years, the characteristics of wireless technologies give Wi-Fi sensing distinct advantages. For example, wireless sensing works in non-line-of-sight conditions and supports wider coverage areas compared to infrared-based sensing. Unlike video-based sensing, wireless sensing can operate in poor visibility and lighting conditions and preserve user's privacy. In contrast to other wireless sensing technologies, Wi-Fi sensing leverages the fact that Wi-Fi is a low-cost and widely deployed technology. It's also standardized, which allows multi-vendor interoperability and supports data communications, ranging, and sensing with a single chipset.

As a result, it shouldn't be surprising that it's being widely adopted throughout many markets, from healthcare to retail, hospitals, home automation, and others. For security applications, Wi-Fi sensing can detect unauthorized access to a specific area, and when unexpected movement is detected, the system triggers alarms or sends alerts. It can also be integrated into smart home systems to automate tasks such as turning lights on and off, adjusting thermostats, or activating home security systems.

LoRaWAN trackers on a fishing boat on buoys on the coast of Portugal contacting a gateway in the Canarian Islands. What's even more impressive is that the record was set at sea level rather than a high-altitude balloon, which was the case for the previous record. LoRa technology operates in the ISM bands at 868 and 915 MHz. The STMicroelectronics STEVAL-STRKT01 LoRa IoT tracking device used in the test is typically employed in applications covering up to 100 m.



Verizon, T-Mobile Corner 5% of U.S. FWA Market

According to Leichtman Research Group, Verizon and T-Mobile fixed wireless broadband now control 5.2% of the U.S. home internet market. The pair added 893,000 fixed wireless access users in the second quarter, bringing their number of subscribers to 5.9 million, twice the 2.244 million they had a year ago. However, as more consumers adopt these services, the technology's capacity issues may present a problem. Performance has improved marginally to 33 to 182 Mb/s since T-Mobile Home Internet launched a year ago, with download speeds from 35 to 115 Mb/s and upload speeds between 6 and 23 Mb/s.

In healthcare, it can be used for patient monitoring by tracking a person's movements to help with fall detection and medication adherence. In retail settings, Wi-Fi sensing can help businesses collect data on customer behavior and foot traffic patterns, and the resulting data can be analyzed to gain insights into human behavior, occupancy patterns, and trends that lead to improved store layouts and marketing strategies.

Wi-Fi sensing has become so pervasive that the IEEE has created an amendment to the IEEE 802 standard called IEEE 802.11bf that's designed to remove roadblocks to Wi-Fi sensing adoption posed by the fact that the IEEE 802 standard has never defined sensing-specific features. Consequently, it was limited to proprietary implementations with limited interoperability. Specifically, the amendment defines an interface for sensing applications to request and obtain sensing measurements, allows for sensing applications to use devices by multiple vendors, and lowers the overhead associated with obtaining sensing measurements, among other features.

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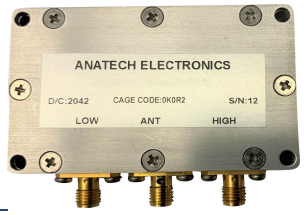

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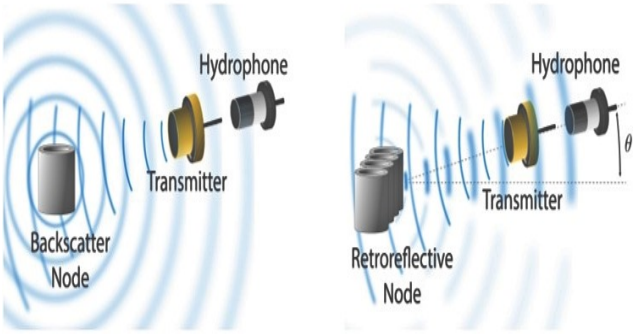
MIT Develops Underwater Network

MIT researchers have developed ultra-low-power underwater networking and communication technology that uses piezoelectric materials and a Van Atta array to transmit acoustic signals at kilometer-plus ranges without a battery. This technology could be used for various applications, such as underwater monitoring, tracking, and communication. Van Atta arrays are a series of connected piezoelectric sensors that can triangulate and redirect signals back toward their source. This makes them more efficient than acoustic devices that transmit data omnidirectionally, leading to energy loss and shorter ranges from signal scatter. The acoustic sensors measure 3 x 3 ft. and can simultaneously reflect multiple signals at distances up to about 5 km.



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