



AT THE CENTER FREQUENCY

An e-Newsletter from Anatech Electronics

August 2023

What's News...

Private 5G in a Box

Virgin Media O2 has developed a plug-and-play private 5G network product that only needs power and an internet connection and is housed in a portable enclosure slightly larger than a carry-on airline bag and allows a 5G Standalone private network to be activated without the need for complicated installation. Although 5G private networks aren't new, they're typically dedicated to fixed installations such as ports, hospitals, and industrial facilities. In contrast, the VMO2 device is a self-contained portable solution that can provide temporary coverage. It can be used indoors or outdoors.



Satellite-based Aircraft Tracking System

The European Space Agency has contracted Global to develop a satellite-based aircraft monitoring system that can track aircraft in real time for air traffic management and doesn't rely on existing systems. The project will track aircraft by determining their position in real-time based on the timing of signals detected by multiple satellites. The signals must be those already broadcast by aircraft, and rather than replacing current

A Word from Sam Benzacar

LMDS is Back as 5G Fixed Wireless Access

By Sam Benzacar



Fixed wireless access (FWA) is a major focus of broadband providers, and although this sounds highly innovative, it's now new. The same basic approach, called Local Multipoint Distribution Service (LMDS), operated between 28 and 31 GHz and was tried in the 1990s. While the latest iteration of FWA mostly targets consumers, LMDS was conceived to serve high-rise office buildings in urban environments where access to Ethernet, especially fiber, was relatively rare at the time.

LMDS was a big deal for a few years, and many prominent names in the telecommunications industry got on board with cash in hand. As *Wired* wrote in 1999, "In New York and other urban areas across America, finally there's a fast track to the broadband connectivity that copper wires, coaxial cable, and even fiber have failed to deliver."

Unfortunately, after investing enormous sums of money in LMDS, most of the companies deploying it filed for bankruptcy or were acquired. The problems were that the required technology wasn't ready, what was available was too expensive, and the well-known propagation problems at these frequencies weren't effectively solved. In short, technology just wasn't ready back then to cost-effectively deploy millimeter-wave systems to consumers and make a profit.

Winstar Communications, the originator of LMDS, sold its FWA spectrum holdings for \$42.5 million after Winstar went bankrupt in 2001. In 2006, GVC Networks bought Winstar's subsidiaries and continued to operate telephone, video, and broadband services in 18 metropolitan markets under the name GVCwinstar until it too went dark. Winstar wasn't the only company that tried its luck with LMDS. Nextlink Communications was formed as a subsidiary of XO Holdings in 2006, whose subsidiary XO Communications had earlier attempted but failed to launch an LMDS service under the name Nextlink.

systems, the system would feed location data to them for integration. It could also be used to track aircraft from takeoff to landing anywhere in the world and could more speedily locate aircraft in the event of an emergency.



Nextlink changed its name to XO Communications and had a considerable presence but failed to make a profit. Verizon eventually acquired XO Communications in 2016, purchasing its fiber-optic network business for about \$1.8 billion. It continues to offer various services within Verizon today. Other companies in this business include WNP Communications (acquired by Nextlink in 1999 for \$595 million) and Telligent (went bankrupt; its assets were sold).

Now LDMS has returned in the form of 5G FWA that is growing like weed and overtaking all other technologies for delivering high-speed broadband to the home, including fiber. Since the era of LMDS, most of the problems associated with making FWA viable as a fiber or cable replacement have been solved. The technology is now available, although still a bit expensive, and can be installed in a home by a subscriber, which saves providers from truck rolls, as is the case with fiber solutions like Verizon's FiOS, which can take the better part of a day. So, although the first attempt at using millimeter-wave frequencies for broadband delivery was a flop, this time it looks like it will be a winner.

We can always find a solution!

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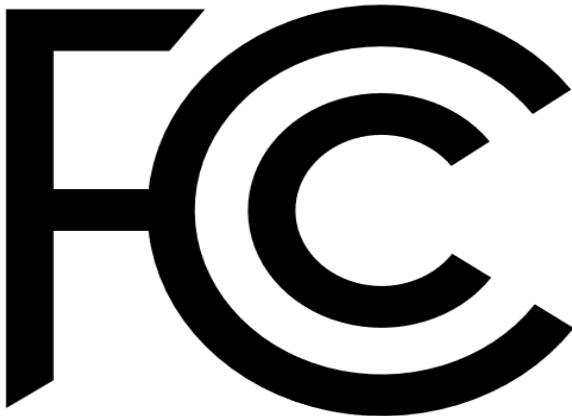
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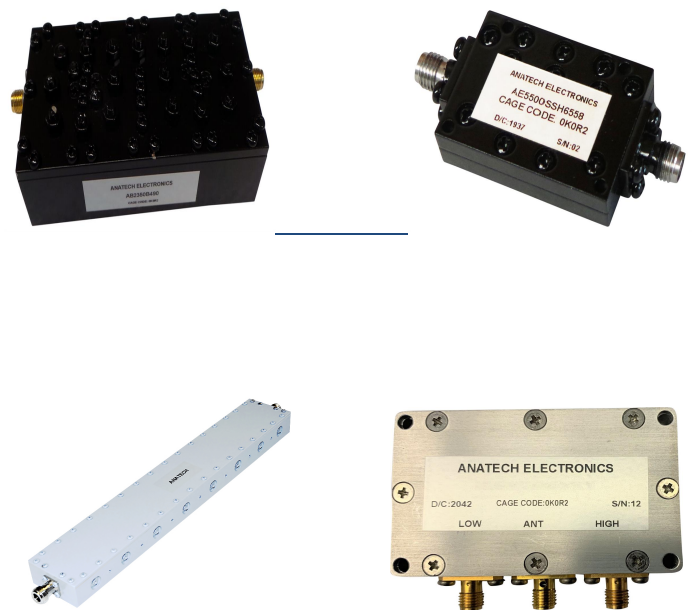
FCC Finally Redefines Minimum Acceptable Broadband Speed

It's been eight years since the FCC last defined what it considers to be acceptable broadband performance, but FCC Chairwoman Jessica Rosenworcel says it's time to update this obsolete definition from its current of 25 Mb/s in the downlink and 3Mb/s in the uplink to 100Mbps down and 20Mbps up, with a goal reaching 1Gb/s down and 500 Mb/s up in the future.

The proposed upgrade coincides with the recently approved Enhanced Alternative Connect America Cost Model (A-CAM), a voluntary program that provides financial incentives to ISPs deploying broadband service in under-served regions that comes with \$13.5 billion in funding. ISPs will also be required to achieve speeds of at least 100/20 Mb/s to qualify for funding under the Biden administration's Broadband Equity Access and Deployment (BEAD) program, which was introduced as part of the bipartisan infrastructure deal signed into law in 2021.



New Radar Technique May Help Find Landmines



Researchers from Chapman University and other institutions have demonstrated a radar method that can resolve smaller objects at greater depths than is currently possible. The devices currently used to spot landmines aren't great at distinguishing features at the depths where these objects are typically buried. The researchers say their technique may allow detection up to a few meters below ground compared with the few centimeters accessible with current technology. The improvement could also enable archeologists to find tiny objects rather than just large walls and help oceanographers map the ocean floor, which is currently impossible with current radar systems.



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