



AT THE CENTER FREQUENCY

An e-Newsletter from Anatech Electronics

December 2021

What's News...

FCC reaps a bonanza from latest spectrum auction

The FCC's Auction 110 for licenses between 3.45 and 3.55 GHz resulted in bidders winning 4,041 of the 4,060 available blocks and gross proceeds over \$21.8 billion, among the highest-grossing auctions in FCC history. Auction 110 makes available 100 MHz of mid-band spectrum for commercial use across the contiguous United States. License winners will operate within a cooperative sharing framework that will enable commercial use by an array of service providers while also ensuring coexistence with federal incumbents where and when they require continued access to the band.



Radar may help keep kids safe in hot cars

Radar is the latest technology being considered for determining when the temperature in a parked car rises enough to cause harm. The FCC has given approval for automakers to install them to detect the presence of a child in a vehicle and alert their operators before dangerous levels have been reached.

A Word from Sam Benzacar

My Prediction for 2022

By Sam Benzacar



At this time every year, I make my best attempt to predict what the coming year will bring for the RF and microwave industry. A sad commentary on last year's prediction is that while 2020 was a year like "no other in memory", 2021 would be different. Now, 12 months later, it turns out I was wrong as the pandemic continues its destructive path across the world. Being an optimist, I'm going to make the same prediction for 2022 in the hope that in the coming year, the scourge will be gone or at least diminished. So here are my technology and market predictions for 2022.

The major problems with millimeter technology will be solved for 5G

As everyone reading this column obviously knows, propagation conditions that millimeter-wave frequencies are problematic at best, and some naysayers last year predicted it would be "dead." The reason, they say, is that the astronomical cost of deploying small cells everywhere would be financially catastrophic for wireless carriers and other providers. I beg to differ. An innovative approach promises to dramatically reduce the number of small cells through the use of repeaters, AI, cloud-based processing resources, and mesh-based topology.

Simply stated, a central hub with access to optical fiber connects to a wireless base station operating at one of the allocated millimeter-wave frequencies. The base station sends its signal to repeaters that combine higher RF output power than small cells that can send narrow beams to multiple destinations that can be reconfigured on the fly to address changing traffic conditions using phased-array antennas and intelligent algorithms (and the cloud).

This way, every residence or business acts as a node in the mesh network, passing the signal on to others, effectively eliminating at least half of the small cells needed to serve the geographical area. Thanks to beamforming, AI and cloud-based processing, the network can also serve mobile users, the most challenging operational scenario of all. A year ago, there were few companies with the technology to deliver such a solution, but the list is growing.

The upcoming Genesis GV70 SUV will be the first vehicle to use them for rear seat occupants, and the company claims they are much more sophisticated than ultrasonic sensors and sensitive enough to detect a baby's breathing.



Interference to vehicle collision-avoidance radars

The High Traffic Safety Administration and others have found that vehicle radars can interfere with each other, cause among other things, false positives. HTSA conducted a "radar congestion study" to model and simulate radar interference to determine how much power a given radar can receive from others and how this affects the performance of a collision warning system. The results of the study show that levels of interference in the 76-81 GHz band when operated in congested environments can be significant because the other radars can exceed the received signal strength required for optimum performance by several orders of magnitude.



Diabetic woman claims ham's transmitter causes insulin pump to fail

Michelle Smith, a Type 1 Diabetic in the Orlando area, has been fighting for more than a year with her community association because she believes that her neighbor's amateur radio transmitter is interfering with her insulin pump. She switched

The gap in the digital divide will further close

As the pandemic illustrated, everyone needs access to the Internet, and people in rural and even urban areas either cannot afford broadband or have no access to it. There is no excuse for this. In a nation with massive resources and it has been a problem for far too long. The President's infrastructure plan should help solve this problem, but the most dramatic results will be delivered by millimeter-wave systems like the ones described above. In addition, AT&T's FirstNet is also a contributor because it has a mandate to deploy a first responder network throughout the country. This has required the company to provide infrastructure in places Internet providers ignored before. In addition, Starlink and other satellite communications constellations will continue to expand, eliminate their early technical problems, and reduce costs to the user.

The defense market will grow for RF and microwave manufacturers

The Department of Defense has always been a major force driving our industry and the rivalry between America, China, and Russia is accelerating the need for RF, microwave, and millimeter-wave components and systems. I believe this marks a long-term trend for manufacturers of nearly all types of components and subsystems for radar, EW, SIGINT, and other applications.

The commercial satellite market will provide significant revenue to the industry

The commercial satellite industry is booming, from spacecraft the size of a tissue box to larger ones, primarily operating in low Earth orbit, and they all require significant RF and microwave content. This industry didn't even exist five years ago, but over the next decade, it will provide big benefits for many manufacturers.

So, that's my take on some key markets I believe will play a huge role in the fortunes of RF and microwave manufacturers in 2022.

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pumps to no avail. The association hired a consultant who noted that the transmitter's emissions "could have" exceeded levels the insulin pump could handle, and the neighbor was told to shut down his station. The ham noted, however, that the station has been sitting unplugged in his office. At the moment, the situation remains contentious, and the community's board of directors changed the wording in its rules from defining antennas from "a device used to receive" to one that could also "transmit."

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***we wish you a wonderful,
safe holiday***

and a happy new year!



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