ANATECH ELECTRONICS INC

AT THE CENTER FREQUENCY

An e-Newsletter from Anatech Electronics

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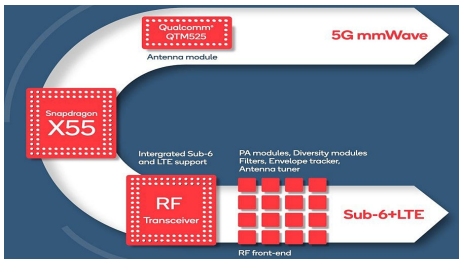
What's News...

Apple Again Taking a Whack at Antenna Design

Apple has apparently not been happy with Qualcomm's QTM 525 millimeter-wave front-end module because it doesn't allow the company to keep its phones thin, so it may build its own. This may or not be what Apple finally chooses to do because doesn't have best track record in antenna design, of which "Antennagate" is the most infamous example. In that case, when the user held the iPhone 4, he or she connected to the antenna, reducing performance. This time, the company's challenge will be a lot more difficult, as phased-array antennas at millimeter wavelengths make those on the iPhone 4 seem simple.



Ericcson Set 5G Speed Record

With eight carriers aggregating 800 MHz of millimeter wave spectrum, Ericsson has achieved a downstream data of 4.3 Gb/s, the fastest to date. The company's Street Macro 6701 achieved this using a 5G smartphone form factor test device powered by the Qualcomm Snapdragon X55 5G modem. The commercial solution including network and terminal support will be available this year.

A Word from Sam Benzacar

Dynamic Spectrum Sharing Coming Next Year

By Sam Benzacar

As I've discussed before in this column, the wireless industry in the U.S. is in the unfortunate position of having little available low-and mid-band spectrum to accommodate the needs of 5G, which is why some carriers such as Verizon are aggressively rolling out 5G at millimeter wavelengths.

Remedies to this situation in the lower frequency bands include carrier aggregation, network slicing, reframing existing services, and frequency sharing such as used in the AWS band and most recently with the Citizens Broadband Radio Service (CBRS). However, another approach soon to reach the deployment stage is dynamic spectrum sharing (DSS) that although also a form a sharing is more like frequency reuse.

DSS allows a carrier to deploy 4G LTE and 5G NR in the same band, dynamically allocating spectral resources between the two based on the density of traffic. Right now, to add 5G to 40 MHz of its allocated LTE (i.e., 4G) a carrier would have to split it in half, with 20 MHz for 4G and 20 MHz for 5G. For users, this would mean lower performance than today because the available bandwidth would be reduced. Using DSS, the carrier can automatically overlay 5G and 4G traffic, allowing both to access the entre 40 MHz, depending on traffic density. As it can be accomplished with software upgrades, DSS is a nice addition to the current approaches for squeezing more from nearly saturated bands.

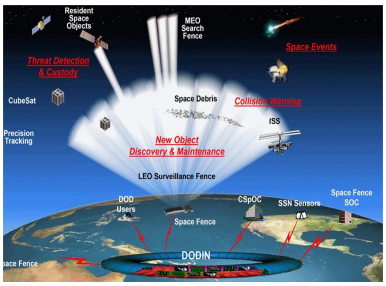
While wireless carriers can deploy immediately when the technology is ready, probably later this year, the smartphone launch cycle is early in the year for Samsung and in the fall for Apple. So, don't expect to see DSS available this year for end-users, but more likely by Samsung and other Androids phones this time next year.

NASCAR Signed VERIZON

NASCAR has signed a three-year deal with Verizon in which the carrier will provide 12 NASCAR-owned racetracks with better access to high-speed service with the goal of eliminating dead spots and delivering higher speeds. This makes Verizon the official wireless and 5G partner for the stock car racing series and the Wi-Fi partner at the 12 tracks, which host 19 of the 36 Cup Series races.

Air Force to Light Up Next-Gen Space Fence

The U.S. Space Force will turn on the next generation of its “Space Fence” on Kwajalein Atoll in the Pacific that lets DoD tracks thousands of objects up to 22,000 miles from Earth. It will track space junk, keep track of enemy satellites, and help prevent satellites from colliding with each other. NASA thinks there are at least 500,000 such objects measuring 0.4 and 4 inches circling the Earth at 22,000 miles an hour. The new version is designed to detect objects as small as 4 inches from low-Earth orbit (900 to 1,200 miles) as well as medium-Earth orbit (1,200 to 22,000 miles), and geosynchronous orbit (22,000 miles and beyond).



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