

What's News....

Built on 5G

Verizon asks people to suggest 5G apps

Not that there aren't enough opportunities for 5G already, Verizon has launched its "Built on 5G Challenge", a nationwide search for products, services, and applications for the technology. Submissions will be open until July 15, and the winners will be announced in October 2019. The winning team will receive \$1 million, and the second and third prize teams will receive \$500,000 and \$250,000, respectively. Prizewinners will be required to grant Verizon the opportunity to invest in their next financing round. All winning teams will be given an opportunity to access live 5G networks located at Verizon's 5G Labs to further develop their submissions.

A Word from Sam Benzacar

5G Brings EM Radiation Front and Center



You would think that after hundreds of studies conducted over several decades, there would be a definitive answer to the debate about whether EM radiation from wireless devices causes cancer, brain damage, changes to DNA, and other maladies, but there's not. So, you wouldn't have to be clairvoyant to predict that with 5G entering the picture this topic would rise again in the media, thanks to its use of millimeter-wave frequencies and huge numbers of small cells.

I've been following this topic for a long time, primarily because it checks all the boxes needed to produce controversy, from supposedly-unbiased industry-sponsored studies, to political intrigue, heavy industry lobbying, and researchers trashing each other's work. Lost somewhere in this is the answer to the basic question: Are we safe? Some researchers strongly say yes, and others say no, and in the middle are those who say "possibly, but we're still not sure." While a long-term controlled study of the effects in man might answer the question, it would be extremely difficult to conduct, so we're stuck with mice and rats. (To their credit, the tiny creatures are the mainstay of scientific research, and without them we'd have nothing at all.)

FCC offers up more money for rural broadband

Challenge

If there are any people in rural areas without decent broadband after the FCC exhausts in various initiatives, there will still be the Rural Digital Opportunity Fund rolled out this month. The fund will provide \$20.4 billion to connect up to 4 million homes and small businesses across rural America to broadband services with speeds up to 1 Gb/s. The money will come from repurposing of the Universal Service Fund. The specific details will be determined after the FCC goes through its usual notice and comment process.



Biggest spectrum ever about to unfold

The issue with small cells has become increasingly contentious as carriers begin to roll them out, and they're appearing everywhere, and they're noticeable. No one likes having more unsightly equipment hanging off utility poles, on the top or sides building, water towers, and other structures, nor do some want any more EM emissions around them than they already have. Residents and municipalities have been battling them for decades for these reasons. People swarm town meetings and stage protests, and towns and cities slow the approval process to a crawl. This worked so well that the federal government stepped in to give them short and shorter time limits for making a decison. San Francisco just won a victory in the California Supreme court over small cell deployment, tightening the rules.

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Now, to reduce latency to 5G's promised 1 ms or so, small-cell base stations must be near where the end user is, especially when operating at millimeter-wave frequencies. When they begin to be deployed indoors this problem will get even worse form health and safety perspective, as they'll be everywhere there too.

In addition to small cells, there will be millimeter-wave fixed wireless access transceivers mounted on utility poles to deliver broadband as a competitor to cable. Collectively, they represent an exponential expansion of base stations, and some people and even some countries are concerned. And the Belgian government just halted a 5G pilot project in Brussels over concerns that 5G cannot meet the city's strict radiation rules.

The FCC is auctioning off even more millimeter-wave spectrum for 5G, at 37, 39 and 47 GHz, making it the most spectrum ever auctioned at one time, and the third one place this year. Those included the 28 GHz auction and most recently the 24 GHz auction. Collectively, the 37 GHz and 39 GHz bands would offer a total of 2.4 GHz, and the 47 GHz band will add another 1 GHz, for a grand total of nearly 5 GHz of spectrum for use this year. No doubt this is happening so quickly because no other services operate at these frequencies so there's no one to complain, sharing to contend with, or refarming.

It's safe to say that eventually the siting issues will be settled (more or less) to people's satisfaction, the proliferation of small cells won't be positively proven to have harmed anyone, and 5G will continue its bumpy ride to provide something for everyone. But that won't keep people wondering whether EM radiation is harmful, and the answer will remain elusive – until the day 6G arrives.



Google Fiber Exits Louisville, Gracefully

Having shut down its fiber service in Louisville, KY, Google Fiber will now pay \$3.84 million to Louisville Metro Government for removing fiber and sealant from roads, paving, and removal of aboveground infrastructure. The problem was that Google used shallow trenching to deploy its fiber very quickly, but it also exposed fiber cables and had other flaws. In addition, the company is making a \$150,000 cash donation to the Community Foundation of Louisville's Digital Inclusion Fund, for refurbishing used computers for low-income individuals and the enrollment of public housing residents in low-cost internet access via other companies' services. Finally, Google Fiber is giving 275 refurbished computers to the city.



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