ANATECH ELECTRONICS INC

AT THE CENTER FREQUENCY

An e-Newsletter from Anatech Electronics

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What's News...

Over-the-Air TV via 5G

The Federal Communications Commission has authorized WWOO-LD Boston to use 5G broadcasting to offer free over-the-air (OTA) TV. This TV service will allow smartphones, tablets, and any other device with a 5G chipset to receive TV signals. Bringing broadcast to 5G could help reduce congestion because rather than a “one-to-one model”, it uses a one-to-many model. WWOO will broadcast traditional TV signals in 5G and work with public safety to provide video and data services to first responders. As part of the FCC approval, WWOO has until January 2024 to complete its testing.

LiFi Gets FCC OK

The IEEE has approved IEEE 802.11bb, which is an amendment to the Wi-Fi specification that uses visible and infrared light. The amendment describes the changes required to physical and medium access control layers to allow 802.11 wireless networking via light source modulation. The LiFi spec calls for bidirectional transmission in the 800 to 1,000 nm band with a minimum throughput of 10 Mb/s and a maximum of 9.6

A Word from Sam Benzacar

Another Annoyance for Radion Astronomers

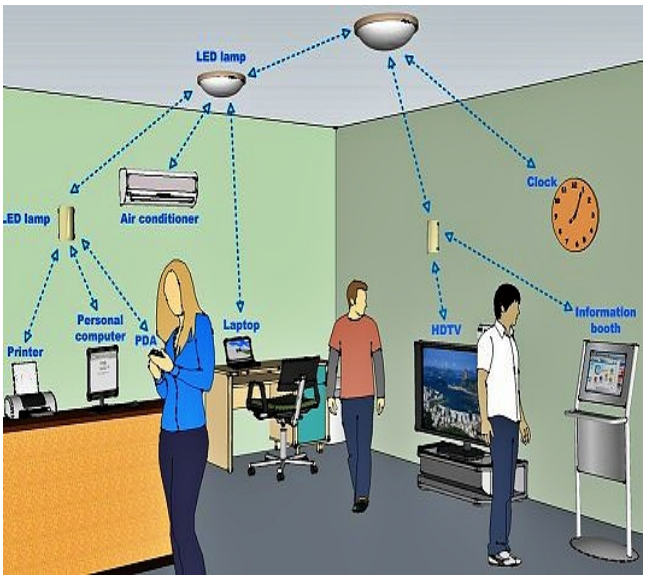
By Sam Benzacar

The rapidly growing number of satellites in low Earth orbit (LEO) may have enormous benefits for delivering broadband virtually anywhere, but it's wreaking havoc with radio astronomers. Their first concern was their brightness in the sky, and now they've discovered another potential impediment: electromagnetic emissions. This assessment comes from a report published in Astronomy & Astrophysics and authored by institutions including the Max Planck Institute for Radio Astronomy in Bonn, Germany. Using the Low-Frequency Array (LOFAR) telescope in the Netherlands to observe 68 SpaceX Starlink satellites, they detected radiation between 110 and 188 MHz from 47 of them. Unfortunately, these frequencies fall into the spectral region between 150.5 and 153 MHz, which is protected for radio astronomy by the International Telecommunications Union.

Although the received levels are incredibly low--a few microwatts or around a million times weaker than the emissions from a mobile phone--they're still strong enough to be detected by the sensitive receivers of radio telescopes. SpaceX is not in breach of any rules because, unlike their terrestrial counterparts, satellite radiation is not regulated (yet). The company has been in contact with the scientific community about how to remedy the issue. It has already introduced changes to its next satellites that could mitigate their impact on astronomical projects.

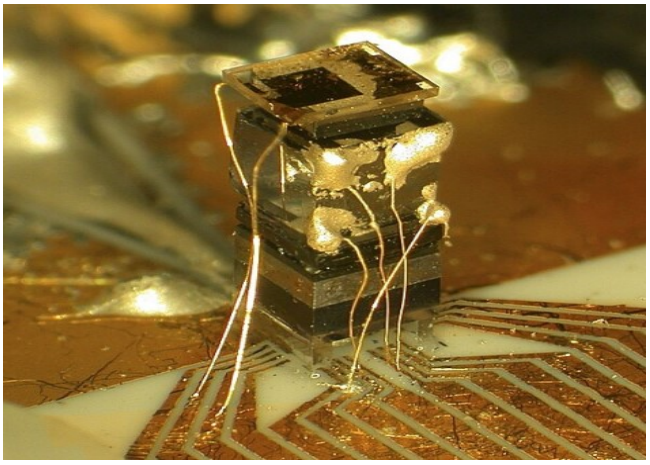
The authors focused on SpaceX because it has the most broadband communications LEO satellites LEO by far, which at the moment is about 4,700. The company has regulatory approval to deploy 12,000 and has filed for approval to launch another 30,000 to reach its goal of 42,000.

Gb/s at the access point. As LiFi access points have a limited field of view, a network can be set up so pools of LED light can provide network access only to those within them. This makes the technology secure as the light is highly restricted, which is why it's already being used in military facilities.



NIST, Georgia Tech Build Tiny Atomic Clock

NIST and researchers at Georgia Tech have created the first chip-scale beam clock, which is about the size of a piece of sushi and uses very little power. It can run on batteries, making it suitable for use when GPS is unavailable. The clock is currently a prototype, and initial tests show it is slightly less accurate than existing chip-scale atomic clocks. However, the researchers are confident that they can improve the clock's accuracy by a factor of 10 and exceed the stability of existing clocks by 100 times over one week. The clock could have several applications, including navigation, timing, and metrology.



PA may let all Cops use Speed Radar

Pennsylvania is the only state that prohibits municipal police from using radar to enforce speed limits, but the Pennsylvania House of Representatives is considering a bill that aims to change that. Since 1961 only state troopers can use radar, and local police are limited to

The problem the scientists have observed will only become more acute in the future because the era of satellite-based broadband services has just begun, and other players in this industry have yet to launch their satellite constellations. Although estimates vary, the number of spacecraft in LEO or other orbits could ultimately reach 100,000 by around the end of the decade, a number that has been called sustainable.

Radio observatories have long located their locations in some of Earth's most remote places. For example, next-generation large-scale radio observatories such as the Square Kilometer Array Observatory (SKAO) are being built in two sparsely populated areas in Australia and South Africa where no terrestrial communications, TV, or radio use is allowed.

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VASCAR, which measures the time it takes for a vehicle to travel between two points. Under the proposed law, local police could use radar to catch speeders, but only if the driver is going at least 10 mph over the speed limit. In work zones, the threshold would be 5 mph. The bill has raised the concern that police could use radar as a revenue generator, so the bill only allows written warnings for violations during the first 90 days of enforcement. It would also require the officer to be in or near a clearly marked police vehicle.

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