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4-1-2018

## Broadband Center of Excellence Newsletter, April 2018

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### Recommended Citation

Yassini, Rouzbeh, "Broadband Center of Excellence Newsletter, April 2018" (2018). *Broadband Center of Excellence*. 5.

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## From the desk of Rouzbeh



Dr. Rouzbeh Yassini

*“The IEEE 802 LAN/MAN Standards Committee remains a vibrant community of globally based technologists who continue to standardize the best technologies for global commercialization of products and services benefiting humanity.”*

**Hello,**

Spring is upon us, but it was hard to tell at times in the recent weeks here in New England with three major Nor'easter storms battering us. I retain positive thoughts that nice weather is just around the corner. My colleague Mr. Nikolich also remains positive about the work underway in his IEEE committee and offers us a take on some of the Committee's major efforts. We also include a positive update from the FCC about broadband deployment in the US.

### **Contribution by Paul Nikolich, IEEE 802 LMSC Chairman and BCoE Board Member**

The IEEE 802 LAN/MAN Standards Committee held its 118th plenary session in Chicago, IL, from 04 to 09 March 2018. It was well attended with more than 750 participants working on 50+ standards activities. The major new wireless LAN work item, 802.11ax High Efficiency WLAN (HEW), in the 802.11 Working Group, is making steady, albeit slow, progress toward obtaining formal Working Group approval on a first draft, with ratification of the amendment expected in late 2019 or early 2020. The 802.11ax major features are a four-times increase in average capacity in high density use cases, higher capacity modulation and coding sets, downstream and upstream multi-user operation via orthogonal frequency division multiple access, multiple-input, multiple-output (MIMO) signal processing and sophisticated adaptive antenna beam steering technologies.

In addition to the ongoing 802.11ax HEW project, the 802.11 WLAN working group is developing amendments to enhance operation in the 60 GHz unlicensed bands (802.11ay), reduce power consumption enabling long-lived battery powered sensor devices (known as 802.11ba Wake Up Radio), and optical-wave operation enabling multi-gigabit per second capacity using infrared and visible light spectrum (known as 802.11bb Light Communications). Furthermore, the working group established new Technical Interest Groups (TIGs) to commence studying Full Duplex Operation (FDO) and Broadcast Services (BCS). The FDO work is examining the feasibility of enabling the simultaneous transmission and reception of information flows, potentially doubling the capacity of the available spectrum. The BCS is examining the feasibility of enabling a one-way operation of the 802.11 protocol for use cases like broadcast video.

Overall, the IEEE 802 LAN/MAN Standards Committee remains a vibrant community of globally based technologists who continue to standardize the best technologies for global commercialization of products and services benefiting humanity.

Lastly, a new 802.11 Wireless LAN study group has been established: Next Generation V2X to expand on 802.11's previous vehicular standard, 802.11p, and explore a long-term road map for V2X in the 802.11 Working Group.



### **FCC 2018 Broadband Deployment**

The FCC's 2018 Broadband Deployment Report says that in the past year the Commission has restored the process of broadband deployment by removing barriers to investment, promoting competition and easing back on regulation. Prior to that, the report says, broadband deployment had slowed "dramatically" because a prior Commission had adopted an order to regulate broadband Internet access as a utility.

As evidence of this progress, the FCC notes that from 2012 to 2014, fixed terrestrial broadband was deployed to 29.9 million people who lacked it before. Then, for the next 2 years, new deployments fell by 55%, reaching 13.5 million people.

Overall, about 98% of the country has access to 25 MBPs/3 MBPs fixed terrestrial broadband, or to mobile long-term evolution (LTE) networks at 10 MBPs/3 MBPs. That percentage falls to 89% in rural areas, the report says.

Lots more details are available in the report and accompanying documents at this [FCC SITE](#).

**Rouzbeh**