Presentation summary:

1. IEEE 802.11 as a component in 5G
2. Market demands and new technology drive innovation
3. The outlook of IEEE 802.11

1. IEEE 802.11 as a component in 5G

5G systems have a wide range of requirements with three new use cases. Firstly, enhanced mobile broadband is on high demand as over 50% of mobile data traffic is enabled by Wi-Fi and the consumer demand for broadband continues to grow. Second, massive machine type communication is required especially for devices used in potentially small areas. Last but not least, ultra-reliable and low latency communication that caters a spectrum from high to low throughput is required.

IEEE 802.11 technology is therefore leveraged to meet these 5G requirements. Although 802.11ax is still under development, it is designed to cater hotspot mobile broadband; while the launched 802.11ah+11ba provides indoor IoT PANs for longer range and lower throughput. The 5G radio 802.11ay/aj is also established to support multi-radio technology.

2. Market demands and new technology drive innovation

There are four key market demands with corresponding new technologies. To satisfy the ever-growing demand for throughput, TGax and TGay can be used, which can also cater indoor location and dense deployment respectively as new usage models are established. As for technical capability, IEEE Std 802.11n, 802.11ac, and TGay can

fit in MIMO (multiple input, multiple output) while TGay can cater 60GHz radios. Finally, the change of regulation is demanded as new spectrum like TV whitespace and radar detection are established.

In 802.11 groups, TGax (high efficiency wireless LAN/ HEW) and TGba (wake up radio) are highlighted technologies that reduce power consumption. The innovations are also applicable to all radio types across bands, especially for IoT applications.

3. The outlook of IEEE 802.11

Looking beyond, IEEE 802.11 components are seen to be a crucial part of carrier deployments. The drastic change in demand does not only urge carriers to consider unlicensed spectrum like IEEE 802.11 technology, but also drive integration of IEEE 802.11 capabilities and 3GPP (3rd Generation Partnership Project), such as lwIP (lightweight IP), LWA (LTE-WLAN aggregation), etc. It also continues to enhance and develop new capabilities which can be RAN (radio access networks) components of 5G that are applicable to short range/high bandwidth operation, low-power machine type communication, and dense deployments.

The end

To learn more, please watch the presentation video at here.