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Innovation opportunities from US three tier (3.5 GHz) model: Democratizing LTE

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The United States FCC has recently approved regulations creating a new model of spectrum access (Part 96 at 3.55 GHz), providing three tiers of usage, femtocell appropriate operating limitations, shared access to unused Federal spectrum, a single band accessible by both protected and unprotected users, and flexible, short term licensing spectrum auctions, among other unique features. Although the sharing of Federal spectrum has received a large amount of attention, the implications of being able to use both protected and unprotected interchangeable and flexibly in the same band has very significant implications for a very wide range of wireless deployment models. This band creates the opportunity for carriers to deploy high-density capacity focused indoor and outdoor networks. However, the same supplier ecosystem can be used by non-traditional LTE suppliers to offer LTE services directly to the same handset band in use by carriers. The short term and flexible nature of the spectrum regulations make scalable deployments practical, without massive capital investment, and long delays for band clearing. This results in an opportunity for Wi-Fi like deployment models to utilize the benefits of LTE air interfaces and infrastructure, without the necessity of dedicated, exclusive use spectrum. This presentation will provide an overview of the regulatory and technical requirements of operation in this new band, and will then explore the implications for operators, suppliers, and potential new users of the band.

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WSNs: From dummy sensing to everywhere

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Wireless Sensor Networks (WSNs) became one of the most interesting areas in the last few years. WSNs composed of a number of wireless sensor nodes that form a network in an ad hoc manner. They collect data from the monitored field and send it to a centralized node named Sink node. However, sensor nodes suffer from limited computational capabilities, limited power, and limited storage. However, such nodes are used in many of the recent as well as critical applications including military, health care applications, and so on. Such networks with these limited capabilities face many of the challenges in terms of sensing quality, reliability, routing, security, data analysis, and self-healing. At the same time, the world is moving towards what is called Internet of Things (IoT) technology where a sensor network is at the heart of this technology. This session is dedicated to WSNs challenges, current sensors' applications, current technology, and future trends as well as their relation to IoT technology.

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