

Webinar: GigaBit WiFi: IEEE 802.11ac and ad in 3 Hours

Webinar Duration:

- app. 3 hours (2 x 1.5 hour + 1 break)

Webinar Description:

- This webinar provides a fast track to the concepts and technology of the latest extensions of the WiFi-family, which are 802.11ac and 802.11ad.
- The webinar starts out with a review of WiFi-technology and the various evolutionary steps since the initial WiFi-release 802.11-1999. This part contains a review of the most important operational principles of WiFi, namely a comprehensive description of CSMA-CA.
- With all this information available, the webinar moves on to an introduction of 802.11ac and ad technology. After this chapter, the students are prepared for a detailed consideration of the core portion of this course...
- This core portion consists of the following two chapters, dedicated to the PHY-layers of both, 802.11ac and 802.11ad. Despite the rather short duration of a webinar and based on our didactic many years experience, these two chapters provide a very comprehensive inside view to the "how's" of both technology enhancements.
- An essential part of these two chapters is the live calculation of the maximum throughput rates of both technology extensions, based on the technical enhancements.

Some of your questions that will be answered during this webinar:

- Which changes do 802.11ac and 802.11ad provide and how do they compare to e.g. 802.11n?
- What is the current status of the standardization of 802.11ac and 802.11ad?
- How do both technologies differ from each other?
- Which devices are already there and when to expect a wide availability of devices, supporting 802.11ac and/or 802.11ad.
- Which technical enhancements are used to provide the better performance of 802.11ac and 802.11ad.
- Which of the new features are mandatory or optional for AP and STA according to the current status of the standardization?

Table of Content:

Part 1: Assessment & Top Level View

- **Short Review of WiFi Technology**
History (from 802.11-99 to 802.11n), CSMA/CA-operation, QoS and AAA in WiFi
 - **Today's Standardization Status of 802.11ac and ad**
 - **Introduction to the Technology**
Overview of new features (e.g. channel aggregation, 256-QAM, ...), spectrum use, differences between 802.11ac and ad, ...
 - **Use Cases of 802.11ac and ad**
5 GHz vs. 60 GHz, LAN vs. P2P, ...
-

Part 2: PHY-Layer Details of 802.11ac

- **Processing Chain** (from raw data to modulation / from the antenna to the user)
 - **Modulation and Coding Schemes with 802.11ac**
 - **Channel Aggregation in 802.11ac**
 - **Smart Antenna Techniques with 802.11ac**
Differences to 802.11n, SU-MIMO and MU-MIMO, Beamforming
 - **Performance of 802.11ac and how to calculate it**
-

Part 3: PHY-Layer Details of 802.11ad

- **Implementation Options** (DMG single carrier, low power single carrier, control PHY, OFDM PHY)
- **Modulation and Coding Schemes with 802.11ad**
UAR / UAA
- **PHY-specific Differences between 802.11ac and ad**
- **Performance of 802.11ad and how to calculate it**