

# 802.11ay Emerges as the New Standard for 60 GHz Wi-Fi



**802.11ay promises access to more channels, higher capacity, better channel access, mesh support and more subscribers supported compared to the previous 802.11ad standard.**

**802.11ay EMERGES** as the new IEEE 802.11 WLAN standard for 60 GHz, providing 20-40 Gbit/s high capacity over distances of 200 to 500 meters. It provides improvement on IEEE 802.11ad with new features such as TDMA channel access, Channel Bonding and Synchronization. 802.11ay is scheduled for release in 2020. Cambium Networks' cnWave product, which is based on the 802.11ay standard, will fully support 802.11ay when the standards are completed. Here are the key reasons why 802.11ay will outperform 802.11ad:

**Deterministic Channel Access:** 802.11ad is based on CSMA (Carrier Sense Multiple Access) technology, which is based on collision detection and avoidance. This protocol does not translate well for outdoor fixed wireless solutions because of the inherent time allocation. 802.11ay is based on Time Division Multiple Access (TDMA) with Time Division Duplex (TDD); all radios follow a structuralized frame for transmit and receive. 802.11ay supports lower latency/jitter with guaranteed throughput even when deployed in very high-density areas.

**Scalable With Network Synchronization:** 802.11ad does not support synchronization, whereas 802.11ay supports synchronization via GPS. By minimizing the interference, higher throughput is achieved with high frequency reuse. One 802.11ay network uses just one channel across the complete network.

**100% Increase in Capacity:** 802.11ad does not support Channel Bonding and is limited to a single 2.16 GHz channel. 802.11ay supports Channel Bonding which allows two contiguous channels to be merged into a single 4.32 GHz channel, thereby doubling the capacity.

**88% Increase in the Number of Client Nodes Supported:** 802.11ad supports 8 Client Nodes per sector, and 802.11ay supports 15 Client Nodes per sector. This number alone determines business cases and deployment strategies.

**Mesh Support:** Cambium Networks' cnWave 60 GHz solution incorporates Terragraph meshing technology to provide a highly reliable and flexible Layer 3 architecture to facilitate network design and deployment. 802.11ad cannot provide a reliable mesh support because of unreliable throughput and latency, which limits network design options.

Key advantages of mesh support are:

1. Distributed network with higher network availability, reach for bigger coverage
2. Better connectivity through better links in case of radio/link failure, interference, etc.
3. Capacity sharing & load balancing
4. RF links are self-healing via re-routing, and no user intervention is required

