Aerohive's Dual 5 GHz Solution

A Software Defined Solution That Gives You Network Flexibility

At Aerohive, we've combined the power of 802.11ax and software definable radios (SDR) in our access points to provide adaptable, flexible, and cost-effective wireless networks

The Power of 5 GHz

While the 2.4 GHz band helped drive the success of Wi-Fi globally over the last 10+ years, the 5 GHz band gives Wi-Fi deployments much more flexibility and capacity. The 5 GHz spectrum is bigger, less congested, and allows for higher data rates overall. Although using the 2.4 GHz band is necessary in some wireless environments, the benefits of 5 GHz are significantly recognizable:

- High percentage of 5 GHz capable client devices
- 7x the bandwidth of 2.4 GHz
- Less RF and Wi-Fi interference
- Creates less co-channel interference (CCI) with more channels and smaller cells

Commonly Seen Dual Band Wi-Fi Design…And Why It's Not Really a "Best" Practice

Wireless LAN engineers know that most dual-band Wi-Fi deployments will have some 2.4 GHz radios turned off to reduce interference. And while turning off some 2.4 GHz radios is an option, by doing so, that access point you've paid for is effectively only using half of its functionality.

Software Definable Radio Brings Efficiency to Wi-Fi Design

With a software selectable dual 5 GHz capable access point, you have the ability to automatically (or manually) convert the 2.4 GHz radio into a second 5 GHz radio. So, instead of being a fixed dual band 2.4 GHz and 5 GHz access point, you now have an optional dual 5 GHz access point. This technology dynamically optimizes performance and increases network capacity in ever-changing environments.

Where it Really Matters

- **Return on Investment –** With a software selectable dual 5 GHz access point you can convert the 2.4 GHz radios that would normally be switched off to prevent CCI to be a second 5 GHz radio. This allows for greater client capacity and allows you to continue using the full potential of the access point.
- **High Density Environments –** Due to the large number of clients wanting to connect to the WLAN, capacity driven deployment models with higher access point count are the norm. More clients connecting to the WLAN generally means more bandwidth will be required, which is not scalable on the 2.4 GHz band.
- **High Interference Environments –** Many density environments have an incredible amount of 2.4 GHz interference due to high AP counts and lack of non-overlapping channel availability. Add in issues with multipath, reflection, absorption, and signal scattering, having the flexibility to switch the 2.4 GHz radio to a second 5 GHz radio can improve client performance and simplify the deployment.

Aerohive's RF-IQ optimizes the intelligence of Aerohive Wi-Fi infrastructure by using distributed control features to adapt to changing RF requirements. The RF-IQ antenna is a customized, redundant, polarization- diverse antenna array that helps clients receive the best possible signal for their device. The results are uncompromised performance in dual 5 GHz and better rate over range performance.

Benefits of Dual 5 GHz in 802.11ax Access Points

The Aerohive 802.11ax **AP650** and **AP650X** provide for a 2.4 GHz (4×4:4) radio and a 5 GHz (4×4:4) radio, or two dual 5 GHz 802.11ax (4×4:4) radios in a single AP. Aerohive's dual 5 GHz radio access points (AP) provide customizable 2.4 and 5 GHz coverage in any area. Each 802.11ax AP will detect the surrounding coverage and automatically adjust the software-defined radio to broadcast on the frequency most-needed in the environment – including the ability to disable it if the coverage is already sufficient and re-enable when needed. Whether deploying our AP650 or AP650X (or a variety of our dual 5 GHz 802.11ac APs), you'll see:

- **141% bandwidth improvement** over traditional static band APs
- **81% bandwidth improvement** over competing software selectable APs

Combining the Power of Dual 5 GHz with Native Machine Learning and Artificial Intelligence

Aerohive has extended its cloud networking leadership with native Machine Learning (ML) and Artificial Intelligence (AI) capabilities to radically simplify and secure the access network. ML and AI tools enable users to view key performance indicators of a network and if need be, to quickly identify, locate, and comparatively assess the context of an issue. When joining the intelligence of ML and AI with the power of software selectable dual 5 GHz capable access points, a network will automatically scan and select which APs should be dual 5 GHz and which should be multi-band in order to provide the best coverage. Likewise, if the current coverage is determined to be acceptable, the network will not make any changes. This combination of ML and AI with dual 5 GHz capabilities means networks are increasingly more intelligent, even as capacity needs and density increases.

"It's a win-win in a high-density environment like Edmonds Community College to enable auto configuration for channel selection to provide the best throughput, ease congestion, and maximize ROI. By directing particular users to the 5 GHz band, we're getting more utilization out of the 5 GHz band and relieving the 2.4 GHz band for legacy clients. Switching to Aerohive made me rethink our entire wireless strategy and as a result made our network much simpler."

– Scott Farrand
Senior Network Analyst,
EDMONDS COMMUNITY COLLEGE

Dual 5 GHz 802.11ax APs

Aerohive AP650

Aerohive AP650X

Dual 5 GHz 802.11ac APs

Aerohive AP250

Aerohive AP550