6 GHZ & REGULATORY

In 6 GHz the Client Transmits 6 dB Below the AP

By **Keith Parsons, CWNE #3** · 2026-07-23 · originally on LinkedIn

In 6 GHz, the client transmits up to 6 dB below the access point it's associated with. That is not a vendor default you can tune away. In the US it is written into 47 CFR §15.407, and it sets the real limit.

In the last post I walked through PSD, the per-MHz EIRP ceiling in dBm/MHz, and why that number, not the total EIRP figure, governs your power once you go wide. This is the sequel, because the client side of that same rule is where the design pain actually shows up.

Same 6 dB, two different mechanisms Here is the part that trips people up. LPI and Standard Power reach the 6 dB by completely different routes.

Standard Power is a live rule. The FCC requires the client to stay at least 6 dB below its AP's AFC-authorized power. AFC can grant an AP less than the full 36 dBm at a given location, and when it does, the client tracks 6 dB below whatever the AP was actually cleared to use, not 6 dB below the ceiling.

LPI has no such clause. Its client cap is just a flat –1 dBm/MHz and 24 dBm sitting 6 dB under the AP's flat 30 dBm. The gap is the same size, but there is no "follow the AP" linkage behind it. Same number, different machinery.

Why the client, and not the AP 6 GHz is shared spectrum. Licensed incumbents were there first, unlicensed Wi-Fi has to stay quiet enough not to bother them.

The AP is the controlled element: fixed location, indoors for LPI, AFC-coordinated for Standard Power. The client is the wildcard. It is mobile, there are a lot of them, and any one of them can end up parked at a window with a clean shot at a rooftop microwave dish or a satellite uplink. Capping the client bounds the worst case for the whole population of them at once.

What it means for your design Run an LPI AP at its full 30 dBm and your downlink is up to 6 dB hotter than anything the client can send back. The client hears the AP long before the AP can hear the client. Your coverage is uplink-limited, so size the cell to the client's power budget, 24 dBm EIRP for LPI, not the AP's.

The 6 dB is a transmit-power gap, not a full 6 dB of lost range. The AP is the better receiver, with more antennas and a lower noise figure than any phone, so some of that transmit deficit gets clawed back on the AP's receive side. The link will always be asymmetric. It is just usually less asymmetric than the raw 6 dB suggests.

Remember, in LPI, the client is NOT tied to the Access Point's Tx power - but against a fixed maximum of 24dBm EIRP.

When you plan your next 6 GHz cell, whose power budget are you designing to: the AP you can read off a spec sheet, or the client that actually has to answer back?

By Keith Parsons, CWNE #3, Wireless LAN Professionals. Free to read and share. Facts