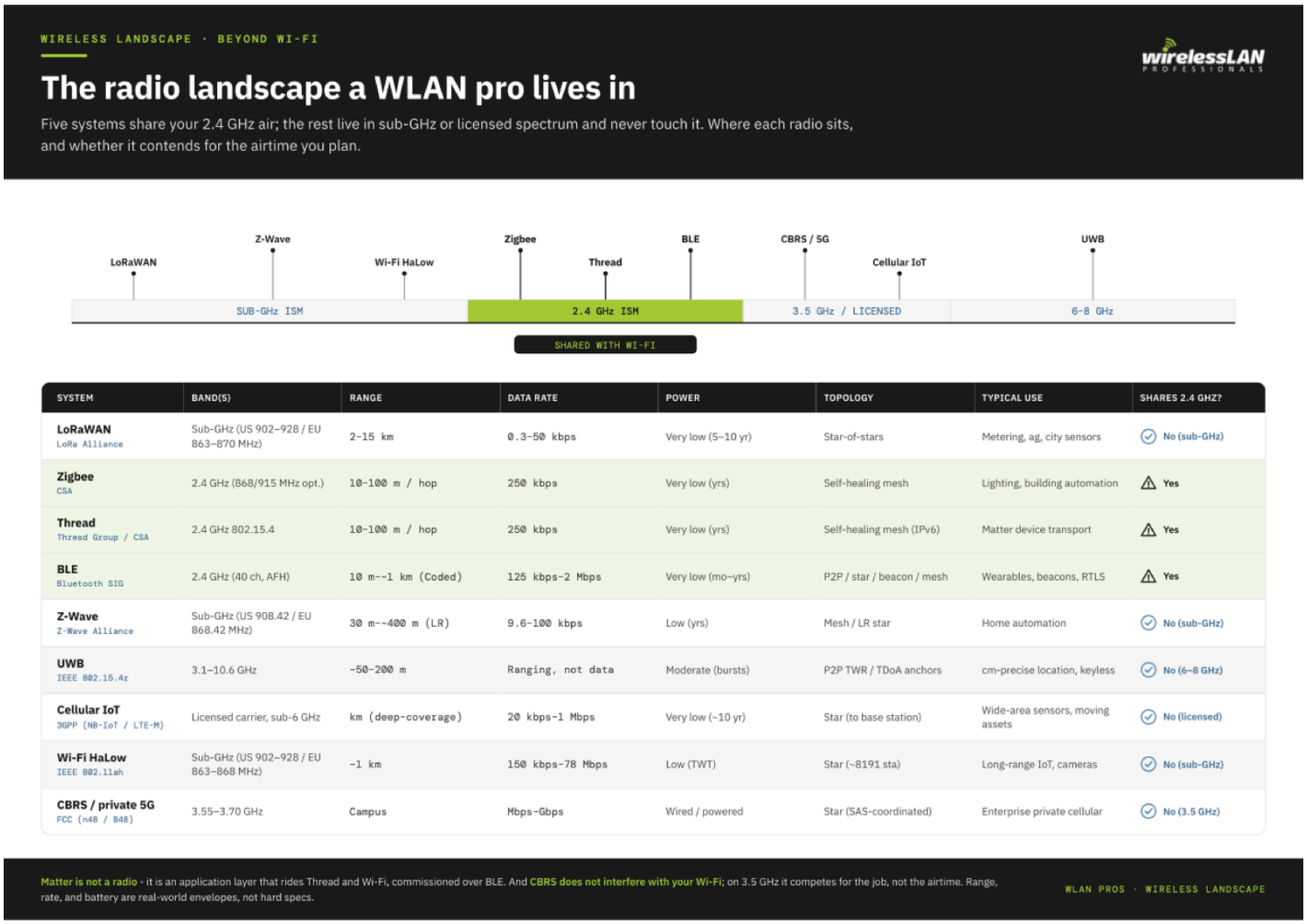
FIELD PLATE

Field Plate 07: the five radio types that fight your Wi-Fi for airtime

By **Keith Parsons, CWNE #3** · 2026-10-05



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Only a handful of radios in your building actually fight your Wi-Fi for airtime.

There are 5 types, and most everything else people wave at you sits somewhere your Wi-Fi devices never hear.

BLE (Bluetooth Low Energy), Bluetooth Classic, Zigbee, Thread, and ANT+ (a low-power protocol you find in fitness sensors) ship almost exclusively on 2.4 GHz in the gear you will actually meet, and they burn the exact airtime you are planning around. Some of these have sub-GHz versions. Almost nothing you walk past is running one. Each is low duty cycle on its own. Scale a Zigbee lighting mesh or a wall of hundreds of BLE beacons and they subtract real airtime from your 1/6/11 plan.

The rest run clean. LoRaWAN, Z-Wave, and Wi-Fi HaLow sit in sub-GHz. UWB, Ultra-Wideband, the short-range radio phones use for precise location, rides 3.1 to 10.6 GHz. NB-IoT and LTE-M are cut-down cellular standards built for low-power devices, and both run on licensed spectrum. That separation is a design lever: when 2.4 GHz is jammed, the right move is often to push the IoT onto a band that never touches your air rather than compete for the airtime.

Two corrections for the next design meeting:

- Matter is not a radio. It is an application layer that rides Thread, Wi-Fi, and Ethernet, and gets commissioned over BLE. When someone asks "Matter or Wi-Fi," the answer is that Matter can ride Wi-Fi.
- CBRS, the Citizens Broadband Radio Service, and private 5G do not interfere with your Wi-Fi. They live at 3.55 to 3.70 GHz. The vendor pitches them against you, but the fight is over the budget and the use case, never your airtime.

We built this PDF document for you because clients now hand you the whole smart-building radio stack, not just the Wi-Fi, and the questions arrive in a meeting where guessing is expensive. A Zigbee mesh and a wall of BLE beacons show up in your 2.4 GHz sweep as non-Wi-Fi energy. Naming what you are looking at is the difference between a diagnosis and a shrug.

Download it, print it, and take it to the meeting where people will talk about RF spectrum issues.

Now you can be prepared to have those RF spectrum talks and hold your ground. Remember, it is NOT Wi-Fi vs Private 4G/5G… or Wi-Fi vs IoT… but Wi-Fi AND those other RF technologies!

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