

Geolocation General Description

To enable indoor geolocation, Extreme Networks utilizes GPS and 802.11mc Fine Time Measurement (FTM) technologies. Not all access points (AP) will be able to receive GPS signal. As a result, there are two groups of devices: Anchor APs with GPS receiver and non-Anchor APs without GPS.

- 1.) For anchor APs, it can be either an outdoor AP with built-in GPS receiver or indoor AP with a USB GPS dongle. Extreme develops a USB dongle with both GPS L1 and L5 bands for better GPS reception since L5 band operates at lower frequency. Extreme AP will authenticate with the USB dongle before accepting GPS information.
- 2.) The preferred installation location for the anchor AP is outdoor using the outdoor AP. If not feasible, indoor AP connects to USB GPS dongle with external GPS antenna can be used. The external GPS antenna will be positioned near windows for better GPS signal reception.
- 3.) Anchor APs and non-anchors will report distance with their neighbors using 802.11mc (in 5G or 6G LPI) Round Trip Time (RTT) to Central Management (CM). Besides, anchor APs will report their latitude and longitude to CM. CM will use 802.11mc data and GPS information to construct geolocation map with position for all the devices.
- 4.) Once the CM determines geolocation map, it will communicate with AFC server for spectrum to transmit in 6G Standard Power. APs will not operate in 6G standard power until CM distributes AFC server response to the APs.
- 5.) Anchor APs will continue to sample GPS data and all APs will keep ranging in the background and provide update to CM. CM will poll AFC server every 24 hours for 6G spectrum to operate.
- 6.) End User has no direct control over the 6GHz operation when Standard Power (SP) is configured. The system on its own determines and only when assured location determined, gets this AFC spectrum and enables the 6GHz band.