

Qualcomm Wi-Fi Location PIA General Description

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Qualcomm
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wanghaisen@tp-link.com.hk

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Qualcomm Technologies, Inc.
5775 Morehouse Drive
San Diego, CA 92121
U.S.A.

Revision history

Revision	Date	Description
AA	November 2023	Initial release
AB	February 2024	Removed PIA# from title & Introduction Removed Tables & Figures (no content)
AC	February 2024	Updated title

Qualcomm
2024-06-27 17:39:42 PDT
wanghaisen@tp-link.com.hk

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wanghaisen@tp-link.com.hk

1 Introduction

Qualcomm Technologies, Inc. (QTI) is a Wi-Fi chipset manufacturer for both access points (AP) and client equipment that operates in the 6 GHz band.

As required by FCC KDB 987594 D01, this is a public facing general description in support of a FCC Persistent Inquiry Approval (PIA) for the use of a Wi-Fi based geolocation solution service, hosted by Qualcomm, for use in determining device location as an input into an Automated Frequency Coordination (AFC) system inquiries.

Qualcomm
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wanghaisen@tp-link.com.hk

2 Geolocation general description

The Wi-Fi based geolocation solution provides access to coordinate positioning information using a database of Wi-Fi access points with known locations and uniquely identified by MAC Address, SSID, and signal strength. A standard power (SP) device will scan for Wi-Fi beacons and record each Wi-Fi AP's MAC Address and received signal strength indicators (RSSI). The recorded data is formatted into JSON and transmitted to a cloud service operated by QTI. The cloud service calculates the location of the SP device by correlating the unique MAC Addresses and RSSIs provided by the SP device with the database of Wi-Fi network and corresponding locations maintained by QTI.

QTI has 1.3 billion unique Wi-Fi APs, in the United States alone, which allows for accurate determination of SP devices locations in both indoor and outdoor environments. The response from the cloud service contains a coordinate location with latitude, longitude, and horizontal positioning error with 95% confidence level as required for AFC purposes.

Wi-Fi based geolocation can be used for coordinate positioning in any environment where Wi-Fi APs exist. Signals from a single AP can be detected and used for coordinate positioning from up to 150 meters away.