

Qualcomm Barometer Elevation PIA General Description

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Revision history

Revision	Date	Description
AA	November 2023	Initial release
AB	February 2024	Removed PIA# from title & Introduction
AC	February 2024	Updated title
AD	February 2024	Updated title

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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 a Barometric Pressure Sensor calibration service, hosted by Qualcomm, for use in determining altitude as an input into an Automated Frequency Coordination (AFC) system inquiry.

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2 Geolocation General Description

Pressure sensors, a.k.a., barometers, can be used for altitude determination. Pressure and temperature readings can be gathered from a barometer attached to a standard power (SP) device and used to approximate the height of that device above mean sea level.

Air pressure, measured in pascals, decreases as altitude, elevation above sea level, increases. In other words, low air pressure indicates a high altitude. Based on this, the altitude of an SP device can be calculated given its recorded air pressure relative to sea level pressure at its geographical location. Air pressure at a given location regularly changes with fluctuations in weather conditions. Qualcomm service maintains a database of live sea level pressure data for its coverage area and periodically updates it.

The Pressure Sensor calibration service, hosted in Qualcomm cloud, provides vertical positioning information derived from analysis of live weather data. SP devices send their pressure reading, temperature reading, and their horizontal location to the calibration service over a secure communication channel. The calibration service then returns a calculated approximation of the device's height, in meters, above mean sea level and vertical positioning error (accuracy) calculated with a 95% confidence level.