



# **Persistent Inquiry Approval (PIA) - Geolocation General Description**

**Version: 1.0**

**Release Date: 31 July 2024**

## Document Revision History

Revision	Date	Description
1.0	31 July 2024	<ul style="list-style-type: none"><li>Initial version</li></ul>

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## 1. Purpose and Declaration

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The purpose of this document is to respond to the Persistent Inquiry Approval procedure for Standard Power Access Points (6SD), FCC ID: MXF-W1700K. The content of this paper aligns with the PIA procedure 10.2 Exhibits for 731 filing, with a primary focus on the Geolocation General Description.

The content of this document, along with the additional test report/data, is authorized for use on Gemtek devices but is not limited to a specific FCC ID.

## 2. Geolocation General Description

In response to section 10.2.1 of the FCC’s Geolocation Approval Procedure for Standard Power Access Points (6SD) and Fixed Clients (6FX), this chapter provides an overview of the geolocation system embedded in the Access Point Device (Product Name: W1700, hereinafter referred to as the “W1700 AP” or “Device”).

### 2.1. Overview of the Geolocation System

#### 2.1.1. The Device

The W1700 Access Point-Filter Device (the “Device”) consists of the following essential components:

- Airoha AN7581GT SoC (referred to as the “Host”) functions to support a variety of networks.
- Airoha GNSS receiver (model name: AG3352Q), plus an independent antenna (Gain: 1.53 dBi)
- MTK WIFI SoC group that operates concurrently in the 2.4GHz, 5GHz, and 6GHz bands.

The following figure is a Function Block Diagram of the Device depicted from the hardware perspective. (Figure 1)

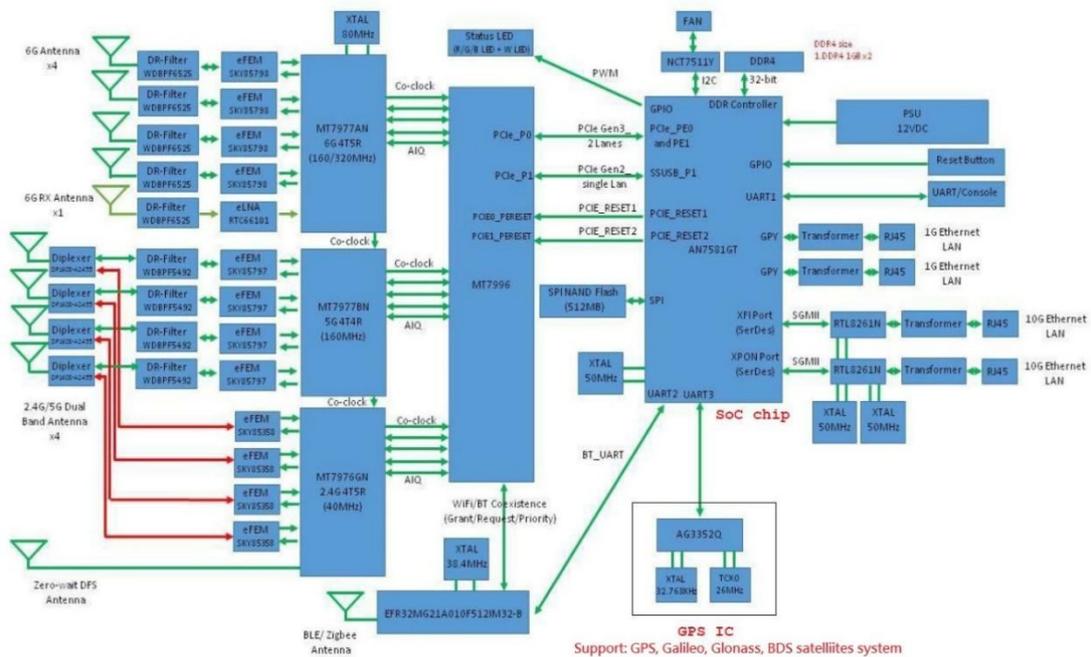
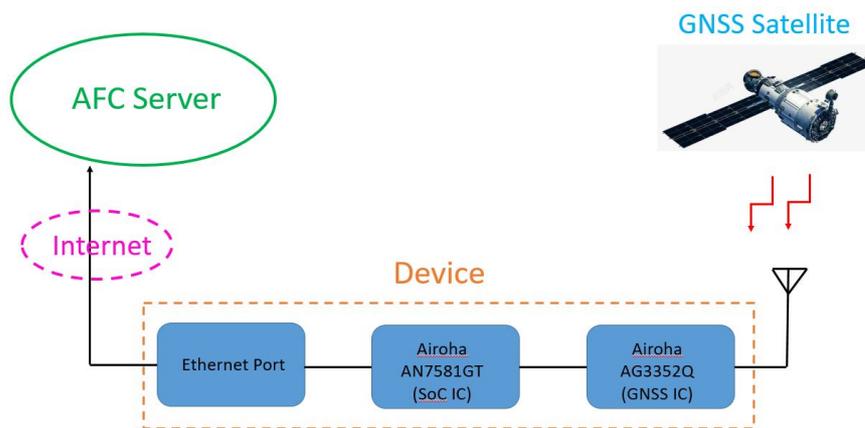


Figure 1. Function Block Diagram of the W1700 AP

## 2.1.2. GNSS Receiver/Geolocation

The Airoha GNSS receiver (AG3352Q) is a System-on-Chip (SoC) that supports the GPS satellite system (\*Note), and serves as the primary component responsible for determining the Device's geographic coordinates (longitude, latitude, and height), velocity, and timing information.

The image below illustrates how the Device acquires relevant ephemeris data from GNSS satellites. This data is processed by the GNSS receiver to determine the required 95% confidence level and the information is then uploaded to the AFC Server via the Internet. **(Figure 2)**



**Figure 2**

The GNSS receiver system is connected to the Host (Airoha AN7581GT, SoC IC) via the UART interface. When the Airoha GNSS receiver receives satellite ephemeris data and relevant information gathered from satellite signals, this information is subsequently passed on to the Host to obtain authorization from the Automated Frequency Coordination (AFC) system for permitted frequencies and power levels.

**(\*) Note:** The Airoha GNSS receiver (AG3352Q) has the capacity to receive signals beyond GPS satellites, such as Galileo, GLONASS, and BDS. However, the W1700 AP Device is specially designed to receive GPS signals ONLY from U.S.-licensed satellites or non-U.S.-licensed space stations that comply with 47 CFR § 25.137 during operation. This configuration cannot be altered in any way.