Outdoor Wireless Access Point: Persistent Inquiry Approval - Geolocation General Description

1. Overview of the method used by the 6SD(standard power AP) for the geolocation capability to automatically determine the device's geographic coordinates

ARISTA outdoor fixed wireless Access Points are 6SD devices. This PIA is being submitted as an attestation for all ARISTA outdoor fixed wireless Access Points with integrated/external antennas that use the same GPS chip/antenna and installation environment. The test results presented in the Justification report are for two variants - the integrated antenna model (O-435) & the external antenna model (O-435E). Both the models shall obtain their geolocation data from an internal GPS SoC. This designated GPS SoC is on every unit. The internal GPS SoC picks up GPS satellite radio frequencies, and calculates its location based on triangulation with at least 4 satellites. ARISTA outdoor fixed wireless Access Point (henceforth referred to as **ARISTA Access Point**) will use GPS 3D-Fix mode to retrieve the geolocation information. Only GPS signals are used for location information, all other signals are disabled. This geolocation includes latitude and longitude.

The ARISTA Access Point is a 802.11be Access Point (AP) intended to service clients over Wi-Fi spectrum bands. The applications of this AP might vary widely, depending on customer requirements. In applications where ARISTA Access Point (AP) is used indoors, ARISTA recommends that the APs be strategically placed close to the window/skyview roof to obtain GPS lock.

2. Attestation confirming the location uncertainty with a 95% confidence level

The GPS SoC and Antenna will provide a geolocation accuracy with 95% confidence level. This statistical test data to prove accuracy with 95% confidence level is provided in the **ARISTA Geolocation Justification Report document**. The geolocation accuracy testing is carried out by Sporton Lab.

ARISTA will use a circular 95% confidence interval region. The location uncertainty computed from the Sporton Lab's statistical test data will be reported by all the ARISTA Access Point devices in their AFC spectrum inquiry requests.

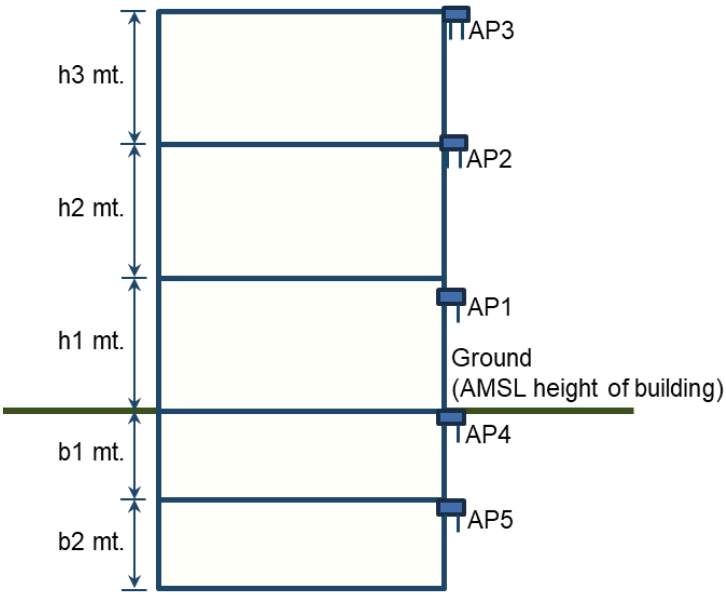
The height information of ARISTA Access Point will be entered by a professional installer. The professional installers are trained by ARISTA as part of Wi-Fi network deployment training.

Method to obtain height of the Access Point:

a. Installation on buildings

The professional installer will enter the height of the AP above mean sea level (AMSL) in the Arista management console. The below figure depicts the typical placement of APs in the outdoors of a building and their corresponding heights at each floor. The AMSL height of the AP

will be determined by appropriately adding/subtracting the floor height(s) from the AMSL of the building.



AP height estimation in the outdoors of a building

He/she will follow the below procedure to estimate the AP's height from the building information:

1. Use "Above Mean Sea Level" option to enter AP height for AFC queries.
2. A professional installer will get h1, h2, h3, b1 and b2 from the building manager or owner.
3. A professional installer will obtain the AMSL height of the building from Google Earth mobile application.
4. Height of the APs is calculated as follows
    a. AP3 height = AMSL height of the building+h1 + h2 + h3
    b. AP2 height = AMSL height of the building+h1 + h2
    c. AP1 height = AMSL height of the building+h1

d. AP4 height = AMSL height of the building
e. AP5 height = AMSL height of the building- b1

5. Professional installer adds this height information to each of the AP's configuration on the management console
6. Each AP will use it's height configured by the Professional installer in the AFC spectrum inquiry request sent to the AFC proxy

b. Installation on Poles/Towers

For installation on poles/towers, the professional installer will obtain the AMSL height of the location of the pole/tower using Google Earth mobile application. The worst case height uncertainty captured in Sporton's GPS testing will be used as the height uncertainty in this case.

The height information of ARISTA Access Point is stored in ARISTA's cloud database at the time of installation and will be retrieved from the database after every power cycle. If height is not configured/not retrieved from ARISTA's cloud database at the time of AFC spectrum inquiry request, then the ARISTA Access Point will turn off the 6 GHz radio. In the event the height of the ARISTA Access Point changes due to physical movement from one location to another, the professional installer responsible for the movement will update the device height information in the ARISTA cloud database. The ARISTA Access Point will then trigger the AFC spectrum inquiry request with the new height information.

3. AFC confirmation after daily power cycle

ARISTA Access Point automatically determines its location through GPS. AFC authorization/re-authorization will be performed after the GPS geolocation is obtained. The GPS geolocation is obtained at a specific time every day and after each power cycle. If GPS geolocation cannot be obtained, the device will turn off the 6GHz radio.