FAQ - System

Q1: What are the technical parameters of UWB technology?

Working frequency： 3.25GHz~6.75GHz; actual standard is 3.9936GHz.

Transmit power: -41dBm/MHz(-14.5dBm); In fact, it is -24dBm/MHz by adding PA.

Ranging precision is 10cm, Location precision is 30cm

Q2: What is the accuracy of the system ? Which factors will influence the location accuracy of UWB ?

The location accuracy can reach 30cm if there is no shielding.

Firstly, Anchor should keep away from large pieces of metal, glass windows, glass walls, liquid containers, fluorescent lamps, large mechanical equipment, and high-power radios, etc. The antenna of Anchor should be vertical to the ground.

Secondly, don't wear Tag on the chest, for human body has a strong absorption of UWB signals, which will influence the accuracy seriously.

Thirdly, multi-path effect is unavoidable. Electromagnetic waves will be reflected by metals or other materials when traveling in space. Therefore, the sample will be processed by algorithm later in order to compensate these errors.

Q3: How to choose positioning methods: TDOA or TOF ?

TOF can be applied in places where environment is complicated, such as manufacturing plants, power plants, chemical plants, office buildings, etc.

TDoA can be applied in places where environment is relatively empty, such as outdoor sports, warehouses, etc.

The choice depends on: the endurance of Tag, the location accuracy, Tag capacity of a single area, the install environment, whether Tag supports reverse data control (such as vibration), etc.

Q4: Is there a limit to the number of Anchors?

It mainly depends on whether there are enough IP addresses to be assigned. The number of IP available on a same network segment in one project is about 250, and the rest IP addresses are used for other purposes. Therefore, it is generally recommended that location system should use a private LAN and if the number of anchors exceeds 250, multiple network segments can be used.

Q5: Is there a limit to the number of Tags?

There are up to 240 Tags in a single area for TOF mode. If there exists another unreachable area of RF, the number of Tags can be 480. Thus, if a system consists of N*unreachable area of RF, the number of Tags is N*240.

There are up to 1850 Tags in a single area for TDoA mode. Thus, if a system consists of N*unreachable area of RF, the number of Tags is N*1850.

Q6: Which Anchor is better if there exists wall occlusion?

It is recommended to use the standard power UA-231 in places with many loading walls, such as hospitals and prisons and so on. And deploying as many Anchors as possible is another solution to ensure location accuracy.

Q7:How is location accuracy if UWB waves spread through walls?

Location accuracy is affected by walls. The effect of materials varies. Wood and office partition walls has a relatively small effect. Glass walls and cement load-bearing walls have a greater effect. Metal walls cannot be penetrated.

Q8: Why is location engine important?

Location engine is the core part of a location system, as the key to decide the final location effect. It can process data sent by Anchor and generate final location data. With the location data of targets, multiple functions can be developed in Cloud platform, including real-time position display & monitoring, electrical fence, historical trail inquiry and upload & download alarms, etc.