**Quuppa systems and Dead Reckoning**

**Quuppa System:**

Quuppa Intelligent Locating System uses a proprietary technology based on Bluetooth Low Energy, unique Angle-of-Arrival signal processing method, and advanced positioning algorithms.

Quuppa system uses advanced antennas, the Locators, to measure the direction (Angle-of-Arrival) of a radio signal transmitted by a Tag. The result is sent to Quuppa Positioning Engine, which uses advanced algorithms to compute the Tag's position and creates outputs in various formats.The Angle-of-Arrival method enables Quuppa system to determine accurate 2D position using only one Locator. With two Locators, the system is able to compute accurate 3D position.In practice, the Tag is usually visible to several Locators, allowing for continuous positioning and substantially improving the accuracy and reliability.

**Dead Reckoning:**

Dead reckoning is the process of determining one’s present position by projecting course(s) and speed(s) from a known past position, and predicting a future position by projecting course(s) and speed(s) from a known present position. The DR position is only an approximate position because it does not allow for the effect of leeway, current, helmsman error, or compass error.