

Beacon Specifications, v0.2

2018 Maritime RobotX Challenge

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Background

The purpose of this document is to describe the beacon system that will be used during the competition. Each team will need to build a localization system compatible with the competition equipment if they are attempting underwater beacon localization tasks. The beacon type and configuration will be outlined in this document so teams can acquire a comparable unit to test against if they so choose.

Beacon Model

Specifications

The beacon selected for use during the RobotX competition is the Benthos ALP-365. This model has a selectable frequency between 25 and 40kHz with a 0.5kHz increment. It also has multiple options for repetition rate.

A link to the specifications: goo.gl/DVLMqJ

Configuration During Competition

Each competition field will host a selection of beacon locations for the underwater localization challenges. Beacons will be activated as described in the rules. The frequency and pulse rate of the beacons in each field will change daily; this information will be available to teams on site. The full range of frequencies (25 – 40 kHz) and pulse rate (0.5 Hz to 2 Hz) will be used throughout the competition.

During the competition there may be multiple units active at any time, with at least one (1) in each Challenge Course. To mitigate interference issues, each active beacon will be separated by at least 2 kHz in frequency. The beacons will also be controlled such that they send out a pulse at time intervals in sequence with the other Competition Courses and Challenge Courses. Teams are advised to not rely on this to complete the challenge.



Figure 1: Benthos ALP-365 Beacon

TEAMS NOTE: This is a Preliminary Draft of the Beacon Specifications. Contact Aamir Qaiyumi, Maritime RobotX Challenge Technical Director, at Aamir.Qaiyumi@RobotX.org with questions, or post your questions on the [RobotX Community Forum](#).