

# Radar and Electronics

## Course Outline

RYA Radar Courses are held at Elite Sailing's comfortable classroom at Chatham Marina in Kent – just 45 minutes from Central London. Alternatively you can take a radar course on your own radar-equipped vessel. This is an enjoyable and informative introduction to marine radar and its use for collision avoidance and pilotage for owners and operators.

This course will help you to make good use of your expensive equipment and so make your boating safer and more enjoyable. It will explain the basic technology in simple, practical language so you can understand the jargon and talk sensibly to technicians and sales people. It will help you to appreciate the factors that determine the detection performance, accuracy and resolution of a radar. It will examine the IRPCS as they apply to radar. Finally, it will give you formal training in use of a radar for assessment of collision risk, actions to be taken to avoid close-quarters situations and for pilotage at night or in restricted visibility.

Modern small craft marine radars have become more capable and affordable so that now many yachts motor boats have sets with a performance that just a few years ago would have been seen only on much more expensive commercial sets. These systems are now capable of providing accurate data that, if interpreted properly can be used for effective collision avoidance and pilotage. They can greatly improve safety. But it is very easy to mis-interpret a radar picture and decision-making for collision avoidance is not a simple matter for someone with no specialist knowledge. Many owners never practice using their radars in good conditions so if they were ever caught out in deteriorating visibility they would struggle to operate the set effectively

In the classroom we use computer simulators to create realistic radar environments so that students can practice interpreting scenarios and making assessments and decisions.

## Format Options

One Day Course at Chatham (0900 to 1630)

## Previous Knowledge/Experience

Experience in charge of a small craft. Basic knowledge of the rules of the road. No technical background necessary.

## Locations

[Chatham, Kent.](#)

## Age

There is no minimum or maximum age limit.

## Achievement (certificate awarded and ability after the course)

RYA Radar Course certificate. You will understand how to operate a modern small-craft radar set effectively, understand its performance and limitations, and know how to interpret a picture for collision risk assessment, collision avoidance and pilotage.

## Syllabus

**Radar Principles**, microwave propagation, radar set components. Radar controls. Setting up a radar set.

**Target detection, accuracy and resolution.** Performance characteristics – detection range, bearing accuracy and resolution, range accuracy and resolution. Antenna size, pulse width, target characteristics, false echo's (clutter) including rain and sea clutter. Clutter controls. Radar shadow.

**Radar reflectors.** Radar target enhancers. Radar transponders. Racons.

**Radar displays.** Head-up and North up orientation. Azimuth stabilisation sensors including flux-gate compass and fast heading sensors.

**Radar Plotting** to determine collision risk and target course and speed.

**The IRPCS as they apply to radar.** Lookout. Safe Speed. Collision Risk Assessment. Rule 19. Action to be taken to avoid a close quarters situation. General conduct in restricted visibility.

**Use of MARPA** (Mini-Automatic Radar Plotting Aid)

**Use of radar as an aid to navigation.** Radar-conspicuous targets – need for positive identification, parallel indexing methods, integration with GPS.

**Fix accuracy in range and bearing.** PPI distortion. Heading marker alignment. Checking accuracy of VRM and EBL.

**Safety precautions and good practice.**