



## MARITIME SIMULATION AND RESOURCE CENTRE

Corporation of Lower St. Lawrence Pilots

[www.sim-pilot.com/en](http://www.sim-pilot.com/en)

### **ERROR DETECTION AND USE OF ADVANCED RADAR TECHNIQUES IN RESTRICTED WATERS**

(ER-012-018-ENG)

- Objectives:** The course is designed to give, all navigation officers and pilots, state-of-the-art guidance in quickly detecting radar errors, assessing radar limitations and correcting radar faulty settings (suitable for anyone using radar in restricted waters).
- Duration:** 18 hours (2½ days)
- Schedule:** Begins at 8:30  
Ends at noon on the third day  
*This schedule may be altered depending on the group and/or certain constraints.*
- Teaching strategies used:** Basically a hands-on approach. Brief theoretical explanations and exercises on the Full Mission Bridge Simulator.
- Training activities:** Theory followed by simulation exercises. Discussions among participants recommended during exercises.

**ERROR DETECTION AND USE OF ADVANCED RADAR TECHNIQUES**  
**IN RESTRICTED WATERS**  
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**Proposed timetable and brief description of development activities**

**Day One**

Welcome

Tour of the Full Mission Bridge Simulator and general facilities

Introduce and define timetable

Distribution of teaching material, presentation of course plan

Familiarization with the bridge and navigation instruments

Features of radars available

Automatic pilot: features and various settings (ROT, FIXED RADIUS)

Review of course alteration using fixed rate of turn method (ROT)

- Exercises 1-2

Captain Chapman's method: "Concentric circles" is presented and practiced

- Exercises 3-4

Execution of prepared exercises which makes it possible to validate (or not) the above method in pilotage waters (also a good opportunity to become acquainted with the bridge).

Quick review of Radars features, characteristics, IMO standards, errors and limits.

Demonstration of interpretation errors when a radar is overloaded with information.

Small scales = Quick changes = Risks of handling errors

Cumulative sum of undetected errors that can create dangerous situations

Review of parallel index techniques and limitations

- To do and not to do (parallel index between two points of land, measure range between two pillars, e.g.)

Introduction to Beam width error

- Exercise 5 (demo)

Day's review

## Day Two

Review of Day One

Beam width exercise

- Exercise 6

Introduction to the Gyro and alignment errors and how it will affect the Radar setting.

- Exercise 7

Introduction the Heading marker error together with gyro error.

- Exercise 8

Introduction to The Total Error and The GAME

- Factors contributing to “Total” Error
- Exercise 9

Evaluation of the “Total” Error in reduced visibility

Introduction to the Range error

- Precautions: different scales, calibration of VRM
- Demo 10

## Day Three

Review of Day Two

Review of the GAME

- Exercise 11
- Exercise 12

Radar overlays:

- How does it work?
- Use of radar overlay to find the errors.

Discussions and demonstrations of the interaction between radar, AIS and electronic chart.

- Possible interpretation errors discussed and demonstrated
- Demo 13

Final exercise:

- Exercise 14

Day's review and distribution of certificates

- Course review