

## LIAISON NOTE TO ETSI TGMARINE

### On Radar Standards

#### 1 INTRODUCTION

IALA thanks the ETSI TGMARINE for its reply to IALA's liaison note of 11 December 2020 regarding radar standards. IALA further thanks ETSI TGMARINE for the included papers and for the obvious effort in providing them.

#### 2 DISCUSSION

The IALA ENG Committee at Meeting 14 reviewed the documents provided. We found them to be interesting and informative.

In the context of marine radar beacons (racons) we see a problem of "too many radars at the same frequency", especially in crowded harbours.

One of the necessary features of racons is called side lobe suppression (SLS), which is to prevent the racons from responding to any pulse from the radar that is not from the main lobe of the antenna, and further, to respond only to pulses from the centre of the main lobe (or strongest signal) when the radar antenna is pointing towards the racon. SLS prevents unnecessary and confusing displays on the radar screen.

To correctly apply SLS, the racon needs to identify the various radars in view and apply suppression individually. The frequency of the radar is one characteristic used to identify the radar. When more than one radar transmits at the same frequency, identification becomes difficult, with the net result being that the radar with the strongest signal is serviced, and others are not.

Many mariners have seen this problem in busy harbours. Magnetron to magnetron frequency variability helps somewhat, but if manufacturers of solid-state radars set every unit to the same frequency, utility of racons would be lost.

IALA is leading the standardization of the Enhanced Radar Positioning System (ERPS), a resilient source of positioning (as defined by IMO), that is independent of, and can be a backup system to, global navigation satellite systems (GNSS, e.g., GPS, Galileo, etc.). The ERPS system uses racons that transmit their ID and position embedded in responses to radar interrogations. Radars can use this data to calculate their vessels' positions. ERPS system has the same SLS requirements and "busy harbour" limitations as traditional racons.

IALA supports the idea that solid-state radars should use as much frequency diversity as the manufacturers can provide. CIRM is aware of this problem and is in discussion with IALA.

#### 3 ACTION REQUESTED

The ETSI TGMARINE is requested to:

- 1 Please note the discussion presented above and be aware of IALA activity with racons and radars.
- 2 Please continue to forward relevant papers to IALA.