

**IALA COUNCIL
60th Session**

**May 25-29, 2015
Kuala Lumpur
Malaysia**

Agenda item 10 – OTHER IALA GROUPS

10.5 Resilient PNT Forum

10.5.1 Resilient PNT Forum meeting of 7 April 2015

Note by the Secretariat

1 RESILIENT PNT FORM MEETING BORDEAUX, FRANCE, 7 APRIL 2015

Dr Nick Ward represented IALA at this meeting. His report is attached as Annex A. It is based on a longer report written by Mr Martin Bransby of the UK R&RNav.

2 ACTION

The Council is invited to Note.

ANNEX A

1 BACKGROUND

The third IALA Forum on Resilient Positioning, Navigation and Timing (PNT) was held on the afternoon of Tuesday 7 April 2015, immediately preceding the European Navigation Conference in Bordeaux, France.

This followed the two previous RPNT Forum events at ENC 2014 in Rotterdam and ION ITM 2015 at Dana Point CA. The reason for holding these events is the increasing reliance on Global Navigation Satellite Systems in all transport sectors and for essential infrastructure. The need to ensure resilience of systems, particularly for safety of life and commercially sensitive applications, is driving interest in methods for improving robustness of systems to interference and the need for integrity monitoring and authentication methods.

The objective of the third Forum was to focus on resilient PNT solutions that support activities across all applications of navigation and timing.

2 PROGRAMME

The meeting was chaired by the General Lighthouse Authorities of the UK and Ireland (GLA) (Martin Bransby). There were introductory remarks from the three co-sponsors of the event: Professor K Czaplewski, Chair of the European Group of Institutes of Navigation (EUGIN); Captain Dick Smith, President of the International Association of Institutes of Navigation (IAIN). A statement was read by the Chairman on behalf of the IALA Deputy Secretary General, Mr Michael Card.

All parties stated that improving the reliability and resilience of PNT is recognised as essential to the successful implementation of e-navigation and that the Forum has an important role in bringing together representatives from all sectors of industry and a wide range of user groups to seek practical steps that can be taken to achieve resilient PNT.

Then two presentations followed, from EU DG-Growth (Ignacio Fernandez Hernandez, Project Officer in Galileo and EGNOS programme management unit) and Professor David Last (former President of the Royal Institute of Navigation).

Mr Hernandez described in some detail the new authentication scheme for the Galileo Open Service as well as the Commercial Service, including that it should protect against spoofing attacks, but not jamming.

Professor Last briefed on the vulnerability of GNSS due to exceedingly low received signal strengths. He showed that eLoran can provide an acceptable back-up for positioning and timing. He noted that GNSS timing has become crucial for the likes of mobile communications, power distribution, financial services and the internet.

3 DISCUSSION

Following the presentations, there was much debate regarding Professor Last's talk, with views and counter-views regarding vulnerability and the need for back-up systems.

It was recognised that Galileo can provide significant advantages, as an independent GNSS, but will not result in true resilience, because it shares vulnerabilities with other GNSS. It was proposed that Galileo be provided with a dissimilar, non-satellite augmentation. A terrestrial component would accelerate the adoption of Galileo in applications where GNSS alone is vulnerable to signal blockages and interference, providing a resilient, seamless, position and timing solution. The terrestrial component would take over when Galileo was lost to interference or jamming. It was agreed that the EUGIN would approach the EU with a view to supporting resilient PNT in Europe for the future.

Captain Roger Barker of Trinity House suggested that perhaps maritime administrations should consider less stringent positioning accuracy requirements for back-up systems, but take an approach towards overall system integrity and resilience.

4 DATE OF NEXT MEETING

It was decided that a fourth resilient PNT Forum to follow up on the actions from the third should be organised in Prague (Czech Republic), to coincide with the IAIN Congress in October 2015.