**ABSTRACT SUBMISSION**

**Topic No.:** 6. Resilient PNT (eLoran)

**AUTHOR**

Title (Mr, Ms, Capt, etc.): Mr.

Family name: SEO

Firstname: Kiyeol

IALA member organization: Korea Research Institute of Ships & Ocean Engineering

Postal address: 32 1312beon-gil, Yuseong-daero, Yuseong-gu, Daejeon 34103, Republic of Korea

Telephone (including country and area codes)

Office: +82-42-866-3684 Mobile: +82-10-4614-2354

e-mail(s): kyseo@kriso.re.kr

**ABSTRACT**

Title: The feasibility of eLoran service to meet HEA requirements in Korean waters

Keywords: eLoran, differential Loran, HEA, GPS vulnerability

Abstract: To overcome the vulnerability of Global Navigation Satellite System (GNSS) to radio frequency interference (RFI) such as jamming, Korean government plans to provide eLoran service through the research and development of eLoran and the implementation of testbed. There will be a test service with the systems for eLoran testbed which consists of a new eLoran transmitting station and two sites of differential Loran (dLoran) system, using transmitted signals from Loran-C stations. The performance requirement of eLoran testbed is designed to meet position accuracy within 20m (95%), the required performance for Harbor Entrance and Approach (HEA) presented by International Loran Association (ILA). Also, HEA requirements from International Maritime Organization (IMO), which are the measurements of position accuracy less than 10m, less than 10 seconds for time to alarm (TTA), and less than 10-5 for integrity risk, needs to be considered and investigated in terms of technical aspect. Therefore, in this paper we analyzed HEA performance requirements of IMO and IALA, and error elements against the performance requirements. For this, we estimated the position accuracy and coverage with regard to dLoran site location, new eLoran transmitter site, transmitter power and the existing Loran-C transmitter. Thus, it assessed the feasibility of eLoran service whether satisfies the required performance of HEA, and presented technical limits with solutions.