**ABSTRACT SUBMISSION**

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**AUTHOR**

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

Family name: FANG

Firstname: Tae Hyun

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: +82-42-866-3625 Mobile: +82-10-6584-3369

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

**ABSTRACT**

Title: Performance of DGPS/INS Integrated Positioning Using GLR Fault Detection and Isolation in Korean Harbor

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Abstract: In this paper, the performance of DGPS/INS (Differential Global Positioning System with Inertial Navigation System) integrated positioning is presented with analysis of sea trials in Korea coast. Integration of DGPS and INS with tightly coupled Kalman filter is implemented by using algorithm of FDE (Fault Detection and Exclusion) for GPS signal. For fault detection of GPS signal, test statistics is calculated by GLR (General Likelihood Ratio), which has been developed to detect abrupt changes affecting dynamic systems. Through GLR fault detection, PL (Protection Level), which is important measures for integrity of RAIM (Receiver Autonomous Integrity Monitoring), can be determined for the faulty mode in GPS signal as well as for normal mode. Since the requirement of integrity risk for marine applications is applied in calculating PL, integrity performance can be verified in test environment. In order to verify the performance of DGPS/INS integration, sea trial is carried out in Korean coast. The performance of position accuracy and integrity is investigated with the results of sea trials. Using the performance of accuracy and integrity, the possible marine applications are presented in Korean ports.