**ABSTRACT SUBMISSION**

**Topic No.:** 6. Resilient PNT (R-Mode)

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**ABSTRACT**

Title: Feasibility analysis of R-Mode in R.O.K. from MF beacon station deployment

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Abstract: Global Navigation Satellite System (GNSS) has become a key infrastructure that is indispensable for maritime activities from AIS communication to maritime traffic control, such as VTS. The reliance on GNSS in the maritime has been rising day by day. Although the spread-spectrum radio technique is used in GNSS, it is vulnerable to radio interference due to weaker signal strength than noise floor. Such shortcoming rarely occurred in the event of radio interference affecting GNSS, and the utilization of GNSS has gradually expanded in the maritime so far. But unfortunately, the Republic of Korea (R.O.K.) has been affected by the intentional radio interference for GPS frequency band since 2010. In 2016, due to the GPS jamming, 694 fishing boats could not operate and AIS data informed us that lots of vessels were sailing on land. A Ranging-Mode (R-Mode) is currently being proposed as a sort of terrestrial radio navigation systems that can cope with GPS vulnerability with eLoran. This paper judged that R-Mode technology should be checked beforehand for applicability to the circumstances of R.O.K., and it has been predicted that this technology can meet some level of performance at the point of view of the DGPS MF beacon stations deployed in South Korea. Finally, in this paper, it has been confirmed that the performance of R-Mode is significantly improved if used with eLoran. Based on this paper, the estimated performance results of R-Mode are expected to be used to determine whether or not to use R-Mode technology as a GNSS backup system in the future South Korea.