**ABSTRACT SUBMISSION**

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**AUTHOR**

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

Family name: LEE

Firstname: Young Kyu

IALA member organization: Korea Research Institute of Standards & Science

Postal address: 267 Gajeong-ro, Yuseong-gu, Daejeon 34113, Republic of Korea

Telephone (including country and area codes)

Office: +82-42-868-5569 Mobile: +82-10-8357-2252

e-mail(s): ykleeks@kriss.re.kr

**ABSTRACT**

Title: Accuracy Improvement Technique for Timing Application of Loran-C Signal

Keywords: Loran-C, Time transfer, Propagation delay, timing, Additional secondary factor

Abstract: In this paper, we present a compensation method which may reduce the diurnal fluctuations for providing better timing synchronization performance by employing correlation between the Loran-C timing data and the weather (temperature with/without humidity) data. We mainly focus on the temporal variations expressed as diurnal fluctuations because it gives more effect on the timing performance after compensating initial timing offset of a Loran-C receiver with the help of an external reference time like GPS or a national standard time (the spatial variations can be compensated as a constant initial offset since it can be treated as a constant value with the calculated specific mean value of the received TOA when one compensate the initial receiver offset). In the case where there is no available weather data, the Least Square Spectral Analysis (LSSA) algorithm can be used to compensate the diurnal fluctuations in which the amplitude and phase are estimated for generating a compensation signal. Also, we analyze the performance improvement in the aspect of Root Mean Square (rms) values of the residual data by comparing that of the compensated signal with the original (uncompensated) signal. From the results, it is observed that more than 30 % performance improvement in the aspect of rms values can be achieved when the smoothing intervals are more than 30 minutes.