e-NAV12 Input paper

Agenda item 8.2

Task Number 6

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**Revision of Recommendation R-121**

**Performance and Monitoring of DGNSS Services in the frequency band 283.5 – 325 kHz**

# Summary

The paper provides suggested revisions to R-121, to bring it up to date.

# Purpose of the document

The Committee is invited to consider these proposed amendments when preparing a revision of R-121.

# Related documents

* IMO Resolution A.915(22)
* IMO resolution A.1046(27)
* IALA WWRNP (ANNEX 1)

# Background

Recommendation R-121 is the basis recommendation for providing DGNSS corrections in the frequency band 283.5-325 kHz. It was last updated in December 2004 (Edition 1.1) and there have been significant changes in GNSS since then.

# Proposed amendments

Main parts which need revision were identified in the sections Integrity, Accuracy and Continuity.

Annex 1 provides comments and proposals for a revision and update of the existing R-121.

# Integrity

Appropriate input regarding Integrity was already provided at eNAV9/8/3

# Continuity

Update with respect to new IMO A. 1046(27)

# Accuracy

With respect to the revision of A.953 and discussions regarding a more realistic figure for the DGNSS accuracy level following questions and topics should considered for the revision of R-121:

* Factors which have impact on DGNSS accuracy
  + Quality of Reference receiver equipment and antenna
  + Quality of standardized maritime receiver equipment
  + Range (Distance to reference station)
  + Method of GNSS data provision (local reference station, virtual reference station)
  + Latitude of the reference station
  + Average age of corrections (many DGNSS, will give corrections with higher age)
* What accuracy level could be achieved for the given levels of availability, and integrity.
* What accuracy level should be published as a recommendation
* What are the current published accuracy levels from service providers
* Published accuracy levels from GNSS service providers
  + GPS
  + GLONASS
  + Galileo
  + Accuracy level of combinations (GPS/GLONASS, DGPS/DGLONASS, etc.)
* Published values from similar DGNSS applications and services
  + Inland waterways
  + Aeronautical services
  + EGNOS/WAAS