

# **GAUSS Initiative Status Review**

---

## **Development of International Receiver Standards**

by

**Jan-Hendrik Oltmann, Chairman,  
Dr. Linn Roth, Vice-Chairman,  
Michael Hoppe, Secretary  
NELS GAUSS Initiative Group**

# GAUSS Initiative

The GAUSS Initiative covers establishment of standards for use of Loran-C/Chayka integrated with GNSS by use of the Eurofix datalink for distribution of GNSS correction and integrity data.

Global  
Augmentation  
for  
Satellite  
Systems

GAUSS is a concept of integrated navigation comprising core satellite based systems and augmentation systems which are or can be available world-wide.

# GAUSS Initiative

---

## Modes of operation of a GAUSS receiver:

- Pure LORAN-C / Chayka receiver
- Eurofix data receiver
- Integrated LORAN/Chayka/GNSS receiver  
with Eurofix
- Fully integrated LORAN / Chayka / GNSS / Eurofix  
receiver with calibrated LORAN / Chayka  
and pseudorange integration

# GAUSS Initiative

---

The NELS GAUSS Initiative Group was established by **NELS Steering Committee**, October 1999.

## Task:

Prepare input documentation for ITU-R, IMO, and IEC for the standardisation of integrated Eurofix/LORAN-C/Chayka/GNSS receiver combinations, i. e. for a GAUSS receiver.

# GAUSS Accomplishments to Date:

## Revision of ITU-R M.589-2:

- includes Eurofix signal definition:  
“Tri-State Pulse Position Modulation”  
(3S-PPM)
- allows for future enhancements

Approved by ITU-R Working Party 8B at October 2000 meeting in Geneva

## Approved by ITU-R Study Group 8

- set for “accelerated adoption procedure by correspondence”
- requires vote by national members for  
final adoption by ITU-R

# **GAUSS Accomplishments to Date:**

---

IMO performance standards Eurofix data link receivers were drafted:

- based on beacon receivers
- reviewed by IALA
- IALA pre-release comments favourable

IMO performance standards for integrated Eurofix/Loran-D/Chayka/GNSS receivers have been drafted.

# Next Steps for GAUSS Initiative

---

**Support Final Approval of ITU-R M.589-3**

**Revise IMO Performance Standards for Eurofix datalink receivers for Submission using IALA Suggestions**

**Revise IMO Performance Standards for Integrated receivers**

**Co-ordinate Input Documents for IEC Test Standard for Submission to IEC WG 4A.** WG 4A can prepare a test standard.

**Continue to Co-ordinate Activities with RTCM.**



# Next (5th) Meeting of GAUSS Initiative Group

---

**Date:** February (21 ?) 22-23, 2001

**Venue:** Bonn, Germany

**Note:** February 20-21, 2001  
“2nd International Symposium on  
Integration of Loran-C/Eurofix and  
EGNOS/Galileo.” DGON, Bonn

**All welcome!**



# **Contact:**

**Mr Jan-Hendrik Oltmann, Chairman**

c/o Federal Waterways and Shipping Administration  
Transport Technology and Telematics Division

~~Hindenburgufer 247; 24106 Kiel; Germany~~

Tel: +49 - 4 31 - 33 94 - 3 24; Fax: +49 - 4 31 - 33 94 - 3 48

Email: JOltmann@wsd-nord.de

**Dr Linn Roth, Vice-Chairman**

c/o LOCUS Inc., 5540 Research Park Drive, Fitchburg Center  
Madison, WI, USA 53711-5377

Tel: +1 - 608 - 2 70 - 05 00; Fax: +1 - 608 - 2 70 - 5257

Email: Roth@Locusinc.com

**NELS Coordinating Agency Office, Mr Terje Jörgensen**

Langkaia 1, 0150 Oslo, Norway;

Tel: +47 - 23 09 24 76; Fax: +47 - 23 09 23 91

Email: Terje.Jorgensen@ftd.mil.no



**Dr Linn Roth, Vice-Chairman**