



Loran Lines

March 2004

Newsletter of the International Loran Association

Volume 2004-1

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Memorandum from DOT, FAA and USCG

Supports role of Loran as a backup to GPS

IN A MEMORANDUM signed in April by the Federal Aviation Administration (FAA), the United States Coast Guard (USCG) and the Department of Transportation (DOT), Loran-C is recognized as the best multimodal backup to GPS for the National Airspace System (NAS) and the Marine Transportation System (MTS). The Congress, aviation and maritime and other users regard Loran-C as a national asset that must be preserved as part of our nation's critical infrastructure. Loran-C currently serves users in both the MTS and the NAS and provides precision timing to the telecommunications and other industries. The agreement sets forth the roles which the signatory agencies will play in the recapitalization, modernization and continued operation of the Loran system in the future. The memorandum notes that it is essential that the agencies involved cooperate fully to ensure that Loran-C will continue to meet the needs of its users following the transition of the USCG to the Department of Homeland Security (DHS).

The FAA is committed to completing the on-going research required to establish the viability of an enhanced Loran system to provide non precision airport approaches and for the Harbor Entrance and Approach phases of marine navigation. The USCG will support the FAA in this research and

(Memorandum continued on page 3)

ILA 33 to meet in Tokyo October 25 – 27 2004

AT THE ILA Board of Directors meeting in Boulder, Colorado, the decision was made to hold the 2004 Annual Convention and Technical Symposium in Tokyo, Japan. This will be the first ILA meeting in Asia. It will be a most interesting meeting and a further step toward an expansion of ILA global relations with the world-wide navigation community.



Sakura Tower

Under the organization of ILA Board Members Tamotsu Ikedea and Erik Johannassen, ILA 33 will meet from October 25 to 27 at the Takanawa Prince Hotel, Sakura Tower. As part of the three hotel Takanawa complex, the Takawana Palace opens onto a 10-acre flower garden which was once the private grounds of a member of the Imperial Family. The hotel combines a traditional approach to fine Japanese service with the art of relaxation.

The hotel is conveniently connected by modern subways to gardens, museums, parks, shopping districts, Japan's largest fish market and Tokyo Disneyland! Convenient day trips are possible to local sites such as Ueno Park, Japan's first and largest public park known for its boating ponds, temples, shrines and museums including the Tokyo National Museum. Adjacent to the park is the Ueno Zoo, home of two giant pandas. Kamakura,

(ILA 33 continued on page 3)

★ ILA33 Convention and Technical Symposium ★

October 25 – 27, 2004, in Tokyo, Japan

Be there!

development and request funds in its annual budget for the operation and maintenance of the Loran system. The Office of the Secretary of Transportation will cooperate with the Department of Homeland Security to ensure that responsibilities are carried out as outlined in the memorandum and to establish a policy statement with regard to the future of the Loran-C system. The signatories are Michael P. Jackson, Deputy Secretary of DOT, Vice Admiral Thad. W. Allen, Chief of Staff, USCG, and Marion C. Blakey, Administrator of the FAA.

one of Japan's most interesting cultural areas with 65 Buddhist temples, and 19 Shinto shrines including the Great Buddha, is only an hour away by train.

Further information about the hotel and its many amenities can be found at its web site www.princehotelsjapan.com/TakanawaPrinceHotel. ILA 33 Conference plans and programs will be posted regularly on the ILA web site www.loran.org as they become available.

MARK YOUR CALENDAR for ILA 33

Tokyo October 25 – 27 2004



Comfortable amenities and plenty of opportunity for networking and relaxation at the Takanawa Prince Hotel

Newly installed Solid State Transmitters now on air at Lorsta George and Lorsta Dana

The new nSSX solid state transmitter at George, Washington was first placed in operation on October 23, 2003. But as was reported at the ILA31 Technical Session 3 by Betz and Macaluso (*On the Air with the New Solid State Transmitter*) after seven days of operation within specification the station suffered a catastrophic failure on October 29, 2003 in which a sequence of

system malfunctions required that the station be shut down. The legacy vacuum tube system was reconnected and returned to service after a station down-time of approximately eight hours. A comprehensive team of skilled specialists from the vendors involved in the design and construction of the transmitter, W.R Systems, Megapulse, and Timing Solutions, plus staff from USCG NAVCEN, USCG, LCU and Lorsta George was assembled at once to pool their expertise to determine the cause of the system failure, and take such measures as required restore operation

and to prevent a reoccurrence. Several weeks were required to reinstall necessary system components which had failed and to retest operation using an antenna simulator. The fault conditions which had resulted in a breakdown condition in the coupling unit did not reappear and Lorsta George was restored to full operation on December 7, 2003. On February 18 the second new transmitter installation at Dana, Indiana was successfully placed in operation.

President's Message

March 2004

I AM PLEASED to report that the ILA is doing extremely well and wish to review some important issues briefly.

The ILA's 32nd Annual Convention and Technical Symposium in Boulder, Colorado was a tremendous success in every way. Approximately 35 papers were presented, the meeting venue was superb, attendees had a great time, and the ILA earned enough to fund additional activities in support of Loran. Once again I would like to thank Tom Celano and Ben Peterson for meeting coordination, Amy Fitzgerald of Timing Solutions and the ILA Ops Center for their organizational work, all sponsors for their generous support, and numerous others who contributed in many ways.

At the Board of Directors meeting in Boulder, it was decided to hold ILA 33 in Tokyo next October, and Mr. Tamotsu Ikeda has begun meeting preparations. This will be the first ILA meeting in Asia, and I am proud that the ILA is taking this important step towards expanding its global relationships and membership. It will undoubtedly be an extremely interesting meeting, and I would encourage all members to make plans to attend. Please visit the ILA website www.loran.org for details and periodic updates.

The ILA is actively cooperating with organizers of two important European meetings. ENC GNSS 2004 will be held in Rotterdam this May, and several Loran papers will undoubtedly be presented. Navtech Seminars and GPS Supply, who are well known for providing outstanding seminars on GPS and related topics, will also be holding a Loran tutorial associated with ENC GNSS 2004. More information will be forthcoming, and please check <http://www.navtechgps.com/> or www.loran.org for details. In addition, the ILA is pleased to cooperate once

again with the German Institute of Navigation (DGON) on the European Radionavigation Systems and Services (EURAN) 2004 meeting, June 22-23 in Munich. Please note abstracts are due by March 12, and details can be found on <http://www.dgon.de/content/index.htm>.

In the United States, the FAA's Loran evaluation program and the USCG's Loran modernization efforts are both proceeding well. The FAA is to submit its final report to the Department of Transportation (DOT) by March 31, 2004, and the DOT is subsequently going to issue a clear Loran policy statement. Note the FAA report will include information on Loran's ability to meet the FAA's required navigation performance (RNP) standards, the USCG's harbor entrance and approach (HEA) standards, and a cost/benefit Loran study by the Volpe National Transportation Systems Center. The entire international radionavigation and timing community is anxious to see this long-awaited report and to receive a positive Loran decision.

A DOT report entitled "Radionavigation Systems: A Capabilities Investment Strategy" was just released (see RNAV SYSTEMS TASK FORCE RPT at <http://www.navcen.uscg.gov/>), and appears to set the stage for the Loran evaluation report. This DOT strategy study concentrated on the assessment of radionavigation systems that could backup GPS in multiple applications, and considered evolving needs in the radionavigation and timing communities. It contained much positive language on Loran, included good recommendations (e.g. exploration of collocation of WAAS, NDGPS, and Loran facilities), and noted Loran is a potential backup for marine Automatic Identification Systems (AIS) and for aviation Automatic Dependent Surveillance-Broadcast (ADS-B) systems in the future. Moreover, the report explicitly

stated Loran is the only multimodal backup to GPS, and that Loran should be made a long-term part of the US radionavigation system mix if Loran meets the identified performance and cost/benefit standards.

I am also pleased to report that the ongoing US Loran modernization program continues to receive excellent bipartisan support from Congress and from user groups (e.g. the National Boating Federation has restated its support for Loran and Loran modernization). The House of Representatives and Senate passed legislation providing \$22.5M for Loran recapitalization in FY2004, and President Bush signed the legislation into law in late January. But of course the FY2005 funding process is already well underway, and I would urge all US ILA members to contact their senators and representatives today to ask for \$25M in Loran recapitalization support for FY2005. See http://www.senate.gov/general/contact_information/senators_cfm.cfm and <http://clerk.house.gov/members/index.php> to get contact information for your senators and representative. Please note if you cannot get email contact information, it is best to fax letters to individual offices to assure receipt, as regular mail can be extremely slow due to security concerns.

In conclusion, the ILA made tremendous strides in 2003, and we are looking forward to a great year in 2004, highlighted by a positive Loran policy statement in the US. Please be sure to be a part of that progress by renewing your ILA membership now, providing all necessary updates to the Operations Center, and planning to attend ILA33.

Respectfully,

G. Linn Roth, Ph.D., FRIN
President

Meetings

EURAN 2004 International Symposium to meet 22–23 June 2004 in Munich

EURAN 2004, the European Conference on Radio Navigation Systems and Services, meeting in Munich 22–23 June 2004, will provide first-hand information on applications, technologies, systems and services; offering those who attend a unique overview of the existing state of the art and proposed future developments in Radio Navigation. A wide range of stand-alone systems, system augmentations and sensors available or under development will be discussed. These will include GPS, GLONASS, Galileo, EGNOS, enhanced Loran /Eurofix, GSM/UMTS based on location technologies, sensor integration and map matching.

The program Committee under the chairmanship of W. Lechner of Telematica e.k. includes M. Narins of the FAA, Linn Ross, President of ILA, and ILA Board Members David Last and Durk van Willigen.

Further information is available from:

German Institute of Navigation
Att: Symposium Coordinator "EURAN 2004"
Kohnstrasse 70
D-53111 Bonn, Germany

Phone + 49-228-201970
Fax +49-228-2019719

e-mail:
schulze-thesing.dgon.bonn@t-online.de

European Navigation Conference GNSS 2004 to meet in Rotterdam May 17 to 19

GNSS 2004, the eighth annual conference organized under the flag of EUGIN, the European Group of Institutes of Navigation, will be held in Rotterdam under the sponsorship of the Netherlands Institute of Navigation (NIN).

The Conference, entitled "Merging Science and Application" will take place at the De Doelen Congress Center May 17 to 19 and will offer a wide range of presentations covering developments in navigation, positioning and timing. These will include a consideration of the present status of GPS and GLONASS, augmentation systems such as WAAS, EGNOS, MSAS, (N)DGPS, Galileo, LAAS, Eurofix and many others as well as terrestrial systems such as Loran-C. The local program chair is Dr. Durk van Willigen. The associated exhibition will provide an opportunity for manufacturers, service providers and organizations to present their products and services to a select international audience.

Further information on all aspects of the Conference may be obtained from the conference web site www.enc-gnss2004.com or from the secretariat.

ENC-GNSS 2004 Secretariat
C/O MPI
's-Lands Werf 20-21
3063 GA Rotterdam
The Netherlands
Phone +31 10 414 9779
FAX +31 10 413 5022
e-mail: info@enc-gnss2004.com

Last and Van Willigen to present tutorial on Galileo and Loran At GNSS in May.

Organized under the sponsorship of Navtech, Inc., Dr. David Last, ILA vice-President and Dr. Durk van Willigen, member of the Board of Directors will present a half-day tutorial on Sunday afternoon, May 16, 2004, in conjunction with ENC-GNSS 2004. Further information on the seminar and registration can be obtained at www.gpsetc.com/seminars

Navigation Conference MELAHA 2004

Planned by AIN for Cairo April 13-15 2004

The Arab Institute of Navigation (AIN) has announced the organization of an international navigation conference to be held in Cairo April 13–15 2004 at the El Salam Hotel.

Under the direction of Chairman Dr. R. Rashad, the conference will focus on recent and future developments in navigation with emphasis on marine applications. An industrial exhibition that will run in parallel with the conference will provide marketing opportunities for companies active in navigation and related fields. MELAHA 2004 is expected to attract

researchers and industrial personnel from all over the world in addition to decision makers from the Arabian and Middle Eastern regions. Further information can be obtained at the conference website:

www.ainonline.org

Email is at melaha2004@ainonline.org.

Awards

2002 Technical Symposium

Best Paper Award

Dr. Samuel R. Stein, Timing Solutions Corporation

“Timing – The New Loran-C Time Scale and Possibilities for Future Enhancements.”

Presented at the 31st Annual International Loran Association Convention and Technical Symposium 2002

William I. Polhemus Student Paper Award

Wouter Pelgrum, Technical University of Delft

“Loran-C Challenges GNSS – From a Quarter Nautical Mile Down to Meter-Level Accuracy” presented at the European Union Group of Institutes of Navigation Meeting in Graz, Austria, March 2003.

President’s Award

Tamotsu Ikeda

For many years during his distinguished career with the Japanese Maritime Safety Agency, the Japan Aids to Navigation Association, the Far East Radionavigation Service and the Sena Corporation, Tamotsu Ikeda has been a strong force in support of advancing Loran services in the region. He has been exceptionally effective in providing key technical and policy leadership in coordination of Loran efforts within these organizations.

G. Thomas Gunther

Tom Gunther has lead the efforts of the Loran Evaluation Team of the Federal Aviation

Administration (FAA), that has included members of academia, the FAA, the United States Coast Guard and industry. As leader of that team, he is responsible for organizing and coauthoring the final report for the Department of Transportation, which will lead to a decision on the future of Loran within the United States.

Dr. Sherman C. Lo

Dr. Lo has lead the efforts of LORIPP, the Loran Integrity Performance Panel of the Federal Aviation Administration to complete the most comprehensive study of Loran performance and potential enhancement ever conducted for aviation applications. The results of this study will form a critical section of the Loran report prepared for the Department of Transportation, which will lead to a decision on the future of Loran within the United States.

Outstanding Service Awards

James T. Doherty , Jr.

For his contributions to Loran and the Association as General Chair of the International Loran Association 31st Annual Convention and Technical Symposium 2002.

Charles Schue, III

For his contributions to Loran and the Association as Co-Chair of the International Loran Association 31st Annual Convention and Technical Symposium 2002.

William F. Roland

For his contributions to Loran and the Association as Technical Chair of the International Loran Association 31st Annual Convention and Technical Symposium 2002.

Dr.ir. Gerard W.A. Offermans

For his contributions to Loran and the Association as GAUSS Chair of the International Loran Association 31st Annual Convention and Technical Symposium 2002.

Medal of Merit

Dr. ir. Arthur W.S. Helwig

Dr. ir. Gerard W.A. Offermans

While students at the Technical University of Delft and at Reelektronika b.v Netherlands, Dr Helwig and Dr. Offermans have been dedicated innovators in Loran and in the development and implementation of Eurofix. Their team designed the error-free coding technique, developed an innovative simulation method to show the potential of the system and designed and installed the equipment needed to demonstrate and then implement the service in the Northwest Europe Loran System (NELS).

EUGIN

The European Group of Institutes of Navigation (EUGIN) was formed in 1995 by the Institutes of Navigation in several of the European states to coordinate collaboration with European agencies and industry in the fields of navigation, traffic management and related subjects. It was intended that the word navigation would include all modes of navigation: air, land, maritime and space.

Member institutes include:

Deutsche Gesellschaft für Ordnung und Navigation (DGON)
www.dgon.de

Institut Français de Navigation (IFN)
e-mail: infranav@micronet.fr

Instituto de Navegación de España (INE)
www.inave.org

Instituto Italiano di Navigazione (IIN)

Netherlands Instituut voor Navigatie (NIN)
www.nlr.nl/nin

Nordisk Navigasjonsforum (NNF)
www.nornav.org

Österreichischer Verein für Navigation (OVN)
www.ovn.at

Portuguêsa de Navegaçao (PIN)

Schweizerisches Institut für Navigation (ION-CH)
www.ion-ch.ch

Royal Institute of Navigation (RIN)
www.rin.org.uk

Positioned for the future

Innovators in advanced navigation and communication concepts

Leaders in high power, low frequency solid-state transmitter technology



Accufix 7500—

the latest evolution of commercial Loran transmitters designed and manufactured by Megapulse. Built upon the reliability and performance of the A6500 series, the A7500 was selected by the United States Coast Guard to replace the remaining tube type transmitters in North America. The improved power section features 33% greater output power, improved control logic for better timing stability and a reconfigured smaller and more energy efficient coupling network.



Megapulse

101 Billerica Avenue
4 Billerica Business Center
North Billerica, MA 01862
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Loran Receivers for Time, Frequency and Navigation Applications

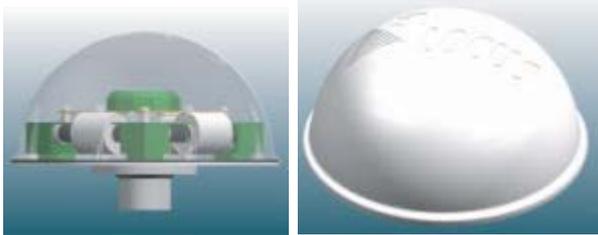


- All-in-view station acquisition/tracking
- 12 chain, 40 station capabilities
- Adaptive interference cancellation
- E-Field or H-Field antenna operation



- NMEA 0183 output messages
- Cesium-like (Stratum 1) frequency performance
- Independent UTC source
- Time and frequency outputs

H-Field Antennas for Time, Frequency and Navigation Applications



Locus H-Field antenna shown in new radome enclosure.

- P-static immunity
- Small form factor
- No ground required
- Penetration into non line-of-sight areas
- Can be integrated with GPS into single unit for a comprehensive time, frequency and navigation solution

Industrial Radios for Demanding Applications



OS2400-HSE

- 20+ mile range
- 11 Mb/s over the air
- 802.11b compatible
- Ethernet
- Best industrial 802.11 solution
- 3-year warranty
- Applications include security, cameras, factory/building automation, industrial LAN/WAN



OS2400-E/STE/485/OF

- 16 mile range
- Extensive networking capabilities
- Ethernet, serial-to-Ethernet, serial
- Most robust solution for difficult environments
- 3-year warranty
- Applications include remote monitoring, oil/gas, water treatment, factory, SCADA