Loran Lines

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UK contracts for long term eLoran Navigation services

The request by Trinity House for bids from industry to provide an enhanced Loran (eLoran) system at a site which would provide adequate coverage for the UK, as reported in the Spring 2007 issue of Loran Lines (vol. 2007-1), has resulted in the award by the General Lighthouse Authorities (GLAs) of a fifteen-year contract to VT Communications (part of the VT Group plc). The development supported by this award seeks to provide a state-of-the-art eLoran radionavigation service to improve safety for mariners in the UK and Ireland and to assist in the navigation of the complex and crowded waterways of Northern Europe. In announcing this award, VT Group observes that eLoran complements GNSS systems such as GPS but is entirely independent, providing its users the benefits of electronic positioning, navigation and timing when satellite signals are disrupted.

A trial eLoran service has been transmitting from Rugby England since Jan 2004, as reported previously in Loran Lines. This service will be suspended by the end of July 2007. VT will develop a new eLoran station at its communications facility in Cumbria, UK. It is expected that the first signals from Cumbria will be transmitted on 1 October 2007 with full service operational in November 2007. An initial developmental phase will continue until 2010 and provide experience and a focus for general European agreements on the services to be provided by eLoran. It is intended that the operational phase will start in 2010.

In awarding this contract, Dr. Sally Basker, ILA Board member and Director of Research and Radio Navigation in the GLAs, comments that as they press ahead with a comprehensive program of e-navigation they have worked hard to reduce the overall cost of providing necessary services. In this way e-Loran will help to provide a reliable, efficient and cost effective Aid to Navigation services to benefit and contribute to the safety of all mariners. ■

Congress supports continuing LORAN-C operations including infrastructure funds of $25M for FY 2008 and for 2009

On July 26, 2007 Senator Cantrell (D-WA) introduced S.1892, the Coast Guard Authorization Act for FY 2008. Section 503, titled *Coast Guard to Maintain Loran-C Navigation System*, states that the Secretary of Transportation shall maintain the Loran-C navigation system until such time as the Secretary is authorized by statute, explicitly referencing this section, to cease operating the system. This language clearly prohibits unilateral actions within the concerned agencies to announce and implement any plan for termination.

In addition to the funds provided for the routine operation of the Loran C system, there is also an appropriation for capital expenses associated with the Loran-C infrastructure for fiscal years 2008 and 2009. These funds are to be provided to the Coast Guard by transfer from the FAA and other agencies of the US Department of Transportation.

While the major decision to upgrade the Loran-C system to eLoran standards and to assure the user community of continuity of support for eLoran as an essential backup for satellite based navigation is still pending in multiple committee and board reviews, this positive action in the Senate once more demonstrates the continuing support in the U.S. Congress for Loran. ■

ILA36 Convention and Technical Symposium
October 14 – 17, 2007, in Orlando, Florida, USA
Be there!

International Loran Association

Board of Directors and Committee Chairs 2007 – 2008
(effective October 16, 2007)

A complete listing of the Board Membership, addresses, affiliations and phone/fax numbers can be found on the ILA website: **www.loran.org**

ILA members who have not yet paid this year's dues are asked to do so now. Membership forms can be downloaded from ILA's website:

http://www.loran.org/Membership/Formindividual.htm

Please note ILA's web site address: **http://www.loran.org**
and e-mail address: **ila@loran.org**

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The ILA encourages readers to submit material for publication. Any and all news related to Loran and ILA members is welcome. Send information (with pictures, if possible) to either of the co-editors:

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eLoran has critical role as an alternate source of primary frequency and time of day time for telecommunication applications

In a report to the U.S. National Institute for Science and Technology (NTIS) in 2002, the T1X1 committee of the Alliance for Telecommunications Industry Solutions (ATIS) published *eLoran Liaison to NIST* [T1X1 (2002-049)]. This paper stressed the importance of maintaining and enhancing Loran-C to eLoran levels and to performance standards suitable for current telecommunications use. Since that time new receivers and system modifications have demonstrated that such enhanced technical capabilities for Loran can be achieved.

While many of those supporting the continuation of eLoran in the United States have stressed its importance in navigation and position finding, it is also necessary to understand and appreciate the very vital role which the eLoran signal can play as an independent primary frequency source. The loss of GPS navigation signals has obvious significance to the transportation industries. Any loss of time or frequency reference is equally serious for network operations with a potentially much larger scale impact for disruption, with the possibility of network-wide outages for long periods of time.

In a subsequent communication to NITS in January 2006 supporting the continuation of Loran, ATIS asserts that Loran-C is the only viable alternative to GPS for providing UTC time of day with frequency accuracy suitable for use as a primary frequency reference for telecom use. Loran-C can be used in dense urban environments and is a proven technology with an established user base.

The Alliance for Telecommunications Industry Solutions is a United States-based body devoted to developing and promoting technical and operations standards for the communication and related information technologies industries, worldwide. ATIS is accredited by ANSI, the American National Standards Institute. The Optical Transport and Synchronization Committee (OPTXS) (formerly T1X1) develops standards related to telecommunications network technology pertaining to network synchronization focusing on those functions and characteristics necessary to establish interconnection of signals.

Further information on ATIS and its committees is available at their website: **www.atis.org.** ■

RTCM committee to explore standards for future eLoran

In its response to the USCG Request for Comments, the Radio Technical Commission for Maritime Services (RTCM) stated that the commission has adopted a position in support of maintaining the Loran-C system and a program to modernize it to eLoran standards. In its decision the RTCM considered the following factors: the vulnerability of the comparatively weak GPS /GNSS signals to electromagnetic interference, the ability of LORAN signals to penetrate into environments which exclude or reduce GPS, and finally the possibility of the physical destruction of satellite vehicles through direct hostile action. Automatic Identification Systems (AIS) and Long Range Identification and Tracking (LRIT) could continue to function with a continuous Loran back-up capability using existing hybrid receivers.

Following the May 9 meeting on e-Loran at the RTCM Annual Assembly Meeting in St Pete's Beach, Florida, USA, it was proposed that a Special Committee on maritime e-Loran standards be formed. A draft Terms of Reference for the work of the committee has been proposed and will be on the agenda for the RTCM Board of Directors in its September 20, 2007 meeting.

The draft proposes the establishment of RTCM Special Committee 127 to explore Standards for Enhanced Loran (eLoran) Systems. The standards are to be considered for eLoran navigation system components including maritime eLoran receivers and/or combined GNSS/eLoran receivers. Such standards would develop appropriate performance, technical requirements, and test procedures. These standards are intended for use in connection with the production of approved eLoran receivers and to be the basis in the future of IMO and other agency standards.

The committee will have its initial meeting at ILA 36 in Orlando FL, USA on October 15, 2007. The full text of the draft Terms of Reference can be found at the ILA website: **www.loran.org/events.html.** ■

Next Generation Air Transportation Systems (NGATS) initiates study of backups to satellite navigation.

The Next Generation Air Transportation System Institute has entered into an agreement with ITT, Inc. to conduct an analysis of backup satellite navigation technology options for American air travel. The study seeks to identify appropriate backup solutions that are cost effective, reliable, and meet a minimum set of user requirements. ITT will be joined in this study by Ohio University, Aerospace Engineering and Research Associates, and QinetiQ in carrying out the assignment.

QinetiQ is a British defense technology company, formed from a portion of the former UK agency DERA (Defense Evaluation and Research agency). As a privatized company QinetiQ is now one of the largest defense research organizations in the world with over 11,400 employees. The task is scheduled to be completed in mid 2007 with the results to be made public through the NGATS Institute.

Public law 108-176, Vision 100 Century of Aviation Reauthorization Act, seeks initiatives to transform future air transportation systems. The act created the Joint Planning and Development Office (JPDO) through which six governmental agencies would combine resources and talent to effect this transformation. NGATS was established in March 2005 to permit JPDO to access a broad spectrum of private sector expertise in support of planning, research, analysis, assessment, architecture, prototype simulation and demonstration of future system attributes. ■

NATA voices strong support for the continuation of eLoran

Responding to the recent request for comment posted by DOT and DHS (and reported in the February 2007 issue of Loran Lines), the National Air Transportation Association (NATA) described the Loran system as crucial to aviation navigation and strongly urged the Departments concerned to modernize and upgrade the entire existing system to the level of eLoran presently available at some locations. The NATA response further emphasized that the low operating frequency and the significantly greater strength of the Loran signal makes it far less likely to be affected by deliberate or accidental jamming or interference. In addition the receivers necessary for back-up support are available at low cost to the user.

NATA is a public policy group representing the interests of aviation businesses before the Congress, U.S. Federal and state governments. The over 2000 member companies of NATA own, operate and service aircraft. These services include aircraft maintenance, fuel sales, flight training, and the provision of on-demand public air transportation and scheduled commuter operations of smaller aircraft. It is their view, as expressed in this response, that Loran is a reliable standby in the event of any interruption or failure of GPS or other satellite navigation systems and that the availability of Loran enhances aviation safety and accordingly the service should be maintained. ■

ILA election results announced

The election results for the ILA Board of Directors are listed below. There are 17 slots on the Board (not counting the Consulting Past President). Terms expire at the convention in the years given:

President

Langhorne Bond	2008

Past-President

Linn Roth	2008
John Beukers (consulting)	

Elected Directors

Sally Basker	2010
Marc Clerens	2010
Thomas Gunther	2008
Tamotsu Ikeda	2010
Erik Johannessen	2008
Bob Lilley	2009
Sherman Lo	2008
Jacques Manchard	2009
Gerard Offermans	2010
Chuck Schue	2010
Paul Williams	2009
Durk van Willigen	2009

Appointed Directors (one-year terms)

David Diggle	2008
Douglas Taggart	2008
Zachary Conover	2008

ILA 36 to meet in Orlando, Florida, USA

Oct 14 – 17, 2007

With the theme "eLoran and GNSS; Diversity for Safety and Security," Conference Co-Chairs John Beukers and Bill Rolland have sent out a call for papers to be presented at the 2007 Convention and Symposium of the International Loran Association. A initial listing of proposed session topics include Loran Status, Policy and Management:

- Loran Technology, The role of Loran in future Positioning Navigation and Timing service, System Status and Modernization, Loran users and Services
- The Loran Data Channel, Signals and Propagation
- Interference and Noise, eLoran applications
- Receivers and Certification

Abstracts should be sent by September 1, 2007 to one of the following:

- Dr. Sherman Lo, Technical Chair of ILA 36 at sherman.lo@stanford.edu, or
- to the ops center at ILA@loran.org, or
- by FAX to +1 805 967 8471, or
- by mail to ILA Operations Center 741 Cathedral Pointe Lane, Santa Barbara CA USA 93111 ■

Program for ILA-36 in Orlando to include session with RTCM

ILA co-chair Beukers and Rolland have announced the following preliminary program schedule for ILA 36 to be held at the Embassy Suites Hotel, Orlando, Florida, USA.

Sunday, October 14: Early arriving participants at ILA will be greeted by an informal reception in the Hotel Lobby from 1730 to 1930 with an open bar and a selection of finger foods.

Monday, October 15: Special working group meetings are featured. There will be an ILA+GAUSS working session from 0800 to 1200 and RTCM SC-127 "eLoran Organization" in the afternoon from 1300 to 1700.

The traditional ILA Icebreaker Reception will follow in the Hotel Lobby with an assortment of finger foods and an open bar.

Tuesday, October 16
0800–1200 Keynote Speaker: Technical Sessions
1200–1315 Luncheon and Speaker
1315–1700 Technical Sessions
An optional Evening Out event from 1800 to 2200 will feature a Pirate Dinner and show with separate pricing.

Wednesday, October 17
0800–1200 Technical Sessions
1200–1315 Luncheon and General Meeting of ILA
1315–1600 Technical Sessions
1600–1730 ILA Board Meeting
1730–1900 Reception Hotel Lobby, open bar
1900–2200 Awards Banquet

Agreement by DOT and DHS for the continued operation of Loran reported.

While, at this writing, there has been no official announcement, it is reliably reported that the US Department of Transportation (DOT) and the US Department of Homeland Security (DHS) have agreed that Loran should continue in operation for the foreseeable future. If true, this decision to support Loran could be viewed as a reasonable outcome of the very substantial positive public response to the Request for Comment by the USCG announced in the previous issue of Loran Lines.

Initially described as having a closing date of February 7, 2007, the request for public comments on proposed possible actions regarding the future of the present Loran system or a future enhanced eLoran was subsequently extended without limit. This extension permitted the many organizations and professional publications concerned with the future of Loran to advise their members and subscribers of the matter pending and of the need for a prompt response.

Over 900 comments have been submitted from a wide range of users. Statements in support of Loran are to be found in the Docket from single small-aircraft and boat owners to operators of large fleet-scale operations and in addition include representations from major national and international groups and agencies in the navigation community attesting to the value of Loran and the need to continue. These comments can be found tabulated under the Docket number USCG 2006 24685 at the Comment website **www.dms.dot.gov.**

In a recent letter to the membership, ILA President Langhorne Bond noted that the responses went far beyond the loyal grass roots support which Loran has enjoyed in the past from its many individual users in organizations such as The National Boating Federation (NBF) and the Aircraft Owners and Pilots Association (AOPA). Support for Loran extended to other important marine, aviation and timing associations, manufacturers and governments. It was a world-wide response urging the continuation and enhancement of Loran. Of particular importance in the evaluation of the extended impact that Loran exerts in today's high-tech world was the input from those users of precise time such as Sprint-Nextel who wrote supporting Loran as a timing backup to GNSS. In addition Bond summarized the significance to the Loran and GNSS communities of the recent creation of offices in DOT and DHS concerned with the integration of technologies required for position, navigation and timing (PNT).

The full text of President Bond's comments can be found at the ILA website **www.loran.org.** ■

RIN reminds DOT/DHS review board that Safety-Critical situations need reliable back-up for GNSS

Once again the Royal Institute of Navigation (RIN) has demonstrated its strong and unwavering support for Loran as the second source for navigation, backing up the inherent vulnerability of GSSS with a solid signal of comparable format and precision. Their position in this regard has been resoundingly seconded by the recent establishment by the General Lighthouse Authorities in the UK of a new Loran station as reported in detail in this issue of Loran Lines.

Emphasizing the essentially international nature of navigation and position finding systems, the Technical Committee of the Royal Institute of Navigation (UK) was recently moved to submit its comments to DOT and DHS in the matter of the continuation and enhancement of eLoran in the United States. It was pointed out in their response that any Global Navigation Satellite System, be it GPS, GLONASS or Galileo, exhibits a basic vulnerability to interference by virtue of the very low signal energy. When used in safety-critical situations GNSS should never be the sole source of position data. A secure terrestrial-based back up as provided by eLoran should be available. It was therefore respectfully recommended that a modernized and improved eLoran be maintained and that such action in their view would provide the accuracy, integrity and availability needed for backup and would prove to be in the best interest of the US public. ■

William J. Brogdon
1935-2007

Captain, US Coast Guard (Ret)

Members of the International Loran Association were saddened by the recent death of Bill Brogdon at 72, on May 3 2007.

He was a 1956 graduate of the US Coast Guard Academy, New London CT USA with a B.S. in engineering, and held a Masters degree in Marine Science from Long Island University. During his 30-year career in the US Coast Guard he served aboard six ships as navigator, operations officer and executive officer, and then as CO of three. His shore assignments include: Loran station CO, Chief of the Aids to Navigation School, Chief of the 7th District Aids to Navigation, Commander, Coast Guard Group, Portland, Maine, USA, Deputy Chief of Research and Development, US Coast Guard Headquarters, and Deputy Chief of Navigation, US Coast Guard Headquarters at the period which saw he start of the mid-continent Loran C chains.

He held a USCG Master, Ocean License and has served as a consultant and expert witness on cases related to navigation and the rules of the road.

Bill was associated with boats and the sea since childhood and was a prolific author on topics related to navigation, seamanship, and safe boat operation. He twice received the Lawton award for his contributions to marine safety thru the media. He was a driving force to continue the use of Loran and was delighted by recent decisions which support the value of eLoran in the future.

His articles have appeared in a wide range of boating magazines including Sail, Yachting, Salt Water Sportsman, and Ocean Navigation.

His book *Boat Navigation for the Rest of Us* was been characterized by reviewers in Cruising World and the Wooden Boat as "superb and amazingly comprehensive" and "a thorough treatment of traditional and electronic methods by an expert." Other reviewers and users in the marine community have been unanimous in their praise of the quality of Bill's presentation and the aid it provides to the small boat navigator. The Receiver and Coordinate Conversion File presently available on the ILA website **www.loran.org/Coordinates.htm** was initiated with references collected by Bill.

As a dedicated Christian he was devoted to the study and teachings of the Bible and as a member of the Morehead City Chapter of the Gideons International he served as Chaplain for three years. Bill is survived by his wife, Joyce Sydney Brogdon, a daughter Juinata Garrison, sons Bill, Doug, and Scott, sister Betty P. Carter and six grandchildren. Services were held in Morehead City, NC. Burial was at Arlington National Cemetery at 1300 on July 24, 2007

As ILA Board member and past president he was a valued colleague and good friend. He is remembered for his warm and outgoing support and his frequent contributions to Loran Lines, and will be missed by us all. ■

Positioned for the future

Megapulse

Innovators in advanced navigation and communication concepts
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eLoran Monitor Receiver

The Accufix eLoran Monitor Receiver is designed for use in monitor and control of Loran systems. The unit is designed to support legacy Loran-C systems while featuring the processing capabilities for tomorrow's eLoran. Housed in a 2U 19" rack module, the powerful DSP platforms are flexibly controlled via software commands.

eLoran Antenna

The eLoran sensor integrates GPS, Loran, and their augmentation systems such as WAAS in a single package. A clear benefit is the two independent navigation systems with dissimilar failure modes. A single cable provides power in and data out. In addition to precision navigation from the WAAS/GPS, the eLoran outputs true TD data. The crossed loop antenna also provides compass functionality with true heading accuracy within 1 degree, even while stationary.

Loran Signal Generator

The LS1000A is a precision Loran Signal Generator that generates a simulated Loran-C signal. Pulse and group parameters that can be controlled include the Group Repetition Interval, ECD, and phase code. In response to a 5MHz input, the unit will output a single rate stream of Loran pulses on either or both of two rear panel connectors. Additionally, the output can be automatically synchronized and/or phase delayed to an external signal such as Phase Code Interval (PCI), Local Interval (LI), or Loran-C Time of Coincidence (TOC.)

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