

UNDER EMBARGO UNTIL 00.01am GMT Friday 31st October 2014

UK eLoran now in operation to backup vulnerable GPS

- Seven land-based monitoring stations to help ships navigate with signals 1 million times more powerful than GPS
- eLoran technology will protect world's busiest sea lanes from powerful illegal 'GPS jammers', space weather interference and other causes of GPS loss
- Technology could backup critical national infrastructure, such as the Grid and City of London in the case of major GPS outage

31st October 2014: Technology to counter the threat of GPS jamming is now available at Dover and along the East coast of the UK, as the nation continues to set a benchmark across the globe.

The General Lighthouse Authorities (GLAs) of the UK and Ireland announced today the Initial Operational Capability of UK maritime eLoran. Seven differential reference stations are now in operation to provide additional position, navigation and timing (PNT) information to ships fitted with eLoran receivers, ensuring they can navigate safely in the event of GPS failure in one of the busiest shipping regions in the world, which 200,000 vessels are expected to cross every year by 2020

Today, many devices and applications rely on GPS-based information, including telecommunications, smart grids, and high frequency trading, and it plays a fundamental role in delivering the PNT data that ships, which carry 95% of UK trade, rely on for safe navigation. The European Commission estimates that an €800 billion (£690bn) segment of the European economy is currently dependent on global satellite navigation systems. ¹

GPS signals are vulnerable to interference and both deliberate and accidental jamming, which is causing increasing concern because of the wide availability of GPS jammers online for as little as £30 capable of causing complete outages across all models of receiver currently on the market. Loss of this data, even for a short time, can put vessels, cargo, lives and the environment at risk.

As a system entirely independent of GPS, eLoran can provide navigation information for vessels as well as the timing data necessary to maintain the power grid, cell phones, financial networks, and the Internet in the event of an outage. Unlike satellites, eLoran signals can also reach inside buildings, under-ground and under water.

The UK is the first in the world to deploy this technology for shipping companies operating both passenger and cargo services. The rollout was approved by the Department for Transport in 2013. Led by the General Lighthouse Authorities (GLAs) of the UK and Ireland, deployment of the system involved replacing the existing radio receiver equipment in two prototype reference stations at Dover and Harwich, and the creation of five new reference stations in the Thames, Humber, Middlesbrough, Firth of Forth, and Aberdeen.

¹ http://ec.europa.eu/enterprise/newsroom/cf/itemdetail.cfm?item_id=6848&lang=en

Captain Ian McNaught, Deputy Master of Trinity House, commented, "Demands on marine navigation continue to increase with growing congestion and awareness of the vulnerability of GPS is growing. eLoran provides a signal around 1 million times more powerful than those from satellite signals, providing resilience from interference and attack. The achievement of Initial Operational Capability for the system at Dover and along the East coast of the UK is a significant milestone, providing for improved safety aboard appropriately equipped vessels. The maritime industry would now benefit from the installation of eLoran receivers on more vessels to take advantage of improved navigational safety.

The telecoms, finance, energy and other industries which are subject to significant issues caused by the loss of timing signal provided by GPS, are recommended to take advantage of the enhanced reliability now available to address the over-dependence of key national infrastructure on vulnerable satellite systems."

Grant Laversuch, Head of Safety Management at P&O Ferries, which installed the technology as a test system aboard the ferry 'Spirit Of Britain' at Dover said, "Pinpoint-accurate positioning and navigation is especially vital for us because we operate in the busiest shipping lane in the world and 'Spirit of Britain' is one of the largest ships ever built for the Dover-Calais route. Our ships had occasionally experienced loss of satellite signal so we trialled eLoran as a crucial 'back-up' to ensure we can navigate accurately at all times and provide an extra guarantee of passenger safety. We welcome the news that Britain is leading the way in guaranteeing safe shipping lanes by deploying this technology across the coastline."

Dr Geoff Darch, principal consultant at international design, engineering and project management consultancy, Atkins, said, "Global navigation satellite systems, like GPS and Galileo, provide vital positioning and timing information to help the operation and management of infrastructure across a range of sectors. These systems are very effective for this purpose but are susceptible to interference including by space weather. eLoran is a great example of a technology that could provide an important back-up to satellite navigation systems should these become damaged or degraded by severe space weather."

eLoran technology is based on longwave radio signals and is independent and complementary to GPS.

Several nations around the world are consulting with the GLAs to benefit from its knowledge and experience of eLoran. South Korea, for example, has expressed that it wants to establish an eLoran alliance with the UK while it pursues its own rollout of differential eLoran reference stations, and new eLoran transmitters based on the latest technology. In 2012, South Korea was the victim of a 16-day GPS jamming attack by North Korea

Full operational capability covering all major UK ports is expected by 2019.

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Notes to editors:

About the General Lighthouse Authorities

The General Lighthouse Authorities (GLAs) of the United Kingdom and Ireland are Trinity House, the Northern Lighthouse Board and the Commissioners of Irish Lights. Together, they have the statutory responsibility for the provision of marine aids to navigation (AtoN) around the British Isles. The GLAs' joint mission is the delivery of a reliable, efficient and cost effective AtoN service for the benefit and safety of all mariners.

More information about the General Lighthouse Authorities of UK and Ireland's Research and Radio navigation Department can be found at <http://www.gla-rnav.org/>.

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