

Totem ECDIS

**THE ONLY ECDIS WITH DECISION SUPPORT TOOL (DST) !
COLLISION AVOIDANCE ADVICE COMPLYING WITH
THE INTERNATIONAL REGULATIONS FOR PREVENTING COLLISIONS AT SEA**



Unique Features:

- E-navigation Data Audit
- GPS validation - Detect GPS spoofing
- Watch Take Over
- AIS update and AIS messages

Approved as per: IMO resolution MSC 191(79), A.694(17) and MSC. 232(82).

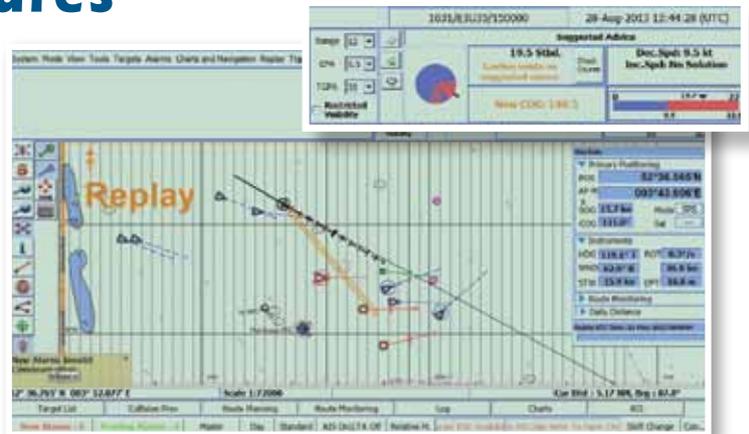
Tests carried out:
Performance testing IEC 61174; Environmental testing IEC 60945; Serial interface testing IEC 61162-1, and Indication of navigation related information IEC 62288.

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Totem ECDIS

Unique Safety Features

- **Collision Avoidance:** A revolutionary Decision Support Tool complying with COLREGS. The system not only alert the Master or OOW to the risk of collision, but advise the best course or speed change needed in order to avoid collision. The advice given is in accordance with the legal requirements of the International Regulations for Preventing Collisions at Sea 1972 (COLREGS). All the information is calculated automatically for all targets and is continuously refreshed
- **EDA:** History files can be analyzed by E-navigation Data Audit program to detect near miss events (EDA free copy is available with Every ECDIS)
- **GPS validation:** To avoid GPS spoofing, Totem ECDIS is monitoring the difference between DR and GPS positions at all times, and issues an alarm if the difference within a set time exceeds the set allowed distance
- **Watch Take Over:** The watch take over procedure, implemented by every officer commencing a watch on the bridge, gives the OOW a clear picture of the system functionality. The procedure ascertains that the system is configured and working properly, sensors information is correct, correct charts are available, license is valid etc. The procedure is logged for future auditing
- **AIS update and AIS messages:** Totem ECDIS enables direct updating of AIS from the ECDIS, and sending and receiving AIS messages by the ECDIS using full keyboard capability



Electronic Charts

- Totem ECDIS supports C-MAP ENC (Jepessen) charts CM93/3 and Official Database (Jepessen Primar; ENC)
- Totem ECDIS supports IHO S-57 and IHO S-63 charts (ENCs) (Admiralty, Primar and more)
- Totem ECDIS is compatible with the Admiralty Information Overlay (AIO), the digital version of Admiralty Notices to Mariners

Training

Totem Plus provides online CBT (Computer Based Training) for Type Specific Training, as per ISM code. Moreover, type specific training can be provided by several authorized institutes.

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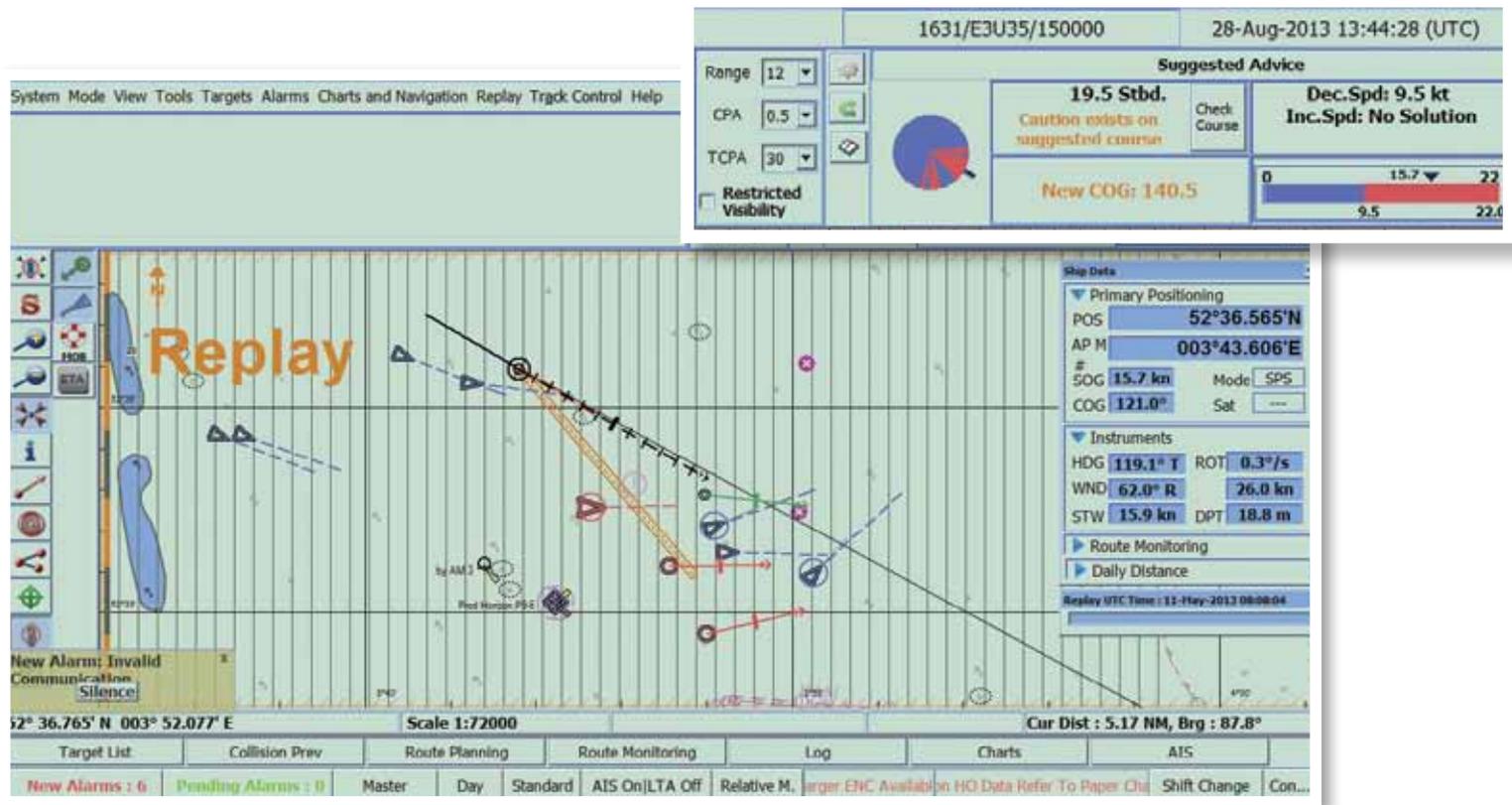
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Decision Support Tool for Collision Avoidance

Totem DST

New Collision Avoidance Technology - integrated into Totem ECDIS

Totem DST is a revolutionary Decision Support Tool for collision avoidance. The DST offers the mathematical solution for a multi-vessel scenario and gives advice to the OOW on possible course change or speed change.



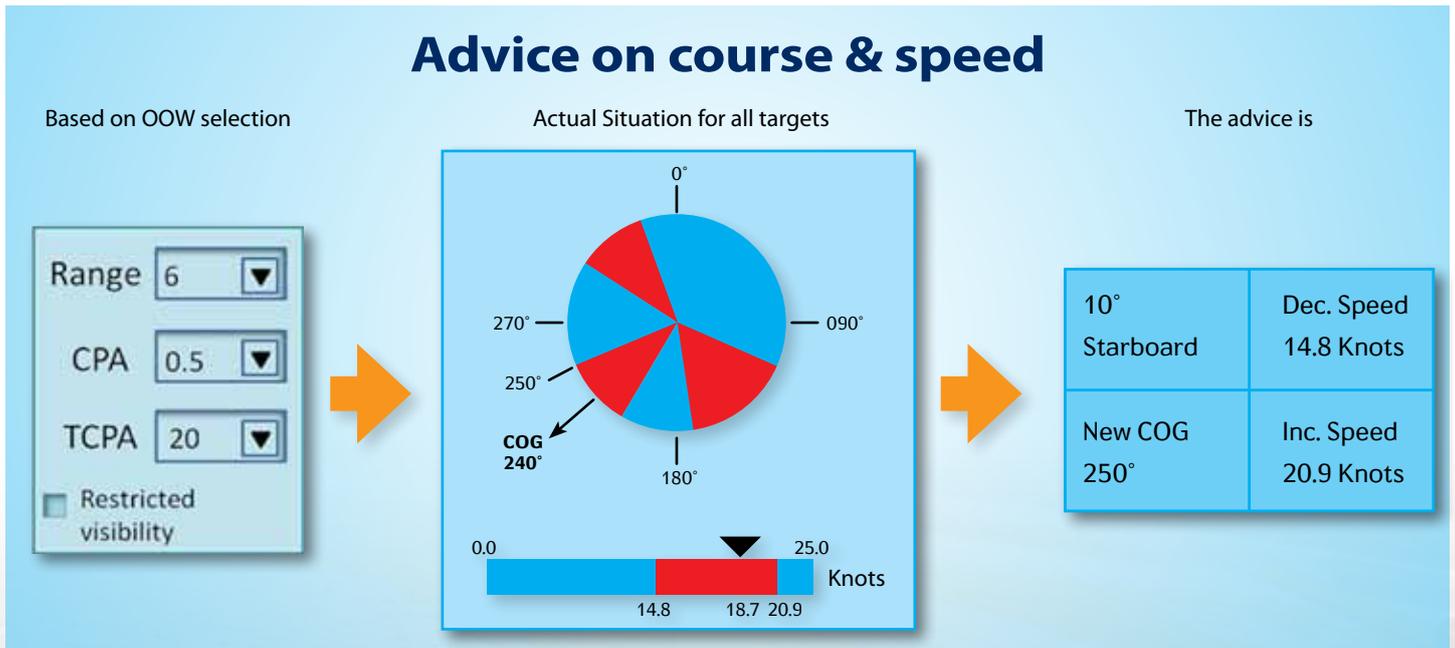
The advice given is in full compliance with International Regulations for Preventing Collisions at Sea 1972 (Colregs). The innovative technology has been designed to assist the OOW in making correct decisions based on all available data from AIS and ARPA.

Photo: Capt. Akiva Hoffman



Totem DST

- DST informs the OOW on exact course and/or speed change required to avoid collision in accordance with International Regulations for Preventing Collisions at Sea 1972 (Colregs)
- The OOW is able to set certain key parameters (Range, CPA, TCPA)
- The system is capable of accounting for all ships, within the selected range, using both AIS and ARPA



The System has been thoroughly tested and found conforming to International Regulations for Preventing Collisions at Sea 1972 (Colregs) in all aspects, and is approved by the Administration. The DST is already installed on more than 200 ships and works with great satisfaction.

The system is a winner of the following awards:

- The PLIMSOLL Award for Innovation 2014 by the “Professional Mariner” Stanford, Connecticut
- The Tanker Safety Innovation Award, Nov 2013, by Riviera Magazine, UK
- 5th Annual Safety At Sea International Awards by HIS Fairplay, June 2011, London

Totem DST offers unambiguous Collision Avoidance advice, in the presence of multiple targets, which is not offered by ARPA



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Totem E - Navigation Data Auditing

Totem
EDA

Totem EDA enables easy identification of Near Misses by analyzing recorded navigational data from Totem ECDIS and/ or Totem VDR. Totem EDA increases safety standards of navigators on ships.

Big Data to enhance and implement navigation safety standards!



Main Advantages:

- Analyzing recorded Totem ECDIS and/or Totem VDR data
- Enables easy identification of **NEAR ACCIDENTS**
- Feedback to vessels shows marked reduction in UNSAFE EVENTS!!!
- **FREE** of charge with the purchase of Totem VDR or Totem ECDIS

Totem EDA

How it works?

The user can define criteria for events that he wants to search for (Near Collision, Near Miss, Near Grounding). Once an event is defined it can be saved for future use, and the program will search all available data files to find a possible match. The following examples were taken from a recent pilot project:



Example 1 shows results of “Near Collision” events that matched the requested search criteria as defined.

Example 2 shows a ship sailing in 15 Knots over very shallow waters – less than 2 meters, what we define a “Near grounding” event.



It Works!

During the 6 months Pilot Project, the results were revealed to the crew every month. On the first month the EDA showed 18 “Near Collision” events, some of which were with severe breach of the international regulations for preventing collisions at the sea. As expected, after the crew reviewed the first EDA report, this number was reduced to ZERO, in a period of only one month!

Monitoring the way ships navigate is necessary in order to educate the seafarers and **enhance the required safety standards**. The idea behind EDA is not to find culprits and punish them but to inform the seafarers what is the standard the owners want to keep.



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