

ASLA

Advanced Strategical Locating Algorithm



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1 Features

ASLA is a core component for locating systems especially designed for long-distance - i.e. strategical - applications. Its purpose is to derive most accurate emitter locations from selected bearings of the system's direction finders; depending on the system layout the selection is generally performed automatically by another component.

Based on PLATH's long expertise in the field of direction finding and locating ASLA was designed from scratch for high reliability and highest need for accuracy. As a result, it outperforms all traditional methods in every respect. ASLA can be incorporated in locating systems for long-distance reconnaissance such as NALOS (NARrowband LOcation System) for narrowband and ACOS (Automatic COmmunications intelligence System) for broadband applications.

- High reliability: Valid results are provided even in difficult situations. No systematic weaknesses arise even for complex setups.
- High accuracy: All bearing error information is taken into account for maximum accuracy. Robust numerical methods prevent arbitrary uncertainties.
- Precise error ellipses: Emitter locations are accompanied by error information, which precisely reflect the actual accuracy of the results.
- Scalability: Designed for systems with many direction finders and thousands of locatings per second.
- Option "Likelihood Optimisation":
 - Further improved accuracy based on stochastic optimisation.
 - Automatic detection and correction of bearing turns.
 - Automatic detection and exclusion of "bad bearings".

2 Comparison with traditional methods

To demonstrate the performance of ASLA in comparison with the two traditional methods OMA and AOP a fictional but typical locating system consisting of four direction finders around Europe is investigated.

The following panels show the distribution of failed locatings as a function of the true sender location. Colors other than white indicate that the algorithm is gradually unable to perform locatings. It can be seen that OMA (top) has a reduced performance nearly everywhere (blue) outside its bearing basis while AOP (middle) completely fails in various regions (red). In contrast, the high reliability of ASLA (bottom) is clearly demonstrated.

OMA

To read the full version,

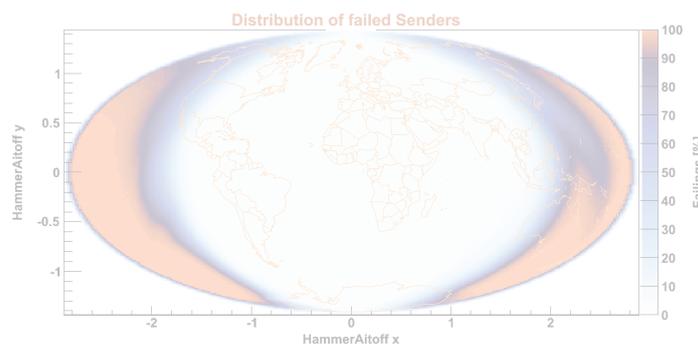
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AOP



ASLA

