

Localization Of Launch Sites Of Airborne Objects Using A Single Acoustic Array

ABSTRACT

5 The disclosed subject matter includes a system and method for acoustic-based
localization of airborne object launch sites using a single acoustic array. The technique
leverages object-specific acoustic signatures generated during launch, flight, and
impact phases to extract signal parameters for range and direction estimation. By
processing these parameters, the system identifies acoustic events and associates
10 signals with a corresponding object type. For detected events, the system calculates a
range between the acoustic array and the launch site based on an acoustic profile of
the identified object type, determines a direction from the array to the launch site,
and derives the launch site location from one or more calculated ranges and directions.
This enables cost-effective, portable, and reliable localization of launch sites, providing
15 actionable intelligence and enhancing defense capabilities in diverse operational
settings.

[Figure 1]