

ELECTRICAL ENGINEER

**INFRARED COUNTERMEASURE EFFECTIVENESS BASED ON SPIRITS
TESTS FOR THE F/A-18E
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As infrared missiles become more sophisticated, the development of defense countermeasures becomes more urgent. The Modeling System for Advanced Investigation of Countermeasures (MOSAIC) simulation tool is used to evaluate the countermeasure effectiveness of various defense tactics used in the end game of a missile attack. A major focus of this work is to test, via MOSAIC, the effectiveness of selected countermeasures of interest for the F/A-18E fighter aircraft against the Stinger Basic, SA-18, SA-16, and the AA-7D. The evaluation is quantified by the missile miss distance and/or hit versus kill record. A baseline flare sequence countermeasure, which consists of both MJU-27 and MJU-8A/B, was employed. This was done both with and without a constant 6-g turn maneuver in order to gauge the relative advantage of the maneuver for the F/A-18E. There has been significant community interest in a newer "test" flare sequence based on a combination of the MJU-27 and MJU-38. A comparison of the countermeasure effectiveness of the baseline flare sequence and the test flare sequence is presented. Selected tests were also performed in order to make an assessment of the impact of weather changes on the end-game outcome.

KEYWORDS: MOSAIC, SPIRITS, Infrared Countermeasures (IRCM), Modeling, and Simulation, Stinger, F/A-18E

