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### 反舰导弹末制导雷达最小方位搜索范围确定模型

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### Model on Confirming the Minimal Searching Angle of Terminal Guidance Radar of Anti-ship Missile

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摘要

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**摘要** 针对目前各国日益重视电子干扰而反舰导弹末制导雷达搜索范围却呈现逐步扩大的趋势,进行了最小方位搜索范围确定模型的研究。把目标机动范围和目标指示精度误差作为圆分布来处理,按照捕捉概率不小于0.99的要求,利用解析算法,建立了反舰导弹末制导雷达最小搜索范围确定的基本模型,并在把主要误差综合为目标指示精度和侧向横移两类误差的基础上,对模型进行了修正。对开机距离为30 km, 35 km和40 km时不同条件下高亚声速、超声速反舰导弹末制导雷达的最小方位搜索范围进行了仿真。结果显示,高亚声速反舰导弹末制导雷达的最小搜索范围在±40°之内,超声速反舰导弹在±27°之内,对应比某些现役反舰导弹末制导雷达的搜索范围要小。

**关键词:** 反舰导弹 末制导雷达 最小搜索范围 误差 捕捉概率

**Abstract:** In view of the fact that more and more importance is attached to electronic counter measures (ECM) while the searching angle of terminal guidance radar of an anti-ship missile is becoming widened, this article introduces a model to confirm the minimal searching angle of terminal guidance radar of an anti-ship missile. First, a basic model is established by means of an analytic algorithm according to the requirement that acquisition probability should reach no less than 0.99, and by supposing the target moving area in searching pie slice and the error of target indication precision as a circularity. Second, the model is improved based on a synthesis of the main error as an error of the target indication precision and an error of the moving horizontal distance to the side. Then, the minimal searching angle of terminal guidance radar of the anti-ship missile is simulated at a working distance of 30, 35 and 40 km on conditions of high subsonic and supersonic speeds. The minimal searching angle of the high subsonic speed anti-ship missile is found to be in the range between -40°and +40°while the range for the supersonic speed anti-ship missile is between -27° and +27°. This represents a smaller search range than that of certain in-service anti-ship missiles.

**Keywords:** anti-ship missile terminal guidance radar minimal searching angle errors acquisition probability

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