

A REVIEW ON STEALTH PRINCIPLES

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ABSTRACT

The principles about the reflection and absorption of electromagnetic wave propagation in solids are introduced to such as radar and infrared light stealth technology, so the stealth effect of light trapping mechanism is illuminated. Stealth materials are always composed of multiply films. The surface films are transparent ones with lower reflectivity to electromagnetic wave propagating in solids and the bottom films are high absorption ones either for radar or for infrared light. It is also described how to select surface films and bottom films, focusing on the relations to their dielectric constants, porosity (cavity), densities of free carries and vibrators, the species as well as the width of forbidden gap of semiconductors in order to get the best stealth effects so as to disclose stealth aircrafts. In addition, the applications of light trapping films and photon crystals in stealth technologies are briefly introduced.

KEYWORDS: Stealth Principles, Electromagnetic Wave, Infrared Light, Reflectance, Absorption, Light Trapping Mechanism, Stealth Aircrafts