Terms of Reference
Electromagnetic Gun Technology Assessment

Objective

The objectives of this review are to provide a technical assessment of the status of Electromagnetic Gun (EM) technology and the potential for achieving the revolutionary performance associated with this concept for Naval Applications

Background

The EM Gun offers the potential to achieve extremely high velocity projectile launch capability which, in turn, holds the promise of significantly increased range, and projectile lethality. The potential associated with an EM gun on a Navy Combatant, such as an Electric Warship, and USMC land vehicles is promising enough to warrant consideration for application on the DDX (and other future all-electric warships) and future USMC vehicles.

Specific Tasking

This NRAC assessment will accomplish the following:

A. Review and document the performance capabilities considered necessary to achieve a militarily effective EM Gun system. At a minimum include projectile mass, velocities, and rate of fire required to achieve required lethality and range capabilities. Discuss the foundations on which these criteria are based and the efforts necessary to ensure confidence in same (ie the extent to which theory has been or will be validated by experiments and testing).
B. Review and assess the currently demonstrated and projected performance of those technologies necessary to field a durable EM gun with predictable, repeatable performance that satisfies the criteria identified in (a). Identify the technology barriers that may impede achieving these criteria; the adequacy of these efforts, potential work-arounds, and other factors that may reduce risk, schedule, and cost.
C. The assessment should evaluate the ability to produce a projectile with electronic systems that service and perform effectively the launch environment – loads, EMI, magnetic fields, etc. – as well as performing throughout the flight to target.
D. Rough order of magnitude cost estimates for the non-recurring general projectile development

Provide a status report on findings to ASN (RDA) on 1 August 2003