

Research Activities of the German Ministry of Defense (MOD) on HPM Weapon Technology and EME

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The necessary process of advancement of armed forces is driven by technology, which requires maintaining and improving national competence in judging and advising. To make suitable, intelligent and economic decisions for concepts and armament, scientific and technological knowledge in all relevant fields of technology needs to be provided.

The research program of the German MOD on HPM / EME has been established in the early 90s. This program combines research projects of governmental agencies with contracts provided by the MOD for universities, private institutes and the industry.

In the last years the activities in research and development of HPM-systems have generally been focused on pulsed narrowband, ultra-wide and wide-band sources, on single shot and repetitive sources with the goal of investigating different technologies and establishing a demonstrator source.

In the field of electromagnetic effects (EME) fundamental studies of coupling mechanisms have been initiated, sponsored and supervised by the MOD, studies based on numerical simulation as well as measurements performed on real and generic systems (GENEC).

The information gained from these data is completed by research studies on the vulnerability of entire systems, smaller devices, electronic subsystems and components. Systematic measurements of threshold values for upset or damage and their interpretation provide valuable information for both developing sources for various scenarios and for hardening measures of existing and future systems.

Many of these activities are embedded in international cooperation projects.