



Doctoral Thesis in Electrical Engineering

Protection of Complex Infrastructure Systems against Intentional Electromagnetic Interference

PER ÄNGSKOG

Costs for Hardening against Attacks The application of protective measures is usually referred to as hardening the equipment or system against IEMI. To harden facilities, ranging from individual pieces of equipment to complete buildings, against IEMI (high-frequency threats such as HPM and the HEMP E1 pulse) will add costs on the order of **3-4%**, [63], or **5-10%** according to [64], given that the hardening measures are included prior to the construction.

To retrofit, the corresponding protection measures on existing facilities will add about **10 to 20% of the total cost** [63], or even more than **30%** according to [64].

[63]. W. Radasky, "The Role of Electromagnetic Shielding in Dealing with the Threat of Intentional Electromagnetic Interference (IEMI) - Oral Presentation." Torino, Italy, 2015.

[64]. B. Piemonte, "Protection Solutions for Electromagnetic Pulse (EMP)," presented at the EMP/HEMP Detection, Protection, and Resilience Strategies, Dec. 10, 2020. Accessed: Dec. 10, 2020.

<https://attendee.gotowebinar.com/recording/8476541265527097089>