



Revised threat from high-power electromagnetic waves

The Swiss armaments procurement agency already knew about Nuclear Electromagnetic Pulse (NEMP) 50 years ago, thanks to the strong contacts between ETHZ and American research institutes. During this time, the relevant US protective measures against ground-level detonations have been applied in Switzerland. However, the electronic problems which would be caused in Switzerland by such explosions are negligible; for this reason, NEMP protection is only provided against detonations at high altitudes between 40 and 100 km.

During this period, over 400 practical NEMP and high-power electromagnetic (HPE) tests on defence equipment have demonstrated that the effects are less severe than hitherto assumed.

The HPE laboratory in Spiez has developed its experience and knowledge of this subject over a period of several decades by means of its test and measuring equipment, as well as conferences and an international network.

Today, the threats include NEMP, lightning and Intentional Electromagnetic Interference (IEMI), the non-nuclear further development of pulsed microwave radiation, all of which come under HPE. S+T possesses the required technical expertise in the field of electromagnetic compatibility (EMC), and also as regards procurements by armasuisse, the DDPS's customers and for international standardization. The electronic devices have also been improved and now display greater interference immunity. Tests in which the most powerful existing laboratory sources have been applied to modern unprotected operational systems have only generated malfunctions which could be rectified by disconnecting the power plug.

The standards committee has now also come to a similar conclusion in its IEC 61000-5-10 working paper. Implementing it during procurement and jointly with armasuisse Real Estate on construction projects should now be directed towards simpler, more appropriate and more balanced protection depending on the required degree of system availability.

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Figure: test environment for the Tiger F-5