

RECENT DEVELOPMENTS IN CONSTRUCTING FAST-PULSE GENERATORS

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Recent developments in the research fields of Nuclear Electromagnetic Pulse (NEMP) and High Power Microwaves (HPM) created a demand for tests with pulsed electromagnetic fields with very short pulse-rise times. To conduct tests for NEMP and HPM in combination with other EMC phenomena, TNO-FEL used its existing NEMP simulators. To accommodate the new demands, changes to these simulators were necessary.

The paper describes the analysis and experiments to combine high-voltage pulser techniques with high-frequency behaviour. The transition from the pulser to the wave-launcher antenna and the high-voltage insulation are explained. Also attention is paid to the encountered problems and their solutions. The paper highlights the choice for a particular configuration, given the technical and financial constraints of the project. Finally, measured results of the electromagnetic fields that can be generated with the new simulators are presented.



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