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Status of a 140 kV Solid State Marx modulator

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In the framework of a collaboration, CEA and CERN are working on an air insulated solid state pulse modulator to drive LEETCHI electron gun, source of future high current, long pulse RF accelerator. The requirements are pulses in the range of 140kV (1% flat top), 10A, 150µs width, at a repetition rate up to 50Hz and a reproducibility pulse-to-pulse better than 10-3. The proposed modulator is based on a Marx topology which employs standard solid state components. This topology is of particular interest in reducing size and cost. It has also the main advantage of transformerless operation. We describe here the status on this modulator with the most recent experimental results and repeatability analysis.

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