

## ACTIVE QUASI-OPTICAL Ka-BAND RF PULSE COMPRESSOR

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### *Abstract*

Experimental investigations of an active Ka-band microwave pulse compressor are presented. The compressor is based on a running wave three mirror quasi-optical resonator utilizing a diffraction grating whose channels embody plasma discharge tubes as the active switch. The principle of compression is based on quickly changing the output coupling coefficient (Q-switching) by initiating plasma discharges in the grating channels. Excitation of the resonator was achieved with a few 100 kW of 34.29 GHz microwaves in 700 nS pulses from the magnicon in the Yale Ka-band Test Facility. A power gain of at least 7:1 in the compressed pulse with a duration of 10–15 ns was achieved.

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