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Development of an Efficient Nanotube-Driven Amplifier[1] JOSE VELAZCO, JESSE BAKER, Microwave Technologies Inc., PETER CEPERLEY, George Mason University, PETER JAFFA, Microwave Technologies Inc., MTI TEAM — We are developing a compact two-cavity amplifier that uses a rugged carbon-nanotube cold-cathode to produce microwave radiation with very high efficiency. The entire RF circuit and electron gun have already been built and are currently under testing. We will present preliminary experimental results of electron beam generation and transport along the C-band RF circuit. This new amplifier should be capable of replacing conventional traveling-wave tubes in future radar and communication systems by offering substantial improvements in size, weight, and especially efficiency over its counterparts.

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