

SUPPLEMENTAL INFORMATION
REGARDING BAE SYSTEMS TRANSMITTER

The transmitter system is a custom designed unit for use by the U.S. Army under contract W9113M-13-C-0018. The transmitter generates a short impulse of only 5 nanoseconds duration which is radiated by a 1 x 10 linear array of discone antennas. The design and use of the current system is to propagate RF energy into the ground in order to accomplish counter Improvised Explosive Device (C-IED) missions. In general, elements of the transmitter are used in military applications that include: Electronic Warfare, High Power Microwave Weapon Systems, and survivability testing of equipment in microwave environments.

The generation of the RF signal is done with a nonlinear transmission line (NLTL). The specifics of the RF generating technology have been deemed Critical Program Information (CPI) by the U.S. Army and no further information can be provided without consent of the Army Program Office:

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The antennas are also custom designed for this application. Their arrangement is with the long axis parallel to the ground with an added reflector above them to transmit the energy down into the ground. For this product, every attempt is made to put all the energy down into the ground as any other energy is wasted.

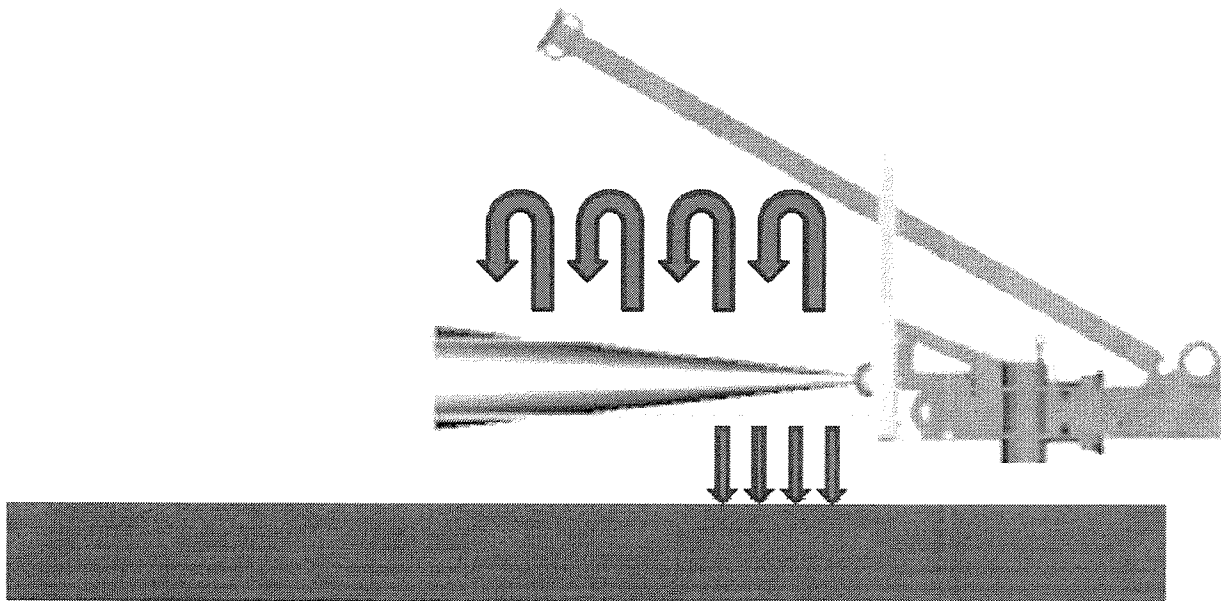


Figure 1. Antenna hardware and RF signal propagation. The blue arrows indicate the direction of RF signal propagation. The lower arrows direct energy into the ground, while the upper arrows first reflect off the metallic plane and then reflect the energy back into the ground. The box under the antenna contains 12 inches of soil that also absorb the energy.

The Army has developed a test plan for this unit, including the RF testing elements. The diagram and explanations above are paraphrased from that document.