

The Texas A&M transmitter is a small single shot device operating on the principle of flux compression to achieve current gain. Initially, a seed current is created in a solenoidal coil by a discharge of an energy storage capacitor through the coil. This seed current sets up a magnetic flux around the solenoidal structure that is then collapsed under the force of a small explosive charge at the appropriate moment. This collapse of the current-carrying coil leads to a compression of the magnetic flux and subsequent gain in current available at the output leads of the unit. The generator is configured so as to be part of a resonant circuit. This resonant circuit is attached to a dipole or loop antenna to facilitate radiation of an oscillatory waveform. Since the transmitter and antenna are effectively destroyed upon emission of the pulse, subsequent transmissions for the experimental program will be accomplished via replacement of the original transmitter and antenna with an identically manufactured unit.