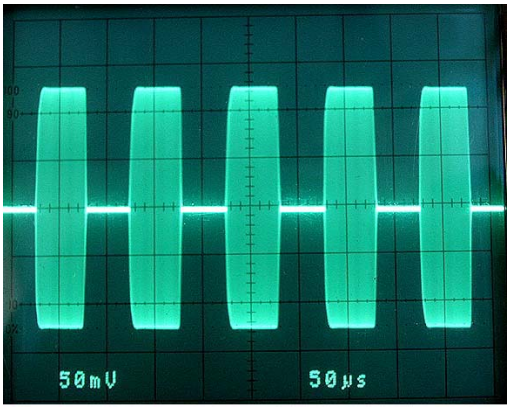
Operational Description OM-1

The OM-1 is a high level AM transmitter operating on the ISM band at 27.125 MHz. The OM-1 is designed to be driven into over-modulation using square wave audio modulation. The intent, is the production of a pulsed wave output. This output will have a significant percentage of the total power of the transmitter being located within the sidebands and not within the carrier. The OM-1 can be used for stand alone operation, or with amplifiers which have appropriate RF harmonic limiter circuits. The majority of the transmitters power is located within the side bands making the demodulated signal of the OM-1 extremely intense.

The output of the OM-1 could be compared to that of a gated CW transmitter. A gated CW transmitter will have only 25 to 33% of it's total power located within the sidebands. The other 2/3rd of the CW transmitters power is in the carrier. Meaning to achieve the same demodulated signal strength on a watt per watt basis, the CW transmitter is less than half as efficient as the OM-1. The demodulated signal strength from a 80 watt P-P gated CW transmitter would be equaled by the 30 watt P-P power of the OM-1. The extreme over modulation utilized by the OM-1 makes it useless for voice communication. The use of square wave modulation means the demodulated signal should also be a square wave, and thus undistorted. The OM-1 needs a minimum 50% duty cycle square wave for proper operation. Best results are obtained with a 70% duty cycle square wave. The pulse envelope formed by over modulation is not overly responsive to the duty cycle of the modulating square wave. The maximum output pulse width will approximately have a 55% duty cycle.



Pulsed Output of the OM-1