

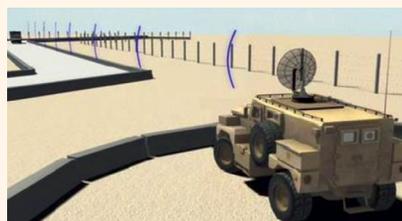
## HIGH POWER RADIO FREQUENCY PULSED SOURCE

The US Military relies on directed energy weapons to disrupt, damage or destroy adversary electronic equipment at a distance while maintaining collateral damage. Directed energy weapons of interest include high-energy lasers and high-power microwave/radio frequency (HPM/HPRF) sources.

Metamagnetics' ferrimagnetic Nonlinear Transmission Line (NLTL) offers an effective alternative solution to large and expensive traditional vacuum-based HPRF sources. Unlike traditional HPRF systems, Metamagnetics' ferrimagnetic NLTLs are drastically smaller and light weight; enabling employment of practical HPRF systems on ground vehicles and aircraft- increasing mobility. Metamagnetics' NLTL provides the added benefit of frequency tunability which reduces costs compared to large and expensive traditional HPRF systems.



**Fig. 1.** Metamagnetics Ferrimagnetic non-linear transmission line (NLTL) is an all solid-state solution comprised of a planar design and compact footprint.



**Fig. 2.** NLTL allow for ground penetrating radar technology and the detection of IED's, to disrupt/destroy electronic triggers, initiate premature detonation, and inhibit radio-controlled detonation.

### Features

**Frequency Agility:** The frequency radiated from the NLTL can be altered in real time enabling one system to be used for a broad range of targets and operational scenarios on the battlefield.

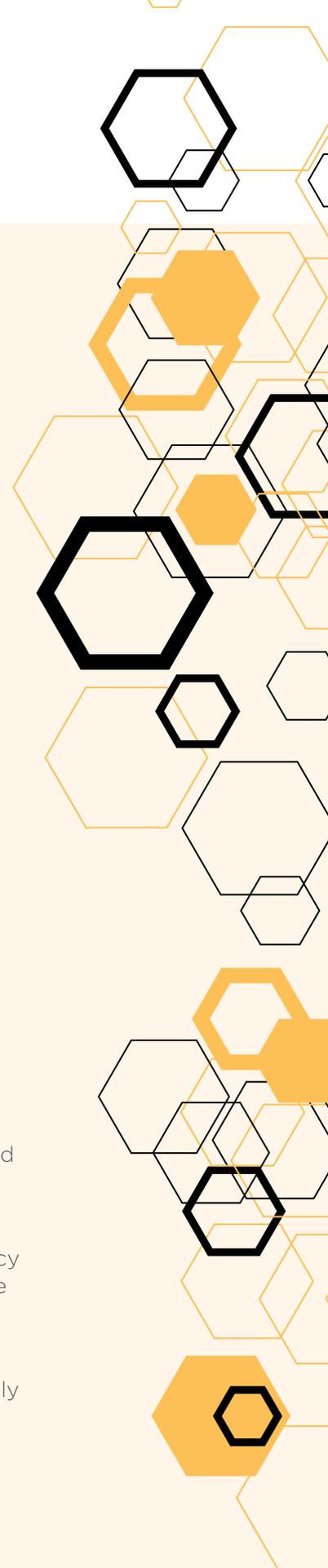
**Solid-State Technology:** Solid-state components allows for improved reliability and longevity of the NLTLs.

**Mobility:** Metamagnetics' use of cost-effective solid-state componentry increases reliability and eliminates expensive and bulky vacuum components utilized in legacy HPRF systems. As Such, Metamagnetics systems are compact, lightweight, reliable and suitable for incorporation on ground vehicles as well as aircraft- increasing mobility.

**Dynamic Tuning, Innovative Waveforms:** Signals can be tailored to more effectively disrupt targets enabling dynamic adaption and higher success rate per system.

**Reduced Heat Generation And Electrical Energy Consumption:** To improve the power efficiency and further reduce the weight and size of the system, Metamagnetics' planar NLTL features permanent magnetic biasing system instead of current-driven solenoids.

**Power:** Capable of levels of 10 MW power, at a minimum, and rep-rates on the order of kHz in the frequency range of VHF to S band.



## Mounting

The HPRF system is composed of three major sections. The HV source generates the power, the RF source (NLTL) converts the power to microwaves, and the antenna which radiates those microwaves out at the target. Metamagnetics' NLTLs can be coupled directly to a variety of high voltage sources (spark gap, solid state) and antennas using high voltage connectors.

## Options

- Coaxial Ferrimagnetic NLTL
  - Higher ranger of frequency tuning
  - Custom sizes available
- Planar Ferrimagnetic NLTL
  - Smaller footprint
  - Higher peak power
  - Custom sizes available

**Contact us today to learn more about our ferrimagnetic NLTLs.**

\*This item is ITAR controlled

### ABOUT METAMAGNETICS

U.S. based and veteran owned, Metamagnetics develops and markets advanced RF and microwave solutions to enhance the performance and effectiveness of mission-critical security, surveillance and communication systems. Our unparalleled knowledge of electromagnetism and materials science empowers break-through technologies that can bring significant value to defense and commercial projects. Efficient and agile, our team can help you rapidly design and deploy innovative solutions for current and next-generation radar, sensing and related systems.

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