

# NASA SBIR/STTR Technologies

O1.05 DD-Amp for Deep Space Communications

Donald Kimball

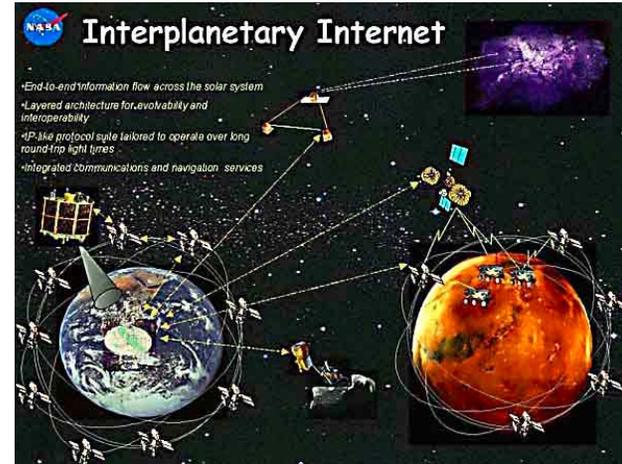
MaXentric Technologies, Ft Lee, NJ



In October 2005 NASA's Mars Reconnaissance Orbiter (MRO) set the single day data return record for a planetary spacecraft. All these were accomplished over a 32-GHz Ka-band link. MaXentric is working to further NASA's progress in this area by developing high efficiency low-mass high power amplifiers to facilitate even higher throughput required for NASA's next generation deep space missions.

Expected TRL Range at the end of Contract (1-9): 6

- High Power Added Efficiency (PAE): **>60%**, **10W-50W** output power amplifier, **150W-1kW** output power amplifier, Designs for **X-band** 8.4 GHz and **Ka-band** 26 GHz, 32 GHz and 38 GHz
- Obtained device models, Created simulation test benches, Simulated devices in switch mode topologies, Calculated size, weight, and power of amplifier modules, Conducted trade studies on combiners topologies, Simulated chosen combiner topologies, Simulated combiner with power amplifier models, Designed, Built, and Tested single ended prototype X-band high power amplifier in GaN



## NASA Applications

- Deep Space Network (DSN)
- Universal Space Transponder (UST)

## Non-NASA Applications

- Military Radio Platforms:
- Unmanned Aerial Vehicles
- Commercial Basestations

MaXentric Technologies, LLC  
2071 Lemoine Ave, Suite 302  
Fort Lee, NJ 07024  
Phone: (201) 242-9800

**NON-PROPRIETARY DATA**