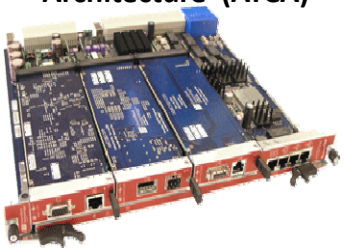
476 Highland Colony Parkway
Ridgeland, MS 39157

3 December 2008

Diversified Technology, Inc. (DTI)
Five Areas of Concentration

Advanced Telecommunications Architecture (ATCA)



- ATCA Switches
- ATCA Nodes
- ATCA Platforms
- Full Integration
- Custom Carriers

Simultaneous Field Radiation Technology

High Performance Computer Initiative

High Performance Computer System w/Cognitive Computing software : near, real term Command and Control; (interactive, graphical, and geospatial battle space awareness) for critical complex systems, e.g., counter-IED.

Architecture will meet Mil Stds 1553, 810 and 461E.

The performance bar has been set to the Cray XT5™ Supercomputer

Next?
The Cognitive Radio – another opportunity your community to leverage off of

On-Board Vehicle Power (OBVP)

•Offers 10 KW, 208 VAC or 120 VAC @ 50Hz, 60Hz or 400Hz from a single piece of equipment.

- Multiple Modes of Ops.
  - Battery
  - Stationary
  - Mobile
- Alternate power from Fuel Cell and Rotary Engine technology
- Modular

Power Electronics

- Acquisition of Tier Electronics

•Ultra Light UAV Sensor Platform (ULSP) Program.

•Endurance
- 36 Hours (Powered Flight)
- Greater than 100 Hours (Powered/Gliding Flight)

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DTI offers traditional Family of System product(s)

DTI offers interoperable products for Complex or System of Systems

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DTI's Approach to System of Systems

Computing Power Needed in Today's Data Rich Environment

Coverage for the Homeland

UAV Technology
Gliders allowing for up to 100 hours over the AOR with Fuel Cell (JP-8) Power Source

2 – 6900 MHz SCWA
SFRT tunable antenna component options

DTI's VPS-10K
Vehicle Power System

POWER PATH

- Software Defined Radio
- Cognitive Radio Component
- HPCS Component
- Smart Antenna
- Cognitive Engine for Pattern Resolution and Predictive Analysis

Synchronizing the COP

28 VDC 400 Amp Capable Vehicle

COMMUNICATION PATH

DTI's System Interface and Speed Controller

3 Phase (120/208 VAC, 50/60/400 Hz) 10 KW Peak (7.0 KW Continuous)

DTI's High Performance Computing Initiative

STANDARD METRICS FOR PERFORMANCE OBJECTIVES AND PROPOSAL EVALUATION

System must meet Mil Std.'s 1553, 810 and 461 E. Improved Software Tools and Methodologies.
A baseline of performance is set at the Cray XT5™ Supercomputers to Enhance Military Research and Development Efforts.

DTI's mantra:
Products and R&D efforts result from a federated approach

- Designed, built and integrated under common guidelines and principles.
- External interfaces - risks from a Systems Engineering perspective, are considered every day, all day.

DoDAF, CMMI and S.E. processes are the order of the day!

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A high voltage is developed across the radiating elements causing a large E field, which in turn produces an H field.

These fields are in phase at the antenna and have the proper physical configuration to allow radiation to develop.

Because the fields are integrated in this manner, the antenna's radiation resistance is high and the loss resistance in the tuning coil is low. The result is a highly efficient solution.

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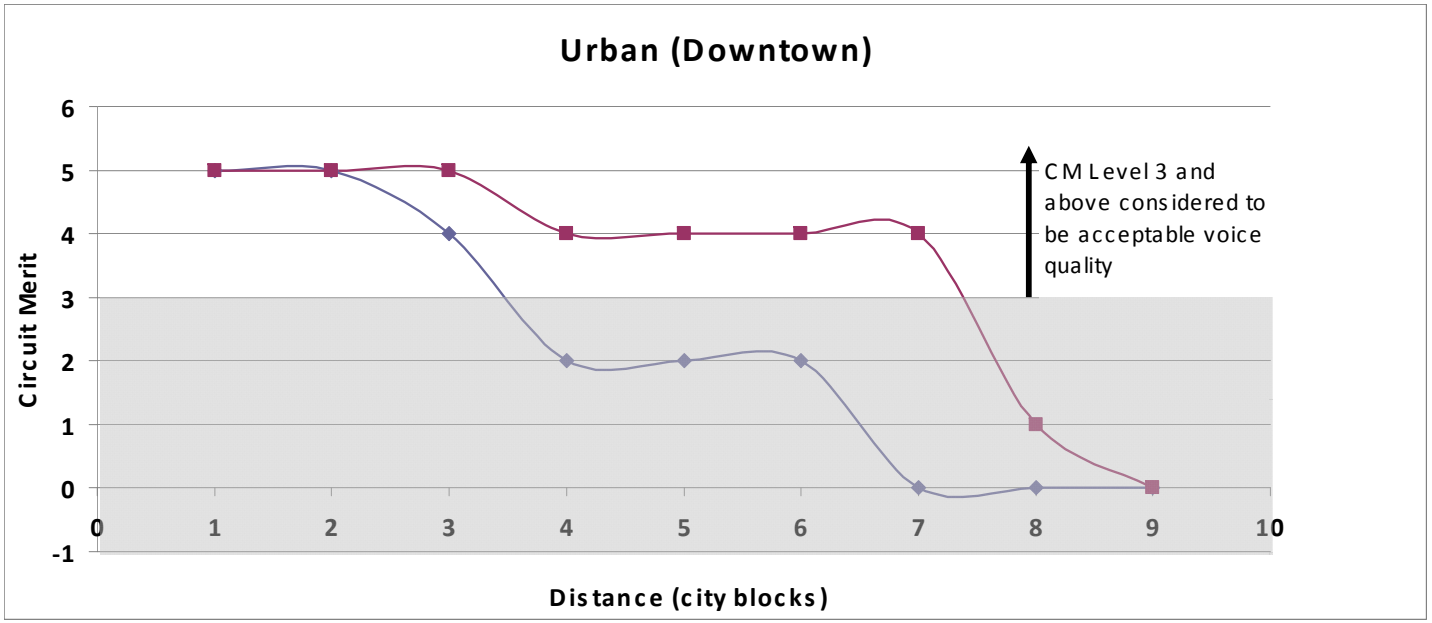
The unique features of an SFRT antenna are:

- High efficiency
- Broad instantaneous bandwidth
- Very small size
- Virtual elimination of EMI
- No harmonic radiation
- Reduced sensitivity to polarization

VHF Portable Radio Antenna 136-174 MHz

OEM vs. SFRT on Motorola XTS 5000
- 3rd Party Urban Test in downtown Manhattan
- Diagonally Across City Blocks

OEM usable range = 3 city blocks
SFRT usable range = 7 city blocks



Upcoming chamber test and field trials with SPAWAR

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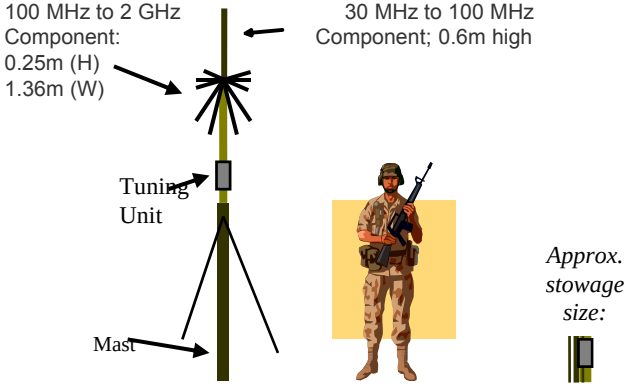
Smart Composite Wideband Antenna (SCWA) Applications

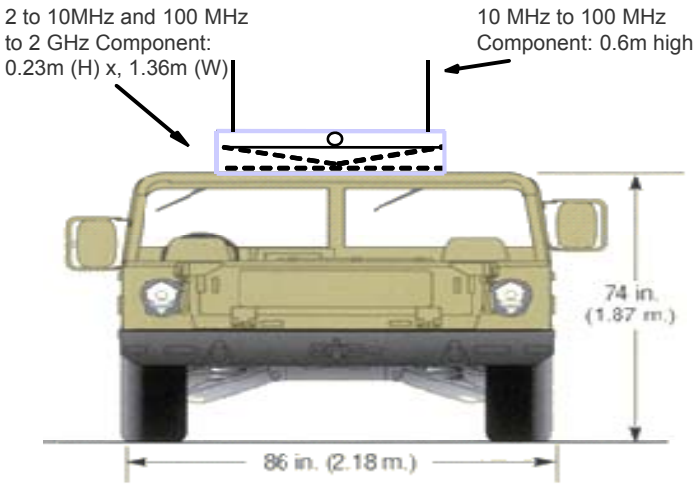
Initial antenna concepts developed in conjunction with:

The University of Mississippi (initial R&D and M&S)
Electro-science Laboratory at Ohio State University (current development)

Dismounted application
(w/ wire discone)



Vehicle application
(w/ conical antenna)



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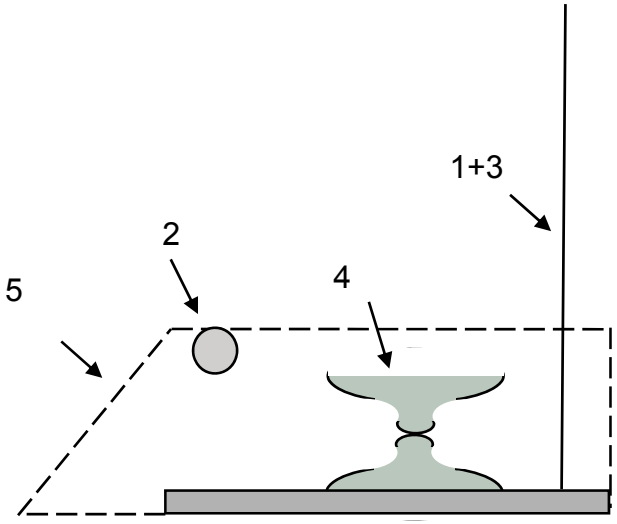
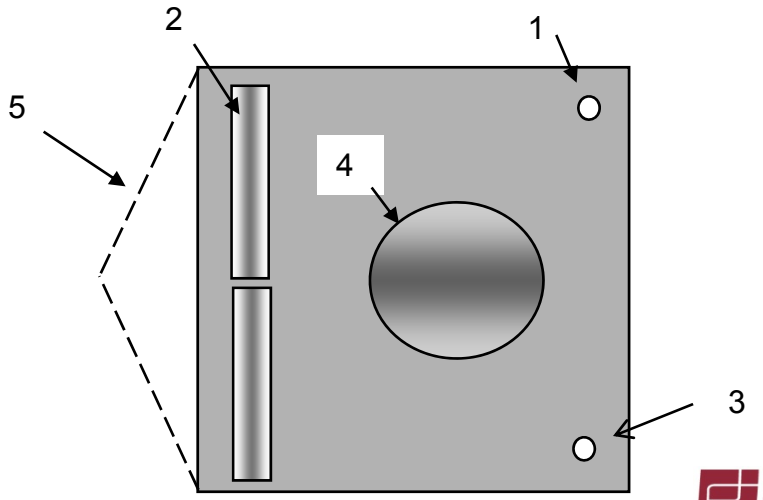
Smart Composite Wideband Antenna (SCWA) – 2 MHz to 2 GHz

1) 2 MHz to 100 MHz vertical whip antenna to allow instantaneous reception over the specified frequency range.
2) 2 to 10 MHz horizontally polarized antenna for NVIS communications
3) 10 to 100 MHz vertical whip antenna for ground wave communications.
4) 100 MHz to 2 GHz conical antenna.
5) Enclosure which also contains the 10 MHz to 100 MHz communications antenna tuner, the 2 MHz to 100 MHz receiving preamplifier / impedance converter, impedance matching network for the conical component, and the tuning network for the 2 MHz to 10 MHz component.

The dashed lines indicate a fiberglass enclosure for the antenna system.





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Overview of the SFRT antenna design for Hydra (what drove us to even get started)

1) The UHF version is about 10% the size of a conventional dipole. Given discussions at the last IVC Symposium, I took a picture of one and sent it to SPAWAR Reps.

2) Their interest spurred the SFRT project team to design an antenna for the Hydra frequency range
   - 380 – 420 MHz

3) Developed for use with 50 ohm TL and RTL
   - Vibration testing performed per MIL-STD-810F for shipboard applications

4) Results:

Gain over OEM antenna	2 - 3dB TYP
Nominal impedance	50Ω
Instantaneous Bandwidth (2.0:1 VSWR)	40 MHz
Power Handling	10W MAX.

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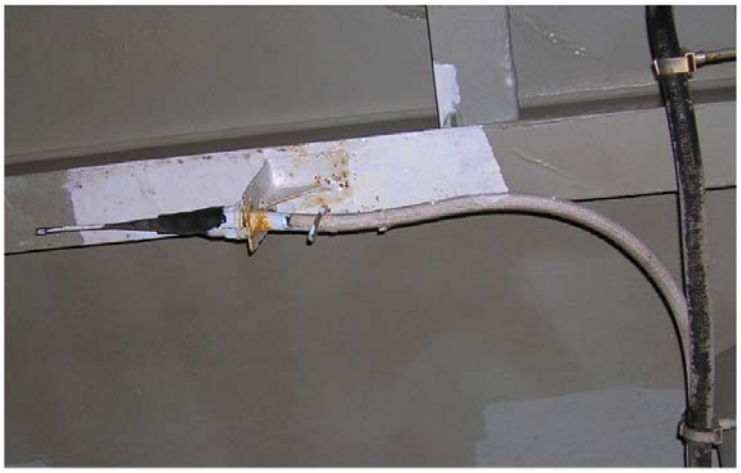
Comparative Testing on HYDRA RTL Network
USS Carter Hall (LSD 50) Norfolk, VA
June 4-5 '08

Control Channel Results:
Single frequency measurements at 395.575 MHz
Improved radiation over OEM: average of 3 dB

Return loss measurements: 2-4 dB improvement, indicating a better 50 ohm match

Sweep Data Results: 380 – 420 MHz
Return Loss: 2-12 dB improvement
Radiation: .6 – 3.1 dB improvement



OEM

SFRT

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Install / functionality test on HYDRA RTL Network
USS Rushmore (LSD 47) San Diego, CA
October 20-21 '08

Control Channel Results:
Single frequency measurements at 395.575 MHz
Improved radiation over OEM: average of 3 dB

5 units installed and remain in service

OEM stub antenna, disconnected for removal

SFRT Antenna, installed and in service

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Comments after the testing on USS Rushmore:

- What you‘re showing is an average improvement in field strength of 60%

- A huge improvement - it makes a 20 mW portable radio have the same performance as a 40-50 mW radio.

- Recommend getting one of these installed on the mast as soon as you can to determine how well it handles the exterior environment.

Next steps:

- Install antennas on a large deck

USS George Washington CVN-73

USS John Stennis CVN-74

- Mast antenna: install and test to see how well the antenna handles the outside environment

-UHF-VHF Linker: DTI is developing a VHF version for delivery to Hydra engineering team.
Initial test results expected to be similar to the VHF numbers described earlier.

- Anechoic chamber testing being scheduled @ SPAWAR, Charleston, Code 58340

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Summary

An efficacious antenna for the UHF portion of Hydra

- more installs to follow

Developing a VHF version for evaluation

Mast installation

SFRT web site: www.dtirfsolutions.com