Multiband / Multimode Radio (2005-IJ-CX-K018)
FA1 (Next Generation Interoperable Voice Communications)
S.W. Ellingson (ellingson@vt.edu)
Project End Date: September 30, 2008

Technology

Low-cost radio capable of operation over a large range of frequency bands now in use for public safety applications.

Key Deliverables

- Phase I Rep. (TR#15, Oct 1, 2006)
- Phase II Rep. (TR#23, Oct 5, 2007)
- Phase IV Rep. (due Jul 1, 2008)
- Final Rep. (due Oct 1, 2008)
- Public demo scheduled for 2008 Wireless @ Virginia Tech Annual Symp. & Wireless Summer School
- Publications:
  - Article in MissionCritical Communications, March 2007
- Project Web Site (incl. all deliverables): http://www.ece.vt.edu/swe/chamrad/ (Currently 25 technical reports)

Vendor/Research Program Contributions

- Using RF Integrated Circuit (RFIC) tranceiver technology developed by Motorola Research Laboratories
- Description of RFIC: Cafaro et al., Proc. IEEE RFIC Sym., June 2007
- In communication with Tyco Electronics (M/A-COM) and EF Johnson
- All design information and other products from this project freely available to anyone via project web site (see above right)

VT Transceiver Board using Motorola-Provided RFIC
4 RX Paths, 3 TX Paths
100-2500 MHz tuning
6.25 kHz – 10 MHz BW

Law Enforcement Impact

- Interoperability with multiple networks simultaneously without prior coordination or infrastructure-based interoperability devices such as cross-band repeaters
- Portable battery-powered prototype system (see above right) available for demonstration beginning Summer 2008. (Field evaluation by users would require additional effort on packaging)
- Challenges Remaining:
  - Antenna size & integration
  - Increasing transmit power
  - Technology transfer