



Joint Program Executive Office Joint Tactical Radio System

SDR '11 Govt R&D Workshop – R&D Goals for Joint Tactical Radio System



30 Nov 2011
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JPEO JTRS

Statement A – Approved for public release. Distribution is unlimited (28 Nov 2011)



Future Trends Affecting Joint Tactical Networking

- **Austere fiscal environment**
- **Congested and contested RF Spectrum**
- **Ever increasing size, weight, and power (SWAP) burden on both dismounted soldiers and vehicles**
- **Interest in leveraging COTS Smartphones for tactical employment**
- **Demand for more precise navigation and timing**



Austere Fiscal Environment

- **Cost as driving factor in networking capability**
 - **Shift to COTS/NDI vice Government R&D investment**
- **Achieve similar capability with lower cost technology solutions**
 - **Innovation to achieve reduction in recurring costs**
 - Lower cost SAASM GPS receivers, e.g.
 - **Waveform efficiency improvements to meet existing requirements with less capable, less costly hardware**



Congested and Contested RF Spectrum

- **Spectrum Auctions & Ever-increasing #s of Systems**
 - **Precious commodity – reduced supply, increased demand**
 - **Systems must use available spectrum more wisely**
 - **Systems must become more efficient in spectrum utilization**
 - **Systems must become more agile in spectrum usage**
- **Co-located RF Systems must interoperate**
- **Links must reliably close in challenging environments**
 - **Severe multipath conditions, RF interference**



Size, Weight, and Power

- **Burden on dismounted soldiers and vehicles grows**
- **Lighter weight and longer lasting batteries**
- **More efficient power amplifiers**
- **Consolidation of components to reduce hardware form factors**
- **Improved performance, consolidated antennae systems**



Leveraging COTS Smartphones

- **Security Architectures to enable employment of COTS devices at Controlled Unclassified (CUI) and Secret and Below (SAB) network security levels**
- **Interfaces to seamlessly coordinate between Smartphones and Military wireless networks instead of existing 3G/4G/WiFi RF front ends**
- **Configuration Management to handle varied COTS Smartphones and their applications running on Military networks**



Precision Navigation and Timing

- **Precise network time is a key enabler for a wide variety of tactical networking capabilities, particularly in degraded network modes**
- **Low-cost, highly accurate oscillators**
- **Low-cost, low SWAP SAASM GPS receivers**



Summary

- ▶ JPEO JTRS R&D Agenda is targeted at making the existing tactical network operate even better and to leverage the network to accomplish new capabilities to address warfighter capability gaps
- ▶ Current fiscal environment drives focus on leveraging existing industry investment, COTS solutions, and driving cost out of current generation of hardware
- ▶ JTRS technology development and insertion process uses Small Business Innovative Research (SBIR) vehicles as well as Industry partnerships to advance tactical networking capabilities



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