AWIN the Arkansas Wireless Information Network

Arkansas' Approach to Deployable Aerial Communications

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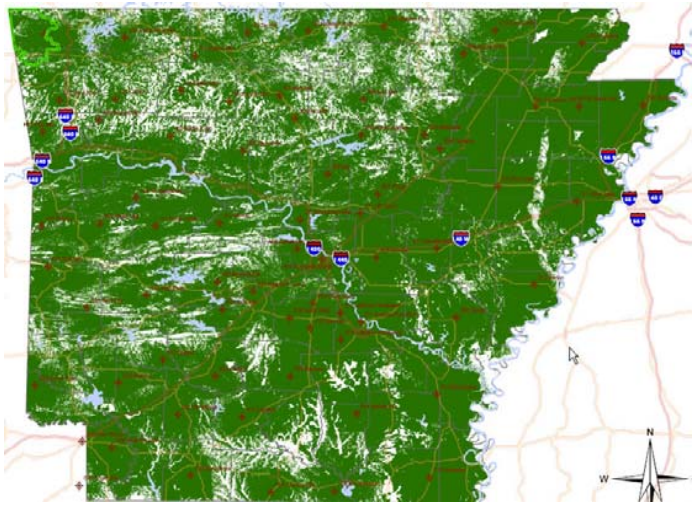
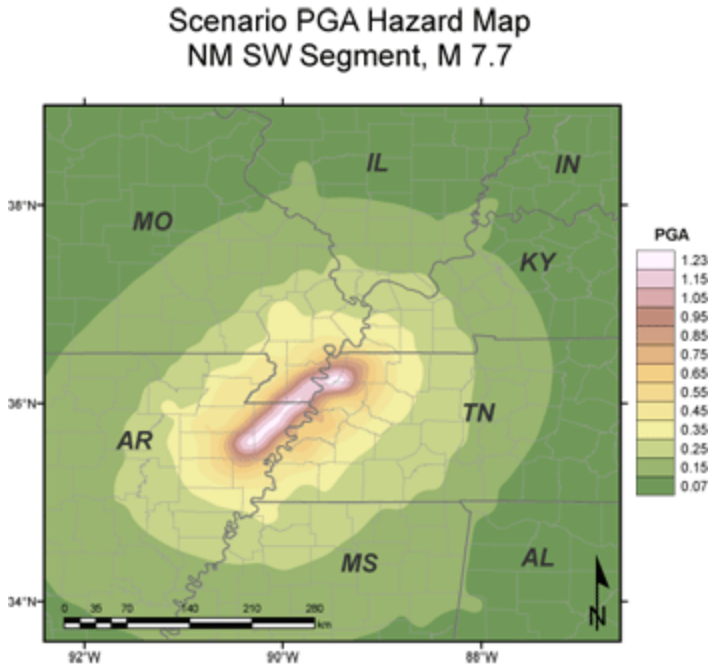
About AWIN

•The Arkansas Wireless Information Network (AWIN) supports 17,000 first responders statewide.
•923 agencies use AWIN; 810 agencies are city or county
•Arkansas State Police is the largest agency on AWIN
•Use is distributed between law, fire, emergency management and emergency medical
•Each radio is required to be programmed using state and federal interoperability channels.

•AWIN Operations is responsible for 24X7 maintenance and customer support
•AWIN Goal – Arkansas' First Responders are *never* without the ability to communicate



Why Aerial Communications?



The State of Arkansas desires to make use of aerial telecommunications in order to provide a layer of redundant communications in the event of a widespread failure affecting the physical infrastructure of the AWIN system.

The New Madrid Seismic Zone (NMSZ) extends from southern Missouri to northeastern Arkansas and has the potential to produce damaging earthquakes. The possibility for a large earthquake in this now densely populated area is recognized by scientists and government officials.

Aerial communications would provide a layer of redundant communications in the event of a widespread failure of the AWIN system. An event, such as an earthquake on the NMSZ, could potentially cause just such a catastrophic failure.

Technology

The equipment in use is commercially available, not a custom built solution.

•Motorola PDR3500 'suitcase repeater'

- Quantar platform
- Base station or repeater
- Conventional Project 25 compliant (optional)
- Transparent to Digital Encryption Operation
- Analog, or ASTRO operation in conventional systems
- Programmable system configurations
- Weight: 43 lbs.

•Can be rapidly deployed and mounted:

- Top of an existing building
- Top of a mountain
- **Installed in an aircraft**

Proof of Concept

Testing initiated by Arkansas State Police to ensure this kind of approach would provide the wide area communications to support first responders.

Test Scenario:

- Tested on one National Interoperability Repeater Channel in the 800 MHZ range
- Equipment was flown in a C130 at 6000 to 9000 feet
- Flight path from Walnut Ridge, Arkansas to Harrison, Arkansas
- Roll Call to Troop HQ was performed to ensure statewide coverage
- Test lasted 2 hours

Lessons Learned and Best Practices

- Long range communications at 800 MHz is possible on a conventional frequency
- No reports of interference
- Communication was clear with little noise or distortion
- Antenna mounting location needs to be on the bottom of the aircraft to reduce/eliminate signal drop
- Radio personnel were not required to be onboard to operate the equipment

Looking Forward

- Work with Civil Air Patrol to train and perform additional tests
- Research and test the use of:
  - Radio controlled drones
  - Blimps
  - Deployable cellular equipment