MissionCritical Communications

NTIA ITS Conducts Voice over LTE Tests (1/30/13)

The National Telecommunications and Information Administration (NTIA) Institute for Telecommunication Sciences (ITS) is testing voice communications over Long Term Evolution technology that could be used in the new nationwide public-safety broadband network.

Congress directed that the new public-safety network use Long Term Evolution (LTE) radio technology, a developing commercial network standard for broadband transmission. The public safety community identified LTE as the most promising technology to satisfy its growing need for advanced communications capabilities. As a result, voice communications for first responders will migrate to LTE networks using voice over LTE (VoLTE), a digital protocol under which the network handles voice as just another form of data. ITS is working with the public-safety community to ensure that mission-critical voice transmission using this new technology is at least as clear to practitioners in field conditions as current technologies.

When the first digital LMR appeared in the public-safety market, firefighters reported that some of the unique environmental conditions associated with firefighting appeared to be problematic for digital LMR. ITS joined with other government agencies, the public safety community and industry to resolve these issues through extensive laboratory research and testing with the direct involvement of practitioners and manufacturers. In anticipation of the move to public-safety broadband using this new digital VoLTE technology, ITS several years ago began planning, designing, conducting and analyzing tests to assess the intelligibility of voice communication over VoLTE in field conditions.

NTIA Technical Report 13-493, “Intelligibility of the Adaptive Multi-Rate Speech Coder in Emergency-Response Environments,” recently released by ITS, describes laboratory tests that compared speech intelligibility over two types of VoLTE technologies with speech intelligibility over both legacy analog radios and digital LMRs. The report ana-

lyzes the results and concludes that, in some operating environments, the new technology offers clearer voice communication than currently used existing systems.

A panel of 15 public-safety practitioners from 14 agencies and jurisdictions tested VoLTE transmissions under seven different simulated field conditions. Five companies loaned equipment or provided support for equipment used in this and related work. In only one of 14 cases was VoLTE intelligibility lower than that of current standard equipment.

The work described in the report was carried out in the Public Safety Communications Research (PSCR) laboratories at ITS in Boulder, Colo. PSCR is a collaborative interagency project sponsored by the Department of Homeland Security (DHS) Office of Interoperability and Compatibility (OIC) and the National Institute of Standards and Technology (NIST) Office of Law Enforcement Standards (OLES).