



NATIONAL PUBLIC SAFETY TELECOMMUNICATIONS COUNCIL

National Public Safety Telecommunications Council Third Quarter Report 2011

This Quarterly Report documents the activities of the National Public Safety Telecommunications Council (NPSTC) for the Third Quarter 2011. NPSTC is a federation of organizations whose mission is to improve public safety communications and interoperability through collaborative leadership.

Governing Board

During the Third Quarter 2011, NPSTC's quarterly Committee meeting was held on September 29 and 30, in Orlando, Florida. Through quarterly Committee and Working Group meetings, NPSTC can identify needs and requirements on public safety communications issues. These meetings assemble a spectrum of participants from the public safety community, encouraging dialogue and consensus on important issues. The meetings are also an opportunity to learn about projects related to public safety telecommunications issues.

Ralph Haller, Chair, welcomed David Boyd, Department of Homeland Security's (DHS), Office for Interoperability and Compatibility (OIC), and Chris Essid, Office of Emergency Communications (OEC). Attending by teleconference was David Furth, Deputy Chief, Public Safety and Homeland Security Bureau (PSHSB), Federal Communications Commission (FCC). Mr. Haller also welcomed three new Governing Board members and alternates to NPSTC: Terry LaValley, representing the National Association of State Technology Directors (NASTD); Gary McCarraher, Alternate, International Association of Fire Chiefs (IAFC); and John Theimer, National Association of State Foresters (NASF). Mr. Haller recognized Michael Hutton, NASF; William Nelson, IAFC; and Wayne Gallant, NASTD, thanking them for their service to public safety telecommunications.

Mr. Haller presented Dr. Boyd with a token of the Governing Board's appreciation for his devotion to the cause of public safety communications. Mr. Haller presented David Buchanan, Chair, Spectrum Management Committee, with a plaque recognizing his outstanding work on a number of complicated issues on behalf of public safety communications. Mr. Haller also recognized Gary Pasicznyk's work on the LightSquared/GPS interference issue and Charley Bryson's service to public safety through well-received daily outreach news blasts to NPSTC listserv subscribers. Mr. Haller announced that this year's DeMello recipient is NPSTC's Executive Director, Marilyn Ward, saying no one works harder than she does. Ms. Ward thanked the group for the recognition.

On September 30, following the open Committee meetings, Mr. Haller called an Executive Planning Session to order. NPSTC's Executive Task Force presented a strategic planning

spreadsheet to the Governing Board, which was used to assess the satisfaction, strengths, and weaknesses of NPSTC and to develop strategies and initiatives for the future. The spreadsheet results, developed through an online questionnaire and follow-up telephone interviews, reflected a high level of satisfaction with the NPSTC organization as whole and with specific elements such as its listservs and website.

Filings on Regulatory Issues

On behalf of its member organizations, NPSTC made the following filings to the FCC in the Third Quarter 2011.

NPSTC Submitted Comments on the Petition for Rulemaking (PFRM) To Allow Aircraft Voice Operations on Secondary Trunking Channels in the 700 MHz Band. July 15, 2011. NPSTC reaffirmed its support for issuance of a Notice of Proposed Rulemaking (NPRM) and urged the Commission to move forward expeditiously with an NPRM on this issue.

NPSTC Submitted Comments in Response to the Commission's Public Notice (PN) DA 11-1133, Regarding LightSquared Technical Working Group Report. July 29, 2011. NPSTC addressed issues surrounding potential interference to public safety use of GPS and provided recommendations for additional testing under the modified deployment approach LightSquared proposed in its recommendations submitted June 30, 2011.

NPSTC Submitted Comments in Response to the FCC's PN on a Sprint Nextel 800 MHz Petition. August 1, 2011. NPSTC recommended the Commission allow commercial wideband or broadband operations to be deployed in the ESMR (Enhanced Specialized Mobile Radio) bands only in regions in which rebanding of the 800 MHz NPSPAC (National Public Safety Planning Advisory Committee) channels has been completed and where such wideband use would not interfere with public safety NPSPAC operations not yet rebanded in adjacent regions.

NPSTC Submitted Reply Comments in Response to the FCC's Rules to Improve Wireless Coverage Using Signal Boosters. August 24, 2011. NPSTC recommended the Commission grandfather existing Class B signal boosters in the Part 90 services for 10 years and consider implementing a process under which public safety entities could deploy new Class B boosters only on an exception basis through frequency coordination and licensing.

NPSTC Filed an Ex Parte Letter with the FCC on the 700 MHz Band Cleanup. September 11, 2011. NPSTC detailed the unresolved issues in the 700 MHz band, asking for action.

NPSTC Committee Action Items

At the September 2011 meeting, the Governing Board made the following decisions.

- The Governing Board approved a request for NPSTC's Broadband Working Group to work with Association of Public Safety Communications Officials – International (APCO's) Broadband Working Group to develop documents to provide targeted outreach emphasizing that broadband is not a substitute for voice LMR.

- The Governing Board approved moving the Intrinsically Safe Issue from a Working Group to a monitoring topic in the Technology Committee.
- The Governing Board approved an invitation to Public Safety Communications Europe (PSCE) to apply to join NPSTC as a liaison member. PSCE contacted NPSTC with an interest in joining the organization. PSCE is a European Union (EU)-funded non-profit organization, based in Brussels, established in 2009 under Belgian law. There are approximately 60 institutional members and 60-plus individual members, comprised of users, industry, and research. PSCE's mission is to foster, through consensus building, excellence in the development and use of public safety communications and information management systems, to improve the provision of public safety services and the safety of the citizens of Europe and the rest of the world.
- The Governing Board approved the adoption of the goals and mission of the ESF-2 Working Group.
- The Governing Board approved the development of a white paper on emerging digital radio technologies with all three Committees coordinating the effort.
- The Governing Board approved the Narrowbanding Below 512 MHz Working Group work to develop a reasonable construction notification of substantial service in building out 700 MHz narrowband voice state licenses.

Meeting Presentations

Presentations at the September 2011 Committee meeting included the following.

Dr. David Boyd, Office for Interoperability and Compatibility (OIC), DHS, is developing an overview of the programs at the Science and Technology Directorate. This will be a holistic look at the whole spectrum of how interoperability is addressed.

Chris Essid, Director, Office of Emergency Communications (OEC), DHS, said OEC has improved grant guidance by working to create one voice from the federal agencies on grant guidance. OEC has assisted in state and local planning, resulting in 140 jurisdictions that have tactical interoperable communications plans.

David Furth, Deputy Chief, Public Safety and Homeland Security Bureau (PSHSB), FCC, said the Commission has been very active on Next Generation (NG) 911, issuing a rulemaking last week on developing multimedia capabilities in the 911 system. The Commission does not look at NG 911 in isolation but in tandem with the work on the public safety broadband network. The FCC continues to work with the Public Safety Spectrum Trust (PSST) and the waiver jurisdictions on what they hope will be the first stage of the network. Work on the technical rules for the use of LTE continues. He said the FCC is very appreciative of NPSTC's work to develop public safety requirements and other essential information. The Commission believes narrowband voice will continue to be the backbone of mission critical voice communications. The Commission has done a great deal of outreach to reinforce the January 1, 2013, deadline mandate to narrowband and appreciates the strong participation in that effort through NPSTC and its organizations, the Statewide Interoperability Coordinators (SWICs), and OEC.

Chief Harlin McEwen, Public Safety Spectrum Trust, D Block Update, said the D Block legislation continues to be monitored on the Hill, where the issue has become somewhat lost in the deficit and budget discussions.

Andy Seybold, Vice Chair APCO Broadband Working Group, reported the APCO Broadband Working Group was recently formed of public safety and industry representatives, and would like to work with NPSTC and others working on these issues. The Working Group provides recommendations to the APCO Board, which issued a statement in support of a single PLMN ID, submitted comments to the FCC on the Fourth Further Notice of Proposed Rulemaking (FNPRM), and reviewed and commented on NPSTC's mission critical voice definition.

Jeff Bratcher, Division Chief, Public Safety Communications Research (PSCR), reported PSCR has recently published, *In-Building Radio Enhancement Systems for Public Safety*, a report on in-building Bi-Directional Amplifiers (BDAs). The report was written for public safety communication professionals tasked with assisting building owners in fulfilling in-building public safety communications requirements.

Al Ittner, Industry Canada (IC) Pending Policy Consultation, reported on the IC Consultation on narrowbanding. IC's current rules only focus on urban congested areas along the U.S. border so harmonization is important. IC has placed a moratorium on 6.25 kHz efficiency because of the lack of availability and to ensure consistency with the U.S rules on 6.25 kHz.

Fanny Milnarsky, OctoScope, a recipient of a National Institute of Standards and Technology (NIST) Small Business Innovation Research (SBIR) research grant, reported on a Phase One project to define the architecture for public safety LTE broadband.

David Kahn, Covia Labs, Inc., reported on another SBIR-funded research project on solutions for mission critical voice over LTE.

Outreach and Public Safety Participation Opportunities

Meetings and Conferences. Through NPSTC participants' volunteer efforts, NPSTC engages and educates the public safety telecommunications community through personal contact at trade shows and conferences, providing opportunities for participants to learn from others facing the same challenges, and educating practitioners on policy, federal initiatives, technology, and the latest research through open forums and publications.

NPSTC's Executive Director and various NPSTC Committee volunteers participated in events and tasks related to public safety telecommunications, including the following meetings, some of which occur monthly.

SAFECOM NECP/Broadband Meeting. The National Emergency Communications Plan (NECP) and addition of broadband were discussed with several NPSTC members and the Executive Director. NPSTC provided the draft of its mission critical voice document and significantly contributed to the discussion.

SAFECOM Executive Committee (EC) and Emergency Response Council (ERC) Meeting. NPSTC's Vice-Chair attended in person and the Executive Director by teleconference. NPSTC representatives gave reports on Intrinsically Safe radios, LightSquared/GPS, and NPSTC broadband initiatives. NPSTC's Vice-Chair, who serves as the Chair of the SAFECOM membership committee, provided a report to the EC.

TETRA Meeting. NPSTC facilitated a requested meeting with the TETRA association which was concerned NPSTC would not support their U.S. activities because NPSTC's members may believe TETRA is trying to enter the U.S. public safety market. TETRA representatives assured NPSTC that this was not the case.

TIA 8.21 Subcommittee Meeting. August 5, 2011. The TR-8.21 Land Mobile Radio Intrinsic Safety Consideration Subcommittee operates under the guidelines of the Telecommunications Industry Association (TIA) and under the direct supervision and guidelines of Committee TR-8. TR-8.21 held a meeting to continue discussions on the Intrinsically Safe radio issue.

APCO 77th Annual Conference. August 7-10, 2011. The conference was an excellent opportunity to make connections with executives, dispatchers, and technicians involved in all aspects of public safety communications from law enforcement to government agencies. NPSTC provided handout materials for OIC and OEC booths. NPSTC hosted a panel to discuss the latest on Intrinsically Safe radios, GPS interference, broadband, the D Block, and more.

IAFC Communications Committee Meeting. August 25, 2011. A NPSTC representative gave a presentation at the IAFC Communications Committee Meeting, held in Atlanta, Georgia. The presentation included the organizational structure of NPSTC and the year-to-date NPSTC filings with the FCC and Industry Canada.

Tactical Interoperability Communication Plans (TICP). August 29-September 1, 2011. NPSTC's Executive Director attended the 12th Annual Technologies for Critical Incident Preparedness Conference and Exposition, highlighting Department of Defense (DoD), Department of Justice (DOJ), and DHS technologies.

September Interoperability Workshop in Montreal. September 12-14, 2011. NPSTC's Border Issues Working Group Chair represented NPSTC. The speakers represented a number of high-level government positions on both sides of the border. The goal of the workshop was to explore how various technologies can be utilized to improve communications between services, agencies, or jurisdictions that have historically been hampered by incompatible radio systems operating on different protocols or frequencies. The workshop crossed commercial, defense, and public safety domains, and included a look at both requirements and regulations.

Wireless Innovation Forum (WinnF) Meeting. A NPSTC representative attended a WinnF meeting in Philadelphia, Pennsylvania to discuss cognitive radio. In addition, a meeting with FCC staff to discuss outstanding issues was conducted during the trip.

Volunteer Participation. NPSTC's Volunteer Participation Chair connects NPSTC's volunteers to appropriate Committees and Working Groups. NPSTC has 233 volunteers on the Working Groups.

Listservs. NPSTC maintains a number of listserv groups used to communicate with the public safety community. Membership and messages are monitored on a daily basis. This form of

communication is used for daily announcements or reports, updates, and discussions on critical issues. The table below shows the list of groups with numbers of members. Total participation for all Listserv groups to date is 1,598.

Outreach Listserv. Almost daily emails on federal, regulatory, and other important public safety communications news are sent to the NPSTC Participant and Outreach listservs, as well as other subject matter listservs depending on the topic.

Newsletter. During the quarter, NPSTC’s newsletter was completed and posted on the home page of the NPSTC website. The Summer 2011 edition included articles on Intrinsically Safe radios, GPS discussions, narrowbanding, and more. Another article announced the creation of NPSTC’s practitioner advisory group, the Video Technical Advisory Group (VTAG), which will provide input to the DHS Video Quality in Public Safety (VQiPS) Initiative on choosing, using, and improving the ways video technologies serve the public safety community.

Listserv Total Members	
Group	Members
Interoperability Committee	232
Spectrum Management	72
Technology Committee	125
Broadband Working Group	174
Narrowbanding Working Group	16
AFST Working Group	19
Participants	757
Voting	59
GPS Interference Working Group	39
Intrinsically Safe Radio Working Group	57
ESF-2 Working Group	16
Video Technology Advisory Group	16
Radio PCR	16
Total Membership	1598

A request was sent to the member organizations to assist in the newsletter distribution beyond the NPSTC website with a positive response. Members with links and the newsletter on their site prior to the request are the Forestry Conservation Communications Association (FCCA) and the Canadian Interoperability Technology Interest Group (CITIG); members who intend to add links and the newsletter are the National Sheriffs’ Association (NSA), National Association of State Emergency Medical Services Officials (NASEMSO), and National Association of State Technology Directors (NASTD). The International Municipal Signal Association (IMSA), International Association of Fire Chiefs (IAFC), American Association of State Highway Transportation Officials (AASHTO), American Radio Relay League (ARRL), and National Association of State Foresters (NASF) are seeking such approval.

Press releases. NPSTC issued the following press releases in the Third Quarter, 2011.

- *NPSTC Panel at APCO, July*
- *Summer Newsletter Online Now, August*
- *Radio Compatibility Working Group Needs You, August*
- *NPSTC Meets in Orlando September 28-29, August*
- *Mission Critical Voice Requirements Released, September*
- *BBWG Security Task Group Volunteer Request, September*
- *NIST Asks for R&D Requirements for Broadband Public Safety Network Priorities, September*

- *NPSTC Working Groups To Meet in Orlando, September*

Website Review. The website is regularly reviewed for ease of use and correct information. The website is a practical outreach tool which offers pertinent information to the public safety telecommunications community. It reaches beyond program initiatives by having links to public safety organizations, government agencies, OIC/OEC, with links to assist the community with tools to accomplish their telecommunication plans and networks. Statistical information is collected and reviewed as a record of public use and trends.

NIIX (National Interoperability Information Exchange). NIIX provides a centralized, secure warehouse to house communications to be shared with other members within a specific community. Registered NIIX members can access peer-created documents and share information with each other. Members can also use NIIX tools to collaborate in the creation and development of their documents. Today NIIX hosts 122 communities.

Committee Reports

NPSTC's Committees identify needs and requirements regarding public safety communications issues. NPSTC's recurring meetings and the teleconferences of the Committee's Working Groups provide an opportunity to gather the individual viewpoints and opinions of the public safety community and conversely to update the public safety community on current telecommunications projects and issues.

Spectrum Management Committee Committee Action Summary

The Committee reported that this year to date, NPSTC has filed 12 positions with the FCC and one with Industry Canada, addressing these issues.

- NPSTC documented clean-up issues in 700 MHz in an ex parte letter to the Commission on September 11.
- NPSTC filed reply comments in August, asking that the FCC treat commercial and public safety boosters differently.
- NPSTC filed in August to ensure that Sprint's request to put in CDMA is employed only in areas where the NSPAC channels have been fully rebanded.
- NPSTC wrote a letter on LightSquared's proposal to develop terrestrial-based broadband using their satellite spectrum and also filed comments on the GPS TWG Report in July.
- NPSTC filed comments in April on the FCC's rulemaking issued in January asking a number of technical questions in 700 MHz.
- NPSTC filed comments on two issues relating to TETRA, a waiver order and a proposal to allow broader use of TETRA. NPSTC sought clarification of the waiver, asking that TETRA not deploy in ESMR spectrum where it could cause interference to public safety still operating on former NPSPAC frequencies. FCC agreed with NPSTC's position recently.
- NPSTC filed with Industry Canada regarding a request for information on 700 MHz and commercial spectrum.

700 MHz Working Group

Discussions on the Hill regarding the public safety broadband network are affected by many issues, including the budget issues, incentive auctions, the commercial sector, and general need for 500 MHz of spectrum for broadband, resulting in many influences beyond the public safety perspective.

Recapping past action on the public safety broadband network, the Working Group Chair reported the Third Report and Order (R&O) adopted LTE as the standard for the public safety 700 MHz broadband network, which APCO and NPSTC supported. The Fourth NPRM raised questions on the technical details of the network and the need to weigh broader decisions. The FCC further addressed an issue when Charlotte, NC, raised the question of whether government officials other than first responders should be eligible to use public safety network. The FCC ruled that if they are doing public safety work, they are eligible, but did not make a broader ruling on the issue.

An additional area of concern in the band is the lack of clarity on state buildout dates for 700 MHz narrowband systems. The original rule was tied to 5 years after TV clearing; however, TV clearing occurred later than the original date specified. The FCC issued a clarification on the buildout dates for the state systems. In the meantime, NPSTC has been researching the criteria for demonstrating state buildout to the FCC. There is not much information on how to demonstrate the buildout requirement has been met. The Chairs of the Editorial Review and the Narrowbanding Below 512 MHz Working Groups are working on this issue. In July 2011, the FCC issued a clarification on the buildout dates, revising the date to June 13, 2014. The state has to provide or be prepared to provide substantial service to one-third of the state's population or territory. Substantial service is vaguely defined as "sound, favorable, and substantially above a mediocre level of service." This could give the public safety community some time to develop a reasonable construction notification of substantial service.

4.9 GHz Working Group

The Chair reported the use of 4.9 GHz is being researched as part of the Assessment of Future Spectrum and Technology (AFST) Working Group report, which will include 4.9 GHz recommendations in that report. The Working Group recognizes that if there were rule changes, the band could be used more effectively, but they are not ready to make recommendations to the Governing Board until the AFST report is complete. A representative of TIA-TR8 said the group is researching potential issues of connectivity between P25 and LTE. The Committee is also considering creating a standard for 4.9 GHz. The Chair said there was an assumption that hot spots in the band would be the important focus, but from the survey the AFST Task Group learned point to point or mesh is where the heavy use of 4.9 GHz occurs.

Narrowbanding Below 512 MHz Working Group

The Chair reported that a bipartisan bill, the Help Emergency Responders Operate Emergency Systems (HEROES) Act, to fund upgrades to first responders' communication equipment has been introduced in the U.S. House of Representatives by House Homeland Security Chairman Peter King, R-N.Y., and Rep. Steve Rothman, D-N.J.

The bill is in response to the January 2013 narrowbanding mandate. The proposed HEROES Act would establish a federal grant program for local municipalities to apply for funding for essential communications equipment that the federal government requires them to upgrade. Highlights of the bill are:

- Creation of a \$400 million Narrowbanding Compliance Assistance Program to help first responders meet the January 2013 narrowband deadline.
- Use of the sale of federally owned spectrum to pay for the competitive grant program.
- Reallocation of the D block to public safety and funding for the construction of a national interoperable public safety wireless broadband network.

In other matters, the Chair reported the FCC's narrowbanding legislation calls for 6.25 kHz technology in 2013, stating that the manufacturers will have to make 6.25 kHz technology available to the community. The FCC has also introduced a mandate on the waiver process regarding 2013 narrowbanding. He suggested that NPSTC provide some guidelines on filing waivers. After discussion, it was agreed that NPSTC would only place the FCC's PN regarding the issue on the NPSTC website.

GPS Interference Working Group

The GPS Technical Working Group (TWG) final report was submitted to the FCC on June 30, 2011. The report listed interference with the majority of receivers tested. The FCC opened a comment period with comments due August 15; NPSTC provided comments on July 29. The FCC requested additional test details from LightSquared (LS) on August 10, 2011.

LS proposed modification of its original deployment plan on August 22. LS filed an ex parte on September 7, proposing an alternate deployment plan using only a portion of their spectrum. LS stated the alternate deployment plan would not alleviate issues with high-precision devices. NPSTC stated that the testing was not adequate for the original or for the alternative proposals. In the meantime, the National Telecommunications and Information Administration (NTIA) filed a letter discussing their support for further testing on September 9. Neither letter defined who would be performing testing or what devices were to be tested. NPSTC believes that if testing goes forward, more public safety devices should be tested. The issue is getting a lot of attention in Congress as well.

In discussion, it was noted the testing report had divided conclusions based on the lack of consensus of the definition of harmful interference. A suggestion was made to define pass/fail for harmful interference in addition to more testing. The community is waiting for direction from the FCC on any additional testing to be performed and a timeline. NPSTC's Working Group has not had any additional correspondence from the GPS TWG or LS. LS has stated they have a vendor that will supply filters to fix the issues but no further details have been released.

Technology Committee

Broadband Working Group

Preparation of Comments for National Institute of Standards and Technology (NIST) Broadband Document: NIST is seeking input on various possible features of a new nationwide interoperable

public safety broadband network. This input will be used by NIST to help determine research and development priorities in anticipation of the President's Wireless Innovation (WIN) Fund to help drive innovation of next-generation network technologies. The Chair led an open discussion to help focus NPSTC's comments to NIST based on the following operational requirements below.

- **Resiliency:** The ability of operable systems to recover from mishap, change, misfortune, or variation in mission or operating requirements.
- **Self-Organizing:** Self-organizing networks dynamically manage their own configuration by automatically making changes to ensure messages reach their destinations.
- **Meshing (ad hoc device-to-device communication):** A type of networking where each node must not only capture and disseminate its own data, but also serve as a relay for other sensor nodes, that is, it must collaborate to propagate the data in the network.
- **Adaptability:** The ability of the network and/or device to modify/change behavior based upon external conditions.
- **Prioritization:** The ability to prioritize network traffic based on assigned priority schemes.
- **Quality of Service (QoS):** The set of standards and mechanisms for ensuring high-quality performance for critical applications. By using QoS mechanisms, network administrators can use existing resources efficiently and ensure the required level of service without reactively expanding or over provisioning their networks. The goal of QoS is to provide preferential delivery service for the applications that need it by ensuring sufficient bandwidth, controlling latency and jitter, and reducing data loss.
- **Strong, Dynamic Access Control:** Access control lists can be configured to control both inbound and outbound traffic on networks and authentication/ verification of users/devices on the network. The level of access control should be sufficient to allow for entree into a broad set of systems and databases needed by public safety (e.g., criminal history databases, medical records, public work records, etc.).
- **Compatibility with commercial infrastructure:** The utilization of a variety of commercial services when public safety is in areas not covered by the public safety broadband network.
- **Network sharing:** The shared use of infrastructure between commercial and public safety users.
- **Multi-Modal:** The ability of the network to support voice, video, data, and multimedia simultaneously.
- **Scalability:** The ability of a system, network, or process to handle growing amounts of work in a graceful manner or its ability to be enlarged to accommodate that growth.

Intrinsically Safe Radios Working Group

The Chair reported on the current work of the Intrinsically Safe Radio Working Group, developed to respond to issues surrounding a change in the intrinsically safe standard. Last fall, Factory Mutual (FM), a certification agency, announced they would changing their IS testing process and standard in accordance with international standards. The Working Group has been working on this issue since then with TIA, FM, the International Society of Automation (ISA), and the Occupational Safety & Health Administration (OSHA).

In February 2011, FM agreed to “grandfather” products manufactured after January 1, 2012, if the model was validated prior to January 1, 2012 and no hardware changes that affect the intrinsic safety evaluation occurred. Any new products or major product changes would be required to be tested to FM’s new standard. As of September 2011, there have been no further communications with FM.

In January 2011, TIA created an engineering subcommittee (TR-8.21) to evaluate alternative solutions for operating radios in hazardous locations. The TR-8.21 subcommittee considered reviewing an ISA document for a potential TIA standard, but rejected that because the ISA standard will be revised in 2 years, with more onerous power limits than the proposed FM revision. In June 2011, Underwriters Lab (UL) joined the TIA effort, offering its standard, UL 913.5, to TIA for consideration. This is close to the original FM standard that public safety has used to date with no problem. UL is extending this acceptable standard to 2016. They announced at the TR-8.21 meeting that they will continue to test to the UL standard if it is adopted and published by TIA. On October 19, 2011, TIA will meet and consider adopting UL 913.5. TIA will republish the UL document under TIA’s name.

PSWAC Follow-Up: Assessment of Future Spectrum and Technology (AFST) Working Group

The AFST Working Group, created to follow on the 1996 Public Safety Wireless Advisory Committee (PSWAC) Report to determine spectrum needs and technology, and operational requirements through the year 2020, is nearing completion of its report. Last summer the Operational Task Group distributed a questionnaire to public safety receiving well over 300 responses. Last fall, the Working Group hosted focus groups to expand the answers to the questionnaire and to develop metrics of spectrum usage through tabletop exercises.

The Working Group has synthesized results of the operations questionnaire with those of the focus groups in preparation of the report. There are concerns about funding and governance. There are additional concerns about new interoperability issues regarding frequency shifts, for example, a neighbor agency moving from VHF to 700/800 MHz, and uncoordinated narrowbanding efforts. Issues regarding spectrum capacity still remain, especially for VHF, and following the narrowbanding mandate. There are ongoing issues with interoperability in narrowband voice, primarily due to funding and governance problems.

Several issues were identified that have existing technical solutions including encryption, paging, and text alerting over trunking, and radios that are unable to scan across trunked and conventional systems. Best practices are needed in some areas including tactical to wide-area communications transitions. Mutual aid solutions for major events are seen as insufficient. Broadband capacity is a concern and is not well understood in some areas. There are concerns about direct mode broadband. NG 911 will dramatically change field operations and there were concerns about managing the flow of information. Respondents identified the need to develop interoperability standards for applications. All the focus groups said video was critical to operations. Their responses discussed how they would use it. Expectations may be exceeding what it will be possible to provide.

The Chair discussed the technology findings and the reasons public safety requires particular bands to meet their needs. A question often asked, for example, is: If public safety has 700 MHz, why do they need 4.9 GHz? Broadband 700 MHz and 4.9 GHz provide very different benefits and must be considered separately. The 4.9 GHz band is not viable for very large areas or in-building coverage, but 4.9 GHz has multiple uses complementary to 700 MHz, including point to point video, airborne video and IP, LTE backhaul, and hotspots.

In reviewing the PSWAC Report on spectral efficiency for voice, the Working Group agreed the report was too aggressive in assuming 6.25 kHz use by 2017. There are multiple resources to determine spectral efficiency. The AFST model references the FCC's Capacity White Paper, 3GPP targets on cell edge, and International Telecommunications Union (ITU) papers on growth in spectral efficiency. The model looks at the throughput of the application, number of users, and how often applications are used. The initial model shows insufficient spectrum to support incidents, particularly at the cell edge.

Broadband needs include:

- Mission critical push to talk (PTT) over broadband, direct mode, PTT over IP standard, devices, coverage footprint, and mountain coverage.
- Cell edge spectral efficiency. Even with 20 MHz, initial models show insufficient spectrum to support incidents (excluding day-to-day activities). The biggest issue occurs at the cell edge where throughput is 30 percent of average levels. Improvements to cell edge efficiency from LTE are needed.
- Standards for applications to ensure interoperability.
- Multicast/broadcast enhancements. Spectrum models assume efficient multi-media transmission; methods to capitalize on multicast/broadcast are needed.

The initial results of the Spectrum Report will be distributed to the Working Group by October 7, 2011. The ITU model the Working Group used was derived from the ITU cellular model and updated to include narrowband voice. They modeled a separate narrowband VHF band due to its unique propagation. The AFST's Spectrum Task Group modeled the four incidents from the broadband tabletop focus groups. The Houston incident spread the demand over two sectors out of two different cells. Spectral efficiency was average for the wild fire. All other scenarios used cell edge. The incidents represented 2015 demand. From there, the Working Group is looking at growth from 2015 to 2020 based on ITU models for commercial broadband demand. The Working Group is determining backhaul and satellite needs as well.

Video Technology Advisory Group (VTAG)

The VTAG was recently created to provide advice and feedback to the DHS Video Quality in Public Safety (VQiPS) Working Group. VQiPS mission is to research, develop, and compile information necessary for people supporting the operations of public safety, physical security, and the homeland security enterprise in purchasing and utilizing the appropriate video technology to meet their needs.

VQiPS focuses on the quality of video and the factors that affect quality, and proposes standards and guidelines for agencies to specify systems that meet their needs. The PSCR is providing the

technical expertise to DHS, guided by the advice of the VQiPS. To promote awareness of the video research effort and increase outreach to end users, VQiPS sought to partner with NPSTC. While PSCR provides the technical support, OIC the funding support, and VQiPS leadership direction, VTAG will provide advisory support. The VTAG is also able to look beyond video quality, expanding its advisory role to other issues such as interoperability and broadband. The VTAG had its first conference call on September 21, and was asked to review a draft DHS report “Video Quality Tests for Object Recognition Applications,” developed by the PSCR. ASIS, the private security industry group, has developed a handbook on video quality in security settings which the VTAG will review as well.

DHS hosts a VQiPS web tool to educate end users on the video system components. The tool provides recommendations for video technology based on use and these parameters: Usage timeframe, discrimination level, target size, motion, and lighting. VQiPS would like to strengthen the information available on the DHS web tool and is seeking information on individual components, types of radio encryption, specifications, etc.

Radio Programming Compatibility Requirements

This new Working Group is working to develop a standard interface for P25 radio programming software. The Working Group is communicating with the P25 group, the Harris Users Group, and with Industry Canada to gather input on a standard interface. A conference call is set for October 21 and they are eager to add more Working Group members.

Interoperability Committee Monitoring Topics

Canadian Interoperability Technology Interest Group (CITIG): The Vice Chair attended a CITIG workshop as a NPSTC representative. The participating organizations have developed a new vision and mission for CITIG that aligns with NPSTC’s mission but reflects Canadian issues. They are developing an action plan, finding funding, and determining who will manage the organization. APCO, the Canadian Chiefs of Police, and Fire Chiefs are the agencies involved and will identify future leaders of the organization. CITIG also coordinates with Industry Canada and other Canadian governmental organizations.

NECP Goal Three: The Vice Chair reported her jurisdiction in Tampa, Florida, will serve as a beta site to test their communications for OEC’s Goal Three testing when the Republican National Convention meets in Tampa next year.

Wireless Innovation Forum (WinnF, formerly Software Defined Radio Forum) Update: The Chair of the Border Working Group attended the Enabling Interoperability Workshop, in Montreal, Canada, as a representative of NPSTC. The forum assembled the military, industry, regulators, and public safety to tackle the issue of interoperability. The issues are very similar across the borders. The WinnF is seeking public safety advice, one of the reasons for the Enabling Interoperability Workshop in Montreal. WinnF will host a similar session at IWCE. WinnF issued a Request for Information (RFI) in August seeking information on current and proposed technology developments for addressing communications requirements for public safety.

Border Working Group

The Working Group continues to focus on revising the language of border documents that will allow first responders on the border to use each other's channels. The respective Canadian and U.S. organizations are still working on the official language changes. Canadian and U.S. users are trying to develop a cross-border users' group to discuss issues but it has been a slow start up.

ESF-2 Working Group

The mission of ESF-2 is to provide interoperable communications guidance across multiple jurisdictions, agencies, and disciplines. ESF-2 serves as a primary operational level coordination mechanism to provide assistance in functional areas for regional communications. ESF-2 addresses the purpose, scope, policies, concept of operations, organization, actions, and other communications requirements for primary, support, and secondary public safety agencies. Examples include: Emergency Operation Centers; shared jurisdictional, agency, and/or discipline use of mobile command and/or communication vehicles; organizing multiple jurisdictions and agencies for a planned event with a communications focus; and other communications requirements that involve multiple jurisdictions and agencies with a common purpose, scope, and communications requirement.

The vision for the ESF-2 Working Group is the development of long-term processes and relationships between ESFs, the Federal Emergency Management Agency (FEMA), and the Regional Emergency Communications Coordination Working Groups (RECCWGs) that support emergency communications from one jurisdiction to another. The ESF-2 Working Group goals are to do the following:

- Bring together amateur radio users, emergency managers, ESF-2 representatives, FEMA, and the RECCWGs.
- Provide education to those involved in emergency management from the incident level function and roles and above within the ESF-2 structure.
- Improve relationships with FEMA and the RECCWGs and public safety communications.
- Develop a process to be shared nationwide for information flow in declared disasters before the federal government gets involved.
- Use available resources, i.e., COML curriculum, ICS course 00802 to develop contacts numbers and carrier information for priority restoration and templates for ESF-2 representatives to implement those procedures up in their area.

Other Issues

Outstanding Issues in the 700 MHz Band. The Chair wrote a letter to the Commission on September 11, 2011, summarizing outstanding 700 MHz LMR Issues and asking for resolution. Summary points of the letter include:

(A) Clarifications and updates to Part 90 Rules and Regulations for the 700 MHz band:

- Use of analog modulation - 47 CFR 90.535(a). Rules are not clear.
- Interoperability technical standards - 47 CFR 90.548(a)(1). NAC code not specified.
- Licensing "by rule" of mobiles and portables on FCC-designated interoperability channels.

(B) Summary of petitions and related issues:

- Address NPSTC 2008 Petition for 700 MHz voice clean-up.
- Designate a single voice interoperability Calling Channel in the 700 MHz band.
- Re-designate the current second Calling Channel as a National Travel Channel.
- Relax use restrictions on one of the data interoperability channels.
- Designate interoperability reserved channels for Deployable Trunked Systems.
- Revise rules on Low Power Itinerant Channels.

NPSTC's 2011 Petition for Air-Ground Interoperability Channels and the Petition on the 2017 Deadline for 6.25 kHz Narrowbanding of the 700 MHz Band are also open items. The Chair asked the Commission to resolve all these issues at one time.

Emerging Digital Radio Technologies: Interoperability problems are surfacing nationwide with new non-ANSI standardized digital radio platforms being introduced on Part 90 public safety radio spectrum. With the exception of the 700/800 MHz bands where specific technologies are required on interoperability channels, there are no restrictions on the lower bands. Day-to-day interoperability (97 percent of all interoperability) on agency channels is destroyed by incompatible technologies.

Encryption in the P25 environment is a problem. A number of manufacturers have introduced proprietary digital systems causing interoperability and operability problems. NPSTC has taken a position opposing TETRA on public safety channels and asked the FCC to include that prohibition in its Part 90 rules. The Committee Chairs will develop a white paper warning unaware users they are buying proprietary radios that are not interoperable with their neighbors. The white paper will highlight these issues and offer some solutions, with the hope that requirements can be placed into the FCC rules to ensure that communications on FCC-designated nationwide interoperability channels is never impaired.

Future NPSTC Activities

NPSTC will hold quarterly meetings on the following dates:

- November 28, 2011, call-in meeting
- February 24, 2012, Las Vegas, NV
- June 5-6, 2012, Washington, D.C. [NPSTC's 15 year anniversary]
- September 10-11, 2012, location TBD