



**National Public Safety Telecommunications Council (NPSTC)**  
**Full NPSTC Meeting**  
**Las Vegas, NV**  
**March 25, 2016**

**Welcome and Opening, Doug Aiken, NPSTC Vice Chair.** Doug Aiken, Vice Chair, National Public Safety Telecommunications Council (NPSTC), called the meeting to order at 9:00 am PDT. Participants on the phone were asked to send a record of their attendance to [attend@npstc.org](mailto:attend@npstc.org). A quorum of the Governing Board was present. Chief Aiken said if participants on the phone would like to submit a question to send it to [support@npstc.org](mailto:support@npstc.org). He thanked the sponsors of the Governing Board dinner held the previous night in honor of the retirements of Harlin McEwen and David Buchanan. Platinum Sponsors were the International Municipal Signal Association (IMSA), Don Root, and Highlands Consulting Group. Gold Sponsors were the Forestry Conservation Communications Association (FCCA), the National Sheriffs Association (NSA), and Paul Patrick. Silver Sponsors included the Amateur Radio Relay League (ARRL), Association of Public Safety Communications Officials – International (APCO), Eddie Reyes, Gary McCarraher, John Lenihan, Kevin McGinnis, Paul Gilbert, Rick Comerford, Stu Overby, Thomas Roche, and Tom Sorley. Chief Aiken also thanked Mike Corey for ARRL’s continued support of NPSTC through shipping equipment.

**FirstNet Presentations**

**FirstNet NPSBN Development, TJ Kennedy, President.** Mr. Kennedy began by thanking Chief McEwen for his championship of the broadband for public safety effort, the provision of important reports, and for his continuance as Chair of the Public Safety Advisory Committee (PSAC). The next 18 months promise to be very busy for FirstNet with capability statements arriving and proposals due on May 13. Consultation and outreach teams have held over 50 meetings with the State Points of Contact (SPOCs). There is a big effort to ensure the major metropolitan areas are engaged. As FirstNet moves into draft state plans, they are making sure key elements in the winning offer are shared with the states. FirstNet is working with urgency and has real momentum, but continues to count on public safety to support the effort.

**Kevin McGinnis, FirstNet Public Safety Board Member.** Chief McGinnis said operations have moved from “night to day” since FirstNet began its work 3 years ago. He said the Board is pleased with the very knowledgeable FirstNet staff under Mr. Kennedy. He expects the Nationwide Public Safety Broadband Network (NPSBN) to live up to expectations.

**Public Safety Advisory Committee, Harlin McEwen, Public Safety Advisory Chair.** Chief McEwen said all of NPSTC’s Committee and Working Group reporting and work related to the NPSBN has been extremely valuable. The reports come to the PSAC for review, which decides if any modifications are needed, then submits them to the full FirstNet Board. The PSAC has two working groups. The Early Builders Working Group comprises five entities: the State of New Jersey; New Mexico/Texas; Harris County, TX; LA-RICS; and Adams County, CO. The PSAC is discussing the creation of a third Federal Working Group not yet

approved by the Board. This is important because although this will be a state and local network, it is important to be interoperable with federal disciplines as well.

The second Working Group is focused on local control, including priority and quality of service. Public safety has always said there must be local control of this network. The Identity, Credential, and Access Management (IDM) Task Group are working to determine how FirstNet will manage users of the network. They are focusing on a tiered approach with primary public safety, police, fire, EMS, and PSAPs as the highest level of priority. Below this level follow transportation and the utilities, then the public users. FirstNet must be more selective and needs to know more about the user at the priority level than a commercial network operator. If the users of the network are properly identified from the outset, user management will not be a problem. But the network will need a type of tool for local, dynamic control to provide priority access during an event. The PSAC and FirstNet are working with the Public Safety Communications Research (PSCR) program to determine the technical means to achieve PSAC recommendations. Chief McEwen said the PSAC is being consulted and involved with the FirstNet Board on a regular basis.

### **Federal Partners Update**

**Department of Homeland Security (DHS), John Merrill, Director, Office for Interoperability and Compatibility (OIC).** Mr. Merrill discussed a number of the many technology programs OIC is supporting.

- The Next Generation First Responder (NGFR) program is focused on a first responder who is protected, connected, and fully aware and comprises multi-threat resistant clothing, gear, and enhanced communications to achieve those goals.
- The Video Datacasting Project is researching the sharing of large data files—building blueprints, videos, etc.—with first responders in the field using the public television spectrum.
- The Incident Management Information Sharing (IMIS) pilot held in Alabama in January looked at how to leverage sensors from the Internet of Things (IoT) that are already available. Mr. Merrill said this was a highly successful pilot but noted it lacked security patches for authentication and the source of the data.
- The public safety cloud computing project examines public safety requirements to design, prototype, and deploy an Initial Operating Capability of the Public Safety Cloud.
- AUDREY is a decision support tool, based on how humans learn and applying it to a computer to analyze and synthesize data. Information gathered from sensors pulls information relevant to responders in real time.
- The Project 25 (P25) Compliance Assessment Program (CAP) Board will hold a meeting in Boulder, CO, on May 5. They have developed a registered trademark for P25 CAP.
- The Emerge Accelerator Program is a business incubator to speed up the time to market for cutting edge first responder wearable technologies.

**Chris Essid, Deputy Director, Office of Emergency Communications (OEC).** Mr. Essid updated the group on OEC activities, saying OEC is very proud of its collaboration with NPSTC and the work NPSTC does. OEC recently released two new products: Grant Guidance for 2016 and the LMR Trio. The new grant guidance is focused on the current climate of issues in public safety communications but will continue to focus on LMR. The guidance formerly focused on DHS funds, but it has been expanded to include other federal grant money for communications. In the last 10 years, OEC estimates \$2.9 billion has been spent on communications interoperability. The LMR Trio comprises: LMR 101: Part I, Educating Decision

Makers on LMR Technologies; LMR for Decision Makers, Part II, Educating Decision Makers on LMR Technology Issues; and LMR Part III: A Project 25 Primer for Project Managers and Acquisition Managers.

The National Governors Association (NGA) is hosting a policy academy on emergency communications interoperability in conjunction with OEC. Five selected states will develop and present recommendations and a plan of action for the governor in the selected states. The 2006 NGA Policy Academy resulted in the creation of OEC, the National Emergency Communications Plan (NECP), Statewide Communications Interoperability Plans (SCIPs), and dedicated grant funding.

Interoperability priorities for 2016 include strengthening the SCIPs, Statewide Interoperability Coordinators (SWICs), and Communications Unit (COMU) programs; measuring response-level communications in urban areas; exploring new audiences for OEC technical assistance; enhancing federal interoperability; and investigating the feasibility of interoperability grant funding.

Mr. Buchanan asked whether OEC has considered supporting areas that are not large cities, citing the recent incident in San Bernardino. Mr. Essid said DHS is looking at this type of support across the nation, reminding the group that Goal 1 of the first NECP was focused on the urban areas and Goal 2 was a focus on all other communities.

**Technology and Broadband Committee, Tom Sorley, Committee Chair (via teleconference); Michael Britt, Vice Chair.**

**Public Safety Communications Research (PSCR), Dereck Orr, Division Chief.** Mr. Orr noted that \$100 million has been received of \$300 million that is being made available for public safety research from AWS (advanced wireless services)-3 auction proceeds. The five research areas are bringing land mobile radio and LTE together, bringing LMR mission critical voice onto LTE, enhanced location-based services, enhanced analytics, and enhanced user interfaces. Half of the funding will be used by the National Institute of Standards and Technology (NIST) and other federal agencies while the rest will go toward grants, cooperative agreements, and prize competitions.

**3GPP Update, Barry Luke, NPSTC Deputy Executive Director.** Mr. Luke, reporting on behalf of Andy Thiessen, said it is important for public safety to pay attention to this standards process. He discussed releases 3GPP 12, 13, 14, and 15. Ongoing enhancements are being made as 3GPP moves forward.

- Release 12 was frozen in March 2015. It examined how public safety components could be included in 3GPP's work. Public safety needs off network operations, device discovery, group communications system enablers, and one to many and one to all capability.
- Release 13 was frozen on March 11, 2016. The focus was on mission critical voice Push to Talk over LTE. Requirements from the 2011 NPSTC Mission Critical Voice (MCV) report were used with additional requirements added by the United Kingdom (UK) and others. Release 13 resolved the selection of the vocoder. Wideband AMR is the sole mandatory vocoder. The EVS vocoder in Super Wide Band (SWB) mode may be optionally adopted by a carrier. The group isolated E-UTRAN Operations (IOPS), which is the ability for an LTE base station to maintain service when connection to the core is lost, similar to LMR site trunking priority services.

- At the same time, work on Release 14 is underway and will probably end in June 2017. Mission critical video and data have been added to the effort, which will also complete the work initiated in Release 13. This work is examining mission critical voice over LTE. The Alliance for Telecommunication Industry Solutions (ATIS) and Telecommunications Industry Association (TIA) are collaborating on a standard for connecting LMR and LTE. TIA will develop the LMR side of the connection.
- Release 15 will focus on 5G technology, changes to system architecture, changes in system, features, functionality, and public safety requirements for 5G. There are two major components to this effort: Radio access network and service aspects and system architecture. To date FirstNet has successfully inserted advanced requirements into both components to ensure public safety is relevant in 5G development.

**Broadband Deployable Systems Working Group, Michael Britt.** Mr. Britt reported the Working Group is a joint activity with Canada and meets twice a month. There is some overlap of the work with the Unmanned Aircraft Systems and Robotics Working Group. The group has eight use cases; five have been completed in detail. Use cases include a wildland fire in an isolated area; large scale public event at a sports center; additional capacity to support visiting foreign dignitary; EMS patient monitoring at the scene of a mass casualty incident; search and rescue mission in a forest; and public safety response to an earthquake. They have developed 45 additional public safety requirements for deployables, creating a checklist for communications leaders, and types of deployables appropriate for an incident.

**Broadband Emerging Technologies Working Group, Kim Coleman Madsen.** Ms. Coleman Madsen reported on the group, which is currently monitoring 3GPP activities, including updates from the UK and South Korea on the implementation of public safety broadband over LTE. They will be reviewing existing work on user devices, analytics, and sensors; examining difference on how rural agencies will use broadband; coordinating with NIST on Smart Cities; and reviewing how public safety agencies may utilize the FirstNet incident web status page.

**Break/Award Presentation.** The NPSTC Governing Board presented Chief Harlin McEwen and Mr. David Buchanan with Lifetime Achievement Awards. The NPSTC Lifetime Achievement Award reflects the many years the recipient has worked for the interests of public safety communications nationwide. The recipient shall have positively influenced nationwide policy in many ways over his/her lifetime, which as a result, has demonstrably improved public safety communications. This award is not given annually, but rather as determined by the NPSTC Governing Board.

To further honor the exceptional work Chief McEwen has accomplished, the Board created a brand new award, the Harlin R. McEwen Award. This award is created in honor of Chief Harlin R. McEwen, a founding member of the NPSTC Governing Board and individual who volunteered his skills, talent, and time working tirelessly for over half a century in the interest of nationwide public safety communications. The recipient must match the commitment and leadership shown by Chief McEwen. The recipient must also be someone of excellent character, have demonstrated an unwavering sense of community over self, have outstanding ethics throughout his/her career, share the same kind of passion as Chief McEwen, and have advanced the nationwide public safety communications community in a highly significant way. This award is not given annually, but rather as bestowed in very special cases by the NPSTC Governing Board.

Both men expressed their great appreciation to an enthusiastic round of applause, saying the awards reflect the combined efforts and hard work of those in this community.

**Land Mobile Radio (LMR) to Long-Term Evolution (LTE) Migration Working Group, Christopher Kindelspire.** Mr. Kindelspire said this group meets the first and third Wednesday of the month at noon ET. The focus is LMR and LTE interoperability. Public safety agencies may be using LTE at the same time other adjacent agencies are continuing to use LMR systems. The group is examining existing interoperability systems and technologies in use today and reviewing the minimum requirements needed to support mission critical voice interoperability between LMR and LTE networks. They are starting work on use case development, comparing 3GPP standards to expected operational requirements to determine what gaps may exist. They will also examine the roles of LMR and LTE consoles and identify different public safety LMR configurations that would need interoperability with LTE–trunked, conventional repeater, and simplex. Frank Korinek, ATIS, said the work this group does is critical in terms of 3GPP work and the overlapping cycles in the process.

**Unmanned Aircraft Systems (UAS) and Robotics Working Group, Michael Britt.** Mr. Britt said the group had a kickoff meeting, followed by a second meeting with a presentation on using a UAS in accident reconstruction. The use of the UAS cut the amount of personnel in the road time by half. The group meets on the second Wednesday of the month at noon ET. They are scheduling presentations from regulatory, industry, and academia to become current on the current state of technology. Robotics includes technology adopted from the military including the Navy spy fish which could be operational next year; firefighting robots; drones delivering medicine; and a flying defibrillator.

**Video Technology Advisory Group (VTAG), John Contestabile.** Mr. Contestabile briefed on the VTAG, an advisory group to the Video Quality in Public Safety (VQiPS) supported by OIC. VTAG is also beginning to work with VAPS or Video Analytics for Public Safety, a NIST initiative. VAPS will meet at the PSCR workshop in San Diego in June. The *Video Design Improvement Process* was published this week and the *Efficient Bandwidth Utilization* report, soon to be published, will be available on [www.firstresponder.gov](http://www.firstresponder.gov).

*Policy Considerations for the Use of Video in Public Safety* is under development (Spring/Summer 2016) and will address several important areas: Privacy, security, transparency, technical issues, interoperability, access and use (real time and forensic), retention, notice, dissemination, and governance.

VTAG maintains close association with other video-related efforts including the UL Tactical Video Standard –UL 3802 and also maintains liaison with the Broadband Emerging Technologies, LMR to LTE, and UAS and Robotics Working Groups as well as the PSCR research on future needs.

The annual VQiPS workshop is tentatively scheduled for August 30 to September 1 in Seattle, WA. The next VTAG next conference call will be held on May 4, 2016, at 11:00 am EDT.

**Radio Programming Compatibilities Requirements (Radio PCR) Working Group, Michael Britt.** Mr. Britt reported the Working Group is coordinating with the States of Colorado and Michigan to beta test a state specific PAM Tool implementation.

## Topical Presentation

**Project 25 PTIG Update, Steve Nichols, Director, Project 25 Technology Interest Group (PTIG).** Mr. Haller reported the Governing Board had voted to add PTIG as an Affiliate Member in closed session this morning. Mr. Haller and Mr. Nichols signed the MOU at this time during the meeting. Mr. Nichols thanked NPSTC's Governing Board saying PTIG and NPSTC have many common goals. Work completed includes:

- A revision of TSB-102 (TIA-102 Documentation Suite Revision C) was approved for publication. *The Telecommunications Systems Bulletin RevC reflects TR8 progress since the last publication (2012). including new TIA publications, improved graphics, and addresses miscellaneous errata identified.*
- Air Interfaces: A revision to the FDMA, TDMA and Analog Air Interface Performance Measurement Method Standards were approved for publication. *These revisions will ensure that harmonics present in Class D amplifiers do not interfere with various audio measurements.*
- Broadband: A revision of TSB-88.2-E (Wireless Communications Systems – Performance in Noise and Interference Limited Situations – Part 2: Propagation and Noise) was approved for publication. *The revisions add information associated with Broadband Air Interface Propagation and Noise modeling.*

Work in progress:

### Air Interfaces

- A revision to the FDMA Common Air Interface Standard is in progress. This revision addresses errata that have been collected since the last publication.
- A revision to the Trunking Interoperability Test Standard is in progress. This revision merges the FDMA and TDMA material and addresses an error in a call preemption test procedure.
- A new standard for a TDMA Control Channel is in progress. This standard provides the messages and procedures for operating a 12.5 kHz channel with 2 TDMA slots where either or both may service Control Channel traffic.

### Security

- Link Layer Encryption is in progress. *This is the first big new technology upgrade for improved Security for all air interfaces of P25. It protects control channel control messages, and hides group and individual IDs.*
- An addendum to the Key Fill Interface standard is in progress. *This will enable Key Fill Device (KVL) interface to a KMF, an Authentication Facility and another Key Fill Device.*

### Wireline Interfaces

- An addendum to the ISSI Messages and Procedures Standard is in progress. *The revision corrects several errata that have been noted since the last publication.*
- A revision to the Fixed Station Interface Standard is in progress. *This revision adds additional capabilities the most significant of which is Packet Data.*
- Additions to the Trunking ISSI Messages and Procedures Standard are in progress. *The additions will add Individual and Group Regrouping capability associated with Console "Patch" type operations.*

### Broadband

- Public safety requirements for Broadband Data/LMR Interoperability is in progress in a joint ATIS/TR8.8 effort. *This is the beginning of work to create the requirements for interworking of Broadband and Existing P25 LMR systems. This effort is currently on hold pending advancement of the 3GPP Mission Critical services architecture. A new ATIS ad hoc group has begun an effort to gather interworking requirements and scenarios for Broadband Mission Critical services and Land Mobile Radio Technologies such as Analog FM, P25 and Tetra.*
- Additions to TSB-88 are in progress. *These additions will create recommendations for Broadband Data System coverage modeling and verification.*

Mr. Nichols urged participants to visit [www.PTIG.org](http://www.PTIG.org) to review many valuable documents. John Powell, P25 Steering Committee, said this system will be very protective of LMR system vulnerability to attack such as spoofing IDs, and playback.

### **Spectrum Management Committee, David Buchanan, Chair; Stu Overby, Vice Chair**

**4.9 GHz Task Group, David Buchanan.** Mr. Haller said the Governing Board approved Don Root as the Spectrum Management Committee Chair, replacing newly retired Mr. Buchanan, at the closed morning session. Mr. Buchanan reported on the status of the 4.9 GHz proceeding. The band was originally given to public safety as a result of findings in the Public Safety Wireless Advisory Committee (PSWAC) report. The report asked for strong licensing and frequency coordination, which are two of the elements in the NPSTC 4.9 GHz National Plan Recommendation previously submitted to the FCC. The 4.9 GHz band also will be important to support robotics and UAS. Mr. Buchanan advised the Governing Board about the recent 4.9 GHz Ex Parte filing submitted to the FCC by Presidential Partners Consulting which claims the NPSTC plan is flawed.

Motion and Vote: Mr. Goldstein moved that NPSTC should develop and submit an Ex Parte filing to the FCC in the 4.9 GHz proceeding in response to the Presidential Partners; Mr. Wright seconded. Approved.

173 MHz, Vehicular Repeater Systems (VRS): The FCC completed rulemaking decisions and approved Land Mobile Communications Council (LMCC)-recommended coordination procedures. The FCC began accepting VRS applications on March 15, 2016.

P25 CAP Rule Change: The FCC proposed manufacturers of 700 MHz radios certify their radios to the P25 CAP; however, the certification was occurring at an inappropriate time in the process. NPSTC stated certification should occur before sale and shipping of radios to the end user. An order is on circulation for FCC review and approval.

Awaiting Further Action by the FCC:

- Clearing of 700 MHz narrowband incumbents from 700 MHz broadband spectrum. FirstNet, NTIA, and the Department of Commerce issued an announcement of a Federal Funding Opportunity March 16 for Incumbent Relocations. There is up to \$40 million in funding available. Applications for funding are due by May 16 to [www.grants.gov](http://www.grants.gov).
- Approval of LMCC coordination protocol for 800 MHz interstitial channels.
- Opening of Railroad Police eligibility on public safety interoperability channels.

- Wireless Bureau correction of proposed rules for airborne operations so public safety will not be impacted.

**Interference Protection Working Group, Don Root, Chair.** Mr. Root discussed three issues the Working Group is researching. He said he is seeking a new Chair for this Working Group.

Cellular Power Flux Density Rulemaking. The FCC previously opened a rulemaking proceeding proposing to allow commercial cellular systems in the 800 MHz band to measure power by the power flux density method and deploy higher power operations. NPSTC submitted Comments explaining that higher cellular power at ground level could increase the risk to public safety communications operating in adjacent segments of the 800 MHz band. NPSTC also proposed the FCC impose conditions to require expeditiously eliminating any interference that occurs, should the FCC decide to approve the PFD approach at higher power levels.

The FCC has granted AT&T waivers to operate at higher power with the PFD model at 800 MHz in certain markets in Missouri and in Kansas. Both waivers include the same conditions requiring AT&T to notify area 800 MHz public safety licensees in advance of deployment, and to address any interference expeditiously should it occur. On December 31, NPSTC submitted Comments to the FCC in response to AT&T's waiver request to deploy higher power under the PFD model in certain markets in Kentucky and Tennessee. Again, NPSTC opposed the waiver request, but recommended FCC impose conditions similar to those it required in the Missouri and Kansas cellular markets, should it grant the Kentucky and Tennessee area waiver.

The Working Group is in the process of reviewing additional technical information provided by a NPSTC volunteer to determine if it is appropriate to form the basis of a NPSTC Ex Parte filing to the FCC on the Cellular PFD issue.

Wind Turbine Farm Interference. The group is investigating the large rotating blades that generate electricity and could interfere with microwave paths or with multi-path at lower frequencies. These systems also generate overall broadband noise. Mr. Root asked for anyone who is having similar issues to report it to the Working Group.

Police Body Camera Interference. The Working Group received a report from a small town in Michigan stating body cameras were interfering with its 800 MHz band radios. The town is working with the vendor of the body camera and believes the issue may be the result of intermodulation interference.

**T-Band Report Update, Stu Overby.** On February 22, 2012, the President signed Public Law 112-96 which requires the FCC to begin auctioning the public safety T-Band spectrum by February 2021 and clear all public safety operations from the band within 2 years of auction close. This spectrum is allocated in 11 metropolitan areas to support critical public safety communications and serves to provide regional interoperability among first responders. These areas are Boston, Chicago, Dallas, Houston, Los Angeles, Miami, New York, Philadelphia, Pittsburgh, San Francisco, and Washington, D.C.

In response, NPSTC created a T-Band Working Group chartered to study the issue, assess and document the impact of the legislation and the FCC freeze on public safety, evaluate the viability and cost of potential relocation options, and provide its findings to the NPSTC Governing Board. The resulting T-Band Report was issued March 2013.



This year NPSTC is updating that report. Preliminary analysis shows the demand for spectrum is virtually unchanged, with a minimal change in the supply of alternative spectrum. The FCC prioritized 24 channels of 700 MHz reserve for T-Band relocation, but this number of channels pales in comparison to the number of T-Band channels used in some of the 11 metropolitan areas. TV/LPTV and Industrial/Business deployments on the T-Band would also greatly impact nationwide auction of the spectrum, even if public safety operations were cleared from the band as mandated

The updated report is being finalized. Also of note, SAFECOM developed a T-Band executive briefing paper and the T-Band issue was raised in recent Congressional hearings.

**5.9 GHz Issue Introduction, Stu Overby.** This band was allocated for Intelligent Transportation Services (ITS) and called Dedicated Short Range Radio Service (DSRC). The spectrum has been lightly used. However, technology development over the last several years for communications car-to-car and between cars and infrastructure raises the promise of viable use of the spectrum as it was intended. In the meantime, proponents of consumer WiFi communications have targeted the spectrum for WiFi use. There has been discussion on spectrum sharing between ITS and WiFi but no agreement has been reached. The FCC will likely do some additional testing. NPSTC is monitoring this now. There is also one channel in the band dedicated to public safety.

Steve Devine, APCO, said the emission masks and skirts for 4.9 GHz were derived from the 5.9 GHz DSRC model. Peter Moncure, RadioSoft, said there are actually three public safety channels in the 5.9 GHz band. Chief McGinnis attended a panel on vehicle to vehicle communications recently. He said there is an opportunity for public safety to advise and participate in this group.

### **Affiliate Member Statements**

**TCCA, Phil Kidner.** Mr. Kidner briefed on recent activities in Europe, saying some countries, the Netherlands, Belgium, and Sweden among them, are taking different approaches from the UK. They are working on the latest version in their LMR systems, but examining the advantages of LTE, primarily for data use. The European Telecommunications Standards Institute (ETSI) and ATIS are working closely together on standards work.

**ATIS, Frank Korinek.** Mr. Korinek said ATIS's activities, in addition to LMR to LTE include NG 911; ESNets, citizen information to the PSAPs; and intercept activities. ATIS is also working on locations services and on device management standards, but those are not yet up to public safety qualifications.

### **Federal Partners Update**

**Federal Communications Commission (FCC), David Furth, Deputy Bureau Chief, Policy and Licensing Division, Public Safety Homeland Security Bureau (PSHSB).** Mr. Furth expressed his thanks to Chief McEwen and Mr. Buchanan for their contributions to public safety communications. There are two orders currently on circulation. One is an attempt to resolve a petition filed several years ago seeking clarification of applying the tighter emission mask which exists in a portion of the 800 MHz band. Also under consideration in the 2014 700 MHz proceedings is a request to change the order of certification in the P25 CAP process. The decision on circulation regarding the Petition for Reconsideration (PFR) also will include a short Further Notice (FN) about new elements added to the CAP process.

In the second quarter, the Bureau will circulate an order regarding relocation of incumbent 700 MHz narrowband systems from the 700 MHz broadband spectrum. FirstNet has asked the Commission to condition the licenses so their right to operate on FirstNet spectrum ends on July 31, 2016. FirstNet also recently opened a grant funding program for these relocations. The Bureau is also working on a Notice of Proposed rulemaking (NPRM) dealing with the future issue of how the FCC will operate its mission to review state opt-out requests.

The Bureau will circulate a Further NPRM on the 4.9 GHz band. The FCC is appreciative of all comments on the band; the focus is to maximize use of band for public safety and to stimulate more investment and use of the band. NPSTC's comments are an important part of the process, and the Bureau also wants to consider use new technology to manage spectrum use in a dynamic way.

Work on the Railroad Police docket will also occur in the next quarter. The Bureau is also engaged in the cellular power rules and interstate channel position.

Mr. Moncure thanked Mr. Furth for the expeditious ruling on 173 related to shared use, but noting the loading standard seemed ambiguous. Mr. Furth agreed the reason for the requirement is to regulate use of these shared channels. He suggested if there is a question regarding ambiguity, it should be brought to the Commission.

### **Topical Presentation**

**Ligado Networks (*formally known as Lightsquared*), Geoff Stearn, Vice President of Spectrum Development.** Mr. Stearn thanked NPSTC for hosting him and for being part of the meeting to honor Mr. Buchanan and Chief McEwen. Mr. Stearn said Ligado represents a new approach to connected communications. Their spectrum is located in 1.5 and 1.6 GHz bands. He provided an overview of the company, which filed for bankruptcy as LightSquared in 2015. There is a new board and management which have reached an agreement with GPS services on appropriate power levels. Ligado's terrestrial authority for 1545-1555 MHz was relinquished creating 10 MHz guard band for GPS.

NPSTC provided feedback on the new test plan and the operating parameters agreed to have been approved by the FCC. There are reduced power levels and stronger OOB limits. There are no remaining issues with "Right Hand Spectrum" for broadband use. The technical issues on "Left Hand Spectrum" are limited to certified aviation and MSS augmentation. Ligado's license modification request is on PN by the FCC and will allow for the identification of any unresolved issues.

Ligado provides mobile satellite services. In 2007, they launched the SMART program, connected nationwide mutual aid public safety talk groups. Regional talk groups allow device interoperability in a much larger group. Mr. Stearn discussed the product offerings and what each offers to public safety.

He closed saying Ligado has a track record of fostering integration and interoperability among various teams and workgroups at a local, regional, national, and international level. The group is committed to drive innovation in satellite, terrestrial, and integrated networks. Mr. Haller invited Mr. Stearn and his company to participate in any of NPSTC's Working Groups.

### **Interoperability Committee, John Lenihan, Interoperability Committee Chair; Don Root, Vice Chair**

Mr. Haller reported the Board approved Jason Matthews as the new Vice Chair of the Interoperability Committee during the morning closed session.

**Emergency Medical Services (EMS) Working Group, John Lenihan.** Chief Lenihan reported on the publication of the results and analysis of the EMS Working Group questionnaire. The report is available online at [www.npstc.org](http://www.npstc.org).

**Common Channel Naming Working Group, John Lenihan.** Chief Lenihan said the intrastate channels have been approved and will be published in the near future.

**Radio IO Best Practices Working Group, John Lenihan.** The report has been reformatted to increase readability. Best Practice J focuses on training on the radio and its system.

**Encryption on Interoperability Channels Discussion, John Lenihan and Don Root.** The current NPSTC position is that designated nationwide interoperability channels should not be encrypted. Public safety agencies are evaluating the expanded use of encryption. To consider: The need to interoperate with federal agencies who are required to communicate using encryption; the changing threat landscape in the U.S.; and increasing availability of web and phone applications that monitor public safety channels in real time.

Currently the FCC prohibits encryption on the 700 MHz calling channels. The use of encryption is controlled in many SCIPs and by the Regional Planning Committees (RPCs).

Feedback received from the NPSTC Participants Listserv on this issue included the following responses:

- Encryption should not be used on any designated interoperability channels, keeping them available for use by any agency.
- Encryption should not be used on interoperability calling channels, but may be used on tactical channels designated for that purpose.
- Encryption should be allowed on all interoperability channels when necessary; as determined at the local or regional level, and when a communications plan is developed (e.g., pre-planned event).

NPSTC's Governing Board could take one of the following actions: 1. Reaffirm NPSTC's current position statement that encryption should not be used on interoperability channels; 2. Change NPSTC's current position to recommend that encryption should not be used on interoperability calling channels; or 3. Create a new position statement on the broader use of encryption to include the need for technical planning, training, and use of best practice documents. Any position statement should acknowledge the role of the state plan and/or RPC authority to regulate encryption.

Discussion: Mr. Root said at past NPSTC meetings there had been discussion of encrypting some VHF channels. In rural areas, law enforcement may travel many miles doing surveillance. There needs to be a balance between channels where encryption is possible and where some remain interoperable without encryption. Mr. Powell agreed with Mr. Root, saying law enforcement has used encryption a lot. There is an open item on the issue at the Commission that to his knowledge has not been resolved. Chief

McEwen said he agreed in general with Mr. Root's comments, but generally he would be opposed to doing too much with encryption.

Lloyd Mitchell, FCCA, said the interoperability channels are the lowest common denominator and he would object to encryption, saying encryption can't be turned on and off. Chief McGinnis said NPSTC should develop an ad hoc Working Group or Task Force to research the issue further. Mr. Wright said his agency has a channel that can be encrypted, but when an agency has an encryption scheme that needs to be shared, the encryption is blown. This would also limit the ability to talk on the interoperability channels.

Mr. Powell said the Federal Partnership for Interoperable Communications (FPIC) recently held an event to test encryption. Ken Link, who attended the FPIC event, told Mr. Powell there is new technology that facilitates the use of encryption and the event went well.

Mr. Buchanan said the Working Group should look at the number of channels to be used and who should do the encryption (probably law enforcement) to make better decisions. Chief McEwen agreed the Board should discuss this further, but NPSTC should not lose interoperability channels to comply with a federal order. Mr. Wright added the research should determine how many agencies even have radios that can be encrypted. Would the Working Group set a standard for the type of encryption?

John McIntosh, Association of Fish and Wildlife Agencies (AFWA), said the interoperability channels should not be encrypted under any circumstances. Fish and Wildlife in Washington State just created an encryption channel and it is a chore to manage. Fish and Wildlife can't talk to the Border Patrol because they are fully encrypted. He agreed a Working Group is needed and one of the tasks should be to suggest best practices. Bill Schrier, Seattle Police Department, said channels already exist for local law enforcement such as the Joint Terrorism Task Force and fusion center, but for small agencies encryption is costly.

Motion and Vote: Lt. McIntosh moved to create a Working Group to research the issue of encryption on the interoperability channels; Mr. Gilbert seconded the motion. Approved.

Chief Lenihan asked for volunteers and said he will reach out to Mr. Link. Mr. Haller said no Governing Board approval would be needed for Chief Lenihan to appoint a Chair.

**Meetings.** Ms. Haller said NPSTC will meet in Washington, D.C., in September. Next year IWCE will be in Orlando, FL. The Executive Committee discussed having three face-to-face meetings in the future. The Support Office will research venues, dates, and the possibility of a third meeting. Mr. Haller said he was very impressed by the amount of work accomplished by the Working Groups. This year there were 3,682 callers and the Working Groups logged 220,000 minutes on the phone bridge.

**Adjournment.** Sheriff Fitzgerald moved to adjourn. Chief McGinnis seconded. Mr. Haller adjourned the meeting.