



Full NPSTC Meeting

Conference Call

July 26, 2016 | 11:00 am – 1:30 pm ET

Call In: (510) 227-1018 | Conference ID: 192 7086#

Webinar Access: <https://join.me/npstcsupport1>

Press *6 to mute your phone.

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Welcome and Opening

Ralph Haller, *Chair*

NPSTC is a federation of organizations whose mission is to improve public safety communications and interoperability through collaborative leadership.

Welcome and Opening



- Call to Order
- Roll Call
 - All Attendees including Governing Board Representatives please send an email to attend@npstc.org with your name and organization in the body of the email, please enter “Full NPSTC Meeting” in the subject line.
 - Please email questions during the meeting to support@npstc.org.
 - Please mute your phone by pressing *6. Do not press the “hold” button if your system uses music on hold.
 - If you are a Governing Board representative, please press *5 to raise your hand to speak.



Federal Partners Update

**Department of Homeland Security (DHS), Office of Emergency
Communications (OEC) – Chris Essid, Deputy Director**

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Interoperability Committee

John Lenihan, Chair | Jason Matthews, Vice Chair

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Interoperability Committee



- Interoperability Committee Update, John Lenihan, Chair
 - Emergency Medical Services
 - Cross Border Working Group
 - Radio IO Best Practices
 - Common Channel Naming

Interoperability Committee



- Emergency Medical Services
 - Finalizing a “*10 Reasons You Should Engage With FirstNet*” outreach paper.
 - Reviewing issues on rural use of FirstNet by EMS.
 - Researching GPS medical alarms to learn more about these systems.

Interoperability Committee



- Cross Border Working Group
 - FCC and Canada announcement on cross border base station placement.
 - Complements FCC notice on cross border use of portable and mobile radios issued in November.
 - Presented at the recent CANUS CIWG meeting in Ottawa with OEC and Public Safety Canada.
 - Continued work on:
 - Cross Border 911 data sharing
 - Emergency Vehicle Border Crossing Best Practices

Interoperability Committee



- Radio IO Best Practices Working Group
 - The following Best Practice Statements are either near completion or are in progress:
 1. Radio Channel Naming
 2. Training
 3. Change Management
 4. Infrastructure Management

Interoperability Committee



- Common Channel Naming
 - Request the Governing Board move this working group to monitoring status.

Interoperability Committee



- Encryption Task Force, Jason Matthews, Chair
 - Original intent was to see if any agencies were using encryption on FCC designated interoperability channels.
 - FCC rule issued in April mandates use of analog FM for mobiles/portables on FCC-designated interoperability channels in the VHF, UHF and 800 MHz Band.
 - NPSTC issued a question to the Participants Forum on July 13, 2016 asking for feedback on the new FCC rule.
 - Feedback results of July 22, 2016:
 - 41 Responses
 - Mix of local, state, law enforcement and fire
 - Overwhelming support for FCC analog FM rule
 - Only one response raised concerns



FirstNet National Public Safety Broadband Network (PSBN) Development

FirstNet – Paul Patrick, PSAC Executive Committee

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Spectrum Management Committee

Don Root, Chair | Charlie Sasser, Vice Chair

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Spectrum Management Committee



- Spectrum Management Committee Update, Don Root, Chair
 - 4.9 GHz
 - 5.9 GHz
 - Interference Protection Working Group
 - FCC Noise Floor Proceeding

Spectrum Management Committee



- 4.9 GHz
 - Open FCC rulemaking to revise rules since June 2012
 - NPSTC submitted its 4.9 GHz National Plan Recommendation in October 2013.
 - APCO filed its 4.9 GHz Task Force Report in September 2015.
 - Both NPSTC and APCO emphasized need for required frequency coordination in the band.
 - Some recent proposals call for dynamic spectrum sharing with consumer access through carriers or unlicensed use.
 - FCC Further Notice of Proposed Rulemaking is expected.

Spectrum Management Committee



- 5.9 GHz
 - 75 MHz at 5.9 GHz allocated for DSRC – “Dedicated Short Range Communications” for intelligent transportation and connected vehicles
 - Spectrum sought by Wi-Fi proponents for consumer use
 - No agreement to date on sharing approach
 - FCC Public Notice proposing a test plan framework and seeking to refresh the record issued June 1, 2016
 - NPSTC filed comments and reply comments

Spectrum Management Committee



- Interference Protection Working Group
 - FCC Noise Floor Proceeding, Docket 16-191
 - Issue being studied by FCC's Technological Advisory Council (TAC)
 - FCC issued Public Notice June 15, 2016 seeking input on the radio spectrum noise floor
 - Comments due August 11, 2016
 - Spectrum Committee planning draft response covering noise floor impact from:
 - Energy Efficiency Lighting
 - RF from Wind Farms
 - NPSTC seeking noise floor measurements from industry; availability TBD

Spectrum Management Committee



- Deployable Trunked Systems Task Force, David Buchanan
 - NPSTC and National Regional Planning Council (NRPC) recommended six former 700 MHz band reserve channels for deployable trunked systems.
 - FCC approved the recommendation
 - Wide Area Communications Network (WACN) assigned by TIA and System IDs coordinated / tracked in Computer Assisted Pre-coordination Resource and Database System (CAPRAD)
 - Mexico's plan to use the Asia 700 MHz bandplan results in incompatibility in U.S./Mexico border area.
 - Issue is being discussed in affected regional planning committees (RPCs).

Spectrum Management Committee



- Federal Communications Commission (FCC)
Filings, Stu Overby

NPSTC Filings in 2016



Date Filed	Topic	Type of Filing
8/11/16 (Planned)	Noise Floor	Comments
7/22/16	5.9 GHz DSRC	Reply Comments
7/13/16	Interference Portal	Letter
7/8/16	4.9 GHz	Ex Parte (#2)
7/7/16	5.9 GHz DSRC	Comments
6/21/16	Ligado 1675-1680 MHz	Comments
6/3/16	T-Band Update Report	Ex Parte
5/23/16	Ligado 1545-1555 MHz	Comments
4/21/16	4.9 GHz	Ex Parte (#1)
1/13/16	Wireless Emergency Alerts	Comments



Federal Partners Update *(continued)*

**Federal Communications Commission (FCC) – David Furth, Deputy
Bureau Chief, Public Safety Homeland Security Bureau (PSHSB)**

**Public Safety Communications Research (PSCR) – Dereck Orr, Division
Chief, NIST Public Safety Communications Research**

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Technology and Broadband Committee

Tom Sorley, Chair | Andy Thiessen, Vice Chair | Michael Britt, Vice Chair

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Technology and Broadband Committee



- Technology and Broadband Committee Update, Tom Sorley, Chair
 - Broadband Emerging Technologies
 - LMR to LTE Migration
 - Broadband Deployable Systems
 - Radio Programming Compatibility Requirements (Radio PCR)
 - Unmanned Aircraft Systems (UAS)/Robotics
 - Video Technology Advisory Group (VTAG)

Technology and Broadband Committee



- Broadband Emerging Technologies
 - Hosted several highly attended presentations.
 - FirstNet Web Status Page
 - NIST overview of sensors and connected
 - State Alternative Planning Approaches Panel Discussion
 - Smart Cities Project
 - The committee will be scheduling future presentations on these topics.
 - International LTE deployments in the United Kingdom and Korea
 - NG911 integration with FirstNet

Technology and Broadband Committee



- LMR to LTE Migration
 - Created five use cases to validate existing NPSTC requirements while also checking for new requirements.
 - Working with PSCR to better understand the technical complexity of direct mode/off network communications.
 - Monitoring 3GPP and FirstNet announcements that will impact LMR and LTE integration.
 - Building additional use cases.

Technology and Broadband Committee



- Broadband Deployable Systems
 - Created nine use cases documenting various configurations for broadband deployable systems, including backpack, vehicular, towed and airborne.
 - About to start work on master report with estimated completion by early September.
 - Reviewing early list of public safety requirements for edits.
 - Finalizing an Incident Commander check list with recommendations on deployable systems usage.

Technology and Broadband Committee



- Radio Programming Compatibility Requirements (Radio PCR)
 - Performing a Quality Assurance Check on a new version of the PAM Toll with new 700 MHz channels added.
 - Asking industry partners to verify that their subscriber information listed in the PAM Tool is correct.
 - Planning a face to face meeting on September 20-21 in Houston.

Technology and Broadband Committee



- Unmanned Aircraft Systems (UAS) and Robotics
 - Heard presentations on the following topics
 - Larimer County UAS Program (accident scene reconstruction)
 - Use of UAS for SAR (by Texas A&M University)
 - Regulatory guidance on UAS (by FAA)
 - Michigan State Police Aviation UAS program
 - Persistent Close Air Support, State of Arizona
 - Working on outreach documents
 - Considerations for public safety agencies with UAS program implementation
 - Current uses of UAS/Robotics by Public Safety
 - Public Safety communications aerial platforms via UAS

Technology and Broadband Committee



- Video Technology Advisory Group (VTAG)
 - Assisted in the review of a Policy Considerations document released by Video Quality in Public Safety (VQIPS).
 - Supported the Video Analytics in Public Safety (VAPS) conference sponsored by NIST.
 - Helping with program content for the upcoming VQIPS Annual Workshop, being held in Seattle, WA on August 31 and September 1st.



Affiliate Organization Update

**Telecommunications Industry Association (TIA)
Jim Holthaus, Representative**

Open Mobile Alliance (OMA) – Frank Korinek, Representative

**Alliance for Telecommunications Industry Solutions (ATIS)
Brian Daly, Representative**

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NPSTC UPDATE

- New work at OMA can be characterized as:
 - Significant advances in IOT Enablers, especially Lightweight M2M
 - A focus on the transition to a virtualized network and the resulting impact on the services space
 - Organic updates to core Enablers such as Device Management and Location
 - Some new Location work items related to indoor navigation.
 - Continuing updates to the protocols and test suites supporting RCS.

OMA Enabler Releases:

<http://technical.openmobilealliance.org/Technical/technical-information/release-program/current-releases>

- Virtualization is developing fast in the industry
 - NFV/SDN is in production and deployed VNFs are rapidly moving up the service stack
 - ETSI is finalizing Stage 2 specs and working on Stage 3 plans
 - OPNFV is participating in multi-SDO efforts on Information Modeling, e.g. for VNF Packaging and Lifecycle Management
 - OPNFV is providing a living testbed for VNF interoperability testing
 - The next stage, cloud-native microservice architectures, is beginning to take shape
- This will further disrupt approaches to defining services and related standards
- OMA is in the final stages of publishing a position paper that is a precursor to
 - Adoption of NFV SWA concepts into the OMA architecture
 - Adaptation of OMA Enablers for deployment under NFV

SERVICE ENABLER VIRTUALIZATION (CONT'D)

- Issues this Work Item aims to solve:
 - The need for OMA to help the market avoid fragmentation in OMA Enabler VNF deployment, which could occur in the absence of these guidelines and Network Service Descriptor recommendations for specific OMA Enablers.
- Market benefits:
 - Establish concrete examples for service virtualization, helping other orgs refine the underlying technical concepts and frameworks
 - Avoid fragmentation in the coming marketplace for virtualized OMA Enablers
 - Accelerate the readiness of existing OMA Enabler-based services to be deployed in virtual infrastructure
 - Provide example VNFs to drive development and test of NFV Infrastructure (NFVI) platforms, e.g. in the OPNFV

- The OMA Communications (COM) Working Group is responsible for the specification of messaging and related enabling technologies. The goal of COM Working Group is to specify a set of basic messaging features that may be used to enable specific messaging paradigms.
- Converged IP Messaging - The evolutionary interoperability between future IP-based messaging services and legacy Mobile Messaging Services
- Current Work Item in progress - V2.2
 - New features for Group Chat conversations
 - Optimization for concurrent multiple sessions handling
 - Enhancements proposed for Group Chat conversations and optimization for concurrent multiple sessions handling
- Aims to Solve - New messaging features are needed in the market based on input received from operators active in GSMA, which are defining the new requirements based on specific market needs.
- <http://technical.openmobilealliance.org/Technical/technical-information/release-program/current-releases/cpm-v2-1>
- Also developing TTCN test code to be given to GSMA for test of RCS 5.1.

The OMA Architecture Working Group has an active program on RESTful Network Application Programming Interface (API) specifications including:

RESTful Network API for Message Broadcast

- This use case is to leverage mobile network broadcast/multicast capabilities for automotive telematics services to alert other road users or other vehicles of an accident in order to avoid more accidents or to avoid traffic jams. A third-party can alert or notify other registered devices about an activity, such as water flooding, accidents etc.
- This API specifically provisions area-based public information such as weather, traffic and other emergency-related information of common interest, which makes it very suitable for the message broadcast use case described in ENCap-M2M Enabler

RESTful Network API for Communication Patterns

- This API will allow a third-party to provide a Network Operator with information about communication patterns of individual Devices or groups of Devices, such as time and traffic volume related patterns, then location and mobility related patterns etc.
- Work Item aims to specify a RESTful Network API for a third party to provide a Network Operator with information about predictable communication patterns (CP) of individual Devices or a group of Devices that are served by this third party.
- Aims to specify a common way of exposing this configuration for communication patterns which would enhance the usage of network resources.
- 3GPP is developing, for Rel-13, a capability to enable network resource optimizations based on communication patterns (CP) of a Device. While the information about CP may be provided by a third party, the interface is missing.
- An M2M Application Provider or M2M Service Provider will be able to leverage existing and future network capabilities to enrich the services or to streamline the operation.

- The OMA Location Working Group develops specifications to ensure interoperability of Mobile Location Services on an end-to-end basis.
- OMA LPP Extensions (LPPE) - The evolutionary interoperability between future IP-based messaging services and legacy Mobile Messaging Services.
- Current Work Item in progress - V2.0
 - Support Pedestrian Dead Reckoning (PDR) as new positioning method.
 - Support Image Recognition Based Positioning (IRBP) as new positioning method
 - Enhance positioning accuracy and availability in WLAN environments
- Aims to increase service quality, particularly for indoor environments, by introducing support for new positioning methods
 - Allow transmission of UE MAC address over LPPE
 - Add granularity to height positioning
- Also socializing work item for [indoor] Navigation Service Framework.
- Includes Public safety use cases:
 - Routing information to the responder for reaching the rescue requester.
 - Routing information from the national public safety agency to shelter for each citizen based on their current position

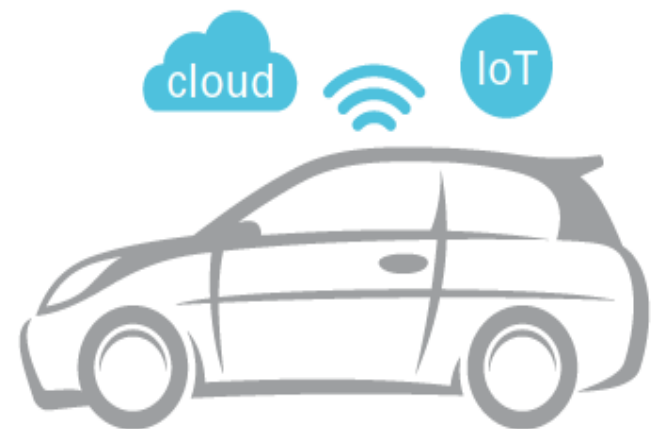
- The Device Management Working Group defines management protocols and mechanisms that enable robust management of the life cycle of the device and its applications over a variety of bearers.
- LightweightM2M - This Enabler defines the application layer communication protocol between a LWM2M Server and a LWM2M Client, which is located in a LWM2M Device. The OMA Lightweight M2M Enabler includes device management and service enablement for LWM2M Devices. The target LWM2M Devices for this Enabler are mainly resource constrained devices. Therefore, this Enabler makes use of a light and compact protocol as well as an efficient resource data model.
 - Current in Progress – LWM2M v1.1 to enhance Firewall Traversal, Security Enhancements, LPWAN support, CoAP PubSub, Resource Directory, HTTP2/ QUIC & Object Versioning

- OMA is hosting an incubator group (groups of interested member and non-member stakeholders) to develop an understanding of the gaps in communication protocol work related to the automotive industry, and specifically the connected car.

- Establish a venue for discussion between telecom and automotive at a technical and industry level to establish **any network, any automobile** communication
- Create a path for the Automotive industry to interface with the rest of IoT via standardized enablers
- Bridge existing Telco standards with standardization efforts in the Automotive sector
 - Identify select established telecom specifications to optimize for the needs of the Automotive market
- Output coming in October 2016 – technical report on the current array of automotive communications standards efforts with recommendations on how to achieve interoperability

OMAuto

guiding standardization for the connected car:
any network, any automobile communication



- As networks becoming increasing virtualized, we are seeing increasing importance of open source implementations and open source projects across the board in the services space.
- A number of high profile SDO have held seminars on the topic of the confluence of Open Standards and Open Source. OMA has completed a survey on the topic.
- We expect this topic to become increasingly important.



Thank You



ATIS Update to NPSTC

Frank Korinek

*ATIS Board Member
Motorola Solutions*

Brian Daly

*ATIS Member
AT&T*

July 26, 2016

Emergency Location (ELOC) Task Force

- ATIS ELOC TF developing solutions in support of November 2014 voluntary agreement by AT&T, Verizon Wireless, T-Mobile, Sprint, APCO, and NENA.
 - Completed initial National Emergency Address Database (NEAD) requirements in support of FCC's 4th R&O on Wireless E911 Location Accuracy Requirements in 2Q2016 ([ATIS-0700028](#)).
 - NEAD will store the location of a “beacon” device (e.g., WiFi, Bluetooth), which will allow carriers to query for delivery of a 911 caller's dispatchable location
 - ATIS selected as Program Manager for the NEAD LLC (created under CTIA) to help administer and execute the creation of the NEAD.

Wireless Emergency Alerts (WEA)

- ATIS developed Wireless Emergency Alert (WEA) solutions per the WARN Act.
- Completed three feasibility studies in December 2015 to address FCC CSRIC IV recommendations:
 - [Display of additional content](#) -- multimedia content cannot be supported in cell broadcast-based WEA.
 - [Message length](#) -- increase to 360 displayable characters is technically feasible for LTE WEA.
 - [Geo-targeting](#) -- current wireless infrastructure-based geo-targeting continues to be recommended solution.
- [Responded to FCC NPRM on WEA](#) in January 2016, summarizing the feasibility studies' findings noted above.
- Recently initiated two new WEA projects:
 - WEA End-to-End Security Best Practices
 - Feasibility Study for Impact of URLs in WEA Messages

Location Accuracy

- ATIS selected as Program Manager for the Test Bed LLC (created under CTIA) to help administer and execute the near- and long-term Test Beds of wireless indoor location technologies.
 - Test Bed work is based upon existing ATIS ESIF standards.
 - Standard test methodology includes test point randomization, building selection, and range of environmental conditions.
- ATIS ESIF continues to develop consensus-based industry requirements for testing location accuracy performance.
 - Completed definition of San Francisco and Atlanta polygons and test building types.
 - Developed methodology for barometric pressure based z-axis solutions.
 - Started developing Wi-Fi and crowd sourced solutions test methodology.

Earthquake Early Warning (EEW) System

- ATIS WTSC [initiated project](#) to develop the architecture and requirements of an EEW System (Target: 1Q2017).
 - Builds upon [June 2015 study](#) that addressed implementation of an EEW System.
 - Explained feasibility of cellular networks for providing earthquake early notifications in an EEW System.
 - Identified point-to-point communications and WEA as incapable of supporting the requirements.
- Held meetings with various EEW stakeholders and continue engagement via private-public collaboration on architecture/requirements development.

Real-Time Text (RTT)

- ATIS WTSC is currently developing:
 - RTT end-to-end service description specification to:
 - Facilitate consistent use of RTT among multiple service providers by describing the service interactions between RTT and IMS.
 - Define end-to-end RTT service requirements, such as character error rate, transmission delay, and transmission rate, and include an analysis of a variety of RTT use cases.
 - RTT mobile device behavior specification to:
 - Identify behavior requirements of a device performing RTT user-to-user communication, including: (1) minimum requirements for RTT-capable device user interfaces; (2) mobile device behavior in support of emergency services requirements; and (3) minimum RTT user options.
- ATIS PTSC developed *Support of TTY Service Over IP Using Global Text Telephony (GTT)* ([ATIS-1000068](#))
 - Explains how GTT can be provided over service providers' IMS networks.

Contacts



For additional information or to get engaged in ATIS activities, contact ATIS' NPSTC representatives:

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Supplemental Material



About ATIS

- Founded in 1984, ATIS develops solutions that include:
 - Standards;
 - Requirements;
 - Implementation Guidelines;
 - Specifications;
 - Feasibility Studies;
 - Business use cases;
 - Software toolkits; and
 - Interoperability testing.
- Founding Partner of 3GPP and oneM2M.
- Broad membership comprised of service providers, manufacturers, public safety (APCO Int'l, NENA, Tarrant County 9-1-1, etc.), government agencies (US DoC, US DHS OEC, US DoJ, Public Safety Canada), software companies, etc.



About ATIS

- Work is completed through ATIS' 14 industry committees and its Technology and Operations (TOPS) Council.
 - Many of ATIS' committees work on emergency services projects, including:
 - Wireless Technologies and Systems Committee (WTSC)
 - Emergency Services Interconnection Forum (ESIF)
 - Packet Technologies and Systems Committee (PTSC)
 - Network Reliability Steering Committee (NRSC)



ATIS Committees and Forums

- Automatic Identification and Data Capture Committee (**AIDC**)
- Copper/Optical Access Synchronization and Transport Committee (**COAST**)
- Emergency Services Interconnection Forum (**ESIF**)
- IMSI Oversight Council (**IOC**)
- Industry Numbering Committee (**INC**)
- Network Functions Virtualization Forum (**NFV**)
- Network Reliability Steering Committee (**NRSC**)
- Next Generation Interconnection Interoperability Forum (**NGIIF**)
- Ordering and Billing Forum (**OBF**)
- Packet Technologies and Systems Committee (**PTSC**)
- SMS/800 Number Administration Committee (**SNAC**)
- Sustainability in Telecom: Energy and Protection Committee (**STEP**)
- Telecom Management and Operations Committee (**TMOOC**)
- Wireless Technologies and Systems Committee (**WTSC**)

ATIS and Third Generation Partnership Project (3GPP)



- ATIS is the North American Partner to 3GPP, where LTE-Advanced specifications are developed.
 - Responsible for transposing 3GPP specifications into formal North American (ATIS) deliverables.
 - Public safety has been a very active topic over the past few years, with new 3GPP “Mission-Critical Applications” group has recently created (SA6).
 - “5G” Study Item approved in 3GPP.
 - ATIS members are active in 3GPP.
 - ATIS provides a venue to discuss and develop 3GPP Change Requests.



New Business

New Business



- Upcoming Meetings and Events, Sandy Dawkins, NPSTC Coordinator
 - APCO Conference | August 14 – 17, 2016 | Booth #565 and Panel | Orlando, FL
 - In Person Meeting | Wednesday, September 28 and Thursday, September 29, 2016 | Washington DC
 - Travel has been approved.
 - In Person Meeting | Week of January 16th | TBD
 - Travel is on your own



Adjourn | Thank you!

Questions?

support@npstc.org | 1.800.807.4755

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