***Meeting of the***

**Panel on Review of the National Institute of Standards and Technology's**

**Communications Technology Laboratory**

**National Institute of Standards and Technology**

**325 Broadway**

**Boulder, Colorado**

**June 25-27, 2019**

**AGENDA**

**Tuesday, June 25, 2019**

***Note: Coffee Service and Break Food Items Will be Available at the NIST Facility Upon Arrival. Panel Members Desiring a Full Breakfast Should Eat Before Leaving for NIST.***

7:15 a.m. Panel Assembles in Hotel Lobby to Travel to NIST by Shuttle Bus, Sign in at the Visitor’s Center, and Arrive in the Meeting Room

**CLOSED SESSION (PANEL MEMBERS AND NATIONAL ACADEMIES STAFF ONLY)**

***Location: Building 81, Room 1A116***

8:00 a.m. Welcome and Charge to the Panel, **Douglas Sicker,** Panel Chair, and **Martin**

 **Offutt**, Laboratory Assessments Board, The National Academies

 Panel Discusses Potential Sources of Bias and Conflict of Interest and Reviews Assessment Process, **Martin Offutt**, Laboratory Assessments Board,

 The National Academies

**DATA GATHERING SESSION (OPEN TO THE PUBLIC)**

***Location: Building 81, Room 1A116***

9:00 a.m. NIST Overview

 **Jason Boehm**, Director, NIST Program Coordination Office

9:30 a.m. CTL Overview

 **Marla Dowell**, Director, Communications Technology Laboratory

10:00 a.m. Break

10:15 a.m.   Public Safety Communications

**Dereck Orr**, Chief, Public Safety Communications Research Division

10:45 a.m.           Next Generation Wireless

**Nada Golmie**, Chief, Wireless Networks Division

11:15 a.m.Fundamental Measurements for Wireless Communication

**Paul Hale**, Chief, RF Technology Division

11:45 a.m. Trusted Spectrum Testing

**Melissa Midzor**, Program Manager, NASCTN

12:15 p.m. Working Lunch: Question and Answer Session with CTL management and tour presenters

1:00 p.m. Review Teams in Transit

 Public Safety Communications Review Team in Transit to Building 3

 Metrology for Advanced Communications Review Team Remains in Building 81

**DATA GATHERING SESSION (OPEN TO THE PUBLIC)**

**Public Safety Communications Review Team Schedule**

***Location: Building 3***

 1:15 p.m. PSCR Welcome and Introductions

 1:30 p.m. PSCR Strategic Planning and Program Execution

 **Dereck Orr**, Division Chief, Public Safety Communications Research Division

 1:45 p.m. Mission Critical Voice (MCV) Quality of Experience (QoE) Measurement Methods

 **Tim Thompson**, Electronics Engineer, Public Safety Communications Research Division

 **Jaden Pieper,** Applied Mathematician, Public Safety Communications Research Division

 2:45 p.m. Break

 3:05 p.m. Mission Critical Voice (MCV) Demo in the PSCR Lab

 3:25 p.m. Enabling Service Continuity Using User Equipment (UE) to Network Relays

 **David Griffith**, Project Leader, 5G & Beyond

 4:10 pm. Adjourn and return to Building 81

**Metrology for Advanced Communications Review Team Schedule**

***Location: Building 81-1A116***

 1:00 p.m. Advanced Wireless Services (AWS-3) Presentation in 81-1A116 **Jason Coder**, Group Leader, Shared Spectrum Metrology Group **Melissa Midzor**, Program Manager, NASCTN **Adam Wunderlich**, Data Scientist Lead, NASCTN

1:45 p.m. Metrology Review Team in Transit to Building 24

 2:00 p.m. National Broadband Interoperability Test Bed (NBIT) Tour **Jason Coder**, Group Leader, Shared Spectrum Metrology Group

 2:25 p.m. Antenna Communications and Metrology Laboratory (ACML) Tour *Tour includes the Large Antenna Positioning System (LAPS) and the Configurable Robotic Millimeter-Wave Antenna (CROMMA)* **Jeffrey Guerrieri**, Group Leader, RF Fields Group

2:45 p.m. Metrology Review Team in Transit to Building 81

 3:00 p.m. Spectrum Sharing at 3.5 GHz in 81-1A116

 **Michael Souryal**, Project Leader, Spectrum Sharing

 **Adam** **Wunderlich**, Data Scientist Lead, NASCTN

 4:00 p.m. Optical Networks in 81-1A116

 **Marla Dowell**, Director, CTL

 **Paul Hale**, Chief, RF Technology Division

4:30 p.m. Adjourn breakout session

**CLOSED SESSION (PANEL MEMBERS AND NATIONAL ACADEMIES STAFF ONLY)**

***Location: Building 81, Room 1A116***

4:40 p.m. Panel meets privately to discuss their impressions

5:40 p.m. Adjourn closed session

5:45 p.m. Travel to Joint Working Dinner (Shuttle from NIST to Working Dinner for Panel)

**DATA GATHERING SESSION (OPEN TO THE PUBLIC)**

***Location: The Boulder Dushanbe Teahouse; 1770 13th Street; Boulder, CO 80302; (303)442-4993***

6:00 p.m. Joint Working Dinner: Panel Engages in a Question and Answer Session with

 NIST Staff.

**Wednesday, June 26, 2019**

***Note: Coffee Service and Break Food Items Will Be Available at the NIST Facility Upon Arrival. Panel Members Desiring a Full Breakfast Should Eat Before Leaving For NIST.***

7:30 a.m. Panel Assembles in Hotel Lobby to Travel to NIST by Shuttle Bus

**DATA GATHERING SESSION (OPEN TO THE PUBLIC)**

8:00 a.m. *Review Teams in Transit*

 *Public Safety Communications Review Team in Transit to Building 3*

 *Metrology for Advanced Communications Review Team in Transit to 81-1E121*

**Public Safety Communications Review Team Schedule**

***Location: Building 3***

 8:00 a.m. PSCR Welcome

 8:15 a.m. Open Innovation Overview

 **Ellen Ryan,** Deputy Division Chief**,** Public Safety Communications Research Division

 8:30 a.m. Tech to Protect and De-Identification Challenge Review

 **Craig Connelly**, Prize Competition and Challenge Specialist**,** Public Safety Communications Research Division

 **Terese Manley**, Prize Competition and Challenge Specialist, Public Safety Communications Research Division

 9:00 a.m. Identity, Credential, and Access Management (ICAM)

 **John Beltz**, Security Portfolio Lead, Public Safety Communications Research Division

 9:30 a.m. Break

 9:45 a.m. Location Based Services Overview

 **Jeb Benson,** LBS Portfolio Lead, Public Safety Communications Research Division

 10:15 a.m. Analytics Overview

 **John Garofolo**, Analytics Portfolio Lead, Public Safety Communications Research Division

 10:45 a.m. Future of Pre-Incident Planning Demo in the PSCR Lab

 11:05 a.m. Haptics Interface for Public Safety

 **Scott Ledgerwood**, UI/UX Portfolio Lead, Public Safety Communications Research Division

 11:35 a.m. Virtual Reality (VR) / Augmented Reality (AR) Demo in the PSCR Lab

 12:00 p.m. Questions and Wrap Up

**Metrology for Advanced Communications Review Team Schedule**

***Location: per agenda***

 8:15 a.m. Future of Network Analysis and Lab Tour in 81-1E121

 **Dylan Williams**, Electrical Engineer, Linear, Non-Linear Project Analysis

 **Nate Orloff**, Project Leader, Microwave Materials

 9:00 a.m. Metrology Review Team in Transit to 81-1A116

 9:15 a.m. Millimeter Wave Propagation Measurements and Modeling in 81-1A116

 **Camillo Gentile**, Project Leader, 5G & Beyond

 **Nada Golmie**, Division Chief, Wireless Networks Division

 **Kate Remley**, Project Leader, Metrology for Wireless Systems

 10:15 a.m. Over-the-Air Test, Lab Tour in 1-4619

 **Kate Remley**, Project Leader, Metrology for Wireless Systems

 10:45 a.m. Quantum Field Probe Presentation and Lab Tour in 1-4631

 **Chris Holloway**, Electrical Engineer, Field Strength Metrology

 11:30 a.m. NIST Microwave Uncertainty Framework in 1-4604

 **Ben Jamroz**, Computer Scientist, Channel Measurement and Modeling

12:15 p.m. All Review Teams in Transit to Building 81

**CLOSED SESSION (PANEL MEMBERS AND NATIONAL ACADEMIES STAFF ONLY)**

***Location: Building 81, Room 1A116***

12:30 p.m. Working Lunch: Panel meets privately to discuss their impressions

1:30 p.m. Discussion of Review Findings and Draft Assessment

 Report

5:30 p.m. Panel Assembles in Front of Building 81 to Travel to Working Dinner

**CLOSED SESSION (PANEL MEMBERS AND NATIONAL ACADEMIES STAFF ONLY)**

***Location: Carelli’s of Boulder; 645 30th Street; Boulder, CO 80303; (303)938-9300***

6:00 p.m. Closed Panel Working Dinner: Panel Continues Deliberations

**Thursday, June 27, 2019**

**Note: Coffee Service and Break Food Items Will be Available at the NIST Facility Upon Arrival. *Panel Members Desiring a Full Breakfast Should Eat Before Leaving for NIST.***

 7:30 a.m. Panel Assembles in Hotel Lobby to Travel to NIST by Shuttle Bus and Arrive in the Meeting Room

**CLOSED SESSION (PANEL MEMBERS AND NATIONAL ACADEMIES STAFF ONLY)**

***Location: Building 81, Room 1A116***

7:45 a.m. Full Panel Continues Deliberations and Drafting of the Assessment Report

**DATA GATHERING SESSION (OPEN TO THE PUBLIC)**

***Location: Building 81, Room 1A116***

10:45 a.m. Panel Meets with Laboratory Leadership, Division Chiefs, and Others Invited by NIST to Clarify Impressions and Facts

12:15 p.m. Panel Meeting Adjourns

***Location: Building 81, Room 1A106***

12:15 – 12:45 p.m. **Douglas Sicker** and **Martin Offutt** Meet with: **Jason Boehm** and **Marla Dowell**