V2X Summit Speaker

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Jason Conley, Executive Director
USDOT V2X Summit

August 24, 2022

OMNIAIR CONSORTIUM

omniair.org

OMNIAIR ECOSYSTEM:

- Automotive OEMs
- Tier One Suppliers
- Chipset & Technology Component Providers
- Cybersecurity
- Tolling Devices
- Systems Integrators
- Deploying Agencies
- Test Tools
- Test Labs
- V2X Devices
- Research Institutes

OmniAir's Readiness Program

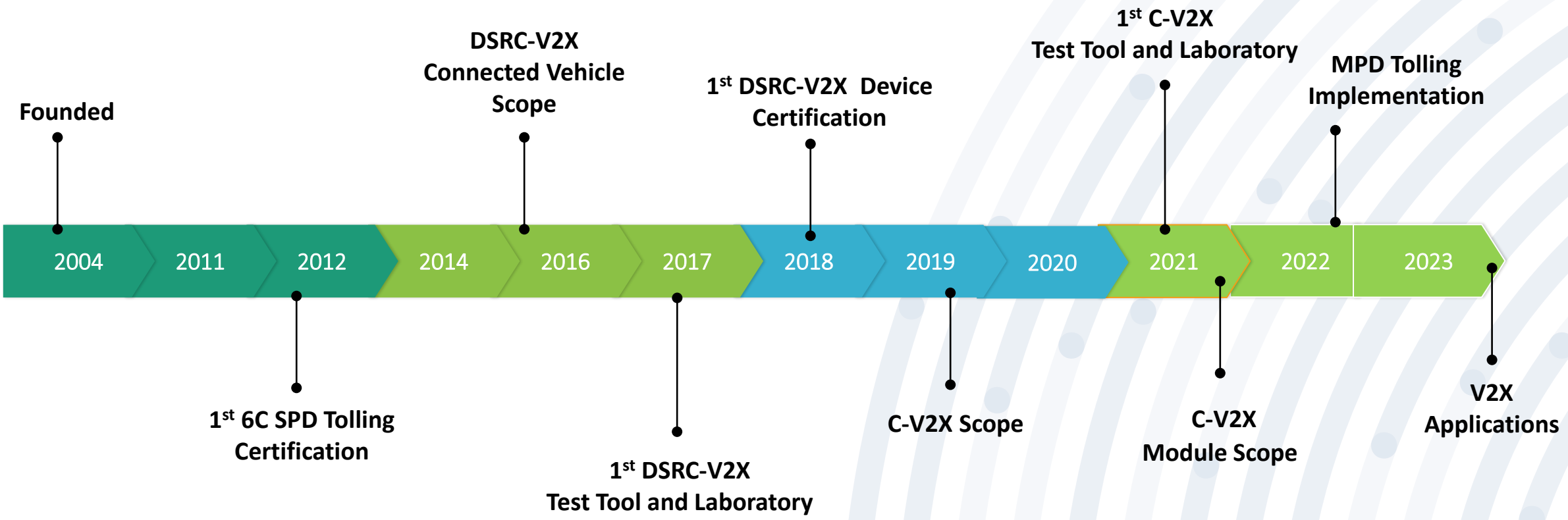
- Provides written assurance by an independent body that a product meets the minimum, documented requirements
- Validates systems, processes, and technologies
- Verifies **conformance** with industry standards & government regulations
- Verifies **interoperability** between OBU, RSU, and SCMS providers

Why Certification?

- Independent Accredited Laboratory Testing & Test Report
- Conformance & Verification per Test Cases of Standards/ Specifications
- Provides Consistency for Device Applications
- Ensures Interoperability among Devices
- Access to Security Credentials to Known Devices
- Qualified Device List for Agency Procurement
- Environmental Control & Inspection (Surveillance/Plugfest)
- Minimizes Product Variations & Change Requests in Control Releases

Device Readiness Development and Implementation

(RFID, DSRC, and C-V2X)

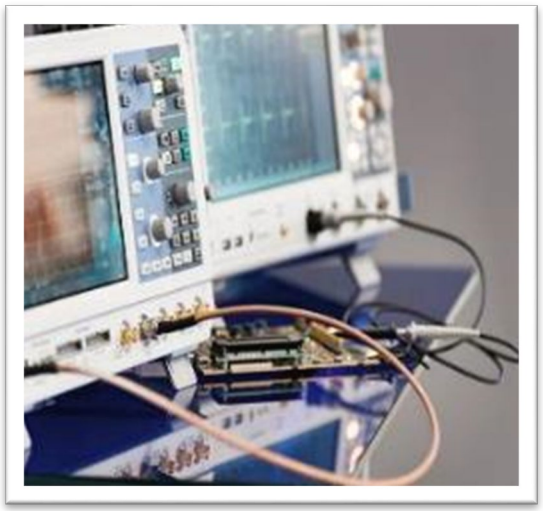


Program Services

Standards ↔ Requirements ↔ Regulatory

Working Groups ↔ Test Cases / Scopes ↔ Validation

Qualified Test Equipment (OQTE)



Bench & Mobile

Authorized Test Laboratory (OATL)

- Qualified Bench & Field Equipment
- Test Reports

Authorized Field Test Site (OAFTS)

- Open Road Overhead Gantry
- Plaza (Low Speed / Gated)
- Qualified Field Equipment
- Reference Device (ORD)

Device Certification

- Module (Global)
- LTE-V2X (C-V2X PC5)
- DSRC
- RFID SPD & MPD Tolling

In-works: 1) V2X Applications, 2) RSU Interface (1202v3 & 1218), 3) Multi-Protocol Tolling Integration & 4) V2X Tolling (Road Usage Charging)

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Authorized Test Laboratories

DEKRA

Sterling, Virginia
Malaga, Spain

TTA

Seongnam, Korea

BUREAU VERITAS

Detroit, Michigan

SGS

San Diego, California

eurofins

Baltimore, Maryland

KATECH

Cheonan, Korea

Authorized Field Test Sites

STAR SYSTEMS INTERNATIONAL

Dallas, Texas

TRC

Columbus, Ohio

TRANSCORE

Albuquerque, New Mexico

Qualified Test Equipment

KEYSIGHT TECHNOLOGIES

nordsys® NORDDEUTSCHE SYSTEMTECHNIK

ROHDE&SCHWARZ

S·E·A

Spirent™ Promise. Assured.

Wayties

SwRI®

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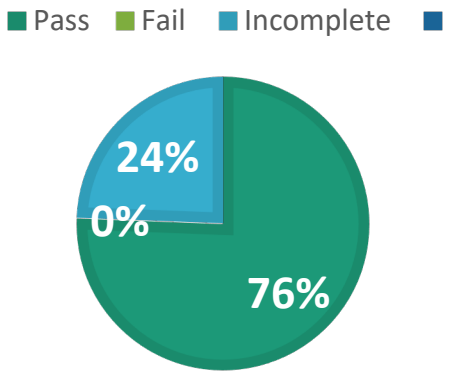
OmniAir C-V2X Test Specifications per Standards & Requirements

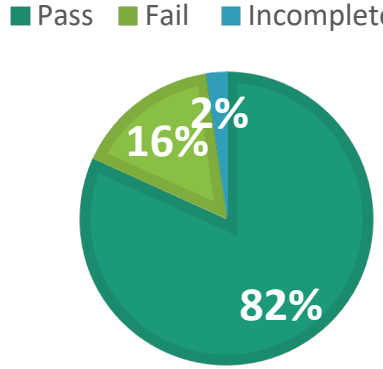
- 721-OA-CVCA Scope
- 739-OA-TCI v3 Automated Test I/F
- 748-OA-CertGenTest Certificates
- 759-OA-TSS&TP-C-V2X Module
- 761-OA-TSS&TP-3652X PHY/Radio
- 762-OA-TSS&TP-J3161/1 Radio
- 763-OA-TSS&TP-1609.2 Security
- 765-OA-TSS&TP-1609.3 Network Services
- 767-OA-TSS&TP-J2945/1 BSMs (Bench)
- 768-OA-TSS&TP-J2941 V2V Min Performance
- 772-OA-TSS&TP-CTI4001 (In progress)
- 782-OA-TSS&TP-MAP (Bench)
- 783-OA-TSS&TP-SPAT (Bench)
- 785-OA-TSS&TP-1218 Network Interface

DSRC Readiness Results
Québec Plugfest 2019 (4th DSRC Focused Plugfest)

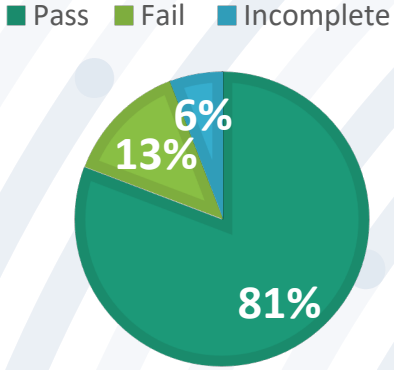
760 - 802.11 PHY/RADIO



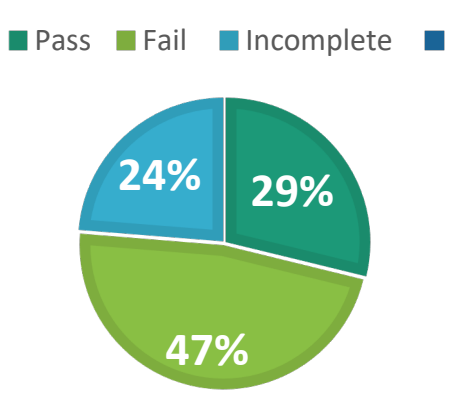
673 - 1609.2 SECURITY



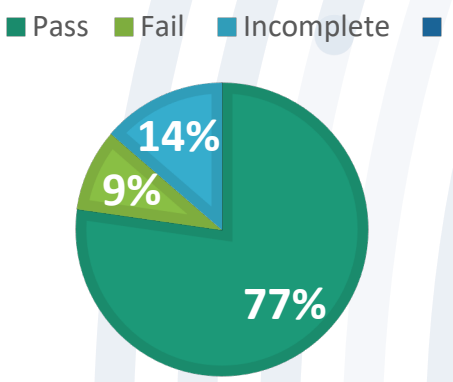
765 - 1609.3 NETWORK SERVICES



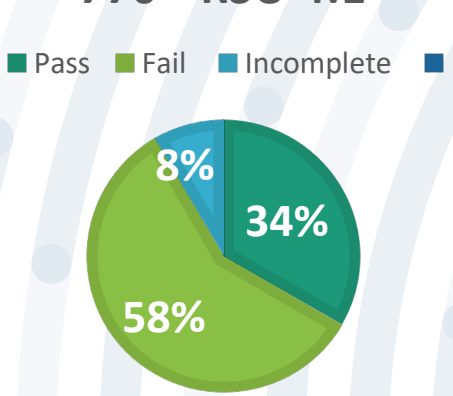
767- 2945/1 V2V BSM



766 - 1609.4 MULTI-CHANNEL



770 - RSU 4.1



Collaborative and Cooperative Event with Device Manufacturers, Test Equipment Providers & Test Laboratories to verify test cases, automation/TCIv3 interfacing and interoperability:

Bench & Field Track Setup (M)
3.5 Days Bench Testing (T-F)

- Security Enabled / Signed Device Functionality & Conformance/Interoperability
- SCMS Multi-Source Certificates (AutoCrypt, ISS, Microsec & Saesol Tech)
- Test Stations (12): V2X Hub Demo, Keysight (3 w/DEKRA & SGS), Marben, Spirent (2 w/BV) & 1218 DriveOhio & SCMS Providers.

4 Days Field Testing (T-F) at UMTRI MCity Track (Ann Arbor)

- V2I Multi-RSUs (6) Installed, Signed/Unsigned V2X Messaging & Security Interoperability
- V2X Application Testing (IMA, EEBL, Work Zone, Reduce Speed, Lane Closure, RLVW & Pre-emption, VRU)
- Mobile / Field Test Tools: Kapsch, Iteris, Nordsys, Rohde & Schwarz Demo, SEA-NI, Wayties and Wireshark/Sniffer Decoding.
- Wayties BSM Performance Testing

UMTRI / WSP Device Requirements Overview

Spoke (Bicycle & Audi) & Rohde & Schwarz Demonstration

C-V2X Readiness Results
Mcity Plugfest 2022 (3rd C-V2X Focused Plugfest)

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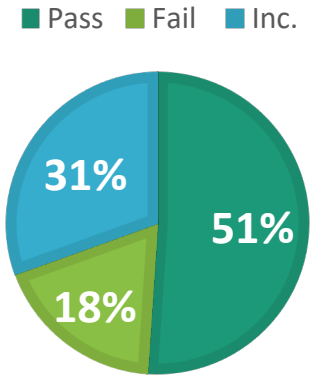
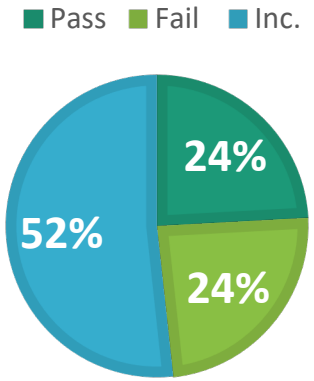
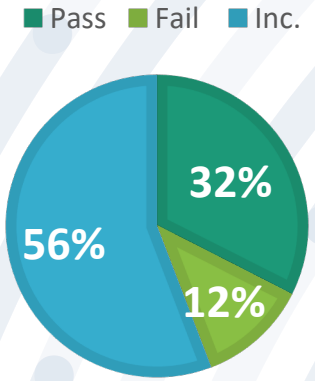
761-3GPP PHY/RADIO



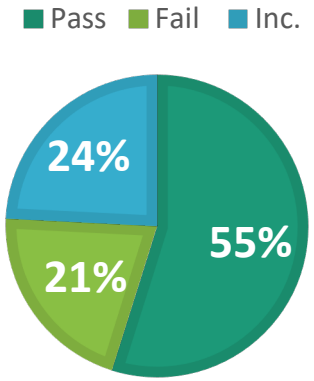
762 - J3161/1 RADIO/BSM



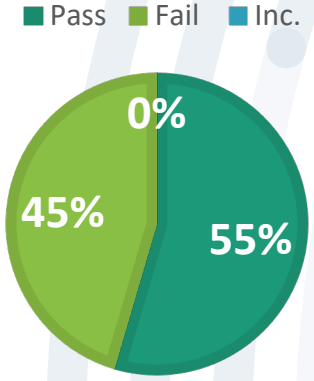
763 - 1609.2 SECURITY



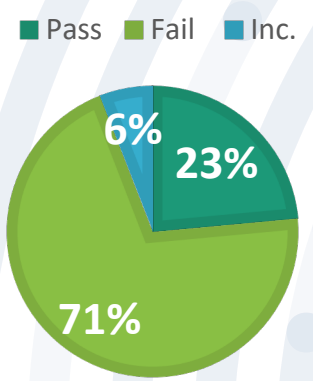
765 - 1609.3 NETWORK SERVICES



766 - J2945/1 MULTI-CHANNEL



770 – RSU 4.1



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Bench Testing

- Security Enabled / Signed Device Functionality & Conformance/Interoperability
- Radio, Protocol & Applications
- SCMS Multi-Source Certificates

Field Testing

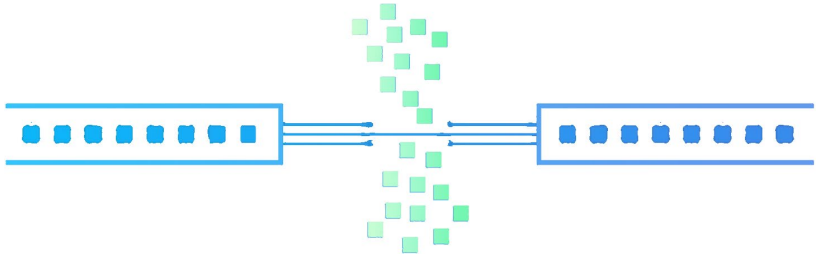
- V2I Multi-RSUs w/ Security Enabled
- V2X Messaging & Security Interoperability
- V2X Application Testing
  (EEBL, Work Zone, RLVW & Pre-emption)
- Mobile / Field Test Tools

Connected Mobility Workshop

- Panels on Testing, Security, RUC, Deployments
- Technology Demonstrations
- Tours of Testing Facilities

Areas of Future Cooperation

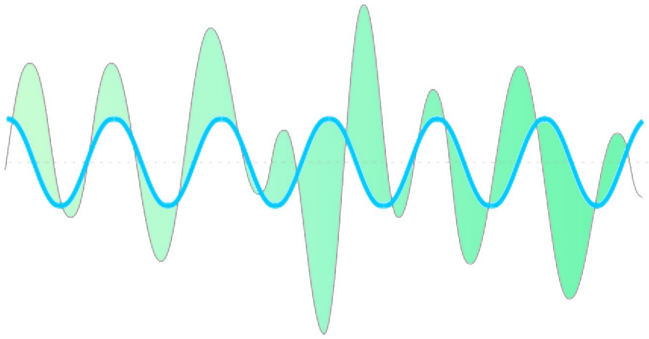
Missing Packets in Volume Transmission



Security

Congestion Control

Interference



Interoperability

References Devices

Thank you!

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