



Visitor Agreement



By signing below, I certify to UL LLC and its related companies ("UL") that in return for UL allowing me to visit their facilities, I agree, on behalf of myself and, where applicable, my company, to the following:

- I understand that these facilities include dangerous equipment and processes, and that I could be
 injured. Therefore, I agree to wear all required personal protective equipment (e.g. safety glasses,
 hardhat, etc.) and to obey the requests of UL's staff.
- I will familiarize myself with the evacuation routes. In the event of an emergency, my escort or tour
 guide will escort me to the appropriate safe area.
- At all times during the visit, I will remain with my escort in the designated areas and will follow my
 escort's instructions.
- I will not examine, touch and/or handle anything in the laboratory unless authorized by UL personnel
 including products or samples that do not belong to me.
- I will wear and display the visitor badge visible between the shoulders and waist at all times and return it at the end of the visit.
- While visiting the facility, I acknowledge that I may have access to Confidential Information, and I agree not to use, remove from UL premises, reproduce, disclose or otherwise make publicly available any Confidential Information without UL's prior written consent. "Confidential Information" means any information or materials of UL or its customers that I observe or is disclosed to me in any format during my visit, including without limitation the set-up and design of testing equipment, UL processes, tools, business and marketing plans, client samples and product information including names, identifying features, technical specifications, testing phases and/or results.
- I will not use a camera, cell phone and/or any other device capable of recording or taking pictures unless
 specifically authorized in writing by a UL Lab Operations manager or their designate. Written
 authorization from lab management shall include specific details of what may be photographed or
 recorded. Any recording or photographing must be performed under supervision of lab management or
 their designate and must not include photography or videotaping of another company's products or
 testing.
- I have reviewed, understood and agreed to abide by UL's Visitor Safety Guidelines.



Daily Opening Statement: OMNIAIR CONSORTIUM - ANTITRUST STATEMENT

It is the policy of the OmniAir Consortium ("OmniAir") that the organization, its officers, Board of Directors, members and participants in its activities, shall comply in all respects with federal and State antitrust and/or fair competition laws, regulations, and rules, as may be applicable. Accordingly, no activity or discussion at any OmniAir-sponsored meeting or other function relating to competition or relating to practices that may restrain trade is permitted. Such prohibited topics include establishing prices, allocating markets, encouraging boycotts, regulating production, or any other understanding or agreement that may be construed as anti-competitive.

- Plugfest Registration sold out closed early with 37 devices, 150+ participants and ## companies representing 30 device manufacturers and 11 test equipment providers / test laboratories.
- No In-kind USDOT Contribution Requests since it is industry sponsored event. Congratulate the daily sponsor!
- Each Room Capacity is 68 people. Each test station is limited to 5. Test Equipment Operator is preferred 1 and 2 max.
- Testing Ticket per Device was designed to have people present at both test station and informational sessions running in parallel. Three people will be recommended at next plugfest's Testing Ticket per Device.
- Survey will be available at plugfest closing. We understand limited capacity issue!



Survey Feedback from previous Plugfests

- Increase test session duration and give testers break Completed.
 - 2 hours slots (previous 1.5 hours) allowing 1.45 hours testing and 15 minute break / transition.
- Provide technical preparation awareness sessions Completed.
 - 4 sessions held with first (~90 attendees) and last (~16).
- Announce plugfest 2 months in advance and test documents 1 month in advance Completed
- Add more test slots Completed
 - 260+ Bay Area (conformance / security) versus previous 143 San Antonio (bench/field) and 134
 Detroit (bench). April 2018 in Detroit focusing on Release 2 (Interoperability & Field Sampling)!
- Provide Parallel Activities when not testing Completed
 - Policy Workshop, Standards Update/Feedback, CV Pilot Roundtable, Security / Certificate
 Assistance, Test Equipment Providers Overview, Technical Committee & Certification Process.
- Focus on Conformance Certification and enabling Security Completed
 - Conformance certification release 1 launching and using plugfest results as finalization.
 - Security / SCMS / Certificates 2016 being introduced and industry evaluated.
- Continue analytical device field location testing Location and Provider Did Not Allow.
 - Providing Mobile Vehicle Testing with device interoperability consistency verification.
- Implement Interoperability and Field Verification Sampling starting Release 2 activities (trial test cases and industry initiation calling).
- Cooperative, Collective, Comfortable and Friendly Atmosphere Trying!



What makes OmniAir successful?

- Maintain technical and industry creditability and integrity!
- Our role is to help everyone to achieve and earn "Certification" but not give "Certification!"
- Successful certifications benefits everyone. Goal is to achieve six before next plugfest.
- Currently have one authorized V2X-DSRC test laboratory (7Layers)
 and two qualified test equipment providers (Danlaw & Spirent).
- Conformance Release 1 criteria requires combination of test equipment in both automated and manual modes to complete certification testing.
- Certification Components:
 - Test Cases / Device Profiles
 - Test Equipment
 - Test Laboratories
 - Reference Devices
 - Devices to Certify





Test Equipment:

- 3M
- Anritsu
- Danlaw
- Keysight
- Marben
- Spirent

Devices: OBUs - 27, RSUs - 10

- Alps (OBU)
- Aricent (OBU)
- Autotalks (OBU)
- Blackberry (OBU)
- Carnavicom (OBU)
- Chemtronics x2(OBE & RSU)
- Cohda (RSU & OBU)
- Commsignia (RSU & OBU)
- Continental (OBU)
- Danlaw (OBUx2)
- Delphi (OBU)
- Denso (OBU)
- Essys (RSU)
- eTrans (RSU & OBU)

- Genvict (OBU)
- Hitachi (OBU)
- ITRI (OBU)
- IT-Telecom (RSU & OBU)
- KETI (RSU & OBU)
- Laird (OBU)
- Lear (RSU & OBU)
- Murati (OBU)
- Panasonic (OBU)
- Renesas (OBU)
- Savari x2 (RSU & OBU)
- Siemens (RSU)
- SiriusXM (OBU)
- Sumitomo (OBU)

Educational Activities Running Parallel to Test Sessions

Daily Test Sessions start 8:30am and ends 7:00pm Tuesday—Thursday and ends 3:00pm Friday

	UL	7Layers	Spirent	Danlaw	Intertek	Dekra
Daily Testing Stations	802.11p 1609	1609 J2945	1609 J2945	802.11p 1609	802.11p 1609	802.11p 1609
8:00 to 9:45 am						
10:00 to 11:45 am	ne To					
1:00 to 2:45 pm	- 16	Sting	Tickat			
3:00 to 4:45 pm	Siot	Sper	7-	reserv	od.	
5:00 to 6:45 pm	st c		uay if	reserv	ed tw	o /
	3es	ions	Keysight		ie!	2V Mobile
Daily Testing Stations	J2735 MSG	802.11p J2735	12735 BSM	availab Ough F	RSU4.1	Inter-op
8:00 to 9:45 am					liday	*************
10:00 to 11:45 am						Group Assignments
1:00 to 2:45 pm						Group Assignments
3:00 to 4:45 pm						Group Assignments
5:00 to 6:45 pm						xxxxxxxxxx



UL Verification Services

Address: Shipping Address: 47266 Benicia St, 843 Auburn Ct.

Fremont, CA 94538 Fremont, CA 94538

(510) 771-1000 510-319-4000

Attn: Kendra Pridemore/Plugfest

- Test Equipment Manufacturers/Labs setup on Monday, October 16 starting at 8:00am until 1:00pm
- Tables setup and GPS Repeater in Testing Area (30'x40').
- Training Center (30'x35'x40' Triangle) with 10' Screen

Contact:

Andrew Harding (248) 427-5323 andrew.harding@ul.com Kendra Pridemore (313) 421-7667 kendra.a.pridemore@ul.com





68 Max

w/ podium & white board, projector

Breaks, Capacity
Presentations



A	genda - Activities Running Pa	arallel to Test Sessions
Tuesday October 17		Requirements / Needs Working
8:00 to 8:15 am	Introductions	UL
8:15 to 9:30 am	Testing Overview	Randy Roebuck - OmniAir & Dmitri Khijniak - 7Layers
9:45 to 11:00 am	Standards SAE	David Kelley
11:00 to 12:00 pm	Standards IEEE	Kevin Smith
12:00 to 1:00 pm	Group Interoperability OBU/RSU Broadcast	Randy Roebuck - OmniAir
1:00 to 2:00 pm	Standard RSE	Ed Lesie
2:00 to 3:00 pm	Security & Certificates Interactive	Green Hills ISS & OnBoardSecurity
3:30 to 5:30 pm	Connected Vehicle Pilots Round Table	Steven Novasad & David Benevelli
Wednesday October 18		Test Equipment Sponsor Day
8:00 to 8:30 am	Announcements	UL / OmniAir
8:30 to 9:30 am	Authorized Test Laboratory	7Layers
9:30 to 10:30 am	Analytics for Connected Vehicles	Innovizo
10:30 to 11:15 am	Test Software	Marben
11:15 to 12:00 pm	Connected Roads	3M
12:00 to 1:00 pm	Group Interoperability OBU / RSU Broadcas	
1:00 to 2:00 pm	Qualified Test Equipment	Danlaw
2:00 to 3:00 pm	Qualified Test Equipment	Spirent
3:00 to 4:00 pm	Test Equipment System	Keysight
4:00 to 5:00 pm	Test Equipment System	Anritsu
5:00 to 6:00 pm	Test Laboratory	UL
Thursday October 19		Certification Working Day
8:00 to 8:30 am	Announcements	UL / OmniAir
8:30 to 9:15 am	General Questions & Answers	Green Hills ISS & OnBoardSecurity
9:30 to 11:30 am		ia Kndra Pridemore – UL & Randy Roebuck - OmniAir
11:30 to 12:30 pm	Group Interoperability OBU/RSU Broadcast	Randy Roebuck - OmniAir
1:00 to 4:00 pm	CV Technical Committee	Dmitri Khijniak - 7Layers & Randy Roebuck – OmniAir
4:00 to 5:00 pm	Cyber Security Session	
Friday October 20		
8:00 to 8:30 am	Announcements	UL / OmniAir
8:30 to 10:00 am	Spring 2018 Plugfest Info & Survey	Jason Conley - OmniAir
9:00 to 1:00 pm	Private Sessions	OmniAir Staff



Test Cases and Profiles:

- TC marked Required or Informational
- Each TC consideration requires two devices and two test tools verification.
- Requires plugfest trial.
- Using plugfest results for updating & finalization.
- Thursday's Technical Committee will address test cases and device profiles.

						•		Profile	e								
Test Case Name		Test Case Description		Validated	V2V OBU SC	V2V OBU MC	V2V OBU V	V2I	Modul	e							
TP-BSM-ST-BV-01-X	DE VehicleEventFla	igs if an event is occurring			R	R		1.00		7							
TP-BSM-ST-BV-02		ed after device restart uses a random	time		R	R				1							
TP-BSM-ST-BV-03-X	Transmits BSM Corr	ect Contents & Parameters			R	R											
TP-BSM-ST-BV-04	BSMs generated rai	ndomly of their scheduled generation	time?		R	R											
TP-BSM-ST-BV-06	MsgCount incremen	nted/rollover & TemporaryID not char	nged		D	D											
TP-BSM-ST-BV-07	Identification data											<u>Profile</u>					
TP-BSM-ST-BV-08	IUT signs every BSN	Test Case Name		Tost Case	Description	n		Validated	V2V	V2V	V2V	V2I	Module				
TP-BSM-ST-BV-09	IUT Certificate after	iest case ivallie		rest case	Description	<u>/II</u>		vanuateu	OBU SC	OBU MC	OBU VA	D RSU	Wiodule				
TP-BSM-ST-BV-10-X	IUT certificate attac	TP-16093-WSM-MST-BV-01	IUT transmits WSN			t.			R	R		R					
TP-BSM-ST-BV-13	After a device startu	TP-16093-WSM-MST-BV-02	IUT transmits valid						R	R		R					
TP-BSM-ST-BV-18	data retention acro	TP-16093-WSM-ROP-BV-01	IUT transmits valid						R	R		R					
TP-BSM-ST-BI-19	IUT does not send of	TP-16093-WSM-ROP-BV-02	IUT transmits valid						R	R		R					
TP-BSM-ST-BV-20-V	IUT's System Clock	TP-16093-WSM-ROP-BV-03	IUT transmits valid			der			R	R		R					
TP-BSM-ST-BV-21-V	Message Transmissi	TP-16093-WSM-PP-BV-01 TP-16093-WSM-PP-BV-02	IUT receives WSM IUT receives WSM						R R	R R	R R	R R					
BSM with security certificates	-	TP-16093-WSM-PP-BV-02 TP-16093-WSM-COM-BV-01	IUT transmits WSN						R R	R R	К	R R					
TP-BSM-ST-BV-05	lidentification data	TP-16093-WSM-COM-BV-01	IUT receives WSM:						R	R	R	R					
TP-BSM-ST-BV-11	IUT does not transn	TP-16093-WSM-COM-BV-03	IUT transmits in al			me slots 1&2?	2)		IX.	R		R					
TP-BSM-ST-BV-12	IUT does not transn	TP-16093-WSM-COM-BV-04	IUT transmits on C							R		R					
TP-BSM-ST-BV-14-V	Certificates Storage	TP-16093-WSM-COM-BV-05	IUT acknowledges	WSMs in altern	ating mode CH	11 and CH2				R		R					
TP-BSM-MV-BV-12	wheelBrakes values	TP-16093-WSM-POP-BI-01	IUT does not trans	mit WSMs excee	eding WsmMa	xLength			R	R		R					
TP-BSM-MV-BV-13	vehicle transmission	TP-16093-WSA-MST-BV-01	IUT transmits WSN	/Is v					_	-				•		Profile	
TP-BSM-MV-BV-14	vehicle length and	TP-16093-WSA-MST-BV-02	IUT transmits WSA	co		ŀ							V2V	V2V	V2V	V2I	
5511 1117 57 17	Tomoro ronger	TP-16093-WSA-MST-BV-03	IUT transmits sign		est Case Na	me_		Test C	ase Descrip	tion		Validated	OBU SC				Module
J2735 & J2945/1	Transmit BSMs	TP-16093-WSA-MST-BV-04-X	IUT transmits WSA	TP-80711-R)	(T-MAC-BV-01		IUT receives N	AC frame					R	R	R	R	R
J2735	Receive BSMs	TP-16093-WSA-MST-BV-05-X	IUT transmits WSA	Se TP-80211-TX	T-MAC-BV-01		MAC transmit	frame format					R	R		R	R
IEEE 1609.3	Transmit WSAs	TP-16093-WSA-MST-BV-06-X	IUT transmits WSA	TP-80211-1X	T-PHY-BV-01		Transmit spect						R	R		R	R
IEEE 1609.3	Receive WSAs	TP-16093-WSA-MST-BV-07-X	IUT transmits WSA	IP-80211-17	T-PHY-BV-02		center frequer						R	R		R	R
J2735		TP-16093-WSA-MST-BV-08 TP-16093-WSA-PP-BV-01	IUT acknowleges s		T-PHY-BV-03			requency tolera					R R	R R		R R	R R
12735	Transmit SPaT	TP-16093-WSA-PP-BV-01 TP-16093-WSA-PP-BV-02	IUT acknowledges		T-PHY-BV-04			RMS error & mo er is within spec		icy			R	R	1	R	R
J2735 J2735	Receive SPaT	TP-16093-WSA-PP-BV-03	IUT acknwlegdes V		T-PHY-BV-06	ŀ		nter frequency					R	R		R	R
J2735 J2735	Transmit TIM	TP-16093-WSA-PP-BV-04	IUT acknowledges		T-PHY-BV-07			wer is a monot		ing			R	R		R	R
J2735 J2735	Receive TIM	TP-16093-WSA-ROP-BV-01	IUT transmits WSA		(T-PHY-BV-01			num input sensi					R	R	R	R	R
	Transmit RTCM	TP-16093-WSA-CHG-BV-01	IUT changes WSA		(T-PHY-BV-02			t channel reject					R	R		R	R
J2735	Receive RTCM	TP-16093-WSA-CHG-BV-02	IUT changes WSA		(T-PHY-BV-03 (T-PHY-BV-04			acent channel re num input level					R R	R R		R R	R R
		TP-16093-IP-CFG-BV-01	IUT use WRA to co		(T-PHY-BV-04			nel power indica					R	R	R R	R	R R
		TP-16093-IP-CFG-BV-02	IUT configures link	-loc													
		TP-16093-IP-CHG-BV-01	IUT resets link-loca	1F-10032-3F	DUBSM-SEND-	BV-01	BSM Security	Header					R	R			
		TP-16093-IP-CHG-BV-02	IUT resets IPv6 add	11 10031 31	DUBSM-SEND-			igned certificate	2				R	R			
		TP-16093-IP-COM-BV-01	IUT initiates a 2-w		DUBSM-SEND-		BSM digitally						R	R			
		TP-16093-IP-COM-BV-02	IUT initiates a 2-w		DUBSM-SEND-			e per vMaxCert(th valid signatur					R R	R R			
		TD 45004 BUT 1405 BU 04	U.T described		DUBSM-SEND-			e with valid sign					R	R			
		TP-16094-RXT-MDE-BV-01 TP-16094-RXT-MDE-BV-02	IUT acknowledges		DUBSM-RECV-I			ges valid BSM :					R	R	R	R	
		TP-16094-RXT-MDE-BV-02 TP-16094-TXT-MDE-BV-01	IUT transmits WSI	14.31	DUBSM-RECV-I	BV-02	IUT acknowle	dges valid BSM i	mplicit certifica				R	R	R	R	
		TP-16094-TXT-MDE-BV-02	IUT transmits WSI	TP-16092-SP	DUBSM-RECV-I			ges valid BSM si					R	R	R	R	
		TP-16094-TXT-IP6-BV-01	IUT transmits IPv6	TP-16092-SP	DUBSM-RECV-I					erationTime &			R	R	R	R	
		TP-16094-TXT-PER-BV-01	IUT transmits WSI	TP-16092-SP	DUBSM-RECV-I					me & Expiration	n i ime		R	R R	R	R	1
		TP-16094-TXT-PER-BV-02	IUT transmits WSI	TP-16092-SP	DUBSM-CERTC DUBSM-RECV-I			nangeInterval Ch		t digest signatur	·e		R R	R R	R	R	
		TP-16094-TXT-PER-BV-03	IUT transmits WSI		DUBSM-RECV-I					certificate sign			R	R	R	R	
					DUWSA-SEND-			correct WSA se								R	
	'				DUWSA-SEND-			correct WSA cer								R	
					DUWSA-SEND-			WSA's signed of						ļ		R	
					DUWSA-SEND-			WSA's Signed Co		nature			-	R	1	R R	-
					DUWSA-RECV-	BV-01	IU I acknowle	dge valid WSA s	ecurity header.				R			R	1
						RV-02				ned WSA.					1	R	
				TP-16092-SP	DUWSA-RECV-		IUT acknowled	ges valid implic	it certificate sig	ned WSA. known certifica	ite.		R R	R R		R R	

Device Profiles

Requirements	V2V OBU Single channel	V2V OBU Multi channel	V2I RSU	V2V OBU VAD Single channel	Module (802.11p)
802.11p	All tests on 1 channel	All tests on all channels	All tests on all channels	Receive only, 1 channel	All tests on all channels
1609.3	WSM only, Tx/Rx	WSM, IPv6 - Tx/Rx, WSA Rx	WSM, IPv6 - Tx/Rx, WSA Tx	WSM - Rx	
1609.4	Continuous mode	Continuous & Alternating mode	Continuous & Alternating mode	Continuous mode	
1609.2	Security for BSM	Security for BSM, WSA	Security for BSM, WSA	Security for BSM	
2945/1	All tests	All tests	Receive tests	Receive tests	
RSU4.1v5			All tests		
Vehicle tests	Info only	Info only	Info only	Info only	Info only



Test Station Tracking Sheet

3 80211 4 80211 7 80211 7 80211 9 80211 10 80211 11 80211 12 80211 13 80211 14 80211 15 80211 16 80211 17 1603 18 16062 20 16062 21 16062 21 16062 21 16062	Case Name (TP	Test Case Description IUT neceives MAC frame MAC transmit frame format Transmit special risease center fragancy tissues center fragancy tissues center fragancy tissues center fragancy tissues center fragancy (askate center fragancy) (askate Consellation BMS error 8 modulation accuracy Observed power is within spectral flathess Transmitter center fragancy) (askate Transmitter power is a monotonically increasing Receiver minimum jout sensitivity OFDM adjacent channel rejection OFDM non adjacent channel rejection Receiver maximum input level Receiver distance power indicator	OBU SC R R R R R R R	OBU		RSU RSU R R R R R	R R R	Device	Device	Device	Device	Device	Device	Device	Device	Device	Device	Device	Comments
3 80211 4 80211 7 80211 7 80211 9 80211 10 80211 11 80211 12 80211 13 80211 14 80211 15 80211 16 80211 17 1603 18 16062 20 16062 21 16062 21 16062 21 16062	1-RXT-MAC-BV-01 1-TXT-MAC-BV-01 1-TXT-MY-BV-01 1-TXT-PHY-BV-01 1-TXT-PHY-BV-02 1-TXT-PHY-BV-03 1-TXT-PHY-BV-03 1-TXT-PHY-BV-04 1-TXT-PHY-BV-05 1-TXT-PHY-BV-05 1-TXT-PHY-BV-05 1-TXT-PHY-BV-05 1-RXT-PHY-BV-05 1-RXT-PHY-BV-05 1-RXT-PHY-BV-05 1-RXT-PHY-BV-05 1-RXT-PHY-BV-05 1-RXT-PHY-BV-05 1-RXT-PHY-BV-05 2-SPUD-SSN-SEND-BV-01 2-SPUD-SSN-SEND-BV-01 2-SPUD-SSN-SEND-BV-01	IUT receives MAC frame MAC transmit frame format Transmit spectral mask contert frequency tolerance symbol dook frequency tolerance conselection RMS error is modulation accuracy Observed power is within spectral flatness Transmitter center frequency tolerance Conselection RMS pectral flatness Transmitter center frequency tolerance Conselection RMS accuracy to a conselection of the conselection of t	OBU SC R R R R R R R	OBU MC R R R R R R R	OBU VAD	RSU RSU R R R R R	R R R R R												Comments
4 80211 5 80211 7 80211 7 80211 8 80211 10 80211 11 80211 12 80211 13 80211 14 80211 15 80211 17 1609 20 16092 21 16092 21 16092 22 16092 22 16092	1-TXT-MAC-BW-01 1-TXT-PHY-8W-02 1-TXT-PHY-8W-02 1-TXT-PHY-8W-03 1-TXT-PHY-8W-0	MAC transmit frame format Transmit special mask center frequency tolerance symbol dook frequency tolerance Constellation RMS error & modulation accuracy Observed power is within spectral fathess Transmither center frequency (selaxage Transmither center frequency (selaxage Transmither center frequency (selaxage) Receiver minimum input servet OFEM adjacent Annaner rejection OFEM on adjacent channer rejection Receiver maximum input servet	R R R R R R R	R R R R R R		R R R R R	R R R												
5 80211 6 80211 7 80211 9 80211 10 80211 11 80211 12 80211 13 80211 14 80211 15 80211 16 80211 17 1003 20 10062 20 10062 21 10062 21 10062 21 10062	1-TXT_PHY-8V-01 1-TXT_PHY-8V-02 1-TXT_PHY-8V-03 1-TXT_PHY-8V-04 1-TXT_PHY-8V-06 1-TXT_PHY-8V-06 1-TXT_PHY-8V-07 1-TXT_PHY-8V-07 1-TXT_PHY-8V-07 1-TXT_PHY-8V-07 1-TXT_PHY-8V-07 1-TXT_PHY-8V-03 1-TXT_PHY-8V-03 1-TXT_PHY-8V-03 1-TXT_PHY-8V-03 1-TXT_PHY-8V-04 1-TXT_PHY-8V-0	Transmir spectral mask contrafrequency tolerance symbol dook frequency tolerance symbol dook frequency tolerance (Consellation RMS error & modulation accuracy Consellation RMS error & modulation accuracy Consellation RMS error & modulation accuracy Transmire creer frequency leskage Transmire power is a monotonically increasing COPPM adjacent Annance rejection OPPM adjacent Annance rejection OPPM adjacent Annance rejection Receiver maximum impul level	R R R R R R	R R R R R		R R R R	R R R												
6 80211 7 80211 9 80211 10 80211 11 80211 11 80211 11 80211 11 80211 11 80211 16 80211 17 1603 20 16092 21 16092 21 16092 21 16092 21 16092	1-TXT-PHY-8W-03 1-TXT-PHY-8W-04 1-TXT-PHY-8W-04 1-TXT-PHY-8W-06 1-TXT-PHY-8W-06 1-TXT-PHY-8W-07 1-RXT-PHY-8W-07 1-RXT-PHY-8W-07 1-RXT-PHY-8W-03 1-RXT-PHY-8W-03 1-RXT-PHY-8W-04 1-RXT-PHY-8W-04 1-RXT-PHY-8W-04 2-SPUD-8SM-SEND-8W-01 2-SPUD-8SM-SEND-8W-01 2-SPUD-8SM-SEND-8W-01	conter frequency tolerance ymbol dock frequency tolerance Constellation RMS error & modulation accuracy Observed power is within spectral fishness Transmitter center frequency (selaxage Transmitter center frequency (selaxage Transmitter) cours is a monotonically increasing Receiver minimum input sensitivity OFDM adjacent name rejection OFDM non adjacent channel rejection Receiver maximum input sever	R R R R R R	R R R R R		R R R	R R									_	-		
7 80211 8 80211 9 80211 11 80211 12 80211 13 80211 14 80211 15 80211 16 80211 17 602 20 16092 20 16092 21 16092 22 16092 22 16092 23 16092 24 16092 24 16092 25 16092 26 16092 27 16092 28 16092 29 16092 21 16092 21 16092 21 16092 21 16092 22 16092 23 16092 24 16092 25 16092 26 16092 27 16092 27 16092 28 16092 29 16092 20 16092 20 16092 20 16092 21 16092 21 16092 21 16092 21 16092 21 16092 21 16092 21 16092	1-TXT-PHY-8V-03 1-TXT-PHY-8V-04 1-TXT-PHY-8V-05 1-TXT-PHY-8V-05 1-TXT-PHY-8V-07 1-TXT-PHY-8V-07 1-TXT-PHY-8V-03 1-TXT-PHY-8V-03 1-TXT-PHY-8V-03 1-TXT-PHY-8V-03 1-TXT-PHY-8V-03 2-TXT-PHY-8V-04 2-TXT-PHY-8V-0	symbol dook frequency tolerance Consellation RMS error & modulation accuracy Coserved power is within spectral flatness Transmitter center frequency lessage Transmitter power is a monitorinally increasing Transmitter power is a monitorinally increasing Transmitter power is a monitorinally increasing OFDM and power above the property of the power power increases OFDM non adjacent channer rejection Receiver maximum impul level	R R R R R	R R R R		R R R	R										1		
9 80211 10 80211 11 80211 12 80211 13 80211 14 80211 15 80211 16 8021 17 1693 18 16092 20 16092 21 16092 22 16092 23 16092	1-TXT-PHY-8V-05 1-TXT-PHY-8V-00 1-TXT-PHY-8V-07 1-TXT-PHY-8V-07 1-RXT-PHY-8V-02 1-RXT-PHY-8V-03 1-RXT-PHY-8V-03 1-RXT-PHY-8V-03 2-SPDUBSM-SEND-8V-01 2-SPDUBSM-SEND-8V-01 2-SPDUBSM-SEND-8V-02	Constellation PMIS error & modulation accuracy Observed power is within spectral flatness Transmitter center frequency leakage Transmitter center is a monotonically increasing Receiver minimum input teensitivity OFDM adjacent channel rejection OFDM non adjacent channel rejection Receiver maximum input level	R R R R	R R R		R													
10 80211 11 80211 12 80211 13 80211 14 80211 15 80211 16 80211 17 16092 19 16092 20 16092 21 16092 22 16092 23 16092	1-TXT-PHY-BV-00 1-TXT-PHY-BV-07 1-RXT-PHY-BV-01 1-RXT-PHY-BV-02 1-RXT-PHY-BV-03 1-RXT-PHY-BV-04 1-RXT-PHY-BV-04 1-RXT-PHY-BV-05 2-SPDUBSM-SEND-BV-01 2-SPDUBSM-SEND-BV-01 2-SPDUBSM-SEND-BV-02	Transmitter center frequency leakage Transmitter power is a monotonically increasing Receiver minimum input sensitivity OFDM adjacent channel rejection OFDM non adjacent channel rejection Receiver maximum input level	R R R	R R		R	R												
11 80211 12 80211 13 80211 14 80211 15 80211 16 80211 17 16092 19 16092 20 16092 21 16092 21 16092 22 16092 23 16092	1-TXT-PHY-BV-07 1-RXT-PHY-BV-02 1-RXT-PHY-BV-03 1-RXT-PHY-BV-03 1-RXT-PHY-BV-04 1-RXT-PHY-BV-05 2 testing 2-SPDUBSM-SEND-BV-01 2-SPDUBSM-SEND-BV-02	Transmitter power is a monotonically increasing Receiver minimum input sensitivity OFDM adjacent channel rejection OFDM non adjacent channel rejection Receiver maximum input level	R R R	R		K	-		-	,									<u> </u>
12 80211 13 80211 14 80211 15 80211 16 80211 17 16092 19 16092 20 16092 21 16092 22 16092 23 16092	1-RXT-PHY-8V-01 1-RXT-PHY-8V-02 1-RXT-PHY-8V-04 1-RXT-PHY-8V-04 1-RXT-PHY-9V-05 24 testing 2-SPDUBSM-SEND-8V-01 2-SPDUBSM-SEND-8V-02	Receiver minimum input sensitivity OFDM adjacent channel rejection OFDM non adjacent channel rejection Receiver maximum input level	R R	R	-	R	R										- 1		
14 80211 15 80211 16 80211 17 1603 18 16092 20 16092 21 16092 22 16092 23 16092	1-RXT-PHY-BV-03 1-RXT-PHY-BV-04 1-RXT-PHY-BV-05 2-RESIDIO 2-SPDUBSM-SEND-BV-01 2-SPDUBSM-SEND-BV-02	OFDM adjacent channel rejection OFDM non adjacent channel rejection Receiver maximum input level	R	D	R	R													
15 80211 16 80211 17 16092 18 16092 19 16092 20 16092 21 16092 22 16092 23 16092	1-RXT-PHY-BV-04 1-RXT-PHY-BV-05 12 testing 2-SPDUBSM-SEND-BV-01 2-SPDUBSM-SEND-BV-02	Receiver maximum input level				R	R												
16 80211 17 1609 18 16092 19 16092 20 16092 21 16092 22 16092 23 16092	1-RXT-PHY-BV-05 2 testing 2-SPDUBSM-SEND-BV-01 2-SPDUBSM-SEND-BV-02	Receiver maximum input level Received channel power indicator		R			R												
17 1609. 18 16092 19 16092 20 16092 21 16092 22 16092 23 16092	2 testing 2-SPDUBSM-SEND-BV-01 2-SPDUBSM-SEND-BV-02	Received channel power indicator	R	R	R		R		-					- 4					<u> </u>
18 16092 19 16092 20 16092 21 16092 22 16092 23 16092	2-SPDUBSM-SEND-BV-01 2-SPDUBSM-SEND-BV-02		K	K	R	R	K				_			-	_		- 4		
19 16092 20 16092 21 16092 22 16092 23 16092	2-SPDUBSM-SEND-BV-02	BSM Security Header	R	R					$\overline{}$		_								
21 16092 22 16092 23 16092		BSM digitally signed certificate	R	R	-														
22 16092 23 16092	2-SPDUBSM-SEND-BV-03	BSM digitally signed digest	R	R										- 1			- 1		
23 16092	2-SPDUBSM-SEND-BV-04	BSM certificate per vMaxCertDigestInterval.	R	R															
	2-SPDUBSM-SEND-BV-05 2-SPDUBSM-SEND-BV-06	BSM digest with valid signature BSM certificate with valid signature	R	R				-	-	4									
24 16090	2-SPDUBSM-SEND-BV-06 2-SPDUBSM-RECV-BV-01	IUT acknowledges valid BSM security header.	R	R		R													
25 16092	2-SPDUBSM-RECV-BV-02	IUT acknowledges valid BSM implicit certificate.	R	R		R													
26 16092	2-SPDUBSM-RECV-BV-03	IUT acknowleges valid BSM signed digest.	R	R	R	R													
27 16092	2-SPDUBSM-RECV-BV-04	IUT acknowledges valid BSM's certificate generationTime & Expiration Time	R	R	-	16	0,												
28	2-SPDUBSM-RECV-BV-05	IUT acknowledges BSM's Digest generationTime & Expiration Time	1	R	R	R	·	11											
-	2-SPDUBSM-CERTCHG-BV-01 2-SPDUBSM-RECV-BI-01	BSM's vCertChangeInterval Changes IUT acknowledges invalid BSM with incorrect digest signature.		R	R	R		16	D	/-									
30	2-SPDUBSM-RECV-BI-02	IUT acknowledges invalid BSM with incorrect certificate	R	e	0	P RO			-							0	-		
31 10001	2-SPDUWSA-SEND-BV-01	signature. IUT generates correct WSA security header.		-			1 .		-								-		
33 16092	2-SPDUWSA-SEND-BV-01	IUT generates correct WSA security reader.			-	16	H	6	-	-		$C \star$				-	-		
34 16092	2-SPDUWSA-SEND-BV-03	IUT generates WSA's signed digest of known certificate.				R			—								- 1		
	2-SPDUWSA-SEND-BV-04	IUT generates WSA's Signed Certificate & Signature				R			h			-		*					
	2-SPDUWSA-RECV-BV-01	IUT acknowledge valid WSA security header.	R	R	-	R		-	11					2					
	2-SPDUWSA-RECV-BV-02	IUT acknowledges valid implicit certificate signed WSA. IUT acknowledges valid WSA signed digest of known	R	-	-	-				10				Θ $+$. 95		
38	2-SPDUWSA-RECV-BV-03	oertificate. IUT acknowledges invalid WSA w/incorrect cert signature & not	R	R		R			-	C	A	4		7					
39	2-SPDUWSA-RECV-BI-01 3 testing	transmit.	Info	Info		Info		D,				-				_/_	<u> </u>		
41 16093	3-WSM-MST-BV-01	IUT transmits WSM Correct Version & EtherType.	R	R		R				11		U							C
	3-WSM-MST-BV-02	IUT transmits valid WSM-T-Header & PSID	R	R		R		-	N	1							_		
	3-WSM-ROP-BV-01	IUT transmits valid WSM CH N-Header	R	R		R											_		
	3-WSM-ROP-BV-02 3-WSM-ROP-BV-03	IUT transmits valid WSM Data Rate N-Header IUT transmits valid WSM Transmit Power-N-Header	R	R		R			-			•		-/	/ 6			-	//
	3-WSM-PP-BV-01	IUT receives WSM without Header extensions	R	R	R	R			-	-		1-				1			-(3
47 16093	3-WSM-PP-BV-02	IUT receives WSM with Header extensions	R	R		R					4/				\sim				
	3-WSM-COM-BV-01	IUT transmits WSMs in continuous mode	R	R		R					-					-			
49 16093	3-WSM-COM-BV-02 3-WSM-COM-BV-03	IUT receives WSMs in continuous mode	R	R	R	R	_		4	_		(<u> </u>			(2	ρ_{\perp}	
	3-WSM-COM-BV-03 3-WSM-COM-BV-04	IUT transmits in alternating mode CH1 & CH2 (TS1&2) IUT transmits on CH1 & receive on CH2		R		R							"	11			_	-	
52 16093	3-WSM-COM-BV-05	IUT acknowledges WSMs in altern, mode CH1 and CH2		R		R					-			1				V	77
53 16093	3-WSM-POP-BI-01	IUT does not transmit WSMs exceeding WsmMaxLength	R	R		R													9
54 10093	3-WSA-MST-BV-01	IUT transmits WSMs with a WSM header for the WSA				R													•
55 10093	3-WSA-MST-BV-02 3-WSA-MST-BV-03	IUT transmits WSA correct version & valid header IUT transmits signed WSAs				R			-	-									
57 16093	3-WSA-MST-BV-03 3-WSA-MST-BV-04-X	IUT transmits signed WSAs IUT transmits WSA Header fields				R											- 0		
58 16093	3-WSA-MST-BV-05-X	IUT transmits WSA Service Info Segment				R													
59 16093	3-WSA-MST-BV-08-X	IUT transmits WSA Channel Info Segment				R													
60 16093	3-WSA-MST-BV-07-X	IUT transmits WSA WRA Segment				R													
61 16093	3-WSA-MST-BV-08 3-WSA-PP-BV-01	IUT transmits WSA valid 2D Location	R	B		R			-										
62 16093	3-WSA-PP-BV-01	IUT acknowleges secure WSAs Header Extensions IUT acknowledges WSAs Service Info Segment	R	R					_	1	-			-			_		f
64 16093	3-WSA-PP-BV-03	IUT acknowledges WSAs Service into Segment	R	R													- 1		
65 16093	3-WSA-PP-BV-04	IUT acknowledges WSAs WRA	R	R															
	3-WSA-ROP-BV-01	IUT transmits WSA at a specified repeat rate.				R													
	3-WSA-CHG-BV-01	IUT changes WSA when PSC changes				R			4										
	3-WSA-CHG-BV-02 3-IP-CFG-BV-01	IUT changes WSA when service deleted IUT use WRA to configure its global IPv6 address.		R		R													
70 16093	3-IP-CFG-BV-02	IUT configures link-local and global IPv6.		R		R													
71 16093	3-IP-CHG-BV-01	IUT resets link-local IPv6 address to a specific value		R										- 1			- 8		
72 1609?	3-IP-CHG-BV-02	IUT resets IPv6 address		R															
16093	3-IP-COM-BV-01	IUT initiates a 2-way IPV6 to Remote Host on a different subnet.		R		R													
74 16093	3-IP-COM-BV-02	IUT initiates a 2-way IPV6 to Host using link-local address.		R		R													



Test Cases:

- Specifications similar to previous Plugfest & frozen since August.
 - Changes since May Plugfest

 small editorial changes
 based on vendor feedback,
 change track provided
 - Small changes to TCI ASN.1 to support IPv6
 - TCI Msg generator updated
- Will be updating test cases from test equipment qualification,
 Plugfest results and industry group feedback.

Device Requirements & Testing:

• Test Equipment Interface: TCIs per 802.11p, 1609 and J2945/1

• Test Case & TCI Specifications:

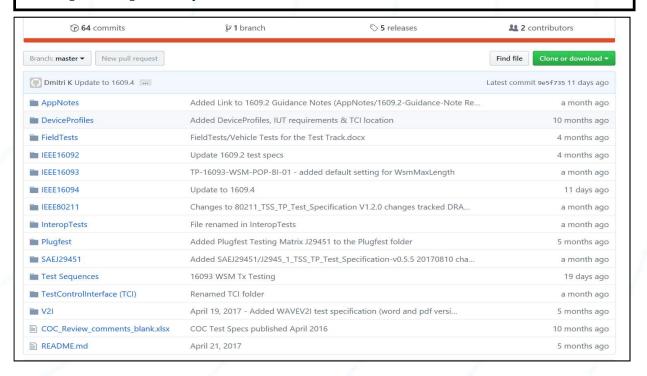
https://github.com/certificationoperatingcouncil/COC_TestSpecs

• **PSIDs: per Message Types:** 0x7F (test) and specific for test cases

Security Certificates: Fall 2017 Plugfest or CAMP QA versions

• Bench Testing per Test Cases: Wired (no Over-The-Air)

Group Interoperability: Wireless / Over-The-Air





Test Slots Schedule Criteria (~250):

- Arranged to accommodate facility capacity.
- Arranged where every device manufacturer visits every test tool provider. Some may want to visit test provider "Anritsu & Keysight) not own their schedule during lunch.
- Did not know everyone's schedule on Friday! Please tell Ryan or Randy that your company will not attend on Friday where these test slots can be reassigned.
- Viewed every device as deployable and ready for certification.
- Using anonymous results for test case updating & finalization.
- Each device manufacturer can trade with others and arrange with Ryan for reassignment and poster schedule change.

				ay Area Plugfe						
	Schedule was const	ructed with facility cap	pacity issue and every	device manufacturer	seeing every test stat	ion type! Room Ca	pacity = 45, Maximu	m People at Test St	tation = 4	
	30 Testing Tickets =	27 OBUs + 10 RSUs		Testing Capacity =	25 Devices (3 sessions per	day) 11 Inc	door + 1x3 Outdoor Test St	tations	Testing Slots =	256
									_	
iesday									Test Systems	
Daily Testing Stations	UL 802.11p & 1609	7Layers RSU, 1609 & J2945	Spirent 1609 & J2945 GPS	Intertek 802.11p & 1609	Danlaw 802.11p. 1609 & RSU	Dekra 802.11p & 1609	Keysight 802.11p. 1609 & J2945	0	Group Interoperability = wlaw. Dekra. Intertek & UL) =	
8 - 9:45am	Test Set-un	Test Set-un	Test Set-un	Test Set-up	Test Set-un	Test Set-un	Test Set-up		rient (7Layers & Sprinet) =	
10 - 11:45 am	Denso OBU	Chemtronics OBU or RSU	Murata OBU	Renesas OBU	Cohda OBE or RSU	Lear (OBU or RSU)	eTrans OBU or RSU	34	Anritsu or Keysight =	
1 - 2:45 pm	IT-Telecom OBU or RSU	Keti OBU or RSU	Panasonic OBU	Autotalks OBU	Blackberry OBU	Carnavicom OBU	Delphi OBU			3
3 - 4:45 pm	Lear OBU or RSU	Essys RSU	Danlaw OBE1 or OBE2	Aricent OBU	Chemtronics OBU or RSU	SiriusXM OBU	ITRI OBU		3M =	
5 - 6:45 pm	Panasonic OBU	Saravi OBU or RSU	Sumitomo OBU	Continental OBU	Wayties OBU	Aricent OBU	Hitachi OBU		Marben =	
									Mobile Vehicle =	7
t 802.11P with TCI	Reserved	XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	1st Qualifier	2nd Qualifier	3rd Qualifier		Ov	ernight 802.11P Qualifer =	3
									Total =	
										Tuesday
Daily Testing	Anritsu	Leidos	Marben - J2735	Marben - J2735	3M - J2735	3M - J2735		Mobile Vehicle	Mobile Vehicle	Mobile Veh
Stations	802.11p & J2735	RSU 4.1	45 min: 8,10,1,3,5	45 min: 9,11,2,4	45 min: 8,10,1,3,5	45 min: 9,11,2,4		II A	#B	II C
8 - 9:45am	Test Set-up	Test Set-up		XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXX				
10 - 11:45 am	Danlaw OBE1 or OBE2	Savari RSU	Autotalks OBU	Wayties OBU	Commsignia OBU or RSU	Laird OBU		XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	Autotalks OBU	Laird OBU
1 - 2:45 pm	Renesas OBU	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	Essys RSU	Murata OBU	Alps OBU	Siemens RSU		Etrans (OBU)	Continental OBU	SiriusXM OBL
3 - 4:45 pm	Savari OBU or RSU	Siemens RSU	KETI (OBU or RSU)	Sumitomo OBU	Hitachi OBU	Carnavicom OBU		Denso (OBU)	Commsignia OBU	Cohda OBU
5 - 6:45 pm	Alps OBU	IT-Telecom RSU	Delphi OBU	Blackberry OBU	Chemtronics OBU or RSU	ITRI OBU		XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX	XXXXXXXXXXX
									J	
ednesday									Test Systems	
Daily Testing	UL	7Layers	Spirent	Intertek	Danlaw	Dekra	Keysight		Group Interoperability =	
Stations 8 - 9:45am	802.11p & 1609	RSU, 1609 & J2945 Siemens RSU	1609 & J2945 GPS	802.11p & 1609	802.11p, 1609 & RSU	802.11p & 1609	802,11p, 1609 & J2945		wlaw, Dekra, Intertek & UL) =	
	Blackberry OBU Carnavicom OBU		Denso OBU	Laird OBU	Murata OBU Siemens RSU		Savari OBU or RSU Autotalks OBU	2b	rient (7Layers & Sprinet) =	
10 - 11:45 am	Alps OBU	Danlaw OBE1 or OBE2 Etrans OBU or RSU	IT-Telecom OBU or RSU SiriusXM OBU	Sumitomo OBU	Renesas OBU or RSU	eTrans OBU or RSU Delphi OBU	Blackberry OBU		Anritsu or Keysight = Leidos RSU	5
1 - 2:45 pm	Renesas OBU	Aricent OBU or RSU	Autotalks OBU	Hitachi OBU	Commsignia OBU or RSU	Wayties OBU	Chemtronics OBU or RSU		Leidos KSU 3M =	
3 - 4:45 pm 5 - 6:45 pm	Denso OBU	Lear OBU or RSU	Wayties OBU	Laird OBU		Savari OBU or RSU	Aricent OBU or RSU		3M = Marben =	
5 - 6:45 pm	Denso UBU	Lear UBU of KSU	Wayties UBU	Laird OBO	Essys RSU	Savari UBU OF KSU	Aricent UBU or KSU		Mobile Vehicle =	
t 802.11P with TCI	4th Qualifier	XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	5th Qualifier	6th Qualifier	7th Qualifier		0	ernight 802.11P Qualifer =	
C 802.11F WIGH TCI	4tii Quaiiilei	***********	**********	Stil Qualifier	otii Qualifiei	7tii Qualillei		00		
									Total =	81
										Wednesd
Daily Testing	Anritsu	Leidos	Marben - J2735	Marben - J2735	3M - J2735	3M - J2735		Mobile Vehicle	Mobile Vehicle	Mobile Veh
Stations	802.11p & J2735	RSU 4.1	45 min: 8,10,1,3,5	45 min: 9,11,2,4	45 min: 8.10.1.3.5	45 min: 9,11,2,4		# A	# B	# C
8 - 9:45am	Carnavicom OBU	Commsignia RSU	Chemtronics OBU or RSU	Etrans OBU or RSU	Aricent OBU or RSU	Cohda OBU or RSU		Delphi (OBU)	Danlaw (OBU1or2)	Renesas (OBL
10 - 11:45 am	Blackberry OBU	KETI RSU	ITRI OBU	Etrans OBU or RSU		Cohda OBU or RSU Etrans OBU or RSU		Delphi (OBU) Savari (OBU)	Danlaw (OBU1or2) Panasonic OBU	Renesas (OBL Chemtronics
10 - 11:45 am 1 - 2:45 pm	Blackberry OBU Cohda OBU or RSU	KETI RSU Chemtronics RSU	ITRI OBU Essys RSU	Etrans OBU or RSU Denso OBU	Aricent OBU or RSU Denso OBU	Cohda OBU or RSU Etrans OBU or RSU Panasonic OBU		Delphi (OBU) Savari (OBU) Sumitomo OBU	Danlaw (OBU1or2) Panasonic OBU IT-Telecom OBU or RSU	Renesas (OBU Chemtronics (Aricent OBU
10 - 11:45 am 1 - 2:45 pm 3 - 4:45 pm	Blackberry OBU Cohda OBU or RSU Wayties OBU	KETI RSU Chemtronics RSU Siemens RSU	ITRI OBU Essys RSU Savari OBE or RSU	Denso OBU IT-Telecom OBU or RSU	Aricent OBU or RSU Denso OBU Keti RSU	Cohda OBU or RSU Etrans OBU or RSU Panasonic OBU Lear OBU or RSU		Delphi (OBU) Savari (OBU) Sumitomo OBU Alps OBU	Danlaw (OBU1or2) Panasonic OBU IT-Telecom OBU or RSU Murata OBU	Renesas (OBU Chemtronics (Aricent OBU
10 - 11:45 am 1 - 2:45 pm	Blackberry OBU Cohda OBU or RSU	KETI RSU Chemtronics RSU	ITRI OBU Essys RSU	Etrans OBU or RSU Denso OBU	Aricent OBU or RSU Denso OBU	Cohda OBU or RSU Etrans OBU or RSU Panasonic OBU		Delphi (OBU) Savari (OBU) Sumitomo OBU	Danlaw (OBU1or2) Panasonic OBU IT-Telecom OBU or RSU	Renesas (OBL Chemtronics
10 - 11:45 am 1 - 2:45 pm 3 - 4:45 pm	Blackberry OBU Cohda OBU or RSU Wayties OBU	KETI RSU Chemtronics RSU Siemens RSU	ITRI OBU Essys RSU Savari OBE or RSU	Denso OBU IT-Telecom OBU or RSU	Aricent OBU or RSU Denso OBU Keti RSU	Cohda OBU or RSU Etrans OBU or RSU Panasonic OBU Lear OBU or RSU		Delphi (OBU) Savari (OBU) Sumitomo OBU Alps OBU	Danlaw (OBU1or2) Panasonic OBU IT-Telecom OBU or RSU Murata OBU	Renesas (OBU Chemtronics Aricent OBU
10 - 11:45 am 1 - 2:45 pm 3 - 4:45 pm	Blackberry OBU Cohda OBU or RSU Wayties OBU	KETI RSU Chemtronics RSU Siemens RSU	ITRI OBU Essys RSU Savari OBE or RSU	Denso OBU IT-Telecom OBU or RSU	Aricent OBU or RSU Denso OBU Keti RSU	Cohda OBU or RSU Etrans OBU or RSU Panasonic OBU Lear OBU or RSU		Delphi (OBU) Savari (OBU) Sumitomo OBU Alps OBU	Danlaw (OBU1or2) Panasonic OBU IT-Telecom OBU or RSU Murata OBU	Renesas (OBI Chemtronics Aricent OBU
10 - 11:45 am 1 - 2:45 pm 3 - 4:45 pm	Blackberry OBU Cohda OBU or RSU Wayties OBU	KETI RSU Chemtronics RSU Siemens RSU	ITRI OBU Essys RSU Savari OBE or RSU	Denso OBU IT-Telecom OBU or RSU	Aricent OBU or RSU Denso OBU Keti RSU	Cohda OBU or RSU Etrans OBU or RSU Panasonic OBU Lear OBU or RSU		Delphi (OBU) Savari (OBU) Sumitomo OBU Alps OBU	Danlaw (OBU1or2) Panasonic OBU IT-Telecom OBU or RSU Murata OBU	Renesas (OBI Chemtronics Aricent OBU
10 - 11:45 am 1 - 2:45 pm 3 - 4:45 pm 5 - 6:45 pm	Blackberry OBU Cohda OBU or RSU Wayties OBU	KETI RSU Chemtronics RSU Siemens RSU	ITRI OBU Essys RSU Savari OBE or RSU	Denso OBU IT-Telecom OBU or RSU	Aricent OBU or RSU Denso OBU Keti RSU	Cohda OBU or RSU Etrans OBU or RSU Panasonic OBU Lear OBU or RSU	Keysight	Delphi (OBU) Savari (OBU) Sumitomo OBU Alps OBU	Danlaw (OBU10r2) Panasonic OBU IT-Telecom OBU or RSU Murata OBU xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	Renesas (OBU Chemtronics Aricent OBU XXXXXXXXXXXXX
10 - 11:45 am 1 - 2:45 pm 3 - 4:45 pm 5 - 6:45 pm Daily Testing Stations	Blackberry OBU Cohda OBU or RSU Wayties OBU Hitachi OBU UL 802.11p & 1609	KETI RSU Chemtronics RSU Siemens RSU Cohda RSU	ITRI OBU Essya RSU Savari OB Er or RSU SiriusXIM OBU Sprient 1609 & J2945 GPS	Etrans OBU or RSU Denso OBU IT-Telecom OBU or RSU Panasonic OBU	Aricent OBU or RSU Denso OBU Keti RSU Continental OBU Danlaw 802.11p, 1609 & RSU	Cohda OBU or RSU Etrans OBU or RSU Panasonic OBU Lear OBU or RSU Surnitomo OBU		Delphi (OBU) Savari (OBU) Sumitomo OBU Alps OBU 1000000000000000000000000000000000000	Danlaw (OBU10r2) Panasonic OBU IT-Telecom OBU or RSU Murata OBU xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	Renesas (OBU Chemtronics Aricent OBU XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
10 - 11:45 am 1 - 2:45 pm 3 - 4:45 pm 5 - 6:45 pm	Blackberry OBU Cohda OBU or RSU Wayties OBU Hitachi OBU	KETI RSU Chemtronics RSU Siernens RSU Cohda RSU 7Layers	ITRI OBU Essys RSU Savari OBE or RSU SiriusXM OBU Spirent	Etrans OBU or RSU Denso OBU IT-Telecom OBU or RSU Panasonic OBU Intertek	Aricent OBU or RSU Denso OBU Keti RSU Continental OBU Danlaw	Cohda OBU or RSU Etrans OBU or RSU Panasonic OBU Lear OBU or RSU Sumitomo OBU Dekra	Keysight	Delphi (OBU) Savari (OBU) Sumitomo OBU Alps OBU 1000000000000000000000000000000000000	Danlaw (OBU10r2) Panasonic OBU IT-Telecom OBU or RSU Murata OBU xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	Renesas (OBU Chemtronics Aricent OBU XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
10 - 11:45 am 1 - 2:45 pm 3 - 4:45 pm 5 - 6:45 pm bursday Daily Testing Stations 8 - 9:45 am 10 - 11:45 am	Blackberry OBU Cohda OBU or RSU Wayires OBU Hitachi OBU Hitachi OBU UL 802.11p & 1609 KETI OBU or RSU TIRI OBU	KETI RSU Chemtronics RSU Siemens RSU Cohda RSU Cohda RSU 7Layers RSU, 1609 8.12945 Blackberry OBU Cohda OBU or RSU	ITRI OBU Essys RSU Savari OBE or RSU StriusXM OBU SriusXM OBU Spirent 1609 & 12945 GPS Laird OBU Savari OBU or RSU	Etrans OBU or RSU Denso OBU IT-Telecom OBU or RSU Panasonic OBU Intertek 802.11p & 1609 Autotalis: OBU Delphi OBU	Aricent OBU or RSU Denso OBU Keti RSU Continental OBU Danlaw 802.11p, 1609 & RSU Chemtronics OBU or RSU Siemens RSU	Cohda OBU or RSU Etrans OBU or RSU Panasonic OBU Lear OBU or RSU Sumitomo OBU Dekra 802.11p & 1609 Murata OBU Denso OBU	Keysight 802,11p, 1609 & J2945 Siemens RSU Murata OBU	Delphi (OBU) Savari (OBU) Sumitomo OBU Alps OBU 1000000000000000000000000000000000000	Danlaw (OBU1072) Panasonic OBU Ti-Telecom OBU or RSU Murata OBU xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	Renesas (OBU Chemtronics Aricent OBU XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
10 - 11:45 am 1 - 2:45 pm 3 - 4:45 pm 5 - 6:45 pm Daily Testing Stations 8 - 9:45 am 10 - 11:45 am 1 - 2:45 pm	Blackberry OBU Cohda OBU or RSU Wayties OBU Hitachi OBU Hitachi OBU UL 802.11p & 1609 KETI OBU or RSU ITRI OBU or RSU Lear OBU or RSU	KETI RSU Chemtronics RSU Siemens RSU Conda RSU Conda RSU 7Layers RSU, 1699 8.12945 Blackberry OBU Conda OBU or RSU Ajsp. OBU	ITRI OBU Esya RSU Sarari OBE or RSU SiriuxXM OBU Spirent 1609 & 12945 GPS Laird OBU Savari OBU or RSU Carnavicom OBU	Etrans OBU or RSU Denso OBU IT-Telecom OBU or RSU Panasonic OBU Intertek Intertek B02.11p. 8.1609 Autotalis OBU Delphi OBU Chemtonico OBU or SSU	Aricent OBU or RSU Denso OBU Keti RSU Continental OBU Danlaw 802.11p, 1609 & RSU Chemtronics OBU or RSU Siemens RSU Exyr RSU	Cohda OBU or RSU Etrans OBU or RSU Panasonic OBU Lear OBU or RSU Sumitomo OBU Dekra 802.11p & 1609 Murata OBU Denso OBU Histari OBU	Keysight 802,11p, 1609 & J2945 Siemens RSU Murata OBU Panasonic OBU	Delphi (OBU) Savari (OBU) Sumitomo OBU Alps OBU 1000000000000000000000000000000000000	Daniaw (OBU 1072) Panasonic OBU IT-Telecom OBU or RSU Murata OBU DESCRIPTION OBU OR RSU Murata OBU DESCRIPTION OBU OR RSU Group interoperability = Marksu or Keysight = Leido RS prinet] = Anritsu or Keysight = Leido RS	Renesas (OBI Chemtronics Aricent OBU XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
10 - 11:45 am 1 - 2:45 pm 3 - 4:45 pm 5 - 6:45 pm 5 - 6:45 pm Daily Testing Stations 8 - 9:45 am 10 - 11:45 am 1 - 2:45 pm 3 - 4:45 pm	Blackberry OBU Cohda OBU or RSU Wayries OBU Hitachi OBU Hitachi OBU UL 802.11p & 1609 KETI OBU or RSU ITRI OBU Lear OBU or RSU SriusXM OBU	KETI RSU Chemtronics RSU Siemens RSU Cohda RSU Cohda RSU 7 Layers RSU, 1609 & 12945 Blackberry 08U Cohda 08U or RSU Alps 08U Commisignia 08U or RSU	ITRI OBU Esys RSU Savari OBE or RSU SriusXM OBU Spirent 1609 & J2945 GPS Land OBU Land OBU Carnaricom OBU Reness OBU	Etrans OBU or RSU Denso OBU IT-Telecom OBU or RSU Panasonic OBU Intertek 802.11p 8.1609 Autotalis OBU Delphi OBU Chemronic OBU or RSU Lard OBU	Aricent OBU or RSU Denso OBU Keti RSU Continental OBU Danlaw 802.119, 1609 & RSU Chemtronics OB U or RSU Essye RSU Essye RSU Essye RSU Swari OBU or RSU	Cohda GBU or RSU Etrans OBU or RSU Panasonic OBU Lear OBU or RSU Sumitomo OBU Dekra 802.11p & 1609 Murata OBU Denso OBU Hitachi OBU Panasonic OBU Panasonic OBU Panasonic OBU Panasonic OBU	Keysight 802,11p, 1609 & 2945 Siemens RSU Murata OBU Panasonic OBU Sumitomo OBU	Delphi (OBU) Savari (OBU) Sumitomo OBU Alps OBU 1000000000000000000000000000000000000	Danlaw (OBU1072) Panasonic OBU Ti-Telecom OBU or RSU Murata OBU xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	Renesas (OBI Chemtronics Aricent OBU XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
10 - 11:45 am 1 - 2:45 pm 3 - 4:45 pm 5 - 6:45 pm Daily Testing Stations 8 - 9:45 am 10 - 11:45 am 1 - 2:45 pm	Blackberry OBU Cohda OBU or RSU Wayties OBU Hitachi OBU Hitachi OBU UL 802.11p & 1609 KETI OBU or RSU ITRI OBU or RSU Lear OBU or RSU	KETI RSU Chemtronics RSU Siemens RSU Conda RSU Conda RSU 7Layers RSU, 1699 8.12945 Blackberry OBU Conda OBU or RSU Ajsp. OBU	ITRI OBU Esya RSU Sarari OBE or RSU SiriuxXM OBU Spirent 1609 & 12945 GPS Laird OBU Savari OBU or RSU Carnavicom OBU	Etrans OBU or RSU Denso OBU IT-Telecom OBU or RSU Panasonic OBU Intertek Intertek B02.11p. 8.1609 Autotalis OBU Delphi OBU Chemtonico OBU or SSU	Aricent OBU or RSU Denso OBU Keti RSU Continental OBU Danlaw 802.11p, 1609 & RSU Chemtronics OBU or RSU Siemens RSU Exyr RSU	Cohda OBU or RSU Etrans OBU or RSU Panasonic OBU Lear OBU or RSU Sumitomo OBU Dekra 802.11p & 1609 Murata OBU Denso OBU Histari OBU	Keysight 802,11p, 1609 & J2945 Siemens RSU Murata OBU Panasonic OBU	Delphi (OBU) Savari (OBU) Sumitomo OBU Alps OBU 1000000000000000000000000000000000000	Daniaw (OBU 1072) Panasonic OBU IT-Telecom OBU or RSU Murata OBU DESCRIPTION OBU OR SU Murata OBU DESCRIPTION OBU OR SU MURATA OBU DESCRIPTION OBU GROUP Interoperability = More (T/Jayers & Sprinet) = Anritsu or Keysight = Leidos RSU BMP = Marben =	Renesas (OBI Chemtronics Aricent OBU XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
10 - 11.45 pm 1 - 2.45 pm 3 - 4.45 pm 5 - 6.45 pm 5 - 6.45 pm bursday Daily Testing Stations 8 - 9.45 am 10 - 11.45 am 1 - 2.45 pm 3 - 4.45 pm 5 - 6.45 pm	Blackberry OBU Cohdo OBU or RSU Wayties OBU Hitachi OBU UL 802.11p & 1609 KET OBU or RSU TIRI OBU Lear OBU or RSU Srinus/M OBU Autotalks OBE	KETI RSU Chemtronics RSU Siemers RSU Cohda RSU Tlayers RSU, 1609 8.12945 Blackberry OBU Cohda OBU or RSU Alps OBU Commisignia OBU or RSU Hitachi OBU	ITRI OBU Essys RSU Savari OBE or RSU SriusXM OBU SriusXM OBU Spirent 1609 & 12945 GPS Laird OBU Savari OBU or RSU Carmarkcom OBU Reneaso OBU Continental OBU	Etrans OBU or RSU Denso OBU IT-Telecom OBU or RSU Panasonic OBU Intertek 802.11p & 1609 Autotalis OBU Delphi OBU Chemtonic OBU or RSU Lard OBU Aricent OBU Aricent OBU	Aricent OBU or RSU Denso OBU Keti RSU Continental OBU Selection of the Continental OBU Danlaw 802.11p,1609 & RSU Chemtronics OBU or RSU Siemens RSU Siemens RSU Expr. RSU Expr. RSU Danlaw OBE1 or RSU Danlaw OBE1 or OBE2	Cohds (BU or RS) Etran OBU or RS) Etran OBU or RS) User OBU or RS) Lear OBU or RS) Sumitomo OBU Dekra 802.11 & 1609 Murat OBU Denso OBU Hitacki OBU Planscinic OBU KETI OBU or RS)	Keysight 802,11p, 1609 & 2945 Siemens RSU Murata OBU Panasonic OBU Sumitomo OBU	Delphi (OBU) Savari (OBU) Savari (OBU) Mps OBU Alps OBU MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM	Danlaw (OBU 10r2) Panasonic OBU IT-Telecom OBU or RSU Murata OBU **CONCONCONCONCONCONCONCONCONCONCONCONCONC	All 20 10 10 10 10 10 10 10 10 10 10 10 10 10
10 - 11:45 am 1 - 2:45 pm 3 - 4:45 pm 5 - 6:45 pm 5 - 6:45 pm Daily Testing Stations 8 - 9:45 am 10 - 11:45 am 1 - 2:45 pm 3 - 4:45 pm	Blackberry OBU Cohda OBU or RSU Wayries OBU Hitachi OBU Hitachi OBU UL 802.11p & 1609 KETI OBU or RSU ITRI OBU Lear OBU or RSU SriusXM OBU	KETI RSU Chemtronics RSU Siemens RSU Cohda RSU Cohda RSU 7 Layers RSU, 1609 & 12945 Blackberry 08U Cohda 08U or RSU Alps 08U Commisignia 08U or RSU	ITRI OBU Esys RSU Savari OBE or RSU SriusXM OBU Spirent 1609 & J2945 GPS Land OBU Land OBU Carnaricom OBU Reness OBU	Etrans OBU or RSU Denso OBU IT-Telecom OBU or RSU Panasonic OBU Intertek 802.11p 8.1609 Autotalis OBU Delphi OBU Chemronic OBU or RSU Lard OBU	Aricent OBU or RSU Denso OBU Keti RSU Continental OBU Danlaw 802.119, 1609 & RSU Chemtronics OB U or RSU Essye RSU Essye RSU Essye RSU Swari OBU or RSU	Cohda GBU or RSU Etrans OBU or RSU Panasonic OBU Lear OBU or RSU Sumitomo OBU Dekra 802.11p & 1609 Murata OBU Denso OBU Hitachi OBU Panasonic OBU Panasonic OBU Panasonic OBU Panasonic OBU	Keysight 802,11p, 1609 & 2945 Siemens RSU Murata OBU Panasonic OBU Sumitomo OBU	Delphi (OBU) Savari (OBU) Savari (OBU) Mps OBU Alps OBU MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM	Danilaw (OBU Lor 2) Panasonic OBU IT-Telecom OBU or RSU Murata OBU xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	Renesas (OBI Chemtronics Aricent OBU 2000000000000000000000000000000000000
10 - 11.45 pm 1 - 2.45 pm 3 - 4.45 pm 5 - 6.45 pm 5 - 6.45 pm bursday Daily Testing Stations 8 - 9.45 am 10 - 11.45 am 1 - 2.45 pm 3 - 4.45 pm 5 - 6.45 pm	Blackberry OBU Cohdo OBU or RSU Wayties OBU Hitachi OBU UL 802.11p & 1609 KET OBU or RSU TIRI OBU Lear OBU or RSU Srinus/M OBU Autotalks OBE	KETI RSU Chemtronics RSU Siemers RSU Cohda RSU Tlayers RSU, 1609 8.12945 Blackberry OBU Cohda OBU or RSU Alps OBU Commisignia OBU or RSU Hitachi OBU	ITRI OBU Essys RSU Savari OBE or RSU SriusXM OBU SriusXM OBU Spirent 1609 & 12945 GPS Laird OBU Savari OBU or RSU Carmarkcom OBU Reneaso OBU Continental OBU	Etrans OBU or RSU Denso OBU IT-Telecom OBU or RSU Panasonic OBU Intertek 802.11p & 1609 Autotalis OBU Delphi OBU Chemtonic OBU or RSU Lard OBU Aricent OBU Aricent OBU	Aricent OBU or RSU Denso OBU Keti RSU Continental OBU Selection of the Continental OBU Danlaw 802.11p,1609 & RSU Chemtronics OBU or RSU Siemens RSU Siemens RSU Expr. RSU Expr. RSU Danlaw OBE1 or RSU Danlaw OBE1 or OBE2	Cohds (BU or RS) Etran OBU or RS) Etran OBU or RS) User OBU or RS) Lear OBU or RS) Sumitomo OBU Dekra 802.11 & 1609 Murat OBU Denso OBU Hitacki OBU Planscinic OBU KETI OBU or RS)	Keysight 802,11p, 1609 & 2945 Siemens RSU Murata OBU Panasonic OBU Sumitomo OBU	Delphi (OBU) Savari (OBU) Savari (OBU) Mps OBU Alps OBU MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM	Danlaw (OBU 10r2) Panasonic OBU IT-Telecom OBU or RSU Murata OBU **CONCONCONCONCONCONCONCONCONCONCONCONCONC	Renesas (OBU Chemtronics Aricent OBU XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
10 - 11.45 am 3 - 4.45 pm 5 - 6.45 pm 5 - 6.45 pm bally Testing Stations 8 - 9.45 am 10 - 11.45 am 1 - 2.45 pm 5 - 6.45 pm 5 - 6.45 pm	Blackberry OBU Corks GBU or RSJ Waytes OBU HRachi OBU HRachi OBU UL B02.11p & 1609 KITI OBU or RSJ ITIR OBU Lear OBU or RSJ SrinxM OBU Autotaks OBE Sth Qualifier	KETI RSU Chentronic RSU Semens RSU Cohda RSU Tlayera RSU, 1609 & 12945 Blackberry GBU Coded GBU or RSU Alpo GBU or RSU Historic GBU or RSU Historic GBU Historic GBU XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	ITRI OBU Essys RSU Savari OBE or RSU SrivusXM OBU Spirent 1609 & 12945 GPS Laird OBU Continental OBU Continental OBU XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	Etrans DBU or RSJ Denso DBU T-Trelectom DBU or RSU T-Trelectom DBU or RSU Panasonic OBU Panasonic OBU Intertek 802.11,8 1609 Autotalks OBU Delphi OBU Chentronic OB Ul or RSU Laird OBU Arcent OBU 9th Qualifier	Arcent OBJ or RSU Exet OBJ Exet OBJ Continental OBJ Danlaw BOLITION, 1609 B. US VI Semen SSJ Semen SSJ Semen OBJ Danlaw OBS or OBS Danlaw OBS or OBS Danlaw OBS or OBS 10th Qualifier	Cohla GBU or RSU Pansconic GBU Pansconic GBU Pansconic GBU Eser GBU or RSU Sumitomo GBU Dekra 802.11,8 1609 Mapa 100 Pansconic GBU Pansconic GBU Little GBU Little GBU Little GBU Little GBU Little GBU Pansconic GBU Littl	Keysight 802,11p, 1609 & 2945 Siemens RSU Murata OBU Panasonic OBU Sumitomo OBU	Delphi (OBU) Savari (OBU) Savari (OBU) Savari (OBU) Savari (OBU) Alps OBU Alps OBU Danlaw (Dan Sp	Janlaw (GBUL)or2 Panasonic OBU T-Telecom OBU or RSU Murata OBU XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	Renesas (OBI Chemtronics Aricent OBU X000000000000000000000000000000000000
10 - 11.45 am 1 - 2.45 pm 3 - 4.45 pm 5 - 6.45 pm bursday Daily Testing Stations 8 - 9.45 am 10 - 11.45 am 1 - 2.45 pm 3 - 4.45 pm 5 - 6.45 pm 3 - 4.45 pm 5 - 6.45 pm Daily Testing	Blackberry OBU Corks OBU or RSU Wayries OBU Hisachi OBU Hisachi OBU UL 802.11p & 1609 KET OBU or RSU ITRI OBU Lear OBU or RSU SrinuxM OBU Autotaks OBE Sth Qualifier Anritsu	KTTI RSU Chemtronics RSU Semens RSU Cohda RSU Tuyers RSU, 1609 & 12945 Blackery OBU Cohdo BU or RSU Ampo OBU Kondipio OBU or RSU Historic OBU XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	ITRI OBU Easy RSU Servir OBE or RSU Land OBU Land OBU Continental OBU LOCATION OBU	Etram GBU or RSU TIT-felecom GBU or RSU Panssonic GBU Panssonic GBU Rensonic GBU Autotate GBU Autotate GBU Autotate GBU Arcent GBU Arcent GBU Arcent GBU Arcent GBU Marben 12735	Arcent Dilu or RSU Keti RSU Continental OBU Setti RSU Continental OBU Continental OBU Continental OBU Continental OBU Setting RSU Setting R	Cohisa Dil ur RSJ Pansconic OBU Errar OBU or RSJ Pansconic OBU Lear OBU or RSJ Samitorno OBU Dekra 802.11p & 1609 Murato OBU Denco OBU Historio OBU KETI OBU or RSJ 11th Qualifier 3M - 12735	Keysight 802,11p, 1609 & 2945 Siemens RSU Murata OBU Panasonic OBU Sumitomo OBU	Delphi (DBU) Savari (DBU) Savari (DBU) Savari (DBU) Savari (DBU) Savari (DBU) Danlaw (Dar Sp	Danlaw (GBUSUs) T-Telecom GBU or RSU Murata GBU T-Telecom GBU or RSU Murata GBU SSCOSSOSSOSSOSS Test Systems Group Interoperability = draw, Desir, Interde & Util = results, Clear, Clear	Renesas (OBU Chemtronics Aricent OBU XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
10 - 11:45 am 3 - 4:45 pm 3 - 4:45 pm 5 - 6:45 pm 5 - 6:45 pm Daily Testing Stations 8 - 9:45 am 1 - 21:45 pm 1 - 21:45 pm 5 - 6:45 pm 8 - 9:45 pm 1 - 2:45 pm 5 - 6:45 pm 8 - 9:45 pm 5 - 6:45 pm Stations	Blackberry OBU Or RSU Orded OBU or RSU Wayfres OBU Hitachi OBU Hitachi OBU Hitachi OBU Hitachi OBU Hitachi OBU Hitachi OBU AND	KTTI RSU Chemtronics RSU Semens RSU Cohda RSU Tuyers RSU, 1609 & 12945 Bischlery DBU Condis DBU or RSU Hazacid DBU Man DBB Man	ITRI OBU Essys RSU Savari OBE or RSU SrivusXM OBU Spirent 1609 & 12945 GPS Laird OBU Continental OBU Continental OBU XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	Etrans GBU or RSU Finelecom GBU or RSU Finelecom GBU or RSU Fanasconic GBU Intertek 802.11p.8.1609 Autotalis GBU Delphi GBU Chemmonic GBU or RSU Land GBU Arcent GBU Arcent GBU Arcent GBU Arcent GBU Marber 12735 Marber 12735	Arcent DBU or BSU Rest BSU Kest BSU Continental DBU B02.11p, 1609 B RSU Chemtorics OBU or RSU Esym RSU Semens RSU Lopadow B02.11p, 1609 B RSU Chemtorics OBU or RSU Esym RSU Semens RSU TORROW Darkswo GBU or GBU Darkswo GBU or GBU Darkswo GBU or GBU Semens RSU Semen	Corba OBU or RSU Pansconic GBU Pansconic GBU Lear GBU or RSU Sumitomo GBU Sumitomo GBU Dekra 802.11,8 1609 Murata GBU Pensco GBU Pensco GBU Hitach GBU Pensco GBU 11th Qualifier 3M - 12735 45 min: 9,11,2,4,6 5 min: 9,11,2,4,6	Keysight 802,11p, 1609 & 2945 Siemens RSU Murata OBU Panasonic OBU Sumitomo OBU	Delphi (DBU) Savari (OBU) Savari (OBU) Savari (OBU) Savari (OBU) Savari (OBU) Savari (OBU) Danlaw (Danlaw (Dan	Danlaw (GBUJLor) Panasonic GBU FT-Felecom GBU or RSU Murata GBU IXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	Renesas (OBI Chemtronics Aricent OBU 2000000000000000000000000000000000000
10 - 11:45 am 1 - 2:45 pm 3 - 4:45 pm 3 - 4:45 pm 5 - 6:45 pm Ursday Daily Testing Stations 8 - 9:45 am 10 - 11:45 am 10 - 11:45 pm 3 - 4:45 pm 3 - 4:45 pm 8 - 6:45 pm Baily Testing Stations 8 - 9:45 pm 8 - 9:45 pm 8 - 8:45 pm	Bischerry OBU Corks OBU or RSU Wayrier OBU Haachi OBU Har OBU or RSU FIRI OBU Lear OBU or RSU FirinaXM OBU Autotalas OBE Sth Qualifier Anritsu 802.11p & 12735 Delphi OBU	KETI RSU Chemtonicis RSU Semmon RSU Semmon RSU Tuyers RSU, 1509 8,12945 Blackberry GBU Coded BIU or RSU Alpo DBU Coded GBU or RSU MEACH OF RSU MEACH OBU X00000000000000000000000000000000000	ITRI OBU	Etran SBU or RSU TIT-felecom OBU or RSU Panasonic OBU Panasonic OBU Panasonic OBU Boot or RSU Panasonic OBU Boot or RSU Julio OBU Marben - 12735 45 min: 9,11,24 Commisgina OBU or RSU	Arcent DBU or RSU Denso DBU or RSU Keti RSU Continental OBU Section SBU or RSU Continental OBU Continental OBU Continental OBU Section SBU Section SBU Section SBU Darbay OBE1 or OBE2 10th Qualifier 3M - 12735 45 min E, 10,0,1,3 Waytes OBU	Corlac BIU or RSU Francisco BIU or RSU Francisco BIU or RSU Francisco BIU or RSU Samitemo OBU Dekra BIO 1116 & 1609 Murato GIU Hitach Coll Hitach Coll Francisco GIU Fran	Keysight 802,11p, 1609 & 2945 Siemens RSU Murata OBU Panasonic OBU Sumitomo OBU	Delphi (DBU) Savari (OBU) Savar	Janiaw (GIUJUs/) Panasonic GIU (GIUJus/) TT-Felecom GBU or RSU Murata GBU **Test Systems** Group Interoperability = draw, Delay, Interde & Ulu extra, Total = Mobile Verhicle #B fistach GBU	Renesas (OB) Chemtronics Aricent OBU x000000000000000000000000000000000000
10 - 11:45 am 1 - 2:45 pm 3 - 4:45 pm 5 - 6:45 pm 5 - 6:45 pm uriday Daily Testing Stations 8 - 9:45am 10 - 11:45 am 1 - 2:45 pm 3 - 4:45 pm 2 - 6:45 pm 2 - 6:45 pm 3 - 4:45 pm 1 - 2:45 pm 3 - 4:45 pm 1 - 2:45 pm 2 - 3:45 pm 1 - 3:45	Blackberry GBU or RSU Cords GBU or RSU Wayfres GBU Hitachi GBU Autoralis GBE Shrushi GBU Autoralis GBE Anritsu BO2.11p & 12735 Delphi GBU	KTTI RSU Chemtonicis RSU Semens RSU Cehda RSU Tuyers RSU, 1609 & 12945 Bischlery GBU Condio GBU or RSU HSC GBU MICH GBU	ITRI OBU Essys RSU Sward OBE or RSU SmaxM OBU Spirent 1609 8 1295 GPS Land OBU Controlled RSU C	Etrans GBU or RSU FIT-Relection GBU or RSU FIT-Relection GBU or RSU Fanascinic GBU Intertek 802.11p. 8.1609 Autotalis GBU Delphi GBU Cheminonic GBU or RSU Lainf GBU Archael GBU Archael GBU Archael GBU Archael GBU Archael GBU Cheminonic GBU or RSU Cheminonic GBU or RSU Cheminonic GBU or RSU Cheminonic GBU or RSU Carmaylor GBU or RSU Commisging GBU or RSU Commisging GBU or RSU Commisging GBU or RSU Commisging GBU or RSU	Arcent OBU or RSU Keti RSU Continental OBU B02.11p, 1609 RSU Continental OBU Continental OBU B02.11p, 1609 RSU Chemitorics OBU or RSU Esyn RSU Sement OBU or RSU Darlavo B61 or OBI2 JDC Qualifier SM 12735 Smin 1,01,01,5 Wyytes OBU Lard OBU Lard OBU	Corbas OBU or RSU Pansconic OBU Pansconic OBU Pansconic OBU Pansconic OBU Semitomo OBU Semitomo OBU Semitomo OBU Deleo 802.11p 8.1609 Marata OBU Demo OBU Hitacki OBU Fansconic OBU KETI OBU or RSU 11th Qualifier 3M - 1275 5m ini 9,11,2,4,6 Savari OBU or RSU	Keysight 802,11p, 1609 & 2945 Siemens RSU Murata OBU Panasonic OBU Sumitomo OBU	Delphi (DBU) Savari (OBU) Danlaw (Danlaw (D	Danlaw (GBUJAC) Panasonic GBU IT-Telecom GBU or RSU Murata GBU IXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	Renesas (OB) Chemtronics Aricent OBU xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
10 - 114/3 am 1 - 245 pm 3 - 645 pm 3 - 645 pm 5 - 645 pm Dally Testing Stations 10 - 114/5 am 1 - 445 pm 3 - 445 pm 5 - 645 pm Dally Testing Stations 10 - 114/5 am 1 - 645 pm 10 - 114/5 am 1 - 1445 pm 1 - 1445 pm	Blackberry OBU Orded, OBU or RSU Wayters OBU Hitachs HITAC	KETI RSU Oberthoricis (RSU Semens RSU Semens RSU Cohdia RSU Tuyers RSU, 1509 R3/2955 Blackberry GBU Cohdia GBU or RSU Alpo GBU or RSU Hitachi GBU X000000000000 Linidos RSU 4.1 Etrans RSU Letra RSU IT-Telecom RSU	ITRI OBU	Etran DBU or RSU Pransonic OBU Ti-felecom OBU or RSU Pransonic OBU Fransonic OBU Intertek Intertek Intertek Buttertek Buttertek Buttertek Buttertek OBU Autotalis OBU Deptin OBU Arton OBU Arton OBU Arton Buttertek String OBU Arton Buttertek Buttertek OBU OBU OBU OBU OBU OBU OBU OB	Ancent DBU or RSU Denso DBU Keit RSU Continental DBU Bonlaw BOLITION, 1609 B. RSU Chemister DBU or RSU Semens	Corba DIU or RSU Pansonic OBU Pansonic OBU Pansonic OBU Pansonic OBU Lear OBU or RSU Sumitemo OBU Dekra B02.11p & 1609 Murato OBU Pensonic OBU Pensonic OBU Pensonic OBU 11th Qualifier 3M - 12735 45 min 3,112,A5 Savari OBU or RSU Autotalis OBE Renesso OBU	Keysight 802,11p, 1609 & 2945 Siemens RSU Murata OBU Panasonic OBU Sumitomo OBU	Delphi (DBU) Sawrit (DBU) Sawrit (DBU) Sawrit (DBU) Sawrit (DBU) Sawrit (DBU) Sawrit (DBU) Danlaw (Da Sp Danlaw (DBU) Mobile Vehicle BA ITRI (BBU) Blackberry (DBU) Blackberry (DBU) Benso (DBU)	Janlaw (GBUJac) Panasonic GBU TT-Felecom GBU or RSU Murata GBU TX-Selecom GBU or RSU Murata GBU TX-Selecom GBU or RSU Murata GBU TEST Systems Group Interoperability = Group Interoperability = Group Interoperability = Group Interoperability = Ledon SBU Amazon (Tupera S Expense) Annason (Tupera S Expense) Annason Tupera S Expense Mobile Verbicle IN GBU SELECT STATE Mobile Verbicle IN GBU SELECT STATE Mobile Verbicle IN SELECT STATE Waytes GBU Waytes GBU TESTAN GBU	Renesas (OB) Chemtronics Aricent OBU xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
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10 - 11.1/3 sm 1 - 12.245 pm 3 - 4.455 pm 3 - 4.455 pm 3 - 4.455 pm 5 - 6.45 pm 0 Surfaces 6 - 9.45 pm 10 - 11.45 sm 1 - 12.45 pm 10 - 11.45 sm 1 - 12.45 pm 18.02 11.10 11.145 sm 1 - 12.45 pm 18.02 11.10 11	Blackberry OBU OF RSU Orded OBU OF RSU Wayfres OBU HEach! OBU HEach! OBU HEach! OBU HEach! OBU HEach! OBU HEach! OBU HEACH OBU HEACH OBU ANTI OBU Leer OBU OF RSU GrackM OBU Autotalso OBE Antitsu BO.11p 8 12735 Delpin OBU Errano OBU OR SSU GriuxMM OBU Grieden OBU OR SSU GriuxMM OBU	KETI RSU Chemtonicis RSU Semens RSU Semens RSU Cohda RSU Cohda RSU National RSU	ITRI OBU Esys RSU Severi OBE C RSU Severi OBE C RSU Serva M OBU Serva M OBU Serva M OBU Listo OBU Listo OBU Reverso OBU Listo OBU Macco OBU Reverso OB	Etrano SIU or RSU PERSO SIU OR RSU FT-Relection GO SIU or RSU Panasconic GBU Intertek 802.11 p. 8 1609 Autotaks GBU Delph GBU Cheminonic GBU or RSU Laira GBU Arcent GBU Arcent GBU Arcent GBU Arcent GBU Commission GBU or RSU Commission GB	Access GBU or BU Rest RSU Continental OBU B02.11p, 1609 & RSU Continental OBU Continental OBU Continental OBU Chemistric OBU or RSU Seemen SIQ Oberlivo OBU or RSU Seemen SIQ Seemen SIQ Seemen SIQ Seemen SIQ Oberlivo OBU or RSU Desire OBU Desire OBU Desire OBU Oberlivo OBU Ob	Corbas OBU or RSU Pansconic OBU Pansconic OBU Pansconic OBU Pansconic OBU Lar OBU or RSU Sumitomo OBU Sumitomo OBU Detro BO2.11p & 1609 Murata OBU Demo OBU Hitachi OBU Pansconic OBU XXT 10 BU or RSU 111 OBU or RSU Autotalo OBU Remiss OBU Orthologia OBU Remiss OBU Orthologia OBU Remiss OBU Orthologia OBU Remiss OBU Orthologia OBU Remiss OBU Demos OBU Expy RSU	Keysight 802,11p, 1609 & 12945 Semen RSU Murata CRU Murata CRU Sumitomo CRU Renesas OBU	Delphi (DBU) Savari (OBU) Savar	Danlaw (GBULIAC) Panasonic GBU FT-Felecom GBU or RSU Murata GBU IT-Felecom GBU or RSU Murata GBU ICONOMINATION ICO	Renesas (OB Chemtronics Arricent Obs.) All All 20 10 10 10 10 10 10 10 10 10 10 10 10 10
10 - 11.145 am 1 - 1.245 pm 3 - 4.45 pm 3 - 4.45 pm 3 - 4.45 pm 5 - 6.45 pm 5 - 6.45 pm 5 - 6.45 pm 5 - 6.45 pm 10 - 11.145 am	Blackberry OBU OF RSU Corda OBU or RSU Wayters OBU Hitachs OBU Hitachs OBU HItachs OBU HItachs OBU HITachs OBU HITACHS BOZ 11p & 1609 HITACHS HITACHS HITACHS Lear OBU or RSU HITACHS Autoriaks OBE Bith Qualifier Bith Qualifier Bith Qualifier Bith Qualifier Marristu BOZ 11p & 17735 Cepho OBU Etrans OBU or RSU Jinacks OBU HITACHS Jinacks OBU Jinacks O	KETI RSU Chemtonicis RSU Semens RSU Semens RSU Tuyers RSU, 1509 & 12945 Blackberry GBU Coded RSU App OBU Coded RSU or RSU App OBU App OBU X00000000000000000000000000000000000	ITRI OBU Espy RSU Seven OBE C+ RSU Reverso OBE C+ RSU Romesto OBE C+ RSU Romesto OBE C+ RSU Romesto OBE C+ RSU Romesto OBE C+ RSU RSU ADO OBE C+ RSU RSU ARCHITICAL ARCHITICAL ARCHITICAL ARCHITICAL ARCHITICAL Spirent Spirent	Etramo BIU or RSU Person GIU or RSU Personic OBU Intrictor Signature Sign	Arcent DBU or RSU Eest RSU Continental OBU Sett RSU Continental OBU Search RSU Search RSU Dandow OBEE or OBEE 10th Qualifier 3M - 12735 45 min; 18:103,135 Win; 18:105,135 Win; 18:105,030 Lard OBU Lard OBU Continent OBU Continen	Corba GIU or RSU Pansonic GBU Pansonic GBU Lear GBU or RSU Semitomo GBU Semitomo GBU Delva 802.11 p. 1599 Murris GBU Deno GBU Histori GBU Histori GBU HISTORI Fansonic GBU 11th Qualifier 3M - 12735 Savani GBU or RSU Autotatis GBE Deno GBU Lear GB	Keysight B02,11p,1699 & 2245 Semens RSU Murata 0BU Pansonic OBU Renesis OBU Keysight Keysight	Delphi (DBU) Savari (OBU) Mobile Vehicle # A ITRI OBU Blackberry OBU Blackberry OBU Benso OBU Chemir (ISC OBU)	Danlaw (GBUJUs) Panasonic GBUJus) Ti-Telecom GBU or RSU Murata GBU 1000000000000000000000000000000000000	Renesas (OB Chemtronics Aricent OBU xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
10 - 113/5 pm 1 - 245 pm 3 - 445 pm 3 - 445 pm 3 - 645 pm 3 - 645 pm 3 - 645 pm 10 - 1145 pm	Blackberry OBU Orded, OBU or RSU Wayries OBU Hitachi OBU JITE OBU Leer OBU or RSU SiruckM OBU Autotalas OBE Antisu SOL11p & 12735 Delphi OBU Teram OBU or RSU SiruckM OBU SiruckM OBU Antisu SOL11p & 12735 Delphi OBU Teram OBU or RSU SiruckM OBU SiruckM OBU HITACHI OBU HITACHI OBU BU B	### RSU Chemtonics (RSU Semens RSU Semens RSU Chida RSU Chida RSU Chida RSU	ITRI OBU Essys RSU Severi OBE C RSU Servari OBE C RSU Renesso OBE Renesso OBE ACCOMMON OBE RENESS OBE ACCOMMON OBE RENESS OBE ACCOMMON OBE ACCOMMON OBE RSU RSU ACCOMMON OBE RSU RSU ACCOMMON OBE RSU	Etrans GBU or RSU PERSO GBU or RSU FT-Relection GBU or RSU Panassonic GBU Interfek 802.11p. 8.1699 Autotaks GBU Delphi GBU Chemmonic GBU or RSU Larid GBU Arcest GBU Arcest GBU Arcest GBU Arcest GBU Commangine GBU or RSU Commanding GBU or	Arcent DBU or RSU Rest RSU Continental OBU 802.11p, 1609 8 RSU Continental OBU 802.11p, 1609 8 RSU Chemtronics OBU or RSU Expr RSU Sowner RSU Sowner RSU 100 Qualifier 3 N - 12735 4 min : \$1,0,1,5,5 Wystes OBU Lard OBU Dejon OBU Marst OBU Chemtronics OBU a RSU Desident RSU Desi	Corbas GBU or RSU Pansconic GBU Pansconic GBU Pansconic GBU Lear GBU or RSU Samitomo GBU Samitomo GBU Semitomo GBU Semitomo GBU Denso GBU Hasch GBU Pansconic GBU KET GBU or RSU 11th Qualifier 11th Qualifier Semito GBU or RSU Autotalis GBE Renesis GBU Densis GBU Essyn RSU Delso GBU or RSU Delso GBU or RSU Delso GBU or RSU Delso GBU or RSU Samito GBU or RSU Samito GBU or RSU Delso GBU Delso GBU or RSU Delso GBU Delso	Keysight 802,11p,1609 & J2945 Semen RSU Murato CBU Pensonic OBU Semens OBU Remail OBU Remail OBU Keysight 802,11p,1609 & J2945	Delphi (DBU) Savari (OBU) Savari (OBU) Savari (OBU) Savari (OBU) Savari (OBU) Danlaw (Dan Danlaw (Dan Mobile Vehicle Blackberry OBU Denso OBU Denso OBU Denso OBU Denso OBU Danlaw (Dan	Janiew (GBUJaci) Parasonic GBU IT-Telecom GBU or RSU Murata GBU IX-COMMINISTRATION JAMES AND	Remesas (OBI Chemtronics Aricent OBU MODELLA CONTROLLA C
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10 - 114/3 am 1 - 12-45 pm 3 - 4-45 pm 3 - 4-45 pm 5 - 6-45 pm Stations 8 - 9-45 am 10 - 114/3 pm 10 - 114/3 pm 3 - 4-45 pm 3 - 4-45 pm 10 - 114/3 pm 10 - 114/3 pm 10 - 114/3 pm 3 - 4-45 pm 10 - 114/3 pm 3 - 4-45 pm 10 - 114/3 pm 3 - 4-45 pm 10 - 114/3 pm	Blackberry OBU OF RSU Corda OBU OF RSU Wayters OBU HEach OBU RSU 11p & 1609 RSU 11p & 1609 RT RSU HEACH OBU Carlsolom OBU Carl	KETI RSU Controller RSU Semens RSU Semens RSU Tuyers RSU, 1609 & 12945 Blackberry GBU Coded RSU App OBU Coded RSU or RSU App OBU App OBU Coded RSU or RSU App OBU Coded RSU 4.1 Evran RSU Ler RSU IT-Recommend Evran RSU Ler RSU IT-Recommend Evran RSU Ler RSU Tityers RSU, 1699 & 12945 TRI (BSU Sevari OBU or RSU Dantievo GBU or RSU Dantievo GBU or RSU Dantievo RSU Sevari OBU or RSU Sevari OBU or RSU Dantievo GBU or RSU Lerico RSU Sevari OBU or RSU Sevari OBU or RSU Lerico RSU Sevari OBU or RSU Sevari OBU or RSU Leridos Leidos	ITRI OBU Espa RSU Sevari OBE Ce RSU Laird OBU Sevari OBU Ce RSU Comparison OBU Remess OBU Remess OBU Continental OBU Remess OBU App. OBU App. OBU Alaricat OBU Assert OBU Objeh OBU Waytes OBU Marber - 12735	Etrans GBU or RSU Penso GBU Ti-Telecom GBU or RSU Pensoonic GBU Intertek 802.11p 8 1699 Autority GBU Chemtronic GBU or RSU Lairi GBU Arcent G	Arcent Dis J or RSJ Kett RSJ Continental OBU Sett RSJ Continental OBU Sett RSJ Continental OBU Desired RSJ Continental OBU Continental OBU Sett RSJ Continental OBU Desired RSJ Sett RS	Corba GIU or RSU Pansonic GBU Pansonic GBU Pansonic GBU Pansonic GBU Lear GBU or RSU Semitomo GBU Semitomo GBU Semitomo GBU Deno GBU Heach GBU Pansonic GBU HEACH GBU Pansonic GBU KETI GBU or RSU Sevent GBU or RSU LITH Caustifier JII.2,4,6 Sevent GBU or RSU Remeris GBU REMERIS GBU REMERIS GBU REMERIS GBU Daniev GBET & GBC2 Essys RSU LITH & LIGHT REMERIS GBU Continental GBU XXXXXXXXX	Keysight 802,11p,1609 & 12945 Sement RSU Murato DIU Pensonic OBU Sumitorio OBU Renessa CBU Keysight 802,11p,1609 & 12945 Espi RSU Coded OBU or RSU	Delphi (DBU) Sawrit (DBU) Sawri	Janlaw (GBUJac) Panasonic GBUJac) T-Telecom GBU or RSU Murata GBU 1000000000000000000000000000000000000	All 20 20 20 20 20 20 20 20 20 20 20 20 20
10 - 11:45 pm 1-245 pm 3 - 4-45 pm 3 - 4-45 pm 3 - 4-45 pm 3 - 4-45 pm 5 - 6-45 pm Satisface Satisface 10 - 11:45 pm	Blackberry OBU OF RSU Orded OBU OF RSU Wayries OBU Hitachi OBU Hita OBU Leer OBU OF RSU SinuxM OBU Autotaks OBE Antitsu BO1.11p & 12735 Delpin OBU Litano OBU OBU MITICAL OBU FINANCO OBU OF RSU GrinzXM OBU Hitachi OBU OF RSU GrinzXM OBU Corbado OBU OF RSU Carandocom OBU	KETI RSU Chemtronic RSU Semens RSU Cohda RSU Chida RSU Tupera RSU, 1506 R2:285 Blackbery GBU Alps	### OBU ### Esys RSU Severi OBE or RSU Severi OB	Etrans GBU or RSU Person GBU or RSU Fir-Relection GBU or RSU Panassonic GBU Interfek 802.11p. 8.1699 Autotaks GBU Delphi GBU Chemtonic GBU or RSU Larid GBU Arect GBU Commangine GBU or RSU Binterfek 802.11p. 8.1699 SrivaSM GBU Marian GBU Binterfek 802.11p. 8.1699 SrivaSM GBU Marian GBU	Arcent Bill or RSJ Reti RSJ Continental OBU 802.11p, 1609 8 RSU Chemtorics OBU or RSJ Expr RSJ Sowner RSJ Chemtorics OBU or RSJ Expr RSJ Sowner RSJ Sowner RSJ 100 Qualifier 3 M - 12735 4 mins 10,10,1,5 Wystes OBU Deploy OBU App OBU EXT OB	Corbac BIU or RSU Pansconic GBU Pansconic GBU Pansconic GBU Pansconic GBU Lear GBU or RSU Samitomo GBU Samitomo GBU Semitomo GBU Semitomo GBU Denso GBU Hisachi GBU Pansconic GBU RTT GBU or RSU 11th Caudifier 11th Caudifier Pansconic GBU Samitomo GBU RTT GBU or RSU Savario GBU or RSU Savario GBU or RSU Savario GBU or RSU Expy RSU Dekra BROLLID & GBU Expy RSU Dekra BROLLID & GBU Continental GBU Expy RSU Savario GBU Continental GBU Savarioro GBU Sav	Keysight 802,11p,1609 & 12945 Sement RSU Murato DIU Pensonic OBU Sumitorio OBU Renessa CBU Keysight 802,11p,1609 & 12945 Espi RSU Coded OBU or RSU	Delphi (DBU) Sawrit (DBU) Sawri	Danlaw (GBUJAC) Panasonic GBU IT-Telecom GBU or RSU Murata GBU IX-TELECOM GBU or RSU Murata GBU IX-XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	Benness (DB) (Chemitonics) Aricent GBU Blue Blue Blue Blue Blue Blue Blue Blue
10 - 114/3 am 1 - 12-45 pm 3 - 4-45 pm 3 - 4-45 pm 5 - 6-45 pm Stations 8 - 9-45 am 10 - 114/3 pm 10 - 114/3 pm 3 - 4-45 pm 3 - 4-45 pm 10 - 114/3 pm 10 - 114/3 pm 10 - 114/3 pm 3 - 4-45 pm 10 - 114/3 pm 3 - 4-45 pm 10 - 114/3 pm 3 - 4-45 pm 10 - 114/3 pm	Blackberry OBU OF RSU Corda OBU OF RSU Wayters OBU HEach OBU RSU 11p & 1609 RSU 11p & 1609 RT RSU HEACH OBU Carlsolom OBU Carl	KETI RSU Controller RSU Semens RSU Semens RSU Tuyers RSU, 1609 & 12945 Blackberry GBU Coded RSU App OBU Coded RSU or RSU App OBU App OBU Coded RSU or RSU App OBU Coded RSU 4.1 Evran RSU Ler RSU IT-Recommend Evran RSU Ler RSU IT-Recommend Evran RSU Ler RSU Tityers RSU, 1699 & 12945 TRI (BSU Sevari OBU or RSU Dantievo GBU or RSU Dantievo GBU or RSU Dantievo RSU Sevari OBU or RSU Sevari OBU or RSU Dantievo GBU or RSU Lerico RSU Sevari OBU or RSU Sevari OBU or RSU Lerico RSU Sevari OBU or RSU Sevari OBU or RSU Leridos Leidos	ITRI OBU Espa RSU Sevari OBE Ce RSU Laird OBU Sevari OBU Ce RSU Comparison OBU Remess OBU Remess OBU Continental OBU Remess OBU App. OBU App. OBU Alaricat OBU Assert OBU Objeh OBU Waytes OBU Marber - 12735	Etrans GBU or RSU Penso GBU Ti-Telecom GBU or RSU Pensoonic GBU Intertek 802.11p 8 1699 Autority GBU Chemtronic GBU or RSU Lairi GBU Arcent G	Arcent Dis J or RSJ Kett RSJ Continental OBU Sett RSJ Continental OBU Sett RSJ Continental OBU Desired RSJ Continental OBU Continental OBU Sett RSJ Continental OBU Desired RSJ Sett RS	Corba GIU or RSU Pansonic GBU Pansonic GBU Pansonic GBU Pansonic GBU Lear GBU or RSU Semitomo GBU Semitomo GBU Semitomo GBU Deno GBU Heach GBU Pansonic GBU HEACH GBU Pansonic GBU KETI GBU or RSU Sevent GBU or RSU LITH Caustifier JII.2,4,6 Sevent GBU or RSU Remeris GBU REMERIS GBU REMERIS GBU REMERIS GBU Daniev GBET & GBC2 Essys RSU LITH & LIGHT REMERIS GBU Continental GBU XXXXXXXXX	Keysight 802,11p,1609 & 12945 Sement RSU Murato DIU Pensonic OBU Sumitorio OBU Renessa CBU Keysight 802,11p,1609 & 12945 Espi RSU Coded OBU or RSU	Delphi (DBU) Sawrit (DBU) Sawri	Jankey (GBUJAC) Panasonic GBU IT-Telecom GBU or RSU Murata GBU IT-Telecom GBU or RSU Murata GBU ICONOCIONATION JANES OF THE STANDARD OF THE ST	All 20 20 20 20 20 20 20



Test Slots Open:

- Some open decoding slots (~5-10) are available!
- Device Manufacturers are responsible for test slot swapping.

T	W	TH	F	SUM	Device Testing	SpirentTS	DanlawTS	3MTS	Anritsu	Keysight	Leidos	Marben	Driving
2	2	2	1	7	Alps (OBU)	1	2	1	1	0	0	1	1
2	4	2	0	8	Aricent (OBU)	1	3	1	0	1	0	1	1
3	2	3	0	8	AutoTalks (OBU)	1	3	1	0	1	0	1	1
2	3	2	1	8	Blackberry (OBU)	1	2	1	1	1	0	1	1
2	2	3	1	8	Carnavicom (OBU)	1	3	1	1	0	0	1	1
3	4	4	2	13	Chemtronics (OBU)	2	3	2	1	1	1	1	2
0	0	0	0	0	Chemtronics (RSU)	0	0	0	0	0	0	0	0
2	3	3	1	9	Cohda (OBU or RSU)	1	1	1	1	1	2	1	1
2	2	3	2	9	Commsignia (OBU or RSU)	1	2	1	1	0	1	1	2
2	2	2	2	8	Continental (OBU)	1	3	1	0	1	0	1	1
2	2	3	1	8	Danlaw (OBU1 or OBU2)	2	2	1	1	0	0	1	1
2	2	3	1	8	Delphi (OBU)	1	2	1	1	1	0	1	1
2	4	2	0	8	Denso (OBU)	1	3	1	0	0	0	1	2
2	2	4	1	9	Essys (RSU)	1	2	1	0	1	1	3	0
2	4	3	1	10	Etrans (OBU or RSU)	1	2	1	1	1	1	1	2
2	2	4	0	8	Hitachi (OBU)	1	2	1	1	1	0	1	1
2	2	2	1	7	ITRI (OBU)	1	2	1	0	1	0	1	1
2	3	2	2	9	IT-Telecom (OBU or RSU)	1	2	1	1	0	2	1	1
2	2	3	1	8	Keti (OBU or RSU)	1	3	1	0	0	1	1	1
2	2	3	1	8	Laird Tech (OBU)	1	3	2	0	0	0	1	1
2	2	3	1	8	Lear (OBU or RSU)	1	3	1	0	0	1	1	1
2	2	3	1	8	Murata (OBU)	1	3	1	0	1	0	1	1
2	3	2	1	8	Panasonic (OBU)	1	2	1	1	1	0	1	1
2	3	2	2	9	Renesas (OBU)	1	3	1	1	1	0	1	1
2	4	4	2	12	Savari (OBU)	2	2	2	1	1	1	1	2
0	0	0	0	0	Savari (RSU)	0	0	0	0	0	0	0	0
2	3	2	1	8	Siemens (RSU)	1	2	1	0	1	2	1	0
2	2	2	1	7	SiriusXM (OBU)	1	3	0	1	0	0	1	1
2	3	2	1	8	Sumitomo (OBU)	1	2	1	1	1	0	1	1
2	3	2	1	8	Wayties (OBU)	2	2	1	1	0	0	1	1
4	4	4	1	13	Overnight 802.11 Qualifier								
62	78	79	31	250	Totals (30 tickets = 27 OBUs + 10 RSUs)	32	67	30	17	17	13	30	31

Test Tool Overview

Test tools	Test stations	Capabilities overview
Danlaw	Danlaw, Dekra, Intertek, UL, (7layers)	COC Test Specs 802.11p, 1609.4, 1609.3, 1609.2 Use TCI
Spirent	7layers, Spirent	COC Test Specs 1609.3, 1609.2, 2945/1 (lab only) Use TCI
Anritsu	Anritsu	
Keysight	Keysight	COC Test Specs 802.11p, 1609.4, 1609.3, 1609.2, 2945/1 (partial), Use TCI
3M	3M	Rcv & decode 802.11p, 1609.3, 1609.2, J2735 msgs WSM, WSA, BSM, SPAT, MAP, TIM, etc
Marben	Marben	Rcv & decode 802.11p, 1609.3, 1609.2, J2735 msgs WSM, WSA, BSM, SPAT, MAP, TIM, etc
RSU tests	Leidos	Leidos - RSU testing per FHWA RSU Test Plan
3M & Other OBUs	Driving tests	Perform J2945/1 test and capture PCAP Location accuracy, latch/unlatch direction, path history analysis



Testing:

- Joint Cooperative Learning Activity between Test Laboratory, Test Equipment and Device Manufacturer.
- Five people per Test Station. One test operator preferred (2 max). Observers will need to escorted.
- Test Facilitator team (10) is **Randy Roebuck** (OminAir), **Dmitri Khijniak** (7 Layers), **Chris Ajayi** (3M), **Mostafa Kassem** (Danlaw), **Dirk Tepelmann** (Spirent), **Dan Fynaardt** (Green Hills ISS), **James Coleman** (OnBoardSecurity) and standards leaders (**Kevin Smith, David Kelley & Ed Leslie**). Other test laboratory representatives (**Ben Taylor** MetLabs & etc.) and USDOT (**Jeff Bellone**) are invited.
- Introduce **Test Station Providers** 3M, 7Layers, Anritsu, Danlaw, Dekra, Keysight, Intertek, Marben & Spirent.
- Dmitri Khijniak (OmniAir's CV technical committee chair) will be collecting test results COB
 through test sheets and designated USB sticks and reporting anonymous results and
 summary Thursday afternoon. PCAP recommended from J2735 messages from 3M test
 standard and any certificate changing test. Format is:
- "[MessageType]-[Device Type]-[Manufacturer].pcap"
- Group Test Equipment Provider Meeting at 7:45am to address previous day issues.
- All indoor transmitting to be conducted "wire" or without antennas if not interfering.
- All test data transferred on OmniAir USB Requires plugfest trial.
- Using plugfest results for updating & finalization.



Tuesday October 17 – Schedule Overnight 802.11p TCI Testing Bonus

Bay Area Plugfest 2017 Test Slot Assignments

Schedule was constructed with facility capacity issue and every device manufacturer seeing every test station type! Room Capacity = 68, Maximum People at Test Station = 5

30 Testing Tickets = 27 OBUs + 10 RSUs Testing Slots = 25 Devices (3 sessions per day) 11 Indoor + 1x3 Outdoor Test Stations Testing Slots = 256

Tuesday								3	Test Systems	
Daily Testing	UL	7Layers	Spirent	Intertek	Danlaw	Dekra	Keysight		Group Interoperability	r = All
Stations	802.11p & 1609	RSU, 1609 & J2945	1609 & J2945 GPS	802.11p & 1609	802.11p, 1609 & RSU	802.11p & 1609	802,11p, 1609 & J2945	Danlaw (Da	wlaw, Dekra, Intertek & UL) = 16
8 - 9:45am	Test Set-up	Test Set-up	Test Set-up	Test Set-up	Test Set-up	Test Set-up	Test Set-up	S	prient (7Layers & Sprinet	= 8
10 - 11:45 am	Denso OBU	Chemtronics OBU or RSU	Murata OBU	Renesas OBU	Cohda OBE or RSU	Lear (OBU or RSU)	eTrans OBU or RSU		Anritsu or Keysight	:= 8
1 - 2:45 pm	IT-Telecom OBU or RSU	Keti OBU or RSU	Panasonic OBU	Autotalks OBU	Blackberry OBU	Carnavicom OBU	Delphi OBU		Leidos RSU	3
3 - 4:45 pm	Lear OBU or RSU	Essys RSU	Danlaw OBE1 or OBE2	Aricent OBU	Chemtronics OBU or RSU	SiriusXM OBU	ITRI OBU		3N	= 8
5 - 6:45 pm	Panasonic OBU	Saravi OBU or RSU	Sumitomo OBU	Continental OBU	Wayties OBU	Aricent OBU	Hitachi OBU		Marber	1 = 8
									Mobile Vehicl	e = 7
ght 802.11P with TCI	Reserved	XXXXXXXXXXX	XXXXXXXXXXXX	1st Qualifier	2nd Qualifier	3rd Qualifier		0	vernight 802.11P Qualifer	-= 3
100									Tota	= 61
										Tuesday
Daily Testing	Anritsu	Leidos	Marben - J2735	Marben - J2735	3M - J2735	3M - J2735		Mobile Vehicle	Mobile Vehicle	Mobile Vehicle
Stations	802.11p & J2735	RSU 4.1	45 min: 8,10,1,3,5	45 min: 9,11,2,4	45 min: 8,10,1,3,5	45 min: 9,11,2,4		# A	# B	# C
8 - 9:45am	Test Set-up	Test Set-up	Test Set-up	Test Set-up	Test Set-up	Test Set-up		xxxxxxxxxxxxx	xxxxxxxxxxxxx	xxxxxxxxxxxxx
10 - 11:45 am	Danlaw OBE1 or OBE2	Savari RSU	Autotalks OBU	Wayties OBU	Commsignia OBU or RSU	Laird OBU		xxxxxxxxxxxxx	Autotalks OBU	Laird OBU
1 - 2:45 pm	Renesas OBU	XXXXXXXXXXXXXXXX	Essys RSU	Murata OBU	Alps OBU	Siemens RSU		Etrans (OBU)	Continental OBU	SiriusXM OBU
3 - 4:45 pm	Savari OBU or RSU	Siemens RSU	KETI (OBU or RSU)	Sumitomo OBU	Hitachi OBU	Carnavicom OBU		Denso (OBU)	Commsignia OBU	Cohda OBU
5 - 6:45 pm	Alps OBU	IT-Telecom RSU	Delphi OBU	Blackberry OBU	Chemtronics OBU or RSU	ITRI OBU		xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxxxx



Overall Testing Requirements

- Test Control Interfaces [TCI] is strongly recommended for bench conformance testing through 1609.2, 1609.3 and 1609.4.
- Most 1609 tests will be <u>wired</u> with device recommended in isolated box. Signal attenuators are recommended.
- **IEEE 802.11p testing** require TCI interface or test equipment's proprietary chipset interfaces. 802.11p is a wired test with the device in isolated box.
- Devices will require <u>security header</u> regardless if broadcasting unsecured or signed messages.
- All devices indoors will be operating at <u>default</u> parameters (Power 15 dBm, 6 Mbps, and PSID 0x7FFF Test) for WSM except for individual parameter variable under test.
- For 2945/1 testing, device is expected to operate at default parameters. TCI is recommended for some J2945/1 bench testing for 0x20 BSMs (and 0x23 SCMS).
- Each test session may be required to use different channels for 1609.3 / 1609.4 (WSM, WSA and IPv6) testing at 10 & 20 Hz if interference occurs. N-Type Header (Channel, DateRate, Power) suggested.
- All **PCAP files** represent over-the-air captures both externally and internally.
- OmniAir's USBs will be used to transfer data and presentations. USB sticks provided to capture internal PCAP files under recommended file naming structure:
 "[TestDescription]-[Device Type]-[Manufacturer]-[TestStation].pcap"



Plugfest IP settings for testing with TCI

The communication between the Test Station and SUT using TCI uses UDP/IPv4 protocol. The IPv4 addresses selected from the following ranges:

Testing System: **192.168.23.1 ... 127**, subnet 255.255.255.0

SUT: **192.168.23.128** ... **254**, subnet 255.255.255.0

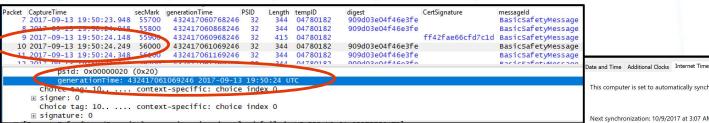
IP Addr	ess assignment for Test Systems (which use TCI)
3M	192.168.23.1192.168.23.5 subnet 255.255.255.0
7Layers	192.168.23.6192.168.23.10 subnet 255.255.255.0
Anritsu	192.168.23.11192.168.23.15 subnet 255.255.255.0
Danlaw	192.168.23.16192.168.23.20 subnet 255.255.255.0
Dekra	192.168.23.21192.168.23.25 subnet 255.255.255.0
Green Hills	192.168.23.26192.168.23.30 subnet 255.255.255.0
Intertek	192.168.23.31192.168.23.35 subnet 255.255.255.0
Keysight	192.168.23.36192.168.23.40 subnet 255.255.255.0
OmniAir	192.168.23.41192.168.23.45 subnet 255.255.255.0
Onboard	192.168.23.46192.168.23.50 subnet 255.255.255.0
Spirent	192.168.23.51192.168.23.55 subnet 255.255.255.0
UL	192.168.23.56192.168.23.60 subnet 255.255.255.0
Marben	192.168.23.61192.168.23.65 subnet 255.255.255.0
Leidos	192.168.23.66192.168.23.70 subnet 255.255.255.0
Unused	192.168.23.71192.168.23.75 subnet 255.255.255.0
Unused	192.168.23.76192.168.23.80 subnet 255.255.255.0
Common use	192.168.23.81192.168.23.27 subnet 255.255.255.0
SUT device IP range	192.168.23.128 192.168.23.254, subnet 255.255.255.0



- IEEE 1609.2a-2017 standard was published 09 October 2017.
- SAE 2945/2 V2V Safety Awareness closed 10/16.
- San Antonio Plugfest certificates expired 10/2 (RSU) and 10/3 (OBU).
- Chained Root Certificates distributed to Device Manufacturers and Test Equipment Providers in early October. Contact GHS if you didn't get them.
- Security Library needs to accept New Certificates and Security Profiles.
- Updated Security Libraries became available in mid-October for device manufacturers and test equipment integration.
 - Understand JIT integrations did not allow internal testing before plugfest.
- Local MAP Intersection Sample (David Kelley) has been created and posted to Github. Unfortunately, RSU sites did not become available along test route.
- Questions for Security & Certificates Interactive Session (separate slide).
- Thursday's Technical Committee meeting questions received and incorporated into agenda.
 - VAD Device Profile Consideration (Need Endorser, Sponsor, Requirements & Business Case)
 - Software Stack Certification Program Discussion (Need Endorser, Sponsor, Requirements & Business Case)

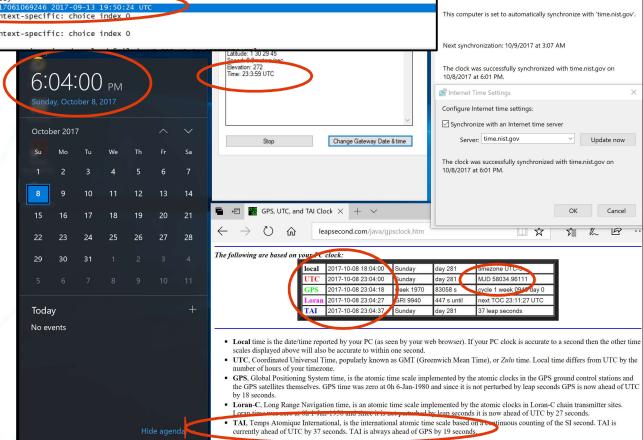






Security # 1 Parameter: GenerationTime

- **GenerationTime** (Transmit) versus **CaptureTime** (Receive Over-The-Air) within one second.
- GenerationTime (TAI) from OBE System Time (January 1, 2004 reference, 5 Leap Seconds)
- CaptureTime (UTC network) from RSU System Time (January 01, 1970 reference, 37 Leap Seconds)
- Each Device (OBE or RSU) includes GPS Epoch with 1 PPS adjustment.
- Device System should have no time drift.
- Security Library Implementation may require time adjustment to provide proper correlation.
- Any Device, Test Tool or Test Computer requires accurate TIME.
- UTC Time Check required for all certification testing.
- Test Equipment Providers are applying formula conversion to represent GenerationTime per UTC.





What is the Analysis with the Test Results below?

- Test Equipment sent TCI command for repeat messages.
- Device under Test sent "repeat" of same message (Same values for secMark, msgCnt & GenerationTime).
- Device's Security allowed "repeat" same message be transmitted and received under relevance validity parameters and replay without failure flag.
- Debating to have Test Case's Security Profile "replay, relevance & consistency " set to true.
- Many Wrongs ≠ Right! Improper Test Case Implementation yielded valuable "Negative" TC!

Pa	ket	CaptureTime			9	secMark	generati	onTime .	PSID	msgCnt	Length	Source		1	emplD	CertSignature	messageld			
	Ī	1 2017-10-	02	14:33:04.3	60	0	43403	39571357000	32	0	311					da766b0e278fd23d				
	- 2	2 2017-10-	02	14:33:04.4	60	0	43403	39571357000	32	0	311					da766b0e278fd23d				
				14:33:04.5		0	43403	39571357000	32	0	311					da766b0e278fd23d				
				14:33:04.6		0		39571357000		0	311					da766b0e278fd23d				
	5	5 2017-10-	02	14:33:04.7	60	0	43403	89571357000	32	0	311					da766b0e278fd23d				
	(5 2017-10-	02	14:33:04.8	59	0	43403	89571357000	32	0	311					da766b0e278fd23d				
	7	7 2017-10-	02	14:33:04.9	59	0	43403	9571357000	32	0	311					da766b0e278fd23d				
		8 2017-10-	02	14:33:05.0	60	0	43403	39571357000	32	0	311	df:ea:a	e:af:	ea:ea	01020340	da766b0e278fd23d	Basicsa	fetvMessade		
		integer length: 1																		
	psid: 0x00000020 (0x20)																			
	generationTime: 434039571357000 2017-10-02 14:32:14 UTC																			
	Choice tag: 10 context-specific: choice index 1																			
	⊕ signer: 1												1	_				1.0000000000000000000000000000000000000		
				g: 10 Pack	ket	Capture	Time	14:34:00.00	sec	:Mark g	eneration	Time 5/135/000	PSID	msgCnt	Length S	Source	templD	CertSignature	/ B I / I / Z / I	messageld Bas I CSaT etymes Sage
L		⊞ signat	ure	: ()				14:34:06.66				571357000 571357000		o						BasicSafetyMessage
								14:34:06.76				571357000 571357000	1000	0						BasicSafetyMessage
								14:34:06.86				571357000	1000	0						BasicSafetyMessage
								14:34:06.86 14:34:06.96				571357000 571357000	1000	0						BasicSafetyMessage
								14:34:00.90				571357000 571357000	1000	0						BasicSafetyMessage
								14:34:07.0. 14:34:07.16				571357000 571357000	1000	0						BasicSafetyMessage
								14:34:07.16		_		571357000		0						BasicSafetyMessage
					050	2017-				0	+54059	3/133/000	52	U	211	ur.ea.ae.ar.ea.ea	0102034	U da/00b0ez	/ 61 uz su	Bas icsai etymessage
psid: 0x00000020 (0x20)																				
	generationTime:									395713	57000	2017-10-0	2 14	:32:14	UTC					
	Choice tag: 10 c										specif	ic: choic	e in	dex 1						
	⊕ signer: 1																			
	Choice tag: 10 context-specific: choice index 0																			
	⊕ signature: O																			
					-	- 5							-	- 13			-			

Mobile Vehicle Interoperability Testing

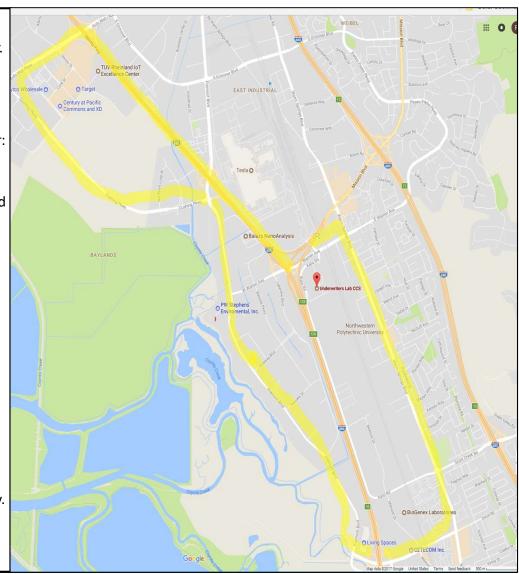
- Hired vehicle / driver sponsored by UL. Required to sign participation waiver.
 Operating under UL's FCC STA and regulatory product label in-place.
- · OBUs with default settings and accurate UTC time.

Single Transmitting Device Test Case under Vehicle Movement

- Complex test will run each OBU separately with its device manufacturer representative (max 2) & test laboratory representative (max 1) in vehicle for:
 - Direction and Speed Unlatching and Latching
 - Vehicle Dimension (parameter are ### Length / ### Width)
- Each test case has saved PCAP which SwRI's PathHistory analysis can provided though Randy Roebuck OmniAir.

Muliti - Transmitting Devices Test Case under Vehicle Movement

- One vehicle with multi-channel packet capture tool and 3 OBUs under test sending BSMs will drive proposed route under variety of speed conditions ~ 25-30 minutes to provide:
 - Parameter Consistency among different device providers.
 - Hard Braking Event Flag
 - Certificate Changing due to movement
- Route may to shorten due to traffic. One device representative only.
- No RSU opportunities to setup and transmit SPaT/MAP and TIM messages.
- 10M cables Dual GPS/DSRC Shark Fin Antennas with Fakra connectors acquired. Device need to provide vehicle power cable. Any other configuration would require device provider to provide accessories.
- Group assignments were made randomly with every OBU having opportunity.
- Multi-device PCAPNG capture needs to sorted into individual PCAPNG for PathHistory analysis.





Process at a Glance: If you are device vendor

In the morning – check your test slots – in case schedule was updated

Come to your test session on time. Leave your test session on time.

Track your results with test sheets (pick a copy)

Give test PCAP files if taken "[Test Case Number or TestDescription]-[Device Type][Manufacturer]-[TestStation].pcap" example TP16093WSMMSTBV01-OBU-OmniAir7layers-Session1.pcap. Recommend for certificate changing and J2735 message decoding.

Give your stick to OmniAir (name????) by COB

Fill-out survey on Thursday



Process at a Glance: If you are test station operator

Daily debriefing @ 7:45am (where ?)

Track test results for each vendor using test tracking sheets

Dmitri will collect test tracking sheets COB daily

Note any exceptions to test cases or errors in test specifications



Contacts

- Host questions can be addressed to Kendra Pridemore (<u>kendra.a.pridemore@ul.com</u>) and Andrew Harding (<u>andrew.harding@ul.com</u>).
- Event and Logistics questions can be addressed to Ryan Hall (ryan.hall@omniair.org).
- Technical questions can be addressed to Dmitri Khijniak
 (Dmitri.khijniak@7layers.com) and Randy Roebuck
 (rdroebuck@omniair.org).



Group Interoperability – Tuesday per J2945/1, Wednesday per J2735 & Thursday per J2945/1 (Lunch)

- Conducted in Test Area. One representative to operate their device (37).
- Each Device Manufacturer needs to verify its accurate UTC system time.
- Each device set to Connected Vehicle default settings for OBE transmitting BSMs (CH 172) and RSU transmitting WSA (CH 172), SPaT/MAP (CH178) & TIM (CH172) Over-the-Air. Security enabled if possible.
- Start OTA packet capture tools as PCAPNG file on appropriate channels. Insure GPS signal and capture timestamp.
- Powerup all OBEs with automatic BSM transmissions. Run for 8 minutes and stop / power down. Verifying if no certificates changing (no location movement).
- Everyone records and save PCAP file and clear packet capture tool.
- Powerup all RSUs with automatic WSA, SPaT/MAP and TIM transmissions. Run for 8 minutes and stop / power down.
- Everyone records and save PCAP file and clear packet capture tool.
- Powerup all OBEs & RSUs with automatic BSM, WSA, SPaT/MAP and TIM transmissions. Run for 8 minutes and stop / power down.
- Everyone records and save PCAP file. This sessions ends and analysis can be completed on both internal and external PCAP captures.

General Industry Questions for Tuesday's Security & Certificates Interactive Sessions



- Live SCMS Demonstration for both RSU and OBE Not Provided & Non-Informative.
- Minimum SCMS testing required in High Level Use Cases/Test Cases i.e. provision of certs over wired IP, over DSRC, download BSM certs, update BSM certs, ...
- Discuss Security Profiles and their changes BSM, WSA, SPAT, MAP, other apps
 - How often certs change, do messages signed with certs/digest or just certs
 - Cert restrictions validity dates, regional restrictions, etc.
 - Key Parameters to Verify
- Differences between certs used in CV Pilot vs certs used in Plugfest and then Production
- Methods for obtaining device production certificates with OmniAir certification validation
- Method for obtaining chained root certificates for test equipment
- Need and procurement "Negative" test certificates
- Expected SCMS changes (i.e. next Plugfest in Spring will the same certs work?, how to update certs?). These "Oct2017" certificates expire December 31, 2017.
- Certificates coming from their website and how to handle OER files in order to load binary files into devices and test equipment.
- Device's System Time correlation to Security Library to Capture Time where transmitted GenerationTime (TAI) required accurate relationship to UTC Capture Time.
- Security Library Implementation Requirements by Device Manufacturers.
- Security Profiles Checking for Relevance, Replays and etc.?

No Product or Vendor Specific Questions!