



UNITED STATES
DEPARTMENT OF TRANSPORTATION

Driver Acceptance Clinics Light Vehicle Platform

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NHTSA

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FHWA – CAMP Cooperative Agreement
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Light Vehicle Driver Acceptance Clinics (DAC) Project

Objectives:

- Obtain feedback on connected vehicle technology and safety applications from a representative sample of drivers
- Assess the performance and reliability of 5.9 GHz DSRC communications and GPS in diverse geographic locations and environmental conditions...and
- Promote V2V-based safety technology and potential safety benefits*



The DAC project: two main components

Driver Acceptance Clinics

- 2 dry runs and 6 clinics
 - Naïve drivers in controlled environment
 - 108 subjects per clinic evenly divided across three age brackets

System Performance Testing

- DSRC performance and system reliability testing near each location
 - Trained drivers on public roads
 - Diverse geographic locations
 - Approximately 57,000 miles of test data



DAC Project Team

CAMP
Vehicle Safety Communications 3

Mercedes-Benz
Research & Development North America, Inc.

GM

TOYOTA

HONDA
Honda R&D Americas

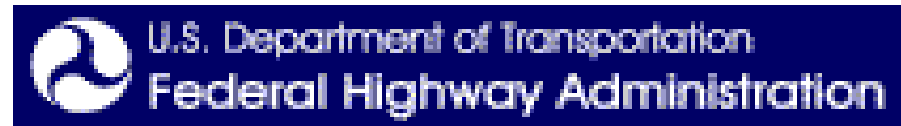
Ford

NISSAN

HYUNDAI KIA MOTORS
Hyundai-Kia America Technical Center, Inc.

VOLKSWAGEN
GROUP OF AMERICA

Intelligent Transportation Systems



AUTOMOTIVE EVENTS

DAC Vehicle Builds

- 24 total / 3 vehicles per OEM
 - 16 DAC vehicles
 - 8 OEM template vehicles

- OEM specific Driver Vehicle Interfaces (DVI) on all vehicles



DAC Applications...

- EEBL: Emergency Electronic Brake Lights
- FCW: Forward Collision Warning
- BSW/LCW: Blind Spot Warning/Lane Change Warning
- LTA: Left Turn Assist
- IMA: Intersection Movement Assist
- DNPW*: Do Not Pass Warning

* DNPW application scenarios are challenging in terms of the V2V communication range required. Therefore, further analysis is required to determine if this application's scenarios can be conducted safely and reliability for the DACs.



V2V Safety Applications per OEM

OEM/Applications	Ford	GM	Honda	Mercedes	Toyota	Hyundai-Kia	Nissan	VW-Audi
EEBL	X	X	X	X	X			X
FCW	X	X	X	X		X	X	X
BSW / LCW	X	X	X	X	X	X	X (BSW)	
DNPW	X*	X*	X*					
IMA	X	X	X	X	X			X
LTA							X	

- ❑ Common VSCA-developed safety applications for the five CAMP VSC2 members:
 - Ford, GM, Honda, Mercedes Benz and Toyota
- ❑ OEM specific implementations of VSCA applications for Hyundai-Kia, Nissan and VW-Audi. Also includes one new application.



DAC Schedule

2011

Notes

January						
Su	M	Tu	W	Th	F	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

February						
Su	M	Tu	W	Th	F	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					

March						
Su	M	Tu	W	Th	F	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

April						
Su	M	Tu	W	Th	F	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

May						
Su	M	Tu	W	Th	F	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

June						
Su	M	Tu	W	Th	F	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

July						
Su	M	Tu	W	Th	F	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

August						
Su	M	Tu	W	Th	F	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

September						
Su	M	Tu	W	Th	F	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

October						
Su	M	Tu	W	Th	F	Sa
						1
2	3	4	5	6	7	8
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16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

November						
Su	M	Tu	W	Th	F	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

December						
Su	M	Tu	W	Th	F	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

January 2012						
Su	M	Tu	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

CAMP1101 - Driver Clinic Coordination

Red Bold - Federal Holidays

Green - Travel Days

Pink - Setup & Tear Down

Black Bold - Staging Days

Gray - Observation Days

Brown - Dry Run Days

Yellow - DAC Clinic Days

Blue - Performance Testing

Orange - Review Days

Overview

March 28-29 Tech Observation (Brooklyn, MI)

June 6-8 AE T3 (Brooklyn, MI) - 1A

June 27-30 Dry Run 1 (Brooklyn, MI) - 1B

July 18-21 Dry Run 2 (Brooklyn, MI)

August 8 Review (Brooklyn, MI)

August 9-12 DAC 1 (Brooklyn, MI)

August 13 Performance Testing

September 19 Review (Brainerd, MN)

September 20-23 DAC 2 (Brainerd, MN)

September 24 Performance Testing

October 14-16 Dry Run (Orlando, FL)

October 17-20 ITS Review (Orlando, FL)

October 22-25 DAC 3 (Orlando, FL)

October 26 Performance Testing

November 7-10 DAC 4 (Blacksburg, VA)

November 11 Performance Testing

November 15 - 17 Review (Washington, DC)

December 5 Review (Fort Worth, TX)

December 6-9 DAC 5 (Fort Worth, TX)

December 10 Performance Testing

January 17 Review (Alameda, CA)

January 18-21 DAC 6 (Alameda, CA)

January 22 Performance Testing

Application of DAC Results

Driver Acceptance Data

- Provides data on drivers' initial impression of V2V safety applications
- Supplements the Safety Pilot Model Deployment driver acceptance data for seasoned drivers
- Required for 2013 NHTSA decision
- Does not feed into V2V Track 3 benefits estimation

System Performance Data

- Characterizes system availability in diverse geographic locations
- Feeds into Track 3 benefits simulation



Other Key Elements

Connected Vehicle Technology Reviews

- ❑ 2011 ITS World Congress Showcase V2V Technology Review (October 17th - 20th)
- ❑ Provision for optional one day demo at each clinic location

