



January 2022

# Integrated Vehicle-Based Safety Systems



Center for the Management of Information for Safe and Sustainable Transportation

## INTRODUCTION

The IVBSS study goal was to assess the safety benefits and driver acceptance associated with a prototype integrated crash warning system designed to address rear-end, road departure, and lane change/merge crashes on light vehicles and heavy trucks. The IVBSS light-vehicle study was conducted using a fleet of 16 Honda Accord LX sedans (model years 2006 and 2007) equipped with both a set of integrated safety systems and a DAS. The DAS included accelerometers, GPS, cameras with interior and exterior views and radars for range-sensing to forward targets.

The study included 108 participants, of which the 104 gave permission for their data to be reused. Each participant used the study vehicles as their own for a 40-day period. For the first ~12 days, called the Baseline period, data were collected with safety systems turned off. For the remainder of the study, the safety systems were turned on.

Citation for IVBSS:

Sayer, J., LeBlanc, D., Bogard, S., Funkhouser, D., Bao, S., Buonarosa, M. L., & Blankespoor, A. (2011). *Integrated vehicle-based safety systems field operational test: Final program report* (No. FHWA-JPO-11-150; UMTRI-2010-36). United States. Joint Program Office for Intelligent Transportation Systems.

## VARIABLE INDEX

## The Byte transitions Variables

Bytes DasVersion  
Bytes WasMoving  
Bytes AbsActive  
Bytes Brake  
Bytes Cruise  
Bytes Engaged  
Bytes HeadLamps  
Bytes TurnSignal  
Bytes LdwDay  
Bytes LdwEvent  
Bytes LaneChange  
Bytes Wipers  
Bytes Urban  
Bytes SetDecrement  
Bytes ResumeIncrement  
Bytes VsaOffSwitch  
Bytes VsaActive  
Bytes Prndl  
Bytes RearDefroster  
Bytes CruiseStatus  
Bytes WiperInterval  
Bytes WasherSwitch  
Bytes SeatBeltBuckled  
Bytes PassingSwitch  
Bytes IvbssEnable  
Bytes DviBrightness  
Bytes AdhDemoMode  
Bytes CswAlertSupp  
Bytes NoMap  
Bytes NoAdas  
Bytes DviVolume  
Bytes Snoozed  
Bytes LedBrightness  
Bytes ArbReason  
Bytes ArbitratedWarning  
Bytes DviEnable  
Bytes DviAlert  
Bytes DviInfo  
Bytes DviFaultToDriver  
Bytes DviLockout

## VARIABLE INDEX

**The Csw triggered summary record Variables**

Csws Latitude  
Csws Longitude  
Csws GpsHeading  
Csws LdwDay  
Csws Wipers  
Csws IvbssEnable  
Csws MlpRoadClass  
Csws MlpNumberOfLanes  
Csws WarningSpeed  
Csws WarningRange  
Csws WarningRangeRate  
Csws WarningValidTarget  
Csws WarningTargetType  
Csws WarningAccel  
Csws WarningBrake  
Csws WarningLanewidth  
Csws WarningLateralSpeed  
Csws WarningLaneOffset  
Csws WarningBoundaryLeft  
Csws WarningBoundaryRight  
Csws WarningLaneOffsetConf  
Csws WarningMaxSpeed  
Csws WarningAxExpected  
Csws WarningTurnSignal  
Csws WarningPOICurvature  
Csws WarningPOIDistance  
Csws DviEnable  
Csws DviAlert

**VARIABLE INDEX**

<a href="#">The Cycle times Variables</a>
<a href="#">Cycles Time</a>
<a href="#">Cycles CycleTime</a>
<a href="#">Cycles CycleDuration</a>

## VARIABLE INDEX

**The Data record Variables**

Data Time  
Data Latitude  
Data Longitude  
Data GpsHeading  
Data Speed  
Data AccelPedal  
Data Brake  
Data Distance  
Data Engaged  
Data TurnSignal  
Data LaneOffset  
Data LdwLateralSpeed  
Data Lanewidth  
Data LaneOffsetConf  
Data LaneChange  
Data BoundaryLeft  
Data BoundaryRight  
Data Wipers  
Data LcmIndex  
Data Steer  
Data LdwAvailableRight  
Data LdwAvailableLeft  
Data FcwAvailable  
Data CswAvailable  
Data CswWarning  
Data FcwWarning  
Data LcmWarning  
Data LdwWarning  
Data FcwRange  
Data FcwRangeRate  
Data FcwAzimuth  
Data FcwValidTarget  
Data FcwTargetType  
Data FcwAccel  
Data FcwTargetId  
Data LdwCaution  
Data LdwThreatLeft  
Data LdwThreatRight  
Data GpsValid  
Data Leds  
Data RadarFrontExtendedIndex  
Data FcwRadarIndex  
Data DistancePastEdge  
Data LcmTTCAvailable  
Data LcmRearAvailable

## VARIABLE INDEX

**The Secondary data record Variables**

Data2 Time  
Data2 GpsSpeed  
Data2 DasVoltage  
Data2 LdwAlertRequest  
Data2 GwIndex  
Data2 Throttle  
Data2 TargetThrottle  
Data2 CoolantTemp  
Data2 EngineSpeed  
Data2 AtmPressure  
Data2 FuelUsed  
Data2 AcPressureSwitch  
Data2 Odometer  
Data2 MCPressure  
Data2 Gear  
Data2 ReferenceDistance  
Data2 IntakeTemp  
Data2 SnoozeTime  
Data2 CswAlertRequest  
Data2 PulsePressure  
Data2 PulseRequest  
Data2 FcwAlertRequest  
Data2 LcmAlertRequest  
Data2 PulseRefused  
Data2 PulseActivated  
Data2 BatteryVoltage  
Data2 AdhIndex  
Data2 ArbReason  
Data2 ArbitratedWarning  
Data2 ArbIndex  
Data2 PulseCalcPressure  
Data2 DviEnable  
Data2 DviAlert  
Data2 OutsideTemperature

## VARIABLE INDEX

## The Diagnostic summary record for pilot Variables

Diagnostics LdwIndex  
 Diagnostics FcyIndex  
 Diagnostics LcmIndex  
 Diagnostics CswAvailableDistance  
 Diagnostics FcwAvailableDistance  
 Diagnostics LdwAvailableDistanceLeft  
 Diagnostics LdwAvailableDistanceRight  
 Diagnostics FirstFrontIndex  
 Diagnostics RadarFrontExtendedIndex  
 Diagnostics IvbssBusErrors  
 Diagnostics FrontBusErrors  
 Diagnostics LcmBusErrors  
 Diagnostics IvbssBusOverruns  
 Diagnostics FrontBusOverruns  
 Diagnostics LcmBusOverruns  
 Diagnostics RawLcmCount  
 Diagnostics RawArbCount  
 Diagnostics RawCswCount  
 Diagnostics RawDviCount  
 Diagnostics RawLdwCount  
 Diagnostics RawFcwCount  
 Diagnostics RadarRightFrontCount  
 Diagnostics RadarRightRearCount  
 Diagnostics RadarLeftFrontCount  
 Diagnostics RadarLeftRearCount  
 Diagnostics RadarRearRightCount  
 Diagnostics RadarRearLeftCount  
 Diagnostics TcuMessage1Count  
 Diagnostics RawLcmHealthCount  
 Diagnostics FcyIndexMin  
 Diagnostics LcmIndexMin  
 Diagnostics LdwIndexMin  
 Diagnostics RawAdhCount  
 Diagnostics RawAdhHealthCount  
 Diagnostics AdhIndex  
 Diagnostics RawLcmIndexCount  
 Diagnostics RawFcyHealthCount  
 Diagnostics AdhIndexMin  
 Diagnostics LcmRearAvailableDistance  
 Diagnostics LcmTTCAvailableDistance  
 Diagnostics ImuChecksumErrors  
 Diagnostics ImuFloatErrors



**VARIABLE INDEX****The Byte transitions at 100 Hz Variables**

FastBytes	IgnitionRaw
FastBytes	LdwAlertRequest
FastBytes	CswWarning
FastBytes	FcwWarning
FastBytes	LcmWarning
FastBytes	LdwWarning
FastBytes	CswAlertRequest
FastBytes	FcwAlertRequest
FastBytes	LdwCaution
FastBytes	LcmAlertRequest
FastBytes	LdwWarningOrCaution
FastBytes	ArbReason
FastBytes	ArbitratedWarning
FastBytes	CswAlertRequestRaw

## VARIABLE INDEX

<b>The Fault transitions Variables</b>	
Faults	AdhTempFault
Faults	AdhPermFault
Faults	AdhShutdown
Faults	FcyShutdown
Faults	FcyTempFault
Faults	FcyPermFault
Faults	LcmTempFault
Faults	LcmPermFault
Faults	LcmShutdown
Faults	GwPermFault
Faults	GwTempFault

## VARIABLE INDEX

**The Fcw triggered summary record Variables**

Fcws Latitude  
Fcws Longitude  
Fcws GpsHeading  
Fcws LdwDay  
Fcws Wipers  
Fcws IvbssEnable  
Fcws MlpRoadClass  
Fcws MlpNumberOfLanes  
Fcws Leds  
Fcws Warningspeed  
Fcws WarningRange  
Fcws WarningRangeRate  
Fcws WarningValidTarget  
Fcws WarningTargetType  
Fcws WarningAccel  
Fcws WarningBrake  
Fcws WarningLanewidth  
Fcws WarningLateralSpeed  
Fcws WarningLaneOffset  
Fcws WarningBoundaryLeft  
Fcws WarningBoundaryRight  
Fcws WarningLaneOffsetConf  
Fcws WarningAmrLeft  
Fcws WarningAmrRight  
Fcws FcwRequestRange  
Fcws FcwRequestRangeRate  
Fcws FcwRequestTargetId  
Fcws FcwRequestTargetType  
Fcws FcwRequestAccel  
Fcws FcwRequestSpeed  
Fcws WarningTurnSignal  
Fcws FcwRequestTTC  
Fcws WarningTTC  
Fcws DviEnable  
Fcws DviAlert

## VARIABLE INDEX

## The Fcw &amp; Csw data record Variables

Fcy Time  
 Fcy FcyIndex  
 Fcy MlpConf  
 Fcy Urban  
 Fcy LimitedAccess  
 Fcy Ramp  
 Fcy Frontage  
 Fcy CswGpsTime  
 Fcy CswGpsNew  
 Fcy PomVerified  
 Fcy CswNumberOfSats  
 Fcy CswGpsHeading  
 Fcy CswAxRequired  
 Fcy CswMaxSpeed  
 Fcy CswLatitude  
 Fcy CswLongitude  
 Fcy FcwCurvature  
 Fcy Curvature3  
 Fcy Curvature4  
 Fcy Curvature5  
 Fcy Curvature6  
 Fcy LookAhead  
 Fcy MlpRoadClass  
 Fcy MlpLaneCategory  
 Fcy MlpNumberOfLanes  
 Fcy NoMap  
 Fcy NoAdas  
 Fcy FcwYawRate  
 Fcy FcwHeading  
 Fcy FcwCrossTrack  
 Fcy FcwNewTarget  
 Fcy FcwLaneChange  
 Fcy DecelToAvoid  
 Fcy TimeToCollision  
 Fcy BrakeExpected  
 Fcy Curvature1  
 Fcy POICurvature  
 Fcy POIDistance  
 Fcy MapLowConf  
 Fcy FcwTargetPacket  
 Fcy CswDeltaLat  
 Fcy CswDeltaLong  
 Fcy MlpRoadAuthority  
 Fcy PoiAccess  
 Fcy CPX1  
 Fcy CPY1  
 Fcy CPX3  
 Fcy CPY3  
 Fcy CPX4  
 Fcy CPY4  
 Fcy CPX5  
 Fcy CPY5  
 Fcy CPX6  
 Fcy CPY6  
 Fcy MlpBranchDistance  
 Fcy RadarFrontMisalign

**VARIABLE INDEX****The Float transition record Variables**

Floats SetSpeed  
Floats PitchRateZero  
Floats RollRateZero  
Floats YawRateZero

## VARIABLE INDEX

[The Gps log record Variables](#)

Gps Time  
Gps Latitude  
Gps Longitude  
Gps NumberOfSats  
Gps GpsHeading  
Gps GpsSpeed  
Gps GpsWeek  
Gps GpsTime  
Gps FixMode  
Gps Differential  
Gps GpsBytes  
Gps Altitude

**VARIABLE INDEX****The Log Record for inertia link IMU Variables**

ImuRaw Time  
ImuRaw AX  
ImuRaw Ay  
ImuRaw AZ  
ImuRaw Pitch  
ImuRaw Roll  
ImuRaw Yaw  
ImuRaw PitchRate  
ImuRaw RollRate  
ImuRaw YawRate  
ImuRaw ImuTime

## VARIABLE INDEX

## The Lcm data record for new implementation Variables

Lcm Time  
 Lcm LcmIndex  
 Lcm AmrRight  
 Lcm AmrLeft  
 Lcm LcmAlertRequest  
 Lcm AmrFutureLeft  
 Lcm AmrFutureRight  
 Lcm LcmYLeft  
 Lcm LcmYRight  
 Lcm LcmXLeft  
 Lcm LcmXRight  
 Lcm LcmYVelocityLeft  
 Lcm LcmXVelocityLeft  
 Lcm LcmYVelocityRight  
 Lcm LcmXVelocityRight  
 Lcm LcmLateralTTCLeft  
 Lcm LcmLateralTTCTright  
 Lcm LcmLateralSpeed  
 Lcm LcmLeds  
 Lcm LcmError  
 Lcm LcmOperational  
 Lcm LcmMinTTCSpeed  
 Lcm LcmMinRearSpeed  
 Lcm LcmBlindSpot  
 Lcm LcmZoneCaution  
 Lcm LcmTTCAAlert  
 Lcm LcmClosingZone  
 Lcm LcmClosingZoneAlert  
 Lcm LcmDriverTurn  
 Lcm LcmHits  
 Lcm LcmFlag0  
 Lcm LcmFlag1  
 Lcm LcmTargetKills  
 Lcm LcmClusterCount  
 Lcm LcmTargetCount  
 Lcm LcmTrackCount  
 Lcm LcmRxFifo  
 Lcm LcmCycle  
 Lcm LcmRadarCount  
 Lcm LcmRawRadarCount  
 Lcm LcmTTCAvailable  
 Lcm LcmRearAvailable  
 Lcm LcmLdwConf  
 Lcm LcmLdwLaneChange



## VARIABLE INDEX

## The Lcm triggered summary record Variables

Lcms Latitude  
 Lcms Longitude  
 Lcms GpsHeading  
 Lcms LdwDay  
 Lcms Wipers  
 Lcms IvbssEnable  
 Lcms MlpRoadClass  
 Lcms MlpNumberOfLanes  
 Lcms Leds  
 Lcms Warningspeed  
 Lcms WarningRange  
 Lcms WarningRangeRate  
 Lcms WarningValidTarget  
 Lcms WarningTargetType  
 Lcms WarningAccel  
 Lcms WarningBrake  
 Lcms WarningLanewidth  
 Lcms WarningLateralSpeed  
 Lcms WarningLaneOffset  
 Lcms WarningBoundaryLeft  
 Lcms WarningBoundaryRight  
 Lcms WarningLaneOffsetConf  
 Lcms WarningAmrLeft  
 Lcms WarningAmrRight  
 Lcms LcmRequestSpeed  
 Lcms WarningTurnSignal  
 Lcms LcmRequestSide  
 Lcms WarningTimeToLC  
 Lcms DviEnable  
 Lcms DviAlert  
 Lcms LcmRequestLateralTTCLeft  
 Lcms LcmRequestLateralTTCRight  
 Lcms LcmRequestTTCAAlert  
 Lcms LcmRequestClosingZoneAlert  
 Lcms LcmRequestLcmLdwConf  
 Lcms LcmRequestLcmLdwLaneChange

## VARIABLE INDEX

**The Ldw data record Variables**

Ldw Time  
Ldw LdwDay  
Ldw LdwLightLevel  
Ldw LdwIndex  
Ldw FodLeft  
Ldw FodRight  
Ldw FodThresholdLeft  
Ldw FodThresholdRight  
Ldw LdwStatus  
Ldw LdwEvent  
Ldw Boundaries  
Ldw TimeToLC  
Ldw TimeToAB  
Ldw LdwHeading  
Ldw DriftFrequency  
Ldw LdwAlertness  
Ldw LdwCurvature  
Ldw LdwCurvatureConf  
Ldw LdwData0  
Ldw LdwData1  
Ldw LdwData2  
Ldw LdwData3  
Ldw LdwData4  
Ldw LdwData5  
Ldw LdwData6  
Ldw LdwData7  
Ldw LdwIntrinsicDisable  
Ldw LdwIntegrity  
Ldw LdwTemperature

## VARIABLE INDEX

## The Ldw triggered summary record Variables

Ldws Latitude  
 Ldws Longitude  
 Ldws GpsHeading  
 Ldws LdwDay  
 Ldws Wipers  
 Ldws IvbssEnable  
 Ldws MlpRoadClass  
 Ldws MlpNumberOfLanes  
 Ldws Leds  
 Ldws Warningspeed  
 Ldws WarningRange  
 Ldws WarningRangeRate  
 Ldws WarningValidTarget  
 Ldws WarningTargetType  
 Ldws WarningAccel  
 Ldws WarningBrake  
 Ldws WarningLanewidth  
 Ldws WarningLateralSpeed  
 Ldws WarningLaneOffset  
 Ldws WarningBoundaryLeft  
 Ldws WarningBoundaryRight  
 Ldws WarningLaneOffsetConf  
 Ldws WarningAmrLeft  
 Ldws WarningAmrRight  
 Ldws LdwRequestSpeed  
 Ldws LdwRequestLanewidth  
 Ldws LdwRequestLateralSpeed  
 Ldws LdwRequestLaneOffset  
 Ldws LdwRequestBoundaryLeft  
 Ldws LdwRequestBoundaryRight  
 Ldws LdwRequestLaneOffsetConf  
 Ldws LdwRequestThreatLeft  
 Ldws LdwRequestThreatRight  
 Ldws LdwRequestSide  
 Ldws LdwRequestTimeToLC  
 Ldws WarningTimeToLC  
 Ldws DviEnable  
 Ldws DviAlert  
 Ldws LdwRequestAmrLeft  
 Ldws LdwRequestAmrRight

**VARIABLE INDEX**

<b>The Post warning triggered summary Variables</b>	
Posts	GpsHeading
Posts	Speed
Posts	Brake
Posts	IvbsEnable
Posts	FcwRange
Posts	FcwRangeRate
Posts	FcwValidTarget
Posts	FcwTargetType
Posts	FcwTargetId
Posts	PostBrakeCount
Posts	PostLaneChangeCount
Posts	WarningCount

**VARIABLE INDEX**

<a href="#">The Front radar can data Variables</a>
<a href="#">RadarFront Time</a> <a href="#">RadarFront RadarFrontRaw</a>

## VARIABLE INDEX

<a href="#">The Left Front radar can data Variables</a>
<a href="#">RadarLeftFront Time</a> <a href="#">RadarLeftFront RadarLeftFrontRaw</a>

**VARIABLE INDEX**

<b>The Left rear radar can data Variables</b>
RadarLeftRear Time RadarLeftRear RadarLeftRearRaw

## VARIABLE INDEX

<a href="#">The Rear Left radar can data Variables</a>
<a href="#">RadarRearLeft Time</a> <a href="#">RadarRearLeft RadarRearLeftRaw</a>



**VARIABLE INDEX**

<a href="#">The Rear Right radar can data Variables</a>
<a href="#">RadarRearRight Time</a> <a href="#">RadarRearRight RadarRearRightRaw</a>

## VARIABLE INDEX

<a href="#">The Right Front radar can data Variables</a>
<a href="#">RadarRightFront Time</a> <a href="#">RadarRightFront RadarRightFrontRaw</a>

**VARIABLE INDEX**

<a href="#">The Right rear radar can data Variables</a>
RadarResultRear Time RadarResultRear RadararResultRaw

## VARIABLE INDEX

The Main summary record Variables	
Summary	TripStart
Summary	TODTripStart
Summary	Latitude
Summary	Longitude
Summary	Das
Summary	EmergencyShutDown
Summary	Speed
Summary	WarmStart
Summary	BrakeCount
Summary	Distance
Summary	EndTime
Summary	StartTime
Summary	Vehicle
Summary	Odometer
Summary	Prndl
Summary	IvbssEnable
Summary	LdwRequestCount
Summary	FcwRequestCount
Summary	CswRequestCount
Summary	LcmRequestCount
Summary	LdwWarningCount
Summary	LdwCautionCount
Summary	CswWarningCount
Summary	FcwWarningCount
Summary	LcmWarningCount
Summary	Vgt25Distance
Summary	TurnSignalCount
Summary	LaneChangeCount
Summary	WiperDistance
Summary	LdwDayDistance
Summary	VgtRearMinDistance
Summary	VgtTTCMinDistance

**VARIABLE INDEX****The Sync output log Variables**

Sync Syncweek
Sync SyncMilliseconds
Sync SyncSubMilliseconds
Sync SyncTimeValid
Sync SyncTime

## VARIABLE INDEX

## The Hardware and software versions Variables

Versions	DasVersion
Versions	LdwHwMajor
Versions	LdwHwMinor
Versions	LdwSwMajor
Versions	LdwSwMinor
Versions	AdhHwMajor
Versions	AdhHwMinor
Versions	AdhSwMajor
Versions	AdhSwMinor
Versions	FcyHwMajor
Versions	FcyHwMinor
Versions	FcySwMajor
Versions	FcySwMinor
Versions	GwHwMajor
Versions	GwHwMinor
Versions	GwSwMajor
Versions	GwSwMinor
Versions	LcmHwMajor
Versions	LcmHwMinor
Versions	LcmSwMajor
Versions	LcmSwMinor
Versions	LeftFrontHwMajor
Versions	LeftFrontSwMajor
Versions	LeftRearHwMajor
Versions	LeftRearSwMajor
Versions	RearLeftHwMajor
Versions	RearLeftSwMajor
Versions	LeftFrontHwMinor
Versions	LeftFrontSwMinor
Versions	LeftRearHwMinor
Versions	LeftRearSwMinor
Versions	RearLeftHwMinor
Versions	RearLeftSwMinor
Versions	RightFrontHwMajor
Versions	RightFrontHwMinor
Versions	RightFrontSwMajor
Versions	RightFrontSwMinor
Versions	RightRearHwMajor
Versions	RightRearHwMinor
Versions	RightRearSwMajor
Versions	RightRearSwMinor
Versions	RearRightHwMajor
Versions	RearRightHwMinor
Versions	RearRightSwMajor
Versions	RearRightSwMinor

## THE BYTE TRANSITIONS VARIABLES

Bytes DasVersion	Count	Percent	Code	Value/Description
SAS Name: DasVersion Das software version	N/A	N/A	N/A	No Special Values

  

Bytes WasMoving	Count	Percent	Code	Value/Description
SAS Name: WasMoving Speed > Vmin or was > 0 a second ago	N/A	N/A	0	False
	N/A	N/A	1	True

  

Bytes AbsActive	Count	Percent	Code	Value/Description
SAS Name: AbsActive ABS active	N/A	N/A	0	False
	N/A	N/A	1	True

  

Bytes Brake	Count	Percent	Code	Value/Description
SAS Name: Brake active	N/A	N/A	0	Off
	N/A	N/A	1	On

  

Bytes Cruise	Count	Percent	Code	Value/Description
SAS Name: Cruise control enabled	N/A	N/A	0	Disabled
	N/A	N/A	1	Enabled

  

Bytes Engaged	Count	Percent	Code	Value/Description
SAS Name: Engaged cruise control active	N/A	N/A	0	False
	N/A	N/A	1	True

  

Bytes HeadLamps	Count	Percent	Code	Value/Description
SAS Name: HeadLamps Head lamps	N/A	N/A	0	Off
	N/A	N/A	1	Parking
	N/A	N/A	2	Low
	N/A	N/A	3	High
	N/A	N/A	4	Error

  

Bytes TurnSignal	Count	Percent	Code	Value/Description
SAS Name: TurnSignal Turn signal	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right
	N/A	N/A	3	Both

  

Bytes LdwDay	Count	Percent	Code	Value/Description
SAS Name: LdwDay True if daytime	N/A	N/A	0	False
	N/A	N/A	1	True

  

Bytes LdwEvent	Count	Percent	Code	Value/Description
SAS Name: LdwEvent Ldw event	N/A	N/A	0	NoEvent
	N/A	N/A	1	CalibrationStarted
	N/A	N/A	2	CalibrationSuccessful
	N/A	N/A	3	CalibrationFailed
	N/A	N/A	4	LeftLaneChange
	N/A	N/A	5	RightLaneChange
	N/A	N/A	6	LeftDrift
	N/A	N/A	7	RightDrift
	N/A	N/A	8	DrowsyDriver
	N/A	N/A	9	CleanWindow
	N/A	N/A	10	LeftButton
	N/A	N/A	11	SelectButton
	N/A	N/A	12	RightButton
	N/A	N/A	13	CalibrationRefined
	N/A	N/A	14	ParmsSaved
	N/A	N/A	15	ImageLogged
	N/A	N/A	16	TakeBreak
	N/A	N/A	17	CalibrationReport
	N/A	N/A	18	TimeReport
	N/A	N/A	19	Message
	N/A	N/A	20	Startup
	N/A	N/A	21	StatusChange
	N/A	N/A	22	ImageReport
	N/A	N/A	23	InvalidInput
	N/A	N/A	24	Log1Report
	N/A	N/A	25	Log2Report
	N/A	N/A	26	FalseAlarm
	N/A	N/A	27	FalseAlarmSuppressed

### THE BYTE TRANSITIONS VARIABLES

Bytes LaneChange	Count	Percent	Code	Value/Description
SAS Name: LaneChange	N/A	N/A	0	None
Lane change	N/A	N/A	1	Left
	N/A	N/A	2	Right

  

Bytes Wipers	Count	Percent	Code	Value/Description
SAS Name: Wipers	N/A	N/A	0	Off
Wiper switch state	N/A	N/A	1	Delay
	N/A	N/A	2	Low
	N/A	N/A	3	High
	N/A	N/A	4	Mist
	N/A	N/A	5	Error

  

Bytes Urban	Count	Percent	Code	Value/Description
SAS Name: Urban	N/A	N/A	0	False
flag	N/A	N/A	1	True

  

Bytes SetDecrement	Count	Percent	Code	Value/Description
SAS Name: SetDecrement	N/A	N/A	0	Off
Set/Decrement cruise switch	N/A	N/A	1	On

  

Bytes ResumeIncrement	Count	Percent	Code	Value/Description
SAS Name: ResumeIncrement	N/A	N/A	0	Off
Resume/Increment cruise switch	N/A	N/A	1	On

  

Bytes VsaOffSwitch	Count	Percent	Code	Value/Description
SAS Name: VsaOffSwitch	N/A	N/A	0	Off
Vsa off switch (on = vsa disabled)	N/A	N/A	1	On

  

Bytes VsaActive	Count	Percent	Code	Value/Description
SAS Name: VsaActive	N/A	N/A	0	False
Vsa active	N/A	N/A	1	True

  

Bytes Prndl	Count	Percent	Code	Value/Description
SAS Name: Prndl	N/A	N/A	0	Shifting
	N/A	N/A	1	Park
	N/A	N/A	2	Reverse
	N/A	N/A	3	Neutral
	N/A	N/A	4	Drive
	N/A	N/A	5	Drive4
	N/A	N/A	6	Third
	N/A	N/A	7	Second
	N/A	N/A	8	First

  

Bytes RearDefroster	Count	Percent	Code	Value/Description
SAS Name: RearDefroster	N/A	N/A	0	Off
Rear defroster switch	N/A	N/A	1	On

  

Bytes CruiseStatus	Count	Percent	Code	Value/Description
SAS Name: CruiseStatus	N/A	N/A	0	InNotActive
Cruise status	N/A	N/A	1	InActive
	N/A	N/A	2	NotInNotActive
	N/A	N/A	3	NotInActive

  

Bytes WiperInterval	Count	Percent	Code	Value/Description
SAS Name: wiperInterval	N/A	N/A	N/A	No Special Values
wiper interval pot setting				

  

Bytes WasherSwitch	Count	Percent	Code	Value/Description
SAS Name: washerSwitch	N/A	N/A	0	Off
wiper washer switch	N/A	N/A	1	On

  

Bytes SeatBeltBuckled	Count	Percent	Code	Value/Description
SAS Name: SeatBeltBuckled	N/A	N/A	0	False
True = buckled	N/A	N/A	1	True

  

Bytes PassingSwitch	Count	Percent	Code	Value/Description
SAS Name: PassingSwitch	N/A	N/A	0	Off
Highbeam flash to pass	N/A	N/A	1	On



## THE BYTE TRANSITIONS VARIABLES

Bytes IvbssEnable	Count	Percent	Code	Value/Description
SAS Name: IvbssEnable	N/A	N/A	0	Disabled
HMI (Ivbss functionality) enabled	N/A	N/A	1	Enabled

  

Bytes DviBrightness	Count	Percent	Code	Value/Description
SAS Name: DviBrightness	N/A	N/A	N/A	No Special Values
Dvi Brightness 0= dimmest, 7 = brightest				

  

Bytes AdhDemoMode	Count	Percent	Code	Value/Description
SAS Name: AdhDemoMode	N/A	N/A	0	False
Adh is in demo/config mode	N/A	N/A	1	True

  

Bytes CswAlertSupp	Count	Percent	Code	Value/Description
SAS Name: CswAlertSupp	N/A	N/A	0	False
Csw Alert Suppressed by false alarm database	N/A	N/A	1	True

  

Bytes NoMap	Count	Percent	Code	Value/Description
SAS Name: NoMap	N/A	N/A	0	False
true = No map	N/A	N/A	1	True

  

Bytes NoAdas	Count	Percent	Code	Value/Description
SAS Name: NoAdas	N/A	N/A	0	False
true = No Adas	N/A	N/A	1	True

  

Bytes DviVolume	Count	Percent	Code	Value/Description
SAS Name: DviVolume	N/A	N/A	0	Invalid
Driver selected DVI volume	N/A	N/A	1	Low
	N/A	N/A	2	Medium
	N/A	N/A	3	High

  

Bytes Snoozed	Count	Percent	Code	Value/Description
SAS Name: Snoozed	N/A	N/A	0	False
System is in snooze mode	N/A	N/A	1	True

  

Bytes LedBrightness	Count	Percent	Code	Value/Description
SAS Name: LedBrightness	N/A	N/A	N/A	No Special Values
Led Brightness 0= dimmest, 31= brightest				

  

Bytes ArbReason	Count	Percent	Code	Value/Description
SAS Name: ArbReason	N/A	N/A	N/A	No Special Values
Reason for arbitrated warning bitmap				

  

Bytes ArbitratedWarning	Count	Percent	Code	Value/Description
SAS Name: ArbitratedWarning	N/A	N/A	0	FCW
Arbitrated warning enum	N/A	N/A	1	Csw
	N/A	N/A	2	LcmLeft
	N/A	N/A	3	LcmRight
	N/A	N/A	4	LdwLeft
	N/A	N/A	5	LdwRight
	N/A	N/A	6	LdwCautionLeft
	N/A	N/A	7	LdwCautionRight

  

Bytes DviEnable	Count	Percent	Code	Value/Description
SAS Name: DviEnable	N/A	N/A	N/A	No Special Values
Dvi enable flags bit0 = audio & haptic, bit1 = led, bit2 = vsa				

  

Bytes DviAlert	Count	Percent	Code	Value/Description
SAS Name: DviAlert	N/A	N/A	N/A	No Special Values
Dvi alert response flags bit0 = audio , bit1 =haptic, bit2 = lvisual, bit3 = vsa				

  

Bytes DviInfo	Count	Percent	Code	Value/Description
SAS Name: DviInfo	N/A	N/A	0	None
Non-alert or fault type of info is displayed	N/A	N/A	1	NonAlertInfo
	N/A	N/A	2	BackgroundData
	N/A	N/A	3	Both

**THE BYTE TRANSITIONS VARIABLES**

<b>Bytes DviFaultToDriver</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: DviFaultToDriver	N/A	N/A	0	None
Visual or audio Fault presented to the driver	N/A	N/A	1	Visual
	N/A	N/A	2	Audio
	N/A	N/A	3	Both

<b>Bytes DviLockout</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: DviLockout	N/A	N/A	0	False
Dvi display lockout	N/A	N/A	1	True

## THE CSW TRIGGERED SUMMARY RECORD VARIABLES

<b>Csws Latitude</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Latitude from Ublox Gps	N/A	N/A	N/A	No Special Values
<b>Csws Longitude</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Longitude from Ublox Gps	N/A	N/A	N/A	No Special Values
<b>Csws GpsHeading</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: GpsHeading Gps heading from Ublox Gps	N/A	N/A	N/A	No Special Values
<b>Csws LdwDay</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwDay True if daytime	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Csws Wipers</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Wipers Wiper switch state	N/A	N/A	0	Off
	N/A	N/A	1	Delay
	N/A	N/A	2	Low
	N/A	N/A	3	High
	N/A	N/A	4	Mist
	N/A	N/A	5	Error
<b>Csws IvbssEnable</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: IvbssEnable HMI (Ivbss functionality) enabled	N/A	N/A	0	Disabled
	N/A	N/A	1	Enabled
<b>Csws MlpRoadClass</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: MlpRoadClass	N/A	N/A	0	NoRoad
	N/A	N/A	1	FC1
	N/A	N/A	2	FC2
	N/A	N/A	3	FC3
	N/A	N/A	4	FC4
	N/A	N/A	5	FC5
<b>Csws MlpNumberOfLanes</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: MlpNumberOfLanes Mlp number of Lanes in current direction from Adas	N/A	N/A	N/A	No Special Values
<b>Csws WarningSpeed</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningSpeed Speed at time of warning	N/A	N/A	N/A	No Special Values
<b>Csws WarningRange</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningRange Fcw range at time of warning	N/A	N/A	N/A	No Special Values
<b>Csws WarningRangeRate</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningRangeRate Fcw range rate at time of warning	N/A	N/A	N/A	No Special Values
<b>Csws WarningValidTarget</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningValidTarget Fcw Valid Target at time of warning	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Csws WarningTargetType</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningTargetType Fcw Target Type at time of warning	N/A	N/A	0	None
	N/A	N/A	1	Stand
	N/A	N/A	2	Moving
	N/A	N/A	3	Stopped
<b>Csws WarningAccel</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningAccel Fcw target acceleration at time of warning	N/A	N/A	N/A	No Special Values

**THE CSW TRIGGERED SUMMARY RECORD VARIABLES**

<b>Csws WarningBrake</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningBrake	N/A	N/A	0	Off
Brake active at time of warning	N/A	N/A	1	On
<b>Csws WarningLaneWidth</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningLanewidth	N/A	N/A	N/A	No Special Values
Lane width at time of warning				
<b>Csws WarningLateralSpeed</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningLateralSpeed	N/A	N/A	N/A	No Special Values
vehicle speed lateral to lane direction at time of warning				
<b>Csws WarningLaneOffset</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningLaneOffset	N/A	N/A	N/A	No Special Values
Vehicle offset from lane center at time of warning				
<b>Csws WarningBoundaryLeft</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningBoundaryLeft	N/A	N/A	0	Missing
Lane boundary type, left at time of warning	N/A	N/A	1	Dashed
	N/A	N/A	2	Solid
	N/A	N/A	3	Virtual
<b>Csws WarningBoundaryRight</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningBoundaryRight	N/A	N/A	0	Missing
Lane boundary type, right at time of warning	N/A	N/A	1	Dashed
	N/A	N/A	2	Solid
	N/A	N/A	3	Virtual
<b>Csws WarningLaneOffsetConf</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningLaneOffsetConf	N/A	N/A	N/A	No Special Values
Lane offset confidence at time of warning				
<b>Csws WarningMaxSpeed</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningMaxSpeed	N/A	N/A	N/A	No Special Values
Max desired speed in upcoming curve at time of warning				
<b>Csws WarningAxExpected</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningAxExpected	N/A	N/A	N/A	No Special Values
Acceleration required to avoid run off road. at time of warning				
<b>Csws WarningTurnSignal</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningTurnSignal	N/A	N/A	0	None
Turn signal at time of warning	N/A	N/A	1	Left
	N/A	N/A	2	Right
	N/A	N/A	3	Both
<b>Csws WarningPOICurvature</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningPOICurvature	N/A	N/A	N/A	No Special Values
Curvature at point of interest at time of warning				
<b>Csws WarningPOIDistance</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningPOIDistance	N/A	N/A	N/A	No Special Values
Distance from vehicle to POI at time of warning				
<b>Csws DviEnable</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: DviEnable	N/A	N/A	N/A	No Special Values
Dvi enable flags bit0 = audio & haptic, bit1 = led, bit2 = vsa				
<b>Csws DviAlert</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: DviAlert	N/A	N/A	N/A	No Special Values
Dvi alert response flags bit0 = audio, bit1 =haptic, bit2 = lvisual, bit3 = vsa				

### THE CYCLE TIMES VARIABLES

<b>Cycles Time</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Time in centiseconds since das started	N/A	N/A	N/A	No Special Values

  

<b>Cycles CycleTime</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CycleTime Time since last calc cycle startedt	N/A	N/A	N/A	No Special Values

  

<b>Cycles CycleDuration</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CycleDuration Duration of last calc cycle	N/A	N/A	N/A	No Special Values

## THE DATA RECORD VARIABLES

Data Time	Count	Percent	Code	Value/Description
SAS Name: Time in centiseconds since das started	N/A	N/A	N/A	No Special Values
Data Latitude	Count	Percent	Code	Value/Description
SAS Name: Latitude from Ublox Gps	N/A	N/A	N/A	No Special Values
Data Longitude	Count	Percent	Code	Value/Description
SAS Name: Longitude from Ublox Gps	N/A	N/A	N/A	No Special Values
Data GpsHeading	Count	Percent	Code	Value/Description
SAS Name: GpsHeading Gps heading from Ublox Gps	N/A	N/A	N/A	No Special Values
Data Speed	Count	Percent	Code	Value/Description
SAS Name: Speed Vehicle speed from transmission	N/A	N/A	N/A	No Special Values
Data AccelPedal	Count	Percent	Code	Value/Description
SAS Name: AccelPedal Accelerator pedal	N/A	N/A	N/A	No Special Values
Data Brake	Count	Percent	Code	Value/Description
SAS Name: Brake active	N/A	N/A	0	Off
	N/A	N/A	1	On
Data Distance	Count	Percent	Code	Value/Description
SAS Name: Distance Trip distance	N/A	N/A	N/A	No Special Values
Data Engaged	Count	Percent	Code	Value/Description
SAS Name: Engaged Cruise control active	N/A	N/A	0	False
	N/A	N/A	1	True
Data TurnSignal	Count	Percent	Code	Value/Description
SAS Name: TurnSignal Turn signal	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right
	N/A	N/A	3	Both
Data LaneOffset	Count	Percent	Code	Value/Description
SAS Name: LaneOffset Vehicle offset from lane center	N/A	N/A	N/A	No Special Values
Data LdwLateralSpeed	Count	Percent	Code	Value/Description
SAS Name: LdwLateralSpeed Vehicle speed lateral to lane direction from ldw	N/A	N/A	N/A	No Special Values
Data LaneWidth	Count	Percent	Code	Value/Description
SAS Name: Lanewidth Lane width	N/A	N/A	N/A	No Special Values
Data LaneOffsetConf	Count	Percent	Code	Value/Description
SAS Name: LaneOffsetConf Lane offset confidence	N/A	N/A	N/A	No Special Values
Data LaneChange	Count	Percent	Code	Value/Description
SAS Name: LaneChange Lane change	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right
Data BoundaryLeft	Count	Percent	Code	Value/Description
SAS Name: BoundaryLeft Lane boundary type, left	N/A	N/A	0	Missing
	N/A	N/A	1	Dashed
	N/A	N/A	2	Solid
	N/A	N/A	3	Virtual

## THE DATA RECORD VARIABLES

Data BoundaryRight	Count	Percent	Code	Value/Description
SAS Name: BoundaryRight	N/A	N/A	0	Missing
Lane boundary type, right	N/A	N/A	1	Dashed
	N/A	N/A	2	Solid
	N/A	N/A	3	Virtual

  

Data Wipers	Count	Percent	Code	Value/Description
SAS Name: wipers	N/A	N/A	0	Off
Wiper switch state	N/A	N/A	1	Delay
	N/A	N/A	2	Low
	N/A	N/A	3	High
	N/A	N/A	4	Mist
	N/A	N/A	5	Error

  

Data LcmIndex	Count	Percent	Code	Value/Description
SAS Name: LcmIndex	N/A	N/A	N/A	No Special Values
Lane change merge index				

  

Data Steer	Count	Percent	Code	Value/Description
SAS Name: Steer	N/A	N/A	N/A	No Special Values
Steering wheel angle, cw is negative				

  

Data LdwAvailableRight	Count	Percent	Code	Value/Description
SAS Name: LdwAvailableRight	N/A	N/A	0	False
Ldw right side availability	N/A	N/A	1	True

  

Data LdwAvailableLeft	Count	Percent	Code	Value/Description
SAS Name: LdwAvailableLeft	N/A	N/A	0	False
Ldw left side availability	N/A	N/A	1	True

  

Data FcwAvailable	Count	Percent	Code	Value/Description
SAS Name: FcwAvailable	N/A	N/A	0	False
Fcw availability	N/A	N/A	1	True

  

Data CswAvailable	Count	Percent	Code	Value/Description
SAS Name: CswAvailable	N/A	N/A	0	False
Csw availability	N/A	N/A	1	True

  

Data CswWarning	Count	Percent	Code	Value/Description
SAS Name: CswWarning	N/A	N/A	0	False
Csw warning generated from arbitration	N/A	N/A	1	True

  

Data FcwWarning	Count	Percent	Code	Value/Description
SAS Name: FcwWarning	N/A	N/A	0	False
Fcw warning generated from arbitration	N/A	N/A	1	True

  

Data LcmWarning	Count	Percent	Code	Value/Description
SAS Name: LcmWarning	N/A	N/A	0	None
Lcm warning generated from arbitration	N/A	N/A	1	Left
	N/A	N/A	2	Right

  

Data LdwWarning	Count	Percent	Code	Value/Description
SAS Name: LdwWarning	N/A	N/A	0	None
Ldw warning generated from arbitration	N/A	N/A	1	Left
	N/A	N/A	2	Right

  

Data FcwRange	Count	Percent	Code	Value/Description
SAS Name: FcwRange	N/A	N/A	N/A	No Special Values
Fcw range				

  

Data FcwRangeRate	Count	Percent	Code	Value/Description
SAS Name: FcwRangeRate	N/A	N/A	N/A	No Special Values
Fcw range rate				

  

Data FcwAzimuth	Count	Percent	Code	Value/Description
SAS Name: FcwAzimuth	N/A	N/A	N/A	No Special Values
Fcw azimuth				

  

Data FcwValidTarget	Count	Percent	Code	Value/Description
SAS Name: FcwValidTarget	N/A	N/A	0	False
Fcw Valid Target	N/A	N/A	1	True

**THE DATA RECORD VARIABLES**

<b>Data FcwTargetType</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwTargetType	N/A	N/A	0	None
Fcw Target Type	N/A	N/A	1	Stand
	N/A	N/A	2	Moving
	N/A	N/A	3	Stopped

  

<b>Data FcwAccel</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwAccel	N/A	N/A	N/A	No Special Values
Fcw target acceleration				

  

<b>Data FcwTargetId</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwTargetId	N/A	N/A	N/A	No Special Values
Fcw Target Id (handle)				

  

<b>Data LdwCaution</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwCaution	N/A	N/A	0	None
Ldw caution generated from	N/A	N/A	1	Left
arbitration	N/A	N/A	2	Right

  

<b>Data LdwThreatLeft</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwThreatLeft	N/A	N/A	0	Unknown
Ldw left threat type	N/A	N/A	1	DashedEmpty
	N/A	N/A	2	SolidEmpty
	N/A	N/A	3	SolidOccupied
	N/A	N/A	4	DashedOccupied

  

<b>Data LdwThreatRight</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwThreatRight	N/A	N/A	0	Unknown
Ldw right threat type	N/A	N/A	1	DashedEmpty
	N/A	N/A	2	SolidEmpty
	N/A	N/A	3	SolidOccupied
	N/A	N/A	4	DashedOccupied

  

<b>Data GpsValid</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Gpsvalid	N/A	N/A	0	False
True if gps data is valid	N/A	N/A	1	True

  

<b>Data Leds</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Leds	N/A	N/A	0	None
Mirror Leds	N/A	N/A	1	Left
	N/A	N/A	2	Right

  

<b>Data RadarFrontExtendedIndex</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RadarFrontExtendedIndex	N/A	N/A	N/A	No Special Values
Front Radar extended scan Index				

  

<b>Data FcwRadarIndex</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwRadarIndex	N/A	N/A	N/A	No Special Values
ExtendedBosch radar scan index for fcw target				

  

<b>Data DistancePastEdge</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: DistancePastEdge	N/A	N/A	N/A	No Special Values
Distance Past lane Edge				

  

<b>Data LcmTTCAvailable</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmTTCAvailable	N/A	N/A	0	False
True if Lcm is available to give	N/A	N/A	1	True
TTC alerts (LcmOperational is true and LcmMinTTCspeed is true)				

  

<b>Data LcmRearAvailable</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmRearAvailable	N/A	N/A	0	False
True if Lcm is available to give	N/A	N/A	1	True
closing alerts (LcmOperational is true and LcmMinRearSpeed is true)				



## THE SECONDARY DATA RECORD VARIABLES

Data2 Time	Count	Percent	Code	Value/Description
SAS Name: Time in centiseconds since das started	N/A	N/A	N/A	No Special Values
Data2 GpsSpeed	Count	Percent	Code	Value/Description
SAS Name: GpsSpeed Speed from gps	N/A	N/A	N/A	No Special Values
Data2 DasVoltage	Count	Percent	Code	Value/Description
SAS Name: DasVoltage DAS input voltage	N/A	N/A	N/A	No Special Values
Data2 LdwAlertRequest	Count	Percent	Code	Value/Description
SAS Name: LdwAlertRequest Ldw alert request	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right
Data2 GwIndex	Count	Percent	Code	Value/Description
SAS Name: GwIndex Gateway index	N/A	N/A	N/A	No Special Values
Data2 Throttle	Count	Percent	Code	Value/Description
SAS Name: Throttle Current throttle (angle or % ?)	N/A	N/A	N/A	No Special Values
Data2 TargetThrottle	Count	Percent	Code	Value/Description
SAS Name: TargetThrottle Current target throttle (angle or % ?)	N/A	N/A	N/A	No Special Values
Data2 CoolantTemp	Count	Percent	Code	Value/Description
SAS Name: CoolantTemp Engine coolant temperature	N/A	N/A	N/A	No Special Values
Data2 EngineSpeed	Count	Percent	Code	Value/Description
SAS Name: EngineSpeed Engine speed	N/A	N/A	N/A	No Special Values
Data2 AtmPressure	Count	Percent	Code	Value/Description
SAS Name: AtmPressure Atmospheric Pressure	N/A	N/A	N/A	No Special Values
Data2 FuelUsed	Count	Percent	Code	Value/Description
SAS Name: FuelUsed Fuel used	N/A	N/A	N/A	No Special Values
Data2 AcPressureSwitch	Count	Percent	Code	Value/Description
SAS Name: AcPressureSwitch Ac Pressure Switch	N/A	N/A	0	Off
	N/A	N/A	1	On
Data2 Odometer	Count	Percent	Code	Value/Description
SAS Name: Odometer	N/A	N/A	N/A	No Special Values
Data2 MCPPressure	Count	Percent	Code	Value/Description
SAS Name: MCPPressure Master cylinder pressure	N/A	N/A	N/A	No Special Values
Data2 Gear	Count	Percent	Code	Value/Description
SAS Name: Gear actual	N/A	N/A	0	Neutral
	N/A	N/A	1	First
	N/A	N/A	2	Second
	N/A	N/A	3	Third
	N/A	N/A	4	Fourth
	N/A	N/A	5	Fifth
	N/A	N/A	6	Reverse
	N/A	N/A	7	Shifting
	N/A	N/A	8	Sixth
Data2 ReferenceDistance	Count	Percent	Code	Value/Description
SAS Name: ReferenceDistance Reference Distance Travelled	N/A	N/A	N/A	No Special Values

## THE SECONDARY DATA RECORD VARIABLES

Data2 IntakeTemp	Count	Percent	Code	Value/Description
SAS Name: IntakeTemp Intake Temperature	N/A	N/A	N/A	No Special Values
Data2 SnoozeTime	Count	Percent	Code	Value/Description
SAS Name: SnoozeTime Time remaining until snooze expires	N/A	N/A	N/A	No Special Values
Data2 CswAlertRequest	Count	Percent	Code	Value/Description
SAS Name: CswAlertRequest	N/A	N/A	0	False
Csw imminent warning request	N/A	N/A	1	True
Data2 PulsePressure	Count	Percent	Code	Value/Description
SAS Name: PulsePressure Brake pulse pressure request	N/A	N/A	N/A	No Special Values
Data2 PulseRequest	Count	Percent	Code	Value/Description
SAS Name: PulseRequest	N/A	N/A	0	False
Brake pulse request	N/A	N/A	1	True
Data2 FcwAlertRequest	Count	Percent	Code	Value/Description
SAS Name: FcwAlertRequest	N/A	N/A	0	False
Fcw alert request	N/A	N/A	1	True
Data2 LcmAlertRequest	Count	Percent	Code	Value/Description
SAS Name: LcmAlertRequest	N/A	N/A	0	None
>0 if Lcm is requesting a warning	N/A	N/A	1	Left
	N/A	N/A	2	Right
Data2 PulseRefused	Count	Percent	Code	Value/Description
SAS Name: PulseRefused	N/A	N/A	0	False
true means brake pulse command is rejected	N/A	N/A	1	True
Data2 PulseActivated	Count	Percent	Code	Value/Description
SAS Name: PulseActivated	N/A	N/A	0	False
True means brake pulse is activating	N/A	N/A	1	True
Data2 BatteryVoltage	Count	Percent	Code	Value/Description
SAS Name: BatteryVoltage Battery voltage	N/A	N/A	N/A	No Special Values
Data2 AdhIndex	Count	Percent	Code	Value/Description
SAS Name: AdhIndex Adh index	N/A	N/A	N/A	No Special Values
Data2 ArbReason	Count	Percent	Code	Value/Description
SAS Name: ArbReason Reason for arbitrated warning bitmap	N/A	N/A	N/A	No Special Values
Data2 ArbitratedWarning	Count	Percent	Code	Value/Description
SAS Name: ArbitratedWarning	N/A	N/A	0	Fcw
Arbitrated warning enum	N/A	N/A	1	Csw
	N/A	N/A	2	LcmLeft
	N/A	N/A	3	LcmRight
	N/A	N/A	4	LdwLeft
	N/A	N/A	5	LdwRight
	N/A	N/A	6	LdwCautionLeft
	N/A	N/A	7	LdwCautionRight
Data2 ArbIndex	Count	Percent	Code	Value/Description
SAS Name: ArbIndex Arb transaction index	N/A	N/A	N/A	No Special Values
Data2 PulseCalcPressure	Count	Percent	Code	Value/Description
SAS Name: PulseCalcPressure Brake pulse pressure calculation	N/A	N/A	N/A	No Special Values

**THE SECONDARY DATA RECORD VARIABLES**

<b>Data2 DviEnable</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: DviEnable Dvi enable flags bit0 = audio & haptic, bit1 = led, bit2 = vsa	N/A	N/A	N/A	No Special Values

  

<b>Data2 DviAlert</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: DviAlert Dvi alert response flags bit0 = audio , bit1 =haptic, bit2 = lvisual, bit3 = vsa	N/A	N/A	N/A	No Special Values

  

<b>Data2 OutsideTemperature</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: OutsideTemperature Conversion of OutsideTemperatureRaw via lookup table	N/A	N/A	N/A	No Special Values

**THE DIAGNOSTIC SUMMARY RECORD FOR PILOT VARIABLES**

<b>Diagnostics LdwIndex</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwIndex Ldw Index	N/A	N/A	N/A	No Special Values
<b>Diagnostics FcyIndex</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcyIndex Fcy index	N/A	N/A	N/A	No Special Values
<b>Diagnostics LcmIndex</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmIndex Lane change merge index	N/A	N/A	N/A	No Special Values
<b>Diagnostics CswAvailableDistance</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CswAvailableDistance Distance Csw was available	N/A	N/A	N/A	No Special Values
<b>Diagnostics FcwAvailableDistance</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwAvailableDistance Distance Fcw was available	N/A	N/A	N/A	No Special Values
<b>Diagnostics LdwAvailableDistanceLeft</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwAvailableDistanceLeft Distance Ldw left was available	N/A	N/A	N/A	No Special Values
<b>Diagnostics LdwAvailableDistanceRight</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwAvailableDistanceRight Distance Ldw right was available	N/A	N/A	N/A	No Special Values
<b>Diagnostics FirstFrontIndex</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FirstFrontIndex First Front Radar Index	N/A	N/A	N/A	No Special Values
<b>Diagnostics RadarFrontExtendedIndex</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RadarFrontExtendedIndex Front Radar extended scan Index	N/A	N/A	N/A	No Special Values
<b>Diagnostics IvbssBusErrors</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: IvbssBusErrors Ivbss can bus errors	N/A	N/A	N/A	No Special Values
<b>Diagnostics FrontBusErrors</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FrontBusErrors Front can bus errors	N/A	N/A	N/A	No Special Values
<b>Diagnostics LcmBusErrors</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmBusErrors Lcm can bus errors	N/A	N/A	N/A	No Special Values
<b>Diagnostics IvbssBusOverruns</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: IvbssBusOverruns Ivbss can bus overruns	N/A	N/A	N/A	No Special Values
<b>Diagnostics FrontBusOverruns</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FrontBusOverruns Front can bus overruns	N/A	N/A	N/A	No Special Values
<b>Diagnostics LcmBusOverruns</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmBusOverruns Lcm can bus overruns	N/A	N/A	N/A	No Special Values
<b>Diagnostics RawLcmCount</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RawLcmCount RawLcm Packet Count	N/A	N/A	N/A	No Special Values
<b>Diagnostics RawArbCount</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RawArbCount RawArb Packet Count	N/A	N/A	N/A	No Special Values

## THE DIAGNOSTIC SUMMARY RECORD FOR PILOT VARIABLES

Diagnosics RawCswCount	Count	Percent	Code	Value/Description
SAS Name: RawCswCount RawCsw Packet Count	N/A	N/A	N/A	No Special Values
Diagnosics RawDviCount	Count	Percent	Code	Value/Description
SAS Name: RawDviCount RawDvi Packet Count	N/A	N/A	N/A	No Special Values
Diagnosics RawLdwCount	Count	Percent	Code	Value/Description
SAS Name: RawLdwCount RawLdw Packet Count	N/A	N/A	N/A	No Special Values
Diagnosics RawFcwCount	Count	Percent	Code	Value/Description
SAS Name: RawFcwCount RawFcw Packet Count	N/A	N/A	N/A	No Special Values
Diagnosics RadarRightFrontCount	Count	Percent	Code	Value/Description
SAS Name: RadarRightFrontCount RadarRightFront Packet Count	N/A	N/A	N/A	No Special Values
Diagnosics RadarRightRearCount	Count	Percent	Code	Value/Description
SAS Name: RadarRightRearCount RadarRightRear Packet Count	N/A	N/A	N/A	No Special Values
Diagnosics RadarLeftFrontCount	Count	Percent	Code	Value/Description
SAS Name: RadarLeftFrontCount RadarLeftFront Packet Count	N/A	N/A	N/A	No Special Values
Diagnosics RadarLeftRearCount	Count	Percent	Code	Value/Description
SAS Name: RadarLeftRearCount RadarLeftRear Packet Count	N/A	N/A	N/A	No Special Values
Diagnosics RadarRearRightCount	Count	Percent	Code	Value/Description
SAS Name: RadarRearRightCount RadarRearRight Packet Count	N/A	N/A	N/A	No Special Values
Diagnosics RadarRearLeftCount	Count	Percent	Code	Value/Description
SAS Name: RadarRearLeftCount RadarRearLeft Packet Count	N/A	N/A	N/A	No Special Values
Diagnosics TcuMessage1Count	Count	Percent	Code	Value/Description
SAS Name: TcuMessage1Count TcuMessage1 Packet Count	N/A	N/A	N/A	No Special Values
Diagnosics RawLcmHealthCount	Count	Percent	Code	Value/Description
SAS Name: RawLcmHealthCount RawLcmHealth Packet Count	N/A	N/A	N/A	No Special Values
Diagnosics FcyIndexMin	Count	Percent	Code	Value/Description
SAS Name: FcyIndexMin Minimum Fcy index	N/A	N/A	N/A	No Special Values
Diagnosics LcmIndexMin	Count	Percent	Code	Value/Description
SAS Name: LcmIndexMin Minimum Lane change merge index	N/A	N/A	N/A	No Special Values
Diagnosics LdwIndexMin	Count	Percent	Code	Value/Description
SAS Name: LdwIndexMin Minimum Ldw Index	N/A	N/A	N/A	No Special Values
Diagnosics RawAdhCount	Count	Percent	Code	Value/Description
SAS Name: RawAdhCount RawAdhPacket Count	N/A	N/A	N/A	No Special Values
Diagnosics RawAdhHealthCount	Count	Percent	Code	Value/Description
SAS Name: RawAdhHealthCount RawAdh Health Packet Count	N/A	N/A	N/A	No Special Values
Diagnosics AdhIndex	Count	Percent	Code	Value/Description
SAS Name: AdhIndex Adh index	N/A	N/A	N/A	No Special Values

**THE DIAGNOSTIC SUMMARY RECORD FOR PILOT VARIABLES**

<b>Diagnostics RawLcmIndexCount</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RawLcmIndexCount RawLcmIndex Packet Count	N/A	N/A	N/A	No Special Values
<b>Diagnostics RawFcyHealthCount</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RawFcyHealthCount RawFcy Health Packet Count	N/A	N/A	N/A	No Special Values
<b>Diagnostics AdhIndexMin</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: AdhIndexMin Adh minimum index	N/A	N/A	N/A	No Special Values
<b>Diagnostics LcmRearAvailableDistance</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmRearAvailableDistance Distance Lcm rear was available	N/A	N/A	N/A	No Special Values
<b>Diagnostics LcmTTCAvailableDistance</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmTTCAvailableDistance Distance Lcm TTC was available	N/A	N/A	N/A	No Special Values
<b>Diagnostics ImuChecksumErrors</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: ImuChecksumErrors Imu checksum errors	N/A	N/A	N/A	No Special Values
<b>Diagnostics ImuFloatErrors</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: ImuFloatErrors Imu floating point errors	N/A	N/A	N/A	No Special Values

## THE BYTE TRANSITIONS AT 100 HZ VARIABLES

<b>FastBytes IgnitionRaw</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: IgnitionRaw	N/A	N/A	0	False
Ignition switch	N/A	N/A	1	True
<b>FastBytes LdwAlertRequest</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwAlertRequest	N/A	N/A	0	None
Ldw alert request	N/A	N/A	1	Left
	N/A	N/A	2	Right
<b>FastBytes CswWarning</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CswWarning	N/A	N/A	0	False
Csw warning generated from arbitration	N/A	N/A	1	True
<b>FastBytes FcwWarning</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwWarning	N/A	N/A	0	False
Fcw warning generated from arbitration	N/A	N/A	1	True
<b>FastBytes LcmWarning</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmWarning	N/A	N/A	0	None
Lcm warning generated from arbitration	N/A	N/A	1	Left
	N/A	N/A	2	Right
<b>FastBytes LdwWarning</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwWarning	N/A	N/A	0	None
Ldw warning generated from arbitration	N/A	N/A	1	Left
	N/A	N/A	2	Right
<b>FastBytes CswAlertRequest</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CswAlertRequest	N/A	N/A	0	False
Csw imminent warning request	N/A	N/A	1	True
<b>FastBytes FcwAlertRequest</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwAlertRequest	N/A	N/A	0	False
Fcw alert request	N/A	N/A	1	True
<b>FastBytes LdwCaution</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwCaution	N/A	N/A	0	None
Ldw caution generated from arbitration	N/A	N/A	1	Left
	N/A	N/A	2	Right
<b>FastBytes LcmAlertRequest</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmAlertRequest	N/A	N/A	0	None
>0 if Lcm is requesting a warning	N/A	N/A	1	Left
	N/A	N/A	2	Right
<b>FastBytes LdwWarningOrCaution</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwWarningOrCaution	N/A	N/A	0	False
True, if either LdwWarning or LdwCaution are true	N/A	N/A	1	True
<b>FastBytes ArbReason</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: ArbReason	N/A	N/A	N/A	No Special Values
Reason for arbitrated warning bitmap				
<b>FastBytes ArbitratedWarning</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: ArbitratedWarning	N/A	N/A	0	Fcw
Arbitrated warning enum	N/A	N/A	1	Csw
	N/A	N/A	2	LcmLeft
	N/A	N/A	3	LcmRight
	N/A	N/A	4	LdwLeft
	N/A	N/A	5	LdwRight
	N/A	N/A	6	LdwCautionLeft
	N/A	N/A	7	LdwCautionRight
<b>FastBytes CswAlertRequestRaw</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CswAlertRequestRaw	N/A	N/A	0	False
Csw imminent warning request w/o 15 second rule	N/A	N/A	1	True

**THE FAULT TRANSITIONS VARIABLES**

<b>Faults AdhTempFault</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: AdhTempFault	N/A	N/A	0	Undefined
Adh temporary fault	N/A	N/A	1	None
	N/A	N/A	2	Initialization
	N/A	N/A	3	Configuration
	N/A	N/A	4	Converter
	N/A	N/A	5	DigitalIO
	N/A	N/A	6	CAN
	N/A	N/A	7	FPGA
	N/A	N/A	80	VSA
	N/A	N/A	81	ABS
	N/A	N/A	82	VSABrakeReject
	N/A	N/A	83	BPPSteeri
	N/A	N/A	84	BPPMinSpeed
	N/A	N/A	85	BPPABSAct
	N/A	N/A	86	BPPVSAAct
	N/A	N/A	87	BPPBraking
	N/A	N/A	88	BPPPulseLength
	N/A	N/A	89	BPPCloseEvent
	N/A	N/A	90	BPPEventRate
	N/A	N/A	101	LDWNotAvailable

<b>Faults AdhPermFault</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: AdhPermFault	N/A	N/A	0	Undefined
Adh permanent fault	N/A	N/A	1	None
	N/A	N/A	2	Initialization
	N/A	N/A	3	Configuration
	N/A	N/A	4	Converter
	N/A	N/A	5	DigitalIO
	N/A	N/A	6	CAN
	N/A	N/A	7	FPGA
	N/A	N/A	80	VSA
	N/A	N/A	81	ABS
	N/A	N/A	82	VSABrakeReject
	N/A	N/A	83	BPPSteeri
	N/A	N/A	84	BPPMinSpeed
	N/A	N/A	85	BPPABSAct
	N/A	N/A	86	BPPVSAAct
	N/A	N/A	87	BPPBraking
	N/A	N/A	88	BPPPulseLength
	N/A	N/A	89	BPPCloseEvent
	N/A	N/A	90	BPPEventRate
	N/A	N/A	101	LDWNotAvailable

<b>Faults AdhShutdown</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: AdhShutdown	N/A	N/A	0	False
True if subsystem has shut down due to a fault condition	N/A	N/A	1	True

<b>Faults FcyShutdown</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcyShutdown	N/A	N/A	0	False
True if subsystem has shut down due to a fault condition	N/A	N/A	1	True

<b>Faults FcyTempFault</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcyTempFault	N/A	N/A	0	Undefined
Fcy temporary fault	N/A	N/A	1	None
	N/A	N/A	2	Initialization
	N/A	N/A	3	Configuration
	N/A	N/A	4	Converter
	N/A	N/A	5	DigitalIO
	N/A	N/A	6	CAN
	N/A	N/A	7	FPGA
	N/A	N/A	8	GPSComm
	N/A	N/A	9	NavComm
	N/A	N/A	10	CSWComm
	N/A	N/A	11	YawRateChecksum
	N/A	N/A	12	YawRateComm
	N/A	N/A	13	LDWComm
	N/A	N/A	14	CleanWindshield
	N/A	N/A	15	FrontRadar
	N/A	N/A	16	FrontRadarComm
	N/A	N/A	91	CSWNotAvailable
	N/A	N/A	92	GPS
	N/A	N/A	93	NavUnit



### THE FAULT TRANSITIONS VARIABLES

Faults FcyTempFault	Count	Percent	Code	Value/Description
	N/A	N/A	94	CSWMapFault
	N/A	N/A	95	GPSLockError
	N/A	N/A	96	CSWPOM
	N/A	N/A	97	CSWChecksum
	N/A	N/A	98	CSWCommRate
	N/A	N/A	99	CSWSoftware
	N/A	N/A	100	CswSpeed

Faults FcyPermFault	Count	Percent	Code	Value/Description
SAS Name: FcyPermFault	N/A	N/A	0	Undefined
Fcy permanent fault	N/A	N/A	1	None
	N/A	N/A	2	Initialization
	N/A	N/A	3	Configuration
	N/A	N/A	4	Converter
	N/A	N/A	5	DigitalIO
	N/A	N/A	6	CAN
	N/A	N/A	7	FPGA
	N/A	N/A	8	GPSComm
	N/A	N/A	9	NavComm
	N/A	N/A	10	CSWComm
	N/A	N/A	11	YawRateChecksum
	N/A	N/A	12	YawRateComm
	N/A	N/A	13	LDWComm
	N/A	N/A	14	CleanWindshield
	N/A	N/A	15	FrontRadar
	N/A	N/A	16	FrontRadarComm
	N/A	N/A	91	CSWNotAvailable
	N/A	N/A	92	GPS
	N/A	N/A	93	NavUnit
	N/A	N/A	94	CSWMapFault
	N/A	N/A	95	GPSLockError
	N/A	N/A	96	CSWPOM
	N/A	N/A	97	CSWChecksum
	N/A	N/A	98	CSWCommRate
	N/A	N/A	99	CSWSoftware
	N/A	N/A	100	CswSpeed

Faults LcmTempFault	Count	Percent	Code	Value/Description
SAS Name: LcmTempFault	N/A	N/A	0	Undefined
Lcm temporary fault	N/A	N/A	1	None
	N/A	N/A	2	Initialization
	N/A	N/A	3	Configuration
	N/A	N/A	4	Converter
	N/A	N/A	5	DigitalIO
	N/A	N/A	6	CAN
	N/A	N/A	7	FPGA
	N/A	N/A	17	LFInternal
	N/A	N/A	18	LRInternal
	N/A	N/A	19	LSInternal
	N/A	N/A	20	RFInternal
	N/A	N/A	21	RRInternal
	N/A	N/A	22	RSInternal
	N/A	N/A	23	LFComm
	N/A	N/A	24	LRComm
	N/A	N/A	25	LSComm
	N/A	N/A	26	RFComm
	N/A	N/A	27	RRComm
	N/A	N/A	28	RSComm
	N/A	N/A	29	LFInterference
	N/A	N/A	30	LRInterference
	N/A	N/A	31	LSInterference
	N/A	N/A	32	RFInterference
	N/A	N/A	33	RRInterference
	N/A	N/A	34	RSInterference
	N/A	N/A	35	LFStale
	N/A	N/A	36	LRStale
	N/A	N/A	37	LSStale
	N/A	N/A	38	RFStale
	N/A	N/A	39	RRStale
	N/A	N/A	40	RSStale
	N/A	N/A	41	LFAalignment
	N/A	N/A	42	LRAalignment
	N/A	N/A	43	LSAalignment
	N/A	N/A	44	RFAalignment
	N/A	N/A	45	RRAlignment

### THE FAULT TRANSITIONS VARIABLES

Faults LcmTempFault	Count	Percent	Code	Value/Description
	N/A	N/A	46	RSAlignment
	N/A	N/A	47	LFBlockage
	N/A	N/A	48	LRBlockage
	N/A	N/A	49	LSBlockage
	N/A	N/A	50	RFBlockage
	N/A	N/A	51	RRBlockage
	N/A	N/A	52	RSBlockage
	N/A	N/A	77	SamA
	N/A	N/A	78	SamB
	N/A	N/A	79	SamC

Faults LcmPermFault	Count	Percent	Code	Value/Description
SAS Name: LcmPermFault	N/A	N/A	0	Undefined
Lcm permanent fault	N/A	N/A	1	None
	N/A	N/A	2	Initialization
	N/A	N/A	3	Configuration
	N/A	N/A	4	Converter
	N/A	N/A	5	DigitalIO
	N/A	N/A	6	CAN
	N/A	N/A	7	FPGA
	N/A	N/A	17	LFInternal
	N/A	N/A	18	LRInternal
	N/A	N/A	19	LSInternal
	N/A	N/A	20	RFInternal
	N/A	N/A	21	RRInternal
	N/A	N/A	22	RSInternal
	N/A	N/A	23	LFComm
	N/A	N/A	24	LRComm
	N/A	N/A	25	LSComm
	N/A	N/A	26	RFComm
	N/A	N/A	27	RRComm
	N/A	N/A	28	RSComm
	N/A	N/A	29	LFInterference
	N/A	N/A	30	LRInterference
	N/A	N/A	31	LSInterference
	N/A	N/A	32	RFInterference
	N/A	N/A	33	RRInterference
	N/A	N/A	34	RSInterference
	N/A	N/A	35	LFStale
	N/A	N/A	36	LRStale
	N/A	N/A	37	LSStale
	N/A	N/A	38	RFStale
	N/A	N/A	39	RRStale
	N/A	N/A	40	RSStale
	N/A	N/A	41	LFAlignment
	N/A	N/A	42	LRAlignment
	N/A	N/A	43	LSAlignment
	N/A	N/A	44	RFAlignment
	N/A	N/A	45	RRAlignment
	N/A	N/A	46	RSAlignment
	N/A	N/A	47	LFBlockage
	N/A	N/A	48	LRBlockage
	N/A	N/A	49	LSBlockage
	N/A	N/A	50	RFBlockage
	N/A	N/A	51	RRBlockage
	N/A	N/A	52	RSBlockage
	N/A	N/A	77	SamA
	N/A	N/A	78	SamB
	N/A	N/A	79	SamC

Faults LcmShutdown	Count	Percent	Code	Value/Description
SAS Name: LcmShutdown	N/A	N/A	0	False
True if subsystem has shut down due to a fault condition	N/A	N/A	1	True

Faults GwPermFault	Count	Percent	Code	Value/Description
SAS Name: GwPermFault	N/A	N/A	0	Undefined
Gateway permanent fault	N/A	N/A	1	None
	N/A	N/A	2	Initialization
	N/A	N/A	3	Configuration
	N/A	N/A	4	Converter
	N/A	N/A	5	DigitalIO
	N/A	N/A	6	CAN
	N/A	N/A	7	FPGA
	N/A	N/A	65	BCAN

### THE FAULT TRANSITIONS VARIABLES

Faults GwPermFault	Count	Percent	Code	Value/Description
	N/A	N/A	66	FCAN

  

Faults GwTempFault	Count	Percent	Code	Value/Description
SAS Name: GwTempFault	N/A	N/A	0	Undefined
Gateway temporary fault	N/A	N/A	1	None
	N/A	N/A	2	Initialization
	N/A	N/A	3	Configuration
	N/A	N/A	4	Converter
	N/A	N/A	5	DigitalIO
	N/A	N/A	6	CAN
	N/A	N/A	7	FPGA
	N/A	N/A	65	BCAN
	N/A	N/A	66	FCAN

**THE FCW TRIGGERED SUMMARY RECORD VARIABLES**

<b>Fcws Latitude</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Latitude from Ublox Gps	N/A	N/A	N/A	No Special Values

  

<b>Fcws Longitude</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Longitude from Ublox Gps	N/A	N/A	N/A	No Special Values

  

<b>Fcws GpsHeading</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: GpsHeading Gps heading from Ublox Gps	N/A	N/A	N/A	No Special Values

  

<b>Fcws LdwDay</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwDay True if daytime	N/A	N/A	0	False
	N/A	N/A	1	True

  

<b>Fcws Wipers</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Wipers Wiper switch state	N/A	N/A	0	Off
	N/A	N/A	1	Delay
	N/A	N/A	2	Low
	N/A	N/A	3	High
	N/A	N/A	4	Mist
	N/A	N/A	5	Error

  

<b>Fcws IvbssEnable</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: IvbssEnable HMI (Ivbss functionality) enabled	N/A	N/A	0	Disabled
	N/A	N/A	1	Enabled

  

<b>Fcws MlpRoadClass</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: MlpRoadClass	N/A	N/A	0	NoRoad
	N/A	N/A	1	FC1
	N/A	N/A	2	FC2
	N/A	N/A	3	FC3
	N/A	N/A	4	FC4
	N/A	N/A	5	FC5

  

<b>Fcws MlpNumberOfLanes</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: MlpNumberOfLanes Mlp number of Lanes in current direction from Adas	N/A	N/A	N/A	No Special Values

  

<b>Fcws Leds</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Leds Mirror Leds	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right

  

<b>Fcws WarningSpeed</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningSpeed Speed at time of warning	N/A	N/A	N/A	No Special Values

  

<b>Fcws WarningRange</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningRange Fcw range at time of warning	N/A	N/A	N/A	No Special Values

  

<b>Fcws WarningRangeRate</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningRangeRate Fcw range rate at time of warning	N/A	N/A	N/A	No Special Values

  

<b>Fcws WarningValidTarget</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningValidTarget Fcw Valid Target at time of warning	N/A	N/A	0	False
	N/A	N/A	1	True

  

<b>Fcws WarningTargetType</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningTargetType Fcw Target Type at time of warning	N/A	N/A	0	None
	N/A	N/A	1	Stand
	N/A	N/A	2	Moving
	N/A	N/A	3	Stopped

## THE FCW TRIGGERED SUMMARY RECORD VARIABLES

<b>Fcws WarningAccel</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningAccel Fcw target acceleration at time of warning	N/A	N/A	N/A	No Special Values
<b>Fcws WarningBrake</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningBrake	N/A	N/A	0	Off
Brake active at time of warning	N/A	N/A	1	On
<b>Fcws WarningLaneWidth</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningLanewidth Lane width at time of warning	N/A	N/A	N/A	No Special Values
<b>Fcws WarningLateralSpeed</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningLateralSpeed Vehicle speed lateral to lane direction at time of warning	N/A	N/A	N/A	No Special Values
<b>Fcws WarningLaneOffset</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningLaneOffset Vehicle offset from lane center at time of warning	N/A	N/A	N/A	No Special Values
<b>Fcws WarningBoundaryLeft</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningBoundaryLeft	N/A	N/A	0	Missing
Lane boundary type, left at time of warning	N/A	N/A	1	Dashed
	N/A	N/A	2	Solid
	N/A	N/A	3	Virtual
<b>Fcws WarningBoundaryRight</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningBoundaryRight	N/A	N/A	0	Missing
Lane boundary type, right at time of warning	N/A	N/A	1	Dashed
	N/A	N/A	2	Solid
	N/A	N/A	3	Virtual
<b>Fcws WarningLaneOffsetConf</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningLaneOffsetConf Lane offset confidence at time of warning	N/A	N/A	N/A	No Special Values
<b>Fcws WarningAmrLeft</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningAmrLeft Available Maneuvering room - left at time of warning	N/A	N/A	N/A	No Special Values
<b>Fcws WarningAmrRight</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningAmrRight Available Maneuvering room - right at time of warning	N/A	N/A	N/A	No Special Values
<b>Fcws FcwRequestRange</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwRequestRange Fcw range at time of fcw alert request	N/A	N/A	N/A	No Special Values
<b>Fcws FcwRequestRangeRate</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwRequestRangeRate Fcw range rate at time of alert request	N/A	N/A	N/A	No Special Values
<b>Fcws FcwRequestTargetId</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwRequestTargetId Fcw Target Id at time of alert request	N/A	N/A	N/A	No Special Values
<b>Fcws FcwRequestTargetType</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwRequestTargetType	N/A	N/A	0	None
Fcw Target Type at time of alert request	N/A	N/A	1	Stand
	N/A	N/A	2	Moving
	N/A	N/A	3	Stopped
<b>Fcws FcwRequestAccel</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwRequestAccel Fcw target acceleration at time of alert request	N/A	N/A	N/A	No Special Values

**THE FCW TRIGGERED SUMMARY RECORD VARIABLES**

<b>Fcws FcwRequestSpeed</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwRequestSpeed Speed at time of fcw alert request	N/A	N/A	N/A	No Special Values

  

<b>Fcws WarningTurnSignal</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningTurnSignal Turn signal at time of warning	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right
	N/A	N/A	3	Both

  

<b>Fcws FcwRequestTTC</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwRequestTTC Time To Collision at time of fcw alert request	N/A	N/A	N/A	No Special Values

  

<b>Fcws WarningTTC</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningTTC Time To Collision at time of fcw warning	N/A	N/A	N/A	No Special Values

  

<b>Fcws DviEnable</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: DviEnable Dvi enable flags bit0 = audio & haptic, bit1 = led, bit2 = vsa	N/A	N/A	N/A	No Special Values

  

<b>Fcws DviAlert</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: DviAlert Dvi alert response flags bit0 = audio , bit1 =haptic, bit2 = lvisual, bit3 = vsa	N/A	N/A	N/A	No Special Values

## THE FCW &amp; CSW DATA RECORD VARIABLES

<b>Fcy Time</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Time in centiseonds since das started	N/A	N/A	N/A	No Special Values
<b>Fcy FcyIndex</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcyIndex Fcy index	N/A	N/A	N/A	No Special Values
<b>Fcy MlpConf</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: MlpConf Mlp confidence 255 = 100 %	N/A	N/A	N/A	No Special Values
<b>Fcy Urban</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Urban flag	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Fcy LimitedAccess</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LimitedAccess Limited access flag	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Fcy Ramp</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Ramp flag	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Fcy Frontage</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Frontage Fronatge road flag	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Fcy CswGpsTime</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CswGpsTime Csw UTC of day from Gps	N/A	N/A	N/A	No Special Values
<b>Fcy CswGpsNew</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CswGpsNew Csw New Gps reading	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Fcy PomVerified</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: PomVerified POM verified	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Fcy CswNumberOfSats</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CswNumberOfSats Csw gps number of satellites	N/A	N/A	N/A	No Special Values
<b>Fcy CswGpsHeading</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CswGpsHeading Csw gps heading	N/A	N/A	N/A	No Special Values
<b>Fcy CswAxRequired</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CswAxRequired Acceleration required to avoid run off road.	N/A	N/A	N/A	No Special Values
<b>Fcy CswMaxSpeed</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CswMaxSpeed Max desired speed in upcoming curve	N/A	N/A	N/A	No Special Values
<b>Fcy CswLatitude</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CswLatitude Csw Latitude	N/A	N/A	N/A	No Special Values
<b>Fcy CswLongitude</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CswLongitude Csw Longitude	N/A	N/A	N/A	No Special Values
<b>Fcy FcwCurvature</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwCurvature Refined Curvature from Fcw	N/A	N/A	N/A	No Special Values

**THE FCW & CSW DATA RECORD VARIABLES**

<b>Fcy Curvature3</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Curvature3 Curvature at point 3	N/A	N/A	N/A	No Special Values

  

<b>Fcy Curvature4</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Curvature4 Curvature at point 4	N/A	N/A	N/A	No Special Values

  

<b>Fcy Curvature5</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Curvature5 Curvature at point 5	N/A	N/A	N/A	No Special Values

  

<b>Fcy Curvature6</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Curvature6 Curvature at point 6	N/A	N/A	N/A	No Special Values

  

<b>Fcy LookAhead</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LookAhead Lookahead Distance	N/A	N/A	N/A	No Special Values

  

<b>Fcy MlpRoadClass</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: MlpRoadClass	N/A	N/A	0	NoRoad
	N/A	N/A	1	FC1
	N/A	N/A	2	FC2
	N/A	N/A	3	FC3
	N/A	N/A	4	FC4
	N/A	N/A	5	FC5

  

<b>Fcy MlpLaneCategory</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: MlpLaneCategory Mlp Lane Category from sda1	N/A	N/A	0	none
	N/A	N/A	1	1Lane
	N/A	N/A	2	2to3Lanes
	N/A	N/A	3	gt4Lanes

  

<b>Fcy MlpNumberOfLanes</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: MlpNumberOfLanes Mlp number of Lanes in current direction from Adas	N/A	N/A	N/A	No Special Values

  

<b>Fcy NoMap</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: NoMap true = No map	N/A	N/A	0	False
	N/A	N/A	1	True

  

<b>Fcy NoAdas</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: NoAdas true = No Adas	N/A	N/A	0	False
	N/A	N/A	1	True

  

<b>Fcy FcwYawRate</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwYawRate Yaw rate from fcw	N/A	N/A	N/A	No Special Values

  

<b>Fcy FcwHeading</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwHeading Heading with respect to road via radar	N/A	N/A	N/A	No Special Values

  

<b>Fcy FcwCrossTrack</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwCrossTrack Fcw cross track	N/A	N/A	N/A	No Special Values

  

<b>Fcy FcwNewTarget</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwNewTarget Fcw new Target	N/A	N/A	0	False
	N/A	N/A	1	True

  

<b>Fcy FcwLaneChange</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwLaneChange Lane Change (radar based)	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right

  

<b>Fcy DecelToAvoid</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: DecelToAvoid Fcw acceleration to avoid collision	N/A	N/A	N/A	No Special Values



## THE FCW & CSW DATA RECORD VARIABLES

<b>Fcy TimeToCollision</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: TimeToCollision Time To Collision	N/A	N/A	N/A	No Special Values
<b>Fcy BrakeExpected</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: BrakeExpected From Fcw - true = driver is expected to brake	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Fcy Curvature1</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Curvature1 Curvature at point1	N/A	N/A	N/A	No Special Values
<b>Fcy POICurvature</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: POICurvature Curvature at point of interest	N/A	N/A	N/A	No Special Values
<b>Fcy POIDistance</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: POIDistance Distance from vehicle to POI	N/A	N/A	N/A	No Special Values
<b>Fcy MapLowConf</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: MapLowConf Low confidence in map matching	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Fcy FcwTargetPacket</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwTargetPacket Fcw Target packet number	N/A	N/A	N/A	No Special Values
<b>Fcy CswDeltaLat</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CswDeltaLat Difference in latitude between gps and map match	N/A	N/A	N/A	No Special Values
<b>Fcy CswDeltaLong</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CswDeltaLong Difference in longitude between gps and map match	N/A	N/A	N/A	No Special Values
<b>Fcy MlpRoadAuthority</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: MlpRoadAuthority Mlp Road Type	N/A	N/A	0	Interstate
	N/A	N/A	1	Federal
	N/A	N/A	2	State
	N/A	N/A	3	County
<b>Fcy PoiAccess</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: PoiAccess Poi Access road flag	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Fcy CPX1</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CPX1 X-coordinate of curvature point 1	N/A	N/A	N/A	No Special Values
<b>Fcy CPY1</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CPY1 Y-coordinate of curvature point 1	N/A	N/A	N/A	No Special Values
<b>Fcy CPX3</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CPX3 X-coordinate of curvature point 3	N/A	N/A	N/A	No Special Values
<b>Fcy CPY3</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CPY3 Y-coordinate of curvature point 3	N/A	N/A	N/A	No Special Values
<b>Fcy CPX4</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CPX4 X-coordinate of curvature point 4	N/A	N/A	N/A	No Special Values

**THE FCW & CSW DATA RECORD VARIABLES**

<b>Fcy CPY4</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CPY4 Y-coordinate of curvature point 4	N/A	N/A	N/A	No Special Values
<b>Fcy CPX5</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CPX5 X-coordinate of curvature point 5	N/A	N/A	N/A	No Special Values
<b>Fcy CPY5</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CPY5 Y-coordinate of curvature point 5	N/A	N/A	N/A	No Special Values
<b>Fcy CPX6</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CPX6 X-coordinate of curvature point 6	N/A	N/A	N/A	No Special Values
<b>Fcy CPY6</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: CPY6 Y-coordinate of curvature point 6	N/A	N/A	N/A	No Special Values
<b>Fcy MlpBranchDistance</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: MlpBranchDistance Mlp distance to next branch/ intersection	N/A	N/A	N/A	No Special Values
<b>Fcy RadarFrontMisalign</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RadarFrontMisalign front radar misalignment angle	N/A	N/A	N/A	No Special Values

## THE FLOAT TRANSITION RECORD VARIABLES

<b>Floats SetSpeed</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: SetSpeed Cruise set speed	N/A	N/A	N/A	No Special Values

  

<b>Floats PitchRateZero</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: PitchRateZero Pitch rate averaged while stopped	N/A	N/A	N/A	No Special Values

  

<b>Floats RollRateZero</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RollRateZero Roll rate averaged while stopped	N/A	N/A	N/A	No Special Values

  

<b>Floats YawRateZero</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: YawRateZero Yaw rate averaged while stopped	N/A	N/A	N/A	No Special Values

### THE GPS LOG RECORD VARIABLES

Gps Time	Count	Percent	Code	Value/Description
SAS Name: Time in centiseconds since das started	N/A	N/A	N/A	No Special Values
Gps Latitude	Count	Percent	Code	Value/Description
SAS Name: Latitude from Ublox Gps	N/A	N/A	N/A	No Special Values
Gps Longitude	Count	Percent	Code	Value/Description
SAS Name: Longitude from Ublox Gps	N/A	N/A	N/A	No Special Values
Gps NumberOfSats	Count	Percent	Code	Value/Description
SAS Name: NumberOfSats Number of sattelites from Ublox Gps	N/A	N/A	N/A	No Special Values
Gps GpsHeading	Count	Percent	Code	Value/Description
SAS Name: GpsHeading Gps heading from Ublox Gps	N/A	N/A	N/A	No Special Values
Gps GpsSpeed	Count	Percent	Code	Value/Description
SAS Name: GpsSpeed Speed from gps	N/A	N/A	N/A	No Special Values
Gps GpsWeek	Count	Percent	Code	Value/Description
SAS Name: Gpsweek Gps week from Gps	N/A	N/A	N/A	No Special Values
Gps GpsTime	Count	Percent	Code	Value/Description
SAS Name: GpsTime Gps millisecs in week from Gps	N/A	N/A	N/A	No Special Values
Gps FixMode	Count	Percent	Code	Value/Description
SAS Name: FixMode Gps fix mode	N/A	N/A	0	Unknown
	N/A	N/A	1	0D
	N/A	N/A	2	2DHold
	N/A	N/A	3	2D
	N/A	N/A	4	3D
	N/A	N/A	5	OverDetermined
Gps Differential	Count	Percent	Code	Value/Description
SAS Name: Differential True if Gps fix is differential	N/A	N/A	0	False
	N/A	N/A	1	True
Gps GpsBytes	Count	Percent	Code	Value/Description
SAS Name: GpsBytes Number of bytes in Gps buffer for debug.	N/A	N/A	N/A	No Special Values
Gps Altitude	Count	Percent	Code	Value/Description
SAS Name: Altitude Height above the ellipsoid	N/A	N/A	N/A	No Special Values

## THE LOG RECORD FOR INERTIA LINK IMU VARIABLES

<b>ImuRaw Time</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Time in centiseonds since das started	N/A	N/A	N/A	No Special Values
<b>ImuRaw Ax</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Ax Longitudinal acceleration from InertiaLink IMU	N/A	N/A	N/A	No Special Values
<b>ImuRaw Ay</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Ay Lateral acceleration from InertiaLink IMU	N/A	N/A	N/A	No Special Values
<b>ImuRaw Az</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Az Vertical acceleration from InertiaLink IMU	N/A	N/A	N/A	No Special Values
<b>ImuRaw Pitch</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Pitch angle from InertiaLink IMU	N/A	N/A	N/A	No Special Values
<b>ImuRaw Roll</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Roll angle from InertiaLink IMU	N/A	N/A	N/A	No Special Values
<b>ImuRaw Yaw</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Yaw angle from InertiaLink IMU	N/A	N/A	N/A	No Special Values
<b>ImuRaw PitchRate</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: PitchRate Pitch rate from InertiaLink IMU after autozero	N/A	N/A	N/A	No Special Values
<b>ImuRaw RollRate</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RollRate Roll rate from InertiaLink IMU after autozero	N/A	N/A	N/A	No Special Values
<b>ImuRaw YawRate</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: YawRate Yaw rate from InertiaLink IMU after autozero	N/A	N/A	N/A	No Special Values
<b>ImuRaw ImuTime</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: ImuTime Imu time calculated from the Imu timer divided by 19,660,800	N/A	N/A	N/A	No Special Values

**THE LCM DATA RECORD FOR NEW IMPLEMENTATION VARIABLES**

<b>Lcm Time</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Time in centiseconds since das started	N/A	N/A	N/A	No Special Values
<b>Lcm LcmIndex</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmIndex Lane change merge index	N/A	N/A	N/A	No Special Values
<b>Lcm AmrRight</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: AmrRight Available Maneuvering room - right 10.0 = unknown/default	N/A	N/A	N/A	No Special Values
<b>Lcm AmrLeft</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: AmrLeft Available Maneuvering room - left 10.0 = unknown/default	N/A	N/A	N/A	No Special Values
<b>Lcm LcmAlertRequest</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmAlertRequest >0 if Lcm is requesting a warning	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right
<b>Lcm AmrFutureLeft</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: AmrFutureLeft Predicted Available Maneuvering room - left 10.0 = unknown/ default	N/A	N/A	N/A	No Special Values
<b>Lcm AmrFutureRight</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: AmrFutureRight Predicted Available Maneuvering room - right 10.0 = unknown /default	N/A	N/A	N/A	No Special Values
<b>Lcm LcmYLeft</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmYLeft Lcm left target y minimum position (ISO sign conventions)	N/A	N/A	N/A	No Special Values
<b>Lcm LcmYRight</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmYRight Lcm right target y minimum position (ISO sign conventions)	N/A	N/A	N/A	No Special Values
<b>Lcm LcmXLeft</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmXLeft Lcm left target x minimum position (ISO sign conventions)	N/A	N/A	N/A	No Special Values
<b>Lcm LcmXRight</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmXRight Lcm right target x minimum position (ISO sign conventions)	N/A	N/A	N/A	No Special Values
<b>Lcm LcmYVelocityLeft</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmYVelocityLeft Lcm left target relative y velocity (ISO sign conventions)	N/A	N/A	N/A	No Special Values
<b>Lcm LcmXVelocityLeft</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmXVelocityLeft Lcm left target relative x velocity (ISO sign conventions)	N/A	N/A	N/A	No Special Values
<b>Lcm LcmYVelocityRight</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmYVelocityRight Lcm right target relative y velocity (ISO sign conventions)	N/A	N/A	N/A	No Special Values

## THE LCM DATA RECORD FOR NEW IMPLEMENTATION VARIABLES

<b>Lcm LcmXVelocityRight</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmXVelocityRight Lcm right target relative x velocity (ISO sign conventions)	N/A	N/A	N/A	No Special Values
<b>Lcm LcmLateralTTCLeft</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmLateralTTCLeft Lateral time to collision - left (ISO sign conventions)	N/A	N/A	N/A	No Special Values
<b>Lcm LcmLateralTTCRight</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmLateralTTCRight Lateral time to collision - right (ISO sign conventions)	N/A	N/A	N/A	No Special Values
<b>Lcm LcmLateralSpeed</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmLateralSpeed Estimated lateral speed of host vehicle - from Lcm	N/A	N/A	N/A	No Special Values
<b>Lcm LcmLeds</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmLeds Lcm led states	N/A	N/A	N/A	No Special Values
<b>Lcm LcmError</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmError True if Lcm system fault is active	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Lcm LcmOperational</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmOperational True if Lcm system is operational (though vehicle speed may not be above min)	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Lcm LcmMinTTCSpeed</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmMinTTCSpeed True if minimum vehicle speed for lateral TTC warnings has been reached	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Lcm LcmMinRearSpeed</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmMinRearSpeed True if minimum vehicle speed for rear approach zone warnings has been reached	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Lcm LcmBlindSpot</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmBlindSpot Blind spot detect active	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right
<b>Lcm LcmZoneCaution</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmZoneCaution Zone caution detect active	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right
<b>Lcm LcmTTCAlert</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmTTCAlert TTC alert active	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right
<b>Lcm LcmClosingZone</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmClosingZone Lcm closing zone active	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right
<b>Lcm LcmClosingZoneAlert</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmClosingZoneAlert Lcm closing zone alert active	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right

**THE LCM DATA RECORD FOR NEW IMPLEMENTATION VARIABLES**

<b>Lcm LcmDriverTurn</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmDriverTurn	N/A	N/A	0	False
True if driver intent to turn is active	N/A	N/A	1	True
<b>Lcm LcmHits</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmHits	N/A	N/A	N/A	No Special Values
Lcm Hits				
<b>Lcm LcmFlag0</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmFlag0	N/A	N/A	0	False
Lcm condition flag 0	N/A	N/A	1	True
<b>Lcm LcmFlag1</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmFlag1	N/A	N/A	0	False
Lcm condition flag 1	N/A	N/A	1	True
<b>Lcm LcmTargetKills</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmTargetKills	N/A	N/A	N/A	No Special Values
Lcm tracking gated target kills				
<b>Lcm LcmClusterCount</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmClusterCount	N/A	N/A	N/A	No Special Values
Lcm Cluster Count				
<b>Lcm LcmTargetCount</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmTargetCount	N/A	N/A	N/A	No Special Values
Lcm target Count				
<b>Lcm LcmTrackCount</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmTrackCount	N/A	N/A	N/A	No Special Values
Lcm active track Count				
<b>Lcm LcmRxFifo</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmRxFifo	N/A	N/A	N/A	No Special Values
Lcm receive fifo				
<b>Lcm LcmCycle</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmCycle	N/A	N/A	N/A	No Special Values
Lcm cyclic counter				
<b>Lcm LcmRadarCount</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmRadarCount	N/A	N/A	N/A	No Special Values
Lcm radar message count				
<b>Lcm LcmRawRadarCount</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmRawRadarCount	N/A	N/A	N/A	No Special Values
Lcm radar raw message counter				
<b>Lcm LcmTTCAvailable</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmTTCAvailable	N/A	N/A	0	False
True if Lcm is available to give TTC alerts (LcmOperational is true and LcmMinTTCspeed is true)	N/A	N/A	1	True
<b>Lcm LcmRearAvailable</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmRearAvailable	N/A	N/A	0	False
True if Lcm is available to give closing alerts (LcmOperational is true and LcmMinRearSpeed is true)	N/A	N/A	1	True
<b>Lcm LcmLdwConf</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmLdwConf	N/A	N/A	0	None
Lcm Ldw high confidence	N/A	N/A	1	Left
	N/A	N/A	2	Right
<b>Lcm LcmLdwLaneChange</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmLdwLaneChange	N/A	N/A	0	None
Lcm Ldw lane change warning	N/A	N/A	1	Left
	N/A	N/A	2	Right



## THE LCM TRIGGERED SUMMARY RECORD VARIABLES

<b>Lcms Latitude</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Latitude from Ublox Gps	N/A	N/A	N/A	No Special Values
<b>Lcms Longitude</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Longitude from Ublox Gps	N/A	N/A	N/A	No Special Values
<b>Lcms GpsHeading</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: GpsHeading Gps heading from Ublox Gps	N/A	N/A	N/A	No Special Values
<b>Lcms LdwDay</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwDay True if daytime	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Lcms Wipers</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Wipers Wiper switch state	N/A	N/A	0	Off
	N/A	N/A	1	Delay
	N/A	N/A	2	Low
	N/A	N/A	3	High
	N/A	N/A	4	Mist
	N/A	N/A	5	Error
<b>Lcms IvbssEnable</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: IvbssEnable HMI (Ivbss functionality) enabled	N/A	N/A	0	Disabled
	N/A	N/A	1	Enabled
<b>Lcms MlpRoadClass</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: MlpRoadClass	N/A	N/A	0	NoRoad
	N/A	N/A	1	FC1
	N/A	N/A	2	FC2
	N/A	N/A	3	FC3
	N/A	N/A	4	FC4
	N/A	N/A	5	FC5
<b>Lcms MlpNumberOfLanes</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: MlpNumberOfLanes Mlp number of Lanes in current direction from Adas	N/A	N/A	N/A	No Special Values
<b>Lcms Leds</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Leds Mirror Leds	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right
<b>Lcms WarningSpeed</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningSpeed Speed at time of warning	N/A	N/A	N/A	No Special Values
<b>Lcms WarningRange</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningRange Fcw range at time of warning	N/A	N/A	N/A	No Special Values
<b>Lcms WarningRangeRate</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningRangeRate Fcw range rate at time of warning	N/A	N/A	N/A	No Special Values
<b>Lcms WarningValidTarget</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningValidTarget Fcw Valid Target at time of warning	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Lcms WarningTargetType</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningTargetType Fcw Target Type at time of warning	N/A	N/A	0	None
	N/A	N/A	1	Stand
	N/A	N/A	2	Moving
	N/A	N/A	3	Stopped

**THE LCM TRIGGERED SUMMARY RECORD VARIABLES**

Lcms WarningAccel	Count	Percent	Code	Value/Description
SAS Name: warningAccel Fw target acceleration at time of warning	N/A	N/A	N/A	No Special Values
Lcms WarningBrake	Count	Percent	Code	Value/Description
SAS Name: warningBrake	N/A	N/A	0	Off
Brake active at time of warning	N/A	N/A	1	On
Lcms WarningLaneWidth	Count	Percent	Code	Value/Description
SAS Name: warningLanewidth Lane width at time of warning	N/A	N/A	N/A	No Special Values
Lcms WarningLateralSpeed	Count	Percent	Code	Value/Description
SAS Name: warningLateralSpeed Vehicle speed lateral to lane direction at time of warning	N/A	N/A	N/A	No Special Values
Lcms WarningLaneOffset	Count	Percent	Code	Value/Description
SAS Name: warningLaneOffset Vehicle offset from lane center at time of warning	N/A	N/A	N/A	No Special Values
Lcms WarningBoundaryLeft	Count	Percent	Code	Value/Description
SAS Name: warningBoundaryLeft	N/A	N/A	0	Missing
Lane boundary type, left at time of warning	N/A	N/A	1	Dashed
	N/A	N/A	2	Solid
	N/A	N/A	3	Virtual
Lcms WarningBoundaryRight	Count	Percent	Code	Value/Description
SAS Name: warningBoundaryRight	N/A	N/A	0	Missing
Lane boundary type, right at time of warning	N/A	N/A	1	Dashed
	N/A	N/A	2	Solid
	N/A	N/A	3	Virtual
Lcms WarningLaneOffsetConf	Count	Percent	Code	Value/Description
SAS Name: warningLaneOffsetConf Lane offset confidence at time of warning	N/A	N/A	N/A	No Special Values
Lcms WarningAmrLeft	Count	Percent	Code	Value/Description
SAS Name: warningAmrLeft Available Maneuvering room - left at time of warning	N/A	N/A	N/A	No Special Values
Lcms WarningAmrRight	Count	Percent	Code	Value/Description
SAS Name: warningAmrRight Available Maneuvering room - right at time of warning	N/A	N/A	N/A	No Special Values
Lcms LcmRequestSpeed	Count	Percent	Code	Value/Description
SAS Name: LcmRequestSpeed Speed at time of lcm alert request	N/A	N/A	N/A	No Special Values
Lcms WarningTurnSignal	Count	Percent	Code	Value/Description
SAS Name: warningTurnSignal	N/A	N/A	0	None
Turn signal at time of warning	N/A	N/A	1	Left
	N/A	N/A	2	Right
	N/A	N/A	3	Both
Lcms LcmRequestSide	Count	Percent	Code	Value/Description
SAS Name: LcmRequestSide	N/A	N/A	0	None
Side if Lcm is requesting a warning	N/A	N/A	1	Left
	N/A	N/A	2	Right
Lcms WarningTimeToLC	Count	Percent	Code	Value/Description
SAS Name: warningTimeToLC Time to cross physical line at time of ldw warning	N/A	N/A	N/A	No Special Values
Lcms DviEnable	Count	Percent	Code	Value/Description
SAS Name: DviEnable Dvi enable flags bit0 = audio & haptic, bit1 = led, bit2 = vsa	N/A	N/A	N/A	No Special Values

## THE LCM TRIGGERED SUMMARY RECORD VARIABLES

<b>Lcms DviAlert</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: DviAlert Dvi alert response flags bit0 = audio , bit1 =haptic, bit2 = lvisual, bit3 = vsa	N/A	N/A	N/A	No Special Values

  

<b>Lcms LcmRequestLateralTTCLeft</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmRequestLateralTTCLeft Lateral time to collision - left (ISO sign conventions) at timre of request	N/A	N/A	N/A	No Special Values

  

<b>Lcms LcmRequestLateralTTCRight</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmRequestLateralTTCRight Lateral time to collision - right (ISO sign conventions) at timre of request	N/A	N/A	N/A	No Special Values

  

<b>Lcms LcmRequestTTCAAlert</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmRequestTTCAAlert TTC alert active at timre of request	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right

  

<b>Lcms LcmRequestClosingZoneAlert</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmRequestClosingZoneAlert Lcm closing zone alert active at timre of request	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right

  

<b>Lcms LcmRequestLcmLdwConf</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmRequestLcmLdwConf LcmLdwConf at time of request	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right

  

<b>Lcms LcmRequestLcmLdwLaneChange</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmRequestLcmLdwLaneChange LcmLdwLaneChange at time of request	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right

### THE LDW DATA RECORD VARIABLES

Ldw Time	Count	Percent	Code	Value/Description
SAS Name: Time in centiseconds since das started	N/A	N/A	N/A	No Special Values

  

Ldw LdwDay	Count	Percent	Code	Value/Description
SAS Name: LdwDay True if daytime	N/A	N/A	0	False
	N/A	N/A	1	True

  

Ldw LdwLightLevel	Count	Percent	Code	Value/Description
SAS Name: LdwLightLevel Ldw ambient light level	N/A	N/A	N/A	No Special Values

  

Ldw LdwIndex	Count	Percent	Code	Value/Description
SAS Name: LdwIndex Ldw Index	N/A	N/A	N/A	No Special Values

  

Ldw FodLeft	Count	Percent	Code	Value/Description
SAS Name: FodLeft Future offset distance, left (positive is outside of the lane)	N/A	N/A	N/A	No Special Values

  

Ldw FodRight	Count	Percent	Code	Value/Description
SAS Name: FodRight Future offset distance, right (positive is outside of the lane)	N/A	N/A	N/A	No Special Values

  

Ldw FodThresholdLeft	Count	Percent	Code	Value/Description
SAS Name: FodThresholdLeft Future offset distance threshold, left (positive is outside of the lane)	N/A	N/A	N/A	No Special Values

  

Ldw FodThresholdRight	Count	Percent	Code	Value/Description
SAS Name: FodThresholdRight Future offset threshold, right (positive is outside of the lane)	N/A	N/A	N/A	No Special Values

  

Ldw LdwStatus	Count	Percent	Code	Value/Description
SAS Name: LdwStatus Ldw alert status	N/A	N/A	0	Invalid
	N/A	N/A	1	Enabled
	N/A	N/A	2	LowConf
	N/A	N/A	3	ExtLowConf
	N/A	N/A	4	MissingBnds
	N/A	N/A	5	HighLatSpeed
	N/A	N/A	6	Reset
	N/A	N/A	7	LowSpeed
	N/A	N/A	8	AppStopped
	N/A	N/A	9	NoSpeed
	N/A	N/A	10	DriverInterface
	N/A	N/A	11	VehicleSignal
	N/A	N/A	12	StartSup
	N/A	N/A	13	ExtStartup
	N/A	N/A	14	TurnedOff
	N/A	N/A	15	weirdCondition
	N/A	N/A	16	ManuallySilenced
	N/A	N/A	17	LowHeadway
	N/A	N/A	18	FastSteer
	N/A	N/A	19	RecentFalseAlarm
	N/A	N/A	20	HighCurvature
	N/A	N/A	21	InconsistentEstimates

  

Ldw LdwEvent	Count	Percent	Code	Value/Description
SAS Name: LdwEvent Ldw event	N/A	N/A	0	NoEvent
	N/A	N/A	1	CalibrationStarted
	N/A	N/A	2	CalibrationSuccessful
	N/A	N/A	3	CalibrationFailed
	N/A	N/A	4	LeftLaneChange
	N/A	N/A	5	RightLaneChange
	N/A	N/A	6	LeftDrift
	N/A	N/A	7	RightDrift
	N/A	N/A	8	DrowsyDriver

## THE LDW DATA RECORD VARIABLES

Ldw LdwEvent	Count	Percent	Code	Value/Description
	N/A	N/A	9	CleanWindow
	N/A	N/A	10	LeftButton
	N/A	N/A	11	SelectButton
	N/A	N/A	12	RightButton
	N/A	N/A	13	CalibrationRefined
	N/A	N/A	14	ParmsSaved
	N/A	N/A	15	ImageLogged
	N/A	N/A	16	TakeBreak
	N/A	N/A	17	CalibrationReport
	N/A	N/A	18	TimeReport
	N/A	N/A	19	Message
	N/A	N/A	20	Startup
	N/A	N/A	21	StatusChange
	N/A	N/A	22	ImageReport
	N/A	N/A	23	InvalidInput
	N/A	N/A	24	Log1Report
	N/A	N/A	25	Log2Report
	N/A	N/A	26	FalseAlarm
	N/A	N/A	27	FalseAlarmSuppressed

Ldw Boundaries	Count	Percent	Code	Value/Description
SAS Name: Boundaries Lane boundary combinations	N/A	N/A	0	LmRm
	N/A	N/A	1	LmRd
	N/A	N/A	2	LmRs
	N/A	N/A	3	LmRv
	N/A	N/A	4	LdRm
	N/A	N/A	5	LdRd
	N/A	N/A	6	LdRs
	N/A	N/A	7	LdRv
	N/A	N/A	8	LSRm
	N/A	N/A	9	LSRd
	N/A	N/A	10	LSRs
	N/A	N/A	11	LSRv
	N/A	N/A	12	LvRm
	N/A	N/A	13	LvRd
	N/A	N/A	14	LvRs
	N/A	N/A	15	LvRv

Ldw TimeToLC	Count	Percent	Code	Value/Description
SAS Name: TimeToLC Time to cross physical line	N/A	N/A	N/A	No Special Values

Ldw TimeToAB	Count	Percent	Code	Value/Description
SAS Name: TimeToAB Time to cross adjusted boundary (FOD)	N/A	N/A	N/A	No Special Values

Ldw LdwHeading	Count	Percent	Code	Value/Description
SAS Name: LdwHeading Ldw vision heading with respect to the road	N/A	N/A	N/A	No Special Values

Ldw DriftFrequency	Count	Percent	Code	Value/Description
SAS Name: DriftFrequency Max drifts this hour, drifts last hour)	N/A	N/A	N/A	No Special Values

Ldw LdwAlertness	Count	Percent	Code	Value/Description
SAS Name: LdwAlertness Ldw alertness index (99=alert, 60=drowsy)	N/A	N/A	N/A	No Special Values

Ldw LdwCurvature	Count	Percent	Code	Value/Description
SAS Name: LdwCurvature Ldw road curvature, positive to the right	N/A	N/A	N/A	No Special Values

Ldw LdwCurvatureConf	Count	Percent	Code	Value/Description
SAS Name: LdwCurvatureConf Ldw road curvature confidence	N/A	N/A	N/A	No Special Values

Ldw LdwData0	Count	Percent	Code	Value/Description
SAS Name: LdwData0 Ldw data block byte 0	N/A	N/A	N/A	No Special Values

### THE LDW DATA RECORD VARIABLES

<b>Ldw LdwData1</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwData1 Ldw data block byte 1	N/A	N/A	N/A	No Special Values
<b>Ldw LdwData2</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwData2 Ldw data block byte 2	N/A	N/A	N/A	No Special Values
<b>Ldw LdwData3</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwData3 Ldw data block byte 3	N/A	N/A	N/A	No Special Values
<b>Ldw LdwData4</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwData4 Ldw data block byte 4	N/A	N/A	N/A	No Special Values
<b>Ldw LdwData5</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwData5 Ldw data block byte 5	N/A	N/A	N/A	No Special Values
<b>Ldw LdwData6</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwData6 Ldw data block byte 6	N/A	N/A	N/A	No Special Values
<b>Ldw LdwData7</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwData7 Ldw data block byte 7	N/A	N/A	N/A	No Special Values
<b>Ldw LdwIntrinsicDisable</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwIntrinsicDisable Ldw disabled for an intrinsic reason, true = intrinsically disabled	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Ldw LdwIntegrity</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwIntegrity Ldw data integrity	N/A	N/A	0	Ok
	N/A	N/A	1	Cleanwindshield
<b>Ldw LdwTemperature</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwTemperature Ldw temperature	N/A	N/A	N/A	No Special Values

## THE LDWS TRIGGERED SUMMARY RECORD VARIABLES

<b>Ldws Latitude</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Latitude from Ublox Gps	N/A	N/A	N/A	No Special Values
<b>Ldws Longitude</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Longitude from Ublox Gps	N/A	N/A	N/A	No Special Values
<b>Ldws GpsHeading</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: GpsHeading Gps heading from Ublox Gps	N/A	N/A	N/A	No Special Values
<b>Ldws LdwDay</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwDay True if daytime	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Ldws Wipers</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Wipers Wiper switch state	N/A	N/A	0	Off
	N/A	N/A	1	Delay
	N/A	N/A	2	Low
	N/A	N/A	3	High
	N/A	N/A	4	Mist
	N/A	N/A	5	Error
<b>Ldws IvbssEnable</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: IvbssEnable HMI (Ivbss functionality) enabled	N/A	N/A	0	Disabled
	N/A	N/A	1	Enabled
<b>Ldws MlpRoadClass</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: MlpRoadClass	N/A	N/A	0	NoRoad
	N/A	N/A	1	FC1
	N/A	N/A	2	FC2
	N/A	N/A	3	FC3
	N/A	N/A	4	FC4
	N/A	N/A	5	FC5
<b>Ldws MlpNumberOfLanes</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: MlpNumberOfLanes Mlp number of Lanes in current direction from Adas	N/A	N/A	N/A	No Special Values
<b>Ldws Leds</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Leds Mirror Leds	N/A	N/A	0	None
	N/A	N/A	1	Left
	N/A	N/A	2	Right
<b>Ldws WarningSpeed</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningSpeed Speed at time of warning	N/A	N/A	N/A	No Special Values
<b>Ldws WarningRange</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningRange Fcw range at time of warning	N/A	N/A	N/A	No Special Values
<b>Ldws WarningRangeRate</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningRangeRate Fcw range rate at time of warning	N/A	N/A	N/A	No Special Values
<b>Ldws WarningValidTarget</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningValidTarget Fcw Valid Target at time of warning	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Ldws WarningTargetType</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningTargetType Fcw Target Type at time of warning	N/A	N/A	0	None
	N/A	N/A	1	Stand
	N/A	N/A	2	Moving
	N/A	N/A	3	Stopped

**THE LDW TRIGGERED SUMMARY RECORD VARIABLES**

<b>Ldws WarningAccel</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningAccel Fw target acceleration at time of warning	N/A	N/A	N/A	No Special Values
<b>Ldws WarningBrake</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningBrake	N/A	N/A	0	Off
Brake active at time of warning	N/A	N/A	1	On
<b>Ldws WarningLaneWidth</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningLanewidth Lane width at time of warning	N/A	N/A	N/A	No Special Values
<b>Ldws WarningLateralSpeed</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningLateralSpeed Vehicle speed lateral to lane direction at time of warning	N/A	N/A	N/A	No Special Values
<b>Ldws WarningLaneOffset</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningLaneOffset Vehicle offset from lane center at time of warning	N/A	N/A	N/A	No Special Values
<b>Ldws WarningBoundaryLeft</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningBoundaryLeft	N/A	N/A	0	Missing
Lane boundary type, left at time of warning	N/A	N/A	1	Dashed
	N/A	N/A	2	Solid
	N/A	N/A	3	Virtual
<b>Ldws WarningBoundaryRight</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningBoundaryRight	N/A	N/A	0	Missing
Lane boundary type, right at time of warning	N/A	N/A	1	Dashed
	N/A	N/A	2	Solid
	N/A	N/A	3	Virtual
<b>Ldws WarningLaneOffsetConf</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningLaneOffsetConf Lane offset confidence at time of warning	N/A	N/A	N/A	No Special Values
<b>Ldws WarningAmrLeft</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningAmrLeft Available Maneuvering room - left at time of warning	N/A	N/A	N/A	No Special Values
<b>Ldws WarningAmrRight</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningAmrRight Available Maneuvering room - right at time of warning	N/A	N/A	N/A	No Special Values
<b>Ldws LdwRequestSpeed</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwRequestSpeed Speed at time of ldw alert request	N/A	N/A	N/A	No Special Values
<b>Ldws LdwRequestLaneWidth</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwRequestLanewidth Lane width at time of alert request	N/A	N/A	N/A	No Special Values
<b>Ldws LdwRequestLateralSpeed</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwRequestLateralSpeed Vehicle speed lateral to lane direction at time of alert request	N/A	N/A	N/A	No Special Values
<b>Ldws LdwRequestLaneOffset</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwRequestLaneOffset Vehicle offset from lane center at time of alert request	N/A	N/A	N/A	No Special Values
<b>Ldws LdwRequestBoundaryLeft</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwRequestBoundaryLeft	N/A	N/A	0	Missing
Lane boundary type, left at time of alert request	N/A	N/A	1	Dashed
	N/A	N/A	2	Solid



## THE LDW TRIGGERED SUMMARY RECORD VARIABLES

Ldws LdwRequestBoundaryLeft	Count	Percent	Code	Value/Description
	N/A	N/A	3	Virtual

  

Ldws LdwRequestBoundaryRight	Count	Percent	Code	Value/Description
SAS Name: LdwRequestBoundaryRight	N/A	N/A	0	Missing
Lane boundary type, right at time of alert request	N/A	N/A	1	Dashed
	N/A	N/A	2	Solid
	N/A	N/A	3	Virtual

  

Ldws LdwRequestLaneOffsetConf	Count	Percent	Code	Value/Description
SAS Name: LdwRequestLaneOffsetConf	N/A	N/A	N/A	No Special Values
Lane offset confidence at time of alert request				

  

Ldws LdwRequestThreatLeft	Count	Percent	Code	Value/Description
SAS Name: LdwRequestThreatLeft	N/A	N/A	0	Unknown
Ldw left threat type at time of request	N/A	N/A	1	DashedEmpty
	N/A	N/A	2	SolidEmpty
	N/A	N/A	3	SolidOccupied
	N/A	N/A	4	DashedOccupied

  

Ldws LdwRequestThreatRight	Count	Percent	Code	Value/Description
SAS Name: LdwRequestThreatRight	N/A	N/A	0	Unknown
Ldw right threat type at time of request	N/A	N/A	1	DashedEmpty
	N/A	N/A	2	SolidEmpty
	N/A	N/A	3	SolidOccupied
	N/A	N/A	4	DashedOccupied

  

Ldws LdwRequestSide	Count	Percent	Code	Value/Description
SAS Name: LdwRequestSide	N/A	N/A	0	None
Ldw alert request side	N/A	N/A	1	Left
	N/A	N/A	2	Right

  

Ldws LdwRequestTimeToLC	Count	Percent	Code	Value/Description
SAS Name: LdwRequestTimeToLC	N/A	N/A	N/A	No Special Values
Time to cross physical line at time of ldw alert request				

  

Ldws WarningTimeToLC	Count	Percent	Code	Value/Description
SAS Name: warningTimeToLC	N/A	N/A	N/A	No Special Values
Time to cross physical line at time of ldw warning				

  

Ldws DviEnable	Count	Percent	Code	Value/Description
SAS Name: DviEnable	N/A	N/A	N/A	No Special Values
dvi enable flags bit0 = audio & haptic, bit1 = led, bit2 = vsa				

  

Ldws DviAlert	Count	Percent	Code	Value/Description
SAS Name: DviAlert	N/A	N/A	N/A	No Special Values
Dvi alert response flags bit0 = audio, bit1 =haptic, bit2 = lvisual, bit3 = vsa				

  

Ldws LdwRequestAmrLeft	Count	Percent	Code	Value/Description
SAS Name: LdwRequestAmrLeft	N/A	N/A	N/A	No Special Values
Available Maneuvering room - left at time of request				

  

Ldws LdwRequestAmrRight	Count	Percent	Code	Value/Description
SAS Name: LdwRequestAmrRight	N/A	N/A	N/A	No Special Values
Available Maneuvering room - right at time of request				

**THE POST WARNING TRIGGERED SUMMARY VARIABLES**

<b>Posts GpsHeading</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: GpsHeading Gps heading from Ublox Gps	N/A	N/A	N/A	No Special Values
<b>Posts Speed</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Speed Vehicle speed from transmission	N/A	N/A	N/A	No Special Values
<b>Posts Brake</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Brake active	N/A N/A	N/A N/A	0 1	off On
<b>Posts IvbssEnable</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: IvbssEnable HMI (Ivbss functionality) enabled	N/A N/A	N/A N/A	0 1	Disabled Enabled
<b>Posts FcwRange</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwRange Fcw range	N/A	N/A	N/A	No Special Values
<b>Posts FcwRangeRate</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwRangeRate Fcw range rate	N/A	N/A	N/A	No Special Values
<b>Posts FcwValidTarget</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwValidTarget Fcw Valid Target	N/A N/A	N/A N/A	0 1	False True
<b>Posts FcwTargetType</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwTargetType Fcw Target Type	N/A N/A N/A N/A	N/A N/A N/A N/A	0 1 2 3	None Stand Moving Stopped
<b>Posts FcwTargetId</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcwTargetId Fcw Target Id (handle)	N/A	N/A	N/A	No Special Values
<b>Posts PostBrakeCount</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: PostBrakeCount Brake count for4 seconds after a warning	N/A	N/A	N/A	No Special Values
<b>Posts PostLaneChangeCount</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: PostLaneChangeCount Lane change count for 4seconds after a warning	N/A	N/A	N/A	No Special Values
<b>Posts WarningCount</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: warningCount number of more warning In 4s econds after a warning	N/A	N/A	N/A	No Special Values

## THE FRONT RADAR CAN DATA VARIABLES

<b>RadarFront Time</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Time in centiseconds since das started	N/A	N/A	N/A	No Special Values

  

<b>RadarFront RadarFrontRaw</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RadarFrontRaw Bosch Radar raw can packets	N/A	N/A	N/A	No Special Values

**THE LEFT FRONT RADAR CAN DATA VARIABLES**

<b>RadarLeftFront Time</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Time in centiseconds since das started	N/A	N/A	N/A	No Special Values

  

<b>RadarLeftFront RadarLeftFrontRaw</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RadarLeftFrontRaw Left front macom radar raw can packets	N/A	N/A	N/A	No Special Values

## THE LEFT REAR RADAR CAN DATA VARIABLES

<b>RadarLeftRear Time</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Time in centiseconds since das started	N/A	N/A	N/A	No Special Values

  

<b>RadarLeftRear RadarLeftRearRaw</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RadarLeftRearRaw Left rear macom radar raw can packets	N/A	N/A	N/A	No Special Values

**THE REAR LEFT RADAR CAN DATA VARIABLES**

<b>RadarRearLeft Time</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Time in centiseconds since das started	N/A	N/A	N/A	No Special Values

  

<b>RadarRearLeft RadarRearLeftRaw</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RadarRearLeftRaw Rear left macom radar raw can packets	N/A	N/A	N/A	No Special Values

### THE REAR RIGHT RADAR CAN DATA VARIABLES

<b>RadarRearRight Time</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Time in centiseconds since das started	N/A	N/A	N/A	No Special Values

  

<b>RadarRearRight RadarRearRightRaw</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RadarRearRightRaw Rear right macom radar raw can packets	N/A	N/A	N/A	No Special Values

**THE RIGHT FRONT RADAR CAN DATA VARIABLES**

<b>RadarRightFront Time</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Time in centiseconds since das started	N/A	N/A	N/A	No Special Values

  

<b>RadarRightFront RadarRightFrontRaw</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RadarRightFrontRaw Right front macom radar raw can packets	N/A	N/A	N/A	No Special Values



### THE RIGHT REAR RADAR CAN DATA VARIABLES

<b>RadarRightRear Time</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: Time in centiseconds since das started	N/A	N/A	N/A	No Special Values

  

<b>RadarRightRear RadarRightRearRaw</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RadarRightRearRaw Right rear macom radar raw can packets	N/A	N/A	N/A	No Special Values

**THE MAIN SUMMARY RECORD VARIABLES**

Summary TripStart	Count	Percent	Code	Value/Description
SAS Name: TripStart Absolute date/time corresponding to test time = 0 in access date/time format	N/A	N/A	N/A	No Special Values
Summary TODTripStart	Count	Percent	Code	Value/Description
SAS Name: TODTripStart Absolute date/time corresponding to test time = 0 in access date/time format based on computer clock	N/A	N/A	N/A	No Special Values
Summary Latitude	Count	Percent	Code	Value/Description
SAS Name: Latitude from Ublox Gps	N/A	N/A	N/A	No Special Values
Summary Longitude	Count	Percent	Code	Value/Description
SAS Name: Longitude from Ublox Gps	N/A	N/A	N/A	No Special Values
Summary Das	Count	Percent	Code	Value/Description
SAS Name: Das number	N/A	N/A	N/A	No Special Values
Summary EmergencyShutDown	Count	Percent	Code	Value/Description
SAS Name: EmergencyShutDown Shut down request from Blue Earth micro because of out-of-range	N/A	N/A	N/A	No Special Values
Summary Speed	Count	Percent	Code	Value/Description
SAS Name: Speed Vehicle speed from transmission	N/A	N/A	N/A	No Special Values
Summary WarmStart	Count	Percent	Code	Value/Description
SAS Name: warmStart True if ignition happened with the das already running	N/A	N/A	0	False
	N/A	N/A	1	True
Summary BrakeCount	Count	Percent	Code	Value/Description
SAS Name: BrakeCount Count of brake applications	N/A	N/A	N/A	No Special Values
Summary Distance	Count	Percent	Code	Value/Description
SAS Name: Distance Trip distance	N/A	N/A	N/A	No Special Values
Summary EndTime	Count	Percent	Code	Value/Description
SAS Name: EndTime Last time of test	N/A	N/A	N/A	No Special Values
Summary StartTime	Count	Percent	Code	Value/Description
SAS Name: StartTime First time of test	N/A	N/A	N/A	No Special Values
Summary Vehicle	Count	Percent	Code	Value/Description
SAS Name: Vehicle number	N/A	N/A	N/A	No Special Values
Summary Odometer	Count	Percent	Code	Value/Description
SAS Name: Odometer	N/A	N/A	N/A	No Special Values
Summary Prndl	Count	Percent	Code	Value/Description
SAS Name: Prndl	N/A	N/A	0	Shifting
	N/A	N/A	1	Park
	N/A	N/A	2	Reverse
	N/A	N/A	3	Neutral
	N/A	N/A	4	Drive
	N/A	N/A	5	Drive4
	N/A	N/A	6	Third
	N/A	N/A	7	Second
	N/A	N/A	8	First

## THE MAIN SUMMARY RECORD VARIABLES

Summary IvbssEnable	Count	Percent	Code	Value/Description
SAS Name: IvbssEnable	N/A	N/A	0	Disabled
HMI (Ivbss functionality) enabled	N/A	N/A	1	Enabled
Summary LdwRequestCount	Count	Percent	Code	Value/Description
SAS Name: LdwRequestCount	N/A	N/A	N/A	No Special Values
Count of Ldw Alert requests				
Summary FcwRequestCount	Count	Percent	Code	Value/Description
SAS Name: FcwRequestCount	N/A	N/A	N/A	No Special Values
Count of Fcw Alert requests				
Summary CswRequestCount	Count	Percent	Code	Value/Description
SAS Name: CswRequestCount	N/A	N/A	N/A	No Special Values
Count of Csw Alert requests				
Summary LcmRequestCount	Count	Percent	Code	Value/Description
SAS Name: LcmRequestCount	N/A	N/A	N/A	No Special Values
Count of Lcm Alert requests				
Summary LdwWarningCount	Count	Percent	Code	Value/Description
SAS Name: LdwWarningCount	N/A	N/A	N/A	No Special Values
Count of Ldw warnings				
Summary LdwCautionCount	Count	Percent	Code	Value/Description
SAS Name: LdwCautionCount	N/A	N/A	N/A	No Special Values
Count of Ldw cautions				
Summary CswWarningCount	Count	Percent	Code	Value/Description
SAS Name: CswWarningCount	N/A	N/A	N/A	No Special Values
Count of Csw warnings				
Summary FcwWarningCount	Count	Percent	Code	Value/Description
SAS Name: FcwWarningCount	N/A	N/A	N/A	No Special Values
Count of Fcw warnings				
Summary LcmWarningCount	Count	Percent	Code	Value/Description
SAS Name: LcmWarningCount	N/A	N/A	N/A	No Special Values
Count of Lcm warnings				
Summary Vgt25Distance	Count	Percent	Code	Value/Description
SAS Name: Vgt25Distance	N/A	N/A	N/A	No Special Values
Distance above 25 mph				
Summary TurnSignalCount	Count	Percent	Code	Value/Description
SAS Name: TurnSignalCount	N/A	N/A	N/A	No Special Values
Count of turn signals				
Summary LaneChangeCount	Count	Percent	Code	Value/Description
SAS Name: LaneChangeCount	N/A	N/A	N/A	No Special Values
Count of lane changes				
Summary WiperDistance	Count	Percent	Code	Value/Description
SAS Name: WiperDistance	N/A	N/A	N/A	No Special Values
Distance wipers were on				
Summary LdwDayDistance	Count	Percent	Code	Value/Description
SAS Name: LdwDayDistance	N/A	N/A	N/A	No Special Values
Distance Ldw day was true				
Summary VgtRearMinDistance	Count	Percent	Code	Value/Description
SAS Name: VgtRearMinDistance	N/A	N/A	N/A	No Special Values
Distance above Rear min speed				
Summary VgtTTCMinDistance	Count	Percent	Code	Value/Description
SAS Name: VgtTTCMinDistance	N/A	N/A	N/A	No Special Values
Distance above TTC min speed				

### THE SYNC OUTPUT LOG VARIABLES

<b>Sync SyncWeek</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: SyncWeek Gps week of sync pulse	N/A	N/A	N/A	No Special Values
<b>Sync SyncMilliseconds</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: SyncMilliseconds Gps millisecs in week of sync pulse	N/A	N/A	N/A	No Special Values
<b>Sync SyncSubMilliseconds</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: SyncSubMilliseconds Fraction of millisecond	N/A	N/A	N/A	No Special Values
<b>Sync SyncTimeValid</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: SyncTimeValid True if sync time is valid	N/A	N/A	0	False
	N/A	N/A	1	True
<b>Sync SyncTime</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: SyncTime Das time at sync signal rising edge	N/A	N/A	N/A	No Special Values

## THE HARDWARE AND SOFTWARE VERSIONS VARIABLES

<b>Versions DasVersion</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: DasVersion Das software version	N/A	N/A	N/A	No Special Values
<b>Versions LdwHwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwHwMajor Ldw major hardware revision level	N/A	N/A	N/A	No Special Values
<b>Versions LdwHwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwHwMinor Ldw minor hardware revision level	N/A	N/A	N/A	No Special Values
<b>Versions LdwSwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwSwMajor Ldw major software revision level	N/A	N/A	N/A	No Special Values
<b>Versions LdwSwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LdwSwMinor Ldw minor software revision level	N/A	N/A	N/A	No Special Values
<b>Versions AdhHwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: AdhHwMajor Adh major hardware revision level	N/A	N/A	N/A	No Special Values
<b>Versions AdhHwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: AdhHwMinor Adh minor hardware revision level	N/A	N/A	N/A	No Special Values
<b>Versions AdhSwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: AdhSwMajor Adh major software revision level	N/A	N/A	N/A	No Special Values
<b>Versions AdhSwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: AdhSwMinor Adh minor software revision level	N/A	N/A	N/A	No Special Values
<b>Versions FcyHwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcyHwMajor Fcy major hardware revision level	N/A	N/A	N/A	No Special Values
<b>Versions FcyHwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcyHwMinor Fcy minor hardware revision level	N/A	N/A	N/A	No Special Values
<b>Versions FcySwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcySwMajor Fcy major software revision level	N/A	N/A	N/A	No Special Values
<b>Versions FcySwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: FcySwMinor Fcy minor software revision level	N/A	N/A	N/A	No Special Values
<b>Versions GwHwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: GwHwMajor Gw major hardware revision level	N/A	N/A	N/A	No Special Values
<b>Versions GwHwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: GwHwMinor Gw minor hardware revision level	N/A	N/A	N/A	No Special Values
<b>Versions GwSwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: GwSwMajor Gw major software revision level	N/A	N/A	N/A	No Special Values

**THE HARDWARE AND SOFTWARE VERSIONS VARIABLES**

<b>Versions GwSwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: GwSwMinor Gw minor software revision level	N/A	N/A	N/A	No Special Values
<b>Versions LcmHwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmHwMajor Lcm major hardware revision level	N/A	N/A	N/A	No Special Values
<b>Versions LcmHwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmHwMinor Lcm minor hardware revision level	N/A	N/A	N/A	No Special Values
<b>Versions LcmSwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmSwMajor Lcm major software revision level	N/A	N/A	N/A	No Special Values
<b>Versions LcmSwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LcmSwMinor Lcm minor software revision level	N/A	N/A	N/A	No Special Values
<b>Versions LeftFrontHwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LeftFrontHwMajor Left front radar hardware version major	N/A	N/A	N/A	No Special Values
<b>Versions LeftFrontSwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LeftFrontSwMajor Left front radar software version, major	N/A	N/A	N/A	No Special Values
<b>Versions LeftRearHwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LeftRearHwMajor Left rear radar hardware version,major	N/A	N/A	N/A	No Special Values
<b>Versions LeftRearSwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LeftRearSwMajor Left rear radar software version, major	N/A	N/A	N/A	No Special Values
<b>Versions RearLeftHwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RearLeftHwMajor Rear Left radar hardware version, major	N/A	N/A	N/A	No Special Values
<b>Versions RearLeftSwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RearLeftSwMajor Rear Left radar software version, major	N/A	N/A	N/A	No Special Values
<b>Versions LeftFrontHwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LeftFrontHwMinor Left front radar hardware version minor	N/A	N/A	N/A	No Special Values
<b>Versions LeftFrontSwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LeftFrontSwMinor Left front Sam software version, minor	N/A	N/A	N/A	No Special Values
<b>Versions LeftRearHwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LeftRearHwMinor Left rear radar hardware version,minor	N/A	N/A	N/A	No Special Values
<b>Versions LeftRearSwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: LeftRearSwMinor Left rear radar software version, minor	N/A	N/A	N/A	No Special Values

## THE HARDWARE AND SOFTWARE VERSIONS VARIABLES

<b>Versions RearLeftHwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RearLeftHwMinor Rear Left radar hardware version, minor	N/A	N/A	N/A	No Special Values
<b>Versions RearLeftSwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RearLeftSwMinor Rear Left radar software version, minor	N/A	N/A	N/A	No Special Values
<b>Versions RightFrontHwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RightFrontHwMajor Right front radar hardware version major	N/A	N/A	N/A	No Special Values
<b>Versions RightFrontHwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RightFrontHwMinor Right front radar hardware version minor	N/A	N/A	N/A	No Special Values
<b>Versions RightFrontSwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RightFrontSwMajor Right front radar software version, major	N/A	N/A	N/A	No Special Values
<b>Versions RightFrontSwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RightFrontSwMinor Right front Sam software version, minor	N/A	N/A	N/A	No Special Values
<b>Versions RightRearHwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RightRearHwMajor Right rear radar hardware version, major	N/A	N/A	N/A	No Special Values
<b>Versions RightRearHwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RightRearHwMinor Right rear radar hardware version, minor	N/A	N/A	N/A	No Special Values
<b>Versions RightRearSwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RightRearSwMajor Right rear radar software version, major	N/A	N/A	N/A	No Special Values
<b>Versions RightRearSwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RightRearSwMinor Right rear radar software version, minor	N/A	N/A	N/A	No Special Values
<b>Versions RearRightHwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RearRightHwMajor Rear Right radar hardware version, major	N/A	N/A	N/A	No Special Values
<b>Versions RearRightHwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RearRightHwMinor Rear Right radar hardware version, minor	N/A	N/A	N/A	No Special Values
<b>Versions RearRightSwMajor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RearRightSwMajor Rear Right radar software version, major	N/A	N/A	N/A	No Special Values
<b>Versions RearRightSwMinor</b>	<b>Count</b>	<b>Percent</b>	<b>Code</b>	<b>Value/Description</b>
SAS Name: RearRightSwMinor Rear Right radar software version, minor	N/A	N/A	N/A	No Special Values