Research & Vehicle Technology
"Infotainment Systems Product Development"

Feature – Multi-Camera Client

Infotainment Subsystem Part Specific Specification (SPSS)

Version 1.17

UNCONTROLLED COPY IF PRINTED

Version Date: August 1, 2022

FORD CONFIDENTIAL

Revision History

Date	Version	Notes	
May 31, 2013	**1.0**	**Initial Release**	
January 16, 2015	**1.1**	**SPSS Updated to add soft button view implementation**	
	RVCv2-IR-REQ-014080/B-Rear View Camera Feature ID Definition (TcSE ROIN-287010-3)		rpaquet2 - Updated encodings in table
	MD-REQ-014070/A-Feature_St (TcSE ROIN-282399-2)		sorris1: Updated the Personalization Index parameter encoding to match the CAN database.
	DAFVCv1-IR-REQ-014066/B-Driver Assist Front View Camera Feature ID Definition (TcSE ROIN-287061)		rpaquet2 - Updated encodings
	MD-REQ-014070/A-Feature_St (TcSE ROIN-282399-2)		sorris1: Updated the Personalization Index parameter encoding to match the CAN database.
	STR-052389/B-Rear View Camera (TcSE ROIN-293312-1)		rpaquet2 - Added two new variants Camera image View v3 and Rear View Camera Zoom Settings v3 to cover the new way of zooming and soft button inputs.
	RVC-FUR-REQ-014088/B-Deactivate RVC (TcSE ROIN-293328)		rpaquet2 - Added new text to clarify Forward gear and Park no prak for Manual transmission applications.
	CAMERA-FUR-REQ-014093/B-Camera Image Priority (TcSE ROIN-264652-1)		rpaquet2 - Updated requirement to work for all camera views. no change to requirement intent.
	RVCv3-UC-REQ-127872/A-Activate Rear Multicamera View		rpaquet2 - New use case
	RVCv3-UC-REQ-128191/A-Enter CHMSL Delay Mode		rpaquet2 - New use case
	TRG-UC-REQ-102959/A-Vehicle Not in RUN/START		rpaquet2 - Added use case to multi-camera APIM SPSS
	TRG-UC-REQ-102960/A-Loss of communication with IPMB Module		rpaquet2 - Added use case to multi-camera APIM SPSS
	TRG-UC-REQ-102961/A-Valid Camera Video Signal not present		rpaquet2 - Added use case to multi-camera APIM SPSS
	RVCv3-UC-REQ-128173/A-Press Zoom Button from Rear 360 View		rpaquet2 - New use case
	RVCv3-UC-REQ-128176/A-Press Zoom Button from Rear Normal View		rpaquet2 - New use case
	RVCv3-UC-REQ-128179/A-Press Zoom Button from CHMSL View		rpaquet2 - New use case
	RVCv3-UC-REQ-128188/A-Press Rear 360 Unzoom		rpaquet2 - New use case
	RVCv3-UC-REQ-128189/A-Press Rear Normal Unzoom		rpaquet2 - New use case
	RVCv3-UC-REQ-128190/A-Press CHMSL Unzoom		rpaquet2 - New use case
	RVCv3-ACT-REQ-127095/A-Manual Zoom		rpaquet2: New Requirement
	RVCv3-UC-REQ-127874/A-Press Rear 360 View Button		rpaquet2 - New use case
	RVCv3-UC-REQ-128175/A-Press RVC Normal View Button		rpaquet2 - New use case
	RVCv3-UC-REQ-128177/A-Press RVC Split View Button		rpaquet2 - New use case
	RVCv3-UC-REQ-128178/A-Press CHMSL Camera View Button		rpaquet2 - New use case
	RVCv3-UC-REQ-128180/A-Press Aux Camera view Button		rpaquet2 - New use case
	RVCv3-UC-REQ-128181/A-Press Trailer Reverse Guidance Button		rpaquet2 - New use case
	RVCv3-UC-REQ-128396/A-Press Hard Button to Enter CHMSL View		rpaquet2 - New Use Case for CHMSL
	RVCv3-UC-REQ-128397/A-Press Hard Button to Enter RVC View		rpaquet2 - New use case
	RVCv3-ACT-REQ-127096/A-Change Camera View Setting		rpaquet2: Diagram updated to reflect the change in HMI to go back to soft buttons
	STR-052463/B-Driver Assist Front View Camera (TcSE ROIN-293325)		rpaquet2 - Added New function variant 2 for Driver Assist Front Camera Image View to capture the soft button implementation.
	DAFVCv2-UC-REQ-128182/A-Entering Front Camera - 360		rpaquet2 - New use case
	DAFVCv2-UC-REQ-128184/A-Entering Front Camera – Non-360		rpaquet2 - New use case
	TRG-UC-REQ-102959/A-Vehicle Not in RUN/START		rpaquet2 - Added use case to multi-camera APIM SPSS
	TRG-UC-REQ-102960/A-Loss of communication with IPMB Module		rpaquet2 - Added use case to multi-camera APIM SPSS
	TRG-UC-REQ-102961/A-Valid Camera Video Signal not present		rpaquet2 - Added use case to multi-camera APIM SPSS
	DAFVCv2-UC-REQ-128183/A-Press Front 360 View Button		rpaquet2 - New use case

	DAFVCv2-UC-REQ-128185/A-Press Front Normal View Button	rpaquet2 - New use case
	DAFVCv2-UC-REQ-128186/A-Press Front Split View	rpaquet2 - New use case
	DAFVCv2-UC-REQ-128187/A-Press Rear button From Front camera	rpaquet2 - New use case
	DAFVCv2-ACT-REQ-127100/A-Change Camera View Setting	rpaquet2: Diagram updated to reflect use of soft button implementation.
June 15, 2015	**1.2**	**Updates to Merge Off Road FVC into Multi-Camera and update Max Speed requirements**
	DAFVCv1-IIR-REQ-014069/B-DriverAssistFrontViewCameraClient_Rx (TcSE ROIN-282847-2)	rpaquet2 - Added Elocker_St, AwdRange_St and OffRoadMode_St in order to merge FVC Offroad Camera with MultiCamera.
	STR-052387/B-General Requirements (TcSE ROIN-293327-1)	rpaquet2 - Added Determine Off Road Mode and DAFVC Malfunction and T_cameraMalfunctionDelay. And moved RVC Malfunction to this folder.
	CAMERA-REQ-014077/B-Feature Maximum Speed (TcSE ROIN-290556)	wstephe1: Updated requirement for Max Speed per feature scenario types: camera activation (any feature), RVC active, and DAFVC active by configuration of front (off road) camera. Scenarios to continue application across camera features.
	DAFVCv1-FUR-REQ-166648/A-Determine Off Road Mode	rpaquet2 - New requirement created during merge of Offroad and multi camera specs.
	RVC-FUR-REQ-014087/B-RVC Malfunction (TcSE ROIN-146656-2)	rpaquet2 - Updated requirement per APIM team.
	DAFVCv1-FUR-REQ-166722/A-DAFVC Malfunction	rpaquet2 - Added new requirement per APIM team.
	RVC-TMR-REQ-166649/A-T_cameraMalfunctionDelay	rpaquet2 - Added new timer requirement for delay.
	STR-052390/B-Rear View Camera General Requirements (TcSE ROIN-293310-1)	rpaquet2 - Moved RVC Malfunction from Rear View Camera general requirements folder to the general requirements folder.
	RVC-FUR-REQ-014088/C-Deactivate RVC (TcSE ROIN-293328)	wstephe1: Revised to align with Max Speed requirement CAMERA-REQ-014077
	RVC-UC-REQ-014099/B-Rear Camera Delay Mode is On (TcSE ROIN-289798)	wstephe1: Revised to align with Max Speed requirement CAMERA-REQ-014077
	RVC-UC-REQ-014100/B-Active Park Assist is Active (TcSE ROIN-290554)	wstephe1: Revised to align with Max Speed requirement CAMERA-REQ-014077
	RVC-UC-REQ-014101/B-Trailer Backup Assist is Active (TcSE ROIN-290555)	wstephe1: Revised to align with Max Speed requirement CAMERA-REQ-014077
	RVC-UC-REQ-014099/B-Rear Camera Delay Mode is On (TcSE ROIN-289798)	wstephe1: Revised to align with Max Speed requirement CAMERA-REQ-014077
	RVC-UC-REQ-014100/B-Active Park Assist is Active (TcSE ROIN-290554)	wstephe1: Revised to align with Max Speed requirement CAMERA-REQ-014077
	RVC-UC-REQ-014101/B-Trailer Backup Assist is Active (TcSE ROIN-290555)	wstephe1: Revised to align with Max Speed requirement CAMERA-REQ-014077
	DAFVCv1-FUN-REQ-014045/B-Activate/Deactivate Driver Assist Front View Camera (TcSE ROIN-293385)	rpaquet2 - Added requirement folder with the off road requirement due to merging Offroad and Multicamera SPSS.
	DAFVCv1-FUR-REQ-166641/A-Deactivate FVC	rpaquet2 - New requirement number created during merge of Offroad and multi camera specs due to signal change.
	DAFVCv1-FUR-REQ-013997/B-E-Locker Deactivation Delay (TcSE ROIN-266607-1)	rpaquet2 - Changed FID to DAFVC due to merge of Offroad and Multicamera spec.
	DAFVCv1-TMR-REQ-013998/B-T_eLockerDelay (TcSE ROIN-266609-1)	rpaquet2 - Changed FID to DAFVC due to merge of Offroad and Multicamera spec.
	DAFVCv1-UC-REQ-014048/B-Activation Attempt During Overspeed Condition (TcSE ROIN-290145)	wstephe1: Revised to align with Max Speed requirement CAMERA-REQ-014077
	DAFVCv1-UC-REQ-014049/B-Deactivate Driver Assist Front View Camera (TcSE ROIN-290146)	wstephe1: Revised to align with Max Speed requirement CAMERA-REQ-014077 rpaquet2 - Updated the precondition and Scenario description to combine the Offroad use case for deactivate with that from Multi Camera.
	DAFVCv1-ACT-REQ-014043/B-Activate/Deactivate Driver Assist Front View Camera (TcSE ROIN-282606-3)	rpaquet2 - Added note to diagram to state check Feature Maximum Speed requirement for exit speed value.
	DAFVCv1-SD-REQ-014050/B-Activate_Deactivate Driver Asistance Front View Camera (TcSE ROIN-282617-2)	rpaquet2 - Update diagram to add note to check feature Maximum Speed requirement for exit speed value.
	DAFVCv2-FUN-REQ-128309/B-Activate/Deactivate Driver Assist Front View Camera v2	rpaquet2 - Added requirement folder with the off road requirement due to merging Offroad and Multicamera SPSS.
	STR-246672/A-Requirements	
	DAFVCv1-FUR-REQ-166641/A-Deactivate FVC	rpaquet2 - New requirement number created during merge of Offroad and multi camera specs due to signal change.
	DAFVCv1-FUR-REQ-013997/B-E-Locker Deactivation Delay (TcSE ROIN-266607-1)	rpaquet2 - Changed FID to DAFVC due to merge of Offroad and Multicamera spec.
	DAFVCv1-TMR-REQ-013998/B-T_eLockerDelay (TcSE ROIN-266609-1)	rpaquet2 - Changed FID to DAFVC due to merge of Offroad and Multicamera spec.

	DAFVCv2-UC-REQ-128182/B-Entering Front Camera - 360	wstephe1: Revised to align with Max Speed requirement CAMERA-REQ-014077
	DAFVCv2-UC-REQ-128184/B-Entering Front Camera – Non-360	wstephe1: Revised to align with Max Speed requirement CAMERA-REQ-014077
	DAFVCv1-UC-REQ-014049/B-Deactivate Driver Assist Front View Camera (TcSE ROIN-290146)	wstephe1: Revised to align with Max Speed requirement CAMERA-REQ-014077 rpaquet2 - Updated the precondition and Scenario description to combine the Offroad use case for deactivate with that from Multi Camera.
	DAFVCv1-ACT-REQ-014043/B-Activate/Deactivate Driver Assist Front View Camera (TcSE ROIN-282606-3)	rpaquet2 - Added note to diagram to state check Feature Maximum Speed requirement for exit speed value.
	DAFVCv1-SD-REQ-014050/B-Activate_Deactivate Driver Asistance Front View Camera (TcSE ROIN-282617-2)	rpaquet2 - Update diagram to add note to check feature Maximum Speed requirement for exit speed value.
September 16, 2015	**1.3**	**Updates for Off Road FVC Activation and Max Speed**
	CAMERA-REQ-014077/C-Feature Maximum Speed (TcSE ROIN-290556)	tmertiri-Updated requirement to account for off road changes.
	DAFVCv1-UC-REQ-014046/B-Activate Driver Assist Front View Camera (TcSE ROIN-290143)	tmertiri-Updated uses case to add Off Road Front Camera to the vehicle system indicated indications (via IPMB sending hard button press)
	DAFVCv1-SD-REQ-014050/C-Activate_Deactivate Driver Asistance Front View Camera (TcSE ROIN-282617-2)	tmertiri-removed scenario of pre and post condition from sequence diagram requirement. Already defined in the use cases.
	DAFVCv1-SD-REQ-014050/C-Activate_Deactivate Driver Asistance Front View Camera (TcSE ROIN-282617-2)	tmertiri-removed scenario of pre and post condition from sequence diagram requirement. Already defined in the use cases.
October 19, 2016	**1.4**	
	RVC-FUR-REQ-014088/D-Deactivate RVC (TcSE ROIN-293328)+	tmertiri: updated Reverse can signal name
	RVC-FUR-REQ-014090/B-Display RVC Video (TcSE ROIN-194462-2)+	tmertiri: replaces old signal name to new one. GearRvrse_D_Actl.
	STR-052391/B-Use Cases (TcSE ROIN-293353)	tmertiri: updated use case
	UC-REQ-238578/A-CHMSL Activation. Soft button press	tmertiri: updated use case
	UC-REQ-238579/A-AUX Activation. Soft button press	tmertiri: updated use case
	RVCv3-UC-REQ-128180/B-Press Aux Camera view Button	tmertiri: updated use case
	RVCv3-UC-REQ-128396/B-Press Hard Button to Enter CHMSL View	tmertiri: updated use case
January 19, 2018	**1.5**	
	RVC-REQ-292389/A-GearRvrse_D_Actl	tmertiri: Added new signal name
	RVC-REQ-292387/A-GearPos_D_Trg	tmertiri: Added new signal name
	RVC-REQ-292388/A-Veh_V_ActlEng	tmertiri: Added new signal name
	RVC-FUR-REQ-014090/D-Display RVC Video (TcSE ROIN-194462-2)	tmertiri: updated with new signal names
	RVCv2-SD-REQ-014104/B-Activate Rear View Camera (TcSE ROIN-282316-2)	Updated SD with new signals
	RVCv2-SD-REQ-014105/B-Deactivate Rear View Camera (TcSE ROIN-282323-2)	Updated SD with new signals
February 1, 2018	**1.6**	
	RVC-FUR-REQ-014090/E-Display RVC Video (TcSE ROIN-194462-2)	tmertiri: Update wording
July 27, 2018	**1.7**	
	RVC-FUR-REQ-014090/F-Display RVC Video (TcSE ROIN-194462-2)	tm: Remove DE values details.
November 7, 2018	**1.8**	
	RVCv2-IR-REQ-014080/C-Rear View Camera Feature ID Definition (TcSE ROIN-287010-3)	tmertiri: added additonal camera views
	MD-REQ-014071/B-CameraServerButton_St (TcSE ROIN-287063-1)	tmertiri: added signal name
	DAFVCv1-IR-REQ-014066/C-Driver Assist Front View Camera Feature ID Definition (TcSE ROIN-287061)	tmertiri:Update encoding table

	DAFVCv1-IIR-REQ-014067/B-DriverAsssitFrontViewCameraClient_Tx (TcSE ROIN-282846-1)	tmertiri: Added new signals
	MD-REQ-331342/A-CamraFrntBttn_D_Stat3	tmertiri: New signal added
	DAFVCv1-IIR-REQ-014069/C-DriverAssistFrontViewCameraClient_Rx (TcSE ROIN-282847-2)	tmertiri: added LIN details
	MD-REQ-331343/A-Camera Button LIN signal	tmertiri: new requirement added
	MD-REQ-331847/A-CamraFrntOffRd_B_Stat	tmertiri: New signal
	STR-052387/C-General Requirements (TcSE ROIN-293327-1)	tmertiri: Added new requirement.
	REQ-331344/A-Button Press Logic	tmertiri: new requirement
	DAFVCv1-FUR-REQ-166648/B-Determine Off Road Mode	tmertiri:Update requirement
	REQ-331863/A-Lin Button Client Operation	tmertiri: New diagram
	STR-052463/C-Driver Assist Front View Camera (TcSE ROIN-293325)	tmertiri:Modified diagrams for LIN button interface
	STR-052307/B-Sequence Diagrams (TcSE ROIN-293389)	tmertiri: added new diagram
	REQ-331856/A-Lin Button Camera Request	tmertiri: new diagram
December 18, 2018	**1.9**	
	RVCv2-IR-REQ-014080/D-Rear View Camera Feature ID Definition (TcSE ROIN-287010-3)	tmertiri: added additional camera views
	MD-REQ-014084/B-ParkBrake_St (TcSE ROIN-287064-1)	tmertiri:no content change
	MD-REQ-014085/B-ElectronicParkBrake_St (TcSE ROIN-287065-1)	tmertiri: add clarification verbiage
	DAFVCv1-IR-REQ-014066/D-Driver Assist Front View Camera Feature ID Definition (TcSE ROIN-287061)	tmertiri: Update table
	DAFVCv1-IIR-REQ-014067/C-DriverAssistFrontViewCameraClient_Tx (TcSE ROIN-282846-1)	tmertiri: fix typo in title
	STR-052388/B-Functional Definition (TcSE ROIN-293326-1)	tmertiri: added offset view
	REQ-331856/B-Lin Button Camera Request	tmertiri: verbiage correction in the boxlines
	CAMERA-FUN-REQ-331348/A-Offset View	tmertiri: new usecases
	CAMERA-UC-REQ-331349/A-Press Rear Offset View Button from Rear 360	tmertiri: new usecases Dec 14
	CAMERA-UC-REQ-331350/A-Press Rear Offset View Button from Front 360	tmertiri: new usecases
	CAMERA-UC-REQ-331351/A-Press Rear Left Corner View Button from Rear 360	tmertiri: new usecases
	CAMERA-UC-REQ-331352/A-Press Rear Left Corner View Button from Front 360	tmertiri: new usecases
	CAMERA-UC-REQ-331353/A-Press Rear Right Corner View Button from Rear 360	tmertiri: new usecases
	CAMERA-UC-REQ-331354/A-Press Rear Right Corner View Button from Front 360	tmertiri: new usecases
	CAMERA-UC-REQ-331356/A-Press Front Offset View Button from Rear 360	tmertiri: new usecases
	CAMERA-UC-REQ-331360/A-Press Front Offset View Button from Front 360	tmertiri: new usecases
	CAMERA-UC-REQ-331365/A-Press Front Left Corner View Button from Rear 360	tmertiri: new usecases
	CAMERA-UC-REQ-331369/A-Press Front Left Corner View Button from Front 360	tmertiri: new usecases
	CAMERA-UC-REQ-331373/A-Press Front Right Corner View Button from Rear 360	tmertiri: new usecases
	CAMERA-UC-REQ-331374/A-Press Front Right Corner View Button from Front 360	tmertiri: new usecases
April 26, 2019	**1.10**	
	RVCv2-IR-REQ-014080/E-Rear View Camera Feature ID Definition (TcSE ROIN-287010-3)	tmertiri: added rock crawl views
	RVC-MD-REQ-292389/B-GearRvrse_D_Actl	tmertiri: clarified what to consider as reverse
	DAFVCv1-IR-REQ-014066/E-Driver Assist Front View Camera Feature ID Definition (TcSE ROIN-287061)	tmertiri: added rock crawl views
	RVCv2-IIR-REQ-014086/C-VehicleInformation_Tx (TcSE ROIN-282400-2)	tmertiri: Structural change. Added to conent in this structure.
	MD-REQ-347573/A-PowerMode	tmertiri: added for clarification. needed only in CGEA 1.2

	RVC-FUR-REQ-014090/G-Display RVC Video (TcSE ROIN-194462-2)	tmertiri: update the GeaRvrse_D_Actl New Strategy
October 2, 2019	**1.11**	
	RVCv2-IR-REQ-014080/F-Rear View Camera Feature ID Definition (TcSE ROIN-287010-3)	tmertiri: added Views at Speed Configs
	DAFVCv1-IR-REQ-014066/F-Driver Assist Front View Camera Feature ID Definition (TcSE ROIN-287061)	tmertiri: adding Views At Speed
	MD-REQ-331342/B-CamraFrntBttn_D_Stat3	tmertiri: updating requirement. Adding Soft Press origins
	CAMERA-REQ-331344/B-Button Press Logic	tmertiri: no content changes
	CAMERA-REQ-331863/B-Lin Button Client Operation	tmertiri: no content change
	STR-052388/C-Functional Definition (TcSE ROIN-293326-1)	tmertiri:revised to allow views at speed function
	STR-669257/A-Views At Speed	tmertiri: new section
	CAMERA-FUN-REQ-354982/A-Views At Speed	tmertiri: new section
	STR-669258/A-Requirements	tmertiri: new section
	CAMERA-REQ-354992/A-Views At Speed Availability	tmertiri: new req
	CAMERA-REQ-354993/A-Views At Speed List	tmertiri: new req
	CAMERA-REQ-358450/A-Off Road Mode Views At Speed	tmertiri: new req
	STR-669259/A-Use Cases	tmertiri: new section
	CAMERA-UC-REQ-355016/A-Views At Speed Trigger	tmertiri: new usecase
	STR-669260/A-White Box Views	tmertiri: new section
	STR-673941/A-Activity Diagram	tmertiri: new diagram
	CAMERA-ACT-REQ-358468/A-Views At Speed	tmertiri: new diagram
	STR-669262/A-Sequence Diagram	tmertiri: new section
	CAMERA-SD-REQ-354994/A-Views At Speed	tmertiri: new SD
March 10, 2020	**1.12**	
	STR-052388/D-Functional Definition (TcSE ROIN-293326-1)	tmertiri: add views at speed v2.
	STR-669257/B-Views At Speed v1	tmertiri: rename the content. V1 was added to the feature for Gen 3.2
	CAMERA-FUN-REQ-354982/B-Views At Speed v1	tmertiri: rename requirement
	CAMERA-REQ-354993/B-Views At Speed v1 List	tmertiri: rename and remove update table
	CAMERA-REQ-358450/B-Off Road Mode Views At Speed	tmertiri: new requirement
	CAMERA-UC-REQ-355016/B-Views At Speed Trigger	tmertiri: update usecase
	CAMERA-ACT-REQ-358468/B-Views At Speed v1	tmertiri: update diagram
	CAMERA-SD-REQ-354994/B-Views At Speed v1	tmertiri: update the parameters
	735207/A-Views At Speed V2	tmertiri: new Views at Speed V2 are applicable for FNV2
	CAMERA-FUN-REQ-381834/A-Views At Speed V2	tmertiri: new funcion
	CAMERA-REQ-381833/A-Views At Speed V2 Enumerations	tmertiri: new requirement
	CAMERA-REQ-382183/A-Views at Speed Deactivation	tmertiri: new requirement
	734944/A-UseCases	tmertiri: new usecase
	CAMERA-UC-REQ-381763/A-RCOD Transition from Below Speed to Above Speed on 360 Variants	tmertiri: new usecase
	CAMERA-UC-REQ-381770/A-Hitch Transition from Below Speed to Above Speed on 360 Variants	tmertiri: new usecase
	CAMERA-UC-REQ-381808/A-Aux Transition from Below Speed to Above Speed on 360 Variants	tmertiri: new usecase
	CAMERA-UC-REQ-381809/A-CHMSL Transition from Below Speed to Above Speed on 360 Variants	tmertiri: new usecase
	CAMERA-UC-REQ-381810/A-Views at Speed above Speed Menu Options on 360 Variants	tmertiri: new usecase
	CAMERA-UC-REQ-381811/A-RCOD Activation Above Speed on 360 Variants	tmertiri: new usecase
	CAMERA-UC-REQ-381812/A-Hitch Activation Above Speed on 360 Variants	tmertiri: new usecase
	CAMERA-UC-REQ-381813/A-Aux Activation Above Speed on 360 Variants	tmertiri: new usecase
	CAMERA-UC-REQ-381814/A-CHMSL Activation Above Speed on 360 Variants	tmertiri: new usecase
	CAMERA-UC-REQ-381815/A-RCOD Transition from Above Speed to Below Speed	tmertiri: new usecase
	CAMERA-UC-REQ-381816/A-Hitch Transition from Above Speed to Below Speed	tmertiri: new usecase
	CAMERA-UC-REQ-381818/A-Aux Transition from Above Speed to Below Speed	tmertiri: new usecase
	CAMERA-UC-REQ-381817/A-CHMSL Transition from Above Speed to Below Speed	tmertiri: new usecase

	734946/A-White Box Views	tmertiri: new diagram
	734947/A-Activity Diagram	tmertiri: new diagram
	CAMERA-ACT-REQ-381772/A-Views At Speed Gen 4	tmertiri: new diagram
	734948/A-Sequence Diagram	tmertiri: new diagram
	CAMERA-SD-REQ-381773/A-Views At Speed Gen 4	tmertiri: new diagram
	738691/A-CHMSL IOD	tmertiri: new section
	FUN-REQ-382683/A-CHMSL IOD	tmertiri: new function
	CAMERA-REQ-382684/A-CHMSL IOD Config Values	tmertiri: new requirement
	738641/A-UseCases	tmertiri: new usecases
	CAMERA-UC-REQ-382686/A-CHMSL IOD Activation	tmertiri: new usecases
	CAMERA-UC-REQ-382687/A-CHMSL IOD Deactivation Via Client	tmertiri: new usecases
	CAMERA-UC-REQ-382688/A-Returning to CHMSL IOD from Parking Feature	tmertiri: new usecases
	738655/A-White Box View	tmertiri: new section
	738652/A-Activity Diagram	tmertiri: new section
	CAMERA-ACT-REQ-382730/A-CHMSL IOD Operation	tmertiri: new diagram
	738654/A-Sequence Diagrams	tmertiri: new section
	CAMERA-SD-REQ-382731/A-CHMSL IOD Operation	tmertiri: new diagram
August 19, 2020	**1.13**	
	RVCv2-IIR-REQ-014082/C-RearViewCameraClient_Rx (TcSE ROIN-282396-3)	tmertiri: adding new signals for RVC ON check
	MD-REQ-395472/A-GearLvrPos_D_Actl_UB	tmertiri: new signal
	MD-REQ-395473/A-VehVActlEng_D_Qf	tmertiri: new signal
	MD-REQ-395474/A-GearPos_D_Trg_UB	tmertiri: new signal
	DAFVCv1-IIR-REQ-014069/D-DriverAssistFrontViewCameraClient_Rx (TcSE ROIN-282847-2)	tmertiri: added new md for FNVSS table
	RVCv2-IIR-REQ-014086/D-VehicleInformation_Tx (TcSE ROIN-282400-2)	tmertiri: added new md for FNVSS table
	STR-052388/E-Functional Definition (TcSE ROIN-293326-1)	tmertiri: Added usecases for Reverse Gear Strategy
	RVC-FUR-REQ-014090/H-Display RVC Video (TcSE ROIN-194462-2)	tmertiri: update table for new automatic transmission RVC state
	RVC-FUN-REQ-395521/A-Reverse Gear Strategy	tmertiri: new structure
	788109/A-Use Cases	tmertiri: new structure
	RVC-UC-REQ-395465/A-Reverse Gear Strategy on Automatic Transmission Vehicles - Moving Below 16.09 KPH	tmertiri: new usecase
	RVC-UC-REQ-395468/A-Reverse Gear Strategy on Automatic Transmission Vehicles - Moving Above 16.09 KPH	tmertiri: new usecase
	RVC-UC-REQ-395466/A-Reverse Gear Strategy on Automatic Transmission Vehicles - Shift Above 16.09 KPH and Deceleration Below 16.09 KPH	tmertiri: new usecase
	RVC-UC-REQ-395467/A-Reverse Gear Strategy on Automatic Transmission Vehicles - Vehicle Speed Unavailable or is Not OK	tmertiri: new usecase
	RVC-UC-REQ-395469/A-Reverse Gear Strategy on Automatic Transmission Vehicles - Exit Criteria when Gear Shifter Position is not Reverse	tmertiri: new usecase
	RVC-UC-REQ-395470/A-Exit Criteria when RVC is active, Gear Shifter is in Reverse, and the vehicle is moving forward above 16.09 KPH	tmertiri: new usecase
March 31, 2021	**1.14**	
	STR-052384/B-Architectural Design (TcSE ROIN-293311-1)	tmertiri: added new signals and elements
	CAMERA-CLD-REQ-412756/A-Camera Client	tmertiri: added generic class
	CAMERA-CLD-REQ-412757/A-Camera Server	tmertiri: added generic class
	879418/A-Turn Signal View Logical Mapping Table	tmertiri: Trailer Signal View function related changes
	879419/A-CTA Split View Logical Mapping Table	tmertiri: CTA 180 related changes
	CAMERA-IIR-REQ-412758/A-Camera Client Tx	tmertiri: added generic simplified iir
	MD-REQ-410094/A-LMnuRq	tmertiri: Trailer Signal View function related changes
	MD-REQ-411949/A-CTASVRq	tmertiri: CTA 180 related changes
	CAMERA-IIR-REQ-412759/A-Camera Client Rx	tmertiri: added generic simplified iir
	MD-REQ-410095/A-LTviewSt	tmertiri: Trailer Signal View function related changes
	MD-REQ-410096/A-LSodLSt	tmertiri: Trailer Signal View function related changes
	MD-REQ-410097/A-LSodRSt	tmertiri: Trailer Signal View function related changes
	MD-REQ-411950/A-CTASVSt	tmertiri: CTA 180 related changes

STR-052388/F-Functional Definition (TcSE ROIN-293326-1)	tmertiri: added many new functions
882163/A-Turn Signal View	tmertiri: New structure with new content
FUN-REQ-410168/A-Turn Signal View	tmertiri: Trailer Signal View function related changes
881818/A-Functional Definition	tmertiri: Trailer Signal View function related changes
882149/A-Requirements	tmertiri: Trailer Signal View function related changes
CAMERA-REQ-410098/A-Trailer Turn Signal View - Menu Setting Updates	tmertiri: Trailer Signal View function related changes
CAMERA-REQ-410099/A-Trailer Turn Signal View - Menu Grayed Out	tmertiri: Trailer Signal View function related changes
CAMERA-REQ-410101/A-Trailer Turn Signal View - Grayed Out Menu Displays Off	tmertiri: Trailer Signal View function related changes
CAMERA-REQ-410102/A-Trailer Turn Signal View - No User Change to Menu	tmertiri: Trailer Signal View function related changes
CAMERA-REQ-410103/A-Menu Setting Change - Missing Message	tmertiri: Trailer Signal View function related changes
CAMERA-REQ-410104/A-Menu Setting Change - Message Agreement Timeout	tmertiri: Trailer Signal View function related changes
CAMERA-REQ-410105/A-Menu Setting based on Server Feature Memory	tmertiri: Trailer Signal View function related changes
CAMERA-REQ-410106/A-Trailer Turn Signal View - Menu Setting Change - ON to OFF	tmertiri: Trailer Signal View function related changes
CAMERA-REQ-410107/A-Trailer Turn Signal View - Menu Setting Change - OFF to ON	tmertiri: Trailer Signal View function related changes
CAMERA-REQ-410108/A-Menu Setting Change - Parity THEN Revert to NULL	tmertiri: Trailer Signal View function related changes
CAMERA-REQ-410109/A-Trailer Turn Signal View LEFT Activation - NO Blind Spot Threat Reported	tmertiri: Trailer Signal View function related changes
CAMERA-REQ-410110/A-Trailer Turn Signal View LEFT Activation - Blind Spot Threat Reported	tmertiri: Trailer Signal View function related changes
CAMERA-REQ-410111/A-Trailer Turn Signal View RIGHT Activation - NO Blind Spot Threat Reported	tmertiri: Trailer Signal View function related changes
CAMERA-REQ-410112/A-- Trailer Turn Signal View RIGHT Activation - Blind Spot Threat Reported	tmertiri: Trailer Signal View function related changestmertiri: Trailer Signal View function related changes
881910/A-Use Cases	tmertiri: Trailer Signal View function related changes
CAMERA-UC-REQ-409518/A-Trailer Turn Signal View Missing Signal	tmertiri: Trailer Signal View function related changes
CAMERA-UC-REQ-409519/A-Trailer Turn Signal View Setting Change	tmertiri: Trailer Signal View function related changes
CAMERA-UC-REQ-409520/A-Trailer Turn Signal View because of Cancel "X" Button Press	tmertiri: Trailer Signal View function related changes
CAMERA-UC-REQ-409521/A-Trailer Turn Signal View due to Shift Reverse	tmertiri: Trailer Signal View function related changes
CAMERA-UC-REQ-410090/A-Trailer Turn Signal View Menu Setting based on Server Feature Memory	tmertiri: Trailer Signal View function related changes
881918/A-White Box Views	tmertiri: Trailer Signal View function related changes
881919/A-Activity Diagrams	tmertiri: Trailer Signal View function related changes
CAMERA-ACT-REQ-411945/A-Operate TSV	tmertiri: Trailer Signal View function related changestmertiri: Trailer Signal View function related changes
CAMERA-ACT-REQ-411947/A-Disable TSV	tmertiri: Trailer Signal View function related changes
881923/A-Sequence Diagrams	tmertiri: Trailer Signal View function related changes
CAMERA-SD-REQ-411946/A-Operate TSV	tmertiri: Trailer Signal View function related changes
CAMERA-SD-REQ-411948/A-Disable TSV	tmertiri: Trailer Signal View function related changes
882164/A-CTA 180 Multicamera	tmertiri: New structure with new content
FUN-REQ-410169/A-CTA 180 Multicamera	tmertiri: CTA 180 related changes
881819/A-Functional Definition	tmertiri: CTA 180 related changes
881911/A-Use Cases	tmertiri: CTA 180 related changes
CAMERA-UC-REQ-410120/A-Menu to be not available	tmertiri: CTA 180 related changes
CAMERA-UC-REQ-410121/A-Menu to be available in Settings	tmertiri: CTA 180 related changes
CAMERA-UC-REQ-410122/A-Activating Feature via Settings menu	tmertiri: CTA 180 related changestmertiri: CTA 180 related changes
CAMERA-UC-REQ-410123/A-De-activating Feature via Settings menu	tmertiri: CTA 180 related changes
CAMERA-UC-REQ-410124/A-No Switching when not in Reverse Gear	tmertiri: CTA 180 related changes
CAMERA-UC-REQ-410125/A-View switching due to a CTA Event	tmertiri: CTA 180 related changes
CAMERA-UC-REQ-410126/A-Switching to last known view after a CTA Event	tmertiri: CTA 180 related changes

	CAMERA-UC-REQ-410127/A-Missing Signal	tmertiri: CTA 180 related changes
	881915/A-White Box Views	tmertiri: CTA 180 related changes
	881920/A-Activity Diagrams	tmertiri: CTA 180 related changes
	CAMERA-ACT-REQ-411951/A-Enable Disable CTASV	tmertiri: CTA 180 related changes
	CAMERA-ACT-REQ-411953/A-Switching to SV	tmertiri: CTA 180 related changes
	881924/A-Sequence Diagrams	tmertiri: CTA 180 related changes
	CAMERA-SD-REQ-411952/A-Enable Disable CTASV	tmertiri: CTA 180 related changes
	CAMERA-SD-REQ-411954/A-Switching to SV	tmertiri: CTA 180 related changes
	882165/A-Invisible Van View	tmertiri: New structure with new content
	FUN-REQ-410171/A-Invisible Van View	tmertiri: invisible van view function related changes
	CAMERA-REQ-411963/A-IVV Config Value	tmertiri: invisible van view function related changes
	881821/A-Functional Definition	tmertiri: invisible van view function related changes
	881913/A-Use Cases	tmertiri: invisible van view function related changes
	CAMERA-UC-REQ-410139/A-Requesting Invisible Van View	tmertiri: invisible van view function related changes
	CAMERA-UC-REQ-410140/A-Deactivating Invisible Van View (1)	tmertiri: invisible van view function related changes
	CAMERA-UC-REQ-411961/A-Deactivating Invisible Van View (2)	tmertiri: invisible van view function related changes
	CAMERA-UC-REQ-411962/A-Deactivating Invisible Van View (3)	tmertiri: invisible van view function related changes
	881917/A-White Box Views	tmertiri: invisible van view function related changes
	881922/A-Activity Diagrams	tmertiri: invisible van view function related changes
	CAMERA-ACT-REQ-411959/A-Operate Invisible Van View	tmertiri: invisible van view function related changes
	881926/A-Sequence Diagrams	tmertiri: invisible van view function related changes
	CAMERA-SD-REQ-411960/A-Operate Invisible Van View	tmertiri: invisible van view function related changes
	882166/A-50/50 Views	tmertiri: New structure with new content
	FUN-REQ-410167/A-50/50 Views	tmertiri: changes related to 50 50 view function
	CAMERA-REQ-411964/A-50 50 Split View Configurations	tmertiri: changes related to 50 50 view function
	881909/A-Functional Definition	tmertiri: changes related to 50 50 view function
	881914/A-Use Cases	tmertiri: changes related to 50 50 view function
	CAMERA-UC-REQ-410164/A-50/50 SPLIT VIEW Activation Below Speed on 360 Variants	tmertiri: changes related to 50 50 view function
	CAMERA-UC-REQ-410165/A-50/50 SPLIT VIEW Transition from Below Speed to Above Speed on 360 Variants	tmertiri: changes related to 50 50 view function
	CAMERA-UC-REQ-410166/A-50/50 Split View at Speed Activation Above Speed on 360 Variants	tmertiri: changes related to 50 50 view function
	CAMERA-UC-REQ-410163/A-50/50 Split View Transition from Above Speed to Below Speed	tmertiri: changes related to 50 50 view function
	882147/A-White Box Views	tmertiri: changes related to 50 50 view function
	882148/A-Activity Diagrams	tmertiri: changes related to 50 50 view function
	CAMERA-ACT-REQ-411965/A-Operate 50 50 Split View	tmertiri: changes related to 50 50 view function
	881927/A-Sequence Diagrams	tmertiri: changes related to 50 50 view function
	CAMERA-SD-REQ-411966/A-Operate 50 50 Split View	tmertiri: changes related to 50 50 view function
June 29, 2021	**1.15**	
	STR-052384/C-Architectural Design (TcSE ROIN-293311-1)	tmertiri: new signals added in the structure
	902993/A-Logical Mapping Table	tmertiri: New signals added
	CAMERA-IIR-REQ-412759/B-Camera Client Rx	tmertiri: new signals added to structure
	MD-REQ-419851/A-LTrlrConnect	tmertiri: new signal added in structure
	MD-REQ-421155/A-LTgateSt	tmertiri: new signal added in structure
	STR-052388/G-Functional Definition (TcSE ROIN-293326-1)	tmertiri: new functions added
	RVC-FUR-REQ-014090/I-Display RVC Video (TcSE ROIN-194462-2)	tmertiri: updated req for FNV3
	902987/A-Trailer 360 Views	tmertiri: new structure with new content
	CAMERA-FUN-REQ-419878/A-Trailer 360 Views	tmertiri: new structure with new content
	915759/A-Requirements	tmertiri: new structure with new content
	CAMERA-REQ-419865/A-Trailer 360 View Configuration Values	tmertiri: new structure with new content
	CAMERA-REQ-419879/A-Trailer 360 Views Availability	tmertiri: new structure with new content
	902992/A-Use Cases	tmertiri: new structure with new content
	CAMERA-UC-REQ-419705/A-Trailer 360 Soft Button Activation	tmertiri: new structure with new content
	CAMERA-UC-REQ-419706/A-Trailer 360 view selection below 10 KPH or in Reverse	tmertiri: new structure with new content
	CAMERA-UC-REQ-419707/A-Trailer Rear Normal view selection below 10 KPH or in Reverse	tmertiri: new structure with new content
	CAMERA-UC-REQ-419708/A-Trailer Interior View 1 selection below 10 KPH or in Reverse	tmertiri: new structure with new content

CAMERA-UC-REQ-419709/A-Trailer Interior View 2 selection below 10 KPH or in Reverse	tmertiri: new structure with new content
CAMERA-UC-REQ-419710/A-Trailer Left View selection below 10 KPH or in Reverse	tmertiri: new structure with new content
CAMERA-UC-REQ-419711/A-Trailer Right View selection below 10 KPH or in Reverse	tmertiri: new structure with new content
CAMERA-UC-REQ-419712/A-Trailer 360 Soft Button Deactivation	tmertiri: new structure with new content
CAMERA-UC-REQ-419713/A-Trailer Rear Normal View transition from below 10 KPH to above 10 KPH	tmertiri: new structure with new content
CAMERA-UC-REQ-419714/A-Trailer Rear Normal View at Speed selection above 10 KPH	tmertiri: new structure with new content
CAMERA-UC-REQ-419715/A-Trailer Rear Normal View transition from above 10 KPH to below 10 KPH	tmertiri: new structure with new content
915760/A-White Box Views	tmertiri: new structure with new content
915761/A-Activity Diagrams	tmertiri: new structure with new content
CAMERA-ACT-REQ-423119/A-Trailer 360 Views	tmertiri: new structure with new content
915762/A-Sequence Diagrams	tmertiri: new structure with new content
CAMERA-SD-REQ-423120/A-Trailer 360 Views	tmertiri: new structure with new content
915763/A-PiP At Speed	tmertiri: new structure with new content
FUN-REQ-423142/A-PiP At Speed	tmertiri: new structure with new content
915751/A-Requirements	tmertiri: new structure with new content
CAMERA-REQ-422921/A-Views Parameter Values	tmertiri: new structure with new content
915752/A-Use Cases	tmertiri: new structure with new content
CAMERA-UC-REQ-420591/A-Requesting PiP AUX from AUX below 10kph	tmertiri: new structure with new content
CAMERA-UC-REQ-420592/A-Requesting AUX from PiP AUX with PiP button at below 10kph	tmertiri: new structure with new content
CAMERA-UC-REQ-420593/A-Requesting Swap from PiP AUX at below 10kph	tmertiri: new structure with new content
CAMERA-UC-REQ-420594/A-Requesting PiP 50/50 from 50/50 view , below 10kph	tmertiri: new structure with new content
CAMERA-UC-REQ-420595/A-Requesting 50/50 from PiP 50/50 with PiP button at below 10kph	tmertiri: new structure with new content
CAMERA-UC-REQ-420596/A-Requesting Swap from PiP 50/50 at below 10kph	tmertiri: new structure with new content
CAMERA-UC-REQ-420597/A-Requesting Pip Trailer Rear Normal from Trailer Rear Normal below 10kph	tmertiri: new structure with new content
CAMERA-UC-REQ-420598/A-Requesting Trailer Rear Normal from PiP Trailer Rear Normal with PiP button at below 10kph	tmertiri: new structure with new content
CAMERA-UC-REQ-420599/A-Requesting Swap from Pip Trailer Rear Normal below 10kph	tmertiri: new structure with new content
CAMERA-UC-REQ-420600/A-Transitioning from PiP AUX to PiP AUX at Speed	tmertiri: new structure with new content
CAMERA-UC-REQ-420601/A-Transitioning from PiP AUX at Speed to PiP AUX	tmertiri: new structure with new content
CAMERA-UC-REQ-420602/A-Transitioning from PiP 50/50 to PiP 50/50 at speed	tmertiri: new structure with new content
CAMERA-UC-REQ-420603/A-Transitioning from PiP 50/50 at speed to PiP 50/50	tmertiri: new structure with new content
CAMERA-UC-REQ-420604/A-Transitioning from PiP Trailer Rear Normal to PiP Trailer Rear Normal at speed	tmertiri: new structure with new content
CAMERA-UC-REQ-420605/A-Transitioning from PiP Trailer Rear Normal at speed to PiP Trailer Rear Normal	tmertiri: new structure with new content
CAMERA-UC-REQ-420606/A-Requesting PiP AUX at Speed from AUX at Speed	tmertiri: new structure with new content
CAMERA-UC-REQ-420607/A-Requesting PiP 50/50 at speed from 50/50 at speed with PiP button	tmertiri: new structure with new content
CAMERA-UC-REQ-420608/A-Requesting PiP Trailer Rear Normal at Speed from Trailer Rear Normal at Speed with PiP button	tmertiri: new structure with new content
CAMERA-UC-REQ-420609/A-Requesting AUX at speed view from PiP AUX at Speed view with PiP button	tmertiri: new structure with new content
CAMERA-UC-REQ-420610/A-Requesting 50/50 at speed view from PiP 50/50 at Speed view with PiP button	tmertiri: new structure with new content
CAMERA-UC-REQ-420611/A-Requesting Trailer Rear Normal at speed from PiP Trailer Rear Normal at speed view with PiP button	tmertiri: new structure with new content

	CAMERA-UC-REQ-420612/A-Exit PiP Aux at Speed View with Camera Hard button	tmertiri: new structure with new content
	CAMERA-UC-REQ-420613/A-Exit PiP 50/50 at Speed View with Camera Hard button	tmertiri: new structure with new content
	CAMERA-UC-REQ-420614/A-Exit PiP Trailer Rear Normal at Speed View with Camera Hard button	tmertiri: new structure with new content
	CAMERA-UC-REQ-420615/A-Requesting AUX from PiP AUX view with Aux button below 10kph	tmertiri: new structure with new content
	CAMERA-UC-REQ-420616/A-Requesting 50/50 from PiP 50/50 view with 50/50 button below 10kph	tmertiri: new structure with new content
	CAMERA-UC-REQ-420617/A-Requesting Trailer Normal View from PiP Trailer Rear Normal view with Trailer Rear Normal View button below 10kph	tmertiri: new structure with new content
	CAMERA-UC-REQ-420618/A-Requesting Swap from PiP AUX at speed above 10kph	tmertiri: new structure with new content
	CAMERA-UC-REQ-420619/A-Requesting Swap from PiP 50/50 at speed above 10kph	tmertiri: new structure with new content
	CAMERA-UC-REQ-420620/A-Requesting Swap from PiP Trailer Rear Normal at speed above 10kph	tmertiri: new structure with new content
	CAMERA-UC-REQ-420621/A-Last Remembered view for PiP AUX at Speed	tmertiri: new structure with new content
	CAMERA-UC-REQ-420622/A-Last Remembered view for PiP 50/50 at Speed	tmertiri: new structure with new content
	CAMERA-UC-REQ-420623/A-Last Remembered view for PiP Trailer Rear Normal at Speed	tmertiri: new structure with new content
	CAMERA-UC-REQ-420624/A-Requesting AUX at speed view from PiP 50/50 at Speed view above 10kph	tmertiri: new structure with new content
	CAMERA-UC-REQ-420625/A-Requesting 50/50 at speed view from PiP AUX at Speed view above 10kph	tmertiri: new structure with new content
	CAMERA-UC-REQ-422845/A-Requesting Trailer Rear Normal at speed view from PiP 50/50 at Speed view above 10kph	tmertiri: new structure with new content
	CAMERA-UC-REQ-422844/A-Requesting 50/50 at speed from PiP Trailer Rear Normal at speed view above 10kph	tmertiri: new structure with new content
	915753/A-White Box Views	tmertiri: new structure with new content
	915754/A-Activity Diagrams	tmertiri: new structure with new content
	CAMERA-ACT-REQ-422922/A-PiP Views	tmertiri: new structure with new content
	915755/A-Sequence Diagrams	tmertiri: new structure with new content
	CAMERA-SD-REQ-422923/A-PiP Views	tmertiri: new structure with new content
	915764/A-Tailgate RVC	tmertiri: new structure with new content
	CAMERA-FUN-REQ-421101/A-Tailgate RVC	tmertiri: new structure with new content
	907725/A-Overview	tmertiri: new structure with new content
	907726/A-Requirements	tmertiri: new structure with new content
	CAMERA-REQ-421102/A-Tailgate Down In Reverse	tmertiri: new structure with new content
	CAMERA-REQ-421103/A-Tailgate Down Not In Reverse	tmertiri: new structure with new content
	CAMERA-REQ-421104/A-Tailgate Down And Vehicle Speed Above 10kph	tmertiri: new structure with new content
	CAMERA-REQ-421105/A-Tailgate States	tmertiri: new structure with new content
	907727/A-Use Cases	tmertiri: new structure with new content
	UC-REQ-421106/A-Suppressed Views with Tailgate Down RVC in Reverse	tmertiri: new structure with new content
	UC-REQ-421107/A-Suppressed Views with Tailgate Down RVC not in Reverse	tmertiri: new structure with new content
	UC-REQ-421108/A-Suppressed Views-at-speed with Tailgate Down RVC	tmertiri: new structure with new content
	915758/A-White Box Views	tmertiri: new structure with new content
	915756/A-Activity Diagrams	tmertiri: new structure with new content
	ACT-REQ-422407/A-Tailgate Camera Limiting	tmertiri: new structure with new content
	915757/A-Sequence Diagrams	tmertiri: new structure with new content
	SD-REQ-422408/A-Tailgate Camera Limiting	tmertiri: new structure with new content
April 5, 2022	**1.16**	
	STR-052388/H-Functional Definition (TcSE ROIN-293326-1)	tmertiri: add offset view function
	STR-052390/C-Rear View Camera General Requirements (TcSE ROIN-293310-1)	tmertiri: removed 014089
	STR-052391/C-Use Cases (TcSE ROIN-293353)	tmertiri:removed 014100 . Usecase not totally applicable to RVC
	1039274/A-AUX IOD	tmertiri: new requirement
	FUN-REQ-483789/A-AUX IOD	tmertiri: new requirement

	1039550/A-Use Cases	tmertiri: new requirement
	UC-REQ-483740/A-AUX IOD Activation	tmertiri: new requirement
	UC-REQ-483741/A-AUX IOD Deactivation via Camera Button	tmertiri: new requirement
	UC-REQ-483743/A-AUX IOD Deactivation via Shift to Reverse	tmertiri: new requirement
	UC-REQ-483744/A-AUX IOD Deactivation via Pro Trailer Assist Activation	tmertiri: new requirement
	UC-REQ-483745/A-AUX IOD Deactivation via APA Activation	tmertiri: new requirement
	UC-REQ-483747/A-AUX IOD Deactivation via Ignition	tmertiri: new requirement
	UC-REQ-483748/A-AUX IOD while Shifting to Park	tmertiri: new requirement
	UC-REQ-483749/A-AUX IOD Deactivation via Sync	tmertiri: new requirement
	UC-REQ-483750/A-AUX IOD Deactivation via Boundary Alert	tmertiri: new requirement
	UC-REQ-483781/A-AUX IOD Deactivation via Off-road Mode	tmertiri: new requirement
	UC-REQ-483751/A-Returning to AUX IOD from Parking Feature	tmertiri: new requirement
	UC-REQ-483752/A-No Response from ADAS/IPMB Handling	tmertiri: new requirement
	UC-REQ-483753/A-No Video from ADAS/IPMB Handling	tmertiri: new requirement
	1039490/A-RCOD	tmertiri: new requirement
	FUN-REQ-483788/A-RCOD	tmertiri: new requirement
	1039551/A-Use Cases	tmertiri: new requirement
	UC-REQ-483754/A-RCOD Black Box Not Configured ADAS	tmertiri: new requirement
	UC-REQ-483755/A-RCOD Black Box Is Configured ADAS Variant	tmertiri: new requirement
	UC-REQ-483757/A-RCOD Black Box Is Configured Non-ADAS Variant	tmertiri: new requirement
	UC-REQ-483756/A-RCOD Black Box Not Configured Non-ADAS variant	tmertiri: new requirement
August 1, 2022	**1.17**	
	STR-052388/I-Functional Definition (TcSE ROIN-293326-1)	tmertiri: add elements to the structure
	1012970/A-Offset Views	tmertiri: new section
	CAMERA-FUN-REQ-470961/A-Requesting Offset View	tmertiri:new requirement

Table of Contents

1 Architectural Design

1.1 RVC-CLD-REQ-014079/A-Rear View Camera Client (TcSE ROIN-282382-1)

Responsibility: The Rear View Camera Client is the interface of the Rear View Camera function. It acts with other system parts that control the Rear View Camera or need data from it.

1.2 DAFVCv1-CLD-REQ-014064/A-Driver Assist Front View Camera Client (TcSE ROIN-282843-1)

Responsibility: The Driver Assist Front View Camera Client is the interface of the Driver Assist Front View Camera function. It acts with other system parts that control the Driver Assist Front View Camera or need data from it.

1.3 RearViewCameraClient Interface

1.3.1 RVCv2-IR-REQ-014080/F-Rear View Camera Feature ID Definition (TcSE ROIN-287010-3)

The below table defines the Feature ID information related to the Feature Based Message Protocol command and control method used in the Rear View Camera feature.

Feature Name	Feature ID	Config Number	Config Value
Rear Camera Visual Park Aid Overlays	0x080A	0x01	On
		0x00	Off
All Overlays	0x0812	0x01	On
		0x00	Off
Rear Camera Static Overlays	0x0818	0x01	On
		0x00	Off
Rear Camera Dynamic Overlays	0x0819	0x01	On
		0x00	Off
Manual Zoom	0x081A	0x00	Off
		0x01	Level 1
		0x02	Level2
		0x03	Level3

Feature Name	Feature ID	Config Number	Config Value
Camera Showing	0x081B	0x00	Off
		0x01	Front
		0x02	Rear
		0x03	Remote
		0x04	Rear 360
		0x05	Rear Normal
		0x06	Rear Split
		0x07	Front 360
		0x08	Front Normal
		0x09	Front Split
		0x0A	Rear Zoom
		0x0B	CHMSL

		0x0C	CHMSL Zoom
		0x0D	AUX
		0x0E	TRG
		0x0F	TRG Rear Normal
		0x10	Straight Back Up Mode
		0x11	TBA2 Rear Split
		0x12	TBA2 Rear 360
		0x13	TBA2 CHMSL
		0x14	TBA2 Aux
		0x15	TBA2 50/50
		0x16	TBA2 Rear Normal
		0x17	Auto Hitch Rear Normal
		0x18	Rear Frwd Offset
		0x19	Rear Rrwd Offset
		0x1A	Front Frwd Offset
		0x1B	Front Rrwd Offset
		0x1C	Rear FL Corner
		0x1D	Rear FR Corner
		0x1E	Rear RL Corner
		0x1F	Rear RR Corner
		0x20	Front FL Corner
		0x21	Front FR Corner
		0x22	Front RL Corner
		0x23	Front RR Corner
		0x24	Rock Crawl Front
		0x25	Rock Crawl Rear
		0x26	Hitch
		0x27	Rear Camera On Demand (360)

1.3.2 RVCv2-IIR-REQ-014081/A-RearViewCameraClient_Tx (TcSE ROIN-282395-3)

1.3.2.1 MD-REQ-014068/A-Feature_Rq (TcSE ROIN-282333-2)

Message Type: Request

Represents the request to command a feature change (select new feature, change feature setting, query features, etc.).

Included Parameters:
Operation
FeatureID
Configuration
PersIndex

Name	Literals	Value	Description
Operation	-	-	Type of operation being requested
	Null	0x0	
	Query	0x1	

	Set	0x2	
	Upload	0x3	
	Restore	0x4	
	Copy	0x5	
	NotUsed	0x6 – 0x7	
FeatureID	-	-	Feature number being requested
		0x0000 – 0xFFFF	
Configuration	-	-	Configuration value being requested
		0x0000 – 0xFFFF	
PersIndex	-	-	Indicates which personality profile is being accessed
	PERS_1	0x0	
	PERS_2	0x1	
	PERS_3	0x2	
	PERS_4	0X3	
	VEHICLE	0X4	
	Not Used	0x5	
	Not Used	0x6	
	Not Used	0x7	

1.3.3 RVCv2-IIR-REQ-014082/C-RearViewCameraClient_Rx (TcSE ROIN-282396-3)

1.3.3.1 MD-REQ-014070/A-Feature_St (TcSE ROIN-282399-2)

Message Type: Status

Represents the current status of a feature (feature selected, feature setting, etc.).

Included Parameters:
FeatureID
Configuration
PersIndex

Name	Literals	Value	Description
FeatureID	-	-	Active feature number
		0x0000 – 0xFFFF	
Configuration	-	-	Active configuration value
		0x0000 – 0xFFFF	
PersIndex	-	-	Indicates which personality profile is active
	PERS_1	0x0	
	PERS_2	0x1	
	PERS_3	0x2	
	PERS_4	0X3	
	VEHICLE	0X4	
	Not Used	0x5	
	Not Used	0x6	
	Not Used	0x7	

1.3.3.2 MD-REQ-014083/A-PJB_Bootlid_St (TcSE ROIN-282394-1)

Message Type: Status

Vehicle status message to indicate when the decklid/liftgate is ajar.

Name	Literals	Value	Description
Type	-	-	-
	TrunkClosed	0x0	
	TrunkOpen	0x1	

1.3.3.3 MD-REQ-014023/A-GearLvrPos_D_Actl (TcSE ROIN-266648-1)

Message Type: Status

Vehicle status signal for the Gear Lever Position on an automatic transmission vehicle.

Name	Literals	Value	Description
Type	-	-	-
	Park	0x0	
	Reverse	0x1	
	Neutral	0x2	
	Drive	0x3	
	Sport_DriveSport	0x4	
	Low	0x5	
	First	0x6	
	Second	0x7	
	Third	0x8	
	Fourth	0x9	
	Fifth	0xA	
	Sixth	0xB	
	Undefined_Treat_as_Fault	0xC	
	Undefined_Treat_as_Fault1	0xD	
	Unknown_Position	0xE	
	Fault	0xF	

1.3.3.4 MD-REQ-014024/A-GearRvrseActv_D_Actl (TcSE ROIN-266649-1)

Message Type: Status

Vehicle status signal for notifying that Reverse Gear is engaged on a manual transmission vehicle.

Name	Literals	Value	Description
Type	-	-	-
	Inactive	0x0	
	Active	0x1	
	Unknown	0x2	
	Fault	0x3	

1.3.3.5 MD-REQ-014025/A-VehicleSpeed_St (TcSE ROIN-223023-1)

Message Type: Status

Status used to indicate vehicle speed.

Name	Literals	Value	Description
Type	-	-	Indicates vehicle speed. Unit: kph Resolution:0.01 Offset:0
	kph	0x0 to 0xFFFF	

1.3.3.6 MD-REQ-014084/B-ParkBrake_St (TcSE ROIN-287064-1)

Message Type: Status

Signal used to indicate the Parking Brake status.

Name	Literals	Value	Description
Type	-	-	-
	Inactive	0x0	
	Active	0x1	

1.3.3.7 MD-REQ-014085/B-ElectronicParkBrake_St (TcSE ROIN-287065-1)

Message Type: Status

Signal used to indicate the Electronic Parking Brake status.

Name	Literals	Value	Description
Type	-	-	-
	NotUsed	0x0	
	Rear_Caliper_Closed	0x1	
	Rear_Caliper_Transition	0x2	
	RWU_By_EPB_Active	0x3	
	Rear_Caliper_Open	0x4	
	EPB_Limphome_Active	0x5	
	ECD_by_Brake_ECU_Active	0x6	
	GeneralFault_MaintenceMode	0x7	

Electronic Park Brake is considered active when the signal has a value of 0x1 (Rear_Caliper_Closed)

1.3.3.8 MD-REQ-014071/B-CameraServerButton_St (TcSE ROIN-287063-1)

Message Type: Status

Signal used to indicate Front Camera Hard Button status. Real Can name: CamraFrntStat_D_Stat

Name	Literals	Value	Description
ButtonState	-	-	-
	Off	0x0	
	On	0x1	
	NotUsed	0x2	
	NoDataPresent	0x3	

1.3.3.9 RVC-MD-REQ-292389/B-GearRvrse_D_Actl

GearRvrse_D_Actl

The purpose of this signal is to notify that Reverse Gear is engaged on a manual transmission vehicle.

$0: Inactive_not_confirmed
$1: Inactive_confirmed
$2: Active_not_confirmed
$3: Active_confirmed
$4: NotUsed_1
$5: NotUsed_2
$6: NotUsed_3
$7: Fault

Reverse status is indicated by both $2 (Active_not_confirmed) and $3 (Active_confirmed)

1.3.3.10 RVC-REQ-292387/A-GearPos_D_Trg

GearPos_D_Trg
This signal is used to indicate Gear direction. Used with other gear signals to determine whether or not RVC is to be turned On or Off.

Name	Literals	Value	Description
Type	-	-	-
	Neutral	0x0	
	First	0x1	
	Second	0x2	
	Third	0x3	
	Fourth	0x4	
	Fifth	0x5	
	Sixth	0x6	
	Seventh	0x7	
	Eighth	0x8	
	Ninth	0x9	
	Tenth	0xA	
	Undefined_3	0xB	
	Undefined_4	0xC	
	Undefined_5	0xD	
	Reverse	0xE	
	Unknown	0xF	

1.3.3.11 RVC-REQ-292388/A-Veh_V_ActlEng

Veh_V_ActlEng
This signal is used to indicate vehicle speed. Refer to database for proper signal values.

1.3.3.12 MD-REQ-395472/A-GearLvrPos_D_Actl_UB

GearLvrPos_D_Actl_UB : This signal tells to its recipients if GearLvrPos_D_Actl signal has fresh data or unchanged data.

Parameter	Description
0x0	Unchanged_data
0x1	Fresh_data

1.3.3.13 MD-REQ-395473/A-VehVActlEng_D_Qf

VehVActlEng_D_Qf : This signal is used to indicate the quality factor of the signal Veh_V_ActlEng.

Parameter	Descritpion
0x0	Faulty
0x1	No_Data_Exists
0x2	Not_Within_Specifications
0x3	OK

1.3.3.14 MD-REQ-395474/A-GearPos_D_Trg_UB

GearPos_D_Trg_UB: This signal tells to its recipients if GearPos_D_Trg signal has fresh data or unchanged data.

Parameter	Description
0x0	Unchanged_data
0x1	Fresh_data

1.4 DriverAssistFrontViewCameraClient Interface

1.4.1 DAFVCv1-IR-REQ-014066/F-Driver Assist Front View Camera Feature ID Definition (TcSE ROIN-287061)

The below table defines the Feature ID information related to the Feature Based Message Protocol command and control method used in the Driver Assist Front View Camera feature.

The below table defines the Feature ID information related to the Feature Based Message Protocol command and control method used in the Rear View Camera feature.

Feature Name	Feature ID	Config Number	Config Value
Camera Showing	0x081B	0x00	Off
		0x01	Front
		0x02	Rear
		0x03	Remote
		0x04	Rear 360
		0x05	Rear Normal
		0x06	Rear Split
		0x07	Front 360
		0x08	Front Normal
		0x09	Front Split
		0x0A	Rear Zoom
		0x0B	CHMSL
		0x0C	CHMSL Zoom
		0x0D	AUX
		0x0E	TRG
		0x0F	TRG Rear Normal
		0x10	Straight Back Up Mode
		0x11	TBA2 Rear Split
		0x12	TBA2 Rear 360
		0x13	TBA2 CHMSL
		0x14	TBA2 Aux
		0x15	TBA2 50/50
		0x16	TBA2 Rear Normal
		0x17	Auto Hitch Rear Normal
		0x18	Rear Frwd Offset
		0x19	Rear Rrwd Offset
		0x1A	Front Frwd Offset

		0x1B	Front Rrwd Offset
		0x1C	Rear FL Corner
		0x1D	Rear FR Corner
		0x1E	Rear RL Corner
		0x1F	Rear RR Corner
		0x20	Front FL Corner
		0x21	Front FR Corner
		0x22	Front RL Corner
		0x23	Front RR Corner
		0x24	Rock Crawl Front
		0x25	Rock Crawl Rear
		0x26	Hitch
		0x27	Rear Camera on Demand (360)

1.4.2 DAFVCv1-IIR-REQ-014067/C-DriverAssistFrontViewCameraClient_Tx (TcSE ROIN-282846-1)

1.4.2.1 MD-REQ-014068/A-Feature_Rq (TcSE ROIN-282333-2)

Message Type: Request

Represents the request to command a feature change (select new feature, change feature setting, query features, etc.).

Included Parameters:
Operation
FeatureID
Configuration
PersIndex

Name	Literals	Value	Description
Operation	-	-	Type of operation being requested
	Null	0x0	
	Query	0x1	
	Set	0x2	
	Upload	0x3	
	Restore	0x4	
	Copy	0x5	
	NotUsed	0x6 – 0x7	
FeatureID	-	-	Feature number being requested
		0x0000 – 0xFFFF	
Configuration	-	-	Configuration value being requested
		0x0000 – 0xFFFF	
PersIndex	-	-	Indicates which personality profile is being accessed
	PERS_1	0x0	
	PERS_2	0x1	
	PERS_3	0x2	
	PERS_4	0X3	
	VEHICLE	0X4	
	Not Used	0x5	

	Not Used	0x6	
	Not Used	0x7	

1.4.2.2 MD-REQ-331342/B-CamraFrntBttn_D_Stat3

Message Type: Command

CamraFrntBttn_D_Stat3 : Signal is sent by client to server to request camera view activation/deactivation.

The trigger of this signal can be through a soft button press, which is internally to client or through a hard button connected to client through LIN protocol.

When the trigger of this signal is due to hard button LIN switch press, map this signal according to the details in Req 331343 and Req 331344.

Included Parameters:
Not pressed
Pressed

Name	Literals	Value	Description
Operation	-	-	
	Not pressed	0x0	Switch is not pressed
	Pressed	0x1	Switch is pressed

1.4.3 DAFVCv1-IIR-REQ-014069/D-DriverAssistFrontViewCameraClient_Rx (TcSE ROIN-282847-2)

1.4.3.1 MD-REQ-014070/A-Feature_St (TcSE ROIN-282399-2)

Message Type: Status

Represents the current status of a feature (feature selected, feature setting, etc.).

Included Parameters:
FeatureID
Configuration
PersIndex

Name	Literals	Value	Description
FeatureID	-	-	Active feature number
		0x0000 – 0xFFFF	
Configuration	-	-	Active configuration value
		0x0000 – 0xFFFF	
PersIndex	-	-	Indicates which personality profile is active
	PERS_1	0x0	
	PERS_2	0x1	
	PERS_3	0x2	
	PERS_4	0X3	
	VEHICLE	0X4	
	Not Used	0x5	
	Not Used	0x6	
	Not Used	0x7	

1.4.3.2 MD-REQ-014023/A-GearLvrPos_D_Actl (TcSE ROIN-266648-1)

Message Type: Status

Vehicle status signal for the Gear Lever Position on an automatic transmission vehicle.

Name	Literals	Value	Description
Type	-	-	-
	Park	0x0	
	Reverse	0x1	
	Neutral	0x2	
	Drive	0x3	
	Sport_DriveSport	0x4	
	Low	0x5	
	First	0x6	
	Second	0x7	
	Third	0x8	
	Fourth	0x9	
	Fifth	0xA	
	Sixth	0xB	
	Undefined_Treat_as_Fault	0xC	
	Undefined_Treat_as_Fault1	0xD	
	Unknown_Position	0xE	
	Fault	0xF	

1.4.3.3 MD-REQ-014024/A-GearRvrseActv_D_Actl (TcSE ROIN-266649-1)

Message Type: Status

Vehicle status signal for notifying that Reverse Gear is engaged on a manual transmission vehicle.

Name	Literals	Value	Description
Type	-	-	-
	Inactive	0x0	
	Active	0x1	
	Unknown	0x2	
	Fault	0x3	

1.4.3.4 MD-REQ-014025/A-VehicleSpeed_St (TcSE ROIN-223023-1)

Message Type: Status

Status used to indicate vehicle speed.

Name	Literals	Value	Description
Type	-	-	Indicates vehicle speed. Unit: kph Resolution:0.01 Offset:0
	kph	0x0 to 0xFFFF	

1.4.3.5 MD-REQ-014071/B-CameraServerButton_St (TcSE ROIN-287063-1)

Message Type: Status

Signal used to indicate Front Camera Hard Button status. Real Can name: CamraFrntStat_D_Stat

Name	Literals	Value	Description
ButtonState	-	-	-
	Off	0x0	
	On	0x1	
	NotUsed	0x2	
	NoDataPresent	0x3	

1.4.3.6 MD-REQ-014020/A-Elocker_St (TcSE ROIN-266643-1)

(CAN Name: RearDiffLckLamp_D_Rq)

Message Type: Status

Vehicle status signal for displaying the Electric Differential Locker (Elocker) engagement message to the user.

Name	Literals	Value	Description
Type	-	-	-
	OFF	0x0	
	ON	0x1	
	Flash	0x2	
	Notused	0x3	

1.4.3.7 MD-REQ-014021/A-AwdRange_St (TcSE ROIN-266644-1)

(CAN Name: AwdRnge_D_Actl)

Message Type: Status

Vehicle status signal for the state of the transfer box in terms of range and coupling locking.

"locked" means the AWD coupling / differential is locked.

"auto" means the AWD coupling / differential is under active control (could be locked, open or anywhere in between depending on system).

"2wd" means the AWD coupling is open.

Name	Literals	Value	Description
Type	-	-	-
	LowRangeLocked	0x0	
	LowRangeAuto	0x1	
	LowRange2wd	0x2	
	Neutral	0x3	
	HighRangeLocked	0x4	
	HighRangeAuto	0x5	
	HighRange2wd	0x6	
	Unknown	0x7	

1.4.3.8 MD-REQ-014022/A-OffRoadMode_St (TcSE ROIN-266645-1)

(CAN Name: AwdOffRoadMode_D_Stats)

Message Type: Status

Vehicle status signal for the state of Off Road Mode.

Name	Literals	Value	Description
Type	-	-	-
	NormalMode	0x0	
	OffRoad	0x1	
	ExtemeOffRoad	0x2	
	Invalid	0x3	

1.4.3.9 MD-REQ-014024/A-GearRvrseActv_D_Actl (TcSE ROIN-266649-1)

Message Type: Status

Vehicle status signal for notifying that Reverse Gear is engaged on a manual transmission vehicle.

Name	Literals	Value	Description
Type	-	-	-
	Inactive	0x0	
	Active	0x1	
	Unknown	0x2	
	Fault	0x3	

1.4.3.10 MD-REQ-331343/A-Camera Button LIN signal

Message Type: Command

Represents the state of the physical front camera switch. This signal is the instantaneous status of the LIN switch which is wired to an external ECU. LIN signal name used is ICPBtnID_Camera.

Included Parameters:
Inactive
Active
Short Event
Short Elapsed
Long Event
Stuck
Idle

Name	Literals	Value	Description
Operation	-	-	
	Inactive	0	Switch is not pressed
	Active	1	Switch is pressed
	Short Event	2	Switch is pressed
	Short Elapsed	3	Switch is pressed
	Long Event	4	Switch is pressed
	Stuck	5	Switch is not pressed
	Not used	6-14	Switch is not pressed
	Idle	15	Switch is not pressed

1.4.3.11 MD-REQ-331847/A-CamraFrntOffRd_B_Stat

Message Type: Status

Vehicle status signal as determined by the IPMB for the state of Off Road Mode.

Name	Literals	Value	Description
Type	-	-	-
	Inactive	0x0	
	Active	0x1	

1.4.3.12 MD-REQ-395472/A-GearLvrPos_D_Actl_UB

GearLvrPos_D_Actl_UB : This signal tells to its recipients if GearLvrPos_D_Actl signal has fresh data or unchanged data.

Parameter	Description
0x0	Unchanged_data
0x1	Fresh_data

1.4.3.13 MD-REQ-395473/A-VehVActlEng_D_Qf

VehVActlEng_D_Qf : This signal is used to indicate the quality factor of the signal Veh_V_ActlEng.

Parameter	Descritpion
0x0	Faulty
0x1	No_Data_Exists
0x2	Not_Within_Specifications
0x3	OK

1.4.3.14 MD-REQ-395474/A-GearPos_D_Trg_UB

GearPos_D_Trg_UB: This signal tells to its recipients if GearPos_D_Trg signal has fresh data or unchanged data.

Parameter	Description
0x0	Unchanged_data
0x1	Fresh_data

1.5 VehicleInformation Interface

1.5.1 RVCv2-IIR-REQ-014086/D-VehicleInformation_Tx (TcSE ROIN-282400-2)

1.5.1.1 MD-REQ-014083/A-PJB_Bootlid_St (TcSE ROIN-282394-1)

Message Type: Status

Vehicle status message to indicate when the decklid/liftgate is ajar.

Name	Literals	Value	Description
Type	-	-	-
	TrunkClosed	0x0	
	TrunkOpen	0x1	

1.5.1.2 MD-REQ-014023/A-GearLvrPos_D_Actl (TcSE ROIN-266648-1)

Message Type: Status

Vehicle status signal for the Gear Lever Position on an automatic transmission vehicle.

Name	Literals	Value	Description
Type	-	-	-
	Park	0x0	
	Reverse	0x1	
	Neutral	0x2	
	Drive	0x3	
	Sport_DriveSport	0x4	
	Low	0x5	
	First	0x6	
	Second	0x7	
	Third	0x8	
	Fourth	0x9	
	Fifth	0xA	
	Sixth	0xB	
	Undefined_Treat_as_Fault	0xC	
	Undefined_Treat_as_Fault1	0xD	
	Unknown_Position	0xE	
	Fault	0xF	

1.5.1.3 MD-REQ-014024/A-GearRvrseActv_D_Actl (TcSE ROIN-266649-1)

Message Type: Status

Vehicle status signal for notifying that Reverse Gear is engaged on a manual transmission vehicle.

Name	Literals	Value	Description
Type	-	-	-
	Inactive	0x0	
	Active	0x1	
	Unknown	0x2	
	Fault	0x3	

1.5.1.4 MD-REQ-014025/A-VehicleSpeed_St (TcSE ROIN-223023-1)

Message Type: Status

Status used to indicate vehicle speed.

Name	Literals	Value	Description
Type	-	-	Indicates vehicle speed. Unit: kph Resolution:0.01 Offset:0
	kph	0x0 to 0xFFFF	

1.5.1.5 MD-REQ-014084/B-ParkBrake_St (TcSE ROIN-287064-1)

Message Type: Status

Signal used to indicate the Parking Brake status.

Name	Literals	Value	Description
Type	-	-	-
	Inactive	0x0	
	Active	0x1	

1.5.1.6 MD-REQ-014085/B-ElectronicParkBrake_St (TcSE ROIN-287065-1)

Message Type: Status

Signal used to indicate the Electronic Parking Brake status.

Name	Literals	Value	Description
Type	-	-	-
	NotUsed	0x0	
	Rear_Caliper_Closed	0x1	
	Rear_Caliper_Transition	0x2	
	RWU_By_EPB_Active	0x3	
	Rear_Caliper_Open	0x4	
	EPB_Limphome_Active	0x5	
	ECD_by_Brake_ECU_Active	0x6	
	GeneralFault_MaintenceMode	0x7	

Electronic Park Brake is considered active when the signal has a value of 0x1 (Rear_Caliper_Closed)

1.5.1.7 RVC-REQ-292387/A-GearPos_D_Trg

GearPos_D_Trg
This signal is used to indicate Gear direction. Used with other gear signals to determine whether or not RVC is to be turned On or Off.

Name	Literals	Value	Description
Type	-	-	-
	Neutral	0x0	
	First	0x1	
	Second	0x2	
	Third	0x3	
	Fourth	0x4	
	Fifth	0x5	
	Sixth	0x6	
	Seventh	0x7	
	Eighth	0x8	
	Ninth	0x9	
	Tenth	0xA	
	Undefined_3	0xB	
	Undefined_4	0xC	
	Undefined_5	0xD	
	Reverse	0xE	
	Unknown	0xF	

1.5.1.8 MD-REQ-014024/A-GearRvrseActv_D_Actl (TcSE ROIN-266649-1)

Message Type: Status

Vehicle status signal for notifying that Reverse Gear is engaged on a manual transmission vehicle.

Name	Literals	Value	Description
Type	-	-	-
	Inactive	0x0	
	Active	0x1	
	Unknown	0x2	
	Fault	0x3	

1.5.1.9 RVC-MD-REQ-292389/B-GearRvrse_D_Actl

GearRvrse_D_Actl

The purpose of this signal is to notify that Reverse Gear is engaged on a manual transmission vehicle.

$0: Inactive_not_confirmed
$1: Inactive_confirmed
$2: Active_not_confirmed
$3: Active_confirmed
$4: NotUsed_1
$5: NotUsed_2
$6: NotUsed_3
$7: Fault

Reverse status is indicated by both $2 (Active_not_confirmed) and $3 (Active_confirmed)

1.5.1.10 MD-REQ-347573/A-PowerMode

PowerMode
This signal is used in CGEA 1.2 only, not for later architectures.

$0: KeyOut
$1: KeyRecentlyOut
$2: KeyApproved_0
$3: PostAccessory_0
$4: Accessory_1
$5: PostIgnition_1
$6: IgnitionOn_2
$7: Running_2
$8: Not_Used
$9: Crank_3
$A: Not_Used1

1.5.1.11 MD-REQ-395472/A-GearLvrPos_D_Actl_UB

GearLvrPos_D_Actl_UB : This signal tells to its recipients if GearLvrPos_D_Actl signal has fresh data or unchanged data.

Parameter	Description
0x0	Unchanged_data
0x1	Fresh_data

1.5.1.12 MD-REQ-395473/A-VehVActlEng_D_Qf

VehVActlEng_D_Qf : This signal is used to indicate the quality factor of the signal Veh_V_ActlEng.

Parameter	Descritpion
0x0	Faulty

0x1	No_Data_Exists
0x2	Not_Within_Specifications
0x3	OK

1.5.1.13 MD-REQ-395474/A-GearPos_D_Trg_UB

GearPos_D_Trg_UB: This signal tells to its recipients if GearPos_D_Trg signal has fresh data or unchanged data.

Parameter	Description
0x0	Unchanged_data
0x1	Fresh_data

1.6 CAMERA-CLD-REQ-412756/A-Camera Client

Camera client is the device where the user can interface with, and request particular views and sees the camera images at.

1.7 CAMERA-CLD-REQ-412757/A-Camera Server

Camera Server the module or modules that collaborate with the client to generate the necessary views. Unlike other servers mentioned in this document, such as Rear View Server or Driver Assist Front View Camera, this is generic, an all-encompassing name which refers to any image type.

1.8 Turn Signal View Logical Mapping Table

The CAN signals mentioned throughout this document shall refer to the CAN signal's logical name. The logical names shall be mapped to their actual CAN signal names. Please use the table below to perform the mapping. The InfoCAN database file is the master file for the actual CAN signal names. Note: There may be cases where the actual CAN signal name is used in this documentation.

Logical Name	CAN Signal Name
LTviewSt	PersTurnSglView_D_Stat
LMnuRq	PersTurnSglView_D_RqMnu
LSodLSt	SodAlrtLeft_D_Stat
LSodRSt	SodAlrtRight_D_Stat

Table: Logical name/CAN signal mapping

TurnSglView_Left FBMP Feature ID 0x081B Config Number 0x2F
TurnSglView_Right FBMP Feature ID 0x081B Config Number 0x2E

1.9 CTA Split View Logical Mapping Table

The CAN signals mentioned throughout this document shall refer to the CAN signal's logical name. The logical names shall be mapped to their actual CAN signal names. Please use the table below to perform the mapping. The InfoCAN database file is the master file for the actual CAN signal names. Note: There may be cases where the actual CAN signal name is used in this documentation.

Logical Name	CAN Signal Name
CTASVRq	PersCtaSplitView_D_Rq
CTASVSt	PersCtaSplitView_D_Stat
CTAAlert_St(Left = Off, Right = On)	CtaAlrtRight_D_Stat

CTAAlert_St(Left = On, Right = Off)	CtaAlrtLeft_D_Stat
LCtaBrkLeft	CtaBrkLeftMsgTxt_B_Rq
LCtaBrkRight	CtaBrkRightMsgTxt_B_Rq

Table: Logical name/CAN signal mapping

1.10 Logical Mapping Table

The CAN signals mentioned in this table are used with a logical name through this documentation. This table contains the real physical name.

Logical Name	CAN Signal Name
LTrlrConnect	TrlrISPCnnct_D_Stat
LTgateSt	DrTgateMde_D_Stat

1.11 CAMERA-IIR-REQ-412758/A-Camera Client Tx

1.11.1 MD-REQ-410094/A-LMnuRq

LMnuRq: This signal is sent from the client to the server to request turning Signal View on, depending on user input.

Name	Literals	Value	Description
LMnuRq			
	NULL	0x0	Do nothing.
		0x1	Disable.
		0x2	Enable.
		0x3	Not Used.

1.11.2 MD-REQ-411949/A-CTASVRq

CTASVRq: This signal is sent from the client to the server to request CTA Split View to become enabled or disabled.

Signal Parameter	Parameter Comment
0x0	Null
0x1	Disabled
0x2	Ignore this value
0x3	Enabled Full

1.12 CAMERA-IIR-REQ-412759/B-Camera Client Rx

1.12.1 MD-REQ-410095/A-LTviewSt

LTviewSt: This signal is sent form the server to the client to indicate the state of Turn Signal view function.

LTviewSt	Literals	Parameters	Description

	Null	0x0	Do nothing
	Disabled	0x1	TSV is disabled
	Enabled	0x2	TSV is enabled
	Not Configured	0x3	TSV is not configured

1.12.2 MD-REQ-410096/A-LSodLSt

LSodLSt: This signal is sent form the server to the client to indicate alert status of left side Blis.

LSodLSt	Literals	Parameters	Description
	Lamp Off	0x0	
	Lamp On	0x1	
	Flash	0x2	
	Bulb proveout	0x3	

1.12.3 MD-REQ-410097/A-LSodRSt

LSodRSt: This signal is sent form the server to the client to indicate alert status of right side Blis.

LSodRSt	Literals	Parameters	Description
	Lamp Off	0x0	
	Lamp On	0x1	
	Flash	0x2	
	Bulb proveout	0x3	

1.12.4 MD-REQ-411950/A-CTASVSt

CTASVSt: This signal is sent from the server to the client to indicate CTA Split View status.

Signal Parameter	Parameter Comment
0x0	Null
0x1	Disabled
0x2	Ignore this value
0x3	Enabled Full

1.12.5 MD-REQ-419851/A-LTrlrConnect

LTrlrConnect: This signal is sent to client. It indicates trailer connection status.

Parameter	Parameter Description
0x0	Not Connected: There is no trailer connected to vehicle.
0x1	Connected: There is a trailer connected to vehicle.
0x2	NotUsed_1 : Parameter is not currently being used
0x3	NotUsed_2 : Parameter is not currently being used

1.12.6 MD-REQ-421155/A-LTgateSt

LTgateSt: This signal is sent to the client to indicate the status of tailgate.

Signal Parameter	Parameter Descritpion
0x0	NotAvailable
0x1	Down
0x2	Up
0x3	NotUsed_1

2 General Requirements

2.1 CAMERA-REQ-331344/B-Button Press Logic

When configured for LIN-based camera button logic, the CAN output shall be populated as follows:

Switch Configuration (Method 2)	LIN Input	CamraFrntBttn_D_Stat3
LIN Camera Switch Not Supported	**X**	0x0 (Not pressed)
LIN Camera Switch Supported	0x0 (Inactive)	0x0 (Not pressed)
LIN Camera Switch Supported	0x1 (Active)	0x1 (Pressed)
LIN Camera Switch Supported	0x2 (Short Event)	0x1 (Pressed)
LIN Camera Switch Supported	0x3 (Short Elapsed)	0x1 (Pressed)
LIN Camera Switch Supported	0x4 (Long Event)	0x1 (Pressed)
LIN Camera Switch Supported	0x5 (Stuck)	0x0 (Not pressed)
LIN Camera Switch Supported	0x6-0xE (Not used)	0x0 (Not pressed)
LIN Camera Switch Supported	0xF (Idle)	0x0 (Not pressed)

2.2 CAMERA-REQ-014077/C-Feature Maximum Speed (TcSE ROIN-290556)

The feature maximum speed when displaying a camera image in forward gear shall be as described for each operational scenario below:

Scenario 1: Any camera feature activation attempted by User

a. *Rear Camera*

Feature maximum speed = 10 kph

b. Off Road Front Camera configured: *Not Available*

Feature maximum speed = 10 kph

c. Off Road Front Camera configured: *Available and does NOT meet conditions for Off Road Mode per Determine Off Road Mode requirement*

Feature maximum speed = 10 kph

d. Off Road Front Camera configured: *Available and meets conditions for Off Road Mode per Determine Off Road Mode requirement*

Feature maximum speed = 20 kph

Scenario 2: Rear Camera Active

Feature maximum speed = 10 kph

Scenario 3: Front Camera Active

a. Off Road Front Camera configured: *Not Available*

Feature maximum speed = 10 kph

b. Off Road Front Camera configured: *Available and does NOT meet conditions for Off Road Mode per Determine Off Road Mode requirement*

Feature maximum speed = 10 kph

c. Off Road Front Camera configured: *Available and meets conditions for Off Road Mode per Determine Off Road Mode requirement*

Feature maximum speed = 24 kph

2.3 DAFVCv1-FUR-REQ-166648/B-Determine Off Road Mode

Off Road Mode is considered active when the vehicle is configured for (Off Road Front Camera and hard camera button strategy) and one of the following conditions are true:

1) 4x4 transfer case is locked in 4L (AwdRange_St = 0x0:LowRangeLocked)

or

2) Off-Road Mode is on (OffRoadMode_St = 0x1:OffRoad or 0x2:ExtremeOffRoad)
and
E-Locker is locked (Elocker_St = 0x1:ON)

Off Road Mode is considered active when the vehicle is configured for (Off Road Front Camera and soft camera button strategy) and the following condition is true:

CamraFrntOffRd_B_Stat = Active

When transitioning out of Off Road Mode the Driver Assist Front View Camera Client shall check vehicle speed to determine if condition exists that results in Front View Camera turning off.

Example: Driver Assist Front View Camera Client determines Off Road Mode is no longer active and vehicle speed is 20 kph. The max speed to exit is now 10 kph so the Client shall exit Front View Camera based on Feature Maximum Speed requirement 014077.

2.4 RVC-FUR-REQ-014087/B-RVC Malfunction (TcSE ROIN-146656-2)

When the RVC Client (RearViewCameraClient) does not detect video present in the signal from the camera it shall set a DTC and the RVC Client shall display camera overlays for T_cameraMalfunctionDelay before displaying an error message allowing the user to acknowledge the video error and revert to the previous screen. At any time the video signal is detected RVC client should check for Gear position and show the camera.

2.5 DAFVCv1-FUR-REQ-166722/A-DAFVC Malfunction

When the DAFVC Client (DriverAssistFrontViewCameraClient) does not detect video present in the signal from the camera it shall set a DTC and the DAFVC Client shall display camera overlays for T_cameraMalfunctionDelay before displaying an error message allowing the user to acknowledge the video error and revert to the previous screen. At any time the video signal is detected DAFVC client should check for Gear position and show the camera.

2.6 RVC-TMR-REQ-166649/A-T_cameraMalfunctionDelay

Name	Description	Units	Range	Resolution	Default
T_cameraMalfunctionDelay	Time DAFVC or RVC Client should wait before displaying an error message to the user according to RVC-REQ-014087-RVC Malfunction or DAFVC-REQ-166649 DAFVC Malfunction.	sec	0-30	1	10

2.7 CAMERA-REQ-331863/B-Lin Button Client Operation

When Client receives signal ICPBtnID_Camera as pressed, it shall send the signal CamraFrntBttn_D_Stat3 with the value Pressed.

3 Functional Definition

3.1 Rear View Camera

3.1.1 Rear View Camera General Requirements

3.1.1.1 RVC-FUR-REQ-014088/E-Deactivate RVC (TcSE ROIN-293328)

The RVC Client (RearViewCameraClient) shall stop displaying RVC video when one of the following conditions is met:

1. Vehicle is shifted out of reverse (Camera Delay = OFF)
2. Vehicle is shifted out of reverse (GearLvrPos_D_Actl does not equal Reverse in automatic Transmission vehicle or GearRvrse_D_Actl or GearRvrseActv_D_Actl does not equal active in Manual Transmission vehicle) and vehicle speed > limit per CAMERA-REQ-014077-Feature Maximum Speed~~feature maximum~~ (Camera Delay = ON)
3. CGEA 1.2:
   Power Mode does not equal IgnitionOn_2 or Running_2 or Crank_3
   CGEA 1.3:
   Ignition_Status does not equal Run
4. Vehicle is shifted into Park
   a) Automatic Transmission vehicle GearLvrPos_D_Actl == 0x0
   b) Manual Transmission Vehicle with Mechanical Park Brake
   GearRvrse_D_Actl == Inactive or GearRvrseActv_D_Actl == Inactive AND PrkBrkActv_B_Actl == Active
   c) Manual Transmission Vehicle with Electronic Park Brake
   GearRvrse_D_Actl == Inactive or GearRvrseActv_D_Actl == Inactive AND PrkBrkStatus == Active

3.1.1.2 RVC-FUR-REQ-014090/I-Display RVC Video (TcSE ROIN-194462-2)

There are two ways for Reverse Detection. What way to use is decided on configuration values.

Reverse Detection NEW:

GearLvrPos_D_Actl	GearLvrPos_D_Actl_UB	Veh_V_ActlEng	VehVActlEng_D_Qf	GearPos_D_Trg	GearPos_D_Trg_UB	Reverse Engaged
Missing	Don't Care	Don't Care	Don't Care	Don't Care	Don't Care	OFF
!=0x01 (Reverse)	Don't Care	Don't Care	Don't Care	Don't Care	Don't Care	OFF
0x01 (Reverse)	1	Missing	Don't Care	Don't Care	Don't Care	ON
0x01 (Reverse)	1	Don't Care	Missing	Don't Care	Don't Care	ON
0x01 (Reverse)	1	Don't Care	!= 0x03 (OK)	Don't Care	Don't Care	ON
0x01 (Reverse)	1	<=16.09	0x03 (OK)	Don't Care	Don't Care	ON
0x01 (Reverse)	1	>16.09	0x03 (OK)	0x0E (Reverse)	1	ON
0x01 (Reverse)	1	>16.09	0x03 (OK)	!=0x0E (Reverse)	Don't Care	OFF

If none of the conditions above are met, set Reverse Engaged to OFF.

If GearLvrPos_D_Actl_UB or GearPos_D_Trg_UB are not available, Client shall ignore the logic for the update bit signals and only rely on the GearLvrPos_D_Actl and GearPos_D_Trg signals in the logic.

For FNV3:
Update bits are not used so Client shall ignore the logic for the update bit signals and only rely on the GearLvrPos_D_Actl and GearPos_D_Trg signals in the logic.

Note: Existing delay mode behavior should still apply.

Upon detecting the conditions for RVC to be ON, the RVC Client (RearViewCameraClient) shall start a timer (T_minImageDisp) and shall not display the RVC image until the expiration of this timer. Upon expiration of the timer, the RVC Client shall start another timer (T_maxImageDisp). The RVC Client must display the RVC image prior to the expiration of T_maxImageDisp.

Once the conditions for displaying RVC are no longer applicable the RVC client shall:
1. Cancel the timer
2. Not display the RVC image

Reverse Detection LEGACY:

Reverse Detection is determined as mentioned in below table.

GearLvrPos_D_Actl = 0x1 (Reverse) (automatic transmission) or GearRvrseActv_D_Actl = 0x1 (Active)(manual transmission vehicle and Legacy Message Set) or GearRvrse_D_Actl = 0x3 or 0x2 (Active Confirmed or Active_not_confirmed) (manual transmission vehicle and New Message Set)	Gear position and Camera Status
Reverse	Gear is Reverse, Turn Camera On

Upon detecting the conditions for RVC to be ON, the RVC Client (RearViewCameraClient) shall start a timer (T_minImageDisp) and shall not display the RVC image until the expiration of this timer. Upon expiration of the timer, the RVC Client shall start another timer (T_maxImageDisp). The RVC Client must display the RVC image prior to the expiration of T_maxImageDisp.

Once the conditions for displaying RVC are no longer applicable the RVC client shall:
1. Cancel the timer
2. Not display the RVC image

3.1.1.3 RVC-TMR-REQ-014091/A-T_minImageDisp (TcSE ROIN-264661-1)

Name	Description	Units	Range	Resolution	Default

T_minImageDisp	Minimum time RVC Client should wait before displaying the RVC video image to the user according to RVC-GREQ-194462-2-Display RVC Video.	msec	225-275	5	250

3.1.1.4 RVC-TMR-REQ-014092/A-T_maxImageDisp (TcSE ROIN-264662-1)

Name	Description	Units	Range	Resolution	Default
T_maxImageDisp	Maximum time RVC Client should wait before displaying the RVC video image to the user according to RVC-GREQ-194462-2-Display RVC Video.	msec	450-550	5	500

3.1.1.5 CAMERA-FUR-REQ-014093/B-Camera Image Priority (TcSE ROIN-264652-1)

Once the camera image has been displayed to user, the image shall be maintained as long as the conditions required to be in the particular camera view are present and shall have highest priority:

- No pop-up screens shall interrupt the video image.
- Media functions (source change, volume control, etc.) shall be available, but shall not interrupt the image view to the user.

3.1.2 RVCv2-FUN-REQ-014094/A-Activate/Deactivate Rear View Camera (TcSE ROIN-293352)

3.1.2.1 Use Cases

3.1.2.1.1 RVC-UC-REQ-014095/A-Activate Rear View Camera (TcSE ROIN-289794)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start.
Scenario Description	The driver activates the Rear View Camera (RVC) by placing the vehicle in Reverse Gear.
Post-conditions	The vehicle display shows the RVC image.
List of Exception Use Cases	E1 – Rear View Camera Malfunction E2 – Decklid/Liftgate is Ajar while Rear View Camera is ON
Interfaces	G-HMI Vehicle System Interface

3.1.2.1.2 UC-REQ-238578/A-CHMSL Activation. Soft button press

Actors	Vehicle Occupant
Pre-conditions	• APIM is configured (CHMSL) • Vehicle in Run/Start • Rear view (Aux, Rear Normal, Rear Split-View, Rear 360) is showing and not in CHSML view OR Front view (Front Normal, Front Split-View, Front 360) is showing and not in CHSML view
Scenario Description	User presses CHMSL view button Display sends “Camera Showing(81B): 0x0B”
Post-conditions	The CHMSL view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.1.2.1.3 UC-REQ-238579/A-AUX Activation. Soft button press

Actors	Vehicle Occupant
Pre-conditions	• APIM is configured (Aux) • Vehicle in Run/Start • Rear view (CHMSL, Rear Normal, Rear Split-View, Rear 360) is showing and not in Aux view OR Front view (Front Normal, Front Split-View, Front 360) is showing and not in Aux view
Scenario Description	User presses Aux view button Display sends “Camera Showing(81B): 0x0D”
Post-conditions	The Aux view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.1.2.1.4 RVC-UC-REQ-014096/A-Rear View Camera Malfunction (TcSE ROIN-289795)

Linked Elements
RVC-UC-REQ-014095/A-Activate Rear View Camera (TcSE ROIN-289794)

Actors	Vehicle Occupant
Pre-conditions	Same as Normal Usage Use Case.
Scenario Description	The HMI interface indicates that the Rear View Camera (RVC) image cannot be shown because of a malfunction.
Post-conditions	The vehicle display is NOT showing RVC image.
List of Exception Use Cases	NA
Interfaces	G-HMI Vehicle System Interface

3.1.2.1.5 RVC-UC-REQ-014098/A-Deactivate Rear View Camera (TcSE ROIN-289797)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start.
Scenario Description	The driver deactivates the Rear View Camera (RVC) by shifting the vehicle out of Reverse Gear.
Post-conditions	The vehicle display is NOT showing RVC image.
List of Exception Use Cases	E1 – Rear Camera Delay Mode is On E2 – Active Park Assist is Active E3 – Trailer Backup Assist is Active (N/A for stand-alone RVC)
Interfaces	G-HMI Vehicle System Interface

3.1.2.1.6 RVC-UC-REQ-014099/B-Rear Camera Delay Mode is On (TcSE ROIN-289798)

Linked Elements
RVC-UC-REQ-014098/A-Deactivate Rear View Camera (TcSE ROIN-289797)
RVC-UC-REQ-128280/A-Deactivate Rear View Camera

Actors	Vehicle Occupant

Pre-conditions	Same as Normal Usage Use Case.
Scenario Description	The driver shifts out of Reverse Gear and into any gear other than Park. The RVC image remains displayed to the driver until the vehicle reaches limit per CAMERA-REQ-014077-Feature Maximum Speed~~feature maximum speed~~.
Post-conditions	The vehicle display stops showing Rear View Camera image when vehicle speed reaches limit per CAMERA-REQ-014077-Feature Maximum Speed~~feature maximum speed~~.
List of Exception Use Cases	NA
Interfaces	G-HMI Vehicle System Interface

3.1.2.1.7 RVC-UC-REQ-014101/B-Trailer Backup Assist is Active (TcSE ROIN-290555)

Linked Elements
RVC-UC-REQ-014098/A-Deactivate Rear View Camera (TcSE ROIN-289797)
RVC-UC-REQ-128280/A-Deactivate Rear View Camera
DAFVCv1-UC-REQ-128313/A-Deactivate Driver Assist Front View Camera
DAFVCv1-UC-REQ-014049/B-Deactivate Driver Assist Front View Camera (TcSE ROIN-290146)

Actors	Vehicle Occupant
Pre-conditions	Same as Normal Usage Use Case.
Scenario Description	The driver shifts out of Reverse Gear and into any other gear while Trailer Backup Assist (TBA) is active. The camera image feed remains displayed to the driver as long as TBA is active and vehicle speed does not exceed limit per CAMERA-REQ-014077-Feature Maximum Speed~~feature maximum~~.
Post-conditions	The vehicle display stops showing Rear View Camera image when TBA is no longer active or vehicle speed exceeds limit per CAMERA-REQ-014077-Feature Maximum Speed~~feature maximum~~.
List of Exception Use Cases	NA
Interfaces	G-HMI Vehicle System Interface

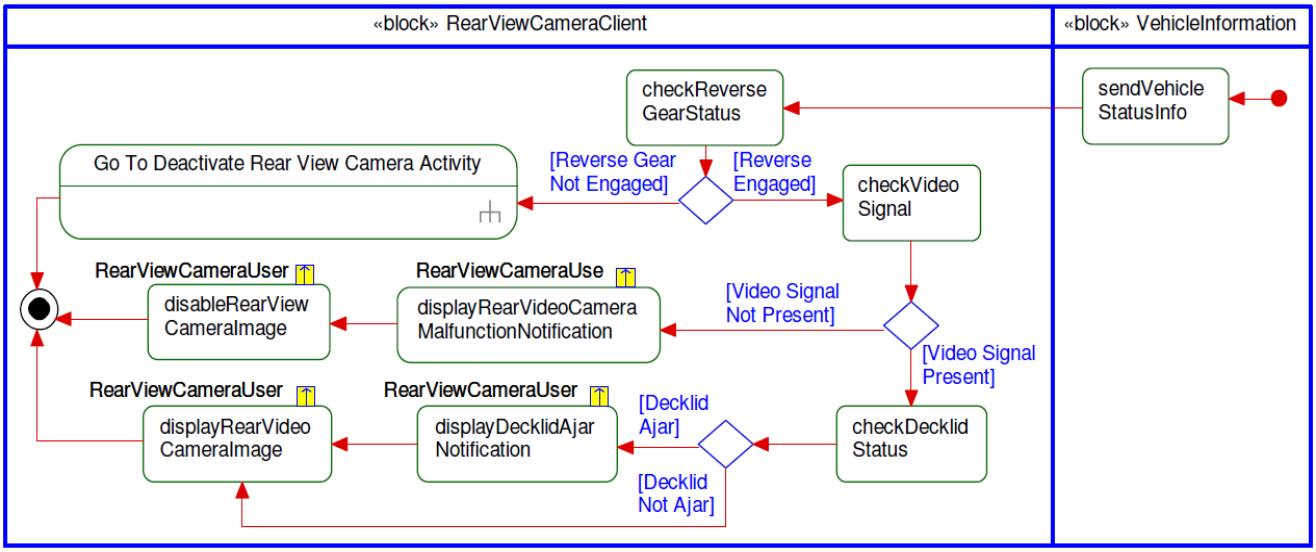
3.1.2.2 White Box View

3.1.2.2.1 Activity Diagrams

3.1.2.2.1.1 RVCv2-ACT-REQ-014102/A-Activate Rear View Camera (TcSE ROIN-282388-2)

Linked Elements
RVCv2-SD-REQ-014104/B-Activate Rear View Camera (TcSE ROIN-282316-2)

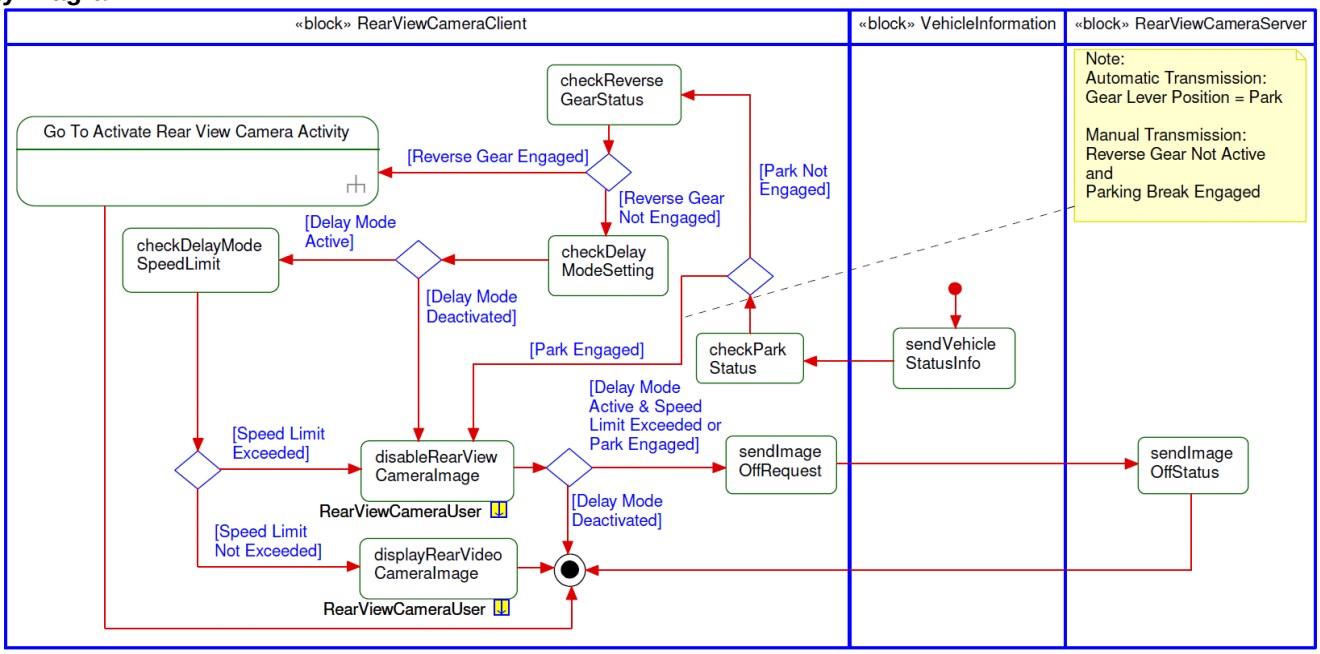
Activity Diagram



3.1.2.2.1.2 RVCv2-ACT-REQ-014103/A-Deactivate Rear View Camera (TcSE ROIN-286992-1)

Linked Elements
RVCv2-SD-REQ-014105/B-Deactivate Rear View Camera (TcSE ROIN-282323-2)

Activity Diagram



3.1.2.2.2 Sequence Diagrams

3.1.2.2.2.1 RVCv2-SD-REQ-014104/B-Activate Rear View Camera (TcSE ROIN-282316-2)

Scenario

Normal Usage

The user activates the Rear View Camera (RVC) by placing the vehicle in Reverse Gear.

Constraints

Pre-condition

Ignition_Status = Run

Post-condition
HMI Display shows the RVC image

Sequence Diagram

3.1.2.2.2.2 RVCv2-SD-REQ-014105/B-Deactivate Rear View Camera (TcSE ROIN-282323-2)

Scenario

Normal Usage

The user deactivates the Rear View Camera (RVC) by taking the vehicle out of Reverse Gear.

Constraints

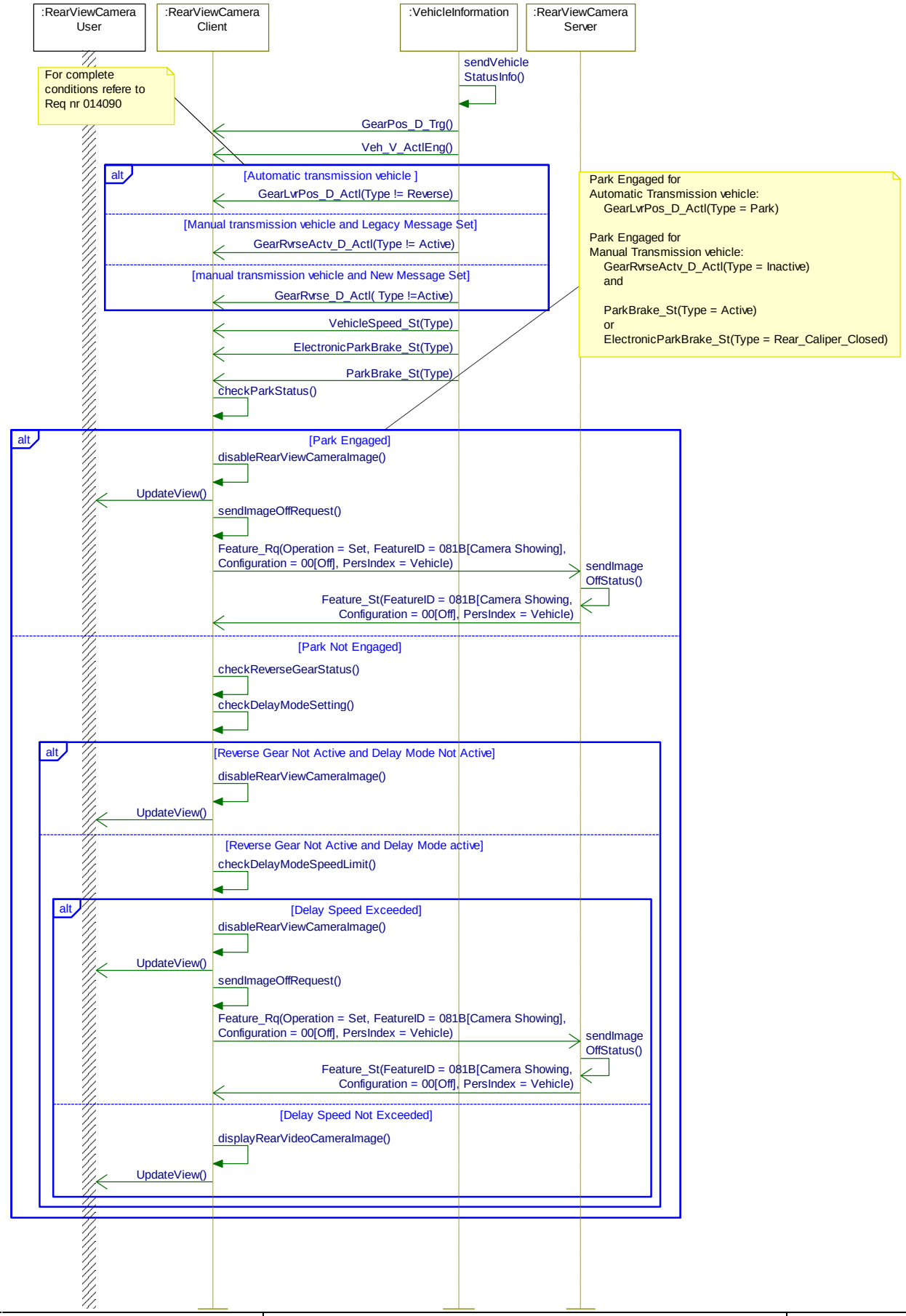
Pre-condition

Ignition_Status = Run

Post-condition

HMI Display stops showing the RVC image

Sequence Diagram


:RearViewCamera User
:RearViewCamera Client
:VehicleInformation
:RearViewCamera Server
For complete conditions refere to Req nr 014090
sendVehicle StatusInfo()
GearPos_D_Trg()
Veh_V_ActlEng()
alt
[Automatic transmission vehicle]
GearLvrPos_D_Actl(Type != Reverse)
[Manual transmission vehicle and Legacy Message Set]
GearRvrseActv_D_Actl(Type != Active)
[manual transmission vehicle and New Message Set]
GearRvrse_D_Actl(Type !=Active)
Park Engaged for
Automatic Transmission vehicle:
GearLvrPos_D_Actl(Type = Park)
Park Engaged for
Manual Transmission vehicle:
GearRvrseActv_D_Actl(Type = Inactive)
and
ParkBrake_St(Type = Active)
or
ElectronicParkBrake_St(Type = Rear_Caliper_Closed)
VehicleSpeed_St(Type)
ElectronicParkBrake_St(Type)
ParkBrake_St(Type)
checkParkStatus()
alt
[Park Engaged]
disableRearViewCameraImage()
UpdateView()
sendImageOffRequest()
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 00[Off], PersIndex = Vehicle)
sendImage OffStatus()
Feature_St(FeatureID = 081B[Camera Showing, Configuration = 00[Off], PersIndex = Vehicle)
[Park Not Engaged]
checkReverseGearStatus()
checkDelayModeSetting()
alt
[Reverse Gear Not Active and Delay Mode Not Active]
disableRearViewCameraImage()
UpdateView()
[Reverse Gear Not Active and Delay Mode active]
checkDelayModeSpeedLimit()
alt
[Delay Speed Exceeded]
disableRearViewCameraImage()
UpdateView()
sendImageOffRequest()
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 00[Off], PersIndex = Vehicle)
sendImage OffStatus()
Feature_St(FeatureID = 081B[Camera Showing, Configuration = 00[Off], PersIndex = Vehicle)
[Delay Speed Not Exceeded]
displayRearVideoCameraImage()
UpdateView()

3.1.3 RVCv3-FUN-REQ-128277/A-Activate/Deactivate Rear View Camera v3

3.1.3.1 Use Cases

3.1.3.1.1 RVCv3-UC-REQ-127872/A-Activate Rear Multicamera View

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with Multicamera • The vehicle is in RUN/START
Scenario Description	The driver shifts gear to reverse for 250ms
Post-conditions	The Rear Multicamera view appears with overlays and review button
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.1.3.1.2 RVC-UC-REQ-014097/A-Decklid/Liftgate is Ajar while Rear View Camera is ON (TcSE ROIN-289796)

Linked Elements
RVC-UC-REQ-014095/A-Activate Rear View Camera (TcSE ROIN-289794)
RVC-UC-REQ-128278/A-Activate Rear View Camera

Actors	Vehicle Occupant
Pre-conditions	Same as Normal Usage Use Case.
Scenario Description	The HMI interface indicates that the Decklid/Liftgate is Ajar.
Post-conditions	The vehicle display shows the Rear View Camera image. The video feed from the Rear View Camera contains an image without guideline overlays.
List of Exception Use Cases	NA
Interfaces	G-HMI Vehicle System Interface

3.1.3.1.3 RVC-UC-REQ-014098/A-Deactivate Rear View Camera (TcSE ROIN-289797)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start.
Scenario Description	The driver deactivates the Rear View Camera (RVC) by shifting the vehicle out of Reverse Gear.
Post-conditions	The vehicle display is NOT showing RVC image.
List of Exception Use Cases	E1 – Rear Camera Delay Mode is On E2 – Active Park Assist is Active E3 – Trailer Backup Assist is Active (N/A for stand-alone RVC)
Interfaces	G-HMI Vehicle System Interface

3.1.3.1.4 RVC-UC-REQ-014099/B-Rear Camera Delay Mode is On (TcSE ROIN-289798)

Linked Elements
RVC-UC-REQ-014098/A-Deactivate Rear View Camera (TcSE ROIN-289797)

RVC-UC-REQ-128280/A-Deactivate Rear View Camera

Actors	Vehicle Occupant
Pre-conditions	Same as Normal Usage Use Case.
Scenario Description	The driver shifts out of Reverse Gear and into any gear other than Park. The RVC image remains displayed to the driver until the vehicle reaches limit per CAMERA-REQ-014077-Feature Maximum Speed~~feature maximum speed~~.
Post-conditions	The vehicle display stops showing Rear View Camera image when vehicle speed reaches limit per CAMERA-REQ-014077-Feature Maximum Speed~~feature maximum speed~~.
List of Exception Use Cases	NA
Interfaces	G-HMI Vehicle System Interface

3.1.3.1.5 RVCv3-UC-REQ-128191/A-Enter CHMSL Delay Mode

Actors	Vehicle Occupant
Pre-conditions	• The vehcile is configured with CHMSL camera • The vehicle is in Run/Start • CHMSL or CHMSL Zoom shown • Camera Delay is set On
Scenario Description	The driver shifts from Reverse to Neutral or Drive
Post-conditions	The vehicle shows CHMSL without zoom button
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.1.3.1.6 RVC-UC-REQ-014100/B-Active Park Assist is Active (TcSE ROIN-290554)

Linked Elements
RVC-UC-REQ-014098/A-Deactivate Rear View Camera (TcSE ROIN-289797)
RVC-UC-REQ-128280/A-Deactivate Rear View Camera
DAFVCv1-UC-REQ-128313/A-Deactivate Driver Assist Front View Camera
DAFVCv1-UC-REQ-014049/B-Deactivate Driver Assist Front View Camera (TcSE ROIN-290146)

Actors	Vehicle Occupant
Pre-conditions	Same as Normal Usage Use Case.
Scenario Description	The driver shifts out of Reverse Gear and into any other gear while Active Park Assist (APA) is active. The camera image feed remains displayed to the driver as long as APA is active and vehicle speed does not exceed limit per CAMERA-REQ-014077-Feature Maximum Speed~~feature maximum~~.
Post-conditions	The vehicle display stops showing Rear View Camera image when APA is no longer active or vehicle speed exceeds limit per CAMERA-REQ-014077-Feature Maximum Speed~~feature maximum~~.
List of Exception Use Cases	NA
Interfaces	G-HMI Vehicle System Interface

3.1.3.1.7 RVC-UC-REQ-014101/B-Trailer Backup Assist is Active (TcSE ROIN-290555)

Linked Elements
RVC-UC-REQ-014098/A-Deactivate Rear View Camera (TcSE ROIN-289797)

RVC-UC-REQ-128280/A-Deactivate Rear View Camera
DAFVCv1-UC-REQ-128313/A-Deactivate Driver Assist Front View Camera
DAFVCv1-UC-REQ-014049/B-Deactivate Driver Assist Front View Camera (TcSE ROIN-290146)

Actors	Vehicle Occupant
Pre-conditions	Same as Normal Usage Use Case.
Scenario Description	The driver shifts out of Reverse Gear and into any other gear while Trailer Backup Assist (TBA) is active. The camera image feed remains displayed to the driver as long as TBA is active and vehicle speed does not exceed limit per CAMERA-REQ-014077-Feature Maximum Speed~~feature maximum~~.
Post-conditions	The vehicle display stops showing Rear View Camera image when TBA is no longer active or vehicle speed exceeds limit per CAMERA-REQ-014077-Feature Maximum Speed~~feature maximum~~.
List of Exception Use Cases	NA
Interfaces	G-HMI Vehicle System Interface

3.1.3.1.8 TRG-UC-REQ-102959/A-Vehicle Not in RUN/START

Actors	Vehicle Occupant
Pre-conditions	Same as normal usage use case
Scenario Description	Driver moves the ignition out of Run/Start
Post-conditions	The vehicle returns to non-TRG behavior
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.1.3.1.9 TRG-UC-REQ-102960/A-Loss of communication with IPMB Module

Actors	Vehicle Occupant
Pre-conditions	Same as normal usage use case
Scenario Description	Driver attempts to do something in TRG and APIM has lost communication with IPMB
Post-conditions	The vehicle shows camera view, without any overlays
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.1.3.1.10 TRG-UC-REQ-102961/A-Valid Camera Video Signal not present

Actors	Vehicle Occupant
Pre-conditions	Same as normal usage use case
Scenario Description	Driver attempts to do something in TRG and APIM is not receiving valid video
Post-conditions	The vehicle returns to non-TRG behavior
List of Exception Use Cases	N/A
Interfaces	G-HMI

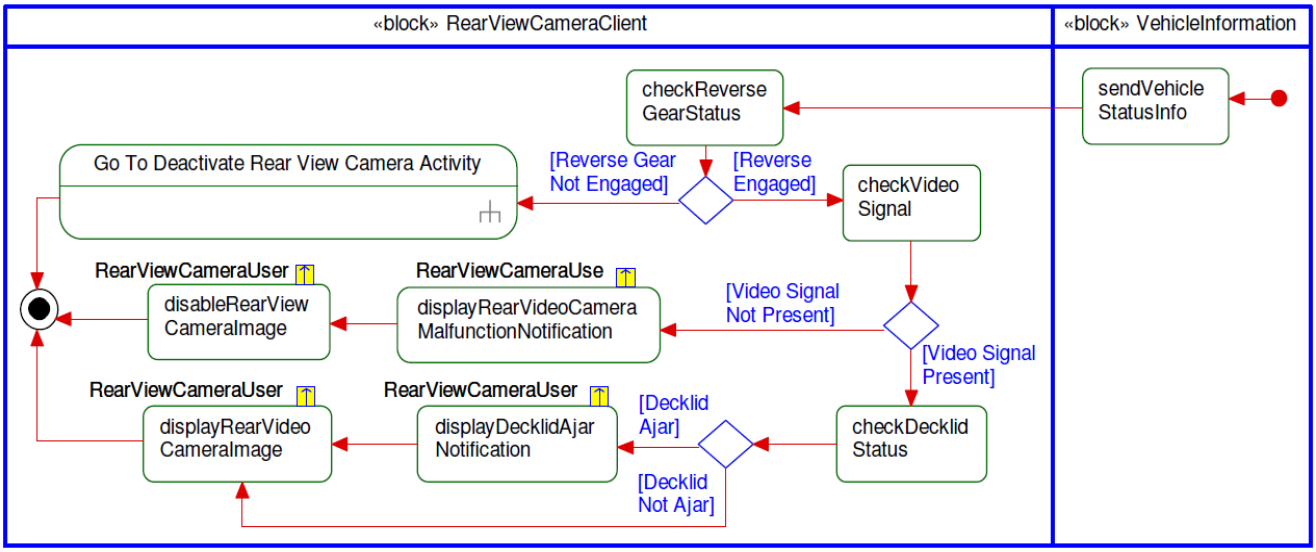
3.1.3.2 White Box View

3.1.3.2.1 Activity Diagrams

3.1.3.2.1.1 RVCv2-ACT-REQ-014102/A-Activate Rear View Camera (TcSE ROIN-282388-2)

Linked Elements
RVCv2-SD-REQ-014104/B-Activate Rear View Camera (TcSE ROIN-282316-2)

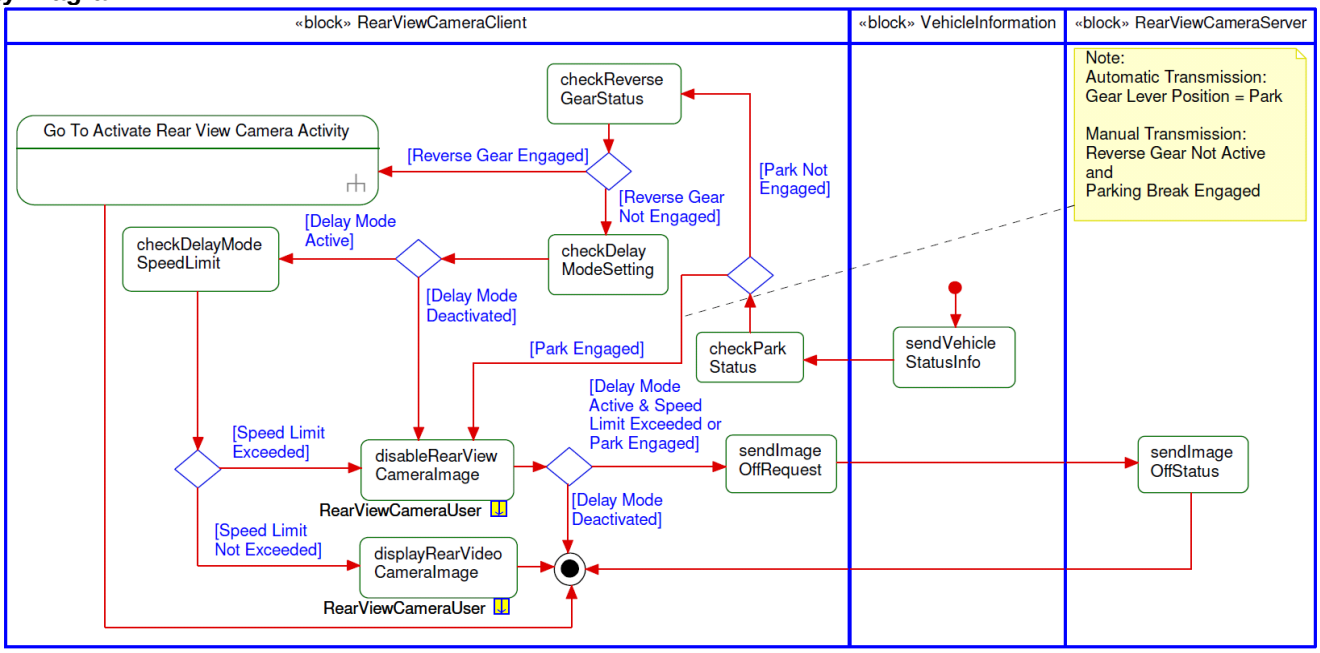
Activity Diagram



3.1.3.2.1.2 RVCv2-ACT-REQ-014103/A-Deactivate Rear View Camera (TcSE ROIN-286992-1)

Linked Elements
RVCv2-SD-REQ-014105/B-Deactivate Rear View Camera (TcSE ROIN-282323-2)

Activity Diagram



3.1.3.2.2 Sequence Diagrams

3.1.3.2.2.1 RVCv2-SD-REQ-014104/B-Activate Rear View Camera (TcSE ROIN-282316-2)

Scenario

Normal Usage

The user activates the Rear View Camera (RVC) by placing the vehicle in Reverse Gear.

Constraints

Pre-condition

Ignition_Status = Run

Post-condition

HMI Display shows the RVC image

Sequence Diagram

3.1.3.2.2.2 RVCv2-SD-REQ-014105/B-Deactivate Rear View Camera (TcSE ROIN-282323-2)

Scenario

Normal Usage

The user deactivates the Rear View Camera (RVC) by taking the vehicle out of Reverse Gear.

Constraints

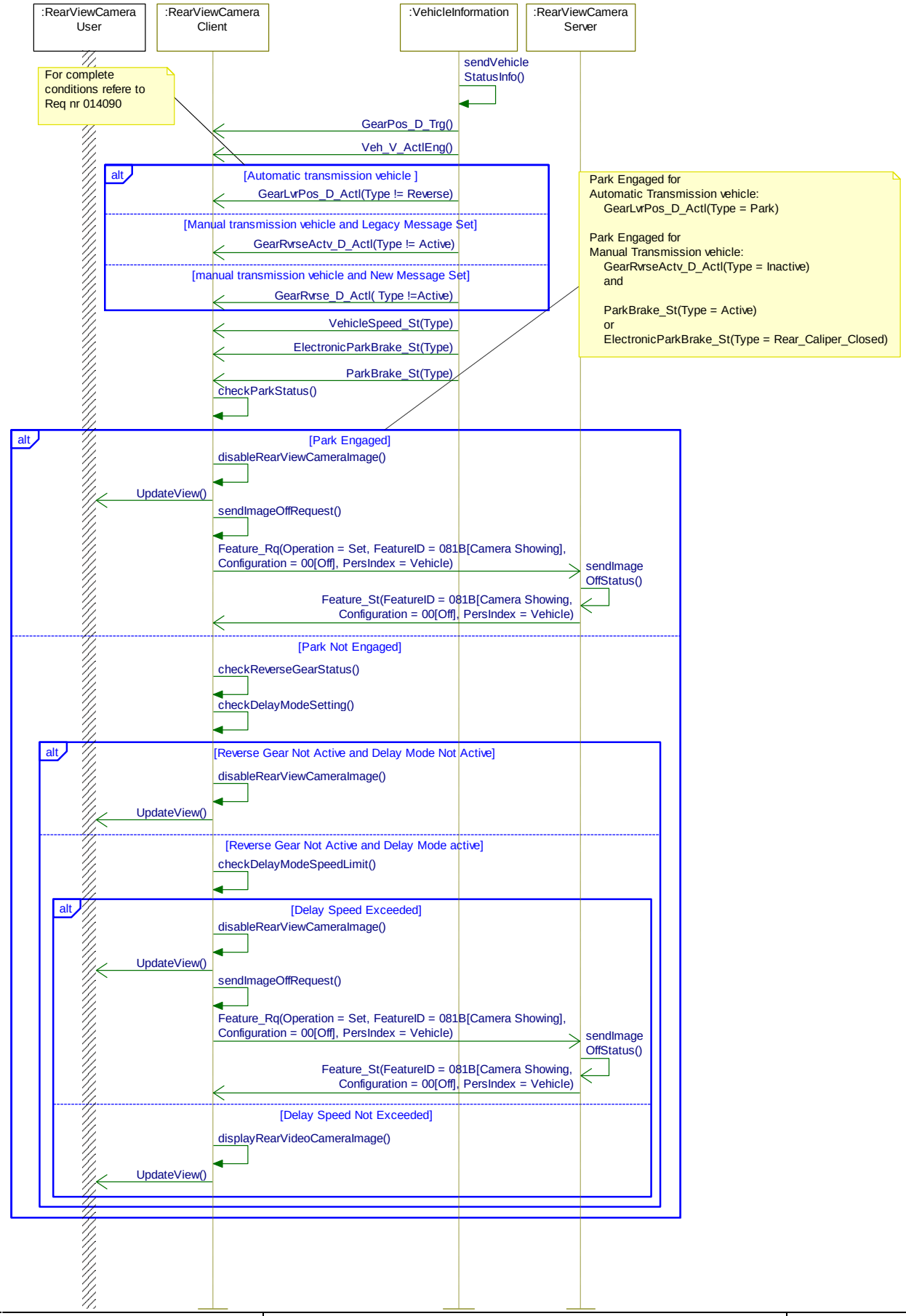
Pre-condition

Ignition_Status = Run

Post-condition

HMI Display stops showing the RVC image

Sequence Diagram


:RearViewCamera User
:RearViewCamera Client
:VehicleInformation
:RearViewCamera Server
For complete conditions refere to Req nr 014090
sendVehicle StatusInfo()
GearPos_D_Trg()
Veh_V_ActlEng()
alt
[Automatic transmission vehicle]
GearLvrPos_D_Actl(Type != Reverse)
[Manual transmission vehicle and Legacy Message Set]
GearRvrseActv_D_Actl(Type != Active)
[manual transmission vehicle and New Message Set]
GearRvrse_D_Actl(Type !=Active)
Park Engaged for
Automatic Transmission vehicle:
GearLvrPos_D_Actl(Type = Park)
Park Engaged for
Manual Transmission vehicle:
GearRvrseActv_D_Actl(Type = Inactive)
and
ParkBrake_St(Type = Active)
or
ElectronicParkBrake_St(Type = Rear_Caliper_Closed)
VehicleSpeed_St(Type)
ElectronicParkBrake_St(Type)
ParkBrake_St(Type)
checkParkStatus()
alt
[Park Engaged]
disableRearViewCameraImage()
UpdateView()
sendImageOffRequest()
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 00[Off], PersIndex = Vehicle)
sendImage OffStatus()
Feature_St(FeatureID = 081B[Camera Showing, Configuration = 00[Off], PersIndex = Vehicle)
[Park Not Engaged]
checkReverseGearStatus()
checkDelayModeSetting()
alt
[Reverse Gear Not Active and Delay Mode Not Active]
disableRearViewCameraImage()
UpdateView()
[Reverse Gear Not Active and Delay Mode active]
checkDelayModeSpeedLimit()
alt
[Delay Speed Exceeded]
disableRearViewCameraImage()
UpdateView()
sendImageOffRequest()
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 00[Off], PersIndex = Vehicle)
sendImage OffStatus()
Feature_St(FeatureID = 081B[Camera Showing, Configuration = 00[Off], PersIndex = Vehicle)
[Delay Speed Not Exceeded]
displayRearVideoCameraImage()
UpdateView()

3.1.4 RVCv2-FUN-REQ-014106/A-Rear View Camera Zoom Setting (TcSE ROIN-293363)

3.1.4.1 Use Cases

3.1.4.1.1 RVC-UC-REQ-014107/A-Select Manual Zoom Level X (TcSE ROIN-289799)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start. The vehicle display is showing the Rear View Camera image.
Scenario Description	The driver activates Manual Zoom Mode Level X via the HMI interface.
Post-conditions	The vehicle display continues to show the Rear View Camera image. The vehicle display indicates that a zoom level is selected. The video feed from the Rear View Camera contains a zoomed-in image.
List of Exception Use Cases	NA
Interfaces	G-HMI Vehicle System Interface
Notes	*There are three defined zoom levels and "Level X" is used to generically designate that one of the three is selected as described in this use case. Refer to HMI documentation (requirements and/or screen-flow) for which level(s) of zoom will be utilized.*

3.1.4.1.2 RVC-UC-REQ-014108/A-Deactivate Manual Zoom (TcSE ROIN-289802)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start. The vehicle display is showing the Rear View Camera image with Zoom Level X selected.
Scenario Description	The user deactivates Manual Zoom Mode via HMI interface.
Post-conditions	The vehicle display continues to show the Rear View Camera image. The vehicle display indicates that no zoom level is selected. The video feed from the Rear View Camera contains a normal (no zoom applied) image.
List of Exception Use Cases	NA
Interfaces	G-HMI Vehicle System Interface
Notes	*There are three defined zoom levels and "Level X" is used to generically designate that one of the three is selected as described in this use case. Refer to HMI documentation (requirements and/or screen-flow) for which level(s) of zoom will be utilized.*

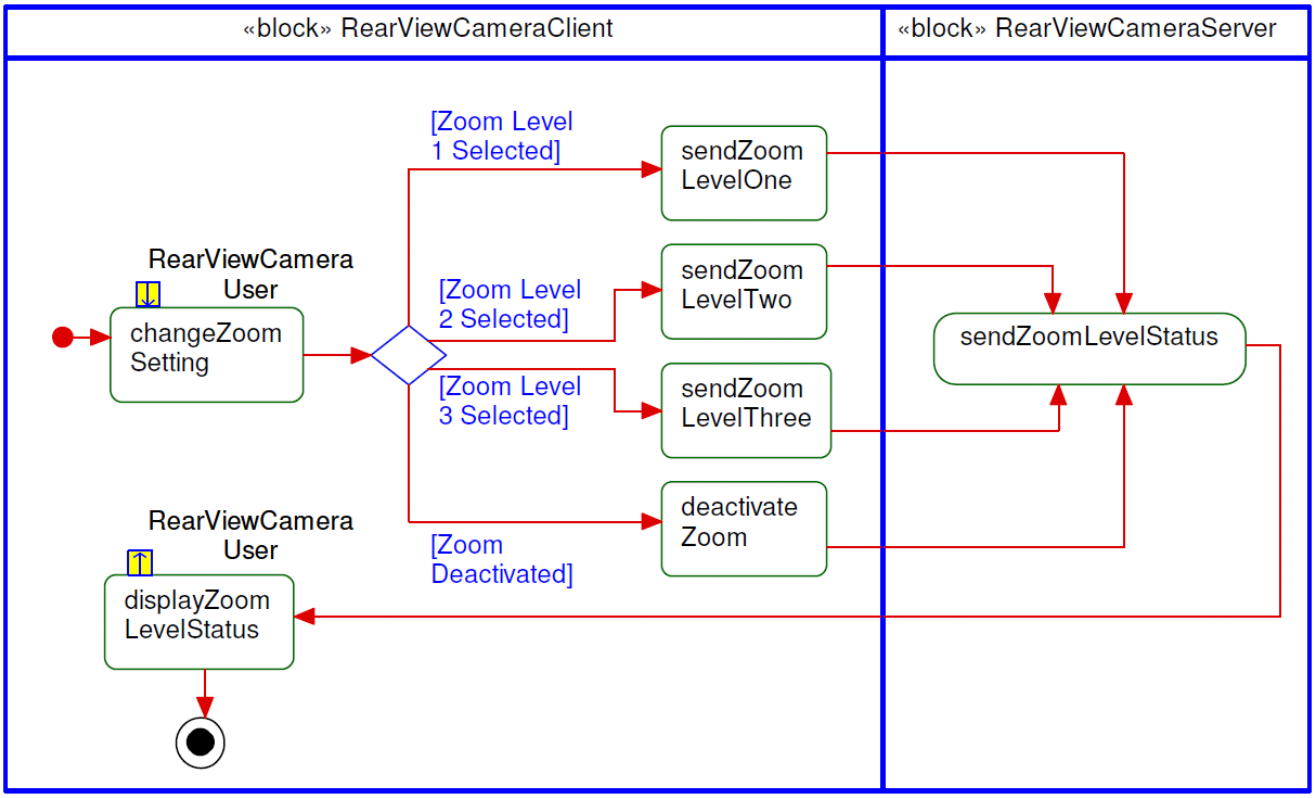
3.1.4.2 White Box View

3.1.4.2.1 Activity Diagrams

3.1.4.2.1.1 RVCv2-ACT-REQ-014109/A-Manual Zoom (TcSE ROIN-282390-1)

Linked Elements
RVCv2-SD-REQ-014110/A-Manual Zoom (TcSE ROIN-282356-1)

Activity Diagram



3.1.4.2.2 Sequence Diagrams

3.1.4.2.2.1 RVCv2-SD-REQ-014110/A-Manual Zoom (TcSE ROIN-282356-1)

Scenario

Normal Usage

The user changes the manual zoom level setting via the HMI interface.

Constraints

Pre-condition

Ignition_Status = Run

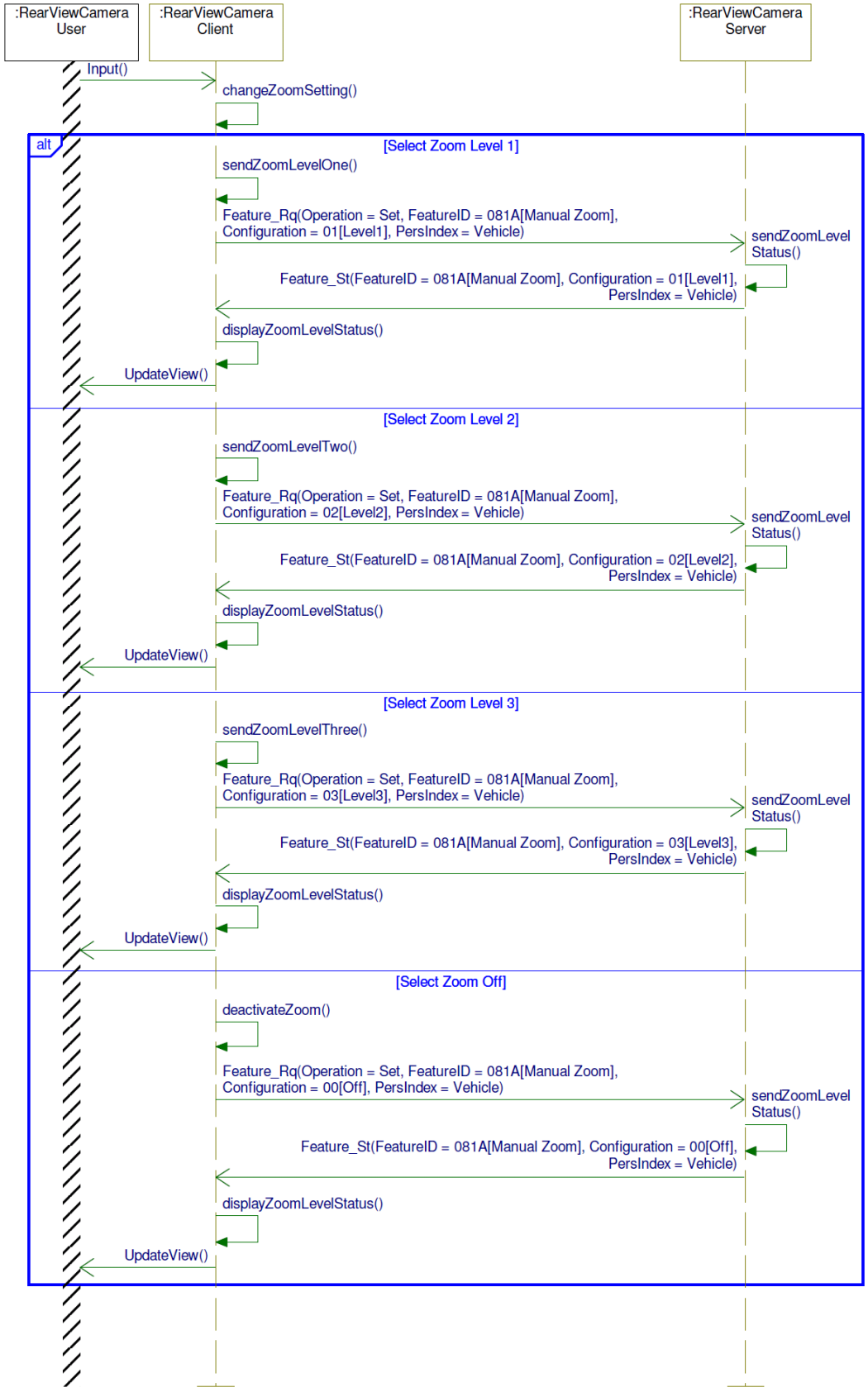
Pre-condition

HMI Display is showing RVC Image.

Post-condition

The HMI display is showing the Rear Video Camera image that reflects the updated zoom setting.

Sequence Diagram



3.1.5 RVCv3-FUN-REQ-127106/A-Rear View Camera Zoom Setting v3

3.1.5.1 Use Cases

3.1.5.1.1 RVCv3-UC-REQ-128173/A-Press Zoom Button from Rear 360 View

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with Multicamera • The vehicle is in RUN/START • In reverse and in Multicamera RVC view
Scenario Description	The driver presses the Zoom button
Post-conditions	The RVC zoom view appears with Multicamera view still being highlighted
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.1.5.1.2 RVCv3-UC-REQ-128176/A-Press Zoom Button from Rear Normal View

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with camera • The vehicle is in RUN/START • RVC view shown
Scenario Description	The Driver presses the Zoom button
Post-conditions	The RVC zoom view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.1.5.1.3 RVCv3-UC-REQ-128179/A-Press Zoom Button from CHMSL View

Actors	Vehicle Occupant
Pre-conditions	• The vehicke is configured with CHMSL camera • The vehicle is in Run/Start • The vehicle in Reverse • CHMSL View is shown
Scenario Description	The driver presses Zoom Button
Post-conditions	CHMSL Zoom view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.1.5.1.4 RVCv3-UC-REQ-128188/A-Press Rear 360 Unzoom

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with Multicamera • The vehicle is in Run/Start • Rear Zoom Shown (from Rear Multicamera)
Scenario Description	The driver presses soft Button to unzoom
Post-conditions	Rear Multicamera shows
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.1.5.1.5 RVCv3-UC-REQ-128189/A-Press Rear Normal Unzoom

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with any camera • The vehicle is in Run/Start • Rear Zoom Shown (from Rear Normal)
Scenario Description	The driver presses soft Button to unzoom
Post-conditions	Rear Normal shows
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.1.5.1.6 RVCv3-UC-REQ-128190/A-Press CHMSL Unzoom

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with CHMSL camera • The vehicle is in Run/Start • CHMSL Zoom Shown
Scenario Description	The driver presses soft Button to unzoom
Post-conditions	Rear Normal shows
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

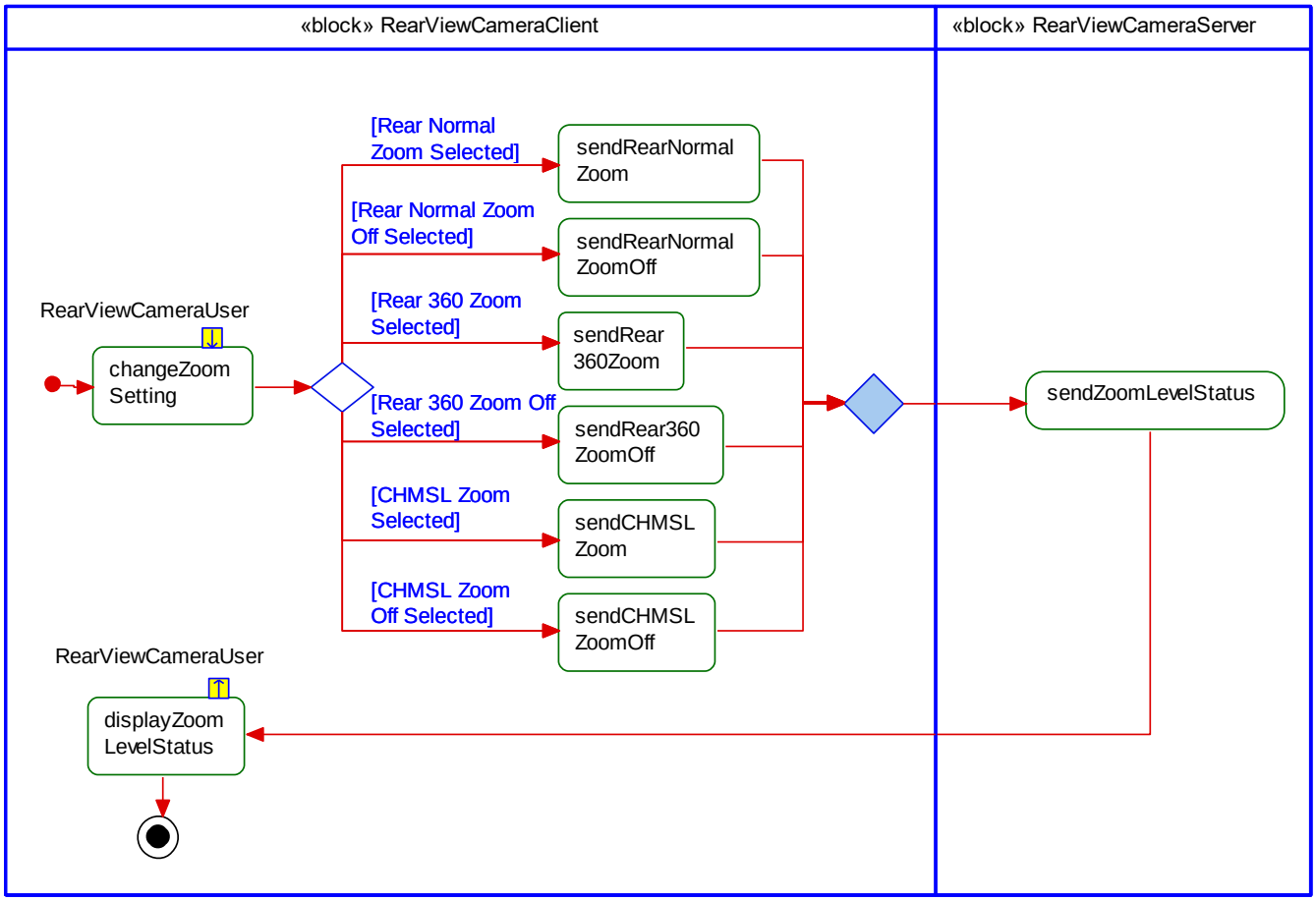
3.1.5.2 White Box View

3.1.5.2.1 Activity Diagrams

3.1.5.2.1.1 RVCv3-ACT-REQ-127095/A-Manual Zoom

Linked Elements
RVCv2-SD-REQ-014110/A-Manual Zoom (TcSE ROIN-282356-1)

Activity Diagram



3.1.5.2.2 Sequence Diagrams

3.1.5.2.2.1 RVCv3-SD-REQ-127097/A-Manual Zoom

Scenario

Normal Usage

The user changes the manual zoom setting via the HMI interface.

Constraints

Pre-condition

Ignition_Status = Run

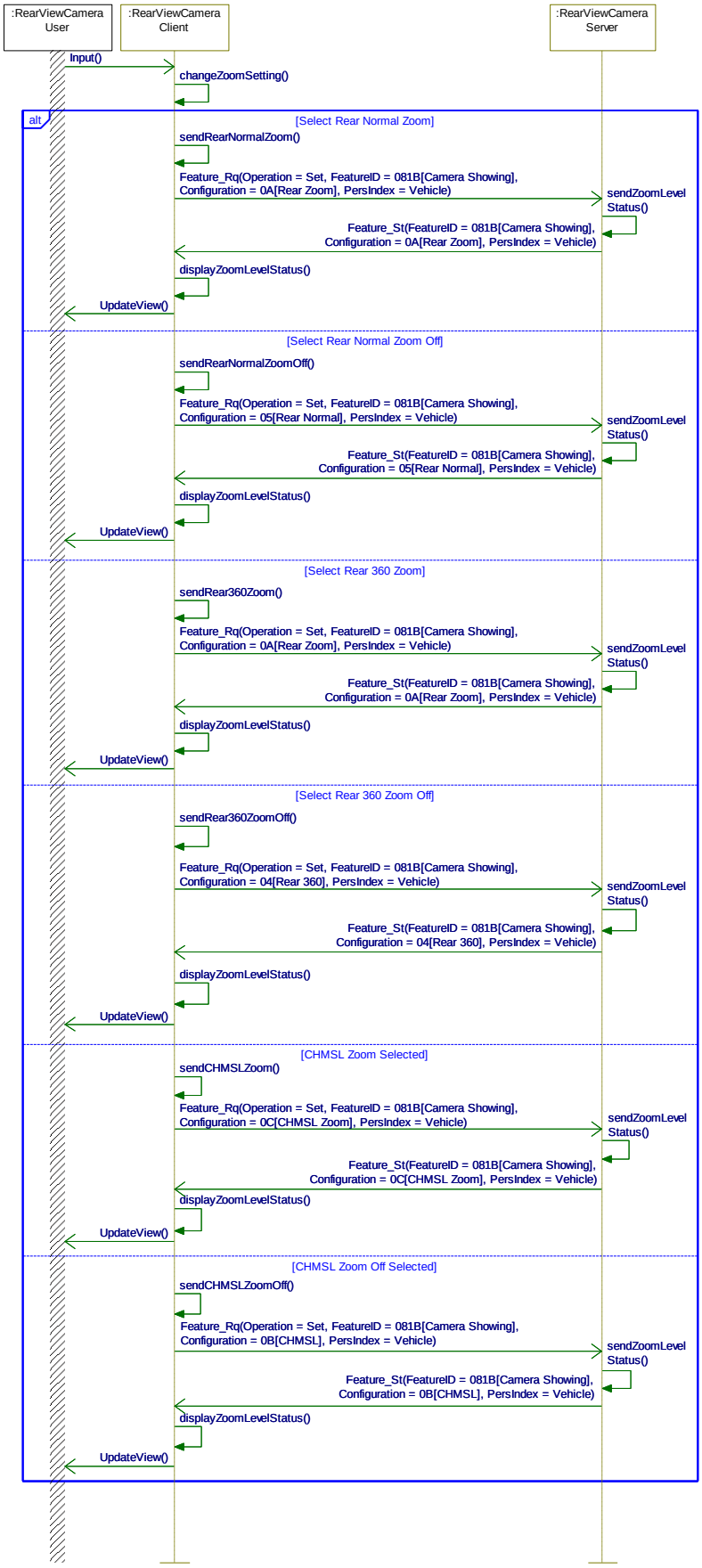
Pre-condition

HMI Display is showing RVC Image.

Post-condition

The HMI display is showing the Rear Video Camera image that reflects the updated zoom setting.

Sequence Diagram



3.1.6 RVCv2-FUN-REQ-014111/A-Rear View Camera Delay Mode Setting (TcSE ROIN-293368)

3.1.6.1 Use Cases

3.1.6.1.1 RVC-UC-REQ-014112/A-Activate/Deactivate Rear Camera Delay (TcSE ROIN-289803)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start.
Scenario Description	The driver activates/deactivates the Rear View Camera (RVC) Delay Mode via the HMI interface.
Post-conditions	The RVC Delay Mode is activated/deactivated.
List of Exception Use Cases	NA
Interfaces	G-HMI Vehicle System Interface

3.1.7 RVCv2-FUN-REQ-014113/A-Camera Image View (TcSE ROIN-293370)

3.1.7.1 Use Cases

3.1.7.1.1 RVCv2-UC-REQ-014114/A-Select Rear Camera Split-View (TcSE ROIN-289805)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start. The vehicle display is showing the Rear View Camera image.
Scenario Description	The driver selects split-view image via hard switch interface.
Post-conditions	The vehicle display continues to show the Rear View Camera image. The video feed from the Rear View Camera contains a split-view image.
List of Exception Use Cases	NA
Interfaces	G-HMI Dedicated Hard Button Vehicle System Interface

3.1.7.1.2 RVCv2-UC-REQ-014115/A-Select Rear Camera 360-View (TcSE ROIN-289806)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start. The vehicle display is showing the Rear View Camera image.
Scenario Description	The driver selects 360-view image via hard switch interface.
Post-conditions	The vehicle display continues to show the Rear View Camera image. The video feed from the Rear View Camera contains a 360-view image.
List of Exception Use Cases	NA
Interfaces	G-HMI Dedicated Hard Button Vehicle System Interface

3.1.7.1.3 RVCv2-UC-REQ-014116/A-Select Rear Camera Normal View (TcSE ROIN-289807)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start. The vehicle display is showing the Rear View Camera image.
Scenario Description	The driver selects normal view image via hard switch interface.
Post-conditions	The vehicle display continues to show the Rear View Camera image. The video feed from the Rear View Camera contains a normal view image.
List of Exception Use Cases	NA
Interfaces	G-HMI Dedicated Hard Button Vehicle System Interface

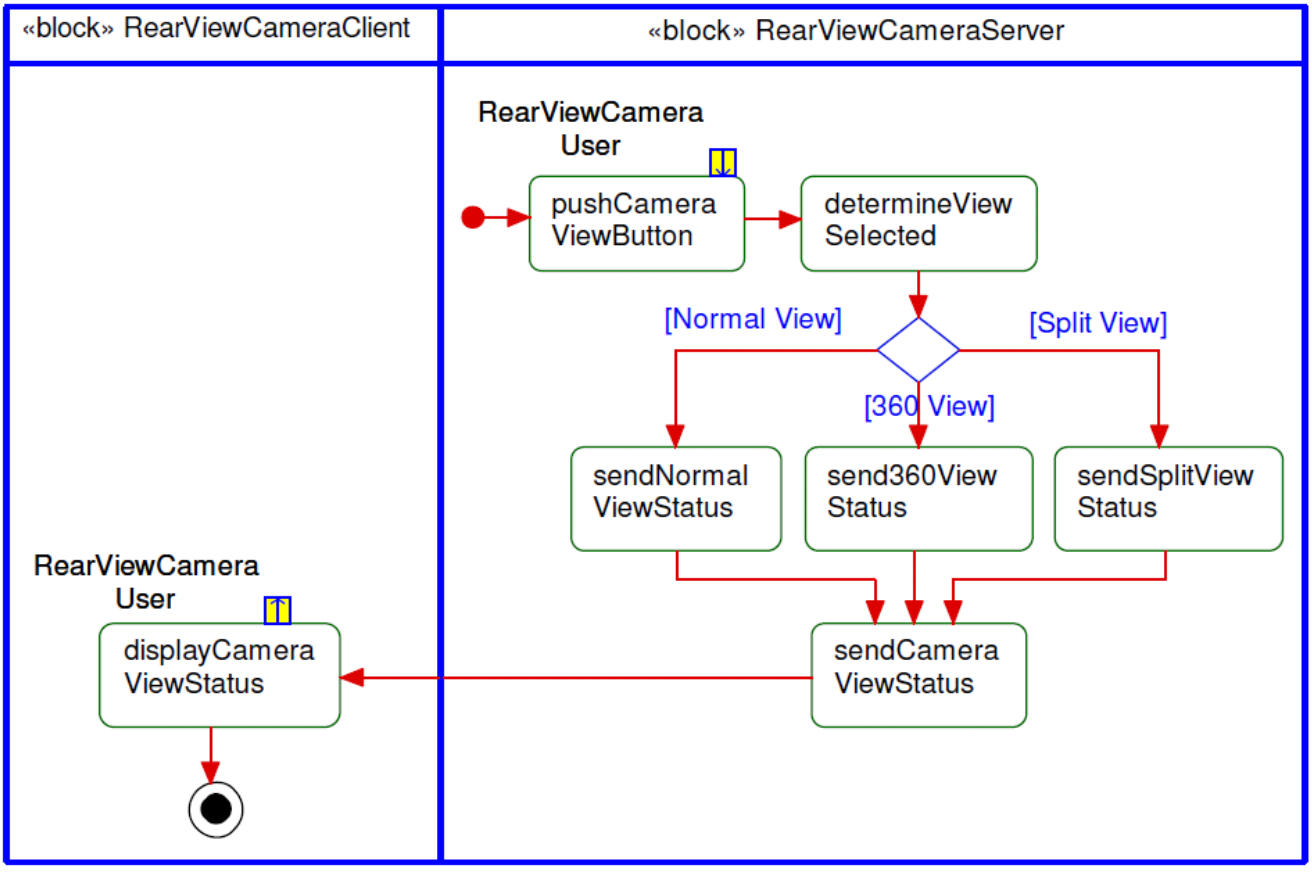
3.1.7.2 White Box View

3.1.7.2.1 Activity Diagrams

3.1.7.2.1.1 RVCv2-ACT-REQ-014117/A-Change Camera View Setting (TcSE ROIN-282392-2)

Linked Elements
RVCv2-SD-REQ-014118/A-Change Camera View Setting (TcSE ROIN-282363-3)

Activity Diagram



3.1.7.2.2 Sequence Diagrams

3.1.7.2.2.1 RVCv2-SD-REQ-014118/A-Change Camera View Setting (TcSE ROIN-282363-3)

Scenario

Normal Usage

The user selects alternate view image setting via the HMI interface.

Constraints

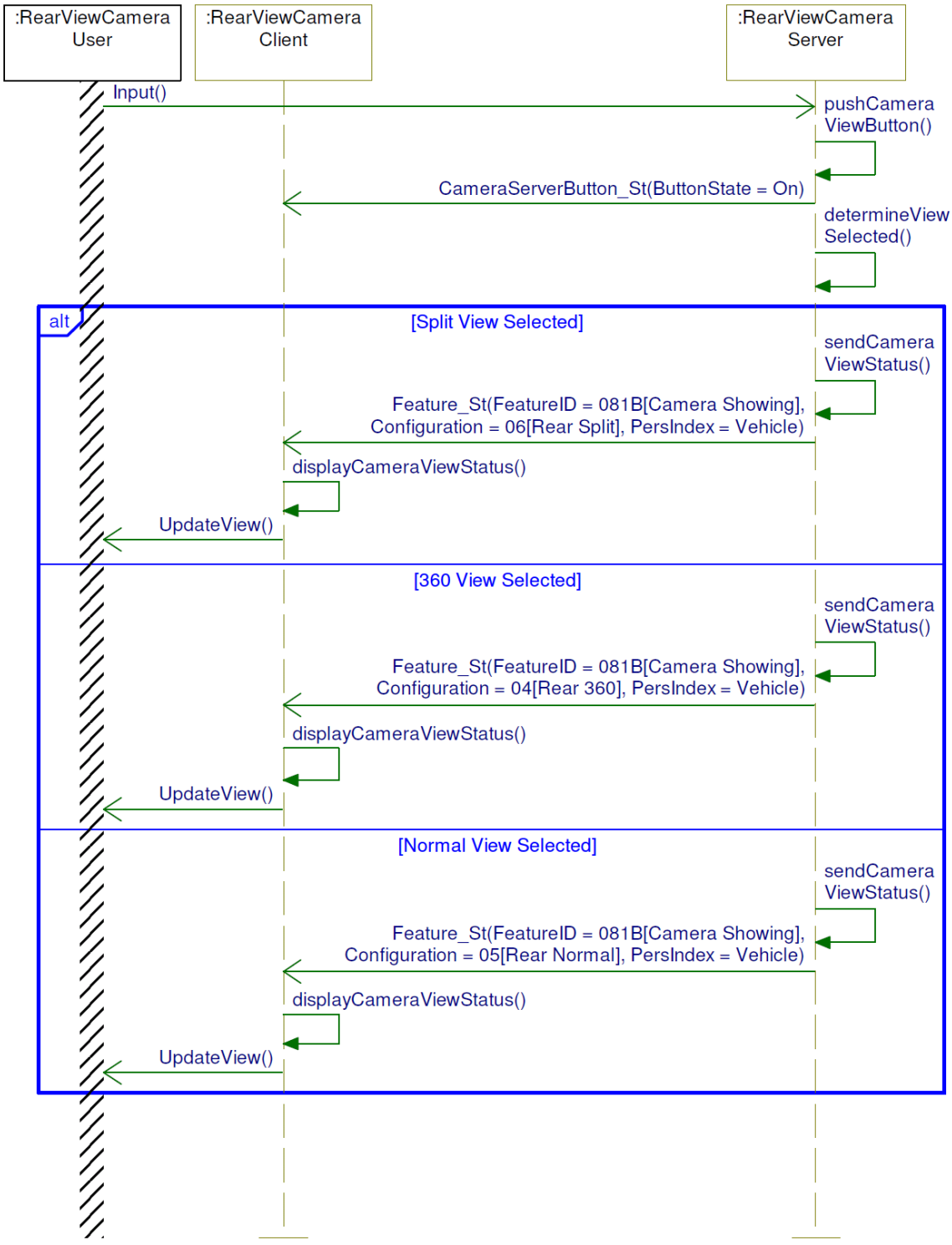
Pre-condition

Ignition_Status = Run

Post-condition

The HMI display is showing the Rear Video Camera image that reflects the updated alternate view setting.

Sequence Diagram



3.1.8 RVCv3-FUN-REQ-127111/A-Camera Image View v3

3.1.8.1 Use Cases

3.1.8.1.1 RVCv3-UC-REQ-127874/A-Press Rear 360 View Button

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with Multicamera • The vehicle is in RUN/START • Reverse camera shown and not in Rear Multicamera view.
Scenario Description	The driver presses Multicamera rear button
Post-conditions	Multicamera RVC view appears with overlays
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.1.8.1.2 RVCv3-UC-REQ-128175/A-Press RVC Normal View Button

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with non- Multicamera • The vehicle is in RUN/START • In reverse and not in RVC view
Scenario Description	The Driver presses the RVC button
Post-conditions	RVC view appears with overlays
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.1.8.1.3 RVCv3-UC-REQ-128177/A-Press RVC Split View Button

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured as Multicamera with Rear Split View • The Vehicle is in Run/Start • RVC View being shown, and not in RVC Split view
Scenario Description	The Driver presses RVC Split view button
Post-conditions	RVC Split view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.1.8.1.4 RVCv3-UC-REQ-128178/A-Press CHMSL Camera View Button

Actors	Vehicle Occupant
Pre-conditions	• The vehicke is configured with CHMSL camera • Vehicle is in Run/Start • Rear Camera shown and Not in CHMSL
Scenario Description	The driver presses CHMSL view button
Post-conditions	CHMSL view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.1.8.1.5 RVCv3-UC-REQ-128180/B-Press Aux Camera view Button

Actors	Vehicle Occupant
Pre-conditions	• Vehicle in Run/Start • Vehicle is in Reverse, Park, Netural, or Drive • The CHMSL view is not showing • Vehicle below 10kph
Scenario Description	• User presses camera hard button IPMB sends “Camera Showing (81B): 0x0D”
Post-conditions	The Aux view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.1.8.1.6 RVCv3-UC-REQ-128181/A-Press Trailer Reverse Guidance Button

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with TRG • The vehicle is in Run/Start • The vehicle is in Reverse • TRG is not activated

Scenario Description	The driver presses TRG view button
Post-conditions	TRG scenarios enter; see TRG Use cases for more details
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.1.8.1.7 RVCv3-UC-REQ-128396/B-Press Hard Button to Enter CHMSL View

Actors	Vehicle Occupant
Pre-conditions	• Vehicle in Run/Start • Vehicle is in Reverse, Park, Neutral, or Drive. • The CHMSL view is not showing. • Vehicle below 10kph.
Scenario Description	• User presses camera hard button • IPMB sends “Camera Showing (81B): 0x0D”
Post-conditions	CHMSL view is shown
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.1.8.1.8 RVCv3-UC-REQ-128397/A-Press Hard Button to Enter RVC View

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with CHMSL, Rear Camera and Soft button strategy • The vehicle is in Run/Start • CHMSL or CHMSL Zoom is shown
Scenario Description	The driver presses Hard Camera Button to enter Rear Normal View
Post-conditions	Rear Normal shows
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

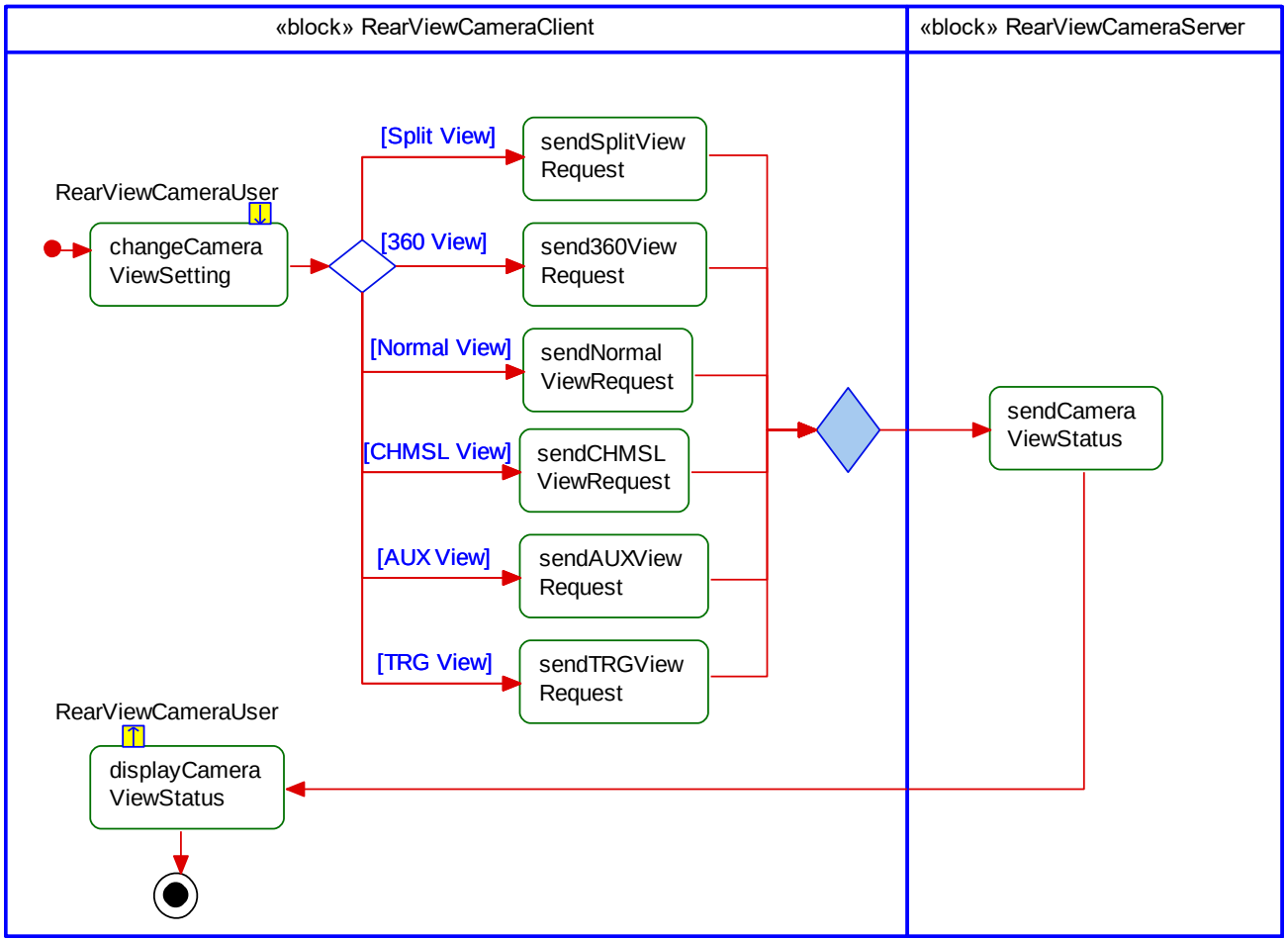
3.1.8.2 White Box View

3.1.8.2.1 Activity Diagrams

3.1.8.2.1.1 RVCv3-ACT-REQ-127096/A-Change Camera View Setting

Linked Elements
RVCv2-SD-REQ-014118/A-Change Camera View Setting (TcSE ROIN-282363-3)

Activity Diagram



3.1.8.2.2 Sequence Diagrams

3.1.8.2.2.1 RVCv3-SD-REQ-127098/A-Change Camera View Setting

Scenario

Normal Usage

The user selects alternate view image setting via the HMI interface.

Constraints

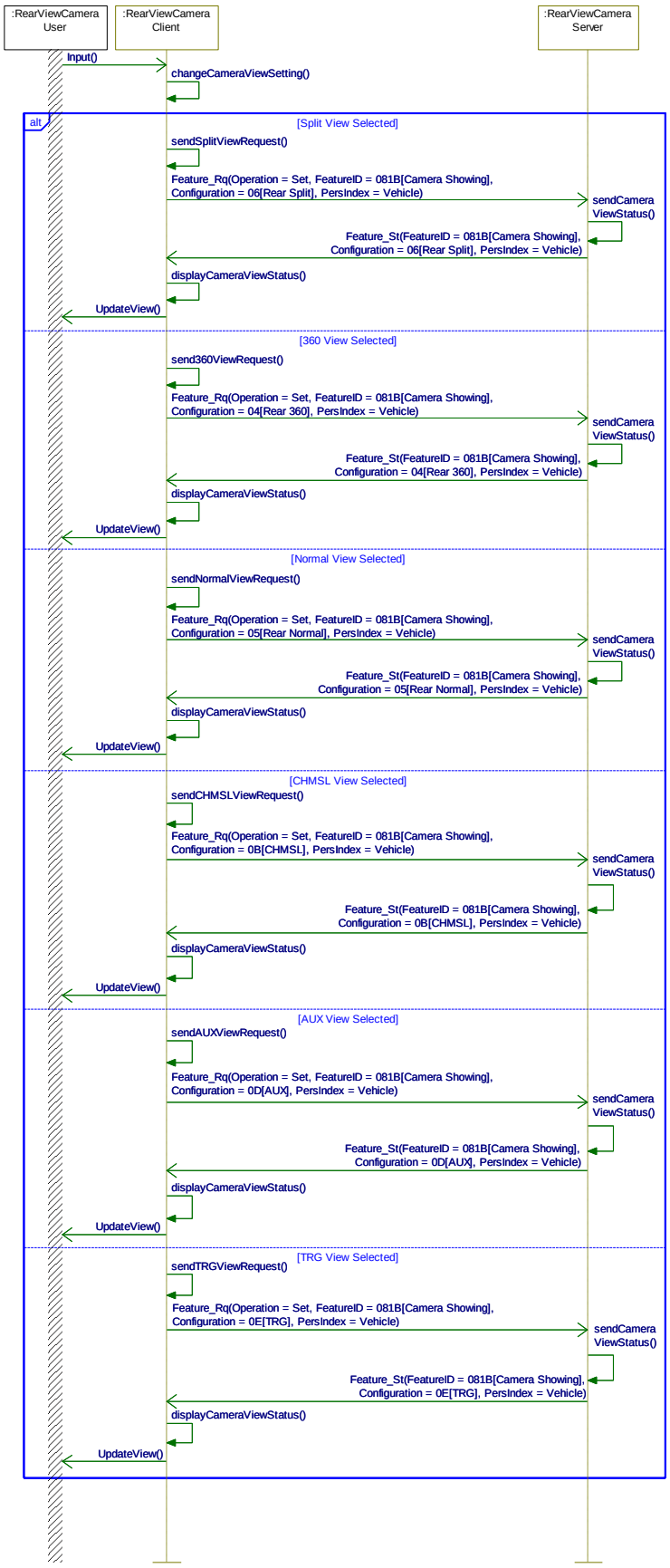
Pre-condition

Ignition_Status = Run

Post-condition

The HMI display is showing the Rear Video Camera image that reflects the updated alternate view setting.

Sequence Diagram



3.1.9 RVCv2-FUN-REQ-014119/A-Activate/Deactivate Enhanced Park Aids (TcSE ROIN-293375)

3.1.9.1 Requirements

3.1.9.1.1 RVCv2-REQ-014120/A-Visual Park Aid Alert Availability (TcSE ROIN-281600-2)

The Rear Video Camera and the HMI Display must both be configured with Park Aid Module present in order to enable the Visual Park Aid Alert setting options (HMI refers to this as Enhanced Park Aids and this refers to Visual Park Aid Alert or Visual Park Assist depending on vehicle configuration. See HMI specification for implementation details).

3.1.9.2 Use Cases

3.1.9.2.1 RVC-UC-REQ-014121/A-Activate/Deactivate Enhanced Park Aids (TcSE ROIN-289804)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start.
Scenario Description	The driver activates/deactivates the Enhanced Park Aids via the HMI interface.
Post-conditions	The Enhance Park Aids are activated/deactivated. The HMI indicates the setting change determined by vehicle system interface signal.
List of Exception Use Cases	NA
Interfaces	G-HMI Vehicle System Interface

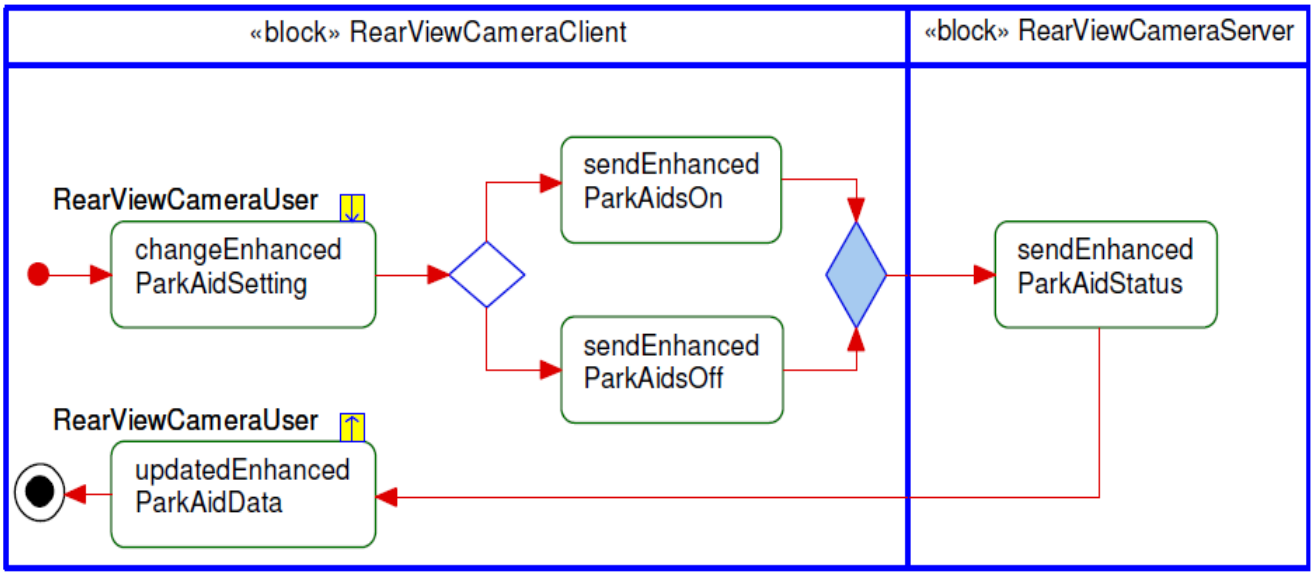
3.1.9.3 White Box View

3.1.9.3.1 Activity Diagrams

3.1.9.3.1.1 RVCv2-ACT-REQ-014122/A-Activate/Deactivate Enhanced Park Aids (TcSE ROIN-286990-1)

Linked Elements
RVCv2-SD-REQ-014123/A-Activate/Deactivate Enhanced Park Aids (TcSE ROIN-286982-2)

Activity Diagram



3.1.9.3.2 Sequence Diagrams

3.1.9.3.2.1 RVCv2-SD-REQ-014123/A-Activate/Deactivate Enhanced Park Aids (TcSE ROIN-286982-2)

Scenario

Normal Usage

The user activates/deactivates Enhanced Park Aids via the HMI interface.

Constraints

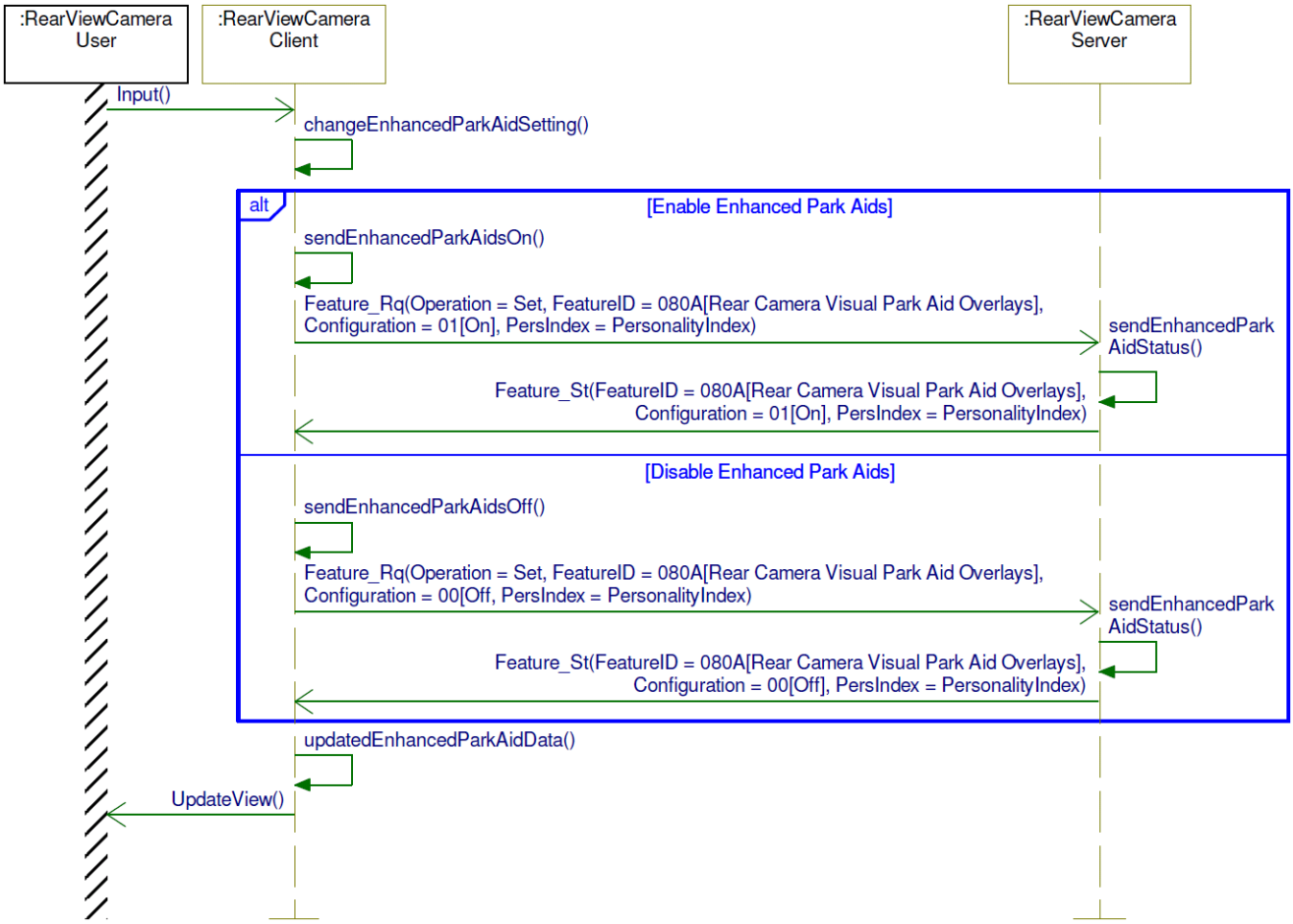
Pre-condition

Ignition_Status = Run

Post-condition

Enhanced Park Aids are enabled/disabled.

Sequence Diagram



3.1.10 RVCv2-FUN-REQ-014124/A-Camera Overlay Setting (TcSE ROIN-293357)

3.1.10.1 Requirements

3.1.10.1.1 RVC-FUR-REQ-014125/A-Guideline Availability (TcSE ROIN-264660-2)

- In order for Active (Dynamic) Guidelines to be available, the vehicle must be equipped with an Absolute Steering Angle Sensor and both the Rear Video Camera and the HMI Display must be configured with Absolute Steering Angle Sensor present.
- When Active (Dynamic) Guidelines are active, Fixed (Static) Guidelines must also be active.
- When Fixed (Static) Guidelines are inactive, Active (Dynamic) Guidelines must also be inactive.

3.1.10.2 Use Cases

3.1.10.2.1 RVCv2-UC-REQ-014126/A-Select Global Overlay Setting (All Guidelines) (TcSE ROIN-289808)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start.
Scenario Description	The driver activates/deactivates all Rear View Camera overlays (guidelines) via the HMI interface.
Post-conditions	The vehicle display indicates the selected overlay setting. The video feed from the Rear View Camera contains an image with or without all guideline overlays as indicated by the selected setting.
List of Exception Use Cases	NA
Interfaces	G-HMI Vehicle System Interface
Notes	*Use Case is optional.* *Current direction is to not apply guideline related use cases.*

3.1.10.2.2 RVCv2-UC-REQ-014127/A-Select Active Guideline Setting (TcSE ROIN-289809)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start.
Scenario Description	The driver activates/deactivates the Active (Dynamic) Guidelines Setting via the HMI interface.
Post-conditions	The vehicle display indicates the selected Active Guideline setting. The video feed from the Rear View Camera contains an image with or without Active guideline overlays as indicated by the selected setting.
List of Exception Use Cases	NA
Interfaces	G-HMI Vehicle System Interface
Notes	*Use Case is optional.* *Current direction is to not apply guideline related use cases.*

3.1.10.2.3 RVCv2-UC-REQ-014128/A-Select Fixed Guideline Setting (TcSE ROIN-289810)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start.
Scenario Description	The driver activates/deactivates the Fixed (Static) Guidelines Setting via the HMI interface.
Post-conditions	The vehicle display indicates the selected Fixed Guideline setting. The video feed from the Rear View Camera contains an image with or without Fixed guideline overlays as indicated by the selected setting.
List of Exception Use Cases	NA
Interfaces	G-HMI Vehicle System Interface
Notes	*Use Case is optional.* *Current direction is to not apply guideline related use cases.*

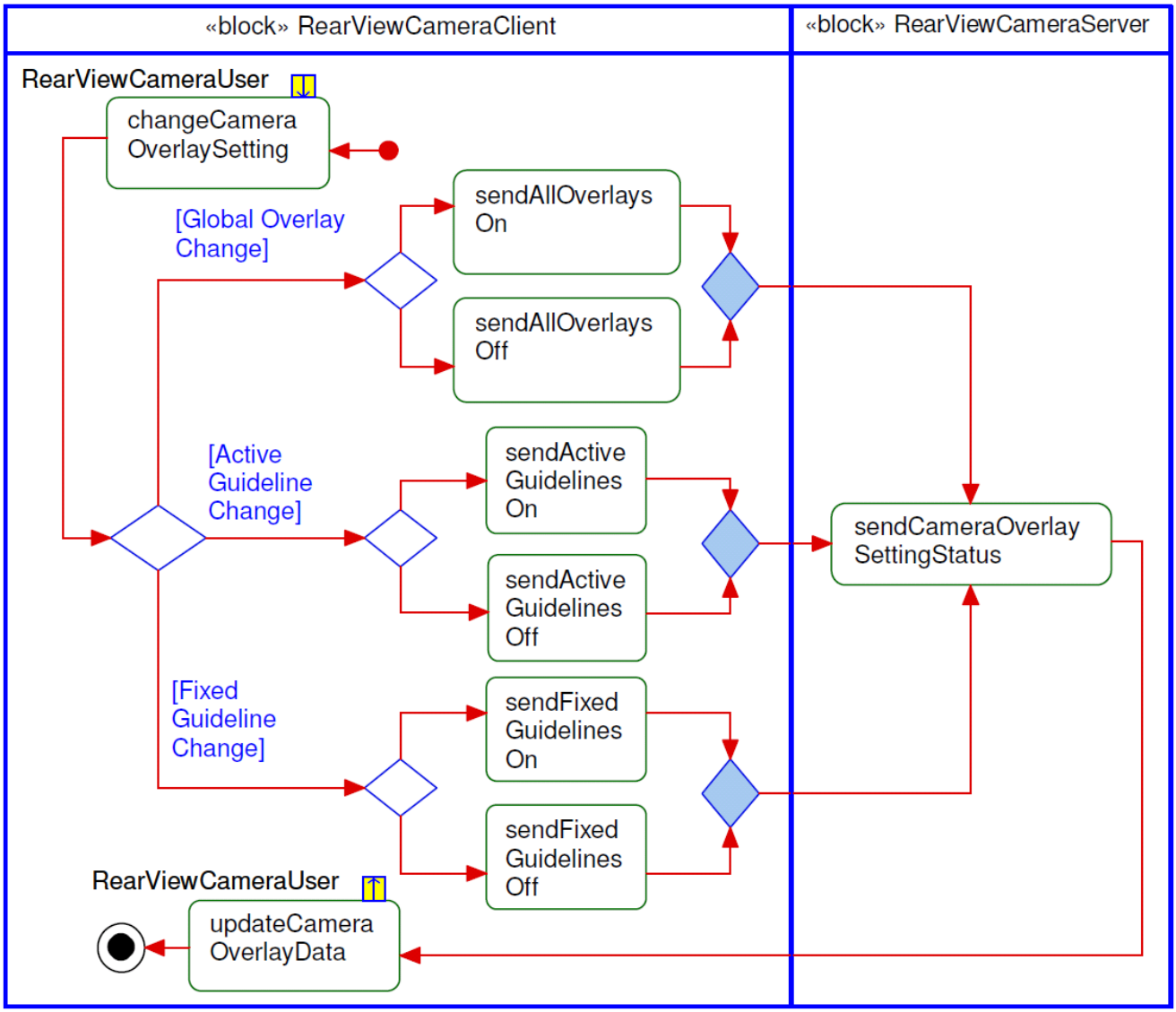
3.1.10.3 White Box View

3.1.10.3.1 Activity Diagrams

3.1.10.3.1.1 RVCv2-ACT-REQ-014129/A-Change Camera Overlay Setting (TcSE ROIN-282386-2)

Linked Elements
RVCv2-SD-REQ-014131/A-Deactivate Overlays (TcSE ROIN-282341-2)
RVCv2-SD-REQ-014130/A-Activate Overlays (TcSE ROIN-282334-2)

Activity Diagram



3.1.10.3.2 Sequence Diagrams

3.1.10.3.2.1 RVCv2-SD-REQ-014130/A-Activate Overlays (TcSE ROIN-282334-2)

Scenario

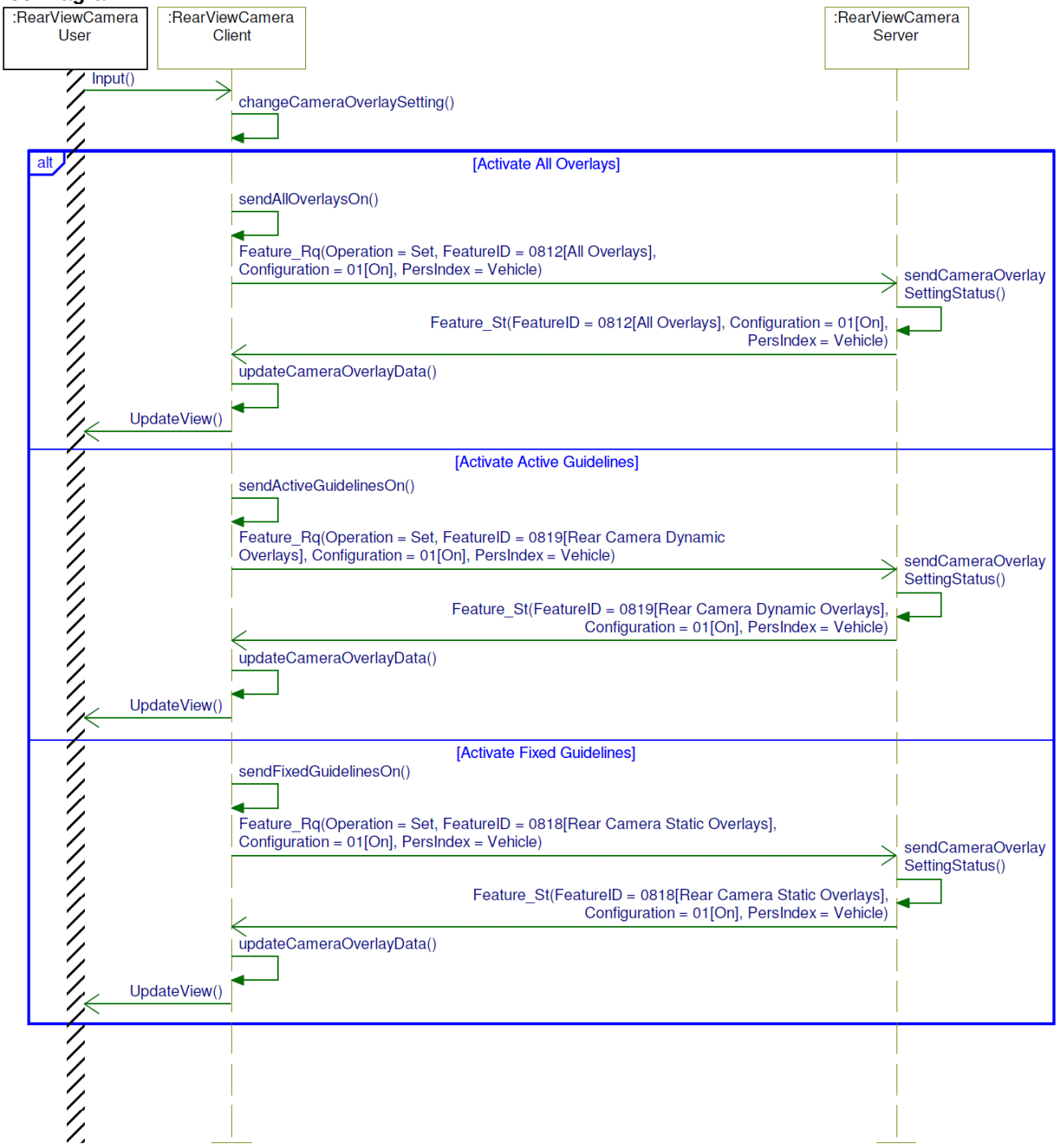
Normal Usage
The user activates Rear View Camera overlays via the HMI interface.

Constraints

Pre-condition
Ignition_Status = Run

Post-condition
Rear View Camera overlays are enabled.

Sequence Diagram



3.1.10.3.2.2 RVCv2-SD-REQ-014131/A-Deactivate Overlays (TcSE ROIN-282341-2)

Scenario

Normal Usage
The user deactivates Rear View Camera overlays via the HMI interface.

Constraints

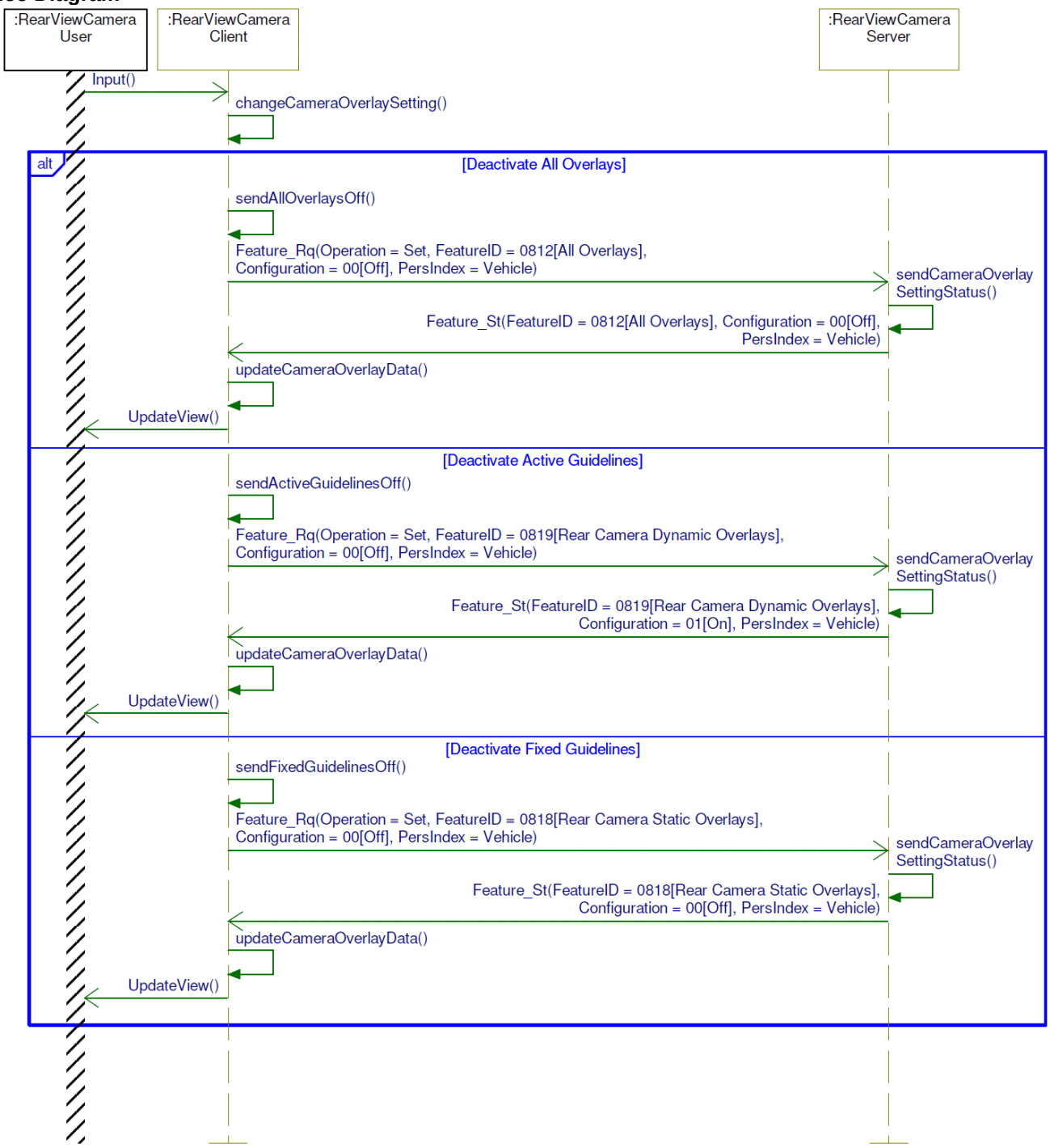
Pre-condition

Ignition_Status = Run

Post-condition

Rear View Camera overlays are disabled.

Sequence Diagram



3.2 Driver Assist Front View Camera

3.2.1 DAFVCv1-FUN-REQ-014045/B-Activate/Deactivate Driver Assist Front View Camera (TcSE ROIN-293385)

3.2.1.1 Requirements

3.2.1.1.1 DAFVCv1-FUR-REQ-166641/A-Deactivate FVC

The DriverAssistFrontViewCameraClient shall stop displaying Front View Camera (FVC) image when one of the following conditions is met:

- Vehicle is shifted into 'Reverse' (Rear View Camera image will be shown)
- Vehicle is shifted into 'Park' (No Image shown in 'Park')
- Power Mode does not equal IgnitionOn_2 or Running_2 or Crank_3
- FVC is disabled (Feature_St equals 0x81B Camera Showing and 0x00 Off)
- Vehicle speed exceeds Feature Maximum Speed requirement 014077

3.2.1.1.2 DAFVCv1-FUR-REQ-013997/B-E-Locker Deactivation Delay (TcSE ROIN-266607-1)

If the FrontViewCameraClient is displaying the Front View Camera (FVC) image (all conditions for front camera image display are true) and the E-Locker transistions from 'Locked' (Elocker_St = 0x1:ON) to 'Unlocked' (Elocker_St = 0x0:OFF), the FrontViewCameraClient shall start a timer (T_eLockerDelay) and shall continue to display the FVC image until the expiration of this timer.

If the FrontViewCameraClient detects that the E-Locker transistions back to 'Locked' prior to the expiration of T_eLockerDelay, and all other conditions for front camera image remain true, the FrontViewCameraClient shall cancel the timer and continue to display the FVC image.

3.2.1.1.3 DAFVCv1-TMR-REQ-013998/B-T_eLockerDelay (TcSE ROIN-266609-1)

Name	Description	Units	Range	Resolution	Default
T_eLockerDelay	Maximum time FrontViewCameraClient should wait before stopping the display of the FVC video image to the user according to FAS-FVC-GREQ-266607-E-Locker Deactivation Delay.	msec	4975-5025	5	5000

3.2.1.2 Use Cases

3.2.1.2.1 DAFVCv1-UC-REQ-014046/B-Activate Driver Assist Front View Camera (TcSE ROIN-290143)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start. The gear position status is NOT Reverse.
Scenario Description	The driver activates the Driver Assist Front View Camera (DAFVC) via hard button interface, or vehicle system indicates DAFVC activation for Trailer Backup Assist, ~~or~~ Active Park Assist or Off Road Front Camera. ~~.~~
Post-conditions	The vehicle display shows the DAFVC image.
List of Exception Use Cases	E1 – Driver Assist Front View Camera Malfunction E2 – Activation Attempt During Overspeed Condition
Interfaces	G-HMI Dedicated Hard Button Vehicle System Interface

3.2.1.2.2 DAFVCv1-UC-REQ-014047/A-Driver Assist Front View Camera Malfunction (TcSE ROIN-290144)

Linked Elements
DAFVCv1-UC-REQ-014046/B-Activate Driver Assist Front View Camera (TcSE ROIN-290143)

Actors	Vehicle Occupant
Pre-conditions	Same as Normal Usage Use Case
Scenario Description	The driver attempts to activate the Driver Assist Front View Camera (DAFVC) via hard button interface. The HMI interface indicates that the DAFVC image cannot be shown because of a malfunction.
Post-conditions	The vehicle display does NOT show the DAFVC image.
List of Exception Use Cases	NA
Interfaces	G-HMI Dedicated Hard Button Vehicle System Interface

3.2.1.2.3 DAFVCv1-UC-REQ-014048/B-Activation Attempt During Overspeed Condition (TcSE ROIN-290145)

Linked Elements
DAFVCv1-UC-REQ-014046/B-Activate Driver Assist Front View Camera (TcSE ROIN-290143)

Actors	Vehicle Occupant
Pre-conditions	Same as Normal Usage Use Case
Scenario Description	The driver attempts to activate the Driver Assist Front View Camera (DAFVC) via hard button interface while traveling at a speed greater than the limit per CAMERA-REQ-014077-Feature Maximum Speed~~feature maximum~~.
Post-conditions	The vehicle display does NOT show the DAFVC image.
List of Exception Use Cases	NA
Interfaces	G-HMI Dedicated Hard Button Vehicle System Interface

3.2.1.2.4 DAFVCv1-UC-REQ-014049/B-Deactivate Driver Assist Front View Camera (TcSE ROIN-290146)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start. The vehicle system display is showing front view camera image
Scenario Description	The user deactivates the Driver Assist Front View Camera (DAFVC) by one of the following: • Disabling DAFVC via hard button interface • Exceeding the speed limit per CAMERA-REQ-014077-Feature Maximum Speed • Shifting the vehicle into Reverse (RVC image will be shown if conditions for RVC allow it) • Shifting the vehicle into Park (No image shown in 'Park')
Post-conditions	The vehicle display does NOT show the DAFVC image.
List of Exception Use Cases	NA
Interfaces	G-HMI Dedicated Hard Button Vehicle System Interface

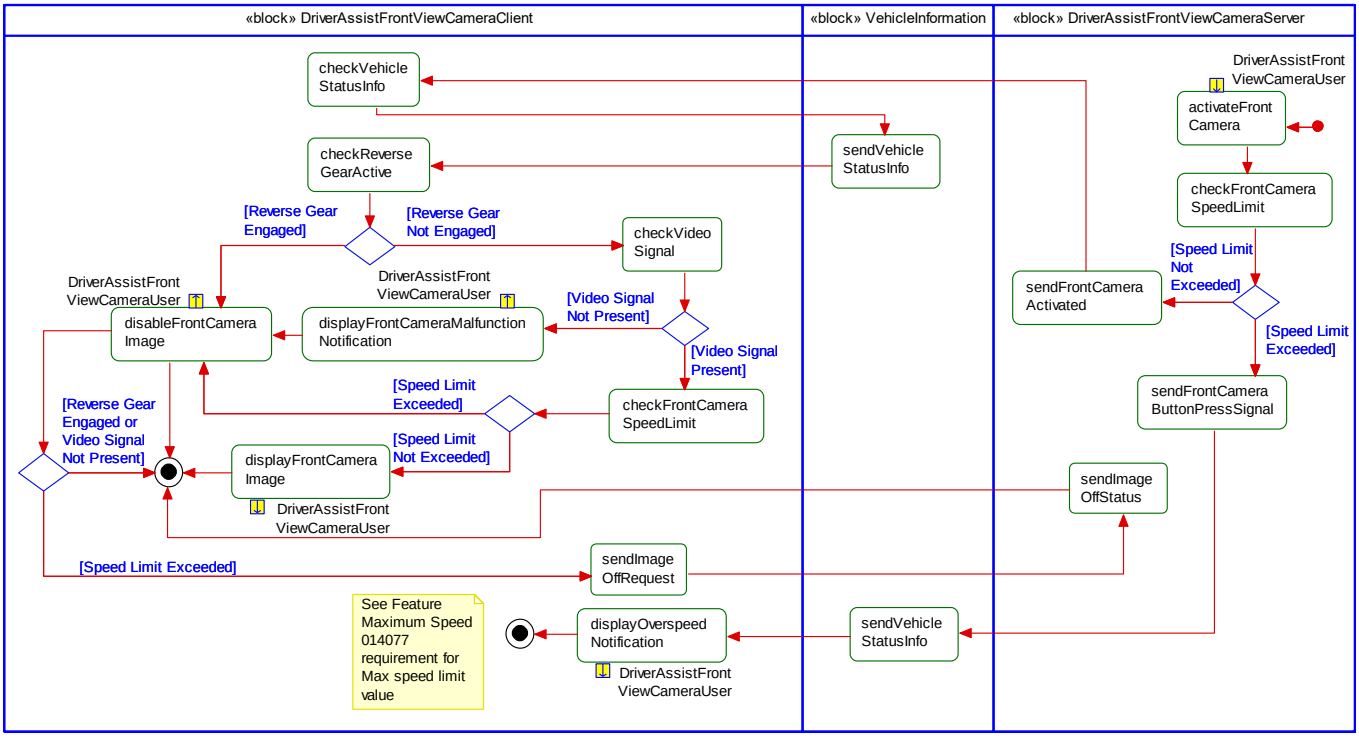
3.2.1.3 White Box View

3.2.1.3.1 Activity Diagrams

3.2.1.3.1.1 DAFVCv1-ACT-REQ-014043/B-Activate/Deactivate Driver Assist Front View Camera (TcSE ROIN-282606-3)

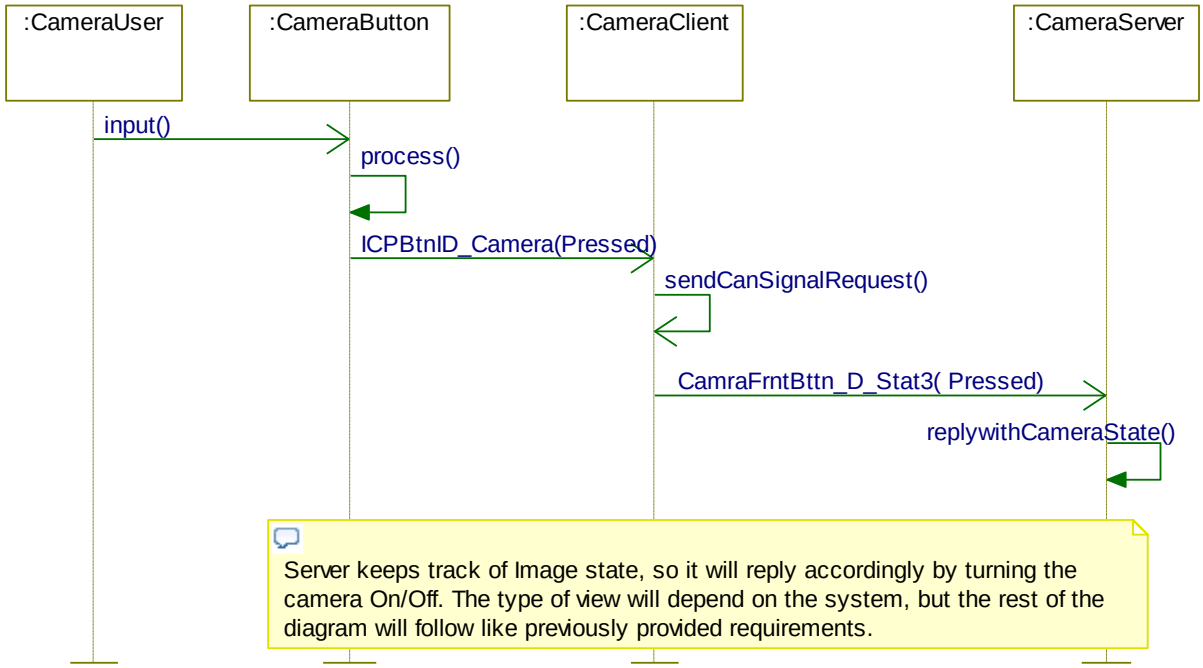
Linked Elements
DAFVCv1-SD-REQ-014051/A-Activation Attempt During Overspeed (TcSE ROIN-287030-1)
DAFVCv1-SD-REQ-014050/C-Activate_Deactivate Driver Asistance Front View Camera (TcSE ROIN-282617-2)

Activity Diagram



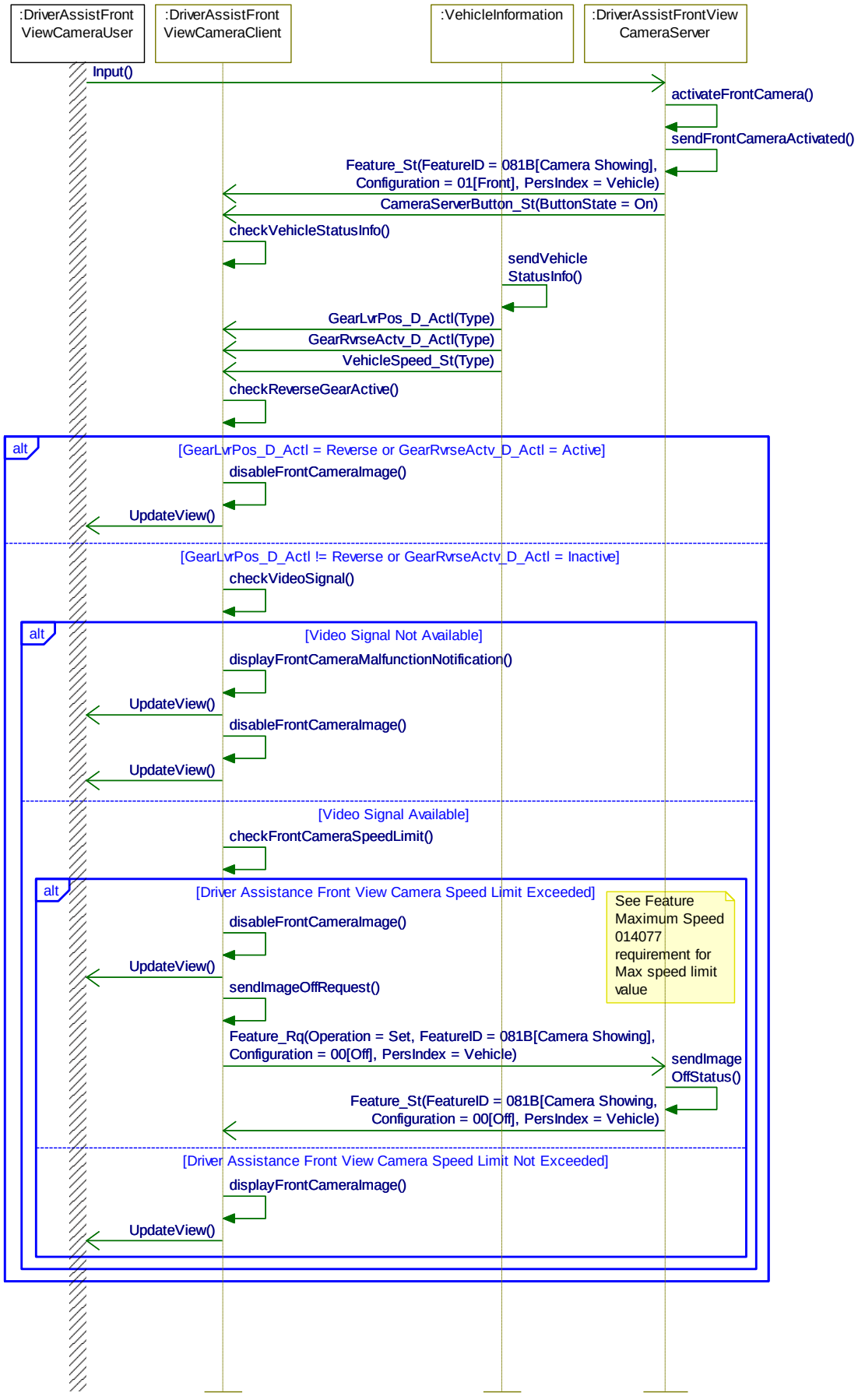
3.2.1.3.2 Sequence Diagrams

3.2.1.3.2.1 REQ-331856/B-Lin Button Camera Request



3.2.1.3.2.2 DAFVCv1-SD-REQ-014050/C-Activate_Deactivate Driver Asistance Front View Camera (TcSE ROIN-282617-2)

Sequence Diagram


:DriverAssistFront ViewCameraUser
:DriverAssistFront ViewCameraClient
:VehicleInformation
:DriverAssistFrontView CameraServer
Input()
activateFrontCamera()
sendFrontCameraActivated()
Feature_St(FeatureID = 081B[Camera Showing], Configuration = 01[Front], PersIndex = Vehicle)
CameraServerButton_St(ButtonState = On)
checkVehicleStatusInfo()
sendVehicle StatusInfo()
GearLvrPos_D_Actl(Type)
GearRvrseActv_D_Actl(Type)
VehicleSpeed_St(Type)
checkReverseGearActive()
alt
[GearLvrPos_D_Actl = Reverse or GearRvrseActv_D_Actl = Active]
disableFrontCameraImage()
UpdateView()
[GearLvrPos_D_Actl != Reverse or GearRvrseActv_D_Actl = Inactive]
checkVideoSignal()
alt
[Video Signal Not Available]
displayFrontCameraMalfunctionNotification()
UpdateView()
disableFrontCameraImage()
UpdateView()
[Video Signal Available]
checkFrontCameraSpeedLimit()
alt
[Driver Assistance Front View Camera Speed Limit Exceeded]
See Feature Maximum Speed 014077 requirement for Max speed limit value
disableFrontCameraImage()
UpdateView()
sendImageOffRequest()
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 00[Off], PersIndex = Vehicle)
sendImage OffStatus()
Feature_St(FeatureID = 081B[Camera Showing, Configuration = 00[Off], PersIndex = Vehicle)
[Driver Assistance Front View Camera Speed Limit Not Exceeded]
displayFrontCameraImage()
UpdateView()

3.2.1.3.2.3 DAFVCv1-SD-REQ-014051/A-Activation Attempt During Overspeed (TcSE ROIN-287030-1)

Scenario

Normal Usage

The user attempts to activate the Driver Assist Front View Camera (DAFVC) by pressing the hard switch while exceeding the ~~DAFVC vehicle~~ speed limit per CAMERA-REQ-014077-Feature Maximum Speed.

Constraints

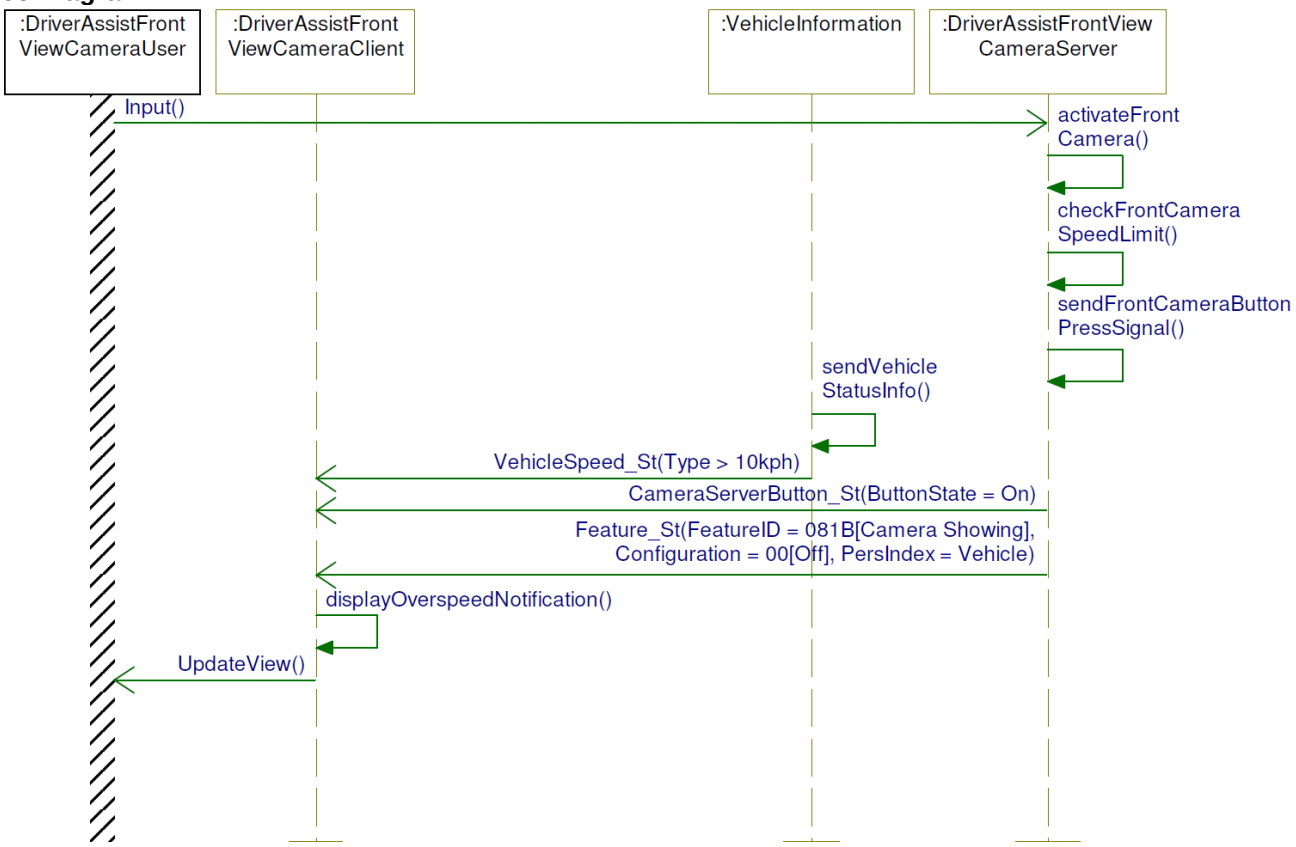
Pre-condition

Ignition_Status = Run

Post-condition

HMI Display shows an over-speed notification.

Sequence Diagram



3.2.2 DAFVCv2-FUN-REQ-128309/B-Activate/Deactivate Driver Assist Front View Camera v2

3.2.2.1 Requirements

3.2.2.1.1 DAFVCv1-FUR-REQ-166641/A-Deactivate FVC

The DriverAssistFrontViewCameraClient shall stop displaying Front View Camera (FVC) image when one of the following conditions is met:

- Vehicle is shifted into 'Reverse' (Rear View Camera image will be shown)
- Vehicle is shifted into 'Park' (No Image shown in 'Park')
- Power Mode does not equal IgnitionOn_2 or Running_2 or Crank_3
- FVC is disabled (Feature_St equals 0x81B Camera Showing and 0x00 Off)
- Vehicle speed exceeds Feature Maximum Speed requirement 014077

3.2.2.1.2 DAFVCv1-FUR-REQ-013997/B-E-Locker Deactivation Delay (TcSE ROIN-266607-1)

If the FrontViewCameraClient is displaying the Front View Camera (FVC) image (all conditions for front camera image display are true) and the E-Locker transistions from 'Locked' (Elocker_St = 0x1:ON) to 'Unlocked' (Elocker_St = 0x0:OFF), the FrontViewCameraClient shall start a timer (T_eLockerDelay) and shall continue to display the FVC image until the expiration of this timer.

If the FrontViewCameraClient detects that the E-Locker transistions back to 'Locked' prior to the expiration of T_eLockerDelay, and all other conditions for front camera image remain true, the FrontViewCameraClient shall cancel the timer and continue to display the FVC image.

3.2.2.1.3 DAFVCv1-TMR-REQ-013998/B-T_eLockerDelay (TcSE ROIN-266609-1)

Name	Description	Units	Range	Resolution	Default
T_eLockerDelay	Maximum time FrontViewCameraClient should wait before stopping the display of the FVC video image to the user according to FAS-FVC-GREQ-266607-E-Locker Deactivation Delay.	msec	4975-5025	5	5000

3.2.2.2 Use Cases

3.2.2.2.1 DAFVCv2-UC-REQ-128182/B-Entering Front Camera - 360

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with Multicamera or FVC only • The vehicle is in Run/Start • The vehicle is NOT in reverse • The vehicle speed is below limit per CAMERA-REQ-014077-Feature Maximum Speed~~10kph~~
Scenario Description	The driver presses Front Camera Hard Button
Post-conditions	Front Multicamera view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.2.2.2.2 DAFVCv2-UC-REQ-128184/B-Entering Front Camera – Non-360

Actors	Vehicle Occupant
Pre-conditions	• APIM is configured with FVC only (no Multicamera) • Vehicle in Run/Start • Vehicle Not in reverse • Vehicle speed per CAMERA-REQ-014077-Feature Maximum Speed~~below 10kph~~
Scenario Description	• User presses Camera Hard Button
Post-conditions	Front Normal view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.2.2.2.3 DAFVCv1-UC-REQ-128312/B-Activation Attempt During Overspeed Condition

Linked Elements
DAFVCv1-UC-REQ-128310/A-Activate Driver Assist Front View Camera

Actors	Vehicle Occupant
Pre-conditions	Same as Normal Usage Use Case
Scenario Description	The driver attempts to activate the Driver Assist Front View Camera (DAFVC) via hard button interface while traveling at a speed greater than the limit per CAMERA-REQ-014077-Feature Maximum Speed~~feature maximum~~.
Post-conditions	The vehicle display does NOT show the DAFVC image.
List of Exception Use Cases	NA
Interfaces	G-HMI Dedicated Hard Button Vehicle System Interface

3.2.2.2.4 TRG-UC-REQ-102959/A-Vehicle Not in RUN/START

Actors	Vehicle Occupant
Pre-conditions	Same as normal usage use case
Scenario Description	Driver moves the ignition out of Run/Start
Post-conditions	The vehicle returns to non-TRG behavior
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.2.2.2.5 TRG-UC-REQ-102960/A-Loss of communication with IPMB Module

Actors	Vehicle Occupant
Pre-conditions	Same as normal usage use case
Scenario Description	Driver attempts to do something in TRG and APIM has lost communication with IPMB
Post-conditions	The vehicle shows camera view, without any overlays
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.2.2.2.6 TRG-UC-REQ-102961/A-Valid Camera Video Signal not present

Actors	Vehicle Occupant
Pre-conditions	Same as normal usage use case
Scenario Description	Driver attempts to do something in TRG and APIM is not receiving valid video
Post-conditions	The vehicle returns to non-TRG behavior
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.2.2.2.7 DAFVCv1-UC-REQ-014049/B-Deactivate Driver Assist Front View Camera (TcSE ROIN-290146)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start. The vehicle system display is showing front view camera image
Scenario Description	The user deactivates the Driver Assist Front View Camera (DAFVC) by one of the following: • Disabling DAFVC via hard button interface • Exceeding the speed limit per CAMERA-REQ-014077-Feature Maximum Speed • Shifting the vehicle into Reverse (RVC image will be shown if conditions for RVC allow it) • Shifting the vehicle into Park (No image shown in 'Park')
Post-conditions	The vehicle display does NOT show the DAFVC image.
List of Exception Use Cases	NA
Interfaces	G-HMI Dedicated Hard Button Vehicle System Interface

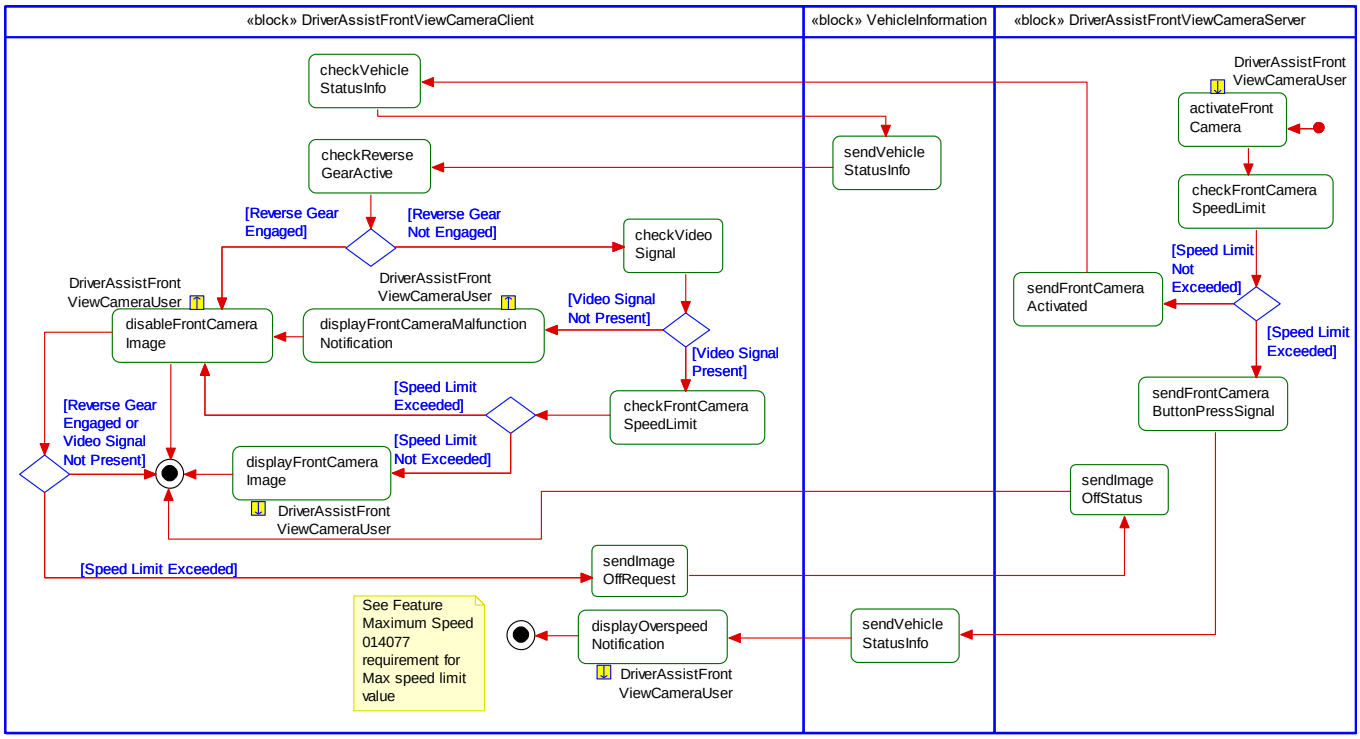
3.2.2.3 White Box View

3.2.2.3.1 Activity Diagrams

3.2.2.3.1.1 DAFVCv1-ACT-REQ-014043/B-Activate/Deactivate Driver Assist Front View Camera (TcSE ROIN-282606-3)

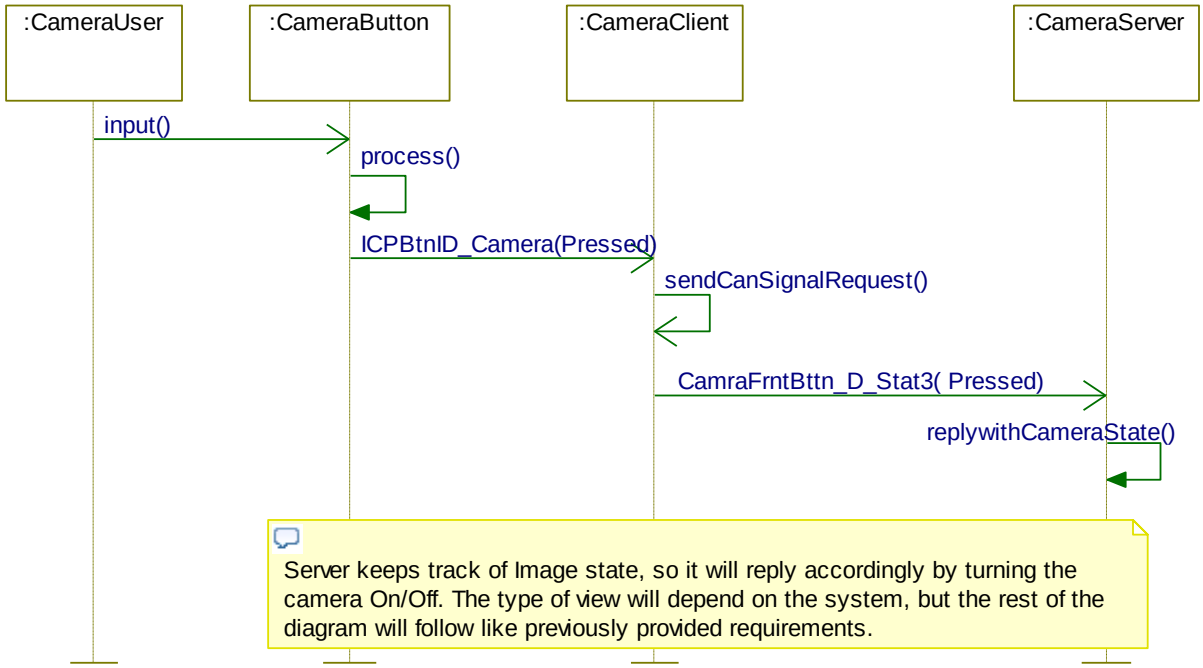
Linked Elements
DAFVCv1-SD-REQ-014051/A-Activation Attempt During Overspeed (TcSE ROIN-287030-1)
DAFVCv1-SD-REQ-014050/C-Activate_Deactivate Driver Asistance Front View Camera (TcSE ROIN-282617-2)

Activity Diagram



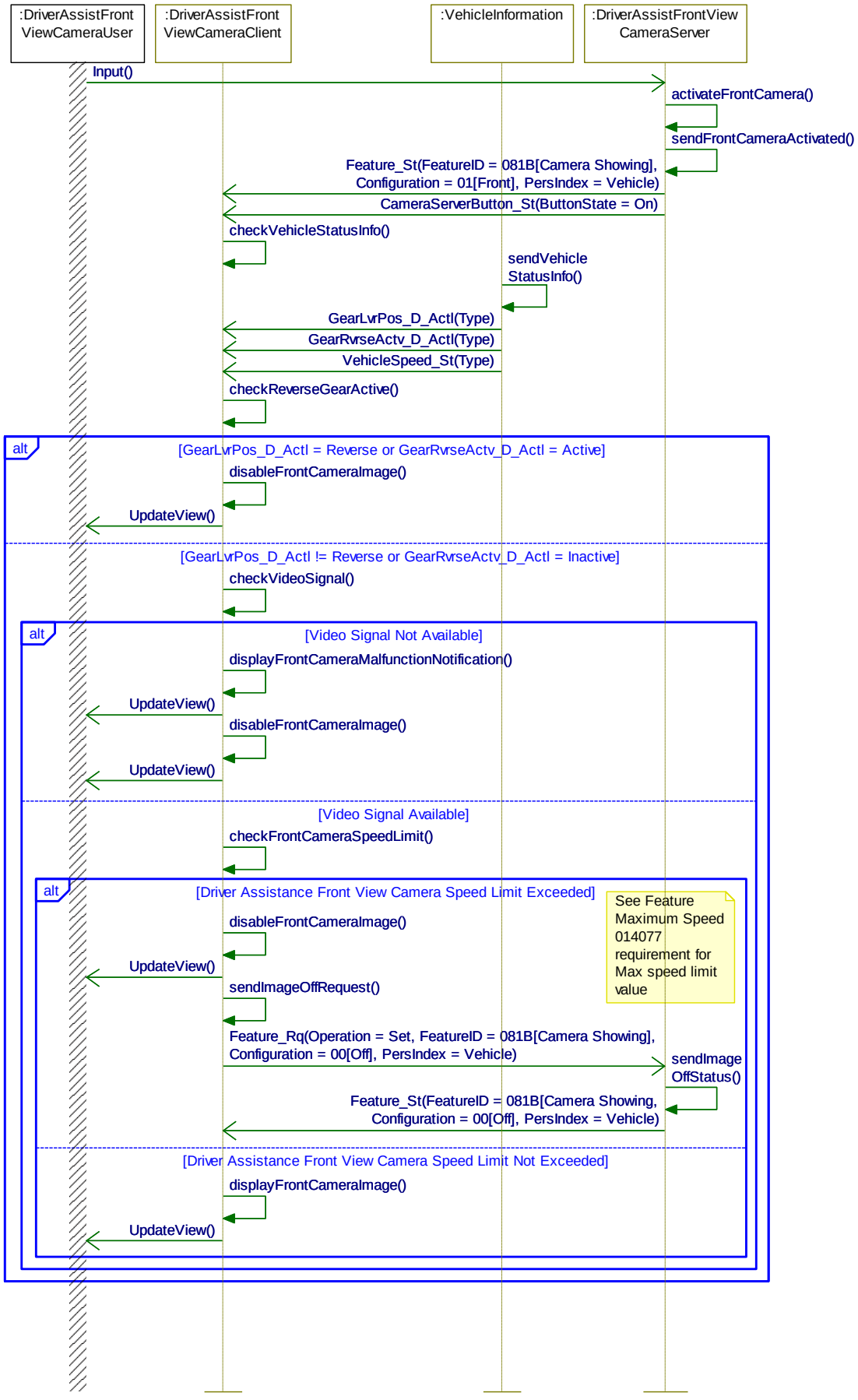
3.2.2.3.2 Sequence Diagrams

3.2.2.3.2.1 REQ-331856/B-Lin Button Camera Request



3.2.2.3.2.2 DAFVCv1-SD-REQ-014050/C-Activate_Deactivate Driver Asistance Front View Camera (TcSE ROIN-282617-2)

Sequence Diagram


:DriverAssistFront ViewCameraUser
:DriverAssistFront ViewCameraClient
:VehicleInformation
:DriverAssistFrontView CameraServer
Input()
activateFrontCamera()
sendFrontCameraActivated()
Feature_St(FeatureID = 081B[Camera Showing], Configuration = 01[Front], PersIndex = Vehicle)
CameraServerButton_St(ButtonState = On)
checkVehicleStatusInfo()
sendVehicle StatusInfo()
GearLvrPos_D_Actl(Type)
GearRvrseActv_D_Actl(Type)
VehicleSpeed_St(Type)
checkReverseGearActive()
alt
[GearLvrPos_D_Actl = Reverse or GearRvrseActv_D_Actl = Active]
disableFrontCameraImage()
UpdateView()
[GearLvrPos_D_Actl != Reverse or GearRvrseActv_D_Actl = Inactive]
checkVideoSignal()
alt
[Video Signal Not Available]
displayFrontCameraMalfunctionNotification()
UpdateView()
disableFrontCameraImage()
UpdateView()
[Video Signal Available]
checkFrontCameraSpeedLimit()
alt
[Driver Assistance Front View Camera Speed Limit Exceeded]
See Feature Maximum Speed 014077 requirement for Max speed limit value
disableFrontCameraImage()
UpdateView()
sendImageOffRequest()
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 00[Off], PersIndex = Vehicle)
sendImage OffStatus()
Feature_St(FeatureID = 081B[Camera Showing, Configuration = 00[Off], PersIndex = Vehicle)
[Driver Assistance Front View Camera Speed Limit Not Exceeded]
displayFrontCameraImage()
UpdateView()

3.2.2.3.2.3 DAFVCv1-SD-REQ-014051/A-Activation Attempt During Overspeed (TcSE ROIN-287030-1)

Scenario

Normal Usage

The user attempts to activate the Driver Assist Front View Camera (DAFVC) by pressing the hard switch while exceeding the ~~DAFVC vehicle~~ speed limit per CAMERA-REQ-014077-Feature Maximum Speed.

Constraints

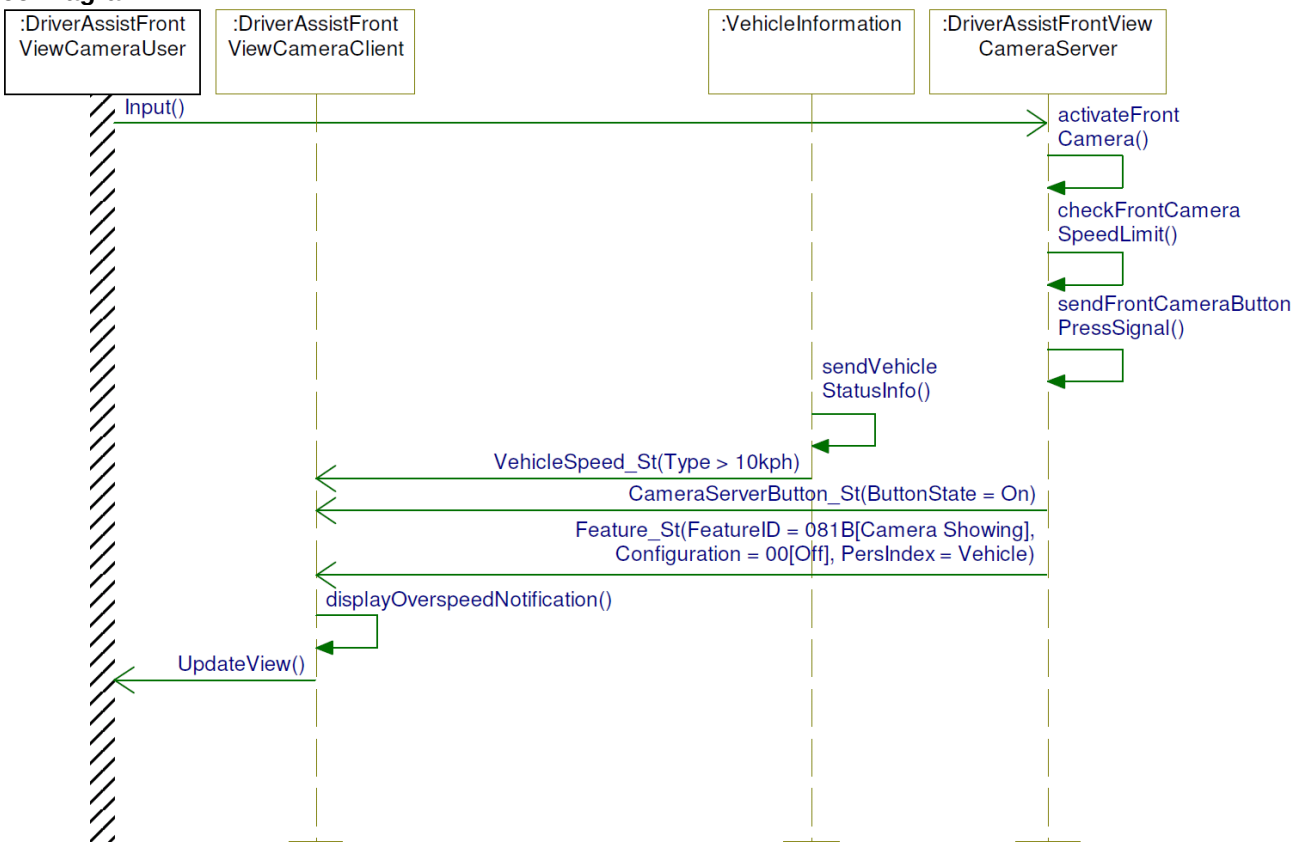
Pre-condition

Ignition_Status = Run

Post-condition

HMI Display shows an over-speed notification.

Sequence Diagram



3.2.3 DAFVCv1-FUN-REQ-014052/A-Driver Assist Front Camera Image View (TcSE ROIN-293390)

3.2.3.1 Use Cases

3.2.3.1.1 DAFVCv1-UC-REQ-014053/A-Select Front Camera Split-View (TcSE ROIN-290147)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start. The gear position status is NOT Reverse. The vehicle display is showing the Driver Assist Front View Camera image.
Scenario Description	The driver selects split-view image setting via hard switch interface.

Post-conditions	The vehicle display continues to show the Driver Assist Front View Camera image. The video feed from the Driver Assist Front View Camera contains a split-view image.
List of Exception Use Cases	NA
Interfaces	G-HMI Dedicated Hard Button Vehicle System Interface

3.2.3.1.2 DAFVCv1-UC-REQ-014054/A-Select Front Camera 360-View (TcSE ROIN-290148)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start. The gear position status is NOT Reverse. The vehicle display is showing the Driver Assist Front View Camera image.
Scenario Description	The driver selects 360-view image setting via hard switch interface.
Post-conditions	The vehicle display continues to show the Driver Assist Front View Camera image. The video feed from the Driver Assist Front View Camera contains a 360-view image.
List of Exception Use Cases	NA
Interfaces	G-HMI Dedicated Hard Button Vehicle System Interface

3.2.3.1.3 DAFVCv1-UC-REQ-014055/A-Select Front Camera Normal View (TcSE ROIN-290149)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start. The gear position status is NOT Reverse. The vehicle display is showing the Driver Assist Front View Camera image.
Scenario Description	The driver selects normal view image setting via hard switch interface.
Post-conditions	The vehicle display continues to show the Driver Assist Front View Camera image. The video feed from the Driver Assist Front View Camera contains a normal view image.
List of Exception Use Cases	NA
Interfaces	G-HMI Dedicated Hard Button Vehicle System Interface

3.2.3.1.4 DAFVCv1-UC-REQ-014056/A-Select Front Camera Image Off (TcSE ROIN-290150)

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on.

	The ignition status is Run/Start. The gear position status is NOT Reverse. The vehicle display is showing the Driver Assist Front View Camera image.
Scenario Description	The driver selects image off setting via hard switch interface.
Post-conditions	The vehicle display returns to the state previous to entering Driver Assist Front View Camera.
List of Exception Use Cases	NA
Interfaces	G-HMI Dedicated Hard Button Vehicle System Interface

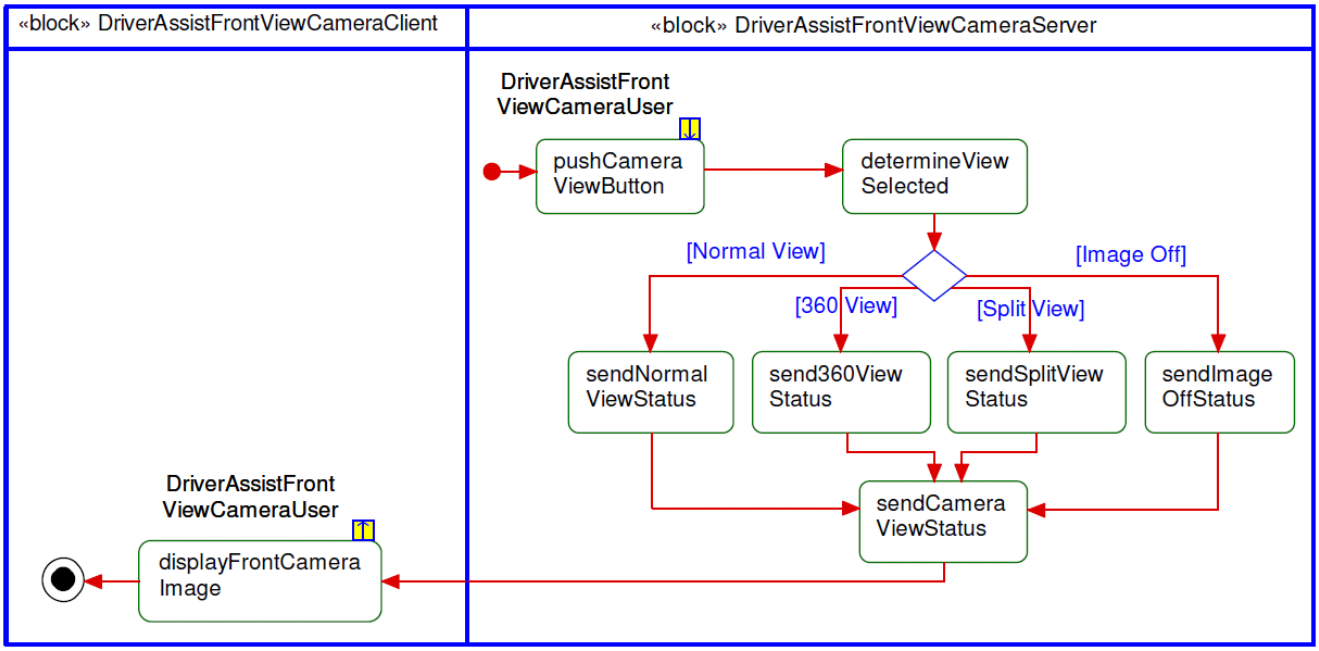
3.2.3.2 White Box View

3.2.3.2.1 Activity Diagrams

3.2.3.2.1.1 DAFVCv1-ACT-REQ-014044/A-Change Camera View Setting (TcSE ROIN-282608-2)

Linked Elements
DAFVCv1-SD-REQ-014057/A-Change Camera View Setting (TcSE ROIN-282599-3)

Activity Diagram



3.2.3.2.2 Sequence Diagrams

3.2.3.2.2.1 DAFVCv1-SD-REQ-014057/A-Change Camera View Setting (TcSE ROIN-282599-3)

Scenario

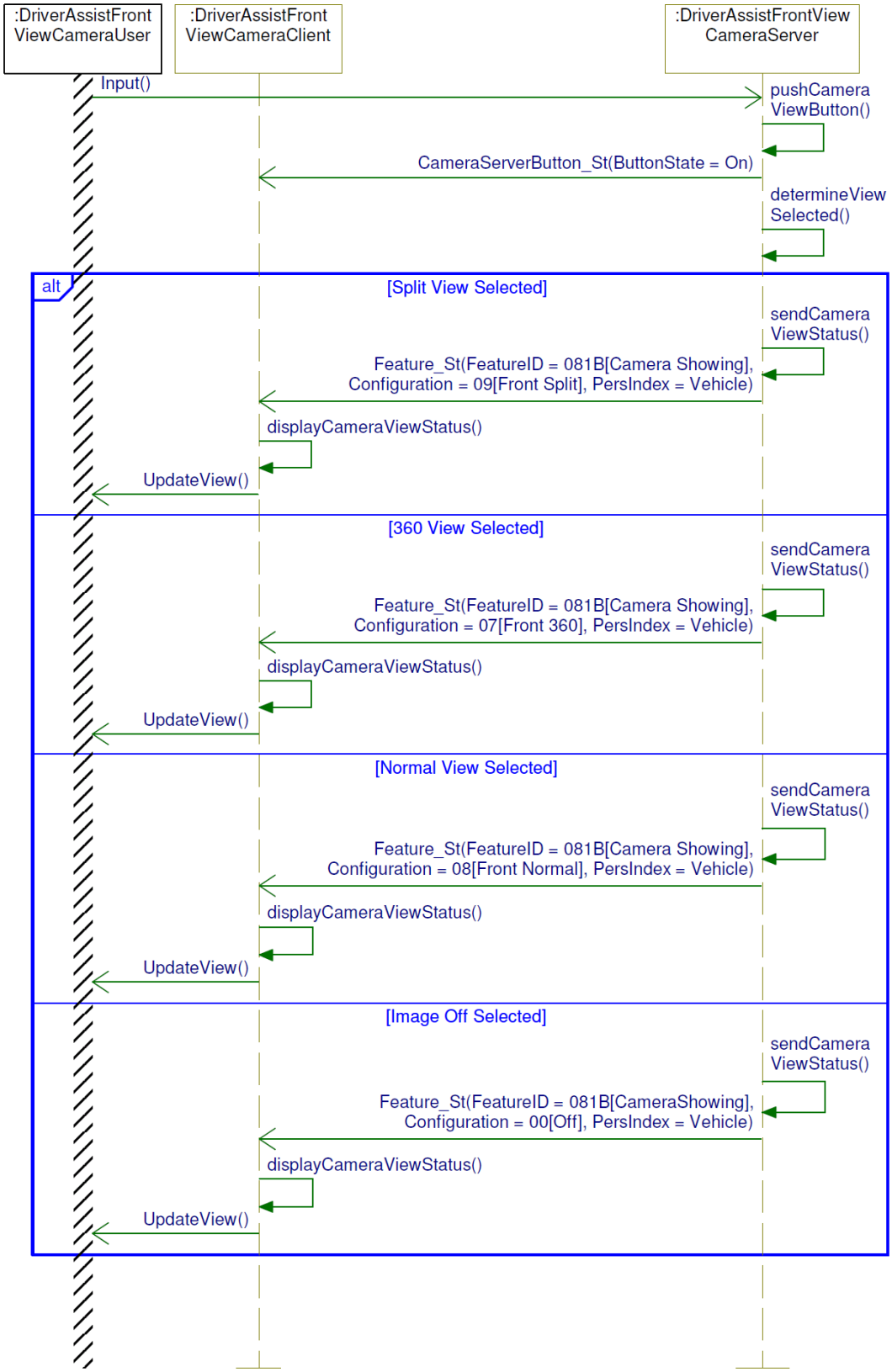
Normal Usage
The user selects alternate view image setting via hard switch interface.

Constraints

Pre-condition
Ignition_Status = Run

Post-condition
The HMI display is showing the Driver Assist Front Video Camera image that reflects the updated alternate view setting.

Sequence Diagram



3.2.4 DAFVCv2-FUN-REQ-127102/A-Driver Assist Front Camera Image View v2

3.2.4.1 Use Cases

3.2.4.1.1 DAFVCv2-UC-REQ-128183/A-Press Front 360 View Button

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with Multicamera or FVC only • The vehicle is in Run/Start • Front Camera is shown, and not in Front 360 view.
Scenario Description	The user presses Front 360 soft Button
Post-conditions	Front 360 view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.2.4.1.2 DAFVCv2-UC-REQ-128185/A-Press Front Normal View Button

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with front camera • The vehicle is in Run/Start • Front Camera View is shown but not in Front Normal View
Scenario Description	The driver presses Front Normal view soft Button
Post-conditions	Front Normal View shown.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.2.4.1.3 DAFVCv2-UC-REQ-128186/A-Press Front Split View

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with front camera • The vehicle is in Run/Start • Front Camera view is shown, but not in Front Split View
Scenario Description	Thre driver presses Front Split soft Button
Post-conditions	Front Split View shown
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.2.4.1.4 DAFVCv2-UC-REQ-128187/A-Press Rear button From Front camera

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with front camera • The vehicle is in Run/Start • Front Camera view is shown
Scenario Description	The Driver presses rear soft Button
Post-conditions	Rear Camera View shows
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

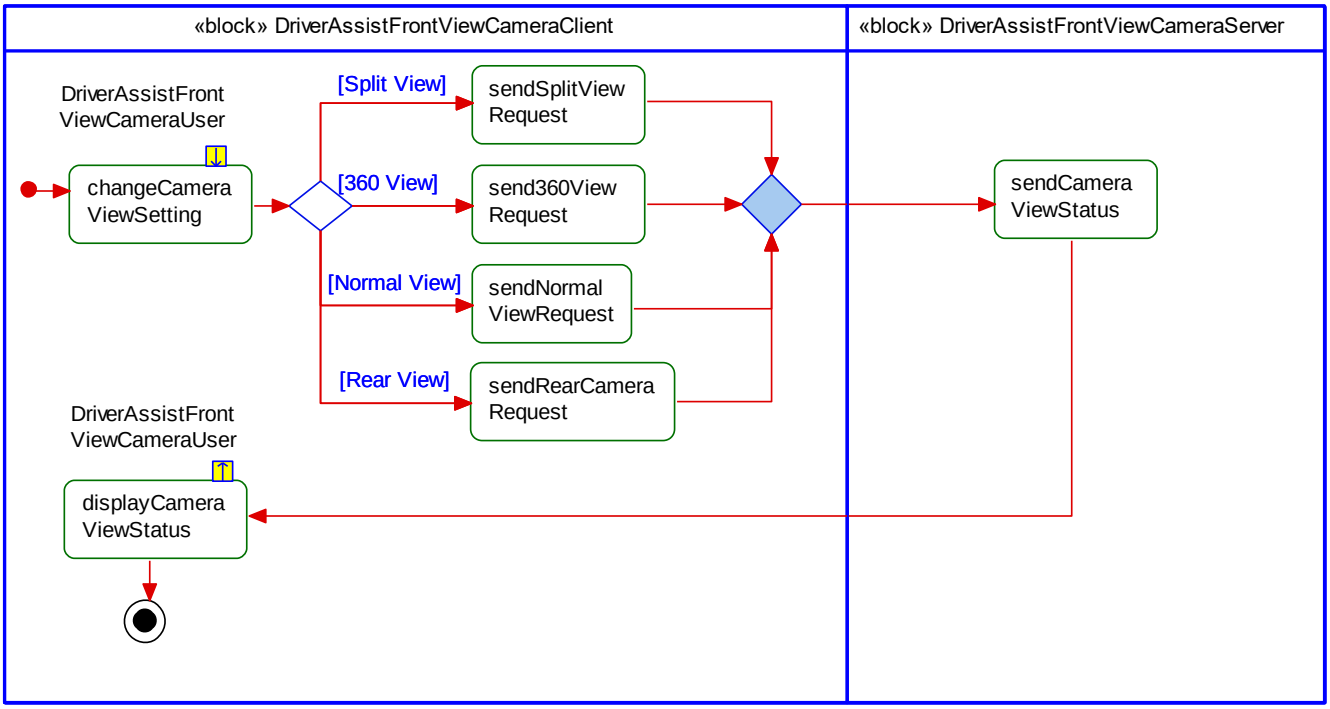
3.2.4.2 White Box View

3.2.4.2.1 Activity Diagrams

3.2.4.2.1.1 DAFVCv2-ACT-REQ-127100/A-Change Camera View Setting

Linked Elements
DAFVCv1-SD-REQ-014057/A-Change Camera View Setting (TcSE ROIN-282599-3)

Activity Diagram



3.2.4.2.2 Sequence Diagrams

3.2.4.2.2.1 DAFVCv2-SD-REQ-127099/A-Change Camera View Setting

Scenario

Normal Usage

The user selects alternate view image setting via soft button interface.

Constraints

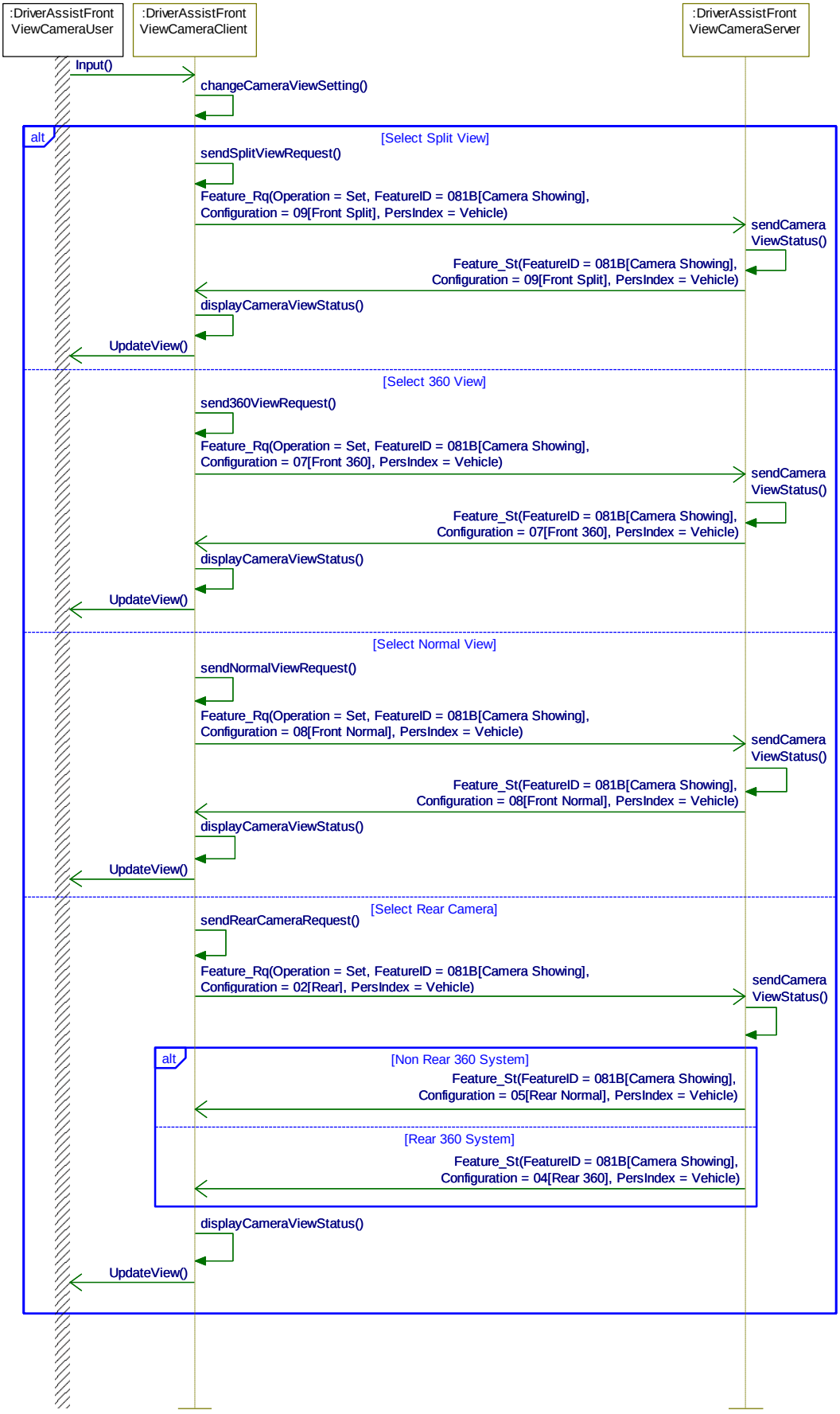
Pre-condition

Ignition_Status = Run

Post-condition

The HMI display is showing the Camera image that reflects the updated alternate view setting.

Sequence Diagram


:DriverAssistFront ViewCameraUser
:DriverAssistFront ViewCameraClient
:DriverAssistFront ViewCameraServer
Input()
changeCameraViewSetting()
alt
[Select Split View]
sendSplitViewRequest()
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 09[Front Split], PersIndex = Vehicle)
sendCamera ViewStatus()
Feature_St(FeatureID = 081B[Camera Showing], Configuration = 09[Front Split], PersIndex = Vehicle)
displayCameraViewStatus()
UpdateView()
[Select 360 View]
send360ViewRequest()
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 07[Front 360], PersIndex = Vehicle)
sendCamera ViewStatus()
Feature_St(FeatureID = 081B[Camera Showing], Configuration = 07[Front 360], PersIndex = Vehicle)
displayCameraViewStatus()
UpdateView()
[Select Normal View]
sendNormalViewRequest()
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 08[Front Normal], PersIndex = Vehicle)
sendCamera ViewStatus()
Feature_St(FeatureID = 081B[Camera Showing], Configuration = 08[Front Normal], PersIndex = Vehicle)
displayCameraViewStatus()
UpdateView()
[Select Rear Camera]
sendRearCameraRequest()
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 02[Rear], PersIndex = Vehicle)
sendCamera ViewStatus()
alt
[Non Rear 360 System]
Feature_St(FeatureID = 081B[Camera Showing], Configuration = 05[Rear Normal], PersIndex = Vehicle)
[Rear 360 System]
Feature_St(FeatureID = 081B[Camera Showing], Configuration = 04[Rear 360], PersIndex = Vehicle)
displayCameraViewStatus()
UpdateView()

3.3 CAMERA-FUN-REQ-331348/A-Offset View

3.3.1 CAMERA-UC-REQ-331349/A-Press Rear Offset View Button from Rear 360

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with Multicamera • The vehicle is in RUN/START • Rear 360 is shown
Scenario Description	The driver presses rear offset view button
Post-conditions	Rear RWD Offset View appears with overlays
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.3.2 CAMERA-UC-REQ-331350/A-Press Rear Offset View Button from Front 360

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with Multicamera • The vehicle is in RUN/START • Front 360 view is shown
Scenario Description	The driver presses rear offset view button
Post-conditions	Front RWD Offset View appears with overlays
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.3.3 CAMERA-UC-REQ-331351/A-Press Rear Left Corner View Button from Rear 360

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with Multicamera • The vehicle is in RUN/START • Rear 360 camera is shown
Scenario Description	The driver presses rear left corner view button
Post-conditions	Multicamera Rear_RL_Corner view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	Vehicle System Interface

3.3.4 CAMERA-UC-REQ-331352/A-Press Rear Left Corner View Button from Front 360

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with Multicamera

	• The vehicle is in RUN/START • Front 360 camera is shown
Scenario Description	The driver presses rear left corner view button
Post-conditions	Multicamera Front_RL_Corner view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	Vehicle System Interface

3.3.5 CAMERA-UC-REQ-331353/A-Press Rear Right Corner View Button from Rear 360

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with Multicamera • The vehicle is in RUN/START • Rear 360 camera is shown
Scenario Description	The driver presses rear right corner view button
Post-conditions	Multicamera Rear_RR_Corner view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	Vehicle System Interface

3.3.6 CAMERA-UC-REQ-331354/A-Press Rear Right Corner View Button from Front 360

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with Multicamera • The vehicle is in RUN/START • Front 360 camera is shown
Scenario Description	The driver presses rear right corner view button
Post-conditions	Multicamera Front_RR_Corner view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	Vehicle System Interface

3.3.7 CAMERA-UC-REQ-331356/A-Press Front Offset View Button from Rear 360

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with Multicamera • The vehicle is in RUN/START • Rear 360 is shown
Scenario Description	The driver presses front offset view button
Post-conditions	Rear FWD Offset View appears with overlays
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server

	E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.3.8 CAMERA-UC-REQ-331360/A-Press Front Offset View Button from Front 360

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with Multicamera • The vehicle is in RUN/START • Front 360 view is shown
Scenario Description	The driver presses front offset view button
Post-conditions	Front FWD Offset View appears with overlays
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	G-HMI Vehicle System Interface

3.3.9 CAMERA-UC-REQ-331365/A-Press Front Left Corner View Button from Rear 360

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with Multicamera • The vehicle is in RUN/START • Rear 360 camera is shown
Scenario Description	The driver presses rear left corner view button
Post-conditions	Multicamera Rear_FL_Corner view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	Vehicle System Interface

3.3.10 CAMERA-UC-REQ-331369/A-Press Front Left Corner View Button from Front 360

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with Multicamera • The vehicle is in RUN/START • Front 360 camera is shown
Scenario Description	The driver presses front left corner view button
Post-conditions	Multicamera Front_FL_Corner view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	Vehicle System Interface

3.3.11 CAMERA-UC-REQ-331373/A-Press Front Right Corner View Button from Rear 360

Actors	Vehicle Occupant

Pre-conditions	• The vehicle is configured with Multicamera • The vehicle is in RUN/START • Rear 360 camera is shown
Scenario Description	The driver presses front right corner view button
Post-conditions	Multicamera Rear_FR_Corner view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	Vehicle System Interface

3.3.12 CAMERA-UC-REQ-331374/A-Press Front Right Corner View Button from Front 360

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is configured with Multicamera • The vehicle is in RUN/START • Front 360 camera is shown
Scenario Description	The driver presses front right corner view button
Post-conditions	Multicamera Front_FR_Corner view appears
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Camera Server E3 – Valid camera video signal not present
Interfaces	Vehicle System Interface

3.4 Views At Speed v1

3.4.1 CAMERA-FUN-REQ-354982/B-Views At Speed v1

3.4.1.1 Requirements

3.4.1.1.1 CAMERA-REQ-354992/A-Views At Speed Availability

Views At Speed are a set of views that are available even when vehicle reaches speeds above those mentioned in req 014077, while not in reverse drive.

For some implementations the views will deactivate under the speed limitations of req 014077, the user will be able to reactivate the applicable views again by button press.

The user is able to request a view change and Server will decide on what kind of views to display.
Available views are setup through Method II configuration.

3.4.1.1.2 CAMERA-REQ-354993/B-Views At Speed v1 List

Views at Speed include the following views:

View Name	Config Value
CHMSL	0x0B
Aux	0x0D

3.4.1.1.3 CAMERA-REQ-358450/B-Off Road Mode Views At Speed

When the vehicle is configured for off road front camera and off road mode views at speed and off road mode is active, there is no max speed limit for showing Off Road Front Camera Image.

3.4.1.2 Use Cases

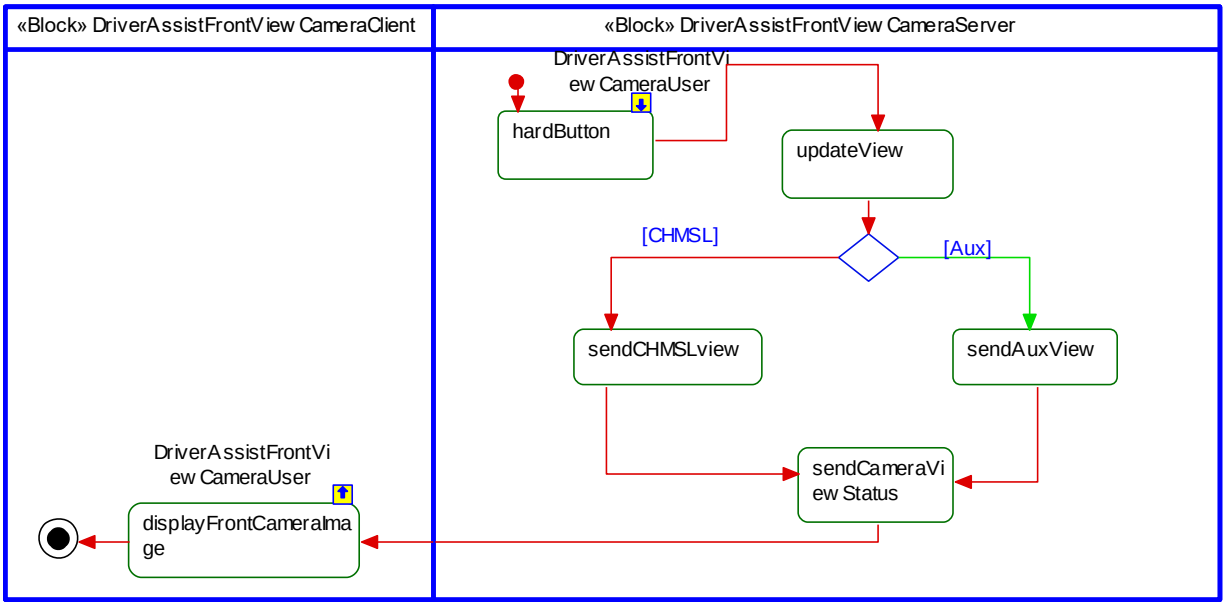
3.4.1.2.1 CAMERA-UC-REQ-355016/B-Views At Speed Trigger

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start. Vehicle is in Drive above 10kph. Vehicle is equipped with 360 camera with any or all of the views at speed: Aux, CHMSL. No camera view is active.
Scenario Description	Customer presses Camera button.
Post-conditions	Client displays available view at speed per camera request.
List of Exception Use Cases	
Interfaces	G-HMI Vehicle System Interface

3.4.1.3 White Box Views

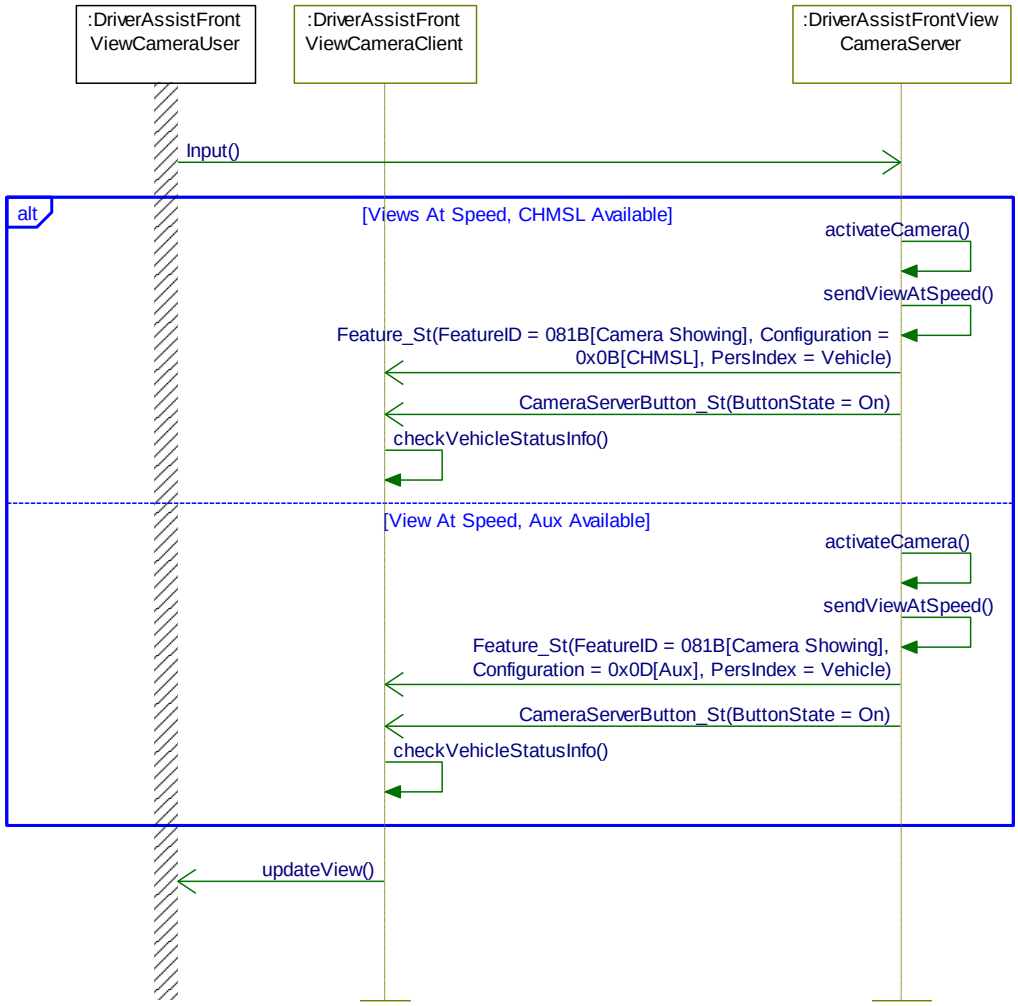
3.4.1.3.1 Activity Diagram

3.4.1.3.1.1 CAMERA-ACT-REQ-358468/B-Views At Speed v1



3.4.1.3.2 Sequence Diagram

3.4.1.3.2.1 CAMERA-SD-REQ-354994/B-Views At Speed v1



3.5 Views At Speed V2

3.5.1 CAMERA-FUN-REQ-381834/A-Views At Speed V2

This function is about Views at Speed that were implemented for Gen 4 Client. These Views at Speed should not be confused with Views At Speed Function with ID 354982. While their purpose is similar, they have different use cases and different interfaces. Read the rest of the function for further details.

Views at speed are initiated by the server or client when conditions are applicable. Upon receiving the proper signaling, for any of the views, the client shall display the correct view.

3.5.1.1 CAMERA-REQ-381833/A-Views At Speed V2 Enumerations

The below are the configuration numbers associated with Feature ID 0x081B that communicates the different views at speed states and requests between client and server.

Config Number	View Type
0x28	Hitch at speed
0x29	RCOD at speed
0x2A	Aux at speed
0x2B	CHMSL at speed

3.5.1.2 CAMERA-REQ-382183/A-Views at Speed Deactivation

Deactivate views at speed when vehicle shift to park.
Whenever there is an active front camera view and the vehicle shifts to Park, the client must request OFF to the server.

Deactivate views at speed when ignition status goes from RUN to not Run
When the ignition status goes from RUN to something other than RUN, then the client shall turn off the view (front or rear view) and no request for OFF from/to client shall take place.

The views at speed shall deactivate when requested by server.

3.5.1.3 UseCases

3.5.1.3.1 CAMERA-UC-REQ-381763/A-RCOD Transition from Below Speed to Above Speed on 360 Variants

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for RCOD View, Views at Speed, and 360 camera • Vehicle in Run/Start • Vehicle is not in reverse • Vehicle is below 10 KPH • RCOD view is active • Front Camera Menu below speed is displayed.
Scenario Description	User accelerates from below 10 KPH to above 10 KPH Server requests RCOD at speed view.
Post-conditions	Client shall update view menu.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with server module E3 – Valid camera video signal not present
Interfaces	

3.5.1.3.2 CAMERA-UC-REQ-381770/A-Hitch Transition from Below Speed to Above Speed on 360 Variants

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for Hitch View, Views at Speed, and 360 camera • Vehicle in Run/Start • Vehicle is not in reverse • Vehicle is below 10 KPH • Hitch view is the active view • Front Camera Menu below speed is displayed.
Scenario Description	User accelerates from below 10 KPH to above 10 KPH. Server requests Hitch at speed view.
Post-conditions	Client shall update view menu.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with server module E3 – Valid camera video signal not present
Interfaces	

3.5.1.3.3 CAMERA-UC-REQ-381808/A-Aux Transition from Below Speed to Above Speed on 360 Variants

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for Aux view, Views at Speed and 360 camera • Vehicle in Run/Start • Vehicle is not in reverse • Vehicle is below 10 KPH • Aux is the active view • Front Camera Menu below speed is displayed.
Scenario Description	User accelerates from below 10 KPH to above 10 KPH. Server requests Aux at speed view.
Post-conditions	Client shall update view menu.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with server module E3 – Valid camera video signal not present
Interfaces	

3.5.1.3.4 CAMERA-UC-REQ-381809/A-CHMSL Transition from Below Speed to Above Speed on 360 Variants

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for CHMSL view, Views at Speed and 360 camera • Vehicle in Run/Start • Vehicle is not in reverse • Vehicle is below 10 KPH • CHMSL is the active view • Front Camera Menu below speed is displayed.
Scenario Description	User accelerates from below 10 KPH to above 10 KPH. Server requests CHMSL at speed view.
Post-conditions	Client shall update view menu.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with server module E3 – Valid camera video signal not present
Interfaces	

3.5.1.3.5 CAMERA-UC-REQ-381810/A-Views at Speed above Speed Menu Options on 360 Variants

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for RCOD and 360 camera • Vehicle in Run/Start • Vehicle is not in reverse • Vehicle is driving below 10 KPH • A front camera view other than RCOD is showing
Scenario Description	User presses the RCOD soft button.
Post-conditions	Client sends request to server to activate RCOD view.

List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with server module E3 – Valid camera video signal not present
Interfaces	

3.5.1.3.6 CAMERA-UC-REQ-381811/A-RCOD Activation Above Speed on 360 Variants

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for Rear View Camera on Demand, Views at Speed and 360 camera • Vehicle in Run/Start • Vehicle is not in reverse • Vehicle is above 10 KPH • A view at speed other than RCOD is active • Views at Speed menu is displayed.
Scenario Description	User presses the Rear Camera on Demand at Speed button
Post-conditions	Client sends request to server to activate RCOD View at speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Server module E3 – Valid camera video signal not present
Interfaces	

3.5.1.3.7 CAMERA-UC-REQ-381812/A-Hitch Activation Above Speed on 360 Variants

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for Hitch View, Views at Speed, and 360 camera • Vehicle in Run/Start • Vehicle is not in reverse • Vehicle is above 10 KPH • A view at speed other than Hitch is active • Views at Speed menu is displayed.
Scenario Description	User presses the Hitch View at Speed menu icon
Post-conditions	Client sends request to server to activate Hitch View at speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with server module E3 – Valid camera video signal not present
Interfaces	

3.5.1.3.8 CAMERA-UC-REQ-381813/A-Aux Activation Above Speed on 360 Variants

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for Aux View, Views at Speed, and 360 camera • Vehicle in Run/Start • Vehicle is not in reverse • Vehicle is above 10 KPH • A view at speed other than AUX is active

	• Views at Speed menu is displayed.
Scenario Description	User presses the Aux View at Speed menu icon
Post-conditions	Client sends request to server to activate Aux View at speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with Server module E3 – Valid camera video signal not present
Interfaces	

3.5.1.3.9 CAMERA-UC-REQ-381814/A-CHMSL Activation Above Speed on 360 Variants

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for CHMSL View, Views at Speed, and 360 camera • Vehicle in Run/Start • Vehicle is not in reverse • Vehicle is above 10 KPH • A view at speed other than CHMSL is active • Views at Speed menu is displayed.
Scenario Description	User presses the CHMSL View at Speed menu icon
Post-conditions	Client sends request to server to activate CHMSL Views at speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with server module E3 – Valid camera video signal not present
Interfaces	

3.5.1.3.10 CAMERA-UC-REQ-381815/A-RCOD Transition from Above Speed to Below Speed

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for RCOD View, Views at Speed, and 360 camera • Vehicle in Run/Start • Vehicle is not in reverse • Vehicle is above 10 KPH • RCOD at speed view is active • Views at Speed menu is displayed.
Scenario Description	User decelerates from above 10 KPH to below 10 KPH. Server requests RCOD view.
Post-conditions	Client shall update view menu.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with server module E3 – Valid camera video signal not present
Interfaces	

3.5.1.3.11 CAMERA-UC-REQ-381816/A-Hitch Transition from Above Speed to Below Speed

Actors	Vehicle Occupant

Pre-conditions	• Client is configured for Hitch View, Views at Speed, and 360 camera • Vehicle in Run/Start • Vehicle is not in reverse • Vehicle is above 10 KPH • Hitch at speed view is active • Views at Speed menu is displayed.
Scenario Description	User decelerates from above 10 KPH to below 10 KPH. Server requests Hitch View.
Post-conditions	Client shall update view menu.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with server module E3 – Valid camera video signal not present
Interfaces	

3.5.1.3.12 CAMERA-UC-REQ-381818/A-Aux Transition from Above Speed to Below Speed

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for Aux view, Views at Speed and 360 camera • Vehicle in Run/Start • Vehicle is not in reverse • Vehicle is below 10 KPH • Aux at speed is active • Views at Speed menu is displayed
Scenario Description	User decelerates from above 10 KPH to below 10 KPH. Server requests Aux view.
Post-conditions	Client shall update view menu.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with server module E3 – Valid camera video signal not present
Interfaces	

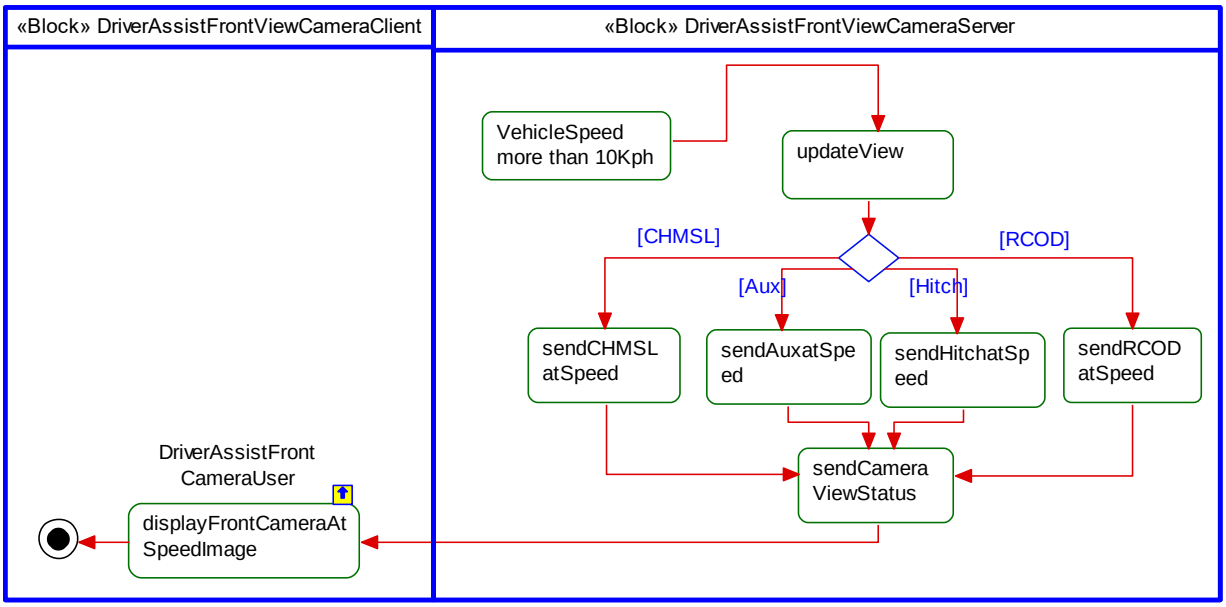
3.5.1.3.13 CAMERA-UC-REQ-381817/A-CHMSL Transition from Above Speed to Below Speed

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for CHMSL view, Views at Speed and 360 camera • Vehicle in Run/Start • Vehicle is not in reverse • Vehicle is above 10 KPH • CHMSL at speed is active. • Views at Speed menu is displayed
Scenario Description	User decelerates from above 10 KPH to below 10 KPH. Server requests CHMSL view.
Post-conditions	Client shall update view menu.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with server module E3 – Valid camera video signal not present
Interfaces	

3.5.1.4 White Box Views

3.5.1.4.1 Activity Diagram

3.5.1.4.1.1 CAMERA-ACT-REQ-381772/A-Views At Speed Gen 4



3.5.1.4.2 Sequence Diagram

3.5.1.4.2.1 CAMERA-SD-REQ-381773/A-Views At Speed Gen 4

3.6 CHMSL IOD

3.6.1 FUN-REQ-382683/A-CHMSL IOD

3.6.1.1 CAMERA-REQ-382684/A-CHMSL IOD Config Values

CHMSL IOD is a new view available to the user. It is available in Feature ID 0x081B and Config Value 0X2E.

Config Number	View Type
0x2E	CHMSL IOD

3.6.1.2 UseCases

3.6.1.2.1 CAMERA-UC-REQ-382686/A-CHMSL IOD Activation

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for CHMSL IOD • Vehicle in Run/Start • Vehicle is not in reverse • Client HMI is not active (Front Views, Front Views at Speed, Rear Views, APA, TBA/TRG)
Scenario Description	User Selects CHMSL IOD
Post-conditions	Client requests CHMSL IOD.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.6.1.2.2 CAMERA-UC-REQ-382687/A-CHMSL IOD Deactivation Via Client

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for CHMSL IOD • Vehicle in Run/Start • Vehicle is not in reverse • CHMSL IOD is active
Scenario Description	IOD changes away from CHMSL to a non-camera state (i.e. navigation, IOD changes)
Post-conditions	Client requests OF
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

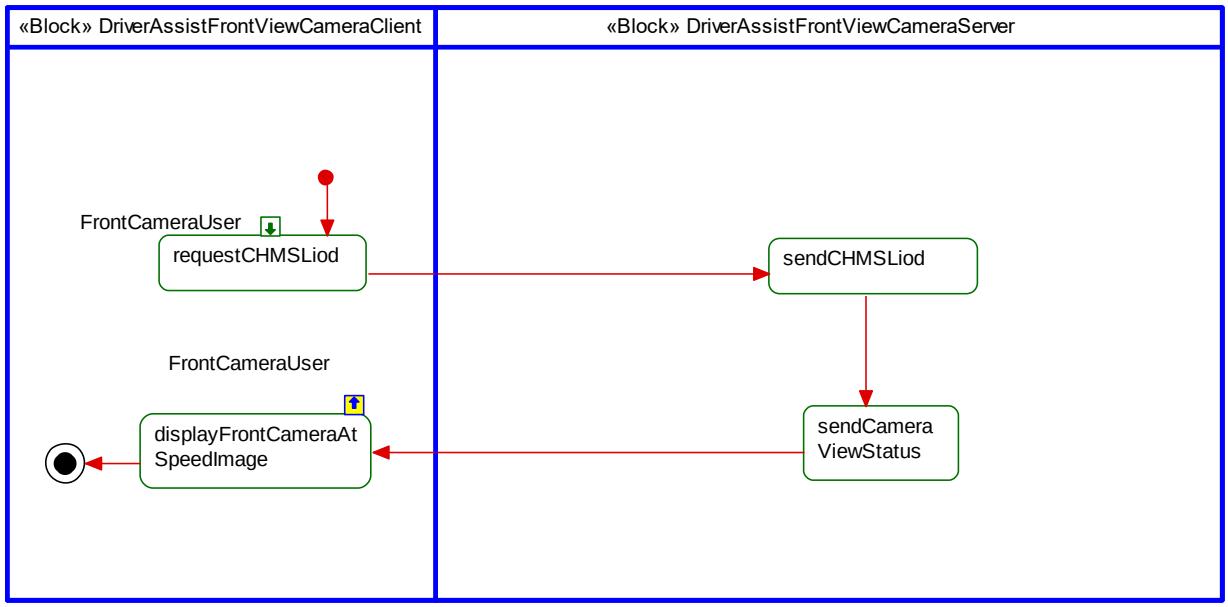
3.6.1.2.3 CAMERA-UC-REQ-382688/A-Returning to CHMSL IOD from Parking Feature

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for CHMSL IOD • Vehicle in Run/Start • Vehicle is in a Camera Feature (Front Camera, Rear Camera, TBA, Autohitch, APA, Boundary Alert) • Previous client display state is CHMSL IOD
Scenario Description	Camera view feature becomes inactive
Post-conditions	Client request CHMSL IOD.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.6.1.3 White Box View

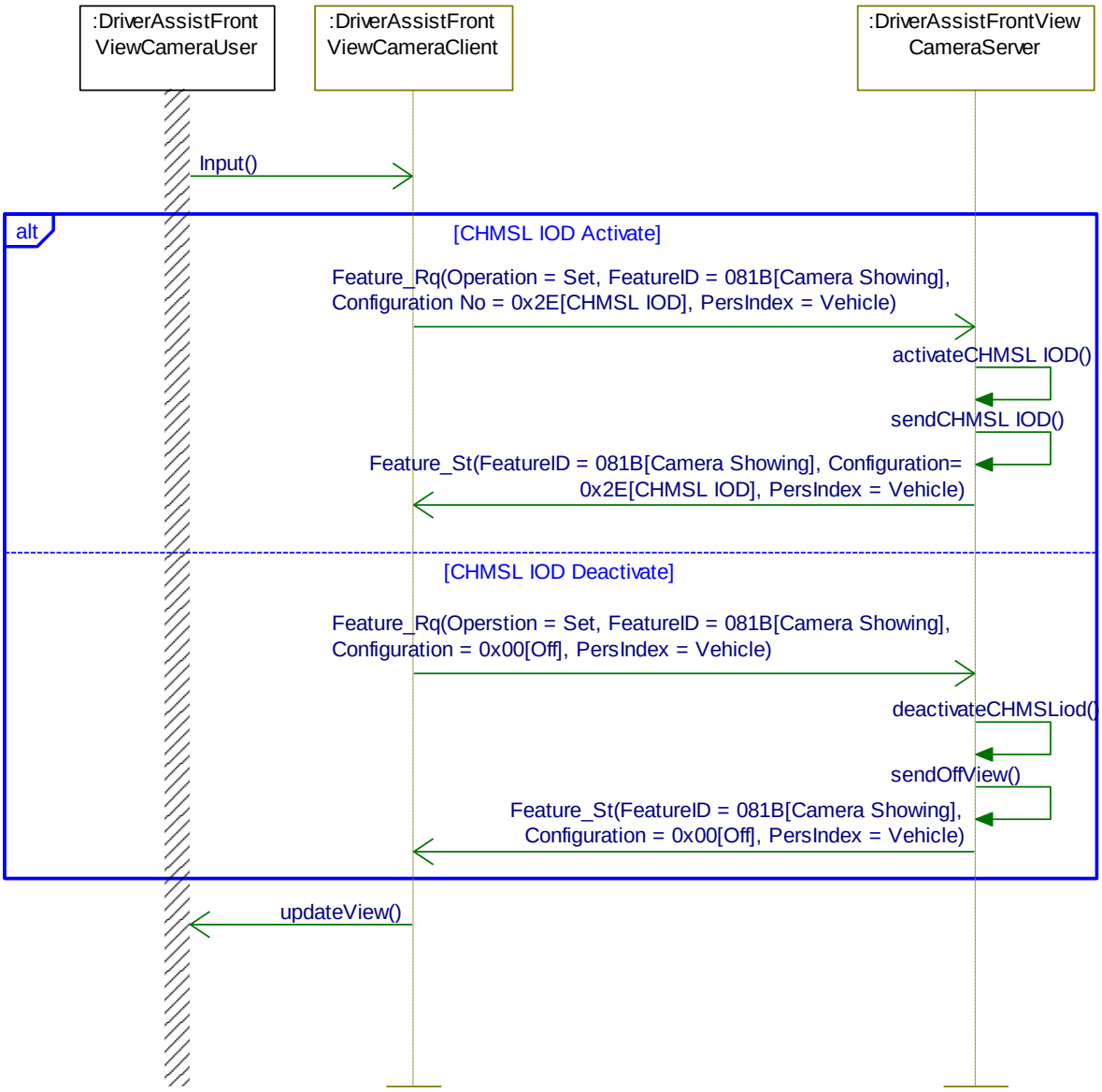
3.6.1.3.1 Activity Diagram

3.6.1.3.1.1 CAMERA-ACT-REQ-382730/A-CHMSL IOD Operation



3.6.1.3.2 Sequence Diagrams

3.6.1.3.2.1 CAMERA-SD-REQ-382731/A-CHMSL IOD Operation



3.7 RVC-FUN-REQ-395521/A-Reverse Gear Strategy

3.7.1 Use Cases

3.7.1.1 RVC-UC-REQ-395465/A-Reverse Gear Strategy on Automatic Transmission Vehicles - Moving Below 16.09 KPH

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is equipped with an automatic transmission. • The gear shifter (GearLvrPos_D_Actl) is in a non-reverse gear (P,N,D,L,M). • The gear shifter update bit (GearLvrPos_D_Actl_UB) is available. • Vehicle speed is available (Veh_V_ActlEng) • Vehicle speed quality Factor (VehVActlEng_QF) is available.

	The vehicle is moving below 16.09 KPH (10 miles per hour).
Scenario Description	The gear shifter is placed in reverse and the following signals are sent to the CLIENT: GearLvrPos_D_Actl = 0x01 (Reverse) GearLvrPos_D_Actl_UB = 0x1 Veh_V_ActlEng <= 16.09 KPH VehVActlEng_D_Qf = 0x03 (OK)
Post-conditions	Client shall display the reverse camera within 2 seconds of placing the shifter in reverse per FMVSS 111. Client shall ignore the reverse gear engagement signal. (GearPos_D_Trg)
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with CAMERA SERVER module E3 – Valid camera video signal not present
Interfaces	

3.7.1.2 RVC-UC-REQ-395468/A-Reverse Gear Strategy on Automatic Transmission Vehicles - Moving Above 16.09 KPH

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is equipped with an automatic transmission. • The gear shifter (GearLvrPos_D_Actl) is in a non-reverse gear (P,N,D,L,M). • The gear shifter update bit (GearLvrPos_D_Actl_UB) is available • Vehicle speed is available (Veh_V_ActlEng) • Vehicle speed quality Factor (VehVActlEng_QF) is available. • The gear engagement status (GearPos_D_Trg) is available. The vehicle is moving above 16.09 KPH (10 miles per hour).
Scenario Description	The gear shifter is placed in reverse and the following signals are sent to the CLIENT: GearLvrPos_D_Actl = 0x01 (Reverse) GearLvrPos_D_Actl_UB = 0x1 GearPos_D_Trg = 0x0E (Reverse) GearPos_D_Trg_UB = 0x1 Veh_V_ActlEng > 16.09 KPH VehVActlEng_D_Qf = 0x03 (OK)
Post-conditions	Client shall display the reverse camera within 2 seconds of reverse gear engagement being confirmed and the gear lever position is in reverse while the vehicle is moving above 16.09 KPH.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with CAMERA SERVER module E3 – Valid camera video signal not present
Interfaces	

3.7.1.3 RVC-UC-REQ-395466/A-Reverse Gear Strategy on Automatic Transmission Vehicles - Shift Above 16.09 KPH and Deceleration Below 16.09 KPH

Actors	Vehicle Occupant
Pre-conditions	• The gear shifter is in the reverse position (GearLvrPos_D_Actl = 0x01) • The gear shifter update bit is on (GearLvrPos_D_Actl_UB = 0x1) • The reverse gear is not engaged (GearPos_D_Trg != 0x0E) • The vehicle is moving above 10 MPH (Veh_V_ActlEng > 16.09 KPH) • The vehicle speed quality factor is OK (VehVActlEng_D_Qf = 0x03)
Scenario Description	The vehicle slows down to at or below 10 MPH (Veh_V_ActlEng <= 16.09 KPH)
Post-conditions	Client shall display the rear camera.

List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with CAMERA SERVER module E3 – Valid camera video signal not present
Interfaces	

3.7.1.4 RVC-UC-REQ-395467/A-Reverse Gear Strategy on Automatic Transmission Vehicles - Vehicle Speed Unavailable or is Not OK

Actors	Vehicle Occupant
Pre-conditions	• The vehicle is equipped with an automatic transmission. • The gear shifter (GearLvrPos_D_Actl) is in a non-reverse gear (P,N,D,L,M). • The gear shifter update bit (GearLvrPos_D_Actl_UB) is available.
Scenario Description	The vehicle speed (Veh_V_ActlEng) is missing, or the vehicle speed quality factor (VehVActlEng_D_Qf) is missing, or the vehicle speed quality factor is not okay (VehVActlEng_D_Qf != 0x03) The gear shifter is placed in reverse and the following signals are sent to the CLIENT: GearLvrPos_D_Actl = 0x01 (Reverse) GearLvrPos_D_Actl_UB = 0x1
Post-conditions	Client shall display the reverse camera within 2 seconds of placing the shifter in reverse per FMVSS 111. Client shall ignore the reverse gear engagement signal. (GearPos_D_Trg)
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with CAMERA SERVER module E3 – Valid camera video signal not present
Interfaces	

3.7.1.5 RVC-UC-REQ-395469/A-Reverse Gear Strategy on Automatic Transmission Vehicles - Exit Criteria when Gear Shifter Position is not Reverse

Actors	Vehicle Occupant
Pre-conditions	• The RVC is showing • The gear shifter is in reverse (GearLvrPos_D_Actl = 0x01) • The gear shift update bit (GearLvrPos_D_Actl_UB) is available
Scenario Description	The gear shifter is placed out of reverse and the following signals are sent to CLIENT: - GearLvrPos_D_Actl != 0x01 (Reverse) GearLvrPos_D_Actl_UB = 0x1
Post-conditions	Client shall turn off the rear camera view or follow the rear camera delay behavior (whichever is applicable). Client shall only look at gear lever position to shut-off the rear camera state.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with CAMERA SERVER module E3 – Valid camera video signal not present
Interfaces	

3.7.1.6 RVC-UC-REQ-395470/A-Exit Criteria when RVC is active, Gear Shifter is in Reverse, and the vehicle is moving forward above 16.09 KPH

Actors	Vehicle Occupant

Pre-conditions	• The RVC is showing • The gear shifter is in reverse (GearLvrPos_D_Actl = 0x01) • The gear shift update bit (GearLvrPos_D_Actl_UB) is available • The gear engagement signal is available (GearPos_D_Trg) • The gear engagement update bit is available (GearPos_D_Trg_UB) • Vehicle speed is available and is moving less than 16.09 KPH (Veh_V_ActlEng < 16.09) • Vehicle speed quality factor is available (VehVActlEng_QF)
Scenario Description	The gear shifter is moving forward, the vehicle is moving above 16.09 KPH, and the reverse gear is not engaged. The following signals are sent to Client - GearLvrPos_D_Actl = 0x01 (Reverse) - GearLvrPos_D_Actl_UB = 0x1 - GearPos_D_Trg != 0x0E (Reverse) - GearPos_D_Trg_UB = 0x1 - Veh_V_ActlEng > 16.09 KPH - VehVActlEng_QF = 0x03 (OK)
Post-conditions	Client shall turn off the rear camera view or follow the rear camera delay behavior (whichever is applicable). Client shall only look at gear lever position to shut-off the rear camera state. If vehicle speed is missing (Veh_V_ActlEng), vehicle quality factor is missing (VehVActlEng_QF), or gear engagement is unavailable (GearPos_D_Trg), then the following use case does not apply
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with CAMERA SERVER module E3 – Valid camera video signal not present
Interfaces	

3.8 Turn Signal View

3.8.1 FUN-REQ-410168/A-Turn Signal View

3.8.1.1 Functional Definition

3.8.1.1.1 Requirements

3.8.1.1.1.1 CAMERA-REQ-410098/A-Trailer Turn Signal View - Menu Setting Updates

The current Trailer Turn Signal View Menu setting shall be updated from server status method parameters of LTviewSt.

3.8.1.1.1.2 CAMERA-REQ-410099/A-Trailer Turn Signal View - Menu Grayed Out

When client does not receive LTviewSt = Enabled or Disabled for 5 seconds, the client shall gray out the Trailer Turn Signal View Menu.

3.8.1.1.1.3 CAMERA-REQ-410101/A-Trailer Turn Signal View - Grayed Out Menu Displays Off

When the Trailer Turn Signal View menu is grayed out, the Trailer Turn Signal View menu setting shall display OFF.

3.8.1.1.1.4 CAMERA-REQ-410102/A-Trailer Turn Signal View - No User Change to Menu

When a vehicle occupant makes no changes to the Trailer Turn Signal View menu setting, client shall send LMnuRq = Null.

3.8.1.1.1.5 CAMERA-REQ-410103/A-Menu Setting Change - Missing Message

When client requests Trailer Turn Signal View menu setting change (LMnuRq = Enable | Disable) and server status (LTviewSt) signal for Trailer Turn Signal View menu setting do not agree, client shall continue requesting the setting change until agreement occurs OR the end of the key cycle.

3.8.1.1.1.6 CAMERA-REQ-410104/A-Menu Setting Change - Message Agreement Timeout

When client requests Trailer Turn Signal View menu setting change LMnuRq = Enable | Disable) and server status (LTviewSt) signal for Trailer Turn Signal View menu setting do not agree for more than 5 seconds, client shall gray-out the Trailer Turn Signal View menu and display OFF.

3.8.1.1.1.7 CAMERA-REQ-410105/A-Menu Setting based on Server Feature Memory

Upon vehicle startup, Trailer Turn Signal View menu shall initialize to the Trailer Turn Signal View feature setting value that is stored by server LTviewSt = Enabled | Disabled).

3.8.1.1.1.8 CAMERA-REQ-410106/A-Trailer Turn Signal View - Menu Setting Change - ON to OFF

When vehicle occupant changes the Trailer Turn Signal View menu setting from ON to OFF, Client shall send a request for Trailer Turn Signal View feature to be turned OFF (LMnuRq = Disable) until client receives a status signal confirming Trailer Turn Signal View has been DISABLED (LTviewSt = Disabled).

3.8.1.1.1.9 CAMERA-REQ-410107/A-Trailer Turn Signal View - Menu Setting Change - OFF to ON

When vehicle occupant changes the Trailer Turn Signal View menu setting from OFF to ON, client shall send a request for Trailer Turn Signal View feature to be turned ON (LMnuRq = Enable) until client receives a status signal confirming Trailer Turn Signal View has been ENABLED (LTviewSt = Enabled).

3.8.1.1.1.10 CAMERA-REQ-410108/A-Menu Setting Change - Parity THEN Revert to NULL

When Trailer Turn Signal View menu change request (LMnuRq) sent by client is matched by the status (LTviewSt) returned by Server, Client shall revert to sending a NULL request (LMnuRq = NULL) to ADAS.

3.8.1.1.1.11 CAMERA-REQ-410109/A-Trailer Turn Signal View LEFT Activation - NO Blind Spot Threat Reported

When Side Object Detection System does not detect a Left side threat (LSodLSt = OFF | Bulb_Proveout) during Left Turn Signal View active, client shall display no Left BLIS icon overlay.

3.8.1.1.1.12 CAMERA-REQ-410110/A-Trailer Turn Signal View LEFT Activation - Blind Spot Threat Reported

When Side Object Detection System detects a Left side threat (LSodLSt = ON | FLASH) during Left Turn Signal View active, Client shall display Left BLIS icon overlay.

3.8.1.1.1.13 CAMERA-REQ-410111/A-Trailer Turn Signal View RIGHT Activation - NO Blind Spot Threat Reported

When Side Object Detection System does not detect a Right side threat (LSodRSt = OFF | Bulb_Proveout) during Right Turn Signal View active, client shall display no Right BLIS icon overlay.

3.8.1.1.1.14 CAMERA-REQ-410112/A-- Trailer Turn Signal View RIGHT Activation - Blind Spot Threat Reported

When Side Object Detection System detects a Right side threat (LSodRSt = ON | FLASH) during Right Turn Signal View active, client shall display Right BLIS icon overlay.

3.8.1.1.2 Use Cases

3.8.1.1.2.1 CAMERA-UC-REQ-409518/A-Trailer Turn Signal View Missing Signal

Actors	Vehicle Occupant
Pre-conditions	Vehicle is Accessory/RUN/START
Scenario Description	Missing Message occurs (5 seconds)
Post-conditions	Client uses last known status until missing message timeout of 5 seconds After 5 seconds Gray-out menu and display OFF
List of Exception Use Cases	E1 – Vehicle is not Accessory/RUN/START E2 – Loss of communication with Server module
Interfaces	HMI

3.8.1.1.2.2 CAMERA-UC-REQ-409519/A-Trailer Turn Signal View Setting Change

Actors	Vehicle Occupant
Pre-conditions	Vehicle is Accessory/RUN/START Trailer Turn Signal View Menu not grayed-out
Scenario Description	Vehicle Occupant changes Trailer Turn Signal View Menu setting.
Post-conditions	Feature changes according to user input.
List of Exception Use Cases	E1 – Vehicle is not Accessory/RUN/START E2 – Loss of communication with ADAS module
Interfaces	HMI interface

3.8.1.1.2.3 CAMERA-UC-REQ-409520/A-Trailer Turn Signal View because of Cancel "X" Button Press

Actors	Vehicle Occupant
Pre-conditions	Trailer is connected Turn Signal Views = Present Vehicle is in Run/Start Trailer Turn Signal View menu setting is set to ON Trailer Turn Signal View actively displaying TurnSglView_Left or TurnSglView_Right
Scenario Description	Vehicle Occupant presses Cancel “X” Button. (Client Requests view OFF)
Post-conditions	Client displays the previous Client screen without confirmation from Server.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with server module E3 – Valid camera video signal not present
Interfaces	HMI

3.8.1.1.2.4 CAMERA-UC-REQ-409521/A-Trailer Turn Signal View due to Shift Reverse

Actors	Driver
Pre-conditions	Trailer is connected Turn Signal Views = Present Vehicle is in Run/Start Trailer Turn Signal View menu setting is set to ON Trailer Turn Signal View actively displaying TurnSglView_Left or TurnSglView_Right
Scenario Description	Driver shifts to REVERSE.
Post-conditions	Server sends default rear camera image to Client. Client displays default rear camera image.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	HMI interface

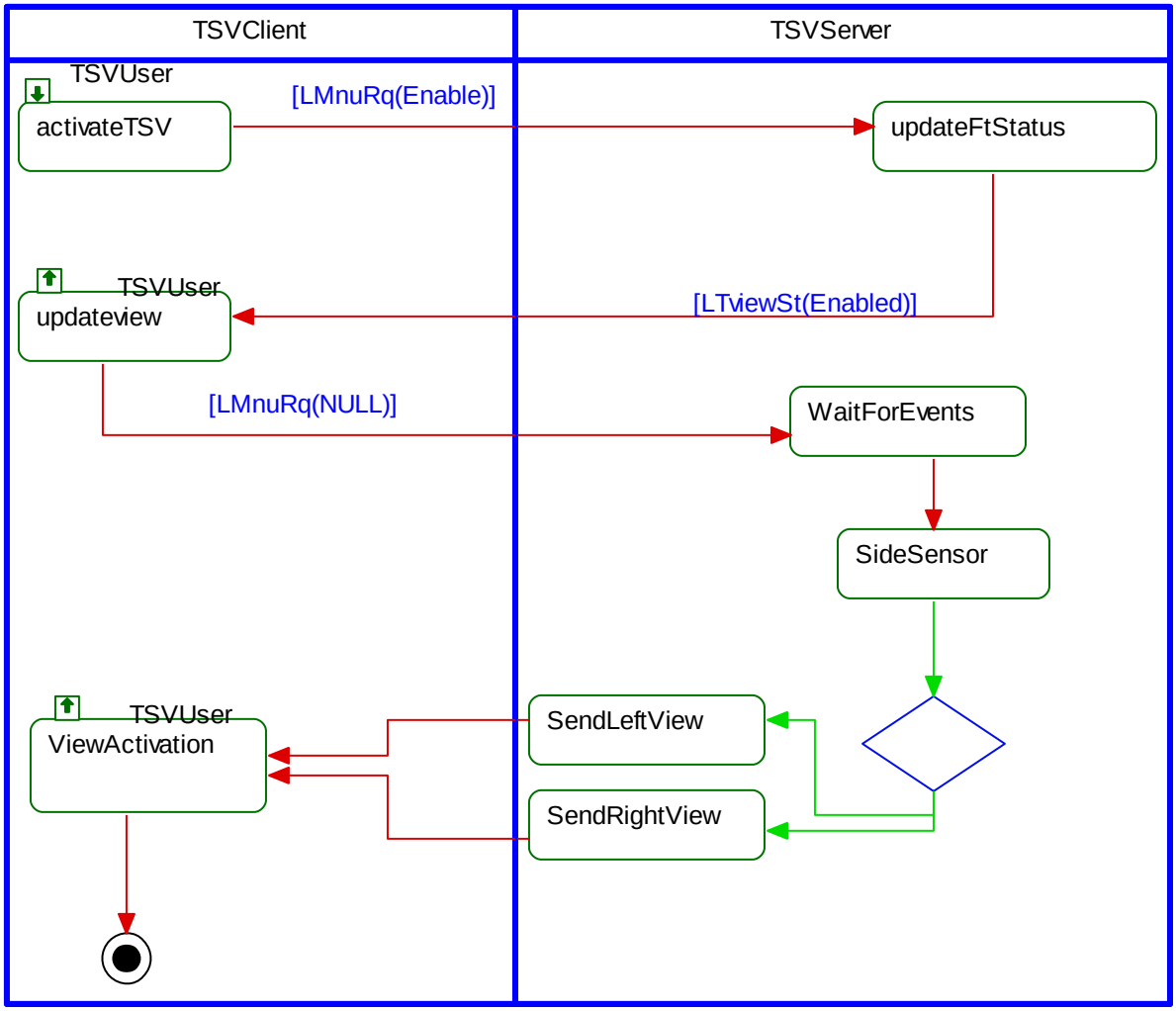
3.8.1.1.2.5 CAMERA-UC-REQ-410090/A-Trailer Turn Signal View Menu Setting based on Server Feature Memory

Actors	Vehicle Occupant
Pre-conditions	Turn Signal Views = Present Vehicle is Accessory/RUN/START
Scenario Description	Trailer Turn Signal View Menu is selected.
Post-conditions	Trailer Turn Signal View Menu displays according to status signal.
List of Exception Use Cases	E1 – Vehicle is not Accessory/RUN/START E2 – Loss of communication with server module
Interfaces	HMI interface

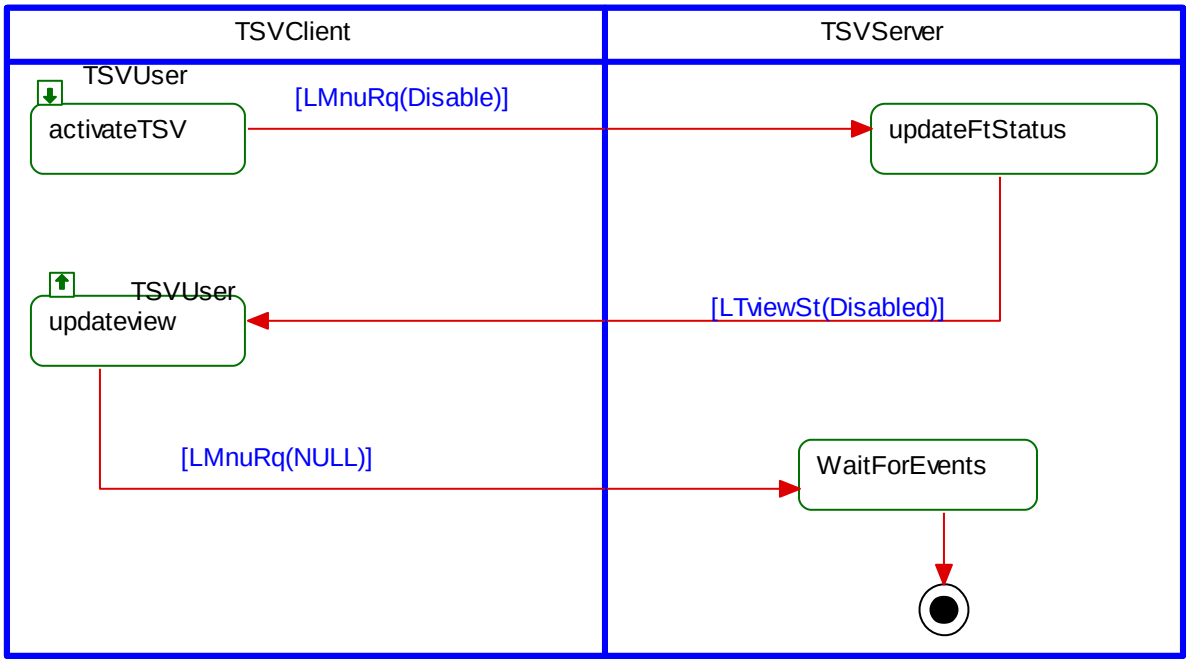
3.8.1.1.3 White Box Views

3.8.1.1.3.1 Activity Diagrams

3.8.1.1.3.1.1 CAMERA-ACT-REQ-411945/A-Operate TSV

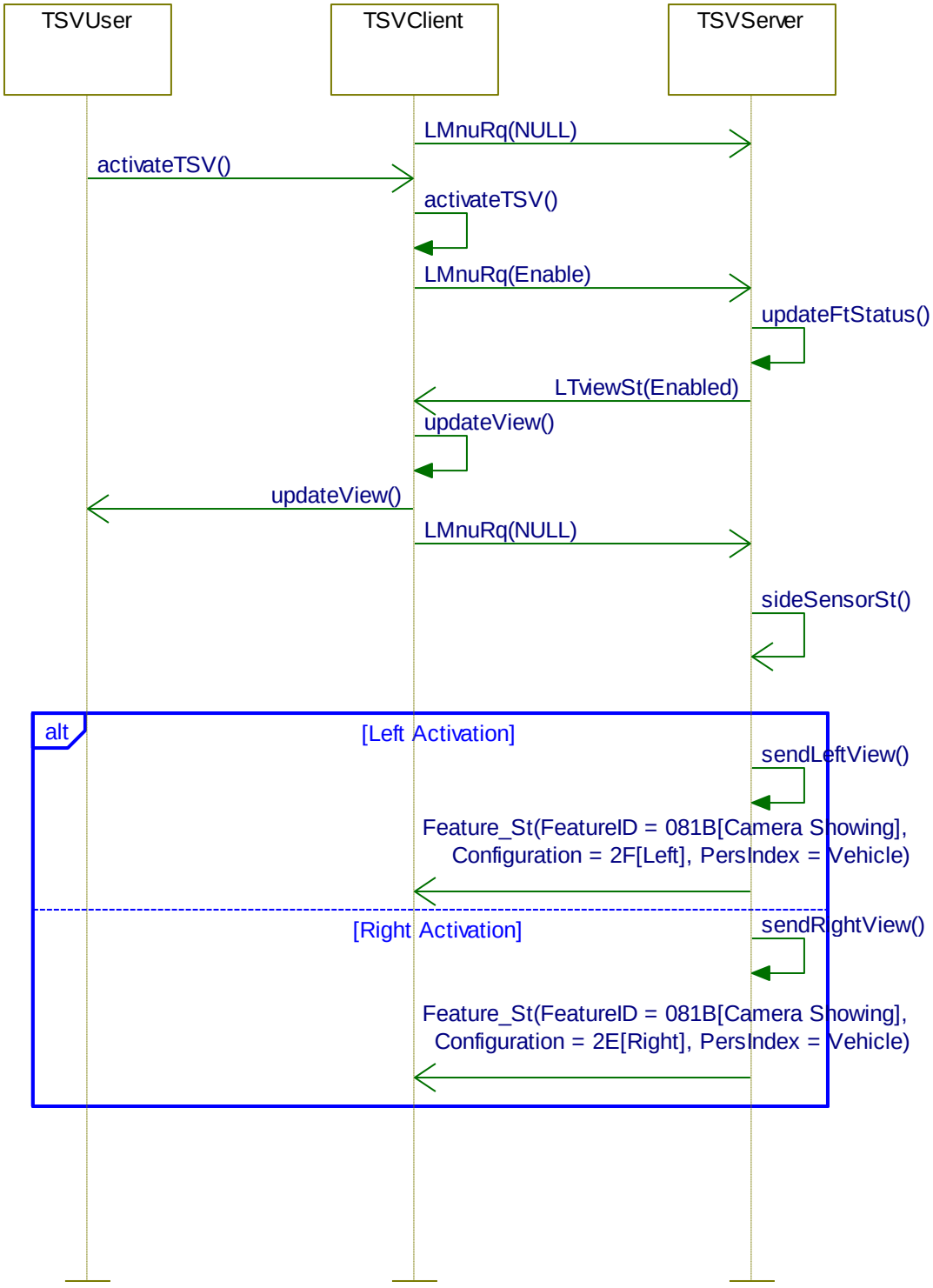


3.8.1.1.3.1.2 CAMERA-ACT-REQ-411947/A-Disable TSV

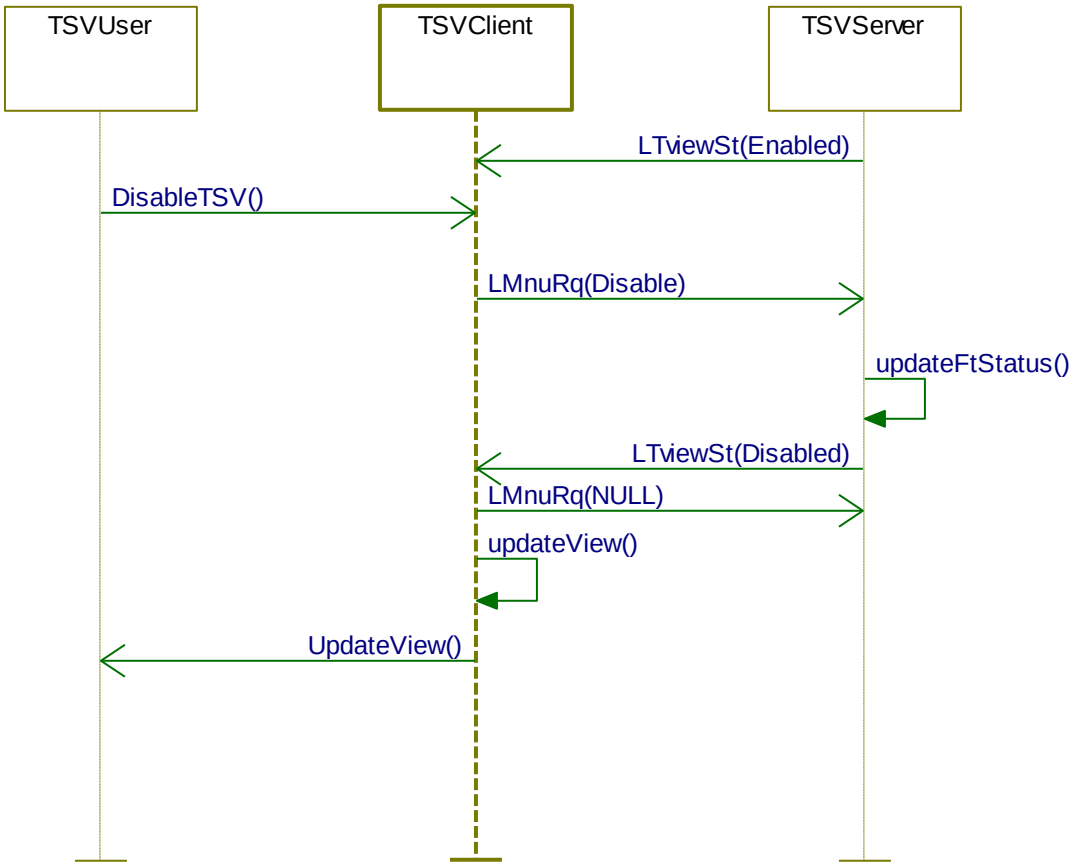


3.8.1.1.3.2 Sequence Diagrams

3.8.1.1.3.2.1 CAMERA-SD-REQ-411946/A-Operate TSV



3.8.1.1.3.2.2 CAMERA-SD-REQ-411948/A-Disable TSV



3.9 CTA 180 Multicamera

3.9.1 FUN-REQ-410169/A-CTA 180 Multicamera

3.9.1.1 Functional Definition

3.9.1.1.1 Use Cases

3.9.1.1.1.1 CAMERA-UC-REQ-410120/A-Menu to be not available

Actors	Vehicle Occupant
Pre-conditions	• CLIENT has Config for CtaSV Configuration set to Disabled • Vehicle is in Run/Start
Scenario Description	User accesses the settings menu.
Post-conditions	CTA menu is not available.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with server module E3 – Valid camera video signal not present E4 – User switches to Rear Split View manually by selecting the soft button
Interfaces	

3.9.1.1.1.2 CAMERA-UC-REQ-410121/A-Menu to be available in Settings

Actors	Vehicle Occupant
Pre-conditions	• CLIENT has Config for CtaSV Configuration set to “Enabled” • Vehicle is in Run/Start
Scenario Description	User accesses the settings menu
Post-conditions	CTA menu is available
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with SERVER module E3 – Valid camera video signal not present
Interfaces	

3.9.1.1.1.3 CAMERA-UC-REQ-410122/A-Activating Feature via Settings menu

Actors	Vehicle Occupant
Pre-conditions	• CLIENT has Config for CtaSV Configuration set to “Enabled” • Vehicle is in Run/Start
Scenario Description	The feature is enabled by the driver from the settings menu
Post-conditions	The feature stays enabled, and performs as designed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with SERVER module E3 – Valid camera video signal not present
Interfaces	

3.9.1.1.1.4 CAMERA-UC-REQ-410123/A-De-activating Feature via Settings menu

Actors	Vehicle Occupant
Pre-conditions	• CLIENT has Config for CtaSV Configuration set to “Enabled” • Vehicle is in Run/Start
Scenario Description	The feature is disabled by the driver from the settings menu
Post-conditions	The feature stays disabled, and performs as designed.
List of Exception Use Cases	
Interfaces	HMI

3.9.1.1.1.5 CAMERA-UC-REQ-410124/A-No Switching when not in Reverse Gear

Actors	Vehicle Occupant
Pre-conditions	• CLIENT has Config for CtaSV Configuration set to “Enabled” • Gear is not in REVERSE
Scenario Description	CLIENT receives a CTA Trigger (Alert or braking)
Post-conditions	CLIENT does not request/perform split view.

List of Exception Use Cases	
Interfaces	HMI

3.9.1.1.1.6 CAMERA-UC-REQ-410125/A-View switching due to a CTA Event

Actors	Vehicle Occupant
Pre-conditions	• CLIENT has Config for CtaSV Configuration set to “Enabled” • Gear is in REVERSE
Scenario Description	CTA trigger becomes active (alert or braking)
Post-conditions	CLIENT shall switch the view based on SERVER request
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with SERVER module E3 – Valid camera video signal not present
Interfaces	

3.9.1.1.1.7 CAMERA-UC-REQ-410126/A-Switching to last known view after a CTA Event

Actors	Vehicle Occupant
Pre-conditions	• CLIENT has Config for CtaSV Configuration set to “Enabled” • Gear is in REVERSE
Scenario Description	CTA trigger (alert or braking) is no longer active
Post-conditions	Client shall switch the view based on SERVER instruction.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with SERVER module E3 – Valid camera video signal not present
Interfaces	

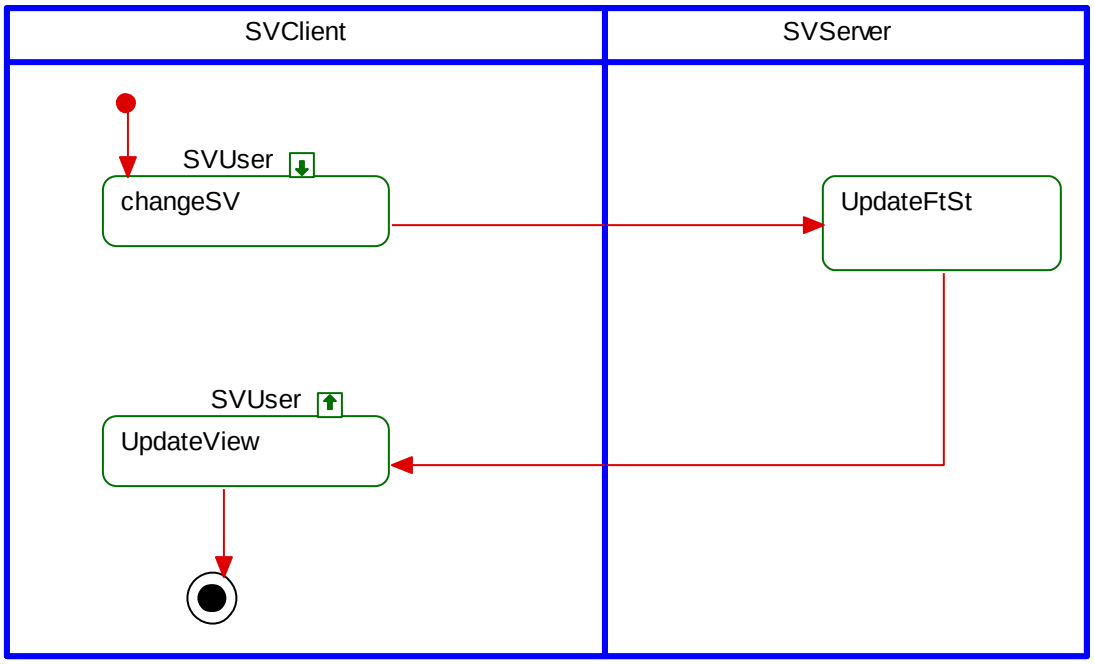
3.9.1.1.1.8 CAMERA-UC-REQ-410127/A-Missing Signal

Actors	Vehicle Occupant
Pre-conditions	• Client has Config for CtaSV Configuration set to “Enabled” • Gear is in REVERSE • CTA trigger (alert or braking) is active
Scenario Description	Loss of communication or missing signal from Server module
Post-conditions	Client shall set display a “grayed out” feature. Feature display will be disabled.
List of Exception Use Cases	
Interfaces	

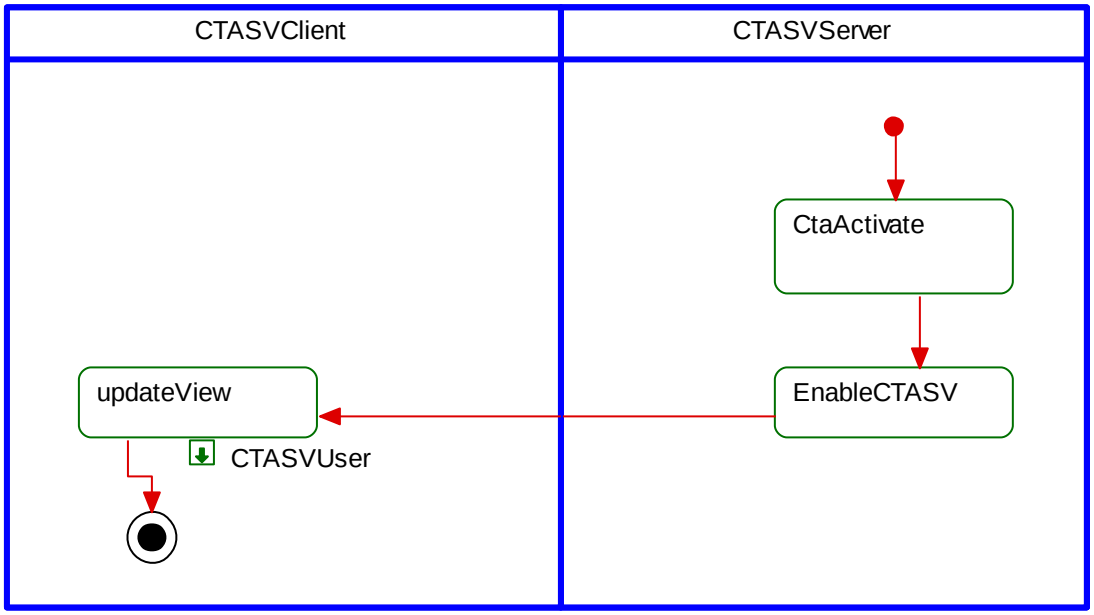
3.9.1.1.2 White Box Views

3.9.1.1.2.1 Activity Diagrams

3.9.1.1.2.1.1 CAMERA-ACT-REQ-411951/A-Enable Disable CTASV

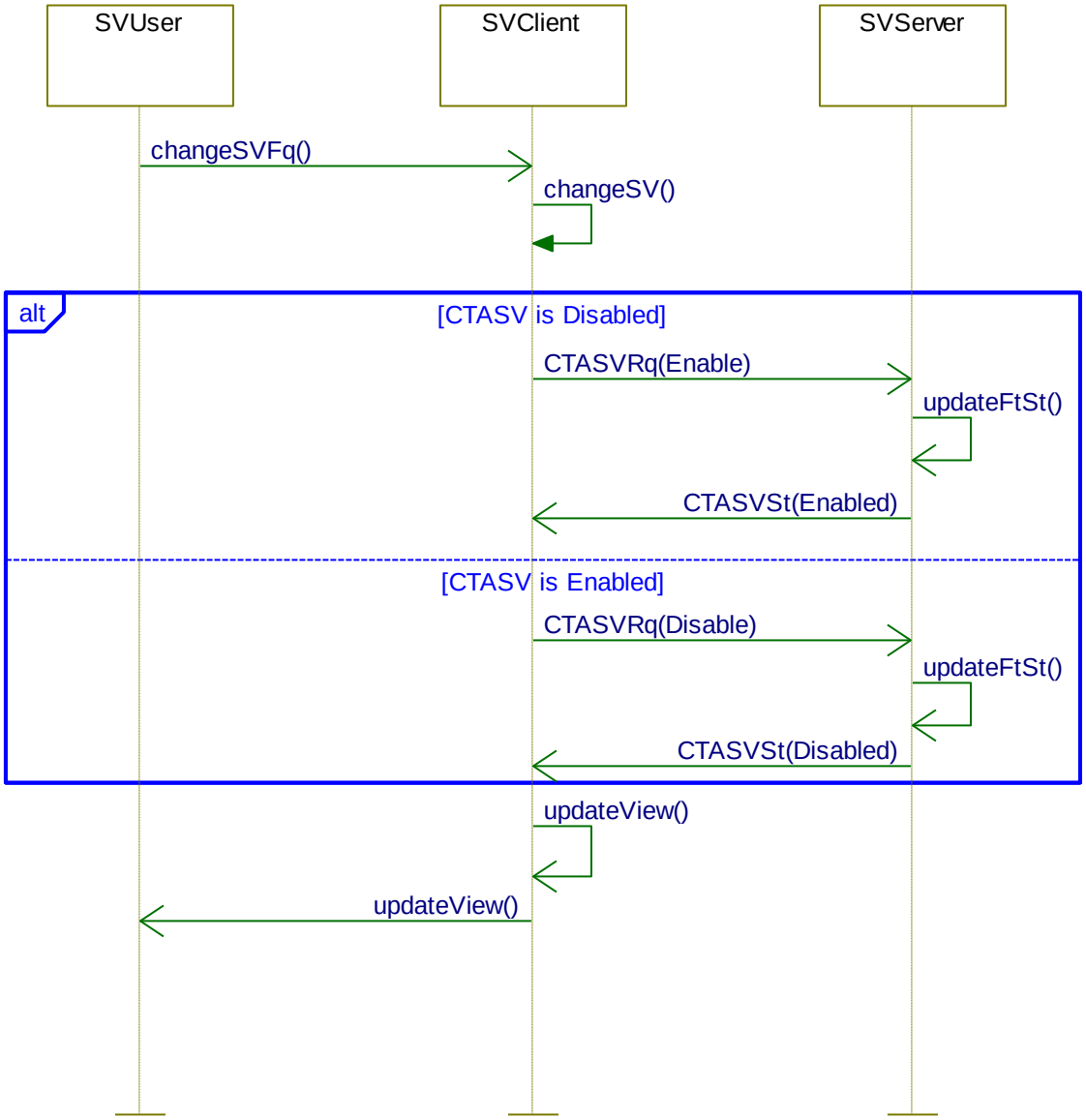


3.9.1.1.2.1.2 CAMERA-ACT-REQ-411953/A-Switching to SV

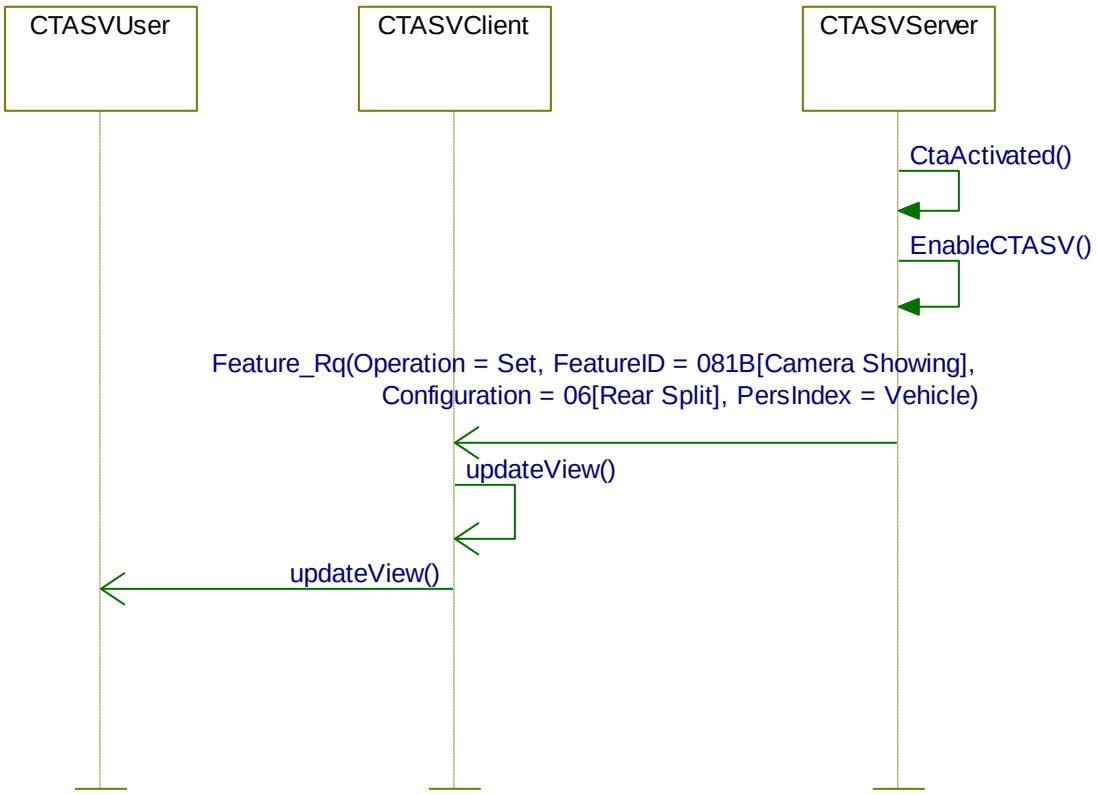


3.9.1.1.2.2 Sequence Diagrams

3.9.1.1.2.2.1 CAMERA-SD-REQ-411952/A-Enable Disable CTASV



3.9.1.1.2.2.2 CAMERA-SD-REQ-411954/A-Switching to SV



3.10 Invisible Van View

3.10.1 FUN-REQ-410171/A-Invisible Van View

3.10.1.1 CAMERA-REQ-411963/A-IVV Config Value

IVV Feature Config = 0x40

3.10.1.2 Functional Definition

3.10.1.2.1 Use Cases

3.10.1.2.1.1 CAMERA-UC-REQ-410139/A-Requesting Invisible Van View

Actors	Driver
Pre-conditions	Vehicle is equipped with Invisible Van View and vehicle is in Reverse Gear. IVV is configured to enabled.
Scenario Description	Driver requests Invisible Van View from the Client menu
Post-conditions	Server activated IVV.
List of Exception Use Cases	Client displays IVV in HMI screen.
Interfaces	

3.10.1.2.1.2 CAMERA-UC-REQ-410140/A-Deactivating Invisible Van View (1)

Actors	Driver
Pre-conditions	• Vehicle is equipped with Invisible Van View • Vehicle is in Reverse Gear • Invisible Van view is active
Scenario Description	Driver requests a different view while in Reverse
Post-conditions	Switch out (Stop Displaying) of Invisible Van View
List of Exception Use Cases	
Interfaces	

3.10.1.2.1.3 CAMERA-UC-REQ-411961/A-Deactivating Invisible Van View (2)

Actors	Driver
Pre-conditions	• Vehicle is equipped with Invisible Van View • Vehicle is in Reverse Gear • Invisible Van view is active • Delay mode is not active
Scenario Description	Driver shifts out of Reverse Gear
Post-conditions	Client stops displaying the Invisible van camera view. Client reverts back to home screen.
List of Exception Use Cases	
Interfaces	

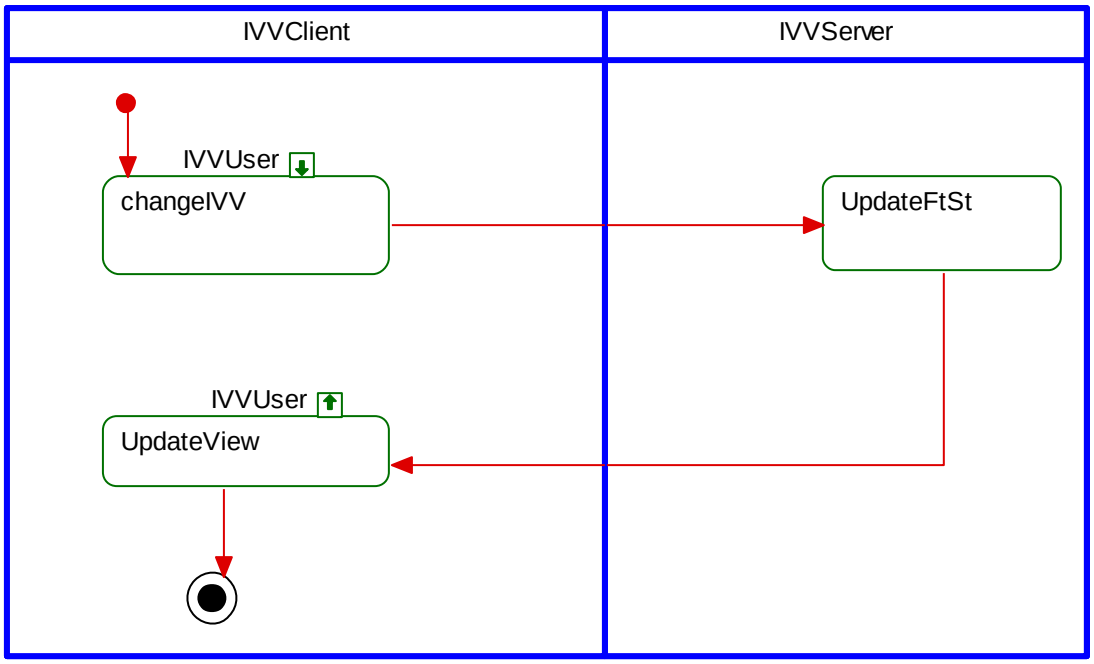
3.10.1.2.1.4 CAMERA-UC-REQ-411962/A-Deactivating Invisible Van View (3)

Actors	Driver
Pre-conditions	• Vehicle is equipped with Invisible Van View • Vehicle is in Reverse Gear • Invisible Van view is active • Delay mode is active
Scenario Description	Driver shifts out of Reverse Gear
Post-conditions	Client would continue to show the invisible van view until speed limit is crossed, view is canceled or park gear is entered.
List of Exception Use Cases	
Interfaces	

3.10.1.2.2 White Box Views

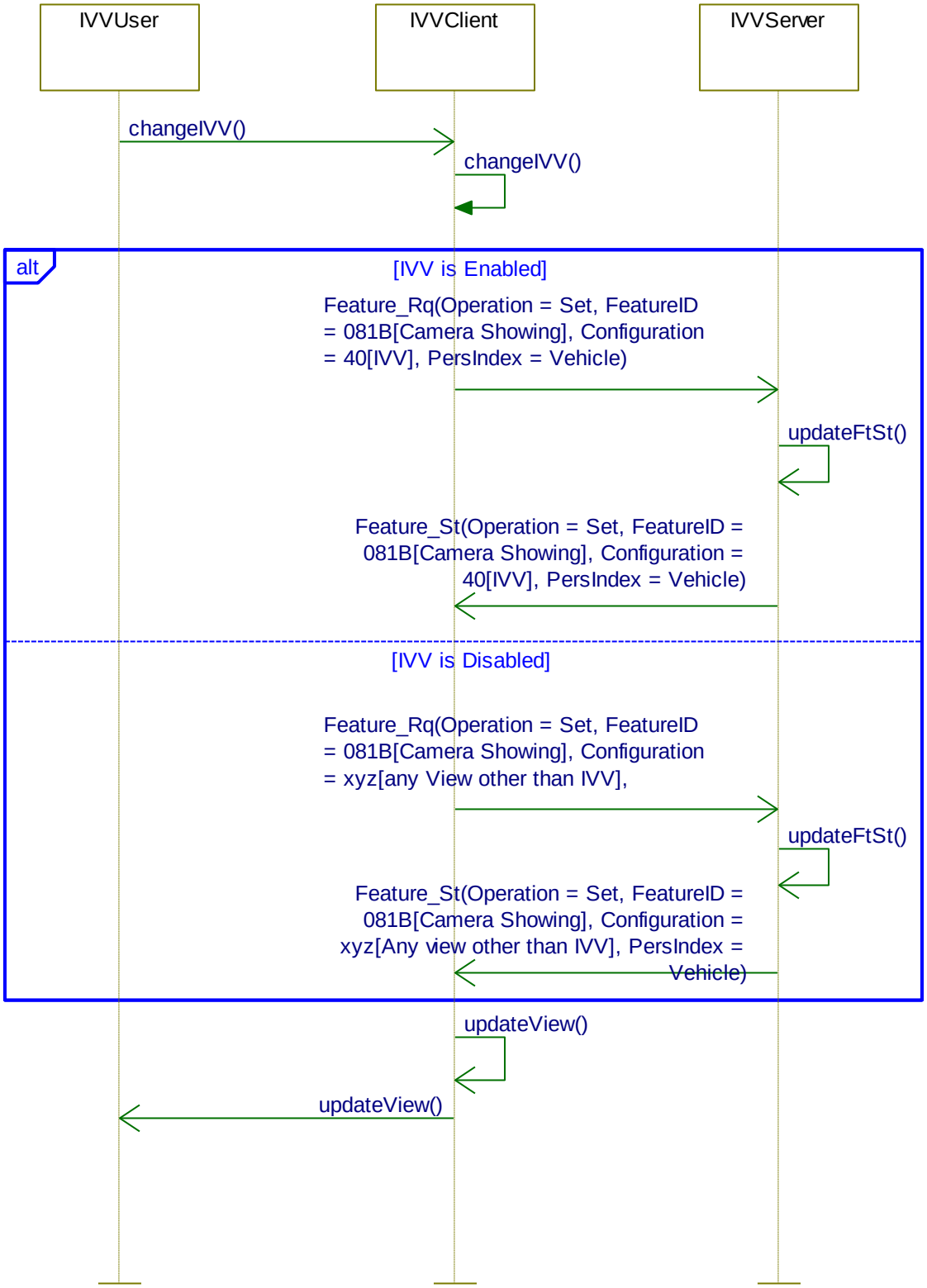
3.10.1.2.2.1 Activity Diagrams

3.10.1.2.2.1.1 CAMERA-ACT-REQ-411959/A-Operate Invisible Van View



3.10.1.2.2.2 Sequence Diagrams

3.10.1.2.2.2.1 CAMERA-SD-REQ-411960/A-Operate Invisible Van View



3.11 50/50 Views

3.11.1 FUN-REQ-410167/A-50/50 Views

3.11.1.1 CAMERA-REQ-411964/A-50 50 Split View Configurations

50/50 Split View has a feature configuration 0x2C.
50/50 Split View At Speed has a feature configuration 0x2D.

3.11.1.2 Functional Definition

3.11.1.2.1 Use Cases

3.11.1.2.1.1 CAMERA-UC-REQ-410164/A-50/50 SPLIT VIEW Activation Below Speed on 360 Variants

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for 50/50 Split View, TRG, and 360 camera • Server is configured for 50/50 Split View, TRG, and 360 camera • Vehicle in Run/Start • Vehicle is not in reverse • Vehicle is below 10 KPH • Front Camera Menu below speed is displayed.
Scenario Description	User presses the 50/50 Split View menu icon
Post-conditions	Client sends request to Camera to activate 50/50 Split View. Server activates 50/50 Split View
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with camera server module E3 – Valid camera video signal not present
Interfaces	

3.11.1.2.1.2 CAMERA-UC-REQ-410165/A-50/50 SPLIT VIEW Transition from Below Speed to Above Speed on 360 Variants

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for 50/50 Split View, TRG view, 50/50 Split Views at Speed and 360 camera • Server is configured for 50/50 Split View, TRG view, Views at Speed and 360 camera • Vehicle in Run/Start • Vehicle is not in reverse • Vehicle is below 10 KPH • 50/50 Split View is the active view • Front Camera Menu below speed is displayed.
Scenario Description	User accelerates from below 10 KPH to above 10 KPH
Post-conditions	FeatConfigIPMBActl will change from 0x2C (50/50 SPLIT VIEW) to 0x2D (50/50 SPLIT VIEW at Speed). The front camera views at speed menu shall be displayed (CHMSL, AUX, Hitch, RCOD, 50/50 split view buttons as configured on)
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with camera server module

	E3 – Valid camera video signal not present
Interfaces	

3.11.1.2.1.3 CAMERA-UC-REQ-410166/A-50/50 Split View at Speed Activation Above Speed on 360 Variants

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for 50/50 Split View at Speed, TRG View, and 360 camera • Server is configured for 50/50 Split View at Speed, TRG View, and 360 camera • Vehicle in Run/Start • Vehicle is not in reverse • Vehicle is above 10 KPH • A view at speed other than 50/50 is active Views at Speed menu is displayed.
Scenario Description	User presses the 50/50 Split View at Speed menu icon
Post-conditions	Client sends request to Camera to activate 50/50 Split Views at Speed. Server activates 50/50 Split Views at Speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with camera server module E3 – Valid camera video signal not present
Interfaces	

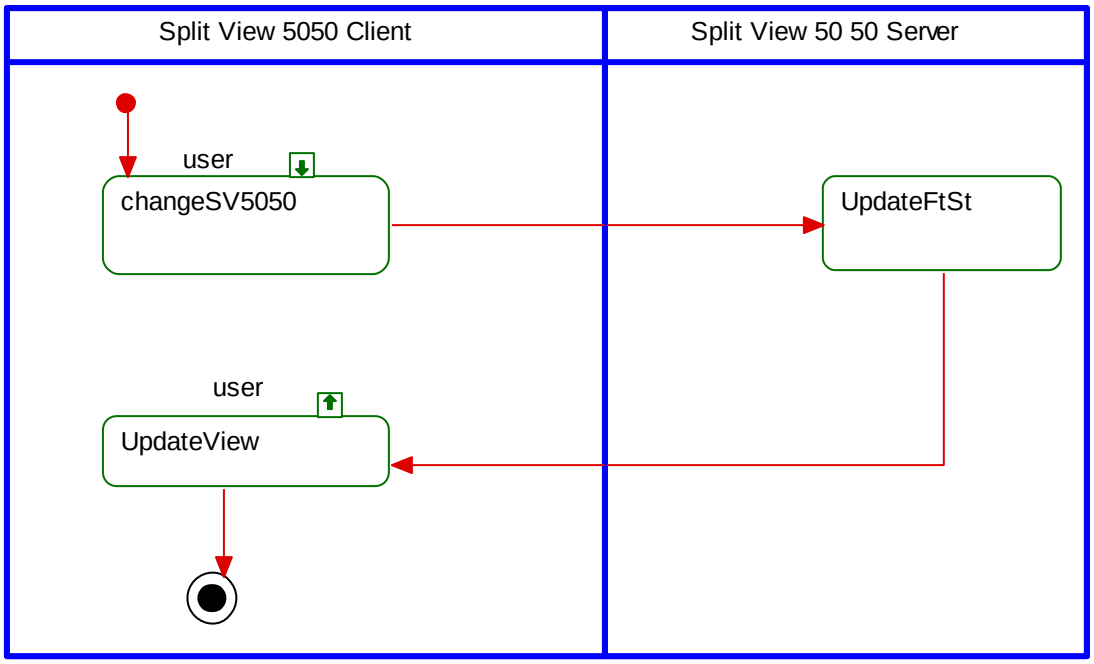
3.11.1.2.1.4 CAMERA-UC-REQ-410163/A-50/50 Split View Transition from Above Speed to Below Speed

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for 50/50 Split View at Speed, TRG view, Views at Speed and 360 camera • Server is configured for 50/50 Split View at Speed, TRG view, Views at Speed and 360 camera • Vehicle in Run/Start • Vehicle is not in reverse • Vehicle is above 10 KPH • 50/50 Split View at speed is active. • Views at Speed menu is displayed
Scenario Description	User decelerates from above 10 KPH to below 10 KPH
Post-conditions	FeatConfigIPMBActl will change from 0x2D (50/50 SPLIT VIEW at Speed) to 0x2C (50/50 SPLIT VIEW). The front camera menu is active.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with camera server module E3 – Valid camera video signal not present
Interfaces	

3.11.1.2.2 White Box Views

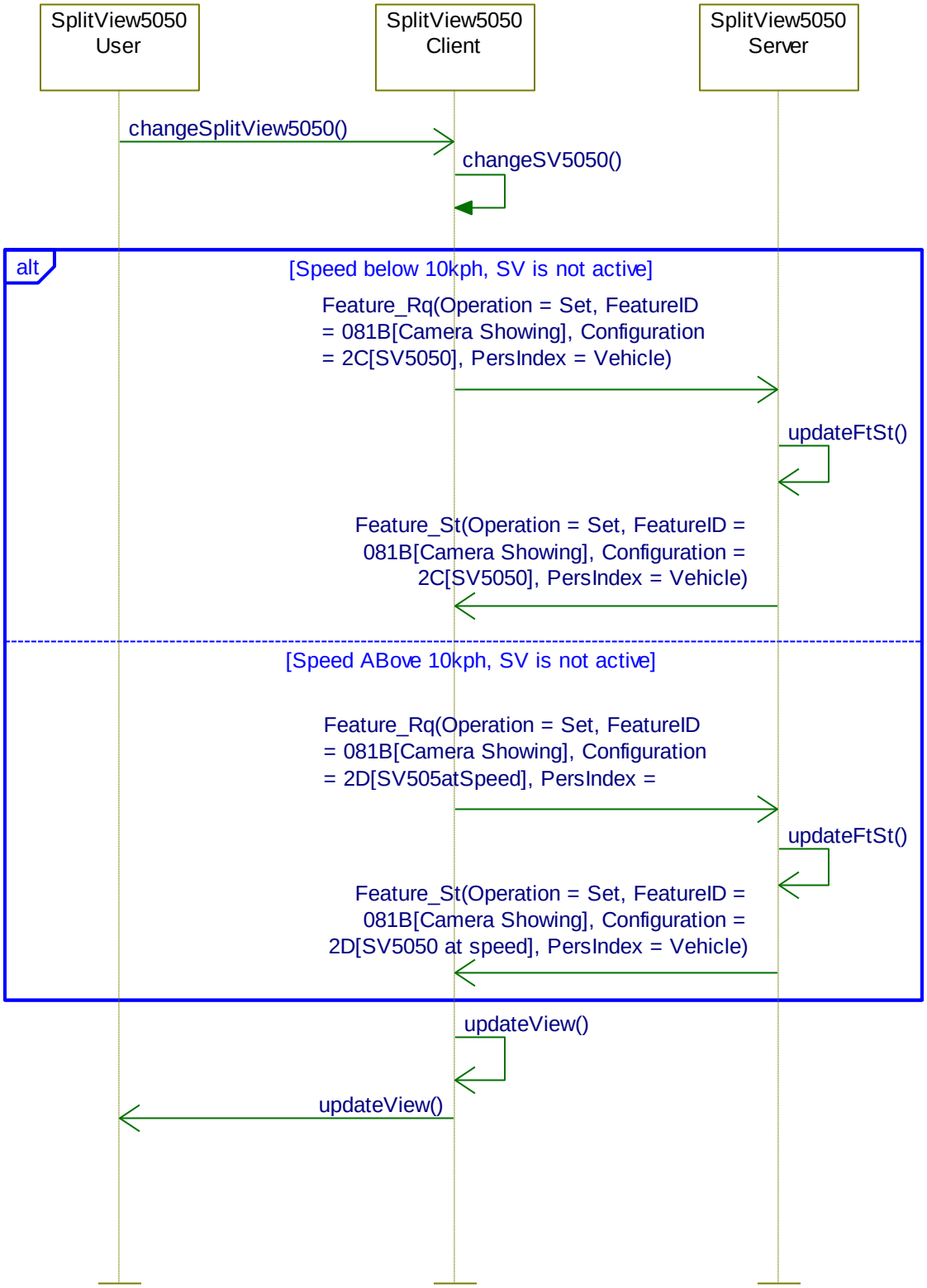
3.11.1.2.2.1 Activity Diagrams

3.11.1.2.2.1.1 CAMERA-ACT-REQ-411965/A-Operate 50 50 Split View



3.11.1.2.2.2 Sequence Diagrams

3.11.1.2.2.2.1 CAMERA-SD-REQ-411966/A-Operate 50 50 Split View



3.12 Trailer 360 Views

3.12.1 CAMERA-FUN-REQ-419878/A-Trailer 360 Views

3.12.1.1 Requirements

3.12.1.1.1 CAMERA-REQ-419865/A-Trailer 360 View Configuration Values

Trailer 360 view uses FBMP for requesting the various camera views. The values below are the various configuration values associated with their respective Trailer View.

Config Value	Specific View
0x31	Trailer 360
0x32	Trailer Rear Normal
0x33	Trailer Interior View 1
0x34	Trailer Interior View 2
0x35	Trailer Left
0x36	Trailer Right
0x3D	Trailer Rear Normal at Speed

To request a particular view the client should transmit the below:
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = Config Value[Specific View], PersIndex = Vehicle)

The server should reply back. The reply back contains the View the Server is transmitting currently.
Feature_St(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = Config Value[Specific View], PersIndex = Vehicle)

3.12.1.1.2 CAMERA-REQ-419879/A-Trailer 360 Views Availability

The client shall use the signal LTrlrConnect to control the availability of trailer views to the user.
When signal LTrlrConnect = 0x01 (Connected) the client shall make available specific views. Refer to HMI specification for the list of available views.
When signal LTrlrConnect = 0x00(Not Connected) the client shall deactivate Trailer 360 Views.

3.12.1.2 Use Cases

3.12.1.2.1 CAMERA-UC-REQ-419705/A-Trailer 360 Soft Button Activation

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Trailer 360 Trailer 360 system is not connected Vehicle in Run/Start
Scenario Description	Trailer 360 system becomes connected to the vehicle.
Post-conditions	The Trailer 360 soft buttons in Front, Rear, TBA, and TRG views shall become present. The Aux camera button shall not be present.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	Client HMI

3.12.1.2.2 CAMERA-UC-REQ-419706/A-Trailer 360 view selection below 10 KPH or in Reverse

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Trailer 360 Trailer 360 system is connected Vehicle in Run/Start User is in the Front Camera menu below 10 KPH or rear camera menu
Scenario Description	User presses the Trailer 360 view soft button
Post-conditions	Client displays Trailer 360 view.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	Client HMI

3.12.1.2.3 CAMERA-UC-REQ-419707/A-Trailer Rear Normal view selection below 10 KPH or in Reverse

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Trailer 360 Trailer 360 system is connected Vehicle in Run/Start User is in the Front Camera menu below 10 KPH or rear camera menu
Scenario Description	User presses the Trailer Rear Normal view soft button
Post-conditions	Client displays Trailer Rear Normal view.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.12.1.2.4 CAMERA-UC-REQ-419708/A-Trailer Interior View 1 selection below 10 KPH or in Reverse

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Trailer 360 Trailer 360 system is connected Vehicle in Run/Start User is in the Front Camera menu below 10 KPH or rear camera menu
Scenario Description	User presses the Trailer Interior View 1 soft button
Post-conditions	Client displays Trailer Interior View 1
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.12.1.2.5 CAMERA-UC-REQ-419709/A-Trailer Interior View 2 selection below 10 KPH or in Reverse

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Trailer 360 Trailer 360 system is connected Vehicle in Run/Start User is in the Front Camera menu below 10 KPH or rear camera menu
Scenario Description	User presses the Trailer Interior View 2 soft button
Post-conditions	Client displays Trailer Interior View 2
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.12.1.2.6 CAMERA-UC-REQ-419710/A-Trailer Left View selection below 10 KPH or in Reverse

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Trailer 360 Trailer 360 system is connected Vehicle in Run/Start User is in the Front Camera menu below 10 KPH or rear camera menu
Scenario Description	Customer presses the Trailer Left View soft button
Post-conditions	Client displays Trailer Left View
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.12.1.2.7 CAMERA-UC-REQ-419711/A-Trailer Right View selection below 10 KPH or in Reverse

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Trailer 360 Trailer 360 system is connected Vehicle in Run/Start User is in the Front Camera menu below 10 KPH or rear camera menu
Scenario Description	User presses the Trailer Right view soft button
Post-conditions	Client displays Trailer Right view
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.12.1.2.8 CAMERA-UC-REQ-419712/A-Trailer 360 Soft Button Deactivation

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Trailer 360 Trailer 360 system is connected Vehicle in Run/Start
Scenario Description	Trailer 360 system disconnects from the vehicle
Post-conditions	The Trailer 360 soft buttons shall be deactivated, and the Aux camera button shall become active again.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.12.1.2.9 CAMERA-UC-REQ-419713/A-Trailer Rear Normal View transition from below 10 KPH to above 10 KPH

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Trailer 360 Client is configured for Trailer 360 Views at Speed Trailer 360 system is connected Vehicle in Run/Start User is in the Front Camera menu below 10 KPH Trailer Rear Normal View is active
Scenario Description	Customer drives above 10 KPH
Post-conditions	The views at speed menu shall become available
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.12.1.2.10 CAMERA-UC-REQ-419714/A-Trailer Rear Normal View at Speed selection above 10 KPH

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Trailer 360 Client is configured for Trailer 360 Views at Speed Trailer 360 system is connected Vehicle in Run/Start Views at Speed is active
Scenario Description	User presses the Trailer Rear Normal View at Speed soft button
Post-conditions	Client displays Trailer Rear Normal View
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

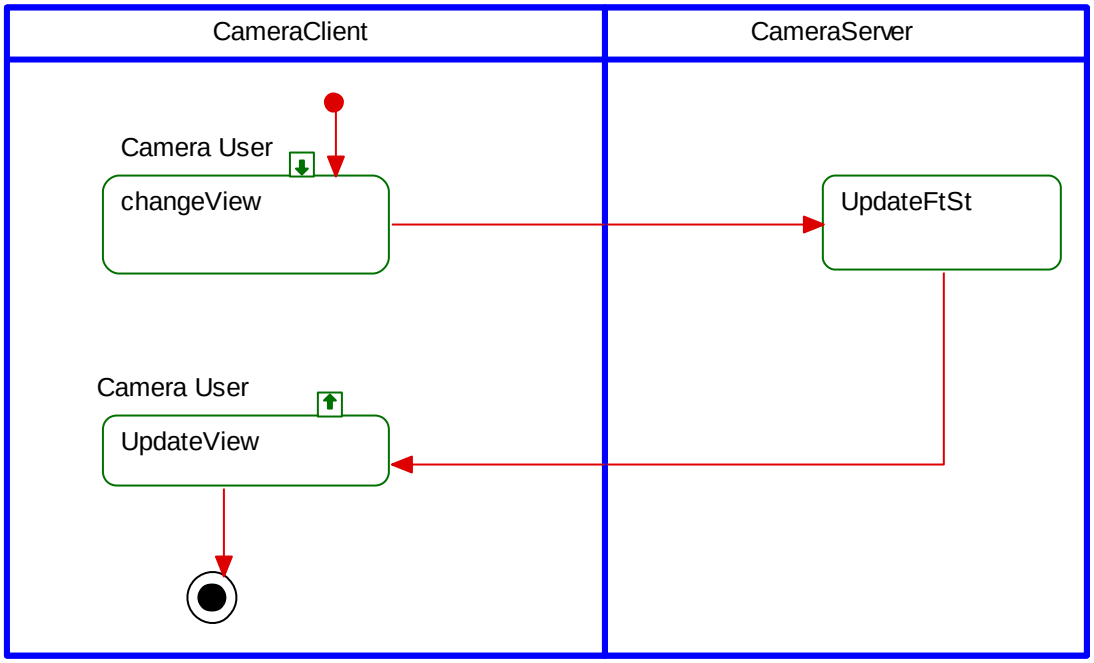
3.12.1.2.11 CAMERA-UC-REQ-419715/A-Trailer Rear Normal View transition from above 10 KPH to below 10 KPH

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Trailer 360 Client is configured for Trailer 360 Views at Speed Trailer 360 system is connected Vehicle in Run/Start Views at Speed is active Trailer Rear Normal View at Speed is active
Scenario Description	Customer drives below 10 KPH
Post-conditions	The front camera menu shall become available.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.12.1.3 White Box Views

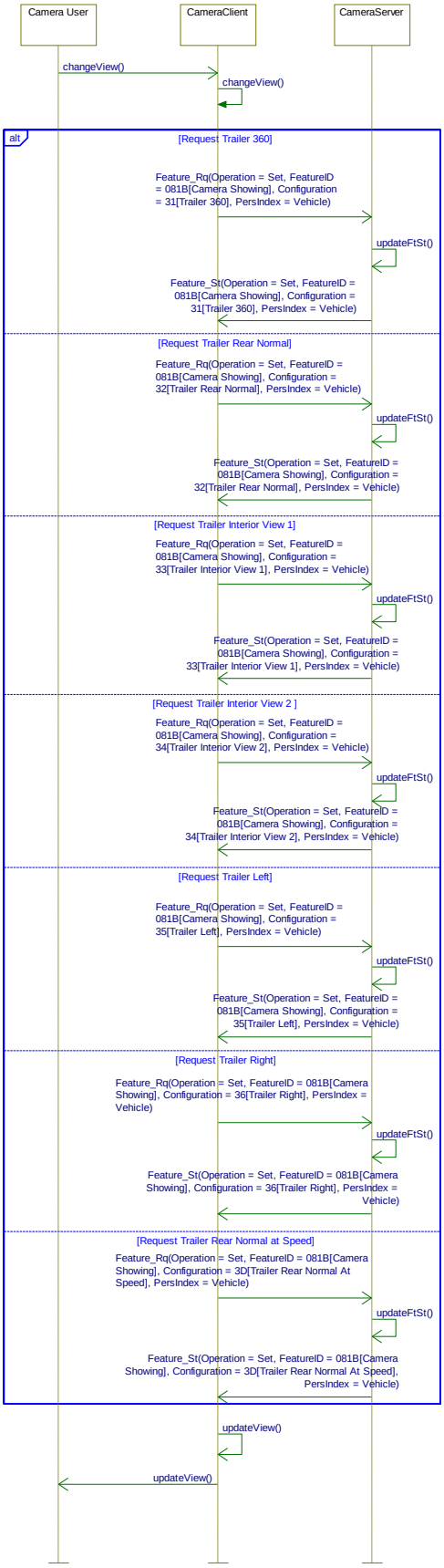
3.12.1.3.1 Activity Diagrams

3.12.1.3.1.1 CAMERA-ACT-REQ-423119/A-Trailer 360 Views



3.12.1.3.2 Sequence Diagrams

3.12.1.3.2.1 CAMERA-SD-REQ-423120/A-Trailer 360 Views


Camera User
CameraClient
CameraServer
changeView()
changeView()
alt
[Request Trailer 360]
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 31[Trailer 360], PersIndex = Vehicle)
updateFtSt()
Feature_St(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 31[Trailer 360], PersIndex = Vehicle)
[Request Trailer Rear Normal]
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 32[Trailer Rear Normal], PersIndex = Vehicle)
updateFtSt()
Feature_St(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 32[Trailer Rear Normal], PersIndex = Vehicle)
[Request Trailer Interior View 1]
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 33[Trailer Interior View 1], PersIndex = Vehicle)
updateFtSt()
Feature_St(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 33[Trailer Interior View 1], PersIndex = Vehicle)
[Request Trailer Interior View 2]
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 34[Trailer Interior View 2], PersIndex = Vehicle)
updateFtSt()
Feature_St(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 34[Trailer Interior View 2], PersIndex = Vehicle)
[Request Trailer Left]
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 35[Trailer Left], PersIndex = Vehicle)
updateFtSt()
Feature_St(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 35[Trailer Left], PersIndex = Vehicle)
[Request Trailer Right]
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 36[Trailer Right], PersIndex = Vehicle)
updateFtSt()
Feature_St(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 36[Trailer Right], PersIndex = Vehicle)
[Request Trailer Rear Normal at Speed]
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 3D[Trailer Rear Normal At Speed], PersIndex = Vehicle)
updateFtSt()
Feature_St(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 3D[Trailer Rear Normal At Speed], PersIndex = Vehicle)
updateView()
updateView()

3.13 PiP At Speed

3.13.1 FUN-REQ-423142/A-PiP At Speed

3.13.1.1 Requirements

3.13.1.1.1 CAMERA-REQ-422921/A-Views Parameter Values

PiP views and swap use FBMP for requesting the various camera views. The values below are the various configuration values associated with their respective PiP and swap view.

For Pip we use FeatureID 081B.

Config Value	Specific View
0x41	PiP 50/50
0x42	PiP 50/50 Views At Speed
0x43	PiP Aux
0x44	PiP Aux Views At Speed
0x45	PiP Trailer Rear Normal View
0x46	PiP Trailer Rear Normal View At Speed

To request a particular view the client should transmit the below:
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = Config Value[Specific View from table above], PersIndex = Vehicle)

The server should reply back. The reply back contains the View the Server is transmitting currently.
Feature_St(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = Config Value[Specific Viewfrom table above], PersIndex = Vehicle)

To Swap we request FeatureID 082A.

Config Value	Specific View
0x02	Swap

3.13.1.2 Use Cases

3.13.1.2.1 CAMERA-UC-REQ-420591/A-Requesting PiP AUX from AUX below 10kph

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in Drive mode and below 10kph Front camera AUX View is active
Scenario Description	PiP button is selected
Post-conditions	Client shall send a request to server for PiP Aux View Server sends the response. PiP Aux view becomes active.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.2 CAMERA-UC-REQ-420592/A-Requesting AUX from PiP AUX with PiP button at below 10kph

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and below 10kph speed. PiP AUX View is active
Scenario Description	PiP Button is selected
Post-conditions	Client shall send a request to server for Aux view. Server sends the response Aux View is displayed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.3 CAMERA-UC-REQ-420593/A-Requesting Swap from PiP AUX at below 10kph

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and below 10kph speed. PiP AUX View is active
Scenario Description	Swap Button is selected
Post-conditions	Client shall send a request to server for Pip Swap Server sends the response Images are swap.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.4 CAMERA-UC-REQ-420594/A-Requesting PiP 50/50 from 50/50 view , below 10kph

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and below 10kph speed. 50/50 view is active
Scenario Description	PiP button is selected
Post-conditions	Client shall send a request to server PiP 50/50 view. Server sends the response PiP 50/50 view shall be active
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.5 CAMERA-UC-REQ-420595/A-Requesting 50/50 from PiP 50/50 with PiP button at below 10kph

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and below 10kph speed. PiP 50/50 View is active
Scenario Description	PiP Button is selected
Post-conditions	Client shall send a request to server to show 50/50 view Server sends the response Client displays 50/50 views.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present

Interfaces	

3.13.1.2.6 CAMERA-UC-REQ-420596/A-Requesting Swap from PiP 50/50 at below 10kph

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and below 10kph speed. PiP 50/50 View is active
Scenario Description	Swap button is selected.
Post-conditions	Client shall send a request to server PiP Swap. Server sends the response. Client displays 50/50 pip.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.7 CAMERA-UC-REQ-420597/A-Requesting Pip Trailer Rear Normal from Trailer Rear Normal below 10kph

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and below 10kph speed. Trailer Rear Normal View is active
Scenario Description	PiP button is selected
Post-conditions	Client shall send a request to server Pip trailer rear normal. Server sends the response Client displays Pip Trailer Rear Normal View
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.8 CAMERA-UC-REQ-420598/A-Requesting Trailer Rear Normal from PiP Trailer Rear Normal with PiP button at below 10kph

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and below 10kph speed. PiP Trailer Rear Normal view is active
Scenario Description	PiP Button is selected
Post-conditions	Client shall send a request to server to show Trailer rear normal. Server sends the response. Trailer rear normal becomes active
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.9 CAMERA-UC-REQ-420599/A-Requesting Swap from Pip Trailer Rear Normal below 10kph

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and below 10kph speed. PiP Trailer Rear Normal view is active
Scenario Description	Swap button is selected.
Post-conditions	Client shall send a request to server for a PipSwap Server provides feedback to client.

	Client displays PIP Trailer Rear Normal view.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.10CAMERA-UC-REQ-420600/A-Transitioning from PiP AUX to PiP AUX at Speed

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and below 10kph speed. PiP AUX View is active
Scenario Description	Vehicle speed is transitioning from below to above 10kph
Post-conditions	Client will display PIP Aux at speed. Views at speed HMI shall be displayed
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.11CAMERA-UC-REQ-420601/A-Transitioning from PiP AUX at Speed to PiP AUX

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive and above 10kph PiP Aux at speed view is active
Scenario Description	Vehicle speed is transitioning from above to below 10kph
Post-conditions	Client displays Pip Aux view Front Camera HMI shall be displayed
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.12CAMERA-UC-REQ-420602/A-Transitioning from PiP 50/50 to PiP 50/50 at speed

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive and below 10kph PiP 50/50 view is active
Scenario Description	Vehicle speed is transitioning from below to above 10kph
Post-conditions	Client will display PiP 50/50 at speed. Views at speed HMI shall be displayed
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.13CAMERA-UC-REQ-420603/A-Transitioning from PiP 50/50 at speed to PiP 50/50

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Vehicle is in drive and above 10kph PiP 50/50 at speed is active
Scenario Description	Vehicle speed is transitioning from above to below 10kph
Post-conditions	Client displays Pip 50/50 Front Camera HMI shall be displayed

List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.14 CAMERA-UC-REQ-420604/A-Transitioning from PiP Trailer Rear Normal to PiP Trailer Rear Normal at speed

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive and below 10kph PiP Trailer Rear Normal view is active
Scenario Description	Vehicle speed is transitioning from below to above 10kph
Post-conditions	Client displays Pip trailer rear normal at speed view. View at speed HMI shall be displayed
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.15 CAMERA-UC-REQ-420605/A-Transitioning from PiP Trailer Rear Normal at speed to PiP Trailer Rear Normal

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive and above 10kph PiP Trailer Rear Normal at Speed is active
Scenario Description	Vehicle speed is transitioning from above to below 10kph
Post-conditions	Client displays pip 50/50 Front Camera HMI shall be displayed
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.16 CAMERA-UC-REQ-420606/A-Requesting PiP AUX at Speed from AUX at Speed

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive and above 10kph AUX view at Speed is active
Scenario Description	PiP button is selected
Post-conditions	Client shall send a request to server for Pip Aux at speed Client displays Pip AUX at speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.17 CAMERA-UC-REQ-420607/A-Requesting PiP 50/50 at speed from 50/50 at speed with PiP button

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive and above 10kph 50/50 view at Speed is active
Scenario Description	PiP button is selected
Post-conditions	Client shall send a request to server for PiP 50/50 at speed

	Client displays Pip 50/50 at speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.18 CAMERA-UC-REQ-420608/A-Requesting PiP Trailer Rear Normal at Speed from Trailer Rear Normal at Speed with PiP button

Actors	**Vehicle Occupant**
Pre-conditions	Apim is configured for Pip and PiP views at Speed Vehicle is in drive and above 10kph Trailer Rear Normal view at Speed is active
Scenario Description	PiP button is selected
Post-conditions	Client shall send a request to server for PiP Trailer Rear Normal at Speed Client displays Pip Trailer Normal at speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.19 CAMERA-UC-REQ-420609/A-Requesting AUX at speed view from PiP AUX at Speed view with PiP button

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive and above 10kph PiP AUX at Speed is active
Scenario Description	PiP button is selected
Post-conditions	Client shall send a request to server for Aux at speed Client displays Aux at speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.20 CAMERA-UC-REQ-420610/A-Requesting 50/50 at speed view from PiP 50/50 at Speed view with PiP button

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive and above 10kph PiP 50/50 at Speed is active
Scenario Description	PiP button is selected
Post-conditions	Client shall send a request to server for 50/50 at speed Client displays 50/50 at speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.21 CAMERA-UC-REQ-420611/A-Requesting Trailer Rear Normal at speed from PiP Trailer Rear Normal at speed view with PiP button

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive and above 10kph PiP Trailer Rear Normal view at Speed is active
Scenario Description	PiP button is selected

Post-conditions	Client shall send a request to server for Trailer Rear Normal at speed Client displays Trailer rear normal at speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.22CAMERA-UC-REQ-420612/A-Exit PiP Aux at Speed View with Camera Hard button

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive and above 10kph PiP AUX view at speed is active
Scenario Description	Camera hard button is pressed
Post-conditions	Client shuts off the camera view and return to the last sync screen
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.23CAMERA-UC-REQ-420613/A-Exit PiP 50/50 at Speed View with Camera Hard button

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive and above 10kph PiP AUX view at speed is active
Scenario Description	Camera hard button is selected
Post-conditions	Client shall shut off the camera view and return to the last sync screen
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.24CAMERA-UC-REQ-420614/A-Exit PiP Trailer Rear Normal at Speed View with Camera Hard button

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive and above 10kph PiP AUX view at speed is active
Scenario Description	Camera hard button is pressed
Post-conditions	Last remembered Client screen shall be displayed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.25CAMERA-UC-REQ-420615/A-Requesting AUX from PiP AUX view with Aux button below 10kph

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and below 10kph speed. PiP AUX View is active
Scenario Description	AUX view Button is selected
Post-conditions	Client shall send a request to server for Aux view Client displays Aux view.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module

	E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.26 CAMERA-UC-REQ-420616/A-Requesting 50/50 from PiP 50/50 view with 50/50 button below 10kph

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and below 10kph speed. PiP 50/50 View is active
Scenario Description	50/50 view Button is selected
Post-conditions	Client shall send a request to server for 50/50 view Client displays 50/50 view.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.27 CAMERA-UC-REQ-420617/A-Requesting Trailer Normal View from PiP Trailer Rear Normal view with Trailer Rear Normal View button below 10kph

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and below 10kph speed. PiP Trailer Rear Normal View is active
Scenario Description	Trailer Rear Normal view button is selected
Post-conditions	Client shall send a request to server for Trailer Rear Normal view Client displays Trailer Rear Normal.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.28 CAMERA-UC-REQ-420618/A-Requesting Swap from PiP AUX at speed above 10kph

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and above 10kph speed. PiP AUX at Speed View is active
Scenario Description	Swap Button is selected
Post-conditions	Client displays Pip Aux at speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.29 CAMERA-UC-REQ-420619/A-Requesting Swap from PiP 50/50 at speed above 10kph

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and above 10kph speed. PiP AUX at Speed View is active
Scenario Description	Swap Button is selected
Post-conditions	Client displays Pip 50/50 at speed,
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present

Interfaces	

3.13.1.2.30 CAMERA-UC-REQ-420620/A-Requesting Swap from PiP Trailer Rear Normal at speed above 10kph

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and above 10kph speed. PiP AUX at Speed View is active
Scenario Description	Swap Button is selected
Post-conditions	Client displays Pip Trailer rear normal at speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.31 CAMERA-UC-REQ-420621/A-Last Remembered view for PiP AUX at Speed

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and above 10kph speed. Camer view is off Last View at speed active was PiP AUX at Speed
Scenario Description	Camera hard button is pressed
Post-conditions	Client displays Pip Aux at Speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.32 CAMERA-UC-REQ-420622/A-Last Remembered view for PiP 50/50 at Speed

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and above 10kph speed. Camer view is off Last View at speed active was PiP 50/50 at Speed
Scenario Description	Camera hard button is pressed
Post-conditions	Client displays pip 50/50 at speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.33 CAMERA-UC-REQ-420623/A-Last Remembered view for PiP Trailer Rear Normal at Speed

Actors	**Vehicle Occupant**
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive mode and above 10kph speed. Camer view is off Last View at speed active was PiP Trailer Rear Normal at Speed
Scenario Description	Camera hard button is pressed
Post-conditions	Client displays Pip Trailer rear normal at speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.34 CAMERA-UC-REQ-420624/A-Requesting AUX at speed view from PiP 50/50 at Speed view above 10kph

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive and above 10kph PiP 50/50 at Speed is active
Scenario Description	AUX at speed view button is selected
Post-conditions	Client displays Aux at Speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.35 CAMERA-UC-REQ-420625/A-Requesting 50/50 at speed view from PiP AUX at Speed view above 10kph

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive and above 10kph PiP AUX at Speed is active
Scenario Description	50/50 at speed view button is selected
Post-conditions	Client displays 50/50 at speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.2.36 CAMERA-UC-REQ-422845/A-Requesting Trailer Rear Normal at speed view from PiP 50/50 at Speed view above 10kph

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive and above 10kph PiP 50/50 at Speed is active
Scenario Description	Trailer Rear Normal at speed view button is selected
Post-conditions	Client displays trailer rear normal at speed,
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

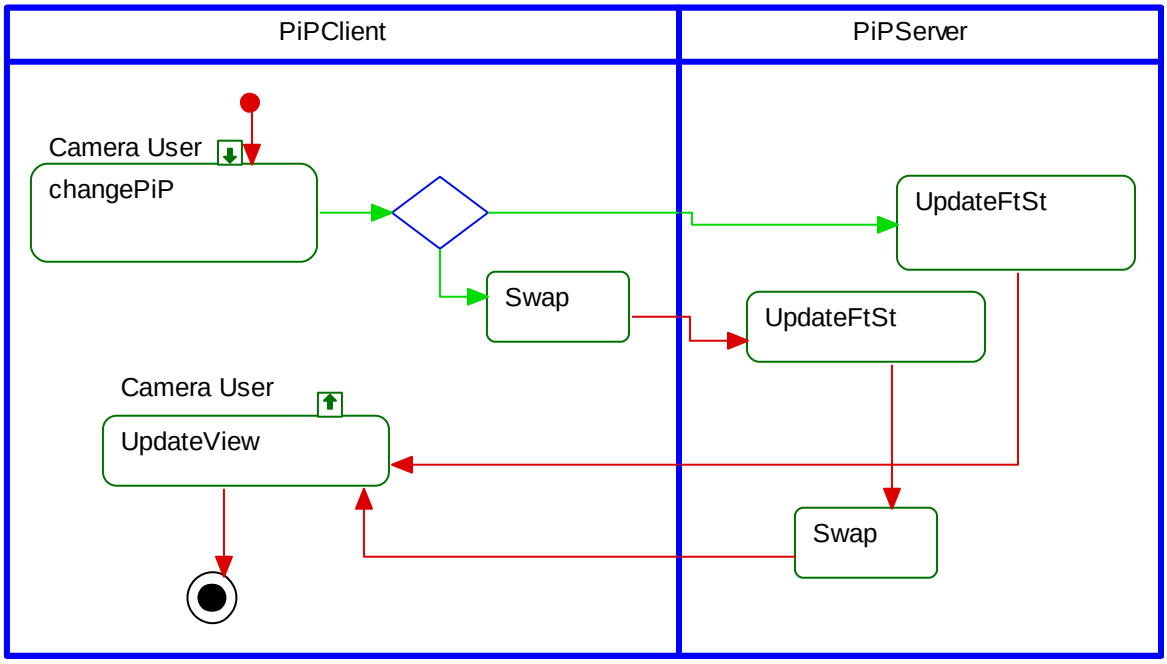
3.13.1.2.37 CAMERA-UC-REQ-422844/A-Requesting 50/50 at speed from PiP Trailer Rear Normal at speed view above 10kph

Actors	Vehicle Occupant
Pre-conditions	Client is configured for Pip and PiP views at Speed Vehicle is in drive and above 10kph PiP Trailer Rear Normal view at Speed is active
Scenario Description	50/50 at speed view button is selected
Post-conditions	Client displays 50/50 at speed.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.13.1.3 White Box Views

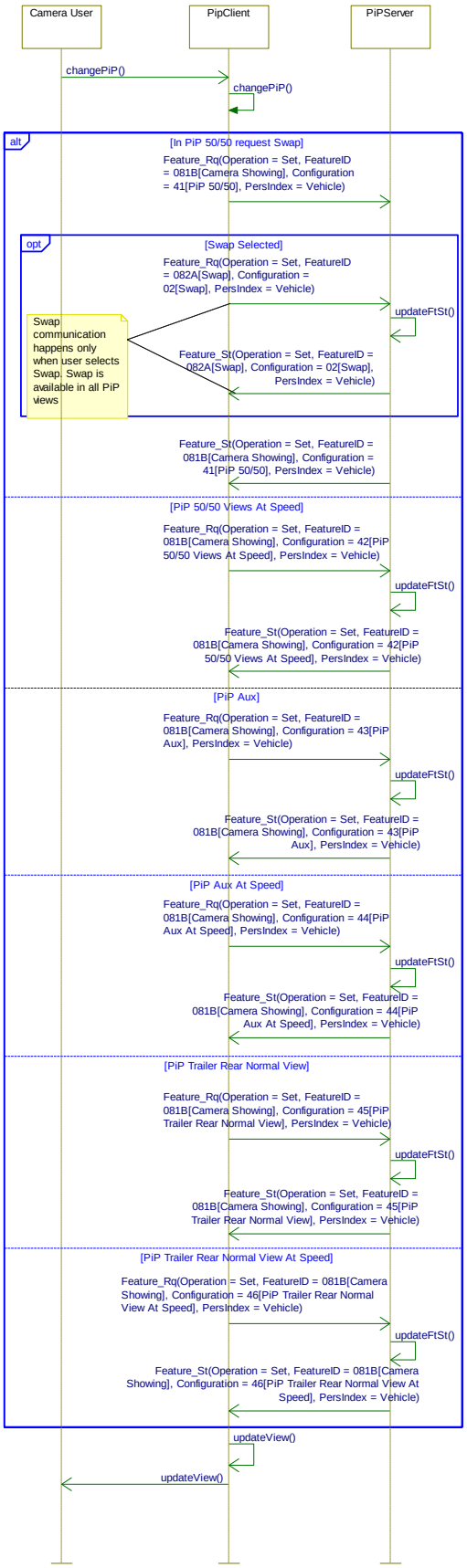
3.13.1.3.1 Activity Diagrams

3.13.1.3.1.1 CAMERA-ACT-REQ-422922/A-PiP Views



3.13.1.3.2 Sequence Diagrams

3.13.1.3.2.1 CAMERA-SD-REQ-422923/A-PiP Views


Camera User
PipClient
PiPServer
changePiP()
changePiP()
alt
[In PiP 50/50 request Swap]
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 41[PiP 50/50], PersIndex = Vehicle)
opt
[Swap Selected]
Feature_Rq(Operation = Set, FeatureID = 082A[Swap], Configuration = 02[Swap], PersIndex = Vehicle)
updateFtSt()
Swap communication happens only when user selects Swap. Swap is available in all PiP views
Feature_St(Operation = Set, FeatureID = 082A[Swap], Configuration = 02[Swap], PersIndex = Vehicle)
Feature_St(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 41[PiP 50/50], PersIndex = Vehicle)
[PiP 50/50 Views At Speed]
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 42[PiP 50/50 Views At Speed], PersIndex = Vehicle)
updateFtSt()
Feature_St(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 42[PiP 50/50 Views At Speed], PersIndex = Vehicle)
[PiP Aux]
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 43[PiP Aux], PersIndex = Vehicle)
updateFtSt()
Feature_St(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 43[PiP Aux], PersIndex = Vehicle)
[PiP Aux At Speed]
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 44[PiP Aux At Speed], PersIndex = Vehicle)
updateFtSt()
Feature_St(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 44[PiP Aux At Speed], PersIndex = Vehicle)
[PiP Trailer Rear Normal View]
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 45[PiP Trailer Rear Normal View], PersIndex = Vehicle)
updateFtSt()
Feature_St(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 45[PiP Trailer Rear Normal View], PersIndex = Vehicle)
[PiP Trailer Rear Normal View At Speed]
Feature_Rq(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 46[PiP Trailer Rear Normal View At Speed], PersIndex = Vehicle)
updateFtSt()
Feature_St(Operation = Set, FeatureID = 081B[Camera Showing], Configuration = 46[PiP Trailer Rear Normal View At Speed], PersIndex = Vehicle)
updateView()
updateView()

3.14 Tailgate RVC

3.14.1 CAMERA-FUN-REQ-421101/A-Tailgate RVC

3.14.1.1 Overview

This section is about client behavior when vehicle tailgate is provided to the client. As described below, when tailgate is down, it affects the various views that are available by disabling them.

3.14.1.2 Requirements

3.14.1.2.1 CAMERA-REQ-421102/A-Tailgate Down In Reverse

If client receives, LTgateSt = 0x1 (Down) and vehicle is in Reverse Gear, client shall not display certain views. For complete list of disabled views please consult with HMI specification.

3.14.1.2.2 CAMERA-REQ-421103/A-Tailgate Down Not In Reverse

If client receives, LTgateSt = 0x1 (Down) and vehicle is running and not in Reverse Gear, client shall not display certain views. For complete list of disabled views please consult with HMI specification.

3.14.1.2.3 CAMERA-REQ-421104/A-Tailgate Down And Vehicle Speed Above 10kph

If client receives, LTgateSt = 0x1 (Down) and vehicle is driving at speed above 10 kph, client shall not display certain views. For complete list of disabled views please consult with HMI specification.

3.14.1.2.4 CAMERA-REQ-421105/A-Tailgate States

If client receives, LTgateSt =0x0 (NotAvailable) OR LTgateSt = 0x3 (NotUsed_1), then client shall use default Tailgate position as Closed (LTgateSt =0x2).

3.14.1.3 Use Cases

3.14.1.3.1 UC-REQ-421106/A-Suppressed Views with Tailgate Down RVC in Reverse

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for Tailgate down RPA/RVC • Vehicle is in Run/Start
Scenario Description	• Vehicle is in Reverse Gear • Tailgate is Down
Post-conditions	Some camera views shall not be available on the Camera Menu. For a complete list of the views refer to HMI specification.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.14.1.3.2 UC-REQ-421107/A-Suppressed Views with Tailgate Down RVC not in Reverse

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for Tailgate Down RVC/RPA and it is Present. • Vehicle is in Run/Start
Scenario Description	• Vehicle is not in Reverse • Tailgate is down

Post-conditions	Some camera views shall not be available on the Camera Menu. Refer to HMI spec for complete list of these views.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

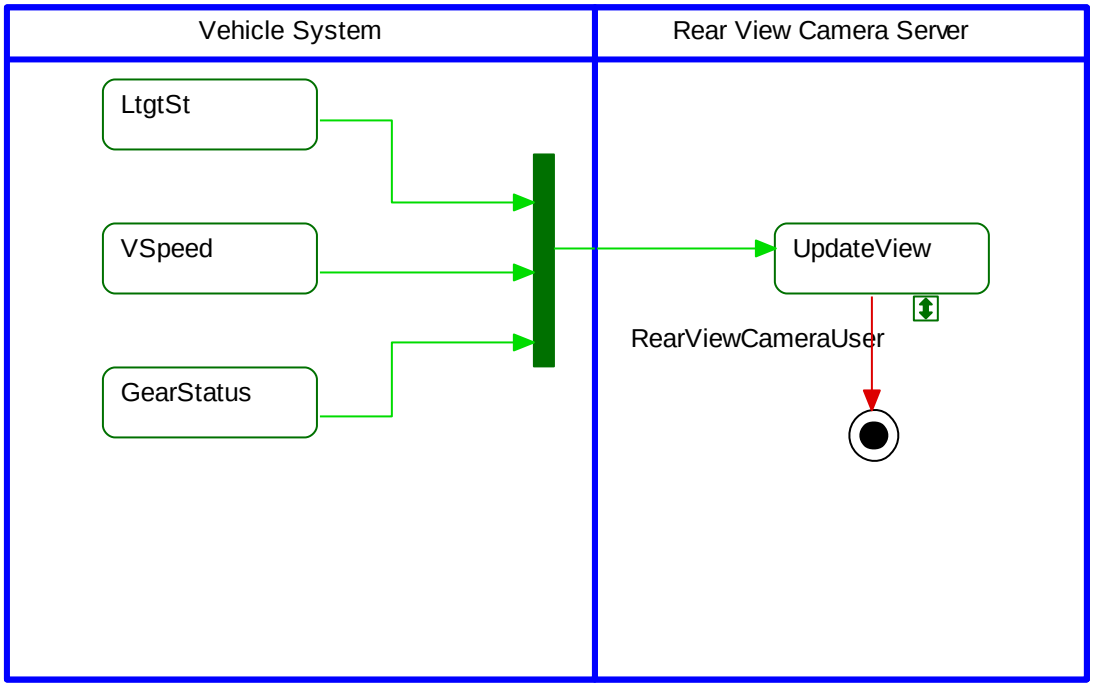
3.14.1.3.3 UC-REQ-421108/A-Suppressed Views-at-speed with Tailgate Down RVC

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for Tailgate Down RVC and it is enabled. • Vehicle is in Run/Start • Vehicle is in Reverse Gear
Scenario Description	• Tailgate is down. • Vehicle is driving above 10 kph
Post-conditions	Some camera views-at-speed shall not be available on the Camera Menu. For complete list of not available views refer to HMI specification.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with ADAS module E3 – Valid camera video signal not present
Interfaces	

3.14.1.4 White Box Views

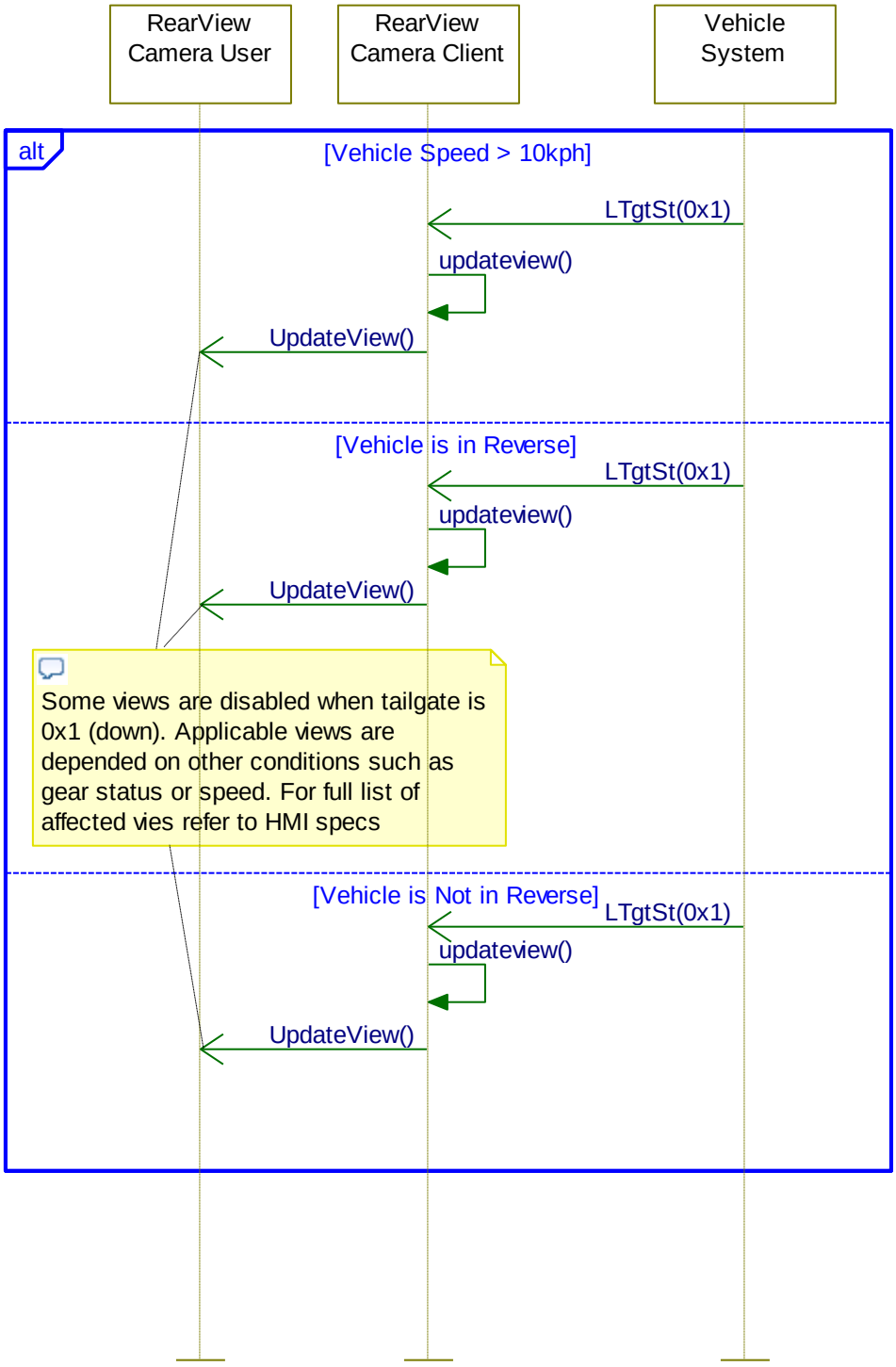
3.14.1.4.1 Activity Diagrams

3.14.1.4.1.1 ACT-REQ-422407/A-Tailgate Camera Limiting



3.14.1.4.2 Sequence Diagrams

3.14.1.4.2.1 SD-REQ-422408/A-Tailgate Camera Limiting



3.15 AUX IOD

3.15.1 FUN-REQ-483789/A-AUX IOD

3.15.1.1 Use Cases

3.15.1.1.1 UC-REQ-483740/A-AUX IOD Activation

Actors	Vehicle Occupant
Pre-conditions	• Client is configured for AUX IOD • Vehicle in Run/Start • Vehicle is not in reverse • Camera HMI is not active (Front Views, Front Views at Speed, Rear Views, APA, TBA/TRG)
Scenario Description	User Selects AUX IOD
Post-conditions	Client request AUX IOD via FBMP: CtrStkDsplyOpRq == 0x2 (Set) CtrStkFeatNo == 0x081B CtrStkFeatConfig == 0x4C (AUXIOD) CtrStkPersIndex == 0x4 (Vehicle) Client displays AUX IOD once AUX IOD active response is received from camera module
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.15.1.1.2 UC-REQ-483741/A-AUX IOD Deactivation via Camera Button

Actors	Vehicle Occupant
Pre-conditions	• CLIENT is configured for AUX IOD • Vehicle in Run/Start • Vehicle is below 10 KPH • Vehicle is not in reverse • AUX IOD is active
Scenario Description	Front camera button is pressed
Post-conditions	CLIENT will receive (CamraFrntStat_D_Stat = 1) along with FBMP signals for front camera view to show from camera module. Client displays the Front Camera View per FBMP signaling from camera module.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.15.1.1.3 UC-REQ-483743/A-AUX IOD Deactivation via Shift to Reverse

Actors	Vehicle Occupant
Pre-conditions	• CLIENT is configured for AUX IOD • Vehicle in Run/Start • Vehicle is below 10 KPH • Vehicle is not in reverse • AUX IOD is active

Scenario Description	Vehicle shifts to reverse
Post-conditions	Client displays the Rear Camera Menu
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.15.1.1.4 UC-REQ-483744/A-AUX IOD Deactivation via Pro Trailer Assist Activation

Actors	Vehicle Occupant
Pre-conditions	• CLIENT is configured for AUX IOD • Vehicle in Run/Start • Vehicle is not in reverse • AUX IOD is active
Scenario Description	Pro Trailer Assist (TBA, Auto Hitch) becomes active.
Post-conditions	Client displays the Pro Trailer Assist HMI
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.15.1.1.5 UC-REQ-483745/A-AUX IOD Deactivation via APA Activation

Actors	
Pre-conditions	• CLIENT is configured for AUX IOD • Vehicle in Run/Start • Vehicle is not in reverse • AUX IOD is active
Scenario Description	APA becomes active
Post-conditions	Client displays the APA HMI
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.15.1.1.6 UC-REQ-483747/A-AUX IOD Deactivation via Ignition

Actors	Vehicle Occupant
Pre-conditions	• CLIENT is configured for AUX IOD • Vehicle in Run/Start • Vehicle is not in reverse • AUX IOD is active
Scenario Description	Ignition != Run or Start

Post-conditions	Aux IOD becomes unavailable.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.15.1.1.7 UC-REQ-483748/A-AUX IOD while Shifting to Park

Actors	Vehicle Occupant
Pre-conditions	• CLIENT is configured for AUX IOD • Vehicle in Run/Start • Vehicle is not in reverse • AUX IOD is active
Scenario Description	Vehicle shifts to Park
Post-conditions	AUX IOD remains active
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.15.1.1.8 UC-REQ-483749/A-AUX IOD Deactivation via Sync

Actors	Vehicle Occupant
Pre-conditions	• CLIENT is configured for AUX IOD • Vehicle in Run/Start • Vehicle is not in reverse • AUX IOD is active
Scenario Description	IOD changes away from Aux IOD to a non-camera state (i.e. navigation, IOD changes)
Post-conditions	Client requests OFF through FBMP: CtrStkDsplyOpRq == 0x2 (Set) CtrStkFeatNo == 0x081B CtrStkFeatConfig == 0x00 (Off) CtrStkPersIndex == 0x4 (Vehicle)
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.15.1.1.9 UC-REQ-483750/A-AUX IOD Deactivation via Boundary Alert

Actors	Vehicle Occupant
Pre-conditions	• CLIENT is configured for AUX IOD • Vehicle in Run/Start • Vehicle is not in reverse • AUX IOD is active

Scenario Description	Boundary alert become active
Post-conditions	Boundary alert HMI becomes active
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.15.1.1.10UC-REQ-483781/A-AUX IOD Deactivation via Off-road Mode

Actors	Vehicle Occupant
Pre-conditions	• CLIENT is configured for AUX IOD • Vehicle in Run/Start • Vehicle is not in reverse • AUX IOD is active
Scenario Description	Off-road mode becomes active.
Post-conditions	Off-road Front Camera menu HMI becomes active
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.15.1.1.11UC-REQ-483751/A-Returning to AUX IOD from Parking Feature

Actors	Vehicle Occupant
Pre-conditions	• CLIENT is configured for AUX IOD • Vehicle in Run/Start • Vehicle is in a Camera Feature (Front Camera, Rear Camera, TBA, Autohitch, APA, Boundary Alert) • Previous Client display state is AUX IOD
Scenario Description	Camera feature becomes inactive
Post-conditions	Client request AUX IOD via FBMP: CtrStkDsplyOpRq == 0x2 (Set) CtrStkFeatNo == 0x081B CtrStkFeatConfig == 0x4C (AUXIOD) CtrStkPersIndex == 0x4 (Vehicle) Client displays AUX IOD Per X36A HMI spec once AUX IOD active response is received from camera module
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.15.1.1.12UC-REQ-483752/A-No Response from ADAS/IPMB Handling

Actors	Vehicle Occupant

Pre-conditions	• CLIENT is configured for AUX IOD • Vehicle in Run/Start • Vehicle is in a Camera Feature (Front Camera, Rear Camera, TBA, Autohitch, APA, Boundary Alert) • Previous Client display state is AUX IOD
Scenario Description	Camera feature becomes inactive
Post-conditions	Client request AUX IOD via FBMP: CtrStkDsplyOpRq == 0x2 (Set) CtrStkFeatNo == 0x081B CtrStkFeatConfig == 0x4C (AUXIOD) CtrStkPersIndex == 0x4 (Vehicle) Client displays AUX IOD Per X36A HMI spec once AUX IOD active response is received from camera module
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.15.1.1.13UC-REQ-483753/A-No Video from ADAS/IPMB Handling

Actors	Vehicle Occupant
Pre-conditions	• CLIENT is configured for AUX IOD • Vehicle in Run/Start • Vehicle is not in reverse • Camera HMI is not active (Front Views, Front Views at Speed, Rear Views, APA, TBA/TRG)
Scenario Description	User Selects AUX IOD and Client does not detect video output
Post-conditions	Client shall display Camera Malfunction warning.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.16 RCOD

3.16.1 FUN-REQ-483788/A-RCOD

3.16.1.1 Use Cases

3.16.1.1.1 UC-REQ-483754/A-RCOD Black Box Not Configured ADAS

Actors	Vehicle Occupant
Pre-conditions	• RCOD HMI w/o Black Box is Enabled • Vehicle in Run/Start • Vehicle is not in reverse • RCOD or RCOD at Speed is Configured in CLIENT • Vehicle has RVC connected to ADAS

Scenario Description	User Selects RCOD View or RCOD View at Speed
Post-conditions	Server sends: FeatConfigIPMB = 0x27 or 0x29 (RCOD or RCOD at Speed) FeatNoIPMBActl = 0x81B CLIENT shall show the RCOD HMI without the RCOD black box.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.16.1.1.2 UC-REQ-483755/A-RCOD Black Box Is Configured ADAS Variant

Actors	Vehicle Occupant
Pre-conditions	• RCOD HMI w/o Black Box is Disabled • Vehicle in Run/Start • Vehicle is not in reverse • RCOD or RCOD at Speed is Configured in CLIENT • Vehicle has RVC connected to ADAS
Scenario Description	User Selects RCOD View or RCOD View at Speed
Post-conditions	Server sends: FeatConfigIPMB = 0x27 or 0x29 (RCOD or RCOD at Speed) FeatNoIPMBActl = 0x81B CLIENT shall show the RCOD HMI with the RCOD black box.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.16.1.1.3 UC-REQ-483757/A-RCOD Black Box Is Configured Non-ADAS Variant

Actors	Vehicle Occupant
Pre-conditions	• RCOD HMI w/o Black Box is Disabled • Vehicle in Run/Start • Vehicle is not in reverse • RCOD or RCOD at Speed is Configured in CLIENT • Vehicle has Standalone Digital or Standalone Analog RVC system (camera video feed is connected directly to CLIENT)
Scenario Description	User presses the Camera button to activate RCOD.
Post-conditions	CLIENT Displays RCOD view. CLIENT shall show the RCOD HMI with the RCOD black box.

List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.16.1.1.4 UC-REQ-483756/A-RCOD Black Box Not Configured Non-ADAS variant

Actors	Vehicle Occupant
Pre-conditions	• RCOD HMI w/o Black Box is Enabled • Vehicle in Run/Start • Vehicle is not in reverse • RCOD or RCOD at Speed is Configured in CLIENT • Vehicle has Standalone Digital or Standalone Analog RVC system (camera video feed is connected directly to CLIENT)
Scenario Description	User presses the Camera button to activate RCOD.
Post-conditions	CLIENT Displays RCOD view. CLIENT shall show the RCOD HMI without the RCOD black box.
List of Exception Use Cases	E1 – Vehicle is not RUN/START E2 – Loss of communication with IPMB module E3 – Valid camera video signal not present
Interfaces	

3.17 Offset Views

3.17.1 CAMERA-FUN-REQ-470961/A-Requesting Offset View

Offset views make use of FBMP for communication. Below are the values that client needs to transmit for this communication to happen:

FrontLeftOffset
CtrStkFeatNoActl = 0x081B
CtrStkFeatConfigActl = FrontLeftOffset (0x48)

FrontRightOffset
CtrStkFeatNoActl = 0x081B
CtrStkFeatConfigActl = FrontRightOffset (0x49)

RearLeftOffset
CtrStkFeatNoActl = 0x081B
CtrStkFeatConfigActl = RearLeftOffset (0x4A)

RearRightOffset
CtrStkFeatNoActl = 0x081B
CtrStkFeatConfigActl = RearLeftOffset (0x4B)

3.17.1.1 CAMERA-UC-REQ-470941/A-Side Offset View menu display enabled

Actors	Vehicle Occupant

Pre-conditions	360 Offset Menu configuration = enabled in client Side Offset Views configuration = enabled in client Vehicle ignition status = RUN or START Currently active view = Front360 or Rear360 Enhanced 360 views menu is not displayed
Scenario Description	Vehicle Occupant touches the appropriate icon on top of the 360 vehicle bitmap.
Post-conditions	Client displays the Enhanced 360 views menu with the associated indicators.
List of Exception Use Cases	E1 – Vehicle ignition status != RUN or START E2 – Currently active view != Front360 or Rear360 E3 – Side Offset Views configuration = disabled (in client) E4 – 360 Offset Menu configuration = disabled (in client) E5 – Loss of communication with Server module
Interfaces	Client HMI

3.17.1.2 CAMERA-UC-REQ-470942/A-Side Offset View menu display disabled

Actors	Vehicle User
Pre-conditions	360 Offset Menu configuration = enabled (in client) Side Offset Views configuration = disabled (in client) Vehicle ignition status = RUN or START Currently active view = Front360 or Rear360 Enhanced 360 views menu is not displayed
Scenario Description	User touches the appropriate icon on top of the 360 vehicle bitmap.
Post-conditions	Client displays the Enhanced 360 views menu with the appropriate icons (side offset arrow buttons)
List of Exception Use Cases	E1 – Vehicle ignition status != RUN or START E2 – Currently active view != Front360 or Rear360 E3 – Side Offset Views configuration = disabled E4 – 360 Offset Menu configuration = enabled E5 – Loss of communication with server module
Interfaces	Client HMI

3.17.1.3 CAMERA-UC-REQ-470952/A-Side Offset View menu removal

Actors	Vehicle Occupant
Pre-conditions	360 Offset Menu configuration = enabled Side Offset Views configuration = enabled Vehicle ignition status = RUN or START Currently active view = Front360 or Rear360 Enhanced 360 views menu is displayed
Scenario Description	User touches the appropriate icon to remove side offset view.
Post-conditions	Client removes Enhanced 360 views together with the side offset buttons.
List of Exception Use Cases	E1 – Vehicle ignition status != RUN or START E2 – Currently active view != Front360 (0x7) or Rear360 (0x4) E3 – Side Offset Views configuration = disabled E4 – 360 Offset Menu configuration = disabled E5 – Loss of communication with Server module

Interfaces	Client HMI

3.17.1.4 CAMERA-UC-REQ-470953/A-Side Offset Right View activation - Non-Reverse

Actors	Vehicle Occupant
Pre-conditions	360 Offset Menu configuration = enabled Side Offset Views configuration = enabled Vehicle ignition status = RUN or START Currently active view = Front360 Gear = non-reverse Enhanced 360 views menu is displayed
Scenario Description	Vehicle occupant touches the right Side Offset Views button from the Enhanced 360 menu views.
Post-conditions	Client transmits the FrontOffsetView request. Upon getting confirmation from the server, the client displays the necessary soft buttons in the screen.
List of Exception Use Cases	E1 – Vehicle ignition status != RUN or START E2 – Currently active view != Front360 E3 – Side Offset Views configuration = disabled E4 – 360 Offset Menu configuration = disabled E5 – Loss of communication with Server module E6 – Gear is reverse
Interfaces	Client HMI screen

3.17.1.5 CAMERA-UC-REQ-470954/A-Side Offset Right View deactivation - Non-Reverse

Actors	Vehicle Occupant
Pre-conditions	360 Offset Menu configuration = enabled Side Offset Views configuration = enabled Vehicle ignition status = RUN or START Currently active view = FrontRightOffset Gear = non-reverse
Scenario Description	Vehicle occupant touches the appropriate icon to request deactivation of the view.
Post-conditions	Client transmits the Front360 view request Once Server confirm the view, the client displays the Enhanced 360 views menu with the side offset soft buttons.
List of Exception Use Cases	E1 – Vehicle ignition status != RUN or START E2 – Currently active view != FrontRightOffset E3 – Side Offset Views configuration = disabled E4 – 360 Offset Menu configuration = disabled E5 – Loss of communication with server module E6 – Gear is reverse
Interfaces	Client HMI screen

3.17.1.6 CAMERA-UC-REQ-470955/A-Side Offset Left View activation - Non-Reverse

Actors	Vehicle Occupant
Pre-conditions	360 Offset Menu configuration = enabled Side Offset Views configuration = enabled Vehicle ignition status = RUN or START Currently active view = Front360 Gear = non-reverse
Scenario Description	Vehicle Occupant touches the left Side Offset Views button from the Enhanced 360 views menu.
Post-conditions	Client transmits the FrontLeftOffset view request Upon view confirmation from the server, the client adds the soft buttons on the screen.
List of Exception Use Cases	E1 – Vehicle ignition status != RUN or START E2 – Currently active view != Front360 E3 – Side Offset Views configuration = disabled E4 – 360 Offset Menu configuration = disabled E5 – Loss of communication with server module E6 – Gear is reverse
Interfaces	Client HMI screen.

3.17.1.7 CAMERA-UC-REQ-470956/A-Side Offset Left View deactivation - Non-Reverse

Actors	Vehicle Occupant
Pre-conditions	360 Offset Menu configuration = enabled Side Offset Views configuration = enabled Vehicle ignition status = RUN or START Currently active view = FrontLeftOffset Gear = non-reverse
Scenario Description	Vehicle occupant touches the soft button to get out of the view.
Post-conditions	Client transmits the Front360 view request Upon getting confirmation from the serverSYNC displays the Enhanced 360 views menu with the side offset arrow buttons.
List of Exception Use Cases	E1 – Vehicle ignition status != RUN or START E2 – Currently active view != FrontLeftOffset E3 – Side Offset Views configuration = disabled E4 – 360 Offset Menu configuration = disabled E5 – Loss of communication with ADAS module E6 – Gear is reverse
Interfaces	Client HMI screen

3.17.1.8 CAMERA-UC-REQ-470957/A-Side Offset Right View activation - Reverse

Actors	Vehicle Occupant
Pre-conditions	360 Offset Menu configuration = enabled Side Offset Views configuration = enabled Vehicle ignition status = RUN or START Currently active view = Rear360 Gear = non-reverse

Scenario Description	Vehicle Occupant touches the right Side Offset Views button from the Enhanced 360 views menu.
Post-conditions	Client transmits the RearRightOffset view request Once Server confirm the view, the client displays the RearRightOffset view with the soft buttons.
List of Exception Use Cases	E1 – Vehicle ignition status != RUN or START E2 – Currently active view != Rear360 E3 – Side Offset Views configuration = disabled E4 – 360 Offset Menu configuration = disabled E5 – Loss of communication with Server module E6 – Gear is reverse
Interfaces	Client HMI screen.

3.17.1.9 CAMERA-UC-REQ-470958/A-Side Offset Right View deactivation - Reverse

Actors	Vehicle Occupant
Pre-conditions	360 Offset Menu configuration = enabled Side Offset Views configuration = enabled Vehicle ignition status = RUN or START Currently active view = RearRightOffset Gear = non-reverse
Scenario Description	Vehicle occupant touches the soft button to exit the view.
Post-conditions	Client transmits the Rear360 view request Upon view confirmation from the server, the client adds the soft buttons on the 360 view screen.
List of Exception Use Cases	E1 – Vehicle ignition status != RUN or START E2 – Currently active view != RearRightOffset E3 – Side Offset Views configuration = disabled E4 – 360 Offset Menu configuration = disabled E5 – Loss of communication with Server module E6 – Gear is reverse
Interfaces	Client HMI screen.

3.17.1.10 CAMERA-UC-REQ-470959/A-Side Offset Left View activation - Reverse

Actors	Vehicle Occupant
Pre-conditions	360 Offset Menu configuration = enabled Side Offset Views configuration = enabled Vehicle ignition status = RUN or START Currently active view = Rear360 Gear = non-reverse Enhanced 360 views menu is displayed
Scenario Description	Vehicle Occupant touches the left Side Offset Views button from the Enhanced 360 views menu
Post-conditions	Client transmits the RearLeftOffset view request Upon view confirmation from the server, the client adds the soft buttons on the screen.

List of Exception Use Cases	E1 – Vehicle ignition status != RUN or START E2 – Currently active view != Rear360 E3 – Side Offset Views configuration = disabled E4 – 360 Offset Menu configuration = disabled E5 – Loss of communication with Server module E6 – Gear is reverse
Interfaces	Client HMI screen.

3.17.1.11 CAMERA-UC-REQ-470960/A-Side Offset Left View deactivation -Reverse

Actors	Vehicle Occupant
Pre-conditions	360 Offset Menu configuration = enabled Side Offset Views configuration = enabled Vehicle ignition status = RUN or START Currently active view = RearLeftOffset Gear = reverse
Scenario Description	Vehicle Occupant touches soft button to deactivate the view.
Post-conditions	Client transmits Rear360 view request. Upon server confirming the view, the client will show appropriate soft buttons.
List of Exception Use Cases	E1 – Vehicle ignition status != RUN or START E2 – Currently active view != RearLeftOffset E3 – Side Offset Views configuration = disabled E4 – 360 Offset Menu configuration = disabled E5 – Loss of communication with Server module E6 – Gear is not reverse
Interfaces	Client HMI screen.

4 Appendix: Reference Documents

Reference #	Document Title
1	
2	
3	
4	
5	