Research & Vehicle Technology
"Infotainment Systems Product Development"

Feature – Vehicle Settings for Rear Lighting

APIM Infotainment Subsystem Part Specific Specification (SPSS)

Version 2.0

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Version Date: July 30, 2020

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1 Functional Definition

1.1 VS-FUN-REQ-339729/A-Rear Lighting Animation Setting

1.1.1 VS-CLD-REQ-340540/A- Rear Lighting Animation Client

The rear lighting animation client interfaces with the user via HMI and is responsible for sending the rear lighting animation setting request to the rear lighting animation server.

1.1.2 VS-CLD-REQ-340542/A- Rear Lighting Animation Server

The rear lighting animation server is responsible for the rear lighting animation function and interfaces with the rear lighting animation client.

1.1.3 Use Cases

1.1.3.1 VS-UC-REQ-340548/A-User changes animation of rear lighting

Actors	Vehicle front seat occupant(s)
Pre-conditions	Ignition is ON Center stack display is ON and stay at “Rear Lighting Animation” menu
Scenario Description	User selects an animation among three selections via rear lighting animation HMI
Post-conditions	The selected rear lighting animation is the new one and is saved in APIM The selected animation signal transfers from APIM to AUX module via private CAN, then transfers via LIN to rear lighting modules Rear lighting animation settings in HMI shows the animation is selected
Notes	The corresponding animation effect could be showed in HMI when user select it. The specific HMI design is owned by studio or HMI team.

1.1.4 Interface Requirements

1.1.4.1 MD-REQ-339730/A- RearLight_Animation_Rq

Message Type: Request

Note: Request signal from rear lighting animation client to rear lighting animation server to select which animation should be selected and showed for rear lighting.

Logical Signal Name	Literals	Value	Description
RearLight_Animation_Rq	Null	0x0	Default value.
	Mid_ 1	0x1	The first animation of mid variant.
	Mid _2	0x2	The second animation of mid variant.
	Mid _3	0x3	The third animation of mid variant.
	High_ 1	0x4	The first animation of high variant.
	High_2	0x5	The second animation of high variant.
	High_3	0x6	The third animation of high variant.

APIM would send “RearLight_Animation_Rq” for synchronization with taillamp when ignition is on every time. Apart from that, when customer click center screen for choosing a type of rear lighting animation, “RearLight_Animation_Rq” will be sent also.

1.1.5 Requirements

1.1.5.1 Rear lighting animation functional requirement

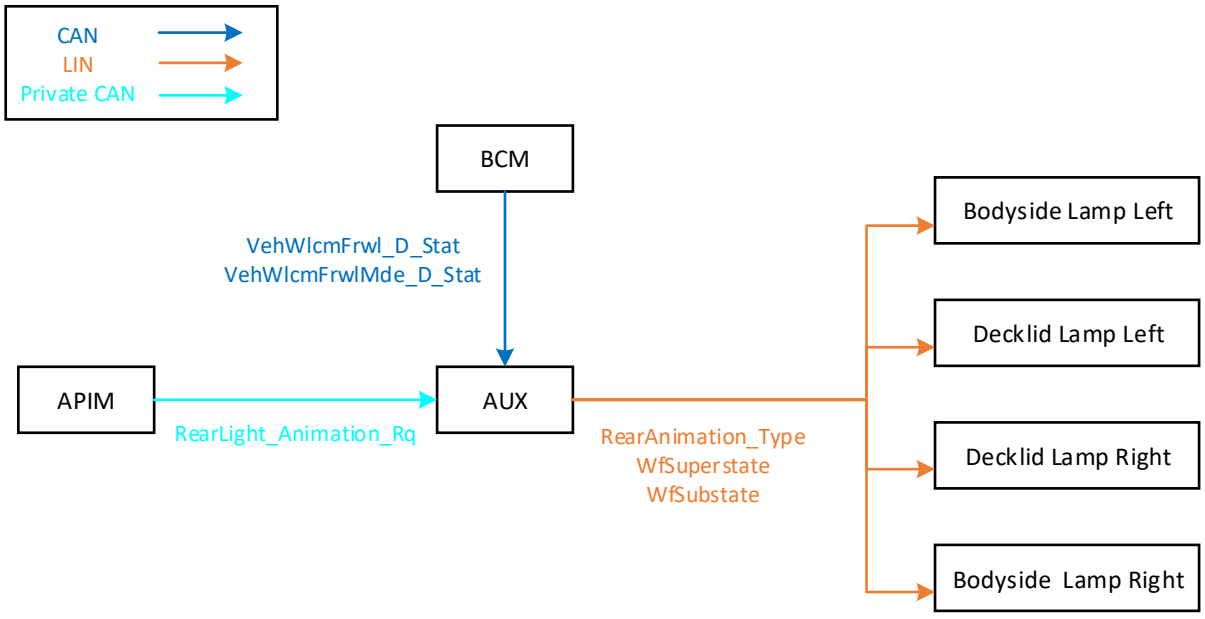
The rear lighting animation server shall transfer the animation signal via private CAN from APIM to AUX, then the animation signal would transfer as a LIN signal from AUX to tail lamp modules. Tail lamp modules include left and right bodyside lamps plus left and right decklid lamps.
Enhanced memory is not supported by the rear lighting animation server as user index signal would not change during approach detection stage.
If the user selects an animation, the APIM shall change to the selected one in HMI immediately.

1.1.5.2 APIM Configuration bit for rear lighting animation

In order to distinguish different variants of taillamps, APIM should define a configuration bit.
APIM could identify taillamp variant according to the configuration bit of rear lighting animation.
If taillamp is low variant, only one animation is available, so APIM would not show the selection interface in center screen. If taillamp is middle variant, APIM should only send "RearLight_Animation_Rq" with middle variant values, which are 0x1, ox2, 0x3. If it is high variant, APIM should only send "RearLight_Animation_Rq" with high variant values, which are 0x4, ox5, 0x6. The default value is 0x0 as initial value for both low and high variants.

1.1.6 Block Diagram

The LIN05 channel of BCM would not connect with rear lamp modules as welcome and farewell status signals are transferred through CAN. The status signals include "VehWlcmFrwl_D_Stat" and "VehWlcmFrwlMde_D_Stat". After AUX received these two CAN signals, they would convert to corresponding LIN signals and transfer to rear lamp modules through LIN channel connected with AUX.
User could make a selection of personal preferred rear light animation type. Then the private CAN signal "RearLight_Animation_Rq" will be transferred to AUX. AUX would also convert the signal to "RearAnimation_Type" as LIN signal and transfer to rear lamp modules.
The block diagram could be referred to as below.



1.1.7 Sequence Diagram

1.1.7.1 VS-SD-REQ-341028/A-Rear Lighting Animation Selection via HMI

Pre-Condition:
Ignition is on
Center stack display is ON and stay at “Rear Lighting Animation” menu