1 HUD_Display Language Selection – CGEA1.3+

1.1 Functional Description

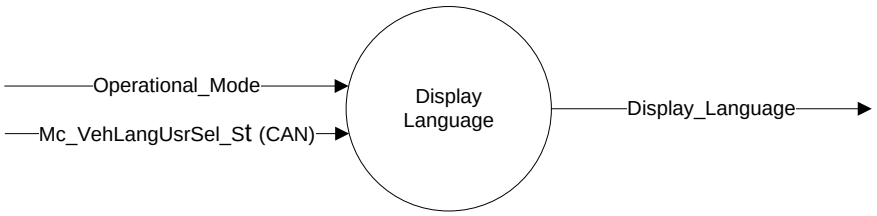
The purpose of the display language selection feature is to follow the language being used in the vehicle and to be used for the HUD display.

The display language selection in HUD is a client function of the cluster where the vehicle language being used is determined. Cluster as the server is responsible for the integrity, accuracy, selection of the vehicle display language while HUD as a client is responsible for HUD display only.

1.2 Interfaces

1.2.1 Interface Context Diagram (I/O Block Diagram)

Display Language Context Diagram



1.2.2 Inputs

1.2.2.1 IR-REQ-299857/A-Internal

- Operational_Mode

1.2.2.2 MUX Signals

1.2.2.2.1 SIG-REQ-299856/C- Mc_VehLangUsrSel_St Signal

Signal Name	Size (bits)	Detail	Units	Res.	Offset	State Encoded	Min	Max
Mc_VehLangUsrSel_St	6		SED	1	0		0 (0x0)	63 (0x3F)
		Invalid				0x0		
		Unknown				0x1		
		UK English				0x2		
		NA English				0x3		
		German				0x4		
		Italian				0x5		
		EU French				0x6		
		Cana French				0x7		
		EU Spanish				0x8		

		Mex Spanish				0x9		
		Turkish				0xA		
		Russian				0xB		
		Dutch				0xC		
		Flemish				0xD		
		Polish				0xE		
		Czech				0xF		
		Greek				0x10		
		Hungarian				0x11		
		Swedish				0x12		
		Danish				0x13		
		Norwegian				0x14		
		Finish				0x15		
		EU Portuguese				0x16		
		Braz Portuguese				0x17		
		Japanese				0x18		
		AU_English				0x19		
		Korean				0x1A		
		Mandarin Chinese				0x1B		
		Taiwanese				0x1C		
		Arabic				0x1D		
		Slovak				0x1E		
		Thai				0x1F		
		Indian English				0x20		
		Ukrainian				0x21		
		Undefined				0x22-0x3F		
*Note: Not all States may not be supported by cluster. Cluster NetCom Part II Spec will identify supported languages.								

1.2.3 Outputs

1.2.3.1 *IR-REQ-299865/A-Internal*

- Display_Language

1.3 Function/Performance

1.3.1 F-REQ-299858/A-Operational Modes

Mode	Differentiating Vehicle Conditions
Sleep Mode	Display Language Selection OFF
Limited Mode	Display Language Selection OFF
Normal Mode	Display Language Selection On
Crank Mode	Display Language Selection On

1.3.2 Voltage Levels

Refer to the HUD Features Table located in the Operational Modes and Voltage Range Strategies Section of this SPSS.

1.3.3 Human-Machine Interface

1.3.3.1 Visual

1.3.3.1.1 Indicator Graphics / Display Format

Refer to Graphics Section in the Master Document Section in this SPSS.

1.3.3.1.2 Indicator Color Coordinates

None

1.3.3.1.3 Indicator Characteristics

None

1.3.3.2 Audio

None.

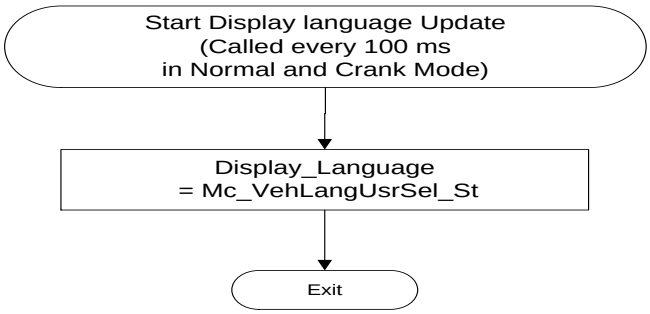
1.3.4 PFM-REQ-299859/A-System Accuracy

- Within a 100msec of receiving a message that results in a change of state the HUD will update the display to the proper status.

1.3.5 Operation: Performance and Functional

1.3.5.1 F-REQ-300003/A-Subsystem Algorithm Flowchart / State Diagram

Subsystem Flowchart



1.3.5.2 F-REQ-299860/A-Operation Description (supports algorithm flowchart /state diagram)

- This is a straight pass-through from CAN signal to HMI

1.3.5.3 FS-REQ-299862/A-Function Safety Classification (EMC)

B

1.3.5.4 NVM-REQ-299961/B-Memory Storage

Parameter Name	Description	Value at Battery Connect	Value at Module Wake-up
Operational_Mode	4 state indicator for cluster operational mode	Limited	Limited or Normal or Crank
Display_Language	Mirror the CAN signal from IPC, and used by HMI	Default (0x0)	Do Not Init
Mc_VehLangUsrSel_St	CAN signal from IPC, indicates the language selected	Default (0x0)	Do Not Init

1.3.5.5 Prove Out

No

1.3.5.6 Reconfigurable Telltale

No

1.3.5.7 Message Center Msg

No

1.4 Error Handling

None

1.4.1 Missing Message Strategy

The signals will be declared missing as per the Diagnostics section of this SPSS.

1.4.2 Invalid Message Strategy

None

1.5 Diagnostics

1.5.1 Self Test

None

1.5.2 Engineering Test Mode

None

1.5.3 Part II Performance

1.5.3.1 DTC-REQ-299864/A-Supported Diagnostic Trouble Codes (DTCs)

DTC	Description
C15500	Lost communication with IPC

1.6 Reference Specification

IPC - Display Language Selection Control Function - CGEA1.3_v5.1

1.7 Revision History

SPSS Module Revision History

Revision Level	Name	Change Description	Date
1.0	M. Ye	Initial release	4/24/2014
1.1	P.Dendukuri	Initial VSEM RM Release	03/05/2018
1.2	F.Sethi	Update SIG-REQ-299856/A- Mc_VehLangUsrSel_St Signal with following things: Modify Signal “Size(bits)” from 5 to 6 Modify Signal “Max” from 31 (0x1F) to 63 (0x3F) Modify Signal “Detail” and “State Encoded” while deleting “Undefined (0x1F)” and by adding “Thai (0x1F)” and “Indian English (0x20)” and “Undefined (0x21-0x3F)” with Green highlighted.	6/8/2020
1.3	F. Sethi	This STSS is applicable for CGEA1.3 and greater architectures.	7/23/2020
1.4	F. Sethi	As per release of new version A69 SHMI Languages and Markets Specification v9.3, the Ukrainian language has been added. This becomes state 0x21 in below language CAN signal: Mc_VehLangUsrSel_St The Ukraine Government demands all newly registered vehicles after July 2022 to support the local language. Based on this it is needed to implement the new Language to be allowed to sell vehicles after July 2022. So updated requirement “SIG-REQ-299856/C-Mc_VehLangUsrSel_St Signal” in blue font, while adding Ukrainian for state 0x21.	3/17/2022