Parking Aid System

<<Logical Function>>

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Important Note

You need to use the RE specification macros provided by the "RE_SpecificationMacroTemplate.dotm" (refer to "Utilities" on page "Specification Templates" in the RE Wiki) to allow seamless VSEM import of the specification content. ***Use only these RE specification macros to create requirements*** *in this specification. Refer to "How to use the Specification Templates" on how to enable and use the macros and the requirements templates in this specification.*

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1 FUNCTION SPECIFICATION

1.1 Function Overview

1.1.1 Function Description

Parking Aid System

The Park Aid System (PAS) function of Enhancement DAT has made some upgrades compare with Base Park Assist (BPA).

· It only supports ON/OFF the park assist sound, not support ON/OFF the whole park assist function itself.
· It supports to use the radar wall instead of now turtle illustration to show the obstacle approach indication. Only the lvds communication failed, it'll C/O the BPA solution.
· It supports show the front&rear obstacle distance.

1.2 Function Scope

The **– "Parking Aid System"** function is called by the following functions:

- – "I/O Block"

1.2.1 I/O Block

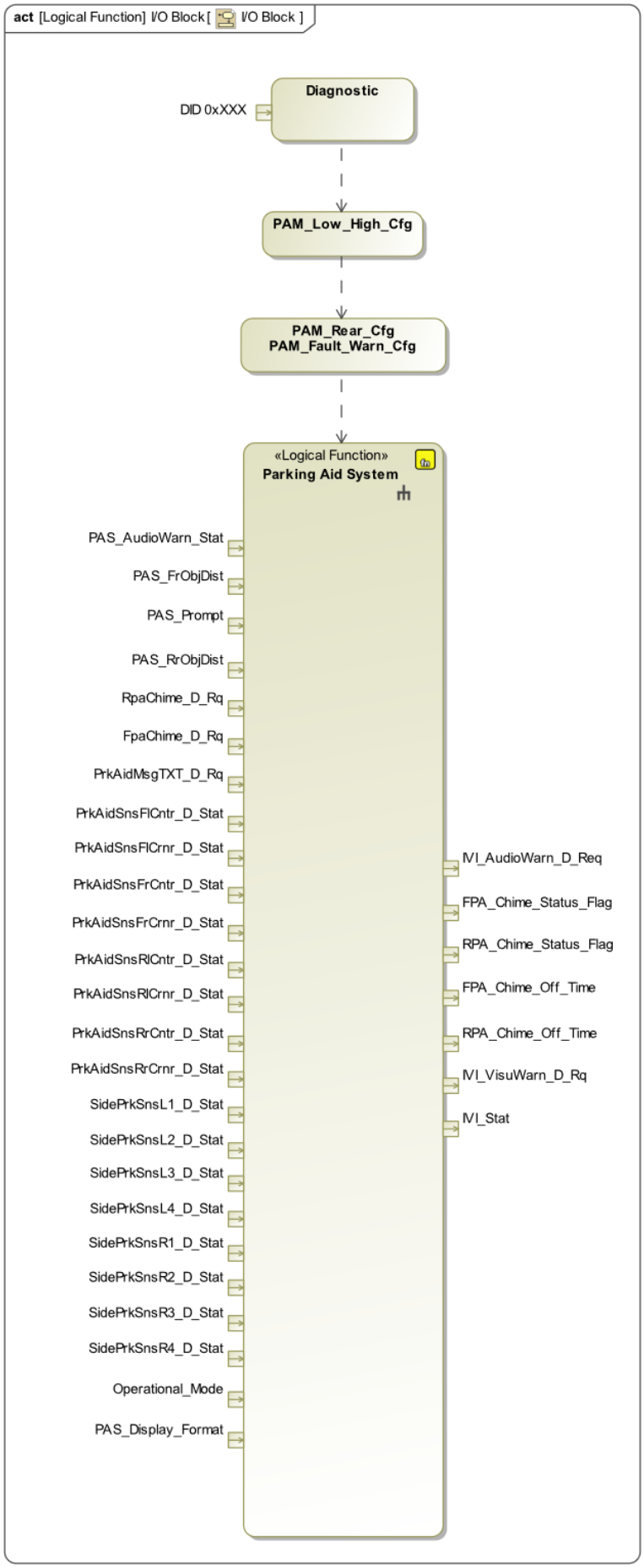

Figure 1: Activity Diagram of "I/O Block" calling "Parking Aid System"

1.3 Function Modeling

1.3.1 State Charts

No state chart associated to specified function.

1.3.2 Activity Diagrams

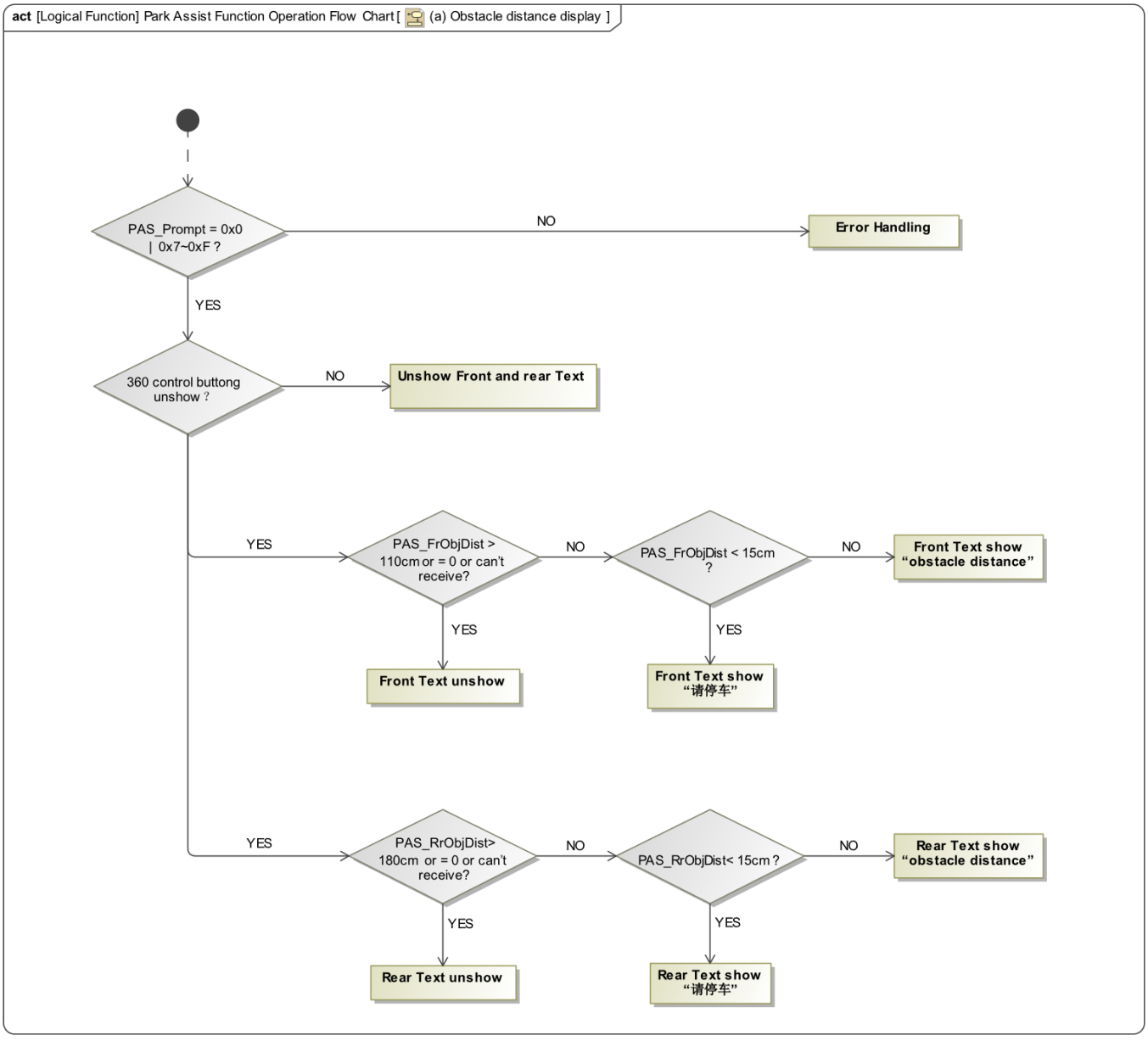

Figure 2: Activity Diagram of (a) Obstacle distance display

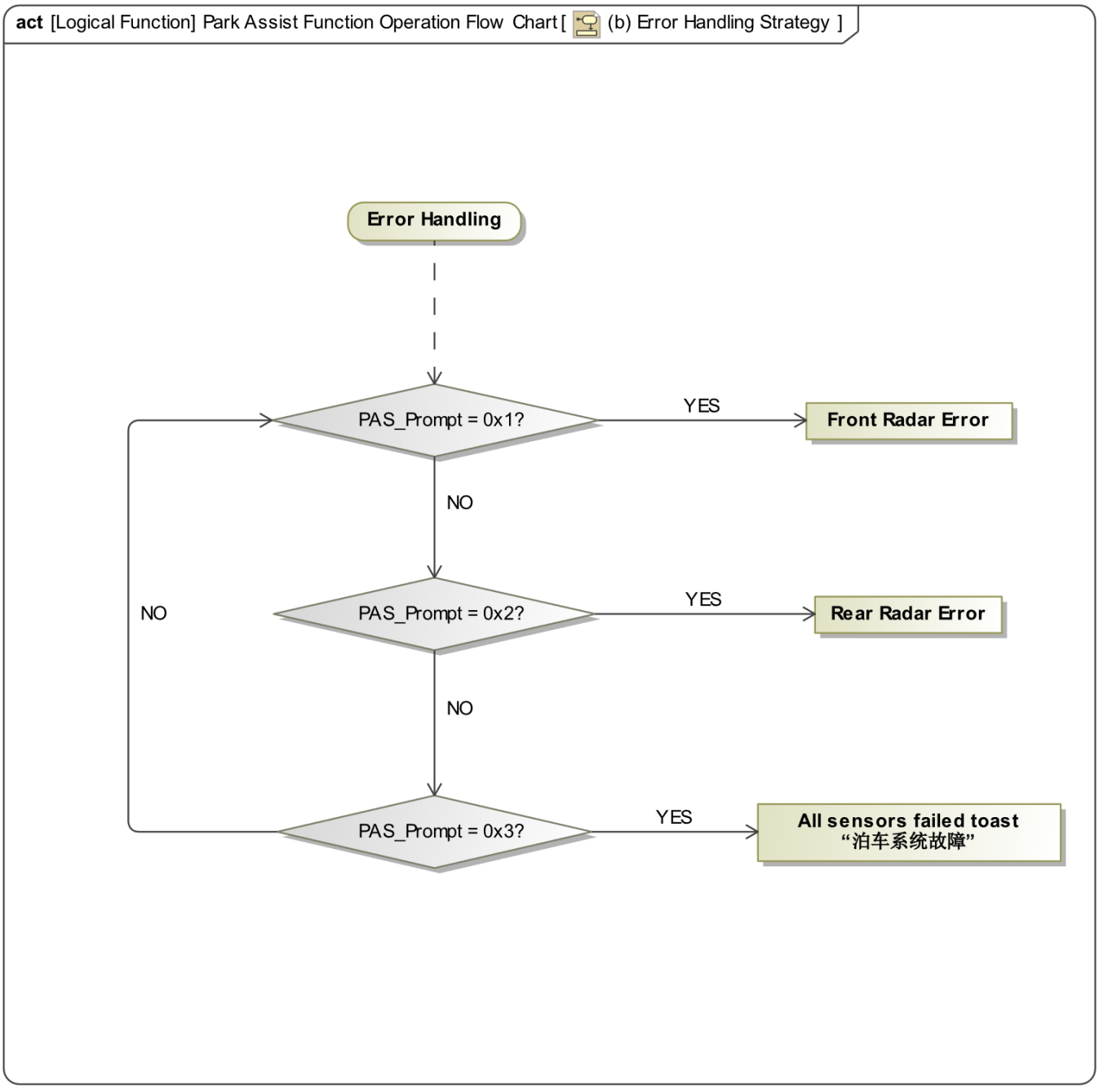

Figure 3: Activity Diagram of (b) Error Handling Strategy

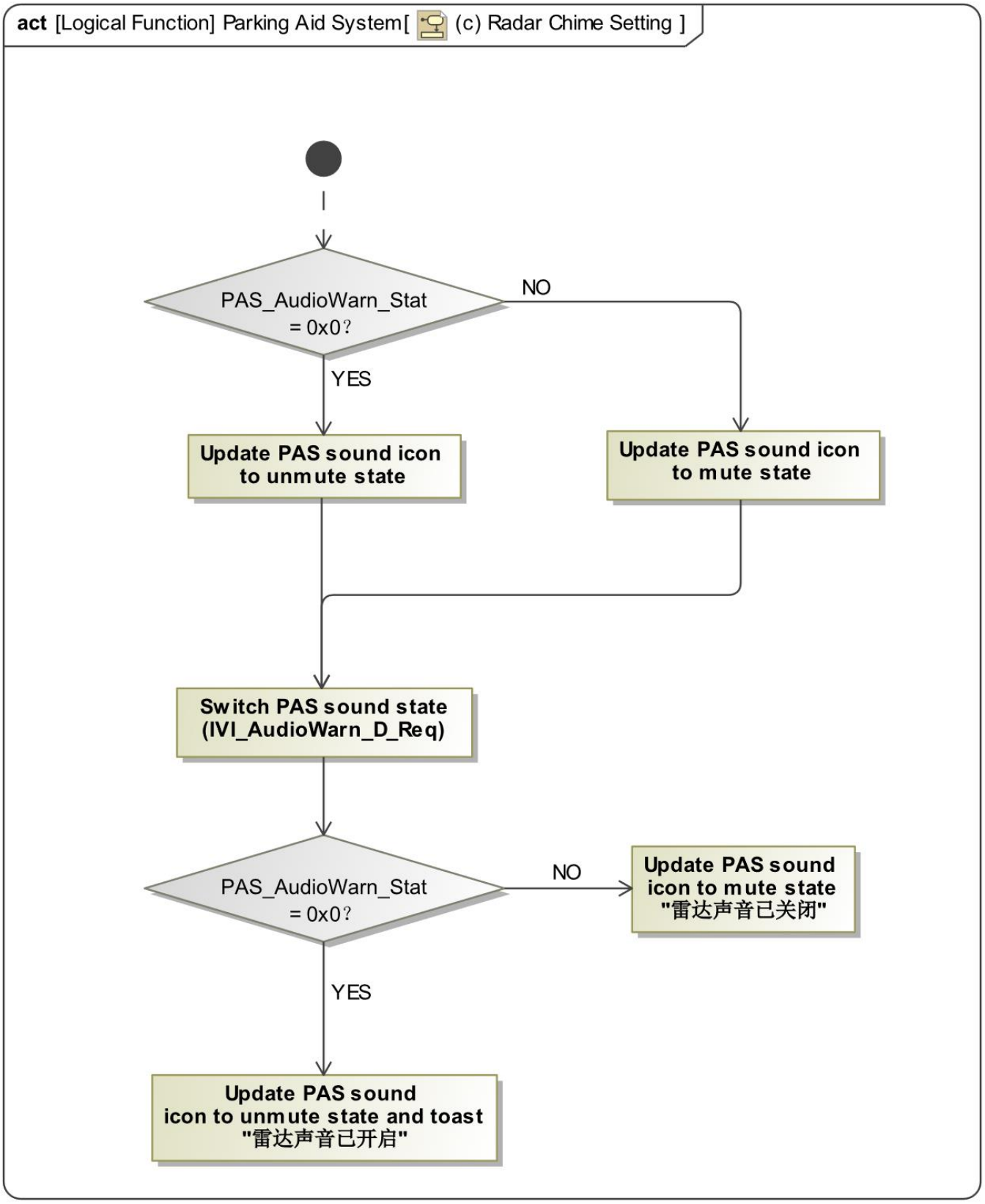

Figure 4: Activity Diagram of (c) Radar Chime Setting

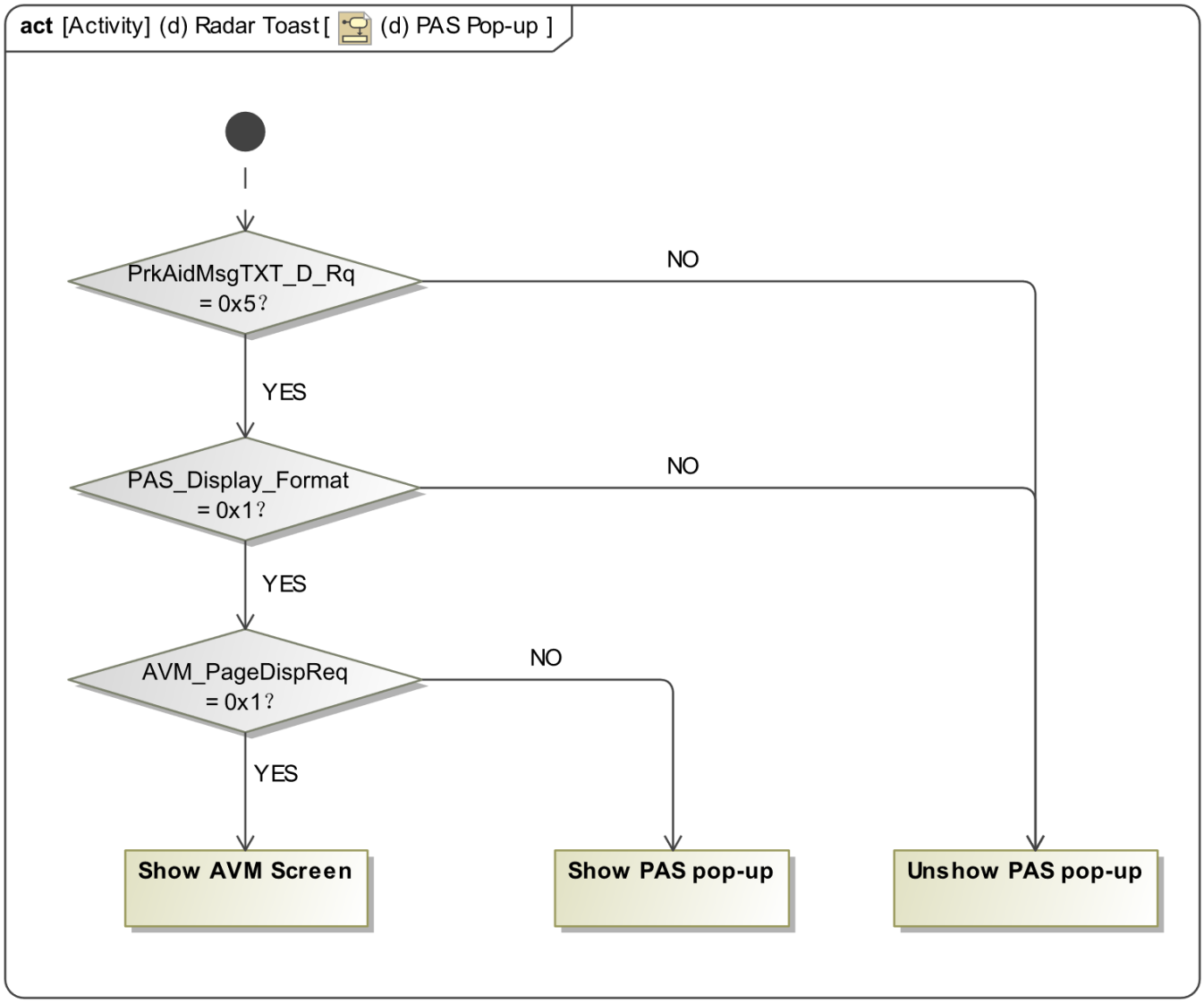

Figure 5: Activity Diagram of (d) PAS Pop-up

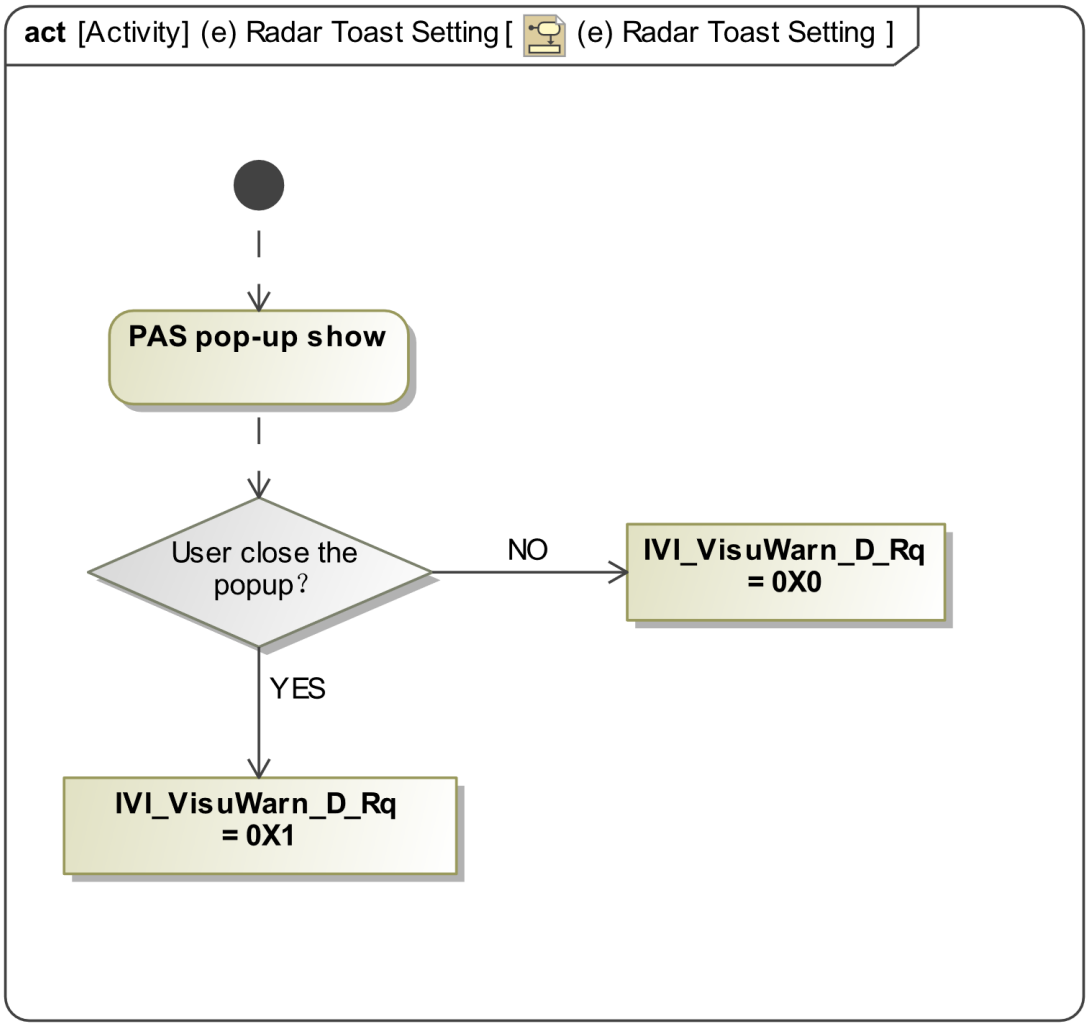

Figure 6: Activity Diagram of (e) Radar Toast Setting

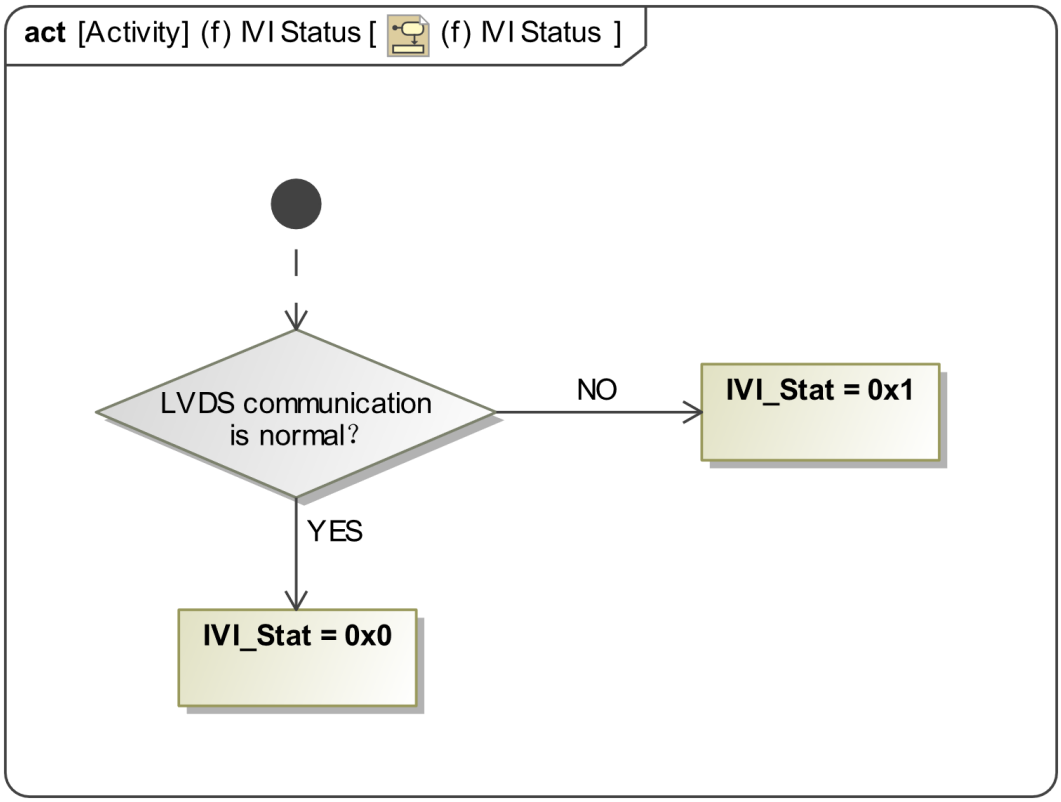

Figure 7: Activity Diagram of (f) IVI Status

1.3.3 Sequence Diagrams

No sequence diagram associated to specified function.

1.3.4 Decision Tables

No Decision Tables found in the Magicdraw model.

1.4 Function requirements

1.4.1 Functional Requirements

1.4.1.1 Normal Operation

1 Input Signal Details

- INTERNAL:
  - Operational_Mode
  - PAM_Rear_Cfg
  - PAM_Low_High_Cfg(配置子待申请)
  - PAM_Fault_Warn_Cfg

- MUX message on the CAN Bus

Signal Name	Size(bits)	Detail	Units	Res.	Offset	State Encoded	Min.	Max.
RpaChime_D_Rq	4		SED	1	0		0(0x0)	15(0xF)
		No_Chime				0x0		
		Zone1_Chime				0x1		
		Zone2_Chime				0x2		
		Zone3_Chime				0x3		
		Zone4_Chime				0x4		
		Zone5_Chime				0x5		
		Zone6_Chime				0x6		
		Zone7_Chime				0x7		
		Zone8_Chime				0x8		
		Zone9_Chime				0x9		
		Zone10_Chime				0xA		
		Zone11_Chime				0xB		
		Zone12_Chime				0xC		
		Zone13_Chime				0xD		
		Zone14_Chime				0xE		
		Zone15_Chime				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
FpaChime_D_Rq	4		SED	1	0		0(0x0)	15(0xF)
		No_Chime				0x0		
		Zone1_Chime				0x1		
		Zone2_Chime				0x2		
		Zone3_Chime				0x3		
		Zone4_Chime				0x4		
		Zone5_Chime				0x5		
		Zone6_Chime				0x6		
		Zone7_Chime				0x7		
		Zone8_Chime				0x8		
		Zone9_Chime				0x9		
		Zone10_Chime				0xA		
		Zone11_Chime				0xB		
		Zone12_Chime				0xC		
		Zone13_Chime				0xD		
		Zone14_Chime				0xE		
		Zone15_Chime				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
PrkAidMsgTxt_D_Rq	4			1	0		0(0x0)	15(0xF)
		All Park Sensors OFF				0x0		
		R Snsrs ON - F Snsrs OFF				0x1		
		R Snsrs OFF - F Snsrs ON				0x2		
		Reset Message Warn				0x3		
		Not used				0x4		

		R Snsrs ON - F Snsrs ON				0x5		
		Park Sys Alternate Mode				0x6		
		Not used				0x7		
		R Sns Trlr F Sns Blk				0x8		
		Fail Mode - wth chime				0x9		
		Fail Mode - no chime				0xA		
		Not avail (Trlr attchd)				0xB		
		R Sns inactve Trlr atch				0xC		
		R Sns Blk F Sns ON				0xD		
		R Sns ON F Sns Blk				0xE		
		All Sns Blk				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
PAS_AudioWarn_Stat	1		unsigned	1	0		0(0x0)	1(0x1)
		AudioWarn				0x0		
		Mute				0x1		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
PAS_FrObjDist	7		unsigned	1	0		0(0x0)	127(0x7F)
		0-110cm				0x0-0x6E		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
PAS_RrObjDist	8		unsigned	1	0		0(0x0)	255(0xFF)
		0-180cm				0x0-0xB4		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
PAS_Prompt	4		unsigned	1	0		0(0x0)	15(0xF)
		No request				0x0		
		Front sensor failure				0x1		
		Rear sensor failure				0x2		
		All sensors failed				0x3		
		Front sensor blockage				0x4		
		Rear sensor blockage				0x5		
		All sensors blockage				0x6		

		Reserved				0x7		
		Reserved				0x8		
		Reserved				0x9		
		Reserved				0xA		
		Reserved				0xB		
		Reserved				0xC		
		Reserved				0xD		
		Reserved				0xE		
		Reserved				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
PrkAidSnsRlCntr_D_Stat	4		unsigned	1	0		0(0x0)	15(0xF)
		Off				0x0		
		Zone1				0x1		
		Zone2				0x2		
		Zone3				0x3		
		Zone4				0x4		
		Zone5				0x5		
		Zone6				0x6		
		Zone7				0x7		
		Zone8				0x8		
		Zone9				0x9		
		Zone10				0xA		
		Zone11				0xB		
		Zone12				0xC		
		Zone13				0xD		
		Zone14				0xE		
		Zone15				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
PrkAidSnsRrCntr_D_Stat	4		unsigned	1	0		0(0x0)	15(0xF)
		Off				0x0		
		Zone1				0x1		
		Zone2				0x2		
		Zone3				0x3		
		Zone4				0x4		
		Zone5				0x5		
		Zone6				0x6		
		Zone7				0x7		
		Zone8				0x8		
		Zone9				0x9		
		Zone10				0xA		
		Zone11				0xB		

		Zone12				0xC		
		Zone13				0xD		
		Zone14				0xE		
		Zone15				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
PrkAidSnsRlCrnr_D_Stat	4		unsigned	1	0		0(0x0)	15(0xF)
		Off				0x0		
		Zone1				0x1		
		Zone2				0x2		
		Zone3				0x3		
		Zone4				0x4		
		Zone5				0x5		
		Zone6				0x6		
		Zone7				0x7		
		Zone8				0x8		
		Zone9				0x9		
		Zone10				0xA		
		Zone11				0xB		
		Zone12				0xC		
		Zone13				0xD		
		Zone14				0xE		
		Zone15				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
PrkAidSnsRrCrnr_D_Stat	4		unsigned	1	0		0(0x0)	15(0xF)
		Off				0x0		
		Zone1				0x1		
		Zone2				0x2		
		Zone3				0x3		
		Zone4				0x4		
		Zone5				0x5		
		Zone6				0x6		
		Zone7				0x7		
		Zone8				0x8		
		Zone9				0x9		
		Zone10				0xA		
		Zone11				0xB		
		Zone12				0xC		
		Zone13				0xD		
		Zone14				0xE		
		Zone15				0xF		

Signal Name	Size(bits)	Detail	Units	Res.	Offset	State Encoded	Min.	Max.
PrkAidSnsFlCntr_D_Stat	4		unsigned	1	0		0(0x0)	15(0xF)
		Off				0x0		
		Zone1				0x1		
		Zone2				0x2		
		Zone3				0x3		
		Zone4				0x4		
		Zone5				0x5		
		Zone6				0x6		
		Zone7				0x7		
		Zone8				0x8		
		Zone9				0x9		
		Zone10				0xA		
		Zone11				0xB		
		Zone12				0xC		
		Zone13				0xD		
		Zone14				0xE		
		Zone15				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
PrkAidSnsFrCntr_D_Stat	4		unsigned	1	0		0(0x0)	15(0xF)
		Off				0x0		
		Zone1				0x1		
		Zone2				0x2		
		Zone3				0x3		
		Zone4				0x4		
		Zone5				0x5		
		Zone6				0x6		
		Zone7				0x7		
		Zone8				0x8		
		Zone9				0x9		
		Zone10				0xA		
		Zone11				0xB		
		Zone12				0xC		
		Zone13				0xD		
		Zone14				0xE		
		Zone15				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
PrkAidSnsFlCrnr_D_Stat	4		unsigned	1	0		0(0x0)	15(0xF)
		Off				0x0		

		Zone1				0x1		
		Zone2				0x2		
		Zone3				0x3		
		Zone4				0x4		
		Zone5				0x5		
		Zone6				0x6		
		Zone7				0x7		
		Zone8				0x8		
		Zone9				0x9		
		Zone10				0xA		
		Zone11				0xB		
		Zone12				0xC		
		Zone13				0xD		
		Zone14				0xE		
		Zone15				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
PrkAidSnsFrCrnr_D_Stat	4		unsigned	1	0		0(0x0)	15(0xF)
		Off				0x0		
		Zone1				0x1		
		Zone2				0x2		
		Zone3				0x3		
		Zone4				0x4		
		Zone5				0x5		
		Zone6				0x6		
		Zone7				0x7		
		Zone8				0x8		
		Zone9				0x9		
		Zone10				0xA		
		Zone11				0xB		
		Zone12				0xC		
		Zone13				0xD		
		Zone14				0xE		
		Zone15				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
SidePrkSnsR4_D_Stat	4		unsigned	1	0		0(0x0)	15(0xF)
		Off				0x0		
		Zone1				0x1		
		Zone2				0x2		
		Zone3				0x3		
		Zone4				0x4		
		Zone5				0x5		

		Zone6				0x6		
		Zone7				0x7		
		Zone8				0x8		
		Zone9				0x9		
		Zone10				0xA		
		Zone11				0xB		
		Zone12				0xC		
		NoObjectInSector				0xD		
		NotFullyScanned Yet				0xE		
		NotUsed				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
SidePrkSnsL1_D_Stat	4		unsigned	1	0		0(0x0)	15(0xF)
		Off				0x0		
		Zone1				0x1		
		Zone2				0x2		
		Zone3				0x3		
		Zone4				0x4		
		Zone5				0x5		
		Zone6				0x6		
		Zone7				0x7		
		Zone8				0x8		
		Zone9				0x9		
		Zone10				0xA		
		Zone11				0xB		
		Zone12				0xC		
		NoObjectInSector				0xD		
		NotFullyScanned Yet				0xE		
		NotUsed				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
SidePrkSnsL2_D_Stat	4		unsigned	1	0		0(0x0)	15(0xF)
		Off				0x0		
		Zone1				0x1		
		Zone2				0x2		
		Zone3				0x3		
		Zone4				0x4		

		Zone5				0x5		
		Zone6				0x6		
		Zone7				0x7		
		Zone8				0x8		
		Zone9				0x9		
		Zone10				0xA		
		Zone11				0xB		
		Zone12				0xC		
		NoObjectInSector				0xD		
		NotFullyScanned Yet				0xE		
		NotUsed				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
SidePrkSnsL3_D_Stat	4		unsigned	1	0		0(0x0)	15(0xF)
		Off				0x0		
		Zone1				0x1		
		Zone2				0x2		
		Zone3				0x3		
		Zone4				0x4		
		Zone5				0x5		
		Zone6				0x6		
		Zone7				0x7		
		Zone8				0x8		
		Zone9				0x9		
		Zone10				0xA		
		Zone11				0xB		
		Zone12				0xC		
		NoObjectInSector				0xD		
		NotFullyScanned Yet				0xE		
		NotUsed				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
SidePrkSnsL4_D_Stat	4		unsigned	1	0		0(0x0)	15(0xF)
		Off				0x0		
		Zone1				0x1		
		Zone2				0x2		
		Zone3				0x3		
		Zone4				0x4		

		Zone5				0x5		
		Zone6				0x6		
		Zone7				0x7		
		Zone8				0x8		
		Zone9				0x9		
		Zone10				0xA		
		Zone11				0xB		
		Zone12				0xC		
		NoObjectInSector				0xD		
		NotFullyScanned Yet				0xE		
		NotUsed				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
SidePrkSnsR1_D_Stat	4		unsigned	1	0		0(0x0)	15(0xF)
		Off				0x0		
		Zone1				0x1		
		Zone2				0x2		
		Zone3				0x3		
		Zone4				0x4		
		Zone5				0x5		
		Zone6				0x6		
		Zone7				0x7		
		Zone8				0x8		
		Zone9				0x9		
		Zone10				0xA		
		Zone11				0xB		
		Zone12				0xC		
		NoObjectInSector				0xD		
		NotFullyScanned Yet				0xE		
		NotUsed				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
SidePrkSnsR2_D_Stat	4		unsigned	1	0		0(0x0)	15(0xF)
		Off				0x0		
		Zone1				0x1		
		Zone2				0x2		
		Zone3				0x3		
		Zone4				0x4		

		Zone5				0x5		
		Zone6				0x6		
		Zone7				0x7		
		Zone8				0x8		
		Zone9				0x9		
		Zone10				0xA		
		Zone11				0xB		
		Zone12				0xC		
		NoObjectInSector				0xD		
		NotFullyScanned Yet				0xE		
		NotUsed				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
SidePrkSnsR3_D_Stat	4		unsigned	1	0		0(0x0)	15(0xF)
		Off				0x0		
		Zone1				0x1		
		Zone2				0x2		
		Zone3				0x3		
		Zone4				0x4		
		Zone5				0x5		
		Zone6				0x6		
		Zone7				0x7		
		Zone8				0x8		
		Zone9				0x9		
		Zone10				0xA		
		Zone11				0xB		
		Zone12				0xC		
		NoObjectInSector				0xD		
		NotFullyScanned Yet				0xE		
		NotUsed				0xF		
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**
PAS_Display_Format	1		unsigned	1	0		0(0x0)	1(0x1)
		None				0x0		
		PASOnly				0x1		

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 1					
Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

2 Output Signal Details

- INTERNAL:
  - FPA_Chime_Status_Flag
  - RPA_Chime_Status_Flag
  - FPA_Chime_Off_Time
  - RPA_Chime_Off_Time

- MUX message on the CAN Bus

Signal Name	Size(bits)	Detail	Units	Res.	Offset	State Encoded	Min.	Max.	Send Logic
IVI_AudioWarn_D_Req	1						0(0x0)	1(0x1)	always send
		ON				0x0			
		OFF				0x1			
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**	**Send Logic**
IVI_VisuWarn_D_Rq	**1**						0(0x0)	1(0x1)	send 3 frames
		ON				0x0			
		OFF				0x1			
Signal Name	**Size(bits)**	**Detail**	**Units**	**Res.**	**Offset**	**State Encoded**	**Min.**	**Max.**	**Send Logic**
IVI_Stat	3						0(0x0)	7(0x7)	always send
		Normal				0x0			
		LVDS fault				0x1			
		Reserved				0x2			
		Reserved				0x3			
		Reserved				0x4			

		Reserved				0x5			
		Reserved				0x6			
		Reserved				0x7			

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 2

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

3 Operational Mode

Mode	Differentiating Vehicle Conditions
Sleep Mode	Park Aid Control Function Text Message Disabled
Limited Mode	Park Aid Control Function Text Message Disabled
Normal Mode	Park Aid Control Function Text Message Enabled / Disabled
Crank Mode	Park Aid Control Function Text Message Enabled / Disabled

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 3

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

4 Subsystem Algorithm Flowchart / State Diagram

Table 1.0 State Matrix for Front Park Aid Warning Chime

Operational Mode	FpaChime_D_Rq Signal	FPA_Chime_Status_Flag	FPA_Chime_Off_Time
Normal	**Zone1_Chime (0x1)**	**Active (0x1)**	**0x01**
	Zone2_Chime (0x2)	**Active (0x1)**	**0x07**
	Zone3_Chime (0x3)	**Active (0x1)**	**0x0A**

	Zone4_Chime (0x4)	**Active (0x1)**	**0x0D**
	Zone5_Chime (0x5)	**Active (0x1)**	**0x10**
	Zone6_Chime (0x6)	**Active (0x1)**	**0x13**
	Zone7_Chime (0x7)	**Active (0x1)**	**0x16**
	Zone8_Chime (0x8)	**Active (0x1)**	**0x19**
	Zone9_Chime (0x9)	**Active (0x1)**	**0x1C**
	Zone10_Chime (0xA)	**Active (0x1)**	**0x1F**
	Zone11_Chime (0xB)	**Active (0x1)**	**0x22**
	Zone12_Chime (0xC)	**Active (0x1)**	**0x25**
	Zone13_Chime (0xD)	**Active (0x1)**	**0x28**
	Zone14_Chime (0xE)	**Active (0x1)**	**0x2B**
	Zone15_Chime (0xF)	**Active (0x1)**	**0x2D**
	Missing as per 1.4.1	**Inactive (0X0)**	**0x00**
All Other Cases		**Inactive (0X0)**	**0x00**

Table 1.0 State Matrix for Rear Park Aid Warning Chime

Operational Mode	RpaChime_D_Rq Signal	RPA_Chime_Status_Flag	RPA_Chime_Off_Time
Normal	**Zone1_Chime (0x1)**	**Active (0x1)**	**0x01**
	Zone2_Chime (0x2)	**Active (0x1)**	**0x07**
	Zone3_Chime (0x3)	**Active (0x1)**	**0x0A**
	Zone4_Chime (0x4)	**Active (0x1)**	**0x0D**
	Zone5_Chime (0x5)	**Active (0x1)**	**0x10**
	Zone6_Chime (0x6)	**Active (0x1)**	**0x13**
	Zone7_Chime (0x7)	**Active (0x1)**	**0x16**
	Zone8_Chime (0x8)	**Active (0x1)**	**0x19**
	Zone9_Chime (0x9)	**Active (0x1)**	**0x1C**
	Zone10_Chime (0xA)	**Active (0x1)**	**0x1F**
	Zone11_Chime (0xB)	**Active (0x1)**	**0x22**
	Zone12_Chime (0xC)	**Active (0x1)**	**0x25**
	Zone13_Chime (0xD)	**Active (0x1)**	**0x28**
	Zone14_Chime (0xE)	**Active (0x1)**	**0x2B**
	Zone15_Chime (0xF)	**Active (0x1)**	**0x2D**
	Missing as per 1.4.1	**Inactive (0X0)**	**0x00**
All Other Cases		**Inactive (0X0)**	**0x00**

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 4

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

5 Operation Description (supports algorithm flowchart /state diagram)

- The FPA_Chime_Status_Flag, RPA_Chime_Status_Flag, FPA_Chime_Off_Time, and RPA_Chime_Off_Time are set, maintained and cleared by this Chime software module.
- Shall sound the chime as per the Chime Arbitrator section of this SPSS.
- The FPA/RPA off time between chimes varies by distance from the obstruction that it is detecting. Obstructions with a closer proximity will have a smaller off time.

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 5

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

6 Indicator Color Coordinates

None

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 6

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

7 Indicator Characteristics

None

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 7

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

8 Audio

Refer to Audio Section in Chimes & Chime Arbitrator SPSS Section.

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 8					
Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

9 Switch Control Logic

Consumer access to Park Aid Module Configuration shall be as specified in the message center basic functionality display as specified in Message Center X Display_Y Button Interface Section, where X and Y are appropriate values in this document.

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 9					
Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

10 System Accuracy

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

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 10					
Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

11 Memory Storage

Parameter Name	Description	Value at Battery Connect	Value at Module Wake-up	Value at Transition to Normal/Crank Mode From Limited Mode

Operational_Mode	4 state indicator for cluster operational mode	Limited	Limited, Normal or Crank	Normal or Crank
PAM_Rear_Cfg	Configures cluster to allow Rear Park Aid pop up warning display in cluster when vehicle is in reverse. Set to disabled at Cluster Supplier Manufacturing Plant.	Do Not Init	Do Not Init	Do Not Init
PAM_Low_High_Cfg(配置字待申请)				
PAM_Fault_Warn_Cfg	Allows RPA/FPA “Check Park Aid” fault warning in cluster. Set to disabled at Cluster Supplier Manufacturing Plant.	Do Not Init	Do Not Init	Do Not Init
RpaChime_D_Rq	Input CAN signal sent from the ACU	No_Chime (0x0)	No_Chime (0x0)	Do Not Init
FpaChime_D_Rq	Input CAN signal sent from the ACU	No_Chime (0x0)	No_Chime (0x0)	Do Not Init
PrkAidMsgTxt_D_Rq	Indicates system status to cluster	R Snsrs ON - F Snsrs ON(0x5)	R Snsrs ON - F Snsrs ON(0x5)	Do Not Init
PAS_AudioWarn_Stat	This signal indicates the muting states from PAS feature.	non-mute(0x0)	non-mute(0x0)	Do Not Init
PAS_FrObjDist	This is obstacle distance from front area of the host vehicle,unit in cm	Unshow distance(0x7E)	Unshow distance(0x7E)	Do Not Init
PAS_RrObjDist	This is obstacle distance from rear area of the host vehicle,unit in cm	Unshow distance(0x7E)	Unshow distance(0x7E)	Do Not Init
PAS_Prompt	This signal indicates the status of ultrasonic	No request(0x0)	No request(0x0)	Do Not Init

	sensor which supports PAS feature. e.g if any of six front ultrasonic sensor is failed, the value = 0x1 shall be send out and a warning icon shall be provided to driver.			
PrkAidSnsRlCntr_D_Stat	Range Data - Rear Center Left Park Aid sensor	Off(0x0)	Off(0x0)	Do Not Init
PrkAidSnsRrCntr_D_Stat	Range Data - Rear Center Right Park Aid sensor	Off(0x0)	Off(0x0)	Do Not Init
PrkAidSnsRlCrnr_D_Stat	Range Data - Rear Corner Left Park Aid sensor	Off(0x0)	Off(0x0)	Do Not Init
PrkAidSnsRrCrnr_D_Stat	Range Data - Rear Corner Right Park Aid sensor	Off(0x0)	Off(0x0)	Do Not Init
PrkAidSnsFlCntr_D_Stat	Range Data - Front Left Center Park Aid sensor	Off(0x0)	Off(0x0)	Do Not Init
PrkAidSnsFrCntr_D_Stat	Range Data - Front Right Center Park Aid sensor	Off(0x0)	Off(0x0)	Do Not Init
PrkAidSnsFlCrnr_D_Stat	Range Data - Front Left Corner Park Aid sensor	Off(0x0)	Off(0x0)	Do Not Init
PrkAidSnsFrCrnr_D_Stat	Range Data - Front Right Corner Park Aid sensor	Off(0x0)	Off(0x0)	Do Not Init
SidePrkSnsR4_D_Stat	Distance to closest object measured/calculated in fourth sector on right side.	Off(0x0)	Off(0x0)	Do Not Init

SidePrkSnsL1_D_Stat	Distance to closest object measured/calculated in first sector on left side.	Off(0x0)	Off(0x0)	Do Not Init
SidePrkSnsL2_D_Stat	Distance to closest object measured/calculated in second sector on left side.	Off(0x0)	Off(0x0)	Do Not Init
SidePrkSnsL3_D_Stat	Distance to closest object measured/calculated in third sector on left side.	Off(0x0)	Off(0x0)	Do Not Init
SidePrkSnsL4_D_Stat	Distance to closest object measured/calculated in fourth sector on left side.	Off(0x0)	Off(0x0)	Do Not Init
SidePrkSnsR2_D_Stat	Distance to closest object measured/calculated in second sector on right side.	Off(0x0)	Off(0x0)	Do Not Init
SidePrkSnsR3_D_Stat	Distance to closest object measured/calculated in third sector on right side.	Off(0x0)	Off(0x0)	Do Not Init
SidePrkSnsR1_D_Stat	Distance to closest object measured/calculated in first sector on right side.	Off(0x0)	Off(0x0)	Do Not Init
FPA_Chime_Status_Flag	Informs the Chime Arbitrator when the chime needs to be played.	Inactive (0x0)	Inactive (0x0)	Do Not Init

RPA_Chime_Status_Flag	Informs the Chime Arbitrator when the chime needs to be played.	Inactive (0x0)	Inactive (0x0)	Do Not Init
FPA_Chime_Off_Time	State variable used by the Chime Arbitrator to determine the off time between FPA chimes	Inactive (0x0)	Inactive (0x0)	Do Not Init
RPA_Chime_Off_Time	State variable used by the Chime Arbitrator to determine the off time between RPA chimes	Inactive (0x0)	Inactive (0x0)	Do Not Init
PA_Warn_Flg	State variable used by M/C Warning Arbitrator.	INACTIVE	INACTIVE	INACTIVE
IVI_VisuWarn_D_Rq	Signal indicates if drive close the singel turtle popup window	ON (0x0)	ON (0x0)	ON (0x0)
PAS_Display_Format	Signal indicates if single turtle popup window shall be diaplayed to driver	None (0x0)	None (0x0)	None (0x0)
IVI_Stat	Signal indicates the status of IVI	Normal (0x0)	Normal (0x0)	Normal (0x0)
IVI_AudioWarn_D_Req	This signal indicates if driver presse the button to turn on/off audio warning.	ON (0x0)	ON (0x0)	ON (0x0)

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 11			
Rationale			
Acceptance Criteria			
Notes			
Source		**Owner**	

Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

12 Prove Out

None

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 12

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

13 Message Center Msg

Refer to Message Center Function description reference Message ID W584

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 13

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

14 Self Test

None

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 14

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

15 Engineering Test Mode

Reference section “Dealer / Engineering Test Mode (ETM)”

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 15					
Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

16 Part II Performance

Supported Diagnostic Trouble Codes (DTCs)

DTC	Description
C15900(tbd)	Lost of Communication with IPAMB
CXXXX(tbd)	Invalid Data

DID 0xDExx

Block Num	Block Description	Byte(s)	Bits	State: Description	"0"	"1"	Default	Comments/ Information
PACKETED BLOCKS								

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 16					
Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

17 Reference Specification

- Func. Criticality EC-0048
- Mod. PWR-up / Reset EC-0049
- Low-High Vol. Perform. EC-0058
- Oper. Voltage Perf. IS-0052
- Oper. Voltage Func. IS-0053
- Evaluation IS-0327
- Flickering of Lamps IS-0329
- MC - Gen. Rqmts. IS-0344
- Status Ind. Visiblity SY-0046
- Feedback 17-0124
- SAFETY – CHIME ARBITRATOR EF-0033
- NORTH AMERICAN WARNINGS AND INDICATORS STRATEGY IS-0379

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 17

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

18 Voltage Levels

Refer to the Cluster Features table located in the Operational Modes and Voltage Range Strategies Section in this SPSS.

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 18

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

19 Indicator Graphics / Display Format

None

Satisfied by:

- Functions:
  - Parking Aid System

Requirement ID: 19

Rationale			
Acceptance Criteria			
Notes			
Source		**Owner**	

Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

1.4.1.2 Error Handling

Missing Message Strategy

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

DTCs states and history will be determined as per the Diagnostics section of this SPSS.

If PAM_Fault_Warn_Cfg is “Disabled”, the cluster shall never log a missing message DTC for this feature.

Satisfied by:
- Functions:
  - Parking Aid System

Requirement ID:

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

1.4.2 Non-Functional Requirements

No Non-Functional Requirements specified.

1.4.3 Functional Safety Requirements

Function Safety Classification (EMC)

B

Satisfied by:
- Functions:
  - Parking Aid System

Requirement ID:

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

1.4.4 Other Requirements

No Other Requirements specified.

1.4.4.1 Design Requirements

No Design Requirements specified.

2 OPEN CONCERNS

No Open Concerns (Ford Modeling Action Items) in the Magicdraw model.

3 REVISION HISTORY

No Revision History found.

3.1 Template Revisions

Version	Rev.	Date	Description	Responsible
1	0	2022-12-1	Initial version	Zhang Min
1	1	2023-02-13	• Add the PAS pop-up function • Add the signal “IVI_VisuWarn_D_Rq”,” PAS_Display_Format” related to PAS pop-up function • Add the IVI LVDS fault status signal “IVI_Stat” • Change the turtle chart changed to radar curve wall • Chang the “PAS_FrObjDist” measuring rang from 70cm to 110cm • Unshow the object distance when the 360-view button open • Unshow the corresponding object distance when receive the signal “PAS_FrObjDist = 0”, “PAS_RrObjDist = 0” • Change the PAS fault meter metion message ID C/O W584 • Add all sensor failed need toast “泊车系统故障” when open avm screen • Update the signal “PAS_Prompt” value • Update side pas signal enumeration value • Add the can signal send logic	Zhang Min

4 APPENDIX

4.1 Data Dictionary

4.1.1 Logical Signals

No “Logical Interface Table” or “Logical Signals” tables found.

4.1.2 Logical Parameters

(No parameters have been defined)

4.1.3 Encoding Types

Document ends here.