



**Research & Vehicle Technology**  
**“Infotainment Systems Product Development”**

**Feature – Active Park Assist Gen 8**  
**(APA delUXe)**

**Infotainment Subsystem Part Specific**  
**Specification (SPSS)**

Version 1.2

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**FORD CONFIDENTIAL**



## Revision History

Date	Version	Notes	
February 4, 2020	1.0	Initial Release	
September 29, 2021	1.1		
	RPA-FRD-REQ-358984/B-Remote Park Aid SPSS	tmertiri: update name	
	STR-675176/B-Overview	tmertiri: update content	
	RPA-CLD-REQ-359026/B-ApadeLUXe Client	tmertiri: update name to APAdeLUXe	
	RPA-CLD-REQ-359027/B-ApadeLUXe Server	tmertiri: update name	
	675325/B-Logical Signal Mapping	tmertiri: added physical names and separated based on Client TX or RX	
	RPA-IIR-REQ-359030/B-ApadeLUXeClient_Tx	tmertiri: update name	
	MD-REQ-358594/B-ApsiSettingRq	tmertiri:Update definition based on FO feedback. No technical change.	
	RPA-IIR-REQ-359032/B-ApadeLUXeClient_Rx	tmertiri: update name	
	MD-REQ-358575/B-SystemState2	tmertiri: Added description to the signal	
	MD-REQ-410549/A-DistanceIndicator	tmertiri: new method	
	RPA-REQ-359033/B-ApadeLUXeClient_InternalParameters	tmertiri: Rename	
	RPA-REQ-358737/B-XVCScreenActive	tmertiri: revise definition, to include FVC	
	RPA-REQ-358738/B-AnySlotReady	tmertiri: no change	
	RPA-REQ-358739/B-SelectionButton_1	tmertiri: definition revised, name changed	
	RPA-REQ-358742/B-SelectionButton_2	tmertiri: signal renamed	
	RPA-REQ-358743/B-ApaSlotFoundButNotReady	tmertiri:content change	
	RPA-REQ-410550/A-MultipleSlots	tmertiri: changes to parameters	
	RPA-REQ-410551/A-SlotChangeOption	tmertiri: changes to parameters	
	RPA-REQ-410603/A-ApaStaticSlotLeftStat	tmertiri: changes to parameters	
	RPA-REQ-410553/A-ApaStaticSlotRightStat	tmertiri: changes to parameters	
	RPA-REQ-410554/A-BpaDispReq	tmertiri: changes to parameters	
	STR-675178/B-General Requirements	tmertiri: section upgrade	
	RPA-REQ-359177/B-Tuning Parameters	tmertiri: added more parameters	
	RPA-REQ-407579/A-Fault Handling	tmertiri: new structure	
	RPA-REQ-407580/A-SystemState1	tmertiri: new requirement	
	RPA-REQ-407581/A-SystemState2	tmertiri: new requirement	
	RPA-REQ-407582/A-HMI Client Fault	tmertiri: new requirement	
	STR-675179/B-Functional Definition	tmertiri: structure changes	
	RPA-FUN-REQ-359001/B-Park Slot Indication	tmertiri: structure change	
	STR-675637/B-APSI Slot Indication Overview	tmertiri: added to the definition	
	RPA-REQ-433174/A-Menu Unresponsive	tmertiri:new clarification requirement	
	RPA-REQ-433175/A-Value Transmission	tmertiri:new clarification requirement	
	RPA-REQ-433176/A-Top Bar Requirement	tmertiri:new clarification requirement	
	RPA-REQ-433177/A-Hotkey Availability	tmertiri:new clarification requirement	
	STR-675243/B-Use Cases	tmertiri: remove usecase temporary supression 359187. no longer needed.	
	RPA-ACT-REQ-359294/B-APSI Slot Indication	tmertiri: removed supression part	
	RPA-SD-REQ-359295/B-APSI Slot Indication	tmertiri: removed supression part	
	RPA-FUN-REQ-359617/B-Feature Determination	tmertiri: structure change	
	RPA-REQ-360829/B-Return To Default Feature Request	tmertiri:added tab reference.	
	RPA-REQ-433622/A-Feature Selection Interface Visibility	tmertiri:new clarification requirement	
	RPA-REQ-433623/A-Feature Selection Attributes	tmertiri:new clarification requirement	
	RPA-UC-REQ-360743/B-Change Current Feature	tmertiri: update usecase.	
	RPA-SD-REQ-360745/B-Feature Determination	tmertiri:update SD. Remove Parkout. No longer needed	
	RPA-FUN-REQ-358986/B-Parking Map Drawing	tmertiri:update structure	
	STR-679446/B-Requirements	tmertiri:update structure	
	RPA-REQ-360853/B-PSM Scan- Left and Right	tmertiri: reword content.	
	RPA-REQ-433875/A-Slot Symbol Part 1	tmertiri: new clarification requirement	
	RPA-REQ-433876/A-Slot Symbol Part 2	tmertiri: new clarification requirement	
	RPA-SD-REQ-360552/B-Slot Selector - OverSpeed	tmertiri: update SD	
	RPA-FUN-REQ-358987/B-Slot Interaction	tmertiri: changes to structure elements	
	RPA-REQ-360742/B-Returning To Default Values	tmertiri: clarification	
	RPA-REQ-410605/A-Slot Target Selection Availability	tmertiri: new req	
	RPA-REQ-433992/A-Slot Target Selection	tmertiri: new clarification requirement	
	RPA-REQ-433993/A-Slot Type Selection	tmertiri: new clarification requirement	
	RPA-UC-REQ-359188/B-Change Slot Type	tmertiri: clarification	



RPA-SD-REQ-359620/B-Parking Slot Interaction	tmertiri: add DistanceIndicator to diagram
RPA-REQ-360841/B-Screen Layout	tmertiri: new requirement
RPA-REQ-360845/B-Available Text	tmertiri: update the text in the table
RPA-REQ-360847/B-Text Notification - Scenarios	tmertiri: adding disclaimer and update content
RPA-REQ-360848/B-Hint Text Notification - Scenarios	tmertiri: adding disclaimer and update content
RPA-REQ-360842/B-Available Symbols	tmertiri: adding disclaimer and update content
RPA-REQ-360846/B-Symbol Notification - Scenarios	tmertiri: adding disclaimer and update content
RPA-REQ-374117/B-Symbol 2	tmertiri: adding disclaimer and update content
RPA-FUN-REQ-433235/A-HotKey	tmertiri: New function
956353/A-APA Common	tmertiri: new structure organization. common requirements with APA
CAMERA-FUR-REQ-235911/C-HotKey Shortcut Menu Signal Processing Requirements 5+	tmertiri: add new items in the table
CAMERA-FUR-REQ-235911/D-HotKey Shortcut Menu Signal Processing Requirements 5	tmertiri: new requirement
935353/A-HotKey Shortcut delUXe	tmertiri: new hotkey requirements
RPA-REQ-433092/A-HotKey Shortcut delUXe 1	tmertiri: new requirement
RPA-REQ-433093/A-HotKey Shortcut delUXe 2	tmertiri: new requirement
RPA-REQ-433094/A-HotKey Shortcut delUXe 3	tmertiri: new requirement
RPA-REQ-433095/A-HotKey Shortcut delUXe 4	tmertiri: new requirement
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RPA-REQ-433097/A-HotKey Shortcut delUXe 6	tmertiri: new requirement
RPA-REQ-433098/A-HotKey Shortcut delUXe 7	tmertiri: new requirement
RPA-REQ-438137/A-HotKey Shortcut delUXe 8	tmertiri: new requirement
RPA-REQ-438138/A-HotKey Shortcut delUXe 9	tmertiri: new requirement
STR-675180/B-Appendix: Reference Documents	tmertiri: update reference documents

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RPA-FUN-REQ-359001/C-Park Slot Indication	tmertiri: function changes
RPA-REQ-477077/A-APSI Notification Location	tmertiri: updated requirement
RPA-REQ-477097/A-Displaying No More ApsiCenterStackNotification	tmertiri: updated requirement
RPA-REQ-477119/A-Value Update	tmertiri: updated requirement
RPA-REQ-477121/A-Hide ApsiCenterStackNotification	tmertiri: updated requirement
RPA-REQ-477123/A-Incorporate Message Prioritization	tmertiri: updated requirement
RPA-REQ-501237/A-ApsiCenterStackNotification Closure	tmertiri: updated requirement
RPA-REQ-477124/A-APSI Menu Availability	tmertiri: updated requirement
RPA-REQ-477125/A-Updating ApsiSettingRq Value	tmertiri: updated requirement
RPA-REQ-433622/B-Feature Selection Interface Visibility	tmertiri: text formatting. Remove strikethrough from main spec file
RPA-STR-679446/C-Requirements	tmertiri: modify section
RPA-REQ-360852/B-Slot Type Change	tmertiri: tried to fix formatting issues
RPA-REQ-433875/B-Slot Symbol Part 1	tmertiri: table update and trying to fix formatting issue
RPA-REQ-433876/B-Slot Symbol Part 2	tmertiri: table update and trying to fix formatting issue
RPA-REQ-501377/A-User Interaction With Slots	tmertiri: new req
RPA-REQ-433992/B-Slot Target Selection	tmertiri: added new content. Last cell is new content.
RPA-REQ-360847/C-Text Notification - Scenarios	tmertiri: strikethrough formatting
RPA-REQ-360848/C-Hint Text Notification - Scenarios	tmertiri: strikethrough formatting
RPA-REQ-360846/C-Symbol Notification - Scenarios	tmertiri: strikethrough formatting update
RPA-REQ-374117/C-Symbol 2	tmertiri: strikethrough formatting update



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# 1 Overview

APA deLUXe, introduces a new HMI concept for the established Semi Assisted Parking (SAP) and Fully Assisted Parking (FAP) feature. Additionally, APA deLUXe integrates the in-vehicle HMI for the Remote Park Assist (RePA) feature. The SAP, FAP and RePA in-vehicle HMI allows a user to search for and select suitable parking spaces. In case of SAP and FAP, the in-vehicle HMI also provides the user with the necessary instructions to perform the active park maneuver. In case of RePA, the active park assist maneuver is controlled by the user while outside of the vehicle.





## 2 Architectural Design

### 2.1 RPA-CLD-REQ-359026/B-ApadeIUXe Client

ApadeIUXe Client is the user interface device. It provides feature input and output details to the user.

### 2.2 RPA-CLD-REQ-359027/B-ApadeIUXe Server

ApadeIUXe server is where feature decisions are taken. It acquires the input provided by the user through the client and provides needed feedback or it changes feature behavior to confirm to the requests.

### 2.3 Logical Signal Mapping

Logical Signal Name	Real Physical Name	Tx	Rx
ApaSlotL1Status	ApaSlotLeft1_D_Stat	ADAS	HMI
ApaSlotL2Status	ApaSlotLeft2_D_Stat	ADAS	HMI
ApaSlotL3Status	ApaSlotLeft3_D_Stat	ADAS	HMI
ApaSlotR1Status	ApaSlotRight1_D_Stat	ADAS	HMI
ApaSlotR2Status	ApaSlotRight2_D_Stat	ADAS	HMI
ApaSlotR3Status	ApaSlotRight3_D_Stat	ADAS	HMI
ApaSlotFrontGtpStatus	ApaSlotFront_D_Stat	ADAS	HMI
ApaSlotRearGtpStatus	ApaSlotRear_D_Stat	ADAS	HMI
ApaSlotL1Pos	ApaSlotLeft1X_L_Actl	ADAS	HMI
ApaSlotL2Pos	ApaSlotLeft2X_L_Actl	ADAS	HMI
ApaSlotL3Pos	ApaSlotLeft3X_L_Actl	ADAS	HMI
ApaSlotR1Pos	ApaSlotRight1X_L_Actl	ADAS	HMI
ApaSlotR2Pos	ApaSlotRight2X_L_Actl	ADAS	HMI
ApaSlotR3Pos	ApaSlotRight3X_L_Actl	ADAS	HMI
ApaSlotFrontGtpPos	ApaSlotFrontX_L_Actl	ADAS	HMI
ApaSlotRearGtpPos	ApaSlotRearX_L_Actl	ADAS	HMI
ApaSlotFrontGtpOffset	ApaSlotFrontY_L_Actl	ADAS	HMI
ApaSlotRearGtpOffset	ApaSlotRearY_L_Actl	ADAS	HMI
ApaSlotTarget	ApaSlotTrgt_D_Stat	ADAS	HMI
ApaMvngSlots	ApaDynmcSlot_B_Stat	ADAS	HMI
ApaOptnSelect	ApaSlotOption_B_Avail	ADAS	HMI
ApaParkInSelectable	ApaParkInSel_B_Avail	ADAS	HMI
RePAParkInSelectable	ApaRmtFeatSel_B_Avail	ADAS	HMI
ApaSlotPos1X	ApaSlotRef1X_L_Actl	ADAS	HMI
ApaSlotPos2X	ApaSlotRef2X_L_Actl	ADAS	HMI
ApaSlotPos1Y	ApaSlotRef1Y_L_Actl	ADAS	HMI
ApaSlotPos2Y	ApaSlotRef2Y_L_Actl	ADAS	HMI
SystemState1	ApaDisplayMode_D_Stat	ADAS	HMI
SystemState2	ApaControlMode_D_Stat	ADAS	HMI
SystemState3	ApaSys_D2_Stat	ADAS	HMI
SystemState4	ApaMde_D_Stat	ADAS	HMI
DriverRequest1	ApaDrvRq1MsgTxt_D_Rq	ADAS	HMI
DriverRequest2	ApaDrvRq2MsgTxt_D_Rq	ADAS	HMI
DriverInfo	ApaMsgTxt_D2_Stat	ADAS	HMI
VehicleSpeed	Veh_V_ActlEng	ABS	HMI
ApaSlotL1FeatureOptn	ApaSlotLeft1_B_Altr	ADAS	HMI
ApaSlotL2FeatureOptn	ApaSlotLeft2_B_Altr	ADAS	HMI
ApaSlotL3FeatureOptn	ApaSlotLeft3_B_Altr	ADAS	HMI
ApaSlotR1FeatureOptn	ApaSlotRight1_B_Altr	ADAS	HMI





ApaSlotR2FeatureOptn	ApaSlotRight2_B_Altr	ADAS	HMI
ApaSlotR3FeatureOptn	ApaSlotRight3_B_Altr	ADAS	HMI
ApaOffSelectable	ApaOffOptnSel_B_Avail	ADAS	HMI
ApsiSetting	ApaSlotAlrtSet_B_Stat	ADAS	HMI
SlotIndicationRq	ApaSlotAlrt_B_Rq	ADAS	HMI
PrkAidSwch_B_Stat_Logical	PrkAidSwch_B_Stat	ADAS	HMI
DistanceIndicator	ApaTrgtDist_D_Stat_ET	ADAS	HMI
DrivingDirection	PrkAidDrvDir_D_Stat	ABS	HMI

ApaDriverSlotSelection	ApaSlotTrgt_D_RqDrv	HMI	ADAS
DriverFeatureRequest	ApaFeat_D_RqDrv	HMI	ADAS
DriverFeatureChangeRequest	ApaFeatChange_B_RqDrv	HMI	ADAS
ApsiSettingRq	ApaSlotAlrtSet_D_RqDrv	HMI	ADAS

## Internal Client Variable

AnySlotReady		HMI	HMI
PrkInSelector or SelectionButton_1		HMI	HMI
PrkOutSelector		HMI	HMI
RePASector or SelectionButton_2		HMI	HMI
ApaSlotFoundButNotReady		HMI	HMI
RVCScreenActive or XVCScreenActive		HMI	HMI
FeatureIndication		HMI	HMI
MultipleSlots		HMI	HMI
SlotChangeOption		HMI	HMI
ApaStaticSlotLeftStat		HMI	HMI
ApaStaticSlotRightStat		HMI	HMI
BpaDispReq		HMI	HMI

## 2.4 RPA-IIR-REQ-359030/B-ApadeIUXeClient\_Tx

### 2.4.1 MD-REQ-358593/A-DriverFeatureChangeRequest

DriverFeatureChangeRequest : Transmitted by Client and this signal communicates a driver request to the Active Park Assist (APA) feature to change the APA feature offered for the target slot.

Name	Literals	Value	Description
DriverFeatureChangeRequest	-	-	-
	False	0x0	
	True	0x1	



#### 2.4.2 MD-REQ-358594/B-ApsiSettingRq

ApsiSettingRq: Transmitted by Client and this signal provides feedback from the center stack display system to the Active Park Assist (APA) feature server. The "Enable" and "Disable" states are driven by the center stack's settings menu. The "TemporarySuppression" state provides feedback that an action on the center stack display (e.g. timeout or screen change) has temporarily suppressed the notification. Please refer to detailed functional specification.

Name	Literals	Value	Description
ApsiSettingRq	-	-	-
	NoRequest	0x0	
	Enable	0x1	
	Disable	0x2	
	TemporarySuppression	0x3	

#### 2.4.3 MD-REQ-358591/A-ApaDriverSlotSelection

ApaDriverSlotSelection : Transmitted by Client and Communicates which slot the driver has selected via the HMI. This changes the APA target slot.

Name	Literals	Value	Description
ApaDriverSlotSelection	-	-	-
	None	0x0	None
	L1	0x1	Left1
	L2	0x2	Left2
	L3	0x3	Left3
	R1	0x4	Right1
	R2	0x5	Right2
	R3	0x6	Right3
	GtpRear	0x7	Rear
	GtpFront	0x8	Front

#### 2.4.4 MD-REQ-358592/A-DriverFeatureRequest

DriverFeatureRequest : Transmitted by Client and Communicates the Active Park Assist (APA) feature the driver would like to use.

Name	Literals	Value	Description
DriverFeatureRequest	-	-	-
	None	0x0	
	ApaParkOut	0x3	
	ApaParkIn	0x4	
	RePA	0x5	
	Off	0x6	
	Faulty	0x7	



## 2.5 RPA-IIR-REQ-359032/B-ApadeIUXeClient\_Rx

### 2.5.1 MD-REQ-358520/A-ApaSlotL1Status

ApaSlotL1Status: Transmitted by the server and Communicates if a slot with the ID 1 is available/present on the left side and what type of slot it is.

Name	Literals	Value	Description
ApaSlotL1Status	-	-	
	None	0x0	-
	IPaFound	0x1	Parallel Parking found
	IPaReady	0x2	Parallel Parking Available
	IPeFound	0x3	Perpendicular Parking found
	IPeReady	0x4	Perpendicular Parking Available

### 2.5.2 MD-REQ-358522/A-ApaSlotL2Status

ApaSlotL2Status: Transmitted by the Server and Communicates if a slot with the ID 2 is available/present on the left side and what type of slot it is.

Name	Literals	Value	Description
ApaSlotL2Status	-	-	
	None	0x0	-
	IPaFound	0x1	Parallel Parking found
	IPaReady	0x2	Parallel Parking Available
	IPeFound	0x3	Perpendicular Parking found
	IPeReady	0x4	Perpendicular Parking Available

### 2.5.3 MD-REQ-358523/A-ApaSlotL3Status

ApaSlotL3Status: Transmitted by the Server and Communicates if a slot with the ID 3 is available/present on the left side and what type of slot it is.

Name	Literals	Value	Description
ApaSlotL3Status			
	None	0x0	-
	IPaFound	0x1	Parallel Parking found
	IPaReady	0x2	Parallel Parking Available
	IPeFound	0x3	Perpendicular Parking found
	IPeReady	0x4	Perpendicular Parking Available

### 2.5.4 MD-REQ-358524/A-ApaSlotR1Status

ApaSlotR1Status: Transmitted by the Server and Communicates if a slot with the ID 1 is available/present on the right side and what type of slot it is.



Name	Literals	Value	Description
ApaSlotR1Status			
	None	0x0	-
	IPaFound	0x1	Parallel Parking found
	IPaReady	0x2	Parallel Parking Available
	IPeFound	0x3	Perpendicular Parking found
	IPeReady	0x4	Perpendicular Parking Available

### 2.5.5 MD-REQ-358525/A-ApaSlotR2Status

ApaSlotR2Status: Transmitted by the Server and Communicates if a slot with the ID 2 is available/present on the right side and what type of slot it is.

Name	Literals	Value	Description
ApaSlotR2Status			
	None	0x0	-
	IPaFound	0x1	Parallel Parking found
	IPaReady	0x2	Parallel Parking Available
	IPeFound	0x3	Perpendicular Parking found
	IPeReady	0x4	Perpendicular Parking Available

### 2.5.6 MD-REQ-358526/A-ApaSlotR3Status

ApaSlotR3Status: Transmitted by the Server and Communicates if a slot with the ID 3 is available/present on the right side and what type of slot it is.

Name	Literals	Value	Description
ApaSlotR3Status			
	None	0x0	-
	IPaFound	0x1	Parallel Parking found
	IPaReady	0x2	Parallel Parking Available
	IPeFound	0x3	Perpendicular Parking found
	IPeReady	0x4	Perpendicular Parking Available

### 2.5.7 MD-REQ-358527/A-ApaSlotFrontGtpStatus

ApaSlotFrontGtpStatus: Transmitted by the server and communicates the presence of a front garage type-parking slot.

Name	Literals	Value
ApaSlotFrontGtpStatus	-	-
	FALSE	0x0
	TRUE	0x1

### 2.5.8 MD-REQ-358528/A-ApaSlotRearGtpStatus

ApaSlotRearGtpStatus : Transmitted by the server and Communicates the pesence of a rear garage type parking slot.



Name	Literals	Value	Description
ApaSlotRearGtpStatus	-	-	
	FALSE	0x0	
	TRUE	0x1	

### 2.5.9 MD-REQ-358529/A-ApaSlotL1Pos

ApaSlotL1Pos: Transmitted by Server and Communicates at which position in x the slot on the left side with the ID 1 shall be shown.

Name	Literals	Value	Description
ApaSlotL1Pos	-	-	
		Min: -20.96m	
		Max: +19.98m	
		Offset: -20.96m	
		Resolution: 0.02m	

### 2.5.10 MD-REQ-358530/A-ApaSlotL2Pos

ApaSlotL2Pos: Transmitted by Server and Communicates at which position in x the slot on the left side with the ID 2 shall be shown

Name	Literals	Value	Description
ApaSlotL2Pos	-	-	
		Min: -20.96m	
		Max: +19.98m	
		Offset: -20.96m	
		Resolution: 0.02m	

### 2.5.11 MD-REQ-358531/A-ApaSlotL3Pos

ApaSlotL3Pos: Transmitted by Server and Communicates at which position in x the slot on the left side with the ID 3 shall be shown.

Name	Literals	Value	Description
ApaSlotL3Pos	-	-	
		Min: -20.96m	
		Max: +19.98m	



		Offset: -20.96m	
		Resolution: 0.02m	

**2.5.12 MD-REQ-358532/A-ApaSlotR1Pos**

ApaSlotR1Pos: Transmitted by Server and Communicates at which position in x the slot on the right side with the ID 1 shall be shown.

Name	Literals	Value	Description
ApaSlotR1Pos	-	-	
		Min: -20.96m	
		Max: +19.98m	
		Offset: -20.96m	
		Resolution: 0.02m	

**2.5.13 MD-REQ-358533/A-ApaSlotR2Pos**

ApaSlotR2Pos: Transmitted by Server and Communicates at which position in x the slot on the right side with the ID 2 shall be shown.

Name	Literals	Value	Description
ApaSlotR2Pos	-	-	
		Min: -20.96m	
		Max: +19.98m	
		Offset: -20.96m	
		Resolution: 0.02m	

**2.5.14 MD-REQ-358534/A-ApaSlotR3Pos**

ApaSlotR3Pos: Transmitted by Server and Communicates at which position in x the slot on the right side with the ID 3 shall be shown.

Name	Literals	Value	Description
ApaSlotR3Pos	-	-	
		Min: -20.96m	



		Max: +19.98m	
		Offset: -20.96m	
		Resolution: 0.02m	

**2.5.15 MD-REQ-358535/A-ApaSlotFrontGtpPos**

ApaSlotFrontGtpPos : Transmitted by server and Communicates at which position in x the garage type slot in the front shall be shown.

Name	Literals	Value	Description
ApaSlotFrontGtpPos	-	-	
		Min: -20.96m	
		Max: +19.98m	
		Offset: -20.96m	
		Resolutio: 0.02m	

**2.5.16 MD-REQ-358536/A-ApaSlotRearGtpPos**

ApaSlotRearGtpPos : Is transmitted by server and Communicates at which position in x the garage type slot in the rear shall be shown

Name	Literals	Value	Description
ApaSlotRearGtpPos	-	-	
		Min: -20.96m	
		Max: +19.98m	
		Offset: -20.96m	
		Resolution 0.02m	

**2.5.17 MD-REQ-358537/A-ApaSlotFrontGtpOffset**

ApaSlotFrontGtpOffset: Transmitted by Server and defines the offset in y of the garage type slot in front of the vehicle.

Name	Literals	Value	Description
ApaSlotFrontGtpOffset	-	-	
		Min:-6.4m	
		Max:+6.2m	





		Offset:-6.4m	
		Resolution: 0.2m	

### 2.5.18 MD-REQ-358538/A-ApaSlotRearGtpOffset

ApaSlotRearGtpOffset: Transmitted by Server and defines the offset in y of the garage type slot in the rear of the vehicle.

Name	Literals	Value	Description
ApaSlotRearGtpOffset	-	-	
		Min:-6.4m	
		Max:+6.2m	
		Offset:-6.4m	
		Resolution: 0.2m	

### 2.5.19 MD-REQ-358539/A-ApaSlotTarget

ApaSlotTarget : Transmitted by Server and Identifies the slot that is currently targeted by the Active Park Assist (APA) or Remote Park Assist (RePA) feature

Name	Literals	Value	Description
ApaSlotTarget	-	-	
	None	0x0	
	L1	0x1	
	L2	0x2	
	L3	0x3	
	R1	0x4	
	R2	0x5	
	R3	0x6	
	GtpRear	0x7	
	GtpFront	0x8	

### 2.5.20 MD-REQ-358542/A-ApaMvngSlots

ApaMvngSlots : Transmitted by Server and Communicates if the dynamic/ moving slot display is active or not.

Name	Literals	Value	Description
ApaMvngSlots	-	-	
	Off	0x0	
	On	0x1	

### 2.5.21 MD-REQ-358543/A-ApaOptnSelect

ApaOptnSelect : Transmitted by Server and Communicates if slot target and slot option selection via the center stack display's touch option is available. The variable depends on a speed threshold.



Name	Literals	Value	Description
ApaOptnSelect	-	-	-
	Not Available	0x0	
	Available	0x1	

**2.5.22 MD-REQ-358544/A-ApaParkInSelectable**

ApaParkInSelectable : Transmitted by Server and Reflects if the Active Park Assist (APA) feature option for parking into slots is selectable.

Name	Literals	Value	Description
ApaParkInSelectable	-	-	-
	Not Available	0x0	
	Available	0x1	

**2.5.23 MD-REQ-358567/A-RePAParkInSelectable**

RePAParkInSelectable: Transmitted by Server and Reflects if the Remote Park Assist (RepA) feature option is selectable.

Name	Literals	Value	Description
RePAParkInSelectable	-	-	-
	Not Available	0x0	
	Available	0x1	

**2.5.24 MD-REQ-358570/A-ApaSlotPos1X**

ApaSlotPos1X: Transmitted by the Server and Used only during the active phase of the maneuver. Defines the x-position of point 1 of a slot. Please refer to detailed requirements.

Name	Literals	Value	Description
ApaSlotPos1X	-	-	-
		Min: -20.96m	
		Max: +19.98m	
		Offset: -20.96m	
		Resolution: 0.02m	

**2.5.25 MD-REQ-358571/A-ApaSlotPos2X**

ApaSlotPos2X : Transmitted by the Server and Used only during the active phase of the maneuver. Defines the x-position of point 2 of a slot. Please refer to detailed requirements.

Name	Literals	Value	Description
ApaSlotPos2X	-	-	-
		Min: -20.96m	



		Max: +19.98m	
		Offset: -20.96m	
		Resolution: 0.02m	

#### 2.5.26 MD-REQ-358572/A-ApaSlotPos1Y

ApaSlotPos1Y: Transmitted by Server and Used only during the active phase of the maneuver. Defines the y-position of point 1 of a slot. Please refer to detailed requirements.

Name	Literals	Value	Description
ApaSlotPos1Y	-	-	-
		Min: -20.96m	
		Max: +19.98m	
		Offset: -20.96m	
		Resolution: 0.02m	

#### 2.5.27 MD-REQ-358573/A-ApaSlotPos2Y

ApaSlotPos2Y : Used only during the active phase of the maneuver. Defines the y-position of point 2 of a slot. Please refer to detailed requirements.

Name	Literals	Value	Description
ApaSlotPos2Y	-	-	-
		Min: -20.96m	
		Max: +19.98m	
		Offset: -20.96m	
		Resolution: 0.02m	

#### 2.5.28 MD-REQ-358574/A-SystemState1

SystemState1 : Transmitted by server and this is the "Mains" signal for showing the Active Park Assist (APA) on the vehicle's center stack display. The display function shall only trigger APA content if the signal is set to a state other than "Off".

Name	Literals	Value	Description
SystemState1	-	-	-
	Off	0x0	
	HmiMenu	0x1	
	HMIFullScreen	0x2	

**2.5.29 MD-REQ-358575/B-SystemState2**

SystemState2 : Transmitted by Server and Communicates if the Active Park Assist (APA) system is currently actively controlling vehicle actuators or not.

Name	Literals	Value	Description
SystemState2	-	-	-
	NotInActiveControl	0x0	The APA feature is currently not actively controlling vehicle actuators. It may still be showing on the HMI.
	InActiveControl	0x1	The APA feature is currently actively controlling vehicle actuators.

**2.5.30 MD-REQ-358576/A-SystemState3**

SystemState3: Transmitted by Server and communicates various operational modes and system states of the Active Park Assist (APA) feature.

Name	Literals	Value	Description
SystemState3	-	-	-
	NormalOps	0x0	
	Pause	0x1	
	Overspeed	0x2	
	NotAvailable	0x3	
	Cancelled	0x4	
	Finished	0x5	
	Faulty	0x6	
	BothSidesSelectable	0x7	
	LeftSideSelectable	0x8	
	RightSideSelectable	0x9	
	NoSideSelectable	0xA	

**2.5.31 MD-REQ-358577/A-SystemState4**

SystemState4 : Transmitted by Server and reflects which Active Park Assist (APA) feature is currently active.

Name	Literals	Value	Description
SystemState4	-	-	-
	None	0x1	
	ApaParkOut	0x4	
	ApaParkIn	0x5	
	RePA	0x6	

**2.5.32 MD-REQ-358578/A-DriverRequest1**

DriverRequest1 : Transmitted by Server and this signal communicates a first set of driver requests the Active Park Assist (APA) system can set during APA usage.

Name	Literals	Value	Description
DriverRequest1	-	-	-
	NoRequest	0x0	



	Shift_to_R	0x1	
	Shift_to_D	0x2	
	Shift_to_N	0x3	
	Shift_to_P	0x4	
	PressApaButton	0x5	
	ExitVehicle	0x6	

### 2.5.33 MD-REQ-358579/A-DriverRequest2

DriverRequest2 : Transmitted by Server and this signal communicates a second set of driver requests the Active Park Assist (APA) system can set during APA usage.

Name	Literals	Value	Description
DriverRequest2	-	-	-
	NoRequest	0x0	
	Stop	0x1	
	DriveForward	0x2	
	DriveBackward	0x3	
	ReleaseBrake	0x4	
	ReleaseSteering	0x5	
	ReleaseEPB	0x6	
	TakeControl	0x7	
	CloseDoor	0x8	

### 2.5.34 MD-REQ-358580/A-DriverInfo

DriverInfo : Transmitted by Server and this signal communicates various Active Park Assist (APA) text messages or symbols.

Name	Literals	Value	Description
DriverInfo	-	-	-
	None	0x0	
	WaitForSteering	0x1	
	ObstacleInPath	0x2	
	BrakeEvent	0x3	
	SpeedLimitExceeded	0x4	
	WrongDirection	0x5	
	SteeringInteraction	0x6	
	DoorOpen	0x7	
	HighInclination	0x8	
	WheelSlip	0x9	
	TCSdeactivated	0xA	
	TrailerAttached	0xB	
	SensorsBlocked	0xC	
	AccelPedalInactive	0xD	
	TrailerFeature_NotAvailable	0xE	
	ReducedFunction	0xF	

### 2.5.35 MD-REQ-358581/A-ApaSlotL1FeatureOptn

ApaSlotL1FeatureOptn : Transmitted by Server and Communicates if the left side slot with the ID 1 is available for another feature.



Name	Literals	Value	Description
ApaSlotL1FeatureOptn	-	-	-
	Not Available	0x0	
	Available	0x1	

**2.5.36 MD-REQ-358582/A-ApaSlotL2FeatureOptn**

ApaSlotL2FeatureOptn : Transmitted by Server and communicates if the left side slot with the ID 2 is available for another feature..

Name	Literals	Value	Description
ApaSlotL2FeatureOptn	-	-	-
	Not Available	0x0	
	Available	0x1	

**2.5.37 MD-REQ-358583/A-ApaSlotL3FeatureOptn**

ApaSlotL3FeatureOptn : Transmitted by Server and communicates if the left side slot with the ID 3 is available for another feature..

Name	Literals	Value	Description
ApaSlotL3FeatureOptn	-	-	-
	Not Available	0x0	
	Available	0x1	

**2.5.38 MD-REQ-358584/A-ApaSlotR1FeatureOptn**

ApaSlotR1FeatureOptn : Transmitted by Server and communicates if the right side slot with the ID 1 is available for another feature.

Name	Literals	Value	Description
ApaSlotR1FeatureOptn	-	-	-
	Not Available	0x0	
	Available	0x1	

**2.5.39 MD-REQ-358585/A-ApaSlotR2FeatureOptn**

ApaSlotR2FeatureOptn : Transmitted by Server and communicates if the right side slot with the ID 2 is available for another feature.

Name	Literals	Value	Description
ApaSlotR2FeatureOptn	-	-	-



	Not Available	0x0	
	Available	0x1	

**2.5.40 MD-REQ-358586/A-ApaSlotR3FeatureOptn**

ApaSlotR3FeatureOptn : Transmitted by Server and communicates if the right side slot with the ID 3 is available for another feature.

Name	Literals	Value	Description
ApaSlotR3FeatureOptn	-	-	-
	Not Available	0x0	
	Available	0x1	

**2.5.41 MD-REQ-358587/A-ApaOffSelectable**

ApaOffSelectable : Transmitted by Server and Reflects if the interface is selectable.

Name	Literals	Value	Description
ApaOffSelectable	-	-	-
	Not Available	0x0	
	Available	0x1	

**2.5.42 MD-REQ-358588/A-ApsiSetting**

ApsiSetting : Transmitted by Server and this is the current state of the Active Park Assist (APA) function that can trigger a slot indication on the center stack display even if the driver has not activated APA. It is used by the center stack's setting menu.

Name	Literals	Value	Description
ApsiSetting	-	-	-
	Disabled	0x0	
	Enabled	0x1	

**2.5.43 MD-REQ-358589/A-SlotIndicationRq**

SlotIndicationRq : Transmitted by Server and this signal can trigger a (center stack display) notification for "active park assist has found a slot " even if the drier has not activated the Active Park Assist (APA) feature.

Name	Literals	Value	Description
SlotIndicationRq	-	-	-
	False	0x0	
	True	0x1	



**2.5.44 MD-REQ-358590/A-PrkAidSwrch\_B\_Stat\_Logical**

PrkAidSwrch\_B\_Stat\_Logical : Transmitted by Server and this is a logical signal from the ADAS to HMI to indicate if the Photkey is pressed.

Name	Literals	Value	Description
PrkAidSwrch_B_Stat_Logical	-	-	-
	NotPressed	0x00	
	Pressed	0x01	

**2.5.45 MD-REQ-358595/A-VehicleSpeed**

VehicleSpeed : Transmitted by Server and the current speed of the vehicle.

Name	Literals	Value	Description
VehicleSpeed	-	-	-
			Min: 0
			Max: 655.35
			Resolution: 0.01
			Unit: Kilometers/Hour

**2.5.46 MD-REQ-358596/A-DrivingDirection**

DrivingDirection: Transmitted by Server and this is a logical signal from the Active Park Assist (APA) feature ADAS to the center stack display to indicate driving direction..

Name	Literals	Value	Description
DrivingDirection	-	-	-
	Forward	0x0	
	Backward	0x1	
	Unknown	0x2	
	Failed	0x3	

**2.5.47 MD-REQ-410549/A-DistanceIndicator**

DistanceIndicator: This is a signal from server to the client and is used during the active phase (APM) of a SAP or FAP maneuver. It drives an indication on the center stack that allows the user to estimate the remaining path to the next stop. The associated physical signal and primary logic is c/o from the previous APA CSI logic.

Refer to database for parameter values and further details.

**2.6 RPA-REQ-359033/B-ApadeIUXeClient\_InternalParameters****2.6.1 RPA-REQ-358737/B-XVCScreenActive**

XVCScreenActive : This is an internal signal. Provides information if the FVC or RVC screen is currently shown or not. Needs to be derived from the XVC activation requirements.

Name	Literals	Value	Description
XVCScreenActive	-	-	-
	FALSE	0x00	



	TRUE	0x01	
--	------	------	--

### 2.6.2 RPA-REQ-358738/B-AnySlotReady

AnySlotReady: This is an internal parameter. It describes if any slot is present, with a state found, but not ready. Refer to dedicated requirements. It simplifies the overall set up of the truth tables for Texts and Symbols.

Name	Literals	Value	Description
AnySlotReady	-	-	-
	FALSE	0x00	
	TRUE	0x01	

The parameter values are defined like below:

Logic for AnySlotReady

If

```
(ApaSlotL1Status == IPaReady)
OR (ApaSlotL1Status == IPeReady)
OR (ApaSlotL2Status == IPaReady)
OR (ApaSlotL2Status == IPeReady)
OR (ApaSlotL3Status == IPaReady)
OR (ApaSlotL3Status == IPeReady)
OR (ApaSlotR1Status == IPaReady)
OR (ApaSlotR1Status == IPeReady)
OR (ApaSlotR2Status == IPaReady)
OR (ApaSlotR2Status == IPeReady)
OR (ApaSlotR3Status == IPaReady)
OR (ApaSlotR3Status == IPeReady)
OR (ApaSlotFrontGtpStatus == True)
OR (ApaSlotRearGtpStatus == True)
```

set AnySlotReady = True

Else

set AnySlotReady = False

### 2.6.3 RPA-REQ-358739/B-SelectionButton\_1

This is an internal signal. It describes if the state of the touch selection interface for ApaParkIn. The parameters are Show and Don't Show.

Its purpose and use are defined in tabs FeatSel- Interface Visibility and FeatSel – Attrib. & Select.

Both tabs are part of HMI content though, so the tabs content isn't included in this SPSS.

### 2.6.4 RPA-REQ-358742/B-SelectionButton\_2

This is an internal signal. It describes if the state of the touch selection interface for ApaParkIn. The parameters are Show and Don't Show.

Its purpose and use are defined in tabs FeatSel- Interface Visibility and FeatSel – Attrib. & Select.

Both tabs are part of HMI content though, so the tabs content isn't included in this SPSS.

### 2.6.5 RPA-REQ-358743/B-ApaSlotFoundButNotReady

ApaSlotFoundButNotReady : This is an internal parameter. It describes if any slot is present, with a state found, but not ready. It simplifies the overall set up of the truth tables for Text1/Text2 tabs.

Name	Literals
ApaSlotFoundButNotReady	-
	FALSE
	TRUE



Its value determination is done based on the logic below.

```
If      (ApaSlotL1Status ~= IPaReady)
AND (ApaSlotL1Status ~= IPeReady)
AND (ApaSlotL2Status ~= IPaReady)
AND (ApaSlotL2Status ~= IPeReady)
AND (ApaSlotL3Status ~= IPaReady)
AND (ApaSlotL3Status ~= IPeReady)
AND (ApaSlotR1Status ~= IPaReady)
AND (ApaSlotR1Status ~= IPeReady)
AND (ApaSlotR2Status ~= IPaReady)
AND (ApaSlotR2Status ~= IPeReady)
AND (ApaSlotR3Status ~= IPaReady)
AND (ApaSlotR3Status ~= IPeReady)
AND (ApaSlotFrontGtpStatus == False)
AND (ApaSlotRearGtpStatus == False)
AND
(      (ApaSlotL1Status == IPaFound) OR (ApaSlotL1Status == IPeFound)
OR (ApaSlotL2Status == IPaFound) OR (ApaSlotL2Status == IPeFound)
OR (ApaSlotL3Status == IPaFound) OR (ApaSlotL3Status == IPeFound)
OR (ApaSlotR1Status == IPaFound) OR (ApaSlotR1Status == IPeFound)
OR (ApaSlotR2Status == IPaFound) OR (ApaSlotR2Status == IPeFound)
OR (ApaSlotR3Status == IPaFound) OR (ApaSlotR3Status == IPeFound) )
set ApaSlotFoundButNotReady = True
Else
set ApaSlotFoundButNotReady = False
```

#### 2.6.6 RPA-REQ-410550/A-MultipleSlots

MultipleSlots: Is an internal signal created to facilitate the functional logic. It shall be set to true if more than one slot are selectable, i.e.:

\* at least two slot status signals ApaSlotMNStat and ApaSlotXYStat have the status "abcReady".

or

\* at least one slot status signal ApaSlotMNStat has a status "abcReady" and at least one slot status signal ApaSlotijGtpStat has the status "True"

or

\* at least ApaSlotFrontGtpStat and ApaSlotRearGtpStat have the status "True"

Whereas abc is a placeholder for IPa and IPe

Whereas ij is a placeholder for Front and Rear

Whereas XY and MN can be L1, L2,L3, R1, R2 or R3.

#### 2.6.7 RPA-REQ-410551/A-SlotChangeOption

SlotChangeOption : This is an internal signal created to facilitate the functional logic. It shall be set to true as per the truth table provided in tab "HintText - Logic (1)". See requirements ApadelUXe0348 thru 352.

#### 2.6.8 RPA-REQ-410603/A-ApaStaticSlotLeftStat

ApaStaticSlotLeftStat: This variable is added to simplify the requirement wording for defining slot indication on Area51 when ApaMvngSlot is set to "Off". It is a "supporting" variable

Logic for ApaStaticSlotLeftStat

```
if
      (ApaSlotL1Status == None)
AND (ApaSlotL2Status == None)
AND (ApaSlotL3Status == None)
set ApaStaticSlotLeftStat = None
elseif
```



```
(ApaSlotL1Status == IPaReady) OR (ApaSlotL1Status == IPeReady)
OR (ApaSlotL2Status == IPaReady) OR (ApaSlotL2Status == IPeReady)
OR (ApaSlotL3Status == IPaReady) OR (ApaSlotL3Status == IPeReady)
set ApaStaticSlotLeftStat = Ready
elseif
    (ApaSlotL1Status ~= IPaReady)
    AND (ApaSlotL1Status ~= IPeReady)
    AND (ApaSlotL2Status ~= IPaReady)
    AND (ApaSlotL2Status ~= IPeReady)
    AND (ApaSlotL3Status ~= IPaReady)
    AND (ApaSlotL3Status ~= IPeReady)
    AND
    ( (ApaSlotL1Status == IPaFound) OR (ApaSlotL1Status == IPeFound)
      OR (ApaSlotL2Status == IPaFound) OR (ApaSlotL2Status == IPeFound)
      OR (ApaSlotL3Status == IPaFound) OR (ApaSlotL3Status == IPeFound)
    )
    set ApaStaticSlotLeftStat = Found
end
```

#### 2.6.9 RPA-REQ-410553/A-ApaStaticSlotRightStat

ApaStaticSlotRightStat : Is an internal variable created to facilitate the functional logic related to indicating slots on Area51 when the static slot display is shown. Available parameters are None, Found and Ready.

Parameter value generation is done like below:

Logic for ApaStaticSlotRightStat

```
if
    (ApaSlotR1Status == None)
    AND (ApaSlotR2Status == None)
    AND (ApaSlotR3Status == None)
    set ApaStaticSlotRightStat = None
elseif
    (ApaSlotR1Status == IPaReady) OR (ApaSlotR1Status == IPeReady)
    OR (ApaSlotR2Status == IPaReady) OR (ApaSlotR2Status == IPeReady)
    OR (ApaSlotR3Status == IPaReady) OR (ApaSlotR3Status == IPeReady)
    set ApaStaticSlotRightStat = Ready
elseif
    (ApaSlotR1Status ~= IPaReady)
    AND (ApaSlotR1Status ~= IPeReady)
    AND (ApaSlotR2Status ~= IPaReady)
    AND (ApaSlotR2Status ~= IPeReady)
    AND (ApaSlotR3Status ~= IPaReady)
    AND (ApaSlotR3Status ~= IPeReady)
    AND
    ( (ApaSlotR1Status == IPaFound) OR (ApaSlotR1Status == IPeFound)
      OR (ApaSlotR2Status == IPaFound) OR (ApaSlotR2Status == IPeFound)
      OR (ApaSlotR3Status == IPaFound) OR (ApaSlotR3Status == IPeFound)
    )
    set ApaStaticSlotRightStat = Found
end
```

#### 2.6.10 RPA-REQ-410554/A-BpaDispReq

BpaDispReq: Is an internal variable that is set to "True" if the conditions to trigger the BPA display as defined by the BPA feature owner are true. It is set to "False", if the BPA logic does not request BPA to be shown.

At release of this specification it should be safe to assume the variable can be tied to the CAN signal PrkAidMsgTxt\_D\_Rq. Make sure to x-check with the BPA HMI specification.



### 3 General Requirements

#### 3.1 RPA-REQ-359177/B-Tuning Parameters

These are parameters that help with Image affects in Client HMI. These have been included here on a temporary basis so there is no discontinuity of requirements. **Proper location should be discussed with HMI team.**

Parameter	Description	Value/ Range	Initial setting
RequestTimeOut	Used to time out requests from HMI to ADAS if the expected response from ADAS is not received. Prevents "stuck" signal requests.	0 to 800ms	400ms
ApaRearSlotIndication	The scaled distance for which a rear slot is still visible on the HMI display if the APA feature is active. The unit of this parameter is given in "m". The HMI design team needs to convert this (real world) value into a reasonable unit for the screen.		16 m
ApaFrontSlotIndication	The scaled distance for which a front slot is still visible on the HMI display if the APA feature is active. The unit of this parameter is given in "m". The HMI design team needs to convert this (real world) value into a reasonable unit for the screen.		8 m
RePARearSlotIndication	The scaled distance for which a rear slot is still visible on the HMI display if the RePA feature is active. The unit of this parameter is given in "m". The HMI design team needs to convert this (real world) value into a reasonable unit for the screen.		12 m
RePAFrontSlotIndication	The scaled distance for which a front slot is still visible on the HMI display if the RePA feature is active. The unit of this parameter is given in "m". The HMI design team needs to convert this (real world) value into a reasonable unit for the screen.		12 m
FadeInTime	Used to smoothly fade in Gtp slots.	0 to 1000ms	500ms
FadeOutTime	Used to smoothly fade out Gtp slots.	0 to 1000ms	500ms
HintTextTime	Used to define how long a hint text will be shown in case it alternates with one or more other text.	0 to 5000ms	2000ms
[tApsiShow]	The maximum time for which an [ApsiCenterStackNotification] is shown.	n/a	5000ms
[tKeepApsiMenuJump]	This time parameter allows "jumping" the P-Hotkey menu if the user presses the P-Hotkey shortly after the [ApsiCenterStackNotification] has been shown. The underlying idea is to provide some kind of "hysteresis" for the user's reaction time.	0 to 2000ms	500ms
HMISystemConfig	This is a configuration parameter to assure that the ADAS and HMI configuration match. The configuration is relevant for various texts and	SAP_Only FAP_Only FAP_RePA	n/a



	symbols and also for the presence of feature activation buttons. Please refer to dedicated requirements.		
Configuration	Can be derived from HMISystemConfig as follows: If HMISystemConfig == SAP_Only set Configuration to "SAP". Else set Configuration to "FAP".	SAP FPA	n/a
Transmission	This parameter can be driven by an HMI system configuration via a configuration parameter or any other means that can reliably detect whether the HMI system is installed on a vehicle with an automatic or a manual transmission. This discrimination is used to e.g. drive a "Shift to forward" instruction on an AT and "Shift to first gear" on a MT.	Auto Manual	n/a
APA_Actv_MM_Timr_Cfg		0 to 5000ms	250ms

### 3.2 RPA-REQ-407579/A-Fault Handling

#### 3.2.1 RPA-REQ-407580/A-SystemState1

If SystemState1 is "Off" and any of the APA interface signals go missing, the client shall neither show a fault screen nor set a DTC.

#### 3.2.2 RPA-REQ-407581/A-SystemState2

If SystemState2 is not "Off" and any of the APA interface signals go missing, the client/ HMI function shall:

- \* Start a timer [ApaMissMessg] at the time the missing message/ signal condition becomes true.
- \* While [ApaMissMessg] is less than [APA\_Actv\_MM\_Timr\_Cfg] continue to show the last requested valid screen.
- \* If [ApaMissMessg] is equal to or greater than [APA\_Actv\_MM\_Timr\_Cfg] show an APA fault screen.
- \* If [ApaMissMessg] is equal to or greater than [APA\_Actv\_MM\_Timr\_Cfg] set a DTC.
- \* Switch off the APA fault screen after it has been shown for 4s.

Whereas:

The APA fault screen shall contain Symbol #12 on the Symbol1 position and ApaTextID031 on the Text1 position. Refer to sheet "Symbols & Texts" and also to ApadelUXe0217 and ApadelUXe0269.

#### 3.2.3 RPA-REQ-407582/A-HMI Client Fault

If the HMI system has a fault condition that prevents indicating APA content, but can still communicate via CAN, the value of [DriverFeatureRequest] shall be set to "Faulty".

Note:

If a communication fault on the Client side occurred e.g. when the P-Hotkey menu was open, the feedback could be used by the APA system to change from "menu mode" to "off".

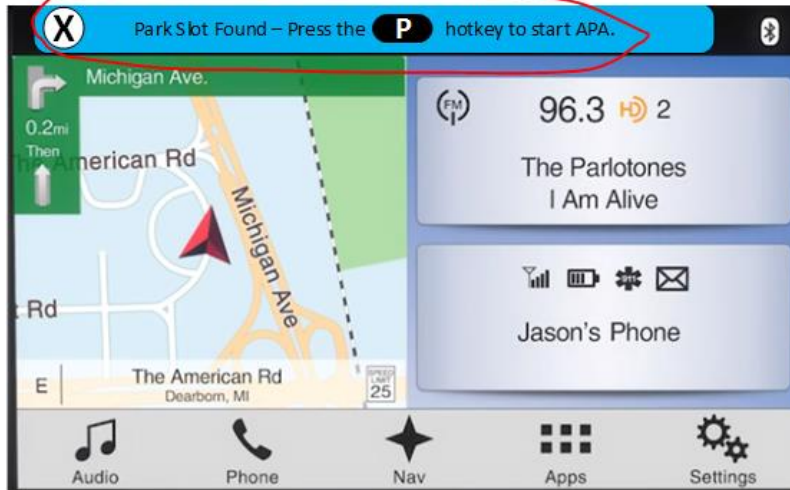


## 4 Functional Definition

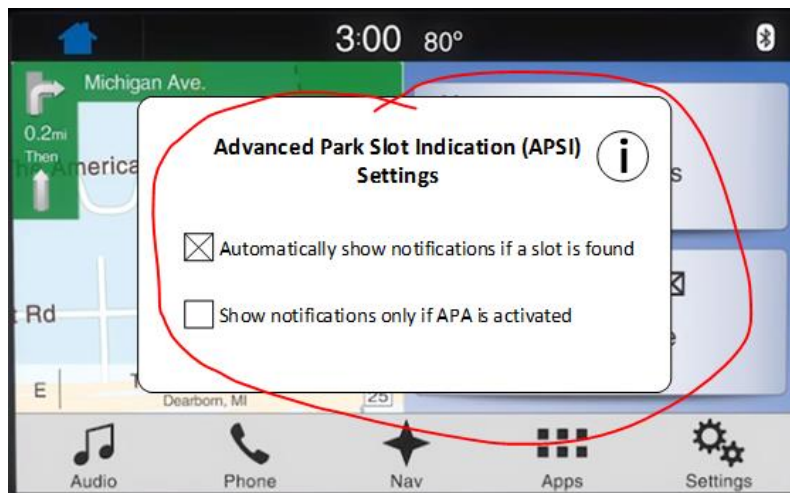
### 4.1 RPA-FUN-REQ-359001/C-Park Slot Indication

#### 4.1.1 APSI Slot Indication Overview

APSI Slot Indication Menu is a settings menu, that allows the user to enable or disable the Parking Slot Notification. The pictures below will clarify this, but keep in mind the pictures are for information purposes ONLY and not a solid requirement that forces the Client HMI to look in certain way. The text and the “looks” of the menu could be different.



The top bar, circled in red, is the Parking Slot reminder. It is triggered from the states of signal SlotIndicationRq.



The option to control the Parking Slot Reminder whether to show or not show it, is controlled by the settings menu shown above.

The settings menu shows the state of the server as communicated by the signal ApsiSetting. The client communicates the user intention via the signal ApsiSettingRq to the client.

The subsequent functional section will describe the interface and use cases for this section of the feature.

#### 4.1.2 RPA-REQ-359175/A-Requesting Same State

If ApsiSetting is “Enabled” or “Disabled” and the driver selects the “Enabled” or “Disabled” option, respectively, the signal ApsiSettingRq shall remain set to “NoRequest”.





#### 4.1.3 RPA-REQ-477077/A-APSI Notification Location

If SlotIndicationRq changes from "False" to "True", the APSI notification [ApsiCenterStackNotification] shall be shown on the center stack display.

#### 4.1.4 RPA-REQ-477097/A-Displaying No More ApsiCenterStackNotification

When

- \* [SlotIndicationRq] changes to "False"
  - \* or [tApsiShow] have elapsed
- while [ApsiCenterStackNotification] is showing,  
the [ApsiCenterStackNotification] shall no longer be shown.

#### 4.1.5 RPA-REQ-477119/A-Value Update

If [ApsiSettingRq] has been set to "TemporarySuppresion" and [SlotIndicationRq] changes from "True" to "False", the ApsiHmi function shall set the [ApsiSettingRq] back to the last stored value.

#### 4.1.6 RPA-REQ-477121/A-Hide ApsiCenterStackNotification

The client shall not show the [ApsiCenterStackNotification] if any of the following conditions is true:

- \* [SystemState1] changes to "HMIFullScreen"
- \* [SystemState1] is equal "HMIFullScreen"

#### 4.1.7 RPA-REQ-477123/A-Incorporate Message Prioritazation

The Client shall incorporate a message prioritization strategy as follows:

- \* If a trigger condition for another transient message becomes true while the [ApsiCenterStackNotification] is shown, the [ApsiCenterStackNotification] shall be switched off and the other transient message be shown.
- \* If the trigger condition for the [ApsiCenterStackNotification] is shown while another transient message is shown, the other message shall be replaced by the [ApsiCenterStackNotification].

#### 4.1.8 RPA-REQ-501237/A-ApsiCenterStackNotification Closure

If client closes [ApsiCenterStackNotification], the client shall set [ApsiSettingRq] to "TemporarySuppression".

#### 4.1.9 RPA-REQ-477124/A-APSI Menu Availability

While [Ignition\_Status] is not "Run", the APSI settings menu shall reflect the state of ApsiSettingRq.

The APSI setting options shall only be selectable while [Ignition\_Status] is "Run".

When 2s have elapsed since [Ignition\_Status] changed to "Run", the APSI settings menu shall reflect the state of ApsiSetting.

#### 4.1.10 RPA-REQ-477125/A-Updating ApsiSettingRq Value

"When the user changes the APSI setting in the settings menu, the center stack HMI shall

- \* set ApsiSettingRq to the desired setting ("Enabled" or "Disabled"),
- \* store the user selected setting in non-volatile memory (memorize value over ignition cycle)."

#### 4.1.11 Use Cases

##### 4.1.11.1 *RPA-UC-REQ-359181/A-Requesting Same State as The Current State*

<b>Actors</b>	User
<b>Pre-conditions</b>	Vehicle is On.
<b>Scenario Description</b>	User requests same state that the menu is currently in.
<b>Post-conditions</b>	There are no changes in the menu state. Client sends a "NoRequest" state whenever the user requests same state.

**List of Exception  
Use Cases****Interfaces**

Client HMI Interface.

**4.1.11.2 RPA-UC-REQ-359185/A-Enabling APSI Menu****Actors**

User

**Pre-conditions**Vehicle is on.  
Settings Menu is disabled.**Scenario  
Description**

User request to enable to APSI menu.

**Post-conditions**Client send an "Enable" request.  
Upon menu becoming enabled, client sends "NoRequest" state.**List of Exception  
Use Cases****Interfaces**

Client HMI

**4.1.11.3 RPA-UC-REQ-359186/A-Disable APSI Menu****Actors**

User

**Pre-conditions**

APSI Menu is enabled

**Scenario  
Description**

User requests APSI Menu to be disabled.

**Post-conditions**Client sends "Disable" request to Server.  
Server changes the menu state and updates the client accordingly.  
Client sends "NoRequest" state to server.**List of Exception  
Use Cases****Interfaces**

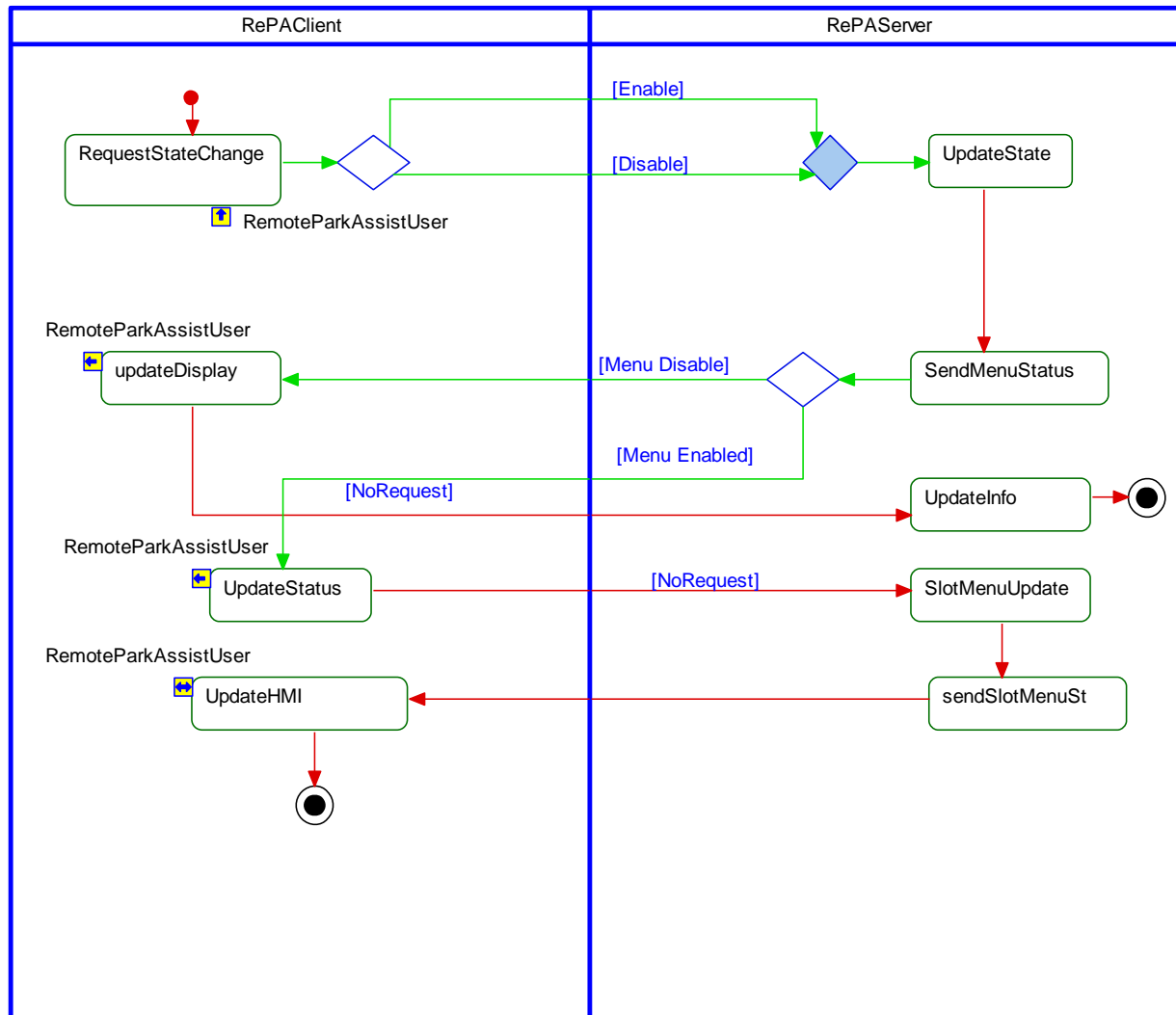
Client HMI



## 4.1.12 White Box View

## 4.1.12.1 Activity Diagrams

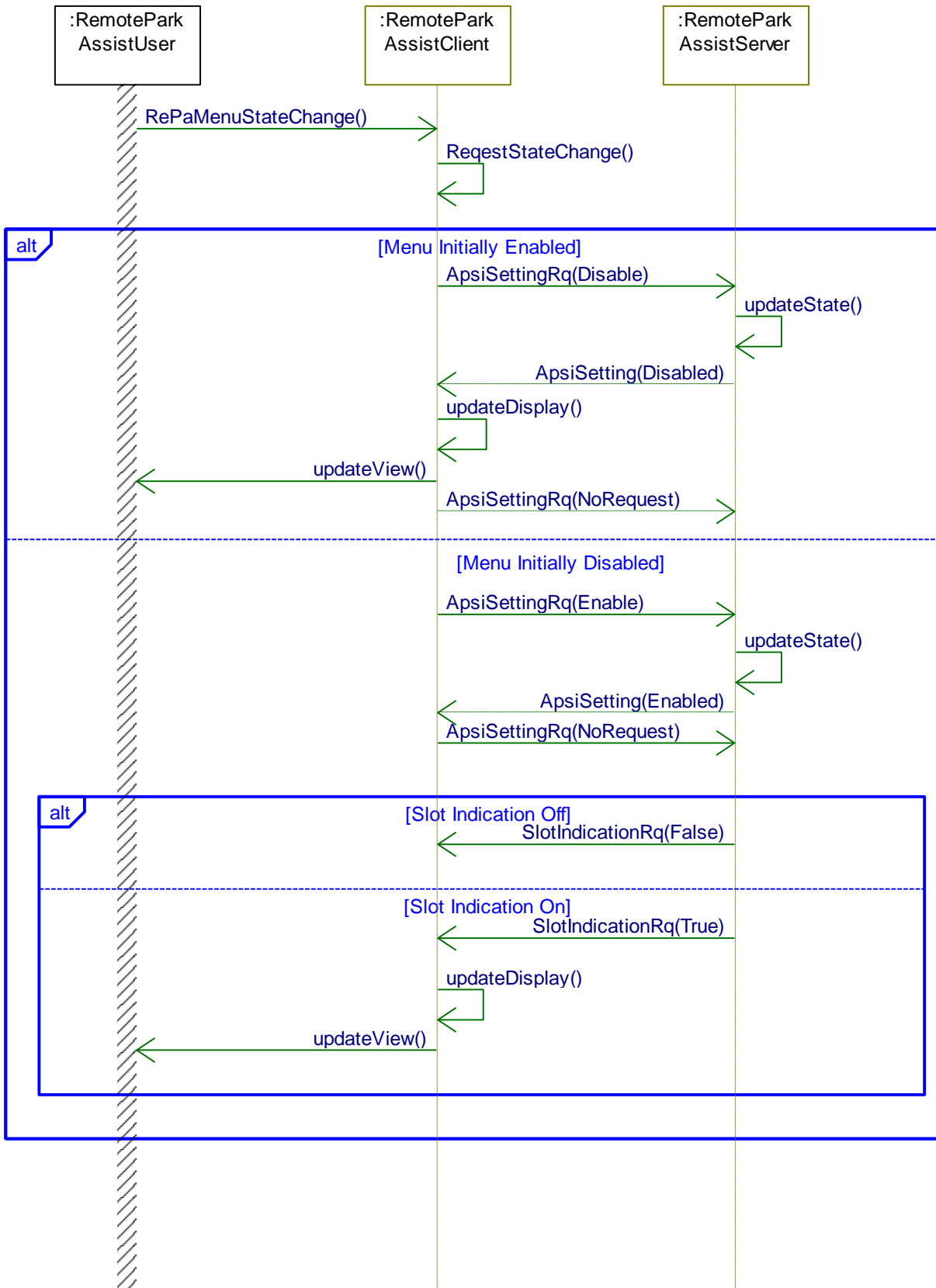
## 4.1.12.1.1 RPA-ACT-REQ-359294/B-APSI Slot Indication





## 4.1.12.2 Sequence Diagrams

## 4.1.12.2.1 RPA-SD-REQ-359295/B-APSI Slot Indication





## 4.2 RPA-FUN-REQ-359617/B-Feature Determination

### 4.2.1 RPA-REQ-360829/B-Return To Default Feature Request

As mentioned, earlier this signal DriverFeatureRequest is used to change the active feature to any of the available ones such as ParkIn, ParkOut and RePaParkIn. Initial request should not be the same as the current parameter of SystemState4.

Once the feature request has been confirmed by SystemState4 (it will come with same parameter that DriverFeatureRequest is sending) than DriverFeatureRequest signal should be sent with parameter None. **This maps to FeatSel – Interface Visibility tab.**

### 4.2.2 RPA-REQ-433622/B-Feature Selection Interface Visibility

#### Visibility and attributes of feature selection and indication interfaces

In general, feature selection interfaces are only available if the APA system is configured for FAP-RePA and ApaParkOut is not preselected. If the system is configured to support only SAP or FAP, no feature selection is required.

**For Accurate table details, review source document, feature specification VDOC084729. Due to large table size, the table gets distorted and not all data is shown. Source file review is mandatory.**

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### 4.2.3 RPA-REQ-433623/A-Feature Selection Attributes

#### Feature Selection Attributes

"If SelectionButton\_1 == ""Show""  
\* and ApaParkInSelectable is set to ""Selectable""  
\* and SystemState4 is not ""ApaParkIn""  
the ApaParkIn feature selection interface shall be shown as selectable."

"If SelectionButton\_1 == ""Show""  
\* and ApaParkInSelectable is set to ""NotSelectable""  
the ApaParkIn feature selection interface shall be shown as not selectable."

"If SelectionButton\_2 == ""Show""  
\* and RePAParkInSelectable is set to ""Selectable""  
\* and SystemState4 is not ""RePA""  
the RePA feature selection interface shall be shown as selectable."

"If SelectionButton\_2 == ""Show""  
\* and RePAParkInSelectable is set to ""NotSelectable""  
the RePA feature selection interface shall be shown as not selectable."

"If SelectionButton\_1 == ""Show""  
\* and SystemState4 is ""ApaParkIn""  
the ApaParkIn feature selection interface shall be shown as selected."



"If RePASelector == ""Show""  
\* and SystemState4 is ""RePA""  
the RePA feature selection interface shall be shown as selected."

If the ApaParkIn feature selection interface is shown as selectable and the user touch selects it, the HMI function shall set DriverFeatureRequest to "ApaParkIn".

If the RePAParkIn feature selection interface is shown as selectable and the user touch selects it, the HMI function shall set DriverFeatureRequest to "RePA".

"If the HMI function has changed DriverFeatureRequest from ""None"" to ""ApaParkIn"" or ""RePA""  
the HMI function shall set DriverFeatureRequest back to ""None"" if:  
\*the ADAS function has responded by setting SystemState4 to the requested state ("ApaParkIn" or "RePA", respectively)  
\* or the DriverFeatureRequest has been set to a value other than ""None"" for equal to or more than RequestTimeout."

If the user touch selects the feature selection interface of the currently active feature (as per SystemState4), DriverFeatureRequest shall not be changed.

If ApaOffSelectable is "NotSelectable", the OffOptn on the APA full shall not be selectable.

"If the OffOptn is shown on the APA full screen  
\*and ApaOffSelectable is ""Selectable""  
the OffOptn shall be selectable. "

"If the OffOptn shown on the APA full screen is selectable  
\*and the user touch selects the OffOptn,  
the HMI function shall set DriverFeatureRequest to ""Off""."

"If the HMI function has changed DriverFeatureRequest from ""None"" to ""Off""  
the HMI function shall set DriverFeatureRequest to ""None"" if  
\* the ADAS function has responded by setting SystemState1 to ""Off""  
\* or DriverFeatureRequest has been set to ""Off"" for equal to or more than RequestTimeout."

#### 4.2.4 Use Cases

##### 4.2.4.1 RPA-UC-REQ-360743/B-Change Current Feature

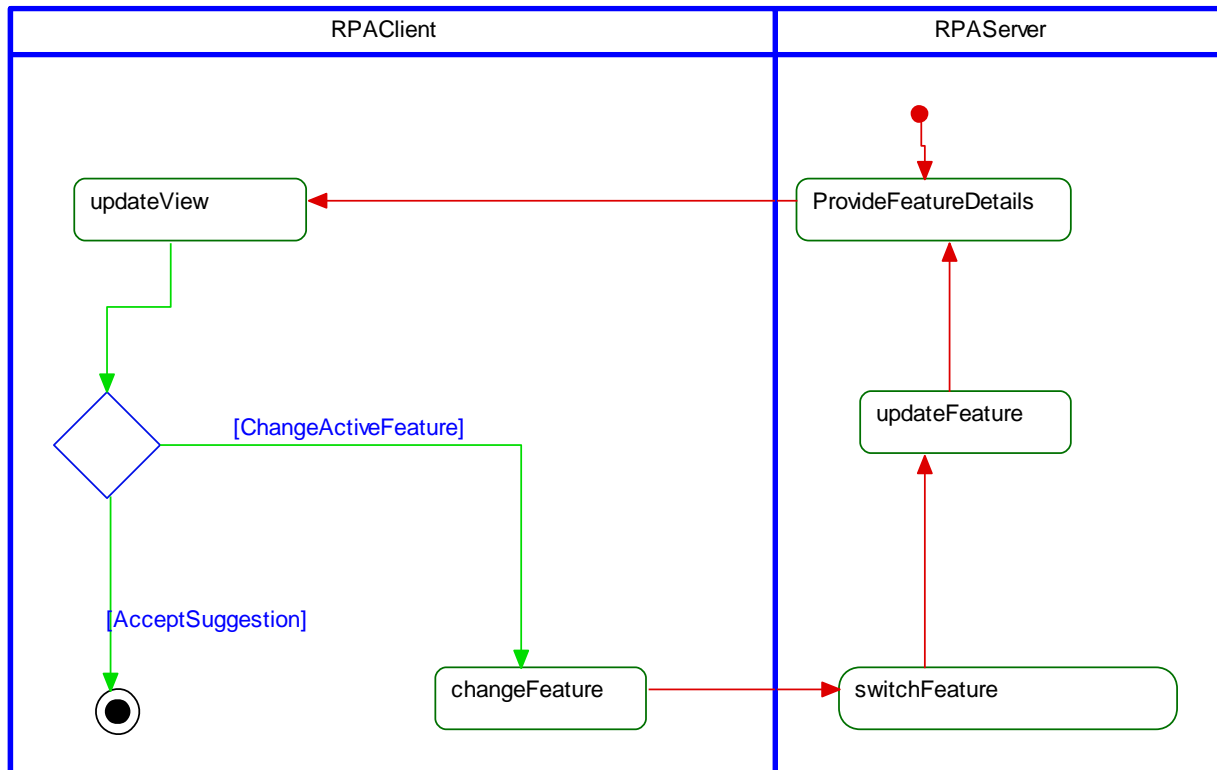
Actors	User
Pre-conditions	ParkIn and RepaParkIn are selectable. System already has one of the above features active.
Scenario Description	User selects a feature that is not active.
Post-conditions	Client+Server will activate the feature the user requested.
List of Exception Use Cases	
Interfaces	Client HMI



## 4.2.5 White Box View

## 4.2.5.1 Activity Diagrams

## 4.2.5.1.1 RPA-ACT-REQ-360744/A-Feature Determination

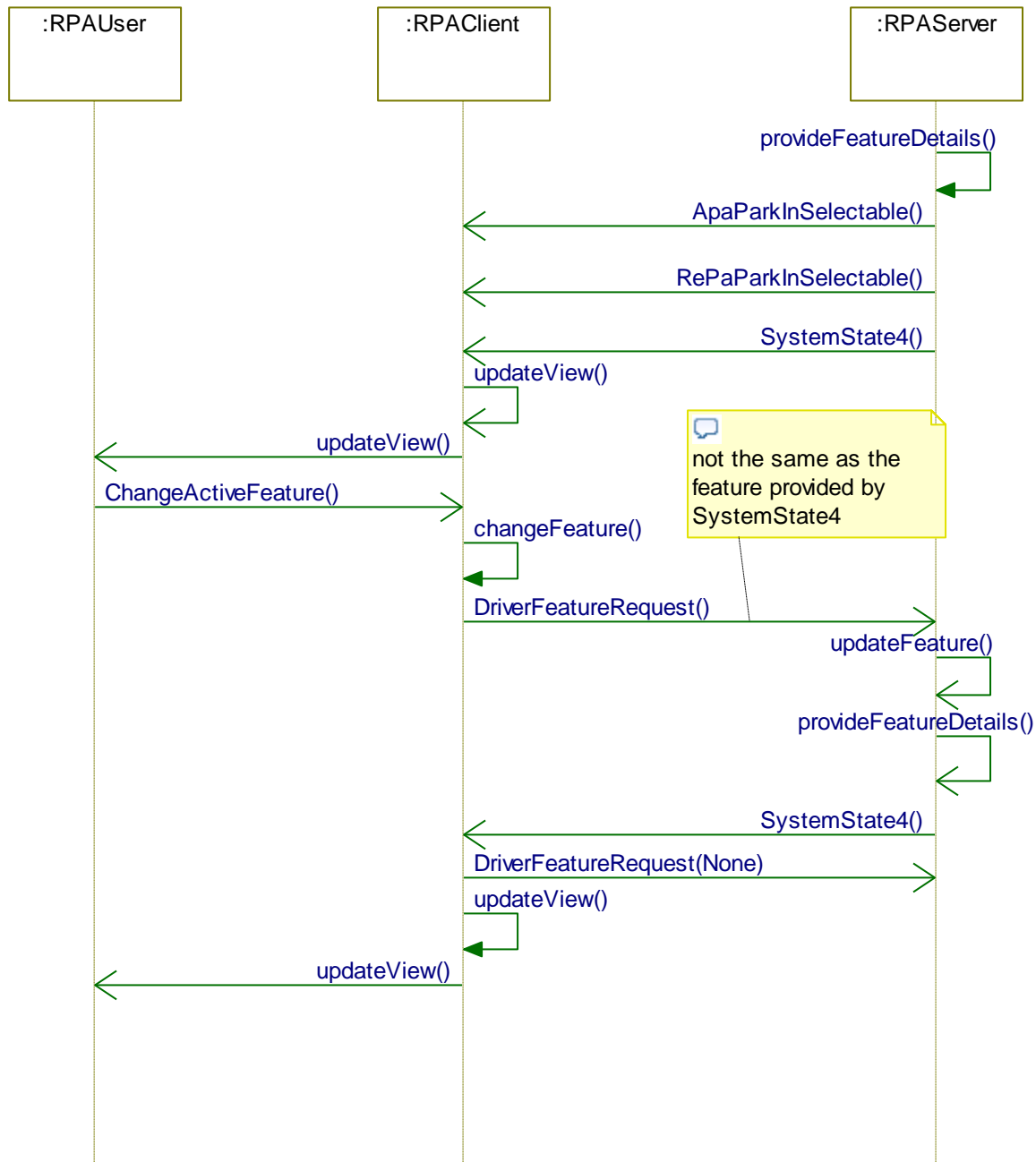






#### 4.2.5.2 Sequence Diagrams

##### 4.2.5.2.1 RPA-SD-REQ-360745/B-Feature Determination



#### 4.3 RPA-FUN-REQ-358986/B-Parking Map Drawing

##### 4.3.1 Overview

Park Search Mode(PSM) slot indicator shall update the status of the slot information for all Four sides of Vehicle. Slot information shall be updated on the user screen with their respective sides (Left, Right, Rear & Front) with their availability as Ready or Found and parking type as Parallel or Perpendicular.



#### 4.3.2 Requirements

##### 4.3.2.1 RPA-REQ-360853/B-PSM Scan- Left and Right

The max number of slots per side is three slots. The Parking slot type on Left and right side shall attributed as Parallel and Perpendicular.

Slot Type	Slot Attribute	Values
APaSlotL1	Parallel	IPA Found
		IPA Ready
	Perpendicular	IPE Found
		IPE Ready
APaSlotL2	Parallel	IPA Found
		IPA Ready
	Perpendicular	IPE Found
		IPE Ready
APaSlotL3	Parallel	IPA Found
		IPA Ready
	Perpendicular	IPE Found
		IPE Ready
APaSlotR1	Parallel	IPA Found
		IPA Ready
	Perpendicular	IPE Found
		IPE Ready
APaSlotR2	Parallel	IPA Found
		IPA Ready
	Perpendicular	IPE Found
		IPE Ready
APaSlotR3	Parallel	IPA Found
		IPA Ready
	Perpendicular	IPE Found
		IPE Ready

##### 4.3.2.2 RPA-REQ-360855/A-PSM Scan- Front & Rear

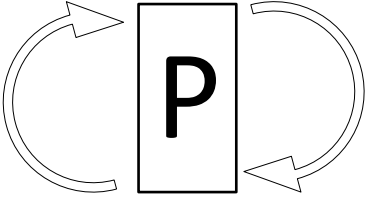
Active Park Assist (APA) shall update the user screen with all possible and available slot information. The APA system shall update the user screen with possible and available parking slots for Front and Rear side of vehicle respectively.

The Parking slot type on Front and Rear side shall attributed as Not Available and Available.

Slot Type	Slot Attribute	Values
ApaSlotFrontGtp	Not Available	FALSE
	Available	TRUE
ApaSlotRearGtp	Not Available	FALSE
	Available	TRUE

##### 4.3.2.3 RPA-REQ-360852/B-Slot Type Change

Available slot Information shall be shown with a Parking icon at their respective slot position. If the targeted Parking slot is changeable to Parallel or perpendicular it shall be shown as type changeable on the User Screen.



Slot Type	Values
ApaSlotL1FeatureOptn	Not Available
	Available
ApaSlotL2FeatureOptn	Not Available
	Available
ApaSlotR1FeatureOptn	Not Available
	Available
ApaSlotR2FeatureOptn	Not Available
	Available

End of req

#### 4.3.2.4 RPA-REQ-433875/B-Slot Symbol Part 1

PSM Slots - indication condition (On/Off) - This truth table shall only apply for ParkIn screens if ApaMvngSlots == "On"

**To proper see the tables, without any word program limitation, it is necessary to refer to functional Spec. See excel file VDOC084729 tab PSM Slot Symbol-Presence&Type 1**

**Current table could miss displaying full elements due to limitations of page size.**

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#### 4.3.2.5 RPA-REQ-433876/B-Slot Symbol Part 2

PSM Slots - indication condition (On/Off) - The requirements in this tab shall only apply for ParkIn screens if ApaMvngSlots == "Off".

"If SystemState1 is ""HMIFullScreen""  
\* and ApaMvngSlots == ""Off""  
\* and ApaStaticSlotLeftStat is ""Ready""  
the HMI function shall show the symbol ApaStaticSlotLeft with the attribute ""Ready""."

"If SystemState1 is ""HMIFullScreen""  
\* and ApaMvngSlots == ""Off""  
\* and ApaStaticSlotLeftStat is ""None""  
the HMI function shall not show the symbol ApaStaticSlotLeft."

"If SystemState1 is ""HMIFullScreen""  
\* and ApaMvngSlots == ""Off""  
\* and ApaStaticSlotRightStat is ""Ready""



the HMI function shall show the symbol ApaStaticSlotRight with the attribute ""Ready""."

"If SystemState1 is ""HMIFullScreen""

\* and ApaMvngSlots == ""Off""

\* and ApaStaticSlotRightStat is ""None"",

the HMI function shall not show the symbol ApaStaticSlotRight."

"If SystemState1 is ""HMIFullScreen""

\* and ApaMvngSlots == ""Off""

\* and ApaSlotFrontGtpStatus is ""True"",

the HMI function shall show the symbol ApaStaticSlotFront with the attribute ""Ready""."

"If SystemState1 is ""HMIFullScreen""

\* and ApaMvngSlots == ""Off""

\* and ApaSlotFrontGtpStatus is ""False"",

the HMI function shall not show the symbol ApaStaticSlotFront."

"If SystemState1 is ""HMIFullScreen""

\* and ApaMvngSlots == ""Off""

\* and ApaSlotRearGtpStatus is ""True"",

the HMI function shall show the symbol ApaStaticSlotRear with the attribute ""Ready""."

"If SystemState1 is ""HMIFullScreen""

\* and ApaMvngSlots == ""Off""

\* and ApaSlotRearGtpStatus is ""False"",

the HMI function shall not show the symbol ApaStaticSlotRear."

Regardless from their attribute (found/ ready), the symbols ApaStaticSlotLeft and ApaStaticSlotRight shall not be touch selectable.

#### 4.3.2.6 *RPA-REQ-501377/A-User Interaction With Slots*

When

ApaSlotTarget == "xy"

and

ApaSlot"xy"FeatureOptn is "NotAvailable",

the slot "xy" shall not be shown as selectable.

Where "xy" is a placeholder for "L1", "L2", "R1" and "R2".

Where "abc" is a placeholder for "IPa" or "IPe".

### 4.3.3 Use Cases

#### 4.3.3.1 *RPA-UC-REQ-360835/A-Slot Right & Left Find*

<b>Actors</b>	User
<b>Pre-conditions</b>	1. Vehicle is ON and APA session actively looking for Right and Left side parking Slot. 2. Slot Indicator from RePA server is True.
<b>Scenario Description</b>	RePA Server notifies Client with Slot info as Ready or Found
<b>Post-conditions</b>	RePA Client shall update the Slot Information for User.
<b>List of Exception Use Cases</b>	
<b>Interfaces</b>	Client HMI Interface

**4.3.3.2 RPA-UC-REQ-360836/A-Slot Front & Rear Find**

<b>Actors</b>	User
<b>Pre-conditions</b>	1. Vehicle is ON and APA session actively looking for Front and Rear parking Slot. 2. Slot Indicator from RePA server is True.
<b>Scenario Description</b>	RePA Server notifies Client with Slot info as Found or Not Found.
<b>Post-conditions</b>	RePA Client shall update the Slot Information for User.
<b>List of Exception Use Cases</b>	
<b>Interfaces</b>	Client HMI Interface

**4.3.3.3 RPA-UC-REQ-360837/A-Slot Visual Update**

<b>Actors</b>	User
<b>Pre-conditions</b>	1. Vehicle is ON and APA session actively looking for Right and Left side parking Slot. 2. Slot Indicator from RePA server is True. 3. Both Parallel and Perpendicular type parking slot available for target slot.
<b>Scenario Description</b>	RePA client updated as slot type can be changed as Parallel or Perpendicular.
<b>Post-conditions</b>	Respective slot information updated
<b>List of Exception Use Cases</b>	
<b>Interfaces</b>	Client HMI Interface

**4.3.3.4 RPA-UC-REQ-360838/A-OverSpeed**

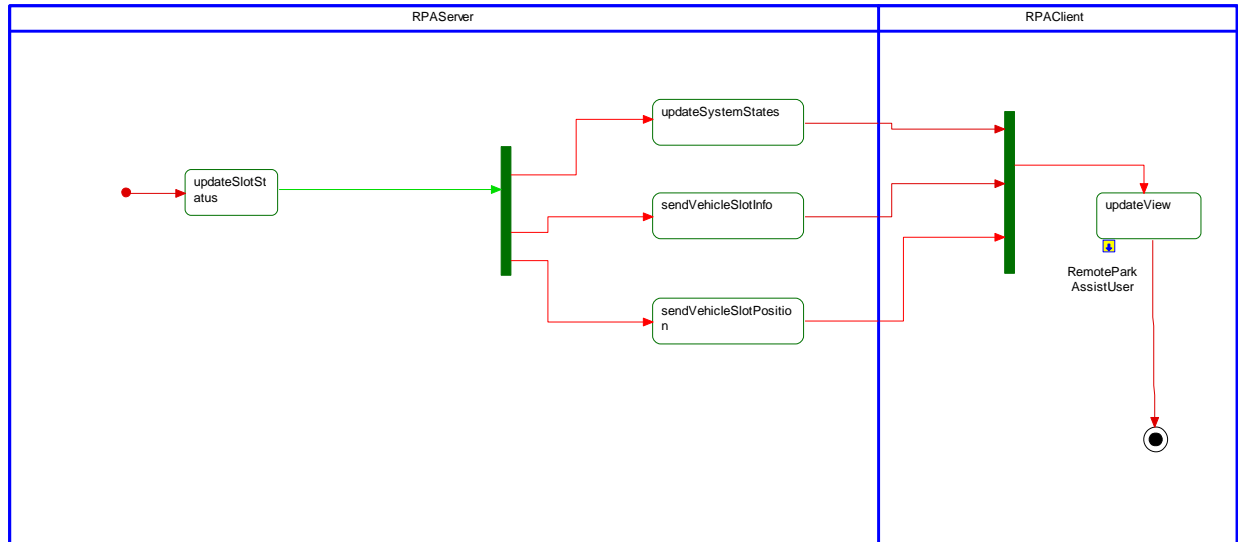
<b>Actors</b>	User
<b>Pre-conditions</b>	1. Vehicle is ON and APA session actively looking for parking Slot. 2. Slot Indicator from RePA server is True.
<b>Scenario Description</b>	Vehicle speed exceeds the limit of APA session.
<b>Post-conditions</b>	RePA Client updated with overspeed information.
<b>List of Exception Use Cases</b>	
<b>Interfaces</b>	Client HMI Interface



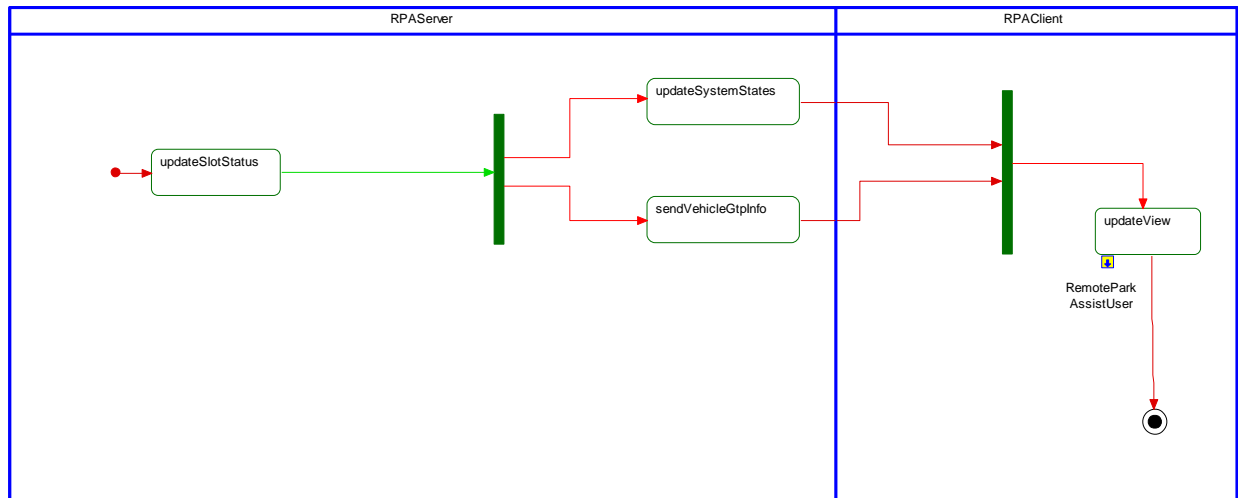
#### 4.3.4 White Box View

##### 4.3.4.1 Activity Diagrams

###### 4.3.4.1.1 RPA-ACT-REQ-360167/A-Slot Selector - Right&Left

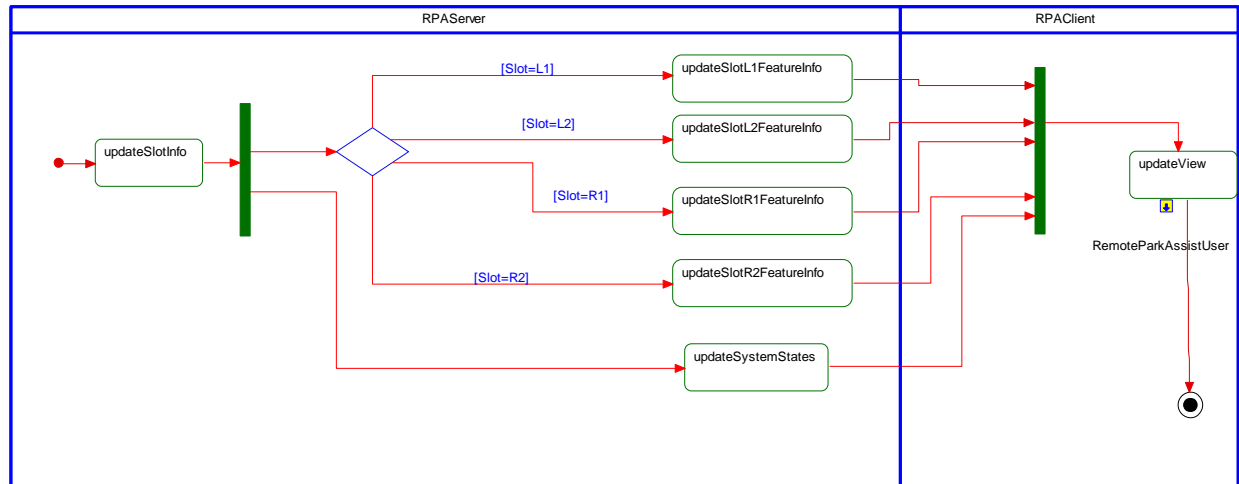


###### 4.3.4.1.2 RPA-ACT-REQ-360220/A-Slot Selector - Front&Rear

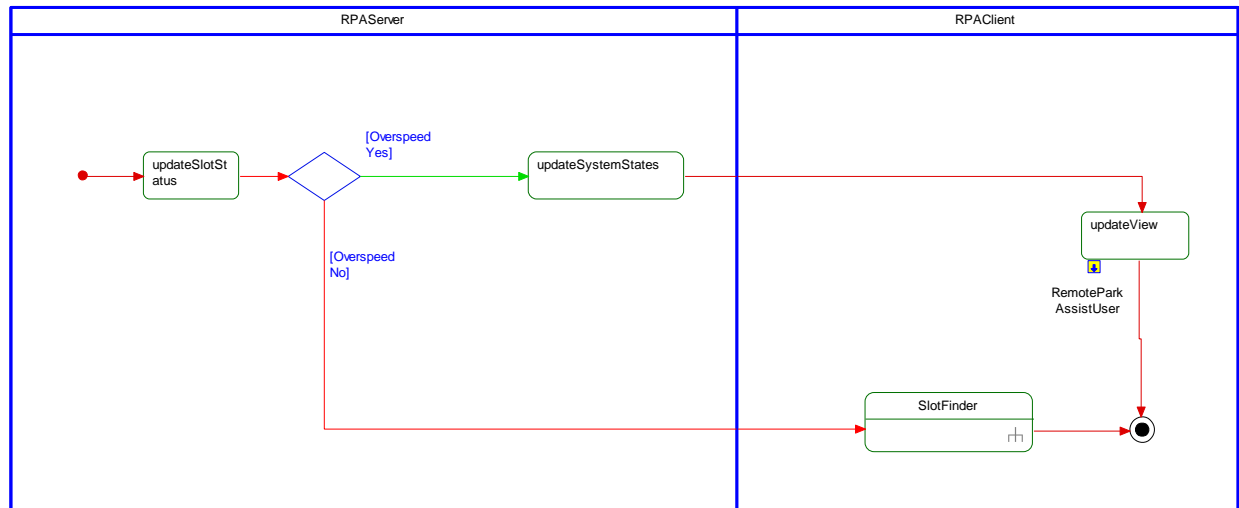




## 4.3.4.1.3 RPA-ACT-REQ-360385/A-Slot Selector - Slot Change



## 4.3.4.1.4 RPA-ACT-REQ-360440/A-Slot Selector - OverSpeed

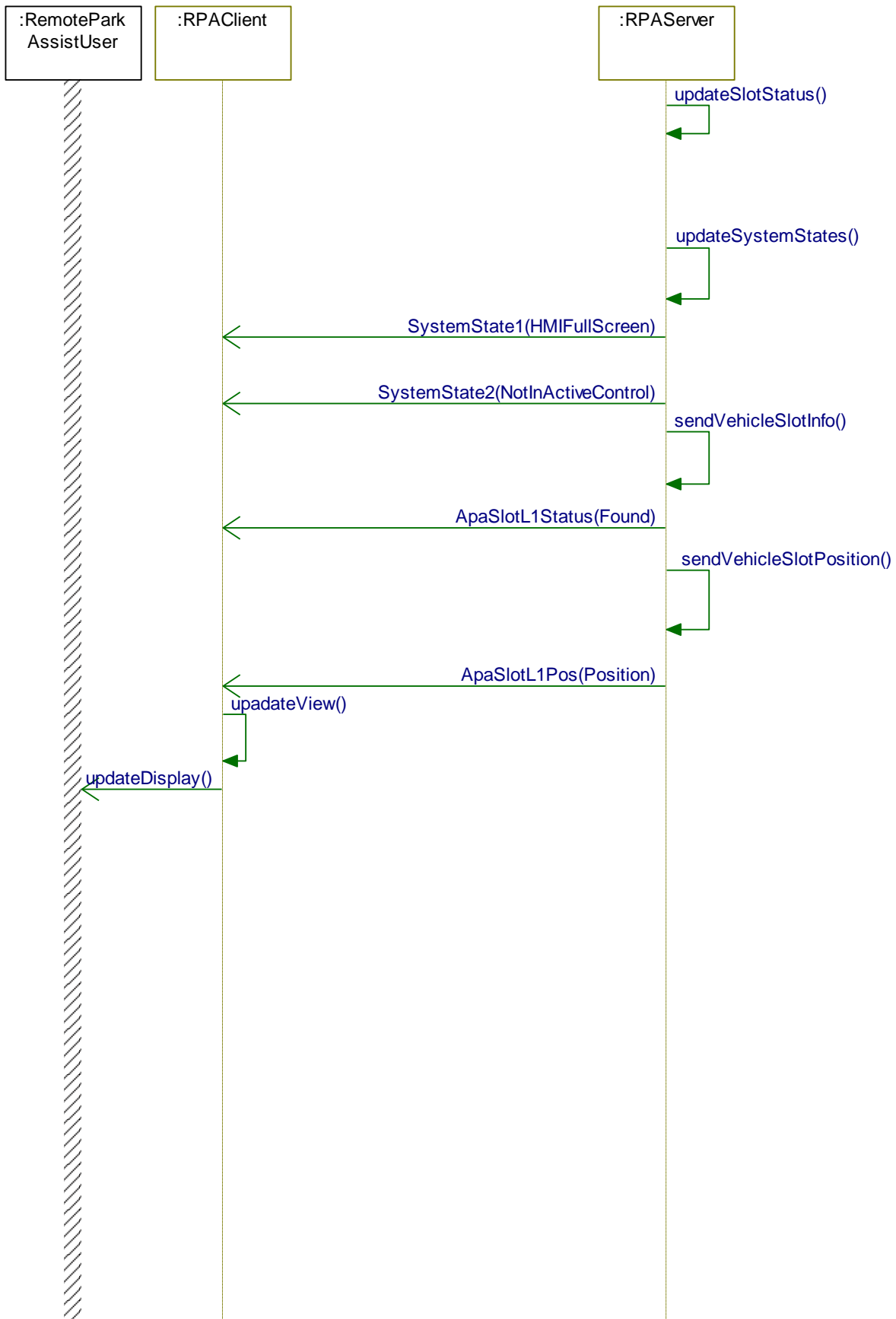




#### 4.3.4.2 Sequence Diagrams

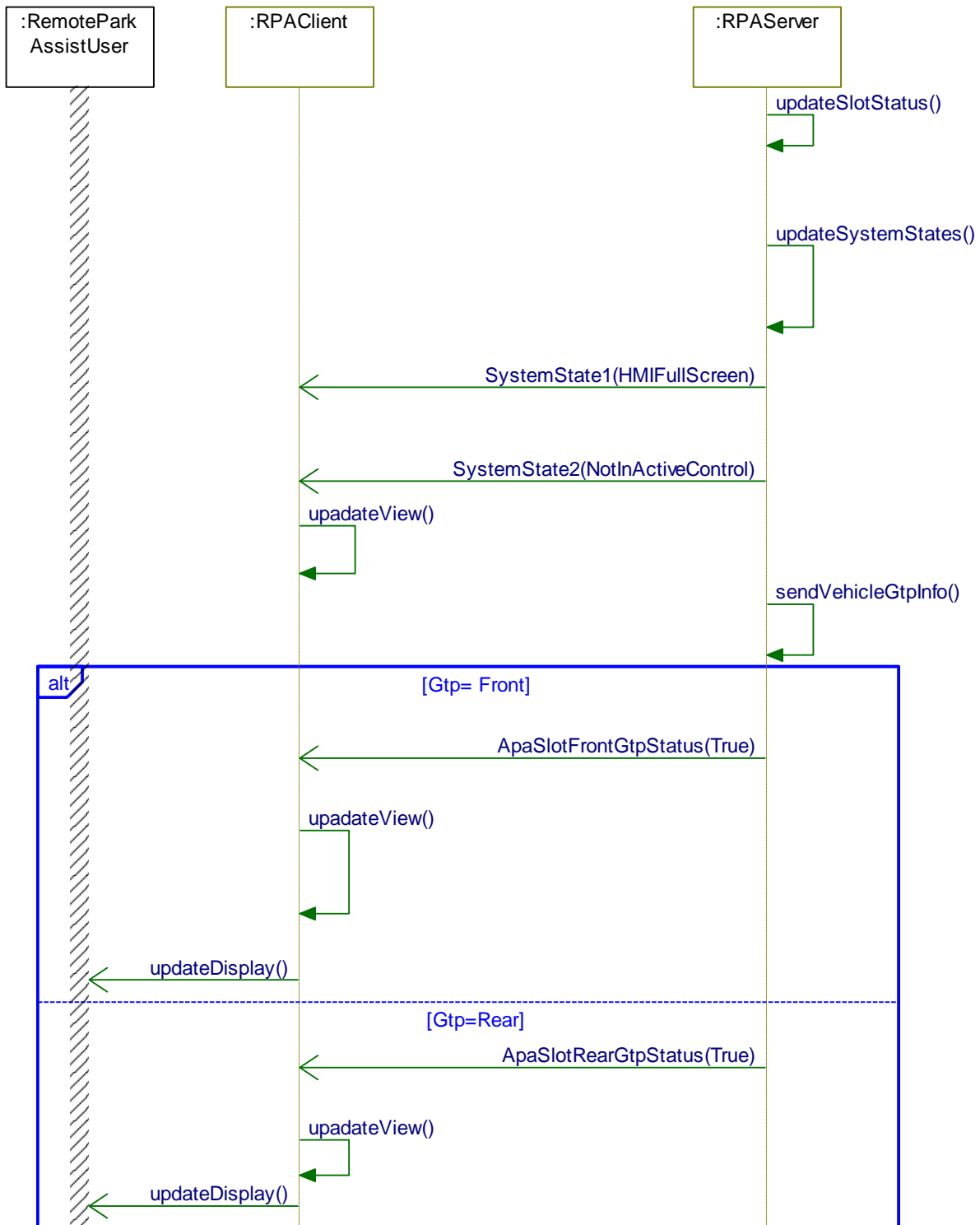
##### 4.3.4.2.1 RPA-SD-REQ-360536/A-Slot Selector - Right&Left





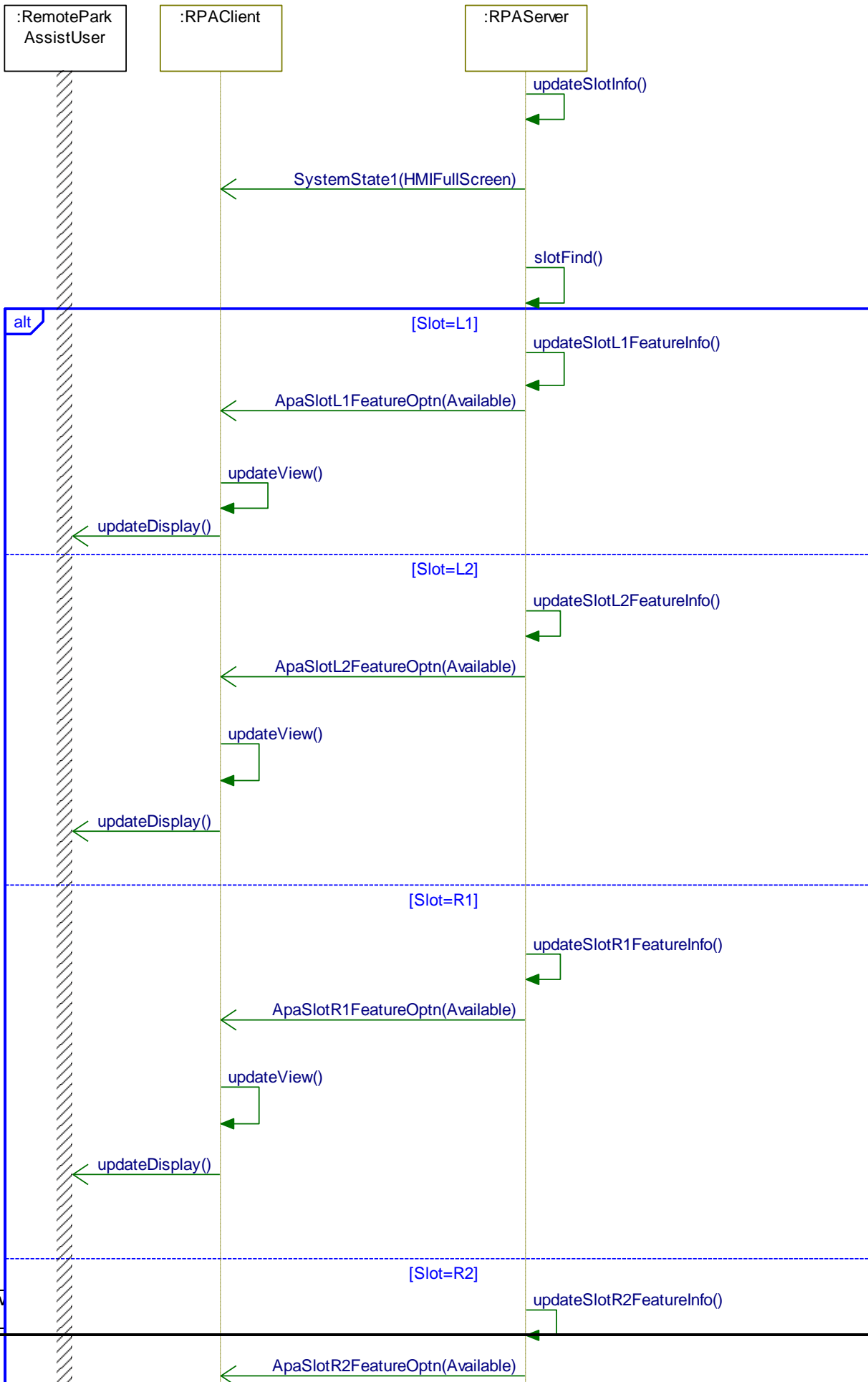


#### 4.3.4.2.2 RPA-SD-REQ-360541/A-Slot Selector - Front&Rear



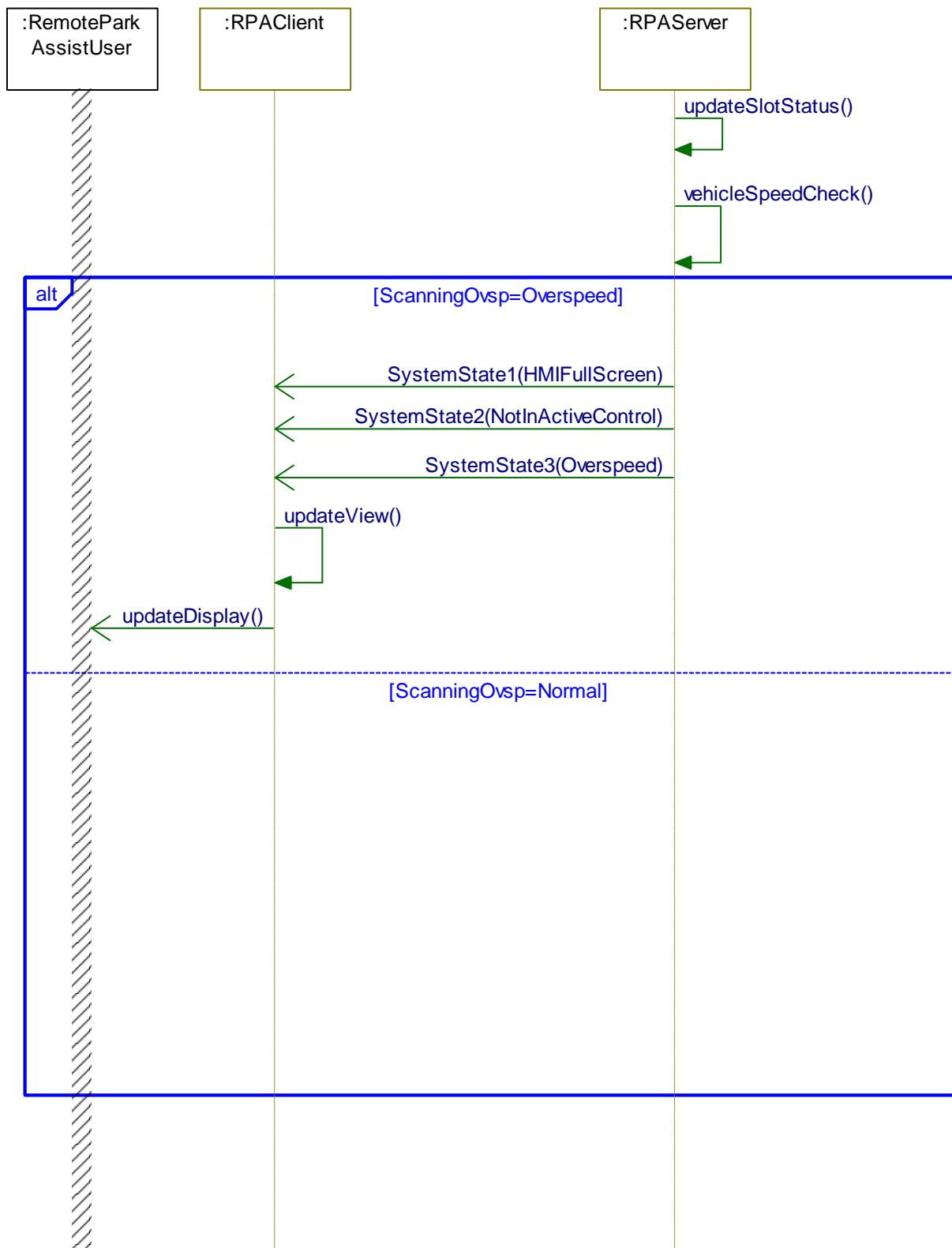


#### 4.3.4.2.3 RPA-SD-REQ-360545/A-Slot Selector - Slot Change





## 4.3.4.2.4 RPA-SD-REQ-360552/B-Slot Selector - OverSpeed





## 4.4 RPA-FUN-REQ-358987/B-Slot Interaction

### 4.4.1 Park Slot Interaction Overview

RePA feature provides the user with details of parking slot, such as the type, Parallel or Perpendicular. It also tells the user where the feature aims to park the vehicle. The feature also gives the user the ability to change the parking type, such as toggle between Parallel and Perpendicular and the ability to choose a different parking slot. The below details in this function describe the interaction between client and server in these situations, change parking type and change targeted parking location.

#### 4.4.2 RPA-REQ-360742/B-Returning To Default Values

When sending DriverFeatureChangeRequest, upon getting confirmation that Server has changed the parking type, the client shall send the state False.

When sending ApaDriverSlotSelection, upon getting confirmation that Server has changed the targeted parking slot, the client shall send the state None.

#### 4.4.3 RPA-REQ-410605/A-Slot Target Selection Availability

Slot target selection shall only be possible if ApaMvngSlots is set to "On".

#### 4.4.4 RPA-REQ-433992/B-Slot Target Selection

##### Requirement

"If more than one slot are indicated on the HMI center stack display (e.g. slot ""ij"" and ""mn"")

- and ApaOptnSelect is "Available"
  - and ApaSlotTarget is "ij"
  - and ApaSlot"mn"\_Status is ""abcReady""
  - and the user touch selects the slot symbol triggered by ApaSlot"mn"\_Status
- the APA delUXe HMI function shall change ApaDriverSlotSelection from "None" to "mn".

Whereas "ij" and "mn" are placeholders for "L1", "L2", "R1" or "R2" and ""ij"" and ""mn"" are different.  
Whereas ""abc"" is a placeholder for ""IPa"" or ""IPe"".

~~~~~

"If the APA delUXe HMI function has changed ApaDriverSlotSelection from "None" to "mn"

- and ApaSlotTarget changes to "mn",
  - or ApaDriverSlotSelection has been set to ""mn"" longer than RequestTimeOut
  - or ApaSlot""mn""Status changes to ""None"", ""abcFound"" or ""Null""
- the APA delUXe HMI function shall set ApaDriverSlotSelection to "None".

Whereas "mn" is a placeholder for "L1", "L2", "R1" and "R2".

Whereas ""abc"" is a placeholder for ""IPa"" or ""IPe"".

~~~~~

"If ApaSlotTarget is "ij" and the user touch selects the slot triggered by ApaSlot"ij"\_Status, the APA delUXe HMI function shall keep ApaDriverSlotSelection set to "None".

Whereas "ij" is a placeholder for "L1", "L2", "R1" and "R2".

~~~~~

"If ApaDriverSlotSelection is "mn"

- and ApaSlot"xy"\_Status is "abcReady"
- and the driver touch selects the slot symbol triggered by ApaSlot"xy"\_Status
- and ApaOptnSelect is "Available",



ApaDriverSlotSelection shall be set to "xy".

Whereas "xy" is a placeholder for "L1", "L2", "R1" and "R2".

Whereas ""abc"" is a placeholder for ""IPa"" or ""IPe""."

~~~~~

Slot target selection shall only be possible if ApaMvngSlots is set to "On".

~~~~~

When

ApaSlotTarget == "xy"

and

ApaSlot"xy"FeatureOptn is "NotAvailable",

the slot "xy" shall not be shown as selectable.

Where "xy" is a placeholder for "L1", "L2", "R1" and "R2".

Where "abc" is a placeholder for "IPa" or "IPe".

~~~~~

#### 4.4.5 RPA-REQ-433993/A-Slot Type Selection

##### User interaction with slots

"If ApaSlotTarget is "xy"

- and ApaOptnSelect is "Available"
  - and ApaSlot"xy"FeatureOptn is "Available"
  - and the user touch selects the slot change option symbol of the slot triggered for ApaSlot"xy" \_Status
- the APA delUXe HMI function shall change DriverFeatureChangeRequest from "False" to "True".

Whereas "xy" is a placeholder for "L1", "L2", "R1" and "R2".

~~~~~

"If the APA delUXe HMI function has changed DriverFeatureChangeRequest from "False" to "True" as per ApadelUXe0167

- and the slot ApaSlot"xy" (the user has selected) changes to ""IPe..."" or ""IPa..."" , respectively,
- the APA delUXe HMI function shall set DriverFeatureChangeRequest to "False".

Whereas "xy" are placeholders for "L1", "L2", "R1" and "R2".

~~~~~

"If the APA delUXe HMI function has changed DriverFeatureOptnChangeRq from "False" to "True" as per ApadelUXe0167

- and the the target slot changes from "xy" to ""mn"" ,
- the APA delUXe HMI function shall set DriverFeatureChangeRequest to "False".

Whereas "xy" and ""mn"" are placeholders for "L1", "L2", "R1" and "R2".

~~~~~

"If the APA delUXe HMI function has changed DriverFeatureChangeRequest from "False" to "True" as per ApadelUXe0167

- and ApaOptnSelect changes from "Available" to "NotAvailable",
- the APA delUXe HMI function shall set DriverFeatureChangeRequest to "False".





Whereas "xy" and ""mn"" are placeholders for "L1", "L2", "R1" and "R2".

~~~~~

"If the APA delUXe HMI function has changed DriverFeatureChangeRequest from "False" to "True" as per ApadelUXe0167 • and ApaSlot"xy"\_Status (so the target slot) changes to "None" or "Null", the APA delUXe HMI function shall set DriverFeatureChangeRequest to "False".

Whereas "xy" and ""mn"" are placeholders for "L1", "L2", "R1" and "R2".

#### 4.4.6 Use Cases

##### 4.4.6.1 RPA-UC-REQ-359188/B-Change Slot Type

<b>Actors</b>	User
<b>Pre-conditions</b>	Server has selected a target parking slot and is providing a parking type lpe (or lpa).
<b>Scenario Description</b>	User presses on parking slot to change the toggle the parking type.
<b>Post-conditions</b>	Server toggles the parking type. Client stops sending request to change the parking type.
<b>List of Exception Use Cases</b>	
<b>Interfaces</b>	Vehicle HMI

##### 4.4.6.2 RPA-UC-REQ-359189/A-Change Targeted Slot

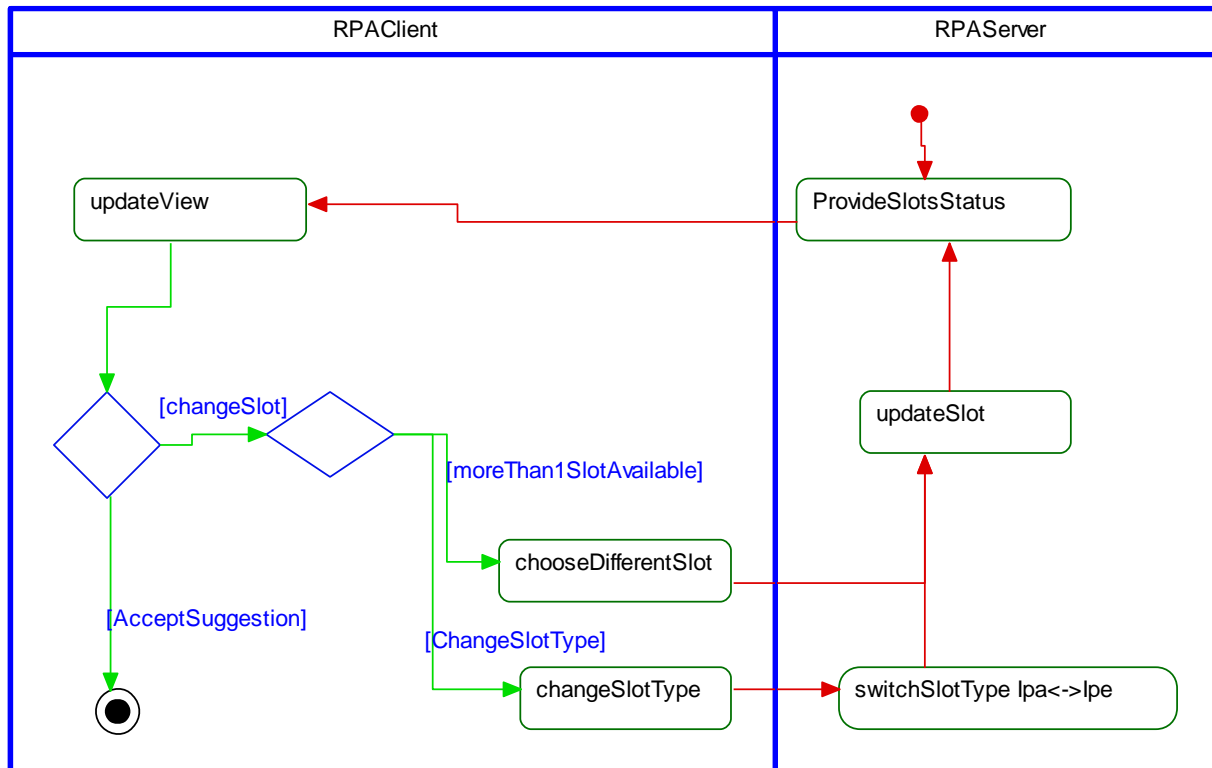
<b>Actors</b>	User
<b>Pre-conditions</b>	Server has located multiple parking slots. Parking Slots are ready.
<b>Scenario Description</b>	User presses on a parking slot available on HMI screen that is not currently the target.
<b>Post-conditions</b>	Server changes the targeted parking slot and guides the vehicle to park to that particular spot.
<b>List of Exception Use Cases</b>	
<b>Interfaces</b>	Vehicle HMI.



## 4.4.7 White Box View

## 4.4.7.1 Activity Diagrams

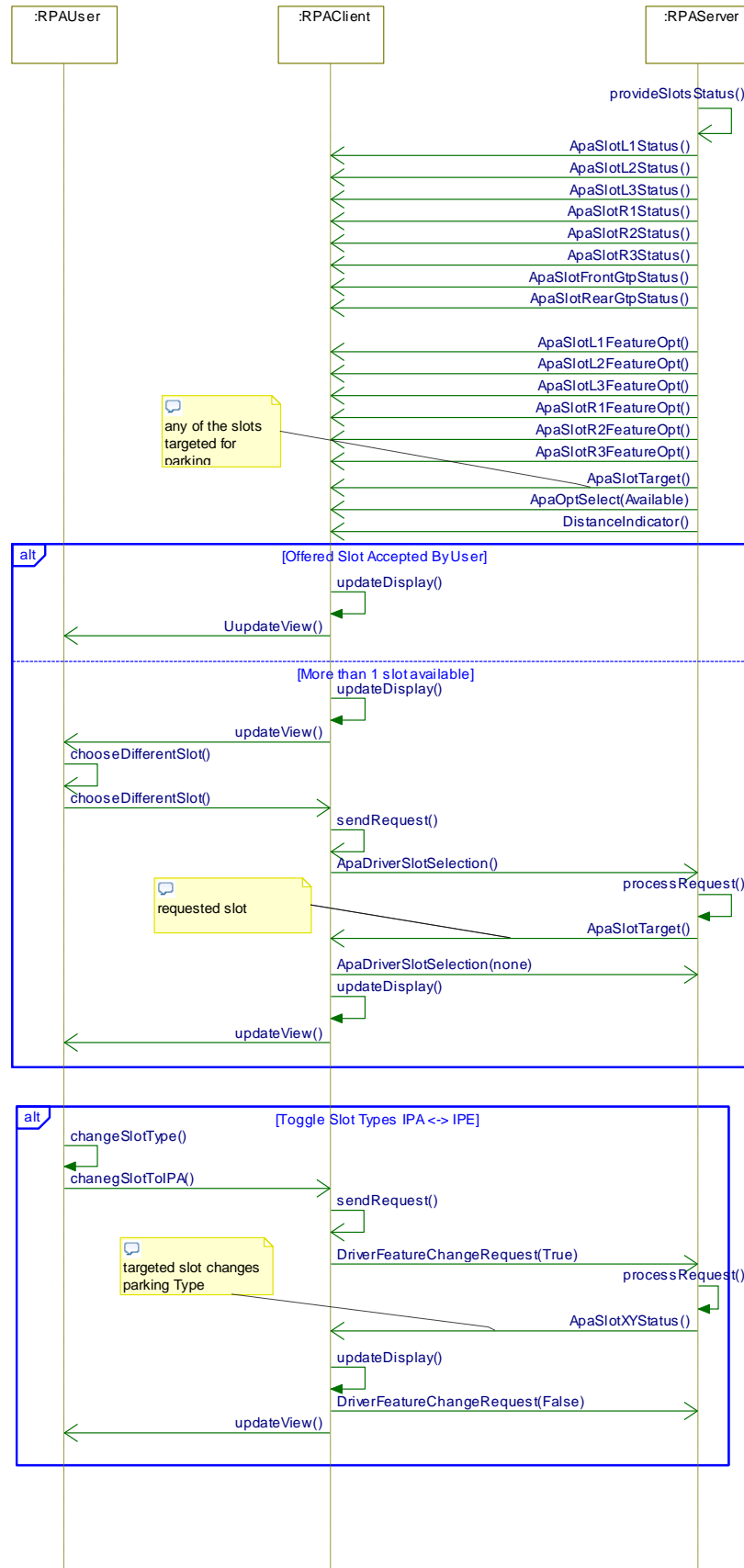
## 4.4.7.1.1 RPA-ACT-REQ-359619/A-Parking Slot Interaction





#### 4.4.7.2 Sequence Diagrams

##### 4.4.7.2.1 RPA-SD-REQ-359620/B-Parking Slot Interaction





## 4.5 RPA-FUN-REQ-358988/A-Driver Notification

### 4.5.1 Overview

Driver shall be notified with Text and Symbol updated on the HMI screen during an active APA or RePA session. In response to the Text and Symbol update, the Driver shall act to the information and shall aid the ongoing APA or RePA session.

### 4.5.2 Requirements

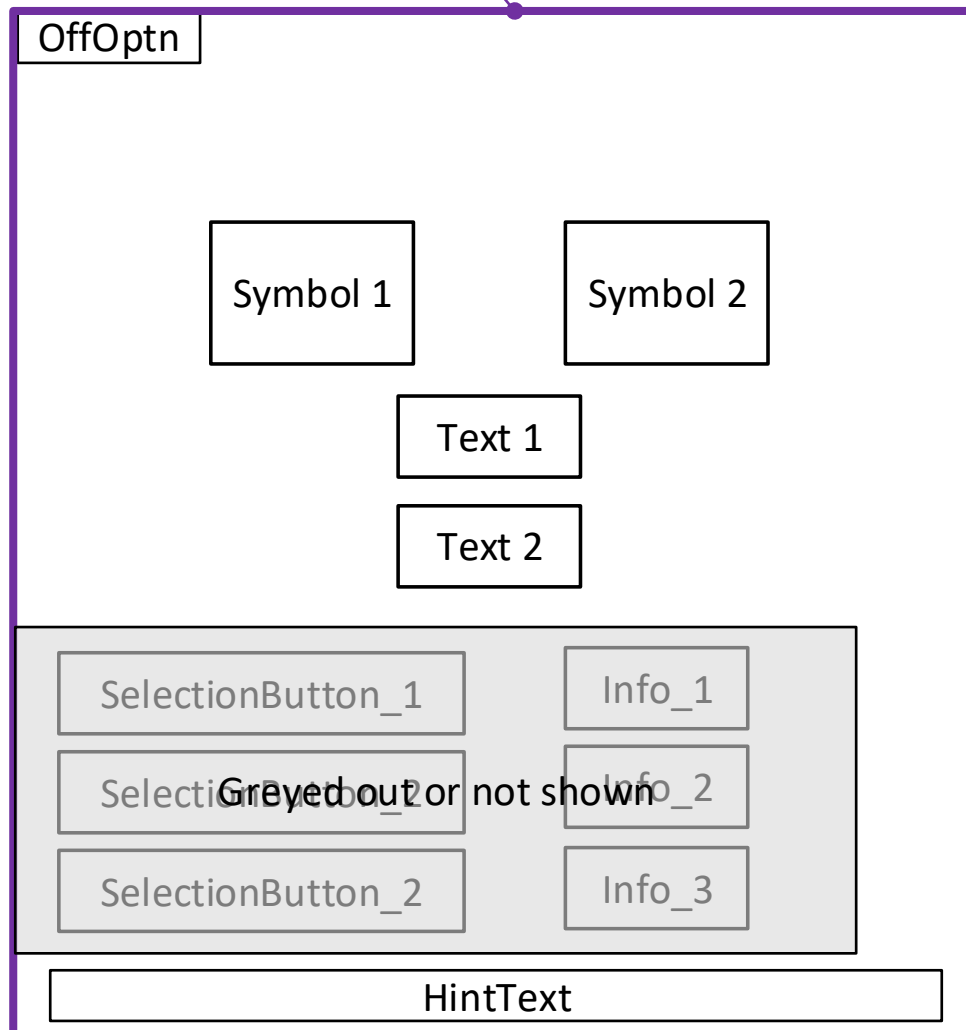
#### 4.5.2.1 RPA-REQ-360841/B-Screen Layout

The wordings as well as graphic elements shown in this document are only for reference. They simply define the baseline characteristics of screen elements referenced in the functional logic. HMI team will provide final graphic elements and wordings.



Scanning screen layout - Camera Off

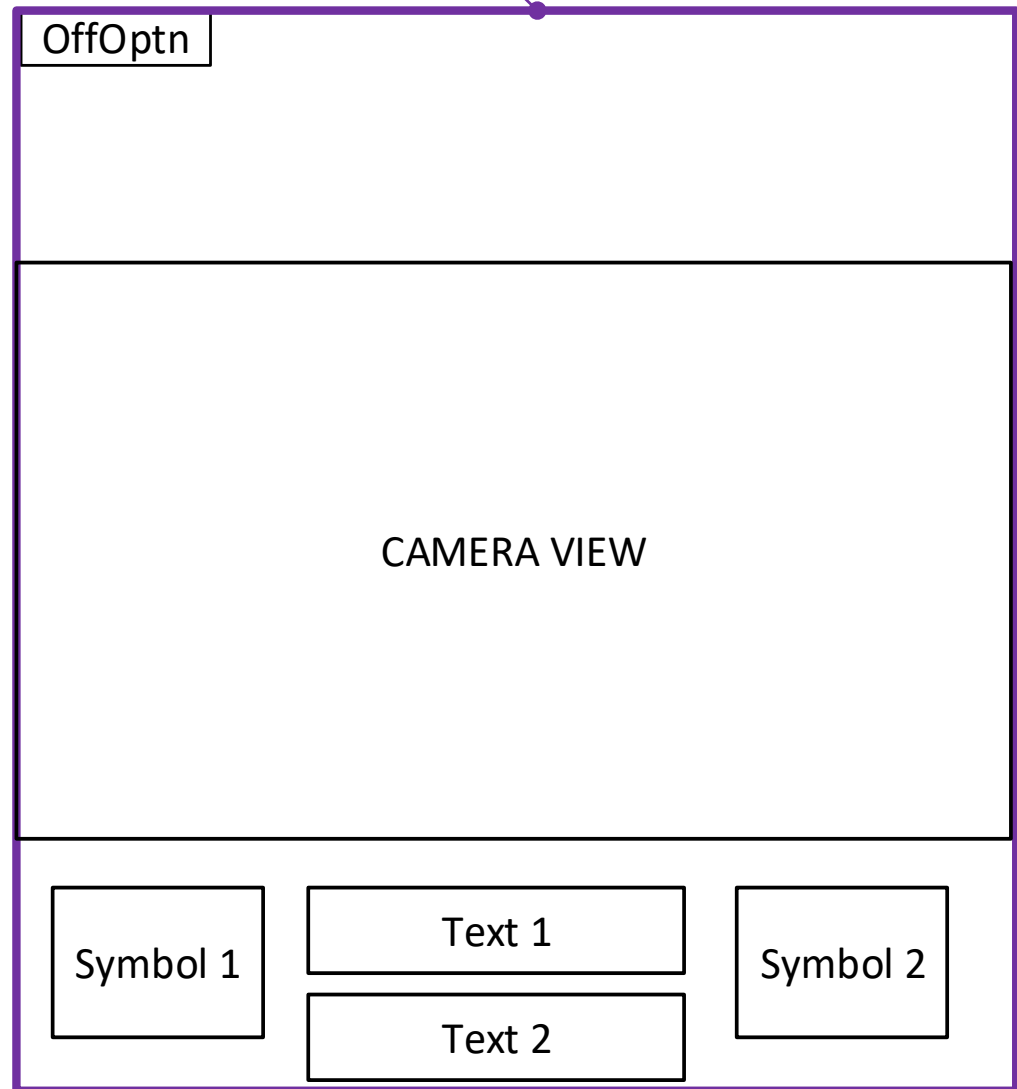
Area1 == ApmNonCam





## Active steering screen layout - Camera On

Area1 == Cam

4.5.2.2 RPA-REQ-360845/B-Available Text

The source of this requirement is Feature Functional Spec. The content is maintained in excel file due to convenience of organizing tables and accessing their elements more conveniently. If the consumers of this SPSS would like to view the tables content in their original format, you may find this requirement number content in tab Symbols & Texts of the functional spec.



Text1 / Text2		
ID	DeveloperText	Background
ApaTextID001	Searching for spaces....	The APA system is actively showing on the in-vehicle HMI. It is operated within its limits and scanning/ searching for park slots.
ApaTextID002	Use turn signal to select side	The driver needs to select the left or right side via the turn indicator. This text is only used for park out.
ApaTextID003	Right side selected	The driver has selected the right side to park out. The system has acknowledged the selection, but not calculated a trajectory yet. The text confirms side selection.
ApaTextID004	Left side selected	The driver has selected the left side to park out. The system has acknowledged the selection, but not calculated a trajectory yet. The text confirms side selection.
ApaTextID005	Remove hands from steering wheel	The system requests the driver to take her/his hand of the steering wheel. This can be triggered at the start of an APA maneuver or if the driver has interfaced with the steering wheel during an APA maneuver.
ApaTextID006	Space found	The system has found a park slot. It has not found a trajectory to park into the slot, yet.
ApaTextID007	Shift to Park	The system requests the driver to shift into park gear. This is only valid for AT vehicles.
ApaTextID008	Release brake pedal	The system requests the driver to release the service brakes (take their foot of the brakes).
ApaTextID009	Stop	The systems requests the driver to stop the vehicle. This text is used during an active maneuver of the Semi Assisted Parking (SAP) feature, prompting the driver to stop the vehicle by applying the service brakes.
ApaTextID010	Drive forward	The systems requests the driver to drive forward. This can be set during normal scanning. It is also set during Semi Assisted Parking (SAP) to inform the driver about the requested drive direction.
ApaTextID011	Drive backward	The systems requests the driver to drive backward. This is set during Semi Assisted Parking (SAP) to inform the driver about the requested drive direction.
ApaTextID012	Finished	The system has reached the final position of the assisted parking maneuver. Text is requested at the end of the active maneuver.
ApaTextID013	Paused	The Fully Assisted Parking (FAP) is momentarily paused. The maneuver can be resumed.
ApaTextID014	Attention!	This text is set together with the "Check surroundings" text during an active FAP maneuver. It simply aims at alerting the driver to continuously monitor the active maneuver.
ApaTextID015	Obstacle in path	The system has detected an object in the driving path of the vehicle.





ApaTextID016	Can't increase speed	The system informs the driver that during an active FAP maneuver the accelerator pedal is not active. This text is triggered if the driver presses the accelerator pedal during an active FAP maneuver.
ApaTextID017	Both sides blocked	The system has detected objects on both sides (left and right) of the vehicle and cannot offer parallel park out.
ApaTextID018	Slow down	The driver has exceeded a threshold speed. This can be set during scanning for all park in features if the associated speed threshold is exceeded. It can also be set during the active phase of SAP.
ApaTextID019	Canceled	The system has cancelled an active maneuver and stopped automatic control of vehicle actuators.
ApaTextID020	Canceled: Wheelslip	The system has cancelled an active maneuver and stopped automatic control of vehicle actuators. The reason for the cancellation is detected wheelslip. This is an abort. The maneuver cannot be resumed.
ApaTextID021	Canceled: Door open	The system has cancelled an active maneuver and stopped automatic control of vehicle actuators. The reason for the cancellation is that a door has been opened. This is an abort. The maneuver cannot be resumed. Not used for SAP.
ApaTextID022	Canceled: Incline to steep	The system has cancelled an active maneuver and stopped automatic control of vehicle actuators. The reason for the cancellation is that the inclination of the road exceeds a permissible threshold. This is an abort. The maneuver cannot be resumed. Not used for SAP.
ApaTextID023	Canceled : Obstacle in path	The system has cancelled an active maneuver and stopped automatic control of vehicle actuators. The reason for the cancellation is that an obstacle has been detected in the intended path of the vehicle.
ApaTextID024	Canceled: Traction Control off	The system has cancelled an active maneuver and stopped automatic control of vehicle actuators. The reason for the cancellation is that driver deactivated the traction control feature. This is an abort. The maneuver cannot be resumed.
ApaTextID025	Canceled: Interaction with steering wheel	The system has cancelled an active maneuver and stopped automatic control of vehicle actuators. The reason for the cancellation is that the driver interacted with the steering wheel. The maneuver can be resumed in some cases.
ApaTextID026	Canceled: Moved too far in wrong direction	The system has cancelled an active maneuver and stopped automatic control of vehicle actuators. The reason for the cancellation is that the driver ignored system instructions and drove too far into the direction opposite of the one requested by the system. The maneuver cannot be resumed. Only used for SAP.



ApaTextID027	Canceled: Driving too fast	The system has cancelled an active maneuver and stopped automatic control of vehicle actuators. The reason for the cancellation is that the driver exceeded the speed limit for the active maneuver. The maneuver cannot be resumed. Only used for SAP.
ApaTextID028	Canceled: System applied brakes	The system has cancelled an active maneuver and stopped automatic control of vehicle actuators. The reason for the cancellation is that the system initiated an automatic braking. The maneuver cannot be resumed. Only used for SAP.
ApaTextID029	Canceled: Sensors blocked	The system has cancelled an active maneuver and stopped automatic control of vehicle actuators. The reason for the cancellation is that sensors required for system operation are blocked (e.g. ultrasonic sensors blocked by ice or dirt). The maneuver cannot be resumed.
ApaTextID030	Canceled: Trailer attached	The system has cancelled an active maneuver and stopped automatic control of vehicle actuators. The reason for the cancellation is that a trailer has been detected. The maneuver cannot be resumed.
ApaTextID031	Active Park Assist System fault	The system is faulted.
ApaTextID032	Active Park Assist Not Available	The system is not available.
ApaTextID033	Drive forward	The system requests the driver to drive into forward direction. This text can be triggered during normal scanning for all features or during an active SAP maneuver.
ApaTextID034	Shift to Drive	The system request the driver to shift into drive gear. Used only for AT vehicles.
ApaTextID035	Shift to First gear	The system request the driver to shift into first gear. Used only for MT vehicles. Used only for SAP.
ApaTextID036	Shift to Reverse	The system request the driver to shift into reverse gear. Used only for SAP.
ApaTextID037	Shift to Neutral	The system request the driver to shift into neutral gear. Used only for FAP.
ApaTextID038	Hold park button	The system request the driver to continuously press the APA button/ P-Hotkey. Only used for FAP during the active phase of the maneuver ("driver in the loop confirmation").
ApaTextID039	Prepare to stop	This text is used for SAP during the active phase of the maneuver to raise the driver's awareness that she/he needs to stop the car herself/himself.



ApaTextID040	Check surroundings	This text is used for FAP during the active phase of the maneuver to alert the driver to monitor the surroundings of the vehicle (while the system automatically controls longitudinal and lateral movement of the vehicle).
ApaTextID041	Close door	The system advises the driver a door is open and needs to be closed. Only used for FAP and RePA.
ApaTextID042	Hold button to resume parking	This text is triggered if a FAP maneuver has been cancelled and a resume is available. The APA button/ P-Hotkey needs to be continuously pressed during an active FAP maneuver.
ApaTextID043	Please wait a moment	This text can be set during an active SAP maneuver. It alerts the driver to give the steering some time to catch up before continuing to drive forward or backward.
ApaTextID044	Take control of vehicle	The system requests the driver to take control of the vehicle. Set if an active FAP maneuver is aborted and the system stops controlling vehicle actuators.
ApaTextID045	Brake event	Can be set during an active SAP maneuver if the SAP system has triggered the vehicle's service brakes.
ApaTextID046	Press park button to resume	This text is triggered if a SAP maneuver has been cancelled and a resume is available. The APA button/ P-Hotkey needs to be pressed/ released for resume.
ApaTextID047	Wheel slip	The system has detected wheelslip. Set together with a text for cancellation of an active maneuver.
ApaTextID048	Traction Control off	The system has detected traction control system deactivation. Set together with a text for cancellation of an active maneuver or unavailability of the signal.
ApaTextID049	Take control of brakes	The SAP system requests the driver to take control of the service brakes. Set when the system aborts an active SAP maneuver by automatically applying the brakes. Creates awareness that the system does not permanently secure/ brake the vehicle.
ApaTextID050	Sensors blocked	The system has detected required sensors to be blocked. Set together with a text for cancellation of an active maneuver or unavailability of the signal.
ApaTextID051	Trailer attached	The system has detected a trailer. Set together with a text for cancellation of an active maneuver or unavailability of the signal.
ApaTextID052	Interaction with steering wheel	The system has detected interaction with the steering wheel. Set together with a text for cancellation of an active maneuver or unavailability of the signal.
ApaTextID053	Incline to steep	The system has detected road inclination above the allowed level. Set together with a text for cancellation of an active maneuver or unavailability of the signal.
ApaTextID054	Release park brake	The system reminds the driver that the park brake needs to be released.
ApaTextID055	Trailer feature not available	This text is set if the driver attempts to activate the trailer feature while the FAP feature is in active control of the vehicle (FAP maneuver in progress).



ApaTextID056	To use Active Park Assist	This text is part of the instruction to shift to forward gear to use APA. The SAP and FAP systems are not available when in reverse gear.
ApaTextID057	Leave vehicle running and exit	This text is set for the RePA feature and shown when the feature requests to continue the maneuver from outside the vehicle. The system offers a slot and the driver has followed instructions and shifted to P. They now need to exist the vehicle while keeping the engine on and taking their phone and keyfob with them. It is always set in combination with ApaTextID058.
ApaTextID058	Continue from Ford Pass/ Lincoln Way	This text is set for the RePA feature and shown when the feature requests to continue the maneuver from outside the vehicle. The system offers a slot and the driver has followed instructions and shifted to P. They now need to exist the vehicle while keeping the engine on and taking their phone and keyfob with them. It is always set in combination with ApaTextID057.
ApaTextID059	Vehicle controlled from outside	This text is set during the active phase of the RePA feature. When it is shown, the vehicle is supposed to be (must be) unoccupied.
ApaTextID060	Space selected	The system has found a park slot and a trajectory into it.
ApaTextID061	Stop to park	The systems requests the driver to stop the vehicle. The system has found a slot and calculated a trajectory. In this case the meaning is "Stop if you want to park".
ApaTextID063	Keep driving	RePA is active, but hasn't found a slot. This is valid for both driving directions. It tells the driver that to scan for slots, the vehicle needs to be moving. This is different to APA. For APA, scanning reverse is not allowed, so that when the driver engages R during scanning, the system shows a text prompting to drive forward/ disengage R. For RePA, we can go either direction, but need to be moving.
<b>Text3</b>		
<b>ID</b>	<b>DeveloperText</b>	<b>Background</b>
ApaTextID062	Shift to cancel	The APA FAP system is in active control of the vehicle. The driver can shift out of gear to cancel the maneuver.  <i>This text element is only required for Fully Assist Park Assist (FAP) and for layouts with a "full screen camera". All other APA screens do show a "close option" (e.g. "X" in left upper corner) that allows the user to abort FAP.</i>



## 4.5.2.3 RPA-REQ-360847/C-Text Notification - Scenarios

## RPA-REQ-360847/B-Text Notification - Scenarios

To proper see the tables, without any word program limitation, it is necessary to refer to functional Spec. See excel file tabs Text 1, Text 2 and Text 3.

Current tables could miss displaying full elements due to limitations of page size.

## Trigger Condition for Text 1

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## Trigger Condition for Text 2

ApadelU Xe0278	ApaTextID033	Drive forward	Area1 Scr01 3 Area1 Scr01 4	HMIFull Screen	NotInActi veControl	Norm alOps	ApaP arkIn	NoRe quest	DriveF orward	No ne	No ne	Fa ls e	Don't _care	Don't _care
-------------------	--------------	------------------	--------------------------------------------	-------------------	------------------------	---------------	---------------	---------------	------------------	----------	----------	---------------	----------------	----------------

## Trigger Condition for Text 3

ID	Requirement	TextID	DeveloperText	Reference Screen ID	Full screen parking camera layout (Cam _2)	HMISystemConfig	SystemState1	SystemState2	SystemState3	SystemState4	XVCScreenActive
ApadelU Xe0413	Show Text 3	ApaText ID062	Shift to cancel		True	FAP_RePA	HMIFull Screen	InActiveCo ntrol	Any state other than "Finishe d"	ApaPar kin	True
ApadelU Xe0414	Show Text 3	ApaText ID062	Shift to cancel		True	FAP_Only	HMIFull Screen	InActiveCo ntrol	Any state other than "Finishe d"	ApaPar kOut	True
ApadelU Xe0415	Don't show Text 3	n/a			False	Don't_car e	Don't_c are	Don't_care	Don't_c are	Don't_c are	Don't_car e
ApadelU Xe0416	Don't show Text 3	n/a			True	SAP_Only	Don't_c are	Don't_care	Don't_c are	Don't_c are	Don't_car e



<b>ApadelU Xe0417</b>	Don't show Text 3	n/a			True	Don't_car e	Off	Don't_care	Don't_care	Don't_care	Don't_care
<b>ApadelU Xe0418</b>	Don't show Text 3	n/a			True	Don't_car e	HmiMe nu	Don't_care	Don't_care	Don't_care	Don't_care
<b>ApadelU Xe0419</b>	Don't show Text 3	n/a			True	Don't_car e	Don't_care	NotInActiv eControl	Don't_care	Don't_care	Don't_care
<b>ApadelU Xe0450</b>	Don't show Text 3	n/a			Don't_care	Don't_car e	Don't_care	Don't_care	Finishe d	Don't_care	Don't_care
<b>ApadelU Xe0420</b>	Don't show Text 3	n/a			True	Don't_car e	Don't_care	Don't_care	Don't_care	RePA	Don't_care
<b>ApadelU Xe0421</b>	Don't show Text 3	n/a			True	Don't_car e	Don't_care	Don't_care	Don't_care	None	Don't_care
<b>ApadelU Xe0422</b>	Don't show Text 3	n/a			True	Don't_car e	Don't_care	Don't_care	Don't_care	Don't_care	False

#### 4.5.2.4 RPA-REQ-360848/C-Hint Text Notification - Scenarios

The content of this requirements is sourced from Functional Spec tabs Hint Text – Overview, HintText – Logic (1) and HintText – Logic (2) .

To view proper table content without word formatting issues and limitations, you must refer to functional spec.

#### HintText - Overview

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DeveloperText	Background	Tied to single screen	Which screen?
To cancel, shift out of Park.	This hint is triggered on the RePA screen that requests the driver to exit the vehicle and continue with the Ford Pass App. It makes the user aware that they can shift out of P to cancel RePA/ return to the previous screen.	Yes	RePA request to exit the vehicle and continue from the outside.
Take your keyfob with you	This hint is triggered when RePA requests the driver to continue the maneuver from outside the vehicle. It is therefore firmly linked to ApaTextID057 and 058.	Yes	RePA Exit vehicle
To search for narrow spaces, select Remote Park Assist.	This hint is triggered in case the FAP feature is active and no slots are found. It thus provides an aid if tight slots are present that cannot be offered by FAP, but the user is not aware. It is not shown if slots are found.	Yes	FAPA scanning screen with FAPA fully functional and no slot present.



To search for parallel spaces, select Active Park Assist.	This hint is triggered in case the RePA feature is active and no slot is present.	Yes	RePA scanning screen with FAPA fully functional and no slot present.
To change the selection, touch a different space.	This hint is shown in case the FAP or RePA feature is active, the vehicle is stopped and more than one slot is shown on the display. If conditions for HintTextID004 and 005 are simultaneously true, HintTextID009 is triggered.	No	APA multiple slots present RePA multiple slots present
Alt 1: You can touch spaces with <SlotChangeVisual> to change the parking space type. Alt 2: To change parking space type, tap the rotate icon.	This hint is triggered in case the FAP feature is active, at least one slot is shown and the slot's orientation can be changed. It is triggered only if the vehicle is at standstill. This would be the case if the system offers a parallel slot, but the slot could also be a perpendicular slot. If conditions for HintTextID004 and 005 are simultaneously true, HintTextID009 is triggered.  For Alt 1, the SlotChangeVisual would be shown as part of the hint text. It is the preferred solution. Alt 2 is acceptable in case symbols cannot be part of the hint text.	Yes	APA at least one slot present
A) To search for space, vehicle speed must be under 30 km/h.  B) To search for space, vehicle speed must be under 19 mph. <i>Note: Whether A or B applies shall be derived from the speedometer settings. Please refer to ApadeUXReq0512.</i>	This hint is shown in case the APA or RePA feature is active and the vehicle is driven outside of the permissible speed envelope. It supports the "Slow down" screen and can only be triggered on the "Slow down" screen.  Unit of speed shall be market dependend.	Yes	APA overspeed RePA overspeed
To find more spaces, keep driving.	This hint can be triggered if the APA or RePA feature is active. It is only triggered if a slot is present. It can be triggered only if the vehicle is moving.	Yes	APA RePA
To change the selection, touch a different space. You can touch spaces with <SlotChangeVisual> to change the type.	This hint is triggered in case multiple slots are present and at least one of them can be changed in orientation (e.g. from IPa to IPe).  <b>Note:</b> As an alternative to this hint, HintTextID004 and HintTextID005 could be shown alternately.  Hint will change depending on which alternative is selected for HintTextID005.	Yes	APA
Proceed with caution and be aware of traffic.	This hint is triggered at the end of a parallel park out maneuver (ParkOut, OPa).	No	APA





Park Out Assist not available because objects are detected on both sides.

This is hint is triggered in case the system has detected both sides to be blocked and can hence not offer parallel park out.

Yes

APA

**HintText – Logic (1)**

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**HintText – Logic (2)**

ReqID

Requirement

Notes / Rationale

Source



**ApadelUXe0452**

If the conditions for HintTextID001 and HintTextID010 are true, the HMI system shall

1. indicate HintTextID010 for HintTextTime
2. switch to indicating HintTextID001 for HintTextTime
3. continue alternating HintTextID010 and HintTextID001 as long as their trigger conditions are true.



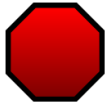







HintTextID001 was introduced early in the development to assure that the user understands they can exit RePA and continue driving. The hint was developed based on customer clinic experiences. HintText010 was added at a very late stage, driven by Text1/2 modifications/ re-wordings. As both hints have the same trigger condition, we need to alternate them. HintTextID010 is given the start position as it is considered somewhat more important to prevent users exiting w/o the keyfob than telling them they can cancel by shifting out of P.

Discussion with VAE and HMI to change text/ request for HintTextID010

#### 4.5.2.5 RPA-REQ-360842/B-Available Symbols

The symbols shown in the following table are exemplary. Please refer to latest HMI or studio specification for final design.







Symbol1 / Symbol2		
1	SYMBOL_RemoveHands	
2	SYMBOL_Park	
3	SYMBOL_Stop	
4	SYMBOL_ApaButton	
5	SYMBOL_ArrowBackward	
6	SYMBOL_FinishFlag	
7	SYMBOL_CloseDoor	
8	SYMBOL_ArrowForward	
9	SYMBOL_Information	
10	SYMBOL_Cancelled	



11	SYMBOL_FirstGear	
12	SYMBOL_Attention	
13	SYMBOL_Reverse	
14	SYMBOL_Neutral	
15	SYMBOL_Drive	
16	SYMBOL_PoaLeftSelectable	
17	SYMBOL_PoaLeftBlocked	
18	SYMBOL_PoaRightSelectable	
19	SYMBOL_PoaRightBlocked	
20	SYMBOL_ExitCar	



ScanApa		
	SYMBOL_ScanApaActive	
ScanRePA		
	SYMBOL_ScanRePAActive	
ParkOutArrow		
tbtd - animated trajectory?	SYMBOL_PoaRightSelectedArrow	
tbtd - animated trajectory?	SYMBOL_PoaLeftSelectedArrow	

#### 4.5.2.6 RPA-REQ-360846/C-Symbol Notification - Scenarios

The content in this requirements is sourced from Functional Spec tab Symbol 1.

To view proper table content without word formatting issues and limitations, you must refer to functional spec.

ID	Content	Reference Screen ID	System State1	System State2	System State3	Driver Request1	Driver Request2	Driver Info	Transmission	Any Slo tReady
ApadelU Xe0189	SYMBOL_PoaLeftSelectable	Area1 Scr001	HMI Full Screen	Not In Active Control	Both Sides Selectable	Don't_care	Don't_care	Don't_care	Don't_care	Don't_care
ApadelU Xe0304	SYMBOL_PoaLeftSelectable		HMI Full Screen	Not In Active Control	Left Side Selectable	Don't_care	Don't_care	Don't_care	Don't_care	Don't_care
ApadelU Xe0190	SYMBOL_PoaLeftBlocked	Area1 Scr003	HMI Full Screen	Not In Active Control	Right Side Selectable	Don't_care	Don't_care	Don't_care	Don't_care	Don't_care
ApadelU Xe0191	SYMBOL_PoaLeftBlocked	Area1 Scr004	HMI Full Screen	Not In Active Control	No Side Selectable	Don't_care	Don't_care	Don't_care	Don't_care	Don't_care
ApadelU Xe0192	SYMBOL_Park	Area1 Scr005	HMI Full Screen	Don't_care	Normal Ops	Shift_to_P	No Request	Don't_care	Don't_care	Don't_care
ApadelU Xe0193	SYMBOL_RemoveHands	Area1 Scr007	HMI Full Screen	Not In Active Control	Normal Ops	Shift_to_R	Release Steering	Don't_care	Don't_care	Don't_care
ApadelU Xe0305	SYMBOL_RemoveHands	Area1 Scr008	HMI Full Screen	Not In Active Control	Normal Ops	Shift_to_D	Release Steering	Don't_care	Don't_care	Don't_care
ApadelU Xe0307	SYMBOL_RemoveHands	Area1 Scr010	HMI Full Screen	Not In Active Control	Normal Ops	Shift_to_N	Release Steering	Don't_care	Don't_care	True
ApadelU Xe0194	SYMBOL_RemoveHands	Area1 Scr053	HMI Full Screen	In Active Control	Pause	No Request	Release Steering	Don't_care	Don't_care	Don't_care



ApadelU Xe0316	SYMBOL_Rem oveHands	Area1 Scr051	HMIFull Screen	NotInActi veControl	Pause	PressAp aButton	Release Steering	Don't_car e	Don't_ care	Don't_c are
ApadelU Xe0319	SYMBOL_Rem oveHands	Area1 Scr055	HMIFull Screen	InActiveC ontrol	NormalOp s	NoRequ est	Release Steering	AccelPed allinactive	Don't_ care	Don't_c are
ApadelU Xe0195	SYMBOL_Infor mation	Area1 Scr009	HMIFull Screen	Don't_car e	NormalOp s	Don't_c are	Release EPB	Don't_car e	Don't_ care	Don't_c are
ApadelU Xe0196	SYMBOL_Infor mation	Area1 Scr029	HMIFull Screen	Don't_car e	NormalOp s	NoRequ est	NoRequ est	Don't_car e	Don't_ care	Don't_c are
ApadelU Xe0197	SYMBOL_Infor mation	Area1 Scr030	HMIFull Screen	Don't_car e	Overspeed	Don't_c are	NoRequ est	Don't_car e	Don't_ care	Don't_c are
ApadelU Xe0200	SYMBOL_Infor mation	Area1 Scr061	HMIFull Screen	Don't_car e	NotAvailab le	Don't_c are	NoRequ est	Don't_car e	Don't_ care	Don't_c are
ApadelU Xe0324	SYMBOL_Infor mation	Area1 Scr066	HMIFull Screen	Don't_car e	NotAvailab le	Don't_c are	CloseDo or	Don't_car e	Don't_ care	Don't_c are
ApadelU Xe0205	SYMBOL_ApaB utton	Area1 Scr011	HMIFull Screen	InActiveC ontrol	NormalOp s	PressAp aButton	Release Brake	None	Don't_ care	Don't_c are
ApadelU Xe0206	SYMBOL_ApaB utton	Area1 Scr054	HMIFull Screen	InActiveC ontrol	Pause	PressAp aButton	NoRequ est	None	Don't_ care	Don't_c are
ApadelU Xe0207	SYMBOL_ApaB utton	Area1 Scr054	HMIFull Screen	InActiveC ontrol	Pause	PressAp aButton	NoRequ est	AccelPed allinactive	Don't_ care	Don't_c are
ApadelU Xe0208	SYMBOL_Arro wForward	Area1 Scr013 Area1 Scr014	HMIFull Screen	NotInActi veControl	NormalOp s	NoRequ est	DriveFor ward	None	Don't_ care	Don't_c are
ApadelU Xe0209	SYMBOL_Arro wForward	Area1 Scr019	HMIFull Screen	InActiveC ontrol	NormalOp s	NoRequ est	DriveFor ward	None	Don't_ care	Don't_c are
ApadelU Xe0210	SYMBOL_Arro wForward	Area1 Scr021	HMIFull Screen	InActiveC ontrol	NormalOp s	NoRequ est	DriveFor ward	AccelPed allinactive	Don't_ care	Don't_c are
ApadelU Xe0211	SYMBOL_Stop	Area1 Scr015	HMIFull Screen	NotInActi veControl	NormalOp s	Don't_c are	Stop	Don't_car e	Don't_ care	Don't_c are
ApadelU Xe0212	SYMBOL_Arro wBackward	Area1 Scr016 Area1 Scr017	HMIFull Screen	InActiveC ontrol	NormalOp s	NoRequ est	DriveBa ckward	None	Don't_ care	Don't_c are
ApadelU Xe0213	SYMBOL_Arro wBackward	Area1 Scr018	HMIFull Screen	InActiveC ontrol	NormalOp s	NoRequ est	DriveBa ckward	AccelPed allinactive	Don't_ care	Don't_c are
ApadelU Xe0214	SYMBOL_Finis hFlag	Area1 Scr025 Area1 Scr026	HMIFull Screen	Don't_car e	Finished	Don't_c are	Don't_c are	Don't_car e	Don't_ care	Don't_c are
ApadelU Xe0215	SYMBOL_Canc elled	Area1 Scr032	HMIFull Screen	NotInActi veControl	Cancelled	Don't_c are	Don't_c are	Don't_car e	Don't_ care	Don't_c are
ApadelU Xe0216	SYMBOL_Close Door	Area1 Scr052	HMIFull Screen	InActiveC ontrol	Pause	Don't_c are	CloseDo or	Don't_car e	Don't_ care	Don't_c are
ApadelU Xe0217	SYMBOL_Atte ntion	Area1 Scr058	HMIFull Screen	NotInActi veControl	Faulty	Don't_c are	Don't_c are	Don't_car e	Don't_ care	Don't_c are
ApadelU Xe0219	SYMBOL_Drive	Area1 Scr066	HMIFull Screen	NotInActi veControl	NotAvailab le	Shift_to _D	DriveFor ward	None	Auto	Don't_c are



		Area1 Scr068								
<b>ApadelU Xe0220</b>	SYMBOL_First Gear	Area1 Scr067	HMI Full Screen	NotInActi veControl	NotAvailab le	Shift_to _D	Don't_c are	Don't_car e	Manua l	Don't_c are
<b>ApadelU Xe0221</b>	SYMBOL_ExitC ar	Area1 Scr070	HMI Full Screen	NotInActi veControl	NormalOp s	ExitVehi cle	NoRequ est	None	Don't_ care	Don't_c are
<b>ApadelU Xe0310</b>	SYMBOL_Stop		HMI Full Screen	InActiveC ontrol	NormalOp s	Don't_c are	Stop	Don't_car e	Don't_ care	Don't_c are
<b>ApadelU Xe0425</b>	SYMBOL_Arro wBackward	Area1 Scr073	HMI Full Screen	NotInActi veControl	NormalOp s	NoRequ est	DriveBa ckward	None	Don't_ care	Don't_c are

4.5.2.7 RPA-REQ-374117/C-Symbol 2

The content in this requirements is sourced from Functional Spec tab Symbol 2.

To view proper table content without word formatting issues and limitations, you must refer to functional spec **Symbol 2 tab**.

ID	Content	Referen ce Screen ID	SystemS tate1	SystemStat e2	SystemStat e3	DriverRe quest1	DriverRe quest2	DriverInf o	Transm ission
<b>ApadelU Xe0223</b>	SYMBOL_Remov eHands	Area1S cr027	HMI Full Screen	InActiveCo ntrol	NormalOps	NoReque st	Stop	WaitForS teering	Don't_c are
<b>ApadelU Xe0224</b>	SYMBOL_ApaBut ton	Area1S cr051	HMI Full Screen	NotInActiv eControl	Pause	PressApa Button	ReleaseSt eering	None	Don't_c are
<b>ApadelU Xe0225</b>	SYMBOL_Drive	Area1S cr008	HMI Full Screen	NotInActiv eControl	NormalOps	Shift_to_ D	Don't_ca re	Don't_car e	Don't_c are
<b>ApadelU Xe0226</b>	SYMBOL_FirstGe ar	Area1S cr023	HMI Full Screen	InActiveCo ntrol	NormalOps	Shift_to_ D	Don't_ca re	Don't_car e	Manual
<b>ApadelU Xe0227</b>	SYMBOL_Revers e	Area1S cr007	HMI Full Screen	NotInActiv eControl	NormalOps	Shift_to_ R	Don't_ca re	Don't_car e	Don't_c are
<b>ApadelU Xe0312</b>	SYMBOL_Revers e	Area1S cr007	HMI Full Screen	InActiveCo ntrol	NormalOps	Shift_to_ R	Stop	Don't_car e	Don't_c are
<b>ApadelU Xe0228</b>	SYMBOL_Neutral	Area1S cr010	HMI Full Screen	NotInActiv eControl	NormalOps	Shift_to_ N	Don't_ca re	Don't_car e	Don't_c are
<b>ApadelU Xe0229</b>	SYMBOL_PoaRig htSelectable	Area1S cr001	HMI Full Screen	NotInActiv eControl	BothSidesS electable	Don't_ca re	Don't_ca re	Don't_car e	Don't_c are
<b>ApadelU Xe0230</b>	SYMBOL_PoaRig htSelectable	Area1S cr003	HMI Full Screen	NotInActiv eControl	RightSideSe lectable	Don't_ca re	Don't_ca re	Don't_car e	Don't_c are
<b>ApadelU Xe0231</b>	SYMBOL_PoaRig htBlocked	Area1S cr002	HMI Full Screen	NotInActiv eControl	LeftSideSele ctable	Don't_ca re	Don't_ca re	Don't_car e	Don't_c are
<b>ApadelU Xe0232</b>	SYMBOL_PoaRig htBlocked	Area1S cr004	HMI Full Screen	NotInActiv eControl	NoSideSele ctable	Don't_ca re	Don't_ca re	Don't_car e	Don't_c are
<b>ApadelU Xe0218</b>	SYMBOL_Drive	Area1S cr022	HMI Full Screen	InActiveCo ntrol	NormalOps	Shift_to_ D	Don't_ca re	Don't_car e	Auto



### 4.5.3 Use Cases

#### 4.5.3.1 RPA-UC-REQ-360831/A-Show Text Notification

<b>Actors</b>	User
<b>Pre-conditions</b>	Vehicle is On. RePA Session active
<b>Scenario Description</b>	User request and response for the RePA Server activities.
<b>Post-conditions</b>	Text update shown on RePA Client.
<b>List of Exception Use Cases</b>	
<b>Interfaces</b>	Client HMI Interface.

#### 4.5.3.2 RPA-UC-REQ-360832/A-Show Hint Text Notification

<b>Actors</b>	User
<b>Pre-conditions</b>	Vehicle is On. RePA Session active
<b>Scenario Description</b>	User request and response for the RePA Server activities.
<b>Post-conditions</b>	Hint Text update shown on RePA Client.
<b>List of Exception Use Cases</b>	
<b>Interfaces</b>	Client HMI Interface.

#### 4.5.3.3 RPA-UC-REQ-360833/A-Show Symbol Notification

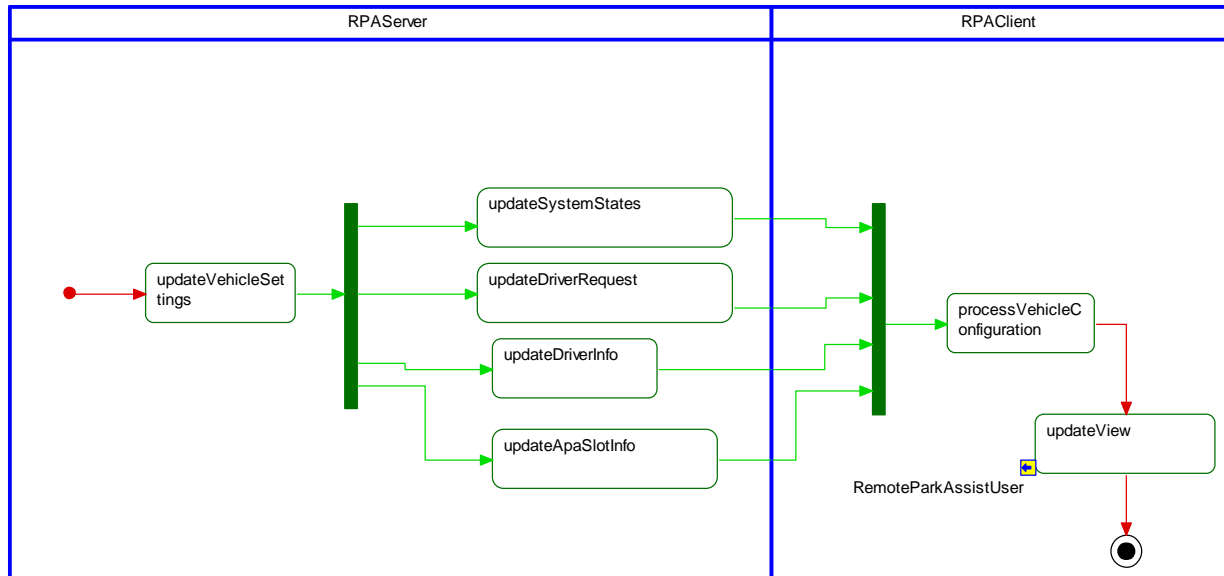
<b>Actors</b>	User
<b>Pre-conditions</b>	Vehicle is On. RePA Session active
<b>Scenario Description</b>	User request and response for the RePA Server activities.
<b>Post-conditions</b>	Symbol update shown on RePA Client.
<b>List of Exception Use Cases</b>	
<b>Interfaces</b>	Client HMI Interface.



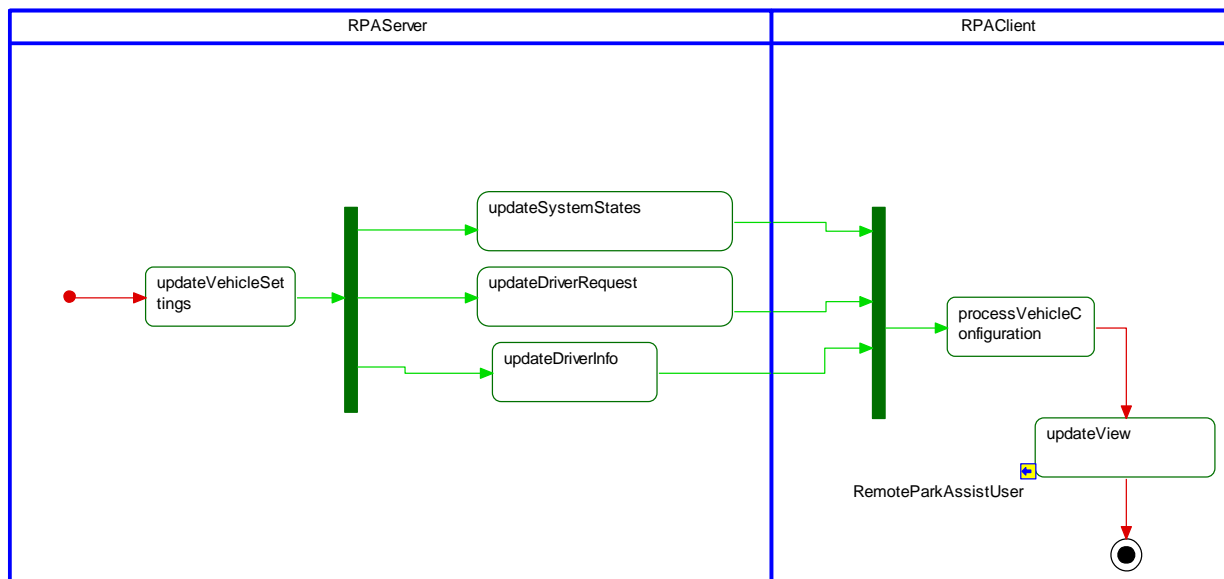
#### 4.5.4 White Box View

##### 4.5.4.1 Activity Diagrams

###### 4.5.4.1.1 RPA-ACT-REQ-359969/A-Driver Notification - Text



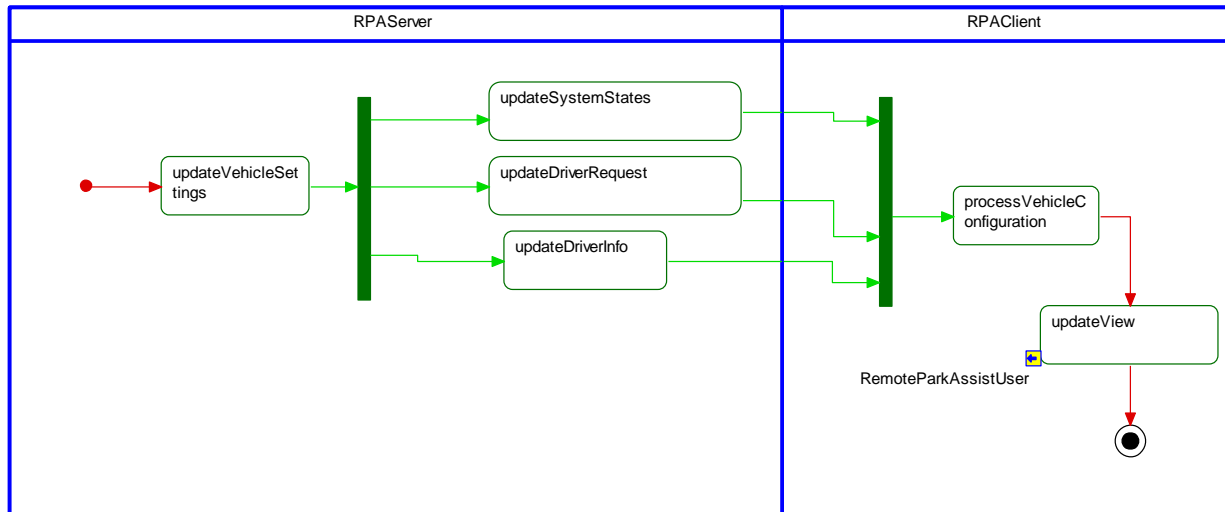
###### 4.5.4.1.2 RPA-ACT-REQ-360029/A-Driver Notification - HintText







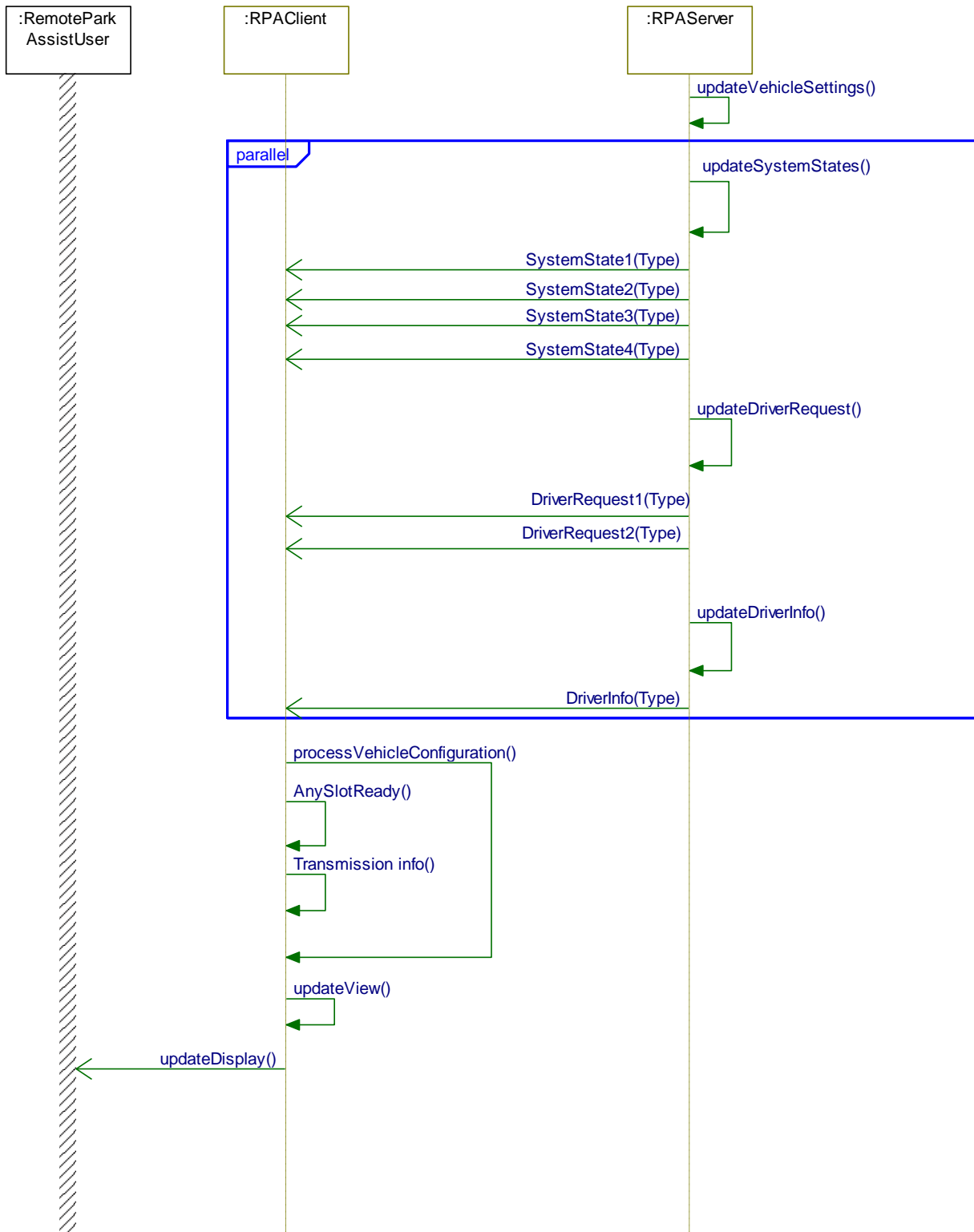
#### 4.5.4.1.3 RPA-ACT-REQ-360114/A-Driver Notification - Symbol





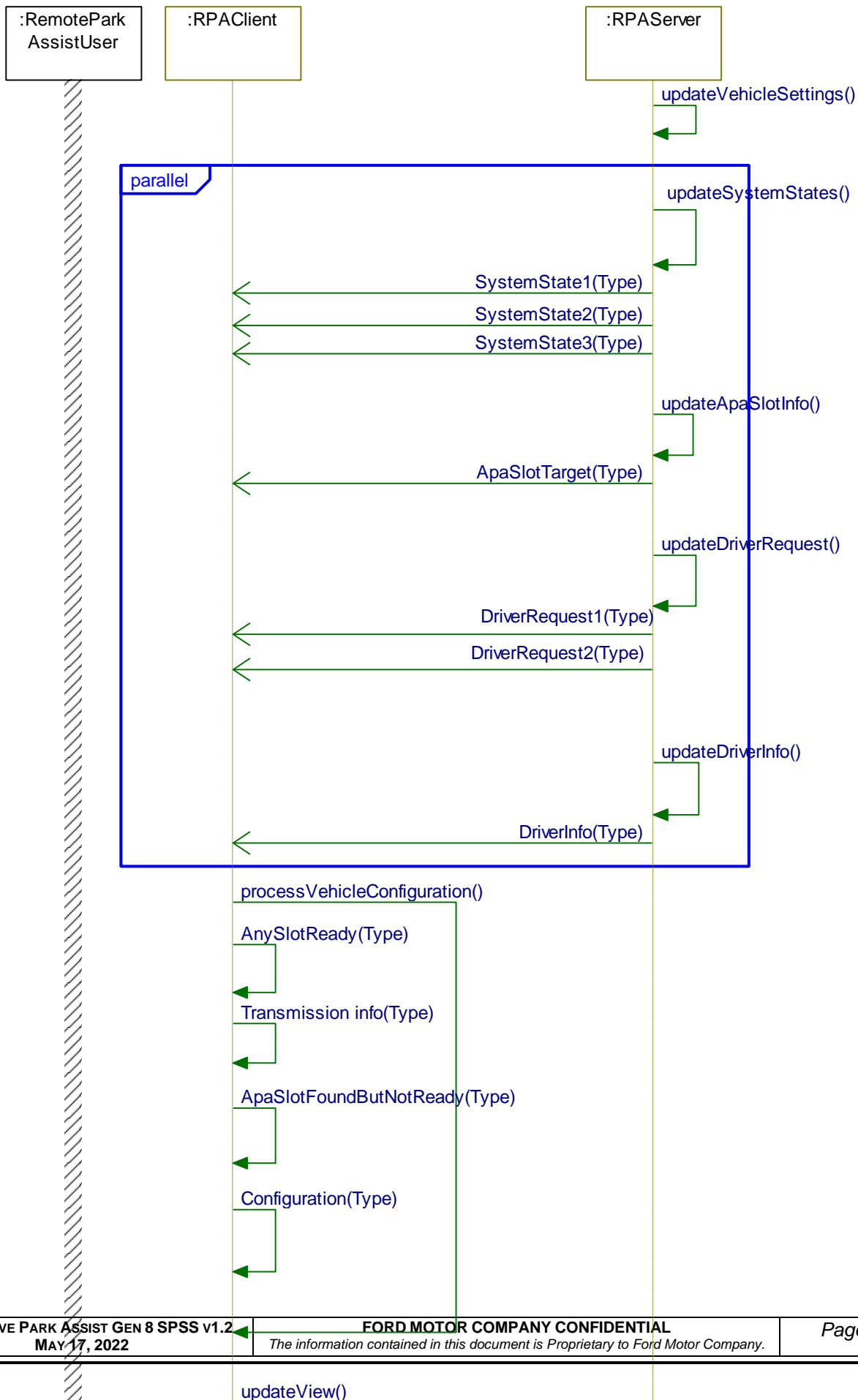
## 4.5.4.2 Sequence Diagrams

## 4.5.4.2.1 RPA-SD-REQ-360521/A-Driver Notification - Text



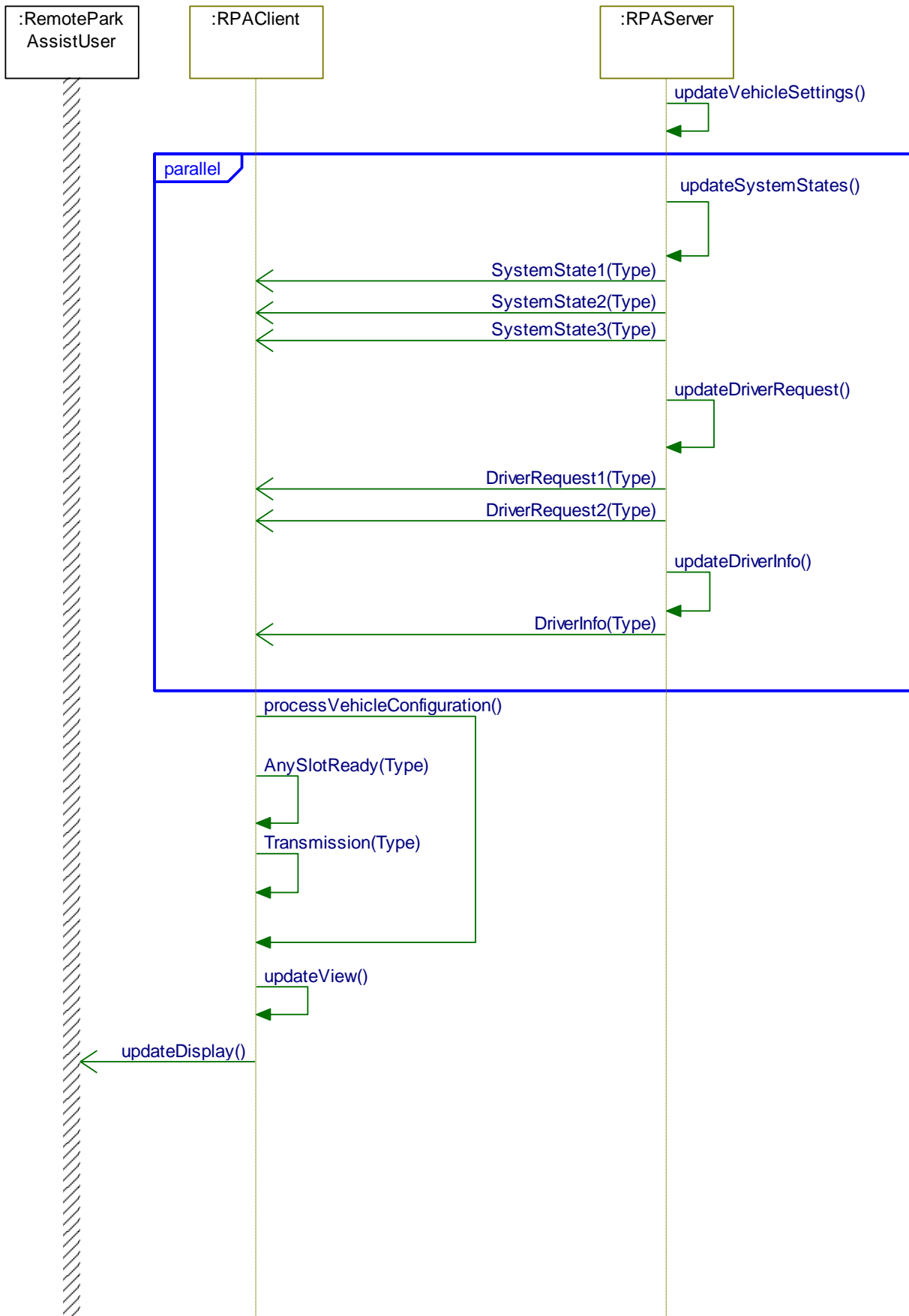


#### 4.5.4.2.2 RPA-SD-REQ-360526/A-Driver Notification - HintText





#### 4.5.4.2.3 RPA-SD-REQ-360532/A-Driver Notification - Symbol





## 4.6 RPA-FUN-REQ-433235/A-HotKey

### 4.6.1 HotKey Shortcut Menu Signal List

#### 4.6.1.1 CAMERA-FUR-REQ-235902/B-HotKey Shortcut Menu Signal List - ApaMdeStat\_D\_RqDrv

The HMI system shall transmit the signal [ApaMdeStat\_D\_RqDrv] to the PAM.

Note:

This signal already exists today. It is used for feature selection via the APA feature menu. The associated functional logic is a little expanded to support the hotkey concept.

(P-HotkeyReq033)

#### 4.6.1.2 CAMERA-FUR-REQ-235903/B-HotKey Shortcut Menu Signal List - ApaSwrch\_D\_RqMnu

The HMI system shall transmit the signal [ApaSwrch\_D\_RqMnu] to the PAM.

Note:

The signal is used to activate/ deactivate APA active scanning. See requirements of this section.

(P-HotkeyReq058)

#### 4.6.1.3 CAMERA-FUR-REQ-235904/B-HotKey Shortcut Menu Signal List - PrkAidSwrch\_D\_RqMnu

The HMI system shall transmit the signal [PrkAidSwrch\_D\_RqMnu] to the PAM.

Note:

The signal is used to activate/ deactivate BPA. See requirements of this section.

(P-HotkeyReq059)

#### 4.6.1.4 CAMERA-FUR-REQ-236835/B-HotKey Shortcut Menu Signal List - PrkAidFront\_D\_Stat

The HMI system shall receive the signal PrkAidFront\_D\_Stat from the PAM.

Note:

We don't know today if the Hotkey logic will be used only with park aid variants >4channel. In theory, if that's the case we could use a single signal. For timing reasons and to protect potential later usage with 4channel/ RPA-only variants we here take two existing signals.

(P-HotkeyReq111)

#### 4.6.1.5 CAMERA-FUR-REQ-236836/B-HotKey Shortcut Menu Signal List - PrkAidRear\_D\_Stat

The HMI system shall receive the signal PrkAidRear\_D\_Stat from the PAM.

Note:

We don't know today if the Hotkey logic will be used only with park aid variants >4channel. In theory, if that's the case we could use a single signal. For timing reasons and to protect potential later usage with 4channel/ RPA-only variants we here take two existing signals.

(P-HotkeyReq111)

### 4.6.2 APA Common

#### 4.6.2.1 CAMERA-FUR-REQ-235906/B-HotKey Shortcut Menu Signal Processing Requirements 1

When the HMI system initializes, the default of the signal [ApaMdeStat\_D\_RqDrv] shall be "0x0 – Inactive".

(P-HotkeyReq034)

#### 4.6.2.2 CAMERA-FUR-REQ-235908/B-HotKey Shortcut Menu Signal Processing Requirements 2

When the HMI system initializes, the default of the signal [ApaSwrch\_D\_RqMnu] shall be "0x0 – Not pressed".

(P-HotkeyReq060)

#### 4.6.2.3 CAMERA-FUR-REQ-235911/D-HotKey Shortcut Menu Signal Processing Requirements 5

The HMI system shall change the state of the signal [ApaSwrch\_D\_RqMnu] as per Table below.

p-hotkey menu state	AND	driver action		State of [ApaSwrch_D_RqMnu]
p-hotkey menu <u>not</u> shown	-	don't care	⇒	"0x0 Not pressed"



p-hotkey menu shown	AND	None	⇒	"0x0 Not pressed"
p-hotkey menu shown	AND	driver selects "BPA-option" of p-hotkey menu	⇒	"0x0 Not pressed"
p-hotkey menu shown	AND	driver selects "Other-option" of p-hotkey menu	⇒	"0x0 Not pressed"
p-hotkey menu shown, APA option available	AND	driver selects "APA-option" of p-hotkey menu	⇒	Cycle as per P-HotkeyReq038
p-hotkey menu shown, APA option not available	AND	driver selects "APA-option" of p-hotkey menu	⇒	"0x0 Not pressed"
p-hotkey menu shown, APA option not available, user instruction to press and release hard button shown (see NEW Requirement 1)	AND	[ParkAidSwitch_B_Stat] transitions from 0x0 "Not pressed" to 0x1 "Pressed"	⇒	Cycle as per P-HotkeyReq038
The last two rows depict the additional logic that was needed to fix the de-synchronization issues introduced with the dahscard HMI (opening the menu while by-passing the hard button).				

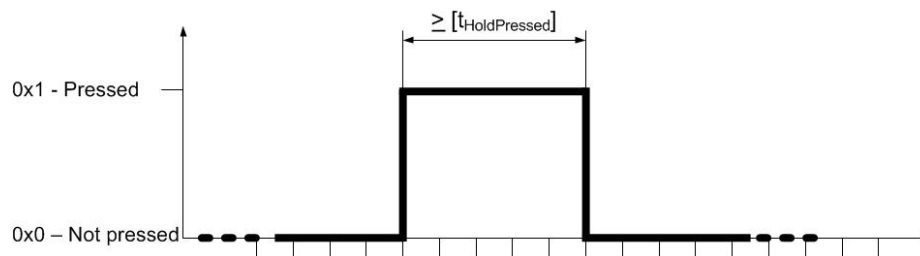
HMI system logic for ApaSwch\_D\_RqMnu – Change from 0x0 to "other"  
(P-HotkeyReq036)

#### 4.6.2.4 CAMERA-FUR-REQ-235913/B-HotKey Shortcut Menu Signal Processing Requirements 7

When the trigger conditions for cycling are fulfilled, the HMI system shall change [ApaSwch\_D\_RqMnu] from state "0x0" to state "0x1", hold this state for at least [tHoldPressed] and end the cycle with the transition back to state "0x0".

Note:

See figure. The requirement to keep the pressed state set at least [tHoldPressed] aims at assuring the PAM detects the change. You may consider this requirement fulfilled if the minimum SeparationTime as defined per applicable CAN specifications for event periodic signals or if the message rate of the signal [ApaSwch\_D\_RqMnu] is the same or bigger than [tHoldPressed].



Cycle for [ApaSwch\_D\_RqMnu] and [PrkAidSwch\_D\_RqMnu]  
(P-HotkeyReq038)

#### 4.6.2.5 CAMERA-FUR-REQ-235903/B-HotKey Shortcut Menu Signal List - ApaSwch\_D\_RqMnu

The HMI system shall transmit the signal [ApaSwch\_D\_RqMnu] to the PAM.

Note:

The signal is used to activate/ deactivate APA active scanning. See requirements of this section.  
(P-HotkeyReq058)



**4.6.3 HotKey Shortcut delUXe****4.6.3.1 RPA-REQ-433092/A-HotKey Shortcut delUXe 1**

If [ApaDisplayMode\_D\_Stat] is "HmiMenu", the HMI system shall show APA P-Hotkey Option information based on [ApaSys\_D2\_Stat] and [ApaMsgTxt\_D2\_Stat] as defined in table below:

[ApaSys_D2_Stat]		If hotkey menu is shown, APA feature selection option shall show that:
State	Description	
0x0	NormalOps	APA option is selectable: <b>Yes</b> APA option additional info: <b>None</b>
0x2	Overspeed	APA option is selectable: <b>Yes</b> APA option additional info: <b>"Speed exceeds operational envelope"</b>
0x6	Faulty	APA option is selectable: <b>No</b> APA option additional info: <b>"APA Fault"</b>
0x3	NotAvailable	APA option is selectable: <b>No</b> APA option additional info: <b>Read [ApaMsgTxt_D2_Stat]:</b>  <b>if</b> [ApaMsgTxt_D2_Stat] == "0x8 - HighInclination" APA option additional info: <b>"Inclination exceeds operational limit"</b> <b>elseif</b> [ApaMsgTxt_D2_Stat] == "0xA - TCSdeactivated" APA option additional info: <b>"TCS deactivated"</b> <b>elseif</b> [ApaMsgTxt_D2_Stat] == "0xB - TrailerAttached" APA option additional info: <b>"Trailer attached"</b> <b>elseif</b> [ApaMsgTxt_D2_Stat] == "0xC - SensorsBlocked" APA option additional info: <b>"Sensor blockage"</b> <b>else</b> APA option additional info: <b>None</b> <b>End</b>
0xA	NoSideSelectable	APA option is selectable: <b>No</b> APA option additional info: <b>OPa not available due to sides blocked</b>
<b>Note:</b>		
0x1, 0x4, 0x5, 0x7, 0x8, 0x9, 0xB, 0xC, 0xD, 0xE, 0xF		Don't care (not possible in menu mode)

P-Hotkey APA menu information for APA deluxe  
[P-HotkeyReq180]

**4.6.3.2 RPA-REQ-433093/A-HotKey Shortcut delUXe 2**

The HMI system shall change the state of the signal [ApaFeat\_D\_RqDrv] as per

- Table in this requirement
- **and** requirements ApadelUXe0050, ApadelUXe0051, ApadelUXe0052, ApadelUXe0053, ApadelUXe0057, ApadelUXe0058 of [delUXeFuncSpec]

**Note:**

The feature selection logic is part of [delUXeFuncSpec]. Table 3-9 should not be in conflict with that logic, but is added here to make sure all use cases relevant for the P-Hotkey menu are covered.

	HMI screen		driver action / menu state		State of [ApaFeat_D_RqDrv]
1	p-hotkey menu shown	AND	driver selects "BPA-option" of p-hotkey menu	⇒	"0x0 Inactive"
2	p-hotkey menu shown	AND	driver selects "Other-option" of p-hotkey menu	⇒	"0x0 Off"
3	p-hotkey menu shown	AND	driver selects "APA-option" of p-hotkey menu	⇒	"0x0 Inactive"
4	p-hotkey menu shown	AND	p-hotkey menu closes due to P-HotkeyReq051 or	⇒	"0x6 Off"



			P-HotkeyReq129 or P-HotkeyReq170		
5	APA "off" option shown on full APA screen	AND	driver selects "Off" option	⇒	"0x6 Off"

P-Hotkey menu use cases relevant for state of [ApaFeat\_D\_RqDrv]  
[P-HotkeyReq181]

#### 4.6.3.3 RPA-REQ-433094/A-HotKey Shortcut delUXe 3

If [ApaDisplayMode\_D\_Stat] changes from "0x1 – HmiMenu" to "0x2 – HmiFullScreen", the HMI system shall show APA screens in full screen mode according to the APA delUXe interface specifications.

**Note:**

With introduction of the APA delUXe signal interface we have a dedicated signal that can be used to switch to APA full screen. Remember that when the APA feature option is selected, the HMI system cycles the signal [ApaSwrch\_D\_RqMnu] and this makes the ADAS change from its menu mode to full screen mode. That means I in theory, we could have the HMI system change to full screen at the same time the user touches the APA menu option. We intentionally wait for the PAM response before the full screen mode is launched. While this could produce "slow reaction", it should reduce the risk of undefined states. These undefined states would occur if the HMI immediately jumped to full screen mode with the APA feature initially being still in menu mode. In addition, we introduce a new feature with APA delUXe that allows to skip the P-Hotkey menu in case the button is pressed while APA requests a slot notification. Please refer to P-HotkeyReq188.

[P-HotkeyReq202]

#### 4.6.3.4 RPA-REQ-433095/A-HotKey Shortcut delUXe 4

If [PrkAidSwrch\_B\_Stat] transitions from "0x0 - Not pressed" to "0x1 – Pressed"

- AND [ApaDisplayMode\_D\_Stat] changes from "0x0 –Off" to "0x2 – HmiFullScreen", the HMI system shall not show the P-Hotkey menu, but immediately go to APA full screen mode according to the APA delUXe interface specifications.

**Note:**

With introduction of the APA delUXe signal interface we have a dedicated signal that can be used to switch to APA full screen. We use this here to consider a new use case for the APA feature activation: If the APA APSI indication is currently active and the user presses the P-Hotkey, we assume they want to activate APA and skip the menu. For this use case, the ADAS ECU simultaneously broadcasts [PrkAidSwrch\_B\_Stat] to "0x1 – Pressed" and [ApaDisplayMode\_D\_Stat] to "0x2-HmiFullScreen". The ADAS ECU also uses a configurable timer that allows to skip the menu even when the user applies the P-Hotkey "a little too late", i.e. when the APSI notification timed out.

[P-HotkeyReq188]

#### 4.6.3.5 RPA-REQ-433096/A-HotKey Shortcut delUXe 5

If the p-hotkey menu is shown  
[ApaSys\_D2\_Stat] is ("0x0 – NormalOps") or ("0x2 – Overspeed")  
the driver selects the APA option in the p-hotkey menu,  
the HMI system shall cycle the signal [ApaSwrch\_D\_RqMnu].

AND  
AND

[P-HotkeyReq182]

#### 4.6.3.6 RPA-REQ-433097/A-HotKey Shortcut delUXe 6

If the p-hotkey menu is shown  
[ApaSys\_D2\_Stat] has any state other than ("0x0 – NormalOps") or ("0x2 – Overspeed"),  
the driver shall not be able to select the APA option in the p-hotkey menu.

AND

**Note:**



If the P-Hotkey menu is shown, [ApaDisplayMode\_D\_Stat] must be "0x1 – HmiMenu". Per overall system interface design, the only states the signal [ApaSys\_D2\_Stat] can then assume are "0x0", "0x2", "0x3" and "0x6".

[P-HotkeyReq183]

#### 4.6.3.7 RPA-REQ-433098/A-HotKey Shortcut delUXe 7

If the P-hotkey menu is shown  
requirement P-HotkeyReq051 **OR** requirement P-HotkeyReq129 **OR** P-HotkeyReq170 is true  
[ApaDisplayMode\_D\_Stat] has any state other than "0x0 – Off",  
the HMI system shall (temporarily) ignore any APA screen request until [ApaDisplayMode\_D\_Stat] first  
changes to "0x0 – Off" and then to "0x1 – HmiMenu".

**AND**  
**AND**

**Note:**

We need to avoid race conditions. For the above cases, the P-hotkey menu is closed based on HMI logic. Closing is communicated by the HMI system via the signal [ApaMde\_D\_RqDrv]. This potentially creates a race condition as the APA feature needs to receive the signal and change its status. Mind, that when the P-Hotkey menu is shown, APA information can be indicated. As the APA system needs time to change status of [ApaDisplayMode\_D\_Stat], this could lead to flicker or other issues when closing the menu as per the above conditions.

[HotkeyReq184]

#### 4.6.3.8 RPA-REQ-438137/A-HotKey Shortcut delUXe 8

The HMI system shall transmit the signal [ApaFeat\_D\_RqDrv] and [ApaDisplayMode\_D\_Stat] to the PAM.

**Note:**

These are a new signals introduced with APA delUXe. This requirement is somewhat redundant to [delUXeFuncSpec]

(P-HotkeyReq185)

#### 4.6.3.9 RPA-REQ-438138/A-HotKey Shortcut delUXe 9

Requirements P-HotkeyReq185, P-HotkeyReq180, P-HotkeyReq181, P-HotkeyReq182, P-HotkeyReq183 and P-HotkeyReq184 shall only apply if the HMI system is configured for APA delUXe.

(P-HotkeyReq187)



## 5 Appendix: Reference Documents

Reference #	Document Title
1	VDOC084729, Suffix K, release from 27 May 2021
2	VDOC059291, Suffix H, release from 17 Sept 2021
3	
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