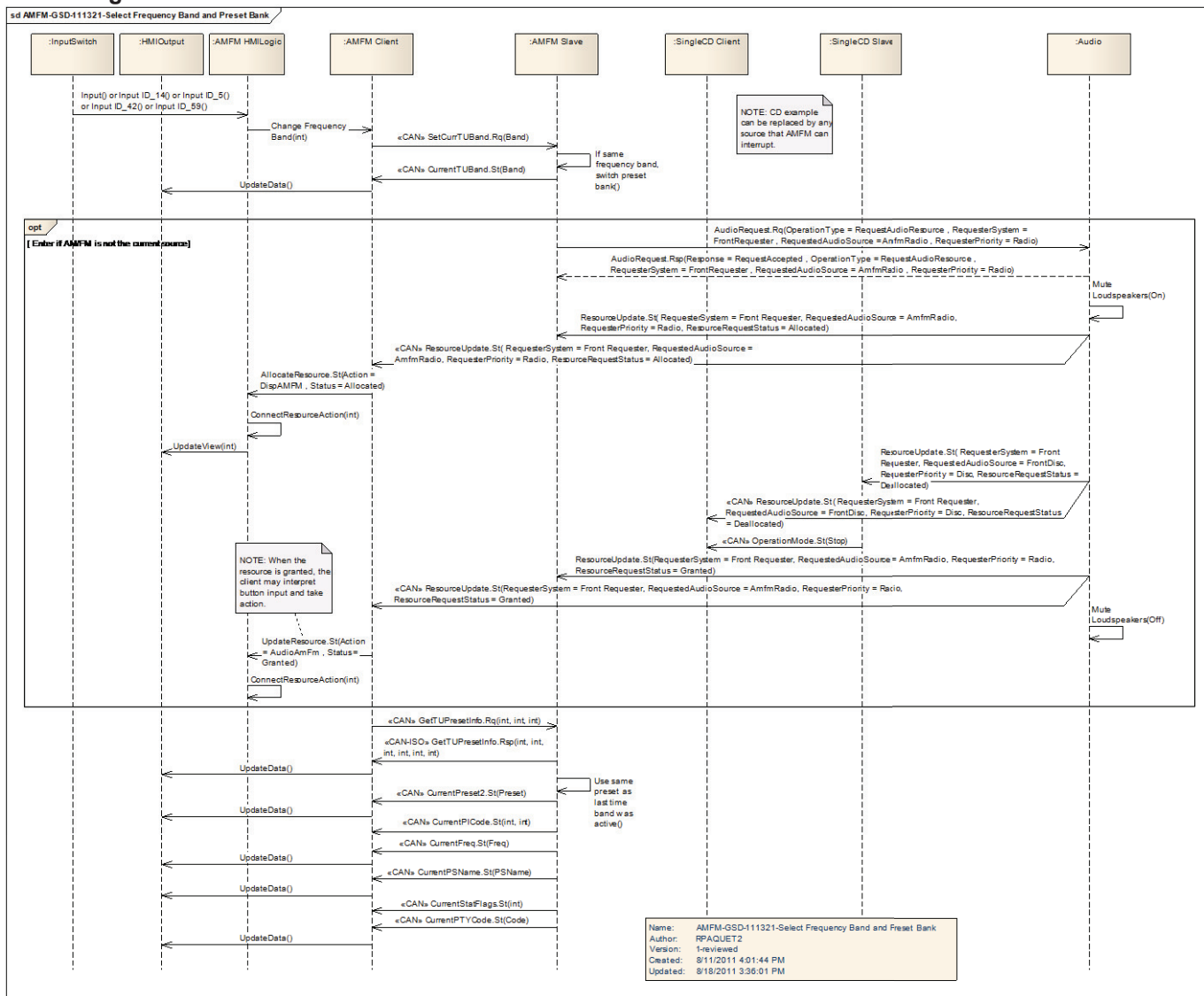


**Post-condition**

Preset bank user selects is active.

Tuner will play the previous selected station on the selected bank.

Sequence Diagram**3.9 AMFM-FUN-REQ-023895/A-Auto Store (TcSE ROIN-293236)****3.9.1 Use Cases****3.9.1.1 AMFM-UC-REQ-023896/A-Disable Autoselect scan by Mode Change (TcSE ROIN-291651)****Linked Elements**

AMFM-FUR-REQ-023901/A-Autoselect Storage (TcSE ROIN-27905-2)

AMFM-FUR-REQ-023902/C-EU - Autoselect Storage (TcSE ROIN-60418-2)

Actors	User
Pre-conditions	Audio is ON.



	AM or FM is selected as the source. Autoset is active and scanning.
Scenario Description	The user selects <any mode change input> via HMI on the audio controls. Autoset scan function cancels and the user selected mode change is acted upon.
Post-conditions	Regardless of how far into the auto store seek, no stations are overwritten with new stations. Auto store bank will not become active. Active tuner bank will revert back to the bank and station that the Auto store function was initiated from. The AMFM Server will change to the selected mode. HMI indicates normal output(s) for the selected mode.
List of Exception Use Cases	NA
Interfaces	G-HMI, CAN, AM/FM, Audio out

3.9.1.2 AMFM-UC-REQ-023897/A-Activate Auto Store (TcSE ROIN-291652)

Linked Elements

AMFM-FUR-REQ-023901/A-Autoset Storage (TcSE ROIN-27905-2)

AMFM-FUR-REQ-023902/C-EU - Autoset Storage (TcSE ROIN-60418-2)

Actors	User
Pre-conditions	Audio is ON. AM or FM is selected as the source.
Scenario Description	The user selects <initiate Autoset scan> via HMI. The radio mutes and scans the entire currently selected band (AM or FM). HMI displays {indication of Autoset}. The stations will be stored according to AMFM-GREQ-27905-1-Autoset Storage. These presets are stored in the dedicated autoset band. Any previous presets in this bank will be overwritten.
Post-conditions	AMFM Server will unmute and return to normal playing after all presets are filled. The AMFM Server plays the station stored on preset 1 in the Autoset preset bank. HMI indicates {station information}. The autoset bank remains active until the user selects an alternate bank or changes modes.
List of Exception Use Cases	E1-Fewer Stations than presets available E2-No stations found for Auto Store after completing band seek E3-Scan cancelled for Auto Store before completion
Interfaces	G-HMI, CAN, AM/FM, Audio out

3.9.1.3 AMFM-UC-REQ-023898/A-Fewer Stations than presets available (TcSE ROIN-291653)

Linked Elements

AMFM-UC-REQ-023897/A-Activate Auto Store (TcSE ROIN-291652)

AMFM-FUR-REQ-023901/A-Autoset Storage (TcSE ROIN-27905-2)

AMFM-FUR-REQ-023902/C-EU - Autoset Storage (TcSE ROIN-60418-2)



Actors	User
Pre-conditions	Same as Normal Usage Use Case.
Scenario Description	The user selects <initiate Autoset scan> via HMI and fewer Stations than presets are available.
Post-conditions	Refer to the functional requirement AMFM-GREQ-27905-Autoset Storage or AMFM-GREQ-60418-EU-Autoset Storage (depending RDS or non-RDS) on how to handle this condition.
List of Exception Use Cases	NA
Interfaces	G-HMI, CAN, AM/FM, Audio out

3.9.1.4 AMFM-UC-REQ-023899/A-No stations found for Auto Store after completing band seek (TcSE ROIN-291654)

Linked Elements

AMFM-UC-REQ-023897/A-Activate Auto Store (TcSE ROIN-291652)

AMFM-FUR-REQ-023901/A-Autoset Storage (TcSE ROIN-27905-2)

AMFM-FUR-REQ-023902/C-EU - Autoset Storage (TcSE ROIN-60418-2)

Actors	User
Pre-conditions	Same as Normal Usage Use Case.
Scenario Description	The user selects <initiate Autoset scan> via HMI and no stations found after completing band seek.
Post-conditions	The AMFM Server cancels the auto set seek and the AMFM Server goes back to the previously selected preset bank and previously active station. HMI indicates {NO STATIONS FOUND}. The auto set presets will not be updated.
List of Exception Use Cases	NA
Interfaces	G-HMI, CAN, AM/FM, Audio out

3.9.1.5 AMFM-UC-REQ-023900/A-Scan cancelled for Auto Store before completion (TcSE ROIN-291655)

Linked Elements

AMFM-UC-REQ-023897/A-Activate Auto Store (TcSE ROIN-291652)

AMFM-FUR-REQ-023901/A-Autoset Storage (TcSE ROIN-27905-2)

AMFM-FUR-REQ-023902/C-EU - Autoset Storage (TcSE ROIN-60418-2)

Actors	User
Pre-conditions	Same as Normal Usage Use Case.
Scenario Description	The user selects <initiate Autoset scan> via HMI and scan cancelled before completion.
Post-conditions	If the user selects <any selectable input> other than volume or menus via HMI on the audio controls, the AMFM Server cancels the autoset seek and the AMFM Server goes back to the previously selected preset bank and previously active station. A mode change will also cancel the Autoset Scan (refer to AMFM-GUC-291651-Disable Autoset scan by Mode Change). Regardless of how far into the autoset seek, no stations are overwritten with new stations when the autoset seek is cancelled.
List of Exception Use Cases	NA
Interfaces	G-HMI, CAN, AM/FM, Audio out



3.9.2 Requirements

3.9.2.1 AMFM-FUR-REQ-023901/A-Autoset Storage (TcSE ROIN-27905-2)

During Autoset, the HMI indicates that Autoset is in progress. This function shall not attempt to detect HD stations in any band.

The AHU shall soft mute upon activation of the Autoset function and soft un-mute after the function has been completed.

AM or FM Autoset

When the Autoset storage function is requested, the AHU shall switch to the AM or FM Autoset bank of the current active band. The AHU will seek and fill the ~~40~~ presets for the active band and automatically load them with the strongest frequencies in ascending frequency order.

If less stations are available than the maximum available presets receivable, the rest of the presets shall be set to the lowest possible frequency.

After filling the ~~40~~ autoset presets, the AHU shall then tune to Preset 1.

3.9.2.2 AMFM-FUR-REQ-023902/C-EU - Autoset Storage (TcSE ROIN-60418-2)

During Autoset, the HMI indicates that Autoset is in progress. This function shall not attempt to detect HD stations in any band.

The AHU shall soft mute upon activation of the Autoset function and soft un-mute after the function has been completed.

FM with RDS

The AHU shall use the FM Autoset preset bank for the Autoset function.

For single tuner systems:

Step 1:

Tunnel detection shall be considered. Refer to the applicable specification for reference.

When the Autoset storage function is requested, the AHU shall switch to the FM Autoset, ~~and~~ the AHU will seek and ~~fill~~ store the 10 presets ~~and then store~~ with the best available FM stations according to the PI code strategy* (order 1-3-4-2).

If less stations are available than the maximum available presets receivable, the rest of the presets shall be set to the lowest possible frequency.

~~After filling the 40 autoset presets, the AHU shall then tune to Preset 1.~~

Step 2:

Every RDS station found in Step 1 shall be tuned to confirm the PI and PS of the stored station. This shall not take longer than one second for each station.

After the autoset is completed, the AHU tunes to the preset 1 of the autoset bank.

For dual tuner systems:

Tunnel detection shall be considered. Refer to the applicable specification for reference.

When the Autoset storage function is requested, the AHU shall switch to the FM Autoset, the AHU must use the learn memory content and store the 10 presets with the best available FM stations according to the PI code strategy* (order 1-3-4-2).



If less stations are available than the maximum available presets receivable, the rest of the presets shall be set to the lowest possible frequency.

After filling the 10 autosest presets, the AHU shall then tune to preset 1 of the autosest bank.

AM

When the Autosest storage function is requested, the AHU shall switch to the AM Autosest bank of the current active band. The AHU will seek and fill the 10 presets for the active band and automatically load them with the strongest frequencies in ascending frequency order

If less stations are available than the maximum available presets receivable, the rest of the presets shall be set to the lowest possible frequency.

After filling the 10 autosest presets, the AHU shall tune to Preset 1.

*PI Code Order Definition

This is to ensure a correct sorting of the stations (PI order) including regional stations.

PI code structure;

1=country, 2=region, 3=network, 4=station

(e.g. WDR2= D392, NDR2=D382, WDR2 RR=D792, WDR2 K=D992, Energy=D8CE)

Usage examples:

PI order 1-3-4-2

List entry 1: NDR2 (D823)

List entry 2: WDR2 (D923)

List entry 3: WDR2 RR (D927)

List entry 4: WDR2 K (D929)

List entry 5: Energy (DCE8)

PI order 1-2-3-4

List entry 1: NDR2 (D382)

List entry 2: WDR2 (D392)

List entry 3: WDR2 RR (D792)

List entry 4: Energy (D8CE)

List entry 5: WDR2 K (D992)

3.9.3 Sequence Diagrams

3.9.3.1 AMFM-SD-REQ-023903/A-Activate Auto Store (TcSE ROIN-118794-2)

Scenario

Scenario

The User selects Auto Store, Refresh, or press and hold of the Radio button to automatically store stations in the AST Preset Bank of the currently playing Band.

Constraints

Pre-condition

Multimedia System is On.

Pre-condition

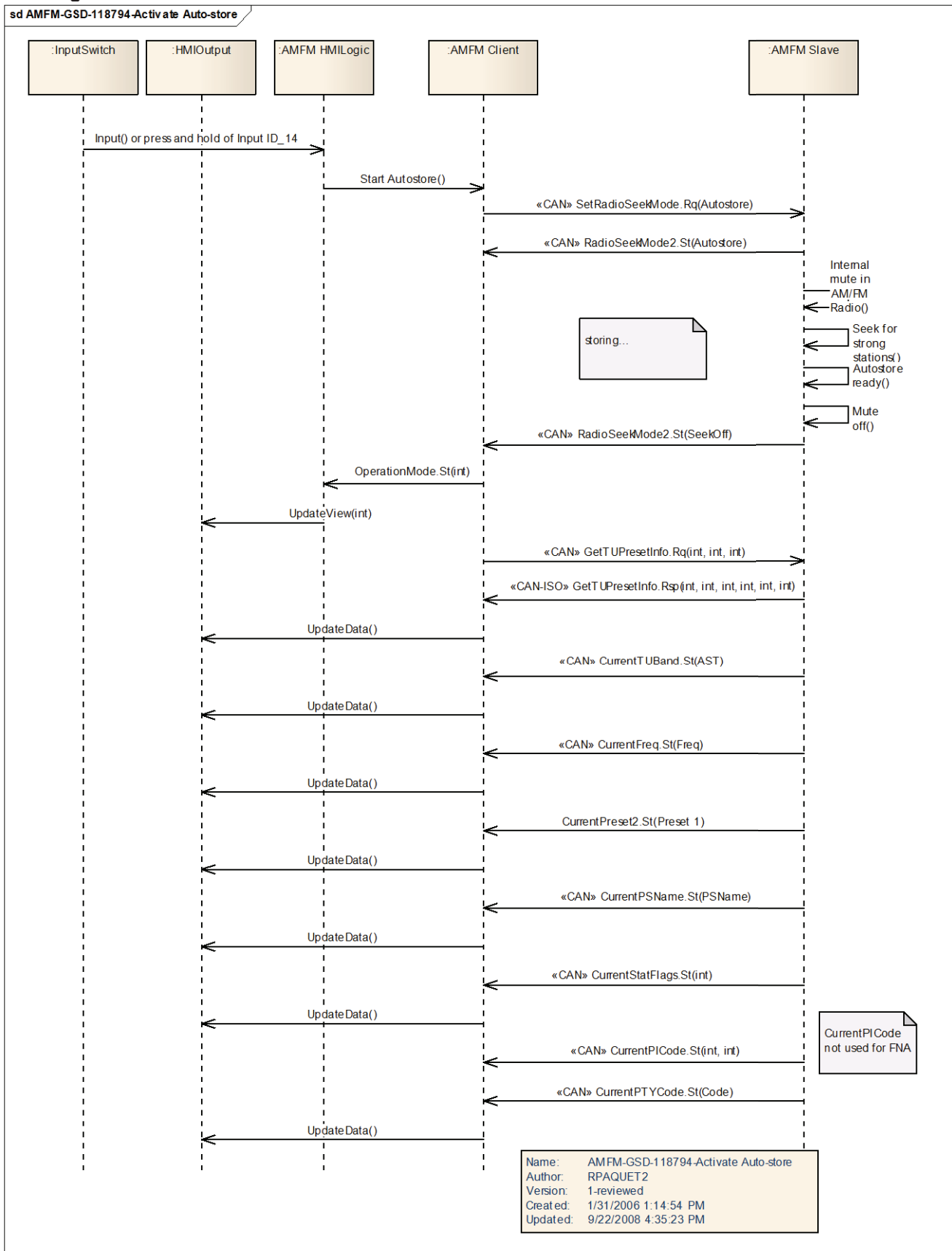
AM/FM is selected as the source.

**Post-condition**

The current band is AM/FM AST and Preset 1 is playing.



Sequence Diagram





3.9.3.2 AMFM-SD-REQ-023904/A-Disable Auto Store Scan (TcSE ROIN-119296-2)

Scenario

Scenario

The user selects any input other than volume or menus to cancel Auto Store function.

Constraints

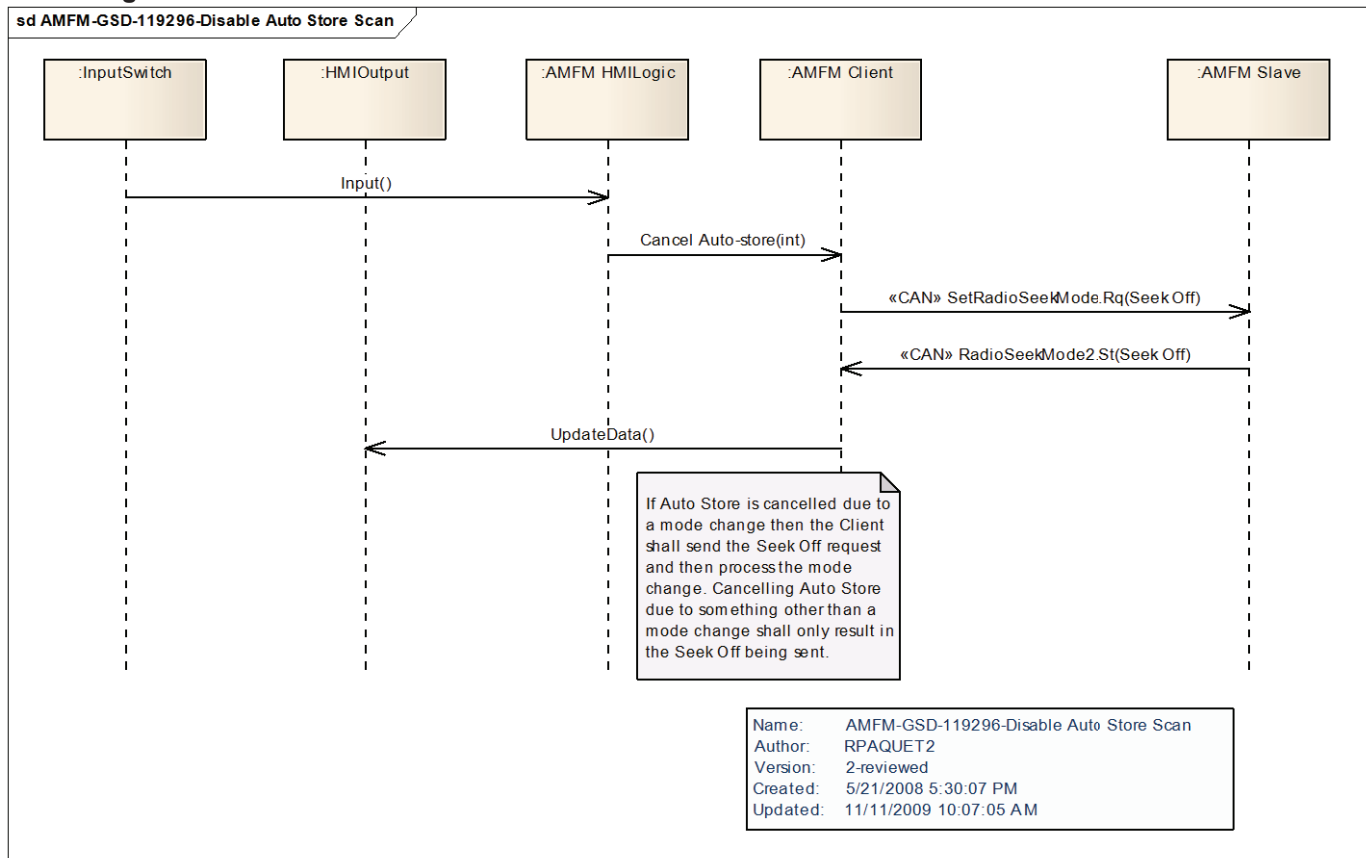
Pre-condition

Auto Store is in the process of storing stations to the AST Bank.
See AMFM-GSD-118794-Activate Auto Store.

Post-condition

Auto Store Scan is cancelled. If cancelled by a mode change send Seek Off then process the mode change else no other signal is sent after sending Seek Off.

Sequence Diagram



3.9.3.3 AMFM-SD-REQ-023905/A-Activate Auto Store-E2 (TcSE ROIN-119494-2)

Scenario

Scenario

The user selects Auto Store or Refresh for the Autoset presets and no stations are found.

Constraints

Pre-condition

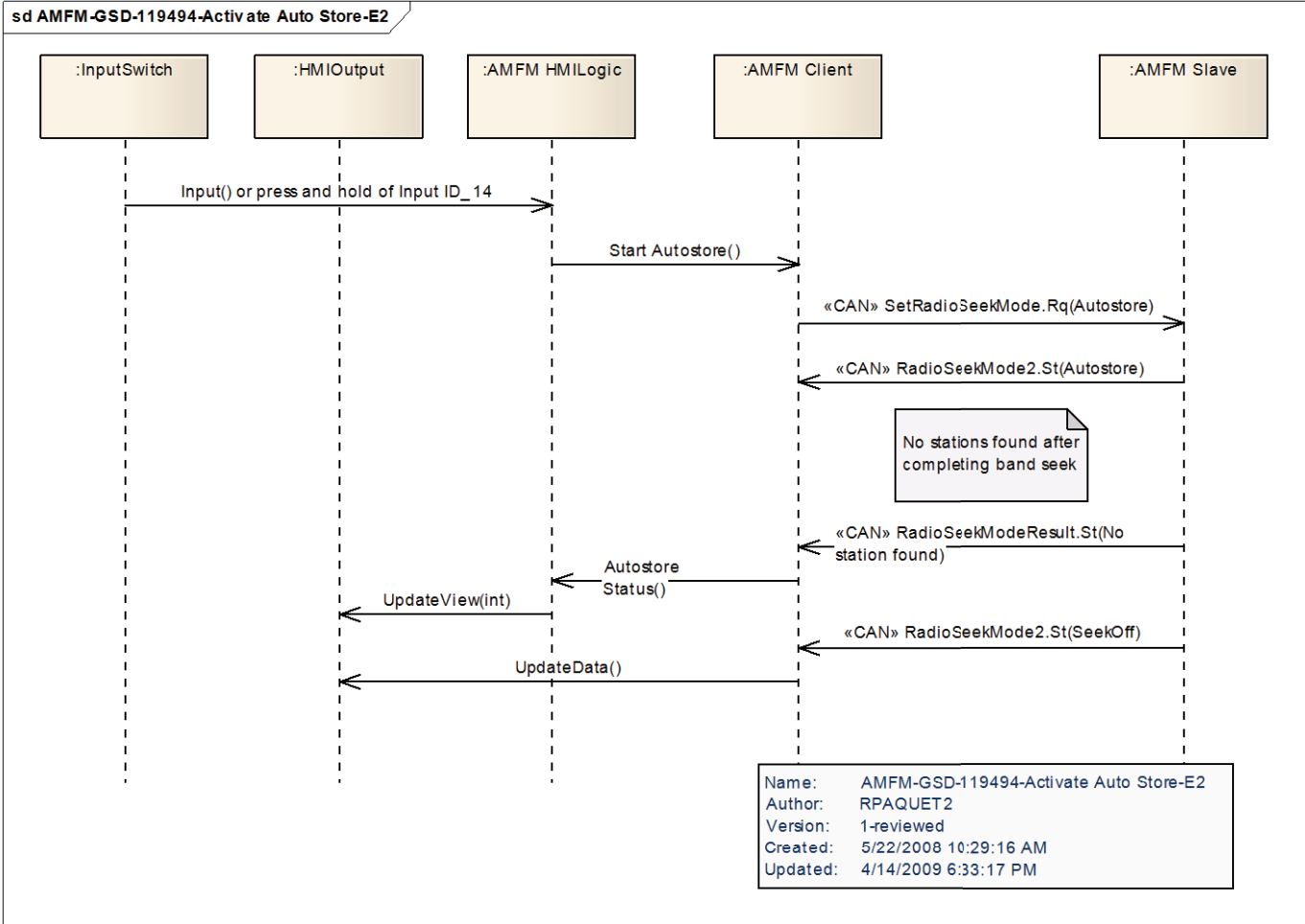
The user is listening to AM/FM Radio.

Post-condition

The Radio cancels the auto set seek and goes back to the previously selected preset bank and the previously tuned station.



Sequence Diagram



3.10 AMFM-FUN-REQ-023931/A-PTY Category Selection and Search (TcSE ROIN-293271)

3.10.1 Use Cases

3.10.1.1 AMFM-UC-REQ-023932/A-PTY category selection (non RDS) (TcSE ROIN-291662)

Linked Elements

AMFM-FUR-REQ-023938/A-PTY Category (TcSE ROIN-27913-2)

Actors	User
Pre-conditions	Audio is ON. FM is the source. RBDS is enabled. Infotainment System is not configured in RDS mode.
Scenario Description	The user selects <set or change the PTY category selection> via HMI.
Post-conditions	PTY category variable is persistently set to the new user request and until disabled by the user. HMI indicates {PTY selection}