

# **RiksTV SSU Test Specification**

**for**

## **Integrated Receiver Decoders**

**Version 1.2.3**

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## 1 Document History

Version	Date	Comments
0.1	03.06.2008	Draft
1.0	23.06.2008	Version 1.0 of specification
1.1	03.08.2008	Minor changes to some of the test cases.
1.2	11.08.2008	Changes waiting time in STDBY from 30 seconds to 2 minutes in test case 4.1.1.
1.2.1	17.09.2008	Added Loader to the Test Item table and test case 5.3.3 Linkage descriptor from other frequency.
1.2.2	27.10.2008	Added test case 5.3.8. SSU message removed when timer initiated. (Only for IRDs with timer functionality)
1.2.3	29.01.2009	Small changes to test case 6.2.5. Moved linkage_descriptor test cases from 6.3 to 6.1 (simple) and 6.2 (enhanced) Added chapter 6, PSI/SI configuration

## 2 References

This test specification relates to the following documents:

- [1] Specification for System Software Update in DVB Systems, ETSI TS 102 006. Version 1.3.1.
- [2] NTV Basic IRD Specifications DTT Norway v1.1
- [3] PVR-extensions to basic spec v1\_0\_FINAL

## 3 Signing of test report

Each individual test case shall be performed; test result and conformity shall be reported and signed.

In case that the test result indicates a non-compliance (with the specified requirement) the level of the non-compliance shall be evaluated and indicated by ticking the corresponding "box" in the conformity field.

## 4 Test item

The information of the Test Item shall be inserted to the following table. The tests shall be performed with the same IRD model (HW/SW) in all test cases.

<i>Test Item</i>	
<b>Manufacturer:</b>	
<b>Model:</b>	
<b>S/N(s):</b>	
<b>Chip_set #(s):</b>	
<b>SW version:</b>	
<b>HW version:</b>	
<b>Loader/Boot version:</b>	
<b>Other relevant information:</b>	
<b>Input file used for enhanced profile test:</b>	
<b>Input file used for simple profile test:</b>	

The following information shall be entered:

<b>Manufacturer:</b>	The name of the manufacturer of the tested IRD
<b>Model:</b>	The model (to be deployed to NorDig market) of the tested IRD
<b>S/N(s):</b>	The serial numbers of all IRDs used in the tests
<b>Chip_set #(s):</b>	The chip_set IDs of all IRDs used in the tests
<b>SW version:</b>	The SW version of the tested IRD model
<b>HW version:</b>	The HW version of the tested IRD model
<b>Loader/Boot version.</b>	The version number of the loader/boot loader of the tested IRD model
<b>Other relevant information:</b>	Other relevant information
<b>Input file for enhanced profile test</b>	File used for testing of the enhanced profile.
<b>Input file for simple profile test</b>	File used for testing of the simple profile.

**Table 4.2 Test Item explanation**

## 5 PSI/SI configuration

### 5.1 Simple profile configuration

#### 5.1.1 NIT

Linkage\_descriptor

Parameter	Value
OUI:	0x
Selector bytes:	0x
Private data bytes:	0x

#### 5.1.2 PMT

Data\_Broadcast\_ID\_descriptor

Parameter	Value
OUI:	0x
Update type:	0x0
Selector bytes:	0x
Private data bytes:	0x

### 5.2 Enhanced profile configuration

#### 5.2.1 NIT

Linkage\_descriptor

Parameter	Value
OUI:	0x00015A
Selector bytes:	
Private data bytes:	

#### 5.2.2 PMT

Data\_Broadcast\_ID\_descriptor

Parameter	Value
OUI:	0x00015A
Update type:	0x2
Selector bytes:	
Private data bytes:	

#### 5.2.3 UNT

Hardware\_Descriptor in compatibility\_descriptor loop

Parameter	Value
OUI:	0x
Model:	0x
Version:	0x

Software\_Descriptor in compatibility\_descriptor loop

Parameter	Value
OUI:	0x
Model:	0x
Version:	0x

SSU\_location and SSU\_schedule descriptors where located in the operational\_descriptor loop.

## 6 SSU Tests for RiksTV

### 6.1 Simple profile

<b>Test Case</b>	<b>6.1.1 Initiate simple profile upgrade from STDBY.</b>
<b>Section</b>	Ch14 Basic IRD Specifications DTT Norway – version 1.1 [2]
<b>Requirement</b>	The IRD supports the SSU simple profile as defined in section 5.1 of the ETSI 102 006 [1] specifaion and the download can be initiated from STDBY.
<b>Equipment:</b>	<ul style="list-style-type: none"> <li>• Simple profile with software for the IRD under test.</li> <li>• Simple profile for at least one other manufacturer than the one under test.</li> <li>• Simple profile for same manufacturer as under test but with different IRD model.</li> <li>• Enhanced profile with software from at least one other manufacturer.</li> <li>• Enhanced profile with software from the same manufacturer as under test but with different IRD model.</li> </ul>
<b>Test procedure</b>	<ol style="list-style-type: none"> <li>1. Scan the IRD to receive the SSU start channel.</li> <li>2. Turn the IRD into STDBY and wait for 2 minutes.</li> <li>3. Start the IRD again.</li> <li>4. A message is displayed telling that a new software is available. Press OK to download or EXIT to abort. The OK button shall be selected by default.</li> <li>5. Wait for a while, the message disappears and no action is taken.</li> <li>6. Turn the IRD into STDBY and wait for 2 minutes.</li> <li>7. Start the IRD again.</li> <li>8. A message is displayed telling that a new software is available. Press OK to download or EXIT to abort.</li> <li>9. Press EXIT.</li> <li>10. The message disappears and no action is taken.</li> <li>11. Turn the IRD into STDBY and wait for 2 minutes.</li> <li>12. Start the IRD again.</li> <li>13. A message is displayed telling that a new software is available. Press OK to download or EXIT to abort. The OK button shall be selected by default.</li> <li>14. Press OK.</li> <li>15. The message disappears and the IRD starts download the new software.</li> <li>16. When download is finished, check that the new software is correctly downloaded by checking the SW version from the menu.</li> </ol>
<b>Expected result</b>	<p>The IRD supports the SSU simple profile as defined in section 5.1 of the ETSI 102 006 specifaion and the download can be initiated from STDBY. The software is downloaded and installed.</p> <p>The message given to the user contains at least information regarding the following:</p> <ul style="list-style-type: none"> <li>• That a new SW update is available and that it is strongly recommended to update the IRD.</li> <li>• That the update may take some minutes and that it might be a black screen during this time.</li> <li>• That the user shall not power off the IRD during the updates.</li> </ul>
<b>Test result(s)</b>	-
<b>Conformity</b>	<input type="checkbox"/> OK <input type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> Not tested <input type="checkbox"/> Not applicable

<b>Test Case</b>	<b>6.1.2 Initiate simple profile upgrade from menu.</b>
<b>Section</b>	Ch14 Basic IRD Specifications DTT Norway – version 1.1 [2]
<b>Requirement</b>	The IRD supports the SSU simple profile as defined in section 5.1 of the ETSI 102 006 [1] specifaion and the download can be initiated from the IRDs menu.
<b>Equipment:</b>	<ul style="list-style-type: none"> <li>• Same as test case 5.1.1</li> </ul>
<b>Test procedure</b>	<ol style="list-style-type: none"> <li>1. Open the IRD menu and locate the Software update menu option.</li> <li>2. Select and choose the software update option.</li> <li>3. A message is displayed telling that a new software is available. Press OK to download or EXIT to abort. The OK button shall be selected by default.</li> <li>4. Press EXIT.</li> <li>5. The message disappears and no action is taken.</li> <li>6. Locate the Software update menu option, select and choose it.</li> <li>7. A message is displayed telling that a new software is available. Press OK to download or EXIT to abort. The OK button shall be selected by default.</li> <li>8. Press OK.</li> <li>9. The message disappears and the IRD starts download the new software.</li> <li>10. When download is finished, check that the new software is correctly downloaded by checking the SW versin from the menu.</li> </ol>
<b>Expected result</b>	The IRD supports the SSU simple profile as defined in section 5.1 of the ETSI 102 006 specifaion and the download can be initiated from the IRDs menu. The software is downloaded and installed.
<b>Test result(s)</b>	
<b>Conformity</b>	<input type="checkbox"/> OK <input type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> Not tested <input type="checkbox"/> Not applicable

<b>Test Case</b>	<b>6.1.3 SSU simple profile linkage_descriptor</b>
<b>Section</b>	Ch14 Basic IRD Specifications DTT Norway – version 1.1 [2]
<b>Requirement</b>	The IRD shall be able to find the SSU simple profile download on a different frequency using the linkage_descriptor.
<b>Equipment:</b>	<ul style="list-style-type: none"> <li>• Same as 5.2.3</li> <li>• SSU simple profile linkage_descriptor linking to bootload service on different frequency.</li> </ul>
<b>Test procedure</b>	<ol style="list-style-type: none"> <li>1. Scan the IRD to receive the SSU start channel and SSU start channel 2.</li> <li>2. Zap to SSU start channel 2 (Service on TS with linkage_descriptor).</li> <li>3. Locate the Software upgrade option in the user menu and select it.</li> <li>4. A message shall be displayed telling that a new software is available now. Press OK to download or EXIT to abort. The OK button shall be selected by default.</li> <li>5. Press OK.</li> <li>6. The message disappears and the IRD starts downloading the new software. When download is finished, check that the new software is correct downloaded by checking the SW version from the menu.</li> <li>7. Zap to SSU start channel 2 (Service on TS with linkage_descriptor).</li> <li>8. Reset the IRD to its original SW.</li> <li>9. Zap to SSU start channel 2 (Service on TS with linkage_descriptor).</li> <li>10. Turn the IRD into STDBY and wait for 2 minutes.</li> <li>11. Start the IRD again.</li> <li>12. A message shall be displayed telling that a new software is available at the time specified in the scheduling_descriptor. Press OK to download when available or EXIT to abort. The OK button shall be selected by default.</li> <li>13. Press OK.</li> <li>14. The message disappears and the IRD starts download the new software.</li> <li>15. When download is finished, check that the new software is correctly downloaded by checking the SW version from the menu.</li> </ol>
<b>Expected result</b>	The IRD is able to download the software starting on a channel not located on the same frequency as the bootload service.
<b>Test result(s)</b>	
<b>Conformity</b>	<input type="checkbox"/> OK <input type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> Not tested <input type="checkbox"/> Not applicable

## 6.2 Enhanced profile

<b>Test Case</b>	<b>6.2.1 Initiate future available enhanced profile upgrade from STDBY</b>
<b>Section</b>	Ch14 Basic IRD Specifications DTT Norway – version 1.1 [2]
<b>Requirement</b>	The IRD shall support the SSU enhanced profile and the download can be scheduled and initiated by going to or from STDBY.
<b>Equipment:</b>	<ul style="list-style-type: none"> <li>• Enhanced profile with software for the IRD under test, scheduled in the future, with more than one schedule_descriptor in UNT.</li> <li>• Simple profile for at least one other manufacturer than the one under test.</li> <li>• Simple profile for same manufacturer as under test but with different IRD model.</li> <li>• Enhanced profile with software from at least one other manufacturer.</li> <li>• Enhanced profile with software from the same manufacturer as under test but with different IRD model.</li> </ul>
<b>Test procedure</b>	<p><b>Test procedure:</b></p> <ol style="list-style-type: none"> <li>1. Turn the IRD into STDBY and wait for 2 minutes.</li> <li>2. Start the IRD again.</li> <li>3. A message shall be displayed telling that a new software is available at the time specified in the scheduling_descriptor. Press OK to download when available or EXIT to abort. The OK button shall be selected by default.</li> <li>4. Wait for a while. The message is automatically removed.</li> <li>5. Wait until 1 minute after the scheduled time for download.</li> <li>6. The software is NOT downloaded.</li>   <li>7. Reschedule so that the scheduling descriptor is in the future.</li> <li>8. Repeat step 2-4</li> <li>9. Press EXIT.</li> <li>10. The message disappears.</li> <li>11. Wait until 1 minute after the scheduled time for download.</li> <li>12. The software is NOT downloaded.</li>   <li>13. Reschedule so that the scheduling descriptor is in the future.</li> <li>14. Repeat step 2-4</li> <li>15. Press OK.</li> <li>16. The message disappears and the IRD stores the information.</li> <li>17. Leave the IRD ON and wait until the scheduled time for download is due.</li> <li>18. The IRD starts downloading without user confirmation.</li> <li>19. When download is finished, check that the new software is correct downloaded by checking the SW version in the menu.</li>   <li>20. Reset the IRD to its original SW.</li> <li>21. Repeat step 2-4</li> <li>22. Press OK.</li> <li>23. The message disappears and the IRD stores the information.</li> <li>24. Turn the IRD to STDBY and wait until the scheduled time for download is due.</li> <li>25. The IRD starts downloading without user confirmation. When download is finished, check that software is correct by checking the SW version from the menu.</li> </ol>
<b>Expected result</b>	The IRD supports the SSU enhanced profile and the download can be initiated by going to STDBY and up again.
<b>Test result(s)</b>	-
<b>Conformity</b>	<input type="checkbox"/> OK <input type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> Not tested <input type="checkbox"/> Not applicable

<b>Test Case</b>	<b>6.2.2 Initiate future available enhanced profile upgrade from menu</b>
<b>Section</b>	Ch14 Basic IRD Specifications DTT Norway – version 1.1 [2]
<b>Requirement</b>	The IRD shall supports the SSU enhanced profile and the download can be scheduled for download and initiated from the user menu.
<b>Equipment:</b>	<ul style="list-style-type: none"> <li>• Same as test case 5.2.2</li> </ul>
<b>Test procedure</b>	<ol style="list-style-type: none"> <li>1. Schedule so that the scheduling descriptor is in the future.</li> <li>2. Locate the Software upgrade option in the user menu and select it.</li> <li>3. A message is displayed telling that a new software is available at the time specified in the scheduling_descriptor. Press OK to download when available or EXIT to abort. The OK button shall be selected by default.</li> <li>4. Press EXIT to abort.</li> <li>5. The message disappears.</li> <li>6. Wait until 1 minute over the scheduled time for download is due.</li> <li>7. The software is not downloaded.</li> <li>8. Reschedule so that the scheduling descriptor is in the future.</li> <li>9. Locate the Software upgrade option in the user menu and select it.</li> <li>10. A message is displayed telling that a new software is available at the time specified in the scheduling_descriptor. Press OK to download when available or EXIT to abort. The OK button shall be selected by default.</li> <li>11. Press OK to download.</li> <li>12. Stay on a tv channel.</li> <li>13. When download time is due the IRD start downloading new software.</li> <li>14. When download is finished, check that the new software is correct downloaded by checking the SW version in the menu.</li> <li>15. Reset the IRD to its original SW.</li> <li>16. Reschedule so that the scheduling descriptor is in the future.</li> <li>17. Locate the Software upgrade option in the user menu and select it.</li> <li>18. A message is displayed telling that a new software is available at the time specified in the scheduling_descriptor. Press OK to download when available or EXIT to abort. The OK button shall be selected by default.</li> <li>19. Press OK to download.</li> <li>20. The message disappears and the IRD stores the information.</li> <li>21. Turn the IRD into STDBY mode and wait until the scheduled time for download is due.</li> <li>22. When download time is due the IRD start downloading new software.</li> <li>23. When download is finished, check that the new software is correct downloaded by checking the SW version from the menu.</li> </ol>
<b>Expected result</b>	The IRD supports the SSU enhanced profile and the download can be initiated from going the user menu.
<b>Test result(s)</b>	-
<b>Conformity</b>	<input type="checkbox"/> OK <input type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> Not tested <input type="checkbox"/> Not applicable

<b>Test Case</b>	<b>6.2.3 Initiate available enhanced profile upgrade from STDBY</b>
<b>Section</b>	Ch14 Basic IRD Specifications DTT Norway – version 1.1 [2]
<b>Requirement</b>	The IRD shall support the SSU enhanced profile and the download can be initiated from STDBY.
<b>Equipment:</b>	<ul style="list-style-type: none"> <li>• Enhanced profile with software for the IRD under test, scheduled active now, with more than one schedule_descriptor in UNT.</li> <li>• Simple profile for at least one other manufacturer than the one under test.</li> <li>• Simple profile for same manufacturer as under test but with different IRD model.</li> <li>• Enhanced profile with software from at least one other manufacturer.</li> <li>• Enhanced profile with software from the same manufacturer as under test but with different IRD model.</li> </ul>
<b>Test procedure</b>	<ol style="list-style-type: none"> <li>1. Scan the IRD to receive the SSU start channel.</li> <li>2. Turn the IRD into STDBY and wait for 2 minutes.</li> <li>3. Start the IRD again.</li> <li>4. A message shall be displayed telling that a new software is available now. Press OK to download or EXIT to abort. The OK button shall be selected by default.</li> <li>5. Wait for a while. The message is automatically removed.</li> <li>6. Wait until 1 minute after the scheduled time for download.</li> <li>7. The software is NOT downloaded.</li>   <li>8. Turn the IRD into STDBY and wait for 2 minutes.</li> <li>9. Start the IRD again.</li> <li>10. A message shall be displayed telling that a new software is available now. Press OK to download or EXIT to abort. The OK button shall be selected by default.</li> <li>11. Press EXIT.</li> <li>12. The message disappears and the new software is not downloaded.</li>   <li>13. Turn the IRD into STDBY and wait for 2 minutes.</li> <li>14. Start the IRD again.</li> <li>15. A message shall be displayed telling that a new software is available now. Press OK to download or EXIT to abort. The OK button shall be selected by default.</li> <li>16. Press OK.</li> <li>17. The message disappears and the IRD starts downloading the new software. When download is finished, check that the new software is correct downloaded by checking the SW version from the menu.</li> </ol>
<b>Expected result</b>	IRD supports the SSU enhanced profile and the download can be initiated from going to STDBY and up again.
<b>Test result(s)</b>	-
<b>Conformity</b>	<input type="checkbox"/> OK <input type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> Not tested <input type="checkbox"/> Not applicable

<b>Test Case</b>	<b>6.2.4 Initiate available enhanced profile upgrade from menu</b>
<b>Section</b>	Ch14 Basic IRD Specifications DTT Norway – version 1.1 [2]
<b>Requirement</b>	The IRD shall support the SSU enhanced profile and the download can be initiated from the menu.
<b>Equipment:</b>	<ul style="list-style-type: none"> <li>• Same as 5.2.3</li> </ul>
<b>Test procedure</b>	<ol style="list-style-type: none"> <li>1. Scan the IRD to receive the SSU start channel.</li> <li>2. Locate the Software upgrade option in the user menu and select it.</li> <li>3. A message shall be displayed telling that a new software is available now. Press OK to download or EXIT to abort. The OK button shall be selected by default.</li> <li>4. Press EXIT.</li> <li>5. The message disappears and the new software is not downloaded.</li> <li>6. Locate the Software upgrade option in the user menu and select it.</li> <li>7. A message is displayed telling that a new software is available now. Press OK to download or EXIT to abort. The OK button shall be selected by default.</li> <li>8. Press OK.</li> <li>9. The message disappears and the IRD starts downloading the new software. When download is finished, check that the new software is correct downloaded by checking the SW version from the menu.</li> </ol>
<b>Expected result</b>	IRD supports the SSU enhanced profile and the download can be initiated from the menu.
<b>Test result(s)</b>	
<b>Conformity</b>	<input type="checkbox"/> OK <input type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> Not tested <input type="checkbox"/> Not applicable

<b>Test Case</b>	<b>6.2.5 SSU enhanced profile linkage_descriptor</b>
<b>Section</b>	Ch14 Basic IRD Specifications DTT Norway – version 1.1 [2]
<b>Requirement</b>	The IRD shall be able to find the SSU enhanced profile download on a different frequency using the linkage_descriptor.
<b>Equipment:</b>	<ul style="list-style-type: none"> <li>• Same as 5.2.3</li> <li>• SSU enhanced profile linkage_descriptor linking to bootload service on different frequency.</li> </ul>
<b>Test procedure</b>	<ol style="list-style-type: none"> <li>1. Scan the IRD to receive the SSU start channel and SSU start channel 2.</li> <li>2. Schedule the SSU so that the software is available for download now.</li> <li>3. Zap to SSU start channel 2 (Service on TS with linkage_descriptor).</li> <li>4. Locate the Software upgrade option in the user menu and select it.</li> <li>5. A message shall be displayed telling that a new software is available now. Press OK to download or EXIT to abort. The OK button shall be selected by default.</li> <li>6. Press OK.</li> <li>7. The message disappears and the IRD starts downloading the new software. When download is finished, check that the new software is correct downloaded by checking the SW version from the menu.</li> <li>8. Reset the IRD to its original SW.</li> <li>9. Schedule the SSU so that the software is available for download in the future.</li> <li>10. Repeat step 3-4</li> <li>11. A message shall be displayed telling that a new software is available at the time specified in the scheduling_descriptor. Press OK to download when available or EXIT to abort. The OK button shall be selected by default.</li> <li>12. Press OK.</li> <li>13. The message disappears and the IRD is scheduled for download at the specified time.</li> <li>14. At the schedule time the IRD starts downloading the software.</li> <li>15. Reset the IRD to its original SW.</li> <li>16. Repeat step 2-3</li> <li>17. Turn the IRD into STDBY and wait for 2 minutes.</li> <li>18. Start the IRD again.</li> <li>19. Repeat step 5-7</li> <li>20. Repeat step 8-9</li> <li>21. Repeat step 17-18</li> <li>22. Repeat step 11-14</li> </ol>
<b>Expected result</b>	The IRD is able to download the software starting on a channel not located on the same frequency as the bootload service.
<b>Test result(s)</b>	-
<b>Conformity</b>	<input type="checkbox"/> OK <input type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> Not tested <input type="checkbox"/> Not applicable

### 6.3 Compatibility, stability and robustness

<b>Test Case</b>	<b>6.3.1 Multiple manufacturers sharing same carousel</b>
<b>Section</b>	Ch14 Basic IRD Specifications DTT Norway – version 1.1 [2]
<b>Requirement</b>	The IRD shall support multiple manufacturers sharing the same dsm-cc layer 2 carousel.
<b>Equipment:</b>	<ul style="list-style-type: none"> <li>• Same as 5.2.3 but with more than one active manufacturer running on the carousel in addition to the one under test.</li> </ul>
<b>Test procedure</b>	<ol style="list-style-type: none"> <li>1. Locate the Software upgrade option in the user menu and select it.</li> <li>2. A message is displayed telling that a new software is available now. Press OK to download or EXIT to abort. The OK button shall be selected by default.</li> <li>3. Press OK.</li> <li>4. The message disappears and the IRD starts downloading the new software.</li> <li>5. When download is finished, check that the new software is correct downloaded by checking the SW version from the menu.</li> </ol>
<b>Expected result</b>	The IRD shall support multiple manufacturers sharing the same dsm-cc layer-2 carousel.
<b>Test result(s)</b>	
<b>Conformity</b>	<input type="checkbox"/> OK <input type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> Not tested <input type="checkbox"/> Not applicable

<b>Test Case</b>	<b>6.3.2 Aborted download</b>
<b>Section</b>	Ch14 Basic IRD Specifications DTT Norway – version 1.1 [2]
<b>Requirement</b>	The IRD shall support abortion of download at any time.
<b>Equipment:</b>	<ul style="list-style-type: none"> <li>• Same as 5.2.3</li> </ul>
<b>Test procedure</b>	<ol style="list-style-type: none"> <li>1. Locate the Software upgrade option in the user menu and select it.</li> <li>2. A message is displayed telling that a new software is available now. Press OK to download or EXIT to abort. The OK button shall be selected by default.</li> <li>3. Press OK.</li> <li>4. The message disappears and the IRD starts downloading the new software.</li> <li>5. Abort the download during download by removing the antenna.</li> <li>6. IRD stops downloading.</li> <li>7. Insert the antenna again.</li> <li>8. IRD starts downloading again.</li>   <li>9. Go trough step 1-4 again</li> <li>10. Abort the download immediately after starting to download by turning the IRD OFF with power button.</li> <li>11. Turn the IRD ON again.</li> <li>12. The IRD starts up and behaves as normal.</li>   <li>13. Go trough step 1-4 again</li> <li>14. Abort the download immediately after it starts to delete from flash by turning the IRD OFF with power button or pulling the power cord out.</li> <li>15. The IRD starts up trying to download software again</li> <li>16. The software is successfully downloaded and the new software is installed.</li>   <li>17. Reset the software to software under test.</li> <li>18. Go trough step 1-4 again</li> <li>19. Abort the download immediately after it starts to flash new software by turning the IRD OFF with power button.</li> <li>20. The IRD starts up trying to download software again</li> <li>21. The software is successfully downloaded and the new software is installed.</li> </ol>
<b>Expected result</b>	The IRD supports abortion of download at any time.
<b>Test result(s)</b>	
<b>Conformity</b>	<input type="checkbox"/> OK <input type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> Not tested <input type="checkbox"/> Not applicable

<b>Test Case</b>	<b>6.3.3 Resistancy against other manufacturers software</b>
<b>Section</b>	Ch14 Basic IRD Specifications DTT Norway – version 1.1 [2]
<b>Requirement</b>	The IRD shall not try to download or install software from other manufacturers.
<b>Equipment:</b>	<ul style="list-style-type: none"> <li>• Same as 5.2.3</li> <li>• Software under test replaced with software from another manufacturer.</li> </ul>
<b>Test procedure</b>	<ol style="list-style-type: none"> <li>1. Playout software for another manufacturer signaled as the one under test.</li> <li>2. Check if software is rejected or not.</li> </ol>
<b>Expected result</b>	The IRD does not try to download or install software from other manufacturers.
<b>Test result(s)</b>	
<b>Conformity</b>	<input type="checkbox"/> OK <input type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> Not tested <input type="checkbox"/> Not applicable

<b>Test Case</b>	<b>6.3.4 Re-installation and service scan avoided after update</b>
<b>Section</b>	Ch14 Basic IRD Specifications DTT Norway – version 1.1 [2]
<b>Requirement</b>	It shall not be necessary to re-install or re-scan the IRD after software upgrade.
<b>Equipment:</b>	<ul style="list-style-type: none"> <li>• Same as 5.2.3</li> </ul>
<b>Test procedure</b>	<ol style="list-style-type: none"> <li>1. Locate the Software upgrade option in the user menu and select it.</li> <li>2. A message is displayed telling that a new software is available now. Press OK to download or EXIT to abort. The OK button shall be selected by default.</li> <li>3. Press OK.</li> <li>4. The message disappears and the IRD starts downloading the new software.</li> <li>5. When download is finished, check that the new software is correct downloaded by checking the SW version from the menu.</li> <li>6. You do not need to re-install or re-scan the IRD in order to see TV/Radio channels.</li> </ol>
<b>Expected result</b>	<p>It is not necessary to re-install or re-scan the IRD after software upgrade.</p> <p>Settings checked:</p> <ul style="list-style-type: none"> <li>- Channel list</li> <li>- Antenna power</li> <li>- Parental rating</li> <li>- Languages and subtitling</li> <li>- Aspect ratio</li> <li>- Hard of Hearing</li> </ul>
<b>Test result(s)</b>	
<b>Conformity</b>	<input type="checkbox"/> OK <input type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> Not tested <input type="checkbox"/> Not applicable

<b>Test Case</b>	<b>6.3.5 SSU message removed when timer initiated. (Only for IRDs with timer functionality)</b>
<b>Section</b>	Additional requirement if timer is implemented in IRD.
<b>Requirement</b>	If the IRD has timer functionality and the IRD is started up by this functionality, the SSU message shall be removed automatically after a while.
<b>Equipment:</b>	<ul style="list-style-type: none"> <li>• Same as 5.2.3</li> </ul>
<b>Test procedure</b>	<ol style="list-style-type: none"> <li>1. Add a timer that conflicts with a scheduled SSU download.</li> <li>2. Turn the IRD into STDBY.</li> <li>3. When Timer is due the IRD is started.</li> <li>4. If the SSU message is displayed it shall be removed automatically after a while.</li> <li>5. Add a timer that conflicts with an available SSU download.</li> <li>6. Turn the IRD into STDBY.</li> <li>7. When Timer is due the IRD is started.</li> <li>8. If the SSU message is displayed it shall be removed automatically after a while.</li> </ol>
<b>Expected result</b>	If the IRD has timer functionality and the IRD is started up by timer functionality, the SSU message is removed automatically after a while.
<b>Test result(s)</b>	
<b>Conformity</b>	<input type="checkbox"/> OK <input type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> Not tested <input type="checkbox"/> Not applicable

<b>Test Case</b>	<b>6.3.6 Recording are not deleted after a software upgrade. (Only for PVR's)</b>
<b>Section</b>	Ch3.6 RiksTV PVR Specification 1.0 [3]
<b>Requirement</b>	All recordings, in case of a PVR, shall not be deleted after a software upgrade.
<b>Equipment:</b>	<ul style="list-style-type: none"> <li>• Same as 5.2.3</li> </ul>
<b>Test procedure</b>	<ol style="list-style-type: none"> <li>1. Check that recordings are available on HDD.</li> <li>2. Locate the Software upgrade option in the user menu and select it.</li> <li>3. A message is displayed telling that a new software is available now. Press OK to download or EXIT to abort. The OK button shall be selected by default.</li> <li>4. Press OK.</li> <li>5. The message disappears and the IRD starts downloading the new software.</li> <li>6. When download is finished, check that the new software is correct downloaded by checking the SW version from the menu.</li> <li>7. All recordings on the HDD are still present after software upgrade.</li> </ol>
<b>Expected result</b>	All recordings, in case of a PVR, are not deleted after a software upgrade.
<b>Test result(s)</b>	
<b>Conformity</b>	<input type="checkbox"/> OK <input type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> Not tested <input type="checkbox"/> Not applicable

## 6.4 Optional requirements

<b>Test Case</b>	<b>6.4.1 Target loop – support for serial_number_descriptor 01</b>
<b>Section</b>	Ch14 Basic IRD Specifications DTT Norway – version 1.1 [2]
<b>Requirement</b>	The IRD shall supports the serial_number_descriptor – serial number not active.
<b>Equipment:</b>	<ul style="list-style-type: none"> <li>• Same as 5.2.3</li> <li>• Serial_number_descriptor signalled with another serial number then the one in test.</li> </ul>
<b>Test procedure</b>	<ol style="list-style-type: none"> <li>1. Signal the serial_number_descriptor with another serial number then the one in test.</li> <li>2. Locate the Software upgrade option in the user menu and select it.</li> <li>3. A message shall be displayed telling that no new software is available.</li> </ol>
<b>Expected result</b>	IRD supports the serial_number_descriptor and the download is not downloaded when used IRD is not signaled.
<b>Test result(s)</b>	
<b>Conformity</b>	<input type="checkbox"/> OK <input type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> Not tested <input type="checkbox"/> Not applicable

<b>Test Case</b>	<b>6.4.2 Target loop – support for serial_number_descriptor 02</b>
<b>Section</b>	Ch14 Basic IRD Specifications DTT Norway – version 1.1 [2]
<b>Requirement</b>	The IRD shall supports the serial_number_descriptor – serial number active .
<b>Equipment:</b>	<ul style="list-style-type: none"> <li>• Same as 5.2.3</li> <li>• Serial_number_descriptor signaled with IRD under test.</li> </ul>
<b>Test procedure</b>	<ol style="list-style-type: none"> <li>1. Scan the IRD to receive the SSU start channel.</li> <li>2. Locate the Software upgrade option in the user menu and select it.</li> <li>3. A message is displayed telling that a new software is available now. Press OK to download or EXIT to abort. The OK button shall be selected by default.</li> <li>4. Press OK.</li> <li>5. The message disappears and the IRD starts downloading the new software. When download is finished, check that the new software is correct downloaded by checking the SW version from the menu.</li> </ol>
<b>Expected result</b>	IRD supports the serial_number_descriptor and the download is not downloaded when used IRD is not signaled.
<b>Test result(s)</b>	
<b>Conformity</b>	<input type="checkbox"/> OK <input type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> Not tested <input type="checkbox"/> Not applicable

## 7 Summary of test

Test case	Result	Comment
6.1.1		Initiate simple profile upgrade from STDBY.
6.1.2		Initiate simple profile upgrade from menu.
6.1.3		SSU simple profile linkage_descriptor
6.2.1		Initiate future available enhanced profile upgrade from STDBY
6.2.2		Initiate future available enhanced profile upgrade from menu
6.2.3		Initiate available enhanced profile upgrade from STDBY
6.2.4		Initiate available enhanced profile upgrade from menu
6.2.5		SSU enhanced profile linkage_descriptor
6.3.1		Multiple manufacturers sharing same carousel
6.3.2		Aborted download
6.3.3		Resistancy against other manufacturers software
6.3.4		Re-installation and service scan avoided after update
6.3.5		SSU message removed when timer initiated. (Only for IRDs with timer functionality)
6.3.6		Recording are not deleted after a software upgrade. (Only for PVR's)
6.4.1		Target loop – support for serial_number_descriptor 01
6.4.2		Target loop – support for serial_number_descriptor 02

Fault categories are defined as follows:

- Critical i.e. this is a “show stopper” and is absolutely necessary to correct.
- Major i.e. this is also a fault that is necessary to correct within a short time span.
- Minor i.e. minor fault that is not important correct immediately. A minor fault is not an obstacle for getting a “passed” result.
- OK i.e. this indicates that this test case is passed without comments.
- NA i.e. that this test case is non applicable for this IRD
- NT i.e. that this test case is not tested for this IRD

## 8 Other findings

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## 9 Tested by

This RiksTV SSU Test is performed by:

Name:		Date:	
Mail:		Phone:	