RiksTV Test Plan

for

Integrated Receiver Decoders

for use in terrestrial networks

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Part I – Introduction

1 Document History

Version	Date	Comments
1.0	2007	Drafts
1.1	2008	4 Test Specification for RiksTV tests: the word “additional” is deleted from the text. 4.1 Added test case: Task 5.1 4.3 Task 7:7: minor changes, parameters “30Hz” and “60Hz” are deleted from the text. 4.3 Task 7:8: minor changes in the text. “The receiver is able to downconvert 720p and 1080i resolution to SD (576i) by verifying it with analogue TV.” 4.3 Task 7:10 Text changed: “Component video” added. 4.6 Task 11:4 Text changed: “Automatisk kanalsøk” and “Automatic channel search”. 4.6 Task 11:5 Text added: “Select region T Net1 or T Net2 (both regions shall be tested).” 4.7 Task 12:10 Text deleted: “High reception quality shall have higher priority”. This condition is tested in 3.10 Best mux test. 4.7 Task 12:11 Minor changes in the conditions. 4.8 Task 13.1 Text changed: “Add and remove service in service_list_descriptor…” Added section 4.10 Task 15: Enabling/Disabling HDCP 4.10 Added test case: Task 15.1 Added section 4.11 Task 16: Parental Control 4.11 Added test case: Task 16.1
1.1b	2009-02-06	4.10 Changed test conditions for: Task 15:1 HDCP functionality. 4.8 Changed text in task 13.3 for item 13: “Verify the receiver does not start to scan.”
1.1c	2010-01-28	4.6 Changed test procedure for: Task 11:5 “Channel search – Best service selection”
2.0	2011-02-28	Major rewriting for all chapters.
3.0	2016-12-23	This is the updated version of the complete RiksTV Test plan. This release is compliant with the Basic IRD Specification DTT Norway v3.0.
3.01	2017-11-07	Minor changes according updates in Basic IRD Specification DTT Norway v3.01: Task 02:01 is modified, now mandatory for STB, optional for IDTV Task 02:02 is modified, now mandatory for STB, optional for IDTV Task 05:01 is modified, now mandatory for STB, optional for IDTV
3.02	2018-04-03	Minor changes according updates in Basic IRD Specification DTT Norway v3.02: Task 09:04 modified Task 09:08 changed from shall to should Task 09:19 removed Task 09:31 changed from shall to should Task 09:32 added Task 10:02 modified Task 15:09 modified Task 15:10 added Task 15:11 changed from shall to should Task 16:10 modified Task 16:13 changed from shall to should
3.03	2018-05-28	Minor changes according updates in Basic IRD Specification DTT Norway v3.07 Task 03:01 “HMDI cable” requirement changed from mandatory to optional for IDTV Task 09:27 changed from mandatory to optional for IDTV Task 09:28 changed from mandatory to optional for IDTV Task 09:29 changed from mandatory to optional for IDTV Task 13:04 added text “output” for HMDI interface
3.04	2018-08-14	Task 18:02 modified

3.06	2019-03-08	Task 16:10 “Component descriptor” is removed, Task 16:11 is changed to Task 16:10 and so on according to updates in Basic IRD Specification DTT Norway v3.05 Task 08:04 “Cleanup when performing ASS” is updated according to Basic IRD Specification DTT Norway v3.06 Task 08:11 “Automatic Maintenance Service Scan (AMSS) ” is updated according to Basic IRD Specification DTT Norway v3.06
3.07	2019-04-15	Tasks 17:4 “Audio when UI navigation” and 19:1 “Power On” are updated according to Basic IRD Specification DTT Norway v3.07
3.08	2019-11-21	Task 15:8 “PIN code prompt” is updated according to Basic IRD Specification DTT Norway v3.08

2 References

This test specification is related to the following documents:

[1] NorDig Unified Specification
The IRDs shall be in line with NorDig Unified Requirements v2.5.1 unless otherwise is explicitly stated in this document.
[2] NorDig Rules of Operations
The IRDs shall be in line with Nordig Rules of Operations v1.0 unless otherwise is explicitly stated in this document.
[3] NorDig Unified Test Plan v2.5.0
[4] NTV standard terms and conditions
[5] Electroacoustics - Sound level meters.
EN 61672-1:2003 – Electroacoustics - Sound level meters.
[6] Europlug
EE7/16 Europlug EN50075 specification
[7] 700MHz immunity
ETSI EN 303 340, Digital Terrestrial Broadcast receives; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU
[8] CA card slot
ISO-7816-3 (1997) with amendment 1 (2002)
[9] SIM card reader
SIM card reader, ISO/IEC 7810:2003, ID-000 specification
[10] 2019-03-14 - NTV Basic specification v3.08

2.1 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. If such non-compliance can be removed by an upgrade of the IRD software, this shall be indicated by ticking the correct commentary field for the individual test. The manufacturer should describe the non-compliance and plans to correct it in the “Comments“ row.

The Information specified for the “Test item” shall be provided, see section 2.2.

2.2 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.

Table 2.1 Test Item

Test Item	
Manufacturer:	
Model:	
S/N(s):	
SW version:	
HW version:	
Front-End:	

Demux:	
Processor:	
Memory size:	
MHP Profile:	
NorDig Profile:	
Other relevant information:	

Following information shall be entered to Table 2.1

Manufacturer:	The name of the manufacturer of the tested IRD
Model:	The model (to be deployed to NorDig market) of the tested IRD
S/N(s):	The serial numbers of all IRDs which are used in the tests
SW version:	The SW version of the tested IRD model
HW version:	The HW version of the tested IRD model
Front-End:	The front-end type and model of the tested IRD
Demux:	The Demux type and model of the tested IRD
Processor:	The Processor type and model of the tested IRD
Memory size:	The memory size of the tested IRD
MHP Profile:	The MHP profile of the tested IRD (Not relevant for NorDig Basic/NorDig I)
NorDig Profile	The NorDig profile of the tested IRD
Other relevant information:	The other relevant information that the IRD manufacturer feels important

2.3 List of Abbreviations

AC3	Audio Codec 3
AES-128	Advanced Encryption Standard
AMSS	Automatic Maintenance Service Scan
ASL	All Services List
ASS	Automatic Service Scan
CA	Conditional Access
CAM	Conditional Access Module
CIP	Common Interface Plus
CVBS	Composite Video Broadcast Signal
DTS	Digital Theater System
DTT	Digital Terrestrial Television
DVB	Digital Video Broadcast
EIT	Event Information Table
EPG	Electronic Program Guide
ESG	Electronic Service Guide
FTI	First Time Installation
HD	High Definition
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDTV	High Definition Television
HE-AAC	High Efficiency Advanced Audio Coding
HoH	Hard of Hearing
IRD	Integrated Receiver Decoder

LCN	Logical Channel Name
LTE	Long-Term Evolution
MSS	Manual Service Scan
NIT	Network Information Table
NTV	Norges Televisjon

Part II - Test Cases

1 Introduction - Test Cases

The RiksTV plan specifications Test Cases are grouped into a set of test tasks, covering related tests:

Task 1:Hardware requirement – Connectors and interfaces
Task 2: Hardware requirement – Remote control unit
Task 3: Hardware requirement – Accessories and packaging
Task 4: Software requirements – Video
Task 5: Software requirements – Audio
Task 6: Software requirements – First time installation
Task 7: Software requirements – Factory reset
Task 8: Software requirements – Service scan
Task 9: Software requirements – Service lists
Task 10: Software requirements – Automatic network updates
Task 11: Software requirements – Signal meter
Task 12: Software requirements – System software update
Task 13: Software requirements – Content protection
Task 14: Software requirements – HDCP
Task 15: Software requirements – Parental control
Task 16: Software requirements – Program guides
Task 17: Software requirements – User interface
Task 18: Software requirements – Automatic standby
Task 19: Software requirements – Performance
Task 20: Software requirements – Visually hearing/impaired
Task 21: Software requirements – Default setings
Task 22: Software requirements – Appendix C

Each of the main tasks defined above include a number of sub-tasks.

2 Test Plan for RiksTV – Test cases

2.1 Hardware requirement

2.1.1 Test cases

2.1.1.1 Test cases – Connectors and interfaces

Test Case	***Task 1:1 DVB-T and DVB-T2***		
Section	Ch 3.1.1 Basic IRD Specificaion DTT Norway v3.07		
Requirement	The IRD shall support both DVB-T and DVB-T2 as detailed in the Nordig Unified Specification.		
IRD profile(s)	STB, IDTV		
Test procedure	**Purpose of test:** To verify that the IRD is supporting both DVB-T and DVB-T2 as detailed in the Nordig Unified Specification. **Equipment:** IRD under test **Test procedure:** Verify that the IRD is supporting both DVB-T and DVB-T2 as detailed in the Nordig Unified Specification. **Expected result**: That the IRD is supporting both DVB-T and DVB-T2 as detailed in the Nordig Unified Specification.		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 1:2 RF tuner / demodulator***
Section	Ch 3.1.2 Basic IRD Specificaion DTT Norway v3.07

Requirement	The IRD shall as a minimum have one RF tuner/demodulator and support the frequency range as follows: **NOTE:** The support for S Band II and S Band III is mandatory for the Norwegian DTT network. These bands are specified as optional in Nordig Unified Specification [1]. **NOTE:** Channels in the 800MHz spectrum are used for LTE in Norway, hence this spectrum shall not be supported by the IRD.
IRD profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that IRD can tune to mandatory center frequencies in table above. (See NorDig Unified Test Plan [1] Task 3:4 and Task 3:34) **Equipment:** IRD Under test **Test procedure:** Follow NorDig Unified Test Plan [1] Task 3:4 and Task 3:34including optional frequencies. **Expected result:** The tested IRD shall be able to tune to tested centre frequencies.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 1:3 LTE immunity – 800MHz spectrum***
Section	Ch 3.1.3 Basic IRD Specification DTT Norway v3.07
Requirement	The Immunity to LTE signals in the 800MHz band shall be as specified in the Nordig Unified Specification [1], chapter 3.4.10.6.2 Immunity to 800MHz LTE signals in Other Channels.
IRD profile(s)	STB, IDTV

	Band	Frequency range	Raster	Bandwidth	Requirement
VHF	VHF I	47 – 68 MHz	N/A	N/A	Not applicable
	S Band I	104 – 174 MHz	7 & 8 MHz	7 & 8 MHz	Optional
	VHF III	174 – 230 MHz	7 & 8 MHz	7 & 8 MHz	Mandatory
	S Band II	230 – 300 MHz	7 & 8 MHz	7 & 8 MHz	Mandatory
UHF	S Band III	300 – 470 MHz	8 MHz	8 MHz	Mandatory
	UHF IV	470 – 606 MHz	8 MHz	8 MHz	Mandatory
	UHF V	606 –790MHz	8 MHz	8 MHz	Mandatory

Test procedure	**Purpose of test:** To verify that IRD is able to support immunity to LTE signals in the 800MHz band **Equipment:** IRD under test. **Test procedure:** Follow NorDig Unified Test Plan [1] test task 3:27 and task 3:64 **Expected result:** Immunity to LTE 800MHz is supported.		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 1:4 LTE immunity – 700MHz spectrum***		
Section	Ch 3.1.4 Basic IRD Specification DTT Norway v3.07		
Requirement	The Immunity to LTE signals in the 700MHz band shall be as specified in the ETSI EN 303 340 [6], Digital Terrestrial Broadcast receives; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU. **NOTE:** It is expected that the Nordig Unified Specification will be complemented with an "Immunity to 700MHz LTE signals in Other Channels" chapter within the lifespan of this specification. This specification will include these requirements as soon as they are published.		
IRD profile(s)	STB, IDTV		
Test procedure	**Purpose of test:** To verify that IRD is able to support immunity to LTE signals in the 700MHz band **Equipment:** IRD under test. **Test procedure:** Follow ETSI EN 303 340 [6], Digital Terrestrial Broadcast receives; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU. **Expected result:** Immunity to LTE 700MHz is supported.		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 1:5 RF input connector***
Section	Ch 3.1.5 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall have one RF input connector.
IRD profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that the IRD has one RF input connector **Equipment**: No special equipment is required. **Test procedure:** Verify that the IRD has one RF input connector **Expected result:** That the IRD has one RF input connector
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 1:6 Short-circuit protected RF input connector***
Section	Ch 3.1.6 Basic IRD Specification DTT Norway v3.07
Requirement	The RF input connector shall be short-circuit protected to ensure that a permanent short circuit do not harm the receiver.
IRD profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that the RF input connector is short-circuit protected to ensure that a permanent short circuit do not harm the receiver. **Equipment:** IRD under test, short circuit connector and 100Ohm **Test procedure:** Short circuit the antenna output connector and verify that the RF input is not damaged. Use the 100Ohm load to measure the outputted current and voltage. **Expected result:** That the RF input connector is short-circuit protected to ensure that a permanent short circuit do not harm the receiver.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 1:7 Antenna power supply***
Section	Ch 3.1.7 Basic IRD Specification DTT Norway v3.07
Requirement	The RF input connector shall provide 5V, 50mA antenna power supply.
IRD profile(s)	STB
Test procedure	**Purpose of test:** To verify that the RF input connector does provide 5V, 50mA antenna power supply. **Equipment:** IRD under test **Test procedure:** Verify that the RF input connector does provide 5V, 50mA antenna power supply. **Expected result:** That the RF input connector does provide 5V, 50mA antenna power supply.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 1:8 Maximum current on RF input connector***
Section	Ch 3.1.8 Basic IRD Specification DTT Norway v3.07
Requirement	The RF input connector shall not provide more than 50mA current..
IRD profile(s)	STB
Test procedure	**Purpose of test:** To verify that the RF input connector is not providing more than 50mA current **Equipment:** IRD under test **Test procedure:** Verify that the RF input connector is not providing more than 50mA current **Expected result:** That the RF input connector is not providing more than 50mA current
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 1:9 Enable/disable antenna power supply***
Section	Ch 3.1.9 Basic IRD Specification DTT Norway v3.07
Requirement	It shall be possible to enable/disable antenna power supply in the systems menu
IRD profile(s)	STB
Test procedure	**Purpose of test:**

	To verify that it is possible to enable/disable antenna power supply in the systems menu **Equipment:** IRD under test **Test procedure:** Verify that it is possible to enable/disable antenna power supply in the systems menu **Expected result:** That it is possible to enable/disable antenna power supply in the systems menu
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 1:10 Smart Card interface***
Section	Ch 3.1.10 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD, shall as a minimum, have one Smart Card interface according to [8] or [9].
IRD profile(s)	STB
Test procedure	**Purpose of test:** To verify that the IRD, does as a minimum, have one Smart Card interface according to [8] or [9]. **Equipment:** IRD under test **Test procedure:** Verify that the IRD, does as a minimum, have one Smart Card interface according to [8] or [9]. **Expected result:** That the IRD, does as a minimum, have one Smart Card interface according to [8] or [9].
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 1:11 CIP-CAM interface***
Section	Ch 3.1.11 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD, shall as a minimum, have one Common Interface Plus slot compliant with version 1.3 or later versions independent of screen size. **NOTE:** Unlike specified in the Nordig Unified Specification, CIP-CAM slot is mandatory for all screen sizes.
IRD profile(s)	IDTV
Test procedure	**Purpose of test:**

	To verify that the IRD, does as a minimum, have one Common Interface Plus slot compliant with version 1.3 or later versions independent of screen size. **Equipment:** IRD under test. **Test procedure:** Verify that the IRD, does as a minimum, have one Common Interface Plus slot compliant with version 1.3 or later versions independent of screen size. **Expected result:** That the IRD, does as a minimum, have one Common Interface Plus slot compliant with version 1.3 or later versions independent of screen size.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 1:12 S/PDIF***
Section	Ch 3.1.12 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall include a digital audio interface based on S/PDIF with a coaxial and/or an optical connector.
IRD profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that the IRD has a digital audio interface. **Equipment:** IRD under test. **Test procedure:** 1. Verify what digital autio connectors the IRD is equipped with. 2. Audio formats aretested in chapter 4.2. **Expected result:**
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

2.1.1.2 Test cases – Remote control unit

Test Case	***Task 2:1 Remote Control Unit (RCU)***
Section	Ch 3.2.1 Basic IRD Specification DTT Norway v3.07
Requirement	The RCU shall include the following functions associated with one unique key:

	Function	**Key**
	Channel up/down	P+/P-
	Volume	V+/V-
	Toggle audio on/off	Mute
	In/out of standby	Stand-by
	Navigation	Left/Right/Up/Down
	Selection	OK
	Context dependent	Red/Green/Yellow/Blue
	Number entry	0-9
	Link to infobanner (EIR p/f)	Info
	Link to EPG	Guide
	Link to IRD settings	Menu
	Teletext	Text
	Toggle subtitling on/off	Subtitling
	Exit back to TV	Exit
	Toggle Radio/TV mode	Radio/TV

NOTE:

- In the Nordig Unified Specification, it is optional to have logical or physical keys. For the Norwegian DTT network the above buttons shall be physical keys on the RCU.
- The Mute key is not a part of the Nordig Unified specification.

IRD Profile(s)	STB (mandatory), IDTV (optional)
Test procedure	**Purpose of test:** To verify that the remote control unit has the keys according to the requirement above. **Equipment:** The IRD under test and corresponding remote control unit. **Test procedure:** 1. Verify that the remote control unit has the required keys. 2. Verify that they work correctly. **Expected result:** RCU is OK
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 2:2 Key symbols***		
Section	Ch 3.2.2 Basic IRD Specification DTT Norway v3.07		
Requirement	The RCU keys shall be marked with symbols, industry standard layout or in Norwegian.		
IRD Profile(s)	STB (mandatory), IDTV (optional)		
Test procedure	**Purpose of test:** To verify that the remote control unit has the keys according to the requirement above. **Equipment:** The IRD under test and corresponding remote control unit. **Test procedure:** 1. Verify that the remote control unit has the required keys. 2. Verify that they work correctly. **Expected result:** RCU is OK		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 2:3 Embossed key 5 and OK***		
Section	Ch 3.2.3 Basic IRD Specification DTT Norway v3.07		
Requirement	RCU key 5 and OK/Select button should be embossed		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test:** To verify that the remote control unit has the keys according to the requirement above. **Equipment:** The IRD under test and corresponding remote control unit. **Test procedure:** 1. Verify that the remote control unit has the required keys. 2. Verify that they work correctly. **Expected result:** RCU is OK		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

2.1.1.3 Test Cases – Accessories and packaging

Test Case	***Task 3:1 Accessories and packaging***
Section	Ch 3.3.1-3.3.7 Basic IRD Specification DTT Norway v3.07
Requirement	One Power Supply Unit (PSU), two-pole male plug compliant [5], shall be included. One HDMI cable, with a minimum length of 1.5m, shall be included. (Optional for IDTV) One Remote Control Unit (RCU), compliant with the requirements in chapter 3.2, shall be included. Batteries for the RCU shall be included A printed user manual in Norwegian and English shall be included. The user manual shall explain the basic functionality and the installation procedure of the IRD. NOTE: How to insert the CA card (chip up/down) shall be explicitly explained in the manual. The IRD chassis, gift-box and export cartons shall be labelled according to the requirements defined in [3] NTV standard terms and conditions.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that the accessories and packaging are according to the requirements. **Equipment:** **Test procedure:** 1. Verify that power supply unit is included 2. Verify that HDMI cable is included 3. Verify that remote control unit with batteries is included 4. Verify that printed user manual in Norwegian and English is included and it explains basic functionality and the installation procedure of the IRD 5. Verify that IRD chassis, gift box and export cartons are labelled according to NTV standard terms and conditions **Expected result:** That the accessories and packaging are according to the requirements.
Test result(s)	The manufacturer describes his specific setup for the test
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

2.2 Software requirements

2.2.1 Test cases

2.2.1.1 Test cases – Video

Test Case	***Task 4:1 PTS/PCR offset***
Section	Ch 4.1.1 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall be able to handle a PTS/PCR offset up to 5 seconds. **NOTE:** The PTS/PCR offset peaks up to 5 seconds due to the statistical multiplexing. The encoders are set to a maximum delay (5 sec) in this mode. The buffers are actively used which causes them to dynamically change the PCR/PTS offset in order for the receiver to display correct. Reducing the offset setting by reducing the max delay in the encoder significantly reduces the stat-mux gain and is therefore not an option In order to achieve this requirement, the receiver must be able to handle a offset of up to 5 seconds where the video bitrate is 10Mbit/sec and the audio bitrate is 256kbit/sec.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that the IRD is able to handle a PTS/PCR offset up to 5 seconds. **Equipment:** IRD under test **Test procedure:** Verify that the IRD is able to handle a PTS/PCR offset up to 5 seconds. **Expected result:** That the IRD is able to handle a PTS/PCR offset up to 5 seconds.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

2.2.1.2 Test cases – Audio

Test Case	***Task 5:1 HE-AAC decoding***
Section	Ch 4.2.1 Basic IRD Specification DTT Norway v3.07
Requirement	HE AAC audio decoding, both stereo and multichannel, shall be supported and transcoded to DTS.
IRD Profile(s)	STB (mandatory), IDTV (optional)
Test procedure	**Purpose of test:** To verify that HE AAC audio decoding, both stereo and multichannel, are supported and transcoded to DTS

	Equipment: IRD under test **Test procedure:** Verify that HE AAC audio decoding, both stereo and multichannel, are supported and transcoded to DTS **Expected result:** That HE AAC audio decoding, both stereo and multichannel, are supported and transcoded to DTS
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 5:2 E-AC3 decoding***
Section	Ch 4.2.2 Basic IRD Specification DTT Norway v3.07
Requirement	E-AC3/AC-3 with ability to transcode to AC3 is optional to support.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that the IRD supports requirements in NorDig specification [2]. **Equipment:** IRD under test **Test procedure:** Verify that E-AC3/AC-3 with ability to transcode to AC3 is optional to support. **Expected result:** That E-AC3/AC-3 with ability to transcode to AC3 is optional to support.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 5:3 Subtitling selection matrix***
Section	Ch 4.2.3 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall include a user option for subtitles for the Hard of Hearing (HOH). The IRD shall select the subtitling stream according to the following matrix:

Hard of Hearing IRD setting	**Broadcasted subtitles**	**Correct selection**

	HoH disabled	HoH enabled	Normal	HoH	
	x			x	No subtitle displayed
	x		x		Normal
	x		x	x	Normal
		x		x	HoH
		x	x		Normal
		x	x	x	HoH

NOTE:

- These settings shall have higher priority than the language selection for subtitles.
- Both Normal and HoH subtitles can be broadcasted as DVB and Teletext subtitles.
- The selection matrix is independent of the format used for the subtitles.

IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify the IRD selects subtitle to display according to the table above. **Equipment:** IRD under test **Test procedure:** **Expected result:** Correct subtitle types are selected according to the table above.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***	

2.2.1.3 Test cases – First time installation

Test Case	***Task 6:1 First Time Installation (FTI)***
Section	Ch 4.3.1 Basic IRD Specification DTT Norway v3.07
Requirement	The user shall be guided through the FTI when starting up the IRD for the first time.
IRD Profile(s)	STB, IDTV

Test procedure	**Purpose of test:** To verify that the user is guided through the FTI when starting up the IRD for the first time **Equipment:** IRD under test **Test procedure:** Verify that the user is guided through the FTI when starting up the IRD for the first time **Expected result:** That the user is guided through the FTI when starting up the IRD for the first time
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 6:2 FTI ASS***
Section	Ch 4.3.2 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall perform an Automatic Service Scan (ASS, see chapter 4.5) as a part of the FTI.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that the IRD does perform an Automatic Service Scan (ASS, see chapter 4.5) as a part of the FTI **Equipment:** IRD under test **Test procedure:** Verify that the IRD does perform an Automatic Service Scan (ASS, see chapter 4.5) as a part of the FTI **Expected result:** That the IRD does perform an Automatic Service Scan (ASS, see chapter 4.5) as a part of the FTI
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

2.2.1.4 Test cases – Factory reset

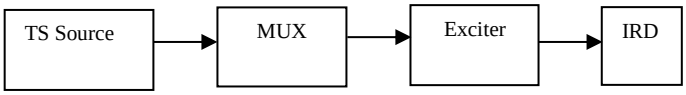
Test Case	***Task 7:1 FTI procedure***

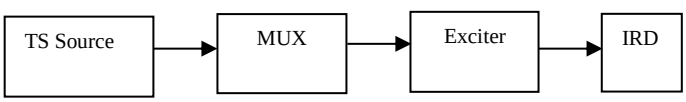
Section	Ch 4.4.1 Basic IRD Specification DTT Norway v3.07
Requirement	A factory reset shall trigger the FTI procedure.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that the IRD triggers the FTI procedure when selecting factory reset. **Equipment:** IRD under test **Test procedure:** Verify that the IRD triggers the FTI procedure when selecting factory reset. **Expected result:** That the IRD triggers the FTI procedure when selecting factory reset.
Test result(s)	
Conformity	☐ OK Fault ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐ YES ☐ NO Describe more specific faults and/or other information
Date	***Sign***	

Test Case	***Task 7:2 Conax related information***
Section	Ch 4.4.2 Basic IRD Specification DTT Norway v3.07
Requirement	A factory reset shall not delete any Conax related information received from the network for storage in persistent memory.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** **Equipment:** **Test procedure:** This test is covered by the Conax certification. **Expected result:**
Test result(s)	
Conformity	☐ OK Fault ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐ YES ☐ NO Describe more specific faults and/or other information
Date	***Sign***	

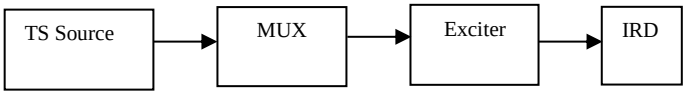
2.2.1.5 Test cases – Service scan

Test Case	***Task 8:1 Automatic Service Scan (ASS)***
Section	Ch 4.5.1 Basic IRD Specification DTT Norway v3.07

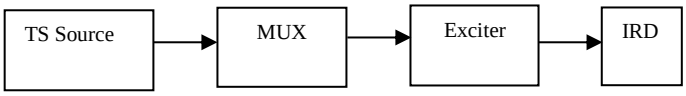
Requirement	An ASS shall search through all available network frequencies in order to find available services. The services found shall be added to the service list(s) as defined in chapter 4.6. Task 19:6 Service scan
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that an ASS does search through all available network frequencies in order to find available services and that the services found are added to the service list(s) as defined in chapter 4.6. Maximum service scna time is tested in Task 19:6 Service scan **Equipment:**  The TS shall contain several services signaled within different service lists. The IRD under test and at least the same amount of multiplexers as used in the Norwegian DTT neteork. **Test procedure:** Verify that an ASS does search through all available network frequencies in order to find available services and that the services found are added to the service list(s) as defined in chapter 4.6. **Expected result:** That an ASS does search through all available network frequencies in order to find available services and that the services found are added to the service list(s) as defined in chapter 4.6.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***	

Test Case	***Task 8:2 ASS in the systems menu***
Section	Ch 4.5.2 Basic IRD Specification DTT Norway v3.07
Requirement	An ASS shall be easily available from the systems menu.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that an ASS is easily available from the systems menu. **Equipment:**  The TS shall contain several services signaled within different service lists. The IRD under test and at least the same amount of multiplexers as used in the Norwegian DTT neteork.

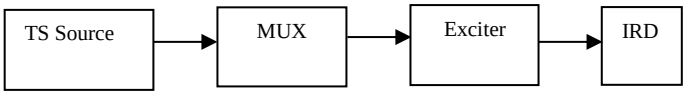
	Test procedure: Verify that an ASS is easily available from the systems menu. **Expected result:** That an ASS is easily available from the systems menu.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 8:3 Naming of ASS***
Section	Ch 4.5.3 Basic IRD Specification DTT Norway v3.07
Requirement	An ASS shall be called «Automatisk kanalsøk» in Norwegian and «Automatic channel search» in English.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that an ASS is called «Automatisk kanalsøk» in Norwegian and «Automatic channel search» in English **Equipment:**  The TS shall contain several services signaled within different service lists. The IRD under test and at least the same amount of multiplexers as used in the Norwegian DTT neteork. **Test procedure:** Verify that an ASS is called «Automatisk kanalsøk» in Norwegian and «Automatic channel search» in English **Expected result:** That an ASS is called «Automatisk kanalsøk» in Norwegian and «Automatic channel search» in English
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 8:4 Cleanup when performing ASS***
Section	Ch 4.5.4 Basic IRD Specification DTT Norway v3.07
Requirement	An ASS shall remove all old services and associated settings.

	• If ASS doesn't find any services, it's not required that old services are removed from the service list. • If ASS doesn't remove old services when there are no services found, the IRD must have other functionality (menu option or similar) for clearing the service list without preforming a full system reset.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that an ASS does remove all old services and associated settings **Equipment:**  The TS shall contain several services signaled within different service lists. The IRD under test and at least the same amount of multiplexers as used in the Norwegian DTT neteork. **Test procedure:** Verify that an ASS does remove all old services and associated settings • If ASS doesn't find any services, it's not required that old services are removed from the service list. • If ASS doesn't remove old services when there are no services found, the IRD must have other functionality (menu option or similar) for clearing the service list without preforming a full system reset. **Expected result:** That an ASS does remove all old services and associated settings according to the requirements
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 8:5 Several Networks received***
Section	Ch 4.5.5 Basic IRD Specification DTT Norway v3.07
Requirement	If, during scanning, the IRD finds several networks (i.e. several Norwegian NITs) it shall: • Present a list of all network names found that is associated to the country setting (here Norway). • Network names from non-Norwegian networks shall not be listed in the favorite region selection. • The network name shall be presented according to the network_name_descriptor in the NIT. • The list of network names shall be sorted alphabetically. • The user shall choose its favorite region from the list and the favorite region shall be stored as this parameter is used to build up the service lists
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:**

	To verify that the installation process works as described when several networks are found during scanning. **Equipment:**  The TS shall be a copy of one mux in the Norwegian DTTV Network. **Test procedure:** 1. Perform an installation. 2. Verify that the IRD is presenting a list of all network names found that is associated to the country setting Norway. 3. Verify that network names from non-Norwegian networks are not listed in the favourite region selection. 4. Verify that the network name is presented according to network_name_descriptor in the NIT. 5. Verify that the list of network names is sorted alphabetically. 6. Verify that it is possible to choose favorite region from the list and that the favorite region is stored as this parameter is sued to build up the service list. **Expected result:** All results in the measurement record shall be OK.
Test result(s)	Measurement record: **Requirement** / **OK or NOK** IRD is presenting a list of all network names found that is associated to the country setting (here Norway).. Network names from non-Norwegian networks are not listed in the favorite region selection The network name are presented according to the network_name_descriptor in the NIT The list of network names is sorted alphabetically When the user choose its favorite region from the list and the favorite region is stored as this parameter is used to build up the service lists
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 8:6 Manual Service Scan (MSS)***
Section	Ch 4.5.6 Basic IRD Specification DTT Norway v3.07
Requirement	An MSS shall search through a frequency specified by the user and the services found shall be added to the service(s) list as defined in chapter 4.6.

IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that MSS is searching through frequency specified by the user and the services found are added to the service list. **Equipment:** IRD under test **Test procedure:** Verify that MSS is searching through frequency specified by the user and the services found are added to the service list **Expected result:** That MSS is searching through frequency specified by the user and the services found are added to the service list
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 8:7 Manual Service Scan (MSS) in the systems menu***
Section	Ch 4.5.7 Basic IRD Specification DTT Norway v3.07
Requirement	An MSS shall be easily available from the systems menu.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that MSS is easily available from the systems menu. **Equipment:** IRD under test **Test procedure:** Verify that MSS is easily available from the systems menu. **Expected result:** That MSS is easily available from the systems menu.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 8:8 MSS selected frequencies***
Section	Ch 4.5.8 Basic IRD Specification DTT Norway v3.07
Requirement	An MSS shall add services from the selected frequencies.

IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** Verify that MSS is adding services from the selected frequencies. **Equipment:** IRD under test **Test procedure:** To verify that MSS is adding services from the selected frequencies. **Expected result:** That MSS is adding services from the selected frequencies.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 8:9 Frequency as channel number in MSS***
Section	Ch 4.5.9 Basic IRD Specification DTT Norway v3.07
Requirement	In the MSS the frequency to scan shall be entered as channel number.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** Verify that in the MSS the frequency to scan is entered as channel number. **Equipment:** IRD under test **Test procedure:** To verify that in the MSS the frequency to scan is entered as channel number. **Expected result:** Verify that in the MSS the frequency to scan is entered as channel number.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 8:10 Precedence of scans***
Section	Ch 4.5.10 Basic IRD Specification DTT Norway v3.07
Requirement	The last performed service scan, either MSS or ASS, shall have precedence over previous scans, hence, the user can use the MSS to override the ASS on a certain frequency.

IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that the last performed service scan is having precedence over previous scans, hence, the user can use the MSS to override the ASS on a certain frequency **Equipment:** IRD under test **Test procedure:** Verify that the last performed service scan is having precedence over previous scans, hence, the user can use the MSS to override the ASS on a certain frequency **Expected result:** That the last performed service scan is having precedence over previous scans, hence, the user can use the MSS to override the ASS on a certain frequency
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 8:11 Automatic Maintenance Service Scan (AMSS)***
Section	Ch 4.5.11 Basic IRD Specification DTT Norway v3.07
Requirement	The AMSS shall be similar to an ASS except for the following. • AMSS shall not override an earlier performed MSS, if the frequency added by the previous service scan is still available for reception. • If a previously scanned MUX is no longer available for reception on any frequency, it shall not be removed by AMSS. Removal of MUX should instead be handled by requirements defined in 4.7(Automatic network updates). • If an entire previously scanned network is no longer available for reception, none of the MUX within that network should be removed by AMSS. NOTE: The intention of the AMSS is to automatically update the service list if e.g. any frequencies in the network has been added or changed. This due to the removal of the frequency_list_descriptor as a requirement.
IRD Profile(s)	STB, IDTV

Test procedure	**Purpose of test:** To verify that the automatic maintenance scan does not override manual service scan if the frequency added by the manual service scan is still available. To verify that if a previously scanned MUX is no longer available for reception on any frequency, it shall not be removed by AMSS. Removal of MUX should instead be handled by requirements defined in 4.7(Automatic network updates). To verify that if an entire previously scanned network is no longer available for reception, none of the MUX within that network should be removed by AMSS. **Equipment:** IRD under test **Test procedure:** Verify that the automatic maintenance scan does not override manual service scan if the frequency added by the manual service scan is still available. Verify that if a previously scanned MUX is no longer available for reception on any frequency, it shall not be removed by AMSS. Removal of MUX should instead be handled by requirements defined in 4.7(Automatic network updates). Verify that if an entire previously scanned network is no longer available for reception, none of the MUX within that network should be removed by AMSS. **Expected result:** That the automatic maintenance scan does not override manual service scan if the frequency added by the manual service scan is still available. That if a previously scanned MUX is no longer available for reception on any frequency, it shall not be removed by AMSS. Removal of MUX should instead be handled by requirements defined in 4.7(Automatic network updates). That if an entire previously scanned network is no longer available for reception, none of the MUX within that network should be removed by AMSS.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 8:12 When to perform AMSS***
Section	Ch 4.5.12 Basic IRD Specification DTT Norway v3.07
Requirement	The AMSS shall be performed 5 minutes after the IRD has been set to standby mode either automatically or manually.
IRD Profile(s)	STB, IDTV

Test procedure	**Purpose of test:** To verify that the automatic maintenance scan is performed 5 minutes after the IRD has been set to standby mode **Equipment:** IRD under test **Test procedure:** Verify that the automatic maintenance scan is performed 5 minutes after the IRD has been set to standby mode **Expected result:** That the automatic maintenance scan is performed 5 minutes after the IRD has been set to standby mode
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information

Date		***Sign***	

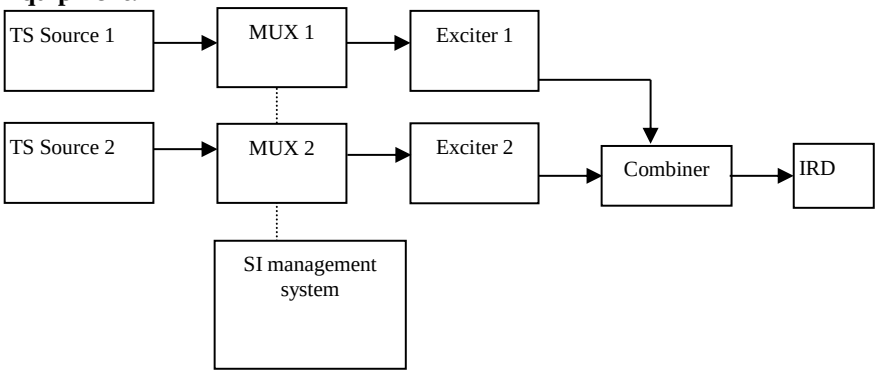
2.2.1.6 Test cases – Service lists

Test Case	***Task 9:1 Service lists – best service selection***
Section	Ch 4.6 Basic IRD Specification DTT Norway v3.07
Requirement	**NOTE:** • Observe that a unique service is identified by its original_network_id and service_id in the Norwegian terrestrial network (not transport_stream_id) as opposed to other Nordic markets.
IRD Profile(s)	STB, IDTV

Test procedure

Purpose of test:
To verify that all unique services are installed during channel search when the content of the transport streams are different on several transmitters. Also verify that all unique services are installed.

Equipment:



Channel X
TS Source #1
ONID= 8770
Network ID = 1000
Network Name= T_Net1
TSID=101

Channel list id= 1
Channel list name= Reg1

Services

Name	SID	Logic Ch No
S1	1	1
S2	2	2
S3	3	3
S4	4	4

Channel Y
TS Source #2
ONID= 8770
Network ID =2000
Network Name= T_Net2
TSID=102

Channel list id= 1
Channel list name= Reg1

Services

Name	SID	Logic Ch No
S1	1	1
S5	5	2
S6	6	6

Note that a unique servive within the Norwegian DTT network is defined by *Original_network_id* and *service_id*.

Channels X and Y shall not be equal.

Test procedure:
This test procedure tests combination of the signal level and reception quality.

1. Configure transport streams and setup the instruments. Use DVB-T mode 8k 64QAM R=2/3 Δ/Tu=1/8.
2. Set the signal level of the carrier CH X to a signal level which is about 5dB higher than the signal level of the carrier CH Y. Both signal levels shall correspond to good reception quality (no errors in decoded video).
3. Add noise on carrier CH X to a level corresponding to 15s error free video is fulfilled.
4. Check that the channel list is empty. If it is not empty, delete all services.
5. Perform a channel search.
6. Select region T_Net1 or T_Net2 (both regions shall be tested).
7. Verify that the service list is like the table below.

After performing the test the ALL SERVICE LIST shall be as below:

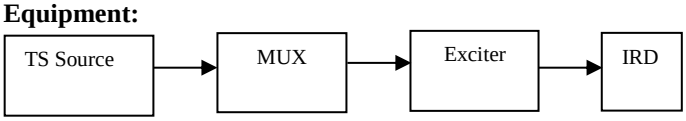
T_Net1	Position	Service	Channel
	1	S1	Y
	2	S2	X
	3	S3	X
	4	S4	X
	6	S6	Y
	7	S5	Y

T_Net2	Position	Service	Channel
	1	S1	Y
	2	S5	Y
	3	S3	X
	4	S4	X
	6	S6	Y
	7	S2	X

Expected result:
That the service lists is according to the table above.

Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 9:2 Visible services***
Section	Ch 4.6.1 Basic IRD Specification DTT Norway v3.07
Requirement	Only services of service_type radio and TV shall be visible in the service lists.
IRD Profile(s)	STB, IDTV

Test procedure	**Purpose of test:** To verify how the IRD builds the service list when different service types are received. **Equipment:** 

	Service1	**Service2**	**Service3**	**Frequency**
MUX TS_id 1 Network_id 1 ON_id [1)]	SID 1100 Service type 0x01 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible Encrypted	SID 1200 Service type 0x02 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible Clear	SID 1300 Service type 0x0C S_name Test13 PMT PID 1300 V PID 1309 A PID 1308 Logical_chan_desc 3 visible Clear	Can be chosen depending of the distribution media

[1)] ON_id (Original_network_id) can be chosen in range 0x2242 (operational network)

	Test procedure: Verity that only services of service_type radio and TV are visible in the service lists **Expected result:** Different types of services are available on different category (section) lists or they are separated in one list to different categories (sections). Categories are 'TV', 'Radio'. Service 3 is data service and therefore shall not be listed in the service list according to RiksTV specification. Data services intended for MHP IRDs shall be visible only for IRDs which supports MHP.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 9:3 Last used service list***
Section	Ch 4.6.2 Basic IRD Specification DTT Norway v3.07
Requirement	The last used service list shall be presented when activating the service list.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that the last used service list is presented when activating the service list. **Equipment:** IRD under test. **Test procedure:** 1. Initially already installed services in all service list and NIT controlled operator list. 2. Verify that the last used service list is presented when activating the service list **Expected result:** That the last used service list is presented when activating the service list.

Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

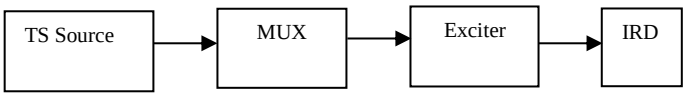
Test Case	***Task 9:4 Opening service list from RCU***
Section	Ch 4.6.3 Basic IRD Specification DTT Norway v3.07
Requirement	It shall be possible to enter the service list directly using the RCU, without navigate through other menus.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that it shall be possible to enter the service list directly using the RCU, without navigate through other menus. **Equipment:** 1. Initially already installed services in all service list and NIT controlled operator list.. 2. Verify it is possible to enter the service list directly using the RCU, without navigate through other menus. **Test procedure:** Verify that it is possible to enter the service list directly using the RCU, without navigate through other menus. **Expected result:** It is possible to enter the service list directly using the RCU, without navigate through other menus.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

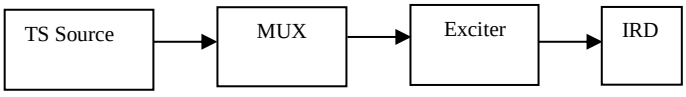
Test Case	***Task 9:5 Activating another service list***
Section	Ch 4.6.4 Basic IRD Specification DTT Norway v3.07
Requirement	It shall be easy to activate another service list whenever a service list is displayed.
IRD Profile(s)	STB, IDTV

Test procedure	**Purpose of test:** To verify that it is easy to activate another service list whenever a service list is displayed **Equipment:** IRD under test. **Test procedure:** 1. Initially already installed services in all service list and NIT controlled operator list. 2. Verify it is possible to switch between service lists **Expected result:** That it is easy to activate another service list whenever a service list is displayed
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

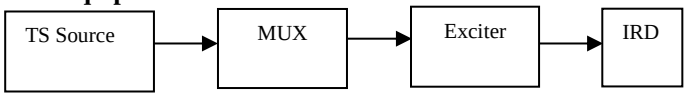
Test Case	***Task 9:6 Test services hidden in service list***
Section	Ch 4.6.5 Basic IRD Specification DTT Norway v3.07
Requirement	Test services shall be receivable by the IRD but shall be hidden in the service lists. Such services will be signalled as non-visible with the *visible_service_flag* in LCN.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that non-visible service are not in the service list. **Equipment:** **Test procedure:** This test is requirement for the logical_channel_descriptor and is tested in * Task 9:14 All Services List (ASL) **Expected result:**
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 9:7 List services from other region***
Section	Ch 4.6.6 Basic IRD Specification DTT Norway v3.07
Requirement	A service shall be listed in the service list if it can be received from another region than the one selected by the user.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:**

	Verify that the services that are signaled in DVB-SI but can not be received are not installed in any service list **Equipment:**  Transport stream from Norwegian DTT network containing NIT_actual with service_list_descriptor, SDT actual and SDT other. **Test procedure:** This test can be done in parallel with Task 9:14 All Services List (ASL) 1. Perform a channel search 2. Verify that only the services defined in NIT_actual is installed. Quasi-static update of services belonging to a TS_id is tested in Task 10:9 New Mux Recognition **Expected result:** Services that are signaled in DVB-SI but can not be received are not installed in any service list
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 9:8 Change selected region***
Section	Ch 4.6.7 Basic IRD Specification DTT Norway v3.07
Requirement	It should be possible to change the selected favorite region in the systems menu and changing the favorite region shall generate rearrangement of the service list.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that is is possible to change the selected favorite region in the systems menu and that change of the favorite region generates rearrangement of the service list. **Equipment:**  The TS shall be a copy of one mux in the Norwegian DTTV Network. **Test procedure:** Verify that it is possible to change the favorite network **Expected result:** That it is possible to change the favorite network

Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

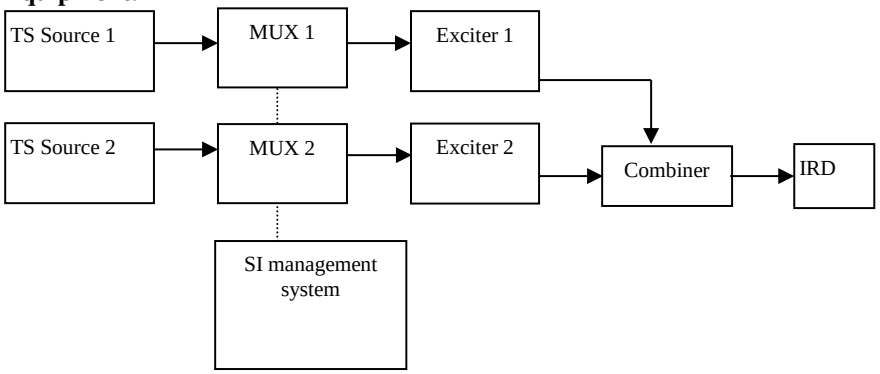
Test Case	***Task 9:9 Non-receivable transport streams***
Section	Ch 4.6.8 Basic IRD Specification DTT Norway v3.07
Requirement	If a signalled transport stream cannot be received, it shall not be included when NIT updates are done and its transport stream Id shall be stored to evaluate if a new TS has been added as part of the new mux recognition function (see chapter 4.7.9).
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: Verify that the services that are signaled in DVB-SI but can not be received are not installed in any service list **Test Equipment:**  Transport stream from Norwegian DTT network containing NIT_actual with service_list_descriptor, SDT actual and SDT other. **Test procedure:** 1. Perform a channel search 2. Verify that only the services defined in NIT_actual are installed. Quasi-static update of services belonging to a TS_id is tested in Task 10:9 New Mux Recognition **Expected result:** Services that are signaled in DVB-SI but can not be received are not installed in any service list
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information

Date		***Sign***	

Test Case	***Task 9:10 Special services***
Section	Ch 4.6.9 Basic IRD Specification DTT Norway v3.07
Requirement	Services from networks with ONID 0x2242 and *logical_channel_number* in the range 900-999 shall be placed at the end of the list for easy access to support hearing and visually impaired people. (After any services from networks with different ONID). The services within this range (900-999), shall still remain within its priority order.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**:

To verify that services from networks with ONID 0x2242 and *logical_channel_number* in the range 900-999 are placed at the end of the list for easy access to support hearing and visually impaired people. (After any services from networks with different ONID). The services within this range (900-999), does still remain within its priority order.

Equipment:



	Service1	**Service2**	**Service 3**	**Frequency**
MUX1 TS_id 1 Network_id 1 Name Mux1 ON_id [1)]	SID 1100 S_name Test11 Digital TV service PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 Digital TV service PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible	SID 1300 S_name Test13 Digital TV service PMT PID 1300 V PID 1309 A PID 1308 Logical_chan_desc 900 visible	Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 Name Mux2 ON_id [1)]	SID 2100 S_name Test21 Digital TV service PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 1 visible	SID 2200 S_name Test22 Digital TV service PMT PID 2200 V PID 2209 A PID 2208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) is 0x2242 (operational network)

Logical_channel_desc is version 2.

Following tables are signaled in both MUX:

- SDT_actual and
- SDT_other
- NIT_acutal inclusive service_list

With following information content:

- In MUX1, the SDT_actual corresponds the SDT_other in MUX2.
- In MUX2, the SDT_actual corresponds the SDT_other in MUX1

With other words, the SDT information is cross-distributed between multiplexes.

When several NIT_actuals (TS_id and ON_id=0x2242) are received, one of them is chosen to be a favourite network. Selection is done by the end-user. The favourite network has a priority and LCN is implemented for that network. All other received NIT_actuals (TS_id) has lower priority.

Test procedure:

1. Setup the system
2. Select MUX1 as favourite network during the scanning.
3. Verify the all services list is according to table in the expected results.

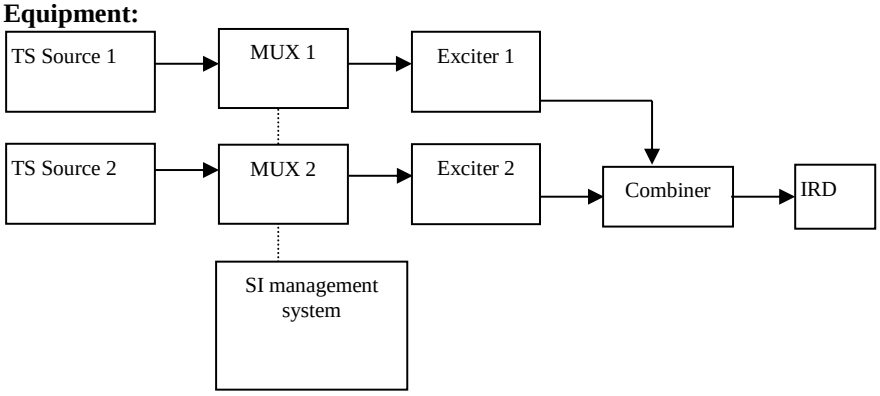
Expected result:
That services from networks with ONID 0x2242 and *logical_channel_number* in the range 900-999 are placed at the end of the list for easy access to support hearing and visually impaired people. (After any services from networks with different ONID). The services within this range (900-999), does still remain within its priority order.

Service list service order shall be following in test point 3:

1	Test11
2	Test12
3	Test21
4	Test22
900	Test13

Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 9:11 Wrapping service lists***
Section	Ch 4.6.10 Basic IRD Specification DTT Norway v3.07
Requirement	The service list shall "wrap", i.e. if channel 1 is chosen and "P-" is pressed, the receiver shall go to the last service in the list. If the last service in the list is chosen and "P+" is pressed, the receiver shall go to service 1.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify all services list is build up according to requirement. **Equipment:**



	Service1	**Service2**	**Service 3**	**Frequency**
MUX1 TS_id 1 Network_id 1 Name Mux1 ON_id [1)]	SID 1100 S_name Test11 Digital TV service PMT PID 1100 V PID 1109 A PID 1108	SID 1200 S_name Test12 Digital TV service PMT PID 1200 V PID 1209 A PID 1208	SID 1300 S_name Test13 Digital TV service PMT PID 1300 V PID 1309 A PID 1308	Can be chosen depending of the distribution media.

		Logical_chan_desc 1 visible	Logical_chan_desc 2 visible	Logical_chan_desc 900 visible	
	MUX2 TS_id 2 Network_id 2 Name Mux2 ON_id [1)]	SID 2100 S_name Test21 Digital TV service PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 1 visible	SID 2200 S_name Test22 Digital TV service PMT PID 2200 V PID 2209 A PID 2208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) is 0x2242 (operational network)

Logical_channel_desc is version 2.

Following tables are signaled in both MUX:

- SDT_actual and
- SDT_other
- NIT_acutal inclusive service_list

With following information content:

- In MUX1, the SDT_actual corresponds the SDT_other in MUX2.
- In MUX2, the SDT_actual corresponds the SDT_other in MUX1

With other words, the SDT information is cross-distributed between multiplexes.

When several NIT_actuals (TS_id and ON_id=0x2242) are received, one of them is chosen to be a favourite network. Selection is done by the end-user. The favourite network has a priority and LCN is implemented for that network. All other received NIT_actuals (TS_id) has lower priority.

Test procedure:

1. Setup the system
2. Select MUX1 as favourite network during the scanning.
3. Verify the all services list is according to table in the expected results.
4. Verify the P- button zap from channel 1 to channel 900.
5. Verify the P+ button zap from channel 900 to channel 1.

Expected result:
It is possible to wrap channels i.e. channel 1 to 900 and vice versa.

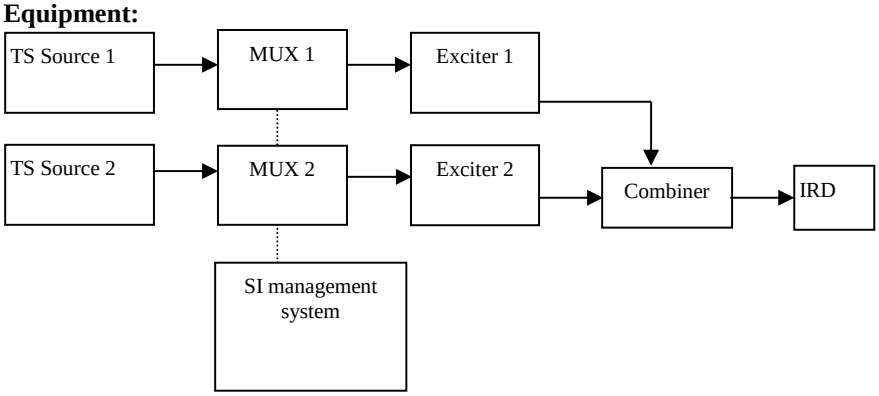
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 9:12 Numbering of non 0x2242 services***
Section	Ch 4.6.11 Basic IRD Specification DTT Norway v3.07
Requirement	Services with ONIDs other than 0x2242, shall be placed starting from the first available position after all services from ONID 0x2242. This does not include services in the special services section (900-999) which shall always be placed at the end of the service list.
IRD Profile(s)	STB, IDTV

Test procedure

Purpose of test:
To verify all services list is build up according to requirement.

Equipment:



	Service1	**Service2**	**Service 3**	**Frequency**
MUX1 TS_id 1 Network_id 1 Name Mux1 ON_id [1)]	SID 1100 S_name Test11 Digital TV service PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 Digital TV service PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible	SID 1300 S_name Test13 Digital TV service PMT PID 1300 V PID 1309 A PID 1308 Logical_chan_desc 900 visible	Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 Name Mux2 ON_id [1)]	SID 2100 S_name Test21 Digital TV service PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 1 visible	SID 2200 S_name Test22 Digital TV service PMT PID 2200 V PID 2209 A PID 2208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) is 0x2242 (operational network)

Logical_channel_desc is version 2.

Following tables are signaled in both MUX:

- SDT_actual and
- SDT_other
- NIT_acutal inclusive service_list

With following information content:

- In MUX1, the SDT_actual corresponds the SDT_other in MUX2.
- In MUX2, the SDT_actual corresponds the SDT_other in MUX1

With other words, the SDT information is cross-distributed between multiplexes.

When several NIT_actuals (TS_id and ON_id=0x2242) are received, one of them is chosen to be a favourite network. Selection is done by the end-user. The favourite network has a priority and LCN is implemented for that network. All other received NIT_actuals (TS_id) has lower priority.

Test procedure:

1. Setup the system
2. Select MUX1 as favourite network during the scanning.
3. Verify the all services list is according to table in the expected results.
4. Verify the P- button zap from channel 1 to channel 900.
5. Verify the P+ button zap from channel 900 to channel 1.

6. Change the ONID of the MUX2 to 0x22F1.
7. Do the first time initialization.
8. Verify the all services list is according to table in the expected results.

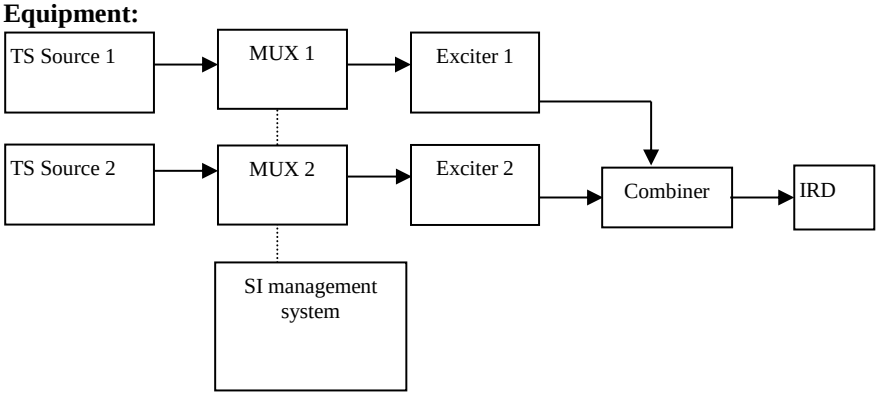
Expected result:
Service list service order shall be following in test point 8:

1	Test11
2	Test12
3	Test21
4	Test22
900	Test13

The user is not able to change the all services list.

Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 9:13 Numbering of only non 0x2242 services***
Section	Ch 4.6.12 Basic IRD Specification DTT Norway v3.07
Requirement	If no services with ONID 0x2242 can be received, foreign services shall be listed from position 1.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify all services list is build up according to requirement. **Equipment:**



	Service1	**Service2**	**Service 3**	**Frequency**
MUX1 TS_id 1 Network_id 1 Name Mux1 ON_id [1)]	SID 1100 S_name Test11 Digital TV service PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 Digital TV service PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible	SID 1300 S_name Test13 Digital TV service PMT PID 1300 V PID 1309 A PID 1308 Logical_chan_desc 900 visible	Can be chosen depending of the distribution media.

	MUX2 TS_id 2 Network_id 2 Name Mux2 ON_id [1)]	SID 2100 S_name Test21 Digital TV service PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 1 visible	SID 2200 S_name Test22 Digital TV service PMT PID 2200 V PID 2209 A PID 2208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) is 0x2242 (operational network)

Logical_channel_desc is version 2.

Following tables are signaled in both MUX:

- SDT_actual and
- SDT_other
- NIT_acutal inclusive service_list

With following information content:

- In MUX1, the SDT_actual corresponds the SDT_other in MUX2.
- In MUX2, the SDT_actual corresponds the SDT_other in MUX1

With other words, the SDT information is cross-distributed between multiplexes.

When several NIT_actuals (TS_id and ON_id=0x2242) are received, one of them is chosen to be a favourite network. Selection is done by the end-user. The favourite network has a priority and LCN is implemented for that network. All other received NIT_actuals (TS_id) has lower priority.

Test procedure:

1. Setup the system
2. Do not select MUX1.
3. Change the ONID of the MUX2 to 0x22F1.
4. Do the first time initialization.
5. Verify the all services list is according to table in the expected results.

Expected result:
Service list service order shall be following in test point 8:

1	Test21
2	Test22

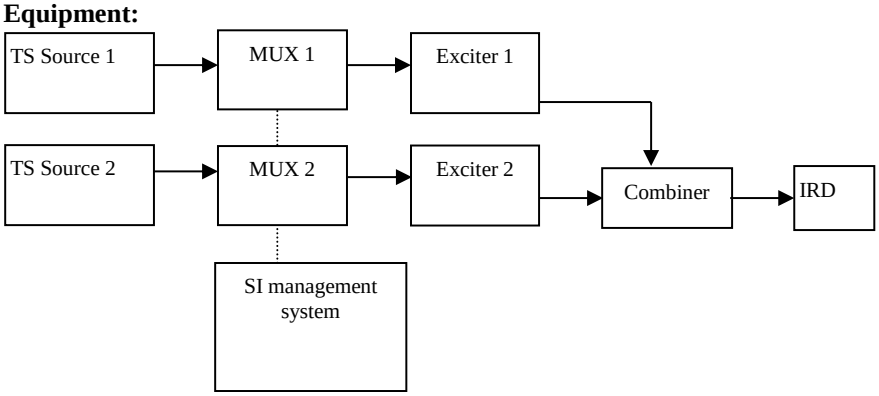
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 9:14 All Services List (ASL)***
Section	Ch 4.6.13 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall generate an ASL which shall contain the complete range of services found independently of networks (favourite regional network, other regional networks and other original networks).

NOTE:

- The Norwegian DTT network uses version 2 of the LCN as defined in NorDig Unified [1].
- When a collection of several service lists are generated, such as for the ASL, the LCN related to the favourite region may be the only one that has fixed positions while the LCN related to other regions will only be used to prioritize the channel order.

IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify all services list is build up according to requirement. **Equipment:**



	Service1	**Service2**		**Frequency**
MUX1 TS_id 1 Network_id 1 Name Mux1 ON_id [1)]	SID 1100 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 Name Mux2 ON_id [1)]	SID 2100 S_name Test21 PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 3 visible	SID 2200 S_name Test22 PMT PID 2200 V PID 2209 A PID 2208 Logical_chan_desc 4 non-visible		Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) is 0x2242 (operational network)

Logical_channel_desc is version 2.

Following tables are signaled in both MUX:

- SDT_actual and
- SDT_other
- NIT_acutal inclusive service_list

With following information content:

- In MUX1, the SDT_actual corresponds the SDT_other in MUX2.
- In MUX2, the SDT_actual corresponds the SDT_other in MUX1

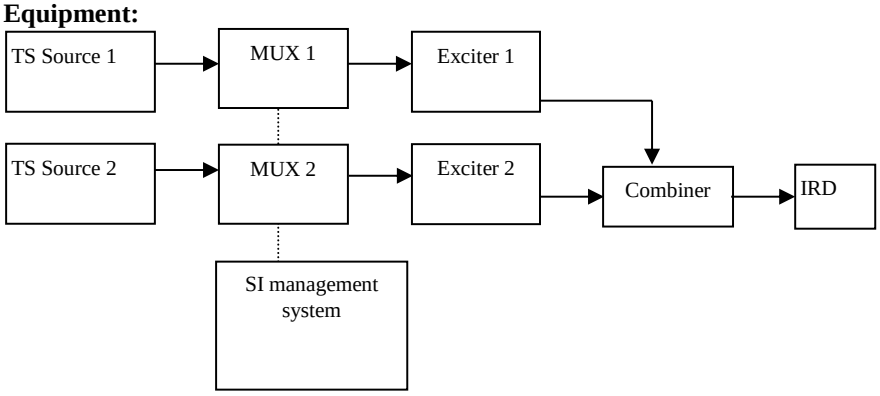
With other words, the SDT information is cross-distributed between multiplexes.

Test procedure:

1. Attenuate the output level of the exciter 1 to very low level or disconnect the output cable.
2. Do first time initialization of the IRD.

	3. Perform new channel search. 4. Verify that no services are installed carried within the transport stream through MUX1. 5. Fill in the measurement record in test results. 6. Increase the output level of the exciter1 to a output level that is able to be received by the receiver. 7. Clear all channels on service list (channel list in receiver). 8. Perform new channel search. 9. IRD should ask the end-user to select which favourite network 10. Verify that all the services carried within transport stream from both MUX1 and MUX2 are installed in the service list. 11. Fill in the measurement record in test results. **Expected result:** All results in the measurement record shall be OK.
Test result(s)	Measurement record: **Requirement** / **OK or NOK** The All Services list is a complete list for services available from all receivable networks. / The All Services list shall contain the complete range of services found independent of networks (favourite regional network, other regional networks and other original networks). /
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 9:15 ASL using LCN***
Section	Ch 4.6.14 Basic IRD Specification DTT Norway v3.07
Requirement	The ASL shall be numbered according to the LCN found in the NIT.
IRD Profile(s)	Basic, IRD, FE
Test procedure	**Purpose of test**: To verify all services list is build up according to requirement. **Equipment:** **Test procedure:** These requirements are tested in test tasks above. **Expected result:**
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 9:16 ASL build-up***
Section	Ch 4.6.15 Basic IRD Specification DTT Norway v3.07
Requirement	The ASL shall be built up (numbered and ordered) in a hierarchical sequence based both on the region the services belong to and the predefined order these services have within its network.
IRD Profile(s)	Basic, IRD, FE
Test procedure	**Purpose of test**: To verify all services list is build up according to requirement. **Equipment:** 

	Service1	**Service2**	**Service 3**	**Frequency**
MUX1 TS_id 1 Network_id 1 Name Mux1 ON_id [1)]	SID 1100 S_name Test11 Digital TV service PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 Digital TV service PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible	SID 1300 S_name Test13 Digital TV service PMT PID 1300 V PID 1309 A PID 1308 Logical_chan_desc 900 visible	Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 Name Mux2 ON_id [1)]	SID 2100 S_name Test21 Digital TV service PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 1 visible	SID 2200 S_name Test22 Digital TV service PMT PID 2200 V PID 2209 A PID 2208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) is 0x2242 (operational network)

Logical_channel_desc is version 2.

Following tables are signaled in both MUX:

- SDT_actual and
- SDT_other
- NIT_acutal inclusive service_list

With following information content:

- In MUX1, the SDT_actual corresponds the SDT_other in MUX2.
- In MUX2, the SDT_actual corresponds the SDT_other in MUX1

With other words, the SDT information is cross-distributed between multiplexes.

When several NIT_actuals (TS_id and ON_id=0x2242) are received, one of them is chosen to be a favourite network. Selection is done by the end-user. The favourite

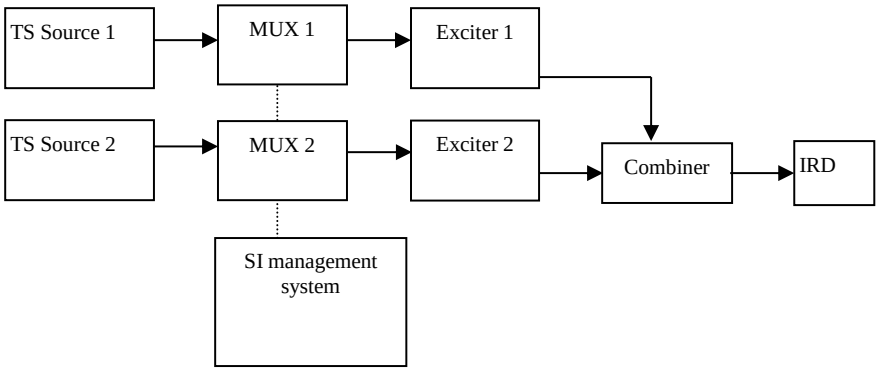
	network has a priority and LCN is implemented for that network. All other received NIT_actuals (TS_id) has lower priority. **Test procedure:** 1. Setup the system 2. Select MUX2 as favourite network during the scanning. 3. Verify the all services list is according to table in the expected results. **Expected result:** Service list service order shall be following in test point 3: 1 Test21 2 Test22 3 Test11 4 Test12 900 Test13
Test result(s)	Measurement record:
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 9:17 Service categories kept together***
Section	Ch 4.6.16 Basic IRD Specification DTT Norway v3.07
Requirement	Services of the same type (TV or Radio) shall be kept together in the case that the same list contains services in both categories. This requirement shall have higher priority than the numbering principles defined in chapter 4.6
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that services of the same type (TV or Radio) are kept together in the case that the same list contains services in both categories **Equipment:** This requirement for "Service categories kept together" is tested in: * Task 9:33 LCN collisions **Test procedure:** **Expected result:** That services of the same type (TV or Radio) are kept together in the case that the same list contains services in both categories
Test result(s)	Measurement record:
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information

Date		***Sign***	

Test Case	***Task 9:18 Special services (when there are both TV and Radio services in the list)***
Section	Ch 4.6.17 Basic IRD Specification DTT Norway v3.07
Requirement	Special services shall be placed at the end of the list even when there are both TV and Radio services in the list.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that special services are placed at the end of the list even when there are both TV and Radio services in the list **Equipment:** **Test procedure:** This requirement for "Special services (when there are both TV and Radio services in the list)" is tested in: * Task 22:2 Neighbouring regions and special services **Expected result:** That special services are placed at the end of the list even when there are both TV and Radio services in the list
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 9:19 Update ASL at service scan***
Section	Ch 4.6.18 Basic IRD Specification DTT Norway v3.07
Requirement	The ASL shall be fully updated according to the LCN when a new service scan is performed.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that ASL is fully updated according to the LCN when a new service scan is performed. **Equipment:**



	Service1	**Service2**		**Frequency**
MUX1 TS_id 1 Network_id 1 Name Mux1 ON_id [1)]	SID 1100 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 Name Mux2 ON_id [1)]	SID 2100 S_name Test21 PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 3 visible	SID 2200 S_name Test22 PMT PID 2200 V PID 2209 A PID 2208 Logical_chan_desc 4 non-visible		Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) is 0x2242 (operational network)

Logical_channel_desc is version 2.

Following tables are signaled in both MUX:

- SDT_actual and
- SDT_other
- NIT_acutal inclusive service_list

With following information content:

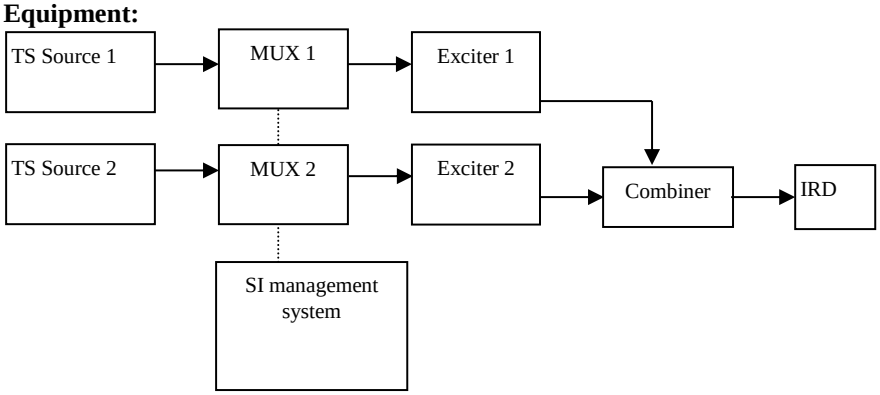
- In MUX1, the SDT_actual corresponds the SDT_other in MUX2.
- In MUX2, the SDT_actual corresponds the SDT_other in MUX1

With other words, the SDT information is cross-distributed between multiplexes.

Test procedure:

1. Attenuate the output level of the exciter 1 to very low level or disconnect the output cable.
2. Do first time initialization of the IRD.
3. Perform new channel search.
4. Verify that no services are installed carried within the transport stream through MUX1.
5. Fill in the measurement record in test results.
6. Increase the output level of the exciter1 to a output level that is able to be received by the receiver.
7. Clear all channels on service list (channel list in receiver).
8. Perform new channel search.
9. IRD should ask the end-user to select which favourite network
10. Verify that all the services carried within transport stream from both MUX1 and MUX2 are installed in the service list.
11. Fill in the measurement record in test results.

	Expected result: That ASL is fully updated according to the LCN when a new service scan is performed.
Test result(s)	Measurement record:
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 9:20 ASL regional ordering principles***
Section	Ch 4.6.19 Basic IRD Specification DTT Norway v3.07
Requirement	All services within the same region shall be kept together but the different regions shall be given the following priority in the list: • First priority: Favourite region, Original_Network_ID 0x2242. • Second priority: Other available networks (with ONID 0x2242). • Third priority: All other networks with different ONID.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify all services list is build up according to requirement. **Equipment:** 

	Service1	**Service2**	**Service 3**	**Frequency**
MUX1 TS_id 1 Network_id 1 Name Mux1 ON_id [1)]	SID 1100 S_name Test11 Digital TV service PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 Digital TV service PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible	SID 1300 S_name Test13 Digital TV service PMT PID 1300 V PID 1309 A PID 1308 Logical_chan_desc 900 visible	Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 Name Mux2 ON_id [1)]	SID 2100 S_name Test21 Digital TV service PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 1 visible	SID 2200 S_name Test22 Digital TV service PMT PID 2200 V PID 2209 A PID 2208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) is 0x2242 (operational network)

Logical_channel_desc is version 2.

Following tables are signaled in both MUX:

- SDT_actual and
- SDT_other
- NIT_acutal inclusive service_list

With following information content:

- In MUX1, the SDT_actual corresponds the SDT_other in MUX2.
- In MUX2, the SDT_actual corresponds the SDT_other in MUX1

With other words, the SDT information is cross-distributed between multiplexes.

When several NIT_actuals (TS_id and ON_id=0x2242) are received, one of them is chosen to be a favourite network. Selection is done by the end-user. The favourite network has a priority and LCN is implemented for that network. All other received NIT_actuals (TS_id) has lower priority.

Test procedure:

1. Setup the system
2. Select MUX2 as favourite network during the scanning.
3. Verify the all services list is according to table in the expected results.
4. Change the ONID of the MUX2 to 0x22F1.
5. Do the first time initialization.
6. Verify the all services list is according to table in the expected results.

Expected result:
Service list service order shall be following in test point 3:

1	Test21
2	Test22
3	Test11
4	Test12
900	Test13

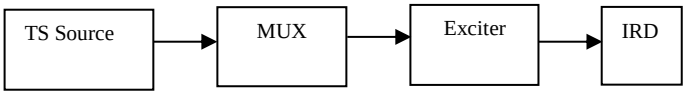
Service list service order shall be following in test point 6:

1	Test11
2	Test12
3	Test21
4	Test22
900	Test13

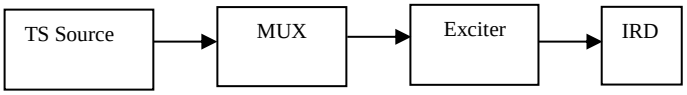
Test result(s)	Measurement record:
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

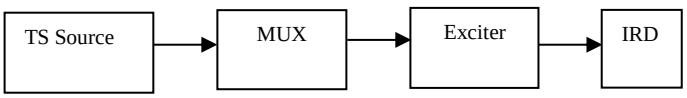
Test Case	***Task 9:21 ASL LCN ordering principles***
Section	Ch 4.6.20 Basic IRD Specification DTT Norway v3.07

Requirement	All services shall be numbered and sorted according to the relevant LCN signalisation, meaning: • The LCN transmitted in the favourite region's NIT will normally be the only one that has an absolute match between *logical_channel_number* and list position within the service list. • The LCN in other available networks shall be used to prioritize the order of services from the other network within the corresponding section in the service list. • Services from networks with ONID = 0x2242 and LCN number in the range 900-999 shall be placed at the end of the list, if possible numbered according to LCN.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify all services list is build up according to requirement. **Equipment:** **Test procedure:** The requirement for the "ASL LCN ordering principles" is tested in * Task 9:21 ASL regional ordering principles **Expected result:**
Test result(s)	Measurement record:
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***	

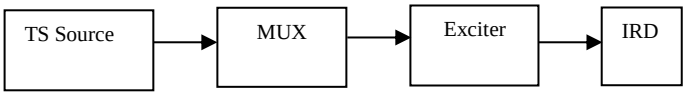
Test Case	***Task 9:22 User defined Service List (USL)***
Section	Ch 4.6.21 Basic IRD Specification DTT Norway v3.07
Requirement	It shall be possible to make at least one USL.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that it is possible to make at least one USL **Equipment:**  **Test procedure:** Verify that it is possible to make at least one USL **Expected result:** That it is possible to make at least one USL
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments

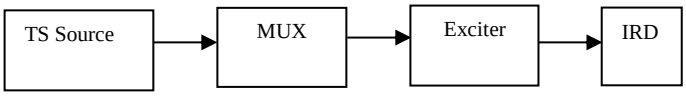
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 9:23 Editable USL***		
Section	Ch 4.6.22 Basic IRD Specification DTT Norway v3.07		
Requirement	It shall be possible to edit the ULS.		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test:** To verify that it is possible to edit the ULS **Equipment:**  **Test procedure:** Verify that it is possible to edit the ULS **Expected result:** That it is possible to edit the ULS		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

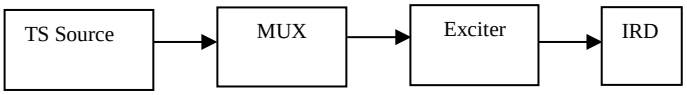
Test Case	***Task 9:24 Add services to USL***		
Section	Ch 4.6.23 Basic IRD Specification DTT Norway v3.07		
Requirement	It shall be possible to add services to the USL.		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test:** To verify that it is possible to add services to the USL. **Equipment:**  **Test procedure:** Verify that it is possible to add services to the USL. **Expected result:** That it is possible to add services to the USL.		

Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

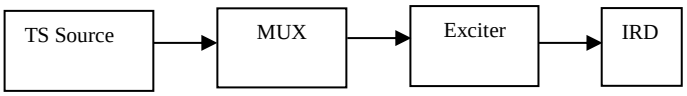
Test Case	***Task 9:25 Remove service in USL***		
Section	Ch 4.6.24 Basic IRD Specification DTT Norway v3.07		
Requirement	It shall be possible to remove services from the USL.		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test:** To verify that it is possible to remove services from the USL. **Equipment:**  **Test procedure:** Verify that it is possible to remove services from the USL. **Expected result:** That it is possible to remove services from the USL.		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

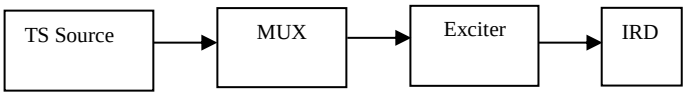
Test Case	***Task 9:26 Sort the ordering of USL***		
Section	Ch 4.6.25 Basic IRD Specification DTT Norway v3.07		
Requirement	It shall be possible to sort the ordering of the services in the USL.		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test:** To verify that it is possible to sort the ordering of the services in the USL. **Equipment:**  **Test procedure:** Verify that it is possible to sort the ordering of the services in the USL.		

	Expected result: That it is possible to sort the ordering of the services in the USL.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

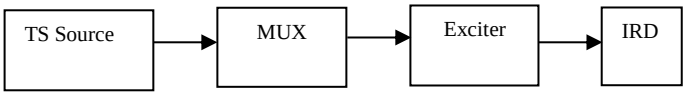
Test Case	***Task 9:27 Numbering of USL services after edit***
Section	Ch 4.6.26 Basic IRD Specification DTT Norway v3.07
Requirement	The numbering of the services in the USL shall be updated to match the position when services are moved within the lists.
IRD Profile(s)	STB
Test procedure	**Purpose of test:** To verify that the numbering of the services in the USL are updated to match the position when services are moved within the lists. **Equipment:**  **Test procedure:** Verify that the numbering of the services in the USL are updated to match the position when services are moved within the lists. **Expected result:** That the numbering of the services in the USL are updated to match the position when services are moved within the lists.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

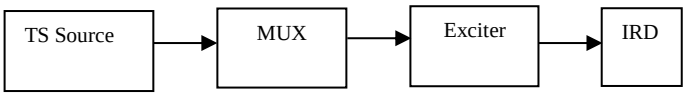
Test Case	***Task 9:28 Accessibility of USL services***
Section	Ch 4.6.27 Basic IRD Specification DTT Norway v3.07
Requirement	The services shall be accessible by pressing the number corresponding to the position of the service in the list on the RCU.
IRD Profile(s)	STB
Test procedure	**Purpose of test:**

	To verify that the services are accessible by pressing the number corresponding to the position of the service in the list on the RCU. **Equipment:**  **Test procedure:** Verify that the services are accessible by pressing the number corresponding to the position of the service in the list on the RCU. **Expected result:** That the services are accessible by pressing the number corresponding to the position of the service in the list on the RCU.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

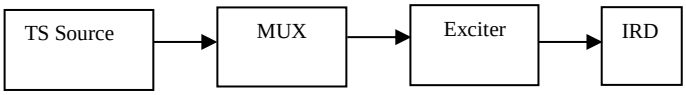
Test Case	***Task 9:29 Different numbering in different USL***
Section	Ch 4.6.28 Basic IRD Specification DTT Norway v3.07
Requirement	The same unique service can have different numbering and positions in different USL.
IRD Profile(s)	STB
Test procedure	**Purpose of test:** To verify that the same unique service can have different numbering and positions in different USL **Equipment:**  **Test procedure:** Verify that the same unique service can have different numbering and positions in different USL **Expected result:** That the same unique service can have different numbering and positions in different USL
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information

Date		***Sign***	

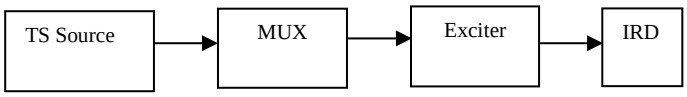
Test Case	***Task 9:30 Only update DVB-SI parameters of service in USL***
Section	Ch 4.6.29 Basic IRD Specification DTT Norway v3.07
Requirement	For services in the USL only parameters from DVB-SI needed to receive the services shall be updated during a new scan or auto-update.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that for services in the USL only parameters from DVB-SI needed to receive the services are updated during a new scan or auto-update. **Equipment:**  **Test procedure:** Verify that for services in the USL only parameters from DVB-SI needed to receive the services are updated during a new scan or auto-update. **Expected result:** That for services in the USL only parameters from DVB-SI needed to receive the services are updated during a new scan or auto-update.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 9:31 User changes to USL not changed after manual scans***
Section	Ch 4.6.30 Basic IRD Specification DTT Norway v3.07
Requirement	After service scans manually started by the user. Any parameter edited by the user such as service name and ordering should be left unchanged.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that any parameter edited by the user such as service name and ordering is left unchanged after manual scan. **Equipment:**  **Test procedure:**

	Verify that any parameter edited by the user such as service name and ordering is left unchanged after manual scan. **Expected result:** That any parameter edited by the user such as service name and ordering is left unchanged after manual scan.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 9:32 User changes to USL not changed after auto scans***
Section	Ch 4.6.31 Basic IRD Specification DTT Norway v3.07
Requirement	After service scans not manually started by the user. Any parameter edited by the user such as service name and ordering shall be left unchanged.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that any parameter edited by the user such as service name and ordering is left unchanged after auto scan. **Equipment:**  **Test procedure:** Verify that any parameter edited by the user such as service name and ordering is left unchanged after auto scan. **Expected result:** That any parameter edited by the user such as service name and ordering is left unchanged after auto scan.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 9:33 LCN collisions***
Section	Ch 4.6.32 Basic IRD Specification DTT Norway v3.07

Requirement	**NOTE:** Collisions are defined as several services with the same *logic_channel_number* assigned in the same channel list in the same region. This will typical be the case when a user is in an area where several local transport streams can be received. Collision shall be handled according to NorDig Unified specifications [1] and in addition the IRD shall select which service to be placed according to the signalled *logic_channel_number* according to the following rules: • Visible services shall have higher priority than non-visible. • Service type TV (0x01, 0x16, and 0x19) shall have higher priority. • Service with best reception (Strength and Quality) shall have higher priority and shall be numbered according to the LCN. The IRD shall use the Signal Strength Indicator (SSI) or Signal Quality Indicator (SQI) as defined by Nordig Unified Specification [1] when determining reception. The service(s) not given priority shall be treated as ”non LCN defined services” as defined in chapter 4.6.33.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify the IRD functionality in case of collision in LCN. **Equipment:** This test is the same as NorDig test Plan [3] task 3:10 Tuning/Scanning Procedures: Automatic channel search for the same service bouequet with an addition that the NorDig Logical_channel_descriptor version 2. In that descriptor Channel_list_id = 1 and channel_list_name = test.  Transport stream containing a visible and a non-visible service with the same signaled LCN. The transport stream shall also include a TV service (0x16), a radio service and a data service with the same signalled LCN. **Test procedure:** 1. Verify that a visible service has higer priority than a non-visible 2. Verify that the TV service has priority over the radio and the data service **Expected result:** TV and Visible services are priorities. The compliance to NorDig test task reception quality is handled in NorDig test Plan [3].
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 9:34 Non LCN defined services***
Section	Ch 4.6.33 Basic IRD Specification DTT Norway v3.07
Requirement	**NOTE:** “Non LCN defined services” are:

- Services available within the NIT but not predefined by the LCN.
- Services that are not defined within this unique service list (NIT actual), but defined by LCN for another list.

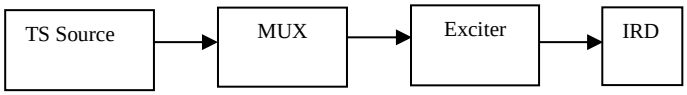
a) All services that are found during a scan and defined as “non LCN defined services” shall be placed after the last LCN service of the same type (TV or Radio service).
b) For the ASL, the IRD shall keep services with the same service type within the same NIT together, even if no order is defined.

IRD Profile(s) STB, IDTV

Test procedure

Purpose of test:
Verify the IRD service list functionality in case of missing LCN.

Equipment:



	Service1	**Service2**	**Service3**	
MUX TS_id 1 Network_id 1 ON_id [1)]	SID 1100 Service type 0x16 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible Clear	SID 1200 Service type 0x16 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc not defined Clear	SID 1300 Service type 0x16 S_name Test13 PMT PID 1300 V PID 1309 A PID 1308 Logical_chan_desc 10 visible Clear	
	Service4	**Service5**		
	SID 1400 Service type 0x0A S_name Test14 PMT PID 1400 V PID 1409 A PID 1408 Logical_chan_desc 3 visible Clear	SID 1500 Service type 0x0A S_name Test15 PMT PID 1500 V PID 1509 A PID 1508 Logical_chan_desc not defined Clear		

Idea in this test is that in the NIT_actual defines services (in service_descriptor) but not in logical_channel_descriptor.

Test procedure:

1. Setup the system
2. Perform scan
3. Verify the expected results.

Expected result:
Services without correct logical_channel_descriptor are stored last in the defined list (NIT controlled operator list).

Services without correct logical_channel_descriptor are stored together (within NIT_actual and service_type) (All services lists).

Test result(s)

Conformity ☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments

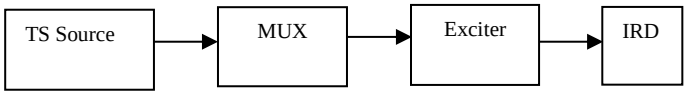
Comments If possible describe if fault can be fixed with software update: ☐**YES**☐**NO**
Describe more specific faults and/or other information

Date		***Sign***	

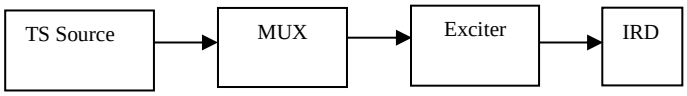
2.2.1.7 Test cases – Automatic network updates

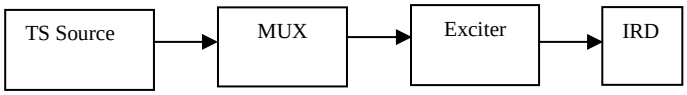
NOTE:

- The automatic update procedures described in this section refer only to services signalled in NITs with Original_Network_ID = 0x2242.
- The automatic update procedures are based on DVB-SI signalling as described in this document.

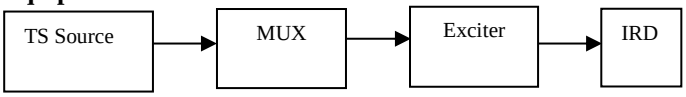
Test Case	***Task 10:1 Automatic network update ONID=0x2242***		
Section	Ch 4.7.1 Basic IRD Specification DTT Norway v3.07		
Requirement	Only relevant changes to the PSI-SI in network with ONID 0x2242 shall trigger update procedures.		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test**: To verify that only relevant changes to the PSI-SI in network with ONID 0x2242 does trigger update procedures. **Equipment:**  NOTE: Assumption in the transport stream NIT_actual is that it has the TS_id signaled for the multiplexer where the changes occur. **Test procedure:** Verify that only relevant changes to the PSI-SI in network with ONID 0x2242 does trigger update procedures. **Expected result:** That only relevant changes to the PSI-SI in network with ONID 0x2242 does trigger update procedures.		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 10:2 Automatic network updates other ONIDs***		
Section	Ch 4.7.2 Basic IRD Specification DTT Norway v3.07		
Requirement	Changes in PSI-SI in other networks than 0x2242 shall not affect any listed services from 0x2242.		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test**:		

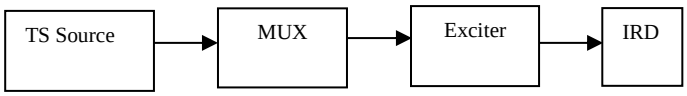
	To verify that changes in PSI-SI in other networks than 0x2242 does not affect any listed services from 0x2242. **Equipment:**  NOTE: Assumption in the transport stream NIT_actual is that it has the TS_id signaled for the multiplexer where the changes occur. **Test procedure:** Verify that changes in PSI-SI in other networks than 0x2242 does not affect any listed services from 0x2242. **Expected result:** That changes in PSI-SI in other networks than 0x2242 does not affect any listed services from 0x2242.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 10:3 Check NIT continuously in background***
Section	Ch 4.7.3 Basic IRD Specification DTT Norway v3.07
Requirement	NIT versions shall be checked continuously for changes in the background. **NOTE:** The IRD shall be able to update services and service-lists dynamically without a rescan procedure initiated by the end-user. This functionality shall be limited to the actual NIT, i.e. the IRD shall fully rely on the DVB-SI in the actual transport stream as defined below.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that NIT versions are checked continuously for changes in the background **Equipment:**  NOTE: Assumption in the transport stream NIT_actual is that it has the TS_id signaled for the multiplexer where the changes occur. **Test procedure:** Verify that NIT versions are checked continuously for changes in the background **Expected result:** That NIT versions are checked continuously for changes in the background
Test result(s)	

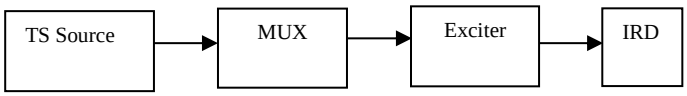
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 10:4 NIT version changed procedure***
Section	Ch 4.7.4 Basic IRD Specification DTT Norway v3.07
Requirement	If the NIT version changes the IRD shall: • Examine all transport streams loops (2nd loop) in the NIT actual that has an matching TS_ID to what the IRD has found and stored during the installation (scanning). In case non matching TS_ID see 4.7.9. • For each loop, the IRD shall examine the service_list_descriptor and the logical_channel_descriptor.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify that if the NIT version changes the IRD does: • Examine all transport streams loops (2nd loop) in the NIT actual that has an matching TS_ID to what the IRD has found and stored during the installation (scanning). In case non matching TS_ID see 4.7.9. • For each loop, the IRD does examine the service_list_descriptor and the logical_channel_descriptor. **Equipment:**  NOTE: Assumption in the transport stream NIT_actual is that it has the TS_id signaled for the multiplexer where the changes occur. **Test procedure:** Verify that if the NIT version changes the IRD does: • Examine all transport streams loops (2nd loop) in the NIT actual that has an matching TS_ID to what the IRD has found and stored during the installation (scanning). In case non matching TS_ID see 4.7.9. • For each loop, the IRD does examine the service_list_descriptor and the logical_channel_descriptor. **Expected result:** That if the NIT version changes the IRD does: • Examine all transport streams loops (2nd loop) in the NIT actual that has an matching TS_ID to what the IRD has found and stored during the installation (scanning). In case non matching TS_ID see 4.7.9. • For each loop, the IRD does examine the service_list_descriptor and the logical_channel_descriptor.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments

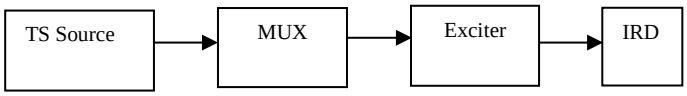
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 10:5 Re-arrange and store new services at NIT update***
Section	Ch 4.7.5 Basic IRD Specification DTT Norway v3.07
Requirement	If any changes have been done, the IRD shall rearrange and store the new service lists.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that if any changes have been done, the IRD does rearrange and store the new service lists. **Equipment:**  NOTE: Assumption in the transport stream NIT_actual is that it has the TS_id signaled for the multiplexer where the changes occur. **Test procedure:** 1. Set up the system and verify the transport stream contains a NIT_actual with original_network_id=0x2242 and TS_id=0x1 2. Verify which services IRD has in its service list. 3. Switch off the IRD. 4. Change following items in the NIT_actual: a. Change logical number of the logical_channel_descriptor 5. Verify the change of the NIT_actual and update of the version number of the NIT. 6. Turn on IRD. 7. Verify how (turn on or switch off) the receiver updates the changed data in the service list. 8. Verify that the changed information corresponds the changed information content. **Expected result:** That if any changes have been done, the IRD does rearrange and store the new service lists.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

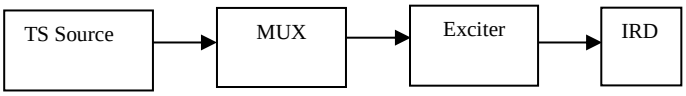
Test Case	***Task 10:6 Examine SDT***

Section	Ch 4.7.6 Basic IRD Specification DTT Norway v3.07
Requirement	If the service list has been updated the IRD shall also examine all SDT (actual and other) that matches the stored TS_ID and update the service descriptor if necessary.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that if the service list has been updated the IRD does also examine all SDT (actual and other) that matches the stored TS_ID and update the service descriptor if necessary. **Equipment:**  NOTE: Assumption in the transport stream NIT_actual is that it has the TS_id signaled for the multiplexer where the changes occur. **Test procedure:** 1. Set up the system and verify the transport stream contains a NIT_actual with original_network_id=0x2242 and TS_id=0x1 2. Verify which services IRD has in its service list. 3. Switch off the IRD. 4. Change following items in the NIT_actual: a. Rename content of the network_name_descriptor 5. Verify the change of the NIT_actual and update of the version number of the NIT. 6. Turn on IRD. 7. Verify how (turn on or switch off) the receiver updates the changed data in the service list. 8. Verify that the changed information corresponds the changed information content. **Expected result:** That if the service list has been updated the IRD does also examine all SDT (actual and other) that matches the stored TS_ID and update the service descriptor if necessary.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

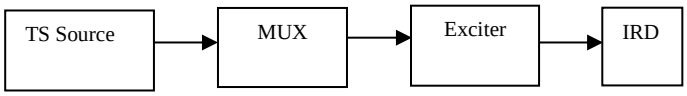
Test Case	***Task 10:7 Non user disturbing update***
Section	Ch 4.7.7 Basic IRD Specification DTT Norway v3.07
Requirement	The update does, if possible, be performed without disturbing the end user. If not, the IRD shall act as follows: • The IRD recognises that a change has been done, i.e. changes in the NIT. • The IRD displays a pop-up message stating that updates are available and that the updates can take some given X time. • The IRD shall then perform the update as described above.

IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the update is, if possible, performed without disturbing the end user. If not, the IRD does act as follows: • The IRD recognises that a change has been done, i.e. changes in the NIT. • The IRD displays a pop-up message stating that updates are available and that the updates can take some given X time. • The IRD shall then perform the update as described above. **Equipment:**  NOTE: Assumption in the transport stream NIT_actual is that it has the TS_id signaled for the multiplexer where the changes occur. **Test procedure:** Verify that the update is, if possible, performed without disturbing the end user. If not, the IRD does act as follows: • The IRD recognises that a change has been done, i.e. changes in the NIT. • The IRD displays a pop-up message stating that updates are available and that the updates can take some given X time. • The IRD shall then perform the update as described above. **Expected result:** The update process should not disturb end-usability, or it shall inform end-user that update process occurs in case of disturbancies will occur.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 10:8 Only perform service updated on existing descriptors***
Section	Ch 4.7.8 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall only perform service updates based on existing descriptors, i.e. if a service list descriptor exists in the examined loop and a service has been removed or added, the IRD shall update the service list accordingly. If the loop or the descriptor for any reason is not available, the IRD shall take no action. This means that if a whole transport stream is added or removed, the IRD will only recognise this from a new scan.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the IRD does only perform service updates based on existing descriptors, i.e. if a service list descriptor exists in the examined loop and a service has been removed or added, the IRD shall update the service list accordingly. If the loop or the descriptor for any reason is not available, the IRD shall take no action. This means that if a whole transport stream is added or removed, the IRD will only recognise this from a new scan.

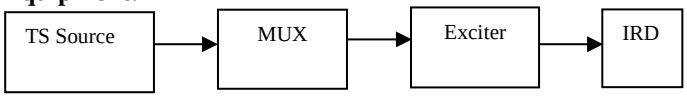
	Equipment:  NOTE: Assumption in the transport stream NIT_actual is that it has the TS_id signaled for the multiplexer where the changes occur. **Test procedure:** 1. Set up the system and verify the transport stream contains a NIT_actual with original_network_id=0x2242 and TS_id=0x1 2. Verify which services IRD has in its service list. 3. Switch off the IRD. 4. Change following items in the NIT_actual one by one: a. Add and remove service in service_list_descriptor including the logical channel number. 5. Verify the change of the NIT_actual and update of the version number of the NIT. 6. Turn on IRD. 7. Verify how (turn on or switch off) the receiver updates the changed data in the service list. 8. Verify that the changed information corresponds the changed information content. **Expected result:** That the IRD does only perform service updates based on existing descriptors, i.e. if a service list descriptor exists in the examined loop and a service has been removed or added, the IRD shall update the service list accordingly. If the loop or the descriptor for any reason is not available, the IRD shall take no action. This means that if a whole transport stream is added or removed, the IRD will only recognise this from a new scan.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 10:9 New Mux Recognition***
Section	Ch 4.7.9 Basic IRD Specification DTT Norway v3.07
Requirement	a) The IRD shall automatically perform a new scan when a new mux has been added in the network. b) This shall be triggered when the IRD detects that a new NIT version is available where the second loop of the new NIT contains a TS_ID that has not been previously stored in the IRD. In this case the following actions shall be performed: • The IRD shall display an information message to the end user stating that new services might be available and a service scan is required. • The service scan shall start. The service scan shall start without end user confirmation and it shall not be possible to cancel the scan. c) This new mux recognition procedure shall be performed when the IRD is powered up or goes from stand-by.

	NOTE: This requires that the IRD stores all TS_ID signalised during scanning even those that have not enough RF level to present any services.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the IRD is able to update the service list automatically by doing it quasi-static. **Equipment:**  NOTE: Assumption in the transport stream NIT_actual is that it has not the TS_id signaled for the added/removed multiplexer. **Test procedure:** 1. Set up the system and verify the transport stream contains a NIT_actual with original_network_id=0x2242 and TS_id=0x1. 2. Do a reinstallation of the IRD 3. Verify which services IRD has in its service list (and a service from following steps is not stored in the service list.) 4. Turn off the IRD 5. Add new TS_id in the NIT_actual including a service_list_descriptor and logical_channel_descriptor for one service. 6. Turn on IRD. 7. Verify how (turn on or switch off) the IRD updates the changed data in the service list. 8. Verify the IRD displays an information message to end-user stating a new scan is required. 9. Verify the IRD starts scanning. 10. Verify it is able to cancel the scanning. **Expected result:** IRD shall update the service list by doing a scan in case of the service is in a non-existing multiplex (not scanned before). The scanning process can be canceled.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 10:10 Loss of signal***
Section	Ch 4.7.10 Basic IRD Specification DTT Norway v3.07
Requirement	If for some reason the IRD cannot tune to a transport stream or the IRD looses signal when tuned to a service the IRD shall display a message to the end user that explains that the service cannot be received due to loss of signal.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**:

	To verify that the IRD is displaying a message to the end user that explains that the service cannot be received due to loss of signal. **Equipment:** **Test procedure:** 1. Set up the system and verify the transport stream contains NIT_actual with original_network_id=0x2242 and TS_id=0x1 2. Attenuate the RF output level of that exciter to such a level that it is not anymore able to be received. 3. Verify the receiver displays a message to end-user that the signal loss has appeared. **Expected result:** IRD displays signal loss message to end-user when the alternative signal cannot be found.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 10:11 Dynamic parameters***
Section	Ch 4.7.11 Basic IRD Specification DTT Norway v3.07
Requirement	The PSI/SI parameters that are defined in NorDig Unified Specification [1] as dynamical data shall be updated within 1s, observe that the service descriptor (service name) for the actual SDT is within DTT Norway also defined as dynamical data.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the IRD is able to update the PSI/SI parameters within 1s including service_name in SDT_actual. **Equipment:**  **Test procedure:** See NorDig Unified Test Plan Dynamic PSI/SI tasks in chapter 2.13.4: Change of the service_name in SDT_actual: 1. Change the information in SDT; a. service_name 2. Check that the changes are interpreted dynamically. **Expected result:** Conformity to NorDig test Plan tasks are handled in NorDig test Plan [1]. IRD updates the service_name dynamically.

Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

2.2.1.8 Test cases – Signal meter

Test Case	***Task 11:1 SSI and SQI***		
Section	Ch 4.8.1 Basic IRD Specification DTT Norway v3.07		
Requirement	The IRD shall be able to provide reception quality information for a selected received frequency according to specifications for basic and advanced status check as specified by Nordig Unified Specification [1]. This includes the Nordig requirements for the signal strength indicator (SSI) and the signal quality indicator (SQI).		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test**: To verify that the IRD is able to provide reception quality information for a selected received frequency. (See NorDig Unified Test Plan [3] Tasks 3:9 and 3:50) **Equipment:** IRD Under test **Test procedure:** Follow NorDig Unified Test Specification [3] Tasks 3:9 and 3:50 **Expected result:**		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 11:2 Measured frequency***
Section	Ch 4.8.2 Basic IRD Specification DTT Norway v3.07
Requirement	The measured frequency (channel) shall be possible to alter within this menu.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the measured frequency (channel) is possible to alter within this menu. **Equipment:** IRD Under test **Test procedure:**

	Verify that the measured frequency (channel) is possible to alter within this menu. **Expected result:** That the measured frequency (channel) is possible to alter within this menu.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 11:3 No channel search before signal meter use***
Section	Ch 4.8.3 Basic IRD Specification DTT Norway v3.07
Requirement	It shall not be necessary to perform any channel search before using the meter.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that it is not necessary to perform any channel search before using the meter **Equipment:** IRD Under test **Test procedure:** Verify that it is not necessary to perform any channel search before using the meter **Expected result:** That it is not necessary to perform any channel search before using the meter
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 11:4 Signal meter availability***
Section	Ch 4.8.4 Basic IRD Specification DTT Norway v3.07
Requirement	The meter shall be available through the IRDs menu system after successful installation.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the signal meter is available through the IRDs menu system after successful installation **Equipment:** IRD Under test **Test procedure:** Verify that the signal meter is available through the IRDs menu system after successful installation

	Expected result: That the signal meter is available through the IRDs menu system after successful installation		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

2.2.1.9 Test cases – System software update

Test Case	***Task 12:1 System software update (NorDig requirements)***		
Section	Ch 4.9.1 Basic IRD Specification DTT Norway v3.07		
Requirement	The IRD shall be fully compliant with the SSU requirements defined in the Nordig Unified Specification [1].		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test**: To verify that the IRD can be upgraded through over-the-air. **Equipment:** IRD Under test **Test procedure:** These are the general requirements of the over-the-air download mechanism **Expected result:**		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 12:2 Avoid re-installation***
Section	Ch 4.9.2 Basic IRD Specification DTT Norway v3.07
Requirement	The receiver should avoid re-installation and service scan after a software update.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the IRD is able to be upgraded through over-the-air. **Equipment:** IRD Under test

	Test procedure: These are the general requirements of the over-the-air download mechanism **Expected result:**
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

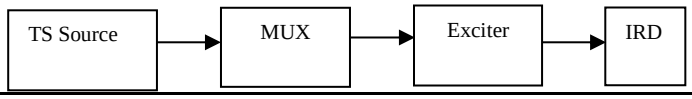
Test Case	***Task 12:3 User preferences***
Section	Ch 4.9.3 Basic IRD Specification DTT Norway v3.07
Requirement	All user preferences, USL etc. should remain unchanged after a software update.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the IRD is able to be upgraded through over-the-air. **Equipment:** IRD Under test **Test procedure:** These are the general requirements of the over-the-air download mechanism **Expected result:**
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 12:4 Recovery measures***
Section	Ch 4.9.4 Basic IRD Specification DTT Norway v3.07
Requirement	Manufacturers shall provide appropriate recovery measures to cope with possible receiver failure or hang-up during the SSU update.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the IRD is able to be upgraded through over-the-air. **Equipment:** IRD Under test **Test procedure:** These are the general requirements of the over-the-air download mechanism

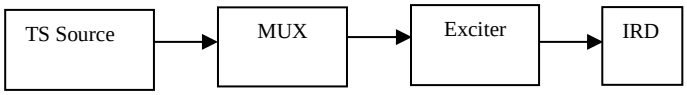
	Expected result:
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 12:5 Comply with Conax***
Section	Ch 4.9.5 Basic IRD Specification DTT Norway v3.07
Requirement	The SSU mechanism shall comply with Conax security requirements related to software integrity for receivers with embedded Conax CA.
IRD Profile(s)	STB
Test procedure	**Purpose of test**: **Equipment:** **Test procedure:** This test is covered by the Conax certification. **Expected result:**
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

2.2.1.10 Test cases – Content protection

Test Case	***Task 13:1 Conditional access***
Section	Ch 4.10.1 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall support Conax CA according to the NTV customer profile, which can be retrieved from Conax by Conax licensees. Embedded Conax is mandatory for STBs.
IRD Profile(s)	STB
Test procedure	**Purpose of test**: To verify that the IRD does support Conax CA according to the NTV customer profile. **Equipment:** 

	The TS shall contain a Conax encrypted service from Norwegian DTTV Network. A Conax SMC that is configured to the tested IRD and the transport stream. **Test procedure:** 1. Perform a channel search 2. Verify that the receiver is able to decode and display the decoded services within the transport stream. **Expected result:** That the IRD does support Conax CA according to the NTV customer profile.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 13:2 Chipset pairing***
Section	Ch 4.10.2 Basic IRD Specification DTT Norway v3.07
Requirement	This profile mandates pairing of smartcards and receivers with chipset pairing.
IRD Profile(s)	STB
Test procedure	**Purpose of test**: To verify the support for pairing of smartcards and receivers with chipset pairing **Equipment:**  The TS shall contain a Conax encrypted service from Norwegian DTTV Network. A Conax SMC that is configured to the tested IRD and the transport stream. **Test procedure:** Verify the support for pairing of smartcards and receivers with chipset pairing **Expected result:** That IRD supports for pairing of smartcards and receivers with chipset pairing
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 13:3 Host data and User messages***
Section	Ch 4.10.3 Basic IRD Specification DTT Norway v3.07

Requirement	IRDs with embedded Conax shall support “Host data” and related “User messages” as defined in the Conax Conformity Requirements document.
IRD Profile(s)	STB
Test procedure	**Purpose of test**: **Equipment:** **Test procedure:** This test is covered by the Conax certification process. **Expected result:**
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***	

Test Case	***Task 13:4 HDCP copy protection***
Section	Ch 4.10.4 Basic IRD Specification DTT Norway v3.07
Requirement	HDCP copy protection shall be enabled/disabled on HDMI output interface(s) according to signalling in PMT. See chapter 4.11 for details about HDCP implementation.
IRD Profile(s)	STB
Test procedure	**Purpose of test**: **Equipment:** **Test procedure:** This test is covered by chapter 4.11. **Expected result:**
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***	

Test Case	***Task 13:5 Persistant storage***
Section	Ch 4.10.5 Basic IRD Specification DTT Norway v3.07
Requirement	IRDs with persistent storage or connectivity for external storage that are capable of storing video (PVRs), shall re-encrypt content on the storage.
IRD Profile(s)	STB
Test procedure	**Purpose of test**:

	Equipment: Manufacturer describes used test setup and test procedures. **Test procedure:** Manufacturer describes used test setup and test procedures. **Expected result:**
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 13:6 Persistant storage – AES-128***
Section	Ch 4.10.6 Basic IRD Specification DTT Norway v3.07
Requirement	The Algorithm/key-length shall be equal to or stronger than AES-128.
IRD Profile(s)	STB
Test procedure	**Purpose of test**: **Equipment:** Manufacturer describes used test setup and test procedures. **Test procedure:** Manufacturer describes used test setup and test procedures. **Expected result:**
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 13:7 Persistant storage – Key hierarchy levels***
Section	Ch 4.10.7 Basic IRD Specification DTT Norway v3.07
Requirement	A key hierarchy of at least two levels shall be used where the bottom-level key shall be unique per recording and the top level key level shall be unique per receiver.
IRD Profile(s)	STB
Test procedure	**Purpose of test**: **Equipment:** Manufacturer describes used test setup and test procedures. **Test procedure:** Manufacturer describes used test setup and test procedures.

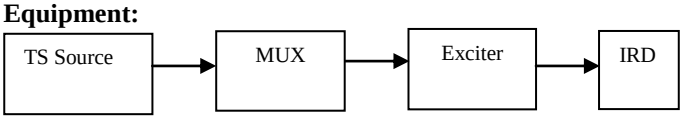
	Expected result:
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 13:8 Comply with Conax security requirements***
Section	Ch 4.10.8 Basic IRD Specification DTT Norway v3.07
Requirement	Receivers with embedded Conax shall comply with all relevant security requirements from Conax, Please note that the above mentioned encryption of persistent storage is defined in the NTV operator profile, which can be obtained from Conax by Conax licensees.
IRD Profile(s)	STB
Test procedure	**Purpose of test**: **Equipment:** **Test procedure:** This test is covered by the Conax certification. **Expected result:**
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 13:9 Persistant storage – Key generation value***
Section	Ch 4.10.9 Basic IRD Specification DTT Norway v3.07
Requirement	Keys shall not be generated from any value available to the end user like serial number, pairing ID etc, but shall be stored in the IRD as a separate value in the manufacturing process.
IRD Profile(s)	STB
Test procedure	**Purpose of test**: **Equipment:** **Test procedure:** This test is covered by the Conax certification. **Expected result:**

Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

2.2.1.11 Test cases – HDCP

Test Case	***Task 14:1 PMT content protection descriptor***		
Section	Ch 4.11.1 Basic IRD Specification DTT Norway v3.07		
Requirement	The Norwegian DTT network uses the Nordig content_protection_descriptor in the PMT table as defined in Nordig Unified Specifications [1]. The descriptor shall as a minimum be checked every time the IRD tunes to a new service.		
IRD Profile(s)	STB		
Test procedure	**Purpose of test**: To verify that the descriptor as a minimum is checked every time the IRD tunes to a new service. **Equipment:**  The TS shall contain services with HDCP and without HDCP. **Test procedure:** Verify that the descriptor as a minimum is checked every time the IRD tunes to a new service. **Expected result:** That the descriptor as a minimum is checked every time the IRD tunes to a new service.		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 14:2 HDCP enable/disable table***
Section	Ch 4.11.2 Basic IRD Specification DTT Norway v3.07
Requirement	Conditional Access is not used to control HDCP in the Norwegian DTT network. As a consequence, the table in Nordig Unified Specifications that defines required actions related to protection levels in Nordig Unified Specifications [1] can be simplified. The following shall be output from an IRD dependent on the user setting for HDCP enabling.

Copy control level	User setting ”ON” (default)	User setting ”OFF”	Description
0x00	HDCP disabled	HDCP disabled	HDCP shall be disabled for this service regardless of HDCP user setting.
0x01	HDCP enabled	HDCP disabled	Content protection is not required. IRD shall provide the service protected or unprotected according to user setting.
0x02	HDCP enabled	Video and Audio displayed without delay.	SD content: Content protection is not required when SD content is broadcasted. IRD shall provide the service protected or unprotected according to user setting. HD content: HDCP ON is required for viewing this service when HD content is broadcasted. Video resolution shall be determined by inspecting the video PID as the signalling may not dynamically change with the resolution of video.
0x03	HDCP enabled	HDCP disabled. Block content and show message (1) as defined below.	HDCP ON is required for viewing this Service

IRD Profile(s)

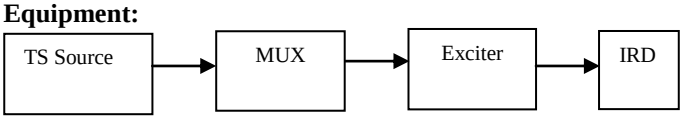
STB

Test procedure

Purpose of test:

To verify that the receiver is able set the status HDCP according the signal protection scheme.

Equipment:



The TS shall contain services with HDCP and without HDCP.

Test procedure:

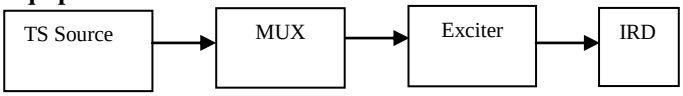
1. Setup the equipment
2. Set the content protection mode to one by one each mode in table below
3. Fill in test results

Expected result:

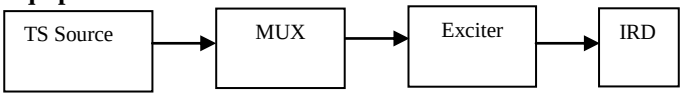
		Expected behaviour		Observed behaviour	
Channel	Explanation	HDCP OFF	HDCP ON	HDCP OFF	HDCP ON
LEV_0_SD	SD service with HDCP level 0 signalled in PMT.	Video and Audio displayed without delay.	Video and Audio displayed without delay.		
LEV_1_SD	SD service with HDCP level 1 signalled in PMT.	Video and Audio displayed without delay.	Video and Audio displayed without delay.		
LEV_2_SD	SD service with HDCP level 2 signalled in PMT.	Video and Audio displayed without delay.	Video and Audio displayed without delay.		
LEV_3_SD	SD service with HDCP level 3 signalled in PMT.	Video and Audio not displayed. Message displayed to customer telling him to turn ON HDCP in order to view this channel.	Video and Audio displayed without delay.		

	LEV_ 2_HD	HD service with HDCP level 2 signalled in PMT.	Video and Audio not displayed. Message displayed to customer telling him to turn ON HDCP in order to view this channel.	Video and Audio displayed without delay.		

Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

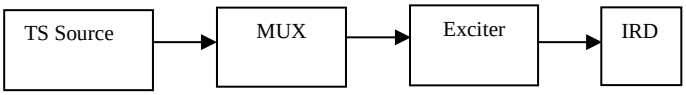
Test Case	***Task 14:3 HDCP enabling message***
Section	Ch 4.11.3 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall inform the end user that the HDCP user setting must be turned ON in order to view protected content with the following message pop-up with buttons to activate HDCP or to cancel (Cancel = "Avbryt" in Norwegian): • English text: "*HDCP copy protection must be enabled in order to view this service. This can be done in the menu by selecting "Enable HDCP". Select "Cancel" to continue without enabling HDCP*" • Norwegian text: "*HDCP kopibeskyttelse må aktiveres for å se denne kanalen. Dette kan gjøres med å velge Aktiver HDCP. Velg Avbryt dersom du ikke ønsker å aktivere HDCP nå.*"
IRD Profile(s)	STB
Test procedure	**Purpose of test**: To verify that the IRD does inform the end user that the HDCP user setting must be turned ON in order to view protected content with the specified message pop-up with buttons to activate HDCP or to cancel. **Equipment:**  The TS shall contain services with HDCP and without HDCP. **Test procedure:** Verify that the IRD does inform the end user that the HDCP user setting must be turned ON in order to view protected content with the specified message pop-up with buttons to activate HDCP or to cancel. **Expected result:** That the IRD does inform the end user that the HDCP user setting must be turned ON in order to view protected content with the specified message pop-up with buttons to activate HDCP or to cancel.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments

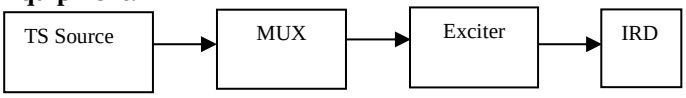
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 14:4 HDCP system menu option***
Section	Ch 4.11.4 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall provide an option for setting the preferred HDCP-state, ("HDCP-user setting") to either ON or OFF.
IRD Profile(s)	STB
Test procedure	**Purpose of test**: To verify that the IRD does provide an option for setting the preferred HDCP-state, ("HDCP-user setting") to either ON or OFF. **Equipment:**  The TS shall contain services with HDCP and without HDCP. **Test procedure:** Verify that the IRD does provide an option for setting the preferred HDCP-state, ("HDCP-user setting") to either ON or OFF. **Expected result:** That the IRD does provide an option for setting the preferred HDCP-state, ("HDCP-user setting") to either ON or OFF.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

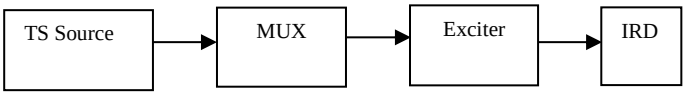
2.2.1.12 Test cases – Parental control

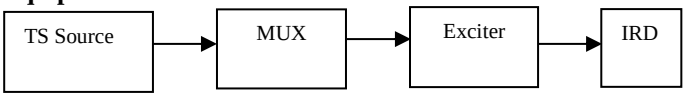
Test Case	***Task 15:1 EIT based parental control and channel lock***
Section	Ch 4.12.1 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall support EIT based parental control and channel lock.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the IRD does support EIT based parental control and channel lock. **Equipment:**

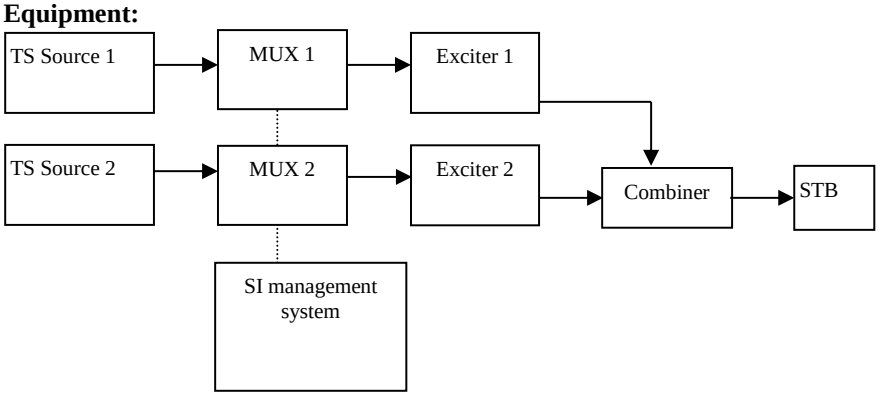
	 **Test procedure:** Verify that the IRD does support EIT based parental control and channel lock **Expected result:** That the IRD does support EIT based parental control and channel lock
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 15:2 Same PIN code for parental control and channel lock***
Section	Ch 4.12.2 Basic IRD Specification DTT Norway v3.07
Requirement	The PIN code used for EIT based parental control and channel lock shall be the same.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the PIN code used for EIT based parental control and channel lock is the same. **Equipment:**  **Test procedure:** Verify that the PIN code used for EIT based parental control and channel lock is the same **Expected result:** That the PIN code used for EIT based parental control and channel lock is the same
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 15:3 PIN code protection***
Section	Ch 4.12.3 Basic IRD Specification DTT Norway v3.07
Requirement	It shall not be possible to change the PIN, reset to factory settings or configure the parental rating settings without entering the PIN.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that it is not possible to change the PIN, reset to factory settings or configure the parental rating settings without entering the PIN. **Equipment:**

	 **Test procedure:** Verify that it is not possible to change the PIN, reset to factory settings or configure the parental rating settings without entering the PIN. **Expected result:** That it is not possible to change the PIN, reset to factory settings or configure the parental rating settings without entering the PIN.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 15:4 Reset of PIN code***
Section	Ch 4.12.4 Basic IRD Specification DTT Norway v3.07
Requirement	It shall be possible for the customer service call centre to reset the parental rating code to the default PIN code with some kind of master PIN or combination of keystrokes in the case that the PIN code is lost.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that it is possible for the customer service call centre to reset the parental rating code to the default PIN code with some kind of master PIN or combination of keystrokes in the case that the PIN code is lost. **Equipment:**  **Test procedure:** Verify that it is possible for the customer service call centre to reset the parental rating code to the default PIN code with some kind of master PIN or combination of keystrokes in the case that the PIN code is lost. **Expected result:** That it is possible for the customer service call centre to reset the parental rating code to the default PIN code with some kind of master PIN or combination of keystrokes in the case that the PIN code is lost.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 15:5 Parental rating descriptor***
Section	Ch 4.12.5 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall interpret the *"parental_rating_descriptor"* in EIT and compare the signalled limit with the user setting for parental control.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the IRD does interpret the *"parental_rating_descriptor"* in EIT and compare the signalled limit with the user setting for parental control. **Equipment:** 

	Service1	**Service2**		**Frequency**
MUX1 TS_id 1 Network_id 1 ON_id [1)]	SID 1100 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 ON_id [1)]	SID 2100 S_name Test21 PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 3 visible		Bouquet SI All information in EIT.	Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) can be chosen in range 0x0001-0xfe00 (operational network)

Test procedure:
Verify that the IRD does interpret the *"parental_rating_descriptor"* in EIT and compare the signalled limit with the user setting for parental control.

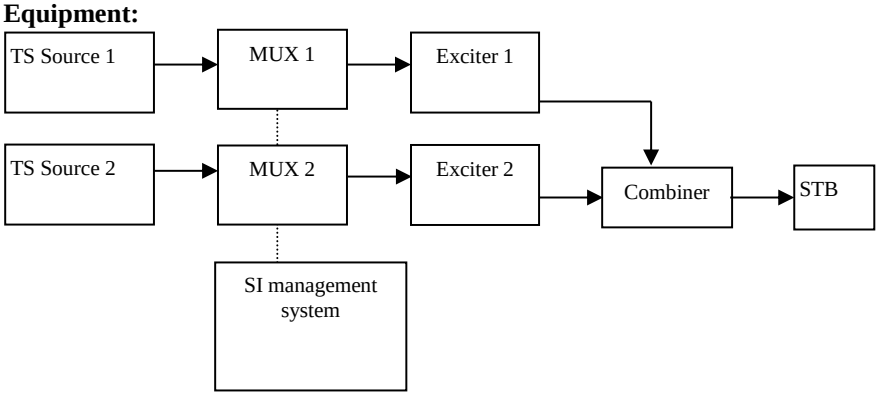
Expected result:
That the IRD does interpret the *"parental_rating_descriptor"* in EIT and compare the signalled limit with the user setting for parental control.

Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 15:6 Parental rating limits***
Section	Ch 4.12.6 Basic IRD Specification DTT Norway v3.07
Requirement	The user shall be able to select between the following limits as a minimum, which corresponds to the limits used by the Norwegian Media Authority.

Limit (years)	English text	Norwegian text
No limit	See everything (no content is blocked)	Se alt (ingenting er sperret)
7	7 years (The content may be harmful to children younger than 7 years)	7 år (Programmet kan være skedelig for barn under 7 år)
11	11 years (The content may be harmful to children younger than 11 years)	11 år (Programmet kan være skedelig for barn under 11 år)
15	15 years (The content may be harmful to children younger than 15 years)	15 år (Programmet kan være skedelig for barn under 15 år)
18	Adult (The content may be harmful to children younger than 18 years)	Voksne (Programmet kan være skedelig for barn under 18 år)

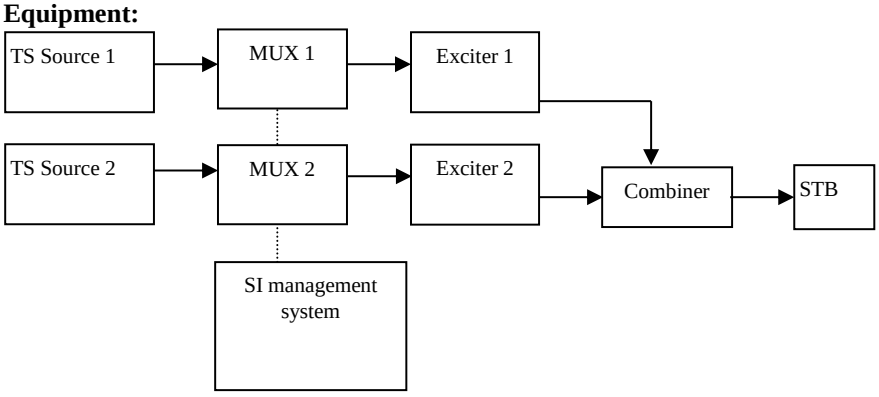
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the user is able to select between the following limits as a minimum, which corresponds to the limits used by the Norwegian Media Authority. **Equipment:**



	Service1	Service2		Frequency
MUX1 TS_id 1 Network_id 1 ON_id [1)]	SID 1100 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 ON_id [1)]	SID 2100 S_name Test21 PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 3 visible		Bouquet SI All information in EIT.	Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) can be chosen in range 0x0001-0xfe00 (operational network)

	Test procedure: Verify that the user is able to select between the following limits as a minimum, which corresponds to the limits used by the Norwegian Media Authority. **Expected result:** That the user is able to select between the following limits as a minimum, which corresponds to the limits used by the Norwegian Media Authority.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

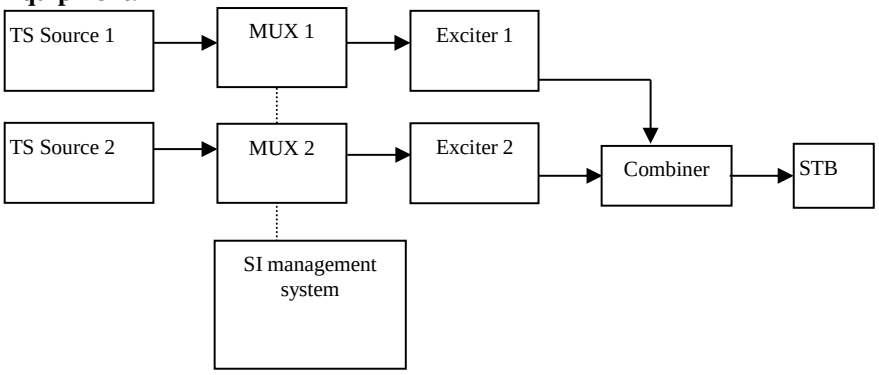
Test Case	***Task 15:7 Parental control check frequency***
Section	Ch 4.12.7 Basic IRD Specification DTT Norway v3.07
Requirement	The EIT parental control shall be checked every time the IRD tunes to a new service and when a new event starts.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the EIT parental control is checked every time the IRD tunes to a new service and when a new event starts. **Equipment:** 

	Service1	**Service2**		**Frequency**
MUX1 TS_id 1 Network_id 1 ON_id [1)]	SID 1100 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 ON_id [1)]	SID 2100 S_name Test21 PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 3 visible		Bouquet SI All information in EIT.	Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) can be chosen in range 0x0001-0xfe00 (operational network)

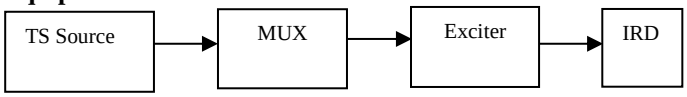
	Test procedure: Verify that the EIT parental control is checked every time the IRD tunes to a new service and when a new event starts. **Expected result:** That the EIT parental control is checked every time the IRD tunes to a new service and when a new event starts.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 15:8 PIN code prompt***
Section	Ch 4.12.8 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall prompt the user for a PIN code if the limit set in the menu is lower than what is signalled in the EIT. - If the IRDs parental control has already been unlocked using a valid PIN code, a new PIN code prompt for parental control is not required unless the device has been restarted or reset.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: Verify that the IRD does prompt the user for a PIN code if the limit set in the menu is lower than what is signalled in the EIT. **Equipment:**

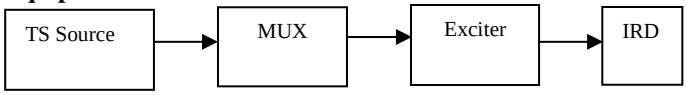


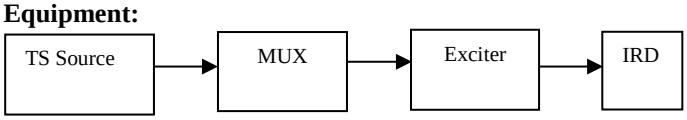
	Service1	**Service2**		**Frequency**
MUX1 TS_id 1 Network_id 1 ON_id [1)]	SID 1100 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 ON_id [1)]	SID 2100 S_name Test21 PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 3 visible		Bouquet SI All information in EIT.	Can be chosen depending of the distribution media. Not same as for Exciter 1

	[1)] ON_id (Original_network_id) can be chosen in range 0x0001-0xfe00 (operational network) **Test procedure:** 1. Control that there is a service with EIT information signalled for higher parental_rating as allowed in preferences of the IRD on MUX1 2. Zap to this service 3. Verify the IRD prompts PIN code. **Expected result:** That the IRD does prompt the user for a PIN code if the limit set in the menu is lower than what is signalled in the EIT.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

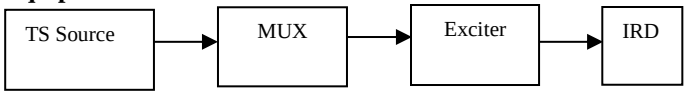
Test Case	***Task 15:9 Channel lock***
Section	Ch 4.12.9 Basic IRD Specification DTT Norway v3.07
Requirement	It shall be possible to lock a service for viewing.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that is is possible to lock a service for viewing. **Equipment:**  **Test procedure:** Verify that is is possible to lock a service for viewing. **Expected result:** That is is possible to lock a service for viewing.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 15:10 Channel lock access***
Section	Ch 4.12.10 Basic IRD Specification DTT Norway v3.07
Requirement	It shall not be possible to view or unlock a locked service, without first entering the PIN.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**:

	To verify that it shall not be possible to view or unlock a locked service, without first entering the PIN **Equipment:**  **Test procedure:** Verify that it is not possible to view or unlock a locked service, without first entering the PIN **Expected result:** That it is not possible to view or unlock a locked service, without first entering the PIN
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 15:11 Channel lock duration***
Section	Ch 4.12.11 Basic IRD Specification DTT Norway v3.07
Requirement	The channel lock shall by default always block the service the entire day.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the channel lock does by default always block the service the entire day. **Equipment:**  **Test procedure:** Verify that the channel lock does by default always block the service the entire day **Expected result:** That the channel lock does by default always block the service the entire day
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 15:12 User defined channel lock duration***
Section	Ch 4.12.12 Basic IRD Specification DTT Norway v3.07
Requirement	It should be possible to limit access to the channel for a certain time interval entered by the user.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**:

	To verify that it is possible to limit access to the channel for a certain time interval entered by the user. **Equipment:**  **Test procedure:** Verify that it is possible to limit access to the channel for a certain time interval entered by the user. **Expected result:** That it is possible to limit access to the channel for a certain time interval entered by the user.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

2.2.1.13 Test cases – Program guides

NOTE: The IRD will not be able to retrieve information from other receivable networks as EIT is not distributed across networks.

Test Case	***Task 16:1 EIT cache***
Section	Ch 4.13.1 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall support automatic collection and update of the EIT information and cache the information in background during normal operation, both for EIT present/following and schedule data.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify the dynamic update of the EIT information. **Equipment:** These requirements are the same as in NorDig Unified [1]. **Test procedure:** See NorDig Test Plan [3] test task 13:22 “Dynamic update of EIT actual/other p/f and schedule in ESG using linkage” is used. See NorDig Test Plan [3] test task 13:23 “Dynamic update of EIT actual/other p/f and schedule in ESG” is used (EIT is cross-distributed). EIT cache size is guaranteed by the IRD manufacture. **Expected result:** Conformity is handled in NorDig Test Plan [3]. EIT cache size is 5 Mbyte.

Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 16:2 EIT cache size***		
Section	Ch 4.13.2 Basic IRD Specification DTT Norway v3.07		
Requirement	The IRD shall reserve at least 5 MB memory for caching of EIT.		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test:** To verify the dynamic update of the EIT information. **Equipment:** These requirements are the same as in NorDig Unified [1]. **Test procedure:** See NorDig Test Plan [3] test task 13:22 “Dynamic update of EIT actual/other p/f and schedule in ESG using linkage” is used. See NorDig Test Plan [3] test task 13:23 “Dynamic update of EIT actual/other p/f and schedule in ESG” is used (EIT is cross-distributed). EIT cache size is guaranteed by the IRD manufacture. **Expected result:** Conformity is handled in NorDig Test Plan [3]. EIT cache size is 5 Mbyte.		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

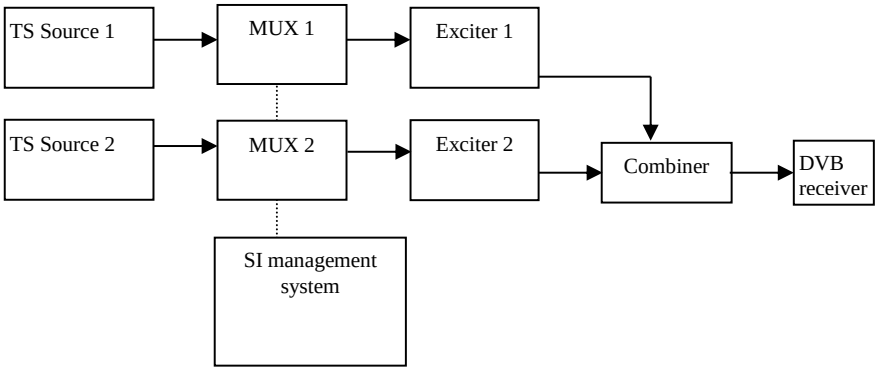
Test Case	***Task 16:3 EIT update***
Section	Ch 4.13.3 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall continuously monitor the available EIT tables in actual transport steams and update the cache as new EIT versions are available.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify the dynamic update of the EIT information. **Equipment:** These requirements are the same as in NorDig Unified [1]. **Test procedure:** See NorDig Test Plan [3] test task 13:22 “Dynamic update of EIT actual/other p/f and schedule in ESG using linkage” is used.

	See NorDig Test Plan [3] test task 13:23 “Dynamic update of EIT actual/other p/f and schedule in ESG” is used (EIT is cross-distributed). EIT cache size is guaranteed by the IRD manufacture. **Expected result:** Conformity is handled in NorDig Test Plan [3]. EIT cache size is 5 Mbyte.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 16:4 Linkage descriptor***
Section	Ch 4.13.4 Basic IRD Specification DTT Norway v3.07
Requirement	If a *linkage_descriptor* is present, the IRD shall follow this link when the EPG application is launched to update EPG and cache. This will give the end-user instant access to both the EPG and ESG information.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify the dynamic update of the EIT information. **Equipment:** These requirements are the same as in NorDig Unified [1]. **Test procedure:** See NorDig Test Plan [3] test task 13:22 “Dynamic update of EIT actual/other p/f and schedule in ESG using linkage” is used. See NorDig Test Plan [3] test task 13:23 “Dynamic update of EIT actual/other p/f and schedule in ESG” is used (EIT is cross-distributed). EIT cache size is guaranteed by the IRD manufacture. **Expected result:** Conformity is handled in NorDig Test Plan [3]. EIT cache size is 5 Mbyte.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 16:5 EIT cache restrictions***
Section	Ch 4.13.5 Basic IRD Specification DTT Norway v3.07

Requirement	The IRD shall start caching the EIT "immediately" when tuning to a transport stream within a different network.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify the EIT data capturing restrictions functionality. **Equipment:**



	Service1	**Service2**		**Frequency**
MUX1 TS_id 1 Network_id 1 ON_id [1)]	SID 1100 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 ON_id [2)]	SID 2100 S_name Test21 PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 3 visible			Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) is 0x2242
[2)] ON_id (Original_network_id) is 0x22F1

MUX1 event information (EIT actual p/f and schedule) is cross-distributed to MUX2 as event information (EIT other p/f and schedule).

MUX2 event information (EIT actual p/f and schedule) is cross-distributed to MUX1 as event information (EIT other p/f and schedule).

Test procedure:

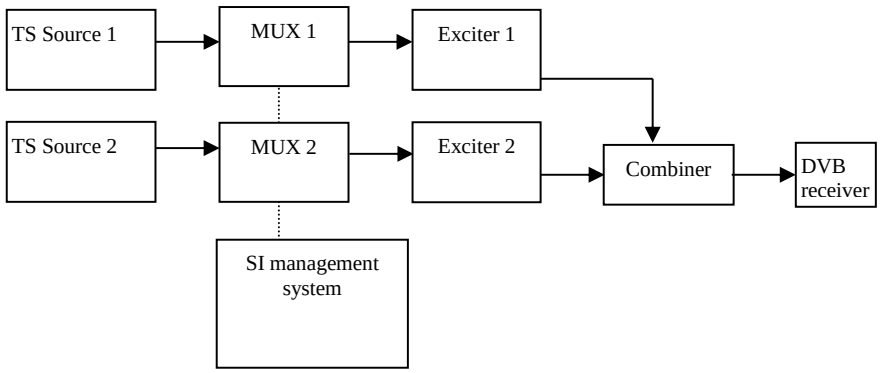
1. Setup the system.
2. Navigate in EPG and ESG.
3. Verify that from the mux1 EIT information is interpreted completely, but from the mux2 it is only interpreted event_name and the content of the short_event_descriptor.

Expected result:
That IRD does start caching the EIT "immediately" when tuning to a transport stream within a different network.

Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information

Date		***Sign***	

Test Case	***Task 16:6 Memory shortage***
Section	Ch 4.13.6 Basic IRD Specification DTT Norway v3.07
Requirement	The cache process shall in case of memory shortage prioritise the Norwegian DTT.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify the EIT data capturing restrictions functionality. **Equipment:**



	Service1	**Service2**		**Frequency**
MUX1 TS_id 1 Network_id 1 ON_id [1)]	SID 1100 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 ON_id [2)]	SID 2100 S_name Test21 PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 3 visible			Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) is 0x2242

[2)] ON_id (Original_network_id) is 0x22F1

MUX1 event information (EIT actual p/f and schedule) is cross-distributed to MUX2 as event information (EIT other p/f and schedule).

MUX2 event information (EIT actual p/f and schedule) is cross-distributed to MUX1 as event information (EIT other p/f and schedule).

Test procedure:

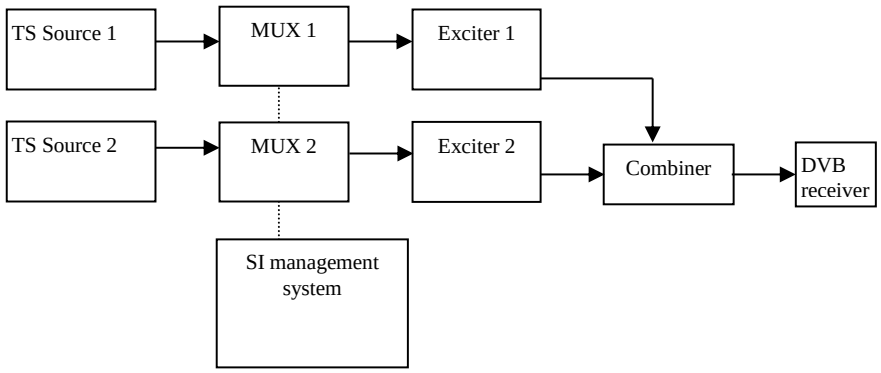
1. Setup the system.
2. Navigate in EPG and ESG.
3. Verify that from the mux1 EIT information is interpreted completely, but from the mux2 it is only interpreted event_name and the content of the short_event_descriptor.

Expected result:
That the cache process in case of memory shortage is prioritising the Norwegian DTT

Test result(s)	

Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 16:7 Cache restriction for other ONIDs than 0x2242***
Section	Ch 4.13.7 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall only cache *event_name* and *Short_event_descriptor* for networks that are not matching the *Original_Network_ID* for Norway.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify the EIT data capturing restrictions functionality. **Equipment:**



	Service1	**Service2**		**Frequency**
MUX1 TS_id 1 Network_id 1 ON_id [1)]	SID 1100 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 ON_id [2)]	SID 2100 S_name Test21 PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 3 visible			Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) is 0x2242
[2)] ON_id (Original_network_id) is 0x22F1

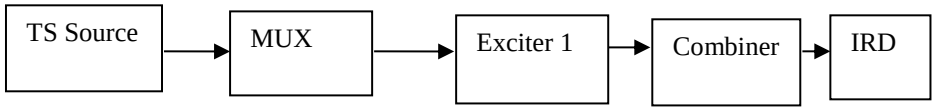
MUX1 event information (EIT actual p/f and schedule) is cross-distributed to MUX2 as event information (EIT other p/f and schedule).

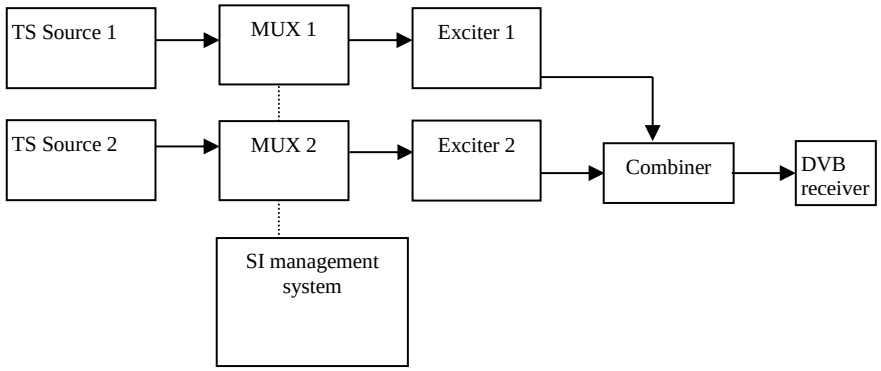
MUX2 event information (EIT actual p/f and schedule) is cross-distributed to MUX1 as event information (EIT other p/f and schedule).

Test procedure:

1. Setup the system.
2. Navigate in EPG and ESG.

	3. Verify that from the mux1 EIT information is interpreted completely, but from the mux2 it is only interpreted event_name and the content of the short_event_descriptor. **Expected result:** Only event_name and content of the short_event_descriptor are interpreted from the networks belonging to ON_id ≠ 0x2242.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 16:8 Correct character set***
Section	Ch 4.13.8 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall be able to choose the correct character set as signalled per event in EIT.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify the IRD supported character sets per event in EIT. **Equipment:**  The TS source shall contain following bytes in EIT to indicated character set in use: • ISO/IEC8859 alphabet 1 (Western Europe) • ISO/IEC8859 alphabet 4 (North and North-East European) **Test procedure:** 1. Setup the system 2. Lauch the program guide 3. Verify the characters are displayed correctly. **Expected result:** Characters are displayed correctly per event in EIT.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 16:9 Start based on current time***
Section	Ch 4.13.9 Basic IRD Specification DTT Norway v3.07
Requirement	This first overview shall start the presentation based on the current time.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify the EPG functionality. **Equipment:** 

	Service1	**Service2**		**Frequency**
MUX1 TS_id 1 Network_id 1 ON_id [1)]	SID 1100 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 ON_id [1)]	SID 2100 S_name Test21 PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 3 visible		Bouquet SI All information in EIT.	Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) is 0x2242

MUX1 event information (EIT actual p/f and schedule) is cross-distributed to MUX2 as event information (EIT other p/f and schedule).

MUX2 event information (EIT actual p/f and schedule) is cross-distributed to MUX1 as event information (EIT other p/f and schedule).

Test procedure:

1. Setup the system.
2. Navigate in EPG.
3. Verify all the requirements in the test results and fill in the test results measurement record.

Expected result:
All the test results are OK.

Test result(s)

Measurement record:

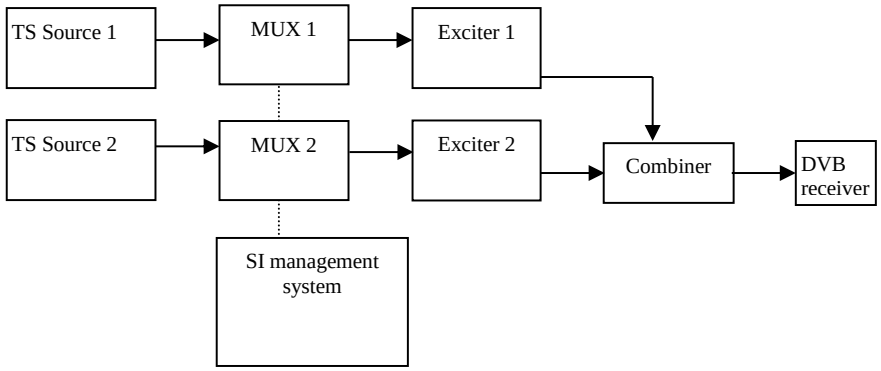
Requirement	**OK or NOK**
When the EPG is launched, the presentation starts from the current time.	

Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 16:10 All services available***		
Section	Ch 4.13.10 Basic IRD Specification DTT Norway v3.07		
Requirement	It shall be possible to view the EIT p/f information for all services within the active service list without changing service.		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test:** To verify the Present-following guide functionality. **Equipment:** Present-following guide in this context means the info banner. **Test procedure:** Verify that event name from EIT p/f_actual and EIT p/f_other are displayed in the Present-following guide. **Expected result:** Present-following guide is an OSD. It is possible to view the EIT p/f information for all services within the active service list without zapping between services. If the IRD is IDTV, following is relaxed: • only event_name is shall be presented • it should be possible to view the EIT p/f information for all services within the active service list without zapping between services.		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 16:11 EPG – Listing of services***		
Section	Ch 4.13.11 Basic IRD Specification DTT Norway v3.07		
Requirement	The EPG shall present services in accordance with the service list that is currently active.		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test:** To verify the EPG functionality.		

Equipment:



	Service1	**Service2**		**Frequency**
MUX1 TS_id 1 Network_id 1 ON_id [1)]	SID 1100 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 ON_id [1)]	SID 2100 S_name Test21 PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 3 visible		Bouquet SI All information in EIT.	Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) is 0x2242

MUX1 event information (EIT actual p/f and schedule) is cross-distributed to MUX2 as event information (EIT other p/f and schedule).

MUX2 event information (EIT actual p/f and schedule) is cross-distributed to MUX1 as event information (EIT other p/f and schedule).

Test procedure:

1. Setup the system.
2. Navigate in EPG.
3. Verify all the requirements in the test results and fill in the test results measurement record.

Expected result:
All the test results are OK.

Test result(s)

Measurement record:

Requirement	**OK or NOK**
The currently activate service list defines which services are listed in EPG.	

Conformity

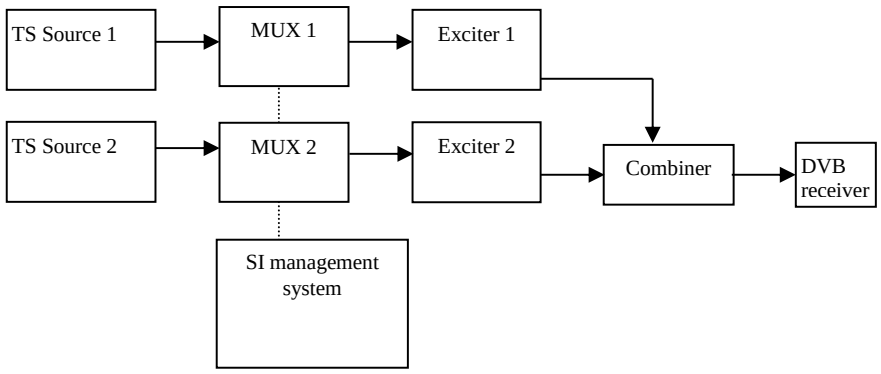
☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments

Comments

If possible describe if fault can be fixed with software update: ☐**YES**☐**NO**
Describe more specific faults and/or other information

Date		***Sign***	

Test Case	***Task 16:12 EPG – Switch between channel lists***
Section	Ch 4.13.12 Basic IRD Specification DTT Norway v3.07
Requirement	It should be possible from the EPG to switch between available channel lists.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify the EPG functionality. **Equipment:**



	Service1	**Service2**		**Frequency**
MUX1 TS_id 1 Network_id 1 ON_id [1)]	SID 1100 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 ON_id [1)]	SID 2100 S_name Test21 PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 3 visible		Bouquet SI All information in EIT.	Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) is 0x2242

MUX1 event information (EIT actual p/f and schedule) is cross-distributed to MUX2 as event information (EIT other p/f and schedule).

MUX2 event information (EIT actual p/f and schedule) is cross-distributed to MUX1 as event information (EIT other p/f and schedule).

Test procedure:

1. Setup the system.
2. Navigate in EPG.
3. Verify all the requirements in the test results and fill in the test results measurement record.

Expected result:
All the test results are OK.

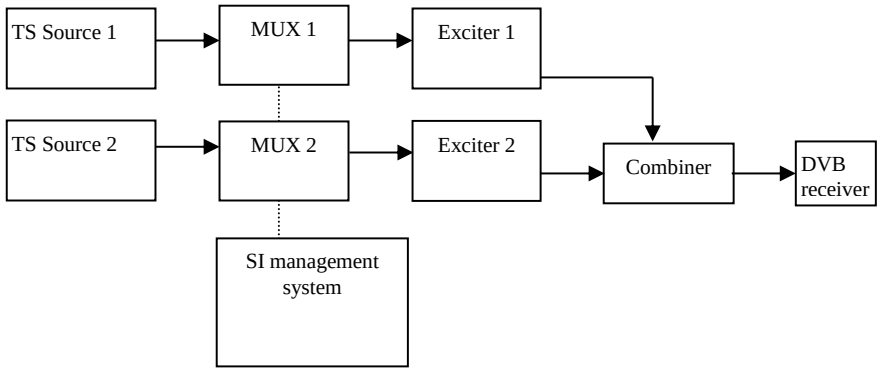
Test result(s)

Measurement record:

Requirement	**OK or NOK**
It is possible to switch between service lists.	

Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 16:13 EPG – Select channel for viewing***
Section	Ch 4.13.13 Basic IRD Specification DTT Norway v3.07
Requirement	It shall be possible to select a service for viewing from the EPG.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify the EPG functionality. **Equipment:**



	Service1	**Service2**		**Frequency**
MUX1 TS_id 1 Network_id 1 ON_id [1)]	SID 1100 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 ON_id [1)]	SID 2100 S_name Test21 PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 3 visible		Bouquet SI All information in EIT.	Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) is 0x2242

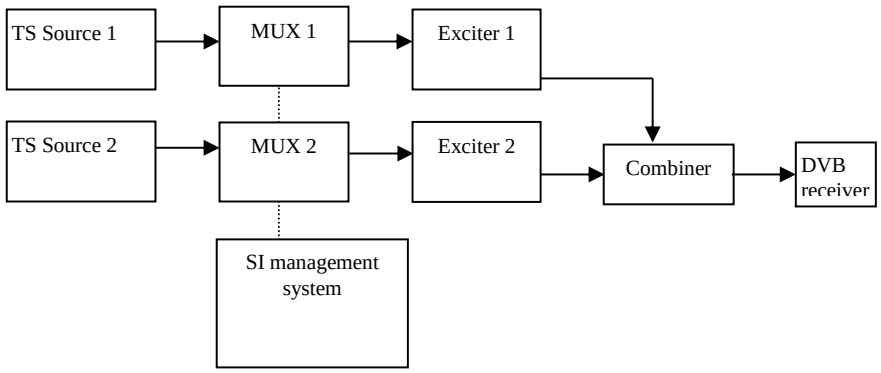
MUX1 event information (EIT actual p/f and schedule) is cross-distributed to MUX2 as event information (EIT other p/f and schedule).

MUX2 event information (EIT actual p/f and schedule) is cross-distributed to MUX1 as event information (EIT other p/f and schedule).

Test procedure:

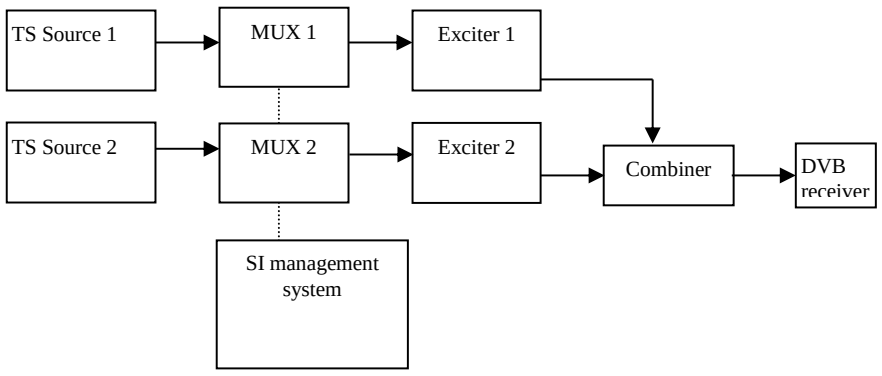
1. Setup the system.
2. Navigate in EPG.

	3. Verify all the requirements in the test results and fill in the test results measurement record. **Expected result:** All the test results are OK.
Test result(s)	Measurement record: **Requirement** | **OK or NOK** It is possible to select service in EPG for viewing. |
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 16:14 EPG – Initial display***
Section	Ch 4.13.14 Basic IRD Specification DTT Norway v3.07
Requirement	The EPG shall initially display an overview of services listed with the service name, event_name, start- and stop-time (calculated from the duration).
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify the EPG functionality. **Equipment:** 

	Service1	**Service2**		**Frequency**
MUX1 TS_id 1 Network_id 1 ON_id [1)]	SID 1100 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 ON_id [1)]	SID 2100 S_name Test21 PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 3 visible		Bouquet SI All information in EIT.	Can be chosen depending of the distribution media. Not same as for Exciter 1

	[1)] ON_id (Original_network_id) is 0x2242 MUX1 event information (EIT actual p/f and schedule) is cross-distributed to MUX2 as event information (EIT other p/f and schedule). MUX2 event information (EIT actual p/f and schedule) is cross-distributed to MUX1 as event information (EIT other p/f and schedule). **Test procedure:** 1. Setup the system. 2. Navigate in EPG. 3. Verify all the requirements in the test results and fill in the test results measurement record. **Expected result:** All the test results are OK.
Test result(s)	Measurement record: **Requirement** | **OK or NOK** The presentation shows service name, event_name, start- and stop-time (calculated from the duration). |
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 16:15 EPG – Navigation***
Section	Ch 4.13.15 Basic IRD Specification DTT Norway v3.07
Requirement	It shall be possible to navigate between all the services and events.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify the EPG functionality. **Equipment:**  **Service1** | **Service2** | **Frequency**

	MUX1 TS_id 1 Network_id 1 ON_id [1)]	SID 1100 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media.
	MUX2 TS_id 2 Network_id 2 ON_id [1)]	SID 2100 S_name Test21 PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 3 visible		Bouquet SI All information in EIT.	Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) is 0x2242

MUX1 event information (EIT actual p/f and schedule) is cross-distributed to MUX2 as event information (EIT other p/f and schedule).

MUX2 event information (EIT actual p/f and schedule) is cross-distributed to MUX1 as event information (EIT other p/f and schedule).

Test procedure:

1. Setup the system.
2. Navigate in EPG.
3. Verify all the requirements in the test results and fill in the test results measurement record.

Expected result:
All the test results are OK.

Test result(s)

Measurement record:

Requirement	**OK or NOK**
It is possible to navigate between all services and events in currently active service list.	

Conformity

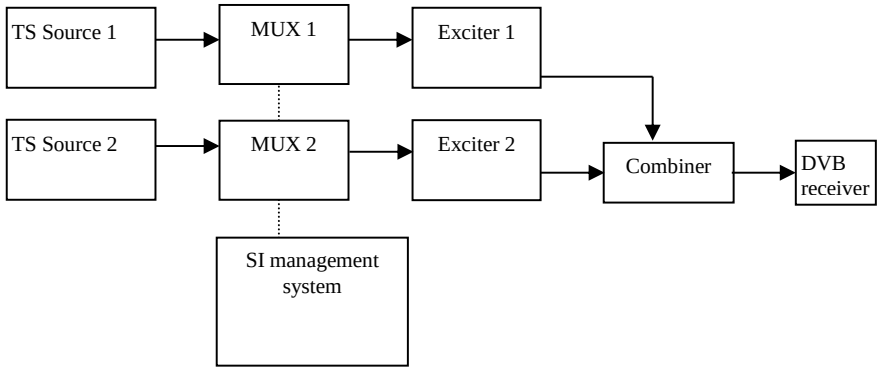
☐ **OK Fault** ☐ Major ☐ Minor, define fail reason in comments

Comments

If possible describe if fault can be fixed with software update: ☐ **YES** ☐ **NO**
Describe more specific faults and/or other information

Date		***Sign***	

Test Case	***Task 16:16 EPG – Detailed information***
Section	Ch 4.13.16 Basic IRD Specification DTT Norway v3.07
Requirement	It shall be possible to get more detailed information about a selected event.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify the EPG functionality. **Equipment:**



	Service1	**Service2**		**Frequency**
MUX1 TS_id 1 Network_id 1 ON_id [1)]	SID 1100 S_name Test11 PMT PID 1100 V PID 1109 A PID 1108 Logical_chan_desc 1 visible	SID 1200 S_name Test12 PMT PID 1200 V PID 1209 A PID 1208 Logical_chan_desc 2 visible		Can be chosen depending of the distribution media.
MUX2 TS_id 2 Network_id 2 ON_id [1)]	SID 2100 S_name Test21 PMT PID 2100 V PID 2109 A PID 2108 Logical_chan_desc 3 visible		Bouquet SI All information in EIT.	Can be chosen depending of the distribution media. Not same as for Exciter 1

[1)] ON_id (Original_network_id) is 0x2242

MUX1 event information (EIT actual p/f and schedule) is cross-distributed to MUX2 as event information (EIT other p/f and schedule).

MUX2 event information (EIT actual p/f and schedule) is cross-distributed to MUX1 as event information (EIT other p/f and schedule).

Test procedure:

1. Setup the system.
2. Navigate in EPG.
3. Verify all the requirements in the test results and fill in the test results measurement record.

Expected result:
All the test results are OK.

Test result(s)

Measurement record:

Requirement	**OK or NOK**
It is possible to get more detailed information about the selected service.	

Conformity

☐ **OK Fault** ☐ Major ☐ Minor, define fail reason in comments

Comments

If possible describe if fault can be fixed with software update: ☐ **YES** ☐ **NO**
Describe more specific faults and/or other information

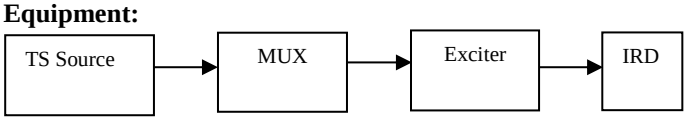
Date		***Sign***	

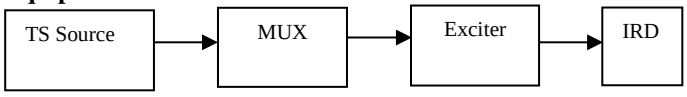
Test Case	***Task 16:17 EPG – Descriptor support***
Section	Ch 4.13.17 Basic IRD Specification DTT Norway v3.07
Requirement	The EPG shall as a minimum support the: • Service name • Short_event_descriptor • *Content_descriptor* at least content_nibble_level_1 type
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test:** To verify the EPG functionality. **Equipment:** These requirements are the same as in NorDig Unified [1]. **Test procedure:** See NorDig Test Plan [3] task 13:22 "Dynamic update of EIT actual/other p/f and schedule in ESG using linkage" and task 13:23 "Dynamic update of EIT actual/other p/f and schedule in ESG". **Expected result:** Conformity is handled in NorDig Test Plan [3].
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***	

Test Case	***Task 16:18 P/F guide***
Section	Ch 4.13.18 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall include a P/F guide for the currently selected service as an overlay of the video.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the IRD does include a P/F guide for the currently selected service as an overlay of the video. **Equipment:** Present-following guide in this context means the info banner. **Test procedure:** Verify that the IRD does include a P/F guide for the currently selected service as an overlay of the video. **Expected result:** That the IRD does include a P/F guide for the currently selected service as an overlay of the video.
Test result(s)	

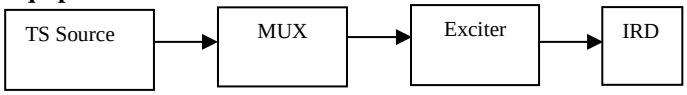
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

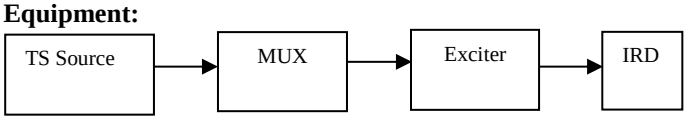
2.2.1.14 Test cases – User interface

Test Case	***Task 17:1 UI languages***		
Section	Ch 4.14.1 Basic IRD Specification DTT Norway v3.07		
Requirement	All menus shall be available in at least Norwegian and English		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test**: To verify that all menus are available in at least Norwegian and English **Equipment:**  **Test procedure:** Verify that all menus are available in at least Norwegian and English **Expected result:** That all menus are available in at least Norwegian and English		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

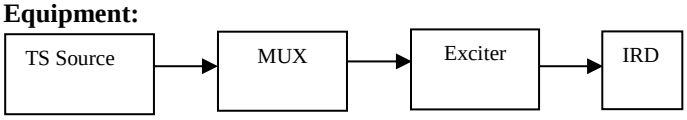
Test Case	***Task 17:2 Nordic languages***		
Section	Ch 4.14.2 Basic IRD Specification DTT Norway v3.07		
Requirement	It is recommended that all 4 Nordic languages (Finnish, Danish, Norwegian and Swedish) are supported.		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test**: To verify that all 4 Nordic languages (Finnish, Danish, Norwegian and Swedish) are supported. **Equipment:**  **Test procedure:** Verify that all 4 Nordic languages (Finnish, Danish, Norwegian and Swedish) are supported. **Expected result:** That all 4 Nordic languages (Finnish, Danish, Norwegian and Swedish) are supported.		

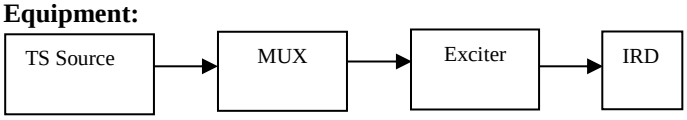
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 17:3 UI resolution***
Section	Ch 4.14.3 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall support both standard and high resolution UI.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the IRD is supporting both standard and high resolution UI. **Equipment:**  **Test procedure:** Verify that the IRD is supporting both standard and high resolution UI. **Expected result:** That the IRD is supporting both standard and high resolution UI.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 17:4 Audio when UI navigation***
Section	Ch 4.14.4 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD should present audio when navigating the menus
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the IRD presents audio when navigating the menus **Equipment:**  **Test procedure:** Verify that the IRD presents audio when navigating the menus **Expected result:** That the IRD presents audio when navigating the menus
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information

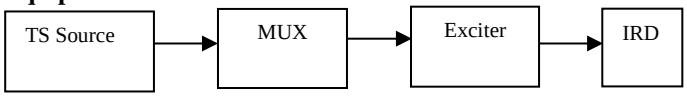
Date		***Sign***	

Test Case	***Task 17:5 Conax information***
Section	Ch 4.14.5 Basic IRD Specification DTT Norway v3.07
Requirement	Serial number and Conax pairing ID shall be easily available in the menu for IRDs with embedded Conax CA.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that serial number and Conax pairing ID are easily available in the menu for IRDs with embedded Conax CA. **Equipment:**  **Test procedure:** Verify that serial number and Conax pairing ID are easily available in the menu for IRDs with embedded Conax CA. **Expected result:** That serial number and Conax pairing ID are easily available in the menu for IRDs with embedded Conax CA.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

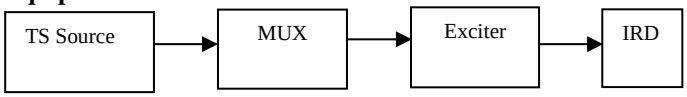
Test Case	***Task 17:6 ISO language support***
Section	Ch 4.14.6 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall support ISO/IEC8859-1 (Western European) and ISO/IEC8859-9 (Latin No. 5) for network and service names and ISO/IEC8859-1 (Western European) and ISO/IEC 8859-4 (North and North-East European) for EIT. Please see Nordig Rules of Operations [2] for details on the length of network and service names.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the IRD is supporting ISO/IEC8859-1 (Western European) and ISO/IEC8859-9 (Latin No. 5) for network and service names and ISO/IEC8859-1 (Western European) and ISO/IEC 8859-4 (North and North-East European) for EIT. **Equipment:**  The TS source shall contain following bytes in network, service name and EIT to indicated character set in use: • ISO/IEC8859 alphabet 1 (Western Europe) • ISO/IEC8859 alphabet 9 (Latin No. 5)

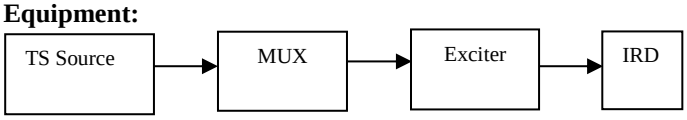
	• ISO/IEC8859 alphabet 4 (North and North-East European) **Test procedure:** 1. Setup the system 2. Lauch the program guide 3. Verify the characters are displayed correctly. **Expected result:** That the IRD is supporting ISO/IEC8859-1 (Western European) and ISO/IEC8859-9 (Latin No. 5) for network and service names and ISO/IEC8859-1 (Western European) and ISO/IEC 8859-4 (North and North-East European) for EIT.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

2.2.1.15 Test cases – Automatic standby

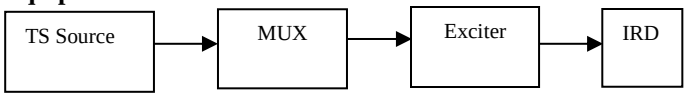
Test Case	***Task 18:1 Automatic standby***
Section	Ch 4.15.1 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall have an option for turning the IRD automatically to standby after a defined time of inactivity. Inactivity is defined as the last time the user pressed a RCU key.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the IRD have an option for turning the IRD automatically to standby after a defined time of inactivity **Equipment:**  **Test procedure:** Verify that the IRD have an option for turning the IRD automatically to standby after a defined time of inactivity **Expected result:** That the IRD have an option for turning the IRD automatically to standby after a defined time of inactivity
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 18:2 Systems menu options***

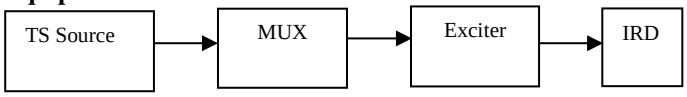
Section	Ch 4.15.2 Basic IRD Specification DTT Norway v3.07
Requirement	The user shall be able to adjust the length of inactivity in the systems menu. As a minimum, the following options shall be available: • 4 hours (default value) • Option to turn the feature off (If not possible to turn off, an option of 8 hours or more shall be available).
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the user is able to adjust the length of inactivity in the systems menu and the that specified values are available **Equipment:**  **Test procedure:** Verify that the user is able to adjust the length of inactivity in the systems menu and the that specified values are available **Expected result:** That the user is able to adjust the length of inactivity in the systems menu and the that specified values are available
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 18:3 Dialogue box 5 minute prior to standby***
Section	Ch 4.15.3 Basic IRD Specification DTT Norway v3.07
Requirement	A dialogue box shall be presented to the user 5 minutes prior to going automatically to standby.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that a dialogue box is presented to the user 5 minutes prior to going automatically to standby. **Equipment:**  **Test procedure:** Verify that a dialogue box is presented to the user 5 minutes prior to going automatically to standby. **Expected result:** That a dialogue box is presented to the user 5 minutes prior to going automatically to standby.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information

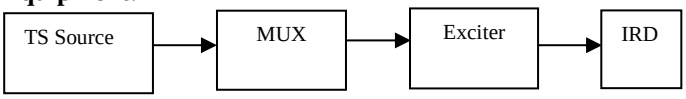
Date		***Sign***	

Test Case	***Task 18:4 Dialogue box content***
Section	Ch 4.15.4 Basic IRD Specification DTT Norway v3.07
Requirement	The dialogue box shall describe that the IRD will turn automatically into standby and the following option shall be presented • Press OK button to prevent the IRD from going to standby.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the dialogue box is describing that the IRD will turn automatically into standby and the specified option is presented **Equipment:**  **Test procedure:** Verify that the dialogue box is describing that the IRD will turn automatically into standby and the specified option is presented **Expected result:** That the dialogue box is describing that the IRD will turn automatically into standby and the specified option is presented
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information

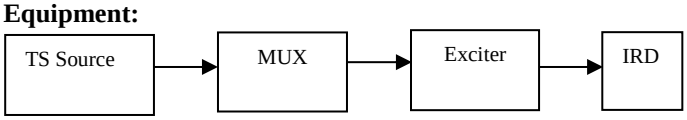
Date		***Sign***	

Test Case	***Task 18:5 Action when OK button is pressed***
Section	Ch 4.15.5 Basic IRD Specification DTT Norway v3.07
Requirement	If the OK button is pressed, the dialogue box shall be removed and the IRD shall not go to standby.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that if the OK button is pressed, the dialogue box is removed and the IRD does not go to standby **Equipment:**  **Test procedure:** Verify that if the OK button is pressed, the dialogue box is removed and the IRD does not go to standby **Expected result:** That if the OK button is pressed, the dialogue box is removed and the IRD does not go to standby
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments

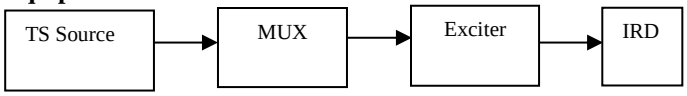
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

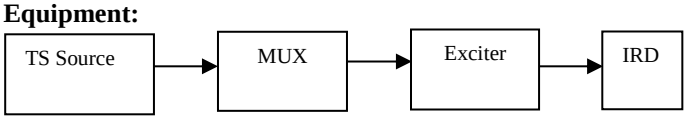
Test Case	***Task 18:6 Action when OK button is not pressed***		
Section	Ch 4.15.6 Basic IRD Specification DTT Norway v3.07		
Requirement	If the OK button is not pressed during the 5 minutes, the IRD shall perform a controlled standby routine.		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test**: To verify that if the OK button is not pressed during the 5 minutes, the IRD does not perform a controlled standby routine. **Equipment:**  **Test procedure:** Verify that if the OK button is not pressed during the 5 minutes, the IRD does not perform a controlled standby routine. **Expected result:** That if the OK button is not pressed during the 5 minutes, the IRD does not perform a controlled standby routine.		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

2.2.1.16 Test cases – Performance

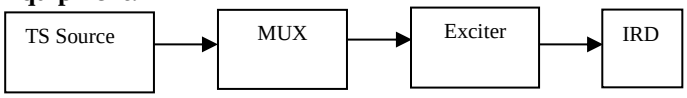
Test Case	***Task 19:1 Power on***		
Section	Ch 4.16.1 Basic IRD Specification DTT Norway v3.07		
Requirement	There shall not be a black/empty screen for more than 20 seconds after power on. The time from power-on until video/audio is present, shall be less than 60 seconds		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test**: To verify the time from power-on until video/audio is present. **Equipment:**  **Test procedure:** 1. Power IRD on 2. Measure the time until there is no black/empty screen		

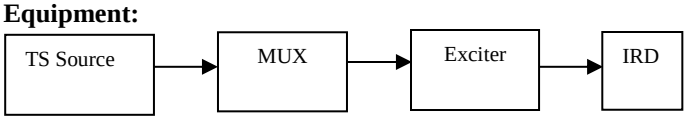
	3. Measure the time until video/audio is present. **Expected result:** The IRD shall display video and audio after maximum 60s, and there shall not be a black/empty screen for more than 20 seconds after power on.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 19:2 Power on progress indication***
Section	Ch 4.16.2 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD should present a progress indication if the power on takes more than 15 s.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the IRD is presenting a progress indication if the power on takes more than 15 s. **Equipment:**  **Test procedure:** Verify that the IRD is presenting a progress indication if the power on takes more than 15 s **Expected result:** That the IRD is presenting a progress indication if the power on takes more than 15 s
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

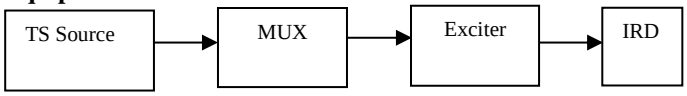
Test Case	***Task 19:3 Standby***
Section	Ch 4.16.3 Basic IRD Specification DTT Norway v3.07
Requirement	Time from standby until video/audio is present shall be less than: 10s or 25s (in case of updates in the network)
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify the time from standby until video/audio is present. **Equipment:**  **Test procedure:** 1. Toggle IRD on

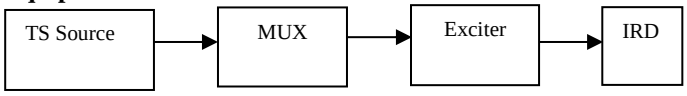
	2. Measure time to when video and audio are present. **Expected result:** The IRD shall display video and audio after maximum • 20 seconds if no network updates are required • 35 seconds if network updates are required
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 19:4 Launch of EPG/ESG***
Section	Ch 4.16.4 Basic IRD Specification DTT Norway v3.07
Requirement	The time for launch of ESG/EPG until data is displayed shall be less than 2s.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify the launch time for ESG/EPG launch. **Equipment:**  **Test procedure:** 1. Setup the system 2. Tune to multiplex containing the EIT data 3. Launch the ESG/EPG 4. Try to evaluate if the time for lauch to displaying the data is maximum 2. **Expected result:** Time for launch of ESG/EPG until data is displayed shall be less than: 2s
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

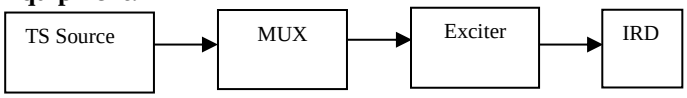
Test Case	***Task 19:5 NIT update***
Section	Ch 4.16.5 Basic IRD Specification DTT Norway v3.07
Requirement	The time for the IRD to perform a NIT update on the NIT actual shall take less than 15s.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the time for the IRD to perform a NIT update on the NIT actual is taking less than 15s **Equipment:**  **Test procedure:**

	Verify that the time for the IRD to perform a NIT update on the NIT actual is taking less than 15s **Expected result:** That the time for the IRD to perform a NIT update on the NIT actual is taking less than 15s
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

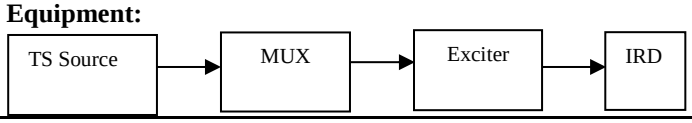
Test Case	***Task 19:6 Service scan***
Section	Ch 4.16.6 Basic IRD Specification DTT Norway v3.07
Requirement	The maximum time for the IRD to perform a full frequency scan shall be 4 minutes**.**
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the maximum time for the IRD to perform a full frequency scan is 4 minutes**.** **Equipment:**  **Test procedure:** Verify that the maximum time for the IRD to perform a full frequency scan is 4 minutes**.** **Expected result:** That the maximum time for the IRD to perform a full frequency scan is 4 minutes**.**
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 19:7 Read and process DVB-SI***
Section	Ch 4.16.7 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall be able to read and process DVB-SI (including EIT) without losing info (i.e. waiting for next cycle loop) with a speed of minimum 6Mbps.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify the maximum bitrate for the DVB-SI data handling. **Equipment:**  TS source containing DVB-SI data at a bit rate of 6 MBit/s (including EIT). **Test procedure:** 1. Setup the system 2. Tune to TS above

	3. Verify if the IRD is able to handle data without losing the data. **Expected result:** IRD is able to handle DVB-SI data with and up to 6MBit/s.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

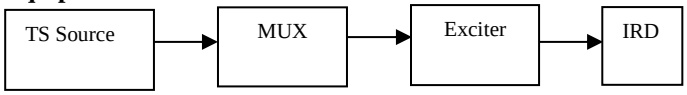
Test Case	***Task 19:8 Audible noise***
Section	Ch 4.16.8 Basic IRD Specification DTT Norway v3.07
Requirement	The IRD shall not generate loader acoustic noise than 23dB(A), measured at 1meter distance in any direction from the IRD. This requirement is also valid for IRDs with PVR capabilities. Measurements and weighting shall be as defined in 0.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the IRD does not generate loader acoustic noise than 23dB(A), measured at 1meter distance in any direction from the IRD **Equipment:**  **Test procedure:** Verify that the IRD does not generate loader acoustic noise than 23dB(A), measured at 1meter distance in any direction from the IRD **Expected result:** That the IRD does not generate loader acoustic noise than 23dB(A), measured at 1meter distance in any direction from the IRD
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

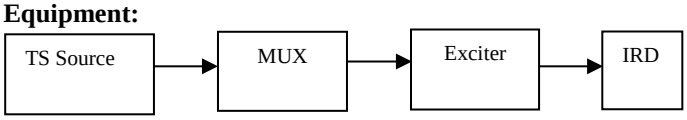
2.2.1.17 Test cases – Visually hearing/impaired

Test Case	***Task 20:1 Support for visually/hearing impaired***
Section	Ch 4.17.1 Basic IRD Specification DTT Norway v3.07
Requirement	It is recommended that the IRD support visually/hearing impaired users (see Appendix B).
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the IRD support visually/hearing impaired users (see Appendix B). **Equipment:** 

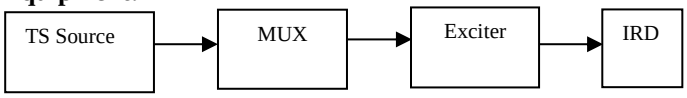
	Test procedure: Verify that the IRD support visually/hearing impaired users (see Appendix B). **Expected result:** That the IRD support visually/hearing impaired users (see Appendix B).
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

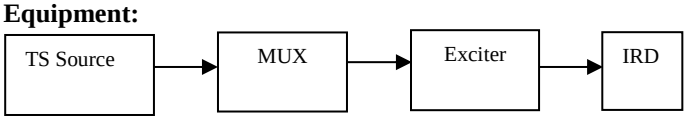
2.2.1.18 Test cases – Default setings

Test Case	***Task 21:1 Default settings***
Section	Ch 4.18.1 Basic IRD Specification DTT Norway v3.07
Requirement	The default settings shall be automatically set and not be a part of the FTI procedure.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that IRD default settings are set automatically and not part of the FTI procedure **Equipment:**  **Test procedure:** Verify that default setting are set automatically and not part of the FTI procedure. **Expected result:** That default setting are set automatically and not part of the FTI procedure.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 21:2 Default settings - Possible to change in system menu***
Section	Ch 4.18.2 Basic IRD Specification DTT Norway v3.07
Requirement	All default parameters shall be possible to change in the system menu.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verity that it is possible to change all default parameters in the system menu **Equipment:**  **Test procedure:**

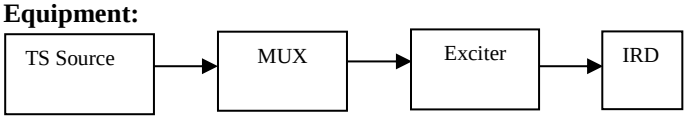
	Verify that it is possible to change all default parameters in the system menu. **Expected result:** That it is possible to change all default parameters in the system menu
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 21:3 Default settings - Country setting***
Section	Ch 4.18.3 Basic IRD Specification DTT Norway v3.07
Requirement	Default country setting shall be Norway
IRD Profile(s)	STB
Test procedure	**Purpose of test**: To verify that default country setting is Norway. **Equipment:**  **Test procedure:** Verify that default country setting is Norway. **Expected result:** That default country setting is Norway.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

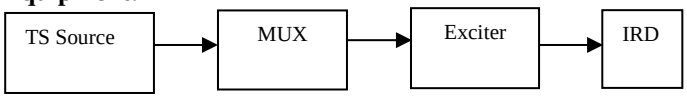
Test Case	***Task 21:4 Default settings - Aspect ratio***
Section	Ch 4.18.4 Basic IRD Specification DTT Norway v3.07
Requirement	Default aspect ratio shall be 16:9
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that default aspect ratio is 16:9 **Equipment:**  **Test procedure:** Verify that default aspect ratio is 16:9 **Expected result:** That default aspect ratio is 16:9
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO**

	Describe more specific faults and/or other information

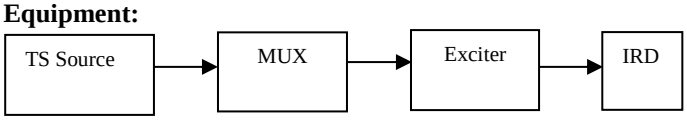
Date		***Sign***	

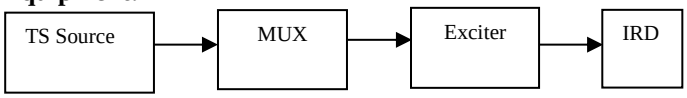
Test Case	***Task 21:5 Default settings - Channel list***
Section	Ch 4.18.5 Basic IRD Specification DTT Norway v3.07
Requirement	Default channel list shall be ASL
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the default channel list is ASL (All services list). **Equipment:**  **Test procedure:** Verify that the default channel list is ASL (All services list). **Expected result:** That the default channel list is ASL (All services list).
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information

Date		***Sign***	

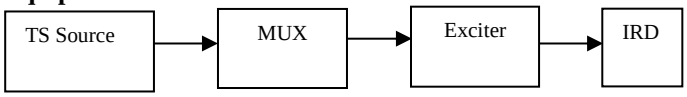
Test Case	***Task 21:6 Default settings – Hard of hearing subtitles***
Section	Ch 4.18.6 Basic IRD Specification DTT Norway v3.07
Requirement	Default setting for Hard of hearing subtitles shall be set to OFF
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that default setting for Hard of hearing subtitles is set to OFF. **Equipment:**  **Test procedure:** Verify that default setting for Hard of hearing subtitles is set to OFF. **Expected result:** That default setting for Hard of hearing subtitles is set to OFF.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information

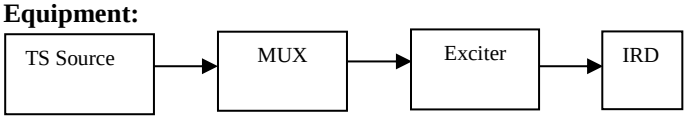
Date		***Sign***	

Test Case	***Task 21:7 Default settings – Subtitling method***
Section	Ch 4.18.7 Basic IRD Specification DTT Norway v3.07
Requirement	Default subtitling method shall be DVB subtitles
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that default subtitling method is DVB subtitles. **Equipment:**  **Test procedure:** Verify that default subtitling method is DVB subtitles. **Expected result:** That default subtitling method is DVB subtitles.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

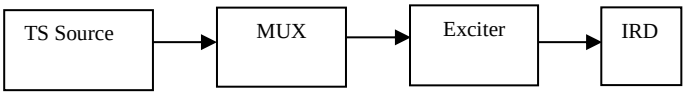
Test Case	***Task 21:8 Default settings – Secondary subtitling method***
Section	Ch 4.18.8 Basic IRD Specification DTT Norway v3.07
Requirement	Secondary subtitling method shall be Teletext subtitles
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that econdary subtitling method is Teletext subtitles. **Equipment:**  **Test procedure:** Verify that econdary subtitling method is Teletext subtitles. **Expected result:** That econdary subtitling method is Teletext subtitles.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

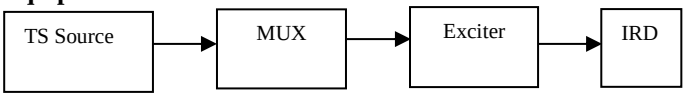
Test Case	***Task 21:9 Default settings – PIN code***
Section	Ch 4.18.9 Basic IRD Specification DTT Norway v3.07
Requirement	The STBs default PIN code shall be 1234.

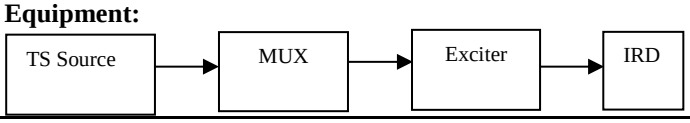
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that the STBs default PIN code is 1234. **Equipment:**  **Test procedure:** Verify that the STBs default PIN code is 1234. **Expected result:** That the STBs default PIN code is 1234.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 21:10 Default settings – HDCP protection***
Section	Ch 4.18.10 Basic IRD Specification DTT Norway v3.07
Requirement	HDCP user setting shall by default be set to ON
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that HDCP user setting is by default set to ON **Equipment:**  **Test procedure:** Verify that HDCP user setting is by default set to ON **Expected result:** That HDCP user setting is by default set to ON
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

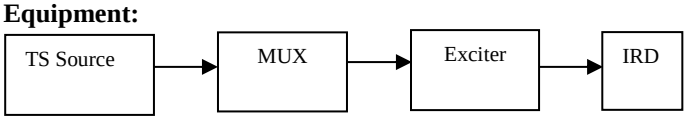
Test Case	***Task 21:11 Default settings – TV SCART***
Section	Ch 4.18.11 Basic IRD Specification DTT Norway v3.07
Requirement	Default TV SCART setting shall be CVBS. If supported by the IRD, it is recommended that both CVBS and RGB are enabled in parallel and that this is the default setting.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that default TV SCART setting is CVBS. If supported by the IRD, to verify that both CVBS and RGB are enabled in parallel and that this is the default setting. **Equipment:**

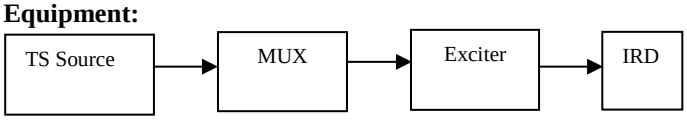
	 **Test procedure:** Verify that default TV SCART setting is CVBS. If supported by the IRD, verify that both CVBS and RGB are enabled in parallel and that this is the default setting. **Expected result:** That default TV SCART setting is CVBS. If supported by the IRD, that both CVBS and RGB are enabled in parallel and that this is the default setting.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 21:12 Default settings – VCR SCART***
Section	Ch 4.18.12 Basic IRD Specification DTT Norway v3.07
Requirement	Default setting for VCR SCART shall be CVBS
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that default setting for VCR SCART is CVBS **Equipment:**  **Test procedure:** Verify that default setting for VCR SCART is CVBS **Expected result:** That default setting for VCR SCART is CVBS
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

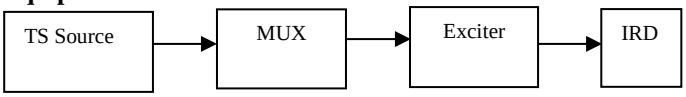
Test Case	***Task 21:13 Default settings – Active antenna***
Section	Ch 4.18.13 Basic IRD Specification DTT Norway v3.07
Requirement	Default setting for power supply for active antenna shall be ON.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that default setting for power supply for active antenna is ON. **Equipment:** 

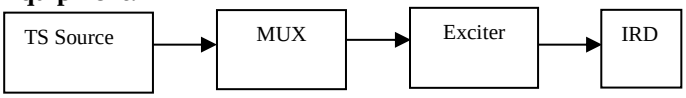
	Test procedure: Verify that default setting for power supply for active antenna is ON. **Expected result:** That default setting for power supply for active antenna is ON.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

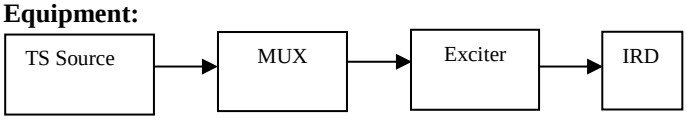
Test Case	***Task 21:14 Default settings – Automatic standby***
Section	Ch 4.18.14 Basic IRD Specification DTT Norway v3.07
Requirement	Default setting for automatic standby shall be 4 hours
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that default setting for automatic standby is 4 hours **Equipment:**  **Test procedure:** Verify that default setting for automatic standby is 4 hours **Expected result:** That default setting for automatic standby is 4 hours
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

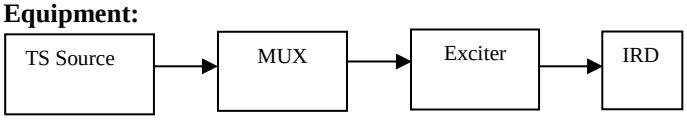
Test Case	***Task 21:15 Default settings – UI language***
Section	Ch 4.18.15 Basic IRD Specification DTT Norway v3.07
Requirement	Default language used in UI shall be Norwegian
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that default language used in UI is Norwegian **Equipment:**  **Test procedure:** Verify that default language used in UI is Norwegian **Expected result:** That default language used in UI is Norwegian
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments

Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

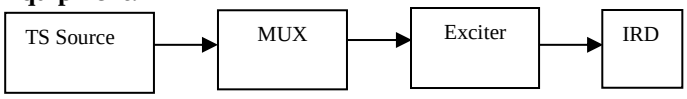
Test Case	***Task 21:16 Default settings – Primary audio track***		
Section	Ch 4.18.16 Basic IRD Specification DTT Norway v3.07		
Requirement	Default primary audio track shall be Norwegian		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test**: To verify that default primary audio track is Norwegian **Equipment:**  **Test procedure:** Verify that default primary audio track is Norwegian **Expected result:** That default primary audio track is Norwegian		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

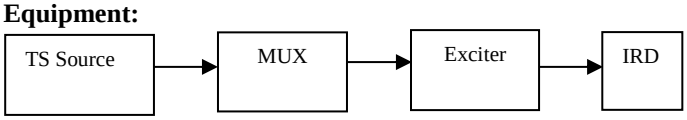
Test Case	***Task 21:17 Default settings – Secondary audio track***		
Section	Ch 4.18.17 Basic IRD Specification DTT Norway v3.07		
Requirement	Default secondary audio track shall be English		
IRD Profile(s)	STB, IDTV		
Test procedure	**Purpose of test**: To verify that default secondary audio track is English **Equipment:**  **Test procedure:** Verify that default secondary audio track is English **Expected result:** That default secondary audio track is English		
Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	

Test Case	***Task 21:18 Default settings – Primary subtitling language***
Section	Ch 4.18.18 Basic IRD Specification DTT Norway v3.07
Requirement	Default primary subtitling language shall be Norwegian
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that default primary subtitling language is Norwegian **Equipment:**  **Test procedure:** Verify that default primary subtitling language is Norwegian **Expected result:** That default primary subtitling language is Norwegian
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 21:19 Default settings – Secondary subtitling language***
Section	Ch 4.18.19 Basic IRD Specification DTT Norway v3.07
Requirement	Default secondary subtitling language shall be English
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that default secondary subtitling language is English **Equipment:**  **Test procedure:** Verify that default secondary subtitling language is English **Expected result:** That default secondary subtitling language is English
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 21:20 Default settings – Default teletext language***
Section	Ch 4.18.20 Basic IRD Specification DTT Norway v3.07
Requirement	Default teletext language shall be Norwegian

IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that default teletext language is Norwegian **Equipment:**  **Test procedure:** Verify that default teletext language is Norwegian **Expected result:** That default teletext language is Norwegian
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

Test Case	***Task 21:21 Default settings – Visually hearing impaired***
Section	Ch 4.18.21 Basic IRD Specification DTT Norway v3.07
Requirement	If the IRD has features to support visually/hearing impaired, ref. appendix B, these functions shall by default be set to OFF.
IRD Profile(s)	STB, IDTV
Test procedure	**Purpose of test**: To verify that if the IRD has features to support visually/hearing impaired, ref. appendix B, these functions are by default set to OFF. **Equipment:**  **Test procedure:** Verify that if the IRD has features to support visually/hearing impaired, ref. appendix B, these functions are by default set to OFF. **Expected result:** That if the IRD has features to support visually/hearing impaired, ref. appendix B, these functions are by default set to OFF.
Test result(s)	
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information
Date	***Sign***

2.3 Task 7: Appendix C, NIT/Service list examples

2.3.1 Test cases

2.3.1.1 Test cases - Appendix C

<table>
<tr><td>Test Case</td><td>Task 22:1 Local services in Rogaland</td></tr>
<tr><td>Section</td><td>Appendix C Basic IRD Specification DTT Norway v3.07</td></tr>
<tr><td>Requirement</td><td>The first example is taken from the “Rogaland” region on the west coast of Norway. This area has a number of transmitters for the “same” multiplex, but there are two local TV services in the region which only has local coverage. As a consequence, the “Mux3” is generated in two variants, which carry a different local TV service.

The two local TV services in the region; “TV Vest” and “TV Haugaland” are both assigned the same channel number in the LCN descriptors in the NIT table. This causes a conflict in the case that the receiver can receive both variants and care must be taken to arrange the channel list correctly. On our example, “TV Vest” is transmitted in transport stream 0x0277 and “TV Haugaland” is in transport stream 0x0278.</td></tr>
<tr><td>IRD Profile(s)</td><td>Basic, IRD, FE</td></tr>
<tr><td>Test procedure</td><td>Purpose of test:
To verify that the IRD shall be able to generate correct channel list in a region where there is collision between two local TV channels in the same region and decide which one to use depending on signal strength/quality.

Equipment:

Test procedure:
1. Playout local TV 1 and 2 stream
2. Change signal parameters accordingly (See table below).
3. Check that correct channel is placed on channel 19.

<table>
<tr><th>TV Haugaland</th><th>TV Vest</th><th>Selected</th><th>Correct</th></tr>
<tr><td>Frequency: 762.000 MHz
Strenght: 100%
Quality: 100%
C/N: 27dB
BER: -7</td><td>Frequency: 546.000 MHz
Strenght: 38%
Quality: 89%
C/N: 20dB
BER: -5</td><td>TV Haugaland (Ch 19)
TV Vest (Ch 22)</td><td>TV Haugaland (Ch 19)</td></tr>
<tr><td>Frequency: 762.000 Mhz
Strenght: 38%
Quality: 87%
C/N: 20dB
BER: -5</td><td>Frequency: 546.000 MHz
Strenght: 100%
Quality: 100%
C/N: 27dB
BER: -7</td><td>TV Vest (Ch 19)
TV Haugaland (Ch 22)</td><td>TV Vest (Ch 19)</td></tr>
<tr><td>Frequency: 546.000 MHz
Strenght: 100%
Quality: 100%
C/N: 27dB
BER: -7</td><td>Frequency: 762.000 Mhz
Strenght: 38%
Quality: 87%
C/N: 20dB
BER: -5</td><td>TV Haugaland (Ch 19)
TV Vest (Ch 22)</td><td>TV Haugaland (Ch 19)</td></tr>
<tr><td>Frequency: 546.000 MHz
Strenght: 38%
Quality: 89%
C/N: 20dB
BER: -5</td><td>Frequency: 762.000 MHz
Strenght: 100%
Quality: 100%
C/N: 27dB
BER: -7</td><td>TV Vest (Ch 19)
TV Haugaland (Ch 22)</td><td>TV Vest (Ch 19)</td></tr>
</table>

Expected result:
IRD is able to select correct local TV channel when LCN collision inside one region</td></tr>
<tr><td>Test result(s)</td><td></td></tr>
<tr><td>Conformity</td><td>☐OK Fault ☐ Major ☐ Minor, define fail reason in comments</td></tr>
<tr><td>Comments</td><td>If possible describe if fault can be fixed with software update: ☐YES☐NO
Describe more specific faults and/or other information</td></tr>
</table>

Date		***Sign***	

Test Case	***Task 22:2 Neighbouring regions and special services***
Section	Appendix C Basic IRD Specification DTT Norway v3.07
Requirement	All regions have its local variant of NRK1, which is common to all transmitters in the region as well as some "special services" that are signalled with LCN in the 900 to 999 range. Many viewers can receive signals from neighbouring regions and the receiver must therefore correctly handle selection of the NRK1 service as well as the special services. The same LCN is assigned to different services in the two regions. This is not seen as a "LCN conflict" and the ASL shall be ordered and numbered with priority to the "favourite region" specified by the user as specified in chapter 4.5.5. This should results in the following ASL in a receiver that places both TV and Radio services in the same list for viewers that can receive both transport streams. Receivers with separate TV and Radio lists (recommended) shall simply split the lists into two. Services from other multiplexes are omitted for clarity.
IRD Profile(s)	Basic, IRD, FE
Test procedure	**Purpose of test**: To verify that the IRD stores NRK1 TV services according to RiksTV's expected channel list from Region 1 and Region 2 in All service list **Equipment:** **Test procedure:** 1. Playout local TV 1 and 2 stream 2. Check that the service list is according to the table below

If "Oslo" is defined as favourite region.		If "Buskerud" is defined as favourite region.	
#	Service	#	Service
1	NRK 1 Østlandssendingen	1	NRK1 Østafjells
2	NRK 2	2	NRK 2
5	TV 3	5	TV 3
6	NRK Super / NRK 3	6	NRK Super / NRK 3
9	Viasat4	9	Viasat4
14	Disney Channel	14	Disney Channel
15	NRK1 Østafjells	15	NRK 1 Østlandssendingen
200	NRK P1 Oslo/Akershus	200	NRK P1 Oslo/Akershus
201	NRK P2	201	NRK P2
202	NRK P3	202	NRK P3
203	NRK mP3	203	NRK mP3
204	P4 Lyden av Norge	204	P4 Lyden av Norge
205	Radio Norge	205	Radio Norge
206	Radio 1 Oslo	206	Radio 1 Oslo
207	NRK Super	207	NRK Super
208	NRK Sport	208	NRK Sport
209	NRK Alltid Nyheter	209	NRK Alltid Nyheter
210	NRK Sámi Radio	210	NRK Sámi Radio
211	NRK Gull	211	NRK Gull
212	NRK Jazz	212	NRK Jazz
213	NRK Folkemusikk	213	NRK Folkemusikk
214	NRK Klassisk	214	NRK Klassisk
215	NRK Stortinget	215	NRK Stortinget
998	NRK Tegnspråk	998	NRK Tegnspråk
999	NRK1 Østnytt	999	NRK1 Østfold
1000	NRK1 Østfold	1000	NRK1 Østnytt

Expected result:
IRD is able to store NRK1 TV services according to RiksTV's expected channel list from Region 1 and Region 2 in All service list

Test result(s)			
Conformity	☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments		
Comments	If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** Describe more specific faults and/or other information		
Date		***Sign***	