

CO-UAEAC-AMHS

Test Specification

730372-TestSpec, 09.04.2024
V0.1

HISTORY CHART

VERSION	DATE	CHANGED CHAPTERS	CAUSE OF CHANGE	AUTHOR
0.1	2023-07-31	All chapters	New Document	NSU

Total number of pages: 214

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CONTENTS

1 Definitions 8

2 Introduction 9

2.1 Purpose 9

2.2 Intended Audience 9

2.3 Referenced Material 9

3 Test Environment 10

3.1 General Test Environment 10

3.2 Setup and Configuration 12

3.3 General Prerequisites 12

4 General Test Cases 13

4.1 GEN_00010 Hardware Deliverables 13

4.2 GEN_00020 Visual Inspection 14

4.3 GEN_00030 Software Deliverables 15

4.4 GEN_00040 Documentation Deliverables 16

5 CCMS Configuration 17

5.1.1 GEN_01010 CCMS: Check Existence of Site(s) 17
5.1.2 GEN_01020 CCMS: Check Existence of Host(s) 18
5.1.3 GEN_01030 CCMS: Check Existence of System(s) 19
5.1.4 GEN_01030 CCMS: Check Existence of Layout(s) 20
5.1.5 GEN_01040 CCMS: Check Existence of User(s) and Role(s) 21
5.1.6 GEN_01050 CCMS: Check Existence and Consistency of Online Help 22
5.1.7 GEN_01060 Check CCMS Web User Interface 23
5.1.8 GEN_01070 Reinstallation of a Workstation 25
5.1.9 GEN_01090 Check NTP (chronyd) Configuration 26
5.1.10 GEN_01110 Collect Information for Platform Debugging 28

5.2 Hypervisor Administration and Configuration 29

5.2.1 ADM_01010 Backing up Configurations of ESXi Servers 29
5.2.2 ADM_01020 Backing up Configurations of Virtual Machines 30
5.2.3 ADM_01030 Reinstallation of OPS ESXi Server 1 31
5.2.4 ADM_01040 Reinstallation of Virtual Machines of OPS ESXi Server 1 32

6 AIDA-NG 34

6.1 General Prerequisites and Test Environment 34

6.2 General 35
6.2.1 AIDA_04010 Groups/Users 35
6.2.2 AIDA_04020 Group Parameters 36
6.2.3 AIDA_04030 Logical Address (LA) Parameter 37
6.3 Routing Parameters 38
6.3.1 AIDA_05010 Routing Indicator Table 38
6.3.2 AIDA_05020 Collective Routing Indicator Table 40
6.3.3 AIDA_05030 LA Diversion Table 42
6.3.4 AIDA_05040 AD Diversion 44
6.3.5 AIDA_05050 Hold and Resume Traffic 45
6.3.6 AIDA_05060 LA Parallel Delivery 46
6.3.7 AIDA_05070 Events 48
6.3.8 AIDA_05080 Retrieving Messages from the Database 50
6.4 Diagnostics and Statistics 51
6.4.1 AIDA_06010 General Diagnosis and Statistics 51
6.4.2 AIDA_06020 Channel Statistics 52
6.4.3 AIDA_06030 System Statistics 53
6.4.4 AIDA_06040 Line Outage Statistics 54
6.4.5 AIDA_06050 CSS Switchover 55
6.4.6 AIDA_06060 Printing (to file or printer) 57
6.5 OSS, Alarms, Logs and Archiving 58
6.5.1 OSS Functions 58
6.5.1.1 AIDA_07010 Check Online Help Feature 58
6.5.1.2 AIDA_07020 Channel Parameters 59
6.5.1.3 AIDA_07030 System Parameters 62
6.5.1.4 AIDA_07040 Interface Parameters 64
6.5.1.5 AIDA_07050 Message Handling Facilities 65
6.5.1.6 AIDA_07060 Traffic Monitoring 67
6.5.2 Alarm Functions 68
6.5.2.1 AIDA_08010 Configure New Alarm 68
6.5.2.2 AIDA_08020 ‘Count Limit’ Alarm 69
6.5.2.3 AIDA_08030 Retrieve Alarms 72
6.5.3 Logs and Archiving Functions 73
6.5.3.1 AIDA_09010 General Log 73
6.5.3.2 AIDA_09020 Message Log 74
6.5.3.3 AIDA_09030 AMHS Message Log 76
6.5.3.4 AIDA_09040 System Log 79
6.5.3.5 AIDA_09050 Archiving 80
6.6 AFTN Procedures 82
6.6.1 AIDA_10010 Sending/Receiving of AFTN Messages 82
6.6.2 AIDA_10020 Address Stripping 84
6.6.3 AIDA_10030 Test Messages 85
6.6.4 AIDA_10040 Corrupted Messages 87
6.6.5 AIDA_10050 Distress Messages 91
6.6.6 AIDA_10060 Channel Check Messages 93
6.6.7 AIDA_10070 Reverse Transmission 96
6.6.8 AIDA_10080 AFTN/Email Gateway 98
6.6.9 AIDA_10090 Attribute Routing 100
6.7 AIDA-NG Queues 102
6.7.1 AIDA_11010 Congested Queue 102

6.7.2 AIDA_11020 Non-Routable Queue 105

6.8 AMHS / X.400 Functions 107
6.8.1 AIDA_12010 AMHS/X.400 Configuration 107
6.8.2 AIDA_12020 Send AMHS Message 109
6.8.3 AIDA_12021 Send Binary Message in AIDA-NG 112
6.8.5 AIDA_12030 X.400 P1 Connection 114
6.8.6 AIDA_12040 X.400 P3 Connection 115
6.8.7 AIDA_12050 X.400/AFTN Diversion 116
6.8.8 AIDA_12060 AMC Import 118

6.9 Conversions 119
6.9.1 AIDA_13001 X400CONV TAC to IWXXM 119
6.9.2 AIDA_13002 X400CONV IWXXM to TAC 120

6.10 Performance 121
6.10.1 Specific Test Prerequisites and Test Setup 121
6.10.2 Detailed Setup 121

7 CADAS-ATS (COMSOFT Aeronautical Data Access System – Air Traffic Services) 123

7.1 CADAS-ATS Test Environment 123
7.1.1 System Parameters 123
7.1.2 Configuration Overview 124
7.1.3 Mailbox Configuration 125
7.1.3.1 Basic Mailbox Configuration 125
7.1.3.2 Special Mailboxes Configuration 125
7.1.4 Profile Configuration 126
7.1.4.1 Basic Profile Configuration 126
7.1.4.2 Special Profile Configuration 129
7.1.5 User Configuration 130
7.1.5.1 Basic User Configuration 130

7.2 CADAS-ATS Administrators Terminal 131
7.2.1 GEN_14010 CADAS-ATS Login/Logout 131
7.2.2 GEN_14020 CADAS-ATS Add/Delete an Administrator 132
7.2.3 GEN_14030 CADAS-ATS Add/Delete Mailbox 134
7.2.4 GEN_14050 CADAS-ATS System Status 136
7.2.5 GEN_14060 Idle Logout 137

7.3 CADAS-ATS Center Terminal 139
7.3.1 GEN_16010 Offline Login 139
7.3.2 GEN_16020 Mailbox Folder Message 141
7.3.3 GEN_16030 Move Messages in Folder 144
7.3.4 GEN_16040 Filter Messages in Folder 146
7.3.5 GEN_16050 Custom Message Types 148
7.3.6 GEN_16060 Messages Auto Forward 150
7.3.7 GEN_16070 Auto Read Acknowledge 152
7.3.8 GEN_16080 Free Text Message Entry 153
7.3.9 GEN_16090 Message Retrieval 155
7.3.10 GEN_16100 Printing 157
7.3.11 GEN_16120 Preferential Routes 159
7.3.12 GEN_16130 Sending / Receiving NOTAM (related) messages 162
7.3.13 GEN_16140 NOTAM access rights 164

7.3.14 Alarms 167
7.3.14.1 GEN_16151 CADAS-ATS Temporarily Mute Alarm 167
7.3.14.2 GEN_16152 CADAS-ATS Permanently Mute Alarm 168
7.4 CADAS-ATS AMHS 169
7.4.1 GEN_18040 CADAS-ATS Add an Address Book Entry (Free Address) 169
7.4.2 GEN_18045 AFTN/AMHS message to external Partner 171
7.4.3 GEN_18050 CADAS-ATS RN Requests and RN Generation 174
7.4.4 GEN_18060 CADAS-ATS NRN Requests and NRN Generation 175
7.4.5 GEN_18070 CADAS-ATS Probes and Delivery Reports 177
7.4.6 GEN_18080 CADAS_ATS Probes and Non Delivery Reports 179
7.4.7 GEN_18090 CADAS-ATS Handling of Primary and Copy Recipients 181
7.4.8 GEN_18110 CADAS-ATS File Attachments 183
7.4.9 GEN_18120 AMHS IHE Extension 185
7.4.10 GEN_18130 Configure AMC Tables Import 187
7.4.11 GEN_18140 AMC Tables Handling 188
7.5 CADAS-ATS IWXXM 189
7.5.1 GEN_19010 RQX Form 189
7.5.2 GEN_19020 IWXXM Viewer 190
8 CNMS (COMSOFT Network Management System) 193
8.1 Test Cases 193
8.1.1 CNMS_01010 Correct CNMS Startup 193
8.1.2 CNMS_01020 CNMS Navigation 194
8.1.3 CNMS_01030 Server Hardware Supervision 196
8.1.4 CNMS_01040 Linux System Supervision 198
8.1.5 CNMS_01060 AIDA-NG Monitoring 201
8.1.6 CNMS_01100 CADAS-ATS Monitoring 203
9 Reliability 206
9.1.1 REL_01010 AIDA-NG Redundancy 206
9.1.2 REL_01020 CADAS-ATS Redundancy 208
9.1.3 REL_01040 Network Redundancy 210
9.1.4 REL_01050 Power Line Redundancy 211
9.1.5 REL_01060 System Run-Up 212
9.1.6 REL_01070 Full Restart of System 213
9.1.7 REL_01080 Loss of external NTP server 214

ILLUSTRATIONS

Figure 1: Test Environment for the CO-UAEAC-AMHS FAT 11

TABLES

Table 1: Groups, mailboxes, profiles, users – relationships 124

1 Definitions

For editorial reasons, the following customer-specific parameters are substituted further on in this document by general definitions whereas:

‘Customer’ stands for Aerocivil Colombia.

‘Country’ stands for the country of Aerocivil Colombia, i.e. Colombia.

‘FCO’ stands for Frequentis Comsoft GmbH.

‘Project’ is the scope of this offer referred to by FCO as CO-UAEAC-AMHS.

‘System’ represents all equipment and components delivered under this Project.

2 Introduction

2.1 Purpose

This document is part of the Project test documentation.

The Test Specification provides test procedures (“test cases” for Project) and the expected outcome of the tests.

Key stakeholders for this document include:

- the testing team,
- Customer and FCO project management,
- Customer and FCO quality management.

2.2 Intended Audience

This document is addressed to the key stakeholders for Project on Customer and FCO side.

Furthermore, the document is addressed to the persons who want to get familiar with the test strategy of the Project.

2.3 Referenced Material

The standards and other documents listed here are considered when applying these test definitions. If no explicit revision is given, always the latest revision applies.

Ref. No.	Document	Document Identifier
[R1]	IEEE Standard Glossary of Software Engineering Terminology	ANSI/IEEE Std. 610.12
[R2]	CO-UAEAC-AMHS Glossary TBD	CO-UAEAC-AMHS-GLO TBD
[R3]	TBD	TBD

3 Test Environment

3.1 General Test Environment

In general, following components are part of the test environment:

- System under Test (SUT): CO-UAEAC-AMHS system
- AIDA-NG test partners A & B simulating other FIR communication partner routed via the Default Gateway
- NTP time sources via Gateway into the laboratory network

The SUT consists of the original equipment which will later be installed and integrated at the customer's site. According to the underlying test plan (TEP) not all components of the new AMHS system will be available for FAT.

The following Figure 1 shows the general test environment for CO-UAEAC-AMHS system:

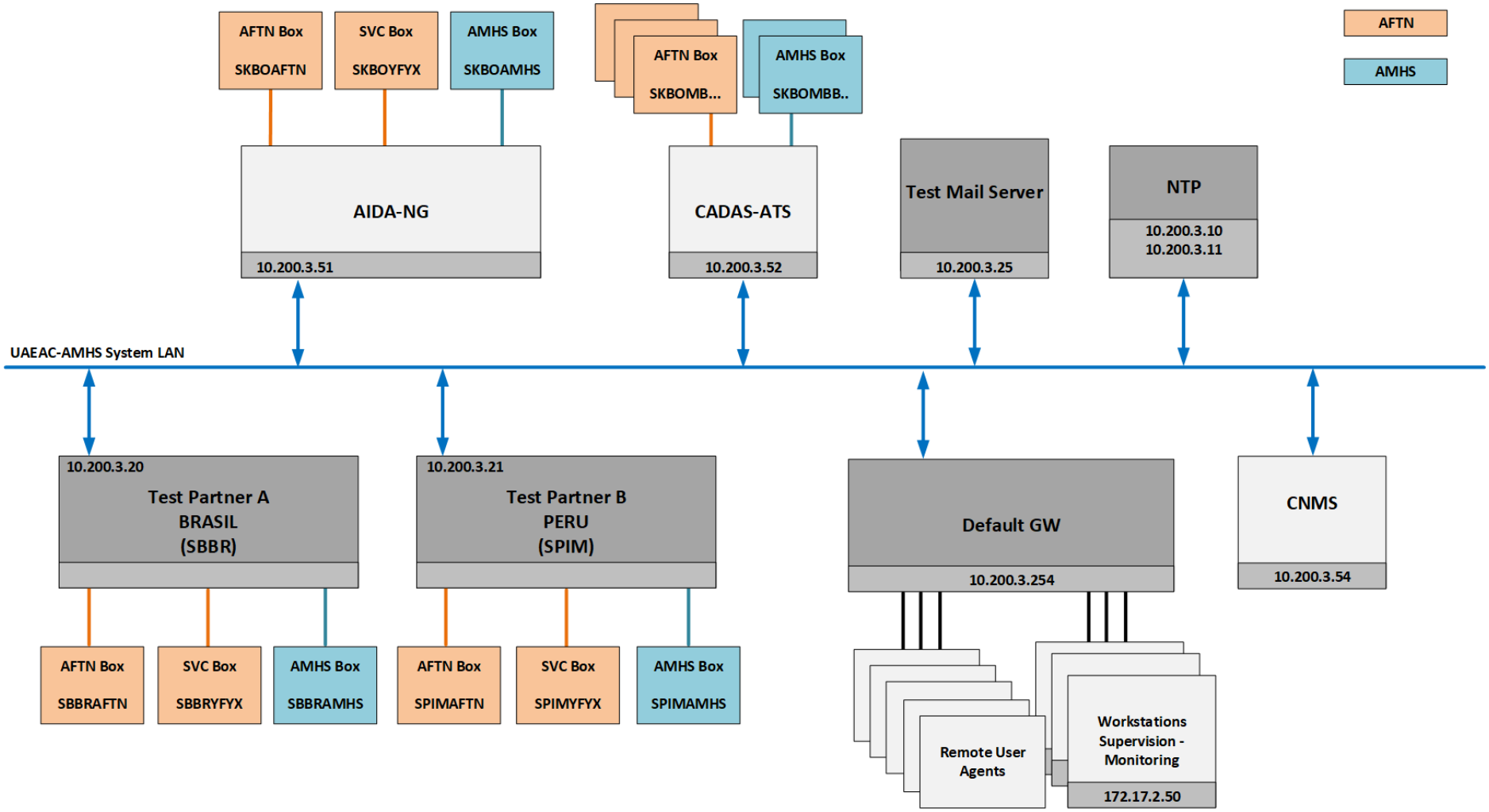


Figure 1: Test Environment for the CO-UAEAC-AMHS FAT

3.2 Setup and Configuration

The test cases specified hereinafter will be performed on a particular SUT as written in the description of the test case.

There are two real Servers which are used as test partners. Each test partner provides AFTN and AMHS/X.400 connection simulating two countries. Test Partner A (TPA) is simulating Brasil while Test Partner B (TPB) is simulating Peru.

- Test partner A “BRASIL” is connected via:
    - One LAN connection for AFTN/X.400/AMHS connections
- Test partner B “PERU” connected via:
    - One LAN connection for AFTN/X.400/AMHS connections

Following logical connections (LAs) are available between SUT and Test partner “**Brasil**”:

- TCP – AFTN connections – ‘LA_AFTN_TCP_BRASIL’
- TP0 over TCP (AMHS) – ‘LA_X400_P1_BRASIL’

Following logical connections (LAs) are available between SUT and Test partner “**Peru**”

- TCP – AFTN connections – ‘LA_AFTN_TCP_PERU’
- TP0 over TCP (AMHS) – ‘LA_X400_P1_PERU

Another virtual machine inside the FCO virtual environment is used as **Test Mail Server**. This Test Mail server provide a SMTP connection simulating an external mail server.

Following logical connection (LA) is available between SUT and Test Mail Server:

- TCP – AFTN - SMTP connections – ‘LA_SMTP_TESTMAIL’

3.3 General Prerequisites

To perform the test procedures, the AMHS System must have been installed and integrated in the FAT environment at FCO premises.

A description of the prerequisites and settings of the test environment for the respective applications are described in the individual chapters.

4 General Test Cases

4.1 GEN_00010 Hardware Deliverables

Test Case Description		
ID / Version	**GEN_00010**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	system inspection	

Test Environment Description	
System Under Test	all
Environment Description	n/a
Test Data	see test procedure
Configuration Reference	n/a

Test Description	
Description	Verify that all hardware components of the system are present and under configuration management
Item / Feature Under Test	
Prerequisites / Preparation	

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Verify that all hardware components are present and labelled (compare hardware to list of hardware deliverables from the contract).	All hardware is present.
2	Use the Project Hardware CID to verify that the complete hardware is under configuration management.	Tested components are present and have the correct serial number.
Comments:		

4.2 GEN_00020 Visual Inspection

Test Case Description		
ID / Version	**GEN_00020**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	system inspection	

Test Environment Description	
System Under Test	all
Environment Description	n/a
Test Data	see test procedure
Configuration Reference	n/a

Test Description	
Description	Verify that the system is in a good condition
Item / Feature Under Test	
Prerequisites / Preparation	

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Visually inspect the OPS system. Inspect the systems for the workmanship, absence of damages like scratches or cracks.	All the equipment is brand new, undamaged and in good condition.
2	Visually inspect the TEE system. Inspect the systems for the workmanship, absence of damages like scratches or cracks.	All the equipment is brand new, undamaged and in good condition.
Comments:		

4.3 GEN_00030 Software Deliverables

Test Case Description		
ID / Version	**GEN_00030**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	system inspection	

Test Environment Description	
System Under Test	all
Environment Description	n/a
Test Data	see test procedure
Configuration Reference	n/a

Test Description	
Description	Verify that all software components of the system are present
Item / Feature Under Test	
Prerequisites / Preparation	

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Verify that the set(s) of the Project Software Release are available.	Each set holds one **Software DVD** (with the application software and configurations) and the **Software Release Document**
2	Verify that the software versions as detailed in the Project Software Release Document are installed on the system.	The software versions from the DVDs are installed.
Comments:		

Frequentis General

4.4 GEN_00040 Documentation Deliverables

Test Case Description		
ID / Version	**GEN_00040**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	system inspection	

Test Environment Description	
System Under Test	all
Environment Description	n/a
Test Data	see test procedure
Configuration Reference	n/a

Test Description	
Description	Verifies that the provided system documentation is complete
Item / Feature Under Test	
Prerequisites / Preparation	

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Verify provided Project system documentation against Documentation CID.	Documentation is complete.
Comments:		

Frequentis General

5 CCMS Configuration

5.1.1 GEN_01010 CCMS: Check Existence of Site(s)

Test Case Description		
ID / Version	**GEN_01010**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Checks whether the Sites configuration is present or not
Item / Feature Under Test	
Prerequisites / Preparation	CCMS configured as detailed in the AAD. A host with access to CCMS WebUI.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Start the CCMS WebUI “Applications / CCMS / WebUI”. Enter the startup password and click Sign in.	The CCMS Web User Interface appears.
2	Click “Edit Configuration -> Sites”. Select a site and click Edit.	The site configuration is shown and can be edited.
Comments:		

5.1.2 GEN_01020 CCMS: Check Existence of Host(s)

Test Case Description		
ID / Version	**GEN_01020**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Checks whether the Host configuration is present or not
Item / Feature Under Test	
Prerequisites / Preparation	CCMS configured as detailed in the AAD. A host with access to CCMS WebUI.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Start the CCMS WebUI “Applications / CCMS / WebUI”. Enter the startup password and click Sign in.	The CCMS Web User Interface appears.
2	Click “Edit Configuration -> Hosts”. Select a host and click Edit.	The host configuration is shown and can be edited.
Comments:		

5.1.3 GEN_01030 CCMS: Check Existence of System(s)

Test Case Description		
ID / Version	**GEN_01030**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Checks whether the System configuration is present or not
Item / Feature Under Test	
Prerequisites / Preparation	CCMS configured as detailed in the AAD. A host with access to CCMS WebUI.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Start the CCMS WebUI “Applications / CCMS / WebUI”. Enter the startup password and click Sign in.	The CCMS Web User Interface appears.
2	Click “Edit Configuration”. Select a product, then a system (eg. AIDA-NG -> AIDA_NG) and click Edit.	The system configuration is shown and can be edited.
Comments:		

Frequentis General

5.1.4 GEN_01030 CCMS: Check Existence of Layout(s)

Test Case Description		
ID / Version	**GEN_01030**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Checks whether the Layouts configuration is present or not
Item / Feature Under Test	
Prerequisites / Preparation	CCMS configured as detailed in the AAD. A host with access to CCMS WebUI.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Start the CCMS WebUI “Applications / CCMS / WebUI”. Enter the startup password and click Sign in.	The CCMS Web User Interface appears.
2	Click “Edit Configuration -> Layouts”. Select a layout and click Edit.	The layout configuration is shown and can be edited.
Comments:		

5.1.5 GEN_01040 CCMS: Check Existence of User(s) and Role(s)

Test Case Description		
ID / Version	**GEN_0140**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Checks the users Roles and Permission Functions
Item / Feature Under Test	
Prerequisites / Preparation	CCMS configured as detailed in the AAD. A host with access to CCMS WebUI.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Start the CCMS WebUI “Applications / CCMS / WebUI”. Enter the startup password and click Sign in.	The CCMS Web User Interface appears.
2	Click “Edit Configuration -> User Management: Permissions”.	A list with all active permissions is shown.
3	Click “User Management: Roles”.	All list with defined roles is shown.
4	Click “User Management: Users”.	All list with define user(s) is shown.
Comments:		

5.1.6 GEN_01050 CCMS: Check Existence and Consistency of Online Help

Test Case Description		
ID / Version	**GEN_01050**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Checks whether the Online Help is available
Item / Feature Under Test	
Prerequisites / Preparation	CCMS configured as detailed in the AAD. A host with access to CCMS WebUI.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Start the CCMS WebUI “Applications / CCMS / WebUI”. Enter the startup password and click Sign in.	The CCMS Web User Interface appears.
2	Edit one of the items, eg. a host.	The help description of the fields is shown.
3	Cancel (or Save) the configuration.	The help description is no longer displayed.
4	Open Applications -> CCMS -> CCMS Help	A browser opens the CCMS online help.
Comments:		

Frequentis General

5.1.7 GEN_01060 Check CCMS Web User Interface

Test Case Description		
ID / Version	**GEN_01060**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Checks the behaviour of the web user interface
Item / Feature Under Test	
Prerequisites / Preparation	CCMS configured as detailed in the AAD. A host with access to CCMS WebUI.

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Test Procedure		
Step	**Test Action**	**Expected Results**
1	Start the CCMS WebUI “Applications / CCMS / WebUI”. Enter the startup password and click Sign in.	The CCMS Web User Interface appears.
2	Click “Edit Configuration -> Hosts”. Select a host and click Edit.	The host configuration is shown and can be edited.
3	Click “Save”.	The configuration is saved. The Web User Interface will not complain even if there were no changes done.
4	Go back to the Configuration Overview.	The Status shows: The edited configuration has uncommitted changes.
5	Under Commit, click Commit Changes.	The changes are committed. The status shows: The edited configuration is different from the lead configuration.
6	Click “Activate the Edited Configuration Now” and confirm the popup confirmation.	The configuration is activated. Note: It may take some time if not all startup servers are reachable. The CCMS Web Interface returns to the “Home” page. Status of the lead configuration and the local configuration is shown. The hosts which need to be reconfigured are listed.
7	Click “Host operations” under Control Hosts and Systems.	Info page appears: Your current local configuration is different from the lead configuration.
8	Click “Update Local Configuration”	The local configuration is updated. Host Operations page appeared.
9	Select a site, or a hostgroup or a host and click “Reconfigure Hosts”. Confirm the popup window.	The host reconfiguration started.
Comments:		

Frequentis General

5.1.8 GEN_01070 Reinstallation of a Workstation

Test Case Description		
ID / Version	**GEN_01070**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Reinstallation of a platform via Kickstart DVD
Item / Feature Under Test	
Prerequisites / Preparation	The latest Kickstart / OS DVD and the current CCMS Administrator Manual.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Follow the steps in the CCMS Administrator Manual to reinstall the host (Reinstall or Replace a Host).	The Linux operating system boots after installation and Frequentis Comsoft Applications assigned to the host get started (configurable).
Comments:		

Frequentis General

5.1.9 GEN_01090 Check NTP (chronyd) Configuration

Test Case Description		
ID / Version	**GEN_01090**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Checks if the chrony.conf is set correctly
Item / Feature Under Test	
Prerequisites / Preparation	CCMS configured as detailed in the AAD. A host with access to CCMS WebUI.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Start the CCMS WebUI “Applications / CCMS / WebUI”. Enter the startup password and click Sign in.	The CCMS Web User Interface appears.
2	Click “Edit Configuration -> Sites”. Select the current site and check the NTP servers.	The site configuration, including the NTP servers appears. The NTP configuration is correct.
3	In one of the startup hosts, open a Linux terminal and run `chronyc sources -v`	The configured NTP servers are used as time source
4	In one of the non-startup hosts, open a Linux terminal and run `chronyc sources -v`	The startup servers are used as time source (configurable). Note: it is also possible to configure the non-startup hosts to synchronize directly to the NTP servers.
Comments:		

Frequentis General

5.1.10 GEN_01110 Collect Information for Platform Debugging

Test Case Description		
ID / Version	**GEN_01110**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Gather information about the platform and applications
Item / Feature Under Test	
Prerequisites / Preparation	A platform with an installed CCMS

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Follow the steps in the CCMS Administrator Manual in section “Collect Debug Information for FCO Support” (sos report).	After running “sosreport” successfully, a compressed archive should have been written to the disc.
2	Use available tools (for example unzip or tar) from Linux to check the resulting compressed file.	The compressed file should contain all necessary files for a problem report. As it collects files for different systems it is not possible to state all relevant files included.
Comments:		

5.2 Hypervisor Administration and Configuration

5.2.1 ADM_01010 Backing up Configurations of ESXi Servers

Test Case Description		
ID / Version	**ADM_01010**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Save changed configuration of ESXi servers
Item / Feature Under Test	
Prerequisites / Preparation	CO-UAEAC-AMHSESXi Administrators Guide

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Save the configuration of OPS ESXi server 1 as described in the CO-UAEAC-AMHS User Manual, section “Hypervisor Configuration Backup”.	The configuration of OPS ESXi server 1 is saved in <pwd>/ESXi/<ESXi management IP>.gz
2	Repeat procedure for OPS ESXi server 2.	Similar result as above
Comments:		

5.2.2 ADM_01020 Backing up Configurations of Virtual Machines

Test Case Description		
ID / Version	**ADM_01020**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Save configuration of Virtual Machines from ESXi servers.
Item / Feature Under Test	
Prerequisites / Preparation	CO-UAEAC-AMHS ESXi Administrators Guide

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Save the configuration of virtual machines from OPS ESXi server 1 as described in the CO-UAEAC-AMHSUser Manual, section “VM Configuration Backup”.	The configurations of the virtual machines from OPS ESXi server 1 are saved under <pwd>/VMX/<ESXi management IP>/
2	Repeat procedure to save configuration of virtual machines from OPS ESXi server 2.	Similar result as above
Comments:		

5.2.3 ADM_01030 Reinstallation of OPS ESXi Server 1

Test Case Description		
ID / Version	**ADM_01030**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Reinstallation of ESXi server from DVD
Item / Feature Under Test	
Prerequisites / Preparation	CO-UAEAC-AMHS ESXi Administrators Guide

Test Procedure

Step	Test Action	Expected Results
1	Install the spare part server as OPS ESXi server 1 as described in CO-UAEAC-AMHSUser Manual, section “Hypervisor Installation”.	The spare part server is successfully installed as OPS ESXi server 1
2	Follow the steps in the CO-UAEAC-AMHSUser Manual, section “Initial Hypervisor Configuration” to configure the initial settings of OPS ESXi server 1.	The ESXi initial configuration of OPS server 1 is restored.
3	Follow the steps the CO-UAEAC-AMHSUser Manual, section “Hypervisor Configuration Restoration” to restore configuration of OPS ESXi server 1.	The ESXi configuration of OPS server 1 is restored.
Comments:		

5.2.4 ADM_01040 Reinstallation of Virtual Machines of OPS ESXi Server 1

Test Case Description		
ID / Version	**ADM_01040**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Reinstallation of ESXi server from DVD
Item / Feature Under Test	
Prerequisites / Preparation	CO-UAEAC-AMHS ESXi Administrators Guide OPS ESXi Server 1 is installed, and the ESXi configurations are restored.

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Restore the virtual machines configuration by following the steps in CO-UAEAC-AMHSUser Manual, section “VM Configuration Restoration”	The configurations of the VMs in OPS ESXi server 1 are restored.
2	Copy the kickstart and linux OS iso images from the data DVD to the OPS ESXi server 1 datastore as described in CO-UAEAC-AMHSUser Manual, section “Copy ISO images to the ESXi hosts”	The iso images are copied to the datastore.
3	Follow the steps in the CO-UAEAC-AMHS User Manual, section “Linux Operating System Installation (VM)” to reinstall the virtual machines	The Linux operating system of virtual machines boots after installation.
Comments:		

6 AIDA-NG

6.1 General Prerequisites and Test Environment

Prerequisites for tests are detailed in the test cases, where necessary.

Two test simulators (“Test Partner”) will be used where necessary (see test description) to inject messages to the SUT (**S**ystem **U**nder **T**est). The Test Partners will connect to the SUT via serial and/or TCP/IP connections.

The SUT will simulate **COLOMBIA** system with AFTN prefix **SKBO** and system mailboxes:

- AFTN: SKBOYFYX, SKBOAFTN
- AFTN SVC: SKBOYFYF
- AMHS (CAAS): /C=XX/A=ICAO/P=COLOMBIA/O=SKED/OU1=SKBO/CN=SKBOAMHS/

Test Partner A will simulate a system in **BRASIL** with AFTN prefix **SBBR** and system mailboxes:

- AFTN: SBBRYFYX, SBBRAFTN
- AFTN SVC: SBBRYFYF
- AMHS (CAAS): /C=XX/A=ICAO/P=BRASIL/O=SBBR/OU1=SBBR**/CN=SBBRAMHS/**

Test Partner B will simulate a system in **PERU** with AFTN prefix **SPIM** and system mailboxes:

- AFTN: SPIMYFYX, SPIMAFTN
- AFTN SVC: SPIMYFYF
- AMHS (CAAS): /C=XX/A=ICAO/P=PERU/O=SPIM /OU1=SPIM/CN=SPIMAMHS/

6.2 General

6.2.1 AIDA_04010 Groups/Users

Test Case Description		
ID / Version	**AIDA_04010**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	All
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Add/Delete Groups and Users
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Go to Site & User Parameters → Group Table and add / delete a group.	A group is added / deleted.
2	Go to Site & User Parameters → User Table and add / delete a user in a group.	A user in a group is added / deleted.

6.2.2 AIDA_04020 Group Parameters

Test Case Description		
ID / Version	**AIDA_04020**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	All
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Modify Group parameters
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Go to Site & User Parameters → Group Table and modify parameters in an existing group.	Group parameters are modified.

Frequentis General

6.2.3 AIDA_04030 Logical Address (LA) Parameter

Test Case Description		
ID / Version	**AIDA_04030**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	All
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Modify LA Parameter
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Go to System Parameters → LA Table and Modify an LA parameter and test the modification.	Modification of an LA parameter is possible.

6.3 Routing Parameters

6.3.1 AIDA_05010 Routing Indicator Table

Test Case Description		
ID / Version	**AIDA_05010**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	All
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Add/Delete an entry in the Routing Indicator Table
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS.

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Go to System Parameters → AFTN → AFTN Routing Indicator Table. Add entries in the Routing Indicator Table and test them: Routing Indicators to enter: • **SBBRBAF → LA_TCP_BRASIL** • **SBBRBEST → LA_TCP_BRASIL** • **LOOPB → LA_TCP_BRASIL** • **SPIMB → LA_TCP_PERU** • **SPIMBBBB → LA_TCP_PERU** • **SPIMLLLL → LA_TCP_PERU**	The new entries in the Routing Indicator Table are made. Routing is performed according to the settings. Routing Indicators have up to 8 letters; if several indicators match an address than the best matching RI is used.
2	disable the destinations LAs from step 1	LAs disabled and disconnected
3	create AFTN message to RIs from step 1	One pending message on each of the LAs
4	enable the destinations LAs from step 1	messages are transferred
5	Ctrl-select the created routing indicators in the Routing Indicator Table. Disable them at once.	All routing indicators are disabled at once.
6	Delete the entries in the Routing Indicator Table.	The entries of the Routing Indicator Table are deleted.

6.3.2 AIDA_05020 Collective Routing Indicator Table

Test Case Description		
ID / Version	**AIDA_05020**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Add/Delete an entry in the Collective Routing Indicator Table
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS.

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Go to System Parameters → AFTN → AFTN Routing Indicator Table. Routing Indicators to enter: • **SB → LA_TCP_BRASIL** • **SPIM → LA_TCP_PERU**	The new entries in the Routing Indicator Table are made. Routing is performed according to the settings
2	Add an entry in the Collective Routing Indicator Table and test it. • Collective RI: **COLLROUT** • Addresses: **LOOOXXXX** **LOOPAAFX** **SBBRXXXX** **SBBRTEST**	A new entry in the Collective Routing Indicator Table is made. Collective routing is performed according to the settings:
3	Disable Legacy LAs to BRASIL and PERU	LAs are disabled
4	Send a message **COLLROUT**. Retrieve the message and trace it.	messages are pending
5	Enable Legacy LAs to BRASIL and PERU	messages are transferred
6	Delete an entry in the Collective Routing Indicator Table.	An entry of the Collective Routing Indicator Table is deleted.

6.3.3 AIDA_05030 LA Diversion Table

Test Case Description		
ID / Version	**AIDA_05030**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	All
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Create a diversion route in the LA Diversion Table
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS.

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Create a new diversion route (**System Parameters → General Routing → LA Diversion**) and divert all outgoing traffic with destination Test Partner A to Test Partner B: • Destination LA: **LA_TCP_BRASIL** • Diversion LA: **LA_TCP_PERU** • Send test messages from SUT to **SBBRAFTN**	A new diversion route is created, all messages which are routed to the LA specified in the Routing Indicator Table are now routed to the diversion LA as long as the diversion is enabled
2	Set a filter (e.g. with filter criteria “search text”: “test”) and send a test message for which the filter matches. Send a test message for which the filter does not match.	Messages are routed according to the configured filter.
3	Delete the entry	The entry of the LA Diversion Table is deleted.

6.3.4 AIDA_05040 AD Diversion

Test Case Description		
ID / Version	**AIDA_05040**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	All
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Create a diversion route in the AFTN Address Diversion Table
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Create a new AD diversion (**System Parameters -> AFTN -> AFTN Routing Indicator Diversion Table**) and divert all traffic send to "**SBBR**" to the **LA_TCP_PERU**: • Routing Indicator: **SBBR** • Destination LA: **LA_TCP_PERU** Send test messages from SUT to **SBBRAFTN**	A new AD diversion is created. All messages which are routed to the AFTN AD "**SBBR**" are now routed to the diversion LA if the diversion is enabled
2	Delete the entry	The entry of the AFTN Address Diversion Table is deleted.

6.3.5 AIDA_05050 Hold and Resume Traffic

Test Case Description		
ID / Version	**AIDA_05050**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Suspend and Resume Traffic on a Channel
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS.

Test Procedure

Step	Test Action	Expected Results
1	Send Messages with a message generator from Test Partner A over the SUT to a Test Partner B: Enable **LA_AIDA_AFTN_LOAD (System Parameters → LA Table**) on Test Partner A.	The Messages are received on Test Partner B. This can be verified with a monitoring session.
2	Disable the LA on the SUT to the Test Partner B. (**LA_TCP_PERU**)	The messages are no longer received on the Test Partner B. The messages are queued (“traffic is suspended”) on the SUT in the Congested Queue.
3	Enable the LA again.	The messages are sent to the Test Partner B (“traffic is resumed”).
4	Disable **LA_AIDA_AFTN_LOAD** on Test Partner A.	Traffic generation stops.

Frequentis General

6.3.6 AIDA_05060 LA Parallel Delivery

Test Case Description		
ID / Version	**AIDA_05060**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Create a message copy with LA Parallel Delivery
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS; check that **SBBRTEST** is routed to **LA_TCP_BRASIL**.

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Create a new LA Parallel Delivery entry to copy all traffic going to Test Partner A also to Test Partner B (**System Parameters → General Routing → Parallel Delivery Parameter**): • Message Type: **AFTN** • Destination LA: **LA_TCP_BRASIL** • Parallel Delivery LA: **LA_TCP_PERU**	A new LA Parallel Delivery is created.
2	Send messages from SUT to **SBBRTEST** and verify the result.	All messages which are routed to the **LA_TCP_BRASIL** are now additionally routed to the **LA_TCP_PERU** as long as the parallel delivery is enabled
3	Set a filter (e.g. with filter criteria “search text”: “test”). Send a test message for which the filter matches. Send a test message for which the filter does not match.	Messages are routed according to the configured filter.
4	Delete the entry	The entry of LA Parallel Delivery Table is deleted

6.3.7 AIDA_05070 Events

Test Case Description		
ID / Version	**AIDA_05070**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Test the event handling and retrieval of events
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Open the 'Monitor Events' **(System Inspection → Monitor Events)** window and generate an Event (e.g. disable a connected LA).	The corresponding event is shown in the 'Monitor Events' window.
2	Retrieve Events from the last hour. **(System Inspection → Retrieve Events)**	All events can be retrieved for later inspection from the database.
3	Log-out and Log-in the current operator. Retrieve the last events.	The corresponding event is shown in the 'Retrieve Events' window.
4	Undo the parameter changes from Step 1.	

6.3.8 AIDA_05080 Retrieving Messages from the Database

Test Case Description		
ID / Version	**AIDA_05080**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Retrieving of Messages from the Database
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS and one RSS.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Retrieve messages (Traffic Operation → Retrieve Messages)using different retrieval criteria message(s) from the database	The message(s) for which the retrieving criteria are met are displayed
2	Repeat some of the retrieved outgoing messages to the Test Partner(s).	Outgoing messages to the Test Partner(s) are displayed.

6.4 Diagnostics and Statistics

6.4.1 AIDA_06010 General Diagnosis and Statistics

Test Case Description		
ID / Version	**AIDA_06010**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Show the Diagnostics features
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Open the 'System Inspection → Display Diagnosis' window.	Online system diagnosis can be inspected. The different diagnostic sources are shown and can be examined.
2	Retrieve statistics (System Inspection → Retrieve Statistics) from the database with various criteria.	History of system statistics can be retrieved for various time periods from the database.

6.4.2 AIDA_06020 Channel Statistics

Test Case Description		
ID / Version	**AIDA_06020**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Testing of the channel and network statistics
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	The channel statistics can be retrieved from the AIDA-NG database (System Inspection -> Retrieve Statistics). Retrieve a channel statistic. (**Routing -> LA -> AFTN -> <CHANNEL NAME>**)	Statistics is available yearly, monthly, daily, hourly and per minute. The channel statistics of the chosen cannel is shown.
2	Inspect the shown statistics.	Statistical values can be inspected for the selected time frame.

6.4.3 AIDA_06030 System Statistics

Test Case Description		
ID / Version	**AIDA_06030**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Testing of the system (engineering) statistics
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Retrieve system statistics of any day and select a platform. (**Platform -> <PLATFORM NAME>**)	The daily system statistics of the channel is shown.
2	Inspect the shown statistics.	The statistic is shown, e.g. average processor utilization and memory.
3	Retrieve protocol statistics of any day. (**Protocols -> <PROTOCOL> –> <INTERFACE>**)	The daily protocol statistics shows up. Amongst other things, the number of error for an interface can be inspected.

6.4.4 AIDA_06040 Line Outage Statistics

Test Case Description		
ID / Version	**AIDA_06040**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Testing of the line outage statistics
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Retrieve the daily statistics of any day and select a channel. (**Routing -> LA -> AFTN -> <LA NAME>**)	The daily statistic of the channel is shown
2	The line outage is shown as “In-Service Percentage”, separate for Tx and Rx (Select +ALL+ in the Attributes View window).	The values can be inspected in the daily statistics.

Frequentis General

6.4.5 AIDA_06050 CSS Switchover

Test Case Description		
ID / Version	**AIDA_06050**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Test the manual/automatic switchover capabilities
Item / Feature Under Test	
Prerequisites / Preparation	The system is running in a redundant configuration (OP+/Standby) with at least one OSS

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Execute Switchover command from the OSS. (System Commands → Switchover)	A switchover from OP+ to Standby (and vice versa) is performed in a few seconds.
2	Stop the OP+ CSS.	OP+ CSS is stopped and the former Standby Unit becomes OP-.
3	Restart the CSS.	
4	Enable the message generator on Test Partner A. (**LA_AIDA_AFTN_LOAD**)	The message generator generates continuous traffic from Test Partner A to Test Partner B through the SUT.
5	Execute Switchover command from the OSS.	A Switchover from OP+ to Standby (and vice versa) is performed. The message transmission from Test Partner A to Test Partner B via SUT is done. It is possible to lose messages, but these messages will be repeated automatically with AFTN mechanisms (if configured in the LA “Automatic Retransmission”).
6	Disable the message generator from step 4.	

6.4.6 AIDA_06060 Printing (to file or printer)

Test Case Description		
ID / Version	**AIDA_06060**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Test the printing capabilities
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Check the printer configuration (**System Parameters -> Printer Table**).	At least one printer is configured.
2	Open any window and print with the “Print” button.	The contents of the window are printed according to the specified settings.
3	Choose “Export” in the Print dialog to save the printout on the file system. Select a path and filename.	Printouts can also be saved in a file.

6.5 OSS, Alarms, Logs and Archiving

6.5.1 OSS Functions

6.5.1.1 AIDA_07010 Check Online Help Feature

Test Case Description		
ID / Version	**AIDA_07010**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies that the online help is working
Item / Feature Under Test	
Prerequisites / Preparation	

Test Procedure

Step	Test Action	Expected Results
1	In the OSS, click on “Help” -> “Help Index”.	The Online Help window opens and the general index is shown. The online help can be browsed by clicking on topics.
2	Open the LA dialog and click on the “Help” button.	The context sensitive help display for the LA dialog is shown.

6.5.1.2 AIDA_07020 Channel Parameters

Test Case Description		
ID / Version	**AIDA_07020**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies that the system channel parameters can be set and changed
Item / Feature Under Test	
Prerequisites / Preparation	

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Open the AFTN parameters in the LA dialog for **LA_TCP_BRASIL** on SUT.	The dialog opens up and the configured parameter can be inspected.
2	Check the following settings. These settings are found in the AFTN parameter dialogue of the LA:	• Chanel identification (“Circuit ID Value”) • CSN length (“CSN Length”) • Automatic Chanel Check messages handling (“Line Interruption Handling”) • Set number of address lines (“Address Lines”) • Control characters handling (“Alignment Function”) • SVC message handling (“SVC Message Generation”)
3	Monitoring of traffic for a specific LA. → Traffic Operation / Monitor Incoming Traffic: Select **LA_TCP_BRASIL** → Traffic Operation / Monitor Outgoing Traffic: Select **LA_TCP_BRASIL**	While sending messages to / from remote system, the traffic can be inspected in real-time in the Monitor Traffic Sessions.
4	Inspecting the Transmission Identifier for the LA to Test Partner A: → System Inspection / Display Diagnosis / Routing / LA / AFTN	Find the column LastRx TMI / LastTx TMI

5	Sequence number reset To monitor the result of the following actions open a System Diagnosis session and look at the AFTN LAs. To reset the CID value on an LA the LA has to be disabled → La Definition Table / **LA_TCP_BRASIL** – disable the LA → Traffic Operation / Set AFTN CSN LR/LS – adjust the CSN values to your needs Enable the LA again	The CSN value for the selected LA are adjusted This can be inspected in a System Diagnosis session
6	Use the Object Browser to browse a LA (right click on the LA name and select “Browse”): → Object Browser / Browse **LA_TCP_BRASIL** Print the settings of the LA to a file and open it in an editor Inspect all routing indicators pointing to the LA as destination (in the "Referred By" – section)	The Object Browser opens for the selected LA. The settings of the LAs are sent to a printer. In the referred by section of the Object Browser you find all routings using the LA as a destination to send messages.
7	Adjust the operational settings of a LA- → LA Definition Table / **LA_TCP_BRASIL** – change Set the LA to disabled Set the LA to RX disabled Set the LA to TX disabled	According to your settings, the LA will be blocked completely, blocked for message reception only, blocked for transmission only.
8	Enable **LA_TCP_BRASIL** again.	LA is connected

6.5.1.3 AIDA_07030 System Parameters

Test Case Description		
ID / Version	**AIDA_07030**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies that the system parameters can be set and changed
Item / Feature Under Test	
Prerequisites / Preparation	

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Click ‘Change’ and adapt the setting AFTN Address Click on save to accept the changes. (**System Parameters → LA Table → AFTN_BOX**)	Open the AFTN composer – the originator address matches the address in the AFTN box LA
2	Click ‘Change’ and adapt the setting for the maximum message text length (AFTN parameter button). Click on set to accept the changes. (**System Parameters → LA Table. Select an AFTN LA**)	The parameter changes are accepted
3	Undo parameter changes.	

6.5.1.4 AIDA_07040 Interface Parameters

Test Case Description		
ID / Version	**AIDA_07040**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies that the system interface parameters can be set and changed
Item / Feature Under Test	
Prerequisites / Preparation	

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Check that the interface parameters are present in the system and can be changed. (**System Parameters → Interface Table**)	Interface and Protocol Parameters can be changed (some of them only in the offline set), viewed and printed.
2	Change the Protocol Parameters on the SUT and Test Partner A for the Interface that connects Test Partner A to SUT.	The new parameters are accepted by SUT and Test Partner A and messages can be exchanged.
3	Undo parameter changes.	

Frequentis General

6.5.1.5 AIDA_07050 Message Handling Facilities

Test Case Description		
ID / Version	**AIDA_07050**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies that the system can handle messages properly
Item / Feature Under Test	
Prerequisites / Preparation	

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Send several messages to the AFTN Box on SUT from Test Partner A (**SKBOYFYX**). Send some messages to a disconnected LA.	The messages appear in the AFTN Box. The undeliverable messages appear queued in the Congested (Pending) Queue.
2	Inspect the AFTN Box and select one or more messages and click on “Print”.	The messages are printed or exported to a file.
3	Open a diagnostics session and inspect the AFTN LAs. Find the columns indicating the number of queued messages per priority (PendSSMsgs, PendDDMsgs, …)	The number of queued messages per LA and priority can be inspected.
4	Inspect the Pending Message Queue and select one or more messages. The messages can now be discarded or diverted.	The system discards or diverts the selected messages.

6.5.1.6 AIDA_07060 Traffic Monitoring

Test Case Description		
ID / Version	**AIDA_07060**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies that channels can be monitored for incoming and outgoing messages
Item / Feature Under Test	
Prerequisites / Preparation	

Test Procedure

Step	Test Action	Expected Results
1	Open an incoming and an outgoing Monitor Session for an LA to a Test Partner A. LA: **LA_TCP_BRASIL** AFTN Address: **SBBRYFYX**	The Monitor Session Dialogs for incoming and outgoing are open.
2	Send messages to the Test Partner from SUT and from Test Partner to the SUT.	The messages appear in the corresponding Monitor Session Dialog.
3	Open the detail view and inspect the message.	The message dump gives an exact view of every sent character, including a hex dump of the message.

Frequentis General

6.5.2 Alarm Functions

6.5.2.1 AIDA_08010 Configure New Alarm

Test Case Description		
ID / Version	**AIDA_08010**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	All
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Test the Alarm Handling of the System
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Create Alarms (**System Parameters → Supervision →Alarm Table**) for the following technical events: • LA: Disconnected / Connected • LAN: Link disconnected	Configuration accepted.
2	Create the technical scenarios which will result in the alarms above, i.e. disconnection of the LA and disconnection of the WAN link.	An Alarm is raised according to the Alarm Settings.

6.5.2.2 AIDA_08020 ‘Count Limit’ Alarm

Test Case Description		
ID / Version	**AIDA_08020**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Show that too many automatic message repetition requests are detected and reported to the operator (by putting the SVC message in the SVC BOX). **COMMENT:** ‘Count Limit’ is a parameter in an Legacy AFTN LA; it is an upper limit for the number of messages per repetition request
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS. Automatic message repetition is enable for LA **LA_TCP_BRASIL**.

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Set the Count Limit for the LA to Test Partner A to 10 and enable “Automatic Message Repetition” in the AFTN settings System (**System Parameters → LA Table → LA_TCP_BRASIL → AFTN Parameter**).	The change is being accepted by the system.
2	From Test Partner A, send an SVC requesting for repetition of 9 messages with the following procedure: From the SUT, send 12 messages to Test Partner A (**SBBRYFYX**). On Test Partner A, Retrieve incoming message for **LA_AFTN_TCP_SUT** to find the CID and CSN of the first message. On Test Partner A, open a monitoring session for incoming traffic on **LA_AFTN_TCP_SUT**. From the AFTN Composer on Test Partner A, send an AFTN message to the SUT (**SKBOYFYF**) requesting the repetition: “**SVC QTA MIS <CID><CSN>-<CSN+8>**” Retrieve events on SUT.	The 12 messages are being sent to Test Partner A. The 9 requested messages are being repeated. Event “OPERATOR: MESSAGE(S) REPEATED” was generated.
3	From Test Partner A, send a SVC requesting for repetition of 12 messages.	The SVC message is routed to the SVC Box on the SUT, no messages are repeated.

4	From Test Partner A, send a SVC requesting for repetition of 10 messages. Send another SVC requesting the repetition of 10 messages.	2 blocks of 10 messages each are being sent to Test Partner A.

6.5.2.3 AIDA_08030 Retrieve Alarms

Test Case Description		
ID / Version	**AIDA_08030**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Retrieve all alarms for a specific channel
Item / Feature Under Test	
Prerequisites / Preparation	

Test Procedure		
Step	**Test Action**	**Expected Results**
1	In the OSS, open “Retrieve Events”. (**System Inspection -> Retrieve Events**)	The dialog opens up.
2	Retrieve Events, e.g.: Under “Source”, select the channel • Under “Alarm Priority”, select everything except “No Alarm” • Click on “1” (to select the time frame “the last hour”) • Click on “Set”	All alarms for a specific channel from the last hour are being displayed (if any are present in the database).

6.5.3 Logs and Archiving Functions

6.5.3.1 AIDA_09010 General Log

Test Case Description		
ID / Version	**AIDA_09010**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies that the system stores events in the database
Item / Feature Under Test	
Prerequisites / Preparation	System is running, an Alarm for Event “LA: DISCONNECTED” is set

Test Procedure

Step	Test Action	Expected Results
1	Retrieve and inspect the Events of the last hour on the SUT.	All system events are stored in the database and can be retrieved.
2	Print a selection of the Events.	Events can be printed by the operator.
3	Disable **LA_TCP_BRASIL**, and retrieve Events from the last hour again. Enable the LA.	An alarm is raised and the corresponding Event can be seen in the list of retrieved events.

Frequentis General

6.5.3.2 AIDA_09020 Message Log

Test Case Description		
ID / Version	**AIDA_09020**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies that all AFTN and SVC messages are logged
Item / Feature Under Test	
Prerequisites / Preparation	Messages are in the database (incoming and outgoing messages, received from and sent to external test partners).

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Retrieve Incoming Messages from the Database (use the default filter). (**Traffic Operation → Retrieve Incoming Traffic**).	A list of messages appears in a new dialog.
2	Open and inspect a message (‚Detail').	The log for receipt of a message shall consist of: The time, the text RX, reception time, the message channel designator and sequence number, and the origin and address lines.
3	Trace messages to see how the messages went through the system.	Message traces can be inspected.
4	Retrieve Outgoing Messages from the Database (**Traffic Operation → Retrieve Outgoing Traffic**) Open and inspect a message. (“detail”)	The log transmission of each message shall consist of: the time, the text TX, the transmission time, the input message channel designator and sequence number, the address lines, the output message channel designator and sequence number.
5	Trace messages to see how the messages go through the system.	Message traces can be inspected.
6	Retransmit (“Repeat”) some of the outgoing messages to Test Partner.	Messages are retransmitted.
7	Inspect the Incoming and Outgoing Message Retrieval Session for SVC Messages (Retrieve with “Search Text”: “SVC”).	All Service Messages generated or received by the system shall be logged and recorded on a system terminal at the time of generation / reception

Frequentis General

6.5.3.3 AIDA_09030 AMHS Message Log

Test Case Description		
ID / Version	**AIDA_09030**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies that all AMHS messages are logged completely and with message status information
Item / Feature Under Test	
Prerequisites / Preparation	Send successfully some AMHS messages, Probes. Generate some AMHS Reports.

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Test Procedure		
Step	**Test Action**	**Expected Results**
1	Send some AMHS messages and Probes from SUT to Test Partner A and viceversa.	The message are delivered to the Test Partner A and SUT.
2	Retrieve incoming and outgoing AMHS Messages.	AMHS Messages (also Probes and Reports) are logged.
3	Trace messages to see how the messages go through the system.	Message traces can be inspected.
4	Disable the LA to the Test Partner on SUT and send some AMHS messages and Probes from SUT to Test Partner.	The message cannot be delivered to the Test Partner.
5	Enable the LA again.	
6	On SUT, open AMHS Message Composer, enter address to Test Partner A. /C=XX/A=ICAO/P=**BRASIL**/O=LO/OU1=SBBR**/CN=SBBRAMHS/** Send a probe. Sent a message.	 Probe is sent and a report is received on SUT indicating success. Message is received in **AMHSBOX** on Test Partner A.
7	On SUT, retrieve outgoing AMHS messages.	State of probe and message is “TRANSMITTED” (TXD). This shows that the message state is being logged.

8	On SUT, open the AMHS message composer and add an address which is routed to Test Partner A, but is not routable on Test Partner A (e.g. sent message to **/C=xx/A=fail/P=A/**). Send a probe. Send a message.	Probe is sent and a report is received on SUT indicating failure. Message is sent to Test Partner A, a non-delivery report is sent to AMHSBOX of SUT.
9	On SUT, retrieve outgoing and incoming messages as above.	The reports for the probe and the message are found in the database, the failure reasons are shown.

Frequentis General

6.5.3.4 AIDA_09040 System Log

Test Case Description		
ID / Version	**AIDA_09040**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies that the system log can be inspected
Item / Feature Under Test	
Prerequisites / Preparation	Execute a switchover, disable a LA, restart the operational CSS

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Retrieve Events from the current day. Check for the following events:	
2	Start-up and changeover information Connection errors and line errors Changes made to any of the configuration tables	CORE: OPERATIONAL, LA: DISCONNECTED, WAN: LINK DISCONNECTED OPERATOR: PARSET MODIFIED ONLINE
3	If the Events are not found, generate a corresponding event (core switchover, disconnect LA, change parameter set).	

Frequentis General

6.5.3.5 AIDA_09050 Archiving

Test Case Description		
ID / Version	**AIDA_09050**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies archiving and export / import of archives
Item / Feature Under Test	
Prerequisites / Preparation	AIDA-NG is running, at least one OSS terminal with USB stick available, NAS connected with FTP access enabled (ftpuser + ftp-password and ftp-directory with read/write access enabled).

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Generate daily archive on RSS1. **(System Commands → RSS Archives)**	Archive generated, file on RSS1 is available.
2	Generate free archive containing incoming data on RSS1.	Archive generated, file on RSS1 is available.
3	Export the generated archive from step-1 to the USB of the OSS. **(System Commands → RSS Archives)**	Archives exported.
4	Delete the generated archive from step 2 on the RSS1, check the list of archives.	Archive is not available any more (**COMMENT**: files on the RSS might be deleted later).
5	Re-import the archive from USB to RSS2.	Imported data is available and can be viewed, searched and printed.
6	Generate daily archive on RSS1 from the day before	Archive generated, file on RSS1 is available.

6.6 AFTN Procedures

6.6.1 AIDA_10010 Sending/Receiving of AFTN Messages

Test Case Description		
ID / Version	**AIDA_10010**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies the capabilities of the system to send and receive AFTN messages
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS, an Alarm is configured for the reception of SS messages in the LA profiles.

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Send an AFTN message from SUT to the Test Partner A. (**SBBRYFYX**)	The AFTN message is received on Test Partner A.
2	Send an AFTN message from Test Partner A to SUT. (**SKBOYFYX**)	The AFTN message is received on SUT.
3	Send messages with priorities KK, GG, FF, DD and SS from Test Partner A to SUT.	The Messages are received on SUT; an Alarm is raised on SUT for the SS message.
4	Disable the LA to the Test Partner A on the SUT and send messages with different priorities to Test Partner A.	The messages are queue and sorted according to the priorities and then chronologically (inspect the Congested Queue on SUT).
5	Re-Enable the LA.	The messages are sent out in the order they are queued.
6	From the AFTN Message composer, message templates can be saved for later use. Create an AFTN message in the AFTN message composer and save it for later used (Button “save”). Send the message and close the AFTN message composer.	Message is sent out.
7	Open the AFTN message composer and load a message template (Button “Load”). Send the message.	Message is sent out.

6.6.2 AIDA_10020 Address Stripping

Test Case Description		
ID / Version	**AIDA_10020**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Test the address stripping capabilities
Item / Feature Under Test	
Prerequisites / Preparation	

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Send a message with multiple addresses from Test Partner A: • One address is a mailbox on SUT (**SKBOYFYX**). • One address is a mailbox on Test Partner B which is routed from Test Partner A to SUT and from SUT to Test Partner B (**SPIMYFYX**).	The message is sent out from Test Partner A to SUT. The message is delivered to the mailbox on SUT. The message is also routed from SUT to Test Partner B, the address of the SUT mailbox is stripped from the message to Test Partner B.

Frequentis General

6.6.3 AIDA_10030 Test Messages

Test Case Description		
ID / Version	**AIDA_10030**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	All
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	AFTN test message procedure
Item / Feature Under Test	
Prerequisites / Preparation	Test Partner A connected, Message Templates on Test Partner A ready, LA **LA_AFTN_TCP_SUT** in Test Mode on Test Partner A

Test Procedure		
Step	**Test Action**	**Expected Results**
1	On Test Partner A, open test message session for LA **LA_AFTN_TCP_SUT**, set “Repetition” to “10”, click on “Load IA-5 Standard” and send the test messages.	The test messages are forwarded to the Reject Box on SUT. The reject code “Test Message” is displayed.
2	On SUT, set LA **LA_TCP_BRASIL** to “Test Mode”. Start Test message generator on SUT: (**Traffic Operation → Create AFTN Test Message**) Click on the button “-> Incoming”.	The parameters are accepted and set. The “AFTN Test Messages” window is opened. Info line indicates: 'Test Direction'=BOTH, LA=connected.
3	On Test Partner A, open test message session for LA **LA_AFTN_TCP_SUT**, set “Repetition” to “10”, click on “Load IA-5 Standard” and send the test messages.	10 test messages compliant to Annex 10 - Volume II are sent. The test messages are displayed in the upper window of the “AFTN Test Messages” session.
4	On SUT, select “Outgoing Mode” in the “AFTN Test Messages” Session (LA **LA_TCP_BRASIL**remains selected). Click on “Load IA5 Standard”, set “Repetition Count” to 10, set the Timeout (repetition time) of 1s, click on “Send”.	10 standard test messages, according Annex-10 are transmitted to the LA. The messages are shown in the upper window of the “AFTN Test Message” session. The messages are received correctly on the Test Partner A:
5	Put a second LA to other test partner to test mode and run the test message facility (set “Repetition Count” to 0 in both sessions) simultaneously on the two channels in test mode.	It's possible to send test messages to 2 LAs at the same time.
6	On SUT LA **LA_TCP_BRASIL** clear the outgoing window and set Count to 5 and set Timeout to 2. Push the “Send”-Button.	5 messages are transmitted as specified to LA **LA_TCP_BRASIL** each with a delay of 2s. 5 messages are received on Test Partner A.

7	On SUT send a message from the AFTN Message Composer to **TESTXXXX**. **INFO**: check that **TESTXXXX** is routed to LA **LA_TCP_BRASIL.**	The message remains in the outgoing LA “pending” queue of the LA **LA_TCP_BRASIL** (see in the ROUTING-> LA overview diagnosis).
8	On SUT enable the LA **LA_TCP_BRASIL**.	The queued message (from previous step) is transmitted to the Test Partner A.
9	On SUT, try to send a message from the “AFTN Test Messages” session.	Send button is not available.
10	On SUT, retrieve Incoming Traffic, Filter: 'Inc. State'="Test Mode"	Messages found, State = "TEST MODE"
11	Undo all changes.	Initial state restored.

6.6.4 AIDA_10040 Corrupted Messages

Test Case Description		
ID / Version	**AIDA_10040**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	(svn repo: doc-aida-ng/repository/trunk/TestDoc/SystemTests/GENERAL/msgs/corrupted_messages.txt)
Configuration Reference	see chapter 6.1

Test Description	
Description	Test the behaviour when corrupted messages are received
Item / Feature Under Test	
Prerequisites / Preparation	File “**corrupted_messages.txt**” available and adapted to the used parameter set (e.g. correct channel id, CSN length …). ‘Incoming Long Message Text Lines’ is set to ‘Reject’ for LA **LA_TCP_BRASIL** on SUT.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Open the text file "**corrupted_messages.txt**" (this file holds several message templates for corrupted messages) with a text editor. Open incoming and outgoing monitoring sessions on SUT and Test Partner A for LA **LA_TCP_BRASIL**. LA **LA_AFTN_TCP_SUT** must be set to Test Mode on Test Partner A and to 'enabled' on SUT. Open a test message session for LA **LA_AFTN_TCP_SUT** on Test Partner A.	File with different corrupted messages, monitoring sessions and test message generator session appear.
2	Send some of the following corrupted AFTN message from Test Partner A to SUT (one by one by copying the message from the text file in the test message generator): • Incorrect Channel Designator • Incorrect Channel Sequence Number • Incorrect Address Lines • Incorrect End of Message • Missing Start or End of Message • Long Lines • Incorrect Alignment Functions	The corrupted AFTN message are forwarded or routed to the Reject mailbox of SUT as configured in the AFTN Parameters settings of the incoming LA. SVC messages will be sent for some of the corrupt messages (CSN unexpected, Address Lines corrupt …) if configured in the AFTN Parameters settings of the incoming LA.
3	Retrieve the incoming messages from the database on SUT and inspect the corrective measure taken (if configured).	The corrected messages are shown.
4	Retrieve the outgoing messages and inspect the SVC messages sent.	If automatic SVC sending was configured, the SVC messages can be inspected.

5	Undo parameter changes.	

6.6.5 AIDA_10050 Distress Messages

Test Case Description		
ID / Version	**AIDA_10050**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Test the behaviour when SS messages are received
Item / Feature Under Test	
Prerequisites / Preparation	“Acknowledge of SS Message” is disabled for the LA **AFTN_BOX** on SUT.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Set an alarm on the reception of SS messages (aka high priority messages). Make it an audible and visible alarm. (**System Parameters → Supervision → LA Profile Table**)	The changes are accepted by the system.
2	Send an SS message from Test Partner A to **AFTN_BOX** on SUT. (**SKBOYFYX**)	The message is received on SUT and the configured alarm is being raised.
3	Open the **AFTN_BOX**.	The SS message is shown and an SS-ACK can be sent manually.
4	Accept the SS message in the **AFTN_BOX**.	The message is accepted.
5	In the AFTN Parameters of the **AFTN_BOX**, enable “Acknowledge of SS Message”.	The changes are being accepted by the system.
6	Send an SS message from Test Partner A to **AFTN_BOX** on SUT. (**SKBOYFYX**)	The message is received on SUT and the configured alarm is raised.
7	Open the **AFTN_BOX**.	The SS message is shown and an SS-ACK message is being generated automatically.

Frequentis General

6.6.6 AIDA_10060 Channel Check Messages

Test Case Description		
ID / Version	**AIDA_10060**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	All
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Test the channel check feature
Item / Feature Under Test	
Prerequisites / Preparation	Test Partner A is connected to **LA_TCP_BRASIL_1** on SUT.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Test Partner A; monitor incoming traffic on LA to SUT	
2	Set on LA **LA_TCP_BRASIL** 'AFTN: Channel Supervision: Tolerance after Standard Time'=10 sec 'AFTN: Channel Supervision: Transmit Channel Check'=On 'AFTN: Channel Supervision: Channel Check Repetition Time'=1 min 'AFTN: Channel Supervision: Supervise Channel Check'=Off 'AFTN: Outgoing Add. Service Indication'=DHM	The parameters are accepted and set. CH-messages are sent periodically at every full minute. The messages are received correctly on the Test Partner A. The ASI is transmitted correctly in the Heading Line (“DDHHMM”).
3	Set on LA **LA_TCP_BRASIL** 'AFTN: Outgoing Add. Service Indication'=None	CH-messages are sent periodically at every full minute. No Additional Service Indication is transmitted in the Heading of the CH message.
4	Set on LA **LA_TCP_BRASIL** AFTN: Channel Supervision: Supervise Channel Check'=On Set Alarm for the Forwarder Event “FORWARDER: AFTN CHANNEL CHECK MISSING”.	10 seconds after every full minute an event FORWARDER: AFTN CHANNEL CHECK MISSING is generated. The event contains the text “No SVC message sent”. The corresponding alarm is generated too. Test Partner A continues receiving CH messages, no messages are generated by the Test Partner A.
5	Set on LA **LA_TCP_BRASIL** 'AFTN: Channel Supervision: Transmit Channel Check'=Off	10 seconds after every full minute an event FORWARDER: AFTN CHANNEL CHECK MISSING is generated. The event contains the text “No SVC message sent”. The corresponding alarm is generated too. No messages are sent from / to the Test Partner A.

6	Set on LA **LA_TCP_BRASIL** 'AFTN: Channel Supervision: Supervise Channel Check'=On 'AFTN: SVC…: Missing Channel Check'=On 'AFTN: SVC…: Send Optional Time'=On	10 seconds after every full minute the following SVC message is generated and transmitted to the Test Partner A: SVC MIS CH hhmm LR CIDnnnn whereby hhmm Time channel check was expected CID Input channel ID of the used LA nnnn CSN of the last received message Additionally the FORWARDER event: AFTN CHANNEL CHECK MISSING is generated. The event text contains a copy of the generated SVC message.
7	Set on LA **LA_TCP_BRASIL** 'AFTN: SVC…: Missing Channel Check'=On 'AFTN: SVC…: Send Optional Time'=Off	10 seconds after every full minute the following SVC message is generated and transmitted to the Test Partner A: SVC MIS CH LR CIDnnnn
8	Undo parameter changes	

6.6.7 AIDA_10070 Reverse Transmission

Test Case Description		
ID / Version	**AIDA_10070**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Check whether a message cannot be sent back to the originator on the same LA
Item / Feature Under Test	
Prerequisites / Preparation	

Test Procedure		
Step	**Test Action**	**Expected Results**
1	On SUT and on Test Partner A, check that for the LAs (**LA_TCP_BRASIL, LA_TCP_PERU)** to each other “Allow Reverse Transmission” is enabled. Make sure, that in the AFTN Parameters on the SUT, the SVC message creation for misrouted is enabled. (confirm warning popup with ‘Yes’). Open an monitoring session for incoming traffic on Test Partner A.	The changes are accepted by the system.
2	From Test Partner A, send an AFTN message to “**LOOPXXXX**”. Routing is configured so, that “LOOP” is routed to SUT from Test Partner A and to Test Partner A from SUT.	The message is routed to SUT, then back to Test Partner A indefinitely. The message loops.
3	On SUT, disable “Allow Reverse Transmission” for the LA to Test Partner A.	The parameters are set. A misrouted SVC message is created.
4	On Test Partner A, send again a message to “**LOOPXXXX**”.	The message is sent to the SUT, a misrouted SVC message is sent to Test Partner A. The message does not loop.
5	On the SUT, disable the automatic creation of SVC messages for misrouted messages in the AFTN parameters.	The changes are accepted by the system.
6	On Test Partner A, send again a message to “**LOOPXXXX**”.	The message is sent to the SUT. No SVC message is created and the message is brought to the operator’s attention by routing the message to the MISROUTED queue.

6.6.8 AIDA_10080 AFTN/Email Gateway

Test Case Description		
ID / Version	**AIDA_10080**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Sending of AFTN messages via the AFTN/Email Gateway
Item / Feature Under Test	
Prerequisites / Preparation	Mailserver is available and connected

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Send an AFTN message from Test Partner A to SUT e.g: SKBOSMTP	The AFTN message is received by SUT
2	Trace the message to see how the message goes through the system.	Message traces can be inspected. It can be traced that the message was received by from test partner A and forwarded via the SMTP LA
3	Verify that the Email has been received at the Test WEBMAIL server	Message received in Webmail
Comment:		

6.6.9 AIDA_10090 Attribute Routing

Test Case Description		
ID / Version	**AIDA_10090**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Attribute Routing functionality
Item / Feature Under Test	
Prerequisites / Preparation	System is up and running

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Create a new Attribute Routing entry to copy all traffic going from Test Partner A also to TEE system (**System Parameters → General Routing → Attribute Routing Table**): • Message Type: **AFTN** • Source LA: **LA_TCP_BRASIL** • Destination LA: **LA_TCP_UAEAC_TEE** • Replacement Address: **SKBOYFYX**	A new Attribute Routing is created.
2	Send messages from Testpartner A to **SKBOAFTN** and verify the result.	The message are routed to the **AFTN_BOX** and now additionally routed to the **LA_TCP_UAEAC_TEE** as long as the attribute routing is enabled.
3	Set a filter (e.g. with filter criteria “search text”: “TEE”). Send a test message for which the filter matches. Send a test message for which the filter does not match.	Messages are routed according to the configured filter.
4	Delete the entry	The entry of Attribute Routing Table is deleted
Comment:		

6.7 AIDA-NG Queues

6.7.1 AIDA_11010 Congested Queue

Test Case Description		
ID / Version	**AIDA_11010**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	All
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies the functionality of the congested queue
Item / Feature Under Test	
Prerequisites / Preparation	

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Put messages in the pending queue: On SUT, disable all LAs to Test Partner A (**LA_TCP_BRASIL**) and Test Partner B (**LA_TCP_PERU**) From SUT, send two messages to Test Partner A (**SBBRAFTN**) and Test Partner B (**SPIMAFTN**).	Two congested queues with two messages each can be inspected (click on the CONGESTED Queue Box).
2	Open the congested queue for **LA_TCP_BRASIL** and select a message. The message can be removed from the queue (Button “Discard”) or diverted to another channel (Button “Divert”) or re-introduced in the routing process (Button: “Reprocess”). Discard one of the two messages and divert the other message to **LA_TCP_PERU**.	One congested queue with 2 pending messages is shown. One message contains 2 AFTN addresses.
3	Discard all messages from the congested queues.	No queues are shown.
4	Enable the LA to Test Partner B (**LA_TCP_PERU**) and send a message from Test Partner B to Test Partner A (**SBBRAFTN)**.	One message is shown as congested on SUT (for the queue to Test Partner A):
5	Select the message in the congested queue and trace the way of the message through the system (Button: Trace).	The message can be traced.

6	In the LA configuration for **LA_TCP_BRASIL**, set the overdue timer for SS messages to 1 minute. Send an SS message to Test Partner A (**SBBRAFTN**)	A new congested queue is shown for the LA to Test Partner A. After one minute, an Event “ROUTING: OVERDUE MESSAGES” is generated (an alarm is raised, if configured for this event.
7	Disable the P1 LA to Test Partner A (**LA_TCP_X400_P1_BRASIL**) and send an AMHS message to Test Partner A. (/C=XX/A=ICAO/P=**BRASIL**/O=LO/ OU1=SBBR**/CN=SBBRAMHS/**)	The message is shown in the congested queue for the P1 LA to Test Partner A
8	Select the message in the queue and click on “NonDelivery”.	The message is no longer in the congested queue and a non-delivery report is received in the AMHS_BOX of SUT.
9	Send an AFTN message from Test Partner B to Test Partner A (**SBBRAMHS)**.	One message is shown as congested on SUT (for the queue to Test Partner A):
10	Select the message in the congested queue for **LA_TCP_X400_P1_BRASIL** and trace the way of the message through the system (Button: Trace).	The message can be traced.
11	Enable the LAs from step 1. (**LA_TCP_BRASIL**, **LA_TCP_X400_P1_BRASIL**)	No more queues.

6.7.2 AIDA_11020 Non-Routable Queue

Test Case Description		
ID / Version	**AIDA_11020**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies the functionality of un-routable messages
Item / Feature Under Test	
Prerequisites / Preparation	

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Put some messages in the queue: On SUT: In the AFTN Routing Indicator Table, disable the "*" entry (if present). Make sure, that "**Y**" is not routable. For the LA **LA_TCP_BRASIL**, disable the generation of "Addressee Unknown" SVC Messages (AFTN Parameter) On Test Partner A: Make sure that "**Y**" is routed to the SUT (**LA_AFTN_TCP_SUT**)	Parameter changes accepted.
2	Open AIDA-NG AFTN Message Composer on SUT and try to send a message to **YYYYYYYY**.	Message can be created but not send out, because it's not routable on SUT.
3	Send a message from Test Partner A to SUT with destination **YYYYYYYY**.	One congested queue 1 message for AFTN_NON_ROUTABLE is shown.
4	The message can be • removed from the queue (Button "Discard") • diverted to another channel (Button "Divert") • re-introduced in the routing process (Button "Reprocess"). Discard the message from the Non-Routable queue.	No queues are shown.
5	Clean-up: Undo the parameter changes.	

6.8 AMHS / X.400 Functions

6.8.1 AIDA_12010 AMHS/X.400 Configuration

Test Case Description		
ID / Version	**AIDA_12010**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies that AMHS/X400 routing tables, address tables and configuration tables can be configured
Item / Feature Under Test	
Prerequisites / Preparation	

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Add an X.400 local user entry	AIDA-NG accepts all changes
2	Add an X.400 remote user entry	AIDA-NG accepts all changes
3	Add an X.400 routing entry	AIDA-NG accepts all changes
4	Add an X.400 distribution list entry	AIDA-NG accepts all changes
5	Add an AMHS management domain lookup table entry	AIDA-NG accepts all changes
6	Add an AMHS user address lookup table entry	AIDA-NG accepts all changes
7	Delete all added entries to ensure they do not interfere with the following tests	AIDA-NG accepts all changes

6.8.2 AIDA_12020 Send AMHS Message

Test Case Description		
ID / Version	**AIDA_12020**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies the capabilities of the system to send and receive AMHS messages
Item / Feature Under Test	
Prerequisites / Preparation	

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Send an AMHS Probe and an AMHS message from SUT to the Test Partner A. **/C=XX/A=ICAO/P=BRASIL/O=SB/OU1=SBBR/CN=SBBRAMHS/**	A delivery report for the message is received by the SUT from Test Partner A. The AMHS message is received by Test Partner A.
2	Send an AMHS message from Test Partner A to SUT. **/C=XX/A=ICAO/P=COLOMBIA/O=SKBO/OU1=SKBO/CN=SKBOAMHS/**	The AMHS message is received by SUT.
3	Send messages with priorities KK, GG, FF, DD and SS from Test Partner A to SUT.	The Messages are received on SUT.
4	From the AMHS Message composer, message templates can be saved for later use. Create an AMHS message in the AMHS message composer and save it for later used (Button “save”). Send the message and close the AMHS message composer.	Message is sent out.
5	Open the AMHS message composer and load a message template (Button “Load”). Send the message.	Message is sent out.

Frequentis General

6	Reply to an AMHS message: Sent an AMHS message to the AMHS Box of SUT from Test Partner A **/C=XX/A=ICAO/P=COLOMBIA/O=SKBO/OU1=SKBO/CN=SKBOAMHS/** Inspect the message in the AMHS Box on SUT. Click on Button “Reply”.	A message composer window is opened. Originator, Addressee and message text are pre-set. A reply to the AFTN message can be sent back to Test Partner A (if the routing is correctly configured).

Frequentis General

6.8.3 AIDA_12021 Send Binary Message in AIDA-NG

Test Case Description		
ID / Version	**AIDA_12021**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies the capabilities of the system to send and receive AMHS binary messages
Item / Feature Under Test	
Prerequisites / Preparation	

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Sent an AMHS message with a File Attachment to the AMHS Box of SUT from Test Partner A Inspect the message in the AMHS Box on SUT	Message is sent out.
2	Send an AMHS from the SUT with a File Attachment only to the AMHS Box of Test Partner A Inspect the message in the AMHS Box on Test Partner A	Message is sent out.
3	Send a digital METEO message from the SUT with the example iwxxm-metar.xml file Inspect the message in the AMHS Box on Test Partner A	Message is sent out.

6.8.5 AIDA_12030 X.400 P1 Connection

Test Case Description		
ID / Version	**AIDA_12030**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies that AIDA-NG can communicate with other MTA over P1
Item / Feature Under Test	
Prerequisites / Preparation	P1 connection between AIDA-NG and a partner system

Test Procedure		
Step	**Test Action**	**Expected Results**
1	On SUT open the LA Table and inspect the P1 connection **LA_TCP_X400_P1_BRASIL** to the Test Partner A.	The LA is shown and the parameter for the P1 connection can be altered.
2	Send an AMHS message to the Test Partner A over the LA.. **/C=XX/A=ICAO/P=BRASIL/O=SB/OU1=SBBR/CN=SBBRAMHS/**	The message is received on the Test Partner A over the P1 connection.

Frequentis General

6.8.6 AIDA_12040 X.400 P3 Connection

Test Case Description		
ID / Version	**AIDA_12040**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies that AIDA-NG can communicate with AMHS User Agent over P3
Item / Feature Under Test	
Prerequisites / Preparation	P3 connection between AIDA-NG and an CADAS-ATS User Agent

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Open the LA Table and inspect the P3 connection to the CADAS-ATS User Agent. (**LA_TCP_P3_CADAS_SKBOMBBC**	The LA is shown and the parameter for the P3 connection can be altered
2	Send an AMHS message to a CADAS-ATS mailbox. **/C=XX/A=ICAO/P=COLOMBIA/O=SKBO/OU1=SKBO/CN=SKBOMBBC/**	The message is received on CADAS-ATS over the P3 connection

6.8.7 AIDA_12050 X.400/AFTN Diversion

Test Case Description		
ID / Version	**AIDA_12050**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Create a X.400 diversion to AFTN LA
Item / Feature Under Test	
Prerequisites / Preparation	The system is running with at least one OSS. Disable the CADIR service to proof that the AMHS/AFTN Gateway does not depend on any further service than AIDA-NG

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Create a new X.400 diversion route (**System Parameters → X.400 → X.400 Diversion Table**) and divert all outgoing traffic with destination Test Partner A to Test Partner B: • Destination LA: **LA_TCP_X400_P1_BRASIL** • Diversion LA: **LA_TCP_PERU** **/C=XX/A=ICAO/P=BRASIL/O=SB/OU1=SBBR/CN=SBBRAMHS/**	A new X.400 diversion route is created, all AMHS messages which are routed to the LA specified in the Routing Indicator Table are now routed and converted to the diversion AFTN LA as long as the diversion is enabled
2	Set a filter (e.g. with filter criteria “search text”: “test”) and send a test message for which the filter matches. Send a test message for which the filter does not match.	Messages are routed according to the configured filter.
3	Delete the entry	The entry of the LA Diversion Table is deleted.

6.8.8 AIDA_12060 AMC Import

Test Case Description		
ID / Version	**AIDA_12060**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	Verifies the ability to import the three AMHS conversion table files provided by Eurocontrol AMC
Item / Feature Under Test	
Prerequisites / Preparation	The most recent AMC files on a USB memory stick or on the local file system

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	On an OSS attach an offline parameter set.	The parameter set is attached.
2	If the AMC files are stores on an USB memory stick: Mount the USB memory stick on the platform the OSS is running on.	The system mounts the memory stick.
3	Open “AMHS AMC Import” dialog (offline parameter set).	The AMHS AMC Import dialog is shown.
4	Select by using the file dialog the following files: • MD Register CAAS • CAAS Table • User Table	The paths and names of the selected files are shown in the dialog.
5	Press apply button.	The AIDA-NG system generates an Import Report but doesn't start import. The AIDA-NG shows warnings, Report information and differences after AMC import (if there are some).
6	Press import button.	The tables are imported and the dialog vanishes.

6.9 Conversions

6.9.1 AIDA_13001 X400CONV TAC to IWXXM

Test Case Description		
ID / Version	**AIDA_13001**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description

System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	TAC – IWXXM Conversion
Item / Feature Under Test	AIDA-NG: Selective forwarding of TAC messages for conversion CADAS-ATS: Conversion of TAC messages
Prerequisites / Preparation	

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Send a message TAC from CADAS-ATS to a IWXXM Configured mailbox.	SKBOIWXXM receives the TAC Message as XML.

6.9.2 AIDA_13002 X400CONV IWXXM to TAC

Test Case Description		
ID / Version	**AIDA_13002**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 6.1
Test Data	see test procedure
Configuration Reference	see chapter 6.1

Test Description	
Description	TAC – IWXXM Conversion
Item / Feature Under Test	AIDA-NG: Selective forwarding of TAC messages for conversion CADAS-ATS: Conversion of TAC messages
Prerequisites / Preparation	

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Send a message IWXXM from CADAS-ATS to a TAC mailbox	SKBOTACX receives the IWXXM Message as General Text (TAC).

6.10 Performance

6.10.1 Specific Test Prerequisites and Test Setup

AIDA-NG will be tested with mixed input load (50% AFTN, 50% AMHS/X.400) injected from Test Partner A and Test Partner B.

Each of the two Test Partner generate 10 AFTN and 10 AMHS/X.400 messages per second via test message generators, i.e. 40 incoming messages per second will be received by SUT in total (off peak traffic).

The AFTN messages are transmitted and received via TCP/IP; for AMHS/X.400 the TP0/TCP/IP protocol stack is used.

The incoming messages (SUT) are duplicated by means of AFTN Collective Routing Indicators and X.400 Distribution Lists, thus in the sum 80 outgoing messages per second (40 AFTN and 40 AMHS, half of the messages to each Test Partner) are generated.

Half of the incoming AMHS/X.400 messages are converted by the SUT to AFTN and vice-versa.

The test generators are programmed to generate a sequence of messages with an average message length of approx. 5000 bytes, demonstrating that a wide variety of different lengths can be handled efficiently.

6.10.2 Detailed Setup

Test Partner A has one message generator (**LA_GEN_PERF_AFTN_AMHS**) with a frequency of 60 messages per second and two AFTN destinations (**SKBOPXBF** and **SKBOPXBM**).

SKBOPXBM is being converted to AMHS (**/C=XX/A=ICAO/P=COLOMBIAO=SKED/OU1=SKBO/CN=SKBOPXBM/**) on Test Partner A before sending out to SUT.

SKBOPXBF is routed via AFTN to SUT and there duplicated (AFTN Collective Routing) to

SPIMPAFA, and

SPIMPAMA.

The latter one being converted to AMHS on SUT (**/C=XX/A=ICAO/P=PERU/O=SP/OU1=SPIM/CN=SPIMPAMA/**) and all two messages (one AFTN, one AMHS) routed to Test Partner B.

SKBOPXBM is routed via AMHS to SUT and there duplicated (X.400 Distribution Lists) to

/C=XX/A=ICAO/P=PERU/O=SP/OU1=SPIM/CN=SPIMPAMA/, and

/C=XX/A=ICAO/P=PERU/O=SP/OU1=SPIM/CN=SPIMPAFA/.

The latter one being converted to AFTN on SUT (**SPIMPAFA**) and all two messages (one AMHS, one AFTN) routed to Test Partner B.

On Test Partner B, the received messages are routed to a SINK LA.

The same setup is being used for the other direction (from Test Partner B via SUT to Test Partner A) in parallel with similar addresses (e.g. **SBBRPAFA** instead of **SPIMPAFA**).

7 CADAS-ATS (COMSOFT Aeronautical Data Access System – Air Traffic Services)

7.1 CADAS-ATS Test Environment

To execute the CADAS-ATS test scripts a set of groups, mailboxes, profiles and users must be available. Additionally, the CADAS-ATS system parameters have to be set up.

Set up system parameters as outlined in chapter 7.1.1 System Parameters.

Set up the configuration outlined in the following chapters in the following order: Groups, mailboxes, profiles, users.

7.1.1 System Parameters

System Parameters have to be set up using the following settings:

Automatic Data Cleanup
☐Automatically remove unused users after <empty> days
NM Connection
Default settings
AMHS
☐Auto discard expired messages
☐Auto discard obsolete messages
Custom Message Types
Default settings
FPL
Mailboxes: SK
☒Item 19 in FPL is sent within message body
☐Item 8b is mandatory
☐Item 16c is mandatory in FPL messages
Region specific FPL checking: European and North Atlantic
☒Allow to send NEW FPL format only
FPL Amendment
Default settings
Message Type Colours
none selected

Message NOTAM

Mailboxes: SK
☐Traffic and purpose optional in NOTAMC
Series Letters: ABC
SNOWTAM/ASHTAM
Mailboxes: SK
Processing
☐Suppress Duplicates
Network Access
Default settings

System
Mailboxes: # SK
☒Use name from system configuration

7.1.2 Configuration Overview

The following table illustrates the relationship between groups, mailboxes, profiles and users.

Mailboxes in bold letters are the default mailbox of the user.

Name convention for mailboxes:

The first four characters hold the SUT system, i.e. "SKBO". Except mailbox MBX_C6 which must have another location (e.g. SKXX).

and the last four characters hold the mailbox reference, where "MB" stands for "MBX_" and "AA, AB, BA, BB, BC, …" stands for "A1, A2, B1, B2, B3, …"

All users have the same password: 1q1q1q1q

PROFILE	GROUP	USER	MAILBOX	MAILBOX Reference
PROFILE_ADM1	GROUP_BLACK	USER_ANDREW	**SKBOMBAA**	MBX_A1
		USER_ANDY	**SKBOMBAB**	MBX_A2
PROFILE_USR1	GROUP_RED	USER_BOB	**SKBOMBBA**	MBX_B1
			SKBOMBBB	MBX_B2
		USER_BRET	**SKBOMBBC**	MBX_B3
			SKBOMBBD	MBX_B4
			SKBOMBBE	MBX_B5
	GROUP_ORANGE	USER_CARL	**SKBOMBCA**	MBX_C1
			SKBOMBCB	MBX_C2
		USER_CHARLIE	**SKBOMBCC**	MBX_C3
			SKBOMBCD	MBX_C4
PROFILE_USR2		USER_CLARA	**SKBOMBCE**	MBX_C5
			SKXXMBCF	MBX_C6
			SKBOMBCG	MBX_C7
			SKBOMBCH	MBX_C8
	GROUP_GREEN	USER_DANA	**SKBOMBDA**	MBX_D1
			SKBOMBDB	MBX_D2

Table 1: Groups, mailboxes, profiles, users – relationships

7.1.3 Mailbox Configuration

7.1.3.1 Basic Mailbox Configuration

Mailboxes have to be set up using the following settings:

General Mailbox Information
See Table 1
☐Enable AMHS

Access Rights
☒The mailbox can be deleted
☒The mailbox can be monitored
☒The mailbox can receive messages
☐Route to external interface
☐The mailbox is a message sink

Thresholds
Number 100 messages
High 2 minutes
Medium 10 minutes
Low 60 minutes

Thresholds outgoing AMHS
Number 2 messages
High 1 minute
Medium 1 minute
Low 1 minutes

Attention: mailboxes MBX_B3, MBX_B4 and MBX_B5 have prerequisites.

7.1.3.2 Special Mailboxes Configuration

AMHS-related configuration:

Prerequisite: Creation of MTS Client under Menu Parameter

☒Enabled
☐Forced Access
Name: **MTS-CADAS-AIDA**

MTS Client
PSEL **'ff'H** SSEL **'ff'H** TSAP **'5033'H**
Own IP List **See AAD**
TCP-Port: **<none>**

MTA
Name **MTA-SKED**
Password **aida**
PSEL 'ff'H SSEL 'ff'H TSAP '5033'H

Frequentis General

IP-Address **See AAD IP** TCP-Port 102

Supervision
Test Interval 60
Transmission Timeout 30
Kilobyte Duration 0

Now **Add** the new mailbox with basic configuration and these specialities:

General Mailbox Information
See Table 1
☒Enable AMHS

AMHS Address
DN <empty>
Address Scheme * CAAS
→ The field Organization will be filled with AFTN
Country XX ADMD ICAO PRMD COLOMBIA
Organization SKED
Organization Unit 1 SKBO
Organization Unit 2 <empty>
Organization Unit 3 <empty>
Organization Unit 4 <empty>
Common Name <mailbox name>, e.g. SKBOMBBC SKBOMBBD
Type "Strg + E"
→ The field OR-Address will be filled with e.g.
/C=XX/ADMD=ICAO/PRMD=COLOMBIA/O=SKED /OU1=SKBO
/CN=SKBOMBBC/ and the entry in field PRMD is converted to capital letters

AMHS Bind Arguments
MTS User Password **secret**
MTS User Bind DN <empty>
MTS Client select **MTS-CADAS-AIDA**

Capabilities
☐Attachments

7.1.4 Profile Configuration

7.1.4.1 Basic Profile Configuration

Profiles have to be set up using the following settings.

Terminal Access Rights
☒Administration Terminal
☒Center Terminal

Data Validation
Unknown Aerodrome: Warning
Unknown aircraft type: Warning
Unknown waypoint/navaid designators: Ignore

Unknown route designators: Ignore
Invalid entry/exit points for route designators: Ignore
Tables of cruising levels (ICAO Annex 2): Warning
Item 19 endurance and TTLEET cross-check: Error
Arrival time in the future: Warning
EOBT/DOF in the past: Warning

Diagnosis

All items checked

Mailbox

Mailbox Access Rights
⦿Access to all mailboxes
○Access to allowed mailboxes
○Access to monitored mailboxes
Monitor Rights
⦿Access to all mailboxes in group
○Access to default mailboxes only
☒Auto Read Acknowledge allowed

Message

☒Automatically insert date of flight
☒Allowed to send messages
☒Allowed to send freetext (FRE) messages
☐Allowed to forward restricted messages

Message AMHS Attachments

☒Allowed to send AMHS messages with attachments
☒Allowed to store/open attachments of AMHS messages

Message FPL Messages

☒Allowed to send FPL and associated update messages
☒Allowed to send co-ordination messages
☒Allowed to send emergency messages
☒Allowed to send supplementary messages
☐Supplementary information (item 19) mandatory
☐Wake turbulence (item 9c) locked
☐SSR code (item 7bc) forbidden

Message IFPS Messages

☒Allowed to send operator-originated IFPS messages
☒Allowed to send IFPS-originated IFPS messages

Message Message Choke

☐Allow limitation of message…

Message Message Length

☐Maximum allowed AMHS message length

Message NOTAM Messages

☒NOTAM/ASHTAM/SNOWTAM/RQR

☒RQN/RQO/RQA/RQL

Message Folders
☒Allowed to delete messages/folder
☒Allowed to purge messages/folder

Offline Login
☐Can login in offline mode

Parameter AMHS MTS Client
☒Allowed to view MTS client parameter
☒Allowed to maintain MTS client parameter

Parameter Addresses AFTN Address List
All items checked

Parameter Addresses AMHS Address List
All items checked

Parameter Auto-Forward
☐Allowed to view auto-forward parameter
☐Allowed to maintain auto-forward parameter

Parameter Basic
All items checked

Parameter Message Auto-Print
All items checked

Parameter Preferential Routes
☒Allow to view preferential routes
☒Allowed to maintain preferential routes
☒Allow to administrate preferential routes

Parameter Stored Filter Requests
☒Allow to view stored filter requests
☒Allowed to maintain stored filter requests

Parameter Templates
All items checked

Pass Phrase
☐Enable pass phrase authentication

Retrieval
☐Limit retrieval result

Security

☐Automatically log out inactive users
☐Enable password expiry
☐Enable strong password checking
☐Enable local cache clearance
☐Lock user account after unsuccessful logins

Static Data

☒Allowed to view static data
☒Allowed to maintain static data

User Preferences

☒Allowed to edit own user preferences

7.1.4.2 Special Profile Configuration

PROFILE_ADM1

Terminal Access Rights

☒Administration Terminal
☐Center Terminal

PROFILE_USR1

Terminal Access Rights

☐Administration Terminal
☒Center Terminal

Parameter Addresses AFTN Address List

☒Allowed to view address list entries
☒Allowed to maintain local address list entries
☐ Allowed to maintain global address list entries
☐ Allowed to administrate address list entries

Parameter Addresses AMHS Address List

☒Allowed to view AMHS addresses
☒Allowed to maintain local AMHS addresses
☒Allowed to add and edit global AMHS addresses
☒Allowed to delete global AMHS addresses
☐Allowed to administrate AMHS addresses

Parameter Message Auto-Print

☐Allowed to administrate message auto-print

Parameter Preferential Routes

☒Allow to view preferential routes
☒Allowed to maintain preferential routes
☐Allow to administrate preferential routes

Parameter Templates

All items checked

PROFILE_USR2

Terminal Access Rights
☒Administration Terminal
☒Center Terminal

7.1.5 User Configuration

7.1.5.1 Basic User Configuration

Users have to be set up using the following settings:

General User Information
See Table 1
Poll Period (minutes): 0
☒Enable terminal wakeup

Default Mailboxes/Originator
Default Mailboxes:
Add mailboxes according to Table 1
☐Allowed to specify any AMHS originator

Account Lock Out
☐User account is disabled

Pass Phrase
Pass Phrase: <empty>
Pass Phrase (repeated): <empty>

Auto Expire
☐User account will be locked automatically

Miscellaneous
Phone Number: none
Comments: none

7.2 CADAS-ATS Administrators Terminal

7.2.1 GEN_14010 CADAS-ATS Login/Logout

Test Case Description		
ID / Version	**GEN_14010**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Verifies that administrator can log in / log out
Item / Feature Under Test	
Prerequisites / Preparation	Connection to CADAS-ATS server cluster established.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Start Web Browser.	The CADAS-ATS homepage is shown.
2	Start CADAS-ATS Administration Terminal.	The CADAS-ATS Administration Terminal Login window is shown.
3	Log in according to Username and Password.	The Administration Terminal main window appears.
4	Log out.	The administrator is logged out.
Comments:		

7.2.2 GEN_14020 CADAS-ATS Add/Delete an Administrator

Test Case Description		
ID / Version	**GEN_14020**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Verifies that administrators can be added and deleted.
Item / Feature Under Test	
Prerequisites / Preparation	Connection to CADAS-ATS server cluster established and **USER_ANDREW** is logged in. Two admin positions are available.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Add a new administrator with the following settings: Group: **GROUP_BLACK** Profile: **PROFILE_ADM1** Username: **USER_ADMIN** Password: “**1q1q1q1q**” (without the “) All other settings to its default values.	An administrator is added.
2	Log in as the new administrator in **USER_ADMIN**.	Login successful and the CADAS-ATS Administration Terminal main window appears.
3	In **USER_ANDREW**, delete the new administrator, **USER_ADMIN**.	The new administrator is deleted and is logged out automatically.
4	Attempt to log in as **USER_ADMIN**.	Log in not possible. This is reported as an event (admin terminal).
5	In **USER_ANDREW**, delete yourself as an Administrator.	An error occurred saying "You have been logged in as this user. Some users has not been deleted"
Comments:		

7.2.3 GEN_14030 CADAS-ATS Add/Delete Mailbox

Test Case Description		
ID / Version	**GEN_14030**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Verifies that mailboxes can be added or removed.
Item / Feature Under Test	
Prerequisites / Preparation	Connection to CADAS-ATS server cluster established. Admin **USER_ANDREW** is logged in to an Administration Terminal. User **USER_CARL** is logged in to Center Terminal **USER_CHARLIE** is logged in to Center Terminal.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	**USER_ANDREW**: Add a mailbox with the following settings: Group: **GROUP_ORANGE** Name: <choose Mailboxname> Specify some X.400 address, for example: (**/C=XX/A=ICAO/P=COMSOFT/O=COLOMBIA/OU1=SKBO/CN=SKBOMBOX/** Select suitable MTS Server. Leave all other settings to default values. Save In AIDA-NG please configure the necessary P3 LA and local user to get the new mailbox connected to the MTA.	A new mailbox is added. Switch to **USER_CARL**, open Select Mailboxes dialog in menu Message / Monitor/Release Mailboxes. The following is visible: On the left side under Released: the new mailbox <Mailboxname> is added to the list. The new mailbox is connected to the MTA.
2	In ATS Terminal, **USER_CARL** monitor the new mailbox. That means, in the Select Mailboxes dialog in menu Message / Monitor/Release Mailboxes, select the new mailbox <Mailboxname> and click the Monitor-Button.	The new mailbox is monitored and appears to the Monitored mailboxes of **USER_CARL**. That means, in this dialog the mailbox <Mailboxname> is moved from the right side (Released) to the left side (Monitored). And in the Pending Messages Dialog the mailbox <Mailboxname> is shown in the list on the left side.
3	**USER_CHARLIE**: Send a Free Text message to the new mailbox.	A message is sent to the new mailbox and it appeared in the Pending Messages window of **USER_CARL**. **USER_CARL** acknowledges the message.
4	Delete the new mailbox in **USER_ANDREW** Terminal.	The new mailbox is successfully deleted and disappeared in the monitored mailboxes of **USER_CARL**.
Comments:		

7.2.4 GEN_14050 CADAS-ATS System Status

Test Case Description		
ID / Version	**GEN_14050**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Verifies that actions done in the server cluster can be viewed in the Admin Terminal under system status.
Item / Feature Under Test	
Prerequisites / Preparation	Connection to CADAS-ATS server cluster established and an administrator (**USER_ANDREW**) is logged in. The MEP connection to AIDA-NG is up.

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Stop the Message Handler 1 on one of the servers of the server cluster.	Message handler will be stopped. System status changes to orange. The Message Handler 1 on red alarm, alive, databases and local applications are on red alarm too
2	Start the Message Handler 1.	System status will show the Message Handlers are ok.
3	Stop the Terminal Server 1 application.	System status changes to orange. Terminal Server 1 status changes to red.
4	Start the Terminal Server 1 application.	System status changes to green. Terminal Server 1 status backs to normal.
Comments:		

7.2.5 GEN_14060 Idle Logout

Test Case Description		
ID / Version	**GEN_14060**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Tests automatic logout of idle users.
Item / Feature Under Test	
Prerequisites / Preparation	USER_ANDREW logged in to the Admin Terminal.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	**USER_ANDREW** changes **PROFILE_USR1**. Here the security option: “Automatically log out inactive users” is selected and set to 1 minute.	**PROFILE_USR1** is changed.
2	Log in **USER_CHARLIE**.	**USER_CHARLIE** is logged in.
3	Do not use the keyboard or mouse for 1 minute.	**USER_CHARLIE** is automatically logged out.
4	**USER_ANDREW** changes **PROFILE_USR1**. The automatic idle logout is disabled again.	**PROFILE_USR1** is changed.
Comments:		

7.3 CADAS-ATS Center Terminal

7.3.1 GEN_16010 Offline Login

Test Case Description		
ID / Version	**GEN_16010**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Verifies that a user is able to log in using the offline mode and access messages that the terminal has already seen.
Item / Feature Under Test	
Prerequisites / Preparation	A terminal is connected to the CADAS-ATS terminal server cluster via LAN and has the correct JRE installed. User (**USER_CLARA**) is logged in to the Center Terminal. Offline login is allowed for the user (cf. profile)

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Log in as **USER_CLARA** into the Center Terminal using the normal remote server login.	User is logged in.
2	Send a simple freetext text message from MBX_C5 to MBX_C6. Go to folder view and check folder MBX_C6.	The test message is received in the MBX_C6 folder.
3	Wait at least one minute until the message sent in step 2 is persisted. Log out **USER_CLARA**.	User is logged out.
4	Log in user **USER_CLARA** into the Center Terminal. Enable the offline option on the login page to enable the offline login.	User is logged in in offline mode.
5	Go to the folder view and check the inbox of the MBX_C6 folder.	The test message that was available during the online login is now also accessible during offline login.
Comments:		

7.3.2 GEN_16020 Mailbox Folder Message

Test Case Description		
ID / Version	**GEN_16020**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Verify that incoming and outgoing messages are stored separately in folders. Verify that only the folders for monitored mailboxes are displayed. Verify that no inconsistencies occur even if folders are monitored from different terminals.
Item / Feature Under Test	
Prerequisites / Preparation	User is logged into a CADAS-ATS Center Terminal as **USER_CLARA** monitoring mailboxes **MBX_C5** and **MBX_C6**. A second user is logged in into a second CADAS-ATS Center Terminal as **USER_CHARLIE** monitoring mailbox **MBX_C3**. Make sure that the message choking feature is not configured too low for this test.

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Make sure that **USER_CLARA** monitors 2 mailboxes (System - Monitor/Release Mailboxes): **MBX_C5** and **MBX_C6** Switch to the folder view (Message->Message Folders)	For each mailbox the incoming and outgoing folder is displayed. The number of pending messages and the total number of messages is displayed for each folder.
2	Send a message from **USER_CLARA** to the mailbox monitored by **USER_CHARLIE** (**MBX_C3**) using the address of mailbox **MBX_C5** as originator.	The number of messages in the outgoing folder of mailbox **MBX_C5** increases by 1.
3	Send a message from **USER_CLARA** to the mailbox monitored by **USER_CHARLIE** (**MBX_C3**) using the address of mailbox **MBX_C6** as originator.	The number of messages in the outgoing folder of mailbox **MBX_C6** increases by 1.
4	**USER_CHARLIE**: Send 2 messages from **USER_CHARLIE** to the mailbox **MBX_C5** of **USER_CLARA**.	The number of messages in the incoming folder of mailbox **MBX_C5** increases by 2. The new messages are indicated as pending (highlighted).
5	**USER_CHARLIE**: Send 2 messages from **USER_CHARLIE** to the mailbox **MBX_C6** of **USER_CLARA**.	The number of messages in the incoming folder of mailbox **MBX_C6** increases by 2. The new messages are indicated as pending (highlighted).
6	**USER_CLARA**: Acknowledge one of the newly received messages in each incoming folder of **USER_CLARA**. (**MBX_C5** and **MBX_C6**)	The total number of messages in both incoming folders does not change, but the number of pending messages (highlighted) decreases by 1 each.
7	**USER_CHARLIE**: Send a message containing the addresses of mailbox **MBX_C5** and mailbox **MBX_C6** of **USER_CLARA**	The number of messages in both incoming folders increases by 1. The new messages are indicated as pending (highlighted).
8	**USER_CLARA**: Release mailbox **MBX_C6** of **USER_CLARA** (Message->Monitor/Release Mailboxes).	Only mailbox **MBX_C5** and its subfolders are displayed.

9	**USER_CLARA**: Acknowledge the last received message in the incoming folder of mailbox **MBX_C5**.	The number of pending (highlighted) messages in the incoming folder decreases by one.
10	**USER_CLARA**: Monitor mailbox **MBX_C6** again.	Both mailboxes and their subfolders are displayed. The last received message is still being displayed as pending in mailbox **MBX_C6** but not in mailbox **MBX_C5.**
11	**USER_CLARA**: Please log out. Then log in as the same user, but on a third terminal. Switch to folder view.	The total number of messages and the number of pending messages displayed in each folder does not differ from the previous step.
12	**USER_CLARA**: Acknowledge the last received message in the incoming folder of mailbox **MBX_C6**.	The number of pending (highlighted) messages in the incoming folder of mailbox **MBX_C6** decreases by one.
13	**USER_CLARA**: Please log out from terminal 3. Then log in as the same user, but on the terminal used initially. Switch to folder view.	The total number of messages and the number of pending messages displayed in each folder does not differ from the previous step.
14	**USER_CHARLIE** and **USER_CLARA**: Please acknowledge all pending messages from the mailboxes **MBX_C3**, **MBX_C5**, **MBX_C6**.	There should be no more pending messages in these three mailboxes.
Comments:		

7.3.3 GEN_16030 Move Messages in Folder

Test Case Description		
ID / Version	**GEN_16030**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Verifies that the user can move messages in displayed folders.
Item / Feature Under Test	
Prerequisites / Preparation	User logged in to a CADAS-ATS Center Terminal as **USER_CHARLIE** is logged in to the Center Terminal**.**

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Open the Message Filter view (Menu: Parameter – Message Filter).	Message Filter table is visible.
2	Open new Message Filter dialog using the “Add”-button. Enter Name “Test”	The “Add Message Filter”-dialog is visible.
3	Enable the Message Filter, choose “Move”, enter **MBX_C3** into “From address” field, and select **MBC_C4** as “To address”.	“In folder” field indicates an error: Missing folder.
4	In folder press Select button and create new folder “Other” under the inbox. Select the new folder “**MBX_C4** : Other” and press OK button.	“**MBX_C4** : Other” is shown in “In folder” field.
5	Press “Store+Close”.	The new Message Filter entry is now visible in the "Message Filter" table.
6	Open Message Folder view (Menu: Message – Message Folder) and expand complete tree on the left side of the view.	Message Folder view is visible and all tree nodes are visible.
7	Send a freetext message from **MBX_C3** to **MBX_C4** and wait up to one minute.	Message appears in Outbox of **MBX_C3** and in newly created folder “Other”. The entry in “Other” is written in bold font.
8	Go to Message Folder view and expand MBX_C4 and delete the folder “Other”	Folder “Other” is deleted.
9	Check the Message filter that uses the folder “Other”	The Message filter entry “Test” is also deleted from the list.
Comments:		

7.3.4 GEN_16040 Filter Messages in Folder

Test Case Description		
ID / Version	**GEN_16040**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Perform move action for folder view via Message Filter.
Item / Feature Under Test	
Prerequisites / Preparation	User logged in to a CADAS-ATS Center Terminal as **USER_CLARA** monitoring mailboxes **MBX_C5**, **MBX_C6**, **MBX_C7** and **MBX_C8**.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Send two free text messages and one FPL message from **MBX_C5** to **MBX_C6**.	The messages are generated and successfully sent.
2	Open "Message" – "Message Folder".	“Message Folder" view is visible.
3	Expand the folder tree with "Expand All" provided by the context menu.	The mailboxes and their subfolders are visible in the tree view. The messages sent in step 1 are displayed in the "Inbox" of **MBX_C6**.
4	Press the “Filter” button in the tool bar.	The “Choose FilterType” dialog opens.
5	Press the "Expert Filter" button.	The Retrieval Specification Setup window opens.
6	Specify the following criteria: Message Type is FRE, Recording Timestamp: Relative (0d 0h 30m) and activate the search.	Only the two free text messages are visible within the “Inbox” of **MBX_C6**.
7	Edit the filter and change the Message Type from FRE to FPL and start the search.	Only the FPL (if any) is visible within the “Inbox” of **MBX_C6**.
8	Press the “Close Filter” button.	The messages sent in step 1 are displayed in the "Inbox" of **MBX_C6**.
Comments:		

7.3.5 GEN_16050 Custom Message Types

Test Case Description		
ID / Version	**GEN_16050**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Messages that belong to a type defined here are indicated as such on the *Message Folders* tab page and the *Pending Messages* tab page. Furthermore, and you can select the defined message types from the *Groups* list for message retrieval.
Item / Feature Under Test	
Prerequisites / Preparation	**USER_ANDREW** logged in at CADAS-ATS Admin Terminal. **USER_CLARA** can monitor the mailboxes **MBX_C5**, **MBX_C6**, **MBX_C7** and **MBX_C8**.

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	**USER_ANDREW**: (Menu -- Parameter -- System Parameters -- Custom Message Type). Edit the message type table and add a new type with a message text filter ‘Message Body’ contains “message type 1”. Also assign a colour to this type.	A new message type can be added.
2	Login **USER_CLARA** to CADAS-ATS Center Terminal.	USER_CLARA logs in.
3	Send one free text message containing the text “message type 1” from **MBX_C5** to **MBX_C6**.	The message is generated and successfully sent.
4	Open "Message" – "Message Folder" or “Pending Messages”	“Message Folder" / “Pending Messages” view is visible. The message is visualised with the assigned colour
Comments:		

7.3.6 GEN_16060 Messages Auto Forward

Test Case Description		
ID / Version	**GEN_16060**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Auto-forward messages.
Item / Feature Under Test	
Prerequisites / Preparation	Administrator (**USER_ANDREW**) is logged in to the Administration Terminal and adapts **PROFILE_USR1** Auto-Forward setting: ☒Allowed to view auto-forward parameter ☒Allowed to maintain auto-forward parameter LDDDAMHS configured in ATS AMHS address book

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	**USER_CHARLIE** logs in to the Center Terminal.	**User logged in.**
2	Configure in menu Parameter -> Message Auto-Forward: Enable auto forwarding for **MBX_C4 to MBX_C5** and external address **LDDDAMHS**	Auto forward for **MBX_C4** configured**.**
3	**USER_CHARLIE** sends some free text messages from **MBX_C3** to **MBX_C4**.	Messages sent and appear in the Outbox folder of **MBX_C3**.
4	**USER_ CHARLIE** to check inbox of **MBX_C4**.	Previously sent messages appear in the inbox of **MBX_C4** but they are not pending.
5	**USER_CLARA** logs in to the Center Terminal and check pending messages.	Previously sent messages were forwarded and are pending in **MBX_C5**. The original originator **MBX_C3** is replaced by **MBX_C4**.
6	**USER_CLARA** acknowledge pending messages.	Messages are acknowledged.
7	Check messages received by the external recipient.	External recipient (AIDA-NG AMHS Box) got all the forwarded messages as well.
8	**USER_CHARLIE** logs in to the Center Terminal again and removes the auto forward setting for **MBX_C4**.	Changes accepted.
Comments:		

7.3.7 GEN_16070 Auto Read Acknowledge

Test Case Description		
ID / Version	**GEN_16070**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Verifies the auto read acknowledge function.
Item / Feature Under Test	
Prerequisites / Preparation	Log in to CADAS-ATS Center Terminal. **USER_DANA** is monitoring mailbox MBX_D1

Test Procedure		
Step	**Test Action**	**Expected Results**
1	USER_DANA: Enable auto read acknowledge.	Auto read acknowledge is enabled.
2	Start auto read acknowledge.	Pending messages are auto read acknowledged
Comments:		

7.3.8 GEN_16080 Free Text Message Entry

Test Case Description		
ID / Version	**GEN_16080**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Verify the ability of the system to enter free text messages (without parenthesis).
Item / Feature Under Test	
Prerequisites / Preparation	2 users (**USER_CHARLIE** and **USER_CLARA**) are logged in to CADAS-ATS Center Terminals. **USER_CHARLIE** is monitoring mailbox **MBX_C3**. **USER_CLARA** is monitoring mailbox **MBX_C5**.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	**USER_CHARLIE**: Switch to folder view. Open the free text message composer and send a message containing a free text to **MBX_C5** monitored by **USER_CLARA**.	The number of messages in the outgoing folder increases by 1. The Free Text Message arrives in mailbox **MBX_C5**.
2	**USER_CLARA**: Open the transmitted message.	The text entered in the previous step is displayed in the message viewer without any parenthesis.
3	**USER_CHARLIE**: Send a free text messages to MBX_C5. Select “AFTN/AFS IA5” (not “Full IA5”) character set (bottom right of free text message dialog). Try to use non ICAO conform characters as they are defined in Annex 10, i.e. try to use characters that are not in the set: [-?:().,'=/+ ABCDEFGHIJKLMNOPQRSTUVWXYZ 1234567890]	It is not possible to enter inappropriate characters into the form.
4	**USER_CHARLIE**: Send a free text messages to **MBX_C5**. Select “Full IA5” character set (bottom right of free text message dialog). Enter IA5 encoding characters and send the message to **MBX_C5** monitored by **USER_CLARA**.	The Free Text Message arrives in mailbox **MBX_C5** with the characters entered before.
5	**USER_CLARA**: Please acknowledge the pending messages in you pending messages list.	
Comments:		

Frequentis General

7.3.9 GEN_16090 Message Retrieval

Test Case Description		
ID / Version	**GEN_16090**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Demonstrate retrieval functionality for users and administrators (no matching records found).
Item / Feature Under Test	
Prerequisites / Preparation	Log in to CADAS-ATS Center Terminal. **USER_DANA** is monitoring mailbox MBX_D1

Test Procedure		
Step	**Test Action**	**Expected Results**
1	USER_DANA: Open Retrieval Specification Setup by selecting Retrieval → New Retrieval.	The Retrieval Specification Setup window will open.
2	Make a retrieval which should not result in any messages being found. Enter "thisisnottobefound" in the free text search criteria line.	In Retrieval Result a message will appear: "No matching messages found".
3	Open Retrieval Specification Setup by selecting Retrieval → New Retrieval and perform following retrievals.	The Retrieval Specification Setup window will open.
4	Specify the recording timestamp and activate the search.	Retrieval result will be according to the specified timestamp.
5	Specify one or more of the following criteria: Filing Time, Transmission ID and AFTN addresses, originator, and Free Text.	Retrieval result will be according to the specified criteria.
6	Specify Message-Related criteria: at least call sign and departure aerodrome should be tested for FPLs.	Retrieval result will be according to the message-related criteria.
7	Specify User-Related criteria.	Retrieval result will be according to the user-related criteria.
8	From System Related: select only incoming messages.	Retrieval result shows only incoming messages.
Comments:		

7.3.10 GEN_16100 Printing

Test Case Description		
ID / Version	**GEN_16100**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Verifies the capabilities of the system to print messages.
Item / Feature Under Test	
Prerequisites / Preparation	Log in to CADAS-ATS Center Terminal. **USER_DANA** is monitoring mailbox MBX_D1 Printer configured in CADAS ATS.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Check if CUPS is available and running by opening the local CUPS web interface (http://localhost:631)	CUPS web interface is shown
2	Verify the printer settings in CUPS	Printer is configured and available
3	**USER_DANA**: Open Retrieval Specification Setup by selecting Retrieval → New Retrieval.	The Retrieval Specification Setup window will open.
4	Make a retrieval which matches some messages.	Messages are shown in the Retrieval Result.
5	Select a message and print it.	The message gets printed as shown in the preview display.
Comments:		

7.3.11 GEN_16120 Preferential Routes

Test Case Description		
ID / Version	**GEN_16120**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Verifies that the user can add, edit and delete preferential routes Verifies that the preferential routes offered to the user are based on the entry in fields 7 (aircraft ID), 13 (departure aerodrome) and 16 (destination aerodrome) of the FPL form. Verifies that it is possible to disallow creation of or access to preferential routes via user profiles.
Item / Feature Under Test	
Prerequisites / Preparation	**USER_CARL** is logged in to a CADAS-ATS Center Terminal. Initially the user's profile allows viewing and management of preferential routes. Another user is logged in to an Administration Terminal. The departure aerodrome is setup in the user preferences of **USER_CARL**.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	**USER_CARL** adds a preferential route stating the user's departure aerodrome and provides Read access for the group and no access for everybody else. Details: click menu Parameter->Preferential routes->Add	The preferential route is added to the list.
2	**USER_CARL** prepares a flight plan (departure/destination aerodrome) for a routing which can use the preferential route from step 1.	Flight plan template is prepared.
3	Search for preferential routes via (File/Search Preferential Route) or directly via toolbar icon.	The filter dialogue is pre-set with the departure aerodrome.
4	Select 'Show partial routes'. Perform the search and select one of the offered routes.	The search result includes only preferential routes with the given departure aerodrome. The information from the selected preferential route is included in the flight plan (e.g. ADEP, ADES, route-segment). The route specified in step 1 will be visible.
5	Repeat the previous 2 steps with the destination aerodrome and the aircraft ID pre-set in the FPL.	The filter dialogue is pre-set according to the content of fields 7, 13 and 16. The search result contains only preferential routes matching the filter specification.
6	**USER_CARL** edits a selected preferential route.	The selected preferential route is edited.
7	**USER_CARL** deletes the preferential route.	The selected preferential route is deleted.

8	Go to the Admin terminal and disallow maintaining of preferential routes **PROFILE_USR1** Preferential Routes ☐ Allowed to maintain preferential routes.	Accepted.
9	Relogin **USER_CARL** into CADAS ATS Center Terminal. Switch to Preferential Routes View. Try to add, edit or delete a preferential route.	The icons are not accessible. It is also not possible to add, edit or delete a route via context menu.
10	Try to create a new preferential route from an FPL, CPL, ALR or AFP form (either from the "File" menu or from the toolbar). Try to create a new preferential route via popup menu on the route field.	The functions are not accessible.
11	Try searching for a preferential route in one of the following forms (either from the "File" menu or from the toolbar): FPL, CPL, ALR or AFP.	The search dialogue appears.
12	Perform the search. Then select one of the routes and view the detail ("View" button).	It is possible to view the details of the preferential route.
13	Disallow viewing of preferential routes in the user's profile. Then log out and log in again. Try to switch to the Preferential Routes View.	The view is not accessible.
14	Try searching for a preferential route in one of the following forms (either from the "File" menu, from the toolbar or from popup menu on the route field): FPL, CPL, ALR or AFP.	The functions are not accessible.
Comments:		

7.3.12 GEN_16130 Sending / Receiving NOTAM (related) messages

Test Case Description		
ID / Version	**GEN_16130**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Verifies that CADAS can send, receive and recognise valid NOTAM and NOTAM related messages.
Item / Feature Under Test	
Prerequisites / Preparation	USER_BOB is logged in to the Center Terminal. The syntax of NOTAM and NOTAM related messages give many possibilities to change the order of letters or digits. Therefore, the test cases cover the main mistakes that can be done during entering the data. Feel free to undertake additional test cases. '_' indicates an ASCII space character.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Send a SNOWTAM or other NOTAM or related message from MBX_B1 to MBX_B2.	All sent messages are pending in mailbox MBX_B2. The messages have the right type in the column “Type”. Open each pending message. The corresponding message form appears. The content of all message fields is correct.
2	Save the messages in free text format as a template for easy reuse.	NOTAM templates are stored.
Comments:		

7.3.13 GEN_16140 NOTAM access rights

Test Case Description		
ID / Version	**GEN_16140**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Shows that CADAS allows configuring NOTAM access rights within profiles. CADAS allows sending NOTAM messages. Within the profile of a user, it is possible to define the type of NOTAM message the user is allowed to send. This test verifies that it is possible to define the type of NOTAM message a user is allowed to send.
Item / Feature Under Test	
Prerequisites / Preparation	USER_ANDREW is logged in to the Administration Terminal USER_BOB is logged in to the Center Terminal.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Edit profile of USER_BOB (PROFILE_USR1) **Message - NOTAM** ☐ NOTAM ☐ ASHTAM ☐ SNOWTAM ☐ RQR ☐ RQN/RQO/RQA/RQL	Accepted.
2	USER_BOB: Login to the Center Terminal. Try to send a NOTAM message.	All types of NOTAM messages are greyed out. It is not possible to open a NOTAM form.
3	Try to send the NOTAM messages by using the Free Text Form. e.g.: (A1234/10 NOTAMN Q)EDFF/QABER/I/N/E/000/992/ A)EDDF EDDM B)1011151214 C)1012151200 E)TEXT)	It is not possible to send the messages.
4	Go to Parameter – Templates and try to operate the stored templates.	It is not possible to operate the stored templates.
5	USER_ANDREW: Edit the profile of USER_BOB (PROFILE_USR1). **Message - NOTAM** ☒ RQN/RQO/RQA/RQL	Accepted.
6	Re-login USER_BOB. Try to send a NOTAM / RQR message (e.g. by operating an existing template, by Free Text form or menu NOTAM).	The user is not able to send message(s) of this type.
7	Send RQN / RQL / RQA / RQO message.	The user is allowed to send messages of this type.

8	USER_ANDREW: Edit the profile of USER_BOB (PROFILE_cUSR1). **Message - NOTAM** ☒ NOTAM ☒ ASHTAM ☒ SNOWTAM ☒ RQR	Accepted.
Comments:		

7.3.14 Alarms

7.3.14.1 GEN_16151 CADAS-ATS Temporarily Mute Alarm

Test Case Description		
ID / Version	**GEN_16151**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Verifies that the user can mute audio alarms temporarily.
Item / Feature Under Test	
Prerequisites / Preparation	**USER_BOB** is logged into a CADAS-ATS Center Terminal. The Alarm for "High priority message added to pending list" is enabled and has a repeated auto alarm.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Send to yourself a message with priority SS	An alarm is triggered for "High priority message added to pending list". An audio signal is played repeatedly
2	Open popup menu on the alarm label in the status bar (right click) and select "Mute temporarily"	The audio signal is not played anymore
3	Send to yourself a second message with priority SS	The audio signal is played (again) repeatedly
Comments:		

7.3.14.2 GEN_16152 CADAS-ATS Permanently Mute Alarm

Test Case Description		
ID / Version	**GEN_16152**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Verifies that the user can mute audio alarms permanently.
Item / Feature Under Test	
Prerequisites / Preparation	**USER_BOB** is logged into a CADAS-ATS Center Terminal. The Alarm for "High priority message added to pending list" is enabled and has a repeated auto alarm. Empty pending messages.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Send to yourself a message with priority SS	An alarm is triggered for "High priority message added to pending list". An audio signal is played repeatedly
2	Open popup menu on the alarm label in the status bar (right click) and select "Mute permanently"	The audio signal is not played anymore
3	Send to yourself a second message with priority SS	The audio signal is (still) not played
Comments:		

7.4 CADAS-ATS AMHS

7.4.1 GEN_18040 CADAS-ATS Add an Address Book Entry (Free Address)

Test Case Description		
ID / Version	**GEN_18040**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Add a free address book entry to the existing setup
Item / Feature Under Test	
Prerequisites / Preparation	**USER_BRET** is logged into Center Terminal

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Open the address book table view (Menu: Parameter – AMHS Addresses).	The AMHS Addresses table view is visible.
2	Select "LOCAL" tab.	The "LOCAL" table view is visible.
3	Open an address-dialog using the “Add”-button.	An “Add AMHS Addresses”-dialog is visible.
4	Select “Free” to add a mailbox not covered by XF, CN or CAAS Schema	The “OR-Address” field becomes editable
5	Type in an address into "OR-Address" field not covered by XF, CN or CAAS Schema (e.g. "/C=XX/ "). Type in an address book entry name starting with # and check the input with Ctrl-E.	The “Store+Close”-button becomes active.
6	Press "Store+Close".	The new address book entry is now visible in the “AMHS Addresses” table
Comments:		

7.4.2 GEN_18045 AFTN/AMHS message to external Partner

Test Case Description		
ID / Version	**GEN_18045**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	This test verifies that AIDA can transform, route and transmit ATN messages from CADAS terminals to external AFTN/AMHS partner and vice versa.
Item / Feature Under Test	
Prerequisites / Preparation	**USER_BRET** is logged into Center Terminal AMHS Conversion Settings: ☒ MTCU always converts SS-ACK to an IPM AIDA-NG: AFTN Mailbox: ack receipt for SS Messages

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Create and send an AMHS message: Originator is MBX_B3, Destination (AMHS Mailbox) is one of the test partners.	The message is displayed in the AMHS mailbox of the test partner.
2	Reply on the test partner the message to the CADAS user.	The message is displayed on the CADAS terminal.
3	Repeat above steps but sending SS messages.	The SS message is displayed in the AMHS mailbox of the test partner. After opening the message, an IPN-RN is generated automatically and the IPN is transmitted back to the CADAS terminal, where it is indicated in the mailbox. The SS message to the CADAS user is displayed on the CADAS terminal. When acknowledging the received message, the IPN-RN is generated by CADAS automatically. The IPN is transmitted to the AMHS mailbox of the test partner.
4	Create and send an AFTN message: Originator is MBX_B3, Destination (AFTN mailbox) is one of the test partners.	The message is displayed in the AFTN mailbox of the test partner.
5	Reply on the test partner the message to the CADAS user.	The message is displayed on the CADAS terminal.

6	Repeat above steps 4 & 5 but sending SS messages.	As in step 4. When opening the message in the AFTN mailbox, the test partner generates an AFTN-ACK message automatically. The message is converted by the MTCU of SUT into IPM and transmitted to the mailbox of the CADAS users. As in step 5. When acknowledging the message, CADAS generates an IPN-RN, which is converted by the MTCU of the SUT to AFTN-Ack and transmitted to the AFTN mailbox of the AFTN test partner system.
Comments:		

7.4.3 GEN_18050 CADAS-ATS RN Requests and RN Generation

Test Case Description		
ID / Version	**GEN_18050**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	RN requests and generation
Item / Feature Under Test	
Prerequisites / Preparation	**USER_BRET** is logged into Center Terminal

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Create and send a AMHS message: Originator is MBX_B3, Destination is MBX_B4, Priority is set to SS	The message is send and received successfully.
2	Open received message.	The received message has the priority SS.
3	Acknowledge message	The received message disappears from pending list and a RN (Receipt Notification) occurs in the pending list.
4	Open the received RN	The "Original Receipt Time" is equal to the acknowledge time.
5	Acknowledge the RN	RN disappears from pending list.
Comments:		

7.4.4 GEN_18060 CADAS-ATS NRN Requests and NRN Generation

Test Case Description		
ID / Version	**GEN_18060**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	NRN requests and generation
Item / Feature Under Test	
Prerequisites / Preparation	**USER_BRET** is logged into Center Terminal. Please make sure that no report is requested ("Terminal" – "Own User Preferences" – "AMHS Message" – "Report Requests (Message)" set to "No Report"). Please make sure that auto discard expired messages is enabled ("Parameter" – "System Parameter" – "AMHS" – "Auto discard expired messages" checked).

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Create a AMHS message with the following settings: • Originator is **MBX_B3**, Destination is **MBX_B4**, • Priority is set to FF, • "Non Receipt Notification" (NRN) for Destination MBX_B4 (open context menu on **MBX_B4** – "Open entry options").	
2	Open "Options" - "Heading Attributes". Set "Expiry-Time" to now + 2 minutes.	
3	Send the message.	The received message appears in the pending list.
4	Do not acknowledge the message, but wait.	After 2 minutes + 1 … 100 seconds the message disappears from pending list and a NRN (Non Receipt Notification) occurs in the pending list.
5	Open the received NRN	The message contains: Non Receipt Reason: IPM_DISCARDED, Discard Reason: IPM_EXPIRED.
6	Acknowledge the NRN	The NRN disappears from pending list.
Comments:		

7.4.5 GEN_18070 CADAS-ATS Probes and Delivery Reports

Test Case Description		
ID / Version	**GEN_18070**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Support of Probe submission and reception of Delivery reports
Item / Feature Under Test	
Prerequisites / Preparation	**USER_BRET** is logged into Center Terminal

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Open the user preferences (Menu: Terminal – Own User Preferences). Select menu item “AMHS Message”. Select “All Reports” for "Report Requests (Probe)". Press the “Store data”-button.	The user preferences are stored.
2	Create an AMHS message in the free text form with the following settings: Originator is **MBX_B3**, Destination is **MBX_B4**.	The "Send – Free Text" form is visible.
3	Send this message as a probe using the “Send as Probe”-Action from the “File”-Menu.	The probe is successfully generated and sent. A "Delivery Report" (DR) is received.
4	Open and inspect the received Delivery Report.	The report indicates the successful delivery.
5	Acknowledge the report.	The report disappears from pending list.
Comments:		

7.4.6 GEN_18080 CADAS_ATS Probes and Non Delivery Reports

Test Case Description		
ID / Version	**GEN_18080**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Support of Probe submission and reception of Non Delivery reports
Item / Feature Under Test	
Prerequisites / Preparation	**USER_BRET** is logged into Center Terminal

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Open the user preferences (Menu: Terminal – Own User Preferences). Select menu item “AMHS Message”. Select “All Reports” for Report Requests (Probe). Press the “Store data”-button.	The user preferences are stored.
2	Create a AMHS message in the free text form with to the following settings: Originator is MBX_B3, Destination a non-routable AMHS address. Example: #UNKNOWN from global Addressbook or " $ /C=XY/;"	The "Send – Free Text" form is visible.
3	Send this message as a Probe using the “Send as Probe”-Action from the “File”-Menu.	The probe is successfully generated and sent. A "Non Delivery Report" (NDR) is received.
4	Open and inspect the received Non Delivery Report.	The report indicates the non delivery reason.
5	Acknowledge the report.	The report disappears from pending list.
Comments:		

7.4.7 GEN_18090 CADAS-ATS Handling of Primary and Copy Recipients

Test Case Description		
ID / Version	**GEN_18090**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Correct handling of primary and copy recipients
Item / Feature Under Test	
Prerequisites / Preparation	**USER_BRET** is logged into Center Terminal. A third AMHS mailbox exists. Copy **MBX_B4** to create **MBX_B5** by using the Admin Terminal.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Create and send an AMHS message: • Originator **MBX_B3**, • Primary Recipient ("TO") **MBX_B4**, • Copy Recipient ("CC") **MBX_B5**.	The message is generated and successfully sent.
2	Inspect pending messages for **MBX_B4**	**MBX-B4** has received the message
3	Inspect pending messages for **MBX_B5**	**MBX-B5** has received the message
4	Acknowledge messages.	The messages disappear from pending list.
Comments:		

7.4.8 GEN_18110 CADAS-ATS File Attachments

Test Case Description		
ID / Version	**GEN_18110**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Checks that an AMHS Message can be sent and received containing file attachments
Item / Feature Under Test	
Prerequisites / Preparation	**USER_BRET** is logged into Center Terminal

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Create an AMHS freetext message with the following settings: • Originator is **MBX_B3**, • Destination is **MBX_B4**.	Send message window is opened and prepared
2	Add attachment to the message (max size 1 MB). E.g. simple textfile containing some text or a pdf file that does not exceed the max size mentioned above.	Attachment is added
3	Send message	Message is sent
4	Open received message containing the attachment. Open attachment view and store attachment.	Received message contains the same data that has been used for the sent message
Comments:		

7.4.9 GEN_18120 AMHS IHE Extension

Test Case Description		
ID / Version	**GEN_18120**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Checks that an AMHS Message can be sent and received containing functional group IHE extensions
Item / Feature Under Test	
Prerequisites / Preparation	**USER_BRET** is logged into Center Terminal **MBX_B3** must have a capability IPM Heading Extension enabled in AMHS mailbox settings.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Create an AMHS freetext message with the following settings: • Originator is **MBX_B3**, • Destination is **MBX_B4**.	Send message window is opened and prepared
2	Click Message Options on top of the message composer window. The left pane of the message options window displays the available options in a navigation tree. Select an entry to display its settings in the right pane. Change some IPM Attributes	AMHS message format changes to IHE and the IPM Attributes can be changed.
3	Send message	Message is sent
4	Open the received message and click the message options.	IPM attributes set by the originator can be inspected.
Comments:		

Frequentis General

7.4.10 GEN_18130 Configure AMC Tables Import

Test Case Description		
ID / Version	**GEN_18130**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Check if AMC Tables from a local storage / usbstick can be imported into CADAS
Item / Feature Under Test	
Prerequisites / Preparation	**ADMIN_ANDREW** is logged into Administration Terminal

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Open System Parameters -> Address Conversion	AMHS Address conversion order can be edited
2	Open System Parameters -> AMC Tables and import tables from USB stick to User Address, MD and CAAS lookup tables	AMC tables can be imported from USB stick
3	Delete an entry from either tables and reimport the same tables from USB stick.	Deleted entries from previous import are restored.
Comments:		

7.4.11 GEN_18140 AMC Tables Handling

Test Case Description		
ID / Version	**GEN_18140**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	With AMC Tables, you help the system to assign AFTN addresses to their AMHS equivalents and vice versa.
Item / Feature Under Test	
Prerequisites / Preparation	**USER_ANDREW** is logged into Admin Terminal. USER_ANDREW's profile have the following access rights: ☒ Allowed to view AMC parameter ☒ Allowed to maintain AMC parameter The AMC Tables are recently imported.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Select Parameter -> AMC Tables	3 Tabs with the following AMC tables are shown: User Address Lookup Table MD Lookup Table CAAS Lookup Table
2	Open a table entry in the User Address Lookup Table and change e.g. the user short name to a different value	The user short name can be changed
3	Add an entry to the User Lookup Table	An entry can be added
4	Open a table entry in the MD Lookup Table and change e.g. the PRMD name to a different value	The PRMD name can be changed
5	Add an entry to the MD Lookup Table	An entry can be added
6	Open a table entry in the CAAS Lookup Table and change e.g. the Organization name to a different value	The Organization name can be changed
7	Add an entry to the CAAS Lookup Table	An entry can be added
8	Undo all the changes	
Comments:		

7.5 CADAS-ATS IWXXM

7.5.1 GEN_19010 RQX Form

Test Case Description

ID / Version	**GEN_19010**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	RQX Form (Request IWXXM Data)
Item / Feature Under Test	
Prerequisites / Preparation	**USER_BRET** is logged into Center Terminal

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Create a RQX message with the following settings: Originator is MBX_B3, Destination is MBX_B4. Enter LCEGLL into the RQX field.	RQX message window is opened and prepared.
2	Send RQX message.	RQX message is sent and displayed in the 'Pending Messages' view with 'Msg. Type' RQX-METEO.
Comments:		

7.5.2 GEN_19020 IWXXM Viewer

Test Case Description

Frequentis General

ID / Version	**GEN_19020**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see chapter 7.1
Test Data	see test procedure
Configuration Reference	see chapter 7.1

Test Description	
Description	Tests displaying of IWXXM AMHS attachment information.
Item / Feature Under Test	
Prerequisites / Preparation	**USER_BRET** is logged into Center Terminal

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Prepare a Binary AMHS message (Message - Binary AMHS Message) with the following settings: Originator is MBX_B3, Destination is MBX_B4. Use the version 3.0 file '***iwxxm-metar.xml***' from the provided test data set as attachment.	Send message window is opened and prepared.
2	Right click the entry in the 'Body Parts' table and choose 'Edit' in the context menu. Navigate to 'Environment' and enter the value '1.3.27.8.1.2' into the 'Registered Identifier' field in Application Reference section, confirm the changes, and send the message.	AMHS message with attachment is shown in 'Pending Messages' view.
3	Open the IWXXM viewer. To do so, click the 'View' button in the toolbar. Then open the body part (by double-click or context menu).	IWXXM Viewer is shown. There are four different representations available (Decoded Tree, XML Tree (Plain), Intended XML, and Plain XML).
4	Close IWXXM Viewer and Binary AMHS Message form.	IWXXM Viewer and Binary AMHS Message form have been closed.
Comments:		

8 CNMS (COMSOFT Network Management System)

8.1 Test Cases

8.1.1 CNMS_01010 Correct CNMS Startup

Test Case Description		
ID / Version	**CNMS_01010**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	All
Environment Description	see SCD
Test Data	see test procedure
Configuration Reference	see AAD

Test Description	
Description	Check that CNMS server is started automatically
Item / Feature Under Test	CNMS Startup Configuration
Prerequisites / Preparation	CNMS is configured correctly. Switch off CNMS.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Switch on CNMS server platform	CNMS server application is started automatically, can be checked with the “omd_status” command.

8.1.2 CNMS_01020 CNMS Navigation

Test Case Description		
ID / Version	**CNMS_01020**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	All
Environment Description	see SCD
Test Data	see test procedure
Configuration Reference	see AAD

Test Description	
Description	Verify that the user can navigate to all essential views
Item / Feature Under Test	CNMS Web GUI
Prerequisites / Preparation	CNMS server is running and CNMS homepage is opened in a web browser. After a fresh CNMS installation, a toplevel map needs to be generated using the nagvis map generator.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Check the contents of the sidebar	The sidebar should contain at least the following elements: Tactical Overview Custom Links Views
2	Check the contents of the “Custom Links” section in the sidebar	The “Custom Links” section should contain a link to the overview map: Top Level
3	Open the Top-Level map by clicking the menu item “Links” – “Top Level” in the sidebar.	The Top Level map shows an overview of the system status. Every icon on the map is clickable and a click on an icon opens a page containing object details.

8.1.3 CNMS_01030 Server Hardware Supervision

Test Case Description		
ID / Version	**CNMS_01030**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	All
Environment Description	see SCD
Test Data	see test procedure
Configuration Reference	see AAD

Test Description	
Description	Verifies the supervision of server equipment
Item / Feature Under Test	
Prerequisites / Preparation	CNMS is running and is connected to the supervised servers.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Disconnect a power supply on a server	The power supply service check in CNMS shows a critical status within 90 seconds.
2	Reconnect the power supply	The power supply status shows an OK status.
3	Disconnect a lan cable from the server	The corresponding interface service check in CNMS shows a critical.
4	Reconnect the lan cable	The interface status is OK
5	Disconnect hard disk on a switched off server. Power on server. On some servers it might be required to force booting from degraded RAID by pressing F2 on boot screen. Note: Disconnecting a disk on a running system is not recommended by the manufacturer.	The corresponding service check for the disk changes the status to critical. The RAID status of the server is degraded.
6	Reconnect the hard disk	The disk status changes to OK. After RAID rebuild is complete (can take hours) the RAID status shows an OK status. During rebuild the rebuild progress is visible in CNMS.
Comments: The HP server snmp agent caches status information, therefore a status change in CNMS can take up to 90 seconds.		

8.1.4 CNMS_01040 Linux System Supervision

Test Case Description		
ID / Version	**CNMS_01040**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	All
Environment Description	see SCD
Test Data	see test procedure
Configuration Reference	see AAD

Test Description	
Description	CNMS should detect system resource problems on linux hosts (cpu, filesystem, memory)
Item / Feature Under Test	Check_mk checks: snmp_cpu_util, hr_memory, hr_fs
Prerequisites / Preparation	CNMS is running and is connected to the supervised servers.

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Execute a program on a monitored linux host, which consumes a lot of CPU resources. The following script can be used: `for i in {1..8}; do (dd if=/dev/urandom of=/dev/null &); done`	The CPU usage service check of the linux host shows an increase of the CPU usage.
2	Stop the CPU test program. If the example above was used, it can be stopped with the command: `killall dd`	The CPU usage value in CNMS return to its normal level.

3	Run a program or script which consumes a large amount of memory (RAM).
	Example:
	The following C-program allocates every 5 seconds 100 MByte of RAM:
	`#include <malloc.h>`
	`#include <unistd.h>`
	`#include <memory.h>`
	`#define MB 1024 * 1024`
	`int main() {`
	`  while (1) {`
	`  void *p = malloc( 100*MB );`
	`  memset(p,0, 100*MB );`
	`  sleep(5);`
	`  }`
	`}`
	
	Note: Do not run this test on operational systems!
		The memory usage displayed in CNMS should increase.

4	Stop the memory test program.	The memory usage value in CNMS should return to the old values (can be seen in the CNMS performance graphs).
5	Increase the used disk space on one of the monitored linux hosts. Use the following command to create a 10 GB file: `dd if=/dev/zero of=/var/tmp/test bs=1024M count=1` The size of the file can be modified by changing the count value: count=10 -> 10GB, count=20 -> 20GB etc.	The disk usage service check in CNMS should show the amount of used disk space. If the warning threshold (90%) is reached, the service check should show a warning status.
6	Remove the test file from step 5).	The disk usage value in CNMS should return to its old values. The status should be ok.
7	Shutdown a monitored linux platform	The corresponding host status in CNMS changes to DOWN.
8	Start the linux platform	The corresponding host status in CNMS changes to UP.

8.1.5 CNMS_01060 AIDA-NG Monitoring

Test Case Description		
ID / Version	**CNMS_01060**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	All
Environment Description	see SCD
Test Data	see test procedure
Configuration Reference	see AAD

Test Description	
Description	AIDA-NG supervision
Item / Feature Under Test	Check_mk checks: aidang_css, aiding_rss, aiding_common
Prerequisites / Preparation	Connection of CNMS to AIDA-NG is established.

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Compare the CSS with the status representation in CNMS.	The status shown in an AIDA-NG OSS corresponds to the state represented in CNMS
2	Stop one CSS	CNMS shows a warning status, if one CSS is still operational. If no CSS is operational, the status changes to critical. The textual output of the CSS service check should correspond to the real CSS status.
3	Start CSS	The status changes to ok
4	Stop one RSS	CNMS shows a warning status, if one RSS is still operational. The textual output of the RSS service check should correspond to the real RSS status.
5	Start RSS	The status changes to ok.

8.1.6 CNMS_01100 CADAS-ATS Monitoring

Test Case Description		
ID / Version	**CNMS_01100**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	All
Environment Description	see SCD
Test Data	see test procedure
Configuration Reference	see AAD

Test Description	
Description	Verifies that a CADAS ATS message handler or terminal server failure is detected
Item / Feature Under Test	CADAS-ATS Nagios Plugins
Prerequisites / Preparation	Connection to CADAS ATS cluster is established. If possible, establish AFTN connection to AIDA-NG.

Frequentis General

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Compare the status of Message Handler application and Terminal Server application (e.g. with cadas_status command) with the status representation in CNMS	The CADAS-ATS status in CNMS corresponds to the real state of CADAS-ATS
2	Stop one Message Handler	If one message handler is still running and operational, the status in CNMS changes to warning. If both message handlers are down the status should be critical.
3	Start the CADAS Message Handler.	The CADAS representation on CNMS is green.
4	If AFTN connection is configured: Disable CADAS-ATS AFTN LA in AIDA-NG If no AFTN connection is available skip to step 6.	The AFTN connection service check for CADAS-ATS shows a warning
5	Enable CADAS-ATS AFTN LA in AIDA-NG	The AFTN connection service check for CADAS-ATS shows an ok status
6	Stop one terminal server process (tomcat).	The terminal server status in CNMS changes to warning state (yellow). If both terminal servers are down the status will be critical (red).
7	Start the terminal server.	The status of the terminal server in CNMS recovers and changes to ok.

9 Reliability

9.1.1 REL_01010 AIDA-NG Redundancy

Test Case Description		
ID / Version	**REL_01010**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Verifies that one system can be stopped or shut down. The Standby component takes over the function. After restart/reboot the system becomes fully redundant.
Item / Feature Under Test	
Prerequisites / Preparation	SUT is running fully redundant

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Stop (or crash) the CSS-A and RSS2	The CSS-A goes to DISCONN (Maint) CSS-B goes to OP- RSS1 and RSS2 remains OP-/DISCONN
2	Check AFTN and AMHS connections	Remains connected
3	Restart CSS-A and RSS2	CSS-A starts and goes to STBY, the CSS-B goes OP+
4	Shut down VM aida2 (with CSS-B) Check the application status on the remaining server.	The CSS-A goes from STBY to OP-, The RSS1 goes from OP+ to OP-
5	Check AFTN and AMHS connections	Remains connected
6	Restart the stopped VM	After system run-up CSS will be OP+/STBY and both RSS OP+
Comments:		

9.1.2 REL_01020 CADAS-ATS Redundancy

Test Case Description		
ID / Version	**REL_01020**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Verifies that one system can be stopped or shut down. The Standby component takes over the function. After restart/reboot the system becomes fully redundant.
Item / Feature Under Test	
Prerequisites / Preparation	SUT is running fully redundant

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Stop one CADAS Message Handler - Check CADAS status - Check connection with AIDA-NG - Check connection to Terminals	One message-handler indicates ERR Remains connected Remains connected
2	Stop one terminal server - Check CADAS status - Check connection with AIDA-NG - Check connection to Terminals	One message-handler indicates ERR Remains connected Remains connected
3	Restart both CADAS services - Check CADAS status	All services are indicated as OK.
4	Shutdown one CADAS Server - Check CADAS status - Check connection with AIDA-NG - Check connection to Terminals	Services on the stopped server show ERR Remains connected Remains connected
5	Restart the stopped server - wait - Check CADAS status	All services are indicated as OK.
Comments:		

9.1.3 REL_01040 Network Redundancy

Test Case Description		
ID / Version	**REL_01040**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	This tests the system internal redundant components on network level
Item / Feature Under Test	
Prerequisites / Preparation	SUT is running fully redundant

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Switch off System LAN switch 1	Applications are not affected
2	Switch on System LAN switch 1, wait for running up	
3	Switch off System LAN switch 2	Applications are not affected
4	Switch on System LAN switch 2, wait for running up	
Comments:		

Frequentis General

9.1.4 REL_01050 Power Line Redundancy

Test Case Description		
ID / Version	**REL_01050**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Verifies that the outage of one power line has no effect on the operation system
Item / Feature Under Test	
Prerequisites / Preparation	SUT is running fully redundant

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Switch down one of the power line	Applications are not affected
2	Switch on power line	
3	Switch down the other power line	Applications are not affected
4	Switch on power line	
Comments:		

Frequentis General

9.1.5 REL_01060 System Run-Up

Test Case Description		
ID / Version	**REL_01060**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Verifies that virtual machines are started correctly if ESXi servers are restarted
Item / Feature Under Test	
Prerequisites / Preparation	SUT is running fully redundant

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Shutdown virtual server 1	Applications are not affected, and corresponding virtual machines are stopped
2	Start virtual server 1, wait for running up	Virtual machines from virtual host server are restarted
3	Shutdown virtual server 2	Applications are not affected, and corresponding virtual machines are stopped
4	Start virtual server 2, wait for running up	Virtual machines from virtual host server are restarted
Comments:		

9.1.6 REL_01070 Full Restart of System

Test Case Description		
ID / Version	**REL_01070**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Verifies that the systems starts correctly if both ESXi servers are restarted
Item / Feature Under Test	
Prerequisites / Preparation	SUT is running fully redundant

Test Procedure

Step	Test Action	Expected Results
1	Shutdown virtual server 1 and 2	The System is shuts down and applications are stopped. No operational service is available
2	Start virtual server 1 and 2	All virtual machines and applications are automatically restarted
Comments:		

9.1.7 REL_01080 Loss of external NTP server

Test Case Description		
ID / Version	**REL_01080**	
Responsibility	NSU	
Filename (if applicable)		
Requirement Reference		
Verification Method / Test Type	functional test	

Test Environment Description	
System Under Test	all
Environment Description	see Project AAD.
Test Data	see test procedure
Configuration Reference	see Project AAD.

Test Description	
Description	Checks the system behaviour if the external NTP servers are not available
Item / Feature Under Test	
Prerequisites / Preparation	SUT is running fully redundant

Test Procedure		
Step	**Test Action**	**Expected Results**
1	Disable the external NTP servers or make them inaccessible via the network.	System and Applications are not affected
2	Checking the unreachability of the external NTP services with chronyc sources.	LastRx increases and NTP servers are not reachable
3	Leave the NTP servers disconnected for at least 12 hours	System and Applications are not affected
4	Enable the external NTP servers again	NTP sources are shown again
Comments:		