AMENDMENT HISTORY:

REVISION STATUS	AMENDMENT(S)
Revision 0 - 07/11/2016	None

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Introduction

1.1 Objective

This document describes the test plan for the Testing & Commissioning (FAT) as per the requirement defined in the Particular Specification.

1.2 Scope

The following tests and inspection will be performed after installation:

Equipment Installation Test
Functional Test
Performance Test
Interface Test
Stability Test

1.3 Prerequisite for FAT

The following items shall be ready before conducting the Commissioning Test:

All equipment shall be properly installed and configured;
All testing equipment and special tools are calibrated and in good conditions.

1.4 List of Reference Documents

Test Procedures

FAT procedures will be the core of the FAT. The objective of FAT procedures is to prove compliance of the delivered system with the requirements of the relevant MTR specifications, mainly the Particular Specification including the applicable Interface requirements.

Test items will include visual, performance, electrical and functional tests on the major non-commercially off-the-self equipment and associated subsystem as well as simulation on the interfaces with other systems before delivery of the equipment to site.

Any individual test item is deemed “accepted” when the result of the test or inspection is equal to or better than the acceptance criteria specified in the Testing Procedures. When all individual tests have been “accepted” without objection by the Engineer, the FAT is considered successfully completed.

In general, the test will be considered to have failed if either:
a) The result of the test is not in accordance with the expected result described in the test procedure, or
b) The result of the test is in accordance with the expected result described in the test procedure, but some other unexpected or unexplained event occurred which the Engineer considers to be a fault.

Test Management

1.5 Responsibility for testing team

The testing team consist two persons stated in the following table to test the features provided by Front-end processer system:

Name	Responsibility
Alan Wong	FAT in charge
Tse Shing Lam	FAT Support

1.6 Test Equipment

1.6.1 Hardware Test Equipment

The following test equipment will be used for performance measurements and troubleshooting

- Labtop computer
- Transceiver
- Power Cords
- LAN/Network tester
- Screw-drivers and other tools

The relevant calibration certificates of the test instrument will be presented before the start of the different measurements.

1.7 Test Configuration

1.7.1 Testing equipment and IP address for WRL stations

The list of testing equipment and IP address defined for all equipment is shown in the table 3.4-1.

Location: WRL Station (XXX is Station Code, xxx is the subnet of each station)

Equipment	Equipment ID	IP Address
ODS Server	XXX-PIDS-SSER-01	148.170.xxx.1 / 148.170.xxx.2
ODS Control Workstation	XXX -PIDS-MAS-01	148.170.xxx.4
ODS Controller	XXX -PIDS-SAN-01	148.170.xxx.5
ODS Control Workstation	XXX -PIDS-SO	148.170.xxx.6
LCD Display	XXX -PIDS-DLC-01	148.170.xxx.10
LED Display	XXX-PIDS-DLC-02	148.170.xxx.11
Keypad Panel	XXX-PIDS-S5500-01	148.170.xxx.231

Equipment	Equipment ID	IP Address
1. ODS LCD Display		
ODS Controller	XXX-PIDS-ENT-A	148.170.xxx.100
LCD Panel		
2. ODS LED Display		
ODS Controller	XXX-PIDS-CON-01-A	148.170.xxx.130
LED Panel		
Blanker Card		

Table 3.4-1

1.8 Test Result Management

The Contractor shall prepare a copy of an inspection or test report immediately after the completion of each inspection or test, whether or not witnessed by the Engineer. If the Engineer has witnessed the inspection or test, he or his delegate will countersign the inspection or test report to indicate his review of the information and conclusions (i.e. whether or not the equipment being inspected or tested has passed satisfactorily) contained therein. If the Engineer or his delegate has not witnessed the inspection or test (i.e. if a waiver has been granted, or the Engineer or his delegate has not witnessed the inspection or test for some other reason in accordance with the Contract), Roctec will submit the copy of the inspection or test report without delay to the Engineer. The Engineer or his delegate will countersign the report to indicate his review of the information and conclusions (i.e. whether or not the equipment being inspected or tested has passed satisfactorily) and return one copy to the Contractor.
The test ID and the correspondence test description will be detailed in each Subsystem FAT procedures.

1.9 Re-work and Re-test Management

The Contractor shall correct all faults found during testing, and shall arrange for the relevant tests to be repeated. The relevant tests shall only be repeated when the fault has been remedied and the equipment demonstrated to function correctly.

The Test report also records all individual procedures; include non-conformed item(s). For each non-conformed item a decision is made at the FAT on its re-testing or re-inspection and the date thereof. Each non-conformed item is recorded on a separate Outstanding List (OL) form. All non-conformed items are registered in an Outstanding List to enable monitoring the progress of their re-testing.

FAT will only be considered as successfully completed when there is no Non Conformity reported or the Non Conformity subsystem/equipment has been rectified and retested or re-inspected or the test results have been issued by the Engineer.

1.10 Re-test Procedure

Any re-testing or re-inspection of individual tests or of the whole FAT follows these same routines, in part or completely as required by a particular situation.

Test Procedure

1.10.1 Test Form for LCD ODB

Station	
Equipment ID	

1.10.1.1 Physical Inspection

All equipment should be inspected visually. Take note of system condition, license version and hardware configuration is configured as pre-defined.

Item	Description	Result	Remarks
1.	Headroom should be equal to or larger than 2350mm		
2.	The bracket is well fixed to the pole.		
3.	DVI Extender (transmitter) is installed properly.		
4.	DVI Extender (receiver) is installed properly.		
5.	Blanker is installed properly.		
6.	Ethernet connection of DBUs in the Double-sided should be connected to two separated distribution switches.		
7.	No physical damage on equipment.		
8.	All equipment and cables are installed properly in the housing.		
9.	Power on self-test of all equipment should be conducted.		

Overall Result			
❑Satisfactory	❑Unsatisfactory	❑Not Completed	❑Not Applicable
Remarks			
Tested / Inspected by:	Witnessed by:	Inspection Failure Report Form:	
Signature:	Signature:		
Date:	Date:		

1.10.1.2 Configuration Checking

Item	Description	Result	Remarks
1.	Overall dimension of DBU housing	❑Pass ❑Fail ❑N/A	
2.	Display Area should be 930.24mm x 261.63mm	❑Pass ❑Fail ❑N/A	
3.	Luminance should >=1000cd/m2	❑Pass ❑Fail ❑N/A	
4.	The hardware and software configuration should be as follow: CPU: Intel Core i7-3610QM Hard disk: 512GB RAM: 8GB O.S.: Fedora 20 IP Address: _____	❑Pass ❑Fail ❑N/A	
5.	The installed software version should be as follow: Software: /usr/bin/displaycontroller Version: _____	❑Pass ❑Fail ❑N/A	
6.	Anti-virus application should be installed. Open console, enter following command to view the Symantec antivirus information:		
	/opt/Symantec/symantec_antivirus/sav info –p Current product version: _____	❑Pass ❑Fail ❑N/A	
	/opt/Symantec/symantec_antivirus/sav info –d Virus definitions version: _____ Last definitions updated on: _____	❑Pass ❑Fail ❑N/A	
	/opt/Symantec/symantec_antivirus/sav manualscan --scan / /opt/Symantec/symantec_antivirus/sav info -s General Status: Done Manual Scan Status: Done /var/symantec/Logs Virus Full Scanning on: _____	❑Pass ❑Fail ❑N/A	
7.	Status Monitoring		

Item	Description	Result	Remarks
	a) Power On/Off	❑Pass ❑Fail ❑N/A	
	b) Operation Status	❑Pass ❑Fail ❑N/A	
	c) Temperature	❑Pass ❑Fail ❑N/A	
	d) Hardware failure	❑Pass ❑Fail ❑N/A	
8.	Display Control	❑Pass ❑Fail ❑N/A	
	a) Power On/Off	❑Pass ❑Fail ❑N/A	
9.	Display mode		
	Single display mode	❑Pass ❑Fail ❑N/A	
	Dual display mode	❑Pass ❑Fail ❑N/A	
10.	Watchdog		
	a) Software Watchdog	❑Pass ❑Fail ❑N/A	
11.	b) Hardware Watchdog	❑Pass ❑Fail ❑N/A	

Overall Result			
❑Satisfactory	❑Unsatisfactory	❑Not Completed	❑Not Applicable
Remarks			
Tested / Inspected by:	Witnessed by:	Inspection Failure Report Form:	

Overall Result		
Signature:	Signature:	
Date:	Date:	

1.10.2 Test Form for ODS Control box

Station	
Equipment ID	

1.10.2.1 Physical Inspection

All equipment should be inspected visually. Take note of system condition, license version and hardware configuration is configured as pre-defined.

Item	Description	Result	Remarks
1.	Headroom should be equal to or larger than 2350mm		
2.	Power on self-test of all equipment should be conducted.		

Overall Result			
❑Satisfactory	❑Unsatisfactory	❑Not Completed	❑Not Applicable
Remarks			
Tested / Inspected by:	Witnessed by:	Inspection Failure Report Form:	
Signature:	Signature:		
Date:	Date:		

1.10.2.2 Configuration Checking

Item	Description	Result	Remarks
12.	Overall dimension of DBU housing	❑Pass ❑Fail ❑N/A	
13.	Display Area should be 930.24mm x 261.63mm	❑Pass ❑Fail ❑N/A	
14.	Luminance should >=1000cd/m2	❑Pass ❑Fail ❑N/A	
15.	The hardware and software configuration should be as follow: CPU: Intel Core i7-3610QM Hard disk: 512GB RAM: 8GB O.S.: Fedora 20 IP Address: _____	❑Pass ❑Fail ❑N/A	
16.	The installed software version should be as follow: Software: /usr/bin/displaycontroller Version: _____	❑Pass ❑Fail ❑N/A	
17.	Anti-virus application should be installed. Open console, enter following command to view the Symantec antivirus information:		
	/opt/Symantec/symantec_antivirus/sav info –p Current product version: _____	❑Pass ❑Fail ❑N/A	
	/opt/Symantec/symantec_antivirus/sav info –d Virus definitions version: _____ Last definitions updated on: _____	❑Pass ❑Fail ❑N/A	
	/opt/Symantec/symantec_antivirus/sav manualscan --scan / /opt/Symantec/symantec_antivirus/sav info -s General Status: Done Manual Scan Status: Done /var/symantec/Logs Virus Full Scanning on: _____	❑Pass ❑Fail ❑N/A	
18.	Status Monitoring		

Item	Description	Result	Remarks
	e) Power On/Off	❑Pass ❑Fail ❑N/A	
	f) Operation Status	❑Pass ❑Fail ❑N/A	
	g) Temperature	❑Pass ❑Fail ❑N/A	
	h) Hardware failure	❑Pass ❑Fail ❑N/A	
19.	Display Control	❑Pass ❑Fail ❑N/A	
	b) Power On/Off	❑Pass ❑Fail ❑N/A	
20.	Display mode		
	Single display mode	❑Pass ❑Fail ❑N/A	
	Dual display mode	❑Pass ❑Fail ❑N/A	
21.	Watchdog		
	c) Software Watchdog	❑Pass ❑Fail ❑N/A	
22.	d) Hardware Watchdog	❑Pass ❑Fail ❑N/A	

Overall Result			
❑Satisfactory	❑Unsatisfactory	❑Not Completed	❑Not Applicable
Remarks			
Tested / Inspected by:	Witnessed by:	Inspection Failure Report Form:	

Overall Result		
Signature:	Signature:	
Date:	Date:	

1.10.3 Test Form for System Test

1.10.3.1 Hardware Configuration

ODS Server

Test Case	Expected Results	Result	Remarks
Aim: To verify the hardware configurations comply with the specification of ODS Server			
Check the hardware configuration	Model: HP Proliant ML350G8 5U Rack Mount server Memory: 16GB DDR-III Registered ECC System memory CPU: One Intel Xeon E3-1220 (Quad-Core 3.1Ghz, 4MB Cache, 1333Mhz) Hard Driver: 1TB SAS hard Disk in RAID 1 Protection OS: Red Hat 6.5	❑Pass ❑Fail ❑N/A	

ODS Control Workstation

Test Case	Expected Results	Result	Remarks
Aim: To verify the hardware configurations comply with the specification of ODS Control Workstation			
a) Check the hardware configuration	Model: HP EliteDesk 800 G1 Small Desktop Memory: 8GB DDR-III ECC System memory CPU: One Intel i7-4790 (Quad-Core 3.6Ghz, 8MB Cache, 1333Mhz) Hard Driver: 1 TB SATA 7.2krpm Hard Disk OS: MS Windows 7 Professional (64-bit)	❑Pass ❑Fail ❑N/A	

ODS Local Controller

Test Case	Expected Results	Result	Remarks
Aim: To verify the hardware configurations comply with the specification of ODS Control Workstation			
b) Check the hardware configuration	Model: HP EliteDesk 800 G1 Small Desktop Memory: 8GB DDR-III ECC System memory CPU: One Intel i7-4790 (Quad-Core 3.6Ghz, 8MB Cache, 1333Mhz) Hard Driver: 1 TB SATA 7.2krpm Hard Disk OS: MS Windows 7 Professional (64-bit)	❑Pass ❑Fail ❑N/A	

Distribution Network Switch

Test Case	Expected Results	Result	Remarks
Aim: To verify the hardware configurations comply with the specification of Distribution Switch			
Check the hardware configuration	Model: H3C S5500-28F-EI IP address, subnet and port assignment of network switch refer to APPENDIX B	❑Pass ❑Fail ❑N/A	

1.10.3.2 Software Configuration

ODS Server

Anti-virus software

Test Case	Expected Results	Result	Remarks
Aim: To verify the software configuration comply with the specification of Anti-virus software			
Open terminal in Server Change directory to "/opt/Symantec/ symantec_antivirus" by command cd Check the product version of anti-virus by command "./sav info –p" Check the definitions version and date of anti-virus by command "./sav info –d"	Symantec Anti-virus 1.0 should be installed with assigned Parent Server provided by MTR The virus scanning should be schedule in daily basic at NTH to ensure the scanning process is no effect to the service Current product version: _____ Virus definitions version: _____ Last definitions updated on: _____ Virus Full Scanning on: _____	❑Pass ❑Fail ❑N/A	

ODS Control Workstation

Anti-virus software

Test Case	Expected Results	Result	Remarks
Aim: To verify the software configuration comply with the specification of Anti-virus software			

Open terminal in Server Change directory to "/opt/Symantec/ symantec_antivirus" by command cd Check the product version of anti-virus by command "./sav info –p" Check the definitions version and date of anti-virus by command "./sav info –d"	Symantec Anti-virus 1.0 should be installed with assigned Parent Server provided by MTR The virus scanning should be schedule in daily basic at NTH to ensure the scanning process is no effect to the service Current product version: _____ Virus definitions version: _____ Last definitions updated on: _____ Virus Full Scanning on: _____	❑Pass ❑Fail ❑N/A	

Test Case	Expected Results	Result	Remarks
Aim: To verify the software configuration comply with the specification of ODS Computer Console			
a) Check the software configuration	1. Software version should be equal to _____	❑Pass ❑Fail ❑N/A	

Local Controller

Anti-virus software

Test Case	Expected Results	Result	Remarks
Aim: To verify the software configuration comply with the specification of Anti-virus software			

Open terminal in Server Change directory to "/opt/Symantec/ symantec_antivirus" by command cd Check the product version of anti-virus by command "./sav info –p" Check the definitions version and date of anti-virus by command "./sav info –d"	Symantec Anti-virus 1.0 should be installed with assigned Parent Server provided by MTR The virus scanning should be schedule in daily basic at NTH to ensure the scanning process is no effect to the service Current product version: _____ Virus definitions version: _____ Last definitions updated on: _____ Virus Full Scanning on: _____	❑Pass ❑Fail ❑N/A	

Software watchdog and Hardware watchdog

Test Case	Expected Results	Result	Remarks
Aim: To verify the local controller should be equipped with hardware watchdog and software watchdog module			
a) Provoke Window to hang b) Terminate software process	1. The hardware watchdog will restart the controller if the controller OS has no response in a certain period. 2. The software watchdog module will check the process was terminated or no response, it will start the process again immediately and log down the software terminated tie and restart time.	❑Pass ❑Fail ❑N/A	

Support Dual display mode

Test Case	Expected Results	Result	Remarks
Aim: To verify the display software of controller can support dual mode display			

	The system shall support dual display mode, where each Is ODS controller can connect to two identical LCD display panels at the same time by using HDMI cable. This allows the two adjacent LCD displays to be combined into one big single screen with a total width of 3840 pixels, i.e. a total resolution of 3840 x 1080 pixels	❑Pass ❑Fail ❑N/A	

Control Workstation

Anti-virus software

Test Case	Expected Results	Result	Remarks
Aim: To verify the software configuration comply with the specification of Anti-virus software			
a) Click "Help" in Symantec End Point Protection b) Check the version of anti-virus	1. Symantec EndPoint Protection 12.0 should be installed with assigned Parent Server provided by MTR 2. The virus scanning should be schedule in daily basic at NTH to ensure the scanning process is no effect to the service 3. Current product version: _____ Virus definitions version: _____ Last definitions updated on: _____ Virus Full Scanning on: _____	❑Pass ❑Fail ❑N/A	

1.10.3.3 ODS MMI - Functional Test

Login

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of logging in ODS Computer Console			
a) Run the ODS Computer Console program. b) Enter valid login ID and password	1. User login page is automatically shown up 2. The user should login ODS Computer Console	❑Pass ❑Fail ❑N/A	

Logout

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of logging out ODS Computer Console			
a) After logging in the ODS Computer Console, click the "Logout" button	1. The user should logout ODS Computer Console 2. User login page is automatically shown up after logout	❑Pass ❑Fail ❑N/A	

Device Grouping

Select a pre-defined group of ODBs

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of selecting in ODB group			
a) Click "Device Grouping" button in MMI b) Select a pre-defined ODB group c) Send Ad-hoc message to selected ODBs d) Check the display output of the corresponding ODBs	1. Device Grouping page is automatically shown up after clicking "Device Grouping" button 2. The pre-defined ODB groups are automatically selected 3. Ad-hoc Message page is automatically shown up after clicking "Send Adhoc to ODBs" button 4. The ad-hoc message would be displayed on selected ODBs	❑Pass ❑Fail ❑N/A	

Create a new ODB group

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of creating a new ODB group			
a) Click "Device Grouping" button in MMI b) Click "New Device Group" button c) Create a new Device group	1. Device Grouping page is automatically shown up and the pre-defined groups of ODB are listed in sub-menu 2. The new created ODB group is added in the list after saving.	❑Pass ❑Fail ❑N/A	

Edit the pre-defined group of ODBs

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of editing a pre-defined group of ODBs			
Click "Device Grouping" button in MMI Click "Edit ODB Group" button Edit the pre-defined group of ODBs	Device Grouping page is automatically shown up and the pre-defined groups of ODB are listed in sub-menu The edited group of ODBs should be updated after saving.	❑Pass ❑Fail ❑N/A	

Delete the pre-defined group of ODBs

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of deleting a pre-defined group of ODBs			
a) Click "Device Grouping" button in MMI b) Click "Edit ODB Group" button c) Select the pre-defined group of ODBs d) Click "Delete Group" button to delete the pre-defined group of ODBs	1. Device Grouping page is automatically shown up and the pre-defined groups of ODB are listed in sub-menu 2. The deleted group of ODBs should be removed from the list in the sub-menu	❑Pass ❑Fail ❑N/A	

Message Library Management

Message Library Management for Schedule Message

Create a pre-defined message

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of creating a pre-defined message			
Click "Message Editor", then click "New Message" Create a new pre-defined message Click "Message Library" to check the created message	Message Library page is automatically shown up and the pre-defined message are listed in page The new created message is added in the page after saving	❑Pass ❑Fail ❑N/A	

Edit a pre-defined message

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of editing a pre-defined message			
a) Click "Message Editor", then click "Message Library" b) Click "Edit" to edit the pre-defined message	1. Message Library page is automatically shown up and the pre-defined message are listed in page 2. The edited message should be updated after saving	❑Pass ❑Fail ❑N/A	

Delete a pre-defined message

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of deleting a pre-defined message			
Click "Message Editor", then click "Message Library" Click "Delete" to delete the pre-defined message	Message Library page is automatically shown up and the pre-defined message are listed in page The deleted message should be removed from the page	❑Pass ❑Fail ❑N/A	

Message Library Management for Adhoc Message

Create a pre-defined message

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of creating a pre-defined message			
Click "Message Editor", then click "New Message" Create a new pre-defined message Click "Message Library" to check the created message	Message Library page is automatically shown up and the pre-defined message are listed in page The new created message is added in the page after saving	❑Pass ❑Fail ❑N/A	

Edit a pre-defined message

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of editing a pre-defined message			

c) Click “Message Editor”, then click “Message Library” d) Click “Edit” to edit the pre-defined message	1. Message Library page is automatically shown up and the pre-defined message are listed in page 2. The edited message should be updated after saving	❑Pass ❑Fail ❑N/A	

Delete a pre-defined message

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of deleting a pre-defined message			
Click "Message Editor", then click "Message Library" Click "Delete" to delete the pre-defined message	Message Library page is automatically shown up and the pre-defined message are listed in page The deleted message should be removed from the page	❑Pass ❑Fail ❑N/A	

Multimedia Management

Multimedia Management for schedule message

Upload media files with image, video and text

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of uploading media files			
Click "Multi-Media Editor" Import files for the media types including image, video	Imported media should be stored in message library and downloaded to ODS Server/external system respectively.	❑Pass ❑Fail ❑N/A	

Edit media files with image, video and text

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of editing media files			
Click "Multi-Media Editor" Edit file for the media types including image, video	Media file should be updated in Message Library and downloaded to ODS Server/external system respectively.	❑Pass ❑Fail ❑N/A	

Delete media files with image, video and text

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of deleting media files			
Click "Multi-Media Editor" Delete file for the media types including image, video	Deleted media file should be removed in Message Library	❑Pass ❑Fail ❑N/A	

Multimedia Management for Ad-hoc message

Upload media files with image, video and text

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of uploading media files			
Click "Multi-Media Editor" Import files for the media types including image, video	Imported media should be stored in message library and downloaded to ODS Server/external system respectively.	❑Pass ❑Fail ❑N/A	

Edit media files with image, video and text

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of editing media files			
Click "Multi-Media Editor" Edit file for the media types including image, video	Media file should be updated in Message Library and downloaded to ODS Server/external system respectively.	❑Pass ❑Fail ❑N/A	

Delete media files with image, video and text

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of deleting media files			
Click "Multi-Media Editor" Delete file for the media types including image, video	Deleted media file should be removed in Message Library	❑Pass ❑Fail ❑N/A	

Schedule Management

Create a new schedule

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of creating of a new media schedule			
Click "Schedule Editor" button Create a media schedule and add the imported media files to the media schedules. Check the display output of the corresponding ODBs	The ODB should download and play the messages according to the active schedule. Updating partition of MMI of the System, the display output of the ODBs only involves changes in that partition and shall not require refreshing of the whole screen.	❑Pass ❑Fail ❑N/A	

Preview Schedule with Preview Function

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of preview the media schedule			
a) Select the "Preview" button via the MMI.	1. Schedule shall be previewed 2. All kinds of created message, content and schedule shall be provided with a WYSIWYG function to select. 3. The information, with identical layout, contents and effect should be previewed when displayed in display panel via the preview screen.	❑Pass ❑Fail ❑N/A	

Edit a pre-defined schedule

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of editing the media schedule			

a) Edit media schedule and download to ODB for display b) Check the display output of the corresponding ODBs	1. The ODB should download and play the messages according to the active schedule. 2. Updating partition of MMI of the System, the display output of the ODBs only involves changes in that partition and shall not require refreshing of the whole screen.	❑Pass ❑Fail ❑N/A	

Delete a pre-defined schedule

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of deleting the media schedule			
a) Delete schedule and download to ODB for display b) Check the display output of the corresponding ODBs	1. The ODB should remove the messages according to the active schedule. 2. Updating partition of MMI of the System, the display output of the ODBs only involves changes in that partition and shall not require refreshing of the whole screen.	❑Pass ❑Fail ❑N/A	

Channel and Group Management

Udpate Channel

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of Channel creation			

Create Channel	1. The user shall be able to create multiple channels (like TV channels), each channel can be mapped to different playlist schedule, each playlist schedule support 24 hours of playback sequence; 2. In order to efficiently manage large number-of ODS controllers and many pre-defined schedules, it is important for the system to support multiple broadcasting channels and grouping of ODS controllers 3. Each broadcasting channel has its own calendar of schedule (like TV channels), and can be assigned to any group of ODS controller; 4. Allow user to create multiple channels, and to assign different calendars to different channels; 5. Allow user to group ODS controllers in multiple levels (up to 5 levels of groups, sub-groups, etc.), group can be labelled with user-defined names;	❑Pass ❑Fail ❑N/A	

Edit Channel

Test Case	Expected Results	Result	Remarks

Aim: To verify the function of Editing Channel			
a) Edit Channel	• The user shall be able to create multiple channels (like TV channels), each channel can be mapped to different playlist schedule, each playlist schedule support 24 hours of playback sequence; • In order to efficiently manage large number-of ODS controllers and many pre-defined schedules, it is important for the system to support multiple broadcasting channels and grouping of ODS controllers • Each broadcasting channel has its own calendar of schedule (like TV channels), and can be assigned to any group of ODS controller; • Allow user to create multiple channels, and to assign different calendars to different channels; • Allow user to group ODS controllers in multiple levels (up to 5 levels of groups, sub-groups, etc.), group can be labelled with user-defined names;	❑Pass ❑Fail ❑N/A	

Ad-hoc Message

Dissemination of Ad-hoc Message initiated by ODS Control Workstation

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of disseminating of ad-hoc message to ODBs in the station initiated by Control Workstation			
a) Create a pre-defined message from the MMI b) Click "Ad-hoc Message" button c) Send the created pre-defined messages to the selected ODBs. d) Check the display output of ODBs e) Click "Stop Ad-hoc Message" button to stop the ad-hoc message f) Click the "Resume Schedule" button to resume the selected ODBs	1. The ad-hoc message would be displayed on selected ODBs of the station. 2. The ad-hoc message would be stopped, and ODBs of station would be blanked. 3. Normal schedule should be display on ODBs 4. Dissemination of Ad-hoc message to a zone shall not reload, refresh or interrupt the other zones of the ODB.	❑Pass ❑Fail ❑N/A	

Dissemination of Ad-hoc Message initiated by ODS Control box

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of disseminating of ad-hoc message to ODBs in the station initiated by Control box			

Send pre-defined message by pressing the configured separated buttons	The ad-hoc message would be displayed on selected ODBs of the station. Visual light indicators on the button control boxes shall reflect the current messages displayed on the LCD panels. After pushing the button(s) of button control box for Counter display, the new message shall be displayed on the LCD display board-within 1 second. The visual indicator(s) of the button control box shall then be lit up to feed back the status of the ODS players for the new message	❑Pass ❑Fail ❑N/A	

Dissemination of Emergency Message

Disseminate "Emergency Evacuation" message initiated by Control Workstation

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of disseminate "Emergency Evacuation" message to all ODBs in the station initiated by Control Workstation			
Click the "Emergency Evacuation" button Check the display output of ODBs Click the "Blank all ODBs" button to stop "Station Close" message Click the "Unblank all ODBs" button to resume ODBs	The "Emergency Evacuation" message would be displayed on all ODBs of the station. The "Emergency Evacuation" message would be stopped, all ODB would be blanked. Normal schedule message should be resume and display on ODBs. Dissemination of Emergency message to a zone shall not reload, refresh or interrupt the other zones of the ODB.	❑Pass ❑Fail ❑N/A	

Blank Screen

Dissemination of Blank Screen message initiated by Control Workstation

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of disseminating of ad-hoc message to ODBs in the station initiated by Control Workstation			
Create a pre-defined message from the MMI Click "Ad-hoc Message" button Send the created pre-defined messages to the selected ODBs. Check the display output of ODBs Click "Stop Ad-hoc Message" button to stop the ad-hoc message Click the "Resume Schedule" button to resume the selected ODBs	The ad-hoc message would be displayed on selected ODBs of the station. Audible message broadcast for certain coordinated message mapping for PAS/PIDS would be sent to SPA Interface. The ad-hoc message would be stopped, and ODBs of station would be blanked. Normal schedule should be display on ODBs Dissemination of Ad-hoc message to a zone shall not reload, refresh or interrupt the other zones of the ODB.	❑Pass ❑Fail ❑N/A	

Dissemination of Blank Screen initiated by Button Control Box

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of disseminating of ad-hoc message to ODBs in the station initiated by Control Workstation			

Switch the Electric Switch to the OFF position	The selected screen shall be turned off	❑Pass ❑Fail ❑N/A	

Message Priority

Priority Setting

Test Case	Expected Results	Result	Remarks
Aim: To verify message priority can be set from Workstation MMI			
Send Local Ad-hoc message (lower priority) from Workstation MMI to ODBs Check the display output of ODBs Send Local Emergency message (higher priority) from Workstation MMI to ODBs Check the display output of ODBs	The Local Ad-hoc message would be displayed on selected ODBs of the station. The Local Blank message would be displayed on selected ODBs of the station. The Local Emergency message should override by the Local Ad-hoc message according to table of Message Priority in Appendix C. Normal schedule message should be resume and display on ODBs.	❑Pass ❑Fail ❑N/A	

Lower priority message override by the higher priority message

Test Case	Expected Results	Result	Remarks
Aim: To verify lower priority message override by the higher priority message from Workstation MMI			

Send Local Ad-hoc message (lower priority) from Workstation MMI to ODBs Check the display output of ODBs Send Local Emergency message (higher priority) from Workstation MMI to ODBs Check the display output of ODBs	The Local Ad-hoc message would be displayed on selected ODBs of the station. The Local Blank message would be displayed on selected ODBs of the station. The Local Emergency message should override by the Local Ad-hoc message according to table of Message Priority in Appendix C. Normal schedule message should be resume and display on ODBs.	❑Pass ❑Fail ❑N/A	

Lower priority message should be ignored while higher priority message is occupied

Test Case	Expected Results	Result	Remarks
Aim: To verify lower priority message should be ignored while higher priority message is occupied from Workstation MMI			
Send Local Emergency message (higher priority) from Workstation MMI to ODBs Check the display output of ODBs Send Local Ad-hoc message (lower priority) from Workstation MMI to ODBs Check the display output of ODBs	The Local Emergency message would be displayed on selected ODBs of the station. According to table of Message Priority in Appendix C, the Local Ad-hoc message be ignored while the Local Emergency message is occupied. Normal schedule message should be resume and display on ODBs	❑Pass ❑Fail ❑N/A	

1.10.3.4 Control Function

Power On/Off the LCD/LED initialed by Control Workstation

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of power on / off the display of ODBs			
Select ODB from Overview page Click "Display OFF" button to power off ODBs Check the display output of all the ODBs Click "Display OFF" button to power on ODBs Check the display output of all the ODBs	The display of ODBs should be power off after sending "Display OFF" command and the ODB status in MMI should change from "Green" to "White" The display of ODBs should be power on after sending "Display ON" command and the ODB status in MMI should change from "White" to "Green"	❑Pass ❑Fail ❑N/A	

Re-start command to restart ODS Controller remotely from the ODS Control Workstation

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of re-start ODS Controller remotely from the ODS Control Workstation			
Select ODS Controller from Overview page Click "Re-start" button to restart ODS Controllers Check the display output of all the ODBs	The selected The display of ODBs should be restart after sending "re-start" command and the ODB status in MMI should change from "Green" to "Red" The display of ODBs should be started after The restart process is done and the ODB status in MMI should change from "Red" to "Green"	❑Pass ❑Fail ❑N/A	

Disable/Enable the Button Control Box from the ODS Control Workstation

Disable/Enable the button control box instantly

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of disable/enable button control box from the ODS Control Workstation			
Select the ODB from Overview page Click "Disable" button to disable the button control box function Click "Enable" button to disable the button control box function	The display of ODBs should be restart after sending "re-start" command and the ODB status in MMI should change from "Green" to "Red" The display of ODBs should be started after The restart process is done and the ODB status in MMI should change from "Red" to "Green"	❑Pass ❑Fail ❑N/A	

Disable/Enable the button control box for a specified time period

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of disable/enable button control box from the ODS Control Workstation			
Select the ODB from Overview page Click "Disable" button and select a disable timestamp to disable the button control box function for a specified period Click "Enable" button to disable the button control box function	The display of ODBs should be restart after sending "re-start" command and the ODB status in MMI should change from "Green" to "Red" The display of ODBs should be started after The restart process is done and the ODB status in MMI should change from "Red" to "Green"	❑Pass ❑Fail ❑N/A	

1.10.3.5 Status and Alarm Monitoring

Local MMI

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of alarm trigger to ODS Server and displayed on MMI			
Click "Alarm Log" tab page button Simulate and trigger alarms as below table	1)	❑Pass ❑Fail ❑N/A	

Alarm type	Description	Result	Remarks
1	LCD/LED display is disconnected/no response	❑Pass ❑Fail ❑N/A	
2	Local controller is disconnected/no response	❑Pass ❑Fail ❑N/A	
3	Schedules cannot be download to a local controller	❑Pass ❑Fail ❑N/A	
4	Storage has been used to a certain threshold	❑Pass ❑Fail ❑N/A	
5	Temperature of local controller exceed a certain threshold	❑Pass ❑Fail ❑N/A	

Status type	Description	Result	Remarks
1	LCD/LED display on/off status	❑Pass ❑Fail ❑N/A	
2	Local controller on/off status	❑Pass ❑Fail ❑N/A	
3	Status of on-going display	❑Pass ❑Fail ❑N/A	
4	Health status of network connections	❑Pass ❑Fail ❑N/A	

Status type	Description	Result	Remarks
5	Progress of schedule download	❑Pass ❑Fail ❑N/A	
6	Date and time of completion for each download	❑Pass ❑Fail ❑N/A	
7	Storage utilization of control workstation and local controllers	❑Pass ❑Fail ❑N/A	
8	Temperature of local controller	❑Pass ❑Fail ❑N/A	

Email Alert

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of alarm trigger to ODS Server and sent to designated email account			
a) Simulate and trigger alarms as below table		❑Pass ❑Fail ❑N/A	

Alarm type	Description	Result	Remarks
1	LCD/LED display is disconnected/no response	❑Pass ❑Fail ❑N/A	
2	Local controller is disconnected/no response	❑Pass ❑Fail ❑N/A	
3	Schedules cannot be download to a local controller	❑Pass ❑Fail ❑N/A	
4	Storage has been used to a certain threshold	❑Pass ❑Fail ❑N/A	
5	Temperature of local controller exceed a certain threshold	❑Pass ❑Fail ❑N/A	

1.10.3.6

1.10.3.6 User Right and Access Control

Configuration of the function rights and station rights with user classes

Test Case	Expected Results	Result	Remarks
Aim: To verify the function of configuring the rights with different users			
Click "User Management" Click "User List" to edit or delete the configuration with different users	The ODS server and ODS Control Workstation shall be configured to allow individual user privilege and group privilege Setting, the loping password policy shall follow the departmental IT Guideline and security policy of immigration Department.	❑Pass ❑Fail ❑N/A	

1.10.3.7 Performance Test

System Performance

Ad-hoc Message Update Time via the ODS Computer Console

Test Case	Expected Results	Result	Remarks
Aim: To verify the response time of ad-hoc message update time within 5 seconds			
a) Click "Ad-hoc Message" button b) Send the pre-defined messages to the selected ODBs. c) Check the display output of ODBs	1. The pre-defined message shall be shown on the ODB within 5 seconds after initiation of the send command	❑Pass ❑Fail ❑N/A	

Ad-hoc Message Update Time via the button control box

Test Case	Expected Results	Result	Remarks
Aim: To verify the response time of ad-hoc message update time within 1 seconds			

a) Pushing the button of button control box for Counter Display b) Check the display output of ODBs	1. The pre-defined message shall be shown on the ODB within 1 second after initiation of the send command 2. The visual indicator of the button control box shall then be lit up to feedback the status of the ODS players for the new message, irrespective the inputs through the button control box , ODS Control Workstation or ODS server.	❑Pass ❑Fail ❑N/A	

Standalone control the ODBs in 1/F &2/F via corresponding Control Workstation

Test Case	Expected Results	Result	Remarks
Aim: To verify the response time of ad-hoc message update time within 1 seconds			
a) Disconnect the connection between Control Workstation and ODS Server	The workstations shall be able to be configured as standalone unit to separately control the ODBs in 1/F & 2/F respectively without connection with ODS server.	❑Pass ❑Fail ❑N/A	

Overall Result			
❑Satisfactory	❑Unsatisfactory	❑Not Completed	❑Not Applicable
Remarks			

Overall Result		
Tested / Inspected by:	Witnessed by:	Inspection Failure Report Form:
Signature:	Signature:	
Date:	Date:	

APPENDIX A – Alarm Table

- Alarm List for **Station Level**

Alarm ID	Alarm Type	Alarm Level	MCS Alarm	Description
ALM_INT_MCS	Communication	Critical	Major (2)	MCS Link Failure
ALM_INT_PAS	Communication	Critical	Major (2)	PAS Link Failure
ALM_INT_SEIP	Communication	Critical	Major (2)	SeIP Link Failure
ALM_INT_NTP	Communication	Critical	Major (2)	NTP Link Failure
ALM_INT_EXPIDS	Communication	Critical	Major (1)	Line Failure of Existing Central PIDS (Will be removed after whole line cutover)
ALM_INT_INTPIDS	Communication	Critical	Major (1)	Interchange PIDS Server Link Failure
ALM_INT_LSER	Communication	Critical	Major (1)	Link Failure of Line Server
ALM_VM_FAIL	Control	Critical	Major(2)	VM in ODS Server Disconnected
ALM_NWS_FAIL	Control	Critical	Major(3)	Network Switch failure
ALM_IO_FAIL	Control	Critical	Major(1)	IO Module failure
ALM_SAN_FAIL	Control	Critical	Major(1)	SAN Storage failure
ALM_SAN_HDD	Control	Critical	Major(1)	HDD Usage >95% of Storage
ALM_STA_RAM	Control	Warning		RAM Usage >95% of ODS Server
ALM_STA_CPU	Control	Warning		CPU Usage >95% of ODS Server
ALM_STA_HDD	Control	Warning		HDD Usage >95% of ODS Server
ALM_MP_RAM	Display	Warning		RAM Usage >95% of ODS Controller
ALM_MP_CPU	Display	Warning		CPU Usage

				>95% of ODS Controller
ALM_MP_HDD	Display	Warning		HDD Usage >95% of ODS Controller
ALM_MP_PING	Display	Warning	Minor(2)	ODB Connection Failure
ALM_MP_STATUS	Display	Warning	Minor(2)	Service Failure of ODS Controller
ALM_MON_STATUS	Display	Warning		Monitor Failure

APPENDIX B – Network IP and Port Assignment of Network Switches

APPENDIX C – Message Priority

Ad-hoc messages would have highest priority that can only override any message at any time. The relative message priority is as below:

Priority (1 being highest)	Initiator	Message Type
1	WORKSTATION MMI	Local Blank Message
2	FADS via PAS	Station Evacuation
3	MCS IBP	Station Evacuation
4	SeIP IBP	Station Evacuation
5	MCS LAN	Station Evacuation
6	WORKSTATION MMI	Local Emergency Message
7	OCC MMI	OCC Emergency Message
8	SeIP IBP	Station Close
9	MCS LAN	Station Close
10	WORKSTATION MMI	Local Adhoc Message
11	OCC MMI	OCC Adhoc Message
12	MCS LAN	Station Daily Open
13	DCS	Door Closing Message
14	STATION/OCC MMI	Stop Ad-hoc Blank
15	WORKSTATION MMI	Scheduled Message

- The priority level can be configured by system configuration.

The system has designed the stop adhoc priority for each initiator, here is the table to describe the handling.:

Stop Initiator	**Priority** (note 1)	**Mode** (note 2)
Workstation MMI	**1**	**ALL**
FADS via PAS	**2**	**OWNER ONLY**
MCS IBP	**3**	**ALL**
SeIP IBP EVA	**4**	**OWNER ONLY**
MCS LAN	**5**	**OWNER ONLY**
OCC MMI	**7**	**OWNER ONLY**
SeIP IBP STC	**8**	**OWNER ONLY**
DCS	**13**	**OWNER ONLY**

Remarks:

note 1 – priority means the maximum priority can be stopped by the initiator

note 2 – All : The initiator can stop the adhoc which is sent by anyone of initator

OWNER ONLY : The initiator can only stop the adhoc sent by self