



Consolidated Space Operations Contract

Network Control Center Data System (NCCDS) Release M00.1 System Test Test Plan

October 1, 1999

Effective: October 15, 1999

Contract Number: NAS9-98100

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Preface

This document, the Network Control Center Data System (NCCDS) Release M00.1 System Test Test Plan provides the technical approach for system testing Release M00.1. M00.1 is a maintenance release consisting of the implementation of Problem Reports (PRs) written against the NCC98 Initial Release and the SPSR 99.1 Completion Release.

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Abstract

This document presents the test plan for system testing the Network Control Center Data System (NCCDS) Release M00.1 software. It contains the following:

- Summary of the test schedule
- Required system configuration, test data, and test tools
- Description of the Problem Reports implemented in this release
- A matrix of the M00.1 release contents to test items

This document addresses the testing strategy for Release M00.1. The contents of this release will be identified in the NCCDS Release M00.1 contents letter, which has not been delivered as of the completion of this document.

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Section 1. Introduction

1.1 Purpose and Scope

This document, the *Network Control Center Data System (NCCDS) Release M00.1 System Test Test Plan*, describes the testing approach for verifying that the software delivered with M00.1 fulfills its allocated requirements and system level functionality.

The scope of this document includes information regarding the system capabilities and configuration, the required test tools, and the test schedule.

This document will serve as the basis for the subsequent NCCDS System Test Plans for future maintenance releases and the System Test Report that will summarize each of the maintenance releases.

1.2 Document Organization

Section 1 presents the purpose and scope of the test plan and identifies the organization of the document, assumptions and conventions, and governing standards and procedures applicable to this document.

Section 2 provides the system testing strategy. This includes the schedule of testing activities; personnel responsibilities; required system configuration, test data, and test tools; security requirements; archiving methodology; and problem resolution.

Section 3 identifies the system test cases and the detailed test items planned to verify the contents of Release M00.1.

1.3 Assumptions and Conventions

This test plan assumes that the reader has a basic understanding of the NCCDS configuration for the Release M00.1 and the NCC operational capabilities. Standard terminology, as applied to the NCC by NASA, is used whenever possible.

1.4 Standards and Procedures

NCCDS system test activities will follow all applicable CSOC and NCC standards and procedures. The purpose of these guidelines is to ensure the development of a highly available, reliable, and maintainable system.

Section 2. System Testing

2.1 System Testing Strategy

System testing begins with planning that involves understanding the requirements, documenting the test approach at a high level in a test plan, and then documenting a detailed testing approach in test procedures that include identification of test data. The detailed test procedures are used to guide system testing. During system testing, the test team will redline the test procedures to reflect any necessary modifications. After the completion of system testing, a report will be written that discusses the test findings, documents the final test metrics, and identifies lessons learned.

2.2 Test Schedule

The following figure diagrams the schedule of M00.1 System Test activities:

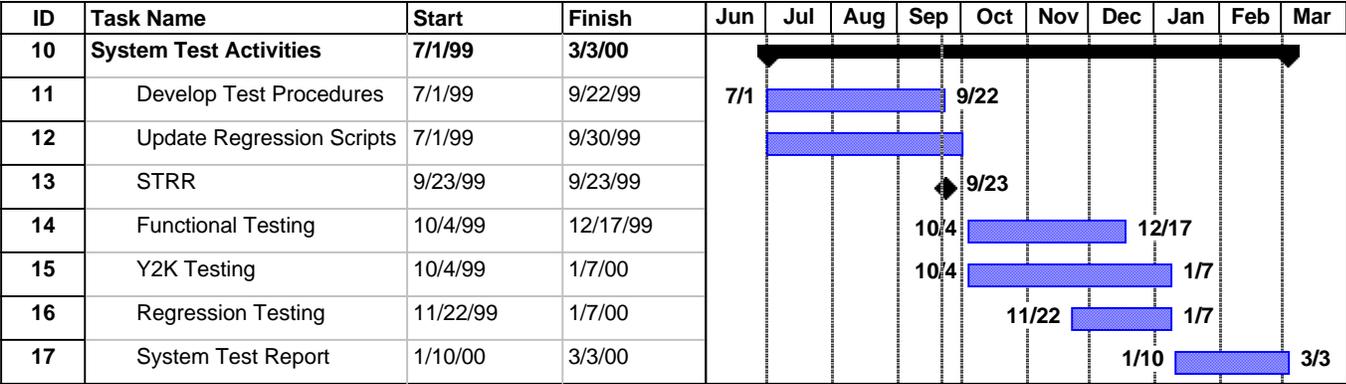


Figure 2-1. System Test Activities - Schedule

2.3 Roles and Responsibilities

The responsibility for performing the system-level testing for NCCDS Release M00.1 belongs to CSOC’s NCC System Test Team. The team is responsible for writing and executing test plans and procedures, participating in test procedure reviews, identifying and submitting problem reports, recording test activities on the daily test summary and in individual test records, certifying test records, collecting and monitoring test metrics, and writing and distributing test reports.

2.4 Test Environment and Configurations

Test execution will be performed in the Test & Training facility (T&T) in Building 13 at GSFC. The Test Berth supports the full complement of components. It contains a two-node clustered environment similar to, but not the same as the operational environment.

2.5 Test Data, Test Tools, and Special Equipment

Test data will be identified and/or created by the System Test team prior to the execution of each test item. The test data needed for executing each test will be specified in the test item. Test tools will include:

- a. NTS – The NCC Test System (NTS) is used to simulate the external interfaces by receiving messages from and/or transmitting messages to the NCCDS. It also has message logging and delogging capabilities to help analyze test results.
- b. NTS NPG – The NTS Network Protocol Gateway (NPG) is external to the NCCDS, but is within the domain of the NCC test berth and is logically located between the NTS and the NCC Firewall. The NTS NPG simulates TCP sites. It converts NTS 4800 bit blocks to TCP/IP format.
- c. XRunner – XRunner is an automated GUI capture/replay test tool that is dynamically linked to the software to be tested. It simulates a tester/operator sitting at a workstation. This tool will be used to help conduct regression tests.
- d. CDS – The Comprehensive Discrepancy System (CDS) is used to document and track the status of problems that are identified during all testing phases.

2.6 Security Requirements

System testing at NASA GSFC must adhere to the security rules found in NASA and NASA/GSFC management instructions, policies, requirements and guidance. Deviations and waivers require NASA management approvals.

The security environment required for testing M00.1 is the existing secure NCC.

2.7 Results Archiving

After a test item is completed, the following test material will be labeled and archived: daily test summaries, test records, redlined test procedures, test data references, delog listings and hard copies of windows, and PRs generated during testing. The test records will be archived and used for future analysis, as comparison data for regression testing, and for reference during the planning and testing of subsequent releases.

2.8 Problem Reporting and Resolution

Anomalies uncovered during system testing will be recorded as Problem Reports (PRs) in the Comprehensive Discrepancy System (CDS), which is a problem report tracking system. PRs will be prioritized and communicated to the appropriate development personnel for resolution. When a PR fix has been implemented and delivered to the T&T, the System Test team will verify that the identified problem no longer exists.

2.9 Entrance and Exit Criteria

2.9.1

Before the start of system testing, a System Test Readiness Review (STRR) will be held to determine the readiness of the system, the test environment, the test team, and supporting resources for transition to the system test phase. At this review transition (entrance) criteria will be reviewed. This criteria typically consists of the following:

- a. PRs have been submitted for unresolved problems identified during M00.1 development. Known workarounds are documented in CDS and have been provided to System Test by Development and/or System Administration.
- b. All certifications have been completed by Development.
- c. Deviations from the Contents Letter have been communicated to the project by Development.
- d. Redlined user's guides have been provided to System Test by Development.
- e. The development baseline has been successfully built by Configuration Management.
- f. Procedures for installing the baseline have been provided to System Administration by Development.
- g. System Test has been given any necessary training by Development and/or System Administration.
- h. The test system has been configured by System Administration.
- i. Space has been allocated for installing the test baseline by System Administration.
- j. Workarounds/impacts of pre-existing PRs have been provided to System Test by the Release Leader.
- k. Test Plan and Procedures have been completed by System Test.
- l. Detailed test schedule (or test prioritization) has been completed by System Test.
- m. Required resources and "special" support have been identified by System Test.

Waivers will be required and evaluated for any criteria not met.

2.9.2

The completion (exit) criteria will be monitored at weekly SERB meetings and includes the completion of all identified System Test test items, and the resolution and verification of all high priority PRs. Metrics to measure System Test's progress against the plan, productivity, test failure rate, and PR status will be used weekly to evaluate the test status.

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Section 3. Test Identification

3.1 Test Cases

Seven test cases have been identified for Release M00.1. These test cases are listed in Table 3-1.

Table 3-1. Test Case Identification

Test Case	Subsystem to be Tested
MR1-1	User Interface
MR1-2	Scheduling
MR1-3	Input
MR1-4	Output
MR1-5	CCS
MR1-6	NSM
MR1-7	Regression Test Suite

3.2 Test Items

The seven test cases have been broken down into 66 individual test items that will verify the implementation of the release contents, and 48 regression test items that will ensure that the NCCDS capabilities not changed in M00.1 still function correctly. Testing will be performed with the system times set in the year 2000 in order to revalidate Y2K compliance. The functional test items are listed in Table 3-2. The regression test items are listed in Table 3-3. The functional test items are prioritized into High, Medium, and Low categories based on the risk (probability of high priority PRs) and the operational necessity of the function. These priorities will be used in scheduling the execution of the tests; high priority tests will be run first, then medium, then low.

Table 3-2. System Test Activities - Schedule

Test Item	Test Item Title	Priority
MR1-1.01	SLR Process and Affected SHO Window	M
MR1-1.02	Remove Add and Delete Buttons for MDM and HDRM	M
MR1-1.03	Batch Schedule Error Checking	H
MR1-1.04	Saving Changes to Return SSC Windows	M
MR1-1.05	Request ID/Event ID is Displayed Correctly	L
MR1-1.06	Validate Tracking SSCs Correctly	M
MR1-1.07	Use Labels in Filter that are Consistent with Window	L
MR1-1.08	Cannot Add a Return Channel when Editing a SAR	M
MR1-1.09	Active Schedule - Impact Indicators	M
MR1-1.10	Service Parameter Records Use Default Buttons	L
MR1-1.11	Deleting All Db Records for a Deleted SSC	M
MR1-1.12	Cannot Delete Destinators from the Database During Transmissions	H
MR1-1.13	VTRS and STRS Windows Display Time of Next Execution	H
MR1-1.14	Remove Appropriate Edit Control Information	H
MR1-1.15	SMA Cross Support Forward Link	M
MR1-1.16	Dialog Box Appears when DbConsistency Error Occurs	M
MR1-1.17	VTRS Offset and Review Values Always Saved in Database	M
MR1-1.18	Waitlisted Requests Cannot Be Edited	M
MR1-1.19	AltSAR and Replace Request Priority	M
MR1-1.20	Schedule Request Windows Can Be Closed in Any Order	H
MR1-1.21	Multiple Events for the Same Request	H
MR1-1.22	Batch Schedule Process Request Event Filter	M
MR1-1.23	Memory Leak and Roguewave Bug	M
MR1-1.24	Request ID/Event ID is Displayed Correctly in Wait List Window	L
MR1-1.25	Saving Replace Requests Without Changing the Window	M

Table 3-2. System Test Activities - Schedule

Test Item	Test Item Title	Priority
MR1-1.26	Various GUI Layouts	L
MR1-1.27	Schedule Analysis Statistics	H
MR1-1.28	Separate Windows for Forward and Return EET SSCs	M
MR1-1.29	Deleting GTs, SGLTs, and TDRSs	M
MR1-1.30	Relative and Absolute Boundary Buttons	L
MR1-2.01	Changes to Declined Requests when Referenced by a Replace Request	H
MR1-2.02	TDRS Unscheduled Time (TUT) – MAR	M
MR1-2.03	Batch Requests Expire when Batch Boundary is in the Past	H
MR1-2.04	Multiple Primary Versions of a Request	H
MR1-2.05	Obsolete Lock-Outs	H
MR1-2.06	Guard Locks	H
MR1-2.07	Delete Secondaries when Original is Waitlisted	H
MR1-2.08	Declined Explanation String Length	H
MR1-2.09	Deleting Secondary Versions of Declined Baseline Requests	M
MR1-2.10	Gap in EET Event	H
MR1-2.11	Secondary Alternate SARs with Incorrect Explanation	H
MR1-2.12	Fixed TUT When Flexibility is Used	M
MR1-2.13	Activeschedulebroker Hangs After Oracle Error #2201	H
MR1-2.14	Displaying Minus Duration Tolerance for a Baseline Customer	M
MR1-2.15	Requests with Tracking Services and Flexibility	H
MR1-2.16	EET Events Supported after TDRS Mapping Change	H
MR1-2.17	SRM Reporting for MA and SA Resource Limitations	H
MR1-2.18	Minimum Bandwidth is Allocated	H
MR1-2.19	Multiple TSW Updates Received 10 to 15 Milliseconds Apart	H
MR1-2.20	Process Playback Events in Batch Schedules	H
MR1-3.01	ShoStatusMonitor Signal Handling	H

Table 3-2. System Test Activities - Schedule

Test Item	Test Item Title	Priority
MR1-3.02	Performing Request Validation at Request Save	M
MR1-3.03	SRM Reporting Upon Database Exceptions	H
MR1-3.04	CSN/SBSN Usage in Tracking Services is Not Constrained to Link References	H
MR1-4.01	Transmission Segmentation	M
MR1-4.02	Service Connection Semaphore Deadlock	H
MR1-4.03	Video UIFC is Included in 90/01 Message	H
MR1-5.01	Transfer Maximum Number of Static Data Records to CCS	M
MR1-5.02	Display of TDRS ID on ODM Windows	M
MR1-5.03	Removal of Expired Events from CCS	M
MR1-5.04	Increase Number of Spacecraft Transferrable to CCS	M
MR1-5.05	Amount of Time Between GCMR and OPM	M
MR1-5.06	Validate K-Band Subtype for Acq-Fail Messages	M
MR1-5.07	Selection of Primary and Secondary Vectors	M
MR1-5.08	Ongoing Events Restarted After CCS Cold Start	H
MR1-6.01	Backup and Deletion of Log Files	M

Table 3-3. Regression Test Items

Test Item	Test Item Title
AT001	Receipt of Acquisition Data
AT002	Editing of Acquisition Data
AT003	Transmission of Acquisition Data
DB001	SN Database - TDRS ID, Names, GT/SGLT sets, mappings
DB002	SN Database - Resource Availability
DB003	SN Database - MDM/HDRM
DB004	SN Database - TDRS Sets
DB005	Customer Database - General
DB006	Customer Database - SSCs
DB007	Schedule Control Database - Scheduling Priorities
DB008	Schedule Control Database - Sched Boundaries, Alerts, SA Slew Time
DB009	Schedule Control Database - Data Retention
DB010	Database Purging
EM001	SSAF - SSAR Reconfigurations
EM002	KuSAF - KuSAR Reconfigurations
EM003	KaSAF - KaSAR Reconfigurations
EM004	SMAF - SMAR Reconfigurations
EM005	MAF - MAR Reconfigurations
NCD001	NCD
NM001	User Performance Data
NM002	NM OPMs
SM001	Invalid Replace Requests
SM002	Valid Replace Requests
SM003	Delete Requests
SM004	Initial Activation Mode Schedule Transmission

Table 3-3. Regression Test Items

Test Item	Test Item Title
SM005	Manual Mode Schedule Transmission
SM006	Semi-Automatic Mode Schedule Transmission
SM007	STRS Options
SM008	Schedule Message Formats
SR001	SA/MA/SMA Scheduling Rules
SR002	EET Scheduling Rules
SR003	Tracking Scheduling Rules
SR004	Minimum Gap Scheduling Rules
SR005	TDRS Availability Scheduling Rules
SR006	SGLT Availability Scheduling Rules
SR007	UIFC Scheduling Rules
SR008	MDM/HDRM Bandwidth Scheduling Rules
SR009	Maximum Composition Data Rate Scheduling Rules
SR010	Service Level Flexibility - Service Tolerances
SR011	Service Level Flexibility - Event Tolerances
SR012	TDRS Flexibility - TDRS Selection
SR013	TSWs
SR014	Scheduling from Wait List - Automatic Mode
SR015	Scheduling from Wait List - Semiautomatic Mode
SR016	Alternate SARs / Chains
TUT001	TUT--SA
TUT002	TUT-- MAF/SMAF
TUT003	TUT--MAR/SMAR

3.3 Release Contents

The release contents implemented in Release M00.1 include 80 PRs written during previous releases. These PRs are listed in Table 3-4 along with the System Test test item assigned to test the PR fix.

4 PRs were fixed in a previous release after the baseline for Release M00.1 was built. 2 of these PRs will be merged into M00.1 and 2 PRs will be rolled up into M00.1. These PRs will be verified using procedures already written.

Table 3-4. Release Contents/Test Item Matrix

Problem Report	Test Item	Summary of Functionality to be Tested
1088	MR1-1.01	SLRProcess continues to run when an SLR with no affected SHOs is selected and the Compare SHOs button is clicked.
1277	MR1-1.02	In the Space Network Database window, Add and Delete buttons are removed for MDM and HDRM.
1283	MR1-1.26	Layout changes in numerous windows: Transmission Details windows, Customer Database windows, Service Parameter windows, and Scheduling windows.
1486	MR1-1.03	Improved error checking in the Batch Scheduling windows when a batch is deleted.
1525	MR1-1.04	Changes are saved in the Schedulable Parameter and Return Channel windows when an upper-level window is closed.
1563	MR1-1.26	Layout changes in numerous windows: Transmission Details windows, Customer Database windows, Service Parameter windows, and Scheduling windows.
1565	MR1-1.05	Request ID/Event ID is displayed correctly in service parameter windows.
1638	MR1-1.26	Layout changes in numerous windows: Transmission Details windows, Customer Database windows, Service Parameter windows, and Scheduling windows.
1704	MR1-3.01	In ShoStatusMonitor, no core file is created when an exception is caught.
1720	MR1-1.06	In the Tracking Schedulable Parameters window, validation is appropriate for normal vs. cross-support.

Table 3-4. Release Contents/Test Item Matrix

Problem Report	Test Item	Summary of Functionality to be Tested
1732	MR1-1.07	In the transmission window, wording is consistent between the filter window and the displayed status.
1733	MR1-1.27	In ScheduleAnalysisProcess, counts of requests/events/declines are consistent among windows.
1783	MR1-5.01	DBSF will not abort when more than 100 SICs are transferred to CCS.
1821	MR1-1.08	The number of return channels in an SSC cannot be modified when editing a request.
1891	MR1-1.26	Layout changes in numerous windows: Transmission Details windows, Customer Database windows, Service Parameter windows, and Scheduling windows.
2045	MR1-5.02	ParmRecord.dat data file is updated to allow TDRS indices from 1 to 26 (A-Z).
2251	MR1-1.09	An event that has not been transmitted and is impacted by a mapping change is marked as 'Impacted' on the Active Schedule window.
2301	MR1-1.05	Request ID/Event ID is displayed correctly in service parameter windows.
2312	MR1-1.28	Various improvements to End-to-End Test service parameter windows.
2332	MR1-5.03	Events in the CCS schedule with stop time greater than 10 minutes in the past are purged every 30 minutes.
2352	MR1-1.29	Alert is generated if GT, SGLT, or TDRS is removed. No deletes in Space Network are allowed if their detail windows are open.
2354	MR1-1.29	Alert is generated if GT, SGLT, or TDRS is removed. No deletes in Space Network are allowed if their detail windows are open.
2378	MR1-2.01	If a Replace Request schedules, the referenced request changes from state 'Declined' to 'Deleted'. If it doesn't schedule, then both requests stay 'Declined'.

Table 3-4. Release Contents/Test Item Matrix

Problem Report	Test Item	Summary of Functionality to be Tested
2381	MR1-1.28	Various improvements to End-to-End Test service parameter windows.
2448	MR1-1.28	Various improvements to End-to-End Test service parameter windows.
2464	MR1-2.02	TUT shows an MAR link ID allocated from the earliest MAR start time to the latest MAR stop time in an event.
2538	MR1-1.10	In the Service Parameters window, the Use Defaults buttons were moved and renamed for better understanding.
2571	MR1-4.01	The SPSR package no longer needs to be restarted when the transmission segmentation parameters are changed.
2646	MR1-1.11	When SSCs are deleted, the corresponding UIFC and Return Channel records are deleted.
2704	MR1-5.04	CCS is resized to handle a maximum of 250 Spacecraft including TDRS SICs.
2739	MR1-1.12	In the Space Network Database, destinations cannot be deleted if they are still in use.
2741	MR1-1.13	The STRS and VTRS windows now display when the next rule set will execute.
2772	MR1-1.28	Various improvements to End-to-End Test service parameter windows.
2783	MR1-2.03	Batchstored requests whose start time is less than current time will be 'Expired'.
2789	MR1-1.31	Button labels in the Reset Relative Boundary window clearly indicate their functions.
2791	MR1-1.31	Button labels in the Reset Relative Boundary window clearly indicate their functions.
2804	MR1-1.28	Various improvements to End-to-End Test service parameter windows.
2818	MR1-1.14	All appropriate edit control information is removed when an operator finishes editing a SIC.

Table 3-4. Release Contents/Test Item Matrix

Problem Report	Test Item	Summary of Functionality to be Tested
2843	MR1-5.05	Response times for the first reconfiguration after a CCS cold start are shorter.
2926	MR1-1.15	The SSAR parameters window correctly displays the cross support link type when the service is SMA.
2933	MR1-2.04	During activation when a request is marked as Activated, secondary versions in all other batch schedules are deleted.
2974	MR1-1.26	Layout changes in numerous windows: Transmission Details windows, Customer Database windows, Service Parameter windows, and Scheduling windows.
2986	MR1-1.16	Alert is generated and dialog box displayed if a database consistency exception occurs when saving a SAR.
3003	MR1-1.17	In VTRS Details window, the appropriate default value is displayed for epoch time offset.
3016	MR1-4.02	SvcReqStatusServer and SvcReqStatusTxmitter are terminated cleanly when connections are broken.
3020	MR1-1.28	Various improvements to End-to-End Test service parameter windows.
3028	MR1-6.01	The backup and deletion of log files by NSM leaves the last "n" log files on disk
3044	MR1-2.05	Obsolete schedule lock-outs are removed from the database.
3045	MR1-2.06	Active period lock-outs are handled correctly and processes will not loop trying to get a lock.
3087	MR1-3.02	Request validation is performed at time of save.
3105	MR1-2.07	Deleted secondary versions of requests are no longer left in batch schedules.
3107	MR1-1.18	Waitlisted SARs may not be edited.
3108	MR1-2.08	When a request is waitlisted, all secondary requests are deleted.

Table 3-4. Release Contents/Test Item Matrix

Problem Report	Test Item	Summary of Functionality to be Tested
3130	MR1-1.19	Priority of AltSAR and Replace Request is displayed correctly.
3131	MR1-1.27	In ScheduleAnalysisProcess, counts of requests/events/declines are consistent among windows.
3161	MR1-1.20	When multiple EditSAR windows are open, closing one will not affect the others.
3174	MR1-2.09	The proper result code and explanation in a declined request is displayed.
3178	MR1-1.21	In batch scheduling, the Request Pool window contains a correct list of available requests.
3189	MR1-3.03	When a database deadlock is detected, there is an attempt to send an SRM to the customer, otherwise the process will shutdown.
3204	MR1-1.22	In batch scheduling, activated Replace Requests and AltSARs are displayed with other activated events.
3214	MR1-2.10	When a baseline request is declined, delete all of its secondary versions.
3216	MR1-1.23	Performance is enhanced in the transmission details window.
3239	MR1-3.04	Requests will be accepted containing tracking services that are coupled or bounded (CSN/SBSN) to services other than the ones specified as the forward or return links in the tracking service.
3244	MR1-2.11	Events including EET services and using service flexibility will not schedule with a gap in services.
3268	MR1-5.06	EM validates the service subtype in an Acquisition Failure OPM against the scheduled service.
3269	MR1-2.12	Secondary AltSARs receive the correct explanation when declined in a batch schedule.
3272	MR1-2.13	TUT is displayed correctly when an event has tolerance that overlaps other events.

Table 3-4. Release Contents/Test Item Matrix

Problem Report	Test Item	Summary of Functionality to be Tested
3278	MR1-1.24	Request ID/Event ID is displayed as 7 digits in Wait List window.
3279	MR1-2.14	Enhancements were made to exception handling when Oracle Error #2201 is received.
3285	MR1-2.15	When event tolerances for a baseline customer cause two requests to schedule with the same event start time, the plus or minus event tolerances are calculated correctly and displayed on the Service Display window.
3286	MR1-2.16	Requests with tracking services using event start time flexibility, service start time flexibility and duration flexibility are scheduled correctly and RoseSps stays up.
3308	MR1-2.17	When a TDRS mapping is changed, EET/MA events are modified to use the newest TDRS mappings.
3309	MR1-4.03	NES message (90/01) will contain the video UIFC specified for the service, regardless of the services initial shuttle mode configuration.
3310	MR1-2.18	Correct SRM reject code is received when a request is submitted with a service that is not available on a TDRS.
3326	MR1-5.07	The IIRV Viewer window displays only the vectors requested.
3327	MR1-1.25	Replace Requests can be saved even when no changes (from the request being replaced) are made.
3331	MR1-2.19	Minimum MDM data rate is retrieved before assigning MDM data rate for JSC or GSFC.
3332	MR1-2.20	TSWs are stored correctly when multiple updates are received in a short time.
3334	MR1-2.21	RoseSps should allow playback events to be read correctly for batch schedules, but will abort the batch schedule run if an event cannot be read in. During activation, RoseSps will continue reading in and activating events even after an error reading one occurs.
3337	MR1-5.08	CCS will start the correct events after a CCS cold start.

Table 3-4. Release Contents/Test Item Matrix

Problem Report	Test Item	Summary of Functionality to be Tested
3347	MR1-1.23	Memory leak and RogueWave Bug no longer detected.

Abbreviations and Acronyms

The following is list of terms and abbreviations found in this document and in other test-related documentation and reference documents.

ACQ/TRK	acquisition/tracking
ACRS	automated conflict resolution system
AIS	automated information system
ATRR	acceptance test readiness review
ATSC	Allied Signal Technical Services Corporation
BVT	build verification test
CCB	configuration control board
CCR	configuration change request
CCS	communications and control segment
CDR	critical design review
CM	configuration management
cNMOS	consolidated Network and Mission Operations Support
COTS	commercial off the shelf
CSC	Computer Sciences Corporation
CSCI	computer software configuration item
CSOC	Consolidated Space Operations Contract
CSS	Nascom Control and Status System
CTB	communication test block
CTM	communication test message
DB	database
DBA	database administrator
DFCD	data format control document
DG	data group
DIS	data interface system
DQM	data quality monitoring

DSID	data stream ID
DTS	daily test summary
EET	end-to-end test
EIF	engineering interface
FDF	Flight Dynamics Facility
FTP	file transfer protocol
FW	firewall
GCM	ground control message
GCMR	ground control message request
GSFC	Goddard Space Flight Center
GUI	graphical user interface
GT	ground terminal
HA	high availability
HDRM	high data rate multiplexer
I&A	identification and authentication
I&T	integration and test
I/O	input/output
ICD	interface control document
IFL	interfacility link
IIR	interface incidence report
IIRV	improved interrange vector
INPG	interim NCC protocol gateway
ITRR	integration test readiness review
JISTT	Joint Integration and System Test Team
JPIC	Joint Process Improvement Committee
JSC	Johnson Space Center
KaSA	Ka-band single access
KaSAF	Ka-band single access forward
KaSAR	Ka-band single access return
KuSA	Ku-band single access

KuSAF	Ku-band single access forward
KuSAR	Ku-band single access return
LAN	local area network
LI	local interface
MA	multiple access
MAF	multiple access forward
MAR	multiple access return
MDM	multiplexer/demultiplexer
MO&DSD	Mission Operations and Data Systems Directorate
MOC	Mission Operations Center
NASA	National Aeronautics and Space Administration
Nascom	NASA communications
NCC	Network Control Center
NCCDS	NCC Data System
NCC 98	Network Control Center Data System 1998
NCD	NCC Central Delogger
NCR	NCC change request
NDS	Networks and Data Services
NSM	Network and System Manager
NES	Nascom event schedule
NFE	NCC front-end
NPG	NCC Protocol Gateway
NRR	Nascom reconfiguration request
NTS	Network Testing System
OCR	Operations Control Room
ODM	operations data message
OPM	operations message
PR	problem report
RID	review item disposition
RMA	reliability/maintainability/availability

RR	requirements review
SA	single access
SAR	schedule add request
SAS	service accounting segment
S/C	sensitivity/criticality
SCD	small conversion device
SDE	software development environment
SDF	software development facility
SDPF	Sensor Data Processing Facility
SGLT	space-to-ground link terminal
SHO	scheduled service order
SHO ID	scheduled service order identification
SIC	spacecraft identification code
SLR	service level report
SMA	enhanced multiple access
SMAF	enhanced multiple access forward
SMAR	enhanced multiple access return
SN	space network
SPSR	service planning segment replacement
SQL	structured query language
SRIS	system resources infrastructure segment
SRD	system requirements document
SRM	schedule result message
SRR	system requirements review
SSA	S-band single access
SSAF	S-band single access forward
SSAR	S-band single access return
SSC	service specification code
STDN	Spaceflight Tracking and Data Network
STGT	Second TDRSS Ground Terminal

STRR	system test readiness review
STRS	schedule transmission rule set
SUPIDEN	support identification
SWO	security watch officer
T&T	Test and Training
TBD	to be determined
TBS	to be supplied
TCP/IP	transmission control protocol/internet protocol
TDRS	tracking and data relay satellite
TDRSS	Tracking and Data Relay Satellite System
TLAS	TDRS look angle system
TNC	TDRS Network Controller
TRR	test readiness review
TRS	transmission rule set
TSW	TDRS scheduling window
TT&C	tracking, telemetry and command
TUT	TDRSS Unscheduled Time
UPD	user performance data
User ID	user identification
USM	user schedule message
UTC	coordinated universal time
VIC	vehicle identification code
VID	vehicle ID
VT	vector translator
VTRS	vector transmission rule set
WSC	White Sands Complex
WSGTU	White Sands Ground Terminal Upgrade
WWW	World Wide Web
Y2K	Year 2000.

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