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FINAL

NAS OPERATIONAL TEST AND EVALUATION INTEGRATION OF THE INTERIM MONITOR AND CONTROL SOFTWARE (IMCS) VERSION R08.02

LETTER OF FINDINGS

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February 1993

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1. INTRODUCTION.

This Letter of Findings (LOF) details the results of the National Airspace System (NAS) Operational Test and Evaluation (OT&E) Integration of the Interim Monitor and Control Software (IMCS), version R08.02. ACN-100D conducted the NAS OT&E Integration of the IMCS and its interface to the Maintenance Management System (MMS), versions A04.02 and A04.03, on the ACN-100D Tandem TXP Maintenance Processor Subsystem (MPS) and the AOS-350 Tandem CLX MPS under the Tandem Guardian Operating System C20, Release C30. Functional requirements for the NAS OT&E Integration of the IMCS were derived from NAS-SS-1000, Volumes I and V. ACN-100D conducted the NAS OT&E Integration of the IMCS according to the following documents: (a) NAS OT&E Integration of the IMCS Test Plan and (b) NAS OT&E Integration of the IMCS Test Procedures.

Remote Monitoring Subsystem (RMS) inputs to the MPS were provided via RMS simulators, since the use of operational RMSs for testing was not feasible. Air Traffic Control Beacon Interrogator (ATCBI-5) RMS simulators, both Common Digitizer Type 1 (CD-1) and Type 2 (CD-2), were chosen for their data base integrity and ease of use. An Air Route Surveillance Radar (ARSR) with CD-1 Remote Control Interface Unit (RCIU) simulator was chosen to provide an RMS which was not designed to conform to NAS-MD-790.

1.1 PURPOSE.

The purpose of the NAS OT&E Integration of the IMCS is to verify that the IMCS, version R08.02, functions properly in an integrated MMS/IMCS environment on the TXP and CLX MPSs executing the Tandem Guardian Operating System C20, Release C30, and that it satisfies all applicable NAS-SS-1000 requirements.

1.2 DATE.

ACN-100D conducted the NAS OT&E Integration of the IMCS from September 15 through November 30, 1992.

1.3 LOCATION.

ACN-100D conducted the NAS OT&E Integration of the IMCS on the ACN-100D Tandem TXP MPS and the AOS-350 Tandem CLX MPS at the Federal Aviation Administration (FAA) Technical Center, Atlantic City International Airport, New Jersey.

1.4 PARTICIPANTS.

The NAS OT&E Integration of the IMCS was conducted by Douglas Ruth of CTA Incorporated. Danny Rasdall, AOS-350, provided technical assistance when requested, as noted herein.

1.5 EXCEPTION IDENTIFICATION.

Each exception is identified as either major or minor and by an exception ID, both of which immediately follow the description of the exception. The exception ID is a unique identifier comprised of the software acronym (i.e.,

IMCS), development version in which the exception was first detected by ACN-100D, and a three-digit number assigned sequentially within the body of an LOF or test report for a given version. In addition, when an exception is identified as major, an asterisk is appended to the exception ID. Table 8-1 follows the test results and recommendations for version R08.02 and lists the open exceptions identified by ACN-100D during this test effort.

2. IMCS VERSION R08.02 TEST RESULTS.

2.1 IT1 - IMCS SYSTEM INITIALIZATION AND FAULT RECOVERY TEST.

The IMCS System Initialization and Fault Recovery Test validates that the IMCS is properly installed on the MPS, and that the IMCS correctly performs fault recovery. IT1 is composed of two test sequences: IMCS System Initialization Test (IT1.1) and IMCS Fault Recovery Test (IT1.2). The IMCS passed all IT1 test sequences with the following exceptions:

a. The IMCS does not always detect a communications failure. A failure was simulated by removing a cable from an RS-232 port on the MPS. IMCS detected the failure intermittently. IMCS indicated a problem only after a command was transmitted to the RMS by displaying the message DESTINATION SITE DID NOT RECEIVE COMMAND.

This is a major exception. Exception ID: IMCS-R08.02-001-*

b. During the configuration of IMCS, several attempts to build the database were made before site adaptation was successful. AOS-350 provided assistance in resolving problems which arose during the site adaptation process. Several problems were encountered when using the DATALOAD program to create the test database:

1. In the file TPADAP, the value of SITE-MAX-READ for the SMAP is incorrect.

This is a major exception. Exception ID: IMCS-R08.02-002-*

2. Several ARSR values in the file TPADAP are incorrect.

This is a major exception. Exception ID: IMCS-R08.02-003-*

3. The DATALOAD program is entering its generated DECODE-NAME in both ENCODE-NAME and DECODE-NAME in the file DBADAP.

This is a major exception. Exception ID: IMCS-R08.02-004-*

4. The DATALOAD program aborts if more than 30 sites are entered in a run.

This is a major exception. Exception ID: IMCS-R08.02-005-*

5. The DATALOAD program aborts for no apparent reason:

```
FILE ERROR=001, $DATA2.MCSDATA.DBCS!
ERROR AT P = %003225
```

This is a minor exception. Exception ID: IMCS-R08.02-006

c. The CLX was shut down to move power cables to new circuit breakers. After the CLX was powered up and the system startup was completed, PATHCOLD was executed. During the PATHCOLD, the message "The following Pathcom statements define MMS servers" was displayed, and the following occurred:

```
ABENDED: $MONIT
CPU time 0:00:00.297
-1: Process trapped
TRAP NO=00, S=006711, CS=00, P=047306, ENV=000007, L=00666#
```

The $MONIT process stopped but did not shut down other IMCS processes which were started by $MONIT before it stopped. PATHCOLD executed to completion. Another attempt to start IMCS using RUN STARTMON had the same results, except the CPU time was 0:00:00.305. $MONIT executed to completion only after removing all RMSCs from the monitor process. It appears that the ARMS decoder is causing this problem.

This is a major exception. Exception ID: IMCS-R08.02-007-*

d. During startup, the following messages were observed:

```
OSP MESSAGES: $EC017 - SITE NOT FOUND
              ERROR FROM GBD SMAP
              LU/DEL = FFFF
              00

25TH LINE MESSAGE: $ST017- EOF READ FILE, GBD GS 0099
```

These messages indicate that the GS MPS/SITE COMM. ALERT data point (0099) is missing in the current status edit template file ECSSMAP.

This is a major exception. Exception ID: IMCS-R08.02-008-*

e. The latest IMCS Operator's Manual released to ACN-100D (i.e., R08.01) has an outdated Edit Template File Chart. There should not be an entry for the ATCBI-3.

This is a minor exception. Exception ID: IMCS-R08.02-009

f. When IMCS is first accessed from MMS using the F1 = GO TO MCS key, many times the first function key pressed in IMCS is ignored. The key must be pressed a second time to activate the function.

This is a minor exception. Exception ID: IMCS-R08.02-010

2.2 IT2 - IMCS DATA MONITORING TEST.

The IMCS Data Monitoring Test validates that the IMCS provides access to the site status screen(s) for an RMS and displays the RMS's monitored parameters. The IMCS passed all IT2 test sequences with the following exceptions:

a. ASR-9 SDRs were being processed on the CLX but not on the TXP. However, alarms were being processed on both systems. Since the General NAS Maintenance Control Center (GMCC) software was executing on the TXP and a corrupted DBADAP file was being used, it appeared that something in the adaptation file was causing the problem. AOS-350 was asked to look at the problem. AOS-350 determined that the problem was caused by the SMMC being turned off. This had never been a problem in earlier releases of IMCS, where the SMMC was frequently shut off or adapted to another Pathway. AOS-350 said that the code must have been changed to require the SMMC to be available at all times. However, there is no documentation of this change.

This is a minor exception. Exception ID: IMCS-R08.02-011

b. The Site Status screens do not time out properly. When the Site Status interval is set to 999 seconds, they time out in less than 5 minutes. When both the Site Status and Screen Timeout intervals are set to 999, the Site Status screens time out after one hour and forty minutes. This seems to be due to a counter which counts the number of Site Status screen refreshes and then returns to the previous screen after five refreshes.

This is a minor exception. Exception ID: IMCS-R08.02-012

c. An attempt to unmonitor a site which had an unacknowledged alarm caused the terminal to hang, and the site did not get unmonitored (as indicated on the Active Alarms, Site Directory, Partition Status, and Site Status screens). After the console terminal was paused, the following messages were displayed on the console:

```
COBOL85 Library error 027
from SRV920 + %21724
$WORK.MCSSERV.SRV920
FILE STATUS-DRIVER, \ACTA$STA14: CLOSED
```

The problem occurred because the site was not being monitored by IMCS (i.e., the MONITOR-NAME field in the DBADAP file for the site was blank). However, the site was still displayed on the Full Site Directory screen.

This is a minor exception. Exception ID: IMCS-R08.02-013

d. The user's terminal hung when the LOGLSE file was full. This may be the result of an MMS problem.

This is a minor exception. Exception ID: IMCS-R08.02-014

e. The SMMC required a password to control a site or selected data points of a site from all screens from which the control functions can be called.

This is a minor exception. Exception ID: IMCS-R08.02-015

f. A site which was not in the user's partition could still be unmonitored by the user. The User's Manual implies that only sites in the user's partition may be controlled by the user.

This is a minor exception. Exception ID: IMCS-R08.02-016

g. After printing a Partitioned Site Directory screen which contained an unmonitored site, the unmonitored site was no longer displayed in reverse video. Also, after the SF14-PRINT key was pressed, but before the screen was printed, reverse video blanks were displayed on the 24th line.

This is a minor exception. Exception ID: IMCS-R08.02-017

2.3 IT3 - IMCS COMMAND TEST.

The IMCS Command Test validates the capability of the IMCS to properly transmit commands to an RMS. In addition, IT3 validates the capability of the IMCS to identify invalid command parameters input by the user. IT3 is composed of two test sequences: Command Test (IT3.1) and Invalid Command Test (IT3.2). The IMCS passed all IT3 test sequences with the following exceptions:

a. The parameters of a previously transmitted command are not cleared unless the Commands screen is exited or a command which has no parameters is transmitted. This allows commands with extraneous parameters to be transmitted to an RMS. The RMS may not properly interpret the command which has extraneous parameters. For example, the ATCBI-5 CD-1 Data Channel Select command has two parameters. If, after sending this command, the user selects a command with one parameter (e.g., Data Channel Local/Remote), the parameters of the previous command are displayed. Only the first parameter can be modified. The second parameter is transmitted as part of the command.

This is a major exception. Exception ID: IMCS-R08.02-018-*

b. When the RMS transmits a Command Error message to the MPS, the IMCS does not notify the user that the command was rejected by the RMS.

This is a minor exception. Exception ID: IMCS-R08.02-019

c. The ATCBI-5 RMS Logical Unit 25, Data Point 57, CHANNEL #2, on the ATCBI-5 Channel 2 Status screen is not updated when a Site Status command is transmitted. In addition, the data point is not displayed until channel 2 is selected.

This is a minor exception. Exception ID: IMCS-R08.02-020

d. The SMMC terminal requires a password before accessing the commands screen. This conflicts with the User's Manual, page 4-28, section 4-10, paragraph b, which states that the password is omitted for terminals having MMC or MCC in their Pathway names.

This is a minor exception. Exception ID: IMCS-R08.02-021

e. During an attempt to transmit commands to an ATCBI-5 RMS simulator, the IMCS indicated that the ALL STATUS command was received by the RMS, but only RR/RR pairs were observed at the simulator and on the line analyzer. After transmitting the command several times, the command timed out and polling stopped. An attempt to stop and restart the SDLC driver was unsuccessful. Later, without intervention, polling resumed. When the ALL STATUS command was transmitted, it reached the simulator. This occurred on the CLX.

This is a minor exception. Exception ID: IMCS-R08.02-022

f. The DATALOAD program has been changed to allow the user to assign logical unit addresses to the Glideslope and Localizer of an ARMS. If this feature is used and a command is transmitted to the Glideslope, the command has a logical unit address of 41 regardless of what address the user specified using the DATALOAD program. However, commands transmitted to the Localizer have the user-specified logical unit address.

This is a major exception. Exception ID: IMCS-R08.02-023-*

g. The 790 Parameters screen for the ARMS Link Control Unit Commands, RMS Disconnect and RMS Reconnect, did not allow entry of command parameters until the command parameters' edit template file, EC7PARMS, was reloaded.

This is a major exception. Exception ID: IMCS-R08.02-024-*

h. The 2508 Range Control screen display attributes of the ON/OFF SELECTION fields interfere with entering options when they are displayed in reverse video. The fields are displayed in reverse video after a command is transmitted using the F3 or F5 function keys.

This is a minor exception. Exception ID: IMCS-R08.02-025

2.4 IT4 - IMCS ALARM TEST.

The IMCS Alarm Test validates the capability of the IMCS to properly process and display Alarm messages from an RMS. It also validates the capability to acknowledge active Alarm messages via the IMCS. The IMCS passed all IT4 test sequences with the following exceptions:

a. The three counters displayed on the Constant Monitor screen are valid only for values between 0 and 999.

This is a minor exception. Exception ID: IMCS-R08.02-026

b. Although the counts displayed on the second line of the MCS PARTITION STATUS screen are correct, the individual counts displayed on the screen are correct only if the actual value is 999 or less.

This is a minor exception. Exception ID: IMCS-R08.02-027

c. The Alarm List screens do not display the function keys for first page, last page, next page, or previous page; however, the keys do function properly.

This is a minor exception. Exception ID: IMCS-R08.02-028

d. The Site Information screen cannot be accessed from the Alarm List screen as shown in figure 4-13 of the User's Manual.

This is a minor exception. Exception ID: IMCS-R08.02-029

e. The Alarm List screen does not indicate that the site is unmonitored (i.e., the Site and Type fields are in normal video whether the site is monitored or unmonitored).

This is a minor exception. Exception ID: IMCS-R08.02-030

f. While testing excessive alarms (i.e., 1,660), IMCS started pumping the following error message on the OSP printer: ERROR return on CHANGELIST RMS Port. This problem began when the alarms were loaded (all data points of an ASR-9 were set to alarm). Also, a port that never had an RMS plugged in went to normal and then back in alarm. This port was one of the two that were identified in the changelist error.

This is a minor exception. Exception ID: IMCS-R08.02-031

2.5 IT5 - IMCS/MMS INTEGRATED FUNCTION TEST.

The IMCS/MMS Integrated Function Test validates that the IMCS functions properly while executing various MMS functions. IT5 is composed of three test sequences: MMS Logging Activity Subsystem Test (IT5.1), MMS PM/CERT Scheduling Subsystem Test (IT5.2), and MMS Report Generation Subsystem Test (IT5.3). Additional information regarding testing of IMCS/MMS concurrent operations may be found in the NAS OT&E Integration of the MMS Letter of Findings for versions A04.02/A04.03. The IMCS passed all IT5 test sequences.

2.6 IT6 - IMCS UTILITY SUBSYSTEM TEST.

The IMCS Utility Subsystem Test validates that the IMCS data base and history files can be maintained using the Utility Subsystem, and that proper security functions are implemented. IT6 is composed of three test sequences: Database Add Utility Test (IT6.1), Database Delete Utility Test (IT6.2), and Archive Utility Test (IT6.3). The IMCS passed all IT6 test sequences with the following exceptions:

a. Since the Adapt Facilities function was modified to a single screen, the adaptation process has become confusing. There are documentation problems and differences between the Adapt Facilities process and the DATALOAD program. Specifically, Site Type and Equipment Type are not clearly defined and are used interchangeably in the User's Manual and Operator's Manual.

This is a minor exception. Exception ID: IMCS-R08.02-032

b. The Help screen for Adapt Facilities does not provide adequate help. It is very easy to make a mistake which will cause subtle, difficult to track errors in the IMCS database.

This is a minor exception. Exception ID: IMCS-R08.02-033

c. After requesting an archive of the DBH or DBUSERH files, the user is directed to examine the printout and make any necessary corrections to the file. However, there is no information on what kinds of errors could occur or how to correct any errors identified in the report.

This is a minor exception. Exception ID: IMCS-R08.02-034

d. The OBEY files ARCOBEYU and ARCOBEYH delivered on the tape were set up for the BETA Pathway. They had to be manually edited before the archive tape was created.

This is a minor exception. Exception ID: IMCS-R08.02-035

2.7 IT7 - IMCS REPORT SUBSYSTEM TEST.

The IMCS Report Subsystem Test validates that the IMCS provides the capability to generate a report of selected information from the DBCS (current status), DBH (history), and DBUSERH (user history) files. The IMCS reports available through the MMS Report Generation/Distribution (RGD) subsystem, as well as the ENFORM reports, are also generated. The IMCS passed all IT7 test sequences with the following exception:

The IMCS and MMS reports, USER HISTORY and USRHIST, have not been updated to reflect the new fields in the DBUSERH file.

This is a minor exception. Exception ID: IMCS-R08.02-036

3. IMCS CHANGES IDENTIFIED IN THE R08.02 RELEASE.

A Version Description Document (VDD) did not accompany this release. A memorandum dated September 8, 1992 identified the following changes to IMCS:

a. MCSDTLD.PARTLOAD was limited to handling 99 records. If an MPS exceeded this value in the number of sites monitored, the program returned a runtime error and failed to load DBPARTI files with records in excess of 99. PARTLOAD is being modified to handle up to 500 records.

b. R08.01 IMCS requires an AFA record for SITE<MPS LOCATION> and TYPE "MCC" for each SECTOR/USERID that requires access for the purpose of alarm display partitioning. This is necessary to configure and test IMCS. Entering this in the FSEFFA file in order to create the ADMAFA record may raise concerns with regard to FMF edits for an MCC facility that is not yet commissioned.

Since the document indicates PARTLOAD "is being modified," no attempt to load more than 99 sites was performed. Records were added to the FSEFFA and ADMAFA files as necessary to test versions R08, R08.01, and R08.02.

4. IMCS CHANGES IDENTIFIED IN THE R08.01 RELEASE VDD.

Descriptions of changes made to IMCS, as extracted from section 3.0 of the R08.01 VDD, and the test findings are as follows:

4.1 SECTION 3.0 OF THE R08.01 VDD.

VDD: IMCS conformance to MMS changes in the AFA and ACC files:

The security access linkage for MMS/IMCS appears to work properly. No problems were detected during IMCS testing.

VDD: New MMS/IMCS access linkage:

The access linkage for MMS/IMCS communications appears to work properly. No problems were detected during IMCS testing.

VDD: Automatic Logging capabilities provided:

Autologging appears to work properly. MMS log entries were created automatically from records in the DBUSERH file. The automatic logging requirements are not specified.

VDD: A capability to allow entries for a device which is not equipped for RMM or "non-RMMed" is available:

Non-RMMed sites are supported in the IMCS data base. The logical unit is "NA," and data points can be defined and manually changed.

VDD: New IMCS interface will send alert information to the MCC Status Board driver:

The GMCC/IMCS interface was tested by the GMCC test group.

VDD: The Constant Monitor screen provides counts of alarms and unmonitored sites:

Counts are displayed correctly only if the value is less than 1000. The displayed count returns to zero when a value of 1000 is reached. No legend is provided.

VDD: Special command support has been provided for ASR-8 sites:

The 2508 RANGE CONTROL screen is accessed from the Constant Monitor screen and provides special command support for ASR-8 sites.

VDD: Acknowledgement of alarms can now be done on a site basis from the Partitioned Status screen:

Alarms can be acknowledged by site from the Partition Status screen.

VDD: The ASR7, ASR8 and MALSR decoder modules are included:

The ASR-7, ASR-8, and MALSR decoder modules are included; however, the MALSR decoder generates an undefined external message at the OSP the first time IMCS is started.

VDD: Two ILSs can now be monitored through a single LCU:

Two or more ILSs can be monitored through a single LCU.

4.2 PARAGRAPH 3.4 OF THE R08.01 VDD.

VDD: PTRs addressing the modifications contained in this version are:

04212033V GMCC/IMCS interface for MCC status board:

The GMCC/IMCS interface was tested by the GMCC test group.

04212034V AFA, ACC, and access linkage for MMS/IMCS communications:

The access linkage for MMS/IMCS communications appears to work properly. No problems were detected during IMCS testing.

04212035V Site Directory decreased to 15 rows of sites:

Fifteen rows of sites in three columns are displayed per page on the Site Directory screens (Partitioned and Full).

04212036V DBUSERH information provided for autologging:

Autologging appears to work properly. MMS log entries were created automatically from records in the DBUSERH file.

04212037V Non-RMMed site includes LU of "NA" for manual entry:

Non-RMMed sites with logical unit of "NA" are supported.

04212038V SITE-TYPE/LOCATION checks when called from SITE-STATUS or COMMANDS screen (PTR states: IMCS now checks for the correct site type/loc on exit and command screens):

On the Commands screens, the SITE and TYPE fields are not accessible. The checks work correctly on the Site Status screens. IMCS should also check on calls to the Control and Menu screens. When an invalid TYPE was entered on an ARSR3F Site Status screen, IMCS correctly indicated that an invalid TYPE had been entered. The F16-Exit key was pressed, and IMCS attempted to display a menu screen. The message "175 NO DATA FOUND FOR DBMENU FILE FROM SRV254 - CONTACT MPS SUPERVISOR" was displayed on the 24th line.

This is a minor exception. Exception ID: IMCS-R08.02-037

04212039V PASSWORD screen skipped on return from COMMANDS screen:

The Password screen is no longer displayed upon return from a Commands screen.

04212040V Commands screen displays correct subtype:

Subtypes are correctly displayed for ARMS sites.

04212041V Commands sent to ARMS have correct sub-addressing:

ARMS sub-addressing works correctly except for a user-assigned logical unit for a Glideslope. This problem is in the Glideslope's edit template file for commands.

04212042V Support for ASR-8 commands on the CONSTANT-MONITOR screen:

The 2508 RANGE CONTROL screen is accessed from the Constant Monitor screen and provides special command support for ASR-8 sites.

04212043V Counts of alarms and unmonitored sites on the CONSTANT-MONITOR screen:

Counts are displayed correctly only if the value is less than 1000. The displayed count returns to zero when a value of 1000 is reached. No legend is provided.

04212044V Alarms can be acknowledged by site from the PARTITION-STATUS screen:

Alarms may be acknowledged by site from the Partition Status screen.

07082069V Require only ACC record validation for logon:

The access linkage for MMS/IMCS communications appears to work properly. No problems were detected during IMCS testing.

04082028V Allow two ARMs with different site IDs for LCU use:

An LCU can now support two or more ARMS sites.

03232020H Allow Monitor/Unmonitor commands with concentrator:

An ARMS site with a different Site Identifier can be unmonitored independent from the LCU to which it is connected.

10011230V Remove ATCBI-5 CD-2 MC Power Off command:

The ATCBI-5 CD-2 MC Power Off command has been removed from the list of commands.

09171218V Correct user history full message is correct:

Several attempts were made to change the size of the user history file without success. Since the file has not reached 100% full, the message has not been displayed.

08051191V (duplicate of 04011092V) ARSR3F command parameters not cleared. (PCC0702)

This problem has not been corrected. The previously entered command parameters are not cleared from the buffer when a new command which has parameters is selected.

08051192V ARSR3F channel B STC STATUS screen, status point "3448 Ch B STC 1 Hi Rng 2" should be "3438 ChB STC Lo 1 Rng 0." (PCC0702)

The Channel B STC CONTROL Site Status screen "ChB STC ..." data points are displayed in sequential order.

08051193V ARSR3F Smart Radar Cntrl command parameters are incorrect. Parameter 0 should be Disable and parameter 1 should be Enable. (PCC0702)

The parameters have not been changed. The parameters are displayed with 0 for Enable and 1 for Disable.

This is a major exception. Exception ID: IMCS-R08.02-038-*

08051190V Clear ARSR3F parameters upon leaving screen:

This problem has not been completely corrected. The previously entered command parameters are cleared from the buffer only when a new command that does not have parameters is selected.

04011092V (duplicate of 08051191) Command parameters not cleared after command sent. (PCB0701)

This problem has not been completely corrected. The previously entered command parameters are cleared from the buffer only when a new command that does not have parameters is selected.

VDD: The following PTRs are believed to be resolved by non-specific corrections included in this version or previous versions:

01041002V SDLC line driver module I/O error numbers not reported. (PCC0701)

ACN-100D cannot determine if this PTR has been resolved.

This is a minor exception. Exception ID: IMCS-R08.02-039

01041003V Update from ANSI 1974 COBOL to ANSI 1985 COBOL. (PCC0701)

COBOL85 library error messages were displayed on the OSP during testing.

01041004V DATALOAD Utility requires modification to accommodate the new version number. (PCC0701)

This is an ongoing problem. The DATALOAD program delivered with R08.01 displays Version 7.31 (11/16/1990). The version number still needs to be updated.

This is a minor exception. Exception ID: IMCS-R08.02-040

01041005V The DBH file is reported to be full erroneously. (PCC0701)

DBH file utilization messages agree with FILEINFO data.

01041006V 25th-line writers (e.g., ERROR and TWRIT) do not support subdevices. (PCC0701)

Subdevices are supported.

01041007V Program module SENCODR is receiving incorrect name from decoder. (PCC0701)

ACN-100D cannot determine if this PTR has been resolved.

01041010V Command driver hard coded for 20 sites, change to global literal value. (PCC0701)

ACN-100D cannot determine if this PTR has been resolved, because the monitor process is limited to a maximum of 19 entries in the DBADAP file.

01041011V Same error message used for no data found in AFA and insufficient authorization. (PCC0701)

There are now two distinct messages generated: 188 NO DATA FOUND IN AFA FILE FROM SRV925 - CONTACT MMS MANAGER, and 275 INSUFFICIENT USER AUTHORIZATION - OPERATION CANCELED.

01041012V Alarm List screen shows all points as unmonitored when only one alarm point is unmonitored. (PCC0701)

The Alarm List screen correctly displays the monitored and unmonitored data points.

01041013V IMCS node identifier for server uses only four characters. Five characters are needed. (PCC0701)

Five-character node identifiers are supported.

04151103V Active Alarms screen aborts when more than five screens of alarms. (PCB0701)

The Active Alarms screen no longer aborts. Up to 99 pages of alarms can be displayed. If more than 99 pages of alarms are present, a message is displayed on the 24th line indicating this condition. The excess alarms are not displayed. The number of alarms which can be displayed on the Active Alarms screen is more than can be indicated in the count fields on the Constant Monitor and Partition Status screens.

07191179V TPADAP file used by DATALOAD has error in IARSS site type. "MCSMONMO" should be "MCSMONO." (PCC0702)

The TPADAP file in $WORK.MCSDTLD used for R08.02 testing correctly uses MCSMONO.

08051188V ARSR3F Tech Signed In status point is set to B when no one is logged in. It should be blank. (PCC0702)

To test this PTR, a live ARSR3F is required. However, although testing with an RMS simulator was inconclusive, it appears that the B is transmitted from the RMS. On page 4 of the ARSR3F ICD, dated April 1991, there is a note in table A-1 which indicates that the Condition Status is used for the first initial. This could be the reason the B is displayed.

This is a minor exception. Exception ID: IMCS-R08.02-041

08051189V On IMCS Status screens, F1 key acts as if SF1 key pressed. (PCC0702)

Pressing the F1-SITE STATUS key causes the current Site Status screen to be updated. Pressing the SF1-PREV key causes the previous page of the Site Status screen to be displayed (if already on page one, the page is updated).

09171217V IMCS-TWRIT/ERROR Terminal Names should be increased to 24 characters to support 6100 communications and GMCC multi-lan. (PCC0702)

This problem has not been corrected. In the DBADAP file, the size of each of the WRIT25-TERM and ERROR-TERM fields is 8 characters.

This is a minor exception. Exception ID: IMCS-R08.02-042

09171219V The SDLC driver process name created by DATALOAD should be changed to 5 characters to allow data distribution over the Tandem Expand network. (PCC0702)

In the DBADAP file, the field size of the item SDLC-NAME is 14 characters. If the name has more than five characters following the $, the extra characters are ignored, and IMCS may fail to complete the startup process. To prevent this, it is recommended that the character limit be reflected in the documentation.

This is a minor exception. Exception ID: IMCS-R08.02-043

10209057H Unable to send the 25th line to a terminal via the 6100 cabinet using name $AE.#D or any other name.

Names such as $AE.#D can be used to send the 25th line to a terminal via the 6100 cabinet.

4.3 PARAGRAPH 3.8 OF THE R08.01 VDD.

VDD: IMCS conformance to MMS changes in the AFA and ACC files:

The security access linkage for MMS/IMCS appears to work properly. No problems were detected during IMCS testing.

VDD: New MMS/IMCS access linkage:

The access linkage for MMS/IMCS communications appears to work properly. No problems were detected during IMCS testing.

VDD: Automatic Logging capabilities provided:

Autologging appears to work properly. MMS log entries were created automatically from records in the DBUSERH file. The automatic logging requirements are not specified.

VDD: IMCS interface will now send alert information to the MCC Status Board driver:

The GMCC/IMCS interface was tested by the GMCC test group.

VDD: A capability to allow entries for a device which is not equipped for RMM or "non-RMMed" is available:

Non-RMMed sites are supported in the IMCS data base. The logical unit is "NA," and data points can be defined and manually changed.

VDD: The Constant Monitor screen provides counts of alarms and unmonitored sites:

Counts are displayed correctly only if the value is less than 1000. The displayed count returns to zero when a value of 1000 is reached. No legend is provided.

VDD: Special command support has been provided for ASR-8 sites:

The 2508 RANGE CONTROL screen is accessed from the Constant Monitor screen and provides special command support for ASR-8 sites.

VDD: Acknowledgement of alarms can now be done on a site basis from the Partitioned Status screen:

Alarms can be acknowledged by site from the Partition Status screen.

4.4 PARAGRAPH 3.8.1.1 OF THE R08.01 VDD.

VDD: Configuration files for files SRV405 and SRV925 had filename references changed from ACC, AFA and COSTC to ADMACC, ADMAFA and MMSCOST, respectively:

The security access linkage for MMS/IMCS appears to work properly. No problems were detected during IMCS testing.

VDD: File SRV112 had an assignment to USER-HISTORY-FILE added:

There is an assignment for the USER-HISTORY-FILE in SRV112.

VDD: The Utility function no longer gives an open error on the DBSITETB file:

An open error message is no longer displayed when an empty DBSITETB file is opened.

VDD: Item NUMSTATIC for server ENABLE-SERVER was set to 0:

Item NUMSTATIC is set to 0 for server ENABLE-SERVER.

VDD: MMS calls IMCS with F5 [key] from the MMS Alarm Display screen:

IMCS is called from within MMS by pressing the F5-ALARM key.

4.5 PARAGRAPH 3.8.1.2 OF THE R08.01 VDD.

VDD: Files REQ105SD, REQ105AA, REQ105CM, REQ205MS, REQ210CP, and REQ210SP had space for comments added:

Data entry fields were added on various screens for user-entered comments for autologging purposes.

VDD: REQ105SD now displays only 15 rows of sites instead of the previous 16 rows:

The Site Directory screens (Full and Partitioned) display 15 rows of sites.

VDD: REQ105CM, REQ110CM, SINIT105, and SINIT110 were changed to conform to the new MMS access linkage:

The access linkage for MMS/IMCS communications appears to work properly. No problems were detected during IMCS testing.

VDD: File REQ205MS was changed to allow entries for a non-RMMed device:

A non-RMMed device can be added to the IMCS data base files DBCS, DBCSTBL, and DBSITETB.

VDD: Files REQ210CP and REQ210SP were altered to change the command screen from 3 columns by 16 rows to 4 columns by 12 rows:

Command screens now provide 4 columns by 12 rows of commands.

VDD: REQ205MS was changed so the SITE-STATUS screen no longer goes to the MAIN-MENU when changing the SITE and TYPE:

This does not work as stated. Changing the SITE still causes the Main Menu to be displayed. Changing the TYPE should always display the Main Menu.

This is a minor exception. Exception ID: IMCS-R08.02-044

VDD: REQ205MS was modified so that a non-existent SITE and/or TYPE entries on the SITE-STATUS screen are now validated and an appropriate warning message is displayed on incorrect/invalid entries:

The Site and Type checks work correctly on the Site Status screen.

VDD: REQ205MS was modified to refresh screen attributes when an UNMONITORED data point alarm/soft alarm is cleared:

When an unmonitored data point in alarm was cleared, the screen attributes were properly refreshed on the Site Status screen.

VDD: Password needs to be entered only once from SITE-STATUS screen:

As long as the user does not change the SITE or TYPE, the password is only entered once for the site.

VDD: REQ210SP was changed so that date and time fields for RVR archive control are now displayed correctly. Note that the RVR decoder module has not been released yet:

ACN-100D cannot test this, because there are no RVR edit template files in $WORK.MCSTMPT.

VDD: Lower case is now usable for passwords:

Lower and mixed case passwords are accepted by MMS and IMCS.

VDD: A new requestor, REQ211RC, was created to permit ASR-8 ON/OFF commands to be sent to all ASR-8s with a single command. It is only available if an ASR-8 RMS is adapted at an MPS. A new screen provides capabilities to send ON/OFF commands to all ASR-8 sites:

There is a new screen, 2508 RANGE CONTROL, in the IMCS. There is a limit of 10 ASR-8 sites on the 2508 RANGE CONTROL screen. The SRV105 parameter PARAM CONTROL-ASR8 "N" must be changed to PARAM CONTROL-ASR8 "Y" before the screen is available in IMCS. The 2508 RANGE CONTROL screen provides the capability to send ON/OFF commands to all ASR-8 sites.

VDD: Programs SINIT105, SINIT110 and MENU-DRIVER-DU were deleted. They were used for standalone operations of IMCS. Since IMCS and MMS are now "merged," a field has been added to the access linkage that provides this capability:

ACN-100D cannot determine if the programs were deleted, since ACN-100D is not provided with source code listings. Insufficient information is provided on what the "added field" is or where the "added field" was placed.

VDD: Non-RMMed sites can be statused from F9 on the SITE-STATUS screen. This feature allows manual entry of status from sites for which electronic connectivity is not present:

Non-RMMed sites are available after creating records in the DBCS, DBCSTBL, and DBSITETB files. During testing, several values were updated in the POINT VALUE field of the Site Status screen using the Alter Points function. However, when the TECH ON SITE and SITE IN OPERATION fields were updated, the error message "222 Error reading FSEFFA file from SRV250 - Contact MPS Supervisor" was displayed on the 24th line.

This is a minor exception. Exception ID: IMCS-R08.02-045

VDD: REQ105CM has been modified so that the security access record can be addressed correctly. This change is related to allowing a better interface between MMS and IMCS:

The security access linkage for MMS/IMCS appears to work properly. No problems were detected during IMCS testing.

VDD: REQ505RD was modified so that an invalid SITE-TYPE has a validation check performed on Report requests. This allows an error on an OPEN to be detected and flagged without a report generation occurrence:

The data entered in the Site and Type fields is validated prior to generating a report. However, if blanks are entered in either or both of the fields, a report will be generated.

VDD: REQ415 and REQ420 were modified so that the ARCHIVE-DEFAULT-DATE points to the current data to be consistent with the removal of the 60-day restriction:

The current date is displayed on the Archive DBH and Archive DBUSERH screens.

VDD: REQ105SD and REQ110PS were changed so that partition changes for the "P" (Primary MCC) will now look for an ADMAFA file entry that has an MCC record of greater than 0:

A user attempting to change the partition needs an ADMAFA file entry that has an MCC record of greater than 0 to be successful.

VDD: REQ105CM was changed to display counts of alarms and unmonitored sites to be added to the CONSTANT-MONITOR screen:

Counts are displayed correctly only if the value is less than 1000. The displayed count returns to zero when a value of 1000 is reached. No legend is provided.

VDD: REQ105CM was changed and new requestor REQ105PS added so that alarms can now be acknowledged by site from the PARTITION-STATUS screen:

Alarms may be acknowledged by site from the Partition Status screen.

VDD: REQ105CM and REQ105SD were modified so that the CONSTANT-MONITOR function label for Site Directory has been changed from F3 to F12. This was done to improve function key consistency:

The Partitioned Site Directory is accessed using the F12 key.

VDD: REQ205MS was modified to provide for non-RMMed sites. This screen is accessible by F9 from the SITE-STATUS screen. This feature allows manual entry of status from sites for which electronic connectivity is not present:

Non-RMMed sites are available after creating records in the DBCS, DBCSTBL, and DBSITETB files. During testing, several values were updated in the POINT VALUE field of the Site Status screen using the Alter Points function. However, when the TECH ON SITE and SITE IN OPERATION fields were updated, the error message "222 Error reading FSEFFA file from SRV250 - Contact MPS Supervisor" was displayed on the 24th line.

VDD: REQ105CM, REQALRM, and REQ910PS were modified to accommodate the call of MMS to IMCS with F5. This function enhances the MMS capability to acknowledge alarms. Return to MMS is accomplished with SF13:

MMS labels the F5 key "ALARM." Return to MMS can be accomplished using the F16, SF16, or SF13 keys.

4.6 PARAGRAPH 3.8.1.3 OF THE R08.01 VDD.

VDD: Files SRV405 and SRV925 were changed to conform with MMS use of new ADMACC, ADMAFA and MMSCOST files instead of the previous ACC, AFA and COSTC files:

The access linkage for MMS/IMCS communications appears to work properly. No problems were detected during IMCS testing.

VDD: Files SRV112, SRV225, SRV240, SRV241, SRV910 and SRV920 were changed to write necessary information to the DBUSERH file for autologging/improved handling of user history full:

Autologging appears to work properly. MMS log entries were created automatically from records in the DBUSERH file. The "user history full" handling was not tested because the DBUSERH file was not full.

VDD: An LCU now supports two ILS devices.

An LCU can now support two or more ILS devices.

VDD: File SRV250 was added to facilitate a non-RMMed device:

Status capability for non-RMM devices is available.

VDD: New servers SRV805 and SRV810 were added to provide ASR-8 ON/OFF commands. These commands can be sent to all ASR-8s with a single action from IMCS:

There is a new screen, 2508 RANGE CONTROL, in the IMCS. The 2508 RANGE CONTROL screen provides the capability to send ON/OFF commands to all ASR-8 sites.

VDD: SRV405 and SRV925 were modified to remove hard references to TALENC in these servers. The reference is now to TALENCO in the TALLIB:

ACN-100D cannot test this, because there is no information on what these items are and what they are used for.

VDD: SRV510, SRV515, and SRV520 were changed so that an invalid SITE-TYPE has a validation check performed on report requests. This permits an error on an OPEN to be detected and flagged without a report generation occurrence:

The data entered in the Site and Type fields is validated prior to generating a report. However, if blanks are entered in either or both of the fields, a report will be generated.

VDD: SRV420 is no longer needed to support the ARCHIVE-DEFAULT-DATE. The current date is used to be consistent with the removal of the 60-day restriction:

The current date is displayed on the Archive DBH and Archive DBUSERH screens.

VDD: SRV405 and SRV925 were modified so that an incorrect error message is no longer returned when accessing the COMMAND screen from the SITE-STATUS screen using initials of non-existent user:

The user's initials are no longer entered for access to the Command screen.

VDD: SRV405 was changed so that partition changes for the "P" (Primary MCC) will now look for an ADMAFA file entry that has an MCC record of greater than 0:

A user attempting to change the partition needs an ADMAFA file entry that has an MCC record of greater than 0 to be successful.

VDD: SRV910 was modified and new server SRV120 added so that alarms can now be acknowledged by site from the PARTITION-STATUS screen:

Alarms may be acknowledged by site from the Partition Status screen.

VDD: SRV250 was modified to provide for non-RMMed sites. This screen is accessible by F9 from the SITE-STATUS screen. This feature allows manual entry of status from sites for which electronic connectivity is not present:

Non-RMMed sites are available after creating records in the DBCS, DBCSTBL, and DBSITETB files. During testing, several values were updated in the POINT VALUE field of the Site Status screen using the Alter Points function. However, when the TECH ON SITE and SITE IN OPERATION fields were updated, the error message "222 Error reading FSEFFA file from SRV250 - Contact MPS Supervisor" was displayed on the 24th line.

VDD: Two data points (Tech on site and Site outages) were provided to satisfy MCC requirements. Security is not provided on these data points as desired by FAA direction.

The data points can be altered without security for any site being monitored. However, a non-RMM site was created, and an attempt to alter these data points caused the error message "222 Error reading FSEFFA file from SRV250 - Contact MPS Supervisor" to be displayed on the 24th line.

4.7 PARAGRAPH 3.8.1.4 OF THE R08.01 VDD.

VDD: User History and USERHALL have been modified for automatic-logging:

The DBUSERH, DBUSERH2, and DBUSERH1 files and the ENFORM report USERHALL have been modified for automatic-logging.

4.8 PARAGRAPH 3.8.1.5 OF THE R08.01 VDD.

VDD: Runway End Identifier Lights (REIL) templates ECSREIL and ECSTREIL were added to ARMS. Similar changes were made for MALSR files ECSMLSR and ECSTMLSR, as well as new files for the ASR7 and ASR8:
In $WORK.MCSTMPT, the ECSREIL and ECSMLSR template files are included as part of the ECSARMA template file, and the ECSTREIL and ECSTMLSR template files are included as part of the ECSTARMA template file. The new ASR-7 and ASR-8 files were delivered on the R08.01 tape.

VDD: Templates for the ARSR3F and ATCBI5 were modified to correct outstanding PTRs:

Not all of the PTRs identified in section 3.4 of this VDD have been resolved.

4.9 PARAGRAPH 3.8.2 OF THE R08.01 VDD.

VDD: STATR was changed so that the STATUS DRIVER no longer goes into INSPECT.

The status driver did not go into INSPECT during testing.

VDD: Timestamp on DBUSERH has additional granularity:

A new field, ENTRY-TIME-RESOLUTION, has been added to the DBUSERH file.

4.10 PARAGRAPH 3.8.2.1 OF THE R08.01 VDD.

VDD: A Synchronous Data Link Control (SDLC) driver error on startup has been corrected. Whenever the SDLC driver is started or restarted the following error is displayed on the error log: SDLCX - 0016: Guardian ERROR RETURN ON CLOSE ENCODER. Unnecessary fileinfo checks have been removed after file closes. S20BJ was changed:

The error message was not observed during testing. ACN-100D cannot test the fileinfo checks.

4.11 PARAGRAPH 3.8.2.4 OF THE R08.01 VDD.

VDD: ASR7, ASR8 and MALSR decoders are provided.

Although some testing was performed, ACN-100D cannot thoroughly test the ASR-7, ASR-8, MALSR, or other decoders during IMCS testing.

VDD: ARSR3F templates are corrected.

The ARSR3F command parameters PTR, 0851193V, is still unresolved.

VDD: ATCBI-5 CD2 OFF command is removed:

The ATCBI-5 CD2 OFF command was removed.

4.12 PARAGRAPH 3.8.5 OF THE R08.01 VDD.

VDD: DDL - DBUSERH expanded to add: LOG-NEEDED, LOG-HEADER-KEY, PSEUDO-FLAG, OLD-PARTITION-CODE, NEW-PARTITION-CODE, PRIMARY-MCC-INDICATOR, POINT-VALUE, POINT-DESCR, SECTOR-USER-ID, ALARM-DATE, ALARM-TIME, AND COMMENTS (COMMENT1 and COMMENT2). The comments are for LOGS (partition with primary control, LOGS alarm acknowledgement, LOGS Monitor/Unmonitor and LOGS commands). DBUSERH also now has LOG-NEEDED as an alternate key "LN" and TECH-INITIALS was deleted from the primkey.
Entry-time-resolution was added to the primkey. Files SRV910 and SRV920 were altered to incorporate these changes:

The new fields are displayed on two pages of DBUSERH-UPDATE screens within the IMCS Utility subsystem. Data is entered in the fields when records are added to the file.

VDD: MMS's new ACCESS-LINKAGE was added:

The access linkage for MMS/IMCS communications appears to work properly. No problems were detected during IMCS testing.

VDD: MMS's new ADMAFA file was changed in the configuration for files SINIT105, SINIT110, REQ105CM, REQ110CM, SRV405 and SRV925:

The access linkage for MMS/IMCS communications appears to work properly. No problems were detected during IMCS testing.

VDD: MMS's new ADMAFA file was changed in the configuration for server SRV110:

The access linkage for MMS/IMCS communications appears to work properly. No problems were detected during IMCS testing.

VDD: The MMS COSTC file was renamed MMSCOST:

The access linkage for MMS/IMCS communications appears to work properly. No problems were detected during IMCS testing.

4.13 PARAGRAPH 3.8.7 OF THE R08.01 VDD.

VDD: For this release of IMCS, several new changes appear in the MMS/IMCS interface software. In an effort to simplify a return from IMCS to MMS, the user is required to log on only if the USERID was changed while in IMCS or a time threshold was exceeded since IMCS was accessed:

Although the "time threshold" is not defined, the MMS did not require the password to be entered after accessing IMCS for short periods of time (about 5 minutes). For longer periods of time, the MMS required the password to be entered.

VDD: The MMS/IMCS interface software has also changed to support automatic creation of log entries based on IMCS commands and actions:

Log entries are automatically created in MMS from data in the User History file in IMCS.

VDD: The data files shared by MMS and IMCS (i.e., DBCS, DBH, DBUSERH) are located in the $DATA2.MCSDATA subvolume and will have data created and maintained by IMCS Version R08 software. The record structure of the DBUSERH file was changed to include several new fields, which include ENTRY-TIME-RESOLUTION, LOG-ID, LOG-NEEDED, PSEUDO-FLAG, OLD-PARTITION-CODE, NEW-PARTITION-CODE, PRIMARY-MCC-INDICATOR, POINT-VALUE, POINT-DESCR, SECTOR-USER-ID, ALARM-DATE, ALARM-TIME,

LOG-COMMENT1 and LOG-COMMENT2. The TECH-INITIALS field was removed from the record:

The new fields are displayed on two pages of DBUSERH-UPDATE screens within the IMCS Utility subsystem. Data is entered in the fields when records are added to the file. The TECH-INITIALS field is no longer displayed.

VDD: In order to support the automatic creation of log entries, the IMCS software sets the LOG-NEEDED flag in the DBUSERH file for each record requiring an MMS LRM log entry. Any record with LOG-NEEDED set is identified in the DBUSERH1 alternate key file. The LOGMCSO program is activated on updates to DBUSERH1 and also periodically searches the DBUSERH1 file for a record with this flag set and uses the corresponding information contained in the record about alarm acknowledgement, site command, and partition change events when writing the new MMS log entry. The LOG-ENTRY-COMMON-RECORD has been expanded to include the new fields LRM-ACTION, LRM-RESPONSE1, LRM-RESPONSE2, LRM-RESPONSE3, LRM-PARAM-VALUE, LRM-RETURN-CODE, OLD-PARTN-CODE, NEW-PARTN-CODE, and LRM-PSEUDO-FLAG for the information derived from the DBUSERH file. During the process, the program creates LOGHDR, LOGCOM, and possibly LOGLCO records. Once the log entry has been made, the field is updated. If the process is unsuccessful, the DBUSERH record is returned to its original state to initiate log entry on subsequent attempts. The Acknowledge Alarms (LRM) function has been changed to the Remote Monitoring function and additional data items were added to the screen to support the display and maintenance of these entries:

The new fields are displayed on two pages of DBUSERH-UPDATE screens within the IMCS Utility subsystem. Data is entered in the fields when records are added to the file. Log entries were created in MMS. ACN-100D was unable to determine if there were any unsuccessful attempts to create a log entry.

4.14 PARAGRAPH 3.8.8 OF THE R08.01 VDD.

VDD: This [GMCC/IMCS] interface is installed for the first time with this IMCS version. ALARMONO accepts "ALL" alarms or alarms for a specific sector. The CURRENT-STATUS-FILE is examined for alerts (hard alarms and soft alarms). Alert information is transmitted to the MCC Status Board driver. Subsequent information is not transmitted until receipt of this transmission is received. When the receipt is received, a delay occurs before re-examination of the CURRENT-STATUS-FILE:

The GMCC/IMCS interface was tested by the GMCC test group.

4.15 PARAGRAPH 3.10 OF THE R08.01 VDD.

VDD: DBUSERH ENFORM report (for "USERHALL") has not been changed to accommodate the new fields with this version. Use of this report is not recommended with this version; MMS Version A04 includes a substitute report capability:

The substitute report capability is not identified. The ENFORM report USERHALL has been changed to accommodate the new fields with this version. The MMS report USRHIST provides the same information (except that USRHIST includes the user's Sector Code) as the IMCS User History Report, but in a different format. The MMS USRHIST report and IMCS User History Report do not provide data from the new fields of DBUSERH.

5. PROBLEMS ENCOUNTERED DURING TESTING.

5.1 USEABILITY PROBLEMS.

The following problems may affect the useability of the IMCS:

a. There continue to be problems in detecting communications failures. RMS simulators (connected to the MPS via modems) were turned off or disconnected on several occasions, including overnight, without a communications alert being declared. At other times, the same RMS simulators could be turned off or disconnected, and a communications alert would be declared. This problem occurs frequently on the TXP but only rarely on the CLX.

b. The MC field on the Site Directory screens is not being filled in. It is always blank, and the user cannot be certain that all sites are being properly monitored. This makes it appear that whenever the OBEY file OBLDPART is executed, all partitions must be rebuilt. This may be due to a data problem in the MMSCOST file.

c. When adding new sites to the test data base, it is necessary to rebuild the partition data files using the OBEY file OBLDPART from a TACL prompt. During the test, a new site was added to the database using the Utility subsystem. Two users were logged on for different sectors, one of which was the sector assigned to the new site. Before OBLDPART was executed, both users displayed the Full Site Directory. The site did not show up on the screen of the user who had the same sector code, but it did show up on the screen of the user with a different sector code. After OBLDPART was executed, the Full Site Directory was the same for both users.

5.2 MINOR PROBLEMS.

Several minor problems were noticed on various screens while testing:

a. When IMCS is first entered, the first function key pressed is usually ignored by IMCS. It is accepted the second time it is pressed, and the problem is not seen again during the session.

b. When a communications failure is detected for an RMS, a 25th line COMM ALERT message is generated. When the line is restored, some RMS types have a 25th line Return to Normal message, while others do not.

c. If the user should perform a partition update without selecting any sites, the message "PARTITION UPDATE SUCCESSFUL" is displayed on the 24th line.

d. Some 24th and 25th line messages are displayed for such a short time that they are not readable. Some can only be seen if they are sent to a printer instead of a CRT.

e. The Help screen for updating the partition improperly describes how to perform the update.

This is a minor exception. Exception ID: IMCS-R08.02-046

f. When the SF16-EXIT IMCS key is pressed, there are times when screens other than the EXIT IMCS screen are displayed for a brief time before the EXIT IMCS screen is finally displayed.

5.3 SCREEN INCONSISTENCIES.

There are several inconsistencies among the various screens in IMCS. Although they are not serious problems, they are worth mentioning.

a. When the Print function is selected, some screens display a message on the 24th line indicating where the printout is routed. On other screens no message is displayed, while on still other screens, the message "100 UNUSED MESSAGE 90" is displayed on the 24th line.

This is a minor exception. Exception ID: IMCS-R08.02-047

b. The 2508 RANGE CONTROL screen layout does not conform to that of the other screens in IMCS. There are sections in the User's and Operator's manuals which discuss the uniformity of screen layout.

This is a minor exception. Exception ID: IMCS-R08.02-048

c. On the MCS PARTITION STATUS screen, change the screen title to "Partition Status" to keep it consistent with the other IMCS screens.

This is a minor exception. Exception ID: IMCS-R08.02-049

6. ISSUES RAISED DURING TESTING.

The following issues were raised during testing. They are presented for consideration only.

a. Five alarms were marked for acknowledgement on the Constant Monitor screen. When the F5-ALARM ACK key was pressed, a screen refresh began and the cursor moved to the first alarm on the screen. However, the alarm that was actually acknowledged was the alarm after those originally marked. The second attempt worked because the F5-ALARM ACK key was pressed before the screen refresh began.

b. Although the IMCS has an auto-log capability, IMCS does not provide the user with the LOG ID NUMBER of the automatically generated log entry.

c. Changing the Site Directory screen from the F3 to the F12 key is hard to get used to. Also, ACN-100D recommends adding an SF12 key to directly access the Full Site Directory.

d. On the EXIT IMCS screen, the three time parameter fields do not allow leading or trailing blanks. However, entering all blanks will cause the minimum value of 003 to be used. When entering Log ID numbers in MMS, leading zeros are not required.

e. Some commands are not associated with the Site Status screen which contains the data point affected by the command. This makes it necessary to go back to the Site Status Menu screen to select the Site Status screen which contains the affected data point. One example of this is on the ATCBI COMMERCIAL STAT Command screen which has the EG1 Start and EG1 Stop commands. To see the results of these commands, the user must display the ENG GEN STAT Site Status screen.

f. The level of information provided for command parameters in the DBCMD79P file is inconsistent. In some cases no information is provided about the parameters, while in other cases partial or full information is provided. Other cases exist where the command has a single parameter which has only one valid value.

g. The IMCS allows commands with invalid parameters to be transmitted to an RMS. Since the 790 Parameters screen shows valid parameter values, shouldn't IMCS test the parameters?

h. Once command parameters are entered and the command is transmitted, the 790 Parameters screen continues to be displayed. Shouldn't the command screen be displayed after the command is transmitted to the RMS?

i. On the Full Site Directory screen, after updating the partition, the security screen remains. It is necessary to press the F16-Exit key to remove the security screen.

j. Unmonitoring a site that has unacknowledged alarms does not remove the alarms from the Constant Monitor screen. However, the data points are not displayed on the Active Alarms screen. Only the unmonitored site entry is displayed on the Active Alarms screen. Should unacknowledged alarms from an unmonitored site be displayed on the Constant Monitor screen?

k. The IMCS does not update the Active Alarms screen while it is being displayed. During testing, the same alarm was acknowledged by two users, one from the Partition Status screen and the other from the Active Alarms screen. Should the Active Alarms screen be updated in the same manner as the Site Status screens are?

l. The MCS PARTITION STATUS and Alarm List screens are not updated while being displayed. To see new information, the screens must be refreshed by pressing the SF15-RECOVER key. Should they also be updated periodically?

m. The ARSR CD-1 RCIU Site Status screen is not updated when the RMS responds to a Status command. In order to see the Site Status screen updated in response to a Status command, it is necessary to issue, from the TACL prompt, a STOP process command to flush the decoder's buffer. Shouldn't IMCS be consistent in the manner in which data points are updated?

Several hardware problems occurred while testing on the CLX. While these are not exceptions, they are included to show that the IMCS can recover from some typical hardware failures:

a. The CLX system took a power hit which lasted several seconds. When the system regained power, taken out were: 3 CPU'S (0,5,7), $TAPE2, two terminals, $PTR1.#A, and the X-BUS. $MONIT would not start, because two ports (i.e., $SDL03, $SDL11) could not be shut down. After the ports were taken down, $MONIT was started successfully. The loss of hardware had no noticeable effect on the IMCS.

b. The majority of IMCS executes on CPU 2. CPU 2 in the CLX was replaced to repair the X-BUS while IMCS was executing. IMCS continued to function normally during the removal and replacement of CPU 2. $MONIT recovered successfully when the CPU was removed and also when the new CPU was installed.

c. The CLX disk drive $WORK-P failed during testing. Attempts to restore the drive were unsuccessful, and it was replaced. There was no noticeable affect on IMCS while the drive was bad or when it was replaced.

7. IMCS VERSIONS R08/R08.01/R08.02 RECOMMENDATIONS.

ACN-100D recommends that the IMCS be modified prior to fielding to correct the major exceptions, and to the extent possible, the minor exceptions identified herein.

8. ACN-100D OPEN EXCEPTIONS.

Table 8-1 lists the open exceptions identified by ACN-100D during the present test effort. For each exception the table includes a short description, exception ID, and status of the exception as of this LOF. The exception ID is a unique identifier comprised of the software acronym (i.e., IMCS), development version in which the exception was first detected by ACN-100D, and a three-digit number assigned sequentially within the body of an LOF or test report for a given version. In addition, when an exception is identified as major, an asterisk is appended to the exception ID.

TABLE 8-1. ACN-100D IMCS EXCEPTIONS REPORT FOR R08.02

DESCRIPTION OF EXCEPTION	EXCEPTION ID	CURRENT STATUS
IMCS SYSTEM INITIALIZATION AND FAULT RECOVERY TEST		
Communications failure not detected when cable removed from RS-232 port on MPS	IMCS-R08.02-001-*	OPEN
In file TPADAP, value of SITE-MAX-READ for SMAP incorrect	IMCS-R08.02-002-*	OPEN
Several ARSR values in file TPADAP incorrect	IMCS-R08.02-003-*	OPEN
DATALOAD entering DECODE-NAME in ENCODE-NAME and DECODE-NAME in DBADAP	IMCS-R08.02-004-*	OPEN
DATALOAD aborts if more than 30 sites entered in run	IMCS-R08.02-005-*	OPEN
DATALOAD aborts for no apparent reason (FILE ERROR=001, $DATA2.MCSDATA.DBCS!)	IMCS-R08.02-006	OPEN
When PATHCOLD executed on CLX, $MONIT process abended (may be due to ARMS decoder)	IMCS-R08.02-007-*	OPEN
Startup msgs. indicate GS MPS/SITE COMM. ALERT data point (0099) missing in file ECSSMAP	IMCS-R08.02-008-*	OPEN
Operator's Manual for R08.01 has outdated Edit Template File Chart	IMCS-R08.02-009	OPEN
When IMCS first accessed from MMS (via F1 = GO TO MCS key), first function key pressed in IMCS is ignored	IMCS-R08.02-010	OPEN

IMCS DATA MONITORING TEST

ASR-9 SDRs processed on CLX but not on TXP (according to AOS-350, due to SMMC turned off)	IMCS-R08.02-011	OPEN
Site Status screens do not time out properly	IMCS-R08.02-012	OPEN
Attempt to unmonitor site with unacknowledged alarm caused terminal to hang	IMCS-R08.02-013	OPEN
When LOGLSE file full, terminal hung	IMCS-R08.02-014	OPEN
SMMC required password to control site or selected data points of a site	IMCS-R08.02-015	OPEN
User can unmonitor site not in user's partition (User's Manual implies differently)	IMCS-R08.02-016	OPEN
After printing Part. Site Directory screen, unmonitored site no longer displayed in reverse video	IMCS-R08.02-017	OPEN

IMCS COMMAND TEST

Parameters of previously transmitted command not cleared properly	IMCS-R08.02-018-*	OPEN
IMCS does not notify user that command was rejected by RMS	IMCS-R08.02-019	OPEN
ATCBI-5 RMS LU 25, data point 57, CHANNEL #2 not updated when Site Status command transmitted	IMCS-R08.02-020	OPEN
SMMC terminal requires password before accessing commands screen (conflicts with User's Manual)	IMCS-R08.02-021	OPEN
On CLX when attempt to transmit commands to ATCBI-5 RMS simulator, RR/RR pairs observed at simulator & line analyzer	IMCS-R08.02-022	OPEN

Command transmitted to ARMS Glideslope has LU address of 41 regardless of what address user specified via DATALOAD	IMCS-R08.02-023-*	OPEN
790 Parameters screen for ARMS LCU commands (RMS Disconn. and RMS Reconn.) did not allow entry of command parameters	IMCS-R08.02-024-*	OPEN
When 2508 Range Control screen ON/OFF SELECTION field displayed in reverse video, interferes with entering options	IMCS-R08.02-025	OPEN
IMCS ALARM TEST		
Counters on Constant Monitor screen valid only for values between 0 and 999	IMCS-R08.02-026	OPEN
Individual counts displayed on MCS PARTITION STATUS screen correct only if value is 999 or less	IMCS-R08.02-027	OPEN
On Alarm List screen, function keys for first page, last page, next page, and previous page not displayed	IMCS-R08.02-028	OPEN
Site Information screen cannot be accessed from Alarm List screen as shown in User's Manual	IMCS-R08.02-029	OPEN
Alarm List screen does not indicate that site is unmonitored (Site and Type in normal video)	IMCS-R08.02-030	OPEN
When all data points of ASR-9 set to alarm, "ERROR return on CHANGELIST RMS Port" displayed on OSP printer	IMCS-R08.02-031	OPEN
IMCS UTILITY SUBSYSTEM TEST		
User's and Operator's Manuals use Site Type and Equipment Type interchangeably	IMCS-R08.02-032	OPEN

Help screen for Adapt Facilities does not provide adequate help	IMCS-R08.02-033	OPEN
When user archives DBH or DBUSERH files and is directed to examine printout, no info on errors or how to correct them	IMCS-R08.02-034	OPEN
ARCOBEYU and ARCOBEYH files delivered on tape were set up for BETA Pathway	IMCS-R08.02-035	OPEN
IMCS REPORT SUBSYSTEM TEST		
USER HISTORY and USRHIST reports have not been updated to reflect new fields in DBUSERH file	IMCS-R08.02-036	OPEN
R08.01 VDD VERIFICATION TEST		
PTR 04212038V: IMCS should check SITE and TYPE on calls to Control and Menu screens	IMCS-R08.02-037	OPEN
PTR 08051193V: ARSR3F Smart Radar Cntrl command parameters have not been changed as stated	IMCS-R08.02-038-*	OPEN
PTR 01041002V: unable to determine if SDLC line driver module I/O error numbers reported	IMCS-R08.02-039	OPEN
PTR 01041004V: version number of DATALOAD program not updated as stated	IMCS-R08.02-040	OPEN
PTR 08051188V: B appears to be transmitted by ARSR3F RMS in accordance with 4/91 ICD	IMCS-R08.02-041	OPEN
PTR 09171217V: size of WRIT25-TERM and ERROR-TERM fields in DBADAP file is 8 chars., not 24 as stated	IMCS-R08.02-042	OPEN
PTR 09171219V: field size of SDLC-NAME in DBADAP file is 14 chars.; if name > 5 chars. after $, extra chars. ignored	IMCS-R08.02-043	OPEN

REQ205MS: changing SITE displays Main Menu; changing TYPE should display Main Menu	IMCS-R08.02-044	OPEN
When TECH ON SITE and SITE IN OPERATION fields updated, "222 Error reading FSEFFA file from SRV250 ..." displayed	IMCS-R08.02-045	OPEN

MISCELLANEOUS EXCEPTIONS

Help screen for updating partition improperly describes how to perform update	IMCS-R08.02-046	OPEN
When Print function selected, inconsistent messages displayed on 24th line or no message displayed	IMCS-R08.02-047	OPEN
2508 RANGE CONTROL screen layout does not conform to layout of other IMCS screens	IMCS-R08.02-048	OPEN
MCS PARTITION STATUS screen title should be "Partition Status"	IMCS-R08.02-049	OPEN