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FINAL

# INTERFACE CONTROL DOCUMENT DATABASE DEVELOPMENT TOOL (ICDDT) VERSION 2.04

## VALIDATION TEST

## LETTER OF FINDINGS

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## EXECUTIVE SUMMARY

This Letter of Findings (LOF) describes the results of the Validation Tests performed on the Interface Control Document (ICD) Database Development Tool (ICDDT) Version 2.04. Testing was conducted between December 10, 1991 and March 1, 1991.

The ICDDT is one of three design tools which will support development, test, and evaluation of Remote Monitoring Subsystems (RMS) and interfaces. The ICDDT generates standardized application-level Interface Control Appendix's in accordance with applicable FAA Directives. The ICDDT has a NAS-MD-790 validation capability to advise the developer or tester of NAS-MD-790 deviations. In addition, the ICDDT generates test tool files for the PC based Enhanced Maintenance Processor Subsystem (EnMPS) and Enhanced Remote Monitoring Subsystem (EnRMS) simulators.

An Interface Control Document was generated using three different PC configurations; a Transportable Maintenance Data Terminal (TMDT) with an Emulex DCP286 Interface board; an AST Premium 386SX/16 desktop PC, running MS-DOS Version 3.30, with a color (VGA) monitor; and an AST Premium 286 desktop PC, running MS-DOS Version 3.30, with a monochrome monitor. Identical ICDDT validation test procedures were used to evaluate the ICDDT software on each PC configuration. The EnMPS and EnRMS simulator software, used to validate the Test Tool files generated by the ICDDT, was resident on two COMPAQ Portable II computers, running PC-DOS Version 3.20.

Validation Testing determined that the ICDDT produces reliable ICD essential information and working files for the EnMPS and EnRMS simulators. The ICDDT version 2.04 software passed all test sequences with a few exceptions. These exceptions included:

a. The expected Simulator Command response field can not accommodate the maximum size of allowable command responses (504 bytes).

b. The pages of the hardcopy ICD are not sequentially number throughout the document.

c. There are a few useability limitations (i.e., inconsistent functionality of the ESCape key and data entry fields) delineated in section 4 of this document.

These problems do not prevent the ICDDT from meeting functional and performance requirements, nor do they represent deviations from the originally identified design requirements. Future enhancements of the software may resolve these limitations.

## 1. INTRODUCTION.

This Letter of Findings presents the results of Validation Testing of the ICDDT version 2.04. The development of test requirements, test methodology, and the development of the ICDDT in conjunction with the test and evaluation effort are discussed in the ICDDT Test Procedures document. The ICDDT provides the capability for RMS contractors to produce ICDs that comply with NAS-MD-790 and generate test tool data files that exercise EnMPS and EnRMS communication functions in accordance with NAS-MD-790 protocol.

### 1.1 Purpose.

The purpose of ICDDT validation testing was to verify the following:

a. Condition Status, Availability Status, and Message Function Codes can be created, displayed, edited, and deleted.

b. Logical Units and Data Points can be created, displayed, edited, and deleted.

c. MPS command messages can be created, displayed, edited, and deleted.

d. NAS-MD-790 violations within an RMS database can be detected.

e. ICDDT User Guide and Software Documentation is complete and accurate.

f. Alarm, Script Command, and Certification Files can be created, edited, and deleted.

g. EnMPS and EnRMS Simulator Files can be created, edited, and deleted.

h. EnMPS and EnRMS Simulator Files function properly when loaded into the Simulators.

i. EnRMS Simulator Files communicate properly with the MPS.

### 1.2 Test Configuration.

Validation Testing was accomplished using three different PC configurations; a Transportable Maintenance Data Terminal (TMDT) with an Emulex DCP286 Interface board; an AST Premium 386SX/16 desktop PC, running MS-DOS Version 3.30, with a color (VGA) monitor; and an AST Premium 286 desktop PC, running MS-DOS Version 3.30, with a monochrome monitor. The Enhanced Maintenance Processor Subsystem (EnMPS) and Enhanced Remote Monitoring Subsystem (EnRMS) simulators were used to validate the test tool files generated by the ICDDT. Simulator software resided on Compaq Portable II PCs, running PC-DOS Version 3.20, with Emulex DCP286 Interface boards installed. A Hayes SMARTMODEM 2400 was used as a clock source for the simulators.

### 1.3 Test Date.

Validation Testing was conducted in five phases between December 10, 1990 and March 1, 1991. Regression tests focused on validating the software corrections made to rectify major deficiencies found in previous testing.

## 1.4 Test Participants.

The following personnel participated in ICDDT validation testing:

| | |
|---|---|
| R. Cranston | ACN-250/SEIC/ARINC |
| F. Long | ACN-250/CTA |
| O. Smith | ACN-250/CTA |
| C. Stewart | ACN-250/CTA |
| K. Wideman | ACN-250/CTA |

## 1.5 Future Events.

The test tool files, generated during ICDDT validation testing, are used to provide input files for EnMPS and EnRMS Simulator testing activities.

As future enhancements are incorporated, Validation Testing may be performed on each version of the ICDDT software released. In addition, approval of future NAS-MD-790 NAS Change Proposals (NCPs) may require ICDDT software modification and additional testing.

## 2. TEST RESULTS.

The findings, depicted in the following paragraphs, are based on test observations and consolidation of the open Program Trouble Reports (PTRs) generated while executing Validation Test (VT) sequences. There were 109 PTRs generated during ICDDT validation testing. Most of the PTRs were corrected by the ICDDT software developer, as they were identified. The remaining open PTRs are discussed in the following paragraphs, and presented in Appendix A. Each PTR is classified as a major problem, or minor problem. There are no outstanding major problems. A summary of all PTRs and Useability Trouble Reports (UTRs), generated during testing, is attached as Appendix B.

### 2.1 ICDDT Installation and Setup Test.

#### 2.1.1 ICDDT Installation and Setup Test Purpose.

The purpose of this test was to verify that the installation routine of the ICDDT software functioned properly, and that once installed the ICDDT allowed the user to prepare subdirectories for storage of RMS databases.

#### 2.1.2 ICDDT Installation and Setup Test Results.

The ICDDT version 2.04 passed all Installation and Setup test sequences, with the following exception:

When copying an RMS directory to an empty A: drive (no floppy disk present), the screen blanks and the system hangs without displaying an error message. This problem only occurred while using the AST PCs used for testing and could not be recreated using IBM, COMPAQ, or ZENITH PCs. This is a minor problem (PTR-076).

### 2.2 VT1 Status/Message Function Codes Test.

#### 2.2.1 VT1 Test Purpose.

The purpose of VT1 was to evaluate the capability of the ICDDT to input, display, edit, and delete valid Condition Status, Availability Status, and Message Function Codes. Status/Message Function Codes could be predefined within the ICDDT software or added as required by a specific RMS.

#### 2.2.2 VT1 Test Results.

The ICDDT version 2.04 passed all VT1 test sequences, with the following exception:

Recovering from the DBXL QuickSilver printer time-out error, that occurs when the printer is taken offline after the print option is selected, causes printing of displays when the user chooses the screen display option. Since, as with any application, the user should not take the printer offline after selecting a print function, this is a minor problem (PTR-094).

2.3 VT2 Logical Unit/Data Point Entry Test.

2.3.1 VT2 Test Purpose.

The purpose of VT2 was to evaluate the capability of the ICDDT to input, display, edit, copy, and delete valid Logical Units (LUs) and Data Points (DPs). LUs and DPs could be predefined within the ICDDT software or added as required by a specific RMS.

2.3.2 VT2 Test Results.

The ICDDT version 2.04 passed all VT2 test sequences, with the following exception:

Value ranges within Logical Data Points can be edited so they overlap. This is a minor problem (PTR-021).

2.4 VT3 Command Entry Test.

2.4.1 VT3 Test Purpose.

The purpose of VT3 was to evaluate the capability of the ICDDT to input, display, edit, and delete valid MPS commands. Commands could be predefined within the ICDDT software or added as required by a specific RMS.

2.4.2 VT3 Test Results.

The ICDDT version 2.04 passed all VT3 test sequences, with the following exception:

The expected response field, which contains a hex representation of the RMS response to a specific MPS command, cannot accommodate all valid NAS-MD-790 command responses. The maximum size of a Site Data Report requires this field to allow entry of 504 bytes (it currently allows 40 bytes). This is a minor problem (PTR-028).

2.5 VT4 Validation Test.

2.5.1 VT4 Test Purpose.

The purpose of VT4 was to evaluate the capability of the ICDDT to validate an RMS database for NAS-MD-790 compliance.

2.5.2 VT4 Test Results.

The ICDDT version 2.04 passed all VT4 test sequences.

2.6 VT5 Documentation Test.

2.6.1 VT5 Test Purpose.

The purpose of VT5 was to evaluate the ICDDT User Guide and Software Documentation for completeness, accuracy, and useability. The ICDDT User Guide was to be evaluated by identifying specific required sections in the document and then determining that the information in each section was correct. The program source code was to be examined to make sure that the software was modular and sufficiently commented.

2.6.2 VT5 Test Results.

Since the ICDDT version 2.04 User Guide and Software Documentation were not available for testing, VT5 test sequences were not attempted.

2.7 VT6 Test Tool Files Test.

2.7.1 VT6 Test Purpose.

The purpose of VT6 was to evaluate the capability of the ICDDT to generate, edit, and delete test tool files for use with the EnMPS and EnRMS simulators. Test tool files included Alarm, Script Command, and Certification files.

2.7.2 VT6 Test Results.

The ICDDT version 2.04 passed all VT6 test sequences, with the following exception:

The ICDDT version 2.04 does not provide a functional option to copy Alert, Script, and/or Certification files. This is a minor problem (PTR-053).

2.8 VT7 Output Test.

2.8.1 VT7 Test Purpose.

The purpose of VT7 was to evaluate the capability of the ICDDT to produce a hardcopy of the ICD and generate RMS database files for use with the EnMPS and EnRMS simulators (using the Build Utility).

2.8.2 VT7 Test Results.

The ICDDT version 2.04 passed all VT7 test sequences, with the following exception:

Pages of the hardcopy ICD are not sequentially numbered throughout the document, most pages are numbered as page one. This is a minor problem (PTR-063).

2.9 VT8 Software Integration Test.

2.9.1 VT8 Test Purpose.

The purpose of VT8 was to verify that EnMPS and EnRMS simulator files generated by the ICDDT could be used to establish communications and provide messages for transmittal between the two simulators. In addition, communication was established between the EnRMS and the Maintenance Processor Subsystem (MPS) using the ATCBI-5 simulator files generated by ICDDT.

2.9.2 VT8 Test Results.

The ICDDT version 2.04 passed all VT8 test sequences.

## 3. CONCLUSIONS.

Overall, the ICDDT Software version 2.04 is capable of performing the functions necessary to accomplish its designed task.

It was apparent during input of the RMS database that the ICDDT user must possess an in-depth knowledge of NAS-MD-790 protocol. In addition, ICDDT users will require introductory training to become familiar with the operational functionality of the tool.

The validation tests results identified a few software and hardware-dependent discrepancies. Some of the useability discrepancies, such as the inability to display DOS messages correctly, occurred only on the AST personal computers used for testing. These problems could not be recreated on COMPAQ, ZENITH, or the IBM personal computer used for developing the ICDDT software. Other discrepancies, such as the overlapping logical DPs, and the recommendations delineated in section 4 will be addressed in future releases of the ICDDT software.

These exceptions will not prevent the ICDDT, in its present form, from functioning properly in actual operational conditions, nor do they represent deviations from the intent of software requirements.

## 4. USEABILITY RECOMMENDATIONS.

The recommendations depicted in the following paragraphs, are based on observations and consolidation of the Useability Trouble Reports (UTRs) generated during testing. The ICDDT can be released in its present form. Consideration of these UTRs may enhance the operational useability of the ICDDT.

### 4.1 General Recommendations.

a. Provide the option to direct the ICD hardcopy output to a disk file.

b. More descriptive Help screens should be written in order for them to be effective. Detailed Help is not available at all input fields. The existing Help screens do not, in general, add very much useability to ICDDT. They list menu options with no further descriptions.

c. The "Applicable Message Functions" and "Applicable Condition Status Code" fields from the Data Point entry/edit screen should have a help screen or a section in the manual to explain their function. These fields are not intuitive.

d. When editing or deleting Simulator Commands, display a list of available commands.

### 4.2 Consistency Recommendations.

a. Using the ESCape key does not, consistently, allow the user to immediately exit out of a function, throughout the software.

b. Following a deletion operation, the prompt "No more found. Try again (Y/N)?" is usually displayed. When deleting a Condition Status Code, however, the prompt "Delete more (Y/N)?" is displayed. This prompt is more descriptive and should be used for all deletion operations.

c. "Y/N" prompts are used throughout ICDDT. They have different defaults in the input fields, y, n, or blank. Some of the fields require a carriage return, while others do not. These should be consistent and require a carriage return.

d. When entering Data Points successively, all information carries forward from the previous Data Point except for the Scale Factor. The Scale Factor should also carry forward.

e. Each menu option should be consistent with the title of the screen which is selected.

4.3 Display Recommendations.

a. When copying an RMS directory, the first character of the files being copied is not visible on the screen. Although this problem is machine specific, inserting a space in the first column of the display may alleviate this problem.

b. When LUs are displayed and printed, additional information is displayed along with the LU number and the LU title. This is useful information, however, there are no column headers which identify what the information is. Column titles such as those used when displaying Message Function Codes would be useful.

c. The basic Data Point entry/editing screen could be designed in a more efficient manner. Data Points are composed of two basic types of information; status and numeric value. The data screen could be designed to reflect this basic way of thinking about Data Points. One group of fields would address information about the data point i.e., DP description, DP number, DP type, etc. A second group of fields could address status information i.e., default Condition Status, Applicable Condition Statuses, etc. A final group of fields would address value information i.e., default value, soft alarm ranges, hard alarm ranges, etc.

4.4 Prompt Recommendations.

a. When invalid values are entered during edit and delete functions, the user is not always prompted to try again. The user should be prompted to try again; this should be consistent throughout all software functions.

b. When adding a command to the simulator commands, the user is prompted to enter the LU, Message Function, and Command Code. It is superfluous to enter the Message Function because all commands have the same Message Function Code (48h). A Message Function Code of 48h should be displayed as a default value.

c. Choosing an invalid option from the Validation menu causes a noticeable screen flicker, when a submenu is written and then erased due to the invalid information. There is no error message displayed to the user. An error message should be generated and displayed.

4.5 Data Entry Recommendations.

a. Provide the capability to copy alarm, script command, and certification files.

b. Data Points can be restored after deletion. A similar function provided for LU's, would be very beneficial. A deleted LU can take hours to re-enter.

c. The process of entering data in the "Additional Information" field of the Add Database Command screen is very difficult. The field is very long and wraps around several times. Using a down arrow when attempting to access the next line results in terminating data entry for that command. Breaking that field into several smaller (one line) fields would eliminate this problem.

4.6 Manual Recommendations.

a. The last line of the validation results is not printed until the user exits the validation menu. This needs to be addressed in the manual.

b. Pressing an "up arrow (any arrow) key" from the data entry fields causes the existing field to be accepted as an entry into the database. This needs to be addressed in the manual (PTR-085).

c. RMS directories on a disk in the A: drive cannot be copied to a new subdirectory on that disk. This is a minor limitation of the software and needs to be addressed in the manual (PTR-077).

d. The fields "Key Parameter" and "Repeat Factor" are present on the Data Point entry screen, but are not defined by NAS-MD-790. They need to be addressed in the ICDDT manual.

e. The manual should address the general function of the escape key, page up, page down, etc.

f. The limitations on filenames should be documented in the manual. for example, "alarm", "tech", and "script" are invalid names.

# APPENDIX A

## ICDDT VALIDATION TESTING

## Open Program Trouble Reports (PTRs)

| Report No. | Project | Subsystem | Test Date | Create Date |
|---|---|---|---|---|
| P-21 | ICDDT 2.04 | | 12/11/90 | 12/12/90 |

Report By: KMW

Test Sequence ID: VT2 - LU/DP ENTRY

Test Step Description: CREATE LOGICAL DATA POINT

Category of Failure (circle one): I critical  II major  III minor  IV annoyance  V other

Brief Description: (50 character max)

RANGES_OVERLAP.

Detailed Description: Verify valid ranges before swapping high and low values during logical DP edit, or do not swap values (ref. Test Tool Requirements document paragraphs 2.1 and 3.2.a.1).

Attachments _____

Disposition Instructions: Do not allow add when incorrect value is entered during edit.

Follow-up Status

Date:

1. _____. __/__/__
2. _____. __/__/__

Closure Description:

_____

_____. __/__/__

Approved:

Test Director _____

ACN-250/CTA/JS/091490

| Report No. | Project | Subsystem | Test Date | Create Date |
|---|---|---|---|---|
| P-28 | ICDDT 2.04 | | 12/13/90 | 12/13/90 |

Report By: KMW

Test Sequence ID: VT3 - COMMAND ENTRY

Test Step Description: ADD SIMULATOR COMMANDS AND RESPONSES

Category of Failure (circle one): I critical  II major  III minor  IV annoyance  V other

Brief Description: (50 character max)

| E | X | P | E | C | T | E | D | _ | R | E | S | P | O | N | S | E | _ | F | I | E | L | D | _ | _ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T | O | O | _ | S | M | A | L | L | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |

Detailed Description: The expected response field can not accommodate all NAS-MD-790 defined command responses. Most Site Data Reports are greater than the allotted 40 bytes. SDRs can have a maximum size of 504 bytes. Reference Test Tool Requirements document paragraph 3.2.a.1.

Attachments _____

Disposition Instructions: Increase expected response field.

Follow-up Status

Date:

1. _____. __/__/__
2. _____. __/__/__

Closure Description:

_____

_____. __/__/__

Approved:

Test Director _____

ACN-250/CTA/JS/091490

| Report No. | Project | Subsystem | Test Date | Create Date |
|---|---|---|---|---|
| P-53 | ICDDT 2.04 | | 12/14/90 | 12/18/90 |

Report By: C. Stewart

Test Sequence ID: VT6 - TEST TOOL

Test Step Description: COPY TEST TOOL FILES

Category of Failure (circle one): I critical, II major, III minor, IV annoyance, V other

Brief Description: (50 character max)

INABILITY TO COPY ALERT, SCRIPT, OR CERTIFICATION FILES.

Detailed Description: There is no option to copy alert, script, and or certification files, as required in the Test Tool Requirements document (paragraphs 3.2.b.5 and 3.2.c.4).

Attachments _____

Disposition Instructions: Allow files to be copied.

Follow-up Status

Date:

1. _____. __/__/__
2. _____. __/__/__

Closure Description:

_____

_____. __/__/__

Approved:

Test Director _____

ACN-250/CTA/JS/091490

| Report No. | Project | Subsystem | Test Date | Create Date |
|---|---|---|---|---|
| P-63 | ICDDT 2.04 | | 12/14/90 | 12/18/90 |

Report By: O. SMITH

Test Sequence ID: VT7 - OUTPUT TEST

Test Step Description: PRODUCE AND ICD

Category of Failure (circle one): I critical  II major  III minor  IV annoyance  V other

Brief Description: (50 character max)

ALL PAGES ARE #1

Detailed Description: All pages of the ICD are numbered as page one (ref. Test Tool Requirements para. 3.2.4).

Attachments _____

Disposition Instructions:

Follow-up Status

Date:

1. _____. __/__/__
2. _____. __/__/__

Closure Description:

_____

_____. __/__/__

Approved:

Test Director _____

ACN-250/CTA/JS/091490

| Report No. | Project | Subsystem | Test Date | Create Date |
|---|---|---|---|---|
| P-76 | ICDDT 2.04 | | 1/9/91 | 1/10/91 |

Report By: C. Stewart

Test Sequence ID: Initial Setup

Test Step Description: COPY AN RMS DIRECTORY

Category of Failure (circle one): I critical  II major  III minor  IV annoyance  V other

Brief Description: (50 character max)

```
|S|Y|S|T|E|M| |H|A|N|G|S| |W|H|E|N| |C|O|P|Y| | |
|R|M|S| |D|I|R| |T|O| |A| |E|M|P|T|Y| |D|R|I|V|E| |
```

Detailed Description: When copying an RMS Directory to the A: drive and that drive is empty or the disk is not seated properly in the drive, the screen blanks and the system appears to hang. No error message is visible. Actually the the error message is present, but can not be seen using the PC configuration used for testing. Message can be seen using PCs produced by other vendors (Zenith, IBM, Compaq).

Attachments _____

Disposition Instructions:

Follow-up Status

Date:

1. _____. __/__/__
2. _____. __/__/__

Closure Description:

_____

_____. __/__/__

Approved:

Test Director _____

ACN-250/CTA/JS/091490

| Report No. | Project | Subsystem | Test Date | Create Date |
|---|---|---|---|---|
| P-94 | ICDDT 2.04 | | 1/14/91 | 1/17/91 |

Report By: KMW

Test Sequence ID: VT1 - VT3

Test Step Description: DISPLAY OUTPUT TO PRINTER

Category of Failure (circle one): I critical  II major  III minor  IV **annoyance**  V other

Brief Description: (50 character max)

ERROR_RECOVER_IS_BAD

Detailed Description: System did not totally recover from printer time-out error. All outputs were directed to printer whether instructed to do so or not.

Attachments _____

Disposition Instructions:

Follow-up Status

Date:

1. _____. __/__/__
2. _____. __/__/__

Closure Description:

_____

_____. __/__/__

Approved:

Test Director _____

ACN-250/CTA/JS/091490

# APPENDIX B

# ICDDT VALIDATION TESTING

## Program Trouble Reports (PTRs)/Useability Trouble Reports (UTRs)

## SUMMARY

| NO. | STATUS | DESCRIPTION |
|---|---|---|
| P-001 | CLOSED | INSTALL ROUTINE DOES NOT WORK. |
| P-002 | CLOSED | PRINTER ERROR WHEN NO PRINTER IS CONNECTED |
| P-003 | CLOSED | COLOR CONFIGURATION NOT USER FRIENDLY. |
| P-004 | CLOSED | MESSAGE FUNCTION PRINTOUT INCOMPLETE. |
| P-005 | CLOSED | MFC HEX 67 NOT PREDEFINED. |
| P-006 | CLOSED | MFC HEX 4A TREND DATA REPORT IS PREDEFINED. |
| P-007 | CLOSED | TOOL PROVIDES NINE LEVELS OF PRIORITY. |
| P-008 | CLOSED | PRE-ENTERED DATA NOT DISPLAYED DURING EDITING OF DATA FIELDS. |
| P-009 | CLOSED | ESC CAUSES DATA TO BE DELETED AT ENTERED DATA FIELD. |
| P-010 | CLOSED | NO RECORD FIELDS DEFINED FOR 790 DEFINED MFCs. |
| P-011 | CLOSED | BROWSE OPTION OF MFC RECORDS FIELDS NO AVAILABLE. |
| P-012 | CLOSED | SOFTWARE ABORTS UPON ENTRY OF "0" DATA TYPE. |
| P-013 | CLOSED | TERMINAL MESSAGE ASSIGNED PRIORITY OF 5. |
| P-014 | CLOSED | FF (LU) EXCEEDS 790 LU ADDRESS RANGE. |
| P-015 | CLOSED | TOOL GIVES OPTION OF ADDING AVAILABILITY CODE. |
| P-016 | CLOSED | VALIDATION NOT ALLOWED AT SCREEN LEVEL. |
| P-017 | CLOSED | NON 790 DATA TYPES INCLUDED IN DATA TYPE MENU. |
| P-018 | CLOSED | CHANGING DATA TYPE DUPLICATES RECORD. |
| P-019 | CLOSED | NO CHK ON OVER COPY DESTINATION WHEN COPYING AN LU. |
| P-020 | CLOSED | ESC KEY ABORTS SOFTWARE AT LU COPY. |
| P-021 | OPEN | LOGICAL DATA POINT RANGE OVERLAPS ON EDIT. |
| P-022 | CLOSED | DATA POINT DISPLAY TO PRINTER DOES NOT WORK. |
| P-023 | CLOSED | EDITING NON-EXISTENT COMMAND RESULTS IN ERROR. |
| P-024 | CLOSED | ONLY ONE DATABASE PRINTS OUT. |
| P-025 | CLOSED | AVAILABILITY STATUS CAN BE ACCESSED FROM DP SCREEN. |
| P-026 | CLOSED | AVAILABILITY STATUS CAN BE DELETED - NOT RESTORED. |
| P-027 | CLOSED | ALERT,SCRIPT,TECH FILES CANNOT BE CREATED. |
| P-028 | OPEN | EXPECTED RESPONSE FIELD TOO SMALL FOR ENTERING 504 BYTES. |
| P-029 | CLOSED | CANNOT CHANGE COMMAND CODE NUMBER. |
| P-030 | CLOSED | NO ERROR MESSAGE AT COMMAND EDIT MENU. |
| P-031 | CLOSED | COMMAND CODES ARE NOT VALIDATED/RESTRICTED. |
| P-032 | CLOSED | COMMAND CODES NOT PROPERLY REORDERED AFTER CHANGE. |
| P-033 | CLOSED | ESC AT MOVE TO FIELD CAUSES ABORT.ED AFTER CHANGE. |
| P-034 | CLOSED | ESC AFTER ALARMS ARE DELETED YIELDS QUICKSILVER ABORT. |
| P-035 | CLOSED | BAD DATA IN NAME FIELD CAUSES ABORT. |
| P-036 | CLOSED | DP NAME AND NUMBER DO NOT MATCH WHEN EDITING A DATA POINT. |
| P-037 | CLOSED | PRINTER OFFLINE IN VALIDATION CAUSES QUICKSILVER ABORT. |
| P-038 | CLOSED | ESC AT SELECT LU FIELD CAUSES QUICKSILVER ABORT. |
| P-039 | CLOSED | DOES NOT VALIDATE MFC PRIORITY, SIZE, FIELD STRUCTURE. |
| P-040 | CLOSED | DATABASE COMMANDS CAN'T DEFINE LU NUMBER OR COMMAND RESPONSE. |
| P-041 | CLOSED | CAN'T DELETE FIELDS IN MFC AND COMMAND CODES. |
| P-042 | CLOSED | COMMAND CODE ERRORS NOT DETECTED. |
| P-043 | CLOSED | MESSAGE FLASHES BY ON SCREEN TOO FAST TO READ. |
| P-044 | CLOSED | DOES NOT DETECT NOMINAL VALUE OUTSIDE OF ALARM RANGE. |
| P-045 | CLOSED | TREND DATA REPORT BUT NO SMALL "g" IN VALIDATION. |
| P-046 | MANUAL | EMULEX CARD NOT "CLOSED IN POSITION" IN THE "GREY BOX". |
| P-047 | CLOSED | ICDDT DOES NOT ORDER DATA POINTS BY DATA TYPE SIZE. |
| P-048 | CLOSED | INVALID TECHNICIAN, FILE NAMES ACCEPTED. |
| P-049 | CLOSED | SDR >504 BYTES CAUSES VALIDATION RESULTS IN INFINITE PRINT LOOP. |

| NO. | STATUS | DESCRIPTION |
|---|---|---|
| P-050 | CLOSED | QUICKSILVER ESCAPE SEQUENCE EXPERIENCED. |
| P-051 | CLOSED | PRINTOUT OF ALARMS OVERWRITE SCREEN WHEN ALARMS DISPLAYED TO PRN. |
| P-052 | CLOSED | INVALID DP AND CONDITION STATUS CODE ENTRY FOR ALARM RECORDS. |
| P-053 | OPEN | NO OPTION TO COPY ALERT,SCRIPT OR TECHNICIAN FILES. |
| P-054 | CLOSED | MFC NOT DISPLAYED IN ALERT FILE BROWSE MODE. |
| P-055 | CLOSED | EXISTING ALARM LU'S MFC CANNOT BE EDITED. |
| P-056 | CLOSED | ALARM PRINTOUT IS INCOMPLETE. |
| P-057 | CLOSED | EDITING TECHNICIAN FILES (0 OR ESC) RESULTS IN ABORT. |
| P-058 | CLOSED | QUICKSILVER ESC MENU OCCURS WHEN 'ESC' HIT AT DISPLAY OF ALARMS. |
| P-059 | CLOSED | MFC MSG FORMAT INCORRECT e.g. NO BUSY STATUS, TERMINAL MESSAGE. |
| P-060 | CLOSED | MOVING TECH FILE LABEL CAUSES PROBLEMS. |
| P-061 | CLOSED | TECH FILE ENTRY OF DP '0' CAUSES ERROR DURING BUILD UTILITY. |
| P-062 | CLOSED | ANOTHER TECH FILE SELECTION MAY NOT OVERWRITE INITIAL FILE NAME. |
| P-063 | OPEN | ALL PAGES OF ICD LABELED AS 1. |
| P-064 | CLOSED | LU'S IN SCHEDULE POLL NOT PRINTED. |
| P-065 | CLOSED | ICD CALLS ILLEGAL DATA TYPES 790 COMPLIANT. |
| P-066 | CLOSED | CAN'T COPY FILES TO AN EXISTING FLOPPY DIRECTORY. |
| P-067 | CLOSED | ICDDT DOES NOT MAKE PROVISION FOR CMD RESPONSES IN DATA BASE |
| P-068 | CLOSED | AVAILABILITY STATUS PRINTED AS A DATA POINT. |
| P-069 | CLOSED | ERROR MESSAGES (INVALID # OF DP) APPEAR DURING BUILD. |
| P-070 | CLOSED | DETAILED CMD CODES NOT PRINTED IN ICD HARDCOPY. |
| P-071 | CLOSED | NOMINAL VALUE COLUMN TITLE NOT ALIGNED WITH VALUES. |
| P-072 | CLOSED | CONFUSING MONOCHROME DISPLAY OF SELECT FUNCTION. |
| P-073 | CLOSED | ERRORS ARE PRODUCED DURING BUILD IF TECH,ALERT,SCRIPT FILES EMPTY. |
| P-074 | CLOSED | INTEGRATION TEST - LU20 SHOWS ERRONEOUS NUMBER OF DATA POINTS. |
| P-075 | CLOSED | PAPI DATA CAUSES BUILD NOT TO WORK. SCALING FACTORS LOCKS UP SYS. |
| P-076 | OPEN | COPYING TO EMPTY DIR A: RESULTS IN NO ERROR MESSAGE- BIOS PROBLEM. |
| P-077 | MANUAL | CAN'T COPY RMS DIR FROM A: TO A:. |
| P-078 | CLOSED | COPYING INVALID RMS(NONEXISTENT) TO A TEST RMS RESULTS IN ERROR 10. |
| P-079 | CLOSED | SOFTWARE ABORTS WHEN DISPLAY LU DIRECTED TO PRINTER - ERROR 013. |
| P-080 | CLOSED | ONE AVAILABILITY STATUS IS DISPLAYED WHEN OUTPUT DIRECTED TO PRN. |
| P-081 | CLOSED | MESSAGE FUNCTION CODE DISPLAY - "Q" DOES NOT QUIT. |
| P-082 | CLOSED | MESSAGE FUNCTION CODE ID FIELD LENGTH NOT PREDEFINED FIELD-MFC49. |
| P-083 | CLOSED | DATA POINT IS MISSING FROM DISPLAY. MULTIPLE PAGES CAUSES LOSS. |
| P-084 | CLOSED | ESC DOES NOT WORK FROM DELETE COMMAND CODE AS EXPECTED. |
| P-085 | MANUAL | AN UP ARROW CAUSES AN ENTRY TO THE DATABASE. |
| P-086 | CLOSED | SCALE FACTORS TOTALED FOR EACH LU. |
| P-087 | CLOSED | MOVE/REORDER SCRIPTS-ESC ENTERS 1 @ 1, ESC CAUSES REORDERING. |
| P-088 | CLOSED | QUICK SILVER SCN AFTER DELETING ALARM FILE. |
| P-089 | CLOSED | SELECT CERT FILE NOT ENTIRELY OVERWRITTEN BY CERT FILE MENU. |
| P-090 | CLOSED | TPD0.SEL FILE DOES NOT GET UPDATED WHEN TECH/CERT FILES ADDED/DELETE. |

| NO. | STATUS | DESCRIPTION |
|---|---|---|
| P-091 | CLOSED | INVALID CERT FILES (EMPTY) CAUSED BUILD UTIL TERM AT CERT FILE OPT. |
| P-092 | CLOSED | LUSEL.BLK FILE NOT UPDATED WHEN LU'S ADDED/DELETED AFTER FILES BUILT. |
| P-093 | CLOSED | INTERMITTENT-CHANGE LU AVAIL STATUS Y TO N, SOME LUs, As app as DP. |
| P-094 | OPEN | INACTIVE PRINTER CAUSES QUICKSILVER ERROR WHEN 'Y' PRESSED FOR PRN. |
| P-095 | CLOSED | AFTER SENDING MASTER RESET, ERMS LOOKS FOR 42.DP0. |
| P-096 | CLOSED | SIM CMDs/CMD REQUIRE HELP. |
| P-097 | CLOSED | ESC CAUSED QUICK SILVER ABORT DURING DP VALIDATION. |
| P-098 | CLOSED | RESTORAL OF DELETED DP IS BEING CHOSEN BY 1ST CHAR ENTERED. |
| P-099 | CLOSED | BUILD SELECT FUNCTIONS DON'T WORK. |
| P-100 | CLOSED | ALARM FILE PRINTOUT IS CONFUSING-'FORMAL' ALARM FILE PRINTOUT 2 FORM. |
| P-101 | CLOSED | PRODUCING ICD-ESC AT "POTENTIAL ERROR" CAUSES QUICKSILVER. |
| P-102 | CLOSED | BUILD ALERT-ESC AT "POTENTIAL ERROR" CAUSES QUICKSILVER. |
| P-103 | CLOSED | VERSION NUMBER INCORRECT. |
| P-104 | CLOSED | CONDITION STATUS FOR THE UPDATED DP WAS INCORRECT. |
| P-105 | CLOSED | ESC WHILE ADDING AN LU CAUSES AN ABORT. |
| P-106 | CLOSED | BLANK ENTRY IN ADD RMS DIRECTORY FIELD CAUSES ABORT. |
| P-107 | CLOSED | UNEXPECTED FILES COULD BE COPIED TO SIMULATOR. |
| P-108 | CLOSED | NUMBERS CAN NOT BE USED IN TITLE OF ICD OR NAMING OF AN RMS. |
| P-109 | CLOSED | MFC 2A ERROR DURING VALIDATION. |
| U-001 | OPEN | COPYING AN RMS DIRECTORY, FIRST COLUMN OF DISPLAY NOT VISIBLE. |
| U-002 | CLOSED | CONDITION STATUSES DIFFICULT TO SEE ON COLOR MONITOR. |
| U-003 | CLOSED | SCREEN OVERLAP WHEN MORE THAN 1 SCREEN OF CONDITION STATUS CODE. |
| U-004 | OPEN | INADEQUATE HELP SCREENS. |
| U-005 | CLOSED | EDITING NONEXISTENT CSC RESULTS IN AN 'F' DISPLAYED ON SCREEN. |
| U-006 | CLOSED | ICDDT ALLOWS EDITING OF PREDEFINED 790 MFC's AND CSC's. |
| U-007 | CLOSED | PROMPT FOLLOWING DELETION e.g. CSC-SHOULD BE USED AFTER ANY DELETION. |
| U-008 | CLOSED | LIMITED PRINTER OPTIONS:EPSON,LASERJET * 180 COL PRINTERS. |
| U-009 | CLOSED | INSTALLATION ROUTINE NOT OBVIOUS. |
| U-010 | CLOSED | RESERVED LU VIOLATION (LU 20-23) BUT ICDDT ALLOWS LUs TO BE ENTERED. |
| U-011 | CLOSED | DATAPOINT MFC AND CSC INPUT FIELDS NEED HELP SCREEN. |
| U-012 | CLOSED | DISPLAYED TITLES DO NOT LINE UP WITH COLUMNS. |
| U-013 | CLOSED | PROMPT MESSAGE DISPLAYED COULD BE MORE EXPLICIT. |
| U-014 | CLOSED | INVALID CODES USED IN HELP SCREEN FOR AVAIL. |
| U-015 | OPEN | REQUIRED FIELDS ARE NOT DEFINED IN NAS-MD-790. |
| U-016 | CLOSED | "LU 25 NOT FOUND-HIT ANY KEY TO CONTINUE" MSG DISPLAYED IS BAD. |
| U-017 | CLOSED | N/A FIELDS ON STATUS ONLY DATAPOINTS CAN BE FILLED. |
| U-018 | CLOSED | PRINTER AND TERMINAL DISPLAY DIFFERS. |
| U-019 | OPEN | NO MESSAGE TO AID USER IN HOW TO EXIT OR PAGE DOWN. |
| U-020 | OPEN | DOESN'T PROMPT USER TO RETRY IF BAD LU DATA ENTERED. |
| U-021 | CLOSED | 790 PREDEFINED COMMAND CODES SHOULD BE PRE-CODED. |

| NO. | STATUS | DESCRIPTION |
|---|---|---|
| U-022 | CLOSED | ERROR IN BROWSE DATA POINT SCREEN. "M" IN "MINIMUM" OVERWRITTEN. |
| U-023 | OPEN | DATA ENTRY SCREEN NOT LOGICALLY ORGANIZED. |
| U-024 | CLOSED | LU'S CANNOT BE RESTORED AFTER DELETION SUCH AS WITH DATA POINTS. |
| U-025 | CLOSED | DISPLAYED COMMANDS HAVE NO TITLES. |
| U-026 | CLOSED | (COMMAND ENTRY) DATA ENTRY INTO ADDITIONAL FIELD DIFFICULT. |
| U-027 | OPEN | AVAILABLE CMDS NOT DISPLAYED WHEN EDITING OR DELETING COMMAND CODES. |
| U-028 | CLOSED | NO NEED FOR MFC ENTRY WHEN ADDRESSING COMMANDS. |
| U-029 | CLOSED | CHANGE TO DISPLAY COMMAND CODES. |
| U-030 | CLOSED | PREDEFINED COMMAND CODES SHOULD BE HARD CODED. |
| U-031 | OPEN | INVALID MENU OPTION CAUSES UNACCEPTABLE SCREEN FLICKER. |
| U-032 | CLOSED | REPEAT FACTOR FIELD IS TWO CHARS - ONLY ONE CHAR IS USED. |
| U-033 | CLOSED | NO MESSAGE CONFIRMS ICD VALID. |
| U-034 | MANUAL | DOES NOT PRINT OUT LAST LINE UNTIL SCREEN EXITED. |
| U-035 | CLOSED | DOES NOT DETECT DUPLICATES. |
| U-036 | CLOSED | ALARM RECORD MFC NOT AN ALARM MFC. |
| U-037 | CLOSED | ALARM FILE DELETION MESSAGE OVERWRITE SCREEN INFO. U-038 CLOSED ALARM FILE LU DISPLAY DOES NOT GROUP DPS BY LU. |
| U-039 | CLOSED | UNALIGNED COLUMN TILES - GENERAL DISPLAY OPTION. |
| U-040 | CLOSED | ENTERING NONEXISTENT LU TO BROWSE CAUSES INCORRECT ERROR MESSAGE. |
| U-041 | CLOSED | GEN DELETE OPTION-NULL IS ACCEPTED BY ICDDT AS FILE TO DELETE. |
| U-042 | CLOSED | PRINT SCRIPT FILE PRINTOUT IS CONFUSING. |
| U-043 | OPEN | Y/N INPUT FIELDS RESPONSE IS INCONSISTENT. |
| U-044 | CLOSED | EDIT TECHNICIAN FILE '0' IS INVALID ENTRY. |
| U-045 | CLOSED | INTEGRATION-FILE NAME INCONSISTENCY BETWEEN ICDDT,BUILD,SIMULATORS. |
| U-046 | CLOSED | ICD OUTPUT DOESN'T LINE UP. |
| U-047 | CLOSED | NO TECHNICIAN FILE DELETION MESSAGE. |
| U-048 | CLOSED | BUILD DATA BASE DOWNLOAD FILE ERROR. |
| U-049 | CLOSED | NO COMMANDS FOR LU YIELDS ERROR MESSAGE. |
| U-050 | CLOSED | RMS DIRECTORIES ARE DISPLAYED ONLY ON C: DRIVE. |
| U-051 | OPEN | ESC KEY USES ARE INCONSISTENT e.g. DELETE RMS dir ESC. |
| U-052 | CLOSED | MFC 61- DATA POINT SPELLED WRONG. |
| U-053 | CLOSED | SCREEN DISPLAYS NAME FIELDS DIFFERENTLY. |
| U-054 | OPEN | COLUMN TITLES FOR LU DISPLAYS WOULD BE HELPFUL. |
| U-055 | CLOSED | LU INPUT FIELD SHOULD ACCEPT ONLY UPPER CASE HEX NUMBERS. |
| U-056 | CLOSED | DP DESCRIPTION SHOULD ALL BE LOWER CASE. |
| U-057 | CLOSED | AVAILABLE RMS DIRECTORIES ARE NOT DISPLAYED WITH REMOVE/DELETE DIRS. |
| U-058 | CLOSED | SCREEN REMAINS BLANK DURING CREATION/COPY OF DIRECTORY. |
| U-059 | CLOSED | USER NOT PROPERLY PROMPTED TO NOT DELETE MORE DIRECTORIES. |
| U-060 | CLOSED | WORD SPELLED WRONG IN INSTRUCTION MESSAGE. |
| U-061 | CLOSED | PROMPTS TO PRINT LOGICAL DPS. |
| U-062 | OPEN | SCALE FACTOR DOES NOT CARRIED FORWARD. |
| U-063 | CLOSED | CMD CODE VALIDATION, 'RESERVED CMD CODES' APPEAR TWICE. |
| U-064 | CLOSED | EDITING CMD-DELET FLD FROM BEGIN OF FIELD LIST DOESN'T CAUSE REORD. |

| NO. | STATUS | DESCRIPTION |
|---|---|---|
| U-065 | OPEN | INCONSISTENT ESC KEY DURING SEL AND DEL OF ALERTS, SCRIPT & CERT FILES. |
| U-066 | CLOSED | ADD TEST TOOL FILES-"ALARM,TECH,SCRIPT" FILE NAMES CANNOT BE USED. |
| U-067 | CLOSED | PRODUCE ICD-INCONSISTENT MENU DISPLAY AND SUBMENU DISPLAY. |