ACN
1001
92/4

COPY 1

FAA WJH Technical Center
00093313

DOT/FAA/CT-ACN100D92/4

FINAL

VERIFICATION TEST OF THE REMOTE MAINTENANCE MONITORING SYSTEM (RMMS) INTERFACE CONTROL DOCUMENT DATABASE TOOL (ICDDT)

VERSION BETA 2.06

LETTER OF FINDINGS

Cheryl Ann Krouse

November 1992

FEDERAL AVIATION ADMINISTRATION

DEC 29 1992

TECHNICAL CENTER LIBRARY
ATLANTIC CITY INT'L ARPRT, NJ 08405

Document is on file at the FAA Technical Center
Library, Atlantic City International Airport, N.J. 08405

U.S. Department of Transportation
Engineering, Test, and Evaluation Service
ATC Sustaining Engineering Division ACN-100D
Maintenance Automation Program
FAA Technical Center
Atlantic City International Airport, N.J. 08405

1. INTRODUCTION.

This Letter of Findings details the verification test results of the Remote Maintenance Monitoring System (RMMS) Interface Control Document Database Tool (ICDDT), version BETA 2.06 used in conjunction with the Enhanced Maintenance Processor Subsystem (EnMPS) simulator version 1.01 and the Enhanced Remote Monitoring Subsystem (EnRMS) simulator version 1.01.

1.1 PURPOSE.

The purpose of this test was to verify that the software modifications to the ICDDT function properly without causing any degradation to the overall functionality of the ICDDT software and the EnRMS and EnMPS simulators. This release of the ICDDT software incorporates improvements and corrects problems based on user feedback. The following improvements/modifications were made:

a. Message Function Codes 74 (t) clock sync request and 54 (T) clock sync message were added to the message function code menu.

b. The time sync command code (FF) was added to the command menu.

c. The "number decimals displayed", "minimum value", and "maximum value" fields were incorporated into the logical unit printouts.

d. The command response field was added to complement the command code fields.

e. The generation of site data reports (SDR), for logical units using the availability status field, was changed so the SDR could be built correctly on the initial logical unit data entry in lieu of editing an existing logical unit.

f. An Upgrade utility was included with the new software to allow users to upgrade their ICDDT version 2.05 files to version BETA 2.06.

1.2 TEST DATE.

This verification test was conducted from August 10 through September 18, 1992. In addition, a "Dial-up" test was conducted on October 21, 1992.

1.3 TEST LOCATION.

ACN-100D conducted the verification test at the Federal Aviation Administration (FAA) Technical Center, Atlantic City International Airport, New Jersey.

1.4 TEST PARTICIPANTS.

The following personnel participated in the RMMS ICDDT verification testing:

P. Friel	CTA
C. Krouse	ACN-100D

2. TEST RESULTS AND RECOMMENDATIONS.

2.1 TEST RESULTS.

All test sequences, performed to verify the software modifications delineated in 1.1, Purpose, passed without exception. The verification process and the test results for the availability status modification and the time synchronization function are described below.

Investigation of the availability status problem (paragraph 1.1.e) by the ICDDT developer determined that the initialization of ICDDT variables varied among computer manufactures. The ICDDT software was modified to ensure that the variables were correctly initialized with any computer. ACN-100D verified via the source code listing that the "scale_fac" and "num_of" variables were added. In addition, a "dial-up" test, with a fielded RMS, was performed employing the EnMPS simulator utilizing files developed with ICDDT versions 2.05 and BETA 2.06. Both versions were tested on the same computers and successfully produced the correct SDR size. Hence, there appears to be no degradation to the overall functionality of the ICDDT, version Beta 2.06, and the simulator software with the modifications to the code.

The time synchronization functional capabilities are not available in the fielded simulator software (ver. 1.01). The verification process and the test results for the time synchronization functions are as follows:

a. The message function code menu was exercised and the message function codes of 74 (t) clock sync request and 54 (T) clock sync message were added successfully to the: (1) menu, (2) ICD hardcopy, and (3) NAS-MD-790 validation printout. In addition, the MESFUN.MFD file, created by ICDDT for the simulator, was evaluated and shown to include the clock sync message function codes.

b. The command menu was exercised and the time sync command code (FF) was added successfully to the menu and the ICD hardcopy. In addition, the command script function was evaluated and the clock sync command code was appropriately not available in the command script menu.

c. A clock sync command with a clock sync message response was created with the ICDDT software and exercised on the EnRMS and

EnMPS simulators. The clock sync command was sent from the EnMPS simulator to the EnRMS simulator. The EnRMS simulator accepted and identified the clock sync command but displayed a "BAD Data/Type 0" error message before sending the clock sync message response. (The error message is not a function of the ICDDT.)

2.2 RECOMMENDATIONS.

2.2.1 ICDDT Recommendations.

ACN-100D recommends that the following items be addressed in future ICDDT enhancements.

a. The "PgUp" and "PgDn" keys should be available for use in the adding, browsing, and editing functions to allow the user more flexibility when entering database information.

b. The scale factor field should carry forward with the other fields when data points are added.

c. The ICDDT should allow the user to delete a data point and then renumber the remaining data points after a logical unit is copied.

d. The "ENTER DATA POINT I.D." field, when editing data points, should display the last data point that had been edited (similar to the adding data point function). This will help the user to keep track when editing multiple consecutive data points in a logical unit.

e. The data point description field is too small to accurately name data points. If that field size is restricted by the MPS display, a second data point description field should be added for the ICD text.

f. The tool should be consistent when editing and adding data point descriptions. Lower case letters are used when editing while upper case letters are used when adding.

g. A printing option should be added to allow the user to print individual logical units with data points in lieu of the complete RMS printout.

h. In the simulator command menu, the sixth command should be displayed in the "Display Commands" menu.

i. A "PgDn" or "Tab" key should be available to go to the "Additional Records?" prompt when adding simulator commands. Currently, it is too easy for the user to press the down arrow key past the last field on the page initiating the "Additional Records?" prompt. Pressing the down arrow key past the last

FAA WJH Technical Center
00093313

field on the page should put the curser at the first field on the top of the form. (Similar situation for the up arrow key.)

j. The monitored value information fields should not be accessible for data entry in the editing function for "status only" data points, as they are not accessible in the adding function for "status only" data points.

2.2.2 EnMPS/EnRMS Simulators Recommendations.

ACN-100D recommends that the following items be addressed in future EnMPS/EnRMS simulator enhancements.

a. Incorporate the clock sync command and clock sync message functions so that the clock sync command/message can send real time information in lieu of a clock sync command/message built in ICDDT with a fixed time.

b. Allow the EnRMS simulator to accept the clock sync messages without displaying an error message before responding.

3. GENERAL RECOMMENDATIONS.

ACN-100D recommends that the users be informed that the clock sync command code is no longer available in the command script menu.