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Communications Interface Driver (CID) Test Plan

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September 1990

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16. Abstract

This test plan for the Communications Interface Driver (CID) systems will be used to evaluate and accept the CID.

The CID system is a test tool whose purpose is to supply or receive a capacity level of communication (comm) messages to and from the air traffic control (ATC) and non-ATC ports of the Mode Select (Mode S) sensor.

The primary concern of the CID test plan is written to establish the detailed test requirements, criteria, and methods to achieve the evaluation of the CID against the requirements set forth in the report, Functional Requirements of the Communications Interface Driver (CID), DOT/FAA/CT-TN87/41.

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TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	iv
1. BACKGROUND	1
2. OBJECTIVE	1
3. RELATED DOCUMENTS	1
4. TEST AND EVALUATION PHILOSOPHY	2
4.1 Stage 1: Computer Hardware and Off-line Software Acceptance	4
4.2 Stage 2: Maintenance Tests	16
4.3 Stage 3: Interface Tests	21
4.4 Stage 4: Operator Communications Tests	22
4.5 Stage 5: CID Transmission, Reception, and Extraction Verification	32
4.6 Stage 6: Capacity Load Verification	35
4.7 Stage 7: Interactive Response Tests	39
5. TEST MATRIX	43

APPENDIXES

A - Scenario Descriptions
B - Waypoint Inputs
C - Waypoint Files
D - Scenario Configuration File Descriptions
E - Scenario Listings
F - CIDINIT Descriptions and Listings
G - Extraction Listings
H - Miscellaneous Test Results
I - CIDCHECK Listings
J - Phase II Miscellaneous

EXECUTIVE SUMMARY

This document contains the test plan to be used to evaluate and accept the Communications Interface Driver (CID).

The CID is a test tool whose purpose is to supply/receive a capacity level of communication (comm) messages to and from the air traffic control (ATC) and non-ATC ports of the Mode Select (Mode S) sensor. A test and evaluation process is required since the CID is to be government furnished equipment to the Mode S contractor.

This test plan is written to establish the detailed test requirements, criteria, and methods to achieve the evaluation of the CID against the requirements set forth in the report, Functional Requirements of the Communications Interface Driver (CID) DOT/FAA/CT-TN87/41.

1. BACKGROUND.

The Federal Aviation Administration (FAA) is procuring the Mode Select (Mode S) Beacon Radar System to replace secondary surveillance radar systems presently in the field. The Mode S System will not only provide secondary radar surveillance but also provide a two-way data linking function with the aircraft. The Mode S sensor is required to transact communication functions between itself and external users. The users consist of air traffic control (ATC) facilities, aircraft within a sensor's coverage area, and non-ATC facilities. The sensor may be the source of communication (comm) messages, the destination for comm messages, or (in most cases) an intermediate station for messages being transacted between external users and aircraft. In order to evaluate the sensor's performance of the communication functions, some type of communication (test equipment) capable of providing realistic communication loading of the Mode S sensor as defined by FAA-E-2716, Specification for a Mode Select Beacon System (Mode S) Sensor, is required. The need for this simulator will be satisfied by the Communications Interface Driver (CID). The CID itself needs to be verified before it can be used to evaluate the Mode S sensor's performance. The philosophy, approach, and test plan to accomplish that verification is embodied in this report.

2. OBJECTIVE.

The purpose of this document is to establish the detailed test requirements, criteria, and methods to achieve the evaluation of the CID against the requirements set forth in the report, Functional Requirements of the Communications Interface Driver (CID), DOT/FAA/CT-TN87/41.

3. RELATED DOCUMENTS.

DOT/FAA/CT-TN 87/41, Functional Requirements of the Communications Interface Driver (CID).

FAA-E-2716, Specification for a Mode Select Beacon System (Mode S) Sensor.

FAA-RD-80-14A, The Mode Select (Mode S) Surveillance and Communication, ATC and Non-ATC Link Protocols, and Message Formats.

TM-PA-0018/069/02, Mode S to ATC Communication Link Interface Control Document for the Mode S Beacon System Sensor.

TM-PA-0018/070/02, Mode S to Non-ATC Communication Link.

4. TEST AND EVALUATION PHILOSOPHY.

The main objective of the CID is to test the Mode S sensor's ability to send and receive comm messages over the ATC and non-ATC ports at the maximum capacity levels as stated in the document, Specification for A Mode Select Beacon System (Mode S) Sensor. Thus, it is imperative that the ability of the CID to send and receive comm messages at these levels be tested and verified. A secondary objective of the CID is to conduct a rudimentary test of the network management functions of the Mode S sensor. Thus, it is important to verify the ability of the CID to dynamically respond with the proper comm message to Mode S network management control messages. Note that the software which enables the CID to fulfill this secondary objective will not be available to evaluate until the second (phase-2) software release is available. Tests that relate to phase-2 CID software shall be noted since they will not be used when testing the phase-1 software.

The testing and verification of the CID shall be done in progressive stages. Each stage is composed of a series of tests which will be used to accomplish the given stage's objectives. Each test will have a separate requirement list. This list will contain the section number and title that refer to the requirements listed in the document, Functional Requirements of the Communications Interface Driver (CID). The successful completion of a given test will result in that test's listed requirements as being met.

The first stage of testing shall verify the presence of the hardware required in a CID. A group of off-line software support programs will also be tested and verified in this stage of tests. These programs include the scenario and configuration generators, as well as the analysis programs used in the remaining test stages.

The second stage of tests shall first insure that the required spare parts and maintenance contracts are in place for the CID. This stage of tests shall then verify that the CID diagnostics provide the required level of testing to insure a working CID. The CID diagnostics shall also be tested to insure that they can locate errors at least to the specific board level. This stage of tests shall then verify that the CID can send and receive communication messages over the X.25 interface boards. This testing shall be accomplished by using the CID diagnostic package to loop output messages back into the input ports of the CID. The test shall involve both manually entered messages, as well as automatically sending a series of messages of various lengths and contents. Note that during this test, a Hewlett Packard protocol analyzer (HP-4955) shall be used to monitor the X.25 line to verify the actual transmission of the test messages. The lengths of the loopback cable shall be at least the length used for a CID to Mode S interface.

The third stage of testing shall verify that the CID's X.25 interface boards meet the X.25 lap B protocol standard. This will insure that the CID can properly interface with the Mode S sensor which also must meet the X.25 protocol. This testing shall be accomplished by using the HP-4955 portocol analyzer loaded with software certified by the National Bureau of Standards for conformance to the FIPS 100 version of CCITT Recommendation of X.25. This stage of tests shall also verify that the time-of-year (TOY) interface provides the required time data in the formats specified.

The fourth stage of testing shall verify the operator communications functions of the CID. To test the operator communications functions, an additional subroutine shall be added to the CID software. This subroutine shall place known values into the data (statistics, errors, etc.) fields that the operator communications functions use to create the various required output screens. A visual check of these output screens, at given time intervals, can then check that the operator communications functions can properly handle and display the required data.

The fifth stage of testing shall verify that the CID can read and extract X.25 messages and also verify that the CID can transmit X.25 messages while extracting a reference number and result code correlating to that message. First, the HP-4955 protocol analyzer shall be used to transmit X.25 messages to a CID. The resultant CID extraction tape shall be analyzed to verify that the CID properly received and extracted the test messages. Second, a CID will transmit a series of messages over the X.25 interfaces to the protocol analyzer. The resultant CID extraction tape shall be analyzed to verify that the CID properly extracted the scenario reference number and result code for each X.25 message transmitted while the data collected by the protocol analyzer shall be analyzed to insure that the proper messages were actually transmitted.

The sixth stage of testing shall verify that the CID can meet the required capacity levels for X.25 message transmission and reception. First, the CID shall be tested to insure that it can transmit and extract communication messages at the required capacity levels. This test shall use a CID scenario built to simulate the ATC to Mode S comm messages capacity situation. A second CID shall be used solely to maintain the X.25 link. This CID shall have special software which will empty the input buffers of the X.25 boards, thus allowing the boards to send the required X.25 acknowledgments. The CID extraction tape will then be analyzed to insure that all scenario messages were properly transmitted in the given time constraints. Note that the data extraction capabilities were verified in the stage five tests. Second, the sixth stage of testing shall verify that the CID can simultaneously transmit, receive, and extract messages at the required capacity level. Note that the CID's ability to send comm messages at capacity levels was verified in the above mentioned test; thus, a second CID can be used to supply the required capacity level of comm messages to the CID under test. Note that the required capacity level of Mode S to ATC (input messages) is lower than the capacity level of ATC to Mode S (output messages). The data extraction tapes of the two CIDs shall then be analyzed using the CID check analysis program (evaluated in stage 1) to verify that all comm messages were sent and received in the given time constraints.

The seventh stage of testing shall verify and test the interactive response capability of the CID during noncapacity situations. The interactive capabilities of the CID consist of a set of output messages that needs to be created and transmitted in response to a limited set of input message types. This capability can be tested and verified by using a second CID to supply the set of input messages, while the data extraction function is used to extract the CID-generated responses, as well as the input message. The data extraction tape can then be analyzed to insure that all pertinent input message types will be responded to correctly.

For each stage of tests there will be presented an approach and concept for the overall series of tests to be conducted.

4.1 STAGE 1: COMPUTER HARDWARE AND OFF-LINE SOFTWARE ACCEPTANCE.

This stage of tests has three overall objectives. The first objective is to insure that the required computer hardware and peripherals are present in the CID. This shall be done through visual inspection. The second objective is to test and evaluate the off-line software required of the CID. This shall be done by supplying test data as the inputs to the various programs and analyzing the resultant outputs. The third objective is to insure that the required message scenarios and configuration files are correct and present. This shall be done through an inspection of the listings of the various message scenarios and configuration files. A list of the tests to be conducted in this stage is as follows:

a. Test 1, Hardware Requirements
b. Test 2, CID Scenario Listing Program Evaluation
c. Test 3, CID Scenario Generation Program Evaluation
d. Test 4, Scenario Waypoint Generator Evaluation
e. Test 5, CID Extraction Listing Program Evaluation
f. Test 6, CID Initialization Database Generator Evaluation
g. Test 7, CID Check Program Evaluation
h. Test 8, CID/Mode S Analysis Program Evaluation
i. Test 9, CID Message Scenario Acceptance

4.1.1 Stage 1 Test 1, Hardware Requirements.

4.1.1.1 Test Objective.

The objective of this test is to insure that the required computer hardware and peripherals are present in the CID. This shall be accomplished through a visual inspection of the CID and its associated hardware.

4.1.1.2 Test Configuration.

The configuration of this test consists of the computer hardware and peripherals that would be present in a deliverable CID.

4.1.1.3 Data Collection Procedures.

The data collection procedure shall be a visual inspection of the CID to insure that the following list of hardware items are present.

a. A Concurrent Computer Corporation model 3230XP computer system

b. A 300-megabyte disc

c. A 1600-CPI tape drive capable of writing a standard 2400-foot, nine-track tape

d. A 300-line per minute printer

e. Two video display terminals with the capability to display 80 characters per line and 24 lines per display

4.1.1.4 Data Analysis Procedures, Expected Results.

The expected results of this test is that all the hardware listed above in "a" through "e" is found to be incorporated into the CID.

4.1.1.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.3.1.1 CPU
b. 2.3.1.2 Disk
c. 2.3.1.3 Magnetic Tape
d. 2.3.1.4 Printer
e. 2.3.1.5 Terminals

4.1.2 Stage 1 Test 2, CID Scenario Listing Program Evaluation.

4.1.2.1 Test Objective.

The objective of this test is to test and evaluate the CID scenario listing program. This program will output to a file a formatted listing of the messages from a CID scenario disk file. The program shall have the capability to filter the scenario by time, Mode S Identification (ID), message type, and logical port designation. This objective shall be tested by operating the CID scenario listing program on test CID scenarios which contain a set of messages applicable to the software phase being tested. Numerous test runs will be performed to test the various filtering capabilities of the CID scenario listing program.

4.1.2.2 Test Configuration.

The configuration of this test consists of the CID computer and peripherals as well as two test scenarios. The first test scenario, CIDTST1, will contain all the messages types that will be available with the phase-1 software; the second test scenario, CIDTST2, shall contain the remaining message types that will be available with the phase-2 software release. These scenarios will be created so as to contain messages assigned with various Mode S IDs and logical port designations. Descriptions of the scenarios are contained in appendix A.

4.1.2.3 Data Collection Procedures.

a. Run the CID scenario listing program by typing the command SCLIST. Enter the scenario name CIDTST1 (or CIDTST2 depending on the software phase being tested). Accept the default filter settings, i.e., no filtering. Print out the result listing by typing the command PRINT CIDTST1.SCL or CIDTST2.SCL.

b. Run the CID scenario listing program using the same scenario, but set the time filter values to 00:00:25-00:01:30. Print the output file.

c. Run the CID scenario listing program using the same scenario and time filters as in test "b," but set the Mode S ID filter values to FAA002-FAA003. Print the output file.

d. Run the CID scenario listing program using the same scenario, time and Mode S ID filter settings as in test "c," but set the port filters to 1-2 (filtering on ports 1 and 2 only). Print the output file.

e. Run the CID scenario listing program using the same scenario, time filters, Mode S ID, and port filters as in test "d," then select message types Standard Uplink and ELM Uplink (phase-2 software tests also select message types Data Start and Track Data). Print the output file.

4.1.2.4 Data Analysis Procedures, Expected Results.

The data analysis will consist of a manual comparison of each printout obtained in the above tests against the expected output listings contained in appendix E.

a. The listing should contain the data listed in appendix E corresponding to the scenario used and the test run. This shows that the CID scenario listing program can output in an easy to read manner all possible message types without any filters. The listing should also contain the loading statistics for the given scenario. This shows that the CID scenario listing program can provide loading statistics for the given CID scenario.

b. The listing should contain the data listed in appendix E corresponding to the scenario used and the test run. This shows that the CID scenario listing program can filter on time.

c. The listing should contain the data listed in appendix E corresponding to the scenario used and the test run. This shows that the CID scenario listing program can filter on Mode S ID.

d. The listing should contain the data listed in appendix E corresponding to the scenario used and the test run. This shows that the CID scenario listing program can filter on logical port designations.

e. The listing should contain the data listed in appendix E corresponding to the scenario used and the test run. This shows that the CID scenario listing program can filter on message type.

4.1.2.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

2.4.1.4 A CID Scenario Listing Program.

4.1.3 Stage 1 Test 3, CID Scenario Generation Program Evaluation.

4.1.3.1 Test Objective.

The objective of this test is to test and evaluate the CID scenario generation program. This objective shall be met by using the CID scenario generation program to create a set of CID scenarios that encompass the various requirements listed below.

4.1.3.2 Test Configuration.

The configuration of this test consists of the CID computer and peripherals. Two input files shall be needed for each test. The first file shall contain the necessary communication definitions (waypoints) for the CID scenario being created. The second file shall contain the scenario configuration for the operation of the CID scenario program. After the scenario has been created it will be listed using the CID scenario lister certified in stage 1 test 2. This listing will then be compared to the corresponding section in appendix E. A description of the test scenarios to be built are contained in appendix A; a description of the waypoint files to be used is contained in appendix C; and a description of the scenario configuration files to be used is contained in appendix D.

4.1.3.3 Data Collection Procedures.

The data collection procedures for this test consists of running the CID scenario generator to create three specific scenarios. These scenarios will correspond to the three-message categories that the CID scenario generator can create. The procedure to run the CID scenario generator is as follows: Enter the command SCENARIO, when prompted enter CID, again when prompted enter the scenario name (CIDTST1, CIDTST2, or CIDTST3); if the scenario already exists then it should be deleted.

a. This test shall use the miscellaneous message function of the CID scenario generator to generate a scenario containing standard comm messages to be output at specific times. Run the CID scenario generator to create a scenario called CIDTST1.

b. This test shall use the special message functions of the CID scenario generator to generate a phase-2 type scenario containing sensor-to-sensor messages, as well as the corresponding track database used with the phase-2 CID software. Run the CID scenario generator to create a scenario called CIDTST2.

c. This test shall use the periodic message function of the scenario generator to generate a scenario containing standard comm messages. These messages shall be generated in the form of x number of Comm A messages per y time interval for Mode S ID z. The waypoint file containing the definitions for these inputs, as well as comments describing the definitions, is in the file CIDTST3.WPT. The configuration file to be used in this test is CIDTST3.CFG. Run the CID scenario generator to create a scenario called CIDTST3.

4.1.3.4 Data Analysis Procedures, Expected Results.

a. List the created scenario by typing the command SCLIST. Enter the scenario name CIDTST1 and use the default filters. Print the output file by typing the command PRINT CIDTST1.SCL. Manually compare the generated output against the listing contained in appendix E for CIDTST1 test "a."

b. List the created scenario, CIDTST2, as done above. Manually compare the generated output against the listing contained in appendix E for CIDTST2 test "a."

c. List the created scenario, CIDTST3, but only use the loading statistics functions. The procedure for listing only the loading statistics is to answer N to the question List Records and Y to the question List Stats. Manually compare the generated output against the listing contained in appendix E for CIDTST3.

4.1.3.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a.	2.2.1.1.1	Time Tags
b.	2.2.1.1.2	Port Designation
c.	2.2.1.1.3	Length Field
d.	2.2.1.1.4	Default Bit
e.	2.2.1.1.5	Complete Messages
f.	2.2.1.1.6	Default Messages
g.	2.2.1.1.6.4	Default Input Requirements
h.	2.2.1.1.6.4.1	Default Field Number
i.	2.2.1.1.6.4.2	Non-Default Fields
j.	2.2.1.1.6.4.4	ELM Text
k.	2.4.1.2	A Scenario Generation Program
l.	2.4.1.2.1	Message Types
m.	2.4.1.2.2	Protocols
n.	2.4.1.2.3	Bit Definitions

4.1.4 Stage 1 Test 4, Scenario Waypoint Generator Evaluation.

4.1.4.1 Test Objective.

The objective of this test is to test and evaluate the CID/Aircraft Reply and Interference Environment Simulator (ARIES) scenario waypoint generator. This is the program that enables a user to enter, in a screen format, CID and ARIES scenario data that will then be formatted into the required waypoints for the scenario generator. This objective shall be met by using the waypoint generator to create a set of CID scenario waypoints of various types to insure that the listed requirements are met.

4.1.4.2 Test Configuration.

The configuration of this test consists of the CID computer and peripherals. Appendix B holds the required inputs for the waypoint generator to be run for each waypoint file to be built. After each waypoint file has been built, it will then be compared to the expected results as shown in appendix C.

4.1.4.3 Data Collection Procedures.

a. Run the waypoint generator by typing the command WAYPOINT; use the inputs listed in appendix B for CIDTST1. This will create a waypoint file containing periodic message type definitions called PREP1.WPT.

b. Run the waypoint generator using the inputs listed in appendix B for CIDTST2. This will create a waypoint file containing specific message type definitions called PREP2.WPT. Note, these are phase-2 message types.

c. Run the waypoint generator using the inputs listed in appendix B for CIDTST3. This will create a waypoint file containing special message type definitions called PREP3.WPT.

4.1.4.4 Data Analysis Procedures, Expected Results.

a. Print and compare the created waypoint file against the waypoints listed in appendix C for CIDTST1.

b. Print and compare the created waypoint file against the waypoints listed in appendix C for CIDTST2.

c. Print and compare the created waypoint file against the waypoints listed in appendix C for CIDTST3.

4.1.4.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

2.4.1.3 An Interactive Scenario Preprocessor.

4.1.5 Stage 1 Test 5, CID Extraction Listing Program Evaluation.

4.1.5.1 Test Objective.

The objective of this test is to test and evaluate the CID extraction listing program. This program will output to a file a formatted listing of the messages from a CID extraction tape. The program shall have the capability to filter the CID extraction tape by time, Mode S ID, and type code. It shall also have the capability to match output messages from a CID extraction tape against the messages in the corresponding CID scenario. This objective shall be tested by operating the CID extraction listing program on a test CID extraction which contains a complete set of available extraction data. Several runs will be conducted to test the various filtering capabilities of the CID extraction listing program. There shall also be some inconsistencies placed onto the data extraction tape to test the programs capabilities to check the data against the scenario that was used.

4.1.5.2 Test Configuration.

The configuration of this test consists of the CID computer and peripherals. Two test CID extraction tapes will be required. The first tape will contain all the message types that will be available with the phase-1 CID software, the second tape shall contain the remaining messages that will be available with the phase-2 CID software. These extraction tapes will be created so as to contain messages assigned with various Mode S IDs and line/port assignments and some inconsistences in the output messages; the tapes will be referred to as CIDTST1 Run 1, and CIDTST2 Run 1. Appendix G will contain the expected listings for each test and the corresponding software phase.

4.1.5.3 Data Collection Procedures.

a. Run the CID extraction listing program by typing the command EXLIST and using the tape CIDTST1 Run 1 or CIDTST2 Run 1 depending on the software phase being tested. Accept the default filter settings, i.e., no filtering. Print the output listing by typing the command PRINT CIDTST1.EXL or CIDTST2.EXL.

b. Run the CID extraction listing program using the same tape and set the time filter values to the TOY at the start of the scenario run plus 00:00:25-00:01:30. Do not get statistics. Print the output listing as in "a."

c. Run the CID extraction listing program using the same tape, set the time and message type filters as in test "b," then set the Mode S ID filter values to FAA002-FAA003. Do not get statistics. Print the output listing as in "a."

d. Run the CID extraction listing program using the same tape and set the time and type filters as in test "c," then select message types Standard Uplink and ELM Uplink. For phase-2 software tests select message types Data Start and Track. Do not get statistics. Print the output listing as in "a."

e. Run the CID extraction listing program using the tape labelled CIDTST1 Run 2. Accept the default filter values by pressing return until the question LIST RECORDS. Reply "N." Then enter "N" to the statistics option and "Y" to the verification option. Note any messages output to the screen.

4.1.5.4 Data Analysis Procedures, Expected Results.

a. Manually compare the generated output against the listing contained in appendix G for CIDTST1 or CIDTST2 test "a." This shows that the CID extraction listing program can output in an easy to read manner all possible extraction formats without any filters. Also, compare the generated loading statistics.

b. Manually compare the generated output against the listing contained in appendix G for CIDTST1 or CIDTST2 test "b." This shows that the CID extraction listing program can filter on time.

c. Manually compare the generated output against the listing contained in appendix G for CIDTST1 or CIDTST2 test "c." This shows that the CID extraction listing program can filter on time and Mode S ID.

d. Manually compare the generated output against the listing contained in appendix G for CIDTST1 or CIDTST2 test "d." This shows that the CID extraction listing program can filter on time, Mode S ID, and format type.

e. Manually compare the output on the screen with the following:

```
Error: for refnum 2 port is 2 and line is 1
CID tape at end of file
Output file is CIDTST1.exl
```

4.1.5.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a.	2.4.2.1	A CID Extraction Listing Program
b.	2.4.2.1.1	Loading Histogram
c.	2.4.2.1.2	Filters
d.	2.4.2.2.1	Output Matching
e.	2.4.2.2.2	Operator Outputs
f.	2.4.2.2.4	Missing Flags
g.	2.4.2.2.5	Error Flags
h.	2.4.2.2.6	Line Numbers
i.	2.4.2.2.7	Load Distribution
j.	2.4.2.2.8	Timing Histogram

4.1.6 Stage 1 Test 6, CID Initialization Database Generator Evaluation.

4.1.6.1 Test Objective.

The objective of this test is to evaluate the CID Initialization Database Generator (CIDINIT) program. This program creates the database needed to configure the CID simulation initialization parameters, the physical line assignments and logical port assignments for the twelve X.25 interface boards, and the message fields for ELM and Comm A default messages. The test objective is met by using the CIDINIT to create a set of CID initialization files then verifying the contents of the files against the requirements listed below. A test program will be used to read the CID initialization files. This program will consist of the same startup code used in the CID software, along with a routine to execute the necessary CID extraction and Input/Output (I/O) code. The test program will read a CID initialization file, using the data supplied within, to manifest changes within the CID database. The appropriate database elements will then be extracted as it would in the normal CID software. The CID extraction listing program evaluated in stage 1 test 5 will then list the extracted data so that it can be analyzed for accuracy. A second objective of this test is to analyze and accept the deliverable CID initialization files. These shall be the CID initialization files that are built during this test and compared against the required outputs in appendix F.

4.1.6.2 Test Configuration.

The configuration of this test consists of the CID computer and peripherals. Appendix F contains the extraction listing corresponding to each CID initialization file to be built.

4.1.6.3 Data Collection Procedures.

The data collection procedure of this test shall consist of running the CIDINIT program using the inputs given below to create a set of CID initialization files.

a. Create the six port - six 56k baud line initialization file by running the CID initialization file builder by typing the command CIDINIT. When prompted enter C for create, then the file name, CIDINIT1.

1. On the X.25 Device Configuration screen:
   (a) Set line 0 to port 1 at 56 kbaud
   (b) Set line 1 to port 2 at 56 kbaud
   (c) Set line 2 to port 3 at 56 kbaud
   (d) Set line 3 to port 4 at 56 kbaud
   (e) Set line 4 to port 5 at 56 kbaud
   (f) Set line 5 to port 6 at 56 kbaud
   (g) Set lines 6, 7, 8, 9, 10, & 11 to blank (not configured)

2. On the Simulation Initialization screen:
   (a) Set the message scenario file to NOTARGET
   (b) Set the track data file CIDTRACK
   (c) Set data extraction to be ON (enabled)
   (d) Set the start time to 00:00
   (e) Set the Link Rate test to FALSE

3. Accept the default values for the Comm A Default Message Screen and the ELM Default Message Screen.

b. Create the two port - twelve 9600 baud line initialization file by running the CIDINIT program as in "a" to create a CID initialization file named CIDINIT2.

1. On the X.25 Device Configuration Screen:
   (a) Set line 0 to port 0 at 9600 baud
   (b) Set line 1 to port 0 at 9600 baud
   (c) Set line 2 to port 0 at 9600 baud
   (d) Set line 3 to port 0 at 9600 baud
   (e) Set line 4 to port 0 at 9600 baud
   (f) Set line 5 to port 0 at 9600 baud
   (g) Set line 6 to port 1 at 9600 baud
   (h) Set line 7 to port 1 at 9600 baud
   (i) Set line 8 to port 1 at 9600 baud
   (j) Set line 9 to port 1 at 9600 baud
   (k) Set line 10 to port 1 at 9600 baud
   (l) Set line 11 to port 1 at 9600 baud

2. On the Simulation Initialization screen:
   (a) Select the message scenario file NOTARGET
   (b) Select the track data file CIDTRACK
   (c) Set data extraction to be ON (enabled)
   (d) Set the start time to 00:00
   (e) Set the Link Rate test to FALSE

3. Accept the default values for the Comm A Default Message Screen and the ELM Default Message Screen.

c. Create the six port - five 56k baud and six 9600 baud line initialization file by running the CIDINIT program as in "a" to create a CID initialization file named CIDINIT3.

1. On the X.25 Device Configuration Screen:
   (a) Set lines 0, 1, 2, 3, 4, & 5 to port 1 at 9600 baud
   (b) Set line 6 to port 2 at 56 kbaud
   (c) Set line 7 to port 3 at 56 kbaud
   (d) Set line 8 to port 4 at 56 kbaud
   (e) Set line 9 to port 5 at 56 kbaud
   (f) Set line 10 to port 6 at 56 kbaud
   (g) Set line 11 to blank (not configured)

2. On the Simulation Initialization screen:
   (a) Select the message scenario file NOTARGET
   (b) Select the track data file CIDTRACK
   (c) Set data extraction to be ON (enabled)
   (d) Set the start time to 00:00
   (e) Set the Link Rate test to FALSE

3. Accept the default values for the Comm A Default Message Screen and the ELM Default Message Screen.

4.1.6.4 Data Analysis Procedures, Expected Results.

a. Mount a tape on the CID system. Enter the command INITTEST on the system console. When prompted enter the CID Initialization filename CIDINIT1. After INITTEST completes, go to the system terminal and use the CID extraction listing program by typing EXLIST. Print the output listing by typing the command PRINT NOTARGET.EXL. Manually compare the listing to the expected listing given in appendix F for CIDINIT1.

b. Follow the same procedures as above but enter CIDINIT2 as the CID initialization filename and compare the printed listing to appendix F for CIDINIT2.

c. Follow the same procedures as above but enter CIDINIT3 as the CID initialization filename and compare the printed listing to appendix F for CIDINIT3.

4.1.6.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a.	2.2.1.1.6.1	Standard Uplink Default Field
b.	2.2.1.1.6.2	ELM Uplink Default Field
c.	2.2.1.1.6.3	Default Field Storage
d.	2.2.1.1.6.4.3	MA Field
e.	2.2.1.1.6.4.5	ELM Length
f.	2.2.1.2.2.1	Line Assignments
g.	2.2.1.2.2.2	Baud Rates
h.	2.2.1.2.2.3	X.25 Parameters
i.	2.2.1.2.2.4	Default Fields
j.	2.4.1.1	A Configuration Program
k.	2.5.2.1	Twelve 9600 Lines
l.	2.5.2.2	Six 56k Lines
m.	2.5.2.3	Six 9600 and Five 56k Lines

4.1.7 Stage 1 Test 7, CID Check Program Evaluation.

4.1.7.1 Test Objective.

The objective of this test is to test and evaluate the CID check program. This program matches output messages from a source CID system with input messages from a destination CID system. This objective shall be met by using test CID extractions as input to the CID check program. One set of the test extraction tapes will contain the correct expected data while the second set of tapes shall have data containing inconsistencies.

4.1.7.2 Test Configuration.

The configuration of this test consist of the CID/ARIES maintenance system and two sets of test CID extraction tapes; for run 1 labelled CIDTST1 Run 1 and CIDTST1A Run 1, and for run 2 labelled CIDTST1 Run 2 and CIDTST1A Run 2. The scenarios which make up the data on the extraction tapes are CIDTST1, CIDTST1A, and a modified CIDTST1 made to produce inconsistencies in the data of run 2. These scenarios contain a representative sample of comm messages from the ATC (and non-ATC) to Mode S category and are described in appendix A. The expected results will also be listed in appendix I.

4.1.7.3 Data Collection Procedures.

The data collection procedure will be to run the CID check program by typing the command CIDCHECK using the data extraction tape corresponding to run 1. The only filter is a time filter, and the default of all times is selected. Print out the file created, CIDTST1.CKL, and label the output run 1. Repeat the test using the tapes labelled for run 2. Print out the newly created output file, CIDTST1.CKL, and label it run 2.

4.1.7.4 Data Analysis Procedures, Expected Results.

Compare the output files that were created and printed in the data collection procedure. These outputs contains a list of messages from the source and destination system that do not match exactly. Compare these outputs against the expected results shown in appendix I.

4.1.7.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a.	2.4.2.2	CID Check Program
b.	2.4.2.2.2	Operator Outputs (this requirement has been deleted)
c.	2.4.2.2.3	Input Matching
d.	2.4.2.2.4	Missing Flags
e.	2.4.2.2.7	Load Distribution
f.	2.4.2.2.8	Timing Histogram
g.	2.4.2.2.9	Interactive Responses

4.1.8 Stage 1 Test 8, CID/Mode S Analysis Program Evaluation.

4.1.8.1 Test Objective.

The objective of this test is to test and evaluate the CID/Mode S analysis program. This is the program that verifies that the comm messages can be transmitted to and received from the Mode S sensor properly. This objective shall be accomplished by using test Mode S and CID extractions as input to the CID/Mode S analysis program.

4.1.8.2 Test Configuration.

The configuration of this test consists of the CID computer, the peripherals, and the following items: (1) a CID scenario file, (2) a CID configuration file, (3) a simulated CID extraction tape (MT1), and (4) a simulated Mode S extraction tape (MT2). The simulated extraction tapes shall contain a representative sample of comm messages, which will be set up so that the requirements listed below will be verified. The data contained in the CID configuration file, the CID scenario file, and the simulated extraction tapes will be listed in appendix I. The associated expected results will also be described in appendix I.

4.1.8.3 Data Collection Procedures.

The data collection procedure will be to run the CID/Mode S analysis program using the simulated data extraction tapes.

4.1.8.4 Data Analysis Procedures, Expected Results.

Print the listings and statistics file created by the CID/Mode S analysis program. Compare these outputs against the expected results shown in appendix I.

4.1.8.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.4.2.3 CID/Mode S analysis
b. 2.4.2.3.1 CID to Mode S
c. 2.4.2.3.2 Mode S to CID
d. 2.4.2.3.3 Missing Message Flags
e. 2.4.2.3.4 Timing Histogram

4.1.9 Stage 1 Test 9, CID Message Scenario Acceptance.

4.1.9.1 Test Objective.

The objective of this test is to analyze and accept the deliverable CID message scenarios. These scenarios are being developed by an outside contractor. The contractor is required to submit an acceptance procedure that shall be used to validate the required scenarios.

4.1.9.2 Test Configuration.

4.1.9.3 Data Collection Procedures.

4.1.9.4 Data Analysis Procedures, Expected Results.

4.1.9.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.5.1.1 Full Capacity
b. 2.5.1.2 Basic 42 Scenario
c. 2.5.1.3 A Null Scenario
d. 2.5.1.4 Wedge Scenario

4.2 STAGE 2: MAINTENANCE TESTS.

This stage of tests has three overall objectives. The first objective is to insure that the maintenance requirements for the CID have been met. This shall be done by insuring that the required spare parts and maintenance contracts are in place. The second objective is to test and evaluate the X.25 diagnostic programs of the CID to insure that they can validate the hardware of the CID and locate hardware fault to the X.25 board level. The third objective is to insure that the X.25 interface boards can send and receive the required comm messages. This shall be done through the use of the CID diagnostic programs with the HP-4955 used to monitor the resultant message transactions. A list of the tests to be conducted in this stage is as follows:

a. Test 1, Spare Parts and Maintenance Contracts
b. Test 2, X.25 Diagnostic Programs Acceptance
c. Test 3, Hardware Fault Location Tests
d. Test 4, X.25 Message Handling Tests

4.2.1 Stage 2 Test 1, Spare Parts and Maintenance Contracts.

4.2.1.1 Test Objective.

The objective of this test is to insure that the spare parts and maintenance contracts required are in place. This shall be accomplished by a visual inspection of the required items.

4.2.1.2 Test Configuration.

The configuration of this test consists of the ARIES maintenance system, a deliverable CID, and the maintenance contracts for the CID.

4.2.1.3 Data Collection Procedures.

The data collection procedure shall be a visual inspection verifying that the following items are present:

a. Spare TOY interface board with the deliverable CID

b. Spare X.25 interface board with the deliverable CID

c. Two X.25 interface boards incorporated into the ARIES maintenance system

d. A maintenance contract for the CID computer hardware

4.2.1.4 Data Analysis Procedures, Expected Results.

The expected results of this test are:

a. The spare TOY interface board is available for shipment.

b. The spare X.25 interface board is available for shipment.

c. There are two X.25 interface boards incorporated into the ARIES maintenance system.

d. There is a maintenance contract for the computer and peripherals of the CID in place which includes periodic preventive maintenance and remote diagnostic capabilities.

4.2.1.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.6.1.1 TOY Interface
b. 2.6.1.2 X.25 Interface
c. 2.6.4 Software Maintenance
d. 2.6.5.1 CPU Maintenance
e. 2.6.5.2 Preventative Maintenance
f. 2.6.5.3 Remote Diagnostics

4.2.2 Stage 2 Test 2, X.25 Diagnostic Programs Acceptance.

4.2.2.1 Test Objective.

The objective of this test is to test and accept the X.25 diagnostic programs of the CID. This shall be done by running the specific diagnostic program and analyzing the results of that procedure.

4.2.2.2 Test Configuration.

The configuration of this test consists of a deliverable CID.

4.2.2.3 Data Collection Procedures.

The data collection procedure shall be to execute the following diagnostic program on the CID system console by typing COMMDIAG:

a. Execute function 8 (D.M.A. Test) with all devices configured.

b. Execute function 9 (Ram Register Test) with all devices configured.

c. Execute function 7 (Loopback Communication Test) on board 1 without the external loopback installed. Monitor the X.25 line with the HP-4955 protocol analyzer.

d. Execute function 2 (Automatic Test - single board) on board 1 without the external loopback installed.

e. Execute function 1 (Automatic Test - all boards).

4.2.2.4 Data Analysis Procedures, Expected Results.

The expected results of this test are as follows:

a. The DMA diagnostic test will report a successful test if all data patterns are verified. Otherwise, the failure will be reported with the attempted data pattern and the response data pattern.

b. The RAM diagnostic test will report a successful test if all data patterns are verified. Otherwise, the failure will be reported with the attempted data pattern and the response data pattern.

c. The loopback communication test will report the success or failure of each of seven subtests. The protocol analyzer may be used to monitor the link during this test. The following should be observed:

1. Link Connection (HP-4955 protocol analyzer should show a SABM and a UA)

2. Eight short packets (4 bytes) transmitted

3. Eight short packets (4 bytes) acknowledged

4. Five long packets (648 byte) transmitted

5. Five long packets (648 byte) acknowledged

6. Seven packets of lengths (4, 8, 14, 35, 87, 167, 647 bytes) transmitted and acknowledged

7. Link Disconnection

d. The three tests described in "a," "b," and "c" are executed for a single X.25 board and the results are reported.

e. The three test described in "a," "b," and "c" are executed for all twelve X.25 boards and the results are reported.

4.2.2.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.6.2.2 X.25 DMA Test
b. 2.6.2.3 X.25 Register Test
c. 2.6.2.4 X.25 Internal Diagnostic
d. 2.6.3 System Loop Back Diagnostic

4.2.3 Stage 2 Test 3, Hardware Fault Location Tests.

4.2.3.1 Test Objective.

The objective of this test is to insure that the CID diagnostics program can pinpoint hardware faults to the specific X.25 board level. This shall be accomplished by a placed fault on one of the X.25 interface boards and running the CID diagnostics to locate the nonfunctioning board.

4.2.3.2 Test Configuration.

The configuration of this test consists of a CID system with the X.25 boards configured with internal loopback mode and pin JB5-1 jumped to ground on X.25 device 0. Internal loopback mode allows for on-board level only upon execution of the COMMDIAG program.

4.2.3.3 Data Collection Procedures.

The data collection procedure shall be to execute the CID diagnostic program by running COMMDIAG from the system console.

a. Execute function 9 (WD-2511 RAM Register Test) for device 0.

b. Execute function 8 (D.M.A. Diagnostic Test) for device 0.

c. Execute function 7 (Loopback Communications Test) for device 0. Enter False for "External loopback connector installed?" prompt.

4.2.3.4 Data Analysis Procedures, Expected Results.

The expected results of this test should be a list of errors for the RAM Register test, DMA Diagnostic test, and the Loopback Communications test as shown in appendix H. By removing the fault jumper on pin JB5-1, upon powering down the system, the procedures in section 4.2.3.3 can be executed again to verify that the device is working properly.

4.2.3.5 Requirements Satisfied.

There are no specific requirements met by this test.

4.2.4 Stage 2 Test 4, X.25 Message Handling Tests.

4.2.4.1 Test Objective.

The objective of this test is to insure that the X.25 interface boards can send and receive comm messages as required for CID operation. This shall be met by using the CID loopback diagnostic to command the X.25 boards to send and receive comm messages while the HP-4955 protocol analyzer will be monitoring the message activity.

4.2.4.2 Test Configuration.

The configuration of this test consists of a CID with the system loopback diagnostics enabled and the X.25 boards configured with the two devices, "A" and "B," as they are connected via a RS-449 cable. Any two of the X.25 interfaces may be selected inasmuch as one interface is an odd numbered device and the other interface is an even numbered device. The HP-4955 protocol analyzer shall be placed on one of the lines on the monitoring mode.

4.2.4.3 Data Collection Procedures.

The data collection procedure shall be to execute the diagnostic program on the CID system console by typing COMMDIAG.

a. Execute function 11 (RESET X.25) for all devices.

b. Execute function 12 (INIT x.25):
   1. All Devices -> True
   2. ISR Mode -> False
   3. Loop Back Mode -> False
   4. Back/Back Mode -> True

c. Execute function 18 to transmit messages on device "A" using the canned message, transmitting four times, with no time between transmissions, and message length of 100.

d. Execute function 17 to receive messages on device "B." Repeat this nine more times to see the messages transmitted in step "c."

e. Repeat "c" and "d" reversing the device numbers.

f. Execute function 13 to disconnect link.

4.2.4.4 Data Analysis Procedures, Expected Results.

The expected results of this test is to see that all messages transmitted into device "A" are received by device "B" and that all messages transmitted by "B" are received by "A." These messages are displayed on the terminal by using function 17 to receive a message and are displayed on the HP-4955 protocol analyzer when using function 18 to transmit a message. The protocol analyzer will also display the supervisor frames to connect the link, acknowledge transmission of packets, and disconnect the link.

4.2.4.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.2.1.3 Messages Received Over the X.25 Interface
b. 2.2.1.3.1 Message Format
c. 2.2.4.1.3.1 Message Format

4.3 STAGE 3: INTERFACE TESTS.

This stage of tests has two objectives. The first objective is to insure that the X.25 interface boards comply to the X.25 lap B protocols. These tests shall be done with a Hewlett Packard protocol analyzer (HP-4955) loaded with software certified by the National Bureau of Standards for conformance to the FIPS-100 version of CCITT recommendation of X.25. The second objective will be to verify that the TOY interface provides the required time data in the formats specified. This shall be done through the use of the time of the diagnostic program developed for the ARIES. A list of the tests to be conducted in this stage is as follows:

a. Test 1, X.25 Interface Evaluation
b. Test 2, TOY Interface Evaluation

4.3.1 Stage 3 Test 1, X.25 Interface Evaluation.

4.3.1.1 Test Objective.

The objective of this test is to test the X.25 interface boards to insure compliance to the X.25 lap B protocols. This shall be accomplished through the use of the certified X.25 software tested on the HP-4955 protocol analyzer.

4.3.1.2 Test Configuration.

The configuration of this test consists of a X.25 interface board connected to the HP-4955.

4.3.1.3 Data Collection Procedures.

The data collection procedure shall be to connect the HP-4955 to an X.25 interface in the CID computer system. Execute the X.25 diagnostic program on the CID computer system with the ISR diagnostic mode flag set. Execute each of the X.25 analysis functions on the HP-4955. Perform this procedure at 9600 baud (Bd) and 56 kilobaud (Kb).

4.3.1.4 Data Analysis Procedures, Expected Results.

The expected results of these tests are displayed by the HP-4955. All pertinent functional tests shall execute without errors displayed on the HP-4955.

4.3.1.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.3.2.1 Interfaces
b. 2.3.2.2 Protocol Conformance
c. 2.3.2.3 Circuit Conformance
d. 2.3.2.4 Baud Rates
e. 2.3.2.5 Timers
f. 2.3.2.6 Duplex Mode
g. 2.3.2.7 Interrupts

4.3.2 Stage 3 Test 2, Time-of-Year Interface Evaluation.

4.3.2.1 Test Objective.

The objective of this test is to test the TOY interface board to insure that the time data provided is as required. This shall be accomplished by using the TOY diagnostic program. This program was initially written, tested, and verified for the ARIES.

4.3.2.2 Test Configuration.

The configuration of this test consists of a CID with the TOY board in place.

4.3.2.3 Data Collection Procedures.

The data collection procedure shall be to use the TOY diagnostic and to verify the data from the TOY interface. Start the TOY diagnostic and have it run in the normal validation mode, then exit. Note any errors that appear on the operating terminal.

4.3.2.4 Data Analysis Procedures, Expected Results.

The expected results of this test is that the TOY diagnostic program completes with no errors output to the operating terminal.

4.3.2.5 Requirements Satisfied.

The following requirements of FAA/DOT/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.6.2.1 TOY Diagnostic
b. 2.3.3.1 Resolution
c. 2.3.3.2 Interface
d. 2.3.3.3 Interrupt

4.4 STAGE 4: OPERATOR COMMUNICATIONS TESTS.

This stage of tests has three overall objectives. The first objective is to evaluate the CID's termination function. The second objective is to evaluate and ensure that the operator communications display functions access the correct memory locations in order to display the required data, and also to control the X.25

device status. This objective shall be accomplished by using a special test subtask that will load known values into the memory locations the operator communications function uses to build the various system output screens. The data presented on the system output screens can then be collected and compared against the data listed in appendix H. The third objective is to evaluate and ensure that the CID can extract the data relating to the system statistics and errors processed in operator communications. This objective shall be accomplished by using the data extraction process to collect the operator communications related data. A special test subtask will be used to load known values into the memory locations that hold operator communications related data to be extracted.

To verify operator communications, a series of six tests will be run. A list of the tests to be conducted is as follows:

a. Test 1, Opcomm Functions 8 & 9 Evaluation
b. Test 2, Opcomm Function 1 Evaluation
c. Test 3, Opcomm Function 2 Evaluation
d. Test 4, Opcomm Function 3 Evaluation
e. Test 5, Opcomm Function 4 Evaluation
f. Test 6, Opcomm Function 5 Evaluation

4.4.1 Stage 4 Test 1, Opcomm Functions 8 & 9 Evaluation.

4.4.1.1 Test Objective.

This test has three objectives. The first objective of this test is to verify the CID startup procedure. This will be accomplished by using the startup procedure to initiate the test. The second objective is to test and evaluate that the toggle data extraction function (#8) operates as required. This shall be accomplished by using the toggle data extraction function to enable and disable the data extraction process. The third objective of this test is to evaluate the termination function (#9) of the CID. This shall be accomplished by using the CID's operator communications termination function.

4.4.1.2 Test Configuration.

The configuration of this test requires the CID computer and peripherals. Appendix H contains a chronological listing of events and results which are expected to occur during this test. This is used to compare against the collected data.

4.4.1.3 Data Collection Procedures.

The data collection procedure shall be an interactive session in which the operator will initiate the CID operational program, CID, collect a data extraction tape, toggle data extraction on and off, and terminate the CID operational program.

a. Enter the CID initialization file: CIDINIT1.

b. Enter the CID scenario file: NOTARGET (may be done automatically).

c. Enable data extraction.

d. Start the simulation at time: 01:00.

e. Note the data extraction flag setting shown on the Display Terminal (function 1 is automatically started upon conclusion of initialization).

f. Allow the simulation to run at least 1 minute.

g. Select function 8.

h. Note the data extraction flag setting displayed.

i. Reselect function 8.

j. Note the data extraction flag setting displayed.

k. Select function 9.

l. Answer "Y," for "yes" to the query that should appear on the input terminal.

m. Take the appropriate action, according to the message displayed on the input terminal.

4.4.1.4 Data Analysis Procedures, Expected Results.

The results of this test are to be analyzed by comparing the events of the simulation and the data listed from the data extraction tape.

a. Run the CID extraction listing program, EXLIST, certified in stage 1 test 5, to list the data extraction tape using the proper filters for the system start time and the CID scenario name.

b. Print the resultant listing file, NOTARGET.EXL, noting that the error-free conclusion of the CID extraction listing program verifies the CID toggle function placed at the end of the file mark on the data extraction tape.

c. Check that the system start time on the output listing = 01:00.

d. Check that the scenario name on the output listing = NOTARGET.

e. Check that the listed initialization data listed matched that described in appendix F for CIDINIT1.

4.4.1.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.2.3.1.2.1 Data Extraction
b. 2.2.3.1.2.2 Termination
c. 2.2.4.2 Extraction requirements
d. 2.2.4.2.2 Time Stamp
e. 2.2.3.1.1 CID Startup

f. 2.2.3.1.1.1 Scenario File Name
g. 2.2.3.1.1.2 Configuration File Name
h. 2.2.3.1.1.3 Start Time
i. 2.2.3.1.1.4 Data Extraction

4.4.2 Stage 4 Test 2, Opcomm Function 1 Evaluation.

4.4.2.1 Test Objective.

The objective of this test is to evaluate that the CID's system status display function (#1) formats and displays the required data. This shall be accomplished by using a scenario which will produce known results to be displayed on the system status display. Note that the algorithms used to calculate and display the CPU and data extraction utilization values are exact copies of the code used in the ARIES. These algorithms were fully tested in the ARIES acceptance and will not be retested here. The data displayed can then be collected and compared against the system statistics data held in appendix H.

4.4.2.2 Test Configuration.

The configuration of this test requires the CID computer and peripherals, with the external loopback cables in place.

4.4.2.3 Data Collection Procedures.

The data collection procedure shall be an interactive session in which the CID operator will initiate the CID operational program using the CID initialization file: CIDINIT1 and the scenario file: CIDTST7. Enable data extraction. Set the initial simulation time to time zero (00:00). The following actions should then be performed:

a. Select function 1.

b. Note the simulation time, the configuration file name, the message scenario file name, and the data extraction status on the system statistics screen.

c. Note whether the system statistics screen is updating at 4-second intervals.

d. Reselect function 1.

e. Note whether the system statistics screen has frozen.

f. Reselect function 1.

g. Before the simulation time is equal to 01:00, note the settings of each statistic displayed.

h. After the simulation time passes 01:00, note the settings of each statistic displayed for each system statistics screen update, until time 05:00.

i. Use function 9 to terminate the test (as in test 1).

4.4.2.4 Data Analysis Procedures, Expected Results.

a. Compare the data collected from the system status screen with the system statistics data given in appendix H.

4.4.2.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.2.3.1.2 System Operation
b. 2.2.3.1.2.4 System Status Display
c. 2.2.3.2.1 Update Rate
d. 2.2.3.2.2 Update Freeze
e. 2.2.3.2.3 System Status Display Contents
f. 2.2.3.2.3.1 CPU Usage
g. 2.2.3.2.3.2 Data Extraction Usage
h. 2.2.3.2.3.3 Time-of-Year
i. 2.2.3.2.3.4 Simulation Time
j. 2.2.3.2.3.5 System Error Count
k. 2.2.3.2.3.6 X.25 Error Count
l. 2.2.3.2.3.7 Data Extraction State
m. 2.2.3.2.3.8 Scenario Buffers Used
n. 2.2.3.2.3.9 Message Scenario Name
o. 2.2.3.2.3.10 Configuration Name
p. 2.2.4.2.3.4 X.25 Status

4.4.3 Stage 4 Test 3, Opcomm Function 2 Evaluation.

4.4.3.1 Test Objective.

The objective of this test is to evaluate that the CID's system error display function (#2) formats and displays the required data and that data extraction properly extracts the data. This shall be accomplished by using a special test subtask that will load known values into the memory locations that the operator communications function uses to build the system error screen. The data presented on the system error screen can then be collected and compared against appendix H. Note that there are four areas of errors. The I/O errors are identical to the I/O errors used in ARIES and the tests to insure the validity of the errors were tested during the ARIES acceptance. The validity of the Scenario errors, the Internal Database errors and the Protocol errors was tested during unit tests. The unit development folders of the software that create these errors contain the test results and documentation validating the error flagging.

4.4.3.2 Test Configuration.

The configuration of this test requires the CID computer, peripherals, and special CID test software. The test software removes the INMESS and OUTMESS subtasks from the CID task build and replaces them with a special test subtask. This subtask will operate in real time to update the CID database (normally updated by INMESS, OUTMESS, and the related X.25 ISRs) with known values at specified time intervals. The operator communications function will then access these areas and manipulate

the data (as in the normal real-time code) to produce the various statistics presented on the Display Terminal during the simulation. Appendix H contains a chronological listing of the events and statistics that are expected to be displayed during this test. This is used to compare against the collected data.

4.4.3.3 Data Collection Procedures.

The data collection procedure shall be an interactive session in which the CID operator will initiate the CID operational program using the CID initialization file: CIDINIT1 and the scenario file: NOTARGET. Enable data extraction. Set the initial simulation time to time zero (00:00). The following actions should then be performed:

a. Enter on the input terminal function 2.

b. Note the simulation time value on the system error screen.

c. Note whether the system error display is updating at 4-second intervals.

d. Reselect function 2.

e. Note whether the system error display has frozen.

f. Reselect function 2.

g. Before the simulation time is equal to 00:20, note the settings of each error field displayed.

h. After the simulation time passes 00:20, note the settings of each error field displayed for each system error screen update, until time 05:00.

4.4.3.4 Data Analysis Procedures, Expected Results.

a. Compare the data collected from the system error screen with the function 2 error data given in appendix H.

b. Run the CID extraction listing program, EXLIST, certified in stage 1 test 5, to list the data extraction tape using the proper filters for system errors and X.25 errors.

c. Compare the listed system and X.25 errors with the listing given in appendix H.

4.4.3.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.2.3.1.2.5 System Error Display
b. 2.2.3.3.1 Update Rate
c. 2.2.3.3.2 Update Freeze
d. 2.2.3.3.3 System Error Display Contents
e. 2.2.3.3.3.1 System Errors
f. 2.2.3.3.3.2 I/O Errors

g. 2.2.3.3.3.3 Message Output Errors
h. 2.2.3.3.3.4 Message Input Errors
i. 2.2.3.3.3.5 Extraction Errors
j. 2.2.4.2.3.5 Software Errors
k. 2.2.4.2.3.6 Hardware Errors

4.4.4 Stage 4 Test 4, Opcomm Function 3 Evaluation.

4.4.4.1 Test Objective.

The objective of this test is to evaluate that the CID's X.25 device status display function (#3) formats and displays the required data and that data extraction properly extracts the data. This shall be accomplished by using a scenario which will produce known results to be displayed on the X.25 status display. The data displayed can then be collected and compared against the X.25 statistics data held in appendix H.

4.4.4.2 Test Configuration.

The configuration of this test requires the CID computer and peripherals, with the external loopback cables in place.

4.4.4.3 Data Collection Procedures.

There are two phases to this test.

The first data collection procedure shall be an interactive session in which the CID operator will initiate the CID operational program using the CID initialization file: CIDINIT1 and the null-scenario file: CIDTST7. Enable data extraction. Set the initial simulation time to time zero (00:00). The following actions should then be performed:

a. Select function 3.

b. Note the device status for each of the 12 devices.

c. Note the port number for each of the 12 devices.

d. Note the baud rate for each of the 12 devices.

e. Note the link status for each of the 12 devices.

f. Note the configuration filename.

g. Note whether the X.25 device statistics screen is updating at 4-second intervals.

h. Reselect function 3.

i. Note whether the X.25 device statistics screen is frozen.

j. Reselect function 3.

k. Before the simulation time is equal to 01:00, note the settings of each X.25 device statistic displayed.

l. After the simulation time passes 01:00, note the settings of each statistic displayed for each X.25 device status screen update, until time 05:00.

For the second data collection procedure follow the above steps but substitute CIDINIT7 for CIDINIT1 as the CID initialization file.

4.4.4.4 Data Analysis Procedures, Expected Results.

a. Compare the first set of data collected from the X.25 status screen with the first set of X.25 statistics data given in appendix H.

b. Compare the second set of data collected from the X.25 status screen with the second set of X.25 statistics data given in appendix H.

4.4.4.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a.	2.2.3.3.1.2.6	X.25 Status Display
b.	2.2.3.4	X.25 Device Status Display
c.	2.2.3.4.1	Update Rate
d.	2.2.3.4.2	Update Freeze
e.	2.2.3.4.3	The X.25 device status display contents
f.	2.2.3.4.3.1	Configuration File Name
g.	2.2.3.4.3.2	X.25 Configuration
h.	2.2.3.4.3.3	Baud Rates
i.	2.2.3.4.3.4	X.25 Device State
j.	2.2.3.4.3.5	Input Rate
k.	2.2.3.4.3.6	Output Rate
l.	2.2.3.4.3.7	Current Time
m.	2.2.3.4.3.8	System Time
n.	2.2.4.2.3.7	Status Table

4.4.5 Stage 4 Test 5, Opcomm Function 4 Evaluation.

4.4.5.1 Test Objective.

The objective of this test is to evaluate that the CID's X.25 device error display function (#4) formats and displays the required data. This shall be accomplished by using two separate tests; first, the CID will receive messages and second, the CID will transmit messages. The X.25 error status screen will display any occurrences of X.25 errors.

4.4.5.2 Test Configuration.

The configuration of this test requires the CID computer, peripherals, and an HP-4955 protocol analyzer. The CID should be connected through X.25 interface "A" (line 0), via a RS-449 null-modem cable, to the HP-4955. The software on the HP-4955 will enable it to provide X.25 messages to and receive X.25 messages from the CID.

4.4.5.3 Data Collection Procedures.

The data collection procedure for the first test shall be to initiate the CID operational program using the CID initialization file: CIDINIT4 and the null-scenario file: NOTARGET. The HP-4955 will then be used to transmit a series of X.25 messages. This is accomplished by inserting the cartridge tape named TEST into tape drive 0 of the HP-4955. The software and menus can be loaded in by selecting the softkeys MASS STORE and LOAD and entering the program DTEEMULATE and menu OVERLOAD. Execution of the HP software can be done by selecting the softkeys RUN MENU and EXECUTE. The following actions should then be performed:

a. Select function 4 of the Opcomm menu.

b. Note the device status and error count for device "0."

c. Reexecute the HP software.

d. Note whether the X.25 device error screen updates the Frame Reject Receive, Receive Buffers Full, and Other errors.

e. Repeat steps c and d.

The data collection procedure for the second test shall be to initiate the CID operational program using the CID initialization file: CIDINIT4 and the scenario file: NOTARGET. The HP-4955 will then be used to receive a series of X.25 messages from the CID. This is accomplished by inserting the cartridge tape named TEST into tape drive 0 of the HP-4955. The software and menus can be loaded in by selecting the softkeys MASS STORE and LOAD, and entering the program DTEEMULATE and menu RXCID. Execution of the HP software can be done by selecting the softkeys RUN MENU and EXECUTE. The following actions should then be performed:

a. Select function 4 of the Opcomm menu.

b. Note the device status and error count for device "0."

c. Remove the X.25 interface "A" (line 0) from the HP-4955.

d. Note whether the X.25 device error screen updates the Frame Reject Transmit, and Transmit Message Lost errors.

e. The scenario should run for 2 minutes.

4.4.5.4 Data Analysis Procedures, Expected Results.

The expected results of the two tests will show the error occurrences of each test on the X.25 device error screen. In the first test, the Frame Reject Receive should have a total error count of one; the Receive Buffer Full, an error count of two; and the Other, an error count of one. In the second test, the Frame Reject Transmit should have a total error count of one; the Frame Reject Receive, an error count of one; and the Transmit Message Lost, an error count of 12.

4.4.5.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.2.3.1.2.7 X.25 Error Display
b. 2.2.3.5 X.25 Device Error Display
c. 2.2.3.5.3 The X.25 Device Error Display Contents
d. 2.2.3.5.3.3 X.25 Device State
e. 2.2.3.5.3.4 Link Inits
f. 2.2.3.5.3.5 Frame Transmit Rejects
g. 2.2.3.5.3.6 Frame Receive Rejects
h. 2.2.3.5.3.7 Transmit Buffers Full
i. 2.2.3.5.3.8 Receive Buffers Full
j. 2.2.3.5.3.9 Other Errors
k. 2.2.4.2.3.8 Error Table

4.4.6 Stage 4 Test 6, Opcomm Function 5 Evaluation.

4.4.6.1 Test Objective.

The objective of this test is to test and evaluate that the CID operator can access and operate the Modify X.25 device status function (#5), as required.

4.4.6.2 Test Configuration.

The configuration of this test requires the CID computer, peripherals, and the CID operational software. Appendix H contains a chronological listing of events and results which are expected to occur during this test. This is used to compare against the collected data.

4.4.6.3 Data Collection Procedures.

The data collection procedure shall be an interactive session in which the CID operator will initiate the CID operational program using the CID initialization file: CIDINIT1 and the null-scenario file: NOTARGET. Enable data extraction. Set the initial simulation time to time zero (00:00). The following actions should then be performed:

a. Select function 3.

b. Note the link status for each of the 12 devices.

c. Select a device with link status of "A," active.

d. On the input terminal, select option 5, the Modify X.25 device status function.

e. Upon being prompted, enter the device number selected in step c.

f. Note what happens on the display terminal. Check the link status for each of the 12 devices.

g. On the input terminal, select option 5, the Modify X.25 device status function.

h. Upon being prompted, enter the device number selected in step c.

i. Note what happens on the display terminal. Check the link status for each of the 12 devices.

4.4.6.4 Data Analysis Procedures, Expected Results.

The results of this test are to be found by comparing the events of the simulation and the data which is displayed on the display terminal with the contents of appendix H.

4.4.6.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.2.3.1.2.3 X.25 Line Control
b. 2.2.3.6 Modify X.25 Status
c. 2.2.3.6.1 X.25 Reactivation

4.5 STAGE 5: CID TRANSMISSION, RECEPTION, AND EXTRACTION VERIFICATION.

The objective of this stage of tests is to verify that the CID can receive and extract X.25 messages and also verify that the CID can transmit X.25 messages while extracting a reference number and result code correlating to that message. These objectives shall be accomplished by using the HP-4955 protocol analyzer to transmit messages to and receive messages from a CID. First, the protocol analyzer shall be used to transmit X.25 messages to a CID operating with data extraction enabled. The resultant CID extraction tape shall be analyzed to verify that the CID properly received and extracted the test messages sent by the HP-4955. A further check will also be made to insure that there are no extra messages present on the data extraction tape. Note that there will be no messages being output by the CID in this test. Second, a CID will transmit a series of messages over the X.25 interfaces to the protocol analyzer which will be recording the incoming data. The resultant CID extraction tape shall then be analyzed to verify that the CID properly extracted the scenario reference number and result code for each X.25 message transmitted, while the data collected by the protocol analyzer shall be analyzed to insure that the messages were actually transmitted properly.

a. Test 1, X.25 Message Reception and Extraction Test
b. Test 2, X.25 Message Transmission and Extraction Test
c. Test 3, Extraction Buffer Size Test

4.5.1 Stage 5 Test 1, X.25 Message Reception and Extraction Test.

4.5.1.1 Test Objective.

The objective of this test is to insure that the CID correctly receives and extracts messages from the X.25 devices. This shall be tested by using the HP-4955 protocol analyzer to supply X.25 messages to the CID over the X.25 communication interfaces. The CID will first receive the X.25 messages and then extract these

messages onto magnetic tape. The analysis of the CID data extraction tape will consist of accuracy checks for both message reception and content. A further check will also be made to insure that there are no extra messages present on the data extraction tape. Note that there will be no messages output by the CID in this stage of tests.

4.5.1.2 Test Configuration.

The configuration of this test consists of the CID connected through X.25 interface "A" (line 0), via a RS-449 null-modem cable, to the HP-4955. Software is also required on the HP-4955 to enable it to provide the required X.25 messages for transmission to the CID. CIDTST4, in appendix A, will contain a description of the messages that the HP-4955 will transmit.

4.5.1.3 Data Collection Procedures.

The data collection procedure shall be to run the CID using the CID initialization file CIDINIT4, the null-scenario file NOTARGET, and data extraction enabled. The HP-4955 will then be used to transmit a series of X.25 messages. This is accomplished by inserting the cartridge tape named TEST into tape drive 0 of the HP-4955. The software and menu can be loaded in by selecting the softkeys MASS STORE and LOAD, and entering the program DTEEMULATE and menu TXCID. Execution of the HP software can be done by selecting the softkeys RUN MENU and EXECUTE. After all the X.25 messages have been sent by the HP-4955 and acknowledged by the CID, terminate the CID and save the data extraction tape for analysis.

4.5.1.4 Data Analysis Procedures, Expected Results.

To analyze this data, compare the messages received and extracted by the CID against the messages that were sent by the HP-4955. The EXLIST program should be run on the data extraction tape and compared against the messages shown in the Extraction for CIDTST4 in appendix G.

4.5.1.5 Requirements Satisfied.

The following requirements of DOD/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.2.1.3.2 Message Extraction
b. 2.2.4.2.3.1 X.25 Messages

4.5.2 Stage 5 Test 2, X.25 Message Transmission and Extraction Test.

4.5.2.1 Test Objective.

The objective of this test is to insure that the CID correctly transmits messages and extracts the proper message reference number and status codes correlating to the transmitted messages. This shall be tested by using the HP-4955 protocol analyzer to receive and record X.25 messages transmitted by the CID over the X.25 communication interfaces. The CID will extract the scenario reference number and status code for each message. The analysis of the CID data extraction tape and the protocol analyzer data will consist of accuracy checks for both message reception and content. Further checks will be made to insure that there are no missing or duplicate messages present in the protocol analyzer data. Note that there will be no messages being input by the CID in this test.

4.5.2.2 Test Configuration.

The configuration of this test consists of the CID connected through X.25 interface "A" (line 0), via a RS-449 null-modem cable, to the HP-4955. Software is available on the HP-4955 to enable it to read and store the required X.25 messages. A CID scenario file will be required to supply the messages for transmission. Note that this scenario will contain default type messages, as well as the nondefault messages. A description of the scenario to be used, CIDTST5, is given in appendix A. Appendix H contains listings of the messages that the HP-4955 should receive and the data that the CID should extract is shown in appendix G under Extraction for CIDTST5.

4.5.2.3 Data Collection Procedures.

The data collection procedure shall be to run the CID using the CID initialization file CIDINIT4 and the CID scenario CIDTST5. The HP-4955 will then be used to receive a series of X.25 messages. This accomplished by inserting the cartridge tape named TEST into tape drive 0 of the HP-4955. The software and menu can be loaded in by selecting the softkeys MASS STORE and LOAD and entering the program DTEEMULATE and menu RXCID. Execution of the HP software can be done by selecting the softkeys RUN MENU and EXECUTE. This will enable the HP-4955 to receive and store the X.25 messages transmitted by the CID. After all the X.25 messages have been received by the HP-4955, the CID should be terminated and the data extraction tape saved for analysis. The data received on the HP can be saved on the cartridge tape named DATA (tape drive 1) by selecting the softkeys EXAMINE DATA and STORE BUFFER. Enter the requested information in the given screen to store the data.

4.5.2.4 Data Analysis Procedures, Expected Results.

To analyze this data first, the EXLIST program should be run on the data extraction tape. Compare the listing against the listing for CIDTST5 in appendix G. Next compare the messages received by the HP-4955 against the messages listed in appendix H.

4.5.2.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.2.1.3.2 Message Extraction
b. 2.2.4.2.3.1 X.25 Messages
c. 2.2.1.1 Scenario Message Data Requirements

4.5.3 Stage 5 Test 3, Extraction Buffer Size Test.

4.5.3.1 Test Objective.

The objective of this test is to evaluate that the CID can buffer at least one full scan of extraction data. This shall be accomplished by calculating the maximum amount of data that should be extracted in a full scan and then inspecting the size of the data extraction buffers.

4.5.3.2 Test Configuration.

The configuration of this test consists of the CID computer and peripherals along with a full complement of the CID operational software listings.

4.5.3.3 Data Collection Procedures.

Print the appropriate CID software listing that contains the common block buffers for the CID data extraction process.

4.5.3.4 Data Analysis Procedures, Expected Results.

Using the Mode S specification, the maximum message load (both I/O) for a 1-second period can be determined as follows. For input messages, add 12 bytes per message to account for the extraction header. The byte load on input is as follows:

(I)	336 Std Downlink Msgs * (22 (SC * 8) +12)	=	20,160 bytes
(II)	42 ELM * (15 + (NELM * 10) + 12)	=	7,896 bytes
(III)	2016 UDN * (7 + 12)	=	40,320 bytes

Where: (1) Max (SC) = 3
(2) Max (NELM) = 64
(3) All multipliers must be modular 4
(I-60, II-188, III-20)

Total output = 68,376 bytes

On the output, messages only count 20 bytes per message regardless of the message length. Note that only a pointer to the message in the scenario is extracted and not the message itself. The byte load on input is as follows:

1904 Std Uplink Msgs * 20	=	38,080 bytes
112 ELM * 20	=	2,240 bytes
280 Downlink requests	=	5,600 bytes

Total input = 45,920 bytes

The resulting byte total for the input and output extraction is 114,296 bytes. Adding 10 percent for miscellaneous system extractions results in a total extraction byte load of 125,726 bytes/sec. Now analyze the size of the extraction buffers to insure that they are large enough to hold the total data load calculated.

4.5.3.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.2.4.2.1 Data Buffer

4.6 STAGE 6: CAPACITY LOAD VERIFICATION.

The main objective of this stage of tests is to evaluate that the CID can both transmit and receive comm messages at the required capacity levels while

maintaining data extraction. This will be accomplished by running the CID with capacity output scenarios while the corresponding capacity level of messages are being sent to the CID over the X.25 interfaces.

The source of this input data shall be a second (input) CID certified for capacity levels of message transmission and extraction. Therefore, the first tests in this stage will be to insure that the CID can extract and transmit X.25 messages at capacity load levels. Note that the ability of the CID to extract the reference number and status code of each transmitted message was verified in stage 5. Thus, this test will consist of a CID transmitting a capacity load of X.25 messages with data extraction enabled. The CID will be connected to a second CID (hardware configuration) that will have special software whose sole purpose is to clear the X.25 interface input buffers in order that they can send the required X.25 acknowledgements. Note that there is no input being supplied to the CID through the X.25 boards in this stage of testing. The extraction tape of the transmitting CID will then be analyzed to insure that all messages were transmitted without failures and within the required time constraints.

After the CID has been verified for transmission at capacity levels it can then be used to supply the X.25 message to the CID under test for both transmission and reception at capacity levels. The data collected on the data extraction tapes of both the input CID and the test CID shall be analyzed by using the CID check program verified in stage 1 test 7. This program will compare the output of the input CID against the messages received and extracted in the test CID, as well as compare the output of the test CID against the messages received and extracted in the input CID. The CID extraction program can first be used to insure that the output extracted by both CIDs is in accordance with the message scenario used by the corresponding CID. The CID check program will also do timing tests to insure that in both the above cases, the messages were received within the required time constraints. The tests to be conducted in this stage are as follows:

a. Test 1, Capacity Transmission and Extraction Tests
b. Test 2, Full Capacity Tests

4.6.1 Stage 6 Test 1, Capacity Transmission and Extraction Tests.

4.6.1.1 Test Objective.

The objective of this test is to evaluate that the CID can transmit and extract the required load of comm messages to meet the CID to Mode S capacity requirements. This can be accomplished by running the appropriate output message scenario while enabling the CID data extraction function. The collected data can then be compared against what should have been transmitted by using the checking function of the CID extraction listing program verified in stage 1 test 5.

4.6.1.2 Test Configuration.

The configuration of this test consists of a CID with a data extraction tape loaded. Two CID scenarios (CDRING11 and TST2PORT) are required for this test to provide the required level of comm messages to fulfill the CID to Mode S capacity requirements. Three different X.25 configurations will be used to insure that the CID can operate in either the six 56k-baud port configuration (CIDINIT1), the six

port mixed rate configuration (CIDINIT3), or the 9600-baud two port configuration (CIDINIT2) during capacity situations. Note that the CID message scenarios are described in appendix A, and that the CID initialization files are described appendix F.

4.6.1.3 Data Collection Procedures.

The data collection procedure will be to run the appropriate scenario on the CID while collecting a data extraction tape as follows.

a. Run the CID using the message scenario CDRING11 and the CID initialization file CIDINIT1. Collect a data extraction tape and note any errors indicated on the CID status screens.

b. Run the CID using the message scenario TST2PORT and the CID initialization file CIDINIT2. Collect a data extraction tape and note any errors indicated on the CID status screens.

c. Run the CID using the message scenario NOTARGET and the CID initialization file CIDINIT3. Collect a data extraction tape and note any errors indicated on the CID status screens.

4.6.1.4 Data Analysis Procedures, Expected Results.

The analysis of this data will be to use the CID extraction listing program's check function to do an automated compare of the CID extraction tape against the input message scenario.

a. Run the check function, CIDCHECK, of the CID extraction listing program, using the CID extraction tape that was collected above. Analyze the output of the program. There should be no missing or extra messages. There should be no time delays greater than 1/16th of a scan or 250 millisecond (ms).

b. Run the check function of the CID extraction listing program, using the CID extraction tape that was collected above. Analyze the output of the CID. There should be no missing or extra messages. There should be no time delays greater than 1/16th of a scan or 250 ms.

c. Run the check function of the CID extraction listing program, using the CID extraction tape that was collected above. Analyze the output of the CID. There should be no missing or extra messages. There should be no time delays greater than 1/16th of a scan or 250 ms.

4.6.1.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.2.1.1 Scenario Message Data Requirements
b. 2.2.4.2.3.2 Reference Number

4.6.2 Stage 6 Test 2, Full Capacity Tests.

4.6.2.1 Test Objective.

The objective of this test is to evaluate that the CID can both transmit and receive comm messages at the required capacity levels while maintaining data extraction. This will be accomplished by running the CID with a capacity output scenario while the corresponding capacity level of messages are being sent to the CID over the X.25 interfaces for input. The source of this input data shall be a second CID that has been verified for capacity transmission in stage 6 test 2. The data collected on the data extraction tapes of both the input CID and the test CID shall be analyzed by using the CID check program.

4.6.2.2 Test Configuration.

The configuration of this test consists of a (test) CID which will run with a CID scenario of capacity load connected through the X.25 interfaces to a second (input) CID which will provide the required capacity level of input X.25 messages. There shall be two sets of scenarios required. The scenarios to be run on the test CID (CDRING11 and TST2PORT) shall provide the required level of comm messages to fulfill the CID to Mode S 360° capacity requirements. Note these scenarios are described in appendix A. The scenario to be run on the input CID (CDRING11 and TST2PORT) shall provide the required level of comm messages to fulfill the Mode S to CID 360° capacity requirements. Three different X.25 configurations shall be used to insure that the CID can operate in either the six 56k-baud port configuration (CIDINIT1) or the six port mixed baud rate configuration (CIDINIT3) or the 9600-baud two port configuration (CIDINIT2) during capacity situations. Note that these CID initialization files are described in appendix F.

4.6.2.3 Data Collection Procedures.

The data collection procedure shall be to run the appropriate scenario on each of the two CIDs while collecting a data extraction tape on each system as follows:

a. Run the test CID using the message scenario CDRING11 and the CID initialization file CIDINIT1. Collect a data extraction tape and note any errors indicated on the CID status screens. Run the input CID using the message scenario CDRING11 and the CID initialization file CIDINIT1. Collect a data extraction tape and note any errors indicated on the CID status screens.

b. Run the test CID using the message scenario CDRING11 and the CID initialization file CIDINIT3. Collect a data extraction tape and note any errors indicated on the CID status screens. Run the input CID using the message scenario CDRING11 and the CID initialization file CIDINIT3. Collect a data extraction tape and note any errors indicated on the CID status screens.

c. Run the test CID using the message scenario TST2PORT and the CID initialization file CIDINIT2. Collect a data extraction tape and note any errors indicated on the CID status screens. Run the input CID using the message scenario TST2PORT and the CID initialization file CIDINIT2. Collect a data extraction tape and note any errors indicated on the CID status screens.

4.6.2.4 Data Analysis Procedures, Expected Results.

The data extraction tapes collected in these tests shall be analyzed by using the CID check program as follows:

a. First run the CID check program with the CID extraction tape collected on the input CID and the extraction tape that was collected on the test CID. The CID check program will compare the messages shown to have been sent to the test CID on the input CID extraction tape against those messages actually extracted on the test CID extraction tape. The CID check program will also compare the messages that should have been sent by the test CID (given the known output message scenario) against those messages actually extracted on the test CID extraction tape. Analyze the output of the CID check program. There should be no missing or extra messages. There should be no time delays greater than 1/16th of a scan or 250 ms.

4.6.2.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.1.2 Capacity Requirements
b. 2.1.2.1 Wedge Capacity Requirements
c. 2.1.2.2 360° Capacity Requirements
d. 2.2.4.1.1 Scenario Created Messages

4.7 STAGE 7: INTERACTIVE RESPONSE TESTS.

The main objective of this stage of tests is to test the various CID functions that operate in the limited capacity mode. These functions include the Display a Message function, the operator Create a Message function, and the Network Management Response function. The Create a Message function will be tested by using it to create a full set of messages for transmission. These messages will be viewed on the HP-4955 protocol analyzer for analysis. The Display a Message function and the Network Management Response function will be tested by using a series of inputs to the CID which will stimulate the functions under test. The source of the input data will be provided by the HP-4955 protocol analyzer. The Display a Message function data will be analyzed by the View A Message function screen. The Network Management function data will be analyzed on the HP-4955 protocol analyzer. The tests that will be conducted in this stage are as follows:

a. Test 1, CID Create A Message Tests
b. Test 2, CID Display a Message Tests
c. Test 3, CID Network Management Tests

4.7.1 Stage 7 Test 1, CID Create A Message Tests.

4.7.1.1 Test Objective.

The objective of this test is to test the ability of the CID to enable an operator to create and transmit a message. This shall be done by creating a series of messages using the CID Create a Message function. These messages shall be transmitted over an X.25 interface to the HP-4955 protocol analyzer. The HP-4955 shall collect these messages which will then be compared against the messages that should have been transmitted by the CID.

4.7.1.2 Test Configuration.

The configuration of this test consists of the CID connected through X.25 interface "A" (line 0), via a null-modem cable, to the HP-4955. Software is also required on

the HP-4955 to enable it to receive the required X.25 messages from the CID. Appendix H will contain a listing of the messages that the HP-4955 should receive.

4.7.1.3 Data Collection Procedures.

The data collection procedure shall be to run the CID with the initialization file CIDINITC and the null-scenario NOTARGET. The Network Management function should not be activated for this test. The HP-4955 will then be used to collect a series of X.25 messages. This is accomplished by inserting the cartridge tape named TEST into tape drive 0 of the HP-4955. The software and menu can be loaded in by selecting the softkeys MASS STORE and LOAD, entering the menu RXCID, and then EXECUTE the load. Exit from MASS STORE menu. Execution of the HP software can be done by selecting the softkeys RUN MENU and EXECUTE. This will enable the HP-4955 to receive the messages created by the CID. Begin entering the commands into the Create a Message function as listed in appendix H.

4.7.1.4 Data Analysis Procedures, Expected Results.

The analysis of the data collected in this test shall be to compare the messages collected by the HP-4955 against the list of messages that should have been collected listed in appendix G.

4.7.1.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. 2.2.3.1.2.8 Create a Message
b. 2.2.3.7 Create a Message
c. 2.2.3.7.1 Standard Uplink
d. 2.2.3.7.2 Elm Uplink
e. 2.2.3.7.3 Downlink Request
f. 2.2.3.7.4 ATCRBS ID Request
g. 2.2.3.7.5 Cancellation Request
h. 2.2.3.7.6 Create a Message
i. 2.2.3.7.7 Operator Verification
j. 2.2.4.1.3 Both Scenario Based and Operator Created Messages
k. 2.2.4.2.3.3 Operator Created Messages
l. 2.2.4.1.2 Operator Created Messages

4.7.2 Stage 7 Test 2, CID Message Display Tests.

4.7.2.1 Test Objective.

The objective of this test is to test and verify the ability of the CID to display appropriate messages as required. This shall be accomplished using the HP-4955 protocol analyzer to transmit messages over the X.25 interfaces to the CID. The CID will then display these messages. The messages will then be manually noted in order that they can be compared against a list of messages the HP-4955 will be transmitting.

4.7.2.2 Test Configuration.

The configuration of this test consists of the CID connected through X.25 interface A (line 0), via a null-modem cable, to the HP-4955. Software is also required on the HP-4955 to enable it to provide the required X.25 messages for transmission to the CID. CIDTST10 in appendix A will contain a description of the messages that the HP-4955 will transmit.

4.7.2.3 Data Collection Procedures.

The data collection procedure shall be to run the CID using the CID initialization file CIDINIT4 and enter the null-scenario NOTARGET. The Network Management function should not be activated for this test. To enable the Display a Message function, select function 7 from the CID main menu and add the following Mode S IDs to the search list: FAA001, FAA002, FAA003, FAA004, and FAA005. Begin the HP-4955 program to transmit a series of X.25 messages. This is accomplished by inserting the cartridge tape named TEST into tape drive 0 of the HP-4955. The software and menu can be loaded in by selecting the softkeys MASS STORE and LOAD and entering the menu TXCIDP22 and EXECUTE. Exit from the MASS STORE menu. Execution of the HP software can be done by selecting the softkeys RUN MENU and EXECUTE. Note the messages displayed on the CID output screens.

4.7.2.4 Data Analysis Procedures, Expected Results.

The analysis of this test shall be to compare the data collected against the expected results listed in appendix J. The messages sent from the HP can be viewed by selecting VIEW A MESSAGE from the Display message list option menu.

4.7.2.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a.	2.2.2.2	Messages for Display
b.	2.2.2.2.1	Display Message Buffer
c.	2.2.2.2.2	Display Format
d.	2.2.2.2.3	Display Message Types
e.	2.2.2.2.3.1.(a-b)	Sensor Response Messages
f.	2.2.2.2.3.2.(a-d)	Downlink Messages
g.	2.2.3.1.2.9	Display an Input Message
h.	2.2.3.8	Display Message List
i.	2.2.3.8.1	Update Rate
j.	2.2.3.8.2	Message Types
k.	2.2.3.8.3	Commands
l.	2.2.3.8.3.1	View a Message
m.	2.2.3.8.3.2	Add a Mode S ID to the Search List
n.	2.2.3.8.3.3	Delete a Mode S ID from the Search List
o.	2.2.3.8.3.4	View the Search List

4.7.3 Stage 7 Test 3, CID Network Management Tests.

4.7.3.1 Test Objective.

The object of this test is to test and evaluate the CID's ability to respond to Network Management messages. This shall be accomplished by using the HP-4955 to transmit messages over the X.25 interface to the CID. The CID, upon receiving Network Management messages through the X.25 line, will redirect the Network Management messages back to the simulated Mode S device; i.e., HP-4955 analyzer. The HP-4955 will present all message interactions as recorded by the analyzer during the test.

4.7.3.2 Test Configuration.

The configuration of this test consists of the CID connected through X.25 interface, via a null-modem cable, to the HP-4955. Software is also required on the HP-4955 to enable it to provide the required X.25 messages for transmission to the CID and to record all X.25 transactions. File HPTEST4, in appendix A, contains a description of the messages provided by the HP-4955.

4.7.3.3 Data Collection Procedures.

The data collection procedure will run the CID phase II software with the configuration file CIDINIT4, the scenario filename NOTARGET, and choose the Network Management option,. Enable the HP-4955 to begin program HPTEST4. To activate the software on the HP, insert the tape named TEST into tape drive 0 of the HP-4955. The software can be loaded in by selecting the softkeys MASS STORE and LOAD, and entering the program DTEEMULATE and EXECUTE. Now load in the menu by entering HPTEST4 and EXECUTE. Exit the MASS STORE menu. Execution of the HP software can be executed by selecting the softkeys RUN MENU and EXECUTE.

4.7.3.4 Data Analysis Procedures, Expected Results.

The analysis of the data collected in this test will be accomplished by viewing the messages on the HP-4955. The HP-4955 emulated DTE (Mode S) messages should have all messages redirected, by the Network Management response, back to the same line as DCE (CID) messages. Verification of all messages to verify that all Network Management messages are redirected will be accomplished.

4.7.3.5 Requirements Satisfied.

The following requirements of DOT/FAA/CT-TN87/41 will have been satisfied with the completion of this test:

a. All Mode S Network Control messages (type 91,92,93,94,95,9d,9e) are properly redirected to the specified port.

b. All ATCRBS Network Control messages (type d1,d2,d3,d4,d5) are properly redirected to the specified port.

c. All Status messages (type 71,72,73) are properly redirected to the specified port.

d. Non-Network Management messages are not redirected.

5. TEST MATRIX.

The following table contains a matrix listing CID requirement and the corresponding stage and test will verify the requirement:

Requirement Number	Test Plan Number
2.1.1.1 - 2.1.1.8	General system requirements which are incorporated into the remaining requirements.
2.1.2	Stage 7 test 1 & test 2
2.1.2.1	Stage 7 test 1
2.1.2.2	Stage 7 test 2
2.2.1	Title
2.2.1.1	Stage 6 test 2 & 3
2.2.1.1.1 - 2.2.1.1.6	Stage 1 test 4
2.2.1.1.6.1 - 2.2.1.1.6.3	Stage 1 test 2
2.2.1.1.6.4 - 2.2.1.1.6.4.2	Stage 1 test 4
2.2.1.1.6.4.3	Stage 1 test 2
2.2.1.1.6.4.4	Stage 1 test 4
2.2.1.1.6.4.5	Stage 1 test 2
2.2.1.2	Title
2.2.1.2.1 - 2.2.1.2.2.4	Stage 1 test 2
2.2.1.3 - 2.2.1.3.1	Stage 2 test 3
2.2.1.3.2	Stage 5 test 1
2.2.2	Statement
2.2.2.1	Title
2.2.2.1.1 - 2.2.2.1.1.2	Stage 8 test 3
2.2.2.1.2 - 2.2.2.1.4	Stage 8 test 4
2.2.2.2 - 2.2.2.2.3.2	Stage 8 test 2
2.2.3 - 2.2.3.1	Titles
2.2.3.1.1 - 2.2.3.1.2	Stage 4 test 1
2.2.3.1.2.1	Stage 4 test 6
2.2.3.1.2.2	Stage 4 test 1
2.2.3.1.2.3	Stage 4 test 5
2.2.3.1.2.4	Stage 4 test 1
2.2.3.1.2.5	Stage 4 test 2
2.2.3.1.2.6	Stage 4 test 3
2.2.3.1.2.7	Stage 4 test 4
2.2.3.1.2.8	Stage 8 test 1
2.2.3.1.2.9	Stage 8 test 2
2.2.3.2	Title
2.2.3.2.1 - 2.2.3.2.3.10	Stage 4 test 1
2.2.3.3	Title
2.2.3.3.1 - 2.2.3.3.3.5	Stage 4 test 2
2.2.3.4	Title
2.2.3.4.1 - 2.2.3.4.3.8	Stage 4 test 3
2.2.3.5	Title
2.2.3.5.1 - 2.2.3.5.3.9	Stage 4 test 4
2.2.3.6 - 2.2.3.6.1	Stage 4 test 5
2.2.3.7 - 2.2.3.7.7	Stage 8 test 1
2.2.3.8 - 2.2.3.8.3.4	Stage 8 test 2
2.2.4 - 2.2.4.1	Titles
2.2.4.1.1	Stage 7 test 1 & 2

2.2.4.1.2 - 2.2.4.1.3	Stage 8 test 1
2.2.4.1.3.1	Stage 2 test 3
2.2.4.2	Stage 4 test 6
2.2.4.2.1	Stage 5 test 2
2.2.4.2.2	Stage 4 test 6
2.2.4.2.3	Title
2.2.4.2.3.1	Stage 5 test 1
2.2.4.2.3.2	Stage 6 test 2 & 3
2.2.4.2.3.3	Stage 8 test 1
2.2.4.2.3.4 - 2.2.4.2.3.8	Stage 4 test 6
2.3 - 2.3.1	Titles
2.3.1.1 - 2.3.1.5	Stage 1 test 1
2.3.2	Title
2.3.2.1 - 2.3.2.7	Stage 3 test 1
2.3.3	Title
2.3.3.1 - 2.3.3.3	Stage 3 test 2
2.4 - 2.4.1	Titles
2.4.1.1	Stage 1 test 2
2.4.1.2 - 2.4.1.2.3	Stage 1 test 4
2.4.1.3	Stage 1 test 5
2.4.1.4	Stage 1 test 3
2.4.2	Title
2.4.2.1 - 2.4.2.1.2	Stage 1 test 6
2.4.2.2 - 2.4.2.2.9	Stage 1 test 7
2.4.2.3 - 2.4.2.3.4	Stage 1 test 8
2.5 - 2.5.1	Titles
2.5.1.1 - 2.5.1.4	Stage 1 test 9
2.5.2	Title
2.5.2.1 - 2.5.2.3	Stage 1 test 6
2.6 - 2.6.1	Titles
2.6.1.1 - 2.6.1.2	Stage 2 test 1
2.6.2	Title
2.6.2.1 - 2.6.3	Stage 2 test 2
2.6.4	Stage 2 test 1
2.6.5	Title
2.6.5.1 - 2.6.5.3	Stage 2 test 1

APPENDIX A

SCENARIO DESCRIPTIONS

Appendix A contains a full description of each scenario. Section 5 contains a listing of each scenario, and section 6 contains a description of the CID configuration files used.

Description of Scenario CIDTST1. This scenario contains four sets of miscellaneous messages for a total of 13 messages.

The first set of messages is for Mode S ID: FAA001. There will be three miscellaneous ATC to Mode S messages of types: (1) standard uplink, (2) downlink request, and (3) message cancellation request.

The standard uplink message is scheduled for transmission over port number 1 at time 00:10. This message will be 35 bytes long consisting of a 4-segment MA field, a priority value of 15, an expiration value of 7, and an acknowledge field of 1. The MA field will consist of 56 hex "A" characters.

The downlink request is scheduled for transmission over port number 3 at time 00:50. This message will be 7 bytes long consisting of a priority value of 15, an expiration value of 7, a BDS1 field of 15, and a BDS2 field of 15.

The message cancellation request is scheduled for transmission over port number 2 at time 01:30. This message will be 7 bytes long consisting of a reference message number of 1 and a reference type code of 21.

The second set of messages is for Mode S ID: FAA002. There will be three miscellaneous non-ATC to Mode S messages of types: (1) standard uplink, (2) downlink request, and (3) message cancellation request.

The standard uplink message is scheduled for transmission over port number 4 at time 00:20. This message will be 14 bytes long consisting of a 1 segment MA field, a priority value of 15, an expiration value of 7, and an acknowledge field of 1. The MA field will consist of 14 hex "A" characters.

The downlink request is scheduled for transmission over port number 6 at time 01:00. This message will be 7 bytes long consisting of a priority value of 15, an expiration value of 7, a BDS1 field of 15, and a BDS2 field of 15.

The message cancellation request is scheduled for transmission over port number 5 at time 01:40. This message will be 7 bytes long consisting of a reference message number of 1 and a reference type code of 21.

The third set of messages is for Mode S ID: FAA003. There will be three miscellaneous ATC to Mode S messages of types: (1) ELM uplink, (2) ATCRBS ID request, and (3) data link capability request.

The ELM uplink message is scheduled for transmission over port number 2 at time 00:30. This message will be 87 bytes long consisting of an 8 segment ELM text field, a priority value of 15, and an expiration value of 7. The ELM text field will consist of 160 hex "C" characters.

The ATCRBS ID request is scheduled for transmission over port number 1 at time 01:10. This request will be 5 bytes long.

The data link capability request is scheduled for transmission over port number 3 at time 01:50. This message will be 5 bytes long.

The fourth set of messages is for Mode S ID: FAA004. There will be four miscellaneous non-ATC to Mode S messages of types: (1) ELM uplink, (2) aircraft state request, (3) aircraft position, and (4) data link capability request.

The ELM uplink message is scheduled for transmission over port number 5 at time 00:40. This message will be 17 bytes long consisting of a 1-segment ELM text field, a priority value of 15, and an expiration value of 7. The ELM text field will consist of 20 hex "C" characters.

The request for aircraft state is scheduled for transmission over port number 4 at time 01:20. This request will be 5 bytes long.

The request for aircraft position is scheduled for transmission over port number 4 at time 01:25. This message will be 5 bytes long.

The data link capability request is scheduled for transmission over port number 6 at time 02:00. This message will be 5 bytes long.

Description of Scenario CIDTST1a. This scenario is identical to CIDTST1 except for the following changes.

The first set of messages will be for Mode S ID: FAA0A1. The standard uplink message is scheduled for transmission over port number 6 at time 00:05. The downlink request is scheduled for transmission over port number 4 at time 00:45. The message cancellation request is scheduled for transmission over port number 5 at time 01:25.

The second set of messages is for Mode S ID: FAA0A2. The standard uplink message is scheduled for transmission over port number 3 at time 00:15. The downlink request is scheduled for transmission over port number 1 at time 00:55. The message cancellation request is scheduled for transmission over port number 2 at time 01:35.

The third set of messages is for Mode S ID: FAA0A3. The ELM uplink message is scheduled for transmission over port number 5 at time 00:25. The ATCRBS ID request is scheduled for transmission over port number 6 at time 01:05. The data link capability request is scheduled for transmission over port number 4 at time 01:45.

The fourth set of messages is for Mode S ID: FAA0A4. The ELM uplink message is scheduled for transmission over port number 2 at time 00:35. The request for aircraft state is scheduled for transmission over port number 3 at time 01:15. The request for aircraft position is scheduled for transmission over port number 3 at time 01:20. The data link capability request is scheduled for transmission over port number 1 at time 01:55.

Description of Scenario CIDTST2. This scenario contains a set of 4 ATC-to-Mode S and 15 sensor-to-sensor special messages. All messages are transmitted over port 1 at every 10-second intervals.

The first of the ATC-to-Mode S messages, is a test message with a type code of 61, a message number of 1, and test data of 0123456789ab.

The second message is an ATC failure/recovery message with a type code of 99, a message number of 2, and a state value of 2.

The third message is a sensor failure/recovery message with a type code of 65, a message number of 3, a Mode S sensor ID of 48, and a sensor status of 4.

The fourth message is a control state message with a type code of 9a, a message number of 4, a primary index value of 0, a secondary index value of 0, and an uncontrolled index value of 0.

The first of the sensor-to-sensor messages is a start message with type code of 91, a Mode S ID of 012345, a measured range value of 6789, a measured azimuth value of 2bcd, a range rate value of ef, an azimuth rate value of 1, an altitude value of 234, a time reference value of 67, a capability value of 0, a receive sensor ID of 0, and a send sensor ID of 4.

The second message is a track data message with a type code of 94, a Mode S ID of 123456, a measured range value of 789a, a measured azimuth value of 3cde, a range rate value of f0, an azimuth rate value of 12, an altitude value of 345, a time reference value of 78, a receive sensor ID of 0, and a send sensor ID of 4.

The third message is a data stop message with a type code of 92, a Mode S ID of 234567, a receive sensor ID of 1, and a send sensor ID of 0.

The fourth message is a data request message with a type code of 93, a Mode S ID of 345678, a receive sensor ID of 1, and a send sensor ID of 0.

The fifth message is a cancel request message with a type code of 95, a Mode S ID of 456789, a receive sensor ID of 1, and a send sensor ID of 0.

The sixth message is a primary coordination message with a type code of 9d, a Mode S ID of 56789a, a value field of 0, a receive sensor ID of 1, and a send sensor ID of 0.

The seventh message is a track alert message with a type code of 9e, a Mode S ID of 6789ab, a receive sensor ID of 1, and a send sensor ID of 0.

The eighth message is an ATCRBS data request message with a type code of d3, a requesting sensor track number of 789, an ATCRBS code of abc, a range value of def0, an azimuth value of 1234, an altitude value of 0, a receive sensor ID of 1, and a send sensor ID of 0.

The ninth message is an ATCRBS track data message with type code of d4, a requesting sensor track number of 89a, an ATCRBS code of bcd, a code confidence value of ef0, a measured range value of 1234, a measured azimuth value of 159e, a range rate value of 26, an azimuth rate value of af, an altitude value of 37b, an altitude confidence value of c04, a time reference value of 45, a receive sensor ID of 1, and a send sensor ID of 0.

The tenth message is an ATCRBS data start message with a type code of d1, a requesting sensor track number of 9ab, an ATCRBS code of cde, a code confidence value of f01, a measured range value of 2345, a measured azimuth value of 19e2, a range rate value of 6a, an azimuth rate value of f3, an altitude value of 7bc, an altitude confidence value of 048, a time reference value of 56, a receive sensor ID of 1, and a send sensor ID of 0.

The eleventh message is an ATCRBS cancel request message with type code of d2, a requesting sensor track number of abc, ATCRBS code of 0, a receive sensor ID of 1, and a send sensor ID of 0.

The twelfth message is an ATCRBS cancel request message with type code of d5, a requesting sensor track number of bcd, ATCRBS code of 0, a receive sensor ID of 1, and a send sensor ID of 0.

The thirteenth message is an status message with type code of 71, a sensor status of 0, a receive sensor ID of 1, and a send sensor ID of 0.

The fourteenth message is an adjacent sensor status request message with type code of 72, a query sensor ID of 0, a receive sensor ID of 1, and a send sensor ID of 3.

The fifteenth message is an adjacent sensor status response message with type code of 73, a sensor status ID of 0, a query sensor ID of 0, a receive sensor ID of 1, and a send sensor ID of 0.

Description of Scenario CIDTST3. This scenario contains three sets of periodic messages.

The first set of messages is for Mode S ID: FAA001. There will be two standard uplink messages per second for transmission over port 1 from time 00:00 - 05:00. These messages will be 2 segments long, have a message number of 7, a priority value of 12, an expiration value of 4, and an acknowledge field of 1.

The second set of messages is for Mode S ID: FAA002. There will be three ELM uplink messages per second for transmission over port 2 from time 00:00 - 05:00. These messages will be 6 segments long, have a message number of 5, a priority value of 15, and an expiration value of 2.

The third set of messages is for Mode S ID: FAA003. There will be four downlink requests per second for transmission over port 3 from time 00:00 - 05:00. These downlink requests will have a priority value of 6, and an expiration value of 7, a BDS1 field of hex "B," and a BDS2 field of hex "D."

Description of Scenario CIDTST4. The X.25 messages transmitted by the HP-4955 in CIDTST4 consist of a series of three message types repeated 10 times each.

The first message is a standard uplink for Mode S ID: FAA001. This message has a message number of 1, a priority value of 2, an expiration value of 1, an acknowledge field of 0, and a 24-byte text field. The text field contains a set of hex "5"s.

The second message is an ELM uplink for Mode S ID: FAA002. This message has a message number of 2, a priority value of 2, an expiration value of 1, and a 223-byte text field. The text field contains a set of hex "F"s.

The third message is a request for downlink for Mode S ID: FAA003. This message has a message number of 3, a priority value of 2, an expiration value of 1, and a BDS1 and BDS2 field of hex "0"s.

Description of Scenario CIDTST5. This scenario contains four sets of miscellaneous messages for a total of 13 messages. All messages will be transmitted over port number 1.

The first set of messages is for Mode S ID: FAA001. There will be three miscellaneous ATC to Mode S messages of types: (1) standard uplink, (2) downlink request, and (3) message cancellation request.

The standard uplink message is scheduled for transmission at time 00:50. This message will be 35 bytes long, consisting of a 4-segment MA field, a priority value of 15, an expiration value of 7, and an acknowledge field of 1. The MA field will consist of 56 hex "A" characters.

The downlink request is scheduled for transmission at time 00:50. This message will be 7 bytes long, consisting of a priority value of 15, an expiration value of 7, a BDS1 field of 15, and a BDS2 field of 15.

The message cancellation request is scheduled for transmission at time 01:30. This message will be 7 bytes long, consisting of a reference message number of 1 and a reference type code of 21.

The second set of messages is for Mode S ID: FAA002. There will be three miscellaneous non-ATC to Mode S messages of types: (1) standard uplink, (2) downlink request, and (3) message cancellation request.

The standard uplink message is scheduled for transmission at time 00:20. This message will be 14 bytes long, consisting of a 1-segment MA field, a priority value of 15, an expiration value of 7, and an acknowledge field of 1. The MA field will consist of 14 hex "A" characters.

The downlink request is scheduled for transmission at time 01:00. This message will be 7 bytes long, consisting of a priority value of 15, an expiration value of 7, a BDS1 field of 15, and a BDS2 field of 15.

The message cancellation request is scheduled for transmission at time 01:40. This message will be 7 bytes long, consisting of a reference message number of 1 and a reference type code of 21.

The third set of messages is for Mode S ID: FAA003. There will be three miscellaneous ATC to Mode S messages of types: (1) ELM uplink, (2) ATCRBS ID request, and (3) data link capability request.

The ELM uplink message is scheduled for transmission at time 00:30. This message will be 87 bytes long, consisting of an 8-segment ELM text field, a priority value of 15, and an expiration value of 7. The ELM text field will consist of 160 hex "C" characters.

The ATCRBS ID request is scheduled for transmission at time 01:10. This request will be 5 bytes long.

The data link capability request is scheduled for transmission at time 01:50. This message will be 5 bytes long.

The fourth set of messages is for Mode S ID: FAA004. There will be four miscellaneous non-ATC to Mode S messages of types: (1) ELM uplink, (2) aircraft state request, (3) aircraft position, and (4) data link capability request.

The ELM uplink message is scheduled for transmission at time 00:40. This message will be 17 bytes long, consisting of a 1-segment ELM text field, a priority value of 15, and an expiration value of 7. The ELM text field will consist of 20 hex "C" characters.

The request is scheduled for aircraft state for transmission at time 01:20. This request will be 5 bytes long.

The request for aircraft position is scheduled for transmission 5 at time 01:25. This message will be 5 bytes long.

The data link capability request is scheduled for transmission at time 02:00. This message will be 5 bytes long.

Description of Scenario NOTARGET. This scenario is the null scenario and contains no messages at all, but is entered when using the CID to either only receive messages or, when using the operator, creates a message function to supply messages for transmission.

Description of Scenario SCEN7. This is the capacity loading scenario which is to be run on a six port - six 56k-baud line configuration.

Description of Scenario SCEN8. This is the capacity loading scenario which is to be run using a two port - twelve 9600-baud line configuration.

Description of Scenario SCEN9. This is the CID scenario to be run while running the BASIC42 scenario on the ARIES.

Description of Scenario CIDTST10. This scenario on the HP contains a list of 22 Mode S-to-ATC messages.

There are four standard downlink messages, (type codes 41), with Mode S IDs of FAA001, FAA002, and FAA005, message numbers 2, 15, 17, and 21, respectively, and the corresponding COMM B fields of 8, 38, 28, and 38 hex Bs, respectively.

There are four ELM downlink messages, (type codes 42), with Mode S IDs of FAA001 and FAA004, message numbers 1, 4, 6, and 9, respectively, and the corresponding ELM fields of 110, 62, 122, and 114 hex Ds, respectively.

There are four data link capability messages, (type codes 44), with Mode S IDs of FAA001, FAA002, FAA003, and FAA005, message numbers 8, 11, 12, and 20, respectively, with Basic Capability of 7, and the corresponding Extended Capability of 6666666, 6666600, 6660066, and 6006666, respectively.

There are three ATCRBS ID code messages, (type codes 45), with Mode S IDs of FAA002, FAA003, and FAA004, message numbers 7, 14, and 18, respectively, and ATCRBS IDs of hex FFF.

There are four message rejection/delay messages, (type codes 31), with Mode S IDs of FAA003, FAA004, and FAA005, reference message numbers 3, 5, 10, and 19, respectively, and the corresponding qualifier values of 4, 3, 0, and 4, respectively.

There are three uplink delivery notice messages, (type codes 32), with Mode S IDs of FAA001, FAA002, and FAA003, reference message numbers 13, 16, and 22, respectively, and the corresponding delivery indicator bits of 1, 0, and 1, respectively.

Description of Scenario HPTEST4.

The scenario contains 15 sensor-to-sensor messages with both receive sensor (RS) and send sensor (SS) IDs of 1. The RS and SS IDs are only of importance, at this time, for the CID system to respond to the messages received on line 1 and redirected back out on line 1. The types of messages are as follow:

1. type 91 - Data start message
2. type 92 - Data stop message
3. type 93 - Data request message
4. type 94 - Track data message
5. type 95 - Cancel request message
6. type 9D - Primary coordination message
7. type 9E - Track alert message
8. type D1 - Atcrbs data start message
9. type D2 - Atcrbs data stop message
10. type D3 - Atcrbs data request message
11. type D4 - Atcrbs track data message
12. type D5 - Atcrbs cancel request message
13. type 71 - Status message
14. type 72 - Adjacent sensor status request
15. type 73 - Adjacent sensor status response

APPENDIX B

WAYPOINT INPUTS

Appendix B contains the input to the scenario waypoint generator used to create the waypoint file to create the test scenarios.

Inputs to create the waypoint file for CIDTST1 and PREP1.

Waypoint filename? PREP1

Waypoint file type (T = target, S = system)? T

Add targets

Target number	TARGET1	TARGET2	TARGET3	TARGET4
Time	00:00	00:00	00:00	00:00
Coordinate type				
Range	10.	20.	30.	40.
Azimuth	20.	40.	60.	80.
Altitude	5.	10.	15.	20.
Record type	S	S	S	S
Mode-S ID	FAA001	FAA002	FAA003	FAA004
Mode-A code	1111	2222	3333	4444
Mode-2 code				
Time	00:10	00:20	00:30	00:40
Port number	1	4	2	5
Length in bytes	35	14	87	17
Type code	21	29	22	2A
Message	FFC0A...A A...A	FF00A...A	FE07C...C C...C C...C	FE00C...C
Time	00:50	01:00	01:00	01:20
Port number	3	6	1	4
Length in bytes	7	7	5	5
Type code	23	2B	24	08
Message	FEFF	FEFF		
Time	01:30	01:40	01:50	01:25
Port number	2	5	3	4
Length in bytes	7	7	5	5
Type code	25	2D	02	09
Message	0121	0121		
Time	05:00	05:00	05:00	02:00
Port number				6
Length in bytes				5
Type code				02
Message				
Time				05:00

Inputs to create the waypoint file for CIDTST2 and PREP2.

Waypoint filename? CIDTST2

Waypoint file type (T = target, S = system)? S

Time	00:10	00:20	00:30	00:40
Port number	1	1	1	1
Length in bytes	8	3	4	6
Type code	61	99	65	9A
Message	012345678 9AB	A0	1234	00FAA999

Time	00:50	01:00	01:00	01:20
Port number	1	1	1	1
Length in bytes	17	17	7	7
Type code	91	94	92	93
Message	012345678 9ABCDEF01 234567000 00800	123456789 ABCDEF012 345678000 04000	234567004 000	345678004 000

Time	01:30	01:40	01:50	02:00
Port number	1	1	1	1
Length in bytes	7	7	7	12
Type code	95	9D	9E	D3
Message	456789004 000	56789A000 800	6789AB004 000	789ABCDEF 012340000 0400

Time	02:10	02:20	02:30	02:40
Port number	1	1	1	1
Length in bytes	19	19	7	7
Type code	D4	D1	D2	D5
Message	89ABCDEF0 123456789 ABCDEF012 345004000	9ABCDEF01 23456789A BCDEF0123 456004000	ABC000004 000	BCD000004 000

Time	02:50	03:00	03:10
Port number	1	1	1
Length in bytes	4	5	5
Type code	71	72	73
Message	001000	00001000	00000400

Inputs to create the waypoint file for CIDTST3 and PREP3.

Waypoint filename? PREP3

Waypoint file type (T = target, S = system)? T

Add targets

Target number	TARGET1	TARGET2	TARGET3
Time	00:00	00:00	00:00
Coordinate type			
Range	10.	20.	30.
Azimuth	20.	40.	60.
Altitude	5.	10.	15.
Record type	S	S	S
Mode-S ID	FAA001	FAA002	FAA003
Mode-A code	1111	2222	3333
Mode-2 code			
Port number	1	2	3
Number of standard uplinks	2		
Number of ELM uplinks		3	
Number of downlink requests			4
Standard uplink default number	7		
ELM uplink default number		5	
Segment count for uplink message	2		
ELM message length in segments		6	
Priority	12	15	6
Expiration	4	2	7
Acknowledgement	1		
BDS field for standard downlink			BD
CID interval factor			
Time	05:00	05:00	05:00

APPENDIX C

WAYPOINT FILES

Appendix C contains the contents of each waypoint file
Waypoints for Test Scenario: CIDTST1.

```
*          *** TARGET NUMBER TARGET1 ***
   00:00          10.       20.    5.  S FAA001 1111
   00:10
M 1   35 21        FFC0AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
   00:50
M 3    7 23        FEFF
   01:30
M 2    7 25        0121
T  05:00

*          *** TARGET NUMBER TARGET2 ***
   00:00          20.       40.   10.  S FAA002 2222
   00:20
M 4   14 29        FF00AAAAAAAAAAAAAA
   01:00
M 6    7 2B        FEFF
   01:40
M 5    7 2D        0121
T  05:00

*          *** TARGET NUMBER TARGET3 ***
   00:00          30.       60.   15.  S FAA003 3333
   00:30
M 2   87 22        FE07CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
         CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
         CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
   01:10
M 1    5 24
   01:50
M 3    5 02
T  05:00

*          *** TARGET NUMBER TARGET4 ***
   00:00          40.       80.   20.  S FAA004 4444
   00:40
M 5   17 2A        FE00CCCCCCCCCCCCCCCCCCCC
   01:20
M 4    5 08
   01:25
M 4    5 09
   02:00
M 6    5 0A
T  05:00
E
```

Waypoints for Test Scenario: CIDTST2.

```
*              *** S MESSAGE SCENARIO ***
S  00:10 1 008  61  0123456789AB
S  00:20 1 003  99  A0
S  00:30 1 004  65  1234
S  00:40 1 006  9A  00FAA999
S  00:50 1 017  910123456789ABCDEF0123456700000800
S  01:00 1 017  94123456789ABCDEF01234567800004000
S  01:10 1 007  92234567004000
S  01:20 1 007  93345678004000
S  01:30 1 007  95456789004000
S  01:40 1 007  9D56789A000800
S  01:50 1 007  9E6789AB004000
S  02:00 1 012  D3789ABCDEF0123400000400
S  02:10 1 019  D489ABCDEF0123456789ABCDEF012345004000
S  02:20 1 019  D19ABCDEF0123456789ABCDEF0123456004000
S  02:30 1 007  D2ABC000004000
S  02:40 1 007  D5BCD000004000
S  02:50 1 004  71001000
S  03:00 1 005  7200001000
S  03:10 1 005  7300000400
```

Waypoints for Test Scenario: CIDTST3.

```
*          *** TARGET NUMBER TARGET1 ***
   00:00          10.       20.    5.  S FAA001 1111
D 1  2           7       2      12   4   1
T  05:00
*          *** TARGET NUMBER TARGET2 ***
   00:00          20.       40.   10.  S FAA001 2222
D 2      3           5       6  15   2
T  05:00
*          *** TARGET NUMBER TARGET3 ***
   00:00          30.       60.   15.  S FAA003 3333
D 3          4                    6   7      BD
T  05:00
E
```

APPENDIX D

SCENARIO CONFIGURATION FILE DESCRIPTIONS

Appendix D contains a description of the scenario configuration files.

<u>The configuration file for CIDTST1</u>. This file contains the following information for the scenario generator:

```
HEADER: CID TEST PLAN FILE #1 (MISC MESSAGES)
ARIES REPLY PROBABILITY:                95 %
ARIES TURN RATE:                         3 DEG/SEC
ARIES CLIMB RATE:                      500 FEET/MN
ARIES ACCELERATION:                     17 FEET/SEC
ARIES UPDATE TIME:                    4.70 SECONDS
C.I.D. TIME INTERVAL:                 4.70 SECONDS
ARIES (X,Y) SENSOR OFFSETS:     0.00  0.00 MILES

SOURCE FILES:
 1- CIDTST1              2-                          3-
 4-                      5-                          6-
 7-                      8-                          9-
10-                     11-                         12-
13-                     14-                         15-
16-                     17-                         18-
19-                     20-                         21-
22-                     23-                         24-
25-                     26-                         27-
28-                     29-                         30-
```

<u>The configuration file for CIDTST2</u>. This file contains the following information for the scenario generator:

```
HEADER: CID TEST PLAN SCEN (SYSTEM MESSAGES)
ARIES REPLY PROBABILITY:                95 %
ARIES TURN RATE:                         3 DEG/SEC
ARIES CLIMB RATE:                      500 FEET/MN
ARIES ACCELERATION:                     17 FEET/SEC
ARIES UPDATE TIME:                    4.70 SECONDS
C.I.D. TIME INTERVAL:                 4.70 SECONDS
ARIES (X,Y) SENSOR OFFSETS:     0.00  0.00 MILES

SOURCE FILES:
 1- CIDTS2               2-                          3-
 4-                      5-                          6-
 7-                      8-                          9-
10-                     11-                         12-
13-                     14-                         15-
16-                     17-                         18-
19-                     20-                         21-
22-                     23-                         24-
25-                     26-                         27-
28-                     29-                         30- CIDTST2
```

The configuration file for CIDTST3. This file contains the following information for the scenario generator:

```
HEADER: CID TEST PLAN SCEN (PERIODIC MESSAGES)
ARIES REPLY PROBABILITY:                 95 %
ARIES TURN RATE:                          3 DEG/SEC
ARIES CLIMB RATE:                       500 FEET/MN
ARIES ACCELERATION:                      17 FEET/SEC
ARIES UPDATE TIME:                     4.70 SECONDS
C.I.D. TIME INTERVAL:                  4.70 SECONDS
ARIES (X,Y) SENSOR OFFSETS:     0.00   0.00 MILES

SOURCE FILES:
1- CIDTST3              2-                      3-
4-                      5-                      6-
7-                      8-                      9-
10-                     11-                     12-
13-                     14-                     15-
16-                     17-                     18-
19-                     20-                     21-
22-                     23-                     24-
25-                     26-                     27-
28-                     29-                     30-
```

APPENDIX E

SCENARIO LISTINGS

Listing of CIDTST1 for test case "a."

```
time=2625 toy=00:00:09.127 d=0 refnum=0 len=35 port=1
Std uplink     : tc=21 mdsid=faa001 msgnum=01 p=f exp=7 ack=1 sc=3
aaaaaaaaaaaaaa aaaaaaaaaaaaaa aaaaaaaaaaaaaa aaaaaaaaaaaaaa

time=4c4b toy=00:00:19.127 d=0 refnum=1 len=14 port=4
Std uplink     : tc=21 mdsid=faa001 msgnum=01 p=f exp=7 ack=1 sc=3
aaaaaaaaaaaaaa

time=7270 toy=00:00:29.127 d=0 refnum=2 len=87 port=2
ELM uplink     : tc=22 mdsid=faa003 msgnum=01 p=f exp=7 length=07
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc

time=9896 toy=00:00:39.127 d=0 refnum=3 len=17 port=5
ELM uplink     : tc=2a mdsid=faa004 msgnum=01 p=f exp=7 length=00
cccccccccccccccccccc

time=bebc toy=00:00:49.127 d=0 refnum=4 len=7 port=3
Req downlink   : tc=23 mdsid=faa001 msgnum=02 p=f exp=7 bds=ff

time=e4e1 toy=00:00:59.127 d=0 refnum=5 len=7 port=6
Req downlink   : tc=2b mdsid=faa002 msgnum=02 p=f exp=7 bds=ff

time=10b07 toy=00:01:09.127 d=0 refnum=6 len=5 port=1
AID request    : tc=24 mdsid=faa003 msgnum=02

time=1312c toy=00:01:19.127 d=0 refnum=7 len=5 port=4
Req State      : tc=08 mdsid=faa004 msgnum=02

time=1443f toy=00:01:24.127 d=0 refnum=8 len=5 port=4
Req Pos        : tc=09 mdsid=faa004 msgnum=03

time=15752 toy=00:01:29.127 d=0 refnum=9 len=7 port=2
Msg cancel     : tc=25 mdsid=faa001 msgnum=03 refmsgnum=01 reftc=21

time=17d78 toy=00:01:39.127 d=0 refnum=a len=7 port=5
Msg cancel     : tc=2d mdsid=faa002 msgnum=03 refmsgnum=01 reftc=21

time=1a39d toy=00:01:49.127 d=0 refnum=b len=5 port=3
DL cap req     : tc=02 mdsid=faa003 msgnum=03

time=1c9c3 toy=00:01:59.127 d=0 refnum=c len=5 port=6
DL cap req     : tc=02 mdsid=faa004 msgnum=04
```

Loading Statistics for CIDTST1.

Type Code	*******Input****** Messages	Bytes	******Output******* Messages	Bytes
02	2	10	0	0
08	1	5	0	0
09	1	5	0	0
21	1	35	0	0
22	1	87	0	0
23	1	7	0	0
24	1	5	0	0
25	1	7	0	0
29	1	14	0	0
2a	1	17	0	0
2b	1	7	0	0
2d	1	7	0	0
Total	13	206	0	0

Port	*******Input****** Messages	Bytes	******Output******* Messages	Bytes
1	2	40	0	0
2	2	94	0	0
3	2	12	0	0
4	3	24	0	0
5	2	24	0	0
6	2	12	0	0
Total	13	206	0	0

	*******Input****** Messages	Bytes	******Output******* Messages	Bytes
001	3	49	0	0
002	3	28	0	0
003	3	97	0	0
004	4	32	0	0
Total	13	206	0	0

Listing of CIDTST1 for test case "b."

```
time=7270 toy=00:00:29.127 d=0 refnum=2 len=87 port=2
ELM uplink     : tc=22 mdsid=faa003 msgnum=01 p=f exp=7 length=07
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc

time=9896 toy=00:00:39.127 d=0 refnum=3 len=17 port=5
ELM uplink     : tc=2a mdsid=faa004 msgnum=01 p=f exp=7 length=00
cccccccccccccccccccc

time=bebc toy=00:00:49.127 d=0 refnum=4 len=7 port=3
Req downlink   : tc=23 mdsid=faa001 msgnum=02 p=f exp=7 bds=ff

time=e4e1 toy=00:00:59.127 d=0 refnum=5 len=7 port=6
Req downlink   : tc=2b mdsid=faa002 msgnum=02 p=f exp=7 bds=ff

time=10b07 toy=00:01:09.127 d=0 refnum=6 len=5 port=1
AID request    : tc=24 mdsid=faa003 msgnum=02

time=1312c toy=00:01:19.127 d=0 refnum=7 len=5 port=4
Req State      : tc=08 mdsid=faa004 msgnum=02

time=1443f toy=00:01:24.127 d=0 refnum=8 len=5 port=4
Req Pos        : tc=09 mdsid=faa004 msgnum=03

time=15752 toy=00:01:29.127 d=0 refnum=9 len=7 port=2
Msg cancel     : tc=25 mdsid=faa001 msgnum=03 refmsgnum=01 reftc=21
```

Listing of CIDTST1 for test case "c."

```
time=7270 toy=00:00:29.127 d=0 refnum=2 len=87 port=2
ELM uplink     : tc=22 mdsid=faa003 msgnum=01 p=f exp=7 length=07
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc

time=e4e1 toy=00:00:59.127 d=0 refnum=5 len=7 port=6
Req downlink   : tc=2b mdsid=faa002 msgnum=02 p=f exp=7 bds=ff

time=10b07 toy=00:01:09.127 d=0 refnum=6 len=5 port=1
AID request    : tc=24 mdsid=faa003 msgnum=02
```

Listing of CIDTST1 for test case "d."

```
time=7270 toy=00:00:29.127 d=0 refnum=2 len=87 port=2
ELM uplink     : tc=22 mdsid=faa003 msgnum=01 p=f exp=7 length=07
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc

time=10b07 toy=00:01:09.127 d=0 refnum=6 len=5 port=1
AID request    : tc=24 mdsid=faa003 msgnum=02
```

Listing of CIDTST1 for test case "e."

```
time=7270 toy=00:00:29.127 d=0 refnum=2 len=87 port=2
ELM uplink     : tc=22 mdsid=faa003 msgnum=01 p=f exp=7 length=07
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc
```

Listing for CIDTST2 test case "a."

```
time=2625 toy=00:00:09.127/128 d=0 refnum=0 len=8 port=1
Test Message  : tc=61 msgnum=01 testdata=0123456789ab

time=4c4b toy=00:00:19.127/128 d=0 refnum=1 len=3 port=1
ATC fail rec  : tc=99 msgnum=02 state=2

time=7270 toy=00:00:29.127/128 d=0 refnum=2 len=4 port=1
Sensor F/R Ms.: tc=65 msgnum=03 sid=048 sstat= 4

time=9896 toy=00:00:39.127/128 d=0 refnum=3 len=6 port=1
Control State : tc=9a msgnum=04 ip=0 is=0 iu=0

time=bebc toy=00:00:49.127/128 d=0 refnum=4 len=16 port=1
Start Message : tc=91 mdsid=012345 m_range=6789 m_azi=2bcd range_r=ef azi_r=01
alt=234 time_ref=67 ca=0 rsid=000 ssid=004

time=e4e1 toy=00:00:59.127/128 d=0 refnum=5 len=16 port=1
Trk Data Msg  : tc=94 mdsid=123456 m_range=789a m_azi=3cde range_r=f0 azi_r=12
alt=345 time_ref=78 rsid=000 ssid=004

time=10b07 toy=00:01:09.127/128 d=0 refnum=6 len=7 port=1
Data Stop Msg : tc=92 mdsid=234567 rsid=001 ssid=000

time=1312c toy=00:01:19.127/128 d=0 refnum=7 len=7 port=1
Data Req Msg  : tc=93 mdsid=345678 rsid=001 ssid=000

time=15752 toy=00:01:29.127/128 d=0 refnum=8 len=7 port=1
Cancel Req Msg: tc=95 mdsid=456789 rsid=001 ssid=000

time=17d78 toy=00:01:39.127/128 d=0 refnum=9 len=7 port=1
Primary Coor. : tc=9d mdsid=56789a val=0 rsid=001 ssid=000

time=1a39d toy=00:01:49.127/128 d=0 refnum=a len=7 port=1
Track Alert   : tc=9e mdsid=6789ab rsid=001 ssid=000

time=1c9c3 toy=00:01:59.127/128 d=0 refnum=b len=12 port=1
ATC Data Req  : tc=d3 req_sr=789 atc_cd=abc range=def0 azi=1234 alt=000
rsid=001 ssid=000

time=1efe9 toy=00:02:09.127/128 d=0 refnum=c len=19 port=1
ATC Track Data: tc=d4 req_sr=89a atc_cd=bcd con_cd=ef0 m_range=1234 m_azi=159e
range_r=26 azi_r=af alt=37b con_alt=c04
--------------> time_ref=45 rsid=001 ssid=000

time=2160e toy=00:02:19.127/128 d=0 refnum=d len=19 port=1
ATC Start Data: tc=d1 req_sr=9ab atc_cd=cde con_cd=f01 m_range=2345 m_azi=19e2
range_r=6a azi_r=f3 alt=7bc con_alt=048
--------------> time_ref=56 rsid=001 ssid=000
```

```
time=23c34 toy=00:02:29.127/128 d=0 refnum=e len=7 port=1
ATC Cancel Req: tc=d2 req_sr=abc atc_cd=000 rsid=001 ssid=000

time=26259 toy=00:02:39.127/128 d=0 refnum=f len=7 port=1
ATC Cancel Req: tc=d5 req_sr=bcd atc_cd=000 rsid=001 ssid=000

time=2887f toy=00:02:49.127/128 d=0 refnum=10 len=4 port=1
Status Message: tc=71 sstat=0 rsid=001 ssid=000

time=2aea5 toy=00:02:59.127/128 d=0 refnum=11 len=5 port=1
Adj S S Req   : tc=72 qsid=000 rsid=001 ssid=03x

time=2d4ca toy=00:03:09.127/128 d=0 refnum=12 len=5 port=1
Adj S S Res   : tc=73 sstat=0 qsid=000 rsid=001 ssid=000
```

Loading statistics for CIDTST2.

	*******Input******		******Output******	
Type Code	Messages	Bytes	Messages	Bytes
61	1	8	0	0
65	1	4	0	0
71	1	4	0	0
72	1	5	0	0
73	1	5	0	0
91	1	16	0	0
92	1	7	0	0
93	1	7	0	0
94	1	16	0	0
95	1	7	0	0
99	1	3	0	0
9a	1	6	0	0
9d	1	7	0	0
9e	1	7	0	0
d1	1	19	0	0
d2	1	7	0	0
d3	1	12	0	0
d4	1	19	0	0
d5	1	7	0	0
Total	19	166	0	0

	*******Input******		******Output******	
Port	Messages	Bytes	Messages	Bytes
1	19	166	0	0
Total	19	166	0	0

	*******Input******		******Output******	
Track	Messages	Bytes	Messages	Bytes
345	1	16	0	0
456	1	16	0	0
567	1	7	0	0
678	1	7	0	0
789	1	7	0	0
89a	1	7	0	0
9ab	1	7	0	80
Total	7	67	0	0

Listing for CIDTST3.

Type Code	*******Input******		******Output******	
	Messages	Bytes	Messages	Bytes
21	128	4032	0	0
22	192	12864	0	0
23	256	1792	0	0
Total	576	18688	0	0

Port	*******Input******		******Output******	
	Messages	Bytes	Messages	Bytes
1	128	4032	0	0
2	192	12864	0	0
3	256	1792	0	0
Total	576	18688	0	0

Track	*******Input******		******Output******	
	Messages	Bytes	Messages	Bytes
001	128	4032	0	0
002	192	12864	0	0
003	256	1792	0	0
Total	576	18688	0	0

APPENDIX F

CIDINIT DESCRIPTIONS AND LISTINGS

Appendix F contains descriptions of the CID initialization files used.

Description of CID initialization file: CIDINIT1.

This CID initialization file will enable the CID with six ports; each port consisting of one 56k baud line.

Description of CID initialization file: CIDINIT2.

This CID initialization file will enable the CID with two ports; each port consisting of six 9600 baud lines.

Description of CID initialization file: CIDINIT3.

This CID initialization file will enable the CID with six ports; five ports of one 56k baud line each and one port of six 9600 baud lines.

Description of CID initialization file: CIDINIT4.

This CID initialization file will enable the CID with one port. The single port will consist of line 0 operating at 56k baud.

Extraction Listing for CIDINIT1.

```
INITIAL TOY time=1 toy=00:58:01.25 len=4
0000f000

SCENARIO NAME time=1 toy=00:58:01.25 len=8
NOTARGET

CONFIG NAME time=1 toy=00:58:01.25 len=8
CIDINIT1

TRACK NAME time=1 toy=00:58:01.25 len=8

X25 CONFIG time=1 toy=00:58:01.25 len=24
ffffffff ffffffff ffffffff 00010002 00030004 00050006

X25 BAUD time=1 toy=00:58:01.25 len=12
01010101 01010101 01010101

X25 DEFAULT time=1 toy=00:58:01.25 len=36
00000000 42414238 42414241 42414241 42414241 42414241 42414200 00000000 00000000

X25 DEFAULT time=1 toy=00:58:01.25 len=36
00000001 43424338 43424342 43424342 43424342 43424342 43424300 00000000 00000000

X25 DEFAULT time=1 toy=00:58:01.25 len=36
00000002 44434438 44434443 44434443 44434443 44434443 44434400 00000000 00000000
```

```
X25 DEFAULT time=2 toy=00:58:01.25 len=36
00000003 45444538 45444544 45444544 45444544 45444544 45444500 00000000 00000000

X25 DEFAULT time=2 toy=00:58:01.25 len=36
00000004 46454638 46454645 46454645 46454645 46454645 46454600 00000000 00000000

X25 DEFAULT time=2 toy=00:58:01.25 len=36
00000005 47464738 47464746 47464746 47464746 47464746 47464700 00000000 00000000

X25 DEFAULT time=2 toy=00:58:01.25 len=36
00000006 48474838 48474847 48474847 48474847 48474847 48474800 00000000 00000000

X25 DEFAULT time=2 toy=00:58:01.25 len=36
00000007 49484938 49484948 49484948 49484948 49484948 49484900 00000000 00000000
X25 DEFAULT time=2 toy=00:58:01.25 len=648
00000008 32313238 32313231 32313231 32313231 32313231 32313231 32313231 32313231
31313131 31313131 31313131 31313131 31313131 31313131 31313131 31313131 31313131
... 11 more rows of 12 groups of 31313131 ...
31313131 31313131 31313131 31313100 00000000 00000000

X25 DEFAULT time=3 toy=00:58:01.25 len=648
00000009 33323338 33323332 33323332 33323332 33323332 33323332 33323332 33323332
32323232 32323232 32323232 32323232 32323232 32323232 32323232 32323232 32323232
... 11 more rows of 12 groups of 32323232 ...
32323232 32323232 32323232 32323200 00000000 00000000
X25 DEFAULT time=4 toy=00:58:01.25 len=648
0000000a 34333438 34333433 34333433 34333433 34333433 34333433 34333433 34333433
33333333 33333333 33333333 33333333 33333333 33333333 33333333 33333333 33333333
... 11 more rows of 12 groups of 33333333 ...
33333333 33333333 33333333 33333300 00000000 00000000

X25 DEFAULT time=5 toy=00:58:01.25 len=648
0000000b 35343538 35343534 35343534 35343534 35343534 35343534 35343534 35343534
34343434 34343434 34343434 34343434 34343434 34343434 34343434 34343434 34343434
... 11 more rows of 12 groups of 34343434 ...
34343434 34343434 34343434 34343400 00000000 00000000

X25 DEFAULT time=6 toy=00:58:01.25 len=648
0000000c 36353638 36353635 36353635 36353635 36353635 36353635 36353635 36353635
35353535 35353535 35353535 35353535 35353535 35353535 35353535 35353535 35353535
... 11 more rows of 12 groups of 35353535 ...
35353535 35353535 35353535 35353500 00000000 00000000

X25 DEFAULT time=7 toy=00:58:01.25 len=648
0000000d 37363738 37363736 37363736 37363736 37363736 37363736 37363736 37363736
36363636 36363636 36363636 36363636 36363636 36363636 36363636 36363636 36363636
... 11 more rows of 12 groups of 36363636 ...
36363636 36363636 36363636 36363600 00000000 00000000

X25 DEFAULT time=9 toy=00:58:01.25 len=648
0000000e 38373838 38373837 38373837 38373837 38373837 38373837 38373837 38373837
37373737 37373737 37373737 37373737 37373737 37373737 37373737 37373737 37373737
... 11 more rows of 12 groups of 37373737 ...
37373737 37373737 37373737 37373700 00000000 00000000
```

```
X25 DEFAULT time=a toy=00:58:01.25 len=648
0000000f 39383938 39383938 39383938 39383938 39383938 39383938 39383938 39383938
38383838 38383838 38383838 38383838 38383838 38383838 38383838 38383838 38383838
... 11 more rows of 12 groups of 38383838 ...
38383838 38383838 38383838 38383800 00000000 00000000
```

APPENDIX G

EXTRACTION LISTINGS

Extraction Listing for CIDTST1 test "a."

```
INITIAL TOY time=1 toy=09:37:32.26 len=4
00007109

SCENARIO NAME time=1 toy=09:37:32.26 len=8
CIDTST1

CONFIG NAME time=1 toy=09:37:32.26 len=8
CIDINIT6

TRACK NAME time=1 toy=09:37:32.26 len=8

X25 CONFIG time=1 toy=09:37:32.26 len=24
ffffffff ffffffff ffffffff 00010002 00030004 00050006

X25 BAUD time=1 toy=09:37:32.26 len=12
01010101 01010101 01010101

X25 DEFAULT time=1 toy=09:37:32.26 len=36
00000000 42414238 42414241 42414241 42414241 42414241 42414200 00000000 00000000

X25 DEFAULT time=1 toy=09:37:32.26 len=36
00000001 43424338 43424342 43424342 43424342 43424342 43424300 00000000 00000000

X25 DEFAULT time=1 toy=09:37:32.26 len=36
00000002 44434438 44434443 44434443 44434443 44434443 44434400 00000000 00000000

X25 DEFAULT time=2 toy=09:37:32.26 len=36
00000003 45444538 45444544 45444544 45444544 45444544 45444500 00000000 00000000

X25 DEFAULT time=2 toy=09:37:32.26 len=36
00000004 46454638 46454645 46454645 46454645 46454645 46454600 00000000 00000000

X25 DEFAULT time=2 toy=09:37:32.26 len=36
00000005 47464738 47464746 47464746 47464746 47464746 47464700 00000000 00000000

X25 DEFAULT time=2 toy=09:37:32.26 len=36
00000006 48474838 48474847 48474847 48474847 48474847 48474800 00000000 00000000

X25 DEFAULT time=2 toy=09:37:32.26 len=36
00000007 49484938 49484948 49484948 49484948 49484948 49484900 00000000 00000000

X25 DEFAULT time=2 toy=09:37:32.26 len=648
00000008 32313238 32313231  (6 groups of "32313231")  32313200 31313131 31313131
(144 groups of "31313131")
31313131 31313131 31313131 31313100 00000000 00000000
```

```
X25 DEFAULT time-3 toy-09:37:32.26 len-648
00000009 33323338 33323332  (6 groups of "33323332")  33323300 32323232 32323232
(144 groups of "32323232")
32323232 32323232 32323232 32323200 00000000 00000000

X25 DEFAULT time-4 toy-09:37:32.28 len-648
0000000a 34333438 34333433  (6 groups of "34333433")  34333400 33333333 33333333
(144 groups of "33333333")
33333333 33333333 33333333 33333300 00000000 00000000

X25 DEFAULT time-5 toy-09:37:32.28 len-648
0000000b 35343538 35343534  (6 groups of "35343534")  35343500 34343434 34343434
(144 groups of "34343434")
34343434 34343434 34343434 34343400 00000000 00000000

X25 DEFAULT time-6 toy-09:37:32.28 len-648
0000000c 36353638 36353635  (6 groups of "36353635")  36353600 35353535 35353535
(144 groups of "35353535")
35353535 35353535 35353535 35353500 00000000 00000000

X25 DEFAULT time-7 toy-09:37:32.28 len-648
0000000d 37363738 37363736  (6 groups of "37363736")  37363700 36363636 36363636
(144 groups of "36363636")
36363636 36363636 36363636 36363600 00000000 00000000

X25 DEFAULT time-9 toy-09:37:32.28 len-648
0000000e 38373838 38373837  (6 groups of "38373837")  38373800 37373737 37373737
(144 groups of "37373737")
37373737 37373737 37373737 37373700 00000000 00000000

X25 DEFAULT time-a toy-09:37:32.28 len-648
0000000f 39383938 39383938  (6 groups of "39383938")  39383900 38383838 38383838
(144 groups of "38383838")
38383838 38383838 38383838 38380000 00000000 00000000

ERRORS time-3d0 toy-09:37:33.26 len-120
00000000 00000000 00000000  (6 groups of "00000000")  00000000 00000000 00000000
00000000 00000000 00000000  (6 groups of "00000000")  00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000

X25 ERRORS time-3d0 toy-09:37:33.26 len-336
00000000 00000000 00000000  (6 groups of "00000000")  00000000 00000000 00000000
(72 groups of "00000000")

INPUT MESSAGE line-a time-1333 toy-09:37:37.31 len-35
Std uplink    : tc-21 mdsid-faa001 msgnum-01 p-f exp-7 ack-1 sc-3
aaaaaaaaaaaaaa aaaaaaaaaaaaaa aaaaaaaaaaaaaa aaaaaaaaaaaaaa

OUTPUT MESSAGE time-2625 toy-09:37:42.26 len-35
d-0 refnum-0 line-6 code-0
Std uplink    : tc-21 mdsid-faa001 msgnum-01 p-f exp-7 ack-1 sc-3
aaaaaaaaaaaaaa aaaaaaaaaaaaaa aaaaaaaaaaaaaa aaaaaaaaaaaaaa
```

```
INPUT MESSAGE line=9 time=3958 toy=09:37:47.31 len=14
Std uplink     : tc=29 mdsid=faa002 msgnum=01 p=f exp=7 ack=1 sc=0
aaaaaaaaaaaaaa

OUTPUT MESSAGE time=4c4f toy=09:37:52.28 len=14
d=0 refnum=1 line=9 code=0
Std uplink     : tc=29 mdsid=faa002 msgnum=01 p=f exp=7 ack=1 sc=0
aaaaaaaaaaaaaa

INPUT MESSAGE line=b time=5f8b toy=09:37:57.33 len=87
ELM uplink     : tc=22 mdsid=faa003 msgnum=01 p=f exp=7 length=07
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc

OUTPUT MESSAGE time=7279 toy=09:38:02.28 len=87
d=0 refnum=2 line=7 code=0
ELM uplink     : tc=22 mdsid=faa003 msgnum=01 p=f exp=7 length=07
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc

INPUT MESSAGE line=6 time=85a2 toy=09:38:07.31 len=17
ELM uplink     : tc=2a mdsid=faa004 msgnum=01 p=f exp=7 length=00
cccccccccccccccccccc

OUTPUT MESSAGE time=9899 toy=09:38:12.26 len=17
d=0 refnum=3 line=a code=0
ELM uplink     : tc=2a mdsid=faa004 msgnum=01 p=f exp=7 length=00
cccccccccccccccccccc

INPUT MESSAGE line=8 time=abce toy=09:38:17.31 len=7
Req downlink   : tc=23 mdsid=faa001 msgnum=02 p=f exp=7 bds=ff

OUTPUT MESSAGE time=bec3 toy=09:38:22.28 len=7
d=0 refnum=4 line=8 code=0
Req downlink   : tc=23 mdsid=faa001 msgnum=02 p=f exp=7 bds=ff

INPUT MESSAGE line=7 time=d1ec toy=09:38:27.31 len=7
Req downlink   : tc=2b mdsid=faa002 msgnum=02 p=f exp=7 bds=ff

OUTPUT MESSAGE time=e4e3 toy=09:38:32.26 len=7
d=0 refnum=5 line=b code=0
Req downlink   : tc=2b mdsid=faa002 msgnum=02 p=f exp=7 bds=ff

INPUT MESSAGE line=a time=f818 toy=09:38:37.31 len=5
AID req        : tc=24 mdsid=faa003 msgnum=02

OUTPUT MESSAGE time=10b0d toy=09:38:42.28 len=5
d=0 refnum=6 line=6 code=0
AID req        : tc=24 mdsid=faa003 msgnum=02

INPUT MESSAGE line=9 time=11e36 toy=09:38:47.31 len=5
Req State      : tc=08 mdsid=faa004 msgnum=02
```

```
OUTPUT MESSAGE time=1312d toy=09:38:52.26 len=5
d=0 refnum=7 line=9 code=0
Req State      : tc=08 mdsid=faa004 msgnum=02

INPUT MESSAGE line=9 time=13153 toy=09:38:52.31 len=5
Req Pos        : tc=09 mdsid=faa004 msgnum=03

OUTPUT MESSAGE time=14447 toy=09:38:57.28 len=5
d=0 refnum=8 line=9 code=0
Req Pos        : tc=09 mdsid=faa004 msgnum=03

INPUT MESSAGE line=b time=14462 toy=09:38:57.31 len=7
Msg cancel     : tc=25 mdsid=faa001 msgnum=03 refmsgnum=01 reftc=21

OUTPUT MESSAGE time=15757 toy=09:39:02.28 len=7
d=0 refnum=9 line=7 code=0
Msg cancel     : tc=25 mdsid=faa001 msgnum=03 refmsgnum=01 reftc=21

INPUT MESSAGE line=6 time=16a8e toy=09:39:07.31 len=7
Msg cancel     : tc=2d mdsid=faa002 msgnum=03 refmsgnum=01 reftc=21

OUTPUT MESSAGE time=17d82 toy=09:39:12.28 len=7
d=0 refnum=a line=a code=0
Msg cancel     : tc=2d mdsid=faa002 msgnum=03 refmsgnum=01 reftc=21

INPUT MESSAGE line=8 time=190ac toy=09:39:17.31 len=5
DL cap req     : tc=02 mdsid=faa003 msgnum=03

OUTPUT MESSAGE time=1a3a1 toy=09:39:22.26 len=5
d=0 refnum=b line=8 code=0
DL cap req     : tc=02 mdsid=faa003 msgnum=03

INPUT MESSAGE line=7 time=1b6d1 toy=09:39:27.31 len=5
DL cap req     : tc=02 mdsid=faa004 msgnum=04

OUTPUT TERM time=1c9cc toy=09:39:32.28 len=4
7fffffff

OUTPUT MESSAGE time=1c9cc toy=09:39:32.28 len=5
d=0 refnum=c line=b code=0
DL cap req     : tc=02 mdsid=faa004 msgnum=04

FINAL TOY time=28950 toy=09:40:22.54 len=4
00007109
```

Logical record	Record count
16	2
17	2
18	2
19	3
20	2
21	2
30	13
32	1
50	1
51	1
52	16
91	170
92	170
95	1
96	1
97	1
98	1
99	1
Total	390

	*******Input******		******Output******	
Type Code	Messages	Bytes	Messages	Bytes
02	2	10	2	10
08	1	5	1	5
09	1	5	1	5
21	1	35	1	35
22	1	87	1	87
23	1	7	1	7
24	1	5	1	5
25	1	7	1	7
29	1	14	1	14
2a	1	17	1	17
2b	1	7	1	7
2d	1	7	1	7
Total	13	206	13	206

	*******Input******		******Output******	
Port	Messages	Bytes	Messages	Bytes
1	2	24	2	40
2	2	12	2	94
3	2	12	2	12
4	3	24	3	24
5	2	40	2	24
6	2	94	2	12
Total	13	206	13	206

Line	*******Input****** Messages	Bytes	******Output****** Messages	Bytes
6	2	24	2	40
7	2	12	2	94
8	2	12	2	12
9	3	24	3	24
a	2	40	2	24
b	2	94	2	12
Total	13	206	13	206

Track	*******Input****** Messages	Bytes	******Output****** Messages	Bytes
001	3	49	3	49
002	3	28	3	28
003	3	97	3	97
004	4	32	4	32
Total	13	206	13	206

Time between messages in 1/128 seconds

Delta time	Record count
0	9
1	4

<u>Extraction Listing for CIDTST1 test "b."</u>

```
ERRORS time=5f50 toy=09:37:57.26 len=120
00000000 00000000 00000000  (6 groups of "00000000")  00000000 00000000 00000000
00000000 00000000 00000000  (6 groups of "00000000")  00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000

X25 ERRORS time=5f50 toy=09:37:57.26 len=336
00000000 00000000 00000000  (6 groups of "00000000")  00000000 00000000 00000000
(72 groups of "00000000")

INPUT MESSAGE line=b time=5f8b toy=09:37:57.33 len=87
ELM uplink    : tc=22 mdsid=faa003 msgnum=01 p=f exp=7 length=07
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc

OUTPUT MESSAGE time=7279 toy=09:38:02.28 len=87
d=0 refnum=2 line=7 code=0
ELM uplink    : tc=22 mdsid=faa003 msgnum=01 p=f exp=7 length=07
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc

INPUT MESSAGE line=6 time=85a2 toy=09:38:07.31 len=17
ELM uplink    : tc=2a mdsid=faa004 msgnum=01 p=f exp=7 length=00
cccccccccccccccccccc
```

```
OUTPUT MESSAGE time=9899 toy=09:38:12.26 len=17
d=0 refnum=3 line=a code=0
ELM uplink     : tc=2a mdsid=faa004 msgnum=01 p=f exp=7 length=00
cccccccccccccccccccc

INPUT MESSAGE line=8 time=abce toy=09:38:17.31 len=7
Req downlink   : tc=23 mdsid=faa001 msgnum=02 p=f exp=7 bds=ff

OUTPUT MESSAGE time=bec3 toy=09:38:22.28 len=7
d=0 refnum=4 line=8 code=0
Req downlink   : tc=23 mdsid=faa001 msgnum=02 p=f exp=7 bds=ff

INPUT MESSAGE line=7 time=d1ec toy=09:38:27.31 len=7
Req downlink   : tc=2b mdsid=faa002 msgnum=02 p=f exp=7 bds=ff

OUTPUT MESSAGE time=e4e3 toy=09:38:32.26 len=7
d=0 refnum=5 line=b code=0
Req downlink   : tc=2b mdsid=faa002 msgnum=02 p=f exp=7 bds=ff

INPUT MESSAGE line=a time=f818 toy=09:38:37.31 len=5
AID req        : tc=24 mdsid=faa003 msgnum=02

OUTPUT MESSAGE time=10b0d toy=09:38:42.28 len=5
d=0 refnum=6 line=6 code=0
AID req        : tc=24 mdsid=faa003 msgnum=02

INPUT MESSAGE line=9 time=11e36 toy=09:38:47.31 len=5
Req State      : tc=08 mdsid=faa004 msgnum=02

OUTPUT MESSAGE time=1312d toy=09:38:52.26 len=5
d=0 refnum=7 line=9 code=0
Req State      : tc=08 mdsid=faa004 msgnum=02

INPUT MESSAGE line=9 time=13153 toy=09:38:52.31 len=5
Req Pos        : tc=09 mdsid=faa004 msgnum=03

OUTPUT MESSAGE time=14447 toy=09:38:57.28 len=5
d=0 refnum=8 line=9 code=0
Req Pos        : tc=09 mdsid=faa004 msgnum=03

INPUT MESSAGE line=b time=14462 toy=09:38:57.31 len=7
Msg cancel     : tc=25 mdsid=faa001 msgnum=03 refmsgnum=01 reftc=21
```

<u>Extraction Listing for CIDTST1 test "c."</u>

```
ERRORS time=5f50 toy=09:37:57.26 len=120
00000000 00000000 00000000  (6 groups of "00000000")  00000000 00000000 00000000
00000000 00000000 00000000  (6 groups of "00000000")  00000000 00000000 00000000
00000000 0000Q000 00000000 00000000 00000000 00000000

X25 ERRORS time=5f50 toy=09:37:57.26 len=336
00000000 00000000 00000000  (6 groups of "00000000")  00000000 00000000 00000000
(72 groups of "00000000")
```

```
INPUT MESSAGE line=b time=5f8b toy=09:37:57.33 len=87
ELM uplink     : tc=22 mdsid=faa003 msgnum=01 p=f exp=7 length=07
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc

OUTPUT MESSAGE time=7279 toy=09:38:02.28 len=87
d=0 refnum=2 line=7 code=0
ELM uplink     : tc=22 mdsid=faa003 msgnum=01 p=f exp=7 length=07
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc

INPUT MESSAGE line=7 time=dlec toy=09:38:27.31 len=7
Req downlink   : tc=2b mdsid=faa002 msgnum=02 p=f exp=7 bds=ff

OUTPUT MESSAGE time=e4e3 toy=09:38:32.26 len=7
d=0 refnum=5 line=b code=0
Req downlink   : tc=2b mdsid=faa002 msgnum=02 p=f exp=7 bds=ff

INPUT MESSAGE line=a time=f818 toy=09:38:37.31 len=5
AID req        : tc=24 mdsid=faa003 msgnum=02

OUTPUT MESSAGE time=10b0d toy=09:38:42.28 len=5
d=0 refnum=6 line=6 code=0
AID req        : tc=24 mdsid=faa003 msgnum=02
```

Extraction Listing for CIDTST1 test "d."

```
ERRORS time=5f50 toy=09:37:57.26 len=120
00000000 00000000 00000000  (6 groups of "00000000")  00000000 00000000 00000000
00000000 00000000 00000000  (6 groups of "00000000")  00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000

X25 ERRORS time=5f50 toy=09:37:57.26 len=336
00000000 00000000 00000000  (6 groups of "00000000")  00000000 00000000 00000000
(72 groups of "00000000")

INPUT MESSAGE line=b time=5f8b toy=09:37:57.33 len=87
ELM uplink     : tc=22 mdsid=faa003 msgnum=01 p=f exp=7 length=07
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc

OUTPUT MESSAGE time=7279 toy=09:38:02.28 len=87
d=0 refnum=2 line=7 code=0
ELM uplink     : tc=22 mdsid=faa003 msgnum=01 p=f exp=7 length=07
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc
```

Extraction listing for CIDTST2 test "a."

```
INITIAL TOY time=1 toy=21:22:33.118/128 len=4
0000fffe

SCENARIO NAME time=1 toy=21:22:33.118/128 len=8
CIDTST2

CONFIG NAME time=1 toy=21:22:33.118/128 len=8
CIDINIT9

TRACK NAME time=1 toy=21:22:33.118/128 len=8

X25 CONFIG time=1 toy=21:22:33.118/128 len=24
00010002 ffffffff ffffffff ffffffff ffffffff ffffffff

X25 BAUD time=1 toy=21:22:33.118/128 len=12
00000101 01010101 01010101

X25 DEFAULT time=1 toy=21:22:33.118/128 len=36
00000000 41414100 41414141 41414141 41414141 41414141 41414141 00000000 00000000

X25 DEFAULT time=1 toy=21:22:33.118/128 len=36
00000001 42424200 42424242 42424242 42424242 42424242 42424242 00000000 00000000

X25 DEFAULT time=1 toy=21:22:33.118/128 len=36
00000002 43434300 43434343 43434343 43434343 43434343 43434343 00000000 00000000

X25 DEFAULT time=1 toy=21:22:33.118/128 len=36
00000003 44444400 44444444 44444444 44444444 44444444 44444444 00000000 00000000

X25 DEFAULT time=2 toy=21:22:33.118/128 len=36
00000004 45454500 45454545 45454545 45454545 45454545 45454545 00000000 00000000

X25 DEFAULT time=2 toy=21:22:33.118/128 len=36
00000005 46464600 46464646 46464646 46464646 46464646 46464646 00000000 00000000

X25 DEFAULT time=2 toy=21:22:33.118/128 len=36
00000006 47474700 47474747 47474747 47474747 47474747 47474747 00000000 00000000

X25 DEFAULT time=2 toy=21:22:33.118/128 len=36
00000007 48484800 48484848 48484848 48484848 48484848 48484848 00000000 00000000

X25 DEFAULT time=2 toy=21:22:33.118/128 len=648
00000008 31313100
(145 groups of "31313131")

X25 DEFAULT time=3 toy=21:22:33.118/128 len=648
00000009 32323200
(145 groups of "32323232")

X25 DEFAULT time=4 toy=21:22:33.118/128 len=648
0000000a 33333300
(145 groups of "33333333")
```

```
X25 DEFAULT time=5 toy=21:22:33.118/128 len=648
0000000b 34343400
(145 groups of "34343434")

X25 DEFAULT time=6 toy=21:22:33.118/128 len=648
0000000c 35353500
(145 groups of "35353535")

X25 DEFAULT time=7 toy=21:22:33.118/128 len=648
0000000d 36363600
(145 groups of "36363636")

X25 DEFAULT time=8 toy=21:22:33.118/128 len=648
0000000e 37373700
(145 groups of "37373737")

X25 DEFAULT time=9 toy=21:22:33.118/128 len=648
0000000f 38383800
(145 groups of "38383838")

ERRORS time=3d0 toy=21:22:34.118/128 len=120
(30 groups of "00000000")

X25 ERRORS time=3d0 toy=21:22:34.118/128 len=336
00000000 00000000 00010000 00000000 00000000 00000001 00000000 00000000 00000000
00010000 00000000 00000000
(72 groups of "00000000")

OUTPUT MESSAGE time=262a toy=21:22:43.115/128 len=8
d=0 refnum=0 line=0 code=0
Test Message  : tc=61 msgnum=01 testdata=0123456789ab

INPUT MESSAGE line=1 time=263b toy=21:22:43.118/128 len=8
Test Message  : tc=61 msgnum=01 testdata=0123456789ab

OUTPUT MESSAGE time=4c54 toy=21:22:53.115/128 len=3
d=0 refnum=1 line=0 code=0
ATC fail rec  : tc=99 msgnum=02 state=2

INPUT MESSAGE line=1 time=4c60 toy=21:22:53.118/128 len=3
ATC fail rec  : tc=99 msgnum=02 state=2

OUTPUT MESSAGE time=7274 toy=21:23:03.115/128 len=4
d=0 refnum=2 line=0 code=0
Sensor F/R Ms.: tc=65 msgnum=03 sid=048 sstat= 4

INPUT MESSAGE line=1 time=7285 toy=21:23:03.118/128 len=4
Sensor F/R Ms.: tc=65 msgnum=03 sid=048 sstat= 4

OUTPUT MESSAGE time=989e toy=21:23:13.115/128 len=6
d=0 refnum=3 line=0 code=0
Control State : tc=9a msgnum=04 ip=0 is=0 iu=0
```

```
INPUT MESSAGE line=1 time=98aa toy=21:23:13.118/128 len=6
Control State : tc=9a msgnum=04 ip=0 is=0 iu=0

OUTPUT MESSAGE time=bebe toy=21:23:23.115/128 len=16
d=0 refnum=4 line=0 code=0
Start Message : tc=91 mdsid=012345 m range=6789 m azi=2bcd range r=ef azi r=01
alt=234 time ref=67 ca=0 rsid=000 ssid=004

INPUT MESSAGE line=1 time=bed6 toy=21:23:23.120/128 len=16
Start Message : tc=91 mdsid=012345 m range=6789 m azi=2bcd range r=ef azi r=01
alt=234 time ref=67 ca=0 rsid=000 ssid=004

OUTPUT MESSAGE time=e4e8 toy=21:23:33.115/128 len=16
d=0 refnum=5 line=0 code=0
Trk Data Msg  : tc=94 mdsid=123456 m range=789a m azi=3cde range r=f0 azi r=12
alt=345 time ref=78 rsid=000 ssid=004

INPUT MESSAGE line=1 time=e502 toy=21:23:33.120/128 len=16
Trk Data Msg  : tc=94 mdsid=123456 m range=789a m azi=3cde range r=f0 azi r=12
alt=345 time ref=78 rsid=000 ssid=004

OUTPUT MESSAGE time=10b08 toy=21:23:43.118/128 len=7
d=0 refnum=6 line=0 code=0
Data Stop Msg : tc=92 mdsid=234567 rsid=001 ssid=000

INPUT MESSAGE line=1 time=10b19 toy=21:23:43.120/128 len=7
Data Stop Msg : tc=92 mdsid=234567 rsid=001 ssid=000

OUTPUT MESSAGE time=13132 toy=21:23:53.125/128 len=7
d=0 refnum=7 line=0 code=0
Data Req Msg  : tc=93 mdsid=345678 rsid=001 ssid=000

INPUT MESSAGE line=1 time=13145 toy=21:23:54.0/128 len=7
Data Req Msg  : tc=93 mdsid=345678 rsid=001 ssid=000

OUTPUT MESSAGE time=15752 toy=21:24:04.3/128 len=7
d=0 refnum=8 line=0 code=0
Cancel Req Msg: tc=95 mdsid=456789 rsid=001 ssid=000

INPUT MESSAGE line=1 time=15763 toy=21:24:04.3/128 len=7
Cancel Req Msg: tc=95 mdsid=456789 rsid=001 ssid=000

OUTPUT MESSAGE time=17d7c toy=21:24:14.8/128 len=7
d=0 refnum=9 line=0 code=0
Primary Coor. : tc=9d mdsid=56789a val=0 rsid=001 ssid=000

INPUT MESSAGE line=1 time=17d8f toy=21:24:14.10/128 len=7
Primary Coor. : tc=9d mdsid=56789a val=0 rsid=001 ssid=000

OUTPUT MESSAGE time=1a3a8 toy=21:24:24.13/128 len=7
d=0 refnum=a line=0 code=0
Track Alert   : tc=9e mdsid=6789ab rsid=001 ssid=000
```

```
INPUT MESSAGE line=1 time=1a3bb toy=21:24:24.15/128 len=7
Track Alert    : tc=9e mdsid=6789ab rsid=001 ssid=000

OUTPUT MESSAGE time=1c9c6 toy=21:24:34.20/128 len=12
d=0 refnum=b line=0 code=0
ATC Data Req   : tc=d3 req sr=789 atc cd=abc range=def0 azi=1234 alt=000 rsid=001
ssid=000

INPUT MESSAGE line=1 time=1c9d9 toy=21:24:34.23/128 len=12
ATC Data Req   : tc=d3 req sr=789 atc cd=abc range=def0 azi=1234 alt=000 rsid=001
ssid=000

OUTPUT MESSAGE time=1eff2 toy=21:24:44.33/128 len=19
d=0 refnum=c line=0 code=0
ATC Track Data: tc=d4 req sr=89a atc cd=bcd con cd=ef0 m range=1234 m azi=159e
range r=26 azi r=af alt=37b con alt=c04
--------------> time ref=45 rsid=001 ssid=000

INPUT MESSAGE line=1 time=1f00c toy=21:24:44.36/128 len=19
ATC Track Data: tc=d4 req sr=89a atc cd=bcd con cd=ef0 m range=1234 m azi=159e
range r=26 azi r=af alt=37b con alt=c04
--------------> time ref=45 rsid=001 ssid=000

OUTPUT MESSAGE time=21610 toy=21:24:54.41/128 len=19
d=0 refnum=d line=0 code=0
ATC Start Data: tc=d1 req sr=9ab atc cd=cde con cd=f01 m range=2345 m azi=19e2
range r=6a azi r=f3 alt=7bc con alt=048
--------------> time ref=56 rsid=001 ssid=000

INPUT MESSAGE line=1 time=2162a toy=21:24:54.44/128 len=19
ATC Start Data: tc=d1 req sr=9ab atc cd=cde con cd=f01 m range=2345 m azi=19e2
range r=6a azi r=f3 alt=7bc con alt=048
--------------> time ref=56 rsid=001 ssid=000

OUTPUT MESSAGE time=23c3c toy=21:25:04.51/128 len=7
d=0 refnum=e line=0 code=0
ATC Cancel Req: tc=d2 req sr=abc atc cd=000 rsid=001 ssid=000

INPUT MESSAGE line=1 time=23c4f toy=21:25:04.54/128 len=7
ATC Cancel Req: tc=d2 req sr=abc atc cd=000 rsid=001 ssid=000

OUTPUT MESSAGE time=2625a toy=21:25:14.59/128 len=7
d=0 refnum=f line=0 code=0
ATC Cancel Req: tc=d5 req sr=bcd atc cd=000 rsid=001 ssid=000

INPUT MESSAGE line=1 time=2626d toy=21:25:14.61/128 len=7
ATC Cancel Req: tc=d5 req sr=bcd atc cd=000 rsid=001 ssid=000

OUTPUT MESSAGE time=28886 toy=21:25:24.72/128 len=4
d=0 refnum=10 line=0 code=0
Status Message: tc=71 sstat=0 rsid=001 ssid=000

INPUT MESSAGE line=1 time=28892 toy=21:25:24.72/128 len=4
Status Message: tc=71 sstat=0 rsid=001 ssid=000
```

```
OUTPUT MESSAGE time=2aeae toy=21:25:34.82/128 len=5
d=0 refnum=11 line=0 code=0
Adj S S Req    : tc=72 qsid=000 rsid=001 ssid=03x

INPUT MESSAGE line=1 time=2aebe toy=21:25:34.84/128 len=5
Adj S S Req    : tc=72 qsid=000 rsid=001 ssid=03x

OUTPUT MESSAGE time=2d4ce toy=21:25:44.95/128 len=5
d=0 refnum=12 line=0 code=0
Adj S S Res    : tc=73 sstat=0 qsid=000 rsid=001 ssid=000

INPUT MESSAGE line=1 time=2d4dc toy=21:25:44.95/128 len=5
Adj S S Res    : tc=73 sstat=0 qsid=000 rsid=001 ssid=000

FINAL TOY time=39a7c toy=21:26:37.10/128 len=4
0000fc01
```

Logical record	Record count
11	19
30	19
50	1
51	1
52	16
91	255
92	255
95	1
96	1
97	1
98	1
99	1
Total	571

	*******Input******		******Output******	
Type Code	Messages	Bytes	Messages	Bytes
61	1	8	1	8
65	1	4	1	4
71	1	4	1	4
72	1	5	1	5
73	1	5	1	5
91	1	16	1	16
92	1	7	1	7
93	1	7	1	7
94	1	16	1	16
95	1	7	1	7
99	1	3	1	3
9a	1	6	1	6
9d	1	7	1	7
9e	1	7	1	7
d1	1	19	1	19
d2	1	7	1	7
d3	1	12	1	12
d4	1	19	1	19
d5	1	7	1	7
Total	19	166	19	166

Port	*******Input****** Messages	Bytes	******Output****** Messages	Bytes
1	0	0	19	166
2	19	166	0	0
Total	19	166	19	166

Line	*******Input****** Messages	Bytes	******Output****** Messages	Bytes
0	0	0	19	166
1	19	166	0	0
Total	19	166	19	166

Track	*******Input****** Messages	Bytes	******Output****** Messages	Bytes
345	1	16	1	16
456	1	16	1	16
567	1	7	1	7
678	1	7	1	7
789	1	7	1	7
89a	1	7	1	7
9ab	1	7	1	7
Total	7	67	7	67

Time between messages in 1/128 seconds

Delta time	Record count
0	13
1	6

<u>Extraction listing for CIDTST2 test "b."</u>

```
ERRORS time=5f50 toy=21:22:58.113/128 len=120
(30 groups of "00000000").

X25 ERRORS time=5f50 toy=21:22:58.113/128 len=336
00000000 00000000 00010000 00000000 00000000 00000000 00000000 00000000 00000000
00010000 00000000 00000000
(72 groups of "00000000").

OUTPUT MESSAGE time=7274 toy=21:23:03.115/128 len=4
d=0 refnum=2 line=0 code=0
Sensor F/R Ms.: tc=65 msgnum=03 sid=048 sstat= 4

INPUT MESSAGE line=1 time=7285 toy=21:23:03.118/128 len=4
Sensor F/R Ms.: tc=65 msgnum=03 sid=048 sstat= 4

OUTPUT MESSAGE time=989e toy=21:23:13.118/128 len=6
d=0 refnum=3 line=0 code=0
Control State : tc=9a msgnum=a9 ip=0 is=0 iu=0

INPUT MESSAGE line=1 time=98aa toy=21:23:13.118/128 len=6
Control State : tc=9a msgnum=a9 ip=0 is=0 iu=0
```

```
OUTPUT MESSAGE time=bebe toy=21:23:23.115/128 len=16
d=0 refnum=4 line=0 code=0
Start Message : tc=91 mdsid=012345 m range=6789 m azi=2bcd range r=ef azi r=01
alt=234 time ref=67 ca=0 rsid=000 ssid=004

INPUT MESSAGE line=1 time=bed6 toy=21:23:23.120/128 len=16
Start Message : tc=91 mdsid=012345 m range=6789 m azi=2bcd range r=ef azi r=01
alt=234 time ref=67 ca=0 rsid=000 ssid=004

OUTPUT MESSAGE time=e4e8 toy=21:23:33.115/128 len=16
d=0 refnum=5 line=0 code=0
Trk Data Msg  : tc=94 mdsid=123456 m range=789a m azi=3cde range r=f0 azi r=12
alt=345 time ref=78 rsid=000 ssid=004

INPUT MESSAGE line=1 time=e502 toy=21:23:33.120/128 len=16
Trk Data Msg  : tc=94 mdsid=123456 m range=789a m azi=3cde range r=f0 azi r=12
alt=345 time ref=78 rsid=000 ssid=004

OUTPUT MESSAGE time=10b08 toy=21:23:43.118/128 len=7
d=0 refnum=6 line=0 code=0
Data Stop Msg : tc=92 mdsid=234567 rsid=001 ssid=000

INPUT MESSAGE line=1 time=10b19 toy=21:23:43.120/128 len=7
Data Stop Msg : tc=92 mdsid=234567 rsid=001 ssid=000

OUTPUT MESSAGE time=13132 toy=21:23:53.125/128 len=7
d=0 refnum=7 line=0 code=0
Data Req Msg  : tc=93 mdsid=345678 rsid=001 ssid=000

INPUT MESSAGE line=1 time=13145 toy=21:23:54.0/128 len=7
Data Req Msg  : tc=93 mdsid=345678 rsid=001 ssid=000
```

Extraction listing program for CIDTST2 test "d."

```
ERRORS time=5f50 toy=21:22:58.113/128 len=120
(30 groups of "00000000").

X25 ERRORS time=5f50 toy=21:22:58.113/128 len=336
00000000 00000000 00010000 00000000 00000000 00000000 00000000 00000000 00000000
00010000 00000000 00000000
(72 groups of "00000000").

OUTPUT MESSAGE time=bebe toy=21:23:23.115/128 len=16
d=0 refnum=4 line=0 code=0
Start Message : tc=91 mdsid=012345 m range=6789 m azi=2bcd range r=ef azi r=01
alt=234 time ref=67 ca=0 rsid=000 ssid=004

INPUT MESSAGE line=1 time=bed6 toy=21:23:23.120/128 len=16
Start Message : tc=91 mdsid=012345 m range=6789 m azi=2bcd range r=ef azi r=01
alt=234 time ref=67 ca=0 rsid=000 ssid=004

OUTPUT MESSAGE time=e4e8 toy=21:23:33.115/128 len=16
d=0 refnum=5 line=0 code=0
Trk Data Msg  : tc=94 mdsid=123456 m range=789a m azi=3cde range r=f0 azi r=12
alt=345 time ref=78 rsid=000 ssid=004
```

```
INPUT MESSAGE line=1 time=e502 toy=21:23:33.120/128 len=16
Trk Data Msg  : tc=94 mdsid=123456 m range=789a m azi=3cde range r=f0 azi r=12
alt=345 time ref=78 rsid=000 ssid=004
```

Extraction Listing for CIDTST4.

The following data is a set of three different messages sent from the HP. These are repeated 10 times for a total of 30 messages.

```
INPUT MESSAGE line=0 time=489a toy=08:40:12.75 len=31
Std uplink: tc=21 mdsid=faa001 msgnum=01 p=2 exp=1 ack=0 sc=0
55555555555555

INPUT MESSAGE line=0 time=48c4 toy=08:40:13.00 len=230
Elm uplink: tc=22 mdsid=faa002 msgnum=02 p=2 exp=1 length=16
ffffffffffffffffffff ffffffffffffffffffff ffffffffffffffffffff
ffffffffffffffffffff ffffffffffffffffffff ffffffffffffffffffff
ffffffffffffffffffff ffffffffffffffffffff ffffffffffffffffffff
ffffffffffffffffffff ffffffffffffffffffff ffffffffffffffffffff
ffffffffffffffffffff ffffffffffffffffffff ffffffffffffffffffff
ffffffffffffffffffff ffffffffffffffffffff ffffffffffffffffffff
ffffffffffffffffffff ffffffffffffffffffff ffffffffffffffffffff
ffffffffffffffffffff ffffffffffffffffffff ffffffffffffffffffff
ffffffffffffffffffff fffff0000000a000700

INPUT MESSAGE line=0 time=48c4 toy=08:40:13.00 len=7
Req downlink: tc=23 mdsid=faa003 msgnum=03 p=2 exp=1 bds=00
```

Extraction Listing for CIDTST5.

```
OUTPUT MESSAGE time=2625 toy=08:52:03.65 len=35
d=0 refnum=0 line=0 code=0
Std uplink    : tc=21 mdsid=faa001 msgnum=01 p=f exp=7 ack=1 sc=3
aaaaaaaaaaaaaa aaaaaaaaaaaaaa aaaaaaaaaaaaaa aaaaaaaaaaaaaa

OUTPUT MESSAGE time=4c4f toy=08:52:13.65 len=14
d=0 refnum=1 line=0 code=0
Std uplink    : tc=29 mdsid=faa002 msgnum=01 p=f exp=7 ack=1 sc=0
aaaaaaaaaaaaaa

OUTPUT MESSAGE time=7279 toy=08:52:23.65 len=87
d=0 refnum=2 line=0 code=0
ELM uplink    : tc=22 mdsid=faa003 msgnum=01 p=f exp=7 length=07
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc cccccccccccccccccccc
cccccccccccccccccccc cccccccccccccccccccc

OUTPUT MESSAGE time=9899 toy=08:52:33.65 len=17
d=0 refnum=3 line=0 code=0
ELM uplink    : tc=2a mdsid=faa004 msgnum=01 p=f exp=7 length=00
cccccccccccccccccccc

OUTPUT MESSAGE time=bec3 toy=08:52:43.65 len=7
d=0 refnum=4 line=0 code=0
Req downlink  : tc=23 mdsid=faa001 msgnum=02 p=f exp=7 bds=ff
```

```
OUTPUT MESSAGE time=e4e3 toy=08:52:53.65 len=7
d=0 refnum=5 line=0 code=0
Req downlink  : tc=2b mdsid=faa002 msgnum=02 p=f exp=7 bds=ff

OUTPUT MESSAGE time=10b0d toy=08:53:03.65 len=5
d=0 refnum=6 line=0 code=0
AID req       : tc=24 mdsid=faa003 msgnum=02

OUTPUT MESSAGE time=1312d toy=08:53:13.65 len=5
d=0 refnum=7 line=0 code=0
Req State     : tc=08 mdsid=faa004 msgnum=02

OUTPUT MESSAGE time=14447 toy=08:53:18.65 len=5
d=0 refnum=8 line=0 code=0
Req Pos       : tc=10 mdsid=faa004 msgnum=03

OUTPUT MESSAGE time=15757 toy=08:53:23.65 len=7
d=0 refnum=9 line=0 code=0
Msg cancel    : tc=25 mdsid=faa001 msgnum=03 refmsgnum=01 reftc=21

OUTPUT MESSAGE time=17d82 toy=08:53:33.65 len=7
d=0 refnum=a line=0 code=0
Msg cancel    : tc=2d mdsid=faa002 msgnum=03 refmsgnum=01 reftc=21

OUTPUT MESSAGE time=1a3a1 toy=08:53:43.65 len=5
d=0 refnum=b line=0 code=0
DL cap req    : tc=02 mdsid=faa003 msgnum=03

OUTPUT MESSAGE time=1c9cb toy=08:53:53.65 len=5
d=0 refnum=c line=0 code=0
DL cap req    : tc=02 mdsid=faa004 msgnum=04
```

EXTRACTION FOR OPCOMM FUNCTION 2 TEST - X.25 ERRORS

```
X25 ERRORS time=3d0 toy=09:43:44.79 len=336
00000000 00000000 00010000 00000000 00000000 00000000 00000000 00010000 00000000
00010000 00000000 00000000
00000000 00000000 00000000 00000000 00010000 00000000 00000000 00000000 00000000
00000000 00000000 00010000
00000000 00000000 00000000 00000000 00000000 00000000 00010000 00000000 00000000
00000000 00000000 00000000
00000000 00010000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000
```

```
X25 ERRORS time=4c41 toy=09:44:03.79 len=336
00000000 00000000 00020001 00010001 00010001 00010001 00010001 00010000 00000000
00020001 00010001 00010001
00010001 00010001 00000000 00000000 00020001 00010001 00010001 00010001 00010001
00000000 00000000 00020001
00010001 00010001 00010001 00010001 00000000 00000000 00020001 00010001 00010001
00010001 00010001 00000000
00000000 00020001 00010001 00010001 00010001 00010001 00000000 00000000 00010001
00010001 00010001 00010001
00010001 00000000 00000000 00010001 00010001 00010001 00010001 00010001 00000000
00000000 00010001 00010001
00010001 00010001 00010001 00000000 00000000 00010001 00010001 00010001 00010001
00010001 00000000 00000000
00010001 00010001 00010001 00010001 00010001 00000000 00000000 00010001 00010001
00010001 00010001 00010001

X25 ERRORS time=9881 toy=09:44:23.77 len=336
00000000 00000000 00030002 00020002 00020002 00020002 00020002 00010000 00000000
00030002 00020002 00020002
00020002 00020002 00000000 00000000 00030002 00020002 00020002 00020002 00020002
00000000 00000000 00030002
00020002 00020002 00020002 00020002 00000000 00000000 00030002 00020002 00020002
00020002 00020002 00000000
00000000 00030002 00020002 00020002 00020002 00020002 00000000 00000000 00020002
00020002 00020002 00020002
00020002 00000000 00000000 00020002 00020002 00020002 00020002 00020002 00000000
00000000 00020002 00020002
00020002 00020002 00020002 00000000 00000000 00020002 00020002 00020002 00020002
00020002 00000000 00000000
00020002 00020002 00020002 00020002 00020002 00000000 00000000 00020002 00020002
00020002 00020002 00020002

X25 ERRORS time=e4c1 toy=09:44:43.77 len=336
00000000 00000000 00040003 00030003 00030003 00030003 00030003 00010000 00000000
00040003 00030003 00030003
00030003 00030003 00000000 00000000 00040003 00030003 00030003 00030003 00030003
00000000 00000000 00040003
00030003 00030003 00030003 00030003 00000000 00000000 00040003 00030003 00030003
00030003 00030003 00000000
00000000 00040003 00030003 00030003 00030003 00030003 00000000 00000000 00030003
00030003 00030003 00030003
00030003 00000000 00000000 00030003 00030003 00030003 00030003 00030003 00000000
00000000 00030003 00030003
00030003 00030003 00030003 00000000 00000000 00030003 00030003 00030003 00030003
00030003 00000000 00000000
00030003 00030003 00030003 00030003 00030003 00000000 00000000 00030003 00030003
00030003 00030003 00030003
```

```
X25 ERRORS time=13101 toy=09:45:03.74 len=336
00000000 00000000 00050004 00040004 00040004 00040004 00040004 00010000 00000000
00050004 00040004 00040004
00040004 00040004 00000000 00000000 00050004 00040004 00040004 00040004 00040004
00000000 00000000 00050004
00040004 00040004 00040004 00040004 00000000 00000000 00050004 00040004 00040004
00040004 00040004 00000000
00000000 00050004 00040004 00040004 00040004 00040004 00000000 00000000 00040004
00040004 00040004 00040004
00040004 00000000 00000000 00040004 00040004 00040004 00040004 00040004 00000000
00000000 00040004 00040004
00040004 00040004 00040004 00000000 00000000 00040004 00040004 00040004 00040004
00040004 00000000 00000000
00040004 00040004 00040004 00040004 00040004 00000000 00000000 00040004 00040004
00040004 00040004 00040004

X25 ERRORS time=17d41 toy=09:45:23.74 len=336
00000000 00000000 00060005 00050005 00050005 00050005 00050005 00010000 00000000
00060005 00050005 00050005
00050005 00050005 00000000 00000000 00060005 00050005 00050005 00050005 00050005
00000000 00000000 00060005
00050005 00050005 00050005 00050005 00000000 00000000 00060005 00050005 00050005
00050005 00050000 0000000
00000000 00060005 00050005 00050005 00050005 00050005 00000000 00000000 00050005
00050005 00050005 00050005
00050005 00000000 00000000 00050005 00050005 00050005 00050005 00050005 00000000
00000000 00050005 00050005
00050005 00050005 00050005 00000000 00000000 00050005 00050005 00050005 00050005
00050005 00000000 00000000
00050005 00050005 00050005 00050005 00050005 00000000 00000000 00050005 00050005
00050005 00050005 00050005

X25 ERRORS time=1c981 toy=09:45:43.72 len=336
00000000 00000000 00070006 00060006 00060006 00060006 00060006 00010000 00000000
00070006 00060006 00060006
00060006 00060006 00000000 00000000 00070006 00060006 00060006 00060006 00060006
00000000 00000000 00070006
00060006 00060006 00060006 00060006 00000000 00000000 00070006 00060006 00060006
00060006 00060006 00000000
00000000 00070006 00060006 00060006 00060006 00060006 00000000 00000000 00060006
00060006 00060006 00060006
00060006 00000000 00000000 00060006 00060006 00060006 00060006 00060006 00000000
00000000 00060006 00060006
00060006 00060006 00060006 00000000 00000000 00060006 00060006 00060006 00060006
00060006 00000000 00000000
00060006 00060006 00060006 00060006 00060006 00000000 00000000 00060006 00060006
00060006 00060006 00060006
```

```
X25 ERRORS time=215c1 toy=09:46:03.69 len=336
00000000 00000000 00080007 00070007 00070007 00070007 00070007 00010000 00000000
00080007 00070007 00070007
00070007 00070007 00000000 00000000 00080007 00070007 00070007 00070007 00070007
00000000 00000000 00080007
00070007 00070007 00070007 00070007 00000000 00000000 00080007 00070007 00070007
00070007 00070007 00000000
00000000 00080007 00070007 00070007 00070007 00070007 00000000 00000000 00070007
00070007 00070007 00070007
00070007 00000000 00000000 00070007 00070007 00070007 00070007 00070007 00000000
00000000 00070007 00070007
00070007 00070007 00070007 00000000 00000000 00070007 00070007 00070007 00070007
00070007 00000000 00000000
00070007 00070007 00070007 00070007 00070007 00000000 00000000 00070007 00070007
00070007 00070007 00070007

X25 ERRORS time=26201 toy=09:46:23.69 len=336
00000000 00000000 00090008 00080008 00080008 00080008 00080008 00010000 00000000
00090008 00080008 00080008
00080008 00080008 00000000 00000000 00090008 00080008 00080008 00080008 00080008
00000000 00000000 00090008
00080008 00080008 00080008 00080008 00000000 00000000 00090008 00080008 00080008
00080008 00080008 00000000
00000000 00090008 00080008 00080008 00080008 00080008 00000000 00000000 00080008
00080008 00080008 00080008
00080008 00000000 00000000 00080008 00080008 00080008 00080008 00080008 00000000
00000000 00080008 00080008
00080008 00080008 00080008 00000000 00000000 00080008 00080008 00080008 00080008
00080008 00000000 00000000
00080008 00080008 00080008 00080008 00080008 00000000 00000000 00080008 00080008
00080008 00080008 00080008

X25 ERRORS time=2ae41 toy=09:46:43.67 len=336
00000000 00000000 000a0009 00090009 00090009 00090009 00090009 00010000 00000000
000a0009 00090009 00090009
00090009 00090009 00000000 00000000 000a0009 00090009 00090009 00090009 00090009
00000000 00000000 000a0009
00090009 00090009 00090009 00090009 00000000 00000000 000a0009 00090009 00090009
00090009 00090009 00000000
00000000 000a0009 00090009 00090009 00090009 00090009 00000000 00000000 00090009
00090009 00090009 00090009
00090009 00000000 00000000 00090009 00090009 00090009 00090009 00090009 00000000
00000000 00090009 00090009
00090009 00090009 00090009 00000000 00000000 00090009 00090009 00090009 00090009
00090009 00000000 00000000
00090009 00090009 00090009 00090009 00090009 00000000 00000000 00090009 00090009
00090009 00090009 00090009
```

```
X25 ERRORS time=2fe50 toy=09:47:04.67 len=336
00000000 00000000 000b000a 000a000a 000a000a 000a000a 000a000a 00010000 00000000
000b000a 000a000a 000a000a
000a000a 000a000a 00000000 00000000 000b000a 000a000a 000a000a 000a000a 000a000a
00000000 00000000 000b000a
000a000a 000a000a 000a000a 000a000a 00000000 00000000 000b000a 000a000a 000a000a
000a000a 000a000a 00000000
00000000 000b000a 000a000a 000a000a 000a000a 000a000a 00000000 00000000 000a000a
000a000a 000a000a 000a000a
000a000a 00000000 00000000 000a000a 000a000a 000a000a 000a000a 000a000a 00000000
00000000 000a000a 000a000a
000a000a 000a000a 000a000a 00000000 00000000 000a000a 000a000a 000a000a 000a000a
000a000a 00000000 00000000
000a000a 000a000a 000a000a 000a000a 000a000a 00000000 00000000 000a000a 000a000a
000a000a 000a000a 000a000a

X25 ERRORS time=346c1 toy=09:47:23.64 len=336
00000000 00000000 000c000b 000b000b 000b000b 000b000b 000b000b 00010000 00000000
000c000b 000b000b 000b000b
000b000b 000b000b 00000000 00000000 000c000b 000b000b 000b000b 000b000b 000b000b
00000000 00000000 000c000b
000b000b 000b000b 000b000b 000b000b 00000000 00000000 000c000b 000b000b 000b000b
000b000b 000b000b 00000000
00000000 000c000b 000b000b 000b000b 000b000b 000b000b 00000000 00000000 000b000b
000b000b 000b000b 000b000b
000b000b 00000000 00000000 000b000b 000b000b 000b000b 000b000b 000b000b 00000000
00000000 000b000b 000b000b
000b000b 000b000b 000b000b 00000000 00000000 000b000b 000b000b 000b000b 000b000b
000b000b 00000000 00000000
000b000b 000b000b 000b000b 000b000b 000b000b 00000000 00000000 000b000b 000b000b
000b000b 000b000b 000b000b

X25 ERRORS time=39301 toy=09:47:43.61 len=336
00000000 00000000 000d000c 000c000c 000c000c 000c000c 000c000c 00010000 00000000
000d000c 000c000c 000c000c
000c000c 000c000c 00000000 00000000 000d000c 000c000c 000c000c 000c000c 000c000c
00000000 00000000 000d000c
000c000c 000c000c 000c000c 000c000c 00000000 00000000 000d000c 000c000c 000c000c
000c000c 000c000c 00000000
00000000 000d000c 000c000c 000c000c 000c000c 000c000c 00000000 00000000 000c000c
000c000c 000c000c 000c000c
000c000c 00000000 00000000 000c000c 000c000c 000c000c 000c000c 000c000c 00000000
00000000 000c000c 000c000c
000c000c 000c000c 000c000c 00000000 00000000 000c000c 000c000c 000c000c 000c000c
000c000c 00000000 00000000
000c000c 000c000c 000c000c 000c000c 000c000c 00000000 00000000 000c000c 000c000c
000c000c 000c000c 000c000c
```

```
X25 ERRORS time=3df41 toy=09:48:03.61 len=336
00000000 00000000 000e000d 000d000d 000d000d 000d000d 000d000d 00010000 00000000
000e000d 000d000d 000d000d
000d000d 000d000d 00000000 00000000 000e000d 000d000d 000d000d 000d000d 000d000d
00000000 00000000 000e000d
000d000d 000d000d 000d000d 000d000d 00000000 00000000 000e000d 000d000d 000d000d
000d000d 000d000d 00000000
00000000 000e000d 000d000d 000d000d 000d000d 000d000d 00000000 00000000 000d000d
000d000d 000d000d 000d000d
000d000d 00000000 00000000 000d000d 000d000d 000d000d 000d000d 000d000d 00000000
00000000 000d000d 000d000d
000d000d 000d000d 000d000d 00000000 00000000 000d000d 000d000d 000d000d 000d000d
000d000d 00000000 00000000
000d000d 000d000d 000d000d 000d000d 000d000d 00000000 00000000 000d000d 000d000d
000d000d 000d000d 000d000d

X25 ERRORS time=42b81 toy=09:48:23.59 len=336
00000000 00000000 000f000e 000e000e 000e000e 000e000e 000e000e 00010000 00000000
000f000e 000e000e 000e000e
000e000e 000e000e 00000000 00000000 000f000e 000e000e 000e000e 000e000e 000e000e
00000000 00000000 000f000e
000e000e 000e000e 000e000e 000e000e 00000000 00000000 000f000e 000e000e 000e000e
000e000e 000e000e 00000000
00000000 000f000e 000e000e 000e000e 000e000e 000e000e 00000000 00000000 000e000e
000e000e 000e000e 000e000e
000e000e 00000000 00000000 000e000e 000e000e 000e000e 000e000e 000e000e 00000000
00000000 000e000e 000e000e
000e000e 000e000e 000e000e 00000000 00000000 000e000e 000e000e 000e000e 000e000e
000e000e 00000000 00000000
000e000e 000e000e 000e000e 000e000e 000e000e 00000000 00000000 000e000e 000e000e
000e000e 000e000e 000e000e

X25 ERRORS time=477c1 toy=09:48:43.59 len=336
00000000 00000000 0010000f 000f000f 000f000f 000f000f 000f000f 00010000 00000000
0010000f 000f000f 000f000f
000f000f 000f000f 00000000 00000000 0010000f 000f000f 000f000f 000f000f 000f000f
00000000 00000000 0010000f
000f000f 000f000f 000f000f 000f000f 00000000 00000000 0010000f 000f000f 000f000f
000f000f 000f000f 00000000
00000000 0010000f 000f000f 000f000f 000f000f 000f000f 00000000 00000000 000f000f
000f000f 000f000f 000f000f
000f000f 00000000 00000000 000f000f 000f000f 000f000f 000f000f 000f000f 00000000
00000000 000f000f 000f000f
000f000f 000f000f 000f000f 00000000 00000000 000f000f 000f000f 000f000f 000f000f
000f000f 00000000 00000000
000f000f 000f000f 000f000f 000f000f 000f000f 00000000 00000000 000f000f 000f000f
000f000f 000f000f 000f000f
```

```
X25 ERRORS time=4c401 toy=09:49:03.56 len=336
00000000 00000000 00110010 00100010 00100010 00100010 00100010 00010000 00000000
00110010 00100010 00100010
00100010 00100010 00000000 00000000 00110010 00100010 00100010 00100010 00100010
00000000 00000000 00110010
00100010 00100010 00100010 00100010 00000000 00000000 00110010 00100010 00100010
00100010 00100010 00000000
00000000 00110010 00100010 00100010 00100010 00100010 00000000 00000000 00100010
00100010 00100010 00100010
00100010 00000000 00000000 00100010 00100010 00100010 00100010 00100010 00000000
00000000 00100010 00100010
00100010 00100010 00100010 00000000 00000000 00100010 00100010 00100010 00100010
00100010 00000000 00000000
00100010 00100010 00100010 00100010 00100010 00000000 00000000 00100010 00100010
00100010 00100010 00100010

X25 ERRORS time=51041 toy=09:49:23.56 len=336
00000000 00000000 00120011 00110011 00110011 00110011 00110011 00010000 00000000
00120011 00110011 00110011
00110011 00110011 00000000 00000000 00120011 00110011 00110011 00110011 00110011
00000000 00000000 00120011
00110011 00110011 00110011 00110011 00000000 00000000 00120011 00110011 00110011
00110011 00110011 00000000
00000000 00120011 00110011 00110011 00110011 00110011 00000000 00000000 00110011
00110011 00110011 00110011
00110011 00000000 00000000 00110011 00110011 00110011 00110011 00110011 00000000
00000000 00110011 00110011
00110011 00110011 00110011 00000000 00000000 00110011 00110011 00110011 00110011
00110011 00000000 00000000
00110011 00110011 00110011 00110011 00110011 00000000 00000000 00110011 00110011
00110011 00110011 00110011

X25 ERRORS time=56050 toy=09:49:44.54 len=336
00000000 00000000 00130012 00120012 00120012 00120012 00120012 00100000 00000000
00130012 00120012 00120012
00120012 00120012 00000000 00000000 00130012 00120012 00120012 00120012 00120012
00000000 00000000 00130012
00120012 00120012 00120012 00120012 00000000 00000000 00130012 00120012 00120012
00120012 00120012 00000000
00000000 00130012 00120012 00120012 00120012 00120012 00000000 00000000 00120012
00120012 00120012 00120012
00120012 00000000 00000000 00120012 00120012 00120012 00120012 00120012 00000000
00000000 00120012 00120012
00120012 00120012 00120012 00000000 00000000 00120012 00120012 00120012 00120012
00120012 00000000 00000000
00120012 00120012 00120012 00120012 00120012 00000000 00000000 00120012 00120012
00120012 00120012 00120012
```

Logical record	Record count
92	368
Total	368

EXTRACTION FOR OPCOMM 2 TEST - SYSTEM ERRORS

```
ERRORS time=3d0 toy=13:30:56.79 len=120
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000

ERRORS time=4c41 toy=13:31:15.77 len=120
00000001 00000001 00000001 00000001 00000001 00000001 00000001 00000001 00000001
00000001 00000001 00000001
00000001 00000001 00000001 00000001 00000001 00000001 00000001 00000001 00000001
00000001 00000001 00000001
00000001 00000001 00000001 00000001 00000001 00000001

ERRORS time=9c50 toy=13:31:36.77 len=120
00000002 00000002 00000002 00000002 00000002 00000002 00000002 00000002 00000002
00000002 00000002 00000002
00000002 00000002 00000002 00000002 00000002 00000002 00000002 00000002 00000002
00000002 00000002 00000002
00000002 00000002 00000002 00000002 00000002 00000002

ERRORS time=e890 toy=13:31:56.74 len=120
00000003 00000003 00000003 00000003 00000003 00000003 00000003 00000003 00000003
00000003 00000003 00000003
00000003 00000003 00000003 00000003 00000003 00000003 00000003 00000003 00000003
00000003 00000003 00000003
00000003 00000003 00000003 00000003 00000003 00000003

ERRORS time=13101 toy=13:32:15.74 len=120
00000004 00000004 00000004 00000004 00000004 00000004 00000004 00000004 00000004
00000004 00000004 00000004
00000004 00000004 00000004 00000004 00000004 00000004 00000004 00000004 00000004
00000004 00000004 00000004
00000004 00000004 00000004 00000004 00000004 00000004

ERRORS time=18110 toy=13:32:36.72 len=120
00000005 00000005 00000005 00000005 00000005 00000005 00000005 00000005 00000005
00000005 00000005 00000005
00000005 00000005 00000005 00000005 00000005 00000005 00000005 00000005 00000005
00000005 00000005 00000005
00000005 00000005 00000005 00000005 00000005 00000005

ERRORS time=1c981 toy=13:32:55.72 len=120
00000006 00000006 00000006 00000006 00000006 00000006 00000006 00000006 00000006
00000006 00000006 00000006
00000006 00000006 00000006 00000006 00000006 00000006 00000006 00000006 00000006
00000006 00000006 00000006
00000006 00000006 00000006 00000006 00000006 00000006
```

```
ERRORS time=21990 toy=13:33:16.69 len=120
00000007 00000007 00000007 00000007 00000007 00000007 00000007 00000007 00000007
00000007 00000007 00000007
00000007 00000007 00000007 00000007 00000007 00000007 00000007 00000007 00000007
00000007 00000007 00000007
00000007 00000007 00000007 00000007 00000007 00000007

ERRORS time=265d0 toy=13:33:36.67 len=120
00000008 00000008 00000008 00000008 00000008 00000008 00000008 00000008 00000008
00000008 00000008 00000008
00000008 00000008 00000008 00000008 00000008 00000008 00000008 00000008 00000008
00000008 00000008 00000008
00000008 00000008 00000008 00000008 00000008 00000008

ERRORS time=2ae41 toy=13:33:55.67 len=120
00000009 00000009 00000009 00000009 00000009 00000009 00000009 00000009 00000009
00000009 00000009 00000009
00000009 00000009 00000009 00000009 00000009 00000009 00000009 00000009 00000009
00000009 00000000 0000009
00000009 00000009 00000009 00000009 00000009 00000009

ERRORS time=2fe50 toy=13:34:16.64 len=120
0000000a 0000000a 0000000a 0000000a 0000000a 0000000a 0000000a 0000000a 0000000a
0000000a 0000000a 0000000a
0000000a 0000000a 0000000a 0000000a 0000000a 0000000a 0000000a 0000000a 0000000a
0000000a 0000000a 0000000a
0000000a 0000000a 0000000a 0000000a 0000000a 0000000a

ERRORS time=34a90 toy=13:34:36.64 len=120
0000000b 0000000b 0000000b 0000000b 0000000b 0000000b 0000000b 0000000b 0000000b
0000000b 0000000b 0000000b
0000000b 0000000b 0000000b 0000000b 0000000b 0000000b 0000000b 0000000b 0000000b
0000000b 0000000b 0000000b
0000000b 0000000b 0000000b 0000000b 0000000b 0000000b

ERRORS time=39301 toy=13:34:55.61 len=120
0000000c 0000000c 0000000c 0000000c 0000000c 0000000c 0000000c 0000000c 0000000c
0000000c 0000000c 0000000c
0000000c 0000000c 0000000c 0000000c 0000000c 0000000c 0000000c 0000000c 0000000c
0000000c 0000000c 0000000c
0000000c 0000000c 0000000c 0000000c 0000000c 0000000c

ERRORS time=3df41 toy=13:35:15.59 len=120
0000000d 0000000d 0000000d 0000000d 0000000d 0000000d 0000000d 0000000d 0000000d
0000000d 0000000d 0000000d
0000000d 0000000d 0000000d 0000000d 0000000d 0000000d 0000000d 0000000d 0000000d
0000000d 0000000d 0000000d
0000000d 0000000d 0000000d 0000000d 0000000d 0000000d
```

```
ERRORS time=42b81 toy=13:35:35.59 len=120
0000000e 0000000e 0000000e 0000000e 0000000e 0000000e 0000000e 0000000e 0000000e
0000000e 0000000e 0000000e
0000000e 0000000e 0000000e 0000000e 0000000e 0000000e 0000000e 0000000e 0000000e
0000000e 0000000e 0000000e
0000000e 0000000e 0000000e 0000000e 0000000e 0000000e

ERRORS time=477c1 toy=13:35:55.56 len=120
0000000f 0000000f 0000000f 0000000f 0000000f 0000000f 0000000f 0000000f 0000000f
0000000f 0000000f 0000000f
0000000f 0000000f 0000000f 0000000f 0000000f 0000000f 0000000f 0000000f 0000000f
0000000f 0000000f 0000000f
0000000f 0000000f 0000000f 0000000f 0000000f 0000000f

ERRORS time=4c401 toy=13:36:15.56 len=120
00000010 00000010 00000010 00000010 00000010 00000010 00000010 00000010 00000010
00000010 00000010 00000010
00000010 00000010 00000010 00000010 00000010 00000010 00000010 00000010 00000010
00000010 00000010 00000010
00000010 00000010 00000010 00000010 00000010 00000010

ERRORS time=51041 toy=13:36:35.54 len=120
00000011 00000011 00000011 00000011 00000011 00000011 00000011 00000011 00000011
00000011 00000011 00000011
00000011 00000011 00000011 00000011 00000011 00000011 00000011 00000011 00000011
00000011 00000011 00000011
00000011 00000011 00000011 00000011 00000011 00000011

ERRORS time=56050 toy=13:36:56.51 len=120
00000012 00000012 00000012 00000012 00000012 00000012 00000012 00000012 00000012
00000012 00000012 00000012
00000012 00000012 00000012 00000012 00000012 00000012 00000012 00000012 00000012
00000012 00000012 00000012
00000012 00000012 00000012 00000012 00000012 00000012

ERRORS time=5a8c1 toy=13:37:15.51 len=120
00000013 00000013 00000013 00000013 00000013 00000013 00000013 00000013 00000013
00000013 00000013 00000013
00000013 00000013 00000013 00000013 00000013 00000013 00000013 00000013 00000013
00000013 00000013 00000013
00000013 00000013 00000013 00000013 00000013 00000013

ERRORS time=5f501 toy=13:37:35.49 len=120
00000014 00000014 00000014 00000014 00000014 00000014 00000014 00000014 00000014
00000014 00000014 00000014
00000014 00000014 00000014 00000014 00000014 00000014 00000014 00000014 00000014
00000014 00000014 00000014
00000014 00000014 00000014 00000014 00000014 00000014
```

Logical record	Record count
91	404
Total	404

Stage 7 test 1, Create a Message results on the HP-4955.

For the standard uplink message:
21FAA0010113C0AAAAAAAAAAAAAAABBBBBBBBBBBBBCCCCCCCCCCCCCCDDDDDDDDDDDDDD

For the elm uplink message:
22FAA002021204AAAAAAAAAAAAAAAAAAAABBBBBBBBBBBBBBBBBBCCCCCCCCCCCCCCCCCCCDDD
DDDDDDDDDDDDDDDDDEEEEEEEEEEEEEEEEEEE

For the request for downlink data message:
23FAA0030312EF

For the ATCRBS ID request message:
24FAA00404

For the message cancellation request message:
25FAA005057FFF

For the nonspecified type message:
0612345678901234567890

APPENDIX H

MISCELLANEOUS TEST RESULTS

Stage 2 Test 3, Hardware Fault Location Tests Results.

WD-2511 RAM Register Test:

```
         ZERO BITS
          ONE BITS
RAM TEST FAILURE
REG A - FF REG B - FF EXPECTED - FC
REG 2 -  0 REG 5 -  0 REG 6 -  0 REG 7 -  0
          ODD BITS
RAM TEST FAILURE
REG A - 52 REG B - 25 EXPECTED - EE
REG 2 -  0 REG 5 -  0 REG 6 -  0 REG 7 -  0
      RANDOM BITS
RAM TEST FAILURE
REG A - 40 REG B - 3F EXPECTED - FE
REG 2 -  0 REG 5 -  0 REG 6 -  0 REG 7 -  0
 RAM REG TEST FAILED ON DEVICE 0
```

D.M.A. Diagnostic Test:

```
      ZERO BITS
  DMA TEST FAILURE
  INPUT  0       0       0       0       0       0
OUTPUT 888888888888888888888888888888888888888888888888
       ONE BITS
DMA TEST FAILURE
  INPUT FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
OUTPUT 888888888888888888888888888888888888888888888888
      ODD BITS
DMA TEST FAILURE
  INPUT 555555555555555555555555555555555555555555555555
OUTPUT 888888888888888888888888888888888888888888888888
     EVEN BITS
DMA TEST FAILURE
  INPUT AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
OUTPUT 888888888888888888888888888888888888888888888888
   RANDOM BITS
DMA TEST FAILURE
  INPUT 89ABCDEF89ABCDEF89ABCDEF89ABCDEF89ABCDEF89ABCDEF89A
OUTPUT 888888888888888888888888888888888888888888888888
  D.M.A.  TEST FAILED ON DEVICE 0
```

Loopback Communications Diagnostic Test:

```
  COMM0 - LINK UP
   COMM0  TEST FAILED ON DEVICE 0
 LINK INITIALIZATION ERROR  0 R
 BALANCE OF THIS TEST IS ABORTED
```

COMMUNICATIONS INTERFACE DRIVER STATUS

THE MESSAGE SCENARIO FILE IS CIDTST7
THE INITIALIZATION DATABASE FILE IS CIDINIT1

6.6	% CPU UTILIZATION	0 - COUNT 1
0.0	% DATA EXTRACTION UTILIZED	0 - COUNT 2
0	TOTAL SYSTEM ERRORS	0 - COUNT 3
0	TOTAL X.25 ERRORS	0 - COUNT 4
0	MESSAGE BUFFERS PROCESSED	0 - COUNT 5
		0 - COUNT 6
** DATA EXTRACTION IS ENABLED **		0 - COUNT 7
		0 - COUNT 8
0	MSGS WITH UNCONFIGURED PORTS	0 - COUNT 9
0	MSGS ON THE SAVELIST	0 - COUNT 10
0	MSGS LAST OUTPUT FROM SAVELIST	0 - COUNT 11
		0 - COUNT 12
		0 - COUNT 13

00:?? - TIME INTO SIMULATION ??:??:?? - TIME-OF-YEAR

NOTES:
1. Data Extraction usage will vary from 0 to 2.2 percent usage.
2. Time into Simulation ranges from 00:00 to 00:59.
3. Time-of-Year is Actual Time-of-Year.

OPCOMM FUNCTION 1
CID STATISTICS SCREEN, FROM TIME 00:00 TO 00:59

COMMUNICATIONS INTERFACE DRIVER STATUS

THE MESSAGE SCENARIO FILE IS CIDTST7
THE INITIALIZATION DATABASE FILE IS CIDINIT1

8.8	% CPU UTILIZATION	0 - COUNT 1
0.0	% DATA EXTRACTION UTILIZED	0 - COUNT 2
0	TOTAL SYSTEM ERRORS	0 - COUNT 3
0	TOTAL X.25 ERRORS	0 - COUNT 4
?	MESSAGE BUFFERS PROCESSED	0 - COUNT 5
		0 - COUNT 6
** DATA EXTRACTION IS ENABLED **		0 - COUNT 7
		0 - COUNT 8
0	MSGS WITH UNCONFIGURED PORTS	0 - COUNT 9
0	MSGS ON THE SAVELIST	0 - COUNT 10
0	MSGS LAST OUTPUT FROM SAVELIST	0 - COUNT 11
		0 - COUNT 12
		0 - COUNT 13

0?:?? - TIME INTO SIMULATION ??:??:?? - TIME-OF-YEAR

NOTES:
1. The number of Message Buffers processed goes from 1 to 15.
2. Time into Simulation ranges from 00:59 to 04:59.
3. Time-of-Year is Actual Time-of-Year.

OPCOMM FUNCTION 1
CID STATISTICS SCREEN, FROM TIME 01:00 TO 04:59

COMMUNICATIONS INTERFACE DRIVER STATUS

THE MESSAGE SCENARIO FILE IS CIDTST7
THE INITIALIZATION DATABASE FILE IS CIDINIT1

6.6	% CPU UTILIZATION	0 -- COUNT 1
0.0	% DATA EXTRACTION UTILIZED	0 -- COUNT 2
0	TOTAL SYSTEM ERRORS	0 -- COUNT 3
0	TOTAL X.25 ERRORS	0 -- COUNT 4
16	MESSAGE BUFFERS PROCESSED	0 -- COUNT 5
		0 -- COUNT 6
** DATA EXTRACTION IS ENABLED **		0 -- COUNT 7
		0 -- COUNT 8
0	MSGS WITH UNCONFIGURED PORTS	0 -- COUNT 9
0	MSGS ON THE SAVELIST	0 -- COUNT 10
0	MSGS LAST OUTPUT FROM SAVELIST	0 -- COUNT 11
		0 -- COUNT 12
		0 -- COUNT 13

05:00 - TIME INTO SIMULATION ??:??:?? - TIME-OF-YEAR

NOTES: 1. Time-of-Year is Actual Time-of-Year.
2. Data extraction usage will vary between 0 and 2.2%.

OPCOMM FUNCTION 1
CID STATISTICS SCREEN, AT TIME 05:00

COMMUNICATIONS INTERFACE DRIVER SYSTEM ERRORS

0 TOTAL SYSTEM ERRORS

0 TOTAL X.25 ERRORS

--------- I/O ERRORS ----------
0 Data Extraction I/O
0 Message Scenario I/O
0 OPCOMM I/O
0 Extraction Data Lost

--- INTERNAL DATA BASE ERRORS -----
0 Savelist Found Empty
0 Savelist Full

-------- SCENARIO ERRORS --------
0 Scenario Buffers Overwritten
0 Scenario Buffers Empty
0 Bad Port Number In Scenario

---------- PROTOCOL ERRORS --------
0 Illegal X.25 Device On Output
0 Packet Byte Length Error
0 Link Not Active

00:19 - TIME INTO SIMULATION ??:??:?? - TIME-OF-YEAR

NOTES: 1. Time into Simulation starts at 00:00 and goes to 00:19.
2. Time-of-Year is actual Time-of-Year.

OPCOMM FUNCTION 2
CID ERROR SCREEN, FROM TIME 00:00 TO 00:19

COMMUNICATIONS INTERFACE DRIVER SYSTEM ERRORS

12 TOTAL SYSTEM ERRORS

108 TOTAL X.25 ERRORS

---------- I/O ERRORS ----------
1 Data Extraction I/O
1 Message Scenario I/O
1 OPCOMM I/O
1 Extraction Data Lost

---- INTERNAL DATA BASE ERRORS ----
1 Savelist Found Empty
1 Savelist Full

-------- SCENARIO ERRORS ----------
1 Scenario Buffers Overwritten
1 Scenario Buffers Empty
1 Bad Port Number In Scenario

---------- PROTOCOL ERRORS --------
1 Illegal X.25 Device On Output
1 Packet Byte Length Error
1 Link Not Active

00:?? - TIME INTO SIMULATION

??:??:?? - TIME-OF-YEAR

NOTES: 1. Time into Simulation is from 00:20 to 00:39.
2. Time-of-Year is actual Time-of-Year.

OPCOMM FUNCTION 2
CID ERROR SCREEN, FROM TIME 00:20 TO 00:39

COMMUNICATIONS INTERFACE DRIVER SYSTEM ERRORS

24 TOTAL SYSTEM ERRORS

216 TOTAL X.25 ERRORS

---------- I/O ERRORS ----------
2 Data Extraction I/O
2 Message Scenario I/O
2 OPCOMM I/O
2 Extraction Data Lost

---- INTERNAL DATA BASE ERRORS ----
2 Savelist Found Empty
2 Savelist Full

-------- SCENARIO ERRORS ----------
2 Scenario Buffers Overwritten
2 Scenario Buffers Empty
2 Bad Port Number In Scenario

---------- PROTOCOL ERRORS --------
2 Illegal X.25 Device On Output
2 Packet Byte Length Error
2 Link Not Active

00:?? - TIME INTO SIMULATION

??:??:?? - TIME-OF-YEAR

NOTES: 1. Time into Simulation is from 00:40 to 00:59.
2. Time-of-Year is actual Time-of-Year.

OPCOMM FUNCTION 2
CID ERROR SCREEN, FROM TIME 00:40 TO 00:59

COMMUNICATIONS INTERFACE DRIVER SYSTEM ERRORS

600 TOTAL SYSTEM ERRORS

**** TOTAL X.25 ERRORS

---------- I/O ERRORS ----------
15 Data Extraction I/O
15 Message Scenario I/O
15 OPCOMM I/O
15 Extraction Data Lost

---- INTERNAL DATA BASE ERRORS ----
15 Savelist Found Empty
15 Savelist Full

-------- SCENARIO ERRORS ----------
15 Scenario Buffers Overwritten
15 Scenario Buffers Empty
15 Bad Port Number In Scenario

---------- PROTOCOL ERRORS --------
15 Illegal X.25 Device On Output
15 Packet Byte Length Error
15 Link Not Active

05:00 - TIME INTO SIMULATION

??:??:?? - TIME-OF-YEAR

NOTES: 1. Time into Simulation is after 05:00.
2. Time-of-Year is actual Time-of-Year.

OPCOMM FUNCTION 2
CID ERROR SCREEN, AT TIME 05:00

COMMUNICATIONS INTERFACE DRIVER X.25 STATISTICS

THE INITIALIZATION DATABASE FILE IS CIDINIT1

DEV #	PORT #	BAUD RATE	-STATUS- DEV	LINK	------ INPUT ----- BYTES / SECOND	MSG./ SECOND	---- OUTPUT ---- BYTES / SECOND	MSG./ SECOND
0	1	56 K	A	C	0	0	0	0
1	2	56 K	A	C	0	0	0	0
2	3	56 K	A	C	0	0	0	0
3	4	56 K	A	C	0	0	0	0
4	5	56 K	A	C	0	0	0	0
5	6	56 K	A	C	0	0	0	0
6			N					
7			N					
8			N					
9			N					
10			N					
11			N					

A-ACTIVE I-INACTIVE N-NOT CONFIGURED C-CONNECTED D-DISCONNECTED

00:?? - TIME INTO SIMULATION

??:??:?? - TIME-OF-YEAR

NOTES: 1. Time into Simulation is below 01:00.

OPCOMM FUNCTION 3, PHASE 1 DATA COLLECTION
CID X.25 DEVICE STATISTICS SCREEN, FROM TIME 00:00 TO 0:59

COMMUNICATIONS INTERFACE DRIVER X.25 STATISTICS

THE INITIALIZATION DATABASE FILE IS CIDINIT1

DEV #	PORT #	BAUD RATE	-STATUS- DEV	LINK	------ INPUT ----- BYTES / SECOND	MSG./ SECOND	------ OUTPUT ---- BYTES / SECOND	MSG./ SECOND
0	1	56 K	A	C	14	1	0	0
1	2	56 K	A	C	0	0	14	1
2	3	56 K	A	C	42	3	28	2
3	4	56 K	A	C	28	2	42	3
4	5	56 K	A	C	70	5	56	4
5	6	56 K	A	C	56	4	70	5
6			N					
7			N					
8			N					
9			N					
10			N					
11			N					

A-ACTIVE I-INACTIVE N-NOT CONFIGURED C-CONNECTED D-DISCONNECTED

0?:?? - TIME INTO SIMULATION ??:??:?? - TIME-OF-YEAR

NOTES: 1. Time into Simulation goes from 01:04 to 04:59.

OPCOMM FUNCTION 3, PHASE 1 DATA COLLECTION
CID X.25 DEVICE STATISTICS SCREEN, FROM TIME 01:04 TO 4:59

COMMUNICATIONS INTERFACE DRIVER X.25 STATISTICS

THE INITIALIZATION DATABASE FILE IS CIDINIT1

DEV #	PORT #	BAUD RATE	-STATUS- DEV	LINK	------ INPUT ----- BYTES / SECOND	MSG./ SECOND	------ OUTPUT ---- BYTES / SECOND	MSG./ SECOND
0	1	56 K	A	C	0	0	0	0
1	2	56 K	A	C	0	0	0	0
2	3	56 K	A	C	0	0	0	0
3	4	56 K	A	C	0	0	0	0
4	5	56 K	A	C	0	0	0	0
5	6	56 K	A	C	0	0	0	0
6			N					
7			N					
8			N					
9			N					
10			N					
11			N					

A-ACTIVE I-INACTIVE N-NOT CONFIGURED C-CONNECTED D-DISCONNECTED

0?:?? - TIME INTO SIMULATION ??:??:?? - TIME-OF-YEAR

NOTES: 1. Time into Simulation is after 5:00.

OPCOMM FUNCTION 3, PHASE 1 DATA COLLECTION
CID X.25 DEVICE STATISTICS SCREEN, AT TIME 05:00

COMMUNICATIONS INTERFACE DRIVER X.25 STATISTICS

THE INITIALIZATION DATABASE FILE IS CIDINIT7

DEV #	PORT #	BAUD RATE	-STATUS- DEV	LINK	------ INPUT ----- BYTES / SECOND	MSG./ SECOND	------ OUTPUT ---- BYTES / SECOND	MSG./ SECOND
0			N					
1			N					
2			N					
3			N					
4			N					
5			N					
6	1	56 K	A	C	0	0	0	0
7	2	56 K	A	C	0	0	0	0
8	3	56 K	A	C	0	0	0	0
9	4	56 K	A	C	0	0	0	0
10	5	56 K	A	C	0	0	0	0
11	6	56 K	A	C	0	0	0	0

A-ACTIVE I-INACTIVE N-NOT CONFIGURED C-CONNECTED D-DISCONNECTED

00:?? - TIME INTO SIMULATION ??:??:?? - TIME-OF-YEAR

NOTES: 1. Time into Simulation is less than 01:00

OPCOMM FUNCTION 3, PHASE 2 DATA COLLECTION
CID X.25 DEVICE STATISTICS SCREEN, FROM TIME 00:00 TO 0:59

COMMUNICATIONS INTERFACE DRIVER X.25 STATISTICS

THE INITIALIZATION DATABASE FILE IS CIDINIT7

DEV #	PORT #	BAUD RATE	-STATUS- DEV	LINK	------ INPUT ----- BYTES / SECOND	MSG./ SECOND	------ OUTPUT ---- BYTES / SECOND	MSG./ SECOND
0			N					
1			N					
2			N					
3			N					
4			N					
5			N					
6	1	56 K	A	C	14	1	0	0
7	2	56 K	A	C	0	0	14	1
8	3	56 K	A	C	42	3	28	2
9	4	56 K	A	C	28	2	42	3
10	5	56 K	A	C	70	5	56	4
11	6	56 K	A	C	56	4	70	5

A-ACTIVE I-INACTIVE N-NOT CONFIGURED C-CONNECTED D-DISCONNECTED

0?:?? - TIME INTO SIMULATIO ??:??:?? - TIME-OF-YEAR

NOTES: 1. Time into Simulation goes from 01:04 to 04:59.

OPCOMM FUNCTION 3, PHASE 2 DATA COLLECTION
CID X.25 DEVICE STATISTICS SCREEN, FROM TIME 01:04 TO 4:59

COMMUNICATIONS INTERFACE DRIVER X.25 STATISTICS

THE INITIALIZATION DATABASE FILE IS CIDINIT7

DEV #	PORT #	BAUD RATE	-STATUS- DEV	LINK	------ INPUT ----- BYTES / SECOND	MSG./ SECOND	------ OUTPUT ---- BYTES / SECOND	MSG./ SECOND
0			N					
1			N					
2			N					
3			N					
4			N					
5			N					
6	1	56 K	A	C	0	0	0	0
7	2	56 K	A	C	0	0	0	0
8	3	56 K	A	C	0	0	0	0
9	4	56 K	A	C	0	0	0	0
10	5	56 K	A	C	0	0	0	0
11	6	56 K	A	C	0	0	0	0

A-ACTIVE I-INACTIVE N-NOT CONFIGURED C-CONNECTED D-DISCONNECTED

0?:?? - TIME INTO SIMULATION ??:??:?? - TIME-OF-YEAR

NOTES: 1. Time into Simulation is after 05:00.

OPCOMM FUNCTION 3, PHASE 2 DATA COLLECTION
CID X.25 DEVICE STATISTICS SCREEN, AT TIME 05:00

Stage 7, test 1 commands to create a message.

Enter the parameters for the following ATC-to-Mode S messages:

For a standard uplink message

```
ASSIGNED MESSAGE NUMBER (0-FF)      - 01
X.25 PORT NUMBER (1 - 6)            - 1
MODE S ADDRESS (6 DIGIT HEX)        - FAA001
PRIORITY (0-F HEX)                  - 1
EXPIRATION (0 - 7 SCANS)            - 1
ACKNOWLEDGEMENT (0 OR 1)            - 1
SEGMENT COUNT (0 - 3)               - 3
COMM-A MESSAGE TEXT (14 HEX DIGITS)-
AAAAAAAAAAAAAA BBBBBBBBBBBBBB CCCCCCCCCCCCCC DDDDDDDDDDDDDD
```

For an elm uplink message

```
ASSIGNED MESSAGE NUMBER (0-FF)      - 02
X.25 PORT NUMBER (1 - 6)            - 1
MODE S ADDRESS (6 DIGIT HEX)        - FAA002
PRIORITY (0-F HEX)                  - 1
EXPIRATION (0 - 7 SCANS)            - 1
# of segments to send (0 - 4)       - 4
ELM DEFAULT TEXT BLOCK (1 - 5)      - 1
```

For a request for downlink data message

```
ASSIGNED MESSAGE NUMBER (0-FF)      - 03
X.25 PORT NUMBER (1 - 6)            - 1
MODE S ADDRESS (6 DIGIT HEX)        - FAA003
PRIORITY (0-F HEX)                  - 1
EXPIRATION (0 - 7 SCANS)            - 1
BDS1 AND BDS2 (00 - FF HEX)         - EF
```

For an ATCRBS ID request message

```
ASSIGNED MESSAGE NUMBER (0-FF)      - 04
X.25 PORT NUMBER (1 - 6)            - 1
MODE S ADDRESS (6 DIGIT HEX)        - FAA004
```

For a message cancellation request message

```
ASSIGNED MESSAGE NUMBER (0-FF)      - 05
X.25 PORT NUMBER (1 - 6)            - 1
MODE S ADDRESS (6 DIGIT HEX)        - FAA005
REFERENCE MESSAGE NUMBER (0-7F HEX)- 7F
REFERENCE TYPE CODE (0-FF HEX)      - FF
```

For a nonspecified type message

```
ASSIGNED MESSAGE NUMBER (0-FF)      - 06
X.25 PORT NUMBER (1 - 6)            - 1
MESSAGE LENGTH IN BYTES (1-14 HEX) - 14
MESSAGE BIT STREAM (IN HEX)         - 12345678901234567890
```

APPENDIX I

CIDCHECK LISTINGS

Output for Stage 1 Test 7 Run 1.

The output for this test will not contain any errors and will be just the statistics portion of a listing.

	*******Input******		******Output******	
Type Code	Messages	Bytes	Messages	Bytes
02	2	10	2	10
08	1	5	1	5
09	1	5	1	5
21	1	35	1	35
22	1	87	1	87
23	1	7	1	7
24	1	5	1	5
25	1	7	1	7
29	1	14	1	14
2a	1	17	1	17
2b	1	7	1	7
2d	1	7	1	7
Total	13	206	13	206

	*******Input******		******Output******	
Port	Messages	Bytes	Messages	Bytes
1	2	40	2	94
2	2	94	2	40
3	2	12	3	24
4	3	24	2	12
5	2	24	2	12
6	2	12	2	24
Total	13	206	13	206

	*******Input******		******Output******	
Line	Messages	Bytes	Messages	Bytes
6	2	40	2	94
7	2	94	2	40
8	2	12	3	24
9	3	24	2	12
a	2	24	2	12
b	2	12	2	24
Total	13	206	13	206

	*******Input******		******Output******	
Track	Messages	Bytes	Messages	Bytes
001	3	49	3	49
002	3	28	3	28
003	3	97	3	97
004	4	32	4	32
Total	13	206	13	206

Time between messages in 1/128 seconds

Delta time	Record count
0	8
2	5

Output for Stage 1 Test 7 Run 2.

The output for this test will show any differences in the data on the two tapes. The different records from each tape will be listed and the user should compare the two.

```
Source block record
INPUT MESSAGE line=6 time=2626 toy=09:32:09.51 len=35
Std uplink    : tc=21 mdsid=faa001 msgnum=01 p=f exp=7 ack=1 sc=3
aaaaaaaaaaaaaa aaaaaaaaaaaaaa aaaaaaaaaaaaaa aaaaaaaaaaaaaa

Destination block record
INPUT MESSAGE line=7 time=2626 toy=09:32:09.54 len=35
Std uplink    : tc=21 mdsid=faa001 msgnum=01 p=f exp=7 ack=1 sc=3
aaaaaaabadaaaa aaaaaaaaaaaaaa aaaaaaaaaaaaaa aaaaaaaaaaaaaa

Source block record
INPUT MESSAGE line=6 time=10b0d toy=09:33:09.54 len=5
AID req       : tc=24 mdsid=faa003 msgnum=02

Destination block record
INPUT MESSAGE line=7 time=10b0b toy=09:33:09.54 len=5
Req State     : tc=08 mdsid=faa003 msgnum=02
```

	*******Input******		******Output******	
Type Code	Messages	Bytes	Messages	Bytes
02	1	5	1	5
08	1	5	2	10
09	1	5	1	5
21	1	35	1	35
22	1	87	1	87
23	1	7	1	7
24	1	5	0	0
25	1	7	1	7
29	1	14	1	14
2a	1	17	1	17
2b	1	7	1	7
2d	1	7	1	7
Total	12	201	12	201

	*******Input******		******Output******	
Port	Messages	Bytes	Messages	Bytes
1	3	127	1	7
2	1	7	3	127
3	2	12	3	24
4	3	24	2	12
5	2	24	1	7
6	1	7	2	24
Total	12	201	12	201

	*******Input******		******Output******	
Line	Messages	Bytes	Messages	Bytes
6	3	127	1	7
7	1	7	3	127
8	2	12	3	24
9	3	24	2	12
a	2	24	1	7
b	1	7	2	24
Total	12	201	12	201

	*******Input******		******Output******	
Track	Messages	Bytes	Messages	Bytes
001	3	49	3	49
002	3	28	3	28
003	3	97	3	97
004	3	27	3	27
Total	12	201	12	201

Time between messages in 1/128 seconds

Delta time	Record count
0	5
2	1
3	4

APPENDIX J

PHASE II MISCELLANEOUS

Stage 7, test 2 output results.

The following will be the data results of message numbers 1-22 of the View A Message function upon reception of the messages from the HP system; where message numbers 21 and 22 will be 1 and 2 upon the wrap around format:

MSG#	Data
1	42FAA0010101DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD
2	41FAA0020240BBBBBBBB
3	31FAA0030380
4	42FAA0040401DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD
5	31FAA0050560
6	42FAA0010601DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD
7	45FAA002070FFF
8	44FAA0030876666666
9	42FAA0040901DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD
10	31FAA0050A00
11	44FAA0010B76666600
12	44FAA0020C76660066
13	32FAA0030D80
14	45FAA0040E0FFF
15	41FAA0050F40BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
16	32FAA0011000
17	41FAA0021140BBBBBBBBBBBBBBBBBBBBBBBBBBBBB
18	45FAA003120FFF
19	31FAA0041380
20	44FAA0051476006666
1	41FAA0011540BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
2	32FAA0021680