

ISOLATION TEST PROCEDURE FOR FIBER OPTICS

COMPUTER PRODUCTS, INCORPORATED  
MEASUREMENT & CONTROL SYSTEMS DIVISION

TEST PROCEDURE

INITIATED BY: John Newman DATE 11/15/84

DRAWN BY: Kathy Robinson DATE 11/15/84

REVIEWED BY: M. J. ... DATE 12-12-84

APPROVED BY: [Signature] DATE 12-13-84

MFG. RELEASED BY: N/A DATE \_\_\_\_\_

ENG. RELEASED BY: N/A DATE \_\_\_\_\_

SYSTEMS ENGINEERING APPROVAL REQUIRED YES  NO

RECORD OF REVISIONS

REV	DESCRIPTION	INITIATOR	REVIEWED	APPROVED	DATE

8503130357 850228  
PDR ADOCK 05000298  
F PDR

# ISOLATION TEST PROCEDURE FOR FIBER OPTICS

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## I. PURPOSE:

The purpose of this document is to define a procedure for testing the isolation characteristics of fiber optic cabling and the associated transmitters and receivers used in the Computer Products Inc. Data Concentrator (P/N 072-5001-000).

## II. SCOPE:

The isolation test shall consist of:

- 2.1 A test of the Data Concentrator, fiber optic link, and peripherals will be performed before and after each test to assure operation.
- 2.2 A Common Mode test will be performed on the Emitter and the Detector of the High Speed Serial Ports fiber optic link under test.
- 2.3 A Transverse Mode test will be performed on the Emitter and the Detector of the High Speed Serial Ports fiber optic link under test.

## III. APPLICABLE DOCUMENTS:

- 3.1 CA072-5001

## IV. REQUIREMENTS:

- 4.1 Equipment - General
  - 4.1.1 000-045 AC-DC Variable Voltage Power Supply
- 4.2 Equipment - Special
  - 4.2.1 Data Concentrator - Computer Products Inc.  
P/N 072-5001-000 with High Speed Serial Port  
(021-5261) option.
    - 4.2.1.1 Brand Rex Duplex fiber optic cable  
terminated with Amphenol SMA connectors  
P/N 001002 (cable)  
P/N 906-110-5009 (connectors)

## ISOLATION TEST PROCEDURE FOR FIBER OPTICS

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4.2.2 Universal Controller - Computer Products Inc.  
P/N 070-0004-003 with the following options:

4.2.2.1 Digital Input CPI P/N 021-0024-113

4.2.2.2 D/I Test Fixture CPI P/N 021-0099-000

4.2.2.3 Optical Modem CPI P/N 021-5258-000

4.2.2.4 Intelligent Remote Control Unit (IRCU)  
CPI P/N 022-5002-000

### 4.3 Calibration

All equipment requiring calibration, utilized in the performance of this procedure, shall bear valid calibration decals.

### 4.4 Environment

This procedure shall be performed under standard/normal environmental conditions.

### 4.5 Power

This procedure shall be performed with a source voltage of 115VAC, 60 Hz.

### 4.6 Personnel

One technician is required to perform this procedure.

### 4.7 Test Data Recording:

Test parameters shall be recorded on log sheets. Monitoring personnel shall sign and date the log sheets.

## V. CONFIGURATION FOR TEST:

5.1 Configure the Data Concentrator per the assembly drawings (CA072-5001). Connect the fiber optic cabling to Link 0 (CR2, U62).

5.2 Configure the Universal Controller as follows:

Digital Input Card	Slot 6
D/I Test Fixture	300/400 edge D/I Card
Optical Modem	Slot 7
IRCU	Slot 1

5.3 Set-up the Variable Voltage Power Supply for 240VAC RMS.

5.4 De-energize Variable Voltage Source.

VI. TEST: COMMON MODE

6.1 Functional test of Data Concentrator and peripherals.

6.1.1 Power-on the Data Concentrator test station.

6.1.2 Using the menu prompts define and generate an I/O database addressing the Digital Input Card in the Universal Controller.

6.1.3 Reset the Data Concentrator.

6.1.4 Using the menu prompts display point information pertaining to the Digital Input Card.

6.1.5 Toggle several bits of the Digital Input test fixture to verify accurate data. SIGN AND DATE THE LOG SHEET.

Note: The following steps refer to the 021-5261 test card.

6.2 Lift pins 2 and 3 of CR2 on the 021-5261 test card and jumper together. Lift pins 1,2,3 and 4 of U62 on the 021-5261 test card and jumper together.

6.3 Connect the Variable Voltage Source between pins 2 and 3 of CR2 and instrument GND.

6.4 Apply power to the Variable Voltage Source and energize for 30 seconds.

6.5 De-energize the Variable Voltage Source.

6.6 Connect the Variable Voltage Source between pins 1,2,3 and 4 of U62 and instrument GND.

6.7 Energize the Variable Voltage Source for 30 seconds.

6.8 De-energize the Variable Voltage Source.

VII. TEST: TRANSVERSE MODE

7.1 Reassemble CR2 and U62 of the 021-5261 test card. Connect the fiber optic cabling to Link 0 (CR2, U62). Repeat step 6.1.3 thru 6.1.5. SIGN AND DATE THE LOG SHEET.

NOTE: If CR2 or U62 are found to be inoperable, replace with new components and repeat step 7.1.

- 7.2 Disconnect pins 1,2,3 and 4 of U62 on the 021-5261 test card. Disconnect pins 1,2 and 3 of CR2 on the 021-5261 test card.
  - 7.2.1 Short pins 1, 2 and 4 of U62 on the 021-5261 test card.
- 7.3 Connect the Variable Voltage Source between pin 2 and pin 3 of CR2.
- 7.4 Energize the Variable Voltage Source for 30 seconds.
- 7.5 De-energize the Variable Voltage Source.
- 7.6 Connect the Variable Voltage Source between pins 1, 2, 4 and pin 3 of U62.
- 7.7 Energize the Variable Voltage Source for 30 seconds.
- 7.8 De-energize the Variable Voltage Source.
- 7.9 Disconnect pin 4 from pins 1 and 2 of U62 on the 021-5261 test card.
- 7.10 Connect the Variable Voltage Source between pin 1 and pin 2 of U62.
- 7.11 Energize the Variable Voltage Source for 30 seconds.
- 7.12 De-energize the Variable Voltage Source.
- 7.13 Reassemble CR2 and U62 of the 021-5261 test card. Connect the fiber optic cabling to Link 0 (CR2, U62). Repeat step 6.1.3 thru 6.1.5. SIGN AND DATE THE LOG SHEET.

NOTE: If CR2 or U62 are found to be inoperable, replace with new components and repeat step 7.13.

If the Data Concentrator or peripherals fail, the failure will be noted in the space allotted for comments pertaining to the steps where the failure occurred.

ISOLATION TEST PROCEDURE FOR FIBER OPTICS

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LOG SHEET

Signature signifies proper completion of steps.

Step 6.1      Signature W. C. J. H.      Date 12/13/84  
Comments:

Step 6.2  
thru 7.1      Signature W. C. J. H.      Date 12/13/84  
Comments:

Steps 7.2  
thru 7.13      Signature W. C. J. H.      Date 12/13/84  
Comments:

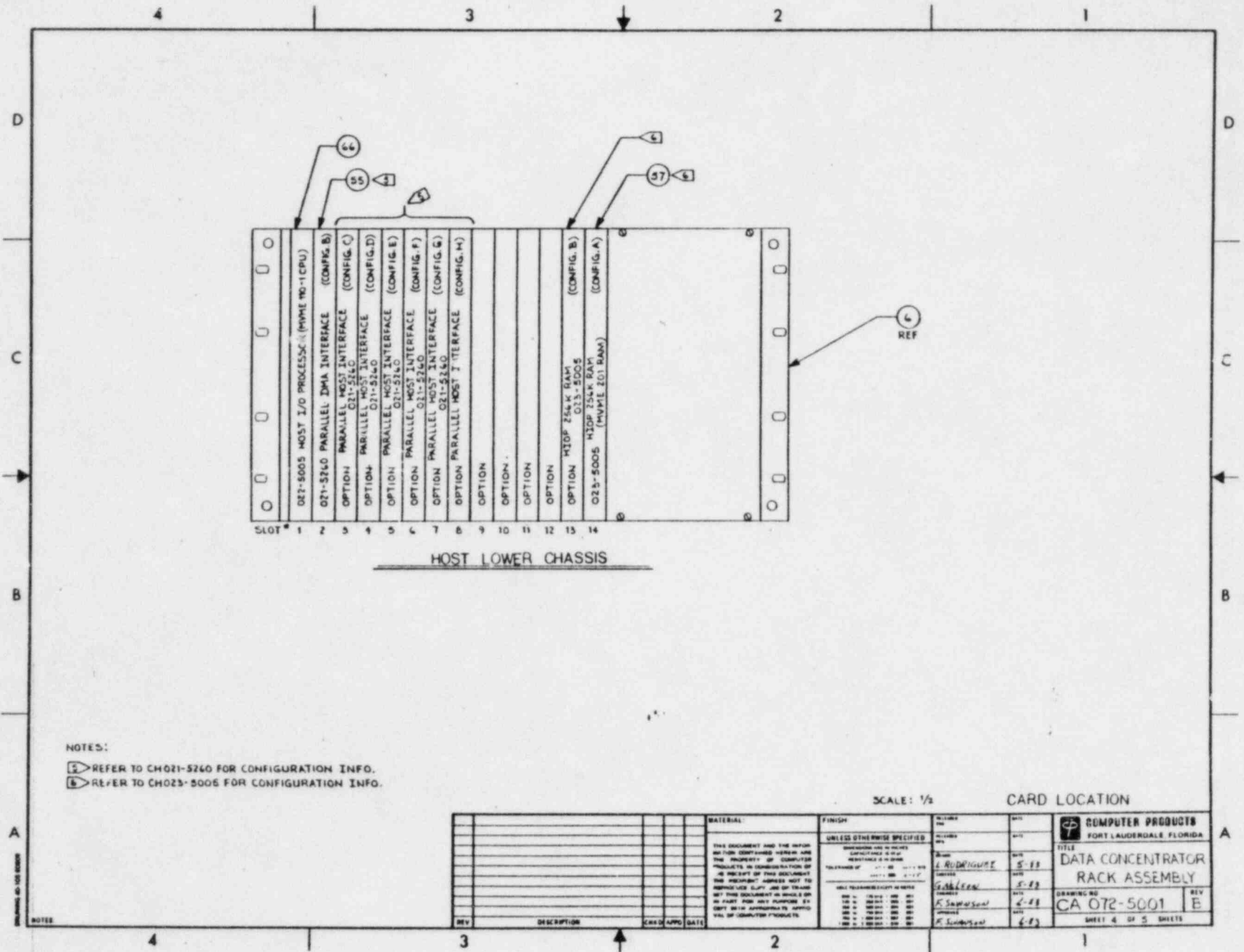












NOTES:

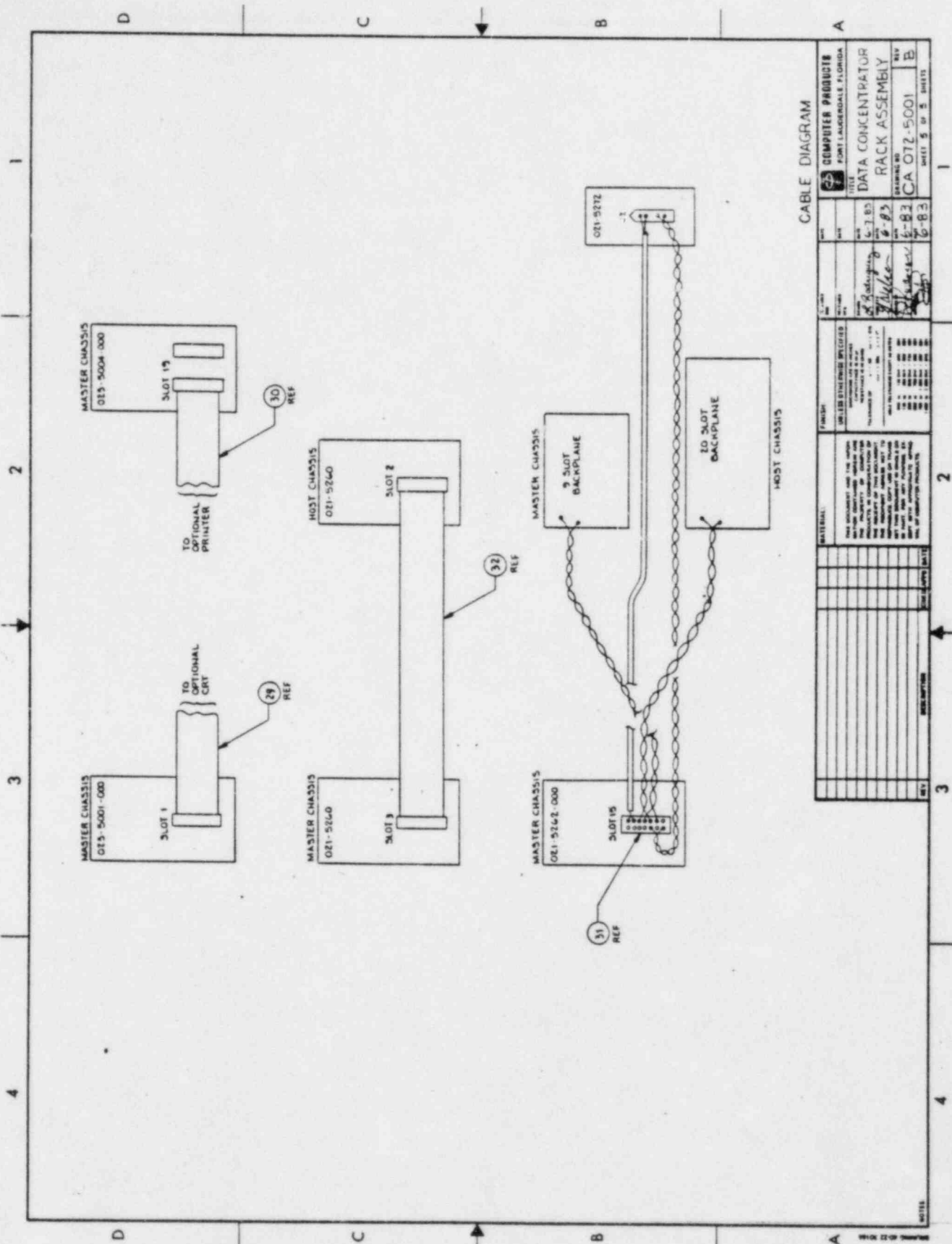
- ④ REFER TO CH021-5240 FOR CONFIGURATION INFO.
- ⑤ REFER TO CH023-5005 FOR CONFIGURATION INFO.

HOST LOWER CHASSIS

SCALE: 1/2

CARD LOCATION

<p>REVISIONS</p> <table border="1"> <thead> <tr> <th>REV</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>		REV	DESCRIPTION	DATE																															<p>MATERIAL</p> <p>THIS DOCUMENT AND THE INFORMATION CONTAINED HEREIN ARE THE PROPERTY OF COMPUTER PRODUCTS. NO REPRODUCTION OR TRANSMISSION IN ANY FORM OR BY ANY MEANS IS PERMITTED WITHOUT THE WRITTEN PERMISSION OF COMPUTER PRODUCTS.</p>	<p>FINISH</p> <p>UNLESS OTHERWISE SPECIFIED</p> <p>ALL DIMENSIONS ARE IN INCHES</p> <p>UNLESS OTHERWISE SPECIFIED</p> <p>TOLERANCES ARE</p> <p>DECIMAL INCHES</p> <p>FRAMES</p> <p>000 - 0.000</p> <p>001 - 0.001</p> <p>002 - 0.002</p> <p>003 - 0.003</p> <p>004 - 0.004</p> <p>005 - 0.005</p> <p>006 - 0.006</p> <p>007 - 0.007</p> <p>008 - 0.008</p> <p>009 - 0.009</p> <p>010 - 0.010</p> <p>011 - 0.011</p> <p>012 - 0.012</p> <p>013 - 0.013</p> <p>014 - 0.014</p> <p>015 - 0.015</p> <p>016 - 0.016</p> <p>017 - 0.017</p> <p>018 - 0.018</p> <p>019 - 0.019</p> <p>020 - 0.020</p>	<p>COLORS</p> <p>BY</p> <p>DATE</p> <p>BY</p> <p>DATE</p> <p>BY</p> <p>DATE</p> <p>BY</p> <p>DATE</p>	<p>COMPUTER PRODUCTS</p> <p>FORT LAUDERDALE, FLORIDA</p> <p>TITLE</p> <p>DATA CONCENTRATOR</p> <p>RACK ASSEMBLY</p> <p>DRAWING NO.</p> <p>CA 072-5001</p> <p>SHEET 4 OF 5 SHEETS</p> <p>REV</p> <p>E</p>
REV	DESCRIPTION	DATE																																				



**CABLE DIAGRAM**

COMPUTER PRODUCTS  
FORT LAUDERDALE, FLORIDA

TITLE  
DATA CONCENTRATOR  
RACK ASSEMBLY

ORIGINAL NO.  
CA 072-5001

REV  
B

SHEET 5 OF 5 SHEETS

Attachment 4

Large format color photographs or reproductions  
and all PMIS display pages that are defined as  
SPDS displays and all unique display/control  
hardware interfaces.