

## **FACTORY ACCEPTANCE TEST PROCEDURE**

**(Drop Insert Multiplexer & DACS)**

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## 1.0 FAT SAMPLING:

The sampling rate for the Factory Acceptance Test (FAT) shall be 10% of the batch size (minimum 1) for all the items. The physical verification shall be carried out on 100% of the offered quantities. In case any sample fails, the failed sample will be rejected, and an additional 20% samples will be selected randomly and tested. In case any sample from the additional 20% also fails the entire batch may be rejected. In case a number of equipments are required for demonstration of the performance of any equipment during FAT, the sample size shall be taken as that number of equipment which are necessary to demonstrate the performance, irrespective of the percentage.

## 2.0 ABBREVIATIONS

AC	Alternate Current
BER	Bit Error rate
DACS	Digital Access Cross Connect Switch
DC	Direct Current
DCN	Data Communication Network
EXCH	Exchange
FAT	Integrated Factory Acceptance Test
FDS	Functional Design Specification
FTC	Fiber Termination Closure
GPS	Global Positioning System
LCT	Local Craft Terminal
NMS	Network Management System
PDH	Plesiochronous Digital Heirachy
SDH	Synchronization Digital Hierarchy
STM	Synchronous Transport Module

**TPS-FOTS-001 A: Review of Calibration or Manufacturing Certificates**

Equipment Under Test : Test Equipment

Test Parameters : Review of Calibration or Manufacturing Certificates

### 1.0 TEST DESCRIPTION

Prior to the commencement of system testing, the calibration certificates of all the test equipments as used in the tests for performing the system factory acceptance testing will be reviewed by the inspection team.

### 2.0 LIST OF TEST EQUIPMENT

Test Equipment	Make	Model No.	Serial No.	Calibration Valid till Date

### 3.0 TEST RESULT RECORD

Copies of the calibration certificates will be attached along with this test sheet. All the test equipments used during the test shall have valid calibration.

**Status**

( ) Tested – OK \_\_\_\_\_

( ) Tested – Failed \_\_\_\_\_

**Remarks**

\_\_\_\_\_  
\_\_\_\_\_

**Tested By:**

(Manufacturer)

**Date:**

**Witnessed By:**

(PrKTCL)

**Date:**

**TPS-FOTS-001 B: Physical Inspection of PDH & DACS**

Equipment Under Test : PDH & DACS Equipment

Test Parameters : Physical Verification

**1.0 TEST DESCRIPTION**

The aim of this test is to verify station-wise inventory of offered equipment.

**2.0 TEST PROCEDURE**

1. Verify it with the quantity of offered equipment as per approved BOQ.
2. Verify for any physical damage.

**3.0 TEST RESULT RECORD**

The quantity should be found as per the approved BOQ and all the material free from any physical damage.

**Status**

( ) Tested - OK \_\_\_\_\_  
( ) Tested - Failed \_\_\_\_\_

**Remarks**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Tested By:**

(Manufacturer)

**Date:**

**Witnessed By:**

(PrKTCL)

**Date:**

**TPS-FOTS-002 A: Performance of supervision, alarm, control and switching systems, Diagnostics loopbacks, craft person interface.**

Equipment Under Test : Drop & Insert Multiplexer / DACS

### 1.0 TEST DESCRIPTION

The aim of this test is to be to verify the functionality of alarms, control, diagnostics, and loopback and craft management interface.

### 2.0 TEST EQUIPMENT

- Drop & Insert Multiplexer
- Subscriber Line Interface Cards
- Local Craft Terminal

### 3.0 TEST SETUP

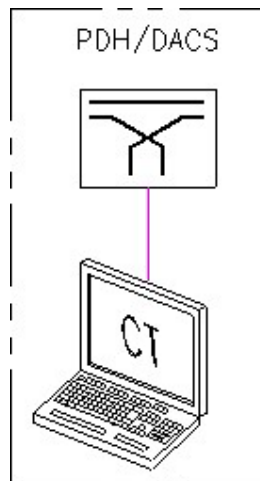


Figure: LCT Functionality Test (PDH)

### 4.0 TEST PROCEDURE

1. Connect the network elements as depicted in Figure-1
2. Check whether equipment can be supervised & controlled by craft terminal.
3. Apply 2Mbit/sec loopback.
4. Check password protection for the LCT.
5. When any failure occurs verify craft terminal can correctly indicate failed card & slot.
6. Tabulate the results as under section 5.1.1 to 5.1.3

## 5.0 TEST RESULT RECORD

Sr. No.	Test Description	Results (OK/NOT OK)
5.1.1	Supervision, control of equipment via craft terminal	(OK/NOT OK)
5.1.2	Password Protection for Craft Terminal	(OK/NOT OK)
5.1.3	Identification Of Faulty Cards	(OK/NOT OK)

**Status**

( ) Tested – OK \_\_\_\_\_

( ) Tested – Failed \_\_\_\_\_

**Remarks**


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Tested By:

(Manufacturer)

Witnessed By:

(PrKTCL)

Date:

Date:

### TPS-FOTS-003 A: Electrical Interface – BER Error Rate

Equipment Under Test : Drop & Insert Multiplexer / DACS

Test Parameters : BER of Electrical interface

## 1.0 TEST DESCRIPTION

The aim of this test is to check the BER of electrical interface.

## 2.0 TEST EQUIPMENT

- Drop & Insert Multiplexer / DACS
- E1 Tester (BER Analyzer)

## 3.0 TEST SETUP

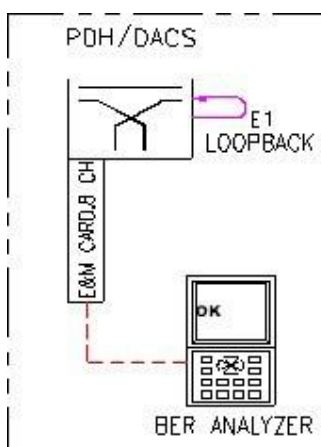


Figure: BER of electrical interface

## 4.0 TEST PROCEDURE

1. Connect the network elements as depicted in the above Figure.
2. Set the BER analyzer for BER testing .
3. Apply soft loop back on the E1 interface.
4. Run the BER test.
5. Tabulate the results as under section 5 of this Test procedure.

## 5.0 TEST RESULT:

BER Measured: \_\_\_\_\_

## 6.0 Acceptance Criteria:

BER result should be better than  $10^{-10}$ .



**Status**

( ) Tested – OK \_\_\_\_\_

( ) Tested – Failed \_\_\_\_\_

**Remarks**

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**Tested By:**

**(Manufacturer)**

**Witnessed By:**

**(PrKTCL)**

**Date:**

**Date:**

### TPS-FOTS-003 B : Demonstration of Cross Connect Functionality of the DACS

Equipment Under Test : Drop & Insert Multiplexer / DACS

Test Parameters : Cross Connect Functionality test.

#### 1.0 TEST DESCRIPTION

The aim of this test is to verify cross connect Functionality of the Drop & Insert Multiplexer and DACS

#### 2.0 TEST EQUIPMENT

- Drop & Insert Multiplexer and DACS

#### 3.0 TEST SETUP

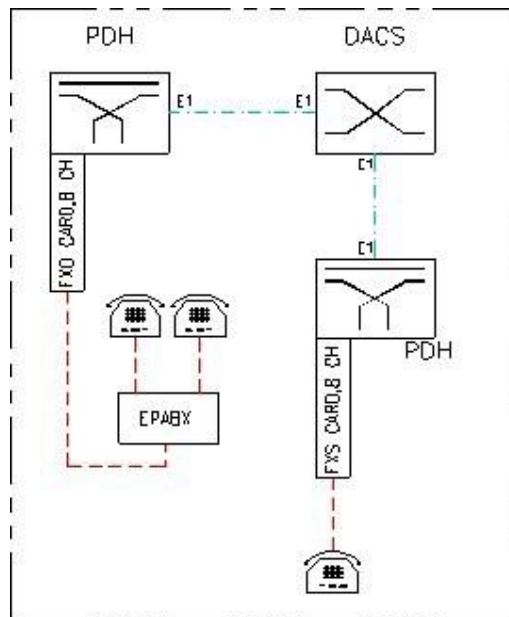


Figure: Cross connect Functionality Test

#### 4.0 TEST PROCEDURE

1. Connect the Network Elements as shown in Figure 1.
2. Create a cross connection from DACS and Drop Insert Multiplexers to extend voice/ data.
3. Use a tester or phone to verify that the link is established, and cross connections are correct.
4. Tabulate the results as under Section 5.

## 5.0 TEST RESULTS

Sr. No.	Local Station	Slot No./ Port No.	Remote Station	Slot No./ Port No.	Result
5.1					( OK / NOT OK )
5.2					( OK / NOT OK )
5.3					( OK / NOT OK )
5.4					( OK / NOT OK )

**Status**

( ) Tested – OK \_\_\_\_\_

( ) Tested – Failed \_\_\_\_\_

**Remarks**


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Tested By:

(Manufacturer)

Date:

Witnessed By:

(PrKTCL)

Date:

### TPS-FOTS-003 C: Electric interface – Input Jitter

Equipment Under Test : **Drop & Insert Multiplexer / DACS**

Test Parameters : **Electric interface – Input Jitter**

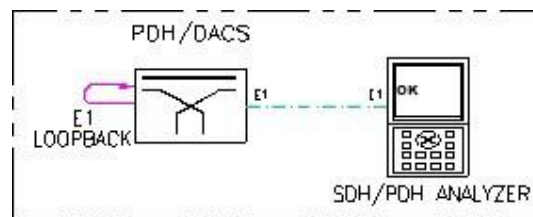
#### 1.0 TEST DESCRIPTION

The aim of this test is Measurement of input Jitter Tolerance of the electrical interface. In compliance with ITU-T G.823

#### 2.0 TEST EQUIPMENT

- Drop & Insert Multiplexer / DACS
- E1 Tester (BER Analyzer)

#### 3.0 TEST SETUP



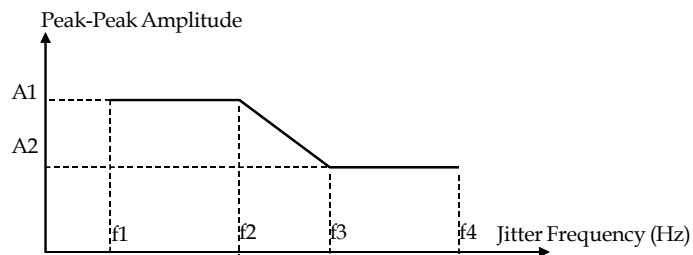
**Figure: Electric interface – Input Jitter**

#### 4.0 TEST PROCEDURE

1. Connect the network elements as depicted in Figure 1
2. Select relevant rate for E1 Analyzer Rx / Tx port.
3. Setup the E1 Tester for Jitter Tolerance measurement.
4. Commence the testing, by selecting the Jitter frequency within the mask as per G.823 standard.
5. The E1 Analyzer will record all the values and plot the result.
6. Now go to Jitter Test Menu and perform Jitter Tolerance test by selecting Auto Tolerance Menu from the options (In Auto Jitter Tolerance test, the E1 Analyzer automatically increases the Jitter until the point of failure and plots the point on the graph and then proceeds to the next Jitter Frequency).
7. Print out the plot of the result.

## 5.0 TEST RESULT

Input jitter tolerance of E1 electrical interfaces:



Measured value should be as per ITU-T G.823. The test results will be attached with this.

Digit rate (Mbps)		Peak-Peak amplitude unit interval		Jitter Frequency				Remarks
E1	Standard	1.5	0.2	20	2.4k	18k	100k	

### Status

( ) Tested - OK \_\_\_\_\_

( ) Tested - Failed \_\_\_\_\_

### Remarks

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**Tested By:**

(Manufacturer)

**Witnessed By:**

(PrKTCL)

**Date:**

**Date:**

**TPS-FOTS-003 D: Electrical Interface - Output Jitter**

Equipment Under Test : Drop & Insert Multiplexer / DACS

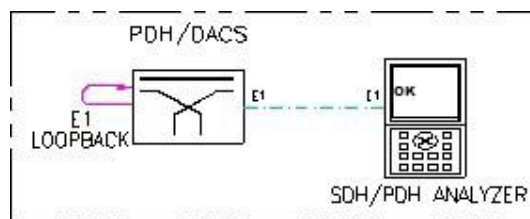
Test Parameters : Electrical Interface - Output Jitter

**1.0 TEST DESCRIPTION**

The aim of this test is Measurement of output Jitter Tolerance of the electrical interface. In compliance with ITU-T G.823

**2.0 TEST EQUIPMENT**

- Drop & Insert Multiplexer / DACS
- E1 Tester (BER Analyzer)

**3.0 TEST SETUP**

**Figure: Electrical Interface - Output Jitter**

**4.0 TEST PROCEDURE**

1. Make setup as shown in above figure.
2. Set up E1 Traffic from E1 Analyzer.
3. Apply a Loop back on the E1 interface of the PDH / DACS equipment.
4. With the loop-back, there shall be no bit errors reported in the test set.
5. Apply E1 Analyzer to send test signals and configure proper measurement filter at the receiving end.
6. Perform continuous test with duration of 60 seconds.
7. Record the measured maximum peak-to-peak value of jitter.

## 5.0 TEST RESULTS

Interface	Measuring Filter	Result	Peak-peak Jitter
2048 Kbit/s (E1 Interface)	20Hz to 100kHz (LP+HP1)	Standard	1.50 UI
		Measured	
	18kHz to 100kHz (LP+HP2)	Standard	0.2 UI
		Measured	

The measured value should not exceed the limits given in the above table.

### Status

( ) Tested - OK \_\_\_\_\_

( ) Tested - Failed \_\_\_\_\_

### Remarks

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**Tested By:**

(Manufacturer)

**Witnessed By:**

(PrKTCL)

**Date:**

**Date:**

**TPS-FOTS-003 E: Electrical interface Pulse Shape**

Equipment Under Test : Drop & Insert Multiplexer / DACS

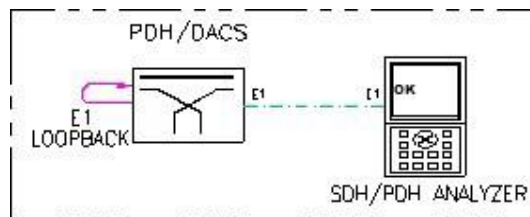
Test Parameters : Electrical interface Pulse Shape

**1.0 TEST DESCRIPTION**

The aim of this test to determine the output signal shape for electrical interface. In compliance with ITUT G.703

**2.0 TEST EQUIPMENT**

- Drop & Insert Multiplexer / DACS
- E1 BER Tester (SDH Analyzer)

**3.0 TEST SETUP**

**Figure: Electrical interface Pulse Shape**

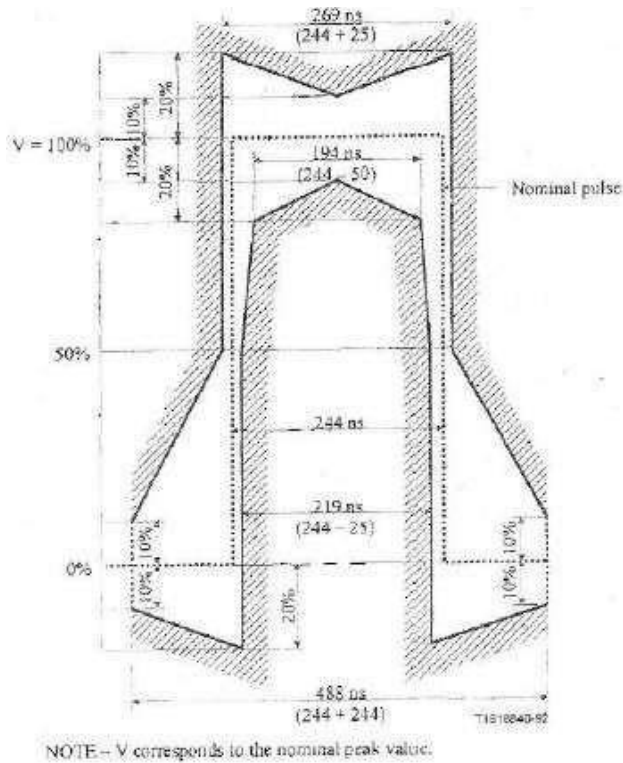
**4.0 TEST PROCEDURE**

1. Connect the network elements as depicted in the given Figure-1.
2. Enable (Admin Up) on E1 tributary for which pulse shape is to be measured.
3. Set the BER Analyzer in E1 Pulse Shape mode.
4. Observe the pulse shape, record the results and verify if the results are within the specification limits.
5. Tabulate the results as under section 5.

**5.0 TEST RESULT**

Pulse Shape





The E1 Pulse Mask should be in accordance / compliance with ITU-T G.703.

### Status

( ) Tested - OK \_\_\_\_\_

( ) Tested - Failed \_\_\_\_\_

### Remarks

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Tested By:**

(Manufacturer)

**Date:**

**Witnessed By:**

(PrKTCL)

**Date:**

### TPS-FOTS-003 F: Cable Compensation Test

Equipment Under Test : Drop & Insert Multiplexer / DACS

Test Parameters : E1 Interface

#### 1.0 TEST DESCRIPTION

The aim of this test is to check the performance of 2Mbps tributary by introducing desired attenuation.

#### 2.0 TEST EQUIPMENT

- E1 BER Tester (BER Analyzer)
- Local Craft Terminal

#### 3.0 TEST SETUP

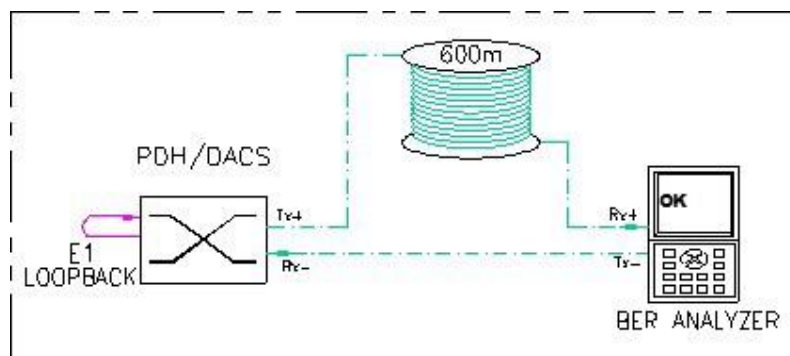


Figure: Cable compensation

#### 4.0 TEST PROCEDURE:

The test procedures are as follows:

1. Make the test set up as shown in the diagram.
2. Set the E1 Tester in BER Test mode.
3. Use 600 meters of RG59 coaxial cable to extend the Tx interface of the E1 to the E1 BER Tester.
4. Introduce a soft Loop back on the E1 interface.
5. The tester shall display an OK sign, observe that the test runs error free for 120sec.
6. Repeat the test for other tributaries.

**5.0 TEST RESULT**

BER Measured: \_\_\_\_\_

**6.0 Acceptance Criteria**

There should be no error measured during the test.

**Status**☐ Tested – OK \_\_\_\_\_☐ Tested – Failed \_\_\_\_\_**Remarks**\_\_\_\_\_  
\_\_\_\_\_**Tested By:****(Manufacturer)****Date:****Witnessed By:****(PrKTCL)****Date:**

### TPS -FOTS-004 A: Framing, Signaling, Operational and Maintenance Test

Equipment Under Test : Drop & Insert Multiplexer / DACS

Test Parameters : E1 Frame and Signal structure

#### 1.0 TEST DESCRIPTION

The aim of this test is to demonstrate the CAS signaling of the 2Mbit/sec tributary in compliance with ITU-T G.703

#### 2.0 TEST EQUIPMENT

- Drop & Insert Multiplexer / DACS

#### 3.0 TEST SETUP

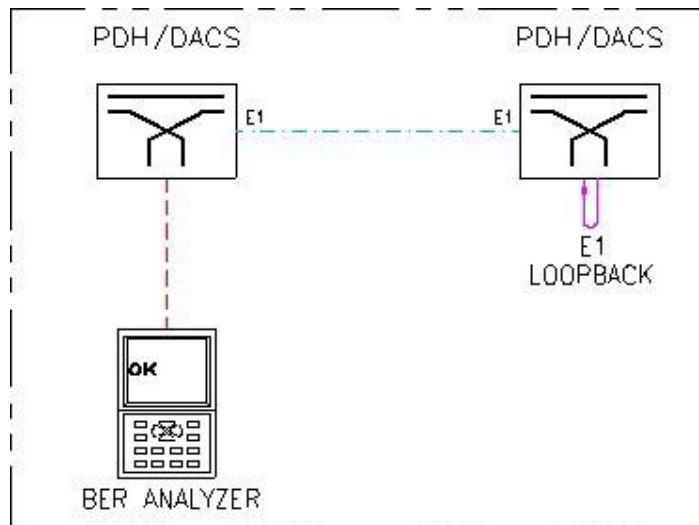


Figure: Framing, Signaling, operational and maintenance

#### 4.0 TEST PROCEDURE

- 1 Make test setup as shown in Figure -1.
- 2 Configure both the mux in PCM30 mode.
- 3 Set the E1 analyzer for BER measurement with PCM30 frame structure, the analyzer should allow voice/data channels.
- 4 Run the BER Test for 5 mins.
- 5 Tabulate The Results As Under Section 5.1
- 6 Configure both the mux in PCM31 mode.

- 7 Set the E1 Analyzer for BER Measurement with PCM31 frame, the E1 Analyzer should allow 3 data channels.
- 8 Run the BER for a period of 5 mins.
- 9 Tabulate the results as under Section 5.

**Acceptance criteria:**

- In case of CCS signaling all the 31 channels should be used for data application
- In the case of CAS signaling only 1 to 15 and 17 to 31 channels will be used for data or voice application.

## 5.0 TEST RESULTS

Sr. No	Station	Slot No./ Port No.	BER 0.0	Result
5.1				(OK/NOT OK)
5.2				(OK/NOT OK)
5.3				(OK/NOT OK)
5.4				(OK/NOT OK)

**Status**

( ) Tested - OK \_\_\_\_\_

( ) Tested - Failed \_\_\_\_\_

**Remarks**

\_\_\_\_\_

**Tested By:**

(Manufacturer)

**Date:**

**Witnessed By:**

(PrKTCL)

**Date:**

### TPS-FOTS-004 B: Data Channel BER Measurement

Equipment Under Test : Data card RS232 interface

Test Parameters : Data Channel BER Test

#### 1.0 TEST DESCRIPTION

The aim of this test verifies the operation of RS232 data channels by using a remote loopback Measurement of BER of 64K Data channel in compliance with ITU-T G.821/G.826 standard.

#### 2.0 TEST EQUIPMENT

- Drop & Insert Multiplexer
- RS232 Data Card
- Data Analyzer

#### 3.0 TEST SETUP

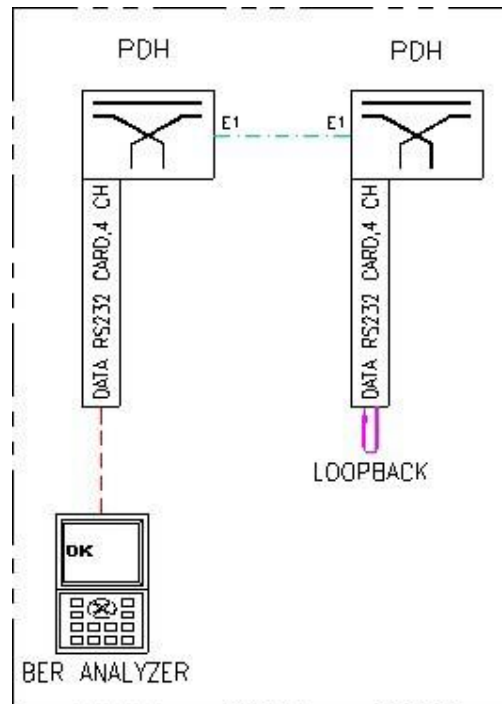


Figure: Measurement of BER of 64K

#### 4.0 TEST PROCEDURE

1. Make test setup as shown in figure above.
2. Give a remote loopback to the 64Kbit/sec channel (Station-B)

3. Connect BER tester to 64Kbit/sec Channel (Station-A)

4. Start BER testing for a period of 1 minute. BER result shall be better than  $10^{-10}$

## 5.0 TEST RESULTS

Sr. No.	Station-A	Station-B	BER Value	Result
5.1				
5.2				
5.3				
5.4				

### Status

( ) Tested - OK \_\_\_\_\_

( ) Tested - Failed \_\_\_\_\_

### Remarks

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**Tested By:**

**(Manufacturer)**

**Date:**

**Witnessed By:**

**(PrKTCL)**

**Date:**

### TPS-FOTS-004 C: E & M Gain Level Measurement and Ideal Channel Noise

Equipment Under Test : 4 wire (E&M) Voice Channel card

Test Parameters : Ideal channel noise measurement & E&M Gain Level Measurement

#### 1.0 TEST DESCRIPTION

The aim of this test is Measurement of E&M Data channel in compliance with ITU-T G.712 standard.

#### 2.0 TEST EQUIPMENT

- Drop & Insert Multiplexer / DACS
- E&M Voice Card

#### 3.0 TEST SETUP

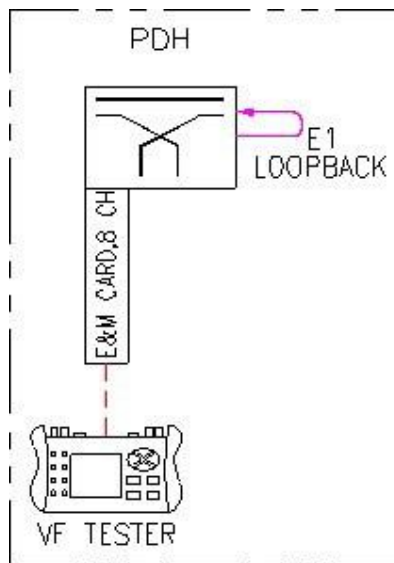


Figure: Measurement of E&M Data channel

#### 4.0 TEST PROCEDURE

1. Connect the network elements as depicted in Figure above.
2. Set-up the VF Generator and Level/Frequency meter to perform the test.
3. Give a local Loop back to the E1 interface.
4. Vary the input level and Frequency in the VF Tester.
5. The variation of level and frequency of any channel should lie within specified limits.
6. Tabulate the results as under Section 5.
7. Measure the ideal channel noise.
8. Tabulate the results as under section 5.



## 5.0 TEST RESULT RECORD

### 6.0 Gain Test Results

Input level	Channels Ref. 1020Hz @ -10dBm ITU-T/G.712 Measured gain ( dB )						Level limits ( dB )
+3							±0.5
0							±0.5
-20							±0.5
-30							±0.5
-40							±1
-50							±3
-55							±3
Station Name							

Input level	Channels Ref. 1020Hz @ -10dBm ITU-T/G.712 Measured gain ( dB )						Level limits ( dB )
+3							±0.5
0							±0.5
-20							±0.5
-30							±0.5
-40							±1
-50							±3
-55							±3
Station Name							

### 7.0 Ideal Channel Noise Results

Channels Ref. 1020Hz @ -10dBm ITU-T/G.712 Measured gain ( dB )

Station  
Noise

Level limits  
Better than  
-65dBm

	Channels Ref. 1020Hz @ -10dBm ITU-T/G.712 Measured gain ( dB )						Level limits
Station							Better than -65dBm
Noise							

#### Status

( ) Tested - OK \_\_\_\_\_  
( ) Tested - Failed \_\_\_\_\_

#### Remarks

Tested By:

(Manufacturer)

Date:

Witnessed By:

(PrKTCL)

Date:

### TPS-FOTS-004 D: FXO / FXS Functional test

Equipment Under Test : FXO / FXS card

Test Parameters : Functionality of FXO/FXS

#### 1.0 TEST DESCRIPTION

The aim of this test is to verify functionality of FXO/FXS channels.

#### 2.0 TEST EQUIPMENT

- Drop & Insert Multiplexer / DACS
- FXO card
- FXS card

#### 3.0 TEST SETUP

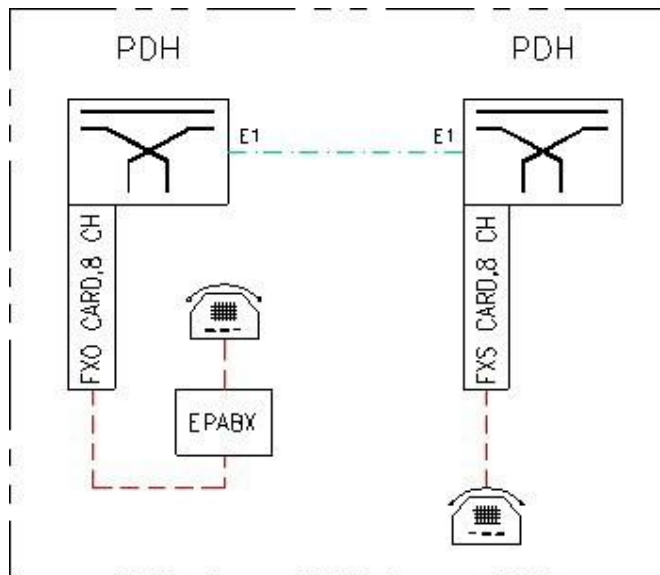


Figure: Functionality of FXO/FXS channels

#### 4.0 TEST PROCEDURE

1. Make Test Setup as per above Figure.
2. Establish a call from FXS location analog phone to FXO location analog phone & vice versa.
3. Tabulate the results as under section 5.1.1 to 5.1.2

## 5.0 TEST RESULT RECORD

Sr. No	Station	Slot No/ Port No.	Station	Slot No/ Port No.	Remarks (Ok/Not Ok)
5.1					(OK / NOT OK )
5.2					(OK / NOT OK )
5.3					(OK / NOT OK )
5.4					(OK / NOT OK )
5.5					(OK / NOT OK )

### Status

( ) Tested - OK \_\_\_\_\_

( ) Tested - Failed \_\_\_\_\_

### Remarks

\_\_\_\_\_  
\_\_\_\_\_

**Tested By:**

(Manufacturer)

**Date:**

**Witnessed By:**

(PrKTCL)

**Date:**

### TPS-FOTS-005 A: Power Supply Redundancy Test

Equipment Under Test : Drop & Insert Multiplexer / DACS

Test Parameters : Power Supply Card Redundancy Test

#### 1.0 TEST DESCRIPTION

The aim of this test is to verify the redundant functionality of the power supply card in drop insert multiplexer and DACS.

#### 2.0 TEST EQUIPMENT

- Drop & Insert Multiplexer / DACS
- E1 BER Tester (BER Analyser)

#### 3.0 TEST SETUP

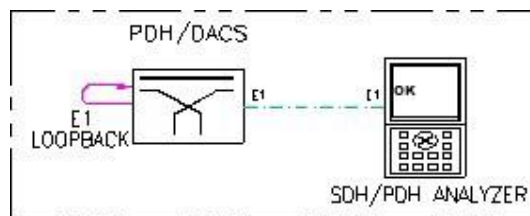


Figure-: Power Supply Redundancy

#### 4.0

#### 5.0 TEST PROCEDURE

1. Make test setup as per above figure.
2. Connect the BER Tester to the configured E1.
3. Apply soft loop back to the E1 and run the BER Test.
4. Disconnect the active power supply interface of the MUX.
5. Verify that there should be no error in the BER Test.
6. Tabulate the results as under section 5.

#### 6.0 5.0 TEST RESULTS

Sr. No	Station	Slot No./ Port No.	BER Result	Remarks (OK/NOT OK)
5.1				
5.2				
5.3				
5.4				
5.5				

**Status**

( ) Tested - OK \_\_\_\_\_

( ) Tested - Failed \_\_\_\_\_

**Remarks**

\_\_\_\_\_  
\_\_\_\_\_

**Tested By:**

**(Manufacturer)**

**Date:**

**Witnessed By:**

**(PrKTCL)**

**Date:**

### **TPS-FOTS-005 B: Control Card (DACS) Redundancy Test**

Equipment Under Test : Drop & Insert Multiplexer / DACS

Test Parameters : Control Card (DACS) Redundancy Test

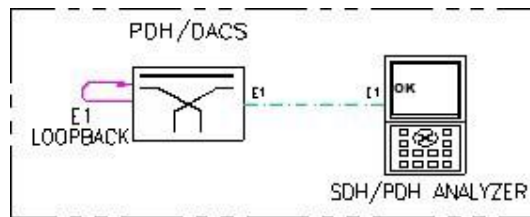
#### **1.0 TEST DESCRIPTION**

The aim of this test is to verify the redundant functionality of Control Card in DACS

#### **2.0 TEST EQUIPMENT**

- Drop & Insert Multiplexer / DACS
- E1 BER Tester (BER Analyzer)

#### **3.0 TEST SETUP**



**Figure-: Control card Redundancy**

#### **4.0 TEST PROCEDURE**

1. Make test setup as per above figure.
2. Connect the BER Tester to the configured E1.
3. Apply soft loop back to the E1 and run the BER Test.
4. Disconnect the active power supply interface of the MUX.
5. Verify that there should be no error in the BER Test.
6. Tabulate the results as under section 5.

#### **5.0 10.0 TEST RESULTS**

Sr. No	Station	Slot No./ Port No.	BER Result	Remarks (OK/NOT OK)
5.1				
5.2				
5.3				
5.4				
5.5				

**Status**

( ) Tested - OK \_\_\_\_\_

( ) Tested - Failed \_\_\_\_\_

**Remarks**

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**Tested By:**

**(Manufacturer)**

**Date:**

**Witnessed By:**

**(PrKTCL)**

**Date:**

### TPS-FOTS-006 A: Test for Spare Cards and Spare Slots

Equipment Under Test : Drop Insert Multiplexer & DACS

Test Parameters : Test for Spare Cards and Spare Slots

#### 1.0 TEST DESCRIPTION

This test is performed to ensure the proper functionality of the blank slots in the PDH and DACS node and functionality of the spare cards supplied.

#### 2.0 TEST EQUIPMENT

- E1 Datacom Tester
- Local Craft Terminal

#### 3.0 TEST PROCEDURE:

The test procedures are as follows:

- In order to test the spare slot in the PDH and DACS node, eject the working card from the configured slot and insert it in one of the blank slots.
- Re-configure the newly inserted cards as per the initial configuration and test the functionality.
- Tabulate the results as under section 4.
- In order to test the spare supplied, replace the working card with the spare card and test the functionality.
- Tabulate the results as under section 4

#### 4.0 TEST RESULT

Sr No.	Station Name	Blank Slot	Card Type	Configuration Status ( OK/NOT OK )
4.1		Slot__		
4.2		Slot__		
4.3		Slot__		
4.4		Slot__		
4.5		Slot__		



**Status**

( ) Tested - OK \_\_\_\_\_

( ) Tested - Failed \_\_\_\_\_

**Remarks**

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**Tested By:**

(Manufacturer)

**Witnessed By:**

(PrKTCL)

**Date:**

**Date:**

### **TPS-FOTS-007 A: Power Supply Variation, Over Voltage & Reverse Polarity Protection Test**

Equipment Under Test : Drop & Insert Multiplexer / DACS

Test Parameters : Power Supply Variation and Voltage Protection test

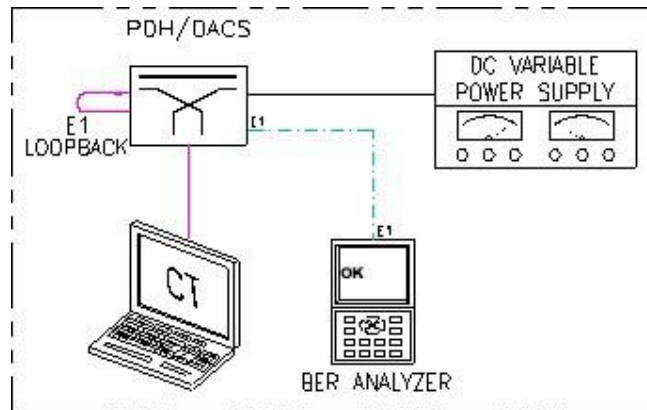
#### **1.0 TEST DESCRIPTION**

The aim of this test is to verify the operation of transmission equipment in the specified Voltage Range, to verify Overvoltage, Short Circuit and Reverse polarity Protection.

#### **2.0 TEST EQUIPMENT**

- Drop & Insert Multiplexer / DACS
- Multimeter
- Variable D.C. Power Supply
- E1 BER Tester

#### **3.0 TEST SETUP**



**Figure : Power Supply Variation**

#### **4.0 TEST PROCEDURE**

1. Make the test setup as shown in figure above.
2. Run BER test on the configured E1 interface.
3. Feed the input voltage (-48 VDC) to Multiplexer equipment via variable D.C power supply.
4. Vary the input voltage from -36 VDC to -72 VDC via Variable D.C. power supply.
5. Verify there is no error in the BER test result.

6. Tabulate the results as under section 5.
7. Increase the voltage above -72VDC and record the observed behavior.
8. Check that Equipment is shut down and is automatically recovered on restoration of normal -48V DC supply.
9. Record the Test Result under section 5.
10. Reverse the polarity of the input voltage and record the behavior.
11. Short Circuit the input voltage polarity and record the behavior.
12. Check that Equipment is not restarting during the reverse voltage/short circuit condition and is automatically recovered on restoration of normal -48V DC supply.
13. Tabulate the results under section 5.

## 5.0 TEST RESULTS

Sr. No	Station	Slot No./ Port No.	BER Result Voltage range -36 to -72VDC	Over Voltage Protection	Reverse Polarity Protection
5.1					
5.2					
5.3					

### Status

( ) Tested – OK \_\_\_\_\_

( ) Tested – Failed \_\_\_\_\_

Remarks \_\_\_\_\_

**Tested By:**

(Manufacturer)

**Date:**

**Witnessed By:**

(PrKTCL)

**Date:**

**TPS-FOTS-008 A : Random Inspection to verify the Accuracy of Documents**

Equipment Under Test : Drop Insert Multiplexer & DACS

Test Parameters : Verify the Documents and Drawings.

**1.0 TEST DESCRIPTION**

To conduct additional tests to verify the accuracy of the product documentation i.e. Brochures, DRS. One or two parameters shall be chosen from the list of Parameters in Data sheet and tests shall be conducted to verify the same.

**2.0 TEST EQUIPMENT**

- As required by the Test Procedure.

**3.0 TEST PROCEDURE:**

The procedures followed to test the parameters / functionality shall be enclosed with the FAT report.

**4.0 TEST RESULT**

The test results shall confirm with the data sheet.

**Status**

( ) Tested – OK \_\_\_\_\_

( ) Tested – Failed \_\_\_\_\_

**Remarks**

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**Tested By:**

**(Manufacturer)**

**Date:**

**Witnessed By:**

**(PrKTCL)**

**Date:**