



# ***P32mxi Voice and Data Multiplexer Versapath Feature Set Test Procedure***

***Document 03000002***

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## 1.0 Regression Testing

### 1.1 Abacus Setup

This document assumes the user is familiar with the Spirent Abacus advanced bulk call simulator. To setup the Abacus for Regression Testing on a channel bank either follow the instructions listed below or install the file from the Abacus main menu Open 'CB11.env'.

T1 Setup (Ptl Selection)[Card folder tab]: Card Type (Column) - Setting

- ? XCGs (Side) – Switch
- ? XCGs (Impedance) – 900
- ? PCGs (Side) – Switch
- ? PCGs (Signaling) – CAS
- ? PCGs (Law) – u-law
- ? PCGs (Impedance) - 100
- ? PCGs (Cnctr) – T1
- ? PCGs (Frame) – D4
- ? PCGs (Line) – AMI
- ? PCGs (Clock) – System
- ? ECGs (Side) – Subscriber
- ? ECGs (Impedance) – 600

T1 Setup (Ptl Selection) [Channels folder tab]: Card Type (Column) – Setting

- ? XCGs (1-5 ) – LL (loop start)
- ? PCGs (1-8) – LL (loop start)
- ? PCGs(9-16) – GG (ground start)
- ? PCGs(17-24) – Ei (E&M Immediate start)
- ? ECGs (1-5) – LL (loop start)

T1 Setup (Ptl Selection) [Analog folder tab]: Card Type (Column) – Setting

- ? XCGs (Gain A->D) - -3.0 dB
- ? XCGs (Gain D->A) - -3.0 dB
- ? ECGs (Gain A->D) - +3.0 dB
- ? ECGs (Gain D->A) - 0 dB

Test Duration (type Cntl-D) select 'for' set time to 10 minutes.

Test Script (Partition) [Association file tab] {ECG Subscriber subtab}: Set #(Column) – Value

- ? Set#1 (From) – 1
- ? Set#1 (To) – 24
- ? Set#1 (Configuration) – OOO...TTT...
- ? Set#1 (Toggle) – checked

Test Script (Partition) [Timing and Scripts file tab] {ECG Subscriber subtab}

- ? Set#1 (From. ST, SS) – 1
- ? Set#1 (To) – 24
- ? Set#1 (CL) – 5
- ? Set#1 (IC) – 5
- ? Set#1 (CC) – 10
- ? Set#1 (Script Name) – A calls B (DTMF) and confirms for random CL

Test Script (Phones) [Circuit Type file tab] {An Sw subtab}

- ? Own (Source) – Sequential
- ? Own (File name or starting number) - 5555001

Test Script (Phones) [Circuit Type file tab] {T1 Sw subtab}

- ? Own (Source) – Sequential
- ? Own (File name or starting number) – 6666001
- ? Numbers apply each channel - selected

Test Script (Phones) [Circuit Type file tab] {ECG Sub subtab}

- ? Own (Source) – Sequential
- ? Own (File name or starting number) – 6666001
- ? External (Source) – Sequential
- ? External (File name or starting number) - 6666001

## **1.2 Channel Bank Setup**

Connect the VF channels of the UUT to the ECG channels of the Abacus via the RJ11 panels.

Connect T1-A of the UUT to PCG 1 (channels 1-24) of the Abacus via the DSX panel.

Connect T1-B of the UUT to PCG 2 (channels 25-48) of the Abacus via the DSX panel.

Connect the V.35 of the UUT to the V.35 Bert Test Set using an adapter cable.

Connect the Craft Port of the UUT to the Laptop's serial port using a craft cable.

### **1.3 Channel Bank – T1 A and FXS**

#### **1.3.1 T1 A D4 AMI – Channels Loop Start**

Set the Unit Under Test (UUT) as T1 A D4 AMI, 1x10-3, loop timed. Set T1 B as not alarmed. Set the T1 signaling to timeslots 1-8 loop start, 9-16 ground start and 17-24 E&M Immediate start. Set the VF channels to all loop start. Or load provisioning file 'CB131\_prov.txt'.

Run the Abacus test and save the text report as 'R131.txt'. Mark the appropriate section in the VersaJade Test Results form.

#### **1.3.2 T1 A ESF B8ZS – Channels Loop Start**

Reconfigure the Abacus - Ptl Selection – Card folder tab – to PCG 1, ESF, B8ZS.

Set the Unit Under Test (UUT) as T1 A ESF B8ZS, 1x10-3, loop timed. Set T1 B as not alarmed. Set the T1 signaling to timeslots 1-8 loop start, 9-16 ground start and 17-24 E&M Immediate start. Set the VF channels to all loop start.

Run the Abacus test and save the text report as 'R132.txt'. Mark the appropriate section in the VersaJade Test Results form.

#### **1.3.3 T1 A ESF AMI – Channels Loop Start**

Reconfigure the Abacus - Ptl Selection – Card folder tab – to PCG 1, ESF, AMI.

Set the Unit Under Test (UUT) as T1 A ESF AMI, 1x10-3, loop timed. Set T1 B as not alarmed. Set the T1 signaling to timeslots 1-8 loop start, 9-16 ground start and 17-24 E&M Immediate start. Set the VF channels to all loop start.

Run the Abacus test and save the text report as 'R133.txt'. Mark the appropriate section in the VersaJade Test Results form.

#### **1.3.4 T1 A D4 AMI – Channels Ground Start**

Reconfigure the Abacus - Ptl Selection – Card folder tab – to PCG 1, D4, AMI.

Set the Unit Under Test (UUT) as T1 A D4 AMI, 1x10-3, loop timed. Set T1 B as not alarmed. Set the T1 signaling to timeslots 1-8 loop start, 9-16 ground start and 17-24 E&M Immediate start. Set the VF channels to all ground start.

Run the Abacus test and save the text report as 'R134.txt'. Mark the appropriate section in the VersaJade Test Results form.

#### **1.3.5 T1 A ESF B8ZS – Channels Ground Start**

Reconfigure the Abacus - Ptl Selection – Card folder tab – to PCG 1, ESF, B8ZS.

Set the Unit Under Test (UUT) as T1 A ESF B8ZS, 1x10-3, loop timed. Set T1 B as not alarmed. Set the T1 signaling to timeslots 1-8 loop start, 9-16 ground start and 17-24 E&M Immediate start. Set the VF channels to all ground start.

Run the Abacus test and save the text report as 'R135.txt'. Mark the appropriate section in the VersaJade Test Results form.

### **1.3.6 T1 A ESF AMI – Channels Ground Start**

Reconfigure the Abacus - Ptl Selection – Card folder tab – to PCG 1, ESF, AMI.

Set the Unit Under Test (UUT) as T1 A ESF AMI, 1x10-3, loop timed. Set T1 B as not alarmed. Set the T1 signaling to timeslots 1-8 loop start, 9-16 ground start and 17-24 E&M Immediate start. Set the VF channels to all ground start.

Run the Abacus test and save the text report as ‘R136.txt’. Mark the appropriate section in the VersaJade Test Results form.

## **1.4 Channel Bank – T1 B and FXS**

Reconfigure the Abacus – Partition – Set#1 (From) – 25; Set#1 (To) – 48.

### **1.4.1 T1 B D4 AMI – Channels Loop Start**

Set the Unit Under Test (UUT) as T1 A D4 AMI, 1x10-3, loop timed. Set T1 B as not alarmed. Set the T1 signaling to timeslots 1-8 loop start, 9-16 ground start and 17-24 E&M Immediate start. Set the VF channels to all loop start. Or load provisioning file ‘CB141\_prov.txt’.

Run the Abacus test and save the text report as ‘R141.txt’. Mark the appropriate section in the VersaJade Test Results form.

### **1.4.2 T1 B ESF B8ZS – Channels Loop Start**

Reconfigure the Abacus - Ptl Selection – Card folder tab – to PCG 2, ESF, B8ZS.

Set the Unit Under Test (UUT) as T1 A ESF B8ZS, 1x10-3, loop timed. Set T1 B as not alarmed. Set the T1 signaling to timeslots 1-8 loop start, 9-16 ground start and 17-24 E&M Immediate start. Set the VF channels to all loop start.

Run the Abacus test and save the text report as ‘R142.txt’. Mark the appropriate section in the VersaJade Test Results form.

### **1.4.3 T1 B ESF AMI – Channels Loop Start**

Reconfigure the Abacus - Ptl Selection – Card folder tab – to PCG 2, ESF, AMI.

Set the Unit Under Test (UUT) as T1 A ESF AMI, 1x10-3, loop timed. Set T1 B as not alarmed. Set the T1 signaling to timeslots 1-8 loop start, 9-16 ground start and 17-24 E&M Immediate start. Set the VF channels to all loop start.

Run the Abacus test and save the text report as ‘R143.txt’. Mark the appropriate section in the VersaJade Test Results form.

### **1.4.4 T1 B D4 AMI – Channels Ground Start**

Reconfigure the Abacus - Ptl Selection – Card folder tab – to PCG 2, D4, AMI.

Set the Unit Under Test (UUT) as T1 A D4 AMI, 1x10-3, loop timed. Set T1 B as not alarmed. Set the T1 signaling to timeslots 1-8 loop start, 9-16 ground start and 17-24 E&M Immediate start. Set the VF channels to all ground start.

Run the Abacus test and save the text report as ‘R144.txt’. Mark the appropriate section in the VersaJade Test Results form.

#### **1.4.5 T1 B ESF B8ZS – Channels Ground Start**

Reconfigure the Abacus - Ptl Selection – Card folder tab – to PCG 2, ESF, B8ZS.

Set the Unit Under Test (UUT) as T1 A ESF B8ZS, 1x10-3, loop timed. Set T1 B as not alarmed. Set the T1 signaling to timeslots 1-8 loop start, 9-16 ground start and 17-24 E&M Immediate start. Set the VF channels to all ground start.

Run the Abacus test and save the text report as 'R145.txt'. Mark the appropriate section in the VersaJade Test Results form.

#### **1.4.6 T1 B ESF AMI – Channels Ground Start**

Reconfigure the Abacus - Ptl Selection – Card folder tab – to PCG 2, ESF, AMI.

Set the Unit Under Test (UUT) as T1 A ESF AMI, 1x10-3, loop timed. Set T1 B as not alarmed. Set the T1 signaling to timeslots 1-8 loop start, 9-16 ground start and 17-24 E&M Immediate start. Set the VF channels to all ground start.

Run the Abacus test and save the text report as 'R146.txt'. Mark the appropriate section in the VersaJade Test Results form.

### **1.5 Channel Bank – T1 A V.35**

Connect the T1 A to the loopback position on the Test Area Bantam jack field.

#### **1.5.1 T1 A, D4 AMI – 64K**

Set the UUT T1 A to D4 AMI and the V.35 as 64K x 24 channels. Crossconnect the V.35 channels to T1 A. Set T1 B as not alarmed. Or load provisioning file 'CB151\_prov.txt'.

Perform the test for 30 minutes. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

#### **1.5.2 T1 A, ESF B8ZS – 64K**

Set the UUT T1 A to ESF B8ZS and the V.35 as 64K x 24 channels. Crossconnect the V.35 channels to T1 A. Set T1 B as not alarmed.

Perform the test for 30 minutes. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

#### **1.5.3 T1 A, ESF AMI – 64K**

Set the UUT T1 A to ESF AMI and the V.35 as 64K x 24 channels. Crossconnect the V.35 channels to T1 A. Set T1 B as not alarmed.

Perform the test for 30 minutes. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

#### **1.5.4 T1 A, D4 AMI – 12x64 K, 12 FXS Channels**

Set the UUT T1 A and T1 B to D4 AMI, channel cards 1 – 3 as FXS loop start, and the V.35 as 64K x 12 channels. Set T1 B signaling to Data. Crossconnect the V.35 channels to T1 B channels 13 - 24. Connect T1 A to Abacus PCG 1, and connect T1 B to the DSX loopback.

Start the Abacus test and save the text report as 'R154.txt'. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

#### **1.5.5 T1 A, ESF B8ZS – 12x64K, 12 FXS Channels**

Set the UUT T1 A and T1 B to ESF B8ZS, channel cards 1 – 3 as FXS loop start, and the V.35 as 64K x 12 channels. Set T1 B signaling to Data. Crossconnect the V.35 channels to T1 B channels 13 - 24. Connect T1 A to Abacus PCG 1, and connect T1 B to the DSX loopback.

Start the Abacus test and save the text report as 'R155.txt'. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

#### **1.5.6 T1 A, ESF AMI – 12x64K, 12 FXS Channels**

Set the UUT T1 A and T1 B to ESF AMI, channel cards 1 – 3 as FXS loop start, and the V.35 as 64K x 12 channels. Set T1 B signaling to Data. Crossconnect the V.35 channels to T1 B channels 13 - 24. Connect T1 A to Abacus PCG 1, and connect T1 B to the DSX loopback.

Start the Abacus test and save the text report as 'R156.txt'. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

#### **1.5.7 T1 A, D4 AMI – 56K**

Set the UUT T1 A to D4 AMI and the V.35 as 56K x 24 channels. Crossconnect the V.35 channels to T1 A. Set T1 B as not alarmed.

Perform the test for 30 minutes. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

#### **1.5.8 T1 A, ESF B8ZS – 56K**

Set the UUT T1 A to ESF B8ZS and the V.35 as 56K x 24 channels. Crossconnect the V.35 channels to T1 A. Set T1 B as not alarmed.

Perform the test for 30 minutes. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

#### **1.5.9 T1 A, ESF AMI – 56K**

Set the UUT T1 A to ESF AMI and the V.35 as 56K x 24 channels. Crossconnect the V.35 channels to T1 A. Set T1 B as not alarmed.

Perform the test for 30 minutes. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

#### **1.5.10 T1 A, D4 AMI – 12x56 K, 12 FXS Channels**

Set the UUT T1 A and T1 B to D4 AMI, channel cards 1 – 3 as FXS loop start, and the V.35 as 56K x 12 channels. Set T1 B signaling to Data. Crossconnect the V.35 channels to T1 B channels 13 - 24. Connect T1 A to Abacus PCG 1, and connect T1 B to the DSX loopback.

Start the Abacus test and save the text report as 'R1510.txt'. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

### **1.5.11 T1 A, ESF B8ZS – 12x56K, 12 FXS Channels**

Set the UUT T1 A and T1 B to ESF B8ZS, channel cards 1 – 3 as FXS loop start, and the V.35 as 56K x 12 channels. Set T1 B signaling to Data. Crossconnect the V.35 channels to T1 B channels 13 - 24. Connect T1 A to Abacus PCG 1, and connect T1 B to the DSX loopback.

Start the Abacus test and save the text report as 'R1511.txt'. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

### **1.5.12 T1 A, ESF AMI – 12x56K, 12 FXS Channels**

Set the UUT T1 A and T1 B to ESF AMI, channel cards 1 – 3 as FXS loop start, and the V.35 as 56K x 12 channels. Set T1 B signaling to Data. Crossconnect the V.35 channels to T1 B channels 13 - 24. Connect T1 A to Abacus PCG 1, and connect T1 B to the DSX loopback.

Start the Abacus test and save the text report as 'R1512.txt'. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

## **1.6 Channel Bank – T1 B V.35**

Connect the T1 B to the loopback position on the Test Area Bantam jack field.

### **1.6.1 T1 B, D4 AMI – 64K**

Set the UUT T1 B to D4 AMI and the V.35 as 64K x 24 channels. Crossconnect the V.35 channels to T1 B. Set T1 A as not alarmed. Or load provisioning file 'CB161\_prov.txt'.

Perform the test for 30 minutes. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

### **1.6.2 T1 B, ESF B8ZS – 64K**

Set the UUT T1 B to ESF B8ZS and the V.35 as 64K x 24 channels. Crossconnect the V.35 channels to T1 B. Set T1 A as not alarmed.

Perform the test for 30 minutes. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

### **1.6.3 T1 B, ESF AMI – 64K**

Set the UUT T1 B to ESF AMI and the V.35 as 64K x 24 channels. Crossconnect the V.35 channels to T1 B. Set T1 A as not alarmed.

Perform the test for 30 minutes. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

### **1.6.4 T1 B, D4 AMI – 12x64 K, 12 FXS Channels**

Set the UUT T1 A and T1 B to D4 AMI, channel cards 1 – 3 as FXS loop start, and the V.35 as 64K x 12 channels. Set T1 A signaling to Data. Crossconnect the V.35 channels to T1 A channels 13 - 24. Connect T1 B to Abacus PCG 1, and connect T1 A to the DSX loopback.

Start the Abacus test and save the text report as 'R164.txt'. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

**1.6.5 T1 B, ESF B8ZS – 12x64K, 12 FXS Channels**

Set the UUT T1 A and T1 B to ESF B8ZS, channel cards 1 – 3 as FXS loop start, and the V.35 as 64K x 12 channels. Set T1 A signaling to Data. Crossconnect the V.35 channels to T1 A channels 13 - 24. Connect T1 B to Abacus PCG 1, and connect T1 A to the DSX loopback.

Start the Abacus test and save the text report as 'R165.txt'. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

**1.6.6 T1 B, ESF AMI – 12x64K, 12 FXS Channels**

Set the UUT T1 A and T1 B to ESF AMI, channel cards 1 – 3 as FXS loop start, and the V.35 as 64K x 12 channels. Set T1 A signaling to Data. Crossconnect the V.35 channels to T1 A channels 13 - 24. Connect T1 B to Abacus PCG 1, and connect T1 A to the DSX loopback.

Start the Abacus test and save the text report as 'R166.txt'. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form..

**1.6.7 T1 B, D4 AMI – 56K**

Set the UUT T1 B to D4 AMI and the V.35 as 56K x 24 channels. Crossconnect the V.35 channels to T1 B. Set T1 A as not alarmed.

Perform the test for 30 minutes. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

**1.6.8 T1 B, ESF B8ZS – 56K**

Set the UUT T1 B to ESF B8ZS and the V.35 as 56K x 24 channels. Crossconnect the V.35 channels to T1 B. Set T1 A as not alarmed.

Perform the test for 30 minutes. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

**1.6.9 T1 B, ESF AMI – 56K**

Set the UUT T1 B to ESF AMI and the V.35 as 56K x 24 channels. Crossconnect the V.35 channels to T1 B. Set T1 A as not alarmed.

Perform the test for 30 minutes. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

**1.6.10 T1 B, D4 AMI – 12x56 K, 12 FXS Channels**

Set the UUT T1 A and T1 B to D4 AMI, channel cards 1 – 3 as FXS loop start, and the V.35 as 56K x 12 channels. Set T1 A signaling to Data. Crossconnect the V.35 channels to T1 A channels 13 - 24. Connect T1 B to Abacus PCG 1, and connect T1 A to the DSX loopback.

Start the Abacus test and save the text report as 'R1610.txt'. The V.35 Bert Tester should have no errors. Record the results in the VersaJade Test Results form.

**1.6.11 T1 B, ESF B8ZS – 12x56K, 12 FXS Channels**

Set the UUT T1 A and T1 B to ESF B8ZS, channel cards 1 – 3 as FXS loop start, and the V.35 as 56K x 12 channels. Set T1 A signaling to Data. Crossconnect the V.35 channels to T1 A channels 13 - 24. Connect T1 B to Abacus PCG 1, and connect T1 A to the DSX loopback.



- ? Set#1 (To) – 24
- ? Set#1 (CL) – 5
- ? Set#1 (IC) – 5
- ? Set#1 (CC) – 10
- ? Set#1 (Script Name) – A calls B (DTMF) and confirms for random CL

Test Script (Phones) [Circuit Type file tab] {T1 Sw subtab}

- ? Own (Source) – Sequential
- ? Own (File name or starting number) – 6666001
- ? Numbers apply each channel - selected

Test Script (Phones) [Circuit Type file tab] {T1 Sub subtab}

- ? Own (Source) – Sequential
- ? Own (File name or starting number) – 6666001
- ? External (Source) – Sequential
- ? External (File name or starting number) - 6666001

Connect T1 A to PCG 1 and T1 B to PCG 2 via the DSX panel.

### **1.7.1 T1 A – D4 AMI and T1 B – D4 AMI**

Configure the UUT's T1 A and T1 B to D4 AMI. Crossconnect T1 A to T1 B. Or load provisioning file 'CB171\_prov.txt'.

Start the Abacus test and save the text report as 'R171.txt'. Mark the appropriate section in the VersaJade Test Results form.

### **1.7.2 T1 A – ESF B8ZS and T1 B – ESF B8ZS**

Configure the UUT's T1 A and T1 B to ESF B8ZS. Crossconnect T1 A to T1 B.

Configure the Abacus PCG 1 and 2 to Frame/Line of ESF B8ZS.

Start the Abacus test and save the text report as 'R172.txt'. Mark the appropriate section in the VersaJade Test Results form.

### **1.7.3 T1 A – ESF AMI and T1 B – ESF AMI**

Configure the UUT's T1 A and T1 B to ESF AMI. Crossconnect T1 A to T1 B.

Configure the Abacus PCG 1 and 2 to Frame/Line of ESF AMI.

Start the Abacus test and save the text report as 'R173.txt'. Mark the appropriate section in the VersaJade Test Results form..

### **1.7.4 T1 A - ESF B8ZS and T1 B - D4 AMI**

Configure the UUT's T1 A to ESF B8ZS and T1 B to D4 AMI. Crossconnect T1 A to T1 B.

Configure the Abacus PCG 1 to ESF B8ZS and 2 to Line Coding type D4 AMI.

Start the Abacus test and save the text report as 'R174.txt'. Mark the appropriate section in the VersaJade Test Results form.

#### **1.7.5 T1 A – D4 AMI and T1 B – ESF B8ZS**

Configure the UUT's T1 A to D4 AMI and T1 B to ESF B8ZS. Crossconnect T1 A to T1 B.

Configure the Abacus PCG 1 to D4 AMI and 2 to Line Coding type ESF B8ZS.

Start the Abacus test and save the text report as 'R175.txt'. Mark the appropriate section in the VersaJade Test Results form.

#### **1.7.6 T1 A – ESF AMI and T1 B – ESF B8ZS**

Configure the UUT's T1 A to ESF AMI and T1 B to ESF B8ZS. Crossconnect T1 A to T1 B.

Configure the Abacus PCG 1 to ESF AMI and 2 to Line Coding type ESF B8ZS.

Start the Abacus test and save the text report as 'R176.txt'. Mark the appropriate section in the VersaJade Test Results form.

#### **1.7.7 T1 A – ESF B8ZS and T1 B – ESF AMI**

Configure the UUT's T1 A to ESF B8ZS and T1 B to ESF AMI. Crossconnect T1 A to T1 B.

Configure the Abacus PCG 1 to ESF B8ZS and 2 to Line Coding type ESF AMI.

Start the Abacus test and save the text report as 'R177.txt'. Mark the appropriate section in the VersaJade Test Results form.

#### **1.7.8 T1 A – ESF AMI and T1 B – D4 AMI**

Configure the UUT's T1 A to ESF AMI and T1 B to D4 AMI. Crossconnect T1 A to T1 B.

Configure the Abacus PCG 1 to ESF AMI and 2 to Line Coding type D4 AMI.

Start the Abacus test and save the text report as 'R178.txt'. Mark the appropriate section in the VersaJade Test Results form.

#### **1.7.9 T1 A – D4 AMI and T1 B – ESF AMI**

Configure the UUT's T1 A to D4 AMI and T1 B to ESF AMI. Crossconnect T1 A to T1 B.

Configure the Abacus PCG 1 to D4 AMI and 2 to Line Coding type ESF AMI.

Start the Abacus test and save the text report as 'R179.txt'. Mark the appropriate section in the VersaJade Test Results form.

### ***1.8 Channel Bank – Direct Inward Dialing (DID)***

The DID testing verifies that the UUT is capable of utilizing reverse battery signaling. There are two sections to DID, these are Dial Pulse Originate (DPO) and Dial Pulse Terminate (DPT). Since the P32mxi supports both DPO (FXS) and DPT (FXO), each card will have its own subsection.

### **1.8.1 DID – DPT Testing**

The DPT portion of DID will be used most often in the P32mxi. The DPT monitors the tip/ring pair for battery reversals. The battery reversals signal the DPT of an incoming call. Reverse battery is also used as the talk battery for DID.

The UUT must have FXO cards in slots 1 – 6 (24 channels).

#### **1.8.1.1 DPT Testing - Abacus Setup**

The Abacus will be using a modified version of the section 1.3 called DID\_DPT\_A.env. Each test has been set for a duration of 10 minutes.

When the test has completed the Abacus will generate a test report which will be filed in the Abacus PC directory C:\System Test\P32MXI\Versapath Feature Testing\Results\DID.

#### **1.8.1.2 DPT Testing – T1A D4 AMI**

Configure the UUT's T1 A for D4 AMI, the T1 B to not alarmed, and the VF channels as DPT. Or upload the provisioning file 'CB1812\_prov.txt'. Use Procomm to Xmodem the provisioning file to the UUT.

Start the Abacus test and save the text report as 'R1812.txt'. Mark the appropriate section in the VersaJade Test Results form.

#### **1.8.1.3 DPT Testing – T1A ESF B8ZS**

Change the UUT's T1 A to ESF B8ZS.

Start the Abacus test and save the text report as 'R1813.txt'. Mark the appropriate section in the VersaJade Test Results form.

#### **1.8.1.4 DPT Testing – T1A ESF AMI**

Change the UUT's T1 A to ESF AMI.

Start the Abacus test and save the text report as 'R1814.txt'. Mark the appropriate section in the VersaJade Test Results form.

#### **1.8.1.5 DPT Testing – T1B D4 AMI**

Configure the UUT's T1 B for D4 AMI, the T1 A to not alarmed, and the VF channels as DPT. Or upload the provisioning file 'CB1815\_prov.txt'. Use Procomm to Xmodem the provisioning file to the UUT.

Configure the Abacus by loading file DID\_DPT\_B.env

Start the Abacus test and save the text report as 'R1815.txt'. Mark the appropriate section in the VersaJade Test Results form.

#### **1.8.1.6 DPT Testing – T1B ESF B8ZS**

Change the UUT's T1 B to ESF B8ZS.

Start the Abacus test and save the text report as 'R1816.txt'. Mark the appropriate section in the VersaJade Test Results form.

### **1.8.1.7 DPT Testing – T1B ESF AMI**

Change the UUT's T1 B to ESF AMI.

Start the Abacus test and save the text report as 'R1817.txt'. Mark the appropriate section in the VersaJade Test Results form.

### **1.8.2 DID – DPO Testing**

The DPO provides the battery to the DPT. The DPO sends reverse battery to the DPT indicating a the beginning of a call. This section will test the UUT as a DPO loop extension device.

The UUT must have FXS cards in slots 1 – 6 (24 channels).

#### **1.8.2.1 DPO Testing - Abacus Setup**

The Abacus will be using a modified version of the section 1.3 called DID\_DPO\_A.env. Each test has been set for a duration of 10 minutes.

When the test has completed the Abacus will generate a test report which will be filed in the Abacus PC directory C:\System Test\P32MXI\Versapath Feature Testing\Results\DID.

#### **1.8.2.2 DPO Testing – T1A D4 AMI**

Configure the UUT's T1 A for D4 AMI, the T1 B to not alarmed, and the VF channels as DPO. Or upload the provisioning file 'CB1822\_prov.txt'. Use Procomm to Xmodem the provisioning file to the UUT.

Start the Abacus test and save the text report as 'R1822.txt'. Mark the appropriate section in the VersaJade Test Results form.

#### **1.8.2.3 DPO Testing – T1A ESF B8ZS**

Change the UUT's T1 A to ESF B8ZS.

Start the Abacus test and save the text report as 'R1823.txt'. Mark the appropriate section in the VersaJade Test Results form.

#### **1.8.2.4 DPO Testing – T1A ESF AMI**

Change the UUT's T1 A to ESF AMI.

Start the Abacus test and save the text report as 'R1824.txt'. Mark the appropriate section in the VersaJade Test Results form.

#### **1.8.2.5 DPO Testing – T1B D4 AMI**

Configure the UUT's T1 B for D4 AMI, the T1 A to not alarmed, and the VF channels as DPO. Or upload the provisioning file 'CB1825\_prov.txt'. Use Procomm to Xmodem the provisioning file to the UUT.

Configure the Abacus by loading file DID\_DPO\_B.env

Start the Abacus test and save the text report as 'R1825.txt'. Mark the appropriate section in the VersaJade Test Results form.

### **1.8.2.6 DPO Testing – T1B ESF B8ZS**

Change the UUT's T1 B to ESF B8ZS. Or load provisioning file 'CB1826\_prov.txt'.

Start the Abacus test and save the text report as 'R1826.txt'. Mark the appropriate section in the VersaJade Test Results form.

### **1.8.2.7 DPO Testing – T1B ESF AMI**

Change the UUT's T1 B to ESF AMI.

Start the Abacus test and save the text report as 'R1827.txt'. Mark the appropriate section in the VersaJade Test Results form.

## **1.9 Channel Bank – TR08**

To test the UUT against TR08, a SLC96 unit is necessary.

Connect the UUT T1 A to the TR08 using the T1 DSX panel.

Connect the UUT VF to the Abacus ECGs via the RJ11 jack panel.

Connect the TR08 VF pairs to the Abacus XCGs via the RJ11 jack panel.

### **1.9.1 TR08 – Abacus Setup**

Configure the Abacus XCGs as a Switch using environment TR08\_Test.env.

### **1.9.2 TR08 – Mode I Verification Span A (16 bit)**

Configure the UUT with provisioning file 'CB192\_prov.txt'.

Start the Abacus test and save the text report as 'R192.txt'. Mark the appropriate section in the VersaJade Test Results form.

### **1.9.3 TR08 – Mode I Verification Span A (13 bit)**

Configure the UUT with provisioning file 'CB193\_prov.txt'.

Start the Abacus test and save the text report as 'R193.txt'. Mark the appropriate section in the VersaJade Test Results form.

### **1.9.4 TR08 – Mode I Verification Span B (16 bit)**

Connect the UUT T1 B to the TR08 using the T1 DSX panel.

Configure the UUT with provisioning file 'CB194\_prov.txt'.

Start the Abacus test and save the text report as 'R194.txt'. Mark the appropriate section in the VersaJade Test Results form.

### **1.9.5 TR08 – Mode I Verification Span B (13 bit)**

Configure the UUT with provisioning file 'CB195\_prov.txt'.

Start the Abacus test and save the text report as 'R195.txt'. Mark the appropriate section in the VersaJade Test Results form.

## 2.0 Versapath Feature Testing

The Versapath Feature set contains switch emulating functions which will require special tests setups. Though a majority of the testing can be handled with the Abacus Bulk Call Generator, a few of the tests will need to be setup manually. The tests can therefore be separated as follows:

### Abacus Bulk Call Generator

- ? Inbound Trunk Group
- ? Inbound DNIS Routing
- ? Alternate Route processing
- ? DNIS Store and Forward
- ? All DTMF Detectors Busy
- ? Call Forwarding
- ? Outbound Trunk Group
- ? Digit Addition and Deletion
- ? Screening Table Processing
- ? Multi-Tenant

### Manual Test Setup

- ? Off Premise Extension
- ? Operator Call Routing
- ? 911 Processing and Override
- ? Dialed Digit Delay
- ? Manual Call Routing
- ? Hotline Digit Dialing
- ? Trunk Group Busy Reporting
- ? Trunk Group Busy Percentage Reporting
- ? Busy Out of Trunks
- ? Remote T1 Loopup/LoopDown commands

## 2.1 Terminology

The following is a brief list of the terminology associated with the Versapath feature testing. This section is setup as: Term – Description.

Inbound – Any service, whether it be line or trunk, which is destined for the P32mxi unit.

Outbound – Any service, whether it be a line or trunk, which is destined for the Central Office and/or Outside Plant (PBX, telephone, modem, etc.)

## 2.2 General Setup

The Unit Under Test (UUT) is setup as follows:

- ? Abacus PCG #1 connected to T1 A.
- ? Abacus PCG #2 connected to T1 B.
- ? Abacus ECGs channels 1-24 connected to the VF pairs 1-24.
- ? UUT Craft port connected to Abacus PC serial port.

## 2.3 Inbound Trunk Group Testing

Inbound Trunk Group (ITG) Testing verifies that calls sent to the UUT are routed to their appropriate T1 or VF ports.

### 2.3.1 UUT ITG Test Setup

ITG is accomplished using the Craft port command:

**I v n Cp:q,Cr:2,...A:z e x**

Where v is the logical versapath number (0 for these tests), n is the ITG number (in hexadecimal), Cp:q,Cr:s,...,A:z are the channels associated with the ITG, e is a flag that determines if the ITG events are reported, and x is the Call Forwarding group for the ITG (set to 0 for these tests).

To expedite ITG testing provisioning files for the 7 tests are provided in the Abacus PC directory C:\System Test\P32MXI\Versapath Feature Testing\Test Provisioning\ITG. The files are named ITG Test 1 through ITG Test 7.

### 2.3.2 Abacus Setup

The Abacus uses test environment ITG\_Test.env. Each test has been set for a duration of 10 minutes.

When the test has completed the Abacus will generate a test report which will be filed in the Abacus PC directory C:\System Test\P32MXI\Versapath Feature Testing\Results\ITG.

### 2.3.3 ITG Test 1 – T1 A, VF Channel 1 Highest Priority

The first test in the series of seven entails setting up the UUT for basic ITG operation. The provisioning file 'VF233\_prov.txt' sets up the ITG such that VF channel 1 has the highest caller priority and VF channel 24 has the least priority. Use Procomm to Xmodem the provisioning file to the UUT.

Results from this test should show that more calls were completed on VF channel 1 than on channel 24. As a matter of fact a pattern of most to least calls should be seen in the test results with again channel 1 with most and channel 24 with least. The results will vary due to the actual call length being variable.

Start the Abacus test and save the text report as 'VF233.txt'. Mark the appropriate section in the VersaJade Test Results form.

### **2.3.4 ITG Test 2 – T1 A, VF Channel 24 Highest Priority**

The provisioning file ‘VF234\_prov.txt’ sets up the ITG such that VF channel 24 has the highest caller priority and VF channel 1 has the least priority. Use Procomm to Xmodem the provisioning file to the UUT.

Results from this test should show that more calls were completed on VF channel 24 than on channel 1. The results will vary due to the actual call length being variable.

Start the Abacus test and save the text report as ‘VF234.txt’. Mark the appropriate section in the VersaJade Test Results form.

### **2.3.5 ITG Test 3 – T1 A, 2 ITGs Split Odd/Even VF Channels**

The provisioning file ‘VF235\_prov.txt’ sets up the ITG such that two ITGs are provisioned. The first ITG consists of the odd channels (ie. VF channel 1, 3, 5, ..., 23) with channel 1 as highest caller priority. The second ITG consists of the even VF channels with channel 2 as the highest caller priority. Use Procomm to Xmodem the provisioning file to the UUT.

Results from this test should show that more calls were completed on VF channels 1 and 2 than on channels 23 and 24. The results will vary due to the actual call length being variable.

Start the Abacus test and save the text report as ‘VF235.txt’. Mark the appropriate section in the VersaJade Test Results form.

### **2.3.6 ITG Test 4 – T1 B, VF Channel 1 Highest Priority**

The provisioning file ‘VF236\_prov.txt’ sets up the ITG such that VF channel 1 has the highest caller priority and VF channel 24 has the least priority. Use Procomm to Xmodem the provisioning file to the UUT.

Results from this test should show that more calls were completed on VF channel 1 than on channel 24. The results will vary due to the actual call length being variable.

Start the Abacus test and save the text report as ‘VF236.txt’. Mark the appropriate section in the VersaJade Test Results form.

### **2.3.7 ITG Test 5 – T1 B, VF Channel 24 Highest Priority**

The provisioning file ‘VF237\_prov.txt’ sets up the ITG such that VF channel 24 has the highest caller priority and VF channel 1 has the least priority. Use Procomm to Xmodem the provisioning file to the UUT.

Results from this test should show that more calls were completed on VF channel 24 than on channel 1. The results will vary due to the actual call length being variable.

Start the Abacus test and save the text report as ‘VF237.txt’. Mark the appropriate section in the VersaJade Test Results form.

### **2.3.8 ITG Test 6 – T1 B, ITGs Split Odd/Even VF Channels**

The provisioning file ‘VF238\_prov.txt’ sets up the ITG such that two ITGs are provisioned. The first ITG consists of the odd channels (ie. VF channel 1, 3, 5, ..., 23) with channel 1 as highest caller priority. The second ITG consists of the even VF channels with channel 2 as the highest caller priority. Use Procomm to Xmodem the provisioning file to the UUT.

Results from this test should show that more calls were completed on VF channels 1 and 2 than on channels 23 and 24. The results will vary due to the actual call length being variable.

Start the Abacus test and save the text report as 'VF238.txt'. Mark the appropriate section in the VersaJade Test Results form.

### **2.3.9 ITG Test 7 – T1 A and T1 B, 2 ITGs**

The provisioning file 'VF239\_prov.txt' sets up the ITG such that two ITGs are provisioned. The first ITG consists of T1 A calling VF channels 1 through 12. The second ITG consists of T1 B calling VF channels 13 through 24. The caller priority is for channels 1 and 13. Use Procomm to Xmodem the provisioning file to the UUT.

Results from this test should show that more calls were completed on VF channels 1 and 13 than on channels 12 and 24. The results will vary due to the actual call length being variable.

Start the Abacus test and save the text report as 'VF239.txt'. Mark the appropriate section in the VersaJade Test Results form.

## **2.4 Inbound Trunk Group with DNIS Testing**

Inbound Trunk Group with DNIS (Destination Number Identification Service) Testing verifies that inbound traffic utilizing DNIS are routed to the appropriate VF port, or order tone. DNIS service is used on Wink start services only.

The versapath feature set contains two types of DNIS. The first is for basic DNIS in which audio digits are sent from the switch to the VF port after a T1 wink is sent from the UUT to the switch. The second is DNIS Store and Forward (Provisioning Register D). Store and Forward collects the DNIS digits from the T1, waits for a VF port offhook, then transmits the digits to the VF port. Store and Forward is used with PBX systems which use the switch digits to route the calls.

The ITG with DNIS works in conjunction with the Screening Tables. Therefore, screening tables are required when testing.

### **2.4.1 UUT ITG with DNIS Test Setup**

ITG with DNIS is accomplished using the ITG Craft port command above and Screening Table command:

**N nnnn v x**

Where nnnn is the DNIS number to look for (usually between 1 and 10 digits), v is the logical versapath number for the ITG assigned to the DNIS number (set to 0 for this test section), and x is the ITG number to route the call to.

To expedite ITG with DNIS testing, provisioning files for the 4 tests are provided in the Abacus PC directory C:\System Test\P32MXI\Versapath Feature Testing\Test Provisioning\ITG\_WD. The files are named ITG\_WD Test 1 through ITG\_WD Test 4.

### **2.4.2 Abacus Setup**

The Abacus uses test environment ITG\_WD\_Test.env.

When the tests have completed the Abacus will generate a test report which will be filed in the Abacus PC directory ...P32mxi\Versapath Feature Testing\Results\Abacus Reports\.

### **2.4.3 ITG\_WD Test 1 – T1 A Type 137 (EMI w/DNIS)**

Use Procomm to download the provisioning file 'VF243\_prov.txt' sets up the ITG such that VF channels 1- 24 are setup as loop start, and T1 A is setup as type 137, and T1 B is not alarmed. The screening table file 'VF243\_scrn.txt' must be downloaded as well.

Start the Abacus test and save the text report as 'VF243.txt'. Mark the appropriate section in the VersaJade Test Results form.

### **2.4.4 ITG\_WD Test 2 – T1 B Type 137**

The provisioning file 'VF244\_prov.txt' sets up the ITG such that VF channels 1- 24 are setup as loop start, and T1 B is setup as type 137, and T1 A is not alarmed.

Start the Abacus test and save the text report as 'VF244.txt'. Mark the appropriate section in the VersaJade Test Results form.

### **2.4.5 ITG\_WD Test 3 – T1 A Type 138 (EMWW w/DNIS)**

The provisioning file 'VF245\_prov.txt' sets up the ITG such that VF channels 1- 24 are setup as loop start, and T1 A is setup as type 138, and T1 B is not alarmed.

Start the Abacus test and save the text report as 'VF245.txt'. Mark the appropriate section in the VersaJade Test Results form.

### **2.4.6 ITG\_WD Test 4 – T1 B Type 138**

The provisioning file 'VF246\_prov.txt' sets up the ITG such that VF channels 1- 24 are setup as loop start, and T1 B is setup as type 138, and T1 A is not alarmed. Use Procomm to download the provisioning file to the UUT.

Start the Abacus test and save the text report as 'VF246.txt'. Mark the appropriate section in the VersaJade Test Results form.

## **2.5 Inbound Trunk Group – Call Forwarding**

This section verifies the functionality of the Versapath feature of call forwarding. Call forwarding uses both a provisioning command and a user telephone command to function. The provisioning command syntax is the x portion of the inbound trunk group command depicted in section 2.3.1. The user command syntax is:

**\*\*nxxxxxxx#**

Where n is the call forwarding group number (x), xxxxxxx is the phone number to transfer the calls to, and # is a character indicating the end of the phone number string. Call forwarding strings are limited to between 7 and 20 digits. Also used in the call forwarding is the command to remove the call forwarding. This command is:

**##n**

Where n is the inbound trunk group number. By using the command **##0** all call forwarding is removed.

### 2.5.1 Call Forwarding – Abacus Setup

The Abacus uses test environment VF251.env. This test environment configures the PCGs as a T1 switch with a special phone number list. The phone number list has two major components, first the normally called phone numbers which are 5551001 thru 5551024 and second the forwarding phone numbers of 1111001 thru 1111024. The test script allows the tester time between each call (approximately 30 seconds) to use a butt set to either engage or disengage call forwarding.

### 2.5.2 Call Forwarding – System Setup

Reroute channel 1's VF pair through the 66 block next to the RJ11 test jack panels. This is done by first removing the RJ11 jumper between position 1 of the ECG and UUT#1 RJ11 patch panels. Connect the white/blue, blue/white RJ11 plugs in position 1 of the ECG and UUT#1 RJ11. Connect the butt set to the tip and ring of the upper most 66 block position (pair 1).

Repeat the above procedure for VF pairs 3, 5 and 8, using the white/orange, white/green, and white/brown RJ11 plugs respectively.

### 2.5.3 Call Forwarding – Test 1 Basic

Configure the UUT using provisioning file 'VF253\_prov.txt'. This file sets up channel 1 as having a forwarded call route.

Start the Abacus test, and allow it to run for 5 minutes. Note that there should be no errors on the completed Abacus test scripts.

When channel 1 of the UUT hangs up, set the butt set switch to Talk, and enter the following:

```
**11111024#
```

Set the butt set switch to Mon.

Verify on the Abacus T1 switch that a call has been completed to timeslot 48. Mark the results within the appropriate cell on the VersaJade Test Results form.

After 2 or more phone calls to timeslot 48 have completed, wait until channel 1 hangs up, set the butt set position to Talk, and enter the following:

```
##1
```

Set the butt set switch to Mon.

Verify on the Abacus T1 switch that calls on timeslot 1 start incrementing. Mark the results within the appropriate cell on the VersaJade Test Results form.

After 2 or more phone calls to timeslot 1 have completed, wait until channel 1 hangs up then repeat the setting of the call forwarding number to 1111024. After a few calls have completed and channel 1 hangs up, set the butt set position to Talk, and enter the following:

```
##0
```

Set the butt set switch to Mon.

Verify on the Abacus T1 switch that calls on timeslot 1 start incrementing. Mark the results within the appropriate cell on the VersaJade Test Results form.

### 2.5.4 Call Forwarding – Complex

Configure the UUT using provisioning file 'VF254\_prov.txt'. This file sets up channels 1, 3, 5, and 8 as having a forwarded call routes.

Start the Abacus test, and allow it to run for 5 minutes. Note that there should be no errors on the completed Abacus test scripts.

When channel 1 of the UUT hangs up, set the butt set switch to Talk, and enter the following:

```
**11111004#
```

Set the butt set switch to Mon.

Move the butt set connection to pair 2 of the 66 block to access channel 3. Repeat the call forwarding procedure above for channels 3, 5, and 8 setting the call forwarding command to \*\*21111009#, \*\*71111016#, and \*\*81111022# respectively.

Verify calls being made to Abacus timeslots 28, 33, 40, and 46. Mark the results within the appropriate cells on the VersaJade Test Results form.

After 2 or more phone calls to each timeslot have completed, wait until channel 1 hangs up, set the butt set position to Talk, and enter the following:

```
##1
```

Set the butt set switch to Mon.

Verify on the Abacus T1 switch that calls on timeslot 1 start incrementing. Mark the results within the appropriate cell on the VersaJade Test Results form.

Wait 2 minutes and remove call forwarding from channel 5(##5). Mark the results within the appropriate cell on the VersaJade Test Results form.

After 2 or more phone calls have completed, remove all call forwarding with command:

```
##0
```

Verify on the Abacus T1 switch that all call forwarding has been removed. Mark the results within the appropriate cell on the VersaJade Test Results form.

## 2.6 Inbound Trunk Group – Busy Events Management

The Busy Events Management feature of the Versapath allows the user the option of viewing the call traffic to the inbound trunk group. Thus allowing the user to proper allot the needed bandwidth to all incoming traffic into the P32mxi.

In this testing the Abacus will act as an Switch calling into the UUT. The various environment should generate the appropriate messages at the Craft Port. The Craft Port data will be captured, thus providing the test results.

The Busy Events Management feature consists of two main components. The first is the inbound trunk group provisioning variable 'e' in section 2.3.1. Setting this variable to a '1' will allow the reporting of the busy events. The second is Provisioning Register 10. This register consists of seven values representing percentage thresholds. Each test section depicts a different register value. When the register threshold is exceeded the following message should appear at the Craft terminal:

**LVN x ITG y EXCEEDED 15 MIN THRESHOLD**

Where x is the Logical Versapath number and y is the ITG number exceeding the threshold.

**2.6.1 Busy Events Management – Procomm Setup**

Procomm should be set up as 19200, N, 8, 1 with no flow control.

**2.6.2 Busy Events Management – UUT System Setup**

Configure the UUT with provisioning file 'VF263\_prov.txt'. This will configure logical versapath number 0, and ITGs 1 – 3 to report threshold violations.

**2.6.3 Busy Events Management – Test 1, 100%**

Load Abacus environment VF263.env.

The UUT should have the ITG busy lockout value set a 100% by default.

In the Procomm window open a capture file and name it VF263.cap.

Start the Abacus test. The Abacus should run for 15.5 minutes, then halt testing.

Using Procomm verify the messages:

LVN 0 ITG 1 EXCEEDED 15 MIN THRESHOLD

LVN 0 ITG 2 EXCEEDED 15 MIN THRESHOLD

LVN 0 ITG 3 EXCEEDED 15 MIN THRESHOLD

Close the Procomm capture file. Also, mark the results within the appropriate cell on the VersaJade Test Results form.

**2.6.4 Busy Events Management – Test 2, 50%**

Change the busy lockout threshold to 50% by entering the command (via Procomm) P R 10 1.

Load Abacus environment VF264.env.

In the Procomm window open a capture file and name it VF264.cap.

Start the Abacus test. The Abacus should run for 15.5 minutes, then halt testing.

Using Procomm verify the messages:

LVN 0 ITG 1 EXCEEDED 15 MIN THRESHOLD

LVN 0 ITG 2 EXCEEDED 15 MIN THRESHOLD

LVN 0 ITG 3 EXCEEDED 15 MIN THRESHOLD

Close the Procomm capture file. Mark the results within the appropriate cell on the VersaJade Test Results form.

**2.6.5 Busy Events Management – Test 3, 25%**

Change the busy lockout threshold to 50% by entering the command (via Procomm) P R 10 2.

Load Abacus environment VF265.env.

In the Procomm window open a capture file and name it VF265.cap.

Start the Abacus test. The Abacus should run for 15.5 minutes, then halt testing.

Using Procomm verify the messages:

LVN 0 ITG 1 EXCEEDED 15 MIN THRESHOLD

LVN 0 ITG 2 EXCEEDED 15 MIN THRESHOLD

LVN 0 ITG 3 EXCEEDED 15 MIN THRESHOLD

Close the Procomm capture file. Mark the results within the appropriate cell on the VersaJade Test Results form.

### **2.6.6 Busy Events Management – Test 4, 12.5%**

Change the busy lockout threshold to 50% by entering the command (via Procomm) P R 10 3.

Load Abacus environment VF266.env.

In the Procomm window open a capture file and name it VF266.cap.

Start the Abacus test. The Abacus should run for 15.5 minutes, then halt testing.

Using Procomm verify the messages:

LVN 0 ITG 1 EXCEEDED 15 MIN THRESHOLD

LVN 0 ITG 2 EXCEEDED 15 MIN THRESHOLD

LVN 0 ITG 3 EXCEEDED 15 MIN THRESHOLD

Close the Procomm capture file. Mark the results within the appropriate cell on the VersaJade Test Results form.

### **2.6.7 Busy Events Management – Test 5, 6.25%**

Change the busy lockout threshold to 50% by entering the command (via Procomm) P R 10 4.

Load Abacus environment VF267.env.

In the Procomm window open a capture file and name it VF267.cap.

Start the Abacus test. The Abacus should run for 15.5 minutes, then halt testing.

Using Procomm verify the messages:

LVN 0 ITG 1 EXCEEDED 15 MIN THRESHOLD

LVN 0 ITG 2 EXCEEDED 15 MIN THRESHOLD

LVN 0 ITG 3 EXCEEDED 15 MIN THRESHOLD

Close the Procomm capture file. Mark the results within the appropriate cell on the VersaJade Test Results form.

### **2.6.8 Busy Events Management – Test 6, 3.12%**

Change the busy lockout threshold to 50% by entering the command (via Procomm) P R 10 5.

Load Abacus environment VF264.env.

In the Procomm window open a capture file and name it VF268.cap.

Start the Abacus test. The Abacus should run for 15.5 minutes, then halt testing.

Using Procomm verify the messages:

LVN 0 ITG 1 EXCEEDED 15 MIN THRESHOLD

LVN 0 ITG 2 EXCEEDED 15 MIN THRESHOLD

LVN 0 ITG 3 EXCEEDED 15 MIN THRESHOLD

Close the Procomm capture file. Mark the results within the appropriate cell on the VersaJade Test Results form.

### **2.6.9 Busy Events Management – Test 7, 1.6%**

Change the busy lockout threshold to 50% by entering the command (via Procomm) P R 10 6.

Load Abacus environment VF269.env.

In the Procomm window open a capture file and name it VF269.cap.

Start the Abacus test. The Abacus should run for 15.5 minutes, then halt testing.

Using Procomm verify the messages:

LVN 0 ITG 1 EXCEEDED 15 MIN THRESHOLD

LVN 0 ITG 2 EXCEEDED 15 MIN THRESHOLD

LVN 0 ITG 3 EXCEEDED 15 MIN THRESHOLD

Close the Procomm capture file. Mark the results within the appropriate cell on the VersaJade Test Results form.

## **2.7 Outbound Trunk Group Testing**

Outbound Trunk Group (OTG) Testing verifies that calls sent from the UUT are received properly by their appropriate T1 and/or VF ports. The OTG works in conjunction with the Screening Tables. Therefore, screening tables are required when testing the OTG.

### **2.7.1 UUT OTG Test Setup**

OTG is accomplished using the Craft port command:

**R v n Cp:q,Cr:2,....A:z aaaa**

Where v is the logical versapath number (0 for these tests), n is the OTG number (in hexadecimal), Cp:q,Cr:s,....,A:z are the channels associated with the OTG, aaaa is a string which indicates what 'action' is to be performed on the outgoing digits (either none, add digits, or delete digits).

To expedite OTG testing, provisioning files for the x tests are provided in the Abacus PC directory C:\System Test\P32MXI\Versapath Feature Testing\Test Provisioning\OTG. The files are named OTG Test 1 through OTG Test x.

Also, since screening tables are a requirement, the following craft commands are needed:

**T nnnn r**

Where nnnn is any numeric digit string from 1 to 20 characters long, and r is the OTG number (the n variable in the OTG string above). Entering a zero as r will cause reorder tone to be sent for the nnnn number dialed.

### **A nnnnnnn x y z**

Where nnnnnnn is a numeric string of 7 digits (a '?' may also be used as a wildcard character). Variable x, y, and z are prioritized placeholders for the OTG number. Variable x has the highest priority, and z the least.

## **2.7.2 Abacus Setup - OTG**

For the OTG tests several different Abacus environments are needed. Since the OTG depends on the dialed number, each Abacus environment will consist of different dialed digits. Each subsection below will divulge which Abacus environment needs to be loaded before the test can start. Abacus environments may be loaded by selecting File/Open from the main Abacus screen. Each Abacus environment is set for a test duration of 10 minutes.

## **2.7.3 OTG Test 1 – Basic OTG setup**

In this test section the basic OTG is configured and tested. The P32mxi versapath will be setup as a virtual channel bank with both inbound and outbound routes. Since there are only 15 available outbound trunk groups and the test calls for an 'A calls B' scenario, only 14 of the 15 OTGs will be used and thus only 14 timeslots will be used.

Download the provisioning file 'VF273\_prov.txt' to the UUT. This file consists of any calls originating from channels 1:1 to 4:2 being routed to T1 A:1-14 respectively, and any inbound routes from T1 A:1-14 being routed to 1:1 to 4:2 respectively.

Download the screening table file 'VF273\_scrn.txt' to the UUT. This file will set the routes to match phone numbers 6666001 to 6666014.

The Abacus uses test environment VF273.env.

In Procomm open a capture file named 'VF273.cap'.

Start the Abacus test and save the text report as 'VF273.txt'. Mark the appropriate section in the VersaJade Test Results form. Close the Procomm capture file.

## **2.7.4 OTG Test 2 – OTG with a Screening Table**

Download the provisioning file 'VF274\_prov.txt' to the UUT. Also, download the screening table 'VF274\_scrn.txt' to the UUT. OTG with a screening table involves a complex Abacus setup. The Abacus will need to load a special phone number grouping in order to assure that any misdialled phone numbers are reported as an error.

The OTGs used in this test section are assigned as follows: Screening table phone number (OTG)

? 111????(1)

? 222????(2)

? 333????(3)

? 444????(4)

- ? 555????(5)
- ? 666????(6)
- ? 777????(7)
- ? 888????(8)
- ? 999????(9)
- ? 1234567(A)
- ? 9876543(B)
- ? 1800??????(C)
- ? 8172511180(D)
- ? 19732568848(E)
- ? 911(F)

Since the phone numbers in the screening table need to be longer than 7 digits, both screening commands (T and A) will be used.

The Abacus uses test environment VF274.env.

Start the Abacus test and save the text report as 'VF274.txt'. Mark the appropriate section in the VersaJade Test Results form.

### **2.7.5 OTG Test 3 – Screening Tables w/ Number Addition/Deletion (Fail)**

Another feature of the Versapath is the ability to add or delete numbers from the destination phone number within the screening table. The test in this section is destined to Fail. What this test is trying to prove is that if the phone numbers are not modified with the addition/deletion then the phone call will not go through. To accomplish this, the screening table of test section 2.5.4 is modified to exclude all numbers over 7 digits (ie. routes C, D, and E).

Download the provisioning file 'VF275\_prov.txt' to the UUT. Also, download the screening table 'VF275\_scrn.txt' to the UUT.

The Abacus uses test environment OTG\_Test\_3.env.

Start the Abacus test and save the text report as 'VF275.txt'. Mark the appropriate section in the VersaJade Test Results form.

Note again that this test is meant to Fail. If for any reason, any of the calls are completed, then the addition/deletion feature is not working properly.

### **2.7.6 OTG Test 4 – Screening Tables w/ Number Addition/Deletion (Pass)**

This test section has a prerequisite of the completion of test section 2.5.5 successfully. Having completed the afore mentioned section, this section is meant to Pass all tests. The UUT provisioning and screening will remain the same as was in test section 2.5.5.

The Abacus uses test environment OTG\_Test\_4.env.

Start the Abacus test and save the text report as 'VF276.txt'. Mark the appropriate section in the VersaJade Test Results form.

## **2.8 Multi – Tenant Feature Testing**

The Multi-Tenant versapath feature allows more than one billing entity to use the versapath. However, the P32mxi is still presently limited to a total of 32 channels. This section will test the multi-tenant by splitting the 32 channels into 2, 3, and finally 4 tenants. Each multiple will contain two tests. Monitoring of both the completed phone calls (Abacus) and call route selection (Procomm) will be needed to determine correct functionality of this feature.

### **2.8.1 Multi – Tenant – Abacus Setup**

The basic multi-tenant Abacus setup is to configure the Abacus as a switch. This switch will have 2 separate numbering groups, one for the main dialing numbers and the other for any call forwarded numbers. The Abacus uses test environment MT\_Test.env.

### **2.8.2 Multi – Tenant Procomm Setup**

The Procomm setup has two parts, the first is setting up the filter messages and the second is using capture files to retain the filter messages. The filter message setup is described in the following paragraph. The capture file is determined in each test subsection.

Enter the filter messages 'F T 4' and 'F D 2' on the command line. These filters will monitor the state machine and dialed digits respectively. The filter messages need only be entered once as they are used in each of the multi – tenant tests.

### **2.8.3 Multi – Tenant – Test 1, Two Tenants**

Configure the UUT by downloading the provisioning file of 'VF283\_prov.txt' and screening table file VF283\_scrn.txt'. This will configure the UUT as 2 Logical Versapaths namely 1 and 3 each having 4 ITGs, 4 OTGs, and no call forwarding.

Open a Procomm Capture file named VF283.cap.

Start the Abacus test and save the text report as 'VF283.txt'. Mark the appropriate section in the VersaJade Test Results form.

Close the Procomm capture file.

### **2.8.4 Multi – Tenant – Test 2, Two Tenants**

Configure the UUT by downloading the provisioning file of 'VF284\_prov.txt' and screening table file VF284\_scrn.txt'. This will configure the UUT as 2 Logical Versapaths namely 0 and 2 each having 4 ITGs, 4 OTGs, and 4 call forwarding groups.

Open a Procomm Capture file named VF284.cap.

Start the Abacus test and save the text report as 'VF284.txt'. Mark the appropriate section in the VersaJade Test Results form.

Close the Procomm capture file.

### **2.8.5 Multi – Tenant – Test 3, Three Tenants**

Configure the UUT by downloading the provisioning file of ‘VF285\_prov.txt’ and screening table file VF285\_scrn.txt’. This will configure the UUT as 3 Logical Versapaths namely 0, 1 and 2. LVN 0 and 1 will each have 3 ITGs, 3 OTGs, and no call forwarding. LVN 2 will have 2 ITGs/OTGs and no call forwarding.

Open a Procomm Capture file named VF285.cap.

Start the Abacus test and save the text report as ‘VF285.txt’. Mark the appropriate section in the VersaJade Test Results form.

Close the Procomm capture file.

### **2.8.6 Multi – Tenant – Three Tenants Test 2**

Configure the UUT by downloading the provisioning file of ‘VF286\_prov.txt’ and screening table file VF286\_scrn.txt’. This will configure the UUT as 3 Logical Versapaths namely 1, 2 and 3. LVN 0 and 1 will each have 3 ITGs, 3 OTGs, and 3 call forwarding groups. LVN 2 will have 2 ITGs/OTGs and 2 call forwarding groups.

Open a Procomm Capture file named VF286.cap.

Start the Abacus test and save the text report as ‘VF286.txt’. Mark the appropriate section in the VersaJade Test Results form.

Close the Procomm capture file.

### **2.8.7 Multi – Tenant – Four Tenants Test 1**

Configure the UUT by downloading the provisioning file of ‘VF287\_prov.txt’ and screening table file VF287\_scrn.txt’. This will configure the UUT as 3 Logical Versapaths namely 0, 1 and 2. LVN 0 and 1 will each have 3 ITGs, 3 OTGs, and no call forwarding. LVN 2 will have 2 ITGs/OTGs and no call forwarding.

Open a Procomm Capture file named VF287.cap.

Start the Abacus test and save the text report as ‘VF287.txt’. Mark the appropriate section in the VersaJade Test Results form.

Close the Procomm capture file.

### **2.8.8 Multi – Tenant – Four Tenants Test 2**

Configure the UUT by downloading the provisioning file of ‘VF288\_prov.txt’ and screening table file VF288\_scrn.txt’. This will configure the UUT as 3 Logical Versapaths namely 0, 1 and 2. LVN 0 and 1 will each have 3 ITGs, 3 OTGs, and 3 call forwarding groups. LVN 2 will have 2 ITGs/OTGs and 2 call forwarding groups.

Open a Procomm Capture file named VF288.cap.

Start the Abacus test and save the text report as ‘VF288.txt’. Mark the appropriate section in the VersaJade Test Results form.

Close the Procomm capture file.

## **2.9 Emergency Call Override (911)**

The 911 call override is basically tested by selecting an unused VF trunk, dial 911, and verify that the 911 call completes. The override feature should route the 911 call regardless of the caller traffic. This test will be using both the Abacus and Procomm to verify full functionality. The Abacus will be setup as a switch with 10 digit phone numbers for switch ports 1-24, 7 digit phone numbers in switch ports 25-47, and a 911 phone number on switch port 48. Procomm is used to verify that an 911 call override has occurred.

### **2.9.1 911 Call Override – Abacus Setup**

The Abacus uses test environment 911\_Test.env.

When the tests have completed the Abacus will generate a test report which will be filed in the Abacus PC directory ...P32mxi\Versapath Feature Testing\Results\Abacus Reports\.

### **2.9.2 911 Call Override – Procomm Setup**

Procomm is used to monitor and record the events through file capture of the events of the UUT. Each test subsection will provide a preferred name for the capture file.

### **2.9.3 911 Call Override – No Traffic**

Configure the UUT by downloading the provisioning file of 'VF293\_prov.txt' and screening table file VF293\_scrn.txt'.

Open a Procomm Capture file named VF293.cap.

Mark the appropriate section in the VersaJade Test Results form.

Close the Procomm capture file.

### **2.9.4 911 Call Override – 50% Offhook**

Open a Procomm Capture file named VF294.cap.

Start the Abacus test and save the text report as 'VF294.txt'. Mark the appropriate section in the VersaJade Test Results form.

Close the Procomm capture file.

### **2.9.5 911 Call Override – 100% Offhook**

Reset the Abacus Partition to 24 channels.

Open a Procomm Capture file named VF295.cap.

Start the Abacus test and save the text report as 'VF295.txt'. Mark the appropriate section in the VersaJade Test Results form.

Close the Procomm capture file.

## **2.10 Hotline / Autodial Feature Testing**

The Hotline (Autodial) feature allow a customer to configure and FXS port as a Ringdown circuit. This feature uses two commands, the first being a provisioning type of 105. An example of the provisioning would be:

**P C1:1 105 0 -30 -60 0 0**

The second command is a Provisioning String known as:

**P S 8 nnnnnnn**

Where nnnnnnn is the autodialed phone number.

Setup for this test will include the Abacus as a switch and Procomm for UUT filter monitoring. Since the Hotline feature also works with digit addition/deletion, a validation test for this will be added.

### **2.10.1 Hotline – Abacus Setup**

The Abacus uses test environment Hotline\_Test.env, which sets the Abacus as a switch.

When the tests have completed the Abacus will generate a test report which will be filed in the Abacus PC directory ...P32mxi\Versapath Feature Testing\Results\Abacus Reports\.

### **2.10.2 Hotline – Procomm Setup**

Procomm is used to monitor and record the events through file capture of the events of the UUT. Set the UUT filter as follows: F D 2

Use the capture files as outlined in the test sections below to record the test results.

### **2.10.3 Hotline – Test 1, Basic Configuration**

Configure the UUT by downloading the provisioning file of 'VF2103\_prov.txt' and screening table file VF2103\_scrn.txt'.

Start the Abacus test.

In Procomm open a capture file named 'VF2103.cap'.

The Hotline number has been assigned to the UUT's VF channel 7, connect a phone to this channel. Take the newly connected phone offhook, listen for ring back, view Abacus PCG 1 channel 7 turns green, UUT channel 13 rings/answers, and verify that a confirmation tone is heard from the Abacus. Hangup and repeat these actions 4 more times.

Stop the Abacus and save the text report as 'VF2103.txt'.

Close the Procomm capture file.

Mark the appropriate section in the VersaJade Test Results form.

### **2.10.4 Hotline – Test 2, Digit Addition**

Configure the UUT by downloading the provisioning file of 'VF2104\_prov.txt' and screening table file VF2104\_scrn.txt'.

Start the Abacus.

In Procomm open a capture file named 'VF2104.cap'.

The Hotline number has been assigned to the UUT's VF channel 7, connect a phone to this channel. Take the newly connected phone offhook, listen for ring back, view Abacus PCG 1

channel 7 turns green, UUT channel 22 rings/answers, and verify that a confirmation tone is heard from the Abacus. Hangup and repeat these actions 4 more times.

Stop the Abacus and save the text report as 'VF2104.txt'

Close the Procomm capture file.

Record the results in the appropriate cell on the VersaJade Test Results form.

## ***2.11 FXO Off-Premise Extension (OPX) Feature Testing***

This feature allow the FXO to collect digits and place a call through the system similar to the FXS. However, the FXO may only originate calls.

The OPX function uses provisioning command:

**P C1:1 115 0 0 -60 0 0**

Note that Service Type 115 is used here.

### **2.11.1 OPX – Abacus Setup**

The Abacus uses test environment OPX\_Test.env. This will set the XCGs and T1 A up as switches.

### **2.11.2 OPX – System Setup**

The UUT should be configured with FXS cards in slots 1 – 6, and FXO cards in slots 8 – 9. Configure the UUT by downloading the provisioning file of 'VF2112\_prov.txt' and screening table file VF2112\_scrn.txt'.

### **2.11.3 OPX – Functional Verification**

Start the Abacus test.

Connect a phone to VF channel 15 and dial 444-1003 (FXO VF channel 3). Listen for dial tone, dial 888-1001 and listen for ringback and a confirmation tone. Mark the appropriate section in the VersaJade Test Results form.

Stop the Abacus.

## ***2.12 Craftperson Debug Feature – FXO Forced Connection Testing***

The FXO forced connection allows the craftsperson to locate and test poor audio quality in the phone system connected to the UUT. The command to force the FXO connection is:

**\*#nn**

Where nn is the specific 66 block pair that the FXO port is connected to. The allowed number sequence for nn is 01 to 24 (the zero must be entered for 01 to 09). In this test case the RJ11 jack panel will serve as the 66 block.

### **2.12.1 FXO Forced Connection – Abacus Setup**

The Abacus uses test environment FFXO\_Test.env. This will set the XCGs as a switch with a phone number list of 222-1001 to 222-1024.

### **2.12.2 FXO Forced Connection – System Setup**

Configure the UUT by downloading the provisioning file of 'VF2122\_prov.txt' and screening table file VF2122\_scrn.txt'.

### **2.12.3 FXO Forced Connection – Functional Verification**

From VF channel 5 dial 222-1023 and notice that the first FXO VF channel is used. Enter \*#32 with the phone. Notice that the eighth FXO VF channel is now being used. Mark the appropriate section in the VersaJade Test Results form.

## ***2.13 Miscellaneous – Mega Tests***

The following tests were taken from Versapath systems in the field. Each system's provisioning files have been modified to fit the new P32mxi Versapath coding technique. Note that the Lowe's system will require an additional system, whether it be a P32mxi or P32xi.

### **2.13.1 Field Provisioning / Screening Example 1 – Suburban Propane**

### **2.13.2 Field Provisioning / Screening Example 2 – Lowe's #589**

### **2.13.3 Field Provisioning / Screening Example 3 – Best Buy #423**



## 3.0 Customized Software Settings

The P32mxi allows both certain Registers and Strings to be manipulated. Thus allowing the craftsperson to enhance the performance of the P32mxi for real world applications.

### 3.1 General Provisioning

Though most of the Provisioning commands have been used and thus tested throughout this test plan, there are two commands which have yet to be used. Basically to test these commands, the user simply needs to download provisioning. Procomm is used to view both commands.

#### 3.1.1 P D

Provision the UUT using provisioning file 'Basic.txt'.

At the Procomm cursor enter ' P D' and enter.

Procomm should return a screen of:

```
S T I I
S A 9
S B 9
P R 1 A
P R 2 F
P R 3 3
P R 5 5
P R 6 5
P R 9 1
P R 16 8
P R 17 8
P R 22 14
P I P 162
P I F 1
O 0
```

Verify that the above text matches the Procomm screen. Mark the appropriate section in the VersaJade Test Results form.

#### 3.1.2 P Z:0

This command erases the provisioning. From the Procomm screen enter P Z:0. When the cursor returns to the prompt enter P D. The Procomm screen should show:

```
S T
P R 1 A
P R 2 F
P R 3 3
P R 5 5
P R 6 5
P R 9 1
P R 16 8
P R 17 8
```

P R 22 14  
P I P 162  
P I F 1  
O 0

Each of the above are generated automatically by the P32mxi, thus with no provisioning entered th above is the default display.

Verify that the above text matches the Procomm screen. Mark the appropriate section in the VersaJade Test Results form.

## **3.2 Registers**

For some of the register testing it will be necessary to use an Oscilloscope to measure timing.

Register PR10 has already been tested in test section 2.6 of this document.

### **3.2.1 PR2 – FXO Tip Open Detection Timing**

This register allows the user to set the amount of time the P32mxi waits until it detects a tip open state on an FXO circuit. The range for this timer is 0 to 12.75 seconds (0 to FF). Each 50mS time tick must be entered using a hex value. The default value for this register is F (750mS).

#### **3.2.1.1 PR2 – Abacus Setup**

The Abacus allows the user to set the tip open timing from the XCG cards (FXS). Configure the Abacus with environment PR2.env.

#### **3.2.1.2 PR2 – Procomm Setup**

Open a capture file named GP3212.cap.

#### **3.2.1.3 PR2 – Default Setting**

Start the Abacus. Procomm should indicate that a Tip Closed has occurred.

Mark the appropriate section in the VersaJade Test Results form.

#### **3.2.1.4 PR2 – Default plus 500 mS**

Reset the Abacus tip open timer to 1.2 seconds.

Start the Abacus and verify that Procomm fails to indicate a Tip closed.

Stop the Abacus.

At the Procomm prompt enter: P R 2 19

Start the Abacus. Procomm should indicate that a Tip Closed has occurred.

Mark the appropriate section in the VersaJade Test Results form.

### **3.2.2 PR3 – DNIS Digit String Length**

- 3.2.3 PR4 – Forward Disconnect Timing**
- 3.2.4 PR5 – E&M Wink Delay Timing**
- 3.2.5 PR6 – E&M Wink Timing**
- 3.2.6 PR7 – Call Forwarding Special Dial Tone**
- 3.2.7 PR8 – Phone Home Option**
- 3.2.8 PR9 – Busy Inbound Trunk Group Lockout**
- 3.2.9 PRA – Allow “+++” to be sent to the Modem**
- 3.2.10 PRB – Ignore Tip Closed status on a Ground Start FXO**
- 3.2.11 PRC – DCD State**
- 3.2.12 PRD – Enable DNIS Store and Forward**
- 3.2.13 PRE – DNIS Store and Forward Delay**
- 3.2.14 PRF – Disable Tip Open / Forward Disconnect Detection**
- 3.2.15 PR11 – Call Transfer Enabled**
- 3.2.16 PR15 – DTMF Cadence Timing**
- 3.2.17 PR16 – Flashhook Transmit Timing**

**3.2.18 PR17 – Flashhook Detection Timing****3.2.19 PR18 – E&M Central Office Disconnect Timing****3.2.20 PR19 – Ring Ground Detect Timer****3.2.21 PR20 – Detect Dial Tone on T1 A****3.2.22 PR21 – Detect Dial Tone on T1 B****3.2.23 PR22 – Dial Tone Detect Timeout****3.2.24 PR30 – T1 Span A Loop Code Detect****3.2.25 PR31 – T1 Span B Loop Code Detect****3.2.26 PR50 – Generate Dial Tone for Network Emulation Mode****3.2.27 PR60 – Thermometer, Overtemp Alarm Threshold****3.2.28 PR7E – Password Status****3.2.29 PR7F – Call Processing Status****3.3 *Strings*****3.3.1 PS1 – Account Number****3.3.2 PS2 – Equipment Identifier**

**3.3.3 PS3 – Serial Number**

**3.3.4 PS4 – Operation Center Phone Number**

**3.3.5 PS5 – Modem Dial Out Initialization String**

**3.3.6 PS6 – Modem Auto Answer Initialization String**

**3.3.7 PS7 – Modem Hangup String**

***3.4 Phone Home Feature***

## 4.0 Maintenance Command Testing

Maintenance commands are to help the craftsperson debug the system. Manual ring may be used to locate a VF channel (phone line) or to set the ringing volume of a phone. Manual busy out allows the craftsperson to provision a channel and make sure that the channel is not used.

Loopbacks are used to locate either remote problems with the switch or local problems. Battery testing verifies that the battery backup is operational within specification.

### 4.1 Ring Analog VF Channel

A telephone with a ringer is required for these tests. The command to send manual ringing is:

**L M C<sub>s</sub>:p yR**

Where s is the channel card number, p is the channel card port number, and y is the indicator as to whether to ring the phone (+) or stop ringing the phone (-).

#### 4.1.1 Manual Ring – Unprovisioned VF Channels

Send Provisioning file 'ManRing Un.txt' to the UUT. Patch T1A into the Loopback port on the DSX patch panel.

Using Procomm enter the command: L M C1:1 +R

VF channel 1 should NOT ring, and the channel 1 LED should NOT flash.

Using Procomm enter the command: L M C1:1 -R

Mark the appropriate section in the VersaJade Test Results form.

#### 4.1.2 Manual Ring – Provisioned VF Channels

Send Provisioning file 'ManRing.txt' to the UUT.

Using Procomm enter the command: L M C1:1 +R

VF channel 1 should ring, and the channel 1 LED should flash.

Using Procomm enter the command: L M C1:1 -R

Mark the appropriate section in the VersaJade Test Results form.

#### 4.1.3 Manual Ring – T1 Trunk Processed

Using Procomm enter the command: L M C1:1 +R

VF channel 1 should ring, and the channel 1 LED should flash.

Remove the T1A patch cord to force the span into alarm.

VF channel 1 should NOT ring, and the channel 1 LED should NOT flash.

Using Procomm enter the command: L M C1:1 -R

Mark the appropriate section in the VersaJade Test Results form.

## 4.2 *Busy-Out Analog VF Channel*

A telephone is required for these tests. The command to send manual busy is:

**L M C<sub>s</sub>:p yB**

Where s is the channel card number, p is the channel card port number, and y is the indicator as to whether to busy out the phone (+) or release busy out to the phone (-).

### 4.2.1 **Manual Busy – Unprovisioned VF Channel**

Send Provisioning file ‘ManBusy Un.txt’ to the UUT. Patch T1A into the Loopback port on the DSX patch panel.

Using Procomm enter the command: L M C1:1 +B

VF channel 1 LED should NOT be lit.

Using Procomm enter the command: L M C1:1 -B

Mark the appropriate section in the VersaJade Test Results form.

### 4.2.2 **Manual Busy – Provisioned VF Channel**

Send Provisioning file ‘ManRing.txt’ to the UUT.

Using Procomm enter the command: L M C1:1 +B

VF channel 1 LED should be lit.

Using Procomm enter the command: L M C1:1 -B

Mark the appropriate section in the VersaJade Test Results form.

### 4.2.3 **Manual Busy – T1 Trunk Processed**

Using Procomm enter the command: L M C1:1 +B

VF channel 1 LED should be lit.

Remove the T1A patch cord to force the span into alarm.

VF channel 1 LED should NOT be lit.

Using Procomm enter the command: L M C1:1 -B

Mark the appropriate section in the VersaJade Test Results form.

## 4.3 *Busy-Out Quick Status*

When observing the provisioning file within the UUT using the ‘P D’ command the command line containing:

**O<sub>n</sub>**

Where n is a 32 bit bit-map of the physical channel number (starting with VF connector pair 1). This is viewed in a hex format on a per card basis, therefore an O 100301 would indicate that channels 6:1, 3:1, 3:2, and 1:1 were busied out. An O 710099 would indicate that channels 6:1-3, 5:1, 2:1, 2:4, 1:1, and 1:4 were busied out.

From the Procomm terminal enter the commands: L M C1:1 +B, L M C4:1 +B, L M C6:1 +B, and enter a 'P D' command. The end provisioning line should read: O 101001

Mark the appropriate section in the VersaJade Test Results form.

Remove the set busy outs.

## 4.4 Loopbacks

To fully test the capabilities of the Loopback, an extra P32xi unit is required.

### 4.4.1 Remote Loopback – Individual T1 Timeslot

To set an individual timeslot within a T1 to remote loopback (towards the switch), enter command:

**L T s:x yR**

Where s is the span identifier (eg A for T1 A), x is the timeslot number, and y is the indicator as to whether to loopback the timeslot (+) or release timeslot (-).

V.35 data testing is a quick method of testing the remote loopback. Provision the UUT with provisioning file 'Remote TS Loop Test.txt'. Provision the P32xi with provisioning file 'RTSLTxi.txt'.

Connect the V.35 Bert Test Set to the V.35 connector of a P32xi, set the V.35 Bert Test Set to Bit,  $2^{15-1}$ , and Continuous. Connect the P32xi's T1 to the UUT's T1A via the DSX patch panel (note the bantam patch cord needs to be flopped to form a T1 rollover cable) Press the Sync button and verify that the V.35 Bert Test Set gets constant errors.

With Procomm enter the command: L T C1:1 +R

Press the Sync button on the V.35 Bert Test Set and verify that no errors occur. Also observe that the Test LED on the UUT is lit.

Mark the appropriate section in the VersaJade Test Results form.

Remove the remote loopback with command: L T C1:1 -R

Verify that the V.35 Bert Test Set is again showing errors, and the UUT's Test LED is unlit.

Mark the appropriate section in the VersaJade Test Results form.

### 4.4.2 Remote Loopback – Entire T1 Span

To set a T1 to remote loopback (towards the switch), enter command:

**L s yR**

Where s is the span identifier (eg A for T1 A), and y is the indicator as to whether to loopback the span (+) or release the span (-).

V.35 data testing is a quick method of testing the remote loopback. Provision the UUT with provisioning file 'Remote Loop Test.txt'.

Connect the V.35 Bert Test Set to the V.35 connector of a P32xi, set the V.35 Bert Test Set to Bit,  $2^{15-1}$ , and Continuous. Connect the P32xi's T1 to the UUT's T1A via the DSX patch panel (note the bantam patch cord needs to be flopped to form a T1 rollover cable) Press the Sync button and verify that the V.35 Bert Test Set gets constant errors.

With Procomm enter the command: L A +R

Press the Sync button on the V.35 Bert Test Set and verify that no errors occur. Also observe that the Test LED on the UUT is lit.

Mark the appropriate section in the VersaJade Test Results form.

Remove the remote loopback with command: L A -R

Verify that the V.35 Bert Test Set is again showing errors, and the UUT's Test LED is unlit.

Mark the appropriate section in the VersaJade Test Results form.

#### **4.4.3 Local Loopback – Entire T1 Span**

To set a T1 to local loopback (towards the equipment), enter command:

**L s yL**

Where s is the span identifier (eg A for T1 A), and y is the indicator as to whether to loopback the span (+) or release the span (-).

V.35 data testing is a quick method of testing the local loopback. Provision the UUT with provisioning file 'Local Loop Test.txt'. Connect the V.35 Bert Test Set to the UUT's V.35 connector, set the V.35 Bert Test Set to Bit,  $2^{15-1}$ , and Continuous. Press the Sync button and verify that the V.35 Bert Test Set gets constant errors.

With Procomm enter the command: L A +L

Press the Sync button on the V.35 Bert Test Set and verify that no errors occur. Also observe that the Test LED on the UUT is lit.

Mark the appropriate section in the VersaJade Test Results form.

Remove the local loopback.

Verify that the V.35 Bert Test Set is again showing errors, and the UUT's Test LED is unlit.

Mark the appropriate section in the VersaJade Test Results form.

### **4.5 Battery Testing**

Battery testing uses the command:

**L M B**

To cancel a battery test already in progress enter command:

**L M X**

#### **4.5.1 Battery Testing – Good Batteries**

Connect a set of known good batteries to the UUT. Enter the command: L M B

Observe after a few minutes that the returned result is: BATT R x100 = 400\*

\*Result should be 400 or less.

Mark the appropriate section in the VersaJade Test Results form.

### 4.5.2 Battery Testing – Bad Batteries

Connect a set of known bad batteries to the UUT. Enter the command: L M B

Observe after a few minutes that the returned result is: BATT R x100 = 401\*

\*Result should be 401 or higher.

Mark the appropriate section in the VersaJade Test Results form.

### 4.5.3 Battery Testing – Cancel Test

Connect a set of known good batteries to the UUT. Enter the command: L M B

Enter the command: L M X

Verify that the battery testing has stopped.

Mark the appropriate section in the VersaJade Test Results form.

## 4.6 System Information

The P32mxi stores information about the installed channel cards, trunk interfaces, and other interfaces with its memory. Access to this data is through the System Information commands.

### 4.6.1 System Info – General Data Retrieve

From Procomm enter the command: E 0 The result should be similar to:

P32mxi Broadband Access Device  
(c) 1996-2001

Alternate Xilinx 1/1  
Alternate Generic 1.3.3 Mar 2 2001 11:32:06

Card 1 is FXS  
Card 2 is FXS  
Card 3 is FXS  
Card 4 is FXS  
Card 5 is FXS  
Card 6 is FXS  
Card 7 is V35  
Card 8 is FXO  
Card 9 is FXO  
Span A is T1  
Span B is T1  
VX Board Installed

Internal Temperature = 34 degC

Power Supply Version 0

+5V output = +5.0V      -5V output = -5.2V  
-48V output = -52V      -35V output = -34V  
Battery = -52V  
Ring Gen: Supply output = 90V / -173V  
Peak output = -39V / -145V  
Vrms = 66V

Mark the appropriate section in the VersaJade Test Results form.

#### 4.6.2 System Info – VF Channel Card Data

VF channel card data is gathered by entering E x where x is a value of 1-6 or 8-9. The x value represents the channel card number.

From Procomm enter the command: E 1 The result should be similar to:

Card (0):  
Installed: Y  
Card Type: FXS

Channels in Use:  
C1:1 :: TSI #s: 60  
C1:2 :: TSI #s: 61  
C1:3 :: TSI #s: 62  
C1:4 :: TSI #s: 63

Mark the appropriate section in the VersaJade Test Results form.

#### 4.6.3 System Info – V.35 Card Data

V.35 card data is gathered by entering E x where x is a value of 7.

From Procomm enter the command: E 7 The result should be similar to:

Card (6):  
Installed: Y  
Card Type: V35

Channels in Use:  
C7:1 :: TSI #s: --  
Err2 :: TSI #s: --  
Err3 :: TSI #s: --  
Err4 :: TSI #s: --

Mark the appropriate section in the VersaJade Test Results form.

#### 4.6.4 System Info – Span A Data

T1 Span A data is gathered by entering E x where x is a value of A.

From Procomm enter the command: E A The result should be similar to:

----- Span A Status -----

Framing Format: D4  
Zero Substitution: Bit7/AMI  
TX LBO = 0

Alarm State: No T1 Alarms

TX Clear Channel Map (TS 1 to 24): 00 00 00  
TX Idle Channel Map (TS 1 to 24): 00 00 00

Channels in Use:  
A:1 :: TSI #s: 0  
A:2 :: TSI #s: 1  
A:3 :: TSI #s: 2

A:4 :: TSI #: 3  
 A:5 :: TSI #: 4  
 A:6 :: TSI #: 5  
 A:7 :: TSI #: 6  
 A:8 :: TSI #: 7  
 A:9 :: TSI #: 8  
 A:10 :: TSI #: 9  
 A:11 :: TSI #: A  
 A:12 :: TSI #: B  
 A:13 :: TSI #: C  
 A:14 :: TSI #: D  
 A:15 :: TSI #: E  
 A:16 :: TSI #: F  
 A:17 :: TSI #: 10  
 A:18 :: TSI #: 11  
 A:19 :: TSI #: 12  
 A:20 :: TSI #: 13  
 A:21 :: TSI #: 14  
 A:22 :: TSI #: 15  
 A:23 :: TSI #: 16  
 A:24 :: TSI #: 17  
 A:25 :: TSI #: --  
 A:26 :: TSI #: --  
 A:27 :: TSI #: --  
 A:28 :: TSI #: --  
 A:29 :: TSI #: --  
 A:30 :: TSI #: --

Mark the appropriate section in the VersaJade Test Results form.

#### 4.6.5 System Info – Span B Data

T1 Span B data is gathered by entering E x where x is a value of B.

From Procomm enter the command: E B The result should be similar to:

----- Span B Status -----

Framing Format: N/A  
 Zero Substitution: Bit7/AMI  
 TX LBO = 0

Alarm State: Red LOF Alarm  
 Span is Trunk Processed (all channels IDLE)

TX Clear Channel Map (TS 1 to 24): 00 00 00  
 TX Idle Channel Map (TS 1 to 24): FF FF FF

Channels in Use:

B:1 :: TSI #: --  
 B:2 :: TSI #: --  
 B:3 :: TSI #: --  
 B:4 :: TSI #: --  
 B:5 :: TSI #: --  
 B:6 :: TSI #: --  
 B:7 :: TSI #: --  
 B:8 :: TSI #: --

B:9 :: TSI #s: --  
B:10 :: TSI #s: --  
B:11 :: TSI #s: --  
B:12 :: TSI #s: --  
B:13 :: TSI #s: --  
B:14 :: TSI #s: --  
B:15 :: TSI #s: --  
B:16 :: TSI #s: --  
B:17 :: TSI #s: --  
B:18 :: TSI #s: --  
B:19 :: TSI #s: --  
B:20 :: TSI #s: --  
B:21 :: TSI #s: --  
B:22 :: TSI #s: --  
B:23 :: TSI #s: --  
B:24 :: TSI #s: --  
B:25 :: TSI #s: --  
B:26 :: TSI #s: --  
B:27 :: TSI #s: --  
B:28 :: TSI #s: --  
B:29 :: TSI #s: --  
B:30 :: TSI #s: --

Mark the appropriate section in the VersaJade Test Results form.

#### **4.6.6 System Info – Ethernet Data (Future Use)**

#### **4.6.7 System Info – Retrieve Span Alarm Status**

To observe the alarm status of both spans use command: **K 0**

The system response is A:x B:y where x and y represent the placeholders of the span's status.  
The placeholder values are:

- 0 – All alarms Clear
- 1 – Span in Yellow alarm
- 2 – Span in Blue alarm
- 3 – Span in LOS RED alarm
- 4 – Span in BPV/CRC Threshold RED alarm
- 5 – Span in TR08 DDL Failure RED alarm
- 9 – Span is Not Alarmed (doesn't report span failures)

Using Procomm enter command: **K 0**

The system should respond with something similar to:

```
A:0 B:3  
BO=901007 LBA=0 LBB=0
```

Mark the appropriate section in the VersaJade Test Results form.

#### 4.6.8 System Info – Performance Monitoring, Current Interval

This gives the user the quick view of the performance monitoring values. The current interval uses command: **M 0** Displayed by this command are errored seconds (ES), severely errored seconds (SES), bursty errored seconds (BES), unavailable seconds (UAS), loss of frame count (LOFC), and extended super frame error events. This information is shown along with a count of current seconds.

With Procomm enter the command: **M 0** The UUT should respond with something similar to:

PM Current Interval

ES = (A) 0, (B) 0  
SES = (A) 0, (B) 0  
BES = (A) 0, (B) 0  
UAS = (A) 0, (B) 482  
LOFC = (A) 0, (B) 0  
Error Events = (A) 0, (B) 0  
Curr Seconds = (A) 482, (B) 482

PM Daily Interval

ES = (A) 3, (B) 0  
SES = (A) 3, (B) 0  
BES = (A) 0, (B) 0  
UAS = (A) 9, (B) 65535  
LOFC = (A) 2, (B) 1  
Valid Intervals = (A) 96, (B) 96

Mark the appropriate section in the VersaJade Test Results form.

#### 4.6.9 System Info – Performance Monitoring, Past Interval

If the UUT has been powered up for over 30 minutes, then it is possible to retrieve a past performance monitoring interval. This is accomplished with the command: **M x** Where x is the interval number (1-96). An interval consists of a 15 minute period and there are 96 in one day. The value of 1 would be the 15 minutes prior to the current interval, a value of 96 would be 24 hours prior to the current interval.

With Procomm enter the command: **M 3** The system should respond with something similar to:

Span A PM 15 Minute Interval 2

ES = (A) 0  
SES = (A) 0  
BES = (A) 0  
UAS = (A) 0  
LOFC = (A) 0

Span B PM 15 Minute Interval 2

ES = (B) 0  
SES = (B) 0  
BES = (B) 0  
UAS = (B) 900  
LOFC = (B) 0

Mark the appropriate section in the VersaJade Test Results form.

## **5.0 Miscellaneous Tests**

### ***5.1 Caller ID Interoperability Verification***

### ***5.2 System – Distinctive Ringing Verification***

### ***5.3 Call Waiting Interoperability Verification***

### ***5.4 Dialed Digit Delay Measurement***

### ***5.5 DTMF Detector Characteristics***

#### **5.5.1 DTMF – Availability Overload**

#### **5.5.2 DTMF – Frequency**

#### **5.5.3 DTMF – Digit to Digit Timing**

#### **5.5.4 DTMF – Power Level**

## **6.0 T1 – Frame Relay**

## **7.0 SNMP Feature Testing**

## **8.0 Router Feature Testing**

### ***8.1 Logical LAN / WAN Port Provisioning***

#### **8.1.1 Serial Data Stream – Service Type**

#### **8.1.2 Serial Data Stream – Crossconnect**

#### **8.1.3 Provisioning Packetized Voice Services**

## **9.0 xDSL Feature Testing**

## **10.0 ATM Testing**