



Avaya Solution & Interoperability Test Lab

Application Notes for IPC System Interconnect Alliance with Avaya Communication Server 1000 7.5 using QSIG Trunks – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for IPC Alliance to interoperate with Avaya Communication Server 1000 7.5 using QSIG trunks.

IPC Alliance is a trading communication solution. In the compliance testing, IPC Alliance used E1 QSIG trunks to Avaya Communication Server 1000, for users on IPC to reach users on Avaya Communication Server 1000 and on the PSTN.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe the configuration steps required for IPC Alliance to interoperate with Avaya Communication Server 1000 7.5 using QSIG trunks.

IPC Alliance (hereafter referred to as Alliance) is a trading communication solution. In the compliance testing, IPC Alliance used E1 QSIG trunks to Avaya Communication Server 1000 7.5 (hereafter referred to as CS1000), for turret users on IPC Alliance to reach users on Avaya Communication Server 1000 and on the PSTN.

This solution covered CS1000 IP (UNISTim), Digital and/or PSTN users. SIP endpoints are currently not supported due to an issue with Calls Forward scenario.

2. General Test Approach and Test Results

The feature test cases were performed manually. Calls were manually established among Alliance turret users with CS1000 IP (UNISTim), Digital and/or PSTN users. Call controls were performed from various users to verify the call scenarios.

The serviceability test cases were performed manually by disconnecting and reconnecting the E1 connection to Alliance.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute a full product performance or feature testing performed by third party vendors, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a third party solution.

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing included basic call, basic display, DTMF, hold/reconnect, call forwarding unconditional/ring-no-answer/busy, blind/attended transfer, and attended conference.

The serviceability testing focused on verifying the ability of Alliance to recover from adverse conditions, such as disconnecting/reconnecting the E1 connection to Alliance.

2.2. Test Results

The objectives outlined in **Section 2.1** were verified and met. All basic tests were executed and passed with the following observations.

- Call Forward No Answer on a Turret fails if the call is initiated by an Avaya SIP end point. For example, Set A (Avaya SIP end point) calls Set B (Turret) which has a diversion for Call Forward No Answer to Set C (Turret or Avaya). Set B keeps on ringing and call is not forwarded to Set C. Issue is not seen if Set A is a non-SIP Avaya end point.
- Set A (Avaya) initiates a call to Set B (Turret) which is Call Forward No Answer to Set C (Avaya) which is Call forward No Answer to PSTN, which is in a busy state. Set A does not hear the busy tone.
- Alliance has certain issues with Calling Line ID (CLID) when it invokes the restricted CLID feature and during conference calls.

2.3. Support

Technical support on IPC Alliance can be obtained through the following:

- **Phone:** (800) NEEDIPC, (203) 339-7800
- **Email:** systems.support@ipc.com

3. Reference Configuration

As shown in **Figure 1** below, Alliance configuration consists of the IPC Alliance MX and Turrets.

There is a physical connection between the 2MbPRI circuit pack on Avaya CS1000 with the AllianceMX. E1 QSIG trunks are used from Alliance to Avaya CS1000, to reach users on CS1000 and on the PSTN.

A five digit Uniform Dial Plan (UDP) was used to facilitate dialing between the Alliance and CS1000. During compliance testing, extension ranges 58xxx were associated with CS1000 users and 36xxx were associated with the Alliance turret users. Avaya Call Pilot DN is 58888 and the PSTN number is 96139655570.

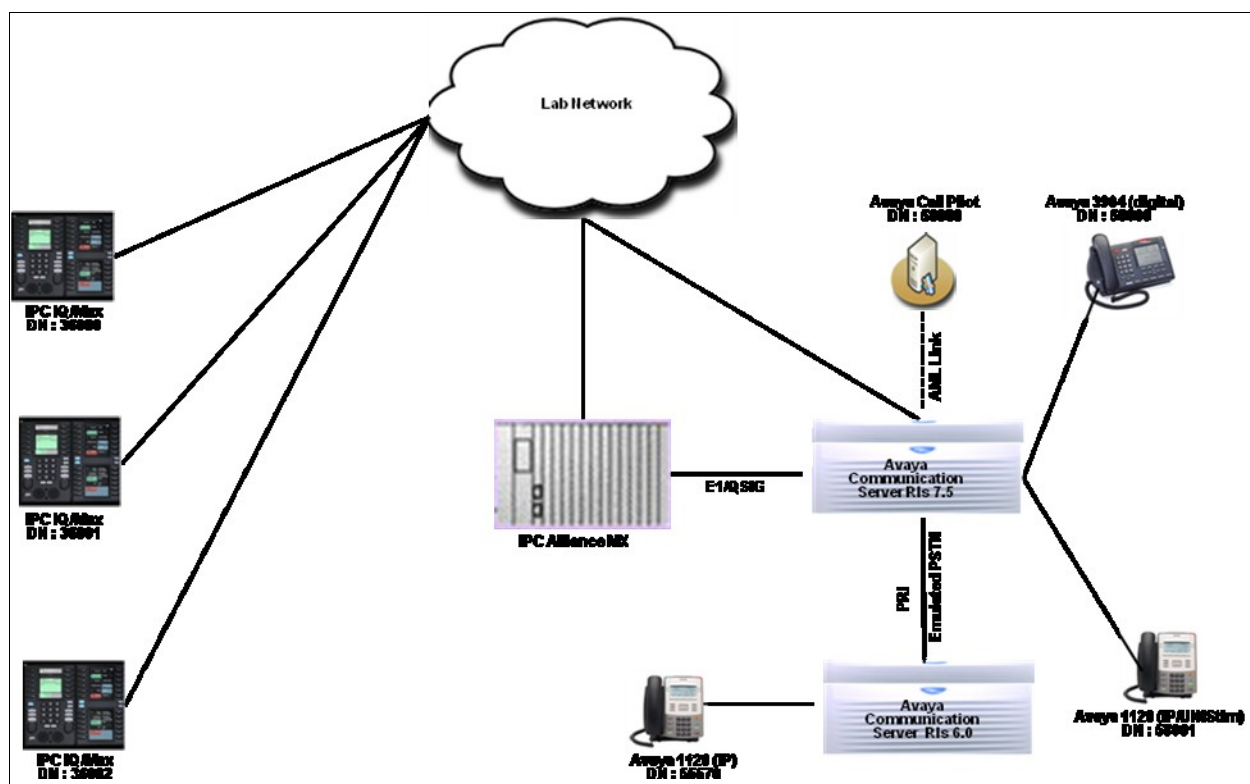


Figure 1: Compliance Test Setup in the lab

4. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided:

Equipment	Software
Avaya Communication Server 1000	7.50.17
Avaya Communication Server 1000 (for emulated PSTN)	6.0
Avaya Call Pilot (600r)	5.00.41
Avaya Digital user (3904)	NA
Avaya IP (UNISTim) user (1120)	0624C8A
IPC System Interconnect <ul style="list-style-type: none">Alliance MXTurret (IQ/Max)	16.02.01.00.0007-1 16.02.01.00.0007-1

5. Configure Avaya CS1000

This section provides the procedures for configuring Avaya CS1000 system. The procedures include the following areas:

- Logging into the Element Manager via Unified Communications Manager.
- Configuring the D-Channel Loop.
- Configuring a D-Channel.
- Configuring Route and Trunks.
- Configuring Digit Manipulation Block.
- Configuring Route List Block.
- Configuring Distant Steering Code.

Assumption is made here that the CS1000 users are already created and also the PRI Trunk between CS1000 7.5 and CS1000 6.0 is configured for emulated PSTN setup during compliance testing. For detail configuration of the CS1000 refer to **Section 9 [1]**.

5.1. Log In to Element Manager via Unified Communication Manager

To login to the Unified Communications Manager (UCM) open an Internet Explorer browser and type in the IP address of the UCM in the URL (not shown). **Figure 2** below shows the login screen of the UCM. Enter the **User ID** and **Password** credentials and click on **Log In** to continue.


The image shows the login screen of the Unified Communications Manager (UCM). It features a large red header with the 'AVAYA' logo in white on the right side. Below the header, on the left, is a disclaimer: 'This computer system and network is PRIVATE and PROPRIETARY of [company name] and may only be accessed by authorized users. Unauthorized use of this computer system or network is strictly prohibited and may be subject to criminal prosecution, employee discipline up to and including discharge, or the termination of the vendor/service contracts. The owner, or its agents, may monitor any activity or communication on the computer system or network.' To the right of the disclaimer is a login form with two input fields labeled 'User ID:' and 'Password:', and a 'Log In' button below them. At the bottom left of the page, it says 'Copyright © 2002-2010 Avaya Inc. All rights reserved.'

Figure 2: UCM Login Screen

From the UCM main screen as shown in **Figure 3** below, click on the Element **EM on cppm1**. This is the element which is configured to access the Element Manager (EM) for the CS1000 Call Server.

AVAYA

Avaya Unified Communications Management

Network

Elements

CS 1000 Services

IPSec

Patches

SNMP Profiles

Secure FTP Token

Software Deployment

User Services

Administrative Users

External Authentication

Password

Security

Roles

Policies

Certificates

Host Name: ucm1.bwwdev.com

Software Version: 02.20-SNAPSHOT(0000)

Elements

New elements are registered into the security framework, or may be added as sim management service. You can optionally filter the list by entering a search term.

Search

Reset

Add...

Edit...

Delete

	<input type="checkbox"/> Element Name	Element Type ▲	Release
1	<input type="checkbox"/> EM on cppm1	CS1000	7.5
2	<input type="checkbox"/> cppm1.bwwdev.com (member)	Linux Base	7.5

Figure 3: UCM Main Screen

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SPOC 4/23/2012

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AlliCS1K75QSIG

5.2. Configuring D-Channel Loop

This section explains the configuration required to add a D-Channel loop which will be used to configure the D-Channel on. In the EM left navigator screen, navigate to **System > Core Equipment > Loops** as shown in **Figure 4** below.

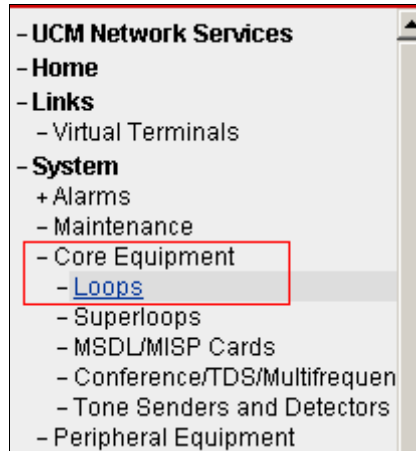


Figure 4: EM Screen showing navigation tree to Loops

Add a Loop by selecting **2.0 Mb/s Primary Rate Interface** from the drop down menu and click on **Add** to continue as shown in **Figure 5** below.

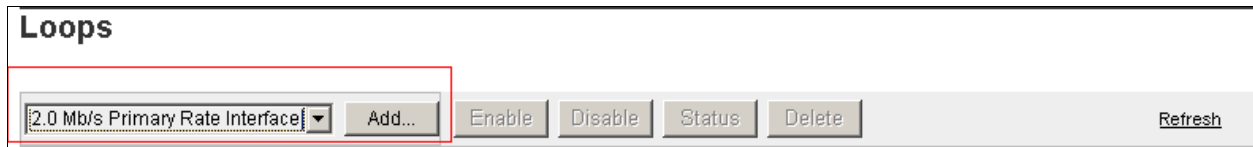


Figure 5: Adding a Loop on the 2Mb PRI circuit pack

During compliance testing a loop number of **10** was selected and the physical location of the circuit pack on the CS1000 was in **004 0 03**. Enter these values as shown in **Figure 6** below to complete adding the loop.

The screenshot shows a form titled '2.0 Mb/s Primary rate interface loop number Details'. The form contains two input fields:

- 2.0 Mb/s Primary rate interface loop number: * (0 - 255)
- Media gateway card: * (supl# sh# card#)

Both input fields are highlighted with a red box. At the bottom left, there is a note '* Required value'. At the bottom right, there is a 'Cancel' button.

Figure 6: Loop Configuration

5.3. Configuring D-Channel

This section explains the configuration of a D-Channel on the 2Mb PRI circuit pack. From the EM navigation screen, navigate to **Routes and Trunks > D-Channels** as shown in **Figure 7** below.

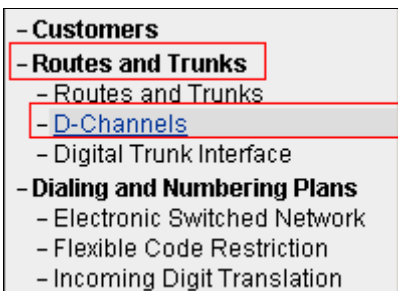


Figure 7: EM Screen showing navigation tree to D-Channels

Choose a D-Channel number to add as shown in **Figure 8** below. During compliance testing D-Channel number **5** was selected. Click on **to Add** to continue.

D-Channels

Maintenance
[D-Channel Diagnostics \(LD 96\)](#)
[Network and Peripheral Equipment \(LD 32, Virtual D-Channels\)](#)
[MSDL Diagnostics \(LD 96\)](#)
[TMDI Diagnostics \(LD 96\)](#)
[D-Channel Expansion Diagnostics \(LD 48\)](#)

Configuration

Choose a D-Channel Number: and type:

Figure 8: Adding D-Channel

Configure the **Basic Configuration** values for the D-Channel as shown in **Figure 9** below. Note here that the D-Channel PRI loop number is the same one that was configured in **Section 5.2** above.

Input Description	Input Value
Action Device And Number (ADAN):	DCH
D channel Card Type :	MSDL
Media Gateway Card:	004 0 03 (supl# sh# card#) *
Group number:	
Device number:	
Port number:	1
Designator:	QSIG_IPC
Recovery to Primary:	<input type="checkbox"/>
PRI loop number for Backup D-channel:	
User :	Primary Rate Interface (PRI) *
Interface type for D-channel:	ISIG interface with GF platform (ISGF) *
Country:	ETS 300=102 basic protocol (ETSI) *
D-Channel PRI loop number:	10
Primary Rate Interface:	<input type="text"/> <input type="button" value="more PRI"/>
Secondary PRI2 loops:	<input type="text"/>
Release ID of the switch at the far end:	5
Central Office switch type:	100% compatible with Bellcore standard (STD) *
Integrated Services Signaling Link Maximum:	200 Range: 1 - 4000

Figure 9: D-Channel Basic Configuration

To edit the **Remote Capabilities** of the D-Channel, click on **Edit** button as shown in **Figure 10** below.

Integrated Services Signaling Link Maximum:	200	Range: 1 - 4000
- Basic options (BSCOPT)		
Primary D-channel for a backup DCH:		Range: 0 - 254
- PINX customer number:	0	
- Progress signal:		
- Calling Line Identification :	Prefix = 0 for North American dialing plan. (OPT0)	
- Output request Buffers:	32	
- D-channel transmission Rate:	64 kb/s clear (64KC)	
- Channel Negotiation option:	No alternative acceptable, exclusive. (1)	
- Remote Capabilities:	<input type="button" value="Edit"/>	
+ - Change protocol timer value (TIMR)		
- B channel Service messaging.:	<input type="checkbox"/>	

Figure 10: Editing Remote Capabilities Screen

Select the boxes values for the Remote Capabilities as shown in **Figures 11a** and **11 b** below. Click on **Return - Remote Capabilities** button to return back to the main screen to complete the D-Channel configuration.

Input Description	Input Value
Basic rate interface (BRI)	<input type="checkbox"/>
Call completion on busy using integer value (CCBI)	<input checked="" type="checkbox"/>
Call completion on busy using object identifier (CCBO)	<input type="checkbox"/>
Call completion on busy for QSIG and EuroISDN BRI (CCBS)	<input type="checkbox"/>
Call completion on no response using integer value (CCNI)	<input checked="" type="checkbox"/>
Call completion on no response using object identifier (CCNO)	<input type="checkbox"/>
Call completion to no reply for QSIG and EuroISDN BRI (CCNR)	<input type="checkbox"/>
Network call park (CPK)	<input type="checkbox"/>
Connected line identification presentation (COLP)	<input checked="" type="checkbox"/>
Call transfer integer (CTI)	<input checked="" type="checkbox"/>
Call transfer object (CTO)	<input type="checkbox"/>
Diversion info. is sent using integer value (DV1I)	<input type="checkbox"/>
Diversion info. is sent using object identifier (DV1O)	<input type="checkbox"/>
Rerouting requests processed using integer value (DV2I)	<input type="checkbox"/>
Rerouting requests processed using object identifier (DV2O)	<input type="checkbox"/>
Diversion info. sent. rerouting requests processed (DV3I)	<input checked="" type="checkbox"/>
EuroISDN - div. info sent. rerouting req. processed (DV3O)	<input type="checkbox"/>

Figure 11a: Remote Capabilities Values

Network name display method 2 (ND2)	<input type="checkbox"/>
Network name display method 3 (ND3)	<input type="checkbox"/>
Name display - integer ID coding (NDI)	<input checked="" type="checkbox"/>
Name display - object ID coding (NDO)	<input type="checkbox"/>
Path replacement uses integer values (PRI)	<input checked="" type="checkbox"/>
Path replacement uses object identifier (PRO)	<input type="checkbox"/>
Release Link Trunks over IP (RLTI)	<input type="checkbox"/>
Remote virtual queuing (RVQ)	<input type="checkbox"/>
Trunk anti-tromboning operation (TAT)	<input type="checkbox"/>
User to user service 1 (UUS1)	<input type="checkbox"/>
N1-2 name display option. (NDS)	<input type="checkbox"/>
Message waiting indication using integer values (QMWI)	<input checked="" type="checkbox"/>
Message waiting indication using object identifier (QMWO)	<input type="checkbox"/>
User to user signalling (UUI)	<input type="checkbox"/>

Return - Remote Capabilities Cancel

Figure 11b: Remote Capabilities Values (cont'd)

Note that in **LD 73** under **FEAT LPTI**, the value for **MFF** could be **AFF** or **CRC** (not shown). The Alliance QSIG configuration should match with the value that is defined on the CS1000. If there is a mismatch then the D-Channel will not be active.

5.4. Configuring Route and Trunks

This section explains the configuration of the QSIG route and trunks which will be used by CS1000 and Alliance to communicate between them. To add a new route, navigate to **Routes and Trunks > Routes and Trunks** from the EM left hand navigator window as shown in **Figure 12** below.

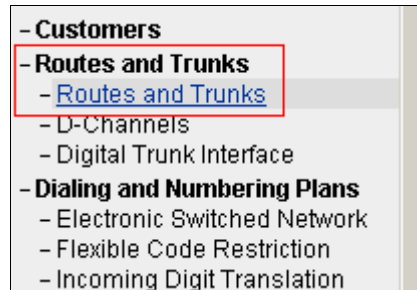


Figure 12: EM Screen showing navigation tree to Routes and Trunks

From the Routes and Trunks screen click on **Add route** button to start configuring a new route as shown in **Figure 13** below.

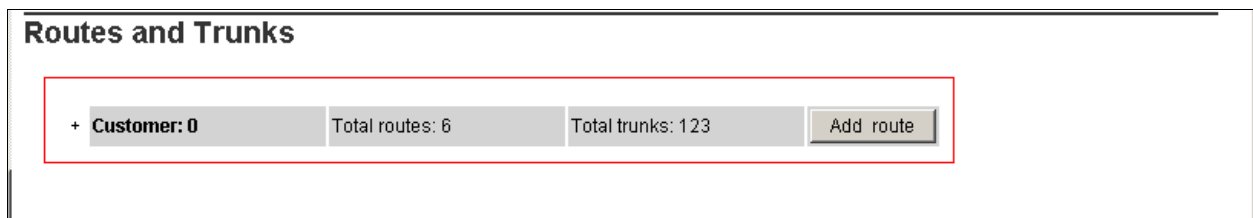


Figure 13: Adding a new Route

During compliance testing **Route number 50** was added. Select the values from the drop down menu and configure the values as shown in **Figures 14a** and **14b** below.

- Basic Configuration

Route data block (RDB) (TYPE) : RDB

Customer number (CUST) : 00

Route number (ROUT) : 50

Designator field for trunk (DES) : QSIG_IPC

Trunk type (TKTP) : TIE

Incoming and outgoing trunk (ICOG) : Incoming and Outgoing (IAO) ▼

Access code for the trunk route (ACOD) : 8050 *

Trunk type M911P (M911P) : ☐

The route is for a virtual trunk route (VTRK) : ☐

Digital trunk route (DTRK) : ☒

- ISDN BRI packet handler route (BRIP) : ☐

- Digital trunk type (DGTP) : PRI2

Integrated services digital network option (ISDN) : ☒

- Mode of operation (MODE) : ISDN/PRA route, DTRK must be YES (PRA) ▼

- Interface type for route (IFC) : ISIG interface with GF platform. (ISGF) ▼

- Send billing number (SBN) : ☐

- Private network identifier (PNI) : 00003 (0 - 32700)

- Call type for outgoing direct dialed TIE route (CTYP) : Unknown Call type (UKWN) ▼

- Insert ESN access code (INAC) : ☒

- Display of access prefix on CLID (DAPC) : ☐

Figure 14a: Route Basic Configuration values

Process notification networked calls (PNNC) : ☐

- Network Options

Electronic switched network pad control (ESN) : ☐

Signaling arrangement (SIGO) : Standard (STD) ▼

Route class (RCLS) : Route Class marked as external (EXT) ▼

Off-hook queuing (OHQ) : ☐

Off-hook queue threshold (OHQT) : 0 ▼

Call back queuing (CBQ) : ☐

Number of digits (NDIG) : 2 ▼

Authcode (AUTH) : ☐

Figure 14b: Route Network Options values

Configure the trunk values as shown in **Figure 15** below. Note that the **Terminal number** starts with **010 01** since the D-Channel loop was built on Loop 10. Click on **Edit** button to configure the required **Class of Service** for the trunks.

Customer 0, Route 50, Trunk 1 Property Configuration

- Basic Configuration

Auto increment member number: ☒

Trunk data block:

Terminal number:

Designator field for trunk:

Extended trunk:

Member number:

Level 3 Signaling:

Card density:

Start arrangement Incoming:

Start arrangement Outgoing:

Trunk group access restriction:

Channel ID for this trunk:

Network music: ☐

Class of Service:

+ Advanced Trunk Configurations

Figure 15: Trunk Properties

Figures 16a and 16b shows the **Class of Service** values selected for the compliance testing from the drop down menu. Click on **Return Class of Service** button to complete the trunks configuration.

- Class of Service

Input Description	Input Value
- ACD Priority:	ACD Priority not required (APN)
- Analog Semi-Permanent Connections:	Analog Semi-Permanent Connections Denied (SPCD)
- ARF Supervised COT:	
- Barring:	Barring Denied (BARD)
- Battery Supervised COT:	
- Busy Tone Supervised COT:	
- Calling Line Identification:	
- Calling party:	Calling party Denied (CND)
- Central Office Ringback:	
- Centrex Switchhook Flash:	Centrex Switchhook Flash Denied (THFD)
- Dial Pulse:	Dial Pulse (DIP)
- DTR PAD value:	
- Echo Canceling:	Echo Canceling Denied (ECD)
- Hong Kong DTI:	
- Loop Break Supervised COT:	
- Make-break ratio for dial pulse:	10 pulses per second (P10)
- Manual Incoming:	

Figure 16a: Trunk Class of Service

- Polarity:

- Priority:

- Restriction level:

- Reversed Ear Piece:

- Short or long line:

- Transmission Class of Service:

- Warning Tone:

- Reversed Ear Piece:

- ARF Supervised COT:

Figure 16b: Trunk Class of Service (cont'd)

5.5. Configuring Digit Manipulation Block

This section explains the digit manipulation block that is to be configured in the CS1000 dialing plan for its users to communicate with the Alliance system. From the EM navigator pane, navigate to **Dialing and Numbering Plans > Electronic Switched Network** as shown in **Figure 17** below.

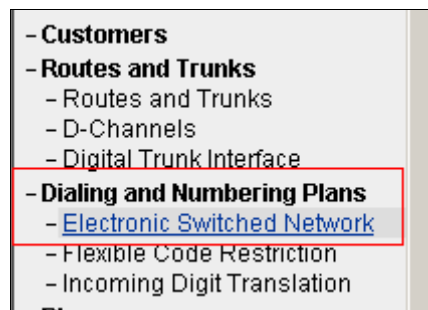
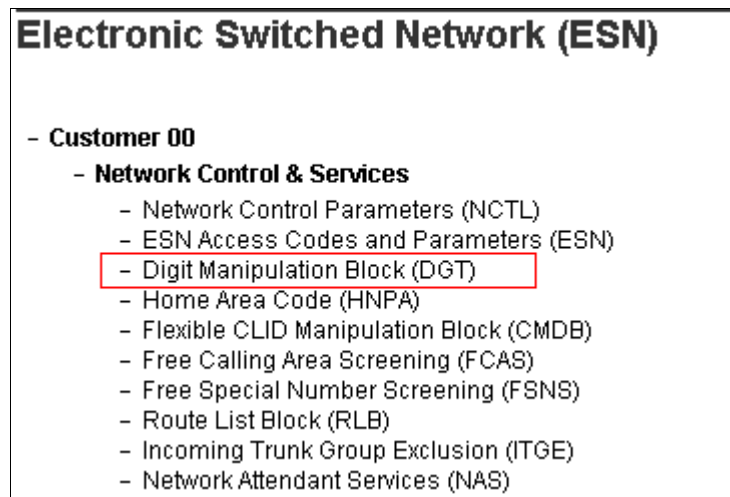


Figure 17: EM Screen showing navigation tree to Electronic Switched Network

Click on **Digit Manipulation Block (DGT)** option as shown in **Figure 18** below.

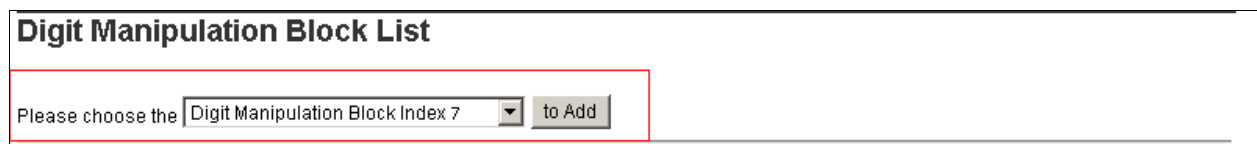


Electronic Switched Network (ESN)

- Customer 00
 - Network Control & Services
 - Network Control Parameters (NCTL)
 - ESN Access Codes and Parameters (ESN)
 - **Digit Manipulation Block (DGT)**
 - Home Area Code (HNPA)
 - Flexible CLID Manipulation Block (CMDDB)
 - Free Calling Area Screening (FCAS)
 - Free Special Number Screening (FSNS)
 - Route List Block (RLB)
 - Incoming Trunk Group Exclusion (ITGE)
 - Network Attendant Services (NAS)

Figure 18: Accessing Digit Manipulation Block

Select a block index to configure and click on **to Add** button as shown in **Figure 19** below. During compliance testing **Digit Manipulation Block Index** of **7** was added.

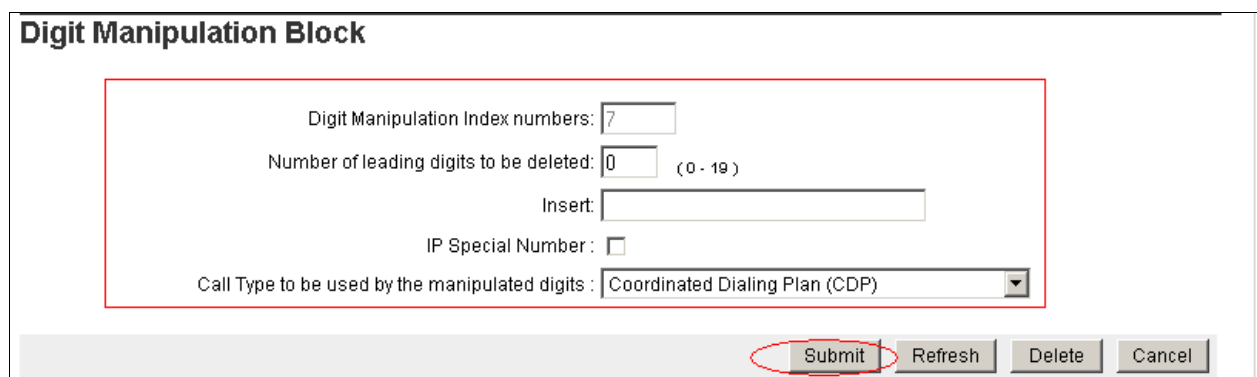


Digit Manipulation Block List

Please choose the Digit Manipulation Block Index 7 to Add

Figure 19: Adding a Digit Manipulation Block Index

Figure 20 below shows the values configured. Click on **Submit** to complete adding the Digit Manipulation Block configuration.



Digit Manipulation Block

Digit Manipulation Index numbers:

Number of leading digits to be deleted: (0 - 19)

Insert:

IP Special Number: ☐

Call Type to be used by the manipulated digits: Coordinated Dialing Plan (CDP)

Submit Refresh Delete Cancel

Figure 20: Digit Manipulation Block properties

5.6. Configuring Route List Block

This section explains the route list block that is to be configured in the CS1000 dialing plan for its users to communicate with the Alliance system. From the EM navigator pane, navigate to **Dialing and Numbering Plans > Electronic Switched Network** as shown in **Figure 17** above. Click on **Route List Block (RLB)** option as shown in **Figure 21** below.

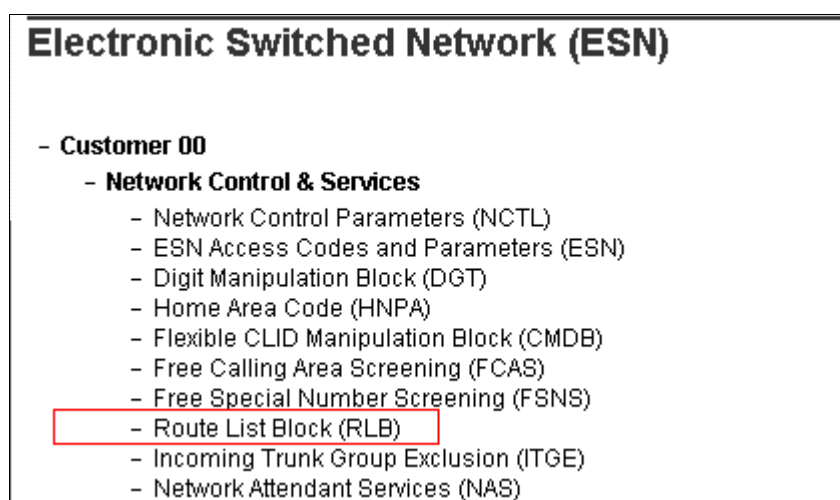


Figure 21: Accessing Route List Block

Start adding a **route list index** as shown in **Figure 22** below. During compliance testing list index **50** was added. Click on **to Add** to continue.

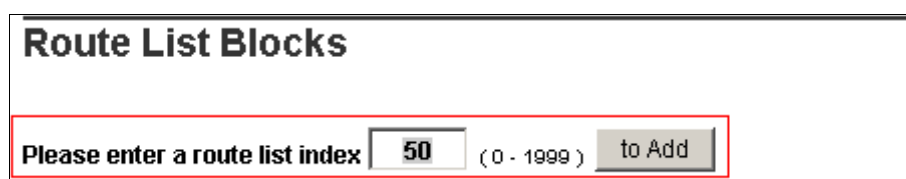


Figure 22: AddingRoute ListIndex

Add a **Data Entry Index** as shown in **Figure 23** below. During compliance testing entry index **1** was selected and click on **to Add** to continue.

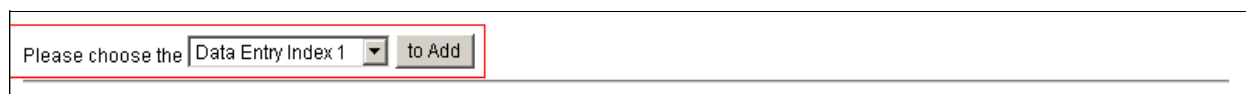


Figure 23: Adding Data Entry Index

Figures 24a and 24b below show the values configured for the index block used during compliance testing. **Route Number** of **50** and **Digit Manipulation Index** of **7** were selected as per the configuration explained in **Sections 5.4 and 5.5** respectively. Click on **Submit** to complete the configuration.

Figure 24a: Route List Block properties

Figure 24b: Route List Block properties (cont'd)

5.7. Configuring Distant Steering Code

This section explains the distant steering code that is to be configured in the CS1000 dialing plan for its users to communicate with the Alliance system. From the EM navigator pane, navigate to **Dialing and Numbering Plans > Electronic Switched Network** as shown in **Figure 17** above. Click on **Distant Steering Code (DSC)** option as shown in **Figure 25** below.

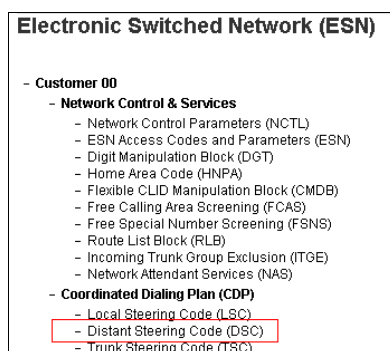


Figure 25: Accessing Distant Steering Code

From the drop down menu select **Add** and enter a distant steering code to add as shown in **Figure 26** below. During compliance testing a code of **360** was added since the Alliance extension range started with 360xx. Click on **Add** to continue.

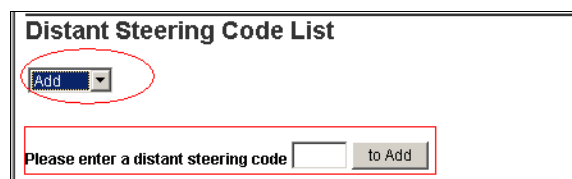


Figure 26: Adding a Distant Steering Code

Enter the values as shown in **Figure 27** below. Note that **Route List to be accessed for trunk steering code** value selected is **50** based on the configuration explained in **Section 5.6** above. Click on **Submit** to complete the configuration.

The screenshot shows the "Distant Steering Code" configuration form. The fields and their values are as follows:

- Distant Steering Code: 360 (highlighted with a red box)
- Flexible Length number of digits: 5 (0 - 10)
- Display: Local Steering Code (LSC)
- Remote Radio Paging Access: ☐
- Route List to be accessed for trunk steering code: 50 (highlighted with a red box)
- Collect Call Blocking: ☐
- Maximum 7 digit NPA code allowed: (empty field)
- Maximum 7 digit NXX code allowed: (empty field)

At the bottom of the form, there are four buttons: "Submit" (circled in red), "Refresh", "Delete", and "Cancel".

Figure 27: Distant Steering Code properties

6. Configure IPC System Interconnect

This section provides the procedures for configuring IPC System Interconnect. The procedures include the following areas:

- Launch One Management System
- Administer wire groups

The configuration of Media Manager is typically performed by IPC installation technicians. The procedural steps are presented in these Application Notes for informational purposes. For detail administration and configuration of Alliance system refer to **Section 9 [2]**.

6.1. Launch One Management System

Access the One Management System web interface by using the URL “http://ip-address/oneview” in an Internet browser window, where “ip-address” is the IP address of IPC System Center. Log in using the appropriate credentials. The **Login** screen is displayed as shown in **Figure 28** below. Enter the appropriate credentials. Check **I agree to the terms and conditions**, and click **Login**. The **License Login** screen is displayed next (not shown). Enter the appropriate password and click **Login**. In the subsequent **Login Information** screen (not shown), click **Continue**.

OneMS
One Management System

Login English ▼

Username

Password

Reset **Login**

TERMS AND CONDITIONS ☒ I agree to the terms and conditions.

Access to this system and/or network and the information in it are lawfully available only for approved purposes by employees of IPC or other users authorized by IPC. Other than where prohibited by law and subject to legal requirements, IPC reserves the right to review any information in any form on this system and/or network at any time.

This system is for the use of authorized users only. All individuals using this computer system are subject to having their activities on this system monitored and recorded. Anyone using this system expressly consents to such monitoring.

Figure 28: One Management System Login Screen

6.2. Administer Wire Groups

Select **MAIN MENU** from the top menu to display the **Main Menu** screen. Select **GROUPS > Engineering Groups > Wire Groups**, as shown in **Figure 29** below.

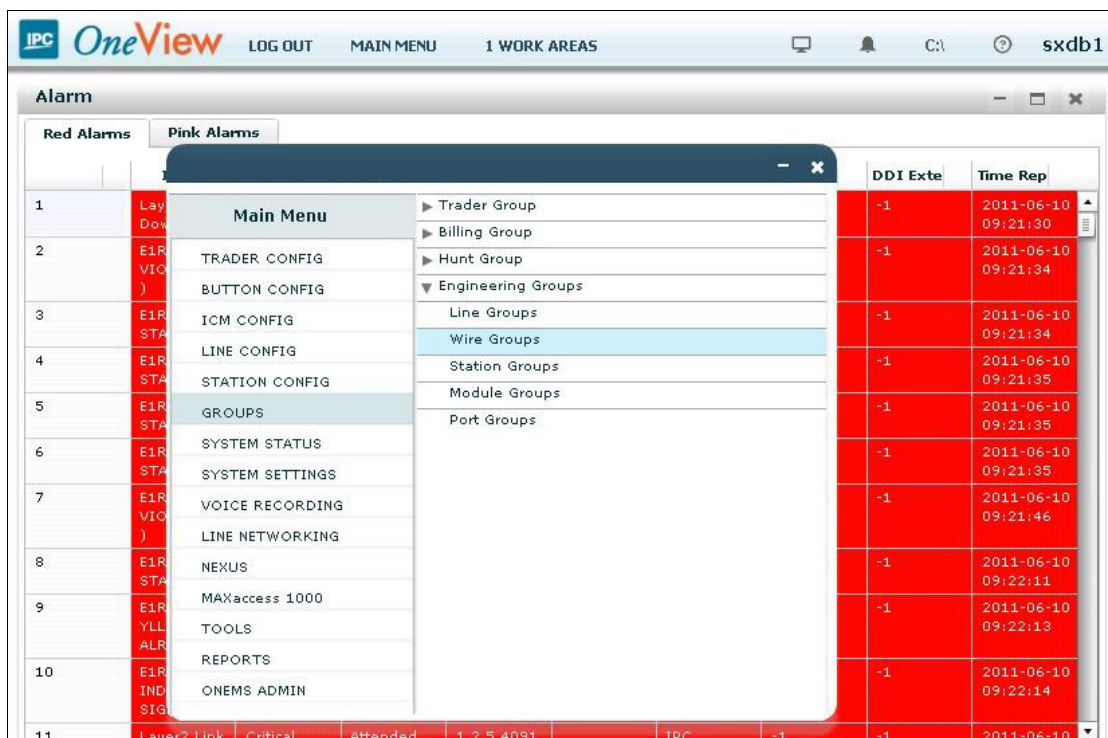


Figure 29: Wire Groups

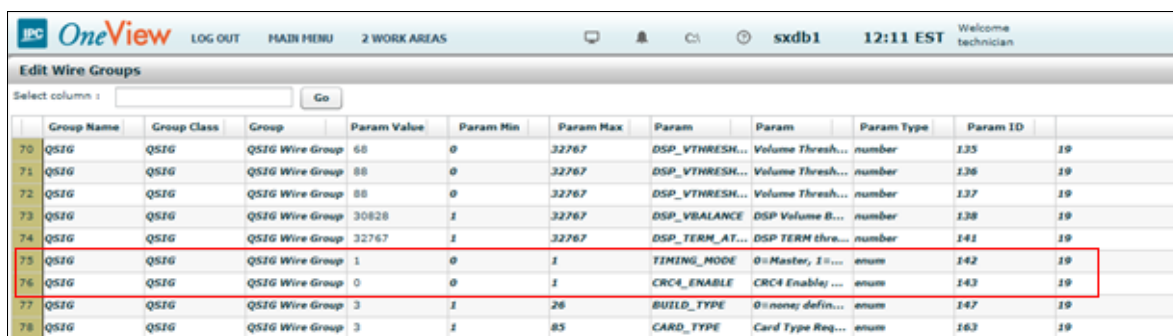
The **Wire Groups** screen is displayed as shown in **Figure 30** next. Select “QSIG” from the **Select Wire Group** drop-down list, and “Edit” from the **Select Operation** drop-down list, as shown below.



Figure 30: QSIG Wire Group Selection

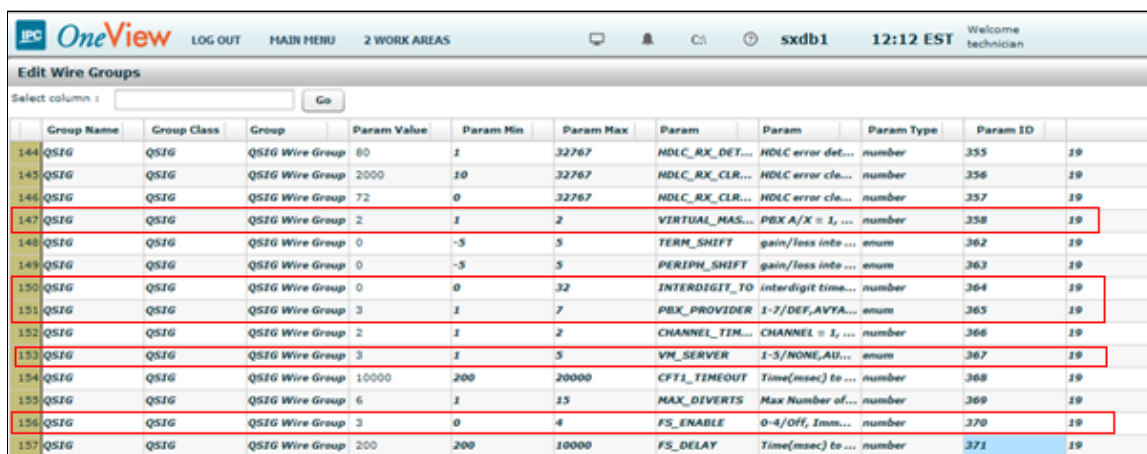
The **Edit Wire Groups** screen is displayed as shown in **Figures 31a** and **b** below.

- Locate the entry with **Param ID** of “142”. Double click on the corresponding **Param Value** field, and enter “1”
- Scroll down to locate the entry with **Param ID** of “143”. Double click on the corresponding **Param Value** field, and enter “0”
- Scroll down to locate the entry with **Param ID** of “358”. Double click on the corresponding **Param Value** field, and enter “2”
- Locate the entry with **Param ID** of “364”. Double click on the corresponding **Param Value** field, and enter “0”
- Scroll down the screen as necessary to locate the entry with **Param ID** of “365”. Double click on the corresponding **Param Value** field, and enter “3” to denote Nortel (note that IPC still uses Nortel to represent CS1000) as the PBX provider.
- Locate the entry with **Param ID** of “367”. Double click on the corresponding **Param Value** field, and enter “3”.
- Locate the entry with **Param ID** of “370”. Double click on the corresponding **Param Value** field, and enter “3”.



	Group Name	Group Class	Group	Param Value	Param Min	Param Max	Param	Param	Param Type	Param ID	
70	QSIG	QSIG	QSIG Wire Group	68	0	32767	DSP_VTHRESH...	Volume Thresh...	number	135	19
71	QSIG	QSIG	QSIG Wire Group	88	0	32767	DSP_VTHRESH...	Volume Thresh...	number	136	19
72	QSIG	QSIG	QSIG Wire Group	88	0	32767	DSP_VTHRESH...	Volume Thresh...	number	137	19
73	QSIG	QSIG	QSIG Wire Group	30828	1	32767	DSP_VBALANCE	DSP Volume B...	number	138	19
74	QSIG	QSIG	QSIG Wire Group	32767	1	32767	DSP_TERM_AT...	DSP TERM thra...	number	141	19
75	QSIG	QSIG	QSIG Wire Group	1	0	1	TIMING_MODE	0::Master, 1::...	enum	142	19
76	QSIG	QSIG	QSIG Wire Group	0	0	1	CRC4_ENABLE	CRC4 Enable...	enum	143	19
77	QSIG	QSIG	QSIG Wire Group	3	1	26	BUILD_TYPE	0::none; defin...	enum	147	19
78	QSIG	QSIG	QSIG Wire Group	3	1	85	CARD_TYPE	Card Type Req...	enum	163	19

Figure 31a: QSIG Wire Groups Configuration



	Group Name	Group Class	Group	Param Value	Param Min	Param Max	Param	Param	Param Type	Param ID	
144	QSIG	QSIG	QSIG Wire Group	80	1	32767	HDLC_RX_DET...	HDLC error det...	number	355	19
145	QSIG	QSIG	QSIG Wire Group	2000	10	32767	HDLC_RX_CLR...	HDLC error cle...	number	356	19
146	QSIG	QSIG	QSIG Wire Group	72	0	32767	HDLC_RX_CLR...	HDLC error cle...	number	357	19
147	QSIG	QSIG	QSIG Wire Group	2	1	2	VIRTUAL_MAS...	PBX A/X :: 1, ...	number	358	19
148	QSIG	QSIG	QSIG Wire Group	0	-5	5	TERM_SHIFT	gain/loss into ...	enum	362	19
149	QSIG	QSIG	QSIG Wire Group	0	-5	5	PERIPH_SHIFT	gain/loss into ...	enum	363	19
150	QSIG	QSIG	QSIG Wire Group	0	0	32	INTERDIGIT_TO	interdigit time...	number	364	19
151	QSIG	QSIG	QSIG Wire Group	3	1	7	PBX_PROVIDER	1-7/DEF,AVYA...	enum	365	19
152	QSIG	QSIG	QSIG Wire Group	2	1	2	CHANNEL_TIM...	CHANNEL :: 1, ...	number	366	19
153	QSIG	QSIG	QSIG Wire Group	3	1	5	VM_SERVER	1-5/NONE,AU...	enum	367	19
154	QSIG	QSIG	QSIG Wire Group	10000	200	20000	CFT1_TIMEOUT	Time(msec) to ...	number	368	19
155	QSIG	QSIG	QSIG Wire Group	6	1	15	MAX_DIVERTS	Max Number of...	number	369	19
156	QSIG	QSIG	QSIG Wire Group	3	0	4	FS_ENABLE	0-4/Off, Imm...	number	370	19
157	QSIG	QSIG	QSIG Wire Group	200	200	10000	FS_DELAY	Time(msec) to ...	number	371	19

Figure 31b: QSIG Wire Groups Configuration (cont'd)

7. Verification Steps

The following tests were conducted to verify the solution between the CS1000 and Alliance system:

- All basic call features operate successfully between CS1000 and Alliance users.
- E1 connection in the Media Gateway is successfully established when the physical cable is disconnected and connected back.
- Login to the CS1000 using command line interface (not shown) and verify the status of the D-Channel and D-Channel loop in **LD 96** and **60** respectively. **Figure 32** below shows the D-Channel active and established and the loop enabled with the channels idle.

```
>ld 96
DCH000
.stat dch 5
DCH 005 : OPER      EST  ACTV  AUTO
DES : QSIG_IPC
****
OVL000
>ld 60
DTI000
.stat 10

PRI2 LOOP 10 - ENBL
REF CLK: DSEL
SERVICE RESTORE: YES
ALARM STATUS: ACCEPTABLE
CH 01 - IDLE TIE  VOD *      CH 02 - IDLE TIE  VOD *
CH 03 - IDLE TIE  VOD *      CH 04 - IDLE TIE  VOD *
CH 05 - IDLE TIE  VOD *      CH 06 - IDLE TIE  VOD *
CH 07 - IDLE TIE  VOD *      CH 08 - IDLE TIE  VOD *
CH 09 - IDLE TIE  VOD *      CH 10 - IDLE TIE  VOD *
CH 11 - IDLE TIE  VOD *      CH 12 - IDLE TIE  VOD *
CH 13 - IDLE TIE  VOD *      CH 14 - IDLE TIE  VOD *
CH 15 - IDLE TIE  VOD *      CH 16 - IDLE TIE  VOD *
CH 17 - IDLE TIE  VOD *      CH 18 - IDLE TIE  VOD *
CH 19 - IDLE TIE  VOD *      CH 20 - IDLE TIE  VOD *
CH 21 - IDLE TIE  VOD *      CH 22 - IDLE TIE  VOD *
CH 23 - IDLE TIE  VOD *      CH 24 - IDLE TIE  VOD *
CH 25 - IDLE TIE  VOD *      CH 26 - IDLE TIE  VOD *
CH 27 - IDLE TIE  VOD *      CH 28 - IDLE TIE  VOD *
CH 29 - IDLE TIE  VOD *      CH 30 - IDLE TIE  VOD *
CH 31 - DCH 5
.
```

Figure32: CS1000 DCH and Loop Status

8. Conclusion

These Application Notes describe the configuration steps required for IPC Alliance to successfully interoperate with Avaya Communication Server 1000 7.5 using QSIG trunks. All of the executed test cases have passed and met the objectives outlined in **Section 2**. The Alliance System is considered compliant with Avaya CS1000 Release 7.5.

9. Additional References

This section references the product documentation relevant to these Application Notes.

1. *CS1000 7.50 Administering and System Programming documents*, available at <http://support.avaya.com>.
2. Documents upon request from IPC Support.

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