



## **Avaya Solution & Interoperability Test Lab**

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# **Application Notes for Configuring G-Tek Electronics AQ-10x SIP Phones with Avaya Aura® Session Manager 6.1 and Avaya Aura® Communication Manager 6.0.1 - Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps required for G-Tek Electronics AQ-10x SIP Phones to interoperate with Avaya Aura® Session Manager 6.1 and Avaya Aura® Communication Manager 6.0.1.

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 steps required to configure G-Tek Electronics AQ-10x SIP Phones to interoperate with an Avaya SIP infrastructure consisting of Avaya Aura® Session Manager 6.1 and Avaya Aura® Communication Manager 6.0.1. G-Tek AQ-10x is a series of business IP phones for the enterprise.

## 2. General Test Approach and Test Results

To verify interoperability of G-Tek AQ-10x SIP Phones with Session Manager and Communication Manager, calls were made between G-Tek telephones and Avaya SIP, H.323 and Digital telephones using various codec settings and exercising common PBX features. The telephony features were activated and deactivated using speed-dial buttons.

### 2.1. Interoperability Compliance Testing

Interoperability compliance testing covered the following features and functionality:

- Successful registration of G-Tek AQ-10x SIP Phones with Session Manager.
- Calls between G-Tek telephones and Avaya SIP, H.323, and digital telephones.
- G.711 and G729A codec support and negotiation, with and without media shuffling.
- Basic features including phone display, mute/un-mute, answer, hang up, music on hold, DTMF transmission using RFC2833, Message Waiting Indicator (MWI) subscription and feature access code dialing.
- PBX features including Multiple Call Appearances, Hold, Transfer, and Conference.
- Proper system recovery after a G-Tek telephone restart and loss of IP connection.

### 2.2. Test Results

All test cases were executed and passed successfully.

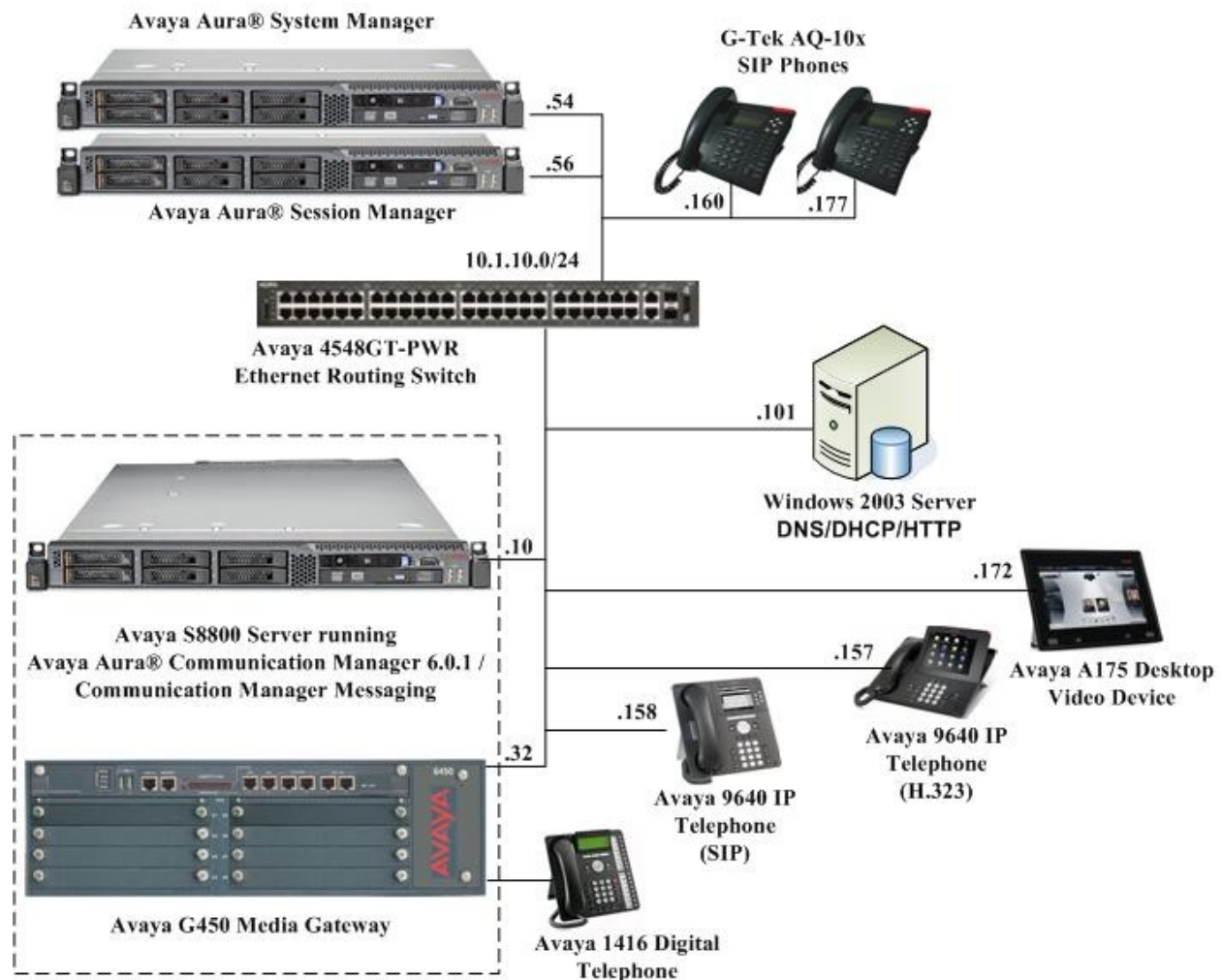
### 2.3. Support

Technical support from G-Tek Electronics can be obtained through the following:

- Phone: +886-2-26962665 ext. 221
- E-mail: [support@G-Tek.com.tw](mailto:support@G-Tek.com.tw)

### 3. Reference Configuration

The diagram illustrates an enterprise site with an Avaya SIP-based network, including Session Manager, an S8800 Server running Communication Manager configured as an Evolution Server with a G450 Media Gateway, and Avaya SIP, H.323 and Digital endpoints. The enterprise site also contains two G-Tek AQ-10x SIP Phones used in the compliance testing. The G-Tek phones are registered with Session Manager and are configured as endpoint users on Session Manager and as stations on Communication Manager.



**Figure 1: G-Tek AQ-10x SIP Phones with Avaya SIP Solution**

**Table 1** lists the extensions used for this testing.

<b>Extension</b>	<b>Note</b>
10099	Avaya 9670 IP Telephone (H.323)
10051	Avaya 9640 IP Telephone (SIP)
10016	Avaya 1416 Digital Telephone
10061	Avaya Desktop Video Device (ADVD) (SIP)
10073 to 10074	G-Tek AQ-10x SIP Phones

**Table 1 – Extension Setup**

## 4. Equipment and Software Validated

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

<b>Equipment</b>	<b>Software</b>
Avaya S8800 Server	Avaya Aura® Communication Manager 6.0.1 (Service Pack 4 00.1.510.1-19100) / Avaya Aura® Communication Manager Messaging 6.0.1
Avaya G450 Media Gateway	31.20.0
Avaya S8800 Server	Avaya Aura® Session Manager 6.1 Service Pack 5
Avaya S8800 Server	Avaya Aura® System Manager 6.1 Service Pack 5
Avaya 9600 Series IP Telephones	2.6.4.0 (SIP) 3.1 SP2 (H.323)
Avaya 1408 Digital Telephone	-
Avaya Desktop Video Device	1.0.3
Avaya 4548GT-PWR Ethernet Routing Switch	V5.4.0.008
G-Tek AQ-10x SIP Phones	Firmware Version: 1110X.27.1.02h Codec Version: Thu May 7 14:10:47 2009 CMI Version: 1109280

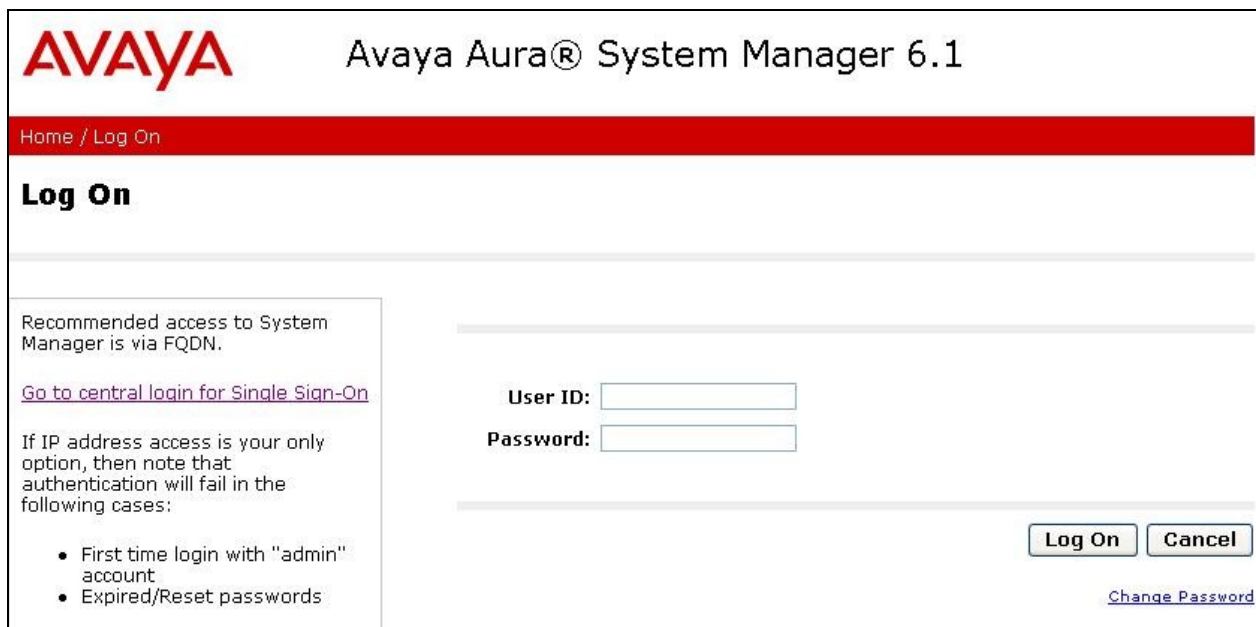
## 5. Configure Avaya Aura® Session Manager

This section provides the procedures for configuring Avaya Aura® Session Manager. The procedures include the following areas:

- Launch System Manager
- Administer users

### 5.1. Launch System Manager

Access the System Manager Web interface by using the URL “https://ip-address” in an Internet browser window, where “ip-address” is the IP address of the System Manager server. Log in using the appropriate credentials.



The screenshot shows the Avaya Aura® System Manager 6.1 web interface. At the top, the Avaya logo is on the left and the title "Avaya Aura® System Manager 6.1" is on the right. Below the title bar is a red navigation bar with "Home / Log On". The main heading is "Log On". On the left, a box contains text: "Recommended access to System Manager is via FQDN." followed by a link "Go to central login for Single Sign-On". Below this, it states: "If IP address access is your only option, then note that authentication will fail in the following cases:" followed by a bulleted list: "• First time login with 'admin' account" and "• Expired/Reset passwords". On the right, there are input fields for "User ID:" and "Password:". At the bottom right are "Log On" and "Cancel" buttons, and a link "Change Password" at the very bottom right.

## 5.2. Administer Users

In the subsequent screen (not shown), select **Users > User Management > Manage Users** to display the **User Management** screen below. Click **New** to add a user.

The screenshot shows the Avaya Aura System Manager 6.1 User Management interface. The top navigation bar includes the Avaya logo, the title 'Avaya Aura® System Manager 6.1', and links for 'Help | About | Change Password | Log off admin'. Below this, a breadcrumb trail reads 'Home / Users / User Management / Manage Users- User Management'. The left sidebar contains a 'User Management' dropdown menu with options: 'Manage Users' (highlighted), 'Public Contacts', 'Shared Addresses', and 'System Presence ACLs'. The main content area is titled 'User Management' and features a 'Users' section with buttons for 'View', 'Edit', 'New' (circled in red), 'Duplicate', 'Delete', and 'More Actions'. Below these buttons, a table displays a list of users. The table has columns for 'Status', 'Name', 'Login Name', 'E164 Handle', and 'Last Login'. There are 22 items in the list, and the 'Show' dropdown is set to 15. The table contains the following data:

Status	Name	Login Name	E164 Handle	Last Login
1XC SIPUser1	10063@sglab.com	10063		
1XC SIPUser2	10064@sglab.com	10064		
ADVD User1	10061@sglab.com	10061		
ADVD User2	10062@sglab.com	10062		
Avaya, SIP1	10051@sglab.com	10051		

### 5.2.1. Identity

The **New User Profile** screen is displayed. Enter desired **Last Name** and **First Name**. For **Login Name**, enter “n@x”, where “n” is the first G-Tek AQ-10x user extension and “x” is the domain name used for compliance testing, in this case “sglab.com”. For **Password** and **Confirm Password**, enter the appropriate credentials for System Manager. Retain the default values in the remaining fields.

Avaya Aura® System Manager 6.1 [Help](#) | [About](#) | [Change Password](#) | [Log off admin](#)

[User Management](#) x [Home](#)

[Home](#) / [Users](#) / [User Management](#) / [Manage Users - New User Profile](#) [Help ?](#)

### New User Profile

[Commit](#) [Cancel](#)

**Identity** \* **Communication Profile** \* **Membership** **Contacts**

Identity ▾

\* **Last Name:**

\* **First Name:**

**Middle Name:**

**Description:**

\* **Login Name:**

\* **Authentication Type:**  ▾

\* **Password:**

\* **Confirm Password:**

### 5.2.2. Communication Profile

Select the **Communication Profile** tab. For **Communication Profile Password** and **Confirm Password**, enter the desired password for the G-Tek phones to use for registration. Scroll down to the **Communication Address** sub-section, and click **New** to add a new address.

Avaya Aura® System Manager 6.1

Help | About | Change Password | Log off admin

User Management x Home

Home / Users / User Management / Manage Users - New User Profile

Help ?

### New User Profile

Commit Cancel

Identity \* Communication Profile \* Membership Contacts

Communication Profile ▾

Communication Profile Password: •••••

Confirm Password: •••••

New Delete Done Cancel

Name
Primary

Select : None

\* Name: Primary

Default : ☒

Communication Address ▾

New Edit Delete

Type	Handle	Domain
No Records found		

For **Type**, retain “Avaya SIP”. For **Fully Qualified Address**, enter and select the SIP user extension and domain name from **Section 5.2.1**. Click **Add**.

Communication Address ▾

New Edit Delete

Type	Handle	Domain
No Records found		

Type: Avaya SIP ▾

\* Fully Qualified Address: 10073 @ sglab.com ▾

Add Cancel



Scroll down to check and expand **Session Manager Profile**. For **Primary Session Manager**, **Origination Application Sequence**, **Termination Application Sequence**, and **Home Location**, select the values corresponding to the applicable Communication Manager. Retain the default values in the remaining fields. These settings are configured during the initial setup of Session Manager.

Scroll down to check and expand **Endpoint Profile**. For **System**, select the value corresponding to the applicable Communication Manager. For **Extension**, enter the SIP user extension from **Section 5.2.1**. For **Template**, select “DEFAULT\_9630SIP\_CM\_6\_0”. For **Port**, select “IP”. Retain the default values in the remaining fields.

☒ **Session Manager Profile**

**\* Primary Session Manager**

Primary	Secondary	Maximum
23	0	23

**Secondary Session Manager**

Primary	Secondary	Maximum

**Origination Application Sequence**

**Termination Application Sequence**

**Survivability Server**

**\* Home Location**

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☒ **Endpoint Profile**

**\* System**

**\* Profile Type**

**Use Existing Endpoints** ☐

**\* Extension**

**\* Template**

**Set Type**

**Security Code**

**\* Port**

**Voice Mail Number**

**Delete Endpoint on Unassign of Endpoint from User or on Delete User.** ☐

Click **Commit** to complete the creation of the new user (not shown).

Repeat **Section 5.2** to add a user for each G-Tek AQ-10x user. In the compliance testing, two users with extensions “10073” and “10074” were added.

## 6. Configure Avaya Aura® Communication Manager

This section provides the procedures for configuring Communication Manager. The procedures include the following areas:

- Verify Communication Manager license
- Administer IP codec set

### 6.1. Verify Communication Manager License

Log in to the System Access Terminal (SAT) to verify that the Communication Manager license has proper permissions for features illustrated in these Application Notes. Use the “display system-parameters customer-options” command to verify that there is sufficient capacity for SIP stations by comparing the **Maximum Off-PBX Telephones - OPS** field value with the corresponding value in the **USED** column. The difference between the two values needs to be greater than or equal to the number of G-Tek AQ-10x SIP Phone extensions.

The license file installed on the system controls the maximum permitted. If there is insufficient capacity, contact an authorized Avaya sales representative to make the appropriate changes.

```
display system-parameters customer-options                               Page 1 of 11
                                OPTIONAL FEATURES

G3 Version: V16                                     Software Package: Enterprise
Location: 2                                          System ID (SID): 1
Platform: 28                                        Module ID (MID): 1

                                USED
Platform Maximum Ports: 6400 281
Maximum Stations: 1000 173
Maximum XMOBILE Stations: 2400 0
Maximum Off-PBX Telephones - EC500: 250 0
Maximum Off-PBX Telephones - OPS: 1000 32
Maximum Off-PBX Telephones - PBFMC: 250 0
Maximum Off-PBX Telephones - PVFMC: 250 0
Maximum Off-PBX Telephones - SCCAN: 0 0
Maximum Survivable Processors: 10 1

(NOTE: You must logoff & login to effect the permission changes.)
```

## 6.2. Administer IP Codec Set

Use the **change ip-codec-set n** command, where **n** is the existing codec set number associated with the SIP trunk group to Session Manager. Update the audio codec types in the **Audio Codec** fields as necessary to include G.711MU, G.711A and G.729A.

change ip-codec-set 6

Page 1 of 2

IP Codec Set

Codec Set: 6

Audio	Silence	Frames	Packet
Codec	Suppression	Per Pkt	Size(ms)
1: <b>G.711MU</b>	<b>n</b>	<b>2</b>	<b>20</b>
2: <b>G.711A</b>	<b>n</b>	<b>2</b>	<b>20</b>
3: <b>G.729A</b>	<b>n</b>	<b>2</b>	<b>20</b>
4:			

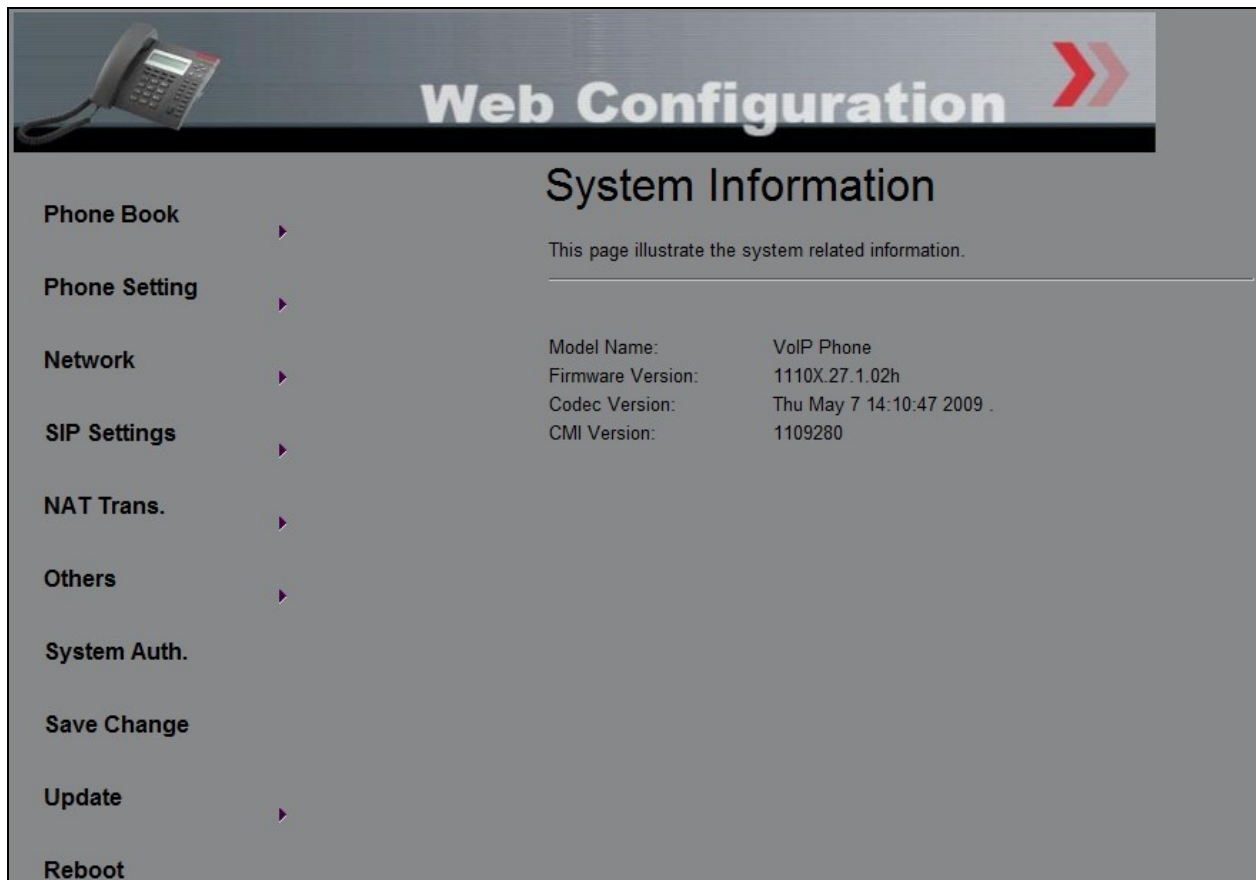
## 7. Configure G-Tek AQ-10x SIP Phones

This section provides the procedures for configuring G-Tek AQ-10x SIP Phones. The procedures include the following areas:

- Access Web Interface
- Configure SIP Account Settings
- Configure Audio Codecs
- Configure DTMF Setting
- Save Changes and Reboot

### 7.1. Access Web Interface

Enter <http://<ip-addr>:8000/>, where <ip-addr> is the IP address of the G-Tek phone, into the address bar of web browser and log in using a valid account. The **System Information** screen is displayed.



## 7.2. Configure SIP Account Settings

Select **SIP Settings > Service Domain** from the left menu. Set the **Active** field to **On**. Enter the IP address of Session Manager signaling interface as shown in **Figure 1** for the **Domain Server** and **Proxy Server** fields. For the fields **User Name**, **Register Name** and **Register Password**, enter the account details as shown below to match the user settings in Session Manager added in **Section 5.2**. The **Register Password** is the **Communication Profile Password** in **Section 5.2.2**. Set **Subscribe for MWI** to **On**. Click **Submit** to continue.

**Service Domain Settings**

You could set information of service domains in this page.

Realm No.: Realm 1

Realm	
Active:	<input checked="" type="radio"/> On <input type="radio"/> Off
Display Name:	SM-10073
User Name:	10073
Register Name:	10073
Register Password:	.....
Domain Server:	10.1.10.56
Proxy Server:	10.1.10.56
Outbound Proxy:	
Subscribe for MWI:	<input checked="" type="radio"/> On <input type="radio"/> Off
Status:	Registered

Submit Reset

## 7.3. Configure Audio Codecs

Select **SIP Settings > Codec Settings** from the left menu. In the **Codec Priority** section, prioritize the audio codecs accordingly.

**Phone Book**

**Phone Setting**

**Network**

**SIP Settings**

- Service Domain
- Port Settings
- Codec Settings**
- Codec ID Setting
- DTMF Settings
- RPort Settings
- Other Settings

**NAT Trans.**

**Others**

**System Auth.**

**Save Change**

**Update**

**Reboot**

### Codec Settings

You could set the codec settings in this page.

Codec Priority	
Codec Priority 1:	G.711 u-law
Codec Priority 2:	G.711 a-law
Codec Priority 3:	G.729
Codec Priority 4:	Not Used
Codec Priority 5:	Not Used
Codec Priority 6:	Not Used
Codec Priority 7:	Not Used
Codec Priority 8:	Not Used
Codec Priority 9:	Not Used

RTP Packet Length	
G.711 & G.729:	20 ms
G.723:	30 ms

G.723 5.3K	
G.723 5.3K:	<input type="radio"/> On <input checked="" type="radio"/> Off

Voice VAD	
Voice VAD:	<input type="radio"/> On <input checked="" type="radio"/> Off

## 7.4. Configure DTMF Setting

Select **SIP Settings > DTMF Settings** from the left menu. Select **RFC 2833** for DTMF.

The screenshot shows the 'DTMF Setting' page in a web interface. On the left is a navigation menu with categories: Phone Book, Phone Setting, Network, SIP Settings, NAT Trans., Others, and System Auth. The 'SIP Settings' category is expanded, showing sub-items: Service Domain, Port Settings, Codec Settings, Codec ID Setting, DTMF Settings (which is highlighted), RPort Settings, and Other Settings. The main content area is titled 'DTMF Setting' and contains the text 'You could set the DTMF setting in this page.' Below this is a form with three radio button options: 'RFC 2833' (selected), 'Inband DTMF', and 'Send DTMF SIP Info'. At the bottom of the form are 'Submit' and 'Reset' buttons.

## 7.5. Save Changes and Reboot

Select **Save Change** from the left menu. Click Save. The phone will reboot automatically.

The screenshot shows the 'Save Changes' page in the same web interface. The left navigation menu is identical to the previous screenshot, but the 'Save Change' option at the bottom is now highlighted. The main content area is titled 'Save Changes' and contains the text 'You have to save changes to effect them.' Below this is a 'Save Changes:' label followed by a 'Save' button.

## 8. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya Aura® Session Manager and G-Tek AQ-10x SIP Phones.

From the System Manager Web interface, select **Elements > Session Manager > System Status > User Registrations** to display the **User Registrations** screen. Verify that the users from **Section 5.2** are registered, as shown below with a check in the **Registered Prim** column.

Avaya Aura® System Manager 6.1

Help | About | Change Password | Log off admin

Session Manager \* Home

Home / Elements / Session Manager / System Status / User Registrations - User Registrations

Help ?

### User Registrations

Select rows to send notifications to AST devices. Click on Details column for complete registration status.

Customize ▶

AST Device Notifications: Reboot Reload ▼ Failback As of 12:19 PM

Advanced Search ▶

22 Items Refresh Show 15 ▼ Filter: Enable

	Details	Address	Login Name	First Name	Last Name	Location	IP Address	AST Device	Registered		
									Prim ▼	Sec	Surv
<input type="checkbox"/>	▶ Show	10051@sglab.com	10051@sglab.com	SIP1	Avaya	Location1	10.1.10.158:5060	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> (AC)	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	▶ Show	10074@sglab.com	10074@sglab.com	AQ10x-2	GTek	Location1	10.1.10.160:5060	<input type="checkbox"/>	<input checked="" type="checkbox"/> (AC)	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	▶ Show	10073@sglab.com	10073@sglab.com	AQ10x-1	GTek	Location1	10.1.10.177:5060	<input type="checkbox"/>	<input checked="" type="checkbox"/> (AC)	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	▶ Show	10061@sglab.com	10061@sglab.com	User1	ADVD	Location1	10.1.10.170:5060	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> (AC)	<input type="checkbox"/>	<input type="checkbox"/>



From the web interface of the G-Tek AQ-10x phone, click **SIP Settings > Service Domain** from the left menu. Verify that the **Status** field shows as **Registered**.

The screenshot displays the 'Web Configuration' interface for a G-Tek AQ-10x phone. The left sidebar contains a menu with 'SIP Settings' selected, which has opened a sub-menu where 'Service Domain' is highlighted. The main content area is titled 'Service Domain Settings' and includes a sub-header: 'You could set information of service domains in this page.' Below this, there is a 'Realm No.' dropdown set to 'Realm 1'. A table titled 'Realm' contains the following fields: 'Active' (radio buttons for 'On' and 'Off'), 'Display Name' (text field with 'SM-10073'), 'User Name' (text field with '10073'), 'Register Name' (text field with '10073'), 'Register Password' (password field with dots), 'Domain Server' (text field with '10.1.10.56'), 'Proxy Server' (text field with '10.1.10.56'), 'Outbound Proxy' (empty text field), 'Subscribe for MWI' (radio buttons for 'On' and 'Off'), and 'Status' (a dropdown menu showing 'Registered', which is circled in red). At the bottom right of the form are 'Submit' and 'Reset' buttons. The left sidebar also includes links for 'Phone Book', 'Phone Setting', 'Network', 'NAT Trans.', 'Others', 'System Auth.', 'Save Change', 'Update', and 'Reboot'.

## 9. Conclusion

These Application Notes describe the configuration steps required for G-Tek Electronics AQ-10x SIP Phones to successfully interoperate with Avaya Aura® Session Manager 6.1 and Avaya Aura® Communication Manager 6.0.1. All feature and serviceability test cases were completed successfully.

## 10. Additional References

This section references documentation relevant to these Application Notes. Avaya product documentation is available at <http://support.avaya.com>.

[1] *Administering Avaya Aura® Communication Manager*, Release 6.0, Doc ID 03-300509, June 2010.

[2] *Administering Avaya Aura® Session Manager*, Release 6.1, Doc ID 03-603324, Issue 1, November 2010.

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