Subject: **DevConnect Test Plan for Interoperability Compliance Testing of Yealink SIP Phones with Avaya IP Office and Avaya 1600 Series Telephones**

revision history: **0.3 – Test Plan & Results**

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Developer*Connection* Program

EXECUTIVE SUMMARY

The purpose of this test plan is to verify interoperability of Yealink SIP Phones with Avaya IP Office and Avaya 1600 series telephones.

The Yealink SIP phones are available as T-18, T-20, T-22, T-26 and T-28. These will be tested with Avaya IP Office and Avaya 1600 series telephones. In this test plan the T-18 is compliance tested.

It should be noted here that this test plan is a dynamic document and may undergo changes as the test environment and test scenarios evolve. The member provides portions of this test plan, which requires information specific about the member application to be tested.

The generally available (GA) versions of all products will be used for testing. Interoperability compliance testing will be performed jointly with Yealink at the Avaya Solution and Interoperability Test Lab in Dublin, Ireland. Upon successful completion of testing, an application note will be issued describing the joint Avaya and Yealink solution.

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1. PURPOSE

1.1 Overview

The purpose of this test plan is to verify interoperability of Yealink SIP phones with Avaya IP Office solution and Avaya 1600 series telephones.

The following objectives for interoperability testing are identified:

1. Demonstrate that Avaya IP Office and the Yealink SIP phones operate as specified and can interoperate in an environment similar to the one that will be encountered at a customer's premises.
2. Demonstrate that Avaya Telephones and the Yealink SIP phones when used in the tested configurations, meet the serviceability and support standards of the respective organizations.
3. Observe and characterize, how the products behave under failure conditions, and provide input for problem isolation procedures.

1.2 Reason for Reissue & Document History

Issue 0.1	First draft.
Issue 0.2	Results
Issue 0.3	Update

2. CONTACT INFORMATION

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3. CONVENTIONS USED IN THIS PLAN

This section describes specific conventions used in this plan based on an agreed upon set of rules established with Yealink. Entry and exit criteria are specified as well as conventions used in conducting the actual test.

3.1 Entry Criteria

The interoperability compliance test requires that each of the products in the test configuration be generally available (GA) and hence, have successfully passed system test. This plan will use product documentation to verify feature functionality and successful interoperability according to the objectives of the Avaya and Yealink configuration, and the DevConnect requirements.

3.2 Exit Criteria

In order for the interoperability compliance test to be considered successful, 100% of test cases must pass without any severity 1 or 2 failures and unexplainable events.

3.3 Testing Guidelines

Extensive electronic log files and screen shots (where applicable) will be captured during testing from both the Avaya and Yealink products for describing the solution configuration in the application notes.

3.3.1 Test Case Results

Results will be indicated as pass/fail. Supporting documentation will be provided for a "fail" result and may optionally be provided for a "pass" result. Failure results must be classified by severity and may require additional investigation and/or analysis to determine why a particular test has failed. Yealink may elect to use the remainder of the scheduled lab-time for this investigation or may choose to move forward with the test, if the failure severity does not prevent a continuation of the test. The Yealink engineer must establish the definitions of failure severity with the DevConnect member technical representative. The following severity definitions are commonly used:

Failure Type	Description
Severity 1	A Severity 1 MR is characterized by the basic service provided by the system being interrupted.
Severity 2	A Severity 2 MR is characterized by the basic service provided by the system being degraded which would include some functionality that may not be available to end-users, system administrators, or maintenance personnel, or the available functionality is inadequate to those customers.
Severity 3	A Severity 3 MR is characterized by a given feature being operational, however the feature operation or interaction does not conform to the requirements and/or causes inconveniences to the end-users, system administrators or maintenance personnel.

3.3.2 Error Logs

Error logs will be checked after each test case has been executed, when applicable. Error logs that display errors, which have occurred as a result of a test, will be captured and saved to a file noting the specific test being run when the error occurred. The error log should be cleared before continuing with the next test.

4. MEMBER PRODUCT TECHNICAL OVERVIEW

Yealink SIP Phones are connected to the ports on the IP Office 500.

Figure 1 –Yealink T-18 SIP Phone

5. COMPONENTS BEING TESTED

This section covers the Software, Hardware, and Documentation components that are to be tested. Identify each component to be tested, with important characteristics such as model, version, and serial numbers as appropriate.

5.1 Software and Hardware Components Being Tested

The following table lists the software and hardware components that will be covered in this test plan.

Provider	Hardware Component	Firmware / Version	Description
Avaya	IP Office 500	6.0	IP Office platform
Avaya	1600 Telephones (H323)	1.22	Avaya 1600 Series IP Telephone
Avaya	2400 Telephones (Digital)	R2	Avaya 2400 Series Digital Telephone
Yealink	T-18 SIP Phones	18.0.23.1	Yealink SIP Phone

6. TEST CONFIGURATION

Figure 2 below represents the network topology of the environment being tested.

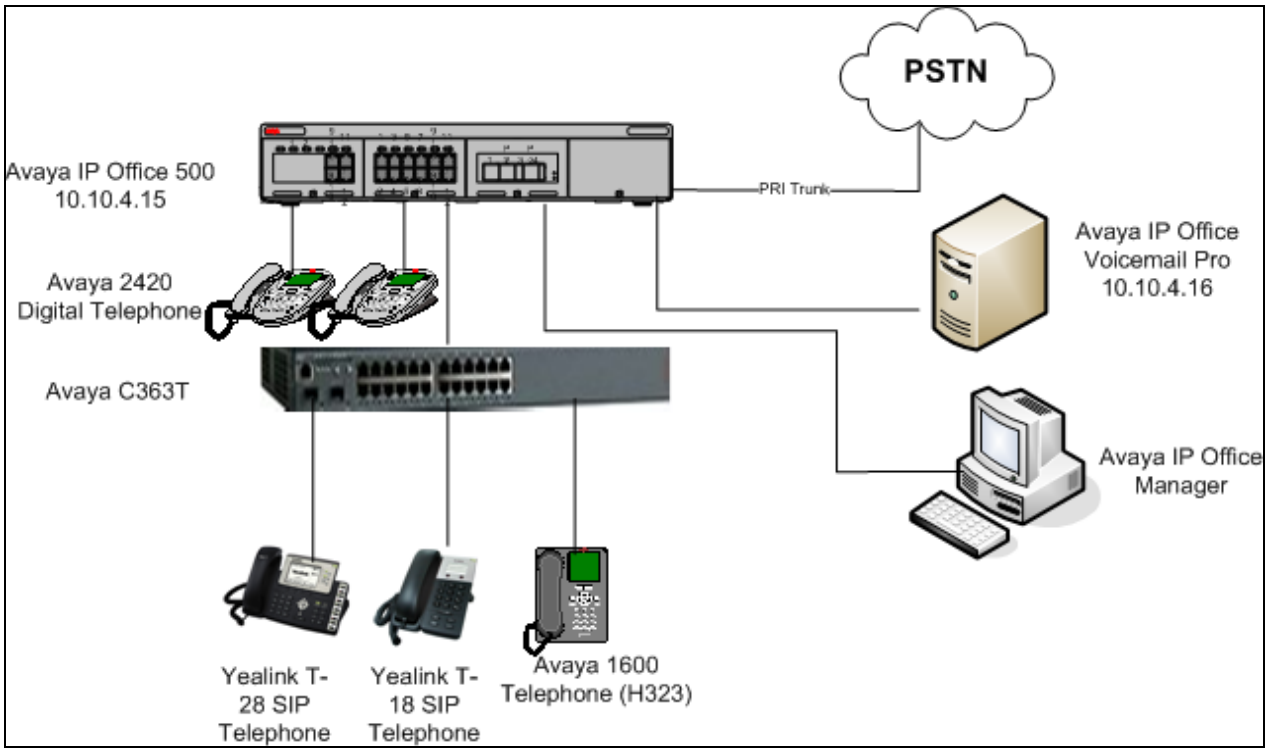

Figure 2 – Test Configuration

6.1 Test Configuration Requirements

Qty	Item	Version	Description
1	IP Office 500	6.0	Communication Manager platform
1	1600 Telephones (H323)	1.22	Avaya IP telephone
2	2420 Telephones (Digital)	-	Avaya Digital telephone
1	Yealink T-18 SIP Phones	18.0.23.1	Yealink SIP Phone
1	Yealink T-28 SIP Phones	2.43.23.9	Yealink SIP Phone

6.1.1 Hardware/Software Configuration and Administration Prerequisites

The following must be set up and confirmed before testing can begin:

- The latest Avaya firmware and software versions (see section 5) are installed and running on their respective platforms

6.1.2 Server Environment

None

6.2 Documentation Requirements

None

7. TEST CASES

This section describes the test cases that will be executed. A test case is generally defined as “any step that can result in a pass or fail result”. Sub-sections may be included for hardware/software, and documentation.

7.1 Verify Test Environment

Test Case	Test Description	Pass\Fail	Notes / Observations / Comments
7.1.1	Verify Avaya IP Office is properly installed and configured. 1. Install and configure the network depicted in Figure 4 without the Yealink SIP Phones. 2. Place calls between the Avaya telephones and speak using the handsets. 3. Verify that the Avaya telephones are able to call one another. 4. Verify that the voice quality is good using the handsets.	Pass	.
7.1.2	Verify Yealink SIP Phones are properly setup and registered to IP Office: 1. Connect the Yealink SIP Phone to the IP Office. 2. Verify that the dial tone is heard on the Yealink headset. 3. Verify that the headsets are receiving audio.	Pass	

7.2 Basic Calls

Test Case	Test Description	Pass\Fail	Notes / Observations / Comments
7.2.1	1. Make a call from the Yealink phone to another Yealink phone. 2. Answer the call. 3. Confirm that the call is active with good audio.	Pass	
7.2.2	1. Make a call from the Yealink phone to an Avaya IP phone. 2. Answer the call. 3. Confirm that the call is active with good audio.	Pass	
7.2.3	1. Make a call from the Yealink phone to an Avaya Digital phone. 2. Answer the call. 3. Confirm that the call is active with good audio.	Pass	
7.2.4	1. Make a call from the Yealink phone to the PSTN. 2. Answer the call. 3. Confirm that the call is active with good audio.	Pass	
7.2.5	1. Make a call from the Yealink phone using the speakerphone. 2. Answer the call. 3. Confirm that the call is active with good audio.	N\A	There is no speakerphone on the T-18
7.2.6	1. Redial the number using the redial button on the Yealink phone. 2. Confirm that the call is received with good audio.	Pass	
7.2.7	1. Make a call to the Yealink phone using the speakerphone. 2. Do not answer the call. 3. Return the call from the Yealink phone using the Missed call option. 4. Confirm that the call is active with good audio.	N\A	Not supported as no display on T-18 phone.

7.3 Call Hold

The tests in this section will confirm correct operation following call hold/ retrieval events. All calls in this section use G711A codec.

Test Case	Test Description	Pass\Fail	Notes / Observations / Comments
7.3.1	1. Make a call from Avaya IP phone to Yealink phone. 2. Answer the call. 3. Place the call on hold from the Yealink phone. 4. Resume the call 5. Confirm that the call is active with good audio.	Pass	
7.3.2	1. Make a call from Avaya Digital phone to Yealink phone. 2. Answer the call. 3. Place the call on hold from the Yealink phone. 4. Resume the call. 5. Confirm that the call is active with good audio.	Pass	
7.3.3	1. Make a call from PSTN phone to Yealink phone. 2. Answer the call. 3. Place the call on hold from the Yealink phone. 4. Resume the call. 5. Confirm that the call is active with good audio.	Pass	
7.3.4	1. Make a call from Yealink phone to another Yealink phone. 2. Answer the call. 3. Place the call on hold from the receiving Yealink phone. 4. Resume the call. 5. Confirm that the call is active with good audio.	Pass	
7.3.5	1. Make a call from Avaya IP phone to another Yealink phone. 2. Answer the call using speakerphone. 3. Place the call on hold from the receiving Yealink phone. 4. Resume the call. 5. Confirm that the call is active with good audio.	N\A	There is no speakerphone on the T-18

7.4 Call Transfer - Blind

The tests in this section will confirm correct functionality during call transfer scenarios. All calls in this section use G711A codec. Note that Call Waiting must be enabled on the SIP user in order for transfer to be successful. . In order to perform a blind transfer, receive a call and press the transfer key, dial the destination and press transfer or hang-up.

Test Case	Test Description	Pass\Fail	Notes / Observations / Comments
7.4.1	1. Make a call to a Yealink phone. 2. Answer call and make a blind transfer to the Avaya IP phone. 3. Confirm that call is active and two way audio can be heard. 4. Confirm that call is not active at Yealink phone.	Pass	
7.4.2	1. Make a call to a Yealink phone. 2. Answer call and make a blind transfer to the Avaya Digital phone. 3. Confirm that call is active and two way audio can be heard. 4. Confirm that call is not active at Yealink phone.	Pass	
7.4.3	1. Make a call to a Yealink phone from the PSTN phone. 2. Answer call and make a blind transfer to the Avaya IP phone. 3. Confirm that call is active and two way audio can be heard. 4. Confirm that call is not active at Yealink phone.	Pass	
7.4.4	1. Make a call from a Yealink phone to Avaya IP phone. 2. Answer call and make a blind transfer from the Avaya IP phone. 3. Confirm that call is active and two way audio can be heard.	Pass	
7.4.5	1. Make a call from a Yealink phone to Avaya Digital phone. 2. Answer call and make a blind transfer from the Avaya Digital phone. 3. Confirm that call is active and two way audio can be heard.	Pass	
7.4.6	1. Make a call from a Yealink phone to another Yealink phone. 2. Answer call and make a blind transfer from the Yealink phone. 3. Confirm that call is active and two way audio can be heard.	Pass	

7.5 Call Transfer - Supervised

This section is to confirm correct functionality during calls being received or sent to a PSTN location. All calls in this section use G711A codec. In order to perform a supervised transfer, receive a call and press the transfer key, dial the destination and press dial or send, speak to the destination party to confirm they wish to take the call ad then press transfer.

Test Case	Test Description	Pass\Fail	Notes / Observations / Comments

Test Case	Test Description	Pass\Fail	Notes / Observations / Comments
7.5.1	1. Make a call from the Yealink phone to another phone. 2. From the Yealink phone perform a supervised transfer to an Avaya IP phone. 3. Confirm	Pass	

Avaya Solution & Interoperability Test Lab

Configuring a Survivable SIP Gateway Solution using the Avaya Secure Router SR2330 10.2.1, Avaya Aura™ Session Manager 6.0, Avaya Aura™ Communication Manager 6.0, and Avaya Modular Messaging 5.2 – Issue 0.1

Abstract

These Application Notes present a sample configuration of a Survivable SIP Gateway Solution using the Avaya Secure Router SR2330, Avaya Aura™ Session Manager 6.0, Avaya Aura™ Communication Manager 6.0, and Avaya Modular Messaging 5.2 in both Central and Distributed Trunking configurations.

The Survivable SIP Gateway Solution addresses the risk of service disruption for SIP endpoints deployed at remote branch locations if connectivity to the centralized Avaya SIP call control platform located at the main site is lost. Connectivity loss can be caused by WAN access problems being experienced at the branch or by network problems at the centralized site blocking access to the Avaya SIP call control platform, or by Avaya Aura™ Session Manager going out of service. The solution monitors connectivity health from the remote branch to the centralized Avaya SIP call control platform. When connectivity loss is detected, Avaya one-X Deskphone SIP 9600 Series IP Telephones as well as the Avaya Secure Router dynamically switch to survivability mode, restoring telephony services at the branch for intra-branch and PSTN calling.

The Avaya Secure Routers 2330 and 4134 support SIP gateway capability and SIP survivability, and are intended for use as survivable SIP gateways and integrated branch routers. The results shown in this document were obtained using the SR2330 platform. The SR2330 and SR4134 share common software, interface modules, and software licenses, and the same results should be expected from the SR4134 platform.

Testing was conducted at the Avaya Solution and Interoperability Test Lab at the request of Avaya Unified Branch Product Management.

	the transfer is successful with good audio.		

Test Case	Test Description	Pass\Fail	Notes / Observations / Comments
7.5.2	1. Make a call from the Yealink phone to another phone. 2. From the Yealink phone perform a supervised transfer to an Avaya Digital phone. 3. Confirm the transfer is successful with good audio.	Pass	
7.5.3	1. Make a call from the Yealink phone to another phone. 2. From the Yealink phone perform a supervised transfer to an PSTN phone. 3. Confirm the transfer is successful with good audio.	Pass	
7.5.4	1. Make a call from the Yealink phone to another phone. 2. From the Yealink phone perform a supervised transfer to a different Yealink phone. 3. Confirm the transfer is successful with good audio.	Pass	
7.5.5	1. Make a call from the Yealink phone to an Avaya IP phone. 2. From the Avaya IP phone perform a supervised transfer to another phone. 3. Confirm the transfer is successful with good audio.	Pass	
7.5.6	1. Make a call from the Yealink phone to an Avaya Digital phone. 2. From the Avaya Digital phone perform a supervised transfer to another phone. 3. Confirm the transfer is successful with good audio.	Pass	
7.5.7	1. Make a call to a Yealink phone from another Yealink phone. 2. From the second Yealink phone perform a supervised transfer to another phone. 3. Confirm the transfer is successful with good audio.	Pass	

7.6 **Call Diversion\Forwarding**
Ensure that Forward Unconditional is enabled for this test case and that the Forward Number is supplied. Disable this function when these test cases have been completed.

Test Case	Test Description	Pass\Fail	Notes / Observations / Comments
7.6.1	1. Place a call to another phone from the Yealink phone. 2. Forward the call to another phone. 3. Confirm that the call forward is successful with good audio.	Pass	
7.6.2	1. Place a call to another phone from the Yealink phone. 2. Forward the call to the PSTN. 3. Confirm that the call forward is successful with good audio.	Pass	

7.7 Conference Calls

Test Case	Test Description	Pass\Fail	Notes / Observations / Comments
7.7.1	1. Place a call to the Yealink phone from an Avaya phone. 2. Answer the call and use the conference button on the Yealink phone to add another participant to the call with consultation. 3. Confirm that all three are in conference with good audio.	Pass	Hold ->Ext no. # -> Redial to put in conference
7.7.2	1. Place a call to the Yealink phone from an Avaya phone. 2. Answer the call and use the conference button on the Yealink phone to add another participant to the call without consultation. 3. Confirm that all three are in conference with good audio.	N\A	This is not supported on T-18 phones.

7.8 Message Waiting
To test the ability of the platform to set Message Waiting Indication on the handset

Test Case	Test Description	Pass\Fail	Notes / Observations / Comments
7.7.3	1. Make a call to a Yealink phone. 2. Do not answer the call and let it go to voicemail. 3. Confirm that the MWI light indicates a waiting message.	Pass	
7.7.4	1. Retrieve the waiting message from the Yealink phone. 2. Confirm that the MWI light goes off.	Pass	Green power light changes to red when there is a Message Waiting. Returns to green on retrieval of message.

7.9 Other Tests – DTMF and Long duration calls

Test Case	Test Description	Pass\Fail	Notes / Observations / Comments
7.7.5	1. Call the Maintenance number and check that the platform responds correctly to key presses.	Pass	
7.7.6	1. Make a call from a Yealink phone to another extension. 2. Leave the call active for 24hours. 3. Confirm that the call is still active after this time with good audio.	Pass	16 hours – call active.

7.10 Serviceability Tests

Test Case	Test Description	Pass\Fail	Notes / Observations / Comments
7.7.7	1. Reset the Yealink phone. 2. Reconnect and make a call. 3. Ensure that the call is made successfully with good audio.	Pass	
7.7.8	1. Restart the Avaya IP Office. 2. Make a call. 3. Ensure that the call is made successfully with good audio.	Pass	
Total Test Cases			**37**
Test Cases Executed			**33**
Test Cases Blocked			**0**
Test Cases Passed			**37**
Test Cases Failed			**0**
Test Cases NA'd			**4**

Observations
This section contains a list of notable items observed during the execution of the test plan test

8. CONCLUSION
All test cases run were passed successfully.

9. REFERENCES
For more information on Yealink products please visit www.yealink.co.uk