Technical Bulletin CS-10-05

Troubleshooting Tips for SpectraLink 8000 Wireless Handsets

Problem

Customer handset issues often result in unnecessary RMA returns causing lost time, money and resources for administrators and users.

System Affected

SpectraLink 8020/8030 and SpectraLink e340/h340/i640/8002

Description

For many problems customers experience with their wireless handsets it results in the need for unnecessary RMA replacements. With additional troubleshooting it is often possible to eliminate the need for an RMA and quickly return a handset to service preventing any user from being without a handset.

Resolution

When SpectraLink system administrators receive handsets from end-users with reports of failures it is always a good idea to substantiate and verify the failure. Many administrators are not aware of the built-in troubleshooting tools that are available in the handset.

Following are a number of troubleshooting aids that should be considered when investigated reports of handset issues by end-users.

Functional Self-Test -

With any reportedly failed handset the administrator should always perform the self-test function on the handset. The test allows the administrator to narrow down whether specific hardware has failed or if the user reported issue is simply the result of handset configuration promoting the need for additional end-user training.

To perform handset self-test perform the following steps.

1. Ensure the handset to be tested is powered off and has a known working battery installed.
2. Start Functional Self-Test – Power up the handset by completing these steps:

   Press and hold the LINE key

   Press and hold the POWER-ON key

   Release the POWER-ON key when handset double chirps

   Release the LINE key
3. Test audible and vibrating Ring – The handset audible tone and vibrate ring should play when entering self test mode.

   If no audible tone is heard the rear speaker may be faulty

   If no vibration is felt then the vibrator motor may be faulty

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4. Test display – Observe the solid lines scrolling on the display and look for any missing pixels. The backlight will be active for a short time as well after entering self-test.

   If there are missing pixels or there are no scrolling lines then the display may be faulty

   If there is no backlight at self-test start then the display may be faulty

5. Test microphone and earpiece speaker – Gently brush the microphone opening and listen for sound coming from the earpiece speaker.

   If no audio is heard from the earpiece speaker then the microphone may be faulty

   If no audio is heard from the earpiece speaker then the earpiece speaker may be faulty

   Note: If the handset can power up and enter a call then…

   If the far-end cannot hear the wireless handset the microphone is faulty

   If the far-end cannot be heard on the wireless handset the earpiece speaker is faulty

6. Test keypad function – Press each key on the keypad one at a time except the POWER-ON/END Call key to hear a key tone played.

   Each key, including side keys, soft keys and rocker pad keys, will produce an audible tone. The tone is constant until the key is released at which point the tone should end.

   If any key below the display does not produce a tone then the keypad is faulty

   If the volume side keys or Push-To-Talk key (8030 & i640 only) do not produce a tone then the side keys are faulty

   Note: Pressing the LINE key will cause the phone to briefly enter a special engineering diagnostic mode during which time a number of different tones play and the display will cease scrolling, the keypad will be disabled and the microphone will also stop receiving. When this special test completes the scrolling lines will disappear and an engineering code will be displayed. At this time the keypad and microphone tests can once again be accessed.

If any of the above tests fail this will indicate that a hardware fault has most likely occurred and it will be necessary to obtain a replacement handset. Please contact your Polycom Service Partner or contact the Polycom RMA Help Desk at 1-800-775-5330.

Restoring Factory Defaults –

In some situations it may be necessary to restore a handset to factory defaults as a step in troubleshooting undesirable behavior with a handset. Most often a restore defaults will be necessary to address unidentifiable changes to the handset's configuration by an end-user. For example, if a user complains the ringer volume of their handset is too low they may have adjusted the profile in the phone to either

turn down the ringer or possibly even disable it completely. When reloading the appropriate configuration into the handset it is important to verify that all setting are consistent per the site, such as checking handset transmit power to ensure it matches the WLAN AP transmit power or to disable any unused 802.11a frequency bands and so on.

To restore defaults on the SpectraLink 8020/8030 handset perform the following steps:

1. Ensure the handset to be reset is powered off and has a known to be working battery installed.
2. Enter the handset administrator menu:

   For 8020/8030 handsets press and hold the START Call key and power on the handset.

   For e340/h340/i640/8002 handsets press and hold the END Call key and power on the handset.
3. Enter the handset password and press the OK key.

   Default handset password is 123456

   There is no default password on e340/h340/i640/8002 handsets
4. Scroll down to Restore Defaults and press the OK key.

   Verify the reset by pressing the soft key under the YES text on the display.

It is recommended that the handset be power cycled at this point to ensure all settings in the handset get properly initialized. The handset should now be reconfigured for the specific end-user and tested to determine if issue is resolved or remains.

If the issue remains please contact your Polycom Service Partner or Polycom Technical Support for further troubleshooting at 1-800-775-5330.

Handset Error Messages –

Handset error messages can be a powerful tool for any administrator when determining the reason for a handset failure. Error messages can aid in determining whether the handset's configuration is inconsistent with the site requirements or to help pinpoint the potential source of the problem, such as a PBX issue or DHCP server problem.

There are many different error messages that can display on a handset with many being specifically related to the VoIP protocol in use. However, many are generic across software versions and can be very useful in determining what is really wrong with a handset.

The following is a list of error messages that may result in a handset being returned for RMA replacement and the troubleshooting steps that should be attempted prior to seeking a replacement. Additional error messages and descriptions are available

in the administrator manual for the handsets. Please note that manuals are protocol specific so be sure and reference to manual for the correct protocol.[1][2][3][4]

Error Message	Description	How to fix it
Bad Code Type XX Expected Code Type YY	XX, YY = software license types which are loaded onto a handset during manufacturing or repair. The handset software does not match the current handset license selection.	Depending on the branding of handsets the license type will be set during the manufacturing process to match the installed software. Typically this will by license type 30 for SRP software. If attempting to load new software on the handset for a different IP protocol, i.e. SIP, it will be necessary to change the license type to correspond with the IP protocol being installed. SRP = 30 SIP = 36 Alcatel NOE = 31 Nortel UNISTM = 32 Avaya CCMS = 33
Flash Config Error	Handset internal configuration is corrupt. This typically happens when the battery is removed from a handset while still powered on and results from unwritten memory being lost which prevents the handset configuration from being read on subsequent boot attempts.	The Flash Config Error is a field resolvable failure. The handset configuration has been corrupted but it is still possible to restore the handset to factory defaults and reconfigure it in order to recover the handset. If Flash Config Error presents on the display it is best to manually restore defaults on the handset by entering the handset's Admin menu. The only option that will be presented in the

[1] For SRP Protocol:
http://www.polycom.com/global/documents/support/setup_maintenance/products/voice/SpectraLink_8020_8030_WT_Admin_SRP.pdf
[2] For SIP Protocol:
http://www.polycom.com/global/documents/support/setup_maintenance/products/voice/SpectraLink_8020_8030_WT_Admin_SIP.pdf
[3] Handset administration manuals must be viewed on the associated OEM website for the specific IP protocol.
For Avaya (CCMS): http://support.avaya.com/css/appmanager/public/support
For Nortel (UNISTIM): http://support.nortel.com/go/main.jsp
For Alcatel-Lucent (NOE): http://www.alcatel-lucent.com/wps/portal/support
[4] For e340/h340/i640/8002 handsets and the various supported protocols reference the Polycom, Inc. website.
http://www.polycom.com/support/voice/wi-fi/spectralink_e340_wireless.html
http://www.polycom.com/support/voice/wi-fi/spectralink_h340_wireless.html
http://www.polycom.com/support/voice/wi-fi/spectralink_i640_wireless.html
http://www.polycom.com/support/voice/wi-fi/spectralink_8002_wireless.html

		Admin menu will be Restore Defaults. Once complete the handset can be reconfigured via the Handset Administration Tool software and cradle or manually via the Admin menu. With software releases for some IP protocols the addition of an automatic recovery process has been implemented that will eliminate the Flash Config Error entirely. To determine if the software version installed contains this enhancement review the software release notes.
No 802.11 Sub-bands Enabled	The wireless handset ships with no radio type selected which results in the handset software presenting this error to notify the administrator to select the appropriate radio type and channels to utilize.	From the handset Admin menu or via the Handset Administration Tool software the radio type must be selected and any applicable channels enabled. From the handset Admin menu select Network Config →Reg. Domain and press the LINE key. From the radio menu select the radio mode and press OK. Select any applicable channels and press the OK key to then select the handset transmit power to be used. Note that the transmit power should match what is configured on the WLAN.
No Net Found No CCX APs No Net Found No CCKM APs	The wireless handset is configured to use CCX compatible operation, but cannot locate an access point that is advertising CCX capability. The wireless handset is configured to use CCKM for fast and secure handoffs, but is not able to locate an access point advertising support for CCKM.	When utilizing R3.0 features in the handset such as CCX, CCKM or WMM it is necessary to properly configure the WLAN to support those features. It is always recommended to check the WLAN configuration against the appropriate *VIEW Configuration Guide*[5]. Access points will advertise capabilities, such as CCX, CCKM or WMM, in the beacon management frames. The handset listens for beacons from access points that are for the appropriate SSID and checks

[5] To find the latest *VIEW Configuration Guide* visit http://www.polycom.com/support/voice/wi-fi/view_certified.html

No Net Found No WMM APs	The wireless handset is configured to use Wi-Fi Standard QoS, but cannot locate an access point advertising support for WMM.	to ensure all required features are available from a particular AP. If the handset does not locate an AP capable of providing all the required features this error will display on the handset. For WMM installations the handset will require that WMM and WMM-PS are advertised by the access point. If WMM-AC is set to Mandatory on the handset this too will need to be advertised by the access point prior to the handset attempting connection.
No PBX Response	The handset has exceeded the retransmission limit, per the VoIP protocol in use, with no ACK response from the PBX. Depending on the PBX type a proxy server may also be responsible for the ACK response.	First verify that the IP address provided to the handset for the PBX is correct as configured either statically or via DHCP options. For some PBX types the DHCP option may also require a particular port be configured. If the IP address information appears correct that the address has been confirmed to be accessible from the same IP network the handset resides upon, then verify that the PBX or proxy server configuration is correct. For some PBX types it is often necessary to configure media resources to be available and unless this is completed the handset will be unable to connect. Wired packet captures are often required to resolve issues of this nature and should be collected at the SVP server, if present, or the PBX. Contact your Polycom Service Partner or Polycom Technical Support for assistance.

Troubleshooting wireless handset issues will always result in faster recovery from failures and helps to ensure end-users are able to continue to have a working handset available to them at all times. While not all troubleshooting steps can resolve a handset issue in the field the vast majority can be resolved.

It is well worth the few extra minutes needed to verify the reported failure as it can prevent unnecessary RMA returns saving money, time and resources for administrators and users.