



AC313U / AC330U

EM7700

MC7700 / MC7710

SWI9200X_03.05.24.00

Release Notes & Upgrading Instructions

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General

Purpose

This document is intended to capture technical changes to the release package. The document covers changes in the Modem firmware (Bootloader and Application).

These release notes are **NOT** intended for the end user.

A new revision of this document will be issued when any of the firmware components of the product are updated.

Scope

This document covers issues that affect carriers and end users.

Revision History

Date	Author	Summary of changes
Feb 27, 2012	Ryan Kirk	Created for 3.5 Release 1
March 29, 2012	Ryan Kirk	Added 3.5 Release 2 Beta 1
April 20, 2012	Ryan Kirk	Added 3.5 Release 2 Beta 2
May 15, 2012	Ryan Kirk	Added 3.5 Release 2 RC 1
July 13, 2012	Ryan Kirk	Added 3.5 Release 2
July 13, 2012	Ryan Kirk	Added 3.5 Release 3 RC 1
August 13, 2012	Ryan Kirk	Added 3.5 Release 3 RC 2
August 27, 2012	Ryan Kirk	Added 3.5 Release 3 RC 3
August 27, 2012	Ryan Kirk	Added 3.5 Release 3 RC 4
August 31, 2012	Ryan Kirk	Added 3.5 Release 3
September 17, 2012	Ryan Kirk	Added 3.5 Release 4
November 19, 2012	Ryan Kirk	Added 3.5 Release 5
December 20, 2012	Ryan Kirk	Added 3.5 Release 6 Updated firmware upgrade instructions
Mar 22, 2012	Zhenhui Nie	Added 3.5 Release 7
May 17, 2012	Ryan Kirk	Added 3.5 Release 8

Installing and Upgrading the Release

Download the entire necessary upgrade files

Download the files and follow any additional instructions on the download website:

Please contact your Sierra Wireless representative for access/instructions.

Supported Operating Systems

This software and firmware package supports the Sierra Wireless EM7700 on the following Microsoft Operating Systems:

1. Windows XP SP3 (Service Pack 3 or higher)
2. Windows Vista SP1 (Service Pack 1 or higher)
3. Windows 7
4. Windows 8 (no firmware upgrade support)

Upgrade Procedure

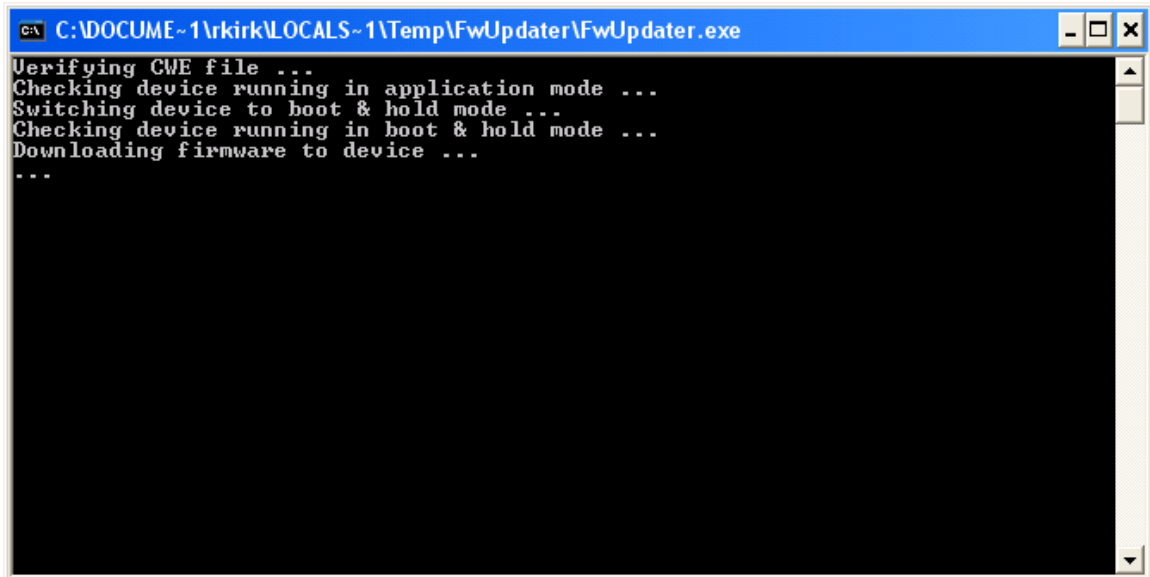
Sierra Wireless firmware upgrades are provided in a One-Click tool, which contains the firmware bundled right in with it. Before you start your upgrade, please ensure the following:

- Your computer is connected to an AC power supply, or that it has at least ½ hour of battery life remaining
- Please close all active sessions such as Hyperterminal, etc. that you may have open, debug logging sessions, etc.
- Please ensure that your card is powered and operating normally

To proceed with the download please follow the next steps:

1. Navigate to the folder in the current release containing the folder named "Firmware" and open it
2. Open the folder named "OneClickTool" and click on the executable within that folder to start the FwUpdater tool

3. When FwUpdater tool starts you will see the following image:



NOTE: The download can take up to 5 minutes to complete. Do not remove the power to either the laptop or the card until the upgrade tool completes.

NOTE 2: There can be more than one firmware image bundled with the One Click Tool.

NOTE 3: An intermediate bootloader is required when upgrading from a release prior to SWI9200X_03.05.03.00 to a release greater than or equal to SWI9200X_03.05.03.00. SWI9200X_03.00.09.00BT MUST be loaded before upgrading across this transition to avoid loss of configuration data. Calibration data is not affected. There is no side effect if the intermediate bootloader step is used when not required. Upgrade tools provided by Sierra will include this upgrade path.

Debug Tools

Sierra Wireless devices provide support for trace tools such as QXDM or the Sierra Wireless log-gathering tool. Please contact your Sierra Wireless representative for the logger tool and the installation instructions

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Revision History

SWI9200X 3.5 Release 8

Firmware Component Revision Levels

Component	Revision	Compatibility
Boot loader	SWI9200X_03.05.24.00	
Application	SWI9200X_03.05.24.00	
Qualcomm Stack Version	3.5.240349	

Firmware Changes

- Add Qualcomm 3.5.240349 Stack
 - CR 439341 - Fix intermittent MBIM initialization failure on host suspend/resume
 - CR 428887 - Fix SIM authentication issue in MBIM_CID_SIM_AUTH query
 - CR 465798 - Fix MBIM AKA authentication failure
 - CR 413341 - LTE RRC does not consider multiple PLMNs correctly for camping correctly when one PLMN is forbidden
- Fix corruption of WCDMA Tx/Rx state variable in WCDMA Dual Carrier conditions

Known Issues

- None

SWI9200X 3.5 Release 7

Firmware Component Revision Levels

Component	Revision	Compatibility
Boot loader	SWI9200X_03.05.23.02	
Application	SWI9200X_03.05.23.02	
Qualcomm Stack Version	3.5.240348	

Firmware Changes

- Add Qualcomm 3.5.240348 Stack
 - CR 363270 – Fix unable to active PDP after service lost in UMTS
 - CR 293527 - NAS does not cancel authentication procedure when UE goes out of service
 - CR 375522 – UE stays in limited service after emergency call end in GSM or UMTS
 - CR 441504 – UE is not performing periodic LU
 - CR 319445 - Network is not releasing the PS signaling connection
 - CR 420580 - Event A5 Measurement Report Failure
 - CR 438630 – GPS fix not successful after being out of coverage
 - CR 395676 - API maps kernel address
 - CR 278850 – ASN.1 parser issue

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- CR 405908 – Buffer overflow due to bad channel release message
- CR 338385 - Integrity failure on network side
- CR 358634- UE using old integrity key for both UDT and DDT message
- CR 408704- RRC is using wrong COUNT-I to check integrity for Security mode
- Support to configure Smart Recovery timer by AT
- Update OSP available and current data classes during active connection
- Resolve multiple Win8 RAT Display issues with AT&T Requirements
- Fix CID handler return issues
- Enable LTE Band 8 for AC320U
- Add AC320U LTE Band 8 default parameter
- Fix RRC message issue for AC320U
- Update SE13 table for GCF request
- Increment SVN to 17

Known Issues

- None

SWI9200X 3.5 Release 6

Firmware Component Revision Levels

Component	Revision	Compatibility
Boot loader	SWI9200X_03.05.21.02	
Application	SWI9200X_03.05.21.02	
Qualcomm Stack Version	3.5.240341	

Firmware Changes

- Add Qualcomm 3.5.240341 Stack
 - CR 326742 - Fix for some SIMs that do not respond if there is a step in VCC ramp-up
 - CR 412192 - LRRRC shall report found PLMN list in shared PLMN case
 - CR 413237 - Win8, Do not perform full rescan after LPM to Online unless required
 - CR 396292 - Send No-Service event-download when there is no system to scan
 - CR 406598 - Disable NULL integrity security by default
 - CR 407246 - Fix access control vulnerability during LTE network registration procedure
- Add support for AC320U
- Fix an issue with sending UDP fragments of payload 1-8 bytes
- Fix ECIO reporting in QMI NAS
- Fix carrier name display in Win8
- Provide W_DISABLE status to the host in Win8 mode
- Prevent the need for manual reset if MBIM_OPEN fails
- Enable identity morphing double-attach solution by default
- Increment SVN to 16

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Known Issues

- None

SWI9200X 3.5 Release 5

Firmware Component Revision Levels

Component	Revision	Compatibility
Boot loader	SWI9200X_03.05.20.03	
Application	SWI9200X_03.05.20.03	
Qualcomm Stack Version	3.5.240335	

Firmware Changes

- Add Qualcomm 3.5.240335 Stack
 - CR 365307 - RACH response delay by 20 ms due to preamble schedule delays
 - CR 398489 - Fixed LTE byte counters in Windows 8 mode
- Add support for MM reject codes sent to the host in MBIM mode
- Update Windows 8 Max Segment Size
- Provide immediate notification to Win8 of OTA update of MSISDN
- Prevent double attach during Windows 8 platform start up with Identity Morphing enabled
- Add Identity Morphing support to all non-Direct-IP mode VID/PID combinations
- Fix QMI Link Speed values provided to the host in WCDMA service
- Fix RSSI reporting during No Service for Windows 8
- Fix AT port unresponsive if device is powered prior to enumeration
- Add all remaining AT&T Device Service CID support
- Fix support of scheduled CIQ uploads during idle user data sessions
- Fix CIQ metric submission rules for roaming and forbidden roaming networks
- Increment SVN to 15

Known Issues

- None

SWI9200X 3.5 Release 4

Firmware Component Revision Levels

Component	Revision	Compatibility
Boot loader	SWI9200X_03.05.19.04	
Application	SWI9200X_03.05.19.04	
Qualcomm Stack Version	3.5.240333	

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Firmware Changes

- Add Qualcomm 3.5.240333 Stack
 - CR 337751 - Fix a crash observed during some WCDMA fading scenarios
- Prevent RAU messages from being 68 to 70 bytes in length, to work around ALU and Ericsson infrastructure limitations
- Provide the correct Device Type in MBIM_CID_DEVICE_CAPS
- Remove unsupported RATs from MBIM_CID_REGISTER_STATE set command if disallowed by EF-RAT configuration
- Add support for custom APN entry in Win7 and Win8 VANUI
- Fix support for SIM OTA proactive requests in QMI mode
- Add support for CIQ Metric LT17
- Increment SVN to 13

Known Issues

- AT port unresponsive if device is powered prior to enumeration
- Windows 8 Max Segment Size is reported as 4064 bytes
- MM reject codes not provided to the host in MBIM mode
- Win8 UI not updated after OTA update of MSISDN

SWI9200X 3.5 Release 3

Firmware Component Revision Levels

Component	Revision	Compatibility
Boot loader	SWI9200X_03.05.19.00	
Application	SWI9200X_03.05.19.00	
Qualcomm Stack Version	3.5.240325	

Firmware Changes

- Add Qualcomm 3.5.240325 Stack
 - CR 341977 - Fix for RLC segmentation error in PTCRB Test case 7.1.4.7A
 - CR 355713 & CR392159 – Add correct MBIM handling of manual scan return codes
- Add AT&T MBIM Device Service CID support
 - MBIM_CID_ATDS_SIGNAL
 - MBIM_CID_ATDS_LOCATION
 - MBIM_CID_ATDS_OPERATORS
 - MBIM_CID_ATDS_REGISTER_STATE
 - MBIM_CID_ATDS_RAT
- Add fix for PTCRB STK Test case 27.22.4.7.3
- Fix USB stall after host resumes in MBIM mode if serial ports are enumerated
- Add support for “Internet” as the default APN class for new data profiles

Known Issues

- Crash in mcalwcdma_decdata.c during some WCDMA fading scenarios

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SWI9200X 3.5 Release 3 RC 4

Firmware Component Revision Levels

Component	Revision	Compatibility
Boot loader	SWI9200X_03.05.18.01	
Application	SWI9200X_03.05.18.01	
Qualcomm Stack Version	3.5.240320	

Firmware Changes

- Add Qualcomm 3.5.240320 Stack
 - CR 384435 - NAS sends a 'NO SERVICE' event to UIM when EF-RAT refresh occurs
 - CR 380335 - Incorrect use of No Service location status at power-up
 - CR 370291 - Fix USB IRQ configuration to support Win8 wake from Connected Standby
 - CR 321957 - AT command cannot wake up Q6SW from power collapse
- Add support for Identity Morphing
- Add AT&T MBIM Device Service CID support
 - MBIM_CID_ATDS_SIGNAL
 - MBIM_CID_ATDS_LOCATION
 - MBIM_CID_ATDS_REGISTER_STATE
 - MBIM_CID_ATDS_RAT
- Fix EONS support in Win8
- Fix intermittent crash when resuming from Win8 hibernation
- Fix intermittent failure to detect SIM with Sierra Connection Manager in Win8

Known Issues

- None

SWI9200X 3.5 Release 3 RC 3

Firmware Component Revision Levels

Component	Revision	Compatibility
Boot loader	SWI9200X_03.05.17.01	
Application	SWI9200X_03.05.17.01	
Qualcomm Stack Version	3.5.240316	

Firmware Changes

- Add Qualcomm 3.5.240316 Stack
 - CR 370291 - Fix USB IRQ configuration to support Win8 wake from Connected Standby
 - CR 321957 - AT command cannot wake up Q6SW from power collapse
- Add support for Identity Morphing
- Fix intermittent crash when resuming from Win8 hibernation
- Fix intermittent failure to detect SIM with Sierra Connection Manager in Win8

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Known Issues

- None

SWI9200X 3.5 Release 3 RC 2

Firmware Component Revision Levels

Component	Revision	Compatibility
Boot loader	SWI9200X_03.05.16.01	
Application	SWI9200X_03.05.16.01	
Qualcomm Stack Version	3.5.240315	

Firmware Changes

- Add Qualcomm 3.5.240315 Stack
 - CR 371079 - Device may operate in EF-RAT if device does not support RAT bands.
 - CR 372845 - Bad performance of the channel estimation for RxD
- Add support for BIOS locking
- Fix all CIQ metric issues reported during CIQ IOT
- Fix intermittent crash following host sleep/resume cycle
- Add support for persistent Airplane mode in Windows 8
- Add support for Windows 8 firmware update process
- Add OMA-DM support for EM7700
- Add support for PAP/CHAP recognition in Windows 8
- Add AT&T MBIM Device Service framework (no CIDs implemented)

Known Issues

- None

SWI9200X 3.5 Release 3 RC 1

Firmware Component Revision Levels

Component	Revision	Compatibility
Boot loader	SWI9200X_03.05.15.01	
Application	SWI9200X_03.05.15.01	
Qualcomm Stack Version	3.5.240310	

Firmware Changes

- Add Qualcomm 3.5.240310 Stack
 - CR 357701- First MBIM message after enumeration is dropped
 - CR 367312- Send no service notification to UICC when device remains in no service
- Update AT&T Signal Bar mapping for Microsoft Windows 8 specifications
- Update product ID and USB interface number for Windows 8 USB IF compliance

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- Improve USB enumeration time in Windows 8 MBIM mode
- Add support for MBIM Microsoft Firmware ID GUID
- Add support of network personalization PIN types for MBIM interface
- Add CIQ Agent 3.2.18.4165 (disabled by default)
- Improved current consumption in Sleep mode
- Increase SVN to 12

Known Issues

- None

SWI9200X 3.5 Release 2

Firmware Component Revision Levels

Component	Revision	Compatibility
Boot loader	SWI9200X_03.05.14.00	
Application	SWI9200X_03.05.14.00	
Qualcomm Stack Version	3.5.240005	

Firmware Changes

- Add Qualcomm 3.5.240005 Stack
 - CR 326317 - UE goes OOS in Idle mode
 - CR 359715 - Win8: Device reports SIM not inserted temporarily during power-up
 - CR 356898 - Crash when name in MBIM_CID_PREFERRED_PROVIDERS is 19 characters
- Add support for Win8 MBIM Firmware ID device service
- Increment SVN to 11

Known Issues

- None

SWI9200X 3.5 Release 2 RC 1

Firmware Component Revision Levels

Component	Revision	Compatibility
Boot loader	SWI9200X_03.05.12.04	
Application	SWI9200X_03.05.12.04	
Qualcomm Stack Version	3.5.23	

Firmware Changes

- Fixed failure to enter offline mode using AT commands
- Improved performance in concurrent TCP/FTP throughput testing
- Decreased minimum voltage for online mode to 3.2V

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- Added support to configure whether IMSI is displayed in Win8
- Added new USB compositions supporting Win8 MBIM interface
- Added AT command to determine NSET status

Known Issues

- None

SWI9200X 3.5 Release 2 Beta 2

Firmware Component Revision Levels

Component	Revision	Compatibility
Boot loader	SWI9200X_03.05.12.02	
Application	SWI9200X_03.05.12.02	
Qualcomm Stack Version	3.5.23	

Firmware Changes

- Add Qualcomm 3.5.23 Stack
 - Improved Windows 8 compliance
- Updated HPLMN search timers to meet 3GPP specifications
- Added OEM simplified anti-theft support
- Added configurable enumeration of Win8 MBIM interface only
- Added OMADM/FOTA support
- Added configurable carrier-specific Win8 interface support
 - International roaming indication
 - MTU size
 - Technology specific signal bar mapping
 - Technology indicator string

Known Issues

- None

SWI9200X 3.5 Release 2 Beta 1

Firmware Component Revision Levels

Component	Revision	Compatibility
Boot loader	SWI9200X_03.05.11.02	
Application	SWI9200X_03.05.11.02	
Qualcomm Stack Version	3.5.2250	

Firmware Changes

- Add Qualcomm 3.5.2250 Stack
 - Windows 8 support

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- Resolved SUPL 2.0 failures
- Added support for GPIO control of SAR backoff state
- Increment SVN to 9

Known Issues

- None

SWI9200X 3.5 Release 1

Firmware Component Revision Levels

Component	Revision	Compatibility
Boot loader	SWI9200X_03.05.10.02	
Application	SWI9200X_03.05.10.02	
Qualcomm Stack Version	3.5.150005	

Firmware Changes

- Add Qualcomm 3.5.150005 Stack
 - LTE to WCDMA Packet switched handover
 - LTE to WCDMA and WCDMA to LTE redirection with measurements
 - LTE to GSM handover with S1 tunnel
 - Idle Mode Signalling Reduction (ISR)
 - 3G MIMO Capability
 - CR324537 - UI indicates incorrect PLMN during manual network selection
 - CR318670 - LTE frequency barred during cell reselection
 - CR316087 - Crash when reselecting from LTE to GSM or setting up PDP context in GSM
 - CR319244 - UE bounces between UMTS and LTE if camped on forbidden PLMN in UMTS
 - CR304839 - Enhancement cell measurements for a faster WCDMA-to-LTE reselection
 - CR330650 - FW crash due to CPC DTX reconfiguration during enabling delay expiry
 - CR330186 - CS fallback accepted by UE even when configured for "SMS Only"
 - CR330099 - Incorrect EF-TST update to indicate "Data+Voice" on a data-only device
 - CR322418 - NV Option to disable W2L Compressed Mode Support
- Add latest GPS almanac data (GPS week 1670)
- Add support for GPS SUPL reference location
- Fix unexpected Minicard LED behavior while in sleep mode
- Fix Data stall after LTE detach-attach cycle
- Fix conflicts between Low Power Mode triggers
- Add support for AT+CPINR to return SIM PIN retry information
- Add customizable support for AT+CFUN setting to be persistent
- Add customizable support to disable GPS bias voltage for an external antenna
- Enhanced support for custom VID/PID combinations for MC7700
- Add configurable WAKE pin support for incoming data/SMS
- NMEA data wakes the host from Selective Suspend
- Increment SVN to 8

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Known Issues

- SUPL 2.0 Network Initiated mode not supported

Troubleshooting

The following sections describe troubleshooting information when using the AirCard when using in a live network and when using with a test box.

Ciphering/Integrity

If you're not attaching, check your ciphering settings. The UE needs to use the same settings as the network/test set. Generally, live networks will have ciphering/integrity enabled. Test sets may have them enabled or disabled, but it is common for test sets to leave it disabled unless explicitly testing that feature.

The AT command is noted below:

AT Command	Description
AT!GCIPHER=X	Set the card to support integrity and ciphering with the following settings: X = 0, Ciphering OFF, Integrity OFF X = 1, Ciphering ON, Integrity OFF X = 2, Ciphering ON, Integrity ON
AT!GCIPHER?	Query the GCIPHER settings.

Crash Investigation

Should the UE crash there are a number of different means to provide useful feedback to Sierra Wireless for resolution of the issue

Full memory dump

This is the preferred process because it captures the most crash information.

Configuring the UE for crash dump capture

This must be done to enable or disable the crash capture feature on the UE. This configuration is stored in NV so it is persistent across power cycles / power removal.

To enable crash dump capture

AT!EROPTION=0

To enable UE reset upon a crash (default behaviour)

AT!EROPTION=1

Capturing a crash dump

1. Wait for / cause a crash to occur
2. Close connection manager software (to release the com port)
3. Run SwiMemDebug
4. Click Start to initiate crash dump collection. If this fails, the application likely cannot open the com port (see step 2)
5. Once 100% is reached, the crash dump collection is complete. Click Reset to reset the modem (optional), and Exit to exit the program
6. Crash files will be in the same location as SwiMemDebug. Zip up the crash files and label the zip file with a unique name (date/timestamp is suggested) and send the zip to Sierra Wireless for analysis

Mini Dump

If a crash occurs, the summary of why the crash occurs is saved in memory. The command following command will display the crash summary:

AT!GCDUMP

Note that this crash summary is lost once power is removed from the device (or manually cleared via AT!GCCLR).

Error Listing

The AT!ERR command will display “points of interest” that have occurred in the UE. These are not crashes, but are often used by developers to highlight areas they wish to examine.

Vista Recommendations

For optimum performance and stability in Microsoft Vista, it is recommended that USB Selective Suspend be disabled. In order to disable Selective Suspend properly, follow both procedures (B.1 and B.2) below:

B.1 Disabling Global Selective Suspend

The following procedure will disable the global selective suspend setting in Microsoft Vista.

- a. Open the **Control Panel**
- b. Select the **Power Options** applet
- c. For whichever item is selected as the current Power Mode (ie: Maximum Battery Life), select **Change plan settings**
- d. Select **Change advanced power settings**
- e. Expand **USB Settings**
- f. Expand **USB Selective Suspend settings**
- g. Change the settings for **Plugged in** to **DISABLED**
- h. Change the settings for **On Battery** to **DISABLED**
- i. Close the **Power Options** applet

B.2 Disabling Device Specific Selective Suspend for Generic Sierra Wireless Drivers

The following procedure will disable the device specific selective suspend setting in Microsoft Vista when using a device configured with the generic Sierra Wireless drivers:

1. Open a notepad
2. Type the following text into notepad
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\SWUMX32\Parameters]
"IdleDetect"=dword:00000000
"UsbSelSus"=dword:00000000

Compass885 use SWUMX80 instead of SWUMX32

AC885E use SWUMX59 instead of SWUMX32

3. Save the text file you just created with the filename ***disableSelSus.reg*** to the Desktop
4. Exit Notepad
5. Double-click the file you just created (***disableSelSus.reg***)
6. When prompted by Vista to allow this information to be added to the registry, select Yes.
7. Select OK
8. Reboot the PC