



MC87XX

**Release Notes &
Upgrading Instructions**

Revision:	1184
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1 General

1.1 Purpose

This document is intended to capture technical changes to the MC8755/8765 MiniCard release package. The document covers changes in the HW design, Modem FW (bootloader and Application) and host software components.

These release notes are NOT intended for the end user.

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

1.2 Scope

This document covers issues that affect carriers and end users.

1.3 Revision History

Revision	Date	Author	Summary of changes
1.0	Oct. 31		New Release of HW – ENG2 design, Modem FW, Drivers, Drivers Installer, SDK, SMS Client, Watcher, BinUpdater
2.5	Nov. 11		Combined to address both Generic and custom FW releases for specific customers. Synchronized release note revision with Software release revision.
2.6	Nov. 24	Iulian Mocanu	New DriverInstallerMsi and DriverInstaller.exe. release. Same drivers.
2.6a	Nov. 29	Don Piercy	Updated development kit installation and upgrade instructions.
2.6b	Nov. 30	Bon Lee	Minor changes and reference to MC87xx User Guide.pdf
2.7	Dec. 4, 2005	Iulian Mocanu et al	DriverInstallerMsi Release. No drivers changes.
2.7	Dec. 5, 2005	Bon Lee	Add Appendix
2.7	Dec. 6, 2005	Bon Lee	Added DriverInstallerMSI instructions to Appendix B
2.8	Dec 9 th , 2005	Rory Filer, Iulian Mocanu	Added upgrade instructions and new f/w capabilities for U0_1_5 of firmware Added Host Software components revisions.
2.9	Dec.	Iulian Mocanu,	New BinUpdater release that fixes potential

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	16 th , 2005	Bon Lee	NV backup issues
2.10	Dec. 22 nd , 2005	Iulian Mocanu	Updated DriverInstaller and DriverInstallerMsi packages to include WHQL certified drivers.
2.11	Jan 4, 06	Rory Filer, Vince Smith	New Release of Firmware Application
2.12	Jan 19, 06	Rory Filer, Vince Smith,	New Release of Firmware Application, and improved upgrade tool (one-click).
2.13	Jan 31, 2006	Bon Lee	New Release of Firmware Application and BinUpdater.
2.14	Feb 2, 2006	Iulian Mocanu	SDK release in sync with DriverInstaller release
2.15	Feb 7, 2006	Rory Filer, Iulian Mocanu	New Firmware bootloader, application and firmware download tool release
2.16	Feb 16, 2006	Minaz Fazal, Iulian Mocanu	New Release of Firmware Application
2.17	March 2, 2006	Minaz Fazal	New Release of Firmware Application and Bootloader. Updated OneClickTool.
2.18	March 8, 2006	Minaz Fazal	New Release of Firmware Application and Bootloader. Updated OneClickTool.
2.19	March 13, 2006	Iulian Mocanu	New drivers (non-WHQLed)
2.20	March 15, 2006	Iulian Mocanu	New driver package and firmware download tool.
2.21	March 16, 2006	Iulian Mocanu	New Driver Installer package including the WHQL drivers.
2.24	April 03, 2006	Minaz Fazal	New Firmware and 3G Watcher
2.28	April 13, 2006	Iulian Mocanu, Minaz Fazal, Colin Chow	WHQL-ed drivers, 3G Watcher and Firmware
2.30	April 20, 2006	Iulian Mocanu	DriverInstaller package
2.31	May 10 th , 2006	Iulian Mocanu	Update DriverInstallerMsi package and DriverInstallerMsi tool
2.33	May 18, 2006	Bon Lee	New FW 1_2_26mcap
2.35	May 19, 2006	Bon Lee	New FW U1_2_30mcap
2.37	June 26,	Bon Lee	New FW U1_2_35mcap

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	2006		
3.0	July 21, 2006	Minaz Fazal	New U1_2_37mcap
1124	Sept 29, 2006	Minaz Fazal/Bon Lee	New FW U1_2_44mcap
1184	Nov 17, 2006	P.Nikic	New FW U1_2_45mcap

Changes between this version and the previous one are highlighted in blue.

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2 Component Descriptions

2.1 Hardware

Includes all aspects of the MiniCard module including baseband functionality, RF performance, purpose of units (FTA, prototype, pilot production etc). Please see Appendix A for assembly instructions.

2.2 Modem Firmware

Directory name: Firmware

Includes both the Bootloader Firmware (*****MCBT) and Application Firmware (****MCAP) binaries that reside on the MiniCard module. The Downloadable USB descriptor is named UD_XX_YYYYY_0.CWE, where XX is the MC version 55 or 65 and YYYYY is either generic or customer specific. The USB descriptor is located in the bootloader directory.

Please note – releases of boot loader firmware are intended to be rare events and will only be provided when absolutely necessary. Upgrading the boot loader image should never be done more than once. Upgrading the application image multiple times, e.g. when stress-testing the upgrade process is a valid operation. If there is a problem for some reason during the application upgrade, it is always recoverable as long as the Boot Loader image is intact.

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3 Installing and Upgrading the Release

3.1 Upgrading MC87xx firmware

This firmware upgrade procedure assumes your minicard has a base version of boot loader firmware of at least:

Boot Loader:
U0_1_5mcbt

If your minicard has a boot loader image that is older than this, please contact your Sierra Wireless, Inc. representative for assistance.

3.1.1 Upgrade Procedure

Sierra Wireless MC87XX 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 minicard 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 BinUpdater tool
3. When BinUpdater tool starts you will see the following image:

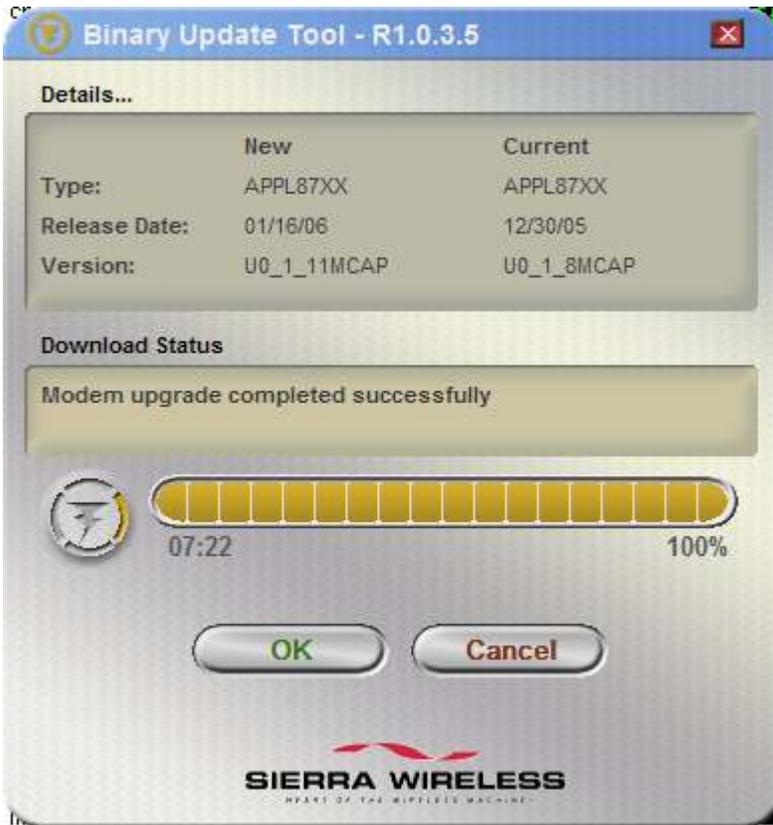


4. Click OK to begin the download.

NOTE: The download can take up to 10 minutes to complete. Do not remove the power to either the laptop or the minicard until the Binary Update Tool announces that the upgrade has been successful, as shown here:

NOTE 2: There can be more than one firmware image bundled with the One Click Tool. If so, then you will be asked if you want to upgrade the device once for each image. If you click Cancel instead of OK, the remainder of the download will be aborted.

NOTE 3: When a boot image is released it is usually bundled with the application firmware within the same OneClickTool executable. That OneClickTool will automatically install both the boot and application images for you. If you intend to perform repeated download stability tests, please use the oneclick tools with just the Application image. We do not expect any further bootloader updates, just application ones.



3.2 Debug Tools

The MC87xx provides support for trace tools such as QXDM, Nemo or the Sierra Wireless log gathering tool.

The logger tool and the installation instructions for these tools are available from: <http://www.sierrawireless.com/swmhspdalogger/default.asp>

Please contact your Sierra Wireless Representative to access the site.

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4 Revision History

4.1 Build 1184

4.1.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
MC87XX Hardware		ENG2/SPR	
Firmware Release Package		Build 1184	
Modem Firmware			
	Boot loader	U1_1_2mcbt	ENG1.1, ENG2,SPR
	Application	U1_2_45mcap	ENG1.1, ENG2,SPR
	Qualcomm Stack Version	3.0.4776	

4.1.2 Firmware Changes

4.1.2.1 Application Firmware

- Updated the handling of CHAP authentication
- Improved handling of manual network selection to function even with a partially read list
- Fixed an issue where AT+CLCK doesn't allow 3 attempts to unlock personalization
- Added logging for instances of CnS packets dropped because transaction is already in progress
- Fixed possible crash when changing LED states

4.2 Build 1124

4.2.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
MC87XX Hardware		ENG2/SPR	
Firmware Release Package		Build 1124	
Modem Firmware			
	Boot loader	U1_1_2mcbt	ENG1.1, ENG2,SPR

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	Application	U1_2_44mcap	ENG1.1, ENG2,SPR	
	Qualcomm Stack Version	3.0.4776		

4.2.2 Firmware Changes

4.2.2.1 Application Firmware

- Fixed possible stack corruption in audio testing AT commands
- Backup NV items for AT!CALID (calibration station version etc.)
- Allow emergency numbers to form part of the 4 digit sim pin
- Fixed occasional assert with ATICUSTOM=?
- Added support for A5/2 encryption algorithm
- Add WINS patch from Qualcomm
- Implement the busy tone for voice calls
- Fix to for receiving short USB packets on endpoints, this would cause an unrecoverable data stall
- Increase stack sizes of some tasks to prevent possible stack overflow
- Ensure that power off bit is set when UE initiated detach is performed
- Enabled HHPLMN scan in foreign country
- Improved support for +CLCC
- Added debouncing of W_Disable line
- Update autoconnect behaviour
- Add check to ensure default profile is valid
- Add AT!NVPORTRMAP command
- Add feature to send information dump to NDIS in the event of a UE crash
- Add support for WINS and to enable it if supported in the profile
- Add temperature to GSTATUS output
- Add support to send indication to host if SIM was rejected by the network
- Fix HIP loopback with zero-length payload
- Speed up USB enumeration ready time
- Fix for AT+CPIN? returning ERROR when PIN2 blocked
- Address modem crash during stress tests
- Add AT!ICCID command to return ICCID of SIM
- Display appropriate BUSY/DISCONNECT/REJECT indication when ATD voice call is rejected
- Address issue where FDN was reported available when it was not
- Address issue where data connection created during voice call gets stuck in "connecting"
- Fix to allow quotes for IP address field in AT+CDGCONT on PDP ports
- Fix for AT+CSIM command, add AT!CSIM support
- Fix issue with AT!SCDNS when all four DNS address segment values are >99
- Add AT!ACQCHAN support
- Fix high current draw when starting up in "Radio Off" mode

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- Fix hookswitch initiated answer while a call is held

4.3 Version 3.0

4.3.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
MC87XX Hardware		ENG2/SPR	
Firmware Release Package		Version 3.0	
Modem Firmware			
	Boot loader	U1_1_2mcbt	ENG1.1, ENG2,SPR
	Application	U1_2_37mcap	ENG1.1, ENG2,SPR
	Qualcomm Stack Version	3.0.4773	

4.3.2 Firmware Changes

4.3.2.1 Application Firmware

- Implemented AT+VTD and AT+VTS commands used for sending DTMF tones while in-call
- Address issue with the MC USB host driver periodically unloading / reloading on selected laptops when USB selective suspend was enabled
- Update the network name table for 214-003 from "AMENA" to "Orange ES"
- Handle data compression on handover from 2G to 3G
- Address USSD issue where some of the non-ASCII network sent characters were replaced by the space character
- Handle @ character in USSD
- Modified autoconnect behavior to only autoconnect to the default profile
- Update network name for SmarTone (454-6 and 454-15)

4.4 V2.36 Build 984, 985, 986, 987

4.4.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
MC87XX Hardware		ENG2/SPR	
Modem Firmware			
	Boot loader	U1_1_2mcbt	ENG1.1, ENG2,SPR

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	Application	U1_2_36mcap	ENG1.1, ENG2,SPR	
	Qualcomm Stack Version	3.0.4773		

4.4.2 Firmware Changes

4.4.2.1 Application Firmware

- New 3.0.4773 Qualcomm stack
- Fixed SMS validity period for MO SMS message

4.5 V2.36 Build 977, 978

4.5.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
MC87XX Hardware		ENG2/SPR	
Modem Firmware			
	Boot loader	U1_1_2mcbt	ENG1.1, ENG2,SPR
	Application	U1_2_35mcap	ENG1.1, ENG2,SPR
	Qualcomm Stack Version	3.0.4770T	

4.5.2 Firmware Changes

4.5.2.1 Application Firmware

- New 3.0.4770 Qualcomm stack
- Fixed +CRSM issue

4.6 V2.35 Build 913

4.6.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
MC87XX Hardware		ENG2/SPR	
Modem Firmware			
	Boot loader	U1_1_2mcbt	ENG1.1, ENG2,SPR
	Application	U1_2_30mcap	ENG1.1,

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				ENG2,SPR
	Qualcomm Stack Version		3.0.4768T	

4.6.2 Firmware Changes

4.6.2.1 Application Firmware

- New 3.0.4768T Qualcomm stack

4.7 V2.33 Build 910

4.7.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
MC87XX Hardware		ENG2/SPR	
Modem Firmware			
	Boot loader	U1_1_2mcbt	ENG1.1, ENG2,SPR
	Application	U1_2_26mcap	ENG1.1, ENG2,SPR
	Qualcomm Stack Version	3.0.4764	

4.7.2 Firmware Changes

4.7.2.1 Application Firmware

- Handle empty SMS payload correctly
- Fix issue with blank SMS shown when receiving 149 byte SMS
- Fixed various ADN phone book issues

4.8 V2.28 Build 843

4.8.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
MC87XX Hardware		ENG2/SPR	
Modem Firmware			
	Boot loader	U1_1_2mcbt	ENG1.1, ENG2,SPR
	Application	U1_2_21mcap	ENG1.1,

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				ENG2,SPR
	Qualcomm Stack Version		3.0.4764	

4.8.2 Firmware Changes

4.8.2.1 Application Firmware

- Fixed issue with 160 character or longer SMS messages
- Added received and missed calls to the respective phone books
- Provide a disconnect cause to the host whenever applicable
- Fixed issue with making a emergency call without the sim inserted
- Fix for a STK issue where the modem would not timeout the previous request to the sim
- Fix for a possible issue when performing a handover between 2G and 3G cells

4.9 V2.24 Build 826

4.9.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
MC87XX Hardware		ENG2/SPR	
Modem Firmware			
	Boot loader	U1_1_2mcbt	ENG1.1, ENG2,SPR
	Application	U1_2_18mcap	ENG1.1, ENG2,SPR
	Qualcomm Stack Version	3.0.4762	

4.9.2 Firmware Changes

4.9.2.1 Application Firmware

- Added feature to report Network System Status to host
- Correctly report the status of the AT command port
- Support of Diagnostic mode over the Host Interface Protocol
- Bug fix for band selection table
- Added feature to allow the host to reset the byte counter
- Allow AT+CFUN=1 to exit from persistent low power mode
- Fix for sending a DTMF sequence via Overdial
- Added AT commands to control speaker volume and mute functionality

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4.9.3 Known Issues

Mobile originated SMS may not function correctly on some networks. To test this function you may revert back top U1_2_8mcap

4.10 V2.21 Build 808

4.10.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
Modem Firmware			
	Boot loader	U1_1_2mcbt	ENG1.1, ENG2,SPR
	Application	U1_2_8mcap	ENG1.1, ENG2,SPR
	Qualcomm Stack Version	3.0.4458T	

4.10.2 Host Software Changes

4.10.2.1 Device Installer Package (MC87xx.msi)

- New DriverInstallerMsi package contains WHQL-ed drivers.

4.11 V2.18 Build 800

4.11.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
Modem Firmware			
	Boot loader	U1_1_2mcbt	ENG1.1, ENG2,SPR
	Application	U1_2_8mcap	ENG1.1, ENG2,SPR
	Qualcomm Stack Version	3.0.4458T	

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4.11.2 Firmware Changes

This firmware revision includes the following enhancements as well as the cumulative changes from all previous releases:

4.11.2.1 Application Firmware Changes

The following changes have been added to the application firmware:

- Addressed issue with persistence of LPM (Low Power Mode)

4.11.2.2 Bootloader Firmware Changes

- Added W_Disable switch scanning in the bootloader

4.12 V2.17 Build 795

4.12.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
Modem Firmware			
	Boot loader	U1_1_1mcbt	ENG1.1, ENG2,SPR
	Application	U1_2_6mcap	ENG1.1, ENG2,SPR
	Qualcomm Stack Version	3.0.4458T	

4.12.2 Firmware Changes

This firmware revision includes the following enhancements as well as the cumulative changes from all previous releases:

4.12.2.1 Application Firmware Changes

The following changes have been added to the application firmware:

- Added LPM (Low Power Mode) persistence over power cycles.
- Alcatel Single Phase Access issue
- Added support to allow for the customers to add their own TAC in the IMEI

4.12.2.2 Bootloader Firmware Changes

- Flash the LED when downloading firmware or when in Boot and Hold awaiting firmware download
- Various fixes to improve Firmware Download and USB Enumeration stability

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4.13 V2.16 Build 787

4.13.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
Modem Firmware			
	Boot loader	U1_1_0mcbt	ENG1.1, ENG2,SPR
	Application	U1_1_3mcap	ENG1.1, ENG2,SPR
	Qualcomm Stack Version	3.0.4456Z	

4.13.2 Firmware Changes

Important note: The One Click Firmware Download Tool (located in the folder Firmware\OneClickTool) contains only the firmware application, therefore users should ensure the boot loader U1_1_0 (released in build 778) was updated previously.

This firmware revision includes the following enhancements as well as the cumulative changes from all previous releases:

4.13.2.1 Application Firmware Changes

The following changes have been added to the application firmware:

- Fixed problem that causes the modem to enter an incorrect state when powered down from Watcher. Also enabled the LED once the modem is powered up from Watcher.
- Fixed problems that could cause modem to remain in the bootloader – Connection Manager Applications not being able to communicate with the modem.
- Maintain R5 / R99 configuration setting across firmware upgrades
- Store MMS messages on device for host to read
- Added support for EAP-SIM via CNS

4.14 V2.15 Build 778

4.14.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
Modem Firmware			
	Boot loader	U1_1_0mcbt	ENG1.1, ENG2,SPR
	Application	U1_1_0mcap	ENG1.1, ENG2,SPR

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	Qualcomm Stack Version	3.0.4455		

4.14.2 Firmware Changes

This firmware revision includes the following enhancements as well as the cumulative changes from all previous releases:

4.14.2.1 Application Firmware Changes

The following changes have been added to the application firmware:

- Bugfix: RRC connection failure
- Changes to improve the stability of the USB engine for firmware download
- Display “Limited Service” when AT+COPS? is entered and no SIM installed
- Bugfix: GPRS connect attempts failed when minicard was not GPRS-Attached
- Bugfix: Occasional imprecise RSCP measurements prevented 2G-3G handover
- Upgrade to QCOM 3.0.4455 stack
- Add SMS to FDN lookup check
- Changes to the firmware in this release required some support for ENG1.1 units to be removed. The release will work on ENG1.1 units but the LED will not function, it will be permanently off.

4.14.2.2 Boot Loader Firmware Changes

The following changes have been made to the boot loader image

- Changes to improve USB stability during firmware download
- Updated version number to commercial release version

4.15 V2.13 Build 774

4.15.1 Software/Firmware Component Revision Levels

Component	Description	Revision	Compatibility
Modem Firmware			
	Boot loader	U0_1_5mcbt	ENG1.1, ENG2,SPR
	Application	U1_0_0mcap	ENG1.1, ENG2,SPR
	Qualcomm Stack Version	3.0.4455	

4.15.2 Firmware Changes

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1. Upgrade to Qualcomm 3.0.4455 stack.
2. Fixed bug where power down bit was not set during detach when closing Watcher.
3. Bug fix – Quick On/Off to WDISABLE was leaving MC in a useless condition.
4. The AT-command “at+cpin?” now responds READY when PIN has been entered correctly or when PIN verification is deactivated.

4.15.3 Known Issues

None of the following issues were introduced in this release. They were discovered in releases previous to U0_1_11mcap.

4.15.3.1 Device Unknown Error: After several hundred (200-400) cycles of Standby/Resume on the host PC, the minicard can fail to enumerate correctly, apparently providing all-zeros to the host PC during the enumeration procedure over USB. This problem is under investigation

4.16 V2.12 Build 769

4.16.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
Modem Firmware			
	Boot loader	U0_1_5mcbt	ENG1.1, ENG2,SPR
	Application	U0_1_11mcap	ENG1.1, ENG2,SPR
	Qualcomm Stack Version	3.0.4453T Patch 3D	

4.16.2 Firmware Changes

1. Upgrade to Qualcomm 3.0.4453 stack. This release contains Patch 3, release d of the UMTS stack.
2. Added countermeasures to protect Non Volatile memory area (EFS) against sudden power loss to the minicard
3. Added fix to allow emergency calls even if FDN is enabled and emergency numbers are not in the list
4. Added new AT command for OEMs to control the LED, forcing it ON or OFF or back to normal operation – AT!DLED

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5. New AT Commands which perform similar operations to Watcher/SDK. For instance, AT!SCACT=1 brings up a packet data session to the NDIS interface just as if someone had clicked Connect on the Watcher program

4.16.3 Known Issues

None of the following issues were introduced in this release. They were discovered in releases previous to U0_1_11mcap.

4.16.3.1 Device Unknown Error: After several hundred (200-400) cycles of Standby/Resume on the host PC, the minicard can fail to enumerate correctly, apparently providing all-zeros to the host PC during the enumeration procedure over USB. This problem is under investigation

4.17 V2.11 Build 762

4.17.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
Modem Firmware			
	Boot loader	U0_1_5mcbt	ENG1.1, ENG2,SPR
	Application	U0_1_8mcap	ENG1.1, ENG2,SPR
	Qualcomm Stack Version	3.0.4440T Patch 3C	

4.17.2 Firmware Changes

6. **Upgrade to Qualcomm 3.0.4440 stack.** This release contains Patch 3, release c of the UMTS stack.
7. **New AT Commands:**
 - **AT!BSMCCHECK?**
This command allows a user to query the hardware version of the minicard
 - **AT!GCFEN**
This command is provided for OEMs to use during the GCF testing process. It sets the minicard into a mode compatible for GCF testing. The default is GCF testing mode disabled. The command supports the Query (?), assignment (=n) and extended query (=?) formats
 - **AT!GCFUIMTYPE**
This command configures the minicard for use either with a 2G or 3G SIM for

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GCF testing. The default setting – 3G - is recommended by QCOM, but the 2G setting is required to enable the minicard to pass GCF testing

8. **Power Down Detach:** The minicard sends a Power Down Detach message to the network when the W_DISABLE signal is asserted
9. **Standby/Resume Bug Fix:** Changes have been added to the firmware to allow the minicard to properly resynchronize with the Watcher application after the host PC resumes from standby operation.
10. **FDN Lookup Applies on All Interfaces:** In release U0_1_5mcap we introduced the ability for FDN lookup to occur on the AT Command interface. In this release (U0_1_8mcap) we added the ability to do the lookup on the CnS/Watcher interface as well. Therefore, when clicking “Connect” on Watcher (for example) if the *99 prefix is not included in the FDN numbers list and FDN is enabled, the data session will not be permitted.

4.17.3 Known Issues

None of the following issues were introduced in this release. They were discovered in releases previous to U0_1_8mcap.

4.17.3.1 Device Unknown Error: After several hundred (200-400) cycles of Standby/Resume on the host PC, the minicard can fail to enumerate correctly, apparently providing all-zeros to the host PC during the enumeration procedure over USB. This problem is under investigation

4.17.3.2 SIM PIN 2: The minicard reports PIN 2 in response to the AT+CPIN? Command being issued, although this depends upon the SIM type that is installed. Various solutions to this problem are being considered

4.18 V2.8 Build 0749

4.18.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
Modem Firmware			
	Boot loader	U0_1_5mcbt	ENG1.1, ENG2,SPR
	Application	U0_1_5mcap	ENG1.1, ENG2,SPR
	Qualcomm Stack Version	3.0.4430T	

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4.18.2 Modem Firmware Changes

4.18.2.1 Firmware Bootloader changes

For this release, we have added some new capabilities to the bootloader image:

- **USB Descriptor Secure Download**
Allows a USB descriptor to be downloaded to the MiniCard with security. Security, in this sense, means that only USB descriptors which:
 - a. **Have the same PID/VID as the one installed in the MiniCard, and**
 - b. Which aren't identical to the one already loaded into the MiniCard will be allowed to proceed. This new capability makes it impossible for the PID/VID to be changed to something different
- Upgrade to the Qualcomm stack, version 3.0.4430 for compatibility

4.18.2.2 Firmware Application Changes

11. **Upgrade to Qualcomm 3.0.4430 stack.** This release contains Patch 3, release b of the UMTS stack.
12. **New AT Command, AT!REL,** permits changeover between Release 99 and Release 5 modes in a single firmware release. Previously, two separate images of the application were required, one for Release 99 and one for Release 5 operation. This new command is password-locked for OEM access only. The command has become available as a result of the stack upgrade

NOTE: This new release is set to start in R5 mode by default. Please contact Sierra Wireless if you need to be able to switch to R99 mode.
13. **AT+COPS Command.** Fixed a bug in the response provided by this command. A string was formatted in error
14. Add ***99***** to FDN Lookup. Previous releases of firmware would permit ATD connections to be made regardless of whether the packet number was stored in the FDN list or not. This release will only permit a packet session to commence by ATD command if the packet data number is stored in the FDN list
15. **Sleep Mode.** The MC87XX now supports Slow Clocking which is designed to minimize power consumption during times when the modem is idle. This capability is disabled by default and users will need to enable it via AT command, AT!SLEEP=1

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4.19 V2.6 Build 0737

4.19.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
Modem Firmware			
	Boot loader	U0_0_20mc65Gbt U0_0_20mc55Gbt	ENG1.1, ENG2
	Application	U0_0_22mcap	ENG1.1, ENG2
	Qualcomm Stack Version	3.0.3489T	

4.19.2 Outstanding issues:

- Slow Clocking:
The Slow Clocking feature has been implemented and we have observed that current consumption drops to around 2 ma while the MC87X5 is in an Idle state (i.e. not in an active packet session). However we have not completed testing this feature and therefore we have postponed it until a future release.
- Main MC87XX Protocol Stack:
The protocol stack in this release is built on Qualcomm's Patch1 stream, as Patch 3 is not currently available. The current revision of the release in the application is:

AMSS 6275 3.0 (M6275A-KCRB-3.0.3489T)

4.20 V2.5 Build 0718

4.20.1 Software/Firmware Component Revision Levels

Component		Revision	Compatibility
Modem Firmware			
	Boot loader	U0_0_20mc65Gbt U0_0_20mc55Gbt	ENG1.1, ENG2
	Application	U0_0_22mcap	ENG1.1, ENG2
	Qualcomm Stack Version	3.0.3489T	

4.20.2 MiniCard Firmware

4.20.2.1 Firmware Bootloader changes

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The boot loader is seldom upgraded, however due to the fact that development of the MC87XX program has been underway, we have added some new capabilities to the boot loader image:

- **Application/Boot Image compatibility**
Now the boot loader checks whether the application installed in FLASH or new applications about to be downloaded are compatible with it. If this check passes, the application will either be accepted for download or launched as normal. On the other hand, if the compatibility check fails, the boot loader will not accept the download or launch an existing application and will remain in Boot and Hold operation. A short string indicating the reason a download attempt was rejected will be sent to the downloading application in the response to the “Start Download” request
- **Boot Loader Responds to W_DISABLE**
As of this release, if the W_DISABLE signal is asserted anytime up to the point where the application is launched, the Boot Loader image will disable the modem by turning off the power via its on-board LDO. Before this release, the Boot Loader image did not check the W_DISABLE signal. NOTE: The W_DISABLE signal is not checked when the Boot Loader is operating in boot-and-hold mode and a reset or a complete firmware download is required before power can be removed. However, in boot and hold operation there is no problem if the host PC removes the power itself instead of using the W_DISABLE signal

4.20.2.2 Firmware Application Changes

16. Power management and Thermal and Voltage Monitoring - This release includes a new mechanism for the MC87XX that monitors temperature and voltage and can shut the modem down if critical limits are exceeded.
The MiniCard also monitors the W_DISABLE signal and will shut off the modem power after gracefully detaching from the network – usually within about 5 seconds. This overall capability is the same as is implemented in the MC87XX’s sister product, the MC5720
17. WWAN RSSI Support - During an active packet data session, the MC now reports its RSSI level to the NDIS driver. A user can cause the information to be displayed by opening the Network Status window from the tool tray
18. SIM Security - The firmware now supports the ability for SIM security to be enabled/disabled via CnS. If the MiniCard has SIM security is enabled, users will be prompted to enter the PIN 1 or PUK code – as appropriate – via CnS objects. These capabilities are all supported by menus and displays on Watcher
19. Band Selection - Users can now manually select the band they wish the MC to operate in from a Watcher menu. The information is communicated to/from the MiniCard using CnS objects

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20. Network Selection Fully Implemented - The MiniCard now fully supports network selection via CnS objects and through improvements to the logic in firmware. Formerly there were some special cases that were not being properly handled, especially when the MiniCard made the decision to switch from manual to automatic network selection automatically
21. Radio Bearer Service Indication - Watcher (via CnS objects) now supports the display of information about the radio bearer that is available in a given cell. The information available indicates whether GPRS, EDGE or 3G service is available. During active packet data sessions in a 3G cell, if the session is HSDPA, this is also displayed
22. MEP Locking - This release of firmware supports Network MEP locking