Sierra Wireless HL7810, HL7812, and HL7845

Customer Release Notes for Firmware 5.x

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Due to the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e., have errors) or be totally lost. Although significant delays or losses of data are rare when wireless devices such as the Sierra Wireless product are used in a normal manner with a well-constructed network, the Sierra Wireless product should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. Sierra Wireless accepts no responsibility for damages of any kind resulting from delays or errors in data transmitted or received using the Sierra Wireless product, or for failure of the Sierra Wireless product to transmit or receive such data.

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Revision History

Revision number	Release date	Changes
1.0	October 2022	Creation for HL78XX.5.4.10.0

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1: Introduction

1.1 Document Scope

This document describes HL7810, HL7812, and HL7845 firmware release changes and known issues in external customer releases.

1.2 Document Audience

These release notes may be distributed to all direct and indirect customers.

2: Compatibility

2.1 Software Compatibility

S/W Tools Name	Version
ImageBurnTool	V 1.0.0.0

3: Released Files and Download Processes

Firmware may be updated on existing units using the following methods:

- Full image upgrade over UART or USB
- Differential upgrade locally over AT command port (UART or USB)
- Remotely via AVMS, carrier LWM2M or other 3rd party server where applicable (for Delta only).

Detailed procedures are described in reference HL781x - FW Update Methods Application Note. Some limitations may apply.

4: HL78XX.5.4.x Release Description

4.1 HL78XX.5.4.10.0 Release Description

4.1.1 Release Identification

Table 4-1: Package Release Information

	Services (ATI9)
Firmware Identification	HL7810.5.4.10.0 HL7812.5.4.10.0 HL7845.5.4.10.0
Components	Chipset baseline: RK0302000022111001 Legato RTOS: 22.04.0.FreeRTOS.w19 atSwi: 22.04.0.FreeRTOS.w19 UBOOT: 01.03 Apps: RKAPP_03_02_00_00_22061_001__d21d59a7ccfd13226f6533f3bf8647cb216120a8 M1 MAC(HL7810,7845): ALT1250_03_02_00_00_22111_FW M1 MAC(HL7812): ALT1250_03_02_00_00_22111_2G
Date of Generation	2022/05/30
IMEI SV	11
TS 25 PLMN List	7 June 2021
Supported HW	HL7810, HL7812, HL7845

4.1.2 Software Change Description

This section describes all corrections or improvements integrated in 5.4.10.0.

Table 4-2: New Features and Improvements

ID	Title	Description	Impacted Domain
Security			
HYB-374	Enable Secure Boot for HL7810/12/45	Required to enable Secure boot for new products HL7810, HL7812 and HL7845.	
Network			
HYB-379	NIDD	Add support for NIDD (Non-IP Data Delivery)	
Standards and Carrier Compliance			
HYB-244	GCF on HL781x	Initial GCF Approval	
HYB-12	PTCRB on HL781x	Initial PTCRB Approval	

Table 4-3: Bugs Resolved

ID	Title	Description	Impacted Domain
HYB-116	When config KCARRIERCFG=1, PDN configuration is incorrect	When config KCARRIERCFG=1, CID 3 and 4 are missing and could not delete CID 6 and 7 also could not add CID 3 and 4, however we can delete/add for CID 1.	
ALT1250-4559	[HL7812] CMUX HW Flow control not working	The HL7812 does not use HW-Flow control when in Multiplex Mode (GSM0710). The modem does respect the RTS set by the MCU, but it doesn't set its CTS anymore.	
HYB-273	[TCP MO] NO CARRIER during KTCPSND	During TCP MO data session, NO CARRIER is returned after AT+KTCPSND command. However, we do receive a KTCP_ACK indication showing that the data was received. In the FWATE logs, it shows that *more* data was received at the NW that what the UE sent	
HYB-519	Module fails to connect to Bootstrap server with IPV4V6	With a device properly registered to AirVantage, after device boots up, running at+wdss=1,1 will cause the device to fail to connect to Bootstrap server. This failure happens when at+cgdcont uses "IPV4V6" for the second parameter, the failure doesn't happen when using "IP" only.	

Table 4-3: Bugs Resolved (Continued)

ID	Title	Description	Impacted Domain
HYB-528	Module crash when close a CMUX port	This crash was observed on the latest master build. Steps to reproduce the crash: 1. Connect HL78 AT UART AT port to Windows 2. Open MuxConfTool on Windows and open 4 CMUX ports from the AT port. 3. Open one of the generated CMUX ports by PuTTY, type some commands such as "ati" make sure it responds. 4. Close PuTTY. After doing step 4, a crash happened and the CLI log showed	
ALT1250-4399	[FTP] Failed to create FTP connection	Failed to create FTP connection.	
Low Power Mode			
HYB-263	[PSM] Module not entering DH0 state	Issues: • Module was unable to enter the PSM state during FWATE PSM test cases • Module waking up every ~5sec	
HYB-262	[FWATE][eDRX] Frequent wake ups during eDRX	Issue: • Module is waking up during the eDRX cycle, adding to current consumption	
ALT1250-3831	[RK3.0] Sleep mode failure with DTR wakeup enabled	DTR wakeup is broken on the RK3.0 branch. With KSLEEP=0,x,x, the module does not enter hibernate mode when all wakeup sources are removed. The CLI and AT ports are inactive after setting DTR off, but the current consumption goes up and never falls to the expected level. The following scope capture shows the increase in current consumption when the DTR wakeup source is removed.	
HYB-464	Optimize KNTPCFG for low power modes	Now that the SNTP service on the HL78 is configurable (HYB-298), we need to make sure that it is optimized (or that we can provide customer guidance) for use in conjunction with low power modes. Having the SNTP service running can add unexpected wakeups and in the worst case prevent entering low power modes.	

Table 4-3: Bugs Resolved (Continued)

ID	Title	Description	Impacted Domain
HYB-458	Device does not perform a graceful detach - issue uncovered by EURY-4378	When the MAC layer disables the SIM due to communication failure during hibernate wakeup, the device is not detaching from the NW. MAC FW sends a %SIMD URC that the connection manager on the MAP should receive and initiate detach from the NW. This is not happening, and it seems the %SIMD URC is never received by the MAP. On a subsequent wakeup, device detects no SIM but finds it is still attached to NW and then modem FW performs a local detach. Later, after device misses TAU it is implicitly detached from the NW. This might due to stateless hibernation and the MAP is either never woken up properly to receive URC, or this URC is sent too early (although we have fixed all other known instances of this problem). If this is true, the odds are very low that this will be fixed at 4.x FW.	
Tools			
ALT1250-4463	[AVMS][FOTA][HL7845] Failed to upgrade FW with the FOTA job on AVMS	The module HL7845 cannot upgrade FW with the FOTA job on AVMS. *Note: The issue does not happen with HL7810.*	AVMS
ALT1250-4635	Include AISE version in package version failed in Jenkins job	The FOTA download will fail, and the app firmware information of the module on the AVMS will not be updated successfully after the synchronization procedure is successful.	AVMS
ALT1250-4539	[AVMS][FOTA][HL7845] Failed to upgrade FW with the FOTA job on AVMS	The module HL7845 cannot upgrade FW with the FOTA job on AVMS *Note: The issue does not happen with HL7810*	AVMS

Table 4-3: Bugs Resolved (Continued)

ID	Title	Description	Impacted Domain
ALT1250-4090	NVBackup	Issues: • AT+NVBU automatic mode: The module takes about 5 minutes to complete, during this time AT and CLI port is frozen (No debug output) • The auto backup mode" is not working.	
HYB-191	[WDSC] User agreement for package download/package install is not persistent after FOTA: HL7802:E0.5.3.4.0 <->HL7802:E0.5.3.4.0.99	User agreement for package download/ package install is not persistent after FOTA. *Note:* • The issue happens when user updates FW by SFT tool (HL7802:E0.5.3.3.0 -> HL7802.5.3.4.0) • SFT from 4.3.6.0 -> 5.3.0.0: issue does not happen • SFT from 4.3.6.0 -> 5.3.4.0: issue happens	AVMS

4.2 Restrictions

This section presents additional information or restrictions that should be considered for 5.4.x.

Feature	Description	Impacted Functionality/ Sub-Functionality
RF TX/RX test	RF test commands +WMTXPOWER/+WMRXPOWER are not supported on NB1.	RX/TX Power (NB1)
Band restrictions	Band 17 is not supported on Cat M1. Do not enable it.	Cat M1 Bands

4.3 Known Issues

The following issues may be observed in the 5.4.x release.

ID	Title	Description	Impacted Domain
ALT1250-4378 ALT1250-4496 ALT1250-4636	LWM2M crashes	• [LWM2M][FOTA] Module crashed during FOTA with LWM2M server • [LWM2M][ATT][HL7810] Crash happens when sending some LWM2M commands • [HL7810] Device crashes every 5mins for VZW PRI	
HYB-561 HYB-573 HYB-579 HYB-576 HYB-597 HYB-563 HYB-569 HYB-597	Ring Indicator for NW state change	Various RI issues created for customers include: ▪ [HL7812] Ring Indicator for NW state change does not toggle when modem is in 2G ▪ [HL78xx] RI Pulse on CGREG and CREG State change ▪ [HL781x] URC enabling/disabling setting is not retained during power cycle ▪ CGREG and CEREG always share the same status ▪ The URC configuration on the MUX channels is applied globally ▪ [HL7812] RI Pulse on Incoming PPP Data ▪ [HL7812] RI indication is always received after the actual URC / Actual data ▪ The URC configuration on the MUX channels is applied globally	
HYB-605	AUX	AUX command always says ERROR instead of OK even though AUX is successfully captured.	
HYB-261 HYB-603 ALT-4669	Auto-restore related	• [5.x] Module does not auto restore when the reboot counters reach to limit • If enable the NVBU auto-recovery feature, the carrier switch failed and auto recovery to default • [5.x] Module takes 5 minutes to restore "d:/>config/operator" file	
ALT1250-4573 ALT1250-4585	TCPS related	• [TCPS] Module crashes when starting TLS over TCP server with server authenticate. • [TCPS] Module can’t delete a TCP session when starting TLS over TCP server with server authenticate.	

ID	Title	Description	Impacted Domain
ALT1250-4594 ALT1250-4682 ALT1250-4723	AVMS related	• The bootstrap is complete on the SIM point of view, but Server didn't know that the SIM is bootstrapped. Customers will not be able to suspend, resume or terminate its subscription • Module crashes when send AT+WDSS=1,0 before the URC +WDSI: 23,1 • AVMS delta download failed from RD signed package to Sierra signed package	
ALT1250-4613	[KCARRIERCFG]-Module is stuck with +KSRAT=2 in T-Mobile network	Module is stuck with +KSRAT=2 in T-Mobile network.	
HYB-578 ALT1250-4609 ALT1250-4459	PSM / Hibernation	• [PSM] Module crashes when entering hibernate mode with embedded SIM after some period T3412 • High consumption in hibernation • [LPM] Module cannot go to hibernation with APN configured (IPv6)	

A: Appendix

A.1 Abbreviations and Definitions

Abbreviation/Acronym	Definitions
ATIP	IP services for direct communication over AT command interface, including AT+KTCP, AT+KUDP, AT+KHTTP, AT+KFTP
AVMS	Air Vantage Management Services
DTR	Data Terminal Ready
IMEI	International Mobile Equipment Identity
PPP	Point-to-Point Protocol
RRC	Radio Resource Control
SIM	Subscriber Identity Module
SINR	Signal to Interference plus Noise Ratio
UART	Universal Asynchronous Receiver Transmitter
URC	Unsolicited Result Code
USB	Universal Serial Bus

A.2 Related Documentation

Ref. #	Doc. #	Document title
[R-1]	41111821	AirPrime HL78xx AT Commands Interface Guide
[R-2]	41114133	HL781x - Product Technical Specification.pdf
[R-3]	41112256	AirPrime HL78xx Development Kit User Guide
[R-4]	2174229	AirPrime HL7800 Low Power Modes Application Note
[R-5]	2174213	AirPrime HL78xx Customization Guide Application Note
[R-6]	2174259	HL781x - FW Update Methods Application Note