SIERRA WIRELESS IS NOW
SEMTECH®

Modules

Customer Release Notes

HL7810, HL7812, and HL7845

October 2025

41114579 Rev. 13

Important Notice

Information relating to this product and the application or design described herein is believed to be reliable, however such information is provided as a guide only and Semtech assumes no liability for any errors in this document, or for the application or design described herein.

Semtech reserves the right to make changes to the product or this document at any time without notice. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. Semtech warrants performance of its products to the specifications applicable at the time of sale, and all sales are made in accordance with Semtech's standard terms and conditions of sale.

SEMTECH PRODUCTS ARE NOT DESIGNED, INTENDED, AUTHORIZED OR WARRANTED TO BE SUITABLE FOR USE IN LIFE-SUPPORT APPLICATIONS, DEVICES OR SYSTEMS, OR IN NUCLEAR APPLICATIONS IN WHICH THE FAILURE COULD BE REASONABLY EXPECTED TO RESULT IN PERSONAL INJURY, LOSS OF LIFE OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE. INCLUSION OF SEMTECH PRODUCTS IN SUCH APPLICATIONS IS UNDERSTOOD TO BE UNDERTAKEN SOLELY AT THE CUSTOMER'S OWN RISK. Should a customer purchase or use Semtech products for any such unauthorized application, the customer shall indemnify and hold Semtech and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs damages and attorney fees which could arise.

Wireless Communications

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. The Semtech 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. Semtech accepts no responsibility for damages of any kind resulting from delays or errors in data transmitted or received using the Semtech product, or for failure of the Semtech product to transmit or receive such data.

Safety

Do not operate the Semtech product in areas where blasting is in progress, where explosive atmospheres may be present, near medical equipment, near life support equipment, or near any equipment which may be susceptible to any form of radio interference. In such areas, the Semtech product should be powered off.

Qualcomm Licenses

Semtech's cellular modules are sold subject to certain notices and restrictions regarding patent licenses from Qualcomm Incorporated. These notices and restrictions are available at www.sierrawireless.com/qualcomm-notices.

Sierra Wireless

Semtech Corporation acquired Sierra Wireless in January 2023. The Sierra Wireless brand is gradually being phased out. During the phase-out period, references to both “Semtech” and “Sierra Wireless” may appear in product documentation.

Contact Information

Sales information and technical support, including warranty and returns	Web: sierrawireless.com/company/contact-us/ Global toll-free number: 1-877-687-7795 6:00 am to 5:00 pm PST
Corporate and product information	Web: sierrawireless.com

Revision History

Revision number	Release date	Changes
1	October 2022	Creation for Release 3.0 (Old naming HL78XX.5.4.10.0)
2	January 2023	Added Release 3.1 (Old naming HL78XX.5.4.12.1)
3	September 2023	Added Release 3.3 (Old naming HL78XX.5.4.12.3)
4	October 2023	Added Release 3.4 (Old naming HL78XX.5.4.13.2)
5	December 2023	Added Release 4 Added Release 4.1
6	March 2024	Added ALT1250-5604 known issue in Release 4.1
7	April 2024	Added Release 4.2 Updated to Semtech template
8	May 2024	Added ATSWI-491 under Table 9-2 in Release 4.2
9	January 2025	Added Release 4.3 and Release 6
10	April 2025	Updated description for HYB-1128
11	April 2025	Added Release 6.1
12	August 2025	Added Release 4.3.1
13	October 2025	Added Release 6.2

Contents

Important Notice . . . 2
Wireless Communications . . . 2
Safety . . . 2
Qualcomm Licenses . . . 2
Sierra Wireless . . . 3
Contact Information . . . 3
Revision History . . . 3

1: Introduction . . . 7
1.1 Document Scope . . . 7
1.2 Document Audience . . . 7

2: Compatibility . . . 8
2.1 Software Compatibility . . . 8

3: Released Files and Download Processes . . . 9

4: Release 6.2 . . . 10
4.1 Release Description . . . 10
4.1.1 Software Changes . . . 11
4.2 Known Issues . . . 13
4.3 Security Corrections/Improvements . . . 14

5: Release 6.1 . . . 15
5.1 Release Description . . . 15
5.1.1 Software Changes . . . 16
5.2 Known Issues . . . 17

6: Release 6 . . . 18
6.1 Release Description . . . 18
6.1.1 Software Changes . . . 19
6.2 Known Issues . . . 21

7: Release 4.3.1 23
7.1 Release Description 23
7.1.1 Software Changes 24
7.2 Known Issues 25

8: Release 4.3 26
8.1 Release Description 26
8.1.1 Software Changes 27
8.2 Known Issues 28

9: Release 4.2 29
9.1 Release Description 29
9.1.1 Software Changes 30
9.2 Known Issues 31

10: Release 4.1 32
10.1 Release Description 32
10.1.1 Software Changes 33
10.2 Known Issues 34

11: Release 4 35
11.1 Release Description 35
11.1.1 Software Changes 36
11.2 Known Issues 38

12: Release 3.4 (Previously HL78XX.5.4.13.2) 39
12.1 Release Description 39
12.1.1 Software Change Description 40
12.2 Known Issues 41

13: Release 3.3 (Previously HL78XX.5.4.12.3) 42
13.1 Release Description 42
13.1.1 Software Changes 43

13.2 Known Issues. 45

14: Release 3.1 (Previously HL78XX.5.4.12.1) 46

14.1 Release Identification 46

14.1.1 Software Changes 47

14.2 Known Issues. 49

15: Release 3.0 (Previously HL78XX.5.4.10.0) 50

15.1 Release Identification 50

15.1.1 Software Changes 51

15.2 Known Issues. 54

16: Restrictions 56

A: Appendix 57

A.1 Abbreviations and Definitions. 57

A.2 Related Documentation 57

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 510.11.2

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)
- Adding 7z file image for Windows upgrade to avoid Windows defender mistakenly identifying a Trojan in application file.

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

4: Release 6.2

4.1 Release Description

Table 4-1: Package Release Information

	Services (ATI9)
Modem Firmware Identification	HL7810.5.7.4.0 HL7812.5.7.4.0
Components	Chipset baseline: RK_03_02_00_00_52131_001 Legato RTOS: 25.07.0.FreeRTOS.w28 atSwi: 25.07.0.FreeRTOS.w28 UBOOT: 01.03 Apps: RKAPP_03_02_00_00_52041_002__1a93f0acffdd992b7e033c9b308602478bef8ac7 M1 MAC(HL7810): ALT1250_03_02_00_00_52131_FW M1 MAC(HL7812): ALT1250_03_02_00_00_52131_2G
Date of Generation	2025/07/15
IMEI SV	23
TS 25 PLMN List	16 June 2025 (ALT1250-5818)
Supported HW	HL7810, HL7812

4.1.1 Software Changes

This section describes all corrections or improvements integrated in Release 6.2.

Table 4-2: New Features and Improvements

ID	Title	Description	Impacted Domain
HYB-1180	Third-party FOTA termination	Added AT+WDSTPF=2 command to terminate in-progress third-party FOTA downloads, allowing recovery from poor network conditions during firmware updates.	FOTA
HYB-1324	CE/RED requirements for Cyber Security compliance	Implemented EN 303 645/EN 18031 cyber security requirements for CE/RED compliance. Removed default AT command password and implemented security enhancements.	System
ALT1250-5720	Band configuration AT command for NTN	Since the NTN has band 255/256, the bitmap is too hard to read and sets the wrong band. A new AT command to read/write band configuration is needed. Proposed changes: ▪ AT+KBND -> AT+KBNDLST AT+KBNDLST? +KBNDLST:<RAT>,<band list> Ex: KBNDLST=3,"23,255,256" ▪ AT+KBNDCFG -> AT+KBNDLSTCFG AT+KBNDLSTCFG=<RAT>,<band list> Ex: AT+KBNDLSTCFG=3,"23,255,256"	

Table 4-3: Bugs Resolved

ID	Title	Description	Impacted Domain
HYB-1320	Module not entering lite-hibernate in eDRX	Fixed issue where module would not return to lite-hibernate power mode after eDRX wake-up. Module now properly enters low power mode, improving battery life.	POWER
HYB-1304	AVDATARECV polling mode timeout	Fixed issue where URC was not received after 15-minute polling timer in AirVantage data receive mode. Module maintains connection to AirVantage Management System.	AVMS
HYB-1339	AVDATARECV buffer overflow	Fixed issue where AT+AVDATARECV returned truncated JSON data and CME ERROR 907 when data was not immediately retrieved. AT interface no longer locks and module reset is not required.	AVMS
HYB-1369	Module reboot via CMUX	Fixed module reboot occurring after approximately 80 minutes when continuously sending AT commands via CMUX. Module maintains stable operation during extended CMUX sessions.	System

Table 4-3: Bugs Resolved (Continued)

HYB-1416	CGATT command returns ERROR after detach	Fixed issue where AT+CGATT=1 returned ERROR after AT+CGATT=0 when more than 5 seconds elapsed. Module now properly re-attaches to network without errors.	System
HYB-1314	VZW Motive TC 11.02 firmware upgrade stall	Fixed firmware upgrade process stalling after reading firmware version during VZW Motive testing. LwM2M firmware update operations now complete successfully.	System
HYB-1335	CFUN power level not retained after reset	Fixed AT+CFUN=4,1 to properly retain power level 4 after module reset. Module now boots into the configured function level.	System
HYB-1490	UDP Commands Having Issues	Fixed UDP packet transmission failures. Module can now successfully send and receive UDP packets using AT+KUDPSND and AT+KUDPCFG commands over NTN networks.	System
HYB-1376	TCP data send failure	Fixed issue where module could not send TCP data when AT+KTCPCFG and AT+KTCPCNX commands were sent consecutively without delay. SSL connection now establishes properly.	Network
ALT1250-5820	KTCPSTART no response	Fixed issue where AT+KTCPSTART=1 command did not return CONNECT response for direct data flow TCP connections.	Network
ALT1250-5768	MQTT broker connection	Fixed MQTT broker connection failure regression. Module can now successfully establish MQTT connections.	Network
ALT1250-5825	TLS version configuration error	Fixed issue where AT+KSSLCFG=0,0 returned CME ERROR 916 when setting TLS version to "Highest possible".	System
ALT1250-5824	KHTTP_IND and KCNX_IND sequence	Fixed notification sequence for HTTP connections. +KCNX_IND now appears before +KHTTP_IND as expected.	System
ALT1250-5817	KSSLCRYPTO overwrites TLS version	Fixed issue where AT+KSSLCRYPTO command incorrectly changed the TLS version configured by AT+KSSLCFG.	System
ALT1250-5818	Operator name display	Fixed issue where AT+COPS? did not display operator name "Chunghwa Telecom" and returned empty string instead.	System
ALT1250-5819	CPSMS parameter validation	Fixed issue where AT+CPSMS=1,244,244,162,15 returned ERROR instead of accepting valid PSM timer parameters.	System
ALT1250-5221	SIM detect and deep hibernate	Fixed issue preventing module from entering deep hibernate modes when SIM detection GPIO was configured.	SIM

4.2 Known Issues

The following issues may be observed in Release 6.2.

ID	Title	Description	Impacted Domain
HYB-1517	AT%CULCKI returns unknown error +CME ERROR: 100	AT%CULCKI returns unknown error +CME ERROR: 100 while setting the network personalization info by AT%CULCKI="PN","00000000",1,"310410"	Network
HYB-1516	Module remains attached to network after multiple failed PIN attempts	When PIN lock is enabled and an incorrect PIN is entered three consecutive times, the module does not detach from the network as expected. Instead, the module remains connected to the network. This is a regression issue affecting PIN lock security functionality.	Network
HYB-1498	[+WDSTPF] Third party FOTA fails to resume after reset and module reboots continuously	Third party FOTA download not resuming after reset/power cycle while download is in progress exactly at +WDSI: 18,1 (if reset is done after +WDSI: 18,2 there is no issue) and module reboots automatically. Issue occurs after the reset/power cycle module, after +WDSI: 18 and before +WDSI: 18,2	FOTA
HYB-1480	[CLAC] AT+CLAC command does not include AT!UNLOCK and many other AT commands in its list	Many AT commands are missing from the list of AT+CLAC. The list is below: AT!UNLOCK (this command is not included in the AT Command Guide nor the AT+CLAC because of LeTP tests are being SKIPPED) AT%SCANCMD AT+CAINFO AT+KHTTPPROXY AT+KMQTTCFG AT+KMQTTCLOSE AT+KMQTTCNX …	
HYB-1479	The CCLK is incorrect after executing AT+KNTPSYNC command	FW 5.5.14 with NTP server is configured. After using AT+KNTPSYNC, CCLK returns an incorrect time.	NTP sync

HYB-1403	Undocumented NMEA sentence exceeds standard size	Undocumented $PSGSA NMEA sentence could cause problems with customer app because it exceeds the standard sentence size of 82 characters.	GNSS
HYB-1335	AT+CFUN power level settings not retained after device reset	When the AT+CFUN=4,1 command is used to set a specific power level, the setting does not persist after the device undergoes a reset. The device reverts to the default power level (CFUN: 1). This is a known modem component limitation. Users requiring specific power level configurations should reapply the AT+CFUN command after device resets as part of their initialization sequence.	AT

4.3 Security Corrections/Improvements

ID	Description	Impacted Domain
ALT1250-5769	Removed default AT command lock password	Core
ALT1250-5777	Restricted AT+WAMS to Level 3 lock	Core
ALT1250-5762	Protected AirVantage credentials	Core

5: Release 6.1

5.1 Release Description

Table 5-1: Package Release Information

	Services (ATI9)
Modem Firmware Identification	HL7810.5.7.3.0 HL7812.5.7.3.0
Components	Chipset baseline: RK_03_02_00_00_45021_001 Legato RTOS: 24.10.0.FreeRTOS.w43 atSwi: 24.10.0.FreeRTOS.w43 UBOOT: 01.03 Apps: RKAPP_03_02_00_00_44871_001__e0adbe80674d6e82d4967bdb092485b5a0195530 M1 MAC(HL7810): ALT1250_03_02_00_00_45021_FW M1 MAC(HL7812): ALT1250_03_02_00_00_45021_2G
Date of Generation	2025/01/06
IMEI SV	21
TS 25 PLMN List	23-Oct-2023 (ALT1250-5451)
Supported HW	HL7810, HL7812

5.1.1 Software Changes

This section describes all corrections or improvements integrated in Release 6.

Table 5-2: New Features and Improvements

ID	Title	Description	Impacted Domain
HYB-899	Release 17 NTN	Support for NTN features in Release 17: ▪ Adding support for Bands 255 and 256, 23 ▪ Update our FCC filing ▪ Testing with Skylo	Network

Table 5-3: Bugs Resolved

ID	Title	Description	Impacted Domain
HYB-1149	Adding support ICMP log mask	Refer AT command guide of +SWITRACEMODE	AT
HYB-1082	IFC and AT&K work incorrectly	The profile is not updated after changing AT&K0	System

5.2 Known Issues

The following issues may be observed in Release 6.1.

ID	Title	Description	Impacted Domain
HYB-1304	[AVMS] Cannot receive the data and URC after setting timer = 15 minutes in Polling mode	No URC shows and the DUT disconnects from AVMS at some point.	FOTA
HYB-1320	Module not going back to lite-hibernate power mode in eDRX	Module not going back to LPM in eDRX which drains the meter's battery	Power
HYB-1335	AT+CFUN=4,1 does not set <fun> power level after reset	Modem does not keep functionality after reset	System
HYB-1339	[AVMS] AT+AVDATARECV long time after notification generates a CME ERROR: 907 and locks AT i/f	AT+AVDATARECV command returns truncated data and CME ERROR 907 with module crashes	AVMS
HYB-1376	The module cannot send TCP data when sending +KTCPCFG and +KTCPCNX continuously	TCP not working on KTCPSND when sending +KTCPCFG and +KTCPCNX continuously	TCP
HYB-1358	HL7810 crash during NTN testing	Module crashes during MO/MT NIDD data	System
ALT1250-5221	Module cannot enter sleep mode when +KSIMDET is enabled	Module cannot enter sleep mode when +KSIMDET is enable	SIM

6: Release 6

6.1 Release Description

Table 6-1: Package Release Information

	Services (ATI9)
Modem Firmware Identification	HL7810.5.7.2.0 HL7812.5.7.2.0
Components	Chipset baseline: RK0302000436210 01 Legato RTOS: 24.10.0.FreeRTOS.w43 atSwi: 24.10.0.FreeRTOS.w43 UBOOT: 01.03 Apps: RKAPP_03_02_00_00_42831_012__a9591ae8197c6856cd9bbe5e66be200d0d05acac M1 MAC(HL7810,7845): ALT1250_03_02_00_00_43621_FW M1 MAC(HL7812): ALT1250_03_02_00_00_43621_2G
Date of Generation	2024/10/29
IMEI SV	20
TS 25 PLMN List	23-Oct-2023 (ALT1250-5451)
Supported HW	HL7810, HL7812

6.1.1 Software Changes

This section describes all corrections or improvements integrated in Release 6.

Table 6-2: New Features and Improvements

ID	Title	Description	Impacted Domain
HYB-916	MQTT Data Mode	Customers need the ability to send larger MQTT payloads including JSON strings which are not possible with the current MQTT Commands.	System
HYB-615	AT command to trigger a scan of available networks along with signal strength	AT command that can be used to scan for all networks in view without being attached or without requiring a SIM. This information can be used by the customer to determine the best signals in an area so they can select the ideal configuration of the module.	AT
HYB-647	Connection ID for DTLS Connection via AT Commands	The connection ID feature was added to the TLS spec 1.2. This request is to enhance existing ATIP commands to allow a customer to either specify a connection ID when acting as a server, or flag a request to use one when acting as the client.	AT
HYB-1014	Implement an AT command to check the GNSS RF link on customer's production line with a general signal simulator	Similar to WMTXPOWER or WMRXPOWER, this AT command allows the customer to test the GNSS interface of the module on the production line	AT
HYB-886	FreeRAN ISM Band	Several customers are interested in supporting FreeRAN using the ISM unlicensed band to provide Private network access on Cat-M. This feature implements an AT command to limit Band 8 to 925-928 Downlink and 902-915 Uplink.	Network
HYB-981	AV Data Send/Receive Enhancements	Implement new AT commands to send and receive data from Air Vantage	AT
HYB-1213	AT Command to change MTU Size	Customers have the need to change the MTU size given that different MNOs/MVNOs have varying requirements for this.	AT
HYB-974	Output an accurate timing signal on one pin of the module	Adds support for a 1PPS like signal, output on a module GPIO.	System
HYB-986	B107	Adds band 107 to supported band list.. (DL 1820-1830, UL 1800-1810)	Network
HYB-1032	B106	Adds support for B106 used by Anterix	Network
HYB-1164	Improve KSREP command timing	AT+KSREP? command contains a loop with 1s delay between 4 AT commands.it seems possible to improve the duration of those delays to something like 50ms/This would significantly improve FOTA and local Xmodem FW upgrade duration	AT

Table 6-3: Bugs Resolved

ID	Title	Description	Impacted Domain
HYB-451	PPP connection takes longer than necessary	Change the listen-time delay on the HL78 from 0 ms to 500 ms.	Network
HYB-1123	[SCAN]+SCANEND URC is not returned after switching RAT	+SCANEND URC is not returned after switching RAT	AT
HYB-1122	[GNSSAD] No OK returns for +GNSSAD=1, x	[GNSSAD] No OK returns for +GNSSAD=1, x	GNSS
HYB-954	When running HL781x One-click tool package on some PC, Windows defender identifies a potential risk (Trojan,...) and suggests avoiding running the file	When running One-click tool package of 5.5.8 on some customer's PC, Windows defender identifies a Trojan and deletes the file before customer can execute it.	SYSTEM
HYB-1178	Shows incorrect latitude and/or longitude	Customer is testing our HL7812 with an end customer in Indonesia. They are seeing an issue where the AT+GPSLOC? command returns incorrect Latitude/Longitude. This issue is very similar to this post => https://forum.sierrawireless.com/t/hl7812-gnssloc-bug/32519	GNSS
HYB-1023	Heartbeat, PDP context dropped	The customer activates the heartbeat from AV (15min) but every 15 minutes the modem drops the PDP context, without resuming it later on.	Network
HYB-1151	[HL7812] Incorrect location with AT+GNSSLOC close to 0 deg meridian	The customer discovered an incorrect location with AT+GNSSLOC in some locations close to 0 deg meridian.	GNSS
HYB-1128	[HL7810] Initialization Time Issue	Customer encountered an issue where the timing diagram for Unmanaged POWER_ON_N in the HL7810 is not accurate, leading to significantly longer cold start times. There was a T4 delay of 10 seconds (maximum), but customer also observed delays of over 20 seconds when no SIM card is present. This discrepancy results in prolonged test times and hinders effective communication with the module during startup.	SYSTEM
ALT1250-5701	HL781x potential flash corruption issue	Bug in software crash/exception handler may lead to flash memory being incorrectly overridden. Secure Boot would then fail, and the module becomes stuck in boot mode.	SYSTEM

6.2 Known Issues

The following issues may be observed in Release 6.

ID	Title	Description	Impacted Domain
HYB-1304	[AVDATARECV]Can't receive the data and URC after setting timer = 15mins in Polling mode	No URC shows and the DUT disconnects from AVMS at some point.	FOTA
HYB-1082	IFC and AT&K work incorrectly	The profile is not updated after changing AT&K0	System
HYB-1298	[HL7810] [KPPS] AT+KPPS pulse repetition parameter doesn't accept values other than 0 and 1	Can not set the pulse repetition to more than 1, also with AT+KPPS negative scenarios getting response "ERROR" instead "CME ERROR".	AT
ALT1250-5221	Module cannot enter sleep mode when +KSIMDET is enabled	Module cannot enter sleep mode when +KSIMDET is enabled	SIM

7: Release 4.3.1

7.1 Release Description

Table 7-1: Package Release Information

	Services (ATI9)
Modem Firmware Identification	HL7810.5.5.18.0 HL7812.5.5.18.0
Components	Chipset baseline: RK0302002840522002 Legato RTOS: 24.03.0.FreeRTOS.w10 atSwi: HL78XX.5.5.17.0-24.03.0.FreeRTOS.w10 UBOOT: 01.03 Apps: RKAPP_03_02_00_28_40241_009__202330eedada7474ed7ec6458d51b5c1899e2886 M1 MAC(HL7810,7845): ALT1250_03_02_00_00_40521_FW M1 MAC(HL7812): ALT1250_03_02_00_00_40521_2G
Date of Generation	2025/04/22
IMEI SV	22
TS 25 PLMN List	23-Oct-2023 (ALT1250-5451)
Supported HW	HL7810, HL7812

7.1.1 Software Changes

This section describes all corrections or improvements integrated in Release 4.3.1.

Table 7-2: Bugs Resolved

ID	Title	Description	Impacted Domain
HYB-1365	[HL7810] Unexpected pulse and failed to receive data during eDRX/Hibernate mode	Enter hibernation cycle for 81.92 seconds when temperature drops from 25 to –5 degrees. DL data will be lost.	eDRX

7.2 Known Issues

The following issues may be observed in Release 4.3.1.

ID	Title	Description	Impacted Domain
ALT1250-5221	Module cannot go into DH0/ DH1/DH2 due to SIM detect pin	If providing 1.8V on SIM detect pin (e.g. connect the SIM DET jumper) and AT+KSIMDET=1, the module cannot go into DH0/DH1/DH2 under PSM mode. It will stay on DS mode.	POWER
ALT1250-5604	[HL7812][Connectivity Ready][Simulator] TCs with North America GSM cells fail	**No service location** status was not immediately reported to the SIM right after the loss of service.	2G

8: Release 4.3

8.1 Release Description

Table 8-1: Package Release Information

	Services (ATI9)
Modem Firmware Identification	HL7810.5.5.17.0 HL7812.5.5.17.0 HL7845.5.5.17.0
Components	Chipset baseline: RK0302002840522002 Legato RTOS: 24.03.0.FreeRTOS.w10 atSwi: HL78XX.5.5.15.0-24.03.0.FreeRTOS.w10 UBOOT: 01.03 Apps: RKAPP_03_02_00_28_40241_009__202330eedada7474ed7ec6458d51b5c1899e2886 M1 MAC(HL7810,7845): ALT1250_03_02_00_00_40521_FW M1 MAC(HL7812): ALT1250_03_02_00_00_40521_2G
Date of Generation	2024/09/24
IMEI SV	18
TS 25 PLMN List	23-Oct-2023 (ALT1250-5451)
Supported HW	HL7810, HL7812

8.1.1 Software Changes

This section describes all corrections or improvements integrated in Release 4.3.

Table 8-2: Bugs Resolved

ID	Title	Description	Impacted Domain
HYB-980	[HL7810][AT] How to get serving cell EARFCN	EARFCN is shown as "<Earfcn> 0 - 0xFFFF Carrier frequency of the neighbor cell designated by the EUTRA Absolute Radio Frequency Channel Number (EARFCN) (Ref: 3GPP TS 36.101, 5.7.3)" In the test result (20231211_KCELL_Test_Result.xlsx), if "<nbLTEcells> 0 ≤ k ≤ 20 Number of LTE base stations available" was set to "1" , <earfcn> was not shown. This cell possibly includes the serving cell and if <nbLTEcells>=1 it indicates the serving cell. <earfcn> was not shown since <earfcn> was defined for a neighbor cell. Meanwhile, "cell_type" is showing "5" which means serving cell. <earfcn> is expected to show the neighbor cell but does not do as expected due to above result.	NETWORK
HYB-966	reset after at+kcellmeas=1	Tested HL7810 and faced an issue when at+kcellmeas=1 is sent.	SYSTEM
HYB-1135	[HL7810]Customer battery is lost due to module un-expected reboot	The customer shipped the module then battery is over within a few days. Then, they check send-back module, they found the module seems to be rebooted so many times.	POWER
ALT1250-5701	HL781x potential flash corruption issue	SSI informed SMTC that there is a possibility of flash corruption for ALT1250(RK3.2) using cold/warm start.	SYSTEM

8.2 Known Issues

The following issues may be observed in Release 4.3.

ID	Title	Description	Impacted Domain
ALT1250-5221	Module cannot go into DH0/ DH1/DH2 due to SIM detect pin	If providing 1.8V on SIM detect pin (e.g. connect the SIM DET jumper) and AT+KSIMDET=1, the module cannot go into DH0/DH1/DH2 under PSM mode. It will stay on DS mode.	POWER
ALT1250-5604	[HL7812][Connectivity Ready][Simulator] TCs with North America GSM cells fail	**No service location** status was not immediately reported to the SIM right after the loss of service.	2G

9: Release 4.2

9.1 Release Description

Table 9-1: Package Release Information

	Services (ATI9)
Modem Firmware Identification	HL7810.5.5.14.0 HL7812.5.5.14.0 HL7845.5.5.14.0
Components	Chipset baseline: RK0302000040522001 Legato RTOS: 23.12.0.FreeRTOS.w49 atSwi: HL78XX.5.5.13.0-23.12.0.FreeRTOS.w49 UBOOT: 01.03 Apps: RKAPP_03_02_00_00_40241_008__6f2182ee7bf4ecb5de5081714f10fdc863a2d28a M1 MAC(HL7810,7845): ALT1250_03_02_00_00_40521_FW M1 MAC(HL7812): ALT1250_03_02_00_00_40521_2G
Date of Generation	2024/02/07
IMEI SV	17
TS 25 PLMN List	23-Oct-2023 (ALT1250-5451)
Supported HW	HL7810, HL7812

9.1.1 Software Changes

This section describes all corrections or improvements integrated in Release 4.2

Table 9-2: Bugs Resolved

ID	Title	Description	Impacted Domain
HYB-958 ALT1250-5566	Under PSM, module still does location update thus preventing it from entering hibernation	Module no longer enters hibernate mode while VZW LWM2M is disabled.	POWER
HYB-915	In PSM, with LWM2M enabled after modem was moved to PSM sleep mode, modem wakes up after ~90sec and VGPIO stays high continuously	When VZW LWM2M is enabled, sometimes modem does not go into PSM sleep mode as expected while VGPIO stays high.	POWER
HYB-939 ALT1250-5350	RAI does not work	RRC is not released even after sending AT+CNMPSD.	POWER
HYB-951 ALT1250-5494	[VZW] +CGPADDR returns ERROR when config with all contexts is returned by AT+CGDCONT on VZW carrier	Executing AT command AT+CGPADDR=2,3,4,6,7,10,11 throws an error	Network
ALT1250-5559	HL78 crashes when using Altcom sockets from MCU	When using any kind of Altcom socket call on MCU, MAP would crash in lwip_select(). This prevents any MCU implementation from using sockets.	Network
HYB-961	Adding avoid "Same/different frequency cell search" / "Cell search repetition"	Added the following features: ▪ Avoid "Same/different frequency cell search" ▪ Avoid "Cell search repetition"	POWER
ALT1250-5541	Module crashes if LwM2M command inputs invalid syntax	Module crashes when executing some invalid LWM2M commands (DMSUPPORT, DMSESSION, DMREAD, DMFOTACFG).	Network
ALT1250-5495	[GCF_PTCRB] GEA2 algorithm is disabled by default	GCF and PTCRB mandates that GEA2 algorithm should be disabled by default.	Network
ALT1250-5594	Device cannot dial up when bit rate is 921600	PPP dialing using BaudRate:921600 will fail.	Network
ATSWI-491	PLMN format changed in AT+KCELL response	PLMN (MCC / MNC) in wrong format from +KCELL response	Network

9.2 Known Issues

The following issues may be observed in the Release 4.2.

ID	Title	Description	Impacted Domain
ALT1250-5221	Module cannot go into DH0/ DH1/DH2 due to SIM detect pin	If providing 1.8V on SIM detect pin (e.g. connect the SIM DET jumper) and AT+KSIMDET=1, the module cannot go into DH0/DH1/DH2 under PSM mode. It will stay on DS mode.	POWER
ALT1250-5604	[HL7812][Connectivity Ready][Simulator] TCs with North America GSM cells fail	**No service location** status was not immediately reported to the SIM right after the loss of service.	2G
HYB-966	Module resets after at+kcellmeas=1	No response nor reset happens when sending at+kcellmeas=1.	Network

10: Release 4.1

10.1 Release Description

Table 10-1: Package Release Information

	Services (ATI9)
Modem Firmware Identification	HL7810.5.5.8.0 HL7812.5.5.8.0 HL7845.5.5.8.0
Components	Chipset baseline: RK0302000034211001 Legato RTOS: 23.10.0.FreeRTOS.w41 atSwi: HL78XX.5.5.7.0-23.10.0.FreeRTOS.w41 UBOOT: 01.03 Apps: RKAPP_03_02_00_00_33241_004__869de8b6ed4b4a7d35a729d4e3fde1db0c676aff M1 MAC(HL7810,7845): ALT1250_03_02_00_00_34211_FW M1 MAC(HL7812): ALT1250_03_02_00_00_34211_2G
Date of Generation	2023/10/31
IMEI SV	16
TS 25 PLMN List	23-Oct-2023 (ALT1250-5451)
Supported HW	HL7810, HL7812

10.1.1 Software Changes

This section describes all corrections or improvements integrated in Release 4.1

Table 10-2: Bugs Resolved

ID	Title	Description	Impacted Domain
HYB-922	Module incorrect wake-up timing in eDRX cycle	Module does not wake up per 655 seconds as eDRX cycle and randomly at the interval of 17 to 20 minutes.	eDRX
ALT1250-5460	The DRX cycle work is not correct after module enters sleep mode	eDRX is NOT activated at the device side.	DRX
ALT1250-5459	No Paging Time Window after forcing the module to enter eDRX mode (DH1, DH2)	When device is in eDRX mode, the paging will be lost sometimes.	eDRX
ALT1250-5153	Cannot disable +DMFOTAIND	Even if AT+DMFOTAIND=0 was set, +DMFOTAIND URC still showed. FW reset does not solve the issue.	FOTA
HYB-825 LE-16930	No response on +KMQTT_IND: 1,4	Sometimes the +KMQTT_IND: 1,4 are not received, until the server publishes a message on a topic.	MQTT
LE-16952	NMEA sentence is not on time when module in eDRX mode	Under eDRX mode, the GNSS NMEA output is not always on time.	GNSS
ALT1250-5379	[HL78][GNSSNMEA] The syntax of the test command GNSSNMEA is wrong	The syntax of the test command GNSSNMEA is wrong.	GNSS
ALT1250-5479	UE failed at LTE-CATM1-4-9000 step 13 as SMS attempt fails.	AT&T_AVL LTE-CATM1-4-9000 TC failed at step 13	SMS

10.2 Known Issues

The following issues may be observed in the Release 4.1.

ID	Title	Description	Impacted Domain
HYB-915	Modem wakes up and VGPIO stays High continuously in PSM mode	In PSM, with LWM2M enabled after modem moved to PSM sleep mode, the modem wakes up after 90 seconds and VGPIO stays high continuously.	Power
HYB-958	VZW LWM2M preventing PSM mode	Module is not entering PSM hibernate mode when VZW LWM2M is disabled causing higher than normal current consumption.	Power
HYB-951	[HL7810] at+cgpaddr contexts listed fails	Executing AT command AT+CGPADDR=2,3,4,6,7,10,11 throws an error	Network
HYB-939	RAI not enabled by default	Command to enable RAI is protected and cannot be run by customers. Next release will introduce a new standard command.	Power
ALT1250-5604	[HL7812][Connectivity Ready][Simulator] TCs with North America GSM cells failed	**No service location** status was not reported to the SIM right after service loss.	2G

11: Release 4

11.1 Release Description

Table 11-1: Package Release Information

	Services (ATI9)
Modem Firmware Identification	HL7810.5.5.5.0 HL7812.5.5.5.0 HL7845.5.5.5.0
Components	Chipset baseline: RK0302000033852001 Legato RTOS: 23.09.0.FreeRTOS.w38 atSwi: 23.09.0.FreeRTOS.w38 UBOOT: 01.03 Apps: RKAPP_03_02_00_00_33241_004__869de8b6ed4b4a7d35a729d4e3fde1db0c676aff M1 MAC(HL7810,7845): ALT1250_03_02_00_00_33852_FW M1 MAC(HL7812): ALT1250_03_02_00_00_33852_2G
Date of Generation	2023/10/02
IMEI SV	15
TS 25 PLMN List	28-Aug-2023 (ALT1250-5423)
Supported HW	HL7810, HL7812

11.1.1 Software Changes

This section describes all corrections or improvements integrated in Release 4.

Table 11-2: New Features and Improvements

ID	Title	Description	Impacted Domain
HYB-658	Support for AT/NMEA on UART0	Add ability to output NMEA frames on UART0.	GNSS
HYB-754	Enhance AT+GNSSNMEA command to support output of PSEPU	NMEA PSPEU sentence need to be supported in le_gnss.	GNSS
HYB-711	Ability to force an NTP sync with an AT command	Support +KNTPSYNC SWI at command	System
HYB-650	GNSS algorithms for stationary applications	Add a setting for the GNSS engine that optimizes for stationary applications.	GNSS
HYB-816	AT Command for URC to indicate PSM Mode	Add AT URC that indicates when the module has entered and exited PSM mode.	System
HYB-847	AT Command to report FW package identifier	Add a new AT command which will return a 4-digit product release number in the format.	System

Table 11-3: Bugs Resolved

ID	Title	Description	Impacted Domain
HYB-668	When in eDRX, the GNSS accuracy is strongly degraded	GNSS accuracy performance improvement in eDRX.	GNSS
HYB-834	HL7810 Modem not sending URC +WDSI:16 during Differential Image FWDL downgrade/upgrade	Fix +WDSI:16 no show when using XMODEM to upgrade/downgrade FW	XMODEM
HYB-849	HL7810 Modem not sending URC +WDSI:16 during Differential Image FWDL downgrade/upgrade	CTS assert for SWITRACEMODE AT is not aligned with KSUP.	FOTA
HYB-884 HYB885	HL7810: KORE SIM profile download issue: after enabling AT&T/VZW profile modem seems to become unstable and ends up powering down the SIM	FW crashes when devrc parses SIM proactive command.	System
HYB-919	HL7810 SIM detection with AT+KSIMDET not working in 5.5.4	Customer boards have 2 external SIMs with an onboard analog switch to select the active SIM. AT+KSIMDET is enabled and controlled via GPIO 5. They have two other GPIOs connected to the analog switch to select the current SIM.	System
HYB-783	With Cell_OFF and module configured to output NMEA frames on UART1 or UART0, modules reset after ~24 hours	Initially this crash was monitored in HYB-686 as the symptom on the host side were similar (FW crash); but the logs collected were highlighting something that is totally different (most likely related to the protocol stack and not the GNSS code).	GPS

Table 11-3: Bugs Resolved (Continued)

ID	Title	Description	Impacted Domain
HYB-907	+FWPACKAGEID missing year string	+FWPACKAGEID will catch build time and output HL7810.YY.MM.DD.HH to a firmware package identifier.	System
HYB-910	HL7810 / AT+GNSSCONF? Returns ERROR for the third response line	Remove PoLTE usage in +GNSSCONF.	GNSS
HYB-891	Different upgrade from 5.5.1->5.5.3 fails	AT client supports inputs after WDSI:16 display.	FOTA
HYB-913	HL7810 PSEPU sentences stop printing	It happened when the sentence is not yet completely written out to the AT port. A new sentence comes up hence will drop new one.	GNSS

11.2 Known Issues

The following issues may be observed in the Release 4.

ID	Title	Description	Impacted Domain
HYB-922	HL7810 Unit is not following eDRX cycle wake-up for eDRX cycle configuration of 655 seconds and PTW of 5.12 seconds	Customer is observing that the unit is not waking for every eDRX cycle of 655 seconds and is waking up randomly at the interval of 17 to 20 minutes.	eDRX
ALT1250-5459	No Paging Time Window after forcing the module to enter eDRX mode (DH1, DH2)	When device is in eDRX mode paging is sometimes lost.	eDRX
ALT1250-5460	The DRX cycle work is not correct after module enters sleep mode	eDRX is NOT activated at the device side.	DRX
HYB-825 LE-16930	+KMQTT_IND: 1,4 not received sometimes	Sometimes the +KMQTT_IND: 1,4 are not received, until the server publishes a message on a topic.	MQTT
LE-16952	SSI NMEA got crash when GNSS+eDRX (NB-IoT) is running	Under eDRX the GNSS NMEA output is not always on time.	GNSS
ALT1250-5379	[HL78][GNSSNMEA] The syntax of the test command GNSSNMEA is wrong	The syntax of the test command GNSSNMEA is wrong.	GNSS

12: Release 3.4 (Previously HL78XX.5.4.13.2)

12.1 Release Description

Table 12-1: Package Release Information

	Services (ATI9)
Modem Firmware Identification	HL7810.5.4.13.2 HL7812.5.4.13.2 HL7845.5.4.13.2
Components	Chipset baseline: RK0302000024271001 Legato RTOS: 23.01.0.FreeRTOS.w02.1 atSwi: 23.01.0.FreeRTOS.w02.1 UBOOT: 01.03 Apps: RKAPP_03_02_00_00_24141_003__8c58020c3faa979ee7380bc905d0267fc2aed66e M1 MAC(HL7810,7845): ALT1250_03_02_00_00_24271_FW M1 MAC(HL7812): ALT1250_03_02_00_00_24271_2G
Date of Generation	2023/03/23
IMEI SV	12
TS 25 PLMN List	07-Nov-2022 (ALT1250-5096)
Supported HW	HL7810, HL7812, HL7845

12.1.1 Software Change Description

This section describes all corrections or improvements integrated in Release 3.4

Table 12-2: New Features and Improvements

ID	Title	Description	Impacted Domain
HYB-696	[LwM2M] Add GPIO2 asserting trigger as RI for LwM2M packet	Add support RI indication for these LWM2M URCs: +DMEVENT, +DMAPPCMDIND and +DMFOTAIND.	LWM2M
HYB-769	[LwM2M] Cannot enable Object19 instance 1-2	The %setacfg and %getacfg cannot read/ write the resource from lwm2m_dir.	LWM2M

Table 12-3: Bugs Resolved

ID	Title	Description	Impacted Domain
HYB-771	+KSUP is shown every LwM2M related URC	+KSUP was shown in every LwM2M related URC, which should not be sent.	LWM2M
HYB-766	[LwM2M] Update CID2 APN	Update the CID2's APN from "docomodev.net" to "dcmiot.net".	LWM2M
ALT1250-5050	Failed to upgrade FW via FOTA with customer server	Installation not proceeding upon FW download from customer's server. Module still uses old FW.	FOTA
ALT1250-5153	Cannot disable +DMFOTAIND	Even if AT+DMFOTAIND=0 was set, +DMFOTAIND URC still showed. FW reset does not solve the issue.	FOTA

12.2 Known Issues

The following issues may be observed in the Release 3.4.

ID	Title	Description	Impacted Domain
ALT1250-5103	Error response on AT+ KTCPSTART	Module does not respond for KTCPSTART if secure connection is unsuccessful.	TCP
ALT1250-5089	AT character error when the module is in USB mode	In USB mode, the module does not respond with the final character of AT command. Need to enter again to execute the command.	USB
ALT1250-5085	Module reboots in eDRX mode to different cell coverage	[HL78xx][VZW][eDRX] The module unexpectedly reboots after re-attaching Verizon network (the cell is changed). 10% reproduced rate.	eDRX
HYB-783, ALT1250-5177	GNSS cold start fails on AT+GNSSTART	▪ With Cell_OFF and module configured to output NMEA frames on UART1 or UART0, modules reset after 24 hours. ▪ +GNSSEV does not display when starting and stopping GNSS in USB port.	GNSS
ALT1250-4877	WDSI response incorrect during FOTA stress test	Module does not display "+WDSI: 14" after "+WDSI: 10" and installs package about 16 minutes later during FOTA stress test.	FOTA

13: Release 3.3 (Previously HL78XX.5.4.12.3)

13.1 Release Description

Table 13-1: Package Release Information

	Services (ATI9)
Modem Firmware Identification	HL7810.5.4.12.2 HL7812.5.4.12.2 HL7845.5.4.12.2
Components	Chipset baseline: RK0302002224731001 Legato RTOS: 23.01.0.FreeRTOS.rc2 atSwi: 23.01.0.FreeRTOS.rc2 UBOOT: 01.03 Apps: RKAPP_03_02_00_22_24651_001__38231c6d829dbf9c71390d591eff7fc36cfd187b M1 MAC(HL7810,7845): ALT1250_03_02_00_22_24731_FW M1 MAC(HL7812): ALT1250_03_02_00_22_24731_2G
Date of Generation	2023/03/31
IMEI SV	12
TS 25 PLMN List	07-Nov-2022 (ALT1250-5096)
Supported HW	HL7810, HL7812, HL7845

13.1.1 Software Changes

This section describes all corrections or improvements integrated in Release 3.3

Table 13-2: New Features and Improvements

ID	Title	Description	Impacted Domain
ALT1250-5058	Verizon Context 3 is deleted after KUDPCLOSE and recreated. It can take up to 6 minutes for the context to be re-created.	KUDPCLOSE and KTCPCLOSE will deactivate the PDN used by the socket if there are no other sockets using the context. The solution is updating KUDPCLOSE and KTCPCLOSE to only deactivate PDN if the PDN was inactive at the time of socket creation, leave it activated otherwise.	Network
HYB-665	RI not triggered when moving from PSM to eDRX	Customer will close network before eDRX configuration and closing network will close udp socket, so here add udp socket auto creation while network is back.	Network
ALT1250-5096	TS.25 List is not updated and is now obsolete for GCF certification	Provide a way to update the list without changing the FW	Standards and Carrier compliance

Table 13-3: Bugs Resolved

ID	Title	Description	Impacted Domain
ALT1250-4963	[HL78xx] [KTCPCFG] [KUDPCFG] Restore session on boot works incorrect	There is a race condition that MRC reports NetworkRegEventId event before service is ready. Adding a delay reporting to service and KUDPCFG restore on boot to resolve it.	Network
HYB-714	Modem crash observed on Rev.13 Modem FW test build	The rare possibility causing the modem boot-up failure, this issue can be observed by a long-time loop test.	System
HYB-713	Modem gives ERROR response for AT+KUDPRCV cmd on REV.13 build	When modem is woken up by host, UART will generate non-ASCII garbage characters in buffer top. The solution is to add a function to skip garbage characters before "AT" in at_client.	AtClient
HYB-699	RI is halted permanently after receiving KUDP_DATA buffer by host and do not trigger AT+KUDPRCV	RI is halted permanently if module provides KUDP_DATA URC and host didn't run AT+KUDPRCV accordingly. So we add data_mode=2 to set a timeout to drop KUDP_DATA URC if it is not needed.	Network
HYB-706	KUDPCFG? gives unexpected response even if UDP session is already created	There is a race condition that MRC reports NetworkRegEventId event before AtSwi is ready. Added a delay reporting to AtSwi and KUDPCFG restore on boot to resolve it.	Network
ALT1250-5056	Module becomes unresponsive when re-opening DLC	Trigger CMUX/Open DLC/Close DLC/Re-Open DLC cannot send AT commands.	CMUX
ALT1250-4964	AT+KGPIOCFG missing some pins	Typo of weshdown code transferring results in this issue. Correct the typo to fix it.	GPIO

Table 13-3: Bugs Resolved (Continued)

ID	Title	Description	Impacted Domain
HYB-692	UDP URC is coming after delay of 300-400ms after RI interrupt.	The RI indication signal is slower than UDP URC. Customer requests RI indication first then URC, so removing Legato event notification and directly call RI function to let RI first and URC later.	KRIC
ALT1250-4832	+KMON=1 is not persistent	"AT+KMON=1 being not persistent" leads to inability to debug crash issues because the crash log is never fully returned.	Debug
HYB-659	HL7810 unable to process AT commands immediately after CTS Assert once after PowerOff followed by PowerOn		System
HYB-690	HL7810 - Modem appending extra <CR><LF> for CONNECT when AT+KUDP_RCV cmd is triggered as part of UDP Rx	Introduce extra <CR><LF> at specific version of HYB to work around the MCU and modem AT bridge issue. Align with EURY, removing extra <CR><LF> due to MCU is obsolete.	AT proxy
HYB-696	Add GPIO2 asserting trigger as RI for LwM2M packet	Add support RI indication for these LWM2M URCs: +DMEVENT, +DMAPPCMDIND and +DMFOTAIND. A new RI mask will be added to +KRIC in Legato. In FW side, signal will be sent to Legato to request RI indication for these LWM2M URCs: +DMEVENT, +DMAPPCMDIND and +DMFOTAIND.	Modem RI
ALT1250-4693	SIMAPPINT TC 8.1.2 - UE fails to connect to admin PDN	Type 4 LTE CAT M1 IMS-LESS Force Polling, UE fails to connect to admin PDN	Certification
ALT1250-4311	Returned Altair FW version instead of SWI FW version	Customer saw "ALT1250xxx" issue in the field when they performed FOTA update for XMODEM from FW4.6.6.0 to FW4.6.9.2.	System
ALT1250-5009	TC 4.05 Device Type returns Cellular IoT Chipset	VZW requires that the default Device Type of LwM2M should be "IoT Module".	Certification
ALT1250-5019	TC 4.06 HW version is shown as A.B	TC 4.06 HW version is shown as A.B. HW version information should be improved to show 1.0.	Certification
ALT1250-5032, HYB-686	With Cell_OFF and module configured to output NMEA frames on UART1, modules reset after 6-7 hours	As the AT port is switched to data mode for NMEA sentences stream, every +GNSSEV URC sent to this port will be stored in a double linked list. The stored URCs are increased and drain our very limited RAM memory. Then, a crash happens when new memory allocation failed. The solution is disable +GNSSEV URC while NMEA sentences are streaming.	GNSS
HYB-682	GNSS cold start is not applied when trying to activate it with AT+GNSSSTART	AT+GNSSSTART was designed to start GNSS by command at+ignssact=1, change the design to start GNSS cold mode by using command AT+IGNSSACT=1,1	GNSS

13.2 Known Issues

The following issues may be observed in the Release 3.3.

ID	Title	Description	Impacted Domain
ALT1250-5103	Error response on AT+ KTCPSTART	Module does not respond for KTCPSTART if secure connection is unsuccessful.	TCP
ALT1250-5089	AT character error when the module is in USB mode	In USB mode, the module does not respond with the final character of AT command. Need to enter again to execute the command.	USB
ALT1250-5085	Module reboots in eDRX mode to different cell coverage	[HL78xx][VZW][eDRX] The module unexpectedly reboots after re-attaching Verizon network (the cell is changed). 10% reproduced rate.	eDRX
HYB-783, ALT1250-5177	GNSS cold start fails on AT+GNSSTART	▪ With Cell_OFF and module configured to output NMEA frames on UART1 or UART0, modules reset after 24 hours. ▪ +GNSSEV does not display when starting and stopping GNSS in USB port.	GNSS
ALT1250-4877	WDSI response incorrect during FOTA stress test	Module does not display "+WDSI: 14" after "+WDSI: 10" and installs package about 16 minutes later during FOTA stress test.	FOTA

14: Release 3.1 (Previously HL78XX.5.4.12.1)

14.1 Release Identification

Table 14-1: Package Release Information

	Services (ATI9)
Modem Firmware Identification	HL7810.5.4.12.1 HL7812.5.4.12.1 HL7845.5.4.12.1
Components	Chipset baseline: RK0302000024271001 Legato RTOS: 22.10.0.FreeRTOS.w43 atSwi: 22.10.0.FreeRTOS.w43 UBOOT: 01.03 Apps: RKAPP_03_02_00_00_24141_003__8c58020c3faa979ee7380bc905d0267fc2aed66e M1 MAC(HL7810,7845): ALT1250_03_02_00_00_24271_FW M1 MAC(HL7812): ALT1250_03_02_00_00_24271_2G
Date of Generation	2022/11/02
IMEI SV	12
TS 25 PLMN List	7 June 2021
Supported HW	HL7810, HL7812, HL7845

14.1.1 Software Changes

This section describes all corrections or improvements integrated in 5.4.12.1.

Table 14-2: New Features and Improvements

ID	Title	Description	Impacted Domain
Network			
HYB-330	IPv6 Address	IPv6: add ability to fix the lowest 64 bits of the IPv6 address, please see AT command guide for details of AT+KIPVSIXI.	
HYB-102	RF	Added antenna tuner support on HL7845	
Standards and Carrier Compliance			
HYB-348	Orange Approval - HL7812	Initial approval of HL7812 at Orange	

Table 14-3: Bugs Resolved

ID	Title	Description	Impacted Domain
ALT1250-4721 ALT1250-4726	CMUX URC Behavior	Issues: ▪ The URC configuration on the MUX channels are applied globally. ▪ Change CMUX RTS signal are always in hardware flow control.	
HYB-261 HYB-127 HYB-603	NVBU / Auto restore	Issues: ▪ Module does not auto restore when the reboot counters reach its limit ▪ Module takes 5 minutes to restore ▪ Factory fresh units crash/NV restore when changing KCARRIERCFG	
HYB-573 ALT1250-4744 ALT1250-4720 ALT1250-4615 ALT1250-4561 ALT1250-4265	Incorrect Ring Indicator behavior	Issues: ▪ RI Pulse on CGREG and CREG State change ▪ CGREG and CEREG always share the same status ▪ PPP for RI, the duration setting is incorrect ▪ PPP for RI, the duration should be configurable ▪ PPP for RI, did not handle the send data package ▪ Module returns URC +CEREG after attaching or detaching from the network although disable network registration is an unsolicited result code +CEREG	

Table 14-3: Bugs Resolved (Continued)

ID	Title	Description	Impacted Domain
ALT1250-4907 ALT1250-4585 ALT1250-4573	TCP / UDP	Issues: ▪ The module crashes when sending different combinations of dashes, plus and text to UDP server ▪ Module can't delete a TCP session when starting TLS over TCP server with server authenticate. ▪ Module crashes when starting TLS over TCP server using server authentication.	
ALT1250-4613 ALT1250-4772	KSRAT	Module is stuck with +KSRAT=2 when using the T-Mobile network.	
HYB-606	PINGCMD	PINGCMD causing a crash when issued from CLI/DEBUG port	
HYB-605	AUX	AUX command always say ERROR instead of OK even though AUX is successfully captured .	
ALT1250-4594 ALT1250-4682	AVMS related	Issues: ▪ During bootstrap, unsolicited message responded incorrectly, so module could not receive the OTA message ▪ [AVMS][WDSS]-Module crashes when send AT+WDSS=1,0 before the URC +WDSI: 23,1	
Low Power Mode			
ALT1250-4459	[LPM] Module cannot go to hibernation with APN configured	Configure APN for PDP context 1 and reset module. Make sure the module is attached to network, then configure eDRX or PSM. Configure module to go to hibernate mode using command AT+KSLEEP=1.	
ALT1250-4609	[PSM] Module crashes when entering into hibernate mode with embedded SIM after some period T3412	Module crashes when entering to hibernate mode with embedded SIM after some period T3412.	
HYB-578	High current consumption with DRX=320ms	High current consumption in hibernation mode with DRX=320ms	

14.2 Known Issues

The following issues may be observed in the Release 3.1.

ID	Title	Description	Impacted Domain
HYB-713, HYB-706, HYB-699	Error response on AT+ KUDPRCV	▪ Sometimes Modem gives ERROR response for AT+KUDPRCV cmd. ▪ Sometimes KUDPCFG? gives unexpected response even if UDP session is already created. ▪ RI getting halted permanently after receiving KUDP_DATA buffer by host and does not trigger AT+KUDPRCV.	UDP
ALT1250-4963	Error response on AT+ KTCPSTART	[HL78xx] [KTCPCFG] [KUDPCFG] Restore session on boot works incorrectly.	TCP
ALT1250-5085	Module reboots in eDRX mode to different cell coverage	[HL78xx][VZW][eDRX] The module unexpectedly reboots after re-attaching Verizon network (the cell is changed). 10% reproduced rate.	eDRX
HYB-682	GNSS cold start fail on AT+GNSSSTAR	GNSS COLD start is not applied when trying to activate it with AT+GNSSSTART	GNSS
HYB-659	AT command fail in power sequency	HL7810 unable to process AT commands immediately after CTS Assert once after PowerOff followed by PowerOn.	System
HYB-665, HYB-692	Ring Indicator fails when moving from PSM to eDRX	▪ RI is not triggered when moving from PSM to eDRX. ▪ UDP URC is coming after a delay of 300-400ms after RI interrupt.	Ring Indicator
ALT1250-4964	Error response on AT+KGPIOCFG	AT+KGPIOCFG missing some pins setting.	GPIO
ALT1250-4832	Crash log not return	"AT+KMON=1 being not persistent" leads to inability to debug crash issues because the crash log is never fully returned.	Debug
ALT1250-4980	KHTTPHEADER format not correct	[HL78xx] [KHTTPHEADER] Module lost "-" in AT+KHTTPHEADER sending	HTTP
ALT1250-4877	WDSI response incorrect during FOTA stress test	Module does not display "+WDSI: 14" after "+WDSI: 10" and installs package about 16 minutes later during FOTA stress test.	FOTA

15: Release 3.0 (Previously HL78XX.5.4.10.0)

15.1 Release Identification

Table 15-1: Package Release Information

	Services (ATI9)
Modem 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

15.1.1 Software Changes

This section describes all corrections or improvements integrated in Release 3.0.

Table 15-2: 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.	
HYB-379	NIDD	Add support for NIDD (Non-IP Data Delivery)	
HYB-244	GCF on HL781x	Initial GCF Approval	
HYB-12	PTCRB on HL781x	Initial PTCRB Approval	

Table 15-3: 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 15-3: 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.	
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 15-3: 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.	
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
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

15.2 Known Issues

The following issues may be observed in the Release 3.0.

ID	Title	Description	Impacted Domain
ALT1250-4721, ALT1250-4726	Design change for CMUX URC Behavior	▪ The URC configuration on the MUX channels is applied globally. ▪ Change CMUX RTS signal always be hardware flow control.	CMUX
HYB-261, HYB-127, HYB-603	Improvement of NVBU/Auto restore algorithm	▪ Module does not auto restore when the reboot counters reach the limit. ▪ Module takes 5 minutes to recover the configs. ▪ When NVBU automatic mode is enabled, the module switch to other carriers will cause recovery back to the original carriers.	NVBU
HYB-573, ALT1250-4744, ALT1250-4720, ALT1250-4615, ALT1250-4561, ALT1250-4265	Incorrect Ring Indicator behavior on CGREG and CREG State change	▪ No RI Pulse on CGREG state change. ▪ CGREG and CEREG always share the same status. ▪ The RI duration setting is not correct, and it makes the RI not pulse. ▪ The RI pulse duration is not configu-rable for PPP. ▪ RI for PPP did not handle sending the data package. ▪ AT+CEREG/+CREG/+CGREG URC enabling/disabling setting is not retained during the power cycle.	Ring Indicator
ALT1250-4907, ALT1250-4585, ALT1250-4573	Module crash on operation of TCP/UDP	▪ The module crashes when sending different combinations of dashes, plus and text to UDP server. ▪ Module can’t delete a TCP session when starting TLS over TCP server with server authenticate. ▪ Module crashes when starting TLS over TCP server using server authentication.	TCP/UDP
ALT1250-4613, ALT1250-4772	+KSRAT=2 not working properly	▪ Module stuck after attaching network in T-Mobile. ▪ Module enters into a loop of resets.	Network
HYB-606	PINGCMD causing a crash when issued from CLI/DEBUG port	The module will crash when using +PINGCMD command to ping host in CLI port.	Debug tool
ALT1250-4594	[HL7812] Module replies with incorrect EDM notifications	Issue found during Bootstrap testing, module responses are incorrect EDM notifications.	R2C
ALT1250-4682	[AVMS][WDSS] Module crashes when sending AT+WDSS=1,0 before the URC +WDSI: 23,1	Module crashes when trying to connect to Octave company server.	AVMS

ID	Title	Description	Impacted Domain
ALT1250-4459	[LPM] Module cannot go to hibernation with APN configured	Configure APN for PDP context 1 and reset module. Make sure the module is attached to the network, then configure eDRX or PSM. Configure module by going to hibernate mode using command AT+KSLEEP=1, then module cannot go into hibernation.	Low Power Mode
ALT1250-4609	[PSM] Module crashes when entering into hibernate mode with embedding SIM after some period T3412		Low Power Mode
HYB-578	High current consumption with DRX=320ms		Low Power Mode

16: Restrictions

This section presents additional information or restrictions that should be considered for Release 3.x.

Feature	Description (What/When)	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

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	HL78xx AT Commands Interface Guide
[R-2]	41114133	HL781x Product Technical Specification
[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