



# AirPrime HL7688

## Firmware A.2.11 Customer Release Note



**SIERRA**  
WIRELESS®

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## Important Notice

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 modem are used in a normal manner with a well-constructed network, the Sierra Wireless modem 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 modem, or for failure of the Sierra Wireless modem to transmit or receive such data.

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Do not operate the Sierra Wireless modem in areas where cellular modems are not advised without proper device certifications. These areas include environments where cellular radio can interfere such as explosive atmospheres, medical equipment, or any other equipment which may be susceptible to any form of radio interference. The Sierra Wireless modem can transmit signals that could interfere with this equipment. Do not operate the Sierra Wireless modem in any aircraft, whether the aircraft is on the ground or in flight. In aircraft, the Sierra Wireless modem **MUST BE POWERED OFF**. When operating, the Sierra Wireless modem can transmit signals that could interfere with various onboard systems.

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*Note: Some airlines may permit the use of cellular phones while the aircraft is on the ground and the door is open. Sierra Wireless modems may be used at this time.*

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The driver or operator of any vehicle should not operate the Sierra Wireless modem while in control of a vehicle. Doing so will detract from the driver or operator's control and operation of that vehicle. In some states and provinces, operating such communications devices while in control of a vehicle is an offence.

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Corporate and product information	Web: <a href="http://sierrawireless.com">sierrawireless.com</a>

# Document History

Version	Date	Updates
1.0	April 26, 2018	Creation



# Contents

<b>1. INTRODUCTION .....</b>	<b>7</b>
1.1. Document Scope .....	7
1.2. Main Features .....	7
<b>2. ABBREVIATIONS AND DEFINITIONS .....</b>	<b>8</b>
<b>3. RELATED DOCUMENTATION .....</b>	<b>9</b>
<b>4. COMPATIBILITY .....</b>	<b>10</b>
<b>5. SOFTWARE RELEASE DESCRIPTION .....</b>	<b>11</b>
5.1. Release Identification .....	11
5.2. Software Tools Versions .....	11
5.3. Released Files .....	11
<b>6. SOFTWARE CHANGES .....</b>	<b>12</b>
<b>7. RESTRICTIONS AND KNOWN ISSUES .....</b>	<b>14</b>
<b>8. TROUBLESHOOTING .....</b>	<b>15</b>
<b>9. CERTIFICATION .....</b>	<b>16</b>



# List of Tables

Table 1.	Main Features.....	7
Table 2.	Abbreviations and Definitions.....	8
Table 3.	Firmware Release Information .....	11
Table 4.	Software Tools Versions .....	11
Table 5.	Released Files.....	11
Table 6.	Validates Corrections and Improvements .....	12
Table 7.	Restrictions and Known Issues .....	14



# 1. Introduction

## 1.1. Document Scope

This document is the Firmware A.2.11 for AT&T customer release note of the HL7688. Firmware A.2.11 is a maintenance release based on Firmware A.2.10.

## 1.2. Main Features

Table 1. Main Features

Feature	Description
LTE	Wireless stack and 3GPP AT commands
Diversity	1x Main Antenna and 1x RX Diversity
USB/UART interface	USB 2.0 and UART serial interface, V24 AT commands
USB/UART	USB 2.0 interface and UART serial interface
SIM	SIM access AT commands
GPIO	12 GPIO interfaces and related control AT commands
Cell information/monitoring	Cell information/monitoring AT commands
Band	Band RAT configurations AT commands
RF test	RF TX and RX test AT commands
AVMS	AirVantage FOTA
Temperature Monitor	Temperature Monitor AT command
Delta Firmware update	Download with 1K X-modem/FOTA, delta Firmware format supported
DSSS / Fast SIM switch	Dual SIM Single Standby with fast SIM switch capability
Audio PCM	Audio PCM bus and related control audio/voice AT commands



## 2. Abbreviations and Definitions

Table 2. Abbreviations and Definitions

Abbreviation/Acronym	Definitions
ADC	Analog Digital Converter
DV1	Development verification build #1
GPIO	General Purpose Input Output
PCM	Pulse Code Modulation
PWM	Pulse Width Modulation
SIM	Subscriber Identity Module
UART	Universal Asynchronous Receiver Transmitter
UICC	Universal Integrated Circuit Card
USB	Universal Serial Bus



## 3. Related Documentation

- [1] AirPrime HL7688 Product Technical Specification  
Reference number: 4119272
- [2] AirPrime HL76xx AT Commands Interface Guide  
Reference number: 4118395
- [3] AirPrime HL7 Series Firmware Download User Guide  
Reference number: 4116153

## 4. Compatibility

This firmware is compatible with DV1 or newer versions of the AirPrime HL7688.



# 5. Software Release Description

## 5.1. Release Identification

Table 3. Firmware Release Information

<b>Modem Firmware Identification (ATI3)</b>	RHL7688.A.2.11.3.0.151600.201712141833.x7160_1
<b>Full Firmware Identification (ATI10)</b>	Modem-Firmware: RHL7688.A.2.11.3.0.151600.201712141833.x7160_1 Primary-Boot: RHL7688.A.2.11.3.0.0202170420.201712141833.x7160_1 Secondary-Boot: RHL7688.A.2.11.3.0.0202170420.201712141833.x7160_1 Update-Agent: RHL7688.A.2.11.3.0.0201160412.201712141833.x7160_1 4G-Firmware: 7160.S3.561.40.4.751.04.4260.18265 3G-Firmware: 202.999.623.43-54.35
<b>ALL-IN-ONE Firmware FLS Image</b>	Filename: RHL7688.A.2.11.3.0.151600.201712141833.x7160_1_signed.fl File size in bytes: 20875239 Checksum (CRC32): 0x0B41F967 Checksum (MD5): 54BC260B810AFB58C78891C766686850]
<b>ALL-IN-ONE Firmware Image, Windows one-click Downloader</b>	Filename: RHL7688.A.2.11.3.0.151600.201712141833.x7160_1_signed.exe File size in bytes: 8816925 Checksum (CRC32): 0x1CADFDEF Checksum (MD5): 8CAB2FCDBE29F7CCD5D367C54BEAB4D6
<b>Date of Generation</b>	2017-12-14 18:44:31 GMT+8
<b>IMEI SV</b>	04 (HL7688)
<b>Baseline Version</b>	M2M_7160_ATT_HL7588_01.1742.00 with M2M_7160_ATT_HL7588_1742.00_SWI00154671_Patch02_Patch

## 5.2. Software Tools Versions

Table 4. Software Tools Versions

Software Tools Name	Version
FlashTool	v.4.140.3.66      DLL: v.4.140,0.0
Command Line FlashTool (DownloadTool.exe, dll)	v.1.37      DLL: v.4.140,0.0
USB Host Driver version	4.19

## 5.3. Released Files

Table 5. Released Files

Download Option	Files
All in one download executable	RHL7688.A.2.11.3.0.151600.201712141833.x7160_1_signed.exe
All in one FLS file	RHL7688.A.2.11.3.0.151600.201712141833.x7160_1_signed.fl



## 6. Software Changes

This section lists all corrections or improvements integrated in Firmware A.2.11. Changes were based on Firmware A.2.10. Issues are sorted alphabetically by Impacted Domain.

Table 6. Validates Corrections and Improvements

ID	Description	Impacted Functionality / Sub-Functionality
INT7160ATT-1777	In rare cases, AT+CFUN=1,1 may not restart the module.	AT/OTHER
INT7160ATT-1613	With particular SIM types, accessing specific SIM files by +CRSM command may not be supported.	AT/Other
INT7160ATT-1788	AT+CSQ might return incorrect LTE RSSI.	AT/Other
INT7160ATT-1749	With specific network and SIM, the module may have registration issues after giving command AT+KSRAT=7.	AT/Other
INT7160ATT-1798	The module may not respond to AT commands after giving AT+XCELLINFO? command.	AT/Other
INT7160ATT-1983	Setting of AT+WMANTSEL restores to default setting across power cycle.	AT/Other
INT7160ATT-1813	Module restart can happen if writing a new SMS to an already full ME storage.	AT/SMS
INT7160ATT-1799	The module can occasionally restart when an SMS with empty user data is received.	AT/SMS
INT7160ATT-1797	Additional +WDSI: 7 indications could be received on the module when connecting to AvMS.	AVMS/Monitoring
INT7160ATT-1563	In some cases, the module might not respond to AT Commands when operated in CMUX mode.	CMUX/Other
INT7160ATT-1518	USB interface may drop in Linux environment when USB Selective Suspend is enabled.	DEVICE/USB
INT7160ATT-1944	The module may not return the OK response of AT+KTCPSND, if it has been inappropriately switched to online command mode from data mode and triggered the connected server to close the connection.	GPRS/Other
INT7160ATT-1651	The module may restart under a network whose transmitted single sub-frame contains CQI, PDCCH and PBCH.	LTE/Other
INT7160ATT-1790	The module can take a longer time than expected to complete cell reselection for a specific network operator.	OTHER/Other
INT7160ATT-1784	In some case, the module might restart on the first IP package transfer on an LTE network.	OTHER/Other
INT7160ATT-1800	The module can restart with specific network operator SIM cards on a particular firmware version.	OTHER/Other
INT7160ATT-1792	The module's MBIM connection with Win10 may not re-establish after Win10 restarts and may need power reset.	OTHER/Other
INT7160ATT-1945	+KUDP_NOTIF: 2, 8 might be returned when the module sends data to the peer on UDP socket.	OTHER/Other
INT7160ATT-1723	+KUDPSND and +KTCPFCFG commands may not work with IPv6 addresses.	Other/Other
INT7160ATT-1886	Reconnecting to AVMS session for FW upgrade may not work and give CME ERROR 148.	RDMS/RDMS
INT7160ATT-1786	After IMSI switch, the module may not be able to attach to the network.	SIM/Other

<b>ID</b>	<b>Description</b>	<b>Impacted Functionality / Sub-Functionality</b>
INT7160ATT-1636	The module's UART may stop responding during data connection/transfer when hardware flow control is enabled and one byte FIFO size is used in the host side.	UART/Flow
INT7160ATT-1939	In some case, the module may draw higher current under 3G network.	UMTS/Other



## 7. Restrictions and Known Issues

This section lists out important known issues.

Table 7. Restrictions and Known Issues

ID	Description
INT7160ATT-1612	HTTPS Sever authentication might occasionally fail on the module.
INT7160ATT-1928	Basic HTTP authentication might not work and fail for some cases.
INT7160ATT-2013	In rare cases, the module may not be able to attach to an LTE cell in particular locations and network conditions, and will fallback to 3G if the corresponding cell is available.



## 8. Troubleshooting

Please contact Sierra Wireless customer service for support and debugging information.

## 9. Certification

This firmware has passed certifications for the following:

- AT&T
- NAPRD.03 (Version: 5.33)