WP76xx

Customer Release Notes

Release 13.1

Document number	41110418
Rev	R01.21
Date	2019/06/20

Document History

Rev XX.YY	Date YYYY/MM/DD	Updates	Author
01.00	2016/12/20	Creation – Release 1	RK
01.01	2017/03/03	Release 2	RK
01.02	2017/03/15	Release 2 update to reflect limited DV3 sample availability	RK
01.03	2017/04/24	Release 2.1	RK
01.04	2017/05/23	Release 3	RK
01.05	2017/07/03	Release 4	RK
01.06	2017/07/10	Release 4.1 Updated Release 4 Known Issues	RK
01.07	2017/08/08	Release 5	RK
01.08	2017/10/27	Release 6	SA
01.09	2017/12/05	Release 6.1	SA/KW
01.10	2018/01/09	Release 6.2	SA/KW
01.11	2018/01/09	Release 7	SA
01.11.1	2018/01/31	Release 6.2.1 and 7.0.1	SA
01.10.1	2018/02/07	Release 6.2.1	SA
01.12.1	2018/02/27	Release 8	SA/KY
01.13	2018/05/02	Release 9	SA
01.14	2018/06/07	Remove extra PTS reference (section 3)	KY
01.14.1	2018/08/01	Add three Release 9 Known Issues	KY
01.14.2	2018/08/15	Add one Release 9 Known Issue	KY
01.15	2018/07/30	Release 10	SA/DK
01.15.1	2018/08/01	Merge changes from 01.14.1 and added Release 10 known issue LXSWIREF-684 and QTI9X07-2348.	SA
01.15.2	2018/08/15	Merge 1 known issue from 01.14.2	KY
01.15.03	2018/09/13	Update to known issue QTI9X07-1653 Removal of known issues QTI9X07-2156 and QTI9X07-2330 determined invalid after further investigation.	SA
01.16	2018/10/05	Release 10.1	SA
01.16.1	2018/10/10	Fix minor typos	SA
01.17	2018/10/25	Update known issue list for Release 10.1	KY
01.17.1	2018/11/09	Release 10.1.1	SA
01.18	2018/11/21	Release 11	KY
01.19	2019/02/12	Release 12	KY

Rev XX.YY	Date YYYY/MM/DD	Updates	Author
01.19.1	2019/03/07	Noted that Release 12 is not released on AirVantage	JB
01.20	2019/05/30	Release 13. Correct WP7601 generic packages to GCF in Release 12.	KY
01.21	2019/06/20	Release 13.1	KY

Table of Contents

1 Introduction

1.1 Scope of this document

This document describes WP76xx firmware releases.

1.2 Audience of this document

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

2 Abbreviations and definitions

Abbreviation/Acronym	Definitions
AT	Access Terminal, Attention
CS	Circuit Switched
EDL	Emergency Download
FDT	Firmware Download Tool
GCF	Global Certification Forum
LK	Little Kernel Linux bootloader
MCU	Microcontroller Unit – An onboard MCU enables Ultra Low Power modes of operation
MR	Maintenance Release
PSM	Power Saving Mode
QMI	Qualcomm Messaging Interface
SDP	Software Download Protocol
ULPM	Ultra Low Power Mode

3 Related documentation

Ref. #	Doc. #	Document title
[1]	4119652	AirPrime WP76xx - Product Technical Specification
[2]	4118047	AirPrime WPx5xx/WP76xx - AT Command Reference
[3]	41110380	AirPrime WP Series – Preparing Your Devices For Deployment
[4]	41110866	AirPrime WPx5xx/WP76xx - Scalability Guide
[5]	41112164	AirPrime WP Series - Secure Boot

4 Compatibility

Hardware compatibility

Product compatibility list
WP7601 - *LTE Cat-4, LTE bands 4/13*
WP7601-1 - *LTE Cat-1, LTE bands 4/13*
WP7603 - *LTE Cat-4, LTE bands 2/4/5/12, WCDMA bands 2/4/5*
WP7603-1 - *LTE Cat-1, LTE bands 2/4/5/12, WCDMA bands 2/4/5*
WP7605 – LTE Cat-4, LTE bands 1/3/8/11/18/19/21, WCDMA bands 1,6,19
WP7605-1 – LTE Cat-1, LTE bands 1/3/8/11/18/19/21, WCDMA bands 1,6,19
WP7607 - *LTE Cat-4, LTE bands 1/3/7/8/20/28, WCDMA bands 1/8, GSM900/1800*
WP7607-1 - *LTE Cat-1, LTE bands 1/3/7/8/20/28, WCDMA bands 1/8, GSM900/1800*
WP7608 - *LTE Cat-4, LTE bands 1/3/5/8/40/41(partial) WCDMA bands 1/3/8, GSM900/1800*
WP7608-1 - *LTE Cat-1, LTE bands 1/3/5/8/40/41(partial) WCDMA bands 1/3/8, GSM900/1800*
WP7609 - *LTE Cat-4, LTE bands 1/3/5/7/8/28, WCDMA bands 1/3/5/8, GSM900/1800*
WP7610 - *LTE Cat-4, LTE bands 2/4/5/12/13/14/17/66, WCDMA bands 2/4/5*

5 SWI9X07Y Release 13.1

Release 13.1 is an incremental release from Release 13 with bug fixes and improvements mainly on I2C and CMUX interfaces (see Software Changes Description for complete details). R13.1 generic carrier packages are released together with R13.1 AT&T package. The modem version of the generic PTCRB package and the AT&T package is based on the last AT&T approved modem version (i.e. SWI9X07Y_02.28.03.01). Additional carrier approvals are still on going with Sierra, Verizon, Telstra, Docomo, KDDI, Softbank, they will be released with subsequent firmware releases.

5.1 Software Release Description

5.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.28.03.03 000000 jenkins 2019/05/21 03:33:04
Linux Firmware	SWI9X07Y_02.28.03.03 2019-05-21_07:00:11
MCU Firmware	002.011 (embedded as a binary in the linux image, not distributed as a separate component)
Legato Application Framework	19.02.0_4cb954265427b8c2c668a010ff5be274
Binary Size	61MB (compressed one-click exe)
IMEI SV	6
Qualcomm Stack Version	MDM9607.LE.2.0-00161-STD.PROD-1
Linux Kernel Version	Linux version 3.18.131 (oe-user@oe-host) (gcc version 7.3.0 (GCC)) #1 PREEMPT Wed Apr 17 04:04:14 UTC 2019
Supported H/W	WP7601[-1], WP7603[-1], WP7605, WP7607[-1], WP7608[-1], WP7609, WP7610

5.1.2 Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	B4836
Windows SDK	None
Skylight	None
Linux Drivers	S2.36N2.57
Linux SDK	SLQS04.00.20

*available in https://source.sierrawireless.com

5.1.3 Released Files

File	Carrier	Modem Firmware	Config	Linux Distribution	Base Legato System	Comment
WP7603/WP7603-1 Approved						
WP76xx_Release-13.1_GENERIC_PTCRB.exe	GENERIC (PTCRB)	SWI9X07Y_02.28.03.01	002.064_000	SWI9X07Y_02.28.03.03	19.02.0	PTCRB Approved
WP76xx_Release-13.1_ATT.exe	ATT	SWI9X07Y_02.28.03.01	002.071_000	SWI9X07Y_02.28.03.03	19.02.0	AT&T Approved
WP7607 / WP7607-1 Approved						

WP76xx_Release-13.1_GENERIC_GCF.exe	GENERIC (GCF)	SWI9X07Y_02.28.03.03	002.068_000	SWI9X07Y_02.28.03.03	19.02.0	GCF Approved
WP7608 / WP7608-1 Approved						
WP76xx_Release-13.1_GENERIC_GCF.exe	GENERIC (GCF)	SWI9X07Y_02.28.03.03	002.068_000	SWI9X07Y_02.28.03.03	19.02.0	GCF Approved
WP7609 Approved						
WP76xx_Release-13.1_GENERIC_GCF.exe	GENERIC (GCF)	SWI9X07Y_02.28.03.03	002.068_000	SWI9X07Y_02.28.03.03	19.02.0	GCF Approved
WP7610 Approved						
WP76xx_Release-13.1_GENERIC_PTCRB.exe	GENERIC (PTCRB)	SWI9X07Y_02.28.03.01	002.064_000	SWI9X07Y_02.28.03.03	19.02.0	PTCRB Approved
WP76xx_Release-13.1_ATT.exe	ATT	SWI9X07Y_02.28.03.01	002.071_000	SWI9X07Y_02.28.03.03	19.02.0	AT&T Approved
WP7605 Approval pending package						
WP76xx_Release-13.1_DOCOMO_test.exe	DOCOMO	SWI9X07Y_02.28.03.03	001.019_000	SWI9X07Y_02.28.03.03	19.02.0	Test
WP76xx_Release-13.1_KDDI_test.exe	KDDI	SWI9X07Y_02.28.03.03	001.019_000	SWI9X07Y_02.28.03.03	19.02.0	Test
WP76xx_Release13.1_SOFTBANK_test.exe	Softbank	SWI9X07Y_02.28.03.03	001.022_000	SWI9X07Y_02.28.03.03	19.02.0	Test
WP7609 Approval pending package						
WP76xx_Release13.1_TELSTRA_test.exe	TELSTRA	SWI9X07Y_02.28.03.03	001.052_000	SWI9X07Y_02.28.03.03	19.02.0	Test
WP76010 Approval pending package						
WP76xx_Release13.1_VERIZON_test.exe	VERIZON	SWI9X07Y_02.28.03.03	002.074_000	SWI9X07Y_02.28.03.03	19.02.0	Test

Function	Files
Firmware components	9999999_9907152_SWI9X07Y_02.28.03.03_00_GENERIC_002.068_000.spk (GCF) 9999999_9907152_SWI9X07Y_02.28.03.01_00_GENERIC_002.064_000.spk (PTCRB) 9999999_9907256_SWI9X07Y_02.28.03.01_00_ATT_002.071_000.spk (ATT) linux-SWI9X07Y_02.28.03.03.cwe legato-19.02.0.cwe
From: https://source.sierrawireless.com/resources/airprime/software/wp76xx/wp76xx-firmware-release-13.1/	

5.1.4 Available Memory

Flash

```
              NAME|   PARTITION       |ALLOCATION(KB)|IMGSIZE(KB)|    USAGE
    Linux Kernel  |   mtd12 (boot)    |          14336|       9257|      64%
    Linux Rootfs  |   mtd13 (system)  |          29952|      23040|      76%
Legato Framework  |   mtd14 (lefwkro) |           8704|       5889|      68%
           SWIRW  |   mtd15 (swirw)   |          24576|           |
         USERAPP  |   mtd16 (userapp) |         133120|           |
```

RAM
80140 kB*

*Value is read from the MemAvailable parameter in /proc/meminfo after boot.

Available of memory in Flash & RAM are for reference only and may vary depending at time of measuring and configuration changes made by customers.

5.1.5 Boot time

The following table list out different service ready time since the first boot message.
The result was measured from WP7601 loaded with Generic package. **The boot time is for reference only and may vary depending configuration changes made by customers**

Service ready	Time since first boot message	Description
Legato service ready	19s	Legato framework and services have been fully initialized.
AT & QMI service ready	26s	External host processor is now able to communicate with modules through AT commands (USB & UART) and/or QMI messages.
Legato application start	29s	Customer Legato application start running.

5.2 Software Changes Description

The following are changes in Release 13.1 since Release 13.

ID	Title	Description	Impacted Domain
Linux Distribution			
QTI9X07-3434	MDM GPIOs not working as wakeup interrupt in USB-SS mode	GPIO interrupts unable to wake the module from suspend.	GPIO
QTI9X07-3462	Interruption not detected with GPIO36	MCU GPIO interrupts from selective suspend don't work the same as MDM GPIOs	GPIO
QTI9X07-3139	I2C stops working during stress test for MCU	I2C bus would get blocked when communicating using /dev/i2c interface and simultaneously communicating with MCU.	I2C
QTI9X07-3435	module sends MUX frame with incorrect FCS when frame length is 127	Modules may send invalid CMUX frame when the frame length happens to be 127.	CMUX
Modem Firmware			
Connectivity			
QTI9X07-3266	[R2C] Module is attached in LTE (CS/PS) but is not CS attached on network side	SMS for OTA update is not received for completing the bootstrap operation.	SIM/Other
Protocol / Certification			

ID	Title	Description	Impacted Domain
QTI9X07-3464	Non-stop Successful LWM2M Bootstrapping Attempts	Cannot bootstrap to the LWM2M server if DMDEBUG is turned off.	LWM2M
QTI9X07-3240	[WP7610] [LTE Data Retry] [TC 6.9] UE fails to send RRC Connection request (TAU) during step 22	[Verizon][LTE Data Retry] TC 6.9 fails to send RRC Connection request (TAU) at step 22	VZW
QTI9X07-3410	[WP7610][VZW][GFIT] TC 6.4.1 - Dialing *611 doesn't connect to Verizon Global Service	Verizon GFIT TC 6.4.1 failed - Dialing *611 doesn't connect to Verizon Global Service in roaming	VZW
QTI9X07-3411	[WP7610][VZW][PreGFIT] TC 6.4.9 - DUT receives error recording from operator when attempting to dial *67<MDN> or *82<MDN>	Verizon GFIT TC 6.4.9 failed - While roaming, modem receives error when attempting to dial *67<MDN> or *82<MDN>;	VZW
QTI9X07-3427	VZW APN cannot be upgraded from VZWIMS to IMS after firmware update	Verizon is migrating PDN1 APN from “VZWIMS” to “IMS”. Due to the APN setting persistence, the PDN1 APN cannot be changed from VZWIMS to IMS. The resolution is to force the APN update on this PDN1 only as special handling.	VZW
QTI9X07-3487	Update TS.25 list to April 29, 2019	The matching table between PLMN and operator names is refreshed up to April 2019 version.	GCF

5.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Bugs			
QTI9X07-3451	Failure to make LTE data connection using some Sierra SIM	In some occasion, modules fail to make LTE only data connection using an external Sierra SIM.	AVMS
QTI9X07-3407	PRACH power failure at -30C	Preamble transmission power failed to meet the specification at -30C.	RF
QTI9X07-3381	[GNSS] <Unknown> retrieved in GPSLOC response even though there is a fix	AT!GPSLOC? does not return the last known location if the command is requested in less than 1 second interval.	GPS
QTI9X07-3371	I2C bus failure occurs when reading ADC2 and entering ULPM	Sometimes I2C control to MCU is lost when reading the ADC2 from MCU and ULPM mode is requested at the same time.	I2C
QTI9X07-3367	Modules enter low power mode when making a voice call near critical high temperature	As the temperature approach the high critical limit, modules enter LPM when making a voice call.	Thermal
QTI9X07-3348	No response returns when closing a Legato AT Server.	Create a Legato AT command handler and then start the AT server. No response return when closing the AT server by le_atServer_Close().	Legato
QTI9X07-3347	Failed to get fix with latitude = 0 and longitude = -90 set	If the GPS simulator set the latitude=0 and longitude=-90 exactly, modules are unable to find a location fix.	GPS
QTI9X07-3308	AT!GPSCLRASSIST is not able to clear GPS assistance data	AT!GPSCLRASSIST=1,0,0,0,0 can't clear GPS assistance data. FAILCODE = 9 is returned	GPS
QTI9X07-3281	Cannot confirm Co-Existence feature is working with BX321x IoT card	The WiFi-LTE coexistence feature does not seem to work and it would impact the performance when using some RF bands.	WiFi
QTI9X07-3200	Secure storage item become orphaned when write fails	When there is an error writing a file to a secure store, the segment already written will stay in the secure store and become orphaned forever.	SFS
QTI9X07-3199	Secure storage failure when item size > 1024 bytes	Truncated SecStore write without Legato API reporting error.	SFS
QTI9X07-3134	[Sandbox]usb device can't mount on the module	Unable to mount a USB flash memory device onto our module.	Linux

ID	Title	Description	Impacted Domain
QTI9X07-2988	[+CPSMS] PIN is lost when the module wake up from PSM	SIM PIN has to be re-entered after woken up from PSM.	PSM
QTI9X07-2950	ULPM fallback does not work consistently	Without fix and restore the PSM/ULPM Fallback mode, the mode is just ULPM mode.	ULPM
QTI9X07-2706	WP7610 Failing Sensitivity during GPS tracking session	RF sensitivity for products using LTE B1/B4/B7 is degraded when GPS is active.	GPS
QTI9X07-2387	[Legato] [DataControl] [REG] After starting the data session - AUTHENTICATION <LE_MDC_AUTH_CHAP | LE_MDC_AUTH_PAP> ENABLED, the profile returned is incorrect	With Legato, fail to establish a data session with authentication enabled	Legato
QTI9X07-2272	Periodic high current draw when testing EDRX/DRX with HSIC Enabled	Periodic high current draw when testing EDRX/DRX with HSIC Enabled	PSM
QTI9X07-2195	SNTP Client unable to use existing connection	Unlike the WPx5, the WP76 SNTP client must open a new connection, which is more visible and could have undesirable consequences. Therefore for WP76 the feature is off by default so the user would need to enable it explicitly to get the benefit. This can be done via QMI/Legato, but because it is a AT!CUSTOM feature, a level 2 password is required to enable it via AT	Linux
QTI9X07-2186	setting identical profile AUTH params forces LTE re-attach with SINGLEAPNSWITCH	With SINGLEAPNSWITCH feature enabled, Legato cm data connect always fails on LTE with Legato 18.05.1 or older	Legato
QTI9X07-2106	Periodic current spikes observed when testing EDRX with HSIC disabled	Periodic high current spike in every 20s when using EDRX and HSIC disabled.	PSM
QTI9X07-1928	[WIFI] eth0 address is erased when Wifi chip is inserted after reboot	eth0 address is erased when Wifi chip is inserted after reboot	Driver
QTI9X07-1653	Loses Network Synchronization at low temp (-20degC)	At temperature below -20, units in sleep mode may lose LTE network synchronization. A workaround that inhibit sleep mode at low temperature has been in placed (QTI9X07-2467) to mitigate this problem.	Protocol

6 SWI9X07Y Release 13

Release 13 is a major firmware release having AT&T and PTCRB approval granted. WP7603 and WP7610 can be upgraded to release 13 with the latest modem firmware (SWI9X07Y_02.28.03.01) for AT&T carriers.

6.1 Software Release Description

6.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.28.03.01 000000 jenkins 2019/04/17 03:08:11
Linux Firmware	SWI9X07Y_02.28.03.01 2019-04-17_04:25:07
MCU Firmware	002.011 (embedded as a binary in the linux image, not distributed as a separate component)
Legato Application Framework	19.02.0_4cb954265427b8c2c668a010ff5be274
Binary Size	61MB (compressed one-click exe)
IMEI SV	6
Qualcomm Stack Version	MDM9607.LE.2.0-00161-STD.PROD-1
Linux Kernel Version	Linux version 3.18.131 (oe-user@oe-host) (gcc version 7.3.0 (GCC)) #1 PREEMPT Wed Apr 17 04:04:14 UTC 2019
Supported H/W	WP7601[-1], WP7603[-1], WP7605, WP7607[-1], WP7608[-1], WP7609, WP7610

6.1.2 Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	B4836
Windows SDK	None
Skylight	None
Linux Drivers	S2.36N2.57
Linux SDK	SLQS04.00.20

*available in https://source.sierrawireless.com

6.1.3 Released Files

File	Carrier	Modem Firmware	Config	Linux Distribution	Base Legato System	Comment
WP7603/WP7603-1 Approved						
WP76xx_Release-13_GENERIC_PTCRB.exe	GENERIC (PTCRB)	SWI9X07Y_02.28.03.01	002.064_000	SWI9X07Y_02.28.03.01	19.02.0	PTCRB Approved
WP76xx_Release-13_ATT.exe	ATT	SWI9X07Y_02.28.03.01	002.071_000	SWI9X07Y_02.28.03.01	19.02.0	AT&T Approved
WP7610 Approved						
WP76xx_Release-13_GENERIC_PTCRB.exe	GENERIC (PTCRB)	SWI9X07Y_02.28.03.01	002.064_000	SWI9X07Y_02.28.03.01	19.02.0	PTCRB Approved
WP76xx_Release-13_ATT.exe	ATT	SWI9X07Y_02.28.03.01	002.071_000	SWI9X07Y_02.28.03.01	19.02.0	AT&T Approved

Function	Files
Firmware components	9999999_9907152_SWI9X07Y_02.28.03.01_00_GENERIC_002.064_000.spk (GCF & PTCRB) 9999999_9907256_SWI9X07Y_02.28.03.01_00_ATT_002.071_000.spk (ATT) linux-SWI9X07Y_02.28.03.01.cwe legato-19.02.0.cwe
From: https://source.sierrawireless.com/resources/airprime/software/wp76xx/wp76xx-firmware-release-13/	

6.1.4 Available Memory

Flash

NAME	PARTITION	ALLOCATION(KB)	IMGSIZE(KB)	USAGE
Linux Kernel	mtd12 (boot)	14336	9257	64%
Linux Rootfs	mtd13 (system)	29952	23040	76%
Legato Framework	mtd14 (lefwkro)	8704	5889	68%
SWIRW	mtd15 (swirw)	24576		
USERAPP	mtd16 (userapp)	133120		

RAM
80116 kB*

*Value is read from the MemAvailable parameter in /proc/meminfo after boot.

Available of memory in Flash & RAM are for reference only and may vary depending at time of measuring and configuration changes made by customers.

6.1.5 Boot time

The following table list out different service ready time since the first boot message.
The result was measured from WP7601 loaded with Generic package. **The boot time is for reference only and may vary depending configuration changes made by customers**

Service ready	Time since first boot message	Description
Legato service ready	19s	Legato framework and services have been fully initialized.
AT & QMI service ready	26s	External host processor is now able to communicate with modules through AT commands (USB & UART) and/or QMI messages.
Legato application start	29s	Customer Legato application start running.

6.2 Software Changes Description

The following are changes in Release 13 since Release 12.

ID	Title	Description	Impacted Domain
Legato Framework			

ID	Title	Description	Impacted Domain
Various	Legato 19.02.0	Legato 19.02.0 https://docs.legato.io/19_02/aboutReleaseNotes.html Upgrade from 18.10.3 in Release 12. Important fixes include: LE-11782 - WIFI intermittently displayed as Technology on AVMS LE-11324 - Failed to set polling timer value by AT command LE-12382 - AVMS reports "WDSI: 15" after FOTA LE-12310 - Module is failed to start AVMS session after recreating new system LE-12309 - AVMS: Fail to synchronize to AVMS server	Legato AF
Linux Distribution			
QTI9X07-3185	Upgrade Linux Distro to LXSWI2.5-3.0	Upgrade to LXSWI2.5-3.0 from LXSWI2.2-12.0 (Release 12)	Linux baseline
QTI9X07-3305	The linux tool tcpdump is not working	A bug is found when any network utilities (e.g. iperf/tcpdump) accessing raw sockets.	Linux kernel
QTI9X07-2679	The boot time is much longer when temperature exceed 55C	That is due to thermal mitigation at high temperature. Increase the temperature threshold that start to slow down the CPU.	Linux kernel
Modem Firmware			
AT Command			
QTI9X07-3432	AT+COPS=? return wrong long/short alphanumeric <oper> name	When using an AT&T SIM, AT+COPS=? return all operators as AT&T.	3GPP AT
QTI9X07-2901	AT&V is not showing the right AT&K parameters.	The missing of AT&K default value introduce the problem.	3GPP AT
QTI9X07-2707	AT!LTEINFO syntax not matched with description in manual	Corrected the AT!LTEINFO command handling to match with the AT command guide.	Sierra AT
Core / System			
QTI9X07-3296 QTI9X07-3221 QTI9X07-3029	Update Qualcomm stack to MDM9607.LE.2.0-00161-STD.PROD-1	Merge Qualcomm stack: MDM9607.LE.2.0-00161-STD.PROD-1 MDM9607.LE.2.0-00160-STD.PROD-1 MDM9607.LE.2.0-00157-STD.PROD-1	Protocol stack

ID	Title	Description	Impacted Domain
QTI9X07-3422	BOOTQUIETDISABLE option in AT!CUSTOM is wrongly shown	By default, AT!CUSTOM should not show BOOTQUIETDISABLE as true.	Boot
QTI9X07-3326	Modem may crash when running a power on/off stress test	It is been found that using a particular SIM card, the module may reset unexpectedly duing a long duration of repeated power on/off stress test.	Boot
QTI9X07-3153	Modem may crash when used with a PIN locked SIM card that takes a long time to initialize	There is a watchdog reset due a task starvation during SIM card data reading. Reduce the delay to post a semaphore.	Boot
QTI9X07-2669	Private APN setting is lost when switching between carrier PRI	Sub-PRI switching feature is improved with persistence that protect the setting across firmware upgrade and carrier switch.	Configuration
QTI9X07-3167	SMS memory leak after each start/stop of LWM2M session	Memory leak issue is found on receiving LWM2M SMS.	Memory
QTI9X07-3073	A crash is found on a Verizon LWM2M client set up.	Crash observed when disabled server registers again and it happened when freeing up an input buffer.	Memory
Data connectivity			
QTI9X07-3023	Failure to visit some web pages through dial-up connection over CMUX DLC ports.	The CMUX protocl stack is not able to multiplex big chunk of data reliabily due a mistake in caluating FCS and misinterpretation of frames messages.	CMUX
QTI9X07-3294	Dail-up connection failed in if PDP type=IPv4v6	Failed to make a dial-up connection in WCDMA band if and only if PDP type is set to dual IPv4 IPv6.	DUN
QTI9X07-2473	PPP dial-up connection failure if DTR is not asserted	Remove the checking of UART DTR pin status when performaning dial-up connection.	DUN
QTI9X07-3304	Private APN setting is lost when upgrading from older firmware	This problem impacts AT&T products when customers uses private APN in older firmware such as release 10.1.	PS data
QTI9X07-3333	UL throughput dropped by 50% for small sized packets	Modem suffers from UL throughput degradation of around 50% when using smaller sized packets. The problem does not happens in older releases.	throughput

ID	Title	Description	Impacted Domain
QTI9X07-2952	[WP7610] UL Data rate is much lower than expectation	The maximum uplink througput for B2 & B4 is lower than expected, while B66 is not impacted.	throughput
GNSS			
QTI9X07-1022	AT!GPSLOC? return unknown location if the latitude is 90	AT!GPSLOC? return empty when the latitude is precisely set to 90 in the GPS simulator.	GPS
Peripheral			
QTI9X07-3382 QTI9X07-3321	GPIO function NV unexpectedly changed	After configuration process, some of the content in NV EXT_GPIO_FUN is changed from '10' to '00'.	GPIO
QTI9X07-2672 QTI9X07-3264	GPIO6 is not configuration using +WIOCFG and sysfs	GPIO6 cannot be read, written, or configured using +WIOR, +WIOW, +WIOCFG respectively.	GPIO
Protocol / Certification			
QTI9X07-3045	[WP7610][AT&T][ODIS][GSM-BTR-1-9902] Show the bootstrapped Server Port Number	AT&T lab requires showing the bootstrapped Server Port Number using AT command.	AT&T
QTI9X07-2690	[WP7610][AT&T][LTE-BTR-5-5400] APN mismatch	IMS configuration for AT&T Firstnet is not configured correctly.	AT&T
QTI9X07-2689	[WP7610][AT&T][LTE-BTR-5-5587] Reselection while not IMS registered failure	Test case stuck after the step "Redirect successful" and get aborted after few minutes.	AT&T
QTI9X07-2687	[WP7610][AT&T][LTE-BTR-5-5590][Incorrect behavior for WPS call	When VoLTE call has no response in protocol, the device fails to do Circurit Switch Fallback call	AT&T
QTI9X07-2686	[WP7610][AT&T][LTE-BTR-5-5575] Device didn't request any CSFB	When VoLTE call has no response in protocol, the device fails to do Circurit Switch Fallback call	AT&T
QTI9X07-3229	[WP7610] [GCF][FT][90.4.2.1] MS is unable to hide its number on Verizon	D command could not hide caller's ID by *62 which is specific to Carrier Verizon	GCF
QTI9X07-3161	[WP7610] [GCF][FT][90.4.2.1] MS is unable to hide its number by CLIR on AT&T	+CLIR command does not work as expected	GCF
QTI9X07-2834	Update TS.25 list to January 2019	The matching table between PLMN and opearator names is refreshed up to January 2019 version.	GCF

ID	Title	Description	Impacted Domain
QTI9X07-2957	[WP7610][PTCRB][LTE]: UE failed to send Detach Accept message on TC 11.2.7	WP7610 module fails to pass 3GPP TS 36.523-1 test case 11.2.7	PTCRB
QTI9X07-3311	[WP7610][VZW][OTADM] TC 01.01 Failed - Data Retry timers removed from requirement	Verizon OMADM client contains legacy node MAX_CONNT, MAX_CONN and WAIT_TIME which were removed from LTEOTADM Requirement Plan, Jun 2018	Verizon
QTI9X07-3299	[WP7610][VZW][OTADM] TC 1.25 Failed for Firmware Version node mismatch	./DevDetail/SwV shows the same ./DevDetail/FwV ./DevDetail/SwV should show Yocto version	Verizon
QTI9X07-3267	[WP7610][VZW][IMS VoIP][TC 3.27.3] UE fails during step 15 due to audible busy tone is not played when added call is initiated	[VZW][IMS VoIP][TC 3.27.3] failed at step 15	Verizon
QTI9X07-3211	[WP7610][IMS VoIP] [TC 3.23.7] UE fails during call setup due to SDP contents mismatch	VERIZON TC 3.23.7 failed. UE should send SIP 200 OK to the SIP Invite from the network.	Verizon
QTI9X07-3210	[WP7610][IMS VoIP][TC 3.7.1-TC 3.7.3] UE releases voice call before expected timer expires	qipcall_rtp_link_aliveness_timer and qipcall_rtcp_link_aliveness_timer are shorter than the latest spec from Verzion	Verizon
QTI9X07-3209	[WP7610][IMS VoIP][TC 3.1.1 - TC 3.1.5] UE reports incorrect User Agent during VoLTE Call setup	SIP User Agent string is not updated properly	Verizon
Protocol / LWM2M (These fixes were added specifically for WP77 Verizon certification and are also available on WP76 platform.)			
QTI9X07-3140	[LWM2M] ClientHoldOffTimer cleared on reset	The values in the node are not saved in the EFS, so they are lost on reset. Functionally this might not have any impact, but they should retain their values on reset.	lwm2m
QTI9X07-3101	[LWM2M][VZW] - Reg failure to production DM server	Registration failure on DM server after bootstrap. Workaround is resetting device.	lwm2m
QTI9X07-3060	[LWM2M] Repository Server Registration Update Failing when triggered by node 1/3/8	The registration update with Verizon's LWM2M Repository server fails if it is triggered after the socket has closed.	lwm2m
QTI9X07-3042	[WP7702][VZW][LWM2M] TC 5.10 Fails, cannot write to 4/0/30000/1,2	If any single server cannot register, then the remaining servers cannot register either.	lwm2m

ID	Title	Description	Impacted Domain
RF			
QTI9X07-3297	[WP7605] Inner loop power control performance degraded	Fixed WCDMA 2100 PA default switchpoints NVs to resolve the ILPC failure.	Tx
QTI9X07-2887	GSM modulation spectrum failures at -30C	The Linear TX gain NV for GSM need to be modified to fix the issue.	Tx
QTI9X07-2771	Module reset when inputting unsupported parameters in AT!MAXPWR	System abort because of invalid request on un-supporting bands. Modification is made to prevent the un-supported input.	Tx
Security			
QTI9X07-3260	Downloading a bundled security key package return ERROR	When downloading a bundled security key component using FDT2 to a module, it will stay at boot and hold mode. An 'error' message is reported when downloading using fwupdate.	Keys
QTI9X07-3238	If "Customer Secure Boot" feature is enabled and the size "signature+certificate" is larger than 4 KB, modules will reject Linux firmware upgrade.	The problem is due to a limited signature buffer size. The solution is to increase signature buffer size limit for Linux image safe update in the future.	Keys
QTI9X07-2870	Possibility of having userapp partition erased	Close the security hole by blocking the userapp updated in bootloader.	Security
QTI9X07-2946	A QMI secure file open command returns success even though operation has failed.	Check for NULL file pointer and propagate error from sfs and map to corresponding QMI error.	SFS
SIM IOT			
QTI9X07-2388	[SWIR_SIM_V4.4] UE registers to the unexpected network NB-IOT	This is seen when testing SWIR SIM. Sometimes, +CREG/+CGREG URC shows the device attached on NB-IOT (Rat=9).	SIM

6.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Bugs			
QTI9X07-3451	Failure to make LTE data connection using some Sierra SIM	In some occasion, modules fail to make LTE only data connection using an external Sierra SIM.	AVMS
QTI9X07-3464	Non-stop Successful LWM2M Bootstrapping Attempts	Cannot bootstrap to the LWM2M server if DMDEBUG is turned off.	LWM2M
QTI9X07-3434	MDM GPIOs not working as wakeup interrupt in USB-SS mode	GPIO interrupts unable to wake the module from suspend.	GPIO
QTI9X07-3139	I2C stops working during stress test for MCU	I2C bus would get blocked when communicating using /dev/i2c interface and simultaneously communicating with MCU.	I2C
QTI9X07-3407	PRACH power failure at -30C	Preamble transmission power failed to meet the specification at -30C.	RF
QTI9X07-3381	[GNSS] <Unknown> retrieved in GPSLOC response even though there is a fix	AT!GPSLOC? does not return the last known location if the command is requested in less than 1 second interval.	GPS
QTI9X07-3371	I2C bus failure occurs when reading ADC2 and entering ULPM	Sometimes I2C control to MCU is lost when reading the ADC2 from MCU and ULPM mode is requested at the same time.	I2C
QTI9X07-3367	Modules enter low power mode when making a voice call near critical high temperature	As the temperature approach the high critical limit, modules enter LPM when making a voice call.	Thermal
QTI9X07-3348	No response returns when closing a Legato AT Server.	Create a Legato AT command handler and then start the AT server. No response return when closing the AT server by le_atServer_Close().	Legato
QTI9X07-3347	Failed to get fix with latitude = 0 and longitude = -90 set	If the GPS simulator set the latitude=0 and longitude=-90 exactly, modules are unable to find a location fix.	GPS
QTI9X07-3308	AT!GPSCLRASSIST is not able to clear GPS assistance data	AT!GPSCLRASSIST=1,0,0,0,0 can't clear GPS assistance data. FAILCODE = 9 is returned	GPS

ID	Title	Description	Impacted Domain
QTI9X07-3281	Cannot confirm Co-Existence feature is working with BX321x IoT card	The WiFi-LTE coexistence feature does not seem to work and it would impact the performance when using some RF bands.	WiFi
QTI9X07-3200	Secure storage item become orphaned when write fails	When there is an error writing a file to a secure store, the segment already written will stay in the secure store and become orphaned forever.	SFS
QTI9X07-3199	Secure storage failure when item size > 1024 bytes	Truncated SecStore write without Legato API reporting error.	SFS
QTI9X07-3134	[Sandbox]usb device can't mount on the module	Unable to mount a USB flash memory device onto our module.	Linux
QTI9X07-2988	[+CPSMS] PIN is lost when the module wake up from PSM	SIM PIN has to be re-entered after woken up from PSM.	PSM
QTI9X07-2950	ULPM fallback does not work consistently	Without fix and restore the PSM/ULPM Fallback mode, the mode is just ULPM mode.	ULPM
QTI9X07-2706	WP7610 Failing Sensitivity during GPS tracking session	RF sensitivity for products using LTE B1/B4/B7 is degraded when GPS is active.	GPS
QTI9X07-2387	[Legato] [DataControl] [REG] After starting the data session - AUTHENTICATION <LE_MDC_AUTH_CHAP | LE_MDC_AUTH_PAP> ENABLED, the profile returned is incorrect	With Legato, fail to establish a data session with authentication enabled	Legato
QTI9X07-2272	Periodic high current draw when testing EDRX/DRX with HSIC Enabled	Periodic high current draw when testing EDRX/DRX with HSIC Enabled	PSM
QTI9X07-2195	SNTP Client unable to use existing connection	Unlike the WPx5, the WP76 SNTP client must open a new connection, which is more visible and could have undesirable consequences. Therefore for WP76 the feature is off by default so the user would need to enable it explicitly to get the benefit. This can be done via QMI/Legato, but because it is a AT!CUSTOM feature, a level 2 password is required to enable it via AT	Linux
QTI9X07-2186	setting identical profile AUTH params forces LTE re-attach with SINGLEAPNSWITCH	With SINGLEAPNSWITCH feature enabled, Legato cm data connect always fails on LTE with Legato 18.05.1 or older	Legato

ID	Title	Description	Impacted Domain
QTI9X07-2106	Periodic current spikes observed when testing EDRX with HSIC disabled	Periodic high current spike in every 20s when using EDRX and HSIC disabled.	PSM
QTI9X07-1928	[WIFI] eth0 address is erased when Wifi chip is inserted after reboot	eth0 address is erased when Wifi chip is inserted after reboot	Driver
QTI9X07-1653	Loses Network Synchronization at low temp (-20degC)	At temperature below -20, units in sleep mode may lose LTE network synchronization. A workaround that inhibit sleep mode at low temperature has been in placed (QTI9X07-2467) to mitigate this problem.	Protocol

7 SWI9X07Y Release 12

Release 12 is a regular release for bug fixing and to resolve a number of issues raised by customers.

7.1 Software Release Description

7.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.25.02.01 000000 jenkins 2019/01/30 08:13:05
Linux Firmware	SWI9X07Y_02.25.02.01 2019-01-30_09:57:36
MCU Firmware	002.011 (embedded as a binary in the linux image, not distributed as a separate component)
Legato Application Framework	18.10.3_0b50331a9f4d0ecc0fd816c2a1300436
Binary Size	58MB (compressed one-click exe)
IMEI SV	6
Qualcomm Stack Version	MDM9607.LE.2.0-00150-STD.PROD-2
Linux Kernel Version	Linux version 3.18.122 (jenkins@jenkins) (gcc version 6.2.0 (GCC)) #2 PREEMPT Wed Jan 30 09:58:52 UTC 2019
Supported H/W	WP7601[-1], WP7603[-1], WP7605, WP7607[-1], WP7608[-1], WP7609, WP7610

7.1.2 Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	B4836
Windows SDK	None
Skylight	None
Linux Drivers	S2.36N2.55
Linux SDK	SLQS04.00.18

*available in https://source.sierrawireless.com

7.1.3 Released Files

File	Carrier	Modem Firmware	Config	Linux Distribution	Base Legato System	Comment
WP7601/WP7601-1 Approved						
WP76xx_Release-12_GENERIC_GCF.exe	GENERIC (GCF)	SWI9X07Y_02.25.02.01	002.056_000	SWI9X07Y_02.25.02.01	18.10.3	GCF Approved
WP76xx_Release-12_SIERRA_GCF.exe	SIERRA (GCF)	SWI9X07Y_02.25.02.01	001.014_000	SWI9X07Y_02.25.02.01	18.10.3	GCF Approved
WP76xx_Release-12_VERIZON.exe	VERIZON	SWI9X07Y_02.18.05.00	002.041_002	SWI9X07Y_02.25.02.01	18.10.3	Verizon Approved
WP7603/WP7603-1 Approved						
WP76xx_Release-12_GENERIC_PTCRB.exe	GENERIC (PTCRB)	SWI9X07Y_02.18.05.00	002.041_003	SWI9X07Y_02.25.02.01	18.10.3	PTCRB Approved
WP76xx_Release-12_SIERRA_PTCRB.exe	SIERRA (PTCRB)	SWI9X07Y_02.18.05.00	001.002_001	SWI9X07Y_02.25.02.01	18.10.3	PTCRB Approved

WP76xx_Release-12_ATT.exe	ATT	SWI9X07Y_02.18.05.00	002.040_002	SWI9X07Y_02.25.02.01	18.10.3	AT&T Approved
WP7607 / WP7607-1 Approved						
WP76xx_Release-12_GENERIC_GCF.exe	GENERIC (GCF)	SWI9X07Y_02.25.02.01	002.056_000	SWI9X07Y_02.25.02.01	18.10.3	GCF Approved
WP76xx_Release-12_SIERRA_GCF.exe	SIERRA (GCF)	SWI9X07Y_02.25.02.01	001.014_000	SWI9X07Y_02.25.02.01	18.10.3	GCF Approved
WP7608 / WP7608-1 Approved						
WP76xx_Release-12_GENERIC_GCF.exe	GENERIC (GCF)	SWI9X07Y_02.25.02.01	002.056_000	SWI9X07Y_02.25.02.01	18.10.3	GCF Approved
WP76xx_Release-12_SIERRA_GCF.exe	SIERRA (GCF)	SWI9X07Y_02.25.02.01	001.014_000	SWI9X07Y_02.25.02.01	18.10.3	GCF Approved
WP7609 Approved						
WP76xx_Release-12_GENERIC_GCF.exe	GENERIC (GCF)	SWI9X07Y_02.25.02.01	002.056_000	SWI9X07Y_02.25.02.01	18.10.3	GCF Approved
WP76xx_Release-12_SIERRA_GCF.exe	SIERRA (GCF)	SWI9X07Y_02.25.02.01	001.014_000	SWI9X07Y_02.25.02.01	18.10.3	GCF Approved
WP7610 Approval pending package						
WP76xx_Release-12_GENERIC_test.exe	GENERIC (GCF & PTCRB)	SWI9X07Y_02.25.02.01	002.056_000	SWI9X07Y_02.25.02.01	18.10.3	Test
WP76xx_Release-12_SIERRA_test.exe	SIERRA (GCF & PTCRB)	SWI9X07Y_02.25.02.01	001.014_000	SWI9X07Y_02.25.02.01	18.10.3	Test
WP76xx_Release-12_ATT_test.exe	ATT	SWI9X07Y_02.25.02.01	002.062_000	SWI9X07Y_02.25.02.01	18.10.3	Test
WP76xx_Release-12_VERIZON_test.exe	VERIZON	SWI9X07Y_02.25.02.01	002.060_000	SWI9X07Y_02.25.02.01	18.10.3	Test
WP7605 Approval pending package						
WP76xx_Release-12_DOCOMO_test.exe	DOCOMO	SWI9X07Y_02.25.02.01	001.008_000	SWI9X07Y_02.25.02.01	18.10.3	Test
WP76xx_Release-12_KDDI_test.exe	KDDI	SWI9X07Y_02.25.02.01	001.008_000	SWI9X07Y_02.25.02.01	18.10.3	Test
WP76xx_Release12_BP6_SOFTBANK_test.exe	Softbank	SWI9X07Y_02.25.02.01	001.008_000	SWI9X07Y_02.25.02.01	18.10.3	Test
WP7609 Approval pending package						
WP76xx_Release12_TELSTRA_test.exe	TELSTRA	SWI9X07Y_02.25.02.01	001.041_000	SWI9X07Y_02.25.02.01	18.10.3	Test

Function	Files
Firmware components	9999999_9907152_SWI9X07Y_02.25.02.01_00_GENERIC_002.056_000.spk (GCF) 9999999_9907152_SWI9X07Y_02.18.05.00_00_GENERIC_002.041_003.spk (PTCRB) 9999999_9908787_SWI9X07Y_02.25.02.01_00_SIERRA_001.014_000.spk (GCF) 9999999_9908787_SWI9X07Y_02.18.05.00_00_SIERRA_001.002_001.spk (PTCRB) 9999999_9907256_SWI9X07Y_02.18.05.00_00_ATT_002.040_002.spk (ATT) 9999999_9907255_SWI9X07Y_02.18.05.00_00_VERIZON_002.041_002.spk (VZW) linux-SWI9X07Y_02.25.02.01.cwe legato-18.10.3.cwe
From: https://source.sierrawireless.com/resources/airprime/software/wp76xx/wp76xx-firmware-release-12/	

7.1.4 Available Memory

Flash

```
             NAME|   PARTITION      |ALLOCATION(KB)|IMGSIZE(KB)|   USAGE
    Linux Kernel |   mtd12 (boot)   |         14336|       9037|      63%
    Linux Rootfs |   mtd13 (system) |         29952|      21760|      72%
Legato Framework |   mtd14 (lefwkro)|          8704|       4865|      56%
           SWIRW |   mtd15 (swirw)  |         24576|           |
         USERAPP |   mtd16 (userapp)|        133120|           |
```

RAM
81592 kB*

*Value is read from the MemAvailable parameter in /proc/meminfo after boot.

Available of memory in Flash & RAM are for reference only and may vary depending at time of measuring and configuration changes made by customers.

7.1.5 Boot time

Time from the first boot message to Legato Ready is 19 seconds. Test result was obtained from WP7601 Generic package.

The boot time is for reference only and may vary depending configuration changes made by customers.

7.2 Software Changes Description

The following are changes in Release 12 since Release 11.

ID	Title	Description	Impacted Domain
Legato Framework			
Various	Legato 18.10.3	Legato 18.10.3 https://docs.legato.io/18_10/aboutReleaseNotes.html Upgrade from 18.09.0 in Release 11. Important fixes include: LE-11943 - Unable to load OEM keystore .cwe using fwupdate LE-12181 - pa_flash_Write() will loops indefinitely when write reports -EIO LE-11979 - Secure storage context lost after the system update LE-11212 The module cannot go to sleep without SIM card	Legato AF
Linux Distribution			

ID	Title	Description	Impacted Domain
QTI9X07-2711 QTI9X07-2948	Upgrade Linux Distro to LXSWI2.2-12.0 from to LXSWI2.2-10.0	Upgrade to LXSWI2.2-12.0 (from LXSWI2.2-10.0 in Release 11)	Linux baseline
QTI9X07-2061	The UART baud rate for NMEA frames is fixed at 9600bps	To align with other default baud rate for all UART ports, the NMEA default baud rate is changed to 115200.	UART
QTI9X07-2327	Problem with using UART2 for Bluetooth controller	Change UART 2 to use 4 wires and high-speed support. That is needed for connecting a Bluetooth controller.	UART
QTI9X07-2348	PCM audio playback not working	Add a dummy handler in the codec driver such that DAI can be initialized properly.	Audio
QTI9X07-2418 QTI9X07-2474	Current consumption is high when used with a SIM PIN locked SIM card	A regression was found after a change in Legato framework. The fix in modem platform adaptor in Legato is made.	Low power mode
QTI9X07-2535	Unable to build with QCA9377 wifi driver enabled	Fix the kernel patch to enable QCA9377 wifi driver.	Build
QTI9X07-2696	modemDaemon is crashed after le_mdc_GetDisconnectionReason function has been called	Modem daemon in Linux is crashed when querying the disconnection reason from Legato.	Legato AF
QTI9X07-2922	MCU GPIOs default to pull down instead of no pull	Corrected initial state of MCU GPIOs to no-pull for consistency with other GPIOs and to avoid conflict with external circuitry.	Linux MCU kernel driver
QTI9X07-2746	Attach request instead of a TAU after waking up from PSM	PSM was not working correctly. Changed PSM sync option to option B, which leaves PMIC powered to retain RTC. This results in higher current consumption of 22.5uA, however.	PSM
Modem Firmware			
AT Command			
QTI9X07-1796 QTI9X07-2326 QTI9X07-2471 QTI9X07-2377	No DTMF detection notification	Over a VoLTE call, no +WDDI URC is reported when DTMF detection is enabled. Over 2G/3G call, DTMF detection also fail if an audio codec is not present.	Sierra AT

ID	Title	Description	Impacted Domain
QTI9X07-2211	AT+KCELL command return ERROR on some SIM cards	The checking of SIM PIN2 status is not really required for AT+KCELL. That cause the issue on some SIM card. Changed to check SIM PIN blocked for PIN1 only.	Sierra AT
QTI9X07-2472	AT!PCTEMP? Returns a temperature value lower than ambient temperature	A correction is made in the ADC to temperature conversion map.	Sierra AT
QTI9X07-2490	AT port because irresponsive after ATQ is set to 1	When AT port is configured to operate in quiet mode using ATQ1 command, internal AT commands stop being executed.	3GPP AT
QTI9X07-2555	AT+KCELL return a wrong parameter	One parameter returns decimal digits rather than hexadecimal digits.	Sierra AT
QTI9X07-2804 QTI9X07-2506 QTI9X07-1922 QTI9X07-2716 QTI9X07-2715 QTI9X07-1700	Improvement on error check handling on some Diagnostic test AT command	A list of AT command handler start with AT!DA are modified for proper error handling.	Sierra AT
QTI9X07-2897	AT+WRID=? Return ERROR	Add the implementation for AT+WRID=? test command.	Sierra AT
Audio			
QTI9X07-2314	Module can only record voice from remote side	AT+AVAUDIO command should support voice call recording on both local and remote side. The fix is to add the support of recording at both local and remote side.	Audio
QTI9X07-2729	Restrict to reenable VoLTE for non-VoLTE products	Remove capability to enable/disable VoLTE through QMI	VoLTE
Core / System			
QTI9X07-2719 QTI9X07-2764 QTI9X07-2890	Update Qualcomm stack to MDM9607.LE.2.0-00150-STD.PROD-2	Merge: Qualcomm MDM9607.LE.2.0-00145-STD.PROD-1 Qualcomm interim release MDM9607.LE.2.0-00146-STD.PROD-1 Qualcomm MDM9607.LE.2.0-00150-STD.PROD-2	Protocol stack

ID	Title	Description	Impacted Domain
QTI9X07-1913	Devices' USB port disappear before reaching the high critical temperature	By design modules jump into offline mode at very high temperature for protecting the device from damage. Before reaching the pre-set limit, the device already jumped into offline mode.	Reliability
QTI9X07-2413	Remove some command options for modules without MCU such as WP7605	Without Sierra embedded MCU, some options and features are not supported. Those are properly removed from the command options.	MCU
Data connectivity			
QTI9X07-2558	Enabling CMUX on a DLC port is not prohibited	Error checking is added to prevent active CMUX again on DLC port.	CMUX
Diagnostic / indicators			
QTI9X07-1115	AT!FLOG? not working properly when logs are too large	AT port may become irresponsive or some log missing when logs are very large.	Log
QTI9X07-2608	Update the FLOG implementation	Sync the FLOG implementation from another branch.	Log
QTI9X07-2650 QTI9X07-2507 QTI9X07-2508 QTI9X07-2513	FLOG may cause EFS memory space exhaustion happen in extreme cases	Clean up FLOG files during running time after reaching the watermark	Log
GNSS			
QTI9X07-995	Unable to get MS-Assisted GPS fix for small SSL cert	Fix the issue by adding an internal AT command to configure the length of the SSL certificate for small certificate.	SUPL
Low Power Mode			
QTI9X07-2639	PSM cannot be used by Legato or AT!POWERMODE	AT!POWERMODE and sysfs were only working for ULPM-only. They are now fixed for PSM-only and Off.	MCU
Protocol / Certification			
QTI9X07-2653	[WP7610][AT&T][Sev-2][Defect#365841][LTE-BTR-5-5464.1][Invite -Invalid to Header for #56789]	IMS configuration for AT&T Firstnet is not configured correctly.	AT&T
QTI9X07-2654	[WP7610][AT&T][Sev-2][Defect#365847][LTE-BTR-5-4220.1]['firstnet-phone' PDP context - Failure]	APN for Firstnet data-only instead of Firstnet VoLTE is configured	AT&T

ID	Title	Description	Impacted Domain
QTI9X07-2580	[WP7610][PTCRB][IMS][APN] RB TEST MODE ISSUE	Failed to support to initiate SRBs when test mode/loopback mode is active. It impacts a lot of GCF/PTCRB test case when PICS is Pc_Provide_IMS_as_second_APN=TRUE	PTCRB
QTI9X07-2584	[WP7610][PTCRB][STK] Incorrect terminal response received on TC 27.22.4.2.8/1	PTCRB test case TC 27.22.4.2.8/1 fails	PTCRB
QTI9X07-2663	[WP7610][PTCRB][STK]: Incorrect Terminal Response on TC 27.22.4.11.2/1A	PTCRB TC 27.22.4.11.2/1A is FAIL. After proactive command SEND SS is completed, the ME sends Terminal Response with the result = 4 (Command performed successfully, but requested icon could not be displayed) instead of result = 0 (Command performed successfully).	PTCRB
QTI9X07-2700	[WP7610][STK][PTCRB]: No audio tone on TC 27.22.4.5	No audio tone is played after proactive command PLAY TONE fetched	PTCRB
QTI9X07-2851	[WP7610][PTCRB][STK]: No Envelope on "Set up event list" test cases	There is no user interface to inform ME the "User Activity" and "Idle Screen Available" events, thus no Envelope is sent to SIM for the specific event.	PTCRB
QTI9X07-2668	Apply sub-PRI configuration without reset	Able to apply the Sub-PRI configuration on-the-fly without reset. For example, this can prevent unexpected reset after changing from AT&T SIM to FirstNet SIM.	AT&T
QTI9X07-2732	Some IMS settings do not get update after change of carrier	Support some IMS settings immediate update after applying SubPRI	IMS
Protocol / LWM2M (These fixes were added specifically for WP77 Verizon certification and are also available on WP76 platform.)			
QTI9X07-2816	Failure to Authenticate with Diagnostic server if Profile type is IPV4V6	cannot register with LWM2M servers without an IPV6 address	lwm2m
QTI9X07-2818	LWM2M client sends duplicate "Client Hello" messages	When failing back to IPV4, the lwm2m client will send two "Client Hello" messages to the server.	lwm2m

ID	Title	Description	Impacted Domain
QTI9X07-2819	[WP7702][VZW][LWM2M] Executing node /1/1/8 should only update registration for DM server	Executing node /1/1/8 is causing the DM, Repository, and Diagnostic servers to all update their registrations. It should only update the server on instance 1.	lwm2m
QTI9X07-2820	VZW APN Nodes are incorrect	Allows updating APN 3 and 6 OTA.	lwm2m
QTI9X07-2821	[Verizon][LWM2M] TC 4.19 and TC 4.20 Failure for Time Related Nodes	Format for presenting UTC offset resource missing UTC prefix	lwm2m
QTI9X07-2832	[WP7702][VZW][LWM2M] Manufacturer Name /3/0/0, doesn't match other modules	Manufacturer name (/3/0/0) will be reported as "Sierra Wireless" instead of "Sierra Wireless, Inc" after this change.	lwm2m
QTI9X07-2854	LWM2M VZW DIAG verifyDiagSvr2DisableTimeout Failure	The client does not pass the verifyDiagSvr2DisableTimeout test case for VZW LwM2M diag server testing.	lwm2m
QTI9X07-2869	[WP7702][VZW][LWM2M] Carrier Reset doesn't initialize LWM2M bootstrap or server credentials	at!carrierreset will reinitialize lwm2m.	lwm2m
QTI9X07-2908 QTI9X07-2909	[WP7702][VZW][LWM2M] TC 2.00, 3.35 Bootstrapping - /1/1/30000/0 and 1/3/30000/1 not updated on registration	Implement VZW LWM2MOTADM requirement 40975 regarding the order of operations during server registration after bootstrap.	lwm2m
QTI9X07-2910	[WP7702][VZW][LWM2M] TC 4.20, UTC Offset fails write operation	Unable to set UTC offset via LWM2M server	lwm2m
QTI9X07-2911	[WP7702][VZW][LWM2M] TC 5.07- Class 3 APN, attribute update to /4/0/30000 Fails	Customers unable to write to a node with multiple nested TLVs from the LWM2M server without this change.	lwm2m
QTI9X07-2945	[LWM2M] Memory leak after each start/stop of LWM2M session	Avoid possible crashes due to memory leak.	lwm2m
QTI9X07-2958	[LWM2M] Device does not initiate bootstrap session on SIM swap	Device does not bootstrap with LWM2M server on hot sim swap.	lwm2m
QTI9X07-2971	Writing Lifetime timer only works while LWM2M is registered	Minimal impact. Auto provisioning code cannot set lifetime timer for repo server so it gets defaulted to effectively infinity, instead of 30 days.	lwm2m

ID	Title	Description	Impacted Domain
QTI9X07-2989	Diag Server HoldOffTimer not written during provisioning	Per VZ_REQ_OTADMLWM2M_41078 must be provisioned to 30.	lwm2m
QTI9X07-2990	[WP7702][VZW][LWM2M] TC 5.05 IP Address returns error on server READ	Fix the issue by reporting each separate IPV4 and IPV6 address in a different instance for node /4/0/4.	lwm2m
RF			
QTI9X07-2005	Remove some unsupported bands for WP7610	WP7610 should have LTE B25, B26 and B41 removed for DV4.1 and onwards.	Bands
QTI9X07-3181 QTI9X07-3179	Failure to maintain call on B3 on WP7605	Unable to calibrate and make call on Band3.	Bands
QTI9X07-1923	WP7608 GSM/DCS Tx power is too high in+ multi-slot mode	To improve Tx performance test for GSM900/DCS1800 bands, the tx power in multi-slot mode has to be reduced.	Tx
QTI9X07-2741	RF performance optimization for WP7610	RFNV Update TX pwr performance and remove LTE B25, B26, B41 for WP7610	Tx
QTI9X07-2745	RF default parameter update for WP7605	B3 min power was missed from the last update. Also added PinPout, TxCalChan, and LIMITvsTemp NVs.	Tx
QTI9X07-2865	Update RFNV for A-MPR issue at Japan regulatory for WP7605	this device support A-MPR, but the output power doesn't decrease at NS05	Tx
QTI9X07-3040	B1 desense issue on WP7605	Swap B1 with B3 in RF driver to mitigate B1 desense.	Rx
Security			
QTI9X07-2605	Add mechanism to disable unauthenticated local download	Ability to restrict local firmware download to authorized host client.	Security
QTI9X07-2748	Secure file storage is accessible by Qualcomm tool.	Prevent unauthorized access to Secure File Storage files over DM port / EFS Explorer.	Security

7.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Bugs			
QTI9X07-3200	Secure storage item segments become orphaned when write fails	Secure storage item segment in becomes orphaned when sfs_write fails	SFS
QTI9X07-3199	Secure storage failure when item size > 1024 bytes	Truncated SecStore write without Legato API reporting error.	SFS
QTI9X07-2946	Cannot write multiple secstore entries:	QMI_SWI_SFS_OPEN returns success even though operation has failed and a null pointer to file is returned	SFS
QTI9X07-3134	[Sandbox]usb device can't mount on the module	Unable to mount a USB flash memory device onto our module.	Application
QTI9X07-3073	Crash: memheap.c:2020 In task 0x87, Assertion BOUNDARY_CHECK_SECTIONS(theBlock, heap_ptr) failed	Device may crash when disabled server registers again.	LWM2M
QTI9X07-3043	MNSHub operator is not listed in the response of +COPN	Operator "MNSHub" is missing from TS.25 list	GCF
QTI9X07-3023	[CMUX][Dial-up] Cannot access to HTTP server by browser when making dial-up via DLC port successfully	Failure to visit some web pages through dial-up connection over CMUX DLC ports.	CMUX
QTI9X07-2988	[AT][PSM][+CPSMS] PIN is lost when the module wakes up from PSM	SIM PIN has to be re-entered after woken up from PSM.	PSM
QTI9X07-2955	ULPM wakeup triggers not persisted consistently	ULPM wakeup timer is not saved persistently after waking up UPLM.	PSM
QTI9X07-2950	ULPM fallback does not work consistently	Use of PSM/ULPM Fallback mode sometimes would do neither. This mode has been temporarily mapped to ULPM-only until a permanent fix can be made.	PSM
QTI9X07-2887	GSM modulation spectrum failures at -30C	GSM modulation spectrum failures at -30C	GSM
QTI9X07-2691	[WP7607] PSLOCI file not being Updated after GSM Registration	PSLOCI file not updated after GSM registration when used with Smart SIM v4.4.1.	SIM
QTI9X07-2482	I2S signaling overheats MAX98357 codec	Hardware failure (overheating) when using I2S audio with MAX98357 external codec.	audio

ID	Title	Description	Impacted Domain
QTI9X07-2387	[Legato] [DataControl] [REG] After starting the data session - AUTHENTICATION <LE_MDC_AUTH_CHAP | LE_MDC_AUTH_PAP> ENABLED, the profile returned is incorrect	With Legato, fail to establish a data session with authentication enabled	Data
QTI9X07-2272	Periodic high current draw when testing EDRX/DRX with HSIC Enabled	Periodic high current draw when testing EDRX/DRX with HSIC Enabled	PSM
QTI9X07-2106	Periodic current spikes observed when testing EDRX with HSIC disabled	Periodic high current spike in every 20s when using EDRX and HSIC disabled.	PSM
QTI9X07-2195	SNTP Client unable to use existing connection	Unlike the WPx5, the WP76 SNTP client must open a new connection, which is more visible and could have undesirable consequences. Therefore for WP76 the feature is off by default so the user would need to enable it explicitly to get the benefit. This can be done via QMI/Legato, but because it is a AT!CUSTOM feature, a level 2 password is required to enable it via AT	FOTA/Other
QTI9X07-2186	Setting identical profile AUTH params forces LTE re-attach with SINGLEAPNSWITCH	With SINGLEAPNSWITCH feature enabled, Legato cm data connect always fails on LTE with Legato 18.05.1 or older	Legato
QTI9X07-1653	WP76xx Loses Network Synchronization at low temp (-20degC)	At temperature below -20, units in sleep mode may lose LTE network synchronization. A workaround that inhibit sleep mode at low temperature has been in placed (QTI9X07-2467) to mitigate this problem.	Protocol/GPS

8 SWI9X07Y Release 11

Release 11 is the beta for WP7610 and is targeted for PTCRB and AT&T lab entry. WP7605[-1] is also firstly supported in Release 11.

8.1 Software Release Description

8.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.22.00.00 000000 jenkins 2018/10/23 02:38:51
Linux Firmware	SWI9X07Y_02.22.00.00 2018-10-23_04:20:26
MCU Firmware	002.011 (embedded as a binary in the linux image, not distributed as a separate component)
Legato Application Framework	18.09.0_55653a95e8ec01352c537c3e9833134e
Binary Size	58MB (compressed binaries)
IMEI SV	6
Qualcomm Stack Version	MDM9607.LE.2.0-00140-STD.PROD-1
Linux Kernel Version	Linux version 3.18.44 (jenkins@jenkins) (gcc version 6.2.0 (GCC)) #2 PREEMPT Tue Oct 23 04:21:20 UTC 2018
Supported H/W	WP7601[-1], WP7603[-1], WP7605, WP7607[-1], WP7608[-1], WP7609, WP7610

8.1.2 Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	B4836
Windows SDK	None
Skylight	None
Linux Drivers	S2.34N2.54
Linux SDK	SLQS04.00.17

8.1.3 Released Files

File	Carrier	Modem Firmware	Config	Linux Distribution	Base Legato System	Comment
WP7601/WP7601-1 Approved						
WP76xx_Release-11_VERIZON.exe	VERIZON	SWI9X07Y_02.18.05.00	002.041_001	SWI9X07Y_02.22.00.00	18.09.0	Verizon Approved
WP7603/WP7603-1 Approved						
WP76xx_Release-11_ATT.exe	ATT	SWI9X07Y_02.18.05.00	002.040_001	SWI9X07Y_02.22.00.00	18.09.0	AT&T Approved
WP7607 / WP7607-1 Approved						
WP76xx_Release-11_GENERIC.exe	GENERIC (GCF)	SWI9X07Y_02.18.05.00	002.041_002	SWI9X07Y_02.22.00.00	18.09.0	GCF Approved
WP7610 Beta FW package						
WP76xx_Release-11_GENERIC_test.exe	GENERIC (GCF)	SWI9X07Y_02.22.00.00	002.048_000	SWI9X07Y_02.22.00.00	18.09.0	Test
WP76xx_Release-11_SIERRA_test.exe	SIERRA (GCF)	SWI9X07Y_02.22.00.00	001.005_000	SWI9X07Y_02.22.00.00	18.09.0	Test

WP76xx_Release-11_ATT_test.exe	ATT	SWI9X07Y_02.22.00.00	002.051_000	SWI9X07Y_02.22.00.00	18.09.0	Test
WP76xx_Release-11_VERIZON_test.exe	VERIZON	SWI9X07Y_02.22.00.00	002.050_000	SWI9X07Y_02.22.00.00	18.09.0	Test
WP7605 Beta FW package						
WP76xx_Release-11_GENERIC_test.exe	GENERIC (GCF)	SWI9X07Y_02.22.00.00	002.048_000	SWI9X07Y_02.22.00.00	18.09.0	Test
WP76xx_Release-11_SIERRA_test.exe	SIERRA (GCF)	SWI9X07Y_02.22.00.00	001.005_000	SWI9X07Y_02.22.00.00	18.09.0	Test

Function	Files
Firmware components	9999999_9907152_SWI9X07Y_02.18.05.00_00_GENERIC_002.041_002.spk (GCF, PTCRB) 9999999_9907152_SWI9X07Y_02.18.05.00_00_SIERRA_001.002_000.spk (GCF) 9999999_9907152_SWI9X07Y_02.18.05.00_00_ATT_002.040_001.spk (ATT) linux-SWI9X07Y_02.22.00.00.cwe legato-18.09.0.cwe
Contact Sierra Sale.	

8.1.4 Available Memory

Flash

```
            NAME|   PARTITION      |ALLOCATION(KB)|IMGSIZE(KB)|   USAGE
    Linux Kernel |   mtd12 (boot)   |         14336|       8957|      62%
    Linux Rootfs |   mtd13 (system) |         29952|      19456|      64%
Legato Framework |   mtd14 (lefwkro)|          8704|       4609|      53%
           SWIRW |   mtd15 (swirw)  |         24576|           |
         USERAPP |   mtd16 (userapp)|        133120|           |
```

RAM
82160 kB
*Value is read from the MemAvailable parameter in /proc/meminfo

*Available of memory in Flash & RAM are for reference only and may vary depending at time of measuring and configuration changes made by customers.

8.1.5 Boot time

Time from the first boot message to Legato Ready is 23 seconds. Test result was obtained from WP7601 Generic package.

*The boot time is for reference only and may vary depending configuration changes made by customers.

8.2 Software Changes Description

The following are changes in Release 11 since Release 10.1.1.

ID	Title	Description	Impacted Domain
Legato Framework			

ID	Title	Description	Impacted Domain
Various	Legato 18.09.0	Legato 18.09.0 https://docs.legato.io/18_09/releaseNotes18090.html Upgrade from 18.06.0 in Release 10. Includes: LE-6358 - Enable SMACK onlycap implementation. Feature disabled by default. LE-10514 -Disable user agreement for FOTA package download. (Note: Remove the file /data/le_fs/avc/config/avcConfigParam and reboot to make this change effective after firmware upgrade from earlier releases)	Legato AF
Linux Distribution			
QTI9X07-2317 QTI9X07-2446 QTI9X07-2553	Upgrade Linux Distro to LXSWI2.2-10.0, based on Yocto 2.2.2	Upgrade to LXSWI2.2-10.0 (from LXSWI2.2-7.0 in Release 10) Includes: Enabling QCA9377 WiFi driver. Kernel security fixes, Smack onlycap capable.	Linux baseline
QTI9X07-2404	Incremental build of yocto cannot boot up	When build incrementally, the result yocto.cwe is not bootable due to roothash out of sync. Solution is to add nostamp=1 to force install task of initrafmfs-mdminit recipe	Build
Modem Firmware			
AT Command			
QTI9X07-1139	No 'CONNECT' in auto answer call	Fix the issue that the unsolicited response 'CONNECT' is not displayed when auto answer a MT voice call	3GPP AT
QTI9X07-1371	+WMGF notification not working when SMS memory full	After enable +WMGF notification using AT+WUSLMSK, add the ability that +WMGF notification is returned when receive message if memory is full.	Sierra AT
QTI9X07-1402	!MAPUART accepts unsupported option	Fix the issue AT!MAPUART=1,2 setting unsupported option. It should return ERROR.	Sierra AT
QTI9X07-1597	+IPR cannot be reset to default by AT&F	The setting of IPR baud rate cannot resume as default 115200 after entering at&f command.	3GPP AT
QTI9X07-2146	+CEDRXP notification correction	+' is missing in the +CEDRXP unsolicitied response	3GPP AT

ID	Title	Description	Impacted Domain
QTI9X07-2258	AT port may get locked up by AT!GPSXTRASTATUS?	Fix the issue that sending AT!GPSXTRATIME=0,1,1,0,0,0,0,0 and then immediately checks the result with AT!GPSXTRASTATUS?, the AT port will lock up and will not be recoverable without a reset.	Sierra AT
QTI9X07-2339	AT+WDSC? No response	AT+WDSC? Failed to response because the internal message payload size limit is too small to handle this response	Sierra AT
QTI9X07-2577	!GPSTRACK=? Formatting error	Add the missing newline in the response of !GPSTRACK=?	Sierra AT
QTI9X07-2529	Allow +CCLK without SIM	Allow +CCLK can run without SIM. Before, +CCLK returns ERROR when SIM is not present	3GPP AT
QTI9X07-1420 QTI9X07-1723 QTI9X07-1724 QTI9X07-1732 QTI9X07-1733 QTI9X07-1734 QTI9X07-1760 QTI9X07-1775 QTI9X07-1881 QTI9X07-1925 QTI9X07-1931 QTI9X07-1946 QTI9X07-2013 QTI9X07-2029 QTI9X07-2270	Sierra AT commands format improvement	Remove extra '\r\n' before OK in the command response	Sierra AT
QTI9X07-1756	Improvement for eDRX AT command	AT+CEDRXS command is not fully working properly.	3GPP AT
Audio			
QTI9X07-2150	AT+CLVL=? Shows incorrect supported range	AT+CLVL=? Command should return supported values from 0 to 5 instead of 0 to 8	Audio
QTI9X07-2028 QTI9X07-2332	Support audio profile switch or TX Vol change without reset	Add the ability that after AT!AVSETPROFILE profile change or AT!AVTXVOL tx volume change , it will take effect immediately.	Audio

ID	Title	Description	Impacted Domain
Core			
QTI9X07-2227 QTI9X07-2335 QTI9X07-2469 QTI9X07-2574	Multiple Qualcomm updates to: MDM9607.LE.2.0-00140-STD.PROD-1	Upgraded to latest Qualcomm 9X07 baseline. Fixes include: QTI9X07-2055 - when drop DTR, dialup connection cannot suspend and escape to online command mode QTI9X07-2159 -IPv6 RFC 2460 conformance test failure QTI9X07-1456 - +++ sent to peer as data in CSD call QTI9X07-2375 - field calibration on XO sometimes inadequate for extreme temperature QTI9X07-2205 - All DLC ports are stuck after sending AT+CMUX=0 on DLC port QTI9X07-2464 - Unable to drop a particular line from a conference call QTI9X07-2146 - Incorrectly formatted +CEDRXP notification	Qualcomm baseline
QTI9X07-2483	Use static UBI volume type for modem squashfs	Current modem squashfs UBI volume type is set as dynamic, this need to be corrected to use 'static' since the volume need to be static and RO with greater protections. Static volume type is also required for delta update since the update engine assumes static volumes for modem and other squashfs images	System
Data connectivity			
QTI9X07-2182	Change default frame size N1 to 1800 bytes	There was a issue that AT command cannot be sent on DLC port with 15-byte frame size	CMUX
QTI9X07-2205	No port blocking after AT+CMUX=0 is send on DLC port	Fixed the issue that entering AT+CMUX=0 on DLC port will cause all DLC port stuck.	3GPP AT
QTI9X07-1456	"+++" sent to peer as data in CSD call	When escaping from data mode to AT command mode in CSD call using +++ escape sequence, +++ will be sent as data.	Data connectivity
Diagnostic / indicators			
QTI9X07-2566	!GSTATUS may crash when not able to detect any network	If the band setting is set to the band mask (e.g. AT*PSRDBS) that the current location does not support. Query !GSTATUS? Will generate longer output that the buffer cannot fit. Then it will crash. This issue is fixed	RF

ID	Title	Description	Impacted Domain
QTI9X07-1381	Support Roaming indicator !RI	Add the support of roaming indicator !RI !RI will be reported with the AT+WUSLMSK mask enabled when the roaming status change	Network status
QTI9X07-2517	!GSTATUS response improvement	AT!GSTATUS response is updated to show more detailed setting related to IMS (e.g. to show if VoLTE is available)	Network status
QTI9X07-2578	+COPS error code improvement	Change +COPS error from "operation not allowed" to "no network service" when there is no network service	Network status
GNSS			
QTI9X07-649	GPSXTRASTATUS? Response does not contain "Xtra Data status" field	Add "Xtra Data status" field reported by AT!GPSXTRASTATUS? read command	GNSS
QTI9X07-1012	GPSSTATUS? Return wrong FAILCODE after session time out	When Session time out, run the AT!GPSSTATUS?, it returns FAILCODE=0. AT!GPSSTATUS? should return FAILCODE = 12.	GNSS
QTI9X07-2366	GPSAUTOSTART=2 triggers GPS session when NMEA port not open	GPS session is incorrectly started upon receiving radio ONLINE notification (e.g. AT+CFUN=1) when GPSAUTOSTART set to 2, even when there is no NMEA port opened (or enumerated, or even listed in USB Composition for that matter)	GNSS
LPM			
QTI9X07-2140	Enter sleep mode when sleep mode is disabled when !MUXMODE=1	It is expected that the module should stay awake with AT+KSLEEP=2. But the module enters sleep with this mode when !MUXMODE=1	PSM/ULPM
QTI9X07-2143	Fail to enter sleep mode when +KSLEEP=1 and !MUXMODE=1 without bootup event unsolicited response	With AT+KSLEEP=1 and AT!MUXMODE=1, the module is expected to enter sleep after bootup. But it fails to do so when no unsolicited response is reported at that time.	PSM/ULPM
QTI9X07-2144	Fix wake up mechanism in !MUXMODE=1	Normally it is required to enter one character to wake up the module from sleep. But it takes two characters to wake it up when !MUXMODE=1	PSM/ULPM

ID	Title	Description	Impacted Domain
QTI9X07-2191	Entering PSM fails when fast network attached at bootup	At boot up time, MCU performs HW timer calibration and the modem radio interface is also trying to attach to network. But occasionally, when fast network attach is happened, the modem will try to enter PSM upon NW request. This would perform MCU to proceed with PSM as the timer calibration is not finished at that moment. This results in a quasi-shutdown state as the modem is in partial shutdown (modem side: all ports are enumerated but AT is unreachable, NW-silent, legato: file-system is not accessible) whereas swiapps is still running along with MCU.	PSM/ULPM
QTI9X07-2223	Time of the Day (TOD) lost when exiting from ULPS	Fix the issue that Time of the Day (TOD) on module was lost after it exits from Ultra Low Power State (ULPS).	PSM/ULPM
QTI9X07-2340	Current consumption issue - AT!MUXMODE=1 and UART1 plugged-in	Correct an issue that if UART1 was mapped to AT command port with AT!MUXMODE=1 and physical UART is connected, the module consumed an average of ~15-20mA in idle and LPM modes.	PSM/ULPM
QTI9X07-2488	Make PSM Option C the sysfs default	Change the default PSM/ULPM synchronization option in the driver back to Option C for minimal current consumption during PSM.	PSM/ULPM

ID	Title	Description	Impacted Domain
QTI9X07-2551	PSM does not work	In Sierra-customized PSM power off sequence, "poweroff" command is used for graceful Linux system shutdown after MPSS shuts down. The script for "poweroff" command will synchronize with MPSS to start power-down. In case of the customized PSM power off sequence, MPSS may have shut down at the point of "poweroff" command is issued, causing a fatal error detected by BAM DMUX kernel driver and then recovered with a system-restart. This patch adds a Boolean flag to prevent the BAM DMUX kernel driver from restarting system, knowing that MPSS may have been shut down at this point. The added flag is set only during the customized PSM power off sequence. It has no impact on regular "poweroff" command.	PSM/ULPM
Protocol / Certification			
QTI9X07-2159	Anatel IPv6 failure	WP is not in compliance with latest Anatel (Brazil regulatory IPv6 requirements). It provides the solution for the compliance	Wireless Network
QTI9X07-2464	Conference call dropping	Add the support of dropping a particular line from a conference call	AT&T
QTI9X07-2547	Verizon OMADM IPv6 support	Add the support of IPv6 for OMADM in Verizon	Verizon
QTI9X07-2271	Increment IMEI SV	IMEI SVN was incremented to 6 for this release	GCF
QTI9X07-2585	Firmware crash when executing proactive command	Fix the crash when when executing proactive command SEND_S S due to invalid memory copy	PTCRB
QTI9X07-2364	QTI9X07-2164 Update TS.25 list to October 01, 2018	Default TS.25 list updated. Non-GSMA PLMNs removed except Test PLMNs.	GCF
QTI9X07-437	Volte call related bug fixes	Fix several issues related to VoLTE call in Verizon	Verizon

ID	Title	Description	Impacted Domain
QTI9X07-2222 QTI9X07-2282 QTI9X07-2360	Carrier LWM2M support	Add support for Autostart, Retry mechanism after Registration failure and SMS wakeup. It also contains test case failure bug fixes Carrier LWM2M has been added specifically for WP77 Verizon certification to maintain functional parity between the two platforms. There are currently no plans to certify this feature at a carrier for WP76 so it will remain dormant unless explicitly enabled.	Carrier LWM2M
QTI9X07-2383	Treat a list of PLMNs required by AT&T as home PLMNs	AT&T requirement is to display required PLMNs on UI as home PLMNs.	AT&T
QMI			
QTI9X07-546	Support QMI_SWI_SFS_GET_SPACE_INFO_REQ_V01	Add the support QMI message QMI_SWI_SFS_GET_SPACE_INFO_REQ_V01	QMI
QTI9X07-2269	QMI_DMS_SWI_GET_SUPPORT_BANDS_REQ_V01 returns error	Fix the issue that index of QMI_DMS_SWI_GET_SUPPORT_BANDS_REQ and RESP are disorder	QMI
QTI9X07-2315	Module will crash when QMI_DMS_SWI_GET_CRASH_ACTION is called	Fix length when reading crash options via QMI This will initialize length for NV read of crash options via QMI. Suspecting this is causing a crash seen by customer with crash string "SWI_ABORT-M: Data buffer size too small 00000389".	QMI
RF			
QTI9X07-2525 QTI9X07-2293	Add RF driver support for WP7605	Fix the issue that using ANT_CTRL (I/O control external antenna) in 2G does not work with TX	RF
QTI9X07-2167	No ANT_CTRL signal on TX slot in 2G	Fix the issue that using ANT_CTRL (I/O control external antenna) in 2G does not work with TX	RF
QTI9X07-2219	Support Antenna selection on WP7610	Add the support of antenna selection on WP7610 with update of !ANTSEL	Antenna Selection
Temperature			

ID	Title	Description	Impacted Domain
QTI9X07-2375	Fix crystal calibration in extreme temperature	Crystal calibration is not optimal for extreme temperature range, impacting extreme temperature performance	Calibration
QTI9X07-2399	Correct temperature state reported by QMI_DMS_SWI_EVENT_REPORT_IND	Modem reports wrong temperature state via QMI_DMS_SWI_EVENT_REPORT_IND. It requires a conversion before generating the QMI indication	QMI
UART			
QTI9X07-2445	+IPR? Show wrong baudrate after changing +MUXMODE	When in CMUX over UART mode, ie, +muxmode=1, after changing the +IPR baud-rate, change the +muxmode=2 and reboot, the AT+IPR? command return wrong bandrate but not the actual bandrate. It is fixed and +IPR returns actual bandrate in this case.	Mux mode
QTI9X07-2055	Fix connection behavior of when DTR is asserted when AT&D1	There was a issue with AT&D1, when drop DTR, dialup connection will be disconnected. It should suspend and escape to online command mode	DUN
QTI9X07-2115	Fix the wake up issue on UART that requires sending 2 characters	The issue is that One or two characters would be discarded when the UART is sleeping in CMUX over UART mode (at!muxmode=1) In current kernel hsuart driver, two characters are required to wake up the UART port in below two situations: 1. Right after boot up. 2. Input only one character to UART to wake up and then let it sleep again. Each input character to UART would invoke the wakeup routine msm_hs_wakeup_isr() and the msm_uport->wakeup.ignore = 1 would mandate two characters input to wake up from sleep mode. The fix is to add hrtimer and start it just before sleep.	Kernel Driver
QTI9X07-2300	UART cannot suspend after RX wakeup	Fix the issue that UART cannot suspend after RX wakeup	UART

ID	Title	Description	Impacted Domain
QTI9X07-2458	DTR and DCD not working properly in CMUX over UART	There are issues when using CMUX over UART mode with the UART AT port is both initialized on APSS and MPSS code. Issues like, module may crash when no UART cable plugged Code fixing to support DTR and DCD in CMUX over UART mode	CMUX
UIM			
QTI9X07-1705 QTI9X07-2215 QTI9X07-2241	Unable to support SIM hot swap on external SIM2 slot	Fixed the issue that SIM in slot 2 does not work when removing SIM in slot 1	SIM
MCU Firmware – Update MCUFW to Version 002.011			
MCU-101	Trigger ULPM entry in the context of DFC on power-off sync wait timeout event	Change the execution context of idle_power_off_sync()to trigger ULPM entry in DFC execution loop, always.	ULPM
MCU-99	Keep ULPM timer running after receiving PING on WP76/77	During ULPS, PMIC is completely turned off and TOD cannot be recovered from PMIC RTC after the device exits ULPS. Implement a mechanism for user-space Time Daemon to synchronize TOD rom the MCU after the device exits ULPS.	ULPM
MCU-96	Add check on ADC power state before stopping ADC	Add a check on the ADC initialization state before writing would make more robust with fault-tolerance to such command sequence.	ADC

8.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Bugs			
QTI9X07-2706	Failing Sensitivity during GPS tracking session	RF sensitivity for products using LTE B1/B4/B7 is degraded when GPS is active.	RF
QTI9X07-2696	Modem Daemon is crashed after le_mdc_GetDisconnection Reason function has been called	Modem daemon in Linux is crashed when querying the disconnection reason from Legato.	Legato
QTI9X07-2639	AT!POWERMODE and boot_source/enable doesn't take effect for PSM or ULPM fallback	The interface does not work as specified/desired.	System
QTI9X07-2535	Unable to build Yocto image with QCA9377_BUILD enabled	Unable to build with QCA9377 wifi driver enabled.	Yocto
QTI9X07-2490	The terminal has no response to any input after ATQ is set to 1, saved and reset	AT port is not responsive after ATQ is set to 1, saved into NV memory and the modem is reset	AT/Others
QTI9X07-2482	I2S signaling overheats MAX98357 codec	Hardware failure (overheating) when using I2S audio with MAX98357 external codec.	Audio
QTI9X07-2481	Unexpected response “+WDSI: 9” is returned after network has been lost and recovered during application installation in process	Unexpected indication “+WDSI: 9” is received after network has been lost and recovered during application installation from AVMS server	AVMS
QTI9X07-2471	No +WDDI URC retrieved when sending tones by +VTS	Over a VoLTE call, no +WDDI URC is reported when DTMF detection is enabled. Over 2G/3G call, DTMF detection also fail if an audio codec is not present.	AT/Other
QTI9X07-2387	After starting the data session - AUTHENTICATION <LE_MDC_AUTH_CHAP | LE_MDC_AUTH_PAP> ENABLED, the profile returned is incorrect	With Legato, fail to establish a data session with authentication enabled	Legato
QTI9X07-2348	PCM audio playback not working in Release 10	PCM audio playback failed with Release 10 which is caused by the fix of QTI9X07-2217.	AT/Other
QTI9X07-2327	Can't attach Bluetooth controller to UART2	Cannot attach Bluetooth controller to UART2	UART/Console

ID	Title	Description	Impacted Domain
QTI9X07-2303	Cannot input characters to UART2 while the module is in sleep mode	UART2 mapped as linux console cannot input character when the module is in sleep.	UART/Console
QTI9X07-2272	Periodic high current draw when testing EDRX/DRX with HSIC Enabled	Periodic high current draw when testing EDRX/DRX with HSIC Enabled	System
QTI9X07-2245	missing libxml during incremental build	incremental build failed, need to clean & rebuild for every Yocto change. A temporary workaround is to backup and restore libxml.la for avoiding clean build.	Build
QTI9X07-2195	SNTP Client unable to use existing connection	Unlike the WPx5, the WP76 SNTP client must open a new connection, which is more visible and could have undesirable consequences. Therefore for WP76 the feature is off by default so the user would need to enable it explicitly to get the benefit. This can be done via QMI/Legato, but because it is a AT!CUSTOM feature, a level 2 password is required to enable it via AT	FOTA/Other
QTI9X07-2186	setting identical profile AUTH params forces LTE re-attach with SINGLEAPNSWITCH	With SINGLEAPNSWITCH feature enabled, Legato cm data connect always fails on LTE with Legato 18.05.1 or older	Legato
QTI9X07-2076	No Legato Event after an OPEN CHANNEL	No Legato event is reported for STK BIP Open Channel proactive command	Legato
QTI9X07-1928	The eth0 address is erased when Wifi chip is inserted after reboot	eth0 address is erased when Wifi chip is inserted after reboot	Driver
QTI9X07-1653	WP76xx Loses Network Synchronization at low temp (-20degC)	At temperature below -20, units in sleep mode may lose LTE network synchronization. A workaround that inhibit sleep mode at low temperature has been in placed (QTI9X07-2467) to mitigate this problem.	Protocol/GPS
QTI9X07-1494	Legato - boot loop error when build with 70MB Database	Boot loop error when build Legato image with 70MB Database	Legato
QTI9X07-2474	Current can only reach around 15 mA when it supposes to go to sleep	Modules fail to enter sleep mode after SIM card being unlocked and then synchronizing to the network.	Sleep
QTI9X07-2492	Pings over CAT4 with MIMO are intermittently failed	Ping intermittently failed when testing with CMW500 CAT4 MIMO on WP7610.	Performance

9 SWI9X07Y Release 10.1.1

Release 10.1.1 updates the Modem Firmware component in WP7601 Verizon packages to SWI9X07Y_02.18.05.00 as that has now been approved by the carrier. The only other change on the Source is to the Release 10.1 Generic 1-click that was initially posted digitally unsigned. This has been corrected.
No other carrier packages are affected and hence continue to be named Release 10.1 as before.

9.1.1 Released Files

File	Carrier	Modem Firmware	Config	Linux Distribution	Base Legato System	Comment
WP7601/WP7601-1 Approved						
WP76xx_Release-10.1.1_VERIZON.exe	VERIZON	SWI9X07Y_02.18.05.00	002.041_001	SWI9X07Y_02.18.06.00	18.06.3	Verizon approved
WP76xx_Release-10.1_GENERIC.exe	GENERIC (GCF)	SWI9X07Y_02.18.05.00	002.041_002	SWI9X07Y_02.18.06.00	18.06.3	Windows 1-click signed

9.1.2 Added Components

Function	Files
Firmware components	9999999_9907152_SWI9X07Y_02.18.05.00_00_VERIZON_002.041_001.spk (VERIZON)
From: https://source.sierrawireless.com/resources/airprime/software/wp76xx/wp76xx-firmware-release-10.1.1/	

10 SWI9X07Y Release 10.1

Release 10.1 is an incremental point release from Release 10, including carrier approval for PTCRB and AT&T. As of writing, Verizon MR certification was still pending, and will be posted externally once approved.

10.1 Software Release Description

10.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.18.05.00 000000 jenkins 2018/07/19 17:40:21
Linux Firmware	SWI9X07Y_02.18.06.00 2018-09-20_16:17:38
MCU Firmware	002.009 (embedded as a binary in the linux image, not distributed as a separate component)
Legato Application Framework	18.06.3_dc55d84226223a3798b01c1a272e9603
Binary Size	58MB (compressed binaries)
IMEI SV	5
Qualcomm Stack Version	MDM9607.LE.2.0-00120
Linux Kernel Version	Linux version 3.18.44 (jenkins@jenkins) (gcc version 6.2.0 (GCC)) #2 PREEMPT Thu Sep 20 16:20:02 UTC 2018
Supported H/W	WP7601[-1], WP7603[-1], WP7607[-1], WP7608[-1], WP7609, WP7610

10.1.2 Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	B4836
Windows SDK	None
Skylight	None
Linux Drivers	S2.34N2.53
Linux SDK	SLQS04.00.16

10.1.3 Released Files

File	Carrier	Modem Firmware	Config	Linux Distribution	Base Legato System	Comment
WP7601/WP7601-1 Approved/Pending						
WP76xx_Release-10.1_GENERIC.exe	GENERIC (GCF)	SWI9X07Y_02.18.05.00	002.041_002	SWI9X07Y_02.18.06.00	18.06.3	GCF Approved
WP76xx_Release-10.1_SIERRA.exe	SIERRA (GCF)	SWI9X07Y_02.18.05.00	001.002_000	SWI9X07Y_02.18.06.00	18.06.3	GCF Approved
WP76xx_Release-10.1_VERIZON.exe	VERIZON	SWI9X07Y_02.18.05.00	002.041_001	SWI9X07Y_02.18.06.00	18.06.3	Verizon pending
WP7603/WP7603-1 Approved						
WP76xx_Release-10.1_PTCRB.exe	GENERIC (PTCRB)	SWI9X07Y_02.18.05.00	002.041_002	SWI9X07Y_02.18.06.00	18.06.3	PTCRB Approved
WP76xx_Release-10.1_SIERRA.exe	SIERRA (GCF)	SWI9X07Y_02.18.05.00	001.002_000	SWI9X07Y_02.18.06.00	18.06.3	GCF Approved
WP76xx_Release-10.1_ATT.exe	ATT	SWI9X07Y_02.18.05.00	002.040_001	SWI9X07Y_02.18.06.00	18.06.3	AT&T Approved
WP7607 / WP7607-1 Approved						
WP76xx_Release-10.1_GENERIC.exe	GENERIC (GCF)	SWI9X07Y_02.18.05.00	002.041_002	SWI9X07Y_02.18.06.00	18.06.3	GCF Approved

WP76xx_Release-10.1_SIERRA.exe	SIERRA (GCF)	SWI9X07Y_02.18.05.00	001.002_000	SWI9X07Y_02.18.06.00	18.06.3	GCF Approved
WP7608 / WP7608-1 Approved						
WP76xx_Release-10.1_GENERIC.exe	GENERIC (GCF)	SWI9X07Y_02.18.05.00	002.041_002	SWI9X07Y_02.18.06.00	18.06.3	GCF Approved
WP76xx_Release-10.1_SIERRA.exe	SIERRA (GCF)	SWI9X07Y_02.18.05.00	001.002_000	SWI9X07Y_02.18.06.00	18.06.3	GCF Approved
WP7609 Approved						
WP76xx_Release-10.1_GENERIC.exe	GENERIC (GCF)	SWI9X07Y_02.18.05.00	002.041_002	SWI9X07Y_02.18.06.00	18.06.3	GCF Approved
WP76xx_Release-10.1_SIERRA.exe	SIERRA (GCF)	SWI9X07Y_02.18.05.00	001.002_000	SWI9X07Y_02.18.06.00	18.06.3	GCF Approved
WP7610 Pending						
WP76xx_Release-10.1_GENERIC.exe	GENERIC (GCF)	SWI9X07Y_02.18.05.00	002.041_002	SWI9X07Y_02.18.06.00	18.06.3	GCF Pending
WP76xx_Release-10.1_SIERRA.exe	SIERRA (GCF)	SWI9X07Y_02.18.05.00	001.002_000	SWI9X07Y_02.18.06.00	18.06.3	GCF Pending
WP76xx_Release-10.1_ATT.exe	ATT	SWI9X07Y_02.18.05.00	002.040_001	SWI9X07Y_02.18.06.00	18.06.3	AT&T Pending
WP76xx_Release-10.1_VERIZON.exe	VERIZON	SWI9X07Y_02.18.05.00	002.041_001	SWI9X07Y_02.18.06.00	18.06.3	Verizon Pending

Function	Files
Firmware components	9999999_9907152_SWI9X07Y_02.18.05.00_00_GENERIC_002.041_002.spk (GCF, PTCRB) 9999999_9907152_SWI9X07Y_02.18.05.00_00_SIERRA_001.002_000.spk (GCF) 9999999_9907152_SWI9X07Y_02.18.05.00_00_ATT_002.040_001.spk (ATT) 9999999_9907152_SWI9X07Y_02.18.05.00_00_VERIZON_002.041_001.spk (VERIZON) linux-SWI9X07Y_02.18.06.00.cwe legato-18.06.3.cwe
From: https://source.sierrawireless.com/resources/airprime/software/wp76xx/wp76xx-firmware-release-10.1/	

10.1.4 Available Memory

Flash

```
             NAME|    PARTITION       | ALLOCATION|    IMGSIZE|    USAGE
    Linux Kernel |    mtd12 (boot)    |       14336|       8961|      62%
    Linux Rootfs |    mtd13 (system)  |       29952|      17408|      58%
Legato Framework |    mtd14 (lefwkro)|        8704|           |
           SWIRW |    mtd15 (swirw)   |       24576|           |
          USERAP |    mtd16 (userapp)|      133120|           |
```

RAM
82304 kB
*Value is read from the MemAvailable parameter in /proc/meminfo

10.2 Software Changes Description

The following are changes in Release 10.1 since Release 10.

This is a point release of Release 10, certified with PTCRB / AT&T (WP7603[-1]) and pending Verizon (WP7601[-1]). Verizon modem component will be posted upon certification. Some critical customer issues have also been addressed.

ID	Title	Description	Impacted Domain
Legato Framework			
Various	Legato 18.06.3	Legato 18.06.3 https://docs.legato.io/latest/releaseNotes18063.html Upgrade from 18.06.1 in Release 10. Includes: LE-10797 - Legato fails to communicate with modem over QMI at > 60C LE-10931 - Neighbouring cell info API is returning cell info only for serving cell in case of UMTS and LTE mode LE-10918 - AVC2.0 parameters need to be implemented to match 74xx	Legato AF
Linux Distribution			
QTI9X07-2478	Inhibit sleep at low temperature	Until a final solution is found for: QTI9X07-1653 – Loss of network sync at low temperature A workaround is in place to inhibit sleep at low temperature. This workaround incurs an additional 0.13mA (increase of ~8%) operating above -22C and below that sleep is fully inhibited, drawing a typical minimum of 20mA. As temperature rises, sleep is unblocked above -20C. See PTS section on Current Consumption for sleep (USB-SS) current details.	Linux
LXSWIREF-684 QTI9X07-2518	Failure running yocto .cwe after cleaning and rebuilding linux-quic recipe	This is a regression where, as of Release 9 a rebuild from clean produced a linux image, but that image would not run. This has been corrected.	Build
Modem Firmware – no firmware changes. Only PRI changes.			
Certification			
OEMPRI-8166	Set Verizon profile 4 default disabled	Profile 4 of the Verizon PRI was changed to disabled by default to comply with the Verizon configuration specification. at+vzwapne? +VZWAPNE: … 4,"VZWAPP","IPV4V6","LTE","**Disabled**",0 …	Carrier PRI
Data connectivity			

ID	Title	Description	Impacted Domain
OEMPRI-8327 OEMPRI-8467 OEMPRI-8493	APN in CGDCONT changed after a FOTA	Due to the current design, a manually updated APN profile in the Generic PRI with embedded Sierra PRI would be reverted to the Sierra default if a Sierra SIM was detected. To ensure APN persistence across fw updates / image switches a separate SIERRA carrier PRI was created. Both Generic and Sierra images must be loaded to have separate APN profiles for both.	Carrier PRI
Stability			
OEMPRI-8297	FirstNet support removed from AT&T configuration	Due to the current design, an extra reset was observed when AT&T carrier was selected and the AT&T PRI had FirstNet support embedded. Since FirstNet is not a supported feature in WP7603, this was removed.	Carrier PRI
MCU Firmware – No change			

10.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Bugs			
QTI9X07-1653	Loss of LTE sync at low temperature	An issue of some units losing LTE sync in sleep mode below -20C has been confirmed. A workaround is in place as noted above.	Connectivity
QTI9X07-2159	Anatel IPv6 failure	WP is not in compliance with latest Anatel (Brazil regulatory) IPv6 requirements	Wireless Network
QTI9X07-1764	New MAC Address generated on each power cycle	By default, the WP will generate a new MAC address on the ethernet interface on every boot. This may be fixed by preconfiguring a MAC address in /etc/network/interfaces	Wired Network
QTI9X07-2348	PCM audio playback not working	A recent regression in external PCM functionality has broken audio playback. This was introduced with a fix to address power consumption after a call. A linux kernel patch is available to revert that change and restore external PCM functionality, available from Sierra support upon request. There is no impact to mangOH (or compatible) audio support.	Audio
QTI9X07-2140	AT+KSLEEP=2 does not disable sleep when at!muxmode=1	AT+KSLEEP=2 only disabled sleep mode if at!muxmode=0	Mux mode
QTI9X07-2300	UART1 cannot suspend after RX wakeup	Normally while idle, the UART will suspend to save power, however currently, after first waking up on RX data, it will no longer automatically suspend, incurring an extra ~12mA.	UART
QTI9X07-1705	AT+KSIMSEL does not support SIM hotswap on external SIM slot 2	With AT+KSIMSEL, when SIM cards are inserted in both external slots, they can be manually selected, but with hotswap enabled if SIM in slot 1 is removed, SIM in slot 2 does not work.	External SIM multiplexer
QTI9X07-2185 QTI9X07-2223 QTI9X07-2242	PSM lowest power mode issues	The PSM lowest power mode option was added in Release 9 to achieve ~7uA. Subsequent testing has found this mode has issues with missing TAU complete message and time of day continuity across PSM cycles. While these issues will continue to be worked for a future release (linux update) the previous default option (consuming ~16uA) has been restored.	PSM

ID	Title	Description	Impacted Domain
QTI9X07-1308	Missing Java dependency for building LK bootloader	The Android Signing tools for the LK bootloader require Java Runtime Environment (JRE) to be installed on the host platform. JRE has not been added to the build environment, so must be installed on the build machine manually. Example, for Ubuntu 16.04: sudo apt-get install default-jre *Manual JRE installation will continue to be required going forward.*	Build
QTI9X07-2562	GPIO4, 6, 28-31 not visible	Although support for GPIO4, 6, and 28-31 have been added in previous releases, they do not automatically become visible in AT+WIOCFG with a firmware upgrade. A custom tool must be used to update the OEM PRI to include support. This is available from Sierra support upon request.	GPIO
QTI9X07-2102	Workaround issues in GPIO control from linux	Different versions of a workaround were provided to allow linux control of GPIOs with carrier certified modem images. With the issue now addressed in the new carrier certified modem version the workaround is not required, however for workarounds using AT+WIOCFG=<gpio>,0 to enable linux access, these will need to be changed back to AT+WIOCFG=<gpio>,16 going forward. The setting will subsequently be persistent across upgrades so this would be a one time action when upgrading to Release 10.	GPIO
QTI9X07-1007	PCM configuration not allowed by default	The ability to set a profile to use a particular interface is controlled by AT!AVPIFACEPREF (level 2 access). By default, PCM was not included so PCM could not be set with AT!AVCFG without first setting AT!AVPIFACEPREF=F. The factory default has been updated to make PCM available by default, however this will only benefit newly manufactured units so AT!AVPIFACEPREF=F is still required.	Audio
QTI9X07-1494	Legato - boot loop error when built with large database	Customer legato.cwe image must be small enough to fit into the LEFWKRO partition (8MB).	Legato
QTI9X07-1278	Accessing MCU causes I2C NACK error	Any time the MCU is accessed (for version info, GPIO read/write, etc) from a MCU low power state, the first access is needed to wake it up. The retry is automatic and succeeds, but a kernel error is generated on the first attempt. This can be annoying as it floods the kernel log.	Kernel

ID	Title	Description	Impacted Domain
QTI9X07-2482	I2S signalling overheats MAX98357 codec	Hardware failure (overheating) when using I2S audio with MAX98357 external codec.	audio
QTI9X07-2471	No +WDDI URC retrieved when sending tones by +VTS	Over a VoLTE call, no +WDDI URC is reported when DTMF detection is enabled. Over 2G/3G call, DTMF detection also fail if an audio codec is not present.	DTMF
QTI9X07-2399	Incorrect temperature state in QMI_DMS_SWI_EVENT_REPORT_IND	Incorrect temperature state is reported by SWI DMS qmi indications.	PC, QMI/DMS
QTI9X07-2387	After starting the data session - AUTHENTICATION <LE_MDC_AUTH_CHAP | LE_MDC_AUTH_PAP> ENABLED, the profile returned is incorrect	With Legato, fail to establish a data session with authentication enabled.	Legato
QTI9X07-2375	field calibration on XO sometimes inadequate for extreme temperature	Crystal calibration is not optimal for extreme temperature range, impacting extreme temperature performance.	RF
QTI9X07-2340	When at!muxmode=1 and UART1 plugged-in, module cannot sleep	The module cannot go to sleep when at!muxmode=1 is enabled. (CMUX over UART mode)	UART/ CMUX
QTI9X07-2245	missing libxml during incremental build	incremental build failed, need to clean & rebuild for every Yocto change. A temporary workaround is to backup and restore libxml.la for avoiding clean build.	Build
QTI9X07-2195	SNTP Client unable to use existing connection	Unlike the WPx5, the WP76 SNTP client must open a new connection, which is more visible and could have undesirable consequences. Therefore for WP76 the feature is off by default so the user would need to enable it explicitly to get the benefit. This can be done via QMI/Legato, but because it is a AT!CUSTOM feature, a level 2 password is required to enable it via AT.	FOTA
QTI9X07-2186	setting identical profile AUTH params forces LTE re-attach with SINGLEAPNSWITCH	With SINGLEAPNSWITCH feature enabled, Legato cm data connect always fails on LTE with Legato 18.05.1 or older.	Legato

ID	Title	Description	Impacted Domain
QTI9X07-2167	No ANT_CTRL signal on TX slot	customer application using ANT_CTRL (I/O control external antenna) in 2G does not work.	Driver, GSM/Other
QTI9X07-2076	No Legato Event after an OPEN CHANNEL	No Legato event is reported for STK BIP Open Channel proactive command.	Legato/ UICC

11 SWI9X07Y Release 10

Release 10 is a significant milestone for the WP76 as it will provide an upgrade path for modem features and issues for carriers. Certification is planned on WP7603[-1] for PTCRB, AT&T and WP7601[-1] for Verizon on this release.
As previously noted, Release 7, 8, and 9, were only GCF certified so changes in Modem Firmware were only available in the Generic modem package. Once Carrier certification is received, Modem Firmware may be upgraded from SWI9X07Y_02.10.xx.00 to the latest release certified by that carrier, to benefit from modem changes in Release 7, 8, and 9.

11.1 Software Release Description

11.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.18.05.00 000000 jenkins 2018/07/19 17:40:21
Linux Firmware	SWI9X07Y_02.18.05.00 2018-07-19_19:10:35
MCU Firmware	002.009 (embedded as a binary in the linux image, not distributed as a separate component)
Legato Application Framework	18.06.1_a074d99aa28bbe5b9b5e97a81aa6b9a2
Binary Size	58MB (compressed binaries)
IMEI SV	5
Qualcomm Stack Version	MDM9607.LE.2.0-00120
Linux Kernel Version	3.18.44 (jenkins@jenkins) (gcc version 6.2.0 (GCC)) #2 PREEMPT Thu Jul 19 19:11:31 UTC 2018
Supported H/W	WP7601[-1], WP7603[-1], WP7607[-1], WP7608[-1], WP7609

11.1.2 Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	B4836
Windows SDK	None
Skylight	None
Linux Drivers	S2.33N2.52
Linux SDK	SLQS04.00.15

11.1.3 Released Files

File	Carrier	Modem Firmware	Config	Linux Distribution	Base Legato System	Comment
WP7601/WP7601-1 Approved/Pending						
WP76xx_Release-10_GENERIC.exe	GENERIC (GCF)	SWI9X07Y_02.18.05.00	002.041_000	SWI9X07Y_02.18.05.00	18.06.1	GCF Approved
WP76xx_Release-10_VERIZON.exe	VERIZON	SWI9X07Y_02.18.05.00	002.041_000	SWI9X07Y_02.18.05.00	18.06.1	Carrier Approval - Pending
WP7603/WP7603-1 Approved/Pending						
WP76xx_Release-10_PTCRB.exe	GENERIC (PTCRB)	SWI9X07Y_02.18.05.00	002.041_000	SWI9X07Y_02.18.05.00	18.06.1	PTCRB Approval - pending

WP76xx_Release-10_ATT.exe	ATT	SWI9X07Y_02.18.05.00	002.040_000	SWI9X07Y_02.18.05.00	18.06.1	Carrier Approval - pending
WP7607 / WP7607-1 Approved						
WP76xx_Release-10_GENERIC.exe	GENERIC (GCF)	SWI9X07Y_02.18.05.00	002.041_000	SWI9X07Y_02.18.05.00	18.06.1	GCF Approved
WP7608 / WP7608-1 Approved						
WP76xx_Release-10_GENERIC.exe	GENERIC (GCF)	SWI9X07Y_02.18.05.00	002.041_000	SWI9X07Y_02.18.05.00	18.06.1	GCF Approved
WP7609 Approved						
WP76xx_Release-10_GENERIC.exe	GENERIC (GCF)	SWI9X07Y_02.18.05.00	002.041_000	SWI9X07Y_02.18.05.00	18.06.1	GCF Approved

Function	Files
Firmware components	9999999_9907152_SWI9X07Y_02.18.05.00_00_GENERIC_002.041_000.spk (GCF) linux-SWI9X07Y_02.18.05.00.cwe legato-18.06.1.cwe
From: https://source.sierrawireless.com/resources/airprime/software/wp76xx/wp76xx-firmware-release-10/	

11.2 Software Changes Description

The following are changes in Release 10 since the last release, Release 9.

This is the first maintenance release for PTCRB / AT&T (WP7603[-1]) and Verizon (WP7601[-1]). Approval was still pending at the time of writing. Modem components will be posted upon certification.

ID	Title	Description	Impacted Domain
Legato Framework			
Various	Legato 18.06.1	Legato 18.06.1 https://docs.legato.io/latest/releaseNotes18061.html https://docs.legato.io/latest/releaseNotes18051.html https://docs.legato.io/latest/releaseNotes18040.html Upgrade from 18.03.0 in Release 9. Includes: LE-10549/LE-10671: Secure storage corrupted after package update LE-10462: QMI indication for AVMS binary update session does not set correct binary type LE-10491: Unable to use SPI service	Legato AF
Linux Distribution			
QTI9X07-1885 QTI9X07-2036	Move MCU firmware default location	Previously, the MCU image was stored in the USERRW partition. It has now been moved to ROOTFS. This provides the benefit of freeing USERRW for the end user and ensuring that the correct MCU image is paired with the corresponding linux kernel driver instead of being distributed/packaged independently.	MCU file manage

ID	Title	Description	Impacted Domain
QTI9X07-2089 QTI9X07-2104 QTI9X07-2142	Unable to build from tarball	The externally posted linux source distribution (tarball) failed to build. This has been corrected.	Build
QTI9X07-2002	Legato Toolchain versioning	Instead of always using the default location `/opt/swi/y22-ext`, the toolchain is now installed in a version specific location, e.g. `/opt/swi/SWI9X07Y_02.18.05.00`	Build
QTI9X07-2053 QTI9X07-2177	Upgrade Linux Distro to LXSWI2.2-7.0, based on Yocto 2.2.2	Upgrade to LXSWI2.2-7.0 (from LXSWI2.2-4.0 in Release 9)	Linux baseline
QTI9X07-2197 QTI9X07-2273	Crash when AT port URC on USB during selective suspend	A crash was observed intermittently when using AT over USB and the apps processor came out of sleep to generate a URC (e.g. +CNMI message on incoming SMS).	Kernel
QTI9X07-2217	Module cannot resume sleep after ending a voice call if no codec on host platform	In the case where no codec is installed on the host platform, after a voice call has ended the module could not go back to sleep mode. This has been fixed in the linux kernel alsa driver.	Kernel
QTI9X07-1862	Boot up time optimization: load modem image after partition mounted	By starting modem loading earlier, as soon as the image partition is mounted, the system boot time can be reduced by ~1.5 seconds	Boot
QTI9X07-929	binaries on source are debug versions	On boot, dmesg displays " …this is a DEBUG kernel and it is unsafe for production use". This message is triggered by having tracing support for IPC drivers so that has been disabled.	Build
QTI9X07-2050	tzdev_test binary does not match source code	The tzdev_test binary has a bug where it incorrectly sets the plain_data_len to the 2nd augment instead of the 3rd augment. After rebuilding from the source code with Yocto toolchain 2.2.3 (Release 9), the 3rd parameter works correctly. The binary has been updated accordingly.	Build
Modem Firmware			
Core			
QTI9X07-1992 QTI9X07-2092	Multiple Qualcomm updates to: MDM9607.LE.2.0-00120-STD.PROD-1	Upgraded to latest Qualcomm 9X07 baseline. Includes: QTI9X07-1413: AT+CPBW does not return "OK" or "ERROR" QTI9X07-1933: Remove insecure TLS cipher suite QTI9X07-1882: GNSS Horizontal Speed/ Vertical speed out of range	Qualcomm baseline
Protocol / certification			

ID	Title	Description	Impacted Domain
QTI9X07-1059 QTI9X07-1118 QTI9X07-1379 QTI9X07-2087 QTI9X07-2088	Carrier LWM2M support.	The core framework for carrier LWM2M has been added with a partial implementation of Verizon specific requirements for Object 4 and 7. This was added specifically for WP77 Verizon certification to maintain functional parity between the two platforms. There are currently no plans to certify this feature at a carrier for WP76 so it will remain dormant unless explicitly enabled.	Carrier LWM2M
QTI9X07-1982	Increment IMEI SV	IMEI SVN was incremented to 5 for this release	GCF
QTI9X07-1932	NV MTU setting does not take effect	Fixed an issue where PCO MTU is used directly regardless of whether NV MTU is set or not (e.g. via AT!SCUMMTU)	MTU
QTI9X07-2031	QCI (quality of service)	Added support for 3GPP Release 12 QoS Class Identifier (QCI values 65, 66, 69 and 70 as per 3GPP TS 23.203, TS 29.212).	3GPP
QTI9X07-1757	Class 6 APN OTADM on Verizon network	New VZW requirements of Jan 2017 added class 6 APN. This has been added: +CGDCONT: 6,"IPV4V6","VZWCLASS6"…	DM
QTI9X07-2164	Update TS.25 list to June 11, 2018	Default TS.25 list updated. Non-GSMA PLMNs removed except Test PLMNs.	GCF
Data connectivity			
QTI9X07-1480	Add SNTP support for system time	Although rare, some commercial networks do not provide time of day information via NITZ. One notable consequence of not having time of day is that FOTA installation FW/Bundle will fail because the TLS certificate is rejected. To handle this scenario, SNTP support has been added. This is disabled by default to avoid possible conflicts with other data connections, but may be enabled if necessary via AT!CUSTOM="SNTPEN",3 (lock level 2) or the corresponding QMI command. In the current implementation, the modem will automatically open a data connection to get time from the SNTP server, with multiple retries in case of failure. A less intrusive method of using an existing data connection is planned as a future enhancement.	SNTP
QTI9X07-1780	SINGLEAPNSWITCH does not work	Enabled with AT!CUSTOM="SINGLEAPNSWITCH",1 this feature forces an automatic re-attach when the APN is changed via AT+CGDCONT. This feature is now working.	Data connectivity
QTI9X07-1740	Add configuration option to block ICMPv4 responses	Customization AT!CUSTOM="ICMPINTSRVDIS" has been added to block ping responses. Currently only IPv4 is supported.	Data connectivity
UART			

ID	Title	Description	Impacted Domain
QTI9X07-452 QTI9X07-2004	UART MUX mode support	MUX mode provides the ability to multiplex AT command and data connections over a single interface. This has been added as a configurable option for UART. See AT+CMUX and AT!MUXMODE in WP AT Command Guide for more details. There are still some limitations of this feature to be addressed in future firmware releases: QTI9X07-2109 – CMUX over USB QTI9X07-2140 – AT+KSLEEP=2 does not work with AT!MUXMODE=1 QTI9X07-2144 - AT+KSLEEP=1 with AT!MUXMODE=1, the module needs two characters to wake it up at boot up time Various stability issues with DLC port.	MUX mode
QTI9X07-2136	Modem reset when using UART1	A bug in the CTS interrupt handler was causing a reset when using UART1 in some cases. This has been fixed in the kernel.	UART
UIM			
QTI9X07-698 QTI9X07-2041 QTI9X07-2112	Auto SIM switching, v.1	A feature has been added in advance of embedded SIM module deployments that allows configuration of a preferred SIM such that upon boot, if both external SIM and embedded SIM are present, the preferred one will be selected. See AT!CUSTOM="UIMAUTOSWITCH" in the WP AT Command Guide. Changes in SIM detect status at run time do not trigger SIM reselection. This is being considered in a future release.	eSIM
AT commands – please refer to AirPrime WPx5xx/WP76xx/ WP77xx AT Command Reference or 3GPP TS27.007 for details on each command.			
QTI9X07-1942	Add AT&T test commands	Added support for AT&T test commands AT+RSRP, AT+RSRQ, AT+ECNO, AT+RSCP per 13340 v18.1 - "Device Requirements"	AT&T AT
QTI9X07-1773	AT!BCFWUPDATESTATUS returns extra "OK"	After upgrading firmware successfully AT!BCFWUPDATESTATUS returns extra "OK". This has been corrected.	Sierra AT
QTI9X07-1907 QTI9X07-1974 QTI9X07-1975	!STKN blocks intermediate AT response	When *PSSTKI is enabled and the unsolicited notification !STKN is received, no intermediate AT response, such as +CLIR or +COLP is observed. This has been corrected.	Sierra AT
QTI9X07-1368	+WCC: 0,+WCC: 1 and +WCC: 2 notifications not returned	+WCC: 0, 1, or 2 are not returned when module is making/receiving the call, only 3 and 4. This has been corrected.	Sierra AT
QTI9X07-1374	!RSSI notification not supported	When enabled via AT+WUSLMSK, !RSSI notification should be received when signal strength changes. This has now been added.	Sierra AT
QTI9X07-1370	!AVVOCODER notification not supported	When enabled via AT+WUSLMSK, !AVVOCODER notification should be received when making a voice call. This has now been added	Sierra AT

ID	Title	Description	Impacted Domain
QTI9X07-1413	AT+CPBW does not return "OK" or "ERROR"	Fixed to return correct response.	3GPP AT
QMI			
QTI9X07-940	Add QMI to change USB composition	QMI commands to get/set USB composition (QMI_DMS_SWI_GET_USB_COMP, QMI_DMS_SWI_SET_USB_COMP) have been added to align with other product families.	USB
GNSS			
QTI9X07-1588	Isolate OEM and Carrier GNSS feature configurations	Previously, it was not possible to configure AGPS capability independently from DR_Sync pulse. These are now independently configurable from either OEM or carrier PRI and persistent across images switches or firmware updates. Note, as a consequence, if DR_Sync has been disabled by AT command, it will be re-enabled after a switch to the new firmware, but persist correctly thereafter.	GNSS
QTI9X07-1252 QTI9X07-1355	Can't map NMEA service to UART	Previously setting a UART to NMEA would cause boot failure. NMEA over UART is now properly supported.	NMEA
QTI9X07-1805	Add support for internal XTRA client	XTRA data client added and enabled for automatic download of GNSS XTRA assistance data	XTRA
QTI9X07-1911	AT!GPSCLRASSIST= 1,1,1,1,1 returns OK instead of ERROR while there is an active GNSS session	Assistance data may only be cleared when there is no active GNSS session. It has now been modified to return error in this case.	GNSS
QTI9X07-1066 QTI9X07-1749	Legato/QMI unable to stop GNSS session	An internal inconsistency was corrected that prevented Legato from stopping a GNSS session started via AT command.	GNSS
QTI9X07-1882	GNSS Horizontal Speed/ Vertical speed out of range	A misalignment of data in QMI_LOC_POSITION_REPORT_IND_V02 causing incorrect speed values was corrected.	GNSS
QTI9X07-2046	Change gpsXTRA HTTP user agent string	Change gpsXTRA HTTP user agent string as per Qualcomm guidelines in 80-ND684-1 for ease of management.	XTRA
QTI9X07-1606	PQXFI sentence is not supported	Added support for PQXFI sentence on NMEA port when enabled with AT!GPSNMEASENTENCE=20	NMEA
IO			
QTI9X07-2030	External GPIO config is not persistent for image switches	In previous releases, any firmware update or image switch would clear all configuration in AT+WIOCFG. Now, when upgrading to Release 10 and future releases, this configuration will persist. That is, modules running Release 9 or earlier will retain their configuration when upgrading to Release 10.	GPIO

ID	Title	Description	Impacted Domain
QTI9X07-1410 QTI9X07-2124 QTI9X07-2131	Embedded linux assigned GPIO initialization on boot	In Release 7, issues with embedded linux assigned GPIOs (e.g. QTI9X07-959, QTI9X07-1121) were addressed by re-initializing them late in modem startup. This, however, introduced a potential timing issue with linux if an attempt to set them early in linux boot occurred before the final modem initialization. These are now initialized in the boot loader to ensure no such timing conflict occurs.	GPIO, linux
QTI9X07-1770	Add GPIO4 support	For WP75/85 GPIO4 (CF3 pin 65) is hardcoded for use as UIM2 detect line. For WP76/77, however, UIM2 is reserved for embedded SIM and therefore not needed for this purpose. It has therefore been exposed as a GPIO. This is supported via AT+WIOCFG and sys/class/gpio as with other GPIOs, but will only be available on new units shipped with Release 10 or later. Future use for SIM2 detection in conjunction with AT+KSIMSEL is under consideration (QTI9X07-1705).	GPIO
QTI9X07-1941	!SARGPIO not disabled after disabling custom value "GPIOSARENABLE"	When the GPIO SAR feature is disabled, the GPIO allocated to the SAR function is now released.	SAR GPIO
QTI9X07-1961	SPI1_MRDY is initialized low on boot	A factory issue was caused with SPI1_MRDY initialized low. It has been changed to high.	SPI
Temperature			
QTI9X07-2054	Modules in airplane mode crash at high temperature	At high ambient temperatures (> 70C) in airplane mode (not necessarily due to thermal mitigation) some modules would reset due to DDR instability at low frequency (<48MHz). A fix was added to block low DDR frequency selection at high temperatures.	High Temp
QTI9X07-1913	Device stops enumerating at high critical temperature	Reduced the default HI CRIT temperature threshold to 115C on WP7607/08/09 to ensure that this is reached before system shutdown. This is now consistent with other WP variants.	High Temp
Low power modes			
QTI9X07-1293	Current consumption – UART1 with AT+KSLEEP=1	Correct an issue that if UART1 was mapped to AT commands with AT+KSLEEP=1 with a physical UART connected, the module consumed an average of ~10mA in idle and LPM modes.	Power
QTI9X07-2034	Current consumption – AT+KSLEEP=0 after wake-up event URC	The module could enter sleep mode with AT+KSLEEP=0 and DTR off as expected, but when a URC from wake up source is returned (RING or +CMTI), the module could not enter to sleep mode anymore. This was fixed.	Power

ID	Title	Description	Impacted Domain
QTI9X07-1709	persist ULPM wakeup triggers	In the original ULPM implementation where wake up triggers would be set before every ULPM request there was no need to persist this configuration. With the harmonization with PSM, however, re-entry to the ultra low power state is automatic (with any explicit command from the user) and hence persistence of wakeup triggers across cycles is necessary. They will now continue to remain in effect until explicitly cleared.	PSM/ULPM
QTI9X07-2017	Add command to clear all ULPM wake up sources	As noted above, wake up sources are persisted across PSM/ULPM cycles unless explicitly cleared. To simplify this operation support has been added to clear all sources in a single command via AT command or sysfs: a) AT!POWERWAKE=0 b) echo 7 > /sys/module/swimcu_pm/boot_source/clear Note that while documentation of previous releases stated that AT!POWERWAKE=0 would clear all sources, it in fact only cleared the ADC. This has now been fixed.	PSM/ULPM
QTI9X07-1678 QTI9X07-2035	PSM status code	The addition of PSM support introduces additional complexity with network interaction. To get better insight into the current status, and in particular reasons why a PSM request was rejected, a status code is made available via sysfs: /sys/module/swimcu/psm/status	PSM
QTI9X07-1955	Add extended PSM configuration support	Some extended PSM features were previously not configurable or persistent. The only such feature currently used in WP76 is early wake up time. With this change, the early wakeup time is now increased to ensure the TAU timer is not missed.	PSM
Security			
QTI9X07-1997	Security: move DM disable to Level 2 via AT!USBCOMP	As the DM port poses a security risk, the ability to configure it is lock level 3. However, if it happens to be enabled, it is important for security purposes to be able to close it, so disable is moved to lock level 2.	Boot
QTI9X07-1875	No limit to secure storage	Previously there was no limit imposed on SFS so once consumed would impact internal features unexpectedly, such as AGPS. This change imposes a 512KB limit on customer SFS content. The limit is not configurable. If that limit has already been exceeded prior this firmware update it must be reduced prior to updating SFS.	SFS

ID	Title	Description	Impacted Domain
QTI9X07-2160	Reduce AT!SECBOOTCFG? to a level 2 lock	Secure boot devices have limited debug capability unless loaded with a debug image built specifically for that module. Such debug images can only be built by Sierra and may require information provided by AT!SECBOOTCFG? so this query command has been reduced to lock level 2 for field support.	Secure boot
Stability / Performance			
QTI9X07-1781	Add FLOWNOTIDISABLE feature	QoS flow enable/disable notifications can flood the host application. This feature, already available on WP75/85, allows specific flow notifications to be disabled to reduce traffic to the host. See AT!CUSTOM="FLOWNOTIDISABLE" in the WP AT Command Reference.	SDK
QTI9X07-1876	QMI OFFLINE then RESET intermittently processed out of order	FDT performs an offline operation before reset, but when these were processed out of order the reset would not occur and firmware download would fail (<10% occurrence). Order of execution is now ensured.	FDT
QTI9X07-1547	Reset on CSD call receive with autoanswer	A stability issue was resolved where the device would reset when a MT CSD call was answered using autoanswer and UART1 is set to AT, but unused	CSD
QTI9X07-1672	Modem is crashed when executing !DALSTXPWR command	!DASCHAN would crash if called before !DASBAND, !DALSRXBW, !DALSTXBW Although not a valid sequence, the crash has been fixed.	Test mode
QTI9X07-1963	Device crashes if SAR backoff is set for unsupported band for GSM	Using AT!SARBACKOFF on invalid GSM bands would cause a crash. This now prints an error instead of crashing.	SAR
Diagnostics / Indicators			
QTI9X07-1141	AT!RXDEN=2 does not work	AT!RXDEN, for testing antenna diversity, was working for the primary, but not the diversity antenna. This has been fixed.	RF
QTI9X07-1954	GCDUMP via SDK/QMI is incorrect	Fixed the issue that GCDUMP data collected via SDK/QMI was incorrect due to a length issue in implementation of QMI_DMS_SWI_GET_CRASH_INFO.	Crash log
QTI9X07-1741	Add Data Loopback feature	The AT!DATALOOPBACK command has been added. See the WP AT Command Reference for details.	Data connectivity
MCU Firmware – No change			

11.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Bugs			
QTI9X07-1653	Loss of LTE sync at low temperature	An issue of some units losing LTE sync in sleep mode below -20C has been confirmed. A workaround is available upon request from Sierra support. It will be fixed in the next release.	Connectivity
QTI9X07-2159	Anatel IPv6 failure	WP is not in compliance with latest Anatel (Brazil regulatory IPv6 requirements)	Wireless Network
QTI9X07-1764	New MAC Address generated on each power cycle	By default, the WP will generate a new MAC address on the ethernet interface on every boot. This may be fixed by preconfiguring a MAC address in /etc/network/interfaces	Wired Network
QTI9X07-2348	PCM audio playback not working	A recent regression in external PCM functionality has broken audio playback. This was introduced with a fix to address power consumption after a call. A linux kernel patch is available to revert that change and restore external PCM functionality, available from Sierra support upon request. There is no impact to mangOH (or compatible) audio support.	Audio
QTI9X07-2140	AT+KSLEEP=2 does not disable sleep when at!muxmode=1	AT+KSLEEP=2 only disabled sleep mode if at!muxmode=0	Mux mode
QTI9X07-2300	UART1 cannot suspend after RX wakeup	Normally while idle, the UART will suspend to save power, however currently, after first waking up on RX data, it will no longer automatically suspend, incurring an extra ~12mA.	UART
QTI9X07-1705	AT+KSIMSEL does not support SIM hotswap on external SIM slot 2	With AT+KSIMSEL, when SIM cards are inserted in both external slots, they can be manually selected, but with hotswap enabled if SIM in slot 1 is removed, SIM in slot 2 does not work.	External SIM multiplexer
QTI9X07-2185 QTI9X07-2223 QTI9X07-2242	PSM lowest power mode issues	The PSM lowest power mode option was added in Release 9 to achieve ~7uA. Subsequent testing has found this mode has issues with missing TAU complete message and time of day continuity across PSM cycles. While these issues will continue to be worked for a future release (linux update) the previous default option (consuming ~16uA) has been restored.	PSM

ID	Title	Description	Impacted Domain
LXSWIREF-684	Patching kernel using recipe linux-quic does not work anymore	Patching the Yocto kernel by using a .bbappend with SRC_URI in recipe linux-quic does not work. The linux image builds, but will not boot on the target. This was introduced in Release 9. A workaround is available upon request from Sierra support. It will be fixed in the next release.	Build
QTI9X07-1308	Missing Java dependency for building LK bootloader	The Android Signing tools for the LK bootloader require Java Runtime Environment (JRE) to be installed on the host platform. JRE has not been added to the build environment, so must be installed on the build machine manually. Example, for Ubuntu 16.04: sudo apt-get install default-jre *Manual JRE installation will continue to be required going forward.*	Build
QTI9X07-2102	Workaround issues in GPIO control from linux	Different versions of a workaround were provided to allow linux control of GPIOs with carrier certified modem images. With the issue now addressed in the new carrier certified modem version the workaround is not required, however for workarounds using AT+WIOCFG=<gpio>,0 to enable linux access, these will need to be changed back to AT+WIOCFG=<gpio>,16 going forward. The setting will subsequently be persistent across upgrades so this would be a one time action when upgrading to Release 10.	GPIO
QTI9X07-1007	PCM configuration not allowed by default	The ability to set a profile to use a particular interface is controlled by AT!AVPIFACEPREF (level 2 access). By default, PCM was not included so PCM could not be set with AT!AVCFG without first setting AT!AVPIFACEPREF=F. The factory default has been updated to make PCM available by default, however this will only benefit newly manufactured units so AT!AVPIFACEPREF=F is still required.	Audio
QTI9X07-1494	Legato - boot loop error when built with large database	Customer legato.cwe image must be small enough to fit into the LEFWKRO partition (8MB).	Legato
QTI9X07-1278	Accessing MCU causes I2C NACK error	Any time the MCU is accessed (for version info, GPIO read/write, etc) from a MCU low power state, the first access is needed to wake it up. The retry is automatic and succeeds, but a kernel error is generated on the first attempt. This can be annoying as it floods the kernel log.	Kernel

12 SWI9X07Y Release 9

Release 9 has many new features, adding WP7607 GCF compliance, PDN data multiplexing, QMI support for some existing features, PSM current consumption enhancements as well as several bug fixes. No carrier MRs are planned on this release.
To re-iterate and clarify the note made for Release 7 and 8, this release is only GCF certified so changes in Modem Firmware are only available in the SWI9X07Y_02.16.02.00 Generic modem package. Carrier certified Modem Firmware versions (SWI9X07Y_02.10.xx.00) are compatible with the other Release 9 components (Legato/Linux Distro/MCU Firmware), but only benefit from changes outside the Modem Firmware component. Specifically, for the changes listed in Section 5.2 Software Changes Description only those identified under Legato Framework and Linux Distribution are applicable for carrier certified packages.

12.1 Software Release Description

12.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.16.02.00 000000 jenkins 2018/04/19 19:59:02
Linux Firmware	SWI9X07Y_02.16.02.00 2018-04-19_22:03:13
MCU Firmware	002.009
Legato Application Framework	18.03.0_b463e04cf08fb8d8f1ea5ee00d7894c0
Binary Size	58MB (compressed binaries)
IMEI SV	4
Qualcomm Stack Version	MDM9607.LE.2.0-00110.3.146307.1
Linux Kernel Version	3.18.44 (jenkins@jenkins) (gcc version 6.2.0 (GCC)) #2 PREEMPT Thu Apr 19 22:05:25 UTC 2018
Supported H/W	WP7601 DV5.2+, WP7603 DV5.2+, WP7607 DV2.1+, WP7608 DV1.1+, WP7609 DV2.1+

12.1.2 Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	B4773
Windows SDK	None
Skylight	None
Linux Drivers	S2.31N2.50
Linux SDK	SLQS04.00.13

12.1.3 Released Files

File	Carrier	Modem Firmware	Config	Linux Distribution	Base Legato System	MCU Firmware	Comment
WP7601/WP7601-1 Approved							
WP76xx_Release-9_GENERIC.exe	GENERIC (GCF)	SWI9X07Y_02.16.02.00	002.032_000	SWI9X07Y_02.16.02.00	18.03.0	002.009	GCF Approved
WP76xx_Release-9_VERIZON.exe	VERIZON	SWI9X07Y_02.10.00.00	002.014_002	SWI9X07Y_02.16.02.00	18.03.0	002.009	Carrier Approved
WP7603/WP7603-1 Approved							
WP76xx_Release-9_PTCRB.exe	GENERIC (PTCRB)	SWI9X07Y_02.10.01.00	002.015_001	SWI9X07Y_02.16.02.00	18.03.0	002.009	PTCRB Approved

WP76xx_Release-9_ATT.exe	ATT	SWI9X07Y_02.10.01.00	002.015_001	SWI9X07Y_02.16.02.00	18.03.0	002.009	Carrier Approved
WP7607 Approved (WP7607-1 Pending)							
WP76xx_Release-9_GENERIC.exe	GENERIC (GCF)	SWI9X07Y_02.16.02.00	002.032_000	SWI9X07Y_02.16.02.00	18.03.0	002.009	GCF Approved
WP7608/WP7608-1 Approved							
None							
WP7609 Approved							
None							
Test							
WP76xx_Release-9_ATT.exe	ATT	SWI9X07Y_02.16.02.00	002.032_000	SWI9X07Y_02.16.02.00	18.03.0	002.009	Test
WP76xx_Release-9_VERIZON.exe	VERIZON	SWI9X07Y_02.16.02.00	002.032_000	SWI9X07Y_02.16.02.00	18.03.0	002.009	Test
WP76xx_Release-9_TELSTRA.exe	TELSTRA	SWI9X07Y_02.16.02.00	002.032_000	SWI9X07Y_02.16.02.00	18.03.0	002.009	Test

Function	Files
Firmware components	9999999_9907152_SWI9X07Y_02.16.02.00_00_GENERIC_002.032_000.spk (GCF) 9999999_9907152_SWI9X07Y_02.10.01.00_00_GENERIC_002.015_001.spk (PTCRB) 9999999_9907256_SWI9X07Y_02.10.01.00_00_ATT_002.015_001.spk 9999999_9907255_SWI9X07Y_02.10.00.00_00_VERIZON_002.014_002.spk linux-SWI9X07Y_02.16.02.00.cwe legato-18.03.0.cwe mcufw_002.009_wp76_f1.cwe
From: https://source.sierrawireless.com/resources/airprime/software/wp76xx/wp76xx-firmware-release-9/	

12.2 Software Changes Description

The following are changes in Release 9 since the last release, Release 8.

This is the first release with WP7607 GCF approval:
https://www.globalcertificationforum.org/pub_product/6983.html

ID	Title	Description	Impacted Domain
Legato Framework			
Various	Legato 18.03.0	Legato 18.03.0 http://legato.io/legato-docs/latest/releaseNotes18030.html http://legato.io/legato-docs/latest/releaseNotes18020.html Upgrade from 18.01.0 in Release 8	Legato AF
Linux Distribution			
QTI9X07-1607 QTI9X07-1651 LXSWIREF-512 QTI9X07-1847	Upgrade Linux Distro to LXSWI2.2-4.0, based on Yocto 2.2.2	Upgrade to head of yocto 2.2 (yocto 2.2.2+) for security fixes in: • FTDI driver support for mangOH green peripherals • curl • binutils • zlib • glibc	Yocto baseline

ID	Title	Description	Impacted Domain
QTI9X07-780	HSIC enabled with no host controller consumes excessive current and CPU	Fixed an issue of an endless failure loop in the HSIC driver when enabled with no host controller present. This was causing excessive current consumption and reducing max data throughput in some cases.	Kernel HSIC driver
QTI9X07-1406 QTI9X07-1001	Optimize PSM power consumption	Current consumption in PSM mode is now ~7uA, the same as ULPM. Enhancements to the MCU firmware are included in this release to achieve this.	PSM
QTI9X07-1411	Add support for USB Raw Data ACM interface	Allows re-purposing NMEA port as debug port per forum post: http://forum.legato.io/t/custom-legato-yocto-usb-serial-port/2218/5?u=alegato	USB
DAYTONA-8511 QTI9X07-1602	UART1 does not wake up on received data	After a few seconds of idle time the UART enters a state of runtime suspend after which time serial activity from the host cannot wake the module to receive. (Introduced in Release 7) The issue is now fixed.	UART
LXSWIREF-273	Re-building kernel fails with Yocto 2.2 due to "metadata not deterministic" error	This build failure has now been addressed. No additional operations are required for a successful build.	Build
QTI9X07-1806	Conflicting BT feature flags in kernel	Flags in the kernel to enable Bluetooth were inadvertently set by default. These have now been reverted to disabled as Bluetooth is not included by default.	Kernel
QTI9X07-1485 QTI9X07-1446	Stop building 2K images	Images for NAND flash parts with 2K page have been unsupported since Release 6. Build support has now also been removed.	Build
QTI9X07-1814	add Linux raw images to build artifacts	Add Linux raw/unsigned images to build artifacts so that the tag meta build artifact can be used to sign Linux images	Build
Modem Firmware			
Core			
QTI9X07-1533 QTI9X07-1719 QTI9X07-1868 QTI9X07-1890 QTI9X07-1947	Multiple Qualcomm updates to: MDM9607.LE.2.0-00110-STD.PROD-3.146307.1	Includes: Various fixes for WP7607 GCF and SIM CR2149848 / QTI9X07-781 - Support of AT+CRSM command with P1 parameter as 0 CR 2068590 / QTI9X07-1868 - avoid USSD CS fall back during active call QTI9X07-1550 – GNSS performance CR 2054204 – fix authentication failure for the O2 DE operator (VoLTE Supplementary Services) **WP7607 is GCF certified on this baseline.**	Primarily for WP7607 GCF
RF			

ID	Title	Description	Impacted Domain
QTI9X07-1403	SAR GPIO support	An enhancement to the SAR backoff mechanism added in Release 8, support for a GPIO to enable SAR has been added.	RF SAR backoff
QTI9X07-1168	Incorrect default GSM SAR limit	For variants supporting GSM (WP7807/09) the correct default limit of 32 dBm is now set. It was 127 dBm.	RF SAR backoff
QTI9X07-937	Jamming Detection for LTE	Jamming detection was added in Release 6, but only worked correctly for WCDMA. This extends support to LTE.	Jamming detection
QTI9X07-1874	Add a QMI message to get the jamming event report activation status	Adds the GET function for existing QMI_SWI_M2M_JAMMING_SET_EVENT_REPORT_REQ_V01 for Legato / SDK access	Jamming detection
Protocol / certification			
Various	WP7607 GCF VoLTE	The WP7607 has received GCF certification with VoLTE. The GENERIC carrier PRI has all VoLTE configuration for certification, however VoLTE must be enabled at the SKU level to activate it for the carrier.	GCF VoLTE
QTI9X07-509	Optimize operability with Sierra SIM	Resolved the issue that STK Location Status Envelope Event (Limited Service) was not reliably sent when UE was camped on LTE and then detached (e.g. AT+COPS=2).	Network connectivity
QTI9X07-1665	WP7607 GCF - UE didn't send a SUPL POS INIT on con-022	Fix AT!GPSMTLRSETTINGS to configure the device response behavior.	SUPL
QTI9X07-1721	AT!IMSTESTMODE does not work	AT!IMSTESTMODE is required to force IMS deregistration for some test cases. This feature was previously only available for Verizon carrier PRI, but has now been expanded to any IMS enabled configuration.	IMS
QTI9X07-1751 QTI9X07-1621	Update TS.25 list to March 05 2018	Default TS.25 list updated	GCF
Data connectivity			
LE-7418 QTI9X07-1129 QTI9X07-1130 QTI9X07-1778 QTI9X07-1766	avcControl will block other data connections from using that APN	If the Legato AirVantage connector had a connection established, any other data connect to that APN is blocked. Conversely if a data connection was already established on that APN, the Legato AirVantage connector could not connect. This change allows data connections to be multiplexed between Legato and modem interfaces. The multiplex function is automatically activated as required without additional user intervention.	Data connectivity

ID	Title	Description	Impacted Domain
QTI9X07-1153	Add AT/QMI to configure MTU Size	Increase max MTU size to 2000, configurable via AT!SCUMMTU and QMI_WDS_SWI_SET_MTU Configured setting may be queried via AT!SCUMMTU? and QMI_WDS_SWI_GET_MTU and takes effect on reset	Data connectivity
QTI9X07-1445	Add QMI support for AT!NETNUM configuration	Existing AT!NETNUM setting is now configurable via QMI_SWI_DMS_SET_USB_NET_NUM_REQ_V01 and queried with QMI_SWI_DMS_GET_USB_NET_NUM_REQ_V01	Data connectivity
QTI9X07-1558	Unable to start PDP activation for TC 27.22.4.27.3/1	PDP activation within BIP could only perform successfully in manual mode. Support for auto-mode is now added.	Data connectivity
UART			
QTI9X07-1225	Modules cannot sleep if UART1 is mapped to AT service	Now UART1 mapped as AT service, the module can sleep with either of these conditions: • AT+KSLEEP=1 & UART1 unplugged • AT+KSLEEP=0 & UART1 plugged & (DTR off or AT&D1)	Power
QTI9X07-1146	Write command AT+IFC returns ERROR	XON/XOFF was displayed as an option in AT+IFC=?. This has now been removed as XON/XOFF is not supported.	UART
USIM			
QTI9X07-1120	Cannot get EID from eUICC on WP76xx	Previously, legato cm sim tool would not display EID. This has been fixed. From linux console: root@swi-mdm9x28:~# cm sim info … EID: xxxxxxx As per AT+CCID	eUICC
AT commands – please refer to AirPrime WPx5xx/WP76xx/ WP77xx AT Command Reference or 3GPP TS27.007 for details on each command.			
QTI9X07-1865	AT!CUSTOM= ”CSDDISABLE”	Add ability to enable / disable CSD	Sierra AT
QTI9X07-669 QTI9X07-688	AT+CIND	2 issues addressed with AT+CIND • "call" parameter of +CIND is always 1 • +CIND not support "message" parameter	3GPP AT
QTI9X07-781	AT+CRSM	Fixed the issue that on failure, the command did not respond with <sw1> and <sw2> parameters per spec	3GPP AT
QTI9X07-1190	AT+POWERWAKE AT+POWERMODE	ULPM/ AT command support is ported from WPx5 with extensions for PSM	Sierra AT
QTI9X07-1596	AT+CREG persistence	AT+CREG, AT+CEREG, AT+CGREG settings are now persistent across resets.	3GPP AT
QTI9X07-1785 QTI9X07-1786	AT!DAGSRXBURST	Support added.	Sierra AT
QTI9X07-1388	AT+CPUC returns "SIM failure" when sending write command with valid values of <currency> and <ppu>	Although the values were being written, the return code was wrong. This has now been corrected.	3GPP AT

ID	Title	Description	Impacted Domain
QTI9X07-1612	AT+KCELL response format	AT+KCELL returns Neighbour <GSM_CI> as 8hex digits instead of 4. This has been corrected.	Sierra AT
QTI9X07-1761	AT!ICCID? response format	Fixed the missing '!' in "!ICCID" response.	Sierra AT
QTI9X07-1845 QTI9X07-1912	Add default persistence to list of NV items	Some recently added configuration options were not being persisted across images switches and firmware upgrades. These have now been updated. The following commands are affected: AT*PSSTKI AT*PSRDBS AT!CUSTOM="EXTUIMSWITCHEN" AT!CUSTOM="BOOTUARTDLOADEN" AT+CREG AT+CGREG AT+CEREG AT+CNMI AT+KSREP AT+KSLEEP AT!FWUPDATE AT!RXDEN	Config
GNSS			
QTI9X07-494	Add EXT_GPS_LNA_EN configurability	Add AT!CUSTOM="EXTGPSLNAEN" 0 - disable (don't turn GPS LNA on) 1 - enable (turn on GPS LNA during active tracking session).	GNSS
QTI9X07-1811	Add AT!GNSSAPPINFO	AT!GNSSAPPINFO added to set App ID and Password for Verizon SUPL	GNSS
QTI9X07-1467	Add AT!GNSSDPOMODE	AT!GNSSDPOMODE is added to enable/disable GNSS DPO (low power operational) mode.	GNSS
QTI9X07-1550 QTI9X07-1634	Standalone GNSS fix fail intermittently	GNSS fix was observed to fail intermittently (~50%). This was traced back to a change in Release 6. It is now corrected.	GNSS
QTI9X07-1562	Enable GAL and BDS by default	Previously Beidou and Galileo were only enabled outside the US. They are now unconditionally enabled by default to improve TTFF.	GNSS
QTI9X07-1345	GPSXTRADATAENABLE and GPSXTRATIMEENABLE support option 2-Enable	WP76 was using 1- enable. This was incompatible with WPx5 and EM74 that use 2-enable. WP76 is now aligned with the other platforms.	GNSS
Audio			
QTI9X07-1419	QMI command to set Audio Profile is extremely slow	A 5 second delay in some cases has been reduced to 0.5 sec.	Audio
Temperature			
QTI9X07-1009	Device stops enumerating at high critical temperature	The high critical temperature has been reduced to 115C to go to LPM before system shutdown.	Thermal Protection
Low power modes			

ID	Title	Description	Impacted Domain
QTI9X07-1225	Modules cannot sleep if UART1 is mapped to AT service	Now UART1 mapped as AT service, the module can sleep with either of these conditions: • AT+KSLEEP=1 & UART1 unplugged • AT+KSLEEP=0 & UART1 plugged & (DTR off or AT&D1)	Power
QTI9X07-1466	PSM - ULPM fallback mode	PSM and ULPM perform similar functions in putting the module to its lowest power state (essentially off) for an extended period of time to save the most power. PSM is more efficient as the network is aware of the module in this state and reduces signaling and wasted data traffic as a result. It is a challenge for an application to recognize when this opportunity is available, however, so to simplify the process, a request to enter ULPM per existing APIs will select PSM as the more efficient option when available.	Power
QTI9X07-1778	Persist PSM related NVs	PSM configuration is now persisted across firmware upgrades and image switches.	Power
Security			
QTI9X07-1557	SDP security for EDL	Reduced/removed functionality for several SDP commands to reduce vulnerability to certain attacks. Backward compatibility with FDT2 is maintained.	Boot
Stability / Performance			
QTI9X07-1009	Modem stuck in Persistent LPM after disabling CFUNPERSISTEN	In rare cases it has been reported that after entering LPM with AT+CFUN=0 that the module was unable to return online with AT+CFUN=1 despite having no other reason to prevent it. This state is now removed.	LPM
QTI9X07-1728	Long boot times trigger recovery mechanism	Sierra monitor provides a recovery mechanism for cases where the module does not boot. If, however, thermal mitigation (due to higher temperatures) or extra customizations extend the boot time beyond the timeout value the recovery mechanism was being triggered unnecessarily. The timeout value has now been extended to 60 seconds leaving adequate margin for any variation.	Boot
Diagnostics / Indicators			
QTI9X07-1595 QTI9X07-1872	WWAN LED displays "data active" pattern when in LTE attached state	It was observed that on LTE that the data active LED state was always on while attached. This has been corrected to only come on during an active data session.	LEDs
QTI9X07-485	AT!GSTATUS command reports RSCP in WCDMA instead of RSSI	RSSI value is now properly displayed.	RF status
QTI9X07-1051	AT!GSTATUS Cell ID decimal value incorrect on WCDMA	The AT!GSTATUS WCDMA cell ID provided in hex was correct, but the decimal equivalent was incorrect.	RF status

ID	Title	Description	Impacted Domain
QTI9X07-1227	QMI_DMS_SWI_GET_RESET_INFO_REQ_V01 returns wrong reset cause in case of warm reset	After warm reset, the reset query was incorrectly returning type 0 (unknown) and source 0 (unknown). It now returns 1 (warm) and source 1 (user requested). To test, execute: cm info	RF status
QTI9X07-1735	Firmware version string in QXDM logs	Changed the default Qualcomm Version Directory to a platform version specific string. Having the Sierra version string in the log allows us to better debug a log by knowing exactly what firmware version was used.	QXDM Logs
QTI9X07-1376	!NI notification	Fixed !NI notification not returned when module deregister/register to network	Network status
QTI9X07-1378	!EONS notification	Fixed !EONS notification not returned when module deregister/register to network	Network status
QTI9X07-1668	+WVMI notification	Fixed +WVMI notification not returned when the modem receives a voice mail	Voice status
MCU Firmware			
MCU-94	Provide temporary data storage for embedded host during ULPM/PSM	Temporary storage is used for storing real time data in MCU during ULPM/PSM state to avoid writing to flash.	RTC
MCU-93	Provide elapsed ULPM/PSM time on wakeup	By knowing the ULPM/PSM start and elapsed time, the current time can be determined.	RTC
MCU-90	Implement PSM/ULPM synchronization	This mode of PSM operation allows the module to assume the lowest power state possible, equivalent to ULPM (~7uA).	PSM/ULPM
MCU-95	Restore ADC3 as a wakeup source	Ability to use ADC3 as a wakeup source for ULPM/PSM was removed for pre-production hardware. It has now been restored so both ADC2 and 3 are available for this purpose.	PSM/ULPM

12.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Bugs			
QTI9X07-1308	Missing Java dependency for building LK bootloader	The Android Signing tools for the LK bootloader require Java Runtime Environment (JRE) to be installed on the host platform. JRE has not been added to the build environment, so must be installed on the build machine manually. Example, for Ubuntu 16.04: sudo apt-get install default-jre	Build
QTI9X07-1293	Current consumption – UART1 with AT+KSLEEP=1	If UART1 is mapped to AT commands with AT+KSLEEP=1 ***AND there is a physical UART connected***, the module consumes an average of ~10mA in idle and LPM modes.	Power
QTI9X07-959 QTI9X07-1121	Deficiencies in GPIO control from linux	While fixed in modem (see Release 7), certified images (PTCRB, AT&T, Verizon: SWI9X07Y_02.10.xx.00) do not benefit. A *new* linux patch for older modem versions has been simplified from the previous release. No configuration changes are required so future upgrades will work without reverting configuration. Reference DAYTONA-8683 for patch available from your Sierra support contact.	GPIO
QTI9X07-1007	PCM configuration not allowed by default	The ability to set a profile to use a particular interface is controlled by AT!AVPIFACEPREF (level 2 access). By default, PCM was not included so PCM could not be set with AT!AVCFG without first setting AT!AVPIFACEPREF=F. The factory default has been updated to make PCM available by default, however this will only benefit newly manufactured units so AT!AVPIFACEPREF=F is still required.	Audio
QTI9X07-1494	Legato - boot loop error when built with large database	Customer legato.cwe image must be small enough to fit into the LEFWKRO partition (8MB).	Legato
QTI9X07-2197 QTI9X07-2273	Crash when AT port URC on USB during selective suspend	A crash was observed intermittently when using AT over USB and the apps processor came out of sleep to generate a URC (e.g. +CNMI message on incoming SMS).	Kernel
QTI9X07-2217	Module cannot resume sleep after ending a voice call if no codec on host platform	In the case where no codec is installed on the host platform, after a voice call has ended the module could not go back to sleep mode. This has been fixed in the linux kernel alsa driver.	Kernel

ID	Title	Description	Impacted Domain
QTI9X07-1653 QTI9X07-2156	Instability at low temperature	Intermittent instability issues have been observed at low temperature (below -20C), including loss of sync in sleep mode and UART not working on boot. Test results to date have been inconclusive. Investigation is ongoing.	Connectivity

13 SWI9X07Y Release 8

Release 8 is a minor update from Release 7.0.1 adding PSM current consumption enhancements and CS data support as well as several bug fixes. No carrier MR is planned on this release.
To re-iterate and clarify the note made for Release 7, this release is only GCF certified so changes in modem are only available in the SWI9X07Y_02.14.04.00 Generic modem package. Carrier certified modem versions (SWI9X07Y_02.10.xx.00) are compatible with the other Release 8 components (legato/linux/mcu), but only benefit from changes outside the modem. Specifically, for the changes listed in Section 5.2 Software Changes Description only those identified under Legato Framework and Linux Distribution are applicable for carrier certified packages.

13.1 Software Release Description

13.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.14.04.00 000000 jenkins 2018/02/14 20:19:41
Linux Firmware	SWI9X07Y_02.14.04.00 2018-02-14_21:13:44
MCU Firmware	002.007
Legato Application Framework	18.01.0_607d14ac5f0edd90fada704659a46736
Binary Size	56MB (compressed binaries)
IMEI SV	4
Qualcomm Stack Version	MDM9607.LE.2.0-00095-STD.PROD-1
Linux Kernel Version	3.18.44 (jenkins@jenkins) (gcc version 6.2.0 (GCC)) #2 PREEMPT Wed Feb 14 21:24:42 UTC 2018
Supported H/W	WP7601 DV5.2+, WP7603 DV5.2+, WP7607 DV2.1+, WP7608 DV1.1+, WP7609 DV2.1+

13.1.2 Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	B4773
Windows SDK	None
Skylight	None
Linux Drivers	S2.31N2.49
Linux SDK	SLQS04.00.12

13.1.3 Released Files

Function	Files	carrier	Modem Firmware	MCU Firmware	Linux Distribution	Base Legato System
Windows one click firmware upgrade tool	WP76xx_Release-8_GENERIC.exe	GENERIC (GCF)	SWI9X07Y_02.14.04.00	002.007	SWI9X07Y_02.14.04.00	18.01.0
	WP76xx_Release-8_PTCRB.exe	GENERIC (PTCRB)	SWI9X07Y_02.10.01.00	002.007	SWI9X07Y_02.14.04.00	18.01.0
	WP76xx_Release-8_ATT.exe	ATT	SWI9X07Y_02.10.01.00	002.007	SWI9X07Y_02.14.04.00	18.01.0
	WP76xx_Release-8_VERIZON.exe	VERIZON	SWI9X07Y_02.10.00.00	002.007	SWI9X07Y_02.14.04.00	18.01.0
From: https://source.sierrawireless.com/resources/airprime/software/wp76xx/wp76xx-firmware-release-8/						

Function	Files
Firmware components	9999999_9907152_SWI9X07Y_02.14.04.00_00_GENERIC_002.025_000.spk (GCF) 9999999_9907152_SWI9X07Y_02.10.01.00_00_GENERIC_002.015_001.spk (PTCRB) 9999999_9907256_SWI9X07Y_02.10.01.00_00_ATT_002.015_001.spk 9999999_9907255_SWI9X07Y_02.10.00.00_00_VERIZON_002.014_002.spk linux-SWI9X07Y_02.14.04.00.cwe legato-18.01.0.cwe mcufw_002.007_wp76_f1.cwe
From: https://source.sierrawireless.com/resources/airprime/software/wp76xx/wp76xx-firmware-release-8/	

13.2 Software Changes Description

The following are changes in Release 8 since the last release, Release 7.0.1.

ID	Title	Description	Impacted Domain
Legato Framework			
Various	Legato 18.01.0	Legato 18.01.0 http://legato.io/legato-docs/latest/releaseNotes18010.html Upgrade from 17.11.0 in Release 7 / 7.0.1	Legato AF
Various	AirVantage	Some stability improvements have been made to AirVantage connectivity. AirVantage FOTA is fully supported.	AirVantage
Linux Distribution			
QTI9X07-1532 LXSWIREF-248	UBIFS: User partition corruption after number of power cuts	If power is cut suddenly, it is possible that data will be wiped out from UBIFS partition mounted @ /mnt/flash mount point. A solution was ported from an upstream solution: ubifs: Fix journal replay wrt. xattr nodes	Linux file system
QTI9X07-1067 QTI9X07-1068 QTI9X07-771	PSM power optimization	In conjunction with updates in MCU 002.007, enhancements to swimcu kernel driver and SWIAPP reduce PSM power consumption from 106uA (in Release 7) to 24uA. The final target of 7uA is planned for Release 9.	Power saving
QTI9X07-1380	swimcu: implement sysfs support for PSM	Integrate PSM and ULPM by aliasing time and enable configuration in PSM and boot_source swimcu_pm sysfs nodes	Power saving
QTI9X07-1357	Device fails to enumerate after EFS recovery with MCU watchdog enabled	If a system reboot was initiated with MCU watchdog enabled it would not restart. The MCU watchdog is now disabled before the restart is initiated.	MCU watchdog
QTI9X07-1455	ltc2942 driver gets stuck entering ULPM	Allows support for mangOH Red LTC2942 battery gauge chip. See https://github.com/mangOH/mangOH/tree/master/linux_kernel_modules/ltc294x	MangOH Red

ID	Title	Description	Impacted Domain
QTI9X07-1468	Date not updated on Linux	A small timing change between linux and modem QMI service caused time service sync to fail on startup. The timing window is widened to ensure successful sync.	System Time
Modem Firmware			
Core			
QTI9X07-1408	Add Qualcomm MDM9607.LE.2.0-00095-STD.PROD-1	Includes: **CR 2141793**: [GNSS] Horizontal values are not changing under good signal conditions **CR 826787**: TX Power backoff and DL throttling cannot work simultaneously for thermal mitigation **CR 2123868**: (QTI9X07-1040) CS data support	GNSS, Thermal mitigation, CS data
RF			
QTI9X07-1322	WP760x modules boot into low power mode	If W_DISABLE feature is enabled (via AT!PCOFFEN), some hardware platforms (depending on line capacitance) were observe to boot in low power mode (radio off). This is now fixed in SWI9X07Y_02.14.02.00. A patch is available for carrier certified images if required.	RF
QTI9X07-1520 QTI9X07-1537	Add dual GSM band support for WP7609	Dual GSM bands (900MHz and 1800MHz) support added for WP7609 (same as WP7607)	RF
QTI9X07-1399 QTI9X07-1510	WP7607/7609 RF optimizations	Optimize the RF performance for WCDMA phase discontinuity, some update the 2G and optimize the LTE B7 current consumption	RF
QTI9X07-1415 QTI9X07-1489	WP7608 RF optimizations	improve RF performance and optimization	RF
QTI9X07-673	Implement SAR backoff mechanism	To support SAR backoff, the following AT Commands are added: AT!SARBACKOFF AT!MAXPWR AT!SARSTATE AT!SARSTATEDFLT The following QMI commands are added: QMI_SWI_SAR_GET_BACKOFF_VALUE QMI_SWI_SAR_SET_BACKOFF_VALUE QMI_SWI_SAR_GET_DEFAULT_STATE QMI_SWI_SAR_SET_DEFAULT_STATE	SAR backoff
UART			
QTI9X07-1225	Modules cannot sleep if UART1 is mapped to AT service	The following cases are now handled: case 1: UART1 unplugged, AT+KSLEEP=1 case 2: UART1 plugged, AT+KSLEEP=0, DTR off See QTI9X07-1293 in Known Issues for UART1 plugged, AT+KSLEEP=1	Power
QTI9X07-1386	Add AT!CUSTOM option to enable FW download over UART on Boot	AT!CUSTOM="BOOTUARTDLOADEN",1 enables fallback to local download over UART if no USB enumeration.	Firmware update

ID	Title	Description	Impacted Domain
QTI9X07-1231	Add support for Xmodem local download feature over UART	Support firmware download over UART AT port using Xmodem protocol.	Firmware update
USIM			
QTI9X07-1544	USIM Terminal profile cache update not applied	Terminal Profile sent to the SIM does not contain the Sierra modifications (e.g. disabling voice-related TPs). This is corrected.	GSTK
AT commands – please refer to AirPrime WPx5xx/WP76xx/ WP77xx AT Command Reference for details on each command.			
QTI9X07-629 QTI9X07-1417	ATS0, ATV not persistent	The values set with ATS0=x and ATVx are now saved with AT&W and restored on reset.	AT
QTI9X07-1385	AT+IPR command does not work without entering SIM PIN	+IPR command returns ERROR when PIN restricted.	AT
QTI9X07-1404	MS does not respond with correct CCLK values	GCF TC 27.22.4.15.1/4 - "PROVIDE LOCAL INFORMATION, Date, Time, Time Zone" fails to return user time.	AT
QTI9X07-1461	AT+CGDCONT cannot persistently clear APN across image switch	APN cannot be cleared across image switch	NV
QTI9X07-933	+KSREP returns wrong URC in SIMLOCK state	+KSUP: 3 and +KSREP: 1,3 weren't returned for MEP lock.	AT
QTI9X07-974	A crash observed repeatedly executing AT+CCID?	Issuing the commands AT+CCID? or AT+CPINR continuously and very fast causes a crash.	AT
QTI9X07-1291	AT!ADC temperature values wrong for negative temperatures	AT!ADC? gives wrong negative temperature values.	DEVICE
QTI9X07-690	Cannot set some baud rates which are listed by command AT+IPR=?	Error will return when selecting some baud rates value using AT+IPR	AT
QTI9X07-671	!PCVOLTLIMITS - The low critical value is set to 0 with invalid decimal ASCII input	Wrong input which is not decimal can make value change for !PCVOLTLIMITS command.	AT
QTI9X07-1391	ATX0 does not disable BUSY display	When call ends by USER BUSY status, module display BUSY regardless ATX value.	AT
QTI9X07-1398	Missing <alpha> parameter in response of AT+CMGR command after setting AT+CPBW command	Name of phone address corresponding to phonebook was not displayed in text mode when reading delivery SMS.	SMS
Various	Whitespace corrections	Changes to whitespace (blank space, blank lines) have been made to align with documentation and/or other platforms: AT+CREG AT+CSCB AT+KRFMUTE AT!PCVOLT	AT
GNSS			

ID	Title	Description	Impacted Domain
QTI9X07-1496	Unable to persistently disable GNSS DPO	It is required that DPO (Dynamic Power Optimization) is disabled for DR Sync enabled, however the implementation re-enables DPO for DR Sync disabled, which is not necessarily desired. This has been corrected	GNSS
QTI9X07-1128	AT!GPSREFLOC customization support	Customization to report reference location in NMEA stream is supported as per WPx5 and EM74/75.	GNSS
QTI9X07-1037	No $PQGSV display.	Beidou NMEA display added	GNSS
QTI9X07-1024	AT!GPSLOC? Heading display 360.0 deg	Heading show 0 or 360 degrees for the same direction	GNSS
QTI9X07-1096	AT!GPSNMEASENTENCE=? returns wrong response	AT!GPSNMEASENTENCE=? returns incorrect bitmask information	GNSS
Audio			
QTI9X07-1427	No audio after loading Legato 17.11.0	When a full firmware package is loaded audio works, but when just the legato or linux is loaded on top of that, audio would not work. This was caused by a timing change between linux and modem initialization. The time window has been widened to ensure success.	Audio
QTI9X07-1432	Audio config out of sync on Release 7 with carrier cert modem	A fix to !AVSETPROFILE range was made in Release 7, but as a consequence put the linux component (SWIAPP) out of sync with older (carrier certified) modem images. To resolve this, the fix to QTI9X07-804 has been reverted. ***Although audio profiles 6-9 are again available, to ensure future compatibility it is recommended not to use them.***	Carrier cert audio
Diagnostics			
QTI9X07-1164	Mechanism to retrieve crash string on secure devices	Added Sahara commands to read device model, version, serial number and crash string. Support to extract this information will be provided in a future FDT release.	Diagnostics
MCU Firmware			
Core			
QTI9X07-771 MCU-78	Improve RTC_ALARM hardware timer accuracy	A timer autocalibration method has been added at startup to compensate for per-device variations in MCU RTC to improve PSM timer accuracy.	Power saving
QTI9X07-1067 MCU-89	Implement PSM/ULPM synchronization	To reduce PSM power consumption, the MCU now enters its lowest power state while in PSM mode.	Power saving

13.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Bugs			
LE-7418	avcControl will block other data connections from using that APN	If the Legato AirVantage connector has a connection established, any other data connect to that APN is blocked. Conversely if a data connection is already established on that APN, the Legato AirVantage connector cannot connect. ***The resolution is currently undergoing full testing for delivery in Release 9.***	Networking
LXSWIREF-273	Re-building kernel fails with Yocto 2.2 due to "metadata not deterministic" error	Every kernel build from the source distribution must be built from clean or before each kernel re-build, execute the following: `touch meta-swi/meta-swi-mdm9x28/recipes-kernel/linux/linux-quic_git.bb`	Build
QTI9X07-1308	Missing Java dependency for building LK bootloader	The Android Signing tools for the LK bootloader require Java Runtime Environment (JRE) to be installed on the host platform. JRE has not been added to the build environment, so must be installed on the build machine manually. Example, for Ubuntu 16.04: sudo apt-get install default-jre	Build
QTI9X07-599	Sierra SIM Connectivity	AT+COPS=2 shall NOT be used with this module to trigger any network steering	Connectivity
DAYTONA-8511	UART1 does not wake up on Rx	After a few seconds of idle time the UART enters a state of runtime suspend after which time serial activity from the host cannot wake the module to receive. This issue was introduced in Release 7. ***A patch to the linux distribution is available from your Sierra support contact.***	UART
QTI9X07-780	Current consumption and data throughput – HSIC enabled	The module will not enter sleep mode if HSIC is enabled, ***and the host platform does not have an HSIC (ethernet) controller connected.*** Minimum power consumption while not in sleep mode is ~40mA. This has also been found to increase CPU loading and consequently CAT4 max downlink throughput is degraded in some cases. ***For platforms without a HSIC controller, this feature should be disabled with AT!CUSTOM="HSICENABLE",0***	Power, Throughput

ID	Title	Description	Impacted Domain
QTI9X07-1293	Current consumption – UART1 with AT+KSLEEP=1	If UART1 is mapped to AT commands with AT+KSLEEP=1 ***AND there is a physical UART connected***, the module consumes an average of ~10mA in idle and LPM modes.	Power
QTI9X07-1001	Current consumption - PSM mode	Current consumption is not optimized in PSM mode. Significant improvements are planned for the next release. See Software Changes Description above. ULPM mode is not affected.	Power
QTI9X07-959 QTI9X07-1121	Deficiencies in GPIO control from linux	While fixed in modem (see Release 7), certified images do not benefit. There is, however, a workaround for older modem versions. 1) Configure desired GPIOs in AT+WIOCFG with function=0 e.g. AT+WIOCFG=13,0 2) Apply patch to: kernel/drivers/gpio/gpiolib-sysfs.c Available from your Sierra support contact.	GPIO

14 SWI9X07Y Release 7.0.1

Release 7.0.1 addresses an issue with the AT&T and GENERIC carrier PRI APN configuration. All other components are unchanged from Release 7. See also Release 6.2.1 for the equivalent change to Release 6.2.
To re-iterate and clarify the note made for Release 7, this release is only GCF certified so changes in modem are only available in the SWI9X07Y_02.13.02.00 Generic modem package. Carrier certified modem versions (SWI9X07Y_02.10.xx.00) are compatible with the other Release 7.0.1 components (legato/linux/mcu), but only benefit from changes outside the modem. Specifically, for the changes listed in Section 6.2 Software Changes Description only those identified under Legato Framework and Linux Distribution are applicable for carrier certified packages.

14.1.1 Released Files and Download Processes

Function	Files
Firmware components	9999999_9907152_SWI9X07Y_02.13.02.00_00_GENERIC_002.018_00**1**.spk (GCF) 9999999_9907152_SWI9X07Y_02.10.01.00_00_GENERIC_002.015_00**1**.spk (PTCRB) 9999999_9907256_SWI9X07Y_02.10.01.00_00_ATT_002.015_00**1**.spk 9999999_9907255_SWI9X07Y_02.10.00.00_00_VERIZON_002.014_002.spk linux-SWI9X07Y_02.13.02.00.cwe legato-17.11.0.cwe mcufw_002.006_wp76_f1.cwe
From: https://source.sierrawireless.com/resources/airprime/software/wp76xx/wp76xx-firmware-release-7,-d-,0,-d-,1/ Contact Sierra wireless technical support for directions on correcting any modules you may have in hand with incorrect APN settings	

14.2 Software Changes Description

The following change is made in Release 7.0.1 since Release 7.

ID	Title	Description	Impacted Domain
Configuration			

GENERIC
(OEMPRI-5966)
AT&T
(OEMPRI-5950)
	Remove VoLTE APNs from carrier PRI	Although VoLTE support was disabled in the AT&T and Generic carrier PRIs for certification, the VoLTE APNs were retained in the released PRIs.
		APN1: nxtgenphone
		APN2: ims
		APN3: sos
		These have now been reverted to the data centric profile.
		APN1: “broadband” (AT&T) OR
		“” (Generic)
		APN2 & APN3: not set
		All new units shipped will have this set correctly. For units already shipped a one-click tool (windows) and .nvu file (linux) are available to make this update.
		
		Without the tool, the following AT command may update APN1:
		`AT+CGDCONT=1,”IPV4V6”,”broadband”`
		Or
		`AT+CGDCONT=1,”IPV4V6”,””`
		but APN2 and 3 cannot be cleared.
		
		Note that due to profile persistence, just updating the firmware to Release 7.0.1 by the usual method will not update the APNs from their previous values.
			Carrier PRI

14.3 Known Issues

In addition to the known issues already identified in Release 7 in the next section, the following issues have since been found in Release 7 / 7.0.1.

ID	Title	Description	Impacted Domain
Bugs			
QTI9X07-1461	AT+CGDCONT cannot persistently clear APN across image switch	As noted in the above description for updating APNs via AT command, persistence is not removed by setting a null APN, eg.: AT+CGDCONT=2 Should remove APN2 from the carrier profile, however, the previous setting will be restored from back up upon firmware update or image switch.	Modem

ID	Title	Description	Impacted Domain
QTI9X07-1427	No audio after loading Legato 17.11.0	Although audio works correctly when a full release package is loaded, subsequently loading just the legato or linux (or combination thereof) causes audio to stop working. Reloading the modem/PRI component or the complete release package is required to resolve the issue.	Audio
QTI9X07-1286	GSM factory test	[WP7607] FTM AT command for GSM Tx & Rx do not work.	FTM

15 SWI9X07Y Release 7

Release 7 is primarily for AT command enhancements and operation over UART. An upgrade to yocto 2.2 and some other minor feature enhancements are also included. This release is only GCF certified so changes in modem are only available in the Generic package. Carrier certified modem versions are compatible with other Release 7 components, so they may benefit from changes outside the modem.

15.1 Software Release Description

15.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.13.02.00 000000 jenkins 2017/12/21 20:55:43
Linux Firmware	SWI9X07Y_02.13.02.00 2017-12-21_22:08:07
MCU Firmware	002.006
Legato Application Framework	17.11.0_31b9a1260bc1e45310ccf15491352a01
Binary Size	58MB (compressed binaries)
IMEI SV	4
Qualcomm Stack Version	MDM9607.LE.2.0-00085-STD.PROD-1
Linux Kernel Version	3.18.44 (jenkins@jenkins) (gcc version 6.2.0 (GCC)) #2 PREEMPT Thu Dec 21 22:18:24 UTC 2017
Supported H/W	WP7601 DV5.2+, WP7603 DV5.2+, WP7607 DV2.1+, WP7608 DV1.1+, WP7609 DV2.1+

15.1.2 Software Tools Versions

S/W Tools Name	Version	
Windows Driver Package	B4773	
Windows SDK	None	
Skylight	None	
Linux Drivers	S2.31N2.49	**Important upgrade required for multi RMNET support.**
Linux SDK	SLQS04.00.12	

15.1.3 Released Files and Download Processes

Function	Files	carrier	Modem Firmware	MCU Firmware	Linux Distribution	Base Legato System
Windows one click firmware upgrade tool	WP76xx_Release-7_GENERIC.exe	GENERIC (GCF)	SWI9X07Y_02.13.02.00	002.006	SWI9X07Y_02.13.02.00	17.11.0
	WP76xx_Release-7_PTCRB.exe	GENERIC (PTCRB)	SWI9X07Y_02.10.01.00	002.006	SWI9X07Y_02.13.02.00	17.11.0
	WP76xx_Release-7_ATT.exe	ATT	SWI9X07Y_02.10.01.00	002.006	SWI9X07Y_02.13.02.00	17.11.0
	WP76xx_Release-7_VERIZON.exe	VERIZON	SWI9X07Y_02.10.00.00	002.006	SWI9X07Y_02.13.02.00	17.11.0
From: https://source.sierrawireless.com/resources/airprime/software/wp76xx/wp76xx-firmware-release-7/						

Function	Files
Firmware components	9999999_9907152_SWI9X07Y_02.13.02.00_00_GENERIC_002.018_000.spk 9999999_9907152_SWI9X07Y_02.10.01.00_00_GENERIC_002.015_000.spk 9999999_9907256_SWI9X07Y_02.10.01.00_00_ATT_002.015_001.spk 9999999_9907255_SWI9X07Y_02.10.00.00_00_VERIZON_002.014_002.spk linux-SWI9X07Y_02.13.02.00.cwe legato-17.11.0.cwe mcufw_002.006_wp76_f1.cwe
From: https://source.sierrawireless.com/resources/airprime/software/wp76xx/wp76xx-firmware-release-7-components/	

15.2 Software Changes Description

The following are changes in Release 7 since the last point release, Release 6.2.

ID	Title	Description	Impacted Domain
Legato Framework			
Various	Legato 17.11.0	Legato 17.11.0 http://legato.io/legato-docs/latest/releaseNotes17110.html http://legato.io/legato-docs/latest/releaseNotes17100.html Upgrade from 17.09 in Release 6.1 / 6.2	Legato AF
Various	AirVantage	Some improvements have been made to AirVantage connectivity. AirVantage FOTA is fully supported.	AirVantage
Linux Distribution			
QTI9X07-1122	Upgrade to yocto 2.2	Upgrade from yocto 1.7 for better security updates going forward. The kernel remains unchanged at 3.18. While this change should be transparent to most users, it does break backward compatibility with older prebuilt legato versions. An upgrade to Legato 17.11.0 is required in tandem with this.	System

ID	Title	Description	Impacted Domain
QTI9X07-1180	Update hostname	Previously, the linux hostname was locked to swi-mdm9x28 (inherited from parent project based on mdm9x28). The option is now available to change this at build time, although the default has not been changed on prebuilt images. To override the default, specify the TARGET_HOSTNAME environment variable at build time.	System
QTI9X07-198	Thermal management support	Thermal management is a feature of the MDM9x07 offering configurable mitigation levels at which uplink throughput and max Tx power may be throttled to reduce heat generation under extreme data use cases.	Thermal mitigation
Modem Firmware			
Core			
QTI9X07-1198	Add Qualcomm MDM9607.LE.2.0-00085-STD.PROD-1	Includes: CR 978483 (QTI9X07-995): Unable to get MS-Assisted GPS fix for SSL cert < 256 bytes	System
QTI9X07-1193	Increment IMEI SV	IMEI SVN was incremented to 4 for this release	System
RF			
QTI9X07-982	WP7601 LTE B13 max power accuracy improvement	Minor RF optimization. Not cert impacting.	LTE
QTI9X07-981	WP7603 UMTS B2 phase discontinuity improvement	Minor RF optimization. Not cert impacting.	UMTS
QTI9X07-1183	WP7607_09 improve temp compensation	Temperature optimization.	Thermal protection
QTI9X07-1101	[WP7607] Modules report that GSM A5 ciphering not supported	Add WP7607/08 to internal GSM support list.	GSM
UART			
QTI9X07-330	8-wire UART	With UART1 mapped to AT command console, full 8-wire UART support is now available. AT!MAPUART=1,1	UART1
QTI9X07-1103	Add support for local download over UART	Added firmware download over UART with firehose protocol.	Firmware download
QTI9X07-668 QTI9X07-692	Dialup networking over UART.	Data calls using ATD*99***1# are now supported on UART1.	DUN
QTI9X07-722 QTI9X07-1104	Baud rate not persistent, fixed at 9600	UART1 baud rate now configurable, persistent between 9600 - 921600	UART
QTI9X07-1226	AT!MAPUART, set UART1 default value to 0	As noted in the known issues below, an extra 10mA current draw is observed when UART1 is mapped to AT port so the default is to not allocate UART1.	UART
AT commands – please refer to AirPrime WPx5xx/WP76xx/ WP77xx AT Command Reference for details on each command.			
QTI9X07-450	Support AT+KSLEEP command	HL equivalent command to control sleep with DTR is added. See details in WP AT Command Reference.	UART

ID	Title	Description	Impacted Domain
QTI9X07-453	Support AT*PSRDBS command	AT*PSRDBS is used to select the frequency band of the modem. Equivalent to AT!DASBAND.	RF
QTI9X07-564	AT commands for SIM Tool Kit	Host commands: o AT!STKC o AT!STKGC o AT!STKCR o AT!STKPD o AT!STKMS • Host notifications: o !STKC o !STKN	SIM
QTI9X07-456	Add support for Xmodem local download feature over USB	AT+WFWUPD command added to support xmodem firmware download compatible with HL AT+WDSD	Firmware download
QTI9X07-176	Add !UIMREGSTATE and !UIMSTATUS Notifications	Notifications enabled with AT+WUSLMSK.	SIM
QTI9X07-1216	Update AT!RXDEN=0 to set ml1_num_rx_ant for single antenna deployments	Update the existing AT!RXDEN command to disable the Rx1 antenna (if customers are deploying a single-antenna product) on LTE. This will affect Cat-1 UE products.	RF
QTI9X07-1094	no URC is sent from the module after a module reboot, until an AT command is executed	Flow control was blocking URC output. Flow control is now re-initialized on boot up.	AT URC
QTI9X07-1042	[WP7601 Verizon] SMS +CMTI indication missing storage area field	Indication of receipt of SMS now displays “ME” or “TE” storage indication	SMS
QTI9X07-1207	AT+KSREP, URC does not display on USB and UART port	Fixed AT+KREP URC.	AT URC
QTI9X07-677	Module crashes when executing !DASTXON on unsupported bands	Check for unsupported bands added.	Factory
QTI9X07-665	+CGATT reports searching for a new operator after manual detach	Changed to “not searching” status after manual detach from the network.	3GPP
QTI9X07-693	+CNMI not saved after a reset	Added persistence.	3GPP
QTI9X07-694	AT+CSQ can not work without SIM card	Added support without SIM installed.	3GPP
QTI9X07-762	*PSSTKI failed with Mode 0 and 1	Modes 2 and 3 supported. Add support for 0 and 1.	SIM
QTI9X07-763	*PSSTKI returns OK instead of +CME ERROR: 10 when executing without SIM card	Fixed error return code.	SIM
QTI9X07-906	Extra line spacing between ring indicator	Extra space removed on AT console between RING notification on incoming call.	Voice
QTI9X07-944	+KCELL returns a blank space in LTE cell list	Remove an extra space in output string.	Network

ID	Title	Description	Impacted Domain
QTI9X07-1109	Remove PA_THERM2 from AT!PCTEMP and AT!PATEMP outputs	An entry for PA_THERM2 was included in the AT interface, but that thermistor does not exist on this platform so it was removed. The value was not being used in any protection algorithms. This is only a cosmetic change.	Thermal protection
QMI commands			
QTI9X07-490	QMI_NAS_GET_SERVING_SYSTEM_MSG is responded with corrupt network descriptor	Fix corrupted pname in serving system response	Network
QTI9X07-529	Relay QMI_SWI_M2M_AVMS_* commands to Legato	Modem support for Legato based AirVantage implementation. Legato portion to follow in a future release.	AirVantage
QTI9X07-337	Notification of EFS recovery	Added QMI message and indications for EFS recovery: QMI_DMS_SWI_GET_FS_RECOVERY_INFO_REQ / RESP	Recovery
GPIO			
QTI9X07-805	Add support for GPIO 28-31	When not allocated for ANTSEL feature, GPIO 28-31 may be used for general purpose from modem (AT / QMI), linux (sysfs), or Legato gpio service.	GPIO
QTI9X07-959 QTI9X07-1121	Deficiencies in GPIO control from linux	Issues were found with several GPIOs when exported in sysfs. Initial values were incorrect (GPIO24) or could not be controlled as output (GPIO8, 13,33). GPIOs noted were observed to have problems, but there are likely others impacted.	GPIO
Audio			
QTI9X07-919	Missing DTMF tones after start/stop WWAN play in last voice call	Restored ability to pass DTMF tones in call after WWAN play is used.	Voice
QTI9X07-804	!AVSETPROFILE parameter range issues	!AVSETPROFILE – supports out of profile range (6-9 ***Fix reverted in Release 8 with QTI9X07-1432 to maintain sync with carrier cert modem images.***	Audio
MCU Firmware			
Core			
QTI9X07-1133 / MCU-91	Extra reboot required when loading MCUFW from blank	Issues were found when loading a firmware package requiring a MCU update causing the MDM and MCU to be out of sync after the update.	Firmware update

15.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Bugs			
LE-7418	avcControl will block other data connections from using that APN	If the Legato AirVantage connector has a connection established, any other data connect to that APN is blocked. Conversely if a data connection is already established on that APN, the Legato AirVantage connector cannot connect.	Networking
QTI9X07-1322	WP760x modules boot into low power mode	If W_DISABLE feature is enabled (via AT!PCOFFEN), some hardware platforms (depending on line capacitance) may observe that this condition is incorrectly triggered on power up and the module stays in low power mode (radio off). To confirm if this is the case use at!pcinfo? to check if W_DISABLE is the condition holding the module in low power mode.	RF
LXSWIREF-248	UBIFS: User partition corruption after number of power cuts	If power is cut suddenly, it is possible that data will be wiped out from UBIFS partition mounted @ /mnt/flash mount point.	Linux file system
LXSWIREF-273	Re-building kernel fails with Yocto 2.2 due to "metadata not deterministic" error	Every kernel build from the source distribution must be from clean or before each kernel re-build, execute the following: `touch meta-swi/meta-swi-mdm9x28/recipes-kernel/linux/linux-quic_git.bb`	Build
QTI9X07-1308	Missing Java dependency for building LK bootloader	The Android Signing tools for the LK bootloader require Java Runtime Environment (JRE) to be installed on the host platform. JRE has not been added to the build environment, so must be installed on the build machine manually. Example, for Ubuntu 16.04: sudo apt-get install default-jre	Build
QTI9X07-599	Sierra SIM Connectivity	AT+COPS=2 shall NOT be used with this module to trigger any network steering	Connectivity
QTI9X07-780	Current consumption – HSIC enabled	The module will not enter sleep mode if HSIC is enabled, and host platform does not have ethernet controller connected. Minimum power consumption while not in sleep mode is ~40mA.	Power
QTI9X07-1224 QTI9X07-1225	Current consumption – UART1 mapped to AT	If UART1 is mapped to AT commands, the module consumes an average of ~10mA in idle and LPM modes.	Power
QTI9X07-1001	Current consumption - PSM mode	Current consumption is not optimized in PSM mode. Significant improvements are planned for the next release. ULPM mode is not affected.	Power

ID	Title	Description	Impacted Domain
QTI9X07-959 QTI9X07-1121	Deficiencies in GPIO control from linux	While fixed in modem (see above), certified images do not benefit. There is, however, a workaround for older modem versions. 3) Configure desired GPIOs in AT+WIOCFG with function=0 e.g. AT+WIOCFG=13,0 4) Apply patch to: kernel/drivers/gpio/gpiolib-sysfs.c Available from your Sierra support contact.	GPIO
QTI9X07-1128	GPSREFLOC customization support	Customization to report reference location in NMEA stream is not supported	GNSS
QTI9X07-1040	CS Data	Circuit-switched data calls are not supported	Data
LXQMIDRV-216	Linux SDK	Tethered Linux host may freeze during suspend/resume stress testing	Drivers

16 SWI9X07Y Release 6.2.1

Release 6.2.1 addresses an issue with the AT&T and GENERIC carrier PRI APN configuration. All other components are unchanged from Release 6.2. Since there are no firmware changes, AT&T and PTCRB certification remains valid. See also Release 7.0.1 for the equivalent change to Release 7.

16.1.1 Release identification

See Release 6.2. No changes to firmware versions.

16.1.2 Software Tools Versions

See Release 6.2. No changes to tools or drivers.

16.1.3 Released Files and Download Processes

Function	Files	carrier	Modem Firmware	MCU Firmware	Linux Distribution	Base Legato System
Windows one click firmware upgrade tool	WP76xx_Release-6.2.1_GENERIC.exe	GENERIC (GCF, PTCRB)	SWI9X07Y_02.10.01.00	002.005	SWI9X07Y_02.11.01.00	17.09.0
	WP76xx_Release-6.2.1_ATT.exe	ATT	SWI9X07Y_02.10.01.00	002.005	SWI9X07Y_02.11.01.00	17.09.0
	WP76xx_Release-6.2.1_VERIZON.exe	VERIZON	SWI9X07Y_02.10.00.00	002.005	SWI9X07Y_02.11.01.00	17.09.0
Contact Sierra wireless technical support for access to this release.						

Function	Files
Firmware components	9999999_9907152_SWI9X07Y_02.10.01.00_00_GENERIC_002.015_00**1**.spk 9999999_9907256_SWI9X07Y_02.10.01.00_00_ATT_002.015_00**1**.spk 9999999_9907255_SWI9X07Y_02.10.00.00_00_VERIZON_002.014_002.spk linux-SWI9X07Y_02.11.01.00.cwe legato-17.09.0.cwe mcufw_002.005_wp76_f1.cwe
Contact Sierra wireless technical support for directions on correcting any modules you may have in hand with incorrect APN settings	

16.2 Software Changes Description

The following change is made in Release 6.2.1 since Release 6.2.

ID	Title	Description	Impacted Domain
Configuration			

ID	Title	Description	Impacted Domain

GENERIC
(OEMPRI-5966)
AT&T
(OEMPRI-5950)
	Remove VoLTE APNs from carrier PRI	Although VoLTE support was disabled in the AT&T and Generic carrier PRIs for certification, the VoLTE APNs were retained in the released PRIs.
		APN1: nxtgenphone
		APN2: ims
		APN3: sos
		These have now been reverted to the data centric profile.
		APN1: “broadband” (AT&T) OR
		“” (Generic)
		APN2 & APN3: not set
		All new units shipped will have this set correctly. For units already shipped a one-click tool (windows) and .nvu file (linux) are available to make this update.
		
		Without the tool, the following AT command may update APN1:
		`AT+CGDCONT=1,”IPV4V6”,”broadband”`
		Or
		`AT+CGDCONT=1,”IPV4V6”,””`
		but APN2 and 3 cannot be cleared.
		
		Note that due to profile persistence, just updating the firmware to Release 6.2.1 by the usual method will not update any APNs from their previous values.
			Carrier PRI

16.3 Known Issues

In addition to the known issues already identified in Release 6.2 in the next section, the following issues have since been found in all 6.x releases.

ID	Title	Description	Impacted Domain
Bugs			
Multiple	Linux security vulnerabilities	The linux distribution is currently based on yocto 1.7. KRACK (wifi vulnerability) and other vulnerabilities have been identified, many of which have been resolved in yocto 2.2 (available in Release 7).	Linux distribution
QTI9X07-1461	AT+CGDCONT cannot persistently clear APN across image switch	As noted in the above description for updating APNs via AT command, persistence is not removed by setting a null APN, eg.: AT+CGDCONT=2 Should remove APN2 from the carrier profile, however, the previous setting will be restored from back up upon firmware update or image switch.	Modem

ID	Title	Description	Impacted Domain
QTI9X07-959 QTI9X07-1121	Deficiencies in GPIO control from linux	Issues were found with several GPIOs when exported in sysfs. Initial values were incorrect (GPIO24) or could not be controlled as output (GPIO8, 13,33). GPIOs noted were observed to have problems, but there are likely others impacted. There is a workaround that may be applied: 1) Configure desired GPIOs in AT+WIOCFG with function=0 e.g. AT+WIOCFG=13,0 2) Apply patch to: kernel/drivers/gpio/gpiolib-sysfs.c Available from your Sierra support contact.	GPIO

17 SWI9X07Y Release 6.2

Release 6.2 is certified for GCF, PTCRB and AT&T on WP7603 and WP7603-1. There are no changes to legato or mcu components, and 1 isolated change in linux since Release 6.1. The version number of the generic image has advanced, but all other changes are isolated to AT&T OMADM requirements so will not impact generic functionality. A Verizon certification candidate package with the updated linux distribution is also included.

17.1 Software Release Description

17.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.10.01.00 000000 jenkins 2017/12/03 03:05:33
Linux Firmware	SWI9X07Y_02.11.01.00 2018-01-09_06:28:04
MCU Firmware	002.005
Legato Application Framework	17.09.0_064b6ea498d226380743dcf18e415f87
Binary Size	58MB (compressed binaries)
IMEI SV	3
Qualcomm Stack Version	MDM9607.LE.2.0-00080-STD.PROD-1
Linux Kernel Version	Linux version 3.18.44 (jenkins@jenkins) (gcc version 4.9.1 (GCC)) #2 PREEMPT Tue Jan 9 06:57:31 UTC 2018
Supported H/W	WP7601 DV5.2+, WP7603 DV5.2+, WP7607 DV2.1+, WP7608 DV1.1+, WP7609 DV2.1+

17.1.2 Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	B4773
Windows SDK	None
Skylight	None
Linux Drivers	S2.30N2.48
Linux SDK	SLQS04.00.11

17.1.3 Released Files and Download Processes

Function	Files	carrier	Modem Firmware	MCU Firmware	Linux Distribution	Base Legato System
Windows one click firmware upgrade tool	WP76xx_Release-6.2_GENERIC.exe	GENERIC (GCF, PTCRB)	SWI9X07Y_02.10.01.00	002.005	SWI9X07Y_02.11.01.00	17.09.0
	WP76xx_Release-6.2_ATT.exe	ATT	SWI9X07Y_02.10.01.00	002.005	SWI9X07Y_02.11.01.00	17.09.0
	WP76xx_Release-6.2_VERIZON.exe	VERIZON	SWI9X07Y_02.10.00.00	002.005	SWI9X07Y_02.11.01.00	17.09.0
Contact Sierra wireless technical support for access to this release.						

Function	Files
Firmware components	9999999_9907152_SWI9X07Y_02.10.01.00_00_GENERIC_002.015_000.spk 9999999_9907256_SWI9X07Y_02.10.01.00_00_ATT_002.015_000.spk 9999999_9907255_SWI9X07Y_02.10.00.00_00_VERIZON_002.014_002.spk linux-SWI9X07Y_02.11.01.00.cwe legato-17.09.0.cwe mcufw_002.005_wp76_f1.cwe
Contact Sierra wireless technical support for access to this release.	

17.2 Software Changes Description

The following are changes in Release 6.2 since the last point release, Release 6.1.

ID	Title	Description	Impacted Domain
Linux Distribution			
QTI9X07-1323	Sierra Monitor utility restored	The Sierra Monitor utility for memory corruption recovery added in Release 2.1 was inadvertently disabled in an unrelated change in Release 6. It has been restored.	Recovery
Modem			
Core			
QTI9X07-1192	Increment IMEI SV	IMEI SVN was incremented to 3 for this release	System
Certification			

ID	Title	Description	Impacted Domain
QTI9X07-1113 QTI9X07-1187	Alert AT&T server if Host Device Detail changes	AT&T CDR-DVM-1602 requires a notification to the OMADM server if Host details are modified	AT&T
QTI9X07-1178	Handle WP7603-1 product on AT&T OMADM server	AT&T OMADM server is unable to handle a dash in the product name. We replace dash with underscore when reporting the product to the server	AT&T
QTI9X07-1189	Add Time Zone in reports to OMADM server	Activation Date and Update Time were updated to include time zone information	AT&T
Configuration			
QTI9X07-1178 OEMPRI-5492	Second OMADM account	Need to provision a second DM account as per AT&T CDR-DVM-3955 requirements	AT&T

17.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Features			
Various	AirVantage Connectivity	This release is not fully AirVantage compliant. FOTA is supported. AirVantage support via QMI is not available.	AirVantage
Various	Linux SLQS APIs	Some SLQS APIs are not supported yet	SLQS/QMI
Bugs			
QTI9X07-599	Sierra SIM Connectivity	AT+COPS=2 shall NOT be used with this module to trigger any network steering	Connectivity
QTI9X07-780	Current consumption	The module will not enter sleep mode if HSIC is enabled, but host platform does not have ethernet controller connected. Minimum power consumption while not in sleep mode is ~40mA.	Power
QTI9X07-1001	Current consumption in PSM mode	Current consumption is higher than expected in PSM mode because I2C bus is enabled	Power
QTI9X07-959	GPIO24 defaults to high after exporting	Upon initial export of GPIO24 from sysfs it is initially high rather than input, no pull	GPIO
QTI9X07-995	Unable to get MS-Assisted GPS fix in some cases.	Device rejecting server SSL certificate because the key length is smaller than the minimum value. Pending Qualcomm CR 978483	GNSS
QTI9X07-1128	GPSREFLOC customization support	Customization to report reference location in NMEA stream is not supported	GNSS
QTI9X07-1103	Firmware update over UART	Firmware update over UART is not supported	System

ID	Title	Description	Impacted Domain
QTI9X07-198	Thermal Mitigation	Thermal Mitigation is not supported. Basic thermal protection is available via AT!PCVOLT	System
QTI9X07-330	8-wire UART	8-wire UART is not supported	System
QTI9X07-1040	CS Data	Circuit-switched data calls are not supported	Data
QTI9X07-564	AT commands for SIM Toolkit	AT commands for SIM Toolkit are not supported	AT
LXQMIDRV-216	Linux SDK	Tethered Linux host may freeze during suspend/resume stress testing	Drivers
LXQMISDK-1048	IPv4v6 SLQS data call in QMAP mode	Unable to establish an IPv4v6 connection in QMAP mode	Drivers

Note: WP76xx Release 7 will move from Yocto 1.7 (Dizzy) to Yocto 2.2 (Morty).

18 SWI9X07Y Release 6.1

Release 6.1 is primarily intended as an incremental release to address blocking certification issues that remained in Release 6. This release obtained GCF approval for WP7601. This is a TA candidate for Verizon for WP7601, and PTCRB for WP7603. Both are currently pending final approval as of this writing. AT&T certification for WP7603 is still blocked on minor defects.

18.1 Software Release Description

18.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.10.00.00 000000 jenkins 2017/11/02 23:09:00
Linux Firmware	SWI9X07Y_02.11.00.00 2017-11-10_18:57:48
MCU Firmware	002.005
Legato Application Framework	17.09.0_064b6ea498d226380743dcf18e415f87
Binary Size	58MB (compressed binaries)
IMEI SV	1
Qualcomm Stack Version	MDM9607.LE.2.0-00080-STD.PROD-1
Linux Kernel Version	Linux version 3.18.44 (jenkins@jenkins) (gcc version 4.9.1 (GCC)) #2 PREEMPT Fri Nov 10 19:22:02 UTC 2017
Supported H/W	WP7601 DV5.2+, WP7603 DV5.2+, WP7607 DV2.1+, WP7608 DV1.1+, WP7609 DV2.1+

18.1.2 Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	B4773
Windows SDK	None
Skylight	None
Linux Drivers	S2.30N2.48
Linux SDK	SLQS04.00.11

18.1.3 Released Files and Download Processes

Download Option	Files
Windows EXE	WP76xx_Release6.1_GENERIC_test.exe WP76xx_Release6.1_VERIZON_test.exe
SPK files	WP76xx_Release6.1_GENERIC_test.spk WP76xx_Release6.1_VERIZON_test.spk
https://source.sierrawireless.com/resources/airprime/software/wp76xx/wp76xx-firmware-release-6,-d-,1/	
Component files	9999999_9907152_SWI9X07Y_02.10.00.00_00_GENERIC_002.012_000.spk 9999999_9907255_SWI9X07Y_02.10.00.00_00_VERIZON_002.014_002.spk linux-SWI9X07Y_02.11.00.00_00.cwe legato-17.09.0.cwe mcufw_002.005_wp76_f1.cwe

Download Option	Files
https://source.sierrawireless.com/resources/airprime/software/wp76xx/wp76xx-firmware-release-6,-d-,1-components/	

18.2 Software Changes Description

The following are changes in Release 6.1, based on modem version SWI9X07Y_02.10.00.00 since the last major release, Release 6.0, based on modem version SWI9X07Y_02.09.02.00.

ID	Title	Description	Impacted Domain
Legato			
Various	Legato 17.09.0	Legato 17.09.0 http://legato.io/legato-docs/latest/releaseNotes17090.html Upgrade from 17.08.1 in Release 6.	Legato AF
Linux			
QTI9X07-1064 QTI9X07-914 QTI9X07-913	PSM support	Custom PSM Daemon server configuration file for orderly shutdown support, PSM support in swimcu kernel driver	PSM
LXSWIREF-211 QTI9X07-1054	USB ECM interface is not brought up as cdc_ether fails with error -22	Fixed an issue in ECM gadget where ECM MAC address on the host doesn't match the WP for linux kernel 4.4.x hosts (e.g. Ubuntu 14.04 / 16.04)	USB / ECM
QTI9X07-1027	USB suspend failure on powerup	Fixed issue where the Linux processor would not enter power collapse until USB was removed/restored, if the USB was not connected on power up.	USB-SS
QTI9X07-581	MCU watchdog support	A feature was added in swimcu to allow the MDM to configure the MCU to force a MDM reset if a specified period of time passes without a watchdog refresh from the MDM. This feature is accessible via sysfs interface.	Watchdog
QTI9X07-1116	Unable to create a socket from a sandboxed application	Fixed "socket" creation failure when using a sandboxed application. Issue was observed with sample application "modemDemo".	Dev Studio
Modem			
Core			
QTI9X07-1081	Add Qualcomm MDM9607.LE.2.0-00080-STD.PROD-1	Includes cert fixes: CR 2100387 - [36.521-3] RRM Failures CR 2081941 - [VZW][IMS REG & RETRY][TC 2.20] UE sends 2 extra 60 second SIP Register attempts in between Step 12 & Step 13	Qualcomm baseline
Certification			
QTI9X07-939	GCF Certification	Addressed an issue with RRM Failures noted above in the Qualcomm stack update. All remaining GCF issues are now resolved in this release.	Industry cert

ID	Title	Description	Impacted Domain
QTI9X07-912 QTI9X07-837	Verizon Certification	SIP re-registration was not compliant with some corner case scenarios. All remaining Verizon cert issues are now resolved in this release.	Carrier cert
QTI9X07-939 QTI9X07-1071	PTCRB Certification	Addressed an issue with RRM Failures noted above and an issue with msRadioAccessCap length causing failures on some test equipment. All remaining PTCRB issues are now resolved in this release.	Industry cert
Configuration			
QTI9X07-1125 QTI9X07-1041	VZW MotiveIOT - IMS nodes not persistent across Factory Reset	Add IMS and APN nodes to persistence list	Verizon
QTI9X07-1082	AT&T Host ID NV not persistent	An OEM PRI change in Release 6 must be in place for this feature to perform correctly	AT&T
QTI9X07-1070	Add PSM NVs	Add PRI support for PSM configuration, NAS timers, and Extended PSM Timer	PSM
OEMPRI-4955	[WP7601/03] Remove VoLTE from Generic PRI	VoLTE removed for GCF / PTCRB certification	GCF / PTCRB
AT Commands			
QTI9X07-1017	Make CREG/CGREG/CEREG values persistent	This completes change QTI9X07-627 from Release 6 to add persistence to these commands.	AT function
QTI9X07-953	+KCELL Missing <PLMN> parameter in <GSM cell information> and <UMTS cell information>	Missing parameters added.	AT function
QTI9X07-946	+KCELL return incorrect cell information about <nbLTEcells>	The cell # (parameter 1) was 1 less than the correct value.	AT function
QTI9X07-888	AT!NETNUM? lock level	AT!NETNUM was changed to lock level 1 (no lock) for get/set in Release 6. The set operation has been restored to lock level 2.	AT function
QMI			
QTI9X07-1002	Update QMI_QOS_SWI_READ_DATA_STATISTICS	A minor improvement to set discarded packets and bytes counter to zero when data bearer is released	QMI
QTI9X07-904	QMI_DMS_SWI_GET_CWE_PKGS_INFO does not send TLV 0x15 Carrier ID	Add support for TLV 0x15 Carrier ID	QMI
Network			
QTI9X07-310	Data from the UE to the DHCP server failed	Customization DHCPRELAYENABLE is now properly supported.	DHCP
GNSS			
QTI9X07-1086	AT!GPSPORTID added	Restored legacy command to get/set GPS_UMTS_PDE_SERVER_PORT	GNSS
SMS			
QTI9X07-911	Class 0 and 3 SMS message not saved to SIM as default	In a clean/fresh modem AT+CPMS will display default storage as "SM" but the default route of class none SMS is stored to "ME".	SMS

ID	Title	Description	Impacted Domain
Temperature protection			
QTI9X07-1023	PA thermistor range inconsistent with WP76/77 temperature limits	Decreased the lower calibration limit from -40C to -50C to properly detect the -45C specified	Temperature
Stability			
QTI9X07-745	Module resets continuously if !ANTSEL is set with customization BANDSELEN disabled.	Certain logic was bypassed with BANDSELEN disabled, so that with ANTSEL enabled, invalid values were used.	ANTSEL
QTI9X07-570	Crash at SC task due to IPRXPACKETSTATS_TIMER: Exception recieved tid=73 inst=835cfa24	Fixed a crash that would occur randomly in ~0.3% of cases when resuming from selective suspend or warm boot.	Suspend/ Resume
QTI9X07-1079	Avoid reading EEPROM at bootup	A custom IoT card responding on I2C address 0x52 was interfering with a Qualcomm boot configuration feature preventing the module from booting. This read is now removed, which also reduces boot time by ~200msec.	Boot
MCU			
MCU-86	Reset support for production WP7601/03	A change in power control circuitry in WP7601/03 DV7.1 (pre-production) units required a change in logic in MCU to support proper module reset. This change is also compatible with older units.	Reset
MCU-87	PSM support	Adds support for Phase 1 PSM support that leaves the PMIC powered and I2C active.	PSM

18.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Features			
QTI9X07-1113 QTI9X07-1189 QTI9X07-1178	Certification	There are known AT&T carrier certification failures in this release. Issues are currently under analysis and may require firmware changes to address.	AT&T
Various	AirVantage Connectivity	This release is not fully AirVantage compliant. FOTA is supported. AirVantage support via QMI is not available.	AirVantage
Various	Linux SLQS APIs	Some SLQS APIs are not supported yet	SLQS/QMI
Bugs			
QTI9X07-599	Sierra SIM Connectivity	AT+COPS=2 shall NOT be used with this module to trigger any network steering	Connectivity

ID	Title	Description	Impacted Domain
QTI9X07-780	Current consumption	The module will not enter sleep mode if HSIC is enabled, but host platform does not have ethernet controller connected. Minimum power consumption while not in sleep mode is ~40mA.	Power
QTI9X07-1001	Current consumption in PSM mode	Current consumption is higher than expected in PSM mode because I2C bus is enabled	Power
QTI9X07-959	GPIO24 defaults to high after exporting	Upon initial export of GPIO24 from sysfs it is initially high rather than input, no pull	GPIO
QTI9X07-995	Unable to get MS-Assisted GPS fix in some cases.	Device rejecting server SSL certificate because the key length is smaller than the minimum value. Pending Qualcomm CR 978483	GNSS
QTI9X07-1128	GPSREFLOC customization support	Customization to report reference location in NMEA stream is not supported	GNSS
QTI9X07-1103	Firmware update over UART	Firmware update over UART is not supported	System
QTI9X07-198	Thermal Mitigation	Thermal Mitigation is not supported. Basic thermal protection is available via AT!PCVOLT	System
QTI9X07-330	8-wire UART	8-wire UART is not supported	System
QTI9X07-1040	CS Data	Circuit-switched data calls are not supported	Data
QTI9X07-564	AT commands for SIM Toolkit	AT commands for SIM Toolkit are not supported	AT
LXQMIDRV-216	Linux SDK	Tethered Linux host may freeze during suspend/resume stress testing	Drivers
LXQMISDK-1048	IPv4v6 SLQS data call in QMAP mode	Unable to establish an IPv4v6 connection in QMAP mode	Drivers

Note: WP76xx Release 7 will move from Yocto 1.7 (Dizzy) to Yocto 2.2 (Morty).

19 SWI9X07Y Release 6

Release 6 is provided for customer samples and for ongoing carrier and industrial certification testing.

19.1 Software Release Description

19.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.09.02.00 000000 jenkins 2017/10/17 22:59:59
Linux Firmware	SWI9X07Y_02.09.02.00 2017-10-17_23:00:11
MCU Firmware	002.004
Legato Application Framework	17.08.1_79ea64be7e2ee55dfe7d561a41e1a08a
Binary Size	58MB (compressed binaries)
IMEI SV	1
Qualcomm Stack Version	MDM9607.LE.2.0-00075-STD.PROD-1
Linux Kernel Version	Linux version 3.18.44 (jenkins@jenkins) (gcc version 4.9.1 (GCC)) #2 PREEMPT Tue Oct 17 23:17:35 UTC 2017
Supported H/W	WP7601 DV5.2+, WP7603 DV5.2+, WP7607 DV2.1+, WP7608 DV1.1+, WP7609 DV2.1+

19.1.2 Software Tools Versions

S/W Tools Name	Version	Resource file
Windows Driver Package	B4762	
Windows SDK	None	
Skylight	None	
Linux Drivers	S2.29N2.44 (no QMAP) / S2.29N2.47 (QMAP)	
Linux SDK	SLQS04.00.10.1	

19.1.3 Released Files and Download Processes

Download Option	Files
Windows EXE	WP76xx_Release6_GENERIC_test.exe
SPK files	WP76xx_Release6_GENERIC_test.spk
https://source.sierrawireless.com/resources/airprime/software/wp76xx/wp76xx-firmware-release-6/	
Component files	9999999_9907152_SWI9X07Y_02.09.02.00_00_GENERIC_002.009_000.spk linux-SWI9X07Y_02.09.02.00_00.cwe legato-17.08.1.cwe mcufw_002.004_wp76_f1.cwe
https://source.sierrawireless.com/resources/airprime/software/wp76xx/wp76xx-firmware-release-6-components/	

19.2 Software Changes Description

The following are changes in Release 6, based on modem version SWI9X07Y_02.09.02.00 since the last major release, Release 5.0, based on modem version SWI9X07Y_02.06.02.00. Content of minor releases 5.1 and 5.2 of limited scope and distribution primarily for certification labs are included in this description.

ID	Title	Description	Impacted Domain
Legato			
Various	Legato 17.08.1	Legato 17.08.1 http://legato.io/legato-docs/latest/releaseNotes17081.html http://legato.io/legato-docs/latest/releaseNotes17072.html Upgrade from 17.06 in Release 5.	Legato AF
Various	AirVantage FOTA	Of particular note in the Legato updates, AirVantage FOTA now has basic functionality.	AirVantage
Linux			
QTI9X07-787 LXSWIREF-38	ECM related fixups	Previously ECM was not reachable. Some work is still ongoing. See known deficiencies.	ECM
QTI9X07-129	Enable UBI scrub for WP	Mitigate potential for file system corruption	UBI
QTI9X07-438	Safe power down sequence for a legato application	Previously, the powerdown/ULPM sequence would issue an emergency shutdown to linux. This has been changed to an orderly shutdown to allow apps to clean up.	Shutdown
QTI9X07-389	move COWORK and MODE regions to SSMEM	Modified the implementation to use the new Sierra shared memory architecture.	SSMEM

QTI9X07-755	'bsinfo -l' returns incorrect information	e.g. for WP7603:
		`root@swi-mdm9x28:~#`
		`/usr/bin/bsinfo -c`
		`Hw Config (08X): 00180D05`
		`root@swi-mdm9x28:~#`
		`/usr/bin/bsinfo -f`
		`Feature Flag (016X):`
		`0000000000000004`
		`root@swi-mdm9x28:~#`
		`/usr/bin/bsinfo -t`
		`Hw Type (02X): 0D`
		`root@swi-mdm9x28:~#`
		`/usr/bin/bsinfo -r`
		`Hw Rev (02X): 18`
		`root@swi-mdm9x28:~#`
		`/usr/bin/bsinfo -l`
		`WP7603 - 00`
			info

QTI9X07-950	Cannot 'fastboot boot' kernel	A change in SDRAM location was causing fastboot to fail	fastboot
LXSWIREF-146	SMACK	Various SMACK fixes and improvements	SMACK
Modem			
Core			
QTI9X07-735	Add Qualcomm MDM9607.LE.2.0-00065-STD.PROD-1	Add Qualcomm MDM9607.LE.2.0-00065-STD.PROD-1 Includes key fixes identified during carrier certification testing.	Qualcomm baseline (Release 5.1)

ID	Title	Description	Impacted Domain
QTI9X07-843	Add Qualcomm MDM9607.LE.2.0-00070-STD.PROD-1	Add Qualcomm MDM9607.LE.2.0-00070-STD.PROD-1 Includes key fixes identified during carrier certification testing.	Qualcomm baseline (Release 5.2)
QTI9X07-642	Add Qualcomm MDM9607.LE.2.0-00075-STD.PROD-1	Add Qualcomm MDM9607.LE.2.0-00075-STD.PROD-1 Includes key fixes identified during carrier certification testing.	Qualcomm baseline (Release 6)
Certification			
QTI9X07-759	WCDMA Rx level dips upon Tx activation	Broadly impacting issue affecting basic RF connectivity	PTCRB
QTI9X07-718	Unable to provision EFS file ims_hybrid_enable causing failure to IMS register	Conflicting PRI processes were reverting IMS configuration causing IMS registration to fail on boot.	Verizon
QTI9X07-790	[VZW] Support 3GPP2 SMS, AT SMS enhancements	Initial implementation of Verizon had 3GPP SMS format instead of 3GPP2. This has been corrected.	Verizon
Various	Verizon Certification	Most, but not all Verizon issues resolved in this release.	Verizon
Various	AT&T Certification	Most, but not all AVL/AT&T issues resolved in this release.	AT&T
HW variants			
Various	WP7607 support added		RF/BSP
Various	WP7608 support added		RF/BSP
Various	WP7609 support added		RF/BSP
AT Commands			
QTI9X07-710	AT!CFUNPERSISTEN added	Added feature AT!CFUNPERSISTEN to enable persistence of AT+CFUN state	AT function
QTI9X07-725 QTI9X07-727 QTI9X07-840	Unsolicited notifications added	AT!MUSLEN=1 must be set to enable notifications (was not required on WPx5). This is now enabled by default. Added: RING (AT+WUSLMSK=20000000, 0) +CSQ (AT+WUSLMSK= 00000004 ,0) +PACSP disabled if the ENS flag is not enabled (AT&T requirement)	AT function
QTI9X07-454	Support AT+KMCLASS command	Set GPRS and EGPRS multislot class	AT function
QTI9X07-795	Support AT!IDSDEBUGPRINT command	Used in Verizon testing to confirm Motive session connectivity	AT function
QTI9X07-455	Support AT+KRFMUTE command	Adjust max tx power	AT function
QTI9X07-449	Support AT+KCELL command	Display cell information	AT function
QTI9X07-451	Support AT+KSIMSEL command	Control external SIM multiplexer	AT function
QTI9X07-648	AT!MADC?X doesn't work < 0C	Due to mishandling of negative temperature values, ADC could not be read.	AT function

ID	Title	Description	Impacted Domain
QTI9X07-733	Add AT!DA commands for FTM TX tests in LTE and WCDMA	Ported from EM74xx Command sequence for WCDMA FTM TX test: AT!DAFTMACT AT!DASBAND=<band_id> AT!DASCHAN=<channel> AT!DASTXON AT!DAWSTXPWR=1,<pwr> AT!DAWSTXPWR=0,<pwr> AT!DASTXOFF Command sequence for LTE FTM TX test: AT!DAFTMACT AT!DASBAND=<band_id> AT!DALSTXBW=<bandwidth> AT!DALSRXBW=<bandwidth> AT!DASCHAN=<channel> AT!DALSTXMOD=0 AT!DALSWAVEFORM=1,12,0,19 AT!DALSNSVAL=1 AT!DASTXON AT!DALSTXPWR=1,<pwr> AT!DALSTXPWR=0,<pwr> AT!DASTXOFF	AT function
QTI9X07-888	AT!NETNUM? lock level	AT!NETNUM was originally added at lock level 2, but changed to lock level 1 (no lock) for ease of use.	AT function
QTI9X07-602	Hardware ID incorrect	AT!HWID? added. AT!BSINFO Revision corrected	AT function
QTI9X07-645	Network status not reported	After reset, the USB port had to be closed and re-opened to resume network status updates due to mishandling of flow control.	AT function
QTI9X07-782	+CGSN does not return OK	The value was returned correctly, but no OK followed.	AT format
QTI9X07-374	AT+CRSM=242 without SIM, returns "+CME ERROR: memory failure"	Corrected to return "SIM is not inserted"	AT format
QMI			
QTI9X07-881	QMI_DMS_SWI_GET/ SET_CUST_FEATURES length misalignment	QMI access to CUSTOM feature configuration was not handled correctly causing a corrupt response.	QMI
GNSS			
QTI9X07-511	AT!GPSEND returns error when there is no active GPS session	Improved to handle this case without error	GNSS
QTI9X07-544	AT!GPSFIX doesn't update after getting TTFF	GPS task received notification from QMI that the session had finished, but did not update the session state for SINGLESHOT	GNSS
QTI9X07-643	Add AT!GPSXTRAINITDNLD	Qualcomm XTRA support	GNSS
Voice / Audio			
QTI9X07-562	Valid Assignment of AT!AVCFG Produces ERROR	Setting of valid TTY and HF parameters in AT!AVCFG were failing	Audio

ID	Title	Description	Impacted Domain
Various	VoLTE removal	While VoLTE testing did progress significantly through Verizon and GCF certification it was decided to disable VoLTE from Carrier PRIs to expedite final TA. As of this release Generic PRI still has VoLTE enabled, but will be removed in future.	VoLTE
Various	Sync AR758x audio functionality	Various voice/audio enhancements were ported from AR758x for call feature certification, both CS and VoLTE	Voice
QTI9X07-562	PCM / I2S digital audio interface	The audio physical interface can now be configured for external PCM or I2S operation; physical interface 0 and 1, respectively.	Voice
QTI9X07-662	Cannot enumerate USB ports in Linux after setting USB Composition with Audio Interface	Audio initialization aborted in the absence of a wm8944 codec. It now registers a stub codec to enable initialization to complete for other audio interfaces.	Audio
IO			
QTI9X07-717	+WIOCFG configuration is not persistent after resetting except GPIO2	All available GPIOs could be configured with AT+WIOCFG, but except for GPIO2 they would all revert to defaults (func=0) on reboot. Consequently they were never accessible via sysfs or Legato.	GPIO (Release 5.1)
LXSWIREF-126	GPIO linux export	AT+WIOCFG func 16 (embedded host) now required to allow export from linux sysfs	GPIO
QTI9X07-479	Resolve LED notification issues - part 2	When the device is powered up, gstatus reports Online (No Service) but does not blink the correct pattern.	LED
QTI9X07-127 QTI9X07-815	GPIO6 configurability	GPIO6, used as Reset_Out for mangOH, was made configurable as it is also used for AT+KSIMSEL. Setting func=0 allows it to be used for Reset_Out if SIMSEL is not enabled. It is only visible in AT+WIOCFG list on newly manufactured units, however.	GPIO
QTI9X07-884	Unable to access GPIOs 36,37,38 and 40 via Legato	MCU GPIOs were not accessible from linux sysfs due to exclusion from AT+WIOCFG list. They are now automatically accessible from sysfs.	GPIO
QTI9X07-443	Ring GPIO signal not asserted	The RING signal was not being asserted when configured to do so on incoming events.	RING
QTI9X07-382	SAFE_PWR_REMOVE	The SAFE_PWR_REMOVE signal is now being asserted when the power down sequence is complete.	SAFE_PWR _REMOVE
LXSWIREF-173	Remove some forced paths to have TI WiFi wl18xx driver working over SDIO	Was restricted to SDIO in 1-bit mode. Removing these changes allows SDIO to work in 4-bits mode.	SDIO
Security			

ID	Title	Description	Impacted Domain
QTI9X07-303 QTI9X07-520	Linux side image authentication	Use open source Android kernel signature format which is available in public domain support both: a) single cert embedded in Android signature; b) cert chain: signing cert in Android signature + CA certs right after the signature	Secure boot
QTI9X07-383	Jamming Detection	Jamming detection support ported from WPx5xx, including: AT!CUSTOM="JAMENABLE",1 AT+WUSLMSK=10,1 AT+WJAMTHRESH / +WJAM and QMI_SWI_M2M_SET_EVENT_JAMMING_REPORT / QMI_SWI_M2M_JAMMING_IND	Modem
QTI9X07-938	Buffer overflow on IPv6 profile creation	Add Qualcomm CR 2074769 to avoid buffer overflow when an invalid IPv6 address of size greater than 16 bytes is processed.	Modem
Power consumption			
QTI9X07-749	debug wakeup source preventing modem to enter power collapse	Selective Suspend was not working while connected via USB. A Qualcomm debug wake up source was interfering with the ability of the modem to enter power collapse when the USB is connected until a subsequent disconnect/reinsertion of the USB cable. It was removed.	Selective suspend
QTI9X07-900	eDRX configuration added	NV files added to support eDRX configuration in the PRI.	AT&T
Temperature protection			
QTI9X07-110	High temperature/voltage protection	Temperature ADCs are statically calibrated.	Voltage, temperature limits
QTI9X07-676	Extend operating voltage/temperature range on WP7607 / 09	Extend operating voltage/temperature range to fit VBAT=3.2V min and Class B Op. Temp., including 2G maxTX setting	Voltage, temperature limits
QTI9X07-657	!PATEMP - The temp state is not changed when the PATEMPLIMITS is changed.	Added functionality to track temperature state.	Temp. limits
QTI9X07-766	Update PCTEMP and PCVOLT Limits.	PCTEMP and PCVOLT monitoring limits are too tight and causing call drops at high temperatures. These were adjusted to match PTS.	Voltage, temperature limits
QTI9X07-768	!PCINFO the State is not changed to LowPowerMode	State change event was disabled internally. Now enabled.	Voltage, temperature limits
QTI9X07-994	Device stops enumerating at ~85 degrees C	Thermal mitigation algorithm was acting contrary to configured thresholds. It is now disabled until it can be properly fixed.	Thermal mitigation
Stability			
QTI9X07-783	Reading ADC3 with Legato crashes SWIAPP	An incorrect mapping of ADC index caused an invalid pointer reference	Legato
QTI9X07-752	Module hangs after 50 loops running AT+CREG stress test	Due to race condition, at!reset and resource check happen at the same time. Unlikely under normal circumstances.	AT

ID	Title	Description	Impacted Domain
QTI9X07-224	Add support for FOTA image switching	Previously, FOTA would leave modem in LPM due to improper image preference configuration after the update.	FOTA
QTI9X07-553	Improve USB startup failure mechanism	Previously, if any USB function enabled in AT!USBCOMP fails, then USB would fail to enumerate. Now impact is isolated to only the failing function.	USB
QTI9X07-934	ATI8 crashes modem on development yocto build	As the ATI8 string content depends on the build environment, in some cases the string length exceeded the max, triggering an ABORT. Now in such cases, the result will just be truncated.	AT
QTI9X07-128	EFS recovery – boot loader	Optimized EFS recovery mechanism equivalent to EM74xx.	AT
MCU			
MCU-84	Added ULPM support for WP7607 and WP77xx	Differences in power control circuitry in early DV units required additional logic in MCU to support ULPM wakeup.	ULPM

19.3 Feature Notes

19.3.1 AirVantage

AirVantage connectivity is available in this release in uncertified form for application development and demonstration via Legato and AT commands only. Full production support will follow in a future release. In particular, AirVantage FOTA/SOTA are available for basic use cases, but not of production quality. Notable deficiencies are provided below.

19.3.2 Multi RMNET and QMAP

In previous generation devices, multiple RmNet interfaces were supported through dedicated BAM channel interfaces, configured via USB composition. This approach imposed a limit on the number of interfaces that could be simultaneously supported. To remove that limitation, QMAP was introduced to multiplex multiple virtual channels over a single interface. To make use of this feature, the number of interfaces must be set (AT!NETNUM) and new host drivers are required (S2.29N2.47 or later). Note, however, that in moving to multiple RmNet with QMAP only a single dedicated channel is supported. If only a single RmNet is required, operation in non QMAP mode (AT!NETNUM=0) is still supported with older drivers (S2.29N2.44).
See SLQS04.00.10.1 release package for more details. QMAP is not supported by the Windows driver, and only one RmNet interface will be exposed regardless of AT!NETNUM setting.

19.3.3 Voice/VoLTE

VoLTE is enabled in the Generic carrier PRI, however this has not received industry certification (GCF or PTCRB). It may be used for lab testing if desired. As VoLTE will not be included in initial certification it will be disabled in future releases. CS voice will continue to be supported.

19.4 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Features			
Various	Certification	There are known carrier certification failures in this release, and ongoing testing in progress.	Certification
Various	AirVantage Connectivity	Some AT+WDS indications for AirVantage client control are not supported in this release. AirVantage is not accessible via QMI. AirVantage is not accessible via Legato with a tethered data connection on the same APN. FOTA completion is not automatically reported to the server. SOTA operations will not resume if interrupted.	AirVantage
Various	Partial AT support	This release does not support all planned AT commands.	AT
Various	Linux Boot time is not optimized	Various debug capabilities and debug modules are included in the Kernel and Rootfs, which increases the Sierra Linux system boot time. Modem communication interfaces initialize after the kernel is started, and a delay is observed between USB enumeration and functional communication on the USB interfaces such as the Network adapter, Modem port, etc. Delays of approximately 5 seconds are measured on typical power up, and up to 25 seconds when Linux is starting up for the first time on blank flash.	Linux / Boot
Bugs			
LXSWIREF-211	Legato ECM Interface	ECM MAC address on the host doesn't match the WP for linux kernel 4.4.x hosts (e.g. Ubuntu 14.04 / 16.04) Note: This will be fixed in the next release.	USB / ECM
QTI9X07-599	Sierra SIM Connectivity	AT+COPS=2 shall NOT be used with this module to trigger any network steering	Connectivity
QTI9X07-310	Data from the UE to the DHCP server failed	When customization DHCPRELAYENABLE is enabled, allow only UDP packets for port 67 with target IP address 0xFFFFFFFF to be filtered to the internal DHCP server on modem. All others are sent to the air interface. Note: This will be fixed in the next release.	DHCP
QTI9X07-780	Current consumption	The module will not enter sleep mode if: 1) HSIC is enabled, but host platform does not have ethernet controller connected. 2) Module is booted without USB connected, unless USB is subsequently connected. Minimum power consumption while not in sleep mode is ~40mA. PSM is not yet supported, however ULPM is.	Power
QTI9X07-959	GPIO24 defaults to high after exporting	Upon initial export of GPIO24 from sysfs it is initially high rather than input, no pull	GPIO

ID	Title	Description	Impacted Domain
QTI9X07-995	Unable to get MS-Assisted GPS fix in some cases.	Device rejecting server SSL certificate because the key length is smaller than the minimum value. Pending Qualcomm CR 978483	GNSS

20 Pre-commercial releases

Release notes for pre-commercial releases (prior to Release 6) have been removed for document brevity. Any units running pre-commercial firmware version should be upgraded.