Customer Release Notes

EM7565, EM7511

Important Notice

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

Safety and Hazards

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

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

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

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Consult our website for up-to-date product descriptions, documentation, application notes, firmware upgrades, troubleshooting tips, and press releases: www.sierrawireless.com

Document History

Version	Date	Updates
1.0	April 7, 2017	Creation
1.1	May 16, 2017	Added Release 2
1.2	June 20, 2017	Added Release 3
1.3	Aug 10, 2017	Added Release 4
1.4	Aug 29, 2017	Added Release 5
1.5	Oct 3, 2017	Added Release 6
1.6	Nov 7, 2017	Added Release 7
1.7	Feb 28, 2018	Added Release 8 Removed EM7565-9 Added EM7511
1.8	Mar 17, 2018	Added Release 9
1.9	May 18, 2018	Added Release 10
1.10	June 26, 2018	Added Release 11 Updated FW upgrade instructions from Release 9.
1.11	July 26, 2018	Added Release 9.1 Updated Appendix A to clarify upgrade instructions prior to Release 10.
1.12	Sept 25, 2018	Added Release 12
1.13	Oct 12, 2018	Updated known issues for Release 12 and older: QTI9X50-1200

Contents

1. Introduction

1.1. Document Scope

This document describes changes in the SWI9X50C line of firmware.

1.2. Document Audience

This release note may be distributed to all direct and indirect customers and will be posted on the corporate web site under the Support/Private area.

1.3. Abbreviations and Definitions

Abbreviation/Acronym	Definitions
AT	Access Terminal, Attention
BIST	Built In Self Test
FOTA	Firmware Over The Air
FTM	Factory Test Mode
FW	Firmware
IMS	IP Multimedia Subsystem, Internet Multimedia System
IMSW	Image Switch
LPM	Low Power Mode (equivalent to Airplane mode)
MBIM	Mobile Broadband Interface Model
NW	Network
OMADM	OMA Device Management
OoS	Out of Service
PC	Power Control
PDN	Packet Data Network
QMI	Qualcomm MSM Interface, Qualcomm Modem Interface
SMS	Short Message Service
UI	User Interface

1.4. Related Documentation

Ref. #	Doc. #	Rev.	Document title
1	41110788	7.0	EM7565 Product Technical Specification
2	41112028	2.0	EM7511 Product Technical Specification

Ref. #	Doc. #	Rev.	Document title
3	41112377	1.4	SWI9X50C-PRI-CRN

1.5.   Compatibility

AirPrime Compatibility List	
EM7565	LTE DL Cat-12, LTE UL Cat-13; Bands 1-5, 7, 8, 9, 12, 13, 18, 19, 20, 26, 28, 29, 30, 32, 41, 46, 66 WCDMA; Bands 1, 2, 4, 5, 6, 8, 9, 19
EM7511	LTE DL Cat-12, LTE UL Cat-13; Bands 1-5, 7, 8, 9, 12, 13, 14, 18, 19, 20, 26, 29, 30, 32, 41, 46, 66 WCDMA; Bands 1, 2, 4, 5, 6, 8, 9, 19

* LTE bands 42, 43, 48 are disabled due to FCC and RED regulations. Bands may be enabled in future when FCC and RED test cases are brought up to date.

2. SWI9X50C 1.0 Release 12

NOTE: See Appendix A for special upgrade instructions from Release 9 and older.

Release 12 addresses an IPv6 conformance testcase issue. Certification efforts are planned for DoCoMo, Softbank and KDDI.

2.1. Release Identification

Component	Version
Boot loader	SWI9X50C_01.08.04.00
Application	SWI9X50C_01.08.04.00
Date of generation (UTC)	2018/08/21 21:40:11
Binary Size	77.3 MB (compressed binary)
IMEI SV	8
Chipset vendor Stack Version	MDM9650.LE.1.2-10170
Supported HW	EM7565, EM7511

2.2. Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	None
Skylight	Build 4872
Linux Driver	S2.33N2.53
Linux SDK	04.00.16

2.3. Released Files and Download Processes

Download Option	Files
CWE/NVU files	Firmware Package Build 4866

2.4.   Validated Corrections/Improvements

This section presents all corrections or improvements integrated in this release.

ID	Description	Affected Domain
QTI9X50-1047 QTI9X50-913 QTI9X50-1077 QTI9X50-964 QTI9X50-1012 QTI9X50-1016	Merge Qualcomm Stack MDM9650.LE.1.2-10170-NBOOT.GENNCH.NEFS.PROD-1 - CR 2196801 - UL thermal mitigation not working if temperature thresholds are reached before a call - CR 2100052 – Fixed IPv6 conformance test case issue. - CR 2190517 – Fixed issue where SIM LOCI file was not being updated in certain scenarios - CR 2001474 – Avoid double attach when going from roaming to Verizon network. - CR 2259102 – Improve USB stability in suspend/resume testing	SYSTEM
QTI9X50-1070	Update AT!GSTATUS to report the correct module temperature	AT
QTI9X50-1101	Do not ignore SIM display condition for AT+COPS?	AT
QTI9X50-1113	Update AT+WDSS to reject invalid parameters	AT / AirVantage
QTI9X50-1094	Fixed issue with AT+WDSC where Timer_1 could not be disabled	AT / AirVantage
QTI9X50-958	Port customization from 9x30 to prevent IMSI display and running authentications algorithms via AT+CSIM	AT / UICC
QTI9X50-1084	Report correct bandwidth for 2nd and 3rd CA cells	AT / RF
QTI9X50-1099	Add support for Data Loopback	DATA
QTI9X50-1120 QTI9X50-1114	Avoid FW crash for internal data clients when an IPv6-only profile is used	DATA
QTI9X50-956	Add support for IP subnet mask configuration	DATA
QTI9X50-988	Fixed issue where subsequent DNS lookup would fail for internal clients if the DNS would never respond	DATA / DNS
QTI9X50-1098	Add support for DHCP Relay	DATA / DHCP
QTI9X50-1074	FOTA job on the AirVantage server indicates "in progress" even though FW has been updated	FOTA / AirVantage
QTI9X50-1159	Update TS.25 list to 08-JUL-2018	GCF
QTI9X50-1118	Fixed issue where NMEA sentences are duplicated	GNSS / NMEA
QTI9X50-859	Fix AT!GPSSTATUS fail code if GNSS session is ended via AT!GPSEND	GNSS / AT
QTI9X50-1086	Add support to auto-generate IMS User-Agent Header	IMS / SIP
QTI9X50-1096	Add Windows 10 dual SIM support	MBIM / UICC
QTI9X50-1075	Fixed crash when enabling Network Personalization	MEP
QTI9X50-1090	Increase IMEI SV to 8	PTCRB
QTI9X50-1115	Fixed issue where backwards compatibility for SwiAvmsSetSettings was broken.	QMI
QTI9X50-1100	Add support to disable QoS QMI notifications	QMI
QTI9X50-1066	Fixed issue where GetHomeNetwork was not using SIM PNN/OPL files for non-registered plmn.	QMI
QTI9X50-1055	SIMs operating at a slower baud rate may cause a FW crash.	UICC
QTI9X50-333	Add USB VSC to reset module	USB

2.5. Known Issues

ID	Description	Affected Domain
QTI9X50-976	Module velocity in the AirVantage server is not reported to sub-m/s precision. Instead it is rounded to the nearest m/s.	AirVantage
QTI9X50-1200	Duplicate profiles are created when an AirVantage session is started with a dedicated AirVantage APN, and the device contains a profile with exactly 15 characters. This may cause future AirVantage sessions to fail.	AirVantage
DUCATI-788	Private APN is broken for AT&T PRI v002.008_002 and v002.017_000	DATA
QTI9X50-352	Add support for configuring Vcc Bias for GPS connector via QMI commands	QMI / RF

3. SWI9X50C 1.0 Release 11

NOTE: See Appendix A for special upgrade instructions from Release 9 and older.

Release 11 fixes a few issues found during AT&T and Verizon certifications. It enables thermal mitigation. Certification efforts are planned for AT&T and Verizon.

3.1. Release Identification

Component	Version
Boot loader	SWI9X50C_01.07.02.00
Application	SWI9X50C_01.07.02.00
Date of generation (UTC)	2018/06/13 23:08:16
Binary Size	77.3 MB (compressed binary)
IMEI SV	7
Chipset vendor Stack Version	MDM9650.LE.1.2-10140
Supported HW	EM7565, EM7511

3.2. Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	None
Skylight	Build 4814
Linux Driver	S2.33N2.52
Linux SDK	04.00.15

3.3. Released Files and Download Processes

Download Option	Files
CWE/NVU files	Firmware Package Build 4841

3.4. Validated Corrections/Improvements

This section presents all corrections or improvements integrated in this release.

ID	Description	Affected Domain
QTI9X50-983 QTI9X50-1048	Do not report roaming to the host on AT&T NW using an AT&T FirstNet SIM	AT&T
QTI9X50-1022	Restrict invalid USB Compositions being set	AT / QMI
QTI9X50-1045	Improved FOTA download if interrupted due to no service	FOTA
QTI9X50-1034	Improved FW update process if power is unplugged while FLASH is being programmed	FW UPDATE
QTI9X50-1046	Increase IMEI SV to 7	PTCRB
QTI9X50-1050	Cannot delete Carrier PRI files from the module	QMI
QTI9X50-919	Added support for SMS Wake feature	SMS / HW
QTI9X50-1069	Unable to set max power during testing for LTE Band 9	RF
QTI9X50-1063	Add support for Thermal Mitigation	THERMAL MITIGATION
QTI9X50-1060	Fixed IMS attach issue when moving from Roaming NW to Home NW	VERIZON

3.5. Known Issues

ID	Description	Affected Domain
QTI9X50-1200	Duplicate profiles are created when an AirVantage session is started with a dedicated AirVantage APN, and the device contains a profile with exactly 15 characters. This may cause future AirVantage sessions to fail.	AirVantage
DUCATI-793	Windows 10 dual SIM support does not properly switch images	MBIM
QTI9X50-352	Add support for configuring Vcc Bias for GPS connector via QMI commands	QMI / RF

4. SWI9X50C 1.0 Release 10

NOTE: See Appendix A for special upgrade instructions from Release 9 and older.

4.1. Release Identification

Component	Version
Boot loader	SWI9X50C_01.07.00.00
Application	SWI9X50C_01.07.00.00
Date of generation (UTC)	2018/05/12 15:46:52
Binary Size	77.3 MB (compressed binary)
IMEI SV	6
Chipset vendor Stack Version	MDM9650.LE.1.2-10140
Supported HW	EM7565, EM7511

4.2. Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	None
Skylight	Build 4803
Linux Driver	S2.32N2.51
Linux SDK	04.00.14

4.3. Released Files and Download Processes

Download Option	Files
CWE/NVU files	Firmware Package Build 4822

4.4. Validated Corrections/Improvements

This section presents all corrections or improvements integrated in this release.

ID	Description	Affected Domain
QTI9X50-1007	Merge Qualcomm stack MDM9650.LE.1.2-10140-NBOOT.GENNCH.NEFS.PROD-1 - CR 2228764 - Case 03419487 - LTE B20 High FBRX LSE Error (20MHz BW) - QTI9X50-690 - Rare crash on power cycle stress tests. - QTI9X50-936 - Crash observed with LTE only SIM on RAT change from LTE Only to Automatic	SYSTEM
QTI9X50-635	Fixed rare FW crash during power cycle stress tests	STABILITY
QTI9X50-628	Add support for +WDSC: 5 for user agreement before rebooting	AT / AirVantage
QTI9X50-945	Fixed issue where Missing +WDSI: 18, 100 was missing after power on/off	AT / AirVantage
QTI9X50-915	The AT port may lock up after quickly entering several AT+CLCK commands	AT
QTI9X50-967	Removed extra characters printed in AT$QCRSRP, AT$QCRSRQ	AT
QTI9X50-977	Add support for AT+RSRP, AT+RSRQ, AT+ECNO, AT+RSCP	AT / AT&T
QTI9X50-914	After FOTA update, AT!IMAGE shows active FW slot as 255 instead of the correct slot	AT / FOTA
QTI9X50-1027	Remove dBm/Hz string from VZWRSRP and VZWRSRQ AT commands	AT / VERIZON
QTI9X50-824	Added support for SINGLEAPN feature	DATA
QTI9X50-966	Fixed issue where module would crash when downloading gpsOneXTRA data failed in some scenarios	GNSS
QTI9X50-950	Increase IMEI SV to 6	PTCRB
QTI9X50-1027	Add support for Carrier name and Carrier PRI TLVs in SWI Get CWE Info QMI command	QMI
QTI9X50-938	Added QMI object, QMI_SWI_DMS_GET_MTU, to return MTU size	QMI
QTI9X50-937	Added QMI command to configure number of network interfaces in QMI mode: QMI equivalent of AT!NETNUM	QMI
QTI9X50-803	Add support for QMI_DMS_SWI_SET_EVENT_REPORT, QMI_DMS_SWI_GET_ENVIRONMENT and QMI_DMS_SWI_SET_ENVIRONMENT	QMI
QTI9X50-1004	Get Stored Images was not returning correct slot information if the first slot is empty	QMI / IMSW
QTI9X50-1038	QMI_DMS_SWI_GET_STORED_IMAGES was not returning the correct slot information if the first slot is empty	QMI / IMSW
QTI9X50-137	Added support for Antenna Selection via QMI commands	QMI / RF
VARIOUS	Added support for Secure Boot	SECURITY
QTI9X50-959	Added support to leave SIM powered or off during AT+CFUN=0	SIM
QTI9X50-974	STK Location Status Event not sent in some scenarios	STK
QTI9X50-880	Add support for AT!DA commands for customers to test their antenna	RF
QTI9X50-984	Fix issue where GPIO SAR back off was not working on EM7511	RF

ID	Description	Affected Domain
QTI9X50-908	Added an AT command to control the antenna path for SCC on a CA call.	RF
QTI9X50-1008	Report correct product name in USB Descriptor during FW download.	USB

4.5. Known Issues

ID	Description	Affected Domain
QTI9X50-1200	Duplicate profiles are created when an AirVantage session is started with a dedicated AirVantage APN, and the device contains a profile with exactly 15 characters. This may cause future AirVantage sessions to fail.	AirVantage
QTI9X50-352	Add support for configuring Vcc Bias for GPS connector via QMI commands	QMI / RF
QTI9X50-919	Add support for SMS Wake feature	SMS / HW

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5. SWI9X50C 1.0 Release 9.1

5.1.   Release Identification

Component	Version
Boot loader	SWI9X50C_01.05.04.00
Application	SWI9X50C_01.05.04.00
Date of generation (UTC)	2018/06/01 05:03:07
Binary Size	76.5 MB (compressed binary)
IMEI SV	5
Chipset vendor Stack Version	MDM9650.LE.1.2-10100
Supported HW	EM7565, EM7511

5.2.   Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	Build 4782 from Release 7, then manually update FW.
Skylight	Build 4803
Linux Driver	S2.31N2.50
Linux SDK	04.00.13

5.3.   Released Files and Download Processes

Download Option	Files
CWE/NVU files	Firmware Package Build 4861

5.4. Validated Corrections/Improvements

This section presents all corrections or improvements integrated in this release.

ID	Description	Affected Domain
QTI9X50-1012 QTI9X50-1016	Module doesn't immediately register onto Verizon coming from a roaming network.	VERIZON

5.5. Known Issues

ID	Description	Affected Domain
QTI9X50-1200	Duplicate profiles are created when an AirVantage session is started with a dedicated AirVantage APN, and the device contains a profile with exactly 15 characters. This may cause future AirVantage sessions to fail.	AirVantage
QTI9X50-915	The AT port may lock up after quickly entering several AT+CLCK commands	AT
QTI9X50-824	Add support for SINGLEAPN feature	DATA
QTI9X50-352	Add support for configuring Vcc Bias for GPS connector via QMI commands	QMI / RF
QTI9X50-137	Add support for Antenna Selection via QMI commands	QMI / RF
QTI9X50-919	Add support for SMS Wake feature	SMS / HW
QTI9X50-880	Missing various AT!DA commands specified in the PTS to help customer test their antenna	RF
QTI9X50-984	GPIO SAR back does not work on EM7511	RF

6. SWI9X50C 1.0 Release 9

6.1. Release Identification

Component	Version
Boot loader	SWI9X50C_01.05.03.00
Application	SWI9X50C_01.05.03.00
Date of generation (UTC)	2018/03/28 22:42:08
Binary Size	76.5 MB (compressed binary)
IMEI SV	5
Chipset vendor Stack Version	MDM9650.LE.1.2-10100
Supported HW	EM7565, EM7511

6.2. Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	Build 4782 from Release 7, then manually update FW.
Skylight	Build 4803
Linux Driver	S2.31N2.50
Linux SDK	04.00.13

6.3. Released Files and Download Processes

Download Option	Files
CWE/NVU files	Firmware Package Build 4810

6.4. Validated Corrections/Improvements

This section presents all corrections or improvements integrated in this release.

ID	Description	Affected Domain
QTI9X50-837	Fixed issue when downloading FW in Linux using USB 3.0	FW DOWNLOAD
QTI9X50-906	Motive TC 3.6.7, 3.6.8 – Reduce data connection attempts in an OMADM session when transitioning from IPv6 to IPv4	OMADM / Verizon
QTI9X50-806	Add support for QMI_QOS_SWI_READ_EXTRA_APN_PARAMS and QMI_QOS_SWI_READ_DATA_STATISTIC	QMI
QTI9X50-949	Increase IMEI SV to 5	PTCRB
QTI9X50-552	[LTE-BTR-1-3890] - No Service Event not sent to SIM in certain scenarios	SIM
QTI9X50-952	Add support to enable onboard eSIM if it is present	SIM
QTI9X50-948	Fixed an issue where the USB Type would change from QMI mode to MBIM mode when upgrading FW	USB
QTI9X50-953	[36.523-1][8.2.4.19.1] – Fixed an issue where LTE-to-LTE handover was failing	RF / PTCRB

6.5. Known Issues

ID	Description	Affected Domain
QTI9X50-1200	Duplicate profiles are created when an AirVantage session is started with a dedicated AirVantage APN, and the device contains a profile with exactly 15 characters. This may cause future AirVantage sessions to fail.	AirVantage
QTI9X50-915	The AT port may lock up after quickly entering several AT+CLCK commands	AT
QTI9X50-824	Add support for SINGLEAPN feature	DATA
QTI9X50-352	Add support for configuring Vcc Bias for GPS connector via QMI commands	QMI / RF
QTI9X50-137	Add support for Antenna Selection via QMI commands	QMI / RF
QTI9X50-919	Add support for SMS Wake feature	SMS / HW
QTI9X50-880	Missing various AT!DA commands specified in the PTS to help customer test their antenna	RF
QTI9X50-984	GPIO SAR back does not work on EM7511	RF

7. SWI9X50C 1.0 Release 8

7.1. Release Identification

Component	Version
Boot loader	SWI9X50C_01.05.01.00
Application	SWI9X50C_01.05.01.00
Date of generation (UTC)	2018/02/23 18:02:21
Binary Size	76.4 MB (compressed binary)
IMEI SV	4
Chipset vendor Stack Version	MDM9650.LE.1.2-10100
Supported HW	EM7565, EM7511

7.2. Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	Build 4782 from Release 7, then manually update FW.
Skylight	Build 4777
Linux Driver	S2.31N2.50
Linux SDK	04.00.13

7.3. Released Files and Download Processes

Download Option	Files
CWE/NVU files	Firmware Package Build 4804

7.4.   Validated Corrections/Improvements

This section presents all corrections or improvements integrated in this release.

ID	Description	Affected Domain
QTI9X50-828	Added Qualcomm stack MDM9650.LE.1.2-10100-NBOOT.GENNCH.NEFS.PROD-1 - Various fixes for FirstNet support - Invalid WCDMA channel displayed in AT!GSTATUS - Improved USB stability for Yellow Bangs in Device Manager - AT&T RPM fix - Verizon IMS fix.	SYSTEM
QTI9X50-788	LWM2M session not triggered over QMI	AirVantage
QTI9X50-735 QTI9X50-278	Add support for FOTA update via AirVantage	AirVantage
QTI9X50-894	Removed extra LF for +CREG notification	AT
QTI9X50-843	Added AT command to enable or disable GNSS DPO (Dynamic Power Optimization)	AT / GNSS
QTI9X50-272	Added support for multiple data connections to the host in QMI mode	DATA
QTI9X50-820	Do not reply to IPv4 PING requests when there is no end-to-end data session	DATA
QTI9X50-713	In some scenarios, a data connection from Windows will disconnect immediately	DATA
QTI9X50-709	Update TS.25 list to 13-NOV-2017	GCF
QTI9X50-501 QTI9X50-526	Added support for EM7511	HW
QTI9X50-805 QTI9X50-804	Add support to send SMS on detection of power removal	POWER
QTI9X50-700 QTI9X50-764	Increase IMEI SV to 4	PTCRB
QTI9X50-461	Add support to lock to an RF channel	RF
QTI9X50-508	Add support for Antenna Selection via GPIO	RF
QTI9X50-810	STK Terminal Profile Updates for PTCRB	SIM
QTI9X50-523	Add support for Network Locking (Subsidy locking)	SIM
QTI9X50-817	Added AT command to force USB 2.0	USB
QTI9X50-346 QTI9X50-163	Windows Network Adaptor does not show correct device model number	USB
QTI9X50-831	Add IPv6 support for Verizon OTADM Sever	VERIZON / OTADM
QTI9X50-833 QTI9X50-834 QTI9X50-720	For Verizon OTADM, return status '404' for unsupported nodes	VERIZON / OTADM

7.5.   Known Issues

ID	Description	Affected Domain
Various	Some features are not yet implemented.	VARIOUS

8. SWI9X50C 1.0 Release 7

8.1. Release Identification

Component	Version
Boot loader	SWI9X50C_01.02.01.00
Application	SWI9X50C_01.02.01.00
Date of generation (UTC)	2017/11/01 19:34:14
Binary Size	79.4 MB (compressed binary)
IMEI SV	3
Chipset vendor Stack Version	MDM9650.LE.1.2-10065
Supported HW	EM7565

8.2. Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	Build 4782
Skylight	Build 4686
Linux Driver	S2.30N2.48
Linux SDK	04.00.11

8.3. Released Files and Download Processes

Download Option	Files
CWE/NVU files	Firmware Package Build 4780

8.4. Validated Corrections/Improvements

This section presents all corrections or improvements integrated in this release.

ID	Description	Affected Domain
QTI9X50-634 QTI9X50-598	Added Merge MDM9650.LE.1.2-10065-NBOOT.NEFS.PROD-1 - Various PCIe fixes - CR 2026671 - GCF 34.121-1- TC 8.4.2.1A failing as preamble to preamble power ramp difference out of spec limit. - CR 1056749 - New detected intra cell's status hasn't been cleared and has blocked it to go into MR evaluation - CR 2045384 - RLC incorrectly requested to build only 1 byte of MAC sub-header while in actual it could have either been 2 or 3 bytes - CR 2087231 - LAA inter frequency measurement not scheduled for certain DMTC, OTA gap configurations	SYSTEM
QTI9X50-532	Fixed AirVantage "Cellular Technology Used" string for WCDMA to report "WCDMA" and not "WCDM"	AirVantage
QTI9X50-269	Updated LWM2M nodes 4.0.4 and 4.0.7 to report IPv4 and IPv6 addresses. The IP address used for AirVantage connection are listed first.	AirVantage
QTI9X50-514	Updated various AirVantage AT Commands to match documentation	AirVantage
QTI9X50-566	Add support for AirVantage Location objects	AirVantage
QTI9X50-578	Fixed AT!BAND table for AT&T	AT
QTI9X50-515	Fixed AT+CGSN to return "OK" after command is executed	AT
QTI9X50-487	Disable unsolicited AT notification +PACSP for non-AT&T carriers	AT
QTI9X50-530	Fixed rare crash if AT+CCID? Is issued repeatedly	AT
QTI9X50-524	Updated AT!GPSEND to return OK if no session is active	AT
QTI9X50-54	Add support for AT!RMARESET and AT!CARRIERRESET	AT
QTI9X50-408	Enable AT+CSIM by default	AT / UIM
QTI9X50-647	Improved SBL boot time by disabling PCIe training in the SBL	BOOT
QTI9X50-504	Fix issue where GNSS timeout was not being used for AT and NMEA sentences. Instead the default timeout was being used in some cases	GNSS
QTI9X50-309	Fixed default LED blink patterns	LED
QTI9X50-650	Add support for MBIM GUID (FWID)	MBIM
QTI9X50-574	Increase IMEI SV to 3	PTCRB
QTI9X50-633	Add support for QMI_WDS_SWI_PROFILE_CHANGE_IND	QMI
QTI9X50-447	Ported various Sierra WDS QMI objects	QMI
QTI9X50-500	Remove support for LTE Bands B17, B252, and B255	RF
QTI9X50-555	Report correct IMEI SV Number in STK Terminal Response	UIM

8.5. Known Issues

ID	Description	Affected Domain
Various	Various features are not yet implemented and/or validated	VARIOUS

9. SWI9X50C 1.0 Release 6

9.1. Release Identification

Component	Version
Boot loader	SWI9X50C_01.00.02.00
Application	SWI9X50C_01.00.02.00
Date of generation (UTC)	2017/09/29 05:54:26
Binary Size	74.3 MB (compressed binary)
IMEI SV	2
Chipset vendor Stack Version	MDM9650.LE.1.2-10050

9.2. Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	Build 4767
Skylight	None
Linux Driver	None
Linux SDK	None

9.3. Released Files and Download Processes

Download Option	Files
CWE/NVU files	Firmware Package Build 4766

9.4. Validated Corrections/Improvements

This section presents all corrections or improvements integrated in this release.

ID	Description	Affected Domain
QTI9X50-464	Added Qualcomm stack MDM9650.LE.1.2-10050-NBOOT.NEFS.PROD-1	SYSTEM
QTI9X50-151	Improve module recovery from data corruption	SYSTEM
QTI9X50-291	Add support for AT!DACGPSCTON	AT
QTI9X50-468	Fixed crash when issuing AT!SCACT	AT
QTI9X50-338	Fixed rare crash while user is entering AT commands	AT
QTI9X50-171	Added support for AT+CCHO, AT+CCHC, AT+CCLA	AT
QTI9X50-376	Fixed issue where AT+CPBR=1 was resetting the module	AT
QTI9X50-367	Added support for AT!GPSSATINFO	AT
QTI9X50-380	Added AT&T ODIS support	AT&T
QTI9X50-345	Added support for AirVantage QMI objects	AirVantage
QTI9X50-462	Improved bootloader boot time	BOOT
QTI9X50-383	Fixed issue where boot time was inconsistent	BOOT
QTI9X50-478	Update TS.25 list to 21-AUG-2017	GCF
QTI9X50-431	Improved onboard logging in the bootloader	LOG
QTI9X50-516	Report correct APN type over MBIM	MBIM
QTI9X50-502 QTI9X50-527	Improved low current in PCIe mode	POWER
QTI9X50-460	Increased IMEI SV to 2	PTCRB
QTI9X50-310	Fixed issue where module was not resetting reliably via AT!RESET	RESET
QTI9X50-448	Add support for Sierra NAS QMI objects	QMI
QTI9X50-449	Add support for Sierra LOC QMI objects	QMI
QTI9X50-465	Correctly report LTE Category for EM7565-9	RF
QTI9X50-445	Fixed issue where RSSI read during BIST only worked if QXDM/QPST is connected	RF
QTI9X50-388	Added support for WCDMD B19 and LTE B48	RF
QTI9X50-471	Fixed issue where call drops where observed at high temperatures	RF
QTI9X50-375	Added support for Verizon APN management	VERIZON
QTI9X50-407	Add support for Verizon Class 6 APN	VERIZON
QTI9X50-459	Unsupported Verizon OMADM nodes should return error 404	VERIZON
QTI9X50-374	Add support for Verizon SMS requirements	VERIZON

9.5. Known Issues

ID	Description	Affected Domain
Various	Numerous features are not yet implemented and/or validated	VARIOUS

9.6. Certification Description

Entity	Description
GCF	None
PTCRB	None
Carrier	None

10. SWI9X50C 1.0 Release 5

10.1. Release Identification

Component	Version
Boot loader	SWI9X50C_00.06.02.00
Application	SWI9X50C_00.06.02.00
Date of generation (UTC)	2017/08/25 05:33:58
Binary Size	79.7 MB (compressed binary)
IMEI SV	1
Chipset vendor Stack Version	MDM9650.LE.1.2-10040

10.2. Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	Build 4747
Skylight	None
Linux Driver	None
Linux SDK	None

10.3. Released Files and Download Processes

Download Option	Files
CWE/NVU files	Firmware Package Build 4752

10.4. Validated Corrections/Improvements

This section presents all corrections or improvements integrated in this release.

ID	Description	Affected Domain
QTI9X50-402	Merge MDM9650.LE.1.2-10040-NBOOT.NEFS.PROD-2	SYSTEM
QTI9X50-216	Fix rare device crash in uiccuser.c, seen during power cycle stress testing	SYSTEM
QTI9X50-231	Add support to read RSSI during BIST	RF
QTI9X50-350 QTI9X50-420 QTI9X50-421	Add support for SAR backoff	RF
QTI9X50-119	Add capability to configure device type in MBIM_CID_DEVICE_CAPS as EMBEDDED or REMOTE	MBIM
QTI9X50-161	Add LED flashing during firmware upgrade	LED
QTI9X50-395	Fix issue where UIM2 is not recognized	UIM
QTI9X50-74	Add support for AT*CNTI	AT
QTI9X50-77	Add support for AT+VZWMRUC, AT+VZWMRUE, AT+VZWAPNE, AT+VZWRSRP, AT+VZWRSRQ	AT
QTI9X50-77	Add support for QMI_WDS_SWI_PROFILE_CHANGE	QMI
QTI9X50-274	Fix QMI reliability when PCIe is in L1 state	QMI / PCIe
QTI9X50-436	Fix PCIe reliability issue where MHI driver does not properly initialize	PCIe
QTI9X50-437	Fix host BSOD seen during firmware upgrade	PCIe

10.5. Known Issues

ID	Description	Affected Domain
Various	Numerous features are not yet implemented and/or validated	VARIOUS
QTI9X50-445	RSSI read during BIST only works if QXDM/QPST is connected	RF
QTI9X50-383	Boot time varies by up to 1 second	BOOT

10.6. Certification Description

Entity	Description
GCF	None
PTCRB	None
Carrier	None

11. SWI9X50C 1.0 Release 4

11.1. Release Identification

Component	Version
Boot loader	SWI9X50C_00.05.03.00
Application	SWI9X50C_00.05.03.00
Date of generation (UTC)	2017/08/04 02:36:25
Binary Size	75.6 MB (compressed binary)
IMEI SV	1
Chipset vendor Stack Version	MDM9650.LE.1.2-10031

11.2. Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	Build 4736
Skylight	None
Linux Driver	None
Linux SDK	None

11.3. Released Files and Download Processes

Download Option	Files
CWE/NVU files	Firmware Package Build 4741

11.4. Validated Corrections/Improvements

This section presents all corrections or improvements integrated in this release.

ID	Description	Affected Domain
QTI9X50-373	Added Qualcomm stack: MDM9650.LE.1.2-10031-NBOOT.NEFS.PROD-2	SYSTEM
QTI9X50-325 QTI9X50-337	Added support for EM7565-9	SYSTEM
QTI9X50-283	Improved stability when resetting the module	STABILITY
QTI9X50-14	Add preliminary support for AirVantage	AirVantage
QTI9X50-75	Added support for AT+CESQ	AT
QTI9X50-317	Added support for AT!WDISABLE	AT
QTI9X50-316	Added support for AT!HWID	AT
QTI9X50-314	Updated ATI to report UTC time	AT
QTI9X50-66	Added support for AT!LTEINFO	AT / RF
QTI9X50-190	LTE Tx channel number added to AT!GSTATUS	AT / RF
QTI9X50-271 QTI9X50-358	Added FCC BIOS Locking support	FCC / POWER
QTI9X50-60	Add support for Vcc bias on the dedicated GNSS connector	GNSS
QTI9X50-127	Add support to turn ON/OFF GNSS via GPS_DISABLE PIN	GNSS
QTI9X50-118	Changed MBIM device type from REMOTE to EMBEDDED	MBIM
QTI9X50-359	Added basic PCIe support in the bootloader	PCIe
QTI9X50-290 QTI9X50-181	Added PCIe support	PCIe
QTI9X50-353 QTI9X50-369	Fixed issue where QMI_DMS_GET_OPERATING_MODE doesn't return the correct status on power up	QMI
QTI9X50-311	Add support for QMI_NAS_SWI_MODEM_STATUS	QMI
QTI9X50-124	Added support for AT+CCID	UICC / AT

11.5. Known Issues

ID	Description	Affected Domain
Various	Numerous features are not yet implemented and/or validated	VARIOUS

11.6. Certification Description

Entity	Description
GCF	None
PTCRB	None
Carrier	None

12. SWI9X50C 1.0 Release 3

12.1. Release Identification

Component	Version
Boot loader	SWI9X50C_00.03.05.00
Application	SWI9X50C_00.03.05.00
Date of generation (UTC)	2017/06/13 21:39:43
Binary Size	73.6 MB (compressed binary)
IMEI SV	1
Chipset vendor Stack Version	MDM9650.LE.1.0.c3-10182

12.2. Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	Build 4716
Skylight	None
Linux Driver	None
Linux SDK	None

12.3. Released Files and Download Processes

Download Option	Files
CWE/NVU files	Firmware Package Build 4713

12.4. Validated Corrections/Improvements

This section presents all corrections or improvements integrated in this release.

ID	Description	Affected Domain
QTI9X50-122	Fix slow AT!GSTATUS response due to ADC read	AT
QTI9X50-218	Update AT+CGDCONT and other commands to work without a SIM inserted	AT
QTI9X50-275	Update AT+CFUN to report SIM phone number	AT
QTI9X50-76	Add support for +CPINR	AT / SIM
QTI9X50-125	Report correct MTU size to host over MBIM	DATA
QTI9X50-18	Added support for NMEA port and GNSS AT commands	GNSS / NMEA
QTI9X50-82	Add support to store images in FLASH	IMSW
QTI9X50-83	Add support for FW-based SIM Image Switching	IMSW
QTI9X50-36	Add support for Voltage and Temperature monitoring	PC
QTI9X50-210	Add support for W_DISABLE	PC
QTI9X50-250	Add Power loss SMS and Detach feature	PC
QTI9X50-219	Add support to register for W_DISABLE notifications in QMI_DMS_SET_EVENT_REPORT	QMI
QTI9X50-242	Update QMI_DMS_GET_DEVICE_MFR to report correct Manufacture Name	QMI
QTI9X50-243	Update QMI_DMS_GET_DEVICE_MODEL_ID to report correct Device Model Name	QMI
QTI9X50-273	Update QMI_WMS_GET_MESSAGE_PROTOCOL to report correct SMS technology	QMI
QTI9X50-245	Set IMEI SV to 1	PTCRB
QTI9X50-187	Add CVE-2017-7187	Security
QTI9X50-258	Change default SMS storage to SIM/USIM instead of NV	SMS

12.5. Known Issues

ID	Description	Affected Domain
Various	Numerous features are not yet implemented and/or validated	VARIOUS
QTI9X50-285	NMEA sentences are not reporting at 1Hz rate	GNSS

12.6. Certification Description

Entity	Description
GCF	None
PTCRB	None
Carrier	None

13. SWI9X50C 1.0 Release 2

13.1. Release Identification

Component	Version
Boot loader	SWI9X50C_00.03.02.00
Application	SWI9X50C_00.03.02.00
Date of generation	2017/05/11 23:06:14
Binary Size	73.1 MB (compressed binary)
IMEI SV	0
Chipset vendor Stack Version	MDM9650.LE.1.0.c3-10182

13.2. Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	Build 4695
Skylight	None
Linux Driver	None
Linux SDK	None

13.3. Released Files and Download Processes

Download Option	Files
None – preloaded onto module	

13.4. Validated Corrections/Improvements

This section presents all corrections or improvements integrated in this release.

ID	Description	Affected Domain
QTI9X50-230	Add Qualcomm Stack MDM9650.LE.1.0.c3-10182-NBOOT.NEFS.PROD-1 - CR 2032945 - Crash after PDP context activation in WCDMA mode (AT+CGACT=1,1)	SYSTEM
QTI9X50-162	Add AT!GSTATUS command	AT
QTI9X50-201	Add AT!RESET	AT
QTI9X50-182	Add AT!IMSTESTMODE to enable / disable IMS	IMS / AT
QTI9X50-81	Add host-based image switching	IMSW
QTI9X50-104	Add LED support	LED
QTI9X50-132	Add support to send QXDM logs over MBIM	MBIM / Debugging
QTI9X50-154	Add support to configure a device at factory and in the field	NV / Configuration
QTI9X50-220	Boot up in ONLINE mode, instead of LPM	PC
QTI9X50-121	Add support to force USB 2.0 enumeration in the app	USB
QTI9X50-221	Add support to force USB 2.0 enumeration in the bootloader	USB

13.5. Known Issues

ID	Description	Affected Domain
Various	Numerous features are not yet implemented and/or validated	VARIOUS
QTI9X50-127	NMEA port is not working	GNSS

13.6. Certification Description

Entity	Description
GCF	None
PTCRB	None
Carrier	None

14. SWI9X50C 1.0 Release 1

THIS RELEASE IS AN INTERMEDIATE ENGINEERING RELEASE.

THIS RELEASE SHALL NOT BE USED FOR PRODUCTION.

This release has had limited testing/validation. Testing has been done for functionality, but not for adherence to 3GPP specifications. The following basic functionality is present in this release:

- All RF bands are functional
- Limited LTE-CA combination support: 1C, 3C, 7C, 3A_7C, 1A_3A_5A, 2A_4A_12A, 2A_4A_29A, 2A_4A_13A
- Basic stability
- Basic communication with Windows & Linux hosts
- NMEA port is not available

No support is planned for firmware upgrades or one-click tools for configuration changes in the field.

14.1. Release Identification

Component	Version
Boot loader	SWI9X50C_00.01.04.00
Application	SWI9X50C_00.01.04.00
Date of generation	2017/03/28
Binary Size	71.3 MB (compressed binary)
IMEI SV	0
Chipset vendor Stack Version	MDM9650.LE.1.0.c3-10150

14.2. Software Tools Versions

S/W Tools Name	Version
Windows Driver Package	Build 4645
Skylight	None
Linux Driver	None
Linux SDK	None

14.3. Released Files and Download Processes

Download Option	Files
None – preloaded onto module	

14.4. Validated Corrections/Improvements

This section presents all corrections or improvements integrated in this release.

ID	Description	Affected Domain
n/a	First external release	SYSTEM

14.5. Known Issues

ID	Description	Affected Domain
Various	Numerous features are not yet implemented and/or validated	VARIOUS

14.6. Certification Description

Entity	Description
GCF	None
PTCRB	None
Carrier	None

15. Troubleshooting

Please contact customer service for support and debugging information

A. Firmware Upgrade Instructions from Release 9 and older

Upgrading early sample modules on Release 9 or prior will require the following steps:

1. Upgrade FW to at least Release 9.
2. Upgrade to the current FW package as usual with the FW and Carrier PRI files.
3. The update will report a failure; however, FW will be updated on the module.
4. FW will detect an Image Mismatch and stay in LPM. This can be confirmed via the following AT commands:
   ```
   ATI
   AT!IMPREF?
   ```
5. Run the same upgrade procedures as Step 1. This will report success. FW and Carrier PRI will be updated successfully.

WARNING: Module should not be downgraded to Release 9 again to avoid future issues.

WARNING: It is recommended to upgrade all carrier images to Release 10 on the module to avoid future issues