



SIERRA WIRELESS IS NOW
SEMTECH[®]

Modules



Customer Release Notes

EM919x/EM7690

Revision History

Rev#	Date (YYYY/MM/DD)	Updates
01.25	2025/07/24	Added Release 9
01.23	2024/12/18	Added Release 7
01.22	2024/5/2	Updated FW and PRI versions for BELL Updated PRI version for DOCOMO and TELSTRA Moved old GENERIC versions from approved section to approved legacy section Added TMO in test section
01.21	2024/3/6	Added Release 6.2
01.20	2024/2/1	Added Release 6.1
01.19	2023/12/08	Added Release 6
01.18	2023/05/12	Added Release 5.2
01.17	2023/03/31	Added Release 5.1
01.16	2023/02/14	Added Release 5
01.15.01	2023/01/23	Added Release 4.5
01.15	2022/10/25	Added Release 4.4
01.14	2022/08/15	Added Release 4.3
01.13	2022/06/10	Added Release 4.2
01.12	2022/03/25	Added Release 4.1.
01.11	2022/03/24	Updated Release 4 to include Verizon Approval
01.10	2021/10/15	Added Release 4 Added Release 1.1
01.09	2021/09/21	Added Release 3.1 with Telstra approval. Updated FDT upgrade instructions.
01.08	2021/08/26	Removed QTIX5510-3186 from Release 3 fixes
01.07	2021/08/17	Added Release 3
01.06	2021/05/14	Added Release 2.1 Updated Release 2 Known Issues
01.05	2021/04/23	Added Release 2
01.04a	2021/07/30	Added Release 1.1
01.04	2021/03/22	Added SP1_RC7
01.03	2021/02/26	Added mmWave build information to SP1_RC6 and SP1_RC5.1
01.02	2021/02/19	Added SP1_RC6

Customer Release Notes

01.01	2021/01/22	Added SP1_RC5
01.00	2020/12/18	Creation – SP1_RC4

Contents

CONTENTS.....	4
1 INTRODUCTION	14
1.1 Document Scope	14
1.2 Firmware Packages and Tools	14
1.3 Document Audience	14
2 COMPATIBILITY	15
2.1 Hardware compatibility	15
2.2 Software feature compatibility	15
3 FIRMWARE RELEASE 9	16
3.1 Firmware Release Description	16
3.1.1 Firmware Release Identification	16
3.1.2 Carrier Packages	16
3.1.3 Host Software Versions.....	18
3.1.4 Software Changes	19
3.1.5 Security Corrections/Improvements.....	19
3.1.6 Known Issues.....	20
4 FIRMWARE RELEASE 7	21
4.1 Firmware Release Description	21
4.1.1 Firmware Release Identification	21
4.1.2 Carrier Packages	21
4.1.3 Host Software Versions.....	23
4.1.4 Software Changes	23
4.1.5 Security Corrections/Improvements.....	25
4.1.6 Known Issues.....	27
5 FIRMWARE RELEASE 6.2.....	28

- 5.1 Firmware Release Description 28
 - 5.1.1 Firmware Release Identification 28
 - 5.1.2 Carrier Packages 28
 - 5.1.3 Host Software Versions..... 30
 - 5.1.4 Software Changes 30
 - 5.1.5 Security Corrections/Improvements..... 31
 - 5.1.6 Known Issues..... 31
- 6 FIRMWARE RELEASE 6.1 33
 - 6.1 Firmware Release Description 33
 - 6.1.1 Firmware Release Identification 33
 - 6.1.2 Carrier Packages 33
 - 6.1.3 Host Software Versions..... 35
 - 6.1.4 Software Changes 35
 - 6.1.5 Security Corrections/Improvements..... 36
 - 6.1.6 Known Issues..... 36
- 7 FIRMWARE RELEASE 6 38
 - 7.1 Firmware Release Description 38
 - 7.1.1 Firmware Release Identification 38
 - 7.1.2 Carrier Packages 38
 - 7.1.3 Host Software Versions..... 40
 - 7.1.4 Software Changes 40
 - 7.1.5 Security Corrections/Improvements..... 42
 - 7.1.6 Known Issues..... 44
- 8 RELEASE 5.2 45
 - 8.1 Software Release Description 45
 - 8.1.1 Release identification 45
 - 8.1.2 Software Tools Versions..... 46
 - 8.1.3 Released Carrier Packages..... 46

- 8.1.4 mmWave Packages 48
 - 8.1.4.1 QCN files..... 49
 - 8.1.4.2 RFC MBN SCAN 50
- 8.2 Software Changes Description..... 50
- 8.3 Security Corrections/Improvements 51
- 8.4 Known Issues 51
- 9 RELEASE 5.1 53
 - 9.1 Software Release Description 53
 - 9.1.1 Release identification 53
 - 9.1.2 Software Tools Versions..... 53
 - 9.1.3 Released Carrier Packages..... 53
 - 9.1.4 mmWave Packages 56
 - 9.1.4.1 QCN files..... 56
 - 9.1.4.2 RFC MBN SCAN 57
 - 9.2 Software Changes Description..... 57
 - 9.3 Security Corrections/Improvements 58
 - 9.4 Known Issues 58
- 10 RELEASE 5 59
 - 10.1 Software Release Description 59
 - 10.1.1 Release identification 59
 - 10.1.2 Software Tools Versions 60
 - 10.1.3 Released Carrier Packages 60
 - 10.1.4 mmWave Packages 62
 - 10.1.4.1 QCN files 62
 - 10.1.4.2 RFC MBN SCAN 64
 - 10.2 Software Changes Description 64
 - 10.3 Security Corrections/Improvements..... 66
 - 10.4 Known Issues 68

- 11 RELEASE 4.5 69
 - 11.1 Software Release Description 69
 - 11.1.1 Release identification 69
 - 11.1.2 Software Tools Versions 69
 - 11.1.3 Released Carrier Packages 70
 - 11.1.4 Released FW Components 72
 - 11.1.5 mmWave Packages 72
 - 11.1.5.1 QCN files 72
 - 11.1.5.2 RFC MBN SCAN 74
 - 11.2 Software Changes Description 74
 - 11.3 Security Corrections/Improvements..... 74
 - 11.4 Known Issues 74
- 12 RELEASE 4.4 77
 - 12.1 Software Release Description 77
 - 12.1.1 Release identification 77
 - 12.1.2 Software Tools Versions 77
 - 12.1.3 Released Carrier Packages 77
 - 12.1.4 Released FW Components 79
 - 12.1.5 mmWave Packages 80
 - 12.1.5.1 QCN files 80
 - 12.1.5.2 RFC MBN SCAN 81
 - 12.2 Software Changes Description 82
 - 12.3 Security Corrections/Improvements..... 82
 - 12.4 Known Issues 82
- 13 RELEASE 4.3 84
 - 13.1 Software Release Description 84
 - 13.1.1 Release identification 84
 - 13.1.2 Software Tools Versions 84

- 13.1.3 Released Carrier Packages 84
- 13.1.4 Released FW Components 86
- 13.1.5 mmWave Packages 86
 - 13.1.5.1 QCN files 86
 - 13.1.5.2 RFC MBN SCAN 88
- 13.2 Software Changes Description 88
- 13.3 Security Corrections/Improvements..... 88
- 13.4 Known Issues 89
- 14 RELEASE 4.2 91
 - 14.1 Software Release Description 91
 - 14.1.1 Release identification 91
 - 14.1.2 Software Tools Versions 91
 - 14.1.3 Released Carrier Packages 91
 - 14.1.4 Released FW Components 93
 - 14.1.5 mmWave Packages 93
 - 14.1.5.1 QCN files 93
 - 14.1.5.2 RFC MBN SCAN 94
 - 14.2 Software Changes Description 95
 - 14.3 Security Corrections/Improvements..... 96
 - 14.4 Known Issues 96
- 15 RELEASE 4.1 98
 - 15.1 Software Release Description 98
 - 15.1.1 Release identification 98
 - 15.1.2 Software Tools Versions 98
 - 15.1.3 Released Carrier Packages 98
 - 15.1.4 Released FW Components 99
 - 15.1.5 mmWave Packages 100
 - 15.1.5.1 QCN files 100

15.1.5.2 RFC MBN SCAN	101
15.2 Software Changes Description	101
15.3 Security Corrections/Improvements.....	102
15.4 Known Issues	102
16 RELEASE 4.....	104
16.1 Software Release Description	104
16.1.1 Release identification	104
16.1.2 Software Tools Versions.....	104
16.1.3 Released Carrier Packages	104
16.1.4 Released FW Components	106
16.1.5 mmWave Packages.....	106
16.1.5.1 QCN files.....	106
16.1.5.2 RFC MBN SCAN	107
16.2 Software Changes Description	108
16.3 Security Corrections/Improvements.....	111
16.4 Known Issues	112
17 RELEASE 3.1	114
17.1 Software Release Description	114
17.1.1 Release identification	114
17.1.2 Software Tools Versions.....	114
17.1.3 Released Carrier Packages	114
17.1.4 Released FW Components	116
17.1.5 mmWave Packages.....	116
17.1.5.1 QCN files.....	116
17.1.5.2 RFC MBN SCAN	117
17.2 Software Changes Description	117
17.3 Security Corrections/Improvements.....	117
17.4 Known Issues	117

18 RELEASE 3 119

 18.1 Software Release Description 119

 18.1.1 Release identification 119

 18.1.2 Software Tools Versions 119

 18.1.3 Released Carrier Packages 119

 18.1.4 Released FW Components 120

 18.1.5 mmWave Packages 121

 18.1.5.1 QCN files 121

 18.1.5.2 RFC MBN SCAN 121

 18.2 Software Changes Description 122

 18.3 Security Corrections/Improvements..... 123

 18.4 Known Issues 124

19 RELEASE 2.1 124

 19.1 Software Release Description 125

 19.1.1 Release identification 125

 19.1.2 Software Tools Versions 125

 19.1.3 Released Carrier Packages 125

 19.1.4 Released FW Components 126

 19.1.5 mmWave Packages 126

 19.1.5.1 QCN files 127

 19.1.5.2 RFC MBN SCAN 127

 19.2 Software Changes Description 127

 19.3 Security Corrections/Improvements..... 128

 19.4 Known Issues 128

20 RELEASE 2 130

 20.1 Software Release Description 130

 20.1.1 Release identification 130

 20.1.2 Software Tools Versions 130

- 20.1.3 Released Carrier Packages 130
- 20.1.4 Released FW Components 131
- 20.1.5 mmWave Packages 132
- 20.2 Software Changes Description 135
- 20.3 Security Corrections/Improvements..... 136
- 20.4 Known Issues 138
- 21 RELEASE 1.1 139
 - 21.1 Software Release Description 139
 - 21.1.1 Release identification 139
 - 21.1.2 Software Tools Versions 139
 - 21.1.3 Released Carrier Packages 140
 - 21.1.4 Released FW Components 141
 - 21.1.5 mmWave Packages 142
 - 21.1.5.1 QCN files 142
 - 21.1.5.2 RFC MBN SCAN 143
 - 21.2 Software Changes Description 143
 - 21.3 Security Corrections/Improvements..... 143
 - 21.4 Known Issues 143
- 22 SWIX55C SP1_RC7 144
 - 22.1 Software Release Description 144
 - 22.1.1 Release identification 144
 - 22.1.2 Software Tools Versions 144
 - 22.1.3 Released Carrier Packages 145
 - 22.1.4 Released FW Components 145
 - 22.1.5 mmWave Packages 146
 - 22.2 Software Changes Description 146
 - 22.3 Security Corrections/Improvements..... 146
 - 22.4 Known Issues 146

23 SWIX55C SP1_RC6 148

 23.1 Software Release Description 148

 23.1.1 Release identification 148

 23.1.2 Software Tools Versions 148

 23.1.3 Released Components..... 148

 23.1.4 mmWave Package 149

 23.2 Software Changes Description 149

 23.3 Security Corrections/Improvements..... 150

 23.4 Known Issues 150

24 SWIX55C SP1_RC5.1..... 151

 24.1 Software Release Description 151

 24.1.1 Release identification 151

 24.1.2 Software Tools Versions 151

 24.1.3 Released Components..... 151

 24.1.4 mmWave Package 152

 24.2 Software Changes Description 154

 24.3 Security Corrections/Improvements..... 154

 24.4 Known Issues 154

25 SWIX55C SP1_RC5 155

 25.1 Software Release Description 155

 25.1.1 Release identification 155

 25.1.2 Software Tools Versions 155

 25.1.3 Released Components..... 155

 25.2 Software Changes Description 156

 25.3 Security Corrections/Improvements..... 156

 25.4 Known Issues 156

26 SWIX55C SP1_RC4 157

 26.1 Software Release Description 157

- 26.1.1 Release identification 157
- 26.1.2 Software Tools Versions 157
- 26.1.3 Released Components..... 157
- 26.2 Software Changes Description 158
- 26.3 Security Corrections/Improvements..... 159
- 26.4 Known Issues 159
- 27 TROUBLESHOOTING..... 159
 - 27.1 QXDM Logging..... 159
- 28 FIRMWARE PACKAGE DOWNLOAD PROCESS 160
 - 28.1 Windows Host via USB/PCIe..... 160
 - 28.2 Linux Host via USB / PCIe 160
- 29 RELATED DOCUMENTATION..... 161
- 30 ABBREVIATIONS AND DEFINITIONS 161

1 Introduction

1.1 Document Scope

This document describes firmware releases for the EM919x product family, which includes EM9190, EM9191, and EM7690.

Semtech highly recommends migrating to new releases when available to take advantage of any security and stability improvements.

1.2 Firmware Packages and Tools

Module resources, including firmware packages, release notes, tools and other product documentation are published on The Source at <https://source.sierrawireless.com> and can be accessed via the device-specific page.

1.3 Document Audience

This Release Notes document may be distributed to all direct and indirect customers.

2 Compatibility

2.1 Hardware compatibility

The latest firmware release is compatible with commercial EM9190, EM9191 and EM7690 hardware. There are no major known issues with pre-commercial hardware, but it is no longer actively tested or supported.

2.2 Software feature compatibility

The EM929x feature set is closely compatible with the EM919x. Refer to [1] EM91 Migration Guide[1] *EM91 Migration Guide* for a detailed comparison against the previous generation of products.

3 Firmware Release 9

Release 9 is a minor FW update on top of Release 7. Release 9 addresses EU RED L2 password requirement. For PRI details, see [2] *EM919x/EM7690 PRI Customer Release Notes*.

3.1 Firmware Release Description

3.1.1 Firmware Release Identification

Table 1. Firmware Release Identification – Release 9

Component	Details
Firmware Version	SWIX55C_03.17.09.00
Date of generation (UTC)	2025/07/24 11:10:00
IMEI SV	29
GSMA TS.25	07-Oct-2024
Chipset Vendor Stack Version	SDX55.LE.1.4.r1-00068-NBOOT.CPE.NEFS.PROD-1.97203.1
Supported HW	EM9191, EM9190, EM7690

3.1.2 Carrier Packages

Table 2. Carrier Packages – Release 9

Carrier	Firmware	Configuration	Comment
Approved			
AT&T	SWIX55C_03.17.04.00	030.110_000	Carrier Approved – Release 7
Bell	SWIX55C_03.17.04.00	030.064_000	Accepted by Bell for platform certifications
DOCOMO	SWIX55C_03.17.04.00	030.100_000	Carrier Approved – Release 7
DT	SWIX55C_03.10.07.00	030.048_000	Carrier Approved – Release 5
GENERIC	SWIX55C_03.17.09.00	030.115_000	GCF Approved – Release 9
GENERIC	SWIX55C_03.17.04.00	030.112_000	GCF and PTCRB Approved – Release 7
KDDI	SWIX55C_03.17.04.00	030.082_000	Carrier Approved – Release 7
ORANGE	SWIX55C_03.09.03.00	030.010_001	(EM9190/EM9191) Carrier Approved – Release 4
ROGERS	SWIX55C_03.14.10.01	030.047_000	Carrier Approved – Release 6.1
SOFTBANK	SWIX55C_03.17.04.00	030.090_000	Carrier Approved – Release 7
TELSTRA	SWIX55C_03.10.07.00	030.051_001	Carrier Approved – Release 5

Customer Release Notes

TELUS	SWIX55C_03.14.10.00	030.079_000	Carrier Approved – Release 6
T-MOBILE	SWIX55C_03.17.04.00	030.104_000	Carrier Approved – Release 7
VERIZON	SWIX55C_03.17.04.00	030.115_000	Carrier Approved – Release 7
SPARK	SWIX55C_03.09.06.00	030.038_001	Carrier Approved with Generic Carrier PRI – Release 4.1
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
Approved Legacy			
AT&T	SWIX55C_03.14.10.04	030.093_000	Carrier Approved – Release 6
AT&T	SWIX55C_03.10.07.00	030.059_002	Carrier Approved – Release 5
AT&T	SWIX55C_03.09.11.00	030.046_001	Carrier Approved – Release 4.2
AT&T	SWIX55C_03.09.06.00	030.038_001	Carrier Approved – Release 4.1
AT&T	SWIX55C_01.07.23.00	012.019_000	Carrier Approved – Release 1.1 (EM7690 Only)
AT&T	SWIX55C_01.07.13.00	012.007_002	Carrier Approved – Release SP1_RC5
DOCOMO	SWIX55C_03.10.07.00	030.053_002	Carrier Approved – Release 5
DOCOMO	SWIX55C_03.09.11.00	030.041_003	Carrier Approved – Release 4.2
DOCOMO	SWIX55C_03.04.03.00	030.012_003	Carrier Approved – Release 3
DOCOMO	SWIX55C_02.08.01.00	020.006_003	Carrier Approved – Release 2
DT	SWIX55C_03.09.11.00	030.038_001	Accepted by carrier for platform certification – Release 4.2
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_03.14.10.04	030.094_000	GCF and PTCRB Approved – Release 6.2
GENERIC	SWIX55C_03.14.10.01	030.091_000	GCF and PTCRB Approved – Release 6.1
GENERIC	SWIX55C_03.14.10.00	030.088_000	GCF and PTCRB Approved – Release 6
GENERIC	SWIX55C_03.10.11.00	030.066_000	GCF Approved – Release 5.2
GENERIC	SWIX55C_03.10.07.00	030.062_000	GCF and PTCRB Approved – Release 5
GENERIC	SWIX55C_03.09.14.00	030.048_004	GCF Approved – Release 4.3
GENERIC	SWIX55C_03.09.11.00	030.044_007	GCF and PTCRB Approved – Release 4.2
GENERIC	SWIX55C_03.09.06.00	030.038_001	GCF and PTCRB Approved – Release 4.1
GENERIC	SWIX55C_03.09.03.00	030.036_001	GCF Approved – Release 4
GENERIC	SWIX55C_03.04.03.00	030.012_001	GCF Approved – Release 3
GENERIC	SWIX55C_02.08.01.00	020.007_002	GCF Approved – Release 2
GENERIC	SWIX55C_01.07.23.00	016.018_000	GCF Approved – Release 1.1
GENERIC	SWIX55C_01.07.21.00	016.014_001	GCF Approved – Release SP1_RC7
GENERIC	SWIX55C_01.07.19.00	016.010_002	GCF Approved – Release SP1_RC6
GENERIC	SWIX55C_01.07.13.00	016.006_005	GCF and PTCRB Approved – Release SP1_RC5
KDDI	SWIX55C_03.10.07.00	030.035_001	Carrier Approved – Release 5
KDDI	SWIX55C_03.09.11.00	030.025_001	Carrier Approved – Release 4.2
KDDI	SWIX55C_03.09.03.00	030.016_002	Carrier Approved – Release 4
ROGERS	SWIX55C_03.14.10.00	030.044_000	Carrier Approved – Release 6
ROGERS	SWIX55C_03.10.07.00	030.019_000	Carrier Approved – Release 5
ROGERS	SWIX55C_03.09.11.00	030.007_003	Carrier Approved – Release 4.2
ROGERS	SWIX55C_03.09.06.00	030.001_001	Carrier Approved – Release 4.1
ROGERS	SWIX55C_01.07.13.00	001.000_000	Carrier Approved – Release SP1_RC5
SOFTBANK	SWIX55C_03.10.07.00	030.043_000	Carrier Approved – Release 5
SOFTBANK	SWIX55C_03.09.11.00	030.031_004	Carrier Approved – Release 4.2 (EM9191 and EM7690)
SOFTBANK	SWIX55C_03.09.03.00	030.023_002	Carrier Approved – Release 4 (EM9190)
TELSTRA	SWIX55C_03.09.06.00	030.035_001	Carrier Approved – Release 4.1

TELSTRA	SWIX55C_03.04.03.00	030.016_001	Carrier Approved – Release 3 (EM9190 and EM7690)
TELUS	SWIX55C_03.10.07.00	030.052_000	Carrier Approved – Release 5
TELUS	SWIX55C_03.09.11.00	030.039_004	Carrier Approved – Release 4.2
T-MOBILE	SWIX55C_03.14.10.01	030.083_000	Carrier Approved – Release 6.1
T-MOBILE	SWIX55C_03.14.10.00	030.080_000	Carrier Approved – Release 6
T-MOBILE	SWIX55C_03.10.07.00	030.052_000	Carrier Approved – Release 5
T-MOBILE	SWIX55C_01.07.13.00	001.005_003	Carrier Approved – Release SP1_RC5
VERIZON	SWIX55C_03.14.10.00	030.089_000	Carrier Approved – Release 6
VERIZON	SWIX55C_03.10.11.00	030.067_000	Carrier Approved – Release 5.2
VERIZON	SWIX55C_03.09.11.00	030.046_003	Carrier Approved – Release 4.2
VERIZON	SWIX55C_03.09.03.00	030.033_002	Carrier Approved – Release 4
VERIZON	SWIX55C_01.07.23.00	012.019_001	Carrier Approved – Release 1.1
VERIZON	SWIX55C_01.07.19.00	012.012_002	Carrier Approved – Release SP1_RC6
Test			
AT&T	SWIX55C_03.17.09.00	030.112_000	
BELL	SWIX55C_03.17.09.00	030.066_000	
DOCOMO	SWIX55C_03.17.09.00	030.102_000	
DT	SWIX55C_03.17.09.00	030.097_000	
KDDI	SWIX55C_03.17.09.00	030.084_000	
ORANGE	SWIX55C_03.17.09.00	030.076_000	
ROGERS	SWIX55C_03.17.09.00	030.068_000	
SOFTBANK	SWIX55C_03.17.09.00	030.092_000	
TELSTRA	SWIX55C_03.17.09.00	030.101_000	
TELUS	SWIX55C_03.17.09.00	030.103_000	
T-MOBILE	SWIX55C_03.17.09.00	030.106_000	
VERIZON	SWIX55C_03.17.09.00	030.117_000	

3.1.3 Host Software Versions

The following tools were validated against this release.

Note: Semtech recommends upgrading to newer Host Software releases when available. Refer to applicable software release notes for any compatibility restrictions.

Table 3. Validated Host Software Tools – Release 9

SW Tools Name	Version
Mobile Broadband Package for Windows	MBPW SDX55 R37.0.24, B5363
Mobile Broadband Package for Linux	MBPL R42.0.24, B5388

3.1.4 Software Changes

Table 4. Software Changes – Release 9

ID	Item	Description	Impacted Domains
Protocol/Certification			
QTIX5510-4309	IMEI SV	Increase IMEI SV to 29	PTCRB/GCF
RF			
Core			
AT / QMI Commands			
Applications			
FERRARI- 4839	By default, L2 password disabled.	By default L2 password disabled for EU RED. Customer can enabled it by setting his own password.	

3.1.5 Security Corrections/Improvements

Table 5. Security Corrections/Improvements – Release 9

CVE	Description
None	

3.1.6 Known Issues

Note: This section reflects known issues in Release 9 as of the Date of Generation UTC) indicated in the Release 9 Release Identification section above.

Table 6. Known Issues – Release 9

ID	Issue	Description	Impacted Domains
Protocol/Certification			
Core			
FERRARI-3460	R4 to R1 downgrade	Since R4 FW includes multi-slot support and R1 does not, a simple downgrade from R4 to R1 may not result in the R1 image running in the correct slot. To ensure proper loading of R1 in this case, it is necessary to first delete all loaded images. One method to do this is use <code>at!image=0</code> . A new option has been added to delete device stored images in MBPW R30 ENG6 and MBPL R30 ENG5.	FW DL
FERRARI-2679	Thermal Mitigation	For High Power mmWave, only temperature from one QTM thermistor is used for mitigation purposes. Since the QTM's are physically very close together, there is minimal risk of HW damage.	Thermal
QTIX5510-3541	Rare modem crash on reset	Rare modem crash when modem powering down or updating firmware. Modem functions normally on boot but crash is logged via <code>AT!GCDUMP</code>	RESET
FERRARI-2638	PCIEFORCEEN customization	Enabling PCIEFORCEEN may result in modem crash on some platforms	PCIe
FERRARI-3600	RFC Initialization	Some modules are found in OFFLINE mode due to RFC failure	RFC Init
FERRARI-4783	Crash during TPUT Tests for ENDC	Crash observed for 5DL+FR1 combo B3A+B3+B7+B7+B8A+N78.	Core
AT / QMI Commands			
AT!VERINFO	FW Version Information	Apps version shown is this command is 00.00.00.00 instead of actual. Please use Modem version as both are same.	

4 Firmware Release 7

Release 7 is a major FW update on top of Release 6. Release 7 addresses Bugs and Certification gating issues.

For PRI details, see [2] *EM919x/EM7690 PRI Customer Release Notes*.

4.1 Firmware Release Description

4.1.1 Firmware Release Identification

Table 7. Firmware Release Identification – Release 7

Component	Details
Firmware Version	SWIX55C_03.17.04.00
Date of generation (UTC)	2024/12/23 07:22:09
IMEI SV	28
GSMA TS.25	07-Oct-2024
Chipset Vendor Stack Version	SDX55.LE.1.4.r1-00068-NBOOT.CPE.NEFS.PROD-1.92927.1
Supported HW	EM9191, EM9190, EM7690

4.1.2 Carrier Packages

Table 8. Carrier Packages – Release 7

Carrier	Firmware	Configuration	Comment
Approved			
AT&T	SWIX55C_03.17.04.00	030.110_000	Carrier Approved – Release 7
Bell	SWIX55C_03.17.04.00	030.064_000	Accepted by Bell for platform certifications
DOCOMO	SWIX55C_03.17.04.00	030.100_000	Carrier Approved – Release 7
DT	SWIX55C_03.10.07.00	030.048_000	Carrier Approved – Release 5
GENERIC	SWIX55C_03.17.04.00	030.112_000	GCF and PTCRB Approved – Release 7
KDDI	SWIX55C_03.17.04.00	030.082_000	Carrier Approved – Release 7
ORANGE	SWIX55C_03.09.03.00	030.010_001	(EM9190/EM9191) Carrier Approved – Release 4
ROGERS	SWIX55C_03.14.10.01	030.047_000	Carrier Approved – Release 6.1
SOFTBANK	SWIX55C_03.17.04.00	030.090_000	Carrier Approved – Release 7
TELSTRA	SWIX55C_03.10.07.00	030.051_001	Carrier Approved – Release 5
TELUS	SWIX55C_03.14.10.00	030.079_000	Carrier Approved – Release 6
T-MOBILE	SWIX55C_03.17.04.00	030.104_000	Carrier Approved – Release 7

Customer Release Notes

VERIZON	SWIX55C_03.17.04.00	030.115_000	Carrier Approved – Release 7
SPARK	SWIX55C_03.09.06.00	030.038_001	Carrier Approved with Generic Carrier PRI – Release 4.1
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
Approved Legacy			
AT&T	SWIX55C_03.14.10.04	030.093_000	Carrier Approved – Release 6
AT&T	SWIX55C_03.10.07.00	030.059_002	Carrier Approved – Release 5
AT&T	SWIX55C_03.09.11.00	030.046_001	Carrier Approved – Release 4.2
AT&T	SWIX55C_03.09.06.00	030.038_001	Carrier Approved – Release 4.1
AT&T	SWIX55C_01.07.23.00	012.019_000	Carrier Approved – Release 1.1 (EM7690 Only)
AT&T	SWIX55C_01.07.13.00	012.007_002	Carrier Approved – Release SP1_RC5
DOCOMO	SWIX55C_03.10.07.00	030.053_002	Carrier Approved – Release 5
DOCOMO	SWIX55C_03.09.11.00	030.041_003	Carrier Approved – Release 4.2
DOCOMO	SWIX55C_03.04.03.00	030.012_003	Carrier Approved – Release 3
DOCOMO	SWIX55C_02.08.01.00	020.006_003	Carrier Approved – Release 2
DT	SWIX55C_03.09.11.00	030.038_001	Accepted by carrier for platform certification – Release 4.2
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_03.14.10.04	030.094_000	GCF and PTCRB Approved – Release 6.2
GENERIC	SWIX55C_03.14.10.01	030.091_000	GCF and PTCRB Approved – Release 6.1
GENERIC	SWIX55C_03.14.10.00	030.088_000	GCF and PTCRB Approved – Release 6
GENERIC	SWIX55C_03.10.11.00	030.066_000	GCF Approved – Release 5.2
GENERIC	SWIX55C_03.10.07.00	030.062_000	GCF and PTCRB Approved – Release 5
GENERIC	SWIX55C_03.09.14.00	030.048_004	GCF Approved – Release 4.3
GENERIC	SWIX55C_03.09.11.00	030.044_007	GCF and PTCRB Approved – Release 4.2
GENERIC	SWIX55C_03.09.06.00	030.038_001	GCF and PTCRB Approved – Release 4.1
GENERIC	SWIX55C_03.09.03.00	030.036_001	GCF Approved – Release 4
GENERIC	SWIX55C_03.04.03.00	030.012_001	GCF Approved – Release 3
GENERIC	SWIX55C_02.08.01.00	020.007_002	GCF Approved – Release 2
GENERIC	SWIX55C_01.07.23.00	016.018_000	GCF Approved – Release 1.1
GENERIC	SWIX55C_01.07.21.00	016.014_001	GCF Approved – Release SP1_RC7
GENERIC	SWIX55C_01.07.19.00	016.010_002	GCF Approved – Release SP1_RC6
GENERIC	SWIX55C_01.07.13.00	016.006_005	GCF and PTCRB Approved – Release SP1_RC5
KDDI	SWIX55C_03.10.07.00	030.035_001	Carrier Approved – Release 5
KDDI	SWIX55C_03.09.11.00	030.025_001	Carrier Approved – Release 4.2
KDDI	SWIX55C_03.09.03.00	030.016_002	Carrier Approved – Release 4
ROGERS	SWIX55C_03.14.10.00	030.044_000	Carrier Approved – Release 6
ROGERS	SWIX55C_03.10.07.00	030.019_000	Carrier Approved – Release 5
ROGERS	SWIX55C_03.09.11.00	030.007_003	Carrier Approved – Release 4.2
ROGERS	SWIX55C_03.09.06.00	030.001_001	Carrier Approved – Release 4.1
ROGERS	SWIX55C_01.07.13.00	001.000_000	Carrier Approved – Release SP1_RC5
SOFTBANK	SWIX55C_03.10.07.00	030.043_000	Carrier Approved – Release 5
SOFTBANK	SWIX55C_03.09.11.00	030.031_004	Carrier Approved – Release 4.2 (EM9191 and EM7690)
SOFTBANK	SWIX55C_03.09.03.00	030.023_002	Carrier Approved – Release 4 (EM9190)
TELSTRA	SWIX55C_03.09.06.00	030.035_001	Carrier Approved – Release 4.1
TELSTRA	SWIX55C_03.04.03.00	030.016_001	Carrier Approved – Release 3 (EM9190 and EM7690)
TELUS	SWIX55C_03.10.07.00	030.052_000	Carrier Approved – Release 5

TELUS	SWIX55C_03.09.11.00	030.039_004	Carrier Approved – Release 4.2
T-MOBILE	SWIX55C_03.14.10.01	030.083_000	Carrier Approved – Release 6.1
T-MOBILE	SWIX55C_03.14.10.00	030.080_000	Carrier Approved – Release 6
T-MOBILE	SWIX55C_03.10.07.00	030.052_000	Carrier Approved – Release 5
T-MOBILE	SWIX55C_01.07.13.00	001.005_003	Carrier Approved – Release SP1_RC5
VERIZON	SWIX55C_03.14.10.00	030.089_000	Carrier Approved – Release 6
VERIZON	SWIX55C_03.10.11.00	030.067_000	Carrier Approved – Release 5.2
VERIZON	SWIX55C_03.09.11.00	030.046_003	Carrier Approved – Release 4.2
VERIZON	SWIX55C_03.09.03.00	030.033_002	Carrier Approved – Release 4
VERIZON	SWIX55C_01.07.23.00	012.019_001	Carrier Approved – Release 1.1
VERIZON	SWIX55C_01.07.19.00	012.012_002	Carrier Approved – Release SP1_RC6
Test			
ROGERS	SWIX55C_03.17.04.00	030.066_000	
TELSTRA	SWIX55C_03.17.04.00	030.099_000	
TELUS	SWIX55C_03.17.04.00	030.101_000	

4.1.3 Host Software Versions

The following tools were validated against this release.

Note: Semtech recommends upgrading to newer Host Software releases when available. Refer to applicable software release notes for any compatibility restrictions.

Table 9. Validated Host Software Tools – Release 7

SW Tools Name	Version
Mobile Broadband Package for Windows	MBPW SDX55 R37.0.24, B5363
Mobile Broadband Package for Linux	MBPL R42.0.24, B5388

4.1.4 Software Changes

Table 10. Software Changes – Release 7

ID	Item	Description	Impacted Domains
Protocol/Certification			
QTIX5510-4068	IMEI SV	Increase IMEI SV to 28	PTCRB/GCF
RF			
FERRARI-4509	MTPL override	MTPL override issues fixed	RF

FERRARI-4770	SIM without SUCI	Connectivity issues with 5G SA for Release 15 SIM without SUCI	RF
Core			
QTIX5510-4224	Qualcomm Stack	Qualcomm 1.4 Stack r00068.1	Core
AT / QMI Commands			
FERRARI-4512	AT!NRPCI?	Display NR physical cell ID	AT
FERRARI-4371	AT!NRINFO	Added PLMN information in !NRINFO	AT
QTIX5510-4097	AT!CUSTOM	For DM logging use DIAGENABLE instead of QXDMLOGENABLE. By default full DM access is enabled.	AT
FERRARI-3525	QMI equivalent for AT!STSTATUS	Added QMI support for AT!STSTATUS/STEPS	QMI
FERRARI-3990	NMEA data with GPSENABLE=0	NMEA data is disabled with GPSENABLE=0	AT/QMI
FERRARI-4375	AT!STEPS? response	Added list of missing files out of 3 required for Smart transmit.	AT
FERRARI-4527	AT!SELRAT	Updated RAT index description	AT
FERRARI-2768	AT!FLOG	Updated AT!FLOG to report module customization via NVU	AT
FERRARI-4120	AT+CNUM	AT+CNUM command displays the MDN/phone number	AT
QTIX5510-4083	AT+VERINFO?	Output format has been changed – It shows version for Boot, AOP, Modem and Apps	AT
QTIX5510-4083	AT!CUSTOM	UIM2ENABLE supports values : 0 - Not enabled 1 - Enabled external SIM2 only 2 - Enable eSIM only	eSIM
Applications			
FERRARI-4376	SMS storage memory	Default SMS storage type is ME	
FERRARI-4542	IMS enable	Enabled IMS in GENERIC carrier	
FERRARI-4697	AT&T IMSI range change	New IMSI range supported for private cellular networks 310-090	
FERRARI-4060	Class 3 APN	Failure on Class 3 APN test - Static IP	
FERRARI-4331	Cell Handover	Module crashes while test downloading on the highway	
FERRARI-4586	WWAN_LED behavior change	WWAN_LED works as expected	
FERRARI-4390	PRI switch time more than expected	Switching to VZW takes longer than switching back to ATT	
FERRARI-4646	Module crash	Massive module crashes in the field	
FERRARI-4666	US Cellular SIM OTA Process	Fixes for US cellular SIM OTA process	
FERRARI-4117	Slow AT command responses	Improved AT command response with async task	

4.1.5 Security Corrections/Improvements

Table 11. Security Corrections/Improvements – Release 7

CVE	Description
CVE-2020-26555	<ul style="list-style-type: none"> - Information Exposure in Bluetooth - Report LMP_COMB_KEY failure to host when invalid Link Key (LK) is detected in PIN pairing protocol - Two issues with new patch handling of invalid Link Key (LK) in PIN pairing protocol
CVE-2020-26558	<ul style="list-style-type: none"> - Return value error in patch_LLM_LMPSeqHlr_SPAIRING_INITIATE_PUBLIC_KEY - Mora QUAL: LMP/SP/BI-02C/06C/08C/10C/12C Simple pairing tests to check invalid public key failed - Improper Authentication in Bluetooth
CVE-2021-1956	Improper Access Control in Bluetooth
CVE-2021-1960	Improper Input Validation in Bluetooth
CVE-2021-30348	Uncontrolled Resource Consumption in Bluetooth
CVE-2021-37577	Improper Authentication in Bluetooth
CVE-2022-23303	Cryptographic Issues in WLAN HOST
CVE-2022-23304	Cryptographic Issues in WLAN HOST
CVE-2022-33272	Incorrect MAC Config invalidation for the BWP start location
CVE-2022-40514	Buffer Copy Without Checking Size of Input (Classic Buffer Overflow) in WLAN Embedded SW
CVE-2022-40518	Buffer Over-read in Boot
CVE-2023-28577	Use After Free in Camera_Linux
CVE-2023-28578	Improper Input Validation in Services
CVE-2023-28587	Improper Restriction of Operations within the Bounds of a Memory Buffer in BTSOC
CVE-2023-33014	Improper Input Validation in Services
CVE-2023-33043	Reachable Assertion in NR5G
CVE-2023-33059	Buffer Copy Without Checking Size of Input ('Classic Buffer Underflow') in Audio
CVE-2023-33063	Use After Free in DSP_Services
CVE-2023-33072	Buffer Copy without Checking Size of Input ('Classic Buffer Overflow') in Core
CVE-2023-33086	Improper Release of Memory Before Removing Last Reference ('Memory Leak') in Data Modem
CVE-2023-33099	Improper Input Validation in MMCP
CVE-2023-33101	Incorrect typecasting Type Conversion or Cast in MMCP
CVE-2023-33104	Improper input Validation in MMCP
CVE-2023-33107	Integer Overflow or Wraparound in Graphics_Linux
CVE-2023-33110	Use of Out-of-range Pointer Offset in Audio
CVE-2023-33114	Use after free in NPU
CVE-2023-33120	Use After Free in Automotive Audio
CVE-2023-43513	Use of Out-of-range Pointer Offset in PCIe
CVE-2023-43521	Use After Free in SPS-HLOS
CVE-2023-43529	Reachable Assertion in Data Modem
CVE-2023-43550	Integer Overflow or Wraparound in Services
CVE-2023-43551	Improper Authentication in MMCP

CVE-2024-21461	Double Free in SPS_HLOS
CVE-2024-21462	Buffer over-read in SCE-QTEE
CVE-2024-21468	Use After Free in Kernel
CVE-2024-21471	Use After Free in Graphics_Linux
CVE-2024-21475	Use of Out-of-range Pointer Offset in Video
CVE-2024-23352	Loop with Unreachable Exit Condition ('Infinite Loop') in MMCP
CVE-2024-23353	Buffer Over-read in MMCP
CVE-2024-23354	Buffer Over-read in MMCP
CVE-2024-23359	Buffer Over-read in MMCP
CVE-2024-23371	Use After Free in Automotive Multimedia
CVE-2024-23373	Use After Free in Graphics_Linux
CVE-2024-33014	Buffer Over-read in WLAN Host Cmn
CVE-2024-33016	Improper Restriction of Operations within the Bounds of a Memory Buffer in Storage
CVE-2024-33027	Improper Access Control in Graphics_Linux
CVE-2024-33032	Improper Validation of Array Index in Camera_Linux
CVE-2024-33037	Buffer Over-read in NPU
CVE-2024-33044	Improper Validation of Array Index in Hypervisor
CVE-2024-33051	Buffer Over-read in WLAN Embedded SW
CVE-2024-33056	Buffer Over-read in MProc
CVE-2024-33060	Use After Free in DSP_Services
CVE-2024-33070	Buffer Over-read in WLAN Host Cmn
CVE-2024-38408	Cryptographic Issues in BTSOC
CVE-2024-38422	Integer Overflow to Buffer Overflow in Audio
CVE-2024-38423	Buffer Copy Without Checking Size of Input ('Classic Buffer Overflow') in Graphics_Linux
CVE-2024-38426	When cache guard timer is running in LTE or NR, if network sends Authentication request with separation bit set in AMF, UE is not sending Authentication failure
CVE-2024-43057	Use After Free in MProc
CVE-2024-45540	Use After Free in SPS-HLOS
CVE-2024-45544	Use After Free in Data HLOS - LNX
CVE-2024-45564	Use After Free in SPS-HLOS

4.1.6 Known Issues

Note: This section reflects known issues in Release 7 as of the Date of Generation UTC) indicated in the Release 7 Release Identification section above.

Table 12. Known Issues – Release 7

ID	Issue	Description	Impacted Domains
Protocol/Certification			
Core			
FERRARI-3460	R4 to R1 downgrade	Since R4 FW includes multi-slot support and R1 does not, a simple downgrade from R4 to R1 may not result in the R1 image running in the correct slot. To ensure proper loading of R1 in this case, it is necessary to first delete all loaded images. One method to do this is use <code>at!image=0</code> . A new option has been added to delete device stored images in MBPW R30 ENG6 and MBPL R30 ENG5.	FW DL
FERRARI-2679	Thermal Mitigation	For High Power mmWave, only temperature from one QTM thermistor is used for mitigation purposes. Since the QTMs are physically very close together, there is minimal risk of HW damage.	Thermal
QTIX5510-3541	Rare modem crash on reset	Rare modem crash when modem powering down or updating firmware. Modem functions normally on boot but crash is logged via <code>AT!GCDUMP</code>	RESET
FERRARI-2638	PCIEFORCEEN customization	Enabling PCIEFORCEEN may result in modem crash on some platforms	PCIe
FERRARI-3600	RFC Initialization	Some modules are found in OFFLINE mode due to RFC failure	RFC Init
FERRARI-4783	Crash during TPUT Tests for ENDC	Crash observed for 5DL+FR1 combo B3A+B3+B7+B7+B8A+N78.	Core
AT / QMI Commands			
AT!VERINFO	FW Version Information	Apps version shown is this command is 00.00.00.00 instead of actual. Please use Modem version as both are same.	

5 Firmware Release 6.2

Release 6.2 is a minor FW update on top of Release 6.1 which includes additional improvements related to mmWave Beam, n66 combos.

For PRI details, see [2] *EM919x/EM7690 PRI Customer Release Notes*.

5.1 Firmware Release Description

5.1.1 Firmware Release Identification

Table 13. Firmware Release Identification – Release 6.2

Component	Details
Firmware Version	SWIX55C_03.14.10.04
Date of generation (UTC)	2024/02/29 16:51:33
IMEI SV	27
GSMA TS.25	20-May-2024 TBU
Chipset Vendor Stack Version	SDX55.LE.1.4.r1-00059-NBOOT.CPE.NEFS.PROD-1.59167.1
Supported HW	EM9190, EM9191, EM7690

5.1.2 Carrier Packages

Table 14. Carrier Packages – Release 6.2

Carrier	Firmware	Configuration	Comment
Approved			
AT&T	SWIX55C_03.14.10.04	030.093_000	Carrier Approved – Release 6.2
BELL	SWIX55C_03.14.10.01	030.045_000	Accepted by carrier for platform certifications – Release 6.2
DOCOMO	SWIX55C_03.10.07.00	030.053_002	Carrier Approved – Release 5
DT	SWIX55C_03.10.07.00	030.048_000	Carrier Approved – Release 5.1
GENERIC	SWIX55C_03.14.10.04	030.094_000	GCF and PTCRB Approved – Release 6.2
KDDI	SWIX55C_03.10.07.00	030.035_001	Carrier Approved – Release 5
ORANGE	SWIX55C_03.09.03.00	030.010_001	Carrier Approved – Release 4
ROGERS	SWIX55C_03.14.10.01	030.047_000	Carrier Approved – Release 6.1
SOFTBANK	SWIX55C_03.10.07.00	030.043_000	Carrier Approved – Release 5

SPARK	SWIX55C_03.09.06.00	030.038_001	Carrier Approved with Generic Carrier PRI – Release 4.1
TELSTRA	SWIX55C_03.10.07.00	030.051_001	Carrier Approved – Release 5
TELUS	SWIX55C_03.14.10.00	030.079_000	Carrier Approved – Release 6
TMO	SWIX55C_03.14.10.01	030.083_000	Carrier Approved – Release 6.1
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
VERIZON	SWIX55C_03.14.10.00	030.089_000	Carrier Approved – Release 6
SPARK	SWIX55C_03.09.06.00	030.038_001	Carrier Approved with Generic Carrier PRI – Release 4.1
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
Approved Legacy			
AT&T	SWIX55C_03.10.07.00	030.059_002	Carrier Approved – Release 5
AT&T	SWIX55C_03.09.11.00	030.046_001	Carrier Approved – Release 4.2
AT&T	SWIX55C_03.09.06.00	030.038_001	Carrier Approved – Release 4.1
AT&T	SWIX55C_01.07.23.00	012.019_000	Carrier Approved – Release 1.1 (EM7690 Only)
AT&T	SWIX55C_01.07.13.00	012.007_002	Carrier Approved – Release SP1_RC5
DOCOMO	SWIX55C_03.09.11.00	030.041_003	Carrier Approved – Release 4.2
DOCOMO	SWIX55C_03.04.03.00	030.012_003	Carrier Approved – Release 3
DOCOMO	SWIX55C_02.08.01.00	020.006_003	Carrier Approved – Release 2
DT	SWIX55C_03.09.11.00	030.038_001	Accepted by carrier for platform certifications – Release 4.2
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_03.14.10.01	030.091_000	GCF and PTCRB Approved – Release 6.1
GENERIC	SWIX55C_03.14.10.00	030.088_000	GCF and PTCRB Approved – Release 6
GENERIC	SWIX55C_03.10.11.00	030.066_000	GCF Approved – Release 5.2
GENERIC	SWIX55C_03.10.07.00	030.062_000	GCF and PTCRB Approved – Release 5
GENERIC	SWIX55C_03.09.14.00	030.048_004	GCF Approved – Release 4.3
GENERIC	SWIX55C_03.09.11.00	030.044_007	GCF and PTCRB Approved – Release 4.2
GENERIC	SWIX55C_03.09.06.00	030.038_001	GCF and PTCRB Approved – Release 4.1
GENERIC	SWIX55C_03.09.03.00	030.036_001	GCF Approved – Release 4
GENERIC	SWIX55C_03.04.03.00	030.012_001	GCF Approved – Release 3
GENERIC	SWIX55C_02.08.01.00	020.007_002	GCF Approved – Release 2
GENERIC	SWIX55C_01.07.23.00	016.018_000	GCF Approved – Release 1.1
GENERIC	SWIX55C_01.07.21.00	016.014_001	GCF Approved – Release SP1_RC7
GENERIC	SWIX55C_01.07.19.00	016.010_002	GCF Approved – Release SP1_RC6
GENERIC	SWIX55C_01.07.13.00	016.006_005	GCF and PTCRB Approved – Release SP1_RC5
KDDI	SWIX55C_03.09.11.00	030.025_001	Carrier Approved – Release 4.2
KDDI	SWIX55C_03.09.03.00	030.016_002	Carrier Approved – Release 4
ROGERS	SWIX55C_03.14.10.00	030.044_000	Carrier Approved – Release 6
ROGERS	SWIX55C_03.10.07.00	030.019_000	Carrier Approved – Release 5
ROGERS	SWIX55C_03.09.11.00	030.007_003	Carrier Approved – Release 4.2
ROGERS	SWIX55C_03.09.06.00	030.001_001	Carrier Approved – Release 4.1
ROGERS	SWIX55C_01.07.13.00	001.000_000	Carrier Approved – Release SP1_RC5
SOFTBAN K	SWIX55C_03.09.11.00	030.031_004	Carrier Approved – Release 4.2 (EM9191 and EM7690)
SOFTBAN K	SWIX55C_03.09.03.00	030.023_002	Carrier Approved – Release 4 (EM9190)
TELSTRA	SWIX55C_03.09.06.00	030.035_001	Carrier Approved – Release 4.1
TELSTRA	SWIX55C_03.04.03.00	030.016_001	Carrier Approved – Release 3 (EM9190 and EM7690)
TELUS	SWIX55C_03.10.07.00	030.052_000	Carrier Approved – Release 5
TELUS	SWIX55C_03.09.11.00	030.039_004	Carrier Approved – Release 4.2
TMO	SWIX55C_03.14.10.00	030.080_000	Carrier Approved – Release 6
TMO	SWIX55C_03.10.07.00	030.052_000	Carrier Approved – Release 5
TMO	SWIX55C_01.07.13.00	001.005_003	Carrier Approved – Release SP1_RC5
VERIZON	SWIX55C_03.10.11.00	030.067_000	Carrier Approved – Release 5.2
VERIZON	SWIX55C_03.09.11.00	030.046_003	Carrier Approved – Release 4.2
VERIZON	SWIX55C_03.09.03.00	030.033_002	Carrier Approved – Release 4
VERIZON	SWIX55C_01.07.23.00	012.019_001	Carrier Approved – Release 1.1
VERIZON	SWIX55C_01.07.19.00	012.012_002	Carrier Approved – Release SP1_RC6

Test			
BELL	SWIX55C_03.14.10.04	030.048_000	
Docomo	SWIX55C_03.14.10.04	030.083_000	
DT	SWIX55C_03.14.10.04	030.079_000	
KDDI	SWIX55C_03.14.10.04	030.065_000	
ORANGE	SWIX55C_03.14.10.04	030.058_000	
ROGERS	SWIX55C_03.14.10.04	030.050_000	
SOFTBAN K	SWIX55C_03.14.10.04	030.073_000	
TELSTRA	SWIX55C_03.14.10.04	030.083_000	
TELUS	SWIX55C_03.14.10.04	030.085_000	
TMO	SWIX55C_03.14.10.04	030.086_000	
Verizon	SWIX55C_03.14.10.04	030.095_000	

5.1.3 Host Software Versions

The following tools were validated against this release.

Note: *Semtech recommends upgrading to newer Host Software releases when available. Refer to applicable software release notes for any compatibility restrictions.*

Table 15. Validated Host Software Tools – Release 6.2

SW Tools Name	Version
Mobile Broadband Package for Windows	
Mobile Broadband Package for Linux	

5.1.4 Software Changes

Table 16. Software Changes – Release 6.2

ID	Item	Description	Impacted Domains
Protocol/Certification			
QTIX5510-4095	IMEI SV	Increase IMEI SV to 27	PTCRB/GCF
RF			
Core			
FERRARI-4438	Improvement to fix for crash on n41 ENDC combo	Force SDR Tx output off during modem crash, to avoid spike from SDR to PA	Core
FERRARI-3344	Test case 38.533 4.5.5.1 fails	Beam failure on HP mmW platform	Core

AT / QMI Commands			
FERRARI-4103	AT!STEPS	Add list of missing file in output of 'AT!STEPS?'	AT
Applications			

5.1.5 Security Corrections/Improvements

No change from Release 6.1.

5.1.6 Known Issues

Note: This section reflects known issues in Release 6.2 as of the Date of Generation UTC) indicated in the Release 6.2 Release Identification section above.

Table 17. Known Issues – Release 6.2

ID	Issue	Description	Impacted Domains
Protocol/Certification			
Core			
FERRARI-3460	R4 to R1 downgrade	<p>Since R4 FW includes multi-slot support and R1 does not, a simple downgrade from R4 to R1 may not result in the R1 image running in the correct slot. To ensure proper loading of R1 in this case, it is necessary to first delete all loaded images. One method to do this is use <code>at!image=0</code>.</p> <p>A new option has been added to delete device stored images in MBPW R30 ENG6 and MBPL R30 ENG5.</p>	FW DL
FERRARI-2679	Thermal Mitigation	For High Power mmWave, only temperature from one QTM thermistor is used for mitigation purposes. Since the QTM's are physically very close together, there is minimal risk of HW damage.	Thermal
QTIX5510-3541	Rare modem crash on reset	Rare modem crash when modem powering down or updating firmware. Modem functions normally on boot but crash is logged via <code>AT!GCDUMP</code>	RESET
FERRARI-2638	PCIEFORCEEN customization	Enabling PCIEFORCEEN may result in modem crash on some platforms	PCIe

AT / QMI Commands			

6 Firmware Release 6.1

Release 6.1 is a minor FW update on top of Release 6 to include an additional fix for the n41 issue addressed by Release 6.

For PRI details, see [2] *EM919x/EM7690 PRI Customer Release Notes*.

6.1 Firmware Release Description

6.1.1 Firmware Release Identification

Table 18. Firmware Release Identification – Release 6.1

Component	Details
Firmware Version	SWIX55C_03.14.10.01
Date of generation (UTC)	2024/01/29 09:58:15
IMEI SV	26
GSMA TS.25	20-May-2024 TBU
Chipset Vendor Stack Version	SDX55.LE.1.4.r1-00059-NBOOT.CPE.NEFS.PROD-1.58288.1
Supported HW	EM9190, EM9191, EM7690

6.1.2 Carrier Packages

Table 19. Carrier Packages – Release 6.1

Carrier	Firmware	Configuration	Comment
Approved			
AT&T	SWIX55C_03.10.07.00	030.059_001	Carrier Approved – Release 5
BELL	SWIX55C_03.09.11.00	030.007_001	Accepted by carrier for platform certifications – Release 4.2
DOCOMO	SWIX55C_03.10.07.00	030.053_001	Carrier Approved – Release 5
DT	SWIX55C_03.09.11.00	030.038_001	Accepted by carrier for platform certifications – Release 4.2
GENERIC	SWIX55C_03.14.10.01	030.091_000	GCF and PTCRB Approved – Release 6.1
GENERIC	SWIX55C_03.10.07.00	030.062_000	GCF and PTCRB Approved – Release 5

Customer Release Notes

KDDI	SWIX55C_03.10.07.00	030.035_000	Carrier Approved – Release 5
ORANGE	SWIX55C_03.09.03.00	030.010_001	Carrier Approved – Release 4
ROGERS	SWIX55C_03.14.10.00	030.044_000	Carrier Approved – Release 6
SOFTBANK	SWIX55C_03.10.07.00	030.043_000	Carrier Approved – Release 5
SPARK	SWIX55C_03.09.06.00	030.038_001	Carrier Approved with Generic Carrier PRI – Release 4.1
TELSTRA	SWIX55C_03.10.07.00	030.051_000	Carrier Approved – Release 5
TELUS	SWIX55C_03.14.10.00	030.079_000	Carrier Approved – Release 6
TMO	SWIX55C_03.14.10.01	030.083_000	Carrier Approved – Release 6.1
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
VERIZON	SWIX55C_03.14.10.00	030.089_000	Carrier Approved – Release 6
Approved Legacy			
AT&T	SWIX55C_03.09.11.00	030.046_001	Carrier Approved – Release 4.2
AT&T	SWIX55C_03.09.06.00	030.038_001	Carrier Approved – Release 4.1
AT&T	SWIX55C_01.07.23.00	012.019_000	Carrier Approved – Release 1.1 (EM7690 Only)
AT&T	SWIX55C_01.07.13.00	012.007_002	Carrier Approved – Release SP1_RC5
DOCOMO	SWIX55C_03.09.11.00	030.041_003	Carrier Approved – Release 4.2
DOCOMO	SWIX55C_03.04.03.00	030.012_003	Carrier Approved – Release 3
DOCOMO	SWIX55C_02.08.01.00	020.006_003	Carrier Approved – Release 2
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_03.14.10.00	030.088_000	GCF and PTCRB Approved – Release 6
GENERIC	SWIX55C_03.10.11.00	030.066_000	GCF Approved – Release 5.2
GENERIC	SWIX55C_03.09.14.00	030.048_004	GCF Approved – Release 4.3
GENERIC	SWIX55C_03.09.11.00	030.044_007	GCF and PTCRB Approved – Release 4.2
GENERIC	SWIX55C_03.09.06.00	030.038_001	GCF and PTCRB Approved – Release 4.1
GENERIC	SWIX55C_03.09.03.00	030.036_001	GCF Approved – Release 4
GENERIC	SWIX55C_03.04.03.00	030.012_001	GCF Approved – Release 3
GENERIC	SWIX55C_02.08.01.00	020.007_002	GCF Approved – Release 2
GENERIC	SWIX55C_01.07.23.00	016.018_000	GCF Approved – Release 1.1
GENERIC	SWIX55C_01.07.21.00	016.014_001	GCF Approved – Release SP1_RC7
GENERIC	SWIX55C_01.07.19.00	016.010_002	GCF Approved – Release SP1_RC6
GENERIC	SWIX55C_01.07.13.00	016.006_005	GCF and PTCRB Approved – Release SP1_RC5
KDDI	SWIX55C_03.09.11.00	030.025_001	Carrier Approved – Release 4.2
KDDI	SWIX55C_03.09.03.00	030.016_002	Carrier Approved – Release 4
ROGERS	SWIX55C_03.10.07.00	030.019_000	Carrier Approved – Release 5
ROGERS	SWIX55C_03.09.11.00	030.007_003	Carrier Approved – Release 4.2
ROGERS	SWIX55C_03.09.06.00	030.001_001	Carrier Approved – Release 4.1
ROGERS	SWIX55C_01.07.13.00	001.000_000	Carrier Approved – Release SP1_RC5
SOFTBANK	SWIX55C_03.09.11.00	030.031_004	Carrier Approved – Release 4.2 (EM9191 and EM7690)
SOFTBANK	SWIX55C_03.09.03.00	030.023_002	Carrier Approved – Release 4 (EM9190)
TELSTRA	SWIX55C_03.09.06.00	030.035_001	Carrier Approved – Release 4.1
TELSTRA	SWIX55C_03.04.03.00	030.016_001	Carrier Approved – Release 3 (EM9190 and EM7690)
TELUS	SWIX55C_03.10.07.00	030.052_000	Carrier Approved – Release 5
TELUS	SWIX55C_03.09.11.00	030.039_004	Carrier Approved – Release 4.2
TMO	SWIX55C_03.14.10.00	030.080_000	Carrier Approved – Release 6

TMO	SWIX55C_03.10.07.00	030.052_000	Carrier Approved – Release 5
TMO	SWIX55C_01.07.13.00	001.005_003	Carrier Approved – Release SP1_RC5
VERIZON	SWIX55C_03.10.11.00	030.067_000	Carrier Approved – Release 5.2
VERIZON	SWIX55C_03.09.11.00	030.046_003	Carrier Approved – Release 4.2
VERIZON	SWIX55C_03.09.03.00	030.033_002	Carrier Approved – Release 4
VERIZON	SWIX55C_01.07.23.00	012.019_001	Carrier Approved – Release 1.1
VERIZON	SWIX55C_01.07.19.00	012.012_002	Carrier Approved – Release SP1_RC6
Test			
AT&T	SWIX55C_03.14.10.01	030.089_000	
BELL	SWIX55C_03.14.10.01	030.045_000	
Docomo	SWIX55C_03.14.10.01	030.080_000	
DT	SWIX55C_03.14.10.01	030.076_000	
KDDI	SWIX55C_03.14.10.01	030.062_000	
ORANGE	SWIX55C_03.14.10.01	030.055_000	
ROGERS	SWIX55C_03.14.10.01	030.047_000	
SOFTBANK	SWIX55C_03.14.10.01	030.070_000	
TELSTRA	SWIX55C_03.14.10.01	030.080_000	
TELUS	SWIX55C_03.14.10.01	030.082_000	
Verizon	SWIX55C_03.14.10.01	030.092_000	

6.1.3 Host Software Versions

The following tools were validated against this release.

Note: Semtech recommends upgrading to newer Host Software releases when available. Refer to applicable software release notes for any compatibility restrictions.

Table 20. Validated Host Software Tools – Release 6.1

SW Tools Name	Version
Mobile Broadband Package for Windows	
Mobile Broadband Package for Linux	

6.1.4 Software Changes

Table 21. Software Changes – Release 6.1

ID	Item	Description	Impacted Domains
	Protocol/Certification		

QTIX5510-4067	IMEI SV	Increase IMEI SV to 26	PTCRB/GCF
RF			
Core			
FERRARI-4438	Improvement to fix for crash on n41 ENDC combo	Force SDR Tx output off during modem crash, to avoid spike from SDR to PA	Core
AT / QMI Commands			
Applications			

6.1.5 Security Corrections/Improvements

No change from Release 5.2.

6.1.6 Known Issues

Note: This section reflects known issues in Release 6.1 as of the Date of Generation UTC) indicated in the Release 6.1 Release Identification section above.

Table 22. Known Issues – Release 6.1

ID	Issue	Description	Impacted Domains
Protocol/Certification			
Core			
FERRARI-3460	R4 to R1 downgrade	<p>Since R4 FW includes multi-slot support and R1 does not, a simple downgrade from R4 to R1 may not result in the R1 image running in the correct slot. To ensure proper loading of R1 in this case, it is necessary to first delete all loaded images. One method to do this is use at!image=0. .</p> <p>A new option has been added to delete device stored images in MBPW R30 ENG6 and MBPL R30 ENG5.</p>	FW DL
FERRARI-2679	Thermal Mitigation	For High Power mmWave, only temperature from one QTM thermistor is used for mitigation purposes. Since the QTM's are physically very close together, there is minimal risk of HW damage.	Thermal

QTIX5510-3541	Rare modem crash on reset	Rare modem crash when modem powering down or updating firmware. Modem functions normally on boot but crash is logged via AT!GCDUMP	RESET
FERRARI-2638	PCIEFORCEEN customization	Enabling PCIEFORCEEN may result in modem crash on some platforms	PCIe
FERRARI- 3344	Test case 38.533 4.5.5.1 fails	Beam failure on HP mmW platform	Core
AT / QMI Commands			

7 Firmware Release 6

Release 6 is a major FW update targeting North American carriers to address key customer-facing issues found on Release 5.x.

For PRI details, see [2] *EM919x/EM7690 PRI Customer Release Notes*.

7.1 Firmware Release Description

7.1.1 Firmware Release Identification

Table 23. Firmware Release Identification – Release 6

Component	Details
Firmware Version	SWIX55C_03.14.10.00
Date of generation (UTC)	2023/11/08 09:18:52
IMEI SV	25
GSM TS.25	20-May-2024 TBU
Chipset Vendor Stack Version	SDX55.LE.1.4.r1-00059-NBOOT.CPE.NEFS.PROD-1.48412.1
Supported HW	EM9190, EM9191, EM7690

7.1.2 Carrier Packages

Table 24. Carrier Packages – Release 6

Carrier	Firmware	Configuration	Comment
Approved			
AT&T	SWIX55C_03.10.07.00	030.059_001	Carrier Approved – Release 5
BELL	SWIX55C_03.09.11.00	030.007_001	Accepted by carrier for platform certifications – Release 4.2
DOCOMO	SWIX55C_03.10.07.00	030.053_001	Carrier Approved – Release 5
DT	SWIX55C_03.09.11.00	030.038_001	Accepted by carrier for platform certifications – Release 4.2
GENERIC	SWIX55C_03.14.10.00	030.088_000	GCF and PTCRB Approved – Release 6
GENERIC	SWIX55C_03.10.07.00	030.062_000	GCF and PTCRB Approved – Release 5

Customer Release Notes

KDDI	SWIX55C_03.10.07.00	030.035_000	Carrier Approved – Release 5
ORANGE	SWIX55C_03.09.03.00	030.010_001	Carrier Approved – Release 4
ROGERS	SWIX55C_03.10.07.00	030.019_000	Carrier Approved – Release 5
SOFTBANK	SWIX55C_03.10.07.00	030.043_000	Carrier Approved – Release 5
SPARK	SWIX55C_03.09.06.00	030.038_001	Carrier Approved with Generic Carrier PRI – Release 4.1
TELSTRA	SWIX55C_03.10.07.00	030.051_000	Carrier Approved – Release 5
TELUS	SWIX55C_03.10.07.00	030.052_000	Carrier Approved – Release 5
TMO	SWIX55C_03.10.07.00	030.052_000	Carrier Approved – Release 5
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
VERIZON	SWIX55C_03.10.11.00	030.067_000	Carrier Approved – Release 5.2
Approved Legacy			
AT&T	SWIX55C_03.09.11.00	030.046_001	Carrier Approved – Release 4.2
AT&T	SWIX55C_03.09.06.00	030.038_001	Carrier Approved – Release 4.1
AT&T	SWIX55C_01.07.23.00	012.019_000	Carrier Approved – Release 1.1 (EM7690 Only)
AT&T	SWIX55C_01.07.13.00	012.007_002	Carrier Approved – Release SP1_RC5
DOCOMO	SWIX55C_03.09.11.00	030.041_003	Carrier Approved – Release 4.2
DOCOMO	SWIX55C_03.04.03.00	030.012_003	Carrier Approved – Release 3
DOCOMO	SWIX55C_02.08.01.00	020.006_003	Carrier Approved – Release 2
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_03.10.11.00	030.066_000	GCF Approved – Release 5.2
GENERIC	SWIX55C_03.09.14.00	030.048_004	GCF Approved – Release 4.3
GENERIC	SWIX55C_03.09.11.00	030.044_007	GCF and PTCRB Approved – Release 4.2
GENERIC	SWIX55C_03.09.06.00	030.038_001	GCF and PTCRB Approved – Release 4.1
GENERIC	SWIX55C_03.09.03.00	030.036_001	GCF Approved – Release 4
GENERIC	SWIX55C_03.04.03.00	030.012_001	GCF Approved – Release 3
GENERIC	SWIX55C_02.08.01.00	020.007_002	GCF Approved – Release 2
GENERIC	SWIX55C_01.07.23.00	016.018_000	GCF Approved – Release 1.1
GENERIC	SWIX55C_01.07.21.00	016.014_001	GCF Approved – Release SP1_RC7
GENERIC	SWIX55C_01.07.19.00	016.010_002	GCF Approved – Release SP1_RC6
GENERIC	SWIX55C_01.07.13.00	016.006_005	GCF and PTCRB Approved – Release SP1_RC5
KDDI	SWIX55C_03.09.11.00	030.025_001	Carrier Approved – Release 4.2
KDDI	SWIX55C_03.09.03.00	030.016_002	Carrier Approved – Release 4
ROGERS	SWIX55C_03.09.11.00	030.007_003	Carrier Approved – Release 4.2
ROGERS	SWIX55C_03.09.06.00	030.001_001	Carrier Approved – Release 4.1
ROGERS	SWIX55C_01.07.13.00	001.000_000	Carrier Approved – Release SP1_RC5
SOFTBANK	SWIX55C_03.09.11.00	030.031_004	Carrier Approved – Release 4.2 (EM9191 and EM7690)
SOFTBANK	SWIX55C_03.09.03.00	030.023_002	Carrier Approved – Release 4 (EM9190)
TELSTRA	SWIX55C_03.09.06.00	030.035_001	Carrier Approved – Release 4.1
TELSTRA	SWIX55C_03.04.03.00	030.016_001	Carrier Approved – Release 3 (EM9190 and EM7690)
TELUS	SWIX55C_03.09.11.00	030.039_004	Carrier Approved – Release 4.2
TMO	SWIX55C_01.07.13.00	001.005_003	Carrier Approved – Release SP1_RC5
VERIZON	SWIX55C_03.09.11.00	030.046_003	Carrier Approved – Release 4.2
VERIZON	SWIX55C_03.09.03.00	030.033_002	Carrier Approved – Release 4
VERIZON	SWIX55C_01.07.23.00	012.019_001	Carrier Approved – Release 1.1

VERIZON	SWIX55C_01.07.19.00	012.012_002	Carrier Approved – Release SP1_RC6
Test			
AT&T	SWIX55C_03.14.10.00	030.085_000	
BELL	SWIX55C_03.14.10.00	030.042_000	
Docomo	SWIX55C_03.14.10.00	030.077_000	
DT	SWIX55C_03.14.10.00	030.073_000	
KDDI	SWIX55C_03.14.10.00	030.059_000	
ORANGE	SWIX55C_03.14.10.00	030.052_000	
ROGERS	SWIX55C_03.14.10.00	030.044_000	
SOFTBANK	SWIX55C_03.14.10.00	030.067_000	
TELSTRA	SWIX55C_03.14.10.00	030.077_000	
TELUS	SWIX55C_03.14.10.00	030.079_000	
TMO	SWIX55C_03.14.10.00	030.080_000	
Verizon	SWIX55C_03.14.10.00	030.089_000	

7.1.3 Host Software Versions

The following tools were validated against this release.

Note: Semtech recommends upgrading to newer Host Software releases when available. Refer to applicable software release notes for any compatibility restrictions.

Table 25. Validated Host Software Tools – Release 6

SW Tools Name	Version
Mobile Broadband Package for Windows	
Mobile Broadband Package for Linux	

7.1.4 Software Changes

Table 26. Software Changes – Release 6

ID	Item	Description	Impacted Domains
Protocol/Certification			
QTIX5510-3830	IMEI SV	Increase IMEI SV to 25	PTCRB/GCF
FERRARI-3895	MOTIVE FOTA showing “Firmware operation failed”	Issue with test server due to change in Verizon LWM2M requirements	Verizon LWM2M

QTIX5510-3975	Add Object ID for Host Device	As per TC 14.01, added Object ID 10299 for Host Device.	Verizon LWM2M
QTIX5510-3987	Add Object resource /3/0/10.	As per TC 14.14, 14.14 Memory Free, added object resource /3/0/10.	Verizon LWM2M
QTIX5510-3994	Support 3/0/6,7,8 for Power source Info	Get available power source for nodes 3/0/6, 3/0/7 and 3/0/8	Verizon LWM2M
QTIX5510-4003	Resource /3/0/10	Updated correct return type if resource is not supported	Verizon LWM2M
QTIX5510-4019	Read /3/0/15	Read /3/0/15 return UNSUPPORTED if applicable	Verizon LWM2M
RF			
Core			
QTIX5510-3955	SDX55 LE 1.4	Update to r00059.1 patch release - TDD FCC EIRP Power limit fix - B30 TX Disabled in ENDC combos - Fixes for EM7690 crash & FW upgrade issues occurring due to incomplete 5G code/stack isolation	Stack
QTIX5510-4002	Cannot attach to n78 ENDC Combo	FW Rel. 5 Cannot Attach to n78 ENDC Combo on Telus Network	Core
QTIX5510-3974	HWID length	Retrieve correct length of HWID string	Core
QTIX5510-4007	CWE version in FLOG	Updated CWE version string in FLOG when NV update is completed	Core
QTIX5510-4015	Host does not wakeup when device receives SMS	Wake pin pull message is now received when device receives SMS	Core
FERRARI-4221	Disable GEA1 and GEA2	Disabled GEA1 and GEA2 as per new PTCRB rule	Core
QTIX5510-3995	Power handling in crash situations	Improved power handling of components in crash situations	Power
FERRARI-4018	Output power for TDD bands	Smart Transmit is not providing expected power reduction	Power
QTIX5510-3927 QTIX5510-3988 QTIX5510-4006 QTIX5510-4022	Limit MTPL for TDD Bands	Limit output power when LTE UL CA and while Smart Transmit is active	Power
FERRARI-4250	Fix for crash on n41 ENDC combo	Device crashes on n41 ENDC 5DL+FR1_DC_2A-46D-66A_n41A	Core
AT / QMI Commands			

QTIX5510-3892	AT+COPS?	The carrier network was duplicated unnecessarily in output of AT command	AT
QTIX5510-3932	AT!GSTATUS? and AT!NRINFO?	AT!GSTATUS? and AT!NRINFO? report NR5G PCI, should be reporting the serving cell ID via Global Cell ID	AT
QTIX5510-3986	AT!GSTATUS? and AT!NRINFO?	AT!GSTATUS? and AT!NRINFO? report the serving cell ID via Global Cell ID only in NR5G SA mode	AT
QTIX5510-3427	AT!MSIM?	Increased output buffer size of AT!MSIM? to show increased PLMN IIN list	AT
QTIX5510-3594	AT!GSTATUS?	Match output of 5G cell bandwidth displayed by AT!GSTATUS? and QMI	AT
QTIX5510-3922	AT!DATXMEASURE	Level 2 AT!DATXMEASURE command added to measure Tx power in order to detect PA damage	AT
QTIX5510-3291	AT!ACQCHAN	Added 5G cell information in AT!ACQCHAN	AT
QTIX5510-4032	AT!PCINFO?	MMWCAL output of AT!PCINFO updated	AT
Applications			

7.1.5 Security Corrections/Improvements

Table 27. Security Corrections/Improvements – Release 6

CVE	Title
CVE-2023-33077	Buffer Copy Without Checking Size of Input ('Classic Buffer Overflow') in SPS-HLOS
CVE-2023-28549	Improper Restriction of Operations within the Bounds of a Memory Buffer in CNSS_WLAN_HAL-PHY
CVE-2023-33015	Buffer Over-read in WLAN Embedded SW
CVE-2023-33062	Buffer Over-read in WLAN Embedded SW
CVE-2023-33080	Buffer over-read in WLAN Embedded SW
CVE-2023-33027	Buffer Over-read in WLAN Embedded SW
CVE-2022-33305	NULL Pointer Dereference in processing Dedicated SIB1 over-the-air message in LTE
CVE-2022-25704	Reachable Assertion in ENL2
CVE-2022-33272	Reachable Assertion in ENL2

CVE-2022-25691	Reachable Assertion in NR5G
CVE-2022-25672	Reachable Assertion in NR5G
CVE-2023-33042	Improper Input Validation in NR5G
CVE-2023-33040	Buffer Over-read in Data Modem
CVE-2023-33033	Use of Out-of-range Pointer Offset in Audio
CVE-2023-33066	Use of Out-of-range Pointer Offset in Audio
CVE-2023-33057	Improper Input Validation in MMCP
CVE-2023-33051	Use of Out-of-range Pointer Offset in Data Modem
CVE-2023-33049	Improper Release of Memory Before Removing Last Reference in MMCP
CVE-2023-33093	Improper Input Validation in L2FW
CVE-2023-33044	Reachable Assertion in Data Modem
CVE-2023-28556	Improper Authorization in SPS-HLOS
CVE-2023-33072	Buffer copy without checking size of Input ('Classic Buffer Overflow') in Core
CVE-2023-28545	Improper Restriction of Operations within the Bounds of a Memory Buffer in SCE-QTEE
CVE-2023-28586	Improper Restriction of Operation within the Bounds of a Memory Buffer in SCE-QTEE
CVE-2023-33017	Buffer Copy Without Checking Size of Input ('Classic Buffer Overflow') in Boot
CVE-2023-33030	Buffer Copy without Checking Size of Input ('Classic Buffer Overflow') in SPS-HLOS
CVE-2023-21626	Key Management Errors in SPS-HLOS
CVE-2023-24852	Improper Authentication in Core
CVE-2023-28585	Integer Overflow to Buffer Overflow in SCE-QTEE
CVE-2023-21631	Improper Input Validation in MMCP
CVE-2023-21646	Reachable Assertion in NR5G
CVE-2023-21645	Buffer Copy Without Checking Size of Input ('Classic Buffer Overflow') in Data Modem
CVE-2023-24847	NULL pointer Dereference in MPP Performance
CVE-2023-28540	Improper Authentication in Data Modem
CVE-2023-28552	Loop with Unreachable Exit Condition ('Infinite Loop') in MMCP
CVE-2023-28551	Improper Restriction of Operations within the Bounds of a Memory Buffer in UTILS
CVE-2023-22388	Use of Out-of-range Pointer Offset in MMCP
CVE-2023-33018	Integer Overflow to Buffer Overflow in UIM
CVE-2022-33284	Buffer Over-read in WLAN Embedded SW
CVE-2022-40514	Buffer Copy Without Checking Size of Input (Classic Buffer Overflow) in WLAN Embedded SW
CVE-2023-28567	Improper Validation of Array Index in CNSS_WLAN_HAL-PHY
CVE-2023-28557	Improper Validation of Array Index in CNSS_WLAN_HAL-PHY
CVE-2022-40531	Incorrect Type Conversion or Cast in WLAN Embedded SW
CVE-2023-21659	Buffer Over-read in WLAN Embedded SW
CVE-2023-28573	Improper Validation of Array Index in CNSS_WLAN_HAL-PHY
CVE-2022-40519	Buffer Over-read in Boot
CVE-2022-42720	Use After Free in WLAN HOST

CVE-2023-28554	Buffer Over-read in MProc
CVE-2022-25701	Buffer Over-read in BTHOST
CVE-2018-9359	Buffer Over-read in BTHOST
CVE-2022-33280	Access of Uninitialized Pointer in BTHOST_IOE
CVE-2022-25711	Improper Validation of Array Index in Camera_Linux
CVE-2022-40537	Improper Validation of Array Index in BTHOST
CVE-2023-21649	Buffer Copy Without Checking Size of Input ('Classic Buffer Overflow') in WLAN HOST
CVE-2023-21650	Improper Validation of Array Index in GPS HLOS Driver
CVE-2022-40520	Stack-based Buffer Overflow in WiredConnectivity
CVE-2022-40508	Reachable assert in NR5G
CVE-2022-40506	Buffer Copy Without Checking Size of Input (Classic Buffer Overflow) in Data Modem
CVE-2022-40521	Improper Authentication in MMCP
CVE-2022-34144	Reachable Assertion in NR5G
CVE-2022-40536	Improper Authentication in MMCP
CVE-2023-21629	Double free in Modem
CVE-2022-25744	Improper Restriction of Operations within the Bounds of a Memory Buffer in Core
CVE-2022-25703	Improper Restriction of Operations within the Bounds of a Memory Buffer in Core
CVE-2022-22076	Cryptographic Issues in Storage

7.1.6 Known Issues

Note: This section reflects known issues in Release 6 as of the Date of Generation UTC) indicated in the Release 6 Release Identification section above.

Table 28. Known Issues – Release 6

ID	Issue	Description	Impacted Domains
Protocol/Certification			
Core			

FERRARI-3460	R4 to R1 downgrade	<p>Since R4 FW includes multi-slot support and R1 does not, a simple downgrade from R4 to R1 may not result in the R1 image running in the correct slot. To ensure proper loading of R1 in this case, it is necessary to first delete all loaded images. One method to do this is use <code>at!image=0</code>. .</p> <p>A new option has been added to delete device stored images in MBPW R30 ENG6 and MBPL R30 ENG5.</p>	FW DL
FERRARI-2679	Thermal Mitigation	For High Power mmWave, only temperature from one QTM thermistor is used for mitigation purposes. Since the QTM's are physically very close together, there is minimal risk of HW damage.	Thermal
QTIX5510-3541	Rare modem crash on reset	Rare modem crash when modem powering down or updating firmware. Modem functions normally on boot but crash is logged via <code>AT!GCDUMP</code>	RESET
FERRARI-2638	PCIEFORCEEN customization	Enabling PCIEFORCEEN may result in modem crash on some platforms	PCIe
FERRARI- 3344	Test case 38.533 4.5.5.1 fails	Beam failure on HP mmW platform	Core
AT / QMI Commands			

8 Release 5.2

Release 5.2 is a minor release and includes carrier approval for Verizon.

Refer to [Appendix A](#) for upgrade instructions.

8.1 Software Release Description

8.1.1 Release identification

Component	Revision
Firmware	SWIX55C_03.10.11.00
Date of generation (UTC)	2023/05/02 03:32:45
Binary Size	86.4 MB

Component	Revision
IMEI SV	24
Chipset Vendor Stack Version	SDX55.LE.1.4.r1-00055-NBOOT.CPE.NEFS.PROD-1
Supported HW	EM9190, EM9191, EM7690

8.1.2 Software Tools Versions

The following tools were validated against this release.

S/W Tools Name	Version
Mobile Broadband Package for Windows	
Mobile Broadband Package for Linux	

8.1.3 Released Carrier Packages

Carrier	Firmware	Configuration	Comment
Approved			
AT&T	SWIX55C_03.10.07.00	030.059_001	Carrier Approved – Release 5
BELL	SWIX55C_03.09.11.00	030.007_001	Accepted by carrier for platform certifications – Release 4.2
DOCOMO	SWIX55C_03.10.07.00	030.053_001	Carrier Approved – Release 5
DT	SWIX55C_03.09.11.00	030.038_001	Accepted by carrier for platform certifications – Release 4.2
GENERIC	SWIX55C_03.10.11.00	030.066_000	GCF Approved – Release 5.2
GENERIC	SWIX55C_03.10.07.00	030.062_000	GCF and PTCRB Approved – Release 5
KDDI	SWIX55C_03.10.07.00	030.035_000	Carrier Approved – Release 5
ORANGE	SWIX55C_03.09.03.00	030.010_001	Carrier Approved – Release 4
ROGERS	SWIX55C_03.10.07.00	030.019_000	Carrier Approved – Release 5
SOFTBANK	SWIX55C_03.09.11.00	030.031_004	Carrier Approved – Release 4.2 (EM9191 and EM7690)

SOFTBANK	SWIX55C_03.09.03.00	030.023_002	Carrier Approved – Release 4 (EM9190)
SPARK	SWIX55C_03.09.06.00	030.038_001	Carrier Approved with Generic Carrier PRI – Release 4.1
TELSTRA	SWIX55C_03.09.06.00	030.035_001	Carrier Approved – Release 4.1
TELUS	SWIX55C_03.09.11.00	030.039_004	Carrier Approved – Release 4.2
TMO	SWIX55C_03.10.07.00	030.052_000	Carrier Approved – Release 5
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
VERIZON	SWIX55C_03.10.11.00	030.067_000	Carrier Approved – Release 5.2
Approved Legacy			
AT&T	SWIX55C_03.09.11.00	030.046_001	Carrier Approved – Release 4.2
AT&T	SWIX55C_03.09.06.00	030.038_001	Carrier Approved – Release 4.1
AT&T	SWIX55C_01.07.23.00	012.019_000	Carrier Approved – Release 1.1 (EM7690 Only)
AT&T	SWIX55C_01.07.13.00	012.007_002	Carrier Approved – Release SP1_RC5
DOCOMO	SWIX55C_03.09.11.00	030.041_003	Carrier Approved – Release 4.2
DOCOMO	SWIX55C_03.04.03.00	030.012_003	Carrier Approved – Release 3
DOCOMO	SWIX55C_02.08.01.00	020.006_003	Carrier Approved – Release 2
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_03.09.14.00	030.048_004	GCF Approved – Release 4.3
GENERIC	SWIX55C_03.09.11.00	030.044_007	GCF and PTCRB Approved – Release 4.2
GENERIC	SWIX55C_03.09.06.00	030.038_001	GCF and PTCRB Approved – Release 4.1
GENERIC	SWIX55C_03.09.03.00	030.036_001	GCF Approved – Release 4
GENERIC	SWIX55C_03.04.03.00	030.012_001	GCF Approved – Release 3
GENERIC	SWIX55C_02.08.01.00	020.007_002	GCF Approved – Release 2
GENERIC	SWIX55C_01.07.23.00	016.018_000	GCF Approved – Release 1.1
GENERIC	SWIX55C_01.07.21.00	016.014_001	GCF Approved – Release SP1_RC7
GENERIC	SWIX55C_01.07.19.00	016.010_002	GCF Approved – Release SP1_RC6
GENERIC	SWIX55C_01.07.13.00	016.006_005	GCF and PTCRB Approved – Release SP1_RC5
KDDI	SWIX55C_03.09.11.00	030.025_001	Carrier Approved – Release 4.2
KDDI	SWIX55C_03.09.03.00	030.016_002	Carrier Approved – Release 4

ROGERS	SWIX55C_03.09.11.00	030.007_003	Carrier Approved – Release 4.2
ROGERS	SWIX55C_03.09.06.00	030.001_001	Carrier Approved – Release 4.1
ROGERS	SWIX55C_01.07.13.00	001.000_000	Carrier Approved – Release SP1_RC5
TELSTRA	SWIX55C_03.04.03.00	030.016_001	Carrier Approved – Release 3 (EM9190 and EM7690)
TMO	SWIX55C_01.07.13.00	001.005_003	Carrier Approved – Release SP1_RC5
VERIZON	SWIX55C_03.09.11.00	030.046_003	Carrier Approved – Release 4.2
VERIZON	SWIX55C_03.09.03.00	030.033_002	Carrier Approved – Release 4
VERIZON	SWIX55C_01.07.23.00	012.019_001	Carrier Approved – Release 1.1
VERIZON	SWIX55C_01.07.19.00	012.012_002	Carrier Approved – Release SP1_RC6
Test			
AT&T	SWIX55C_03.10.11.00	030.065_000	
BELL	SWIX55C_03.10.11.00	030.021_000	
DOCOMO	SWIX55C_03.10.11.00	030.057_000	
DT	SWIX55C_03.10.11.00	030.052_000	
KDDI	SWIX55C_03.10.11.00	030.039_000	
ORANGE	SWIX55C_03.10.11.00	030.032_000	
ROGERS	SWIX55C_03.10.11.00	030.023_000	
SOFTBANK	SWIX55C_03.10.11.00	030.047_000	
TELSTRA	SWIX55C_03.10.11.00	030.056_000	
TELUS	SWIX55C_03.10.11.00	030.057_000	
TMO	SWIX55C_03.10.11.00	030.056_000	

8.1.4 mmWave Packages

The mmWave QCN files are only to be used at customer factory before mmWave calibration. Do not download the QCN after a module has been calibrated.

8.1.4.1 QCN files

This section lists which files to use based on FW version for mmWave calibration. These files are not required if the end product does not support mmWave.

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_01.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104567_1505_01.01.03.02.cwe	
EM91_mmwQCN_1104567_1506_01.01.03.02.cwe	
EM91_mmwQCN_1104567_1507_01.01.02.02.cwe	
EM91_mmwQCN_1104567_1508_01.01.02.02.cwe	
EM91_mmwQCN_1104567_2051_01.01.01.01.cwe	
EM91_mmwQCN_1104567_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104567_2250_01.01.01.01.cwe	
EM91_mmwQCN_1104567_2300_01.01.01.02.cwe	
EM91_mmwQCN_1104567_2400_01.01.01.00.cwe	
EM91_mmwQCN_1104704_2050_01.01.01.02.cwe	
EM91_mmwQCN_1104704_2051_01.01.01.01.cwe	
EM91_mmwQCN_1104705_2000_01.01.03.02.cwe	
EM91_mmwQCN_1104839_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104839_2101_01.01.02.01.cwe	
EM91_mmwQCN_1104909_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104909_2101_01.01.02.01.cwe	
EM91_mmwQCN_1104931_1505_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1505_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1506_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1507_01.01.02.02.cwe	
EM91_mmwQCN_9101036_1508_01.01.02.02.cwe	

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_03.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104567_1505_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1506_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1507_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1508_03.01.03.00.cwe	
EM91_mmwQCN_1104705_2000_03.01.03.00.cwe	
EM91_mmwQCN_1104945_2050_03.01.01.01.cwe	
EM91_mmwQCN_1104945_2051_03.01.01.01.cwe	
EM91_mmwQCN_9101036_1505_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1506_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1507_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1508_03.01.03.00.cwe	

8.1.4.2 RFC MBN SCAN

Refer to **Error! Reference source not found.**

8.2 Software Changes Description

This release includes the notable changes and features listed below.

ID	Title	Description	Impacted Domain
Protocol/Certification			
QTIX5510-3895	DM server instance can become disabled for a long time	FOTA test failed once due to server 102 unexpected disablement after successful registration.	FOTA
QTIX5510-3910	Move authentication failure count	Use correct event type EVENT_TYPE_AUTHENTICATION.	Registration
Core			
QTIX5510-3865	Send REG_UPDATE during Out of band FOTA	During FOTA download device does not Authenticate connection with server.	FOTA
QTIX5510-3588	Change authentication expiry timer	Verizon spec has changed the timer value from 240 to 60 seconds.	Verizon

8.3 Security Corrections/Improvements

Some features such as Bluetooth, Wifi, and Audio are not supported on the product, but security corrections/improvements in the software are listed here for completeness.

CVE	Title
None	

8.4 Known Issues

ID	Title	Description	Impacted Domain
Protocol/Certification			
FERRARI-1998	LWM2M In-Band FOTA	Verizon LWM2M In-Band FOTA not supported	Verizon
Core			
FERRARI-3460	R4 to R1 downgrade	Since R4 FW includes multi-slot support and R1 does not, a simple downgrade from R4 to R1 may not result in the R1 image running in the correct slot. To ensure proper loading of R1 in this case, it is necessary to first delete all loaded images. One method to do this is use <code>at!image=0</code> . An equivalent method through host drivers is actively being developed.	FW DL
FERRARI-2679	Thermal Mitigation	For High Power mmWave, only temperature from one QTM thermistor is used for mitigation purposes. Since the QTMs are physically very close together, there is minimal risk of HW damage.	Thermal
QTIX5510-3541	Rare modem crash on reset	Rare modem crash when modem powering down. Modem functions normally on boot but crash is logged via <code>AT!GCDUMP</code>	RESET
FERRARI-2638	PCIEFORCEEN customization	Enabling PCIEFORCEEN may result in modem crash on some platforms	PCIe
AT / QMI Commands			

FERRARI-4009	AT!GSTATUS? & AT!NRINFO?	AT command reporting of the physical cell ID instead of cell Identity.	AT
QTIX5510-3427	AT!MSIM?	Query returns error if querying all carriers and there are multiple carrier images loaded on the module. Workaround is to query each carrier one by one.	AUTO SIM
FERRARI-2904	QMI_NAS_SWI_GET_NR5G_CELL_INFO	QMI_NAS_SWI_GET_NR5G_CELL_INFO returns incorrect BW if the bandwidth is greater than or equal to 70 MHz	5G NR BW
QTIX5510-3829	ATGSTATUS & AT!NRINFO	AT!GSTATUS & AT!NRINFO report incorrect RSRP, RSRQ and SINR values for NR5G in ENDC mode.	AT

9 Release 5.1

Release 5.1 is a minor release and updates the approved packages. The FW image is the same as Release 5.

Refer to [Appendix A](#) for upgrade instructions.

9.1 Software Release Description

9.1.1 Release identification

Component	Revision
Firmware	SWIX55C_03.10.07.00
Date of generation (UTC)	2022/12/14 16:18:06
Binary Size	86.4 MB
IMEI SV	24
Chipset Vendor Stack Version	SDX55.LE.1.4.r1-00055-NBOOT.CPE.NEFS.PROD-1
Supported HW	EM9190, EM9191, EM7690

9.1.2 Software Tools Versions

The following tools were validated against this release.

S/W Tools Name	Version
Mobile Broadband Package for Windows	
Mobile Broadband Package for Linux	

9.1.3 Released Carrier Packages

Carrier	Firmware	Configuration	Comment
Approved			
AT&T	SWIX55C_03.10.07.00	030.059_001	Carrier Approved – Release 5
BELL	SWIX55C_03.09.11.00	030.007_001	Accepted by carrier for platform certifications – Release 4.2
DOCOMO	SWIX55C_03.10.07.00	030.053_001	Carrier Approved – Release 5
DT	SWIX55C_03.09.11.00	030.038_001	Accepted by carrier for platform certifications – Release 4.2
GENERIC	SWIX55C_03.10.07.00	030.062_000	GCF and PTCRB Approved – Release 5
KDDI	SWIX55C_03.10.07.00	030.035_000	Carrier Approved – Release 5
ORANGE	SWIX55C_03.09.03.00	030.010_001	Carrier Approved – Release 4
ROGERS	SWIX55C_03.10.07.00	030.019_000	Carrier Approved – Release 5
SOFTBANK	SWIX55C_03.09.11.00	030.031_004	Carrier Approved – Release 4.2 (EM9191 and EM7690)
SOFTBANK	SWIX55C_03.09.03.00	030.023_002	Carrier Approved – Release 4 (EM9190)
SPARK	SWIX55C_03.09.06.00	030.038_001	Carrier Approved with Generic Carrier PRI – Release 4.1
TELSTRA	SWIX55C_03.09.06.00	030.035_001	Carrier Approved – Release 4.1 (EM9191)
TELSTRA	SWIX55C_03.04.03.00	030.016_001	Carrier Approved – Release 3 (EM9190 and EM7690)
TELUS	SWIX55C_03.09.11.00	030.039_004	Carrier Approved – Release 4.2
TMO	SWIX55C_03.10.07.00	030.052_000	Carrier Approved – Release 5
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
VERIZON	SWIX55C_03.09.11.00	030.046_003	Carrier Approved – Release 4.2
Approved Legacy			
AT&T	SWIX55C_03.09.11.00	030.046_001	Carrier Approved – Release 4.2
AT&T	SWIX55C_03.09.06.00	030.038_001	Carrier Approved – Release 4.1
AT&T	SWIX55C_01.07.23.00	012.019_000	Carrier Approved – Release 1.1 (EM7690 Only)
AT&T	SWIX55C_01.07.13.00	012.007_002	Carrier Approved – Release SP1_RC5
DOCOMO	SWIX55C_03.09.11.00	030.041_003	Carrier Approved – Release 4.2

DOCOMO	SWIX55C_03.04.03.00	030.012_003	Carrier Approved – Release 3
DOCOMO	SWIX55C_02.08.01.00	020.006_003	Carrier Approved – Release 2
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_03.09.14.00	030.048_004	GCF Approved – Release 4.3
GENERIC	SWIX55C_03.09.11.00	030.044_007	GCF and PTCRB Approved – Release 4.2
GENERIC	SWIX55C_03.09.06.00	030.038_001	GCF and PTCRB Approved – Release 4.1
GENERIC	SWIX55C_03.09.03.00	030.036_001	GCF Approved – Release 4
GENERIC	SWIX55C_03.04.03.00	030.012_001	GCF Approved – Release 3
GENERIC	SWIX55C_02.08.01.00	020.007_002	GCF Approved – Release 2
GENERIC	SWIX55C_01.07.23.00	016.018_000	GCF Approved – Release 1.1
GENERIC	SWIX55C_01.07.21.00	016.014_001	GCF Approved – Release SP1_RC7
GENERIC	SWIX55C_01.07.19.00	016.010_002	GCF Approved – Release SP1_RC6
GENERIC	SWIX55C_01.07.13.00	016.006_005	GCF and PTCRB Approved – Release SP1_RC5
KDDI	SWIX55C_03.09.11.00	030.025_001	Carrier Approved – Release 4.2
KDDI	SWIX55C_03.09.03.00	030.016_002	Carrier Approved – Release 4
ROGERS	SWIX55C_03.09.11.00	030.007_003	Carrier Approved – Release 4.2
ROGERS	SWIX55C_03.09.06.00	030.001_001	Carrier Approved – Release 4.1
ROGERS	SWIX55C_01.07.13.00	001.000_000	Carrier Approved – Release SP1_RC5
TMO	SWIX55C_01.07.13.00	001.005_003	Carrier Approved – Release SP1_RC5
VERIZON	SWIX55C_03.09.03.00	030.033_002	Carrier Approved – Release 4
VERIZON	SWIX55C_01.07.23.00	012.019_001	Carrier Approved – Release 1.1
VERIZON	SWIX55C_01.07.19.00	012.012_002	Carrier Approved – Release SP1_RC6
Test			
BELL	SWIX55C_03.10.07.00	030.017_000	
DT	SWIX55C_03.10.07.00	030.048_000	
ORANGE	SWIX55C_03.10.07.00	030.028_000	
SOFTBANK	SWIX55C_03.10.07.00	030.043_000	
TELSTRA	SWIX55C_03.10.07.00	030.051_000	
TELUS	SWIX55C_03.10.07.00	030.052_000	

VERIZON	SWIX55C_03.10.07.00	030.060_000	
---------	---------------------	-------------	--

9.1.4 mmWave Packages

The mmWave QCN files are only to be used at customer factory before mmWave calibration. Do not download the QCN after a module has been calibrated.

9.1.4.1 QCN files

This section lists which files to use based on FW version for mmWave calibration. These files are not required if the end product does not support mmWave.

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_01.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104567_1505_01.01.03.02.cwe	
EM91_mmwQCN_1104567_1506_01.01.03.02.cwe	
EM91_mmwQCN_1104567_1507_01.01.02.02.cwe	
EM91_mmwQCN_1104567_1508_01.01.02.02.cwe	
EM91_mmwQCN_1104567_2051_01.01.01.01.cwe	
EM91_mmwQCN_1104567_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104567_2250_01.01.01.01.cwe	
EM91_mmwQCN_1104567_2300_01.01.01.02.cwe	
EM91_mmwQCN_1104567_2400_01.01.01.00.cwe	
EM91_mmwQCN_1104704_2050_01.01.01.02.cwe	
EM91_mmwQCN_1104704_2051_01.01.01.01.cwe	
EM91_mmwQCN_1104705_2000_01.01.03.02.cwe	
EM91_mmwQCN_1104839_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104839_2101_01.01.02.01.cwe	
EM91_mmwQCN_1104909_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104909_2101_01.01.02.01.cwe	
EM91_mmwQCN_1104931_1505_01.01.03.02.cwe	

CWE File	Notes
EM91_mmwQCN_9101036_1505_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1506_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1507_01.01.02.02.cwe	
EM91_mmwQCN_9101036_1508_01.01.02.02.cwe	

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_03.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104567_1505_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1506_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1507_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1508_03.01.03.00.cwe	
EM91_mmwQCN_1104705_2000_03.01.03.00.cwe	
EM91_mmwQCN_1104945_2050_03.01.01.01.cwe	
EM91_mmwQCN_1104945_2051_03.01.01.01.cwe	
EM91_mmwQCN_9101036_1505_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1506_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1507_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1508_03.01.03.00.cwe	

9.1.4.2 RFC MBN SCAN

Refer to **Error! Reference source not found.**

9.2 Software Changes Description

This release includes the notable changes and features listed below.

ID	Title	Description	Impacted Domain
None			

9.3 Security Corrections/Improvements

Some features such as Bluetooth, Wifi, and Audio are not supported on the product, but security corrections/improvements in the software are listed here for completeness.

CVE	Title
None	

9.4 Known Issues

ID	Title	Description	Impacted Domain
Protocol/Certification			
FERRARI-1998	LWM2M In-Band FOTA	Verizon LWM2M In-Band FOTA not supported	Verizon
Core			
FERRARI-3939	Sleep current higher than expected	Regression in FW 3.9.14.0 causing sleep current measurements to be approx. two times higher than values published in PTS.	Power
FERRARI-3460	R4 to R1 downgrade	Since R4 FW includes multi-slot support and R1 does not, a simple downgrade from R4 to R1 may not result in the R1 image running in the correct slot. To ensure proper loading of R1 in this case, it is necessary to first delete all loaded images. One method to do this is use <code>at!image=0</code> . An equivalent method through host drivers is actively being developed.	FW DL
FERRARI-2679	Thermal Mitigation	For High Power mmWave, only temperature from one QTM thermistor is used for mitigation purposes. Since the QTMs are physically very close together, there is minimal risk of HW damage.	Thermal
QTIX5510-3541	Rare modem crash on reset	Rare modem crash when modem powering down. Modem functions normally on boot but crash is logged via <code>AT!GCDUMP</code>	RESET

FERRARI-2638	PCIEFORCEEN customization	Enabling PCIEFORCEEN may result in modem crash on some platforms	PCIe
AT / QMI Commands			
QTIX5510-3427	AT!IMSIM?	Query returns error if querying all carriers and there are multiple carrier images loaded on the module. Workaround is to query each carrier one by one.	AUTO SIM
FERRARI-2904	QMI_NAS_SWI_GET_NR5G_CELL_INFO	QMI_NAS_SWI_GET_NR5G_CELL_INFO returns incorrect BW if the bandwidth is greater than or equal to 70 MHz	5G NR BW
QTIX5510-3829	ATGSTATUS & AT!NRINFO	AT!GSTATUS & AT!NRINFO report incorrect RSRP, RSRQ and SINR values for NR5G in ENDC mode.	AT

10 Release 5

Release 5 is a major release targeted for carriers around the world.

[Refer to Appendix A for upgrade instructions.](#)

10.1 Software Release Description

10.1.1 Release identification

Component	Revision
Firmware	SWIX55C_03.10.07.00
Date of generation (UTC)	2022/12/14 16:18:06
Binary Size	86.4 MB
IMEI SV	24
Chipset Vendor Stack Version	SDX55.LE.1.4.r1-00055-NBOOT.CPE.NEFS.PROD-1
Supported HW	EM9190, EM9191, EM7690

10.1.2 Software Tools Versions

The following tools were validated against this release.

S/W Tools Name	Version
Mobile Broadband Package for Windows	
Mobile Broadband Package for Linux	

10.1.3 Released Carrier Packages

Carrier	Firmware	Configuration	Comment
Approved			
AT&T	SWIX55C_03.09.11.00	030.046_001	Carrier Approved – Release 4.2
BELL	SWIX55C_03.09.11.00	030.007_001	Accepted by carrier for platform certifications – Release 4.2
DOCOMO	SWIX55C_03.10.07.00	030.053_000	Carrier Approved – Release 5
DT	SWIX55C_03.09.11.00	030.038_001	Accepted by carrier for platform certifications – Release 4.2
GENERIC	SWIX55C_03.10.07.00	030.062_000	GCF and PTCRB Approved – Release 5
KDDI	SWIX55C_03.10.07.00	030.035_000	Carrier Approved – Release 5
ORANGE	SWIX55C_03.09.03.00	030.010_001	Carrier Approved – Release 4
ROGERS	SWIX55C_03.09.11.00	030.007_003	Carrier Approved – Release 4.2
SOFTBANK	SWIX55C_03.09.11.00	030.031_004	Carrier Approved – Release 4.2 (EM9191 and EM7690)
SOFTBANK	SWIX55C_03.09.03.00	030.023_002	Carrier Approved – Release 4 (EM9190)
SPARK	SWIX55C_03.09.06.00	030.038_001	Carrier Approved with Generic Carrier PRI – Release 4.1
TELSTRA	SWIX55C_03.09.06.00	030.035_001	Carrier Approved – Release 4.1 (EM9191)
TELSTRA	SWIX55C_03.04.03.00	030.016_001	Carrier Approved – Release 3 (EM9190 and EM7690)
TELUS	SWIX55C_03.09.11.00	030.039_004	Carrier Approved – Release 4.2
TMO	SWIX55C_03.10.07.00	030.052_000	Carrier Approved – Release 5

USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
VERIZON	SWIX55C_03.09.11.00	030.046_003	Carrier Approved – Release 4.2
Approved Legacy			
AT&T	SWIX55C_03.09.06.00	030.038_001	Carrier Approved – Release 4.1
AT&T	SWIX55C_01.07.23.00	012.019_000	Carrier Approved – Release 1.1 (EM7690 Only)
AT&T	SWIX55C_01.07.13.00	012.007_002	Carrier Approved – Release SP1_RC5
DOCOMO	SWIX55C_03.09.11.00	030.041_002	Carrier Approved – Release 4.2
DOCOMO	SWIX55C_03.04.03.00	030.012_003	Carrier Approved – Release 3
DOCOMO	SWIX55C_02.08.01.00	020.006_003	Carrier Approved – Release 2
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_03.09.14.00	030.048_004	GCF Approved – Release 4.3
GENERIC	SWIX55C_03.09.11.00	030.044_007	GCF and PTCRB Approved – Release 4.2
GENERIC	SWIX55C_03.09.06.00	030.038_001	GCF and PTCRB Approved – Release 4.1
GENERIC	SWIX55C_03.09.03.00	030.036_001	GCF Approved – Release 4
GENERIC	SWIX55C_03.04.03.00	030.012_001	GCF Approved – Release 3
GENERIC	SWIX55C_02.08.01.00	020.007_002	GCF Approved – Release 2
GENERIC	SWIX55C_01.07.23.00	016.018_000	GCF Approved – Release 1.1
GENERIC	SWIX55C_01.07.21.00	016.014_001	GCF Approved – Release SP1_RC7
GENERIC	SWIX55C_01.07.19.00	016.010_002	GCF Approved – Release SP1_RC6
GENERIC	SWIX55C_01.07.13.00	016.006_005	GCF and PTCRB Approved – Release SP1_RC5
KDDI	SWIX55C_03.09.11.00	030.025_001	Carrier Approved – Release 4.2
KDDI	SWIX55C_03.09.03.00	030.016_002	Carrier Approved – Release 4
ROGERS	SWIX55C_03.09.06.00	030.001_001	Carrier Approved – Release 4.1
ROGERS	SWIX55C_01.07.13.00	001.000_000	Carrier Approved – Release SP1_RC5
TMO	SWIX55C_01.07.13.00	001.005_003	Carrier Approved – Release SP1_RC5
VERIZON	SWIX55C_03.09.03.00	030.033_002	Carrier Approved – Release 4
VERIZON	SWIX55C_01.07.23.00	012.019_001	Carrier Approved – Release 1.1

VERIZON	SWIX55C_01.07.19.00	012.012_002	Carrier Approved – Release SP1_RC6
Test			
AT&T	SWIX55C_03.10.07.00	030.058_000	
BELL	SWIX55C_03.10.07.00	030.017_000	
DT	SWIX55C_03.10.07.00	030.048_000	
ORANGE	SWIX55C_03.10.07.00	030.028_000	
ROGERS	SWIX55C_03.10.07.00	030.019_000	
SOFTBANK	SWIX55C_03.10.07.00	030.043_000	
TELSTRA	SWIX55C_03.10.07.00	030.051_000	
TELUS	SWIX55C_03.10.07.00	030.052_000	
VERIZON	SWIX55C_03.10.07.00	030.060_000	

10.1.4 mmWave Packages

The mmWave QCN files are only to be used at customer factory before mmWave calibration. Do not download the QCN after a module has been calibrated.

10.1.4.1 QCN files

This section lists which files to use based on FW version for mmWave calibration. These files are not required if the end product does not support mmWave.

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_01.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104567_1505_01.01.03.02.cwe	
EM91_mmwQCN_1104567_1506_01.01.03.02.cwe	
EM91_mmwQCN_1104567_1507_01.01.02.02.cwe	
EM91_mmwQCN_1104567_1508_01.01.02.02.cwe	
EM91_mmwQCN_1104567_2051_01.01.01.01.cwe	

CWE File	Notes
EM91_mmwQCN_1104567_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104567_2250_01.01.01.01.cwe	
EM91_mmwQCN_1104567_2300_01.01.01.02.cwe	
EM91_mmwQCN_1104567_2400_01.01.01.00.cwe	
EM91_mmwQCN_1104704_2050_01.01.01.02.cwe	
EM91_mmwQCN_1104704_2051_01.01.01.01.cwe	
EM91_mmwQCN_1104705_2000_01.01.03.02.cwe	
EM91_mmwQCN_1104839_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104839_2101_01.01.02.01.cwe	
EM91_mmwQCN_1104909_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104909_2101_01.01.02.01.cwe	
EM91_mmwQCN_1104931_1505_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1505_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1506_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1507_01.01.02.02.cwe	
EM91_mmwQCN_9101036_1508_01.01.02.02.cwe	

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_03.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104567_1505_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1506_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1507_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1508_03.01.03.00.cwe	
EM91_mmwQCN_1104705_2000_03.01.03.00.cwe	
EM91_mmwQCN_1104945_2050_03.01.01.01.cwe	
EM91_mmwQCN_1104945_2051_03.01.01.01.cwe	
EM91_mmwQCN_9101036_1505_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1506_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1507_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1508_03.01.03.00.cwe	

10.1.4.2 RFC MBN SCAN

Refer to **Error! Reference source not found.**

10.2 Software Changes Description

This release includes the notable changes and features listed below.

ID	Title	Description	Impacted Domain
Protocol/Certification			
FERRARI-3545 FERRARI-3365	Add additional B66 ENDC	Add support for select Verizon ENDC combos with a second B66 component DC_2A-2A-13A-66A-66A_n77A DC_2A-5A-66A-66A_n77A	Verizon
FERRARI-3606	Removed CA_7A-38A	Removed unsupported ENDC combo	GCF
FERRARI-3619	n41 RACH failure	Add Qualcomm patch to avoid rare race condition with Tx PLL clock	GCF, TMO, Rogers
QTIX5510-3763	TS.25	Update TS.25 to November 7, 2022	GCF
QTIX5510-3708	IMEI SVN	Update IMEI SV to 24	PTCRB
SWIMDM-2616	LWM2M memory leak	Fix potential memory leaks in LWM2M code	AT&T and Verizon LWM2M
Core			
QTIX5510-3537 FERRARI-3165 FERRARI-3454 FERRARI-3344 FERRARI-3111	SDX55 LE 1.4	Update to r00055.1 patch release -Crash during Smart Transmit -NS_04 AMPR 3GPP CR#3144338 -Verizon CRs from Qualcomm 80-NH494-1 -AT&T CRs from their Critical CR list -Verizon SIM-Secure crashes with AT+CCID -Fix for Network Out of Sync issue with BWP switching feature enabled on Ericsson infra -Docomo CRs from their Critical CR list -Numerous security CVE fixes	Stack
QTIX5510-3229	NR5G Calibration	Fix issue where factory test mode may fail resource allocation if the module is powered up without a SIM present	RF Cal / FTM

FERRARI-2966	Improve return codes on firmware upgrade failure	Fix bug where the return codes were not properly passed to the host on certain upgrade failure scenarios	Firmware Upgrade
FERRARI-3655	Stuck in download mode after firmware upgrade	Fix a corner-case on Linux PCIe systems where log traffic was pending even though the host had closed the port. This was causing the reset procedure to stall.	Firmware Upgrade
AT Commands			
FERRARI-2986	RF values missing during NR5G SA	Fix issue where AT!GSTATUS and AT!NRINFO were not displaying RSRP, RSRQ, SINR, and Tx power during NR5G SA call	AT
QTIX5510-3767	AT+COPN and updated TS.25 list	Fix issue where number of TS.25 entries displayed in AT+COPN was not correctly calculated. Issue can occur when customer is using a newer TS.25 list that is loaded onto the module via NVU (replacing the hardcoded list).	AT
QTIX5510-3759	AT!GPSPORTID	Remove legacy command that did not have any functional purpose on this product.	AT
QTIX65-112	AT!BSGPIO	Add capability to set drive strength when configuring GPIO as output	AT
SWIMDM-2514	AT+KCDRXCFG	Add support to enable/disable Connected Mode DRX (CDRX) in LTE and 5G	AT
SWIMDM-260	AT!SELRAT	Align AT!SELRAT syntax with other product families	AT
QMI / MBIM Commands			
FERRARI-3497 QTIX5510-3698	Network Slicing	Add new QMI WDS objects for Network Slicing	QMI
FERRARI-3504	Re-align CFUNPERSIST	Avoid corner-case scenario where module may be stuck in airplane mode on every power up	MBIM
FERRARI-3436	Incorrect CellID in WCDMA	Incorrect Cell ID value was returned on WCDMA in the MBIM_BASE_STATIONS_INFO message to Windows, impacting over-the-top location services that rely on Cell ID	MBIM
mmWave QCN changes			

10.3 Security Corrections/Improvements

Some features such as Bluetooth, Wifi, and Audio are not supported on the product, but security corrections/improvements in the software are listed here for completeness.

CVE	Title
CVE-2019-9249	Buffer Over-read in BTHOST
CVE-2019-9250	Buffer Over-read in BTHOST
CVE-2021-1903	Improper Authorization in WLAN
CVE-2021-30259	Improper Input Validation in Audio
CVE-2021-30337	Use After Free in Automotive OS Platform Android
CVE-2021-35077	Use After Free in DSP Services
CVE-2021-35111	Time-of-check Time-of-use (TOCTOU) Race Condition in Modem
CVE-2022-0778	Loop with Unreachable Exit Condition (Infinite Loop) in Core
CVE-2022-22057	Improper Input Validation in Audio
CVE-2022-22067	Improper Release of Memory Before Removing Last Reference ('Memory Leak') in Modem
CVE-2022-22070	Improper Input Validation in Audio
CVE-2022-22071	Use After Free in Automotive OS Platform Android
CVE-2022-22091	Improper Authorization in LTE
CVE-2022-23960	Information Exposure in QTEE
CVE-2022-25664	Information Exposure in Graphics Linux
CVE-2022-25666	Use After Free in DSP Services
CVE-2022-25677	Use After Free in DIAG
CVE-2022-25677	Use After Free in DIAG
CVE-2022-25682	Use of Out-of-range Pointer Offset in UIM
CVE-2022-25683	Buffer Over-read in BTHOST
CVE-2022-25690	Improper Validation of Array Index in WLAN Embedded SW
CVE-2022-25692	Reachable Assertion in NR5G
CVE-2022-25694	Use of Out-of-range Pointer Offset in UIM
CVE-2022-25695	Improper Validation of Array Index in UIM
CVE-2022-25702	Reachable Assertion in NR5G
CVE-2022-25705	Integer Overflow to Buffer Overflow in UIM
CVE-2022-25709	Use of Out-of-range Pointer Offset in Data Modem
CVE-2022-25712	Copy Without Checking Size of Input (Classic Buffer Overflow) in Camera_Linux
CVE-2022-25715	Incorrect Type Conversion or Cast in Display
CVE-2022-25717	Use After Free in Display
CVE-2022-25721	Incorrect Type Conversion or Cast in Video
CVE-2022-25736	Buffer Over-read in WLAN Embedded SW
CVE-2022-25748	Integer Overflow to Buffer Overflow in WLAN Embedded SW

CVE-2022-25749	Buffer Over-read in WLAN Embedded SW
CVE-2022-33212	Buffer Copy Without Checking Size of Input (Classic Buffer Overflow) in WLAN Embedded SW
CVE-2022-33213	Stack-based Buffer Overflow in Data Modem
CVE-2022-33215	Buffer Over-read in BTHOST
CVE-2022-33215	Improper Validation of Array Index in CNSS_WLAN_HAL-PHY
CVE-2022-33227	Double Free in GPS
CVE-2022-33230	Loop with Unreachable Exit Condition (Infinite Loop) in Core
CVE-2022-33231	Double Free in QTEE
CVE-2022-33233	Configuration in DIAG
CVE-2022-33235	Buffer Over-read in WLAN Embedded SW
CVE-2022-33237	Buffer Over-read in WLAN Embedded SW
CVE-2022-33238	Loop with Unreachable Exit Condition (Infinite Loop) in WLAN Embedded SW
CVE-2022-33239	Loop with Unreachable Exit Condition (Infinite Loop) in WLAN Embedded SW
CVE-2022-33241	Buffer Over-read in BTHOST
CVE-2022-33243	Improper Access Control in FastRPC
CVE-2022-33248	Integer Overflow to Buffer Overflow in UIM
CVE-2022-33250	Reachable Assertion in LTE
CVE-2022-33251	Reachable Assertion in NR5G
CVE-2022-33252	Buffer Over-read in WLAN Embedded SW
CVE-2022-33253	Buffer Over-read in WLAN Embedded SW
CVE-2022-33254	Reachable Assertion in NR5G
CVE-2022-33256	Improper Validation of Array Index in MMCP
CVE-2022-33264	Stack-based Buffer Overflow in 1x
CVE-2022-33268	Buffer Over-read in BTHOST
CVE-2022-33275	Improper Validation of Array Index in CNSS_WLAN_HAL-PHY
CVE-2022-33276	Improper Validation of Array Index in CNSS_WLAN_HAL-PHY
CVE-2022-33277	Buffer Copy Without Checking Size of Input (Classic Buffer Overflow) in WLAN Embedded SW
CVE-2022-33285	Buffer Over-read in WLAN Embedded SW
CVE-2022-33286	Buffer over-read in WLAN Embedded SW
CVE-2022-33288	Buffer Copy Without Checking Size of Input (Classic Buffer Overflow) in Storage
CVE-2022-33289	Improper Validation of Array Index in UIM
CVE-2022-33296	Integer Overflow to Buffer Overflow in 1x
CVE-2022-33302	Improper Validation of Array Index in UIM
CVE-2022-40504	Reachable Assertion in LTE
CVE-2022-40507	Double Free in Core
CVE-2022-40509	Integer Overflow or Wraparound in Content Protection
CVE-2022-40512	Buffer Over-read in WLAN Embedded SW
CVE-2022-40532	Integer Overflow or Wraparound in WLAN Embedded SW
CVE-2023-21651	Incorrect Type Conversion or Cast in Core

10.4 Known Issues

ID	Title	Description	Impacted Domain
Protocol/Certification			
FERRARI-1998	LWM2M In-Band FOTA	Verizon LWM2M In-Band FOTA not supported	Verizon
Core			
FERRARI-3939	Sleep current higher than expected	Regression in FW 3.9.14.0 causing sleep current measurements to be approx. two times higher than values published in PTS.	Power
FERRARI-3460	R4 to R1 downgrade	Since R4 FW includes multi-slot support and R1 does not, a simple downgrade from R4 to R1 may not result in the R1 image running in the correct slot. To ensure proper loading of R1 in this case, it is necessary to first delete all loaded images. One method to do this is use at!image=0. An equivalent method through host drivers is actively being developed.	FW DL
FERRARI-2679	Thermal Mitigation	For High Power mmWave, only temperature from one QTM thermistor is used for mitigation purposes. Since the QTM's are physically very close together, there is minimal risk of HW damage.	Thermal
QTIX5510-3541	Rare modem crash on reset	Rare modem crash when modem powering down. Modem functions normally on boot but crash is logged via AT!GCDUMP	RESET
FERRARI-2638	PCIEFORCEEN customization	Enabling PCIEFORCEEN may result in modem crash on some platforms	PCIe
AT / QMI Commands			
QTIX5510-3427	AT!IMSIM?	Query returns error if querying all carriers and there are multiple carrier images loaded on the module. Workaround is to query each carrier one by one.	AUTO SIM
FERRARI-2904	QMI_NAS_SWI_GET_NR5G_CELL_INFO	QMI_NAS_SWI_GET_NR5G_CELL_INFO returns incorrect BW if the bandwidth is greater than or equal to 70 MHz	5G NR BW
QTIX5510-3829	ATGSTATUS & AT!NRINFO	AT!GSTATUS & AT!NRINFO report incorrect RSRP, RSRQ and SINR values for NR5G in ENDC mode.	AT

11 Release 4.5

Release 4.5 updates approved packages and also includes all previously approved packages. The FW image is the same as Release 4.4.

Refer to [Appendix A](#) for upgrade instructions.

11.1 Software Release Description

11.1.1 Release identification

Component	Revision
Firmware	SWIX55C_03.09.14.00
Date of generation (UTC)	2022/07/28 20:38:23
Binary Size	86.4 MB
IMEI SV	23
Chipset Vendor Stack Version	SDX55.LE.1.4.r1-00047-NBOOT.CPE.NEFS.PROD-1.497009.1.503186.1
Supported HW	EM9190, EM9191, EM7690

11.1.2 Software Tools Versions

The following tools were validated against this release.

S/W Tools Name	Version
Mobile Broadband Package for Windows	MBPW R29 B5249
Mobile Broadband Package for Linux	MBPL R28 B5240

11.1.3 Released Carrier Packages

Carrier	Firmware	Configuration	Comment
Approved			
AT&T	SWIX55C_03.09.11.00	030.046_001	Carrier Approved – Release 4.2
BELL	SWIX55C_03.09.11.00	030.007_001	Accepted by carrier for platform certifications – Release 4.2
DOCOMO	SWIX55C_03.09.11.00	030.041_002	Carrier Approved – Release 4.2
DT	SWIX55C_03.09.11.00	030.038_001	Accepted by carrier for platform certifications – Release 4.2
GENERIC	SWIX55C_03.09.14.00	030.048_004	GCF Approved – Release 4.3
GENERIC	SWIX55C_03.09.11.00	030.044_006	GCF and PTCRB Approved – Release 4.2
KDDI	SWIX55C_03.09.11.00	030.025_001	Carrier Approved – Release 4.2
ORANGE	SWIX55C_03.09.03.00	030.010_001	Carrier Approved – Release 4
ROGERS	SWIX55C_03.09.11.00	030.007_003	Carrier Approved – Release 4.2
SOFTBANK	SWIX55C_03.09.11.00	030.031_004	Carrier Approved – Release 4.2 (EM9191 and EM7690)
SOFTBANK	SWIX55C_03.09.03.00	030.023_002	Carrier Approved – Release 4 (EM9190)
SPARK	SWIX55C_03.09.06.00	030.038_001	Carrier Approved with Generic Carrier PRI – Release 4.1
TELSTRA	SWIX55C_03.09.06.00	030.035_001	Carrier Approved – Release 4.1 (EM9191)
TELSTRA	SWIX55C_03.04.03.00	030.016_001	Carrier Approved – Release 3 (EM9190 and EM7690)
TELUS	SWIX55C_03.09.11.00	030.039_003	Carrier Approved – Release 4.2
TMO	SWIX55C_03.09.06.00	030.035_002	Carrier Approved – Release 4.1
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
VERIZON	SWIX55C_03.09.11.00	030.046_003	Carrier Approved – Release 4.2
Approved Legacy			
AT&T	SWIX55C_03.09.06.00	030.038_001	Carrier Approved – Release 4.1
AT&T	SWIX55C_01.07.23.00	012.019_000	Carrier Approved – Release 1.1 (EM7690 Only)
AT&T	SWIX55C_01.07.13.00	012.007_002	Carrier Approved – Release SP1_RC5
DOCOMO	SWIX55C_03.04.03.00	030.012_003	Carrier Approved – Release 3
DOCOMO	SWIX55C_02.08.01.00	020.006_003	Carrier Approved – Release 2
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5

GENERIC	SWIX55C_03.09.06.00	030.038_001	GCF and PTCRB Approved – Release 4.1
GENERIC	SWIX55C_03.09.03.00	030.036_001	GCF Approved – Release 4
GENERIC	SWIX55C_03.04.03.00	030.012_001	GCF Approved – Release 3
GENERIC	SWIX55C_02.08.01.00	020.007_002	GCF Approved – Release 2
GENERIC	SWIX55C_01.07.23.00	016.018_000	GCF Approved – Release 1.1
GENERIC	SWIX55C_01.07.21.00	016.014_001	GCF Approved – Release SP1_RC7
GENERIC	SWIX55C_01.07.19.00	016.010_002	GCF Approved – Release SP1_RC6
GENERIC	SWIX55C_01.07.13.00	016.006_005	GCF and PTCRB Approved – Release SP1_RC5
KDDI	SWIX55C_03.09.03.00	030.016_002	Carrier Approved – Release 4
ROGERS	SWIX55C_03.09.06.00	030.001_001	Carrier Approved – Release 4.1
ROGERS	SWIX55C_01.07.13.00	001.000_000	Carrier Approved – Release SP1_RC5
TMO	SWIX55C_01.07.13.00	001.005_003	Carrier Approved – Release SP1_RC5
VERIZON	SWIX55C_03.09.03.00	030.033_002	Carrier Approved – Release 4
VERIZON	SWIX55C_01.07.23.00	012.019_001	Carrier Approved – Release 1.1
VERIZON	SWIX55C_01.07.19.00	012.012_002	Carrier Approved – Release SP1_RC6
Test			
AT&T	SWIX55C_03.09.14.00	030.049_000	
BELL	SWIX55C_03.09.14.00	030.010_000	
DOCOMO	SWIX55C_03.09.14.00	030.044_000	
DT	SWIX55C_03.09.14.00	030.041_000	
KDDI	SWIX55C_03.09.14.00	030.028_000	
ORANGE	SWIX55C_03.09.14.00	030.021_000	
ROGERS	SWIX55C_03.09.14.00	030.010_000	
SOFTBANK	SWIX55C_03.09.14.00	030.036_000	
TELSTRA	SWIX55C_03.09.14.00	030.044_000	
TELUS	SWIX55C_03.09.14.00	030.043_000	
TMO	SWIX55C_03.09.14.00	030.044_000	
VERIZON	SWIX55C_03.09.14.00	030.049_000	

11.1.4 Released FW Components

Firmware Files
SWIX55C_01.07.13.00-005.cwe
SWIX55C_01.07.19.00-003.cwe
SWIX55C_01.07.21.00-001.cwe
SWIX55C_01.07.23.00-001.cwe
SWIX55C_02.08.01.00-003.cwe
SWIX55C_03.04.03.00-004.cwe
SWIX55C_03.09.03.00-004.cwe
SWIX55C_03.09.06.00-003.cwe
SWIX55C_03.09.11.00-002.cwe
SWIX55C_03.09.14.00-001.cwe

11.1.5 mmWave Packages

The mmWave QCN files are only to be used at customer factory before mmWave calibration. Do not download the QCN after a module has been calibrated.

11.1.5.1 QCN files

This section lists which files to use based on FW version for mmWave calibration. These files are not required if the end product does not support mmWave.

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_01.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104567_1505_01.01.03.02.cwe	
EM91_mmwQCN_1104567_1506_01.01.03.02.cwe	
EM91_mmwQCN_1104567_1507_01.01.02.02.cwe	
EM91_mmwQCN_1104567_1508_01.01.02.02.cwe	
EM91_mmwQCN_1104567_2051_01.01.01.01.cwe	

CWE File	Notes
EM91_mmwQCN_1104567_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104567_2250_01.01.01.01.cwe	
EM91_mmwQCN_1104567_2300_01.01.01.02.cwe	
EM91_mmwQCN_1104567_2400_01.01.01.00.cwe	
EM91_mmwQCN_1104704_2050_01.01.01.02.cwe	
EM91_mmwQCN_1104704_2051_01.01.01.01.cwe	
EM91_mmwQCN_1104705_2000_01.01.03.02.cwe	
EM91_mmwQCN_1104839_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104839_2101_01.01.02.01.cwe	
EM91_mmwQCN_1104909_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104909_2101_01.01.02.01.cwe	
EM91_mmwQCN_1104931_1505_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1505_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1506_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1507_01.01.02.02.cwe	
EM91_mmwQCN_9101036_1508_01.01.02.02.cwe	

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_03.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104567_1505_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1506_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1507_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1508_03.01.03.00.cwe	
EM91_mmwQCN_1104705_2000_03.01.03.00.cwe	
EM91_mmwQCN_1104945_2050_03.01.01.01.cwe	
EM91_mmwQCN_1104945_2051_03.01.01.01.cwe	
EM91_mmwQCN_9101036_1505_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1506_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1507_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1508_03.01.03.00.cwe	

11.1.5.2 RFC MBN SCAN

Refer to Section **Error! Reference source not found.**

11.2 Software Changes Description

This release includes the notable changes and features listed below.

None.

11.3 Security Corrections/Improvements

None.

11.4 Known Issues

ID	Title	Description	Impacted Domain
Protocol/Certification			
FERRARI-1998	LWM2M In-Band FOTA	Verizon LWM2M In-Band FOTA not supported	Verizon
Core			
FERRARI-3939	Sleep current higher than expected	FW regression causing sleep current measurements to be approx. two times higher than values published in PTS.	Power

FERRARI-3724	R1/R2 to R3/R4 upgrade/downgrade	<p>Due to a change in internal memory mapping used for firmware upgrades, after an initial upgrade from R1 or R2 firmware to R3 or higher firmware it is necessary to clear this internal memory for subsequent upgrades to be performed. This internal memory can be cleared by any one of the following methods:</p> <ol style="list-style-type: none"> 1) Power cycle the module 2) Execute AT!POWERDOWN 3) Execute QMI command: QMI_DMS_SET_OPERATING_MODE(0x002E), with mode DMS_OP_MODE_SHUTTING_DOWN_V01 (5) <p>This is only required once after upgrading to R3 or higher. The same also applies when downgrading from R3/R4 to R1.</p> <p>The upgrade instructions in Appendix A have been updated accordingly.</p>	FW DL
FERRARI-3460	R4 to R1 downgrade	Since R4 FW includes multi-slot support and R1 does not, a simple downgrade from R4 to R1 may not result in the R1 image running in the correct slot. To ensure proper loading of R1 in this case, it is necessary to first delete all loaded images. One method to do this is use at!image=0. An equivalent method through host drivers is actively being developed.	FW DL
FERRARI-2679	Thermal Mitigation	For High Power mmWave, only temperature from one QTM thermistor is used for mitigation purposes. Since the QTM's are physically very close together, there is minimal risk of HW damage.	Thermal
QTIX5510-3229	NR5G Calibration	QRCT Get Recommended Radio resource allocation command fails if modem boots up with SIM inserted	RF Cal
QTIX5510-3541	Rare modem crash on reset	Rare modem crash when modem powering down. Modem functions normally on boot but crash is logged via AT!GCDUMP	RESET
FERRARI-2638	PCIEFORCEEN customization	Enabling PCIEFORCEEN may result in modem crash on some platforms	PCIe
AT / QMI Commands			
FERRARI-2469	QMI_NAS_GET_CQI AT+CQI	Invalid secondary CQI cell info returned	CQI

QTIX5510-3427	AT!IMSIM?	Query returns error if querying all carriers and there are multiple carrier images loaded on the module. Workaround is to query each carrier one by one.	AUTO SIM
FERRARI-2904	QMI_NAS_SWI_GET_NR5G_CELL_INFO	QMI_NAS_SWI_GET_NR5G_CELL_INFO returns incorrect BW if the bandwidth is greater than or equal to 70 MHz	5G NR BW
FERRARI-3165	SmartTransmit crash	Crash observed when stress testing min RB allocation and max Tx power	Smart Transmit
FERRARI-3374	Network slicing QMI unstable	<p>The following QMI are deprecated:</p> <ul style="list-style-type: none"> QMI_NAS_SWI_GET_PDP_CONTEXT_P ARAMS QMI_NAS_SWI_SET_PDP_CONTEXT_P ARAMS QMI_NAS_GET_DEFAULT_NSSAI QMI_NAS_SET_DEFAULT_NSSAI <p>Equivalent AT commands are supported</p>	Network Slicing

12 Release 4.4

Release 4.4 updates the approved packages and also includes all previously approved packages. The FW image is the same as Release 4.3.

Refer to [Appendix A](#) for upgrade instructions.

12.1 Software Release Description

12.1.1 Release identification

Component	Revision
Firmware	SWIX55C_03.09.14.00
Date of generation (UTC)	2022/07/28 20:38:23
Binary Size	86.4 MB
IMEI SV	23
Chipset Vendor Stack Version	SDX55.LE.1.4.r1-00047-NBOOT.CPE.NEFS.PROD-1.497009.1.503186.1
Supported HW	EM9190, EM9191, EM7690

12.1.2 Software Tools Versions

The following tools were validated against this release.

S/W Tools Name	Version
Mobile Broadband Package for Windows	MBPW R29 B5249
Mobile Broadband Package for Linux	MBPL R28 B5240

12.1.3 Released Carrier Packages

Carrier	Firmware	Configuration	Comment
Approved			

Customer Release Notes

AT&T	SWIX55C_03.09.11.00	030.046_001	Carrier Approved – Release 4.2
AT&T	SWIX55C_03.09.06.00	030.038_001	Carrier Approved – Release 4.1
AT&T	SWIX55C_01.07.23.00	012.019_000	Carrier Approved – Release 1.1 (EM7690 Only)
AT&T	SWIX55C_01.07.13.00	012.007_002	Carrier Approved – Release SP1_RC5
BELL	SWIX55C_03.09.11.00	030.007_001	Accepted by carrier for platform certifications – Release 4.2
DOCOMO	SWIX55C_03.09.11.00	030.041_002	Carrier Approved – Release 4.2
DOCOMO	SWIX55C_03.04.03.00	030.012_003	Carrier Approved – Release 3
DOCOMO	SWIX55C_02.08.01.00	020.006_003	Carrier Approved – Release 2
DT	SWIX55C_03.09.11.00	030.038_001	Accepted by carrier for platform certifications – Release 4.2
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_03.09.14.00	030.047_000	GCF Approved – Release 4.3
GENERIC	SWIX55C_03.09.11.00	030.044_001	GCF and PTCRB Approved – Release 4.2
GENERIC	SWIX55C_03.09.06.00	030.038_001	GCF and PTCRB Approved – Release 4.1
GENERIC	SWIX55C_03.09.03.00	030.036_001	GCF Approved – Release 4
GENERIC	SWIX55C_03.04.03.00	030.012_001	GCF Approved – Release 3
GENERIC	SWIX55C_02.08.01.00	020.007_002	GCF Approved – Release 2
GENERIC	SWIX55C_01.07.23.00	016.018_000	GCF Approved – Release 1.1
GENERIC	SWIX55C_01.07.21.00	016.014_001	GCF Approved – Release SP1_RC7
GENERIC	SWIX55C_01.07.19.00	016.010_002	GCF Approved – Release SP1_RC6
GENERIC	SWIX55C_01.07.13.00	016.006_005	GCF and PTCRB Approved – Release SP1_RC5
KDDI	SWIX55C_03.09.11.00	030.025_001	Carrier Approved – Release 4.2
KDDI	SWIX55C_03.09.03.00	030.016_002	Carrier Approved – Release 4
ORANGE	SWIX55C_03.09.03.00	030.010_001	Carrier Approved – Release 4
ROGERS	SWIX55C_03.09.11.00	030.007_003	Carrier Approved – Release 4.2
ROGERS	SWIX55C_03.09.06.00	030.001_000	Carrier Approved – Release 4.1
ROGERS	SWIX55C_01.07.13.00	001.000_000	Carrier Approved – Release SP1_RC5
SOFTBANK	SWIX55C_03.09.11.00	030.031_004	Carrier Approved – Release 4.2 (EM9191 and EM7690)
SOFTBANK	SWIX55C_03.09.03.00	030.023_002	Carrier Approved – Release 4 (EM9190)
SPARK	SWIX55C_03.09.06.00	030.038_001	Carrier Approved with Generic Carrier PRI – Release 4.1
TELSTRA	SWIX55C_03.09.06.00	030.035_000	Carrier Approved – Release 4.1 (EM9191)

TELSTRA	SWIX55C_03.04.03.00	030.016_001	Carrier Approved – Release 3 (EM9190 and EM7690)
TELUS	SWIX55C_03.09.11.00	030.039_003	Carrier Approved – Release 4.2
TMO	SWIX55C_03.09.06.00	030.035_002	Carrier Approved – Release 4.1
TMO	SWIX55C_01.07.13.00	001.005_003	Carrier Approved – Release SP1_RC5
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
VERIZON	SWIX55C_03.09.11.00	030.046_002	Carrier Approved – Release 4.2
VERIZON	SWIX55C_03.09.03.00	030.033_002	Carrier Approved – Release 4
VERIZON	SWIX55C_01.07.23.00	012.019_001	Carrier Approved – Release 1.1
VERIZON	SWIX55C_01.07.19.00	012.012_002	Carrier Approved – Release SP1_RC6
Test			
AT&T	SWIX55C_03.09.14.00	030.049_000	
BELL	SWIX55C_03.09.14.00	030.010_000	
DOCOMO	SWIX55C_03.09.14.00	030.044_000	
DT	SWIX55C_03.09.14.00	030.041_000	
KDDI	SWIX55C_03.09.14.00	030.028_000	
ORANGE	SWIX55C_03.09.14.00	030.021_000	
ROGERS	SWIX55C_03.09.14.00	030.010_000	
SOFTBANK	SWIX55C_03.09.14.00	030.036_000	
TELSTRA	SWIX55C_03.09.14.00	030.044_000	
TELUS	SWIX55C_03.09.14.00	030.043_000	
TMO	SWIX55C_03.09.14.00	030.044_000	
VERIZON	SWIX55C_03.09.14.00	030.049_000	

12.1.4 Released FW Components

Firmware Files
SWIX55C_01.07.13.00-005.cwe
SWIX55C_01.07.19.00-003.cwe
SWIX55C_01.07.21.00-001.cwe

SWIX55C_01.07.23.00-001.cwe
SWIX55C_02.08.01.00-003.cwe
SWIX55C_03.04.03.00-004.cwe
SWIX55C_03.09.03.00-004.cwe
SWIX55C_03.09.06.00-003.cwe
SWIX55C_03.09.11.00-002.cwe
SWIX55C_03.09.14.00-001.cwe

12.1.5 mmWave Packages

The mmWave QCN files are only to be used at customer factory before mmWave calibration. Do not download the QCN after a module has been calibrated.

12.1.5.1 QCN files

This section lists which files to use based on FW version for mmWave calibration. These files are not required if the end product does not support mmWave.

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_01.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104567_1505_01.01.03.02.cwe	
EM91_mmwQCN_1104567_1506_01.01.03.02.cwe	
EM91_mmwQCN_1104567_1507_01.01.02.02.cwe	
EM91_mmwQCN_1104567_1508_01.01.02.02.cwe	
EM91_mmwQCN_1104567_2051_01.01.01.01.cwe	
EM91_mmwQCN_1104567_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104567_2250_01.01.01.01.cwe	
EM91_mmwQCN_1104567_2300_01.01.01.02.cwe	
EM91_mmwQCN_1104567_2400_01.01.01.00.cwe	
EM91_mmwQCN_1104704_2050_01.01.01.02.cwe	
EM91_mmwQCN_1104704_2051_01.01.01.01.cwe	
EM91_mmwQCN_1104705_2000_01.01.03.02.cwe	

CWE File	Notes
EM91_mmwQCN_1104839_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104839_2101_01.01.02.01.cwe	
EM91_mmwQCN_1104909_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104909_2101_01.01.02.01.cwe	
EM91_mmwQCN_1104931_1505_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1505_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1506_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1507_01.01.02.02.cwe	
EM91_mmwQCN_9101036_1508_01.01.02.02.cwe	

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_03.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104567_1505_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1506_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1507_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1508_03.01.03.00.cwe	
EM91_mmwQCN_1104705_2000_03.01.03.00.cwe	
EM91_mmwQCN_1104945_2050_03.01.01.01.cwe	
EM91_mmwQCN_1104945_2051_03.01.01.01.cwe	
EM91_mmwQCN_9101036_1505_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1506_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1507_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1508_03.01.03.00.cwe	

12.1.5.2 RFC MBN SCAN

Refer to **Error! Reference source not found.**

12.2 Software Changes Description

This release includes the notable changes and features listed below.

None.

12.3 Security Corrections/Improvements

None.

12.4 Known Issues

ID	Title	Description	Impacted Domain
Protocol/Certification			
FERRARI-1998	LWM2M In-Band FOTA	Verizon LWM2M In-Band FOTA not supported	Verizon
Core			
FERRARI-3939	Sleep current higher than expected	Regression in FW 3.9.14.0 causing sleep current measurements to be approx. two times higher than values published in PTS.	Power
FERRARI-3460	R4 to R1 downgrade	Since R4 FW includes multi-slot support and R1 does not, a simple downgrade from R4 to R1 may not result in the R1 image running in the correct slot. To ensure proper loading of R1 in this case, it is necessary to first delete all loaded images. One method to do this is use <code>at!image=0</code> . An equivalent method through host drivers is actively being developed.	FW DL
FERRARI-2679	Thermal Mitigation	For High Power mmWave, only temperature from one QTM thermistor is used for mitigation purposes. Since the QTM's are physically very close together, there is minimal risk of HW damage.	Thermal
QTIX5510-3229	NR5G Calibration	QRCT Get Recommended Radio resource allocation command fails if modem boots up with SIM inserted	RF Cal
QTIX5510-3541	Rare modem crash on reset	Rare modem crash when modem powering down. Modem functions normally on boot but crash is logged via <code>AT!GCDUMP</code>	RESET

FERRARI-2638	PCIEFORCEEN customization	Enabling PCIEFORCEEN may result in modem crash on some platforms	PCIe
AT / QMI Commands			
FERRARI-2469	QMI_NAS_GET_CQI AT+CQI	Invalid secondary CQI cell info returned	CQI
QTIX5510-3427	AT!IMSIM?	Query returns error if querying all carriers and there are multiple carrier images loaded on the module. Workaround is to query each carrier one by one.	AUTO SIM
FERRARI-2904	QMI_NAS_SWI_GET_NR5G_CELL_INFO	QMI_NAS_SWI_GET_NR5G_CELL_INFO returns incorrect BW if the bandwidth is greater than or equal to 70 MHz	5G NR BW
FERRARI-3165	SmartTransmit crash	Crash observed when stress testing min RB allocation and max Tx power	Smart Transmit
FERRARI-3374	Network slicing QMI unstable	<p>The following QMI are deprecated:</p> <ul style="list-style-type: none"> QMI_NAS_SWI_GET_PDP_CONTEXT_PARAMETERS QMI_NAS_SWI_SET_PDP_CONTEXT_PARAMETERS QMI_NAS_GET_DEFAULT_NSSAI QMI_NAS_SET_DEFAULT_NSSAI <p>Equivalent AT commands are supported</p>	Network Slicing

13 Release 4.3

Release 4.3 is a minor release.

Refer to [Appendix A](#) for upgrade instructions.

13.1 Software Release Description

13.1.1 Release identification

Component	Revision
Firmware	SWIX55C_03.09.14.00
Date of generation (UTC)	2022/07/28 20:38:23
Binary Size	86.4 MB
IMEI SV	23
Chipset Vendor Stack Version	SDX55.LE.1.4.r1-00047-NBOOT.CPE.NEFS.PROD-1.497009.1.503186.1
Supported HW	EM9190, EM9191, EM7690

13.1.2 Software Tools Versions

The following tools were validated against this release.

S/W Tools Name	Version
Mobile Broadband Package for Windows	MBPW R29 B5249
Mobile Broadband Package for Linux	MBPL R28 B5240

13.1.3 Released Carrier Packages

Carrier	Firmware	Configuration	Comment
Approved			
AT&T	SWIX55C_03.09.11.00	030.046_001	Carrier Approved – Release 4.2

DOCOMO	SWIX55C_03.09.11.00	030.041_001	Carrier Approved – Release 4.2
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_03.09.14.00	030.047_000	GCF Approved – Release 4.3
GENERIC	SWIX55C_03.09.11.00	030.044_001	GCF and PTCRB Approved – Release 4.2
KDDI	SWIX55C_03.09.11.00	030.025_001	Carrier Approved – Release 4.2
ORANGE	SWIX55C_03.09.03.00	030.010_001	Carrier Approved – Release 4
ROGERS	SWIX55C_03.09.11.00	030.007_002	Carrier Approved – Release 4.2
SPARK	SWIX55C_03.09.06.00	030.038_001	Carrier Approved with Generic Carrier PRI – Release 4.1
SOFTBANK	SWIX55C_03.09.11.00	030.031_004	Carrier Approved – Release 4.2
TELSTRA	SWIX55C_03.04.03.00	030.016_001	Carrier Approved – Release 3 (EM9190 and EM7690)
TELUS	SWIX55C_03.09.11.00	030.039_003	Carrier Approved – Release 4.2
TMO	SWIX55C_03.09.06.00	030.035_001	Carrier Approved – Release 4.1
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
VERIZON	SWIX55C_03.09.03.00	030.033_002	Carrier Approved – Release 4
Test			
AT&T	SWIX55C_03.09.14.00	030.049_000	
BELL	SWIX55C_03.09.14.00	030.010_000	
BELL	SWIX55C_03.09.11.00	030.007_001	PTCRB Approved – Release 4.2
DOCOMO	SWIX55C_03.09.14.00	030.044_000	
DT	SWIX55C_03.09.14.00	030.041_000	
KDDI	SWIX55C_03.09.14.00	030.028_000	
ORANGE	SWIX55C_03.09.14.00	030.021_000	
ROGERS	SWIX55C_03.09.14.00	030.010_000	
SOFTBANK	SWIX55C_03.09.14.00	030.036_000	
TELSTRA	SWIX55C_03.09.14.00	030.044_000	
TELUS	SWIX55C_03.09.14.00	030.043_000	
TMO	SWIX55C_03.09.14.00	030.044_000	
VERIZON	SWIX55C_03.09.14.00	030.049_000	

13.1.4 Released FW Components

Firmware Files
SWIX55C_01.07.13.00-005.cwe
SWIX55C_01.07.19.00-003.cwe
SWIX55C_03.04.03.00-004.cwe
SWIX55C_03.09.03.00-004.cwe
SWIX55C_03.09.06.00-003.cwe
SWIX55C_03.09.11.00-002.cwe
SWIX55C_03.09.14.00-001.cwe

13.1.5 mmWave Packages

The mmWave QCN files are only to be used at customer factory before mmWave calibration. Do not download the QCN after a module has been calibrated.

13.1.5.1 QCN files

This section lists which files to use based on FW version for mmWave calibration. These files are not required if the end product does not support mmWave.

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_01.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104567_1505_01.01.03.00.cwe	
EM91_mmwQCN_1104567_1505_01.01.03.02.cwe	
EM91_mmwQCN_1104567_1506_01.01.03.02.cwe	
EM91_mmwQCN_1104567_1507_01.01.02.02.cwe	
EM91_mmwQCN_1104567_1508_01.01.02.02.cwe	
EM91_mmwQCN_1104567_2051_01.01.01.01.cwe	
EM91_mmwQCN_1104567_2250_01.01.01.01.cwe	
EM91_mmwQCN_1104567_2300_01.01.01.02.cwe	

CWE File	Notes
EM91_mmwQCN_1104704_2050_01.01.01.02.cwe	
EM91_mmwQCN_1104704_2051_01.01.01.01.cwe	
EM91_mmwQCN_1104705_2000_01.01.03.02.cwe	
EM91_mmwQCN_1104839_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104839_2101_01.01.02.01.cwe	
EM91_mmwQCN_1104909_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104909_2101_01.01.02.01.cwe	
EM91_mmwQCN_1104931_1505_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1505_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1506_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1507_01.01.02.02.cwe	
EM91_mmwQCN_9101036_1508_01.01.02.02.cwe	

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_03.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104567_1505_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1506_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1507_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1508_03.01.03.00.cwe	
EM91_mmwQCN_1104705_2000_03.01.03.00.cwe	
EM91_mmwQCN_1104945_2050_03.01.01.00.cwe	
EM91_mmwQCN_1104945_2050_03.01.01.01.cwe	
EM91_mmwQCN_1104945_2051_03.01.01.01.cwe	
EM91_mmwQCN_9101036_1505_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1506_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1507_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1508_03.01.03.00.cwe	

13.1.5.2 RFC MBN SCAN

Refer to **Error! Reference source not found.**

13.2 Software Changes Description

This release includes the notable changes and features listed below.

ID	Title	Description	Impacted Domain
Protocol/Certification			
QTIX5510-3664	IMEI SVN	Updated IMEI SVN to 23	PTCRB
Core			
QTIX5510-3659	Sub-band disablement	Sub-band disablement per MCC/MNC is now persistent across a FW update	RF
QTIX5510-3658	Apps improvements	Optimized debug messages	Debug
QTIX5510-3680	Multiple FW image upgrade	Previously, it was only possible to upgrade one fw image slot at a time. This adds the ability to download multiple FW images in a single package after this bootloader fix is installed.	FW DL
AT Commands			
QMI / MBIM Commands			
mmWave QCN changes			

13.3 Security Corrections/Improvements

CVE	Title
None	None

13.4 Known Issues

ID	Title	Description	Impacted Domain
Protocol/Certification			
FERRARI-1998	LWM2M In-Band FOTA	Verizon LWM2M In-Band FOTA not supported	Verizon
Core			
FERRARI-3939	Sleep current higher than expected	Regression in FW 3.9.14.0 causing sleep current measurements to be approx. two times higher than values published in PTS.	Power
FERRARI-3460	R4 to R1 downgrade	Since R4 FW includes multi-slot support and R1 does not, a simple downgrade from R4 to R1 may not result in the R1 image running in the correct slot. To ensure proper loading of R1 in this case, it is necessary to first delete all loaded images. One method to do this is use at!image=0. An equivalent method through host drivers is actively being developed.	FW DL
FERRARI-2679	Thermal Mitigation	For High Power mmWave, only temperature from one QTM thermistor is used for mitigation purposes. Since the QTM's are physically very close together, there is minimal risk of HW damage.	Thermal
QTIX5510-3229	NR5G Calibration	QRCT Get Recommended Radio resource allocation command fails if modem boots up with SIM inserted	RF Cal
QTIX5510-3541	Rare modem crash on reset	Rare modem crash when modem powering down. Modem functions normally on boot but crash is logged via AT!GCDUMP	RESET
FERRARI-2638	PCIEFORCEEN customization	Enabling PCIEFORCEEN may result in modem crash on some platforms	PCIe
AT / QMI Commands			
FERRARI-2469	QMI_NAS_GET_CQI AT+CQI	Invalid secondary CQI cell info returned	CQI
QTIX5510-3427	AT!MSIM?	Query returns error if querying all carriers and there are multiple carrier images loaded on the module. Workaround is to query each carrier one by one.	AUTO SIM
FERRARI-2904	QMI_NAS_SWI_GET_NR5G_CELL_INFO	QMI_NAS_SWI_GET_NR5G_CELL_INFO returns incorrect BW if the bandwidth is greater than or equal to 70 MHz	5G NR BW

FERRARI-3165	SmartTransmit crash	Crash observed when stress testing min RB allocation and max Tx power	Smart Transmit
FERRARI-3374	Network slicing QMI unstable	<p>The following QMI are deprecated:</p> <ul style="list-style-type: none"> QMI_NAS_SWI_GET_PDP_CONTEXT_P ARAMS QMI_NAS_SWI_SET_PDP_CONTEXT_P ARAMS QMI_NAS_GET_DEFAULT_NSSAI QMI_NAS_SET_DEFAULT_NSSAI <p>Equivalent AT commands are supported</p>	Network Slicing

14 Release 4.2

Release 4.2 is a minor release targeting Verizon approval.

Refer to Appendix A for upgrade instructions.

14.1 Software Release Description

14.1.1 Release identification

Component	Revision
Firmware	SWIX55C_03.09.11.00
Date of generation (UTC)	2022/06/10 20:36:01
Binary Size	87.3 MB
IMEI SV	22
Chipset Vendor Stack Version	SDX55.LE.1.4.r1-00047-NBOOT.CPE.NEFS.PROD-1.497009.1.503186.1
Supported HW	EM9190, EM9191, EM7690

14.1.2 Software Tools Versions

The following tools were validated against this release.

S/W Tools Name	Version
Mobile Broadband Package for Windows	MBPW R26 B5224
Mobile Broadband Package for Linux	MBPL R27 B5220

14.1.3 Released Carrier Packages

Carrier	Firmware	Configuration	Comment
Approved			
AT&T	SWIX55C_03.09.06.00	030.038_000	Carrier Approved – Release 4.1

DOCOMO	SWIX55C_03.04.03.00	030.012_002	Carrier Approved – Release 3
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_03.09.11.00	030.044_000	GCF Approved – Release 4.2
GENERIC	SWIX55C_03.09.06.00	030.038_000	GCF and PTCRB Approved – Release 4.1
KDDI	SWIX55C_03.09.03.00	030.016_001	Carrier Approved – Release 4
ORANGE	SWIX55C_03.09.03.00	030.010_000	Carrier Approved – Release 4
ROGERS	SWIX55C_03.09.06.00	030.001_000	Carrier Approved – Release 4.1
SOFTBANK	SWIX55C_03.09.03.00	030.023_000	Carrier Approved – Release 4
TELSTRA	SWIX55C_03.04.03.00	030.016_000	Carrier Approved – Release 3 (EM9190 and EM7690)
TMO	SWIX55C_03.09.06.00	030.035_000	Carrier Approved – Release 4.1
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
VERIZON	SWIX55C_03.09.03.00	030.033_001	Carrier Approved – Release 4
Test			
AT&T	SWIX55C_03.09.11.00	030.046_000	
BELL	SWIX55C_03.09.11.00	030.007_000	
BELL	SWIX55C_03.09.06.00	030.000_001	PTCRB Approved – Release 4.1
DOCOMO	SWIX55C_03.09.11.00	030.041_000	
DT	SWIX55C_03.09.11.00	030.038_000	
KDDI	SWIX55C_03.09.11.00	030.025_000	
ORANGE	SWIX55C_03.09.11.00	030.018_000	
ROGERS	SWIX55C_03.09.11.00	030.007_000	
SOFTBANK	SWIX55C_03.09.11.00	030.031_000	
TELSTRA	SWIX55C_03.09.11.00	030.041_000	
TELUS	SWIX55C_03.09.11.00	030.039_000	
TELUS	SWIX55C_03.09.06.00	030.032_000	PTCRB Approved – Release 4.1
TMO	SWIX55C_03.09.11.00	030.041_000	
VERIZON	SWIX55C_03.09.11.00	030.046_000	

14.1.4 Released FW Components

Firmware Files
SWIX55C_01.07.13.00-005.cwe
SWIX55C_01.07.19.00-003.cwe
SWIX55C_03.04.03.00-001.cwe
SWIX55C_03.09.03.00-001.cwe
SWIX55C_03.09.06.00-001.cwe
SWIX55C_03.09.11.00-001.cwe

14.1.5 mmWave Packages

The mmWave QCN files are only to be used at customer factory before mmWave calibration. Do not download the QCN after a module has been calibrated.

14.1.5.1 QCN files

This section lists which files to use based on FW version for mmWave calibration. These files are not required if the end product does not support mmWave.

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_01.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104567_1505_01.01.03.02.cwe	
EM91_mmwQCN_1104567_1506_01.01.03.02.cwe	
EM91_mmwQCN_1104567_1507_01.01.02.02.cwe	
EM91_mmwQCN_1104567_1508_01.01.02.02.cwe	
EM91_mmwQCN_1104567_2051_01.01.01.01.cwe	
EM91_mmwQCN_1104567_2250_01.01.01.01.cwe	
EM91_mmwQCN_1104567_2300_01.01.01.02.cwe	
EM91_mmwQCN_1104567_2400_01.01.01.00.cwe	
EM91_mmwQCN_1104704_2050_01.01.01.02.cwe	

CWE File	Notes
EM91_mmwQCN_1104704_2051_01.01.01.01.cwe	
EM91_mmwQCN_1104705_2000_01.01.03.02.cwe	
EM91_mmwQCN_1104839_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104839_2101_01.01.02.01.cwe	
EM91_mmwQCN_1104909_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104909_2101_01.01.02.01.cwe	
EM91_mmwQCN_1104931_1505_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1505_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1506_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1507_01.01.02.02.cwe	
EM91_mmwQCN_9101036_1508_01.01.02.02.cwe	

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_03.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104567_1505_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1506_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1507_03.01.03.00.cwe	
EM91_mmwQCN_1104567_1508_03.01.03.00.cwe	
EM91_mmwQCN_1104705_2000_03.01.03.00.cwe	
EM91_mmwQCN_1104945_2050_03.01.01.01.cwe	
EM91_mmwQCN_1104945_2051_03.01.01.01.cwe	
EM91_mmwQCN_9101036_1505_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1506_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1507_03.01.03.00.cwe	
EM91_mmwQCN_9101036_1508_03.01.03.00.cwe	

14.1.5.2 RFC MBN SCAN

Refer to **Error! Reference source not found.**

14.2 Software Changes Description

This release includes the notable changes and features listed below.

ID	Title	Description	Impacted Domain
Protocol/Certification			
QTIX5510-3614	Sub band restriction	Added ability to restrict specific radio frequency ranges for a given MCC/MNC	FCC, RF
QTIX5510-3579	SIM OTA update improvements	Forced LWM2M client to read MSISDN from SIM on SIM OTA update	LWM2M
QTIX5510-3587	Motive TC-11.02 COAP	Rollback EXECUTE 5/0/2 response code	LWM2M
QTIX5510-3588	Motive TC-11.02 expiry timer	Authentication expiry timer default value changed from 240 to 60 seconds	LWM2M
QTIX5510-3599	LWM2M DM session crash	Fixed crash due to excessive DM session registration attempts	LWM2M
QTIX5510-3627	Motive GET 3/0/19	Fixed issue where GET 3/0/19 returns wrong object size	LWM2M
QTIX5510-3620	LWM2M persistence	Test command to reset carrier LWM2M settings was not restoring certain settings	LWM2M
QTIX5510-3631	Crash when sending DTLS_DECRYPT_FAILED	Fixed rare crash if power cycling during FOTA operation	LWM2M
QTIX5510-3637	Crash during FOTA interruption	Fixed rare crash if deleting credentials during LWM2M initialization	LWM2M
QTIX5510-3581	TS.25	Updated TS.25 list to 28-Feb 2022	GCF / AT
QTI5510-3628	IMEI SVN	Updated IMEI SV to 22	PTCRB
Core			
QTIX5510-3654	Crash on UE capabilities exchange	Fix crash during UE capabilities exchange with network	RF
QTIX5510-3622	Incorrect APN after image switch (Windows)	Fixed incorrect context added by Windows on image switch between some carriers (e.g. Telstra to AT&T)	Image Switch
AT Commands			
QTIX5510-3631	AT!MMWCAL? improvements	No longer revert to 0 after firmware upgrade	mmW
QTIX5510-3638	AT!ANTITHEFTRST lock level	Restored access level 2	Cleasure
QTIX5510-3456	AT!GSTATUS stability	No longer returns garbage data when not in service	AT

QTIX5510-3628	AT!GSTATUS stability	Fix LTE earfcn display if earfcn > 65535	AT
QTIX5510-3586	AT!GPSEND	AT!GPSEND=0,255 no longer return ERROR	GNSS
QTIX5510-3509	GLONASS	Fix ability to disable GLONASS	GNSS
QMI / MBIM Commands			
QTIX5510-3573	MBIM_OPEN improvements	Improve handling of MBIM_OPEN around device reset. Device enumeration time reduced on specific customer platforms.	MBIM
mmWave QCN changes			

14.3 Security Corrections/Improvements

CVE	Title
None	None

14.4 Known Issues

ID	Title	Description	Impacted Domain
Protocol/Certification			
FERRARI-1998	LWM2M In-Band FOTA	Verizon LWM2M In-Band FOTA not supported	Verizon
Core			
FERRARI-3265	Sub-band disablement	Sub-band disablement per MCC/MNC is not persistent across a FW update	RF
FERRARI-2679	Thermal Mitigation	For High Power mmWave, only temperature from one QTM thermistor is used for mitigation purposes. Since the QTM's are physically very close together, there is minimal risk of HW damage.	Thermal
QTIX5510-3229	NR5G Calibration	QRCT Get Recommended Radio resource allocation command fails if modem boots up with SIM inserted	RF Cal

QTIX5510-3541	Rare modem crash on reset	Rare modem crash when modem powering down. Modem functions normally on boot but crash is logged via AT!GCDUMP	RESET
FERRARI-2638	PCIEFORCEEN customization	Enabling PCIEFORCEEN may result in modem crash on some platforms	PCle
AT / QMI Commands			
FERRARI-2469	QMI_NAS_GET_CQI AT+CQI	Invalid secondary CQI cell info returned	CQI
QTIX5510-3427	AT!MSIM?	Query returns error if querying all carriers and there are multiple carrier images loaded on the module. Workaround is to query each carrier one by one.	AUTO SIM
FERRARI-2904	QMI_NAS_SWI_GET_NR5G_CELL_INFO	QMI_NAS_SWI_GET_NR5G_CELL_INFO returns incorrect BW if the bandwidth is greater than or equal to 70 MHz	5G NR BW

15 Release 4.1

Release 4.1 is a minor release targeting North America and Japan carrier approvals.

Refer to [Appendix A](#) for upgrade instructions.

15.1 Software Release Description

15.1.1 Release identification

Component	Revision
Firmware	SWIX55C_03.09.06.00
Date of generation (UTC)	2022/03/16 00:37:53
Binary Size	87.3 MB
IMEI SV	21
Chipset Vendor Stack Version	SDX55.LE.1.4.r1-00047-NBOOT.CPE.NEFS.PROD-1.481256.2.484124.1
Supported HW	EM9190, EM9191, EM7690

15.1.2 Software Tools Versions

The following tools were validated against this release.

S/W Tools Name	Version
Mobile Broadband Package for Windows	R25.0.22, B5216
Mobile Broadband Package for Linux	R26.0.22, B5211

15.1.3 Released Carrier Packages

Carrier	Firmware	Configuration	Comment
Approved			
AT&T	SWIX55C_01.07.13.00	012.007_002	Carrier Approved – SP1_RC5

DOCOMO	SWIX55C_03.04.03.00	030.012_002	Carrier Approved – Release 3 (EM9190 and EM7690)
DOCOMO	SWIX55C_02.08.01.00	020.006_003	Carrier Approved – Release 2
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_03.09.06.00	030.038_000	GCF and PTCRB Approved – Release 4.1
ROGERS	SWIX55C_01.07.13.00	001.000_000	Carrier Approved – SP1_RC5 (EM9190)
TELSTRA	SWIX55C_03.04.03.00	030.016_000	Carrier Approved – Release 3 (EM9190 and EM7690)
TMO	SWIX55C_01.07.13.00	001.005_003	Carrier Approved - SP1_RC5
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
VERIZON	SWIX55C_03.09.03.00	030.033_001	Carrier Approved – Release 4
Test			
AT&T	SWIX55C_03.09.06.00	030.038_000	
BELL	SWIX55C_03.09.06.00	030.000_000	
BELL	SWIX55C_01.07.13.00	001.000_000	PTCRB Approved – SP1_RC5
DOCOMO	SWIX55C_03.09.06.00	030.035_000	
DT	SWIX55C_03.09.06.00	030.032_000	
KDDI	SWIX55C_03.09.06.00	030.019_000	
ORANGE	SWIX55C_03.09.06.00	030.012_000	
ROGERS	SWIX55C_03.09.06.00	030.001_000	
SOFTBANK	SWIX55C_03.09.06.00	030.025_000	
TELSTRA	SWIX55C_03.09.06.00	030.035_000	
TELUS	SWIX55C_03.09.06.00	030.032_000	
TELUS	SWIX55C_01.07.13.00	001.000_000	PTCRB Approved – SP1_RC5
TMO	SWIX55C_03.09.06.00	030.035_000	
VERIZON	SWIX55C_03.09.06.00	030.035_000	

15.1.4 Released FW Components

Firmware Files
SWIX55C_01.07.13.00-005.cwe

SWIX55C_01.07.19.00-002.cwe
SWIX55C_01.07.21.00-001.cwe
SWIX55C_01.07.23.00-001.cwe
SWIX55C_02.08.01.00-002.cwe
SWIX55C_03.04.03.00-001.cwe
SWIX55C_03.09.03.00-001.cwe
SWIX55C_03.09.06.00-001.cwe

15.1.5 mmWave Packages

The mmWave QCN files are only to be used at customer factory before mmWave calibration. Do not download the QCN after a module has been calibrated.

15.1.5.1 QCN files

This section lists which files to use based on FW version for mmWave calibration. These files are not required if the end product does not support mmWave.

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_01.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104567_1505_01.01.03.02.cwe	
EM91_mmwQCN_1104567_1506_01.01.03.02.cwe	
EM91_mmwQCN_1104567_1507_01.01.02.02.cwe	
EM91_mmwQCN_1104567_1508_01.01.02.02.cwe	
EM91_mmwQCN_1104567_2051_01.01.01.01.cwe	
EM91_mmwQCN_1104567_2250_01.01.01.01.cwe	
EM91_mmwQCN_1104567_2300_01.01.01.02.cwe	
EM91_mmwQCN_1104704_2050_01.01.01.02.cwe	
EM91_mmwQCN_1104704_2051_01.01.01.01.cwe	
EM91_mmwQCN_1104705_2000_01.01.03.02.cwe	
EM91_mmwQCN_1104839_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104839_2101_01.01.02.01.cwe	

CWE File	Notes
EM91_mmwQCN_1104909_2100_01.01.04.01.cwe	
EM91_mmwQCN_1104909_2101_01.01.02.01.cwe	
EM91_mmwQCN_1104931_1505_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1505_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1506_01.01.03.02.cwe	
EM91_mmwQCN_9101036_1507_01.01.02.02.cwe	
EM91_mmwQCN_9101036_1508_01.01.02.02.cwe	

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_03.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104945_2050_03.01.01.01.cwe	
EM91_mmwQCN_1104945_2051_03.01.01.01.cwe	

15.1.5.2 RFC MBN SCAN

Refer to **Error! Reference source not found.**

15.2 Software Changes Description

This release includes the notable changes and features listed below.

ID	Title	Description	Impacted Domain
Protocol/Certification			
QTIX5510-3514	PTCRB	Fixed failure for TC [38.533][6.1.1.1]	PTCRB
QTIX5510-3577	AT&T LWM2M	Update default bootstrap URI	AT&T
QTIX5510-3581	TS.25	Updated TS.25 list in FW to Feb 2022	PTCRB / AT
Core			
QTIX5510-3543	MBIM_OPEN stability	Improve MBIM_OPEN after modem reboot	MBIM
QTIX5510-3565	mmW cal stability	Keep modem in FTM during mmW cal	mmWave

QTIX5510-3566	mmW QCN DL	Fixed crash which resulted in longer boot time after downloading mmW QCN with some RFCID. Original crash did not impact actual calibration itself.	mmWave
QTIX5510-3591	SDX55.LE.1.4.r1-00047-NBOOT.CPE.NEFS.PROD-1.481256.2.484124.1	Merge SDX55.LE.1.4.r1-00047-NBOOT.CPE.NEFS.PROD-1.481256.2.484124.1 to fix PTCRB issues.	SYSTEM
AT Commands			
QTIX5510-3509	AT!GNSSCONFIG	GLONASS can now be disabled	GNSS
QMI / MBIM Commands			
QTIX5510-3571	QMI_DMS_SWI_GET_STORED_IMAGES	QMI will now return all stored images when there are empty slots	
mmWave QCN changes			
QTIX5510-3589	mmWave Calibration	Updated mmWave QCNs to put the module into FTM mode	mmWave

15.3 Security Corrections/Improvements

CVE	Title
None	None

15.4 Known Issues

ID	Title	Description	Impacted Domain
AT / QMI Commands			
FERRARI-2469	QMI_NAS_GET_CQI AT+CQI	Invalid secondary CQI cell info returned	CQI
QTIX5510-3427	AT!IMSIM?	Query returns error if querying all carriers and there are multiple carrier images loaded on the module. Workaround is to query each carrier one by one.	AUTO SIM

FERRARI-2904	QMI_NAS_SWI_GET_NR5G_CELL_INFO	QMI_NAS_SWI_GET_NR5G_CELL_INFO returns incorrect BW if the bandwidth is greater than or equal to 70 MHz	5G NR BW
Core			
FERRARI-2679	Thermal Mitigation	For High Power mmWave, only temperature from one QTM thermistor is used for mitigation purposes. Since the QTM's are physically very close together, there is minimal risk of HW damage.	Thermal
QTIX5510-3229	NR5G Calibration	QRCT Get Recommended Radio resource allocation command fails if modem boots up with SIM inserted	RF Cal
QTIX5510-3541	Rare modem crash on reset	Rare modem crash when modem powering down. Modem functions normally on boot but crash is logged via AT!GCDUMP	RESET
FERRARI-2638	PCIEFORCEEN customization	Enabling PCIEFORCEEN may result in modem crash on some platforms	PCIe
FERRARI-2779	Win11 HLK	Known failures: Win6_4.MB.GSM.Data.TestSlot Win6_4.MB-GSM.Data.TestReadyInfo Win6_4.MB-GSM.Data.TestBaseStationsInfo	HLK
Protocol/Certification			
FERRARI-1998	LWM2M In-Band FOTA	Verizon LWM2M In-Band FOTA not supported	Verizon

16 Release 4

Release 4 is a major release targeting North America and Japan carrier approvals.

Refer to [Appendix A](#) for upgrade instructions.

16.1 Software Release Description

16.1.1 Release identification

Component	Revision
Firmware	SWIX55C_03.09.03.00
Date of generation (UTC)	2022/02/18 00:29:11
Binary Size	87.3 MB
IMEI SV	21
Chipset Vendor Stack Version	SDX55.LE.1.4.r1-00047-NBOOT.CPE.NEFS.PROD-1.470372.1.475103.2
Supported HW	EM9190, EM9191, EM7690

16.1.2 Software Tools Versions

The following tools were validated against this release.

S/W Tools Name	Version
Mobile Broadband Package for Windows	R25.0.22, B5216
Mobile Broadband Package for Linux	R26.0.22, B5211

16.1.3 Released Carrier Packages

Carrier	Firmware	Configuration	Comment
Approved			

Carrier	Firmware	Configuration	Comment
AT&T	SWIX55C_01.07.13.00	012.007_002	Carrier Approved – SP1_RC5
DOCOMO	SWIX55C_03.04.03.00	030.012_002	Carrier Approved – Release 3 (EM9190 and EM7690)
DOCOMO	SWIX55C_02.08.01.00	020.006_003	Carrier Approved – Release 2
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_03.09.03.00	030.036_000	GCF Approved – Release 4
GENERIC	SWIX55C_01.07.13.00	016.006_005	GCF and PTCRB Approved - SP1_RC5
ROGERS	SWIX55C_01.07.13.00	001.000_000	Carrier Approved – SP1_RC5 (EM9190)
TELSTRA	SWIX55C_03.04.03.00	030.016_000	Carrier Approved – Release 3 (EM9190 and EM7690)
TMO	SWIX55C_01.07.13.00	001.005_003	Carrier Approved - SP1_RC5
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
VERIZON	SWIX55C_03.09.03.00	030.033_001	Carrier Approved – Release 4
Test			
AT&T	SWIX55C_03.09.03.00	030.036_000	
BELL	SWIX55C_01.07.13.00	001.000_000	PTCRB Approved – SP1_RC5
DOCOMO	SWIX55C_03.09.03.00	030.033_000	
DT	SWIX55C_03.09.03.00	030.030_000	
KDDI	SWIX55C_03.09.03.00	030.016_000	
ORANGE	SWIX55C_03.09.03.00	030.010_000	
SOFTBAN K	SWIX55C_03.09.03.00	030.023_000	
TELSTRA	SWIX55C_03.09.03.00	030.033_000	
TELUS	SWIX55C_03.09.03.00	030.030_000	
TELUS	SWIX55C_01.07.13.00	001.000_000	PTCRB Approved – SP1_RC5
TMO	SWIX55C_03.09.03.00	030.033_000	

16.1.4 Released FW Components

Firmware Files
SWIX55C_01.07.13.00-005.cwe
SWIX55C_01.07.19.00-002.cwe
SWIX55C_01.07.21.00-001.cwe
SWIX55C_01.07.23.00-001.cwe
SWIX55C_02.08.01.00-002.cwe
SWIX55C_03.04.03.00-001.cwe
SWIX55C_03.09.03.00-001.cwe

16.1.5 mmWave Packages

The mmWave QCN files are only to be used at customer factory before mmWave calibration. Do not download the QCN after a module has been calibrated.

16.1.5.1 QCN files

This section lists which files to use based on FW version for mmWave calibration. These files are not required if the end product does not support mmWave.

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_01.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104567_1505_01.01.03.01.cwe	
EM91_mmwQCN_1104567_1506_01.01.03.01.cwe	
EM91_mmwQCN_1104567_1507_01.01.02.01.cwe	
EM91_mmwQCN_1104567_1508_01.01.02.01.cwe	
EM91_mmwQCN_1104567_2102_01.00.01.01.cwe	
EM91_mmwQCN_1104567_2103_01.00.01.01.cwe	
EM91_mmwQCN_1104567_2150_01.00.01.01.cwe	
EM91_mmwQCN_1104567_2250_01.00.01.01.cwe	

CWE File	Notes
EM91_mmwQCN_1104567_2300_01.01.01.01.cwe	
EM91_mmwQCN_1104704_2050_01.01.01.01.cwe	
EM91_mmwQCN_1104704_2051_01.01.01.00.cwe	
EM91_mmwQCN_1104705_2000_01.01.03.01.cwe	
EM91_mmwQCN_1104747_2200_01.00.01.01.cwe	
EM91_mmwQCN_1104839_2100_01.01.04.00.cwe	
EM91_mmwQCN_1104839_2101_01.01.02.00.cwe	
EM91_mmwQCN_1104909_2100_01.01.04.00.cwe	
EM91_mmwQCN_1104909_2101_01.01.02.00.cwe	
EM91_mmwQCN_1104839_2101_01.01.02.00.cwe	
EM91_mmwQCN_1104839_2102_01.00.01.01.cwe	
EM91_mmwQCN_1104839_2103_01.00.01.01.cwe	
EM91_mmwQCN_1104567_2150_01.00.01.01.cwe	
EM91_mmwQCN_1104567_2250_01.00.01.01.cwe	
EM91_mmwQCN_1104747_2200_01.00.01.01.cwe	
EM91_mmwQCN_1104909_2100_01.01.04.00.cwe	
EM91_mmwQCN_1104909_2101_01.01.02.00.cwe	
EM91_mmwQCN_9101036_1505_01.01.03.01.cwe	
EM91_mmwQCN_9101036_1506_01.01.03.01.cwe	
EM91_mmwQCN_9101036_1507_01.01.02.01.cwe	
EM91_mmwQCN_9101036_1508_01.01.02.01.cwe	

The following files are to be used when calibrating modules that started with FW version at Sierra factory: SWIX55C_03.*. Please reach out to Sierra Wireless to determine which QCN to use.

CWE File	Notes
EM91_mmwQCN_1104945_2050_03.01.01.00.cwe	
EM91_mmwQCN_1104945_2051_03.01.01.00.cwe	

16.1.5.2 RFC MBN SCAN

Refer to **Error! Reference source not found.**

16.2 Software Changes Description

This release includes the notable changes and features listed below.

ID	Title	Description	Impacted Domain
Protocol/Certification			
QTIX5510-3186	MO SMS	Added support for special characters in MO SMS via AT commands: { } [] \ ^	SMS
QTIX5510-3230	IMEI SVN	Updated IMEI SV to 21	IMEI
QTIX5510-3286	Verizon Motive Test URL	Updated the default Motive Test URL to comply with latest Verizon requirements	Verizon
QTIX5510-3219	LWM2M	Improved connection reliability	LWM2M
QTIX5510-3220	LWM2M	Fixed potential memory leak when sending CoAP ACK message	LWM2M
QTIX5510-3277	LWM2M	Added support for object 10241 (HostDevInfo) for Verizon to report host information	LWM2M / Verizon
QTIX5510-3313	LWM2M	Added ability for customers to configure Verizon Motive Test URL if needed	LWM2M / Verizon
QTIX5510-3398	LWM2M	Update /3/0/19 to report host software version	LWM2M / Verizon
QTIX5510-2832	LWM2M	Improved LWM2M troubleshooting of DTLS decrypt error	LWM2M / Verizon
QTIX5510-3520	LWM2M	Fixed crash after LWM2M session is started after an being idle for a while	LWM2M / AT&T
QTIX5510-3275 / QTIX5510-3390 / QTIX5510-3391	ENDC and NR BWs	Added additional bandwidth support	RF
QTIX5510-3461	TS.25	Updated TS.25 list in FW to Dec 2021.	PTCRB / AT
QTIX5510-3358	Class 2 SMS	Save Class 2 SMS to SM memory	SMS
Core			
QTIX5510-3228	USB polling rate	Improve USB polling rate for NMEA traffic over QMI for RmNet and MBIM interfaces	RmNET, MBIM
QTIX5510-3287	GNSS Assistance	Fix corner case where GNSS assistance data was not downloaded	XTRA
QTIX5510-3232	PCIe ID	Fix corner-case Yellow Bang on Windows if device enumerates without PCIe ID	Windows PCIe

FERRARI-2106	RmNET Throughput	Fixed issue where USB RmNet throughput slowly degrades after repeated connect/disconnect attempts	RmNET
FERRARI-1867	Crash on W_DISABLE stress	Fixed rare crash observed during stress testing of W_DISABLE operation	Stability
QTIX5510-3300 QTIX5510-3315	MBIM_MODE	Enable MBIM_MODE by default (except when in RMNET configurations)	MBIM
QTIX5510-3197	Thermal Mitigation	Improved high power mmWave thermal mitigation temperature limits	THERMAL
QTIX5510-3416	GPS_DISABLE pin	Fixed issue where GPS_DISABLE was not blocking GPS sessions started from QMI	GNSS
QTIX5510-3433	Shutdown timing	Fix corner case where a shutdown initiated within 60s of bootup could take longer than the expected 8s	Stability
QTIX5510-3554 QTIX5510-3551	Win11 HLK	Added support for Win6_4.MB.GSM.Data.Test5GExtensions and Win6_4.MB.GSM.Data.TestRegistrationParams	HLK
AT Commands			
QTIX5510-3203	AT!GSTATUS	Both CC NR Tx power is now displayed	RF
QTIX5510-3262	AT!GSTATUS	Display LTE SCC Tx power and Tx channel	RF
QTIX5510-3250	AT!MMWBYPASSSCAN	For High Power mmWave, increased device limit to 16 from 8	RF mmW
QTIX5510-3133	AT+KSIMSEL	Enable AT+KSIMSEL to switch between SIM interfaces	SIM
QTIX5510-3164	AT!TMURC	Added command to enable/disable thermal mitigation URCs	TM
QTIX5510-3217	AT!DARCONFIG	Error no longer returned when MIMO set to zero	RF
QTIX5510-3271	AT!DARCONFIG	Added support for burst mode	RF
QTIX5510-3226	AT!USBCOMP	Can no longer enable both MBIM and RmNET simultaneously per specifications	USB
QTIX5510-3264	AT!DATXCONTROL	Added support to select BPSK modulation	RF
QTIX5510-3349	AT!DATXCONTROL	Modified AT!DATXCONTROL to accept <duty_cycle> values 1-10 during LTE FTM tests.	RF
QTIX5510-3225	AT!RFCOMBOS	No longer return LTE combos where Tx band is not supported	RF
QTIX5510-3109	AT!RFCOMBOS	Fix issue where content was occasionally omitted	RF
QTIX5510-3318	AT!STSTATUS	Improve the way Force Peak condition is reported by UE	ST
QTIX5510-3352	AT!GPSPORTID	Protection level restored to Level 2	GPS

QTIX5510-3332	AT!IMSIM	Added AT command to update SIM matching list in Carrier PRIs	IMSW
QTIX5510-3385	AT!STCIDX	Added AT command to display and set the Smart Transmit Cover Index	SMART TRANSMIT
QTIX5510-3389	AT!GSTATUS	Fixed crash when frequently calling AT!GSTATUS on cell handover	AT
QTIX5510-3381	AT!CRSM	Updated AT!CRSM to read the EF_SPN file when PIN1 is enabled	AT / UIM
QTIX5510-3373	AT!GSTATUS	Update AT!GSTATUS in 5G SA mode when not attached	AT
QTIX5510-3218	AT+CCHO	Provide correct response if invalid AID Is provided	AT
QMI / MBIM Commands			
QTIX5510-3221	QMI_NAS_SET_MMWAVE_CONFIG	Fixed issue where mmWave could not be disabled by setting RFCID to 0.	NAS
QTIX5510-3223	QMI_NAS_GET_HOME_NETWORK_MSG	QMI object will now return valid data when the module is not in service, instead of QMI_ERR_NOT_PROVISIONED.	NAS
QTIX5510-3065	QMI_NAS_SWI_GET_ANTENNA_SIGN_INFO	Updated QMI object to provide RSRP, RSRQ, SINR from mmW antennas	SWI_NAS
QTIX5510-3231	QMI_WDS_GET_CURRENT_CHANNEL_RATE	Correctly return Max Channel Rx and Tx Rate instead of 0	RF
QTIX5510-3272	QMI_NAS_SWI_GET_LTE_CELL_INFO	Added support for multiple UL SCCs	SWI_NAS
QTIX5510-3326	QMI_NAS_SWI_MODEM_STATUS	Added new TLV to report larger RF Channel range	SWI_NAS
QTIX5510-3347	QMI_DMS_SWI_GET_PC_INFO	Include missing LPM voters	SWI_DMS
QTIX5510-3124 QTIX5510-3436	QMI_NAS_SWI_GET_LTE_SCC_RX_INFO	Update QMI_NAS_SWI_GET_LTE_SCC_RX_INFO to report multiple SCC cells information	SWI_NAS
QTIX5510-3347	QMI_DMS_SWI_GET_PC_INFO	Updated QMI_DMS_SWI_GET_PC_INFO to include RF status	SWI_DMS
QTIX5510-3149	Network Slicing	Added QMI objects to configure Network Slicing	SWI_NAS
QTIX5510-3420	FW version string	FW Version is not displaying correctly in Windows 11	MBIM
QTIX5510-3366	QMI_SWI_DMS_GET_AUTO_SIM_LIST / QMI_SWI_DMS_SET_AUTO_SIM	Added QMI command to update SIM matching list in Carrier PRIs	SWI_DMS

QTIX5510-3503	DMS_GET_DEVICE_SERIAL_NUMBERS	Report correct IMEI SV	DMS
ENDC			
QTIX5510-3239	ENDC Combos	All possible EM9191 ENDC Combos are now reported to the network.	RF

16.3 Security Corrections/Improvements

CVE	Title
CVE-2022-22066	Buffer Over-read in Content Protection
CVE-2022-22062	Buffer Over-read in Data Modem
CVE-2021-35135	NULL Pointer Dereference in QTEE
CVE-2021-35132	Use of Out-of-range Pointer Offset in DSP Services
CVE-2021-35124	Buffer Over-read in Data Modem
CVE-2021-35123	NULL Pointer Dereference in QTEE
CVE-2021-35122	Improper Input Validation in Core
CVE-2021-35122	Adding some explicit checks in hyp driver to skip secure subsystems assignments
CVE-2021-35118	Use of Out-of-range Pointer Offset in Camera
CVE-2021-35118	Use of Out-of-range Pointer Offset in Camera
CVE-2021-35112	Improper Access Control in Graphics
CVE-2021-35102	Buffer Over-read in Data Modem
CVE-2021-35097	Cryptographic issues in Content Protection
CVE-2021-35096	Improper Input Validation in Modem
CVE-2021-35086	NULL Pointer Dereference in Modem
CVE-2021-35078	Improper Release of Memory Before Removing Last Reference in Data Modem
CVE-2021-35076	NULL Pointer Dereference in Modem
CVE-2021-30350	Improper Authentication in Core
CVE-2021-30349	Improper Access Control in Core
CVE-2021-30347	Time-of-check Time-of-use Race Condition in Modem
CVE-2021-30344	Improper Authorization in Modem
CVE-2021-30341	Stack-based Buffer Overflow in Data Modem
CVE-2021-30340	Reachable Assertion in Modem
CVE-2021-30332	Reachable Assertion in Modem
CVE-2021-30329	Reachable Assertion in Modem
CVE-2021-30303	Stack-based Buffer Overflow in WLAN
CVE-2021-30302	Improper Authentication in WLAN

CVE-2021-30285	Improper Input Validation in Kernel
CVE-2021-1942	Permissions, Privileges and Access Controls in Core
CVE-2021-1935	NULL Pointer Dereference in QTEE
CVE-2021-1894	Permissions, Privileges and Access Controls in TrustZone
CVE-2020-5235	CVE fixes for QDMA(CVE-2020-5235,CVE-2020-26243).
CVE-2020-26243	CVE fixes for QDMA(CVE-2020-5235,CVE-2020-26243).
CVE-2020-26145	Improper Authentication in WLAN
CVE-2020-24588	Improper Authentication in WLAN
CVE-2020-11230	Time of Check Time of Use Race Condition in HLOS

16.4 Known Issues

ID	Title	Description	Impacted Domain
AT / QMI Commands			
FERRARI-2469	QMI_NAS_GET_CQI AT+CQI	Invalid secondary CQI cell info returned	CQI
QTIX5510-3427	AT!IMSIM?	Query returns error if querying all carriers and there are multiple carrier images loaded on the module. Workaround is to query each carrier one by one.	AUTO SIM
FERRARI-2904	QMI_NAS_SWI_GET_NR5G_CELL_INFO	QMI_NAS_SWI_GET_NR5G_CELL_INFO returns incorrect BW if the bandwidth is greater than or equal to 70 MHz	5G NR BW
Core			
FERRARI-2679	Thermal Mitigation	For High Power mmWave, only temperature from one QTM thermistor is used for mitigation purposes. Since the QTM's are physically very close together, there is minimal risk of HW damage.	Thermal
QTIX5510-3229	NR5G Calibration	QRCT Get Recommended Radio resource allocation command fails if modem boots up with SIM inserted	RF Cal
QTIX5510-3541	Rare modem crash on reset	Rare modem crash when modem powering down. Modem functions normally on boot but crash is logged via AT!GCDUMP	RESET
QTIX5510-3566	mmW QCN DL	Longer boot time after downloading mmW QCN with some RFCID	QCN

FERRARI-2638	PCIEFORCEEN customization	Enabling PCIEFORCEEN may result in modem crash on some platforms	PCIe
FERRARI-2779	Win11 HLK	Known failures: Win6_4.MB.GSM.Data.TestSlot Win6_4.MB-GSM.Data.TestReadyInfo Win6_4.MB-GSM.Data.TestBaseStationsInfo	HLK
Protocol/Certification			
FERRARI-1998	LWM2M In-Band FOTA	Verizon LWM2M In-Band FOTA not supported	Verizon

17 Release 3.1

Release 3.1 is a minor release to update Release 3 with Telstra and DOCOMO Approval. TMO PRI is updated to support B41 HPUE.

Refer to [Appendix A](#) for upgrade instructions.

17.1 Software Release Description

17.1.1 Release identification

Component	Revision
Firmware	SWIX55C_03.04.03.00
Date of generation (UTC)	2021/08/16 19:24:41
Binary Size	88.1 MB
IMEI SV	20
Chipset Vendor Stack Version	SDX55.LE.1.4.r1-00037-NBOOT.CPE.NEFS.PROD-1.421768.3
Supported HW	EM9190, EM9191, EM7690

17.1.2 Software Tools Versions

The following tools were validated against this release.

S/W Tools Name	Version
Mobile Broadband Package for Windows	MBPW R22
Mobile Broadband Package for Linux	MBPL R22

17.1.3 Released Carrier Packages

Carrier	Firmware	Configuration	Comment
Approved			
AT&T	SWIX55C_01.07.13.00	012.007_002	Carrier Approved – SP1_RC5
DOCOMO	SWIX55C_03.04.03.00	030.012_001	Carrier Approved – Release 3 Only approved for EM9190. Not approved for EM9191 and EM7690.
DOCOMO	SWIX55C_02.08.01.00	020.006_002	Carrier Approved – Release 2
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_02.08.01.00	020.007_002	GCF Approved – Release 2
GENERIC	SWIX55C_01.07.21.00	016.014_001	GCF Approved – SP1_RC7
GENERIC	SWIX55C_01.07.19.00	016.010_002	GCF Approved – SP1_RC6
GENERIC	SWIX55C_01.07.13.00	016.006_004	GCF and PTCRB Approved - SP1_RC5
GENERIC	SWIX55C_01.07.08.00	016.003_005	GCF Approved – SP1_RC3
TELSTRA	SWIX55C_03.04.03.00	030.016_000	Carrier Approved – Release 3 Only approved for EM9190 and EM7690. Not approved for EM9191.
TMO	SWIX55C_01.07.13.00	001.005_003	Carrier Approved - SP1_RC5
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
VERIZON	SWIX55C_01.07.19.00	012.012_002	Carrier Approved – SP1_RC6
Test			
AT&T	SWIX55C_03.04.03.00	030.012_000	
DT	SWIX55C_03.04.03.00	030.012_000	
GENERIC	SWIX55C_03.04.03.00	030.012_000	
TELUS	SWIX55C_03.04.03.00	030.010_000	
TMO	SWIX55C_03.04.03.00	030.012_000	
VERIZON	SWIX55C_03.04.03.00	030.013_000	

17.1.4 Released FW Components

Firmware Files
SWIX55C_01.07.08.00-004.cwe
SWIX55C_01.07.13.00-005.cwe
SWIX55C_01.07.19.00-002.cwe
SWIX55C_01.07.21.00-001.cwe
SWIX55C_02.08.01.00-002.cwe
SWIX55C_03.04.03.00-001.cwe

17.1.5 mmWave Packages

The mmWave QCN files are only to be used at customer factory before mmWave calibration. Do not download the QCN after a module has been calibrated.

17.1.5.1 QCN files

This section lists which files to use based on FW version for mmWave calibration.

The following files are to be used when calibrating with FW versions: SWIX55C_01.*.

CWE File	Notes
EM9190_1505_QCN.cwe	
EM9190_1507_QCN.cwe	
EM9190_2000_QCN.cwe	
EM9190_2050_QCN.cwe	
EM9190_2100_QCN.cwe	
EM9190_2100_QCN_v4.cwe	
EM9190_2150_QCN.cwe	
EM9190_2200_QCN.cwe	

17.1.5.2 RFC MBN SCAN

Refer to **Error! Reference source not found.**

17.2 Software Changes Description

This release includes the notable changes and features listed below.

ID	Title	Description	Impacted Domain
None			

17.3 Security Corrections/Improvements

CVE	Title
None	None

17.4 Known Issues

ID	Title	Description	Impacted Domain
AT Commands			
QTIX5510-3203	AT!GSTATUS	Only one CC NR Tx power is displayed	AT
FERRARI-2089	AT!TMCONFIG	Thresholds are read only and cannot be modified	AT
FERRARI-2142	AT!USBCOMP	Command allows MBIM and RMNET to be enabled at the same time; this configuration is not supported and may leave modem inoperable	AT
QMI Commands			
QTIX5510-3221	QMI_NAS_SET_MMWAVE_CONFIG	Cannot disable mmWave by setting the mmWave RFCID to 0	QMI

ENDC			
QTIX5510-3239	ENDC Combos	All possible EM9191 ENDC Combos are not reported to the network.	RF

18 Release 3

Release 3 is a major release based on Qualcomm's SDX55 LE 1.4 for the EM919x product family.

Refer to [Appendix A](#) for upgrade instructions.

18.1 Software Release Description

18.1.1 Release identification

Component	Revision
Firmware	SWIX55C_03.04.03.00
Date of generation (UTC)	2021/08/16 19:24:41
Binary Size	88.1 MB
IMEI SV	20
Chipset Vendor Stack Version	SDX55.LE.1.4.r1-00037-NBOOT.CPE.NEFS.PROD-1.421768.3
Supported HW	EM9190, EM9191, EM7690

18.1.2 Software Tools Versions

The following tools were validated against this release.

S/W Tools Name	Version
Mobile Broadband Package for Windows	MBPW R21
Mobile Broadband Package for Linux	MBPL R21

18.1.3 Released Carrier Packages

Carrier	Firmware	Configuration	Comment
Approved			

Carrier	Firmware	Configuration	Comment
AT&T	SWIX55C_01.07.13.00	012.007_002	Carrier Approved – SP1_RC5
DOCOMO	SWIX55C_02.08.01.00	020.006_002	Carrier Approved – Release 2
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_02.08.01.00	020.007_002	GCF Approved – Release 2
GENERIC	SWIX55C_01.07.21.00	016.014_001	GCF Approved – SP1_RC7
GENERIC	SWIX55C_01.07.19.00	016.010_002	GCF Approved – SP1_RC6
GENERIC	SWIX55C_01.07.13.00	016.006_004	GCF and PTCRB Approved - SP1_RC5
GENERIC	SWIX55C_01.07.08.00	016.003_005	GCF Approved – SP1_RC3
TMO	SWIX55C_01.07.13.00	001.005_002	Carrier Approved - SP1_RC5
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
VERIZON	SWIX55C_01.07.19.00	012.012_002	Carrier Approved – SP1_RC6
Test			
AT&T	SWIX55C_03.04.03.00	030.012_000	
DOCOMO	SWIX55C_03.04.03.00	030.012_000	
DT	SWIX55C_03.04.03.00	030.012_000	
GENERIC	SWIX55C_03.04.03.00	030.012_000	
TELSTRA	SWIX55C_03.04.03.00	030.014_000	
TELUS	SWIX55C_03.04.03.00	030.010_000	
TMO	SWIX55C_03.04.03.00	030.012_000	
VERIZON	SWIX55C_03.04.03.00	030.013_000	

18.1.4 Released FW Components

Firmware Files
SWIX55C_01.07.08.00-004.cwe
SWIX55C_01.07.13.00-005.cwe
SWIX55C_01.07.19.00-002.cwe

SWIX55C_01.07.21.00-001.cwe
SWIX55C_02.08.01.00-002.cwe
SWIX55C_03.04.03.00-001.cwe

18.1.5 mmWave Packages

The mmWave QCN files are only to be used at customer factory before mmWave calibration. Do not download the QCN after a module has been calibrated.

18.1.5.1 QCN files

This section lists which files to use based on FW version for mmWave calibration.

The following files are to be used when calibrating with FW versions: SWIX55C_01.*.

CWE File	Notes
EM9190_1505_QCN.cwe	
EM9190_1507_QCN.cwe	
EM9190_2000_QCN.cwe	
EM9190_2050_QCN.cwe	
EM9190_2100_QCN.cwe	
EM9190_2100_QCN_v4.cwe	
EM9190_2150_QCN.cwe	
EM9190_2200_QCN.cwe	

18.1.5.2 RFC MBN SCAN

Refer to **Error! Reference source not found.**

18.2 Software Changes Description

This release includes the notable changes and features listed below.

ID	Title	Description	Impacted Domain
Protocol/Certification			
QTIX5510-2942	Telstra ENDC combos	Add additional ENDC combinations as per Telstra requirements	Telstra
QTIX5510-2943	Verizon ENDC combos	Add additional ENDC combinations as per Verizon requirements	Verizon
QTIX5510-2945	AT&T ENDC combos	Add additional ENDC combinations as per AT&T requirements	AT&T
QTIX5510-3085	Telus ENDC combos	Add additional ENDC combinations as per Telus requirements	Telus
QTIX5510-3145	T-Mobile ENDC combos	Add additional ENDC combinations as per T-Mobile requirements	T-Mobile
QTIX5510-2977	Rogers ENDC combos	Add additional ENDC combinations as per Rogers requirements	Rogers
QTIX5510-3009	mmWave 8CC ENDC combos	Add additional 8CC FR2 combinations	Various
QTIX5510-3083	n77 standalone	Add n77 SA support	RF
QTIX5510-3141	n40 standalone	Update n40 SA to 4x4 MIMO	RF
QTIX5510-3155	FR1 CA	Enable FR1 CA combos	RF
QTIX5510-3171	AT&T MTU Size	Add AT&T MTU size support	AT&T
Core			
QTIX5510-3102	SDX55 LE 1.4	Updated to Qualcomm SDX55 LE 1.4 MBIMEx 3.0 n77 SA/NSA support for N. America Expanded chipset temperature range	Stack
QTIX5510-3056	Clearsure	Add Clearsure feature	Custom
QTIX5510-3058	Dying Gasp	Add Dying Gasp feature	Custom
QTIX5510-3194	MBIM_OPEN	Fixed an issue where MBIM_OPEN may occasionally fail under stress conditions	MBIM
QTIX5510-3200	MHI initialization	Avoid MSI trigger during device cold boot	MHI
FERRARI-1351 QTIX5510-2906 QTIX5510-3106 QTIX5510-3150	RMNET	Add support for RMNET USB with QMAP	RMNET
QTIX5510-3156	DHCP Relay	Add support for DHCP Relay feature	DATA
QTIX5510-3198	PCIe Initialization in USB mode	Add customization to allow PCIe to be enabled when the USB/PCIe HW selection is set to USB. PCIe initialization is delayed after power up.	PCIe
QMI Commands			
QTIX5510-2685	QMI for RF device status	Add a new QMI object to retrieve RF device status equivalent to at!rfdevstatus	QMI

QTIX5510-3026 QTIX5510-3091	QMI_NAS_SWI_GET_ANTENNA_SIG_INFO	QMI_NAS_SWI_GET_ANTENNA_SIG_INFO updates to provide RSRP, RSRQ & SINR for all sub6 antennas	QMI
QTIX5510-3034	QMI_NAS_SET_MMWAVE_CONFIG	Added QMI object, equivalent to at!rfcid, to set the RFCID.	QMI
QTIX5510-3064	QMI_NAS_GET_SYSTEM_SELECTION_PREFERENCE	Updated QMI_NAS_GET_SYSTEM_SELECTION_PREFERENCE to match AT!BAND? output	QMI
QTIX5510-3110	Profile Creation	Reject creating a PDP Profile with an invalid PDP Type	QMI
AT Commands			
QTIX5510-2867	mmWave Tx Power	Update AT!GSTATUS to display mmWave Tx power	AT
QTIX5510-2884 QTIX5510-3040 QTIX5510-2883 QTIX5510-3039	AT!RFCOMBOS	Update AT!RFCOMBOS for an alternate display in 3GPP format	AT
QTIX5510-3104 QTIX5510-3105	AT!USBSPEED	Downgrade AT!USBSPEED to lock level 2	AT
QTIX5510-3066	AT!SELRAT	Add LTE+NR selection	AT
QTIX5510-3214	AT!SELRAT	Fixed display issue after issuing AT+COPS	AT
QTIX5510-3152	AT+CNMI	Enable SMS receive notification	AT

18.3 Security Corrections/Improvements

CVE	Title
CVE-2020-11301	Improper Authentication in WIGIG Host
CVE-2021-30312	Improper Authentication in WIGIG Host
CVE-2020-12695	Permissions, Privileges and Access Control Issue in WLAN
CVE-2021-30317	Improper Authentication in Kernel
CVE-2021-30326	Reachable Assertion in Modem
CVE-2021-30322	Stack-based Buffer Overflow in Modem
CVE-2021-30254	Improper Validation of Array Index in Modem

CVE-2021-30271	NULL Pointer Dereference in Kernel
CVE-2019-10581	Use After Free Issue in Audio

18.4 Known Issues

ID	Title	Description	Impacted Domain
AT Commands			
QTIX5510-3203	AT!GSTATUS	Only one CC NR Tx power is displayed	AT
FERRARI-2089	AT!TMCONFIG	Thresholds are read only and cannot be modified	AT
FERRARI-2142	AT!USBCOMP	Command allows MBIM and RMNET to be enabled at the same time; this configuration is not supported and may leave modem inoperable	AT
QMI Commands			
QTIX5510-3221	QMI_NAS_SET_MMWAVE_CONFIG	Cannot disable mmWave by setting the mmWave RFCID to 0	QMI

19 Release 2.1

Release 2.1 is a minor release based on SDX55 LE 1.2 for EM919x, EM7690. It adds the mmWave FW tag for Release 2 and updates some Carrier PRIs.

[Refer to Appendix A for upgrade instructions.](#)

19.1 Software Release Description

19.1.1 Release identification

Component	Revision
Firmware	SWIX55C_02.08.01.00
Date of generation (UTC)	2021/03/12 18:05:48
Binary Size	85.5 MB
IMEI SV	20
Chipset Vendor Stack Version	SDX55.LE.1.2.r1-00025-NBOOT.CPE.NEFS.PROD-1
Supported HW	EM9190, EM9191, EM7690

19.1.2 Software Tools Versions

The following tools were validated against this release.

S/W Tools Name	Version
Mobile Broadband Package for Windows	MBPW R19
Mobile Broadband Package for Linux	MBPL R19

19.1.3 Released Carrier Packages

Carrier	Firmware	Configuration	Comment
Approved			
AT&T	SWIX55C_01.07.13.00	012.007_001	Carrier Approved – SP1_RC5
DOCOMO	SWIX55C_02.08.01.00	020.006_001	Carrier Approved – Release 2
DT	SWIX55C_01.07.13.00	001.002_001	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_02.08.01.00	020.007_001	GCF Approved – Release 2
GENERIC	SWIX55C_01.07.21.00	016.012_002	GCF Approved – SP1_RC7
GENERIC	SWIX55C_01.07.19.00	016.010_001	GCF Approved – SP1_RC6

Carrier	Firmware	Configuration	Comment
GENERIC	SWIX55C_01.07.13.00	016.006_003	GCF and PTCRB Approved - SP1_RC5
GENERIC	SWIX55C_01.07.08.00	016.003_004	GCF Approved – SP1_RC3
TMO	SWIX55C_01.07.13.00	001.005_001	Carrier Approved - SP1_RC5
USCC	SWIX55C_01.07.19.00	016.010_001	Carrier Approved with Generic Carrier PRI – SP1_RC6
VERIZON	SWIX55C_01.07.19.00	012.012_000	Carrier Approved – SP1_RC6
Test			
AT&T	SWIX55C_02.08.01.00	020.007_001	
DT	SWIX55C_02.08.01.00	020.006_000	
Telstra	SWIX55C_02.08.01.00	020.002_000	
TMO	SWIX55C_02.08.01.00	020.006_000	
VERIZON	SWIX55C_02.08.01.00	020/007_000	

19.1.4 Released FW Components

mmWave tags are to be used for non-mmWave customers and variants. These tags can be used on the EM7690 and EM9190. Therefore, the base FW will not be released by default.

Firmware File	Description
SWIX55C_01.07.08.00_004.cwe	SWIX55C_01.07.08.00_000 with mmWave
SWIX55C_01.07.13.00_005.cwe	SWIX55C_01.07.13.00_000 with mmWave
SWIX55C_01.07.19.00_001.cwe	SWIX55C_01.07.19.00 with mmWave
SWIX55C_01.07.21.00_001.cwe	SWIX55C_01.07.21.00 with mmWave
SWIX55C_02.08.01.00_002.cwe	SWIX55C_02.08.01.00 with mmWave

19.1.5 mmWave Packages

The mmWave QCN files are only to be used at customer factory before mmWave calibration. Do not download the QCN after a module has been calibrated.

19.1.5.1 QCN files

This section lists which files to use based on FW version for mmWave calibration.

The following files are to be used when calibrating with FW versions: SWIX55C_01.*.

CWE File	Notes
EM9190_1505_QCN.cwe	
EM9190_1507_QCN.cwe	
EM9190_2000_QCN.cwe	
EM9190_2050_QCN.cwe	
EM9190_2100_QCN.cwe	
EM9190_2150_QCN.cwe	
EM9190_2200_QCN.cwe	

The following files are to be used when calibrating with FW versions: SWIX55C_02.*.

CWE File	Notes
EM9190_1505_QCN.cwe	Same file as SWIX55C_01.
EM9190_1507_QCN_SWIX55C_02.cwe	
EM9190_2000_QCN SWIX55C_02.cwe	
EM9190_2050_QCN SWIX55C_02.cwe	
EM9190_2100_QCN.cwe	Same file as SWIX55C_01.
EM9190_2150_QCN.cwe	Same file as SWIX55C_01.
EM9190_2200_QCN.cwe	Same file as SWIX55C_01.

19.1.5.2 RFC MBN SCAN

Refer to **Error! Reference source not found.**

19.2 Software Changes Description

This release includes the notable changes and features listed below.

ID	Title	Description	Impacted Domain
Protocol/Certification			
FERRARI-1595	Carrier PRI updates	Fixed issue where 5G was being disabled if switching from TMO Carrier PRI to Generic Carrier PRI 016.*. See PRI CRN for fixed 016.* PRIs	PRI

19.3 Security Corrections/Improvements

CVE	Title
None	No FW changes from Release 2.

19.4 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
QTIX5510-3033	Newly added BWs requires factory calibration	Behaviour is undefined (may crash) if uncalibrated modules attach to new bandwidths. This is mitigated by an OEM PRI update. Affected bands and bandwidths: n1 – 30MHz,40 MHz n3 – 25MHz, 30MHz n28 – 30MHz n66 – 30 MHz, 40MHz	RF
QTIX5510-3012	HW version not correctly returned	Affects ATI, AT!HWID, and various QMI, MBIM, and LWM2M commands	HW
QTIX5510-3060	On-board carrier switching	On-board carrier switching fails via AT!MPREF or QMI	FW DL
N/A	HP mmWave upgrade	For High Power mmWave customers, upgrading from SWIX55C_01.* to SWIX55C_02.* is untested and not guaranteed to work.	

Release 1.1	Missing changes	Release 1.1 was built after Release 2.1. As such, changes described in Release 1.1 are not included in this release.	Branch
-------------	-----------------	--	--------

20 Release 2

Release 2 is the first major release based on SDX55 LE 1.2 for EM919x, EM7690.

Refer to [Appendix A](#) for upgrade instructions.

20.1 Software Release Description

20.1.1 Release identification

Component	Revision
Firmware	SWIX55C_02.08.01.00
Date of generation (UTC)	2021/03/12 18:05:48
Binary Size	85.5 MB
IMEI SV	20
Chipset Vendor Stack Version	SDX55.LE.1.2.r1-00025-NBOOT.CPE.NEFS.PROD-1
Supported HW	EM9190, EM9191, EM7690

20.1.2 Software Tools Versions

The following tools were validated against this release.

S/W Tools Name	Version
Mobile Broadband Package for Windows	MBPW R18
Mobile Broadband Package for Linux	MBPL R18

20.1.3 Released Carrier Packages

Carrier	Firmware	Configuration	Comment
Approved			

Carrier	Firmware	Configuration	Comment
AT&T	SWIX55C_01.07.13.00	012.007_001	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_02.08.01.00	020.007_000	GCF Approved – Release 2
GENERIC	SWIX55C_01.07.19.00	016.010_000	GCF Approved – SP1_RC6
GENERIC	SWIX55C_01.07.13.00	016.006_001	GCF and PTCRB Approved - SP1_RC5
GENERIC	SWIX55C_01.07.08.00	016.003_002	GCF Approved – SP1_RC3
TMO	SWIX55C_01.07.13.00	001.005_001	Carrier Approved - SP1_RC5
VERIZON	SWIX55C_01.07.19.00	012.012_000	Carrier Approved – SP1_RC6
Test			
AT&T	SWIX55C_02.08.01.00	020.007_000	
DOCOMO	SWIX55C_02.08.01.00	020.006_000	
DT	SWIX55C_02.08.01.00	020.006_000	
Telstra	SWIX55C_02.08.01.00	020.002_000	
TMO	SWIX55C_02.08.01.00	020.006_000	
VERIZON	SWIX55C_02.08.01.00	020/007_000	

20.1.4 Released FW Components

mmWave tags are to be used for non-mmWave customers and variants. These tags can be used on the EM7690 and EM9190. Therefore, the base FW will not be released by default.

Firmware File	Description
SWIX55C_01.07.08.00_004.cwe	SWIX55C_01.07.08.00_000 with mmWave
SWIX55C_01.07.13.00_005.cwe	SWIX55C_01.07.13.00_000 with mmWave
SWIX55C_01.07.19.00_001.cwe	SWIX55C_01.07.19.00 with mmWave
SWIX55C_02.08.01.00.cwe	mmWave tag not available yet.

20.1.5 mmWave Packages

SWIX55C_01.07.08.00_004

at!rfcmbnscan?

```
1003_0_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:61
1004_0_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:61
1005_0_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:61
1006_0_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:61
1007_0_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:61
1008_0_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:61
1090_0_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:61
1091_0_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:61
1100_0_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:61
1101_0_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:61
1102_0_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:61
1103_0_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:61
1104_0_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:61
1105_0_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:61
1200_0_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:61
1201_0_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:61
1500_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:1
1501_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:1
1502_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:1
1503_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:2
1504_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:1
1505_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:3
1506_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:3
1507_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:2
1508_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:2
1600_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:1
1650_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:3
1700_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:2
1800_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2020/11/16 10:11:33 rfctag: rfcver:1
2000_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2021/03/05 07:47:28 rfctag:003 rfcver:3
2050_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2021/03/05 07:47:28 rfctag:003 rfcver:1
2100_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2021/03/05 07:47:28 rfctag:003 rfcver:4
2150_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2021/03/05 07:47:28 rfctag:003 rfcver:1
2200_0.mbn: SWIX55C_01.07.08.00 000000 jenkins 2021/03/05 07:47:28 rfctag:003 rfcver:1
OK
```

SWIX55C_01.07.13.00_005

at!rfcmbscan?

```
1003_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1004_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1005_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1006_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1007_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1008_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1090_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1091_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1100_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1101_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1102_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1103_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1104_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1105_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1200_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1201_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1500_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:1
1501_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:1
1502_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:1
1503_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:2
1504_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:1
1505_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:3
1506_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:3
1507_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:2
1508_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:2
1600_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:1
1650_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:3
1700_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:2
1800_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:1
2000_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2021/03/09 22:49:28 rfctag:004 rfcver:3
2050_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2021/03/09 22:49:28 rfctag:004 rfcver:1
2100_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2021/03/09 22:49:28 rfctag:004 rfcver:4
2101_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2021/03/09 22:49:28 rfctag:004 rfcver:1
2150_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2021/03/09 22:49:28 rfctag:004 rfcver:1
2200_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2021/03/09 22:49:28 rfctag:004 rfcver:1
```

OK

SWIX55C_01.07.19.00_001

at!rfcmbnsca?

```
1003_0_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:61
1004_0_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:61
1005_0_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:61
1006_0_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:61
1007_0_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:61
1008_0_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:61
1090_0_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:61
1091_0_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:61
1100_0_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:61
1101_0_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:61
1102_0_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:61
1103_0_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:61
1104_0_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:61
1105_0_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:61
1200_0_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:61
1201_0_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:61
1500_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:1
1501_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:1
1502_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:1
1503_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:2
1504_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:1
1505_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:3
1506_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:3
1507_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:2
1508_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:2
1600_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:1
1650_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:3
1700_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:2
1800_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/11 02:17:18 rfctag: rfcver:1
2000_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/12 00:43:22 rfctag:001 rfcver:3
2050_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/12 00:43:22 rfctag:001 rfcver:1
2100_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/12 00:43:22 rfctag:001 rfcver:4
2150_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/12 00:43:22 rfctag:001 rfcver:1
2200_0.mbn: SWIX55C_01.07.19.00 000000 jenkins 2021/02/12 00:43:22 rfctag:001 rfcver:1
```

OK

SWIX55C_02.08.01.00

Not available at time of publication of Release 2.

20.2 Software Changes Description

This release includes the notable changes and features listed below.

ID	Title	Description	Impacted Domain
Protocol/Certification			
QTIX5510-2988	IMEI SV	Increased IMEI SV to 20	PTCRB
QTIX5510-2887	NTT IO100123, IO100008	Fixed NTT Docomo FR1 test case failures	NTT DCM
QTIX5510-2976	NTT ENDC	Updated ENDC combos for NTT Docomo	NTT DCM
Core			
QTIX5510-2812, QTIX5510-2955, QTIX5510-2978	SDX55 LE 1.2	Updated to Qualcomm SDX55 LE 1.2 LTE-NR Packet Switched Handover (PSHO) mmWave NSA 8CC 2L DL sub-6 SA support for additional bands: n1, n2, n3, n25, n28, n41, n66, n71	Stack
QTIX5510-2939	n261 8CC	Add initial support for select n261 8CC combos	RF
QTIX5510-2685 FERRARI-907	QMI_SWINAS_MMWAVE_C ONFIG	Added QMI to manage mmWave configuration	RF
QTIX5510-2871 FERRARI-1215	OEM PRI update	Added checks to prevent incompatible OEM PRI updates	FW DL
QTIX5510-2972	N28 sub-band list	Fixed sub-6 RFC, n28 sub-band list order	RF
QTIX5510-2991	mmWave RFCIDs	Added RFCIDs for all mmWave customers	RF
QTIX5510-2764	Bootup time	Improved boot time by roughly ~137 ms	BOOT
QTIX5510-2956	EFS recovery	Improved EFS recovery detection	EFS
QTIX5510-2919	Safe Update	Added changes to properly support safe update. Must be running an appropriate bootloader to upgrade to this release. See Appendix A for more details.	FW DL
AT Commands			
QTIX5510-2444 FERRARI-852	AT!LTEINFO	Mul parameter is now reported correctly	AT
QTIX5510-2861	AT!LTEINFO	Fixed rare crash due to buffer overflow	AT
QTIX5510-2808	AT!NRINFO, AT!GSTATUS	Added additional NR info	AT

QTIX5510-2840	AT!RFCID	Query is no longer password protected. Set operation is still require level 2 unlock.	AT
QTIX5510-3008 FERRARI-1400	AT!GPSCLRASSIST	Fixed issue where AT!GPSCLRASSIST could hang AT port	AT
QTIX5510-2651 FERRARI-973	AT!PCINFO	AT!PCINFO will report OFFLINE if mmWave RFC/QCN mismatch/missing.	AT
QTIX5510-2653	AT!GSTATUS	Added "NR Tx Power" field	AT
QTIX5510-2734	AT!SELACQ	Fixed bug where WCDMA was not correctly reported	AT
QTIX5510-2863	AT!TMSTATUS	Query will now show temperature of mmWave modules	AT
QTIX5510-2965	AT&V	Fixed crash when invoking command	AT
QTIX5510-2791	AT!RFCMBNSCAN	Improved response format	AT

20.3 Security Corrections/Improvements

CVE	Title
CVE-2018-11970	Information Exposure in QTEE
CVE-2018-11970	Improper Input Validation in Core
CVE-2019-14008	Null Pointer Dereference Issue in GPS
CVE-2020-11120	Use After Free Issue in WLAN
CVE-2020-11288	Improper Restriction of Operation Within Bounds of Memory Buffer in Content Protection
CVE-2020-11300	Reachable Assertion in Modem
CVE-2020-11313	Reachable Assertion in Modem
CVE-2021-1886	Untrusted Pointer Dereference in Key Management
CVE-2021-1888	Double Free in QTEE
CVE-2021-1889	Buffer Copy Without Checking Size of Input in QTEE
CVE-2021-1890	Improper Restrictions of Operations within the Bounds of a Memory Buffer in QTEE
CVE-2021-1892	Reachable Assertion in WLAN
CVE-2021-1904	Information Exposure in Kernel

CVE-2021-1907	Information Exposure in QTEE
CVE-2021-1907	Improper Input Validation in Core
CVE-2021-1908	Improper Restrictions of Operations within the Bounds of a Memory Buffer in Trusted Application
CVE-2021-1909	Buffer Copy Without Checking Size of Input in Core
CVE-2021-1909	Buffer Copy Without Checking Size of Input in Core
CVE-2021-1909	Buffer Copy Without Checking Size of Input in Core
CVE-2021-1912	Integer Overflow or Wraparound in Trust Zone
CVE-2021-1913	Integer Overflow or Wraparound in Trust Zone
CVE-2021-1914	Loop with Unreachable Exit Condition in Modem
CVE-2021-1916	Integer Overflow to Buffer Overflow in Data Modem
CVE-2021-1916	Integer Overflow to Buffer Overflow in Data Modem
CVE-2021-1919	Integer Underflow in Data Modem
CVE-2021-1920	Integer Underflow in Data Modem
CVE-2021-1924	Cryptographic Issues in Core
CVE-2021-1925	Reachable Assertion in WLAN
CVE-2021-1926	Reachable Assertion in Modem
CVE-2021-1931	Buffer Copy Without Checking Size of Input in Boot
CVE-2021-1935	NULL Pointer Dereference in Trusted Application
CVE-2021-1937	Reachable Assertion in WLAN
CVE-2021-1946	Null Pointer Dereference in Data Modem
CVE-2021-1949	Integer Overflow or Wraparound in Display
CVE-2021-1952	Improper Restriction of Operations within the Bounds of a Memory Buffer in Boot
CVE-2021-1953	Reachable Assertion in Modem
CVE-2021-1955	Reachable Assertion in WLAN
CVE-2021-1959	Improper Authorization in Bluetooth
CVE-2021-1963	Integer Overflow or Wraparound in Modem
CVE-2021-1964	Buffer Over-read in WLAN
CVE-2021-1967	Stack-based Buffer Overflow in WLAN
CVE-2021-1975	Improper Restrictions of Operations within the Bounds of a Memory Buffer in Data Modem

20.4 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
QTIX5510-3033	Newly added BWs requires factory calibration	Behaviour is undefined (may crash) if uncalibrated modules attach to new bandwidths. This is mitigated by an OEM PRI update. Affected bands and bandwidths: n1 – 30MHz,40 MHz n3 – 25MHz, 30MHz n28 – 30MHz n66 – 30 MHz, 40MHz	RF
QTIX5510-3012	HW version not correctly returned	Affects ATI, AT!HWID, and various QMI, MBIM, and LWM2M commands	HW
QTIX5510-3060	On-board carrier switching	On-board carrier switching fails via AT!IMPREF or QMI	FW DL
FERRARI-1595	TMO Carrier PRI	5G will be disabled when switching from TMO Carrier PRI to certain Generic Carrier PRI 016.*. See PRI CRN for more details.	PRI
Release 1.1	Missing changes	Release 1.1 was built after Release 2. As such, changes described in Release 1.1 are not included in this release.	Branch

21 Release 1.1

Release 1.1 is a minor update for EM919x.

It is recommended for customers on SWIX55C_01.07.08.00, and SWIX55C_01.07.13.00 to upgrade the FW and Carrier PRI files to the new packages in SP1_RC7 or Release 1.1. See Section **Error! Reference source not found.** for more details.

21.1 Software Release Description

21.1.1 Release identification

Component	Revision
Firmware	SWIX55C_01.07.23.00
Date of generation (UTC)	2021/06/17 23:53:58
Binary Size	85MB
IMEI SV	9
Chipset Vendor Stack Version	SDX55.LE.1.1.r1-00009-NBOOT.NEFS.PROD-1.337585.19
Supported HW	EM9190, EM9191, EM7690

21.1.2 Software Tools Versions

The following tools were validated against this release.

S/W Tools Name	Version
Mobile Broadband Package for Windows	R21.0.20 B5163
Mobile Broadband Package for Linux	R21.0.20 B5164

21.1.3 Released Carrier Packages

Carrier	Firmware	Configuration	Comment
Approved			
AT&T	SWIX55C_01.07.13.00	012.007_002	Carrier Approved – SP1_RC5
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_01.07.23.00	016.018_000	GCF Approved – Release 1.1
GENERIC	SWIX55C_01.07.21.00	016.014_001	GCF Approved – SP1_RC7
GENERIC	SWIX55C_01.07.19.00	016.010_002	GCF Approved – SP1_RC6
GENERIC	SWIX55C_01.07.13.00	016.006_004	GCF and PTCRB Approved - SP1_RC5
GENERIC	SWIX55C_01.07.08.00	016.003_005	GCF Approved – SP1_RC3
TMO	SWIX55C_01.07.13.00	001.005_003	Carrier Approved - SP1_RC5
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
VERIZON	SWIX55C_01.07.23.00	012.019_000	Carrier Approved – Release 1.1
Test			
AT&T	SWIX55C_01.07.23.00	012.019_000	
DOCOMO	SWIX55C_01.07.23.00	004.013_000	
DT	SWIX55C_01.07.23.00	001.013_000	

Carrier	Firmware	Configuration	Comment
TELUS	SWIX55C_01.07.23.00	001.004_000	
TMO	SWIX55C_01.07.23.00	001.016_000	

Carrier	Firmware	Configuration	Comment
Approved			
AT&T	SWIX55C_01.07.13.00	012.007_002	Carrier Approved – SP1_RC5
DT	SWIX55C_01.07.13.00	001.002_002	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_01.07.23.00	016.018_000	GCF Approved – Release 1.1
GENERIC	SWIX55C_01.07.21.00	016.014_001	GCF Approved – SP1_RC7
GENERIC	SWIX55C_01.07.19.00	016.010_002	GCF Approved – SP1_RC6
GENERIC	SWIX55C_01.07.13.00	016.006_004	GCF and PTCRB Approved - SP1_RC5
GENERIC	SWIX55C_01.07.08.00	016.003_005	GCF Approved – SP1_RC3
TMO	SWIX55C_01.07.13.00	001.005_003	Carrier Approved - SP1_RC5
USCC	SWIX55C_01.07.19.00	016.010_002	Carrier Approved with Generic Carrier PRI – SP1_RC6
VERIZON	SWIX55C_01.07.23.00	012.019_000	Carrier Approved – Release 1.1
Test			
AT&T	SWIX55C_01.07.23.00	012.019_000	
DOCOMO	SWIX55C_01.07.23.00	004.013_000	
DT	SWIX55C_01.07.23.00	001.013_000	
TELUS	SWIX55C_01.07.23.00	001.004_000	
TMO	SWIX55C_01.07.23.00	001.016_000	

21.1.4 Released FW Components

Firmware File	Description
SWIX55C_01.07.08.00_004.cwe	SWIX55C_01.07.08.00 FW updated to support one-step upgrade to Release 2 ¹ , with mmWave

Firmware File	Description
SWIX55C_01.07.13.00_005.cwe	SWIX55C_01.07.13.00 FW updated to support one-step upgrade to Release 2 ¹ , with mmWave
SWIX55C_01.07.19.00_002.cwe	SWIX55C_01.07.19.00 with mmWave
SWIX55C_01.07.21.00_001.cwe	SWIX55C_01.07.21.00 with mmWave
SWIX55C_01.07.23.00_001.cwe	SWIX55C_01.07.23.00 with mmWave

See section **Error! Reference source not found.** for more details.

21.1.5 mmWave Packages

The mmWave QCN files are only to be used at customer factory before mmWave calibration. Do not download the QCN after a module has been calibrated.

21.1.5.1 QCN files

This section lists which files to use based on FW version for mmWave calibration.

The following files are to be used when calibrating with FW versions: SWIX55C_01.*.

CWE File	Notes
EM91_mmwQCN_1104567_1505_01.01.03.01.cwe	
EM91_mmwQCN_1104567_1506_01.01.03.01.cwe	
EM91_mmwQCN_1104567_1507_01.01.02.01.cwe	
EM91_mmwQCN_1104567_1508_01.01.02.01.cwe	
EM91_mmwQCN_1104705_2000_01.01.03.01.cwe	
EM91_mmwQCN_1104704_2050_01.01.01.01.cwe	
EM91_mmwQCN_1104839_2100_01.00.03.01.cwe	
EM91_mmwQCN_1104839_2101_01.00.01.01.cwe	
EM91_mmwQCN_1104567_2150_01.00.01.01.cwe	
EM91_mmwQCN_1104747_2200_01.00.01.01.cwe	
EM91_mmwQCN_1104567_2250_01.00.01.01.cwe	

21.1.5.2 RFC MBN SCAN

Refer to **Error! Reference source not found.**

21.2 Software Changes Description

This release includes the notable changes and features listed below.

ID	Title	Description	Impacted Domain
Protocol/Certification			
QTIX5510-3054	Rare Motive FOTA completion failure	Improved reliability of reporting the status of a FOTA operation to the server.	Verizon / LWM2M
QTIX5510-3020	Successive FOTA failure	After a successful FOTA operation, the next attempt will fail if the module has not been reset.	Verizon / LWM2M
QTIX5510-3093	FOTA failure if IPv6 DNS Lookup fails	If LWM2M IPv6 connection fails, improved fallback to IPv4.	Verizon / LWM2M
AT Commands			
QTIX5510-3014	AT!STSTATUS	Added AT command to report if Smart Transmit is enabled	AT / ST
QTIX5510-2948	AT!STEPS	Added AT command to report Smart Transmit file loaded on the module.	AT / ST
QTIX5510-3032	AT!STPURGE	Added AT command to delete Smart Transmit configuration from the module.	AT / ST
QTIX5510-2860	AT!TMSTATUS	Show temperature of all TM devices with AT!TMSTATUS?	AT
QTIX5510-2861	AT!LTEINFO	Fixed a rare crash when calling AT!LTEINFO?	AT
QTIX5510-3002	AT!GSTATUS	Fixed a rare crash when calling AT!GSTATUS?	AT
QTIX5510-2998	AT!LTEINFO	Show UL CA value in range of 0-5	AT
QTIX5510-3043	AT!DATXCONTROL / AT!DARCONFIG	Updated AT commands to test max TX power.	AT / FTM

21.3 Security Corrections/Improvements

None

21.4 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
QTIX5510-2897	AT!BAND limitation	In some cases AT!BAND? returns "Unknown Band Mask"	AT

22 SWIX55C SP1_RC7

SP1_RC7 is a minor release for EM919x.

It is recommended for customers on SWIX55C_01.07.08.00, and SWIX55C_01.07.13.00 to upgrade the FW and Carrier PRI files to the new packages in SP1_RC7. See Appendix A for more details.

22.1 Software Release Description

22.1.1 Release identification

Component	Revision
Firmware	SWIX55C_01.07.21.00
Date of generation (UTC)	2021/02/25 00:39:21
Binary Size	85MB
IMEI SV	9
Chipset Vendor Stack Version	SDX55.LE.1.1.r1-00009-NBOOT.NEFS.PROD-1.337585.18
Supported HW	EM9190, EM9191, EM7690

22.1.2 Software Tools Versions

The following tools were validated against this release.

S/W Tools Name	Version
Mobile Broadband Package for Windows	R17.0.20 B5136

S/W Tools Name	Version
Mobile Broadband Package for Linux	R17.0.20 B5137

22.1.3 Released Carrier Packages

Carrier	Firmware	Configuration	Comment
Approved			
AT&T	SWIX55C_01.07.13.00	012.007_001	Carrier Approved – SP1_RC5
GENERIC	SWIX55C_01.07.21.00	016.012_000	GCF Approved – SP1_RC7
GENERIC	SWIX55C_01.07.19.00	016.010_000	GCF Approved – SP1_RC6
GENERIC	SWIX55C_01.07.13.00	016.006_001	GCF and PTCRB Approved - SP1_RC5
GENERIC	SWIX55C_01.07.08.00	016.003_002	GCF Approved – SP1_RC3
TMO	SWIX55C_01.07.13.00	001.005_001	Carrier Approved - SP1_RC5
VERIZON	SWIX55C_01.07.19.00	012.012_000	Carrier Approved – SP1_RC6
Test			
AT&T	SWIX55C_01.07.21.00	012.014_000	
DOCOMO	SWIX55C_01.07.21.00	004.009_000	
DT	SWIX55C_01.07.21.00	001.009_000	
TMO	SWIX55C_01.07.21.00	001.012_000	
VERIZON	SWIX55C_01.07.21.00	012.014_000	

22.1.4 Released FW Components

Firmware File	Description
SWIX55C_01.07.08.00_000.cwe	SWIX55C_01.07.08.00 FW updated to support one-step upgrade to Release 2 ¹
SWIX55C_01.07.08.00_004.cwe	SWIX55C_01.07.08.00_000 with mmWave
SWIX55C_01.07.13.00_000.cwe	SWIX55C_01.07.13.00 FW updated to support one-step upgrade to Release 2 ¹
SWIX55C_01.07.13.00_005.cwe	SWIX55C_01.07.13.00_000 with mmWave

Firmware File	Description
SWIX55C_01.07.19.00.cwe	
SWIX55C_01.07.19.00_001.cwe	SWIX55C_01.07.19.00 with mmWave
SWIX55C_01.07.21.00.cwe	
SWIX55C_01.07.21.00_001.cwe	SWIX55C_01.07.21.00 with mmWave

See section **Error! Reference source not found.** for more details.

22.1.5 mmWave Packages

Refer to **Error! Reference source not found.**

22.2 Software Changes Description

This release includes the notable changes and features listed below.

ID	Title	Description	Impacted Domain
Protocol/Certification			
QTIX5510-2988	IMEI SV	Increased IMEI SV update to 9	PTCRB
Core			
QTIX5510-3003	MHI/PCIe patches	Improves PCIe S3/S4/S5 stability on some platforms	PCIe
QTIX5510-2908	Fixed "Remote" MBIM_DEV_TYPE behaviour	Setting MBIM_DEV_TYPE to "Remote" will not switch modem to LPM on OS shutdown	MBIM

22.3 Security Corrections/Improvements

None

22.4 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
QTIX5510-2897	AT!BAND limitation	In some cases AT!BAND? returns "Unknown Band Mask"	AT

23 SWIX55C SP1_RC6

SP1_RC6 is a major release for EM919x.

23.1 Software Release Description

23.1.1 Release identification

Component	Revision
Firmware	SWIX55C_01.07.19.00
Date of generation (UTC)	2021/02/11 02:17:18
Binary Size	85MB
IMEI SV	7
Chipset Vendor Stack Version	SDX55.LE.1.1.r1-00009-NBOOT.NEFS.PROD-1.337585.15
Supported H/W	EM9190, EM9191, EM7690

23.1.2 Software Tools Versions

The following tools were validated against this release

S/W Tools Name	Version
Mobile Broadband Package for Windows	R17.0.20 B5136
Mobile Broadband Package for Linux	R17.0.20 B5137

23.1.3 Released Components

Carrier	Firmware	Configuration	Comment
Approved			
GENERIC	SWIX55C_01.07.19.00	016.009_000	GCF Approved

Carrier	Firmware	Configuration	Comment
GENERIC	SWIX55C_01.07.13.00	016.006_000	GCF and PTCRB Approved - SP1_RC5
TMO	SWIX55C_01.07.13.00	001.005_000	Carrier Approved - SP1_RC5
Test			
AT&T	SWIX55C_01.07.19.00	012.011_000	
DOCOMO	SWIX55C_01.07.19.00	004.006_000	
DT	SWIX55C_01.07.19.00	001.006_000	
TMO	SWIX55C_01.07.19.00	001.009_000	
VERIZON	SWIX55C_01.07.19.00	012.011_000	

23.1.4 mmWave Package

Refer to **Error! Reference source not found.**

23.2 Software Changes Description

This release includes the notable changes and features listed below.

ID	Title	Description	Impacted Domain
Protocol/Certification			
QTIX5510-2862	IMEI SV	Increased IMEI SV update to 7	PTCRB
QTIX5510-2958 QTIX5510-2551 FERRARI-1299	ENDC Combos	Added support for DC_13A-66A_n2A and DC_13A_n2A	RF
QTIX5510-2923 QTIX5510-2937 QTIX5510-2829 QTIX5510-2938 QTIX5510-2536	Verizon LWM2M FOTA	Improved Verizon LWM2M FOTA stability	FOTA / Verizon
QTIX5510-2859	FOTA Storage Space	Fixed issue where FOTA storage space was not being returned to the server	LWM2M / AT&T
AT Commands			
QTIX5510-2444 FERRARI-852	AT!LTEINFO	Fixed issue where Mul was incorrectly reported	AT
QTIX5510-2776	AT!RFCOMBOS	Added command to display supported CA combos	AT
QTIX5510-2929 FERRARI-1170	AT!BAND	Fixed bug which prevented addition of new entries	AT

QTIX5510-2791	AT!RFCMBNSCAN	Fixed issue where garbage characters were being printed at the end of the output	AT
Core			
QTIX5510-2871 FERRARI-1215	OEM PRI check	Prevent download of mis-match OEM PRI (SKU)	FW DL
QTIX5510-2888 FERRARI-1244	Firmware download stability	Fixed crash if query firmware update status by QMI before performing FW download	FW DL
QTIX5510-2905 FERRARI-1295	FW Download Error	Return proper error codes to the host if FW download fails	FW DL
QTIX5510-2875	Safe Update	Enhanced CWE header detection for future Safe Update improvements.	FW DL
QTIX5510-2895 FERRARI-1171	NMEA over virtual COM port	Fixed bug which prevented NMEA streaming over virtual serial port	GNSS
QTIX5510-2903	Data Connection after APN change	In some cases, a data connection could not be started on Windows 10 if the connection profile changed in the UE via AT or OTA	DATA
QTIX5510-2889	Improved stability on Windows	Fixed memory leak in mhi_uci driver which caused crash after repeated Windows reboot	PCIe / Stability
FERRARI-1086	Network Name Query	When using the EM7690 with a 5G enabled SIM, the network name is not retrieved via AT or QMI. For example, AT+COPS and Manual Network Scan from the host do not work.	PLMN Name
QTIX5510-2935 FERRARI-1287	SMS	Fixed notification which prevented MBIM applications from receiving SMS	SMS

23.3 Security Corrections/Improvements

None

23.4 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
QTIX5510-2897	AT!BAND limitation	In some cases AT!BAND? returns "Unknown Band Mask"	AT

24 SWIX55C SP1_RC5.1

SP1_RC5.1 lists the mmWave packages from SP1_RC5.

24.1 Software Release Description

24.1.1 Release identification

Component	Revision
Firmware	SWIX55C_01.07.13.00
Date of generation (UTC)	2020/12/16 22:24:13
Binary Size	84.8 MB (uncompressed binaries)
IMEI SV	6
Chipset Vendor Stack Version	SDX55.LE.1.1.r1-00009-NBOOT.NEFS.PROD-1.337585.15
Supported H/W	EM9190, EM9191, EM7690

24.1.2 Software Tools Versions

S/W Tools Name	Version
Mobile Broadband Package for Windows	R16.0.20 B5125
Mobile Broadband Package for Linux	R16.0.20 B5126

24.1.3 Released Components

EM9190

Carrier	Firmware	Config	Comment
GENERIC	SWIX55C_01.07.13.00	016.006_000	GCF and PTCRB Approved - SP1_RC5
AT&T	SWIX55C_01.07.13.00	012.007_000	For test purposes only
DOCOMO	SWIX55C_01.07.13.00	004.003_000	For test purposes only

Carrier	Firmware	Config	Comment
DT	SWIX55C_01.07.13.00	001.002_000	For test purposes only
TMO	SWIX55C_01.07.13.00	001.005_000	Carrier Approved – SP1_RC5
VERIZON	SWIX55C_01.07.13.00	012.008_000	For test purposes only

24.1.4 mmWave Package

SWIX55C_01.07.13.00_003

at!rfcmbnscan?

1003_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1004_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1005_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1006_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1007_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1008_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1090_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1091_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1100_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1101_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1102_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1103_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1104_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1105_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1200_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1201_0_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:61
1500_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:1
1501_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:1
1502_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:1
1503_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:2
1504_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:1
1505_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:3
1506_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:3
1507_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:2
1508_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:2
1600_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:1
1650_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:3
1700_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:2
1800_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2020/12/16 22:24:13 rfctag: rfcver:1
2000_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2021/02/26 02:15:32 rfctag:003 rfcver:3
2050_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2021/02/26 02:15:32 rfctag:003 rfcver:1
2100_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2021/02/26 02:15:32 rfctag:003 rfcver:4
2150_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2021/02/26 02:15:32 rfctag:003 rfcver:1
2200_0.mbn: SWIX55C_01.07.13.00 000000 jenkins 2021/02/26 02:15:32 rfctag:003 rfcver:1

OK

24.2 Software Changes Description

No changes since SP1_RC5

24.3 Security Corrections/Improvements

None

24.4 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
FERRARI-3121	EM7690 reports "no Service" on Windows	Unable to initiate data connection with EM7690 on Windows	Windows
FERRARI-1170	AT!BAND limitation	Cannot add new AT!BAND entries	AT
QTIX5510-2897	AT!BAND limitation	In some cases AT!BAND? returns "Unknown Band Mask"	AT
FERRARI-1171	NMEA limitations	No NMEA data in virtual COM port	GNSS
QTIX5510-2935	Cannot receive SMS	New SMS messages are not displayed in Skylight.	SMS

25 SWIX55C SP1_RC5

SP1_RC5 is a major release for EM919x.

25.1 Software Release Description

25.1.1 Release identification

Component	Revision
Firmware	SWIX55C_01.07.13.00
Date of generation (UTC)	2020/12/16 22:24:13
Binary Size	84.8 MB (uncompressed binaries)
IMEI SV	6
Chipset Vendor Stack Version	SDX55.LE.1.1.r1-00009-NBOOT.NEFS.PROD-1.337585.15
Supported H/W	EM9190, EM9191, EM7690

25.1.2 Software Tools Versions

S/W Tools Name	Version
Mobile Broadband Package for Windows	R16.0.20 B5125
Mobile Broadband Package for Linux	R16.0.20 B5126

25.1.3 Released Components

EM9190

Carrier	Firmware	Config	Comment
GENERIC	SWIX55C_01.07.13.00	016.006_000	GCF and PTCRB Approved - SP1_RC5
AT&T	SWIX55C_01.07.13.00	012.007_000	For test purposes only
DOCOMO	SWIX55C_01.07.13.00	004.003_000	For test purposes only

Carrier	Firmware	Config	Comment
DT	SWIX55C_01.07.13.00	001.002_000	For test purposes only
TMO	SWIX55C_01.07.13.00	001.005_000	Carrier Approved – SP1_RC5
VERIZON	SWIX55C_01.07.13.00	012.008_000	For test purposes only

25.2 Software Changes Description

This release includes the notable changes and features listed below.

ID	Title	Description	Impacted Domain
Protocol/Certification			
QTIX5510-2858	AT&T LWM2M FOTA	Fixed issues preventing AT&T LWM2M FOTA	FOTA / AT&T
QTIX5510-2785	Verizon LWM2M FOTA	Improved Verizon LWM2M FOTA stability	FOTA / Verizon

25.3 Security Corrections/Improvements

None

25.4 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
FERRARI-3121	EM7690 reports "no Service" on Windows	Unable to initiate data connection with EM7690 on Windows	Windows
FERRARI-1170	AT!BAND limitation	Cannot add new AT!BAND entries	AT
QTIX5510-2897	AT!BAND limitation	In some cases AT!BAND? returns "Unknown Band Mask"	AT
FERRARI-1171	NMEA limitations	No NMEA data in virtual COM port	GNSS
QTIX5510-2935	Cannot receive SMS	New SMS messages are not displayed in Skylight.	SMS

26 SWIX55C SP1_RC4

SP1_RC4 is a major release for EM919x.

26.1 Software Release Description

26.1.1 Release identification

Component	Revision
Firmware	SWIX55C_01.07.12.00
Date of generation (UTC)	2020/12/15 00:45:35
Binary Size	84.8 MB (uncompressed binaries)
IMEI SV	4
Chipset Vendor Stack Version	SDX55.LE.1.1.r1-00009-NBOOT.NEFS.PROD-1.337585.15
Supported H/W	EM9190, EM9191, EM7690

26.1.2 Software Tools Versions

S/W Tools Name	Version
Mobile Broadband Package for Windows	R16.0.20 B5125
Mobile Broadband Package for Linux	R16.0.20 B5126

26.1.3 Released Components

EM9190

Carrier	Firmware	Config	Comment
GENERIC	SWIX55C_01.07.12.00	016.005_000	GCF Approved - SP1_RC4
AT&T	SWIX55C_01.07.12.00	012.006_000	Test - SP1_RC4

Carrier	Firmware	Config	Comment
DOCOMO	SWIX55C_01.07.12.00	004.002_000	Test - SP1_RC4
DT	SWIX55C_01.07.12.00	001.001_000	Test - SP1_RC4
TMO	SWIX55C_01.07.12.00	001.003_000	Test - SP1_RC4
VERIZON	SWIX55C_01.07.12.00	012.007_000	Test - SP1_RC4

26.2 Software Changes Description

This release includes the notable changes and features listed below.

ID	Title	Description	Impacted Domain
Core			
QTIX5510-2799	QTI Stack Updated	Added SDX55.LE.1.1-r00009.1.337585.15 - See QTIX5510-2669 below.	System
QTIX5510-2795	Deutsche Telecom	Added carrier ID for Deutsche Telecom	System
QTIX5510-2787	PCIe crash during repeated data connection attempts.	Fixed memory leak in MHI driver.	PCIe
QTIX5510-2732	ENDC FR2 crash	Improved handling of corrupted NR TB	Stability
Protocol/Certification			
QTIX5510-2806	LTE-N30-1-3042	Resolve AT&T LTE-N30-1-3042	AT&T
QTIX5510-2801	LTE-BTR-1-0914	Resolve AT&T SIM-ME LTE-BTR-1-0914	AT&T
QTIX5510-2781	Verizon LWM2M FOTA APN	Verizon LWM2M FOTA download will now use VZWADMIN APN	Verizon
QTIX5510-2762	Verizon LWM2M 24h test	Fixed issue which prevented regular check-ins with Verizon Server during 24h longevity test	Verizon
QTIX5510-2669	NTT 4G IOT DST IO010433	Fix IRAT behaviour from WCDMA to LTE then back to WCDMA	NAS / Docomo
AT Commands			
FERRARI-1149	Support NR debug info	AT!NRINFO and various QMI_NAS commands updated to report additional 5G info	AT
FERRARI-1113	AT!TMSTATUS improvements	AT!TMSTATUS now reports QTM527 temperature	AT
FERRARI-1039	AT!GSTATUS improvements	Sub6 TX power added to AT!GSTATUS	AT
FERRARI-1188	AT+CGDCONT improvements	AT+CGDCONT can now be used when SIM is not present	AT
QTIX5510-2821	AT!RFCID improvements	AT!RFCID read operation is no longer password protected	AT

26.3 Security Corrections/Improvements

CVE	Description

26.4 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
FERRARI-1170	AT!BAND limitation	Cannot add new AT!BAND entries	AT
QTIX5510-2897	AT!BAND limitation	In some cases AT!BAND? returns "Unknown Band Mask"	AT
FERRARI-1171	NMEA limitations	No NMEA data in virtual COM port	GNSS
QTIX5510-2858	AT&T LWM2M FOTA	AT&T LWM2M FOTA fails	AT&T
QTIX5510-2698	SMS decoding incorrect	All SMS received in Windows are treated as Class 0 SMS	SMS
QTIX5510-2785	Verizon LWM2M FOTA	Verizon LWM2M FOTA restarts unreliable	Verizon

27 Troubleshooting

27.1 QXDM Logging

To improve security, QXDM access is restricted by default.

To enable QXDM logging:

- Set AT!CUSTOM="DIAGENABLE",1. For additional information, see [3] EM9 Series AT Command Reference.

Please contact sierrawireless.com/support for any additional issues related to Sierra Wireless products.

28 Firmware Package Download Process

28.1 Windows Host via USB/PCIe

To download a firmware package on a Windows host:

1. Power on the EM9 module.
2. Make sure the latest driver is installed, and AT / DM ports over USB / PCIe are working from the host side.
3. Enter the following command:
`$ fdt2.exe -d g5k -f SWIX55C_03.16.00.00.cwe SWIX55C_03.16.00.00_GENERIC_030.101_000.nvu`

28.2 Linux Host via USB / PCIe

To download a firmware package on a Linux host:

1. Power on the EM9 module
2. Make sure the latest driver is installed, the latest FW download tool is used, and AT / DM ports over USB / PCIe are working from the host side.
3. Copy SWIX55C_03.16.00.00_GENERIC_030.101_000.nvu to ./FW-PRI folder
4. Enter the following command:
`$ sudo ./fwdwl-litehostx86_64 -l mbim.log -f ../FW-PRI/ -t 1 -w SWIX55C_03.16.00.00.cwe
SWIX65C_03.16.00.00_GENERIC_030.101_000.nvu`

29 Related Documentation

Module resources, including product documentation, firmware packages and tools are published on The Source at <https://source.sierrawireless.com>.

Table 29. Reference Documents

Reference Document	Document #
[1] EM91 Migration Guide	
[2] EM919x/EM7690 PRI Customer Release Notes	4134839
[3] EM9 Series AT Command Reference	41113480
[4] EM919x/EM7690 Product Technical Specification	41113174

30 Abbreviations and Definitions

Table 30. Abbreviations and Acronyms

Abbreviation / Acronym	Definition
CVE	Common Vulnerabilities and Exposures
DV	Design Verification
FDT	Firmware Download Tool
FTM	Factory Test Mode
QMI	Qualcomm MSM Interface Qualcomm Modem Interface