

Product change note

Topic SARA-R500S-00B SARA-R510S-00B, SARA-R510M8S-00B firmware update Rev. R03
UBX-22037376 C1-Public

Author Alessandro Bonetti

Date 17-Jan-2024

Copying, reproduction, modification or disclosure to third parties of this document or any part thereof is only permitted with the express written permission of u-blox. The information contained herein is provided "as is" and u-blox assumes no liability for its use. No warranty, either express or implied, is given, including but not limited, with respect to the accuracy, correctness, reliability and fitness for a particular purpose of the information. This document may be revised by u-blox at any time. For most recent documents, visit www.u-blox.com.
Copyright© u-blox AG.

1 Affected products

Product name	Ordering code	Type number (old)	Firmware (old)	Type number (new)	Firmware (new)
SARA-R500S	SARA-R500S-00B	SARA-R500S-00B-02	02.09, A00.01	SARA-R500S-00B-03	02.10, A00.01
SARA-R510S	SARA-R510S-00B	SARA-R510S-00B-02	02.09, A00.01	SARA-R510S-00B-03	02.10, A00.01
SARA-R510M8S	SARA-R510M8S-00B	SARA-R510M8S-00B-02	02.09, A00.01	SARA-R510M8S-00B-03	02.10, A00.01

2 Type

- | | |
|--|--|
| <input type="checkbox"/> Product status change | <input type="checkbox"/> Documentation update |
| <input type="checkbox"/> Hardware/component change | <input type="checkbox"/> Certification information |
| <input checked="" type="checkbox"/> Firmware/software update | <input type="checkbox"/> Security advisory |
| <input type="checkbox"/> Label change | <input type="checkbox"/> Other |

3 Description

A new firmware release is available for the affected products and will be applied in production according to the schedule below. The changes made on the firmware are as follows:

- [u-blox ID 583, u-blox ID 590, u-blox ID 591] Implementation of RTC aware backoff timer management: backoff timers (e.g. 3346) are stored to NVM at switch-off and updated at switch-on based on current system time information. For power consumption optimized devices not supporting RTC and switched on rarely, an optional operational mode has been added where backoff timers are cleared at switch-on following a regular switch off.
- [u-blox ID 589] SoftECC introduced to increase file system robustness.
- [u-blox ID 562] Improved consistency of data in CellLocate requests to ensure highest resolution rate.
- Updated PLMN list to GSMA TS.25.
- [u-blox ID 586] Lwm2M feature disabled at boot by factory-programmed setting.

4 Schedule

Product type number (new)	Estimated first shipment date ¹
SARA-R500S-00B-03	2023 CW06

¹ The estimated first shipment date is the forecasted date when a customer may expect to receive the changed product with the new type number. This is determined by the estimated date of inventory depletion on the PCN issue date. This may be affected by fluctuations in supply and demand. Consequently, although customers should be prepared to receive the changed product on this date, u-blox will continue to ship the pre-changed product until the inventory has been depleted. This may result in the pre-changed product being shipped to customers after this forecasted date.

Product type number (new)	Estimated first shipment date ¹
SARA-R510S-00B-03	2023 CW06
SARA-R510M8S-00B-03	2023 CW06

5 Customer impact and recommended action

- It is recommended to use this PCN FW version on new devices for certification activities.
- See section 6.2 for host device certifications impact and recommended action.

6 Certifications

6.1 Certifications achieved

Regulatory certifications of the modules remain unchanged and valid:

Certification	SARA-R500S-00B-03	SARA-R510S-00B-03	SARA-R510M8S-00B-03
CE Europe	■	■	■
Model name	SARA-R500S	SARA-R510S	SARA-R510M8S
UKCA Great Britain	■	■	■
Model name	SARA-R500S	SARA-R510S	SARA-R510M8S
FCC United States	■	■	■
FCC ID	XPYUBX19KM01	XPYUBX19KM01	XPYUBX19KM01
Date of grant	07/23/2020	07/23/2020	07/23/2020
ISED Canada	■	■	■
Certification Number	8595A-UBX19KM01	8595A-UBX19KM01	8595A-UBX19KM01
HVIN	SARA-R500S	SARA-R510S	SARA-R510M8S
Approval date	2020-11-03	2020-11-03	2020-07-23
GITEKI Japan	■	■	■
[R] Certificate number	003-200173	003-200173	003-200173
[T] Certificate number	D200145003	D200145003	D200145003
NCC Taiwan	■	■	■
Certificate number	CCAF21Y0010BT1	CCAF21Y0010AT9	CCAF21Y00100T7
ACMA RCM Australia	■	■	■
Model name	SARA-R500S	SARA-R510S	SARA-R510M8S

The conformance and MNOs certifications have been updated:

Certification	SARA-R500S-00B-03	SARA-R510S-00B-03	SARA-R510M8S-00B-03
PTCRB	■	■	■
Model name	SARA-R500S	SARA-R510S	SARA-R510M8S
AT&T	■	■	■
Model name	SARA-R500S	SARA-R510S	SARA-R510M8S
Verizon	■	■	■
Model name	SARA-R500S	SARA-R510S	SARA-R510M8S

6.2 Customer host device certifications impact and recommended action

The FW changes do not affect RF / EMC properties of the modem.

- Country regulatory approvals:
 - Country regulatory approvals of the modules remain valid.
 - u-blox recommends that integrators check with their preferred certification body to find out if any action is needed for the regulatory approvals of the host product. For example, FCC and ISED IDs remain unchanged: no action is needed if the module ID is re-used.
- Conformance approvals:
 - PTCRB certifications have been updated from the “00B-02” product versions.
 - u-blox recommends integrators having the PTCRB approval in place for the host product to execute the PTCRB ECO certification process due to the use of the new FW version of the module in the host product (no testing is expected, paperwork only).
- Mobile network operators (MNO) approvals:
 - MNO approvals have been updated from the “00B-02” product versions.
 - u-blox recommends integrators having any MNO approval in place for the host product to notify related mobile network operator due to the use of the new FW version of the module in the host product (no testing is expected, paperwork only).

7 Firmware update

- SARA-R5 00B-01 (02.06, A00.01) units can be updated to this PCN firmware.
- SARA-R5 00B-02 (02.09, A00.01) units can be updated to this PCN firmware.

The introduction of SoftECC [u-blox ID 301] requires additional update steps to fully support the feature:

- If the firmware update method is FOTA, after having updated a module to 00B-03 official firmware, two more updates shall be performed: the first from 02.10, A00.01 to 02.10 A00.99, the second from 02.10 A00.99 to 02.10, A00.01.
- If the firmware update method is FOAT, the update procedure must be performed twice with the same update file, finally at next boot issue AT+UFACTORY=0,2.
- If the firmware update method is via EasyFlash tool, once the update is completed, at next boot issue AT+UFACTORY=0,2.

7.1 Firmware update packages and md5 signature

Product / delivery	Filename	md5sum
SARA-R500S		
EasyFlash	SARA-R500S-00B-03-IP-0210A0001-004K00.dof	7cd21259709b0e3c57da5bc05e7e3cc3
FOAT	SARA-R500S-00B-03-IP-0210A0001-004K00.upd	e87fa385b88d86548f6a03f61acc6693
FOTA 02.06 to 02.10 uFOTA ID: 1835	SARA-R500S-00B-01-P2-0206A0001-004K00_SARA-R500S-00B-03-IP-0210A0001-004K00.upd	451e65bae230f936504071c61d747f1b
FOTA 02.09 to 02.10 uFOTA ID: 1836	SARA-R500S-00B-02-IP-0209A0001-004K00_SARA-R500S-00B-03-IP-0210A0001-004K00.upd	8685de26051e7457dff78a2fd82ed0cc
FOTA 02.10 A00.01 to 02.10 A00.99	SARA-R500S-00B-03-IP-0210A0001-004K00_SARA-R500S-00B-03-XX-0210A0099-004K00.upd	68ce9bd2c82dcb050f77e964810a026e

Product / delivery	Filename	md5sum
FOTA 02.10 A00.99 to 02.10 A00.01	SARA-R500S-00B-03-XX-0210A0099-004K00_SARA-R500S-00B-03-IP-0210A0001-004K00.upd	cda3b696a58cb268fffeaa20169579d86
FOTA test 02.10 to ENG0099 uFOTA ID: 1845	SARA-R500S-00B-03-IP-0210A0001-004K00_SARA-R500S-00B-03-XX-0210ENG0099A0001-004K00.upd	f878e41cc5de31837c241b6e5cce5ed7
FOTA test ENG0099 to 02.10 uFOTA ID: 1846	SARA-R500S-00B-03-XX-0210ENG0099A0001-004K00_SARA-R500S-00B-03-IP-0210A0001-004K00.upd	3853a73807b86f4d695ba894160f14ea
SARA-R510M8S		
EasyFlash	SARA-R510M8S-00B-03-IP-0210A0001-006K00.dof	168f44cec389029bae282bc4a619f6b0
FOAT	SARA-R510M8S-00B-03-IP-0210A0001-006K00.upd	566420937f5aeb1684a2aba095de4b82
FOTA 02.06 to 02.10 uFOTA ID: 1843	SARA-R510M8S-00B-01-P2-0206A0001-006K00_SARA-R510M8S-00B-03-IP-0210A0001-006K00.upd	eb68a1c56cc208e0570d2aa414e922f3
FOTA 02.09 to 02.10 uFOTA ID: 1844	SARA-R510M8S-00B-02-IP-0209A0001-006K00_SARA-R510M8S-00B-03-IP-0210A0001-006K00.upd	ca44602f190cca3f051c0a087761e59b
FOTA 02.10 A00.01 to 02.10 A00.99	SARA-R510M8S-00B-03-IP-0210A0001-006K00_SARA-R510M8S-00B-03-XX-0210A0099-006K00.upd	7d213470e1ac028a6a5a833d69cbd43f
FOTA 02.10 A00.99 to 02.10 A00.01	SARA-R510M8S-00B-03-XX-0210A0099-006K00_SARA-R510M8S-00B-03-IP-0210A0001-006K00.upd	bb2348358100e073d541a9b7b12e22b3
FOTA test 02.10 to ENG0099 uFOTA ID: 1847	SARA-R510M8S-00B-03-IP-0210A0001-006K00_SARA-R510M8S-00B-03-XX-0210ENG0099A0001-006K00.upd	2edcfee81bdb271419ec07623cbbd322
FOTA test ENG0099 to 02.10 uFOTA ID: 1848	SARA-R510M8S-00B-03-XX-0210ENG0099A0001-006K00_SARA-R510M8S-00B-03-IP-0210A0001-006K00.upd	058873ee7bbe2588c7f20035f4dec029
SARA-R510S		
EasyFlash	SARA-R510S-00B-03-IP-0210A0001-005K00.dof	2d6695fa235a7e35579fb835fd375f78
FOAT	SARA-R510S-00B-03-IP-0210A0001-005K00.upd	a31e8ea949d042488014ed6e42af57ee
FOTA 02.06 to 02.10 uFOTA ID: 1839	SARA-R510S-00B-01-P2-0206A0001-005K00_SARA-R510S-00B-03-IP-0210A0001-005K00.upd	1e727156fdf8d7679edd5e7d25d6aa47
FOTA 02.09 to 02.10 uFOTA ID: 1840	SARA-R510S-00B-02-IP-0209A0001-005K00_SARA-R510S-00B-03-IP-0210A0001-005K00.upd	7304fb71a0d667b325a3a4f29658d40d
FOTA 02.10 A00.01 to 02.10 A00.99	SARA-R510S-00B-03-IP-0210A0001-005K00_SARA-R510S-00B-03-XX-0210A0099-005K00.upd	a3444b5b6f1bc9a789332fc9e93adcaa
FOTA 02.10 A00.99 to 02.10 A00.01	SARA-R510S-00B-03-XX-0210A0099-005K00_SARA-R510S-00B-03-IP-0210A0001-005K00.upd	832911ba53fade81c0045e5abb68cd8e
FOTA test 02.10 to ENG0099 uFOTA ID: 1849	SARA-R510S-00B-03-IP-0210A0001-005K00_SARA-R510S-00B-03-XX-0210ENG0099A0001-005K00.upd	4472cbb302d61ab7375db8a6246aa869

Product / delivery	Filename	md5sum
FOTA test ENG0099 to 02.10 uFOTA ID: 1880	SARA-R510S-00B-03-XX-0210ENG0099A0001-005K00_SARA-R510S-00B-03-IP-0210A0001-005K00.upd	1a415abc42c19b8f576030609052fd16

Download EasyFlash .dof images from [SARA-R5 series Documentation and resources](#). For other FW packages, contact u-blox technical support, www.u-blox.com/support. For more details of FW update, see SARA-R5 series FW update application note [9].

8 Tools

- m-center v02.07.00 – Download from the u-blox.com website via this page: [m-center](#)
- EasyFlash 13.06 – Download from the u-blox.com website via this link: [EasyFlash 13.06](#)

9 Related documentation

- [1] SARA-R5 series AT commands manual, [UBX-19047455](#)
- [2] SARA-R5 series data sheet, [UBX-19016638](#)
- [3] SARA-R5 series system integration manual, [UBX-19041356](#)
- [4] EVK-R5 user guide, [UBX-19042592](#)
- [5] SARA-R5 application development guide, [UBX-20009652](#)
- [6] SARA-R4 / SARA-R5 Internet applications development guide, [UBX-20032566](#)
- [7] SARA-R4 / SARA-R5 GNSS implementation application note, [UBX-20012413](#)
- [8] SARA-R4 / SARA-R5 LwM2M objects and commands application note, [UBX-18068860](#)
- [9] SARA-R5 firmware update application note, [UBX-20033314](#)
- [10] SARA-R5 IP information note, [UBX-20037360](#)

Appendix

A Known limitations

Antenna detection

- [u-blox ID 1187] The +UANTR AT command fails to detect a load resistor as open circuit when its value is above the maximum limit of 53 kΩ. This does not affect module capability to detect a real open circuit condition.

Connectivity

- [u-blox ID 1645] The CONNECT result code is not returned after entering data mode via ATO.
- [u-blox ID 2553] The DCD line is wrongly set to OFF during the online command mode (OLCM).
- [u-blox ID 4565] ATO does not respond if NO CARRIER final result code is received during OLCM. Suggestion: ATO shall be given only if the module is in OLCM.

Internet suite

- [u-blox ID 4237] The AT+UMQTT=6 output (read all unread MQTT messages) may be truncated when unread messages content is higher than 1 kB. It is suggested to read messages one by one with AT+UMQTTC=6,1.

Last gasp

- [u-blox ID 4583] Last gasp feature supports only SMS in text format.

Registration/Network services

- [u-blox ID 4509] If the module is deregistered from network (+COPS: 2), AT+CGACT=1,1 does not respond. Workaround: make sure that +COPS: 0 or +COPS: 1 are set before to issue the AT+CGACT=1 command.
- [u-blox ID 4578] Manual registration (AT+COPS=1) with alphanumeric format for operator is not supported.

Positioning

- [u-blox ID 2235] GNSS automatic local aiding (AT+UGPS=1,1) does not provide position information. Time information is correctly handled.
- [u-blox ID 4515] [u-blox ID 4995] GNSS data ready not working when the power saving mode is enabled.

PS data call

- [u-blox ID 3804] The +UAUTHREQ AT command setting is not persistent upon reboot.

PSM

- [u-blox ID 3642] A module reboot is needed to apply +UPSV: 2 (power saving controlled by UART RTS line) when the UART interface is used in 4-wire configuration.
- [u-blox ID 3708] The module is not able to enter the deep sleep mode if UART with hardware flow control is enabled, RTS is OFF and some data is ready to be sent (e.g. URC).

SIM management

- [u-blox ID 1433] The +UUSIMSTAT: 3 URC is not displayed when the PUK is blocked.

System time

- [u-blox ID 4580] [SARA-R510M8S] [SARA-R500S] Wake-up from +CALA alarm is delayed by the time elapsed between the alarm set and the module power-off event. It is suggested to set the +CALA AT command as the last operation before the module power-off. Exit from PSM deep sleep mode is delayed by about 2 s.
- [u-blox ID 4454] Date and time are lost when RESET_N is used to reset the module.