

## Product change note

**Topic** SARA-R500S-01B, SARA-R510S-01B, SARA-R510M8S-01B firmware update Rev. 2  
UBX-22038371 C1-Public

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### 1 Affected products

Product name	Ordering code	Type number (old)	Firmware (old)	Type number (new)	Firmware (new)
SARA-R500S	SARA-R500S-01B	SARA-R500S-01B-00	03.15, A00.01	SARA-R500S-01B-01	03.30, A00.01
SARA-R510S	SARA-R510S-01B	SARA-R510S-01B-00	03.15, A00.01	SARA-R510S-01B-01	03.30, A00.01
SARA-R510M8S	SARA-R510M8S-01B	SARA-R510M8S-01B-00	03.15, A00.01	SARA-R510M8S-01B-01	03.30, A00.01

### 2 Type

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

### 3 Description of changes

#### 3.1 Hardware

The embedded Security (eSE) chip and related passive components have been removed from the Bill Of Materials.

**Note:**

- No changes on the PCB
- eSE chip removed with the discontinuation of SaaS
- RF performance are not impacted

#### 3.2 Firmware

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

##### Internet suite

- [u-blox ID 287] For default TLS version (+USECPRF=<prof\_id>,1,0), the ClientHello, previously claiming only the support for TLS 1.3, now declares support also for TLS 1.2 allowing secure connections establishment with TLS1.2 and/or TLS1.3 servers without workarounds.
- Added ALPN (Application Layer Protocol Name) TLS 1.2 extension.
- [u-blox ID 6567] Fixed: The DNS configuration via +UPSD AT command cannot be applied to the initial default bearer DNSs.

### **Registration/Network services**

- [u-blox ID 308, u-blox ID 309] Implementation of RTC aware backoff timer management: backoff timers (e.g. 3346) are stored into the 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.
- Updated PLMN list to GSMA TS.25
- [u-blox ID 37] Telstra MNO: UE will now trigger attach after PUK verification.
- [u-blox ID 248] Fixed: T-Mobile MNO: UE's usage setting "DATA\_CENTRIC" IEI in the attach request was missing.
- [u-blox ID 249] T-Mobile MNO: MCC/MNC home network list aligned with TMO latest requirements.
- [u-blox ID 372] Fixed: changing the module configuration from M1 to NB after the reboot the module registers in NB. The module goes into deep sleep and, when exiting the PSM, the only +URAT? command is reporting a wrong value.

### **File System**

- [u-blox ID 301] Introduced SoftECC to increase file system robustness.

### **Security**

- [u-blox ID 284] Removed support of Software-as-a-Service (SaaS) package.

### **LwM2M**

- [u-blox ID 329] LwM2M feature disabled at boot by factory default.

### **Location features**

- Added new ULOCEXT command to support Wi-Fi location feature.
- [u-blox ID 562] Improved consistency of data in Cell Locate requests to ensure highest resolution rate.

### **System features**

[u-blox ID 480] Added antenna dynamic tuner configuration feature.

## **4 Schedule**

<b>Product type number (new)</b>	<b>Estimated first shipment date<sup>1</sup></b>
SARA-R500S-01B-01	2023 CW30
SARA-R510S-01B-01	2023 CW30
SARA-R510M8S-01B-01	2023 CW30

<sup>1</sup> 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.

## 5 Customer impact and recommended action

- Backward compatibility between new type number and its predecessor is ensured.
- The HW / FW changes from the “01B-00” to the “01B-01” type number do not affect electrical, RF or EMC properties of the modem.

## 6 Certifications

### 6.1 Certifications achieved

Certifications available for the “01B-00” product versions are also available for the “01B-01” product versions, if applicable.

### 6.2 Customer host device certifications impact and recommended action

- 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.
- Conformance approvals:
  - PTCRB certifications have been updated from the “01B-00” 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 HW and 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 “01B-00” 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 HW and FW version of the module in the host product (no testing is expected, paperwork only).

## 7 Firmware update

SARA-R5 01B-00 (03.15, 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 or uFOTA, after having updated a module to 01B-01 official firmware, two more updates shall be performed: the first from 03.30, A00.01 to 03.30, A00.99, the second from 03.30, A00.99 to 03.30, A00.01. Finally, at next boot, issue AT+UFACTORY=0,2.
- 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.

Note that 03.30, A00.99 is to be used only as a temporary firmware for the procedure above, it shall not be used in the field for normal operation.

## 7.1 Firmware update packages and md5 signature

Product / delivery	Filename	md5sum
<b>SARA-R500S</b>		
EasyFlash	SARA-R500S-01B-01-IP-0330A0001-004K00.dof	9893c711987aff7aa9f6518ad7e1657a
FOAT	SARA-R500S-01B-01-IP-0330A0001-004K00.upd	932cf1a4917ee6f7f3dce6a314998b0f
FOTA 03.15 to 03.30 uFOTA ID: 2028	SARA-R500S-01B-00-IP-0315A0001-004K00_SARA-R500S-01B-01-IP-0330A0001-004K00.upd	5f86e91e0f52123ae6a8b2e36e0bb085
FOTA 03.30 A00.01 to 03.30 A00.99 uFOTA ID: 2171	SARA-R500S-01B-01-IP-0330A0001-004K00_SARA-R500S-01B-01-IP-0330A0099-004K00.upd	d662e02fc3cf7e48260ef6445bf3dba0
FOTA 03.30 A00.99 to 03.30 A00.01 uFOTA ID: 2173	SARA-R500S-01B-01-IP-0330A0099-004K00_SARA-R500S-01B-01-IP-0330A0001-004K00.upd	53797aa59b6f9b02b7f222df933d6a59
FOTA test 03.30 to ENG uFOTA ID: 2015	SARA-R500S-01B-01-IP-0330A0001-004K00_SARA-R500S-01B-01-XX-0330ENG0399A0001-004K00.upd	3b8024d089cd2ac4686fe1f0d35213c7
FOTA test ENG to 03.30 uFOTA ID: 2018	SARA-R500S-01B-01-XX-0330ENG0399A0001-004K00_SARA-R500S-01B-01-IP-0330A0001-004K00.upd	46dbe4ff1df58e4a3121e382efd2fcfa
<b>SARA-R510M8S</b>		
EasyFlash	SARA-R510M8S-01B-01-IP-0330A0001-006K00.dof	ff48ad56cbe3bab969f427e29fb5f448
FOAT	SARA-R510M8S-01B-01-IP-0330A0001-006K00.upd	b0b5e0c3e244c85f764c1bd749b38c39
FOTA 03.15 to 03.30 uFOTA ID: 2027	SARA-R510M8S-01B-01-IP-0330A0001-006K00_SARA-R510M8S-01B-00-IP-0315A0001-006K00.upd	3dd93004cbdf4ff2d8e3c369d6cf9cdf
FOTA 03.30 A00.01 to 03.30 A00.99 uFOTA ID: 2176	SARA-R510M8S-01B-01-IP-0330A0001-006K00_SARA-R510M8S-01B-01-IP-0330A0099-006K00.upd	b623dd347f47913d6e94a43cf0be2b51
FOTA 03.30 A00.99 to 03.30 A00.01 uFOTA ID: 2177	SARA-R510M8S-01B-01-IP-0330A0099-006K00_SARA-R510M8S-01B-01-IP-0330A0001-006K00.upd	245fa83ff2ed141185180f59f686ecf6
FOTA test 03.30 to ENG FOTA ID: 2019	SARA-R510M8S-01B-01-IP-0330A0001-006K00_SARA-R510M8S-01B-01-XX-0330ENG0399A0001-006K00.upd	11d227ab608c8778b3bd83dfd522fff0
FOTA test ENG to 03.30 uFOTA ID: 2020	SARA-R510M8S-01B-01-XX-0330ENG0399A0001-006K00_SARA-R510M8S-01B-01-IP-0330A0001-006K00.upd	64f04f6408393cab3cda0c13f1f88848
<b>SARA-R510S</b>		
EasyFlash	SARA-R510S-01B-01-IP-0330A0001-005K00.dof	4ec38cf04961b9bb28133d5f1f5bc77a
FOAT	SARA-R510S-01B-01-IP-0330A0001-005K00.upd	f4e16f63038af7b9fc52eaa56cb03016
FOTA 03.15 to 03.30 uFOTA ID: 2025	SARA-R510S-01B-00-IP-0315A0001-005K00_SARA-R510S-01B-01-IP-0330A0001-005K00.upd	d5813d5d36e1400f70e3862362fe98f7
FOTA 03.30 A00.01 to 03.30 A00.99 uFOTA ID: 2174	SARA-R510S-01B-01-IP-0330A0001-005K00_SARA-R510S-01B-01-IP-0330A0099-005K00.upd	51a243f0d722572038239fee21b326b6

Product / delivery	Filename	md5sum
FOTA 03.30 A00.99 to 03.30 A00.01 uFOTA ID: 2175	SARA-R510S-01B-01-IP-0330A0099-005K00_SARA-R510S-01B-01-IP-0330A0001-005K00.upd	de4abe9533c1a8e10fc23317ba0b3ee3
FOTA test 03.30 to ENG uFOTA ID: 2016	SARA-R510S-01B-01-IP-0330A0001-005K00_SARA-R510S-01B-01-XX-0330ENG0399A0001-005K00.upd	a98720ee3ece7e5c5b25bf5ce9f6b936
FOTA test ENG to 03.30 uFOTA ID: 2017	SARA-R510S-01B-01-XX-0330ENG0399A0001-005K00_SARA-R510S-01B-01-IP-0330A0001-005K00.upd	2bf7b906d865604d3b7e05da9785c681

Download EasyFlash images from SARA-R5 series documentation & resources [5].  
For other FW packages, contact u-blox technical support, [www.u-blox.com/support](http://www.u-blox.com/support).  
For more details of FW update, see SARA-R5 series FW update application note [4].

## 8 Tools

- [m-center v02.07.00](#)
- [EasyFlash 13.07](#)

## 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] SARA-R5 series FW update application note, [UBX-20033314](#)
- [5] SARA-R5 series [documentation and resources](#)

## Appendix

### A Restrictions compared to specifications

#### A.1 Hardware

None.

#### A.2 Firmware

None.

### B Known limitations

#### Connectivity

- [u-blox ID 1645] The CONNECT result code is not returned after entering data mode via ATO.
- [u-blox ID 599] The ATO command does not respond if NO CARRIER final result code is received during OLCM. Suggestion: ATO shall be issued only if the module is in OLCM.
- [u-blox ID 83] When AT&D0 is set, a DTR transition during packet switched data mode leads to a context deactivation instead of a no action as expected.
- [u-blox ID 5898] The +UUSIMSTAT URC may return an extra space before the reported value.

#### Internet suite

- [u-blox ID 4237] The response to AT+UMQTT=6 (read all unread MQTT messages) command may be truncated when the content of unread messages is longer than 1 kB. It is suggested to read messages one by one with AT+UMQTTC=6,1.
- [u-blox ID 4723] Keep alive packets are not sent when the feature is enabled.
- [u-blox ID 3925] Two +UUPSDD URCs are issued when the internal PDP context is mapped to a specific context identifier.

#### Registration/Network services

[u-blox ID 4578] Manual registration (AT+COPS=1) with alphanumeric format may lead to long PLMN scans in case of multiple PLMN with the same operator name. Manual registration (AT+COPS=1) with alphanumeric format is not recommended.

#### Power saving

- [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 deep sleep mode if the UART with hardware flow control is enabled, RTS is OFF and some data (e.g., an URC) is ready to be sent to the DTE.

#### SIM management

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

### **System time**

- [u-blox ID 91] [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.

### **Security**

- [u-blox ID 6488] The +USECMNG AT command cannot import ZTP certificates imported during a C2C secure session.

### **Network service**

- [u-blox ID 6821] The +UJAD settings are not stored in NVM when the selected RAT is NB-IoT.

### **System features**

- [u-blox ID 527] The +UUSTS: 2,2 URC is printed every 2 s instead of just once, when the temperature threshold is reached.