Information note

Topic **SARA-R422-00B, SARA-R422S-00B, SARA-R422M8S-00B IP information note**

UBX-21016086 C1-Public

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Date 6-Dec-2021

1 Affected products

Product name	Ordering code	Type number	Firmware		Remarks
SARA-R422	SARA-R422-00B	SARA-R422-00B-00	Modem: Application:	00.12 A00.00	
SARA-R422S	SARA-R422S-00B	SARA-R422S-00B-00	Modem: Application:	00.12 A00.00	
SARA-R422M8S	SARA-R422M8S-00B	SARA-R422M8S-00B-00	Modem: Application:	00.12 A00.00	

2 Type

- ☒ Product status change
- ☐ Hardware/component change
- ☒ Firmware/software update
- ☒ Label change
- ☒ Documentation update
- ☐ Certification information
- ☐ Security advisory
- ☐ Other

3 Description

Status of the above listed products has changed from Engineering Samples (ES) to Initial Production (IP). For the details of the new features and improvements implemented in the IP version, see the appendix.

The module labels have been updated to include related certification info.

4 Schedule

First production parts will be available in 2021 calendar week 27.

5 Firmware update

- ES2 can be upgraded to the IP firmware by means of the u-blox EasyFlash tool, FOAT and FOTA procedures. See section 2.6.2 of the u-blox SARA-R4 series system integration manual [3] for details on the hardware requirements to perform the firmware update over USB using the u-blox EasyFlash tool. For more details on FOTA / FOAT limitations on engineering sample 2, see the ES sample delivery note [8].
- An IP unit cannot be downgraded with the engineering sample 2 firmware.

5.1 Firmware update packages and md5 signature

Product / delivery	Filename	md5sum
SARA-R422-00B		
EasyFlash v12.10	SARA-R422-00B-00-IP-0012A0000-001K00.dof	d33850de3c39747a27fe497c66006d1a
FOTA/FOAT 00.10,A00.00 to 00.12,A00.00 uFOTA ID: 1171	SARA-R422-00B-00-ES-0010A0000-001K00_SARA-R422-00B-00-IP-0012A0000-001K00.upd	c08aef1b1a18fdad1fc389e4ef0ef14d
FOTA/FOAT 00.12,A00.00 to 00.12_ENG0499,A00.00 uFOTA ID: 1174	SARA-R422-00B-00-IP-0012A0000-001K00_SARA-R422-00B-00-EN-0012ENG0499-001K00.upd	7149b06c407e0e2c98f5ab74531e3d1e
FOTA/FOAT 00.12_ENG0499,A00.00 to 00.12,A00.00 uFOTA ID: 1175	SARA-R422-00B-00-EN-0012ENG0499-001K00_SARA-R422-00B-00-IP-0012A0000-001K00.upd	258c575949eabf22ae0a6069502e8f95
SARA-R422S-00B		
EasyFlash v12.10	SARA-R422S-00B-00-IP-0012A0000-002K00.dof	c7663743df44b5ba18e5b3cbd915b792
FOTA/FOAT 00.10,A00.00 to 00.12,A00.00 uFOTA ID: 1173	SARA-R422S-00B-00-ES-0010A0000-002K00_SARA-R422S-00B-00-IP-0012A0000-002K00.upd	883a926e7bc9823dfe7a5f410fcd764a
FOTA/FOAT 00.12,A00.00 to 00.12_ENG0499,A00.00 uFOTA ID: 1178	SARA-R422S-00B-00-IP-0012A0000-002K00_SARA-R422S-00B-00-EN-0012ENG0499-002K00.upd	fc763e357559714a02362674aa9d7f48
FOTA/FOAT 00.12_ENG0499,A00.00 to 00.12,A00.00 uFOTA ID: 1179	SARA-R422S-00B-00-EN-0012ENG0499-002K00_SARA-R422S-00B-00-IP-0012A0000-002K00.upd	6458a81c4c3efdf38511c6ca36ab7df9
SARA-R422M8S-00B		
EasyFlash v12.10	SARA-R422M8S-00B-00-IP-0012A0000-003K00.dof	e4f0c7ad43c40465a7364461dcb5eef7
FOTA/FOAT 00.10,A00.00 to 00.12,A00.00 uFOTA ID: 1172	SARA-R422M8S-00B-00-ES-0010A0000-003K00_SARA-R422M8S-00B-00-IP-0012A0000-003K00.upd	c574bb1cbfdc1505275ba05d62812f95
FOTA/FOAT 00.12,A00.00 to 00.12_ENG0499,A00.00 uFOTA ID: 1176	SARA-R422M8S-00B-00-IP-0012A0000-003K00_SARA-R422M8S-00B-00-EN-0012ENG0499-003K00.upd	a2b5f37ed2adcd16fa27a35d92bcb861
FOTA/FOAT 00.12_ENG0499,A00.00 to 00.12,A00.00 uFOTA ID: 1177	SARA-R422M8S-00B-00-EN-0012ENG0499-003K00_SARA-R422M8S-00B-00-IP-0012A0000-003K00.upd	fd259e6fb505a3e82758bb1267a3af20

6 Tools

- m-center v02.04.00 – Download from the u-blox.com website via this page: m-center
- EasyFlash 12.10 – Download from the u-blox.com website via this link: EasyFlash

7 Related documentation

[1] u-blox SARA-R4 series AT commands manual, UBX-17003787
[2] u-blox SARA-R4 series data sheet, UBX-16024152
[3] u-blox SARA-R4 series system integration manual, UBX-16029218
[4] u-blox SARA-R422 application development guide, UBX-20050829
[5] u-blox SARA-R4 / SARA-R5 GNSS implementation application note, UBX-20012413
[6] u-blox SARA-R4 / SARA-R5 FW update application note, UBX-20033314
[7] u-blox SARA-R4 / SARA-R5 internet applications development guide, UBX-20032566
[8] SARA-R422, SARA-R422S SARA-R422M8S engineering sample 2 delivery note, UBX-21007232
[9] SARA-R4 / SARA-R5 series LwM2M objects, commands application note, UBX-18068860
[10] SARA migration guide application note, UBX-19045981

Appendix

A Features added compared to engineering samples 2

- Radio policy manager (RPM) for Deutsche Telekom MNO. For more details, see SARA-R422 application development guide [4].
- Embedded File System (EFS) Backup & Restore feature. For more details on the backup and restore procedure and the +UBKUPDATA command description, see the SARA-R422 application development guide [4] and SARA-R4 series AT commands manual [1].

A.1 Known bugs and limitations fixed compared to engineering samples 2

AT interface

- [u-blox ID 2007]: AT commands handler should apply the proper line termination sequence “\r\n”. This issue is present in the +CSGT URC and some test command like “AT+UPSV=?”, “AT+UFOTA=?” plus some others related to the LwM2M functionality.
- [u-blox ID 2007]: +ULWM2MSTAT, +UFOTASTAT and +UPSMR URCs are inserting an unexpected space between the provided parameters.

PSM

- [u-blox ID 753]: PSM in OOS is not always entered and sometimes not exited when expected. **Workaround: use early wakeup to exit, and standard switch off procedure to limit power consumption in OOS if PSM is not autonomously entered.**

Internet suite

- [u-blox ID 1420]: During MQTT-SN operations, URCs to notify user originated cellular connectivity deactivation (+UMQTTSN: 101 URC) are not issued.
- [u-blox ID 1451]: It is not possible to publish MQTT binary messages longer than 1024 bits.
- [u-blox ID 1766]: On 2G RAT during a HTTPS operation an empty response file from the server is sometimes received even if the HTTP operation result is successful.
- [u-blox ID 1723]: The AT+USOCTL=0,11 command does not return the pending data counter and returns an error result code with secure TCP sockets

- [u-blox ID 1295]: The FW download status information is not provided in the response to AT+UFTPC=100.
- [u-blox ID 1963]: The automatic remapping to the default bearer (AT+UPSD=0,100,0) may not work. Workaround: always explicitly set the referred <cid>.
- [u-blox ID 2008]: The DNS retries counter is not initialized; it might make the module retries the DNS resolution until it succeeds. This behavior could impact the PSM and SEC functionalities.
- [u-blox ID 1876]: The DSR line cannot be set using the &S AT command via MUX.

Connectivity

- [u-blox ID 2351]: CTS unexpected toggling at the startup.

Positioning

- [u-blox ID 1896]: Feeding to CellLocate® server fails when a GNSS fix is available before the end of the network scan.
- [u-blox ID 1800]: A CellLocate® request in NB-IoT single-RAT configuration cannot be successfully performed.

Power saving

- [u-blox ID 1907]: URCs are not visualized when the module is in power saving (+UPSV: 3).

SMS

- [u-blox ID 1773]: Crash sending a SMS from the module to itself.

End user test

- [u-blox ID 1524]: Fail to set pins in input configuration with AT+UTEST=10 command.

B Known bugs and limitations

Internet suite

- [u-blox ID 1913]: The +UDCONF=10 command does not work.
- [u-blox ID 2256]: The AT+CFUN=0 command does not close sockets created with +USOCR AT command.
- [u-blox ID 1673]: In direct Link if last character is “+” it is not sent out.
- [u-blox ID 2341]: In USODL, uplink, both in UDP and TCP, if host application enters +++ immediately after the data is sent to the UART, the last part of the data sent to direct link internal application might be lost in case it was buffered and not yet sent to the protocol stack.
- [u-blox ID 2114]: If linger time is not set, the +USOCL AT command answers after 30 s.

Connectivity

- [u-blox ID 1881]: MUX MSC packets do not indicate the RI line status.
- [u-blox ID 2244]: The AT&K command on MUX is impacting the UART flow control (CTS line) and not MUX flow control (MSC packets).

Registration/Network services

- [u-blox ID 2352]: PDP context activation blocked (AT+CGACT returns ERROR) at max 30 successful/60 unsuccessful attempts per hour even if RPM is not active. AT+CFUN=16 is required to reset the counters and allow further PDP context activation cycles.
- [u-blox ID 1270]: The AT+COPS=1 does not return a final result code if issued in airplane mode (+CFUN: 0 or 4).
- [u-blox ID 1672]: The +UCFSCAN AT command could not report roaming cells on NB-IoT RAT.
- [u-blox ID 2121]: The +UCFSCAN AT command could not work if providing the bands bitmasks parameters.
- [u-blox ID 873-1291]: The +CGEV: NW DETACH URC is printed when the module goes in out of coverage scenarios or after radio link failures and CGEV: ME PDN ACT <cis> is printed when back into service.
- [u-blox ID 792]: When the jamming level is close the threshold level, redundant and toggled jamming indications can be issued because the jamming condition is periodically cleared. If the jamming level is high, the indications of jamming detection are more consistent.
- [u-blox ID 867]: +CGEV URC are discarded in +CGEREP: 1,1 when AT commands are pending for contexts activation/deactivation. Workaround: issue the AT+CGEREP=2,1.
- [u-blox ID 2097]: +CEINFO read command stuck after passing from LTE Cat. M1/NB1 to GSM.
- [u-blox ID 2255]: In Deutsche Telekom MNO profile, with roaming SIM card, in manual PLMN selection mode, after having reached F4 (30) registration cycles in LTE in an hour, the module refrains from re-registering. At the expiry of the 1 hour timer, the registration cannot be started with a +CFUN=0/1 cycle only, but requires an additional AT+COPS=1,2,"26201" command to be unblocked.

System features

- [u-blox ID 1293]: UDP packets are not sent when the last gasp feature is triggered on 2G RAT. PDP context shall be activated before.

File system

- [u-blox ID 2340]: The module generates an exception if the +UDWNFILE AT command with other tags is used before +UDWNFILE with "FOAT" tag. Workaround: Reboot the module before using the UDWNFILE AT commands with "FOAT" tag in case other UDWFILE AT commands with different tags were issued.
- [u-blox ID 2173]: Maximum user file system size shall be limited to maximum 640 kB.

Positioning

- [u-blox ID 1208]: With a multi-hypothesis response (<response_type>=2), the +UULOC URC is not correctly formatted.

DNS resolution

- [u-blox ID 1219]: After a DNS resolution failure, the error result code provides misleading information (+USOER: 65 instead of +USOER: 160).

SIM indication

- [u-blox ID 1193]: The information about the SIM detection is not provided by means +CIND / +CMER AT commands.
- [u-blox ID 1423]: The +CIEV: 12 URC (SIM indication) is not issued when the SIM is removed and inserted again.

C Usage notes

- On SARA-R422M8S only the internal GNSS receiver can be used for GNSS activities. No external GNSS receiver is supported.
- Serial port characterization: Hardware flow control is enabled by default, and currently it is not possible to check or to change this configuration via &V, &K, /Q and +IFC AT commands. For more details and to read the flow control configuration, see the +UUARTCONF AT command.