

# Notified Body

## EU Type Examination Certificate

Manufacturer company name: u-blox AG  
Manufacturer address: Zurcherstrasse 68, 8800 Thalwil, Switzerland  
Description of the radio equipment: LTE Cat M1/NB1 and EGPRS module  
Trade name/brand name: ublox  
Model/type indication: SARA-R412M  
Frequency bands of operation: 832 MHz to 862 MHz  
880 MHz to 915 MHz  
1710 MHz to 1785 MHz

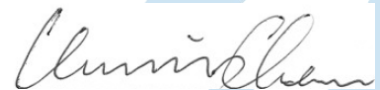
TD reference: SARA-R412M  
ACB project number: ATCB023361  
Certificate number: ATCB023361, issue 1

ACB, Inc. is designated as a Notified Body under the  
U.S.-EU Mutual Recognition Agreement for Radio Equipment Directive 2014/53/EU

**ACB, Inc.**  
**Notified Body Number 1588**  
6731 Whittier Avenue, Suite C110  
McLean, VA 22101, USA

In the opinion of ACB, Inc., the examination of the technical documentation as drawn up by the manufacturer demonstrates that the essential requirements of Article 3.1a, Article 3.1b and Article 3.2, of Radio Equipment Directive 2014/53/EU have been met. The conformity assessment on the radio equipment listed above and as described in Annex 1 to this EU-type examination certificate has been carried out in accordance with Annex III, Module B, of Radio Equipment Directive 2014/53/EU. This EU-type examination certificate relates only to the documents as provided to ACB, Inc.

A list of documentation forming the basis for the EU-type examination is provided in  
Annex 2 to this EU-type examination certificate.

  
Notified Body: Kerwin Chen

31 January 2019  
Date



The radio equipment as described and documented in the technical documentation as drawn up by the manufacturer is a RF Module  
It supports GSM technology with GPRS/EGPRS in the E-GSM 900 MHz and DCS 1800 MHz bands.  
It supports LTE technology with Cat M1 and NB-IoT in the 800 MHz Band 20, 900 MHz Band 8 and 1800 MHz Band 3.

This radio equipment also supports operation in frequency bands which are not available for use in Member States of the European Union and EFTA countries and which have not been included in this conformity assessment. The conformity assessment of this radio equipment is limited to those frequency bands of operation which are available for use in one or more Member States of the European Union and EFTA countries as detailed below.

### **Details of operation:**

Description of service:	E-GSM 900 MHz
Transmit frequency:	880 MHz to 915 MHz
Receive frequency:	925 MHz to 960 MHz
Modulation:	GMSK, 8PSK
Power class:	Class 4 (GMSK), Class E2 (8PSK)
Transmit power:	33 dBm, conducted (GPRS/GMSK)
Transmit power:	27 dBm, conducted (EGPRS/8PSK)

Description of service:	DCS 1800 MHz
Transmit frequency:	1710 MHz to 1785 MHz
Receive frequency:	1805 MHz to 1880 MHz
Modulation:	GMSK, 8PSK
Power class:	Class 1 (GMSK), Class E2 (8PSK)
Transmit power:	30 dBm, conducted (GPRS/GMSK)
Transmit power:	26 dBm, conducted (EGPRS/8PSK)

**Annex 1 to EU-type examination certificate for Radio Equipment Directive 2014/53/EU**

**Date of issue: 31 January 2019**

**TD reference: SARA-R412M**

**ACB project number/certificate number: ATCB023361, issue 1**

Description of service: E-UTRA LTE Band 3, eMTC/M1 feature  
Transmit frequency: 1710 MHz to 1785 MHz  
Receive frequency: 1805 MHz to 1880 MHz  
Modulation: QPSK, 16QAM  
Power class: Class 3  
Transmit power: 23 dBm, conducted

Description of service: E-UTRA LTE Band 8, eMTC/M1 feature  
Transmit frequency: 880 MHz to 915 MHz  
Receive frequency: 925 MHz to 960 MHz  
Modulation: QPSK, 16QAM  
Power class: Class 3  
Transmit power: 23 dBm, conducted

Description of service: E-UTRA LTE Band 20, eMTC/M1 feature  
Transmit frequency: 832 MHz to 862 MHz  
Receive frequency: 791 MHz to 821 MHz  
Modulation: QPSK, 16QAM  
Power class: Class 3  
Transmit power: 23 dBm, conducted

Description of service: E-UTRA LTE Band 3, NB-IoT feature  
Transmit frequency: 1710 MHz to 1785 MHz  
Receive frequency: 1805 MHz to 1880 MHz  
Modulation: BPSK, QPSK  
Power class: Class 3  
Transmit power: 23 dBm, conducted

Description of service: E-UTRA LTE Band 8, NB-IoT feature  
Transmit frequency: 880 MHz to 915 MHz  
Receive frequency: 925 MHz to 960 MHz  
Modulation: BPSK, QPSK  
Power class: Class 3  
Transmit power: 23 dBm, conducted

Description of service: E-UTRA LTE Band 20, NB-IoT feature  
Transmit frequency: 832 MHz to 862 MHz  
Receive frequency: 791 MHz to 821 MHz  
Modulation: BPSK, QPSK  
Power class: Class 3  
Transmit power: 23 dBm, conducted



**Annex 2 to EU-type examination certificate for Radio Equipment Directive 2014/53/EU**

**Date of issue: 31 January 2019**

**TD reference: SARA-R412M**

**ACB project number/certificate number: ATCB023361, issue 1**

1	Test report:	Report number:	Dated:
	EMC	EMC_CTSMC-003-18001_EN301489	20 December 2018
	Radio	MP_007644	20 December 2018
	Radio	MP_007294	26 December 2018
	Radio	OUS_MDE_UBLOX_1835_CON_Rev1	16 January 2019
	RF safety	EMC_CTSMC-003-18001_CEMPE	20 December 2018
	Product safety	31884391.002	17 November 2018

2	Technical documentation provided:		
	Block diagram	Circuit diagram/schematics	External photographs
	Internal photographs	Label drawing/location	Operational description
	Parts list/bill of materials	Risk assessment	Test reports
	Test setup photographs	User manual	EU declaration of conform

3 Standards used to demonstrate conformity with the essential requirements of Radio Equipment Directive 2014/53/EU:

Radio Spectrum (Article 3.2):	EN 301 511 V12.5.1 EN 301 908-1 V11.1.1	EN 301 908-13 V11.1.2
EMC (Article 3.1b):	EN 301 489-1 V2.2.0	EN 301 489-52 V1.1.0
RF safety (Article 3.1a):	EN 62311: 2008	
Product safety (Article 3.1a):	EN 62368-1: 2014	

4 Additional information:

This is a Class 1 device.

This module has been assessed for use at more than 20cm from a person and for use with cables of less than 3m in length. This radio module is for professional installation only. When installing this radio module permanently into a host product to create new radio equipment; the manufacturer responsible for placing the final radio product on the market in the EU must assess if the combination of this radio module and the host product complies with the essential requirements of the RE Directive 2014/53/EU.



**Annex 2 to EU-type examination certificate for Radio Equipment Directive 2014/53/EU**

**Date of issue: 31 January 2019**

**TD reference: SARA-R412M**

**ACB project number/certificate number: ATCB023361, issue 1**

Radio Equipment Directive 2014/53/EU, Article 10.4: Manufacturers shall keep the technical documentation and the EU declaration of conformity for 10 years after the radio equipment has been placed on the market.

Radio Equipment Directive 2014/53/EU, Article 10.6: Manufacturers shall ensure that radio equipment which they have placed on the market bears a type, batch or serial number or other element allowing its identification, or, where the size or nature of the radio equipment does not allow it, that the required information is provided on the packaging, or in a document accompanying the radio equipment.

Radio Equipment Directive 2014/53/EU, Article 10.7: Manufacturers shall indicate on the radio equipment their name, registered trade name or registered trade mark and the postal address at which they can be contacted or, where the size or nature of radio equipment does not allow it, on its packaging, or in a document accompanying the radio equipment. The address shall indicate a single point at which the manufacturer can be contacted. The contact details shall be in a language easily understood by end-users and market surveillance authorities.

Radio Equipment Directive 2014/53/EU, Article 10.8: Manufacturers shall ensure that the radio equipment is accompanied by instructions and safety information in a language which can be easily understood by consumers and other end-users, as determined by the Member State concerned. Instructions shall include the information required to use radio equipment in accordance with its intended use. Such information shall include, where applicable, a description of accessories and components, including software, which allow the radio equipment to operate as intended. Such instructions and safety information, as well as any labelling, shall be clear, understandable and intelligible.

The following information shall also be included in the case of radio equipment intentionally emitting radio waves:

- (a) frequency band(s) in which the radio equipment operates;
- (b) maximum radio-frequency power transmitted in the frequency band(s) in which the radio equipment operates.

Radio Equipment Directive 2014/53/EU, Article 10.9: Manufacturers shall ensure that each item of radio equipment is accompanied by a copy of the EU declaration of conformity or by a simplified EU declaration of conformity. Where a simplified EU declaration of conformity is provided, it shall contain the exact internet address where the full text of the EU declaration of conformity can be obtained.

Radio Equipment Directive 2014/53/EU, Article 10.10: In cases of restrictions on putting into service or of requirements for authorization of use, information available on the packaging shall allow the identification of the Member States or the geographical area within a Member State where restrictions on putting into service or requirements for authorization of use exist. Such information shall be completed in the instructions accompanying the radio equipment.

Radio Equipment Directive 2014/53/EU, Article 19.2: On account of the nature of radio equipment, the height of the CE marking affixed to radio equipment may be lower than 5 mm, provided that it remains visible and legible.

Radio Equipment Directive 2014/53/EU, Article 20.1: The CE marking shall be affixed visibly, legibly and indelibly to the radio equipment or to its data plate, unless that is not possible or not warranted on account of the nature of radio equipment. The CE marking shall also be affixed visibly and legibly to the packaging.



**Annex 2 to EU-type examination certificate for Radio Equipment Directive 2014/53/EU**  
**Date of issue: 31 January 2019**      **TD reference: SARA-R412M**  
**ACB project number/certificate number: ATCB023361, issue 1**

Radio Equipment Directive 2014/53/EU, Annex III, Module B.7: The manufacturer shall inform the notified body that holds the technical documentation relating to the EU-type examination certificate of all modifications to the approved type that may affect the conformity of the radio equipment with the essential requirements of this Directive or the conditions for validity of that certificate. Such modifications shall require additional approval in the form of an addition to the original EU-type examination certificate.

This review includes draft standards, deviations from the standards and technical justification for compliance.

In accordance with Notified Body guidance; if there are no changes, a Notified Body EU type examination certificate has a validity of 10 years from the date of issue.

5 Contact information:

For contact with ACB or questions regarding this EU-type examination certificate:

Web: [www.acbcert.com](http://www.acbcert.com)

<http://acbcert.com/contact>

Tel.: (+1) 703 847 4700

