

CRA LoRaWAN End-device Certification Requirements

Content

Revision History	1
Certification Requirements	2
1.1 Documentation & Test reports.....	2
1.2 End-device setting requirements.....	2
1.3 Mandatory parameters for certification process.....	3
1.4 Additional information.....	3

Revision History

Revision	Date	Author	Description
V1	22.08.2017	Jan Vesely – Engineering CRA	Initial version
V2	7.12.2017	Jan Vesely – Engineering CRA	Changes in 1.1 and 1.2
V3	19.12.2018	Jan Vesely – Engineering CRA	Added new tests in 1.3

Certification Requirements

1.1 Documentation & Test reports

Each End-device will arrive with following additional information

- Hardware version
- Firmware version
- LoRaWAN module manufacturer and type
- LoRaWAN stack version
- LoRaWAN module firmware version
- LoRaWAN device class
- Necessary parameters for ABP and OTAA activation
- All necessary documentation of end-device including decoded payload and changeable parameters via downlink communication
- Calibration test report of measured value (from certification authority)
- Test report of ingress protection and operating temperatures (for outdoor end-devices)
- CE certificate
- Email to technical support of supplier

1.2 End-device setting requirements

Each End-device will arrive with following configuration

- End-device is fully compatible with latest LoRaWAN specification (see <https://www.lora-alliance.org/>)
- End-device is activated and functioning
- End-device is using following frequencies (EU868_Semtech for 868MHz)

Channel	Frequency	Modulation / BW, Data Rate
0	868.100 MHz	MultiSF 125 kHz, DR 0-5
1	868.300 MHz	MultiSF 125 kHz, DR 0-5
2	868.500 MHz	MultiSF 125 kHz, DR 0-5
3	867.100 MHz	MultiSF 125 kHz, DR 0-5
4	867.300 MHz	MultiSF 125 kHz, DR 0-5
5	867.500 MHz	MultiSF 125 kHz, DR 0-5
6	867.700 MHz	MultiSF 125 kHz, DR 0-5
7	867.900 MHz	MultiSF 125 kHz, DR 0-5
8	868.300 MHz	SF7 250 kHz, DR 6
9	868.800 MHz	FSK 125 kHz, DR 7
RX2	869.525 MHz	SF12 125 kHz, DR 0

- End-device TX period for test purposes is 1 uplink unconfirmed message/5min
- End-device has enabled ADR function

1.3 Mandatory parameters for certification process

The certification process will focus primarily on the following mandatory points (changes reserved):

- Test Mode activation (Activation by Personalization)
- Test Mode activation (Over the Air Activation)
- Frame Sequence Number
- Battery status in LoRaWAN protocol (Device Status Request)
- New Channel Request
- Confirmed packets
- Adaptive Data Rate (ADR)
- TX period changing (Class A)
- Answer to MAC commands
- RX1 and RX2 window
- Comparative test (RF & antenna)
- Stability test (test period 1 month)
- Battery loss during test period (Class A)

1.4 Additional information

CRA certification tests are focused only to radio & LoRaWAN part of tested device. Test period is 1 month for each end-device. The output of the test will be the certification test report.