

Methodology for IOT LoRaWAN end-device testing

Required information:

1. Testing sample
2. Complete set of documentation (Datasheet, instalation manual, payload structure)
3. Activation parameters and test sample identification:
 - DevEUI, DevAddr
 - Device type
 - Producer/distributor + suport contact
 - AES128 keys (NwkSkey, AppSkey)

Test procedure to verify recommended settings for use in CRA IOT network:

1. Device registration into IOT portal (internally by CRA into account registered to CRA)
2. ABP/OTAA device activation
3. Verification of basic communication features
4. Comparative RF & antenna test – using Adeunis FTD demonstrator
5. One month stability and performance testing (interval 1 msg/5min). From the event. Log it will be observed and analysed:
 - Frequencies used for device communication
 - Response to MAC commands sent by Network Server
 - ADR support
 - Message seqno
 - Message format
 - Battery status
 - Usage of RX1 and RX2 window
6. Test report will be elaborated

Values not subject of testing – primary sensor functionality (temperature, pressure,...)

Mandatory criteria to pass the testing procedure:

- Device activation (ABP method)
- Communication over all 8 available channels
- Confirmation of the messages and MAC commands when sent and required by Network server

CRA LoRaWAN Certification tests - results
Overall test result
Evaluation date Tester (responsible person) Sequence number of the test Producer Device type/measured values LORAWAN module vendor LoRaWAN stack module version FW version of LoRaWAN module Sensor hardware version Sensor FW version Certification requirements - version of the document DevEUI LoRaWAN class device (A, B, C) Testing frequency band
Technical contact to vendor/manufacturer
Mandatory tests/Information
Complete documentation according to test requirements Test report or certificate for measured value ABP or OTAA activation Seqno increments Battery status in LoRaWAN protocol (not in payload) Support of all 8 channels ADR support Ability to change the transmitting period Correct acceptance of MAC downlink commands from NS RX1/RX2 window Comparative test (RF & antenna) Battery status at the beginning of the tests Battery status at the end of the tests Stability of the sensor (one month functional test)
Optional tests
OTAA ReJoin Confirmed messages support Notes