LoRaWAN® EU Supplementary Device Info Questionnaire

Supplementary information for EU Devices in the LoRaWAN® Showcase catalogue. Version 1.0

Version of Questionnaire form from the Customer/ Device Manufacturer

Version	Date	Author	Update
1.0			Initial release from manufacture

Supplementary Information on certified device

1 Supplementary information	
1.1 Manufacturer or Brand name	Nke Watteco
1.2 Website	https://www.nke-watteco.com/
1.3 Sales / Marketing contact person, email:	spouillot@nke.fr
1.4 Technical contact person, email:	jlefort@nke.fr
1.5 Commercial Product name	ACCELER'O
1.6 Product code used when ordering / article number	50-70-197
1.7 Product Version : Hardware version: Firmware version:	50-70-197-001 70-10-736-002 V3.5.2.5706
1.8 In what countries is the product available	EMEA (EU868 compatible countries)
1.9 What date was / is the market introduction for this device / product?	September 2021
1.10 Is the device already working on a public LoRaWAN network. If yes specify at which public operator, country and number of deployed devices on that network:	☒ Yes: ☐ No Objenious France ~10 devices
1.11 What functionality does the device provide and which sensor(s) does it contain?	Use case: High vibration monitoring - 3 axis Accelerometer Short behavior description: Monitoring of equipments with high level shocks and/or vibration
1.12 Accuracy & resolution for every sensor or measurement made by the device	
Name: sensor accuracy (incl. unit): +/- resolution (incl. unit): measurement parameter: measurement range	Accelerometer +/-1g +/-0,8g Acceleration +/-200g (default, can go up to +/-400g)
Name: sensor accuracy (incl. unit): +/- resolution (incl. unit):	

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1.13 Uplinks are: Periodic: Period: Explanation: Keep alive message period: Event triggered how:	☐
1.14 Parameter configuration of device (e.g. transmission or measurement interval, threshold levels, etc.)	☒ Remotely: ☒ Over-the-air with LoRaWAN data downlinks ☐ Specify if other: ☐ Locally: ☐ Via CLI: specify type of connector: ☐ Via NFC: ☒ Specify if other: local update through LoRa + PC with a LoRa USB dongle
1.15 Does the application server send downlinks to the devices?	☐ Yes: (why/how often/typical size) Not in charge of the AS ☐ No
1.16 Operating temperature of device - x °C to + x °C	Minimum -20 °C Maximum +85 °C
1.17 Is the payload structure available for decoding?	☒ Yes: ☐ No Please attach the payload structure (+example of decoded payload)
1.18 Is there a decode-API available	☐ Yes: ☒ No Please attach the API documentation
1.19 Is the firmware upgradeable and how?	☒ Yes: (how) local update through LoRa + PC with a LoRa USB dongle
1.20 How can the device be reset to factory default settings?	Through magnet interaction with the embedded ILS

1.21 How can the device be forced to re-initiate the join procedure?	restart the device with a magnet and ILS or downlink command
1.22 Product certifications (IP rating, ATEX, ...)	1. IP rating: 66 2. ATEX compliance: Other:
1.23 Which regulatory certifications are available (RED, CE, EMC)?	☒ RED ☒ CE ☒ EMC Attach proof of certification to the mail in which this document is sent to a public operator
1.24 Power Supply	☐ External power supply: connection: voltage: amperage: ☒ Internal battery: battery type: chemical composition: Battery self-discharge (%/year): Battery shelf life: capacity: weight: rechargeable: ☐ Yes: ☐ No
1.25 Powering device on and off How is the device turned ON ? How is the device turned OFF ?	 Magnet in front of the ILS for 1s Magnet in front of the ILS for 5s
1.26 Dimensions of device (Length x width x height)	10.0x7.5x3.5cm
1.27 Weight of full device	175g
1.28 Mounting of device 1. How to mount? 2. How to mount for best antenna propagation	 With magnets on a metal plate on the ground or on a table

2 LoRaWAN Device Information

2.1 DevEUI Range (IEEE Compliance)	From :70B3D5E75000000 To : 70B3D5E75FFFFFF
2.2 LoRaWAN Class	☒ Class A ☐ Class B ☐ Class C
2.3 For Class C Device: Device Under Test restores previous RF settings at boot?	☐ Yes ☐ No
2.4 In what LoRaWAN region/frequency ranges is the product available	☒ EU863-870 ☐ US902-928 ☐ AS923 ☐ IN865-867 ☐ KR920-923 ☐ Other
2.5 Is the LoRaWAN test mode supported?	☒ Yes ☐ No, why not
2.6 Tested and certified against which LoRaWAN Specification(s)	☐ V1.0 ☐ V1.0.1 ☒ V1.0.2 revB ☐ V1.0.3 ☐ V1.1.x ☐ Other :
2.7 Link to document on the LoRa Alliance website	Link:
2.8 Which TX power is used in production devices by default? - if LW 1.0.2 rev A or older is used: - if LW 1.0.2 rev B or newer is used	 ☐ TXPower 0 (20dBm) ☐ TXPower 1 (14dBm) ☐ TXPower 2 (11dBm) ☐ TXPower 3 (8dBm) ☐ TXPower 4 (5dBm) ☐ TXPower 5 (2dBm) ☐ other TXPower (dBm) ☒ TXPower 0 (MaxEIRP) ☐ TXPower 1 (MaxEIRP-2dB) ☐ TXPower 2 (MaxEIRP-4dB) ☐ TXPower 3 (MaxEIRP-6dB) ☐ TXPower 4 (MaxEIRP-8dB) ☐ TXPower 5 (MaxEIRP-10dB) ☐ TXPower 6 (MaxEIRP-12dB) ☐ TXPower 7 (MaxEIRP-14dB) ☐ other TXPower (Max EIRP : 14 dB)

2.9 Which TX powers are supported by the device in production - if LW 1.0.2 rev A or older is used: - if LW 1.0.2 rev B or newer is used	☐ TXPower 0 (20dBm) ☐ TXPower 1 (14dBm) ☐ TXPower 2 (11dBm) ☐ TXPower 3 (8dBm) ☐ TXPower 4 (5dBm) ☐ TXPower 5 (2dBm) ☐other TXPower (dBm) ☒ TXPower 0 (MaxEIRP) ☒ TXPower 1 (MaxEIRP-2dB) ☒ TXPower 2 (MaxEIRP-4dB) ☒ TXPower 3 (MaxEIRP-6dB) ☒ TXPower 4 (MaxEIRP-8dB) ☒ TXPower 5 (MaxEIRP-10dB) ☒ TXPower 6 (MaxEIRP-12dB) ☒ TXPower 7 (MaxEIRP-14dB) (Max EIRP : 14 dB)
2.9 Which LoRaWAN Specification is currently supported on the production devices?	☐V1.0 ☐V1.0.1 ☐V1.0.2 revA ☒V1.0.2 revB ☐V1.0.4 ☐V1.1.x ☐Other:
2.10 Will you re-certify your device when a new major LoRaWAN specification version is released	☒Yes. ☐No, why :
2.11 Has Interoperability prequalification testing been done?	☐Yes. ☒No, why : Tests using the LCTT tool Which Network Servers ☐Actility ☐Loriot ☐TTI ☐Other: Specify: Please attach all the test reports.
2.12 Is Activation Type OTAA the default	☒Yes. ☐No, why :
2.13 For OTAA, is AppKey unique for each device?	☒Yes. ☐No.

2.14 Is ADR implemented? Recommendation: ADR should always be activated. Exceptions can be made for moving devices but will need to be explained.	☒Activated ☐Deactivated, why : ☒Configurable by user (recommendation: Activated by default) ☐Mixed, explain:
2.15 What values did you implement for: - ADR_ACK_LIMIT: - ADR_ACK_DELAY:	64recommended value: 64 32recommended value: 32
2.16 Do you use unconfirmed and/or confirmed uplinks and what is the data rate, timing and power back off algorithm? Upon reception of a confirmed downlink message, is the next uplink sent immediately after the downlink ?Answers (radio buttons)	☒unconfirmed ☒confirmed, when and why: possible to ask for confirmed frames through Downlink command ☐Both, which is used when and why: Data rate, timing and power back-off algorithm (only if you use confirmed uplinks): If confirmed uplinks, 7 retries max ☐Yes. ☐No, why :
2.17 Is the device doing a periodical rejoin? (only for OTAA)	☐Yes (frequency): ☐No. Why? How to trigger a rejoin?
2.18 Is the first join request sent on SF12?	☒Yes. ☐No, why: Explain the JoinRequest sequence if no JoinAccept is received - data rate, timing and power back-off algorithm. rejoin sent after 1 min, 2 min, 4 min,..., 24hours then once every 24hours
2.19 On what SF and power setting is the first uplink (after join procedure) done?	SF: 12 TXPower: 0
2.20 Are you doing periodically reset of Uplink frame counter?	☐Yes (frequency/why): ☒No.
2.21 If LoRaWAN 1.0.x, DevNonce behaviour :	☒ Based on a random value ☐ Monotonically increasing never-wrapping counter
2.22 Uplink DataRate (0-7 supported)	Min: 0 Max: 5
2.23 RX1 Data Rate Offset	☒Default LoRaWAN in regards of ISM band ☐Other:
2.24 RX1 Delay	☒Default LoRaWAN in regards of ISM band ☐Other:

2.25 RX2 Data Rate	☒Default LoRaWAN in regards of ISM band ☐Other:
2.26 RX2 Frequency	☒Default LoRaWAN in regards of ISM band ☐Other:
2.27 RX1 Delay on JoinRequest (OTAA devices only)	☒Default LoRaWAN in regards of ISM band ☐Other:
2.28 Mobility Profile (how your device moves)	☒Near static ☐Walking speed ☐Vehicle speed ☐Random
2.29 Frame Counters Up To 32-bits	☒Frame counter-up ☒Frame counter-down
2.30 Which MAC commands does the device support	☐LinkCheckReq / LinkCheckAns ☐TXParamSetupReq / TXParamSetupAns ☒LinkADRReq / LinkADRAns ☐DutyCycleReq / DutyCycleAns ☒RXParamSetupReq /RXParamSetupAns ☒DevStatusReq / DevStatusAns ☒NewChannelReq / NewChannelAns ☐TXTimingSetupReq / TXTimingSetupAns
2.31 LoRaWAN Stack Type (optional)	☐Semtech/Stackforce ☐Semtech/Stackforce with modifications ☐IBM ☐IBM with modifications ☒Proprietary- Other, name it: Watteco
2.32 LoRaWAN Stack Version (optional)	
2.33 LoRa Radio Hardware (optional)	☒Proprietary: SX chip used: SX1272 ☐LoRaWAN Modem/Module: Manufacturer: Part Number: Firmware revision:
2.34 Multicast support (optional)	☐Yes: Multicast DevAddr: Multicast AppSKey: Multicast NwkSKey: Payload: Port: ☒No.

3 Radio Frequency Information

3.1 Type of Antenna	☒Wire ☐PCB ☐External ☐Other: (which type)
3.2 Antenna gain [dBi or dBd]	3dBi or dBd
3.3 Did you measure and take into account the loss between the modem and the antenna?	☒Yes, 1.62 dB loss ☐No, why:
3.4 For LW 1.0.2 rev A or older devices: which TXPower setting should be used on the network for your device*:	☐ TXPower 0 (20dBm) ☐ TXPower 1 (14dBm) ☐ TXPower 2 (11dBm) ☐ TXPower 3 (8dBm) ☐ TXPower 4 (5dBm) ☐ TXPower 5 (2dBm) ☐other txpower (dBm)
3.5 Did you calibrate your device with the antenna gain and measured loss in between the chipset and antenna? This so that your device emits with maximal power when using TXPower 1 for LW 1.0.2 rev A or older devices (= 14dBm) and TXPower 0 for LW 1.0.2 rev B or newer devices (= MaxEIRP or 16.15dBm EIRP)*.	☒Yes, 1.62 dB loss ☐No, why:

4 Battery and TX Power Information

Please indicate if you do not want Section 4 displayed on the LoRa Alliance Website ☐Yes
If yes please supply contact details for the operators to request the information for Section 4

4.1 Battery consumption of the device (including modem, sensors and all other electronics	TX current: 35mA RX current: 11 mA Idle time current: 0.08mA
4.2 Estimated battery life in years based on the number of transmissions (including sensor readings) at SF7, SF10 & SF12 with your battery self-discharge and aging over time taken into account. **Assumptions:** - Product shelf life before use: Maximum 1 year. - At an environment temperature of 20°C. - LoRaWAN specification used for battery life calculation: - TX power setting (txpower) used for battery life calculation: - Payload size used for battery life calculation (should be average payload size of production device): - Additional assumptions or comments on battery life (Typical usage	Battery life in years Transmission Periodicity (transmissions/day) / SF7 / SF10 / SF12 144 3.31 0.86 0.77 96 6.66 4.24 2.04 48 7.21 5.98 3.97 24 7.36 6.66 5.19 12 7.43 7.06 6.14 4 7.47 7.28 6.76 1 7.51 7.47 7.38 ☐LW1.0.1 ☐LW1.0.2 revA ☒LW1.0.2 revB ☐Other : ☐LW1.0.1 ☐LW1.0.2 revA ☒LW1.0.2 revB ☐Other : 41 bytes 1 measure every 10 minutes for 7 seconds

4.3 Which TX power setting (TXPower) was used in the RF test? - If LW 1.0.2 rev A or older device: - If LW 1.0.2 rev B or newer device:	☐ TXPower 0 (20dBm) ☐ TXPower 1 (14dBm) ☐ TXPower 2 (11dBm) ☐ TXPower 3 (8dBm) ☐ TXPower 4 (5dBm) ☐ TXPower 5 (2dBm) ☐other TXPower (dBm) ☒ TXPower 0 (MaxEIRP) ☐ TXPower 1 (MaxEIRP-2dB) ☐ TXPower 2 (MaxEIRP-4dB) ☐ TXPower 3 (MaxEIRP-6dB) ☐ TXPower 4 (MaxEIRP-8dB) ☐ TXPower 5 (MaxEIRP-10dB) ☐ TXPower 6 (MaxEIRP-12dB) ☐ TXPower 7 (MaxEIRP-14dB) ☐other TXPower (MaxEIRP- dBdBm)
4.4 Is this the same TX power setting (TXPower) used by default in production devices (before network ADR)?	☒Yes, ☐No, why:
4.5 Maximum ERP measured: (ERP = EIRP - 2.15 dB; LoRaWAN allows 14 dBm ERP)	13.06 dBm
4.6 TRP measured: (TRP is based on EIRP) This gives an idea about the directivity of the antenna.	dBm
3.10 TIS measured on RX1:	For RX1-SF12BW125 on 868.3MHz dBm
3.11 TIS measured on RX2	For RX2-SF12BW125 on 869.525 MHz: dBm