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	uTerminal AG
1.2 Website	www.uterminal.com
1.3 Sales / Marketing contact person, email:	Beat.fahrni@timetool.ch
1.4 Technical contact person, email:	Beat.fahrni@timetool.ch
1.5 Commercial Product name	PIOT-001
1.6 Product code used when ordering / article number	PIOT
1.7 Product Version : Hardware version: Firmware version:	1 2.0 1.2.1
1.8 In what countries is the product available	EU
1.9 What date was / is the market introduction for this device / product?	01.08.2020
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 Swisscom AG, Switzerland, Number of Devices ~100
1.11 What functionality does the device provide and which sensor(s) does it contain?	PIOT-001 is an NFC reader device, The device detects RFID tags, stores them in a buffer and eventually transmits the detected RFIDs to a backend service. The device communicates over LoraWAN with the Swisscom LPN network. Messages are handled by a backend system provided by Timetool.
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	NFC Reader
1.13 Uplinks are: Periodic: Period:	☐ Keep Alive / Triggered when a badge is scanned

Explanation: Keep alive message period: Event triggered how:	 Configurative Scanning a Badge via NFC
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: USB ☐ Via NFC: ☐ Specify if other:
1.15 Does the application server send downlinks to the devices?	☒ Yes: (why/how often/typical size) Packet loss protection ☐ No
1.16 Operating temperature of device - x °C to + x °C	Minimum -40°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) USB
1.20 How can the device be reset to factory default settings?	USB – Terminal Configuration Menu
1.21 How can the device be forced to re-initiate the join procedure?	Take out Batteries, Replug Cable, Reset via Terminal (USB)
1.22 Product certifications (IP rating, ATEX, ...)	1. IP rating: 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: DC 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 ?	Insert Battery, Power Cable Remove Battery, Power Cable
1.26 Dimensions of device (Length x width x height)	78 * 138 * 23mm
1.27 Weight of full device	200g
1.28 Mounting of device 1. How to mount? 2. How to mount for best antenna propagation	Integrated cradle straight

2 LoRaWAN Device Information

2.1 DevEUI Range (IEEE Compliance)	From : Not Known To : Not Known
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 : 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 : 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 : 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:	64 recommended value: 64 32 recommended 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: ☐Both, which is used when and why: Data rate, timing and power back-off algorithm (only if you use confirmed uplinks): ☐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.
2.19 On what SF and power setting is the first uplink (after join procedure) done?	SF: 12 TXPower: 0 (Max EIRP)
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: 7
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:
2.32 LoRaWAN Stack Version (optional)	
2.33 LoRa Radio Hardware (optional)	☐Proprietary: SX chip used: ☐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]	-0.9 dBi or dBd
3.3 Did you measure and take into account the loss between the modem and the antenna?	☐Yes, 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, 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
daniel.cao@rakwireless.com

There are currently no further information about Battery life cycle. We have used several types of rechargeable Batteries, where we collect information, about how long the device can operate.