

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	Sept. 2 2020	T. BUTTARD	Initial release from manufacture

Supplementary Information on certified device

1 Supplementary information	
1.1 Manufacturer or Brand name	ITRON
1.2 Website	www.itron.com
1.3 Sales / Marketing contact person, email:	Vincent Roger vincent.roger@itron.com
1.4 Technical contact person, email:	Thomas Buttard thomas.buttard@itron.com Souleymane Mbengue Souleymane.Mbengue@itron.com
1.5 Commercial Product name	Cyble 5
1.6 Product code used when ordering / article number	
1.7 Product Version : Hardware version: Firmware version:	V1.1 0.1 0.2
1.8 In what countries is the product available	EMEA 868MHz
1.9 What date was / is the market introduction for this device / product?	Q4 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:	<input checked="" type="checkbox"/> Yes: <input type="checkbox"/> No Orange (France) Objenious (France)
1.11 What functionality does the device provide and which sensor(s) does it contain?	Use case: Metering Short behavior description: Cyble 5 is a unique solution helping utilities engage in the ongoing digitalization of their water and gas distribution networks. Designed to transform mechanical meters into communication data points, Cyble 5 enables fast drive-by (AMR) and IoT (LoRaWan / Sigfox) data collection allowing for better billing efficiency.

<p>1.12 Accuracy & resolution for every sensor or measurement made by the device</p>	
<p>Name: sensor accuracy (incl. unit): +/- resolution (incl. unit): measurement parameter: measurement range</p>	<p>Internal Hall Effect Sensor (Itron patented Cyble detection) 190+/-15mV at 30mT 0.6 mV/u</p>
<p>Name: sensor accuracy (incl. unit): +/- resolution (incl. unit): measurement parameter: measurement range</p>	<p>Temperature Sensor +/-2% at 25°C 0.6 mV/u -40 to +125°C</p>
<p>1.13 Uplinks are: Periodic: Period: Explanation: Keep alive message period: Event triggered how:</p>	<p><input checked="" type="checkbox"/> Configurable => Typically each 3H or 12H (randomized within period) Depending on selected water consumption granularity</p>
<p>1.14 Parameter configuration of device (e.g. transmission or measurement interval, threshold levels, etc.)</p>	<p><input type="checkbox"/> Remotely: <input checked="" type="checkbox"/> Over-the-air with LoRaWAN data downlinks <input type="checkbox"/> Specify if other: <input type="checkbox"/> Locally: <input type="checkbox"/> Via CLI: specify type of connector: <input type="checkbox"/> Via NFC: <input checked="" type="checkbox"/> Specify if other: Radio (wmbus)</p>
<p>1.15 Does the application server send downlinks to the devices?</p>	<p><input checked="" type="checkbox"/> Yes: (why/how often/typical size) On demand by the user manually (once a month) <input type="checkbox"/> No</p>
<p>1.16 Operating temperature of device - x °C to + x °C</p>	<p>Minimum +5 °C Maximum +35 °C</p>
<p>1.17 Is the payload structure available for decoding?</p>	<p><input type="checkbox"/> Yes: <input checked="" type="checkbox"/> No Please attach the payload structure (+example of decoded payload)</p>
<p>1.18 Is there a decode-API available</p>	<p><input type="checkbox"/> Yes: <input checked="" type="checkbox"/> No Please attach the API documentation</p>
<p>1.19 Is the firmware upgradeable and how?</p>	<p><input checked="" type="checkbox"/> Yes: (how) Over The Air (Local RF with specific Itron Tool)</p>
<p>1.20 How can the device be reset to factory default settings?</p>	<p>NA</p>
<p>1.21 How can the device be forced to re-initiate the join procedure?</p>	<p>Local RF command OR Product state change</p>
<p>1.22 Product certifications (IP rating, ATEX, ...)</p>	<p>1. IP rating: 68 2. ATEX compliance: yes zone 2 Other: Sigfox / OMS</p>

<p>1.23 Which regulatory certifications are available (RED, CE, EMC)?</p>	<p><input checked="" type="checkbox"/> RED <input checked="" type="checkbox"/> CE <input checked="" type="checkbox"/> EMC Attach proof of certification to the mail in which this document is sent to a public operator</p>
<p>1.24 Power Supply</p>	<p><input type="checkbox"/> External power supply: connection: voltage: amperage:</p> <p><input checked="" type="checkbox"/> Internal battery: battery type: Itron confidential chemical composition: Battery self-discharge (%/year): Battery shelf life: capacity: 3.6 Ah weight: 22 g rechargeable: <input type="checkbox"/> Yes: <input checked="" type="checkbox"/> No</p>
<p>1.25 Powering device on and off How is the device turned ON ? How is the device turned OFF ?</p>	<p>Product always ON</p>
<p>1.26 Dimensions of device (Length x width x height)</p>	<p>44 x 73.3 x 44 mm</p>
<p>1.27 Weight of full device</p>	<p>Approx. 150g</p>
<p>1.28 Mounting of device 1. How to mount? 2. How to mount for best antenna propagation</p>	<p>Gas/Water meter have clip to mount/unmount Cyble 5.</p>

2 LoRaWAN Device Information

<p>2.1 DevEUI Range (IEEE Compliance)</p>	<p>From :000781 37 0000 001 To : 000781 37 0FFF FFF</p>
<p>2.2 LoRaWAN Class</p>	<p><input checked="" type="checkbox"/> Class A <input type="checkbox"/> Class B <input type="checkbox"/> Class C</p>
<p>2.3 For Class C Device: Device Under Test restores previous RF settings at boot?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>2.4 In what LoRaWAN region/frequency ranges is the product available</p>	<p><input checked="" type="checkbox"/> EU863-870 <input type="checkbox"/> US902-928 <input type="checkbox"/> AS923 <input type="checkbox"/> IN865-867 <input type="checkbox"/> KR920-923 <input type="checkbox"/> Other</p>
<p>2.5 Is the LoRaWAN test mode supported?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No, why not</p>
<p>2.6 Tested and certified against which LoRaWAN Specification(s)</p>	<p><input type="checkbox"/> V1.0 <input type="checkbox"/> V1.0.1 <input checked="" type="checkbox"/> V1.0.2 revB <input type="checkbox"/> V1.0.3 <input type="checkbox"/> V1.1.x <input type="checkbox"/> Other :</p>
<p>2.7 Link to document on the LoRa Alliance website</p>	<p>Link: https://lora-alliance.org/showcase/cyble-5</p>
<p>2.8 Which TXpower is used in production devices by default?</p> <p>- if LW 1.0.2 rev A or older is used:</p> <p>- if LW 1.0.2 rev B or newer is used</p>	<p><input type="checkbox"/> TXPower 0 (20dBm) <input type="checkbox"/> TXPower 1 (14dBm) <input type="checkbox"/> TXPower 2 (11dBm) <input type="checkbox"/> TXPower 3 (8dBm) <input type="checkbox"/> TXPower 4 (5dBm) <input type="checkbox"/> TXPower 5 (2dBm) <input type="checkbox"/> other TXPower (dBm)</p> <p><input checked="" type="checkbox"/> TXPower 0 (MaxEIRP) <input type="checkbox"/> TXPower 1 (MaxEIRP-2dB) <input type="checkbox"/> TXPower 2 (MaxEIRP-4dB) <input type="checkbox"/> TXPower 3 (MaxEIRP-6dB) <input type="checkbox"/> TXPower 4 (MaxEIRP-8dB) <input type="checkbox"/> TXPower 5 (MaxEIRP-10dB) <input type="checkbox"/> TXPower 6 (MaxEIRP-12dB) <input type="checkbox"/> TXPower 7 (MaxEIRP-14dB)</p> <p><input type="checkbox"/> other TXPower (Max EIRP : dB)</p>

<p>2.14 Is ADR implemented? Recommendation: ADR should always be activated. Exceptions can be made for moving devices but will need to be explained.</p>	<p><input checked="" type="checkbox"/> Activated <input type="checkbox"/> Deactivated, why :</p> <p><input checked="" type="checkbox"/> Configurable by user (recommendation: Activated by default) <input checked="" type="checkbox"/> Mixed, explain: Our product will accept all the command from the network server regarding the ADR. But depending on the value asked, the device will protect himself to save its battery Lifetime. That means, if the network server will ask for a too high Number of Retransmission, compare to the value of Data Rate, then the product will deactivate temporarily the ADR Bit in uplink frame and return to default parameter.</p>
<p>2.15 What values did you implement for: - ADR_ACK_LIMIT: - ADR_ACK_DELAY:</p>	<p>64recommended value: 64 32recommended value: 32</p>
<p>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)</p>	<p><input type="checkbox"/> unconfirmed <input type="checkbox"/> confirmed, when and why: <input checked="" type="checkbox"/> Both, which is used when and why: By default unconfirmed but configurable by user.</p> <p>Data rate, timing and power back-off algorithm (only if you use confirmed uplinks):</p> <p><input type="checkbox"/> Yes. <input checked="" type="checkbox"/> No, why :</p>
<p>2.17 Is the device doing a periodical rejoin? (only for OTAA)</p>	<p><input type="checkbox"/> Yes (frequency): <input checked="" type="checkbox"/> No. Why? How to trigger a rejoin? Rejoin due to Network session loss OR forced manually</p>
<p>2.18 Is the first join request sent on SF12?</p>	<p><input checked="" type="checkbox"/> Yes. <input type="checkbox"/> No, why: Explain the JoinRequest sequence if no JoinAccept is received - data rate, timing and power back-off algorithm. Each Join-request is sent after a random time offset - SF12 - MaxTxPower</p>
<p>2.19 On what SF and power setting is the first uplink (after join procedure) done?</p>	<p>SF: 12 TXPower: max</p>
<p>2.20 Are you doing periodically reset of Uplink frame counter?</p>	<p><input type="checkbox"/> Yes (frequency/why): <input checked="" type="checkbox"/> No.</p>
<p>2.21 If LoRaWAN 1.0.x, DevNonce behaviour :</p>	<p><input checked="" type="checkbox"/> Based on a random value <input type="checkbox"/> Monotonically increasing never-wrapping counter</p>
<p>2.22 Uplink DataRate (0-7 supported)</p>	<p>Min: 0 Max: 7</p>

2.23 RX1 Data Rate Offset	<input checked="" type="checkbox"/> Default LoRaWAN in regards of ISM band <input type="checkbox"/> Other:
2.24 RX1 Delay	<input checked="" type="checkbox"/> Default LoRaWAN in regards of ISM band <input type="checkbox"/> Other:
2.25 RX2 Data Rate	<input checked="" type="checkbox"/> Default LoRaWAN in regards of ISM band <input type="checkbox"/> Other:
2.26 RX2 Frequency	<input checked="" type="checkbox"/> Default LoRaWAN in regards of ISM band <input type="checkbox"/> Other:
2.27 RX1 Delay on JoinRequest (OTAA devices only)	<input checked="" type="checkbox"/> Default LoRaWAN in regards of ISM band <input type="checkbox"/> Other:
2.28 Mobility Profile (how your device moves)	<input checked="" type="checkbox"/> Near static <input type="checkbox"/> Walking speed <input type="checkbox"/> Vehicle speed <input type="checkbox"/> Random
2.29 Frame Counters Up To 32-bits	<input checked="" type="checkbox"/> Frame counter-up <input type="checkbox"/> Frame counter-down
2.30 Which MAC commands does the device support	<input checked="" type="checkbox"/> LinkCheckReq / LinkCheckAns <input checked="" type="checkbox"/> TXParamSetupReq / TXParamSetupAns <input checked="" type="checkbox"/> LinkADRReq / LinkADRAns <input checked="" type="checkbox"/> DutyCycleReq / DutyCycleAns <input checked="" type="checkbox"/> RXParamSetupReq / RXParamSetupAns <input checked="" type="checkbox"/> DevStatusReq / DevStatusAns <input checked="" type="checkbox"/> NewChannelReq / NewChannelAns <input type="checkbox"/> TXTimingSetupReq / TXTimingSetupAns
2.31 LoRaWAN Stack Type (optional)	<input type="checkbox"/> Semtech/Stackforce <input checked="" type="checkbox"/> Semtech/Stackforce with modifications <input type="checkbox"/> IBM <input type="checkbox"/> IBM with modifications <input type="checkbox"/> Proprietary- Other, name it:
2.32 LoRaWAN Stack Version (optional)	1.0.2
2.33 LoRa Radio Hardware (optional)	<input checked="" type="checkbox"/> Proprietary: SX12xx chip used: SX1272 <input type="checkbox"/> LoRaWAN Modem/Module: Manufacturer: Part Number: Firmware revision:

2.34 Multicast support (optional)	<input type="checkbox"/> Yes: Multicast DevAddr: Multicast AppSKey: Multicast NwkSKey: Payload: Port: <input checked="" type="checkbox"/> No.
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3 Radio Frequency Information

3.1 Type of Antenna	<input checked="" type="checkbox"/> Wire <input type="checkbox"/> PCB <input type="checkbox"/> External <input type="checkbox"/> Other: (which type)
3.2 Antenna gain [dBi or dBd]	-1.5dBi or dBd
3.3 Did you measure and take into account the loss between the modem and the antenna?	<input checked="" type="checkbox"/> Yes, 0.5 dB loss <input type="checkbox"/> 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*:	<input type="checkbox"/> TXPower 0 (20dBm) <input type="checkbox"/> TXPower 1 (14dBm) <input type="checkbox"/> TXPower 2 (11dBm) <input type="checkbox"/> TXPower 3 (8dBm) <input type="checkbox"/> TXPower 4 (5dBm) <input type="checkbox"/> TXPower 5 (2dBm) <input type="checkbox"/> 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)*.	<input type="checkbox"/> Yes, dB loss <input checked="" type="checkbox"/> 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

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<p>4.1 Battery consumption of the device (including modem, sensors and all other electronics)</p>	<p>TX current: mA RX current: mA Idle time current: mA</p>																																				
<p>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.</p> <p>Assumptions:</p> <ul style="list-style-type: none"> - 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 	<table border="1"> <thead> <tr> <th colspan="4">Battery life in years</th> </tr> <tr> <th>Transmission Periodicity (transmissions/day)</th> <th>SF7</th> <th>SF10</th> <th>SF12</th> </tr> </thead> <tbody> <tr><td>144</td><td></td><td></td><td></td></tr> <tr><td>96</td><td></td><td></td><td></td></tr> <tr><td>48</td><td></td><td></td><td></td></tr> <tr><td>24</td><td></td><td></td><td></td></tr> <tr><td>12</td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td></tr> <tr><td>1</td><td></td><td></td><td></td></tr> </tbody> </table> <p><input type="checkbox"/> LW1.0.1 <input type="checkbox"/> LW1.0.2 revA <input type="checkbox"/> LW1.0.2 revB <input type="checkbox"/> Other :</p> <p><input type="checkbox"/> LW1.0.1 <input type="checkbox"/> LW1.0.2 revA <input type="checkbox"/> LW1.0.2 revB <input type="checkbox"/> Other :</p> <p>bytes</p>	Battery life in years				Transmission Periodicity (transmissions/day)	SF7	SF10	SF12	144				96				48				24				12				4				1			
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