

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	10/11/2021	Agathe DUFOUR	Initial release from manufacture

Supplementary Information on certified device

1 Supplementary information	
1.1 Manufacturer or Brand name	BIRDZ
1.2 Website	www.birdz.com
1.3 Sales / Marketing contact person, email:	Pierre-Guillaume SEGUIN DE LA SALLE pierre-guillaume.delasalle@birdz.com
1.4 Technical contact person, email:	Arnauld VANDEKERCKHOVE arnauld.vandekerckhove@birdz.com
1.5 Commercial Product name	Bruno GALLUZZO bruno.galluzzo@birdz.com
1.6 Product code used when ordering / article number	HR-TOO-B-TOOLZ / ACC001389
1.7 Product Version : Hardware version: Firmware version:	V1.0 V1.0 V1.0
1.8 In what countries is the product available	EUROPE
1.9 What date was / is the market introduction for this device / product?	JANUARY 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:	<input type="checkbox"/> Yes: <input checked="" type="checkbox"/> No
1.11 What functionality does the device provide and which sensor(s) does it contain?	Use case: Installation and maintenance for radio modules (water meter remote reading) + LoRaWAN network detector Short behavior description:
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

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1.13 Uplinks are: Periodic: Period: Explanation: Keep alive message period: Event triggered how:	<input checked="" type="checkbox"/> Periodic: 5 to 600 sec Users initiative
1.14 Parameter configuration of device (e.g. transmission or measurement interval, threshold levels, etc.)	<input type="checkbox"/> Remotely: <input type="checkbox"/> Over-the-air with LoRaWAN data downlinks <input type="checkbox"/> Specify if other: <input checked="" type="checkbox"/> Locally: <input type="checkbox"/> Via CLI: specify type of connector: USB-C <input type="checkbox"/> Via NFC: <input checked="" type="checkbox"/> Specify if other: BLE
1.15 Does the application server send downlinks to the devices?	<input type="checkbox"/> Yes: (why/how often/typical size) <input checked="" type="checkbox"/> No
1.16 Operating temperature of device - x °C to + x °C	Minimum -20 °C Maximum +55 °C
1.17 Is the payload structure available for decoding?	<input type="checkbox"/> Yes: <input checked="" type="checkbox"/> No Please attach the payload structure (+example of decoded payload)
1.18 Is there a decode-API available	<input type="checkbox"/> Yes: <input checked="" type="checkbox"/> No Please attach the API documentation
1.19 Is the firmware upgradeable and how?	<input checked="" type="checkbox"/> Yes: (how) With the B-TOOLZUP app (available on the Google Play store)

1.20 How can the device be reset to factory default settings?	At each start
1.21 How can the device be forced to re-initiate the join procedure?	At each demand
1.22 Product certifications (IP rating, ATEX, ...)	1. IP rating: IP65 2. ATEX compliance: NO Other: RoHS II 2011/65/UE
1.23 Which regulatory certifications are available (RED, CE, EMC)?	<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
1.24 Power Supply	<input checked="" type="checkbox"/> External power supply: connection: USB-C voltage: 5V amperage: 2,1 A <input checked="" type="checkbox"/> Internal battery: battery type: Li-ion Rechargeable battery chemical composition: Lithium-ion Polymer Battery self-discharge (%/year): Battery shelf life: capacity: weight: rechargeable: <input checked="" type="checkbox"/> Yes: <input type="checkbox"/> No
1.25 Powering device on and off How is the device turned ON ? How is the device turned OFF ?	The B-TOOLZ is started and stopped using an ON / OFF push button on the front of the device. A long press of 3 seconds on this button starts or stops the B-TOOLZ.
1.26 Dimensions of device (Length x width x height)	12 x 6,5 x 2,5cm
1.27 Weight of full device	160g
1.28 Mounting of device 1. How to mount? 2. How to mount for best antenna propagation	SMA Vertical polarisation (omnidirectional)

2 LoRaWAN Device Information

2.1 DevEUI Range (IEEE Compliance)	From : 90 DF FB 00 00 2E C0 00 To : <i>Currently indetermined</i>
2.2 LoRaWAN Class	<input checked="" type="checkbox"/> Class A <input type="checkbox"/> Class B <input type="checkbox"/> Class C
2.3 For Class C Device: Device Under Test restores previous RF settings at boot?	<input type="checkbox"/> Yes <input type="checkbox"/> No
2.4 In what LoRaWAN region/frequency ranges is the product available	<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
2.5 Is the LoRaWAN test mode supported?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No, why not
2.6 Tested and certified against which LoRaWAN Specification(s)	<input type="checkbox"/> V1.0 <input type="checkbox"/> V1.0.1 <input type="checkbox"/> V1.0.2 revB <input type="checkbox"/> V1.0.3 <input type="checkbox"/> V1.1.x <input checked="" type="checkbox"/> Other : V 1.0.4
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	<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) <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) <input type="checkbox"/> other TXPower (Max EIRP : dB)

<p>2.9 Which TX powers are supported by the device in production</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)</p> <p><input type="checkbox"/> other TXPower (dBm)</p> <p><input checked="" type="checkbox"/> TXPower 0 (MaxEIRP) <input checked="" type="checkbox"/> TXPower 1 (MaxEIRP-2dB) <input checked="" type="checkbox"/> TXPower 2 (MaxEIRP-4dB) <input checked="" type="checkbox"/> TXPower 3 (MaxEIRP-6dB) <input checked="" type="checkbox"/> TXPower 4 (MaxEIRP-8dB) <input checked="" type="checkbox"/> TXPower 5 (MaxEIRP-10dB) <input checked="" type="checkbox"/> TXPower 6 (MaxEIRP-12dB) <input checked="" type="checkbox"/> TXPower 7 (MaxEIRP-14dB)</p> <p>(Max EIRP : 16 dB)</p>
<p>2.9 Which LoRaWAN Specification is currently supported on the production devices?</p>	<p><input type="checkbox"/> V1.0 <input type="checkbox"/> V1.0.1 <input type="checkbox"/> V1.0.2 revA <input type="checkbox"/> V1.0.2 revB <input checked="" type="checkbox"/> V1.0.4 <input type="checkbox"/> V1.1.x <input type="checkbox"/> Other:</p>
<p>2.10 Will you re-certify your device when a new major LoRaWAN specification version is released</p>	<p><input checked="" type="checkbox"/> Yes. <input type="checkbox"/> No, why :</p>
<p>2.11 Has Interoperability prequalification testing been done?</p>	<p><input type="checkbox"/> Yes. <input checked="" type="checkbox"/> No, why : Not yet</p> <p>Which Network Servers <input type="checkbox"/> Actility <input type="checkbox"/> Loriot <input type="checkbox"/> TTI <input type="checkbox"/> Other: Specify: Please attach all the test reports.</p>
<p>2.12 Is Activation Type OTAA the default</p>	<p><input checked="" type="checkbox"/> Yes. <input type="checkbox"/> No, why :</p>
<p>2.13 For OTAA, is AppKey unique for each device?</p>	<p><input checked="" type="checkbox"/> Yes. <input type="checkbox"/> No.</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 type="checkbox"/> Activated <input checked="" type="checkbox"/> Deactivated, why : Moving device</p> <p><input type="checkbox"/> Configurable by user (recommendation: Activated by default) <input type="checkbox"/> Mixed, explain:</p>
<p>2.15 What values did you implement for: - ADR_ACK_LIMIT: - ADR_ACK_DELAY:</p>	<p>64 recommended value: 64 32 recommended 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?</p> <p>Upon reception of a confirmed downlink message, is the next uplink sent immediately after the downlink ?Answers (radio buttons)</p>	<p><input checked="" type="checkbox"/> unconfirmed <input type="checkbox"/> confirmed, when and why: <input type="checkbox"/> Both, which is used when and why: Data rate, timing and power back-off algorithm (only if you use confirmed uplinks):</p> <p><input checked="" type="checkbox"/> Yes. <input 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? Our device is not using for that</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.</p>
<p>2.19 On what SF and power setting is the first uplink (after join procedure) done?</p>	<p>SF: 12 TXPower: 0</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 type="checkbox"/> Based on a random value <input checked="" type="checkbox"/> Monotonically increasing never-wrapping counter</p>
<p>2.22 Uplink DataRate (0-7 supported)</p>	<p>Min: 0 Max: 7</p>
<p>2.23 RX1 Data Rate Offset</p>	<p><input checked="" type="checkbox"/> Default LoRaWAN in regards of ISM band <input type="checkbox"/> Other:</p>
<p>2.24 RX1 Delay</p>	<p><input checked="" type="checkbox"/> Default LoRaWAN in regards of ISM band <input type="checkbox"/> Other:</p>
<p>2.25 RX2 Data Rate</p>	<p><input checked="" type="checkbox"/> Default LoRaWAN in regards of ISM band <input type="checkbox"/> Other:</p>

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 type="checkbox"/> Near static <input checked="" type="checkbox"/> Walking speed <input checked="" type="checkbox"/> Vehicle speed <input checked="" type="checkbox"/> Random
2.29 Frame Counters Up To 32-bits	<input checked="" type="checkbox"/> Frame counter-up <input checked="" type="checkbox"/> Frame counter-down
2.30 Which MAC commands does the device support	<input checked="" type="checkbox"/> LinkCheckReq / LinkCheckAns <input 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 checked="" type="checkbox"/> TXTimingSetupReq / TXTimingSetupAns
2.31 LoRaWAN Stack Type (optional)	<input type="checkbox"/> Semtech/Stackforce <input type="checkbox"/> Semtech/Stackforce with modifications <input type="checkbox"/> IBM <input type="checkbox"/> IBM with modifications <input checked="" type="checkbox"/> Proprietary- Other, name it: Stack by Birdz
2.32 LoRaWAN Stack Version (optional)	
2.33 LoRa Radio Hardware (optional)	<input checked="" type="checkbox"/> Proprietary: SX chip used: SX1262 <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.

3 Radio Frequency Information

3.1 Type of Antenna	<input type="checkbox"/> Wire <input type="checkbox"/> PCB <input checked="" type="checkbox"/> External <input type="checkbox"/> Other: (which type)
3.2 Antenna gain [dBi or dBd]	3 dBi or dBd
3.3 Did you measure and take into account the loss between the modem and the antenna?	<input type="checkbox"/> Yes, dB loss <input checked="" 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

<p>4.1 Battery consumption of the device (including modem, sensors and all other electronics)</p>	<p>TX current: 85 mA (@13dBm) RX current: 8 mA Idle time current: 1 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></th> <th>SF7</th> <th>SF10</th> <th>SF12</th> </tr> </thead> <tbody> <tr> <td rowspan="7" style="writing-mode: vertical-rl; transform: rotate(180deg);">Transmission Periodicity (transmissions/day)</td> <td>144</td> <td></td> <td></td> </tr> <tr> <td>96</td> <td></td> <td></td> </tr> <tr> <td>48</td> <td></td> <td></td> </tr> <tr> <td>24</td> <td></td> <td></td> </tr> <tr> <td>12</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> </tr> <tr> <td>1</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 checked="" type="checkbox"/> Other : 1.0.4 </p> <p> <input type="checkbox"/> LW1.0.1 <input type="checkbox"/> LW1.0.2 revA <input type="checkbox"/> LW1.0.2 revB <input checked="" type="checkbox"/> Other : 1.0.4 </p> <p>bytes</p>	Battery life in years					SF7	SF10	SF12	Transmission Periodicity (transmissions/day)	144			96			48			24			12			4			1		
Battery life in years																															
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	96																														
	48																														
	24																														
	12																														
	4																														
	1																														

<p>4.3 Which TX power setting (TXPower) was used in the RF test?</p> <p>- If LW 1.0.2 rev A or older device:</p> <p>- If LW 1.0.2 rev B or newer device:</p>	<p><input type="checkbox"/> TXPower 0 (20dBm)</p> <p><input type="checkbox"/> TXPower 1 (14dBm)</p> <p><input type="checkbox"/> TXPower 2 (11dBm)</p> <p><input type="checkbox"/> TXPower 3 (8dBm)</p> <p><input type="checkbox"/> TXPower 4 (5dBm)</p> <p><input type="checkbox"/> TXPower 5 (2dBm)</p> <p><input type="checkbox"/> other TXPower (dBm)</p> <p><input checked="" type="checkbox"/> TXPower 0 (MaxEIRP)</p> <p><input type="checkbox"/> TXPower 1 (MaxEIRP-2dB)</p> <p><input type="checkbox"/> TXPower 2 (MaxEIRP-4dB)</p> <p><input type="checkbox"/> TXPower 3 (MaxEIRP-6dB)</p> <p><input type="checkbox"/> TXPower 4 (MaxEIRP-8dB)</p> <p><input type="checkbox"/> TXPower 5 (MaxEIRP-10dB)</p> <p><input type="checkbox"/> TXPower 6 (MaxEIRP-12dB)</p> <p><input type="checkbox"/> TXPower 7 (MaxEIRP-14dB)</p> <p><input type="checkbox"/> other TXPower (MaxEIRP- dBdBm)</p>
<p>4.4 Is this the same TX power setting (TXPower) used by default in production devices (before network ADR)?</p>	<p><input checked="" type="checkbox"/> Yes,</p> <p><input type="checkbox"/> No, why:</p>
<p>4.5 Maximum ERP measured: (ERP = EIRP - 2.15 dB; LoRaWAN allows 14 dBm ERP)</p>	<p>13 dBm</p>
<p>4.6 TRP measured: (TRP is based on EIRP) This gives an idea about the directivity of the antenna.</p>	<p>dBm</p>
<p>3.10 TIS measured on RX1:</p>	<p>For RX1-SF12BW125 on 868.3MHz -138 dBm</p>
<p>3.11 TIS measured on RX2</p>	<p>For RX2-SF12BW125 on 869.525 MHz: -138 dBm</p>