

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	Milesight
1.2 Website	www.milesight-iot.com
1.3 Sales / Marketing contact person, email:	ivete@milesight.com
1.4 Technical contact person, email:	near_lxj@milesight.com
1.5 Commercial Product name	PIR & Light Sensor
1.6 Product code used when ordering / article number	
1.7 Product Version : Hardware version: Firmware version:	V1 V1.1 V1.03
1.8 In what countries is the product available	worldwide
1.9 What date was / is the market introduction for this device / product?	2022/5
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
1.11 What functionality does the device provide and which sensor(s) does it contain?	<p>Use case: WS202 is a PIR sensor based on passive infrared technology to detect a motion or occupancy. WS202 can detect whether there is a movement within the range of 6-8 m. Besides, WS202 equips with a light sensor which can link PIR detection results to trigger scenes. WS202 can be widely used in smart homes, smart offices, schools, warehouses, etc.</p> <p>Short behavior description: Sensor data are transmitted in real-time using the standard LoRaWAN protocol. LoRaWAN enables encrypted radio transmissions over long distances while consuming very little power. The user can get alarm through Milesight IoT Cloud or through the user's own Application Server.</p>
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	PIR sensor  PIR Maximum 8 m, 120 ° Horizontal, 100 ° Vertical
Name: sensor accuracy (incl. unit): +/- resolution (incl. unit): measurement parameter: measurement range	Light sensor  Light Bright/Dark (Determine 1-60000 lux as Bright or Dark according to custom threshold)
1.13 Uplinks are:  Periodic: Period: Explanation: Keep alive message period: Event triggered how:	<input checked="" type="checkbox"/> 30 min 30 triggers per day
1.14 Parameter configuration of device (e.g. transmission or measurement interval, threshold levels, etc.)	<input checked="" 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 checked="" type="checkbox"/> Via NFC:  <input type="checkbox"/> Specify if other:
1.15 Does the application server send downlinks to the devices?	<input checked="" type="checkbox"/> Yes: (why/how often/typical size)  <input type="checkbox"/> No
1.16 Operating temperature of device - x °C to + x °C	Minimum -20 °C Maximum +60 °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)
1.20 How can the device be reset to factory default settings?	Reset via PC Software; Reset via Button
1.21 How can the device be forced to re-initiate the join procedure?	via Smartphone APP; via PC Software; via Button
1.22 Product certifications (IP rating, ATEX, ...)	1. IP rating: IP30 2. ATEX compliance: Other:

<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: 1650 mAh Li-SoCl2 battery                  chemical composition: Li-SoCl2                  Battery self-discharge (%/year):                  Battery shelf life: 4year                  capacity: 1650 mAh                  weight:                  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>Turn ON via Smartphone APP; Turn ON via PC Software; Turn ON via Button                  Turn OFF via Smartphone APP; Turn OFF via PC Software; Turn OFF via Button</p>
<p>1.26 Dimensions of device                  (Length x width x height)</p>	<p>5.0x 5.0x 2.38cm</p>
<p>1.27 Weight of full device</p>	<p style="text-align: right;">g</p>
<p>1.28 Mounting of device                  1. How to mount?                  2. How to mount for best antenna propagation</p>	<p>On the flat surfaces with screws or 3M tapes                  3M Tapes Fix:                  Paste 3M tape to the back of the device, then tear the other side and place it on a flat surface.                  Screw Fix:                  Remove the back cover of the device, screw the wall plugs into the wall and fix the cover with screws on it, then install back the device  <b>Note:</b>                  1. Adjust the installation direction according to detection area requirement.                  2. WS202 can be mounted on a wall or ceiling. It's recommended to install at 1.5~2.5m from the floor.                  3. Ensure the detection area does not have moving objects like waving trees and fans.                  4. Ensure the detection area is not blocked by curtains or barriers.</p>

2 LoRaWAN Device Information

2.1 DevEUI Range (IEEE Compliance)	From :24E1240000000000 To : 24E124FFFFFFFFFFFF
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 checked="" type="checkbox"/> V1.0.2 revB <input type="checkbox"/> V1.0.3 <input type="checkbox"/> V1.1.x <input type="checkbox"/> Other :
2.7 Link to document on the LoRa Alliance website	Link:
<p>2.8 Which TX power 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 :  <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>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: When confirmed mode is enabled Data rate, timing and power back-off algorithm (only if you use confirmed uplinks):  <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? Use the restart button</p>
<p>2.18 Is the first join request sent on SF12?</p>	<p><input type="checkbox"/> Yes. <input checked="" type="checkbox"/> No, why: Because of the duty cycle 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: SF10 TXPower: TXPower0</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: 5</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 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 checked="" type="checkbox"/> TXTimingSetupReq / TXTimingSetupAns
2.31 LoRaWAN Stack Type (optional)	<input checked="" type="checkbox"/> Semtech/Stackforce <input 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)	V1.0.2
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**

<p>3.1 Type of Antenna</p>	<p><input type="checkbox"/> Wire  <input type="checkbox"/> PCB  <input type="checkbox"/> External  <input checked="" type="checkbox"/> Other: (which type) Spring antenna</p>
<p>3.2 Antenna gain [dBi or dBd]</p>	<p>1dBi or dBd</p>
<p>3.3 Did you measure and take into account the loss between the modem and the antenna?</p>	<p><input type="checkbox"/> Yes,          dB loss  <input checked="" type="checkbox"/> No, why: We have match the impedance between the modem and the antenna.</p>
<p>3.4 For LW 1.0.2 rev A or older devices: which TXPower setting should be used on the network for your device*:</p>	<p><input type="checkbox"/> TXPower 0 (20dBm)  <input checked="" 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>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)*.</p>	<p><input checked="" type="checkbox"/> Yes, 1 dB loss  <input type="checkbox"/> No, why:</p>



**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: 100mA                  RX current: 6.2 mA                  Idle time current: 0.01mA</p>																																				
<p>4.2 Estimated battery life in years based on the number of transmissions (including sensor readings) at SF7, SF10 &amp; SF12 with your battery self-discharge and aging over time taken into account.</p> <p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>- Product shelf life before use: Maximum 1 year.</li> <li>- At an environment temperature of 20°C.</li> <li>- LoRaWAN specification used for battery life calculation:</li> <li>- TX power setting (txpower) used for battery life calculation:</li> <li>- Payload size used for battery life calculation (should be average payload size of production device):</li> <li>- Additional assumptions or comments on battery life (Typical usage</li> </ul>	<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>3.46</td> <td>1.47</td> <td>0.48</td> </tr> <tr> <td>96</td> <td>3.78</td> <td>1.83</td> <td>0.64</td> </tr> <tr> <td>48</td> <td>4.16</td> <td>2.41</td> <td>0.96</td> </tr> <tr> <td>24</td> <td>4.39</td> <td>2.87</td> <td>1.28</td> </tr> <tr> <td>12</td> <td>4.51</td> <td>3.17</td> <td>1.53</td> </tr> <tr> <td>4</td> <td>4.59</td> <td>3.41</td> <td>1.77</td> </tr> <tr> <td>1</td> <td>4.62</td> <td>3.50</td> <td>1.88</td> </tr> </tbody> </table> <p><input type="checkbox"/> LW1.0.1  <input type="checkbox"/> LW1.0.2 revA  <input checked="" 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 checked="" 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	3.46	1.47	0.48	96	3.78	1.83	0.64	48	4.16	2.41	0.96	24	4.39	2.87	1.28	12	4.51	3.17	1.53	4	4.59	3.41	1.77	1	4.62	3.50	1.88
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<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 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 checked="" type="checkbox"/> other TXPower 0 (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, Txpower0</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>16 dBm</p>
<p>4.6 TRP measured: (TRP is based on EIRP) This gives an idea about the directivity of the antenna.</p>	<p>16 dBm</p>
<p>3.10 TIS measured on RX1:</p>	<p>For RX1-SF12BW125 on 868.3MHz -137 dBm</p>
<p>3.11 TIS measured on RX2</p>	<p>For RX2-SF12BW125 on 869.525 MHz: -137 dBm</p>