



**TECHNICAL NOTE**

***BeanDevice<sup>®</sup> (wireless sensor) battery life  
in streaming mode***





“Rethinking sensing technology”

Document version : 1.0

Document Type : Technical Note  
Reference : RF\_TN\_012

*BeanDevice®(wireless sensor)  
battery life in streaming mode*

### DOCUMENT

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### Updates

Version	Date	Author	Evolution & Status
V1.1	14/05/2015	Maxime Obraztsov	Second version
V1.2	27/09/2016	Salah Riahi	15 dBm Tx power suppressed Streaming Mode suppressed






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## 1. TECHNICAL SUPPORT

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For general contact, technical support, to report documentation errors and to order manuals, contact **BEANAIR® Technical Support Center** (BTSC) at:

[tech-support@Beanair.com](mailto:tech-support@Beanair.com)

For detailed information about where you can buy the Beanair equipment/software or for recommendations on accessories and components visit:




[www.Beanair.com](http://www.Beanair.com)

To register for product news and announcements or for product questions contact BEANAIR®’s Technical Support Center (BTSC).

Our aim is to make this user manual as helpful as possible. Please keep us informed of your comments and suggestions for improvements. Beanair appreciates feedback from the users.



## 2. VISUAL SYMBOLS DEFINITION

Visual	Definition
	<p><i><u>Caution or Warning</u> – Alerts the user with important information about Beanair wireless sensor networks (WSN), if this information is not followed, the equipment /software may fail or malfunction.</i></p>
	<p><i><u>Danger</u> – This information <b>MUST</b> be followed if not you may damage the equipment permanently or bodily injury may occur.</i></p>
	<p><i><u>Tip or Information</u> – Provides advice and suggestions that may be useful when installing Beanair Wireless Sensor Networks.</i></p>




### 3. ACRONYMS AND ABBREVIATIONS

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<b>RJ45</b>	Refers to the RJ45 cable. It refers to an Ethernet connection
<b>dBm</b>	The abbreviation for the power ratio in decibels (dB) of the measured power referenced to one milliwatt (mW)
<b>Hz</b>	Hertz



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#### 4. AIM OF THE DOCUMENT

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The aim of this document is to describe the battery life performance of the BeanDevice® SmartSensor® and ProcessSensor® products line in streaming and streaming packet mode.

This document is not intended to display with an extreme precision the battery life you can expect from our BeanDevice®. But you will have an estimated battery life of the BeanDevice® operating in an environment with an ambient temperature.

Please note that these computed values can change, depending strongly on your environment. By the way, you will find information about interferences on other Beanair documents.



## 5. TEST OVERVIEW

- The BeanDevice® battery life is given with:
  - Different data acquisition modes and different sampling rate
  - Datalogger feature enabled/disabled
  - RF Power: +18 dBm
- Each BeanDevice® is powered by an internal battery.

4 differents BeanDevice® were used during these tests:

- |   |
|---|
| <ul style="list-style-type: none"> <li>• SmartSensor® AX-3D (+/- 10g)</li> <li>• SmartSensor® AX-3D (+/- 2g)</li> <li>• SmartSensor® HI-INC 30° Bi-axis</li> <li>• SmartSensor® HI-INC 15° Mono-axis</li> </ul> |
|---|

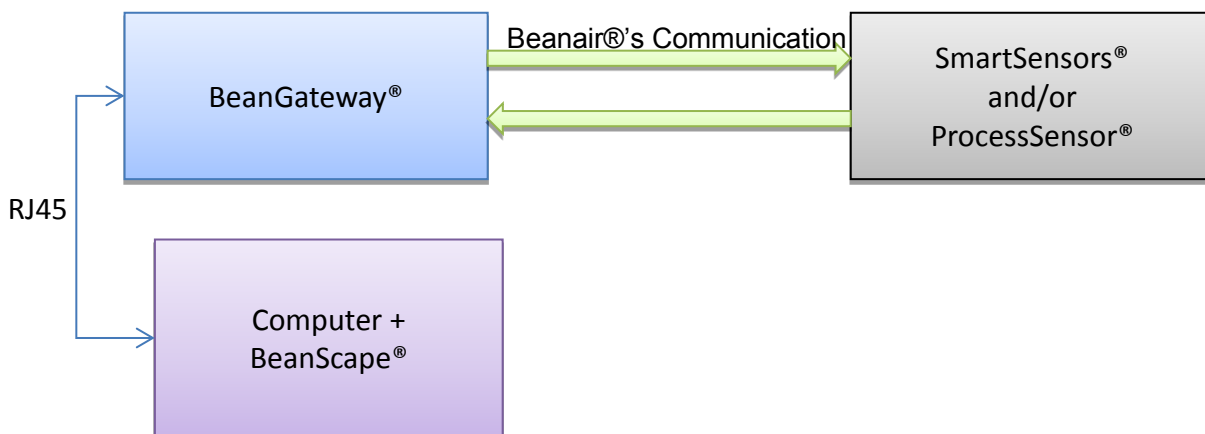


Figure 1: Global presentation of the system

- All the tests were made in continuous monitoring mode.
- BeanDevice® battery life was measured at a room temperature of 23°C.
- Usual RF power were used: +18 dBm.



## 6. BATTERY LIFE DURING STREAMING PACKET DATA

### 6.1 RADIO TRANSMISSION AND DATALOGGER ARE ENABLED

#### 6.1.1 BeanDevice® AX-3D (+/-10g)

<i>BeanDevice® product</i>	<i>RF Power (dBm)</i>	<i>Sampling Rate (Hz)</i>	<i>Battery life</i>
AX3D 10g	18	1000	<b>16h41</b>
		500	<b>16h56</b>
		100	<b>17h12</b>
		25	<b>17h48</b>

#### 6.1.2 BeanDevice® AX-3D (+/-2g)

<i>BeanDevice® product</i>	<i>RF Power (dBm)</i>	<i>Sampling Rate (Hz)</i>	<i>Battery life</i>
AX3D 2g	18	1000	<b>16h32</b>
		500	<b>16h43</b>
		100	<b>17h08</b>
		25	<b>17h24</b>



**6.1.3 BeanDevice® HI-INC® (±15° Monoaxis)**

<i>BeanDevice® product</i>	<i>RF Power (dBm)</i>	<i>Sampling Rate (Hz)</i>	<i>Battery life</i>
HI INC 15M	18	200	<b>11h40</b>
		100	<b>12h05</b>
		50	<b>12h23</b>
		25	<b>12h47</b>

**6.1.4 BeanDevice® HI-INC® (±30° Biaxis)**

<i>BeanDevice® product</i>	<i>RF Power (dBm)</i>	<i>Sampling Rate (Hz)</i>	<i>Battery life</i>
HI INC 30B	18	X	<b>X</b>
		100	<b>10h25</b>
		50	<b>10h33</b>
		25	<b>10h47</b>



## 6.2 RADIO TRANSMISSION IS ACTIVATED, DATA LOGGER IS DISABLED

### 6.2.1 BeanDevice® AX-3D® (+/-10g)

<i>BeanDevice® product</i>	<i>RF Power (dBm)</i>	<i>Sampling Rate (Hz)</i>	<i>Battery life</i>
AX3D 10g	18	1000	<b>19h30</b>
		500	<b>19h41</b>
		100	<b>20h07</b>
		25	<b>20h21</b>

### 6.2.2 BeanDevice® AX-3D® (+/-2g)

<i>BeanDevice® product</i>	<i>RF Power (dBm)</i>	<i>Sampling Rate (Hz)</i>	<i>Battery life</i>
AX3D 2g	18	1000	<b>19h26</b>
		500	<b>19h32</b>
		100	<b>19h54</b>
		25	<b>20h01</b>

### 6.2.3 BeanDevice® HI-INC® (+/-15° Monoaxis)

<i>BeanDevice® product</i>	<i>RF Power (dBm)</i>	<i>Sampling Rate (Hz)</i>	<i>Battery life</i>
HI INC 15M	18	200	<b>12h42</b>
		100	<b>12h58</b>
		50	<b>13h19</b>
		25	<b>13h33</b>





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#### 6.2.4 BeanDevice® HI-INC® (+/-30° Biaxis)

<i>BeanDevice® product</i>	<i>RF Power (dBm)</i>	<i>Sampling Rate (Hz)</i>	<i>Battery life</i>
HI INC 30B	18	X	<b>X</b>
		100	<b>10h39</b>
		50	<b>11h06</b>
		25	<b>11h19</b>



### 6.3 RADIO TRANSMISSION IS DISABLED, DATALOGGER IS ENABLED

#### 6.3.1 BeanDevice® AX-3D® (+/-10g)

Type of device	RF Power (dBm)	Sampling Rate (Hz)	Battery life
AX3D 10g	18	1000	<b>17h01</b>
		500	<b>17h16</b>
		100	<b>17h37</b>
		25	<b>18h05</b>

#### 6.3.2 BeanDevice® AX-3D® (+/-2g)

BeanDevice® product	RF Power (dBm)	Sampling Rate (Hz)	Battery life
AX3D 2g	18	1000	<b>17h08</b>
		500	<b>17h21</b>
		100	<b>17h30</b>
		25	<b>17h59</b>



#### 6.4 BEANDEVICE® HI-INC® (+/-15° MONOAXIS)

<i>BeanDevice® product</i>	<i>RF Power (dBm)</i>	<i>Sampling Rate (Hz)</i>	<i>Battery life</i>
HI INC 15M	18	200	<b>11h58</b>
		100	<b>12h15</b>
		50	<b>12h32</b>
		25	<b>12h54</b>

#### 6.5 BEANDEVICE® HI-INC® (+/-30° BIAXIS)

<i>BeanDevice® product</i>	<i>RF Power (dBm)</i>	<i>Sampling Rate (Hz)</i>	<i>Battery life</i>
HI INC 30B	18	X	<b>X</b>
		100	<b>10h45</b>
		50	<b>10h54</b>
		25	<b>11h09</b>



## 7. TEST SUMMARY AND CONCLUSION

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### Sampling rate

- The BeanDevice battery life is inversely proportional to the sampling rate configured on your BeanDevice
- The Beandevic battery life will increase if you set the sampling rate at 25 Hz (25 measures per second) than at 1000 Hz (1000 measures per second).

### Datalogger function

- When the datalogger is enabled, the Beandevic battery life will decrease by 15% ;

