

Advantech AE Technical Share Document

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Category	<input checked="" type="checkbox"/> FAQ <input type="checkbox"/> SOP	Related OS	N/A
Abstract	The relationship between battery life and battery voltage.		
Keyword	WISE, battery, discharge voltage		
Related Product	WISE-2410 series		

■ **Problem Description:**

WISE-2410 supports 2 kinds of power input: battery and USB port. This document explains how to check the battery life, voltage and discharge behavior of a WISE-2410.

In summary:

1. If battery discharge behavior is **different** from the description on the datasheet, it means your battery might be **faulty** one.
2. If battery discharge behavior is **matching** to the description on the datasheet, you have to **consider** with the working environment and data uplink interval **into your battery plan**.

■ **Brief Solution - Step by Step:**

Please check the following information:

1. The brand and model of the battery. It would be better if datasheet can be provided.
2. The working environment temperature of the WISE-2410 module.
3. The temperature of the measurement target. It would be better if user can find a batch of history log of temperature.
4. How many batteries are used in a module? One or two? Suggest using 2 batteries.
5. WISE-2410 uploads interval setting.

The information is helpful to compare with the battery discharge behavior on the datasheet.

Different battery brand and model has different discharge behavior.

Example: battery model and the discharge behavior in WISE-2410 DS.

According to the datasheet of the battery, the environment temperature influences the current capacity. The WISE-2410 data uplink interval will consume the battery, too. The testing results are shown in the following figure, which matches to the discharge behavior of the battery

datasheet.

Accessories

- **1760002647-01** Bat.Cylindrical 3.6V/2500mAh AA Li/SOCI2
- **96PD-MC534** Magnet base for WISE-2410 installation
- **WISE-2410-MTB01** Metal base for WISE-2410 installation

Figure captured from WISE-2410 datasheet.

LITHIUM PRIMARY BATTERY

SB-AA11



Key Characteristics

- High and stable operating voltage
- Low self-discharge rate (less than 1% after 1 year of storage at + 20° C)
- Bobbin type
- Non-flammable inorganic electrolyte
- Hermetic glass-to-metal sealing
- UL recognized (file number MH18384)
- RoHS Compliance
- Non-restricted for transport



Figure captured from battery SB-AA11 datasheet.

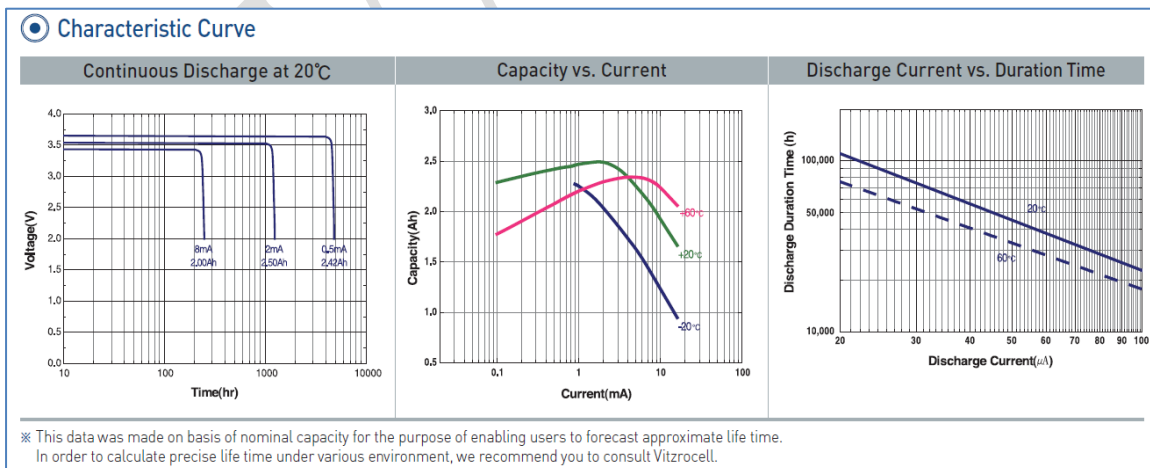


Figure captured from battery SB-AA11 datasheet.

According to the discharging behavior of this battery model, we have the testing results as the following description and the figure.

Testing environment:

1. WISE-2410 is in temperature chamber with metal case.
2. WISE-6610 is outside, on top of the chamber.
3. ADR enabled.
4. Ack function of WISE-2410 is disabled. Means WISE-2410 will not retry.
5. NA 902 frequency is used.
6. Insert 2 of new batteries into WISE-2410.

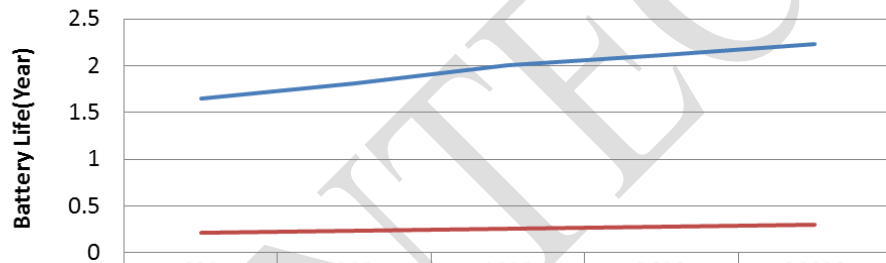
Testing results under 50 degree environment of WISE-2410 and PN:1760002647-01 (battery*2).

→ If the battery voltage is lower than 3.3V, then it means 10% left for WISE-2410.

Testing results under -20 degree environment of WISE-2410 and PN:1760002647-01 (battery*2).

→ If the battery voltage is lower than 3V, then it means 10% left for WISE-2410.

Temperature and Data Uplink Interval Influence Battery Life



	600	900	1800	3600	86400
— 50 degree environment	1.646068826	1.805609047	1.999394263	2.11276973	2.234179993
— -20 degree environment	0.208298716	0.231890287	0.261508287	0.279348038	0.298888227

(Second)

The x-axis is data uplink interval setting (“Measurement Interval”) on WISE-2410.