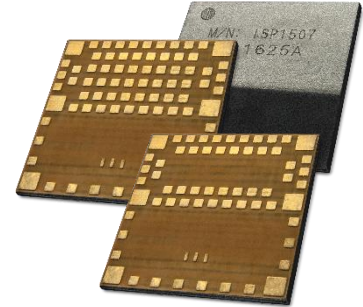


## Use of the Power Profiler Kit 2 with Insight SiP Bluetooth LE Modules

ISP1507-AX      ISP1807-LR  
ISP1907-LL      ISP1907-HT  
ISP2053-AX



### Introduction

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### Scope

This document gives details on how to measure the current profile of any Insight SiP BLE modules using the Power Profiler Kit 2 (PPK2) from Nordic Semiconductor.

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## 1. Recommended Documentation and tools

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The following documents are required.

- nRF Product Specification – Make sure you have the most recent version of the appropriate document depending on the module.
- Power profiler kit 2 User Guide  
Available at [https://infocenter.nordicsemi.com/pdf/PPK2\\_User\\_Guide\\_v1.0.1.pdf](https://infocenter.nordicsemi.com/pdf/PPK2_User_Guide_v1.0.1.pdf)
- Use of ISPxxxx Development Board Application Note

The following tools are required:

- nRF Connect for Desktop  
Available at <https://www.nordicsemi.com/Products/Development-tools/nrf-connect-for-desktop>
- Power Profiler app – Install it using nRF Connect for Desktop

## 2. Hardware description

### 2.1. Power Profiler Kit 2

The Power Profiler Kit 2 (PPK2) can be used to measure Insight SiP module current profile:  
<https://www.nordicsemi.com/Products/Development-hardware/Power-Profiler-Kit-2>



Figure 1: PPK2 board

### 2.2. Insight SiP Test boards

This application note covers the following test boards:

- ISPI507-AX-TB
- ISPI807-LR-TB
- ISPI907-LL-TB
- ISPI907-HT-TB
- ISP2053-AX-TB

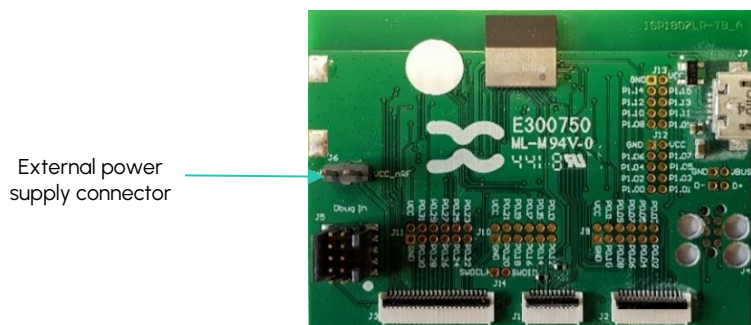


Figure 2: ISP1807-LR-TB-A

### 3. Guide

#### 3.1. Setting up the PPK2 with ISP15/ISP18/ISP19 test boards

Follow the steps to set up the measure:

1. Connect the PPK2 to the test board using a "HE10 2.54mm female to female cable":  
 PI (OUT/GND) of PPK2 is connected to the external power header (VCC/GND) of the Insight SiP test board.
2. Connect the "USB DATA/POWER" connector of PPK2 to your computer using an USB cable.
3. Set PPK2 power ON.

This is an example of setup using ISP1807-LR-TB. The ISP15 and ISP19 families test board will have similar setup.

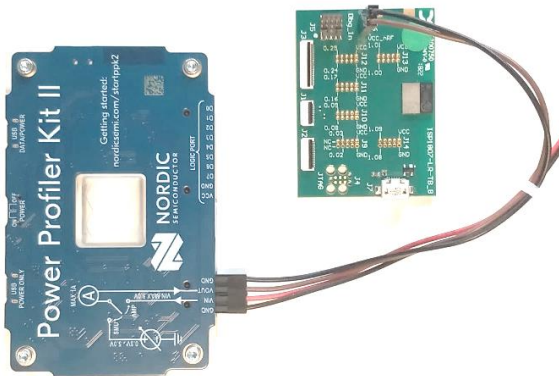


Figure 3: Setup with ISP1807-LR-TB-B (old gen)

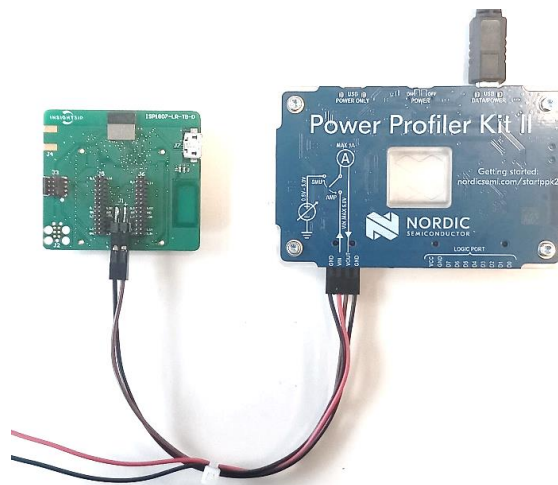


Figure 4: Setup with ISP1807-LR-TB-D (new gen)

## 3.2. Setting up the PPK2 with ISP2053-AX test boards

Follow the steps to set up the measure:

1. Connect the PPK2 to the test board using a "HE10 2.54mm female to female cable":
  - In normal voltage mode, P1 (OUT/GND) of PPK2 is connected to external power header (3V/GND) of the Insight SiP test board.
  - In high voltage mode, P1 (OUT/GND) of PPK2 is connected to the External Power header (5V/GND) of the Insight SiP test board.
2. Set the switch to the correct voltage mode:
  - In normal voltage mode, the switch is set to the left position.
  - In high voltage mode, the switch is set to the right position.
3. Connect the "USB DATA/POWER" connector of PPK2 to your computer using an USB cable.
4. Set PPK2 power ON.

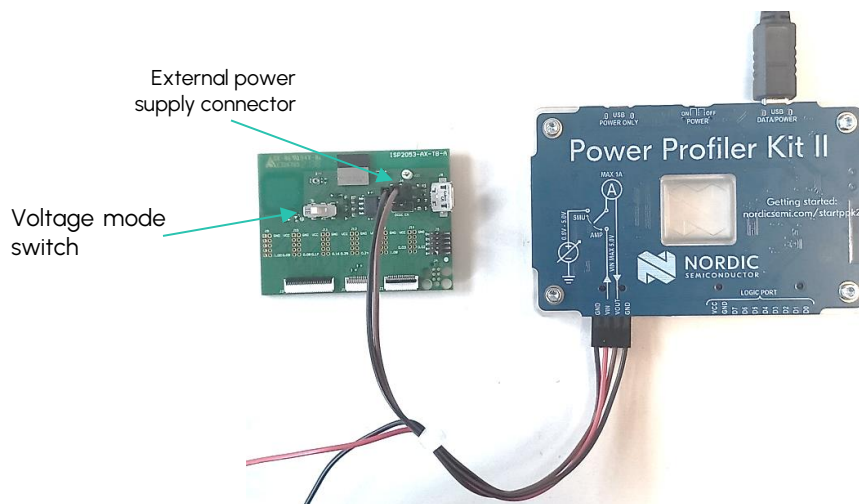


Figure 5: Setup with ISP2053-AX-TB-A (old gen)

## 3.3. Using the Power Profiler app

Once the setup is complete use the Power Profile app:

1. Start nRF Connect for Desktop.
2. If not already done install the Power Profiler App and then open it.
3. Choose PPK2 in "Select Device" menu.
4. Set the mode to "Source meter".
5. Set the supply voltage.  
Make sure to set a value within the operating supply voltage of the module!
6. Select "Enable power output" and click "Start".

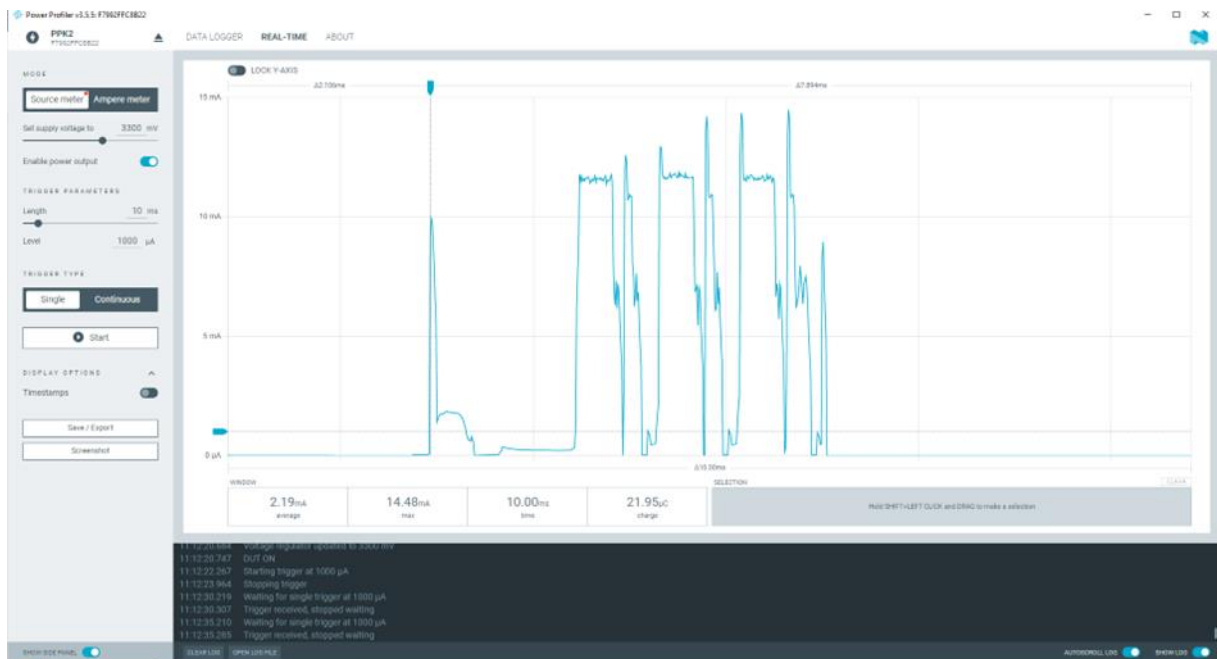


Figure 6: Capture of an advertising event

For more details about the views and trigger options using the Power Profiler app, please refer to the Nordic Semiconductor "Power Profiler Kit 2 User Guide".