

ATM5/e Series EVK

Power Consumption Evaluation

User Guide

SUMMARY: This document provides instructions for ATM5/e Evaluation Kit (EVK) users to perform a power consumption evaluation of the ATM5/e Wireless SoC Series. Test setup and power consumption profiles are included in this document.



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Acronyms and Abbreviations

Acronyms	Definition
ATM5/e	ATM53/e ATM53 ATM42
ATM53/e	ATM5305e
ATM53	ATM5305
ATM52	ATM5205
EVB	Evaluation Board
EVK	Evaluation Kit
SoC	System-on-Chip

1. Overview

This guide provides instructions for EVK users to perform a power consumption evaluation of the ATM5/e Wireless SoC Series.

2. Hardware and Software Requirements

Refer to the [Reference Documents](#) section for related documents.

2.1 Supported EVKs

EVK	SoC	SoC Part Number	Kit Part Number
Evaluation Kit for ATM5305 5x5 QFN	40-pin 5x5 mm QFN	ATM5305-3NC8QK	ATMEVK-5305-NQK-2
Evaluation Kit for ATM5205 5x5 QFN	40-pin 5x5 mm QFN	ATM5205-3NC8QK	ATMEVK-5205-NQK-2

Table 1 - ATM5/e Series EVKs

2.2 Supported Software

The Atmosic Zephyr OpenAir SDK can be used with the EVK. Refer to https://github.com/Atmosic/openair/tree/pre_rel_26.09.0 for more information.

3. Evaluation Board Setup

[Figure 1](#) shows the power consumption setup for the ATM5305/5205 EVB.

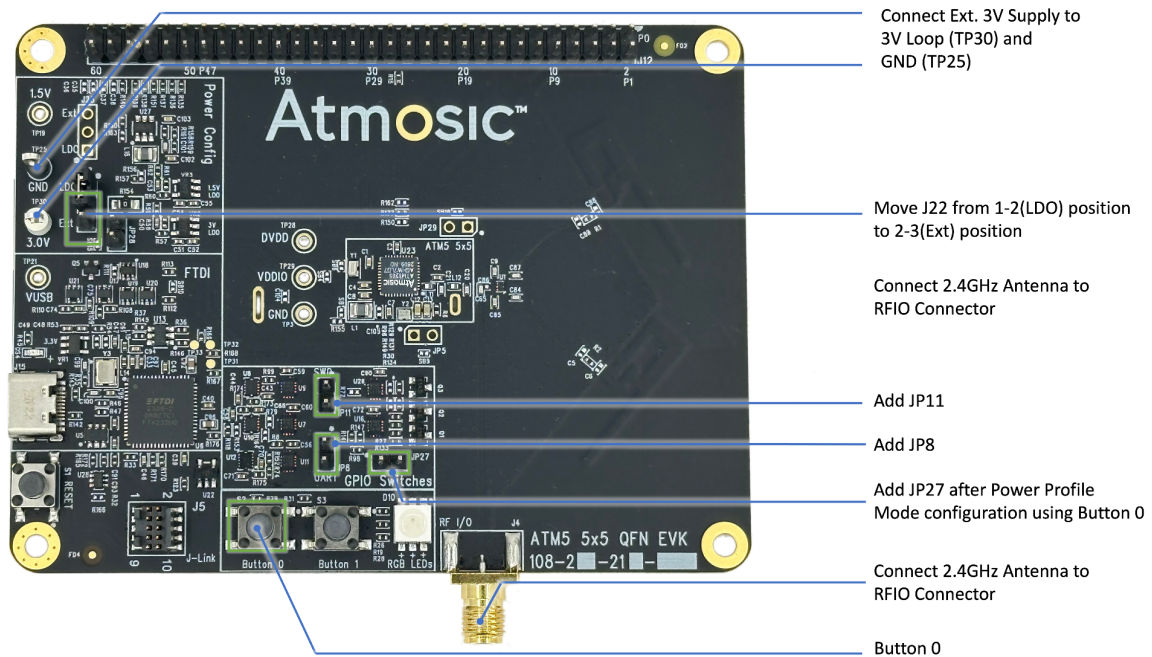


Figure 1 - ATM5305 and ATM5205 Evaluation Board Power Consumption Setup

All ATM5/e EVBs can use the same instructions listed below:

- 1) Attach the 2.4 GHz antenna included in the Evaluation Kit to the RFIO connector (J4) of the EVB.
- 2) Add a jumper on JP8 and JP11 to disconnect the FTDI and prevent it from drawing power from the ATM5/e (see [Figure 1](#)). Remove this jumper once the power measurement is complete if the EVB needs to be reprogrammed.
- 3) Move jumper on J22 from 1-2(LDO) position to 2-3(Ext) position, and connect an external 3V power supply to TP30 (3V) and TP25 (GND) on the upper left side of the board (see [Figure 1](#)). DC power analyzer (e.g., Keysight N6705C or Joulescope JS220) or 6-1/2 digit multimeter (e.g., Keysight 34465A) can be used for accurate power measurements.
- 4) Please make sure that the USB port remains connected so that it can power the EVB support circuitry. Otherwise, the ATM5/e power measurement will incorrectly include the power consumption of the supply circuitry.
- 5) Enable the external 3V power supply for the EVB while pressing Button 0. The EVB is pre-programmed with the [OpenAir beacon application](#), which runs in Power Profile Mode when Button 0 is pressed at boot time. (Please note: the

OpenAir beacon application will run in simple beacon mode if Button 0 is not pressed at boot time)

- 6) Add the jumper on JP27 to disconnect the buttons/LED and prevent those from drawing power from the ATM5/e (see [Figure 1](#)). Remove this jumper once the power measurement is complete if Button 0 needs to be pressed again.
- 7) In the Power Profile Mode, the EVB will have the power profile shown in [Figure 2](#).

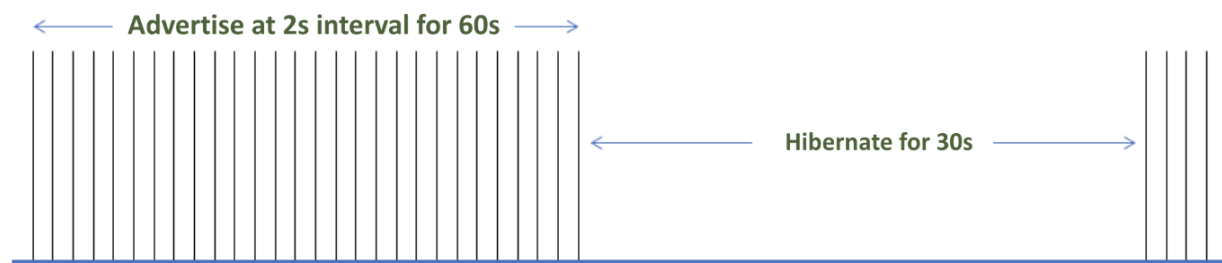


Figure 2 - OpenAir Beacon Power Profile

4. Power Measurement Procedures

4.1 Average Power Measurement with Multimeter

To make an average power measurement with a 6½ digit multimeter, please follow these instructions:

- 1) Connect the multimeter in series with the external 3 V supply.
- 2) Set the multimeter for DC Current, configure the range for 10mA, and increase the aperture to 1s. [Figure 3](#) shows an average current consumption measurement during advertising.

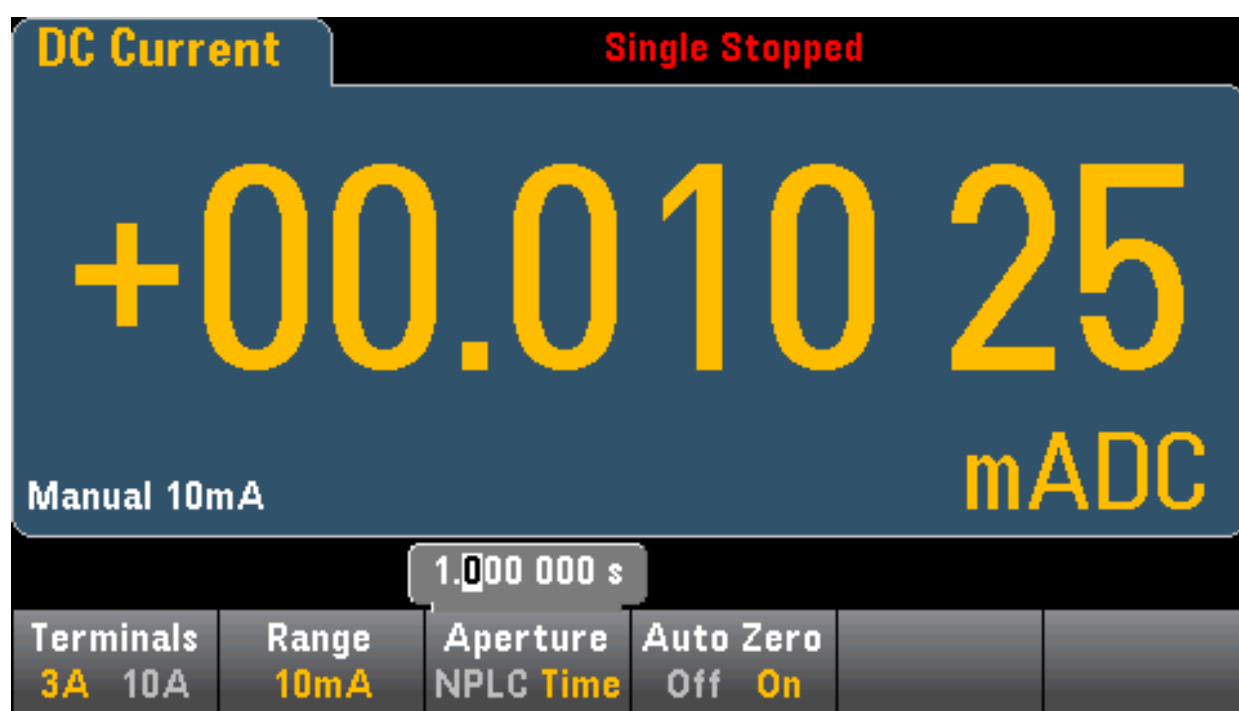


Figure 3 - Average Advertising Current Example

4.2 Power Profile Measurement

Measuring the dynamic current more accurately requires a DC power analyzer such as the Keysight N6705C or Joulescope JS220. For the Keysight N6705C, it is important to use auto-ranging and the maximum number of horizontal data points to observe the most accurate power profile. [Figure 4](#), [Figure 5](#), [Figure 6](#), [Figure 7](#), and [Figure 8](#) show current consumption measurement examples of various states using Joulescope.

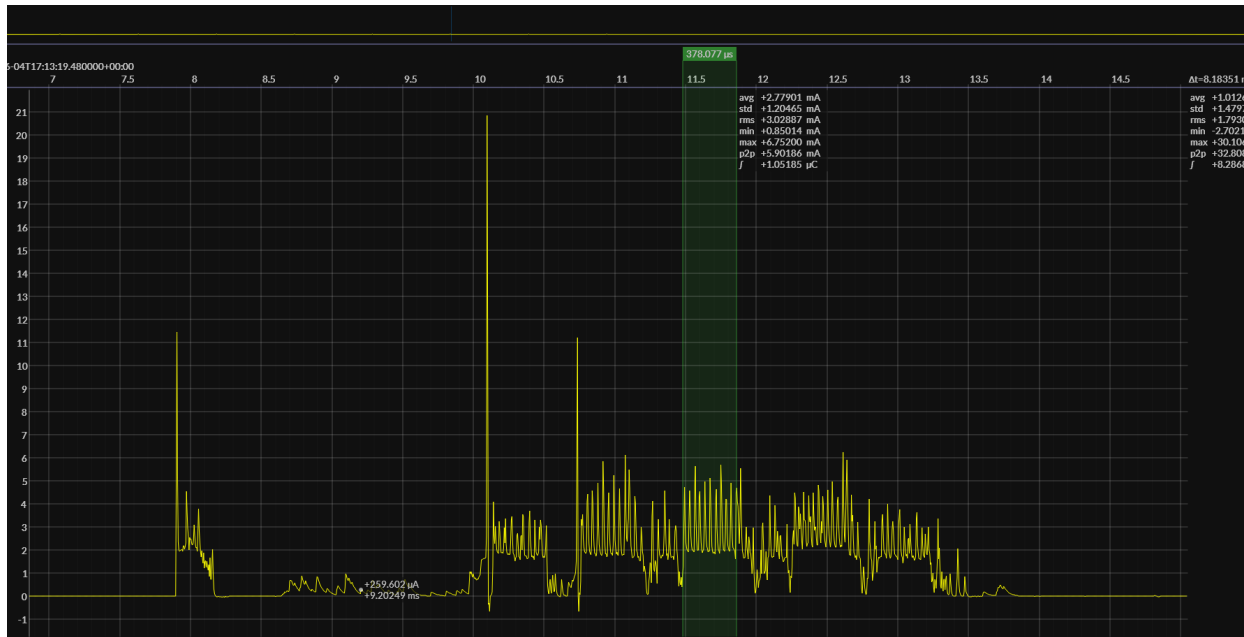


Figure 4 - Transmit Current Profile Example

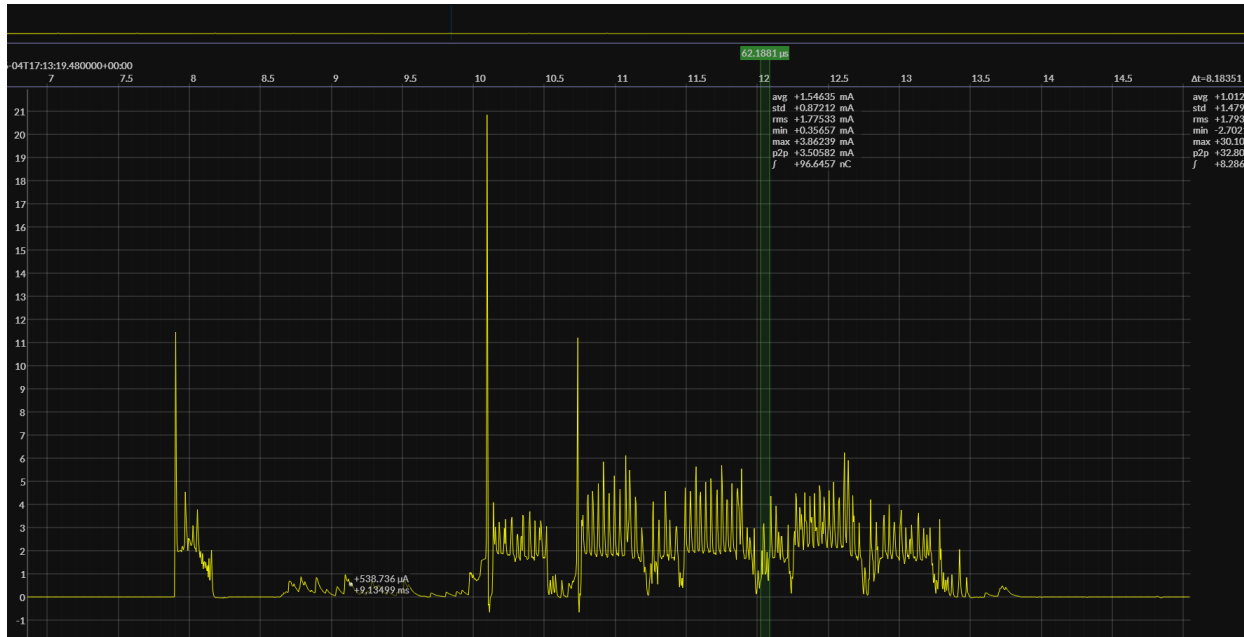


Figure 5 - Receive Current Profile Example

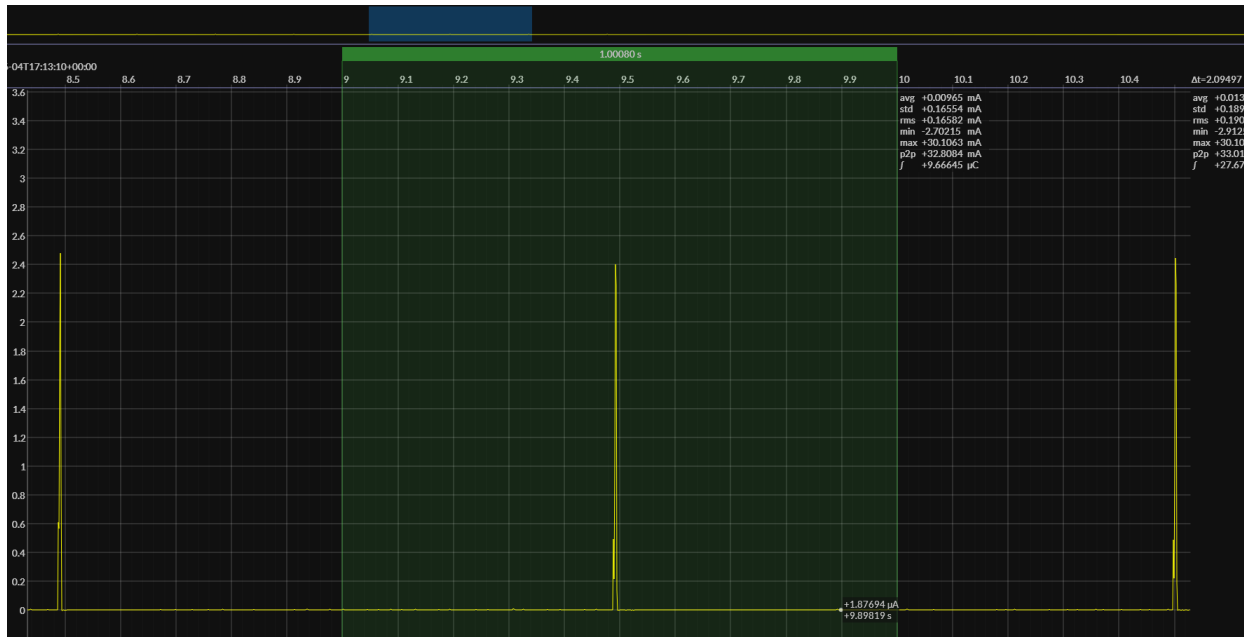


Figure 6 - Current Profile Over 1s Interval During Advertising Phase Example

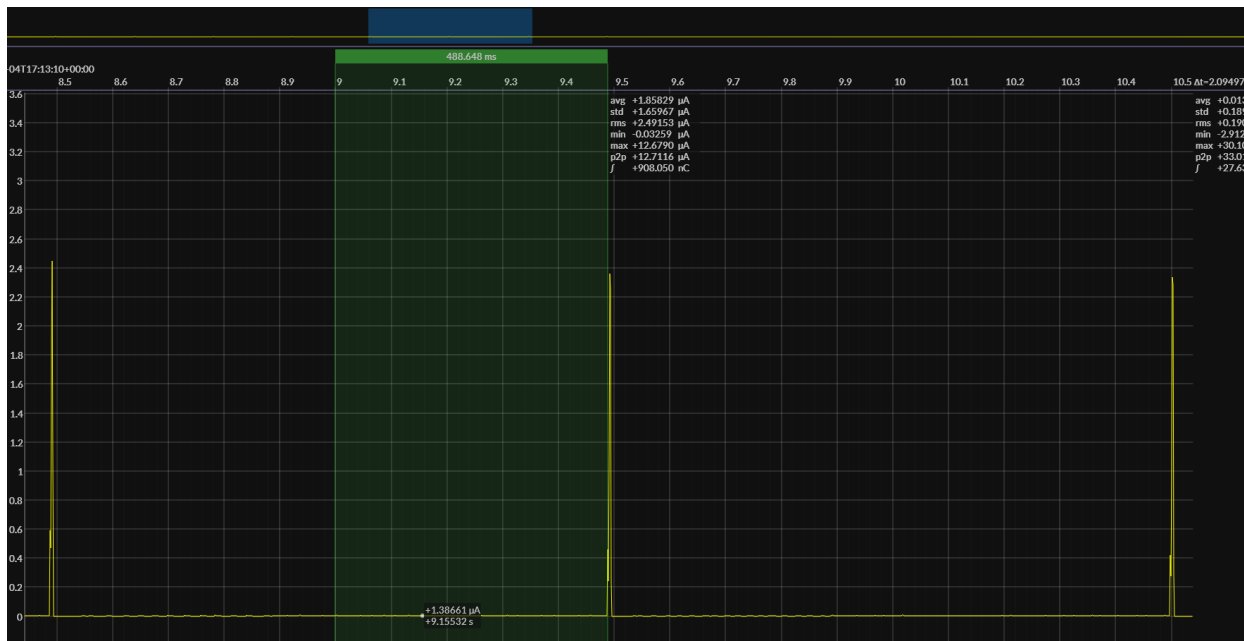


Figure 7 - Retention Current Profile Example

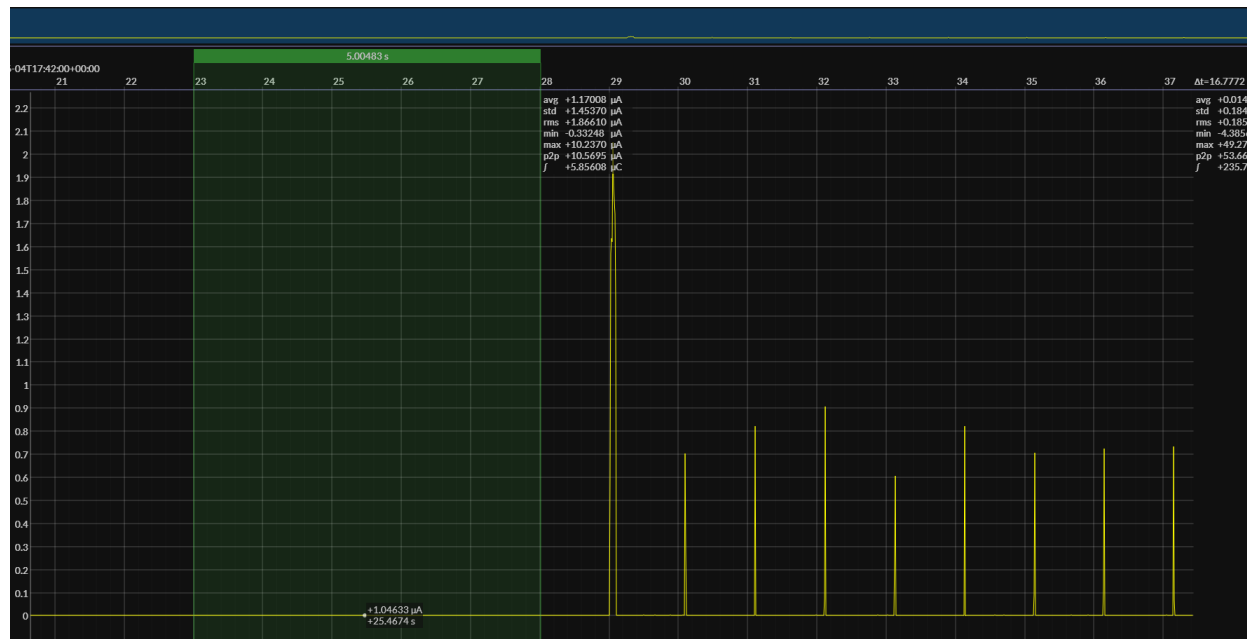


Figure 8 - Hibernation Current Profile Example

It is normal to observe periodic current peaks during all ATM5/e operating modes. These peaks result from the typical operation of the DC/DC switching regulator.

Reference Documents

Title	Document Number
ATM5/e Series Datasheet	9972-xxxx-xxxx
ATM5/e Series Evaluation Kit User Guide	9973-xxxx-xxxx

Revision History

Date	Version	Description
September 10, 2026	0.11	Updated with v2.x EVB instructions
June 16, 2026	0.10	Initial version created



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