The RSL15 Evaluation and Development Board is designed for simplicity of use when evaluating capabilities and developing applications for the RSL15 Bluetooth Low Energy Wireless MCU. For more information about the RSL15 System on Chip, please visit www.onsemi.com/rsl15. Note that the board features the RSL15 variant with 512 kB of Flash. For information on how to get the board connected and programmed quickly, see the RSL15 Getting Started Guide.

The EVB provides configuration options availableTjnesseevaiIntro20.1867toTc0 Tw5(Intro.7778cted)1800efe0 Tw(Intro.56ected)1(9(se

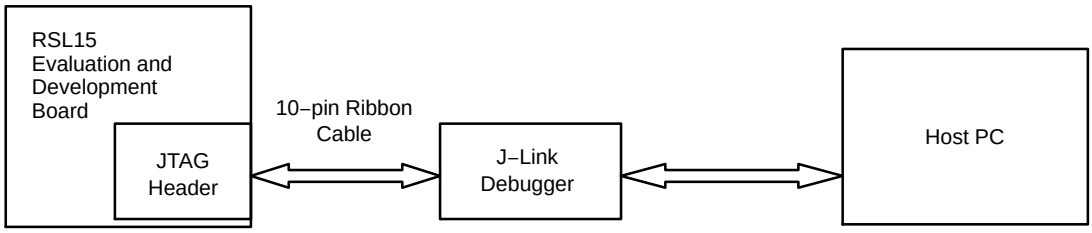
Before measuring power consumption, load the Sleep Mode sample application onto the RSL15 Evaluation and Development Board with the desired settings:

1. Disable the usage of GPIOs for lowest consumption.
2. Configure either the 32 kHz crystal (XTAL32) or the 32 kHz RC oscillator (RCOSC32) as the source for STANDBYCLK.
3. Configure the DCDC regulator for either buck mode or LDO mode.
4. Configure the RTC clock wakeup duration. This determines the time between device wakeup states. When measuring power consumption, ensure a large enough time difference between wakeup pulses. There is a capacitor on VCC which is a part of the DC/DC regulator that powers the device and the wakeup period should allow for this capacitor to fully discharge, thus resulting in accurate values. A longer wakeup period is recommended since the measurement values in the datasheet were taken after the VCC capacitor had discharged. Power consumption values will be an average value taken over 4 seconds. Therefore a wakeup period of at least 8 seconds is ideal.
5. In order to change the amount of RAM that is kept in retention, the #defines in the code as well as the linker script will need to be modified.

Take the power consumption measurements:

6. Follow the hardware setup steps in section Power Measurement Setup.
7. Turn on the measurement instrument.
8. Set the output voltage. This will depend on the mode the DCDC is in. If in LDO mode, the output voltage should be 1.25 V or 1.5 V. If in buck mode, the output voltage should be 1.8 V or 3 V.

1.25 ring powe8e code nATD-0,17.9734.058D62 TD-0008 Tc.0922 386[shoul. Iextts:)schimporta]TThis genen. TT ate valuT0 Tc.206



The RSL15 Evaluation and Development Board contains 15 GPIO signals available on several inline headers. The headers provide access to all GPIO signals, which in turn provide access to a wide variety of interfaces (GPIO, SPI, UART, etc.). See Table 3 for pinouts. VDDO, VBAT and GND are present on the end of each header.

0	5		Wakeup source, SW1
1	7		Wakeup source, RTC clock input
2	9		JTAG TDO*, Wakeup source
3	11		JTAG TDI*, Wakeup source,
4	12		

This section contains a list and description of all headers present on the RSL15 Evaluation and Development Board, shown in Table 6.

1	CR2032 battery holder. Li−Ion CR2032 batteries must not be used, as their voltage is typically > 4 V. Use standard 3 V CR2032 batteries.
[illegible]	Used for selecting the source of VBAT, or for connecting an external source to VBAT directly. Connects VOUT (Output of on−board power supply) to VBAT by default. (Pins 2 & 3 are shorted.)
[illegible]	Ground test point, useful for attaching probes
[illegible]	Used for connecting VDDO to VBAT. Shorted by default.
3	Used for connecting an external JTAG debug probe. Uses the standard 10−pin ARM JTAG connector.
[illegible]	Contains pins for GPIOs 0−7, as well as VDDO, VBAT and ground.
[illegible]	Contains pins for GPIOs 8−15, as well as VDDO, VBAT and ground.
[illegible]	VDDA test point, used for measuring VDDA
2	UFL type connector for connecting the RF output in a conducted manner to an external circuit (i.e., external antenna or measurement device). To enable this conducted path, 0 Ω resistor R4 must be de−soldered from its initial position and re−soldered after being rotated 90 degrees.
6	USB−C 2.0 connector. This USB connector provides 5 V power to the device, as well as enabling programming and debug functionality through the J−Link OB solution.
[illegible]	Header used for programming J−Link OB firmware onto the MCU. J−Link OB firmware comes pre−programmed from the factory. Users can ignore this header.
[illegible]	Enables/disables the connection betw80002 0mwE0 .98re

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