# WiMOD LR Example Code

for EFM32
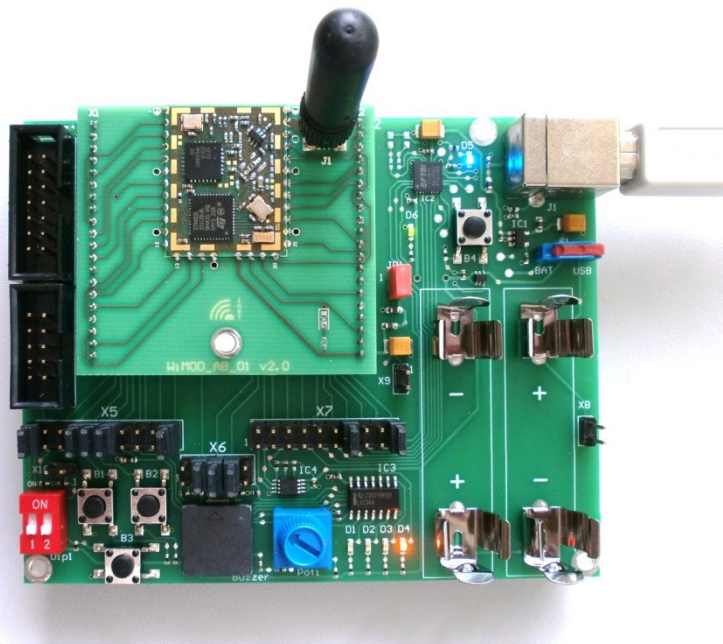
1   Overview

This example code configures the iM880A radio module via host controller interface (HCI) with the default parameter set and wait for incoming radio messages.
Any received radio telegram (with appropriate configuration) is answered with a dummy message.

Target:

STK3300 with EFM32TG840F32 by Silicon Labs (formerly Energy Micro)

Wiring STK3300 <=> iM880A:
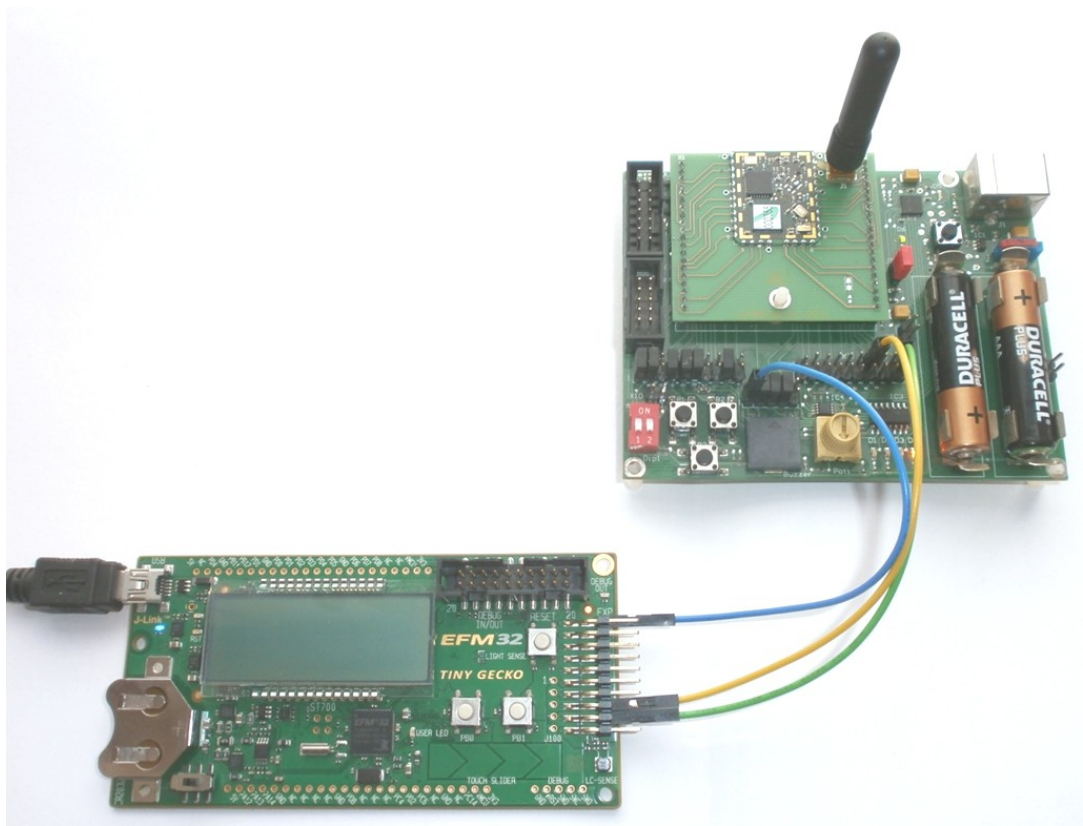
Pin Identifier	STK3300 20-pole pin header (right side)	WiMOD Demo Board	iM880A Pad Nr.
Vcc 3.3V	EXP 20	via USB / Battery*	16 (Vcc)
GND	EXP 19	X6.1*	17 (GND)
UART TxD	EXP 4	X7.20*	18 (RxD)
UART RxD	EXP 6	X7.14*	19 (TxD)
*refer Demo Board User Guide			

When using iM880A with WiMOD Demo Board 3 wires are sufficient to connect with STK3300 (TxD, RxD and GND). The power supply can be established via USB interface or battery.

Software Module:

These software modules are used in this example code:

Software Module	Description
main.c	Init and main loop
iM880A_RadioInterface.c	HCI wrapper module
ComSlip.c	Slip layer
Driver\LDD\LDDUsart.c	UART driver (logical)
Driver\PDD\PDDUsart.c	UART driver (physical)
Driver\LDD\LDDDelayTimer.c	Timer module with delay routines
CRC16	CRC calculation / verification
CMSIS*	Device driver for ARM-core controller
emlib*	µC driver by Silicon Labs
Device*	µC driver by Silicon Labs

Compiler:

This example project was created with/for IAR Embedded Workbench. A free kick start version can be downloaded from https://www.iar.com/iar-embedded-workbench/downloads/.

The project file is named: ExampleCode.ewp

Debugger:

The STK3300 has an integrated J-Link Programmer/Debugger by Segger. This one has to be selected in the project settings before programming the generated firmware into the microcontroller.

Testing the function:

- Connect the iM880A Demo Board with the WiMOD LR Studio
- Ensure that the default RF parameters are used
  (*Configuration =>Restore Settings*)
- Send a messages with *Radio Service => Data Link Services => Send Message*

  => In the Message Receiver Window a response message appears:
      "Hello World!" send by the example code

- Take care when using the setting "*send periodically*". The transmission interval has to be large enough to avoid collisions on the air interface
  (e.g. > 2 seconds)

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