WiMOD - iM880B

Application Note AN018 / Version 1.0

LoRaWAN™ Example Code for EFM32 Microcontrollers

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Document Information

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Revision History

Version	Description
1.0	Initial version

Aim of this Document

The aim of this document is to explain how the LoRaWAN™ Example Code for EFM32 Microcontrollers can be taken into operation.

Table of Contents

1 Overview

This example code activates the via HCI radio device direct or Over-The-Air and transmits dummy radio telegrams (confirmed or unconfirmed) periodically.

1.1 Target

STK3300 with EFM32TG840F32 µC by Silicon Labs (formerly Energy Micro) connected to a on Demoboard with WiMOD_LoRaWAN firmware.

1.2 Wiring STK3300 <=>

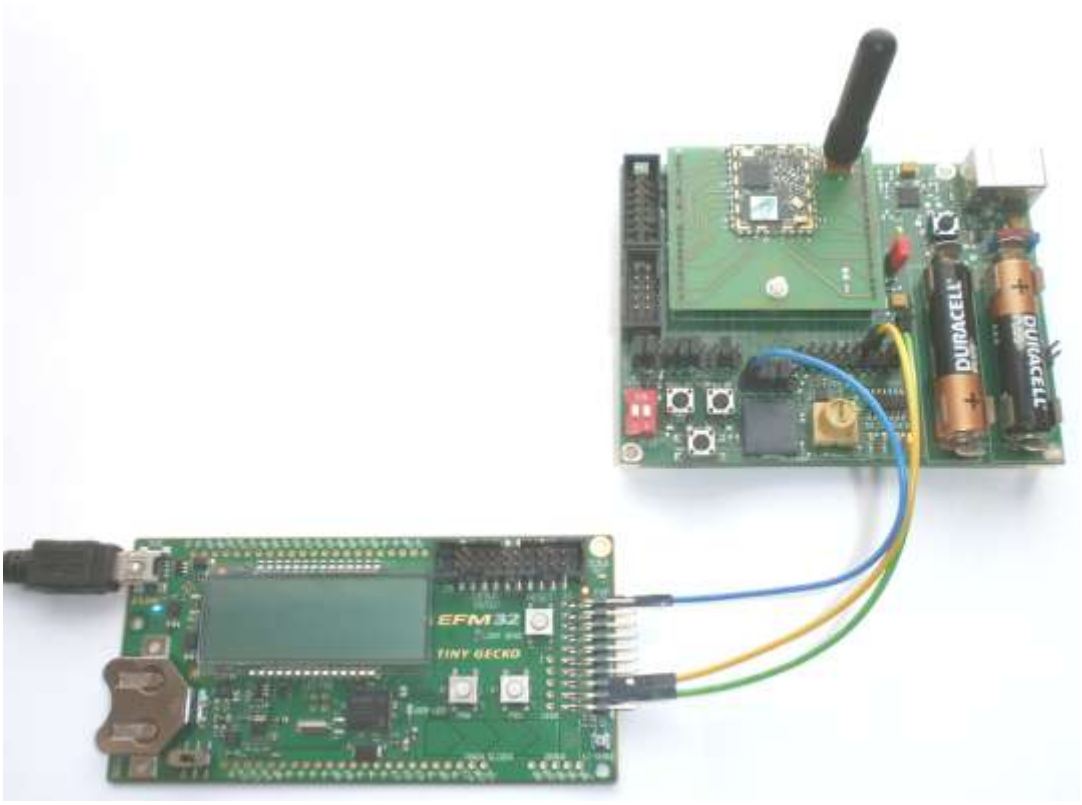

Figure 1-1: Wiring STK3300 <=>

Pin Identifier	STK3300 20-pole pin header (right side)	WiMOD Demo Board	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			

Table 1-1: Used Interconnection Pins

When using 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.

1.3 Software Module

These software modules are used in this example code:

Software Module	Description
main.c	Initialization and main loop
iM880x_RadioInterface.c	HCI wrapper module containing the most important HCI functions
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

Table 1-2: Software Modules

1.4 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: LoRaWAN_ExampleCode.ewp

1.5 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.

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