



AN S1401 Using BlueMod+S as Beacon

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APPLICABILITY TABLE

PRODUCTS

■ ■ BLUEMOD+S

■ ■ BLUEMOD+S42

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1. INTRODUCTION

1.1. Scope

This document describes how to configure and use the BlueMod+S as an nRF Beacon compatible device.

1.2. Audience

This document is intended for Telit customers, especially system integrators, about to implement Bluetooth modules in their application.

1.3. Contact Information, Support

For general contact, technical support services, technical questions and report documentation errors contact Telit Technical Support at:

- TS-SRD@telit.com

Alternatively, use:

<http://www.telit.com/support>

For detailed information about where you can buy the Telit modules or for recommendations on accessories and components visit:

<http://www.telit.com>

Our aim is to make this guide as helpful as possible. Keep us informed of your comments and suggestions for improvements.

Telit appreciates feedback from the users of our information.

1.4. Text Conventions



Danger – This information **MUST** be followed or catastrophic equipment failure or bodily injury may occur.



Caution or Warning – Alerts the user to important points about integrating the module, if these points are not followed, the module and end user equipment may fail or malfunction.



Tip or Information – Provides advice and suggestions that may be useful when integrating the module.

All dates are in ISO 8601 format, i.e. YYYY-MM-DD.

1.5. Related Documents

- BlueMod+S AT Command Reference, 80507AT10751A
- BlueMod+S User Guide, 1VV0301277

2. GENERALS

A Bluetooth Beacon is essentially a device that broadcasts a unique ID to let potential beacon enabled smartphones know it is there. This is a one way communication originating in the beacon, so the beacon itself does not know anything about the remote device.

iBeacon is a special technology licensed by Apple. It requires the acceptance of the iBeacon license agreement to get the specification and making products based on that specification.

The functionality to seeing these beacons is implemented in iOS 7+ on operating system level, but to act on a visible beacon always requires an app that knows the beacon ID and that includes all additional functionality.

Android already requires a custom app (and service) to just see the Beacon.

The BlueMod+S can be used for developing beacons that are compatible with iBeacon technology and also for developing custom beacons.

The beacon functionality can be verified with the freely available Nordic Semiconductor Beacon applications for Android or iOS.

Note:



Because the beacon and the Telit Terminal I/O technology both make exclusive use of the manufacturer specific Advertising Data- type they cannot be used concurrent. A BlueMod+S configured as a beacon following this application note does not provide Terminal I/O functionality.

3. SOFTWARE CONFIGURATION

In this chapter you will find a list of AT commands to configure the BlueMod+S as a Beacon. After issuing one command you should wait for receiving an OK string from the BlueMod+S before issuing the next command.

3.1. Basic Configuration Commands

Reset the module to defaults.

AT&F

Switch the internal Terminal I/O implementation off.

AT+LETIO=0

Setup the advertisement interval to e.g. 760 ms. The advertisement interval has direct influence on the power consumption of you beacon. It defines in which interval the transmitter is active.

AT+LEADINTMIN=760

AT+LEADINTMAX=760

Next you have to configure the advertisement data. The advertisement data used in this example is compatible to the Nordic Semiconductor beacon applications.

**AT+LEADATA=0201061aff4c0002150112233445566778899AABBCCDDEEFF
000010002c5**

Fixed data fields:

- Bluetooth Low energy Flags: "020106"
- Length of the manufacturer data: "1A"
- Manufacturer data AD-type: "FF"
- Company identifier from Bluetooth SIG: "4C00" (here Apple ID see chapter 5)

Variable data fields which could be modified to meet your use case:

- The 128-bit ID: "01122334-4556-6778-899A-ABBCCDDEEFF0"
- Major value (1): "0001"
- Minor value (2): "0002"
- Measured power used for distance detection: "C5" (RSSI in 1 meter distance)

Set the advertising mode to none connectable.

AT+LEADPAR=advtype=3

Enable customized advertising.

AT+LEADE=1

Save the configuration.

AT&W

Reset the module to make the saved configuration active.

AT+RESET

The BlueMod+S module is now working as a Beacon, compatible with the nRF Beacon App from Nordic Semiconductor.

3.2. Advanced Configuration Commands

To save a maximum of power it would be a good idea to use the UICP mode for the serial interface. Please have a look at the BlueMod+S User Guide for more information on UICP.

AT+UICP=1

4. VERIFYING THE BEACON FUNCTIONALITY WITH THE NORDIC nRF BEACONS iOS APP

You can download the nRF Beacons App for iOS from the iTunes App store.



Note:

You have to configure the UUID and the major and minor identity to the correct values otherwise the nRF Beacon App will not find the Beacon.

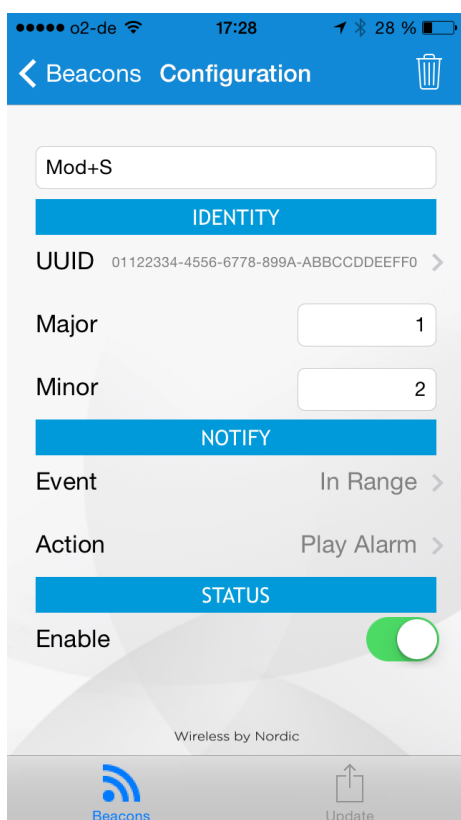


Figure 1: Beacons configuration



Note:

Please make sure that location services are enabled in your iOS device. Otherwise the beacon cannot be found.

5. USING THE APPLE ID

In iOS 8, Apple has changed its policy regarding the iBeacons. It now supports only beacons having manufacturing ID set to Apple ID (0x004C) in advertising packet. Beacons having manufacturing ID set to other vendor IDs will not be recognized by the Core Location API in iOS 8. Therefore, iOS app nRF Beacon will not work with these beacon devices if their manufacturing ID is not set to Apple ID in advertising packet.

5.1. Get the iBeacon Specification

You may download the resources for developing or manufacturing iBeacon products that integrate iBeacon technology using the Proximity Beacon Specification R1 from <https://developer.apple.com/ibeacon/>.

The acceptance of the iBeacon license agreement is required.

Please visit the Apple developer site for iBeacon for more information.

6. LINKS AND TRADEMARKS

For more information to iBeacon technology see:

<https://developer.apple.com/ibeacon/>

<https://developer.apple.com/ibeacon/Getting-Started-with-iBeacon.pdf>

iBeacon is a trademark of Apple Inc.

7. DOCUMENT HISTORY

Revision	Date	Changes
01	2014-07-23	First issue
02	2015-01-22	Add chapter 5 "Using the Apple ID" and the corresponding changes in the required AT command
03	2015-11-10	Adopted to Apples modified license
04	2016-05-26	Telit cover page added
05	2016-08-18	Added BlueMod+S42 Converted to new Telit template



SUPPORT INQUIRIES

Link to www.telit.com and contact our technical support team for any questions related to technical issues.

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