

# LMX9838 Bluetooth® (PRD 2.0) Qualification Guideline

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Application Note 1709  
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## 1.0 Introduction

The National Semiconductor LMX9838Bluetooth® Serial Port module is a highly integrated module including radio, base-band controller, memory device, crystal, antenna and loop filter and internal EEPROM. All hardware and the on-chip ROM firmware is included to provide a complete solution from antenna through the complete lower and upper layers of the Bluetooth stack, up to the application including the Generic Access Profile (GAP), the Service Discovery Application Profile (SDAP), and the Serial Port Profile (SPP).

This document describes some qualification guidelines of the LMX9838 module, based on the PRD 2.0 specification. For more detailed information consult the [www.bluetooth.org](http://www.bluetooth.org) website.

All numbers, screenshots and links are based on the bluetooth SIG website as of September 2007 and are subject to change.

## 2.0 Using the LMX9838 as SPP module

If the end product requires the SPP profile only (e.g: Typical cable replacement application) the LMX9838 module can be integrated as is into the end product.

- Qualified Design Listing (QDL) not required: The LMX9838 is already QDL listed as an SPP module. By relabeling, the End Product can refer to the LMX9838 QD ID.

### 2.1 TO BE DONE

List of the qualification requirements for using the LMX9838 as SPP module:

- The End Product Manufacturer must be signed up as a Bluetooth SIG Adopter. This is free of charge. See *Section 4.1 BLUETOOTH MEMBERSHIP REGISTRATION*.
- Perform End Product Listing (EPL). This is a free listing. See *Section 4.4* on page 4 for details.

### 2.2 NOT REQUIRED

The following point is not required for this specific system.

### 2.3 PRODUCT INFORMATION

The product can be characterized by the following entries:

**TABLE 1. End Product Information**

Design Information	
Product Name	End Product Name
Bluetooth Qualified Design ID (QD ID)	B012394
Bluetooth Product Type	End Product
Product Name	LMX9838

## 3.0 Implementing Additional Profiles on the LMX9838

If the end product requires additional profile(s) implemented on the host device (e.g: Headset, OBEX..) a few more qualification requirements will be required for the end product.

### 3.1 TO BE DONE

List of the qualification requirements:

- The End Product Manufacturer must be signed up as a Bluetooth SIG Adopter. This is free of charge. See *Section 4.1 BLUETOOTH MEMBERSHIP REGISTRATION*.
- Perform additional profile(s) Qualification and Tests. Price will depend on the Bluetooth Qualification Tests Facility.

The qualification and tests needed should be lowered to a minimum as the LMX9838 is already SPP module qualified.

- Use the Bluetooth test plan generator as described *Section 4.2 BLUETOOTH TEST PLAN GENERATOR* to define the required tests.
- QDL listing (\$10000 for Adopter). See *Section 4.3 QUALIFICATION LISTING INTERFACE* for how to obtain a new QD ID and details on the Qualification Listing Interface (QLI).

## 4.0 References

All references are based on the Bluetooth SIG website as of September 2007 and are subject to change. Refer to [qualweb.bluetooth.org](http://qualweb.bluetooth.org) as a general link to the Bluetooth Qualification Program.

### 4.1 BLUETOOTH MEMBERSHIP REGISTRATION

To become member of the Bluetooth SIG, go on the following link:

<https://programs.bluetooth.org/login/register/>

Fill in the required information of the following form and send.

Bluetooth SIG Shop | Bluetooth.com

search site  search >

## Membership Registration

Thank you for your interest in becoming a member of the Bluetooth Special Interest Group (SIG). Membership within the Bluetooth SIG is reserved at the company level; however, employees of companies are also encouraged to register as users associated with their member company. As a member of the Bluetooth SIG, your company will join thousands of companies who share a common interest – building and promoting devices that incorporate *Bluetooth* wireless technology.

To register your company for membership, please select the Adopter Member option below. If your company is interested in Associate membership, please send an email to [member.relations@bluetooth.com](mailto:member.relations@bluetooth.com) after you have registered your company for Adopter membership. If you are an employee of a company that is already a member and would like to register as a user, please select the Existing Member option below.

Please choose your registration option

### Adopter Member

Adopter membership is a free level of membership. All new companies must register as an Adopter member first. If your company is interested in upgrading to Associate membership, please email [member.relations@bluetooth.com](mailto:member.relations@bluetooth.com) after you have completed Adopter membership registration. [View the benefits of Associate membership.](#)

☒ Choose Adopter Membership

### Existing Member

If you are an employee of a current member company, please select this option. As an employee of an existing member company you will automatically be associated with your company's membership and have the opportunity to further get involved with *Bluetooth* wireless technology.

☐ New User from a Member Company

About you

\* Indicates required field

First Name *	<input type="text"/>
Middle Initial	<input type="text"/>
Last Name *	<input type="text"/>
Company *	<input type="text"/>
Job Title *	<input type="text"/>
Mobile	<input type="text"/>
Email *	<input type="text"/>
Verify Email *	<input type="text"/>

### Universities/Students/Education

At this time, students and universities are not eligible for membership within the Bluetooth SIG. If you are looking for information on *Bluetooth* wireless technology for a project, please visit [Learn](#).

### Individual Users Not Associated with a Company

The Bluetooth SIG does not accept individuals for membership. As such, if you are not associated with a valid company or if you are using a public email domain, your membership will not be accepted. If you are an individual looking for information on *Bluetooth* wireless technology, please visit [www.bluetooth.com](http://www.bluetooth.com). If you have any questions in regard to potential membership within the Bluetooth SIG, please email [Member.Relations](mailto:Member.Relations@bluetooth.com).

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## 4.2 BLUETOOTH TEST PLAN GENERATOR

To start a new test plan generator, go on the link:

<https://programs.bluetooth.org/tpg/testplan.cfm>

And follow the steps of the test plan.

search site  search >

## Create a Test Plan

**STEP 1: Create/Select a Project**  
 Before you can generate a test plan, you must [Create a Project](#). Projects contain general information about the design you are planning to qualify to and allow you to declare which features you plan on implementing.

To create a test plan from an existing project, choose from your projects below to edit PICS documents.

**PRD 2.0 Projects**

» [test3](#)
» [Testproject2](#)

» [Testproject](#)

**STEP 2: Declaration Summary**  
 The declaration summary allows you to choose which layers you will be supporting.

**STEP 3: Edit Core PICS**  
 The Core PICS consist of (RF), (BB), (LMP), (L2CAP), (SDP), and (GAP).  
 For an End Product, all mandatory requirements of these layers must be supported.  
 For a Host Sub-system, all mandatory requirements of (L2CAP) (SDP) and (GAP) must be supported.  
 For a Controller Sub-system, all mandatory requirements of (RF) (BB) and (LMP) must be supported.

**STEP 4: Edit Profile PICS**  
 Any profiles that your product contains can be edited here.

**STEP 5: Consistency Check**  
 Before a correct test plan can be generated, a static consistency check needs to be performed to ensure that the proper features are supported. Many features have prerequisites, dependencies, or groupings that are required if they are supported.

**STEP 6: Generate the Test Plan**  
 The Test Plan is the final step. Here you are issued a report of all the test cases that need to be performed in order to qualify your project.

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To create a new project, the LMX9838 PICS information might be necessary. To get those information go on the link.

[https://programs.bluetooth.org/tpg/QLI\\_All\\_Designs.cfm](https://programs.bluetooth.org/tpg/QLI_All_Designs.cfm)

Enter the QD ID number B012394 in the search field. The LMX9838 module appears in the result field. Click on “profiles” then “display PICS details” to get the PICS information needed.

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search site  search >

## Qualified Listings

*Note: Please click on the label for help on individual search criteria or open this [help file](#) for help on all search criteria.*  
Please provide [feedback](#) on this new search.

▼ Simple Search

**Search:**

**Search In:**

- ☒ Qualified Products List (QPL - PRD 1.0)
- ☒ Qualified Design List (QDL - PRD 2.0)
- ☒ End Product List (EPL)

**Rows Per Page:**

[Advanced Search >>](#)

**Number of found item(s) per list**

PRD 1.0: 0  
PRD 2.0: 1  
EPL: 2

Total Records Found: 3

Product Listing	Type	ID	Name	Model	Company	Product Type	Date	More Info
<a href="#">Create New EPL</a>	PRD 2.0	B012394	LMX9838 Bluetooth Serial Port Module	LMX9838	National Semiconductor	End Product	29-Jan-2007	EPL(s): 2

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### 4.3 QUALIFICATION LISTING INTERFACE

Once a project is created, the next point should be to follow the Qualification Listing Interface (QLI) steps to obtain a QD ID and proceed the qualification checklist. All details are on the following link:

[https://programs.bluetooth.org/tpg/QLI\\_Landing.cfm](https://programs.bluetooth.org/tpg/QLI_Landing.cfm)

search site  search >

**Qualification Listing Interface (QLI)**

<b>STEP 1:</b>	<b>Select Project and Qualified Design Identifier (QD ID) to Qualify</b>  <a href="#">&gt;&gt;Click Here to Start the Qualification Listing Process&gt;&gt;</a>  <b>Important Note: There are two requirements to be fulfilled prior to starting the Qualification Listing Process. These are:</b>  1. Before you can qualify and list your design you are required to obtain a QD ID. The fee for a QD ID will be applied as a credit toward your full listing fee once you've completed the qualification process. Please note that you may choose to purchase just the QD ID or to purchase the full listing when purchasing the QD ID. <a href="#">Click here to Obtain a QD ID.</a>  2. Before you can qualify and list your design, you must also <a href="#">Upload your Test Declaration</a> (TDU). Once the TDU has been uploaded for your project you can continue on with the Qualification Listing process.
<b>STEP 2:</b>	<b>Member Declarations Document</b> In this step you will fill out the Design information as well as print and sign a copy of the Member Declarations Document.
<b>STEP 3:</b>	<b>Qualification Checklist</b> This step requires that you check the box next to each item in the list and declare that you have complied with each statement.

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#### 4.4 EPL LISTING

To create an End Product Listing, go on the following link once registered:

[https://programs.bluetooth.org/tpg/QLI\\_All\\_Designs.cfm](https://programs.bluetooth.org/tpg/QLI_All_Designs.cfm)

Find next the product to be listed as EPL. To do so, enter the QD ID number B012394 in the search field. The LMX9838 module appears in the result field. Click on Create New EPL. Fill in the information required and send.

Bluetooth SIG Shop | Bluetooth.com

search site  search >

### Qualified Listings

*Note: Please click on the label for help on individual search criteria or open this [help file](#) for help on all search criteria.*  
Please provide [feedback](#) on this new search.

▼ Simple Search

Search:

Search In:

- ☒ Qualified Products List (QPL - PRD 1.0)
- ☒ Qualified Design List (QDL - PRD 2.0)
- ☒ End Product List (EPL)

Rows Per Page:

[Advanced Search >>](#)

Number of found item(s) per list


PRD 1.0: 0

PRD 2.0: 1

EPL: 2

Total Records Found: 3

Product Listing	Type ▼	ID ▼	Name ▼	Model ▼	Company ▼	Product Type ▼	Date ▼	More Info
<a href="#">Create New EPL</a>	PRD 2.0	B012394	LMX9838 Bluetooth Serial Port Module	LMX9838	National Semiconductor	End Product	29-Jan-2007	EPL(s): <u>2</u>



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## 5.0 Regulatory Compliance

The LMX9838 has been tested and approved to be compliant to the following regulatory standards:

### CE Compliance:

- EN 300 328 v1.7.1
- EN 301 489-17 v1.2.1

### IC Compliance:

- RSS-GEN Issue 1
- RSS-210 Issue 7 Annex 8 and RSS-GEN issue 2

### FCC Compliance:

- FCC Part 15 Subpart C

## 5.1 FCC INSTRUCTIONS

### 5.1.1 Safety Information For RF Exposure

#### 5.1.1.1 FCC Radiation Exposure Statement:

This module may only be installed by the OEM or an OEM integrator. The antenna used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. OEM integrators and End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

Only the antenna filed under FCC ID: ED9LMX9838 can be used with this device.

#### 5.1.1.2 End Product Labeling

FCC ID label on the final system must be labeled with

**"Contains TX FCC ID: ED9LMX9838 "or**

**"Contains transmitter module FCC ID: ED9LMX9838".**

IC label on the final system must be labeled with

**"Contains TX IC: 1520A-LMX9838" or**

**"Contains transmitter module IC: 1520A-LMX9838".**

#### 5.1.1.3 End Product Manual Information

In the user manual, final system integrator must ensure that there is no instruction provided in the user manual to install or remove the transmitter module.

LMX9838 must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

**The following information is required to be incorporated in the user manual of final system:**

### a) USA-Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by tuning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and the receiver.
- Connect the equipment to outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### Caution: Exposure to Radio Frequency Radiation.

This device must not be co-located or operating in conjunction with any other antenna or transmitter.

### b) Canada - Industry Canada (IC)

This device complies with RSS 210 of Industry Canada. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of this device."

L' utilisation de ce dispositif est autorisée seulement aux conditions suivantes : (1) il ne doit pas produire d'interférence et (2) l' utilisateur du dispositif doit être prêt à accepter toute interférence radioélectrique reçue, même si celle-ci est susceptible de compromettre le fonctionnement du dispositif.

### Caution: Exposure to Radio Frequency Radiation.

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website <http://www.hc-sc.gc.ca/rpb>.

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