

ANR027

BLUETOOTH LISTING GUIDE

VERSION 1.3

JULY 19, 2023

WÜRTH ELEKTRONIK MORE THAN YOU EXPECT

Revision history

Manual version	Notes	Date
1.0	<ul style="list-style-type: none">• Initial version	October 2021
1.1	<ul style="list-style-type: none">• Updated QDIDs for nRFConnect	March 2022
1.2	<ul style="list-style-type: none">• Added chapter 3 describing how to add a new product to an existing end product listing• Applied style of the new corporate design to the document	December 2022
1.3	<ul style="list-style-type: none">• Updated Important notes and meta data	July 2023

Abbreviations

Abbreviation	Name	Description
ATT	Attribute Protocol	Protocol of the Bluetooth® software stack to access the GATT layer
GAP	Generic Access Profile	Layer of the Bluetooth® software stack for connection oriented tasks
GATT	Generic Attribute Profile	Layer of the Bluetooth® software stack for Bluetooth® profile definition
HCI	Host Controller Interface	Standardized interface between controller and host subsystem
L2CAP	Logical Link Control Adaptation Protocol	Protocol of the Bluetooth® software stack for Bluetooth® link related tasks
LL	Link Layer	Layer of the Bluetooth® software stack for link related tasks
PHY	Physical Layer	Layer of the Bluetooth® software stack for physical data transmission
QDID	Qualified design ID	Identifier of the qualified Bluetooth® design
SM	Security Manager Protocol	Protocol of the Bluetooth® software stack to handle security related tasks
	Soft device	Bluetooth® stack used by the nRF52 chip series

Contents

1	Introduction	4
1.1	Bluetooth organization	4
1.2	Bluetooth standard	4
1.3	Bluetooth listing	4
1.3.1	Product types	5
2	Creating a new Bluetooth listing for the end device	7
2.1	Get a Bluetooth membership	7
2.2	Open the Bluetooth Launch Studio	7
2.3	Purchase a declaration ID	8
2.4	Search for the QDID	9
2.4.1	QDID of a radio module including firmware, like Proteus-III	9
2.4.2	QDID of a radio module custom firmware, like Ophelia-I	10
2.4.2.1	Search for the QDID of the radio chip	11
2.4.2.2	Search for the QDID of the Bluetooth® software stack	12
2.5	Run the declaration process	14
3	Add a new product to a Bluetooth listing of an existing product	19
4	References	21
5	Important notes	22

1 Introduction

This application note gives a short overview of the Bluetooth® organization and listing in chapter 1. In chapter 2 the main focus is put on how a listing for the end device can be created when referring to Würth Elektronik eiSos Bluetooth® modules and their Bluetooth® listing.



To bring an end device into the market, national radio certifications like FCC and CE must be gained besides of the Bluetooth® listing. How to get them will not be considered in this application note.

1.1 Bluetooth organization

The Bluetooth® SIG (special interest group) is the organization that controls the development of the Bluetooth® standard, and manages the use of the Bluetooth® technology, trademarks and licenses by manufacturers.

All manufacturers that use Bluetooth® technology and trademarks need to gain a so called "Bluetooth® listing" for their products to bring them into the market. To be a member of the Bluetooth® SIG is a requirement for that. There are different types of memberships. The basic level, the so called "Adopter Membership", is free to join. More advanced memberships allow to contribute to future developments of the Bluetooth® standard, but are associated with membership fees.

1.2 Bluetooth standard

The Bluetooth® standard is defined in the Bluetooth® Core Specification [1]. There are different versions of it, where each declares its mandatory and optional features. The Bluetooth® standard is always under development, such that new versions are released and old versions are withdrawn. This means that withdrawn standards can no longer be used to gain a new listing, and thus new products using that can not enter the market.

1.3 Bluetooth listing

The Bluetooth® listing must be gained for each new product. It contains two parts, the qualification and the declaration.

The qualification basically proves that the new product complies with the Bluetooth® standard. This process ensures that the interoperability between all Bluetooth® devices is given. To gain the qualification various tests have to be performed. This includes the whole range from physical radio tests to protocol and feature tests of the underlying Bluetooth® software stack. Each tested component of a qualification process gets a so called QDID (qualified design identifier) that certifies its conformance and can be reused, when this component is used in another design.

For each product, the declaration process collects the QDIDs of the used Bluetooth® components and puts them together to the listing of the product. The number identifying the product's listing is called DID (declaration identifier). It must be purchased during the declaration process. For adopter members it's 8000\$ (9600\$ after Jan 1. 2022) [2].

1.3.1 Product types

There are several types of listings, that contain different parts of the Bluetooth® standard:

End product: A product that contains the whole Bluetooth® functionality (from physical layer to Bluetooth® software stack layers) can be listed as "end product". As it contains all Bluetooth® functions, it can operate standalone.

Any Würth Elektronik eiSos Bluetooth® radio module including firmware is listed as "end product".

Controller subsystem: A product that contains only the physical (PHY) and link layer (LL), equipped with a standardized host controller interface (HCI) can be listed as "controller subsystem". For operation, it must be combined with the complementary part that is listed as "host subsystem".

Any USB Bluetooth® dongle with HCI is listed as "controller subsystem". It runs only in combination with a personal computer hosting the Bluetooth® stack.

Host subsystem: A product that contains only the Bluetooth® stack layers can be listed as "host subsystem". For operation, it must be combined with the complementary part that is listed as "controller subsystem".

Any operating system hosting a Bluetooth® stack is listed as "host subsystem". It needs a Bluetooth® USB dongle, or any other Bluetooth® hardware with HCI listed as "controller subsystem" to provide the Bluetooth® interface to the user.

Tested component: Any other product, that contains the qualification of one or several layers, that do not meet any other product type can be listed as "Tested component".



Products listed as "end product", "controller subsystem" or "host subsystem" may enter the market.

"Tested components" can only be used to create new "end product", "controller subsystem" or "host subsystem" listings.

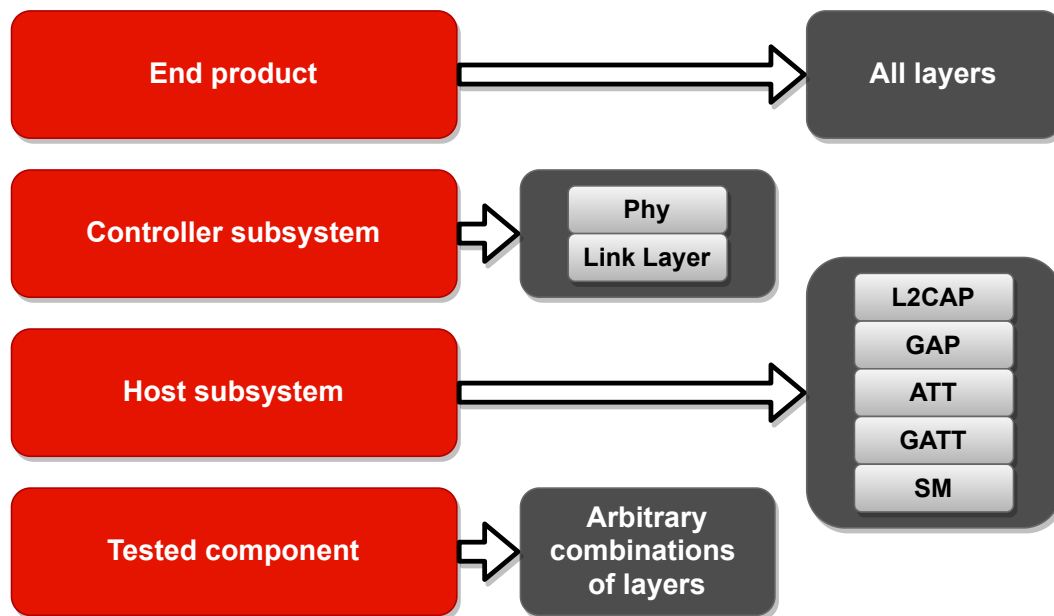


Figure 1: Product types

2 Creating a new Bluetooth listing for the end device

As Würth Elektronik eiSos Bluetooth® radio modules, the underlying radio chips and the utilized Bluetooth® software stacks are fully qualified, integrators of Würth Elektronik eiSos radio modules can refer to the existing QDIDs in the declaration process of their end device. Thus all costs for the conformity tests being part of the qualification process are saved. Left is the purchase of the declaration ID, that has to be done once to gain the "end product" listing for the end device.

Once an "end product" listing exists, new variants of the end device from the same manufacturer can be added free of charge, if no change has been applied to its hardware and software components relating to the Bluetooth® functionality.

The remaining chapter describes how to do the declaration process for an end device using a Würth Elektronik eiSos radio module.

2.1 Get a Bluetooth membership

To perform a Bluetooth® listing, you must be member of the Bluetooth® SIG. In case the registration has been already done before, jump to the next chapter.

Otherwise follow the instructions under

<https://www.bluetooth.com/develop-with-bluetooth/join/>

and apply for an adopter membership, which is free of charge. This membership is sufficient to list a device by paying the declaration fee.

2.2 Open the Bluetooth Launch Studio

The declaration process of an end device must be done via the Bluetooth® Launch Studio website:

<https://launchstudio.bluetooth.com/>

To login into the Bluetooth® Launch Studio enter the membership account credentials that you received when registering to the Bluetooth® SIG.

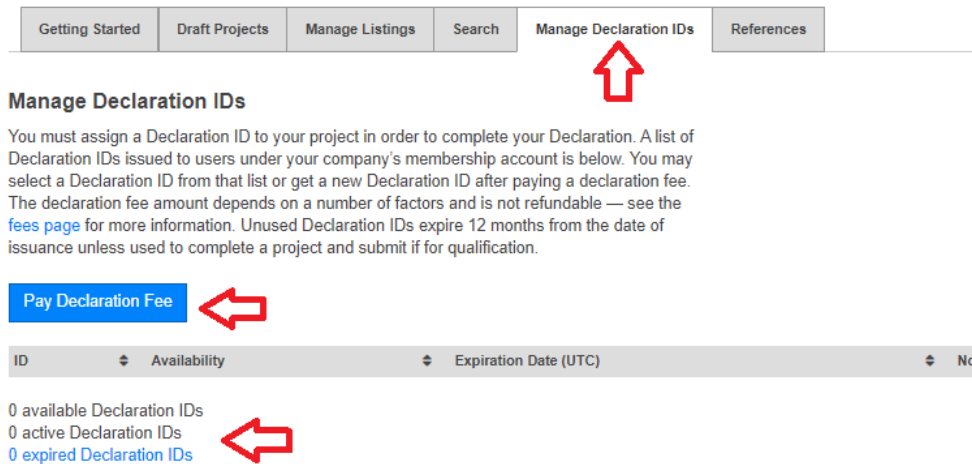
2.3 Purchase a declaration ID

In the declaration process a so called declaration ID has to be used. It has to be purchased from the Bluetooth® SIG and is only available after it has been paid.

When starting the declaration process (chapter 2.5), it is helpful to have already a declaration ID available to go through it in a row.

To do so, please go on the "Manage Declaration IDs" tab and check whether there is one available. If not, click on "Pay Declaration Fee" and purchase one (9600 \$ July 2022).

As soon as it has been paid, it appears in the list of available declaration IDs. This may take several days.



Getting Started Draft Projects Manage Listings Search **Manage Declaration IDs** References

Manage Declaration IDs

You must assign a Declaration ID to your project in order to complete your Declaration. A list of Declaration IDs issued to users under your company's membership account is below. You may select a Declaration ID from that list or get a new Declaration ID after paying a declaration fee. The declaration fee amount depends on a number of factors and is not refundable — see the [fees page](#) for more information. Unused Declaration IDs expire 12 months from the date of issuance unless used to complete a project and submit it for qualification.

[Pay Declaration Fee](#)

ID	Availability	Expiration Date (UTC)	No
0 available Declaration IDs			
0 active Declaration IDs			
0 expired Declaration IDs			

Figure 2: Check for an available declaration ID

2.4 Search for the QDID

As described above, the qualification of all parts has been already done by Würth Elektronik eiSos or the radio chip suppliers. Thus during the declaration of the end device only the QDIDs of the underlying Bluetooth® parts must be referenced.

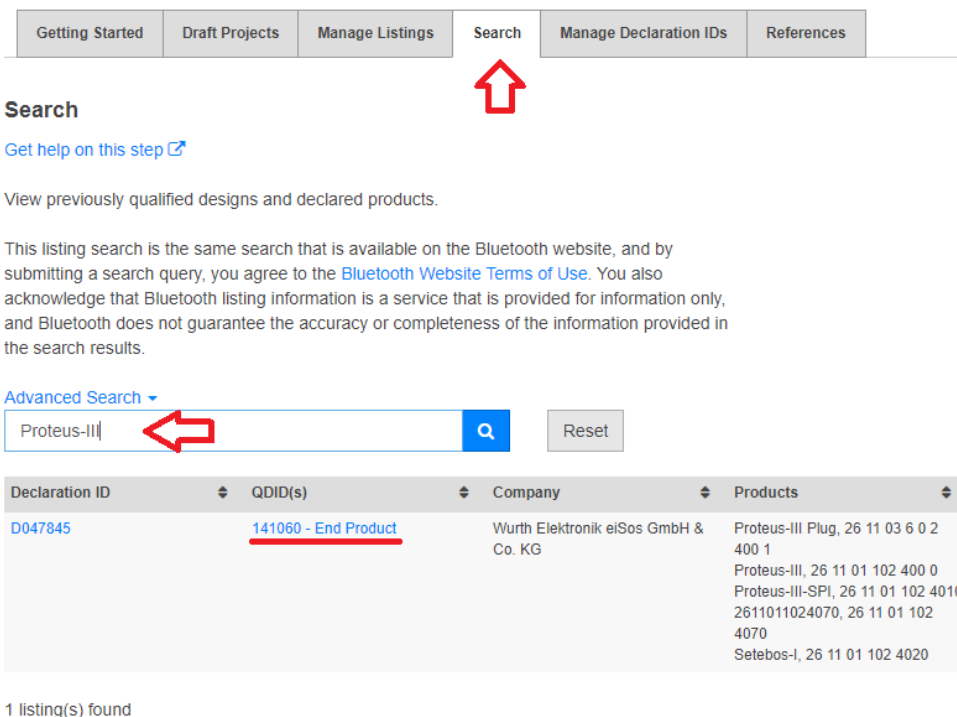
In this chapter we collect all the necessary QDIDs such that the declaration process (chapter 2.5) can be done in a row.

2.4.1 QDID of a radio module including firmware, like Proteus-III



This chapter is only valid radio modules, where the firmware provided by Würth Elektronik eiSos is not been changed in the end device by the radio module integrator. Otherwise please refer to chapter 2.4.2.

Please go to the tab "Search" and enter the radio module name into the search field to find the QDID of its "end product" listing.



Search

[Get help on this step](#)

View previously qualified designs and declared products.

This listing search is the same search that is available on the Bluetooth website, and by submitting a search query, you agree to the [Bluetooth Website Terms of Use](#). You also acknowledge that Bluetooth listing information is a service that is provided for information only, and Bluetooth does not guarantee the accuracy or completeness of the information provided in the search results.

Advanced Search

Proteus-III

Reset

Declaration ID	QDID(s)	Company	Products
D047845	<u>141060 - End Product</u>	Würth Elektronik eiSos GmbH & Co. KG	Proteus-III Plug, 26 11 03 6 0 2 400 1 Proteus-III, 26 11 01 102 400 0 Proteus-III-SPI, 26 11 01 102 4010 2611011024070, 26 11 01 102 4070 Setebos-I, 26 11 01 102 4020

1 listing(s) found

Figure 3: Search for the QDID of Würth Elektronik eiSos radio modules with firmware

Article number	Module name	Type	QDID
2608011024000, 2608011124000	Proteus-I (AMB2621)	End product	90212
2608011024010, 2608011124010	Proteus-II	End product	118943
2611011024000, 2611011024010	Proteus-III, Proteus-III-SPI	End product	141060
2612011024000	Proteus-e	End product	177585

Table 1: Radio module end product QDIDs

This is the only QDID that is needed when a Würth Elektronik eiSos radio module is used, that includes firmware.

2.4.2 QDID of a radio module custom firmware, like Ophelia-I



This chapter is only valid radio modules, where the radio module firmware has not been provided by Würth Elektronik eiSos.

In case the module integrator will flash a Bluetooth® software stack on the radio module, Würth Elektronik eiSos can not list the module as "end product", as it does not contain all Bluetooth® components at the time it has been sold.

To get the "end product" listing of the end device, the QDIDs of the components of the radio chip and the chosen Bluetooth® software stack must be taken instead.

Here the goal is to combine the "controller subsystem" listing of the radio chip and the "host subsystem" listing of the Bluetooth® software stack to one "end product" listing.



Alternatively, the controller subsystem listing of the radio chip can be replaced by its "tested component" listings of the PHY, and link layers (LL) and the HCI.



Alternatively, the host subsystem listing of the Bluetooth® software stack can be replaced by its "tested component" listings of the L2CAP, GAP, ATT, GATT and SM layers.



In case "tested component" listings are used instead of a "subsystem" listing, no retest is required if the "tested component" listing is younger than 3 years. In case a listing of a "tested component" to be referred to is older, a retest of this component must be done first!

2.4.2.1 Search for the QDID of the radio chip

To do so, please go to the tab "Search", click on "Advanced Search", select "Controller Subsystem" and enter the provider of the radio chip.

Article number	Module name	Radio chip	Controller subsystem QDID
2608011024000, 2608011124000	Proteus-I (AMB2621)	Nordic Semiconductor nRF52832	170216
2608011024010, 2608011124010	Proteus-II	Nordic Semiconductor nRF52832	170216
2611011024000, 2611011024010	Proteus-III, Proteus-III-SPI	Nordic Semiconductor nRF52840	170216
2612011024000	Proteus-e	Nordic Semiconductor nRF52805	170216
2612011022000	Ophelia-I	Nordic Semiconductor nRF52805	170216

Table 2: Bluetooth® radio chips


Take the newest entry that matches to the underlying radio chip.

Getting Started Draft Projects Manage Listings **Search** Manage Declaration IDs References

Search
Get help on this step [↗](#)

View previously qualified designs and declared products.


This listing search is the same search that is available on the Bluetooth website, and by submitting a search query, you agree to the [Bluetooth Website Terms of Use](#). You also acknowledge that Bluetooth listing information is a service that is provided for information only, and Bluetooth does not guarantee the accuracy or completeness of the information provided in the search results.

Advanced Search 

Search By Project Type


☒ Qualifications With Required Testing
☒ Qualifications With No Required Testing
☐ End Product Listings (EPLs < 2/1/2014)
☐ Qualified Product Listings (PRD 1.0)

Company

Nordic Semiconductor ASA 

☐ My Company

Product Type

Controller Subsystem 

Spec Name



NONE

Listing Date

From: YYYY-MM-DD
To: YYYY-MM-DD

Layers:

☐ 3DSP
☐ 4.0HCI
☐ 80211 MAC-PHY
☐ 80211PAL
☐ A2DP
☐ A2MP
☐ AICS
☐ AIOP

Search...  



Declaration ID	QDID(s)	Company	Products	Specification Name
D052396	<u>170216 - Controller Subsystem</u>	Nordic Semiconductor ASA	SoftDevice Controller Subsystem for nRF52, NCS tag 1.6.0 SoftDevice Controller Subsystem for nRF52, NCS tag 1.7.0	5.2 
D052395	170219 - Controller Subsystem	Nordic Semiconductor ASA	SoftDevice Controller Subsystem for nRF53, NCS tag 1.6.0	5.2 

Figure 4: Search for the QDID of the radio chip

2.4.2.2 Search for the QDID of the Bluetooth® software stack

Do the same for the Bluetooth® software stack by entering

- either "host subsystem" in the product type field
- or "tested component" in the product type field and search for "host layer tested component" listings in the search results.

Take the QDID that matches the chosen Bluetooth® software stack.

ANR027 - Bluetooth Listing Guide

Advanced Search ▾

Search By Project Type

☒ Qualifications With Required Testing

☒ Qualifications With No Required Testing

☐ End Product Listings (EPLs < 2/1/2014)

☐ Qualified Product Listings (PRD 1.0)

Company

Nordic Semiconductor ASA

☐ My Company

Product Type

Host Subsystem

Spec Name

NONE

Listing Date

From: YYYY-MM-DD

To: YYYY-MM-DD

Layers:

☐ 3DSP

☐ 4.0HCI

☐ 80211 MAC-PHY



☐ 80211PAL

☐ A2DP

☐ A2MP

☐ AICS

☐ AIOP

Search...  

Declaration ID	QDID(s)	Company	Products	Specification Name	Listing Date
D047614	157450 - Host Subsystem	Nordic Semiconductor ASA	nRF Connect SDK Host Subsystem, Host Subsystem for 1.4.1 nRF Connect SDK Host Subsystem, Host Subsystem for 1.5.x nRF Connect SDK Host Subsystem, Host Subsystem for 1.6.0	5.2	2020-11-18
D043346	136227 - Component (Tested)	Nordic Semiconductor ASA	Host Layer for S140 SoftDevice, nRF52 Host 7.0.1 S132 Host Layer subset for SD 7.0.1, S132 Host 7.0.1 S112 Host Layer subset for SD 7.0.1, S112 Host 7.0.1 S113 Host Layer subset for SD 7.0.1, S113 Host 7.0.1	5.1	2019-08-30
D038371	122684 - Component (Tested)	Nordic Semiconductor ASA	Host Layer for S140 SoftDevice, nRF52 Host v6.1.1 Host layer for S132 SoftDevice, nRF52 Host v6.1.1 S112 Host Layer Subset, nRF52 Host v6.1.1	5.0	2019-01-24

Figure 5: Search for the QDID of the Bluetooth® software stack

Bluetooth® stack	Type	QDID
nRFConnect SDK 2.2.0	Host subsystem	200785
nRFConnect SDK 2.1.0	Host subsystem	195971
nRFConnect SDK 2.0.0	Host subsystem	187856
nRFConnect SDK 1.9.1	Host subsystem	182626
nRFConnect SDK 1.7.0, 1.7.1, 1.8.0	Host subsystem	176697
nRFConnect SDK 1.4.1, 1.5.x, 1.6.0	Host subsystem	157450
S112, S113, S132, S140 V7.x.x Host layers	Tested component	136227
S112, S132, S140 V6.x.x Host layers	Tested component	122684

Table 3: Bluetooth® software stacks

Using the QDIDs of the radio chip and the Bluetooth® software stack, the declaration process can start.

2.5 Run the declaration process

To start the declaration process go to the tab "Getting started" and click on "Start the Bluetooth Qualification Process with No Required Testing".

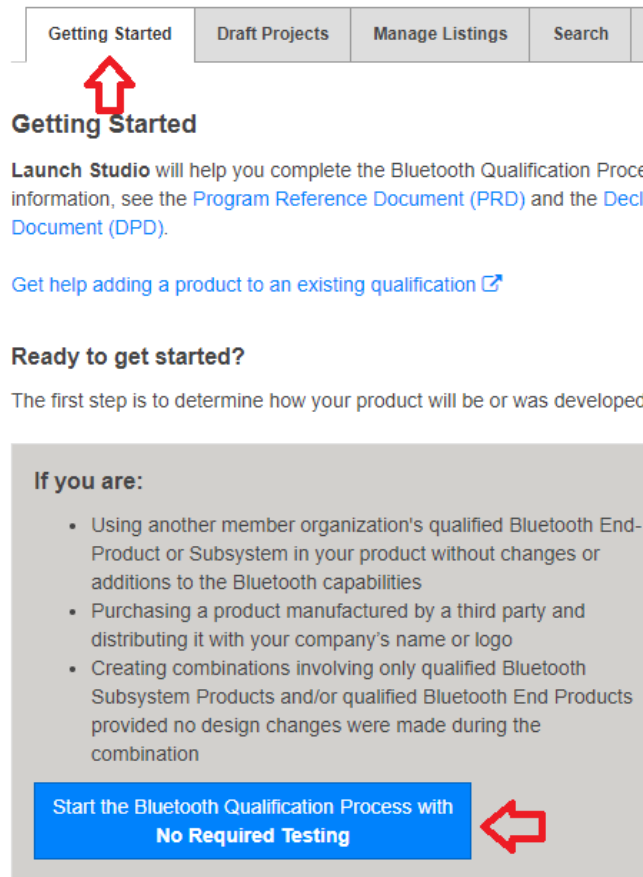


Figure 6: Start the declaration process

Then enter the project name, that shall contain the listing of one or several end devices including the same Bluetooth® components. As described before, several products can be collected under the same listing, if all products are from the same manufacturer and have the same Bluetooth® components (hardware as well as software). Additional products can be also added later to an existing listing must not be done now.

Next, enter the QDIDs of the Bluetooth® components to refer to. In case you are referring to a Würth Elektronik eiSos radio module with firmware, enter the QDID of the module's end product listing (see chapter 2.4.1). In case you are referring to a Würth Elektronik eiSos radio module without firmware, enter the QDIDs of the radio chip and the Bluetooth® software stack, subsequently (see chapter 2.4.2).

If all QDIDs have been added, click on "Save and continue to Product Declaration".

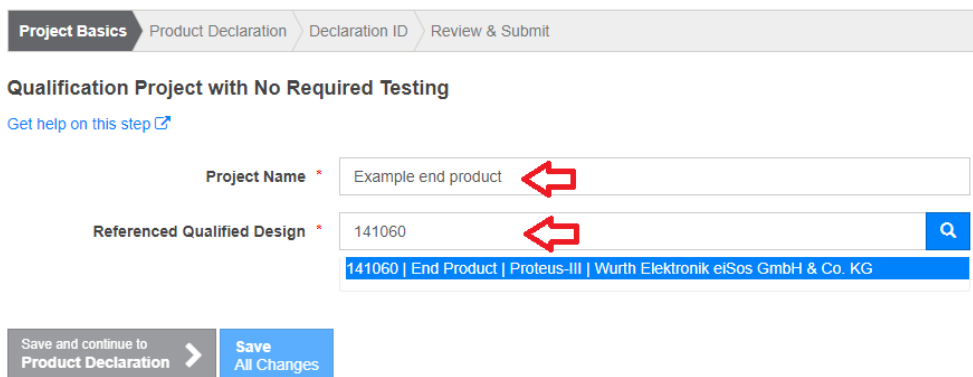


Figure 7: Project basics: Example design referring to Proteus-III radio module

Then enter the listing date and click on "Add a product".

Project Basics
Product Declaration
Declaration ID
Review & Submit

Product Declaration

Begin the Declaration Process phase of product qualification by describing each of your product(s) that implement Bluetooth technology.

[Get help on this step](#)

Listing Date *

Product Listing

List all Products that use this Design (or combination of Designs) and that are distributed under a name that identifies your company as the source of the Product. Please refer to the [Bluetooth Launch Studio Terms of Use](#) for the definition of "Product." Color variations are not considered as separate Product. Any other change (e.g., form factor, model name, Design, etc.) is considered a separate Product. All Products must complete the Qualification Process by adding a separate Product listing. Certain changes to the Design portion of a Product will require a new Design qualification and Declaration ID (as set forth in the [Bluetooth Qualification Program Reference Document \(PRD\)](#)).

Bluetooth SIG maintains a publicly available database of information submitted through Launch Studio. Customs officials often use the database to identify unlicensed Bluetooth products. If a product implements Bluetooth technology or bears the Bluetooth® trademark and it is not listed in Bluetooth SIG's database, customs officials may seize or block the import of the product. You can delay the inclusion of certain information about your product in the publicly available database for up to 90 days after you submit your product (see Bluetooth Launch Studio Terms of Use, Section 5) by selecting a Publish Date in the "Add a Product" modal up to 90 days after the date you submit your product.

Add a Product
Import Products

Product Name	Product Website	Product Category	Publish Date

Save and return to Project Basics
Save and continue to Declaration ID
Save All Changes

Figure 8: Product declaration

Fill this form for the end device that shall be part of the listing. In case of several end devices, repeat this step. Please note that all end devices collected under the same listing must contain the same Bluetooth® components (from physical layer to Bluetooth® software stack layers).

Add/Edit products

×

Product Full Name *

(Including Trademark)

Example end device

←

Category

Select a Category

▼

Product Website

Publish Date *

2022-01-01

←

Certain product information becomes visible to the public in Bluetooth SIG's database at 00:00 UTC±00:00 Coordinated Universal Time (UTC) on the Publish Date you select. The Publish Date must be on or after the Listing Date, but no later than 90 days from the date this product is submitted.

Description *

Description of the end device

Model Number *

Model number of the end device

Cancel

Save

Figure 9: Product information

Save the inserted product information and continue by clicking on "Save and continue to Declaration ID".

In case you already bought an declaration ID, select it in the list of available declaration IDs. Otherwise click on "Pay Declaration Fee" to purchase one.



Please note that purchased declaration IDs show up in the list of available declaration IDs not before it has been paid.

Example end product

Project Basics

Product Declaration

Declaration ID


Review & Submit

Declaration IDs

Assign a Declaration ID

You must assign a Declaration ID to your project in order to complete the qualification process. A list of your available Declaration IDs is below. You may select a Declaration ID from that list or get a new Declaration ID by paying a declaration fee. The declaration fee amount depends on a number of factors and is not refundable — see the [fees page](#) for more information. Unused Declaration IDs expire 12 months from the date of issuance unless used to complete a project and submit it for qualification.

Pay Declaration Fee



[Manage my company's Declaration IDs](#)

Available Declaration IDs

	ID	Expiration Date (UTC)	Notes
<input checked="" type="radio"/>	None		

< Save and return to Product Declaration

Save and continue to Review >

Save All Changes

Figure 10: Declaration ID

After the declaration ID has been selected, go on by clicking on "Save and continue to Review". On the last review page, all informations are summarized to review its correctness. In case it is correct, submit the declaration for listing.

3 Add a new product to a Bluetooth listing of an existing product

The Bluetooth® SIG allows to collect several products of a product family under a single listing. In other words, when a product has been listed, other variants of the product can be added to the listing, free of charge, if the following requirements¹ are fulfilled:

1. The new product and the already listed product have the same manufacturer.
2. The new product and the already listed product use the same Bluetooth® components. Bluetooth® components are all parts of Bluetooth® software and hardware, that are collected under the QDID of the existing listing.

To start this process, open the Bluetooth® Launch Studio under <https://launchstudio.bluetooth.com/> and open the existing listing by clicking on the design name.

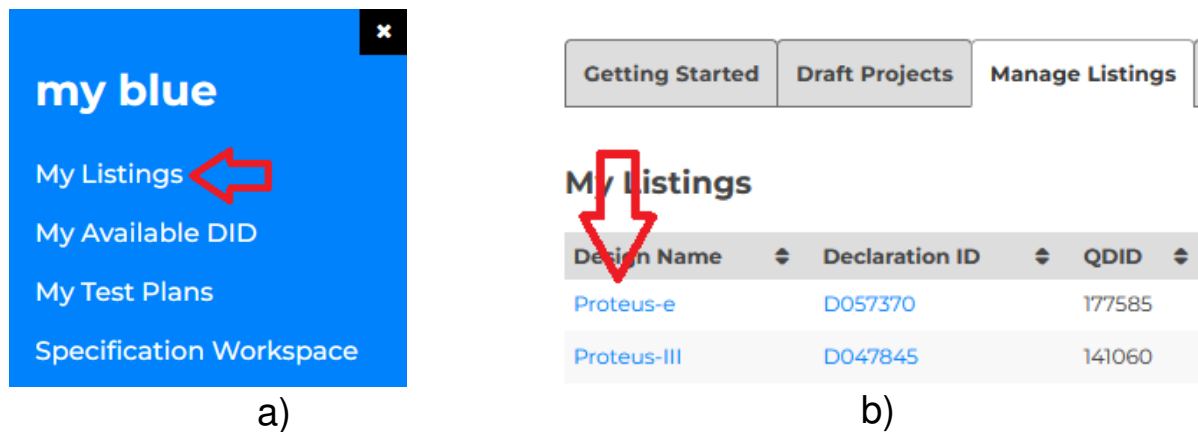


Figure 11: Open existing listing

A new window opens, showing all the listing details. Go on as shown in figure 12.

¹Source: "Bluetooth® Qualification Program Reference Document (PRD)", Chapter: "Listing Requirements", Date: December 2022

Declaration Details

✔ Project has been reviewed and a

+ Create a Subset

Listing Details

Declaration ID

Referenced Qualified Designs

Company

Membership Status

Declared by

Submit Date

Listing Date

Specification Name

Wi-Fi Certification ID

Reference Integration Notes (RIN)

SDoC/DoC

Product List

Add a Product

Product Name	Product Website

a)

Listing Date: 2019-10-28

Add a Product Import Products

Product Name	Product Website

Continue to
Review & Submit

b)

Add/Edit products

Product Full Name
(Including Trademark)
new product name

Category
Select a Category

Product Website

Publish Date
2022-12-08

Description
description of the new product

Model Number
model number of the new product

Subset ID

Cancel Save

c)

Figure 12: Add a product

After clicking on "Save", the product details has been added. Now click on "Submit" on the bottom of the page to go to the last page. With the signature on the final page, you sign, amongst others, that the new product has the same manufacturer and the new product uses the same qualified design (same Bluetooth® components) as the existing product.

Complete and Submit Product(s) for Qualification

By typing my name or other symbol of my signature into the "Signature" field below, I agree on behalf of Wurth Elektronik eiSos GmbH & Co. KG ("Company") to the [Bluetooth Launch Studio Terms of Use](#), and I make the following representations and warranties personally and on behalf of Company.

- ☒ I am authorized by Company to submit all of the information and materials included in this project and all information and materials are true, complete, and accurate.
- ☒ Company does not, by its governing documents or other applicable law, require more than one signatory, a stamp or seal, or a witnessed signature to be legally bound.
- ☒ I agree on behalf of Company to contract in English and electronically, and adopt the characters and symbols input in the signature field below as my signature, with the same effect as an ink signature.
- ☒ The products included in this project are owned by Company and, if marketed or distributed, are done so under a name that uniquely identifies Company as the source of the Product.
- ☒ The product(s) included in this project and the corresponding Qualified Designs comply with the [Bluetooth Launch Studio Terms of Use](#) and the versions of the Bluetooth Specifications referenced in the project.

If any of the foregoing is not correct or you do not agree, you must exit this form without signing.

Signature:

Exit without saving

Signature Confirmed – Complete Project & Submit Additional Product(s) for Qualification



Figure 13: Signature

As soon as the "Signature Confirmed" button has been clicked, the new product is listed.

4 References

- [1] Bluetooth. Bluetooth Core Specifications. <https://www.bluetooth.com/specifications/bluetooth-core-specification/>.
- [2] Bluetooth. Bluetooth declaration fees. <https://www.bluetooth.com/develop-with-bluetooth/qualification-listing/qualification-listing-fees/>.

5 Important notes

The Application Note and its containing information ("Information") is based on Würth Elektronik eiSos GmbH & Co. KG and its subsidiaries and affiliates ("WE eiSos") knowledge and experience of typical requirements concerning these areas. It serves as general guidance and shall not be construed as a commitment for the suitability for customer applications by WE eiSos. While WE eiSos has used reasonable efforts to ensure the accuracy of the Information, WE eiSos does not guarantee that the Information is error-free, nor makes any other representation, warranty or guarantee that the Information is completely accurate or up-to-date. The Information is subject to change without notice. To the extent permitted by law, the Information shall not be reproduced or copied without WE eiSos' prior written permission. In any case, the Information, in full or in parts, may not be altered, falsified or distorted nor be used for any unauthorized purpose.

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List of Figures

1	Product types	6
2	Check for an available declaration ID	8
3	Search for the QDID of Würth Elektronik eiSos radio modules with firmware	9
4	Search for the QDID of the radio chip	12
5	Search for the QDID of the Bluetooth® software stack	13
6	Start the declaration process	14
7	Project basics: Example design referring to Proteus-III radio module	15
8	Product declaration	16
9	Product information	17
10	Declaration ID	18
11	Open existing listing	19
	a	19
	b	19
12	Add a product	20
	a	20
	b	20
	c	20
13	Signature	20

List of Tables

1	Radio module end product QDIDs	10
2	Bluetooth® radio chips	11
3	Bluetooth® software stacks	13

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