

SmartBond™ Wireless Ranging SDK

This document contains the release notes for Renesas' SmartBond™ Wireless Ranging Software Development Kit, version 10.440.10.31.1 for use with the DA1469x Bluetooth® LE device family.

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1. Terms and Definitions

GA	General Availability
IQ	In-phase and Quadrature
LA	Limited Availability
LE	Low Energy
SDK	Software Development Kit
WiRa	Wireless Ranging

2. Release Data

Table 1. Release data

Device Number	DA14691, DA14695, DA14697, DA14699
Software Release Date	January 9, 2024
Software Version Number	10.440.10.31.1
Software Release Type (Note 1)	FULL (GA)

Note 1 Releases can be of the following types: FULL (GA), FULL (LA), RELEASE CANDIDATE, ENGINEERING, PATCH or BINARY.

3. License

Licenses covering this SDK release are listed in the license.txt file in SDK doc folder.

4. Related Documentation and References

- [1] UM-B-137, SmartBond™ WiRa™ Wireless Ranging SDK, User Manual, Renesas Electronics.
- [2] UM-B-090, DA1469x Getting Started with the Development Kit, User Manual, Renesas Electronics.
- [3] UM-B-092, DA1469x Software Platform Reference, User Manual, Renesas Electronics.

Note 1 References are for the latest published version, unless otherwise indicated.

5. Release Description

5.1 Overview

This is a full release based on SDK 10.4.2.13.6 release that runs on SDK DA1469x family of devices. It adds support for wireless ranging based on Dialog Tone Exchange and Bluetooth® LE.

5.2 New and updated features of 10.440.10.31.1

Table 2. 10.440.10.31.1 new features

Feature number	Description
31_1_1	Added support for DA14695MOD SmartBond Bluetooth® LE 5.2, High-integration Module.

5.3 Known limitations of 10.440.10.31.1

Table 3. 10.440.10.31.1 known limitations

Issue number	Description
4.1	Certain complex reflective environments may result in (some) temporary unwanted/undesired results.
4.2	When the WiRa KIT is unplugged and then quickly plugged again to the USB port, the LCD display may not power up.

6. Release History

6.1 Version 10.440.10.31

6.1.1 Overview

This is a full release based on SDK 10.4.2.13.6 release that runs on SDK DA1469x family of devices. It adds support for wireless ranging based on Dialog Tone Exchange and Bluetooth® LE.

6.1.2 New and updated features of 10.440.10.31

Table 4. 10.440.10.31 new features

Feature number	Description
31_1	Addition of wira_basic_app_demo and wira_tracking_demo applications
31_2	Addition of Matrix Pencil method for distance calculation
31_3	Addition of Interference detection and Interpolation
31_4	Addition of WiRa Manager
31_5	Application ble_range_dte renamed to wira_eval_demo, uses WiRa Manager

6.1.3 Fixes and improvements since 10.440.8.6

Table 5. 10.440.10.31 fixes and improvements

Fix number	Description
31/1	Improved Tone Exchange
31/2	Improved distance calculations with time and power optimizations

6.1.4 Known limitations of 10.440.10.31

Table 6. 10.440.10.31 known limitations

Issue number	Description
4.1	Certain complex reflective environments may result in (some) temporary unwanted/undesired results
4.2	When the WiRa KIT is unplugged and then quickly plugged again to the USB port the LCD display may not power up

6.2 Version 10.440.8.6

6.2.1 Overview

This is a full release based on SDK 10.0.8.105 release that runs on SDK DA1469x family of devices. It adds support for wireless ranging based on Dialog Tone Exchange and Bluetooth® LE.

6.2.2 New and updated features of 10.440.8.6

Table 7. 10.440.10.31 new features

Feature number	Description
6_1	Addition of Kalman filter on distance output

6.2.3 Fixes and improvements since 10.440.8.4

Table 8. 10.440.8.6 fixes and improvements

Fix number	Description
6/1	Improved performance at short ranges, prevents saturation at high signal strengths
6/2	Correction to the multipath algorithm in handling of very short distances
6/3	Automatic compensation of XTAL offset influence

6.2.4 Known limitations of 10.440.8.6

Table 9. 10.440.8.6 known limitations

Issue number	Description
4.1	Certain complex reflective environments may result in (some) temporary unwanted/undesired results

6.3 Version 10.440.8.4

6.3.1 Overview

This is a full release based on SDK 10.0.8.105 release that runs on SDK DA1469x family devices. It adds support for wireless ranging based on Dialog Tone Exchange and Bluetooth® LE.

6.3.2 New and updated features of 10.440.8.4

Table 10. 10.440.8.4 new features

Feature number	Description
4_1	Dialog Tone Exchange
4_2	Bluetooth LE IQ Data support

6.3.3 Known limitations of 10.440.8.4

Table 11. 10.440.8.4 known limitations

Issue number	Description
4.1	Certain complex reflective environments may result in (some) temporary unwanted/undesired results

Appendix A Software Versioning Rules

This describes the software version numbers and does not apply to documentation version numbers (as found in the footer of this document).

Each software version number string consists of four numbers: MAJOR. BRANCH. MINOR. and BUILD.

#MAJOR: It is increased (by one only) if the project undergoes a major modification, for example major ROM changes. It usually changes only when the project sources undergo major restructuring affecting most of the repository. It is initialized at 1.

#BRANCH: Used in the case of concurrent projects that for special reasons need to be spun off the major repository. It corresponds to different versions of the repository code that have to be supported concurrently. In this case each branch number corresponds to a different GIT branch. The basic project has BRANCH id 0.

#MINOR: Odd numbers indicate Engineering (or Patch or Binary) versions, even numbers indicate Full release versions or Release Candidates of Full versions. Each Full release increases this number by one. After the Full release, the number is increased by one again. Therefore, Project releases correspond to release numbers like 2.0.1.xxx, 2.0.2.xxx. etc. The #MINOR number is initialized at 1.

#BUILD: The # BUILD number increases by one at every repository update and thus indicates the total number of changes since repository initialization. The BUILD number is initialized at 1.

Document Revision History

This section summarizes the changes made to this document and not to the Software that this document describes.

Revision	Date	Description
3.1	Jan 9, 2024	Release 10.440.10.31.1
3.0	Sept 1, 2022	Release 10.440.10.31
2.0	July 2, 2020	Release 10.440.8.6
1.0	Apr 15, 2020	Initial version for release 10.440.8.4

Status Definitions

Status	Definition
DRAFT	The content of this document is under review and subject to formal approval, which may result in modifications or additions.
APPROVED or unmarked	The content of this document has been approved for publication.

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