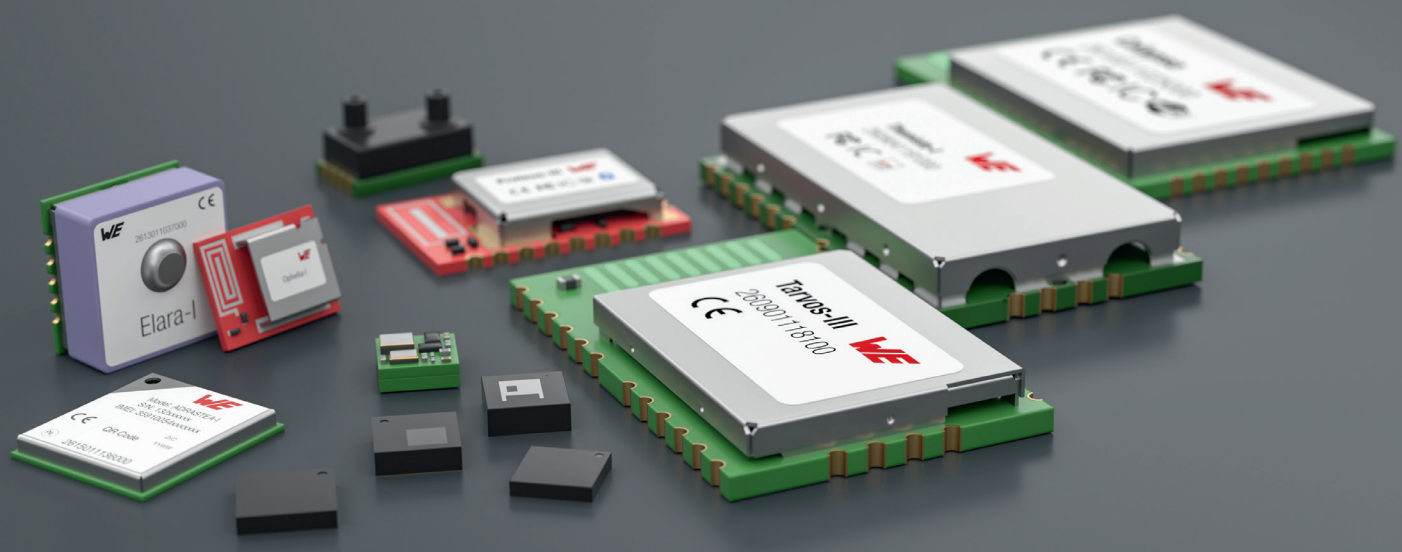

User manual

Evaluation board/kit for radio module Skoll-I (2620011024000)

2620029024001

Version 1.0

February 11, 2025

Würth Elektronik more than you expect

****

MUST READ

Check for firmware updates

Before using the product, make sure you use the most recent firmware version, data sheet, and user manual. This is especially important for Wireless Connectivity products that were not purchased directly from Würth Elektronik eiSos. A firmware update on these respective products may be required.

We strongly recommend including the possibility of a firmware update in the customer system design.

Revision history

Manual version	HW version	Notes	Date
1.0	1.0	• Initial release	February 2025

Abbreviations

Abbreviation	Name
COM port	Communication port
CTS	Clear to Send
EV	Evaluation
ESD	Electro Static Discharge
FTDI	Future Technology Devices International
FW	Firmware
GND	Ground
HIGH	High signal level
HCI	Host Controller Interface
IC	Integrated Circuit
IO	Input & Output
LED	Light Emitting Diode
LOW	Low signal level
MCU	Micro Controller Unit
n.m.	Not mounted
PC	Personal Computer
PCB	Printed Circuit Board
RF	Radio Frequency
RTS	Request to Send
RXD	Receive Data
SPP	Serial Port Profile
SWD	Serial Wire Debug
THT	Through Hole Technology
TXD	Transmit Data
UART	Universal Asynchronous Receiver Transmitter
USB	Universal Serial Bus
VDD	Voltage Drain Drain

Contents

1 Supported radio modules

The EV-Board described in this manual can be used to evaluate the following products:

WE order code	Description
2620011024000	Skoll-I Bluetooth® radio module with integrated antenna

Table 1: Compatibility

Order code	Product name
2620029024001	Skoll-I EV-Kit

Table 2: Order codes

Kit content	Quantity
EV-Board with Skoll-I module (52.5 mm x 79 mm x 1.6 mm)	1
USB 2.0 type A male to USB 2.0 type C male cable	1
Packaging: Cardboard Box (230 mm x 230 mm x 78 mm), ESD safe cover	1

Table 3: Content Skoll-I EV-Kit

Figure 1: Skoll-I EV-Kit

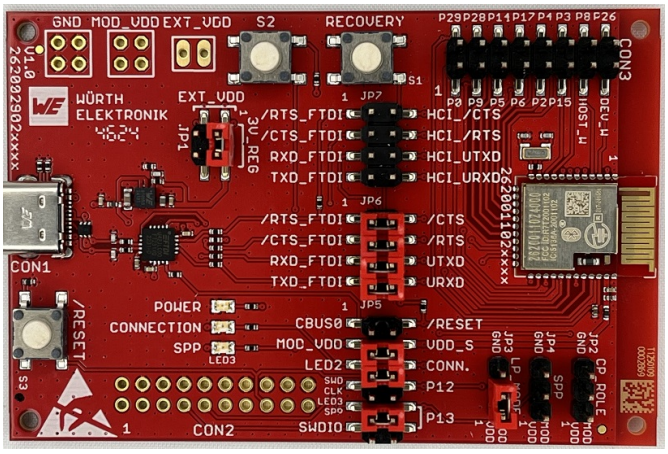

Figure 2: Skoll-I EV-Board

2 Functional description

The EV-Board offers the user the possibility to develop hard- and software for the radio module Skoll-I. It can be connected to a USB port of a PC.

For the connection to a micro controller system, the development board is equipped with a multi-pin connector which is connected to all pins of the radio module. Jumpers allow the module to be disconnected from components, such as the USB interface, which are not required.

Feel free to check our YouTube channel:
www.youtube.com/user/WuerthElektronik/videos for video tutorials, hands-ons and webinars relating to our products.

2.1 Taking into operation

- Step 1: Install or update the corresponding FTDI driver package on your PC . (*www.ftdichip.com/Drivers/VCP.htm*)
- Step 2: Place the jumpers on default location, as shown in figure 4.
- Step 3: Connect the EV-Board to the PC using a USB-cable. A COM port will be detected and installed on your PC. Check the device manager to acquire the COM port name of the EV-Board. A typical name is "COM12" in Windows systems or "/dev/ttyUSB0" on Linux-based systems.
- Step 4: Run the WE UART Terminal PC tool [1] or any other serial terminal program (such as hterm [2] for Windows). Open the corresponding COM port using the default emulator settings of the mounted radio module: 115200 Baud, 8 data bits, 1 stop bit and parity set to none (8n1).
- Step 5: After the module is powered up through the USB jack or an external power supply, the reset button should be pressed to ensure a clean start-up of the module. After pressing the reset button, the module sends the message:
  `@E,0076,BOOT,E=01041010,S=03010000,P=0104,H=22,C=00,A=FD39FA72...`

Refer to the module user manual [3] to get the detailed module specific quick start instructions.

3 Development board

3.1 Block diagram

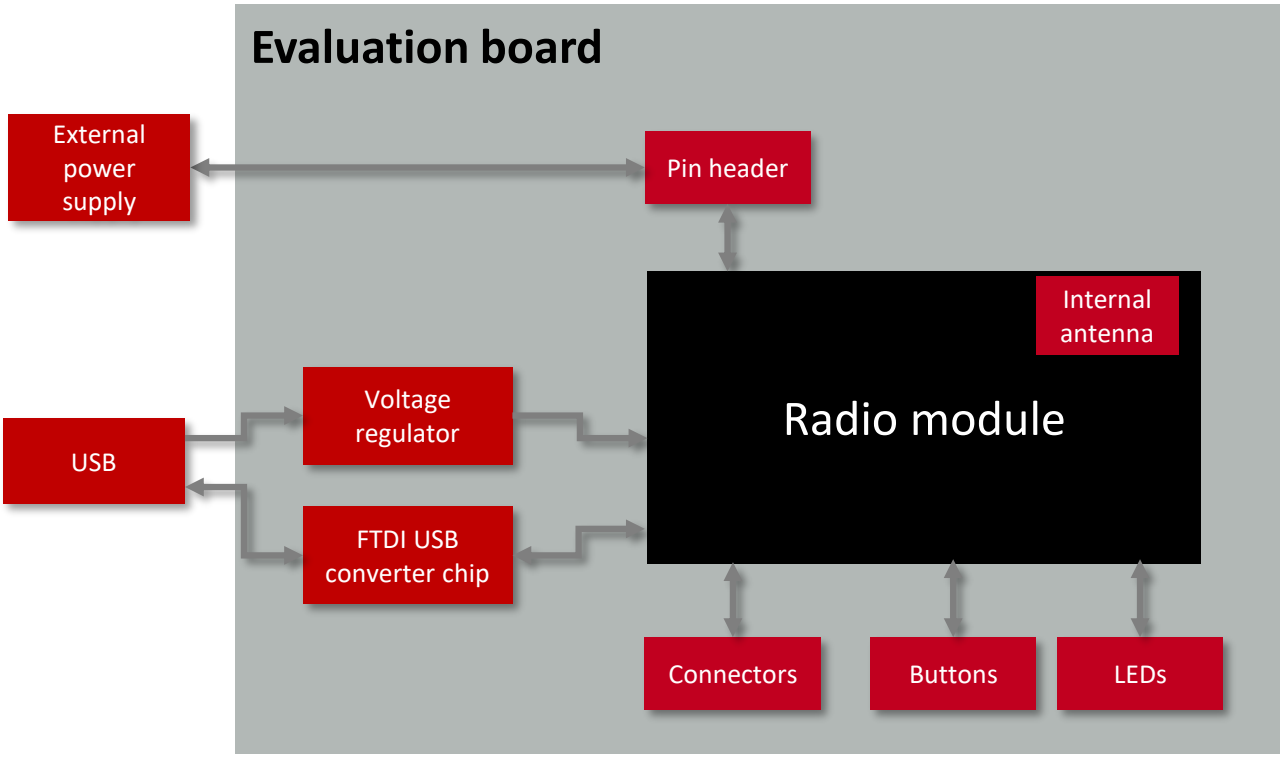

Figure 3: Block diagram

3.2 Jumpers

The following figure shows the default positioning (marked in red) of all jumpers on the EV-Board. This section also contains the details to any jumper connection which is supported by the EV-Board. Before using the board, make sure that the jumpers are set correctly.

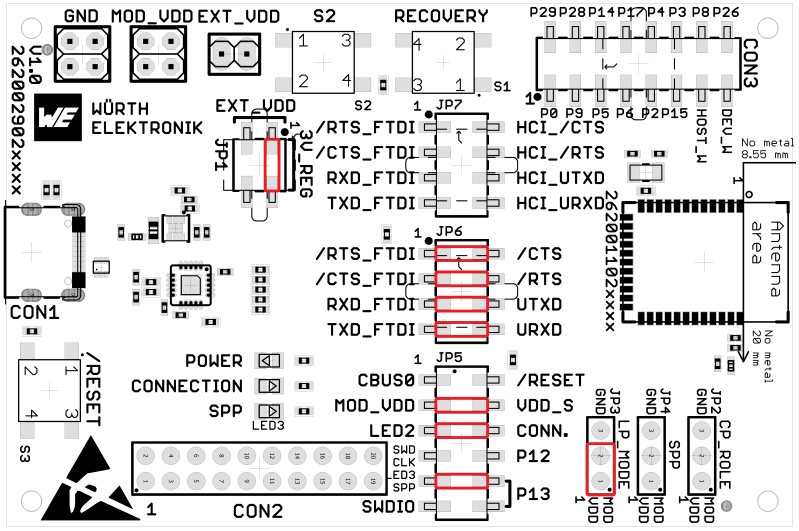

Figure 4: Default configuration of jumpers

JP1	Function	Jumper set (default)
1,2	3.0 V voltage regulator power supply	Yes
1,3	External power supply	No
4	Not connected	-

Table 4: Jumper JP1. Power supply selection

When sourcing the module via an external power supply, use connectors labeled as GND and EXT_VDD to source the EV-Board. Additionally, set a jumper between pin 1 and pin 3 of JP1.

JP2	Function	Jumper set (default)
1,2	*CP_ROLE* pin pulled high to VDD	No
2,3	*CP_ROLE* pin pulled low to GND	No

Table 5: Jumper JP2.Hardwire configuration for *CP_ROLE* pin

JP3	Function	Jumper set (default)
1,2	*LP_MODE* pin pulled high to VDD	Yes
2,3	*LP_MODE* pin pulled low to GND	No

Table 6: Jumper JP3. Hardwire configuration for *LP_MODE* pin

JP4	Function	Jumper set (default)
1,2	*SPP* pin pulled high to VDD	No
2,3	*SPP* pin pulled low to GND	No

Table 7: Jumper JP4. Hardwire configuration for *SPP* pin

JP5	Function	Jumper set (default)
1,2	FTDI CBUS0 to */RESET* pin	No
3,4	MOD_VDD to VDD_S. Current consumption measurement bridge	Yes
5,6	Green LED2 to *CONNECTION* pin	Yes
7,8	*SWDCLK* to *P12* pin	No
9,10	Amber LED3 to *P13* pin	Yes
11,12	*SWDIO* to *P13* pin	No

Table 8: Jumper JP5

JP6	Function	Jumper set (default)
1,2	/RTS_FTDI to Module UART */CTS* pin	Yes
3,4	/CTS_FTDI to Module UART */RTS* pin	Yes
5,6	RXD_FTDI to Module UART *UTXD* pin	Yes
7,8	TXD_FTDI to Module UART *URXD* pin	Yes

Table 9: Jumper JP6. Peripheral UART

JP7	Function	Jumper set (default)
1,2	/RTS_FTDI to HCI_/CTS *RESERVED* pin	No
3,4	/CTS_FTDI to HCI_/RTS *RESERVED* pin	No
5,6	RXD_FTDI to HCI_UTXD *RESERVED* pin	No
7,8	TXD_FTDI to HCI_URXD *RESERVED* pin	No

Table 10: Jumper JP7. HCI UART

STOP Do not populate JP6 and JP7 with jumpers at the same time.

3.3 Connectors

This section explains all connectors and pin headers on the EV-Board.

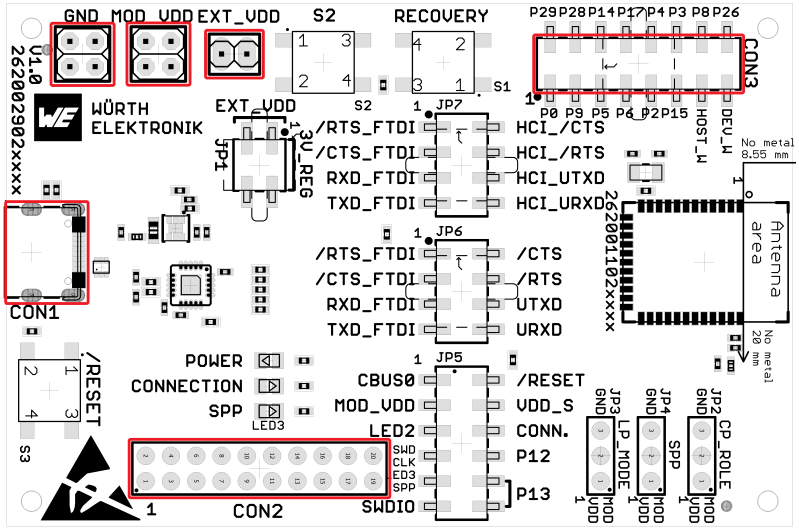

Figure 5: Connectors

Connector	Function	WE article number
CON1	USB 2.0 type C connector for host connection and VDD bus supply	*629722000214*
CON3	Direct access to pins of the radio module	*61031621121*

Table 11: Default assembled connectors

Additionally, the following connectors can be assembled, if needed.

Connector	Function	WE article number
CON2	SWD debug	*61302021121*
CON4 (GND)	External power supply GND	*61300421121*
CON5 (MOD_VDD)	General power rail. Additional connection for supplying external circuitry.	*61300421121*
CON6 (EXT_VDD)	External power supply VDD	*61300211121*

Table 12: Optional connectors

To use the module in application mode, connect the peripheral UART. For test modes, connect the HCI UART. The peripheral UART is used for regular communication with other devices or microcontrollers, while the HCI UART is for testing.

By default, CON2, CON4 and CON5 are not mounted.

3.3.1 CON1

Connector CON1 is a USB-C connector that enables connection to PC via standard USB-C cable.

CON1	Function
-	USB 2.0 type C receptacle for host connection and VDD bus supply

Table 13: USB 2.0 type C connector

3.3.2 CON2

Connector CON2 is the SWD debug interface.

CON2	Module pin	Function
1	MOD_VDD	VDD reference output voltage
7	*SWDIO*	SWD data input/output
9	*SWDCLK*	SWD clock
15	*/RESET*	Reset pin for the SWD probe
4,6,8,10,12,14,16,18,20	-	GND
2,3,5,11,13,17,19	-	Not connected

Table 14: 2x10 SWD connector

3.3.3 CON3

CON3	Module pin	CYW20819 pin
1	27	P0
2	32	P29
3	20	P9
4	28	P28
5	17	P5
6	19	P14
7	16	P6
8	18	P17
9	14	P2

10	15	P4
11	10	P15
12	13	P3
13	4	*HOST_WAKE*
14	9	P8
15	3	*DEV_WAKE*
16	2	P26

Table 15: Connector CON3

3.3.4 CON4

Pin header CON4 can be used to provide the negative output of an external power supply to the board. This pin header is not populated by default.

CON4	Function
1-4	GND

Table 16: External power connection (GND)

3.3.5 CON5

Pin header CON5 can be used to source external circuitry. This pin header is not populated by default.

CON5	Function
1-4	MOD_VDD

Table 17: Power connection for external circuitry (MOD_VDD)

3.3.6 CON6

Pin header CON6 can be used to provide the positive output of an external power supply to the board. This pin header is not populated by default.

CON6	Function
1-2	EXT_VDD (1.71 V to 3.3 V)

Table 18: External power connection (EXT_VDD)

If the UART to USB conversion is used, the minimum applied voltage shall be 1.8 V.

3.4 Buttons

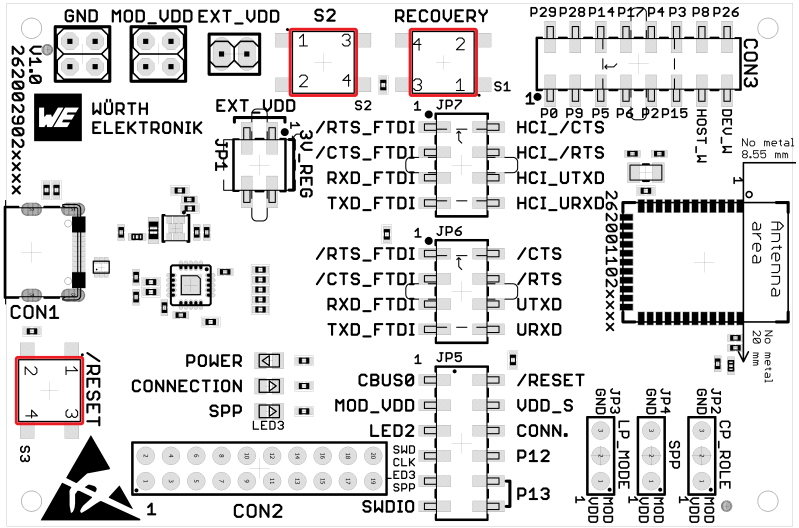

Figure 6: Buttons

3.4.1 Reset button

The */RESET* pin is connected to this button, which restarts the module when pressed and released. The EV-Board provides an external RC circuit. Refer to the module specific manual for detailed information.

3.4.2 Recovery button

This button is used to put the device in recovery mode. To set the device in recovery mode follow these steps:

- Step 1: Press and hold the recovery button.
- Step 2: Press and release the reset button.
- Step 3: Release the recovery button.

It may be needed to put the device in recovery mode when the application download fails. Refer to the module specific manual for detailed information.

3.4.3 S2 button

This button pulls high the *SPP* pin to VDD. This signal can be used to close an SPP connection and return to API command mode. Refer to the module specific manual for detailed information.

3.5 Function blocks

3.5.1 Power supply

3.5.1.1 Bus powered, power supply through USB

The EV-Board can be operated via USB. The integrated voltage regulator regulates the connected 5.0 V down to 3.0 V and supplies the remaining parts of the circuit. If the EV-Board is powered up, the power LED lights up.

When powering the EV-Board via USB connector, place a jumper on the pin-pairs 1 to 2 in JP1.

3.5.2 Current measurement

As shown in table 8, pin 3 and pin 4 of JP5 are bridged for normal operation. Connect a current meter in place of the jumper to measure power consumption.

If the meter is not attached and the jumper link is not set, the module will not receive a supply voltage. However, the power LED may be active, because it is connected before to the current measurement bridge in order not to distort the module's power consumption.

To achieve the stated low power current, the module pins must be terminated as stated in the module specific manual.

3.5.3 UART / USB

The UART interface of the module can be connected to the USB converter by setting the corresponding jumper links in JP6. Thus, the module can be connected directly to a PC via the USB jack. Using the FTDI driver, the PC will show a virtual COM port which can be used to communicate with the module.

Interface	Jumper	Function
Peripheral UART	JP6	Peripheral UART is converted to USB
HCI UART	JP7	HCI UART is converted to USB

Table 19: Jumper link position for different UART to USB conversion

Only one UART can be converted to USB at the same time.

3.5.4 UART direct

If an MCU is to be connected to the module, remove the jumper links in JP6 or JP7. The UART can be connected directly on the pin strip. The module's RXD line must be handled accordingly by your host (i.e. pulled up while inactive and during module boot-up).

Beware of IO level compatibility. The host must match the values stated in the manual of the module. Especially the IO level restrictions must be implemented by a host system (i.e. using a level shifter to use the required IO levels).

3.5.5 Programming interface

The EV-Board provides a 2x10 pin connector to connect directly to a SWD flash adapter used for development. Take care of the correct mounting of the flash adapter (Pin 1 is marked as such). Depending on your flasher an additional adapter may be required.
The recommended flash adapter is one of the "Segger J-Link" family.

3.6 Schematic

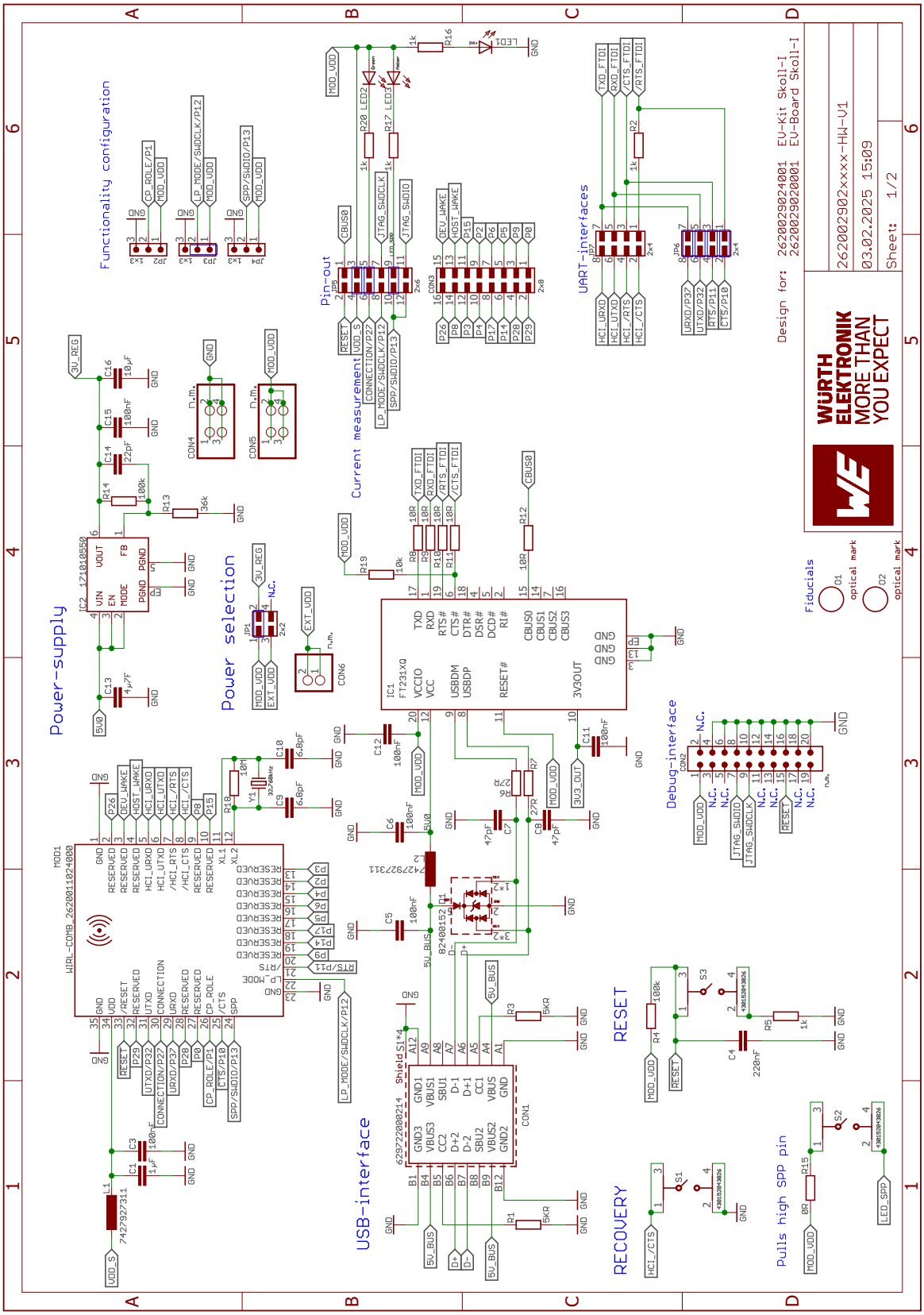

Figure 7: Reference design: Schematic diagram

3.7 Layout

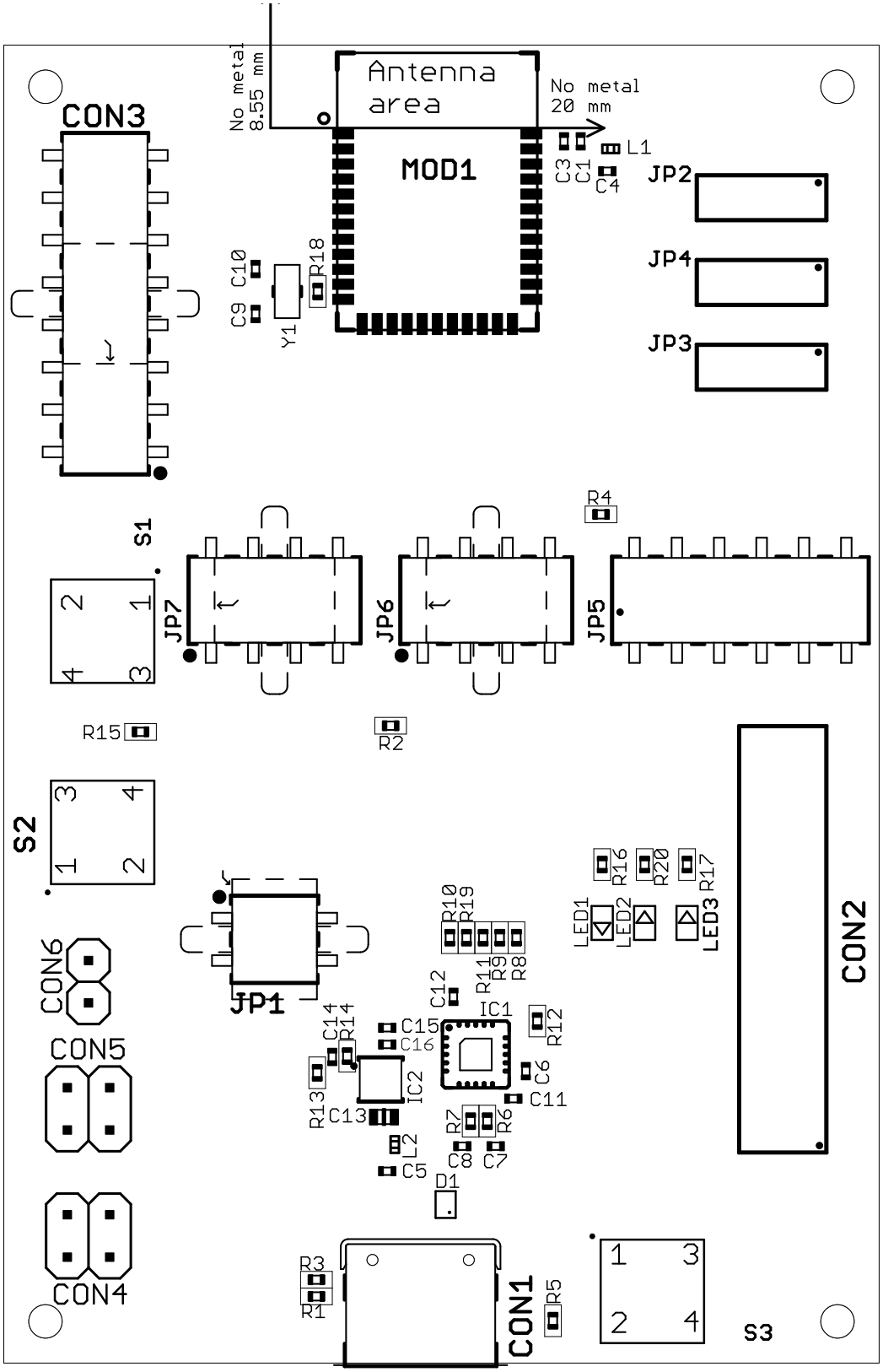

Figure 8: Assembly diagram

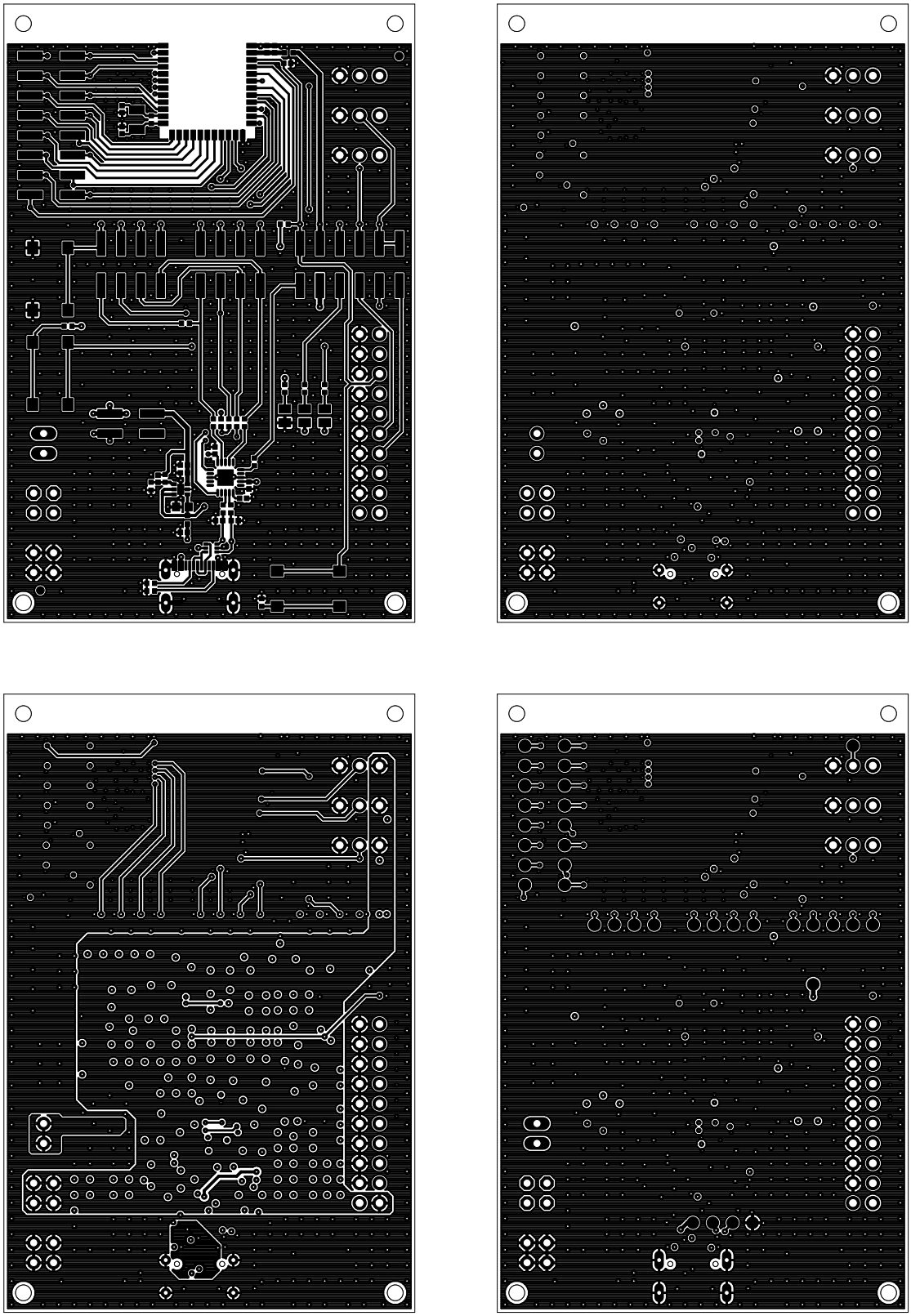

Figure 9: Top layer (upper left), second layer (upper right), third layer (bottom left), fourth layer (bottom right)

3.8 Bill of materials

Part	Value	Pack	Manufacturer	NR
C1	1µF	0402	Würth Elektronik eiSos	*885012105012*
C3	100nF	0402	Würth Elektronik eiSos	*885012205037*
C4	220nF	0402	Würth Elektronik eiSos	*885012105011*
C5	100nF	0402	Würth Elektronik eiSos	*885012205037*
C6	100nF	0402	Würth Elektronik eiSos	*885012205037*
C7	47pF	0402	Würth Elektronik eiSos	*885012005059*
C8	47pF	0402	Würth Elektronik eiSos	*885012005059*
C9	6.8pF	0402	Würth Elektronik eiSos	*885012005006*
C9	6.8pF	0402	Würth Elektronik eiSos	*885012005006*
C11	100nF	0402	Würth Elektronik eiSos	*885012205037*
C12	100nF	0402	Würth Elektronik eiSos	*885012205037*
C13	4.7µF	0603	Würth Elektronik eiSos	*885012106012*
C14	22pF	0402	Würth Elektronik eiSos	*885012005057*
C15	100nF	0402	Würth Elektronik eiSos	*885012205037*
C16	10µF	0402	Würth Elektronik eiSos	*885012105020*
CON1	USB 2.0 type C	SMT-THT	Würth Elektronik eiSos	*629722000214*
CON2	n.m.	THT	n.m.	n.m.
CON3	2x8	THT	Würth Elektronik eiSos	*61031621121*
CON4	n.m.	THT	n.m.	n.m.
CON5	n.m.	THT	n.m.	n.m.
CON6	n.m.	THT	n.m.	n.m.
D1	82400152	SMT	Würth Elektronik eiSos	*82400152*
IC1	FT231XQ	SMT	FTDI	FT231XQ
IC2	171010550	SMT	Würth Elektronik eiSos	*171010550*
JP1	2x2	SMT	Würth Elektronik eiSos	*61030421121*
JP2	1x3	THT	Würth Elektronik eiSos	*61300311121*
JP3	1x3	THT	Würth Elektronik eiSos	*61300311121*
JP4	1x3	THT	Würth Elektronik eiSos	*61300311121*
JP5	2x6	THT	Würth Elektronik eiSos	*61031221121*
JP6	2x4	THT	Würth Elektronik eiSos	*61030821121*
JP7	2x4	THT	Würth Elektronik eiSos	*61030821121*
L1	7427927311	0402	Würth Elektronik eiSos	*7427927311*
L2	7427927311	0402	Würth Elektronik eiSos	*7427927311*

Table 20: Bill of materials part 1

Part	Value	Pack	Manufacturer	NR
LED1	Red	0805	Würth Elektronik eiSos	*150080RS75000*
LED2	Green	0805	Würth Elektronik eiSos	*150080VS75000*
LED3	Amber	0805	Würth Elektronik eiSos	*150080AS75000*
MOD1	WIRL-BTCL	SMT	Würth Elektronik eiSos	2620011024000
R1	5k	0402	Würth Elektronik eiSos	RC0402FR-075KL
R2	1k	0402	Würth Elektronik eiSos	*560112110012*
R3	5k	0402	Yageo	RC0402FR-075KL
R4	100k	0402	Würth Elektronik eiSos	*560112110019*
R5	1k	0402	Würth Elektronik eiSos	*560112110012*
R6	27R	0402	Yageo	RC0402FR-0727RL
R7	27R	0402	Yageo	RC0402FR-0727RL
R8	10R	0402	Würth Elektronik eiSos	*560112110034*
R9	10R	0402	Würth Elektronik eiSos	*560112110034*
R10	10R	0402	Würth Elektronik eiSos	*560112110034*
R11	10R	0402	Würth Elektronik eiSos	*560112110034*
R12	10R	0402	Würth Elektronik eiSos	*560112110034*
R13	36k	0402	Würth Elektronik eiSos	*560112110157*
R14	100k	0402	Würth Elektronik eiSos	*560112110019*
R15	0R	0402	Würth Elektronik eiSos	*560112110001*
R16	1k	0402	Würth Elektronik eiSos	*560112110012*
R17	1k	0402	Würth Elektronik eiSos	*560112110012*
R18	10M	0402	Würth Elektronik eiSos	*560112110184*
R19	10k	0402	Würth Elektronik eiSos	*560112110020*
R20	1k	0402	Würth Elektronik eiSos	*560112110012*
S1	WS-TASV	SMT	Würth Elektronik eiSos	*430152043826*
S2	WS-TASV	SMT	Würth Elektronik eiSos	*430152043826*
S3	WS-TASV	SMT	Würth Elektronik eiSos	*430152043826*
Y1	32.768kHz	SMT	Würth Elektronik eiSos	*830054236*

Table 21: Bill of materials part 2

4 Marking

4.1 Lot number

The 15 digit lot number is printed in numerical digits as well as in form of a machine readable bar code. It is divided into 5 blocks as shown in the following picture and can be translated according to the following table.

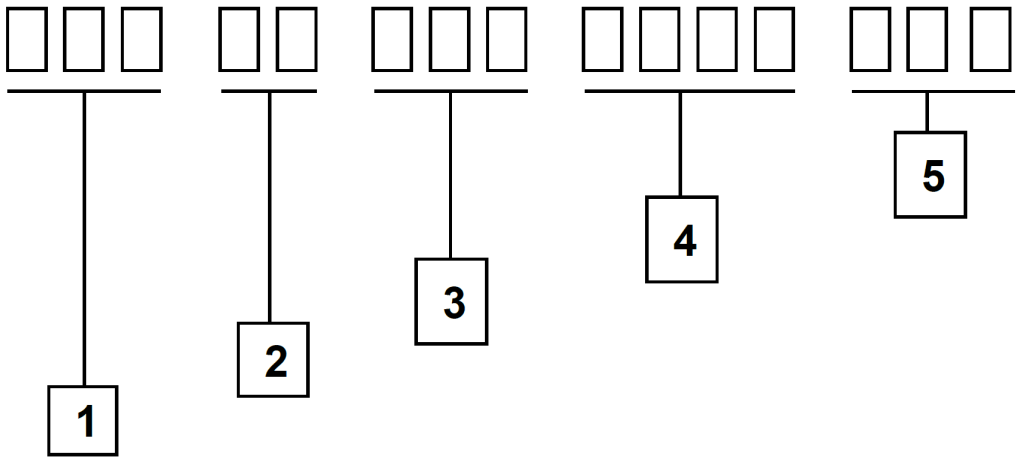

Figure 10: Lot number structure

Block	Information	Example(s)
1	eiSos internal, 3 digits	438
2	eiSos internal, 2 digits	01
3	Radio module hardware version, 3 digits	V2.4 = 024, V12.2 = 122
4	Date code, 4 digits	1703 = week 03 in year 2017, 1816 = week 16 in year 2018
5	Radio module firmware version, 3 digits	V3.2 = 302, V5.13 = 513

Table 22: Lot number details

As the user can perform a firmware update the printed lot number only shows the factory delivery state. The currently installed firmware can be requested from the module using the corresponding product specific command. The firmware version as well as the hardware version are restricted to show only major and minor version not the patch identifier.

5 References

[1] Würth Elektronik. WE UART Terminal PC tool (Smart Commander). https://www.we-online.de/wcs-software.

[2] hterm. Terminal program. https://www.der-hammer.info/pages/terminal.html.

[3] Würth Elektronik. Skoll-I user manual. https://www.we-online.de/katalog/de/manual/2620011024000.

6 Regulatory compliance information

6.1 European Conformity

Pursuant to Article 1 (2.) of the EU directive 2014/53/EU, Article 1 (2.) the directive does not apply to equipment listed in Annex I (4.): custom-built EV-Kits designed for professionals to be used solely at research and development facilities for such purposes.

6.2 FCC

Pursuant to §2.803 (c) of Title 47 Chapter I Subchapter A Part 2 Subpart I, the EV-Kit falls under the FCC exception. Therefore it is marked as "For evaluation only; not FCC approved for resale".

6.3 Exemption clause

Relevant regulation requirements are subject to change. Würth Elektronik eiSos does not guarantee the accuracy of the before mentioned information. Directives, technical standards, procedural descriptions and the like may be interpreted differently by the national authorities. Equally, the national laws and restrictions may vary with the country. In case of doubt or uncertainty, we recommend that you consult with the authorities or official certification organizations of the relevant countries. Würth Elektronik eiSos is exempt from any responsibilities or liabilities related to regulatory compliance.

Notwithstanding the above, Würth Elektronik eiSos makes no representations and warranties of any kind related to their accuracy, correctness, completeness and/or usability for customer applications. No responsibility is assumed for inaccuracies or incompleteness.

7 Important notes

The following conditions apply to all goods within the wireless connectivity and sensors product range of Würth Elektronik eiSos GmbH & Co. KG:

General customer responsibility
Some goods within the product range of Würth Elektronik eiSos GmbH & Co. KG contain statements regarding general suitability for certain application areas. These statements about suitability are based on our knowledge and experience of typical requirements concerning the areas, serve as general guidance and cannot be estimated as binding statements about the suitability for a customer application. The responsibility for the applicability and use in a particular customer design is always solely within the authority of the customer. Due to this fact, it is up to the customer to evaluate, where appropriate to investigate and to decide whether the device with the specific product characteristics described in the product specification is valid and suitable for the respective customer application or not. Accordingly, the customer is cautioned to verify that the documentation is current before placing orders.

Customer responsibility related to specific, in particular safety-relevant applications
It has to be clearly pointed out that the possibility of a malfunction of electronic components or failure before the end of the usual lifetime cannot be completely eliminated in the current state of the art, even if the products are operated within the range of the specifications. The same statement is valid for all software source code and firmware parts contained in or used with or for products in the wireless connectivity and sensor product range of Würth Elektronik eiSos GmbH & Co. KG. In certain customer applications requiring a high level of safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health, it must be ensured by most advanced technological aid of suitable design of the customer application that no injury or damage is caused to third parties in the event of malfunction or failure of an electronic component.

Best care and attention
Any product-specific data sheets, manuals, application notes, PCNs, warnings and cautions must be strictly observed in the most recent versions and matching to the products revisions. These documents can be downloaded from the product specific sections on the wireless connectivity and sensors homepage.

Customer support for product specifications
Some products within the product range may contain substances, which are subject to restrictions in certain jurisdictions in order to serve specific technical requirements. Necessary information is available on request. In this case, the Business Development Engineer (BDM) or the internal sales person in charge should be contacted who will be happy to support in this matter.

Product improvements
Due to constant product improvement, product specifications may change from time to time. As a standard reporting procedure of the Product Change Notification (PCN) according to the JEDEC-Standard, we inform about major changes. In case of further queries regarding the PCN, the Business Development Engineer (BDM), the internal sales person or the technical support team in charge should be contacted. The basic responsibility of the customer as per section 7 and 7 remains unaffected.
All software like ¨wireless connectivity SDK¨, ¨Sensor SDK¨ or other source codes as well as all PC software tools are not subject to the Product Change Notification information process.

Product life cycle
Due to technical progress and economical evaluation, we also reserve the right to discontinue production and delivery of products. As a standard reporting procedure of the Product Termination Notification (PTN) according to the JEDEC-Standard we will inform at an early stage about inevitable product discontinuance. According to this, we cannot ensure that all products within our product range will always be available. Therefore, it needs to be verified with the Business Development Engineer (BDM) or the internal sales person in charge about the current product availability expectancy before or when the product for application design-in disposal is considered. The approach named above does not apply in the case of individual agreements deviating from the foregoing for customer-specific products. The approach named above does not apply in the case of EV-Boards. EV-Boards may be changed without any notification.

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Unless otherwise agreed in individual contracts, all orders are subject to the current version of the "General Terms and Conditions of Würth Elektronik eiSos Group", last version available at *www.we-online.com*.

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Würth Elektronik eiSos GmbH & Co. KG provide you as a user with technical data (including data sheets), design resources (including reference designs), recommendations for use or other design recommendations, web tools, safety information and other information in the form of evaluation-boards, -kits or -modules (hereinafter jointly referred to as "EVB") in accordance with the terms and conditions contained here. The EVB is provided in the "as is" state. WE disclaims all express and implied warranties, in particular those concerning the suitability for a certain purpose, the absence of defects or non-violation of third-party rights. The EVB is intended for experienced developers to develop

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Do not touch the EVB when it is live, and allow charged components, such as capacitors, to discharge completely before handling the EVB. Depending on the individual application, high voltages can occur on the EVB and some components can reach temperatures above 50 °C. Even after disconnecting the EVB from the power source, these conditions remain for a significant time. Please ensure that the appropriate safety precautions are taken when installing and operating this EVB, as one of the following may occur if you handle or use this EVB without observing the relevant safety precautions: - Death - Serious injury - Electric shock - Electric burns - Severe heat burns -
When using the EVB, you undertake to read the instructions for use in full together with the relevant information supplied and/or available on the homepage *www.we-online.de/wcs-manuals* before putting this EVB into operation. The following points have to be observed in particular:
- Do not touch the EVB while it is live.
- The EVB must be fully assembled and all devices to be tested must be connected before voltage is applied to the EVB.
- The EVB should never be left unattended during operation.
- Capacitors must be completely discharged. The capacitors must be actively discharged using a suitable resistor.

Protection against static electricity
Use the unpackaged product only in ESD protected areas. Wear the ESD personal protective equipment prescribed for these areas. Ground all conductive components, including personnel, as prescribed in ESD protected areas. Ensure that the product is only used by trained personnel.

Purpose and use
The EVB is not a finished product and is not intended for general use by the consumer. The EVB is intended exclusively for use in the evaluation of WE components in the lab or in development environments by highly qualified technicians or engineers, familiar with the risks involved in handling electrical or mechanical components, systems and subsystems. The use of the EVB is your full and independent responsibility. The EVB is expressly not intended to be installed in a terminal device or to be part of a terminal device in whole or in part. WE reserves the right, at its own discretion, to make corrections, improvements, adjustments or other changes to the EVB or to discontinue the EVB. The EVB is not intended for use in devices and applications for which a higher safety and reliability standard is prescribed. It is also not approved for use in safety-relevant applications or where personal injury or fatal consequences must be expected in the event of failure.

Operation of the EVB
The EVB may only be operated within the specifications and environmental parameters recommended by WE, as described in the instructions for use. Exceeding the specified parameters (including, but not limited to, input and output voltage, current, power, and ambient conditions) may result in damage to property. If you have questions about these electrical parameters, please contact WE at (regulatory-compliance@we-online.com) prior to connecting peripheral electronics (including the input voltage and intended loads). Any load outside a certain power range may lead to negative consequences, including, but not limited to, unintended or inaccurate evaluations or possibly permanent damage to the EVB or the electronics connected to it. Please ensure that the appropriate safety precautions are taken when working with the EVB, as serious injuries, including severe or even fatal injuries from electric shock or electric burns, may occur if you do not follow the appropriate safety precautions. Under no circumstances should the EVB be touched while live. When the EVB is connected to a power source, some of its components are electrically charged and/or have temperatures above 50 °C. This condition also applies for a short time after disconnecting from the supply voltage until the capacitors are completely discharged and hot components have cooled down. These components include connectors, linear regulators, switching transistors, heat sinks, resistors, diodes, inductors and other components, which can be identified from the documentation in the instructions for use. As with all electronic lab work, only qualified persons with knowledge of electronic performance evaluation, measurement and diagnostic tools, should use the EVB.

Hazards and warnings
Before putting the EVB into operation, please read the instructions for use and especially the various hazards and warnings described therein. The instructions for use contain important safety information on voltages and temperatures. You take full responsibility and liability for the proper and safe handling of the EVB. You agree to comply with all safety requirements, rules and regulations related to the use of the EVB. You also take full responsibility for: (1) establishing safeguards to ensure that the use of the EVB does not cause damage to property, personal injury or death, even if the EVB does not function as described, intended or expected, (2) the test setup in which the EVB is integrated, all safety requirements, rules and regulations and also that no damage to property, personal injury or other hazardous situation occurs even if the EVB fails, and (3) ensuring the safety of all activities performed by you or your employees when using the EVB. In particular, this means that the technical rules VDE [German Electrical Engineering, Electronic and Information Technology Association] 0105-100 and BGI [German trade association information] 891 (or corresponding applicable safety regulations outside Germany) for the operation of electrical test setups must be observed, the test area is protected against unauthorized access or accidental touching, current limitations, and emergency stop mechanisms are functional and test setups are never operated unattended. If you have any questions about the safe use of the EVB, please contact WE at *regulatory-compliance@we-online.com* for more information.

Your responsibility with regard to the applicable laws
- You are responsible for being sufficiently informed about and complying with all international, national, state and local applicable laws, rules and regulations that apply to the handling or use of the EVB by you or your employees.
- The EVB generates, uses and radiates radio frequency energy, but has not been tested for conformity with the limits applicable to the product category, which are applicable according to the European Union regulations for protection against radio frequency interference. Operation of the EVB may cause interference with radio communication. In this case, the costs incurred for necessary measures to remedy the interference are to be borne by the user.

As the EVB is not a finished product, it may not comply with applicable regulatory, safety or certification standards that are normally as-

sociated with other products, such as Directive 2011/65/EC of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of hazardous substances and Directive 2002/96/EC on waste electrical and electronic equipment (WEEE). You take full responsibility for compliance with such standards that apply to the EVB. You also take responsibility for the proper disposal of the components and materials of the EVB.

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