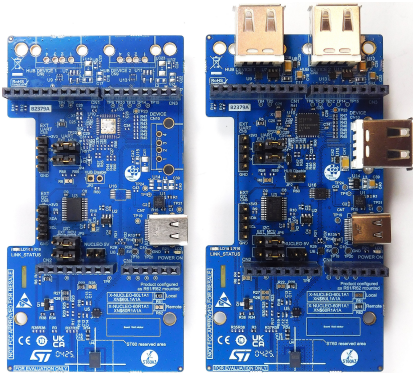


60 GHz V-band contactless connectivity transceiver expansion board kit based on the ST60A3H1 for STM32 Nucleo



Features

- 60 GHz V-band contactless connectivity transceiver expansion board kit, based on the [ST60A3H1](#) for STM32 Nucleo. The X-NUCLEO-60K1A1 kit is composed of two boards:
 - X-NUCLEO-60L1A1 expansion board with an [ST60A3H1](#) configured as Local
 - X-NUCLEO-60R1A1 expansion board with an [ST60A3H1](#) configured as Remote
- Range up to 3 cm
- eUSB2, UART, GPIO, or I²C RF tunneling
- Embedded eUSB2 repeater
- Bypassable USB2 hub on Remote [ST60A3H1](#) side
- Compatible with most [STM32 Nucleo](#) boards
- Equipped with Arduino® UNO R3 connector
- Free comprehensive development firmware library and examples for [ST60A3H1](#), compatible with [STM32Cube](#)
- ETSI certified
- RoHS, CE, and UKCA compliant

Description

The X-NUCLEO-60K1A1 is a kit composed of two expansion boards, an X-NUCLEO-60L1A1 expansion board, and an X-NUCLEO-60R1A1 expansion board, working as a pair, which can be plugged onto most [STM32 Nucleo](#) board equipped with the Arduino R3 connectors. It provides a complete evaluation kit that allows you to learn, evaluate, and develop applications based on the [ST60A3H1](#) transceiver, for contactless connectivity up to 480 Mbit/s.

The [ST60A3H1](#) is a full RF transceiver with a dual-linear-polarization integrated antenna, operating in half-duplex mode. It provides an optimized solution for a high-speed, low-power, short-range point to point 60 GHz RF link.

The X-NUCLEO-60L1A1 expansion board, which hosts an [ST60A3H1](#) configured as Local is the only board needing to be plugged onto an [STM32 Nucleo](#) development board (for example, [NUCLEO-L476RG](#) with ultralow power STM32 microcontroller). The other X-NUCLEO-60R1A1 expansion board, which hosts an [ST60A3H1](#) configured as Remote is used in standalone. Any [ST60A3H1](#) configuration is done from the X-NUCLEO-60L1A1 side.

Product summary	
60 GHz V-band contactless connectivity transceiver expansion board kit based on the ST60A3H1 for STM32 Nucleo	X-NUCLEO-60K1A1
60 GHz V-band contactless connectivity transceiver with linear polarization integrated antenna, and tunneling eUSB2, UART, GPIO or I ² C	ST60A3H1C1CCEPY3
60 GHz V-band contactless connectivity transceiver software expansion for STM32Cube	X-CUBE-ST60
Applications	60 GHz contactless

1 Ordering information

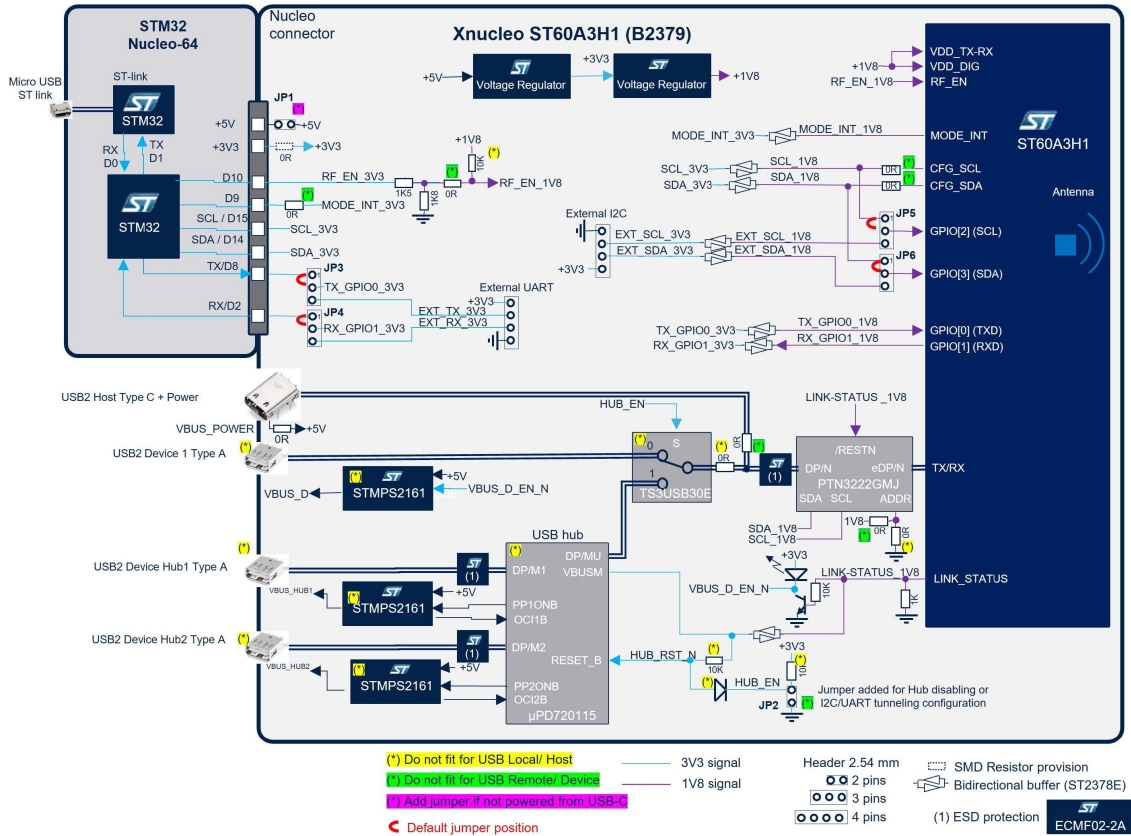
Table 1. Ordering information

Order code	PCB version	Core product
X-NUCLEO-60K1A1	XN\$60K1A1A	ST60A3H1

2 Block diagram

The figure below describes the X-NUCLEO-60x1A1 expansion board features.

Figure 1. X-NUCLEO-60x1A1 expansion board block diagram



Jumper	1-2	2-3
JP3, JP4	UART Tx/Rx on D8/D2	UART Tx/Rx on EXT
JP5, JP6	GPIO2/GPIO3 on NUCLEO I2C	GPIO2/GPIO3 on External I2C
SMD solder bridge	ON (ST60 Local)	OFF (ST60 Remote)
R = 0 Ohm	CFG_SCL/CFG_SDA connected	CFG_SCL/CFG_SDA NOT connected

3 Schematic diagrams

Figure 2. X-NUCLEO-60L1A1 circuit schematic (1 of 4) - ST60A3H1

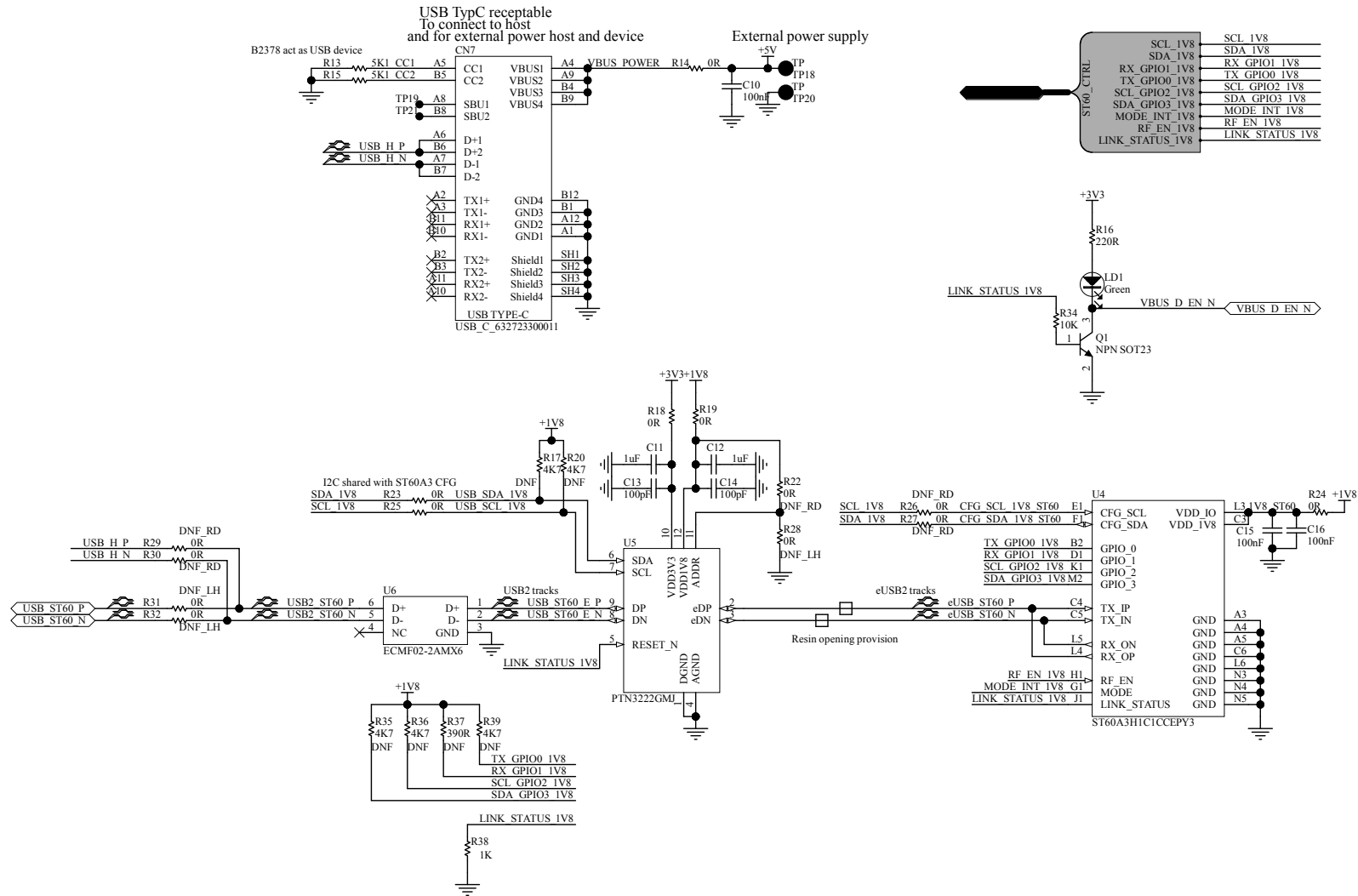


Figure 3. X-NUCLEO-60L1A1 circuit schematic (2 of 4) - Nucleo

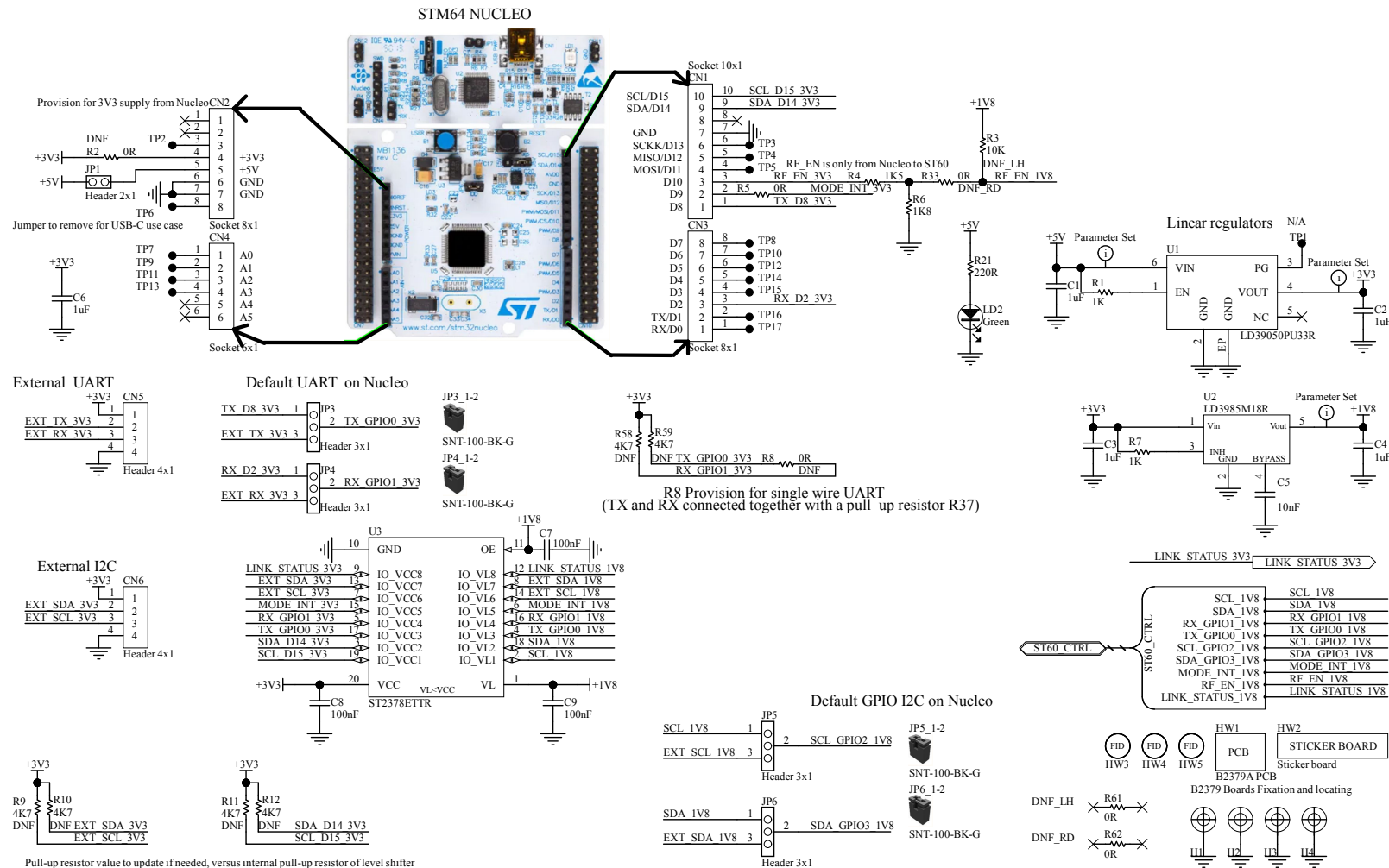


Figure 4. X-NUCLEO-60L1A1 circuit schematic (3 of 4) - Switch

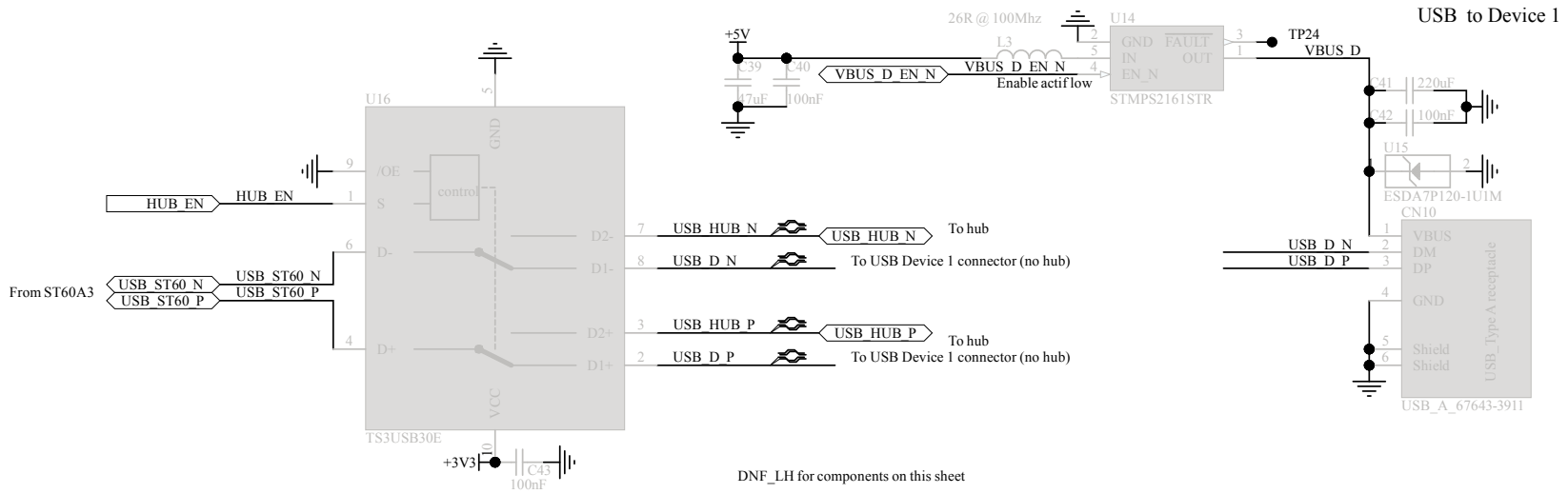


Figure 5. X-NUCLEO-60L1A1 circuit schematic (4 of 4) - Hub

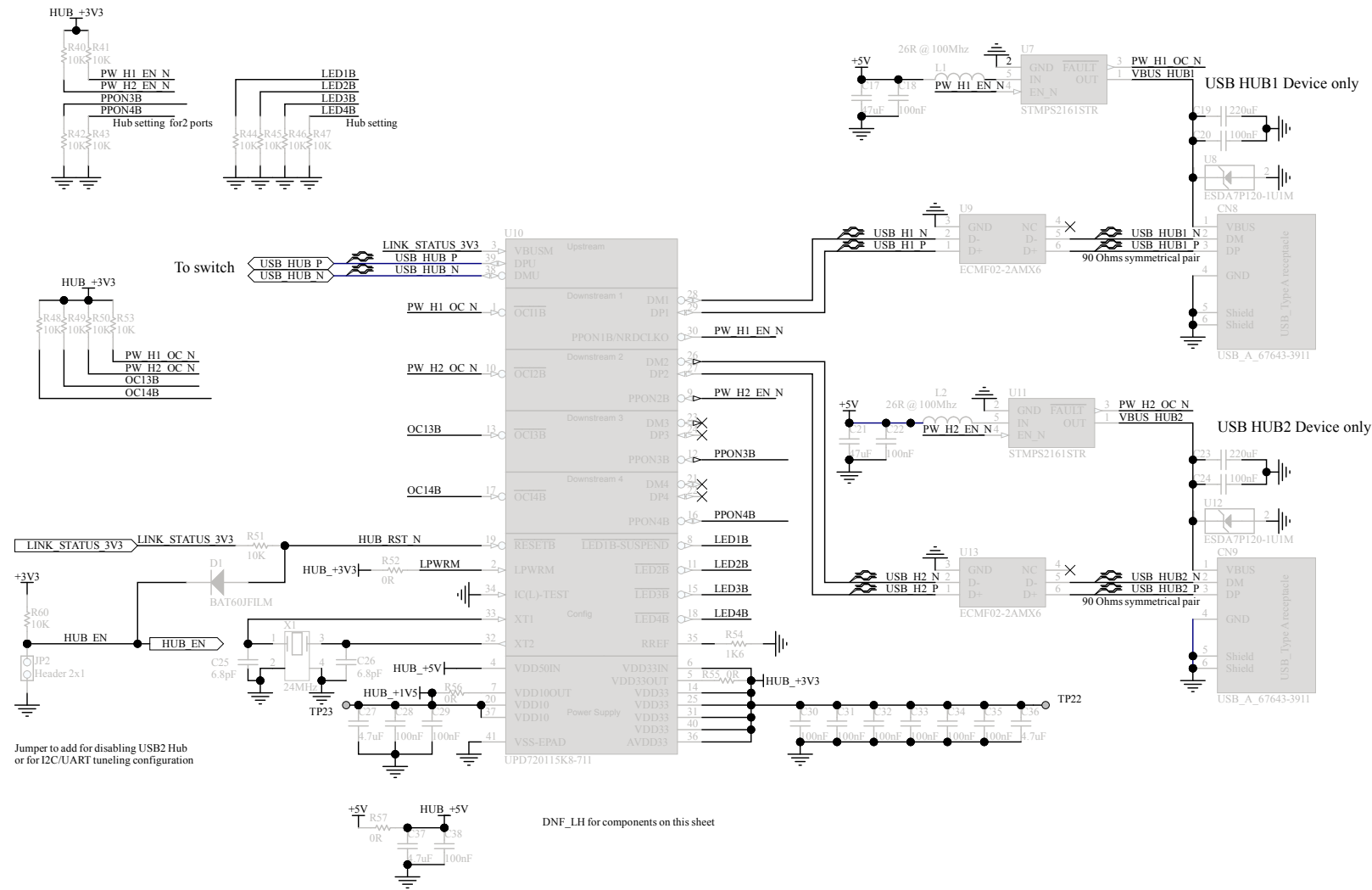


Figure 6. X-NUCLEO-60R1A1 circuit schematic (1 of 4) - ST60A3H1

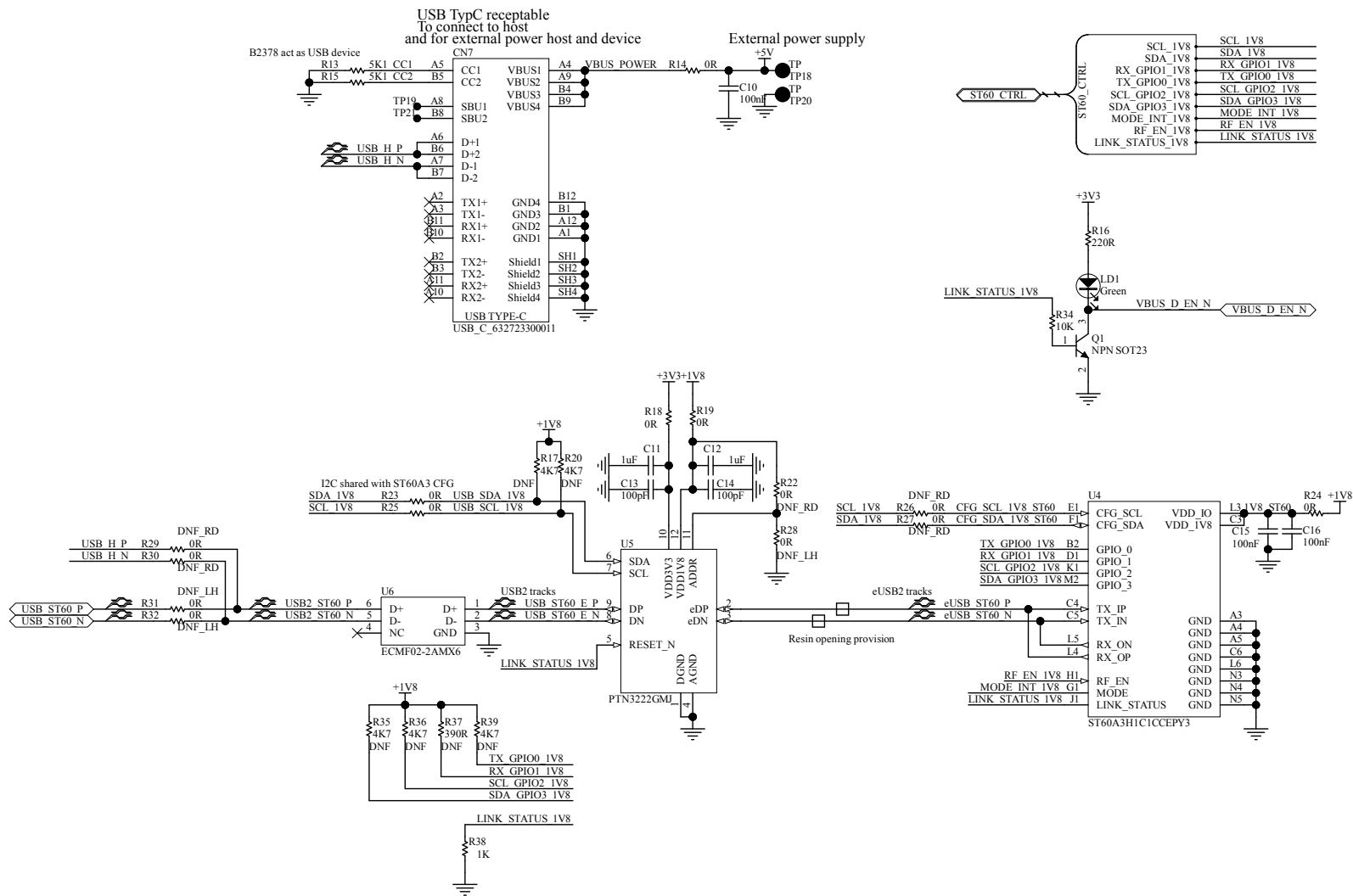


Figure 7. X-NUCLEO-60R1A1 circuit schematic (2 of 4) - Nucleo

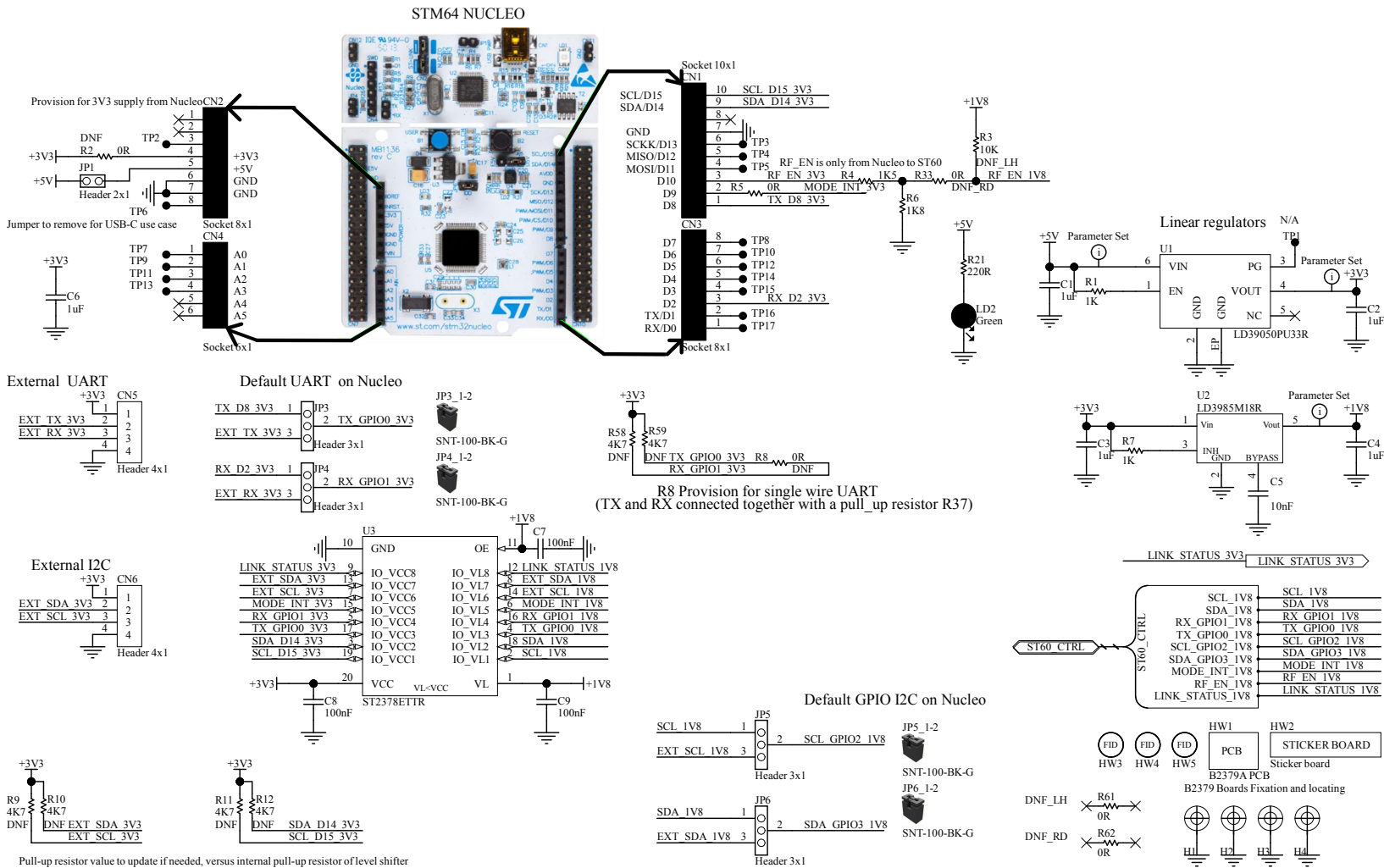
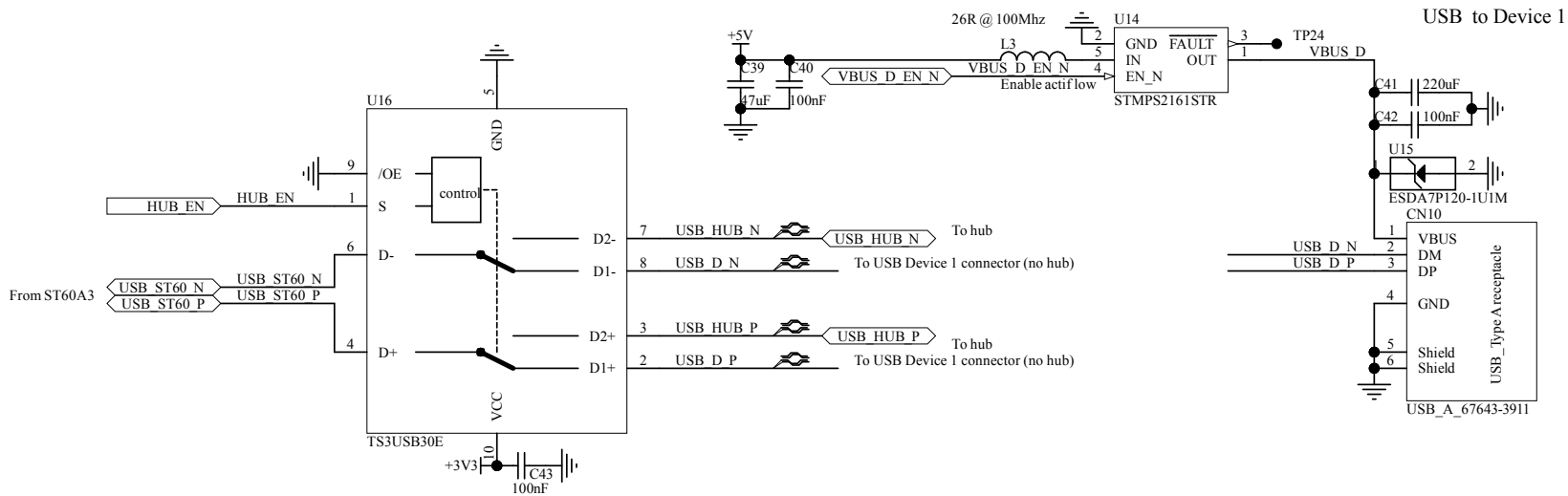


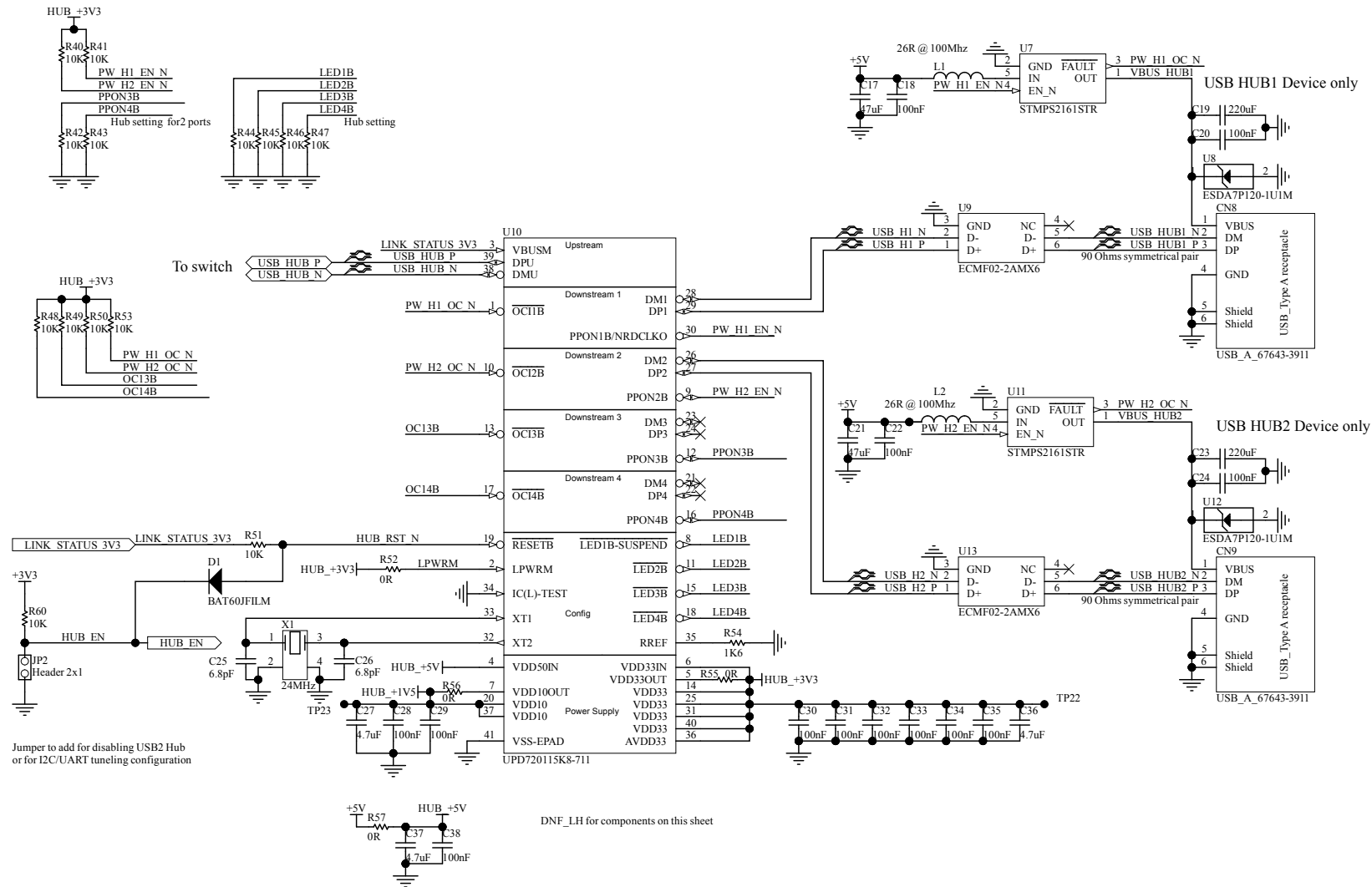
Figure 8. X-NUCLEO-60R1A1 circuit schematic (3 of 4) - Switch



DNF_LH for components on this sheet



Figure 9. X-NUCLEO-60R1A1 circuit schematic (4 of 4) - Hub



DNF_LH for components on this sheet



4 Kit versions

Table 2. X-NUCLEO-60K1A1 versions

PCB version	Schematic diagrams	Bill of materials
XN\$60K1A1A ⁽¹⁾	XN\$60K1A1A schematic diagrams	XN\$60K1A1A bill of materials

1. This code identifies the X-NUCLEO-60K1A1 evaluation kit first version. The kit consists of an X-NUCLEO-60L1A1 whose version is identified by the code XN\$60L1A1A and an X-NUCLEO-60R1A1 whose version is identified by the code XN\$60R1A1A.

Revision history

Table 3. Document revision history

Date	Revision	Changes
08-Nov-2024	1	Initial release.
07-Mar-2025	2	Updated cover image, Section Features and Section Description .

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