

Revision History

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V1.0	Oct 12,2023	First version release

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1. Introduction

Gwell DK User Guide

This DK supports the full range of Gwell modules for nRF52 series ICs

2. DK Content

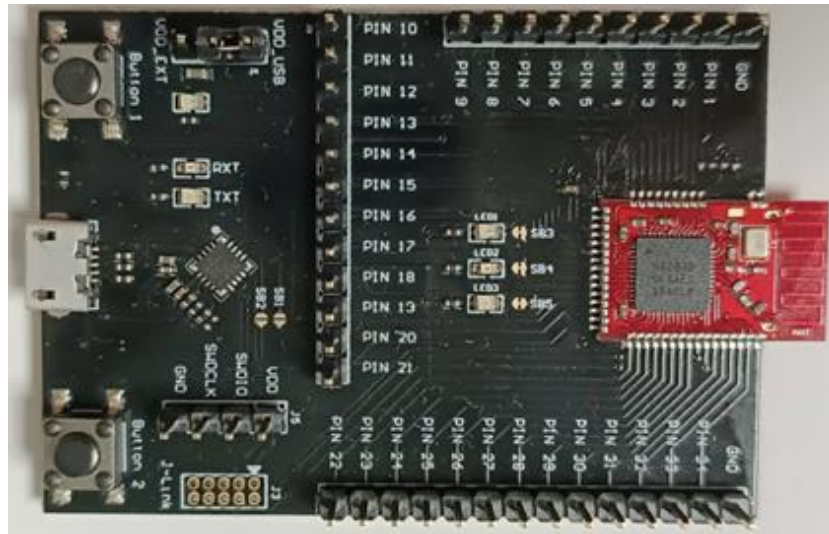


Figure 1: Gwell nRF52 DK (Top layer)



Figure 2: Gwell nRF52 DK (Bottom layer)

3. OD (Operation Description)

- a. Power setting → J4 jump pins for VDD_USB or VDD_EXT
VDD_USB → supply voltage: 5V (Note 1)
VDD_EXT → supply voltage: 3V~3.3V (Note 2)

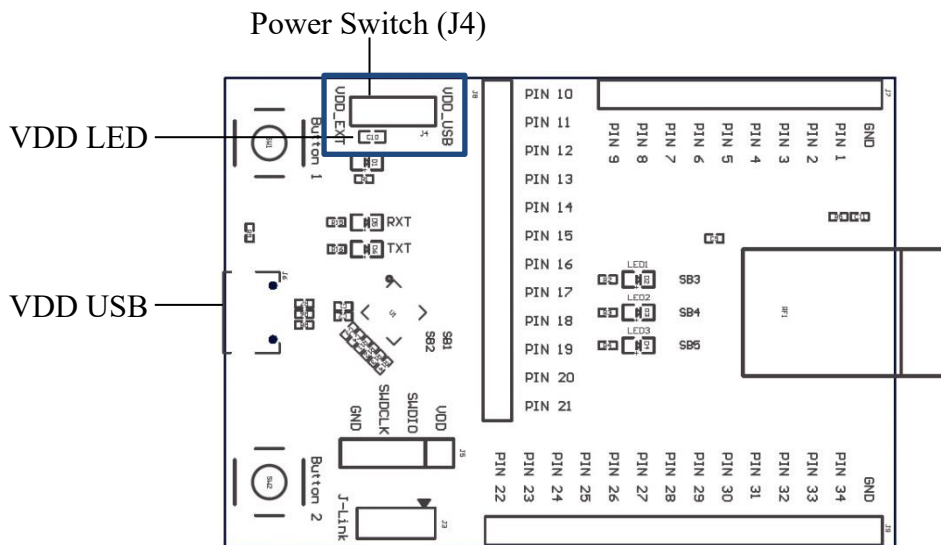


Figure 3: PCB Schematic diagram (Top layer) – Power

Note 1: "VDD_USB" power path, there is a LDO (5 to 3.3V) so means VDD of RF module is 3.3V.

Please plug 5V USB cable into Micro USB connector of Gwell DK.

Note 2: “VDD_EXT” please refer below “Figure 4” and the input voltage pins (VDD EXT(+) & (-)) are on the bottom of DK.

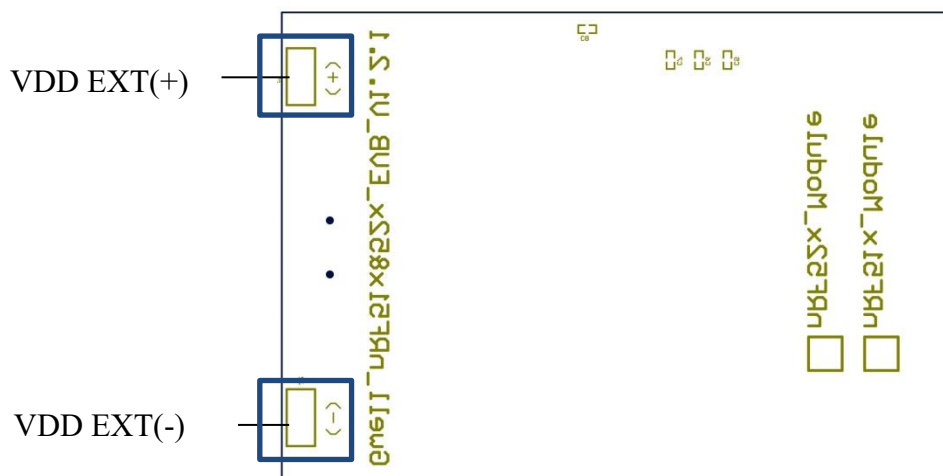
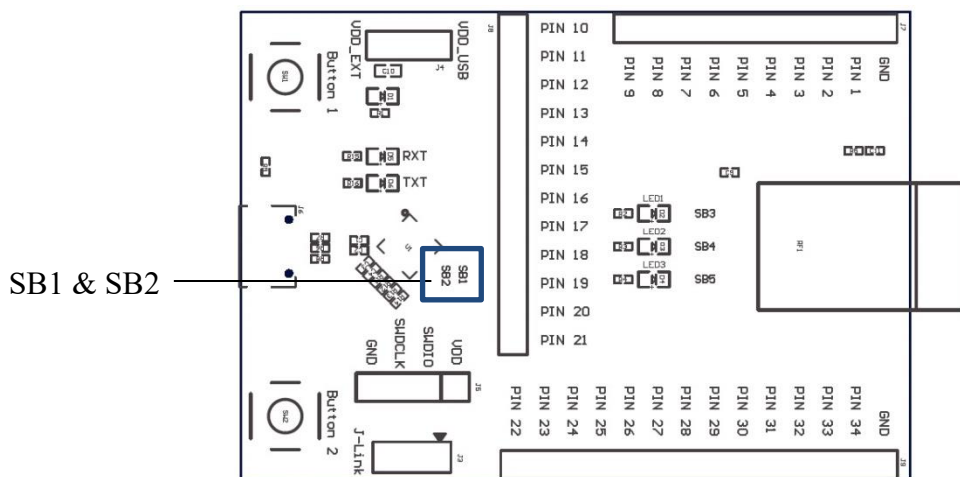


Figure 4: PCB Schematic diagram (Bottom layer) - Power

1. There is a CP2102 (Silicon Labs) PHY IC on Gwell DK which can be connected to PC(Host), User can download the driver at Silicon Labs's website.
2. **SB1 & SB2** have to do soldering (short) for connecting UART pins of RF module and CP2012. Please set J4 @VDD_USB.



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3. The pins define of RF module as below

INTERFACE PIN	PIN Define	nRF52832
UART RX	PIN20	P0.10
UART TX	PIN21	P0.11

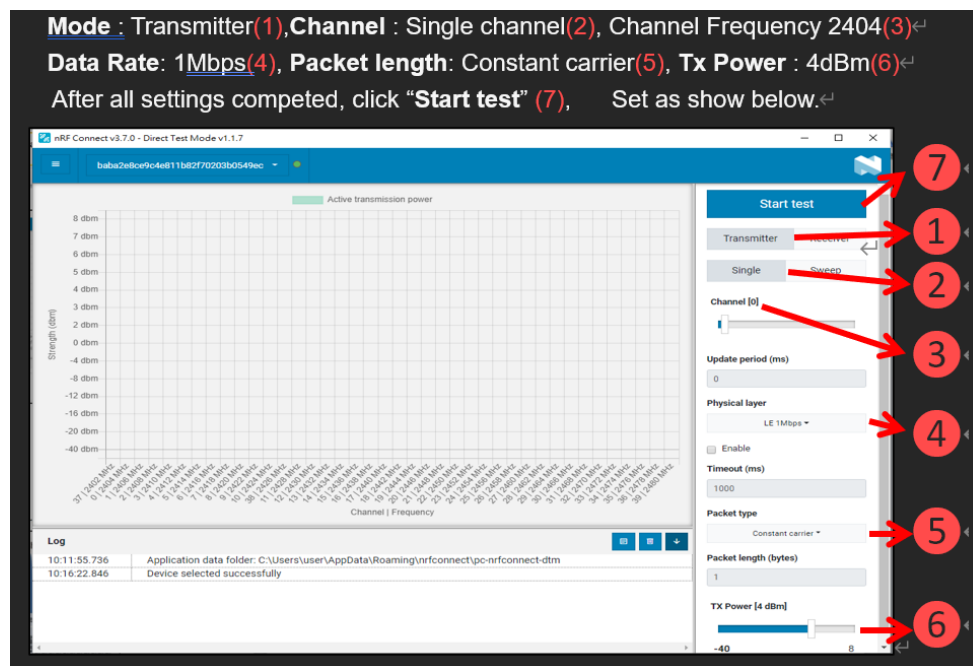
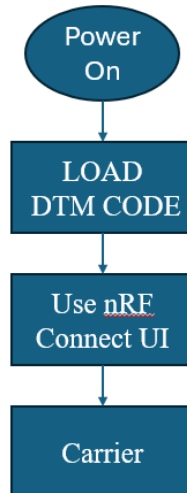
d. LEDs & Buttons pin define of DK

INTERFACE PIN	PIN Define	nRF52832
BUTTON1	PIN14	P0.04
BUTTON2	PIN15	P0.05
LED1	PIN16	P0.06
LED2	PIN17	P0.07
LED3	PIN18	P0.08

4. EVB PIN Assignment

PIN DEF	nRF52832
PIN1	P0.25
PIN2	P0.26
PIN3	P0.27
PIN4	P0.28
PIN5	P0.29
PIN6	P0.30
PIN7	P0.31
PIN8	DEC4
PIN9	P0.00
PIN10	P0.01
PIN11	DCC
PIN12	P0.02
PIN13	P0.03
PIN14	P0.04
PIN15	P0.05
PIN16	P0.06
PIN17	P0.07
PIN18	P0.08
PIN19	P0.09
PIN20	P0.10
PIN21	P0.11
PIN22	P0.12
PIN23	P0.13
PIN24	P0.14
PIN25	P0.15
PIN26	P0.16
PIN27	P0.17
PIN28	P0.18
PIN29	P0.19
PIN30	P0.20
PIN31	P0.21
PIN32	P0.22
PIN33	P0.23
PIN34	P0.24

5. Turn Up Procedure



If want to know a lot about DTM event and commands, can click on the link to learn more.

https://docs.nordicsemi.com/bundle/sdk_nrf5_v17.1.0/page/ble_sdk_app_dtm_serial.html

NCC 警語：

取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用均不得擅自變更頻率、加大功率或變更原設計之特性及功能。低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前述合法通信，指依電信管理法規定作業之無線電通信。低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

本模組於取得認證後將依規定於模組本體標示審驗合格標籤，並要求最終產品平台廠商 (OEM Integrator) 於最終產品平台 (End Product) 上標示“本產品內含射頻模組，其 NCC 型式認證號碼為：XXXXXXXX”

FCC WARNING:**Part 15B device (Section 15.105)****FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the 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 and, if not installed and used in accordance with the instructions, 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 turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

Part 15 Certification device: (Section 15.19)(a)(3))

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Part 15 Certification device (Section 15.21)**CAUTION:**

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

Information for OEMs and host integrators

The OEM or integrator is obligated to adhere to these requirements and restrictions as a condition for using the module's certification.

The OEM or integrator is responsible to perform the required additional host regulatory testing and/or obtaining the required host approvals for compliance.

Per KDB 996369 D03 v01r01 OEM Manual section 2.2 to 2.12, this module is intended for OEM integrators under the following conditions:

List of applicable FCC rules

This module has been tested for compliance to FCC Part 15 Subpart C (15.247).

Summarize the specific operational use conditions

The module is tested for standalone mobile RF exposure use condition. Any other usage conditions such as co-location with other transmitter(s) will need a separate reassessment through a class II permissive change application or new certification.

Limited module procedures

Not applicable, this device is a single modular approval and meets FCC 47 CFR 15.212 requirement.

Trace antenna designs

Not applicable. This module has its own antenna, and does not need a host's printed board micro strip trace antenna, etc.

RF exposure considerations

This equipment complies with FCC mobile radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body. A separate SAR/Power Density evaluation is required to confirm compliance with relevant FCC portable RF exposure rules.

Antennas

This module has been approved to operate with the antenna types listed below, with the maximum permissible gain indicated.

No.	Manufacturer	Part No.	Antenna Type	Peak Gain (dBi)	Freq. Range (GHz)	Connector Type
1	Gwell	GW-BT52832 Antenna	PCB	1.85	2.4~2.4835	NA

IMPORTANT: The final host product must have an integral antenna which is not removable by the end-user.

Label and compliance information

Label of the end product:

The final end product must be labeled in a visible area with the following: "Contains FCC ID: 2AEMSGWBT52-A0". The grantee's FCC ID can be used only when all FCC compliance requirements are met

Information on test modes and additional testing requirements

This transmitter is tested in a standalone mobile RF exposure condition and any co-located or simultaneous transmission with other transmitter(s) class II permissive change re-evaluation or new certification.

Additional testing, Part 15 Subpart B disclaimer

This transmitter module is tested as a subsystem and its certification does not cover the FCC Part 15 Subpart B (unintentional radiator) rule requirement applicable to the final host. The final host will still need to be reassessed for compliance to this portion of rule requirements if applicable. As long as all conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

IMPORTANT NOTE: In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

Manual Information To the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

OEM/Host manufacturer responsibilities

OEM/Host manufacturers are ultimately responsible for the compliance of the Host and Module. The final product must be reassessed against all the essential requirements of the FCC rule such as FCC Part 15 Subpart B before it can be placed on the US market. This includes reassessing the transmitter module for compliance with the Radio and EMF essential requirements of the FCC rules. This module must not be incorporated into any other device or system without retesting for compliance as multi-radio and combined equipment.

RF Exposure warning

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provide with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.