USER MANUAL

SIC4340

Development Kit

Rev 1.0 (Dec 2020)

This document describes how to get start with
SIC4340 Development kit board.

Revision History

Revision	Date	Software Version	Description
1.0	December 2020	1.0.2	1st Release

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1. Introduction

SIC4340 is NFC tag type 2 with built-in ADC for physical sensor measurement for 3-channels selectable. These built-in ADC can drive the current from 1μA to 504μA and measure the electrical value (e.g. voltage, resistance, and capacitance). The measured value is provided with 10-bit resolution. SIC4340 Development kit board with SIC4340 Tools application is developed to help the user learn how to use SIC4340 features with many sensors such as light sensor, gas sensor or temperature sensor. In the app, the user can set the bias current for each channel and measure the result from SIC4340 IC. The voltage and resistance result will be displayed on the app after measurement.

Silicon Craft Technology PLC. (SIC) creates this document to describe how to get start with SIC4340 development kit board and how to install and use SIC4340 Tools application on both Android and IOS platform.

2. Instruments

To get start with SIC4340 development kit board, there are some instruments required as below.

1. NFC mobile which can be a. or b.
    a. Android mobile with Android operation version 4.1 (Jelly Bean) or above.
    b. iPhone with IOS13 or above.
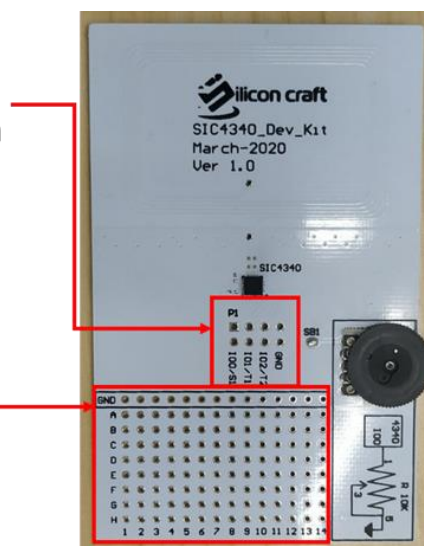2. SIC4340 Development kit board as Figure 1

Figure 1: Detail of SIC4340 development kit board

3. Installation

There are SIC4340 Tools application available on both Android and IOS Platform.

3.1 Installation on Android

For SIC4340 Tools application on Android. It can be downloaded and installed from Google Store link: https://play.google.com/store/apps/details?id=com.sic.sic4340rmeas or search for 'SIC4340 Tools' in Google Play Store.
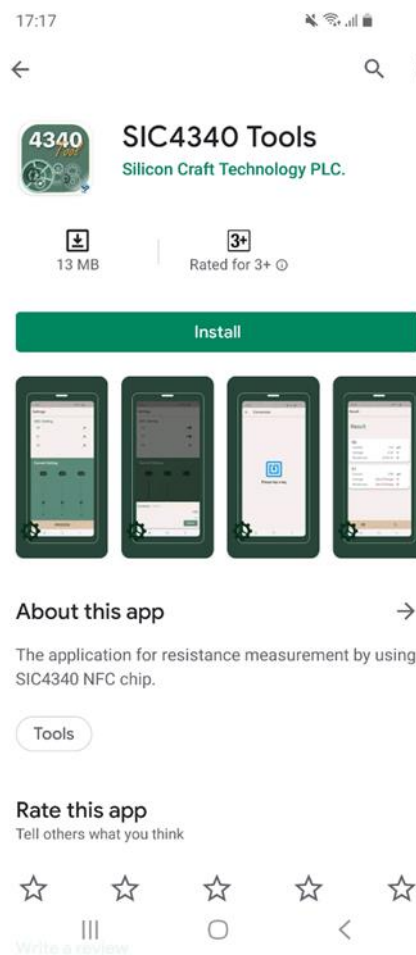

Figure 2: SIC4340 Tools app on Google Play Store

3.2 Installation on IOS

For SIC4340 Tools application on IOS, It can be downloaded and installed from App Store link: https://apps.apple.com/us/app/sic4340-tools/id1518973827 or search for 'SIC4340 Tools' in IOS App Store.
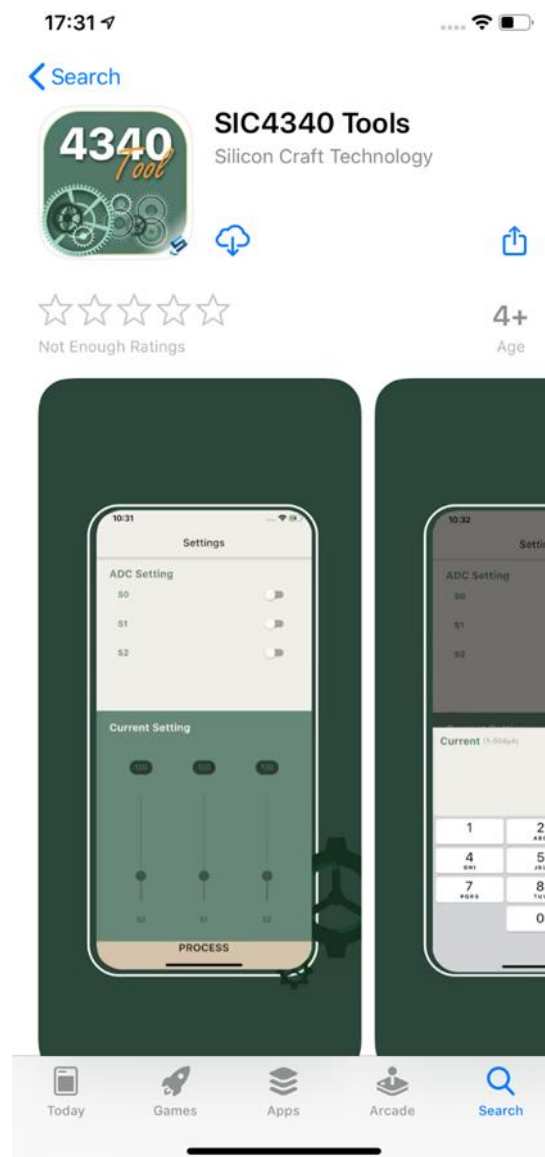

Figure 3: SIC4340 Tools APP on IOS App Store

4. Application Demonstration

This part demonstrates how to use SIC4340 Development kit board with SIC4340 Tools application. The content in this part includes setting, NFC communication, result display, and blank NDEF setting.

4.1 Setting

In the setting page of SIC4340 Tools, user can enable or disable each pin and set the bias current separately for each pin as shown in Figure 4
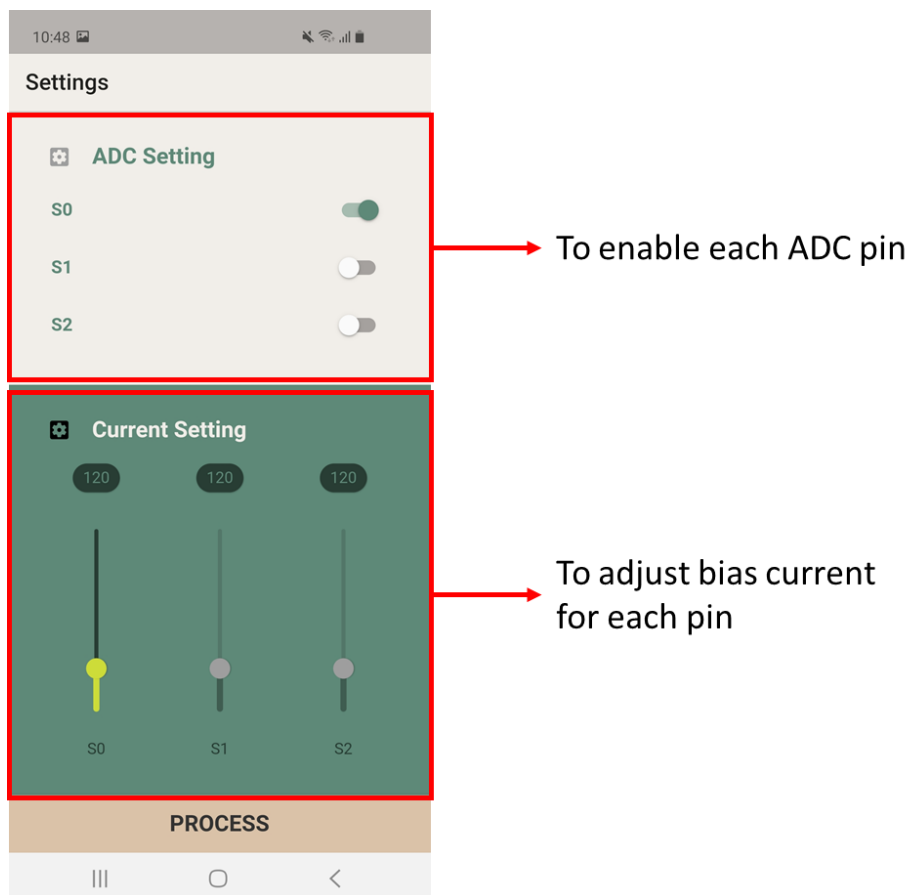

Figure 4: Setting page of SIC4340 Tools

The bias current can be set from slider bar or click the value on the top of slider bar to manually type the value as shown in Figure 5
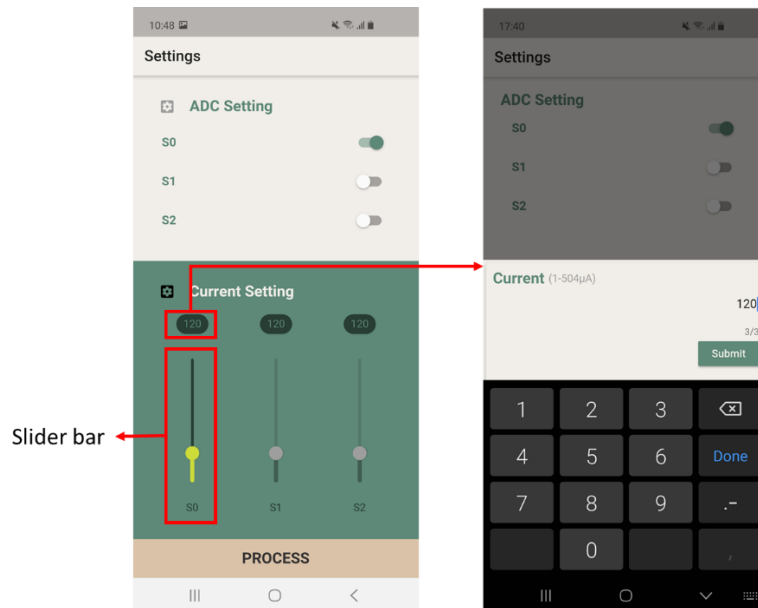

Figure 5: Bias current setting

4.2 NFC Communication

After finished the setting, push 'PROCESS' button to start the NFC session as shown in Figure 6
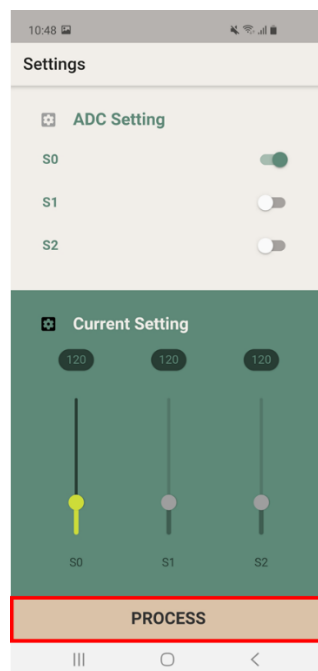

Figure 6: tap on 'PROCESS' to start NFC session

After the NFC session has started, the NFC dialog will show the status as in Figure 7 (a) for Android and Figure 7 (b) for iPhone.

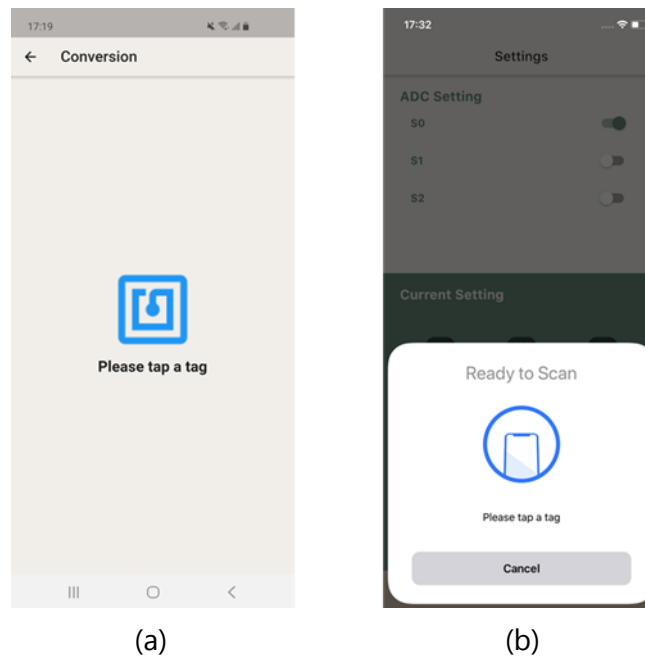(a)   (b)

Figure 7: Tap a tag status

After the status has shown as in Figure 7, user have to tap and hold the mobile on the antenna of SIC4340 development kit board until the status changed to success as in Figure 8 (a) for Android and Figure 8 (b) for iPhone
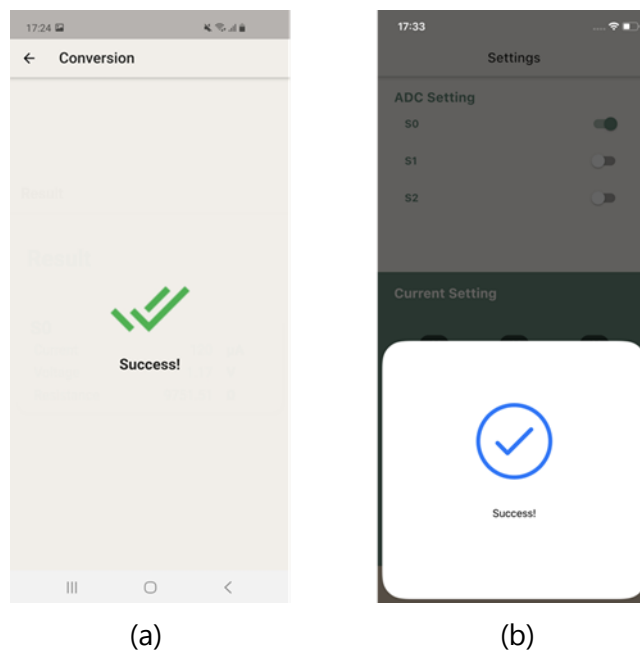

(a)   (b)

Figure 8: Success status

If something went wrong before finished an NFC communication, the error status will be shown as in Figure 9 (a) for Android and Figure 9 (b) for iPhone. If this error status has shown, user can tap mobile on the board again.
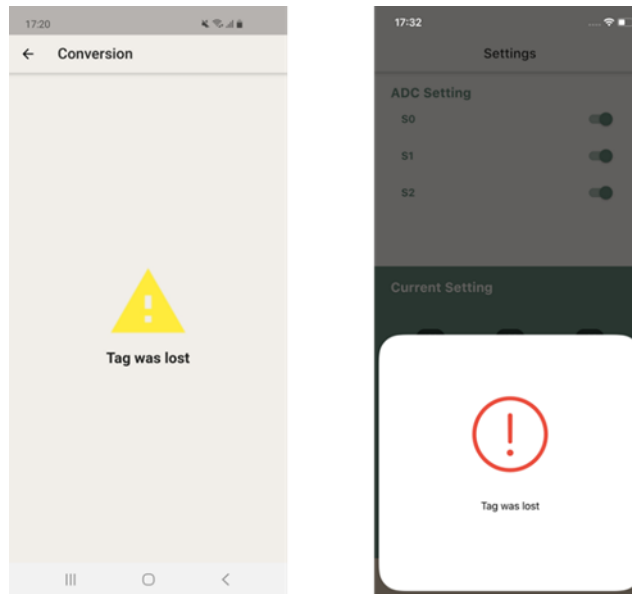

Figure 9: Error status

4.3 Result Display

After finished an NFC communication and status shown 'Success' as Figure 8, the page in application will be automatically change to result page.

In the Result page bias current, voltage and resistance for each enabled pin will be displayed. The bottom bar contains 2 buttons, one for go back to setting page and one for measuring again with the same setting as shown in Figure 10
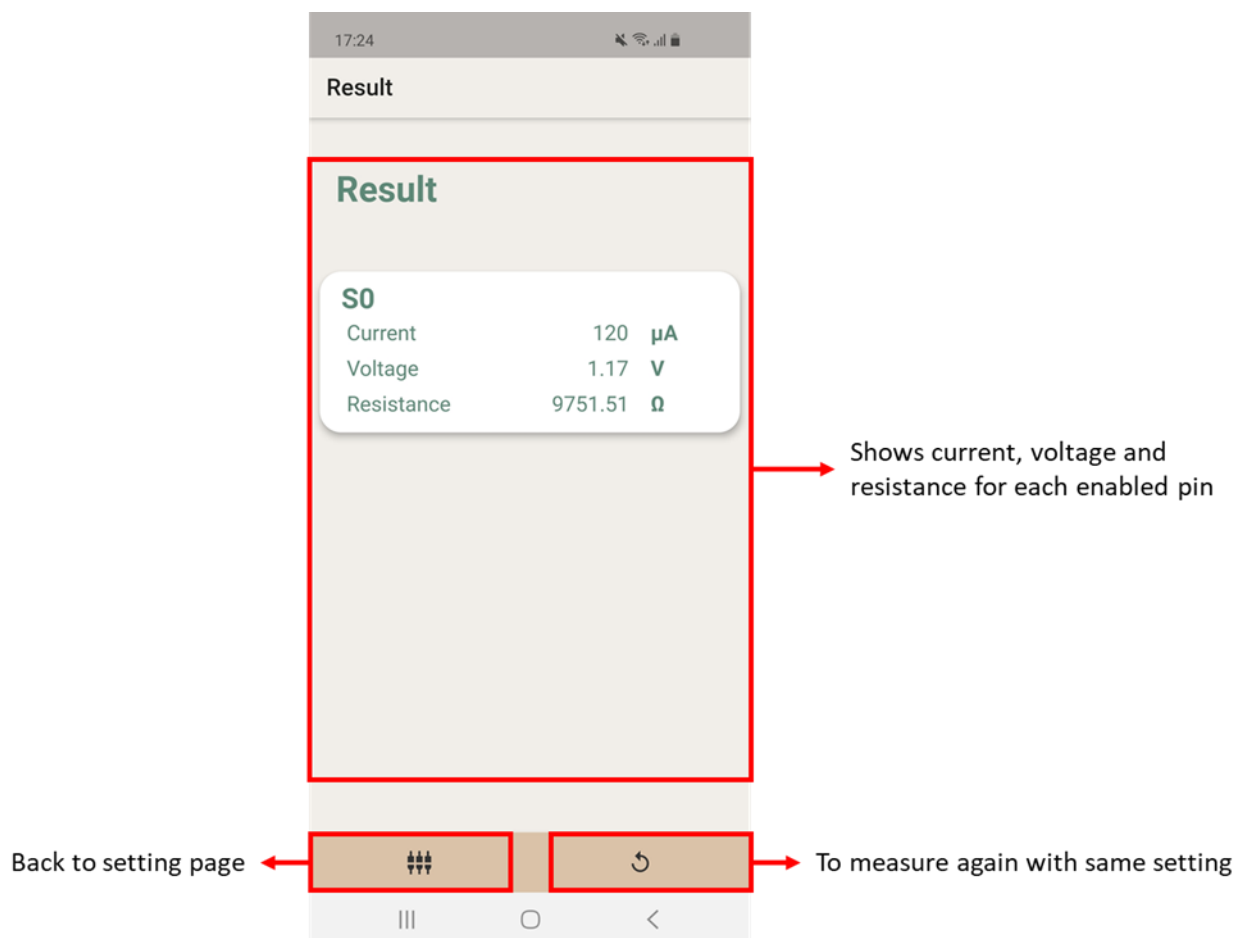

Figure 10: Result page

4.4 Blank NDEF setting

SIC4340 Tools app includes the hidden function to write blank NDEF. This function will format the CC page and write blank NDEF data to SIC4340 memory. The advantage of this function is to initial SIC4340 to support NDEF message or to clear the NDEF message inside its memory.

This function can be accessed by tapping the setting icon in the left of 'ADC Setting' title. After tapping on this setting sign, the warning dialog will be shown to make sure that user actually need to clear the NDEF message inside SIC4340's memory as shown in Figure 11.
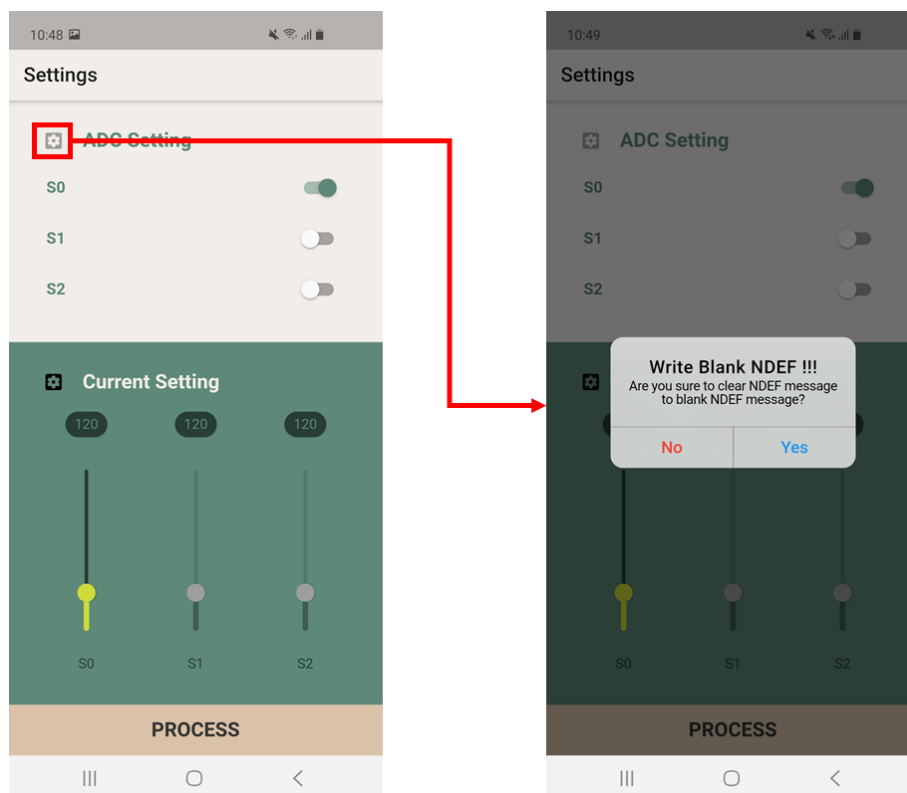

Figure 11: Write Blank NDEF feature

5. Legal Information

5.1 Disclaimer

- The information described herein is subject to change without notice.

- Although the IC contains a static electricity protection circuit, static electricity or voltage that exceeds the limit of the protection circuit should not be applied.

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