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## S-Touch™ tuning window PC GUI over STEVAL-PCC009V1

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### **1 Introduction**

This user manual explains the functions of the S-Touch™ tuning graphical user interface (GUI) over the STM32x-based STEVAL-PCC009V1 universal USB to serial communication interface (UUSCI). For details regarding the UUSCI demonstration board, please refer to UM0726.

The objective of this user manual is to demonstrate how to use this GUI for the hardware tuning of S-Touch device-based touch boards (STMPE1208S and STMPE821).

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## 2 Getting started

### 2.1 System requirements

In order to use the S-Touch tuning window GUI, a recent version of Windows®, such as Windows 2000 or Windows XP must be installed on the PC.

The version of the Windows OS installed on the PC may be determined by clicking on the “System” icon in the control panel.

### 2.2 Package contents

The S-Touch tuning window consists of the following items:

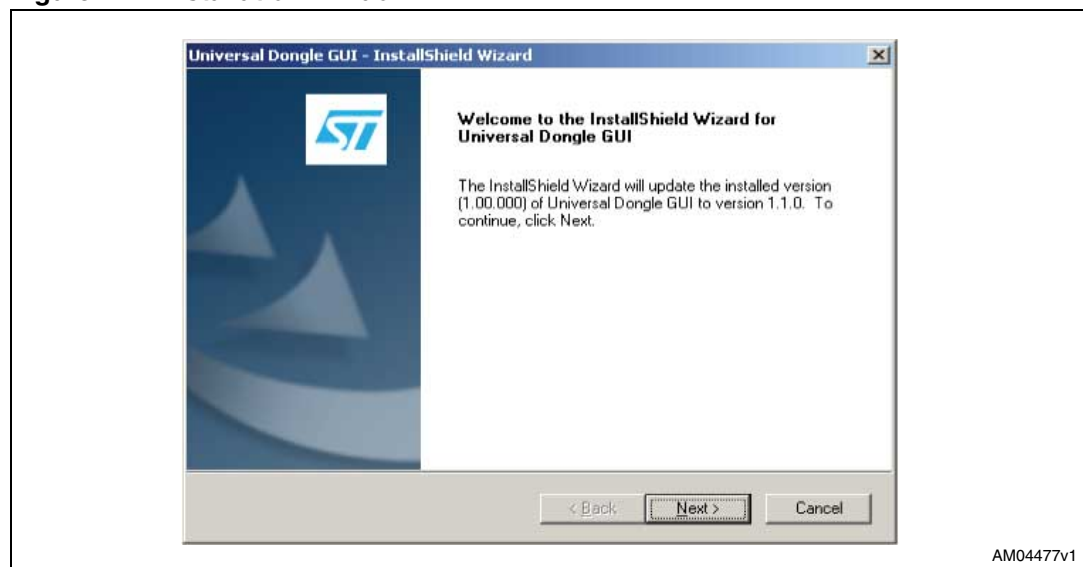
- Software content:
  - S-Touch tuning GUI software to be used along with the demonstration board
- Hardware content:
  - This GUI uses the STEVAL-PCC009V1 demonstration board
- Documentation:
  - User manual
  - Help file

### 2.3 Software installation

To install the PC GUI software, follow the steps below:

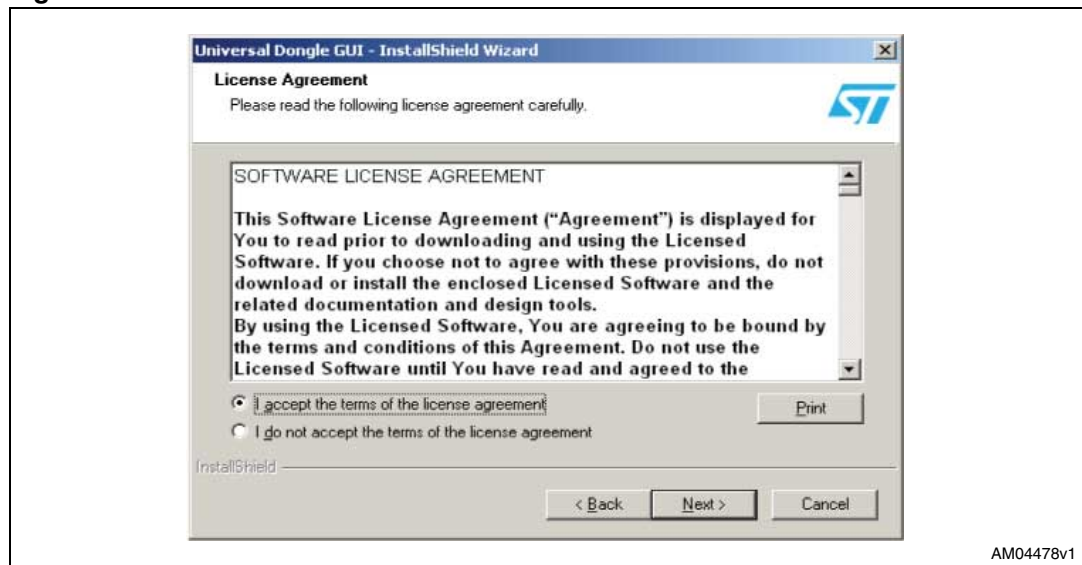
- Step 1: as soon as the setup.exe icon is clicked, the following window appears:

**Figure 1. Installation Window**



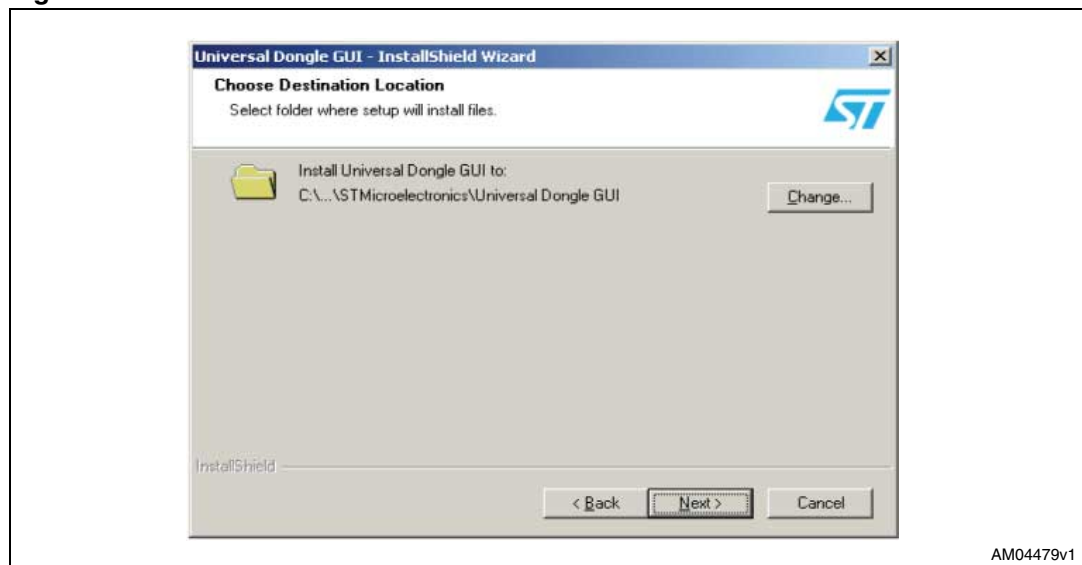
- Step 2: read the license file and click the “Yes” button if accepted.

**Figure 2. License Window**



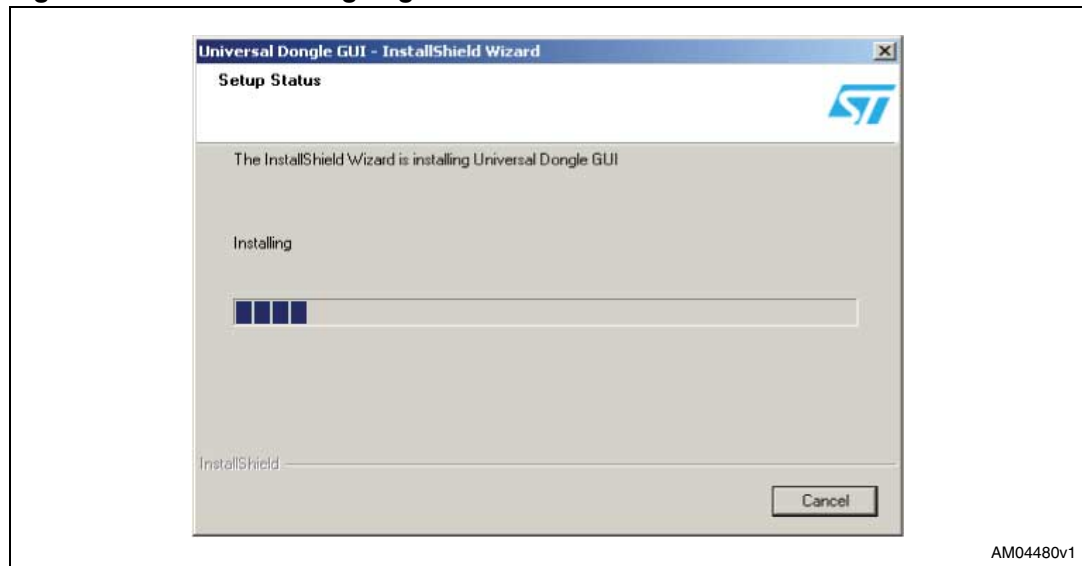
- Step 3: select the folder in which the software is to be installed. By default it installs the software in the following path - C:\...\STMicroelectronics\Universal Dongle GUI.

**Figure 3. Destination folder**

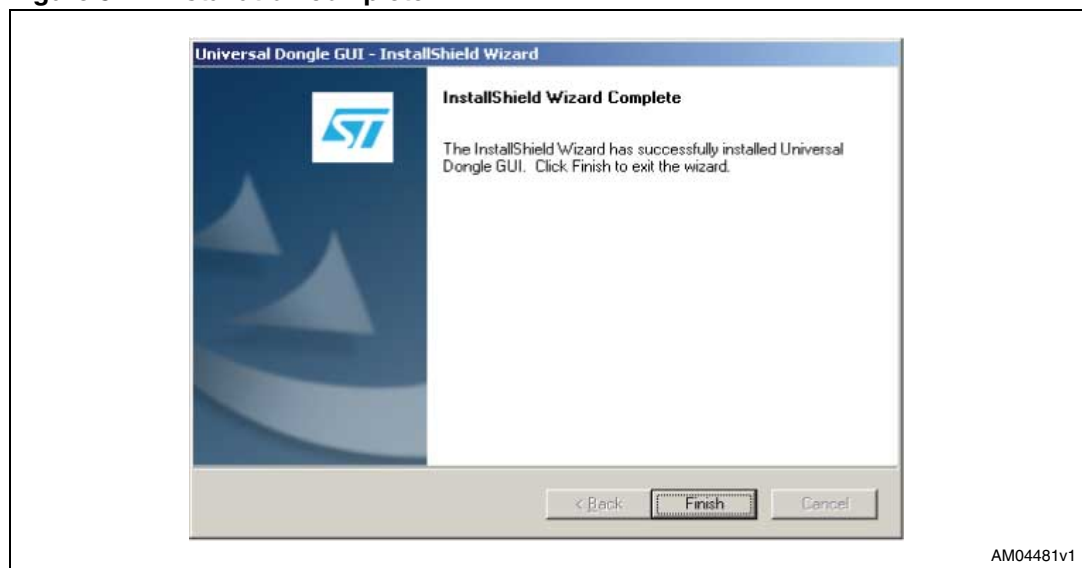


- Step 4: after selecting the folder and clicking the “Next” button, the software starts installing.

**Figure 4. Installation ongoing**



**Figure 5. Installation complete**



After clicking the “Finish” button, the software has been installed in the directory selected or in the default directory. The shortcut for this software is available in the Start menu. This user manual is also available in the same directory.

## 2.4 Hardware installation

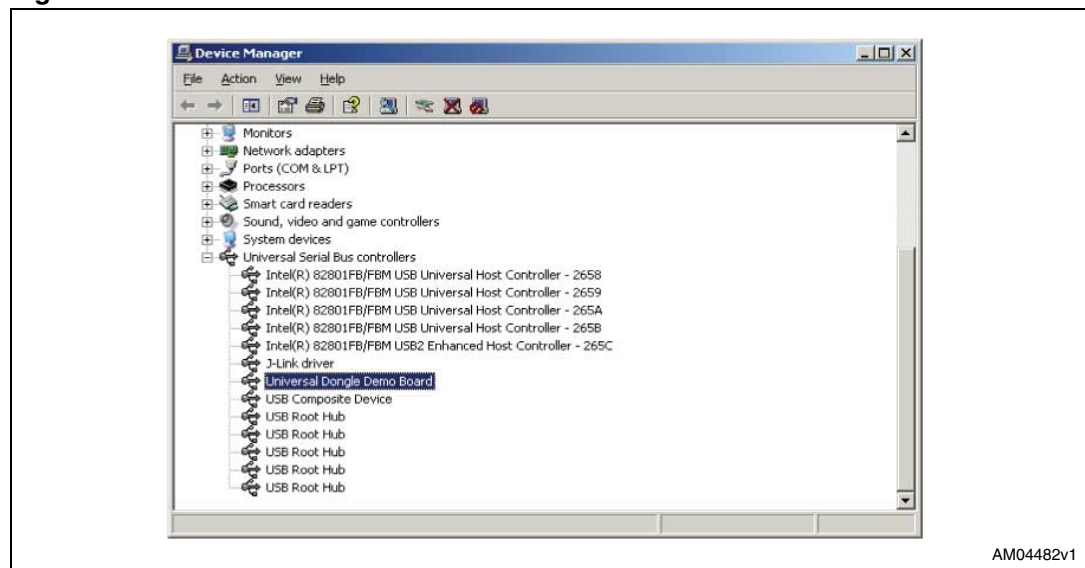
Please refer to the UM0726 user manual for information regarding STEVAL-PCC009V1.

## 2.5 Running the S-Touch tuning GUI

To run the S-Touch tuning window, it's necessary to use the STEVAL-PCC009V1 demonstration board. Please connect the demonstration board to the PC with the USB mini B-type cable.

As a result, the demonstration board should be enumerated as universal serial bus controllers and is shown as “universal dongle demo board” in the device manager window, as shown in [Figure 6](#). If this message does not appear, please contact technical support.

**Figure 6. Enumeration result**



When starting the tuning GUI on the PC, a graphical interface ([Figure 7](#)) for controlling the demonstration board is seen. This PC software is used to issue various commands and to control data transfer.

**Figure 7. Tuning window GUI menu**



You can check whether the board is connected or not by clicking the connection check button. If the board is not connected the following message appears:

**Figure 8. Board is not connected**



If the board is connected the following message appears:

**Figure 9. Board is connected**



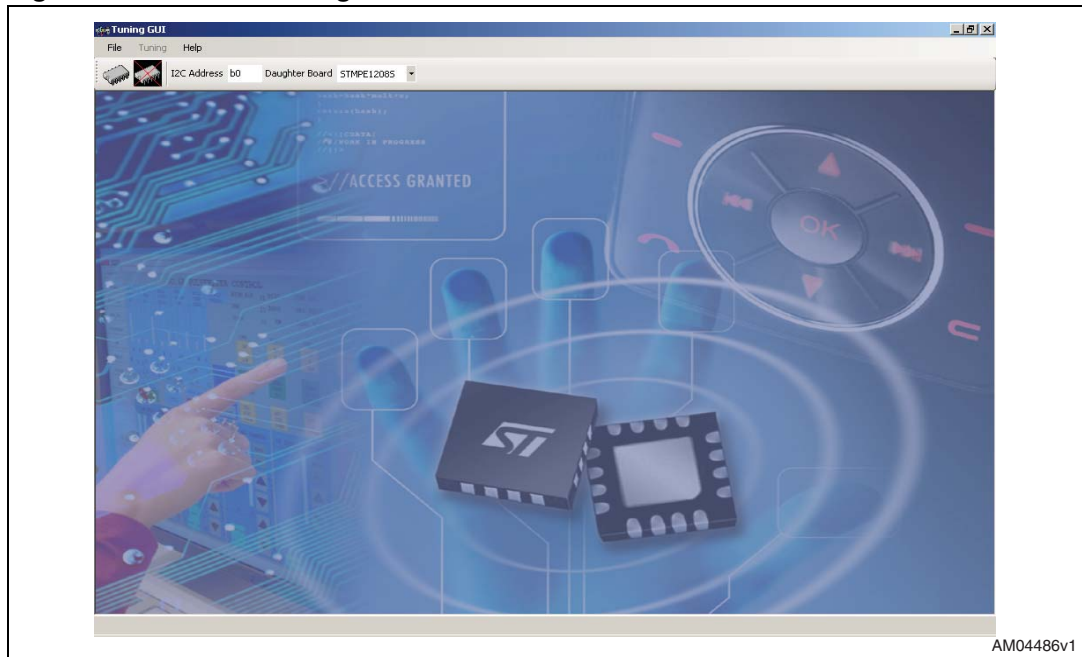
Once this is done, the PC GUI is properly connected to the demonstration board and ready for use.



### 3 Using the S-Touch tuning window

After completing the steps to run the S-Touch tuning GUI (shown in [Section 3](#)), the following GUI opens.

**Figure 10. S-Touch tuning window**



Follow these steps (listed) to fine tune a daughterboard.

- Selection of S-Touch devices
- Connecting the board through the GUI
- Opening of channel window
- Step 0
- Freezing the selection and unit factor
- Step 1
- Step 2
- Step 3

### 3.1 Selection of S-Touch devices

Figure 11. Selection of appropriate S-Touch device



Select the appropriate daughterboard that is to be tuned before connecting the board through the GUI.

### 3.2 Connecting the board through the GUI

The board can be connected through the GUI in either of the following two ways.

Figure 12. Connecting the board through the GUI

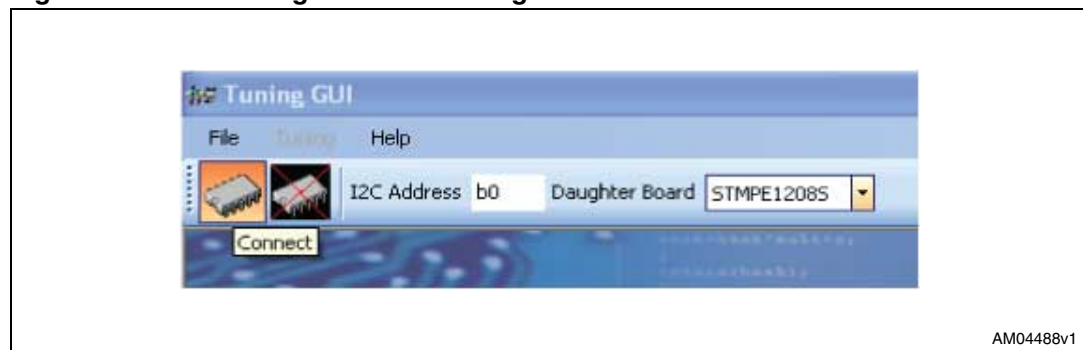


Figure 13. Connecting the board through the GUI



### 3.3 Opening the channel window

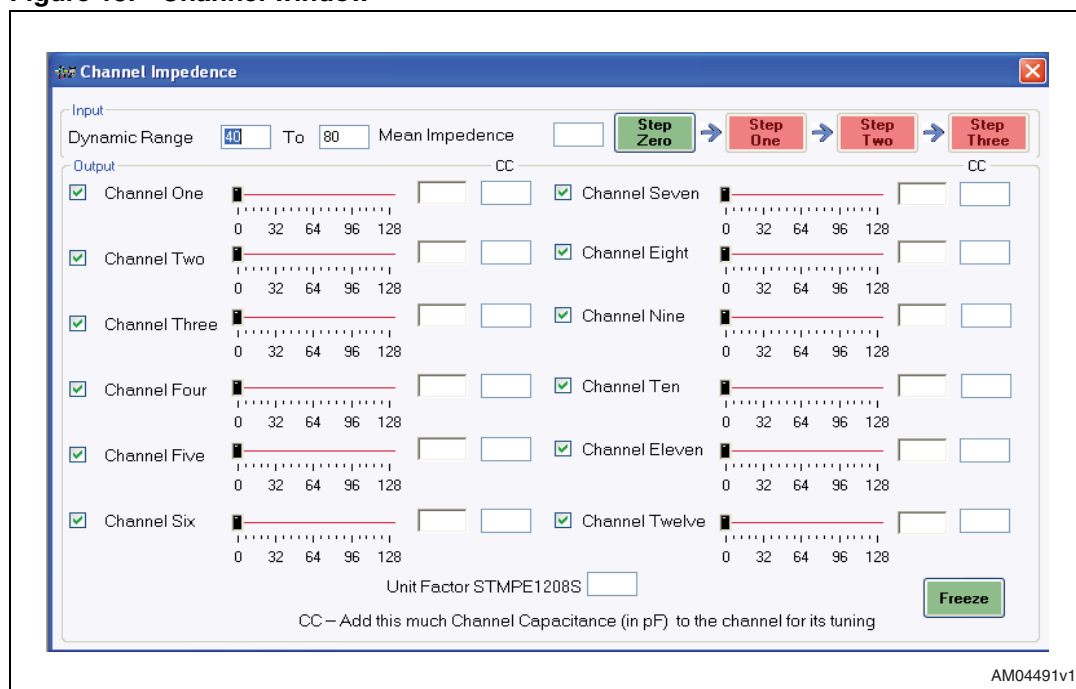
Figure 14. Opening the channel window



AM04490v1

The channel window, which assists in fine tuning the board, can be opened from here. The channel window appears as follows:

Figure 15. Channel window



AM04491v1

### 3.4 Step 0

In this step it's possible to select the channels to be tuned. For instance, if just three channels are to be tuned, uncheck all the other channels except channel one, two and three. Once done, the user can proceed to freeze the selection as well as the entered unit factor for the selected board.

**Figure 16. Making the selection (check/uncheck)**

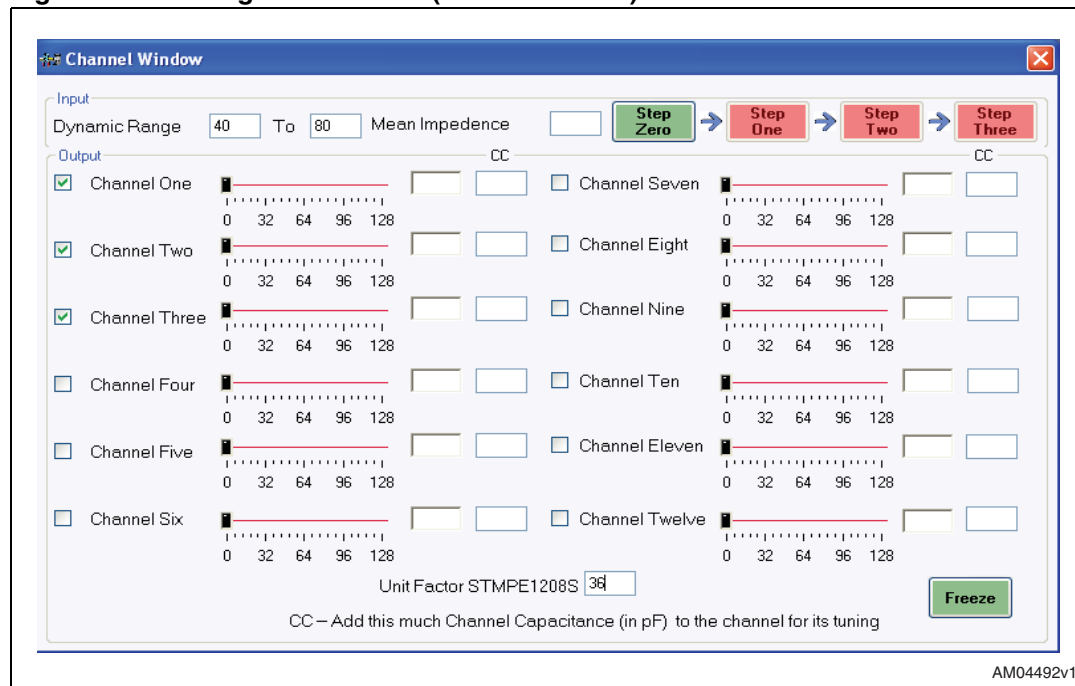
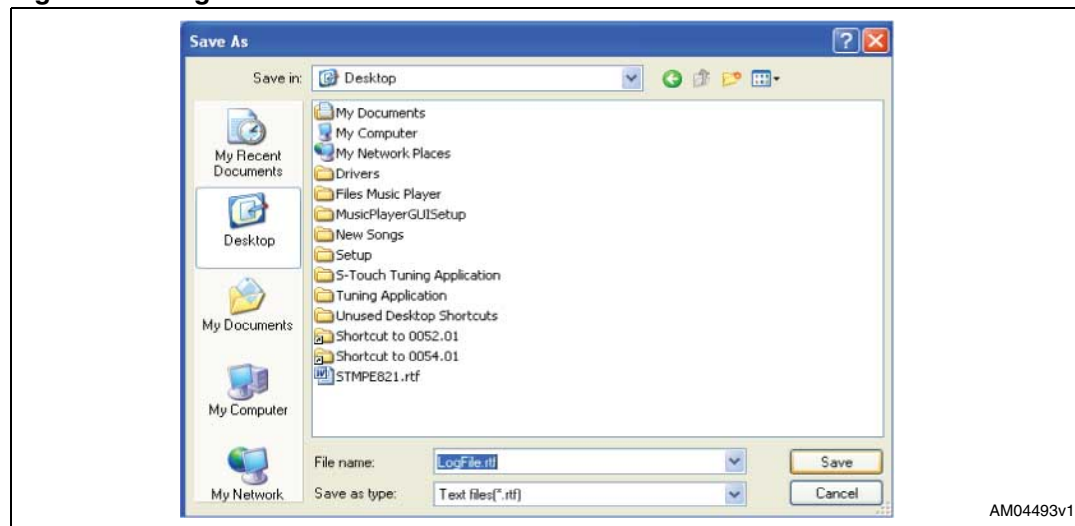


Figure 16 depicts the selection of the channels to be tuned. In this example, the first three channels of STMPE1208S are to be tuned. Therefore, the respective channels are checked and the unit factor is entered for STMPE1208S. The user can then proceed to freeze this selection by clicking on the freeze button.

### 3.5 Freezing the selection

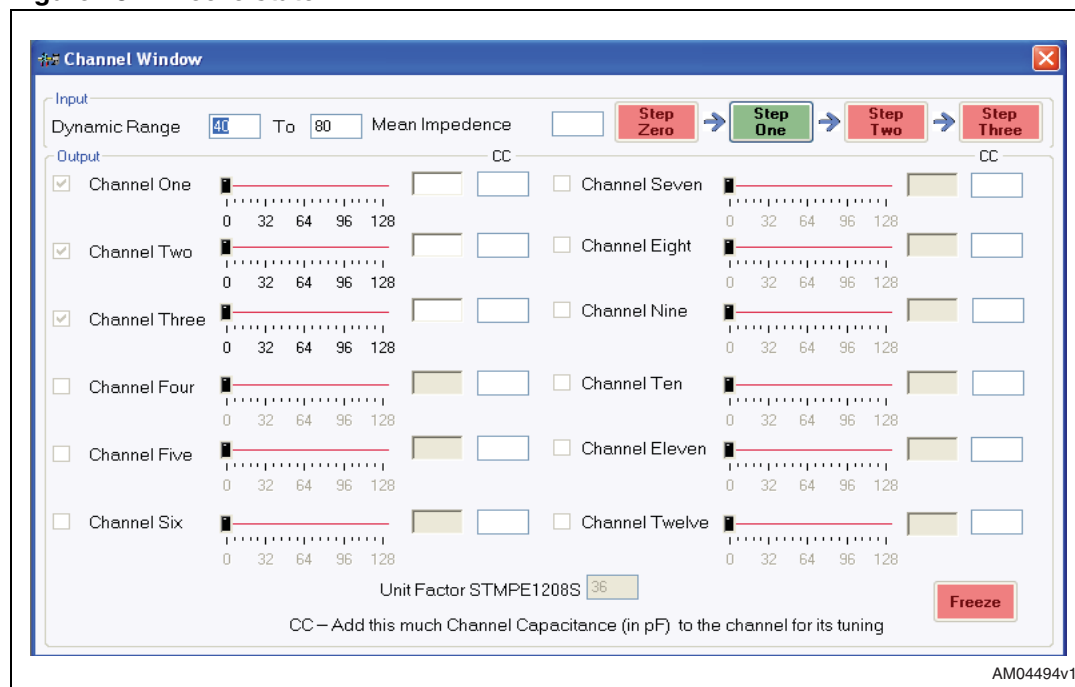
Freeze the selection by clicking on the freeze button. When the button is green it indicates that it is enabled and when red it indicates that it is completed and disabled. On freezing, the GUI asks the user whether to create the log file or not. The user can enter the path where the file is to be created, as shown below:

**Figure 17. Log file creation**



The GUI appears as follows on freezing:

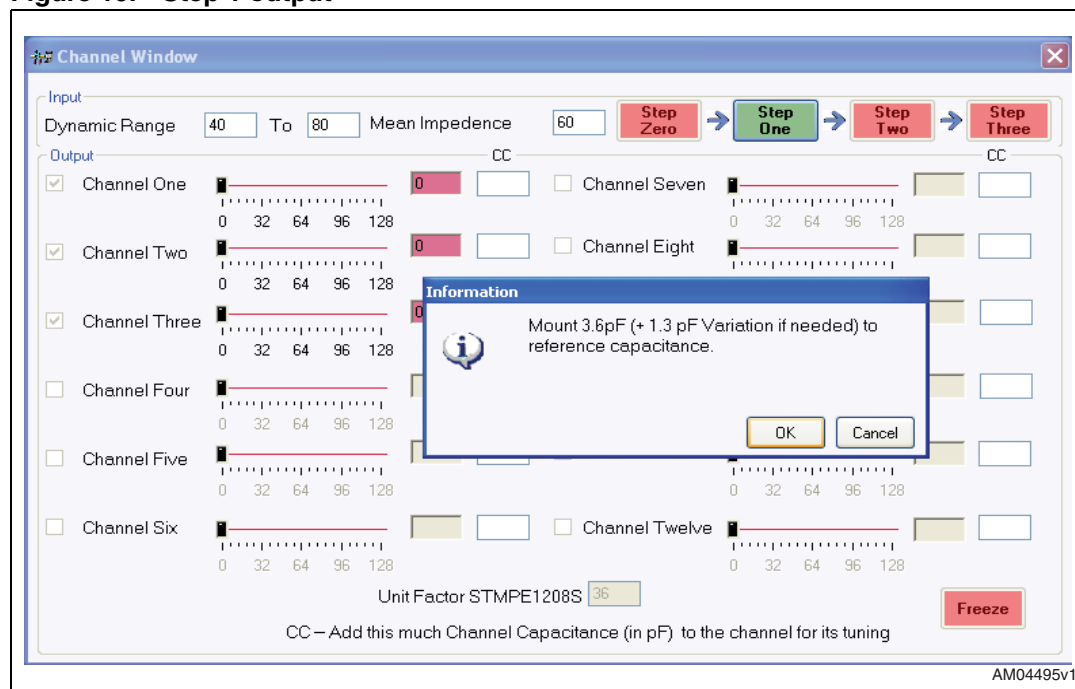
**Figure 18. Freeze state**



### 3.6 Step 1

The purpose of step 1 is to set the impedance values as non-zero. To do this, the GUI guides the user when adding some capacitance on the  $C_{REF}$  of the attached daughterboard. The user can then mount that capacitance value on the  $C_{REF}$  and re-attach the board. The GUI then gives the channel reading after mounting the capacitance. If any channel value is still non-zero, it asks the user to repeat step 1. Once the values are non-zero, step 1 is disabled (indicated in red) and the next step to be executed is enabled (indicated in green).

**Figure 19. Step 1 output**

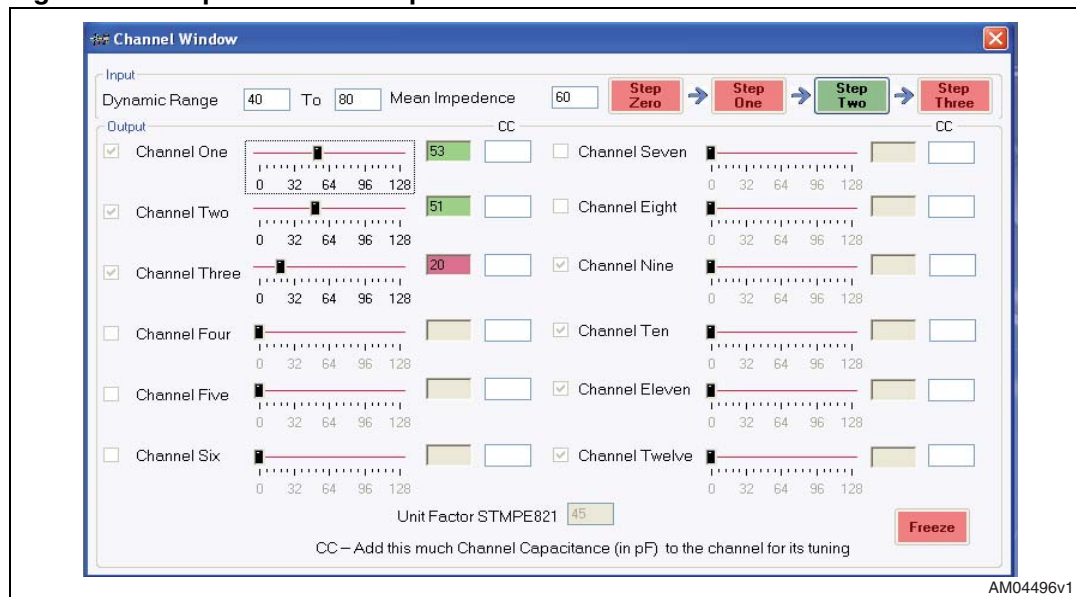


This shows that the minimum capacitance the user should add is 3.6 pF, and if the capacitor of value 3.6 pF is not available, the user can set the capacitance value up to 3.6 + 1.3 pF.

### 3.7 Step 2

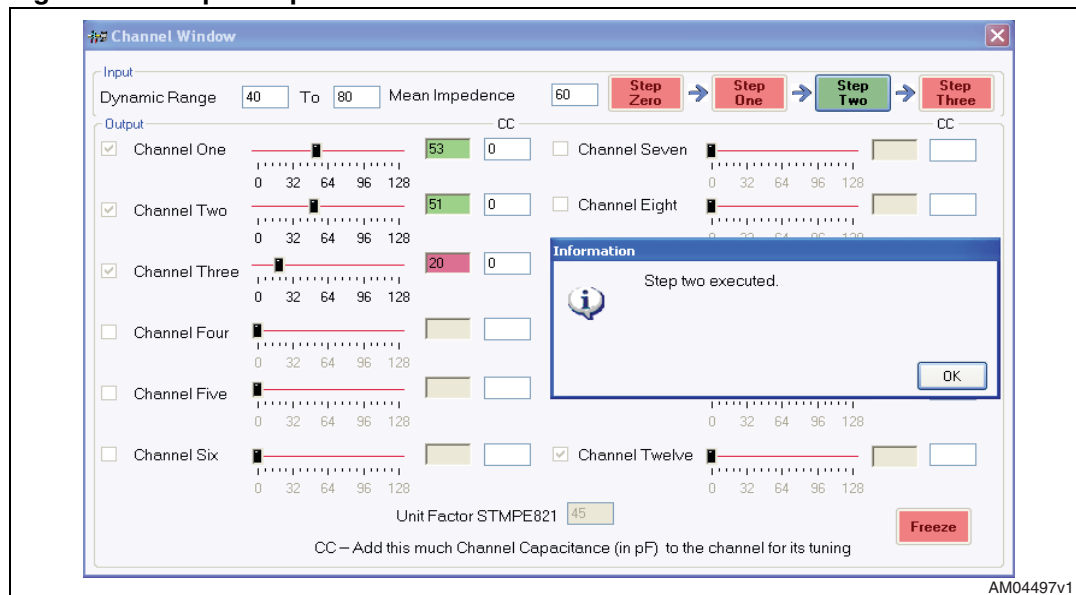
Step 2 guides the user when adding capacitances to the individual channels to bring the channel values to default level. The capacitance to be added to each channel is displayed under the CC column. For instance, the capacitance values for STMPE821 touch channels, after step 1, become non-zero, as shown in [Figure 20](#).

**Figure 20. Step 1 non-zero output**



As shown, the user can now proceed to step two, as step one output has become non-zero. The step 2 button turns green which means it's enabled.

**Figure 21. Step 2 output**

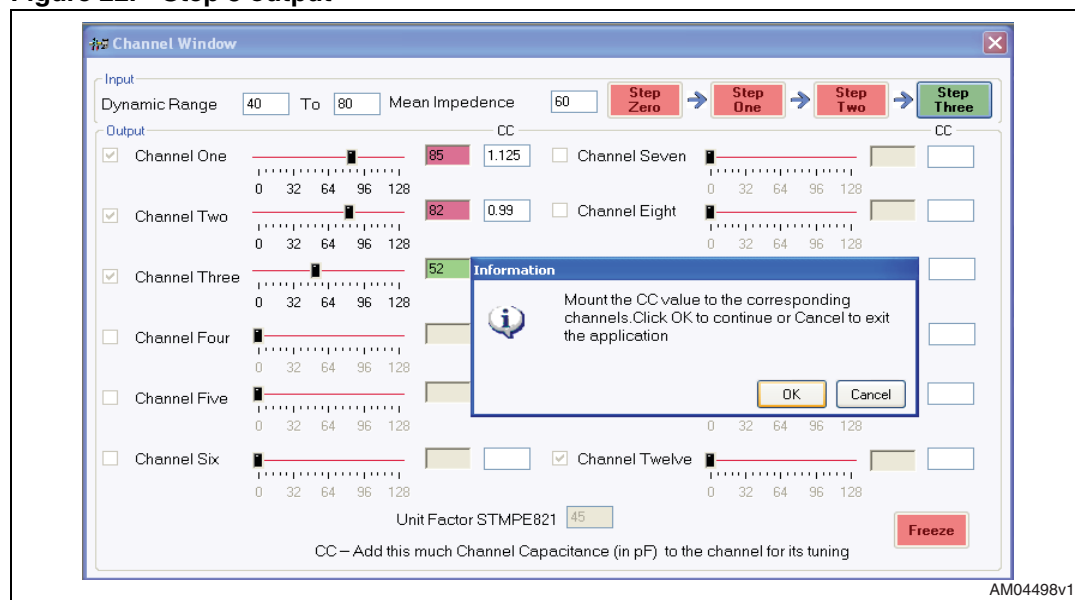


In this case the CC value is zero, therefore it's not necessary to mount any capacitance on the individual channels. Step 3 is now enabled.

### 3.8 Step 3

In step 3, the value for REF\_DELAY is calculated and logged into the log file, created for user reference. It guides the user when mounting capacitance on channels to bring their values in range.

**Figure 22. Step 3 output**



In this step, the GUI continues referring the channel capacitances to be added until the channel values are in range. When all the channel values are in the desired range for tuning, the process is completed and the user can then close the application.

Finally, the user can refer to the log file, created during the tuning process, to know the various tuning parameters for the respective daughterboard.



## 4 Revision history

**Table 1. Document revision history**

Date	Revision	Changes
10-Dec-2010	1	Initial release.

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