Tester for Otoplastics

with USB interface

Additional Manual for Windows 11
OtoTest.USB

2026

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1 INTRODUCTION

1.1 Purpose

This additional manual walks you through the process of operating the USB leakage tester with Windows using our new OtoText.USB *app*. This paper describes how to download the *app* (OtoTest.USB), install it and what features the *app* offers. This new Store App is designed to control your earplug tester as a solid and future proof application to function smoothly and securely with Windows.
You will find a brief explanation on how to download and install the *app* from the Microsoft Store in the next paragraph (1.2). It is assumed that the user is sufficient familiar with the Windows *Operating System*.
Where Windows is mentioned, this applies to Windows 10 and Windows 11.
The *app* runs under Windows (32bit and 64bit) on Desktops, Laptops en Surface Tablets.

1.2 Microsoft Store

1.2.1 download/install

To get this *app* running on your device you have to visit the Microsoft Store. Getting there can be done right here with this URL: https://apps.microsoft.com/, or via a link on our site, URL: App for Windows (USB, .NET).
The *app* is called OtoTest.USB and resides in "Productivity" in the *Store*; depending on your location, the browser chooses the correct language: English, Dutch or German.
By clicking [**Download**], the file 'OtoTest.USB Installer.exe' will be placed in the download directory and by double clicking on it the *app* will be installed on your device.
If you click on [**View in Store**] (in the *Store*), then the Microsoft Store *app* will be launched on your system and you can install the *app* automatically.
With both methods, once completed, OtoTest.USB will reside in the *app* list (and might start right away).

1.2.2 connect

When the leakage tester is connected to a Windows computer via USB for the first time, it will silently include the leakage tester in the device list, without any notification from the OS. If during connection of the tester, or after starting the OtoTest.USB *app*, messages appear regarding the USB connection, you can consult a document on our website with more information and possible solutions:

- Windows 10: USBsolutionsW10_EE.pdf
- Windows 11: USBattachmentW11_EE.pdf

The documents can be downloaded via the URL: https://www.cursorengineering.nl/en/documentation-usb/, they can then be found under the heading: **'Connecting a USB tester to a Windows platform**'.

2 MEASUREMENT

2.1 Start Off

Attach the tester and wait for de LED on the tester to turn orange, and then start the *app*, in this order.
The *app* will try to establish a connection with this USB device straight away, when the connection is established the LED on the tester will light up green and the measuring and control screen will now be visible.
Note that the *Save Graph* button is net active yet. Click on the logo for more information.
The next chapter will cover all screen elements.

Picture 2.1.1: the measuring and control screen

2.2 Screen Legend

2.2.1 control

Three buttons are visible at the top of the screen:

- **Exit**: if no measurement session is running, the program will be terminated and the leakage tester will be put in low power *standby* mode
- **Save Graph**: the graph can be stored in a *fixed* or *freely selectable* location, and will be saved to: *filename*[.png], the extension .png is automatically added, maximum *filename* length: 48 characters
- **Start Test**: a new session will start, the button name changes to **Wait** and for the **Exit** button to **Stop Test**: the running session will be terminated

2.2.2 graph

The graph shows a unit on each axis:

- **mB**: the y-axis shows the relative pressure in millibar [mB] with respect to the ambient air pressure, the measurement will be made at a pressure of 5mB (0.0725psi); the orange line indicates the (4mB) lowest limit that still meets the specification; SI-unit for pressure: Pascal [Pa] (5mB ≙ 500Pa)
- **sec.**: the x-axis shows the total measurement time in seconds; the measurement time can only start when the initial pressure (5mB) has been reached

2.2.3 information panel

Details are displayed at the right of the graph and provide information about the progress of a session:

- **test** **:** [number] : the number of sessions done since the *app* started
  [*LED colour*] : *example*
  [d. green] : session running
  [l. green] : session completed, result within specs
  [orange] : session completed, not within specs or session terminated
  [red] : session started, but unexpectedly halted or ended erroneously
- **sample** : the number of measurement moments (= samples) during the session
- **pressure** : the instantaneous measured pressure, or the last measured pressure (**mB**)
- **up time** : the time (hh:mm:ss) passed since *app* has an active connection to a USB tester
- **time out** **:** the remaining time (hh:mm:ss) until the *app* automatically closes
- **USBxxxx** : the name of the attached USB leakage tester

2.2.4 status

The status of the leakage tester is shown immediately above the graph on the status line. The leakage tester comes with a number of *states*; the most important of these are discussed in chapter **3**.
If only the user's attention is required, the background will turn orange, however, in the event of an error message, the background will turn red.
If, at the end of the status message, the addition (resumed) is visible, this indicates that the *app* has been reactivated, e.g. after the screen has been in *sleep* mode or after the *app* has been minimized [_].

2.2.5 session

Een standaardsessie doorloopt een aantal verschillende stadia:

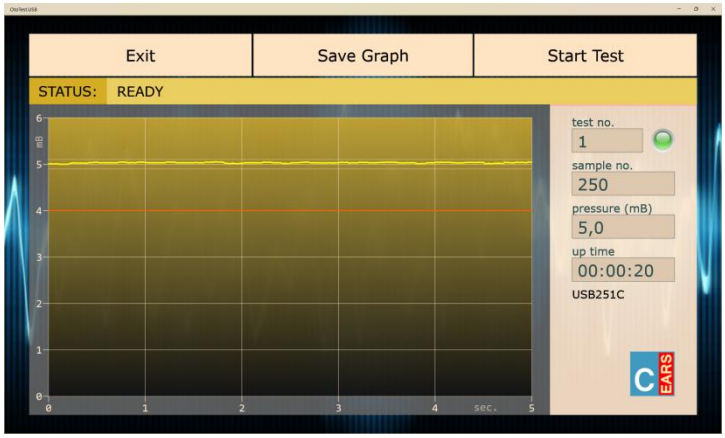
- **TEST STARTED** : just a short notice
- **AIR IN** : the air pump will try to pressurise the system to just above 5mB
- **STABILIZING PRESSURE** : the pump stops, the air valve stabilizes the pressure and closes the system.
- **MEASURING PRESSURE** : the actual measurement session is running, the graph is drawn
- **TEST FINISHED** : all samples have been taken, the valve opens, and the air can flow out
- **READY** : the pressure is virtually 0mB and the system is ready for the next session

2.2.6 company logo (function)

Clicking on the *Cursor* logo will display a pop-up window with information about tester an *app* for five seconds.

2.3 Standard measurement

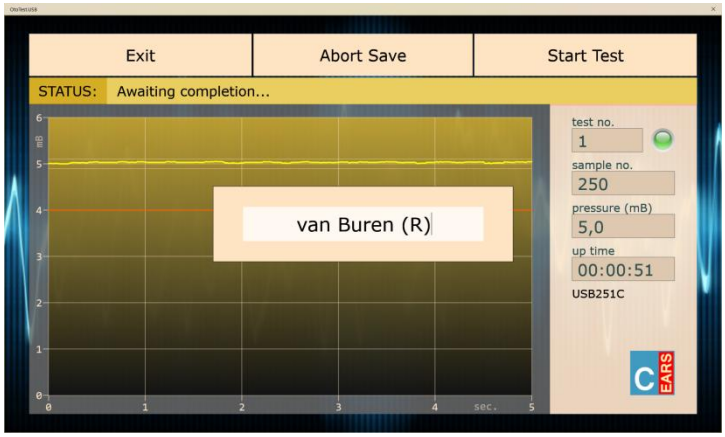
To start a test, tap the **Start Test** button, the air pump in the tester will bring the pressure in the tester within moments to 5mB. The actual leakage measurement will take five seconds. During the session, ideally the pressure must remain at 5mB; an (arbitrary) margin of 4mB is adhered to indicate that a lower value is to be interpreted as insufficient fitting of the earpiece. The final assessment is, of course, with the audiologist.
The picture below shows a possible result of a measurement.



Picture 2.3.1: an ideal measurement result

2.4 Archiving

After each test, the user has the opportunity to save the resulting graph to a file for later handling.
Tapping the **Save Graph** button will pop-up a window that allows you to enter a filename as shown below.



Picture 2.4.1: saving a graph

The graph will be saved in the so-called 'Portable Network Graphics' file format; therefore, the *extension* name reads **.png**. One should not add this extension, it will be added automatically. Touching the screen outside the pop-up window halts the filing procedure, but it can be put on again until the next session is started. The graph itself will be provided with the filename and a date/time stamp at the bottom. The graphical result of an ear measurement can only be saved once. There are two storage procedures available.

2.4.1 Storage in a *fixed* location

Click in the *pop-up* window on the so-called *placeholder* (filename[.png]) and enter the name; a maximum of 48 characters can be used, conclude with [**ENTER**].
The graph as seen in the *app* will be captured and saved (.png format) in your *Documents* hub: **C:\Users\YourName\Documents\OtoTest.USB map*name.png.*** From this directory one can prepare the graphs for further processing e.g. e-mailing, transferring or embedding in forms etc. The quality and size of the final file dependent to some extent on the chosen screen size of the *app*; the minimum size is approx. 14kB.

2.4.2 Storage in a *freely selectable* location

Click in the *pop-up* window on the so-called *placeholder* (filename[.png]) and enter the name; a maximum of 48 characters can be used, conclude with [**/**], the *slash*. Windows will open a dialog where you can determine the location yourself and, although not recommended, change the name. This method also creates e.g. the possibility to save the graphs at 'OneDrive', so others can start using the results immediately.
The filename that will be included in the graph is the name as originally entered in the *Save Graph* pop-up window, if the filename has been changed in the dialog box then this change cannot be fed back to the chart. Do **not** change the extension '.png'.

3 STATUS MESSAGES

3.1 Device Connection

After selecting a device (automatically or from the list), the *app* tries to establish a USB connection with the USB leakage tester. Problems that occur during this phase are shown on the status line.

An overview of the most important error messages:

- **Searching for a USB Leakage Tester...**: the app searches for a connected earpiece tester
- **Attach your Leakage Tester please**: You have approx. 30 seconds to connect a USB leakage tester
- **Attach a tester, then restart this app**: no USB leakage tester has been found on this platform*
- **Attempt to connect to USBxxxx**: the *app* tries to establish a connection with tester 'USBxxxx'
- **DATA PROCESSING ERROR IN 'USBxxxx'**: failed to read/write data from/to the device*
- **CHECKSUM ERROR IN 'USBxxxx' (RETRY)**: the operating settings in the tester have not been received or processed correctly; a maximum of four attempts will be performed
- **PERSISTENT CHECKSUM ERROR IN 'USBxxxx'**: data not properly processed in the leakage tester*
- **Your 'USBxxxx' is ready to go!**: the leakage tester is ready for the first session

* leads to **Exit (only)**: terminate *app* and/or dis- and reconnect leakage tester

3.2 Measurement

Normal messages while a session is running:

- **TEST STARTED**: just a short notice
- **AIR IN**: the air pump will try to pressurise the system to just above 5mB
- **STABILIZING PRESSURE**: the pump halts, the target pressure has been reached and the system will check for a short time whether the pressure is stable enough; after this phase, when the leakage is relatively high, the pressure curve might enter the graph below 5mB
- **MEASURING PRESSURE**: the actual measurement session is running, the graph is drawn
- **TEST FINISHED**: the last sample has been delivered, the sessions has been completed and the system will be depressurized, while the system is depressurizing one can already start filing the graph
- **READY**: the test has been completed, the leakage tester is ready to take a new measurement

Possible messages on errors or warnings during or after a session:

- **TEST TERMINATED**: tapping **Stop Test** causes this message
- **TARGET PRESSURE (5mB) NOT REACHED**: the system looses so much air that the pressure cannot be increased sufficiently: the otoplastic may have a very poor fit or placed incorrectly; before drawing any conclusions, the system should always be checked for leaks without an otoplastic, also check whether the air pump operates properly
- **PRESSURE DISCHARGE TOO SLOW**: after a session, pressure should leave the system within a few moments; when air cannot leave - or only with difficulty - the system, this indicates internal contamination or valve malfunction, if this message remains service is required
- **READY (BELOW REJECTION LEVEL)**: the session has been completed, but at some point during that session a pressure of 4mB or less was measured
- **Data flow from USBxxxx discontinued**: the program halts for an unknown reason*
- **CONNECTION WITH 'USBxxxx' Unexpectedly LOST!**: the USB connection went down, most likely due to an unstable connection*
- **DEVICE 'USBxxxx' DETACHED**: tester no longer connected via USB: neither data nor power*

* leads to: **Exit (only)**: terminate *app*, restart it and reattach tester

3.3 Archiving

Common messages during archiving:

- **This filename 'name' already exists**: the filename *name* already exists, (re-)enter a different name; remember that names like com1, com2, etc., lpt1, lpt2, etc., con, prn etc. are not allowed
- **Character (x) not allowed in a filename**: in Windows 10, a filename may not contain character in the range **x** = ["\", "/", "*", "?", ":", "<", ">", "\\", "|"], these tokens are automatically deleted as you type
- **Graph 'name' has been saved**: the file '*name*.png' has been saved with time/date stamp