

Introduction to QIK Test & EEG Expert

Introduction and Manual

Language: English
December 2024
Version 2.4

1 Introduction to EEG Expert QIK Test

Neurofeedback Performance Tracking and Report Generating test unit allows unmatched CPT and session-by-session monitoring.

On-line analysis and reports prepared by EEG Expert.

Features:

- □ Battery-powered ultra-flexible stand-alone unit for administering performance tests with unprecedented accuracy.
- □ Input: two high endurance precision buttons, ergonomically positioned for simultaneous right and left hand input.
- □ Visual stimulus: high-brightness 3x3 LED array.
- □ Auditory stimulus: three-channel sound generator driven internal speaker. Also supports headphones (not included).
- □ Time measurement resolution 0.1msec.
- Memory holds up to 1791 stimulus responses.
- □ Professional Neurofeedback-specific analysis done at EEG Expert (www.eegexpert.com).*
- □ Rechargeable batteries, one charge good for more than 50 tests.
- □ Synchronization signal output for advanced applications and synchronization with brainwave monitoring devices.
- Developed and manufactured in Switzerland.

^{*} CPT tests with EEG Expert reports purchased individually.

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3 Purpose

The QIK Test CPT is intended for performing Continuous Performance Tests (CPT) and mind-refreshers (session starters).

This device is not intended for diagnostic purposes.

Notice

US Federal Law restricts this device to sale by, or on order of, a physician or any other practitioner licensed by the law of the state in which he or she practices to use or order the use of this device.

4 Safety Instructions

4.1 Guidelines for Use

Please take the time to read this manual carefully before using the QIK Test CPT for the first time in order to familiarize yourself with its operation. This manual is part of the product and must be available anytime. Use the device only for the intended purpose

The QIK Test CPT may only be used under the supervision of a professional who can ensure sound handling practices.

The following table explains the warning symbols used in this manual:

WARNING	Denotes a probably dangerous situation that may lead to severe injury or death
CAUTION	Denotes a probably dangerous situation that may lead to injury
CAUTION	Denotes a situation that could lead to damage of the product
NOTICE	Warning symbol for situations that do not lead to death, injury or damage of property

Meaning of the symbols on the back label of the QIKtest CPT:

|--|

4.2 Indications for Use

The intended use of the QIK Test CPT is a device to perform

- continuous performance tests (CPT) as well as
- mind-refreshers (session starter).

The QIK Test CPT is intended to be used only under supervision by trained professionals who can ensure sound handling practices.

The QIK Test CPT is not to be used

- for critical patient monitoring or
- for diagnostic purposes.

4.3 Basic Regulations

Make sure that you follow the national and local regulations with regard to the use of small electronic devices and testing systems.

4.4 Personnel and Qualification

The QIK Test CPT may only be used under the supervision of a professional who can ensure sound handling practices.

The client must be supervised at all times during the CPT session and must never be unattended.

4.5 Personal Safety Information

ADVERSE EFFECTS

No adverse effects are known for the device itself. However, the stimuli such as the flashing lights may cause unwanted effects, such as drowsiness, sleep disorders or seizures. The therapist is responsible

- to decide if the use of the device should be avoided or
- to detect any adverse effects early
- to apply appropriate measures.

Therefore, QIK Test CPT may be used only under supervision by a trained professional who is able to detect possible adverse effects and apply appropriate countermeasures.

The manufacturer of the QIK Test CPT does not assume liability for any adverse effects whatsoever caused by the application of the QIK Test CPT.

CONTRAINDICATIONS

There are no known contraindications for the QIK Test CPT.

4.6 Device-related Safety Information



WARNING

Wrong test results possible if batteries empty

Although the unit will operate for some time if the low battery signal is present, accuracy of the measurement is not guaranteed beyond that point. Test data may be incorrect.

- Check for the battery status every time you turn the unit on
- as soon as the LoBatt indicator is blinking, recharge the batteries.

CAUTION

Corrosion damage by dead batteries

• Recharge dead batteries promptly

CAUTION

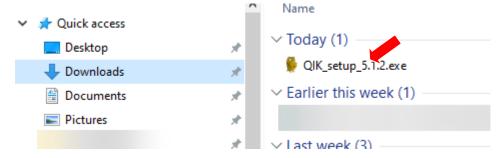
Corrosion damage when not in use for an extended period of time

• Recharge batteries at least once a year

Dispose device according to local regulations.

4.7 Connecting your QIK hardware

Install the QIK software. You can find the download link for the latest version at https://eeg.expert/downloads. Then, find the installer file (likely in your Downloads folder) and double-click it to start the installation process:



Remove the QIK hardware from the packaging. Use the included USB cable to connect the QIK unit to an available USB port on your PC.

4.8 Checking the battery level and charging the QIK unit

To check the battery level on the QIK test to see if you have enough charge to run a test, turn the unit off by holding down one of the buttons for a full 2 second period.

The unit will play the standard triple beep and then a single beep. At this point the unit is off and you can release your finger from the QIK button. After that, you will hear two beeps, one high and one low.

Now, to check the power, touch a button on the front of the QIK unit while watching the lights on the top of the unit.

You will hear three beeps as the unit turns on.

For the first few seconds immediately after the unit turns on, the string of lights on the top of the unit will show the charge level.

All the lights lit up means a full or nearly full battery. Only one or no lights or a flashing light means a very low battery and the unit should be charged before running a test.

If you press a button on the unit and you hear no beep and see no lights, then most likely the unit needs to be charged.

To charge the unit, connect the USB cable to the QIK and plug the other end of the cable into a computer that is turned on or a USB wall charger. Make sure that the computer you are using to charge the QIK is NOT in Sleep or Hibernate mode, as the device will not receive a charge.

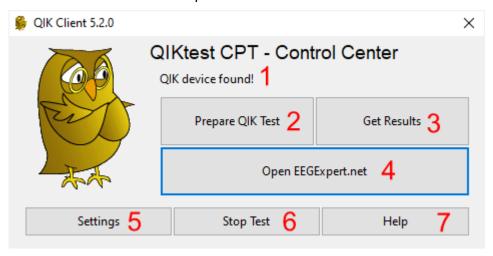
You will see lights scroll continuously on the top of the unit indicating that the QIK unit is charging. When the unit is fully charged, the lights will only scroll for 10 seconds out of every minute.

5 The Software

The software is designed to provide quick access to the QIK device's major functions. This section describes the different aspects of the software and how it works.

5.1 The Main Menu

The main menu contains several important features:



Their functions are:

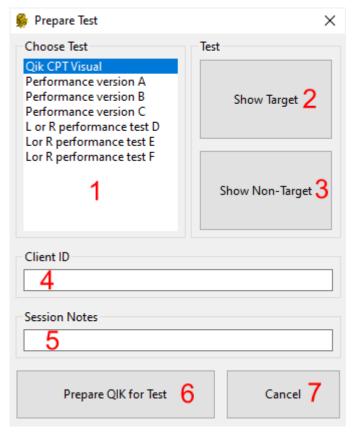
1. A status text displaying whether a QIK device is connected to the computer. This text can be one of several messages:

Looking for QIK device	The software has not yet detected a QIK device since it was started.
QIK device found!	A QIK device is currently detected and can be communicated with.
No QIK device detected. Please check connection.	No QIK device is currently detected. It was either disconnected by the user, or there is a connection issue.

- 2. A button that leads to the Prepare Test window
- 3. A button that initiates the <u>retrieval of test results</u> after the test has concluded
- 4. A button that opens the website https://www.eegexpert.net/ in the computer's default web browser
- 5. A button that opens the **Settings** window
- 6. A button that resets the QIK Device and clears all data on it
- 7. A button that opens this document.

5.2 Prepare Test

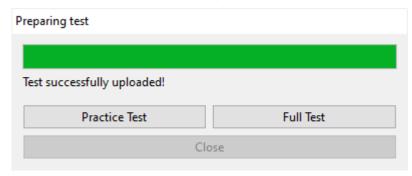
This window's purpose is to set up a QIK test. This also contains several features:



These features are:

- 1. A list of pre-defined tests. The test selected here will be used.
- 2. A button to show the target graphic on the QIK device. When this graphic shows, the patient is expected to press a button.
- 3. A button to show the non-target graphic on the QIK device. When this graphic shows, the patient is expected to ignore it.
- 4. The client ID for the patient. This should be an integer and correspond to that client's ID on EEGExpert.
- 5. An optional field to enter notes about the session.
- 6. A button to upload the test configuration to the QIK device.
- 7. A button to abort the configuration of a new test.

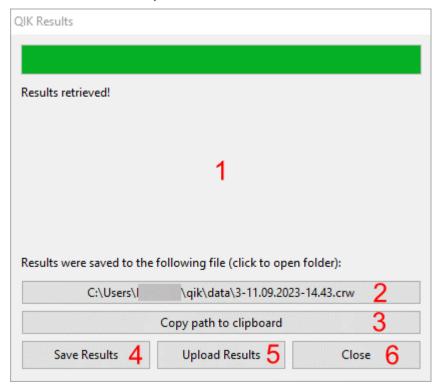
Clicking on the "Prepare QIK for Test" button will open a window that shows the upload progress, and two buttons to either initiate a practice test, or a full test:



Clicking on either button will configure the selected test and unlock the "Close" button.

5.3 Get Results

This button immediately begins the process of downloading results from the QIK device. This will also automatically save the test results in the default location.



Their functions are:

- 1. An area in which some of the test's overall results are shown, if the test was a practice test. A full test can only be evaluated via EEGExpert.
- 2. A button showing the full path to the results file saved by default. Clicking it will open the Windows explorer and automatically select the file.
- 3. A button to copy the full path to the results file to the clipboard.
- 4. A button to save a copy of the results file to a different location (opens a file save prompt).
- A button that opens a username/password prompt to upload the results directly to EEGExpert. This will also open the test results page automatically after the upload is completed.
- 6. A button to close the window.

5.4 Settings

The settings window contains some information about the QIK device, as well as a language setting and a way to test and reset the connected device:



The functions of the various features are:

- 1. A field showing the serial number of the connected QIK device.
- 2. A button to test the connection to the QIK device, which should cause it to audibly beep.
- 3. A button to completely reset the QIK device and its connection to the computer.
- 4. A setting to select the language the QIK software runs in. Changing this setting will immediately change the language across the entire software, and all open windows.

6 Getting Started

This guide will explain how to set up the QIK device, perform a test, and evaluate the results.

6.1 Setting up a Client

Before you can evaluate any results, you need to register an account on EEGExpert.net and set up a client. If you do not have an account yet, create one:

- 1. Visit <u>eegexpert.net</u>
- 2. Click "Join" at the top of the page and create an account



3. Log in once the account is created

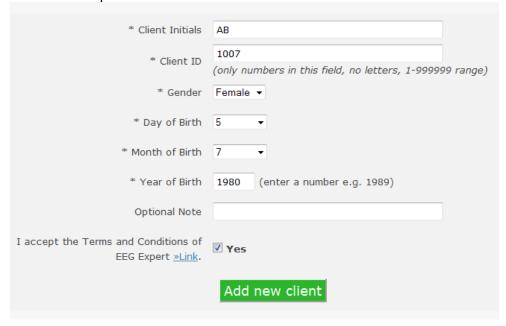


Then, set up a client:

1. Click on "Add a new client"



2. Fill out the required information



- 3. Click on "Add new client" at the bottom of the page
- 4. Click "Continue"

Adding New Client ...

New client record created successfully



5. Note the new client in the clients list, and the Client ID associated with them



6.2 Preparing your QIK Test

To set up the QIK Test device, simply connect it to your computer using the supplied USB cable.

6.3 Preparing the QIK Test for the Full Visual CPT

- Launch the QIK Software on your computer and click "Prepare Test". If this button is greyed out, please ensure that your QIK Test device is connected to the computer. <u>A</u> new window should open.
- From the list of available tests, select "QIK CPT Visual" for the full, normalized test. For descriptions on the other 6 short tests, see Test Descriptions.
- 3. Enter the Client ID for your client (see the client you created on EEGExpert for this ID) in the field designated for this purpose.
- 4. Demonstrate to your client what a "Target" and a "Non-Target" looks like by using the "Show Target" and "Show Non-Target"

buttons. You may also choose to read the instructions below to your client:





6.3.1 Instructions for your client for the Full Visual CPT

- 1. (Press the button "Show Target")
- 2. To client: "When you see the target, which looks like a bullseye, press either button, but not both buttons. Try to be as quick and accurate as you can.
- 3. (Press the button "Show Non-Target")
- 4. To client: "When you see the non-target, which looks like a brick wall, do not press".
- 5. Ask the client if they have any questions

6.4 Finalizing the test configuration

- 1. Enter the client ID into the corresponding field. This should match the client ID you have given this client on EEGExpert.
- 2. Add any notes you may need. CPT tests are highly sensitive to stimulant medications and other factors that influence attention and state of arousal. Such factors can include lack of sleep, time of day, coffee and stimulants, etc. You may wish to note any such factors in the space provided.
- 3. Click "Prepare QIK for Test".
- 4. Make sure to click on "Practice Test" or "Full Test" before disconnecting the device from the computer.
- 5. Finally, disconnect the device.

6.5 Starting the test

- Press both buttons on the QIK device simultaneously. Press firmly but do not hold down the buttons for too long (any longer than 2 seconds will shut down the device).
- 2. When you see a bar of 3 lights appear in the middle of the test, hand the device to your client.
- 3. The bar will count down (3, 2, 1) and then the test will begin.



Test Begins

6.6 Reviewing the practice test

- 1. This section can be skipped if you do not wish to evaluate the results of the practice test. To do this, simply continue at Beginning the full test.
- 2. After your client completes the practice test, connect the device to the computer and click on "Get Test Results". This will display some basic information as outlined below:

Commission Errors	Pressing a button on a non-target
Omission Errors	Not pressing a button on a target
Average Response Time	The average time, in milliseconds, that the client took to respond correctly
Variability	The difference between the slowest and the fastest response time
Score	A value constructed as a combination of the above values.

3. Review these results with the client to smooth out the learning curve, particularly if they have never used the device before.

6.7 Beginning the full test

1. Press both buttons again to start the full test.

6.8 Getting the test results

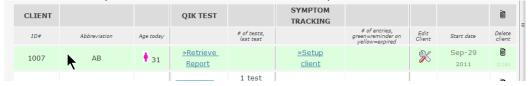
- 1. Connect your device to the computer and click "Get Test Results" in the QIK Client Software.
- 2. Wait for the data download to finish. Then, either use the built-in upload option in the QIK Client Software or upload your results data to EEG Expert manually.

6.9 Uploading data via the QIK Client Software

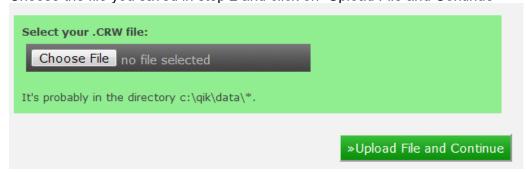
- 1. On the **QIK Results** panel, click on Upload Results
- 2. Enter your EEG Expert username and password
- 3. Click on "Login"
- The data will now be uploaded, and the resulting report will be displayed in your default web browser

6.10 Uploading data via EEG Expert

- 1. On the **QIK Results** panel, click on Save Results
- 2. Save the file to a location where you can find it later
- 3. On the EEG Expert website, click on "Retrieve Report"



4. Choose the file you saved in step 2 and click on "Upload File and Continue"

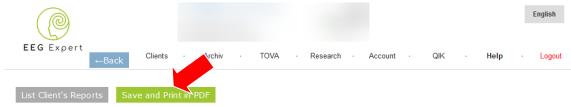


5. The data will now be uploaded, and the resulting report will be displayed

6.11 Printing or saving your report

The report page is formatted to be viewed in a web browser and not optimized for printing. To print the report, follow these steps:

1. Click on Save and Print in PDF



- 2. The PDF report will now be generated. Please wait a few seconds for this process to complete
- 3. Click on "View report as PDF"



4. Press Ctrl + P to print the report, or Ctrl + S to save it to your computer

In any case, the test results will be archived on EEG Expert for later retrieval.

7 Test Descriptions

Long Visual Test:

Name "Qik CPT Visual"

- has short practice pre-test
- target is circle of lights
- non-target is all lights
- 3 sections
- 5 periods: low, low, high, high, low (demand)
- duration 21 minutes
- 3-2-1 starter countdown with lights
- full analysis on EEG Expert <u>www.eegexpert.net</u>

"Performance" Tests:

- no short pre-test
- starts with 2 second beat between signals
- ends with 0.7 second beat, gradually speeding up
- has central dim light as focus point
- duration 1 minute 10 seconds
- 3-2-1 starter countdown with lights
- basic analysis on EEG Expert www.eegexpert.net
- the three tests in each group differ by the sequence of the targets and non-targets, while they share the same difficulty in frequency and distribution to avoid memorization effects.
- there are two groups of performance tests:
 - A, B and C have a vertical target light pattern
 - D, E and F are horizontal.
- It is not important which button on the QIK Test device is used to respond.

Performance version A, Performance version B, Performance version C

- target is 3 lights in one vertical row, either on the left or on the right side of the 3x3 field, left or right side is pseudorandom.
- non-target is **both** of the two vertical rows of lights, e.g. on the 3x3 field the three lefthand lights and the three right-hand lights

L or R performance test D, L or R performance test E, L or R performance test F

- target is one horizontal row of lights, appearing either at the top or at the bottom of the 3x3 light field.
- non-target shows both of the two horizontal rows of lights lit, again, one at the top and one at the bottom of the 3x3 light field.

8 Frequently Asked Questions & Troubleshooting

Many problems you may encounter can be solved quickly by checking for solutions in the table below.

Question	Answer
I cannot press the 'Prepare Test' or 'Get Test Results' buttons. The buttons appear to be gray.	Make sure that the QIK test is connected via USB to the computer, and that only one copy of the QIK software is running. Make sure you are using a USB QIK test with USB software. If you are using a serial QIK test (see example at QIKtest.com), you will need to download the correct software version for your device.
Where does my PC store the results of the tests?	The QIK results are always stored in a dedicated folder at C:\Users\Your Name\qik\data, but you can also save the results to a different file on the Test Results dialogue if you choose to.
How do I know which test data I am seeing in the data folder?	The filename contains information about the date and client ID for the test. The filename starts with the Client ID, followed by the day, month, year and time when the test was performed. The date and time are shown in European format with the day first and with a 24-hour clock.
I received an error that the test was not downloaded properly to the computer.	Simply press the 'Get Test Results' button again to attempt to retrieve the test again. In some cases, try this more than once. If it continues to fail to retrieve the test, please call us for assistance.
After uploading the test to EEG Expert, I see almost nothing but omission errors on the entire report.	This may be caused by the patient pressing the wrong button, or by an issue downloading the results data from the QIK device. While the latter should never occur, verify the connection to the QIK device and try downloading the data again.
I pressed both buttons to start the test, and nothing happened. It flashed for a second and then went dark.	It's important not to hold the buttons down too long. Holding the buttons down for 2 seconds will turn the unit off. You may need to set up the test again. Alternately, if you don't press both buttons firmly enough it won't start. You may just need to press both buttons again.
	On some older units, or if your QIK test has turned itself off, you may first need to press a button to wake it up before you can press both buttons to start the test.

9 Internet Ressources: Weblinks

The QIKtest website

www.eeginfo.com/giktest

Contains documentation about the QIK Test including tutorial videos, software updates and support articles.

EEG Expert website

www.eegexpert.net

This is an online expert knowledge center for the display of results from the tests done with the QIKtest unit. The website further contains symptom tracking and patient management.

EEG Info

www.eeginfo.ch

Neurofeedback Information, find a provider, supplies, training courses.

10 Technical Data

10.1 General

- Battery-powered ultra-flexible stand-alone unit for administering performance tests with unprecedented accuracy.
- □ Visual and auditory stimuli:
 - Visual stimulus: high-brightness 3x3 LED array.
 - Auditory stimulus: three-channel sound generator driven internal speaker. Also supports headphones (not included).
- □ High-precision two-channel reaction measurements
 - Two high-endurance precision buttons, ergonomically positioned for simultaneous right and left hand input
 - Time measurement accuracy and resolution 0.1msec.
 - o Independent two-channel measurement
 - Memory holds up to 1791 stimulus responses.

□ General

- Professional Neurofeedback-specific analysis done at EEG Expert (www.eegexpert.com).*
- o Rechargeable batteries, one charge good for more than 50 tests.
- Synchronization signal output for advanced applications and synchronization with brainwave monitoring devices.
- Developed and manufactured in Switzerland.

10.2 Details

Purpose:

Perform psychological tests independently from PC with high timing accuracy

Appearance:

Oval plastic box, 124x66x23 (4.9"x2.6"x0.9")

Stimulus LED area behind semi-transparent plastic front panel

Two buttons, left – right

Status LEDs at the side

Connectors for headphones, stimulus signals and USB computer interface

Operation:

Except for the test itself, the device is operated by a client PC software via a serial interface. This includes choice of test, test preparation, setting of test parameters, test data download from device, setting of device operation parameters

Stimulus - optical:

Array of nine LED blocks 10x10mm, centered on the front

Stimulus - acoustic:

 Three sound generators. One for internal loudspeaker, two connected to headphones jack (left-right channel) volume fixed; frequency and sound duration defined by test parameters

Buttons:

- Two buttons for performing test (left right)
- Reset button (accessible via audio jack button is placed behind audio jack, can be operated with little screw driver)

Status LED:

- Power on LED
- LED row for test progress: Yellow (Train) Red (Q1) Red (Q2) Red (Q3) Red (Q4) Green (Test completed)

Interfaces:

- Audio out (stereo) 3.5mm stereo jack
- USB interface to PC
- Stimulus output (two digital signals for target and non-target)

Power Supply:

 Internal NiMH rechargable batteries, 800mAh. Charging via USB interface or USB compatible charger; 5V / 100mA. No fast charging mode (safest approach).

Time required for one complete charge: 18h

11 Warranty

The manufacturer of the QIK Test unit guarantees the product for two years from the date of purchase, as stated on your invoice. The warranty covers the product within its stated usages and that it is free of defects.

Proof of purchase, such as an invoice, is a requirement for fulfillment of any guarantee claims. Seller and date of sale must be clearly evident in your proof of purchase.

The manufacturer will not grant guarantee in these cases

- Non observance of the instructions
- Incorrect usage
- Incorrect handling
- Failure to use original parts
- Third-party opening and repair of the unit by non-authorized personnel
- Higher order, such as lightning or water intrusion
- Damage by transport due to improper packaging of return packages
- Usual operational wear and tear

The manufacturer shall in no case be liable for consequential damages and losses, except if by intent or gross negligence.

The manufacturer retains the right to choose the means of correction of the flaw, to replace or to reduce the price.

In case of denial of the warranty, claim costs for transport in either direction will not be covered.

Warranty claims as defined by current law are not affected.

12 Intellectual Property

The QIK Test has been created and developed with high diligence to quality.

All of the elements such as the electrical circuitry, the layout of the printed circuit board, the external design, the internal software called firmware, all documentation and instructions are intellectual property of BEE Systems LLC.

Especially, but not limited to, reverse engineering of the software and hardware are strictly prohibited.

Even though extreme care has been taken, the manufacturer does not guarantee for the correctness of this documentation.

13 Service / Disposal

QIK Test units may only be serviced by authorized service personnel. These personnel must have completed an authorized education.

If the unit is opened by anyone else the guarantee ceases.

The QIK Test may only be disposed of in accordance with current regulations for the disposal of electronic equipment.

14 Software Change Log

14.1 Versions 5.0.x

5.0.0	A complete overhaul of the GUI and internal workings of the QIK Software
5.0.1	 Usability & software stability fixes Timeouts for communication with the device Improving the UI layout in some places to improve overview Fixed crashes in cases where communication failed Translations for German
5.0.2	Fixed an incompatibility with Windows UI scaling
5.0.3	 Score displays now round to 1 decimal place Fixed an issue where the Prepare Test and Get Results windows could not be closed following a communications timeout
5.0.4	- Added translations for the following languages: o Spanish o Turkish o French

14.2 Versions 5.1.x

5.1.0	Added "Upload Results" button to automatically upload results data to EEGExpert
5.1.1	Improved error messages when uploading to EEGExpert fails
5.1.2	Added button to copy the default results file path to the clipboard

14.3 Versions 5.2.x

5.2.0	Made the "Help" button open this document rather than an online resource	
	Ensured that only one instance of the QIK software can run at a time – starting it again will now focus the main menu of the currently running instance	
	All QIK devices newer than serial number 4110 will have their status LEDs configured to a standardized brightness level when connected	

15 Contact

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