

Requirement	Related use case	Fulfilled by	Test	Description
The program shows all of the required buttons and UI elements (power on/off, connection on/off, etc.)	N/A	mainwindow.ui, mainwindow.cpp	Launch the QT program and look at the form to confirm all of the elements are there.	<p>The Neuroset device is simulated inside a panel labeled “Device”, and every element inside this panel represents the UI for the Neuroset device. This includes a main screen that updates depending on the device’s current state, selector buttons, power buttons, blinking lights, and a working battery.</p> <p>Other parts of the simulation are separated into their own panels in the QT form, to help differentiate the parts we are simulating. For example, EEG site connection is simulated in a separate panel, because the EEG electrodes are physical objects that are separate from the Neuroset device’s UI.</p>
The Neuroset UI displays the time and treatment progress bar.	“New Session (Normal Operation of Treatment)”	mainwindow.ui, mainwindow.cpp	Select “NEW SESSION” to start a session, and observe as the UI displays a timer and a progress bar for the treatment session.	The timer and treatment progress bar are displayed on the main device screen when a treatment session is underway.
The program shows EEG waveforms.	“Therapy History Viewing with PC”	pc.ui, qcustomplot.cpp	In the “PC” window, select a log.	When viewing a session log in the PC form, plenty of information is shown. This includes a graph of the baseline EEG values recorded during a session.

The program implements battery depletion.	“Battery Low Response”	mainwindow.ui, mainwindow.cpp	Locate the green battery progress bar in the “Device” panel, and watch as it depletes over time.	As long as the device is on (which can be changed by using the power buttons on the form), the battery depletes. At low charge, the battery indicator changes colour, from green to red. Once the battery hits 0, the device turns off and cannot be turned back on. Externally, a “replace battery” button can be used when the device is off to reset the battery charge back to full.
The program implements EEG connection on/off.	“Connection Loss between the Electrodes and the Device”	mainwindow.ui, mainwindow.cpp	Locate the “EEG Site Contact” panel on the top right of the form. Click the checkboxes to form a connection, and start a new session to see the interactivity between the two panels.	<p>The “EEG Site Connection” panel represents the 21 EEG scalp electrodes that the Neuroset device requires to perform a session. The 21 checkboxes can be checked on or off, to represent an EEG site being connected or not.</p> <p>When using the Neuroset device, the session is paused whenever there is a disconnect with any EEG scalp electrode, and a red light blinks. This can happen in the middle of a session if the program user decides to uncheck a checkbox. If the disconnect persists for too long, the session is cancelled and the device powers off.</p>
The program implements EEG waveform generation and display for testing purposes.	“Therapy History Viewing with PC”	mainwindow.ui, pc.ui, Electrode	<p>In the main window, under “External factors”, select a specific wave to test.</p> <p>In the PC window, select a log.</p>	During a regular session, the recorded values are stored in a log, and the resulting waveform can be viewed in the PC window.

The program ensures that dominant frequency calculation is performed.	"New Session (Normal Operation of Treatment)"	mainwindow.cpp	Start a new session. Throughout the session, dominant frequency calculation is performed.	Inside mainwindow.cpp and inside the countdown function, the program repeatedly calculates the dominant average frequency. This happens in sync with the program moving through the session, step by step.
The program ensures that treatment delivery is implemented.	"New Session (Normal Operation of Treatment)"	mainwindow.cpp	Start a new session. Throughout the session, treatment is delivered.	Similarly to the previous requirement, the session administers treatment in the countdown function.
The program has logging of treatment sessions.	"Session Log"	mainwindow.ui	Complete at least one session, and then select "SESSION LOG" on the Neuroset UI.	The program pulls from a locally saved file, which contains a log of every session performed. Selecting "SESSION LOG" reads this file and displays all of the log information in the Neuroset UI screen.
The program can display a history of Neuroset therapy, uploaded to a PC.	"Therapy History Viewing with PC"	pc.ui, pc.cpp	Open the program, and look for the window labelled "pc".	The secondary window, named "pc", represents a PC that can access the Neuroset device's therapy history, specifically the session logs. The Neuroset session logs are persistent, so closing the program and re-opening it will keep the same session logs in the PC view.