Traceability Matrix

ID	Requirement	Related Use Case	Implemented by	Tested by
1	The Neureset system is a standalone product running embedded software without the need of an external PC to run the software.	N/A	N/A	N/A
2	It consists of an EEG headset with 21 electrodes connected to a handheld device which functions both as a signal processor and as a software interface for the user.	N/A	HandheldDevice, Headset, Electrode, defs.h	Can change number of electrodes by changing "MAX_SIZE" in defs.h file
3	The device runs an automatic program and the user simply has to start the session and the software does the rest, informing the user as to	Use Case 1	Session, HandheldDevice, MainWindow	Press the start button while start session is selected

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	session duration and completion.			
4	Once the session is initiated, it reads a signal from one of the 21 EEG sites on the headset.	Use Case 1	HandheldDevice, Session, Headset, Electrode, MainWindow	Observe the GUI. A graph will show the signal.
5	It establishes a baseline average frequency over the period of one minute and then delivers the treatment in a single second.	Use Case 1	Electrode	Observe the output, baseline averages will be printed out. *Change specs clarify that it will be concurrent for all sites and over 5 seconds.*
6	To repeat here, it adds an offset frequency of 5hz to the baseline frequency every 1/16th of second, recalculating the brainwave frequency, adding the offset and repeating the process every 1/16th of a second for the	Use Case 1	Headset, Electrode, Waveform, MainWindow	Observe the graph and output of terminal. 5hz will be added every 1/16th of a second.

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	duration of one second.			
7	It then proceeds to the next EEG site and repeats the process, establishing the baseline frequency for one minute and then applying the rapid one second treatment until all 21 sites have been activated.	Use Case 1	Electrode, Headset, Waveform	Observe the terminal during session. Treatment is done over 1 second. *This is done concurrently the same as ID 5.*
8	It only informs the user of session progress, no technical information.	Use Case 1	MainWindow	Observe the GUI. If User presses on progress tab, progress bar will show progress bar and timer.
9	The menu has three options: new session, session log, and a date and time setting.	Use Case 1	MainWindow	Observe the GUI. Menu will contain the three options.
10	Pressing the new session option opens a timer that begins once contact is initiated, indicated by the	Use Case 1	MainWindow, Session, HandheldDevice	Observe the GUI when starting a new session. Blue light will appear and progress bar will display proper session info.

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	blue light on the device.			
11	If contact is lost, the red light flashes, the session is paused and the device starts beeping until contact is reestablished.	Use Case 1	MainWindow, HandheldDevice, Session	Press the toggle connection button to test for contact being lost.
12	If contact is not reestablished after 5 minutes, the device turns off automatically and the session is erased.	Use Case 1	HandheldDevice, Session	Observe the terminal. After 5 seconds device will terminate session.
13	The timer shows time and session progress bar indicated by a percentage.	Use Case 1	MainWindow, HandheldDevice, Session	Observe the GUI. If User presses on progress tab, progress bar will show progress bar percentage and timer.
14	The user can press pause voluntarily during a session.	Use Case 1	MainWindow, HandheldDevice, Session	Observe the GUI. During a session, press the pause button to pause the session.
15	The same rule applies, if after 5 minutes contact is not	Use Case 1	HandheldDevice, MainWindow	Observe the terminal. After 5 seconds device will terminate.

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	reestablished the session is terminated and the device turns off automatically.			
16	The software calculates a baseline for each EEG site individually over approx. 1 minute, determining the average dominant frequency for that site, that applies the treatment over the duration of one second.	Use Case 1	Electrode, Waveform, Headset	Observe the terminal during a session. Output will be printed of session stage.
17	During that second, the green light flashes indicating treatment is being delivered. It then moves on to the next site.	Use Case 1	MainWindow	Observe the GUI and terminal. When output says treatment is being received the GUI will flash a green light.
18	However, at the beginning of a session there is an overall baseline calculated for all	Use Case 1	Electrode, Headset, Waveform, HandheldDevice	Observe the terminal. Output will indicate that the session is current on the last stage.

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	21 EEG sites, concurrently, at the same time. At the end of the session, a baseline is once again calculated for all 21 EEG sites.			
19	The menu also has a session log history.	Use Case 1	MainWindow	Observe the GUI. In menu select.
20	Pressing this button displays the time and date of the sessions and the user can scroll through them, although no further information is provided on the device itself.	Use Case 2	MainWindow, PCWindow, Session	Press start when session log is selected in menu.
21	However, the before and after baselines are recorded and can be uploaded to a PC with the date and time log information.	Use Case 2	MainWindow, HandheldDevice, PCWindow, Session	Observe the GUI after selected a session to view data.
22	The baseline's show the before and after dominant	Use Case 2	MainWindow, PCWindow, Session	Observe the GUI after selected a session to view data.

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	average frequencies for each EEG site, taken during the overall baselines at the beginning and end of the session, compared side by side as a numerical value.			
23	The third menu option is simply a date and time setting. The user inputs the current date and time so the device clock can accurately track the sessions.	Use Case 3	MainWindow	Observe the GUI. Select the date and time option in the menu.