

REQUIREMENTS TRACEABILITY MATRIX - 3004 FINAL Dante, Anhtu, Mario, Jai

ID Number	Requirement	Use Case	Fulfilled By	Description (from use case?)	Tested by
1	Display a simple menu with options for starting a new session, accessing session logs, and setting date and time.	UC1	MainMenu	Program displays Main menu window when the user runs the program	Run the program, MainMenu appears and shows the needed elements
2	Show session progress using a progress bar and approximate time remaining.	UC1	ActiveSessionWindow	Progress bar is shown for the session along with a timer that gives an estimate on the length of the session	After opening a new session, a QTimer and progress bar is shown in the activeSession window
3	Indicate contact status with the device using colored lights (blue for contact established, red for contact lost, green for treatment delivery)	UC1	ActiveSessionWindow	2a. Contact is lost. 2a1. Red light flashes, session is paused automatically, and the device starts beeping until contact is reestablished. 2a2. If contact is not reestablished within 5 minutes, the device automatically turns off and the session is erased	Green light - hit the start button and watch the lights flash as treatment occurs Blue light - Flashes initially at the start of session Red light - Press the "sensor disconnected" button at any point during the simulation
4	Allow pausing of sessions, with automatic session termination if contact is not reestablished within 5 minutes.	UC1	ActiveSessionWindow	User presses pause. 1-7a1. The session is paused. 1-7a2. If contact is not reestablished within 5 minutes, the device automatically turns off and the session is erased.	Start a session and then press pause. To observe session termination, look at the QPlainTextEdit
5	Begin a new session upon user initiation, calculating baseline	UC1	ActiveSessionWindow	The baseline for the EEG sites is calculated over ~1 minute, and an average dominant frequency for that site is determined	Start a new session and look at the console

	frequencies for all EEG sites concurrently.				
6	Baseline (average dominant frequency of electrode output) is verified to be correct	UC1	Device		Start a new session and pause before treatment round 1. Note down the dominant frequency readings for each sensor printed in the console and manually calculate the average. Check the printed first baseline against your calculated value.
7	Display session logs with timestamps for past sessions, including before and after dominant average frequencies for each EEG site.	UC2	ActiveSessionWindow MainMenu SessionLogWindow	Session log menu opens and can be scrolled through, displaying times and a “send to pc” button	Start one session, complete it, go back to the main menu and click on “Session Log”
8	Record session data for later analysis, including baseline comparisons.	UC1	ActiveSessionWindow MainMenu SessionLogWindow	The session data is created and stored. The entire session is saved, so that it’s members can be accessed.	After a session ends, the data from the session is sent and stored in a vector the MainMenu, then sent to the SessionLog’s vector and displayed when opened
9	Apply treatment to each EEG site sequentially, following the LENS protocol: Establish a baseline average frequency over one minute. Apply treatment for one second by adding an offset frequency of 5Hz every 1/16th of a second.	UC1	Device	A timer opens and starts once the contact is initiated, and the blue light turns on. An overall baseline is calculated for all 7 EEG sites concurrently. The baseline for an EEG site is calculated over ~1 minute, and an average dominant frequency for that site is determined. The treatment is applied at that site for 1 second, and a green light flashes. Steps 4-6 are repeated until there is no remaining untreated EEG site. An overall baseline is calculated for all 7 EEG sites concurrently.	Start a new session and watch the console’s print statements
10	Display treatment progress during the	UC1	Device ActiveSessionWindow	The treatment is applied at that site for 1 second, and a green light flashes.	Start a new session and watch the progress bar

	session using visual indicators.				
11	Continuously monitor contact status with the user's scalp electrodes.	UC1	WaveformWindow	1.7b. User presses "view waves" 1-7b1. Waveform window opens 1-7b2. User can select between 1 of 7 sites to view	Start a new session and press the "view waves" button" to see the EEG waves
12	Pause session and alert user with flashing red light and beeping if contact is lost.	UC1	ActiveSessionWindow	User pauses session. The session is paused. If contact is not reestablished within 5 minutes, the device automatically turns off and the session is erased.	Start a new session and press the pause button
13	Automatically terminate session and power off device if contact is not reestablished within 5 minutes.	UC1	ActiveSessionWindow	If contact is not reestablished within 5 minutes (contact lost or user paused), the device automatically turns off and the session is erased.	Start a new session and press the power button
14	The user can set the date and time of the device.	UC3	MainMenu, DateTimeWindow	The new selected date and time are updated for the device	Click on "Date and Time" from the main menu, and select a new date and time.
15	The user can send the session(s)'s before and after baselines to a PC along with the date and time information.	UC4	MainMenu, SessionLogWindow, PCWindow	2a. User presses the "send to pc" button 2a1. User session logs are sent to pc with a confirmation message	Click on "Session Log" from the main menu, select the sessions they want to send to the PC, then click "Send All/Open PC".
16	Logs are persistently stored in the PC	UC4	PCWindow	2a. User presses the "send to pc" button 2a1. User session logs are sent to pc with a confirmation message	Complete a session, go to session log, send the session to the pc, close the program, re-open the program, go to the PC window, and verify that the session that was just saved is in the list.