OASIS Team 17 Traceability Matrix

ID	Requirement	Related Use Case	Fulfilled By	Test	Description
1	UI shows all required buttons and lights.	N/A	MainWindow.ui	Run the project, all elements are visible and can be interacted with	All buttons are in the same location as they are on the device with the same functionality. Extra buttons are added for saving sessions and the admin panel.
2	The device power can be turned on and off, preventing the use of the device while off.	Use Case 3 (Power On), Use Case 4 (Power Off)	MainWindow	Hold the power button for 2 seconds to turn on, hold for 2 seconds to turn off.	The power button detects how long the user presses the button for and determines if it was enough time for the device to turn on/off. While off, none of the other buttons on the device are pressable (except admin panel).
3	Battery level is displayed when the device is powered on, and displayed periodically while the session is running.	Use Case 5 (Battery Level Display), Use Case 6 (Battery Level Low)	MainWindow	Turn on the device to see the battery level. Start a session and watch as the battery is displayed every few seconds.	The battery is displayed on the graph at certain intervals of a session, with different colours representing certain thresholds of battery level.
4	When the battery is critically low, the graph will blink and any current session will end early.	Use Case 6 (Battery Level Critical)	MainWindow	Run the project, use the admin panel to set the battery to a low amount. Run a session and watch as the graph animates	The battery level is checked periodically throughout a session, when a low battery level is detected the session is ended early and the device powers

				then the session ends.	off.
5	The battery depletes according to the intensity of the session.	N/A	MainWindow	Start a session and increase the intensity, the battery will drain faster.	The battery level is depleted by a static amount on button presses, and dynamically based on the intensity of the session at certain intervals.
6	The user can select between different session durations.	Use Case 8 (Starting a Session)	MainWindow, Session	Short press the power button while the device is on.	The current session is tracked in MainWindow, and is updated when the button is pressed to cycle through the different types of sessions.
7	The user can designate their own time for sessions	Use Case 8 (Starting a Session)	MainWindow, Session	Short press the power button while the device is on until the user designated buttons turn on.	There is a number as well as two buttons on the UI. When the user designated session is selected, these buttons turn on and the time can be adjusted.
8	The user can change session types. The frequency and mode icons associated with the session will light up.	Use Case 8 (Starting a Session)	MainWindow, Session	Press the intensity up or down buttons while a session is not running.	The current session type will display on the top of the UI as well as on the graph, and pressing the button cycles through the types. The frequency and mode will light up depending on the type selected.
9	The user can start the session with their selected parameters	Use Case 8 (Starting a Session)	MainWindow, Session	Press the select button while not in a session.	A Session object will be created with the selected parameters, after a delay the

					connection test will start.
10	The device runs a connection test upon starting a session.	Use Case 9 (Connection Test)	MainWindow	Start a session	After a session is started, the delay will occur then the connection test begins. Based on the level of the connection (selectable in the admin panel), the graph will flash different colours.
11	If there is a bad connection, the graph will wait for the connection to be stable before starting the session.	Use Case 9 (Connection Test)	MainWindow	Start a session with the connection set to bad in the admin panel.	The graph will animate over a few seconds before starting the session. This simulates the user reconnecting the ear clips. The L and R lights will also turn on.
12	The user can adjust the intensity during a session	Use Case 12 (Adjusting Intensity)	MainWindow, Session	Start a session, then press the intensity buttons	The graph will display the current intensity. The session object will also update.
13	The user can save their preferred intensity for a session type.	Use Case 14 (Saving Preferences)	MainWindow, Session, Preferences, DBManager	Start a session, choose an intensity then press the select button	The Preferences object for that session type will be added to the database.
14	The session will Soft On if a preferred intensity is stored.	Use Case 14 (Saving Preferences)	MainWindow, DBManager, Session, Preference	Start a session, save the intensity. Start another session of the same type as the previous.	The preferred intensities are retrieved from the database upon startup and put into the QVector of Preferences objects. After a session. The graph will animate

					and the intensity will increase until it reaches the preferred level.
15	The session can be ended early.	Use Case 11 (Ending a Session)	MainWindow	Start a session, then press the power button	The session will end and return to the menu. The intensity will slowly decrease on the graph as part of the Soft Off.
16	The device connection can be disrupted during a session.	Use Case 9 (Connection Test)	MainWindow	Start the session, then press the disrupt connection button in the admin panel.	The session QTimers will all pause as the graph is animated over a few seconds to simulate the bad connection. The connection will then return to normal and the session will resume.
17	The user can record a session and view it on the device.	Use Case 13 (Recording Therapy Session)	MainWindow, Session, DBManager	Start a session, then press the save session button.	The session object will be saved to the database. The list view on the UI will be updated with the session. Sessions are retrieved from the database upon startup and put into a QVector of sessions that the list view generates elements from.