POWER ON Use Case（UC1）

Primary Actor: CES Users

Precondition: The device is turned off

Main success scenario:

1. User turns on the device power switch
2. The screen lights up and the device starts normally

Postcondition: The device has been turned on and is waiting for user action

POWER OFF Use Case（UC2）

Primary Actor: CES Users

Precondition: The device is turned on

Main success scenario:

1. User turns off the device power switch
2. The device powers off the display.
3. Device shutdown and stop all services and output

Postcondition: The device has been turned off and is not consuming power

Set Timer Use Case (UC3)

Primary Actor: CES Users

Precondition: The device has been turned on but treatment has not started

Main success scenario:

1. User presses the clock button; the set time to cycle between 20 minutes, 40 minutes and 60 minutes.
2. Repeat step 1 until the desired time is reached.
3. User places the device on skin. Include Activate Electrodes use case.

Postcondition: The treatment time of this device been adjusted to the user's desired time. The device displays the time set by the user

Set Waveform Use Case (UC4)

Primary Actor: CES Users

Precondition: The device has been turned on but treatment has not started

Main success scenario:

1. User selected comboBox of waveform selection
2. The user selects from Alpha, Beta and Gamma waveforms with the mouse

Postcondition: The waveform setting of this device been adjusted to the user's desired waveform.

Set Frequency Use Case (UC5)

Primary Actor: CES Users

Precondition: The device has been turned on but treatment has not started

Main success scenario:

1. User selected comboBox of frequency selection
2. The user selects from 0.5Hz, 77Hz and 100Hz with the mouse

Postcondition: The frequency setting of this device been adjusted to the user's desired frequency.

Set Current Use Case (UC6)

Primary Actor: CES Users

Precondition: The treatment has been started

Main success scenario:

1. User presses the up arrow button; the output current will increase by 100uA each time
2. Repeat step 1 until the desired current is reached.

Postcondition: The output current of this device been adjusted to the user's desired current.

Extensions:

    1a.   User presses the down arrow button.

        1a1. The output current will decrease by 50uA each time. Return to step 2.

Related Information:

- Use case can be ended at any time if the user disconnect the skin connection
- The output current range of the device is 0-500uA

Skin Connect Use Case (UC7)

Primary Actor: Device Electrode

Precondition: The user has set the output waveform, frequency and treatment time

Main success scenario:

1. The user connects the electrode to the specified location on the skin
2. Electrode informs the device to display and advance the Time of Therapy.
3. Step 1 and 2 repeat until the device's allotted therapy time has completed.
4. Electrode is no longer active/does not sense skin

Postcondition: The device automatically shut down after end treatment

Extensions:

    1a.   The electrode no longer senses skin.

        1a1. Electrode stops outputting an electrical current.

        1a2. Device pauses the Time of Therapy display.

        1a3. If electrode senses skin once again, return to step 1. Otherwise, 5 seconds after losing the skin connection, end use case and the treatment stop.

View Saved Therapies Use Case (UC8)

Primary Actor: CES Users
Precondition: The device has been turned on
Main success scenario: User view control panel treatment history table
Postcondition: The user can view the saved treatment records, including the start time, treatment duration, output current, frequency and waveform

Clear Saved Therapies Use Case (UC9)

Primary Actor: CES Users
Precondition: The device has been turned on
Main success scenario:
1.   The user clicks the clear history button
2.   The device deletes all currently saved therapies.
Postcondition: All currently saved therapies are deleted.

Save a Therapy Use Case (UC10)

Primary Actor: CES Users
Precondition: Treatment is in progress
Main success scenario:
1.   User presses the Lock button
2.   The device saves the current therapy settings to the database
Postcondition: A desired therapy has been saved to the device's History of Treatments.
Related Information: The user can only record once in a treatment process, and it is forbidden to record repeatedly

Battery undervoltage Use Case (UC11)

Primary Actor: Battery sensor
Precondition: Low battery
Main success scenario:
1.   When device battery is less than 5 percent, system displays a 5 percent low battery icon
2.   When device battery is less than 2 percent, system displays a 2 percent low battery icon and flash. After a short while, the device will be automatic shutdown.
Postcondition: User replenishes battery
Related Information:
When the battery power is higher than 5 percent, the low battery icon is not displayed

Device Error Use Case (UC12)

Primary Actor: Current sensor

Precondition: Equipment failure causes the current to be greater than 700uA

Main success scenario:

1. The user simulates a device failure and presses the Error trigger button
2. The device is permanently shut down and displays a fault icon

Postcondition: User can no longer use this device (Need to restart the emulator to recovery)

Not Use Timeout Use Case (UC13)

Primary Actor: System timer

Precondition: The user turns on the power and is not in the process of treatment

Main success scenario:

1. No operation for 30 minutes (Replace time with seconds during simulation)
2. Automatic shutdown of the device

Postcondition: --

Related Information: When the user presses any button, it will exit this use case。