**Protocol**

Troubleshooting section below

1. For system setup, please see the ‘checklist.docx’.
2. Welcome participant.
3. Have them fill consent form. Stress level should be relative to what they have already felt in their lives.
4. Ask for rib cage size, using tape measure. Record it
5. Have them fill personal questionnaire (using Qualtrics on the ipad).
6. Explain how to wear Bioharness. Ask for them to take of their jackets (and as many layers as they are comfortable with taking off). Ask them how many layers they still have. Record it.
7. Give participant all sensors (Bioharness, Emotica watch) to wear.
8. Install participant in the car. Ask them to wear their seatbelt.
9. Start the haptic\_biofeedback.m in ‘C:Users/Renault/Documents/Benoit’. Connect the bioharness (Connect > Bioharness). Be sure to fill the experiment type and participant\_ID fields before anything else. The files will be saved under the name ‘participant\_ID/participant\_ID\_experiment\_type\_data.csv’. Experiment type should be something like ‘control’ or ‘main’. **/!\** If another file exists with the same name, it will be deleted.
10. Setup for control: ask participant to do a visualization task, telling them it is a ‘visualization task’, so they can reproduce it later. Ask them to:
    * Close their eyes (except if they really don’t want to)
    * Relive a pleasant, recent, memory in a car, such as a road trip (or somewhere else, such as a beach, forest, or mountain), or an experience with friends or loved ones (go to a happy place)
    * Ask them to try and picture the scene, and to remember what they where wearing, what the temperature was, how they were feeling…
    * On your side, you can get out of the car while they do their visualization.
11. Ask for stress level
12. Ask them to play the game on the iPad. Explain what they should do if they see 3+ consecutive squares at the same place. Explain specifically they should not care about sound. Do a first round to make sure they understand the game, and then do it a second time. When the game goes “3…2…1…”, press the ‘log time’ button. When they are done, press the ‘log\_time’ button again. Close the GUI. Get the Ipad back
13. Launch the FAC.app (in the same folder), fill the participant\_ID, and hand over the computer to the participant. Explain the first task, and ask them to stop when they get to the second part (‘when the UI changes and you see a start button, please tell me, and I will give you the next instructions.’) The end task and skip test buttons are there to do a specific task again if you feel the participant did not do a task right. In that case, pay attention to the logs in the console, since the file will not have the right value for the test skipped.
14. Get the computer back. Ask for stress level
15. Launch haptic\_biofeedback.m and connect the bioharness.
16. Do visualization task.
17. In the GUI, put the preferred frequency in ‘Freq HR (Hz)’ and ‘Freq BR (Hz)’. The ‘Percent BPM’ should be 90 if testing with HR target, 70 for BR target. The Volume HR should be the subliminal/supraliminal volume
18. To prepare for intervention 1, input the amplitude given by the FAC app (same value, FAC will output percents), and preferred frequency in both frequencies. For supraliminal, also put the value given by FAC app. (the just above frequency has already been multiplied by three before being given to you by FAC app.)
19. Do N-1 task with intervention 1. Press ‘log time’ button at the begging and the end of the task.
20. At the end of each task, ask them weather or not they feel the frequency, and ask for stress levels.
21. Repeat 16, 19, 20 with interventions 2 to 4.
22. Recover Bioharness and emotica
23. Post Study talk out loud. Open semi-structured conversation. Device should be activated with both modes under supraliminal amplitude. Themes
    * Initial appreciation? What do you like or not like?
    * Association (Machine?, alive car?)
    * Sweep frequency (using IPad)?
    * Use cases?
    * Other types of patterns, or interactions?
24. Record name and email address for compensation
25. Done.

Troubleshooting:

* Plots not showing up:
  + Is the bioharness connected via Bluetooth on windows? (go to device and printers and check that the specific one you are using is there
  + Check the port of the bioharness in its properties (device and printers > BIOHARNESS\_ID > properties > hardware > … (‘COM’ COM\_PORT\_NUMBER)). COM\_PORT\_NUMBER should match the bh\_port variable on line 8 of haptic\_biofeedback.m
* ‘Error opening radar data stream’:
  + Did you plug in the radar? There is a USB cable coming from the back of the driver seat, which has to be plugged.
  + Try unplugging it and plugging it back
  + Try relaunching the app