

Supplementary Material

The following tables summarize results based on statistical analysis for significance. Evaluation was based on nominal (binary) variable analysis using two-sample proportion tests for significance. H_0 is that proportions are equal in the groups.

2-channel

| excitation points | task | result | test statistics | significance (p<0.05) |
|-------------------|-------------------------------|--------|-----------------------------|-----------------------|
| wrists | detect 235 Hz L and R (S1) | 27/27 | | |
| | detect 300 Hz on the R (S2) | 9/27 | p-value: 3.0E-7 z=5.196 | YES |
| | detect 185 Hz on the L (S3) | 9/27 | p-value: 3.0E-7 z=5.196 | YES |
| | detect shorter on the L (S4) | 13/27 | p-value: 1.67E-5 z=4.347 | YES |
| | detect longer on the R (S5) | 22/27 | p-value: 0.02 z=2.348 | YES |
| ankles | detect 235 Hz L and R (S6) | 27/27 | | |
| | detect longer on the L (S7) | 12/18 | p-value: 0.012 z=3.222 | YES |
| | detect shorter on the R (S8) | 6/18 | p-value: 1.0E-6 z=4.954 | YES |
| arms | detect 235 Hz L and R (S12) | 18/27 | p-value: 0.001 z=3.286 | YES |
| | detect shorter on the L (S13) | 7/18 | p-value: 0.066 z=-1.837 | NO |
| | detect longer on the R (S14) | 14/18 | p-value: 0.420 z=0.805 | NO |

Comparison:

WRIST

Detecting 185 Hz and 300 Hz compared to detecting 235 Hz: significant (p-value: 3.0E-7, z=5.196152)

Detecting shorter on the left compared to detecting the normal: significant (p-value: 1.67E-5, z=4.347413)

Detecting longer on the right compared to detecting the normal: significant (p-value: 0.02, z=2.34738)

Detecting shorter on the left compared to detecting longer on the right: significant (p-value: 0.018, z=2.3473)

ANKLES

Detecting longer on the left compared to detecting the normal: significant (p-value: 0.012 z=3.222)

Detecting shorter on the right compared to detecting the normal: significant (p-value: 1.0E-6, z=4.954)

Detecting shorter on the right compared to detecting longer on the left: significant (p-value: 0.045, z=2.000)

ARMS

Detecting 235 Hz on the arms compared to on the wrists and ankles: significant (p-value: 0.001, z=3.286)

Detecting shorter on the left compared to detecting the normal: not significant (p-value: 0.066, z=-1.837)

Detecting longer on the right compared to detecting the normal: not significant (p-value: 0.420, z=0.805)

Detecting shorter on the left compared to detecting longer on the right: significant (p-value: 0.018, z=-2.366)

4-channel

| excitation points | task | result | test statistics | significance ($p < 0.05$) |
|--------------------------|----------------------------------|---------------|----------------------------|--|
| wrists and ankles | detect 235 Hz (S15) | 27/27 | | |
| wrists and ankles | detect shorter on the R (S16) | 6/18 | p-value: 1.0E-6 z=4.954 | YES |
| wrists and ankles | detect shorter on the L (S17) | 18/182 | | |
| left ankle | detect shorter (S18) | 12/18 | p-value: 0.007 z=2.683 | YES |
| left wrist | detect shorter (S19) | 18/18 | | |
| right wrist | detect shorter (S20) | 18/18 | | |
| right ankle | detect shorter (S21) | 6/18 | p-value: 1.0E-6 z=4.954 | YES |

Comparison:

Detecting shorter on the left compared to detecting the normal: not significant (p-value: 1)

Detecting longer on the right compared to detecting the normal: significant (p-value: 1.0E-6, z=4.954)

Detecting shorter on the left compared to detecting longer on the right: significant (p-value: 2.89E-5, z=4.242)

Detecting shorter signals on the ankles compared to normal signals on the wrists (left and right):
significant (p-value: (1.0E-6, z=4.954); (p-value: 0.007, z=2.683))

8-channel

| excitation points | task | result | test statistics | significance (p<0.05) |
|-------------------|------------------------------------|--------|----------------------------|-----------------------|
| all channels | detect 235 Hz (S22) | 27/27 | | |
| all channels | detect shorter on the R (S23) | 3/9 | p-value: 3.0E-6 z=4.648 | YES |
| | detect shorter on the L (S24) | 9/9 | | |
| left ankle | detect longer (S27) | 9/9 | | |
| left wrist | detect longer (S28) | 9/9 | | |
| right wrist | detect longer (S29) | 9/9 | | |
| right ankle | detect longer (S30) | 6/9 | | |
| arms and head | detect longer (S25, S26, S31, S32) | 0 | | |
| all channels | detect P1 pattern (S33) | 6/9 | p-value: 0.002 z=-3.133 | YES |
| left ankle | detect S.O.S. (S36) | 5/9 | | NO |
| left wrist | detect S.O.S. (S37) | 6/9 | | NO |
| right wrist | detect S.O.S. (S38) | 4/9 | | NO |
| right ankle | detect S.O.S. (S39) | 4/9 | | NO |
| arms and head | detect S.O.S. (S34, S35, S40, S41) | 0 | | |

Comparison:

Detecting shorter on the left compared to detecting the normal: not significant (p-value: 1)

Detecting longer on the right compared to detecting the normal: significant (p-value: 3.0E-6, z=4.648)

Detecting shorter on the left compared to detecting longer on the right: significant (p-value: 0.003, z=3.000)

Detecting 235 Hz compared to P1: significant (p-value: 0.002, z=-3.133)