Biomedical Robotics
EEG data analysis assignment 1

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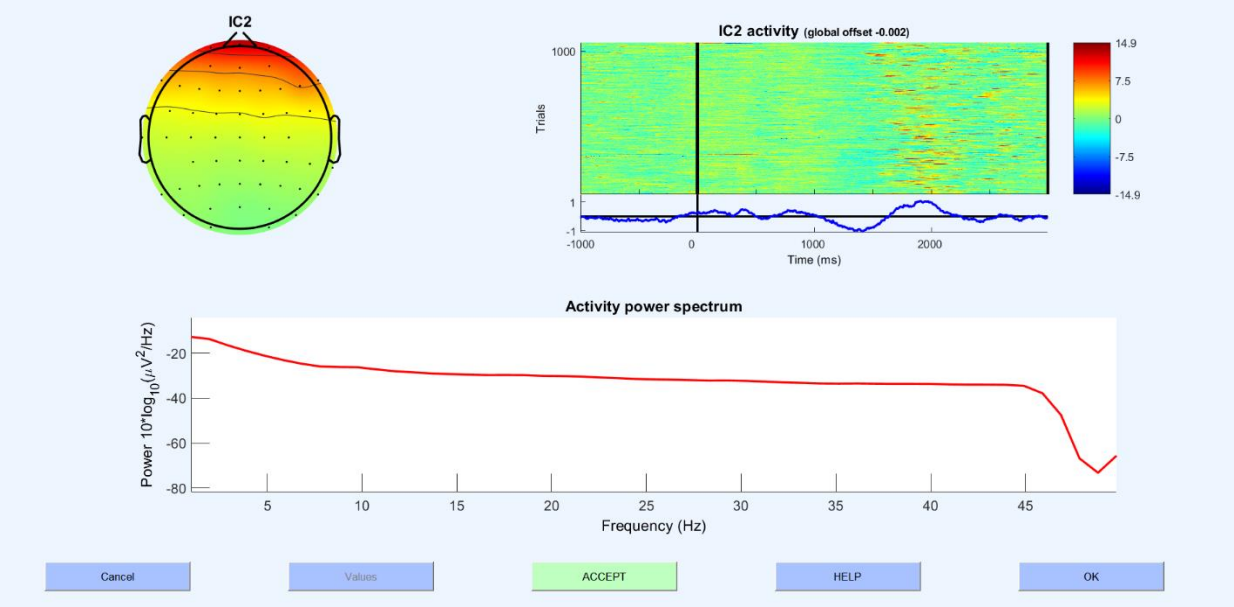
1) How many epochs did you obtain before manual cleaning? How many remained after it? How many channels? Which channels did you removed?

No of epochs before manual cleaning = 1152
No of epochs after manual cleaning = 1062
Total no of epochs removed = 90
Total no of Channels = 52
No of channels Removed = 4
Channels Removed = C6 T8 TP7 CP5

2) For each component indicate whether it's a neural, ocular, muscular or artifactual. Choose one component of each class, paste the image in this document and describe the main features.

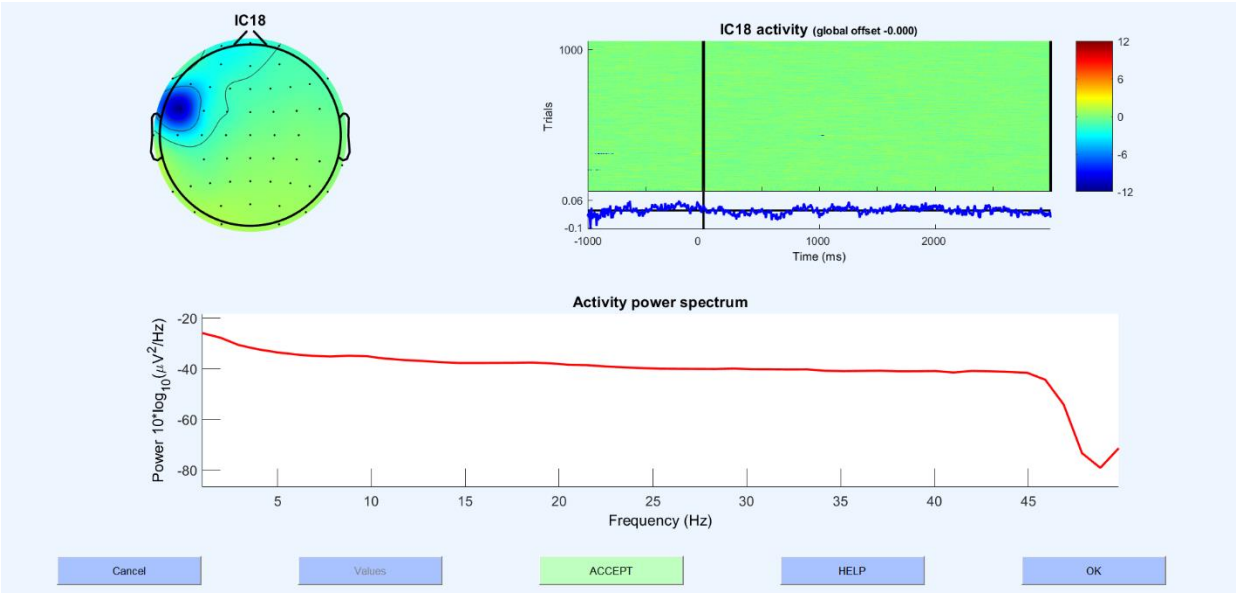
Neural	1	3	4	5	7	8	10	12	14	16	17	19	20	22	23	27	29	30
	32	36	38	41	42	43	44											
Ocular	2	6	9															
Muscular	18	25	26															
Artefactual	24	28	33	34	35	37	39	40	45	46	47	48	49	50	51	52		

Ocular Component



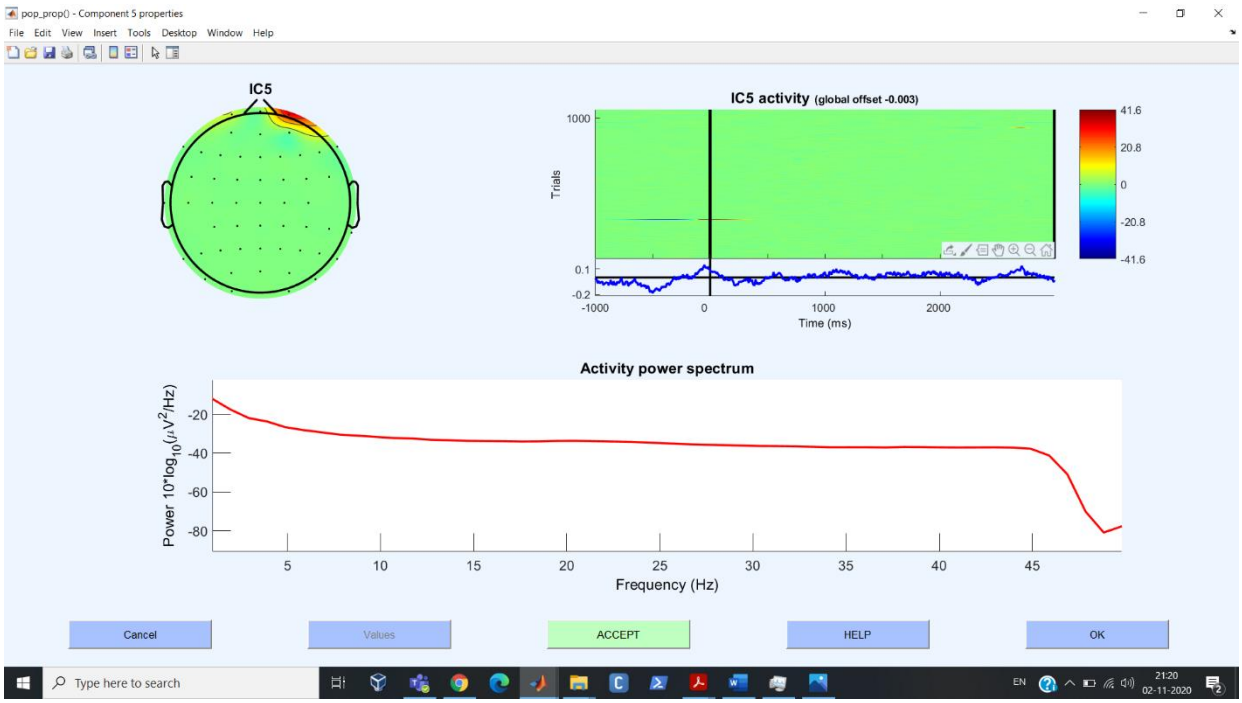
This component captures the effect of eye .Scalp topographies that the electrodes are near eyes that is the activity is primarily located in the frontal lobe . In the power spectrum it is evident that the power is decreasing at low frequencies (below 5 HZ) . Multiple residual horizontal lines IC2 activity plot are visible

Muscular Component



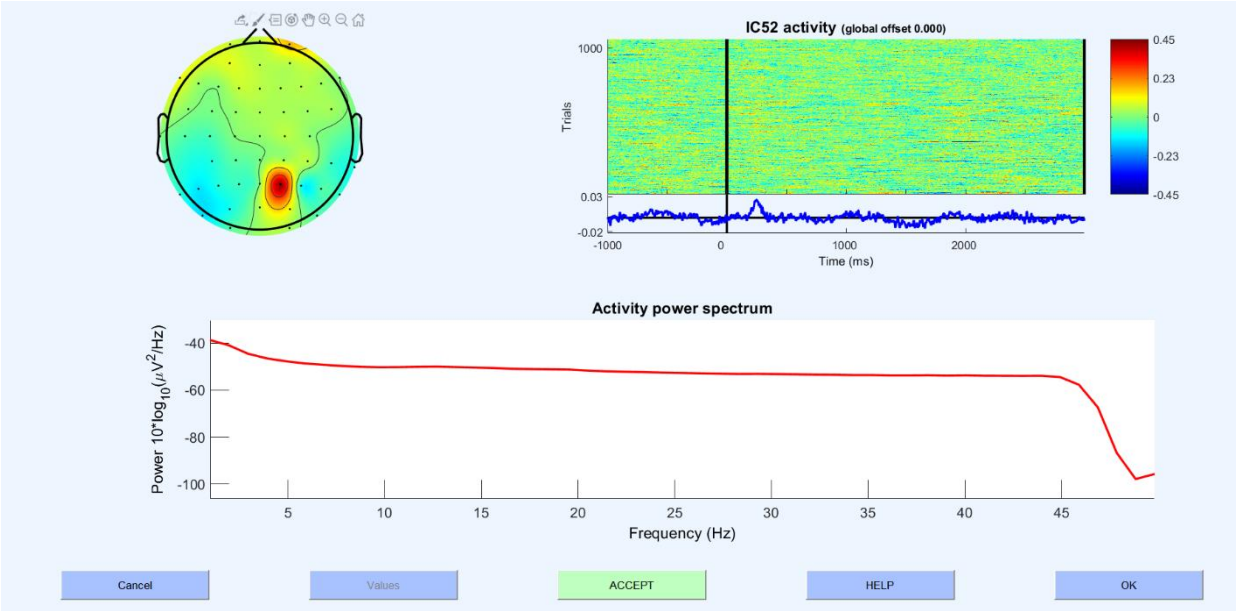
Here the power concentrated in higher frequencies (20 Hz and above) . Also , looking at the scalp topography it is evident that the electrode is located outside the shell

Neural Component



In this plot, it is evident that the power spectrum suggests a brain source because of the peak at 10 Hz. In addition , the power spectrum decreases as frequency increased (1/f)

Artefactual Component :-



The activity in the topological scalp map is unusual , as it is concentrated in two different areas of the head. The ERP Image is noisy, and activity reduces at randomly spread. The power content in the activity power spectrum is constantly decreasing

3.What is the prominent frequency in the spectra? Where is the activity of that frequency mainly located in the topography? Paste the image of the spectra you obtained

Answer :- The prominent frequency is 4-10Hz.The activity in that region is prominently Neural