In the Name of God

General Test Conditions:

No. of Channels:	1 to 5	No. of Subjects:	109
–	–	Baseline Channel:	T10 (In case of use)
Task:	REO	No. of Epochs:	25
Orthogonal:	Yes (In case of use)	Tries:	3
Inner Shift:	4	Outer Shift:	8

Overall Test Results:

Channels No.	Number of Tries	Previously Selected Channel(s)	Baseline	Orthog.	Best Channel	Train Data		Validation Data		Test Data	
						Loss	Acc.	Loss	Acc.	Loss	Acc.
1	3	-	-	×	Oz (2 out of 3) (+)	0.4655	0.8514	0.5062	0.8362	0.5059	0.8352
					Oz (2 out of 3) (+)	0.4724	0.8487	0.5068	0.8344	0.5079	0.8338
2	3	Oz	-	✓	F8 (0 out of 3) (+)	0.0617	0.9805	0.0749	0.9748	0.0775	0.9749
					F8 (1 out of 3) (+)	0.0617	0.9805	0.0749	0.9748	0.0775	0.9749
	3	Oz	-	×	Fz (1 out of 3) (+)	0.1512	0.9548	0.1838	0.9418	0.1807	0.9433
					Fz (1 out of 3) (+)	0.1512	0.9548	0.1838	0.9418	0.1807	0.9433
3	3	Oz, F8	-	✓	– (+)						
					– (+)						
	3	Oz, Fz	-	×	– (+)						
					– (+)						

Description:

Blue color: Best Channel according to the train accuracy.

Red color: Best Channel according to the test accuracy.

+: Link to the figures and tables in detail.

(BACK TO RESULT TABLE)

Case 1 Test Conditions:

No. of Channels:	1	No. of Subjects:	109
Previous Selected Channels:	–	Baseline Channel:	–
Task:	REO	No. of Epochs:	25
Orthogonal:	No.	Tries:	3
Inner Shift:	4	Outer Shift:	8

Table 1: Avg. Results for Searching first best channel with 109 subjects, no baseline is removed. Channels are sorted due to the test data accuracy.

Channel	Train Data		Validation Data		Test Data	
	Loss	Acc.	Loss	Acc.	Loss	Acc.
P4,52	1.0402	0.6749	1.0848	0.6619	1.0916	0.6598
P3,48	0.9958	0.6864	1.0424	0.6734	1.0434	0.6708
Pz,50	0.9156	0.7207	0.9726	0.7029	0.9715	0.7021
F7,29	0.9033	0.7149	0.9488	0.7034	0.9472	0.7039
P8,54	0.9010	0.7197	0.9443	0.7059	0.9484	0.7056
Fp1,21	0.8695	0.7283	0.9234	0.7103	0.9251	0.7117
Cz,10	0.8564	0.7309	0.9083	0.7171	0.9093	0.7150
C3,8	0.8013	0.7504	0.8514	0.7357	0.8491	0.7352
Fp2,23	0.7990	0.7551	0.8465	0.7393	0.8429	0.7402
Fz,33	0.7587	0.7573	0.8083	0.7431	0.8037	0.7438
T8,41	0.7296	0.7615	0.7619	0.7513	0.7653	0.7493
P7,46	0.7243	0.7653	0.7658	0.7512	0.7685	0.7509
F3,31	0.7160	0.7695	0.7643	0.7542	0.7626	0.7540
F4,35	0.7146	0.7707	0.7539	0.7588	0.7578	0.7573
C4,12	0.7111	0.7783	0.7627	0.7608	0.7712	0.7586
T7,40	0.6517	0.7892	0.6894	0.7793	0.6893	0.7757
F8,36	0.6471	0.7958	0.6889	0.7832	0.6925	0.7802
O2,62	0.5575	0.8189	0.5895	0.8055	0.5958	0.8050
O1,60	0.5302	0.8252	0.5660	0.8137	0.5692	0.8105
Oz,61	0.4655	0.8514	0.5062	0.8362	0.5059	0.8352

Table 2: Best channels, in order, in each try.

		Try 1	Try 2	Try 3
B.C.	Train	***Oz***>O2>O1	***Oz***>O2>T7	O1>***Oz***>O2
	Test	***Oz***>O2>T7	***Oz***>O2>T7	O1>***Oz***>O2

Case 1 Test Conditions: (*continued*)

No. of Channels:	1	No. of Subjects:	109
Previous Selected Channels:	–	Baseline Channel:	–
Task:	REO	No. of Epochs:	25
Orthogonal:	No.	Tries:	3
Inner Shift:	4	Outer Shift:	8

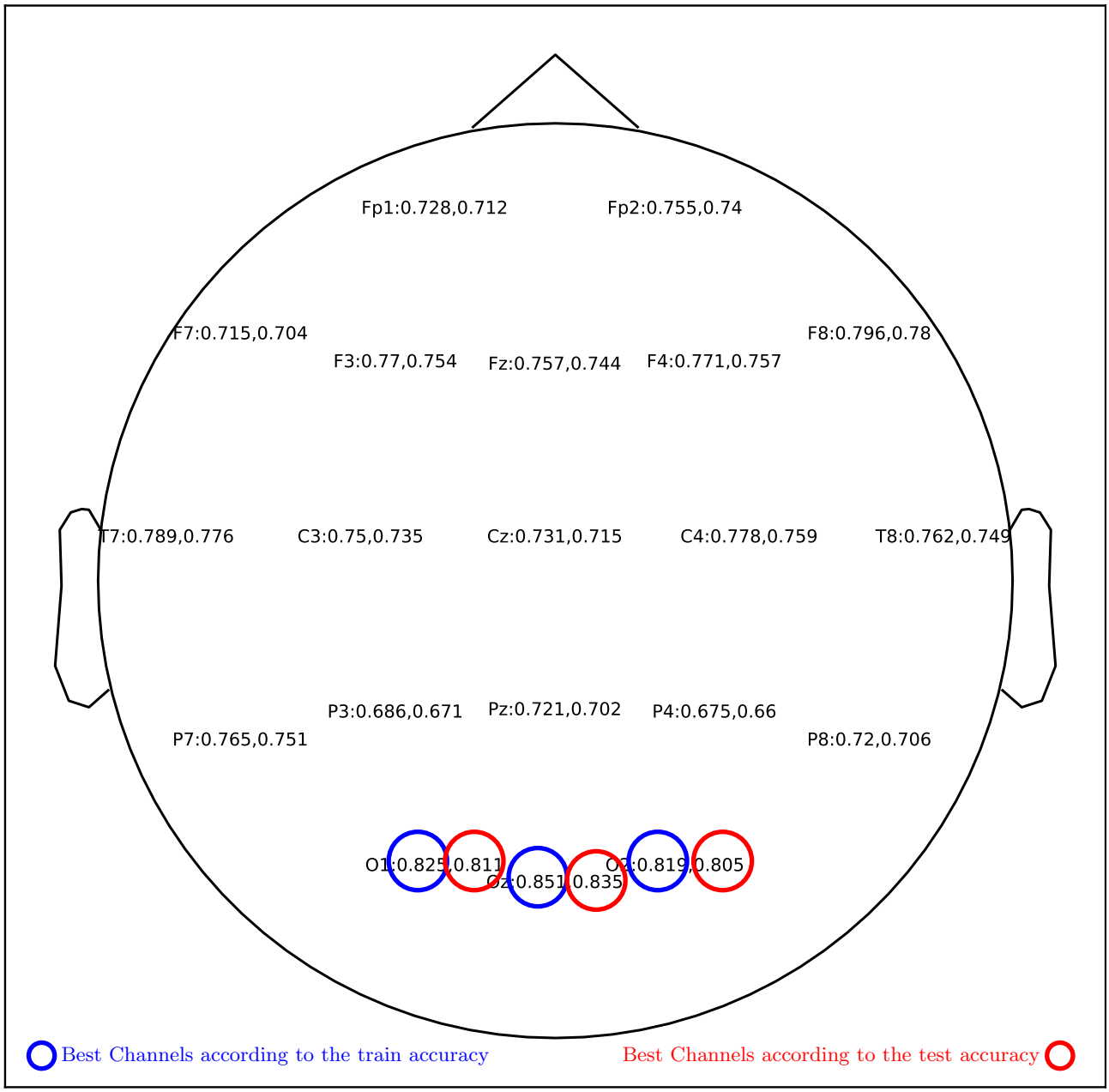

Figure 1: Avg. Results for Searching first best channel with 109 subjects, no baseline is removed.

(BACK TO RESULT TABLE)

Case 2 Test Conditions:

No. of Channels:	2	No. of Subjects:	109
Previous Selected Channels:	Oz	Baseline Channel:	–
Task:	REO	No. of Epochs:	25
Orthogonal:	Yes	Tries:	3
Inner Shift:	4	Outer Shift:	8

Table 3: Avg. Results for Searching the second best channel with 109 subjects with orthogonalization. No baseline is removed. Channels are sorted due to the test data accuracy.

Channel	Train Data		Validation Data		Test Data	
	Loss	Acc.	Loss	Acc.	Loss	Acc.
Oz,61	0.5181	0.8288	0.5471	0.8178	0.5535	0.8169
T8,41	0.1324	0.9557	0.1573	0.9482	0.1573	0.9475
Fp2,23	0.1206	0.9618	0.1451	0.9519	0.1480	0.9519
P4,52	0.1167	0.9620	0.1380	0.9542	0.1404	0.9535
C3,8	0.1144	0.9650	0.1366	0.9555	0.1384	0.9548
P3,48	0.1062	0.9637	0.1255	0.9565	0.1258	0.9567
O1,60	0.1092	0.9650	0.1290	0.9574	0.1297	0.9574
Pz,50	0.1107	0.9639	0.1279	0.9579	0.1267	0.9585
Fp1,21	0.0998	0.9686	0.1180	0.9620	0.1216	0.9607
C4,12	0.0901	0.9718	0.1106	0.9634	0.1131	0.9622
Cz,10	0.0912	0.9706	0.1102	0.9631	0.1112	0.9629
F3,31	0.0876	0.9728	0.1080	0.9648	0.1109	0.9636
T7,40	0.0887	0.9724	0.1069	0.9668	0.1107	0.9639
F7,29	0.0866	0.9725	0.1017	0.9665	0.1083	0.9648
O2,62	0.0893	0.9722	0.1086	0.9657	0.1095	0.9652
P7,46	0.0839	0.9728	0.1018	0.9663	0.1017	0.9661
F4,35	0.0774	0.9760	0.1000	0.9668	0.1025	0.9668
Fz,33	0.0754	0.9770	0.0933	0.9702	0.0976	0.9687
P8,54	0.0702	0.9794	0.0886	0.9726	0.0895	0.9722
F8,36	0.0617	0.9805	0.0749	0.9748	0.0775	0.9749

Table 4: Best channels, in order, in each try.

		Try 1	Try 2	Try 3
B.C.	Train	Fz>F7>Fp1>***F8***	O2>P3>***F8***	F7>O2>***F8***
	Test	F7>Fz>***F8***	O2>***F8***>P3	***F8***>F7>P8

Case 2 Test Conditions: (*continued*)

No. of Channels:	2	No. of Subjects:	109
Previous Selected Channels:	Oz	Baseline Channel:	–
Task:	REO	No. of Epochs:	25
Orthogonal:	Yes	Tries:	3
Inner Shift:	4	Outer Shift:	8

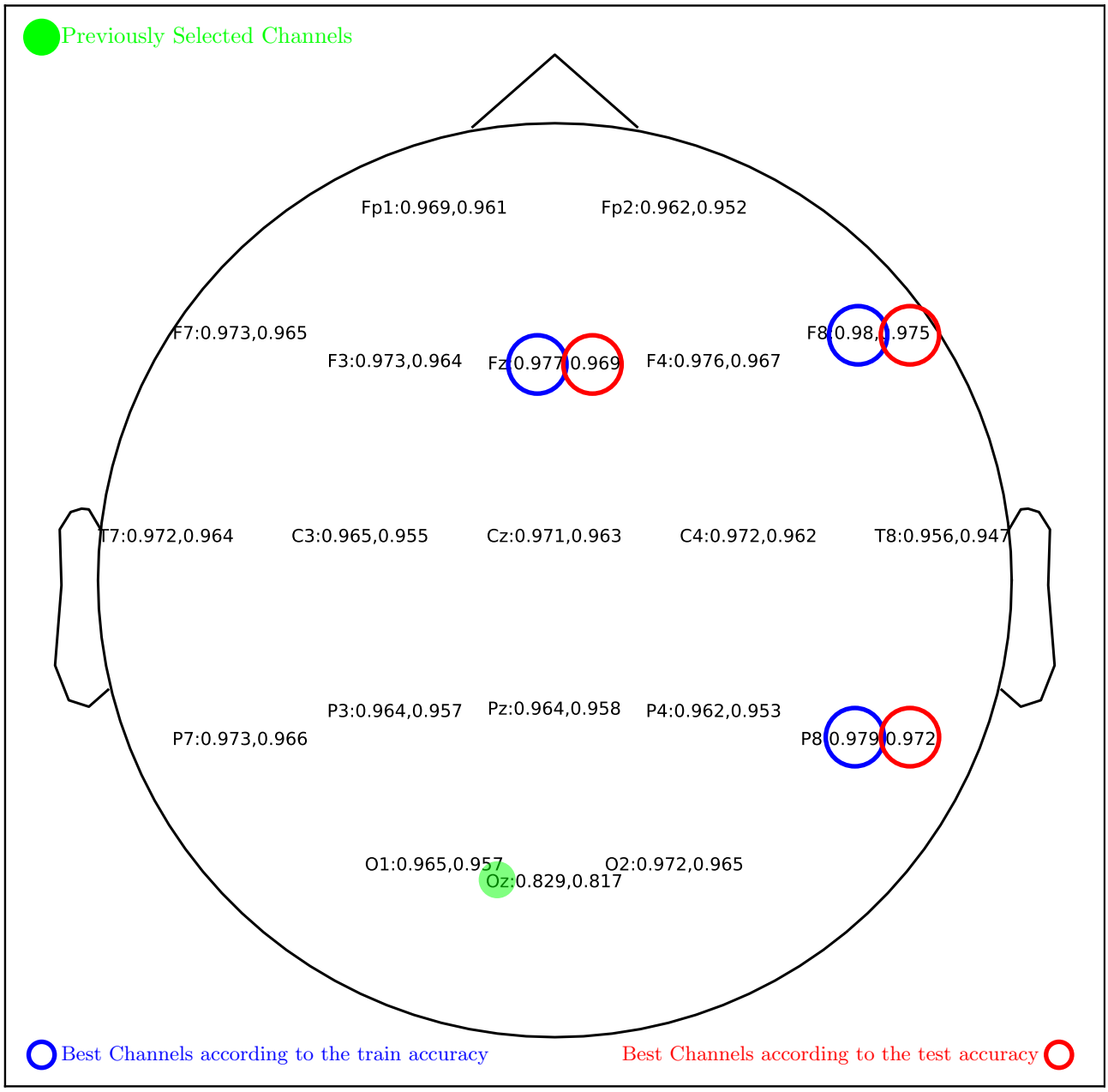

Figure 2: Avg. Results for Searching the second best channel with 109 subjects with orthogonalization. No baseline is removed.

(BACK TO RESULT TABLE)

Case 3 Test Conditions:

No. of Channels:	2	No. of Subjects:	109
Previous Selected Channels:	Oz	Baseline Channel:	–
Task:	REO	No. of Epochs:	25
Orthogonal:	No	Tries:	3
Inner Shift:	4	Outer Shift:	8

Table 5: Avg. Results for Searching the second best channel with 109 subjects without orthogonalization. No baseline is removed. Channels are sorted due to the test data accuracy.

Channel	Train Data		Validation Data		Test Data	
	Loss	Acc.	Loss	Acc.	Loss	Acc.
Oz,61	0.4567	0.8518	0.5041	0.8344	0.5049	0.8342
C4,12	0.3048	0.9015	0.3435	0.8895	0.3474	0.8878
P7,46	0.2696	0.9148	0.3034	0.9018	0.3095	0.8998
T7,40	0.2629	0.9131	0.2922	0.9050	0.2941	0.9031
Cz,10	0.2610	0.9148	0.2951	0.9037	0.2958	0.9032
Fp2,23	0.2551	0.9196	0.3056	0.9017	0.3076	0.9037
Pz,50	0.2668	0.9170	0.3019	0.9052	0.3013	0.9044
Fp1,21	0.2535	0.9247	0.3078	0.9057	0.3089	0.9061
C3,8	0.2578	0.9192	0.2900	0.9080	0.2925	0.9075
F7,29	0.2419	0.9247	0.2865	0.9094	0.2876	0.9089
O1,60	0.2408	0.9236	0.2719	0.9114	0.2700	0.9128
P8,54	0.2389	0.9265	0.2729	0.9134	0.2711	0.9153
F3,31	0.2124	0.9305	0.2542	0.9164	0.2539	0.9168
P4,52	0.2213	0.9353	0.2541	0.9227	0.2562	0.9202
F4,35	0.1900	0.9399	0.2265	0.9270	0.2260	0.9260
P3,48	0.2037	0.9386	0.2335	0.9273	0.2346	0.9270
O2,62	0.1943	0.9390	0.2246	0.9275	0.2241	0.9278
F8,36	0.1942	0.9432	0.2284	0.9300	0.2320	0.9297
T8,41	0.1788	0.9497	0.2094	0.9380	0.2096	0.9387
Fz,33	0.1512	0.9548	0.1838	0.9418	0.1807	0.9433

Table 6: Best channels, in order, in each try.

		Try 1	Try 2	Try 3
B.C.	Train	T7>Fp2>F4>P8>Fp1>***Fz***	F4>T8>***Fz***	***Fz***>P3>P7
	Test	T7>Fp2>P8>***Fz***	F4>T8>F7>***Fz***	***Fz***>P3>F3

Case 3 Test Conditions: (*continued*)

No. of Channels:	2	No. of Subjects:	109
Previous Selected Channels:	Oz	Baseline Channel:	–
Task:	REO	No. of Epochs:	25
Orthogonal:	No	Tries:	3
Inner Shift:	4	Outer Shift:	8

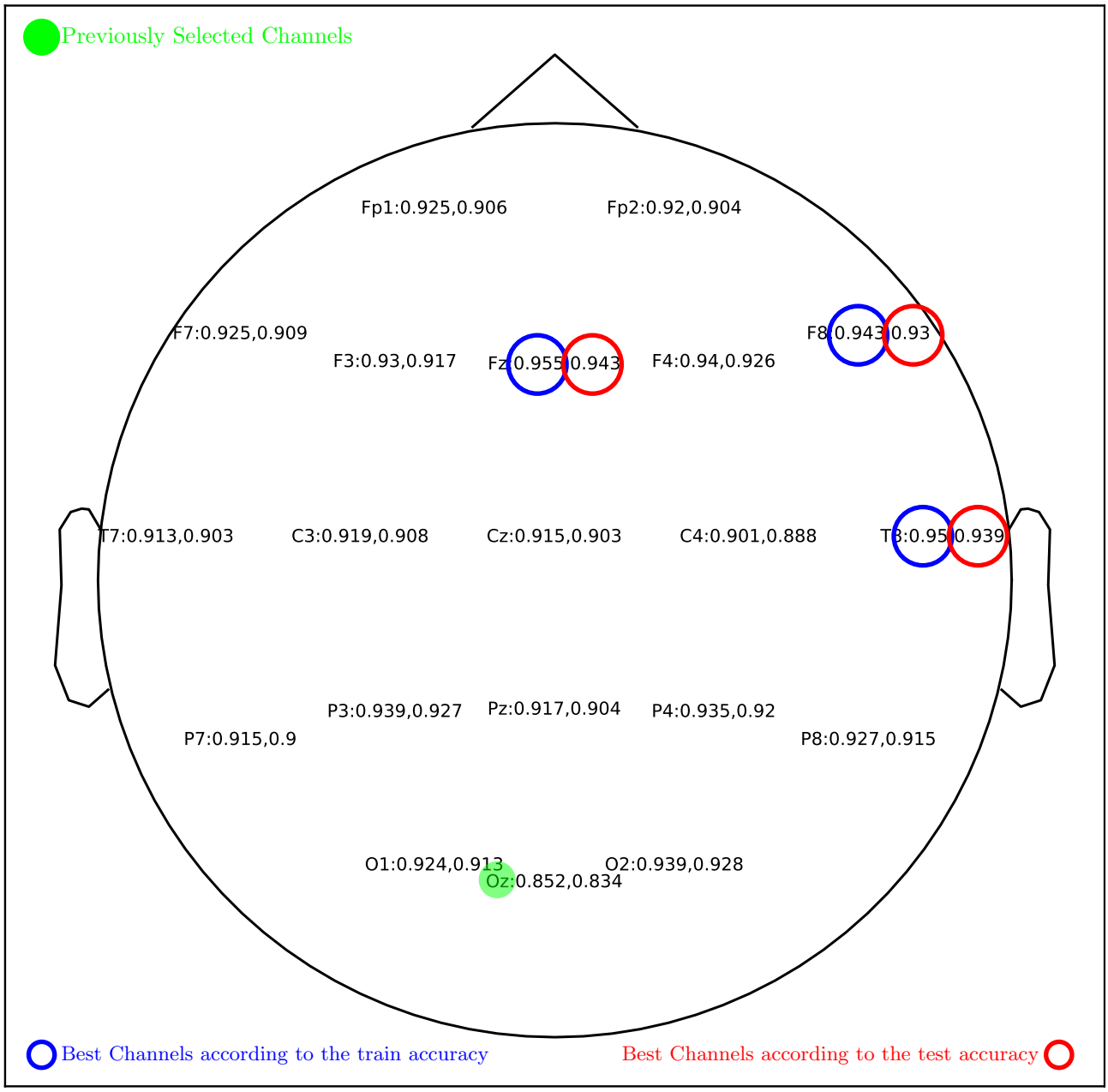

Figure 3: Avg. Results for Searching the second best channel with 109 subjects without orthogonalization. No baseline is removed.