

Table 1: Scale Factors for Cut-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0051579	0.0096436	0.0045056	0.0085278	0.0082247
Loose Cra	0.9922412	0.0150565	0.0126979	0.0050274	0.0080949
Loose End	0.9956855	0.0112427	0.0055546	0.0084801	0.0097816
Loose (TOL) Bar	0.9129495	0.1587595	0.0123317	0.1581528	0.1582803
Loose (TOL) Cra	0.7262012	0.0743115	0.0427211	0.0608049	0.0535105
Loose (TOL) End	0.9387123	0.0979203	0.0211509	0.0861839	0.0956093
Loose (MOL) Bar	1.4463573	0.0386936	0.0298526	0.0193141	0.0246211
Loose (MOL) Cra	1.1879641	0.1777385	0.1397100	0.1098740	0.0992187
Loose (MOL) End	1.2493356	0.1209888	0.0375881	0.0827429	0.1150024
Medium Bar	1.0040416	0.0112915	0.0058500	0.0096639	0.0094776
Medium Cra	0.9852886	0.0197306	0.0177042	0.0087168	0.0071410
Medium End	0.9972842	0.0138888	0.0076382	0.0116044	0.0112487
Medium (TOL) Bar	0.8985131	0.1633505	0.0133320	0.1627654	0.1628059
Medium (TOL) Cra	0.6999691	0.0665063	0.0380976	0.0545136	0.0434993
Medium (TOL) End	0.9327136	0.1128246	0.0191653	0.1018776	0.1111854
Medium (MOL) Bar	1.4457361	0.0426509	0.0330648	0.0263258	0.0269433
Medium (MOL) Cra	1.1846130	0.1272717	0.1131270	0.0583130	0.0515651
Medium (MOL) End	1.2956380	0.1325277	0.0428558	0.0801886	0.1254074
Tight Bar	0.9931430	0.0162603	0.0091083	0.0134731	0.0131083
Tight Cra	0.9388289	0.0313129	0.0298066	0.0096004	0.0086879
Tight End	0.9660308	0.0257526	0.0109429	0.0233135	0.0174766
Tight (TOL) Bar	0.8897621	0.1859032	0.0167223	0.1850006	0.1851499
Tight (TOL) Cra	0.5519245	0.0989232	0.0722644	0.0675559	0.0585412
Tight (TOL) End	0.8825756	0.1259857	0.0291657	0.1158291	0.1225638
Tight (MOL) Bar	1.4785476	0.0591624	0.0433692	0.0399011	0.0402424
Tight (MOL) Cra	0.9573087	0.2011206	0.1364730	0.1477321	0.1472611
Tight (MOL) End	1.2376046	0.1377671	0.0483664	0.0956587	0.1289983

Table 2: Scale Factors for LLH-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9967748	0.0077201	0.0039961	0.0066162	0.0063005
Loose Cra	1.0075418	0.0142548	0.0133019	0.0047801	0.0051309
Loose End	0.9936295	0.0110905	0.0059401	0.0093744	0.0093542
Loose (TOL) Bar	0.9115191	0.1527527	0.0119847	0.1520983	0.1522823
Loose (TOL) Cra	0.7232150	0.0964105	0.0713726	0.0648155	0.0545353
Loose (TOL) End	0.9355829	0.1018361	0.0300963	0.0903652	0.0972880
Loose (MOL) Bar	1.4360497	0.0384850	0.0283859	0.0176903	0.0259897
Loose (MOL) Cra	1.1805747	0.1994452	0.1786868	0.0885976	0.0739725
Loose (MOL) End	1.2546747	0.1240886	0.0374349	0.0853082	0.1183079
Medium Bar	0.9893379	0.0094392	0.0047813	0.0081485	0.0076910
Medium Cra	1.0169228	0.0220612	0.0182638	0.0086682	0.0123774
Medium End	0.9846771	0.0137949	0.0071275	0.0118151	0.0108652
Medium (TOL) Bar	0.9026627	0.1599981	0.0123951	0.1594076	0.1595177
Medium (TOL) Cra	0.7188400	0.0490907	0.0351230	0.0342978	0.0280018
Medium (TOL) End	0.9186089	0.1009068	0.0323879	0.0920965	0.0955685
Medium (MOL) Bar	1.4421906	0.0406780	0.0299519	0.0227926	0.0275263
Medium (MOL) Cra	1.2116717	0.1093142	0.1021835	0.0388359	0.0271408
Medium (MOL) End	1.2292893	0.1251087	0.0386317	0.0829199	0.1189952
Tight Bar	0.9791654	0.0108903	0.0058706	0.0091802	0.0082808
Tight Cra	1.0370012	0.0346439	0.0255105	0.0104562	0.0234424
Tight End	0.9744866	0.0175698	0.0086066	0.0153207	0.0133689
Tight (TOL) Bar	0.8872336	0.1628315	0.0130584	0.1622019	0.1623074
Tight (TOL) Cra	0.7077735	0.0503745	0.0412746	0.0288819	0.0280137
Tight (TOL) End	0.4241116	0.7858238	0.5764776	0.5340345	0.5324969
Tight (MOL) Bar	1.4120923	0.0409463	0.0319984	0.0242045	0.0255506
Tight (MOL) Cra	1.2680776	0.1242831	0.1233014	0.0070361	0.0155943
Tight (MOL) End	1.2034679	0.1332700	0.0404077	0.0786591	0.1269970

Table 3: Scale Factors for BDT-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0021645	0.0079183	0.0053521	0.0058438	0.0057038
Loose Cra	0.9960505	0.0164316	0.0148549	0.0062809	0.0070292
Loose End	1.0052607	0.0125179	0.0077678	0.0090822	0.0098231
Loose (TOL) Bar	0.9181785	0.1491321	0.0127595	0.1481759	0.1485855
Loose (TOL) Cra	0.7088052	0.0946202	0.0613212	0.0720614	0.0610028
Loose (TOL) End	0.9414287	0.1087864	0.0512473	0.0914961	0.0959601
Loose (MOL) Bar	1.4359527	0.0398321	0.0299396	0.0148723	0.0262754
Loose (MOL) Cra	1.1850785	0.1962177	0.1707055	0.0967532	0.0928149
Loose (MOL) End	1.2740284	0.1301879	0.0397715	0.0791732	0.1239647
Medium Bar	1.0399303	0.0110860	0.0088886	0.0059642	0.0066279
Medium Cra	1.0140079	0.0240499	0.0207089	0.0118487	0.0122344
Medium End	1.0725307	0.0214988	0.0137255	0.0165500	0.0123725
Medium (TOL) Bar	0.9573020	0.1427340	0.0160973	0.1412081	0.1418235
Medium (TOL) Cra	0.7271587	0.0643187	0.0374209	0.0523130	0.0419344
Medium (TOL) End	1.0216326	0.0919472	0.0243199	0.0779754	0.0886735
Medium (MOL) Bar	1.4537419	0.0474899	0.0362664	0.0148398	0.0306619
Medium (MOL) Cra	1.2945301	0.1211292	0.1126861	0.0444326	0.0333594
Medium (MOL) End	1.3735600	0.1599206	0.0512162	0.0909720	0.1514980
Tight Bar	1.1008792	0.0204548	0.0134952	0.0143449	0.0153747
Tight Cra	1.0551886	0.0361455	0.0311886	0.0182717	0.0144002
Tight End	1.1587060	0.0245275	0.0207473	0.0130845	0.0095654
Tight (TOL) Bar	1.0140364	0.1476153	0.0218616	0.1455797	0.1459880
Tight (TOL) Cra	0.7602383	0.0845505	0.0478498	0.0697082	0.0564803
Tight (TOL) End	1.0892276	0.0989636	0.0343269	0.0801033	0.0928201
Tight (MOL) Bar	1.5062671	0.0610835	0.0480747	0.0224634	0.0376844
Tight (MOL) Cra	1.4148586	0.1852171	0.1460779	0.1138716	0.0857617
Tight (MOL) End	1.4820446	0.1783589	0.0713121	0.1045348	0.1634825

Table 4: Scale Factors for Cut-Based τ ID + Loose Cut-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.6140390	0.0838403	0.0159552	0.0823091	0.0822113
Loose Cra	0.3542464	0.0553805	0.0429625	0.0349472	0.0344106
Loose End	1.0166681	0.0296614	0.0135649	0.0130498	0.0263797
Loose (TOL) Bar	0.5741185	0.0971401	0.0168766	0.0956630	0.0955469
Loose (TOL) Cra	0.3386769	0.0520394	0.0448005	0.0264786	0.0236784
Loose (TOL) End	0.9591680	0.1500283	0.0290442	0.1309514	0.1471904
Loose (MOL) Bar	0.9468053	0.1278592	0.1254881	0.0245129	0.0204089
Loose (MOL) Cra	0.7904228	0.2737129	0.2425982	0.1267479	0.1266098
Loose (MOL) End	1.3960885	0.1304005	0.0571920	0.0432973	0.1171900
Medium Bar	0.6159692	0.0834565	0.0167397	0.0817608	0.0815424
Medium Cra	0.3617010	0.0478717	0.0456869	0.0143035	0.0138279
Medium End	1.0187856	0.0281957	0.0140495	0.0150881	0.0244496
Medium (TOL) Bar	0.5772633	0.0973606	0.0176482	0.0957482	0.0955709
Medium (TOL) Cra	0.3396448	0.0484994	0.0471163	0.0115060	0.0064332
Medium (TOL) End	0.9592517	0.1592143	0.0299036	0.1384486	0.1563810
Medium (MOL) Bar	0.9633185	0.1027019	0.1003302	0.0219456	0.0070825
Medium (MOL) Cra	0.8393845	0.2913569	0.2710197	0.0855397	0.1069455
Medium (MOL) End	1.4187669	0.1441336	0.0599241	0.0379119	0.1310867
Tight Bar	0.6291891	0.0958848	0.0203796	0.0936946	0.0933623
Tight Cra	0.3386289	0.0612527	0.0578160	0.0139898	0.0202323
Tight End	0.9925527	0.0332039	0.0161182	0.0134866	0.0290316
Tight (TOL) Bar	0.5937714	0.1112155	0.0213966	0.1091380	0.1087104
Tight (TOL) Cra	0.3084675	0.0600116	0.0588354	0.0118250	0.0110214
Tight (TOL) End	0.9019481	0.1611716	0.0322948	0.1441842	0.1579033
Tight (MOL) Bar	1.0433278	0.0871596	0.0742337	0.0456758	0.0343186
Tight (MOL) Cra	1.0308032	0.4458176	0.4334987	0.0679043	0.1040785
Tight (MOL) End	1.3315356	0.1517557	0.0650918	0.0774859	0.1370874

Table 5: Scale Factors for LLH-Based τ ID + Loose Cut-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.6193244	0.0796247	0.0155003	0.0781019	0.0780556
Loose Cra	0.3528519	0.0432122	0.0428249	0.0057805	0.0055149
Loose End	1.0156128	0.0275245	0.0136027	0.0139332	0.0239297
Loose (TOL) Bar	0.5828230	0.0984002	0.0165536	0.0969983	0.0968723
Loose (TOL) Cra	0.3365332	0.0488159	0.0447929	0.0194074	0.0181191
Loose (TOL) End	0.9542382	0.1494931	0.0289319	0.1299863	0.1466672
Loose (MOL) Bar	0.9707612	0.0957956	0.0924666	0.0250364	0.0237525
Loose (MOL) Cra	0.8642705	1.1627251	1.0400669	0.5155739	0.5197987
Loose (MOL) End	1.4025776	0.1372373	0.0572761	0.0460735	0.1247141
Medium Bar	0.6152603	0.0834745	0.0159476	0.0819373	0.0817653
Medium Cra	0.3443181	0.0490601	0.0456246	0.0174911	0.0180367
Medium End	1.0084057	0.0260633	0.0141622	0.0140968	0.0218831
Medium (TOL) Bar	0.5806941	0.1035586	0.0169899	0.1021558	0.1019768
Medium (TOL) Cra	0.3227143	0.0479426	0.0469844	0.0095433	0.0095421
Medium (TOL) End	0.9367978	0.1510254	0.0294213	0.1319497	0.1481321
Medium (MOL) Bar	0.9860469	0.1003912	0.0984301	0.0197501	0.0149362
Medium (MOL) Cra	0.8692869	0.3572902	0.2953537	0.1272240	0.2010535
Medium (MOL) End	1.3664176	0.1431397	0.0582645	0.0485053	0.1307454
Tight Bar	0.6099137	0.0849670	0.0166987	0.0833108	0.0830900
Tight Cra	0.3338918	0.0584063	0.0513990	0.0274463	0.0277401
Tight End	0.9974622	0.0291204	0.0149585	0.0152231	0.0249876
Tight (TOL) Bar	0.5746443	0.1014386	0.0176859	0.0998859	0.0997197
Tight (TOL) Cra	0.3053934	0.0551479	0.0520685	0.0181724	0.0181541
Tight (TOL) End	0.9303695	0.1583811	0.0306263	0.1405616	0.1553924
Tight (MOL) Bar	0.9712887	0.0645344	0.0577182	0.0288695	0.0261688
Tight (MOL) Cra	0.7147332	0.3189324	0.2971474	0.1021423	0.1158511
Tight (MOL) End	1.3781994	0.1559281	0.0615090	0.0479095	0.1432843

Table 6: Scale Factors for BDT-Based τ ID + Loose Cut-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.6219595	0.0859668	0.0354962	0.0782442	0.0782972
Loose Cra	0.3576248	0.0464252	0.0435499	0.0160877	0.0148985
Loose End	1.0352665	0.0304680	0.0151027	0.0129209	0.0264636
Loose (TOL) Bar	0.5880858	0.1058333	0.0386187	0.0984725	0.0985359
Loose (TOL) Cra	0.3404121	0.0471783	0.0453563	0.0129887	0.0069764
Loose (TOL) End	0.9794665	0.1505543	0.0309467	0.1277775	0.1473400
Loose (MOL) Bar	0.9737172	0.1326574	0.1277518	0.0270295	0.0357432
Loose (MOL) Cra	0.8479507	0.5628637	0.5507216	0.1068826	0.1162817
Loose (MOL) End	1.4299060	0.1445638	0.0606561	0.0430581	0.1312238
Medium Bar	0.6313919	0.0766570	0.0211384	0.0732271	0.0736854
Medium Cra	0.3521673	0.0561542	0.0487957	0.0277907	0.0260952
Medium End	1.1078673	0.0360402	0.0212072	0.0165399	0.0291427
Medium (TOL) Bar	0.5968348	0.0954981	0.0226520	0.0923066	0.0927729
Medium (TOL) Cra	0.3377831	0.0555904	0.0507818	0.0226203	0.0162199
Medium (TOL) End	0.8308858	0.8620359	0.7575780	0.4113169	0.3404176
Medium (MOL) Bar	0.8914117	0.1659849	0.1642015	0.0086036	0.0242680
Medium (MOL) Cra	0.8735149	0.3661669	0.3139268	0.0861628	0.1884893
Medium (MOL) End	1.4843270	0.1639533	0.0751085	0.0486032	0.1457378
Tight Bar	0.6400924	0.1007695	0.0285610	0.0964820	0.0966375
Tight Cra	0.2937476	0.0625155	0.0559049	0.0279804	0.0103903
Tight End	1.1865555	0.0456979	0.0292212	0.0085604	0.0351360
Tight (TOL) Bar	0.5999649	0.1130911	0.0304094	0.1088150	0.1089264
Tight (TOL) Cra	0.2585619	0.0666430	0.0554721	0.0369356	0.0131953
Tight (TOL) End	1.1039039	0.1326653	0.0532938	0.0971036	0.1214904
Tight (MOL) Bar	0.8902834	0.0912343	0.0781821	0.0238083	0.0470250
Tight (MOL) Cra	0.9037866	0.4993151	0.4106630	0.1579459	0.2840276
Tight (MOL) End	1.5417651	0.1666817	0.0989044	0.0586856	0.1341673

Table 7: Scale Factors for Cut-Based τ ID + Medium Cut-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.7778785	0.1168606	0.0976052	0.0640927	0.0642633
Loose Cra	0.4561699	0.0865875	0.0779481	0.0347566	0.0377041
Loose End	1.1928789	0.1294777	0.0571408	0.0722822	0.1161874
Loose (TOL) Bar	0.7299588	0.1524460	0.1154521	0.0995527	0.0987755
Loose (TOL) Cra	0.4406379	0.0862838	0.0827161	0.0245568	0.0109608
Loose (TOL) End	1.0557653	0.1763536	0.0655278	0.1169757	0.1637279
Loose (MOL) Bar	0.9056178	0.1913428	0.1877646	0.0368332	0.0348128
Loose (MOL) Cra	0.9375227	0.4517230	0.3617855	0.2704903	0.2056660
Loose (MOL) End	1.4194507	0.2199795	0.1143636	0.1296977	0.1879151
Medium Bar	0.7720858	0.1007556	0.0798102	0.0614995	0.0607947
Medium Cra	0.4482993	0.0970324	0.0815336	0.0155061	0.0526084
Medium End	1.2284940	0.1465080	0.0615070	0.0885336	0.1329721
Medium (TOL) Bar	0.7318876	0.1340216	0.0899704	0.0993340	0.0980237
Medium (TOL) Cra	0.4209866	0.0960676	0.0852100	0.0429323	0.0443662
Medium (TOL) End	1.0863797	0.1987458	0.0717610	0.1335752	0.1853384
Medium (MOL) Bar	0.9139516	0.1432968	0.1407723	0.0267817	0.0092660
Medium (MOL) Cra	0.9979217	0.4469465	0.4174177	0.1597614	0.1398182
Medium (MOL) End	1.5141452	0.2513028	0.1308003	0.1046665	0.2145798
Tight Bar	0.8241342	0.1013720	0.0596745	0.0819475	0.0801342
Tight Cra	0.4306232	0.1439972	0.1057873	0.0076851	0.0976950
Tight End	1.2225590	0.1704224	0.0714621	0.1027156	0.1547159
Tight (TOL) Bar	0.7959232	0.1578657	0.0646037	0.1440417	0.1409419
Tight (TOL) Cra	0.3877182	0.1310625	0.1087991	0.0298448	0.0730767
Tight (TOL) End	1.0187678	0.2136869	0.0811270	0.1570832	0.1976883
Tight (MOL) Bar	1.0155457	0.1094481	0.0951969	0.0540050	0.0369967
Tight (MOL) Cra	1.4747373	0.7950544	0.7694240	0.1654231	0.2002457
Tight (MOL) End	1.4769727	0.3087333	0.1538289	0.2326899	0.2676809

Table 8: Scale Factors for LLH-Based τ ID + Medium Cut-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.7956620	0.0607132	0.0396751	0.0447273	0.0459569
Loose Cra	0.4635496	0.2743896	0.2585927	0.0828065	0.0917589
Loose End	1.1985918	0.1341592	0.0574627	0.0713307	0.1212304
Loose (TOL) Bar	0.7668960	0.1166516	0.0782666	0.0864989	0.0854770
Loose (TOL) Cra	0.4457595	0.3060341	0.2797716	0.1240358	0.1238795
Loose (TOL) End	1.0560106	0.1823855	0.0658386	0.1237011	0.1700879
Loose (MOL) Bar	0.9443129	0.1267722	0.1201734	0.0395868	0.0403694
Loose (MOL) Cra	1.0420964	2.0785079	1.8784397	0.8897525	0.8879280
Loose (MOL) End	1.4426598	0.2376974	0.1161720	0.1536174	0.2073747
Medium Bar	0.7909136	0.0693282	0.0422818	0.0549430	0.0543481
Medium Cra	0.4267867	0.0951724	0.0846411	0.0269071	0.0435176
Medium End	1.2018273	0.1398820	0.0601932	0.0759484	0.1262689
Medium (TOL) Bar	0.7626651	0.1064889	0.0466967	0.0957050	0.0942372
Medium (TOL) Cra	0.4027584	0.1082404	0.0888383	0.0604359	0.0618369
Medium (TOL) End	1.0314354	0.1747707	0.0677600	0.1151392	0.1611008
Medium (MOL) Bar	0.9512846	0.1263613	0.1233833	0.0272738	0.0210869
Medium (MOL) Cra	1.0820354	0.5537418	0.4947811	0.2344677	0.2486397
Medium (MOL) End	1.3893022	0.2292651	0.1200395	0.1320953	0.1953284
Tight Bar	0.7771721	0.0815892	0.0457579	0.0675510	0.0673993
Tight Cra	0.3823594	0.1014006	0.0937288	0.0206956	0.0386934
Tight End	1.2322957	0.1549564	0.0655947	0.0963214	0.1403887
Tight (TOL) Bar	0.7484273	0.1236094	0.0501653	0.1129728	0.1124525
Tight (TOL) Cra	0.3467265	0.1043297	0.0970933	0.0262018	0.0381798
Tight (TOL) End	1.0511691	0.1920257	0.0739277	0.1375320	0.1772248
Tight (MOL) Bar	0.9445049	0.0963815	0.0916126	0.0299444	0.0295704
Tight (MOL) Cra	0.9072545	0.5808473	0.5349180	0.2154796	0.2263767
Tight (MOL) End	1.4916281	0.2674688	0.1365351	0.1478821	0.2299953

Table 9: Scale Factors for BDT-Based τ ID + Medium Cut-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8028164	0.1125833	0.1011986	0.0479830	0.0493347
Loose Cra	0.4601868	0.1522317	0.1454621	0.0230114	0.0448926
Loose End	1.2237214	0.1408051	0.0604684	0.0658418	0.1271602
Loose (TOL) Bar	0.7741007	0.1445164	0.1132953	0.0882030	0.0897174
Loose (TOL) Cra	0.4432197	0.1659560	0.1575016	0.0522951	0.0509345
Loose (TOL) End	1.0973134	0.1940736	0.0701405	0.1217262	0.1809559
Loose (MOL) Bar	0.9612496	0.1846897	0.1727793	0.0536551	0.0652512
Loose (MOL) Cra	1.2155898	1.0440002	1.0043694	0.2849191	0.2804312
Loose (MOL) End	1.5294450	0.2564860	0.1255756	0.1462250	0.2236424
Medium Bar	0.7699974	0.0720270	0.0476647	0.0505522	0.0540006
Medium Cra	0.4858918	0.1234949	0.0946040	0.0230502	0.0793798
Medium End	1.2338922	0.1791038	0.0719026	0.0784191	0.1640378
Medium (TOL) Bar	0.7415483	0.0989323	0.0528829	0.0815939	0.0836127
Medium (TOL) Cra	0.4591391	0.1156304	0.0990015	0.0535650	0.0597433
Medium (TOL) End	1.1030041	0.2159814	0.0830540	0.1035306	0.1993744
Medium (MOL) Bar	0.8908704	0.2276271	0.2251270	0.0194897	0.0336466
Medium (MOL) Cra	1.8226672	0.8227376	0.7092410	0.3929979	0.4169827
Medium (MOL) End	1.5709999	0.3074190	0.1486838	0.1176066	0.2690720
Tight Bar	0.7629060	0.1051855	0.0609641	0.0808253	0.0857173
Tight Cra	0.3467129	0.1238813	0.1008931	0.0556115	0.0718837
Tight End	1.2273944	0.1894579	0.0939712	0.1020944	0.1645109
Tight (TOL) Bar	0.7310714	0.1276095	0.0670142	0.1039836	0.1085973
Tight (TOL) Cra	0.3018020	0.1231653	0.1013234	0.0700239	0.0217194
Tight (TOL) End	1.1309022	0.2268439	0.1094712	0.1333831	0.1986816
Tight (MOL) Bar	0.8709582	0.1080643	0.0946859	0.0227688	0.0520820
Tight (MOL) Cra	1.8166247	1.0599974	0.9339288	0.4817336	0.5013699
Tight (MOL) End	1.5516860	0.3118483	0.1902421	0.1365588	0.2470981

Table 10: Scale Factors for Cut-Based τ ID + Tight Cut-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8031703	0.2905856	0.2626024	0.1239534	0.1244189
Loose Cra	0.4105546	0.1429891	0.1312418	0.0567585	0.0395043
Loose End	1.4875922	0.1591106	0.0863277	0.0785918	0.1336557
Loose (TOL) Bar	0.8501991	0.3318062	0.2949023	0.1514990	0.1520794
Loose (TOL) Cra	0.4283681	0.1493475	0.1370034	0.0594550	0.0415535
Loose (TOL) End	1.3507146	0.2985687	0.1116863	0.2163857	0.2768926
Loose (MOL) Bar	1.1042920	0.5566049	0.5410289	0.1287678	0.1307553
Loose (MOL) Cra	0.6642296	1.0171710	0.6712476	0.7642406	0.5171401
Loose (MOL) End	1.8792264	0.3376243	0.1807058	0.1820610	0.2851942
Medium Bar	0.7586689	0.1996248	0.1817137	0.0816294	0.0826460
Medium Cra	0.3943172	0.1430146	0.1329675	0.0460072	0.0526585
Medium End	1.5115440	0.1863601	0.0896155	0.0948629	0.1633991
Medium (TOL) Bar	0.8072928	0.2302255	0.2022944	0.1089166	0.1099127
Medium (TOL) Cra	0.4107423	0.1495382	0.1385737	0.0494683	0.0562066
Medium (TOL) End	1.3785986	0.3242824	0.1171195	0.2158395	0.3023942
Medium (MOL) Bar	1.0246186	0.3559551	0.3485765	0.0708616	0.0721014
Medium (MOL) Cra	0.7329067	0.7721521	0.7433189	0.2013829	0.2090361
Medium (MOL) End	1.9310355	0.3573592	0.1925250	0.0988558	0.3010645
Tight Bar	0.8825281	0.1686677	0.1113805	0.1257487	0.1266619
Tight Cra	0.2778807	0.1856044	0.1402894	0.0478262	0.1215235
Tight End	1.5122077	0.2038133	0.1020722	0.0987005	0.1764122
Tight (TOL) Bar	0.9352117	0.2217530	0.1209987	0.1850048	0.1858328
Tight (TOL) Cra	0.2866305	0.1917889	0.1447349	0.0505566	0.1258370
Tight (TOL) End	1.3327447	0.3376576	0.1317794	0.2373511	0.3108810
Tight (MOL) Bar	1.2258715	0.2101194	0.1859233	0.0896148	0.0978920
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.8257630	0.3812197	0.2171381	0.2306880	0.3133363

Table 11: Scale Factors for LLH-Based τ ID + Tight Cut-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8840096	0.1888814	0.1547396	0.1006999	0.1083143
Loose Cra	0.2998312	0.5035816	0.4828611	0.1371430	0.1429678
Loose End	1.5032443	0.1764865	0.0870599	0.0742888	0.1535191
Loose (TOL) Bar	0.9574013	0.2242300	0.1738391	0.1336486	0.1416303
Loose (TOL) Cra	0.3121659	0.5252367	0.5033974	0.1438617	0.1498825
Loose (TOL) End	1.3766885	0.3216701	0.1134674	0.2265414	0.3009932
Loose (MOL) Bar	1.2761069	0.3311378	0.2968720	0.1216082	0.1466952
Loose (MOL) Cra	0.0000000	0.8123864	0.0000000	0.8123865	0.8123865
Loose (MOL) End	1.9251768	0.3679301	0.1843500	0.2043517	0.3184144
Medium Bar	0.8557800	0.1728291	0.1430353	0.0938218	0.0970102
Medium Cra	0.3780683	0.1736392	0.1443727	0.0791660	0.0964742
Medium End	1.4800260	0.1852673	0.0898351	0.0814126	0.1620302
Medium (TOL) Bar	0.9164006	0.2050551	0.1583139	0.1269976	0.1303245
Medium (TOL) Cra	0.3926269	0.1809090	0.1499889	0.0833839	0.1011509
Medium (TOL) End	1.2864178	0.3036277	0.1132652	0.1972413	0.2817106
Medium (MOL) Bar	1.2355849	0.2758737	0.2690137	0.0478226	0.0611392
Medium (MOL) Cra	0.9141479	0.9540029	0.9292633	0.2042177	0.2158506
Medium (MOL) End	1.7765973	0.3500241	0.1840692	0.1524761	0.2977173
Tight Bar	0.8199995	0.1550664	0.0847991	0.1260478	0.1298263
Tight Cra	0.3636893	0.2061829	0.1643968	0.0702239	0.1244394
Tight End	1.5351421	0.2019170	0.0979555	0.0987784	0.1765655
Tight (TOL) Bar	0.8581133	0.1839627	0.0917177	0.1555102	0.1594688
Tight (TOL) Cra	0.3749366	0.2126167	0.1695049	0.0725078	0.1283511
Tight (TOL) End	1.3815285	0.3520610	0.1271037	0.2440323	0.3283165
Tight (MOL) Bar	1.1745402	0.1832375	0.1648395	0.0590402	0.0800251
Tight (MOL) Cra	0.9499109	1.0001773	0.9733716	0.2182302	0.2300058
Tight (MOL) End	1.9849709	0.4010107	0.2153601	0.1482608	0.3382747

Table 12: Scale Factors for BDT-Based τ ID + Tight Cut-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8418458	0.2688354	0.2463061	0.0982321	0.1077310
Loose Cra	0.2979241	0.2788252	0.2718441	0.0577520	0.0620029
Loose End	1.5117510	0.1852838	0.0904788	0.0699778	0.1616902
Loose (TOL) Bar	0.8890498	0.3069126	0.2750678	0.1259946	0.1361370
Loose (TOL) Cra	0.3102452	0.2903716	0.2830451	0.0604323	0.0648167
Loose (TOL) End	1.4120164	0.3371419	0.1194088	0.2160458	0.3152878
Loose (MOL) Bar	1.1828399	0.5260916	0.4895720	0.1593345	0.1925922
Loose (MOL) Cra	0.0000000	0.7620649	0.0000000	0.7620650	0.7030126
Loose (MOL) End	2.0111864	0.3985491	0.1959519	0.1790534	0.3470509
Medium Bar	0.8810588	0.1509016	0.0914263	0.1116626	0.1200527
Medium Cra	0.3911508	0.1637485	0.1493388	0.0415723	0.0671685
Medium End	1.5650295	0.2499561	0.1064898	0.0960038	0.2261374
Medium (TOL) Bar	0.9296267	0.1806587	0.1002867	0.1413295	0.1502674
Medium (TOL) Cra	0.4096153	0.1719334	0.1564699	0.0450112	0.0712625
Medium (TOL) End	1.4737775	0.3893711	0.1375841	0.2004339	0.3642535
Medium (MOL) Bar	1.2926476	0.1881751	0.1667541	0.0144724	0.0871955
Medium (MOL) Cra	1.4674768	1.6192953	1.4889192	0.6266136	0.6365824
Medium (MOL) End	2.0609097	0.4825961	0.2251847	0.1372649	0.4268383
Tight Bar	0.8230900	0.2165414	0.1141153	0.1714677	0.1840326
Tight Cra	0.1024738	0.1472535	0.1027296	0.1055005	0.0599678
Tight End	1.5583985	0.2637565	0.1381665	0.1248577	0.2246724
Tight (TOL) Bar	0.8698058	0.2402864	0.1242570	0.1913348	0.2056645
Tight (TOL) Cra	0.1062083	0.1528224	0.1064802	0.1096208	0.0626367
Tight (TOL) End	1.5074221	0.3825809	0.1750950	0.2097915	0.3401618
Tight (MOL) Bar	1.1516579	0.2343198	0.1970537	0.0531561	0.1267900
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.9661244	0.4957639	0.2737554	0.2121365	0.4133279

Table 13: Scale Factors for Cut-Based τ ID + Loose BDT-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8272693	0.1618400	0.1302078	0.0947000	0.0961159
Loose Cra	0.4308121	0.1384178	0.1088776	0.0854708	0.0846720
Loose End	1.3987253	0.1151012	0.0728655	0.0640506	0.0891014
Loose (TOL) Bar	0.8210267	0.1715960	0.1358295	0.1033616	0.1048601
Loose (TOL) Cra	0.4319731	0.1386326	0.1091763	0.0854380	0.0846345
Loose (TOL) End	1.3498358	0.1322546	0.0888721	0.0785980	0.0979447
Loose (MOL) Bar	1.0877401	0.3111594	0.3010272	0.0700165	0.0787588
Loose (MOL) Cra	0.6181571	0.5425195	0.3621724	0.4039292	0.3979548
Loose (MOL) End	1.5454265	0.2306974	0.1466759	0.1685439	0.1780660
Medium Bar	0.7411868	0.1419873	0.1190467	0.0773844	0.0771620
Medium Cra	0.3467789	0.1340018	0.1107251	0.0741639	0.0754758
Medium End	1.4033790	0.1129614	0.0855582	0.0177959	0.0737576
Medium (TOL) Bar	0.7233867	0.1460113	0.1217339	0.0806241	0.0804640
Medium (TOL) Cra	0.3479829	0.1343260	0.1111137	0.0741599	0.0754809
Medium (TOL) End	1.3491647	0.1506336	0.1085761	0.0453947	0.1044118
Medium (MOL) Bar	0.9048963	0.2747788	0.2678986	0.0594020	0.0611049
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.6811860	0.2849908	0.1939501	0.1175487	0.2088140
Tight Bar	0.8465341	0.1634824	0.0867534	0.1385657	0.1371582
Tight Cra	0.3094967	0.1992059	0.1397768	0.1118236	0.1419349
Tight End	1.2626859	0.1692740	0.1147584	0.0765033	0.1244362
Tight (TOL) Bar	0.8166571	0.1630463	0.0862636	0.1383574	0.1370583
Tight (TOL) Cra	0.3094967	0.1992096	0.1397822	0.1118236	0.1419349
Tight (TOL) End	1.2187041	0.2045399	0.1446548	0.1446085	0.1177281
Tight (MOL) Bar	1.1758798	0.2096585	0.1638856	0.1233979	0.1307606
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.6993238	0.3712666	0.2880717	0.2342086	0.2144507

Table 14: Scale Factors for LLH-Based τ ID + Loose BDT-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8483981	0.1313807	0.0922739	0.0907324	0.0935231
Loose Cra	0.5157694	0.1288107	0.1267232	0.0200757	0.0230979
Loose End	1.4076236	0.1172569	0.0747797	0.0742239	0.0903176
Loose (TOL) Bar	0.8352743	0.1375321	0.0917531	0.0995572	0.1024528
Loose (TOL) Cra	0.5157694	0.1288153	0.1267280	0.0200757	0.0230979
Loose (TOL) End	1.3336380	0.1499589	0.0904897	0.0962776	0.1195801
Loose (MOL) Bar	1.1348612	0.2199493	0.1882202	0.0937029	0.1138022
Loose (MOL) Cra	1.1564212	0.6019717	0.5291222	0.2730906	0.2870535
Loose (MOL) End	1.5906681	0.2827760	0.1507432	0.2251934	0.2392464
Medium Bar	0.8378710	0.1472613	0.0937945	0.1127080	0.1135279
Medium Cra	0.5343949	0.1816769	0.1633883	0.0382913	0.0794409
Medium End	1.4825981	0.1403167	0.1020866	0.0897432	0.0962667
Medium (TOL) Bar	0.8281948	0.1560724	0.0953284	0.1226299	0.1235766
Medium (TOL) Cra	0.5343949	0.1816818	0.1633940	0.0382913	0.0794409
Medium (TOL) End	1.3799876	0.1696994	0.1187181	0.1212603	0.1132998
Medium (MOL) Bar	1.1680770	0.1920221	0.1883537	0.0121701	0.0373556
Medium (MOL) Cra	1.1990633	0.7936518	0.7105829	0.2566499	0.3534901
Medium (MOL) End	1.5804125	0.3313318	0.2627787	0.1206568	0.2018125
Tight Bar	0.7927577	0.1509625	0.0610770	0.1363519	0.1380561
Tight Cra	0.6729620	0.2719029	0.2284719	0.0558194	0.1474171
Tight End	1.5726323	0.1947988	0.1501550	0.0783980	0.1240974
Tight (TOL) Bar	0.7857407	0.1567073	0.0615969	0.1423035	0.1440943
Tight (TOL) Cra	0.6729620	0.2719170	0.2284888	0.0558194	0.1474171
Tight (TOL) End	1.4454047	0.2190607	0.1673189	0.0987011	0.1413931
Tight (MOL) Bar	1.1146155	0.1377940	0.1166266	0.0546992	0.0733860
Tight (MOL) Cra	2.2195611	1.4843659	1.3440334	0.4409289	0.6300131
Tight (MOL) End	1.6579134	0.4171073	0.2545801	0.0497292	0.3304052

Table 15: Scale Factors for BDT-Based τ ID + Loose BDT-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8242951	0.1707369	0.1446579	0.0871856	0.0906934
Loose Cra	0.4082044	0.1292594	0.1143554	0.0572666	0.0602570
Loose End	1.5053702	0.1393578	0.0924739	0.0856066	0.1042557
Loose (TOL) Bar	0.8071603	0.1797759	0.1482543	0.0978132	0.1016864
Loose (TOL) Cra	0.4096186	0.1296101	0.1147622	0.0572247	0.0602374
Loose (TOL) End	1.3751724	0.3527551	0.3297438	0.1195786	0.1253209
Loose (MOL) Bar	1.0791118	0.3041379	0.2866264	0.0841680	0.1017123
Loose (MOL) Cra	0.7630012	0.4811970	0.4474228	0.1770977	0.1553526
Loose (MOL) End	1.6672059	0.4688003	0.4251758	0.1184546	0.1974828
Medium Bar	0.7764297	0.1956839	0.1743417	0.0874824	0.0888666
Medium Cra	0.5127543	0.1795466	0.1564894	0.0740709	0.0880233
Medium End	1.4096079	0.1782391	0.1149904	0.0789065	0.1361857
Medium (TOL) Bar	0.7446071	0.1997666	0.1754966	0.0936890	0.0954345
Medium (TOL) Cra	0.5129975	0.1796246	0.1565719	0.0740717	0.0880363
Medium (TOL) End	1.2106664	0.6773245	0.6616441	0.1428098	0.1448992
Medium (MOL) Bar	1.0432406	0.3233736	0.3197487	0.0304248	0.0482843
Medium (MOL) Cra	1.9595126	1.3637941	1.1641500	0.5889762	0.7104149
Medium (MOL) End	1.4798416	0.7490985	0.7106597	0.1595069	0.2368786
Tight Bar	0.7991620	0.1439715	0.0801956	0.1114920	0.1195680
Tight Cra	0.3163943	0.2382225	0.1593731	0.1770603	0.1284131
Tight End	1.4584735	0.2398580	0.1511166	0.1398016	0.1862680
Tight (TOL) Bar	0.7713248	0.1478627	0.0801498	0.1156024	0.1242558
Tight (TOL) Cra	0.3163943	0.2382225	0.1593731	0.1770603	0.1284131
Tight (TOL) End	1.2799618	0.2824282	0.1825754	0.1612419	0.2154810
Tight (MOL) Bar	0.9385730	0.1980270	0.1355954	0.1180310	0.1443215
Tight (MOL) Cra	1.7787684	1.9782880	1.8187633	0.7663000	0.7782825
Tight (MOL) End	1.5119906	0.5196135	0.2766701	0.1796894	0.4398317

Table 16: Scale Factors for Cut-Based τ ID + Medium BDT-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9623182	0.4585582	0.4196004	0.1807509	0.1849631
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.5839078	0.7324818	0.6252217	0.3816118	0.3743677
Loose (TOL) Bar	0.8884841	0.4673651	0.4274699	0.1842879	0.1889439
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.4170391	0.8517173	0.7270473	0.4436494	0.4191520
Loose (MOL) Bar	1.1898979	0.8700071	0.8224626	0.2765227	0.2836685
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	2.1842531	1.6892756	1.5086880	0.7599427	0.6475449
Medium Bar	0.7036052	0.3617742	0.3230181	0.1629112	0.1629090
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.8953263	0.3375948	0.2840389	0.1655625	0.1824618
Medium (TOL) Bar	0.6459990	0.3704151	0.3263400	0.1752420	0.1752415
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.6174351	0.3809776	0.2828178	0.2350175	0.2552609
Medium (MOL) Bar	0.7836948	0.6840437	0.6084212	0.3126260	0.3126332
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.6118031	0.7383052	0.5595596	0.3853871	0.4816512
Tight Bar	0.8119733	0.1960107	0.1623624	0.1057843	0.1098125
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.4041379	0.4935870	0.3532875	0.3446973	0.2782622
Tight (TOL) Bar	0.7649050	0.1884515	0.1591593	0.0960660	0.1009080
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.4852991	0.5120004	0.3867696	0.3354905	0.2605145
Tight (MOL) Bar	1.0087800	0.2607932	0.2502499	0.0358994	0.0734043
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.8643595	1.1121119	0.8890474	0.6681226	0.5971023

Table 17: Scale Factors for LLH-Based τ ID + Medium BDT-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9887221	0.3266496	0.2417216	0.2058274	0.2197061
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.6006869	0.8039416	0.6247653	0.5059551	0.4201893
Loose (TOL) Bar	0.9334782	0.3230222	0.2329544	0.2087696	0.2237761
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.6233476	0.9002955	0.7102977	0.5531810	0.4625026
Loose (MOL) Bar	1.2285684	0.5863330	0.4361677	0.3605763	0.3918473
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	2.6680158	1.0937588	0.4888863	0.9784164	0.7151181
Medium Bar	1.0375497	0.3119727	0.2687306	0.1502868	0.1584645
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.0483071	0.7635873	0.6074759	0.4626432	0.3878843
Medium (TOL) Bar	0.9951987	0.3120746	0.2675473	0.1515243	0.1606522
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.1361343	0.8390922	0.6852367	0.4842794	0.3925662
Medium (MOL) Bar	1.3652336	0.4883903	0.4558171	0.1678382	0.1753738
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.4900537	1.4743604	1.2044040	0.8503822	0.7611641
Tight Bar	0.8501012	0.2061780	0.1528621	0.1312905	0.1383571
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.0221241	0.7147008	0.3954477	0.3752160	0.5953306
Tight (TOL) Bar	0.8166036	0.2014815	0.1511790	0.1255526	0.1331912
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.1110885	0.7825723	0.4309752	0.4174208	0.6532074
Tight (MOL) Bar	1.1130615	0.2846720	0.2495152	0.1296510	0.1370416
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.5942377	1.2583396	0.6798229	0.5715971	1.0588955

Table 18: Scale Factors for BDT-Based τ ID + Medium BDT-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0530839	0.4363413	0.3954369	0.1638944	0.1844548
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.6011650	0.9847550	0.9124574	0.3703566	0.3143367
Loose (TOL) Bar	0.9640951	0.4335147	0.3904056	0.1729831	0.1884636
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.6324467	1.1277017	1.0572274	0.3924049	0.3465775
Loose (MOL) Bar	1.2789639	0.7613279	0.7027658	0.2535118	0.2928149
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	2.5867672	3.3489450	3.1550814	1.1228955	0.6630482
Medium Bar	0.9649804	0.4428058	0.4184647	0.1256885	0.1447908
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.2046550	2.7193912	1.9460483	1.8994696	1.7145423
Medium (TOL) Bar	0.8855276	0.4361672	0.4080671	0.1336358	0.1540235
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.1652268	3.2538584	2.3181169	2.2834030	2.0435684
Medium (MOL) Bar	1.3048353	0.7772093	0.7589045	0.1171727	0.1676854
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0000000	3.6559760	0.0000000	3.6559761	3.3035402
Tight Bar	0.8245118	0.2530057	0.1559949	0.1841887	0.1991922
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.9525160	0.7385319	0.5429714	0.3149205	0.5006113
Tight (TOL) Bar	0.8167463	0.2610425	0.1572712	0.1931205	0.2083484
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	2.3539055	0.9515867	0.6603399	0.4993585	0.6851779
Tight (MOL) Bar	1.0594918	0.2917020	0.2429276	0.1314820	0.1614817
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	3.3770571	1.5686915	1.0954159	0.5631421	1.1228790

Table 19: Scale Factors for Cut-Based τ ID + Tight BDT-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0917329	0.9556864	0.9035215	0.3022847	0.3114249
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.6754957	2.2532291	2.0847750	0.8548419	0.8231900
Loose (TOL) Bar	0.9657028	0.9653044	0.9095420	0.3137017	0.3233358
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.5461120	2.3608586	2.1702417	0.9293570	0.8655260
Loose (MOL) Bar	1.0376914	1.5383794	1.4556322	0.4892768	0.4977410
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.9970850	5.2508545	4.8591390	1.9900356	1.6657882
Medium Bar	0.6737393	0.7321038	0.6783924	0.2728584	0.2752453
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	2.4196408	1.7573188	1.7367617	0.1698120	0.2680083
Medium (TOL) Bar	0.5894573	0.7460083	0.6837984	0.2958720	0.2982419
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	2.2547218	1.8202255	1.7982288	0.2700754	0.2821249
Medium (MOL) Bar	0.4029274	1.1385338	1.0171490	0.5078286	0.5115344
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.6170190	4.1317628	4.0393046	0.8691852	0.6942176
Tight Bar	0.8502937	0.6785850	0.6681670	0.1149343	0.1184511
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.5837796	1.0814617	0.7358887	0.7924819	0.6093177
Tight (TOL) Bar	0.7302007	0.6694054	0.6636229	0.0814979	0.0877980
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.5995945	1.0930173	0.7455872	0.7992414	0.6139006
Tight (MOL) Bar	0.6241261	0.8689202	0.8649850	0.0644841	0.0826041
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.9886236	2.7153005	1.8261293	2.0095046	1.4468977

Table 20: Scale Factors for LLH-Based τ ID + Tight BDT-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.1866068	0.6301107	0.4657466	0.3868820	0.4244052
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.1533917	3.0941418	2.5703821	1.7224545	1.5222724
Loose (TOL) Bar	1.0717676	0.6187352	0.4416623	0.3939305	0.4333219
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.2034492	3.2319926	2.7205722	1.7447818	1.5186544
Loose (MOL) Bar	1.2565409	0.9550868	0.6981873	0.5878724	0.6517096
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.3011861	8.6123467	7.1052371	4.8670446	4.3499255
Medium Bar	0.9828401	0.5699199	0.4938315	0.2539982	0.2844985
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.3897037	4.3686730	3.8081700	2.1408283	2.0455610
Medium (TOL) Bar	0.9186727	0.5708490	0.4874291	0.2649685	0.2971221
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.3918237	4.3729048	3.8439215	2.0848416	1.9853247
Medium (MOL) Bar	1.2016759	0.7891537	0.7034777	0.3430036	0.3576073
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0000000	2.4625078	0.0000000	2.4625079	2.4625079
Tight Bar	0.8410830	0.2995519	0.2669690	0.1172979	0.1358641
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	0.9677704	1.5466479	0.9815106	1.1953062	0.2825786
Tight (TOL) Bar	0.7431135	0.2853662	0.2549284	0.1074645	0.1282401
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.9776147	1.5684423	0.9927845	1.2142448	0.3128929
Tight (MOL) Bar	0.8579012	0.3619180	0.3213559	0.1572303	0.1664788
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Table 21: Scale Factors for BDT-Based τ ID + Tight BDT-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.1530114	0.8245067	0.7404797	0.3060481	0.3626310
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	0.0000000	2.9248177	0.0000000	2.9248178	2.6069083
Loose (TOL) Bar	0.9958842	0.8113355	0.7154244	0.3313980	0.3826663
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	0.0000000	3.0002982	0.0000000	3.0002983	2.6719812
Loose (MOL) Bar	1.1326063	1.2091039	1.0772937	0.4605176	0.5489724
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	0.0000000	5.6611826	0.0000000	5.6611827	5.0048512
Medium Bar	1.0923798	0.8187766	0.7812422	0.2222316	0.2450631
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.2583314	1.4355240	0.6443551	0.2492747	1.2827844
Medium (TOL) Bar	1.0201650	0.8146827	0.7683048	0.2468178	0.2709536
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.3478006	1.5686935	0.6914354	0.4076149	1.4080897
Medium (MOL) Bar	1.4381572	0.4015153	0.3034138	0.2438781	0.2629730
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	3.6964777	5.0464369	2.2213847	2.6206926	4.5312224
Tight Bar	0.8550240	0.2777041	0.2330053	0.1004771	0.1510903
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	2.0566720	1.7686621	1.2255712	1.2752024	0.9886466
Tight (TOL) Bar	0.8771106	0.2889873	0.2391707	0.1136320	0.1622072
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	2.0566720	1.9861832	1.2272747	1.5616405	1.3379095
Tight (MOL) Bar	0.9888097	0.3345133	0.3058122	0.1105960	0.1355660
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	5.4789812	7.1325826	4.0634235	5.8619387	5.2440799