

Table 1: Scale Factors for Cut-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9511318	0.0916673	0.0472834	0.0785320	0.0734649
Loose Cra	0.8744624	0.1966842	0.1880466	0.0565266	0.0576478
Loose End	0.9625129	0.0859848	0.0549541	0.0654726	0.0661326
Loose (TOL) Bar	0.9229775	0.1592978	0.1407363	0.0746270	0.0606717
Loose (TOL) Cra	1.0751075	0.3688745	0.3232700	0.0418271	0.1776656
Loose (TOL) End	1.1082170	0.1632001	0.1211792	0.1093161	0.1068209
Loose (MOL) Bar	1.3121403	0.3377621	0.3208109	0.1056585	0.0534236
Loose (MOL) Cra	1.9043654	1.3670057	1.0132953	0.8376378	0.9175715
Loose (MOL) End	1.3328034	0.4806599	0.2289979	0.4226039	0.4158136
Medium Bar	0.9608448	0.0946604	0.0530532	0.0783970	0.0723591
Medium Cra	0.8142664	0.2191018	0.2078383	0.0655988	0.0693464
Medium End	0.9721998	0.1135028	0.0642401	0.0907078	0.0935746
Medium (TOL) Bar	0.8967798	0.2057904	0.1892674	0.0807941	0.0606003
Medium (TOL) Cra	0.9234889	0.3940708	0.3227100	0.0928555	0.2261640
Medium (TOL) End	1.0991035	0.1514882	0.1322031	0.0737226	0.0739669
Medium (MOL) Bar	1.2619375	0.4530413	0.4265825	0.1525580	0.0775152
Medium (MOL) Cra	2.2972613	1.7631651	1.2611872	1.1450286	1.2321357
Medium (MOL) End	1.3764431	0.3427065	0.2559538	0.2278938	0.2273941
Tight Bar	1.0239685	0.1135662	0.0592611	0.0968788	0.0949074
Tight Cra	0.5482260	0.2304604	0.1769615	0.1475816	0.1476371
Tight End	0.9803998	0.1196269	0.0696077	0.0922139	0.0972907
Tight (TOL) Bar	0.9104739	0.1491911	0.1113389	0.0993064	0.0900402
Tight (TOL) Cra	0.5505518	0.3416198	0.2642846	0.2086175	0.2164668
Tight (TOL) End	1.1552092	0.1671876	0.1441840	0.0803021	0.0846330
Tight (MOL) Bar	1.2638728	0.2739355	0.2096696	0.1762936	0.1457259
Tight (MOL) Cra	2.4375544	2.1645318	1.5248715	1.3683736	1.5362178
Tight (MOL) End	1.5614023	0.3124435	0.2936888	0.1038758	0.1066208

Table 2: Scale Factors for LLH-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9642048	0.0848911	0.0454384	0.0717075	0.0690916
Loose Cra	0.8641476	0.1940953	0.1847514	0.0447824	0.0594984
Loose End	0.9521006	0.0876498	0.0577136	0.0643850	0.0659675
Loose (TOL) Bar	0.9598743	0.1894526	0.1666950	0.0900287	0.0764319
Loose (TOL) Cra	1.0756825	0.3608009	0.3225267	0.0412249	0.1617219
Loose (TOL) End	1.0928270	0.1664319	0.1380948	0.0928953	0.0913960
Loose (MOL) Bar	1.3793058	0.4167992	0.3750541	0.1818135	0.1273118
Loose (MOL) Cra	1.5602637	1.0893311	0.8398798	0.6212817	0.6937178
Loose (MOL) End	1.2795929	0.5073882	0.3114249	0.4005714	0.3936270
Medium Bar	0.9639103	0.0978708	0.0485431	0.0849847	0.0821217
Medium Cra	0.8696271	0.2244020	0.2041361	0.0917879	0.0931925
Medium End	0.9533119	0.0971745	0.0618736	0.0724964	0.0749309
Medium (TOL) Bar	0.9481441	0.1388992	0.0982492	0.0981845	0.0849006
Medium (TOL) Cra	1.1039931	0.4035197	0.3509620	0.0344333	0.1991331
Medium (TOL) End	1.0704067	0.1477423	0.1251232	0.0785625	0.0776799
Medium (MOL) Bar	1.3495688	0.2595355	0.2081286	0.1550524	0.1231928
Medium (MOL) Cra	1.6601640	1.2372451	1.0201276	0.5138340	0.7000824
Medium (MOL) End	1.2158314	0.3514323	0.2218960	0.2725196	0.2684758
Tight Bar	0.9407669	0.0990621	0.0508578	0.0850111	0.0798212
Tight Cra	0.6870285	0.1944024	0.1929213	0.0152392	0.0239539
Tight End	0.9674860	0.1057463	0.0640972	0.0778462	0.0841067
Tight (TOL) Bar	0.9169290	0.1373841	0.1015419	0.0925408	0.0851859
Tight (TOL) Cra	0.8161509	0.3687180	0.3175872	0.0953493	0.1873271
Tight (TOL) End	1.0833670	0.1482143	0.1283291	0.0723959	0.0741567
Tight (MOL) Bar	1.3321789	0.2437389	0.1928339	0.1490767	0.1415785
Tight (MOL) Cra	1.4753714	1.6470921	1.0965908	1.0200134	1.2289839
Tight (MOL) End	1.2562391	0.3190666	0.2368309	0.2138100	0.2130077

Table 3: Scale Factors for BDT-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9608752	0.0844381	0.0456092	0.0710617	0.0677048
Loose Cra	0.8436212	0.2025978	0.1915069	0.0528656	0.0661144
Loose End	0.9875128	0.0951493	0.0581656	0.0731994	0.0753010
Loose (TOL) Bar	0.9342651	0.2969447	0.2855664	0.0814132	0.0607520
Loose (TOL) Cra	1.0998494	0.3776640	0.3380622	0.0510278	0.1683572
Loose (TOL) End	1.1406482	0.1544305	0.1448058	0.0536669	0.0533838
Loose (MOL) Bar	1.3228086	0.7055947	0.6858508	0.1657487	0.0971069
Loose (MOL) Cra	1.8474727	1.3253631	1.0049969	0.7827394	0.8640422
Loose (MOL) End	1.4325964	0.4178091	0.3496307	0.2265307	0.2287420
Medium Bar	0.9378910	0.0935905	0.0502582	0.0789523	0.0728461
Medium Cra	0.8617437	0.2128236	0.2023934	0.0358900	0.0658100
Medium End	0.9880931	0.0918498	0.0626521	0.0662244	0.0671655
Medium (TOL) Bar	0.9052173	0.1328333	0.0983221	0.0893171	0.0773032
Medium (TOL) Cra	1.1778723	0.4159554	0.3632651	0.0740617	0.2026265
Medium (TOL) End	1.1445462	0.1585231	0.1304338	0.0900928	0.0898372
Medium (MOL) Bar	1.2835517	0.2305207	0.1853001	0.1300691	0.1371268
Medium (MOL) Cra	2.3061301	1.8986596	1.2498438	1.3549054	1.4292652
Medium (MOL) End	1.4230565	0.3826832	0.2533594	0.2862286	0.2868025
Tight Bar	1.0275473	0.1146882	0.0648721	0.0945788	0.0899084
Tight Cra	0.7433961	0.2193697	0.2101000	0.0479117	0.0630967
Tight End	0.9827406	0.1033639	0.0815260	0.0599840	0.0635429
Tight (TOL) Bar	1.0147436	0.1578179	0.1218383	0.1003096	0.0996945
Tight (TOL) Cra	0.7790072	0.3711049	0.3212341	0.0455815	0.1858163
Tight (TOL) End	1.0968467	0.2030182	0.1456562	0.1414240	0.1411941
Tight (MOL) Bar	1.3966664	0.2775505	0.2307320	0.1542633	0.1510724
Tight (MOL) Cra	1.8357168	1.9616893	1.3642151	1.1222829	1.4096604
Tight (MOL) End	1.3191892	0.5363582	0.2832030	0.4554957	0.4533869

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.7215756	0.2757636	0.2669736	0.0690703	0.0666260
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	0.9380242	0.1225605	0.0724661	0.0963514	0.0988426
Loose (TOL) Bar	0.6933857	0.3320046	0.3290509	0.0441903	0.0368585
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.0801507	0.1905885	0.1726747	0.0772391	0.0806695
Loose (MOL) Bar	1.7589867	1.5981996	1.5742756	0.2754971	0.2386065
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.6143783	0.3870665	0.3278848	0.1939526	0.2056991
Medium Bar	0.7041507	0.2747802	0.2657730	0.0697788	0.0696398
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.9504108	0.1379974	0.0801310	0.1098159	0.1123495
Medium (TOL) Bar	0.6785316	0.3209200	0.3175291	0.0465296	0.0461258
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.0814464	0.1957355	0.1808986	0.0708341	0.0747536
Medium (MOL) Bar	1.5675009	1.2738170	1.2659594	0.1412682	0.1348919
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.5807859	0.3702420	0.3375275	0.1354913	0.1521660
Tight Bar	0.7575490	0.1860860	0.1447386	0.1169519	0.1169568
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	0.9566547	0.1415715	0.0832333	0.1113288	0.1145199
Tight (TOL) Bar	0.6881363	0.1830942	0.1557810	0.0962022	0.0962072
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.1431484	0.2143956	0.1959685	0.0838282	0.0869594
Tight (MOL) Bar	1.3330153	0.5809771	0.4659478	0.3423498	0.3470263
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.7067466	0.3952672	0.3705075	0.1158721	0.1376970

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.7085630	0.3849840	0.3746134	0.0887561	0.0880434
Loose Cra	0.2431591	0.2670174	0.2476763	0.0976187	0.0997741
Loose End	0.9354202	0.1320696	0.0737558	0.1070501	0.1095562
Loose (TOL) Bar	0.7632279	0.4687276	0.4623789	0.0768693	0.0768858
Loose (TOL) Cra	0.2497088	0.2747551	0.2544731	0.1014161	0.1036049
Loose (TOL) End	1.0759168	0.1844524	0.1717781	0.0625015	0.0671942
Loose (MOL) Bar	1.8299758	2.1035379	2.0795217	0.3169568	0.1688624
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.5530391	0.3521305	0.3171195	0.1375039	0.1530728
Medium Bar	0.7443214	0.1562539	0.1253033	0.0933514	0.0915062
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.9381552	0.1397630	0.0770144	0.1133327	0.1166298
Medium (TOL) Bar	0.7516307	0.1619441	0.1433782	0.0752904	0.0712171
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.0798125	0.1930857	0.1785102	0.0697992	0.0735956
Medium (MOL) Bar	1.8073271	0.5872175	0.4953769	0.3153194	0.2920797
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.4476166	0.3287514	0.3150691	0.0697180	0.0938567
Tight Bar	0.6730414	0.1633502	0.1243457	0.1036362	0.1059316
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	0.9374603	0.1426194	0.0794130	0.1141513	0.1184651
Tight (TOL) Bar	0.6336228	0.1536160	0.1370154	0.0633961	0.0694603
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.0747562	0.1992049	0.1832226	0.0751224	0.0781804
Tight (MOL) Bar	1.4963752	0.5629597	0.4745580	0.2695854	0.3028507
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.4409531	0.3459923	0.3286538	0.0881575	0.1081546

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.5494874	1.2857338	1.2337947	0.3617489	0.3222360
Loose Cra	0.2691164	0.2978125	0.2748937	0.1122515	0.1145680
Loose End	0.9714016	0.1349377	0.0753204	0.1094067	0.1119607
Loose (TOL) Bar	0.6431881	1.5698422	1.5387346	0.3109674	0.2724450
Loose (TOL) Cra	0.2771854	0.3074594	0.2832936	0.1171267	0.1194830
Loose (TOL) End	1.1841722	0.3497524	0.3405875	0.0568951	0.0795430
Loose (MOL) Bar	0.9719934	6.9187102	6.6777610	1.8099890	1.3688030
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.7656784	0.8122558	0.7847235	0.0658839	0.2096872
Medium Bar	0.7359811	0.1632372	0.1286298	0.0964902	0.1005029
Medium Cra	0.2853997	0.3100299	0.2907532	0.1049086	0.1076160
Medium End	0.9519265	0.1326909	0.0781681	0.1062565	0.1072230
Medium (TOL) Bar	0.7207035	0.1620302	0.1444832	0.0694781	0.0733385
Medium (TOL) Cra	0.2945021	0.3205841	0.3001934	0.1097515	0.1125087
Medium (TOL) End	1.1240986	0.2021175	0.1858087	0.0721552	0.0795406
Medium (MOL) Bar	1.8031306	0.7000176	0.5107878	0.4565159	0.4786655
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.5838361	0.3625719	0.3391844	0.0878726	0.1281112
Tight Bar	0.7745750	0.1804184	0.1552636	0.0918861	0.0918923
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	0.9672092	0.1423302	0.0978284	0.0994599	0.1033813
Tight (TOL) Bar	0.7152110	0.1861848	0.1696222	0.0767613	0.0767675
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.1577741	0.2274803	0.2151646	0.0716692	0.0738349
Tight (MOL) Bar	1.6712150	0.6420817	0.5565339	0.3157519	0.3202173
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.4182969	0.4039685	0.3652354	0.1612130	0.1726090

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.6146354	1.3720803	1.3560631	0.2090392	0.1730026
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.3708172	0.3978932	0.3102980	0.2421958	0.2490668
Loose (TOL) Bar	2.0061879	2.0812306	2.0641641	0.2659844	0.1909370
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.0787379	0.7659872	0.3550517	0.6771867	0.6787303
Loose (MOL) Bar	3.6114108	4.6645915	4.5439796	1.0538805	0.9651528
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	2.4495990	1.6010321	0.8217651	1.3701085	1.3740474
Medium Bar	1.4134980	1.1612296	1.1445415	0.1961607	0.1922187
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.3817109	0.3671018	0.3241875	0.1612597	0.1722391
Medium (TOL) Bar	1.8669055	1.7292740	1.7264135	0.0994256	0.0819231
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.0286604	0.6496368	0.3584793	0.5394929	0.5417755
Medium (MOL) Bar	3.3089234	1.4535628	1.2434710	0.7527449	0.7482258
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.4762634	1.4245908	0.8799602	1.1138868	1.1203255
Tight Bar	1.2734436	0.4957850	0.4418046	0.2249622	0.2249701
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.4548877	0.3715439	0.3572884	0.0798365	0.1019313
Tight (TOL) Bar	1.5943475	0.7407426	0.6306786	0.3885083	0.3885155
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.0488951	0.5093291	0.3870459	0.3243875	0.3310767
Tight (MOL) Bar	2.1569266	1.2880397	1.0142527	0.7939317	0.7939382
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.6852226	1.2315398	1.0126798	0.6799906	0.7008353

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.4705403	1.6131159	1.4968432	0.6013350	0.5734215
Loose Cra	0.9514853	1.0814471	0.9752075	0.4605125	0.4674381
Loose End	1.3910641	0.3379038	0.3096362	0.1211607	0.1352943
Loose (TOL) Bar	2.3880193	2.4770545	2.4730958	0.1399871	0.0958160
Loose (TOL) Cra	1.0313422	1.1820027	1.0598371	0.5160663	0.5233317
Loose (TOL) End	0.8973736	0.9885892	0.8348992	0.5211089	0.5293886
Loose (MOL) Bar	4.7829182	1.9361893	1.3449413	1.3928252	1.3575431
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.7172340	2.2292435	1.8514475	1.2201089	1.2416397
Medium Bar	1.6318737	0.4921080	0.4418419	0.2166705	0.1882505
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.2945100	0.3229712	0.3104528	0.0602408	0.0890482
Medium (TOL) Bar	2.1769034	0.7241627	0.6401110	0.3386292	0.2954795
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.5873888	0.8112995	0.6922093	0.4146031	0.4231470
Medium (MOL) Bar	3.9291020	1.7895343	1.2775652	1.2531003	1.2022163
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.0483756	2.0697521	1.7623132	1.0658698	1.0854152
Tight Bar	1.3965980	0.5013451	0.4384506	0.2062051	0.2431217
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.0901585	0.3158156	0.2959121	0.0777394	0.1103435
Tight (TOL) Bar	1.6945506	0.6630972	0.5917722	0.2307195	0.2991718
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.7557450	0.4565038	0.3175806	0.3176572	0.3279305
Tight (MOL) Bar	3.0088544	1.5831692	1.2058326	0.9297466	1.0258620
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.6880281	1.1044648	0.7831122	0.7402108	0.7788311

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.2917774	5.7539503	5.1158837	2.6335676	2.2997334
Loose Cra	1.1299373	1.3040325	1.1617166	0.5844599	0.5923812
Loose End	1.5856350	0.8059655	0.7693608	0.0367519	0.2401342
Loose (TOL) Bar	1.4012250	9.4089441	9.1115758	2.3467887	1.6450712
Loose (TOL) Cra	1.2441846	1.4506229	1.2829023	0.6687036	0.6771032
Loose (TOL) End	1.0805068	1.3048154	1.0914235	0.4905542	0.7150792
Loose (MOL) Bar	1.7276762	20.2413477	19.5575183	5.2168609	3.4754399
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	2.1466190	3.0558832	2.5344086	1.1643736	1.7073944
Medium Bar	1.5730064	0.5221920	0.4394465	0.2141810	0.2820840
Medium Cra	1.1282523	1.2964057	1.1576333	0.5757751	0.5835692
Medium End	1.2519760	0.3475275	0.3108622	0.0746792	0.1553710
Medium (TOL) Bar	2.0536339	0.7555990	0.6261371	0.3757094	0.4229448
Medium (TOL) Cra	1.2423276	1.4422915	1.2787082	0.6589031	0.6671659
Medium (TOL) End	0.9682468	0.5310623	0.3541143	0.3461889	0.3957655
Medium (MOL) Bar	3.5072217	1.8396544	1.1876591	1.3336311	1.4049179
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.0424408	1.1557473	0.8073245	0.6715624	0.8270303
Tight Bar	1.4835630	0.5567611	0.4872749	0.2693357	0.2693441
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.2997614	0.3914042	0.3538218	0.1387618	0.1673546
Tight (TOL) Bar	1.7627132	0.7023146	0.6513863	0.2625556	0.2625677
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.8339502	0.5826694	0.3511575	0.4561849	0.4649648
Tight (MOL) Bar	3.1555221	1.7285250	1.3591175	1.0679786	1.0679882
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.6769230	1.2889481	0.7809877	0.9967388	1.0254003

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	2.6750474	3.8848378	3.7381658	1.0573940	0.7751343
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.5020876	0.4761488	0.3567160	0.3088872	0.3153910
Loose (TOL) Bar	3.2473879	5.3871119	5.1644012	1.5329498	1.1349535
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.1728790	1.0713820	0.4315625	0.9777181	0.9806189
Loose (MOL) Bar	8.5771856	20.6102490	19.7222204	5.9846794	5.4172547
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	2.4370733	2.0879062	0.9099254	1.8726383	1.8791989
Medium Bar	1.6818902	3.4039426	3.3546419	0.5772377	0.2082860
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.4850868	0.4244188	0.3657339	0.2052851	0.2153375
Medium (TOL) Bar	2.5475491	4.9346103	4.8471896	0.9247338	0.5106554
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.0588778	0.8788914	0.4172393	0.7686089	0.7735384
Medium (MOL) Bar	7.1647129	5.8907350	3.7881779	4.5111492	4.1427697
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.2421927	1.7561303	0.8966231	1.4986157	1.5099871
Tight Bar	1.9985992	1.3751473	1.0374757	0.9025850	0.9025931
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.5414479	0.4172271	0.3996142	0.0847909	0.1199461
Tight (TOL) Bar	3.2672846	2.5013640	1.7092977	1.8262214	1.8262321
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.0230530	0.6365785	0.4343652	0.4521025	0.4653593
Tight (MOL) Bar	5.8067824	5.5930646	3.5311857	4.3373928	4.3374070
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.4340218	1.4001856	1.0501647	0.8881158	0.9261070

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	3.3634627	1.3752833	1.1269041	0.7883473	0.4224714
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.5305093	0.3958772	0.3566191	0.1585473	0.1718771
Loose (TOL) Bar	4.5624812	2.0386649	1.5442442	1.3309638	0.9779070
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.0685368	0.9018225	0.4070289	0.7981172	0.8047431
Loose (MOL) Bar	9.7622703	6.2559268	3.5641329	5.1413595	4.6711797
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.7836279	1.6863029	0.7520121	1.4906198	1.5093362
Medium Bar	2.2745906	1.2958465	0.9673562	0.8622299	0.4177472
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.4346459	0.3794277	0.3595744	0.0992437	0.1211271
Medium (TOL) Bar	2.9707956	1.7964954	1.2724516	1.2681731	0.7985975
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.6602391	1.0508385	0.8748974	0.5672192	0.5820793
Medium (MOL) Bar	6.6138307	5.4195226	3.1549296	4.4065457	3.5329900
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.0187042	2.3992685	1.9733277	1.3330684	1.3647225
Tight Bar	1.8766105	1.1183654	0.9702052	0.5562698	0.5562762
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.2462059	0.3783473	0.3504976	0.0991880	0.1424719
Tight (TOL) Bar	2.1972717	1.3691984	1.1419129	0.7554665	0.7554730
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.8801615	0.6409826	0.4055198	0.4800661	0.4963996
Tight (MOL) Bar	5.3873213	4.7012457	3.2759614	3.3719029	3.3719117
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.7088592	1.4303427	0.8833637	1.0733794	1.1249663

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.0000000	6.9181258	0.0000000	6.9181259	4.8160181
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.8854862	0.4676640	0.4113093	0.0832727	0.2225633
Loose (TOL) Bar	0.0000000	8.6860422	0.0000000	8.6860423	6.0149027
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.3905233	1.6853952	1.4165222	0.6808781	0.9132480
Loose (MOL) Bar	0.0000000	16.9533043	0.0000000	16.9533044	10.8735157
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	2.3962096	3.6515859	3.0029861	1.6065780	2.0775357
Medium Bar	2.2591277	1.4313058	0.9608334	0.8881839	1.0608655
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.4619341	0.4228467	0.3742972	0.0908976	0.1967261
Medium (TOL) Bar	2.7456426	1.8444013	1.1753547	1.1966261	1.4213929
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.2099438	0.7594201	0.4746419	0.5193202	0.5928188
Medium (MOL) Bar	5.4432756	5.3138827	2.5861495	3.9139810	4.6421095
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.3094121	1.5315256	0.9861000	0.9659339	1.1718266
Tight Bar	1.7210060	1.2135489	1.0201687	0.6572343	0.3264624
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.5065756	0.4787594	0.4249907	0.1823499	0.2204397
Tight (TOL) Bar	2.0948391	1.5200921	1.2478996	0.8680016	0.5209009
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.9583265	0.8183044	0.4423171	0.6745740	0.6884605
Tight (MOL) Bar	4.1883526	4.3280774	3.0676539	3.0531547	2.2300998
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.7949319	1.7733316	0.9311313	1.4671380	1.5092050

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8203663	1.1133432	1.0554084	0.3544666	0.3284045
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.6982814	0.3450647	0.2879443	0.1901523	0.1773304
Loose (TOL) Bar	0.6870622	1.2302255	1.1534844	0.4277016	0.4009415
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.6902120	0.7305354	0.3868050	0.6197290	0.5781130
Loose (MOL) Bar	1.2013513	2.8242282	2.6539374	0.9658579	0.9016832
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.9491580	3.5161170	2.2789761	2.6775637	2.6362852
Medium Bar	0.2979128	1.7884767	1.5066050	0.9637378	0.8847049
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.7797554	0.3601029	0.3293763	0.1184474	0.1455522
Medium (TOL) Bar	0.1621572	1.9308294	1.5965865	1.0858242	1.0030903
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.7435060	0.5399649	0.4552172	0.2904127	0.2815020
Medium (MOL) Bar	0.0000000	2.9287930	0.0000000	2.9287931	2.6650787
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.4693241	1.9276969	1.0703501	1.5995986	1.6032362
Tight Bar	0.8320237	0.4671078	0.4263800	0.1040073	0.1907612
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	2.0661191	0.5107295	0.4360588	0.2652953	0.2658902
Tight (TOL) Bar	0.6978328	0.4622791	0.4111336	0.0771855	0.2113557
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	2.1420000	0.7053228	0.6619330	0.2435675	0.2342725
Tight (MOL) Bar	1.6530848	1.1678514	0.9930340	0.4006480	0.6146224
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	3.4314122	1.8214291	1.6471596	0.7629944	0.7774763

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0416792	1.5847794	1.1569020	1.0830991	0.9502025
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.4974252	0.3358818	0.3117270	0.1250718	0.1118753
Loose (TOL) Bar	1.1995317	1.6110252	1.2569594	1.0076981	0.8599893
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.4202568	0.6713656	0.4460066	0.5018068	0.4533064
Loose (MOL) Bar	1.9640938	3.5712610	2.9794404	1.9689695	1.4166983
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.1689392	2.2933948	1.0035211	2.0621846	2.0231417
Medium Bar	1.0221615	0.5302089	0.4534949	0.2747071	0.1548176
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.4685238	0.3301843	0.3237034	0.0650996	0.0564472
Medium (TOL) Bar	0.9943781	0.5598444	0.4724861	0.3003044	0.1709898
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.1810045	0.6127257	0.4226569	0.4436148	0.3800678
Medium (MOL) Bar	1.7108032	1.1002226	0.9419454	0.5685322	0.1668923
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.5767402	1.8100763	0.8512064	1.5974430	1.5776075
Tight Bar	0.8107364	0.3804461	0.3393141	0.1506607	0.1720621
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.6960240	0.3993018	0.3802907	0.0968073	0.1217419
Tight (TOL) Bar	0.7512217	0.3987337	0.3436303	0.1734819	0.2022547
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.3778593	0.5751465	0.4561749	0.3502829	0.3427985
Tight (MOL) Bar	1.5968967	0.7944332	0.7474062	0.1538154	0.2692735
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	0.8071227	1.6702888	0.5820134	1.5652144	1.5656070

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.5538030	2.6305774	2.1522009	1.5126034	1.3482505
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.8438229	0.4484106	0.3667609	0.2262376	0.2579897
Loose (TOL) Bar	0.6782627	2.7542229	2.3557989	1.4268692	1.2318005
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.8919328	0.6098426	0.5472448	0.2432697	0.2691308
Loose (MOL) Bar	1.0154113	6.6354370	5.6428680	3.4909978	2.4352224
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	2.3414489	1.6866127	1.4964408	0.6032592	0.7780281
Medium Bar	1.1037011	0.3929594	0.3606608	0.1520898	0.1560158
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.7457004	0.4148022	0.3600813	0.2059185	0.1061518
Medium (TOL) Bar	1.0839584	0.4241440	0.3730615	0.2018006	0.1977580
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.8816825	0.7483180	0.5135684	0.5442678	0.4639503
Medium (MOL) Bar	2.2643027	0.9903925	0.8505055	0.4878963	0.5074623
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.3812780	2.3093448	1.1098529	1.9956323	2.0251667
Tight Bar	0.5273801	0.4246516	0.3085970	0.2917138	0.2335453
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.7336351	0.5050808	0.4461292	0.2368028	0.2041485
Tight (TOL) Bar	0.3888324	0.4354743	0.2776145	0.3355118	0.2740286
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.7375173	1.0596837	0.6065930	0.8688928	0.8175877
Tight (MOL) Bar	0.8864487	0.8881616	0.6399024	0.6159190	0.4296218
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.0403289	4.3130686	1.4815966	4.0496383	4.0506089

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.6145815	3.0467028	2.8851774	0.9788513	0.8942089
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	2.1083966	1.1404632	0.7137001	0.8895441	0.8816654
Loose (TOL) Bar	1.3718477	3.1758916	2.9905797	1.0689813	0.9840535
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.7297476	1.6174126	0.7476513	1.4342389	1.4191308
Loose (MOL) Bar	3.0892134	11.3623910	10.6917873	3.8457269	3.5374858
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	4.2528146	5.6949220	2.0988962	5.2940317	5.2543938
Medium Bar	0.2019940	3.9228022	3.2368893	2.2160607	2.0017037
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.7296142	0.7488395	0.6956480	0.2666802	0.2771906
Medium (TOL) Bar	0.2157681	4.2117058	3.4529328	2.4115807	2.1866158
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.4066337	0.9258328	0.7405151	0.5522912	0.5557013
Medium (MOL) Bar	0.0000000	8.0618374	0.0000000	8.0618375	6.8824020
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	4.3538389	5.5852697	2.7854064	4.8374122	4.8411517
Tight Bar	1.2378675	0.9142705	0.9046824	0.1320496	0.1320625
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.9995947	0.9689341	0.9580877	0.1154376	0.1445731
Tight (TOL) Bar	1.3725321	1.0187131	1.0041216	0.1717914	0.1718036
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.6911988	1.0739639	1.0387460	0.2626565	0.2727737
Tight (MOL) Bar	5.5916075	5.1357530	4.2165126	2.9320490	2.9320608
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	11.8991315	13.8112180	9.7461505	9.7721124	9.7858211

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	2.8982297	2.7532640	2.6834526	0.6160726	0.3721154
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.5718598	1.2816398	1.0248147	0.7696464	0.7555685
Loose (TOL) Bar	3.4189245	3.0961643	3.0558196	0.4981969	0.1327090
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	0.9922145	1.6454563	1.1289602	1.1970696	1.1746380
Loose (MOL) Bar	10.2670701	5.8925028	3.5112307	4.7321083	4.3535064
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.9918569	5.4812050	2.9599037	4.6133045	4.5657207
Medium Bar	1.8745593	1.3469218	1.1368857	0.7222808	0.1612872
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.1776867	1.5820331	1.1688857	1.0660841	1.0317036
Medium (TOL) Bar	1.9811152	1.4155392	1.1969941	0.7556167	0.1416447
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.2097063	1.8795480	1.0060829	1.5876077	1.5385988
Medium (MOL) Bar	5.7571256	4.2837523	2.8267438	3.2187037	2.2113462
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight Bar	1.6433906	0.9988633	0.9854587	0.1630721	0.1630924
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	0.8837774	1.2994701	0.6404035	1.1300584	1.1307104
Tight (TOL) Bar	1.7997408	1.0924267	1.0810989	0.1568864	0.1569118
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) Bar	7.4541541	6.1857534	4.6794440	4.0455176	4.0455345
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 18: Scale Factors for BDT-Based τ ID + Medium BDT-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.7532708	6.7728368	5.8927497	3.3386853	2.6663781
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	2.9792679	1.8753950	1.5362964	1.0111956	1.0755929
Loose (TOL) Bar	0.9690653	7.7301384	6.6856095	3.8804209	2.7600717
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.9995150	2.1037459	1.7433952	1.0171627	1.1774211
Loose (MOL) Bar	0.0000000	15.2127663	0.0000000	15.2127664	10.0807182
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	3.9123443	4.4913851	3.7182394	2.0140035	2.5193722
Medium Bar	2.5197588	1.1935009	1.0081304	0.5785877	0.6388409
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	3.1320115	1.5731912	1.2569905	0.9090344	0.9459946
Medium (TOL) Bar	2.6727077	1.2875645	1.0718131	0.6498207	0.7134698
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	2.2861922	1.8704649	1.2034122	1.3583597	1.4319351
Medium (MOL) Bar	6.8466994	5.1356326	3.0850192	3.7573286	4.1057739
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	8.8116656	7.0233998	5.5676997	3.4526469	4.2812224
Tight Bar	1.1517738	1.2358165	0.8350837	0.9109763	0.7078452
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.3993815	2.5340969	1.0166335	2.3204322	2.3212290
Tight (TOL) Bar	1.2673867	1.3405867	0.9199535	0.9751197	0.7434356
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.8900155	3.1583054	0.9086841	3.0245149	3.0247622
Tight (MOL) Bar	5.5657153	5.0284352	4.1678641	2.8131957	0.4851792
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 19: Scale Factors for Cut-Based τ ID + Tight BDT-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	3.1452959	7.1464213	6.7646344	2.3045737	2.0571442
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	5.7487154	6.3329339	3.1554704	5.4855551	5.4908159
Loose (TOL) Bar	2.3667821	7.1279671	6.6973792	2.4398828	2.2116102
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	6.0472390	6.6688227	3.3802913	5.7430767	5.7486370
Loose (MOL) Bar	5.6167933	33.7229351	31.8375166	11.1179537	10.0273113
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	14.2328501	14.8169913	8.9620181	11.7843762	11.7993841
Medium Bar	0.0000000	5.2545331	0.0000000	5.2545332	4.6755589
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	7.2491781	5.9570809	4.6384248	3.7244454	3.7378910
Medium (TOL) Bar	0.0000000	5.2545331	0.0000000	5.2545332	4.6755589
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	7.9037210	6.5878286	5.1759676	4.0607356	4.0753952
Medium (MOL) Bar	0.0000000	13.6570931	0.0000000	13.6570932	10.8206309
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight Bar	2.2158854	1.6986635	1.6707208	0.3068189	0.3068385
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	8.1633835	7.4907266	6.8497932	3.0108350	3.0317187
Tight (TOL) Bar	2.2158854	1.6986635	1.6707208	0.3068189	0.3068385
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	8.1633835	7.7095994	7.0884840	3.0108350	3.0317187
Tight (MOL) Bar	6.3469677	5.7654357	4.9693579	2.9232915	2.9233083
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 20: Scale Factors for LLH-Based τ ID + Tight BDT-Based e-veto

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	5.2331246	2.1960558	1.8489597	1.1849090	0.5674855
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	3.5718955	6.7015100	6.0870957	2.7987758	2.8031238
Loose (TOL) Bar	5.2331246	2.1963235	1.8489597	1.1854051	0.5685206
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	3.7597980	7.0212489	6.4323469	2.8099580	2.8147559
Loose (MOL) Bar	16.0079822	11.0972570	6.2906106	9.1420639	8.4304449
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	8.9279233	19.6207683	18.2771685	7.1251319	7.1358014
Medium Bar	2.6637614	2.9605765	2.4596189	1.6478132	0.3616046
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) Bar	2.6637614	2.9605765	2.4596189	1.6478132	0.3616046
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) Bar	10.0903836	9.1083750	5.7860630	7.0344844	4.9164438
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight Bar	1.8053177	1.3965581	1.3410738	0.3897278	0.3897381
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) Bar	1.8053177	1.3965581	1.3410738	0.3897278	0.3897381
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) Bar	5.5897906	4.7589384	4.3366473	1.9598236	1.9598432
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	0.0000000	8.5368176	0.0000000	8.5368177	6.1740357
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	8.7237706	10.8833759	8.4662608	6.3161678	6.8388815
Loose (TOL) Bar	0.0000000	8.5368176	0.0000000	8.5368177	6.1740357
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	11.2521382	10.6407827	5.3184682	7.8081038	9.2162983
Loose (MOL) Bar	0.0000000	21.8242540	0.0000000	21.8242541	13.9596901
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	21.1997453	21.8129457	11.5287133	15.7359333	18.5173803
Medium Bar	2.4051251	1.4219870	1.2818632	0.4391076	0.6155274
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	3.1457849	5.3277538	3.2541720	4.2164917	4.2184506
Medium (TOL) Bar	2.4051251	1.4219870	1.2818632	0.4391076	0.6155274
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	3.5302346	5.7362966	3.6929539	4.3870699	4.3894408
Medium (MOL) Bar	7.1878912	5.9670580	3.9854651	3.7603209	4.4409289
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight Bar	1.0194398	2.0890309	1.0468379	1.8078111	1.4949262
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) Bar	1.0194398	2.0890309	1.0468379	1.8078111	1.4949262
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) Bar	2.8293911	4.8431996	2.9577899	3.8351091	2.5976704
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