

Table 1: Scale Factors for Cut-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0119131	0.1312981	0.0607443	0.1080578	0.1164023
Loose Cra	1.0315411	0.2277909	0.1970086	0.0554579	0.1143521
Loose End	0.9269292	0.0808034	0.0516040	0.0620591	0.0621800
Loose (TOL) Bar	1.1836990	0.2555276	0.1975928	0.1606442	0.1620232
Loose (TOL) Cra	0.7289789	0.2740479	0.2537663	0.0994137	0.1034654
Loose (TOL) End	0.9065152	0.1559980	0.1382256	0.0179168	0.0723127
Loose (MOL) Bar	1.8591909	0.5907258	0.4914735	0.3277359	0.3204971
Loose (MOL) Cra	1.1716245	0.8407817	0.7352426	0.3519738	0.4078386
Loose (MOL) End	1.1750923	0.2614195	0.2034414	0.1389616	0.1641701
Medium Bar	0.9973425	0.1322312	0.0635346	0.1082646	0.1159679
Medium Cra	0.9267414	0.2159916	0.1856870	0.0878458	0.1103306
Medium End	0.9329052	0.0818950	0.0588252	0.0566587	0.0569772
Medium (TOL) Bar	1.1630409	0.3460463	0.3093087	0.1551655	0.1536415
Medium (TOL) Cra	0.6644268	0.2803718	0.2365040	0.1504839	0.1505799
Medium (TOL) End	0.8675806	0.2430160	0.2204207	0.0499040	0.1023313
Medium (MOL) Bar	1.8203956	0.8672789	0.7948517	0.3469635	0.3012892
Medium (MOL) Cra	1.4494831	1.0543245	0.8966946	0.4943724	0.5545621
Medium (MOL) End	1.1216892	0.3112670	0.2133978	0.1811735	0.2266024
Tight Bar	1.0007660	0.1439913	0.0833871	0.1113612	0.1173889
Tight Cra	0.8319189	0.2600855	0.1785655	0.1878579	0.1891004
Tight End	0.9012856	0.0979841	0.0600699	0.0767758	0.0774119
Tight (TOL) Bar	1.1585694	0.3178721	0.2558966	0.1864168	0.1885728
Tight (TOL) Cra	0.3627075	0.3764283	0.1864705	0.3269971	0.3199685
Tight (TOL) End	0.9581584	0.2062772	0.1210050	0.1611815	0.1670572
Tight (MOL) Bar	1.8726600	0.7120674	0.5703047	0.4263716	0.4167005
Tight (MOL) Cra	0.7888755	0.8289755	0.8068037	0.1351253	0.1904423
Tight (MOL) End	1.2405234	0.2717787	0.2435624	0.0730948	0.1205867

Table 2: Scale Factors for LLH-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0160461	0.1306066	0.0593516	0.1125515	0.1163422
Loose Cra	0.9365110	0.1709625	0.1589509	0.0575941	0.0629521
Loose End	0.9499372	0.0833558	0.0511085	0.0655470	0.0658503
Loose (TOL) Bar	1.2067762	0.2110871	0.1221573	0.1711603	0.1721495
Loose (TOL) Cra	0.6763246	0.2738099	0.2222727	0.1598963	0.1444314
Loose (TOL) End	0.9571441	0.1791962	0.1618586	0.0281703	0.0768967
Loose (MOL) Bar	1.9138199	0.6495141	0.5667035	0.3173576	0.3167017
Loose (MOL) Cra	0.9291458	0.5868142	0.5692436	0.1425233	0.1065011
Loose (MOL) End	1.2611211	0.2835240	0.2063969	0.1824616	0.1943870
Medium Bar	1.0007276	0.1337531	0.0632316	0.1106738	0.1178632
Medium Cra	0.9211103	0.1990087	0.1781429	0.0860209	0.0887114
Medium End	0.9177009	0.1053565	0.0587590	0.0854108	0.0874496
Medium (TOL) Bar	1.2236057	0.3074516	0.2633390	0.1586795	0.1561737
Medium (TOL) Cra	0.4693732	0.3134421	0.1933933	0.2466681	0.2321091
Medium (TOL) End	0.9108191	0.3013119	0.1446831	0.2273458	0.2643026
Medium (MOL) Bar	1.9241746	0.6829779	0.6129044	0.3013422	0.2611438
Medium (MOL) Cra	1.2065431	0.7647729	0.7419402	0.1854792	0.1380181
Medium (MOL) End	1.1076401	0.2427245	0.1996824	0.1341194	0.1379936
Tight Bar	1.0095475	0.1347909	0.0666684	0.1118850	0.1171496
Tight Cra	0.8899992	0.2313136	0.1794124	0.1451322	0.1460042
Tight End	0.9124655	0.0932705	0.0608087	0.0699653	0.0707235
Tight (TOL) Bar	1.2641504	0.3242340	0.2754949	0.1709689	0.1688968
Tight (TOL) Cra	0.4846969	0.2855690	0.2077272	0.1959573	0.1918550
Tight (TOL) End	0.8953077	0.1358742	0.1140285	0.0472248	0.0738880
Tight (MOL) Bar	2.0919246	0.7168285	0.6233889	0.3538779	0.3305534
Tight (MOL) Cra	1.0190472	0.7727706	0.7507293	0.0561007	0.1832490
Tight (MOL) End	1.1412222	0.2341029	0.2153435	0.0859386	0.0918231

Table 3: Scale Factors for BDT-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0125877	0.1245576	0.0598288	0.1066058	0.1092484
Loose Cra	0.9260212	0.1937694	0.1795656	0.0728206	0.0691881
Loose End	0.9397792	0.0765336	0.0526347	0.0551675	0.0555615
Loose (TOL) Bar	1.1480364	0.2319172	0.1871906	0.1369137	0.1360891
Loose (TOL) Cra	0.6302720	0.3405911	0.2266471	0.2542310	0.1838999
Loose (TOL) End	0.9397692	0.1736038	0.1440208	0.0317500	0.0969354
Loose (MOL) Bar	1.8012621	0.5458652	0.4821232	0.2559810	0.2448570
Loose (MOL) Cra	1.3372237	0.9882015	0.7404011	0.6544835	0.2640880
Loose (MOL) End	1.2117181	0.3260306	0.2067493	0.2169222	0.2520929
Medium Bar	0.9928725	0.1307834	0.0660865	0.1074005	0.1128581
Medium Cra	0.9017559	0.1998717	0.1629197	0.1157840	0.1156060
Medium End	0.9278433	0.0923515	0.0608540	0.0679282	0.0694670
Medium (TOL) Bar	1.2147557	0.2063077	0.1326703	0.1579922	0.1567759
Medium (TOL) Cra	0.5795027	0.3396651	0.2081028	0.2684507	0.2420059
Medium (TOL) End	0.9050899	0.1880039	0.1146175	0.1333999	0.1490251
Medium (MOL) Bar	2.0288819	0.5359140	0.4116593	0.3431336	0.3343759
Medium (MOL) Cra	1.1993500	0.7635276	0.7286848	0.2280196	0.1880208
Medium (MOL) End	1.0953798	0.2406798	0.2086058	0.1145465	0.1200441
Tight Bar	1.0781462	0.1558884	0.0814919	0.1202739	0.1328921
Tight Cra	1.0264559	0.2255327	0.2005420	0.0514507	0.1031892
Tight End	0.9220833	0.1330578	0.1193381	0.0587062	0.0588466
Tight (TOL) Bar	1.3432785	0.2410149	0.1590242	0.1811067	0.1797103
Tight (TOL) Cra	0.6857005	0.2701418	0.2579609	0.0653777	0.0802052
Tight (TOL) End	0.8237345	0.2717270	0.1897442	0.1907084	0.1945067
Tight (MOL) Bar	2.1945724	0.4940167	0.3274834	0.3698746	0.3654691
Tight (MOL) Cra	1.9893191	1.8392749	1.2191834	1.3343271	1.3771436
Tight (MOL) End	0.8994951	0.2542760	0.2176730	0.1249182	0.1314338

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.6464352	0.2623505	0.2606217	0.0237944	0.0300714
Loose Cra	0.4441106	0.3494651	0.3298638	0.1153944	0.0468310
Loose End	0.9971506	0.1229231	0.0767222	0.0959226	0.0960416
Loose (TOL) Bar	0.6033610	0.3403674	0.3353574	0.0426570	0.0581857
Loose (TOL) Cra	0.4859381	0.3816242	0.3614482	0.1224433	0.0409954
Loose (TOL) End	1.1968781	0.2868998	0.2460943	0.1355308	0.1474758
Loose (MOL) Bar	1.0508113	1.5776424	1.5504010	0.2595348	0.2919121
Loose (MOL) Cra	5.4035973	6.9447252	5.9420243	3.4674106	3.5946567
Loose (MOL) End	1.4967246	0.3370192	0.3053607	0.1239371	0.1426076
Medium Bar	0.6634277	0.4836546	0.4816703	0.0203286	0.0437676
Medium Cra	0.4715370	0.3668517	0.3459956	0.1219319	0.0441954
Medium End	0.9955649	0.1323944	0.0909351	0.0955256	0.0962251
Medium (TOL) Bar	0.6090216	0.5980236	0.5908610	0.0658472	0.0922802
Medium (TOL) Cra	0.5192355	0.4032934	0.3816434	0.1303614	0.0365922
Medium (TOL) End	1.1889083	0.3777362	0.3495953	0.1154462	0.1430662
Medium (MOL) Bar	0.8788526	2.6028901	2.5338994	0.5633527	0.5953076
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.5088192	0.3539491	0.3117814	0.1147080	0.1675484
Tight Bar	0.6514814	0.3939620	0.3560726	0.1051398	0.1685781
Tight Cra	0.2745162	0.3595220	0.2779100	0.2280838	0.1383305
Tight End	0.9609432	0.1371630	0.0752817	0.1146019	0.1146580
Tight (TOL) Bar	0.5995894	0.4691489	0.4192546	0.0850226	0.2105383
Tight (TOL) Cra	0.3076878	0.3987812	0.3118992	0.2484863	0.1429434
Tight (TOL) End	1.2406387	0.4271895	0.1931666	0.3767551	0.3810219
Tight (MOL) Bar	0.5206599	1.5426881	1.3922491	0.4369995	0.6644767
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.5679380	0.3924287	0.3375895	0.1509175	0.2000844

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.6854399	0.3790225	0.3753911	0.0393510	0.0523426
Loose Cra	0.4001812	0.3093514	0.2930839	0.0989961	0.0234346
Loose End	0.9998075	0.1263495	0.0907498	0.0878941	0.0879135
Loose (TOL) Bar	0.6542324	0.4683920	0.4653839	0.0393546	0.0530005
Loose (TOL) Cra	0.4338861	0.3363511	0.3181345	0.1091910	0.0324021
Loose (TOL) End	1.1510190	0.3636690	0.3415947	0.0631042	0.1247733
Loose (MOL) Bar	1.2554114	2.0481412	2.0403340	0.1549866	0.1786616
Loose (MOL) Cra	5.3910946	7.1382824	5.7904681	4.0684099	4.1743928
Loose (MOL) End	1.3839004	0.3176940	0.2852526	0.0834410	0.1398589
Medium Bar	0.6785554	0.3918123	0.3911725	0.0223845	0.0100429
Medium Cra	0.2357208	0.3037844	0.2400561	0.1861670	0.1039655
Medium End	0.9504437	0.3353138	0.2846680	0.1746236	0.1771996
Medium (TOL) Bar	0.6267636	0.4684235	0.4603107	0.0868031	0.0804095
Medium (TOL) Cra	0.2595877	0.3315994	0.2645627	0.1999120	0.1050966
Medium (TOL) End	0.9526730	1.1830004	0.9070526	0.7543462	0.7594378
Medium (MOL) Bar	1.1183189	1.8945820	1.8025658	0.5832647	0.4586866
Medium (MOL) Cra	5.3697494	6.8386485	5.8080206	3.4889039	3.6102646
Medium (MOL) End	1.3632982	0.3600859	0.2919747	0.0764640	0.2107433
Tight Bar	0.6798826	0.3947774	0.3924869	0.0404023	0.0424660
Tight Cra	0.2677541	0.3513730	0.2717741	0.2227150	0.1361229
Tight End	0.9883028	0.1339406	0.0760718	0.1097477	0.1102417
Tight (TOL) Bar	0.6650603	0.4728893	0.4694740	0.0473936	0.0567321
Tight (TOL) Cra	0.2982376	0.3875405	0.3030321	0.2415768	0.1407561
Tight (TOL) End	1.1432321	0.3054110	0.2376955	0.1787375	0.1917730
Tight (MOL) Bar	1.3975847	1.8103064	1.8008252	0.1850356	0.1827534
Tight (MOL) Cra	5.3462338	6.3701984	5.8978333	2.2265671	2.4072787
Tight (MOL) End	1.4348370	0.3674109	0.3147444	0.1419787	0.1895438

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.6771368	0.2806335	0.2790004	0.0210596	0.0302339
Loose Cra	0.2131224	0.4226689	0.2185455	0.3617830	0.1758760
Loose End	0.9967332	0.1151281	0.0817978	0.0801280	0.0810170
Loose (TOL) Bar	0.5809855	0.3473863	0.3354743	0.0901909	0.0896172
Loose (TOL) Cra	0.2323299	0.4564998	0.2383956	0.3893067	0.1810756
Loose (TOL) End	1.1505522	0.3156243	0.2687008	0.0651825	0.1655857
Loose (MOL) Bar	0.8947684	1.6132361	1.4935486	0.6097898	0.5895926
Loose (MOL) Cra	5.4034879	7.3111112	5.8392937	4.3994314	2.6159236
Loose (MOL) End	1.3702051	0.6257390	0.5144354	0.1426876	0.3562383
Medium Bar	0.6454231	0.2299795	0.2250587	0.0445478	0.0473207
Medium Cra	0.2249400	0.2939351	0.2281175	0.1853656	0.1103896
Medium End	0.9937482	0.1405898	0.0889532	0.1088141	0.1088712
Medium (TOL) Bar	0.6516063	0.2720918	0.2661019	0.0552444	0.0567786
Medium (TOL) Cra	0.2466613	0.3195005	0.2503086	0.1985607	0.1129770
Medium (TOL) End	1.1336710	0.3811912	0.2032780	0.3175825	0.3224669
Medium (MOL) Bar	1.4236612	1.0605872	1.0541429	0.1167401	0.1078429
Medium (MOL) Cra	5.3488374	6.5363758	5.7643199	2.9456355	3.0816919
Medium (MOL) End	1.2660917	0.6056373	0.2878951	0.5328037	0.5328350
Tight Bar	0.6274571	0.1649857	0.1444826	0.0740995	0.0796564
Tight Cra	0.2684945	0.3531064	0.2725037	0.2245575	0.1384974
Tight End	1.0315857	0.2106739	0.1836064	0.1015451	0.1033064
Tight (TOL) Bar	0.6443381	0.2064163	0.1685188	0.1088354	0.1192024
Tight (TOL) Cra	0.2991562	0.3895069	0.3038667	0.2436819	0.1435132
Tight (TOL) End	1.0353834	0.4753345	0.3289973	0.3337689	0.3430798
Tight (MOL) Bar	1.3201105	0.6296930	0.5216764	0.3284471	0.3526574
Tight (MOL) Cra	5.3462338	6.1460570	5.7588541	1.9422222	2.1470019
Tight (MOL) End	1.0689372	0.3343943	0.3000015	0.0839000	0.1477118

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8627895	1.2173283	1.1964797	0.1891671	0.2243320
Loose Cra	0.7274230	0.8011891	0.7516941	0.2461476	0.2772367
Loose End	1.6478161	0.5864856	0.5159456	0.1000871	0.2788649
Loose (TOL) Bar	0.9284203	1.8795762	1.8366804	0.3419147	0.3992644
Loose (TOL) Cra	0.9239593	1.0361247	0.9582212	0.3593181	0.3941659
Loose (TOL) End	1.2780778	0.8539028	0.7356051	0.1688385	0.4336304
Loose (MOL) Bar	0.5008555	3.7808074	3.6467166	0.9133969	0.9979795
Loose (MOL) Cra	5.4049865	6.5254748	6.1433400	1.9854755	2.2002718
Loose (MOL) End	1.6384351	1.5044784	1.3980919	0.1347230	0.5556929
Medium Bar	0.7320785	2.1502638	2.0973663	0.4461265	0.4740142
Medium Cra	0.8427080	0.9305207	0.8658849	0.3080110	0.3407526
Medium End	1.6710281	0.9547625	0.8631820	0.0919532	0.4080301
Medium (TOL) Bar	0.7255329	3.1385642	3.0464023	0.7150893	0.7549958
Medium (TOL) Cra	1.1202944	1.2671271	1.1561592	0.4810008	0.5185628
Medium (TOL) End	1.0982824	1.4287480	1.1986648	0.3625682	0.7775112
Medium (MOL) Bar	0.0000000	1.7752843	0.0000000	1.7752844	1.6015446
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.4902381	2.5667965	2.3601129	0.4518291	1.0091144
Tight Bar	0.9673384	1.6141532	1.4226440	0.4540615	0.7626106
Tight Cra	1.1382571	1.2289768	1.1641450	0.3431070	0.3938915
Tight End	1.7861161	0.4460702	0.3866242	0.1272487	0.2224871
Tight (TOL) Bar	0.9892277	2.3470006	2.0272301	0.6758723	1.1826877
Tight (TOL) Cra	1.7179012	1.9123822	1.7690401	0.6651648	0.7264318
Tight (TOL) End	1.4839986	0.6640631	0.4544460	0.4561257	0.4842095
Tight (MOL) Bar	0.0000000	1.3396799	0.0000000	1.3396800	1.2598189
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.6672168	0.7424059	0.7142253	0.0911264	0.2026054

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9122643	1.6562030	1.6472660	0.1692512	0.1718237
Loose Cra	0.7684502	0.9055514	0.7879345	0.4260476	0.4462989
Loose End	1.4146227	1.1359292	0.8696020	0.2023593	0.7308404
Loose (TOL) Bar	1.0895285	2.5031402	2.4884507	0.2674613	0.2707843
Loose (TOL) Cra	0.9927324	1.1937439	1.0209096	0.5943743	0.6186827
Loose (TOL) End	0.7693264	1.4921914	1.1248255	0.7157885	0.9805115
Loose (MOL) Bar	0.6696466	4.6897932	4.5873095	0.9730735	0.9750652
Loose (MOL) Cra	5.3740685	6.8859329	5.9550842	3.3299819	3.4573176
Loose (MOL) End	0.9174140	2.3988675	2.0038611	1.1235279	1.3187518
Medium Bar	0.8152452	1.5148582	1.4337426	0.4890581	0.3864383
Medium Cra	0.7794561	0.8652675	0.8006078	0.2992854	0.3282000
Medium End	1.2677937	1.1999826	1.0596574	0.5417089	0.5631027
Medium (TOL) Bar	0.8892411	2.2081034	2.0618416	0.7902723	0.6335765
Medium (TOL) Cra	1.0113989	1.1487949	1.0430274	0.4486325	0.4814808
Medium (TOL) End	0.5936947	1.1615523	0.9086107	0.7219944	0.7236232
Medium (MOL) Bar	0.3691601	3.9851923	3.5204735	1.8676253	1.5637868
Medium (MOL) Cra	5.3711299	6.4382905	6.0676536	1.9424628	2.1529432
Medium (MOL) End	0.6281597	1.6716732	1.4650847	0.8001815	0.8049959
Tight Bar	1.0492194	1.4814431	1.4715777	0.1706837	0.1696573
Tight Cra	0.9325790	1.0237230	0.9573433	0.3256229	0.3626332
Tight End	1.5751882	0.4173947	0.3533081	0.1225284	0.2222428
Tight (TOL) Bar	1.1866290	2.0853782	2.0651488	0.2886520	0.2897634
Tight (TOL) Cra	1.2713615	1.4328981	1.3131588	0.5305330	0.5734206
Tight (TOL) End	1.1815973	0.4786367	0.3915993	0.2146754	0.2752148
Tight (MOL) Bar	0.8590392	3.8038038	3.7076968	0.8364749	0.8496519
Tight (MOL) Cra	5.3476083	6.2848382	6.2116404	0.2772992	0.9564075
Tight (MOL) End	1.4075634	0.6922074	0.6532667	0.1027626	0.2288971

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.7206579	1.2374694	1.1510490	0.4543312	0.4391551
Loose Cra	0.7303309	0.8936178	0.7540658	0.4795181	0.0359189
Loose End	1.3498606	1.0799235	0.5419124	0.2454662	0.9341124
Loose (TOL) Bar	0.7599751	1.8169756	1.6691315	0.7179142	0.6924235
Loose (TOL) Cra	0.9286603	1.1407100	0.9617729	0.6133616	0.0809453
Loose (TOL) End	0.7952032	1.2015853	0.7461340	0.5047209	0.9418553
Loose (MOL) Bar	0.0000000	1.9429864	0.0000000	1.9429865	1.8830862
Loose (MOL) Cra	5.4048771	7.0282568	6.0239592	3.6205400	0.7680729
Loose (MOL) End	0.9526010	1.9941356	1.3272848	1.1434350	1.4882514
Medium Bar	1.0617207	0.7993123	0.7950176	0.0827490	0.0758595
Medium Cra	0.7230076	0.7940850	0.7388470	0.2639996	0.2909918
Medium End	1.4696417	0.8859534	0.3281644	0.8160474	0.8229349
Medium (TOL) Bar	1.2351599	1.1338147	1.1241658	0.1476051	0.1299759
Medium (TOL) Cra	0.9193280	1.0302422	0.9426372	0.3855032	0.4157334
Medium (TOL) End	1.0054315	1.0778858	0.3486500	1.0199418	1.0079227
Medium (MOL) Bar	1.0247888	1.7179910	1.6849192	0.3354709	0.2942870
Medium (MOL) Cra	5.3502125	6.3862310	6.0238365	1.9175146	2.1206935
Medium (MOL) End	0.9994328	1.2033524	0.5134900	1.0882946	1.0006313
Tight Bar	1.0731036	0.4728538	0.4199523	0.2173268	0.2164079
Tight Cra	0.9301446	1.0440952	0.9537384	0.3939266	0.4248740
Tight End	1.6126355	0.4390222	0.3856713	0.1460965	0.2097576
Tight (TOL) Bar	1.1492396	0.6318643	0.5317387	0.3392348	0.3413306
Tight (TOL) Cra	1.2668423	1.4644082	1.3046194	0.6288482	0.6651766
Tight (TOL) End	1.1862021	0.5466221	0.4136800	0.3520876	0.3573021
Tight (MOL) Bar	1.0383138	1.0934277	0.7499444	0.6257365	0.7957183
Tight (MOL) Cra	5.3476083	6.3901300	6.0183578	1.9430161	2.1478203
Tight (MOL) End	1.2104772	0.7287868	0.6256102	0.3697260	0.3738210

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.5206831	3.4182300	3.3444613	0.6736629	0.7063112
Loose Cra	2.4109271	2.5937589	2.5488438	0.2290596	0.4806045
Loose End	1.8717252	0.4982337	0.3904712	0.1359434	0.3094660
Loose (TOL) Bar	0.6212979	4.0842069	3.9972212	0.7999375	0.8384328
Loose (TOL) Cra	2.4680941	2.6626972	2.6166596	0.2365786	0.4930001
Loose (TOL) End	1.5436624	1.1613546	1.0477403	0.1082868	0.5009841
Loose (MOL) Bar	0.0000000	1.0614445	0.0000000	1.0614446	1.0614446
Loose (MOL) Cra	5.4016580	6.4080114	6.3290023	0.3318127	1.0031652
Loose (MOL) End	1.9175285	0.9677531	0.7786864	0.2107377	0.5746249
Medium Bar	0.5456284	4.5057603	4.4287731	0.8293642	0.7971854
Medium Cra	4.5195956	4.8914766	4.7985093	0.5389954	0.9491323
Medium End	1.9458492	0.5647791	0.4052317	0.1329277	0.3933991
Medium (TOL) Bar	0.6555115	5.4366827	5.3450784	0.9938089	0.9528006
Medium (TOL) Cra	4.7259301	5.1404652	5.0421141	0.5780397	1.0007342
Medium (TOL) End	1.0893475	2.5321708	2.3842438	0.6812279	0.8528018
Medium (MOL) Bar	0.0000000	1.2436153	0.0000000	1.2436154	1.2436154
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.6832017	1.0891228	0.8038665	0.4037442	0.7348383
Tight Bar	1.0768491	2.6233279	2.2948101	0.7091969	1.2711004
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.9513831	0.5156022	0.4409470	0.1385464	0.2672294
Tight (TOL) Bar	1.4007816	3.3809334	2.9331138	0.9717754	1.6815334
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.6382008	0.8733902	0.5504483	0.6350235	0.6780983
Tight (MOL) Bar	0.0000000	1.2301678	0.0000000	1.2301679	1.2301679
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.6840372	0.8303151	0.7886294	0.0920818	0.2597826

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.2290003	0.8271056	0.7234862	0.1408070	0.4008387
Loose Cra	2.9749135	3.4014629	3.1180770	1.2582234	1.3592446
Loose End	1.3193654	3.6782608	3.6116887	0.6966403	0.6946386
Loose (TOL) Bar	1.6596049	1.1313173	0.8658884	0.4495630	0.7280908
Loose (TOL) Cra	3.0629446	3.5170953	3.2182941	1.3161464	1.4186413
Loose (TOL) End	0.2572785	3.4512814	2.8466086	1.9514515	1.7483355
Loose (MOL) Bar	0.3468868	11.1126214	11.0178496	1.4060641	1.4482219
Loose (MOL) Cra	5.3711299	6.4387706	6.0676536	1.9440535	2.1543786
Loose (MOL) End	0.7858612	5.9944012	5.7671077	1.6350275	1.5132276
Medium Bar	1.2287266	1.7790365	1.6879164	0.5620581	0.4247227
Medium Cra	3.1563438	3.5545935	3.3667392	1.0012712	1.1402642
Medium End	1.5004805	1.5853907	1.5467811	0.2752624	0.3477530
Medium (TOL) Bar	1.4118494	2.0336947	1.9332267	0.6313074	0.4741499
Medium (TOL) Cra	3.2556174	3.6918913	3.4935531	1.0528392	1.1937959
Medium (TOL) End	0.6873954	1.3876662	1.1254012	0.8090985	0.8118435
Medium (MOL) Bar	1.0470563	3.5819902	3.3364045	0.8796689	1.3034797
Medium (MOL) Cra	5.3711299	6.3358439	6.2610788	0.2825040	0.9704697
Medium (MOL) End	0.8432599	1.9462131	1.8421703	0.6086251	0.6278172
Tight Bar	1.3399735	0.9111255	0.7964297	0.4233747	0.4425489
Tight Cra	5.0685628	5.6764170	5.5913068	0.4542436	0.9792850
Tight End	1.7464059	0.4937990	0.4101903	0.1415530	0.2749209
Tight (TOL) Bar	1.4894266	1.0266960	0.8885589	0.4940178	0.5143616
Tight (TOL) Cra	5.0685628	5.6764170	5.5913068	0.4542436	0.9792850
Tight (TOL) End	1.3076841	0.5586763	0.4844707	0.0993794	0.2782222
Tight (MOL) Bar	1.1857086	1.6972587	1.2083632	0.1209992	1.1918664
Tight (MOL) Cra	5.3476083	6.6503325	6.5812011	0.2772992	0.9564075
Tight (MOL) End	1.3801549	0.7712170	0.7139181	0.1009120	0.2917137

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.2367478	3.8074603	3.3933523	1.7268221	1.6284005
Loose Cra	2.4432665	3.1068635	2.5902093	1.7156389	0.6186502
Loose End	1.4886389	1.2830124	0.9174881	0.3422686	0.8968482
Loose (TOL) Bar	0.2746737	4.3102483	3.8551438	1.9277207	1.8089025
Loose (TOL) Cra	2.5019975	3.1838586	2.6612842	1.7477192	0.6076634
Loose (TOL) End	0.6698118	1.8456831	1.4033237	0.9942741	1.1988448
Loose (MOL) Bar	0.0000000	2.3215589	0.0000000	2.3215590	2.3215590
Loose (MOL) Cra	5.4015064	7.2457208	6.1351056	3.8549903	1.5317939
Loose (MOL) End	0.9106511	2.8708782	2.3059586	1.4474845	1.7101160
Medium Bar	1.1623442	0.7799444	0.6878723	0.3510766	0.3676210
Medium Cra	2.4189272	2.6569949	2.5460490	0.6400878	0.7597740
Medium End	1.6471935	0.4878901	0.3846323	0.2660209	0.3001580
Medium (TOL) Bar	1.2731629	0.8553255	0.7557065	0.3823916	0.4006115
Medium (TOL) Cra	2.4770713	2.7334710	2.6177841	0.6658640	0.7868104
Medium (TOL) End	1.1129036	0.6721081	0.4369726	0.5106706	0.4554716
Medium (MOL) Bar	0.8435475	1.2491623	0.8552376	0.3426414	0.9104809
Medium (MOL) Cra	5.3476083	6.2821851	6.2116404	0.2499888	0.9388151
Medium (MOL) End	0.9872823	1.3585884	0.5837463	1.2267856	1.0813982
Tight Bar	1.6480296	1.2915576	0.9807621	0.8252722	0.8403731
Tight Cra	3.4190527	3.8591153	3.6537802	1.0955307	1.2420394
Tight End	1.7754775	0.5181218	0.4468656	0.1763031	0.2622241
Tight (TOL) Bar	1.8798990	1.4214250	1.1239931	0.8510931	0.8701085
Tight (TOL) Cra	3.4190527	3.8591153	3.6537802	1.0955307	1.2420394
Tight (TOL) End	1.2588804	0.5149716	0.4966547	0.0857190	0.1361250
Tight (MOL) Bar	1.5617625	2.6319876	1.5916828	1.3981427	2.0961644
Tight (MOL) Cra	5.3476083	6.2848209	6.2116404	0.2769072	0.9562939
Tight (MOL) End	1.1739732	0.7128990	0.6972036	0.1387750	0.1487695

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.5694881	1.4809153	1.4504093	0.2580254	0.2990371
Loose Cra	2.9935356	2.3146646	1.9223565	1.1772319	1.2892704
Loose End	1.1268009	0.3912192	0.3695130	0.1144756	0.1285019
Loose (TOL) Bar	0.5181599	1.6216049	1.5857546	0.2919768	0.3390945
Loose (TOL) Cra	2.9935356	2.3146646	1.9223565	1.1772319	1.2892704
Loose (TOL) End	1.4550253	0.6750509	0.6297612	0.1506310	0.2430941
Loose (MOL) Bar	0.4261397	3.6710836	3.5748286	0.7409634	0.8351380
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	2.8931203	0.9285395	0.8712827	0.1571251	0.3210175
Medium Bar	0.2684885	2.2879214	2.2163732	0.5644495	0.5676921
Medium Cra	2.5211254	2.2602667	1.9153656	1.1179581	1.2000752
Medium End	1.0146756	0.8407990	0.7714918	0.2115952	0.3342806
Medium (TOL) Bar	0.1445600	2.4176214	2.3349455	0.6268357	0.5770392
Medium (TOL) Cra	2.5211254	2.2602667	1.9153656	1.1179581	1.2000752
Medium (TOL) End	1.2699741	1.5840180	1.4555380	0.3485502	0.6249179
Medium (MOL) Bar	0.0000000	0.8087690	0.0000000	0.8087691	0.8087691
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.8798891	5.7792805	5.6124331	0.8203251	1.3786510
Tight Bar	0.2133712	1.6864566	1.5797674	0.5837562	0.5903145
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.1619809	0.5668099	0.2975549	0.4675998	0.4824258
Tight (TOL) Bar	0.2350804	1.8545371	1.7370766	0.6422165	0.6495174
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.7030647	1.1665258	0.5445877	1.0065419	1.0316040
Tight (MOL) Bar	0.0000000	0.5052241	0.0000000	0.5052242	0.5052242
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	3.8875072	1.9186460	1.6170967	0.7515766	1.0325701

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.7611907	1.3063051	1.2842589	0.1416831	0.2389817
Loose Cra	2.4532817	2.0231548	1.5255165	1.2588801	1.3288925
Loose End	1.3178487	0.5175088	0.4838912	0.1322017	0.1834799
Loose (TOL) Bar	0.7314562	1.4053837	1.3791065	0.1747232	0.2704972
Loose (TOL) Cra	2.4532817	2.0241549	1.5268425	1.2588801	1.3288925
Loose (TOL) End	1.6504975	0.8573275	0.8106405	0.0723652	0.2790565
Loose (MOL) Bar	0.8505652	3.3607247	3.2850601	0.4820715	0.7091201
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	2.8675632	0.8426335	0.7802494	0.2579948	0.3181858
Medium Bar	0.5230824	1.3360984	1.1868940	0.6135486	0.5504242
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.2905804	0.7130624	0.2578257	0.6504781	0.6648189
Medium (TOL) Bar	0.4539087	1.4141297	1.2374687	0.6844226	0.6166697
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.4928613	0.9447547	0.3780175	0.8224305	0.8658316
Medium (MOL) Bar	0.0000000	1.6138639	0.0000000	1.6138640	1.4217179
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.2031971	0.8211179	0.7824895	0.2288583	0.2488874
Tight Bar	0.5281406	1.3313008	1.2649950	0.4135775	0.4149092
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.4049988	0.4205649	0.3212494	0.2629739	0.2714292
Tight (TOL) Bar	0.5851757	1.4702812	1.4017001	0.4422774	0.4438062
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.4042347	0.5172973	0.4282680	0.2822671	0.2901433
Tight (MOL) Bar	0.3125562	2.6985489	2.5347603	0.9177311	0.9258276
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.3446752	1.0532614	0.9474890	0.4461816	0.4600264

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.3564909	1.0851738	0.9572900	0.5110756	0.5104400
Loose Cra	0.9931008	1.2352796	1.0281583	0.6846945	0.2147971
Loose End	1.3236420	0.4482745	0.3891961	0.0899204	0.2224333
Loose (TOL) Bar	0.2954825	1.1785511	1.0332646	0.5668749	0.5659104
Loose (TOL) Cra	0.9931008	1.2356193	1.0285664	0.6846945	0.2147971
Loose (TOL) End	1.5459451	0.7521747	0.6200070	0.0731696	0.4258619
Loose (MOL) Bar	0.0000000	1.1618965	0.0000000	1.1618966	1.1618966
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	2.6259125	1.0631521	0.7991450	0.3827071	0.7011847
Medium Bar	0.6646442	0.6544304	0.6067783	0.2440659	0.2451517
Medium Cra	1.0965489	1.2123342	1.1257205	0.4099349	0.4500086
Medium End	1.6348519	0.9520682	0.3231130	0.8951632	0.8955624
Medium (TOL) Bar	0.6032569	0.6821771	0.6193195	0.2842847	0.2860229
Medium (TOL) Cra	1.0965489	1.2129638	1.1263985	0.4099349	0.4500086
Medium (TOL) End	1.7713871	1.1918145	0.4583135	1.0953748	1.1001685
Medium (MOL) Bar	0.3018770	1.2603315	1.0522664	0.6787767	0.6936650
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.9969868	2.0287993	1.0760849	1.7199036	1.7179474
Tight Bar	0.6359092	0.6102338	0.3251731	0.4987940	0.5163797
Tight Cra	1.9274145	2.1980088	1.9993853	0.8513961	0.9130726
Tight End	1.7823838	0.7235448	0.4168754	0.5857551	0.5913816
Tight (TOL) Bar	0.6933397	0.6541124	0.3550291	0.5297118	0.5493792
Tight (TOL) Cra	1.9274145	2.1980088	1.9993853	0.8513961	0.9130726
Tight (TOL) End	1.7874590	1.0228357	0.5693685	0.8457876	0.8497133
Tight (MOL) Bar	0.4235083	1.4330458	0.4284967	1.3002507	1.3674835
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	3.4995100	2.4194927	1.6691156	1.7442970	1.7515703

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.6026334	4.1921686	4.1087084	0.6004610	0.8323421
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.1235065	1.6315775	1.5051237	0.6297999	0.5480199
Loose (TOL) Bar	1.6613787	4.3631107	4.2783100	0.6128763	0.8560366
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.0406101	2.2236471	2.1131531	0.6922360	0.6798638
Loose (MOL) Bar	2.9579803	15.5487200	15.2501043	2.4990556	3.0326577
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	3.0231404	6.4121400	6.1215033	1.9085956	1.5122111
Medium Bar	0.8326630	5.5692458	5.5051735	0.6788591	0.8423566
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.8250985	2.9953601	2.7739350	1.0745727	1.1302510
Medium (TOL) Bar	0.8696710	5.8433501	5.7759424	0.7158343	0.8850029
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.5384958	4.0723671	3.7738686	1.4595125	1.5303888
Medium (MOL) Bar	0.2824534	21.5976109	21.3874043	3.0059499	2.7519791
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.5463072	19.0656028	18.0713824	5.7631175	6.0763763
Tight Bar	1.0244300	4.9191242	4.6350798	1.2901016	1.6473673
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.5983555	1.1856963	0.8447777	0.8287656	0.8320016
Tight (TOL) Bar	1.1097851	5.3084312	5.0001838	1.3949842	1.7825835
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.1346838	1.4116261	0.8361471	1.1361506	1.1373419
Tight (MOL) Bar	0.0000000	2.2013842	0.0000000	2.2013843	2.2013843
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	9.6847513	8.0038552	7.9268621	1.0149049	1.1075001

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.6943973	1.1460786	0.6716506	0.2337137	0.9286451
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	0.7796270	1.8748861	1.7079906	0.7353196	0.7732828
Loose (TOL) Bar	1.8333452	1.2247157	0.7281494	0.2727731	0.9847473
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	0.5828208	2.4485269	2.1880811	0.9430385	1.0989019
Loose (MOL) Bar	4.3508510	4.2837528	2.0773530	2.0048811	3.7463507
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.8564662	7.7034948	7.3349840	2.0176770	2.3541119
Medium Bar	1.4037612	3.6334194	3.4951406	0.9928388	0.9486198
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.5711747	1.0884991	0.8579221	0.6465860	0.6699255
Medium (TOL) Bar	1.4615005	3.7829557	3.6462492	1.0077801	0.9612039
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.0000000	0.3915954	0.0000000	0.3915955	0.3915955
Medium (MOL) Bar	2.5474645	11.4034825	11.2054643	2.1158886	1.9748583
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.4641225	2.2207385	2.0559339	0.6995756	0.8395330
Tight Bar	2.8186664	1.4781679	1.3468792	0.4169827	0.6090132
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.3635798	0.8728975	0.8180038	0.2976020	0.3046636
Tight (TOL) Bar	3.0099793	1.5697610	1.4422389	0.3992756	0.6197553
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.5355167	0.5481986	0.5445704	0.0575238	0.0629678
Tight (MOL) Bar	5.5753091	4.2222106	3.5091473	1.6596548	2.3479668
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.5542361	1.6184820	1.6081224	0.1670405	0.1828289

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.5050800	3.3326952	3.0301682	1.3837988	1.3874215
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	0.9358394	1.9217061	1.5577418	0.8766463	1.1253422
Loose (TOL) Bar	0.5577027	3.6046189	3.2912789	1.4656220	1.4699527
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	0.6824967	2.5003684	2.1005965	1.1719792	1.3562215
Loose (MOL) Bar	0.0000000	4.1665379	0.0000000	4.1665380	4.1665380
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.7942248	6.1892835	5.2245990	2.7913354	3.3182520
Medium Bar	1.3922779	0.9936990	0.7226467	0.6163329	0.6820702
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.0977185	1.2785934	0.6511369	1.0991078	1.1003736
Medium (TOL) Bar	1.4491225	1.0200680	0.7531880	0.6170748	0.6879294
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.5277206	0.7522996	0.5349017	0.5283859	0.5289944
Medium (MOL) Bar	2.1355679	1.9632604	1.5672156	0.6139211	1.1824664
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.3555610	3.3899173	2.4322808	2.3585452	2.3612602
Tight Bar	1.6458986	1.9837014	0.9892524	1.6480309	1.7194334
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.1194275	1.0367635	0.8130060	0.6413230	0.6433506
Tight (TOL) Bar	1.7543012	2.0823516	1.0561463	1.7168524	1.7946430
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	2.3725985	6.2838312	2.4462092	5.2795238	5.7881427
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	0.1118438	7.1168557	7.0310252	1.0962713	1.1019618
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	6.8293268	4.7136777	3.9875814	1.9222291	2.5135538
Loose (TOL) Bar	0.1118438	7.1168557	7.0310252	1.0962713	1.1019618
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	5.9197924	5.4137434	4.1744078	2.7071062	3.4471637
Loose (MOL) Bar	0.0000000	2.2552082	0.0000000	2.2552083	2.2552083
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	24.7931266	20.7898274	17.5852897	10.8380798	11.0893874
Medium Bar	0.2816819	7.9401647	7.8567440	1.1479502	1.0717828
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	3.5473610	35.6556421	33.6553355	11.7746852	9.2340678
Medium (TOL) Bar	0.2816819	7.9401647	7.8567440	1.1479502	1.0717828
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.5487541	42.1797574	40.3157859	12.4003769	12.1595664
Medium (MOL) Bar	0.0000000	2.3318936	0.0000000	2.3318937	2.3117302
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	1.3713401	5.6153475	5.1776043	1.6864068	2.1736011
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	9.6455145	8.1633975	8.0885365	1.0107928	1.1030129
Tight (TOL) Bar	1.3713401	5.6153475	5.1776043	1.6864068	2.1736011
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	4.8223335	5.4264273	5.3983555	0.5051159	0.5512461
Tight (MOL) Bar	0.0000000	3.0654111	0.0000000	3.0654112	3.0654112
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	1.5292293	1.6534444	0.9177870	0.5046319	1.3753347
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	0.0000000	6.8572921	0.0000000	6.8572922	6.6377947
Loose (TOL) Bar	1.5292293	1.6534444	0.9177870	0.5046319	1.3753347
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	0.0000000	5.5914228	0.0000000	5.5914229	5.5914229
Loose (MOL) Bar	3.1114234	4.2689954	2.2976884	1.8066529	3.5979092
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	0.0000000	18.9925661	0.0000000	18.9925662	18.9925662
Medium Bar	0.7726869	6.3206833	6.0062161	1.9688591	1.8570636
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	2.2708256	2.5917071	2.3488723	1.0903620	1.0953288
Medium (TOL) Bar	0.7726869	6.3206833	6.0062161	1.9688591	1.8570636
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	0.0000000	5.5532812	0.0000000	5.5532813	4.4612594
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	1.9603809	1.7491526	1.4590397	0.2634158	0.9647477
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	3.1493404	3.3449466	3.3250242	0.3349946	0.3645299
Tight (TOL) Bar	1.9603809	1.7491526	1.4590397	0.2634158	0.9647477
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	2.4265839	3.5302341	2.5496122	0.2715172	2.4417270
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	2.2070620	0.0000000	2.2070621	2.2070621
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	0.0000000	11.2781600	0.0000000	11.2781601	11.2781601
Loose (TOL) Bar	0.0000000	2.2070620	0.0000000	2.2070621	2.2070621
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	0.0000000	10.9442020	0.0000000	10.9442021	10.9442021
Loose (MOL) Bar	0.0000000	3.9560690	0.0000000	3.9560691	3.9560691
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	0.0000000	27.5825050	0.0000000	27.5825051	27.5825051
Medium Bar	1.2337442	1.2166542	0.9034625	0.5684486	0.8148639
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	2.3805484	3.4291310	2.4628706	2.3835644	2.3860445
Medium (TOL) Bar	1.2337442	1.2166542	0.9034625	0.5684486	0.8148639
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	1.6102086	2.4599855	1.6575179	0.8434404	1.8177358
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	2.0546867	3.1714437	1.5330680	2.6002810	2.7762849
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	3.2487085	4.7298492	3.4301635	3.2532323	3.2566013
Tight (TOL) Bar	2.0546867	3.1714437	1.5330680	2.6002810	2.7762849
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	2.5510145	6.3293547	2.6695078	5.1406990	5.7388553
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