

Table 1: Scale Factors for Cut-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9836871	0.0576437	0.0207758	0.0533860	0.0537706
Loose Cra	0.9706720	0.0988701	0.0924791	0.0229184	0.0349716
Loose End	0.9894626	0.0427539	0.0223855	0.0359114	0.0364260
Loose (TOL) Bar	0.9682339	0.0907303	0.0658661	0.0624002	0.0616429
Loose (TOL) Cra	0.7580267	0.1868301	0.1344207	0.1264191	0.1297563
Loose (TOL) End	1.0347304	0.1003284	0.0576833	0.0815588	0.0820884
Loose (MOL) Bar	1.6034049	0.2245413	0.1648196	0.1523705	0.1524904
Loose (MOL) Cra	1.1904037	0.4066390	0.3429133	0.1386185	0.2185539
Loose (MOL) End	1.4283173	0.2307645	0.1216297	0.1881088	0.1961087
Medium Bar	0.9811891	0.0571296	0.0219838	0.0518775	0.0527322
Medium Cra	0.9599960	0.1180897	0.1109680	0.0252937	0.0403917
Medium End	0.9792142	0.0479520	0.0260047	0.0398780	0.0402890
Medium (TOL) Bar	0.9442882	0.1225128	0.1076083	0.0585662	0.0571131
Medium (TOL) Cra	0.7073311	0.1956167	0.1417779	0.1271411	0.1347778
Medium (TOL) End	1.0176447	0.0893694	0.0616272	0.0634590	0.0647225
Medium (MOL) Bar	1.5648291	0.3174460	0.2832421	0.1429119	0.1433390
Medium (MOL) Cra	1.2791782	0.4917166	0.4054655	0.1523102	0.2781782
Medium (MOL) End	1.4311317	0.1832367	0.1329625	0.1214028	0.1260824
Tight Bar	0.9920360	0.0620677	0.0295277	0.0537343	0.0545952
Tight Cra	0.9602562	0.1424959	0.1349721	0.0360212	0.0456918
Tight End	0.9784271	0.0505667	0.0300794	0.0399132	0.0406490
Tight (TOL) Bar	0.8973565	0.0990035	0.0803779	0.0578031	0.0564588
Tight (TOL) Cra	0.5528756	0.3193797	0.1452520	0.2844386	0.2776469
Tight (TOL) End	1.0121391	0.1005957	0.0661871	0.0566233	0.0757552
Tight (MOL) Bar	1.4530556	0.2266554	0.1676610	0.1482406	0.1525207
Tight (MOL) Cra	1.3735233	0.6842314	0.5598377	0.2506269	0.3933885
Tight (MOL) End	1.4805511	0.1909887	0.1480185	0.1132152	0.1206951

Table 2: Scale Factors for LLH-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9862963	0.0493862	0.0192752	0.0454154	0.0454703
Loose Cra	0.9761695	0.1035272	0.0966649	0.0230664	0.0370659
Loose End	0.9826719	0.0435798	0.0228403	0.0359023	0.0371169
Loose (TOL) Bar	0.9602383	0.1068101	0.0953460	0.0481415	0.0478585
Loose (TOL) Cra	0.7730450	0.1941798	0.1384628	0.1344980	0.1361396
Loose (TOL) End	1.0315081	0.0968777	0.0572414	0.0772099	0.0781594
Loose (MOL) Bar	1.5471805	0.2589266	0.2410241	0.0946067	0.0847888
Loose (MOL) Cra	1.2182555	0.4030831	0.3467945	0.1347524	0.2054498
Loose (MOL) End	1.3867629	0.2308919	0.1175985	0.1899158	0.1987002
Medium Bar	0.9807607	0.0579689	0.0210770	0.0537819	0.0540027
Medium Cra	0.9776403	0.1183046	0.1107588	0.0186273	0.0415757
Medium End	0.9756694	0.0454763	0.0254482	0.0365844	0.0376897
Medium (TOL) Bar	0.9702877	0.0884663	0.0573204	0.0673849	0.0667819
Medium (TOL) Cra	0.6630230	0.2054336	0.1359284	0.1458045	0.1540343
Medium (TOL) End	1.0070357	0.0930193	0.0588789	0.0711212	0.0720134
Medium (MOL) Bar	1.5830477	0.1830240	0.1063525	0.1472211	0.1489531
Medium (MOL) Cra	1.0973851	0.4381479	0.3603776	0.1031305	0.2492021
Medium (MOL) End	1.3512200	0.2081237	0.1201466	0.1610444	0.1699423
Tight Bar	0.9669678	0.0579223	0.0228664	0.0531491	0.0532185
Tight Cra	0.9831549	0.1529477	0.1253784	0.0537275	0.0875978
Tight End	0.9651223	0.0460792	0.0273799	0.0352869	0.0370635
Tight (TOL) Bar	0.9456444	0.0854435	0.0512288	0.0683838	0.0681067
Tight (TOL) Cra	0.6151440	0.1667222	0.1429483	0.0667928	0.0858027
Tight (TOL) End	0.9801148	0.0923092	0.0598538	0.0666508	0.0702757
Tight (MOL) Bar	1.6004238	0.2031359	0.1150768	0.1627801	0.1673968
Tight (MOL) Cra	1.3731190	0.6587073	0.4958032	0.3475165	0.4336757
Tight (MOL) End	1.4121584	0.1899078	0.1301022	0.1154157	0.1383422

Table 3: Scale Factors for BDT-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9804723	0.0512874	0.0210809	0.0467548	0.0467431
Loose Cra	0.9917963	0.1115150	0.1041699	0.0248353	0.0398033
Loose End	0.9855160	0.0417348	0.0237999	0.0329966	0.0342843
Loose (TOL) Bar	0.9386870	0.1649696	0.1583813	0.0461566	0.0453666
Loose (TOL) Cra	0.7820631	0.1953084	0.1459293	0.1276708	0.1298081
Loose (TOL) End	1.0348519	0.0996654	0.0668265	0.0719566	0.0739426
Loose (MOL) Bar	1.5222255	0.4183092	0.4021183	0.1152542	0.1085774
Loose (MOL) Cra	1.4041742	0.4899413	0.3952513	0.2410837	0.2895152
Loose (MOL) End	1.4393964	0.2585103	0.1740804	0.1777783	0.1911120
Medium Bar	0.9898877	0.0672941	0.0460580	0.0490638	0.0487698
Medium Cra	0.9973206	0.1194704	0.1086535	0.0193113	0.0496768
Medium End	0.9871775	0.0414584	0.0295250	0.0287065	0.0291051
Medium (TOL) Bar	0.9443024	0.2789553	0.2707872	0.0670110	0.0481312
Medium (TOL) Cra	0.7319817	0.1830368	0.1427420	0.1061319	0.1145748
Medium (TOL) End	1.0072424	0.1009688	0.0619655	0.0754225	0.0797188
Medium (MOL) Bar	1.6039999	0.4639539	0.4394881	0.1486729	0.1366405
Medium (MOL) Cra	1.3487493	0.5509408	0.4098751	0.2976682	0.3681554
Medium (MOL) End	1.4452367	0.5356983	0.1338472	0.5081483	0.5187078
Tight Bar	1.0084912	0.0632795	0.0332346	0.0535518	0.0538507
Tight Cra	0.9882543	0.1520266	0.1326704	0.0506877	0.0742347
Tight End	1.0343036	0.0532625	0.0429021	0.0315120	0.0315671
Tight (TOL) Bar	1.0011916	0.0998919	0.0632677	0.0773022	0.0759640
Tight (TOL) Cra	0.5194373	0.2355221	0.1328251	0.1830499	0.1944949
Tight (TOL) End	1.0290125	0.1511734	0.0759948	0.1285988	0.1306837
Tight (MOL) Bar	1.7425192	0.2626720	0.1459564	0.2082529	0.2183883
Tight (MOL) Cra	0.9931245	0.6300084	0.4285322	0.0974087	0.4618127
Tight (MOL) End	1.6463829	0.3535231	0.1779919	0.2948092	0.3054465

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.6508000	0.1217821	0.0984131	0.0717348	0.0677864
Loose Cra	0.3324573	0.1843594	0.1531366	0.0985363	0.1026531
Loose End	0.9948666	0.0665702	0.0349510	0.0552809	0.0566579
Loose (TOL) Bar	0.6108864	0.1254551	0.1187160	0.0405662	0.0345977
Loose (TOL) Cra	0.1429217	0.1091512	0.1023429	0.0358755	0.0379486
Loose (TOL) End	1.1162811	0.1566480	0.1409314	0.0595385	0.0683889
Loose (MOL) Bar	1.4781088	0.6091129	0.5678371	0.2204081	0.2194527
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.7629629	0.3422598	0.3145333	0.1094325	0.1349473
Medium Bar	0.6286272	0.1497224	0.1336845	0.0674191	0.0622506
Medium Cra	0.3619661	0.2104055	0.1683000	0.1222484	0.1262765
Medium End	0.9898117	0.0710401	0.0370813	0.0594178	0.0605948
Medium (TOL) Bar	0.5695483	0.1591722	0.1549323	0.0364945	0.0290517
Medium (TOL) Cra	0.1562128	0.1258546	0.1123068	0.0551387	0.0568034
Medium (TOL) End	1.1098521	0.1094737	0.0945168	0.0453719	0.0552376
Medium (MOL) Bar	1.2977594	0.7383638	0.7165114	0.1773566	0.1783052
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.7715938	0.2573882	0.2367512	0.0691120	0.1009836
Tight Bar	0.6409634	0.1109909	0.0778515	0.0791088	0.0759373
Tight Cra	0.2070556	0.1625558	0.1490567	0.0622816	0.0648586
Tight End	1.0008948	0.0757185	0.0397674	0.0637801	0.0644357
Tight (TOL) Bar	0.5367086	0.0946873	0.0829531	0.0456568	0.0383689
Tight (TOL) Cra	0.1099049	0.1165027	0.1109399	0.0342499	0.0355718
Tight (TOL) End	1.1465817	0.1150804	0.1022505	0.0447121	0.0528055
Tight (MOL) Bar	1.1794542	0.3764251	0.3029478	0.2234248	0.2179541
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.8480883	0.2357818	0.2112199	0.0716584	0.1047823

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.5921855	0.1618304	0.1396519	0.0817712	0.0771756
Loose Cra	0.4314807	0.2022322	0.1711590	0.1009198	0.1077151
Loose End	0.9878692	0.0704066	0.0351600	0.0596269	0.0609994
Loose (TOL) Bar	0.5728412	0.1843567	0.1690033	0.0736573	0.0692696
Loose (TOL) Cra	0.2634986	0.1454132	0.1356602	0.0470427	0.0523593
Loose (TOL) End	1.1061634	0.1574112	0.1466399	0.0431142	0.0572287
Loose (MOL) Bar	1.1754232	0.8321045	0.7505082	0.3593542	0.3163015
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.6924829	0.3810867	0.3612093	0.0777030	0.1214705
Medium Bar	0.6424818	0.1059174	0.0749625	0.0748283	0.0700942
Medium Cra	0.3654610	0.1870139	0.1698961	0.0713314	0.0781640
Medium End	0.9887667	0.0711505	0.0370705	0.0596682	0.0607306
Medium (TOL) Bar	0.6159648	0.1013701	0.0861707	0.0533919	0.0485618
Medium (TOL) Cra	0.1574282	0.1140482	0.1131701	0.0032014	0.0141307
Medium (TOL) End	1.1007962	0.1060127	0.0936437	0.0431266	0.0496956
Medium (MOL) Bar	1.3774269	0.3297320	0.2268180	0.2359871	0.2393258
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.6759194	0.2398526	0.2158043	0.0646497	0.1046802
Tight Bar	0.6169227	0.0957345	0.0586634	0.0756563	0.0751376
Tight Cra	0.3518977	0.2105048	0.1818684	0.1014367	0.1060010
Tight End	0.9823583	0.0733498	0.0382728	0.0615111	0.0625737
Tight (TOL) Bar	0.5579957	0.0768361	0.0638429	0.0422024	0.0427551
Tight (TOL) Cra	0.1892982	0.1485994	0.1362233	0.0570199	0.0593729
Tight (TOL) End	1.0926538	0.1100990	0.0963370	0.0420137	0.0533013
Tight (MOL) Bar	1.3875733	0.3742179	0.2511010	0.2436168	0.2774662
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.7664336	0.2309393	0.1999321	0.0688958	0.1155866

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.5468651	0.3779596	0.3466011	0.1507357	0.1414893
Loose Cra	0.4620213	0.2214312	0.1847698	0.1151379	0.1220330
Loose End	0.9982839	0.0671029	0.0357561	0.0554208	0.0567843
Loose (TOL) Bar	0.5317429	0.4489162	0.4201490	0.1581162	0.1486444
Loose (TOL) Cra	0.2835703	0.1588980	0.1467239	0.0557228	0.0609976
Loose (TOL) End	1.1316951	0.1669472	0.1571242	0.0441039	0.0564222
Loose (MOL) Bar	1.0728983	2.0375777	1.9403215	0.6219931	0.5540910
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.7621813	0.4351805	0.4009046	0.1072094	0.1692859
Medium Bar	0.6490093	0.1361047	0.1180032	0.0678224	0.0586113
Medium Cra	0.4354834	0.2088255	0.1854247	0.0882402	0.0960511
Medium End	1.0054048	0.0698806	0.0410111	0.0555393	0.0565811
Medium (TOL) Bar	0.6239120	0.1464107	0.1375282	0.0502208	0.0339611
Medium (TOL) Cra	0.2337667	0.1417476	0.1380190	0.0250714	0.0322987
Medium (TOL) End	1.0337490	0.5248467	0.3802502	0.3542556	0.3617650
Medium (MOL) Bar	1.3362558	0.6470335	0.5765063	0.2937566	0.2593549
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.4366905	1.7771930	1.5865145	0.7906996	0.8008663
Tight Bar	0.6782616	0.1024504	0.0786006	0.0657129	0.0601964
Tight Cra	0.3526535	0.2131044	0.1822595	0.1060612	0.1104312
Tight End	1.0686671	0.0759539	0.0555198	0.0510737	0.0518325
Tight (TOL) Bar	0.6357834	0.1070210	0.0870980	0.0621896	0.0567306
Tight (TOL) Cra	0.1871956	0.1476986	0.1346966	0.0583553	0.0605957
Tight (TOL) End	1.1411289	0.1424419	0.1220308	0.0693918	0.0734728
Tight (MOL) Bar	1.5202848	0.4467799	0.3154113	0.2752222	0.3164303
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.8189568	0.2889340	0.2476696	0.1415651	0.1488043

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.1999861	0.4544648	0.4303521	0.1460665	0.1431075
Loose Cra	0.3378859	0.3290990	0.2429720	0.2200401	0.2219707
Loose End	1.3228610	0.2281506	0.1608146	0.1558846	0.1618377
Loose (TOL) Bar	1.2917715	0.6174348	0.5980395	0.1535405	0.1466613
Loose (TOL) Cra	0.1915045	0.2543094	0.1933043	0.1644163	0.1652477
Loose (TOL) End	1.1411514	0.5526511	0.4386163	0.3305500	0.3362129
Loose (MOL) Bar	1.8388618	1.1463804	1.0850800	0.3698507	0.3626465
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.6752591	1.1155539	0.8221677	0.7327493	0.7539900
Medium Bar	1.0878233	0.5652489	0.5454575	0.1482656	0.1462586
Medium Cra	0.3711308	0.3132248	0.2680988	0.1586878	0.1619658
Medium End	1.3561213	0.2028213	0.1682114	0.1048398	0.1133207
Medium (TOL) Bar	1.1032059	0.7330151	0.7243317	0.1124939	0.1052426
Medium (TOL) Cra	0.2115676	0.2356565	0.2140715	0.0967775	0.0985262
Medium (TOL) End	1.1802611	0.3040766	0.2078697	0.2211618	0.2219298
Medium (MOL) Bar	1.5313535	1.3392245	1.3104129	0.2762982	0.2688309
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.9105538	0.6883445	0.5155099	0.4480078	0.4561445
Tight Bar	0.9831717	0.3079251	0.2414200	0.1911397	0.1901143
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.3860917	0.1993848	0.1849370	0.0684233	0.0745166
Tight (TOL) Bar	0.9396049	0.3434166	0.2946229	0.1764440	0.1730351
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.1314713	0.2614924	0.2218618	0.1334417	0.1384044
Tight (MOL) Bar	1.2312167	0.5886060	0.4653038	0.3604851	0.3539675
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.8801507	0.5669264	0.4419678	0.3224069	0.3550636

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9526534	0.6172699	0.5339656	0.3096822	0.2983447
Loose Cra	0.6594402	0.4449385	0.3420886	0.2786293	0.2845096
Loose End	1.3229414	0.1940420	0.1607902	0.1056801	0.1086232
Loose (TOL) Bar	1.0897163	0.8571161	0.7664893	0.3835914	0.3631830
Loose (TOL) Cra	0.5587264	0.4196761	0.3324509	0.2514514	0.2561338
Loose (TOL) End	1.0503053	0.5041351	0.4528182	0.2160039	0.2216032
Loose (MOL) Bar	1.3419173	1.5295691	1.3282836	0.7584487	0.6808201
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.3856751	1.0075745	0.8671430	0.4796270	0.5130981
Medium Bar	1.1860658	0.2372178	0.1854905	0.1478705	0.1422953
Medium Cra	0.3825649	0.3216369	0.2763994	0.1610462	0.1644801
Medium End	1.3198274	0.1953374	0.1666110	0.0994326	0.1019683
Medium (TOL) Bar	1.3294587	0.3107085	0.2371658	0.2007294	0.1949170
Medium (TOL) Cra	0.2190748	0.2435387	0.2217063	0.0989499	0.1007848
Medium (TOL) End	1.0035228	0.3286762	0.2334180	0.2313963	0.2305919
Medium (MOL) Bar	1.7844928	0.5601633	0.3733097	0.4176397	0.4156448
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.5133936	0.6516619	0.4485712	0.4564927	0.4727021
Tight Bar	1.1203302	0.2520380	0.1959194	0.1555133	0.1585525
Tight Cra	0.2374470	0.2573518	0.2403827	0.0895303	0.0919035
Tight End	1.2416604	0.1886130	0.1687267	0.0822516	0.0842992
Tight (TOL) Bar	1.1746870	0.3026858	0.2430627	0.1639493	0.1803866
Tight (TOL) Cra	0.2790311	0.3063391	0.2829139	0.1149304	0.1174887
Tight (TOL) End	1.0315580	0.2490074	0.2012813	0.1426325	0.1465970
Tight (MOL) Bar	1.8267293	0.6727436	0.4369341	0.4746950	0.5115395
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.5031933	1.2641244	1.1882498	0.3836130	0.4313618

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8092024	1.5718685	1.4373096	0.6363269	0.6077221
Loose Cra	0.7004399	0.4800299	0.3651548	0.3055116	0.3115941
Loose End	1.4290602	0.2052425	0.1706610	0.0940584	0.1140151
Loose (TOL) Bar	0.9786291	2.2270793	2.0958564	0.7531722	0.6975218
Loose (TOL) Cra	0.5984199	0.4562580	0.3574980	0.2786172	0.2834902
Loose (TOL) End	1.1565838	0.6037791	0.5254195	0.2669757	0.2974622
Loose (MOL) Bar	1.1367101	3.8424222	3.5868753	1.3778730	1.2618334
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.6480021	1.2145525	1.0049234	0.5958525	0.6821048
Medium Bar	1.0935030	0.4533769	0.4213226	0.1674458	0.1476443
Medium Cra	0.5728679	0.4223114	0.3404636	0.2448371	0.2498633
Medium End	1.0873580	1.3064274	1.0978132	0.7082083	0.7029146
Medium (TOL) Bar	1.2894230	0.6436333	0.5971986	0.2400372	0.2136862
Medium (TOL) Cra	0.4341912	0.3729635	0.3136435	0.1982461	0.2018158
Medium (TOL) End	0.3856774	1.4346455	1.2108963	0.7693752	0.7494407
Medium (MOL) Bar	1.7478654	1.2959179	1.1555664	0.5865745	0.5284326
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.4747645	2.5985808	2.2770629	1.2520412	1.2408554
Tight Bar	1.1727829	0.2981063	0.2325910	0.1776793	0.1864643
Tight Cra	0.4453202	0.3736118	0.3222787	0.1849755	0.1890036
Tight End	1.3742313	0.2648654	0.2085888	0.1574690	0.1632316
Tight (TOL) Bar	1.2687042	0.3777029	0.2927431	0.2109844	0.2386652
Tight (TOL) Cra	0.2586791	0.2875407	0.2620445	0.1162075	0.1183740
Tight (TOL) End	0.9978983	0.4085435	0.2292667	0.3367090	0.3381488
Tight (MOL) Bar	1.8547568	0.7608114	0.4971905	0.5152533	0.5758782
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.5012454	0.7802785	0.4161461	0.6583759	0.6600433

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.6158449	1.1459537	1.0967578	0.3321633	0.3126739
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.3715747	0.3125595	0.1849923	0.2427814	0.2519354
Loose (TOL) Bar	1.5298291	1.3068494	1.2626648	0.3369469	0.3079507
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.2176837	0.6375648	0.2535531	0.5693361	0.5849786
Loose (MOL) Bar	2.5755940	2.6131014	2.4485662	0.9125914	0.8675648
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	2.1360838	1.6452715	1.2122626	1.0836281	1.1123570
Medium Bar	1.1657112	1.1608862	1.1386814	0.2259682	0.2109095
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.3901782	0.2536812	0.1901096	0.1540411	0.1679662
Medium (TOL) Bar	1.0730177	1.3299636	1.3095583	0.2320785	0.2089501
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.2153132	0.4561074	0.2576290	0.3693009	0.3763793
Medium (MOL) Bar	1.7426361	2.6544475	2.5834543	0.6097999	0.5714702
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.2066681	0.9591957	0.6749080	0.6651765	0.6815833
Tight Bar	1.1179947	0.6023765	0.3844511	0.4603616	0.4637402
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.4180230	0.2437113	0.2081986	0.1186427	0.1266832
Tight (TOL) Bar	1.2727348	0.7589660	0.4652875	0.5959100	0.5996142
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.0713550	0.3975748	0.2609263	0.2813785	0.2999722
Tight (MOL) Bar	1.8161417	1.3429221	0.7713629	1.0949753	1.0992903
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.2224720	0.7886679	0.5848312	0.4574588	0.5291216

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.1084488	1.4360104	1.2491729	0.7083031	0.6585483
Loose Cra	0.5470412	0.6014155	0.5559079	0.2244761	0.2294934
Loose End	1.3735016	0.2584105	0.1851734	0.1747522	0.1802414
Loose (TOL) Bar	1.0351846	1.6837628	1.4404712	0.8718372	0.8106705
Loose (TOL) Cra	0.5475661	0.6022562	0.5566798	0.2248072	0.2298268
Loose (TOL) End	1.1116686	0.7959809	0.6467398	0.4478454	0.4640187
Loose (MOL) Bar	1.3738378	3.0530839	2.6082059	1.5870046	1.4571517
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.7809800	1.5409127	1.3068280	0.7684152	0.8164636
Medium Bar	1.3424316	0.4822202	0.3526026	0.3289498	0.2941893
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.3760522	0.2550864	0.1924557	0.1618070	0.1674217
Medium (TOL) Bar	1.3700513	0.5413435	0.3857006	0.3798525	0.3393731
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.0208535	0.5313240	0.3149757	0.4169043	0.4278968
Medium (MOL) Bar	2.0147987	1.0598710	0.6414919	0.8436912	0.7756951
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.8522569	1.0528982	0.6817169	0.7691113	0.8024069
Tight Bar	1.3703133	0.5389576	0.3938686	0.3670406	0.3678899
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.3225666	0.2330096	0.1970993	0.1171657	0.1242796
Tight (TOL) Bar	1.3521411	0.5809543	0.4225333	0.3961940	0.3987151
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.0385272	0.3818163	0.2521777	0.2682412	0.2866885
Tight (MOL) Bar	2.0203811	1.1746230	0.7471124	0.8955005	0.9064009
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.0124594	0.7742674	0.5423790	0.4512883	0.5525534

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8184791	4.1740049	3.8955502	1.4990017	1.4374557
Loose Cra	0.5475253	0.6030298	0.5575698	0.2246524	0.2296978
Loose End	1.5194601	0.2759746	0.1989791	0.1686652	0.1912315
Loose (TOL) Bar	0.6647505	4.7112562	4.3490918	1.8114459	1.7381325
Loose (TOL) Cra	0.5485770	0.6046793	0.5590785	0.2253161	0.2303660
Loose (TOL) End	1.2869459	0.9417393	0.7627550	0.4921664	0.5523386
Loose (MOL) Bar	0.7529190	8.3265453	7.6557134	3.2743564	3.1510220
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	2.2202117	1.8516384	1.5427757	0.9055360	1.0239181
Medium Bar	1.3249473	1.1256014	1.0034140	0.5100383	0.4920981
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.3246360	0.9288469	0.1986600	0.8918862	0.9073539
Medium (TOL) Bar	1.3355273	1.2870039	1.1402598	0.5968139	0.5743762
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.1689052	1.8643712	1.5764099	0.9953955	0.9654775
Medium (MOL) Bar	1.8486014	2.6424995	2.2856319	1.3261564	1.2656805
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.6044852	3.7345481	3.3621883	1.6255890	1.5915571
Tight Bar	0.9378606	0.4285895	0.3624692	0.2287032	0.2103622
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.4654889	0.3217778	0.2383163	0.2112969	0.2162092
Tight (TOL) Bar	0.8175264	0.4386590	0.3726098	0.2314818	0.2124597
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.9694638	0.5628022	0.2659348	0.4950847	0.4960092
Tight (MOL) Bar	1.4835566	1.0353319	0.7611235	0.7018571	0.6781575
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.6257092	1.0915346	0.5082510	0.9646513	0.9659860

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.2729628	0.4997823	0.4522169	0.1957916	0.2127964
Loose Cra	0.4152078	0.4678001	0.2989607	0.3580102	0.3598049
Loose End	1.5872974	0.1880268	0.1590995	0.1002077	0.1001836
Loose (TOL) Bar	1.0885501	0.4952646	0.4596773	0.1718397	0.1843473
Loose (TOL) Cra	0.4152078	0.4678156	0.2989850	0.3580102	0.3598049
Loose (TOL) End	1.8540942	0.3481096	0.2358259	0.2560596	0.2457533
Loose (MOL) Bar	2.0287723	1.3343255	1.1700469	0.6036481	0.6414165
Loose (MOL) Cra	1.0305694	1.4842534	1.0643313	1.0306752	1.0345082
Loose (MOL) End	2.4187967	0.9686343	0.4489620	0.8579572	0.8583040
Medium Bar	0.9678065	0.6717205	0.6541996	0.1348319	0.1524188
Medium Cra	0.2429666	0.3074901	0.2459113	0.1833782	0.1846021
Medium End	1.5056375	0.1750111	0.1691212	0.0391248	0.0450232
Medium (TOL) Bar	0.8014332	0.6589046	0.6394638	0.1588756	0.1563838
Medium (TOL) Cra	0.2429666	0.3075026	0.2459269	0.1833782	0.1846021
Medium (TOL) End	1.8247967	0.2822966	0.2675565	0.0900283	0.0832602
Medium (MOL) Bar	1.3700049	1.7773897	1.7247696	0.3978436	0.4292834
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.4680185	0.6367298	0.5462062	0.3017314	0.3272366
Tight Bar	0.9913872	0.3921082	0.2630396	0.1707826	0.2907905
Tight Cra	0.4352673	0.4829177	0.4428010	0.1889188	0.1927096
Tight End	1.5838440	0.2300082	0.2176083	0.0707192	0.0745018
Tight (TOL) Bar	0.8364334	0.3381310	0.2468341	0.1354112	0.2310967
Tight (TOL) Cra	0.4352673	0.4830140	0.4429060	0.1889188	0.1927096
Tight (TOL) End	2.1756277	0.4020963	0.3702371	0.1562530	0.1568632
Tight (MOL) Bar	1.6525804	0.9586558	0.5450516	0.5935835	0.7886317
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	3.0477037	0.7710833	0.7497178	0.1530931	0.1802577

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.1614604	0.7557671	0.5922903	0.4694426	0.4199312
Loose Cra	0.3522766	0.2902128	0.2539543	0.1370661	0.1404665
Loose End	1.4621677	0.2056754	0.1997368	0.0479376	0.0490689
Loose (TOL) Bar	1.0407580	0.8153881	0.6333361	0.5135594	0.4605159
Loose (TOL) Cra	0.3522766	0.2902180	0.2539833	0.1370230	0.1404245
Loose (TOL) End	1.7389384	0.3508231	0.3097604	0.1646981	0.1592246
Loose (MOL) Bar	1.4753656	1.9075065	1.5269808	1.1432020	0.9510477
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	2.0274493	1.0263956	0.6750259	0.7731935	0.7681596
Medium Bar	1.3258710	0.3038999	0.2263669	0.1649684	0.2027642
Medium Cra	0.2893233	0.3207354	0.2928781	0.1282756	0.1307432
Medium End	1.5133794	0.1811400	0.1734521	0.0503934	0.0522130
Medium (TOL) Bar	1.2160272	0.2888049	0.2223597	0.1594603	0.1842947
Medium (TOL) Cra	0.2893233	0.3207354	0.2928781	0.1282756	0.1307432
Medium (TOL) End	1.6789356	0.2897636	0.2491559	0.1479340	0.1259776
Medium (MOL) Bar	1.8795119	0.6193093	0.4423627	0.4032122	0.4334276
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.8504949	0.7470848	0.4656910	0.5841813	0.5724363
Tight Bar	1.2716021	0.3413080	0.2409802	0.1503050	0.2417020
Tight Cra	0.5298919	0.5933549	0.5390944	0.2435237	0.2478859
Tight End	1.5439817	0.4537478	0.4496623	0.0368314	0.0607540
Tight (TOL) Bar	1.0988467	0.3052122	0.2271065	0.1217513	0.2039050
Tight (TOL) Cra	0.5298919	0.5933549	0.5390944	0.2435237	0.2478859
Tight (TOL) End	1.7257903	0.6330687	0.6252329	0.0992975	0.0992979
Tight (MOL) Bar	2.0465092	0.7752380	0.4835721	0.4429151	0.6059309
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.4768340	0.7547614	0.6136724	0.4296776	0.4393986

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9120147	1.2142158	1.0592977	0.5934717	0.5564002
Loose Cra	0.5695554	0.4082838	0.3396877	0.2209668	0.2265128
Loose End	1.5814470	0.2172565	0.2130518	0.0284085	0.0425376
Loose (TOL) Bar	0.8333913	1.2283052	1.0791047	0.5867426	0.5447978
Loose (TOL) Cra	0.5697448	0.4084775	0.3398929	0.2210055	0.2265542
Loose (TOL) End	1.8281804	0.3388703	0.3188422	0.1084432	0.1147730
Loose (MOL) Bar	1.3094392	2.9153096	2.6126845	1.2934102	1.0877670
Loose (MOL) Cra	0.7375519	0.8094303	0.7565872	0.2803498	0.2876690
Loose (MOL) End	2.5038498	0.9642303	0.7105815	0.6364709	0.6517777
Medium Bar	1.1012836	0.5810185	0.5195379	0.2601210	0.1888162
Medium Cra	0.5527556	0.4463818	0.3994665	0.1933115	0.1992071
Medium End	1.1466190	1.6698614	1.3623324	0.9656540	0.9529631
Medium (TOL) Bar	1.0014587	0.5357051	0.4799031	0.2380613	0.1628482
Medium (TOL) Cra	0.5530239	0.4466896	0.3997942	0.1933387	0.1992392
Medium (TOL) End	0.9956930	2.4632387	2.0819489	1.3164474	1.2863829
Medium (MOL) Bar	1.7156246	1.3763436	1.2271750	0.6231882	0.5034474
Medium (MOL) Cra	1.0563356	1.1289257	1.0927268	0.2682760	0.2835870
Medium (MOL) End	0.8845446	4.5627387	4.1415900	1.9146325	1.9049334
Tight Bar	1.1297301	0.3833490	0.2664192	0.1356712	0.2756401
Tight Cra	0.4187422	0.4556420	0.4248196	0.1606449	0.1647367
Tight End	1.5941434	0.3662527	0.2648136	0.2530117	0.2474968
Tight (TOL) Bar	0.8700784	0.3298669	0.2376079	0.1064439	0.2288116
Tight (TOL) Cra	0.4187422	0.4556420	0.4248196	0.1606449	0.1647367
Tight (TOL) End	1.9353579	0.6388398	0.3950203	0.5020712	0.4950046
Tight (MOL) Bar	1.3378778	0.7453142	0.4606076	0.2474392	0.5859471
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.7949049	1.7027831	0.8132866	1.4776703	1.4960065

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.5386392	1.2120815	1.1683309	0.3227147	0.3196518
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.5261218	1.1625863	0.9578647	0.6543300	0.6588645
Loose (TOL) Bar	1.3892797	1.2208135	1.1824686	0.3035685	0.2999370
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	1.3312535	1.6499262	1.2882112	1.0274349	1.0309067
Loose (MOL) Bar	2.5499922	3.0636391	2.9089983	0.9505964	0.9610482
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.9702841	3.3518053	2.4983548	2.2295098	2.2344625
Medium Bar	0.9908479	1.5716310	1.4968661	0.4789740	0.4505309
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.4244223	0.6931926	0.6599054	0.1966252	0.2122286
Medium (TOL) Bar	0.9014924	1.5896994	1.5012047	0.5229998	0.4955090
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.3805600	1.0067328	0.8906555	0.4590804	0.4693014
Medium (MOL) Bar	1.3320684	3.9039341	3.7579416	1.0576279	0.9332035
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.1731649	2.3063397	1.9154772	1.2702968	1.2845817
Tight Bar	1.1446860	0.5784853	0.5364639	0.2059942	0.2164529
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.5608048	0.5415728	0.5225677	0.1336857	0.1422120
Tight (TOL) Bar	1.1824958	0.5989479	0.5531857	0.2192140	0.2296178
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.9173323	0.8804287	0.5738009	0.6677630	0.6393557
Tight (MOL) Bar	2.2976724	1.6186860	1.1300415	1.1175426	1.1589439
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.6615384	1.4490435	1.4430520	0.1024305	0.1316365

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.1619259	1.7138845	1.3717651	1.0274536	0.9795257
Loose Cra	0.9894916	1.0635171	1.0174288	0.2974314	0.3096893
Loose End	1.2879860	0.9556366	0.8005631	0.5218624	0.5146767
Loose (TOL) Bar	1.0501994	1.8724001	1.4763457	1.1516449	1.0980644
Loose (TOL) Cra	0.9894916	1.0635171	1.0174288	0.2974314	0.3096893
Loose (TOL) End	0.9349855	1.2993660	1.0196288	0.8054250	0.7897375
Loose (MOL) Bar	1.0763420	4.2022118	3.2397194	2.6763413	2.4140955
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.1464258	2.8167619	2.0094688	1.9738751	1.9371595
Medium Bar	1.4559735	0.4890934	0.4270583	0.2383982	0.2015844
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.2034089	0.9015771	0.5493202	0.7149047	0.6715537
Medium (TOL) Bar	1.3794052	0.4796851	0.4222220	0.2276543	0.1905714
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.5572204	1.1912084	0.5471287	1.0581247	0.9798133
Medium (MOL) Bar	1.9933836	0.9722161	0.7706006	0.5927724	0.5362169
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0000000	2.2441888	0.0000000	2.2441889	2.1002775
Tight Bar	1.9076081	0.6977591	0.5776834	0.3261377	0.3913437
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.4844414	0.9448929	0.5815680	0.7432647	0.7447156
Tight (TOL) Bar	1.7927012	0.6759624	0.5654246	0.2886500	0.3704326
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.7658271	0.8950082	0.4509171	0.7727478	0.7731194
Tight (MOL) Bar	2.7510305	1.4404239	1.0348643	0.8336172	1.0019367
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	0.6023525	1.8835780	0.6105985	1.7817633	1.7818630

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.7806069	2.9747688	2.6017154	1.4423337	1.3816722
Loose Cra	1.8870626	2.1198508	1.9493957	0.8163330	0.8328411
Loose End	1.9900159	1.0765381	1.0206099	0.3403055	0.3424761
Loose (TOL) Bar	0.7137640	3.0621800	2.6566540	1.5228711	1.4599802
Loose (TOL) Cra	1.8870626	2.1198508	1.9493957	0.8163330	0.8328411
Loose (TOL) End	1.3314621	1.4605881	1.3077291	0.6496425	0.6505093
Loose (MOL) Bar	0.8709034	7.8365868	6.0491140	4.9819989	3.2219907
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.7795166	2.9179262	2.5006605	1.4892187	1.5036592
Medium Bar	1.5431138	1.6601285	1.4771022	0.7577571	0.6156165
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.4096230	5.0954135	4.5931730	2.2059014	2.1637991
Medium (TOL) Bar	1.4531309	1.6312483	1.4425634	0.7615655	0.6197655
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.0000000	2.1706629	0.0000000	2.1706630	2.1615208
Medium (MOL) Bar	1.9915197	4.0039023	3.4662968	2.0040011	1.5703268
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0000000	4.5184031	0.0000000	4.5184032	4.5184032
Tight Bar	1.3242328	0.6258357	0.5160376	0.2320882	0.3540843
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.5720578	1.5994249	0.7241492	1.4252541	1.4261025
Tight (TOL) Bar	1.1692466	0.6082260	0.4902731	0.2148940	0.3599600
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.4890398	2.3641123	0.8816410	2.1930724	2.1935671
Tight (MOL) Bar	2.1117826	1.3173085	0.9858355	0.5788322	0.8737450
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	1.8685561	2.0302765	1.9641815	0.4963555	0.5138229
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	2.0085809	4.0000862	3.3421397	2.1216598	2.1979064
Loose (TOL) Bar	1.7199714	2.0430526	1.9773842	0.4946881	0.5138249
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	2.2868643	4.5282430	3.7592180	2.4386346	2.5245327
Loose (MOL) Bar	3.1016991	4.5461003	4.3860560	1.1550897	1.1956343
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	3.8827517	8.2304456	6.8643183	4.3487162	4.5410758
Medium Bar	0.7913243	2.4519460	2.2727501	0.9201339	0.8794800
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	2.3036398	2.3781936	2.2507089	0.7320023	0.7681892
Medium (TOL) Bar	0.7970942	2.4673217	2.2879084	0.9236622	0.8825624
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	2.7586322	2.8065780	2.6509289	0.8779012	0.9216596
Medium (MOL) Bar	1.0775972	5.2100152	4.8828499	1.8171505	1.6635482
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	5.7421314	3.4193852	3.0084133	1.4651346	1.6253138
Tight Bar	0.8537348	0.7401734	0.7003380	0.1886356	0.2395486
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.8427325	1.1519879	1.1380586	0.1691591	0.1786031
Tight (TOL) Bar	0.8537348	0.7405463	0.7007321	0.1886356	0.2395486
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	2.2667618	1.4521378	1.4144387	0.3210884	0.3287362
Tight (MOL) Bar	1.8410227	1.5933851	1.3129023	0.7881945	0.9028642
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	3.5212550	2.7936762	2.7538061	0.4573698	0.4702967

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8128678	3.1650845	2.2918518	2.1829283	2.0034664
Loose Cra	4.8928927	6.0251842	5.1594723	3.0822938	3.1117022
Loose End	1.3033668	3.1270252	2.9283976	1.0966793	1.0967109
Loose (TOL) Bar	0.6567571	3.3608069	2.3940917	2.3586752	2.1711890
Loose (TOL) Cra	4.8928927	6.0251842	5.1594723	3.0822938	3.1117022
Loose (TOL) End	1.4040593	3.3790766	3.1667593	1.1788548	1.1788956
Loose (MOL) Bar	0.0000000	4.7001308	0.0000000	4.7001309	4.2931314
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.7999729	6.2012609	5.6246021	2.6114151	2.6114149
Medium Bar	1.6625758	0.7699641	0.6719856	0.3758726	0.3047820
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.0973153	1.6278020	1.0039831	1.2813109	1.1628069
Medium (TOL) Bar	1.6625758	0.7702604	0.6723251	0.3758726	0.3047820
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.1074116	1.7972674	1.1103846	1.4132291	1.2819569
Medium (MOL) Bar	2.2225261	1.3934672	1.1549682	0.7796150	0.6504961
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	2.0288830	0.9864880	0.8186843	0.2563595	0.5503769
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.1913594	1.9141948	1.2127784	1.4805137	1.4809830
Tight (TOL) Bar	2.0288830	0.9873033	0.8196666	0.2563595	0.5503769
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.1967650	1.9237566	1.2228299	1.4846293	1.4851016
Tight (MOL) Bar	2.6231863	1.6890184	1.2712148	0.5804000	1.1121134
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	0.4740150	5.3196030	4.3257425	3.0961473	2.7614232
Loose Cra	13.8446226	18.5855751	14.6162643	11.4159222	11.4799139
Loose End	1.9988425	5.2103386	4.6381148	2.3739250	2.3728377
Loose (TOL) Bar	0.4740150	5.3196084	4.3257492	3.0961473	2.7614232
Loose (TOL) Cra	13.8446226	18.5855751	14.6162643	11.4159222	11.4799139
Loose (TOL) End	2.2961249	5.8639382	5.2338180	2.6444131	2.6427064
Loose (MOL) Bar	0.5247799	11.5111383	8.5270810	7.7327354	5.4063378
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	4.0129238	12.3121098	11.1194732	5.2863376	5.2529020
Medium Bar	1.2540432	2.5064687	2.1105775	1.3519794	1.0955894
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.0000000	4.2278747	0.0000000	4.2278748	4.2278748
Medium (TOL) Bar	1.2540432	2.5065521	2.1106766	1.3519794	1.0955894
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.0000000	4.6388192	0.0000000	4.6388193	4.6388193
Medium (MOL) Bar	1.5363273	5.1852972	4.2540199	2.9648984	2.2563893
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0000000	12.5039937	0.0000000	12.5039938	12.5039938
Tight Bar	1.5190202	1.0733396	0.7904460	0.3875034	0.7261221
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	2.3818757	4.2453479	2.4279492	3.4817366	3.4825338
Tight (TOL) Bar	1.5190202	1.0733396	0.7904460	0.3875034	0.7261221
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	2.6396031	4.5220183	2.7089379	3.6198740	3.6208156
Tight (MOL) Bar	2.1394955	1.9312435	1.3003898	0.7721771	1.4278263
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