Table 1: Scale Factors for Cut-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9858203	0.0465553	0.0202947	0.0412628	0.0419002
Loose Cra	1.0061010	0.1101408	0.0996018	0.0438987	0.0470165
Loose End	0.9550930	0.0413388	0.0239147	0.0337198	0.0336952
Loose (TOL) Bar	1.0480956	0.0886837	0.0510855	0.0698768	0.0724924
Loose (TOL) Cra	0.7637874	0.2105635	0.1426436	0.1538219	0.1548869
Loose (TOL) End	0.9797122	0.0773679	0.0694555	0.0338677	0.0340864
Loose (MOL) Bar	1.6576086	0.2392158	0.2019980	0.1281451	0.1200911
Loose (MOL) Cra	1.0773937	0.4326663	0.3420871	0.2563970	0.2649089
Loose (MOL) End	1.4016822	0.1344109	0.1211707	0.0533389	0.0581728
Medium Bar	0.9884232	0.0488692	0.0222964	0.0432289	0.0434879
Medium Cra	0.9659968	0.1148298	0.1062010	0.0435175	0.0436731
Medium End	0.9466462	0.0404004	0.0284385	0.0286970	0.0283567
Medium (TOL) Bar	1.0302502	0.0900244	0.0532849	0.0720029	0.0725620
Medium (TOL) Cra	0.6638796	0.2652176	0.1360530	0.2276621	0.2275626
Medium (TOL) End	0.9555639	0.1559919	0.1487636	0.0469355	0.0457313
Medium (MOL) Bar	1.6910267	0.2020336	0.1199657	0.1625606	0.1523824
Medium (MOL) Cra	0.7868442	0.5729681	0.3133463	0.4796729	0.4796943
Medium (MOL) End	1.3644380	0.1463970	0.1276128	0.0685005	0.0717436
Tight Bar	0.9919178	0.0546616	0.0275748	0.0471979	0.0469730
Tight Cra	0.9662056	0.1562481	0.1259560	0.0924591	0.0907748
Tight End	0.9053727	0.0461833	0.0287914	0.0358227	0.0361121
Tight (TOL) Bar	0.9747195	0.1899315	0.1726679	0.0791195	0.0779334
Tight (TOL) Cra	0.5767312	0.3916467	0.1498693	0.3618376	0.3595014
Tight (TOL) End	0.9508244	0.0784971	0.0635083	0.0325579	0.0461367
Tight (MOL) Bar	1.6049550	0.4337817	0.3768654	0.2148002	0.2081384
Tight (MOL) Cra	0.4360637	0.8794784	0.3142296	0.8194469	0.8214269
Tight (MOL) End	1.3372238	0.1529186	0.1390511	0.0530064	0.0636317

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Table 2: Scale Factors for LLH-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9862357	0.0468230	0.0192796	0.0424003	0.0426697
Loose Cra	0.9821113	0.0952596	0.0873609	0.0379704	0.0379808
Loose End	0.9661745	0.0378800	0.0227931	0.0301385	0.0302569
Loose (TOL) Bar	1.0548464	0.0881510	0.0496110	0.0713613	0.0728661
Loose (TOL) Cra	0.7714673	0.2016506	0.1348905	0.1498920	0.1496937
Loose (TOL) End	1.0026008	0.1603857	0.1566709	0.0339794	0.0343213
Loose (MOL) Bar	1.6685551	0.1759295	0.1057919	0.1405679	0.1362607
Loose (MOL) Cra	1.1718448	0.4284163	0.3396164	0.2611013	0.2611541
Loose (MOL) End	1.4227232	0.1312539	0.1174486	0.0511017	0.0585968
Medium Bar	0.9848428	0.0484386	0.0209587	0.0436620	0.0436712
Medium Cra	1.0003726	0.1126206	0.1046205	0.0416896	0.0415564
Medium End	0.9451152	0.0431578	0.0318326	0.0291059	0.0291443
Medium (TOL) Bar	1.0489294	0.0902053	0.0514908	0.0740658	0.0731490
Medium (TOL) Cra	0.7022316	0.2473974	0.1396646	0.2042042	0.2033498
Medium (TOL) End	0.9676748	0.2025146	0.1983407	0.0409053	0.0397855
Medium (MOL) Bar	1.6538130	0.3923322	0.3645255	0.1450720	0.1248093
Medium (MOL) Cra	1.1246244	0.5147560	0.3653371	0.3626331	0.3613719
Medium (MOL) End	1.3811233	0.1277070	0.1201509	0.0432781	0.0419891
Tight Bar	0.9916585	0.0501018	0.0231181	0.0444507	0.0442139
Tight Cra	0.8941447	0.1342307	0.1113308	0.0749898	0.0721328
Tight End	0.9352168	0.0467482	0.0311753	0.0346687	0.0348376
Tight (TOL) Bar	1.0494606	0.0916700	0.0548441	0.0734553	0.0721872
Tight (TOL) Cra	0.6212506	0.2789616	0.1419694	0.2401340	0.2374005
Tight (TOL) End	0.9271132	0.1157760	0.1117855	0.0276759	0.0301380
Tight (MOL) Bar	1.7070863	0.1989525	0.1206917	0.1581637	0.1422136
Tight (MOL) Cra	0.5820891	0.6759873	0.3001627	0.6056908	0.6035961
Tight (MOL) End	1.3210326	0.1351121	0.1249650	0.0500838	0.0513723

Table 3: Scale Factors for BDT-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9881634	0.0478998	0.0203030	0.0433555	0.0433850
Loose Cra	0.9334199	0.1069130	0.0978847	0.0430009	0.0398035
Loose End	0.9661125	0.0360804	0.0236712	0.0271433	0.0272312
Loose (TOL) Bar	1.0484363	0.1074271	0.0820764	0.0693118	0.0677819
Loose (TOL) Cra	0.7190762	0.2333287	0.1368120	0.1890102	0.1821419
Loose (TOL) End	1.0052606	0.1085209	0.1012947	0.0383792	0.0389392
Loose (MOL) Bar	1.6396378	0.2407668	0.2064550	0.1238756	0.1123843
Loose (MOL) Cra	1.0799594	0.5430818	0.3394088	0.4239571	0.3872113
Loose (MOL) End	1.4141089	0.1349566	0.1200000	0.0580260	0.0617524
Medium Bar	0.9861238	0.0486209	0.0242523	0.0421420	0.0420519
Medium Cra	0.9426248	0.1178681	0.1002503	0.0619905	0.0608312
Medium End	0.9705392	0.0461074	0.0388482	0.0246767	0.0248373
Medium (TOL) Bar	1.0777958	0.0921108	0.0556221	0.0734208	0.0723945
Medium (TOL) Cra	0.7145207	0.2634978	0.1384067	0.2242203	0.2214450
Medium (TOL) End	0.9915516	0.1630956	0.1533207	0.0428717	0.0556155
Medium (MOL) Bar	1.7037064	0.2174194	0.1620507	0.1449512	0.1288828
Medium (MOL) Cra	0.8286303	0.6331513	0.3085002	0.5529090	0.5481131
Medium (MOL) End	1.4146315	0.1436495	0.1307739	0.0438780	0.0594429
Tight Bar	1.0293485	0.0560820	0.0333127	0.0445937	0.0451168
Tight Cra	1.0018198	0.1350507	0.1232567	0.0540044	0.0551954
Tight End	0.9023786	0.3305170	0.3182506	0.0885937	0.0892085
Tight (TOL) Bar	1.1052732	0.1025660	0.0665948	0.0780068	0.0732210
Tight (TOL) Cra	0.8132531	0.1826729	0.1709351	0.0641814	0.0644254
Tight (TOL) End	0.4180288	1.0069923	0.8176188	0.5878206	0.5877679
Tight (MOL) Bar	1.8320598	0.2242810	0.1496901	0.1670178	0.1502718
Tight (MOL) Cra	1.2076454	0.4916514	0.4812702	0.1001736	0.1004997
Tight (MOL) End	1.2715193	0.1635875	0.1509769	0.0629839	0.0571134

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.7903314	0.1227485	0.1198077	0.0266143	0.0267108
Loose Cra	0.6371273	0.2959290	0.2261117	0.1896203	0.1909124
Loose End	0.9679055	0.0646119	0.0379004	0.0520546	0.0523296
Loose (TOL) Bar	0.7530235	0.1577276	0.1499680	0.0488632	0.0471147
Loose (TOL) Cra	0.6200859	0.3014509	0.2323189	0.1912351	0.1920956
Loose (TOL) End	1.0506370	0.1246450	0.1223642	0.0232943	0.0237402
Loose (MOL) Bar	1.3245503	0.6702812	0.6660009	0.0756304	0.0721594
Loose (MOL) Cra	1.7640019	1.3512545	1.0912266	0.7623590	0.7969401
Loose (MOL) End	1.4948195	0.1991070	0.1702359	0.0779580	0.1032638
Medium Bar	0.7864814	0.0747816	0.0671583	0.0326570	0.0328959
Medium Cra	0.5340196	0.2586835	0.2116328	0.1465934	0.1487576
Medium End	0.9675520	0.0742913	0.0548671	0.0499330	0.0500899
Medium (TOL) Bar	0.7410921	0.2054577	0.2009754	0.0426826	0.0410412
Medium (TOL) Cra	0.5847069	0.2903380	0.2320880	0.1722355	0.1744460
Medium (TOL) End	1.0355978	0.2599648	0.2595748	0.0142381	0.0095457
Medium (MOL) Bar	1.3595445	0.8684218	0.8579752	0.1342951	0.1331967
Medium (MOL) Cra	1.3098788	1.1529156	0.9748399	0.5911529	0.6155499
Medium (MOL) End	1.4788191	0.1918314	0.1718096	0.0620192	0.0853278
Tight Bar	0.7187669	0.2172629	0.2106688	0.0530322	0.0531223
Tight Cra	0.3358420	0.2081372	0.1977968	0.0647893	0.0371638
Tight End	0.9258573	0.0760394	0.0373241	0.0632817	0.0662500
Tight (TOL) Bar	0.6439725	0.2516455	0.2439358	0.0596000	0.0618136
Tight (TOL) Cra	0.3628442	0.2262640	0.2139002	0.0737718	0.0464201
Tight (TOL) End	1.0496434	0.1401841	0.0966134	0.0188899	0.1015752
Tight (MOL) Bar	0.9835185	0.9660453	0.9170020	0.3029224	0.3038931
Tight (MOL) Cra	1.3282060	1.4736436	1.3832342	0.4772337	0.5082213
Tight (MOL) End	1.4714821	0.2035949	0.1839403	0.0636247	0.0872751

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.7883451	0.0691700	0.0630125	0.0272806	0.0285319
Loose Cra	0.4655822	0.2109398	0.1832645	0.1022723	0.1044500
Loose End	0.9597339	0.1642208	0.1605390	0.0345814	0.0343851
Loose (TOL) Bar	0.7534217	0.0858242	0.0711213	0.0480384	0.0478847
Loose (TOL) Cra	0.4345175	0.2092995	0.1839393	0.0949837	0.0998637
Loose (TOL) End	0.8791546	0.9032398	0.8608184	0.2735582	0.2322755
Loose (MOL) Bar	1.2973126	0.9295964	0.9268613	0.0667671	0.0712581
Loose (MOL) Cra	0.5504569	0.5713839	0.5608953	0.0812323	0.1089779
Loose (MOL) End	1.4825126	0.1968120	0.1657685	0.0696159	0.1060941
Medium Bar	0.8095753	0.0720090	0.0658583	0.0291221	0.0290325
Medium Cra	0.4629049	0.2308908	0.1966992	0.1161326	0.1209140
Medium End	0.8043112	0.8695028	0.8405404	0.2225470	0.1727569
Medium (TOL) Bar	0.7582658	0.0901803	0.0731953	0.0526787	0.0485437
Medium (TOL) Cra	0.4195318	0.2253253	0.1942704	0.1056933	0.1141517
Medium (TOL) End	0.3095310	2.0756797	1.7002045	1.1906935	0.9921709
Medium (MOL) Bar	1.2606925	0.8274660	0.8176791	0.1268896	0.0851275
Medium (MOL) Cra	0.5849024	0.6434894	0.5978363	0.2251676	0.2380557
Medium (MOL) End	1.4748608	0.1995174	0.1695717	0.0901314	0.1051319
Tight Bar	0.7824237	0.0752861	0.0678711	0.0325024	0.0325836
Tight Cra	0.4665774	0.2383874	0.2156299	0.0896270	0.1016489
Tight End	0.9569103	0.2317336	0.2273768	0.0447256	0.0447256
Tight (TOL) Bar	0.7355038	0.0928067	0.0755225	0.0539401	0.0520253
Tight (TOL) Cra	0.5060828	0.2621669	0.2342468	0.1056146	0.1177286
Tight (TOL) End	0.8662366	0.8383065	0.8132094	0.2035886	0.1707555
Tight (MOL) Bar	1.4046599	0.6332260	0.6219011	0.1192238	0.0863857
Tight (MOL) Cra	0.8072817	0.8847820	0.8328225	0.2791531	0.2987408
Tight (MOL) End	1.4368444	0.2149558	0.1760180	0.1107918	0.1233844

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8102690	0.1200137	0.1169626	0.0268895	0.0268915
Loose Cra	0.4189591	0.1951322	0.1788764	0.0779742	0.0512433
Loose End	0.9744381	0.0702630	0.0517966	0.0464141	0.0474777
Loose (TOL) Bar	0.7627566	0.1585950	0.1452364	0.0637090	0.0596629
Loose (TOL) Cra	0.3820246	0.1978961	0.1776010	0.0872975	0.0507642
Loose (TOL) End	1.0496709	0.2438876	0.2429720	0.0174917	0.0211169
Loose (MOL) Bar	1.3210170	0.6157064	0.5879074	0.1829189	0.1637340
Loose (MOL) Cra	0.5782030	0.7847460	0.5901339	0.5172702	0.2927145
Loose (MOL) End	1.4963006	0.1881129	0.1679838	0.0569533	0.0846642
Medium Bar	0.7762095	0.0755433	0.0689918	0.0278951	0.0307742
Medium Cra	0.4662065	0.2102291	0.1974464	0.0637656	0.0721894
Medium End	0.9774369	0.1471672	0.1402435	0.0417591	0.0446101
Medium (TOL) Bar	0.7637139	0.1093841	0.0962428	0.0519841	0.0513617
Medium (TOL) Cra	0.4198664	0.2051136	0.1938702	0.0513999	0.0669782
Medium (TOL) End	1.0108290	0.5620412	0.5295296	0.0590240	0.1883851
Medium (MOL) Bar	1.3383247	0.3181936	0.3078095	0.0806268	0.0738351
Medium (MOL) Cra	0.5786477	0.6232024	0.5910954	0.1823861	0.1974528
Medium (MOL) End	1.4948558	0.1913065	0.1795961	0.0417177	0.0659055
Tight Bar	0.7989837	0.0999209	0.0853721	0.0513235	0.0519222
Tight Cra	0.4670167	0.2415748	0.2158763	0.0972221	0.1084250
Tight End	1.0208508	0.4918316	0.4883555	0.0540757	0.0583733
Tight (TOL) Bar	0.7677452	0.1239302	0.0959820	0.0783982	0.0769866
Tight (TOL) Cra	0.4048419	0.2318066	0.2081223	0.0840603	0.1020762
Tight (TOL) End	0.4050334	1.3923832	1.2409318	0.6315216	0.6312646
Tight (MOL) Bar	1.2869348	0.3688524	0.2837246	0.2356959	0.2313059
Tight (MOL) Cra	0.7040402	0.7545148	0.7222135	0.1977148	0.2184044
Tight (MOL) End	1.2183730	0.2011377	0.1953507	0.0372154	0.0479021

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.2676607	0.5121354	0.5108220	0.0283952	0.0366558
Loose Cra	0.5262096	0.3998517	0.3130265	0.2390071	0.2487890
Loose End	1.4621022	0.1865708	0.1711919	0.0465276	0.0741766
Loose (TOL) Bar	1.4578859	0.7592486	0.7539482	0.0895585	0.0857463
Loose (TOL) Cra	0.6291314	0.4939435	0.3752311	0.3104204	0.3212194
Loose (TOL) End	1.2684477	0.2336180	0.2080634	0.1062410	0.1003056
Loose (MOL) Bar	1.3773077	1.2474743	1.2373516	0.1394538	0.1585980
Loose (MOL) Cra	1.7542338	1.5431081	1.3214429	0.7628491	0.7968511
Loose (MOL) End	1.3942028	0.3512291	0.3167897	0.1306251	0.1516782
Medium Bar	1.1779483	0.6762318	0.6718187	0.0717987	0.0771316
Medium Cra	0.5724950	0.4319491	0.3403641	0.2551637	0.2659557
Medium End	1.5280571	0.1989718	0.1787809	0.0601187	0.0873344
Medium (TOL) Bar	1.3451972	0.9357511	0.9275658	0.1234987	0.1227936
Medium (TOL) Cra	0.6821566	0.5315965	0.4067808	0.3303623	0.3422344
Medium (TOL) End	1.3062073	0.6958922	0.6798536	0.1485433	0.1450448
Medium (MOL) Bar	1.3316101	1.5135164	1.5028243	0.1600173	0.1795862
Medium (MOL) Cra	2.0799657	1.8813511	1.5864892	0.9738074	1.0112044
Medium (MOL) End	1.5886518	0.4169479	0.3618462	0.1502123	0.2071547
Tight Bar	0.9653385	0.8093357	0.7654231	0.2620400	0.2629676
Tight Cra	0.6137286	0.5186580	0.4436870	0.2561786	0.2686041
Tight End	1.4949265	0.2304391	0.1924430	0.1023979	0.1267596
Tight (TOL) Bar	1.1143396	1.1404149	1.0673340	0.4004895	0.4016770
Tight (TOL) Cra	0.7441960	0.6464304	0.5400185	0.3415617	0.3553202
Tight (TOL) End	1.3035173	0.2992742	0.2369717	0.1826214	0.1827831
Tight (MOL) Bar	0.9649139	1.6730136	1.5853546	0.5313430	0.5344395
Tight (MOL) Cra	2.7249971	3.1874755	2.9529200	1.1453056	1.2001100
Tight (MOL) End	1.3559377	0.4497891	0.3640874	0.2508776	0.2641037

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.2354294	0.6867397	0.6856151	0.0214914	0.0392875
Loose Cra	0.3466213	0.3343906	0.2492632	0.2181582	0.2229014
Loose End	1.4708524	0.9464352	0.1691521	0.0495974	0.9311967
Loose (TOL) Bar	1.4660320	0.2636677	0.2461584	0.0855638	0.0944822
Loose (TOL) Cra	0.4136641	0.4057156	0.2979454	0.2699150	0.2753795
Loose (TOL) End	0.1400848	2.9297707	2.1801762	1.9571379	1.6468419
Loose (MOL) Bar	1.3296696	1.6921927	1.6786850	0.1698201	0.2133849
Loose (MOL) Cra	0.8739882	1.1618280	0.8993225	0.7264777	0.7355703
Loose (MOL) End	0.5262415	4.5858409	4.3263156	1.5208322	1.3799331
Medium Bar	1.2906505	0.7070656	0.7045839	0.0591903	0.0432545
Medium Cra	0.3819427	0.3250526	0.2753929	0.1651435	0.1726789
Medium End	1.0577667	2.3967940	2.3152321	0.6199373	0.5300993
Medium (TOL) Bar	1.4361841	0.9792638	0.9695435	0.1376344	0.0902489
Medium (TOL) Cra	0.4552588	0.3971376	0.3289284	0.2142605	0.2225411
Medium (TOL) End	0.3076157	2.1906166	1.6622775	1.4267568	1.2322286
Medium (MOL) Bar	1.2890023	1.4102076	1.3735499	0.3194468	0.2372994
Medium (MOL) Cra	0.8742938	0.9641947	0.9039311	0.3150243	0.3355296
Medium (MOL) End	0.3748710	2.9972707	2.6490782	1.4021471	1.2569475
Tight Bar	1.2930985	0.5084928	0.5062054	0.0481788	0.0385033
Tight Cra	0.4691873	0.3912674	0.3387294	0.1858194	0.1958383
Tight End	1.4143521	0.1980037	0.1792060	0.0537023	0.0842073
Tight (TOL) Bar	1.4058784	0.3008496	0.2736555	0.1249931	0.0815761
Tight (TOL) Cra	0.5682229	0.4861498	0.4115045	0.2477845	0.2588549
Tight (TOL) End	1.0950438	0.3588212	0.3353590	0.1276210	0.1226760
Tight (MOL) Bar	1.4341574	1.0453481	1.0228240	0.2158330	0.0907174
Tight (MOL) Cra	1.3086961	1.4543853	1.3779410	0.4321648	0.4653123
Tight (MOL) End	1.0390047	0.5801454	0.5594565	0.1535493	0.1433106

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.3208327	0.4527958	0.4400210	0.1067977	0.1019710
Loose Cra	0.3433028	0.2852816	0.2476875	0.1415508	0.0959463
Loose End	1.4315884	0.4223530	0.4105822	0.0879636	0.0990173
Loose (TOL) Bar	1.4909772	0.6778306	0.6487291	0.1964816	0.1739079
Loose (TOL) Cra	0.4094550	0.3475235	0.2959035	0.1822468	0.1334443
Loose (TOL) End	1.1110462	0.6228457	0.5626916	0.2670487	0.2668949
Loose (MOL) Bar	1.4066198	1.1429768	1.0534878	0.4433505	0.4023358
Loose (MOL) Cra	0.8700014	1.1043779	0.8956574	0.6461026	0.0752394
Loose (MOL) End	1.1979615	1.0451668	0.9795347	0.3542853	0.3645348
Medium Bar	1.2615666	0.2554022	0.2507461	0.0477242	0.0485459
Medium Cra	0.3789043	0.3239112	0.2727544	0.1675380	0.1747101
Medium End	1.3761226	0.2860445	0.1767798	0.1428933	0.2248790
Medium (TOL) Bar	1.4858267	0.3613056	0.3480683	0.0969036	0.0898842
Medium (TOL) Cra	0.4427328	0.3870229	0.3192778	0.2109435	0.2187430
Medium (TOL) End	0.9127055	1.0779199	0.9376269	0.4582017	0.5317586
Medium (MOL) Bar	1.5223157	0.5041388	0.4911954	0.1135041	0.0815109
Medium (MOL) Cra	0.8730710	0.9615964	0.9036795	0.3082251	0.3286810
Medium (MOL) End	0.7504743	1.5528949	1.3588761	0.6494889	0.7516240
Tight Bar	1.2996893	0.3208708	0.2495173	0.2017408	0.1999552
Tight Cra	0.2204110	0.2434467	0.2226791	0.0940047	0.0983895
Tight End	1.4448975	0.2426256	0.2106011	0.1056388	0.1204759
Tight (TOL) Bar	1.3745996	0.4318425	0.3103404	0.3002947	0.2769313
Tight (TOL) Cra	0.2629281	0.2947152	0.2659351	0.1222098	0.1270266
Tight (TOL) End	0.9765253	0.9462147	0.8949198	0.3073125	0.3062260
Tight (MOL) Bar	1.4312508	0.5813965	0.4262171	0.3954252	0.3836145
Tight (MOL) Cra	1.0573649	1.1700943	1.1016876	0.3687623	0.3942147
Tight (MOL) End	0.6086852	1.3059096	1.2435219	0.3980623	0.3988148

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.1628666	1.3355069	1.3309783	0.1098891	0.0900475
Loose Cra	1.2243117	1.0750829	0.8971757	0.5701407	0.5923505
Loose End	1.6093911	0.2438958	0.2038611	0.0575689	0.1338877
Loose (TOL) Bar	1.3607418	1.5740649	1.5667523	0.1515514	0.1327499
Loose (TOL) Cra	1.2313839	1.0825560	0.9028876	0.5749814	0.5972617
Loose (TOL) End	1.4706384	0.3301074	0.2821571	0.1297444	0.1713428
Loose (MOL) Bar	1.0059412	2.6894200	2.6670829	0.2838834	0.3459033
Loose (MOL) Cra	5.0534114	4.8296648	4.0887707	2.4834870	2.5705286
Loose (MOL) End	1.7795228	0.4810557	0.4387297	0.1421223	0.1973092
Medium Bar	1.1193611	1.5435017	1.5390684	0.1169018	0.1160462
Medium Cra	1.3834347	1.2206445	1.0165608	0.6509521	0.6757051
Medium End	1.6738711	0.2536286	0.2109029	0.0620464	0.1408814
Medium (TOL) Bar	1.3022077	1.8041072	1.7956747	0.1742277	0.1738343
Medium (TOL) Cra	1.3924855	1.2303944	1.0240430	0.6572191	0.6820606
Medium (TOL) End	1.5420422	0.3521792	0.2945508	0.1195956	0.1930548
Medium (MOL) Bar	1.0178909	3.1398660	3.1300537	0.1715781	0.2480385
Medium (MOL) Cra	9.2874768	10.0412565	8.0987480	5.8100776	5.9360858
Medium (MOL) End	1.9262535	0.5222522	0.4762086	0.0914014	0.2144129
Tight Bar	0.7434187	1.6328730	1.5033013	0.6194462	0.6374635
Tight Cra	1.9590627	2.4056192	2.0176375	1.2844097	1.3100165
Tight End	1.6241707	0.2788621	0.2248671	0.0817673	0.1649210
Tight (TOL) Bar	0.8972051	1.9766332	1.8155553	0.7598197	0.7815614
Tight (TOL) Cra	1.9959582	2.4575511	2.0584553	1.3165707	1.3425049
Tight (TOL) End	1.4739506	0.3618103	0.3084627	0.1399571	0.1890967
Tight (MOL) Bar	0.4033716	2.9671224	2.8728069	0.6229667	0.7421565
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.6634485	0.5246486	0.4817789	0.1584267	0.2077145

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.3225757	0.3577665	0.3372177	0.0263930	0.1195043
Loose Cra	0.5966842	0.6785303	0.6064134	0.2940583	0.3044115
Loose End	0.0000000	2.8218018	0.0000000	2.8218019	2.2902338
Loose (TOL) Bar	1.5704592	0.4288163	0.3960308	0.1165164	0.1644483
Loose (TOL) Cra	0.6000526	0.6828402	0.6100052	0.2964766	0.3068625
Loose (TOL) End	0.0000000	2.5114285	0.0000000	2.5114286	2.1071147
Loose (MOL) Bar	1.2723895	3.4222131	3.3953498	0.2589947	0.4279521
Loose (MOL) Cra	2.5178102	3.0319603	2.6809212	1.3766508	1.4161374
Loose (MOL) End	0.0000000	3.1139149	0.0000000	3.1139150	2.5080046
Medium Bar	1.3113091	0.4244092	0.3695075	0.2087763	0.0539079
Medium Cra	0.6532281	0.7357178	0.6666838	0.2989499	0.3111488
Medium End	1.0602524	3.1472359	3.0275823	0.8595580	0.7169710
Medium (TOL) Bar	1.5127439	0.4891601	0.4245874	0.2429061	0.0834461
Medium (TOL) Cra	0.6572683	0.7409187	0.6711264	0.3016872	0.3139269
Medium (TOL) End	0.1088269	2.8793025	2.0791071	1.9919079	1.7054031
Medium (MOL) Bar	1.0823263	2.2259524	2.1815325	0.4424705	0.3762333
Medium (MOL) Cra	2.5190750	2.9270911	2.7327004	0.9947456	1.0489096
Medium (MOL) End	0.6973551	5.1635342	4.9537475	1.4568705	1.2919918
Tight Bar	1.2302923	0.4521148	0.3828810	0.2404372	0.1181874
Tight Cra	0.7646698	0.8572829	0.7831568	0.3338315	0.3487113
Tight End	1.5650362	0.2608750	0.2146083	0.0657889	0.1483210
Tight (TOL) Bar	1.4094635	0.5129850	0.4410759	0.2619272	0.1051891
Tight (TOL) Cra	0.7646698	0.8572829	0.7831568	0.3338315	0.3487113
Tight (TOL) End	1.2576364	0.3253318	0.2756331	0.1335522	0.1728213
Tight (MOL) Bar	0.9887042	0.6943981	0.5061984	0.4753441	0.4131841
Tight (MOL) Cra	3.4531570	4.1657473	3.9998416	1.0712554	1.1639238
Tight (MOL) End	1.4233972	0.4524513	0.4286603	0.0590230	0.1447848

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.3682077	1.1782924	1.1017971	0.4176317	0.3725738
Loose Cra	0.5675874	0.7145103	0.5781043	0.4199054	0.0324322
Loose End	1.5736314	0.6418736	0.6290050	0.0717958	0.1278853
Loose (TOL) Bar	1.6186467	1.3657597	1.3017768	0.4131306	0.3487817
Loose (TOL) Cra	0.5736922	0.7224090	0.5846859	0.4242845	0.0309538
Loose (TOL) End	1.1745708	1.0725215	1.0018224	0.3822727	0.3829547
Loose (MOL) Bar	1.3589853	2.4834443	2.2905271	0.9596779	0.9278940
Loose (MOL) Cra	2.4682961	3.2084180	2.6320709	1.8347068	0.2258538
Loose (MOL) End	1.5453712	1.7851834	1.7507151	0.3363073	0.3491082
Medium Bar	1.3143835	0.5303025	0.5099705	0.1454336	0.1083950
Medium Cra	0.6049517	0.6749883	0.6159877	0.2644114	0.2759865
Medium End	1.5675207	0.2562186	0.2126342	0.1002771	0.1429500
Medium (TOL) Bar	1.5318480	0.4708494	0.4484103	0.1436228	0.0898574
Medium (TOL) Cra	0.6119256	0.6838027	0.6235711	0.2689704	0.2806160
Medium (TOL) End	1.3002797	0.3746131	0.2754291	0.2539173	0.2433918
Medium (MOL) Bar	1.2883420	0.8686012	0.8278463	0.2629427	0.2629403
Medium (MOL) Cra	2.5152100	2.8607656	2.7651253	0.6557053	0.7335272
Medium (MOL) End	1.4693650	0.6052729	0.4219684	0.4339333	0.4046775
Tight Bar	1.3110431	0.6937044	0.4503115	0.5276793	0.5110729
Tight Cra	0.7682813	0.8686068	0.7857636	0.3560918	0.3702075
Tight End	1.5678558	0.2740412	0.2419630	0.0839744	0.1286571
Tight (TOL) Bar	1.5654601	0.7533550	0.5405577	0.5247298	0.5007465
Tight (TOL) Cra	0.7682813	0.8686068	0.7857636	0.3560918	0.3702075
Tight (TOL) End	1.1812922	0.3148969	0.2879698	0.1187741	0.1274108
Tight (MOL) Bar	1.8975318	1.0909055	0.8772134	0.6482460	0.6485150
Tight (MOL) Cra	3.4531570	4.0451640	3.8741204	1.0711737	1.1638486
Tight (MOL) End	1.0904220	0.4442153	0.3961946	0.1911276	0.2008912

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0736351	0.6130238	0.5870411	0.1468932	0.1765816
Loose Cra	1.4189648	0.8619106	0.5746762	0.6147078	0.6423685
Loose End	1.1979192	0.2189180	0.1969103	0.0513729	0.0956639
Loose (TOL) Bar	1.0738363	0.6510927	0.6249662	0.1489861	0.1825901
Loose (TOL) Cra	1.4189648	0.8620166	0.5748352	0.6147078	0.6423685
Loose (TOL) End	1.2822195	0.2019888	0.1936428	0.0366361	0.0574633
Loose (MOL) Bar	1.4667778	1.6634408	1.6105707	0.3039721	0.4160502
Loose (MOL) Cra	3.5450704	3.0652684	2.2687408	2.0077075	2.0612340
Loose (MOL) End	2.1151585	0.4639150	0.4144458	0.2076943	0.2084514
Medium Bar	0.9849966	0.8558197	0.8466389	0.1101735	0.1250207
Medium Cra	0.9668726	0.6601069	0.5048411	0.4059936	0.4252961
Medium End	1.0761311	0.4794586	0.4739771	0.0434891	0.0722941
Medium (TOL) Bar	0.9451180	0.8745174	0.8643135	0.1157932	0.1332032
Medium (TOL) Cra	0.9668726	0.6602077	0.5049729	0.4059936	0.4252961
Medium (TOL) End	1.0658501	0.2201747	0.2013832	0.0497647	0.0890049
Medium (MOL) Bar	1.1305631	2.4770750	2.4498250	0.2984343	0.3664130
Medium (MOL) Cra	1.5024106	1.7821753	1.5832162	0.7942625	0.8182760
Medium (MOL) End	1.9039010	0.5801021	0.4829979	0.3075977	0.3212968
Tight Bar	0.8674512	1.0931772	1.0498684	0.2910101	0.3046522
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	0.9995629	0.2186101	0.1700065	0.0295474	0.1374344
Tight (TOL) Bar	0.8264246	1.1056946	1.0633382	0.2871179	0.3031050
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.0286448	0.3504462	0.2433384	0.0282344	0.2521888
Tight (MOL) Bar	0.4188480	2.4554311	2.3641026	0.6332836	0.6634462
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.5931739	0.5846149	0.5241206	0.1418494	0.2589831

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0370829	0.7341395	0.7151645	0.1473271	0.1658335
Loose Cra	1.2879113	0.7050071	0.5151512	0.4502395	0.4813049
Loose End	1.2212504	0.6801085	0.6713901	0.1010541	0.1085501
Loose (TOL) Bar	1.0183852	0.7633459	0.7435785	0.1502373	0.1725923
Loose (TOL) Cra	1.2879113	0.7045319	0.5153658	0.4492490	0.4803784
Loose (TOL) End	1.3539841	1.1114742	1.1073165	0.0885281	0.0960483
Loose (MOL) Bar	1.5174122	1.9834242	1.9478391	0.2391096	0.3740248
Loose (MOL) Cra	2.6119441	1.9049950	1.6260006	0.9307205	0.9925362
Loose (MOL) End	2.2212096	0.4239343	0.4014296	0.1357747	0.1362888
Medium Bar	0.9423535	0.8309528	0.7647166	0.3251020	0.3070077
Medium Cra	0.8208803	0.6257619	0.4895517	0.3743707	0.3897656
Medium End	1.0099551	0.8308037	0.7710865	0.2452462	0.3092904
Medium (TOL) Bar	0.9207767	0.8492141	0.7826883	0.3294903	0.3094814
Medium (TOL) Cra	0.8208803	0.6257619	0.4895517	0.3743707	0.3897656
Medium (TOL) End	1.0135401	1.2442706	1.1643879	0.3198256	0.4386461
Medium (MOL) Bar	1.0379725	1.8416033	1.6824673	0.7488703	0.7098353
Medium (MOL) Cra	2.3512085	2.1994095	1.7793751	1.2548791	1.2927593
Medium (MOL) End	1.7313459	2.9497961	2.8992702	0.2730595	0.5436266
Tight Bar	1.0439045	0.3120523	0.2166628	0.2245752	0.2108674
Tight Cra	0.9178265	0.8037682	0.6689112	0.4289061	0.4456471
Tight End	1.3596556	0.3652777	0.3097330	0.1398073	0.1936320
Tight (TOL) Bar	1.0501539	0.3073332	0.2225487	0.2119572	0.1961352
Tight (TOL) Cra	0.9178265	0.8037682	0.6689112	0.4289061	0.4456471
Tight (TOL) End	1.1063928	0.4360235	0.4114702	0.1208158	0.1442527
Tight (MOL) Bar	1.3319667	0.4835895	0.3961288	0.2773824	0.2564744
Tight (MOL) Cra	1.7176769	2.0034198	1.8288821	0.7858827	0.8178518
Tight (MOL) End	1.8775097	0.6009554	0.5102476	0.2311270	0.3174821

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9865994	0.5493699	0.4634155	0.2950483	0.2925059
Loose Cra	0.5619537	0.3503823	0.3344839	0.1043479	0.0545216
Loose End	1.3362860	0.3597683	0.3403047	0.0532853	0.1167310
Loose (TOL) Bar	0.9680543	0.5689698	0.4836638	0.2996600	0.2966745
Loose (TOL) Cra	0.5629420	0.3510512	0.3351715	0.1043892	0.0543448
Loose (TOL) End	1.3729659	0.2211097	0.2037420	0.0430470	0.0858996
Loose (MOL) Bar	1.2270903	1.4562754	1.2458611	0.7540347	0.7517165
Loose (MOL) Cra	0.8726965	1.1849139	0.8959451	0.7754376	0.4323979
Loose (MOL) End	2.0622648	0.4438250	0.4089330	0.1724954	0.1649441
Medium Bar	1.1090958	0.3900399	0.3306752	0.2068459	0.2056615
Medium Cra	0.5372328	0.3974515	0.3876019	0.0528931	0.0879347
Medium End	1.1738092	1.6843418	1.6359144	0.3060242	0.4009882
Medium (TOL) Bar	1.0897394	0.3953626	0.3379568	0.2051755	0.2037746
Medium (TOL) Cra	0.5385951	0.3985491	0.3887277	0.0526528	0.0879330
Medium (TOL) End	1.2917296	2.6759004	2.6205128	0.1726074	0.5416234
Medium (MOL) Bar	1.3644712	0.7980326	0.7023901	0.3782374	0.3788197
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.1916196	1.1887981	0.5268156	0.2600957	1.0656953
Tight Bar	1.2083130	0.4150742	0.2662200	0.3182905	0.3184551
Tight Cra	0.7591617	0.6412882	0.5506940	0.3130094	0.3286136
Tight End	1.6358489	1.1217095	1.0946391	0.1994210	0.2449442
Tight (TOL) Bar	1.2055455	0.4397557	0.2719527	0.3450147	0.3455821
Tight (TOL) Cra	0.7591617	0.6412882	0.5506940	0.3130094	0.3286136
Tight (TOL) End	1.1968856	1.3551593	1.3257645	0.2765622	0.2807229
Tight (MOL) Bar	1.7618445	0.8468361	0.5537795	0.6374921	0.6406714
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.4078489	0.7839251	0.7273187	0.2760341	0.2924830

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.1393126	1.4943743	1.4209090	0.4397667	0.4627877
Loose Cra	1.6888000	1.8548613	1.7577846	0.5491026	0.5922026
Loose End	1.5278383	0.9080607	0.7775699	0.4689985	0.4687921
Loose (TOL) Bar	1.1581037	1.5295704	1.4690704	0.4008046	0.4259320
Loose (TOL) Cra	1.6888000	1.8548613	1.7577846	0.5491026	0.5922026
Loose (TOL) End	1.1833686	1.1151824	1.0254500	0.4382743	0.3874043
Loose (MOL) Bar	2.1284709	3.5410622	3.4988713	0.3986915	0.5449968
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	1.8089917	2.3240412	1.9750089	1.2249522	1.0968267
Medium Bar	0.9430309	0.4608282	0.3278982	0.3180716	0.3237987
Medium Cra	2.0332770	2.2206209	2.1428403	0.5181419	0.5825746
Medium End	1.3223313	2.1652850	2.0741341	0.5235477	0.6216328
Medium (TOL) Bar	0.9667531	0.4302166	0.3356759	0.2617371	0.2690877
Medium (TOL) Cra	2.0332770	2.2206209	2.1428403	0.5181419	0.5825746
Medium (TOL) End	0.9131348	2.8873502	2.7952433	0.6395430	0.7234683
Medium (MOL) Bar	1.8840728	0.7900090	0.7507525	0.1758200	0.2459371
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.2833161	1.8651021	1.0798414	1.5207066	1.5136040
Tight Bar	0.7768711	3.0499068	2.9013813	0.8360695	0.9401694
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.1733615	1.3970925	0.4974982	0.8058652	1.3055126
Tight (TOL) Bar	0.8014587	3.1357353	2.9824565	0.8608857	0.9683954
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.8288824	1.2713761	0.4917456	0.8291789	1.1724264
Tight (MOL) Bar	0.7672619	6.5731259	6.4400358	1.0692208	1.3160258
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.8776100	1.7325809	1.3930691	1.0273897	1.0301433

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.1755861	0.4470125	0.2862742	0.2779933	0.3433181
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.0634984	2.6940501	2.5664463	0.8190914	0.8193045
Loose (TOL) Bar	1.2095566	0.4234829	0.2948536	0.2279900	0.3039724
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	0.2454799	3.3225101	3.0214416	1.3820147	1.3258184
Loose (MOL) Bar	2.3711556	0.8001651	0.6478343	0.1837923	0.4696542
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	0.0000000	2.7148073	0.0000000	2.7148074	2.6483938
Medium Bar	1.3315371	0.6105760	0.3570436	0.4953010	0.4679497
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.1312961	2.1642073	1.8615382	1.0971390	1.1038428
Medium (TOL) Bar	1.3456967	0.5661130	0.3611476	0.4359547	0.4039147
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.0000000	0.9744690	0.0000000	0.9744691	0.9744691
Medium (MOL) Bar	2.1709183	0.7506238	0.6644062	0.3492859	0.3173478
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0000000	1.1678544	0.0000000	1.1678545	1.1678545
Tight Bar	1.5100388	0.8372754	0.4976554	0.6733271	0.6103531
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.4467375	0.9790324	0.8937578	0.2691396	0.3996268
Tight (TOL) Bar	1.5375476	0.7757007	0.5072104	0.5868981	0.5105280
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.5625222	0.8420708	0.7358406	0.4086202	0.4094169
Tight (MOL) Bar	2.1374135	1.0090366	0.8553784	0.5352409	0.4552414
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	0.6763951	1.6817498	1.5419088	0.6704991	0.6714162

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0974917	1.3914557	1.1673760	0.7572203	0.7527710
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.6342575	1.7372903	1.5370868	0.4428694	0.8096554
Loose (TOL) Bar	1.1378205	1.4011345	1.2073860	0.7109129	0.7059557
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	0.8978997	2.3760492	2.1022803	0.8864129	1.1072614
Loose (MOL) Bar	2.5560223	3.6602818	3.5804991	0.7496766	0.7600587
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	0.1756417	4.6380311	4.1368598	2.0897067	2.0970751
Medium Bar	1.3582476	0.7603367	0.4057647	0.6430141	0.6353987
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.7613405	3.0266997	2.7566797	0.9909536	1.2496513
Medium (TOL) Bar	1.3783464	0.7016097	0.4122847	0.5676950	0.5587948
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.0000000	0.8605712	0.0000000	0.8605713	0.8605713
Medium (MOL) Bar	2.3966401	0.9983676	0.8413482	0.5369468	0.5374675
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0000000	1.6327755	0.0000000	1.6327756	1.6327756
Tight Bar	1.8334470	0.9724230	0.6061355	0.7603989	0.7426149
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.1712891	3.2203190	3.1519065	0.5729260	0.6602580
Tight (TOL) Bar	1.8741491	0.9813544	0.6200520	0.7606525	0.7420664
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.0000000	0.4493247	0.0000000	0.4493248	0.4493248
Tight (MOL) Bar	3.0119162	1.5457770	1.2113314	0.9598038	0.9602619
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	0.0000000	1.4603638	0.0000000	1.4603639	1.4603639

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9079595	2.4768178	2.3876528	0.6278719	0.6585903
Loose Cra	3.3939461	3.8013044	3.5968989	1.1461064	1.2297293
Loose End	2.7537174	1.3188256	1.0971972	0.7317511	0.7137671
Loose (TOL) Bar	0.9177608	2.5460543	2.4596381	0.6276224	0.6577030
Loose (TOL) Cra	3.3939461	3.8013044	3.5968989	1.1461064	1.2297293
Loose (TOL) End	2.2935204	1.4455725	1.0739571	0.9676241	0.9647450
Loose (MOL) Bar	1.3581025	5.4803217	5.3590769	1.0374232	1.1463950
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	4.9819914	2.8302290	2.4049065	1.4921867	1.4603598
Medium Bar	0.9255172	0.6509102	0.4313028	0.4568357	0.4875059
Medium Cra	5.1629504	6.1094692	5.6811468	2.1431044	2.2472617
Medium End	2.7023905	1.8735331	1.2780916	1.2145766	1.3698935
Medium (TOL) Bar	0.9447080	0.6574439	0.4392967	0.4572973	0.4891330
Medium (TOL) Cra	5.1629504	6.1094692	5.6811468	2.1431044	2.2472617
Medium (TOL) End	2.6895258	2.3853242	1.4273988	1.5076668	1.9111003
Medium (MOL) Bar	1.6396419	1.2236832	0.8613122	0.6301476	0.8692193
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	7.4890032	5.1074132	4.2848084	2.7795839	2.7460310
Tight Bar	0.6732883	4.0121895	3.8670980	0.8306027	1.0692137
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.7463242	1.7810003	1.2987669	1.2166626	1.2186743
Tight (TOL) Bar	0.6732883	4.0122322	3.8671423	0.8306027	1.0692137
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.0957685	1.9823907	1.1297508	1.6283757	1.6289679
Tight (MOL) Bar	0.5199683	8.2636195	8.1494664	1.2661907	1.3687973
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	3.2053743	4.7677674	3.4005963	3.3393183	3.3417886

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.2388413	0.5708832	0.4067584	0.3246932	0.4005689
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	1.2424805	18.8140114	18.5917614	2.8833030	2.6437007
Loose (TOL) Bar	1.2388413	0.5709593	0.4068651	0.3246932	0.4005689
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	0.2811126	14.3315752	14.1147178	2.4837050	2.3298642
Loose (MOL) Bar	2.0721186	0.9603837	0.7730446	0.3803682	0.5698588
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	0.4556089	31.3748538	30.7509250	6.2259189	5.9226141
Medium Bar	1.4108977	0.7210434	0.5216385	0.4977922	0.4819643
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	2.4193876	2.6992366	1.2603040	1.5237869	2.3869463
Medium (TOL) Bar	1.4108977	0.7212228	0.5218864	0.4977922	0.4819643
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.4114122	2.2433184	1.0231742	1.4119164	1.9963948
Medium (MOL) Bar	1.8886956	0.9691187	0.8167316	0.4714880	0.5216710
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.5479137	4.0644760	1.8792539	2.5488245	3.6039382
Tight Bar	1.2835749	0.9295990	0.6673883	0.6471069	0.5705991
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	3.8918196	2.7269991	2.3704383	1.3391208	1.3481642
Tight (TOL) Bar	1.2835749	0.9299596	0.6678905	0.6471069	0.5705991
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.3322697	1.4408661	1.3626046	0.4653565	0.4684060
Tight (MOL) Bar	1.1842841	1.2701849	0.8670863	0.9281150	0.9281870
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.9791453	3.3821054	3.1124841	1.3178928	1.3232838

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.4175426	2.2235329	1.8964068	1.1609222	1.0904305
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	3.7428392	11.4940922	11.1299334	1.8464343	2.8703204
Loose (TOL) Bar	1.4175735	2.2235022	1.8963788	1.1609090	1.0904170
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	2.5554807	12.7821466	12.2024166	2.8202521	3.8058249
Loose (MOL) Bar	3.2562863	1.5876353	1.0735136	1.1696814	1.0677049
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	6.8848633	43.3766181	42.6836554	3.4978881	7.7224714
Medium Bar	1.5150042	0.9541293	0.5972434	0.7440855	0.7168842
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	5.2232731	6.9161874	2.7421659	3.6099299	6.3493445
Medium (TOL) Bar	1.5150042	0.9543096	0.5975314	0.7440855	0.7168842
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.0000000	3.1069528	0.0000000	3.1069529	3.1069529
Medium (MOL) Bar	2.4468635	1.3921681	1.1544137	0.7777393	0.7781139
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0000000	4.4685243	0.0000000	4.4685244	4.4685244
Tight Bar	2.7668813	1.4128785	1.1206878	0.8603981	0.7795417
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	2.6075311	8.0878826	7.6576358	2.6006694	2.6027793
Tight (TOL) Bar	2.7668813	1.4128785	1.1206878	0.8603981	0.7795417
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.0000000	1.9055830	0.0000000	1.9055831	1.9055831
Tight (MOL) Bar	4.3975544	2.2031315	2.1427018	0.5106300	0.5124623
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	0.0000000	9.8453476	0.0000000	9.8453477	9.8453477