

Table 1: Scale Factors for Cut-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0100107	0.0095812	0.0047065	0.0083517	0.0082920
Loose Cra	0.9895549	0.0182948	0.0172896	0.0054313	0.0059846
Loose End	0.9969908	0.0074966	0.0054131	0.0047917	0.0051950
Loose (TOL) Bar	0.9446761	0.1721313	0.0155909	0.1710859	0.1714241
Loose (TOL) Cra	0.7638595	0.0738051	0.0469115	0.0569795	0.0485617
Loose (TOL) End	0.9450605	0.0965147	0.0224374	0.0919322	0.0938710
Loose (MOL) Bar	1.5177255	0.0518526	0.0412854	0.0203893	0.0313737
Loose (MOL) Cra	1.3816476	0.1166207	0.1081126	0.0232220	0.0437281
Loose (MOL) End	1.3467651	0.1527671	0.0396654	0.0996533	0.1475281
Medium Bar	1.0098941	0.0119791	0.0060455	0.0103464	0.0102453
Medium Cra	0.9662797	0.0247002	0.0223546	0.0105078	0.0032801
Medium End	0.9976216	0.0112071	0.0075576	0.0082771	0.0074549
Medium (TOL) Bar	0.9222331	0.1808612	0.0177031	0.1797285	0.1799933
Medium (TOL) Cra	0.7148009	0.0750659	0.0376992	0.0649132	0.0527588
Medium (TOL) End	0.9467005	0.1121311	0.0195461	0.1103886	0.1104149
Medium (MOL) Bar	1.5091766	0.0592950	0.0466749	0.0262627	0.0365708
Medium (MOL) Cra	1.3534188	0.1212637	0.1169906	0.0319081	0.0196760
Medium (MOL) End	1.4118378	0.1668942	0.0455790	0.1125514	0.1605500
Tight Bar	0.9714438	0.0147377	0.0088766	0.0117710	0.0113187
Tight Cra	0.9271426	0.0385279	0.0335656	0.0103060	0.0189174
Tight End	0.9630129	0.0190997	0.0108590	0.0157140	0.0110926
Tight (TOL) Bar	0.8728313	0.2011765	0.0409056	0.1967191	0.1969743
Tight (TOL) Cra	0.5919961	0.0843735	0.0461326	0.0650163	0.0706452
Tight (TOL) End	0.8940672	0.1544545	0.0927739	0.1234881	0.1140154
Tight (MOL) Bar	1.4968219	0.0991826	0.0909509	0.0244644	0.0395636
Tight (MOL) Cra	1.1076006	0.1852733	0.1539238	0.0693339	0.1031203
Tight (MOL) End	1.3181493	0.1699785	0.0505943	0.1321268	0.1622746

Table 2: Scale Factors for LLH-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9966704	0.0081731	0.0040446	0.0071125	0.0069377
Loose Cra	0.9996432	0.0185337	0.0177317	0.0035282	0.0053949
Loose End	0.9914874	0.0081363	0.0060258	0.0048250	0.0054747
Loose (TOL) Bar	0.9415757	0.1650224	0.0168160	0.1638838	0.1641639
Loose (TOL) Cra	0.7794647	0.0603663	0.0368682	0.0478011	0.0440668
Loose (TOL) End	0.9359589	0.0980117	0.0319264	0.0919322	0.0926667
Loose (MOL) Bar	1.5007839	0.0479562	0.0382676	0.0176908	0.0289036
Loose (MOL) Cra	1.3645873	0.1145905	0.1047827	0.0308534	0.0463855
Loose (MOL) End	1.3330331	0.1535945	0.0394738	0.0983745	0.1484360
Medium Bar	0.9874209	0.0108903	0.0059584	0.0091178	0.0089127
Medium Cra	0.9870104	0.0254283	0.0246126	0.0064017	0.0063932
Medium End	0.9810848	0.0094815	0.0072048	0.0061709	0.0060424
Medium (TOL) Bar	0.9194812	0.1776406	0.0496860	0.1699522	0.1705509
Medium (TOL) Cra	0.7446231	0.0573157	0.0398418	0.0412048	0.0368723
Medium (TOL) End	0.8994977	0.1467133	0.0865215	0.1184859	0.1071776
Medium (MOL) Bar	1.4788993	0.0654652	0.0498612	0.0353327	0.0424226
Medium (MOL) Cra	1.3894265	0.1288631	0.1179995	0.0366152	0.0517880
Medium (MOL) End	1.3197803	0.1557947	0.0409204	0.0964631	0.1503250
Tight Bar	0.9757007	0.0278962	0.0252854	0.0117887	0.0107960
Tight Cra	1.0093646	0.0338865	0.0299141	0.0039826	0.0159224
Tight End	0.9709299	0.0139391	0.0086673	0.0104247	0.0109197
Tight (TOL) Bar	0.8956820	0.2131393	0.0942830	0.1827251	0.1911524
Tight (TOL) Cra	0.7798707	0.0545398	0.0472845	0.0264990	0.0271813
Tight (TOL) End	0.2647302	1.1687388	0.5368087	1.0381653	0.9157522
Tight (MOL) Bar	1.4723477	0.0644212	0.0450584	0.0383307	0.0460433
Tight (MOL) Cra	1.4487375	0.1538444	0.1408779	0.0176519	0.0618192
Tight (MOL) End	1.2764705	0.1655928	0.0424483	0.1042309	0.1600602

Table 3: Scale Factors for BDT-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0027749	0.0105782	0.0058511	0.0084925	0.0088159
Loose Cra	0.9883410	0.0228757	0.0194421	0.0120573	0.0120620
Loose End	1.0092401	0.0094921	0.0080203	0.0048147	0.0050856
Loose (TOL) Bar	0.9455042	0.1621779	0.0213275	0.1602276	0.1607698
Loose (TOL) Cra	0.7568029	0.0712200	0.0373468	0.0606433	0.0528415
Loose (TOL) End	0.9260106	0.1416530	0.0839804	0.1140743	0.0990766
Loose (MOL) Bar	1.4935761	0.0559741	0.0432388	0.0188897	0.0355484
Loose (MOL) Cra	1.3595325	0.1121735	0.1094717	0.0153787	0.0244742
Loose (MOL) End	1.3414832	0.1527308	0.0418417	0.1057254	0.1468878
Medium Bar	1.0541461	0.0145842	0.0106972	0.0098168	0.0099194
Medium Cra	1.0072902	0.0399361	0.0391496	0.0078946	0.0040910
Medium End	1.1001149	0.0240020	0.0194732	0.0140337	0.0049835
Medium (TOL) Bar	1.0012641	0.1516720	0.0377203	0.1461638	0.1469069
Medium (TOL) Cra	0.7895087	0.0953446	0.0772017	0.0559509	0.0488523
Medium (TOL) End	0.4793784	1.2014731	0.6368548	1.0188002	0.8201235
Medium (MOL) Bar	1.5706769	0.0747141	0.0492911	0.0404804	0.0561482
Medium (MOL) Cra	1.5088358	0.1499376	0.1315085	0.0567811	0.0720202
Medium (MOL) End	1.0498208	0.8818149	0.0549632	0.8801004	0.6714803
Tight Bar	1.1441248	0.0245418	0.0143907	0.0193130	0.0198845
Tight Cra	1.0781483	0.0394385	0.0376025	0.0118377	0.0118978
Tight End	1.2116947	0.4858188	0.0228263	0.4300291	0.4852824
Tight (TOL) Bar	1.0783716	0.1667827	0.0232766	0.1640695	0.1651508
Tight (TOL) Cra	0.8307200	0.0747683	0.0552209	0.0504090	0.0473548
Tight (TOL) End	1.2101478	1.3850059	0.0384582	1.2152036	1.3844719
Tight (MOL) Bar	1.6892173	0.0851158	0.0592641	0.0501085	0.0610950
Tight (MOL) Cra	1.5589033	0.1700258	0.1653112	0.0166394	0.0397639
Tight (MOL) End	1.6950033	0.1859583	0.0809734	0.1659104	0.1674035

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.6185172	0.0973986	0.0232916	0.0943826	0.0945737
Loose Cra	0.2749674	0.0813271	0.0768511	0.0266120	0.0263254
Loose End	1.0377641	0.0329363	0.0155914	0.0186488	0.0290149
Loose (TOL) Bar	0.5813523	0.1121320	0.0256777	0.1088338	0.1091529
Loose (TOL) Cra	0.2437512	0.0876230	0.0804580	0.0347045	0.0344605
Loose (TOL) End	1.0186491	0.1556714	0.0448718	0.1291261	0.1490647
Loose (MOL) Bar	0.9662013	0.1213408	0.1054186	0.0525604	0.0600883
Loose (MOL) Cra	0.7166857	0.2496078	0.2429814	0.0029689	0.0571333
Loose (MOL) End	1.5897748	0.2014333	0.0624630	0.0519697	0.1915042
Medium Bar	0.6215261	0.1032308	0.0236221	0.1003407	0.1004920
Medium Cra	0.2754288	0.1015229	0.0992987	0.0211362	0.0210975
Medium End	1.0390799	0.0326817	0.0162994	0.0194547	0.0283296
Medium (TOL) Bar	0.5820832	0.1181947	0.0254846	0.1151077	0.1154152
Medium (TOL) Cra	0.2503349	0.1094623	0.1059663	0.0274455	0.0274453
Medium (TOL) End	1.0289751	0.1622479	0.0466308	0.1350694	0.1554028
Medium (MOL) Bar	0.9674699	0.1038980	0.0951262	0.0314123	0.0417849
Medium (MOL) Cra	0.8076504	0.3081210	0.2745669	0.1241811	0.1398274
Medium (MOL) End	1.6113853	0.2077411	0.0653371	0.0465763	0.1971993
Tight Bar	0.5929796	0.1064809	0.0320243	0.1015519	0.1012500
Tight Cra	0.2423490	0.0522981	0.0500347	0.0152075	0.0152225
Tight End	1.0038891	0.0381195	0.0163325	0.0190721	0.0344451
Tight (TOL) Bar	0.5580475	0.1164405	0.0338018	0.1113921	0.1114269
Tight (TOL) Cra	0.2419150	0.0569570	0.0533621	0.0199159	0.0198177
Tight (TOL) End	0.9593984	0.1568591	0.0336779	0.1439530	0.1532015
Tight (MOL) Bar	0.9734290	0.1293893	0.1243302	0.0276532	0.0358296
Tight (MOL) Cra	1.0019494	0.5098651	0.4592728	0.2065997	0.2214296
Tight (MOL) End	1.4976443	0.2035693	0.0702646	0.0880738	0.1910588

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.6112479	0.0891498	0.0200097	0.0868066	0.0868759
Loose Cra	0.2688728	0.1254523	0.1186769	0.0397938	0.0406717
Loose End	1.0330962	0.0320515	0.0150790	0.0187760	0.0282844
Loose (TOL) Bar	0.5805652	0.1072767	0.0216595	0.1048596	0.1050679
Loose (TOL) Cra	0.2344270	0.1350211	0.1248557	0.0502451	0.0513994
Loose (TOL) End	1.0133226	0.1521804	0.0417339	0.1271592	0.1463463
Loose (MOL) Bar	0.9536372	0.0814119	0.0705823	0.0347735	0.0405727
Loose (MOL) Cra	0.8729278	0.2939438	0.2808890	0.0517261	0.0866283
Loose (MOL) End	1.5758647	0.1947791	0.0623835	0.0502931	0.1845191
Medium Bar	0.6015558	0.0894606	0.0191318	0.0873912	0.0873453
Medium Cra	0.2894844	0.0484716	0.0433734	0.0216403	0.0216392
Medium End	1.0221374	0.0320468	0.0145759	0.0189198	0.0285418
Medium (TOL) Bar	0.5688422	0.1049685	0.0197978	0.1030099	0.1030851
Medium (TOL) Cra	0.2488413	0.0522379	0.0426137	0.0302148	0.0302150
Medium (TOL) End	1.0057243	0.1509218	0.0311174	0.1261020	0.1476796
Medium (MOL) Bar	0.9241453	0.0694996	0.0660971	0.0184904	0.0214817
Medium (MOL) Cra	0.9672836	0.3379729	0.3290520	0.0052385	0.0771395
Medium (MOL) End	1.5644788	0.2056365	0.0640206	0.0517813	0.1954171
Tight Bar	0.5966874	0.0931643	0.0316572	0.0876216	0.0873996
Tight Cra	0.3368833	0.0611187	0.0534830	0.0126250	0.0295831
Tight End	1.0167430	0.0360915	0.0153598	0.0215685	0.0326612
Tight (TOL) Bar	0.5592378	0.1014233	0.0290307	0.0971803	0.0971202
Tight (TOL) Cra	0.3051359	0.0592157	0.0538720	0.0041617	0.0245856
Tight (TOL) End	0.9938512	0.0975899	0.0322665	0.0487936	0.0921019
Tight (MOL) Bar	0.8790442	0.1176222	0.1149392	0.0249817	0.0219616
Tight (MOL) Cra	1.0577602	0.4636826	0.3833413	0.1602258	0.2608661
Tight (MOL) End	1.5403138	0.2213334	0.0666076	0.0713223	0.2110736

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.6040228	0.0902707	0.0238010	0.0866171	0.0870772
Loose Cra	0.2577737	0.1882078	0.1775163	0.0621894	0.0625323
Loose End	1.0660339	0.0410414	0.0171354	0.0247434	0.0372943
Loose (TOL) Bar	0.5728660	0.1068559	0.0257560	0.1031473	0.1037061
Loose (TOL) Cra	0.2182347	0.2017146	0.1863152	0.0767957	0.0773016
Loose (TOL) End	1.0424799	0.1624635	0.0623492	0.1266916	0.1500236
Loose (MOL) Bar	0.9198582	0.0902236	0.0795349	0.0304713	0.0425981
Loose (MOL) Cra	0.9400019	0.3001664	0.2888927	0.0322654	0.0814925
Loose (MOL) End	1.6080328	0.1978175	0.0663291	0.0536123	0.1863662
Medium Bar	0.6272413	0.0843030	0.0304068	0.0784648	0.0786294
Medium Cra	0.3463442	0.0997486	0.0508061	0.0858361	0.0858409
Medium End	1.1691484	0.0380565	0.0229343	0.0173887	0.0303712
Medium (TOL) Bar	0.5941146	0.1021489	0.0321109	0.0965266	0.0969709
Medium (TOL) Cra	0.2996211	0.1051651	0.0499209	0.0925514	0.0925620
Medium (TOL) End	0.3146719	1.7431836	0.9446528	1.4650325	1.1599182
Medium (MOL) Bar	0.9389552	0.1033368	0.0968034	0.0288344	0.0361635
Medium (MOL) Cra	1.1103905	0.5444048	0.3774405	0.3822430	0.3923205
Medium (MOL) End	1.7067091	0.2260515	0.0841164	0.1223985	0.2098186
Tight Bar	0.6860613	0.0996308	0.0309107	0.0941277	0.0947151
Tight Cra	0.3634326	0.0712853	0.0661679	0.0242153	0.0265243
Tight End	1.2690348	0.4042699	0.0325725	0.4024556	0.4029558
Tight (TOL) Bar	0.6447948	0.1238503	0.0338827	0.1182533	0.1191258
Tight (TOL) Cra	0.2861812	0.0644267	0.0616506	0.0153158	0.0187119
Tight (TOL) End	1.2597597	1.4482710	0.0604868	1.2671217	1.4470074
Tight (MOL) Bar	1.0374330	0.1025690	0.0937736	0.0156482	0.0415573
Tight (MOL) Cra	0.8016472	0.4141249	0.4061497	0.0166480	0.0808830
Tight (MOL) End	1.8714752	0.2290432	0.1162676	0.1451172	0.1973391

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8262434	0.1008399	0.0834968	0.0499475	0.0565421
Loose Cra	0.4057495	0.1718734	0.1671873	0.0398623	0.0391693
Loose End	1.2448984	0.0835511	0.0599270	0.0582210	0.0434332
Loose (TOL) Bar	0.8177445	0.1330939	0.0997029	0.0838658	0.0881671
Loose (TOL) Cra	0.3773933	0.1951873	0.1891207	0.0482861	0.0482661
Loose (TOL) End	1.0756084	0.1752735	0.1371183	0.1091761	0.0925733
Loose (MOL) Bar	0.9102296	0.1826857	0.1542584	0.0895021	0.0978701
Loose (MOL) Cra	1.0601243	0.4691157	0.4098238	0.1716522	0.2282852
Loose (MOL) End	1.2435267	0.3485124	0.2683784	0.2223377	0.2198261
Medium Bar	0.8386247	0.0887997	0.0760396	0.0373430	0.0458637
Medium Cra	0.4015243	0.2092792	0.2055410	0.0393790	0.0374767
Medium End	1.2904923	0.0878646	0.0646699	0.0594826	0.0471661
Medium (TOL) Bar	0.8220948	0.1156473	0.0875134	0.0710493	0.0756030
Medium (TOL) Cra	0.3831237	0.2351203	0.2309623	0.0440246	0.0437707
Medium (TOL) End	1.1482897	0.1651671	0.1437610	0.0813209	0.0699466
Medium (MOL) Bar	0.8977669	0.1449289	0.1304335	0.0515290	0.0631795
Medium (MOL) Cra	1.2648570	0.6084841	0.4921850	0.3097217	0.3577807
Medium (MOL) End	1.3159217	0.3429602	0.2717573	0.2058567	0.2092121
Tight Bar	0.7971434	0.1002267	0.0859651	0.0491849	0.0515321
Tight Cra	0.4116877	0.1083614	0.1077695	0.0084995	0.0113167
Tight End	1.2311142	0.1150099	0.0728426	0.0890017	0.0293234
Tight (TOL) Bar	0.8098236	0.1355529	0.1000275	0.0892197	0.0914832
Tight (TOL) Cra	0.4592605	0.1249343	0.1245620	0.0072862	0.0096473
Tight (TOL) End	0.9747384	0.4349693	0.3379118	0.2657984	0.2738870
Tight (MOL) Bar	0.8685829	0.1630604	0.1524379	0.0461214	0.0578915
Tight (MOL) Cra	1.7954584	1.1109122	0.9374706	0.5690786	0.5960495
Tight (MOL) End	0.9401533	0.8078314	0.5837292	0.5584371	0.4235727

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.7967155	0.0685113	0.0537643	0.0374526	0.0424658
Loose Cra	0.4095883	0.1523194	0.1428497	0.0527512	0.0528697
Loose End	1.2253796	0.0856726	0.0598782	0.0612741	0.0457006
Loose (TOL) Bar	0.8036924	0.0975182	0.0625279	0.0720777	0.0748341
Loose (TOL) Cra	0.3947192	0.1692303	0.1548561	0.0665904	0.0682533
Loose (TOL) End	1.0610177	0.1611319	0.1225767	0.1045873	0.0854382
Loose (MOL) Bar	0.8877996	0.1129792	0.0893403	0.0631478	0.0691572
Loose (MOL) Cra	1.2881337	0.6448038	0.4978060	0.3730031	0.4098308
Loose (MOL) End	1.1934756	0.2933680	0.2197156	0.1854947	0.1943964
Medium Bar	0.7766203	0.0622125	0.0490183	0.0346276	0.0383108
Medium Cra	0.4025223	0.0957115	0.0851309	0.0437436	0.0405640
Medium End	1.2326980	0.0952848	0.0627939	0.0716677	0.0482056
Medium (TOL) Bar	0.7809751	0.0879369	0.0569612	0.0658024	0.0669960
Medium (TOL) Cra	0.3716281	0.1002601	0.0886964	0.0467452	0.0459655
Medium (TOL) End	1.0680517	0.1536714	0.1212455	0.0944167	0.0788146
Medium (MOL) Bar	0.8542290	0.0804114	0.0780174	0.0077699	0.0194762
Medium (MOL) Cra	1.5166794	0.7073540	0.6363341	0.1302953	0.3089155
Medium (MOL) End	1.1762949	0.3130733	0.2239207	0.2188025	0.2062189
Tight Bar	0.7571541	0.0873212	0.0780967	0.0365066	0.0390648
Tight Cra	0.4952539	0.1368853	0.1098807	0.0715138	0.0816328
Tight End	1.2394823	0.1100386	0.0674567	0.0869379	0.0638282
Tight (TOL) Bar	0.7414362	0.1140499	0.0928455	0.0654027	0.0662365
Tight (TOL) Cra	0.4848731	0.1468175	0.1194047	0.0762408	0.0854287
Tight (TOL) End	0.4715174	1.3670326	0.8360100	1.0816033	0.8314951
Tight (MOL) Bar	0.8072416	0.1277673	0.1268244	0.0103172	0.0154979
Tight (MOL) Cra	1.8068303	0.9822472	0.8368460	0.4937960	0.5142942
Tight (MOL) End	0.4558901	1.6178527	1.0119346	1.2623137	1.0158005

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.7971462	0.0780057	0.0635387	0.0357802	0.0452532
Loose Cra	0.3721321	0.2622479	0.2464877	0.0895430	0.0895330
Loose End	1.2655436	0.0862467	0.0635785	0.0582786	0.0460313
Loose (TOL) Bar	0.8106876	0.1065161	0.0744492	0.0701816	0.0761786
Loose (TOL) Cra	0.3495252	0.2910548	0.2691380	0.1104081	0.1108052
Loose (TOL) End	1.1026468	0.1995048	0.1645565	0.1127984	0.1078423
Loose (MOL) Bar	0.8881487	0.1230036	0.1016456	0.0543081	0.0692685
Loose (MOL) Cra	1.4037160	0.5900233	0.5090475	0.2688284	0.2983257
Loose (MOL) End	1.2108772	0.4158916	0.3120141	0.2749786	0.2628443
Medium Bar	0.8128517	0.0851927	0.0698281	0.0420558	0.0488052
Medium Cra	0.4842654	0.1847487	0.0983160	0.1564167	0.1556927
Medium End	1.3398723	0.1306147	0.0787461	0.1042081	0.0910838
Medium (TOL) Bar	0.8301279	0.1106620	0.0828834	0.0666439	0.0733250
Medium (TOL) Cra	0.4477899	0.2094764	0.1014965	0.1832456	0.1831583
Medium (TOL) End	0.9557065	0.5611386	0.4281384	0.3627317	0.2201943
Medium (MOL) Bar	0.9045241	0.1261336	0.1164749	0.0297258	0.0484085
Medium (MOL) Cra	1.7173468	1.1508124	0.7193915	0.8982457	0.8892479
Medium (MOL) End	1.0868591	0.7998271	0.5802600	0.5504743	0.3700484
Tight Bar	0.9448775	0.0978621	0.0704169	0.0553365	0.0679600
Tight Cra	0.4559096	0.1484291	0.1232923	0.0826459	0.0675889
Tight End	1.1834949	0.8345468	0.0979354	0.8287805	0.8181677
Tight (TOL) Bar	0.9267871	0.1128392	0.0790770	0.0608939	0.0804965
Tight (TOL) Cra	0.3748613	0.1476245	0.1196871	0.0741760	0.0864180
Tight (TOL) End	1.0449579	1.0094699	0.1100088	1.0034579	0.9941794
Tight (MOL) Bar	0.9845297	0.1244174	0.1058477	0.0252075	0.0653913
Tight (MOL) Cra	0.5406424	0.7937587	0.5445557	0.4978994	0.5775050
Tight (MOL) End	1.1950010	1.1917028	0.1746091	1.1788416	1.1428848

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9003593	0.2591644	0.2188180	0.1190144	0.1388703
Loose Cra	0.4321202	0.4797040	0.4661818	0.0753427	0.1130957
Loose End	1.3965393	0.1446001	0.0848775	0.1170692	0.0769465
Loose (TOL) Bar	0.9243649	0.2971449	0.2467419	0.1433209	0.1655707
Loose (TOL) Cra	0.4509043	0.5008591	0.4866193	0.0794859	0.1185818
Loose (TOL) End	1.0021593	0.3812268	0.2510547	0.2868894	0.1706649
Loose (MOL) Bar	1.0074936	0.4982937	0.4252799	0.2330708	0.2596803
Loose (MOL) Cra	1.8773819	1.6463969	1.1188404	0.4380348	1.2078159
Loose (MOL) End	1.1584566	0.6056546	0.4309450	0.4255633	0.2809333
Medium Bar	0.8664374	0.2146359	0.1844109	0.0895239	0.1098240
Medium Cra	0.4674552	0.5382868	0.5297367	0.0660227	0.0955607
Medium End	1.4076395	0.1459383	0.0875967	0.1167258	0.0862250
Medium (TOL) Bar	0.9060100	0.2417374	0.2065068	0.1019619	0.1256663
Medium (TOL) Cra	0.4881687	0.5631152	0.5540416	0.0702661	0.1006821
Medium (TOL) End	1.0830446	0.3176845	0.2302148	0.2189172	0.1565591
Medium (MOL) Bar	0.9134892	0.3899290	0.3336589	0.1811955	0.2017835
Medium (MOL) Cra	1.9255879	1.7124807	1.1589896	0.5070471	1.2606877
Medium (MOL) End	1.2200881	0.5362163	0.3740021	0.3842532	0.2706521
Tight Bar	0.8965707	0.2128638	0.2014496	0.0359564	0.0687688
Tight Cra	0.5009760	0.2167078	0.1926187	0.0694830	0.0992996
Tight End	1.3636227	0.1458636	0.0981347	0.1079158	0.0659901
Tight (TOL) Bar	0.9154173	0.2325405	0.2170976	0.0520153	0.0833297
Tight (TOL) Cra	0.5201856	0.2254384	0.2000634	0.0732880	0.1039098
Tight (TOL) End	1.0793573	0.7129012	0.1191064	0.2037898	0.7028812
Tight (MOL) Bar	0.8471186	0.3269804	0.2954748	0.1233142	0.1400390
Tight (MOL) Cra	1.0918842	1.6091481	1.1511283	0.2684223	1.1243939
Tight (MOL) End	0.8737445	1.0124140	0.7555973	0.6738361	0.3755141

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8335708	0.1436328	0.1152088	0.0673297	0.0857758
Loose Cra	0.3694639	0.3406686	0.2986384	0.1370217	0.1639218
Loose End	1.3685025	0.1510006	0.0844665	0.1251670	0.0867719
Loose (TOL) Bar	0.8730240	0.1680931	0.1285921	0.0877754	0.1082563
Loose (TOL) Cra	0.3855005	0.3568167	0.3123152	0.1448468	0.1725616
Loose (TOL) End	1.0115502	0.3312630	0.1945170	0.2681388	0.1454135
Loose (MOL) Bar	0.9644720	0.2692420	0.1999700	0.1579433	0.1802869
Loose (MOL) Cra	1.6230732	2.1913273	1.1718460	1.0844285	1.8516729
Loose (MOL) End	1.1596488	0.4542209	0.2942060	0.3460631	0.2150094
Medium Bar	0.8467237	0.1027847	0.0907697	0.0186165	0.0482245
Medium Cra	0.4611910	0.1720284	0.1651565	0.0234510	0.0481376
Medium End	1.3602646	0.1550799	0.0877707	0.1278525	0.0817748
Medium (TOL) Bar	0.8771594	0.1226091	0.0991257	0.0491913	0.0721603
Medium (TOL) Cra	0.4803921	0.1790742	0.1720992	0.0230622	0.0494934
Medium (TOL) End	0.9595431	0.3154996	0.1939298	0.2488601	0.1764565
Medium (MOL) Bar	0.9354721	0.1564835	0.1425227	0.0167576	0.0646102
Medium (MOL) Cra	1.6759412	2.1011358	1.2244279	0.7167968	1.7074977
Medium (MOL) End	1.0577655	0.4583079	0.2957778	0.3500882	0.2362929
Tight Bar	0.8282227	0.0974607	0.0840953	0.0214836	0.0492615
Tight Cra	0.5271525	0.2110082	0.2023324	0.0427820	0.0598842
Tight End	1.3641449	0.1605253	0.0938590	0.1302267	0.0846383
Tight (TOL) Bar	0.8252593	0.1530761	0.1384336	0.0414128	0.0653341
Tight (TOL) Cra	0.5439585	0.2172519	0.2088189	0.0415156	0.0599426
Tight (TOL) End	0.0000000	1.7279354	0.0000000	1.7279355	1.7279355
Tight (MOL) Bar	0.8459884	0.2086549	0.2009868	0.0280905	0.0560477
Tight (MOL) Cra	0.8428584	1.2191270	0.8638417	0.1721574	0.8602607
Tight (MOL) End	0.6986109	1.2599267	0.8206793	0.9559817	0.6310666

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9128122	0.1762971	0.1488997	0.0595690	0.0943907
Loose Cra	0.2799867	0.5937272	0.5368069	0.2474876	0.2536741
Loose End	1.4060346	0.1414054	0.0889969	0.1098872	0.0815856
Loose (TOL) Bar	0.9287413	0.2034303	0.1645819	0.0827275	0.1195691
Loose (TOL) Cra	0.2922915	0.6200904	0.5603156	0.2591900	0.2656290
Loose (TOL) End	0.9648869	0.4530293	0.2789781	0.3569411	0.2748210
Loose (MOL) Bar	1.0258394	0.3138658	0.2502215	0.1367773	0.1894760
Loose (MOL) Cra	1.1724462	1.5176127	0.8468353	0.6407316	1.2593723
Loose (MOL) End	1.0627208	0.6630247	0.4213994	0.5118832	0.3649873
Medium Bar	0.9431822	0.1703023	0.1465069	0.0418223	0.0868259
Medium Cra	0.4253879	0.4755575	0.1625355	0.4272478	0.4469199
Medium End	1.4918936	0.1785550	0.1075494	0.1425313	0.0888888
Medium (TOL) Bar	0.9767563	0.1942094	0.1620648	0.0577020	0.1070160
Medium (TOL) Cra	0.4461057	0.4988806	0.1705349	0.4482040	0.4688282
Medium (TOL) End	0.8051021	0.8164261	0.4871509	0.6551609	0.3664964
Medium (MOL) Bar	1.0440035	0.2905651	0.2507698	0.0872074	0.1467746
Medium (MOL) Cra	1.2764546	2.2218519	1.2953497	1.6677685	1.8051857
Medium (MOL) End	0.8898020	0.9808044	0.6685270	0.7176692	0.4266576
Tight Bar	1.0396987	0.1725097	0.1336907	0.0312610	0.1090248
Tight Cra	0.5018725	0.4371331	0.2534739	0.0968729	0.3561410
Tight End	1.3444641	0.8143899	0.1346741	0.8031774	0.7675948
Tight (TOL) Bar	1.0410997	0.1888827	0.1432593	0.0190607	0.1230998
Tight (TOL) Cra	0.5222775	0.4550641	0.2638372	0.1013717	0.3707741
Tight (TOL) End	1.0367016	1.0896057	0.1482191	1.0794776	1.0383903
Tight (MOL) Bar	1.0190013	0.2329366	0.1930654	0.0089028	0.1303279
Tight (MOL) Cra	3.6482031	5.2315238	3.7489811	3.0685231	3.6488330
Tight (MOL) End	1.1297023	1.2317290	0.2109175	1.2135363	1.1035256

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9207326	0.1863188	0.1130515	0.1439539	0.1481017
Loose Cra	0.7300147	0.3663798	0.3589503	0.0443856	0.0734096
Loose End	1.4596690	0.1599531	0.1433668	0.0515829	0.0709299
Loose (TOL) Bar	0.9242202	0.1970190	0.1175921	0.1536479	0.1580779
Loose (TOL) Cra	0.7010753	0.3647983	0.3566650	0.0413962	0.0766023
Loose (TOL) End	1.3288888	0.2283733	0.1911910	0.0995828	0.1249021
Loose (MOL) Bar	1.2569629	0.3176608	0.2518747	0.1785100	0.1935657
Loose (MOL) Cra	2.2877335	2.8893416	2.8447279	0.3949759	0.5057849
Loose (MOL) End	1.7010875	0.4971313	0.4069740	0.2582222	0.2855028
Medium Bar	0.8621425	0.1814309	0.1142547	0.1344081	0.1409367
Medium Cra	0.6263085	0.1696281	0.1546919	0.0476579	0.0696008
Medium End	1.5104839	0.1203079	0.0913330	0.0433811	0.0783092
Medium (TOL) Bar	0.8423389	0.1880460	0.1168168	0.1404129	0.1473610
Medium (TOL) Cra	0.5901948	0.1666277	0.1501085	0.0429188	0.0723350
Medium (TOL) End	1.3594899	0.2669072	0.2273494	0.0693943	0.1398280
Medium (MOL) Bar	1.1241147	0.2836615	0.2537200	0.0776637	0.1268470
Medium (MOL) Cra	2.0783476	1.3578642	1.0798922	0.7972229	0.8231817
Medium (MOL) End	1.9901178	0.6026931	0.4970972	0.1160791	0.3407836
Tight Bar	0.8427497	0.2047195	0.1295569	0.1554565	0.1585095
Tight Cra	0.4310900	0.2224839	0.1652700	0.0627859	0.1489464
Tight End	1.3804642	0.1747143	0.1217784	0.1252808	0.0713064
Tight (TOL) Bar	0.8319809	0.2140971	0.1310735	0.1661305	0.1692851
Tight (TOL) Cra	0.3695028	0.2210812	0.1527086	0.0616860	0.1598657
Tight (TOL) End	1.1408333	0.5801839	0.5394351	0.2135960	0.0942104
Tight (MOL) Bar	1.0842119	0.2948547	0.2768276	0.0397237	0.1015177
Tight (MOL) Cra	9.5653732	15.7923432	9.9579996	7.6642015	12.2570939
Tight (MOL) End	1.6486411	1.5238455	1.4650709	0.4191331	0.1750751

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8911394	0.1442171	0.0725969	0.1202228	0.1246130
Loose Cra	0.7655864	0.1937591	0.1638383	0.0802062	0.1034394
Loose End	1.3846402	0.1794313	0.1590209	0.0690442	0.0831145
Loose (TOL) Bar	0.8981140	0.1507176	0.0750146	0.1259259	0.1307240
Loose (TOL) Cra	0.7289738	0.1901580	0.1600746	0.0731135	0.1026465
Loose (TOL) End	1.2395482	0.2380113	0.1940862	0.1270979	0.1377681
Loose (MOL) Bar	1.2374774	0.2211173	0.1470828	0.1424130	0.1651049
Loose (MOL) Cra	2.4573753	1.0035416	0.8525799	0.5075747	0.5293426
Loose (MOL) End	1.5352619	0.4478888	0.3378418	0.2881980	0.2940535
Medium Bar	0.8371593	0.1180601	0.0628270	0.0992330	0.0999552
Medium Cra	0.6243095	0.2003040	0.1832761	0.0524748	0.0808185
Medium End	1.3724085	0.2748255	0.2380785	0.1234540	0.1372876
Medium (TOL) Bar	0.8425881	0.1272430	0.0643001	0.1090197	0.1098016
Medium (TOL) Cra	0.6243095	0.2003097	0.1832823	0.0524748	0.0808185
Medium (TOL) End	1.1933943	0.3232186	0.2525916	0.1819885	0.2016627
Medium (MOL) Bar	1.1092326	0.1320870	0.1199825	0.0499916	0.0552378
Medium (MOL) Cra	2.4669743	1.3577472	1.1502110	0.3378592	0.7214516
Medium (MOL) End	1.4097367	0.6491191	0.4662027	0.4154154	0.4516756
Tight Bar	0.8034021	0.1328258	0.0858672	0.1004579	0.1013392
Tight Cra	0.6489649	0.2545189	0.2333394	0.0875599	0.1016501
Tight End	1.4999905	1.0297622	0.9410575	0.4181162	0.3357961
Tight (TOL) Bar	0.7981578	0.1384882	0.0870301	0.1067156	0.1077259
Tight (TOL) Cra	0.6489649	0.2545311	0.2333527	0.0875599	0.1016501
Tight (TOL) End	1.3097810	1.2693269	1.1753680	0.4792713	0.3417392
Tight (MOL) Bar	1.0508204	0.1884478	0.1767932	0.0652449	0.0579460
Tight (MOL) Cra	1.0709979	1.1383194	1.0878362	0.3242282	0.3352367
Tight (MOL) End	1.6225493	1.8092743	1.5230297	0.9766546	0.5626995

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9465394	0.1538671	0.0877344	0.1160348	0.1264037
Loose Cra	0.5510369	0.4731883	0.4696262	0.0491485	0.0579534
Loose End	1.5031870	0.5099324	0.4728072	0.1908604	0.1910093
Loose (TOL) Bar	0.9468127	0.1609260	0.0904937	0.1218872	0.1330721
Loose (TOL) Cra	0.5150425	0.4638873	0.4601581	0.0517603	0.0587038
Loose (TOL) End	1.2966371	0.6355083	0.5260713	0.3565389	0.2947752
Loose (MOL) Bar	1.3197974	0.2218346	0.1674790	0.0904844	0.1454699
Loose (MOL) Cra	0.9999366	2.7200447	2.6770483	0.4390289	0.4817217
Loose (MOL) End	1.4731966	1.1264986	0.8441504	0.7459285	0.6497088
Medium Bar	0.9394937	0.1514301	0.0978955	0.1056415	0.1155319
Medium Cra	0.5780747	0.3247540	0.1766852	0.2723279	0.2724842
Medium End	1.2695121	0.8778442	0.7174008	0.5059118	0.4551491
Medium (TOL) Bar	0.9212791	0.1622159	0.0994276	0.1182952	0.1281726
Medium (TOL) Cra	0.5781268	0.3247913	0.1767096	0.2723567	0.2725129
Medium (TOL) End	1.1843226	0.9605569	0.7435963	0.6080578	0.4570681
Medium (MOL) Bar	1.3207590	0.2229567	0.1964455	0.0244490	0.1054464
Medium (MOL) Cra	2.2379149	2.6513557	1.3276050	2.2950277	2.2379282
Medium (MOL) End	1.1380781	1.8843222	1.3556266	1.3087960	1.0413720
Tight Bar	1.0128643	0.1574121	0.0937719	0.1178687	0.1264341
Tight Cra	0.3810045	0.2450879	0.1920116	0.0583003	0.1523147
Tight End	1.4946838	0.4179649	0.1611508	0.3720274	0.3856491
Tight (TOL) Bar	0.9480249	0.1585736	0.0924594	0.1192843	0.1288291
Tight (TOL) Cra	0.3810045	0.2450879	0.1920116	0.0583003	0.1523147
Tight (TOL) End	1.3220692	0.4438737	0.1920662	0.3601966	0.4001682
Tight (MOL) Bar	1.3231232	0.2062852	0.1701202	0.0844945	0.1166740
Tight (MOL) Cra	2.6402344	3.4976339	2.6976063	2.2262892	0.1600183
Tight (MOL) End	1.8115071	1.0661362	0.3136222	0.9818556	1.0189641

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0346135	0.4981124	0.3529432	0.3392501	0.3514928
Loose Cra	0.3876481	2.6898133	2.6414384	0.5078378	0.4533597
Loose End	1.8193843	0.7448844	0.7051597	0.2399298	0.2400057
Loose (TOL) Bar	1.0427982	0.5035871	0.3628559	0.3360466	0.3491928
Loose (TOL) Cra	0.3876481	2.6898133	2.6414384	0.5078378	0.4533597
Loose (TOL) End	1.5246669	0.8588917	0.7926351	0.3307940	0.3218921
Loose (MOL) Bar	1.4771815	0.8444577	0.6695934	0.4882760	0.5145422
Loose (MOL) Cra	0.5085099	11.8992967	11.7282615	2.0102600	1.7606384
Loose (MOL) End	1.7134213	1.7039449	1.5604540	0.6844062	0.5763526
Medium Bar	0.9302704	0.4204438	0.3117067	0.2608911	0.2821561
Medium Cra	0.8689726	0.8043772	0.6251650	0.5014084	0.5061538
Medium End	1.8880357	0.8172825	0.7926772	0.1990318	0.1970769
Medium (TOL) Bar	0.9289107	0.4262047	0.3196126	0.2591383	0.2819545
Medium (TOL) Cra	0.8689726	0.8043772	0.6251650	0.5014084	0.5061538
Medium (TOL) End	1.3185513	0.8759754	0.8213854	0.3043997	0.2847572
Medium (MOL) Bar	1.2942487	0.6962794	0.5881151	0.3236390	0.3727276
Medium (MOL) Cra	1.6350069	1.8247673	1.7020269	0.6449449	0.6579366
Medium (MOL) End	2.0241013	1.8534439	1.8219165	0.3404040	0.2019030
Tight Bar	0.8765981	0.3909062	0.3169729	0.2240274	0.2287706
Tight Cra	2.3887945	3.4284395	2.4513360	2.3893658	2.3969042
Tight End	2.2851565	0.5134445	0.4500129	0.2472120	0.1049224
Tight (TOL) Bar	0.8627993	0.3963571	0.3194367	0.2296549	0.2346471
Tight (TOL) Cra	2.3887945	3.4284395	2.4513360	2.3893658	2.3969042
Tight (TOL) End	1.3109247	0.5366346	0.3555179	0.2993206	0.4019750
Tight (MOL) Bar	1.2205194	0.6569324	0.6100693	0.2079522	0.2436714
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.3370902	0.9512488	0.7516311	0.5830309	0.2978343

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9454471	0.3107030	0.1776437	0.2435036	0.2549103
Loose Cra	0.8579179	1.1421985	0.6157356	0.9596002	0.9620225
Loose End	2.0706345	0.5841297	0.5415013	0.2056792	0.2190527
Loose (TOL) Bar	0.9501800	0.3094876	0.1810878	0.2386474	0.2509780
Loose (TOL) Cra	0.8579179	1.1421985	0.6157356	0.9596002	0.9620225
Loose (TOL) End	1.7504698	0.5956365	0.5312348	0.2423094	0.2693930
Loose (MOL) Bar	1.3337330	0.5044987	0.3297658	0.3584660	0.3818032
Loose (MOL) Cra	1.8354037	2.6401974	1.8922463	1.8354141	1.8412080
Loose (MOL) End	1.8850528	1.0623081	0.9505123	0.4743681	0.4323796
Medium Bar	0.9924369	0.2401890	0.1612533	0.1713050	0.1780118
Medium Cra	1.2594915	1.8437926	1.2837568	1.3196655	1.3234575
Medium End	1.3776854	0.7423503	0.5922371	0.4475929	0.2590354
Medium (TOL) Bar	0.9827625	0.2334973	0.1626153	0.1599866	0.1675629
Medium (TOL) Cra	1.2594915	1.8437926	1.2837568	1.3196655	1.3234575
Medium (TOL) End	1.2766547	0.6732216	0.5177658	0.4302860	0.2417539
Medium (MOL) Bar	1.2910757	0.2957017	0.2588054	0.1280587	0.1430362
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.4711618	1.1796879	0.8433892	0.8248384	0.4262598
Tight Bar	0.8973534	0.2839885	0.2424789	0.1389088	0.1478296
Tight Cra	2.0947588	3.0241270	2.1742716	2.0952601	2.1018771
Tight End	2.4380183	1.6042150	1.3433582	0.8768665	0.4961367
Tight (TOL) Bar	0.8833342	0.2844236	0.2421587	0.1401222	0.1491847
Tight (TOL) Cra	2.0947588	3.0241270	2.1742716	2.0952601	2.1018771
Tight (TOL) End	2.0173340	1.7539588	1.4431281	0.9968716	0.6276347
Tight (MOL) Bar	1.0940913	0.4088507	0.3811134	0.1359107	0.1480256
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.0725426	2.6128866	2.0337079	1.6404905	0.8153215

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.1337324	0.3490604	0.2453650	0.2153756	0.2482728
Loose Cra	0.0000000	0.5999863	0.0000000	0.5999864	0.5999864
Loose End	1.6927398	1.2522918	1.1779151	0.4251482	0.3935221
Loose (TOL) Bar	1.1274945	0.3455828	0.2496174	0.2021761	0.2389952
Loose (TOL) Cra	0.0000000	0.5999863	0.0000000	0.5999864	0.5999864
Loose (TOL) End	1.3662179	1.1510265	1.0101844	0.5517152	0.4631519
Loose (MOL) Bar	1.4691043	0.5489018	0.4020797	0.2958578	0.3736646
Loose (MOL) Cra	0.0000000	0.9727943	0.0000000	0.9727944	0.9727944
Loose (MOL) End	1.3994580	2.2228837	1.7943947	1.3120060	1.0265366
Medium Bar	1.0772721	0.2860122	0.2380250	0.1045656	0.1585786
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.5103066	1.9438659	1.7882315	0.7621306	0.6046890
Medium (TOL) Bar	1.0612174	0.2896796	0.2396208	0.1076672	0.1627766
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.4427150	1.4648038	1.2745569	0.7219108	0.4834157
Medium (MOL) Bar	1.4417508	0.4609176	0.4062909	0.0904494	0.2176533
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.3983540	2.6053845	2.1108735	1.5271679	1.1304857
Tight Bar	1.2691814	0.2715969	0.2054071	0.1148043	0.1776877
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.8648758	0.8574260	0.5363010	0.6689998	0.1859490
Tight (TOL) Bar	1.2390406	0.2741067	0.2056553	0.1153025	0.1812193
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.6623195	0.9439309	0.5440730	0.7713561	0.3271064
Tight (MOL) Bar	1.6285065	0.3809581	0.3201906	0.0237834	0.2064150
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.9796562	1.6526133	0.7838439	1.4548951	0.3212976

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.1992292	0.9212887	0.7459749	0.5050022	0.5406427
Loose Cra	1.5348047	7.2126317	7.1574521	0.8856251	0.8904700
Loose End	0.7818863	2.2500255	2.1095495	0.7758980	0.7825702
Loose (TOL) Bar	1.2156523	0.9227009	0.7560142	0.4914405	0.5289799
Loose (TOL) Cra	1.5348047	7.2126317	7.1574521	0.8856251	0.8904700
Loose (TOL) End	0.5016779	2.3408894	2.1737172	0.8525853	0.8687444
Loose (MOL) Bar	1.5976632	1.3710251	1.1675874	0.6733150	0.7186443
Loose (MOL) Cra	2.1249309	20.4119151	20.3517740	1.5642160	1.5657511
Loose (MOL) End	0.7386119	4.7644387	4.5679089	1.3542838	1.3267807
Medium Bar	0.9884588	0.7627502	0.6371442	0.3731364	0.4193273
Medium Cra	2.0948578	1.9477300	1.5507159	1.1666759	1.1785299
Medium End	1.0322984	1.8531717	1.7395287	0.6389723	0.6285699
Medium (TOL) Bar	1.0056176	0.7629063	0.6481406	0.3521935	0.4024176
Medium (TOL) Cra	2.0948578	1.9477300	1.5507159	1.1666759	1.1785299
Medium (TOL) End	0.6481924	1.9419105	1.7881412	0.7547962	0.7573425
Medium (MOL) Bar	1.2261338	1.1033734	0.9695701	0.4674158	0.5266564
Medium (MOL) Cra	2.7052779	2.9722966	2.9638834	0.0598512	0.2234779
Medium (MOL) End	1.2218692	3.7335181	3.6905378	0.5586830	0.5648795
Tight Bar	0.8456187	0.7415742	0.6524338	0.3435688	0.3525090
Tight Cra	2.4286794	3.5463763	2.5764629	2.4292612	2.4369293
Tight End	1.7640828	1.0899998	0.7623139	0.3883784	0.7790875
Tight (TOL) Bar	0.8660560	0.7561169	0.6681139	0.3447068	0.3540293
Tight (TOL) Cra	2.4286794	3.5463763	2.5764629	2.4292612	2.4369293
Tight (TOL) End	0.7256021	1.8405663	1.6689852	0.5502386	0.7759981
Tight (MOL) Bar	0.9991738	0.9768981	0.8844739	0.3979660	0.4147722
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.4720984	1.3966100	1.0788242	0.8869375	0.5691129

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0893242	0.4996727	0.3594895	0.3122348	0.3470450
Loose Cra	1.7293687	2.3160179	1.2662315	1.9343343	1.9392259
Loose End	2.0155096	1.2898487	0.9933979	0.4559987	0.8227214
Loose (TOL) Bar	1.1071552	0.4965069	0.3650470	0.2992478	0.3365412
Loose (TOL) Cra	1.7293687	2.3160179	1.2662315	1.9343343	1.9392259
Loose (TOL) End	1.6640433	1.3277935	0.9878701	0.4696306	0.8872139
Loose (MOL) Bar	1.4322921	0.7279687	0.5557655	0.4193510	0.4701737
Loose (MOL) Cra	7.5278865	11.0980224	8.1324824	7.5279383	7.5517437
Loose (MOL) End	2.9528083	2.5755446	2.1547430	0.8575196	1.4108555
Medium Bar	1.0752408	0.3576804	0.3218521	0.1175538	0.1560341
Medium Cra	2.6331736	3.8823752	2.8446481	2.6338054	2.6421231
Medium End	1.6475955	1.3273200	1.2098763	0.5458735	0.4711115
Medium (TOL) Bar	1.0796811	0.3593407	0.3230906	0.1188280	0.1572843
Medium (TOL) Cra	2.6331736	3.8823752	2.8446481	2.6338054	2.6421231
Medium (TOL) End	1.3502819	1.2547891	1.1098301	0.5854682	0.5257672
Medium (MOL) Bar	1.1713713	0.4318979	0.4143635	0.1074064	0.1218144
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	2.6745830	2.6930784	2.6277461	0.5895948	0.4417850
Tight Bar	0.8356337	0.6115840	0.5955996	0.1268438	0.1389111
Tight Cra	2.6571893	4.0651389	3.0686530	2.6578253	2.6662189
Tight End	4.7115765	3.1460302	2.4833783	1.9314084	0.8736186
Tight (TOL) Bar	0.8372467	0.6127955	0.5967293	0.1273181	0.1394009
Tight (TOL) Cra	2.6571893	4.0651389	3.0686530	2.6578253	2.6662189
Tight (TOL) End	3.5415927	2.9655113	2.1357641	2.0573696	1.2717585
Tight (MOL) Bar	0.6871826	0.7125454	0.6924164	0.1681686	0.1676222
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	9.5914677	7.9444458	6.0347788	5.1667848	2.7409668

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.2651838	0.6197227	0.4766271	0.3029332	0.3960846
Loose Cra	1.1453631	1.2782262	0.8337007	0.9646216	0.9689198
Loose End	0.7404891	2.2796398	2.0906418	0.9073194	0.9088315
Loose (TOL) Bar	1.2796887	0.6131990	0.4821857	0.2771753	0.3788274
Loose (TOL) Cra	1.1453631	1.2782262	0.8337007	0.9646216	0.9689198
Loose (TOL) End	0.6142584	2.2912427	2.0649339	0.9907708	0.9928955
Loose (MOL) Bar	1.4801663	0.8552285	0.6541364	0.4106983	0.5509278
Loose (MOL) Cra	1.9516460	2.8614076	2.0867563	1.9516598	1.9578310
Loose (MOL) End	0.5724913	4.7806928	4.3381722	2.0088023	2.0035334
Medium Bar	1.3662395	0.5751400	0.4927080	0.1782170	0.2966901
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.8377861	2.8591722	2.5859089	1.2191747	1.2198119
Medium (TOL) Bar	1.3818677	0.5825807	0.4984318	0.1825608	0.3016059
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.6221114	2.6869909	2.3982269	1.2112684	1.2117872
Medium (MOL) Bar	1.4804995	0.7549195	0.6579277	0.2385307	0.3701821
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	6.0683329	7.2090712	3.1941814	6.4628100	6.1029891
Tight Bar	1.4334611	0.4419945	0.3243443	0.1915475	0.3002667
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	2.6940238	2.9828130	1.6043495	2.5146046	2.1931388
Tight (TOL) Bar	1.4572744	0.4523427	0.3297348	0.2014922	0.3096595
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.7960072	3.7906029	1.2979282	3.5614678	3.3716638
Tight (MOL) Bar	1.5675032	0.5077185	0.4062712	0.1867732	0.3045028
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	6.3937521	11.0576898	4.7316240	9.9942103	9.1217699