

Table 1: Scale Factors for Cut-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0071327	0.0138744	0.0047476	0.0130093	0.0130397
Loose Cra	0.9882842	0.0195166	0.0174513	0.0050755	0.0087445
Loose End	0.9958809	0.0100598	0.0054515	0.0081642	0.0084597
Loose (TOL) Bar	0.9456727	0.1601780	0.0153189	0.1592101	0.1594443
Loose (TOL) Cra	0.7639506	0.0726360	0.0361775	0.0629862	0.0572232
Loose (TOL) End	0.9547580	0.0934050	0.0214739	0.0873191	0.0909035
Loose (MOL) Bar	1.5244223	0.0543231	0.0403579	0.0282216	0.0363647
Loose (MOL) Cra	1.3666987	0.1207749	0.1029002	0.0398996	0.0632314
Loose (MOL) End	1.3552867	0.1521965	0.0377770	0.1034198	0.1474338
Medium Bar	1.0067322	0.0154142	0.0059697	0.0141576	0.0142157
Medium Cra	0.9658667	0.0241536	0.0223973	0.0090478	0.0051583
Medium End	0.9951325	0.0131263	0.0073507	0.0108770	0.0108090
Medium (TOL) Bar	0.9234301	0.1670706	0.0179830	0.1658964	0.1661005
Medium (TOL) Cra	0.7142399	0.0807935	0.0365940	0.0720315	0.0624538
Medium (TOL) End	0.9543228	0.1052492	0.0186990	0.1018972	0.1035751
Medium (MOL) Bar	1.5142693	0.0647672	0.0477790	0.0349192	0.0437274
Medium (MOL) Cra	1.3476961	0.1203632	0.1125909	0.0400146	0.0425521
Medium (MOL) End	1.4137636	0.1592824	0.0431633	0.1088297	0.1533230
Tight Bar	0.9742981	0.0188148	0.0118457	0.0145451	0.0146200
Tight Cra	0.9301435	0.0376643	0.0327865	0.0092089	0.0185411
Tight End	0.9648256	0.0192067	0.0102259	0.0162613	0.0120308
Tight (TOL) Bar	0.8745428	0.1792400	0.0334049	0.1758879	0.1761002
Tight (TOL) Cra	0.5884982	0.1038672	0.0439808	0.0926543	0.0940966
Tight (TOL) End	0.9095148	0.1365353	0.0761854	0.1133039	0.1078232
Tight (MOL) Bar	1.4931578	0.0835763	0.0670085	0.0372314	0.0499493
Tight (MOL) Cra	1.1323710	0.1833785	0.1487917	0.0369955	0.1071861
Tight (MOL) End	1.3375134	0.1606023	0.0479280	0.1261235	0.1532846

Table 2: Scale Factors for LLH-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9954102	0.0118490	0.0041359	0.0111061	0.0110755
Loose Cra	0.9980125	0.0199072	0.0182936	0.0041084	0.0078567
Loose End	0.9902161	0.0105071	0.0059524	0.0082273	0.0086624
Loose (TOL) Bar	0.9422758	0.1542258	0.0183575	0.1530028	0.1531299
Loose (TOL) Cra	0.7789761	0.0672116	0.0357482	0.0569169	0.0543437
Loose (TOL) End	0.9480387	0.0929650	0.0252426	0.0856182	0.0894730
Loose (MOL) Bar	1.5056669	0.0529716	0.0449927	0.0212360	0.0279591
Loose (MOL) Cra	1.3528869	0.1203395	0.1004541	0.0481014	0.0662621
Loose (MOL) End	1.3387631	0.1530957	0.0374603	0.1028682	0.1484424
Medium Bar	0.9865600	0.0144464	0.0050100	0.0135530	0.0134767
Medium Cra	0.9865556	0.0243639	0.0237261	0.0054532	0.0055431
Medium End	0.9801558	0.0108995	0.0070310	0.0079435	0.0083346
Medium (TOL) Bar	0.9259164	0.1596126	0.0271208	0.1571752	0.1572918
Medium (TOL) Cra	0.7384045	0.0625979	0.0383359	0.0494872	0.0472606
Medium (TOL) End	0.9314282	0.0958044	0.0301253	0.0882798	0.0909452
Medium (MOL) Bar	1.4878150	0.0592983	0.0403430	0.0385901	0.0434605
Medium (MOL) Cra	1.3656817	0.1352878	0.1124945	0.0565982	0.0751519
Medium (MOL) End	1.3230838	0.1526748	0.0387770	0.0980918	0.1476686
Tight Bar	0.9745740	0.0308949	0.0284485	0.0120504	0.0119507
Tight Cra	1.0072904	0.0357015	0.0293788	0.0046838	0.0202861
Tight End	0.9700112	0.0148054	0.0083096	0.0112951	0.0122558
Tight (TOL) Bar	0.8954856	0.3352487	0.0945987	0.1695656	0.3216253
Tight (TOL) Cra	0.7652351	0.0531836	0.0450358	0.0263126	0.0282911
Tight (TOL) End	0.5642708	0.7460008	0.4039801	0.6271502	0.5247904
Tight (MOL) Bar	1.4812427	0.0726704	0.0558785	0.0356051	0.0464610
Tight (MOL) Cra	1.4430884	0.1653819	0.1356661	0.0585770	0.0945833
Tight (MOL) End	1.2912408	0.1604406	0.0404099	0.1000877	0.1552687

Table 3: Scale Factors for BDT-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0003216	0.0139821	0.0059234	0.0124083	0.0126707
Loose Cra	0.9887274	0.0233987	0.0190378	0.0117239	0.0136081
Loose End	1.0059749	0.0111848	0.0076138	0.0081221	0.0081999
Loose (TOL) Bar	0.9442380	0.1499466	0.0255379	0.1474796	0.1477564
Loose (TOL) Cra	0.7589036	0.0791530	0.0363570	0.0703094	0.0642813
Loose (TOL) End	0.9528146	0.0939270	0.0348832	0.0872100	0.0862904
Loose (MOL) Bar	1.4963268	0.0675721	0.0572517	0.0252603	0.0358933
Loose (MOL) Cra	1.3633548	0.1168306	0.1056670	0.0393345	0.0498395
Loose (MOL) End	1.3538321	0.1552398	0.0396581	0.1108205	0.1500891
Medium Bar	1.0457335	0.0180055	0.0104701	0.0142000	0.0146507
Medium Cra	1.0065968	0.0448542	0.0440345	0.0085382	0.0041453
Medium End	1.0804682	0.0209547	0.0131407	0.0163253	0.0076967
Medium (TOL) Bar	0.9975701	0.1368926	0.0390198	0.1307538	0.1312143
Medium (TOL) Cra	0.7851498	0.1214973	0.1048862	0.0613230	0.0561842
Medium (TOL) End	0.7425068	0.7212434	0.4544083	0.5600940	0.4427593
Medium (MOL) Bar	1.5779454	0.0836492	0.0520283	0.0511368	0.0655009
Medium (MOL) Cra	1.4948954	0.1659599	0.1253269	0.0961976	0.1087930
Medium (MOL) End	1.4823534	0.1750805	0.0512158	0.1527501	0.1674223
Tight Bar	1.1228298	0.0245275	0.0131456	0.0191539	0.0207092
Tight Cra	1.0697790	0.0370526	0.0362673	0.0054811	0.0075897
Tight End	1.1752350	0.3739617	0.0201494	0.3734187	0.3730493
Tight (TOL) Bar	1.0690018	0.1443326	0.0218542	0.1416389	0.1426688
Tight (TOL) Cra	0.7977992	0.0779082	0.0514636	0.0584916	0.0581110
Tight (TOL) End	1.1756635	1.3747222	0.0342767	1.1791121	1.3742949
Tight (MOL) Bar	1.6952135	0.0987425	0.0632940	0.0647005	0.0757894
Tight (MOL) Cra	1.5097272	0.1741665	0.1556687	0.0563660	0.0781111
Tight (MOL) End	1.6858086	0.1962460	0.0735929	0.1811456	0.1819248

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.6206614	0.0940664	0.0228116	0.0912590	0.0912212
Loose Cra	0.2789288	0.0814315	0.0794697	0.0177700	0.0176758
Loose End	1.0316921	0.0313480	0.0144332	0.0206107	0.0278286
Loose (TOL) Bar	0.5830033	0.1038412	0.0253022	0.1005348	0.1007117
Loose (TOL) Cra	0.2350481	0.0870517	0.0825920	0.0275064	0.0273157
Loose (TOL) End	1.0296798	0.1442483	0.0428837	0.1181631	0.1377268
Loose (MOL) Bar	1.0026229	0.1178023	0.1056190	0.0418623	0.0521739
Loose (MOL) Cra	0.6165359	0.2173464	0.2086941	0.0353411	0.0607157
Loose (MOL) End	1.6115906	0.1896212	0.0593225	0.0535237	0.1801031
Medium Bar	0.6219194	0.0982893	0.0238567	0.0953505	0.0952832
Medium Cra	0.2826972	0.0954321	0.0946949	0.0117672	0.0118446
Medium End	1.0319066	0.0309370	0.0133891	0.0221375	0.0278920
Medium (TOL) Bar	0.5808358	0.1067604	0.0258642	0.1034020	0.1035806
Medium (TOL) Cra	0.2434157	0.1010138	0.0992309	0.0188609	0.0188991
Medium (TOL) End	1.0382421	0.1485981	0.0424943	0.1222164	0.1423928
Medium (MOL) Bar	0.9916374	0.1063052	0.0991592	0.0240122	0.0383189
Medium (MOL) Cra	0.6954455	0.2713433	0.2360721	0.1216290	0.1337806
Medium (MOL) End	1.6306555	0.1944461	0.0619484	0.0475102	0.1843144
Tight Bar	0.5968965	0.0997491	0.0272526	0.0959542	0.0954411
Tight Cra	0.2392880	0.0490418	0.0474979	0.0120095	0.0122131
Tight End	1.0030145	0.0350613	0.0150928	0.0229929	0.0316488
Tight (TOL) Bar	0.5559672	0.1003852	0.0289493	0.0961212	0.0959144
Tight (TOL) Cra	0.2294950	0.0516555	0.0494694	0.0148711	0.0148483
Tight (TOL) End	0.9818067	0.1458423	0.0320607	0.1328313	0.1422754
Tight (MOL) Bar	0.9922333	0.1072394	0.1016754	0.0246588	0.0340967
Tight (MOL) Cra	0.8541821	0.4406217	0.3904847	0.1923356	0.2041304
Tight (MOL) End	1.5410592	0.1887357	0.0668553	0.0821525	0.1764983

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.6107449	0.0874831	0.0230823	0.0843839	0.0841994
Loose Cra	0.2730823	0.1772083	0.1687610	0.0533235	0.0540618
Loose End	1.0265136	0.0311319	0.0143338	0.0213473	0.0276377
Loose (TOL) Bar	0.5807312	0.1003638	0.0252616	0.0971329	0.0971289
Loose (TOL) Cra	0.2248616	0.1882211	0.1746299	0.0694994	0.0702260
Loose (TOL) End	1.0235294	0.1413782	0.0419495	0.1160048	0.1350118
Loose (MOL) Bar	0.9746670	0.0960874	0.0869307	0.0396077	0.0409384
Loose (MOL) Cra	0.7336144	0.2443620	0.2357102	0.0263873	0.0644486
Loose (MOL) End	1.5932236	0.1827498	0.0590866	0.0511034	0.1729345
Medium Bar	0.6041946	0.0873916	0.0188878	0.0853267	0.0851029
Medium Cra	0.2955243	0.0458246	0.0421304	0.0178840	0.0180298
Medium End	1.0169647	0.0300283	0.0135547	0.0213569	0.0267969
Medium (TOL) Bar	0.5715119	0.0986164	0.0199676	0.0965742	0.0965509
Medium (TOL) Cra	0.2413018	0.0427527	0.0402222	0.0144361	0.0144927
Medium (TOL) End	1.0163930	0.1395299	0.0295709	0.1151933	0.1363606
Medium (MOL) Bar	0.9570095	0.0712860	0.0656235	0.0249594	0.0278456
Medium (MOL) Cra	0.8107842	0.2841638	0.2752886	0.0273395	0.0704654
Medium (MOL) End	1.5793201	0.1928691	0.0605613	0.0514173	0.1831147
Tight Bar	0.5965340	0.0891487	0.0300874	0.0839187	0.0835000
Tight Cra	0.3382348	0.0618142	0.0513322	0.0213129	0.0344411
Tight End	1.0113195	0.0340220	0.0142392	0.0239877	0.0309001
Tight (TOL) Bar	0.5577216	0.0919010	0.0280823	0.0875056	0.0872664
Tight (TOL) Cra	0.2949105	0.0570473	0.0505939	0.0117624	0.0263572
Tight (TOL) End	1.0050716	0.1463406	0.0306325	0.1214252	0.1430990
Tight (MOL) Bar	0.9125239	0.1128937	0.1108600	0.0213339	0.0193308
Tight (MOL) Cra	0.8976664	0.4016311	0.3246482	0.1588770	0.2364556
Tight (MOL) End	1.5664211	0.2083868	0.0632776	0.0659852	0.1985475

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.6036976	0.0903388	0.0335897	0.0838629	0.0838196
Loose Cra	0.2948264	0.0894035	0.0847951	0.0281788	0.0283339
Loose End	1.0549037	0.0367464	0.0165897	0.0248914	0.0327888
Loose (TOL) Bar	0.5729999	0.1024621	0.0368850	0.0954909	0.0955931
Loose (TOL) Cra	0.2492293	0.0960520	0.0869634	0.0407057	0.0407856
Loose (TOL) End	1.0542644	0.1459623	0.0555145	0.1131075	0.1349937
Loose (MOL) Bar	0.9468965	0.1336038	0.1224896	0.0498969	0.0533512
Loose (MOL) Cra	0.8083609	0.2612533	0.2480707	0.0501684	0.0819410
Loose (MOL) End	1.6355565	0.1862122	0.0627098	0.0561842	0.1753356
Medium Bar	0.6308283	0.0802639	0.0294265	0.0746757	0.0745675
Medium Cra	0.3545113	0.0931053	0.0491256	0.0449021	0.0790909
Medium End	1.1333877	0.0350870	0.0200435	0.0241868	0.0288002
Medium (TOL) Bar	0.5982018	0.0926277	0.0314226	0.0867944	0.0871359
Medium (TOL) Cra	0.2935348	0.0980520	0.0470829	0.0401955	0.0860091
Medium (TOL) End	0.6104578	1.2071018	0.7854282	0.9166229	0.7139378
Medium (MOL) Bar	0.9793289	0.1093110	0.0969933	0.0438660	0.0504109
Medium (MOL) Cra	0.8994876	0.4029271	0.3051831	0.2530316	0.2630848
Medium (MOL) End	1.3668127	1.7993390	1.6786454	0.6478971	0.4791189
Tight Bar	0.6853139	0.0848598	0.0286675	0.0792957	0.0798713
Tight Cra	0.3624935	0.0802944	0.0622020	0.0437771	0.0507763
Tight End	1.2202429	0.4235045	0.0280038	0.4225542	0.4225778
Tight (TOL) Bar	0.6435814	0.1065307	0.0316931	0.1008005	0.1017079
Tight (TOL) Cra	0.2743800	0.0725582	0.0566302	0.0341795	0.0453635
Tight (TOL) End	1.2369198	1.4750887	0.0541241	1.2419267	1.4740955
Tight (MOL) Bar	1.0870455	0.1075058	0.0906163	0.0241058	0.0578472
Tight (MOL) Cra	0.6083678	0.3144625	0.3077326	0.0080223	0.0647107
Tight (MOL) End	1.8612139	1.0348574	0.1051104	1.0232763	1.0295057

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8543900	0.1018302	0.0834169	0.0542460	0.0584048
Loose Cra	0.4002034	0.1777942	0.1743518	0.0348194	0.0344244
Loose End	1.2549497	0.0848410	0.0561653	0.0635893	0.0571920
Loose (TOL) Bar	0.8485021	0.1347364	0.1006201	0.0857775	0.0896078
Loose (TOL) Cra	0.3619974	0.2008178	0.1966805	0.0405549	0.0405483
Loose (TOL) End	1.0828638	0.1730150	0.1313431	0.1126201	0.1097165
Loose (MOL) Bar	0.9640216	0.1800561	0.1574335	0.0767632	0.0873784
Loose (MOL) Cra	0.8658609	0.4010164	0.3339163	0.1810965	0.2220681
Loose (MOL) End	1.2945861	0.3588705	0.2562005	0.2311429	0.2512957
Medium Bar	0.8582929	0.0932169	0.0789148	0.0448745	0.0496182
Medium Cra	0.4008861	0.1972516	0.1948965	0.0303909	0.0291990
Medium End	1.2992069	0.0841712	0.0603494	0.0586760	0.0527997
Medium (TOL) Bar	0.8413596	0.1198907	0.0917581	0.0732309	0.0771643
Medium (TOL) Cra	0.3713443	0.2197241	0.2170724	0.0340341	0.0339407
Medium (TOL) End	1.1525672	0.1528826	0.1280414	0.0835376	0.0811024
Medium (MOL) Bar	0.9359646	0.1501992	0.1391494	0.0417812	0.0565448
Medium (MOL) Cra	1.0332417	0.5007920	0.4008446	0.2582131	0.3001941
Medium (MOL) End	1.3937745	0.3253413	0.2391093	0.2036926	0.2206216
Tight Bar	0.8142963	0.0954185	0.0762430	0.0573745	0.0569567
Tight Cra	0.3766215	0.0993060	0.0985177	0.0103117	0.0124924
Tight End	1.2543654	0.1088328	0.0677992	0.0851347	0.0442353
Tight (TOL) Bar	0.8192560	0.1247216	0.0882986	0.0876608	0.0880849
Tight (TOL) Cra	0.4180499	0.1142834	0.1132935	0.0137623	0.0150122
Tight (TOL) End	1.0349473	0.3521503	0.3030119	0.1794262	0.0683542
Tight (MOL) Bar	0.8951058	0.1348020	0.1287396	0.0258949	0.0399732
Tight (MOL) Cra	1.4405361	0.8836040	0.7480560	0.4450271	0.4702856
Tight (MOL) End	1.1020198	0.7120837	0.5502942	0.4519287	0.2821911

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8133403	0.0810913	0.0647997	0.0479965	0.0487527
Loose Cra	0.4121224	0.2491955	0.2378946	0.0740962	0.0741931
Loose End	1.2381898	0.0829831	0.0561261	0.0611239	0.0519186
Loose (TOL) Bar	0.8262250	0.1117152	0.0766941	0.0809085	0.0812307
Loose (TOL) Cra	0.3857107	0.2744920	0.2577681	0.0933873	0.0943486
Loose (TOL) End	1.0579019	0.1594960	0.1238879	0.1004530	0.0939077
Loose (MOL) Bar	0.9214618	0.1386776	0.1126144	0.0794694	0.0809293
Loose (MOL) Cra	1.0122691	0.4729626	0.3902411	0.2271317	0.2672183
Loose (MOL) End	1.2153443	0.3117306	0.2235279	0.1866225	0.2172818
Medium Bar	0.8059432	0.0670805	0.0502037	0.0428375	0.0444910
Medium Cra	0.4009155	0.0886690	0.0813880	0.0351882	0.0330055
Medium End	1.2442461	0.0888515	0.0587633	0.0666446	0.0505717
Medium (TOL) Bar	0.8156347	0.0957752	0.0584940	0.0750342	0.0758381
Medium (TOL) Cra	0.3585666	0.0909912	0.0833150	0.0365813	0.0360779
Medium (TOL) End	1.0607449	0.1381716	0.0983648	0.0970353	0.0842530
Medium (MOL) Bar	0.9080981	0.0851757	0.0807127	0.0165674	0.0272103
Medium (MOL) Cra	1.1550582	0.5406359	0.4829413	0.1008031	0.2430124
Medium (MOL) End	1.2297871	0.2808312	0.1822178	0.2136888	0.2124888
Tight Bar	0.7822947	0.0881107	0.0746577	0.0444064	0.0467960
Tight Cra	0.4721135	0.1330631	0.1023337	0.0761955	0.0850515
Tight End	1.2395251	0.0999479	0.0626140	0.0779050	0.0611569
Tight (TOL) Bar	0.7666057	0.1170546	0.0904563	0.0729723	0.0742935
Tight (TOL) Cra	0.4659571	0.1429835	0.1115253	0.0813358	0.0894791
Tight (TOL) End	1.0081776	0.3774978	0.3305164	0.1823832	0.1228096
Tight (MOL) Bar	0.8571128	0.1284355	0.1249721	0.0207657	0.0296273
Tight (MOL) Cra	1.3915066	0.7552133	0.6419037	0.3819483	0.3978781
Tight (MOL) End	0.9059166	0.8683461	0.5827728	0.6437398	0.4879746

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8161957	0.1107578	0.0961698	0.0540240	0.0549431
Loose Cra	0.4234893	0.1450058	0.1379951	0.0445436	0.0434383
Loose End	1.2895377	0.0846315	0.0596339	0.0600528	0.0550024
Loose (TOL) Bar	0.8374487	0.1454266	0.1152937	0.0882442	0.0886359
Loose (TOL) Cra	0.4013471	0.1594217	0.1495557	0.0552131	0.0550762
Loose (TOL) End	1.1095728	0.2028950	0.1596106	0.1252636	0.1242149
Loose (MOL) Bar	0.9309450	0.1876915	0.1622886	0.0906042	0.0942900
Loose (MOL) Cra	1.1522333	0.4428749	0.4167197	0.0963111	0.1499430
Loose (MOL) End	1.2732219	0.4261690	0.2971071	0.2749905	0.3055283
Medium Bar	0.8426272	0.0887186	0.0700903	0.0514411	0.0543914
Medium Cra	0.4925959	0.1641368	0.0945998	0.1131060	0.1341336
Medium End	1.3226622	0.1265535	0.0711974	0.0950034	0.1046271
Medium (TOL) Bar	0.8704257	0.1179177	0.0842717	0.0779685	0.0824798
Medium (TOL) Cra	0.4466854	0.1879994	0.0965987	0.1261947	0.1612840
Medium (TOL) End	0.8165765	0.6263539	0.4387511	0.4470088	0.3331489
Medium (MOL) Bar	0.9718923	0.1363763	0.1207652	0.0517476	0.0633588
Medium (MOL) Cra	1.2675800	0.7421780	0.5293380	0.5202208	0.5119275
Medium (MOL) End	0.9374523	0.9313536	0.6631107	0.6539908	0.5297136
Tight Bar	0.9685048	0.1032366	0.0675409	0.0649751	0.0780779
Tight Cra	0.4550547	0.1404357	0.1152102	0.0803056	0.0697310
Tight End	1.2227430	1.1460348	0.0886931	1.1272062	1.1425977
Tight (TOL) Bar	0.9574091	0.1189293	0.0765713	0.0685540	0.0910009
Tight (TOL) Cra	0.3605425	0.1348525	0.1097882	0.0697451	0.0783063
Tight (TOL) End	1.0360072	1.0976132	0.0991216	1.0428940	1.0931285
Tight (MOL) Bar	1.0514649	0.1313327	0.1048994	0.0050633	0.0790227
Tight (MOL) Cra	0.3430856	0.5073571	0.3451537	0.3218704	0.3718607
Tight (MOL) End	1.2513627	1.3409838	0.1615816	1.2797027	1.3312134

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9574073	0.2490710	0.2180810	0.1023650	0.1203210
Loose Cra	0.3977132	0.5071586	0.4956524	0.0734138	0.1074180
Loose End	1.3917693	0.1415415	0.0770782	0.1187140	0.0982321
Loose (TOL) Bar	0.9711880	0.2888018	0.2461901	0.1313049	0.1509869
Loose (TOL) Cra	0.4138499	0.5279623	0.5158498	0.0773568	0.1124422
Loose (TOL) End	1.0352506	0.3681968	0.2336106	0.2845963	0.2286059
Loose (MOL) Bar	1.1221316	0.4767918	0.4281147	0.1817406	0.2098772
Loose (MOL) Cra	1.4181002	1.2855388	0.8413594	0.4631799	0.9719694
Loose (MOL) End	1.2912244	0.6086578	0.4084091	0.4512943	0.3839220
Medium Bar	0.8932141	0.2089578	0.1894124	0.0698294	0.0882408
Medium Cra	0.4416985	0.5099143	0.5015209	0.0557070	0.0921383
Medium End	1.4039377	0.1345975	0.0794508	0.1086467	0.0911553
Medium (TOL) Bar	0.9218793	0.2379611	0.2123897	0.0865653	0.1073140
Medium (TOL) Cra	0.4602066	0.5316914	0.5228130	0.0590566	0.0967599
Medium (TOL) End	1.1064285	0.2970658	0.1989773	0.2205816	0.1874897
Medium (MOL) Bar	0.9739825	0.3854566	0.3498706	0.1417073	0.1617635
Medium (MOL) Cra	1.6335607	1.4869696	0.9784167	0.5339756	1.1197230
Medium (MOL) End	1.3616681	0.5037674	0.3274602	0.3828205	0.3232420
Tight Bar	0.9084735	0.1484489	0.1392954	0.0184862	0.0513216
Tight Cra	0.4836826	0.2133804	0.1857505	0.0767896	0.1050146
Tight End	1.3733249	0.1307566	0.0886614	0.0961069	0.0652899
Tight (TOL) Bar	0.9357329	0.1671439	0.1507717	0.0447088	0.0721457
Tight (TOL) Cra	0.5016572	0.2220159	0.1927128	0.0814419	0.1102403
Tight (TOL) End	1.0775904	0.2184135	0.1082874	0.1896799	0.1156775
Tight (MOL) Bar	0.9075846	0.2187059	0.2049754	0.0403888	0.0762722
Tight (MOL) Cra	1.0901037	1.6203401	1.1387871	0.3746200	1.1526778
Tight (MOL) End	1.1719286	0.9126691	0.7564567	0.5106254	0.2294574

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8617263	0.1710850	0.1406333	0.0922357	0.0974291
Loose Cra	0.3105401	0.5639219	0.5135666	0.2282740	0.2329323
Loose End	1.3690424	0.1425934	0.0767849	0.1201542	0.0949138
Loose (TOL) Bar	0.8949589	0.2004143	0.1581016	0.1167856	0.1231658
Loose (TOL) Cra	0.3235075	0.5867880	0.5343627	0.2375786	0.2424394
Loose (TOL) End	1.0235558	0.3322003	0.1965305	0.2678301	0.1916103
Loose (MOL) Bar	1.0149770	0.3293314	0.2573030	0.2013821	0.2055589
Loose (MOL) Cra	1.1422941	1.4757583	0.8218895	0.6210956	1.2257081
Loose (MOL) End	1.2417625	0.4760922	0.3136198	0.3581990	0.2922136
Medium Bar	0.8825184	0.1097292	0.0949853	0.0341498	0.0549392
Medium Cra	0.4213024	0.2392105	0.1507436	0.1810208	0.1857368
Medium End	1.3625705	0.1401046	0.0797693	0.1151792	0.0826594
Medium (TOL) Bar	0.9122864	0.1334863	0.1039610	0.0655001	0.0837309
Medium (TOL) Cra	0.4373358	0.2486758	0.1565394	0.1883382	0.1932234
Medium (TOL) End	0.9811722	0.2805952	0.1507137	0.2366836	0.1789019
Medium (MOL) Bar	1.0132534	0.1703634	0.1526757	0.0379627	0.0755910
Medium (MOL) Cra	1.1693591	1.4572983	0.8492795	0.4820327	1.1842479
Medium (MOL) End	1.1903083	0.4541822	0.2436381	0.3833041	0.2968689
Tight Bar	0.8608828	0.1363110	0.1268158	0.0289347	0.0499850
Tight Cra	0.4782614	0.1937121	0.1833535	0.0494023	0.0624979
Tight End	1.3560752	0.1408737	0.0846556	0.1126008	0.0806236
Tight (TOL) Bar	0.8549138	0.1529029	0.1352911	0.0525296	0.0712443
Tight (TOL) Cra	0.4920769	0.1988831	0.1886768	0.0490343	0.0628939
Tight (TOL) End	0.9840620	0.4390591	0.3734257	0.2309248	0.1571016
Tight (MOL) Bar	0.9089127	0.2089935	0.1999625	0.0303698	0.0607730
Tight (MOL) Cra	0.6388395	0.9209471	0.6527147	0.1182853	0.6496978
Tight (MOL) End	1.0013913	0.9429371	0.6249855	0.7060621	0.4416568

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9495094	0.2661935	0.2356707	0.1159657	0.1237676
Loose Cra	0.3937455	0.3214268	0.2951806	0.1002909	0.1272155
Loose End	1.4263270	0.1396878	0.0812140	0.1136530	0.0991552
Loose (TOL) Bar	0.9604007	0.3057327	0.2633426	0.1460111	0.1553167
Loose (TOL) Cra	0.4100217	0.3342312	0.3067962	0.1045871	0.1326145
Loose (TOL) End	1.0272872	0.4388839	0.2638733	0.3506994	0.3094418
Loose (MOL) Bar	1.1069057	0.4925348	0.4215025	0.2437928	0.2548065
Loose (MOL) Cra	0.8981365	1.1066588	0.6464062	0.3414211	0.8982499
Loose (MOL) End	1.2372356	0.6585880	0.4241460	0.5038238	0.4387187
Medium Bar	0.9897126	0.1827232	0.1497261	0.0880035	0.1047376
Medium Cra	0.3859443	0.3840937	0.1473388	0.2137666	0.3547103
Medium End	1.4643136	0.1570557	0.0945627	0.1253973	0.0951565
Medium (TOL) Bar	1.0230287	0.2109592	0.1659546	0.1107626	0.1302418
Medium (TOL) Cra	0.4030299	0.4013918	0.1539328	0.2237813	0.3707022
Medium (TOL) End	0.5761127	1.0404642	0.5428867	0.8876035	0.5851171
Medium (MOL) Bar	1.1507313	0.3460913	0.2646242	0.2061494	0.2230545
Medium (MOL) Cra	0.7683404	1.3363006	0.7778154	1.0033762	1.0866014
Medium (MOL) End	0.7983545	1.1634451	0.8031850	0.8417236	0.6347437
Tight Bar	1.0284522	0.1695694	0.1254868	0.0507829	0.1140479
Tight Cra	0.4339159	0.3788175	0.2189191	0.0844795	0.3091557
Tight End	1.3754607	1.2071900	0.1170919	1.2014980	1.1902107
Tight (TOL) Bar	1.0176817	0.1850824	0.1340665	0.0412093	0.1275999
Tight (TOL) Cra	0.4491108	0.3921428	0.2266310	0.0875859	0.3200226
Tight (TOL) End	1.0209850	1.0801962	0.1293951	1.0474315	1.0724183
Tight (MOL) Bar	1.0585406	0.2422946	0.1881166	0.0473369	0.1527053
Tight (MOL) Cra	1.5308560	2.2440667	1.5627763	1.3795272	1.6104552
Tight (MOL) End	1.2300386	1.3258807	0.1969205	1.2988786	1.3111759

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9544798	0.1779477	0.1107044	0.1331773	0.1393201
Loose Cra	0.6925452	0.3726405	0.3582639	0.0912856	0.1025090
Loose End	1.4860858	0.1430129	0.1250738	0.0629657	0.0693498
Loose (TOL) Bar	0.9405013	0.1868384	0.1148868	0.1415280	0.1473423
Loose (TOL) Cra	0.6670002	0.3699986	0.3562854	0.0854074	0.0997990
Loose (TOL) End	1.4202967	0.2222685	0.1740990	0.1381772	0.1352058
Loose (MOL) Bar	1.3256050	0.2967913	0.2502492	0.1314491	0.1595636
Loose (MOL) Cra	2.1236265	2.8668432	2.7801858	0.6469667	0.6995407
Loose (MOL) End	1.8088237	0.4921011	0.3739677	0.3089036	0.3198621
Medium Bar	0.8789471	0.1804907	0.1170161	0.1269740	0.1374200
Medium Cra	0.5764982	0.1671164	0.1382773	0.0816974	0.0938473
Medium End	1.5085664	0.0994560	0.0801136	0.0375855	0.0589358
Medium (TOL) Bar	0.8442290	0.1843900	0.1190427	0.1310534	0.1408144
Medium (TOL) Cra	0.5450556	0.1613796	0.1344059	0.0753448	0.0893226
Medium (TOL) End	1.4508007	0.2310454	0.1966430	0.0904004	0.1212997
Medium (MOL) Bar	1.1595336	0.3014194	0.2657517	0.0649651	0.1422316
Medium (MOL) Cra	1.4229554	1.0488600	0.7346240	0.7333912	0.7486221
Medium (MOL) End	2.0700464	0.5097118	0.4240646	0.1384545	0.2827995
Tight Bar	0.8590653	0.1870232	0.1052265	0.1412384	0.1546130
Tight Cra	0.4320707	0.2144175	0.1549558	0.0993031	0.1482017
Tight End	1.4398892	0.1535092	0.1062412	0.1108063	0.0492062
Tight (TOL) Bar	0.8307435	0.1889219	0.1057347	0.1456555	0.1565622
Tight (TOL) Cra	0.3780591	0.2089722	0.1447018	0.0907289	0.1507674
Tight (TOL) End	1.3916796	0.2366721	0.1371105	0.1929107	0.0769807
Tight (MOL) Bar	1.1465992	0.2599917	0.2066808	0.0564859	0.1577302
Tight (MOL) Cra	1.4042769	2.4548816	1.4430617	1.4042875	1.9859549
Tight (MOL) End	1.9939958	1.6562254	1.6296591	0.2954559	0.1753289

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9253765	0.1641438	0.0893377	0.1359882	0.1377029
Loose Cra	0.7041818	0.1674072	0.1437106	0.0794981	0.0858636
Loose End	1.4094919	0.1369017	0.1197756	0.0561726	0.0663028
Loose (TOL) Bar	0.9208473	0.1712562	0.0934423	0.1420876	0.1435177
Loose (TOL) Cra	0.6760097	0.1648047	0.1407045	0.0739862	0.0858076
Loose (TOL) End	1.3497091	0.2024946	0.1559369	0.1291816	0.1250427
Loose (MOL) Bar	1.2818902	0.2646189	0.1930275	0.1719509	0.1810074
Loose (MOL) Cra	1.8003241	0.6947536	0.6206250	0.2864737	0.3122617
Loose (MOL) End	1.6381954	0.4302108	0.2877855	0.3197828	0.3137040
Medium Bar	0.8876269	0.1236802	0.0602286	0.1048792	0.1080250
Medium Cra	0.5742078	0.2111878	0.1617893	0.1272352	0.1357376
Medium End	1.4359802	0.1587060	0.1279583	0.0938847	0.0924507
Medium (TOL) Bar	0.8812669	0.1314979	0.0613509	0.1138352	0.1163094
Medium (TOL) Cra	0.5742078	0.2111911	0.1617934	0.1272352	0.1357376
Medium (TOL) End	1.3381529	0.2324710	0.1508570	0.1768757	0.1557468
Medium (MOL) Bar	1.1874263	0.1326992	0.1137252	0.0545976	0.0683797
Medium (MOL) Cra	1.6770966	0.9664422	0.7751295	0.3692313	0.5772218
Medium (MOL) End	1.5817146	0.4742006	0.2967519	0.3698712	0.3384992
Tight Bar	0.8448501	0.1404845	0.0827241	0.1092752	0.1135461
Tight Cra	0.6339499	0.2471438	0.2148426	0.1111045	0.1221592
Tight End	1.5435456	0.5219322	0.4570203	0.2520830	0.1947224
Tight (TOL) Bar	0.8229536	0.1418767	0.0835442	0.1113621	0.1146712
Tight (TOL) Cra	0.6339499	0.2471525	0.2148526	0.1111045	0.1221592
Tight (TOL) End	1.4799612	0.6976838	0.6146455	0.3301117	0.2435941
Tight (MOL) Bar	1.1377589	0.1880635	0.1736198	0.0507594	0.0722780
Tight (MOL) Cra	0.6588701	0.6992982	0.6672050	0.2026591	0.2094174
Tight (MOL) End	2.0182556	1.1740407	1.0556888	0.5137052	0.3919173

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9613683	0.1831390	0.1252370	0.1278081	0.1336249
Loose Cra	0.5785758	0.1397898	0.1340465	0.0329299	0.0396593
Loose End	1.5696362	0.2238805	0.2035961	0.0906936	0.0931196
Loose (TOL) Bar	0.9505152	0.1899628	0.1290215	0.1337616	0.1394253
Loose (TOL) Cra	0.5488264	0.1342333	0.1306976	0.0306086	0.0296239
Loose (TOL) End	1.4882115	0.3350780	0.2651507	0.2048720	0.1749597
Loose (MOL) Bar	1.3540211	0.3000051	0.2540530	0.1327175	0.1595626
Loose (MOL) Cra	1.1629885	0.5365297	0.5186895	0.1372064	0.1085112
Loose (MOL) End	1.8459134	0.6592746	0.4882012	0.4430607	0.4258074
Medium Bar	0.9670003	0.1518937	0.0972194	0.1044723	0.1167052
Medium Cra	0.5750792	0.2448813	0.1617490	0.1619529	0.1838592
Medium End	1.2256320	0.8152550	0.6489108	0.4935136	0.4276999
Medium (TOL) Bar	0.9374978	0.1601349	0.0981053	0.1157661	0.1265648
Medium (TOL) Cra	0.5751667	0.2449171	0.1617895	0.1619630	0.1838713
Medium (TOL) End	1.1359299	1.0193147	0.7622141	0.6767808	0.5195888
Medium (MOL) Bar	1.3809687	0.2465798	0.1980217	0.0925877	0.1469326
Medium (MOL) Cra	1.7617132	2.0376390	0.9057218	1.7617244	1.8252783
Medium (MOL) End	1.0371782	1.9528016	1.3806691	1.3810095	1.1844782
Tight Bar	1.0272679	0.1545224	0.0884845	0.1054201	0.1266796
Tight Cra	0.3889150	0.2109772	0.1753891	0.0563550	0.1172609
Tight End	1.5225610	0.7922146	0.1374484	0.7642996	0.7802000
Tight (TOL) Bar	0.9385926	0.1522284	0.0862420	0.1058136	0.1254429
Tight (TOL) Cra	0.3889150	0.2109772	0.1753891	0.0563550	0.1172609
Tight (TOL) End	1.4823196	1.0058522	0.1751155	0.9644455	0.9904915
Tight (MOL) Bar	1.3247231	0.2169882	0.1596573	0.0620903	0.1469474
Tight (MOL) Cra	1.3189148	1.7416238	1.3403255	1.1121067	0.0972466
Tight (MOL) End	1.9974161	1.7309449	0.2969723	1.6356603	1.7052794

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0944622	0.4604148	0.3394611	0.3004098	0.3110435
Loose Cra	0.3233393	2.8140969	2.7711206	0.4899311	0.4310145
Loose End	1.7508409	0.6491930	0.5829670	0.2855375	0.2856591
Loose (TOL) Bar	1.0855088	0.4678967	0.3484388	0.3009056	0.3122787
Loose (TOL) Cra	0.3233393	2.8140969	2.7711206	0.4899311	0.4310145
Loose (TOL) End	1.4865371	0.7953189	0.6826221	0.4081168	0.4049464
Loose (MOL) Bar	1.5800992	0.7942789	0.6616421	0.4051655	0.4394415
Loose (MOL) Cra	0.3707065	14.2695786	14.0871629	2.2743605	1.8274086
Loose (MOL) End	1.7617191	1.5634037	1.3439937	0.7986941	0.7485797
Medium Bar	0.9557145	0.4183711	0.3151750	0.2599671	0.2751350
Medium Cra	0.7264734	0.7890457	0.5212761	0.5894730	0.5923382
Medium End	1.7544086	0.6171008	0.5860124	0.1933983	0.1930905
Medium (TOL) Bar	0.9445329	0.4258886	0.3223274	0.2622129	0.2783635
Medium (TOL) Cra	0.7264734	0.7890457	0.5212761	0.5894730	0.5923382
Medium (TOL) End	1.3251279	0.7353008	0.6566653	0.3308446	0.3236028
Medium (MOL) Bar	1.3298899	0.7192582	0.6146397	0.3217457	0.3735648
Medium (MOL) Cra	1.6324749	2.3533874	1.6900651	1.6324871	1.6377157
Medium (MOL) End	2.0233193	1.5202174	1.4484173	0.4616800	0.4301493
Tight Bar	0.9008557	0.3084759	0.2426736	0.1902014	0.1904392
Tight Cra	2.1989528	3.8405276	2.2467340	3.1097991	3.1147776
Tight End	2.0410157	0.4209667	0.3463250	0.2390793	0.2393158
Tight (TOL) Bar	0.8928451	0.3140227	0.2453034	0.1956502	0.1960527
Tight (TOL) Cra	2.1989528	3.8405276	2.2467340	3.1097991	3.1147776
Tight (TOL) End	1.1863184	1.7784981	1.7452934	0.2787883	0.3420622
Tight (MOL) Bar	1.3152026	0.4675788	0.4255976	0.1111708	0.1936409
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.4148011	0.8246630	0.6674718	0.2779207	0.4843043

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9794393	0.3867062	0.2237817	0.3141114	0.3153784
Loose Cra	0.9014286	0.9338433	0.5293683	0.7659122	0.7693067
Loose End	1.8586296	0.4902604	0.4437350	0.2084578	0.2084217
Loose (TOL) Bar	0.9750837	0.3922056	0.2321238	0.3147467	0.3161391
Loose (TOL) Cra	0.9014286	0.9338433	0.5293683	0.7659122	0.7693067
Loose (TOL) End	1.5644379	0.5466594	0.4697022	0.2787607	0.2796721
Loose (MOL) Bar	1.3370241	0.6764323	0.4420090	0.5093167	0.5120438
Loose (MOL) Cra	1.4588474	2.0910269	1.4934797	1.4588571	1.4635273
Loose (MOL) End	1.7150319	1.0782731	0.8616315	0.6482779	0.5893297
Medium Bar	1.0569408	0.2352685	0.1440099	0.1737380	0.1860445
Medium Cra	0.8267387	1.4402017	0.8383324	1.1691882	1.1710593
Medium End	1.3410145	0.6669764	0.4072060	0.5282433	0.3828463
Medium (TOL) Bar	1.0385840	0.2299241	0.1447314	0.1649195	0.1786563
Medium (TOL) Cra	0.8267387	1.4402017	0.8383324	1.1691882	1.1710593
Medium (TOL) End	1.1008090	0.6938169	0.3841286	0.5777779	0.4319576
Medium (MOL) Bar	1.3788582	0.2824699	0.2342800	0.1247553	0.1578046
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.1124727	1.2747278	0.6174342	1.1152158	0.8226665
Tight Bar	0.9877832	0.3124459	0.2388943	0.1932618	0.2013757
Tight Cra	2.0912266	3.0087905	2.1560619	2.0919278	2.0986228
Tight End	1.9820148	1.6057408	1.3448986	0.8772978	0.7246626
Tight (TOL) Bar	0.9599213	0.3143690	0.2378216	0.1973232	0.2055939
Tight (TOL) Cra	2.0912266	3.0087905	2.1560619	2.0919278	2.0986228
Tight (TOL) End	1.4535669	1.6828917	1.3736278	0.9722507	0.8023966
Tight (MOL) Bar	1.2045182	0.4462970	0.3827615	0.2153657	0.2295101
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.4788874	2.7928804	2.1879122	1.7358633	1.3337919

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.1253237	0.4825127	0.3663400	0.3099130	0.3140282
Loose Cra	0.6077222	1.3442420	1.2498592	0.4802111	0.4948117
Loose End	1.7918909	0.8179794	0.7206950	0.3868969	0.3666490
Loose (TOL) Bar	1.1139557	0.4867518	0.3735177	0.3075877	0.3121091
Loose (TOL) Cra	0.6077222	1.3442420	1.2498592	0.4802111	0.4948117
Loose (TOL) End	1.3716965	0.9024201	0.7187202	0.5457138	0.4953032
Loose (MOL) Bar	1.4933356	0.8156059	0.6489476	0.4834339	0.4940448
Loose (MOL) Cra	0.0000000	0.8542643	0.0000000	0.8542644	0.8542644
Loose (MOL) End	1.5269816	1.8480238	1.3220819	1.2912365	1.0903070
Medium Bar	1.1719008	0.2962961	0.2419457	0.1394148	0.1710373
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.1558338	2.1949688	1.8518750	1.1783240	1.0821370
Medium (TOL) Bar	1.1457091	0.2987135	0.2428731	0.1409439	0.1739038
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.8971921	1.9808279	1.5689235	1.2091974	1.0859118
Medium (MOL) Bar	1.5813207	0.5128450	0.4243891	0.2315249	0.2879305
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.5258249	3.5366866	2.5426804	2.4582369	2.2551451
Tight Bar	1.2760359	0.2748050	0.1911590	0.1112544	0.1974239
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.7720105	0.7245446	0.4320060	0.5816664	0.3665860
Tight (TOL) Bar	1.2283445	0.2760340	0.1901354	0.1076247	0.2001087
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.6180931	0.7799038	0.4631592	0.6274820	0.3452751
Tight (MOL) Bar	1.6844874	0.4129330	0.3054438	0.0448040	0.2778810
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.7511803	1.6589728	0.6854255	1.5107557	0.9063202

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.2955453	0.8476472	0.6975848	0.4409483	0.4815407
Loose Cra	1.6023896	8.4384441	8.3245712	1.3791292	1.3816131
Loose End	1.0582742	2.0098662	1.8105231	0.8718214	0.8726789
Loose (TOL) Bar	1.2905552	0.8518744	0.7064210	0.4337770	0.4760878
Loose (TOL) Cra	1.6023896	8.4384441	8.3245712	1.3791292	1.3816131
Loose (TOL) End	0.8791624	2.1412892	1.9048022	0.9763665	0.9781862
Loose (MOL) Bar	1.7601768	1.3069843	1.1371082	0.5847404	0.6443549
Loose (MOL) Cra	3.6884569	4.6511896	2.8180826	3.6884810	3.7002670
Loose (MOL) End	1.4493719	4.1947521	3.9299164	1.4668683	1.4667889
Medium Bar	0.9989605	0.7589607	0.6195379	0.3949709	0.4383996
Medium Cra	1.9504746	2.0996571	1.4317742	1.5277963	1.5357678
Medium End	1.3140525	1.5569425	1.4293001	0.6173909	0.6129098
Medium (TOL) Bar	1.0147774	0.7590855	0.6292876	0.3779553	0.4245092
Medium (TOL) Cra	1.9504746	2.0996571	1.4317742	1.5277963	1.5357678
Medium (TOL) End	1.0778501	1.6895062	1.5189018	0.7398438	0.7377722
Medium (MOL) Bar	1.2713399	1.1477811	0.9898166	0.5204786	0.5810893
Medium (MOL) Cra	2.7010840	3.9821257	2.9179662	2.7011044	2.7097599
Medium (MOL) End	1.9928687	3.2780144	3.2106575	0.6611033	0.6572987
Tight Bar	0.8199004	0.5687160	0.4754130	0.2944448	0.3121227
Tight Cra	2.2327628	3.9355354	2.3422101	3.1576139	3.1626715
Tight End	1.7770477	0.7538537	0.6314947	0.3070956	0.4117160
Tight (TOL) Bar	0.8366761	0.5764093	0.4840764	0.2944571	0.3129183
Tight (TOL) Cra	2.2327628	3.9355354	2.3422101	3.1576139	3.1626715
Tight (TOL) End	1.1529926	0.7492954	0.5402765	0.3961238	0.5191773
Tight (MOL) Bar	1.0576992	0.7568096	0.6643826	0.3224941	0.3624317
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.0751351	1.6103089	1.0937514	1.1818641	1.1818067

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0839025	0.6801714	0.4503299	0.5097414	0.5087814
Loose Cra	2.2078250	1.7369675	1.3248260	1.1093201	1.1233399
Loose End	1.8083447	1.2724543	1.0652381	0.5152191	0.6959943
Loose (TOL) Bar	1.0894709	0.6876518	0.4652307	0.5063847	0.5052889
Loose (TOL) Cra	2.2078250	1.7369675	1.3248260	1.1093201	1.1233399
Loose (TOL) End	1.5814560	1.3256323	1.0848780	0.5618295	0.7618012
Loose (MOL) Bar	1.3467329	1.0814613	0.7441049	0.7847717	0.7769053
Loose (MOL) Cra	7.5144509	10.9718070	7.9718341	7.5145095	7.5385948
Loose (MOL) End	2.5865875	2.5543576	2.3270209	0.7718027	1.0534311
Medium Bar	1.1696046	0.3240706	0.2706620	0.1454133	0.1782243
Medium Cra	2.4045803	3.5420868	2.5120324	2.4897749	2.4972130
Medium End	1.0443009	1.1513965	0.7837281	0.8434954	0.7303305
Medium (TOL) Bar	1.1736493	0.3252111	0.2715131	0.1461387	0.1790057
Medium (TOL) Cra	2.4045803	3.5420868	2.5120324	2.4897749	2.4972130
Medium (TOL) End	0.8931548	1.1797098	0.7724991	0.8916056	0.7844506
Medium (MOL) Bar	1.3162868	0.4229937	0.3709936	0.2031935	0.1877755
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.3053953	2.0348745	1.4181162	1.4593358	1.2464004
Tight Bar	0.9101515	0.6394278	0.5849998	0.2545050	0.2581538
Tight Cra	2.6526603	3.9856109	2.9662478	2.6535497	2.6620422
Tight End	2.9583882	2.0293388	1.3738560	1.4935648	1.2211288
Tight (TOL) Bar	0.9116860	0.6402961	0.5859572	0.2544672	0.2581343
Tight (TOL) Cra	2.6526603	3.9856109	2.9662478	2.6535497	2.6620422
Tight (TOL) End	2.3747094	2.0689004	1.2291103	1.6642227	1.4493003
Tight (MOL) Bar	0.7568001	0.8375972	0.7089221	0.4460928	0.4366079
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	3.7139152	3.0144848	2.2562864	1.9990725	1.1819481

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.2440901	0.9061202	0.7126964	0.5533427	0.5595693
Loose Cra	1.6486247	1.2516399	0.9843911	0.7616578	0.7730309
Loose End	0.9971516	2.0910682	1.7879130	1.0844047	1.0823120
Loose (TOL) Bar	1.2569262	0.9004031	0.7199782	0.5340934	0.5407007
Loose (TOL) Cra	1.6486247	1.2516399	0.9843911	0.7616578	0.7730309
Loose (TOL) End	0.9251232	2.2042038	1.8659094	1.1734124	1.1718975
Loose (MOL) Bar	1.5335827	1.3233756	1.0608124	0.7823061	0.7912018
Loose (MOL) Cra	1.9421033	2.6490054	2.0288880	1.6960615	1.7031862
Loose (MOL) End	1.0894914	4.8791466	4.0847531	2.6684947	2.6383714
Medium Bar	1.3996828	0.5777142	0.4842564	0.2533194	0.3150391
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.0000000	2.2746263	0.0000000	2.2746264	2.2746264
Medium (TOL) Bar	1.4132895	0.5839149	0.4891121	0.2567653	0.3189453
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.0000000	2.1669521	0.0000000	2.1669522	2.1669522
Medium (MOL) Bar	1.5773589	0.8291390	0.6822932	0.4082825	0.4711131
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0000000	6.7472338	0.0000000	6.7472339	6.7472339
Tight Bar	1.4424324	0.4468905	0.3014616	0.1303706	0.3298973
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	2.6072168	1.7201594	1.3389436	1.0798975	0.5996184
Tight (TOL) Bar	1.4630645	0.4554379	0.3057625	0.1393853	0.3375397
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	2.0092175	1.5491141	1.1869626	0.9954268	0.4796915
Tight (MOL) Bar	1.6263028	0.5486441	0.3900750	0.1076235	0.3858133
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	5.7131272	10.2658419	4.1724342	9.3796750	8.7004748