

Table 1: Scale Factors for Cut-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0085470	0.0120457	0.0047046	0.0110335	0.0110918
Loose Cra	0.9897415	0.0196596	0.0178261	0.0051213	0.0082958
Loose End	0.9971569	0.0081914	0.0053091	0.0059938	0.0062498
Loose (TOL) Bar	0.9463278	0.1636102	0.0153597	0.1625938	0.1628878
Loose (TOL) Cra	0.7585545	0.0715024	0.0370165	0.0611758	0.0540485
Loose (TOL) End	0.9497566	0.0943938	0.0215448	0.0880599	0.0919028
Loose (MOL) Bar	1.5293825	0.0540092	0.0405331	0.0261754	0.0356958
Loose (MOL) Cra	1.3581492	0.1150213	0.1042699	0.0201549	0.0485569
Loose (MOL) End	1.3556772	0.1510698	0.0382307	0.0971823	0.1461527
Medium Bar	1.0079098	0.0138202	0.0059581	0.0123985	0.0124776
Medium Cra	0.9679879	0.0247588	0.0230381	0.0090747	0.0042659
Medium End	0.9963573	0.0115065	0.0072708	0.0089274	0.0080957
Medium (TOL) Bar	0.9241470	0.1710152	0.0178958	0.1698139	0.1700767
Medium (TOL) Cra	0.7106956	0.0784933	0.0371029	0.0691711	0.0580533
Medium (TOL) End	0.9497825	0.1075174	0.0188098	0.1042739	0.1058595
Medium (MOL) Bar	1.5202158	0.0645948	0.0475347	0.0338575	0.0437389
Medium (MOL) Cra	1.3329568	0.1154140	0.1130726	0.0231322	0.0211129
Medium (MOL) End	1.4149599	0.1613362	0.0437260	0.1087176	0.1552983
Tight Bar	0.9724261	0.0151822	0.0085352	0.0125607	0.0124678
Tight Cra	0.9400499	0.0390115	0.0337982	0.0093375	0.0194846
Tight End	0.9648686	0.0190840	0.0102904	0.0160764	0.0102181
Tight (TOL) Bar	0.8734178	0.1844567	0.0367485	0.1804610	0.1807595
Tight (TOL) Cra	0.5912498	0.1000849	0.0449825	0.0879580	0.0894073
Tight (TOL) End	0.8981431	0.1372643	0.0716600	0.1170747	0.1084573
Tight (MOL) Bar	1.5003983	0.0913914	0.0779331	0.0320802	0.0477382
Tight (MOL) Cra	1.1045589	0.1869796	0.1488494	0.0712401	0.1131608
Tight (MOL) End	1.3299428	0.1656441	0.0485368	0.1296848	0.1583738

Table 2: Scale Factors for LLH-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9962272	0.0101439	0.0040703	0.0092989	0.0092821
Loose Cra	1.0001807	0.0198846	0.0186855	0.0039944	0.0068084
Loose End	0.9917119	0.0088204	0.0058324	0.0061161	0.0066245
Loose (TOL) Bar	0.9422294	0.1572094	0.0182330	0.1559150	0.1561489
Loose (TOL) Cra	0.7737415	0.0666273	0.0363387	0.0558455	0.0521207
Loose (TOL) End	0.9429039	0.0956822	0.0287952	0.0872112	0.0912472
Loose (MOL) Bar	1.5085366	0.0539703	0.0438977	0.0228448	0.0313987
Loose (MOL) Cra	1.3494452	0.1139482	0.1016526	0.0310195	0.0514886
Loose (MOL) End	1.3400067	0.1527805	0.0379417	0.0973086	0.1479947
Medium Bar	0.9871678	0.0128101	0.0053011	0.0116637	0.0115961
Medium Cra	0.9884860	0.0251912	0.0248154	0.0042444	0.0043371
Medium End	0.9813617	0.0094762	0.0069481	0.0064535	0.0064400
Medium (TOL) Bar	0.9223062	0.1677891	0.0432876	0.1617054	0.1621095
Medium (TOL) Cra	0.7311839	0.0612535	0.0404955	0.0459591	0.0427707
Medium (TOL) End	0.9234436	0.1040850	0.0435952	0.0936134	0.0945160
Medium (MOL) Bar	1.4908232	0.0688425	0.0486475	0.0431453	0.0487114
Medium (MOL) Cra	1.3605914	0.1306150	0.1135934	0.0434063	0.0644747
Medium (MOL) End	1.3263739	0.1539996	0.0393234	0.0958190	0.1488947
Tight Bar	0.9757384	0.0294533	0.0271968	0.0113123	0.0106926
Tight Cra	1.0140897	0.0362077	0.0301749	0.0032587	0.0200136
Tight End	0.9704279	0.0136051	0.0082993	0.0103229	0.0107852
Tight (TOL) Bar	0.8952649	0.3416703	0.0958829	0.1733480	0.3279407
Tight (TOL) Cra	0.7653402	0.0552874	0.0459380	0.0294009	0.0307655
Tight (TOL) End	0.2905498	1.1279935	0.5318326	0.9947480	0.8920074
Tight (MOL) Bar	1.4859071	0.0742206	0.0572435	0.0350543	0.0472440
Tight (MOL) Cra	1.4421090	0.1566476	0.1371454	0.0183581	0.0756951
Tight (MOL) End	1.2922137	0.1630763	0.0409633	0.1001565	0.1578481

Table 3: Scale Factors for BDT-Based τ ID

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0012812	0.0125419	0.0058549	0.0108034	0.0110975
Loose Cra	0.9910852	0.0234712	0.0196412	0.0121719	0.0128538
Loose End	1.0071916	0.0096643	0.0076092	0.0059390	0.0059736
Loose (TOL) Bar	0.9450049	0.1533456	0.0238108	0.1510451	0.1514860
Loose (TOL) Cra	0.7526979	0.0791441	0.0368753	0.0700295	0.0627051
Loose (TOL) End	0.9444442	0.1025563	0.0463094	0.0915061	0.0894786
Loose (MOL) Bar	1.5011032	0.0636121	0.0501622	0.0268532	0.0391202
Loose (MOL) Cra	1.3553366	0.1111867	0.1065633	0.0191278	0.0317303
Loose (MOL) End	1.3493550	0.1543700	0.0401328	0.1064596	0.1490622
Medium Bar	1.0495551	0.0167272	0.0105811	0.0124961	0.0129602
Medium Cra	1.0096628	0.0481404	0.0472595	0.0091709	0.0040873
Medium End	1.0876348	0.0213892	0.0148595	0.0153883	0.0056976
Medium (TOL) Bar	1.0009883	0.1422325	0.0388778	0.1361832	0.1368164
Medium (TOL) Cra	0.7760627	0.1313152	0.1159418	0.0616544	0.0540680
Medium (TOL) End	0.8976490	0.4435795	0.3254570	0.3013978	0.2305666
Medium (MOL) Bar	1.5895166	0.0852742	0.0523687	0.0535648	0.0673007
Medium (MOL) Cra	1.4813738	0.1478292	0.1262071	0.0598173	0.0769763
Medium (MOL) End	1.4863239	0.1749788	0.0523463	0.1504181	0.1669658
Tight Bar	1.1265625	0.0233623	0.0134686	0.0176975	0.0190915
Tight Cra	1.0793909	0.0384564	0.0374148	0.0078667	0.0088950
Tight End	1.1932332	0.4370339	0.0209485	0.3292424	0.4365317
Tight (TOL) Bar	1.0696233	0.1605375	0.0591394	0.1482389	0.1492481
Tight (TOL) Cra	0.8004933	0.0795487	0.0526519	0.0596313	0.0579074
Tight (TOL) End	1.1843976	1.3525084	0.0354628	1.1881682	1.3520435
Tight (MOL) Bar	1.7067675	0.1012422	0.0643551	0.0666700	0.0781574
Tight (MOL) Cra	1.5041654	0.1660993	0.1570624	0.0131647	0.0540423
Tight (MOL) End	1.7118296	0.1935753	0.0763405	0.1710875	0.1778865

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.6187154	0.0939553	0.0227344	0.0910880	0.0911639
Loose Cra	0.2843022	0.0832304	0.0803035	0.0218806	0.0218121
Loose End	1.0363933	0.0301330	0.0146188	0.0185608	0.0263505
Loose (TOL) Bar	0.5810580	0.1043925	0.0251615	0.1010629	0.1013152
Loose (TOL) Cra	0.2401317	0.0893834	0.0833674	0.0322395	0.0320876
Loose (TOL) End	1.0273799	0.1483216	0.0430166	0.1222119	0.1419471
Loose (MOL) Bar	0.9857586	0.1176163	0.1041799	0.0440453	0.0545914
Loose (MOL) Cra	0.6345832	0.2210393	0.2149862	0.0079446	0.0513755
Loose (MOL) End	1.6118608	0.1952990	0.0602977	0.0528139	0.1857577
Medium Bar	0.6204524	0.0984601	0.0237105	0.0955156	0.0955634
Medium Cra	0.2872785	0.1048856	0.1039179	0.0141798	0.0142192
Medium End	1.0363557	0.0300815	0.0151576	0.0196447	0.0259855
Medium (TOL) Bar	0.5792517	0.1076415	0.0256586	0.1042781	0.1045392
Medium (TOL) Cra	0.2475796	0.1112739	0.1091534	0.0216064	0.0216234
Medium (TOL) End	1.0355365	0.1553405	0.0438575	0.1284081	0.1490214
Medium (MOL) Bar	0.9785876	0.1055755	0.0976867	0.0242657	0.0400455
Medium (MOL) Cra	0.7053414	0.2727491	0.2395756	0.1175197	0.1303676
Medium (MOL) End	1.6332050	0.1999494	0.0630093	0.0476176	0.1897624
Tight Bar	0.5932532	0.1018140	0.0291604	0.0975491	0.0971649
Tight Cra	0.2466348	0.0505717	0.0490105	0.0122660	0.0124732
Tight End	1.0065617	0.0343001	0.0153582	0.0198472	0.0306719
Tight (TOL) Bar	0.5533831	0.1012467	0.0309387	0.0964042	0.0963386
Tight (TOL) Cra	0.2373094	0.0536180	0.0512032	0.0159151	0.0158910
Tight (TOL) End	0.9762989	0.1503642	0.0324702	0.1371539	0.1468167
Tight (MOL) Bar	0.9831081	0.1173592	0.1115685	0.0247616	0.0364108
Tight (MOL) Cra	0.8865371	0.4538703	0.4057128	0.1907099	0.2034590
Tight (MOL) End	1.5354658	0.1951840	0.0679913	0.0864091	0.1829592

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.6087200	0.0862936	0.0218620	0.0834788	0.0833561
Loose Cra	0.2725447	0.1829912	0.1738726	0.0563417	0.0570461
Loose End	1.0313874	0.0294074	0.0142157	0.0186992	0.0257454
Loose (TOL) Bar	0.5777420	0.0993116	0.0238455	0.0963604	0.0964069
Loose (TOL) Cra	0.2231749	0.1939430	0.1795674	0.0725790	0.0732769
Loose (TOL) End	1.0221988	0.1452494	0.0409496	0.1201117	0.1393580
Loose (MOL) Bar	0.9574776	0.0868360	0.0804696	0.0283201	0.0326386
Loose (MOL) Cra	0.7568805	0.2524549	0.2433610	0.0289510	0.0671498
Loose (MOL) End	1.5952146	0.1882633	0.0601398	0.0519423	0.1783997
Medium Bar	0.6019354	0.0864494	0.0174509	0.0846702	0.0845841
Medium Cra	0.3015091	0.0460944	0.0430650	0.0162779	0.0164407
Medium End	1.0213627	0.0286635	0.0137615	0.0183390	0.0251471
Medium (TOL) Bar	0.5688538	0.0979770	0.0183156	0.0961881	0.0962505
Medium (TOL) Cra	0.2467338	0.0495307	0.0411856	0.0274856	0.0275157
Medium (TOL) End	1.0143955	0.1440277	0.0299529	0.1194263	0.1408793
Medium (MOL) Bar	0.9390546	0.0686571	0.0598046	0.0294294	0.0337252
Medium (MOL) Cra	0.8249037	0.2881615	0.2802899	0.0108981	0.0668937
Medium (MOL) End	1.5841499	0.1985985	0.0617030	0.0538709	0.1887703
Tight Bar	0.5950613	0.0891291	0.0304482	0.0837677	0.0835357
Tight Cra	0.3461764	0.0626091	0.0526287	0.0196253	0.0339160
Tight End	1.0156725	0.0328648	0.0144750	0.0211602	0.0295064
Tight (TOL) Bar	0.5564325	0.0924570	0.0283821	0.0879936	0.0878889
Tight (TOL) Cra	0.3025102	0.0581575	0.0519695	0.0098694	0.0261073
Tight (TOL) End	1.0028398	0.0914953	0.0310441	0.0371766	0.0860681
Tight (MOL) Bar	0.8993616	0.1141774	0.1121887	0.0212202	0.0198741
Tight (MOL) Cra	0.9182565	0.4076971	0.3323719	0.1538832	0.2361060
Tight (MOL) End	1.5716328	0.2140553	0.0644794	0.0700849	0.2041133

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.6026199	0.0879380	0.0273714	0.0833109	0.0835707
Loose Cra	0.2877725	0.1273228	0.1214343	0.0382745	0.0379393
Loose End	1.0605290	0.0356426	0.0160645	0.0226871	0.0318198
Loose (TOL) Bar	0.5710392	0.0999629	0.0298683	0.0950080	0.0953968
Loose (TOL) Cra	0.2391167	0.1356189	0.1250332	0.0525290	0.0519869
Loose (TOL) End	1.0499211	0.1489345	0.0548833	0.1169494	0.1384537
Loose (MOL) Bar	0.9344648	0.1028090	0.0944941	0.0304144	0.0405048
Loose (MOL) Cra	0.8192122	0.2663906	0.2515750	0.0581030	0.0876020
Loose (MOL) End	1.6261193	0.1910274	0.0636698	0.0561242	0.1801049
Medium Bar	0.6286345	0.0807458	0.0296674	0.0750371	0.0750987
Medium Cra	0.3567561	0.1032530	0.0499726	0.0613990	0.0903549
Medium End	1.1503970	0.0321076	0.0208728	0.0167424	0.0243997
Medium (TOL) Bar	0.5954438	0.0942342	0.0316624	0.0882810	0.0887562
Medium (TOL) Cra	0.2941769	0.1094257	0.0478344	0.0603939	0.0984170
Medium (TOL) End	0.9167163	1.1098776	1.0302478	0.4128172	0.3079938
Medium (MOL) Bar	0.9609970	0.1110797	0.0965692	0.0472879	0.0548918
Medium (MOL) Cra	0.9175210	0.4075515	0.3115303	0.2523111	0.2627685
Medium (MOL) End	1.7140417	0.2167835	0.0794695	0.1185797	0.2016921
Tight Bar	0.6810219	0.0866746	0.0292619	0.0809656	0.0815862
Tight Cra	0.3747082	0.0820841	0.0643896	0.0435047	0.0509103
Tight End	1.2495452	0.1184428	0.0295473	0.1144787	0.1146986
Tight (TOL) Bar	0.6403041	0.1096982	0.0322459	0.1039448	0.1048524
Tight (TOL) Cra	0.2843028	0.0745077	0.0587377	0.0339721	0.0458410
Tight (TOL) End	1.2467423	1.4315516	0.0562189	1.2524162	1.4304474
Tight (MOL) Bar	1.0631241	0.1111957	0.0914787	0.0382696	0.0632161
Tight (MOL) Cra	0.6286464	0.3249022	0.3181864	0.0082523	0.0657195
Tight (MOL) End	1.8988519	0.2176400	0.1099621	0.1429987	0.1878181

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8391925	0.0997887	0.0821803	0.0498070	0.0566057
Loose Cra	0.4060614	0.1778892	0.1744344	0.0348909	0.0345205
Loose End	1.2510631	0.0821078	0.0571132	0.0589902	0.0498803
Loose (TOL) Bar	0.8299116	0.1313065	0.0987157	0.0814848	0.0865840
Loose (TOL) Cra	0.3679137	0.2012279	0.1967473	0.0422280	0.0422258
Loose (TOL) End	1.0835913	0.1664052	0.1310432	0.1025595	0.0946936
Loose (MOL) Bar	0.9317557	0.1770581	0.1535769	0.0754670	0.0881129
Loose (MOL) Cra	0.9161699	0.4091445	0.3536517	0.1557265	0.2057422
Loose (MOL) End	1.2565723	0.3404925	0.2529769	0.2076660	0.2278990
Medium Bar	0.8472893	0.0917872	0.0776038	0.0404165	0.0490167
Medium Cra	0.4049075	0.2158151	0.2133031	0.0328333	0.0315878
Medium End	1.2969914	0.0851304	0.0614657	0.0589000	0.0505560
Medium (TOL) Bar	0.8256843	0.1167411	0.0897340	0.0688573	0.0746757
Medium (TOL) Cra	0.3752628	0.2408352	0.2379416	0.0372210	0.0370966
Medium (TOL) End	1.1537502	0.1539292	0.1334263	0.0767579	0.0701803
Medium (MOL) Bar	0.9090691	0.1467119	0.1351294	0.0362270	0.0571362
Medium (MOL) Cra	1.0661908	0.5191527	0.4139994	0.2715688	0.3132477
Medium (MOL) End	1.3433031	0.3234405	0.2463821	0.1925302	0.2095466
Tight Bar	0.8038823	0.1000074	0.0815061	0.0563171	0.0579513
Tight Cra	0.3837102	0.1011597	0.1004614	0.0094822	0.0118734
Tight End	1.2466288	0.1132510	0.0691136	0.0897178	0.0444532
Tight (TOL) Bar	0.8059835	0.1281967	0.0942944	0.0843961	0.0868507
Tight (TOL) Cra	0.4264663	0.1164727	0.1156716	0.0122133	0.0136405
Tight (TOL) End	1.0287201	0.3476137	0.2876292	0.1952046	0.0705936
Tight (MOL) Bar	0.8758116	0.1476533	0.1394466	0.0264602	0.0485413
Tight (MOL) Cra	1.5690668	0.9778320	0.8173238	0.5115190	0.5367845
Tight (MOL) End	1.0353604	0.6760193	0.5044866	0.4499949	0.2816736

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8003523	0.0733375	0.0610904	0.0376143	0.0405761
Loose Cra	0.4023773	0.2579073	0.2459683	0.0775136	0.0775619
Loose End	1.2327829	0.0846126	0.0570873	0.0624534	0.0505392
Loose (TOL) Bar	0.8058288	0.1015312	0.0718214	0.0703006	0.0717660
Loose (TOL) Cra	0.3735318	0.2832096	0.2656341	0.0974394	0.0982160
Loose (TOL) End	1.0654800	0.1585834	0.1241188	0.0987085	0.0834407
Loose (MOL) Bar	0.8865574	0.1210532	0.1042222	0.0569921	0.0615771
Loose (MOL) Cra	1.0828122	0.5123894	0.4178229	0.2567051	0.2965924
Loose (MOL) End	1.1962005	0.2988230	0.2212285	0.1733601	0.2008813
Medium Bar	0.7911011	0.0649530	0.0452204	0.0429122	0.0466276
Medium Cra	0.4061783	0.0876749	0.0825495	0.0295385	0.0268096
Medium End	1.2425790	0.0923915	0.0598770	0.0703638	0.0508268
Medium (TOL) Bar	0.7954359	0.0906857	0.0525123	0.0719218	0.0739355
Medium (TOL) Cra	0.3636948	0.0906090	0.0845809	0.0324985	0.0319073
Medium (TOL) End	1.0783673	0.1290499	0.0916061	0.0908976	0.0758772
Medium (MOL) Bar	0.8733012	0.0795556	0.0718032	0.0213711	0.0342574
Medium (MOL) Cra	1.2053065	0.5644209	0.5044066	0.1090563	0.2532687
Medium (MOL) End	1.2406520	0.2630963	0.1682451	0.2022704	0.1920616
Tight Bar	0.7706823	0.0873023	0.0753119	0.0405261	0.0441578
Tight Cra	0.4793758	0.1335140	0.1040237	0.0744051	0.0836967
Tight End	1.2469089	0.1052140	0.0640965	0.0834370	0.0616876
Tight (TOL) Bar	0.7516077	0.1150695	0.0909259	0.0683114	0.0705233
Tight (TOL) Cra	0.4738113	0.1438857	0.1135109	0.0798961	0.0884221
Tight (TOL) End	0.5675330	1.2382842	0.8102622	0.9363883	0.7220692
Tight (MOL) Bar	0.8312182	0.1280706	0.1251993	0.0120578	0.0269695
Tight (MOL) Cra	1.4839185	0.8148857	0.6854139	0.4244432	0.4407342
Tight (MOL) End	0.5355996	1.5089744	0.9675137	1.1579815	0.9663530

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8073317	0.0889601	0.0764034	0.0393570	0.0455693
Loose Cra	0.4032565	0.1997663	0.1897063	0.0625962	0.0587259
Loose End	1.2731520	0.0838945	0.0604419	0.0581823	0.0501887
Loose (TOL) Bar	0.8216034	0.1197973	0.0906227	0.0742930	0.0783521
Loose (TOL) Cra	0.3759398	0.2197509	0.2058364	0.0769542	0.0746620
Loose (TOL) End	1.1117314	0.1932358	0.1602376	0.1080008	0.1008684
Loose (MOL) Bar	0.9042550	0.1411669	0.1237077	0.0561269	0.0680049
Loose (MOL) Cra	1.1882196	0.4644341	0.4301206	0.1311507	0.1752013
Loose (MOL) End	1.2387181	0.3891235	0.2938231	0.2443095	0.2551180
Medium Bar	0.8306825	0.0910087	0.0698409	0.0526449	0.0583520
Medium Cra	0.4823782	0.1795502	0.0943916	0.1344291	0.1527371
Medium End	1.3287809	0.1173988	0.0732939	0.0917095	0.0762888
Medium (TOL) Bar	0.8512033	0.1189243	0.0835420	0.0781424	0.0846398
Medium (TOL) Cra	0.4334204	0.2068627	0.0959627	0.1527768	0.1832579
Medium (TOL) End	1.0723065	0.2895125	0.2137250	0.1952927	0.1262169
Medium (MOL) Bar	0.9380586	0.1387335	0.1184644	0.0565280	0.0722030
Medium (MOL) Cra	1.3294780	0.7864362	0.5557286	0.5564601	0.5478748
Medium (MOL) End	1.2529800	0.5013842	0.3335048	0.3743806	0.2711808
Tight Bar	0.9519728	0.1032288	0.0679743	0.0622458	0.0776898
Tight Cra	0.4627771	0.1415623	0.1172698	0.0792954	0.0679507
Tight End	1.2216306	0.9721965	0.0920565	0.9678284	0.9603821
Tight (TOL) Bar	0.9354251	0.1196887	0.0767721	0.0665277	0.0918234
Tight (TOL) Cra	0.3666242	0.1360246	0.1117118	0.0691334	0.0776099
Tight (TOL) End	1.0535863	1.0665750	0.1035329	1.0615382	1.0543602
Tight (MOL) Bar	1.0119224	0.1339716	0.1040394	0.0182734	0.0844056
Tight (MOL) Cra	0.3722775	0.5487050	0.3746678	0.3462843	0.4008757
Tight (MOL) End	1.2278029	1.2710088	0.1651185	1.2602379	1.2329187

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9242066	0.2481979	0.2144154	0.1039482	0.1250133
Loose Cra	0.4040603	0.5063536	0.4947277	0.0739652	0.1078824
Loose End	1.3884222	0.1379971	0.0791225	0.1130615	0.0873438
Loose (TOL) Bar	0.9355270	0.2854615	0.2413330	0.1291387	0.1524688
Loose (TOL) Cra	0.4207878	0.5275605	0.5153662	0.0776416	0.1127733
Loose (TOL) End	1.0239231	0.3546602	0.2357387	0.2649741	0.1923386
Loose (MOL) Bar	1.0552940	0.4739535	0.4166942	0.1939434	0.2258274
Loose (MOL) Cra	1.5915007	1.4090284	0.9458064	0.4165786	1.0444193
Loose (MOL) End	1.2312788	0.5757908	0.4070658	0.4072255	0.3214960
Medium Bar	0.8781698	0.2063467	0.1843280	0.0682092	0.0927481
Medium Cra	0.4406116	0.5553651	0.5476197	0.0620178	0.0924291
Medium End	1.4025967	0.1357969	0.0816308	0.1085234	0.0875145
Medium (TOL) Bar	0.8993994	0.2331645	0.2056020	0.0820960	0.1099710
Medium (TOL) Cra	0.4592710	0.5795785	0.5713764	0.0656551	0.0971620
Medium (TOL) End	1.1043857	0.2978209	0.2102603	0.2109219	0.1610063
Medium (MOL) Bar	0.9339877	0.3754103	0.3353156	0.1404897	0.1688088
Medium (MOL) Cra	1.6262171	1.4798481	0.9758744	0.5293989	1.1124836
Medium (MOL) End	1.3069008	0.4939207	0.3412266	0.3571026	0.2817595
Tight Bar	0.8867722	0.1590726	0.1486816	0.0080547	0.0565506
Tight Cra	0.4815697	0.2120745	0.1850383	0.0759550	0.1036171
Tight End	1.3665143	0.1361153	0.0911927	0.1010512	0.0669228
Tight (TOL) Bar	0.9022030	0.1753342	0.1599166	0.0305077	0.0718949
Tight (TOL) Cra	0.4994066	0.2206096	0.1919414	0.0805284	0.1087529
Tight (TOL) End	1.0840667	0.2201649	0.1121574	0.1894556	0.0961476
Tight (MOL) Bar	0.8574393	0.2390545	0.2170412	0.0646612	0.1002017
Tight (MOL) Cra	1.0852133	1.6201222	1.1441497	0.3715235	1.1470474
Tight (MOL) End	1.0902910	0.8706236	0.6912805	0.5292608	0.2145427

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.8332349	0.1535643	0.1323671	0.0681034	0.0778526
Loose Cra	0.3109180	0.5801353	0.5294482	0.2329822	0.2371534
Loose End	1.3626626	0.1446965	0.0788216	0.1213440	0.0925433
Loose (TOL) Bar	0.8573652	0.1786107	0.1478570	0.0890147	0.1002009
Loose (TOL) Cra	0.3239545	0.6045812	0.5516611	0.2430320	0.2473634
Loose (TOL) End	1.0241667	0.3293586	0.1981283	0.2631015	0.1606858
Loose (MOL) Bar	0.9450289	0.2905496	0.2364447	0.1585922	0.1688583
Loose (MOL) Cra	1.3183316	1.7171439	0.9501037	0.7475260	1.4303448
Loose (MOL) End	1.2144888	0.4497813	0.3086356	0.3271810	0.2432703
Medium Bar	0.8602520	0.1023728	0.0840450	0.0382295	0.0584532
Medium Cra	0.4279721	0.1607158	0.1532133	0.0253639	0.0485317
Medium End	1.3613357	0.1456890	0.0820287	0.1204019	0.0838952
Medium (TOL) Bar	0.8829131	0.1224577	0.0914374	0.0619774	0.0814568
Medium (TOL) Cra	0.4445630	0.1668682	0.1592069	0.0255094	0.0499825
Medium (TOL) End	1.0081065	0.2622624	0.1417223	0.2206727	0.1542456
Medium (MOL) Bar	0.9567741	0.1519973	0.1313390	0.0367493	0.0765073
Medium (MOL) Cra	1.3531032	1.6821519	0.9850171	0.5411801	1.3635896
Medium (MOL) End	1.2126037	0.4211475	0.2241932	0.3565148	0.2454849
Tight Bar	0.8442677	0.1365763	0.1271496	0.0249463	0.0498616
Tight Cra	0.4840651	0.1961331	0.1856669	0.0499832	0.0632149
Tight End	1.3655766	0.1480526	0.0874714	0.1194506	0.0818481
Tight (TOL) Bar	0.8335230	0.1513383	0.1353737	0.0448897	0.0676564
Tight (TOL) Cra	0.4982890	0.2014671	0.1911508	0.0496325	0.0636435
Tight (TOL) End	0.9593738	1.0692091	0.4393341	0.1726143	0.9747789
Tight (MOL) Bar	0.8673583	0.2074863	0.1980845	0.0274967	0.0617518
Tight (MOL) Cra	0.7505088	1.0852420	0.7683566	0.1552897	0.7664062
Tight (MOL) End	0.8533117	1.1616994	0.7895596	0.8521393	0.5852429

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9308167	0.2091401	0.1866526	0.0772896	0.0943427
Loose Cra	0.3570828	0.4515009	0.4176815	0.1714506	0.1712996
Loose End	1.4006289	0.1365847	0.0828287	0.1086044	0.0909738
Loose (TOL) Bar	0.9346236	0.2397477	0.2067360	0.1025516	0.1214058
Loose (TOL) Cra	0.3721906	0.4699731	0.4346085	0.1788585	0.1787533
Loose (TOL) End	1.0024015	0.4281652	0.2683232	0.3336589	0.2653855
Loose (MOL) Bar	1.0591381	0.3678627	0.3175646	0.1591032	0.1856767
Loose (MOL) Cra	1.0023901	1.2465745	0.7226544	0.4147456	1.0157356
Loose (MOL) End	1.1746905	0.6258795	0.4184466	0.4654329	0.3679532
Medium Bar	0.9738537	0.1836619	0.1485580	0.0836303	0.1079923
Medium Cra	0.3932196	0.4621100	0.1501913	0.3283907	0.4370221
Medium End	1.4689333	0.1655128	0.0981191	0.1332937	0.0965752
Medium (TOL) Bar	1.0004317	0.2101694	0.1640111	0.1028773	0.1314217
Medium (TOL) Cra	0.4110131	0.4832207	0.1570577	0.3435510	0.4569850
Medium (TOL) End	0.9963622	0.4445793	0.2725532	0.3512345	0.1739397
Medium (MOL) Bar	1.1033095	0.3274312	0.2576192	0.1702355	0.2020981
Medium (MOL) Cra	0.9383836	1.6327694	0.9512081	1.2255467	1.3270792
Medium (MOL) End	1.1669657	0.6557979	0.4181320	0.5052095	0.2605330
Tight Bar	1.0102726	0.1782495	0.1259768	0.0672048	0.1261066
Tight Cra	0.4452957	0.3884654	0.2247685	0.0861715	0.3168354
Tight End	1.3705772	0.9590310	0.1226120	0.9511608	0.9297528
Tight (TOL) Bar	0.9909503	0.1932713	0.1338895	0.0601222	0.1393828
Tight (TOL) Cra	0.4613884	0.4025757	0.2329340	0.0894946	0.3283429
Tight (TOL) End	1.0316494	1.0714647	0.1360402	1.0627934	1.0328323
Tight (MOL) Bar	1.0103604	0.2516352	0.1851597	0.0814033	0.1704002
Tight (MOL) Cra	2.4126333	3.4670758	2.4728598	2.0475466	2.4301398
Tight (MOL) End	1.1935706	1.2900094	0.2010264	1.2742499	1.1959103

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9557382	0.1798404	0.1103524	0.1349062	0.1420037
Loose Cra	0.7060732	0.3726482	0.3622111	0.0746305	0.0875781
Loose End	1.4748425	0.1459188	0.1300488	0.0532336	0.0661799
Loose (TOL) Bar	0.9445264	0.1886069	0.1144029	0.1432495	0.1499488
Loose (TOL) Cra	0.6800300	0.3701568	0.3600499	0.0691514	0.0859083
Loose (TOL) End	1.4060277	0.2109367	0.1788810	0.1011574	0.1117854
Loose (MOL) Bar	1.3217666	0.2939969	0.2481289	0.1241563	0.1576906
Loose (MOL) Cra	2.1296699	2.7830401	2.7140033	0.5588868	0.6160344
Loose (MOL) End	1.8051949	0.4603916	0.3774203	0.2242036	0.2636562
Medium Bar	0.8876819	0.1820634	0.1147861	0.1286942	0.1413200
Medium Cra	0.5879846	0.1680842	0.1411582	0.0781882	0.0912513
Medium End	1.4914950	0.1070186	0.0831172	0.0375851	0.0674143
Medium (TOL) Bar	0.8546138	0.1854869	0.1166705	0.1323152	0.1441992
Medium (TOL) Cra	0.5559300	0.1622624	0.1372037	0.0721875	0.0866279
Medium (TOL) End	1.4291634	0.2398299	0.2092453	0.0705551	0.1171961
Medium (MOL) Bar	1.1679025	0.2948823	0.2579135	0.0346612	0.1429558
Medium (MOL) Cra	1.4165573	1.0561090	0.7321301	0.7468277	0.7611518
Medium (MOL) End	2.0501347	0.5293640	0.4450772	0.0928004	0.2865880
Tight Bar	0.8627776	0.1961869	0.1130348	0.1473459	0.1603512
Tight Cra	0.4398919	0.2153485	0.1578741	0.0951628	0.1464612
Tight End	1.3724191	0.3648768	0.3486294	0.1076695	0.0565969
Tight (TOL) Bar	0.8381025	0.1989205	0.1135819	0.1529427	0.1633054
Tight (TOL) Cra	0.3849024	0.2104036	0.1474148	0.0874145	0.1501289
Tight (TOL) End	1.3234133	0.5187076	0.4825133	0.1903644	0.0771943
Tight (MOL) Bar	1.1372897	0.2736124	0.2269568	0.0475639	0.1528221
Tight (MOL) Cra	1.3979771	2.4466694	1.4413481	1.3979866	1.9770450
Tight (MOL) End	1.9162868	1.3406844	1.2969843	0.3395094	0.1421065

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9190251	0.1490392	0.0846492	0.1187301	0.1226676
Loose Cra	0.7242448	0.1715578	0.1480271	0.0743201	0.0867188
Loose End	1.4020959	0.1594800	0.1440435	0.0604118	0.0684500
Loose (TOL) Bar	0.9119838	0.1556932	0.0884933	0.1243993	0.1280992
Loose (TOL) Cra	0.6952698	0.1700208	0.1449207	0.0692600	0.0889108
Loose (TOL) End	1.3392079	0.2163755	0.1850569	0.1048492	0.1121270
Loose (MOL) Bar	1.2620235	0.2288698	0.1805747	0.1166947	0.1406209
Loose (MOL) Cra	1.8054952	0.6907975	0.6237590	0.2711858	0.2968605
Loose (MOL) End	1.6583012	0.4236440	0.3283173	0.2548732	0.2677352
Medium Bar	0.8840698	0.1213190	0.0580882	0.1026248	0.1065088
Medium Cra	0.5877615	0.1863523	0.1657796	0.0707687	0.0851141
Medium End	1.4360454	0.1868114	0.1535131	0.1005846	0.1064534
Medium (TOL) Bar	0.8786765	0.1289957	0.0591582	0.1114726	0.1146313
Medium (TOL) Cra	0.5877615	0.1863566	0.1657842	0.0707687	0.0851141
Medium (TOL) End	1.3516190	0.2319163	0.1755133	0.1515644	0.1515926
Medium (MOL) Bar	1.1722159	0.1239326	0.1110152	0.0259869	0.0550912
Medium (MOL) Cra	1.6886571	0.9592270	0.7819345	0.3340305	0.5556034
Medium (MOL) End	1.6491477	0.4692990	0.3260334	0.3375559	0.3171811
Tight Bar	0.8485502	0.1415284	0.0839569	0.1093070	0.1139369
Tight Cra	0.6357176	0.2426625	0.2155912	0.0990890	0.1113808
Tight End	1.4497284	0.9099382	0.8170074	0.4006078	0.3271949
Tight (TOL) Bar	0.8278805	0.1438714	0.0846948	0.1126645	0.1163008
Tight (TOL) Cra	0.6357176	0.2426720	0.2156018	0.0990890	0.1113808
Tight (TOL) End	1.3953291	1.2069202	1.1029644	0.4900267	0.3449066
Tight (MOL) Bar	1.1314483	0.1893037	0.1756133	0.0488455	0.0706821
Tight (MOL) Cra	0.6708250	0.7129261	0.6797703	0.2080768	0.2148864
Tight (MOL) End	2.1330510	0.5654803	0.2779851	0.4924351	0.3507589

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9654091	0.1619907	0.1049369	0.1129803	0.1234071
Loose Cra	0.5856300	0.1428499	0.1371687	0.0363902	0.0398872
Loose End	1.5490680	0.2940358	0.2692748	0.1058628	0.1181028
Loose (TOL) Bar	0.9536137	0.1686783	0.1078471	0.1196729	0.1296979
Loose (TOL) Cra	0.5547214	0.1387652	0.1337340	0.0370293	0.0341217
Loose (TOL) End	1.4619267	0.3899520	0.3406577	0.1897763	0.1640397
Loose (MOL) Bar	1.3496438	0.2453267	0.2044843	0.0756602	0.1355413
Loose (MOL) Cra	1.1168279	0.5636383	0.5198959	0.2177075	0.1769894
Loose (MOL) End	1.8169688	0.7249885	0.5892421	0.4223769	0.3715087
Medium Bar	0.9735533	0.1587979	0.0980619	0.1109266	0.1249030
Medium Cra	0.5951994	0.2894586	0.1675761	0.2186678	0.2360184
Medium End	1.4248570	0.4472024	0.3715722	0.2488459	0.2217694
Medium (TOL) Bar	0.9412372	0.1661923	0.0989118	0.1211984	0.1335530
Medium (TOL) Cra	0.5952935	0.2894990	0.1676172	0.2186868	0.2360386
Medium (TOL) End	1.4056076	0.5366943	0.4198529	0.3343119	0.2279776
Medium (MOL) Bar	1.3708886	0.2527387	0.1972317	0.0979401	0.1580401
Medium (MOL) Cra	1.7551092	2.0349944	0.9041989	1.7551191	1.8230817
Medium (MOL) End	1.6891081	1.1317759	0.8197769	0.7803094	0.4991088
Tight Bar	1.0479581	0.1641538	0.0913075	0.1137305	0.1364169
Tight Cra	0.3989840	0.2147431	0.1800327	0.0520741	0.1170594
Tight End	1.5078465	0.6361121	0.1458728	0.6116785	0.6191607
Tight (TOL) Bar	0.9601243	0.1604683	0.0890017	0.1124521	0.1335247
Tight (TOL) Cra	0.3989840	0.2147431	0.1800327	0.0520741	0.1170594
Tight (TOL) End	1.4636775	0.8191291	0.1840694	0.7850805	0.7981799
Tight (MOL) Bar	1.3420035	0.2203528	0.1641847	0.0255386	0.1469656
Tight (MOL) Cra	1.3159481	1.7403510	1.3404457	1.1099672	0.0983901
Tight (MOL) End	1.9971110	1.4070385	0.3035185	1.3468294	1.3739120

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0714898	0.4632665	0.3386909	0.3002746	0.3160766
Loose Cra	0.3362216	2.7903245	2.7487292	0.4799990	0.4206565
Loose End	1.7240179	0.6698365	0.6179536	0.2538480	0.2584849
Loose (TOL) Bar	1.0701121	0.4688772	0.3476789	0.2976636	0.3145876
Loose (TOL) Cra	0.3362216	2.7903245	2.7487292	0.4799990	0.4206565
Loose (TOL) End	1.4726674	0.7969553	0.7173521	0.3471942	0.3469502
Loose (MOL) Bar	1.5356219	0.7891185	0.6499304	0.3991816	0.4475474
Loose (MOL) Cra	0.4395094	13.4758990	13.3050079	2.1393037	1.7129508
Loose (MOL) End	1.6023623	1.5122001	1.3602650	0.6606274	0.6263707
Medium Bar	0.9650419	0.4090853	0.3109004	0.2376561	0.2658794
Medium Cra	0.7614089	0.8466335	0.5464885	0.6437607	0.6466365
Medium End	1.7693303	0.6925141	0.6633701	0.1987633	0.1987867
Medium (TOL) Bar	0.9517914	0.4149839	0.3174690	0.2371674	0.2672550
Medium (TOL) Cra	0.7614089	0.8466335	0.5464885	0.6437607	0.6466365
Medium (TOL) End	1.3175244	0.7974431	0.7299395	0.3210980	0.3144434
Medium (MOL) Bar	1.3317996	0.6944125	0.5950760	0.2619293	0.3579014
Medium (MOL) Cra	1.6251715	2.3428834	1.6825513	1.6251824	1.6303754
Medium (MOL) End	1.8670106	1.5690339	1.5235955	0.3748656	0.3416907
Tight Bar	0.8979973	0.3331675	0.2659866	0.1915277	0.2006287
Tight Cra	2.1890871	3.8233281	2.2367262	3.0958448	3.1007893
Tight End	2.0681865	0.4723901	0.3756600	0.2510664	0.2864125
Tight (TOL) Bar	0.8858121	0.3379795	0.2679690	0.1965560	0.2059683
Tight (TOL) Cra	2.1890871	3.8233281	2.2367262	3.0958448	3.1007893
Tight (TOL) End	1.1566702	1.6815912	1.6469313	0.3029764	0.3396564
Tight (MOL) Bar	1.2606572	0.5244926	0.4714507	0.1106336	0.2298409
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	2.1501313	0.9846821	0.6351205	0.6056099	0.7524766

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	0.9260341	0.3311599	0.2115011	0.2504898	0.2548219
Loose Cra	1.0142863	1.2273649	0.5966346	1.0695185	1.0725913
Loose End	1.9080064	0.5778105	0.5274273	0.2205395	0.2359779
Loose (TOL) Bar	0.9165612	0.3358377	0.2190086	0.2498802	0.2546024
Loose (TOL) Cra	1.0142863	1.2273649	0.5966346	1.0695185	1.0725913
Loose (TOL) End	1.6413995	0.6279137	0.5496365	0.2743871	0.3036042
Loose (MOL) Bar	1.2402223	0.5775274	0.4087773	0.3964498	0.4079695
Loose (MOL) Cra	1.4557849	2.0878686	1.4920805	1.4557930	1.4604422
Loose (MOL) End	1.6555588	1.1126836	0.9634150	0.5566834	0.5466022
Medium Bar	1.0252187	0.2090064	0.1403350	0.1426982	0.1548865
Medium Cra	0.9306018	1.3497113	0.9448437	0.9609660	0.9638419
Medium End	1.3727900	0.6473066	0.4492821	0.4659952	0.2831848
Medium (TOL) Bar	1.0032331	0.1988423	0.1408186	0.1259191	0.1403872
Medium (TOL) Cra	0.9306018	1.3497113	0.9448437	0.9609660	0.9638419
Medium (TOL) End	1.2416385	0.6264055	0.4153638	0.4688891	0.2683630
Medium (MOL) Bar	1.2949817	0.2493814	0.2274667	0.0436266	0.1022261
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.3221385	1.0983936	0.6555222	0.8813396	0.4752227
Tight Bar	0.9818903	0.3016705	0.2405252	0.1644594	0.1820792
Tight Cra	2.0818447	2.9952626	2.1464618	2.0824408	2.0890907
Tight End	2.3790421	1.4013680	1.2003466	0.7231877	0.4728907
Tight (TOL) Bar	0.9502463	0.3014237	0.2386613	0.1661464	0.1841118
Tight (TOL) Cra	2.0818447	2.9952626	2.1464618	2.0824408	2.0890907
Tight (TOL) End	1.9331061	1.5195713	1.2995053	0.7876441	0.5052802
Tight (MOL) Bar	1.1527955	0.4338046	0.3741424	0.1861665	0.2195541
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.8732090	2.3864234	1.8950726	1.4504195	0.7864796

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.1239800	0.3838533	0.2981680	0.2202274	0.2417424
Loose Cra	0.5158024	1.9988016	1.8904792	0.6490198	0.6490736
Loose End	1.6659736	0.9583796	0.8961173	0.3398021	0.3301728
Loose (TOL) Bar	1.1068766	0.3841106	0.3023036	0.2134115	0.2369677
Loose (TOL) Cra	0.5158024	1.9988016	1.8904792	0.6490198	0.6490736
Loose (TOL) End	1.3300920	0.9933535	0.8659058	0.4867838	0.4377407
Loose (MOL) Bar	1.4683416	0.6217398	0.5008030	0.3145886	0.3684521
Loose (MOL) Cra	0.0000000	0.8507521	0.0000000	0.8507522	0.8507522
Loose (MOL) End	1.2762759	1.9437419	1.5148667	1.2179129	1.0073520
Medium Bar	1.1491198	0.3031793	0.2402143	0.1361628	0.1849725
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.7757260	1.1021262	0.9920653	0.4800925	0.3482570
Medium (TOL) Bar	1.1180820	0.3035575	0.2404157	0.1338145	0.1853310
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.6727527	0.9282972	0.7711729	0.5167477	0.3029966
Medium (MOL) Bar	1.5146751	0.5068969	0.4093311	0.2042306	0.2989861
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.7544309	1.8361605	1.3216632	1.2746340	0.7886399
Tight Bar	1.2804253	0.2988807	0.1962285	0.1446636	0.2254421
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	1.8536239	0.7286814	0.4802173	0.5480584	0.1573520
Tight (TOL) Bar	1.2252612	0.2964655	0.1943161	0.1355890	0.2239044
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	1.7557998	0.8620720	0.5240338	0.6845122	0.2987855
Tight (MOL) Bar	1.6121818	0.4373167	0.3024856	0.1419041	0.3158298
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.7644170	1.4446446	0.6924009	1.2679035	0.3006213

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.2302517	0.8407626	0.6914884	0.4190107	0.4782528
Loose Cra	1.5956274	8.1508343	8.0751621	1.1042437	1.1080874
Loose End	0.7976875	1.9838965	1.8055892	0.8193199	0.8220056
Loose (TOL) Bar	1.2459273	0.8437072	0.7013751	0.4066590	0.4689509
Loose (TOL) Cra	1.5956274	8.1508343	8.0751621	1.1042437	1.1080874
Loose (TOL) End	0.5871340	2.1091013	1.8988296	0.9134377	0.9180167
Loose (MOL) Bar	1.6837848	1.2752657	1.1065975	0.5397940	0.6338334
Loose (MOL) Cra	3.6720600	3.9202991	2.8058067	2.7221427	2.7379179
Loose (MOL) End	0.7722124	4.0928443	3.8363468	1.4255261	1.4261200
Medium Bar	0.9867794	0.7280471	0.6046458	0.3205157	0.4055320
Medium Cra	1.9417395	2.1364491	1.4254415	1.5837881	1.5913930
Medium End	1.0180332	1.5971179	1.4567637	0.6546949	0.6529328
Medium (TOL) Bar	1.0029109	0.7296485	0.6144683	0.3017109	0.3934665
Medium (TOL) Cra	1.9417395	2.1364491	1.4254415	1.5837881	1.5913930
Medium (TOL) End	0.7371734	1.7299971	1.5429480	0.7816578	0.7824332
Medium (MOL) Bar	1.2621207	1.0865978	0.9503943	0.3891020	0.5267310
Medium (MOL) Cra	2.6889974	3.9643482	2.9049862	2.6890156	2.6976123
Medium (MOL) End	1.1608747	3.1623863	3.0692270	0.7512562	0.7619274
Tight Bar	0.7861941	0.5906931	0.4927256	0.2622062	0.3257912
Tight Cra	2.2227446	3.9179097	2.3317742	3.1434440	3.1484672
Tight End	1.4004464	0.7007157	0.5802956	0.2910097	0.3927590
Tight (TOL) Bar	0.8030558	0.5999046	0.5023884	0.2617173	0.3278590
Tight (TOL) Cra	2.2227446	3.9179097	2.3317742	3.1434440	3.1484672
Tight (TOL) End	0.7422735	1.9234727	1.8535736	0.4243299	0.5138216
Tight (MOL) Bar	0.9700293	0.7903746	0.6765158	0.2908441	0.4086790
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	1.0346568	0.8471472	0.7522436	0.3895999	0.1520453

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.0128716	0.5575728	0.4137406	0.3585357	0.3737731
Loose Cra	2.2007181	1.6968706	1.3233495	1.0474191	1.0621282
Loose End	1.6356315	1.4153280	1.1097430	0.6206841	0.8784213
Loose (TOL) Bar	1.0186232	0.5688091	0.4286028	0.3583531	0.3739567
Loose (TOL) Cra	2.2007181	1.6968706	1.3233495	1.0474191	1.0621282
Loose (TOL) End	1.3730338	1.4629031	1.1200086	0.6541260	0.9410985
Loose (MOL) Bar	1.2309283	0.8749490	0.6660558	0.5488972	0.5673672
Loose (MOL) Cra	7.4807854	10.9227744	7.9363451	7.4808375	7.5047604
Loose (MOL) End	2.0393797	2.7946521	2.3555978	1.1016099	1.5037420
Medium Bar	1.1101669	0.3483262	0.2561610	0.1909769	0.2360356
Medium Cra	2.3937926	3.4751278	2.5112344	2.3944810	2.4021273
Medium End	1.3020436	0.9619170	0.7441961	0.6094725	0.3223796
Medium (TOL) Bar	1.1141587	0.3499624	0.2569663	0.1924834	0.2375756
Medium (TOL) Cra	2.3937926	3.4751278	2.5112344	2.3944810	2.4021273
Medium (TOL) End	1.1307179	0.9626619	0.7241356	0.6343074	0.3667425
Medium (MOL) Bar	1.1788123	0.4236386	0.3439344	0.1946503	0.2473437
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	1.7215233	1.6583682	1.2958363	1.0348882	0.4064063
Tight Bar	0.9339059	0.6195750	0.5903840	0.1397114	0.1879366
Tight Cra	2.6407596	3.9676933	2.9530239	2.6415159	2.6499511
Tight End	4.4480257	2.5045647	2.0794328	1.3959957	0.4549249
Tight (TOL) Bar	0.9355613	0.6206045	0.5914036	0.1397338	0.1881272
Tight (TOL) Cra	2.6407596	3.9676933	2.9530239	2.6415159	2.6499511
Tight (TOL) End	3.5765916	2.3024762	1.8614312	1.3551645	0.5126244
Tight (MOL) Bar	0.7426865	0.7477209	0.6855749	0.2820039	0.2984523
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	5.9292849	4.7128574	3.6310935	3.0043611	1.4816660

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

Selection	scale factor	total	stat	+syst	- syst
Loose Bar	1.2515338	0.6932063	0.5643533	0.3494832	0.4025426
Loose Cra	1.6721971	1.2801724	1.0008708	0.7868895	0.7981850
Loose End	0.6232320	2.0856457	1.8955221	0.8602901	0.8700082
Loose (TOL) Bar	1.2644101	0.6919653	0.5702665	0.3359244	0.3919340
Loose (TOL) Cra	1.6721971	1.2801724	1.0008708	0.7868895	0.7981850
Loose (TOL) End	0.5158481	2.1731133	1.9514432	0.9446046	0.9561857
Loose (MOL) Bar	1.4994528	0.9780449	0.7978692	0.4800738	0.5656650
Loose (MOL) Cra	1.9333582	2.8063226	2.0281982	1.9333723	1.9395512
Loose (MOL) End	0.1585749	4.5086631	4.0111084	2.0583877	2.0588961
Medium Bar	1.4514677	0.6255380	0.4876397	0.2969090	0.3917978
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	1.7279691	1.9955294	1.5717288	1.2295553	1.2105210
Medium (TOL) Bar	1.4666293	0.6336754	0.4927815	0.3031464	0.3983856
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	1.5322722	1.9731302	1.5678039	1.1980125	1.1765550
Medium (MOL) Bar	1.5742911	0.8430668	0.6589669	0.4112496	0.5258559
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	4.2732526	6.3581086	2.9108822	5.6526375	4.4995609
Tight Bar	1.4639099	0.5499284	0.3124840	0.3180030	0.4525209
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	3.2403981	2.4569941	1.6701710	1.8020403	1.3984204
Tight (TOL) Bar	1.4859866	0.5616545	0.3171943	0.3286699	0.4635123
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	2.4378140	2.8785078	1.4434838	2.4904140	2.2466501
Tight (MOL) Bar	1.5891315	0.6561275	0.3925754	0.3599158	0.5257261
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	5.6971398	6.3930923	4.1652238	4.8500042	3.3180925