

Table 1: Data fake rates for Cut-Based τ ID

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.8770017	0.0117149	0.0115488	0.0038952	0.0030724
Loose Cra	0.8893902	0.0139631	0.0150767	0.0112972	0.0031849
Loose End	0.9587461	0.0127326	0.0135704	0.0053307	0.0062769
Loose (TOL) Bar	0.2665266	0.0722405	0.0722643	0.0035315	0.0007804
Loose (TOL) Cra	0.2378542	0.0317490	0.0303075	0.0138857	0.0013469
Loose (TOL) End	0.3411886	0.0729801	0.0745148	0.0076000	0.0011700
Loose (MOL) Bar	0.1246713	0.0040165	0.0042267	0.0024823	0.0003138
Loose (MOL) Cra	0.0833162	0.0131664	0.0125349	0.0096783	0.0012170
Loose (MOL) End	0.1377018	0.0113211	0.0143410	0.0040210	0.0003264
Medium Bar	0.7851860	0.0127493	0.0126635	0.0045258	0.0027110
Medium Cra	0.7848412	0.0161806	0.0156830	0.0139771	0.0040702
Medium End	0.8764274	0.0171441	0.0169600	0.0066656	0.0055719
Medium (TOL) Bar	0.2300492	0.0675765	0.0675829	0.0033483	0.0006831
Medium (TOL) Cra	0.1959443	0.0255549	0.0238423	0.0105434	0.0004032
Medium (TOL) End	0.2790819	0.0611349	0.0625702	0.0056287	0.0009692
Medium (MOL) Bar	0.1033163	0.0034380	0.0034623	0.0022788	0.0002728
Medium (MOL) Cra	0.0657641	0.0084682	0.0071374	0.0061267	0.0002741
Medium (MOL) End	0.1144080	0.0090556	0.0124296	0.0036663	0.0003342
Tight Bar	0.5083233	0.0113816	0.0112695	0.0045866	0.0016721
Tight Cra	0.4209209	0.0162984	0.0160797	0.0131492	0.0024350
Tight End	0.6635549	0.0209659	0.0180896	0.0074338	0.0032257
Tight (TOL) Bar	0.1482842	0.0492952	0.0493107	0.0027274	0.0004458
Tight (TOL) Cra	0.0824928	0.0178968	0.0171727	0.0107505	0.0006470
Tight (TOL) End	0.2010546	0.0482446	0.0491004	0.0065735	0.0002663
Tight (MOL) Bar	0.0636692	0.0023403	0.0023511	0.0017950	0.0001803
Tight (MOL) Cra	0.0242937	0.0053216	0.0049458	0.0033707	0.0001413
Tight (MOL) End	0.0820525	0.0073083	0.0092916	0.0031042	0.0002069

Table 2: Data fake rates for LLH-Based τ ID

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.9504199	0.0111968	0.0110300	0.0037951	0.0034280
Loose Cra	0.9134587	0.0123771	0.0124920	0.0119754	0.0031010
Loose End	0.9590226	0.0135171	0.0135040	0.0057154	0.0055099
Loose (TOL) Bar	0.2874438	0.0747568	0.0747940	0.0037119	0.0008874
Loose (TOL) Cra	0.2402082	0.0372939	0.0354328	0.0236436	0.0068889
Loose (TOL) End	0.3415442	0.0729640	0.0741409	0.0109263	0.0003664
Loose (MOL) Bar	0.1375046	0.0042859	0.0046576	0.0026263	0.0003485
Loose (MOL) Cra	0.0852898	0.0154354	0.0139941	0.0128190	0.0038881
Loose (MOL) End	0.1395104	0.0113960	0.0145926	0.0040399	0.0002802
Medium Bar	0.8838781	0.0126316	0.0124006	0.0042432	0.0031465
Medium Cra	0.7672459	0.0188051	0.0195720	0.0136113	0.0031957
Medium End	0.8996429	0.0168098	0.0162661	0.0064763	0.0045583
Medium (TOL) Bar	0.2668431	0.0727639	0.0727850	0.0035982	0.0008449
Medium (TOL) Cra	0.1951841	0.0160502	0.0151225	0.0093983	0.0005720
Medium (TOL) End	0.3167806	0.0710373	0.0715806	0.0111127	0.0006319
Medium (MOL) Bar	0.1252126	0.0036430	0.0038816	0.0025115	0.0003512
Medium (MOL) Cra	0.0694434	0.0067350	0.0056915	0.0056824	0.0002376
Medium (MOL) End	0.1262590	0.0100045	0.0133015	0.0038521	0.0002446
Tight Bar	0.7808663	0.0136926	0.0133229	0.0046380	0.0026238
Tight Cra	0.5830184	0.0311033	0.0327544	0.0141095	0.0028976
Tight End	0.8106216	0.0200048	0.0190116	0.0071023	0.0041064
Tight (TOL) Bar	0.2354824	0.0694532	0.0694706	0.0034022	0.0007248
Tight (TOL) Cra	0.1399292	0.0114250	0.0094932	0.0080325	0.0005887
Tight (TOL) End	0.1336611	0.2832083	0.2490540	0.1816794	0.1516391
Tight (MOL) Bar	0.1055071	0.0033721	0.0034271	0.0023087	0.0002970
Tight (MOL) Cra	0.0526902	0.0062593	0.0057452	0.0049569	0.0002053
Tight (MOL) End	0.1107574	0.0084042	0.0124431	0.0036106	0.0002775

Table 3: Data fake rates for BDT-Based τ ID

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.8373444	0.0085153	0.0084488	0.0044213	0.0030705
Loose Cra	0.8744242	0.0149263	0.0151812	0.0129286	0.0035463
Loose End	0.8712336	0.0119155	0.0123491	0.0066662	0.0048993
Loose (TOL) Bar	0.2598903	0.0677297	0.0678016	0.0035454	0.0007953
Loose (TOL) Cra	0.2249406	0.0363443	0.0342449	0.0193903	0.0035778
Loose (TOL) End	0.3123632	0.0690269	0.0696910	0.0169661	0.0007600
Loose (MOL) Bar	0.1235779	0.0041493	0.0045488	0.0024915	0.0003289
Loose (MOL) Cra	0.0784951	0.0143869	0.0133225	0.0112147	0.0032513
Loose (MOL) End	0.1279430	0.0101122	0.0139291	0.0038759	0.0003056
Medium Bar	0.5570678	0.0063926	0.0065775	0.0046787	0.0019937
Medium Cra	0.6988737	0.0178874	0.0180103	0.0140634	0.0031003
Medium End	0.5854099	0.0112298	0.0094928	0.0073595	0.0029847
Medium (TOL) Bar	0.1830780	0.0451306	0.0452011	0.0030173	0.0005728
Medium (TOL) Cra	0.1777221	0.0216007	0.0202030	0.0090147	0.0007597
Medium (TOL) End	0.2132289	0.0461403	0.0469744	0.0049725	0.0006159
Medium (MOL) Bar	0.0867606	0.0033751	0.0037357	0.0020940	0.0002444
Medium (MOL) Cra	0.0652802	0.0061702	0.0059405	0.0055162	0.0002546
Medium (MOL) End	0.0899851	0.0081052	0.0113438	0.0032531	0.0002563
Tight Bar	0.3271365	0.0051448	0.0054011	0.0039297	0.0010758
Tight Cra	0.4648650	0.0156218	0.0148152	0.0134889	0.0027192
Tight End	0.3608478	0.0078595	0.0073512	0.0063292	0.0017010
Tight (TOL) Bar	0.1131465	0.0276702	0.0276970	0.0023884	0.0003278
Tight (TOL) Cra	0.1209498	0.0163519	0.0150045	0.0074934	0.0006525
Tight (TOL) End	0.1234562	0.0269723	0.0274910	0.0038084	0.0003400
Tight (MOL) Bar	0.0530022	0.0020230	0.0022861	0.0016381	0.0001452
Tight (MOL) Cra	0.0466806	0.0057017	0.0051382	0.0046688	0.0002338
Tight (MOL) End	0.0538510	0.0054291	0.0070947	0.0025139	0.0001760

Table 4: Data fake rates for Cut-Based τ ID + Loose Cut-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0764377	0.0212437	0.0212378	0.0019562	0.0002006
Loose Cra	0.0322231	0.0050103	0.0046573	0.0038730	0.0001748
Loose End	0.5474000	0.0277987	0.0304161	0.0071873	0.0028834
Loose (TOL) Bar	0.0598167	0.0226584	0.0226531	0.0017329	0.0001573
Loose (TOL) Cra	0.0270845	0.0046848	0.0042562	0.0035517	0.0001453
Loose (TOL) End	0.1335286	0.0220019	0.0239086	0.0039545	0.0004426
Loose (MOL) Bar	0.0176691	0.0027224	0.0027106	0.0023317	0.0000675
Loose (MOL) Cra	0.0051378	0.0020416	0.0017761	0.0015489	0.0000287
Loose (MOL) End	0.0750946	0.0040872	0.0071426	0.0029722	0.0002047
Medium Bar	0.0704805	0.0208603	0.0208491	0.0018860	0.0001893
Medium Cra	0.0298966	0.0042845	0.0042045	0.0037407	0.0001707
Medium End	0.5298504	0.0278592	0.0296016	0.0071897	0.0028390
Medium (TOL) Bar	0.0556781	0.0220049	0.0219977	0.0016772	0.0001505
Medium (TOL) Cra	0.0247579	0.0042597	0.0039890	0.0034036	0.0001411
Medium (TOL) End	0.1263327	0.0213142	0.0233666	0.0038506	0.0004343
Medium (MOL) Bar	0.0158735	0.0018560	0.0018242	0.0016399	0.0000491
Medium (MOL) Cra	0.0046726	0.0018014	0.0015927	0.0014780	0.0000279
Medium (MOL) End	0.0706878	0.0035235	0.0071766	0.0028816	0.0002032
Tight Bar	0.0499243	0.0167727	0.0167610	0.0015897	0.0001410
Tight Cra	0.0163487	0.0028085	0.0028958	0.0027639	0.0000923
Tight End	0.4203844	0.0213080	0.0239289	0.0067081	0.0021140
Tight (TOL) Bar	0.0402724	0.0175166	0.0175043	0.0014278	0.0001132
Tight (TOL) Cra	0.0130786	0.0025413	0.0025348	0.0024720	0.0000735
Tight (TOL) End	0.0959700	0.0186289	0.0198483	0.0033597	0.0003289
Tight (MOL) Bar	0.0106105	0.0008443	0.0007867	0.0007325	0.0000290
Tight (MOL) Cra	0.0028028	0.0012905	0.0011874	0.0011443	0.0000160
Tight (MOL) End	0.0526611	0.0038499	0.0059013	0.0024847	0.0001455

Table 5: Data fake rates for LLH-Based τ ID + Loose Cut-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0830138	0.0220032	0.0220002	0.0020469	0.0002264
Loose Cra	0.0324706	0.0051381	0.0049893	0.0039067	0.0000422
Loose End	0.5481587	0.0278477	0.0297617	0.0072262	0.0028306
Loose (TOL) Bar	0.0645078	0.0235971	0.0235907	0.0018059	0.0001623
Loose (TOL) Cra	0.0271733	0.0054188	0.0050723	0.0035867	0.0002303
Loose (TOL) End	0.1329514	0.0221734	0.0241090	0.0039433	0.0004450
Loose (MOL) Bar	0.0196123	0.0023745	0.0023691	0.0018540	0.0000894
Loose (MOL) Cra	0.0053085	0.0072346	0.0071709	0.0063812	0.0007296
Loose (MOL) End	0.0753229	0.0041041	0.0074551	0.0029719	0.0002012
Medium Bar	0.0775089	0.0217129	0.0217026	0.0019791	0.0002137
Medium Cra	0.0270801	0.0045118	0.0043046	0.0035565	0.0001410
Medium End	0.5215981	0.0267461	0.0281124	0.0072107	0.0025858
Medium (TOL) Bar	0.0608358	0.0231727	0.0231641	0.0017542	0.0001686
Medium (TOL) Cra	0.0224109	0.0044317	0.0041337	0.0032354	0.0001164
Medium (TOL) End	0.1245712	0.0215342	0.0233209	0.0038280	0.0004117
Medium (MOL) Bar	0.0178064	0.0019837	0.0019699	0.0017637	0.0000195
Medium (MOL) Cra	0.0042030	0.0018578	0.0018277	0.0014011	0.0000228
Medium (MOL) End	0.0691613	0.0037407	0.0071944	0.0028506	0.0001838
Tight Bar	0.0695812	0.0210745	0.0210631	0.0018763	0.0001969
Tight Cra	0.0200841	0.0037657	0.0035966	0.0030641	0.0001120
Tight End	0.4772049	0.0246985	0.0264553	0.0070415	0.0022454
Tight (TOL) Bar	0.0550295	0.0223629	0.0223561	0.0016690	0.0001569
Tight (TOL) Cra	0.0163470	0.0035110	0.0033748	0.0027642	0.0000906
Tight (TOL) End	0.1134938	0.0204359	0.0219759	0.0036545	0.0003475
Tight (MOL) Bar	0.0151072	0.0009876	0.0009692	0.0008741	0.0000412
Tight (MOL) Cra	0.0028029	0.0014042	0.0013100	0.0011444	0.0000161
Tight (MOL) End	0.0632359	0.0033999	0.0070674	0.0027258	0.0001707

Table 6: Data fake rates for BDT-Based τ ID + Loose Cut-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0732180	0.0190310	0.0190340	0.0041653	0.0000043
Loose Cra	0.0321379	0.0047112	0.0045516	0.0038795	0.0000896
Loose End	0.4922527	0.0257376	0.0279823	0.0070581	0.0023385
Loose (TOL) Bar	0.0571411	0.0204467	0.0204496	0.0037411	0.0000997
Loose (TOL) Cra	0.0269202	0.0047553	0.0043634	0.0035567	0.0000189
Loose (TOL) End	0.1227977	0.0198867	0.0219106	0.0037942	0.0003771
Loose (MOL) Bar	0.0179099	0.0024810	0.0025181	0.0023398	0.0003809
Loose (MOL) Cra	0.0052616	0.0036296	0.0034911	0.0034042	0.0003120
Loose (MOL) End	0.0698619	0.0038660	0.0071851	0.0028633	0.0001888
Medium Bar	0.0464861	0.0104707	0.0104881	0.0015337	0.0001291
Medium Cra	0.0247475	0.0041741	0.0041197	0.0033998	0.0001307
Medium End	0.3209867	0.0165680	0.0179674	0.0060188	0.0011397
Medium (TOL) Bar	0.0361283	0.0115427	0.0115564	0.0013521	0.0001009
Medium (TOL) Cra	0.0210119	0.0040429	0.0039222	0.0031327	0.0001109
Medium (TOL) End	0.0662714	0.0682056	0.0656730	0.0604220	0.0169653
Medium (MOL) Bar	0.0114575	0.0022181	0.0022372	0.0021043	0.0000310
Medium (MOL) Cra	0.0037359	0.0015711	0.0015643	0.0013209	0.0000202
Medium (MOL) End	0.0489379	0.0030930	0.0054851	0.0023946	0.0001320
Tight Bar	0.0261207	0.0050470	0.0050520	0.0011496	0.0000701
Tight Cra	0.0130776	0.0028897	0.0026481	0.0024718	0.0000724
Tight End	0.2011674	0.0106715	0.0121351	0.0048471	0.0007269
Tight (TOL) Bar	0.0202099	0.0058475	0.0058498	0.0010111	0.0000547
Tight (TOL) Cra	0.0102755	0.0027449	0.0023780	0.0021910	0.0000572
Tight (TOL) End	0.0525438	0.0090276	0.0096735	0.0024813	0.0001441
Tight (MOL) Bar	0.0068206	0.0006402	0.0007116	0.0005872	0.0000182
Tight (MOL) Cra	0.0023357	0.0012454	0.0013091	0.0010446	0.0000133
Tight (MOL) End	0.0302372	0.0023036	0.0033024	0.0018806	0.0000958

Table 7: Data fake rates for Cut-Based τ ID + Medium Cut-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0185595	0.0029293	0.0029314	0.0023204	0.0000167
Loose Cra	0.0163472	0.0033442	0.0033850	0.0027612	0.0000908
Loose End	0.0542333	0.0032262	0.0052452	0.0025245	0.0002106
Loose (TOL) Bar	0.0140271	0.0030190	0.0030096	0.0022122	0.0000311
Loose (TOL) Cra	0.0135443	0.0029643	0.0028863	0.0025137	0.0000747
Loose (TOL) End	0.0319857	0.0047286	0.0058656	0.0019349	0.0001054
Loose (MOL) Bar	0.0105227	0.0025173	0.0025135	0.0021755	0.0001092
Loose (MOL) Cra	0.0032695	0.0018404	0.0017253	0.0012357	0.0000182
Loose (MOL) End	0.0192940	0.0030546	0.0035703	0.0015008	0.0000498
Medium Bar	0.0160294	0.0022080	0.0021995	0.0016466	0.0000061
Medium Cra	0.0144824	0.0027853	0.0032242	0.0026026	0.0000839
Medium End	0.0496861	0.0025605	0.0047600	0.0024143	0.0001846
Medium (TOL) Bar	0.0123228	0.0022489	0.0022325	0.0015064	0.0000223
Medium (TOL) Cra	0.0116796	0.0026813	0.0026992	0.0023370	0.0000679
Medium (TOL) End	0.0282594	0.0038064	0.0050654	0.0018175	0.0000888
Medium (MOL) Bar	0.0092395	0.0016332	0.0016133	0.0014145	0.0000823
Medium (MOL) Cra	0.0028035	0.0012741	0.0011500	0.0011447	0.0000167
Medium (MOL) End	0.0168521	0.0022581	0.0030733	0.0014019	0.0000424
Tight Bar	0.0101055	0.0012504	0.0012326	0.0007148	0.0000279
Tight Cra	0.0079413	0.0019852	0.0026771	0.0019263	0.0000453
Tight End	0.0365387	0.0022290	0.0041141	0.0020685	0.0001371
Tight (TOL) Bar	0.0080338	0.0012122	0.0011745	0.0006373	0.0000221
Tight (TOL) Cra	0.0060728	0.0017577	0.0020448	0.0016845	0.0000347
Tight (TOL) End	0.0194247	0.0034365	0.0041288	0.0015058	0.0000647
Tight (MOL) Bar	0.0061135	0.0006713	0.0006282	0.0005559	0.0000166
Tight (MOL) Cra	0.0018685	0.0010041	0.0009458	0.0009343	0.0000107
Tight (MOL) End	0.0116231	0.0022872	0.0025131	0.0011636	0.0000302

Table 8: Data fake rates for LLH-Based τ ID + Medium Cut-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0212055	0.0023297	0.0023467	0.0010360	0.0000425
Loose Cra	0.0161461	0.0095456	0.0096444	0.0089974	0.0005748
Loose End	0.0539928	0.0031833	0.0054435	0.0025156	0.0002019
Loose (TOL) Bar	0.0159479	0.0029152	0.0029021	0.0016174	0.0000251
Loose (TOL) Cra	0.0132496	0.0091217	0.0091199	0.0083074	0.0006844
Loose (TOL) End	0.0316332	0.0048879	0.0060100	0.0019228	0.0001006
Loose (MOL) Bar	0.0117987	0.0020108	0.0020132	0.0014912	0.0001432
Loose (MOL) Cra	0.0031550	0.0063006	0.0062702	0.0056816	0.0010252
Loose (MOL) End	0.0192924	0.0031077	0.0036233	0.0014999	0.0000483
Medium Bar	0.0184432	0.0019164	0.0019071	0.0009659	0.0000516
Medium Cra	0.0121411	0.0028611	0.0030221	0.0023815	0.0000649
Medium End	0.0495741	0.0029109	0.0050781	0.0024118	0.0001885
Medium (TOL) Bar	0.0140468	0.0021707	0.0021488	0.0008428	0.0000389
Medium (TOL) Cra	0.0098065	0.0028954	0.0029129	0.0021403	0.0000526
Medium (TOL) End	0.0284944	0.0043665	0.0053625	0.0018252	0.0000919
Medium (MOL) Bar	0.0104087	0.0015659	0.0015544	0.0013397	0.0000216
Medium (MOL) Cra	0.0023350	0.0012449	0.0011716	0.0010443	0.0000126
Medium (MOL) End	0.0167359	0.0023740	0.0029394	0.0013970	0.0000422
Tight Bar	0.0152091	0.0016160	0.0016136	0.0008771	0.0000423
Tight Cra	0.0079411	0.0021420	0.0022470	0.0019264	0.0000451
Tight End	0.0439841	0.0025736	0.0044623	0.0022717	0.0001631
Tight (TOL) Bar	0.0117225	0.0017670	0.0017588	0.0007699	0.0000325
Tight (TOL) Cra	0.0060727	0.0020051	0.0020633	0.0016846	0.0000346
Tight (TOL) End	0.0248881	0.0038545	0.0046756	0.0017057	0.0000794
Tight (MOL) Bar	0.0086722	0.0009317	0.0009307	0.0008271	0.0000054
Tight (MOL) Cra	0.0014015	0.0009057	0.0008697	0.0008092	0.0000081
Tight (MOL) End	0.0149933	0.0020860	0.0027361	0.0013223	0.0000385

Table 9: Data fake rates for BDT-Based τ ID + Medium Cut-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0196560	0.0029119	0.0029254	0.0024695	0.0001968
Loose Cra	0.0160487	0.0052909	0.0054590	0.0050559	0.0002077
Loose End	0.0508440	0.0032734	0.0055807	0.0024415	0.0001832
Loose (TOL) Bar	0.0147822	0.0028415	0.0028588	0.0021565	0.0002839
Loose (TOL) Cra	0.0132003	0.0050454	0.0050330	0.0046760	0.0002693
Loose (TOL) End	0.0301154	0.0047588	0.0060124	0.0018760	0.0000899
Loose (MOL) Bar	0.0110046	0.0020734	0.0021165	0.0019708	0.0004335
Loose (MOL) Cra	0.0037474	0.0032240	0.0031387	0.0030821	0.0004328
Loose (MOL) End	0.0185939	0.0029682	0.0036114	0.0014725	0.0000453
Medium Bar	0.0136933	0.0014545	0.0014932	0.0008321	0.0000382
Medium Cra	0.0126096	0.0028189	0.0034398	0.0024271	0.0000689
Medium End	0.0363897	0.0023758	0.0048683	0.0020634	0.0001040
Medium (TOL) Bar	0.0103078	0.0016803	0.0016993	0.0007219	0.0000286
Medium (TOL) Cra	0.0102740	0.0027440	0.0028071	0.0021908	0.0000557
Medium (TOL) End	0.0216157	0.0032522	0.0046612	0.0015882	0.0000530
Medium (MOL) Bar	0.0073148	0.0019402	0.0019532	0.0018440	0.0000418
Medium (MOL) Cra	0.0032690	0.0014311	0.0013041	0.0012356	0.0000177
Medium (MOL) End	0.0140667	0.0019875	0.0029404	0.0012853	0.0000766
Tight Bar	0.0081853	0.0008219	0.0008771	0.0006433	0.0000225
Tight Cra	0.0056051	0.0018949	0.0020330	0.0016182	0.0000315
Tight End	0.0209384	0.0018306	0.0028625	0.0015639	0.0000713
Tight (TOL) Bar	0.0062147	0.0009428	0.0009797	0.0005605	0.0000170
Tight (TOL) Cra	0.0042039	0.0017790	0.0015183	0.0014014	0.0000237
Tight (TOL) End	0.0130234	0.0021495	0.0027378	0.0012322	0.0000394
Tight (MOL) Bar	0.0044461	0.0005355	0.0005865	0.0004740	0.0000119
Tight (MOL) Cra	0.0018686	0.0010804	0.0010265	0.0009343	0.0000107
Tight (MOL) End	0.0082538	0.0013152	0.0017116	0.0009804	0.0000228

Table 10: Data fake rates for Cut-Based τ ID + Tight Cut-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0059625	0.0023648	0.0023662	0.0019461	0.0000840
Loose Cra	0.0046703	0.0015643	0.0014941	0.0014766	0.0000256
Loose End	0.0374657	0.0027308	0.0038562	0.0020954	0.0001367
Loose (TOL) Bar	0.0056122	0.0024089	0.0024105	0.0019433	0.0000816
Loose (TOL) Cra	0.0046704	0.0015644	0.0014941	0.0014767	0.0000257
Loose (TOL) End	0.0182583	0.0031178	0.0038954	0.0014599	0.0000575
Loose (MOL) Bar	0.0039742	0.0022693	0.0022708	0.0019439	0.0001072
Loose (MOL) Cra	0.0004670	0.0008813	0.0007875	0.0004670	0.0000026
Loose (MOL) End	0.0138298	0.0026862	0.0031346	0.0012697	0.0000343
Medium Bar	0.0048805	0.0015358	0.0015381	0.0011645	0.0001079
Medium Cra	0.0042050	0.0015040	0.0015286	0.0014020	0.0000248
Medium End	0.0359559	0.0022133	0.0038619	0.0020527	0.0001340
Medium (TOL) Bar	0.0046303	0.0015624	0.0015647	0.0011557	0.0001062
Medium (TOL) Cra	0.0042050	0.0015040	0.0015286	0.0014020	0.0000248
Medium (TOL) End	0.0173296	0.0023248	0.0035345	0.0014223	0.0000563
Medium (MOL) Bar	0.0032481	0.0013243	0.0013249	0.0011006	0.0001279
Medium (MOL) Cra	0.0004672	0.0004865	0.0004792	0.0004673	0.0000028
Medium (MOL) End	0.0129011	0.0018056	0.0026210	0.0012263	0.0000330
Tight Bar	0.0033347	0.0006428	0.0006453	0.0004105	0.0000090
Tight Cra	0.0018685	0.0010163	0.0012638	0.0009343	0.0000106
Tight End	0.0278121	0.0018928	0.0032885	0.0018036	0.0001051
Tight (TOL) Bar	0.0031831	0.0006398	0.0006426	0.0004011	0.0000086
Tight (TOL) Cra	0.0018685	0.0010163	0.0012638	0.0009343	0.0000106
Tight (TOL) End	0.0127959	0.0020883	0.0028420	0.0012216	0.0000438
Tight (MOL) Bar	0.0023677	0.0004107	0.0004177	0.0003464	0.0000006
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	0.0090669	0.0016459	0.0019539	0.0010275	0.0000244

Table 11: Data fake rates for LLH-Based τ ID + Tight Cut-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0073821	0.0020076	0.0020350	0.0012853	0.0000753
Loose Cra	0.0032698	0.0054777	0.0054954	0.0052636	0.0009104
Loose End	0.0375812	0.0025858	0.0042388	0.0020976	0.0001363
Loose (TOL) Bar	0.0069931	0.0020674	0.0020956	0.0012626	0.0000613
Loose (TOL) Cra	0.0032698	0.0054854	0.0055031	0.0052704	0.0009104
Loose (TOL) End	0.0183747	0.0031643	0.0041243	0.0014642	0.0000580
Loose (MOL) Bar	0.0049541	0.0017013	0.0017308	0.0011450	0.0000847
Loose (MOL) Cra	0.0000000	0.0004645	0.0004645	0.0000000	0.0004645
Loose (MOL) End	0.0139460	0.0026054	0.0031491	0.0012747	0.0000345
Medium Bar	0.0062163	0.0015356	0.0015460	0.0010320	0.0000318
Medium Cra	0.0032688	0.0014199	0.0014978	0.0012356	0.0000175
Medium End	0.0342073	0.0021217	0.0038711	0.0020015	0.0001243
Medium (TOL) Bar	0.0058662	0.0015942	0.0016052	0.0010061	0.0000292
Medium (TOL) Cra	0.0032688	0.0014199	0.0014978	0.0012356	0.0000176
Medium (TOL) End	0.0160489	0.0023897	0.0034652	0.0013684	0.0000507
Medium (MOL) Bar	0.0041173	0.0011472	0.0011542	0.0008886	0.0000649
Medium (MOL) Cra	0.0004670	0.0004862	0.0004789	0.0004670	0.0000025
Medium (MOL) End	0.0118543	0.0018094	0.0024870	0.0011752	0.0000296
Tight Bar	0.0049464	0.0009222	0.0009411	0.0005003	0.0000084
Tight Cra	0.0023358	0.0011581	0.0013329	0.0010447	0.0000134
Tight End	0.0310688	0.0019935	0.0035703	0.0019075	0.0001159
Tight (TOL) Bar	0.0046425	0.0009958	0.0010140	0.0004847	0.0000069
Tight (TOL) Cra	0.0023358	0.0011581	0.0013329	0.0010447	0.0000134
Tight (TOL) End	0.0147718	0.0021493	0.0031835	0.0013129	0.0000489
Tight (MOL) Bar	0.0032634	0.0005202	0.0005414	0.0004458	0.0000118
Tight (MOL) Cra	0.0004672	0.0004864	0.0004791	0.0004672	0.0000027
Tight (MOL) End	0.0109268	0.0014870	0.0022389	0.0011284	0.0000295

Table 12: Data fake rates for BDT-Based τ ID + Tight Cut-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0063424	0.0021578	0.0021834	0.0018519	0.0005104
Loose Cra	0.0032865	0.0030531	0.0030632	0.0029947	0.0004293
Loose End	0.0351382	0.0026292	0.0042885	0.0020281	0.0001278
Loose (TOL) Bar	0.0058898	0.0021793	0.0022060	0.0018185	0.0005095
Loose (TOL) Cra	0.0032872	0.0030531	0.0030631	0.0029947	0.0004286
Loose (TOL) End	0.0174437	0.0029277	0.0040767	0.0014266	0.0000544
Loose (MOL) Bar	0.0041353	0.0018868	0.0019243	0.0017078	0.0005508
Loose (MOL) Cra	0.0000000	0.0005901	0.0005479	0.0000000	0.0004645
Loose (MOL) End	0.0134813	0.0025047	0.0032008	0.0012534	0.0000336
Medium Bar	0.0049010	0.0009381	0.0009697	0.0004977	0.0000133
Medium Cra	0.0032688	0.0012924	0.0013655	0.0012356	0.0000176
Medium End	0.0270974	0.0020936	0.0041171	0.0017798	0.0000861
Medium (TOL) Bar	0.0045473	0.0010034	0.0010340	0.0004794	0.0000124
Medium (TOL) Cra	0.0032689	0.0012924	0.0013655	0.0012356	0.0000176
Medium (TOL) End	0.0143001	0.0020916	0.0036172	0.0012913	0.0000409
Medium (MOL) Bar	0.0032335	0.0006647	0.0006986	0.0004042	0.0000087
Medium (MOL) Cra	0.0004670	0.0004862	0.0004789	0.0004670	0.0000025
Medium (MOL) End	0.0106923	0.0016426	0.0026637	0.0011160	0.0000269
Tight Bar	0.0027284	0.0004560	0.0005070	0.0003713	0.0000074
Tight Cra	0.0004671	0.0006680	0.0005382	0.0004671	0.0000027
Tight End	0.0158193	0.0015643	0.0024580	0.0013587	0.0000530
Tight (TOL) Bar	0.0025768	0.0004904	0.0005389	0.0003609	0.0000070
Tight (TOL) Cra	0.0004671	0.0006680	0.0005382	0.0004671	0.0000027
Tight (TOL) End	0.0091859	0.0015008	0.0022169	0.0010345	0.0000275
Tight (MOL) Bar	0.0018189	0.0003568	0.0004004	0.0003032	0.0000049
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	0.0065096	0.0011905	0.0016723	0.0008705	0.0000176

Table 13: Data fake rates for Cut-Based τ ID + Loose BDT-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0144111	0.0032698	0.0032823	0.0022610	0.0003526
Loose Cra	0.0074729	0.0023605	0.0023518	0.0018675	0.0000414
Loose End	0.0461756	0.0040533	0.0045399	0.0023255	0.0001520
Loose (TOL) Bar	0.0136361	0.0032244	0.0032377	0.0022491	0.0003718
Loose (TOL) Cra	0.0074729	0.0023605	0.0023518	0.0018675	0.0000414
Loose (TOL) End	0.0288346	0.0047672	0.0049279	0.0018353	0.0000843
Loose (MOL) Bar	0.0078618	0.0025786	0.0025918	0.0021701	0.0003011
Loose (MOL) Cra	0.0014011	0.0014575	0.0014490	0.0008089	0.0000077
Loose (MOL) End	0.0140333	0.0026101	0.0026618	0.0012802	0.0000060
Medium Bar	0.0088469	0.0021874	0.0021863	0.0014145	0.0002230
Medium Cra	0.0046720	0.0016997	0.0017102	0.0014777	0.0000273
Medium End	0.0337308	0.0024076	0.0029591	0.0019864	0.0001115
Medium (TOL) Bar	0.0083352	0.0021841	0.0021833	0.0013966	0.0002308
Medium (TOL) Cra	0.0046720	0.0016997	0.0017102	0.0014777	0.0000273
Medium (TOL) End	0.0193023	0.0031551	0.0034299	0.0015008	0.0000581
Medium (MOL) Bar	0.0042627	0.0014910	0.0014925	0.0012576	0.0002722
Medium (MOL) Cra	0.0000000	0.0003672	0.0003672	0.0000000	0.0000000
Medium (MOL) End	0.0095316	0.0015022	0.0017928	0.0010536	0.0000255
Tight Bar	0.0050526	0.0010543	0.0010477	0.0005054	0.0000138
Tight Cra	0.0023357	0.0012055	0.0013742	0.0010446	0.0000133
Tight End	0.0151199	0.0015524	0.0019471	0.0013280	0.0000492
Tight (TOL) Bar	0.0047494	0.0010469	0.0010411	0.0004900	0.0000129
Tight (TOL) Cra	0.0023357	0.0012055	0.0013742	0.0010446	0.0000133
Tight (TOL) End	0.0088378	0.0018198	0.0017149	0.0010147	0.0000273
Tight (MOL) Bar	0.0027789	0.0004187	0.0004310	0.0003747	0.0000075
Tight (MOL) Cra	0.0000000	0.0003672	0.0003672	0.0000000	0.0000000
Tight (MOL) End	0.0044178	0.0009844	0.0009534	0.0007170	0.0000125

Table 14: Data fake rates for LLH-Based τ ID + Loose BDT-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0159446	0.0030594	0.0030890	0.0017238	0.0005827
Loose Cra	0.0079437	0.0019946	0.0020024	0.0019269	0.0000477
Loose End	0.0443001	0.0037302	0.0040666	0.0022763	0.0001313
Loose (TOL) Bar	0.0149406	0.0029717	0.0030030	0.0016310	0.0005789
Loose (TOL) Cra	0.0079437	0.0019946	0.0020024	0.0019269	0.0000477
Loose (TOL) End	0.0270824	0.0042832	0.0045189	0.0017780	0.0000711
Loose (MOL) Bar	0.0087053	0.0020445	0.0021037	0.0014344	0.0005661
Loose (MOL) Cra	0.0023362	0.0011584	0.0011721	0.0010448	0.0000138
Loose (MOL) End	0.0140488	0.0026760	0.0027695	0.0012797	0.0000215
Medium Bar	0.0120296	0.0022083	0.0022170	0.0013365	0.0001139
Medium Cra	0.0051389	0.0016171	0.0017502	0.0015496	0.0000297
Medium End	0.0263896	0.0024755	0.0025520	0.0017559	0.0000738
Medium (TOL) Bar	0.0114619	0.0021991	0.0022092	0.0013095	0.0001273
Medium (TOL) Cra	0.0051389	0.0016171	0.0017502	0.0015496	0.0000297
Medium (TOL) End	0.0168523	0.0029566	0.0029091	0.0014018	0.0000427
Medium (MOL) Bar	0.0070418	0.0013712	0.0013877	0.0011255	0.0000629
Medium (MOL) Cra	0.0014015	0.0008630	0.0009086	0.0008092	0.0000081
Medium (MOL) End	0.0088073	0.0016175	0.0018517	0.0014360	0.0002351
Tight Bar	0.0088904	0.0014934	0.0015130	0.0006705	0.0000221
Tight Cra	0.0042046	0.0014855	0.0017127	0.0014017	0.0000244
Tight End	0.0137216	0.0018970	0.0020744	0.0012650	0.0000420
Tight (TOL) Bar	0.0085866	0.0014853	0.0015058	0.0006589	0.0000206
Tight (TOL) Cra	0.0042046	0.0014855	0.0017127	0.0014017	0.0000244
Tight (TOL) End	0.0093017	0.0019649	0.0020701	0.0010410	0.0000274
Tight (MOL) Bar	0.0051937	0.0006183	0.0006590	0.0005284	0.0000037
Tight (MOL) Cra	0.0014015	0.0008630	0.0009086	0.0008092	0.0000081
Tight (MOL) End	0.0053477	0.0008399	0.0013474	0.0007890	0.0000150

Table 15: Data fake rates for BDT-Based τ ID + Loose BDT-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0135456	0.0031172	0.0031441	0.0023712	0.0007142
Loose Cra	0.0060734	0.0018126	0.0018339	0.0016846	0.0000353
Loose End	0.0330074	0.0034610	0.0036988	0.0019638	0.0000837
Loose (TOL) Bar	0.0126078	0.0030786	0.0031091	0.0023101	0.0007450
Loose (TOL) Cra	0.0060734	0.0018126	0.0018339	0.0016846	0.0000353
Loose (TOL) End	0.0187639	0.0055852	0.0056086	0.0044839	0.0004802
Loose (MOL) Bar	0.0072606	0.0021105	0.0021451	0.0019232	0.0005496
Loose (MOL) Cra	0.0014015	0.0008743	0.0008603	0.0008092	0.0000081
Loose (MOL) End	0.0104583	0.0029697	0.0031308	0.0026494	0.0005549
Medium Bar	0.0087665	0.0023571	0.0023637	0.0019642	0.0002025
Medium Cra	0.0051390	0.0016611	0.0017281	0.0015496	0.0000299
Medium End	0.0186002	0.0020131	0.0024895	0.0014731	0.0000516
Medium (TOL) Bar	0.0080751	0.0023155	0.0023238	0.0018992	0.0002390
Medium (TOL) Cra	0.0051390	0.0016611	0.0017281	0.0015496	0.0000299
Medium (TOL) End	0.0096469	0.0056174	0.0056208	0.0052663	0.0003230
Medium (MOL) Bar	0.0048478	0.0016085	0.0016179	0.0014815	0.0001406
Medium (MOL) Cra	0.0014015	0.0008630	0.0009086	0.0008092	0.0000081
Medium (MOL) End	0.0058320	0.0029438	0.0030237	0.0027923	0.0003122
Tight Bar	0.0052037	0.0009236	0.0009655	0.0005128	0.0000138
Tight Cra	0.0018685	0.0013726	0.0011686	0.0009343	0.0000106
Tight End	0.0115116	0.0016031	0.0018745	0.0011583	0.0000346
Tight (TOL) Bar	0.0048501	0.0009082	0.0009523	0.0004951	0.0000128
Tight (TOL) Cra	0.0018685	0.0013726	0.0011686	0.0009343	0.0000106
Tight (TOL) End	0.0060455	0.0013905	0.0015457	0.0008389	0.0000173
Tight (MOL) Bar	0.0025261	0.0003634	0.0004267	0.0003573	0.0000067
Tight (MOL) Cra	0.0004671	0.0004864	0.0004791	0.0004671	0.0000027
Tight (MOL) End	0.0037204	0.0008410	0.0012973	0.0006579	0.0000107

Table 16: Data fake rates for Cut-Based τ ID + Medium BDT-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0046699	0.0024880	0.0024953	0.0020333	0.0002681
Loose Cra	0.0000000	0.0008513	0.0007340	0.0000000	0.0000000
Loose End	0.0073425	0.0037040	0.0036880	0.0028857	0.0001929
Loose (TOL) Bar	0.0041984	0.0024660	0.0024739	0.0020174	0.0002862
Loose (TOL) Cra	0.0000000	0.0008513	0.0007340	0.0000000	0.0000000
Loose (TOL) End	0.0055215	0.0035907	0.0035457	0.0028240	0.0002749
Loose (MOL) Bar	0.0029784	0.0025398	0.0025448	0.0020563	0.0002464
Loose (MOL) Cra	0.0000000	0.0008513	0.0007340	0.0000000	0.0000000
Loose (MOL) End	0.0040926	0.0035682	0.0034895	0.0028161	0.0000808
Medium Bar	0.0024995	0.0015043	0.0015042	0.0011454	0.0002719
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.0056957	0.0011686	0.0011911	0.0008141	0.0000152
Medium (TOL) Bar	0.0022418	0.0015034	0.0015034	0.0011307	0.0002776
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.0041658	0.0011218	0.0011508	0.0006977	0.0000076
Medium (MOL) Bar	0.0014287	0.0014985	0.0014977	0.0011077	0.0002845
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0029057	0.0010344	0.0010831	0.0005813	0.0000074
Tight Bar	0.0013428	0.0003973	0.0004003	0.0002625	0.0000177
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	0.0019763	0.0006963	0.0006347	0.0004794	0.0000055
Tight (TOL) Bar	0.0012403	0.0003949	0.0003981	0.0002526	0.0000194
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.0018600	0.0006359	0.0005781	0.0004651	0.0000052
Tight (MOL) Bar	0.0008886	0.0003636	0.0003680	0.0002144	0.0000184
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	0.0013950	0.0005699	0.0005508	0.0004028	0.0000038

Table 17: Data fake rates for LLH-Based τ ID + Medium BDT-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0051129	0.0020605	0.0020985	0.0012447	0.0005810
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	0.0060631	0.0031970	0.0030134	0.0023545	0.0000811
Loose (TOL) Bar	0.0047163	0.0019924	0.0020335	0.0011720	0.0005744
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	0.0052144	0.0030654	0.0029063	0.0022703	0.0001184
Loose (MOL) Bar	0.0032092	0.0020161	0.0020555	0.0011346	0.0005699
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	0.0039510	0.0019849	0.0017210	0.0006778	0.0000095
Medium Bar	0.0036106	0.0012845	0.0012963	0.0009300	0.0001181
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.0020567	0.0015304	0.0014482	0.0011865	0.0003778
Medium (TOL) Bar	0.0034022	0.0012767	0.0012897	0.0009098	0.0001249
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.0019577	0.0014755	0.0013922	0.0011750	0.0003609
Medium (MOL) Bar	0.0025911	0.0012816	0.0012852	0.0008595	0.0000794
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0013646	0.0013989	0.0013551	0.0010969	0.0003744
Tight Bar	0.0021407	0.0005901	0.0006002	0.0003784	0.0000260
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	0.0008137	0.0004457	0.0005779	0.0003076	0.0000022
Tight (TOL) Bar	0.0020382	0.0005863	0.0005967	0.0003712	0.0000277
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.0008137	0.0004463	0.0005784	0.0003076	0.0000022
Tight (MOL) Bar	0.0015449	0.0006947	0.0006974	0.0003393	0.0000171
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	0.0006974	0.0004248	0.0005766	0.0002847	0.0000018

Table 18: Data fake rates for BDT-Based τ ID + Medium BDT-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0045360	0.0020481	0.0020803	0.0016998	0.0006035
Loose Cra	0.0000000	0.0005665	0.0003672	0.0000000	0.0000000
Loose End	0.0045216	0.0029498	0.0028975	0.0025694	0.0005792
Loose (TOL) Bar	0.0040535	0.0019993	0.0020238	0.0016385	0.0006326
Loose (TOL) Cra	0.0000000	0.0005665	0.0003672	0.0000000	0.0000000
Loose (TOL) End	0.0038355	0.0027645	0.0027305	0.0024772	0.0005698
Loose (MOL) Bar	0.0028824	0.0019055	0.0019339	0.0015808	0.0005440
Loose (MOL) Cra	0.0000000	0.0005665	0.0003672	0.0000000	0.0000000
Loose (MOL) End	0.0029215	0.0038852	0.0037479	0.0035576	0.0006723
Medium Bar	0.0027871	0.0014042	0.0014182	0.0012059	0.0001858
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.0003157	0.0042714	0.0040744	0.0030020	0.0017710
Medium (TOL) Bar	0.0025150	0.0013745	0.0013906	0.0011566	0.0002059
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.0002065	0.0041156	0.0039084	0.0028975	0.0017643
Medium (MOL) Bar	0.0019692	0.0013386	0.0013505	0.0011425	0.0000967
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0000000	0.0025195	0.0022576	0.0000000	0.0016230
Tight Bar	0.0014651	0.0002814	0.0003120	0.0002721	0.0000039
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	0.0016275	0.0005195	0.0006125	0.0004350	0.0000045
Tight (TOL) Bar	0.0014146	0.0002765	0.0003079	0.0002673	0.0000037
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.0016275	0.0005195	0.0006125	0.0004350	0.0000045
Tight (MOL) Bar	0.0010104	0.0002392	0.0002553	0.0002260	0.0000027
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	0.0012787	0.0004374	0.0005715	0.0003856	0.0000035

Table 19: Data fake rates for Cut-Based τ ID + Tight BDT-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0024585	0.0023866	0.0023925	0.0020329	0.0002624
Loose Cra	0.0000000	0.0008515	0.0007342	0.0000000	0.0000000
Loose End	0.0020612	0.0030199	0.0030065	0.0025608	0.0004892
Loose (TOL) Bar	0.0021384	0.0023536	0.0023600	0.0020126	0.0002803
Loose (TOL) Cra	0.0000000	0.0008515	0.0007342	0.0000000	0.0000000
Loose (TOL) End	0.0018169	0.0029779	0.0029512	0.0025469	0.0005017
Loose (MOL) Bar	0.0014493	0.0024052	0.0024085	0.0020319	0.0002639
Loose (MOL) Cra	0.0000000	0.0008515	0.0007342	0.0000000	0.0000000
Loose (MOL) End	0.0010429	0.0030020	0.0029476	0.0025350	0.0003483
Medium Bar	0.0011101	0.0013322	0.0013328	0.0011168	0.0003007
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.0020975	0.0015675	0.0015778	0.0014953	0.0001052
Medium (TOL) Bar	0.0009524	0.0013270	0.0013277	0.0011041	0.0003073
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.0018571	0.0015522	0.0015537	0.0014720	0.0001137
Medium (MOL) Bar	0.0004256	0.0013241	0.0013225	0.0010742	0.0003302
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0009200	0.0015099	0.0014986	0.0014147	0.0001234
Tight Bar	0.0006319	0.0005102	0.0005106	0.0004948	0.0000231
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	0.0005812	0.0004226	0.0003725	0.0002599	0.0000016
Tight (TOL) Bar	0.0005278	0.0004958	0.0004964	0.0004784	0.0000265
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.0005812	0.0004226	0.0003725	0.0002599	0.0000016
Tight (MOL) Bar	0.0003230	0.0004667	0.0004675	0.0004468	0.0000297
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	0.0003487	0.0003905	0.0003507	0.0002013	0.0000009

Table 20: Data fake rates for LLH-Based τ ID + Tight BDT-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0027812	0.0018534	0.0018980	0.0010876	0.0004436
Loose Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose End	0.0010853	0.0030752	0.0029802	0.0024172	0.0008855
Loose (TOL) Bar	0.0024708	0.0017779	0.0018260	0.0010147	0.0004517
Loose (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (TOL) End	0.0010842	0.0030568	0.0029572	0.0024496	0.0008866
Loose (MOL) Bar	0.0018139	0.0018068	0.0018519	0.0010046	0.0004536
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	0.0004308	0.0031384	0.0030498	0.0023517	0.0009604
Medium Bar	0.0014473	0.0010248	0.0010420	0.0007246	0.0001651
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.0001609	0.0018958	0.0018160	0.0015725	0.0007665
Medium (TOL) Bar	0.0013386	0.0010152	0.0010339	0.0007080	0.0001730
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.0001604	0.0018693	0.0017886	0.0015733	0.0007670
Medium (MOL) Bar	0.0011843	0.0010502	0.0010550	0.0006903	0.0001257
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0000000	0.0005053	0.0004657	0.0000000	0.0004637
Tight Bar	0.0008599	0.0003583	0.0003651	0.0002692	0.0000471
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	0.0001162	0.0001840	0.0001200	0.0001162	0.0000003
Tight (TOL) Bar	0.0007559	0.0003493	0.0003564	0.0002562	0.0000503
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.0001162	0.0001848	0.0001213	0.0001162	0.0000003
Tight (MOL) Bar	0.0006226	0.0004344	0.0004362	0.0002296	0.0000324
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	0.0000000	0.0001279	0.0000000	0.0000000	0.0000000

Table 21: Data fake rates for BDT-Based τ ID + Tight BDT-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0023449	0.0017795	0.0018229	0.0015037	0.0005776
Loose Cra	0.0000000	0.0005665	0.0003672	0.0000000	0.0000000
Loose End	0.0000000	0.0025562	0.0021179	0.0000000	0.0017389
Loose (TOL) Bar	0.0020036	0.0017258	0.0017683	0.0014375	0.0006166
Loose (TOL) Cra	0.0000000	0.0005665	0.0003672	0.0000000	0.0000000
Loose (TOL) End	0.0000000	0.0025083	0.0020598	0.0000000	0.0017389
Loose (MOL) Bar	0.0014628	0.0016628	0.0017070	0.0013897	0.0005527
Loose (MOL) Cra	0.0000000	0.0005665	0.0003672	0.0000000	0.0000000
Loose (MOL) End	0.0000000	0.0018516	0.0015312	0.0000000	0.0013911
Medium Bar	0.0014451	0.0012283	0.0012359	0.0010316	0.0001169
Medium Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium End	0.0004648	0.0002363	0.0005214	0.0002324	0.0000011
Medium (TOL) Bar	0.0013278	0.0012085	0.0012172	0.0009983	0.0001335
Medium (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (TOL) End	0.0004648	0.0002407	0.0005234	0.0002324	0.0000011
Medium (MOL) Bar	0.0012430	0.0007217	0.0007267	0.0002526	0.0000167
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0003486	0.0002677	0.0004396	0.0002013	0.0000008
Tight Bar	0.0007073	0.0002277	0.0002461	0.0001890	0.0000019
Tight Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight End	0.0003487	0.0003160	0.0002850	0.0002013	0.0000009
Tight (TOL) Bar	0.0007073	0.0002285	0.0002469	0.0001890	0.0000019
Tight (TOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (TOL) End	0.0003487	0.0003160	0.0002850	0.0002013	0.0000009
Tight (MOL) Bar	0.0005558	0.0002921	0.0002955	0.0001676	0.0000015
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	0.0002325	0.0002941	0.0002723	0.0001644	0.0000006