

Table 1: Data fake rates for Cut-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0843097	0.0233795	0.0233036	0.0160164	0.0108070
Loose Cra	0.0461498	0.0698979	0.0694519	0.0678735	0.0035396
Loose End	0.6861116	0.0380342	0.0376798	0.0234618	0.0093875
Loose (TOL) Bar	0.0671514	0.0251491	0.0251527	0.0158678	0.0109803
Loose (TOL) Cra	0.0266103	0.0675337	0.0671268	0.0667139	0.0044456
Loose (TOL) End	0.1629592	0.0315652	0.0317460	0.0216331	0.0068684
Loose (MOL) Bar	0.0405639	0.0257265	0.0258287	0.0159602	0.0103915
Loose (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Loose (MOL) End	0.1058885	0.0327536	0.0330473	0.0208722	0.0079046
Medium Bar	0.0409864	0.0255968	0.0255995	0.0156600	0.0108182
Medium Cra	0.0272543	0.0678714	0.0675412	0.0665822	0.0038016
Medium End	0.0818281	0.0333511	0.0333404	0.0197467	0.0069650
Medium (TOL) Bar	0.0364399	0.0258910	0.0259426	0.0158341	0.0102692
Medium (TOL) Cra	0.0207548	0.0670978	0.0667845	0.0662209	0.0040899
Medium (TOL) End	0.0457728	0.0368070	0.0365533	0.0186715	0.0093997
Medium (MOL) Bar	0.0327292	0.0264045	0.0265131	0.0162978	0.0097336
Medium (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Medium (MOL) End	0.0360593	0.0374121	0.0373443	0.0186936	0.0096303
Tight Bar	0.0293187	0.0240328	0.0241123	0.0153695	0.0084732
Tight Cra	0.0068195	0.0746666	0.0743478	0.0740962	0.0056029
Tight End	0.0704068	0.0331647	0.0332054	0.0197908	0.0063174
Tight (TOL) Bar	0.0277421	0.0243488	0.0244455	0.0155436	0.0083513
Tight (TOL) Cra	0.0068219	0.0746681	0.0743495	0.0740981	0.0056005
Tight (TOL) End	0.0366617	0.0379449	0.0378857	0.0188469	0.0081659
Tight (MOL) Bar	0.0277719	0.0252582	0.0253791	0.0167992	0.0070476
Tight (MOL) Cra	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tight (MOL) End	0.0337610	0.0396999	0.0396836	0.0194956	0.0076183

Table 2: Data fake rates for BDT-Based e-veto

Selection	fake rate	total(+)	total (-)	stat	bkg
Loose Bar	0.0554556	0.0532903	0.0530695	0.0191837	0.0358396
Loose Cra	0.0352409	0.1013799	0.0990966	0.0953629	0.0268709
Loose End	0.1325820	0.0463621	0.0456495	0.0233179	0.0243145
Loose (TOL) Bar	0.0500034	0.0541742	0.0538799	0.0189350	0.0361961
Loose (TOL) Cra	0.0342987	0.1041352	0.1016859	0.0977945	0.0278131
Loose (TOL) End	0.0902467	0.0507043	0.0493966	0.0229846	0.0244085
Loose (MOL) Bar	0.0436679	0.0523202	0.0521191	0.0196120	0.0327653
Loose (MOL) Cra	0.0098110	0.1069367	0.1022581	0.0979292	0.0274561
Loose (MOL) End	0.0521421	0.0578258	0.0569396	0.0231663	0.0245820
Medium Bar	0.0364706	0.0481780	0.0481243	0.0186368	0.0310453
Medium Cra	0.0085131	0.0945459	0.0933751	0.0904110	0.0225428
Medium End	0.0333783	0.0487945	0.0473575	0.0219239	0.0252424
Medium (TOL) Bar	0.0352273	0.0487531	0.0486877	0.0187411	0.0314394
Medium (TOL) Cra	0.0085131	0.0945459	0.0933751	0.0904110	0.0225428
Medium (TOL) End	0.0236240	0.0516406	0.0500653	0.0217234	0.0255139
Medium (MOL) Bar	0.0345788	0.0487637	0.0487551	0.0200684	0.0278416
Medium (MOL) Cra	0.0000000	0.0514758	0.0435793	0.0000000	0.0248447
Medium (MOL) End	0.0218697	0.0546006	0.0527693	0.0228272	0.0246820
Tight Bar	0.0304374	0.0405144	0.0400876	0.0178726	0.0192442
Tight Cra	0.0310559	0.0140552	0.0139418	0.0136713	0.0000000
Tight End	0.0179940	0.0374596	0.0371076	0.0239331	0.0147646
Tight (TOL) Bar	0.0296445	0.0408192	0.0403920	0.0179872	0.0196124
Tight (TOL) Cra	0.0310559	0.0140552	0.0139418	0.0136713	0.0000000
Tight (TOL) End	0.0183678	0.0382238	0.0378755	0.0245704	0.0143908
Tight (MOL) Bar	0.0301439	0.0418774	0.0414869	0.0199289	0.0174145
Tight (MOL) Cra	0.0248447	0.0199624	0.0199115	0.0122671	0.0000000
Tight (MOL) End	0.0174987	0.0432439	0.0429768	0.0322765	0.0143978