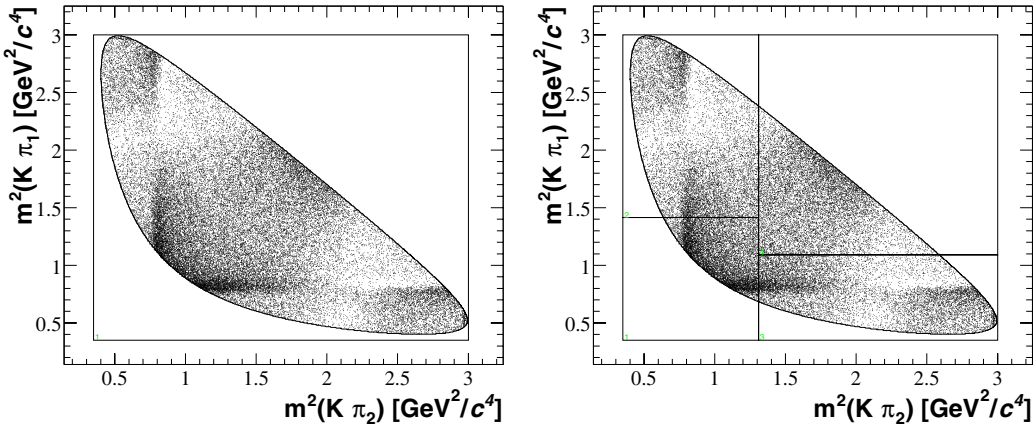
Appendix D

Adaptive Binning Algorithm

The adaptive binning algorithm has the purpose of producing uniformly populated bins across the Dalitz plot. This binning is useful when the efficiency or asymmetry is calculated in each bin. A significant statistical number of candidates in each bin is necessary to make calculations. The algorithm has the following steps:

- Minimum occupancy per bin: $occ_{min} = 100$.
- Coordinates of the bin defined as $bin_j = bin_j(x_{o_j}, y_{o_j}, x_{max_j}, y_{max_j})$
- For each bin_j sort x_i and y_i
- Find the media if i is even $x_{m_j} = x_{i_j/2}$. If i is odd $x_{m_j} = x_{(i_j+1)/2}$
- Redefine the media: $x_{m_j} = x_{m_j} + \frac{x_{(m+1)_j} - x_{m_j}}{2}$ and $y_{m_j} = y_{m_j} + \frac{y_{(m+1)_j} - y_{m_j}}{2}$
- Calculate occupancy in each quadrant (e.g if $x_{o_j} < x_{i_j} < x_{m_j} \wedge y_{o_j} < y_{i_j} < y_{m_j}$ $occ_1 = \sum_i^N i$)
- Divide the bin horizontally or vertically depending if $(occ_1 + occ_3) > occ_{min} \wedge (occ_2 + occ_4) > occ_{min}$ then $bin_j \rightarrow bin_{j_1}(x_{o_j}, y_{o_j}, x_{m_j}, y_{max_j}) \wedge bin_{j_2}(x_{m_j}, y_{o_j}, x_{max_j}, y_{max_j})$ otherwise if $(occ_1 + occ_2) > occ_{min} \wedge (occ_3 + occ_4) > occ_{min}$ then $bin_j \rightarrow bin_{j_1}(x_{o_j}, y_{o_j}, x_{max_j}, y_{m_j}) \wedge bin_{j_2}(x_{o_j}, y_{m_j}, x_{max_j}, y_{max_j})$



(a) First bin of the algorithm.

(b) Third iteration of the algorithm.

Figure D.1: Adaptive binning algorithm applied to the CF Dalitz plot.

The result of applying this algorithm is shown in the Figure 3.42 (b) for the 7th iteration. Figure D.1 (a) shows the first bin to start the algorithm. The third iteration is shown in Figure D.1 (b).

Appendix E

Search for D^0 Dilepton Decays

The author has decided to include this appendix about his preliminary work in the analysis of the search for D^0 dilepton decays. A brief introduction and an overview of the anlaysis is given.

E.1 Introduction

In the Standard Model, Flavor Changing Neutral currents (FCNC) are very rare. The branching ratio is precidted to be ~10^{-8}. Supersymetric models enhance these decays with the introduction of new amplitudes. With the amount of data (~200 fb^{-1} by summer of 2004) collected by *BABAR* it is possible to set the best limits in the world and reject certains supesymetric predictions. Lepton Number Violations (LNV) are strictly forbidden in the SM. However, lepton number conservation is not required by Lorentz invariance or Gauge invariance. Observation of such decays will be a clear sign of physics beyond the SM.

Decay	Obs.	Bkg.	N_X	$\mathfrak{B}_X$(90% CL)	Previous Exp.
$D^0 \to e^+e^-$	3	0	6.5	1.7×10^{-4}	6.2×10^{-6}
$D^0 \to e^\pm\mu^\mp$	0	0	2.35	7.2×10^{-5}	2.5×10^{-6}
$D^0 \to \mu^+\mu^-$	1	0	3.89	1.7×10^{-4}	8.1×10^{-6}
$D^0 \to K^-\pi^+$	3194	289	2905	-	

Table E.1: Branching fraction for D^0 dilepton decays.

E.2 Analysis Overview

Monte Carlo samples of the following decay modes were produced: $D^0 \to e^+e^-$, $D^0 \to \mu^+\mu^-$, $D^0 \to e^-\mu^+$, and $D^0 \to K^-\pi^+$. Then the selection criteria was optimized on these samples. An estimation of the branching ratios was done using a tiny sample of data (2002) with a luminosity of 0.73 fb^{-1}.

The preliminary selection criteria use the following cuts: select only multihadron type events, only good tracks with loose criteria (GTL), vertexing of the D^0 candidate (probability $P(\chi^2) > 0.01$), vertexing of the D^{*+} candidate with beam spot constraint (probability $P(\chi^2) > 0.01$), momentum in the center-of-mass $p^*_{D^*} > 2.1$ GeV/c.

The branching fraction are defined for each decay as,

$$\mathfrak{B}_X = \mathfrak{B}_{K\pi} \cdot \frac{N_X}{N_{K\pi}} \cdot \frac{\epsilon_{K\pi}}{\epsilon_X}$$

Where $\mathfrak{B}_{K\pi}$ is the branching fraction for the $D^0 \to K^-\pi^+$ decays. The decay efficiencies are $\epsilon_{K\pi}$ and ϵ_X, and the yields are $N_{K\pi}$ and N_X for $D^0 \to K^-\pi^+$ decays and $D^0 \to X$ decays respectively. The Feldman-Cousins+Highland prescription is used to calculate the number of expected decays N_X. Table E.1 shows the estimation of the branching fractions for less than 1 fb^{-1} of data.

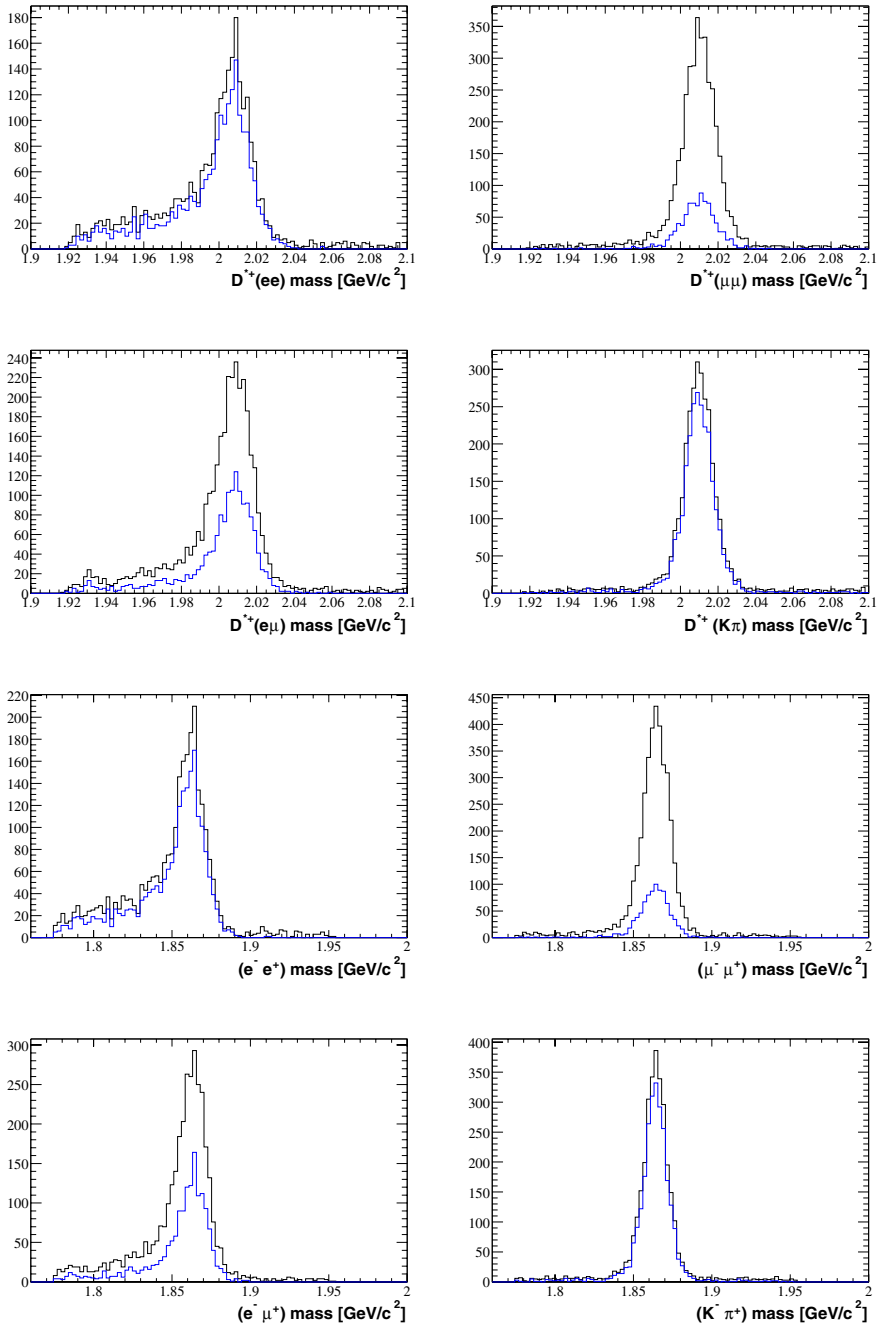


Figure E.1: Monte Carlo D^0 mass distributions. Black lines do not have PID applied. Blue lines have PID applied.

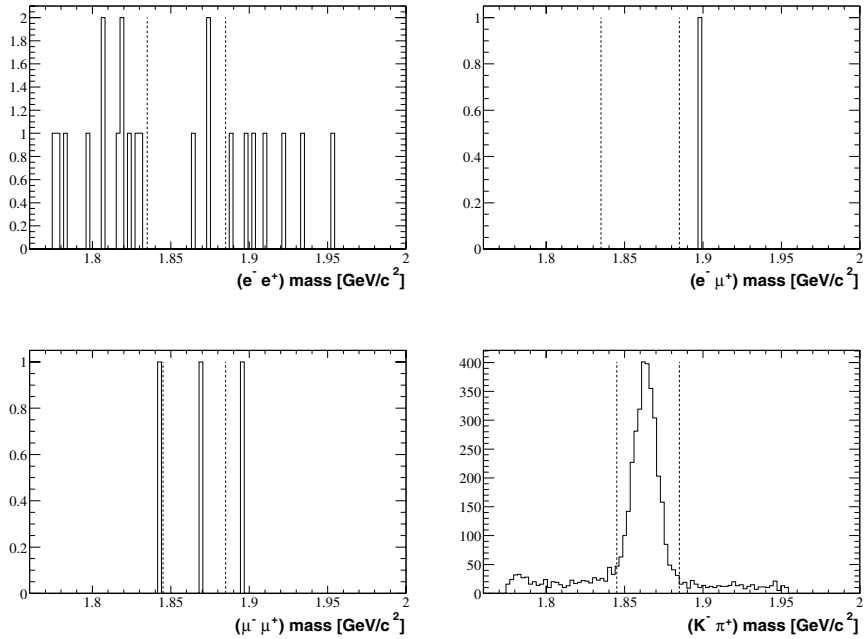


Figure E.2: D^0 mass signal with 1 fb^{-1} of data

E.3 Status

This analysis has been passed to other collaborators whom have carried out the analysis to the final steps. We are also planning to expand this analysis to D^0 three-body lepton decays such as $D^+_{(d,s)} \to X^+ l^+ l^-$ and $D^0 \to X^0 l^+ l^-$ mesons, where X^+ can be K^+ or π^+, X^0 can be π^0, ρ^0, η, K^0_s, ω, $\bar{K}^{*0}$, or ϕ, and $l^\pm$ can be $e^\pm$ or $\mu^\pm$. The motivation is the same as the case of the dilepton decays. However, the three-body decays predictions for the branching fraction are in the order of 10^{-6} in the SM. These limits can be reach with the existance *BABAR* sample and could be observed for the first time.

Appendix F

Tables of efficiencies

The following Tables have the marginal and accumulative efficiencies in percent for each cut and each decay mode. There are tables containing efficiencies without Monte Carlo corrections, with only tracking corrections, and with tracking and PID corrections distributed by year and DCH voltages.

Efficiencies	$D^+ \to K^- K^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ K^- \pi^-$ entries (marginal %| cumulative %)
Generated	34069.000 (- | -)	34288.000 (- | -)
TAG+GTL+pChi2>0.01	7913.000 (23.226 +- 0.229|23.226 +- 0.229)	8001.000 (23.335 +- 0.228|23.335 +- 0.228)
pCms>2.4	7213.000 (100.014 +- 0.000|21.172 +- 0.221)	7285.000 (99.986 +- 0.014|21.247 +- 0.221)
D0 reject.	7213.000 (100.000 +- 0.000|21.172 +- 0.221)	7285.000 (100.000 +- 0.000|21.247 +- 0.221)
PID	6997.000 (97.005 +- 0.201|20.538 +- 0.219)	7077.000 (97.145 +- 0.195|20.640 +- 0.219)
Mult. rej.	6320.000 (90.324 +- 0.353|18.551 +- 0.211)	6449.000 (91.126 +- 0.338|18.808 +- 0.211)
r>=4.5	2933.000 (46.408 +- 0.627|8.609 +- 0.152)	3066.000 (47.542 +- 0.622|8.942 +- 0.154)
Eloss corr	2923.000 (99.659 +- 0.108|8.580 +- 0.152)	3060.000 (99.804 +- 0.080|8.924 +- 0.154)
Reflections	2923.000 (100.000 +- 0.000|8.580 +- 0.152)	3060.000 (100.000 +- 0.000|8.924 +- 0.154)

Efficiencies	$D^+ \to K^- \pi^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ \pi^- \pi^-$ entries (marginal %| cumulative %)
Generated	355534.000 (- | -)	355144.000 (- | -)
TAG+GTL+pChi2>0.01	95694.000 (26.916 +- 0.074|26.916 +- 0.074)	98026.000 (27.602 +- 0.075|27.602 +- 0.075)
pCms>2.4	91543.000 (99.943 +- 0.008|25.748 +- 0.073)	94194.000 (99.973 +- 0.005|26.523 +- 0.074)
D0 reject.	91543.000 (100.000 +- 0.000|25.748 +- 0.073)	94194.000 (100.000 +- 0.000|26.523 +- 0.074
PID	84664.000 (92.485 +- 0.087|23.813 +- 0.071)	87010.000 (92.373 +- 0.086|24.500 +- 0.072)
Mult. rej.	80969.000 (95.636 +- 0.070|22.774 +- 0.070)	83134.000 (95.545 +- 0.070|23.409 +- 0.071)
r>=4.5	37143.000 (45.873 +- 0.175|10.447 +- 0.051)	38075.000 (45.800 +- 0.173|10.721 +- 0.052)
Eloss corr	37083.000 (99.838 +- 0.021|10.430 +- 0.051)	38016.000 (99.845 +- 0.020|10.704 +- 0.052)
Reflections	37083.000 (100.000 +- 0.000|10.430 +- 0.051)	38016.000 (100.000 +- 0.000|10.704 +- 0.052)

Efficiency Differences	(KKpi) (Marginal %|Cumulative %)	(Kpipi) (Marginal %|Cumulative %)
TAG+GTL+pChi2>0.01	-0.108 +- 0.323|-0.108 +- 0.323	-0.686 +- 0.106|-0.686 +- 0.106
pCms>2.4	0.028 +- 0.014|-0.075 +- 0.313	-0.030 +- 0.009|-0.775 +- 0.104
D0 reject.	0.000 +- 0.000|-0.075 +- 0.313	0.000 +- 0.000|-0.775 +- 0.104
PID	-0.139 +- 0.280|-0.102 +- 0.309	0.112 +- 0.123|-0.687 +- 0.102
Mult. rej.	-0.802 +- 0.489|-0.258 +- 0.298	0.090 +- 0.099|-0.635 +- 0.100
r>=4.5	-1.134 +- 0.883|-0.333 +- 0.216	0.074 +- 0.246|-0.274 +- 0.073
Eloss corr	-0.145 +- 0.134|-0.345 +- 0.216	-0.007 +- 0.029|-0.274 +- 0.073
Reflections	0.000 +- 0.000|-0.345 +- 0.216	0.000 +- 0.000|-0.274 +- 0.073

Table F.1: Efficiencies for set 2000-1900V WITHOUT tracking and PID corrections.

Efficiencies	$D^+ \to K^- K^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ K^- \pi^-$ entries (marginal %| cumulative %)
Generated	34069.000	34288.000
TAG+GTL+pChi2>0.01	6927.834 (20.335 +- 0.218|20.335 +- 0.218)	7027.387 (20.495 +- 0.218|20.495 +- 0.218)
pCms>2.4	6928.798 (100.014 +- 0.000|20.338 +- 0.218)	7026.475 (99.987 +- 0.014|20.493 +- 0.218)
D0 reject.	6928.798 (100.000 +- 0.000|20.338 +- 0.218)	7026.475 (100.000 +- 0.000|20.493 +- 0.218)
PID	6720.829 (96.998 +- 0.205|19.727 +- 0.216)	6824.968 (97.132 +- 0.199|19.905 +- 0.216)
Mult. rej.	6067.441 (90.278 +- 0.361|17.809 +- 0.207)	6220.662 (91.146 +- 0.344|18.142 +- 0.208)
r>=4.5	2813.312 (46.367 +- 0.640|8.258 +- 0.149)	2953.090 (47.472 +- 0.633|8.613 +- 0.152)
Eloss corr	2803.796 (99.662 +- 0.109|8.230 +- 0.149)	2947.149 (99.799 +- 0.082|8.595 +- 0.151)
Reflections	2803.796 (100.000 +- 0.000|8.230 +- 0.149)	2947.149 (100.000 +- 0.000|8.595 +- 0.151)

Efficiencies	$D^+ \to K^- \pi^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ \pi^- \pi^-$ entries (marginal %| cumulative %)
Generated	355534.000	355144.000
TAG+GTL+pChi2>0.01	88020.415 (24.757 +- 0.072|24.757 +- 0.072)	90959.257 (25.612 +- 0.073|25.612 +- 0.073)
pCms>2.4	87970.943 (99.944 +- 0.008|24.743 +- 0.072)	90935.535 (99.974 +- 0.005|25.605 +- 0.073)
D0 reject.	87970.943 (100.000 +- 0.000|24.743 +- 0.072)	90935.535 (100.000 +- 0.000|25.605 +- 0.073)
PID	81351.432 (92.475 +- 0.089|22.881 +- 0.070)	83994.330 (92.367 +- 0.088|23.651 +- 0.071)
Mult. rej.	77803.783 (95.639 +- 0.072|21.884 +- 0.069)	80237.114 (95.527 +- 0.071|22.593 +- 0.070)
r>=4.5	35677.397 (45.856 +- 0.179|10.035 +- 0.050)	36717.115 (45.761 +- 0.176|10.339 +- 0.051)
Eloss corr	35618.921 (99.836 +- 0.021|10.018 +- 0.050)	36658.719 (99.841 +- 0.021|10.322 +- 0.051)
Reflections	35618.921 (100.000 +- 0.000|10.018 +- 0.050)	36658.719 (100.000 +- 0.000|10.322 +- 0.051)

Efficiency Differences	(KKpi) (Marginal %|Cumulative %)	(Kpipi) (Marginal %|Cumulative %)
TAG+GTL+pChi2>0.01	-0.160 +- 0.308|-0.160 +- 0.308	-0.855 +- 0.103|-0.855 +- 0.103
pCms>2.4	0.027 +- 0.014|-0.155 +- 0.308	-0.030 +- 0.010|-0.862 +- 0.103
D0 reject.	0.000 +- 0.000|-0.155 +- 0.308	0.000 +- 0.000|-0.862 +- 0.103
PID	-0.134 +- 0.286|-0.178 +- 0.305	0.108 +- 0.125|-0.769 +- 0.100
Mult. rej.	-0.868 +- 0.499|-0.333 +- 0.294	0.112 +- 0.101|-0.709 +- 0.099
r>=4.5	-1.105 +- 0.900|-0.355 +- 0.213	0.095 +- 0.251|-0.304 +- 0.072
Eloss corr	-0.137 +- 0.137|-0.366 +- 0.212	-0.005 +- 0.030|-0.304 +- 0.072
Reflections	0.000 +- 0.000|-0.366 +- 0.212	0.000 +- 0.000|-0.304 +- 0.072

Table F.2: Efficiencies for set 2000-1900V WITH tracking corrections.

Efficiencies	$D^+ \to K^- K^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ K^- \pi^-$ entries (marginal %| cumulative %)
Generated	34069.000	34288.000
TAG+GTL+pChi2>0.01	6360.862 (18.671 +- 0.211|18.671 +- 0.211)	6498.906 (18.954 +- 0.212|18.954 +- 0.212)
pCms>2.4	6360.869 (100.000 +- 0.000|18.671 +- 0.211)	6497.024 (99.971 +- 0.021|18.948 +- 0.212)
D0 reject.	6360.869 (100.000 +- 0.000|18.671 +- 0.211)	6497.024 (100.000 +- 0.000|18.948 +- 0.212)
PID	6085.028 (95.663 +- 0.255|17.861 +- 0.208)	6209.351 (95.572 +- 0.255|18.109 +- 0.208)
Mult. rej.	5482.126 (90.092 +- 0.383|16.091 +- 0.199)	5655.365 (91.078 +- 0.362|16.494 +- 0.200)
r>=4.5	2565.122 (46.791 +- 0.674|7.529 +- 0.143)	2708.213 (47.887 +- 0.664|7.898 +- 0.146)
Eloss corr	2564.188 (99.964 +- 0.038|7.526 +- 0.143)	2704.283 (99.855 +- 0.073|7.887 +- 0.146)
Reflections	2564.188 (100.000 +- 0.000|7.526 +- 0.143)	2704.283 (100.000 +- 0.000|7.887 +- 0.146)

Efficiencies	$D^+ \to K^- \pi^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ \pi^- \pi^-$ entries (marginal %| cumulative %)
Generated	355534.000	355144.000
TAG+GTL+pChi2>0.01	84011.262 (23.630 +- 0.071|23.630 +- 0.071)	86908.679 (24.471 +- 0.072|24.471 +- 0.072)
pCms>2.4	83968.413 (99.949 +- 0.008|23.618 +- 0.071)	86882.748 (99.970 +- 0.006|24.464 +- 0.072)
D0 reject.	83968.413 (100.000 +- 0.000|23.618 +- 0.071)	86882.748 (100.000 +- 0.000|24.464 +- 0.072)
PID	76407.976 (90.996 +- 0.099|21.491 +- 0.069)	79316.595 (91.292 +- 0.096|22.334 +- 0.070)
Mult. rej.	73191.027 (95.790 +- 0.073|20.586 +- 0.068)	75831.112 (95.606 +- 0.073|21.352 +- 0.069)
r>=4.5	33796.249 (46.175 +- 0.184|9.506 +- 0.049)	34818.194 (45.915 +- 0.181|9.804 +- 0.050)
Eloss corr	33731.739 (99.809 +- 0.024|9.488 +- 0.049)	34759.759 (99.832 +- 0.022|9.788 +- 0.050)
Reflections	33731.739 (100.000 +- 0.000|9.488 +- 0.049)	34759.759 (100.000 +- 0.000|9.788 +- 0.050)

Efficiency Differences	(KKpi) (Marginal %|Cumulative %)	(Kpipi) (Marginal %|Cumulative %)
TAG+GTL+pChi2>0.01	-0.283 +- 0.299|-0.283 +- 0.299	-0.842 +- 0.101|-0.842 +- 0.101
pCms>2.4	0.029 +- 0.021|-0.278 +- 0.299	-0.021 +- 0.010|-0.847 +- 0.101
D0 reject.	0.000 +- 0.000|-0.278 +- 0.299	0.000 +- 0.000|-0.847 +- 0.101
PID	0.091 +- 0.361|-0.249 +- 0.294	-0.295 +- 0.138|-0.843 +- 0.098
Mult. rej.	-0.986 +- 0.527|-0.402 +- 0.282	0.184 +- 0.103|-0.766 +- 0.097
r>=4.5	-1.097 +- 0.946|-0.369 +- 0.204	0.260 +- 0.258|-0.298 +- 0.070
Eloss corr	0.109 +- 0.082|-0.361 +- 0.204	-0.023 +- 0.032|-0.300 +- 0.070
Reflections	0.000 +- 0.000|-0.361 +- 0.204	0.000 +- 0.000|-0.300 +- 0.070

Table F.3: Efficiencies for set 2000-1900V WITH tracking and PID corrections.

Efficiencies	$D^+ \to K^-K^+\pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+K^-\pi^-$ entries (marginal %| cumulative %)
Generated	45111.000	45129.000
TAG+GTL+pChi2>0.01	10424.000 (23.107 +- 0.198|23.107 +- 0.198)	10446.000 (23.147 +- 0.199|23.147 +- 0.199)
pCms>2.4	9589.000 (99.906 +- 0.031|21.256 +- 0.193)	9640.000 (99.938 +- 0.025|21.361 +- 0.193)
D0 reject.	9589.000 (100.000 +- 0.000|21.256 +- 0.193)	9640.000 (100.000 +- 0.000|21.361 +- 0.193)
PID	9331.000 (97.309 +- 0.165|20.685 +- 0.191)	9309.000 (96.566 +- 0.185|20.628 +- 0.190)
Mult. rej.	8430.000 (90.344 +- 0.306|18.687 +- 0.184)	8414.000 (90.386 +- 0.306|18.644 +- 0.183)
r>=4.5	3895.000 (46.204 +- 0.543|8.634 +- 0.132)	3953.000 (46.981 +- 0.544|8.759 +- 0.133)
Eloss corr	3891.000 (99.897 +- 0.051|8.625 +- 0.132)	3946.000 (99.823 +- 0.067|8.744 +- 0.133)
Reflections	3891.000 (100.000 +- 0.000|8.625 +- 0.132)	3946.000 (100.000 +- 0.000|8.744 +- 0.133)

Efficiencies	$D^+ \to K^-\pi^+\pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+\pi^-\pi^-$ entries (marginal %| cumulative %)
Generated	470257.000	469810.000
TAG+GTL+pChi2>0.01	127063.000 (27.020 +- 0.065|27.020 +- 0.065)	130260.000 (27.726 +- 0.065|27.726 +- 0.065)
pCms>2.4	121845.000 (99.950 +- 0.006|25.910 +- 0.064)	125297.000 (99.955 +- 0.006|26.670 +- 0.065)
D0 reject.	121845.000 (100.000 +- 0.000|25.910 +- 0.064)	125297.000 (100.000 +- 0.000|26.670 +- 0.065)
PID	112811.000 (92.586 +- 0.075|23.989 +- 0.062)	116073.000 (92.638 +- 0.074|24.706 +- 0.063)
Mult. rej.	107620.000 (95.398 +- 0.062|22.885 +- 0.061)	110881.000 (95.527 +- 0.061|23.601 +- 0.062)
r>=4.5	49546.000 (46.038 +- 0.152|10.536 +- 0.045)	51142.000 (46.123 +- 0.150|10.886 +- 0.045)
Eloss corr	49484.000 (99.875 +- 0.016|10.523 +- 0.045)	51084.000 (99.887 +- 0.015|10.873 +- 0.045)
Reflections	49484.000 (100.000 +- 0.000|10.523 +- 0.045)	51084.000 (100.000 +- 0.000|10.873 +- 0.045)

Efficiency Differences	(KKpi) (Marginal %|Cumulative %)	(Kpipi) (Marginal %|Cumulative %)
TAG+GTL+pChi2>0.01	-0.040 +- 0.281|-0.040 +- 0.281	-0.706 +- 0.092|-0.706 +- 0.092
pCms>2.4	-0.032 +- 0.040|-0.105 +- 0.273	-0.005 +- 0.009|-0.759 +- 0.091
D0 reject.	0.000 +- 0.000|-0.105 +- 0.273	0.000 +- 0.000|-0.759 +- 0.091
PID	0.743 +- 0.248|0.057 +- 0.270	-0.053 +- 0.105|-0.717 +- 0.089
Mult. rej.	-0.042 +- 0.432|0.043 +- 0.259	-0.128 +- 0.087|-0.716 +- 0.087
r>=4.5	-0.777 +- 0.769|-0.125 +- 0.188	-0.085 +- 0.213|-0.350 +- 0.064
Eloss corr	0.074 +- 0.084|-0.118 +- 0.187	-0.012 +- 0.022|-0.351 +- 0.064
Reflections	0.000 +- 0.000|-0.118 +- 0.187	0.000 +- 0.000|-0.351 +- 0.064

Table F.4: Efficiencies for set 2000-1960V WITHOUT tracking and PID corrections.

Efficiencies	$D^+ \to K^-K^+\pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+K^-\pi^-$ entries (marginal %| cumulative %)
Generated	45111.000	45129.000
TAG+GTL+pChi2>0.01	9295.277 (20.605 +- 0.190|20.605 +- 0.190)	9369.259 (20.761 +- 0.191|20.761 +- 0.191)
pCms>2.4	9286.805 (99.909 +- 0.031|20.587 +- 0.190)	9363.433 (99.938 +- 0.026|20.748 +- 0.191)
D0 reject.	9286.805 (100.000 +- 0.000|20.587 +- 0.190)	9363.433 (100.000 +- 0.000|20.748 +- 0.191)
PID	9036.122 (97.301 +- 0.168|20.031 +- 0.188)	9040.545 (96.552 +- 0.189|20.033 +- 0.188)
Mult. rej.	8172.725 (90.445 +- 0.309|18.117 +- 0.181)	8177.796 (90.457 +- 0.309|18.121 +- 0.181)
r>=4.5	3780.056 (46.252 +- 0.552|8.379 +- 0.130)	3846.034 (47.030 +- 0.552|8.522 +- 0.131)
Eloss corr	3776.619 (99.909 +- 0.049|8.372 +- 0.130)	3839.743 (99.836 +- 0.065|8.508 +- 0.131)
Reflections	3776.619 (100.000 +- 0.000|8.372 +- 0.130)	3839.743 (100.000 +- 0.000|8.508 +- 0.131)

Efficiencies	$D^+ \to K^-\pi^+\pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+\pi^-\pi^-$ entries (marginal %| cumulative %)
Generated	470257.000	469810.000
TAG+GTL+pChi2>0.01	117962.956 (25.085 +- 0.063|25.085 +- 0.063)	121578.699 (25.878 +- 0.064|25.878 +- 0.064)
pCms>2.4	117904.524 (99.950 +- 0.006|25.072 +- 0.063)	121525.141 (99.956 +- 0.006|25.867 +- 0.064)
D0 reject.	117904.524 (100.000 +- 0.000|25.072 +- 0.063)	121525.141 (100.000 +- 0.000|25.867 +- 0.064)
PID	109148.359 (92.574 +- 0.076|23.210 +- 0.062)	112559.164 (92.622 +- 0.075|23.958 +- 0.062)
Mult. rej.	104174.953 (95.443 +- 0.063|22.153 +- 0.061)	107573.797 (95.571 +- 0.061|22.897 +- 0.061)
r>=4.5	48031.784 (46.107 +- 0.154|10.214 +- 0.044)	49696.919 (46.198 +- 0.152|10.578 +- 0.045)
Eloss corr	47973.642 (99.879 +- 0.016|10.202 +- 0.044)	49641.133 (99.888 +- 0.015|10.566 +- 0.045)
Reflections	47973.642 (100.000 +- 0.000|10.202 +- 0.044)	49641.133 (100.000 +- 0.000|10.566 +- 0.045)

Efficiency Differences	(KKpi) (Marginal %|Cumulative %)	(Kpipi) (Marginal %|Cumulative %)
TAG+GTL+pChi2>0.01	-0.156 +- 0.270|-0.156 +- 0.270	-0.793 +- 0.090|-0.793 +- 0.090
pCms>2.4	-0.029 +- 0.041|-0.162 +- 0.270	-0.005 +- 0.009|-0.795 +- 0.090
D0 reject.	0.000 +- 0.000|-0.162 +- 0.270	0.000 +- 0.000|-0.795 +- 0.090
PID	0.749 +- 0.253|-0.002 +- 0.266	-0.049 +- 0.107|-0.748 +- 0.088
Mult. rej.	-0.012 +- 0.437|-0.004 +- 0.256	-0.127 +- 0.088|-0.745 +- 0.086
r>=4.5	-0.778 +- 0.780|-0.143 +- 0.185	-0.091 +- 0.217|-0.364 +- 0.063
Eloss corr	0.073 +- 0.082|-0.137 +- 0.185	-0.009 +- 0.022|-0.365 +- 0.063
Reflections	0.000 +- 0.000|-0.137 +- 0.185	0.000 +- 0.000|-0.365 +- 0.063

Table F.5: Efficiencies for set 2000-1960V WITH tracking corrections.

Efficiencies	$D^+ \to K^- K^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ K^- \pi^-$ entries (marginal %| cumulative %)
Generated	45111.000	45129.000
TAG+GTL+pChi2>0.01	8692.036 (19.268 +- 0.186|19.268 +- 0.186)	8627.667 (19.118 +- 0.185|19.118 +- 0.185)
pCms>2.4	8683.511 (99.902 +- 0.034|19.249 +- 0.186)	8621.842 (99.932 +- 0.028|19.105 +- 0.185)
D0 reject.	8683.511 (100.000 +- 0.000|19.249 +- 0.186)	8621.842 (100.000 +- 0.000|19.105 +- 0.185)
PID	8300.542 (95.590 +- 0.220|18.400 +- 0.182)	8251.291 (95.702 +- 0.218|18.284 +- 0.182)
Mult. rej.	7499.735 (90.352 +- 0.324|16.625 +- 0.175)	7465.441 (90.476 +- 0.323|16.542 +- 0.175)
r>=4.5	3496.059 (46.616 +- 0.576|7.750 +- 0.126)	3585.927 (48.034 +- 0.578|7.946 +- 0.127)
Eloss corr	3500.086 (100.115 +- 0.000|7.759 +- 0.126)	3585.245 (99.981 +- 0.023|7.944 +- 0.127)
Reflections	3500.086 (100.000 +- 0.000|7.759 +- 0.126)	3585.245 (100.000 +- 0.000|7.944 +- 0.127)

Efficiencies	$D^+ \to K^- \pi^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ \pi^- \pi^-$ entries (marginal %| cumulative %)
Generated	470257.000	469810.000
TAG+GTL+pChi2>0.01	112857.547 (23.999 +- 0.062|23.999 +- 0.062)	116763.139 (24.853 +- 0.063|24.853 +- 0.063)
pCms>2.4	112804.720 (99.953 +- 0.006|23.988 +- 0.062)	116708.497 (99.953 +- 0.006|24.842 +- 0.063)
D0 reject.	112804.720 (100.000 +- 0.000|23.988 +- 0.062)	116708.497 (100.000 +- 0.000|24.842 +- 0.063)
PID	102959.593 (91.272 +- 0.084|21.894 +- 0.060)	106564.035 (91.308 +- 0.082|22.682 +- 0.061)
Mult. rej.	98408.602 (95.580 +- 0.064|20.927 +- 0.059)	101916.760 (95.639 +- 0.063|21.693 +- 0.060)
r>=4.5	45493.152 (46.229 +- 0.159|9.674 +- 0.043)	47147.762 (46.261 +- 0.156|10.035 +- 0.044)
Eloss corr	45437.861 (99.878 +- 0.016|9.662 +- 0.043)	47111.895 (99.924 +- 0.013|10.028 +- 0.044)
Reflections	45437.861 (100.000 +- 0.000|9.662 +- 0.043)	47111.895 (100.000 +- 0.000|10.028 +- 0.044)

Efficiency Differences	(KKpi) (Marginal %|Cumulative %)	(Kpipi) (Marginal %|Cumulative %)
TAG+GTL+pChi2>0.01	0.150 +- 0.262|0.150 +- 0.262	-0.854 +- 0.089|-0.854 +- 0.089
pCms>2.4	-0.031 +- 0.044|0.144 +- 0.262	-0.000 +- 0.009|-0.854 +- 0.089
D0 reject.	0.000 +- 0.000|0.144 +- 0.262	0.000 +- 0.000|-0.854 +- 0.089
PID	-0.112 +- 0.310|0.116 +- 0.258	-0.035 +- 0.118|-0.788 +- 0.086
Mult. rej.	-0.124 +- 0.458|0.083 +- 0.248	-0.059 +- 0.090|-0.767 +- 0.084
r>=4.5	-1.418 +- 0.816|-0.196 +- 0.179	-0.032 +- 0.223|-0.361 +- 0.061
Eloss corr	0.134 +- 0.023|-0.186 +- 0.179	-0.045 +- 0.021|-0.366 +- 0.061
Reflections	0.000 +- 0.000|-0.186 +- 0.179	0.000 +- 0.000|-0.366 +- 0.061

Table F.6: Efficiencies for set 2000-1960V WITH tracking and PID corrections.

Efficiencies	$D^+ \to K^- K^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ K^- \pi^-$ entries (marginal %| cumulative %)
Generated	169189.000	168392.000
TAG+GTL+pChi2>0.01	39033.000 (23.071 +- 0.102|23.071 +- 0.102)	39059.000 (23.195 +- 0.103|23.195 +- 0.103)
pCms>2.4	35997.000 (99.947 +- 0.012|21.276 +- 0.099)	36018.000 (99.956 +- 0.011|21.389 +- 0.100)
D0 reject.	35997.000 (100.000 +- 0.000|21.276 +- 0.099)	36018.000 (100.000 +- 0.000|21.389 +- 0.100)
PID	34892.000 (96.930 +- 0.091|20.623 +- 0.098)	34854.000 (96.768 +- 0.093|20.698 +- 0.099)
Mult. rej.	31655.000 (90.723 +- 0.155|18.710 +- 0.095)	31619.000 (90.718 +- 0.155|18.777 +- 0.095)
r>=4.5	14683.000 (46.384 +- 0.280|8.678 +- 0.068)	14818.000 (46.864 +- 0.281|8.800 +- 0.069)
Eloss corr	14676.000 (99.952 +- 0.018|8.674 +- 0.068)	14808.000 (99.933 +- 0.021|8.794 +- 0.069)
Reflections	14676.000 (100.000 +- 0.000|8.674 +- 0.068)	14808.000 (100.000 +- 0.000|8.794 +- 0.069)

Efficiencies	$D^+ \to K^- \pi^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ \pi^- \pi^-$ entries (marginal %| cumulative %)
Generated	1749269.000	1748996.000
TAG+GTL+pChi2>0.01	471393.000 (26.948 +- 0.034|26.948 +- 0.034)	480311.000 (27.462 +- 0.034|27.462 +- 0.034)
pCms>2.4	452393.000 (99.947 +- 0.003|25.862 +- 0.033)	462422.000 (99.954 +- 0.003|26.439 +- 0.033)
D0 reject.	452392.000 (100.000 +- 0.000|25.862 +- 0.033)	462422.000 (100.000 +- 0.000|26.439 +- 0.033)
PID	418982.000 (92.615 +- 0.039|23.952 +- 0.032)	428383.000 (92.639 +- 0.038|24.493 +- 0.033)
Mult. rej.	400252.000 (95.530 +- 0.032|22.881 +- 0.032)	409238.000 (95.531 +- 0.032|23.398 +- 0.032)
r>=4.5	183345.000 (45.807 +- 0.079|10.481 +- 0.023)	188199.000 (45.988 +- 0.078|10.760 +- 0.023)
Eloss corr	183052.000 (99.840 +- 0.009|10.464 +- 0.023)	187933.000 (99.859 +- 0.009|10.745 +- 0.023)
Reflections	183052.000 (100.000 +- 0.000|10.464 +- 0.023)	187933.000 (100.000 +- 0.000|10.745 +- 0.023)

Efficiency Differences	(KKpi) (Marginal %|Cumulative %)	(Kpipi) (Marginal %|Cumulative %)
TAG+GTL+pChi2>0.01	-0.125 +- 0.145|-0.125 +- 0.145	-0.514 +- 0.048|-0.514 +- 0.048
pCms>2.4	-0.008 +- 0.016|-0.113 +- 0.141	-0.007 +- 0.005|-0.577 +- 0.047
D0 reject.	0.000 +- 0.000|-0.113 +- 0.141	-0.000 +- 0.000|-0.578 +- 0.047
PID	0.162 +- 0.130|-0.075 +- 0.139	-0.024 +- 0.055|-0.541 +- 0.046
Mult. rej.	0.004 +- 0.220|-0.067 +- 0.134	-0.001 +- 0.045|-0.517 +- 0.045
r>=4.5	-0.480 +- 0.397|-0.121 +- 0.097	-0.180 +- 0.111|-0.279 +- 0.033
Eloss corr	0.020 +- 0.028|-0.119 +- 0.097	-0.018 +- 0.013|-0.281 +- 0.033
Reflections	0.000 +- 0.000|-0.119 +- 0.097	0.000 +- 0.000|-0.281 +- 0.033

Table F.7: Efficiencies for set 2001-1930V WITHOUT tracking and PID corrections.

Efficiencies	$D^+ \to K^- K^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ K^- \pi^-$ entries (marginal %| cumulative %)
Generated	169189.000	168392.000
TAG+GTL+pChi2>0.01	34919.346 (20.639 +- 0.098|20.639 +- 0.098)	35049.396 (20.814 +- 0.099|20.814 +- 0.099)
pCms>2.4	34901.005 (99.947 +- 0.012|20.628 +- 0.098)	35033.914 (99.956 +- 0.011|20.805 +- 0.099)
D0 reject.	34901.005 (100.000 +- 0.000|20.628 +- 0.098)	35033.914 (100.000 +- 0.000|20.805 +- 0.099)
PID	33823.489 (96.913 +- 0.093|19.992 +- 0.097)	33897.778 (96.757 +- 0.095|20.130 +- 0.098)
Mult. rej.	30712.169 (90.801 +- 0.157|18.153 +- 0.094)	30770.351 (90.774 +- 0.157|18.273 +- 0.094)
r>=4.5	14250.401 (46.400 +- 0.285|8.423 +- 0.068)	14424.590 (46.878 +- 0.284|8.566 +- 0.068)
Eloss corr	14243.007 (99.948 +- 0.019|8.418 +- 0.068)	14415.378 (99.936 +- 0.021|8.561 +- 0.068)
Reflections	14243.007 (100.000 +- 0.000|8.418 +- 0.068)	14415.378 (100.000 +- 0.000|8.561 +- 0.068)

Efficiencies	$D^+ \to K^- \pi^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ \pi^- \pi^-$ entries (marginal %| cumulative %)
Generated	1749269.000	1748996.000
TAG+GTL+pChi2>0.01	438433.467 (25.064 +- 0.033|25.064 +- 0.033)	449480.185 (25.699 +- 0.033|25.699 +- 0.033)
pCms>2.4	438202.346 (99.947 +- 0.003|25.051 +- 0.033)	449275.335 (99.954 +- 0.003|25.688 +- 0.033)
D0 reject.	438201.423 (100.000 +- 0.000|25.051 +- 0.033)	449275.335 (100.000 +- 0.000|25.688 +- 0.033
PID	405721.886 (92.588 +- 0.040|23.194 +- 0.032)	416122.468 (92.621 +- 0.039|23.792 +- 0.032)
Mult. rej.	387748.198 (95.570 +- 0.032|22.166 +- 0.031)	397683.209 (95.569 +- 0.032|22.738 +- 0.032)
r>=4.5	177767.527 (45.846 +- 0.080|10.162 +- 0.023)	183001.597 (46.017 +- 0.079|10.463 +- 0.023)
Eloss corr	177485.980 (99.842 +- 0.009|10.146 +- 0.023)	182743.925 (99.859 +- 0.009|10.449 +- 0.023)
Reflections	177485.980 (100.000 +- 0.000|10.146 +- 0.023)	182743.925 (100.000 +- 0.000|10.449 +- 0.023)

Efficiency Differences	(KKpi) (Marginal %|Cumulative %)	(Kpipi) (Marginal %|Cumulative %)
TAG+GTL+pChi2>0.01	-0.175 +- 0.140|-0.175 +- 0.140	-0.636 +- 0.047|-0.636 +- 0.047
pCms>2.4	-0.008 +- 0.017|-0.177 +- 0.140	-0.007 +- 0.005|-0.637 +- 0.047
D0 reject.	0.000 +- 0.000|-0.177 +- 0.140	-0.000 +- 0.000|-0.637 +- 0.047
PID	0.156 +- 0.132|-0.139 +- 0.138	-0.033 +- 0.056|-0.598 +- 0.045
Mult. rej.	0.027 +- 0.222|-0.120 +- 0.133	0.001 +- 0.045|-0.572 +- 0.045
r>=4.5	-0.478 +- 0.402|-0.143 +- 0.096	-0.171 +- 0.112|-0.301 +- 0.033
Eloss corr	0.012 +- 0.028|-0.142 +- 0.096	-0.018 +- 0.013|-0.302 +- 0.032
Reflections	0.000 +- 0.000|-0.142 +- 0.096	0.000 +- 0.000|-0.302 +- 0.032

Table F.8: Efficiencies for set 2001-1930V WITH tracking corrections.

Efficiencies	$D^+ \to K^- K^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ K^- \pi^-$ entries (marginal %| cumulative %)
Generated	169189.000	168392.000
TAG+GTL+pChi2>0.01	32677.166 (19.314 +- 0.096|19.314 +- 0.096)	32662.806 (19.397 +- 0.096|19.397 +- 0.096)
pCms>2.4	32663.541 (99.958 +- 0.011|19.306 +- 0.096)	32643.363 (99.940 +- 0.013|19.385 +- 0.096)
D0 reject.	32663.541 (100.000 +- 0.000|19.306 +- 0.096)	32643.363 (100.000 +- 0.000|19.385 +- 0.096)
PID	31152.207 (95.373 +- 0.116|18.413 +- 0.094)	31285.069 (95.839 +- 0.111|18.579 +- 0.095)
Mult. rej.	28313.888 (90.889 +- 0.163|16.735 +- 0.091)	28357.959 (90.644 +- 0.165|16.840 +- 0.091)
r>=4.5	13333.523 (47.092 +- 0.297|7.881 +- 0.066)	13552.283 (47.790 +- 0.297|8.048 +- 0.066)
Eloss corr	13314.506 (99.857 +- 0.033|7.870 +- 0.065)	13537.708 (99.892 +- 0.028|8.039 +- 0.066)
Reflections	13314.506 (100.000 +- 0.000|7.870 +- 0.065)	13537.708 (100.000 +- 0.000|8.039 +- 0.066)

Efficiencies	$D^+ \to K^- \pi^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ \pi^- \pi^-$ entries (marginal %| cumulative %)
Generated	1749269.000	1748996.000
TAG+GTL+pChi2>0.01	421792.378 (24.112 +- 0.032|24.112 +- 0.032)	434038.045 (24.816 +- 0.033|24.816 +- 0.033)
pCms>2.4	421569.816 (99.947 +- 0.004|24.100 +- 0.032)	433848.788 (99.956 +- 0.003|24.806 +- 0.033)
D0 reject.	421568.893 (100.000 +- 0.000|24.100 +- 0.032)	433848.788 (100.000 +- 0.000|24.806 +- 0.033)
PID	382632.893 (90.764 +- 0.045|21.874 +- 0.031)	395423.205 (91.143 +- 0.043|22.609 +- 0.032)
Mult. rej.	365760.867 (95.591 +- 0.033|20.909 +- 0.031)	378029.464 (95.601 +- 0.033|21.614 +- 0.031)
r>=4.5	168444.578 (46.053 +- 0.082|9.629 +- 0.022)	174192.844 (46.079 +- 0.081|9.960 +- 0.023)
Eloss corr	168179.037 (99.842 +- 0.010|9.614 +- 0.022)	173891.507 (99.827 +- 0.010|9.942 +- 0.023)
Reflections	168179.037 (100.000 +- 0.000|9.614 +- 0.022)	173891.507 (100.000 +- 0.000|9.942 +- 0.023)

Efficiency Differences	(KKpi) (Marginal %|Cumulative %)	(Kpipi) (Marginal %|Cumulative %)
TAG+GTL+pChi2>0.01	-0.083 +- 0.136|-0.083 +- 0.136	-0.704 +- 0.046|-0.704 +- 0.046
pCms>2.4	0.018 +- 0.018|-0.079 +- 0.136	-0.009 +- 0.005|-0.706 +- 0.046
D0 reject.	0.000 +- 0.000|-0.079 +- 0.136	-0.000 +- 0.000|-0.706 +- 0.046
PID	-0.466 +- 0.160|-0.166 +- 0.134	-0.379 +- 0.062|-0.735 +- 0.044
Mult. rej.	0.245 +- 0.232|-0.105 +- 0.129	-0.011 +- 0.047|-0.705 +- 0.044
r>=4.5	-0.698 +- 0.420|-0.167 +- 0.093	-0.026 +- 0.116|-0.330 +- 0.032
Eloss corr	-0.035 +- 0.043|-0.170 +- 0.093	0.015 +- 0.014|-0.328 +- 0.032
Reflections	0.000 +- 0.000|-0.170 +- 0.093	0.000 +- 0.000|-0.328 +- 0.032

Table F.9: Efficiencies for set 2001-1930V WITH tracking and PID corrections.

Efficiencies	$D^+ \to K^- K^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ K^- \pi^-$ entries (marginal %| cumulative %)
Generated	87481.000	87676.000
TAG+GTL+pChi2>0.01	20257.000 (23.156 +- 0.143|23.156 +- 0.143)	20416.000 (23.286 +- 0.143|23.286 +- 0.143)
pCms>2.4	18709.000 (99.941 +- 0.018|21.386 +- 0.139)	18807.000 (99.957 +- 0.015|21.451 +- 0.139)
D0 reject.	18709.000 (100.000 +- 0.000|21.386 +- 0.139)	18807.000 (100.000 +- 0.000|21.451 +- 0.139)
PID	18138.000 (96.948 +- 0.126|20.734 +- 0.137)	18232.000 (96.943 +- 0.126|20.795 +- 0.137)
Mult. rej.	16386.000 (90.341 +- 0.219|18.731 +- 0.132)	16535.000 (90.692 +- 0.215|18.859 +- 0.132)
r>=4.5	7710.000 (47.052 +- 0.390|8.813 +- 0.096)	7819.000 (47.288 +- 0.388|8.918 +- 0.096)
Eloss corr	7699.000 (99.857 +- 0.043|8.801 +- 0.096)	7793.000 (99.667 +- 0.065|8.888 +- 0.096)
Reflections	7699.000 (100.000 +- 0.000|8.801 +- 0.096)	7793.000 (100.000 +- 0.000|8.888 +- 0.096)

Efficiencies	$D^+ \to K^- \pi^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ \pi^- \pi^-$ entries (marginal %| cumulative %)
Generated	911550.000	911151.000
TAG+GTL+pChi2>0.01	244482.000 (26.820 +- 0.046|26.820 +- 0.046)	250602.000 (27.504 +- 0.047|27.504 +- 0.047)
pCms>2.4	234651.000 (99.963 +- 0.004|25.742 +- 0.046)	241137.000 (99.953 +- 0.004|26.465 +- 0.046)
D0 reject.	234652.000 (100.000 +- 0.000|25.742 +- 0.046)	241137.000 (100.000 +- 0.000|26.465 +- 0.046)
PID	217863.000 (92.845 +- 0.053|23.900 +- 0.045)	223495.000 (92.684 +- 0.053|24.529 +- 0.045)
Mult. rej.	208231.000 (95.579 +- 0.044|22.844 +- 0.044)	213476.000 (95.517 +- 0.044|23.429 +- 0.044)
r>=4.5	95461.000 (45.844 +- 0.109|10.472 +- 0.032)	98157.000 (45.980 +- 0.108|10.773 +- 0.032)
Eloss corr	95339.000 (99.872 +- 0.012|10.459 +- 0.032)	97956.000 (99.795 +- 0.014|10.751 +- 0.032)
Reflections	95339.000 (100.000 +- 0.000|10.459 +- 0.032)	97956.000 (100.000 +- 0.000|10.751 +- 0.032)

Efficiency Differences	(KKpi) (Marginal %|Cumulative %)	(Kpipi) (Marginal %|Cumulative %)
TAG+GTL+pChi2>0.01	-0.130 +- 0.202|-0.130 +- 0.202	-0.683 +- 0.066|-0.683 +- 0.066
pCms>2.4	-0.016 +- 0.023|-0.064 +- 0.196	0.009 +- 0.006|-0.723 +- 0.065
D0 reject.	0.000 +- 0.000|-0.064 +- 0.196	0.000 +- 0.000|-0.723 +- 0.065
PID	0.005 +- 0.178|-0.061 +- 0.194	0.161 +- 0.075|-0.629 +- 0.063
Mult. rej.	-0.351 +- 0.307|-0.128 +- 0.187	0.062 +- 0.062|-0.586 +- 0.062
r>=4.5	-0.235 +- 0.550|-0.105 +- 0.136	-0.137 +- 0.153|-0.300 +- 0.046
Eloss corr	0.190 +- 0.078|-0.088 +- 0.136	0.077 +- 0.018|-0.292 +- 0.046
Reflections	0.000 +- 0.000|-0.088 +- 0.136	0.000 +- 0.000|-0.292 +- 0.046

Table F.10: Efficiencies for set 2002-1930V WITHOUT tracking and PID corrections.

Efficiencies	$D^+ \to K^- K^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ K^- \pi^-$ entries (marginal %| cumulative %)
Generated	87481.000	87676.000
TAG+GTL+pChi2>0.01	18149.248 (20.747 +- 0.137|20.747 +- 0.137)	18292.538 (20.864 +- 0.137|20.864 +- 0.137)
pCms>2.4	18138.681 (99.942 +- 0.018|20.734 +- 0.137)	18284.727 (99.957 +- 0.015|20.855 +- 0.137)
D0 reject.	18138.681 (100.000 +- 0.000|20.734 +- 0.137)	18284.727 (100.000 +- 0.000|20.855 +- 0.137)
PID	17583.139 (96.937 +- 0.128|20.099 +- 0.135)	17723.155 (96.929 +- 0.128|20.214 +- 0.136)
Mult. rej.	15898.437 (90.419 +- 0.222|18.174 +- 0.130)	16085.327 (90.759 +- 0.218|18.346 +- 0.131)
r>=4.5	7482.509 (47.064 +- 0.396|8.553 +- 0.095)	7606.953 (47.291 +- 0.394|8.676 +- 0.095)
Eloss corr	7471.250 (99.850 +- 0.045|8.540 +- 0.094)	7582.343 (99.676 +- 0.065|8.648 +- 0.095)
Reflections	7471.250 (100.000 +- 0.000|8.540 +- 0.094)	7582.343 (100.000 +- 0.000|8.648 +- 0.095)

Efficiencies	$D^+ \to K^- \pi^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ \pi^- \pi^-$ entries (marginal %| cumulative %)
Generated	911550.000	911151.00
TAG+GTL+pChi2>0.01	227392.392 (24.946 +- 0.045|24.946 +- 0.045)	234386.798 (25.724 +- 0.046|25.724 +- 0.046)
pCms>2.4	227307.589 (99.963 +- 0.004|24.936 +- 0.045)	234277.770 (99.953 +- 0.004|25.712 +- 0.046)
D0 reject.	227308.494 (100.000 +- 0.000|24.936 +- 0.045)	234277.770 (100.000 +- 0.000|25.712 +- 0.046)
PID	210986.850 (92.820 +- 0.054|23.146 +- 0.044)	217090.666 (92.664 +- 0.054|23.826 +- 0.045)
Mult. rej.	201753.054 (95.624 +- 0.045|22.133 +- 0.043)	207440.229 (95.555 +- 0.044|22.767 +- 0.044)
r>=4.5	92565.814 (45.881 +- 0.111|10.155 +- 0.032)	95440.441 (46.009 +- 0.109|10.475 +- 0.032)
Eloss corr	92449.144 (99.874 +- 0.012|10.142 +- 0.032)	95246.444 (99.797 +- 0.015|10.453 +- 0.032)
Reflections	92449.144 (100.000 +- 0.000|10.142 +- 0.032)	95246.444 (100.000 +- 0.000|10.453 +- 0.032)

Efficiency Differences	(KKpi) (Marginal %|Cumulative %)	(Kpipi) (Marginal %|Cumulative %)
TAG+GTL+pChi2>0.01	-0.117 +- 0.194|-0.117 +- 0.194	-0.779 +- 0.064|-0.779 +- 0.064
pCms>2.4	-0.016 +- 0.024|-0.120 +- 0.194	0.009 +- 0.006|-0.776 +- 0.064
D0 reject.	0.000 +- 0.000|-0.120 +- 0.194	0.000 +- 0.000|-0.776 +- 0.064
PID	0.009 +- 0.181|-0.115 +- 0.192	0.156 +- 0.076|-0.680 +- 0.063
Mult. rej.	-0.340 +- 0.311|-0.173 +- 0.185	0.069 +- 0.063|-0.634 +- 0.062
r>=4.5	-0.227 +- 0.558|-0.123 +- 0.134	-0.128 +- 0.156|-0.320 +- 0.045
Eloss corr	0.173 +- 0.079|-0.108 +- 0.134	0.077 +- 0.019|-0.311 +- 0.045
Reflections	0.000 +- 0.000|-0.108 +- 0.134	0.000 +- 0.000|-0.311 +- 0.045

Table F.11: Efficiencies for set 2002-1930V WITH tracking corrections.

Efficiencies	$D^+ \to K^- K^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ K^- \pi^-$ entries (marginal %| cumulative %)
Generated	87481.000	87676.000
TAG+GTL+pChi2>0.01	16986.933 (19.418 +- 0.134|19.418 +- 0.134)	17043.557 (19.439 +- 0.134|19.439 +- 0.134)
pCms>2.4	16979.222 (99.955 +- 0.016|19.409 +- 0.134)	17036.747 (99.960 +- 0.015|19.431 +- 0.134)
D0 reject.	16979.222 (100.000 +- 0.000|19.409 +- 0.134)	17036.747 (100.000 +- 0.000|19.431 +- 0.134)
PID	16228.101 (95.576 +- 0.158|18.550 +- 0.131)	16266.978 (95.482 +- 0.159|18.554 +- 0.131)
Mult. rej.	14721.102 (90.714 +- 0.228|16.828 +- 0.126)	14791.813 (90.932 +- 0.225|16.871 +- 0.126)
r>=4.5	6981.468 (47.425 +- 0.412|7.981 +- 0.092)	7072.976 (47.817 +- 0.411|8.067 +- 0.092)
Eloss corr	6981.179 (99.996 +- 0.008|7.980 +- 0.092)	7064.576 (99.881 +- 0.041|8.058 +- 0.092)
Reflections	6981.179 (100.000 +- 0.000|7.980 +- 0.092)	7064.576 (100.000 +- 0.000|8.058 +- 0.092)

Efficiencies	$D^+ \to K^- \pi^+ \pi^+$ entries (marginal %| cumulative %)	$D^- \to K^+ \pi^- \pi^-$ entries (marginal %| cumulative %)
Generated	911550.000	911151.000
TAG+GTL+pChi2>0.01	218915.486 (24.016 +- 0.045|24.016 +- 0.045)	225734.179 (24.775 +- 0.045|24.775 +- 0.045)
pCms>2.4	218831.639 (99.962 +- 0.004|24.007 +- 0.045)	225633.511 (99.955 +- 0.004|24.764 +- 0.045)
D0 reject.	218831.639 (100.000 +- 0.000|24.007 +- 0.045)	225633.511 (100.000 +- 0.000|24.764 +- 0.045)
PID	199559.928 (91.193 +- 0.061|21.892 +- 0.043)	205345.635 (91.008 +- 0.060|22.537 +- 0.044)
Mult. rej.	190909.129 (95.665 +- 0.046|20.943 +- 0.043)	196253.432 (95.572 +- 0.045|21.539 +- 0.043)
r>=4.5	87959.715 (46.074 +- 0.114|9.649 +- 0.031)	90738.157 (46.235 +- 0.113|9.959 +- 0.031)
Eloss corr	87846.517 (99.871 +- 0.012|9.637 +- 0.031)	90569.153 (99.814 +- 0.014|9.940 +- 0.031)
Reflections	87846.517 (100.000 +- 0.000|9.637 +- 0.031)	90569.153 (100.000 +- 0.000|9.940 +- 0.031)

Efficiency Differences	(KKpi)	(Kpipi)
	(Marginal %|Cumulative %)	(Marginal %|Cumulative %)
TAG+GTL+pChi2>0.01	-0.021 +- 0.189|-0.021 +- 0.189	-0.759 +- 0.064|-0.759 +- 0.064
pCms>2.4	-0.005 +- 0.022|-0.022 +- 0.189	0.006 +- 0.006|-0.757 +- 0.064
D0 reject.	0.000 +- 0.000|-0.022 +- 0.189	0.000 +- 0.000|-0.757 +- 0.064
PID	0.095 +- 0.224|-0.003 +- 0.186	0.185 +- 0.085|-0.645 +- 0.062
Mult. rej.	-0.218 +- 0.320|-0.043 +- 0.179	0.093 +- 0.064|-0.596 +- 0.061
r>=4.5	-0.392 +- 0.581|-0.087 +- 0.130	-0.161 +- 0.160|-0.309 +- 0.044
Eloss corr	0.115 +- 0.042|-0.077 +- 0.130	0.058 +- 0.019|-0.303 +- 0.044
Reflections	0.000 +- 0.000|-0.077 +- 0.130	0.000 +- 0.000|-0.303 +- 0.044

Table F.12: Efficiencies for set 2002-1930V WITH tracking and PID corrections.