CHARMED MESONS ($C = \pm 1$)

$D^+ = c\overline{d}$, $D^0 = c\overline{u}$, $\overline{D}^0 = \overline{c}\,u$, $D^- = \overline{c}\,d$, similarly for D^*'s

$D^\pm$

$I(J^P) = \frac{1}{2}(0^-)$

Mass $m = 1869.3 \pm 0.4$ MeV (S = 1.1)
Mean life $\tau = (1040 \pm 7) \times 10^{-15}$ s
$c\tau = 311.8$ μm

c-quark decays

$\Gamma(c \to \ell^+ \text{anything})/\Gamma(c \to \text{anything}) = 0.096 \pm 0.004$ [a]
$\Gamma(c \to D^*(2010)^+ \text{anything})/\Gamma(c \to \text{anything}) = 0.255 \pm 0.017$

CP-violation decay-rate asymmetries

$A_{CP}(K^0_S \pi^\pm) = -0.016 \pm 0.017$
$A_{CP}(K^0_S K^\pm) = 0.07 \pm 0.06$
$A_{CP}(K^+ K^- \pi^\pm) = 0.007 \pm 0.008$
$A_{CP}(K^\pm K^{*0}) = 0.005 \pm 0.017$
$A_{CP}(\phi \pi^\pm) = -0.001 \pm 0.015$
$A_{CP}(\pi^+ \pi^- \pi^\pm) = -0.02 \pm 0.04$
$A_{CP}(K^0_S K^\pm \pi^+ \pi^-) = -0.04 \pm 0.07$

T-violation decay-rate asymmetry

$A_T(K^0_S K^\pm \pi^+ \pi^-) = 0.02 \pm 0.07$

$D^+ \to \overline{K}^*(892)^0 \ell^+ \nu_\ell$ form factors

$r_v = 1.62 \pm 0.08$ (S = 1.5)
$r_2 = 0.83 \pm 0.05$
$r_3 = 0.0 \pm 0.4$
$\Gamma_L/\Gamma_T = 1.13 \pm 0.08$
$\Gamma_+/\Gamma_- = 0.22 \pm 0.06$ (S = 1.6)

Most decay modes (other than the semileptonic modes) that involve a neutral K meson are now given as K^0_S modes, not as $\overline{K}^0$ modes. Nearly always it is a K^0_S that is measured, and interference between Cabibbo-allowed and doubly Cabibbo-suppressed modes can invalidate the assumption that $2\,\Gamma(K^0_S) = \Gamma(\overline{K}^0)$.

D^+ DECAY MODES	Fraction (Γ_i/Γ)	Scale factor/ Confidence level	p (MeV/c)
Inclusive modes			
e^+ anything	(17.2 ± 1.9) %		–
K^- anything	(27.5 ± 2.4) %		–
$\overline{K}^0$ anything + K^0 anything	(61 ± 8) %		–
K^+ anything	(5.5 ± 1.6) %		–
$\overline{K}^*(892)^0$ anything	(23 ± 5) %		–
$K^*(892)^0$ anything	< 6.6 %	CL=90%	–
η anything	[b] < 13 %	CL=90%	–
ϕ anything	< 1.8 %	CL=90%	–
ϕe^+ anything	< 1.6 %	CL=90%	–
Leptonic and semileptonic modes			
$e^+ \nu_e$	$< 2.4 \times 10^{-5}$	CL=90%	935
$\mu^+ \nu_\mu$	$(4.4 \pm 0.7) \times 10^{-4}$		932
$\overline{K}^0 e^+ \nu_e$	(8.6 ± 0.5) %		868
$\overline{K}^0 \mu^+ \nu_\mu$	(9.5 ± 0.8) %		865
$K^- \pi^+ e^+ \nu_e$	$(4.5 ^{+1.0}_{-0.8})$ %	S=1.1	863
$\overline{K}^*(892)^0 e^+ \nu_e$, $\overline{K}^*(892)^0 \to K^- \pi^+$	(3.74 ± 0.21) %		722
$K^- \pi^+ e^+ \nu_e$ nonresonant	$< 7 \times 10^{-3}$	CL=90%	863
$K^- \pi^+ \mu^+ \nu_\mu$	(4.0 ± 0.5) %		851
$\overline{K}^*(892)^0 \mu^+ \nu_\mu$, $\overline{K}^*(892)^0 \to K^- \pi^+$	(3.7 ± 0.3) %		717
$K^- \pi^+ \mu^+ \nu_\mu$ nonresonant	$(2.1 \pm 0.6) \times 10^{-3}$		851
$(\overline{K}^*(892) \pi)^0 e^+ \nu_e$	< 1.2 %	CL=90%	712
$(\overline{K} \pi \pi)^0 e^+ \nu_e$ non-$\overline{K}^*(892)$	$< 9 \times 10^{-3}$	CL=90%	846
$K^- \pi^+ \pi^0 \mu^+ \nu_\mu$	$< 1.7 \times 10^{-3}$	CL=90%	825
$\pi^0 e^+ \nu_e$	$(4.4 \pm 0.7) \times 10^{-3}$		930

Fractions of some of the following modes with resonances have already appeared above as submodes of particular charged-particle modes.

$\overline{K}^*(892)^0 e^+ \nu_e$	(5.61 ± 0.31) %	S=1.1	722
$\overline{K}^*(892)^0 \mu^+ \nu_\mu$	(5.5 ± 0.5) %	S=1.1	717
$\overline{K}_1(1270)^0 \mu^+ \nu_\mu$	< 4 %	CL=95%	493
$\overline{K}_0^*(1430)^0 \mu^+ \nu_\mu$	$< 2.5 \times 10^{-4}$		388
$\overline{K}_2^*(1430)^0 \mu^+ \nu_\mu$	< 1.1 %	CL=95%	380
$\overline{K}^*(1680)^0 \mu^+ \nu_\mu$	$< 1.6 \times 10^{-3}$		105

$\rho^0 e^+ \nu_e$		$(2.2 \pm 0.4) \times 10^{-3}$		774
$\rho^0 \mu^+ \nu_\mu$		$(3.4 \pm 0.8) \times 10^{-3}$		770
$\omega e^+ \nu_e$		$(1.6 {}^{+0.7}_{-0.6}) \times 10^{-3}$		771
$\phi e^+ \nu_e$		< 2.09 %	CL=90%	657
$\phi \mu^+ \nu_\mu$		< 3.72 %	CL=90%	651
$\eta \ell^+ \nu_\ell$		$< 7 \times 10^{-3}$	CL=90%	854
$\eta'(958) \mu^+ \nu_\mu$		< 1.1 %	CL=90%	684

Hadronic modes with a $\overline{K}$ or $\overline{K}K\overline{K}$

$K^0_S \pi^+$		(1.47 ± 0.06) %	S=1.1	862
$K^- \pi^+ \pi^+$	[c]	(9.51 ± 0.34) %	S=1.1	845
$\overline{K}^*(892)^0 \pi^+$, $\overline{K}^*(892)^0 \to K^- \pi^+$	[d]	(1.33 ± 0.11) %		714
$\overline{K}^*_0(1430)^0 \pi^+$, $\overline{K}^*_0(1430)^0 \to K^- \pi^+$	[d]	(2.41 ± 0.24) %		382
$\overline{K}^*(1680)^0 \pi^+$, $\overline{K}^*(1680)^0 \to K^- \pi^+$	[d]	$(4.0 \pm 0.8) \times 10^{-3}$		58
$K^- \pi^+ \pi^+$ nonresonant	[d]	(9.0 ± 0.7) %		845
$K^0_S \pi^+ \pi^0$	[c]	(7.0 ± 0.5) %	S=1.2	845
$K^0_S \rho^+$		(4.8 ± 1.1) %		677
$\overline{K}^*(892)^0 \pi^+$, $\overline{K}^*(892)^0 \to K^0_S \pi^0$		(1.3 ± 0.6) %		714
$K^0_S \pi^+ \pi^0$ nonresonant		$(9 \pm 7) \times 10^{-3}$		845
$K^- \pi^+ \pi^+ \pi^0$	[c]	(6.00 ± 0.28) %	S=1.1	816
$\overline{K}^*(892)^0 \rho^+$ total, $\overline{K}^*(892)^0 \to K^- \pi^+$		(1.3 ± 0.8) %		422
$\overline{K}_1(1400)^0 \pi^+$, $\overline{K}_1(1400)^0 \to K^- \pi^+ \pi^0$		(1.8 ± 0.7) %		390
$K^- \rho^+ \pi^+$ total		(2.6 ± 1.6) %		613
$K^- \rho^+ \pi^+$ 3-body		$(9 \pm 6) \times 10^{-3}$		613
$\overline{K}^*(892)^0 \pi^+ \pi^0$ total, $\overline{K}^*(892)^0 \to K^- \pi^+$		(4.2 ± 0.6) %		690
$\overline{K}^*(892)^0 \pi^+ \pi^0$ 3-body, $\overline{K}^*(892)^0 \to K^- \pi^+$		(2.7 ± 0.8) %		690
$K^*(892)^- \pi^+ \pi^+$ 3-body, $K^*(892)^- \to K^- \pi^0$		$(6 \pm 3) \times 10^{-3}$		688
$K^- \pi^+ \pi^+ \pi^0$ nonresonant	[e]	(1.0 ± 0.7) %		816
$K^0_S \pi^+ \pi^+ \pi^-$	[c]	(3.11 ± 0.21) %	S=1.1	814
$K^0_S a_1(1260)^+$, $a_1(1260)^+ \to \pi^+ \pi^+ \pi^-$		(1.8 ± 0.3) %		328
$\overline{K}_1(1400)^0 \pi^+$, $\overline{K}_1(1400)^0 \to K^0_S \pi^+ \pi^-$		(1.8 ± 0.7) %		390

$K^*(892)^- \pi^+ \pi^+$ 3-body, $K^*(892)^- \to K^0_S \pi^-$		(1.3 ±0.6) %		688
$K^0_S \rho^0 \pi^+$ total		(1.86±0.34) %	CL=90%	610
$K^0_S \rho^0 \pi^+$ 3-body		(2.2 ±2.2) $\times 10^{-3}$		610
$K^0_S \pi^+ \pi^+ \pi^-$ nonresonant		(3.7 ±1.9) $\times 10^{-3}$		814
$K^- 3\pi^+ \pi^-$	[c]	(5.8 ±0.6) $\times 10^{-3}$	S=1.1	772
$\overline{K}^*(892)^0 \pi^+ \pi^+ \pi^-$, $\overline{K}^*(892)^0 \to K^- \pi^+$		(1.2 ±0.4) $\times 10^{-3}$		645
$\overline{K}^*(892)^0 \rho^0 \pi^+$, $\overline{K}^*(892)^0 \to K^- \pi^+$		(2.3 ±0.4) $\times 10^{-3}$		239
$K^- \rho^0 \pi^+ \pi^+$		(1.75±0.29) $\times 10^{-3}$		524
$K^- 3\pi^+ \pi^-$ nonresonant		(4.1 ±3.0) $\times 10^{-4}$		772
$K^+ 2K^0_S$		(4.7 ±2.1) $\times 10^{-3}$		545
$K^+ K^- K^0_S \pi^+$		(2.4 ±0.6) $\times 10^{-4}$		435

Fractions of some of the following modes with resonances have already appeared above as submodes of particular charged-particle modes.

$K^0_S a_1(1260)^+$		(3.6 ±0.6) %		328
$K^0_S a_2(1320)^+$		< 1.5 $\times 10^{-3}$	CL=90%	199
$\overline{K}^*(892)^0 \rho^+$ total	[e]	(1.8 ±1.4) %		422
$\overline{K}^*(892)^0 \rho^+$ S-wave	[e]	(1.4 ±1.5) %		422
$\overline{K}^*(892)^0 \rho^+$ P-wave		< 1 $\times 10^{-3}$	CL=90%	422
$\overline{K}^*(892)^0 \rho^+$ D-wave		(8 ±7) $\times 10^{-3}$		422
$\overline{K}^*(892)^0 \rho^+$ D-wave longitudinal		< 7 $\times 10^{-3}$	CL=90%	422
$\overline{K}_1(1270)^0 \pi^+$		< 7 $\times 10^{-3}$	CL=90%	487
$\overline{K}_1(1400)^0 \pi^+$		(4.3 ±1.5) %	S=1.2	390
$\overline{K}^*(892)^0 \pi^+ \pi^0$ total		(5.8 ±2.9) %		690
$\overline{K}^*(892)^0 \pi^+ \pi^0$ 3-body	[e]	(3.6 ±2.1) %		690
$K^*(892)^- \pi^+ \pi^+$ total		—		688
$K^*(892)^- \pi^+ \pi^+$ 3-body		(1.8 $^{+1.1}_{-0.9}$) %	S=1.2	688
$\overline{K}^*(892)^0 a_1(1260)^+$		(9.4 ±1.9) $\times 10^{-3}$		†

Pionic modes

$\pi^+ \pi^0$		(1.28±0.09) $\times 10^{-3}$		925
$\pi^+ \pi^+ \pi^-$		(3.31±0.21) $\times 10^{-3}$		908
$\rho^0 \pi^+$		(1.07±0.11) $\times 10^{-3}$		766
$\pi^+ (\pi^+ \pi^-)_{S-\text{wave}}$		(1.86±0.18) $\times 10^{-3}$		908
$\sigma \pi^+$, $\sigma \to \pi^+ \pi^-$		(1.53±0.32) $\times 10^{-3}$		–
$f_0(980) \pi^+$, $f_0(980) \to \pi^+ \pi^-$		(2.1 ±0.5) $\times 10^{-4}$		669
$f_0(1370) \pi^+$, $f_0(1370) \to \pi^+ \pi^-$		(8 ±6) $\times 10^{-5}$		–

$f_2(1270)\pi^+$, $f_2(1270) \to \pi^+\pi^-$		$(4.8 \pm 1.3) \times 10^{-4}$		485
$\pi^+ 2\pi^0$		$(4.8 \pm 0.4) \times 10^{-3}$		910
$\pi^+\pi^+\pi^-\pi^0$		(1.18 ± 0.09) %		883
$\eta\pi^+$, $\eta \to \pi^+\pi^-\pi^0$		$(7.9 \pm 0.7) \times 10^{-4}$		848
$\omega\pi^+$, $\omega \to \pi^+\pi^-\pi^0$		$< 3 \times 10^{-4}$	CL=90%	763
$3\pi^+ 2\pi^-$		$(1.68 \pm 0.17) \times 10^{-3}$	S=1.1	845

Fractions of some of the following modes with resonances have already appeared above as submodes of particular charged-particle modes.

$\eta\pi^+$		$(3.50 \pm 0.32) \times 10^{-3}$		848
$\omega\pi^+$		$< 3.4 \times 10^{-4}$	CL=90%	763
$\eta\rho^+$		$< 7 \times 10^{-3}$	CL=90%	655
$\eta'(958)\pi^+$		$(5.3 \pm 1.1) \times 10^{-3}$		680
$\eta'(958)\rho^+$		$< 6 \times 10^{-3}$	CL=90%	348

Hadronic modes with a $K\overline{K}$ pair

$K^+ K^0_S$		$(2.96 \pm 0.19) \times 10^{-3}$		792
$K^+ K^- \pi^+$	[c]	(1.00 ± 0.04) %	S=1.2	744
$\phi\pi^+$, $\phi \to K^+ K^-$		$(3.2 \pm 0.4) \times 10^{-3}$		647
$K^+ \overline{K}^*(892)^0$, $\overline{K}^*(892)^0 \to K^-\pi^+$		$(3.02 \pm 0.35) \times 10^{-3}$		613
$K^+ \overline{K}^*_0(1430)^0$, $\overline{K}^*_0(1430)^0 \to K^-\pi^+$		$(3.7 \pm 0.4) \times 10^{-3}$		–
$K^0_S K^0_S \pi^+$		—		741
$K^*(892)^+ K^0_S$, $K^*(892)^+ \to K^0_S \pi^+$		$(5.3 \pm 2.3) \times 10^{-3}$		611
$K^+ K^- \pi^+ \pi^0$		—		682
$\phi\pi^+\pi^0$, $\phi \to K^+ K^-$		(1.1 ± 0.5) %		619
$\phi\rho^+$, $\phi \to K^+ K^-$		$< 7 \times 10^{-3}$	CL=90%	258
$K^+ K^- \pi^+ \pi^0$ non-ϕ		$(1.5 {}^{+0.7}_{-0.6})$ %		682
$K^+ K^0_S \pi^+ \pi^-$		$(1.75 \pm 0.21) \times 10^{-3}$		678
$K^0_S K^- \pi^+ \pi^+$		$(2.39 \pm 0.23) \times 10^{-3}$		678
$K^*(892)^+ \overline{K}^*(892)^0$, $K^{*+} \to K^0_S \pi^+$, $\overline{K}^{*0} \to K^-\pi^+$		$(5.8 \pm 2.4) \times 10^{-3}$		280
$K^0_S K^- \pi^+ \pi^+$ (non-$K^{*+}\overline{K}^{*0}$)		$< 4 \times 10^{-3}$	CL=90%	678
$K^+ K^- \pi^+ \pi^+ \pi^-$		$(2.3 \pm 1.2) \times 10^{-4}$		600

Fractions of the following modes with resonances have already appeared above as submodes of particular charged-particle modes.

$\phi\pi^+$		$(6.5 \pm 0.7) \times 10^{-3}$		647
$\phi\pi^+\pi^0$		(2.3 ± 1.0) %		619

$\phi \rho^+$			$<$ 1.5	%	CL=90%	259
$K^*(892)^+ K^0_S$			(1.6 $\pm$0.7)	%		611
$K^*(892)^+ \overline{K}^*(892)^0$			(2.6 $\pm$1.1)	%		280

Doubly Cabibbo-suppressed modes

$K^+ \pi^0$			$<$ 4.2	$\times 10^{-4}$	CL=90%	864
$K^+ \pi^+ \pi^-$			(6.4 $\pm$0.8)	$\times 10^{-4}$		845
$K^+ \rho^0$			(2.5 $\pm$0.7)	$\times 10^{-4}$		678
$K^*(892)^0 \pi^+$, $K^*(892)^0 \to K^+ \pi^-$			(3.0 $\pm$0.6)	$\times 10^{-4}$		714
$K^+ f_0(980)$, $f_0(980) \to \pi^+ \pi^-$			(5.7 $\pm$3.5)	$\times 10^{-5}$		–
$K^*_2(1430)^0 \pi^+$, $K^*_2(1430)^0 \to K^+ \pi^-$			(5.2 $\pm$3.5)	$\times 10^{-5}$		–
$K^+ K^+ K^-$			(9.0 $\pm$2.1)	$\times 10^{-5}$		550

$\Delta C = 1$ weak neutral current (*C1*) modes, or Lepton Family number (*LF*) or Lepton number (*L*) violating modes

$\pi^+ e^+ e^-$	*C1*		$<$ 7.4	$\times 10^{-6}$	CL=90%	929
$\pi^+ \phi$, $\phi \to e^+ e^-$		[f]	(2.7 $^{+3.6}_{-1.8}$)	$\times 10^{-6}$		–
$\pi^+ \mu^+ \mu^-$	*C1*		$<$ 8.8	$\times 10^{-6}$	CL=90%	917
$\rho^+ \mu^+ \mu^-$	*C1*		$<$ 5.6	$\times 10^{-4}$	CL=90%	757
$K^+ e^+ e^-$		[g]	$<$ 6.2	$\times 10^{-6}$	CL=90%	869
$K^+ \mu^+ \mu^-$		[g]	$<$ 9.2	$\times 10^{-6}$	CL=90%	856
$\pi^+ e^\pm \mu^\mp$	*LF*	[h]	$<$ 3.4	$\times 10^{-5}$	CL=90%	926
$K^+ e^\pm \mu^\mp$	*LF*	[h]	$<$ 6.8	$\times 10^{-5}$	CL=90%	866
$\pi^- e^+ e^+$	*L*		$<$ 3.6	$\times 10^{-6}$	CL=90%	929
$\pi^- \mu^+ \mu^+$	*L*		$<$ 4.8	$\times 10^{-6}$	CL=90%	917
$\pi^- e^+ \mu^+$	*L*		$<$ 5.0	$\times 10^{-5}$	CL=90%	926
$\rho^- \mu^+ \mu^+$	*L*		$<$ 5.6	$\times 10^{-4}$	CL=90%	757
$K^- e^+ e^+$	*L*		$<$ 4.5	$\times 10^{-6}$	CL=90%	869
$K^- \mu^+ \mu^+$	*L*		$<$ 1.3	$\times 10^{-5}$	CL=90%	856
$K^- e^+ \mu^+$	*L*		$<$ 1.3	$\times 10^{-4}$	CL=90%	866
$K^*(892)^- \mu^+ \mu^+$	*L*		$<$ 8.5	$\times 10^{-4}$	CL=90%	703

D^0

$I(J^P) = \frac{1}{2}(0^-)$

Mass $m = 1864.5 \pm 0.4$ MeV (S = 1.1)

$m_{D^\pm} - m_{D^0} = 4.78 \pm 0.10$ MeV (S = 1.1)

Mean life $\tau = (410.1 \pm 1.5) \times 10^{-15}$ s

$c\tau = 122.9$ μm

$\left| m_{D^0_1} - m_{D^0_2} \right| < 7 \times 10^{10}\ \hbar\ \text{s}^{-1}$, CL = 95% [i]

$(\Gamma_{D^0_1} - \Gamma_{D^0_2})/\Gamma = 2y = (1.4 \pm 1.0) \times 10^{-2}$

$\Gamma(K^+\ell^-\overline{\nu}_\ell \text{ (via } \overline{D}^0))/\Gamma(K^-\ell^+\nu_\ell) <$ 0.005, CL = 90%

$\Gamma(K^+\pi^- \text{(via } \overline{D}^0))/\Gamma(K^-\pi^+)$ $<$ 4.0×10^{-4}, CL = 95%

$\Gamma(K_S^0\pi^+\pi^- \text{(in } D^0 \to \overline{D}^0))/\Gamma(K_S^0\pi^+\pi^-)$ Γ_0/Γ_0
$<$ 0.0063, CL = 95%

CP-violation decay-rate asymmetries

$A_{CP}(K^+K^-) = 0.014 \pm 0.010$
$A_{CP}(K_S^0K_S^0) = -0.23 \pm 0.19$
$A_{CP}(\pi^+\pi^-) = 0.013 \pm 0.012$
$A_{CP}(\pi^0\pi^0) = 0.00 \pm 0.05$
$A_{CP}(\pi^+\pi^-\pi^0) = 0.01^{+0.10}_{-0.09}$
$A_{CP}(K_S^0\phi) = -0.03 \pm 0.09$
$A_{CP}(K_S^0\pi^0) = 0.001 \pm 0.013$
$A_{CP}(K^\pm\pi^\mp) = 0.05 \pm 0.04$
$A_{CP}(K^\mp\pi^\pm\pi^0) = -0.03 \pm 0.09$
$A_{CP}(K^\pm\pi^\mp\pi^0) = 0.00 \pm 0.05$
$A_{CP}(K_S^0\pi^+\pi^-) = -0.009^{+0.026}_{-0.061}$
$A_{CP}(K^\pm\pi^\mp\pi^+\pi^-) = -0.02 \pm 0.04$
$A_{CP}(K^+K^-\pi^+\pi^-) = -0.08 \pm 0.07$

T-violation decay-rate asymmetry

$A_T(K^+K^-\pi^+\pi^-) = 0.01 \pm 0.07$

CPT-violation decay-rate asymmetry

$A_{CPT}(K^\mp\pi^\pm) = 0.008 \pm 0.008$

Most decay modes (other than the semileptonic modes) that involve a neutral K meson are now given as K_S^0 modes, not as $\overline{K}^0$ modes. Nearly always it is a K_S^0 that is measured, and interference between Cabibbo-allowed and doubly Cabibbo-suppressed modes can invalidate the assumption that $2\,\Gamma(K_S^0) = \Gamma(\overline{K}^0)$.

D^0 DECAY MODES		Fraction (Γ_i/Γ)	Scale factor/ Confidence level	p (MeV/c)
Topological modes				
0-prongs	[j]	(19 ± 6) %		–
2-prongs		(67 ± 6) %		–
4-prongs	[k]	(13.8 ± 0.5) %		–
6-prongs		$(1.2 {}^{+1.3}_{-0.7}) \times 10^{-3}$		–

Inclusive modes				
e^+ anything	[l]	(6.71 ± 0.29) %		–
μ^+ anything		(6.5 ± 0.7) %		–
K^- anything		(53 ± 4) %	S=1.3	–
$\overline{K}^0$ anything + K^0 anything		(42 ± 5) %		–
K^+ anything		$(3.4 {}^{+0.6}_{-0.4})$ %		–
$\overline{K}^*(892)^0$ anything		(9 ± 4) %		–
$K^*(892)^0$ anything		(2.8 ± 1.3) %		–
η anything	[b]	< 13 %	CL=90%	–
ϕ anything		(1.7 ± 0.8) %		–
Semileptonic modes				
$K^- e^+ \nu_e$		(3.51 ± 0.11) %		867
$K^- \mu^+ \nu_\mu$		(3.19 ± 0.16) %		863
$K^*(892)^- e^+ \nu_e$		(2.17 ± 0.16) %		719
$K^*(892)^- \mu^+ \nu_\mu$		(1.95 ± 0.25) %		714
$K^- \pi^+ \pi^- \mu^+ \nu_\mu$		$< 1.2 \times 10^{-3}$	CL=90%	821
$(\overline{K}^*(892)\pi)^- \mu^+ \nu_\mu$		$< 1.4 \times 10^{-3}$	CL=90%	692
$\pi^- e^+ \nu_e$		$(2.81 \pm 0.19) \times 10^{-3}$		927
$\pi^- \mu^+ \nu_\mu$		$(2.4 \pm 0.4) \times 10^{-3}$		924
$\rho^- e^+ \nu_e$		$(1.9 \pm 0.4) \times 10^{-3}$		771
Hadronic modes with one $\overline{K}$				
$K^- \pi^+$		(3.80 ± 0.07) %	S=1.1	861
$K^0_S \pi^0$		(1.14 ± 0.12) %		860
$K^0_S \pi^+ \pi^-$	[c]	(2.90 ± 0.19) %		842
$K^0_S \rho^0$		$(7.5 {}^{+0.6}_{-0.8}) \times 10^{-3}$		674
$K^0_S \omega$, $\omega \to \pi^+ \pi^-$		$(2.1 \pm 0.6) \times 10^{-4}$		670
$K^0_S f_0(980)$, $f_0(980) \to \pi^+ \pi^-$		$(1.36 {}^{+0.30}_{-0.22}) \times 10^{-3}$		549
$K^0_S f_2(1270)$, $f_2(1270) \to \pi^+ \pi^-$		$(1.3 {}^{+1.1}_{-0.7}) \times 10^{-4}$		262
$K^0_S f_0(1370)$, $f_0(1370) \to \pi^+ \pi^-$		$(2.5 \pm 0.6) \times 10^{-3}$		†
$K^*(892)^- \pi^+$, $K^*(892)^- \to K^0_S \pi^-$		(1.91 ± 0.14) %		711
$K^*(892)^+ \pi^-$, $K^*(892)^+ \to K^0_S \pi^+$	[m]	$(10 {}^{+12}_{-4}) \times 10^{-5}$		711
$K^*_0(1430)^- \pi^+$, $K^*_0(1430)^- \to K^0_S \pi^-$		$(2.8 {}^{+0.6}_{-0.4}) \times 10^{-3}$		378

$K_2^*(1430)^-\pi^+$, $K_2^*(1430)^- \to K_S^0\pi^-$		$(3.2\ {}^{+\ 2.1}_{-\ 1.1}) \times 10^{-4}$		367
$K^*(1680)^-\pi^+$, $K^*(1680)^- \to K_S^0\pi^-$		$(6 \pm 5) \times 10^{-4}$		46
$K_S^0\pi^+\pi^-$ nonresonant		$(2.6\ {}^{+\ 5.9}_{-\ 1.6}) \times 10^{-4}$		842
$K^-\pi^+\pi^0$	[c]	(14.1 ± 0.5) %	S=1.2	844
$K^-\rho^+$		(11.0 ± 0.7) %		675
$K^-\rho(1700)^+$, $\rho(1700)^+ \to \pi^+\pi^0$		$(8.0 \pm 1.7) \times 10^{-3}$		†
$K^*(892)^-\pi^+$, $K^*(892)^- \to K^-\pi^0$		$(2.25\ {}^{+\ 0.36}_{-\ 0.20})$ %		711
$\overline{K}^*(892)^0\pi^0$, $\overline{K}^*(892)^0 \to K^-\pi^+$		(1.91 ± 0.24) %		711
$K_0^*(1430)^-\pi^+$, $K_0^*(1430)^- \to K^-\pi^0$		$(4.6 \pm 2.2) \times 10^{-3}$		378
$\overline{K}_0^*(1430)^0\pi^0$, $\overline{K}_0^*(1430)^0 \to K^-\pi^+$		$(5.8\ {}^{+\ 4.6}_{-\ 1.5}) \times 10^{-3}$		379
$K^*(1680)^-\pi^+$, $K^*(1680)^- \to K^-\pi^0$		$(1.8 \pm 0.7) \times 10^{-3}$		46
$K^-\pi^+\pi^0$ nonresonant		$(1.13\ {}^{+\ 0.54}_{-\ 0.20})$ %		844
$K_S^0\pi^0\pi^0$		—		843
$\overline{K}^*(892)^0\pi^0$, $\overline{K}^*(892)^0 \to K_S^0\pi^0$		$(6.3\ {}^{+\ 1.8}_{-\ 1.5}) \times 10^{-3}$		711
$K_S^0\pi^0\pi^0$ nonresonant		$(4.2 \pm 1.1) \times 10^{-3}$		843
$K^-\pi^+\pi^+\pi^-$	[c]	(7.72 ± 0.28) %	S=1.3	812
$K^-\pi^+\rho^0$ total		(6.4 ± 0.4) %		609
$K^-\pi^+\rho^0$ 3-body		$(4.9 \pm 2.2) \times 10^{-3}$		609
$\overline{K}^*(892)^0\rho^0$, $\overline{K}^*(892)^0 \to K^-\pi^+$		(1.00 ± 0.22) %		416
$K^-a_1(1260)^+$, $a_1(1260)^+ \to \pi^+\pi^+\pi^-$		(3.6 ± 0.6) %		327
$\overline{K}^*(892)^0\pi^+\pi^-$ total, $\overline{K}^*(892)^0 \to K^-\pi^+$		(1.5 ± 0.4) %		685
$\overline{K}^*(892)^0\pi^+\pi^-$ 3-body, $\overline{K}^*(892)^0 \to K^-\pi^+$		$(9.7 \pm 2.1) \times 10^{-3}$		685
$K_1(1270)^-\pi^+$, $K_1(1270)^- \to K^-\pi^+\pi^-$	[e]	$(2.9 \pm 0.3) \times 10^{-3}$		484
$K^-\pi^+\pi^+\pi^-$ nonresonant		(1.80 ± 0.25) %		812
$K_S^0\pi^+\pi^-\pi^0$	[c]	(5.3 ± 0.6) %		812
$K_S^0\eta$, $\eta \to \pi^+\pi^-\pi^0$		$(8.6 \pm 1.4) \times 10^{-4}$		772
$K_S^0\omega$, $\omega \to \pi^+\pi^-\pi^0$		$(9.8 \pm 1.8) \times 10^{-3}$		670

$K^*(892)^-\rho^+$, $K^*(892)^- \to K^0_S\pi^-$		(2.1 ± 0.8) %			416
$K_1(1270)^-\pi^+$, $K_1(1270)^- \to K^0_S\pi^-\pi^0$	[e]	(2.2 ± 0.6) $\times 10^{-3}$			484
$\overline{K}^*(892)^0\pi^+\pi^-$ 3-body, $\overline{K}^*(892)^0 \to K^0_S\pi^0$		(2.4 ± 0.5) $\times 10^{-3}$			685
$K^0_S\pi^+\pi^-\pi^0$ nonresonant		(1.1 ± 1.1) %			812
$K^-\pi^+\pi^+\pi^-\pi^0$		(4.1 ± 0.4) %			771
$\overline{K}^*(892)^0\pi^+\pi^-\pi^0$, $\overline{K}^*(892)^0 \to K^-\pi^+$		(1.2 ± 0.6) %			643
$K^-\pi^+\omega$, $\omega \to \pi^+\pi^-\pi^0$		(2.7 ± 0.5) %			605
$\overline{K}^*(892)^0\omega$, $\overline{K}^*(892)^0 \to K^-\pi^+$, $\omega \to \pi^+\pi^-\pi^0$		(6.5 ± 2.4) $\times 10^{-3}$			410
$K^0_S\eta\pi^0$		(5.2 ± 1.2) $\times 10^{-3}$			721
$K^0_S a_0(980)$, $a_0(980) \to \eta\pi^0$		(6.2 ± 2.0) $\times 10^{-3}$			–
$\overline{K}^*(892)^0\eta$, $\overline{K}^*(892)^0 \to K^0_S\pi^0$		(1.5 ± 0.5) $\times 10^{-3}$			–
$K^0_S 2\pi^+2\pi^-$		(2.75 ± 0.31) $\times 10^{-3}$			768
$K^0_S\rho^0\pi^+\pi^-$, no $K^*(892)^-$		(1.1 ± 0.7) $\times 10^{-3}$			–
$K^*(892)^-\pi^+\pi^+\pi^-$, $K^*(892)^- \to K^0_S\pi^-$, no ρ^0		(5 ± 8) $\times 10^{-4}$			642
$K^*(892)^-\rho^0\pi^+$, $K^*(892)^- \to K^0_S\pi^-$		(1.7 ± 0.7) $\times 10^{-3}$			230
$K^0_S 2\pi^+2\pi^-$ nonresonant		< 1.3	$\times 10^{-3}$	CL=90%	768
$K^-3\pi^+2\pi^-$		(2.1 ± 0.5) $\times 10^{-4}$			713

Fractions of many of the following modes with resonances have already appeared above as submodes of particular charged-particle modes. (Modes for which there are only upper limits and $\overline{K}^*(892)\rho$ submodes only appear below.)

$K^0_S\eta$	(3.8 ± 0.6) $\times 10^{-3}$			772
$K^0_S\omega$	(1.10 ± 0.20) %			670
$K^0_S\eta'(958)$	(9.1 ± 1.4) $\times 10^{-3}$			565
$K^-a_1(1260)^+$	(7.5 ± 1.1) %			327
$\overline{K}^0 a_1(1260)^0$	< 1.9	%	CL=90%	322
$K^-a_2(1320)^+$	< 2	$\times 10^{-3}$	CL=90%	197
$\overline{K}^*(892)^0\pi^+\pi^-$ total	(2.3 ± 0.5) %			685
$\overline{K}^*(892)^0\pi^+\pi^-$ 3-body	(1.46 ± 0.32) %			685
$\overline{K}^*(892)^0\rho^0$	(1.50 ± 0.33) %			417
$\overline{K}^*(892)^0\rho^0$ transverse	(1.6 ± 0.5) %			417
$\overline{K}^*(892)^0\rho^0$ S-wave	(2.9 ± 0.6) %			417

$\overline{K}^*(892)^0 \rho^0$ S-wave long.		< 3	$\times 10^{-3}$ CL=90%	417
$\overline{K}^*(892)^0 \rho^0$ P-wave		< 3	$\times 10^{-3}$ CL=90%	417
$\overline{K}^*(892)^0 \rho^0$ D-wave		(2.0 ± 0.6) %		417
$K^*(892)^- \rho^+$		(6.4 ± 2.5) %		417
$K^*(892)^- \rho^+$ longitudinal		(3.1 ± 1.2) %		417
$K^*(892)^- \rho^+$ transverse		(3.4 ± 2.0) %		417
$K^*(892)^- \rho^+$ P-wave		< 1.5 %	CL=90%	417
$K_1(1270)^- \pi^+$	[*e*]	(1.12 ± 0.31) %		484
$K_1(1400)^- \pi^+$		< 1.2 %	CL=90%	386
$\overline{K}_1(1400)^0 \pi^0$		< 3.7 %	CL=90%	387
$\overline{K}^*(892)^0 \pi^+ \pi^- \pi^0$		(1.8 ± 0.9) %		643
$K^- \pi^+ \omega$		(3.0 ± 0.6) %		605
$\overline{K}^*(892)^0 \omega$		(1.1 ± 0.4) %		410
$K^- \pi^+ \eta'(958)$		$(7.2 \pm 1.8) \times 10^{-3}$		479
$\overline{K}^*(892)^0 \eta'(958)$		< 1.1	$\times 10^{-3}$ CL=90%	118

Hadronic modes with three K's

$K^0_S K^+ K^-$	$(4.58 \pm 0.34) \times 10^{-3}$		544
$K^0_S a_0(980)^0$, $a^0_0 \to K^+ K^-$	$(3.0 \pm 0.4) \times 10^{-3}$		–
$K^- a_0(980)^+$, $a^+_0 \to K^+ K^0_S$	$(6.1 \pm 1.8) \times 10^{-4}$		–
$K^+ a_0(980)^-$, $a^-_0 \to K^- K^0_S$	< 1.1	$\times 10^{-4}$ CL=95%	–
$K^0_S f_0(980)$, $f_0 \to K^+ K^-$	< 1.0	$\times 10^{-4}$ CL=95%	–
$K^0_S \phi$, $\phi \to K^+ K^-$	$(2.10 \pm 0.16) \times 10^{-3}$		520
$K^0_S f_0(1400)$, $f_0 \to K^+ K^-$	$(1.7 \pm 1.1) \times 10^{-4}$		–
$3K^0_S$	$(9.3 \pm 1.3) \times 10^{-4}$		538
$K^+ K^- K^- \pi^+$	$(2.11 \pm 0.31) \times 10^{-4}$		434
$K^+ K^- \overline{K}^*(892)^0$, $\overline{K}^*(892)^0 \to K^- \pi^+$	$(4.2 \pm 1.7) \times 10^{-5}$		†
$K^- \pi^+ \phi$, $\phi \to K^+ K^-$	$(3.8 \pm 1.6) \times 10^{-5}$		422
$\phi \overline{K}^*(892)^0$, $\phi \to K^+ K^-$, $\overline{K}^*(892)^0 \to K^- \pi^+$	$(1.01 \pm 0.20) \times 10^{-4}$		†
$K^+ K^- K^- \pi^+$ nonresonant	$(3.2 \pm 1.4) \times 10^{-5}$		434
$K^0_S K^0_S K^\pm \pi^\mp$	$(6.1 \pm 1.3) \times 10^{-4}$		427

Pionic modes

$\pi^+ \pi^-$	$(1.364 \pm 0.032) \times 10^{-3}$		922
$\pi^0 \pi^0$	$(7.9 \pm 0.8) \times 10^{-4}$		922
$\pi^+ \pi^- \pi^0$	(1.31 ± 0.06) %		907
$\rho^+ \pi^-$	$(10.0 \pm 0.6) \times 10^{-3}$		764
$\rho^0 \pi^0$	$(3.2 \pm 0.4) \times 10^{-3}$		764
$\rho^- \pi^+$	$(4.5 \pm 0.4) \times 10^{-3}$		764
$f_0(980) \pi^0$, $f_0(980) \to \pi^+ \pi^-$	< 3.4	$\times 10^{-6}$ CL=95%	–

$f_0(600)\pi^0$, $f_0(600) \to \pi^+\pi^-$		<	2.7	$\times 10^{-5}$	CL=95%	–
$(\pi^+\pi^-)_{S-\text{wave}}\pi^0$		<	2.5	$\times 10^{-4}$	CL=95%	907
$3\pi^0$		<	3.5	$\times 10^{-4}$	CL=90%	908
$2\pi^+ 2\pi^-$			(7.31 ± 0.27)	$\times 10^{-3}$		879
$\pi^+\pi^- 2\pi^0$			(9.8 ± 0.9)	$\times 10^{-3}$		882
$\eta\pi^0$	[n]		(5.6 ± 1.4)	$\times 10^{-4}$		846
$\omega\pi^0$	[n]	<	2.6	$\times 10^{-4}$	CL=90%	761
$2\pi^+ 2\pi^- \pi^0$			(4.1 ± 0.5)	$\times 10^{-3}$		844
$\eta\pi^+\pi^-$	[n]	<	1.9	$\times 10^{-3}$	CL=90%	827
$\omega\pi^+\pi^-$	[n]		(1.6 ± 0.5)	$\times 10^{-3}$		738
$3\pi^+ 3\pi^-$			(4.0 ± 1.1)	$\times 10^{-4}$		795

Hadronic modes with a $K\overline{K}$ pair

K^+K^-			(3.84 ± 0.10)	$\times 10^{-3}$		791
$2K^0_S$			(3.7 ± 0.7)	$\times 10^{-4}$		788
$K^0_S K^-\pi^+$			(3.4 ± 0.5)	$\times 10^{-3}$	S=1.1	739
$\overline{K}^*(892)^0 K^0_S$, $\overline{K}^*(892)^0 \to K^-\pi^+$		<	6	$\times 10^{-4}$	CL=90%	608
$K^*(892)^+ K^-$, $K^*(892)^+ \to K^0_S\pi^+$			(1.2 ± 0.3)	$\times 10^{-3}$		610
$K^0_S K^-\pi^+$ nonresonant			(1.1 ± 1.1)	$\times 10^{-3}$		739
$K^0_S K^+\pi^-$			(2.6 ± 0.5)	$\times 10^{-3}$		739
$K^*(892)^0 K^0_S$, $K^*(892)^0 \to K^+\pi^-$		<	3	$\times 10^{-4}$	CL=90%	608
$K^*(892)^- K^+$, $K^*(892)^- \to K^0_S\pi^-$			(7 ± 4)	$\times 10^{-4}$		610
$K^0_S K^+\pi^-$ nonresonant			(1.9 $^{+1.1}_{-0.8}$)	$\times 10^{-3}$		739
$K^+K^-\pi^0$			(1.3 ± 0.4)	$\times 10^{-3}$		743
$K^0_S K^0_S \pi^0$		<	5.9	$\times 10^{-4}$		740
$K^+K^-\pi^+\pi^-$	[o]		(2.32 ± 0.13)	$\times 10^{-3}$		676
$\phi\pi^+\pi^-$ 3-body, $\phi \to K^+K^-$			(2.3 ± 2.3)	$\times 10^{-5}$		614
$\phi\rho^0$, $\phi \to K^+K^-$			(6.7 ± 0.6)	$\times 10^{-4}$		250
$K^+K^-\rho^0$ 3-body			(5 ± 7)	$\times 10^{-5}$		302
$f_0(980)\pi^+\pi^-$, $f_0 \to K^+K^-$			(3.5 ± 0.9)	$\times 10^{-4}$		–
$K^*(892)^0 K^\mp\pi^\pm$ 3-body, $K^{*0} \to K^\pm\pi^\mp$	[p]		(2.5 ± 0.5)	$\times 10^{-4}$		531
$K^*(892)^0\overline{K}^*(892)^0$, $K^{*0} \to K^\pm\pi^\mp$			(7 ± 5)	$\times 10^{-5}$		272
$K_1(1270)^\pm K^\mp$, $K_1(1270)^\pm \to K^\pm\pi^+\pi^-$			(7.6 ± 1.7)	$\times 10^{-4}$		–
$K_1(1400)^\pm K^\mp$, $K_1(1400)^\pm \to K^\pm\pi^+\pi^-$			(5.1 ± 1.2)	$\times 10^{-4}$		–

$K^0_S K^0_S \pi^+ \pi^-$		$(1.26 \pm 0.24) \times 10^{-3}$		673
$K^0_S K^- \pi^+ \pi^+ \pi^-$		< 1.5	$\times 10^{-4}$ CL=90%	595
$K^+ K^- \pi^+ \pi^- \pi^0$		$(3.1 \pm 2.0) \times 10^{-3}$		600

Fractions of most of the following modes with resonances have already appeared above as submodes of particular charged-particle modes.

$\overline{K}^*(892)^0 K^0_S$		< 8	$\times 10^{-4}$ CL=90%	608
$K^*(892)^+ K^-$		$(3.7 \pm 0.8) \times 10^{-3}$		610
$K^*(892)^0 K^0_S$		< 4	$\times 10^{-4}$ CL=90%	608
$K^*(892)^- K^+$		$(2.0 \pm 1.1) \times 10^{-3}$		610
$\phi \pi^0$		$(7.4 \pm 0.5) \times 10^{-4}$		644
$\phi \eta$		$(1.4 \pm 0.4) \times 10^{-4}$		489
$\phi \omega$		< 2.1	$\times 10^{-3}$ CL=90%	237

Radiative modes

$\rho^0 \gamma$		< 2.4	$\times 10^{-4}$ CL=90%	771
$\omega \gamma$		< 2.4	$\times 10^{-4}$ CL=90%	768
$\phi \gamma$		$(2.4 ^{+0.7}_{-0.6}) \times 10^{-5}$		654
$\overline{K}^*(892)^0 \gamma$		< 7.6	$\times 10^{-4}$ CL=90%	719

Doubly Cabibbo suppressed (*DC*) modes or $\Delta C = 2$ forbidden via mixing (*C2M*) modes

$K^+ \ell^- \overline{\nu}_\ell$ (via $\overline{D}^0$)	C2M	< 1.8	$\times 10^{-4}$ CL=90%	–
K^+ or $K^*(892)^+ e^- \overline{\nu}_e$ (via $\overline{D}^0$)	C2M	< 6	$\times 10^{-5}$ CL=90%	–
$K^+ \pi^-$	DC	$(1.43 \pm 0.04) \times 10^{-4}$		861
$K^+ \pi^-$ (via $\overline{D}^0$)	C2M	< 1.5	$\times 10^{-5}$ CL=95%	861
$K^0_S \pi^+ \pi^-$ (in $D^0 \to \overline{D}^0$)	C2M	< 1.8	$\times 10^{-4}$ CL=95%	–
$K^*(892)^+ \pi^-$, $K^*(892)^+ \to K^0_S \pi^+$	DC	$(10 ^{+12}_{-4}) \times 10^{-5}$		711
$K^+ \pi^- \pi^0$	DC	$(3.29 ^{+0.30}_{-0.27}) \times 10^{-4}$		844
$K^+ \pi^- \pi^+ \pi^-$	DC	$(2.49 ^{+0.21}_{-0.19}) \times 10^{-4}$		812
$K^+ \pi^- \pi^+ \pi^-$ (via $\overline{D}^0$)	C2M	< 4	$\times 10^{-4}$ CL=90%	812
μ^- anything (via $\overline{D}^0$)	C2M	< 4	$\times 10^{-4}$ CL=90%	–

$\Delta C = 1$ weak neutral current (*C1*) modes, Lepton Family number (*LF*) violating modes, or Lepton number (*L*) violating modes

$\gamma \gamma$	C1	< 2.6	$\times 10^{-5}$ CL=90%	932
$e^+ e^-$	C1	< 1.2	$\times 10^{-6}$ CL=90%	932
$\mu^+ \mu^-$	C1	< 1.3	$\times 10^{-6}$ CL=90%	926
$\pi^0 e^+ e^-$	C1	< 4.5	$\times 10^{-5}$ CL=90%	927
$\pi^0 \mu^+ \mu^-$	C1	< 1.8	$\times 10^{-4}$ CL=90%	915

$\eta e^+ e^-$	*C1*	$<$	1.1	$\times 10^{-4}$ CL=90%	852
$\eta \mu^+ \mu^-$	*C1*	$<$	5.3	$\times 10^{-4}$ CL=90%	838
$\pi^+ \pi^- e^+ e^-$	*C1*	$<$	3.73	$\times 10^{-4}$ CL=90%	922
$\rho^0 e^+ e^-$	*C1*	$<$	1.0	$\times 10^{-4}$ CL=90%	771
$\pi^+ \pi^- \mu^+ \mu^-$	*C1*	$<$	3.0	$\times 10^{-5}$ CL=90%	894
$\rho^0 \mu^+ \mu^-$	*C1*	$<$	2.2	$\times 10^{-5}$ CL=90%	754
$\omega e^+ e^-$	*C1*	$<$	1.8	$\times 10^{-4}$ CL=90%	768
$\omega \mu^+ \mu^-$	*C1*	$<$	8.3	$\times 10^{-4}$ CL=90%	751
$K^- K^+ e^+ e^-$	*C1*	$<$	3.15	$\times 10^{-4}$ CL=90%	791
$\phi e^+ e^-$	*C1*	$<$	5.2	$\times 10^{-5}$ CL=90%	654
$K^- K^+ \mu^+ \mu^-$	*C1*	$<$	3.3	$\times 10^{-5}$ CL=90%	709
$\phi \mu^+ \mu^-$	*C1*	$<$	3.1	$\times 10^{-5}$ CL=90%	631
$\overline{K}^0 e^+ e^-$		[g] $<$	1.1	$\times 10^{-4}$ CL=90%	866
$\overline{K}^0 \mu^+ \mu^-$		[g] $<$	2.6	$\times 10^{-4}$ CL=90%	852
$K^- \pi^+ e^+ e^-$	*C1*	$<$	3.85	$\times 10^{-4}$ CL=90%	861
$\overline{K}^*(892)^0 e^+ e^-$		[g] $<$	4.7	$\times 10^{-5}$ CL=90%	719
$K^- \pi^+ \mu^+ \mu^-$	*C1*	$<$	3.59	$\times 10^{-4}$ CL=90%	829
$\overline{K}^*(892)^0 \mu^+ \mu^-$		[g] $<$	2.4	$\times 10^{-5}$ CL=90%	700
$\pi^+ \pi^- \pi^0 \mu^+ \mu^-$	*C1*	$<$	8.1	$\times 10^{-4}$ CL=90%	863
$\mu^\pm e^\mp$	*LF*	[h] $<$	8.1	$\times 10^{-7}$ CL=90%	929
$\pi^0 e^\pm \mu^\mp$	*LF*	[h] $<$	8.6	$\times 10^{-5}$ CL=90%	924
$\eta e^\pm \mu^\mp$	*LF*	[h] $<$	1.0	$\times 10^{-4}$ CL=90%	848
$\pi^+ \pi^- e^\pm \mu^\mp$	*LF*	[h] $<$	1.5	$\times 10^{-5}$ CL=90%	911
$\rho^0 e^\pm \mu^\mp$	*LF*	[h] $<$	4.9	$\times 10^{-5}$ CL=90%	767
$\omega e^\pm \mu^\mp$	*LF*	[h] $<$	1.2	$\times 10^{-4}$ CL=90%	764
$K^- K^+ e^\pm \mu^\mp$	*LF*	[h] $<$	1.8	$\times 10^{-4}$ CL=90%	754
$\phi e^\pm \mu^\mp$	*LF*	[h] $<$	3.4	$\times 10^{-5}$ CL=90%	648
$\overline{K}^0 e^\pm \mu^\mp$	*LF*	[h] $<$	1.0	$\times 10^{-4}$ CL=90%	862
$K^- \pi^+ e^\pm \mu^\mp$	*LF*	[h] $<$	5.53	$\times 10^{-4}$ CL=90%	848
$\overline{K}^*(892)^0 e^\pm \mu^\mp$	*LF*	[h] $<$	8.3	$\times 10^{-5}$ CL=90%	714
$\pi^- \pi^- e^+ e^+ +$ c.c.	*L*	$<$	1.12	$\times 10^{-4}$ CL=90%	922
$\pi^- \pi^- \mu^+ \mu^+ +$ c.c.	*L*	$<$	2.9	$\times 10^{-5}$ CL=90%	894
$K^- \pi^- e^+ e^+ +$ c.c.	*L*	$<$	2.06	$\times 10^{-4}$ CL=90%	861
$K^- \pi^- \mu^+ \mu^+ +$ c.c.	*L*	$<$	3.9	$\times 10^{-4}$ CL=90%	829
$K^- K^- e^+ e^+ +$ c.c.	*L*	$<$	1.52	$\times 10^{-4}$ CL=90%	791
$K^- K^- \mu^+ \mu^+ +$ c.c.	*L*	$<$	9.4	$\times 10^{-5}$ CL=90%	709
$\pi^- \pi^- e^+ \mu^+ +$ c.c.	*L*	$<$	7.9	$\times 10^{-5}$ CL=90%	911
$K^- \pi^- e^+ \mu^+ +$ c.c.	*L*	$<$	2.18	$\times 10^{-4}$ CL=90%	848
$K^- K^- e^+ \mu^+ +$ c.c.	*L*	$<$	5.7	$\times 10^{-5}$ CL=90%	754

$D^*(2007)^0$

$I(J^P) = \frac{1}{2}(1^-)$
I, J, P need confirmation.

Mass $m = 2006.7 \pm 0.4$ MeV   (S = 1.1)
$m_{D^{*0}} - m_{D^0} = 142.12 \pm 0.07$ MeV
Full width $\Gamma < 2.1$ MeV, CL = 90%

$\overline{D}^*(2007)^0$ modes are charge conjugates of modes below.

$D^*(2007)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$D^0\pi^0$	(61.9 ± 2.9) %	43
$D^0\gamma$	(38.1 ± 2.9) %	137

$D^*(2010)^\pm$

$I(J^P) = \frac{1}{2}(1^-)$
I, J, P need confirmation.

Mass $m = 2010.0 \pm 0.4$ MeV   (S = 1.1)
$m_{D^*(2010)^+} - m_{D^+} = 140.64 \pm 0.10$ MeV   (S = 1.1)
$m_{D^*(2010)^+} - m_{D^0} = 145.421 \pm 0.010$ MeV   (S = 1.1)
Full width $\Gamma = 96 \pm 22$ keV

$D^*(2010)^-$ modes are charge conjugates of the modes below.

$D^*(2010)^\pm$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$D^0\pi^+$	(67.7 ± 0.5) %	39
$D^+\pi^0$	(30.7 ± 0.5) %	38
$D^+\gamma$	$(\ 1.6\pm0.4)$ %	136

$D_1(2420)^0$

$I(J^P) = \frac{1}{2}(1^+)$
I, J, P need confirmation.

Mass $m = 2422.3 \pm 1.3$ MeV   (S = 1.2)
$m_{D_1^0} - m_{D^{*+}} = 411.7 \pm 0.8$
Full width $\Gamma = 20.4 \pm 1.7$ MeV

$\overline{D}_1(2420)^0$ modes are charge conjugates of modes below.

$D_1(2420)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$D^*(2010)^+\pi^-$	seen	355
$D^0\pi^+\pi^-$	seen	426
$D^+\pi^-$	not seen	474
$D^{*0}\pi^+\pi^-$	not seen	281

$D_2^*(2460)^0$

$I(J^P) = \frac{1}{2}(2^+)$

$J^P = 2^+$ assignment strongly favored.

Mass $m = 2461.1 \pm 1.6$ MeV (S = 1.3)
$m_{D_2^{*0}} - m_{D^+} = 593.9 \pm 0.8$
Full width $\Gamma = 43 \pm 4$ MeV (S = 1.8)

$\overline{D}_2^*(2460)^0$ modes are charge conjugates of modes below.

$D_2^*(2460)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$D^+ \pi^-$	seen	506
$D^*(2010)^+ \pi^-$	seen	389
$D^0 \pi^+ \pi^-$	not seen	462
$D^{*0} \pi^+ \pi^-$	not seen	325

$D_2^*(2460)^\pm$

$I(J^P) = \frac{1}{2}(2^+)$

$J^P = 2^+$ assignment strongly favored.

Mass $m = 2459 \pm 4$ MeV (S = 1.7)
$m_{D_2^*(2460)^\pm} - m_{D_2^*(2460)^0} = 2.4 \pm 1.7$ MeV
Full width $\Gamma = 29 \pm 5$ MeV

$D_2^*(2460)^-$ modes are charge conjugates of modes below.

$D_2^*(2460)^\pm$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$D^0 \pi^+$	seen	507
$D^{*0} \pi^+$	seen	390
$D^+ \pi^+ \pi^-$	not seen	456
$D^{*+} \pi^+ \pi^-$	not seen	319

NOTES

[*a*] This result applies to $Z^0 \rightarrow c\overline{c}$ decays only. Here ℓ^+ is an average (not a sum) of e^+ and μ^+ decays.

[*b*] This is a weighted average of $D^\pm$ (44%) and D^0 (56%) branching fractions. See "D^+ and $D^0 \rightarrow$ (η anything) / (total D^+ and D^0)" under "D^+ Branching Ratios" in the Particle Listings.

[*c*] The branching fraction for this mode may differ from the sum of the submodes that contribute to it, due to interference effects. See the relevant papers in the Particle Listings.

[*d*] These subfractions of the $K^-\pi^+\pi^+$ mode are uncertain: see the Particle Listings.

[*e*] The two experiments measuring this fraction are in serious disagreement. See the Particle Listings.

[*f*] This is *not* a test for the ΔC=1 weak neutral current, but leads to the $\pi^+ e^+ e^-$ final state.

[*g*] This mode is not a useful test for a ΔC=1 weak neutral current because both quarks must change flavor in this decay.

[*h*] The value is for the sum of the charge states or particle/antiparticle states indicated.

[*i*] This $D^0_1 - D^0_2$ limit is inferred from the D^0-$\overline{D}^0$ mixing ratio $\Gamma(K^+\pi^-$ (via $\overline{D}^0$)) / $\Gamma(K^-\pi^+)$ near the end of the D^0 Listings.

[*j*] This value is obtained by subtracting the branching fractions for 2-, 4- and 6-prongs from unity.

[*k*] This is the sum of our $K^-\pi^+\pi^+\pi^-$, $K^-\pi^+\pi^+\pi^-\pi^0$, $\overline{K}^0 2\pi^+ 2\pi^-$, $2\pi^+ 2\pi^-$, $2\pi^+ 2\pi^- \pi^0$, $K^+ K^- \pi^+ \pi^-$, and $K^+ K^- \pi^+ \pi^- \pi^0$, branching fractions.

[*l*] The branching fractions for the $K^- e^+ \nu_e$, $K^*(892)^- e^+ \nu_e$, $\pi^- e^+ \nu_e$, and $\rho^- e^+ \nu_e$ modes add up to 6.14 ± 0.20 %.

[*m*] This is a doubly Cabibbo-suppressed mode.

[*n*] This branching fraction includes all the decay modes of the resonance in the final state.

[*o*] The experiments on the division of this charge mode amongst its submodes disagree, and the submode branching fractions here add up to considerably more than the charged-mode fraction.

[*p*] However, these upper limits are in serious disagreement with values obtained in another experiment.