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 $m = 1869.4 \pm 0.5$ 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

$A_{CP}(K^0_S \pi^{\pm}) = -0.016 \pm 0.017$
$A_{CP}(K^0_S K^{\pm}) = 0.07 \pm 0.06$
$A_{CP}(K^+ K^- \pi^{\pm}) = 0.002 \pm 0.011$
$A_{CP}(K^{\pm} K^{*0}) = -0.02 \pm 0.05$
$A_{CP}(\phi \pi^{\pm}) = -0.014 \pm 0.033$
$A_{CP}(\pi^+ \pi^- \pi^{\pm}) = -0.02 \pm 0.04$

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

D^- modes are charge conjugates of the modes below.

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) %		–
η anything	[b] < 13 %	CL=90%	–
ϕ anything	< 1.8 %	CL=90%	–
ϕe^+ anything	< 1.6 %	CL=90%	–

Leptonic and semileptonic modes

$\mu^+\nu_\mu$		$(8\ ^{+17}_{-5}) \times 10^{-4}$		932
$\overline{K}^0 \ell^+ \nu_\ell$	[c]	(6.8 ± 0.8) %		868
$\quad \overline{K}^0 e^+ \nu_e$		(6.7 ± 0.9) %		868
$\quad \overline{K}^0 \mu^+ \nu_\mu$		$(7.0\ ^{+3.0}_{-2.0})$ %		865
$K^- \pi^+ e^+ \nu_e$		$(4.5\ ^{+1.0}_{-0.8})$ %	S=1.1	863
$\quad \overline{K}^*(892)^0 e^+ \nu_e$ $\times$ B($\overline{K}^*(892)^0 \to K^-\pi^+$)		(3.7 ± 0.5) %		722
$\quad K^-\pi^+ e^+ \nu_e$ nonresonant		$< 7 \times 10^{-3}$	CL=90%	863
$K^-\pi^+\mu^+\nu_\mu$		(4.00 ± 0.32) %		851
$\quad \overline{K}^*(892)^0 \mu^+ \nu_\mu$ $\times$ B($\overline{K}^*(892)^0 \to K^-\pi^+$)		(3.7 ± 0.3) %		717
$\quad K^-\pi^+\mu^+\nu_\mu$ nonresonant		$(3.3 \pm 1.3) \times 10^{-3}$		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
$\pi^0 \ell^+ \nu_\ell$	[d]	$(3.1 \pm 1.5) \times 10^{-3}$		930

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

$\overline{K}^*(892)^0 \ell^+ \nu_\ell$	[c]	(5.73 ± 0.35) %		722
$\quad \overline{K}^*(892)^0 e^+ \nu_e$		(5.5 ± 0.7) %	S=1.4	722
$\quad \overline{K}^*(892)^0 \mu^+ \nu_\mu$		(5.5 ± 0.4) %		717
$\overline{K}_1(1270)^0 \mu^+ \nu_\mu$		< 4 %	CL=95%	493
$\overline{K}^*_2(1430)^0 \mu^+ \nu_\mu$		< 1.0 %	CL=95%	380
$\rho^0 e^+ \nu_e$		$(2.5 \pm 1.0) \times 10^{-3}$		774
$\rho^0 \mu^+ \nu_\mu$		$(3.4 \pm 0.8) \times 10^{-3}$		769
$\phi e^+ \nu_e$		< 2.09 %	CL=90%	657
$\phi \mu^+ \nu_\mu$		< 3.72 %	CL=90%	651
$\eta \ell^+ \nu_\ell$		$< 5 \times 10^{-3}$	CL=90%	854
$\eta'(958) \mu^+ \nu_\mu$		< 1.1 %	CL=90%	684

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

$\overline{K}^0 \pi^+$		(2.82 ± 0.19) %		862
$K^-\pi^+\pi^+$	[e]	(9.2 ± 0.6) %		845
$\quad \overline{K}^*(892)^0 \pi^+$ $\times$ B($\overline{K}^*(892)^0 \to K^-\pi^+$)		(1.30 ± 0.13) %		714
$\quad \overline{K}^*_0(1430)^0 \pi^+$ $\times$ B($\overline{K}^*_0(1430)^0 \to K^-\pi^+$)		(2.3 ± 0.3) %		382
$\quad \overline{K}^*(1680)^0 \pi^+$ $\times$ B($\overline{K}^*(1680)^0 \to K^-\pi^+$)		$(3.8 \pm 0.8) \times 10^{-3}$		58
$\quad K^-\pi^+\pi^+$ nonresonant		(8.8 ± 0.9) %		845

$\overline{K}^0 \pi^+ \pi^0$	[e]	$(9.7 \pm 3.0)\ \%$	S=1.1	845
$\overline{K}^0 \rho^+$		$(6.6 \pm 2.5)\ \%$		677
$\overline{K}^*(892)^0 \pi^+$ $\times$ B($\overline{K}^*(892)^0 \to \overline{K}^0 \pi^0$)		$(6.5 \pm 0.6) \times 10^{-3}$		714
$\overline{K}^0 \pi^+ \pi^0$ nonresonant		$(1.3 \pm 1.1)\ \%$		845
$K^- \pi^+ \pi^+ \pi^0$	[e]	$(6.5 \pm 1.1)\ \%$		816
$\overline{K}^*(892)^0 \rho^+$ total $\times$ B($\overline{K}^*(892)^0 \to K^- \pi^+$)		$(1.4 \pm 0.9)\ \%$		422
$\overline{K}_1(1400)^0 \pi^+$ $\times$ B($\overline{K}_1(1400)^0 \to K^- \pi^+ \pi^0$)		$(2.2 \pm 0.6)\ \%$		390
$K^- \rho^+ \pi^+$ total		$(3.1 \pm 1.1)\ \%$		612
$K^- \rho^+ \pi^+$ 3-body		$(1.1 \pm 0.4)\ \%$		612
$\overline{K}^*(892)^0 \pi^+ \pi^0$ total $\times$ B($\overline{K}^*(892)^0 \to K^- \pi^+$)		$(4.5 \pm 0.9)\ \%$		690
$\overline{K}^*(892)^0 \pi^+ \pi^0$ 3-body $\times$ B($\overline{K}^*(892)^0 \to K^- \pi^+$)		$(2.9 \pm 0.9)\ \%$		690
$K^*(892)^- \pi^+ \pi^+$ 3-body $\times$ B($K^*(892)^- \to K^- \pi^0$)		$(7 \pm 3) \times 10^{-3}$		688
$K^- \pi^+ \pi^+ \pi^0$ nonresonant	[f]	$(1.2 \pm 0.6)\ \%$		816
$\overline{K}^0 \pi^+ \pi^+ \pi^-$	[e]	$(7.1 \pm 1.0)\ \%$		814
$\overline{K}^0 a_1(1260)^+$ $\times$ B($a_1(1260)^+ \to \pi^+ \pi^+ \pi^-$)		$(4.0 \pm 0.9)\ \%$		328
$\overline{K}_1(1400)^0 \pi^+$ $\times$ B($\overline{K}_1(1400)^0 \to \overline{K}^0 \pi^+ \pi^-$)		$(2.2 \pm 0.6)\ \%$		390
$K^*(892)^- \pi^+ \pi^+$ 3-body $\times$ B($K^*(892)^- \to \overline{K}^0 \pi^-$)		$(1.4 \pm 0.6)\ \%$		688
$\overline{K}^0 \rho^0 \pi^+$ total		$(4.3 \pm 0.9)\ \%$		610
$\overline{K}^0 \rho^0 \pi^+$ 3-body		$(5 \pm 5) \times 10^{-3}$		610
$\overline{K}^0 \pi^+ \pi^+ \pi^-$ nonresonant		$(9 \pm 4) \times 10^{-3}$		814
$K^- 3\pi^+ \pi^-$	[e]	$(6.2 \pm 0.8) \times 10^{-3}$	S=1.3	772
$\overline{K}^*(892)^0 \pi^+ \pi^+ \pi^-$ $\times$ B($\overline{K}^*(892)^0 \to K^- \pi^+$)		$(2.1 \pm 0.8) \times 10^{-3}$		645
$\overline{K}^*(892)^0 \rho^0 \pi^+$ $\times$ B($\overline{K}^*(892)^0 \to K^- \pi^+$)		$(2.0 \pm 0.5) \times 10^{-3}$		239
$\overline{K}^*(892)^0 \pi^+ \pi^+ \pi^-$ no-ρ $\times$ B($\overline{K}^*(892)^0 \to K^- \pi^+$)		$(2.9 \pm 1.1) \times 10^{-3}$		645
$K^- \rho^0 \pi^+ \pi^+$		$(1.94 \pm 0.35) \times 10^{-3}$	S=1.1	524
$K^- 3\pi^+ \pi^-$ nonresonant		$(4.3 \pm 3.2) \times 10^{-4}$		772
$\overline{K}^0 \overline{K}^0 K^+$		$(1.8 \pm 0.8)\ \%$		545
$K^+ K^- \overline{K}^0 \pi^+$		$(5.5 \pm 1.4) \times 10^{-4}$		435

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

$\overline{K}^0 \rho^+$		$(6.6 \pm 2.5)\%$		677
$\overline{K}^0 a_1(1260)^+$		$(8.2 \pm 1.7)\%$		328
$\overline{K}^0 a_2(1320)^+$		$< 3 \times 10^{-3}$	CL=90%	199
$\overline{K}^*(892)^0 \pi^+$		$(1.95 \pm 0.19)\%$		714
$\overline{K}^*(892)^0 \rho^+$ total	[f]	$(2.1 \pm 1.4)\%$		422
$\overline{K}^*(892)^0 \rho^+$ S-wave	[f]	$(1.7 \pm 1.6)\%$		422
$\overline{K}^*(892)^0 \rho^+$ P-wave		$< 1 \times 10^{-3}$	CL=90%	422
$\overline{K}^*(892)^0 \rho^+$ D-wave		$(10 \pm 7) \times 10^{-3}$		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
$\overline{K}_1(1400)^0 \pi^+$		$(5.0 \pm 1.3)\%$		390
$\overline{K}_0^*(1430)^0 \pi^+$		$(3.8 \pm 0.4)\%$		382
$\overline{K}^*(1680)^0 \pi^+$		$(1.47 \pm 0.31)\%$		58
$\overline{K}^*(892)^0 \pi^+ \pi^0$ total		$(6.8 \pm 1.4)\%$		690
$\overline{K}^*(892)^0 \pi^+ \pi^0$ 3-body	[f]	$(4.3 \pm 1.4)\%$		690
$K^*(892)^- \pi^+ \pi^+$ total		—		688
$K^*(892)^- \pi^+ \pi^+$ 3-body		$(2.1 \pm 0.9)\%$		688
$K^- \rho^+ \pi^+$ total		$(3.1 \pm 1.1)\%$		612
$K^- \rho^+ \pi^+$ 3-body		$(1.1 \pm 0.4)\%$		612
$\overline{K}^0 \rho^0 \pi^+$ total		$(4.3 \pm 0.9)\%$	CL=90%	610
$\overline{K}^0 \rho^0 \pi^+$ 3-body		$(5 \pm 5) \times 10^{-3}$		610
$\overline{K}^*(892)^0 \pi^+ \pi^+ \pi^-$		$(3.2 \pm 1.2) \times 10^{-3}$	S=2.0	645
$\overline{K}^*(892)^0 \rho^0 \pi^+$		$(3.0 \pm 0.7) \times 10^{-3}$	S=1.3	239
$\overline{K}^*(892)^0 \pi^+ \pi^+ \pi^-$ no-ρ		$(4.4 \pm 1.7) \times 10^{-3}$		645
$K^- \rho^0 \pi^+ \pi^+$		$(1.94 \pm 0.35) \times 10^{-3}$		524
$\overline{K}^*(892)^0 a_1(1260)^+$		$(9.1 \pm 1.9) \times 10^{-3}$		†

Pionic modes

$\pi^+ \pi^0$		$(2.6 \pm 0.7) \times 10^{-3}$		925
$\pi^+ \pi^+ \pi^-$		$(3.1 \pm 0.4) \times 10^{-3}$		908
$\sigma \pi^+$		$(2.2 \pm 0.5) \times 10^{-3}$		–
$\rho^0 \pi^+$		$(1.05 \pm 0.18) \times 10^{-3}$		766
$f_0(980) \pi^+ \times B(f_0 \to \pi^+ \pi^-)$	[g]	$(1.9 \pm 0.5) \times 10^{-4}$		669
$f_2(1270) \pi^+ \times B(f_2 \to \pi^+ \pi^-)$		$(6.1 \pm 1.1) \times 10^{-4}$		485
$\pi^+ \pi^+ \pi^-$ nonresonant		$(2.4 \pm 2.1) \times 10^{-4}$		908
$\pi^+ \pi^+ \pi^- \pi^0$		—		883
$\eta \pi^+ \times B(\eta \to \pi^+ \pi^- \pi^0)$		$(6.8 \pm 1.4) \times 10^{-4}$		848
$\omega \pi^+ \times B(\omega \to \pi^+ \pi^- \pi^0)$		$< 6 \times 10^{-3}$	CL=90%	763
$3\pi^+ 2\pi^-$		$(1.82 \pm 0.25) \times 10^{-3}$	S=1.2	845

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

$\eta\pi^+$		$(3.0 \pm 0.6) \times 10^{-3}$		848
$\rho^0\pi^+$		$(1.05 \pm 0.18) \times 10^{-3}$		766
$\omega\pi^+$		$< 7 \times 10^{-3}$	CL=90%	763
$\eta\rho^+$		$< 7 \times 10^{-3}$	CL=90%	655
$\eta'(958)\pi^+$		$(5.1 \pm 1.0) \times 10^{-3}$		680
$\eta'(958)\rho^+$		$< 5 \times 10^{-3}$	CL=90%	348
$f_2(1270)\pi^+$		$(1.08 \pm 0.20) \times 10^{-3}$		485

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

$K^+\overline{K}^0$		$(5.9 \pm 0.6) \times 10^{-3}$	S=1.2	792
$K^+K^-\pi^+$	[e]	$(8.9 \pm 0.8) \times 10^{-3}$		744
$\phi\pi^+ \times B(\phi \to K^+K^-)$		$(3.1 \pm 0.3) \times 10^{-3}$		647
$K^+\overline{K}^*(892)^0 \times B(\overline{K}^{*0} \to K^-\pi^+)$		$(2.9 \pm 0.4) \times 10^{-3}$		613
$K^+K^-\pi^+$ nonresonant		$(4.6 \pm 0.9) \times 10^{-3}$		744
$K^0\overline{K}^0\pi^+$		—		741
$K^*(892)^+\overline{K}^0 \times B(K^{*+} \to K^0\pi^+)$		(2.1 ± 0.9) %		611
$K^+K^-\pi^+\pi^0$		—		682
$\phi\pi^+\pi^0 \times B(\phi \to K^+K^-)$		(1.1 ± 0.5) %		619
$\phi\rho^+ \times B(\phi \to K^+K^-)$		$< 7 \times 10^{-3}$	CL=90%	258
$K^+K^-\pi^+\pi^0$ non-ϕ		$(1.5 {}^{+0.7}_{-0.6})$ %		682
$K^+\overline{K}^0\pi^+\pi^-$		$(4.0 \pm 0.7) \times 10^{-3}$		678
$K^0K^-\pi^+\pi^+$		$(5.5 \pm 0.8) \times 10^{-3}$		678
$K^*(892)^+\overline{K}^*(892)^0 \times B^2(K^*(892)^+ \to K^0\pi^+)$		(1.2 ± 0.5) %		280
$K^0K^-\pi^+\pi^+$ (non-$K^{*+}\overline{K}^{*0}$)		$< 7.9 \times 10^{-3}$	CL=90%	678
$K^+K^-\pi^+\pi^+\pi^-$		$(2.5 \pm 1.3) \times 10^{-4}$		600

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

$\phi\pi^+$	$(6.2 \pm 0.6) \times 10^{-3}$		647
$\phi\pi^+\pi^0$	(2.3 ± 1.0) %		619
$\phi\rho^+$	< 1.5 %	CL=90%	258
$K^+\overline{K}^*(892)^0$	$(4.3 \pm 0.6) \times 10^{-3}$		613
$K^*(892)^+\overline{K}^0$	(3.1 ± 1.4) %		611
$K^*(892)^+\overline{K}^*(892)^0$	(2.6 ± 1.1) %		280

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

$K^+ \pi^+ \pi^-$	DC		$(7.0 \pm 1.5) \times 10^{-4}$			845
$K^+ \rho^0$	DC		$(2.6 \pm 1.2) \times 10^{-4}$			678
$K^*(892)^0 \pi^+$	DC	[h]	$(3.7 \pm 1.7) \times 10^{-4}$			714
$K^+ \pi^+ \pi^-$ nonresonant	DC		$(2.5 \pm 1.2) \times 10^{-4}$			845
$K^+ K^+ K^-$	DC		$(8.7 \pm 2.1) \times 10^{-5}$			550
ϕK^+	DC	[h]	$<$	1.3×10^{-4}	CL=90%	527
$\pi^+ e^+ e^-$	$C1$		$<$	5.2×10^{-5}	CL=90%	929
$\pi^+ \mu^+ \mu^-$	$C1$		$<$	8.8×10^{-6}	CL=90%	917
$\rho^+ \mu^+ \mu^-$	$C1$		$<$	5.6×10^{-4}	CL=90%	757
$K^+ e^+ e^-$		[i]	$<$	2.0×10^{-4}	CL=90%	870
$K^+ \mu^+ \mu^-$		[i]	$<$	9.2×10^{-6}	CL=90%	856
$\pi^+ e^\pm \mu^\mp$	LF	[j]	$<$	3.4×10^{-5}	CL=90%	926
$K^+ e^\pm \mu^\mp$	LF	[j]	$<$	6.8×10^{-5}	CL=90%	866
$\pi^- e^+ e^+$	L		$<$	9.6×10^{-5}	CL=90%	929
$\pi^- \mu^+ \mu^+$	L		$<$	4.8×10^{-6}	CL=90%	917
$\pi^- e^+ \mu^+$	L		$<$	5.0×10^{-5}	CL=90%	926
$\rho^- \mu^+ \mu^+$	L		$<$	5.6×10^{-4}	CL=90%	757
$K^- e^+ e^+$	L		$<$	1.2×10^{-4}	CL=90%	870
$K^- \mu^+ \mu^+$	L		$<$	1.3×10^{-5}	CL=90%	856
$K^- e^+ \mu^+$	L		$<$	1.3×10^{-4}	CL=90%	866
$K^*(892)^- \mu^+ \mu^+$	L		$<$	8.5×10^{-4}	CL=90%	703

D^0

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

Mass $m = 1864.6 \pm 0.5$ MeV (S = 1.1)

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

Mean life $\tau = (410.3 \pm 1.5) \times 10^{-15}$ s

$c\tau = 123.0\ \mu$m

$\left|m_{D_1^0} - m_{D_2^0}\right| < 7 \times 10^{10}\ \hbar\ \mathrm{s}^{-1}$, CL = 95% [k]

$(\Gamma_{D_1^0} - \Gamma_{D_2^0})/\Gamma = 2y = 0.016 \pm 0.010$

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

$\Gamma\big(K^+ \pi^- \text{(via } \overline{D}^0)\big)/\Gamma\big(K^- \pi^+\big) < 4.1 \times 10^{-4}$, CL = 95%

CP-violation decay-rate asymmetries

$A_{CP}(K^+K^-) = 0.005 \pm 0.016$
$A_{CP}(K^0_S K^0_S) = -0.23 \pm 0.19$
$A_{CP}(\pi^+\pi^-) = 0.021 \pm 0.026$
$A_{CP}(\pi^0\pi^0) = 0.00 \pm 0.05$
$A_{CP}(K^0_S\phi) = -0.03 \pm 0.09$
$A_{CP}(K^0_S\pi^0) = 0.001 \pm 0.013$
$A_{CP}(K^\pm\pi^\mp) = 0.08 \pm 0.09$
$A_{CP}(K^\mp\pi^\pm\pi^0) = -0.03 \pm 0.09$
$A_{CP}(K^\pm\pi^\mp\pi^0) = 0.09^{+0.25}_{-0.22}$

CPT-violation decay-rate asymmetry

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

$\overline{D}^0$ modes are charge conjugates of the modes below.

D^0 DECAY MODES		Fraction (Γ_i/Γ)	Scale factor/ Confidence level	p (MeV/c)
Inclusive modes				
e^+ anything	[l]	(6.87 ± 0.28) %		–
μ^+ anything		(6.5 ± 0.8) %		–
K^- anything		(53 ± 4) %	S=1.3	–
$\overline{K}^0$ anything + K^0 anything		(42 ± 5) %		–
K^+ anything		$(3.4^{+0.6}_{-0.4})$ %		–
η anything	[b]	< 13 %	CL=90%	–
ϕ anything		(1.7 ± 0.8) %		–
Semileptonic modes				
$K^-\ell^+\nu_\ell$	[c]	(3.43 ± 0.14) %	S=1.2	867
$K^-e^+\nu_e$		(3.58 ± 0.18) %	S=1.1	867
$K^-\mu^+\nu_\mu$		(3.19 ± 0.17) %		864
$K^-\pi^0e^+\nu_e$		$(1.1^{+0.8}_{-0.6})$ %	S=1.6	861
$\overline{K}^0\pi^-e^+\nu_e$		(1.8 ± 0.8) %	S=1.6	860
$\overline{K}^*(892)^-e^+\nu_e$ $\times$ B($K^*(892)^- \rightarrow \overline{K}^0\pi^-$)		(1.43 ± 0.23) %		719
$K^-\pi^+\pi^-\mu^+\nu_\mu$		$< 1.2 \times 10^{-3}$	CL=90%	821
$(\overline{K}^*(892)\pi)^-\mu^+\nu_\mu$		$< 1.4 \times 10^{-3}$	CL=90%	692
$\pi^-e^+\nu_e$		$(3.6 \pm 0.6) \times 10^{-3}$		927

A fraction of the following resonance mode has already appeared above as a submode of a charged-particle mode.

$K^*(892)^-e^+\nu_e$		(2.15 ± 0.35) %		719

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

$K^- \pi^+$		(3.80 ± 0.09) %		861
$\overline{K}^0 \pi^0$		(2.30 ± 0.22) %		860
$\overline{K}^0 \pi^+ \pi^-$	[e]	(5.97 ± 0.35) %	S=1.1	842
$\quad \overline{K}^0 \rho^0$		$(1.55^{+0.12}_{-0.16})$ %		673
$\quad \overline{K}^0 \omega \times B(\omega \to \pi^+ \pi^-)$		$(3.9 \pm 0.9) \times 10^{-4}$		670
$\quad \overline{K}^0 f_0(980) \times B(f_0(980) \to \pi^+ \pi^-)$		$(2.8 ^{+0.6}_{-0.4}) \times 10^{-3}$		549
$\quad \overline{K}^0 f_2(1270) \times B(f_2(1270) \to \pi^+ \pi^-)$		$(2.6 ^{+2.3}_{-1.4}) \times 10^{-4}$		262
$\quad \overline{K}^0 f_0(1370) \times B(f_0(1370) \to \pi^+ \pi^-)$		$(5.1 ^{+1.2}_{-1.3}) \times 10^{-3}$		–
$\quad K^*(892)^- \pi^+ \times B(K^*(892)^- \to \overline{K}^0 \pi^-)$		(3.9 ± 0.3) %		711
$\quad K_0^*(1430)^- \pi^+ \times B(K_0^*(1430)^- \to \overline{K}^0 \pi^-)$		$(6.1 ^{+1.2}_{-0.8}) \times 10^{-3}$		378
$\quad K_2^*(1430)^- \pi^+ \times B(K_2^*(1430)^- \to \overline{K}^0 \pi^-)$		$(1.0 ^{+0.7}_{-0.4}) \times 10^{-3}$		367
$\quad K^*(1680)^- \pi^+ \times B(K^*(1680)^- \to \overline{K}^0 \pi^-)$		$(2.1 ^{+1.0}_{-0.9}) \times 10^{-3}$		46
$\quad K^*(892)^+ \pi^- \times B(K^*(892)^+ \to K^0 \pi^+)$		$(2.0 ^{+2.6}_{-0.9}) \times 10^{-4}$		711
$\quad \overline{K}^0 \pi^+ \pi^-$ nonresonant		$(5.4 ^{+12.0}_{-3.4}) \times 10^{-4}$		842
$K^- \pi^+ \pi^0$	[e]	(13.0 ± 0.8) %	S=1.3	844
$\quad K^- \rho^+$		(10.1 ± 0.8) %		675
$\quad K^- \rho(1700)^+ \times B(\rho(1700)^+ \to \pi^+ \pi^0)$		$(7.4 \pm 1.6) \times 10^{-3}$		†
$\quad K^*(892)^- \pi^+ \times B(K^*(892)^- \to K^- \pi^0)$		(1.97 ± 0.13) %		711
$\quad \overline{K}^*(892)^0 \pi^0 \times B(\overline{K}^*(892)^0 \to K^- \pi^+)$		(1.87 ± 0.27) %		711
$\quad K_0^*(1430)^- \pi^+ \times B(K_0^*(1430)^- \to K^- \pi^0)$		$(3.0 ^{+0.6}_{-0.4}) \times 10^{-3}$		378
$\quad \overline{K}_0^*(1430)^0 \pi^0 \times B(\overline{K}_0^*(1430)^0 \to K^- \pi^+)$		$(5.3 ^{+4.2}_{-1.4}) \times 10^{-3}$		379
$\quad K^*(1680)^- \pi^+ \times B(K^*(1680)^- \to K^- \pi^0)$		$(1.1 \pm 0.5) \times 10^{-3}$		46
$\quad K^- \pi^+ \pi^0$ nonresonant		$(1.04^{+0.50}_{-0.19})$ %		844

$\overline{K}^0 \pi^0 \pi^0$		—	843
$\overline{K}^*(892)^0 \pi^0$ $\times$ B($\overline{K}^*(892)^0 \to \overline{K}^0 \pi^0$)		$(9.3 \pm 1.3) \times 10^{-3}$	711
$\overline{K}^0 \pi^0 \pi^0$ nonresonant		$(8.5 \pm 2.2) \times 10^{-3}$	843
$K^- \pi^+ \pi^+ \pi^-$	[e]	(7.46 ± 0.31) %	812
$K^- \pi^+ \rho^0$ total		(6.2 ± 0.4) %	609
$K^- \pi^+ \rho^0$ 3-body		$(4.7 \pm 2.1) \times 10^{-3}$	609
$\overline{K}^*(892)^0 \rho^0$ $\times$ B($\overline{K}^*(892)^0 \to K^- \pi^+$)		$(9.7 \pm 2.1) \times 10^{-3}$	416
$K^- a_1(1260)^+$ $\times$ B($a_1(1260)^+ \to \pi^+ \pi^+ \pi^-$)		(3.6 ± 0.6) %	327
$\overline{K}^*(892)^0 \pi^+ \pi^-$ total $\times$ B($\overline{K}^*(892)^0 \to K^- \pi^+$)		(1.5 ± 0.4) %	685
$\overline{K}^*(892)^0 \pi^+ \pi^-$ 3-body $\times$ B($\overline{K}^*(892)^0 \to K^- \pi^+$)		$(9.5 \pm 2.1) \times 10^{-3}$	685
$K_1(1270)^- \pi^+$ $\times$ B($K_1(1270)^- \to K^- \pi^+ \pi^-$)	[f]	$(2.9 \pm 0.3) \times 10^{-3}$	484
$K^- \pi^+ \pi^+ \pi^-$ nonresonant		(1.74 ± 0.25) %	812
$\overline{K}^0 \pi^+ \pi^- \pi^0$	[e]	(10.9 ± 1.3) %	812
$\overline{K}^0 \eta$ $\times$ B($\eta \to \pi^+ \pi^- \pi^0$)		$(1.74 \pm 0.25) \times 10^{-3}$	772
$\overline{K}^0 \omega$ $\times$ B($\omega \to \pi^+ \pi^- \pi^0$)		(2.1 ± 0.4) %	670
$K^*(892)^- \rho^+$ $\times$ B($K^*(892)^- \to \overline{K}^0 \pi^-$)		(4.4 ± 1.7) %	416
$\overline{K}^*(892)^0 \rho^0$ $\times$ B($\overline{K}^*(892)^0 \to \overline{K}^0 \pi^0$)		$(4.8 \pm 1.1) \times 10^{-3}$	416
$K_1(1270)^- \pi^+$ $\times$ B($K_1(1270)^- \to \overline{K}^0 \pi^- \pi^0$)	[f]	$(4.5 \pm 1.2) \times 10^{-3}$	484
$\overline{K}^*(892)^0 \pi^+ \pi^-$ 3-body $\times$ B($\overline{K}^*(892)^0 \to \overline{K}^0 \pi^0$)		$(4.7 \pm 1.0) \times 10^{-3}$	685
$\overline{K}^0 \pi^+ \pi^- \pi^0$ nonresonant		(2.3 ± 2.3) %	812
$K^- \pi^+ \pi^+ \pi^- \pi^0$		(4.0 ± 0.4) %	771
$\overline{K}^*(892)^0 \pi^+ \pi^- \pi^0$ $\times$ B($\overline{K}^*(892)^0 \to K^- \pi^+$)		(1.2 ± 0.6) %	643
$\overline{K}^*(892)^0 \eta$ $\times$ B($\overline{K}^*(892)^0 \to K^- \pi^+$) $\times$ B($\eta \to \pi^+ \pi^- \pi^0$)		$(2.7 \pm 0.6) \times 10^{-3}$	582
$K^- \pi^+ \omega$ $\times$ B($\omega \to \pi^+ \pi^- \pi^0$)		(2.7 ± 0.5) %	605
$\overline{K}^*(892)^0 \omega$ $\times$ B($\overline{K}^*(892)^0 \to K^- \pi^+$) $\times$ B($\omega \to \pi^+ \pi^- \pi^0$)		$(6.5 \pm 2.4) \times 10^{-3}$	410
$\overline{K}^0 \pi^+ \pi^+ \pi^- \pi^-$		$(6.4 \pm 1.8) \times 10^{-3}$	768
$\overline{K}^0 K^+ K^-$		(1.03 ± 0.10) %	544
$\overline{K}^0 \phi$ $\times$ B($\phi \to K^+ K^-$)		$(4.7 \pm 0.6) \times 10^{-3}$	520
$\overline{K}^0 K^+ K^-$ non-ϕ		$(5.6 \pm 0.9) \times 10^{-3}$	544

$K^0_S K^0_S K^0_S$	$(9.2 \pm 1.6) \times 10^{-4}$		538
$K^+ K^- K^- \pi^+$	$(2.04 \pm 0.30) \times 10^{-4}$		434
$K^+ K^- \overline{K}^*(892)^0$ $\times$ B($\overline{K}^*(892)^0 \to K^- \pi^+$)	$(4.1 \pm 1.7) \times 10^{-5}$		†
$K^- \pi^+ \phi \times$ B($\phi \to K^+ K^-$)	$(3.8 \pm 1.6) \times 10^{-5}$		422
$\phi \overline{K}^*(892)^0$ $\times$ B($\phi \to K^+ K^-$) $\times$ B($\overline{K}^*(892)^0 \to K^- \pi^+$)	$(1.0 \pm 0.2) \times 10^{-4}$		†
$K^+ K^- K^- \pi^+$ nonresonant	$(3.1 \pm 1.4) \times 10^{-5}$		434

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.)

$\overline{K}^0 \eta$	$(7.7 \pm 1.1) \times 10^{-3}$		772
$\overline{K}^0 \rho^0$	$(1.55^{+0.12}_{-0.16})$ %		673
$K^- \rho^+$	(10.1 ± 0.8) %	S=1.2	675
$\overline{K}^0 \omega$	(2.3 ± 0.4) %		670
$\overline{K}^0 \eta'(958)$	(1.88 ± 0.28) %		565
$\overline{K}^0 \phi$	$(9.4 \pm 1.1) \times 10^{-3}$		520
$K^- a_1(1260)^+$	(7.2 ± 1.1) %		327
$\overline{K}^0 a_1(1260)^0$	< 1.9 %	CL=90%	323
$\overline{K}^0 f_2(1270)$	$(4.7^{+4.1}_{-2.4}) \times 10^{-4}$		262
$K^- a_2(1320)^+$	$< 2 \times 10^{-3}$	CL=90%	197
$K^*(892)^- \pi^+$	(5.9 ± 0.4) %	S=1.1	711
$\overline{K}^*(892)^0 \pi^0$	(2.8 ± 0.4) %	S=1.1	711
$\overline{K}^*(892)^0 \pi^+ \pi^-$ total	(2.2 ± 0.5) %		685
$\overline{K}^*(892)^0 \pi^+ \pi^-$ 3-body	(1.42 ± 0.31) %		685
$K^- \pi^+ \rho^0$ total	(6.2 ± 0.4) %		609
$K^- \pi^+ \rho^0$ 3-body	$(4.7 \pm 2.1) \times 10^{-3}$		609
$\overline{K}^*(892)^0 \rho^0$	(1.45 ± 0.32) %		416
$\overline{K}^*(892)^0 \rho^0$ transverse	(1.5 ± 0.5) %		416
$\overline{K}^*(892)^0 \rho^0$ *S*-wave	(2.8 ± 0.6) %		416
$\overline{K}^*(892)^0 \rho^0$ *S*-wave long.	$< 3 \times 10^{-3}$	CL=90%	416
$\overline{K}^*(892)^0 \rho^0$ *P*-wave	$< 3 \times 10^{-3}$	CL=90%	416
$\overline{K}^*(892)^0 \rho^0$ *D*-wave	(1.9 ± 0.6) %		416
$K^*(892)^- \rho^+$	(6.6 ± 2.6) %		416
$K^*(892)^- \rho^+$ longitudinal	(3.2 ± 1.3) %		416
$K^*(892)^- \rho^+$ transverse	(3.4 ± 2.0) %		416
$K^*(892)^- \rho^+$ *P*-wave	< 1.5 %	CL=90%	416
$K_1(1270)^- \pi^+$	[f] (1.14 ± 0.31) %		484
$K_1(1400)^- \pi^+$	< 1.2 %	CL=90%	386
$\overline{K}_1(1400)^0 \pi^0$	< 3.7 %	CL=90%	387

$K_0^*(1430)^- \pi^+$		$(9.8 \ {}^{+2.0}_{-1.3}) \times 10^{-3}$		378
$\overline{K}_0^*(1430)^0 \pi^0$		$(8.6 \ {}^{+6.8}_{-2.3}) \times 10^{-3}$		379
$K_2^*(1430)^- \pi^+$		$(2.0 \ {}^{+1.3}_{-0.7}) \times 10^{-3}$		367
$\overline{K}_2^*(1430)^0 \pi^0$		$< 3.3 \times 10^{-3}$	CL=90%	368
$K^*(1680)^- \pi^+$		$(8.2 \ {}^{+3.9}_{-3.5}) \times 10^{-3}$	S=1.2	46
$\overline{K}^*(892)^0 \pi^+ \pi^- \pi^0$		(1.8 ± 0.9) %		643
$\quad \overline{K}^*(892)^0 \eta$		(1.8 ± 0.4) %		582
$K^- \pi^+ \omega$		(3.0 ± 0.6) %		605
$\quad \overline{K}^*(892)^0 \omega$		(1.1 ± 0.4) %		410
$K^- \pi^+ \eta'(958)$		$(6.9 \pm 1.8) \times 10^{-3}$		479
$\quad \overline{K}^*(892)^0 \eta'(958)$		$< 1.0 \times 10^{-3}$	CL=90%	119
$K^- \pi^+ \phi$		$(7.6 \pm 3.1) \times 10^{-5}$		422
$\quad K^+ K^- \overline{K}^*(892)^0$		$(6.1 \pm 2.5) \times 10^{-5}$		†
$\quad \phi \overline{K}^*(892)^0$		$(3.0 \pm 0.6) \times 10^{-4}$		†

Pionic modes

$\pi^+ \pi^-$		$(1.38 \pm 0.05) \times 10^{-3}$		922
$\pi^0 \pi^0$		$(8.4 \pm 2.2) \times 10^{-4}$		922
$\pi^+ \pi^- \pi^0$		(1.1 ± 0.4) %		907
$\pi^+ \pi^+ \pi^- \pi^-$		$(7.3 \pm 0.5) \times 10^{-3}$		880

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

$K^+ K^-$		$(3.89 \ {}^{+0.12}_{-0.15}) \times 10^{-3}$	S=1.2	791
$K^0 \overline{K}^0$		$(7.1 \pm 1.9) \times 10^{-4}$	S=1.2	788
$K^0 K^- \pi^+$		$(6.9 \pm 1.0) \times 10^{-3}$		739
$\quad \overline{K}^*(892)^0 K^0 \times \mathrm{B}(\overline{K}^{*0} \to K^- \pi^+)$		$< 1.1 \times 10^{-3}$	CL=90%	608
$\quad K^*(892)^+ K^- \times \mathrm{B}(K^{*+} \to K^0 \pi^+)$		$(2.5 \pm 0.5) \times 10^{-3}$		610
$\quad K^0 K^- \pi^+$ nonresonant		$(2.3 \pm 2.3) \times 10^{-3}$		739
$\overline{K}^0 K^+ \pi^-$		$(5.3 \pm 1.0) \times 10^{-3}$		739
$\quad K^*(892)^0 \overline{K}^0 \times \mathrm{B}(K^{*0} \to K^+ \pi^-)$		$< 6 \times 10^{-4}$	CL=90%	608
$\quad K^*(892)^- K^+ \times \mathrm{B}(K^{*-} \to \overline{K}^0 \pi^-)$		$(1.3 \pm 0.7) \times 10^{-3}$		610
$\quad \overline{K}^0 K^+ \pi^-$ nonresonant		$(3.8 \ {}^{+2.3}_{-1.9}) \times 10^{-3}$		739
$K^+ K^- \pi^0$		$(1.24 \pm 0.35) \times 10^{-3}$		743
$K_S^0 K_S^0 \pi^0$		$< 5.9 \times 10^{-4}$		740
$K^+ K^- \pi^+ \pi^-$	[m]	$(2.49 \pm 0.23) \times 10^{-3}$		677
$\quad \phi \pi^+ \pi^- \times \mathrm{B}(\phi \to K^+ K^-)$		$(5.3 \pm 1.4) \times 10^{-4}$		614

$\phi\rho^0 \times$ B($\phi \to K^+K^-$)		(2.9 ± 1.5) $\times 10^{-4}$		250
$K^+K^-\rho^0$ 3-body		(9.0 ± 2.3) $\times 10^{-4}$		301
$K^*(892)^0 K^-\pi^+ +$ c.c. $\times$ B($K^{*0} \to K^+\pi^-$)	[n]	< 5 $\times 10^{-4}$		531
$K^*(892)^0 \overline{K}^*(892)^0 \times$ B^2($K^{*0} \to K^+\pi^-$)		(6 ± 2) $\times 10^{-4}$		272
$K^+K^-\pi^+\pi^-$ nonresonant		< 8 $\times 10^{-4}$	CL=90%	677
$K^0\overline{K}^0\pi^+\pi^-$		(7.5 ± 2.9) $\times 10^{-3}$		673
$K^+K^-\pi^+\pi^-\pi^0$		(3.1 ± 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.

$\overline{K}^*(892)^0 K^0$		< 1.7 $\times 10^{-3}$	CL=90%	608
$K^*(892)^+ K^-$		(3.8 ± 0.8) $\times 10^{-3}$		610
$K^*(892)^0 \overline{K}^0$		< 9 $\times 10^{-4}$	CL=90%	608
$K^*(892)^- K^+$		(2.0 ± 1.1) $\times 10^{-3}$		610
$\phi\pi^0$		(7.5 ± 0.5) $\times 10^{-4}$		645
$\phi\eta$		(1.4 ± 0.5) $\times 10^{-4}$		489
$\phi\omega$		< 2.1 $\times 10^{-3}$	CL=90%	238
$\phi\pi^+\pi^-$		(1.06 ± 0.28) $\times 10^{-3}$		614
$\phi\rho^0$		(5.7 ± 3.0) $\times 10^{-4}$		250
$\phi\pi^+\pi^-$ 3-body		(7 ± 5) $\times 10^{-4}$		614
$K^*(892)^0 K^-\pi^+ +$ c.c.	[n]	< 7 $\times 10^{-4}$	CL=90%	531
$K^*(892)^0 \overline{K}^*(892)^0$		(1.4 ± 0.5) $\times 10^{-3}$		272

Radiative modes

$\rho^0\gamma$	< 2.4 $\times 10^{-4}$	CL=90%	771
$\omega\gamma$	< 2.4 $\times 10^{-4}$	CL=90%	768
$\phi\gamma$	($2.5^{+0.7}_{-0.6}$) $\times 10^{-5}$		654
$\overline{K}^*(892)^0\gamma$	< 7.6 $\times 10^{-4}$	CL=90%	719

Doubly Cabibbo suppressed (*DC*) modes, $\Delta C = 2$ forbidden via mixing (*C2M*) modes, $\Delta C = 1$ weak neutral current (*C1*) modes, Lepton Family number (*LF*) violating modes, or Lepton number (*L*) violating modes

$K^+\ell^-\overline{\nu}_\ell$(via $\overline{D}^0$)	*C2M*	< 1.7 $\times 10^{-4}$	CL=90%	–
$K^+\pi^-$	*DC*	(1.38 ± 0.11) $\times 10^{-4}$		861
$K^+\pi^-$ (via $\overline{D}^0$)	*C2M*	< 1.6 $\times 10^{-5}$	CL=95%	861
$K^*(892)^+\pi^-$		($3.0^{+3.8}_{-1.3}$) $\times 10^{-4}$		711
$K^+\pi^-\pi^0$		(5.6 ± 1.7) $\times 10^{-4}$		844
$K^+\pi^-\pi^+\pi^-$	*DC*	(3.1 ± 1.0) $\times 10^{-4}$		812
$K^+\pi^-\pi^+\pi^-$ (via $\overline{D}^0$)	*C2M*	< 4 $\times 10^{-4}$	CL=90%	812

$K^+\pi^-$ or $K^+\pi^-\pi^+\pi^-$ (via $\overline{D}^0$)			$<$ 1.0	$\times 10^{-3}$	CL=90%	–
μ^- anything (via $\overline{D}^0$)	$C2M$		$<$ 4	$\times 10^{-4}$	CL=90%	–
$\gamma\gamma$	$C1$		$<$ 2.8	$\times 10^{-5}$	CL=90%	932
e^+e^-	$C1$		$<$ 6.2	$\times 10^{-6}$	CL=90%	932
$\mu^+\mu^-$	$C1$		$<$ 4.1	$\times 10^{-6}$	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
ηe^+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
ωe^+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
ϕe^+e^-	$C1$		$<$ 5.2	$\times 10^{-5}$	CL=90%	654
$K^-K^+\mu^+\mu^-$	$C1$		$<$ 3.3	$\times 10^{-5}$	CL=90%	710
$\phi\mu^+\mu^-$	$C1$		$<$ 3.1	$\times 10^{-5}$	CL=90%	631
$\overline{K}^0 e^+e^-$		[i]	$<$ 1.1	$\times 10^{-4}$	CL=90%	866
$\overline{K}^0\mu^+\mu^-$		[i]	$<$ 2.6	$\times 10^{-4}$	CL=90%	852
$K^-\pi^+e^+e^-$	$C1$		$<$ 3.85	$\times 10^{-4}$	CL=90%	861
$\overline{K}^*(892)^0 e^+e^-$		[i]	$<$ 4.7	$\times 10^{-5}$	CL=90%	719
$K^-\pi^+\mu^+\mu^-$	$C1$		$<$ 3.59	$\times 10^{-4}$	CL=90%	829
$\overline{K}^*(892)^0\mu^+\mu^-$		[i]	$<$ 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	[j]	$<$ 8.1	$\times 10^{-6}$	CL=90%	929
$\pi^0 e^\pm\mu^\mp$	LF	[j]	$<$ 8.6	$\times 10^{-5}$	CL=90%	924
$\eta e^\pm\mu^\mp$	LF	[j]	$<$ 1.0	$\times 10^{-4}$	CL=90%	848
$\pi^+\pi^- e^\pm\mu^\mp$	LF	[j]	$<$ 1.5	$\times 10^{-5}$	CL=90%	911
$\rho^0 e^\pm\mu^\mp$	LF	[j]	$<$ 4.9	$\times 10^{-5}$	CL=90%	767
$\omega e^\pm\mu^\mp$	LF	[j]	$<$ 1.2	$\times 10^{-4}$	CL=90%	764
$K^-K^+e^\pm\mu^\mp$	LF	[j]	$<$ 1.8	$\times 10^{-4}$	CL=90%	754
$\phi e^\pm\mu^\mp$	LF	[j]	$<$ 3.4	$\times 10^{-5}$	CL=90%	648
$\overline{K}^0 e^\pm\mu^\mp$	LF	[j]	$<$ 1.0	$\times 10^{-4}$	CL=90%	862
$K^-\pi^+e^\pm\mu^\mp$	LF	[j]	$<$ 5.53	$\times 10^{-4}$	CL=90%	848
$\overline{K}^*(892)^0 e^\pm\mu^\mp$	LF	[j]	$<$ 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%	710

$\pi^- \pi^- e^+ \mu^+$ + 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 $m = 2006.7 \pm 0.5$ 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 $m = 2010.0 \pm 0.5$ 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±0.4) %	136

$D_1(2420)^0$

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

Mass $m = 2422.2 \pm 1.8$ MeV (S = 1.2)
Full width $\Gamma = 18.9^{+4.6}_{-3.5}$ 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
$D^+ \pi^-$	not seen	474

$D_2^*(2460)^0$

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

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

Mass $m = 2458.9 \pm 2.0$ MeV (S = 1.2)
Full width $\Gamma = 23 \pm 5$ MeV

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

$D_2^*(2460)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$D^+\pi^-$	seen	504
$D^*(2010)^+\pi^-$	seen	387

$D_2^*(2460)^{\pm}$

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

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

Mass $m = 2459 \pm 4$ MeV (S = 1.7)
$m_{D_2^*(2460)^{\pm}} - m_{D_2^*(2460)^0} = 0.9 \pm 3.3$ MeV (S = 1.1)
Full width $\Gamma = 25^{+8}_{-7}$ 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

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*] This value averages the e^+ and μ^+ branching fractions, after making a small phase-space adjustment to the μ^+ fraction to be able to use it as an e^+ fraction; hence our ℓ^+ here is really an e^+.

[*d*] An ℓ indicates an e or a μ mode, not a sum over these modes.

[*e*] 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.

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

[*g*] This value includes only $\pi^+\pi^-$ decays of the intermediate resonance, because branching fractions of this resonance are not known.

[*h*] Unseen decay modes of the resonance are included.

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

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

[*k*] 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.

[*l*] The exclusive e^+ modes $K^- e^+ \nu_e$, $K^- \pi^0 e^+ \nu_e$, $\overline{K}^0 \pi^- e^+ \nu_e$ and $\pi^- e^+ \nu_e$ are constrained to equal this (well-measured) inclusive fraction.

[*m*] 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.

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