$\Gamma(e^+e^-\gamma\gamma)/\Gamma_{\text{total}}$ — Γ_{22}/Γ

Test for $\Delta S = 1$ weak neutral current. Allowed by higher-order electroweak interaction.

VALUE (units 10^{-7})	DOCUMENT ID		TECN	COMMENT
6.6±3.2	MORSE	92	B845	$E_\gamma > 5$ MeV

$\Gamma(\pi^+\pi^-e^+e^-)/\Gamma_{\text{total}}$ — Γ_{23}/Γ

Test for $\Delta S = 1$ weak neutral current. Allowed by higher-order electroweak interaction.

VALUE (units 10^{-6})	CL%	EVTS	DOCUMENT ID		TECN
< 2.5	90	0	BALATS	83	SPEC
• • • We do not use the following data for averages, fits, limits, etc. • • •					
< 8.81	90		[46] DONALDSON	76	SPEC
<30			ANIKINA	73	STRC

[46] Uses $K^0_L \to \pi^+\pi^-\pi^0$/(all K^0_L) decays = 0.126.

$\Gamma(\mu^+\mu^-e^+e^-)/\Gamma_{\text{total}}$ — Γ_{24}/Γ

Test for $\Delta S = 1$ weak neutral current. Allowed by higher-order electroweak interaction.

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN
<4.9	90	BALATS	83	SPEC

$\Gamma(e^+e^-e^+e^-)/\Gamma_{\text{total}}$ — Γ_{25}/Γ

Test for $\Delta S = 1$ weak neutral current. Allowed by higher-order electroweak interaction.

VALUE (units 10^{-8})	CL%	EVTS	DOCUMENT ID		TECN
3.9 ±0.7 OUR AVERAGE					
3.96±0.78±0.32		27	GU	94	E799
6 ±2 ±1		18	AKAGI	93	CNTR
3.07±1.25±0.26		6	VAGINS	93	B845
4 ±3		2	BARR	91	NA31
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<260	90		BALATS	83	SPEC

$\Gamma(\pi^0\mu^+\mu^-)/\Gamma_{\text{total}}$ — Γ_{26}/Γ

Violates *CP* in leading order. Test for $\Delta S = 1$ weak neutral current. Allowed by higher-order electroweak interaction.

VALUE (units 10^{-9})	CL%	EVTS	DOCUMENT ID		TECN
< 5.1	90	0	HARRIS	93	E799
• • • We do not use the following data for averages, fits, limits, etc. • • •					
< 1200	90	0	[47] CARROLL	80D	SPEC
<56600	90		[48] DONALDSON	74	SPEC

[47] Uses $K^0_L \to \pi^+\pi^-\pi^0$/(all K^0_L) decays = 0.1239.

[48] Uses $K^0_L \to \pi^+\pi^-\pi^0$/(all K^0_L) decays = 0.126.

$\Gamma(\pi^0e^+e^-)/\Gamma_{\text{total}}$ — Γ_{27}/Γ

Violates *CP* in leading order. Direct and indirect *CP*-violating contributions are expected to be comparable and to dominate the *CP*-conserving part. Test for $\Delta S = 1$ weak neutral current. Allowed by higher-order electroweak interaction.

VALUE (units 10^{-9})	CL%	EVTS	DOCUMENT ID		TECN
< 4.3	90	0	HARRIS	93B	E799
< 7.5	90	0	BARKER	90	E731
< 5.5	90	0	OHL	90	B845
• • • We do not use the following data for averages, fits, limits, etc. • • •					
< 40	90		BARR	88	NA31
< 320	90		JASTRZEM...	88	SPEC
<2300	90	0	[49] CARROLL	80D	SPEC

[49] Uses $K^0_L \to \pi^+\pi^-\pi^0$/(all K^0_L) decays = 0.1239.

$\Gamma(\pi^0\nu\overline{\nu})/\Gamma_{\text{total}}$ — Γ_{28}/Γ

Violates *CP* in leading order. Test of direct *CP* violation since the indirect *CP*-violating and *CP*-conserving contributions are expected to be suppressed. Test of $\Delta S = 1$ weak neutral current.

VALUE (units 10^{-3})	CL%	EVTS	DOCUMENT ID		TECN
<0.22	90	0	GRAHAM	92	CNTR
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<7.6	90		[50] LITTENBERG	89	RVUE

[50] LITTENBERG 89 is from retroactive data analysis of CRONIN 67.

$\Gamma(e^\pm\mu^\mp)/\Gamma_{\text{total}}$ — Γ_{29}/Γ

Test of lepton family number conservation.

VALUE (units 10^{-11})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
< 3.3	90	0	[51] ARISAKA	93	SPEC	
• • • We do not use the following data for averages, fits, limits, etc. • • •						
< 3.9	90	0	ARISAKA	93	SPEC	
< 9.4	90	0	AKAGI	91	SPEC	
< 43	90		INAGAKI	89	SPEC	In AKAGI 91
< 22	90		MATHIAZHA...	89	SPEC	
< 190	90		SCHAFFNER	89	SPEC	
<1100	90		COUSINS	88	SPEC	
< 670	90		GREENLEE	88	SPEC	Repl. by SCHAFFNER 89
< 157	90		[52] CLARK	71	ASPK	

[51] This is the combined result of ARISAKA 93 and MATHIAZHAGAN 89.

[52] Possible (but unknown) systematic errors. See note on CLARK 71 $\Gamma(\mu^+\mu^-)/\Gamma(\pi^+\pi^-)$ entry.

$\Gamma(e^\pm\mu^\mp)/[\Gamma(\pi^+\pi^-\pi^0)+\Gamma(\pi^\pm\mu^\mp\nu)+\Gamma(\pi^\pm e^\mp\nu)]$ — $\Gamma_{29}/(\Gamma_2+\Gamma_3+\Gamma_6)$

Test of lepton family number conservation.

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN
• • • We do not use the following data for averages, fits, limits, etc. • • •				
< 0.1	90	BOTT-...	67	OSPK
< 0.08	90	FITCH	67	OSPK
< 1.0	90	CARPENTER	66	OSPK
<10.0		ANIKINA	65	CC

ENERGY DEPENDENCE OF K^0_L DALITZ PLOT

For discussion, see note on Dalitz plot parameters in the $K^\pm$ section of the Full Listings above. For definitions of a_v, a_t, a_u, and a_y, see the earlier version of the same note in the 1982 edition of this *Review* published in Physics Letters **111B** 70 (1982).

$|\text{matrix element}|^2 = 1 + gu + hu^2 + jv + kv^2$

where $u = (s_3 - s_0) / m^2_\pi$ and $v = (s_1 - s_2) / m^2_\pi$

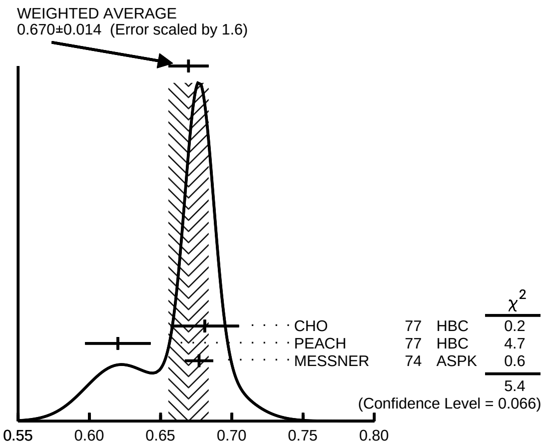
LINEAR COEFFICIENT g FOR $K^0_L \to \pi^+\pi^-\pi^0$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.670±0.014 OUR AVERAGE		Error includes scale factor of 1.6. See the ideogram below.			
0.681±0.024	6499	CHO	77	HBC	
0.620±0.023	4709	PEACH	77	HBC	
0.677±0.010	509k	MESSNER	74	ASPK	$a_y = -0.917 \pm 0.013$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.69 ±0.07	192	[53] BALDO-...	75	HLBC	
0.590±0.022	56k	[53] BUCHANAN	75	SPEC	$a_u = -0.277 \pm 0.010$
0.619±0.027	20k	[53,54] BISI	74	ASPK	$a_t = -0.282 \pm 0.011$
0.612±0.032		[53] ALEXANDER	73B	HBC	
0.73 ±0.04	3200	[53] BRANDENB...	73	HBC	
0.50 ±0.11	180	[53] JAMES	72	HBC	
0.608±0.043	1486	[53] KRENZ	72	HLBC	$a_t = -0.277 \pm 0.018$
0.688±0.074	384	[53] METCALF	72	ASPK	$a_t = -0.31 \pm 0.03$
0.650±0.012	29k	[53] ALBROW	70	ASPK	$a_y = -0.858 \pm 0.015$
0.593±0.022	36k	[53,55] BUCHANAN	70	SPEC	$a_u = -0.278 \pm 0.010$
0.664±0.056	4400	[53] SMITH	70	OSPK	$a_t = -0.306 \pm 0.024$
0.400±0.045	2446	[53] BASILE	68B	OSPK	$a_t = -0.188 \pm 0.020$
0.649±0.044	1350	[53] HOPKINS	67	HBC	$a_t = -0.294 \pm 0.018$
0.428±0.055	1198	[53] NEFKENS	67	OSPK	$a_u = -0.204 \pm 0.025$
0.64 ±0.17	280	[53] ANIKINA	66	CC	$a_v = -8.2^{+0.9}_{-1.3}$
0.70 ±0.12	126	[53] HAWKINS	66	HBC	$a_v = -8.6 \pm 0.7$
0.32 ±0.13	66	[53] ASTBURY	65	CC	$a_v = -5.5 \pm 1.5$
0.51 ±0.09	310	[53] ASTBURY	65B	CC	$a_v = -7.3^{+0.6}_{-0.8}$
0.55 ±0.23	79	[53] ADAIR	64	HBC	$a_v = -7.6 \pm 1.7$
0.51 ±0.20	77	[53] LUERS	64	HBC	$a_v = -7.3 \pm 1.6$

[53] Quadratic dependence required by some experiments. (See sections on "QUADRATIC COEFFICIENT *h*" and "QUADRATIC COEFFICIENT *k*" below.) Correlations prevent us from averaging results of fits not including *g*, *h*, and *k* terms.

[54] BISI 74 value comes from quadratic fit with quad. term consistent with zero. *g* error is thus larger than if linear fit were used.

[55] BUCHANAN 70 result revised by BUCHANAN 75 to include radiative correlations and to use more reliable K^0_L momentum spectrum of second experiment (had same beam).



Linear coeff. g for $K^0_L \to \pi^+\pi^-\pi^0$ matrix element squared