Reference = AULCHENKO 15A; JETP 121 27
Verifier code = DRUZHININ

Normally we send all verifications for one experiment to one person, usually the spokesperson or data-analysis coordinator, who then distributes them to the appropriate people. Please tell us if we should send the verifications for your experiment to someone else.

PLEASE READ NOW

PLEASE REPLY WITHIN ONE WEEK

Vladimir P. Druzhinin

EMAIL: v.p.druzhinin@inp.nsk.su

July 21, 2016

Dear Colleague,

(1) Please check the results of your experiment carefully. They are marked.

(2) Please reply within one week.

(3) Please reply even if everything is correct.

(4) IMPORTANT!! Please tell WHICH papers you are verifying. We have lots of requests out.

(5) Feel free to make comments on our treatment of any of the results (not just yours) you see.

Thank you for helping us make the Review accurate and useful.

Sincerely,

Simon Eidelman
BINP, Budker Inst. of Nuclear Physics
Prospekt Lavrent'eva 11
RU-630090 Novosibirsk
Russian Federation

EMAIL: simon.eidelman@cern.ch

LIGHT UNFLAVORED MESONS ($S = C = B = 0$)

NODE=MXXX005

For $I = 1$ (π, b, ρ, a): $u\overline{d}$, $(u\overline{u}-d\overline{d})/\sqrt{2}$, $d\overline{u}$;
for $I = 0$ (η, η', h, h', ω, ϕ, f, f'): $c_1(u\overline{u} + d\overline{d}) + c_2(s\overline{s})$

NODE=MXXX005

NODE=M125

$\omega(1420)$

$I^G(J^{PC}) = 0^-(1^{--})$

$\omega(1420)$ MASS

NODE=M125M

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
(1400–1450) OUR ESTIMATE					
• • • We do not use the following data for averages, fits, limits, etc. • • •					
YOUR DATA 1470 ± 50	13.1k	[1] AULCHENKO	15A	SND	1.05–1.80 $e^+e^- \to \pi^+\pi^-\pi^0$
$1382 \pm 23 \pm 70$		AUBERT	07AU	BABR	10.6 $e^+e^- \to \omega\pi^+\pi^-\gamma$
$1350 \pm 20 \pm 20$		AUBERT,B	04N	BABR	10.6 $e^+e^- \to \pi^+\pi^-\pi^0\gamma$
$1400 \pm 50 \pm 130$	1.2M	[2] ACHASOV	03D	RVUE	0.44–2.00 $e^+e^- \to \pi^+\pi^-\pi^0$
1450 ± 10		[3] HENNER	02	RVUE	1.2–2.0 $e^+e^- \to \rho\pi$, $\omega\pi\pi$
1373 ± 70	177	[4] AKHMETSHIN	00D	CMD2	1.2–1.38 $e^+e^- \to \omega\pi^+\pi^-$
1370 ± 25	5095	ANISOVICH	00H	SPEC	0.0 $p\overline{p} \to \omega\pi^0\pi^0\pi^0$
1400^{+100}_{-200}		[5] ACHASOV	98H	RVUE	$e^+e^- \to \pi^+\pi^-\pi^0$
~ 1400		[6] ACHASOV	98H	RVUE	$e^+e^- \to \omega\pi^+\pi^-$ OCCUR=2
~ 1460		[7] ACHASOV	98H	RVUE	$e^+e^- \to K^+K^-$ OCCUR=3
1440 ± 70		[8] CLEGG	94	RVUE	
1419 ± 31	315	[9] ANTONELLI	92	DM2	1.34–2.4 $e^+e^- \to \rho\pi$

YOUR NOTE

[1] From a fit with contributions from $\omega(782)$, $\phi(1020)$, $\omega(1420)$, and $\omega(1650)$. NODE=M125M;LINKAGE=E

[2] From the combined fit of ANTONELLI 92, ACHASOV 01E, ACHASOV 02E, and ACHASOV 03D data on the $\pi^+\pi^-\pi^0$ and ANTONELLI 92 on the $\omega\pi^+\pi^-$ final states. Supersedes ACHASOV 99E and ACHASOV 02E. NODE=M125M;LINKAGE=VH

[3] Using results of CORDIER 81 and preliminary data of DOLINSKY 91 and ANTONELLI 92. NODE=M125M;LINKAGE=AB

[4] Using the data of AKHMETSHIN 00D and ANTONELLI 92. The $\rho\pi$ dominance for the energy dependence of the $\omega(1420)$ and $\omega(1650)$ width assumed. NODE=M125M;LINKAGE=KL

[5] Using data from BARKOV 87, DOLINSKY 91, and ANTONELLI 92. NODE=M125M;LINKAGE=L1

[6] Using the data from ANTONELLI 92. NODE=M125M;LINKAGE=L2

[7] Using the data from IVANOV 81 and BISELLO 88B. NODE=M125M;LINKAGE=L3

[8] From a fit to two Breit-Wigner functions and using the data of DOLINSKY 91 and ANTONELLI 92. NODE=M125M;LINKAGE=AD

[9] From a fit to two Breit-Wigner functions interfering between them and with the ω,ϕ tails with fixed $(+,-,+)$ phases. NODE=M125M;LINKAGE=B

$\omega(1420)$ WIDTH

NODE=M125W

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
(180–250) OUR ESTIMATE					
• • • We do not use the following data for averages, fits, limits, etc. • • •					
YOUR DATA 880 ± 170	13.1k	[10] AULCHENKO	15A	SND	1.05–1.80 $e^+e^- \to \pi^+\pi^-\pi^0$
$130 \pm 50 \pm 100$		AUBERT	07AU	BABR	10.6 $e^+e^- \to \omega\pi^+\pi^-\gamma$
$450 \pm 70 \pm 70$		AUBERT,B	04N	BABR	10.6 $e^+e^- \to \pi^+\pi^-\pi^0\gamma$
$870^{+500}_{-300} \pm 450$	1.2M	[11] ACHASOV	03D	RVUE	0.44–2.00 $e^+e^- \to \pi^+\pi^-\pi^0$
199 ± 15		[12] HENNER	02	RVUE	1.2–2.0 $e^+e^- \to \rho\pi$, $\omega\pi\pi$
188 ± 45	177	[13] AKHMETSHIN	00D	CMD2	1.2–1.38 $e^+e^- \to \omega\pi^+\pi^-$
360^{+100}_{-60}	5095	ANISOVICH	00H	SPEC	0.0 $p\overline{p} \to \omega\pi^0\pi^0\pi^0$
240 ± 70		[14] CLEGG	94	RVUE	
174 ± 59	315	[15] ANTONELLI	92	DM2	1.34–2.4 $e^+e^- \to \rho\pi$

YOUR NOTE

[10] From a fit with contributions from $\omega(782)$, $\phi(1020)$, $\omega(1420)$, and $\omega(1650)$. NODE=M125W;LINKAGE=E

[11] From the combined fit of ANTONELLI 92, ACHASOV 01E, ACHASOV 02E, and ACHASOV 03D data on the $\pi^+\pi^-\pi^0$ and ANTONELLI 92 on the $\omega\pi^+\pi^-$ final states. Supersedes ACHASOV 99E and ACHASOV 02E. NODE=M125W;LINKAGE=VH

[12] Using results of CORDIER 81 and preliminary data of DOLINSKY 91 and ANTONELLI 92. NODE=M125W;LINKAGE=AB

[13] Using the data of AKHMETSHIN 00D and ANTONELLI 92. The $\rho\pi$ dominance for the energy dependence of the $\omega(1420)$ and $\omega(1650)$ width assumed. NODE=M125W;LINKAGE=KL

[14] From a fit to two Breit-Wigner functions and using the data of DOLINSKY 91 and ANTONELLI 92. NODE=M125W;LINKAGE=AD

[15] From a fit to two Breit-Wigner functions interfering between them and with the ω,ϕ tails with fixed (+,−,+) phases. NODE=M125W;LINKAGE=B

$\omega(1420)$ $\Gamma(i)\Gamma(e^+e^-)/\Gamma^2$(total)

NODE=M125230

$\Gamma(\rho\pi)/\Gamma_{\text{total}} \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_1/\Gamma \times \Gamma_4/\Gamma$

NODE=M125G3

NODE=M125G3

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
YOUR DATA 0.73 ±0.08	13.1k	[16] AULCHENKO	15A	SND	1.05–1.80 $e^+e^- \to \pi^+\pi^-\pi^0$
0.82 ±0.05 ±0.06		AUBERT,B	04N	BABR	10.6 $e^+e^- \to \pi^+\pi^-\pi^0\gamma$
0.65 ±0.13 ±0.21	1.2M	[17,18] ACHASOV	03D	RVUE	0.44–2.00 $e^+e^- \to \pi^+\pi^-\pi^0$
0.625±0.160		[19,20] CLEGG	94	RVUE	
0.466±0.178		[21,22] ANTONELLI	92	DM2	1.34–2.4 $e^+e^- \to \rho\pi$

YOUR NOTE

[16] From a fit with contributions from $\omega(782)$, $\phi(1020)$, $\omega(1420)$, and $\omega(1650)$. NODE=M125G3;LINKAGE=A

[17] Calculated by us from the cross section at the peak. NODE=M125G;LINKAGE=AW

[18] From the combined fit of ANTONELLI 92, ACHASOV 01E, ACHASOV 02E, and ACHASOV 03D data on the $\pi^+\pi^-\pi^0$ and ANTONELLI 92 on the $\omega\pi^+\pi^-$ final states. Supersedes ACHASOV 99E and ACHASOV 02E. NODE=M125G;LINKAGE=VH

[19] From a fit to two Breit-Wigner functions and using the data of DOLINSKY 91 and ANTONELLI 92. NODE=M125G;LINKAGE=AD

[20] From the partial and leptonic width given by the authors. NODE=M125G;LINKAGE=SE

[21] From a fit to two Breit-Wigner functions interfering between them and with the ω,ϕ tails with fixed (+,−,+) phases. NODE=M125G;LINKAGE=A

[22] From the product of the leptonic width and partial branching ratio given by the authors. NODE=M125G;LINKAGE=ES

$\omega(1420)$ REFERENCES

NODE=M125

YOUR PAPER

AULCHENKO	15A	JETP 121 27	V.M. Aulchenko *et al.*	(SND Collab.)
		Translated from ZETF 148 34.		
AUBERT	07AU	PR D76 092005	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04N	PR D70 072004	B. Aubert *et al.*	(BABAR Collab.)
ACHASOV	03D	PR D68 052006	M.N. Achasov *et al.*	(Novosibirsk SND Collab.)
ACHASOV	02E	PR D66 032001	M.N. Achasov *et al.*	(Novosibirsk SND Collab.)
HENNER	02	EPJ C26 3	V.K. Henner *et al.*	
ACHASOV	01E	PR D63 072002	M.N. Achasov *et al.*	(Novosibirsk SND Collab.)
AKHMETSHIN	00D	PL B489 125	R.R. Akhmetshin *et al.*	(Novosibirsk CMD-2 Collab.)
ANISOVICH	00H	PL B485 341	A.V. Anisovich *et al.*	
ACHASOV	99E	PL B462 365	M.N. Achasov *et al.*	(Novosibirsk SND Collab.)
ACHASOV	98H	PR D57 4334	N.N. Achasov, A.A. Kozhevnikov	
CLEGG	94	ZPHY C62 455	A.B. Clegg, A. Donnachie	(LANC, MCHS)
ANTONELLI	92	ZPHY C56 15	A. Antonelli *et al.*	(DM2 Collab.)
DOLINSKY	91	PRPL 202 99	S.I. Dolinsky *et al.*	(NOVO)
BISELLO	88B	ZPHY C39 13	D. Bisello *et al.*	(PADO, CLER, FRAS+)
BARKOV	87	JETPL 46 164	L.M. Barkov *et al.*	(NOVO)
		Translated from ZETFP 46 132.		
CORDIER	81	PL 106B 155	A. Cordier *et al.*	(ORSAY)
IVANOV	81	PL 107B 297	P.M. Ivanov *et al.*	(NOVO)

REFID=56843 REFID=52049 REFID=50184 REFID=49577 REFID=48815 REFID=49177 REFID=48311 REFID=47935 REFID=47948 REFID=47391 REFID=46323 REFID=44081 REFID=43168 REFID=41369 REFID=40581 REFID=40280 REFID=21586 REFID=20553

NODE=M126

$\omega(1650)$

$I^G(J^{PC}) = 0^-(1^{--})$

$\omega(1650)$ MASS

NODE=M126M

NODE=M126M

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
1670± 30 OUR ESTIMATE					→ UNCHECKED ←
• • • We do not use the following data for averages, fits, limits, etc. • • •					
YOUR DATA 1680± 10	13.1k	[1] AULCHENKO	15A	SND	1.05–1.80 $e^+e^- \to \pi^+\pi^-\pi^0$
1667± 13± 6		AUBERT	07AU	BABR	10.6 $e^+e^- \to \omega\pi^+\pi^-\gamma$
1645± 8	13	AUBERT	06D	BABR	10.6 $e^+e^- \to \omega\eta\gamma$
1660± 10± 2		AUBERT,B	04N	BABR	10.6 $e^+e^- \to \pi^+\pi^-\pi^0\gamma$

1770± 50±60	1.2M	[2] ACHASOV	03D	RVUE	0.44–2.00 $e^+e^- \to \pi^+\pi^-\pi^0$		
1619± 5		[3] HENNER	02	RVUE	1.2–2.0 $e^+e^- \to \rho\pi, \omega\pi\pi$		
1700± 20		EUGENIO	01	SPEC	18 $\pi^- p \to \omega\eta n$		
1705± 26	612	[4] AKHMETSHIN	00D	CMD2	$e^+e^- \to \omega\pi^+\pi^-$	OCCUR=2	
1820^{+190}_{-150}		[5] ACHASOV	98H	RVUE	$e^+e^- \to \pi^+\pi^-\pi^0$		
1840^{+100}_{-70}		[6] ACHASOV	98H	RVUE	$e^+e^- \to \omega\pi^+\pi^-$	OCCUR=2	
1780^{+170}_{-300}		[7] ACHASOV	98H	RVUE	$e^+e^- \to K^+K^-$	OCCUR=3	
~ 2100		[8] ACHASOV	98H	RVUE	$e^+e^- \to K^0_S K^\pm\pi^\mp$	OCCUR=4	
1606± 9		[9] CLEGG	94	RVUE		OCCUR=5	
1662± 13	750	[10] ANTONELLI	92	DM2	1.34–2.4$e^+e^- \to \rho\pi, \omega\pi\pi$	OCCUR=4	
1670± 20		ATKINSON	83B	OMEG	20–70 $\gamma p \to 3\pi X$		
1657± 13		CORDIER	81	DM1	$e^+e^- \to \omega 2\pi$		
1679± 34	21	ESPOSITO	80	FRAM	$e^+e^- \to 3\pi$		
1652± 17		COSME	79	OSPK	$e^+e^- \to 3\pi$		

YOUR NOTE

[1] From a fit with contributions from $\omega(782)$, $\phi(1020)$, $\omega(1420)$, and $\omega(1650)$. NODE=M126M;LINKAGE=A

[2] From the combined fit of ANTONELLI 92, ACHASOV 01E, ACHASOV 02E, and ACHASOV 03D data on the $\pi^+\pi^-\pi^0$ and ANTONELLI 92 on the $\omega\pi^+\pi^-$ final states. Supersedes ACHASOV 99E and ACHASOV 02E. NODE=M126M;LINKAGE=VH

[3] Using results of CORDIER 81 and preliminary data of DOLINSKY 91 and ANTONELLI 92. NODE=M126M;LINKAGE=AB

[4] Using the data of AKHMETSHIN 00D and ANTONELLI 92. The $\rho\pi$ dominance for the energy dependence of the $\omega(1420)$ and $\omega(1650)$ width assumed. NODE=M126M;LINKAGE=KI

[5] Using data from BARKOV 87, DOLINSKY 91, and ANTONELLI 92. NODE=M126M;LINKAGE=L1

[6] Using the data from ANTONELLI 92. NODE=M126M;LINKAGE=L2

[7] Using the data from IVANOV 81 and BISELLO 88B. NODE=M126M;LINKAGE=L3

[8] Using the data from BISELLO 91C. NODE=M126M;LINKAGE=L4

[9] From a fit to two Breit-Wigner functions and using the data of DOLINSKY 91 and ANTONELLI 92. NODE=M126M;LINKAGE=AD

[10] From the combined fit of the $\rho\pi$ and $\omega\pi\pi$ final states. NODE=M126M;LINKAGE=AE

$\omega(1650)$ WIDTH

NODE=M126W

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*	
315± 35 OUR ESTIMATE						→ UNCHECKED ←
• • • We do not use the following data for averages, fits, limits, etc. • • •						
310± 30	13.1k	[11] AULCHENKO	15A	SND	1.05–1.80 $e^+e^- \to \pi^+\pi^-\pi^0$	
222± 25± 20		AUBERT	07AU	BABR	10.6 $e^+e^- \to \omega\pi^+\pi^-\gamma$	
114± 14	13	AUBERT	06D	BABR	10.6 $e^+e^- \to \omega\eta\gamma$	
230± 30± 20		AUBERT,B	04N	BABR	10.6 $e^+e^- \to \pi^+\pi^-\pi^0\gamma$	
490^{+200}_{-150} ±130	1.2M	[12] ACHASOV	03D	RVUE	0.44–2.00 $e^+e^- \to \pi^+\pi^-\pi^0$	
250± 14		[13] HENNER	02	RVUE	1.2–2.0 $e^+e^- \to \rho\pi, \omega\pi\pi$	
250± 50		EUGENIO	01	SPEC	18 $\pi^- p \to \omega\eta n$	
370± 25	612	[14] AKHMETSHIN	00D	CMD2	$e^+e^- \to \omega\pi^+\pi^-$	OCCUR=2
113± 20		[15] CLEGG	94	RVUE		OCCUR=5
280± 24	750	[16] ANTONELLI	92	DM2	1.34–2.4$e^+e^- \to \rho\pi, \omega\pi\pi$	OCCUR=4
160± 20		ATKINSON	83B	OMEG	20–70 $\gamma p \to 3\pi X$	
136± 46		CORDIER	81	DM1	$e^+e^- \to \omega 2\pi$	
99± 49	21	ESPOSITO	80	FRAM	$e^+e^- \to 3\pi$	
42± 17		COSME	79	OSPK	$e^+e^- \to 3\pi$	

YOUR NOTE

[11] From a fit with contributions from $\omega(782)$, $\phi(1020)$, $\omega(1420)$, and $\omega(1650)$. NODE=M126W;LINKAGE=A

[12] From the combined fit of ANTONELLI 92, ACHASOV 01E, ACHASOV 02E, and ACHASOV 03D data on the $\pi^+\pi^-\pi^0$ and ANTONELLI 92 on the $\omega\pi^+\pi^-$ final states. Supersedes ACHASOV 99E and ACHASOV 02E. NODE=M126W;LINKAGE=VH

[13] Using results of CORDIER 81 and preliminary data of DOLINSKY 91 and ANTONELLI 92. NODE=M126W;LINKAGE=AB

[14] Using the data of AKHMETSHIN 00D and ANTONELLI 92. The $\rho\pi$ dominance for the energy dependence of the $\omega(1420)$ and $\omega(1650)$ width assumed. NODE=M126W;LINKAGE=KI

[15] From a fit to two Breit-Wigner functions and using the data of DOLINSKY 91 and ANTONELLI 92. NODE=M126W;LINKAGE=AD

[16] From the combined fit of the $\rho\pi$ and $\omega\pi\pi$ final states. NODE=M126W;LINKAGE=AE

$\omega(1650)$ $\Gamma(i)\Gamma(e^+e^-)/\Gamma^2(total)$

NODE=M126230

$\Gamma(\rho\pi)/\Gamma_{total} \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_1/\Gamma \times \Gamma_4/\Gamma$

NODE=M126G3
NODE=M126G3

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
YOUR DATA 1.56 ±0.23	13.1k	[17] AULCHENKO	15A	SND	1.05–1.80 $e^+e^- \to \pi^+\pi^-\pi^0$
1.3 ±0.1 ±0.1		AUBERT,B	04N	BABR	10.6 $e^+e^- \to \pi^+\pi^-\pi^0\gamma$
1.2 $^{+0.4}_{-0.1}$ ±0.8	1.2M	[18,19] ACHASOV	03D	RVUE	0.44–2.00 $e^+e^- \to \pi^+\pi^-\pi^0$
0.921±0.230		[20,21] CLEGG	94	RVUE	
0.479±0.050	750	[22,23] ANTONELLI	92	DM2	1.34–2.4 $e^+e^- \to \rho\pi, \omega\pi\pi$

YOUR NOTE

[17] From a fit with contributions from $\omega(782)$, $\phi(1020)$, $\omega(1420)$, and $\omega(1650)$. NODE=M126G3;LINKAGE=A

[18] Calculated by us from the cross section at the peak. NODE=M126G;LINKAGE=AW

[19] From the combined fit of ANTONELLI 92, ACHASOV 01E, ACHASOV 02E, and ACHASOV 03D data on the $\pi^+\pi^-\pi^0$ and ANTONELLI 92 on the $\omega\pi^+\pi^-$ final states. Supersedes ACHASOV 99E and ACHASOV 02E. NODE=M126G;LINKAGE=VH

[20] From a fit to two Breit-Wigner functions and using the data of DOLINSKY 91 and ANTONELLI 92. NODE=M126G;LINKAGE=AD

[21] From the partial and leptonic width given by the authors. NODE=M126G;LINKAGE=SE

[22] From the combined fit of the $\rho\pi$ and $\omega\pi\pi$ final states. NODE=M126G;LINKAGE=AE

[23] From the product of the leptonic width and partial branching ratio given by the authors. NODE=M126G;LINKAGE=ES

$\omega(1650)$ REFERENCES

NODE=M126

YOUR PAPER AULCHENKO	15A	JETP 121 27	V.M. Aulchenko *et al.*	(SND Collab.)	REFID=56843
		Translated from ZETF 148 34.			
AUBERT	07AU	PR D76 092005	B. Aubert *et al.*	(BABAR Collab.)	REFID=52049
AUBERT	06D	PR D73 052003	B. Aubert *et al.*	(BABAR Collab.)	REFID=51047
AUBERT,B	04N	PR D70 072004	B. Aubert *et al.*	(BABAR Collab.)	REFID=50184
ACHASOV	03D	PR D68 052006	M.N. Achasov *et al.*	(Novosibirsk SND Collab.)	REFID=49577
ACHASOV	02E	PR D66 032001	M.N. Achasov *et al.*	(Novosibirsk SND Collab.)	REFID=48815
HENNER	02	EPJ C26 3	V.K. Henner *et al.*		REFID=49177
ACHASOV	01E	PR D63 072002	M.N. Achasov *et al.*	(Novosibirsk SND Collab.)	REFID=48311
EUGENIO	01	PL B497 190	P. Eugenio *et al.*		REFID=48010
AKHMETSHIN	00D	PL B489 125	R.R. Akhmetshin *et al.*	(Novosibirsk CMD-2 Collab.)	REFID=47935
ACHASOV	99E	PL B462 365	M.N. Achasov *et al.*	(Novosibirsk SND Collab.)	REFID=47391
ACHASOV	98H	PR D57 4334	N.N. Achasov, A.A. Kozhevnikov		REFID=46323
CLEGG	94	ZPHY C62 455	A.B. Clegg, A. Donnachie	(LANC, MCHS)	REFID=44081
ANTONELLI	92	ZPHY C56 15	A. Antonelli *et al.*	(DM2 Collab.)	REFID=43168
BISELLO	91C	ZPHY C52 227	D. Bisello *et al.*	(DM2 Collab.)	REFID=41867
DOLINSKY	91	PRPL 202 99	S.I. Dolinsky *et al.*	(NOVO)	REFID=41369
BISELLO	88B	ZPHY C39 13	D. Bisello *et al.*	(PADO, CLER, FRAS+)	REFID=40581
BARKOV	87	JETPL 46 164	L.M. Barkov *et al.*	(NOVO)	REFID=40280
		Translated from ZETFP 46 132.			
ATKINSON	83B	PL 127B 132	M. Atkinson *et al.*	(BONN, CERN, GLAS+)	REFID=21502
CORDIER	81	PL 106B 155	A. Cordier *et al.*	(ORSAY)	REFID=21586
IVANOV	81	PL 107B 297	P.M. Ivanov *et al.*	(NOVO)	REFID=20553
ESPOSITO	80	LNC 28 195	B. Esposito *et al.*	(FRAS, NAPL, PADO+)	REFID=21584
COSME	79	NP B152 215	G. Cosme *et al.*	(IPN)	REFID=21475

Reference = ACHASOV 01B; PL B504 275
Verifier code = DRUZHININ

Normally we send all verifications for one experiment to one person, usually the spokesperson or data-analysis co-ordinator, who then distributes them to the appropriate people. Please tell us if we should send the verifications for your experiment to someone else.

PLEASE READ NOW

PLEASE REPLY WITHIN ONE WEEK

Vladimir P. Druzhinin

EMAIL: v.p.druzhinin@inp.nsk.su

July 21, 2016

Dear Colleague,

(1) Please check the results of your experiment carefully. They are marked.

(2) Please reply within one week.

(3) Please reply even if everything is correct.

(4) IMPORTANT!! Please tell WHICH papers you are verifying. We have lots of requests out.

(5) Feel free to make comments on our treatment of any of the results (not just yours) you see.

Thank you for helping us make the Review accurate and useful.

Sincerely,

Simon Eidelman
BINP, Budker Inst. of Nuclear Physics
Prospekt Lavrent'eva 11
RU-630090 Novosibirsk
Russian Federation

EMAIL: simon.eidelman@cern.ch

LIGHT UNFLAVORED MESONS ($S = C = B = 0$)

NODE=MXXX005

For $I = 1$ (π, b, ρ, a): $u\overline{d}$, $(u\overline{u}-d\overline{d})/\sqrt{2}$, $d\overline{u}$;
for $I = 0$ (η, η', h, h', ω, ϕ, f, f'): $c_1(u\overline{u} + d\overline{d}) + c_2(s\overline{s})$

NODE=MXXX005

NODE=M004

$\phi(1020)$

$I^G(J^{PC}) = 0^-(1^{--})$

PARAMETER β IN $\phi \to \eta e^+ e^-$ DECAY

NODE=M004BFP

NODE=M004BFP

In the one-pole approximation the electromagnetic transition form factor for $\phi \to \eta e^+ e^-$ is given as a function of the $e^+ e^-$ invariant mass squared, q^2, by the expression:

$$|F(q^2)|^2 = (1 - q^2/\Lambda^2)^{-2},$$

where vector meson dominance predicts parameter $\Lambda \approx 0.770$ GeV ($\Lambda^{-2} \approx 1.687$ GeV^{-2}). The slope of this form factor, $\beta = dF/dq^2(q^2{=}0)$, equals Λ^{-2} in this approximation.

The measurements below obtain β in the one-pole approximation.

NODE=M004BFP

VALUE (GeV^{-2})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1.29±0.13 OUR AVERAGE					
$1.28 \pm 0.10^{+0.09}_{-0.08}$	30k	[1] BABUSCI	15	KLOE	1.02 $e^+ e^- \to \eta e^+ e^-$
YOUR DATA 3.8 ±1.8	213	ACHASOV	01B	SND	1.02 $e^+ e^- \to \eta e^+ e^-$

[1] The uncertainty is statistical only with negligible systematic one.

NODE=M004BFP;LINKAGE=A

$\phi(1020)$ REFERENCES

NODE=M004

	BABUSCI	15	PL B742 1	D. Babusci *et al.*	(KLOE Collab.)	REFID=56374
YOUR PAPER	ACHASOV	01B	PL B504 275	M.N. Achasov *et al.*	(Novosibirsk SND Collab.)	REFID=48111

Reference = AULCHENKO 15; PR D91 052013
Verifier code = DRUZHININ

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Vladimir P. Druzhinin

EMAIL: v.p.druzhinin@inp.nsk.su

July 21, 2016

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Sincerely,

Simon Eidelman
BINP, Budker Inst. of Nuclear Physics
Prospekt Lavrent'eva 11
RU-630090 Novosibirsk
Russian Federation

EMAIL: simon.eidelman@cern.ch

LIGHT UNFLAVORED MESONS ($S = C = B = 0$)

NODE=MXXX005

For $I = 1$ (π, b, ρ, a): $u\overline{d}$, $(u\overline{u}-d\overline{d})/\sqrt{2}$, $d\overline{u}$;
for $I = 0$ (η, η', h, h', ω, ϕ, f, f'): $c_1(u\overline{u} + d\overline{d}) + c_2(s\overline{s})$

NODE=MXXX005

NODE=M105

$\rho(1450)$

$I^G(J^{PC}) = 1^+(1^{--})$

See our mini-review under the $\rho(1700)$.

NODE=M105

$\rho(1450)$ Γ(i)/Γ(total) × $\Gamma(e^+e^-)/\Gamma$(total)

NODE=M105230

$\Gamma(\eta\rho)/\Gamma_{total}$ × $\Gamma(e^+e^-)/\Gamma_{total}$ **$\Gamma_{10}/\Gamma \times \Gamma_9/\Gamma$**

NODE=M105R00
NODE=M105R00

VALUE (units 10^{-7})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
YOUR DATA $4.3^{+1.1}_{-0.9}\pm0.2$	4.9k	[1] AULCHENKO	15	SND	1.22–2.00 $e^+e^- \to \eta\pi^+\pi^-$

YOUR NOTE [1] From a fit to the $e^+e^- \to \eta\pi^+\pi^-$ cross section with vector meson dominance model including $\rho(770)$, $\rho(1450)$, and $\rho(1700)$ decaying exclusively via $\eta\rho(770)$. Masses and widths of vector states are fixed to PDG 14. Coupling constants are assumed to be real.

NODE=M105R00;LINKAGE=A

$\rho(1450)$ BRANCHING RATIOS

NODE=M105225

$\Gamma(\eta\rho)/\Gamma(\omega\pi)$ **Γ_{10}/Γ_3**

NODE=M105R4
NODE=M105R4

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
YOUR DATA 0.081 ± 0.020	[1,2] AULCHENKO	15	SND	1.22–2.00 $e^+e^- \to \eta\pi^+\pi^-$
~ 0.24	[3] DONNACHIE	91	RVUE	
>2	FUKUI	91	SPEC	8.95 $\pi^- p \to \omega\pi^0 n$

$\Gamma(\pi\pi)/\Gamma(\eta\rho)$ **Γ_1/Γ_{10}**

NODE=M105R07
NODE=M105R07

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
YOUR DATA 1.3 ± 0.4	[1] AULCHENKO	15	SND	1.22–2.00 $e^+e^- \to \eta\pi^+\pi^-$

YOUR NOTE [1] From a fit to the $e^+e^- \to \eta\pi^+\pi^-$ cross section with vector meson dominance model including $\rho(770)$, $\rho(1450)$, and $\rho(1700)$ decaying exclusively via $\eta\rho(770)$. Masses and widths of vector states are fixed to PDG 14. Coupling constants are assumed to be real.

NODE=M105R4;LINKAGE=A

YOUR NOTE [2] Reports the inverse of the quoted value as 12.3 ± 3.1.

NODE=M105R4;LINKAGE=B

[3] Using data from BISELLO 91B, DOLINSKY 86 and ALBRECHT 87L.

NODE=M105R;LINKAGE=A

$\rho(1450)$ REFERENCES

NODE=M105

YOUR PAPER	AULCHENKO	15	PR D91 052013	V.M. Aulchenko *et al.*	(SND Collab.)
	PDG	14	CPC 38 070001	K. Olive *et al.*	(PDG Collab.)
	BISELLO	91B	NPBPS B21 111	D. Bisello	(DM2 Collab.)
	DONNACHIE	91	ZPHY C51 689	A. Donnachie, A.B. Clegg	(MCHS, LANC)
	FUKUI	91	PL B257 241	S. Fukui *et al.*	(SUGI, NAGO, KEK, KYOT+)
	ALBRECHT	87L	PL B185 223	H. Albrecht *et al.*	(ARGUS Collab.)
	DOLINSKY	86	PL B174 453	S.I. Dolinsky *et al.*	(NOVO)

REFID=56793
REFID=55687
REFID=41752
REFID=41632
REFID=41581
REFID=40418
REFID=20246

Reference = ACHASOV 15; PR D91 092010
Verifier code = DRUZHININ

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LIGHT UNFLAVORED MESONS ($S = C = B = 0$)

NODE=MXXX005

For $I = 1$ (π, b, ρ, a): $u\overline{d}$, $(u\overline{u}-d\overline{d})/\sqrt{2}$, $d\overline{u}$;
for $I = 0$ (η, η', h, h', ω, ϕ, f, f'): $c_1(u\overline{u} + d\overline{d}) + c_2(s\overline{s})$

NODE=MXXX005

NODE=M002

$\eta'(958)$

$I^G(J^{PC}) = 0^+(0^{-+})$

$\eta'(958)$ PARTIAL WIDTHS

NODE=M002220

$\Gamma(e^+e^-)$ **Γ_{23}**

NODE=M002W1
NODE=M002W1

	VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
YOUR DATA	**$<1.1 \times 10^{-3}$**	90	[1,2] ACHASOV	15	SND	0.958 $e^+e^- \to \pi\pi\eta$
	• • • We do not use the following data for averages, fits, limits, etc. • • •					
YOUR DATA	$<2.0 \times 10^{-3}$	90	[2] ACHASOV	15	SND	0.958 $e^+e^- \to \pi\pi\eta$
	$<2.4 \times 10^{-3}$	90	[2] AKHMETSHIN	15	CMD3	0.958 $e^+e^- \to \pi^+\pi^-\eta$

OCCUR=2

YOUR NOTE [1] Combining data of ACHASOV 15 and AKHMETSHIN 15.
NODE=M002W1;LINKAGE=A

YOUR NOTE [2] Using η and η' branching fractions from PDG 14.
NODE=M002W1;LINKAGE=B

$\eta'(958)$ BRANCHING RATIOS

NODE=M002230

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

NODE=M002R39
NODE=M002R39

	VALUE	CL%	DOCUMENT ID		TECN	COMMENT
YOUR DATA	**$< 5.6 \times 10^{-9}$**	90	[1] ACHASOV	15	SND	0.958 $e^+e^- \to \pi\pi\eta$
	• • • We do not use the following data for averages, fits, limits, etc. • • •					
	$<12 \times 10^{-9}$	90	[2] AKHMETSHIN	15	CMD3	0.958 $e^+e^- \to \pi^+\pi^-\eta$
	$< 2.1 \times 10^{-7}$	90	VOROBYEV	88	ND	$e^+e^- \to \pi^+\pi^-\eta$

YOUR NOTE [1] Combining data of ACHASOV 15 and AKHMETSHIN 15 and using $\Gamma(\eta') = 0.198 \pm 0.009$ MeV.
NODE=M002R39;LINKAGE=B

[2] Using $\Gamma_{\eta'(958)} = 198 \pm 9$ keV, B($\eta'(958) \to \pi^+\pi^-\eta$) = (42.9 ± 0.7)%, and B($\eta \to \gamma\gamma$) = (39.41 ± 0.20)%.
NODE=M002R39;LINKAGE=A

$\eta'(958)$ REFERENCES

NODE=M002

YOUR PAPER	ACHASOV 15	PR D91 092010	M.N. Achasov *et al.*	(SND Collab.)	REFID=56788
	AKHMETSHIN 15	PL B740 273	R.R. Akhmetshin *et al.*	(CMD-3 Collab.)	REFID=56386
	PDG 14	CPC 38 070001	K. Olive *et al.*	(PDG Collab.)	REFID=55687
	VOROBYEV 88	SJNP 48 273	P.V. Vorobiev *et al.*	(NOVO)	REFID=41023
		Translated from YAF 48 436.			

Reference = DRUZHININ 15; PR D92 054024
Verifier code = DRUZHININ

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$c\bar{c}$ MESONS

NODE=MXXX025

NODE=M053

$\psi(3770)$

$I^G(J^{PC}) = 0^-(1^{--})$

DECAYS TO LIGHT HADRONS

NODE=M053250

$\Gamma(K^+K^-)/\Gamma_{total}$ **Γ_{20}/Γ**

NODE=M053R00
NODE=M053R00

	VALUE	CL%	DOCUMENT ID		TECN	COMMENT
YOUR DATA	**$<2 \times 10^{-5}$**	90	[26] DRUZHININ	15	RVUE	$e^+e^- \to \psi(3770)$
YOUR NOTE	[26] DRUZHININ 15 uses measurements derived from BABAR and CLEO data.					

NODE=M053R00;LINKAGE=A

$\psi(3770)$ REFERENCES

NODE=M053

YOUR PAPER DRUZHININ 15 PR D92 054024 V.P. Druzhinin (NOVO)

REFID=56962