$\omega(1650)$ was $\omega(1600)$

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

$\omega(1650)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
(1600–1800) OUR ESTIMATE						
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$1790\pm 40\pm10$	6.5k	[1] ACHASOV	02E	RVUE		0.98–2.00 $e^+e^- \to \pi^+\pi^-\pi^0$, $\omega\pi^+\pi^-$
1619 ± 5		[2] 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	[3] AKHMETSHIN	00D	CMD2		$e^+e^- \to \omega\pi^+\pi^-$
1820^{+190}_{-150}		[4] ACHASOV	98H	RVUE		$e^+e^- \to \pi^+\pi^-\pi^0$
1840^{+100}_{-70}		[5] ACHASOV	98H	RVUE		$e^+e^- \to \omega\pi^+\pi^-$
1780^{+170}_{-300}		[6] ACHASOV	98H	RVUE		$e^+e^- \to K^+K^-$
~ 2100		[7] ACHASOV	98H	RVUE		$e^+e^- \to K^0_S K^\pm\pi^\mp$
1606 ± 9		[8] CLEGG	94	RVUE		
1662 ± 13	750	[9] ANTONELLI	92	DM2		1.34–2.4 $e^+e^- \to \rho\pi$, $\omega\pi\pi$
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	0	$e^+e^- \to 3\pi$

[1] From the combined fit of ANTONELLI 92, ACHASOV 01E, and ACHASOV 02E data on the $\pi^+\pi^-\pi^0$ and ANTONELLI 92 on the $\omega\pi^+\pi^-$ final states. Supersedes ACHASOV 99E.
[2] Using results of CORDIER 81 and preliminary data of DOLINSKY 91 and ANTONELLI 92.
[3] 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.
[4] Using data from BARKOV 87, DOLINSKY 91, and ANTONELLI 92.
[5] Using the data from ANTONELLI 92.
[6] Using the data from IVANOV 81 and BISELLO 88B.
[7] Using the data from BISELLO 91C.
[8] From a fit to two Breit-Wigner functions and using the data of DOLINSKY 91 and ANTONELLI 92.
[9] From the combined fit of the $\rho\pi$ and $\omega\pi\pi$ final states.

$\omega(1650)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
(200–300) OUR ESTIMATE						
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$560^{+150}_{-100}\pm20$	6.5k	[10] ACHASOV	02E	RVUE		0.98–2.00 $e^+e^-\to\pi^+\pi^-\pi^0$
250 ± 14		[2] 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	[11] AKHMETSHIN	00D	CMD2		$e^+e^-\to\omega\pi^+\pi^-$
113 ± 20		[12] CLEGG	94	RVUE		
280 ± 24	750	[13] ANTONELLI	92	DM2		1.34–2.4$e^+e^-\to\rho\pi,\ \omega\pi\pi$
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	0	$e^+e^-\to 3\pi$

[10] From the combined fit of ANTONELLI 92, ACHASOV 01E, and ACHASOV 02E data on the $\pi^+\pi^-\pi^0$ and ANTONELLI 92 on the $\omega\pi^+\pi^-$ final states. Supersedes ACHASOV 99E.

[11] 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.

[12] From a fit to two Breit-Wigner functions and using the data of DOLINSKY 91 and ANTONELLI 92.

[13] From the combined fit of the $\rho\pi$ and $\omega\pi\pi$ final states.

$\omega(1650)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\rho\pi$	seen
Γ_2	$\omega\pi\pi$	seen
Γ_3	$\omega\eta$	seen
Γ_4	e^+e^-	seen

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

$\Gamma(\rho\pi)\times\Gamma(e^+e^-)/\Gamma^2_{\text{total}}$ — $\Gamma_1\Gamma_4/\Gamma^2$

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.437\pm0.087\pm0.175$		[15,16] ACHASOV	02E	RVUE	0.98–2.00 $e^+e^-\to\pi^+\pi^-\pi^0,\ \omega\pi^+\pi^-$
0.921 ± 0.230		[17,18] CLEGG	94	RVUE	
0.479 ± 0.050	750	[14,19] ANTONELLI	92	DM2	1.34–2.4$e^+e^-\to\rho\pi,\ \omega\pi\pi$

[14] From the combined fit of the $\rho\pi$ and $\omega\pi\pi$ final states.

$\Gamma(\omega\pi\pi) \times \Gamma(e^+e^-)/\Gamma^2_{\text{total}}$ — $\Gamma_2\Gamma_4/\Gamma^2$

VALUE (units 10^{-6})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.622 \pm 0.131 \pm 0.262$		[15,16] ACHASOV	02E	RVUE	0.98–2.00 $e^+e^- \rightarrow \pi^+\pi^-\pi^0$, $\omega\pi^+\pi^-$
0.540 ± 0.095		[20] AKHMETSHIN	00D	CMD2	1.2–1.38 $e^+e^- \rightarrow \omega\pi^+\pi^-$
0.318 ± 0.080		[17,18] CLEGG	94	RVUE	
0.607 ± 0.061	750	[14,19] ANTONELLI	92	DM2	1.34–2.4$e^+e^- \rightarrow \rho\pi$, $\omega\pi\pi$

[15] Calculated by us from the cross section at the peak.
[16] From the combined fit of ANTONELLI 92, ACHASOV 01E, and ACHASOV 02E data on the $\pi^+\pi^-\pi^0$ and ANTONELLI 92 on the $\omega\pi^+\pi^-$ final states. Supersedes ACHASOV 99E.
[17] From a fit to two Breit-Wigner functions and using the data of DOLINSKY 91 and ANTONELLI 92.
[18] From the partial and leptonic width given by the authors.
[19] From the product of the leptonic width and partial branching ratio given by the authors.
[20] 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.

$\omega(1650)$ BRANCHING RATIOS

$\Gamma(\omega\pi\pi)/\Gamma_{\text{total}}$ — Γ_2/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
≈ 0.6	[21] ACHASOV	02E	RVUE	0.98–2.00 $e^+e^- \rightarrow \pi^+\pi^-\pi^0$, $\omega\pi^+\pi^-$
0.620 ± 0.014	[22] HENNER	02	RVUE	1.2–2.0 $e^+e^- \rightarrow \rho\pi$, $\omega\pi\pi$

$\Gamma(\rho\pi)/\Gamma_{\text{total}}$ — Γ_1/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
≈ 0.4	[21] ACHASOV	02E	RVUE	0.98–2.00 $e^+e^- \rightarrow \pi^+\pi^-\pi^0$, $\omega\pi^+\pi^-$
0.380 ± 0.014	[22] HENNER	02	RVUE	1.2–2.0 $e^+e^- \rightarrow \rho\pi$, $\omega\pi\pi$

$\Gamma(e^+e^-)/\Gamma_{\text{total}}$ — Γ_4/Γ

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
32 ± 1	[22] HENNER	02	RVUE	1.2–2.0 $e^+e^- \rightarrow \rho\pi$, $\omega\pi\pi$

[21] From the combined fit of ANTONELLI 92, ACHASOV 01E, and ACHASOV 02E data on the $\pi^+\pi^-\pi^0$ and ANTONELLI 92 on the $\omega\pi^+\pi^-$ final states. Supersedes ACHASOV 99E.
[22] Assuming that the $\omega(1650)$ decays into $\rho\pi$ and $\omega\pi\pi$ only.

$\omega(1650)$ REFERENCES

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