

No.	decay chain	final states	iTopo	nEvt	nTot
0	$\psi' \rightarrow \pi^0 \pi^0 J/\psi, J/\psi \rightarrow \pi^- K_S K^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow K^+ \pi^+ \pi^0 \pi^- \pi^- \pi^-$	3	368	368
1	$\psi' \rightarrow \pi^0 \pi^0 J/\psi, J/\psi \rightarrow K^- \pi^+ K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \pi^+ \pi^+ \pi^0 \pi^- \pi^- K^-$	4	340	708
2	$\psi' \rightarrow \pi^0 \pi^0 J/\psi, J/\psi \rightarrow K^- K^{*+}, K^{*+} \rightarrow \pi^+ K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \pi^+ \pi^+ \pi^0 \pi^- \pi^- K^-$	27	288	996
3	$\psi' \rightarrow \pi^0 \pi^0 J/\psi, J/\psi \rightarrow K^{*-} K^+, K^{*-} \rightarrow \pi^- K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow K^+ \pi^+ \pi^0 \pi^- \pi^-$	28	279	1275
4	$\psi' \rightarrow \pi^0 \pi^0 J/\psi, J/\psi \rightarrow \bar{K}^* K_S, \bar{K}^* \rightarrow K^- \pi^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \pi^+ \pi^+ \pi^0 \pi^- \pi^- K^-$	39	260	1535
5	$\psi' \rightarrow \pi^0 \pi^0 J/\psi, J/\psi \rightarrow K_S K^*, K_S \rightarrow \pi^- \pi^+, K^* \rightarrow \pi^- K^+$	$\psi' \rightarrow K^+ \pi^+ \pi^0 \pi^- \pi^-$	40	234	1769
6	$\psi' \rightarrow \pi^- \pi^+ K_S K_S, K_S \rightarrow \pi^- \pi^+, K_S \rightarrow \pi^0 \pi^0$	$\psi' \rightarrow \pi^+ \pi^+ \pi^0 \pi^- \pi^-$	11	200	1969
7	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow \pi^- \pi^+ K_S K_S, K_S \rightarrow \pi^- \pi^+, K_S \rightarrow \pi^0 \pi^0$	$\psi' \rightarrow \gamma \pi^+ \pi^+ \pi^0 \pi^- \pi^-$	5	168	2137
8	$\psi' \rightarrow \gamma \chi_{c0}, \chi_{c0} \rightarrow \rho^- K_S K^+, \rho^- \rightarrow \pi^- \pi^0, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma K^+ \pi^+ \pi^0 \pi^- \pi^-$	8	162	2299
9	$\psi' \rightarrow \gamma \chi_{c0}, \chi_{c0} \rightarrow K^- \rho^+ K_S, \rho^+ \rightarrow \pi^0 \pi^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \pi^+ \pi^+ \pi^0 \pi^- K^-$	31	131	2430
10	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow K^- \rho^+ K_S, \rho^+ \rightarrow \pi^0 \pi^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \pi^+ \pi^+ \pi^0 \pi^- K^-$	14	102	2532
11	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow K^- \rho^+ K_S, \rho^+ \rightarrow \pi^0 \pi^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \pi^+ \pi^+ \pi^0 \pi^- K^-$	46	94	2626
12	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow \rho^- K_S K^+, \rho^- \rightarrow \pi^- \pi^0, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma K^+ \pi^+ \pi^0 \pi^- \pi^-$	107	94	2720
13	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow \rho^- K_S K^+, \rho^- \rightarrow \pi^- \pi^0, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma K^+ \pi^+ \pi^0 \pi^- \pi^-$	71	90	2810
14	$\psi' \rightarrow \gamma \chi_{c0}, \chi_{c0} \rightarrow \pi^- \pi^0 K_S K^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma K^+ \pi^+ \pi^0 \pi^- \pi^-$	77	76	2886
15	$\psi' \rightarrow \gamma \chi_{c0}, \chi_{c0} \rightarrow K^- \pi^0 \pi^+ K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \pi^+ \pi^+ \pi^0 \pi^- K^-$	242	74	2960
16	$\psi' \rightarrow K^- K_1^+, K_1^+ \rightarrow \rho^+ K_S, \rho^+ \rightarrow \pi^0 \pi^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \pi^+ \pi^+ \pi^0 \pi^- K^-$	38	68	3028
17	$\psi' \rightarrow \pi^0 h_c, h_c \rightarrow \gamma \eta_{c3}, \eta_{c3} \rightarrow K^- \pi^+ K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \pi^+ \pi^+ \pi^0 \pi^- K^-$	125	64	3092
18	$\psi' \rightarrow \bar{K}^* \pi^- \pi^0 K^+, \bar{K}^* \rightarrow \pi^0 K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow K^+ \pi^+ \pi^0 \pi^- \pi^-$	79	64	3156
19	$\psi' \rightarrow \pi^0 h_c, h_c \rightarrow \gamma \eta_{c3}, \eta_{c3} \rightarrow \pi^- K_S K^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma K^+ \pi^+ \pi^0 \pi^- \pi^-$	16	62	3218
20	$\psi' \rightarrow K^- \pi^0 \pi^+ K^*, K^{*-} \rightarrow \pi^0 K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \pi^+ \pi^+ \pi^0 \pi^- \pi^- K^-$	12	62	3280
21	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow K^{*-} K^+, K^{*-} \rightarrow \pi^- K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \gamma K^+ \pi^+ \pi^- \pi^-$	97	61	3341
22	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow K^- \pi^+ K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \gamma \pi^+ \pi^+ \pi^- K^-$	69	61	3402
23	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow K^- K^{*+}, K^{*+} \rightarrow \pi^+ K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \gamma \pi^+ \pi^+ \pi^- K^-$	114	60	3462
24	$\psi' \rightarrow \bar{K}^* \rho^- K^+, \bar{K}^* \rightarrow \pi^0 K_S, \rho^- \rightarrow \pi^- \pi^0, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow K^+ \pi^+ \pi^0 \pi^- \pi^-$	51	59	3521
25	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \bar{K}^* K_S, \bar{K}^* \rightarrow K^- \pi^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \gamma \pi^+ \pi^+ \pi^- K^-$	63	57	3578
26	$\psi' \rightarrow \gamma \chi_{c0}, \chi_{c0} \rightarrow \pi^- \pi^+ K_S K_S, K_S \rightarrow \pi^- \pi^+, K_S \rightarrow \pi^0 \pi^0$	$\psi' \rightarrow \gamma \pi^+ \pi^+ \pi^0 \pi^- \pi^-$	133	56	3634
27	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^- K_S K^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \gamma K^+ \pi^+ \pi^- \pi^-$	75	53	3687
28	$\psi' \rightarrow K^- \rho^+ K^*, \rho^+ \rightarrow \pi^0 \pi^+, K^* \rightarrow \pi^0 K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \pi^+ \pi^+ \pi^0 \pi^- \pi^- K^-$	0	50	3737
29	$\psi' \rightarrow \pi^0 \pi^0 J/\psi, J/\psi \rightarrow \gamma \eta_{c3}, \eta_{c3} \rightarrow \pi^- K_S K^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma K^+ \pi^+ \pi^0 \pi^- \pi^-$	134	48	3785

Table 1: