

No.	decay chain	final states	iTopo	nEvt	nTot
0	$\psi' \rightarrow \pi^0 h_c, h_c \rightarrow \gamma \eta_c, \eta_c \rightarrow K^- \pi^+ K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \pi^+ \pi^- \pi^0 \pi^- K^-$	5	47	47
1	$\psi' \rightarrow \pi^0 h_c, h_c \rightarrow \gamma \eta_c, \eta_c \rightarrow \pi^- K_S K^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma K^+ \pi^+ \pi^0 \pi^- \pi^-$	0	46	93
2	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^- K_S K^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \gamma K^+ \pi^+ \pi^- \pi^-$	6	8	101
3	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow \rho^- K_S K^+, \rho^- \rightarrow \pi^- \pi^0, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma K^+ \pi^+ \pi^0 \pi^- \pi^-$	15	6	107
4	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow K^- \rho^+ K_S, \rho^+ \rightarrow \pi^0 \pi^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \pi^+ \pi^- \pi^0 \pi^- K^-$	3	5	112
5	$\psi' \rightarrow K_1^- K^+, K_1^- \rightarrow \rho^- K_S, \rho^- \rightarrow \pi^- \pi^0, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow K^+ \pi^+ \pi^0 \pi^- \pi^-$	12	4	116
6	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow K^- \pi^+ K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \gamma \pi^+ \pi^- \pi^- K^-$	21	4	120
7	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow K^- \pi^0 K^{*+}, K^{*+} \rightarrow \pi^+ K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \pi^+ \pi^- \pi^0 \pi^- K^-$	2	3	123
8	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow K^- K^{*+}, K^{*+} \rightarrow \pi^+ K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \gamma \pi^+ \pi^- \pi^- K^-$	8	3	126
9	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow K^{*-} K^{*+}, K^{*-} \rightarrow K^- \pi^0, K^{*+} \rightarrow \pi^+ K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \pi^+ \pi^- \pi^0 \pi^- K^-$	17	3	129
10	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow \rho^- K_S K^+, \rho^- \rightarrow \pi^- \pi^0, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma K^+ \pi^+ \pi^0 \pi^- \pi^-$	11	3	132
11	$\psi' \rightarrow K^- \bar{K}^{*0} \gamma \pi^+, \bar{K}^{*0} \rightarrow \pi^0 K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \pi^+ \pi^- \pi^0 \pi^- K^-$	1	2	134
12	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow \bar{K}^{*0} K^*, \bar{K}^{*0} \rightarrow K^- \pi^+, K^* \rightarrow \pi^0 K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \pi^+ \pi^- \pi^0 \pi^- K^-$	16	2	136
13	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow K^{*-} K^+, K^{*-} \rightarrow \pi^- K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \gamma K^+ \pi^+ \pi^- \pi^-$	9	2	138
14	$\psi' \rightarrow \pi^- \pi^+ K_S K_S, K_S \rightarrow \pi^- \pi^+, K_S \rightarrow \pi^0 \pi^0$	$\psi' \rightarrow \pi^+ \pi^- \pi^0 \pi^0 \pi^- \pi^-$	20	2	140
15	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow K^- \rho^+ K_S, \rho^+ \rightarrow \pi^0 \pi^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \pi^+ \pi^- \pi^0 \pi^- K^-$	13	2	142
16	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow K_S K^*, K_S \rightarrow \pi^- \pi^+, K^* \rightarrow \pi^- K^+$	$\psi' \rightarrow \gamma \gamma K^+ \pi^+ \pi^- \pi^-$	22	2	144
17	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow \bar{K}^{*0} \pi^- K^+, \bar{K}^{*0} \rightarrow \pi^0 K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma K^+ \pi^+ \pi^0 \pi^- \pi^-$	23	2	146
18	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow K^{*-} \pi^0 K^+, K^{*-} \rightarrow \pi^- K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma K^+ \pi^+ \pi^0 \pi^- \pi^-$	27	2	148
19	$\psi' \rightarrow \pi^- \gamma K^* K^+, K^* \rightarrow \pi^0 K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma K^+ \pi^+ \pi^0 \pi^- \pi^-$	29	2	150
20	$\psi' \rightarrow K^- K_1^+, K_1^+ \rightarrow \rho^+ K_S, \rho^+ \rightarrow \pi^0 \pi^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \pi^+ \pi^- \pi^0 \pi^- K^-$	30	2	152
21	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow K^- \pi^+ K^*, K^* \rightarrow \pi^0 K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma \pi^+ \pi^- \pi^0 \pi^- K^-$	4	1	153
22	$\psi' \rightarrow \bar{K}^{*0} \pi^0 K_2^0, \bar{K}^{*0} \rightarrow \pi^0 K_S, K_2^0 \rightarrow \pi^- K^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow K^+ \pi^+ \pi^0 \pi^0 \pi^- \pi^-$	7	1	154
23	$\psi' \rightarrow K^{*-} \gamma K^{*+}, K^{*-} \rightarrow \pi^- K_S, K^{*+} \rightarrow \pi^0 K^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \gamma K^+ \pi^+ \pi^0 \pi^- \pi^-$	10	1	155
24	$\psi' \rightarrow K_0^{*-} \pi^+ K^*, K_0^{*-} \rightarrow K^- \pi^0, K^* \rightarrow \pi^0 K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \pi^+ \pi^- \pi^0 \pi^0 \pi^- K^-$	24	1	156
25	$\psi' \rightarrow K_2^{*-} \pi^+ K_S, K_2^{*-} \rightarrow \pi^- K_S, K_S \rightarrow \pi^- \pi^+, K_S \rightarrow \pi^0 \pi^0$	$\psi' \rightarrow \pi^+ \pi^- \pi^0 \pi^0 \pi^- \pi^-$	25	1	157
26	$\psi' \rightarrow \bar{K}^{*0} \pi^- K^+, \bar{K}^{*0} \rightarrow \pi^0 K_S, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow K^+ \pi^+ \pi^0 \pi^- \pi^-$	26	1	158
27	$\psi' \rightarrow \bar{K}^{*0} K_2^0, \bar{K}^{*0} \rightarrow \pi^0 K_S, K_2^0 \rightarrow \pi^0 K^*, K_S \rightarrow \pi^- \pi^+, K^* \rightarrow \pi^- K^+$	$\psi' \rightarrow K^+ \pi^+ \pi^0 \pi^0 \pi^- \pi^-$	18	1	159
28	$\psi' \rightarrow K_2^{*-} \pi^0 K^{*+}, K_2^{*-} \rightarrow \pi^- K_S, K^{*+} \rightarrow \pi^0 K^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow K^+ \pi^+ \pi^0 \pi^0 \pi^- \pi^-$	28	1	160
29	$\psi' \rightarrow \pi^0 \pi^0 J/\psi, J/\psi \rightarrow K_2^{*0} K_S, K_2^{*0} \rightarrow K^- \pi^+, K_S \rightarrow \pi^- \pi^+$	$\psi' \rightarrow \pi^+ \pi^- \pi^+ \pi^0 \pi^- K^-$	19	1	161

Table 1: