

Event category	SM Higgs ( $m_H = 125$ GeV)				Background	Data	$\frac{S}{S+B}$	$\sigma_{\text{eff}}$ (GeV)
	ggH	VBF	VH	$\Sigma$ signal				
$\mu\tau_h$								
0-jet low- $p_T^{\tau_h}$ 7 TeV	23.1	0.2	0.1	$23.5 \pm 3.4$	$11950 \pm 590$	11959	0.002	17.4
0-jet low- $p_T^{\tau_h}$ 8 TeV	83.0	0.8	0.4	$85.0 \pm 11.0$	$40800 \pm 1900$	40353	0.003	16.3
0-jet high- $p_T^{\tau_h}$ 7 TeV	17.5	0.2	0.2	$17.9 \pm 2.6$	$1595 \pm 83$	1594	0.022	15.1
0-jet high- $p_T^{\tau_h}$ 8 TeV	66.2	0.7	0.6	$67.5 \pm 9.3$	$5990 \pm 250$	5789	0.020	15.2
1-jet low- $p_T^{\tau_h}$ 7 TeV	9.1	1.6	0.8	$11.5 \pm 1.7$	$2020 \pm 120$	2047	0.012	18.8
1-jet low- $p_T^{\tau_h}$ 8 TeV	36.0	6.0	3.0	$45.0 \pm 6.0$	$9030 \pm 360$	9010	0.010	18.6
1-jet high- $p_T^{\tau_h}$ 7 TeV	7.7	1.1	0.6	$9.4 \pm 1.3$	$796 \pm 39$	817	0.033	19.1
1-jet high- $p_T^{\tau_h}$ 8 TeV	29.6	4.3	2.4	$36.3 \pm 4.6$	$3180 \pm 130$	3160	0.029	19.7
1-jet high- $p_T^{\tau_h}$ boosted 7 TeV	2.6	0.8	0.5	$3.9 \pm 0.6$	$282 \pm 16$	269	0.054	17.7
1-jet high- $p_T^{\tau_h}$ boosted 8 TeV	11.5	2.9	2.0	$16.5 \pm 2.6$	$1265 \pm 62$	1253	0.072	17.2
VBF tag 7 TeV	0.2	1.3	–	$1.6 \pm 0.1$	$22 \pm 2$	23	0.14	19.6
Loose VBF tag 8 TeV	1.1	3.4	–	$4.5 \pm 0.4$	$81 \pm 7$	76	0.17	17.0
Tight VBF tag 8 TeV	0.3	2.0	–	$2.4 \pm 0.2$	$15 \pm 2$	20	0.49	18.1
$e\tau_h$								
0-jet low- $p_T^{\tau_h}$ 7 TeV	11.8	0.1	0.1	$12.0 \pm 1.8$	$6140 \pm 320$	6238	0.002	16.4
0-jet low- $p_T^{\tau_h}$ 8 TeV	33.4	0.3	0.2	$34.0 \pm 4.6$	$16750 \pm 750$	17109	0.002	15.8
0-jet high- $p_T^{\tau_h}$ 7 TeV	11.1	0.1	0.1	$11.3 \pm 1.7$	$1159 \pm 62$	1191	0.015	14.3
0-jet high- $p_T^{\tau_h}$ 8 TeV	31.4	0.3	0.3	$32.1 \pm 4.4$	$4380 \pm 170$	4536	0.010	15.4
1-jet low- $p_T^{\tau_h}$ 7 TeV	3.1	0.6	0.3	$4.0 \pm 0.6$	$366 \pm 25$	385	0.029	19.6
1-jet low- $p_T^{\tau_h}$ 8 TeV	9.1	1.8	1.0	$11.9 \pm 1.6$	$1200 \pm 56$	1214	0.025	16.5
1-jet high- $p_T^{\tau_h}$ boosted 7 TeV	1.2	0.3	0.2	$1.8 \pm 0.3$	$150 \pm 9$	167	0.089	15.5
1-jet high- $p_T^{\tau_h}$ boosted 8 TeV	5.1	1.4	0.9	$7.5 \pm 1.1$	$497 \pm 27$	476	0.11	15.5
VBF tag 7 TeV	0.2	0.7	–	$0.9 \pm 0.1$	$14 \pm 2$	13	0.24	15.9
Loose VBF tag 8 TeV	0.6	1.8	–	$2.4 \pm 0.2$	$45 \pm 4$	40	0.14	16.7
Tight VBF tag 8 TeV	0.3	1.3	–	$1.6 \pm 0.1$	$9 \pm 2$	7	0.51	16.2
$\tau_h\tau_h$								
1-jet boosted 8 TeV	7.2	2.1	1.0	$10.3 \pm 1.7$	$1133 \pm 49$	1120	0.054	15.2
1-jet highly-boosted 8 TeV	5.6	1.6	1.2	$8.4 \pm 1.2$	$380 \pm 23$	366	0.14	13.1
VBF tag 8 TeV	0.5	2.4	–	$3.0 \pm 0.3$	$29 \pm 4$	34	0.32	14.3
$e\mu$								
0-jet low- $p_T^{\mu}$ 7 TeV	20.8	0.2	0.2	$21.1 \pm 3.0$	$11320 \pm 260$	11283	0.002	24.4
0-jet low- $p_T^{\mu}$ 8 TeV	70.3	0.7	0.7	$71.7 \pm 9.6$	$40410 \pm 830$	40381	0.002	23.6
0-jet high- $p_T^{\mu}$ 7 TeV	7.5	0.1	0.1	$7.8 \pm 1.1$	$1636 \pm 55$	1676	0.007	22.7
0-jet high- $p_T^{\mu}$ 8 TeV	24.0	0.2	0.5	$24.7 \pm 3.3$	$6000 \pm 150$	6095	0.006	20.7
1-jet low- $p_T^{\mu}$ 7 TeV	9.0	1.6	1.0	$11.7 \pm 1.5$	$2475 \pm 74$	2482	0.009	23.7
1-jet low- $p_T^{\mu}$ 8 TeV	40.6	6.5	3.7	$50.8 \pm 6.1$	$10910 \pm 250$	10926	0.007	23.8
1-jet high- $p_T^{\mu}$ 7 TeV	4.7	1.0	0.6	$6.2 \pm 0.8$	$928 \pm 37$	901	0.015	23.3
1-jet high- $p_T^{\mu}$ 8 TeV	18.0	3.4	2.6	$23.9 \pm 2.9$	$4040 \pm 110$	4050	0.014	23.1
Loose VBF tag 7 TeV	0.2	1.0	–	$1.2 \pm 0.1$	$19 \pm 1$	12	0.13	23.0
Loose VBF tag 8 TeV	0.6	2.6	–	$3.3 \pm 0.3$	$99 \pm 6$	112	0.054	23.5
Tight VBF tag 8 TeV	0.2	1.5	–	$1.6 \pm 0.1$	$14 \pm 1$	17	0.31	17.8