

W + jets selection

Channel	W $\rightarrow e\nu$	W $\rightarrow \mu\nu$
Lepton $p_T^\ell$	$> 30 \text{ GeV}$	
Lepton $ \eta^\ell $	$< 2.1$	
Lepton isolation $I_{\text{comb}}/p_T^\ell$	$< 0.15$	$< 0.12$
Transverse mass $m_T$	$> 55 \text{ GeV}$	
Jet $p_T^{\text{jet}}$	$> 25 \text{ GeV}$	
Jet $ \eta^{\text{jet}} $	$< 2.5$	
$\Delta R(\text{jet}, \ell)$	$> 0.5$	

W+c – SL channel

Muon in jet $p_T^\mu$	$< 25 \text{ GeV}$	
Muon in jet $ \eta^\mu $	$< 2.1$	
Muon in jet $p_T^\mu/p_T^{\text{jet}}$	$< 0.6$	
Muon in jet isolation $I_{\text{comb}}/p_T^\ell$	$> 0.2$	
Muon in jet IPS	—	$> 1$
Muon in jet $m_{\mu\mu}$	—	$> 12 \text{ GeV}$ & $\notin [70, 110 \text{ GeV}]$

W+c – SV channel

Secondary-vertex displacement significance, SV 3D	$> 3.5$	
Corrected secondary-vertex mass, $m_{\text{SV}}^{\text{corr}}$	$> 0.55 \text{ GeV}$	
Secondary-vertex charge	$\neq 0$	