

Process	Signal region
$Z \rightarrow \mu\mu$ $p_T$ (500,700) BFil	0.02
$Z \rightarrow \mu\mu$ $p_T$ (500,700) CFilBVet	0.01
$Z \rightarrow \mu\mu$ $p_T$ (500,700) CVetBVet	0.00
$Z \rightarrow \mu\mu$ $p_T$ (280,500) BFil	0.26
$Z \rightarrow \mu\mu$ $p_T$ (280,500) CFilBVet	0.10
$Z \rightarrow \mu\mu$ $p_T$ (280,500) CVetBVet	0.05
$Z \rightarrow \mu\mu$ $p_T$ (140,280) BFil	1.62
$Z \rightarrow \mu\mu$ $p_T$ (140,280) CFilBVet	0.00
$Z \rightarrow \mu\mu$ $p_T$ (140,280) CVetBVet	0.80
$Z \rightarrow \mu\mu$ $p_T$ (70,140) BFil	3.84
$Z \rightarrow \mu\mu$ $p_T$ (70,140) CFilBVet	1.57
$Z \rightarrow \mu\mu$ $p_T$ (70,140) CVetBVet	3.18
$Z \rightarrow \mu\mu$ $p_T$ (0,70) BFil	10.02
$Z \rightarrow \mu\mu$ $p_T$ (0,70) CFilBVet	3.87
$Z \rightarrow \mu\mu$ $p_T$ (0,70) CVetBVet	0.00
$Z \rightarrow ee$ $p_T$ (500,700) BFil	0.02
$Z \rightarrow ee$ $p_T$ (500,700) CFilBVet	0.01
$Z \rightarrow ee$ $p_T$ (500,700) CVetBVet	0.00
$Z \rightarrow ee$ $p_T$ (280,500) BFil	0.17
$Z \rightarrow ee$ $p_T$ (280,500) CFilBVet	0.05
$Z \rightarrow ee$ $p_T$ (280,500) CVetBVet	0.02
$Z \rightarrow ee$ $p_T$ (140,280) BFil	0.00
$Z \rightarrow ee$ $p_T$ (140,280) CFilBVet	0.82
$Z \rightarrow ee$ $p_T$ (140,280) CVetBVet	0.00
$Z \rightarrow ee$ $p_T$ (70,140) BFil	5.68
$Z \rightarrow ee$ $p_T$ (70,140) CFilBVet	1.00
$Z \rightarrow ee$ $p_T$ (70,140) CVetBVet	0.14
$Z \rightarrow ee$ $p_T$ (0,70) BFil	16.48
$Z \rightarrow ee$ $p_T$ (0,70) CFilBVet	0.00
$Z \rightarrow ee$ $p_T$ (0,70) CVetBVet	0.00

Table 1: Predicted event yields in the signal region for Z+jets.

Process	Signal region
$s$ -channel	0.00
$W\bar{t}$	0.90
$Wt$	0.66
$\bar{t}$ -channel	0.03
$t$ -channel	0.05
tttautau Np1	0.02
tttautau Np0	0.01
ttmumu Np1	1.18
ttmumu Np0	1.11
ttee Np1	1.09
ttee Np0	0.96
ttZnnqq Np2	0.00
ttZnnqq Np1	0.01
ttZnnqq Np0	0.01
ttW Np2	0.06
ttW Np1	0.13
ttW Np0	0.12
ZZqqll	0.54
WZlvqq	0.00
WZqqll	0.38
WWlvqq	0.00
ZZvvll	0.01
ZZllll	1.76
WZlvvv	0.00
WZlvll	16.84
WWlvlv	0.01
$t\bar{t}$	48.04

Table 2: Predicted event yields in the signal region for all backgrounds except Z+jets.

Process	Signal region
$t\bar{t}$	48.04
single top	1.64
$t\bar{t}V$	0.34
$Z + \text{jets}$	49.74
Diboson	19.53
$tZ$	5.97
Total Expected	129.62
Data Observed	132.00
S/B	0.05
S/sqrtB	0.54

Table 3: Observed and predicted event yields in the signal region for an integrated luminosity of  $3,21fb^{-1}$ .