

# Ultra Legacy MC campaign

Top HLT Validation

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# Ultra Legacy MC campaign

Target: CMSSW\_10\_6\_0\_pre2

Reference: CMSSW\_10\_5\_0

Samples:

- 1 /RelValTTbar\_13UP17/CMSSW\_10\_6\_0\_pre2-105X\_mc2017\_realistic\_v7\_ulhlt17\_noPU-v1/GEN-SIM-RECO
- 2 /RelValTTbar\_13UP17/CMSSW\_10\_6\_0\_pre2-PUpmx25ns\_105X\_mc2017\_realistic\_v7\_ulhlt17\_pmx-v1/GEN-SIM-RECO
- 3 /RelValTTbarLepton\_13UP17/CMSSW\_10\_6\_0\_pre2-105X\_mc2017\_realistic\_v7\_ulhlt17\_noPU-v1/GEN-SIM-RECO

- ▶ Differences only in fully hadronic paths (expected)
  - ▶ Different HLT paths ( $p_T$  cut, btag algorithm)
- ▶ Good agreement for rest of the comparisons

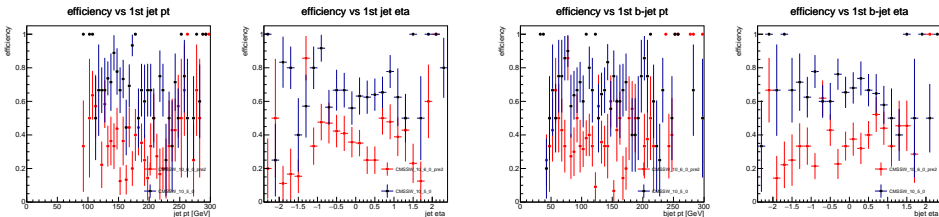
## Jet Monitor

### ► Numerator:

- HLT\_PFHT450\_SixPFJet36 (CMSSW\_10\_5\_0)
- HLT\_PFHT430\_SixPFJet40 (CMSSW\_10\_6\_0\_pre2)

### ► Denominator: HLT\_PFHT430

## TTbar sample - PU:



### CMSSW\_10\_6\_0\_pre2:

- Lower efficiency especially in PU scenario
- Tighter  $p_T$  cut - Changes are expected

## BJet Monitor

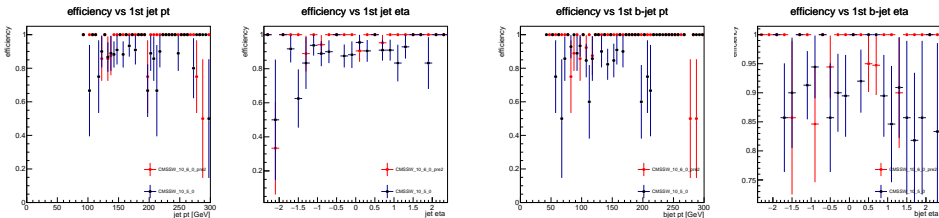
### ► Numerator:

- HLT\_PFHHT450\_SixPFJet36\_PFBTagDeepCSV\_1p59 (CMSSW\_10\_5\_0)
- HLT\_PFHHT430\_SixPFJet40\_PFBTagCSV\_1p5 (CMSSW\_10\_6\_0\_pre2)

### ► Denominator:

- HLT\_PFHHT450\_SixPFJet36 (CMSSW\_10\_5\_0)
- HLT\_PFHHT430\_SixPFJet40 (CMSSW\_10\_6\_0\_pre2)

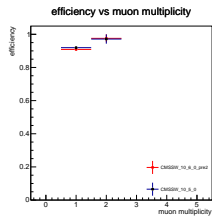
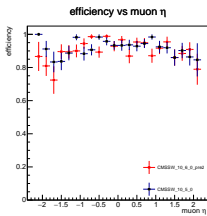
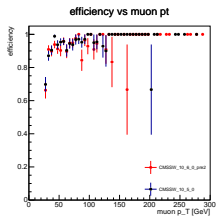
## TTbar sample - PU:



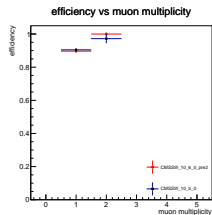
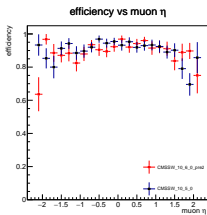
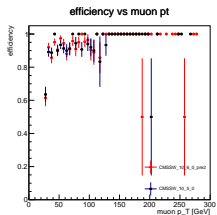
### ► Agreement between target and reference

## HLT\_IsoMu27

TTbar sample - noPU:



TTbar sample - PU:

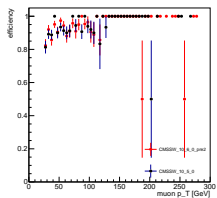


► Agreement between target and reference

TTbar sample - PU:

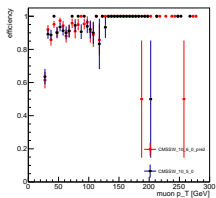
HLT\_IsoMu24

efficiency vs muon pt



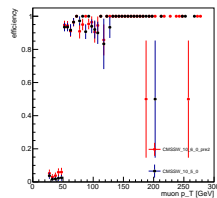
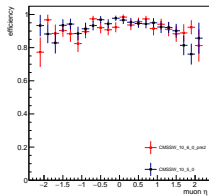
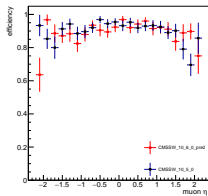
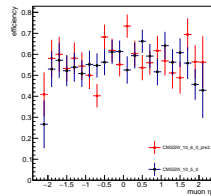
HLT\_IsoMu27

efficiency vs muon pt



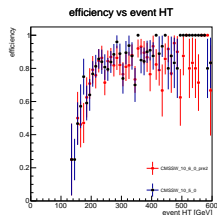
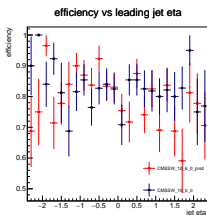
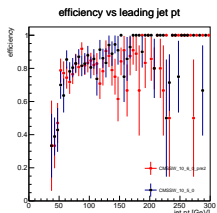
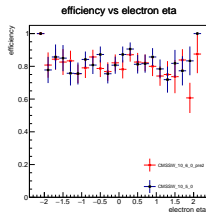
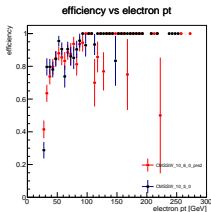
HLT\_Mu50

efficiency vs muon pt

efficiency vs muon  $\eta$ efficiency vs muon  $\eta$ efficiency vs muon  $\eta$ 

## HLT\_Ele28\_eta2p1\_WPTight\_Gsf\_HT150

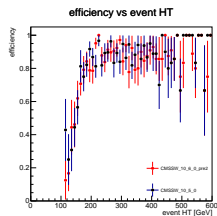
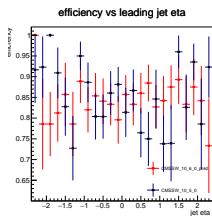
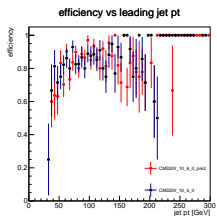
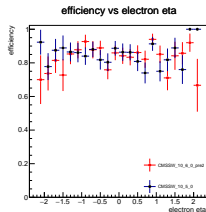
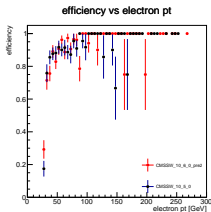
TTbar sample - PU:



► Agreement between target and reference

## HLT\_Ele28\_eta2p1\_WPTight\_Gsf\_HT150

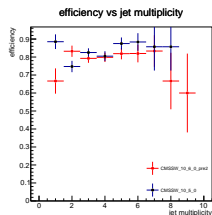
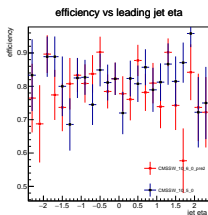
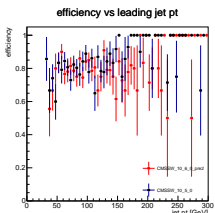
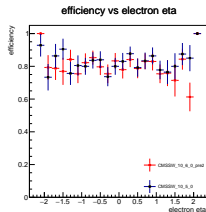
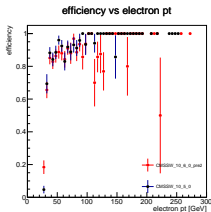
TTbar sample - noPU:



► Agreement between target and reference

## HLT\_Ele30\_eta2p1\_WPTight\_Gsf\_CentralPFJet35\_EleCleaned

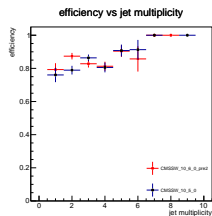
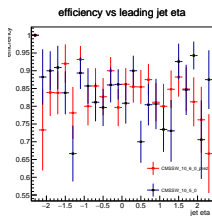
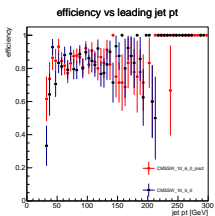
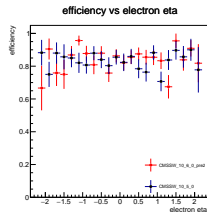
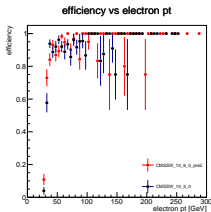
TTbar sample - PU:



► Agreement between target and reference

## HLT\_Ele30\_eta2p1\_WPTight\_Gsf\_CentralPFJet35\_EleCleaned

TTbar sample - noPU:



► Agreement between target and reference