

High- E_T Central Electron Datasets

David Saltzberg
University of Chicago
August 30, 1993

Version 1.0

1. Introduction

This note provides a description of three high- E_T electron datasets made from the run-1A Expressline production. The datasets were made from 6.1 Expressline output and replace the corresponding datasets which were made 'on-line' as the data were taken. The ICE dataset consists of 18 GeV central electrons with tight electron quality cuts; no other event topology is required. The WENU dataset consists of 22 GeV electrons with loose electron quality cuts but also requires 22 GeV of missing transverse energy to select $W \rightarrow e\nu$ events. The ZEE dataset consists of events with one 22 GeV central electron chosen with the same cuts as the electron in the WENU sample; an additional electromagnetic cluster is required to select $Z \rightarrow ee$ events.

Section 2 describes the luminosity and bookkeeping information common to the three datasets. Section 3 lists the cuts made to select the ICE sample. Section 4 describes the selection of the WENU sample and the subsequent reprocessing. Section 5 describes the selection and reprocessing of the ZEE sample. All three datasets are available in PAD format on the FNALKC machine in subdirectories of CDF\$EWK2.DATA:[ANA].

2. Luminosity and Bookkeeping

The events for all three datasets, ICE, WENU, and ZEE, were selected from the output of the Expressline production.[1] There were approximately 1.7 Million events in the Expressline. Due to unrelenting tape errors, seven of these events could not be checked by the filters. Each dataset is comprised of 194 files. There are 133805 events in the ICE sample, 28107 events in the WENU sample, and 3533 events in the ZEE sample. There are no duplicate events with a sample.

Processing the filenames by LUM_CONTROL on 8/30/93 yields the following luminosity calculations, which are common to all three datasets:

	Integrated Luminosity nb^{-1}
Total Luminosity:	22807.99
Luminosity OK for non-muon analyses:	21724.76
Luminosity OK for all analyses:	21316.93

The 'OK' luminosity is provided for those using the official BADRUN filter. Since some runs may be recovered over time, please check that these numbers are current before using them. The list of runfiles for LUM_CONTROL to use is CDF\$EWK2_DATA:[ANA]RUNFILE_LIST.TXT. Note that there is about an 0.06 pb^{-1} difference (0.3%) between using LUM_CONTROL for all runs from 40100 to 99999 and using the explicit filenames. According to Stephan's Expressline CDFNOTE, some deficit may be expected depending on how the the luminosity is calculated.

3. The ICE Dataset

The ICE dataset was selected with the following cuts. All quantities are the raw, uncorrected values:

ELES cluster:
 $E_T > 18 \text{ GeV}$
 $P_T > 13 \text{ GeV}$
Region= CEM
Had2/Em3 < 0.125
 $|\Delta z| < 5 \text{ cm}$
 $|\Delta x| < 3 \text{ cm}$
 $\chi^2_{\text{strip}} < 10$
LSHR_1992 < 0.2

There are 133805 events in this dataset.

4. The WENU Dataset

The WENU dataset was selected with the following cuts. All quantities are the raw, uncorrected values:

ELES cluster:
 $E_T > 22 \text{ GeV}$
 $P_T > 13 \text{ GeV}$
Region= CEM
Had3/Em3 < 0.10
From METS:
 $\cancel{E}_T > 22 \text{ GeV}.$

There are 28107 events in this dataset.

After selection, the data were had their tracks refit from a version of DEVELOPMENT frozen on 6/29/93. The job was run using the CTC constants as of 8/20/93. Specifically, the logicals CDFDB\$A_SUM and CDFDB\$H_PRM were pointed to CDF\$TRK_DATA:[ANA.CALIB] and CDF\$TRK_DATA:[ANA.CDF.COND], respectively. The job was run with:

```
USE TRCONTROL QTRK_CREATE
TALK TRCONTROL ENABLE ALL OFF ENABLE TRK ON REFIT CTC ON RETURN.
```

The executable was linked to the version of DBBDOP.CDF required at remote sites. Young-Kee Kim has added QTOW,2 to the PADs. See the online documentation for details.

5. The ZEE Dataset

The ZEE dataset was selected with the following cuts. All quantities are the raw, uncorrected values:

One ELES cluster:

$$E_T > 22 \text{ GeV}$$

$$P_T > 13 \text{ GeV}$$

Region= CEM

$$\text{Had3/Em3} < 0.10$$

Another ELES cluster:

$$E_T > 20, 15, 10 \text{ GeV in CEM, PEM, FEM, respectively}$$

$$\text{Had3/Em3} < 0.5 \text{ in CEM}$$

$$\text{Had/Em} < 0.5 \text{ in PEM or FEM}$$

$$\text{ISO (R<0.4)} < 0.10$$

$$3 \times 3 \chi^2 < 3. \text{ in PEM.}$$

There are 3533 events in this dataset.

This dataset was reprocessed in the same way and at the same time as the WENU dataset. Young-Kee Kim has added QTOW,2 to the PADs. See the online documentation for details.

6. Acknowledgements

Stephan Lammel and Randy Keup provided copies of the Expressline output. Sacha Kopp and Jim Romano helped collect bookkeeping information and mount tapes.

References

- [1] Stephan Lammel and J.J. Schmidt, CDFNOTE 2145.