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Results From The RHIC PC CNI Polarimeter for 2003

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Collider Accelerator Department
Brookhaven National Laboratory

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1. INTRODUCTION

The RHIC proton-carbon CNI polarimeters use pC elastic scattering in the coulomb-nuclear interference region to measure the beam polarization. Sensitivity to polarization is due to the coulomb spin-flip amplitude that is also responsible for the proton anomalous magnetic moment. The interference term arising from this amplitude, electromagnetic spinflip $\times$ hadronic spin nonflip, is calculable, but an additional interference term, from a hadronic spin flip amplitude $\times$ electromagnetic spin nonflip, is not.

The polarimeter analyzing power A_N was determined at 22 GeV by measuring the beam polarization in an external beam at the AGS, experiment E925 [1], while simultaneously measuring the CNI asymmetry in the AGS ring, experiment E950 [2]. E925 used proton-proton elastic scattering in a larger t region ($-t = 0.15$ (GeV/c)^2), where the analyzing power was known (and non-zero), from polarized target experiments. A_N for pC CNI was determined to $\pm 30\%$ at 22 GeV (Fig. 1)[2]. The analyzing power for RHIC at 100 GeV will be determined for the first time using a new polarized atomic hydrogen gas jet target in RHIC, over the next two years (2004-5).

The RHIC polarimeters include a carbon target that can be introduced into the RHIC beam for the measurements, and silicon detectors that measure the energy and time

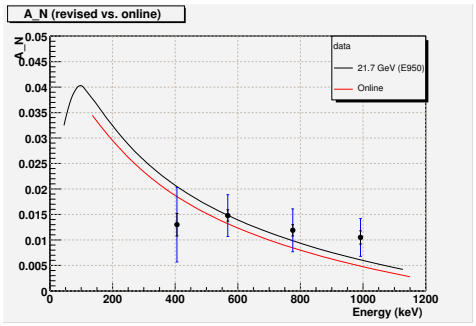

FIGURE 1. Analyzing power for proton-carbon elastic scattering for 22 GeV protons, vs. recoil carbon energy. Dots with error bars are the data points in our energy domain from E950 [2]. Top curve is a fit to the E950 data points, including points not shown at higher recoil energy, from Larry Trueman. [3] Lower curve is the fit used for the 2003 online analysis.

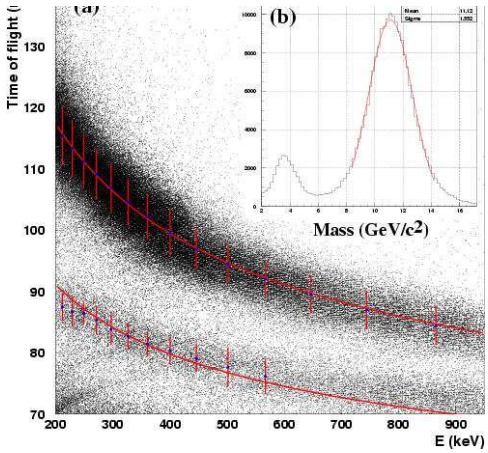

FIGURE 2. (a) The time of flight is plotted as a function of kinetic energy of the detected particle. (b) Sub-figures show the reconstructed invariant mass distribution, discussed in the text. The carbon mass peak (11.18 GeV/c^2) is clearly separated from an alpha mass peak (3.7 GeV/c^2).

of arrival of the recoil carbon ions. For very small angle scattering, elastic reactions dominate, and measurement of the recoil gives predominantly elastic events. The CNI region that we measure covers -t = 0.006 to 0.03 (GeV/c)^2, or carbon energies of 300 keV to 1.3 MeV range. The carbon recoil polar angle is nearly 90 degrees. The time of arrival provides time-of-flight for the recoil, by comparing to the time the rf-bunched beam crosses the target. The flight times are of order 50 ns to 100 ns for detectors at 15 cm from the target. This is ideal, since this is a quiet time–most backgrounds arrive close to the crossing time. The time-of-flight and energy measurements are used to identify carbon, see Fig. 2. An asymmetry is measured for counts in a left detector vs. a right detector, $\varepsilon_{LR} = (N_L - N_R)/(N_L + N_R)$, after selection of carbon events. The polarization is obtained from $P = -\varepsilon_{LR}/A_N$. The beam polarization can also be obtained from the asymmetry in counts observed for beam polarization up vs. polarization down, for each detector. In practise, both the left-right asymmetry and the polarization up-down asymmetry are used to measure and control systematic errors in the measurement.

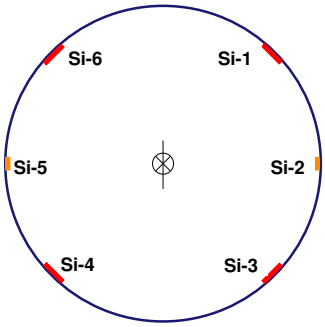

FIGURE 3. The layout of the silicon detectors inside the 15*cm* radius vacuum pipe of each RHIC polarimeter. The polarized proton beam direction is into the paper, and the carbon target is represented by the vertical line at the center of the vacuum pipe.

In the following sections we describe the RHIC polarimeters and the measurements during the 2003 RHIC run.

2. EXPERIMENTAL SETUP

The RHIC polarimeters are located near the 12 o'clock intersection region, with separate polarimeters near Q4 in each beam. The beams are referred to as the Blue and Yellow beams. A schematic of the polarimeters is shown in Fig. 3. The RHIC polarized proton beam passes through an ultra-thin carbon ribbon target, and carbon recoils from CNI scattering are observed in six silicon strip detectors placed as shown. Very thin carbon ribbon targets have been developed at IUCF [4]. A typical target is 2.5 *cm* long, 3.5-$\mu g/cm^2$ thick (150 Å) and 5-μm wide. The target is mounted on a mechanism which rotates into the beam, with a choice of 3 vertical and 3 horizontal targets. The detector has $10 \times 24 mm^2$ total active area, divided into 12 strips of $10 \times 2 mm^2$ each. The thickness of the detectors are $400 \mu m$, fully depleted with the operation bias voltage of $100 V$. The strips are made by p^+-doping (B implantation) to a depth of 150 *nm* on the n-type Si bulk on the side facing the target. The back side is the n^+-doped layer with an Al contact.

The six detectors are mounted inside of the vacuum chamber with readout pre-amplifier boards directly attached to the chamber detector ports through vacuum feed-through connectors.

Figure 2 shows a scatter plot of time of flight versus energy for one silicon strip in the polarimeter. The silicon detectors are 15 *cm* from the target, and the RHIC bunch length was about 2 *ns*. The insets in the figure show mass distributions derived from velocity and energy. The carbon and α peaks are clear, with little background under the carbon peak. The beam polarization is measured by counting the number of events in the carbon band in each strip versus the azimuthal angle of the strip around the beam (Fig. 3). A vertical polarization generates a left-right asymmetry in the detectors and a radial polarization generates an up-down asymmetry in the detectors. The rates are very high, so we chose a readout system without dead time based on waveform digitizers (WFD) [5]. The WFDs consist of a high frequency video ADC chip (used for laptop

screens) and a Xilinx FPGA.

The waveform from each strip was digitized every 2.36 *ns*, and pulse height and time of flight, compared to the RHIC rf clock, was determined in real time. The 1.18 *ns* timing resolution is obtained through the interpolation algorithm, and compared to a look-up table which accepted the carbon band (as in Fig. 2). On-board scalers kept the number of events for each strip, and for each beam bunch. The 55 beam bunches of polarized protons in RHIC for the 2003 run, spaced 212 *ns* apart, alternated in polarization sign. Therefore, the on-board scalers collected data for both signs, and for bunches set up with zero polarization, for each strip. 48 strips were read out, 8 for each detector (Fig. 3), and the same WFDs were used for blue and yellow measurements. Also, the orientation of the strips for the left and right 90 degree detectors (Fig. 3) were set up with the strips perpendicular to the beam direction, to measure the polar scattering angle. The 45° detectors were oriented along the beam direction to reduce the azimuthal acceptance for each strip, reducing the rate compared to the 90° central strips. Due to the multiple scattering in the target, the measurement of scattering angle gives only a weak constraint on elastic scattering. For the 2003 run, we typically had 4×10^{12} protons in each ring, and 2×10^{7} carbon elastic events were collected in about 20 seconds, with the target then rotated out of the beam. The data were then transfered to a PC, the asymmetry and various monitor asymmetries were calculated, and the result was sent automatically to the accelerator and experiments in minutes. A detailed description is given in [5].

3. UPGRADES FOR 2003

For the 2003 RHIC run we added the capability to store the carbon energy (pulse height and integral), time of arrival of the recoil (1/4 pulse height timing), and bunch number for each event for each silicon strip. Each WFD module was equipped with a 16MB SDRAM, which holds about 45M events in on board memory in a total of twelve modules. This readout mode (event mode) was in addition to the scaler mode where histograms are stored, that were previously used for asymmetries. The scaler mode contains the sum of events for each strip and each bunch number, for events passing a preselected banana cut of time of flight vs. recoil pulse height, corresponding to carbon events. A selected carbon energy range is required for the scaler results. Histograms are also kept by carbon energy bin for events within the banana cuts, for each strip, for +,-,0 polarization signs. The polarization signs are obtained from the bunch numbers, via downloaded CDEV information, and not through hardware signals.

RHIC operators selected the mode for collecting data, scaler or event+scaler. The event mode readout time from on board memory to a PC hard drive was about 5 minutes, so a typical pattern used was to use scaler mode for the measurement of 1 beam, with a quick result readout, followed by event mode for the second beam, alternating these between beams. Also, we typically took only one measurement at injection because the multiple scattering from the target increased the beam emittance. Polarization values reported during the run were based on scaler data, from either the scaler mode or from the event+scaler mode. This analysis uses the refined calibrations and event selection available from the event data.

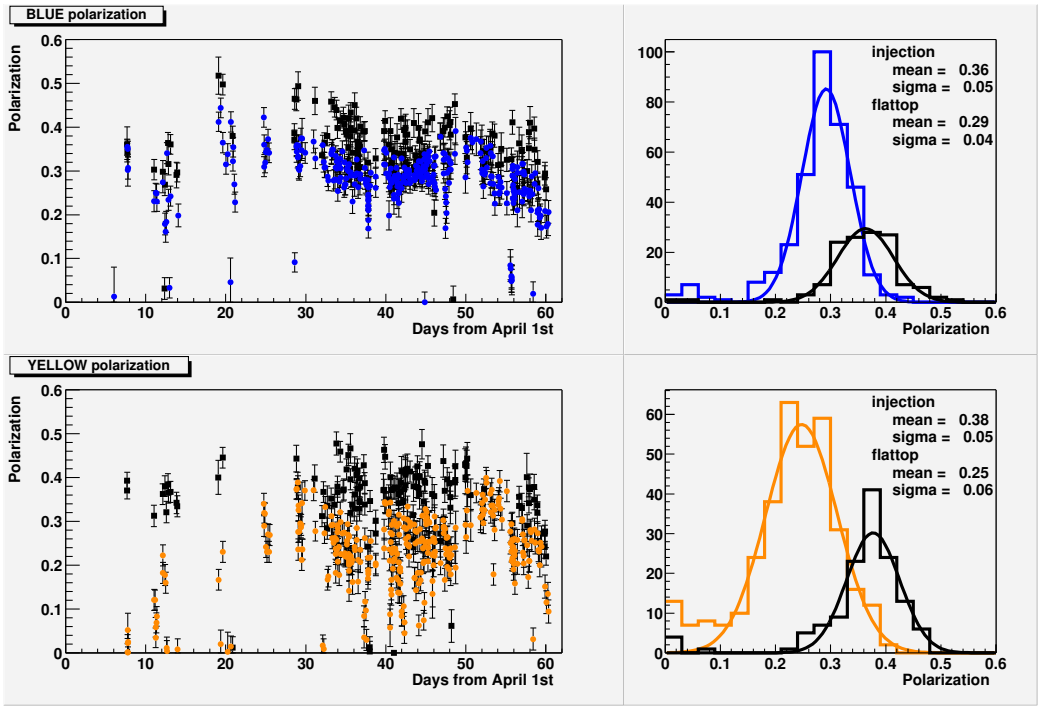

FIGURE 4. Asymmetry measurements made during the 2003 run, using the scaler mode readout. Top plots for BLUE and the bottom plots for YELLOW. In the left plots, each polarization measurement is shown as a data point, black points represent the injection measurements and colored ones are for the flattop measurements.

4. POLARIMETER MEASUREMENTS DURING 2003 RUN

Fig. 4 shows polarization measurements taken from the scalers during the run. These measurements combine the polarization sign $(+,-)$ data and the left-right (or up-down) data using a geometric mean (the square root formula). The data from during the run are shown for yellow beam injection (24 GeV), and flattop (100 GeV), and for blue beam. We also show a false asymmetry check as Fig. 5, where the 45 degree detectors are combined to cancel any real polarization effect: the cross asymmetry between, refering to Fig. 3, (#1+#4) vs. (#3+#6).

To summarize the observations from the run measurements: Vertical polarization is observed as expected. We also observed a radial polarization asymmetry for blue flattop throughout the run. The cross asymmetry (false asymmetry) for blue was non-zero. Finally, the t-dependence of the vertical polarization asymmetry in blue follows the curve for A_N in Fig. 1, as it should for a real signal. However, the radial polarization asymmetry t-dependence for blue was flat, implying that this may be a false asymmetry.

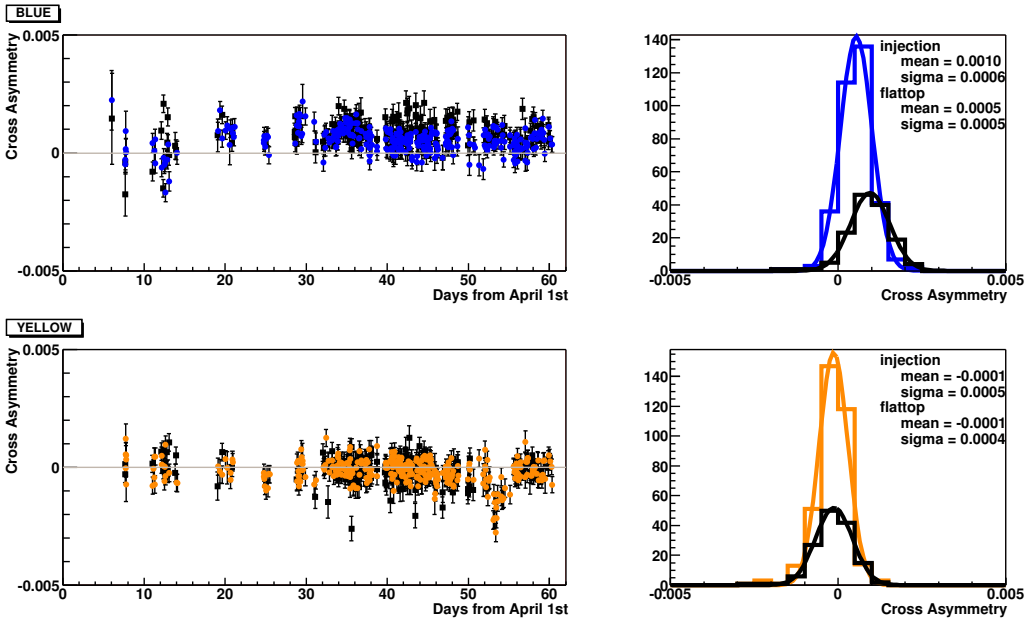

FIGURE 5. Unphysical asymmetry (cross asymmetry) from the scaler data. Top plots for BLUE and the bottom plots for YELLOW. In the left plots, each measurement is shown as a data point, black points represent the injection measurements and colored ones are for the flattop measurements.Deviation from zero indicates the fact that the wrong dead layer correction had been applied at the online level.

5. OFFLINE, POSTRUN ANALYSIS PLAN

The observed false cross asymmetry and the unexpected radial signal implied that different strips and/or detectors may have different behavior. For example, 45 degree detectors can generate a false up-down asymmetry from a real left-right asymmetry (pointed out by Vadim Kanavets) if there is a large difference in A_N between the detectors. We therefore decided to treat each strip as an independent polarimeter, to compare the behavior for each strip.

To use each strip as a polarimeter, we measure the asymmetry for events from + polarization bunches vs. - polarization bunches, ε_{+-}, where we must normalize by the luminosity ratio for the +/- polarization bunches, R:

$$\varepsilon_{+-} = (N_+ - RN_-)/(N_+ + RN_-), \text{ where } R = L_+/L_-.$$

We used the counts in the 90 degree detectors (#2+#5) to determine L_+ and L_-. Then

$$P_i = (\varepsilon_{+-,i}/A_{N,i})$$

for strip i. $A_{N,i}$ is the analyzing power for the strip i, as determined from the fit to Fig. 1, weighted by the observed carbon energy distribution for strip i.

We used the event mode data to recalculate the silicon dead layer energy loss and the bunch crossing time. During the run this was done by approximating the energy loss vs. energy with a linear response with offset. This is a reasonable approximation only for small dead layers. Fig. 6 shows curves for energy loss vs. energy for carbon

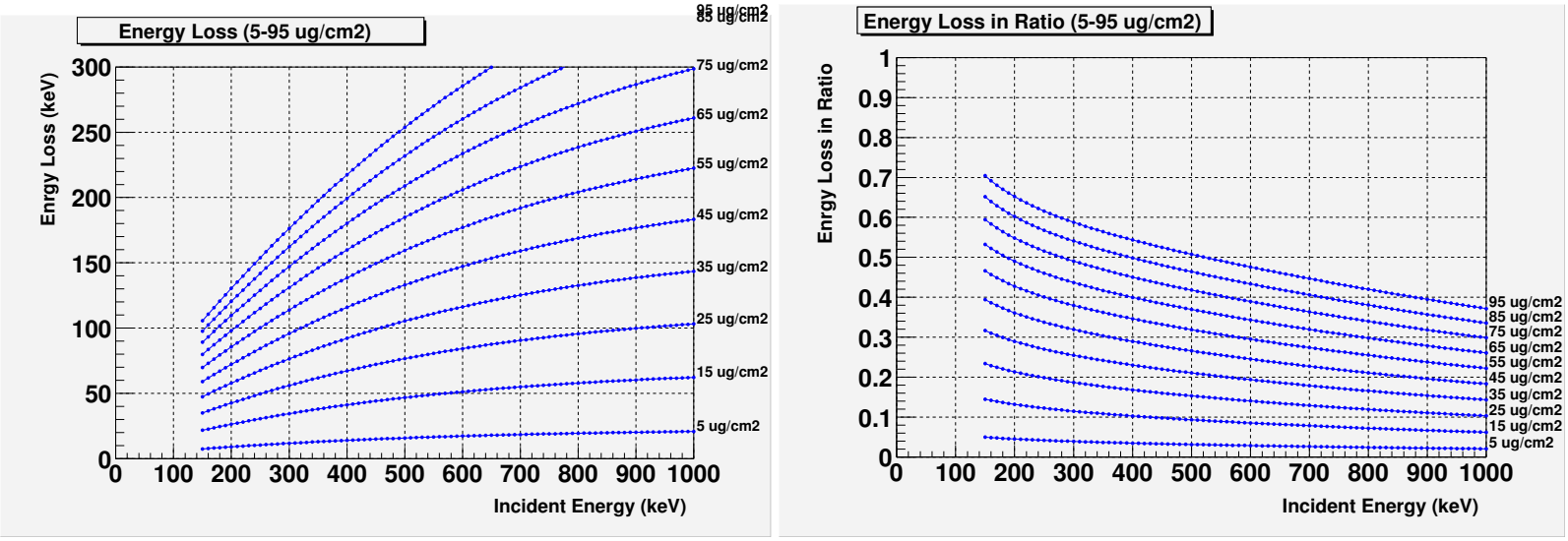

FIGURE 6. The left plot shows the energy loss, dE/dx, for different thickness dead layers, for carbon ions incident on silicon /citedEdx, vs. carbon energy. The right plot shows the fractional energy loss.

incident on silicon [6], and for the fractional energy loss vs. energy for different dead layer thicknesses. A linear relationship would give a flat line for fraction vs. energy, which is only reasonable for small thickness and larger incident energy domain, as seen in the figure. For the offline, the curves in the figure were described by a forth order polynomial in E, with the single parameter w, the deadlayer thickness. A fit was then made to the central value of the time-of-flight vs. energy banana (or, equivalently, to the carbon mass), with only two parameters: w and the time offset t_0. This fit to the carbon mass was much improved from the linear approximation for the dead layer. Fig. 7 shows the dead layer thicknesses for each strip from this two parameter fit, done independently for each strip. As seen in the figure, the same detectors show nearly the same thickness for each strip. We then used the average thickness for each detector, indicated by the red points. None of the detectors came from the same wafer, so no correlation between detectors is expected. This new dead layer correction shifted the carbon energies from the online by about +100 keV. This shift leads to a change in effective analyzing power from online of about -10% (see Fig. 1.)

Fig. 1 also shows a lower curve marked "Online 2003". This curve was used for the effective analyzing power in the online results. A mistake was found in this curve, which is just a fit to the E950 data shown. The correct fit is shown as "Larry's fit to E950", the fit by Larry Trueman [3]. The revised fit increases A_N by 10% from the online.

The two effects together, the new deadlayer and the fit correction, largely cancel in their effects on the effective analyzing power for the polarimeter in 2003.

For the event selection in the offline, we used a number of standard deviations from the central carbon mass. For the online, we used fixed time cuts from the carbon locus (+/-12 ns from the carbon locus, independent of energy). This is shown in Fig. 8. The offline cut was considerably tighter and more controled vs. background from, for example, alphas. For the offline, the carbon mass center and sigma was calculated for each run (some runs

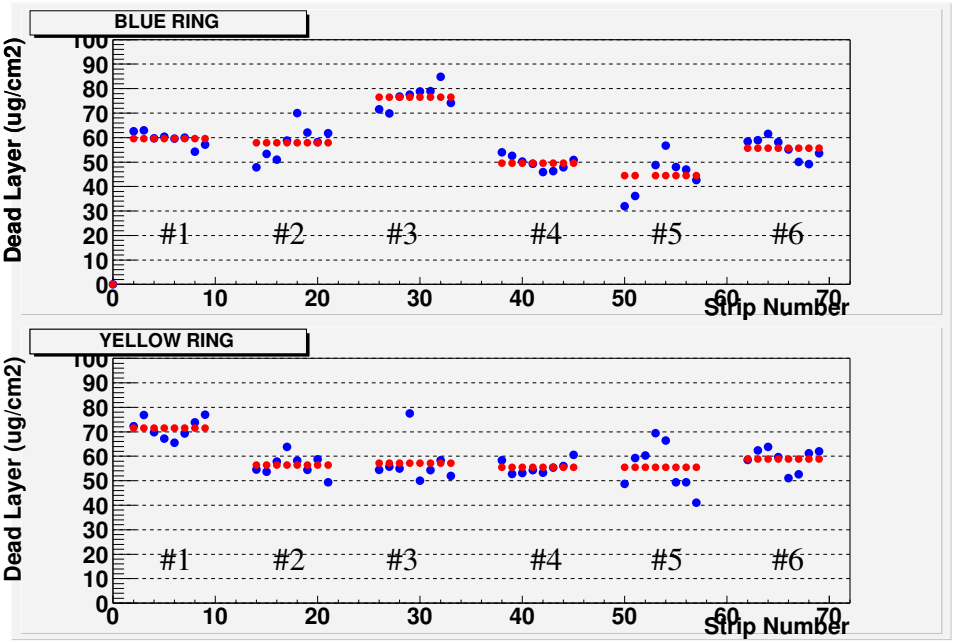

FIGURE 7. Measured deadlayer thickness for each strip, based on two parameter fit to carbon mass locus. A polynomial was used to describe dE/dx vs. E for carbon incident on silicon.

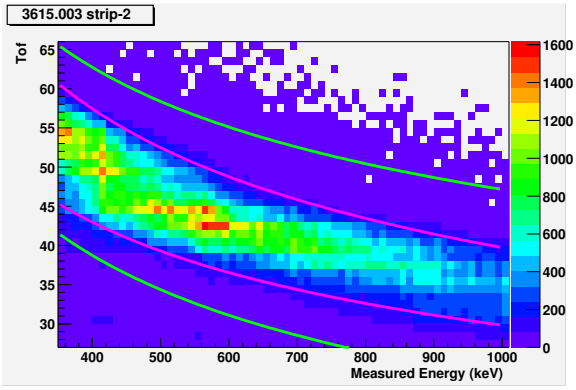

FIGURE 8. Comparing two cut criteria, two outside lines (light green) are the online cut condition, i.e. +/-12nsec, and two lines inside are the cut for 3σ deviation around the carbon mass.

had better timing resolution than others).

6. OFFLINE RESULTS I

We then calculated the polarization for each strip, for injection and flattop. Our intention was to compare the stability of the asymmetry for different carbon mass cuts, and to compare the 48 strips for each beam, for injection and flattop. To display the results, we convert the asymmetry to polarization using the effective analyzing power from

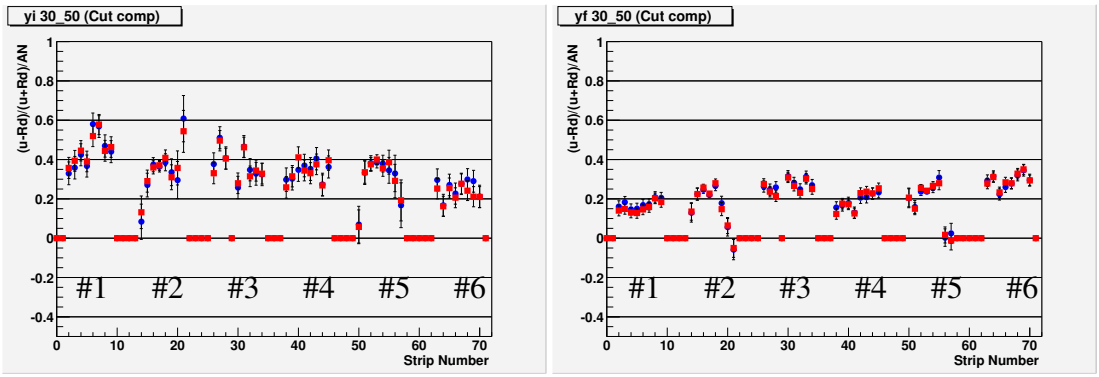

FIGURE 9. Beam polarization in yellow ring for 20 days accumulated, May 1-20, 2003. Each strip acts as an independent polarimeter. Both injection (left) and flattop (right) are shown, with statistical errors only. Two event selection cuts are shown, 1.5 σ (blue data points) and 3.0 σ (red data points) around the carbon mass. All bunches are assigned the same relative start time, t_0. The designation #N refers to the silicon detector number in Fig. 3

weighting the fit shown in Fig. 1 by our energy distribution for each strip, and correcting for the azimuthal dependence of the analyzing power (the 45 degree detectors have a $\sqrt{2}$ lower analyzing power than the 90 degree detectors for vertical polarization). We also flip the sign for the detectors to beam-right. Roughly $A_N = \pm 0.012 cos\phi$, with the $+$ sign for detectors to beam left, and $-$ sign for beam right detectors. For a vertical polarization only, all 48 detectors should give the same value for polarization.

Fig. 9 shows the result for yellow. Asymmetries for two cuts are shown: 1.5 σ and 3 σ from the central carbon mass. We note several points. The results are fairly stable with the two cuts. The edge strips of the 90 degree detectors see many fewer carbon events and also show lower polarization (these detectors measure scattering polar angle, and most events are in 2 or 3 central strips). Strips within a 45 degree detector roughly agree, but the scatter seems non-statistical, particularly for injection (note that the error bars for injection are larger because we took fewer measurements there). The six detectors don't show the same polarization.

There is some structure between the detectors for the polarization results in yellow, which is noticable at flattop. Pairs of detectors, #1 and #4, #2 and #5, and #3 and #6 measure similar polarization. This is the structure that would be observed for a combination of vertical and radial polarization. Yellow flattop shows evidence of radial polarization. For yellow injection, a systematic error is evident for detector #6 compared to the others.

Fig. 10 shows the blue result. In addition to the remarks made for yellow above, we also see that the polarization values are unstable with the mass cuts.

Due to the instability of the result for blue, we investigated the bunch dependence of the start time t_0. Fig. 11 shows the carbon mass peak position for each bunch, for 20 days of data, for blue flattop, for strip 27 (detector #3). The mass shows a systematic variation with bunch number. A zoom of this strip also shows a mass shift for even vs. odd bunches. These shifts are presumably from t_0, the timing of the bunch crossing.

Fig. 12 shows the calculated carbon mass difference for + bunches vs. - bunches, for

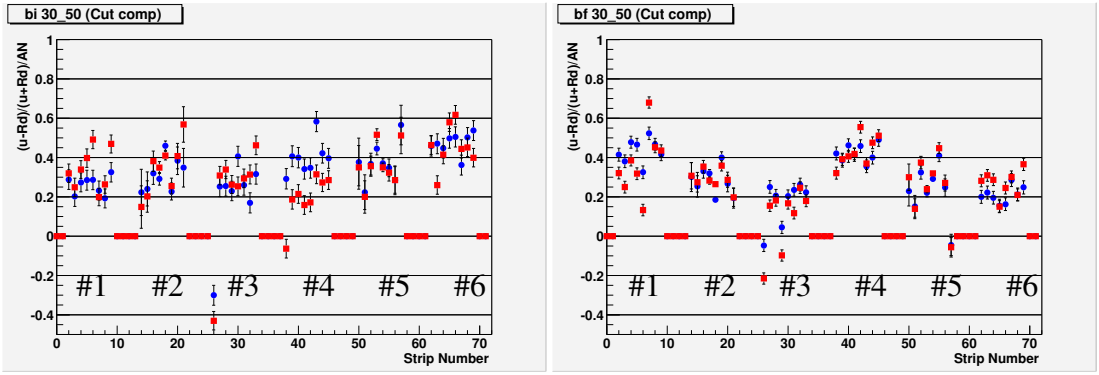

FIGURE 10. Beam polarization in blue ring for 20 days accumulated, May 1-20, 2003. Each strip acts as an independent polarimeter. Both injection and flattop are shown, with statistical errors only. Two event mass. All

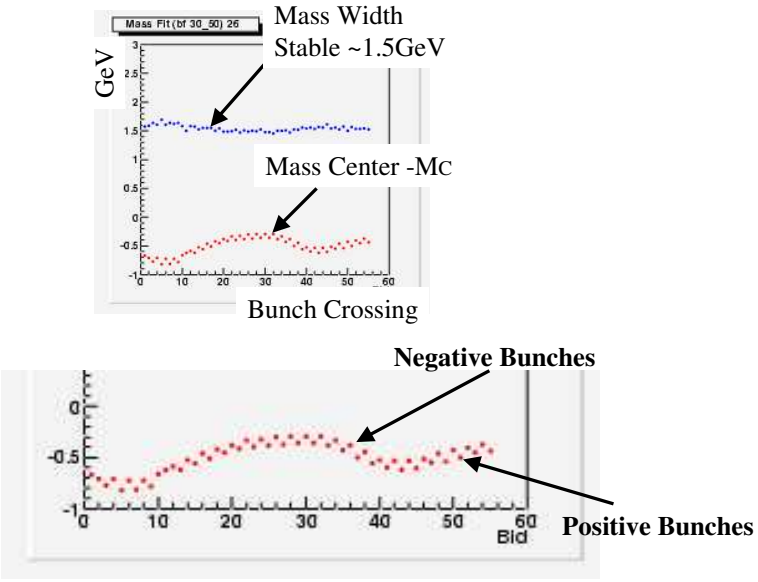

FIGURE 11. The top plot shows the calculated carbon mass for one strip, #27 blue, for flattop measurements over 20 days, versus bunch number. 11 GeV is subtracted from the carbon mass in these plots. A zoom is shown in the bottom figure.

blue and yellow at flattop. This is shown for each strip. We see that blue shows a very large fluctuation, vs. much smaller fluctuations for yellow.

We have not yet understood the origin of these variations, but we assume that the bunch rf time is at fault, and we have calculated t_0 for each bunch for each run and each strip. Our goal is to have a stable carbon mass to use to select events.

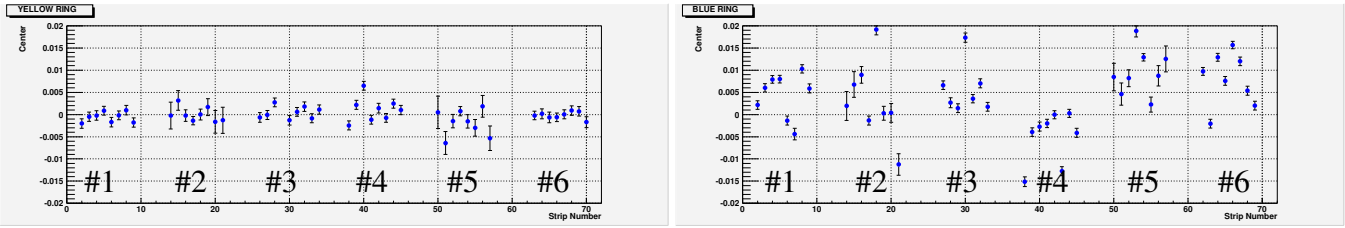

FIGURE 12. Carbon mass differences for + bunches vs. − bunches, for blue (right plot) and yellow (left plot) flattop, for accumulated data over 20 days.

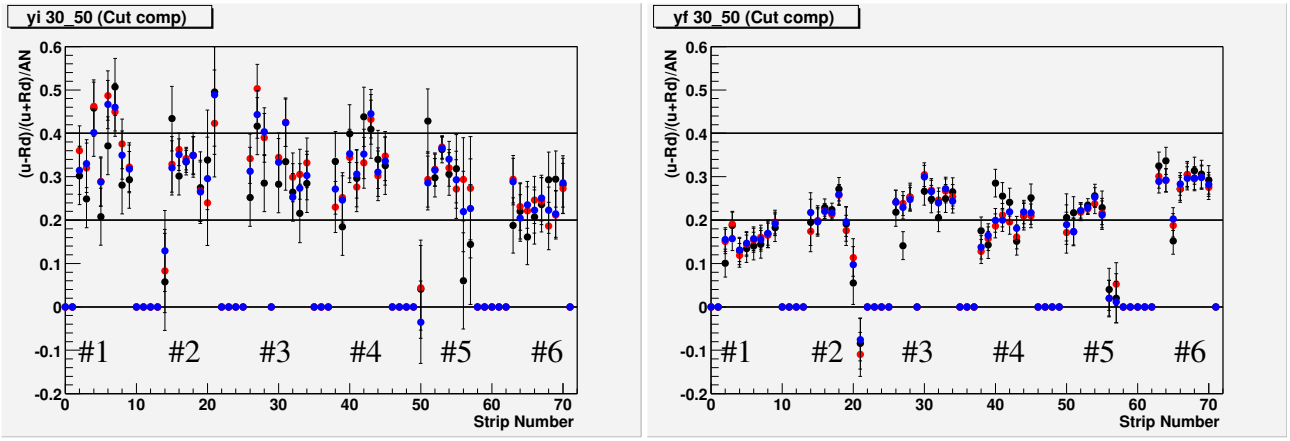

FIGURE 13. Beam polarization in yellow ring for 20 days accumulated, May 1-20, 2003. Each strip acts as an independent polarimeter. Both injection and flattop are shown, with statistical errors only. Three event selection cuts are shown, 1.0 σ (black), 2.0 σ (red), and 3.0 σ (blue) around the carbon mass. Bunches are assigned a relative start time, t_0, to center the carbon mass, for each strip and fill.

7. OFFLINE RESULTS II

Fig. 13 and Fig. 14 show the results for polarization for each strip after adjusting the rf bunch time t_0 to center the carbon mass for each bunch for each fill, and for each strip. The results are stable for different mass cuts.

With the stable results, we then discuss the differences for the strips. We have not understood the lower polarization measured for blue strip 27, and for the edge strips for the 90 degree detectors in blue and yellow. For strip 27, we had a very large variation in t_0 for + and - bunches. For the edge strips, the events there come from multiple scattering in the target [2]. We have decided to eliminate these strips from the measurement: strip 27 blue, and 2 edge strips from each edge of each 90 degree detector.

The blue injection polarization has general agreement for the remaining 39 strips. Blue flattop polarization has structure indicating a significant radial polarization.

Fig. 15 shows the difference in asymmetry measured with different mass cuts, normalized by an error that accounts for one set of data being a subset of the other [7]. This is shown for yellow flattop. The histogram is the projection. If we consider the excess beyond statistics to be a systematic error, we have $\sigma_{sys} = \sqrt{\sigma^2 - 1} \times \sigma_{meas}$. We then

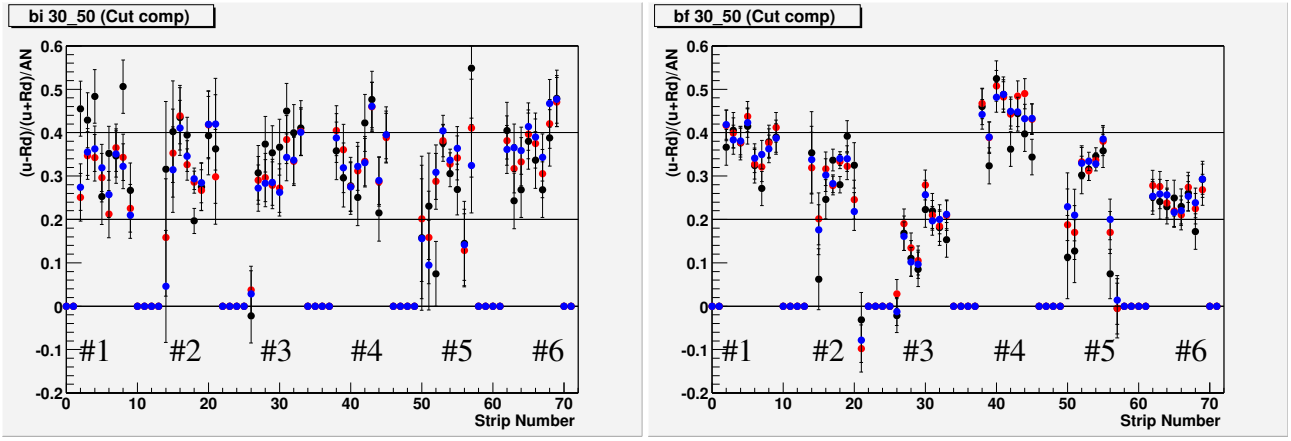

FIGURE 14. Beam polarization in blue ring for 20 days accumulated, May 1-20, 2003. Each strip acts as an independent polarimeter. Both injection and flattop are shown, with statistical errors only. Three event selection cuts are shown, 1.0 σ (black), 2.0 σ (red), and 3.0 σ (blue) around the carbon mass. Bunches are assigned a relative start time, t_0, to center the carbon mass, for each strip and fill.

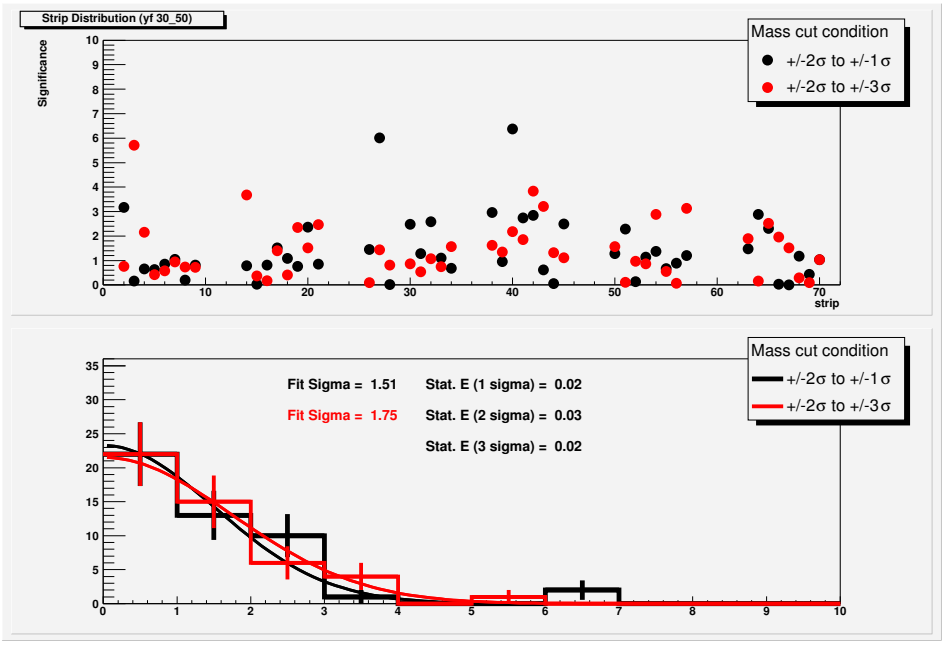

FIGURE 15. Study of asymmetry dependence on the recoil carbon mass cut. The top plot shows the difference in asymmetry measured for two mass cuts, 2σ and 3σ around the carbon mass, normalized by the statistical error. The statistical error takes into account that one set of data is a subset of the other. The histogram is a projection. The average significance should be 1, if the errors are only statistical.

have σ_{sys}=0.5% for yellow flattop, 1.5% for yellow injection, 1.1% for blue flattop, and 1.3% for blue injection., where these numbers are for polarization. These systematic errors are fairly small.

We then studied the t-dependence of the measured asymmetries. A real beam polarization signal should have a t-dependence that follows the analyzing power, Fig. 1. The

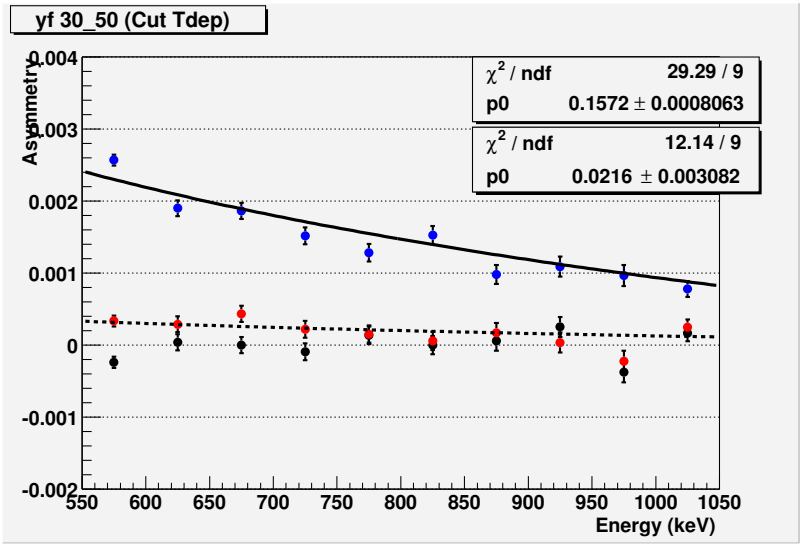

FIGURE 16. The four-momentum, t, dependence of the measured asymmetries for the yellow beam at flattop. The solid lines are fits to the left-right asymmetries (blue closed points) with $k \times A_N$. The dashed line is the fit for the flattop up-down asymmetries (red closed points) with $k' \times A_N$. The black closed points around zero are the cross asymmetries.

results for the yellow beam are shown in Fig. 16. In this figure we see that the left-right asymmetry follows the expected dependence for flattop. The cross asymmetries are zero. A small up-down asymmetry at flattop has the expected t-dependence, consistent with interpreting the data from Fig. 13 as indicating some radial polarization.

Fig. 17 shows the t-dependence for the blue beam polarization measurements. Again, the left-right asymmetry follows $A_N(t)$, Fig. 1, for flattop. The cross asymmetries are zero. The up-down asymmetry at flattop follows $A_N(t)$, indicating a radial component of the polarization. We also show the ratio of up-down to right-left asymmetry vs. $-t$. The ratio is constant, with a χ^2=13 for 8 degrees of freedom.

8. ESTIMATES OF SYSTEMATIC ERRORS

We have decided to estimate the systematic errors for two cases: for vertical polarization only (V), and for vertical and radial polarization both allowed (V+R). The systematic error is estimated from the error required to give a $\chi^2/ndf = 1$. For the yellow flattop, the fits of the strip asymmetries to azimuthal angle ϕ are shown in Fig. 18. For vertical polarization only the asymmetry results for the 39 strips are divided by the analyzing power, including dependence on ϕ. For the case where radial polarizaion is allowed, the figure shows the raw asymmetry divided by A_N. For vertical polarization only, the derived systematic error is $\pm 4\%$ out of a yellow polarization of 22% for these runs. When radial polarization is allowed, a radial component is measured pointing at 12 degrees to the inside of the ring. The derived systematic error is then $\pm 1\%$, out of 23% total polarization.

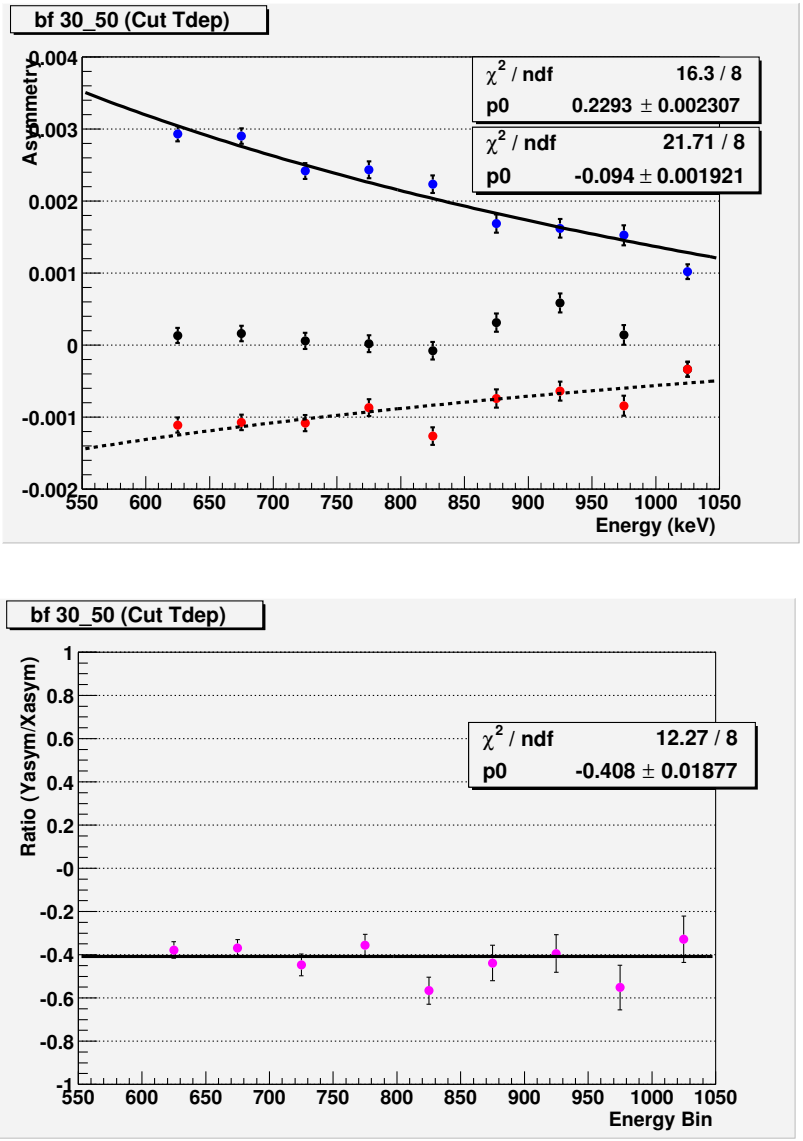

FIGURE 17. Same for the blue beam. The ratio of the up-down asymmetry to the left-right asymmetry, vs. t, is also shown.

Fig. 19 shows data and fits for the blue beam polarization measurements vs. detector azimuth. For vertical polarization only, the derived systematic error is $\pm 9\%$, out of a polarization of 32% for these runs. When we allow a radial polarization, the radial component points to 17 degrees toward the inside of the ring, and the derived systematic error is $\pm 3\%$ out of a polarization of 34%. Table 1 shows the result for flattop.

Injection is shown in Fig. 20 for both yellow and blue. No significant radial polarization is observed for yellow or blue, and systematic errors are small. (Here the χ^2 for blue without radial polarization is smaller than when radial polarization is allowed. This is our artifact of the treatment of the errors for the 45° detectors for the top right figure.)

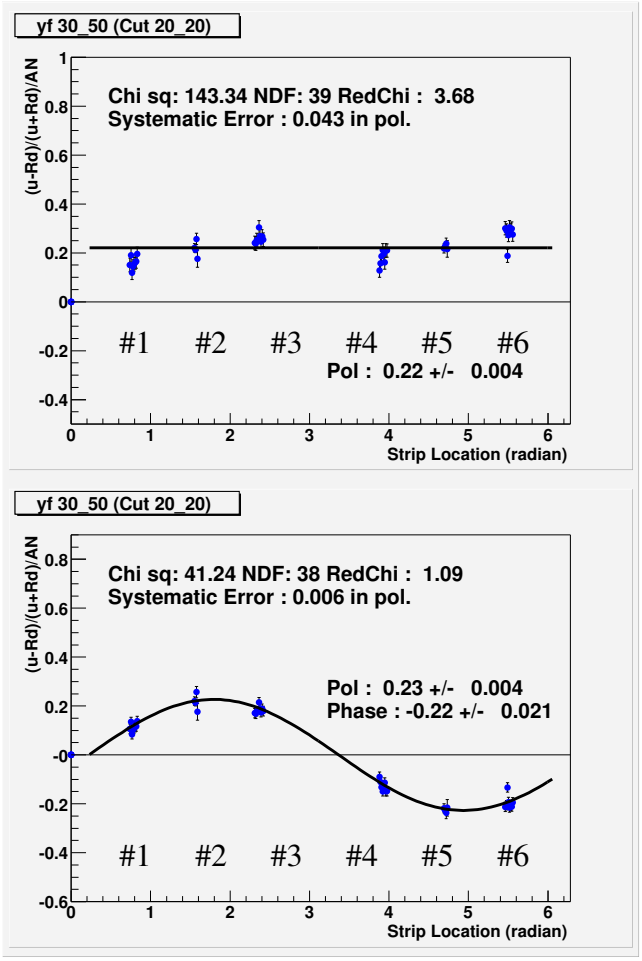

FIGURE 18. The top plot shows a fit of the measured polarizations for each of 39 strips for the yellow beam flattop, assuming a vertical polarization, vs. azimuthal angle of the detectors. The bottom plot shows the strip raw asymmetries divided by A_N, versus the detector phi. The top plot is fitted with a flat line, i.e. vertical polarization only. The bottom plot fit allows radial polarization.

TABLE 1. estimated systematic errors in different assumptions

Condition	Ring	error	polarization
Vertical polarization only	Blue	0.09	0.32
	Yellow	0.04	0.22
Allow radial component	Blue	0.03	0.34
	Yellow	0.01	0.23

9. DISCUSSION

At the March 19, 2004 RHIC Spin Collaboration meeting, Joanna Kiryluk presented STAR local polarimeter data from the run. A small radial raw asymmetry is observed at flattop for the yellow beam $\varepsilon^{yellow}_{radial}/\varepsilon^{yellow}_{vertical} = -0.16 \pm 0.03$. None was observed for blue,

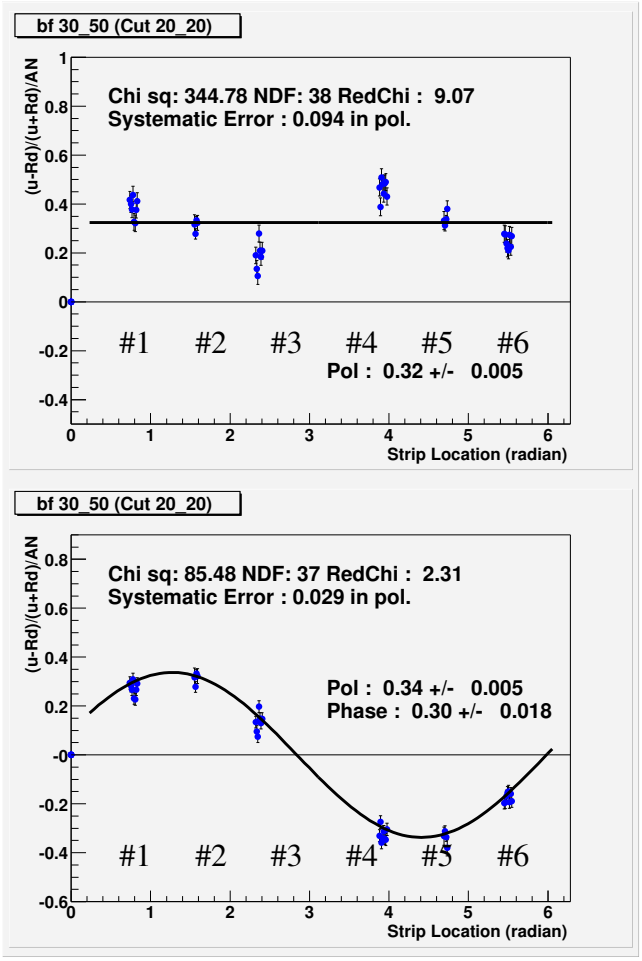

FIGURE 19. The top plot shows a fit of the measured polarizations for each of 39 strips for the blue beam flattop, assuming a vertical polarization, vs. azimuthal angle of the detectors. The bottom plot shows the strip raw asymmetries divided by A_N, versus the detector phi. The top plot is fitted with a flat line, i.e. vertical polarization only. The bottom plot fit allows radial polarization.

$\varepsilon^{blue}_{radial}/\varepsilon^{blue}_{vertical} = -0.03 \pm 0.02$. This was for running with the STAR spin rotators off, and PHENIX spin rotators on. At this meeting also, Naohito Saito showed PHENIX local polarimeter measurements for data with all spin rotators off. The radial raw asymmetry for yellow was $\varepsilon^{yellow}_{radial}/\varepsilon^{yellow}_{vertical} = 0.19 \pm 0.21$. For blue, $\varepsilon^{blue}_{radial}/\varepsilon^{blue}_{vertical} = 0.15 \pm 0.02$.

A radial polarization in yellow at flattop was expected, due to the loss of one of the yellow snake magnets. With one yellow snake operating as a partial snake, a horizontal component of the polarization was predicted. The amount of radial polarization depends on the RHIC beam energy ($G \times \gamma$, with G the anomalous magnetic moment coefficient of proton, and γ the Lorentz factor) and position of the polarimeter in the ring. This was apparently observed by the pC CNI polarimeter, STAR. PHENIX did not have sufficient sensitivity (PHENIX only ran for a short time with the spin rotators off and the yellow measurement were done with a fill with very small polarization, P=8%). Unfortunately, the beam energy isn't known with sufficient precision to predict the degree of radial

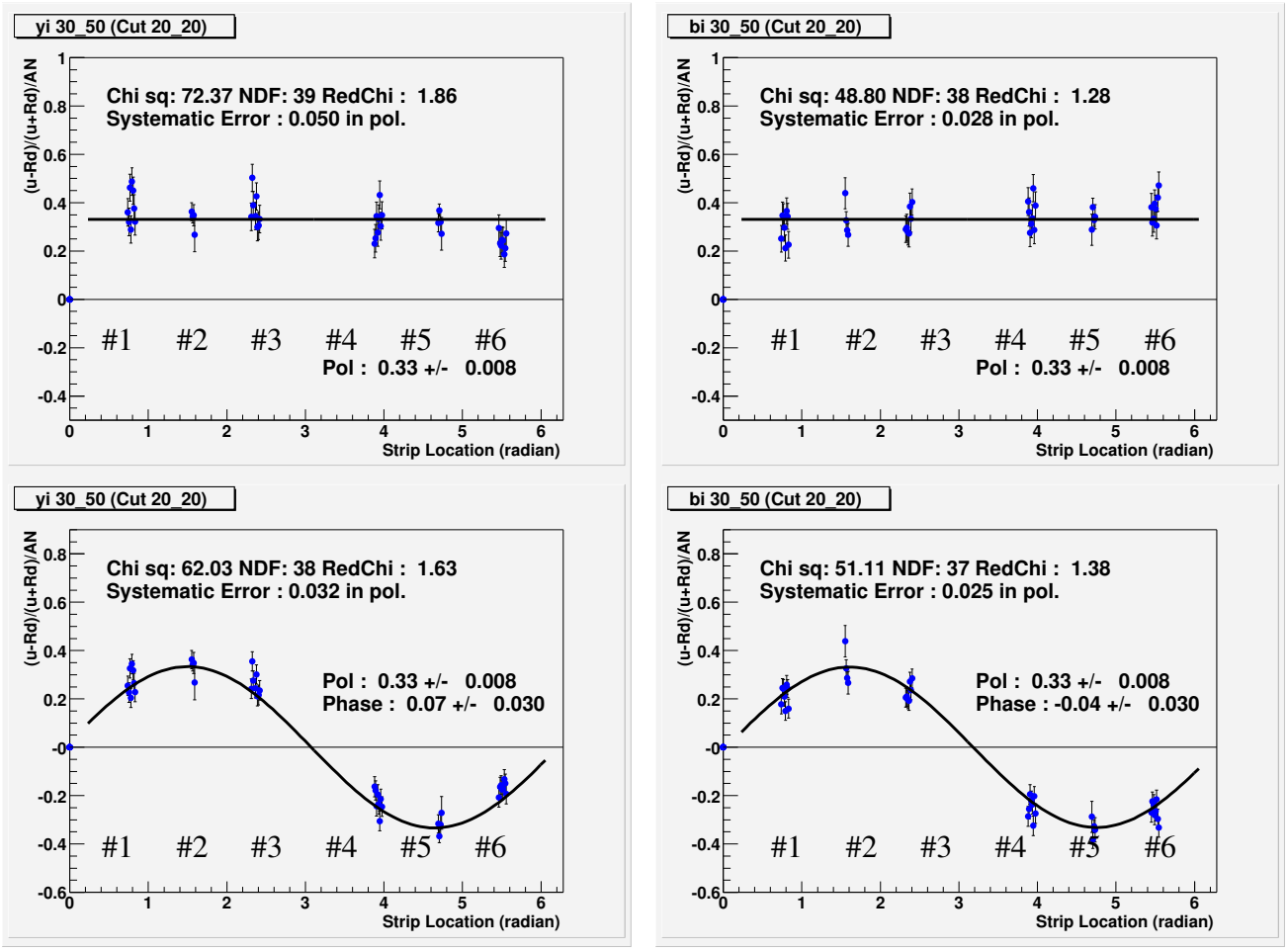

FIGURE 20. The top plots show a fit of the measured polarizations for each of 39 strips for the yellow (left) and blue (right) beam injection, assuming a vertical polarization, vs. azimuthal angle of the detectors. The bottom plots show the strip raw asymmetries divided by A_N, versus the detector phi. The top plot fits use a flat line, i.e. vertical polarization only. The bottom plot fits allow radial polarization.

polarization at each location. However, it appears reasonable to attribute the observed yellow radial polarization at flattop to a real effect. Therefore, we assign the yellow beam systematic error from the spread of results for the 39 strips to be $\pm 1\%$ in polarization.

No radial polarization in blue was expected.

Waldo Mackay discussed possible radial polarization in blue from a mistuning of the snakes and spin rotators. He does not expect a radial polarization of the observed size in blue. None is observed by STAR, and a statistically significant radial asymmetry is observed by PHENIX.

The blue radial asymmetry is either real, or it is a mistake, which we have not yet uncovered. The measured blue right-left asymmetry at injection matches the AGS polarimeter measurements, so that the measurement of the vertical polarization for the blue polarimeter appears to be robust. The t-dependence of the blue radial signal (up-down asymmetry) matches the t-dependence of the analyzing power, implying that the

signalis real. No false cross asymmetry is observed. The run-dependence of the radial signal is stable. Thus, all measurements from the CNI polarimeter indicate a real radial polarization. Therefore, we conclude that we should use the systematic error for blue from the case where a radial polarization is allowed. This is $\pm 3\%$ in polarization at flattop.

10. SUMMARY

Differences from the online included a corrected curve for $A_N(t)$, evaluation of the dead layers for the detectors using a parameterization of dE/dx for carbon incident on silicon, and calculation of the bunch timing for each bunch to center the data at the recoil carbon mass. After this work, the mass was stable vs. energy, the event selection dependence was small, the cross asymmetries (false asymmetries) were zero, and the t-dependence of the asymmetries matched the analyzing power.

The measured systematic error for the polarization measurements in 2003 were $\pm 3\%$ in polarization, for which we have taken the largest measured systematic error. This error comes from an evaluation of the blue and yellow measurements at injection and flattop, treating each silicon strip (39 strips for each polarimeter) as independent polarimeters. We have allowed a radial polarization, as well as vertical. We have observed a small radial polarization in yellow and a large radial polarization in blue, both at flattop, and both with good consistency and with the expected t-dependence of a real signal. A radial polarization was expected in yellow, and none was expected in blue. The systematic errors in yellow were less than blue, $\pm 1\%$ in polarization.

The polarization in blue at flattop increased by 3%, from 28.5% to 31.4%, from the online result. The yellow flattop polarization increased by 1%, from 24.2% to 25.2%. This is for all runs from April 15 to May 30, excluding the special pp2pp runs. A spreadsheet has been distributed to the experiments, for STAR and PHENIX, in the Appendix, giving the new polarization results for each polarimeter run. The data include bunch selection for each experiment, where non-colliding bunches are excluded.

A. POLARIZATION RESULTS FOR EACH POLARIMETER RUN

The tables in the following three appendices give the RHIC polarimeter results for run 3. The first two appendices give the polarization values based on event mode data, analyzed after the run. The offline analysis included changes in the analyzing power and the carbon energy from a more precise treatment of the silicon dead layer. The beam crossing timing as measured by the polarimeter waveform digitizers was found to vary by bunch number, and was determined for each bunch in the offline analysis. Carbon data were selected based on a 3 sigma cut on the reconstructed carbon mass, rather than using a fixed time window around the carbon locus in the time of flight vs. carbon energy distributions (banana plots).

It was found that, after these improvements to the analysis, the results were stable with different carbon selection cuts, a false asymmetry (cross asymmetry) that had appeared

for some runs in the online was eliminated, and the asymmetry vs. t behavior followed the analyzing power fit to the E950 data. The details of the systematic error estimation are described in the main chapters.

B. OFFLINE BLUE BEAM POLARIZATION RESULTS

In each line of the table, following values are listed for each CNI measurement for blue beam. Note that offline values are available only for those runs measured with event mode.

- fill RHIC fill number
- run CNI run number within the fill
- P polarization result without bunch selection
- dP statistical error of P
- P_PH result with bunch selection customized for PHENIX (IP8)
- dP_PH statistical error of P_PH
- P_ST result with bunch selection customized for STAR (IP6)
- dP_ST statistical error of P_ST Carbon energy spectrum)

Fill	run	P	dP	P_PH	dP_PH	P_ST	dP_ST
3427	7	-0.309	0.230	-0.043	0.234	-0.219	0.245
3476	2	0.201	0.046	0.225	0.048	0.204	0.049
3547	4	0.283	0.035	0.270	0.038	0.283	0.037
3547	5	0.334	0.035	0.335	0.038	0.317	0.037
3586	4	0.367	0.036	0.363	0.038	0.371	0.038
3602	2	0.372	0.036	0.382	0.038	0.374	0.038
3603	2	0.348	0.036	0.365	0.038	0.362	0.038
3604	2	0.331	0.036	0.319	0.038	0.352	0.038
3604	3	0.338	0.037	0.323	0.039	0.360	0.040
3606	3	0.294	0.035	0.285	0.038	0.282	0.037
3606	4	0.294	0.035	0.316	0.038	0.327	0.037
3612	4	0.393	0.038	0.355	0.040	0.416	0.039
3612	5	0.343	0.035	0.336	0.038	0.347	0.037
3612	6	0.287	0.035	0.289	0.038	0.285	0.037
3613	3	0.328	0.036	0.324	0.038	0.311	0.038
3614	3	0.340	0.035	0.334	0.037	0.345	0.037
3614	4	0.316	0.035	0.322	0.037	0.317	0.038
3614	5	0.364	0.035	0.371	0.037	0.348	0.037
3615	2	0.241	0.036	0.220	0.038	0.241	0.038
3615	3	0.271	0.035	0.286	0.037	0.253	0.038
3615	4	0.361	0.035	0.367	0.037	0.380	0.037
3620	2	0.316	0.036	0.303	0.038	0.329	0.038
3620	3	0.340	0.036	0.340	0.038	0.327	0.038
3620	4	0.298	0.036	0.308	0.038	0.312	0.038
3620	5	0.267	0.035	0.267	0.038	0.282	0.038
3622	2	0.281	0.036	0.280	0.039	0.285	0.039
3622	3	0.342	0.036	0.343	0.038	0.354	0.038
3624	4	0.366	0.036	0.356	0.038	0.392	0.038
3627	2	0.261	0.041	0.257	0.044	0.258	0.044
3630	2	0.310	0.042	0.303	0.045	0.305	0.045
3634	3	0.404	0.042	0.406	0.045	0.428	0.045
3637	11	0.288	0.042	0.263	0.045	0.304	0.045
3640	3	0.291	0.036	0.260	0.038	0.281	0.038
3644	2	0.412	0.047	0.407	0.051	0.420	0.051
3646	2	0.363	0.036	0.368	0.038	0.356	0.038
3646	4	0.317	0.036	0.298	0.038	0.328	0.038
3654	1	0.263	0.037	0.251	0.040	0.273	0.039
3654	2	0.273	0.037	0.260	0.040	0.257	0.039
3675	3	0.206	0.050	0.207	0.053	0.217	0.054
3676	4	0.285	0.036	0.291	0.039	0.275	0.038
3677	4	0.291	0.037	0.303	0.039	0.271	0.039
3677	5	0.301	0.037	0.299	0.039	0.289	0.039
3678	2	0.305	0.055	0.312	0.059	0.305	0.059
3679	3	0.324	0.039	0.339	0.042	0.337	0.041
3680	4	0.312	0.036	0.311	0.038	0.286	0.038
3680	5	0.290	0.037	0.299	0.039	0.280	0.039
3682	2	0.311	0.038	0.304	0.041	0.285	0.040
3684	3	0.390	0.037	0.396	0.039	0.356	0.039
3691	8	0.338	0.034	0.322	0.036	0.341	0.035
3696	3	0.270	0.037	0.261	0.039	0.295	0.039
3699	3	0.348	0.037	0.333	0.039	0.345	0.039
3702	3	0.352	0.037	0.355	0.039	0.352	0.039
3703	2	0.319	0.036	0.326	0.038	0.321	0.038
3703	3	0.364	0.037	0.373	0.039	0.366	0.040
3705	3	0.354	0.037	0.343	0.039	0.354	0.039
3705	5	0.320	0.036	0.335	0.039	0.299	0.038
3708	2	0.300	0.036	0.303	0.038	0.287	0.038
3708	4	0.301	0.039	0.284	0.041	0.292	0.041
3708	6	0.331	0.036	0.332	0.038	0.328	0.038
3713	3	0.343	0.036	0.324	0.038	0.353	0.038
3713	4	0.342	0.036	0.336	0.038	0.329	0.038
3713	5	0.393	0.035	0.392	0.038	0.372	0.037
3713	6	0.322	0.035	0.333	0.038	0.304	0.038
3713	7	0.276	0.035	0.276	0.038	0.267	0.037
3714	6	0.340	0.035	0.329	0.038	0.346	0.038
3720	5	0.290	0.036	0.281	0.038	0.279	0.038
3721	5	0.312	0.036	0.299	0.039	0.312	0.039
3721	7	0.371	0.036	0.357	0.038	0.365	0.038
3725	2	0.336	0.036	0.306	0.038	0.324	0.038
3731	4	0.386	0.036	0.383	0.038	0.371	0.038
3732	4	0.141	0.036	0.142	0.039	0.133	0.038
3733	6	0.299	0.035	0.305	0.038	0.315	0.038
3734	2	0.341	0.036	0.329	0.038	0.368	0.038
3734	3	0.294	0.037	0.331	0.040	0.296	0.040
3735	3	0.343	0.036	0.356	0.038	0.335	0.038
3735	4	0.400	0.045	0.377	0.048	0.425	0.047
3751	2	0.416	0.041	0.458	0.045	0.424	0.045
3751	2	0.416	0.041	0.458	0.045	0.424	0.045
3757	3	0.376	0.040	0.381	0.043	0.391	0.043
3757	5	0.375	0.040	0.371	0.043	0.365	0.043
3759	3	0.360	0.039	0.367	0.042	0.383	0.042
3759	4	0.362	0.040	0.351	0.043	0.360	0.043
3759	5	0.417	0.040	0.410	0.043	0.428	0.043
3764	2	0.004	0.094	-0.052	0.100	-0.053	0.102

3764	3	0.340	0.041	0.353	0.044	0.316	0.043
3764	4	0.435	0.040	0.445	0.043	0.429	0.043
3764	5	0.438	0.040	0.429	0.043	0.406	0.043
3764	6	0.371	0.040	0.369	0.043	0.356	0.043
3765	3	0.363	0.040	0.382	0.044	0.348	0.044
3767	3	0.227	0.040	0.226	0.043	0.205	0.043
3769	3	0.296	0.049	0.278	0.052	0.337	0.052
3769	5	0.304	0.046	0.274	0.049	0.300	0.048
3770	3	0.354	0.045	0.368	0.047	0.367	0.047
3774	3	0.150	0.049	0.139	0.052	0.176	0.052
3779	3	0.055	0.039	0.039	0.042	0.075	0.042
3780	3	0.308	0.042	0.286	0.044	0.299	0.044
3780	5	0.304	0.040	0.296	0.042	0.305	0.042
3780	7	0.304	0.040	0.296	0.042	0.305	0.042
3780	9	0.219	0.040	0.210	0.042	0.210	0.042
3780	11	0.290	0.039	0.260	0.042	0.304	0.042
3780	13	0.279	0.039	0.290	0.042	0.270	0.042
3780	15	0.280	0.039	0.288	0.042	0.279	0.041
3784	3	0.373	0.059	0.367	0.062	0.365	0.062
3793	3	0.216	0.059	0.188	0.062	0.247	0.062
3793	6	0.398	0.041	0.383	0.043	0.417	0.043
3793	8	0.280	0.041	0.266	0.043	0.292	0.043
3793	10	0.304	0.039	0.310	0.041	0.318	0.041
3796	2	0.279	0.039	0.289	0.041	0.284	0.042
3796	3	0.241	0.039	0.262	0.041	0.264	0.041
3797	3	0.417	0.039	0.408	0.042	0.411	0.042
3799	2	0.274	0.040	0.242	0.042	0.303	0.043
3799	3	0.213	0.039	0.189	0.042	0.232	0.042
3799	4	0.358	0.039	0.362	0.041	0.358	0.042
3799	5	0.261	0.039	0.263	0.041	0.249	0.041
3801	4	0.326	0.038	0.322	0.041	0.341	0.041
3803	3	0.202	0.043	0.173	0.046	0.194	0.046
3803	5	0.199	0.042	0.197	0.045	0.204	0.045
3803	6	0.280	0.041	0.238	0.044	0.277	0.044
3803	7	0.199	0.041	0.203	0.044	0.199	0.044
3803	8	0.204	0.041	0.186	0.043	0.212	0.043
3803	9	0.189	0.041	0.177	0.044	0.187	0.044
3810	2	0.194	0.042	0.177	0.044	0.192	0.044

C. OFFLINE YELLOW BEAM POLARIZATION RESULTS

The table below is the result of the offline analysis for yellow beam polarization. The definitions of the each column are the same as in blue.

Fill	run	P	dP	P_PH	dP_PH	P_ST	dP_ST
3427	115	0.058	0.044	0.095	0.048	0.044	0.047
3476	102	-0.008	0.029	0.024	0.031	-0.017	0.031
3547	105	0.323	0.028	0.340	0.031	0.329	0.030
3547	106	0.269	0.028	0.296	0.031	0.253	0.030
3586	102	0.345	0.028	0.350	0.030	0.342	0.030
3602	102	-0.008	0.029	-0.004	0.031	-0.011	0.030
3603	102	0.012	0.028	0.017	0.030	-0.004	0.030
3604	102	0.279	0.029	0.278	0.031	0.290	0.031
3604	103	0.351	0.029	0.367	0.031	0.359	0.031
3606	103	0.189	0.029	0.182	0.031	0.195	0.031
3606	104	0.198	0.029	0.226	0.031	0.200	0.031
3612	102	0.267	0.029	0.267	0.031	0.269	0.031
3612	103	0.319	0.029	0.309	0.031	0.328	0.031
3612	104	0.281	0.029	0.272	0.031	0.286	0.031
3612	105	0.320	0.029	0.303	0.031	0.349	0.030
3612	106	0.259	0.029	0.273	0.031	0.255	0.031
3613	102	0.275	0.029	0.280	0.031	0.274	0.030
3613	103	0.231	0.029	0.239	0.031	0.220	0.031
3614	102	0.271	0.029	0.299	0.031	0.265	0.031
3614	103	0.248	0.029	0.250	0.031	0.245	0.030
3614	104	0.334	0.029	0.337	0.031	0.343	0.030
3615	103	0.218	0.028	0.223	0.030	0.199	0.030
3615	104	0.292	0.028	0.281	0.030	0.295	0.030
3615	105	0.257	0.028	0.245	0.030	0.258	0.030
3620	102	0.250	0.029	0.269	0.030	0.252	0.030
3620	103	0.289	0.029	0.263	0.030	0.292	0.030
3620	104	0.258	0.029	0.245	0.031	0.261	0.030
3620	105	0.233	0.029	0.241	0.030	0.243	0.030
3621	102	0.277	0.029	0.278	0.031	0.281	0.031
3622	102	0.271	0.029	0.259	0.031	0.289	0.031
3622	104	0.312	0.029	0.303	0.031	0.311	0.031
3624	102	0.204	0.029	0.196	0.030	0.201	0.031
3625	106	0.161	0.033	0.171	0.035	0.155	0.035
3627	103	0.153	0.033	0.150	0.035	0.149	0.035
3630	103	0.207	0.034	0.183	0.036	0.224	0.036
3634	102	0.287	0.033	0.294	0.035	0.301	0.035
3637	103	0.162	0.033	0.173	0.035	0.163	0.035
3644	103	0.019	0.029	0.016	0.031	0.000	0.031
3646	106	0.025	0.029	0.034	0.031	0.026	0.031
3654	104	0.236	0.029	0.244	0.031	0.232	0.031
3654	105	0.282	0.029	0.290	0.031	0.266	0.031
3672	103	0.264	0.029	0.253	0.031	0.275	0.031
3675	105	0.231	0.028	0.239	0.030	0.228	0.030
3676	105	0.151	0.028	0.145	0.030	0.161	0.030
3677	104	0.239	0.040	0.248	0.043	0.253	0.043
3677	105	0.271	0.028	0.263	0.030	0.276	0.030
3677	106	0.182	0.028	0.184	0.030	0.177	0.030
3677	108	0.218	0.029	0.227	0.031	0.223	0.031
3678	103	0.322	0.028	0.310	0.031	0.339	0.031
3679	104	0.211	0.028	0.205	0.031	0.218	0.031
3680	105	0.155	0.027	0.158	0.030	0.147	0.029
3682	102	0.224	0.028	0.232	0.031	0.235	0.031
3684	103	0.081	0.028	0.101	0.030	0.086	0.031
3691	107	0.311	0.028	0.334	0.030	0.329	0.030
3698	106	0.136	0.038	0.169	0.041	0.148	0.040
3699	102	0.311	0.029	0.316	0.031	0.316	0.031
3699	104	0.157	0.028	0.171	0.030	0.143	0.030
3702	102	0.219	0.028	0.215	0.030	0.231	0.030
3703	102	0.142	0.029	0.151	0.031	0.158	0.031
3705	103	0.286	0.028	0.288	0.030	0.284	0.030
3705	104	0.317	0.029	0.336	0.031	0.310	0.031
3708	103	0.347	0.029	0.327	0.031	0.350	0.031

3708	105	0.236	0.028	0.263	0.031	0.227	0.031
3708	107	0.136	0.065	0.126	0.070	0.116	0.069
3713	102	0.223	0.028	0.231	0.030	0.228	0.030
3713	104	0.327	0.028	0.329	0.030	0.322	0.030
3713	105	0.322	0.028	0.333	0.030	0.326	0.030
3713	108	0.246	0.030	0.241	0.032	0.233	0.032
3714	105	0.302	0.028	0.320	0.030	0.302	0.030
3720	108	0.275	0.031	0.279	0.033	0.270	0.033
3720	110	0.300	0.031	0.299	0.033	0.324	0.033
3721	102	0.253	0.031	0.248	0.034	0.270	0.034
3721	105	0.269	0.031	0.270	0.033	0.285	0.034
3721	107	0.285	0.031	0.292	0.033	0.275	0.034
3731	103	0.298	0.031	0.286	0.033	0.304	0.033
3733	105	0.269	0.031	0.268	0.034	0.256	0.034
3734	102	0.231	0.031	0.203	0.033	0.242	0.034
3734	103	0.268	0.031	0.259	0.033	0.242	0.033
3735	103	0.170	0.031	0.169	0.033	0.189	0.034
3735	104	0.242	0.031	0.254	0.033	0.247	0.033
3756	102	0.321	0.055	0.376	0.059	0.364	0.058
3756	103	0.293	0.045	0.401	0.048	0.366	0.047
3757	103	0.335	0.037	0.376	0.039	0.369	0.039
3757	105	0.328	0.039	0.326	0.041	0.318	0.041
3780	103	0.245	0.034	0.239	0.036	0.230	0.036
3780	105	0.231	0.034	0.237	0.036	0.235	0.036
3780	107	0.231	0.034	0.237	0.036	0.235	0.036
3780	108	0.238	0.033	0.241	0.035	0.240	0.035
3780	110	0.240	0.033	0.226	0.036	0.233	0.035
3780	112	0.215	0.033	0.227	0.036	0.211	0.036
3780	114	0.264	0.033	0.283	0.036	0.264	0.036
3780	116	0.173	0.033	0.172	0.036	0.197	0.036
3784	102	0.262	0.035	0.294	0.038	0.253	0.038
3793	103	0.265	0.048	0.273	0.051	0.241	0.051
3793	105	0.245	0.034	0.225	0.036	0.241	0.036
3793	107	0.195	0.034	0.198	0.036	0.182	0.036
3793	109	0.186	0.033	0.186	0.035	0.201	0.035
3796	104	0.195	0.032	0.197	0.034	0.187	0.034
3797	104	0.220	0.032	0.217	0.034	0.229	0.034
3799	102	0.296	0.032	0.318	0.034	0.304	0.034
3799	103	0.280	0.032	0.283	0.034	0.264	0.034
3799	104	0.260	0.032	0.271	0.034	0.254	0.034
3801	104	0.250	0.033	0.246	0.035	0.274	0.035
3803	103	0.302	0.034	0.281	0.036	0.310	0.036
3803	104	0.249	0.033	0.244	0.035	0.244	0.035
3803	105	0.251	0.033	0.235	0.035	0.241	0.035
3803	106	0.240	0.033	0.237	0.036	0.250	0.036
3803	107	0.289	0.033	0.296	0.036	0.276	0.036
3803	112	0.368	0.066	0.366	0.071	0.377	0.070
3810	102	0.126	0.034	0.134	0.037	0.130	0.037
3810	102	0.126	0.034	0.134	0.037	0.130	0.037

D. ONLINE (SCALER) POLARIZATION RESULTS

These results are for Run 3, and are based on the scaler polarimeter information which was also distributed to experiments through CDEV during the run period. The analyzing power used is an effective analyzing power from a fit to the E950 data, weighted by the observed carbon energy distribution. In the offline analysis, the fit was corrected, and the carbon energy values changed, due to a more precise treatment of the silicon dead layer. These corrections changed the offline polarization values relative to the online values by dP/P=+0.09 for blue and +0.05 for yellow both at flattop (blue: +0.16, yellw: +0.01 for injection). The polarization values for the run should be taken from the event mode values (appendices above), except when event mode data are not available. In that case, the scaler values below can be used, corrected by the factor above.

Fill.run	Beam Energy	date	time	P	dP
3407.005	24.3	Apr 7	03:25:48	-0.32049	0.02753
3407.006	24.3	Apr 7	03:30:04	-0.34853	0.02840
3407.007	24.3	Apr 7	03:34:01	-0.29483	0.02901
3407.008	24.3	Apr 7	03:38:39	-0.32903	0.02950
3407.009	24.3	Apr 7	03:45:31	-0.27227	0.03663
3407.010	24.3	Apr 7	03:51:43	-0.31629	0.02917
3407.011	24.3	Apr 7	03:56:00	-0.30015	0.01891
3407.101	24.3	Apr 7	04:20:20	0.06922	0.04836
3407.102	24.3	Apr 7	04:21:45	-0.01567	0.01938
3407.103	24.3	Apr 7	04:28:05	-0.00944	0.01931
3408.002	24.3	Apr 7	05:55:46	0.34829	0.04030
3408.003	24.3	Apr 7	06:53:50	0.31157	0.02026
3408.101	24.3	Apr 7	06:19:17	0.12177	0.03368
3408.102	24.3	Apr 7	06:30:01	0.01084	0.04448
3408.103	24.3	Apr 7	07:07:07	-0.04177	0.01935
3420.001	24.3	Apr 8	04:34:52	0.39080	0.03646
3420.002	24.3	Apr 8	05:32:11	-0.01677	0.03762
3420.101	24.3	Apr 8	04:44:26	0.01182	0.02455
3420.102	24.3	Apr 8	05:23:49	-0.26656	0.02179
3424.001	99.8	Apr 8	11:15:19	0.44608	0.03805
3424.003	99.8	Apr 8	11:44:30	0.32839	0.03529
3424.004	99.8	Apr 8	12:09:18	0.26077	0.03522
3424.101	99.8	Apr 8	12:26:47	0.19366	0.02725
3424.102	99.8	Apr 8	12:36:46	0.15239	0.02861
3425.003	99.8	Apr 8	15:04:59	0.15506	0.02768
3425.101	99.8	Apr 8	14:49:46	-0.03924	0.03240
3427.001	24.3	Apr 8	16:40:05	0.36054	0.03985
3427.002	24.3	Apr 8	16:42:12	0.34450	0.01816
3427.003	99.8	Apr 8	16:53:44	0.35343	0.01757
3427.004	99.8	Apr 8	17:00:20	0.35452	0.01798
3427.005	99.8	Apr 8	18:23:53	0.35042	0.01766
3427.006	99.8	Apr 8	18:30:28	0.30182	0.03650
3427.007	99.8	Apr 8	18:53:48	0.30672	0.02516

3427.101	24.3	Apr 8	16:20:29	0.39277	0.01946
3427.102	24.3	Apr 8	16:33:52	0.37078	0.01951
3427.109	99.8	Apr 8	17:54:47	0.00154	0.03157
3427.110	99.8	Apr 8	17:57:04	0.02240	0.01959
3427.111	99.8	Apr 8	18:00:53	0.00084	0.01966
3427.113	99.8	Apr 8	18:38:45	0.05235	0.03836
3427.114	99.8	Apr 8	18:42:18	-0.05733	0.03664
3427.115	99.8	Apr 8	19:00:46	0.02520	0.02618
3441.101	24.3	Apr 10	15:34:13	0.07405	0.06374
3451.101	24.3	Apr 11	11:46:44	0.43814	0.04876
3459.002	24.3	Apr 12	01:05:37	0.30254	0.02315
3459.003	99.8	Apr 12	01:18:30	0.23082	0.02383
3459.005	99.8	Apr 12	06:06:32	0.25005	0.02192
3459.006	99.8	Apr 12	08:33:30	0.24827	0.02201
3459.007	99.8	Apr 12	09:29:29	0.22981	0.02193
3459.101	24.3	Apr 12	00:57:53	0.31262	0.02433
3459.102	99.8	Apr 12	01:23:28	0.12095	0.02423
3459.103	99.8	Apr 12	03:56:17	0.12076	0.02272
3459.104	99.8	Apr 12	06:02:42	0.03455	0.02252
3459.105	99.8	Apr 12	06:20:37	0.05866	0.02257
3459.106	99.8	Apr 12	08:30:16	0.06850	0.02264
3459.107	99.8	Apr 12	09:26:15	0.08347	0.02247
3460.002	24.3	Apr 12	11:50:07	0.03391	0.02366
3460.101	24.3	Apr 12	11:32:30	1.32242	0.02412
3460.102	24.3	Apr 12	11:40:11	1.37318	0.04968
3461.001	24.3	Apr 12	15:37:02	0.23906	0.03541
3461.101	24.3	Apr 12	15:54:17	0.35528	0.02728
3467.001	24.3	Apr 13	02:33:18	0.28341	0.02507
3467.101	24.3	Apr 13	02:25:22	0.34064	0.02402
3468.001	24.3	Apr 13	03:34:04	0.29804	0.02526
3468.002	99.8	Apr 13	03:51:37	0.27439	0.02454
3468.101	24.3	Apr 13	03:21:46	0.36223	0.02367
3468.102	99.8	Apr 13	03:49:48	0.22218	0.02397
3468.103	99.8	Apr 13	03:56:45	0.18232	0.02386
3470.001	24.3	Apr 13	07:13:42	-0.03391	0.02526
3470.101	24.3	Apr 13	07:06:43	0.33796	0.02413
3471.001	24.3	Apr 13	08:55:17	0.03158	0.02445
3471.003	24.3	Apr 13	09:33:39	0.26852	0.02525
3471.004	99.8	Apr 13	10:09:01	0.17892	0.02466
3471.005	99.8	Apr 13	12:02:25	0.16085	0.02365
3471.006	99.8	Apr 13	13:46:10	0.18364	0.02385
3471.101	24.3	Apr 13	09:07:51	-0.04195	0.02399
3471.102	24.3	Apr 13	09:23:12	0.38057	0.02397
3471.103	99.8	Apr 13	10:07:38	0.17755	0.02407
3471.104	99.8	Apr 13	12:00:55	0.15974	0.02398
3471.105	99.8	Apr 13	13:44:06	-0.00378	0.02417
3472.002	99.8	Apr 13	15:29:08	0.34052	0.02385
3472.101	24.3	Apr 13	14:21:46	0.32135	0.02416
3472.102	99.8	Apr 13	15:27:01	0.01127	0.02442
3472.103	99.8	Apr 13	15:46:34	0.00404	0.02422
3473.001	24.3	Apr 13	19:03:53	0.36343	0.02450
3473.101	24.3	Apr 13	18:52:21	0.38423	0.02440
3474.001	24.3	Apr 13	20:22:58	0.31546	0.02444
3474.002	99.8	Apr 13	20:39:50	0.23422	0.02414
3474.101	24.3	Apr 13	20:02:52	0.36586	0.02430
3475.001	24.3	Apr 13	22:45:53	-0.16822	0.02445
3475.002	99.8	Apr 13	23:36:41	0.03341	0.02307
3475.101	24.3	Apr 13	22:38:25	-0.03872	0.02413
3475.102	24.3	Apr 13	22:40:33	-0.00412	0.02435
3476.001	24.3	Apr 14	02:16:35	0.36046	0.02255
3476.002	99.8	Apr 14	02:31:05	0.24216	0.02284
3476.101	24.3	Apr 14	02:10:23	0.36734	0.02431
3476.102	99.8	Apr 14	02:37:48	-0.00112	0.02419
3480.001	24.3	Apr 14	20:26:38	0.29048	0.02930
3480.002	24.3	Apr 14	22:55:09	0.29656	0.02161
3480.004	99.8	Apr 15	02:15:10	0.19835	0.02633
3480.101	24.3	Apr 14	20:17:52	0.34221	0.02447
3480.102	24.3	Apr 14	22:39:19	0.33467	0.02384
3480.103	99.8	Apr 14	23:41:00	0.00781	0.02386
3480.104	99.8	Apr 15	02:44:23	-0.01760	0.02389
3502.001	99.8	Apr 19	09:11:30	-0.06841	0.04777
3502.002	99.8	Apr 19	09:24:58	-0.04911	0.02401
3502.102	99.8	Apr 19	09:34:59	0.02563	0.02852
3503.001	24.3	Apr 19	12:13:03	0.06283	0.02874
3503.002	24.3	Apr 19	12:26:46	-0.02154	0.05801
3503.003	99.8	Apr 19	13:56:07	0.08698	0.04713
3503.004	99.8	Apr 19	14:05:16	0.05951	0.03255
3504.001	24.3	Apr 19	15:01:50	0.47827	0.04215
3504.002	24.3	Apr 19	15:08:16	0.41582	0.03806
3505.001	24.3	Apr 19	19:20:37	0.53236	0.03628
3505.002	24.3	Apr 19	19:29:53	0.50046	0.03685
3505.101	24.3	Apr 19	18:04:40	0.46350	0.05242
3505.102	24.3	Apr 19	19:11:17	0.41542	0.03979
3506.001	99.8	Apr 19	21:59:27	0.18053	0.03670
3506.101	99.8	Apr 19	21:52:21	0.25157	0.03402
3508.001	24.3	Apr 20	02:07:38	0.51752	0.04227
3508.002	99.8	Apr 20	02:59:57	0.41208	0.02222
3508.003	99.8	Apr 20	09:25:09	0.44342	0.02233
3508.101	24.3	Apr 20	01:47:56	0.40055	0.03904
3508.102	99.8	Apr 20	02:53:34	0.16663	0.02366
3508.103	99.8	Apr 20	09:17:46	0.02035	0.03192
3509.001	99.8	Apr 20	12:27:07	0.39208	0.03100
3509.101	99.8	Apr 20	12:20:01	0.33225	0.02901
3510.001	24.3	Apr 20	15:09:21	0.49712	0.02342
3510.002	99.8	Apr 20	15:22:46	0.36465	0.02321
3510.101	24.3	Apr 20	15:01:20	0.44550	0.02374
3510.102	99.8	Apr 20	15:21:10	0.23043	0.02385
3517.102	24.3	Apr 20	23:47:07	0.34484	0.05246
3518.001	99.8	Apr 21	01:13:43	0.31509	0.02298
3518.101	99.8	Apr 21	01:21:29	-0.02495	0.02393
3521.001	99.8	Apr 21	06:12:48	0.33828	0.02385
3521.002	99.8	Apr 21	14:02:27	0.04635	0.05511
3521.101	99.8	Apr 21	06:06:15	0.00213	0.04514
3523.001	99.8	Apr 21	15:46:25	0.41148	0.02333
3523.103	99.8	Apr 21	15:35:28	0.01473	0.02384
3523.105	99.8	Apr 21	15:41:01	-0.02955	0.02384
3524.001	24.3	Apr 21	20:59:11	0.37942	0.02237
3524.002	99.8	Apr 21	21:31:35	0.32245	0.02265
3524.003	99.8	Apr 21	22:38:59	0.35391	0.02258
3524.004	99.8	Apr 22	02:01:10	0.26959	0.02294
3524.005	99.8	Apr 22	03:58:25	0.22860	0.02294
3524.101	24.3	Apr 21	20:53:44	0.01222	0.02461

3524.102	99.8	Apr 21	21:29:58	-0.01537	0.02383
3524.103	99.8	Apr 21	22:32:41	-0.01739	0.02387
3526.001	99.8	Apr 22	17:28:55	0.36815	0.04506
3526.002	99.8	Apr 22	18:02:33	0.19271	0.04640
3526.003	99.8	Apr 22	19:34:16	0.17768	0.05045
3526.101	24.3	Apr 22	17:00:45	0.35502	0.04050
3526.102	99.8	Apr 22	17:23:49	0.11931	0.03456
3526.103	99.8	Apr 22	18:07:46	-0.00802	0.03261
3526.104	99.8	Apr 22	19:20:19	0.00572	0.04623
3526.105	99.8	Apr 22	19:26:54	-0.01723	0.03838
3527.002	99.8	Apr 22	22:00:27	0.25098	0.05131
3527.102	24.3	Apr 22	21:04:21	0.39765	0.03713
3527.103	99.8	Apr 22	21:28:07	0.10755	0.03343
3527.104	99.8	Apr 22	21:53:08	0.02618	0.03770
3539.013	24.3	Apr 24	19:30:04	0.43118	0.02741
3539.014	99.8	Apr 24	20:04:36	0.32135	0.02970
3539.015	99.8	Apr 24	20:28:53	0.42480	0.04203
3539.016	99.8	Apr 24	21:20:30	0.33081	0.04076
3539.017	99.8	Apr 24	21:32:13	0.32421	0.04220
3539.112	24.3	Apr 24	19:35:52	0.41435	0.02411
3539.113	99.8	Apr 24	20:10:09	-0.02936	0.03064
3539.114	99.8	Apr 24	20:35:19	-0.00443	0.03266
3539.115	99.8	Apr 24	21:26:07	0.04479	0.05263
3540.001	99.8	Apr 24	22:32:47	0.27568	0.04962
3540.002	99.8	Apr 24	22:59:24	0.36181	0.02446
3540.101	99.8	Apr 24	22:27:31	-0.01392	0.02450
3540.102	99.8	Apr 24	22:52:28	-0.02970	0.02552
3545.002	99.8	Apr 25	13:06:01	0.30391	0.02993
3545.003	99.8	Apr 25	13:27:12	0.28022	0.03991
3545.101	24.3	Apr 25	10:54:57	-0.03738	0.03977
3545.102	24.3	Apr 25	12:25:55	0.42028	0.03902
3545.103	24.3	Apr 25	12:35:21	0.38964	0.03430
3545.104	99.8	Apr 25	12:58:54	0.25028	0.02451
3545.105	99.8	Apr 25	13:21:04	-0.03062	0.02866
3547.001	99.8	Apr 25	18:49:26	0.42194	0.02225
3547.002	99.8	Apr 25	19:03:42	0.30956	0.02264
3547.003	99.8	Apr 25	19:40:18	0.35948	0.02231
3547.004	99.8	Apr 25	21:58:52	0.31863	0.02283
3547.005	99.8	Apr 26	00:56:08	0.34255	0.02260
3547.006	99.8	Apr 26	04:09:09	0.34765	0.02278
3547.007	99.8	Apr 26	07:08:52	0.37223	0.02253
3547.008	99.8	Apr 26	09:29:31	0.34128	0.02263
3547.101	99.8	Apr 25	18:47:37	0.34034	0.02383
3547.103	99.8	Apr 25	19:02:08	0.28943	0.02388
3547.104	99.8	Apr 25	19:39:08	0.31964	0.02379
3547.105	99.8	Apr 25	21:52:11	0.31791	0.02388
3547.106	99.8	Apr 26	00:50:39	0.24138	0.02369
3547.107	99.8	Apr 26	04:06:31	0.23031	0.02387
3547.108	99.8	Apr 26	07:16:18	0.27032	0.02388
3547.109	99.8	Apr 26	09:35:59	0.23040	0.02379
3547.110	99.8	Apr 26	11:48:39	0.26889	0.02380
3549.002	24.3	Apr 26	22:09:41	0.13328	0.02731
3549.013	24.3	Apr 26	23:11:06	0.43966	0.02243
3549.014	99.8	Apr 26	23:25:55	0.30611	0.02364
3549.103	24.3	Apr 26	17:17:18	0.44757	0.04172
3549.105	24.3	Apr 26	18:23:41	0.37751	0.02367
3549.106	24.3	Apr 26	18:31:16	0.41309	0.02375
3549.107	24.3	Apr 26	18:34:25	0.29050	0.05849
3549.110	24.3	Apr 26	21:51:16	0.43242	0.02360
3549.111	24.3	Apr 26	22:30:08	0.41006	0.02423
3549.112	24.3	Apr 26	22:57:55	0.41049	0.02452
3549.113	99.8	Apr 26	23:23:23	0.26213	0.02403
3550.004	24.3	Apr 27	03:51:13	0.33857	0.05350
3551.101	24.3	Apr 27	08:13:26	0.37240	0.02378
3552.001	24.3	Apr 27	17:08:01	0.48688	0.02729
3552.101	24.3	Apr 27	17:00:59	0.35120	0.03218
3552.102	99.8	Apr 27	17:53:28	-0.00589	0.03382
3553.001	24.3	Apr 27	18:36:58	0.41833	0.02730
3553.101	24.3	Apr 27	18:46:59	0.30205	0.03089
3556.001	99.8	Apr 27	22:33:48	0.12613	0.04610
3563.001	99.8	Apr 28	07:17:02	0.35881	0.02353
3563.002	99.8	Apr 28	08:35:18	0.31700	0.02245
3563.003	99.8	Apr 28	08:38:16	0.28546	0.02354
3563.004	99.8	Apr 28	09:43:15	0.33263	0.02364
3563.101	99.8	Apr 28	07:14:23	-0.03878	0.02390
3568.101	99.8	Apr 28	14:04:48	0.00179	0.02382
3569.001	99.8	Apr 28	14:51:26	0.36482	0.02438
3569.101	99.8	Apr 28	14:58:03	0.29199	0.02409
3569.102	99.8	Apr 28	15:10:40	0.05399	0.02315
3571.001	99.8	Apr 28	15:10:40	0.05399	0.02315
3572.001	99.8	Apr 28	19:26:37	0.34569	0.02994
3572.101	24.3	Apr 28	18:53:54	0.44855	0.02844
3572.102	99.8	Apr 28	19:21:14	-0.05274	0.02688
3573.002	24.3	Apr 28	20:47:41	0.40077	0.03905
3573.101	24.3	Apr 28	21:01:42	0.38125	0.03603
3574.001	99.8	Apr 28	21:47:11	0.37525	0.03141
3574.002	99.8	Apr 28	22:01:30	0.43555	0.02970
3574.101	99.8	Apr 28	21:43:54	0.29006	0.02978
3574.102	99.8	Apr 28	21:58:03	0.01391	0.02825
3575.005	99.8	Apr 29	00:20:51	0.29309	0.02532
3575.101	24.3	Apr 28	23:58:49	0.37819	0.02715
3575.102	99.8	Apr 29	00:16:06	0.30179	0.02406
3575.103	99.8	Apr 29	00:29:39	-0.01535	0.02422
3576.001	24.3	Apr 29	01:27:20	0.43514	0.02865
3576.101	24.3	Apr 29	01:17:58	0.41421	0.02544
3578.001	24.3	Apr 29	04:16:11	0.40193	0.02857
3578.101	24.3	Apr 29	04:11:42	0.35551	0.03409
3578.102	24.3	Apr 29	04:23:45	0.35366	0.02826
3580.001	24.3	Apr 29	06:29:48	0.45621	0.02916
3580.002	99.8	Apr 29	06:56:53	0.33387	0.02396
3580.003	99.8	Apr 29	07:19:39	0.37156	0.03046
3580.101	24.3	Apr 29	06:17:46	0.38929	0.02817
3580.102	99.8	Apr 29	06:52:25	0.31444	0.02460
3580.103	99.8	Apr 29	07:13:42	0.19618	0.02833
3582.001	24.3	Apr 29	14:02:56	0.37083	0.02220
3582.002	24.3	Apr 29	14:09:59	0.38580	0.02228
3582.003	24.3	Apr 29	15:04:11	0.46420	0.02336
3582.004	99.8	Apr 29	15:14:09	0.09133	0.02205
3583.001	24.3	Apr 29	15:50:55	0.44620	0.02656
3583.002	99.8	Apr 29	16:21:52	0.17268	0.02387
3583.003	99.8	Apr 29	16:40:07	0.18439	0.02504
3583.101	24.3	Apr 29	15:57:50	0.39710	0.02395

3583.102	99.8	Apr 29	16:15:17	0.22008	0.02317
3583.103	99.8	Apr 29	16:45:45	0.18053	0.02444
3584.001	24.3	Apr 29	17:12:06	0.47281	0.03050
3584.002	99.8	Apr 29	17:45:44	0.31225	0.02911
3584.003	99.8	Apr 29	18:04:26	0.33524	0.02875
3584.101	24.3	Apr 29	17:17:41	0.43342	0.02871
3584.102	99.8	Apr 29	17:41:36	0.24301	0.02996
3584.103	99.8	Apr 29	17:59:52	0.19990	0.03268
3585.001	24.3	Apr 29	18:38:11	0.43470	0.03117
3585.002	99.8	Apr 29	19:00:34	0.40558	0.03316
3585.003	99.8	Apr 29	19:18:26	0.35548	0.03315
3585.101	24.3	Apr 29	18:44:00	0.42958	0.03350
3585.102	99.8	Apr 29	19:04:33	0.27309	0.03193
3585.103	99.8	Apr 29	19:22:42	0.30852	0.03253
3586.001	24.3	Apr 29	19:49:24	0.46259	0.02559
3586.002	99.8	Apr 29	20:13:52	0.35579	0.02366
3586.003	99.8	Apr 29	20:37:32	0.35869	0.02379
3586.004	99.8	Apr 29	20:39:56	0.34360	0.02371
3586.005	99.8	Apr 29	23:42:08	0.33079	0.02374
3586.101	24.3	Apr 29	19:53:00	0.44329	0.03048
3586.102	99.8	Apr 29	20:25:03	0.37306	0.02264
3586.103	99.8	Apr 29	20:33:53	0.37457	0.02297
3586.105	99.8	Apr 29	23:39:49	0.38914	0.02313
3587.001	24.3	Apr 30	00:53:28	0.49352	0.03237
3587.002	99.8	Apr 30	01:20:56	0.33255	0.02257
3587.003	99.8	Apr 30	01:58:22	0.35845	0.02369
3587.004	99.8	Apr 30	02:31:45	0.30526	0.02359
3587.005	99.8	Apr 30	04:19:58	0.30189	0.02336
3587.006	99.8	Apr 30	07:13:57	0.31049	0.02338
3587.007	99.8	Apr 30	09:21:58	0.37395	0.02356
3587.008	99.8	Apr 30	12:11:51	0.34704	0.02350
3587.009	99.8	Apr 30	13:10:09	0.37378	0.04564
3587.101	24.3	Apr 30	00:25:20	0.37807	0.02602
3587.102	99.8	Apr 30	01:23:11	0.27635	0.02431
3587.103	99.8	Apr 30	01:35:23	0.23577	0.02409
3587.104	99.8	Apr 30	01:59:52	0.32539	0.02408
3587.105	99.8	Apr 30	02:27:35	0.33639	0.02352
3587.106	99.8	Apr 30	04:21:46	0.27669	0.02412
3587.107	99.8	Apr 30	07:09:22	0.29571	0.02290
3587.108	99.8	Apr 30	09:23:19	0.28660	0.02411
3587.109	99.8	Apr 30	10:29:01	0.29217	0.02411
3587.110	99.8	Apr 30	12:04:55	0.21216	0.02409
3587.111	99.8	Apr 30	12:52:20	0.23642	0.02409
3587.112	99.8	Apr 30	13:08:44	0.34207	0.04752
3587.113	99.8	Apr 30	14:23:11	0.23629	0.02275
3588.001	24.3	Apr 30	16:10:49	0.42052	0.02256
3588.101	24.3	Apr 30	16:32:58	0.44827	0.02268
3588.102	24.3	Apr 30	17:01:50	0.44051	0.04345
3588.103	24.3	Apr 30	17:10:58	0.43688	0.05462
3589.001	24.3	Apr 30	18:48:52	0.41217	0.02252
3589.101	24.3	Apr 30	18:36:58	-0.31103	0.02250
3589.102	24.3	Apr 30	18:47:28	-0.32968	0.02242
3589.103	24.3	Apr 30	18:56:32	0.41008	0.02276
3590.001	24.3	Apr 30	19:46:24	0.41918	0.02384
3591.001	99.8	Apr 30	21:44:12	0.34099	0.02348
3591.002	99.8	May 1	00:04:33	0.36703	0.02609
3591.101	99.8	Apr 30	21:41:54	0.37084	0.02240
3591.102	99.8	May 1	00:02:33	0.37132	0.02419
3592.001	24.3	May 1	03:01:37	-0.23279	0.02850
3592.002	24.3	May 1	03:15:00	0.45969	0.03093
3592.101	24.3	May 1	02:55:22	0.39776	0.03138
3593.001	99.8	May 1	04:42:50	0.32861	0.02305
3593.101	99.8	May 1	04:41:48	0.27799	0.02230
3595.001	99.8	May 1	06:14:37	0.31129	0.02305
3595.002	99.8	May 1	06:28:04	0.30703	0.02397
3595.101	99.8	May 1	06:12:54	0.34619	0.02357
3595.102	99.8	May 1	06:26:53	0.27689	0.02254
3598.002	24.3	May 1	19:57:09	0.44594	0.03009
3598.101	24.3	May 1	19:53:03	0.23779	0.02951
3600.001	24.3	May 1	22:38:53	0.05227	0.02322
3600.002	24.3	May 1	23:22:09	-0.02652	0.02930
3600.101	24.3	May 1	22:52:46	0.29819	0.02397
3600.102	24.3	May 1	22:57:53	0.33521	0.02396
3602.001	24.3	May 2	01:02:06	0.33598	0.02230
3602.002	99.8	May 2	02:59:38	0.35883	0.02212
3602.101	24.3	May 2	01:18:46	0.31212	0.02387
3602.102	99.8	May 2	03:04:18	0.01723	0.02367
3603.001	24.3	May 2	04:54:17	-0.41110	0.02230
3603.002	99.8	May 2	05:53:18	0.32028	0.02279
3603.101	24.3	May 2	05:01:56	0.36728	0.02362
3603.102	99.8	May 2	05:48:00	0.00859	0.02382
3604.001	24.3	May 2	07:47:41	0.36462	0.02263
3604.002	99.8	May 2	08:26:01	0.30728	0.02237
3604.003	99.8	May 2	10:34:18	0.30808	0.02356
3604.101	24.3	May 2	07:43:07	-0.35137	0.02353
3604.102	99.8	May 2	08:19:46	0.27319	0.02359
3604.103	99.8	May 2	10:29:06	0.33325	0.02368
3606.002	24.3	May 2	16:36:25	0.37956	0.02228
3606.003	99.8	May 2	17:20:20	0.28689	0.02282
3606.004	99.8	May 2	20:11:20	0.27769	0.02299
3606.101	24.3	May 2	16:14:11	0.33609	0.04453
3606.102	24.3	May 2	16:34:18	0.28304	0.02399
3606.103	99.8	May 2	17:14:46	0.16700	0.02377
3606.104	99.8	May 2	20:04:53	0.17416	0.02369
3607.001	24.3	May 2	21:30:49	0.39650	0.02221
3607.101	24.3	May 2	21:25:31	0.32500	0.02364
3607.102	24.3	May 2	21:33:24	0.33378	0.02342
3608.101	24.3	May 2	22:58:34	0.37085	0.02806
3608.102	24.3	May 2	23:14:49	0.35163	0.03343
3608.103	24.3	May 2	23:19:40	0.35661	0.03333
3608.104	24.3	May 2	23:29:01	0.39030	0.02370
3610.001	24.3	May 3	02:19:17	0.39447	0.02879
3610.002	24.3	May 3	02:57:18	0.43576	0.02279
3610.101	24.3	May 3	02:08:32	0.42707	0.03324
3610.102	24.3	May 3	02:16:27	0.25389	0.02370
3610.103	24.3	May 3	02:28:21	0.42087	0.03333
3610.104	24.3	May 3	02:36:00	0.30109	0.02370
3610.105	24.3	May 3	02:38:19	0.31894	0.02378
3610.106	24.3	May 3	02:49:01	0.29928	0.02352
3610.107	24.3	May 3	02:50:44	0.36565	0.02335
3611.001	24.3	May 3	03:43:54	0.39956	0.02362
3611.002	24.3	May 3	03:45:51	0.37688	0.02235

3611.101	24.3	May 3	03:36:44	0.37347	0.02387
3612.001	24.3	May 3	04:35:26	0.45784	0.02280
3612.002	99.8	May 3	04:57:29	0.34101	0.02355
3612.003	99.8	May 3	05:13:53	0.33772	0.02296
3612.004	99.8	May 3	07:19:27	0.34824	0.02271
3612.005	99.8	May 3	09:16:40	0.34831	0.02339
3612.006	99.8	May 3	11:50:18	0.27833	0.02390
3612.101	24.3	May 3	04:33:16	0.35256	0.02387
3612.102	99.8	May 3	04:52:54	0.29162	0.02367
3612.103	99.8	May 3	05:08:56	0.31221	0.02359
3612.104	99.8	May 3	07:33:56	0.26175	0.02367
3612.105	99.8	May 3	09:22:29	0.29209	0.02358
3612.106	99.8	May 3	11:55:07	0.25164	0.02376
3613.001	24.3	May 3	14:48:49	0.44555	0.02239
3613.002	99.8	May 3	15:15:30	0.28062	0.02196
3613.003	99.8	May 3	17:27:59	0.30734	0.02239
3613.004	99.8	May 3	18:16:09	0.33375	0.02349
3613.101	24.3	May 3	14:38:38	0.33766	0.02381
3613.102	99.8	May 3	15:16:30	0.26257	0.02368
3613.103	99.8	May 3	17:32:43	0.23779	0.02376
3613.104	99.8	May 3	17:59:51	0.18255	0.02358
3613.105	99.8	May 3	18:14:11	0.22547	0.02359
3614.002	24.3	May 3	20:16:58	0.43901	0.02261
3614.003	99.8	May 3	20:36:31	0.30556	0.02198
3614.004	99.8	May 3	20:55:48	0.32092	0.02349
3614.005	99.8	May 3	22:52:17	0.32385	0.02353
3614.101	24.3	May 3	19:54:30	0.47784	0.02603
3614.102	99.8	May 3	20:31:27	0.25817	0.02384
3614.103	99.8	May 3	20:51:06	0.23527	0.02377
3614.104	99.8	May 3	22:46:49	0.29098	0.02376
3614.105	99.8	May 3	22:59:14	0.27519	0.02367
3615.001	24.3	May 3	23:36:16	0.39777	0.02362
3615.002	99.8	May 4	00:05:12	0.25419	0.02335
3615.003	99.8	May 4	00:31:24	0.27917	0.02318
3615.004	99.8	May 4	04:08:54	0.31497	0.02320
3615.005	99.8	May 4	04:58:23	0.27541	0.02422
3615.101	24.3	May 3	23:29:29	0.36682	0.02384
3615.102	24.3	May 3	23:31:32	0.37923	0.02388
3615.103	99.8	May 3	23:58:13	0.20773	0.02388
3615.104	99.8	May 4	00:23:43	0.28487	0.02372
3615.105	99.8	May 4	03:20:27	0.24155	0.02379
3615.106	99.8	May 4	04:55:47	0.17749	0.02379
3616.001	24.3	May 4	06:36:26	0.35021	0.02318
3616.101	24.3	May 4	06:41:25	0.39514	0.02423
3617.001	24.3	May 4	07:31:26	0.41415	0.02250
3617.002	99.8	May 4	08:01:36	0.32757	0.02306
3617.003	99.8	May 4	08:18:30	0.30626	0.02305
3617.004	99.8	May 4	08:28:17	0.28469	0.02290
3617.005	99.8	May 4	14:16:56	0.34455	0.02377
3617.101	24.3	May 4	07:22:26	0.45923	0.02374
3617.102	99.8	May 4	07:59:49	0.32057	0.02364
3617.103	99.8	May 4	08:17:06	0.22593	0.02364
3617.104	99.8	May 4	08:27:03	0.29876	0.02382
3617.105	99.8	May 4	14:15:21	0.27301	0.02368
3619.001	24.3	May 4	16:38:03	0.42150	0.02364
3619.101	24.3	May 4	16:10:30	0.37019	0.02392
3620.001	24.3	May 4	18:44:05	0.40720	0.02369
3620.002	99.8	May 4	19:14:54	0.26224	0.02290
3620.003	99.8	May 4	19:37:18	0.31946	0.02341
3620.004	99.8	May 4	21:43:13	0.26861	0.02359
3620.005	99.8	May 4	23:09:47	0.26907	0.02351
3620.101	24.3	May 4	18:36:59	0.37304	0.02394
3620.102	99.8	May 4	19:09:52	0.22249	0.02365
3620.103	99.8	May 4	19:32:08	0.27426	0.02214
3620.104	99.8	May 4	21:38:07	0.22738	0.02384
3620.105	99.8	May 4	23:03:57	0.21992	0.02366
3621.001	24.3	May 5	00:46:19	0.39072	0.02251
3621.002	99.8	May 5	01:09:40	0.28304	0.02348
3621.101	24.3	May 5	00:30:18	-0.39857	0.02382
3621.102	99.8	May 5	01:10:43	0.22438	0.02364
3622.001	24.3	May 5	02:19:08	0.38298	0.02360
3622.002	99.8	May 5	03:03:24	0.30359	0.02398
3622.003	99.8	May 5	05:15:28	0.30881	0.02362
3622.004	99.8	May 5	06:33:10	0.30166	0.02380
3622.101	24.3	May 5	02:11:09	0.41853	0.02390
3622.102	99.8	May 5	03:10:24	0.24731	0.02365
3622.103	99.8	May 5	03:51:36	0.25539	0.02366
3622.104	99.8	May 5	05:20:41	0.29381	0.02376
3622.105	99.8	May 5	06:30:27	0.27000	0.02622
3624.001	24.3	May 5	08:08:55	0.35241	0.02365
3624.002	24.3	May 5	08:23:01	0.42060	0.02936
3624.003	99.8	May 5	08:40:55	0.31457	0.02294
3624.004	99.8	May 5	09:00:27	0.29890	0.02353
3624.005	99.8	May 5	09:43:40	0.31460	0.02320
3624.101	24.3	May 5	07:58:04	0.45177	0.02424
3624.102	99.8	May 5	08:42:55	0.21425	0.02377
3624.103	99.8	May 5	08:57:55	0.22608	0.02383
3624.104	99.8	May 5	09:45:25	0.14133	0.02385
3624.105	99.8	May 5	09:47:29	0.26620	0.02377
3624.106	99.8	May 5	09:49:40	0.20123	0.02384
3624.107	99.8	May 5	09:51:23	0.20399	0.02359
3624.108	99.8	May 5	09:53:11	0.26493	0.02367
3624.109	99.8	May 5	09:54:30	0.20797	0.02383
3624.110	99.8	May 5	09:56:05	0.18702	0.02358
3625.001	24.3	May 5	13:29:33	0.39203	0.03219
3625.002	24.3	May 5	13:32:57	0.30566	0.02426
3625.003	24.3	May 5	14:18:32	0.37914	0.02396
3625.004	24.3	May 5	14:38:35	0.43366	0.02229
3625.005	24.3	May 5	14:49:57	0.39710	0.02211
3625.006	99.8	May 5	15:01:31	0.29642	0.02252
3625.007	99.8	May 5	15:26:38	0.28963	0.02690
3625.008	99.8	May 5	17:34:56	0.29094	0.02745
3625.101	24.3	May 5	13:38:47	0.46674	0.03379
3625.102	24.3	May 5	14:29:42	0.31939	0.02377
3625.103	24.3	May 5	14:30:53	0.39641	0.02401
3625.104	99.8	May 5	15:00:21	0.22102	0.02367
3625.105	99.8	May 5	15:24:24	0.20680	0.02758
3625.106	99.8	May 5	17:29:43	0.20574	0.02725
3627.001	24.3	May 5	19:30:37	0.34115	0.02583
3627.002	99.8	May 5	19:54:25	0.22995	0.02725
3627.101	24.3	May 5	19:25:44	0.33839	0.02752
3627.102	99.8	May 5	19:40:37	0.21245	0.02701

3627.103	99.8	May 5	19:58:25	0.16134	0.02734
3628.001	24.3	May 5	22:50:46	0.42921	0.02737
3628.101	24.3	May 5	22:46:14	0.32422	0.02765
3629.001	24.3	May 6	01:44:52	0.39221	0.02583
3629.002	99.8	May 6	02:13:58	0.26925	0.02704
3629.101	24.3	May 6	01:38:23	0.32876	0.02743
3629.102	99.8	May 6	02:15:52	0.24156	0.02724
3630.001	24.3	May 6	03:05:21	0.45030	0.02744
3630.002	99.8	May 6	04:06:26	0.28950	0.02587
3630.101	24.3	May 6	03:02:34	0.41994	0.02760
3630.102	24.3	May 6	03:18:05	0.36158	0.02760
3630.103	99.8	May 6	04:11:11	0.23465	0.02739
3634.001	24.3	May 6	07:40:45	0.41985	0.02552
3634.002	99.8	May 6	08:19:14	0.29427	0.02545
3634.003	99.8	May 6	08:34:32	0.32605	0.02563
3634.101	24.3	May 6	07:33:38	0.40550	0.02744
3634.102	99.8	May 6	08:21:07	0.28470	0.02720
3634.103	99.8	May 6	08:33:29	0.25791	0.02717
3637.001	24.3	May 6	11:43:12	0.31103	0.02827
3637.002	24.3	May 6	11:55:42	0.32867	0.02558
3637.003	24.3	May 6	11:57:00	0.33369	0.02549
3637.004	24.3	May 6	11:59:34	0.34637	0.02541
3637.005	24.3	May 6	12:04:03	0.36654	0.02566
3637.006	24.3	May 6	12:05:29	0.35891	0.02566
3637.007	24.3	May 6	12:07:39	0.31248	0.02549
3637.008	24.3	May 6	12:22:14	0.30411	0.02541
3637.009	24.3	May 6	12:41:04	0.33131	0.02540
3637.010	99.8	May 6	12:50:12	0.26292	0.02553
3637.011	99.8	May 6	13:05:19	0.29248	0.02707
3637.101	24.3	May 6	11:36:04	0.41539	0.02760
3637.102	24.3	May 6	12:32:10	0.37487	0.02764
3637.103	99.8	May 6	12:51:20	0.16234	0.02738
3637.104	99.8	May 6	13:04:24	0.21196	0.02703
3638.001	24.3	May 6	17:09:12	0.36065	0.02566
3638.101	24.3	May 6	16:43:47	0.32882	0.02761
3638.102	24.3	May 6	16:48:36	0.34673	0.02759
3638.103	24.3	May 6	16:59:51	0.34393	0.02767
3639.001	24.3	May 6	17:54:41	0.28349	0.03845
3639.002	24.3	May 6	17:58:47	0.30821	0.02966
3639.003	24.3	May 6	18:15:42	0.35507	0.02210
3639.101	24.3	May 6	17:47:44	0.39822	0.02393
3640.001	24.3	May 6	19:15:18	0.40170	0.02211
3640.002	99.8	May 6	19:25:21	0.28229	0.02207
3640.003	99.8	May 6	19:42:50	0.29220	0.02198
3640.101	24.3	May 6	19:08:01	0.37950	0.02394
3640.102	99.8	May 6	19:23:40	0.20704	0.02364
3640.103	99.8	May 6	19:40:57	0.23505	0.02381
3644.001	24.3	May 7	06:14:15	0.38962	0.02212
3644.002	99.8	May 7	06:41:23	0.34710	0.02216
3644.101	24.3	May 7	06:09:05	0.42816	0.02382
3644.103	99.8	May 7	06:48:41	0.03534	0.02382
3644.104	99.8	May 7	06:55:04	0.08389	0.02373
3646.001	24.3	May 7	09:20:02	0.39075	0.02213
3646.002	99.8	May 7	09:37:12	0.30674	0.02226
3646.003	99.8	May 7	09:59:59	0.28081	0.02252
3646.004	99.8	May 7	12:03:01	0.27203	0.02295
3646.005	99.8	May 7	14:07:25	0.26731	0.02206
3646.101	24.3	May 7	08:54:27	0.38774	0.02387
3646.102	24.3	May 7	09:13:28	0.33872	0.02397
3646.103	99.8	May 7	09:43:22	0.26160	0.02365
3646.104	99.8	May 7	09:57:26	0.11676	0.02372
3646.105	99.8	May 7	12:01:38	0.09721	0.02375
3646.106	99.8	May 7	14:09:14	0.02962	0.02376
3650.001	24.3	May 7	18:35:49	0.31910	0.02355
3650.002	99.8	May 7	18:45:31	0.27895	0.02199
3650.003	99.8	May 7	19:05:03	0.23202	0.02200
3650.004	99.8	May 7	19:34:32	0.22045	0.02200
3650.005	99.8	May 7	19:38:20	0.26233	0.02216
3650.006	99.8	May 7	19:40:40	0.24638	0.02199
3650.007	99.8	May 7	19:43:36	0.24192	0.02216
3650.008	99.8	May 7	19:45:32	0.23531	0.02216
3650.009	99.8	May 7	19:47:16	0.21961	0.02224
3650.010	99.8	May 7	19:49:08	0.21020	0.02216
3650.011	99.8	May 7	19:52:52	0.16857	0.02216
3650.012	99.8	May 7	19:54:48	0.18765	0.02198
3650.013	99.8	May 7	19:56:28	0.21348	0.02223
3650.101	24.3	May 7	18:27:55	0.24278	0.02378
3650.102	99.8	May 7	18:44:09	0.21683	0.02384
3650.103	99.8	May 7	19:03:37	0.16974	0.02367
3650.104	99.8	May 7	19:12:14	0.18002	0.02357
3650.105	99.8	May 7	19:14:19	0.18573	0.02365
3650.106	99.8	May 7	19:15:49	0.18892	0.02382
3654.001	99.8	May 8	00:58:40	0.26572	0.02215
3654.002	99.8	May 8	02:44:58	0.29551	0.02216
3654.101	24.3	May 8	00:01:18	0.00299	0.02380
3654.102	24.3	May 8	00:02:54	0.01305	0.02396
3654.103	24.3	May 8	00:22:04	0.34646	0.02388
3654.104	99.8	May 8	00:52:03	0.21795	0.02381
3654.105	99.8	May 8	02:50:30	0.25541	0.02357
3658.001	24.3	May 8	16:10:14	0.33644	0.02362
3658.101	24.3	May 8	15:43:05	0.31850	0.02372
3659.001	24.3	May 8	17:35:44	0.32837	0.02218
3659.002	99.8	May 8	17:44:08	0.28655	0.02215
3659.003	99.8	May 8	18:02:40	0.26149	0.02215
3659.101	24.3	May 8	17:28:21	0.30164	0.02389
3659.102	24.3	May 8	17:31:02	0.27214	0.02394
3659.103	99.8	May 8	17:45:16	0.20398	0.02354
3659.104	99.8	May 8	18:00:55	0.19975	0.02370
3669.001	24.3	May 9	16:15:29	0.36744	0.02229
3671.001	24.3	May 9	18:42:46	0.39124	0.02364
3671.002	99.8	May 9	18:56:04	0.34664	0.02335
3671.003	99.8	May 9	19:19:43	0.31510	0.02361
3671.004	99.8	May 9	21:19:20	0.34996	0.02269
3671.101	24.3	May 9	16:37:08	0.37158	0.03724
3671.105	24.3	May 9	18:22:27	0.46342	0.02864
3671.106	24.3	May 9	18:34:12	0.37244	0.02380
3671.107	99.8	May 9	18:53:05	0.23824	0.02364
3671.108	99.8	May 9	19:16:50	0.28165	0.02365
3671.109	99.8	May 9	21:21:03	0.34426	0.02375
3672.001	24.3	May 9	21:58:09	0.41423	0.02345
3672.002	99.8	May 9	22:28:15	0.31411	0.02307
3672.003	99.8	May 10	00:50:04	0.29427	0.02225

3672.004	99.8	May 10	00:51:32	0.34144	0.02368
3672.101	24.3	May 9	21:51:35	0.44723	0.02789
3672.102	99.8	May 9	22:29:48	0.34114	0.02366
3672.103	99.8	May 10	00:56:24	0.34114	0.02366
3673.001	24.3	May 10	01:40:18	0.40169	0.03135
3673.101	24.3	May 10	01:32:43	0.33819	0.03373
3674.001	24.3	May 10	02:24:41	0.40461	0.03113
3674.002	99.8	May 10	02:50:28	0.32573	0.03314
3674.101	24.3	May 10	02:16:43	0.41342	0.03371
3674.102	99.8	May 10	02:51:41	0.36443	0.03333
3675.001	24.3	May 10	08:36:01	0.35942	0.03028
3675.002	99.8	May 10	09:07:04	0.28509	0.03286
3675.003	99.8	May 10	09:32:28	0.19837	0.03292
3675.004	99.8	May 10	09:35:46	0.29411	0.03283
3675.005	99.8	May 10	11:41:39	0.26317	0.02345
3675.101	24.3	May 10	08:26:19	-0.10426	0.03359
3675.102	24.3	May 10	08:43:33	0.34970	0.03380
3675.103	99.8	May 10	09:04:36	0.31577	0.03340
3675.104	99.8	May 10	09:30:38	0.32223	0.03333
3675.105	99.8	May 10	11:32:52	0.21087	0.02367
3675.106	99.8	May 10	11:58:52	0.23616	0.02368
3675.107	99.8	May 10	12:51:52	0.08806	0.02376
3675.108	99.8	May 10	12:55:05	0.05764	0.04281
3676.001	24.3	May 10	13:50:24	0.39052	0.03088
3676.002	99.8	May 10	14:01:16	0.27962	0.03269
3676.003	99.8	May 10	14:45:08	0.30543	0.02358
3676.004	99.8	May 10	16:26:10	0.27531	0.02294
3676.005	99.8	May 10	16:32:42	0.27265	0.02360
3676.101	24.3	May 10	13:38:40	0.40128	0.03375
3676.102	99.8	May 10	13:59:05	0.34356	0.03335
3676.103	99.8	May 10	14:40:56	0.27335	0.03352
3676.104	99.8	May 10	14:42:23	0.25282	0.02367
3676.105	99.8	May 10	16:12:07	0.14446	0.02377
3676.106	99.8	May 10	16:35:46	0.13297	0.02376
3676.107	99.8	May 10	16:38:37	0.16682	0.02376
3677.001	24.3	May 10	17:56:54	0.34924	0.03147
3677.002	24.3	May 10	18:21:09	0.31878	0.03317
3677.003	99.8	May 10	18:33:20	0.27377	0.03068
3677.004	99.8	May 10	18:57:16	0.27811	0.02220
3677.005	99.8	May 10	21:30:00	0.28139	0.02226
3677.101	24.3	May 10	17:43:35	-0.04215	0.03377
3677.102	24.3	May 10	18:12:03	0.37123	0.03369
3677.103	99.8	May 10	18:32:06	0.29251	0.03359
3677.104	99.8	May 10	18:53:35	0.22803	0.03354
3677.105	99.8	May 10	19:03:14	0.27061	0.02367
3677.106	99.8	May 10	21:22:15	0.19250	0.02377
3677.107	99.8	May 10	21:36:45	0.23818	0.02376
3677.108	99.8	May 10	22:02:15	0.20872	0.02368
3678.001	24.3	May 11	00:05:08	0.30187	0.03120
3678.002	99.8	May 11	00:27:15	0.23623	0.03465
3678.003	99.8	May 11	00:37:25	0.33053	0.03149
3678.004	99.8	May 11	00:38:27	0.24524	0.02222
3678.005	99.8	May 11	00:39:36	0.28142	0.02230
3678.006	99.8	May 11	02:35:27	0.28816	0.02239
3678.101	24.3	May 10	23:57:18	0.00000	0.00015
3678.102	24.3	May 10	23:58:00	0.37469	0.02385
3678.103	99.8	May 11	00:30:18	0.30130	0.02366
3678.104	99.8	May 11	02:36:56	0.21434	0.02368
3679.001	24.3	May 11	03:57:11	0.34166	0.02549
3679.002	99.8	May 11	04:14:14	0.28371	0.02317
3679.003	99.8	May 11	06:52:15	0.28049	0.02312
3679.004	99.8	May 11	08:09:16	0.30707	0.02284
3679.101	24.3	May 11	03:46:35	0.37806	0.02539
3679.102	99.8	May 11	04:15:26	0.23810	0.02366
3679.103	99.8	May 11	04:21:43	0.29259	0.02366
3679.104	99.8	May 11	06:34:37	0.22983	0.02376
3679.105	99.8	May 11	08:05:49	0.17151	0.02377
3680.001	24.3	May 11	09:37:12	0.37657	0.03137
3680.002	99.8	May 11	09:48:17	0.28150	0.02358
3680.003	99.8	May 11	10:02:05	0.23752	0.02358
3680.004	99.8	May 11	10:41:50	0.27125	0.02197
3680.005	99.8	May 11	10:48:46	0.26437	0.02357
3680.006	99.8	May 11	12:51:32	0.29096	0.02201
3680.101	24.3	May 11	09:17:43	-0.00474	0.03358
3680.102	24.3	May 11	09:28:38	0.37727	0.03369
3680.103	99.8	May 11	09:46:04	0.22560	0.02358
3680.104	99.8	May 11	09:59:33	0.28930	0.02358
3680.105	99.8	May 11	12:43:29	0.16680	0.02383
3680.106	99.8	May 11	12:52:58	0.13803	0.02382
3681.002	99.8	May 11	14:45:08	0.22693	0.03212
3681.003	99.8	May 11	15:13:04	0.25142	0.02219
3681.004	99.8	May 11	15:18:42	0.24904	0.02227
3681.005	99.8	May 11	15:21:18	0.28680	0.02203
3681.006	99.8	May 11	15:34:22	0.27196	0.02212
3681.007	99.8	May 11	17:24:50	0.26837	0.02237
3681.101	24.3	May 11	14:09:00	0.36231	0.03368
3681.102	24.3	May 11	14:23:54	0.34204	0.03376
3681.103	99.8	May 11	14:43:23	0.29495	0.03360
3681.104	99.8	May 11	14:56:29	0.31556	0.02366
3681.105	99.8	May 11	15:35:51	0.20682	0.02359
3681.106	99.8	May 11	15:47:37	0.27011	0.02366
3681.107	99.8	May 11	17:21:23	0.13658	0.02359
3681.108	99.8	May 11	17:26:59	0.18871	0.02367
3682.001	24.3	May 11	18:59:07	0.33894	0.02365
3682.002	99.8	May 11	19:38:57	0.26955	0.02255
3682.101	24.3	May 11	18:51:21	0.36768	0.03056
3682.102	99.8	May 11	19:27:40	0.18573	0.02366
3682.103	99.8	May 11	19:34:58	0.15797	0.02375
3682.104	99.8	May 11	19:45:55	0.19398	0.02375
3683.001	24.3	May 11	21:52:15	0.41860	0.02381
3683.101	24.3	May 11	21:45:51	0.38826	0.03376
3684.001	24.3	May 11	23:14:34	0.33067	0.02478
3684.002	99.8	May 11	23:35:41	0.26035	0.03152
3684.003	99.8	May 11	23:45:44	0.32843	0.02233
3684.101	24.3	May 11	23:09:03	0.41428	0.03373
3684.102	99.8	May 11	23:32:35	0.09482	0.03354
3684.103	99.8	May 11	23:52:29	0.08430	0.02369
3687.001	24.3	May 12	05:27:38	0.33892	0.02365
3687.002	99.8	May 12	05:40:59	0.28296	0.02230
3687.003	99.8	May 12	05:55:15	0.27540	0.02216
3687.101	24.3	May 12	05:21:50	0.34637	0.02401
3687.102	99.8	May 12	05:36:59	0.30765	0.02367

3687.103	99.8	May 12	05:51:50	0.10687	0.02366
3688.001	24.3	May 12	06:54:27	0.39336	0.03172
3688.002	99.8	May 12	07:07:21	0.28954	0.02268
3688.003	99.8	May 12	07:23:13	0.30800	0.02280
3688.101	24.3	May 12	06:47:28	0.37272	0.03378
3688.102	99.8	May 12	07:04:07	0.28631	0.02375
3688.103	99.8	May 12	07:20:08	0.06948	0.02240
3688.104	99.8	May 12	07:25:19	0.04513	0.02374
3689.001	24.3	May 12	08:19:04	0.29820	0.03130
3689.002	24.3	May 12	08:20:25	0.30096	0.03096
3689.003	24.3	May 12	08:26:49	0.26294	0.03131
3689.004	24.3	May 12	08:28:38	0.33238	0.02244
3689.005	24.3	May 12	08:31:18	0.29588	0.02252
3689.101	24.3	May 12	08:09:29	0.41534	0.03377
3689.102	24.3	May 12	09:00:30	0.26148	0.03362
3691.001	24.3	May 12	11:08:21	0.38315	0.03130
3691.002	24.3	May 12	11:12:59	0.39794	0.03154
3691.003	24.3	May 12	11:29:31	0.31941	0.03345
3691.004	24.3	May 12	11:38:49	0.36626	0.03152
3691.005	99.8	May 12	11:59:42	0.27250	0.02219
3691.006	99.8	May 12	12:15:11	0.30303	0.02226
3691.007	99.8	May 12	13:10:37	0.29141	0.02234
3691.008	99.8	May 12	14:21:53	0.28863	0.02302
3691.101	24.3	May 12	10:50:27	0.41786	0.03384
3691.102	24.3	May 12	10:53:33	0.38294	0.03375
3691.103	24.3	May 12	11:04:02	0.40666	0.03418
3691.104	24.3	May 12	11:23:04	0.41090	0.03385
3691.105	99.8	May 12	11:56:20	0.28317	0.02375
3691.106	99.8	May 12	12:12:24	0.25998	0.02375
3691.107	99.8	May 12	13:15:02	0.28327	0.02369
3691.108	99.8	May 12	14:17:18	0.24904	0.02360
3693.001	24.3	May 12	16:35:09	0.38320	0.03330
3693.002	99.8	May 12	16:44:32	0.29870	0.03118
3693.003	99.8	May 12	17:08:37	0.29672	0.02217
3693.004	99.8	May 12	18:19:30	0.29103	0.02219
3693.005	99.8	May 12	19:24:56	0.29521	0.02210
3693.006	99.8	May 12	20:19:50	0.29082	0.02218
3693.007	99.8	May 12	21:21:08	0.29666	0.02248
3693.008	99.8	May 12	21:49:33	0.30181	0.02229
3693.101	24.3	May 12	16:27:21	0.42009	0.03374
3693.102	99.8	May 12	16:45:48	0.30455	0.03360
3693.103	99.8	May 12	17:10:06	0.33411	0.02367
3693.104	99.8	May 12	18:22:02	0.24567	0.02376
3693.105	99.8	May 12	19:19:50	0.26531	0.02377
3693.106	99.8	May 12	20:22:17	0.24595	0.02377
3693.107	99.8	May 12	21:16:59	0.24224	0.02377
3693.108	99.8	May 12	21:52:20	0.21982	0.02378
3696.001	24.3	May 13	00:36:07	0.34944	0.02218
3696.002	99.8	May 13	00:54:27	0.27261	0.02346
3696.003	99.8	May 13	01:19:33	0.28065	0.02226
3696.101	24.3	May 13	00:25:42	0.41389	0.02388
3696.102	99.8	May 13	00:51:06	0.28868	0.02375
3696.103	99.8	May 13	01:15:44	0.29796	0.02376
3698.001	24.3	May 13	11:59:13	0.30783	0.03299
3698.002	24.3	May 13	12:01:29	0.30142	0.02362
3698.003	24.3	May 13	12:16:28	0.40947	0.03297
3698.004	99.8	May 13	12:49:03	0.29020	0.02358
3698.005	99.8	May 13	14:33:40	0.27907	0.02345
3698.101	24.3	May 13	10:29:47	0.25880	0.03364
3698.102	24.3	May 13	10:32:55	0.31423	0.02391
3698.103	24.3	May 13	10:43:53	0.24130	0.03371
3698.104	24.3	May 13	11:35:59	0.37985	0.03379
3698.105	99.8	May 13	13:11:53	0.29308	0.02376
3698.106	99.8	May 13	14:35:45	0.17059	0.02379
3698.107	99.8	May 13	14:56:41	0.17169	0.02378
3699.001	24.3	May 13	16:22:35	0.33554	0.02209
3699.002	99.8	May 13	16:31:54	0.28613	0.02199
3699.003	99.8	May 13	16:51:53	0.28315	0.02223
3699.004	99.8	May 13	18:36:43	0.31132	0.02226
3699.101	24.3	May 13	16:09:21	0.40043	0.02388
3699.102	99.8	May 13	16:33:33	0.27843	0.02367
3699.103	99.8	May 13	16:48:54	0.24983	0.02365
3699.104	99.8	May 13	18:40:55	0.14297	0.02379
3700.001	24.3	May 13	20:51:46	0.32683	0.02244
3700.002	99.8	May 13	21:02:04	0.30065	0.02231
3700.101	24.3	May 13	20:06:25	0.37821	0.02373
3700.102	24.3	May 13	20:45:17	0.40305	0.02384
3700.103	99.8	May 13	21:03:17	0.27654	0.02374
3701.001	24.3	May 13	22:03:17	0.35544	0.02226
3701.101	24.3	May 13	21:54:24	0.41872	0.02384
3702.001	24.3	May 13	23:22:39	0.36512	0.02361
3702.002	99.8	May 13	23:32:31	0.30073	0.02281
3702.003	99.8	May 13	23:51:43	0.30832	0.02257
3702.101	24.3	May 13	23:10:23	0.42603	0.02384
3702.102	99.8	May 13	23:33:50	0.25469	0.02365
3702.103	99.8	May 13	23:48:06	0.18278	0.02374
3703.001	24.3	May 14	02:04:33	0.39833	0.03237
3703.002	99.8	May 14	02:21:07	0.29227	0.02248
3703.003	99.8	May 14	02:42:44	0.32217	0.02283
3703.101	24.3	May 14	01:59:01	0.37637	0.02389
3703.102	99.8	May 14	02:34:26	0.15887	0.02357
3703.103	99.8	May 14	02:54:25	0.06265	0.02358
3704.001	24.3	May 14	04:53:34	0.36837	0.03092
3704.101	24.3	May 14	04:44:54	0.40340	0.02383
3705.001	24.3	May 14	05:42:48	0.37142	0.03135
3705.002	99.8	May 14	05:51:53	0.28686	0.02214
3705.003	99.8	May 14	06:21:13	0.29967	0.02351
3705.004	99.8	May 14	08:29:41	0.32159	0.02351
3705.005	99.8	May 14	09:43:11	0.29244	0.02226
3705.101	24.3	May 14	05:35:51	0.36202	0.03356
3705.102	24.3	May 14	05:38:07	0.40219	0.03382
3705.103	99.8	May 14	05:53:04	0.28244	0.02373
3705.104	99.8	May 14	06:12:37	0.25420	0.02374
3705.105	99.8	May 14	08:41:38	0.16560	0.02375
3705.106	99.8	May 14	09:38:33	0.18299	0.02376
3706.001	24.3	May 14	10:29:34	0.35841	0.02368
3706.002	24.3	May 14	10:31:24	0.35554	0.02216
3706.003	24.3	May 14	10:57:08	0.40805	0.03084
3706.101	24.3	May 14	10:50:38	0.37151	0.02395
3707.001	24.3	May 14	11:50:53	0.34175	0.03347
3707.101	24.3	May 14	11:42:53	0.41790	0.03369
3708.001	24.3	May 14	12:42:28	0.33429	0.03313

3708.002	99.8	May 14	12:50:55	0.27650	0.02350
3708.003	99.8	May 14	13:18:48	0.28416	0.02267
3708.004	99.8	May 14	14:28:41	0.29951	0.02352
3708.005	99.8	May 14	15:38:14	0.30477	0.02370
3708.006	99.8	May 14	16:40:02	0.31064	0.02354
3708.007	99.8	May 14	17:11:38	0.30831	0.02286
3708.101	24.3	May 14	12:36:01	0.47589	0.03364
3708.102	99.8	May 14	12:57:04	0.26087	0.02375
3708.103	99.8	May 14	13:10:55	0.31302	0.02375
3708.104	99.8	May 14	14:34:36	0.25576	0.02376
3708.105	99.8	May 14	15:40:37	0.23866	0.02376
3708.106	99.8	May 14	16:35:56	0.20467	0.02376
3708.107	99.8	May 14	17:23:12	0.07469	0.02259
3709.001	24.3	May 14	18:10:32	0.33778	0.02250
3709.002	99.8	May 14	18:27:40	0.30580	0.02339
3709.003	99.8	May 14	18:44:51	0.32644	0.02345
3709.004	99.8	May 14	19:27:17	0.33847	0.02348
3709.101	24.3	May 14	17:55:10	0.34513	0.02385
3709.102	99.8	May 14	18:42:27	0.20817	0.02375
3709.103	99.8	May 14	19:20:48	0.11414	0.02377
3710.001	24.3	May 14	20:09:23	-0.03005	0.02325
3710.002	99.8	May 14	20:19:54	0.00000	0.02346
3710.003	99.8	May 14	20:22:01	-0.03201	0.02204
3710.101	24.3	May 14	19:57:30	0.39293	0.02386
3710.102	99.8	May 14	20:23:14	0.25386	0.02365
3713.001	24.3	May 14	22:07:53	0.38982	0.02208
3713.002	99.8	May 14	22:23:04	0.30484	0.02188
3713.003	99.8	May 14	22:40:52	0.32439	0.02206
3713.004	99.8	May 15	00:19:23	0.32925	0.02190
3713.005	99.8	May 15	01:30:26	0.28663	0.02183
3713.006	99.8	May 15	02:26:27	0.31359	0.02351
3713.007	99.8	May 15	03:24:10	0.29255	0.02201
3713.008	99.8	May 15	05:30:57	0.33649	0.02344
3713.101	24.3	May 14	22:02:48	0.38788	0.02404
3713.102	99.8	May 14	22:24:19	0.24356	0.02356
3713.103	99.8	May 14	22:37:04	0.32807	0.02356
3713.104	99.8	May 15	00:09:46	0.30294	0.02367
3713.105	99.8	May 15	01:17:04	0.29351	0.02383
3713.106	99.8	May 15	02:22:30	0.32121	0.02376
3713.107	99.8	May 15	03:20:32	0.30870	0.02367
3713.108	99.8	May 15	05:55:47	0.22842	0.02376
3714.001	24.3	May 15	06:39:12	0.41099	0.03089
3714.002	99.8	May 15	06:51:43	0.28341	0.02347
3714.003	99.8	May 15	07:14:20	0.33286	0.02208
3714.004	99.8	May 15	08:22:15	0.27017	0.02356
3714.005	99.8	May 15	09:27:30	0.28516	0.02190
3714.006	99.8	May 15	10:36:50	0.34440	0.02342
3714.007	99.8	May 15	11:47:18	0.32201	0.02211
3714.101	24.3	May 15	06:30:51	0.42654	0.02292
3714.102	99.8	May 15	06:47:32	0.20877	0.02365
3714.103	99.8	May 15	07:10:28	0.23986	0.02373
3714.104	99.8	May 15	08:13:23	0.25298	0.02367
3714.105	99.8	May 15	09:18:40	0.29913	0.02376
3714.106	99.8	May 15	10:44:27	0.29705	0.02376
3714.107	99.8	May 15	12:05:35	0.25339	0.02375
3720.001	24.3	May 15	19:27:56	0.42079	0.03124
3720.002	99.8	May 15	19:41:27	0.28666	0.03296
3720.003	99.8	May 15	20:33:24	0.27603	0.03327
3720.004	99.8	May 15	22:02:47	0.27837	0.02214
3720.005	99.8	May 15	23:15:04	0.29194	0.02190
3720.006	99.8	May 16	00:04:27	0.31104	0.02282
3720.103	24.3	May 15	19:25:05	0.36264	0.03760
3720.104	99.8	May 15	19:38:20	0.22356	0.03720
3720.105	99.8	May 15	19:57:30	0.13434	0.05510
3720.106	99.8	May 15	20:21:14	0.16442	0.05920
3720.107	99.8	May 15	20:31:14	0.22523	0.03709
3720.108	99.8	May 15	22:04:20	0.26200	0.02644
3720.109	99.8	May 15	23:11:14	0.19973	0.02636
3720.110	99.8	May 16	00:08:06	0.26124	0.02627
3721.001	24.3	May 16	01:32:26	0.20414	0.03018
3721.002	99.8	May 16	01:56:15	0.27128	0.02265
3721.004	99.8	May 16	02:20:40	0.31233	0.02352
3721.005	99.8	May 16	02:43:08	0.33146	0.02237
3721.006	99.8	May 16	03:45:13	0.26348	0.02213
3721.007	99.8	May 16	04:57:31	0.33314	0.02350
3721.008	99.8	May 16	06:27:39	0.25657	0.02342
3721.101	24.3	May 16	01:20:10	0.35792	0.02618
3721.102	99.8	May 16	01:58:18	0.22168	0.02644
3721.103	99.8	May 16	02:10:43	0.25257	0.02631
3721.104	99.8	May 16	02:40:15	0.31114	0.02641
3721.105	99.8	May 16	03:47:35	0.23070	0.02643
3721.106	99.8	May 16	04:54:20	0.28413	0.02653
3721.107	99.8	May 16	06:18:19	0.28673	0.02652
3724.001	24.3	May 16	18:48:39	0.27054	0.03349
3724.103	24.3	May 16	18:16:18	0.38533	0.02614
3724.104	24.3	May 16	18:39:03	0.38880	0.03681
3725.001	24.3	May 16	19:41:01	0.37806	0.03122
3725.002	99.8	May 16	19:54:02	0.37806	0.03122
3725.101	24.3	May 16	19:30:36	0.25571	0.03686
3725.102	24.3	May 16	19:34:59	0.27230	0.03695
3725.103	99.8	May 16	19:49:54	0.20477	0.02627
3731.001	24.3	May 17	04:47:24	0.39064	0.03090
3731.003	99.8	May 17	05:08:59	0.34059	0.02224
3731.004	99.8	May 17	05:13:29	0.32523	0.02206
3731.005	99.8	May 17	05:27:17	0.29437	0.02195
3731.101	24.3	May 17	04:38:06	0.43768	0.03700
3731.102	99.8	May 17	04:55:04	0.30230	0.02597
3731.103	99.8	May 17	05:29:21	0.28516	0.02639
3731.104	99.8	May 17	05:42:51	0.28813	0.02625
3731.105	99.8	May 17	05:45:31	0.27300	0.02608
3732.001	24.3	May 17	09:08:45	0.39927	0.02234
3732.002	99.8	May 17	09:20:10	0.33906	0.02366
3732.003	99.8	May 17	09:45:19	0.25868	0.02354
3732.004	99.8	May 17	11:20:18	0.16907	0.02274
3732.005	99.8	May 17	11:27:16	0.24168	0.02273
3732.006	99.8	May 17	12:37:40	0.22801	0.02233
3732.007	99.8	May 17	14:27:00	0.20400	0.02336
3732.101	24.3	May 17	09:00:27	0.36958	0.02623
3732.102	99.8	May 17	09:16:46	0.16665	0.02594
3732.103	99.8	May 17	09:23:03	0.28333	0.02611
3732.104	99.8	May 17	09:43:03	0.28319	0.02581
3732.105	99.8	May 17	11:17:59	0.23840	0.02600

3732.106	99.8	May 17	12:42:27	0.22480	0.02599
3732.107	99.8	May 17	14:24:35	0.26236	0.02602
3733.001	24.3	May 17	15:58:55	0.42447	0.02191
3733.002	99.8	May 17	16:15:55	0.29596	0.02231
3733.004	99.8	May 17	16:57:51	0.32939	0.02203
3733.005	99.8	May 17	19:57:00	0.32618	0.02200
3733.006	99.8	May 17	21:10:40	0.27260	0.02193
3733.101	24.3	May 17	15:48:06	0.39628	0.02620
3733.102	99.8	May 17	16:13:44	0.19626	0.02623
3733.103	99.8	May 17	16:20:23	0.22751	0.02608
3733.104	99.8	May 17	16:48:52	0.26397	0.02603
3733.105	99.8	May 17	19:58:52	0.23118	0.02637
3733.106	99.8	May 17	21:06:57	0.19146	0.02638
3734.001	24.3	May 17	23:15:51	0.40421	0.03298
3734.002	99.8	May 17	23:24:09	0.30299	0.02189
3734.003	99.8	May 17	23:51:12	0.32104	0.02195
3734.101	24.3	May 17	23:05:24	0.38648	0.02599
3734.102	99.8	May 17	23:30:47	0.23682	0.02604
3734.103	99.8	May 17	23:44:50	0.21704	0.02611
3735.001	24.3	May 18	01:21:07	0.41174	0.03332
3735.002	24.3	May 18	02:21:15	0.38299	0.03333
3735.003	99.8	May 18	02:37:37	0.31697	0.02216
3735.004	99.8	May 18	03:07:12	0.30289	0.02196
3735.101	24.3	May 18	02:12:46	0.33177	0.03694
3735.102	24.3	May 18	02:15:35	0.35556	0.03707
3735.103	99.8	May 18	02:29:32	0.17922	0.02589
3735.104	99.8	May 18	02:59:09	0.23861	0.02597
3735.105	99.8	May 18	04:19:23	0.22367	0.02587
3737.001	24.3	May 18	05:07:54	-0.08781	0.03291
3737.002	24.3	May 18	10:14:20	0.00646	0.03106
3737.101	24.3	May 18	05:02:30	-0.06269	0.03673
3737.102	24.3	May 18	05:05:23	0.06153	0.03719
3737.103	24.3	May 18	05:15:55	-0.04502	0.03740
3737.104	24.3	May 18	10:15:30	-0.04555	0.03727
3739.001	24.3	May 18	14:09:48	0.49672	0.03098
3739.002	24.3	May 18	14:11:17	0.44851	0.02191
3739.101	24.3	May 18	13:43:58	0.48952	0.03677
3739.102	24.3	May 18	13:57:29	0.41182	0.03697
3740.001	24.3	May 18	14:58:17	0.45227	0.02350
3740.002	99.8	May 18	15:08:15	0.33927	0.02407
3740.101	24.3	May 18	14:47:51	0.38932	0.03703
3740.102	99.8	May 18	15:06:31	0.24091	0.03688
3742.001	99.8	May 18	17:21:19	0.39097	0.03130
3742.101	24.3	May 18	16:37:51	0.42612	0.03676
3742.102	24.3	May 18	16:50:49	0.39437	0.03691
3742.103	99.8	May 18	17:20:08	0.19486	0.03716
3742.104	99.8	May 18	17:42:37	0.28605	0.03697
3746.001	99.8	May 19	20:14:14	0.41596	0.03769
3747.001	24.3	May 19	22:55:19	0.37611	0.03679
3747.002	99.8	May 19	23:08:40	0.28526	0.03638
3747.101	24.3	May 19	22:21:13	0.42867	0.03696
3747.102	24.3	May 19	22:46:29	0.40001	0.03646
3747.103	99.8	May 19	23:06:05	0.29252	0.03668
3748.001	99.8	May 20	00:59:41	0.35331	0.03638
3748.101	24.3	May 20	00:32:40	0.43307	0.03641
3748.102	99.8	May 20	01:01:17	0.26406	0.03634
3749.001	24.3	May 20	02:44:48	0.32981	0.03691
3749.002	99.8	May 20	02:49:29	0.34581	0.03713
3749.101	24.3	May 20	02:27:58	0.42656	0.03644
3749.102	99.8	May 20	02:51:31	0.32488	0.03646
3750.001	99.8	May 20	04:51:58	0.31988	0.03687
3750.101	24.3	May 20	04:36:59	0.44352	0.03674
3750.102	99.8	May 20	04:53:18	0.36990	0.03620
3751.001	24.3	May 20	14:40:19	0.39605	0.03699
3751.002	99.8	May 20	14:49:20	0.37497	0.02682
3751.002	99.8	May 20	14:49:20	0.37497	0.02682
3751.101	24.3	May 20	14:29:47	0.36047	0.03670
3751.102	99.8	May 20	14:47:29	0.29108	0.03634
3752.001	99.8	May 20	19:56:29	0.36549	0.02654
3755.001	24.3	May 21	06:13:11	0.38612	0.02641
3756.001	99.8	May 21	07:36:12	0.37228	0.03736
3756.002	99.8	May 21	20:04:22	0.34034	0.03738
3756.003	99.8	May 21	20:32:13	0.36698	0.02657
3756.101	99.8	May 21	07:30:36	0.36498	0.02229
3756.102	99.8	May 21	20:07:42	0.30996	0.03553
3756.103	99.8	May 21	20:22:32	0.30933	0.02829
3757.001	24.3	May 22	00:15:33	0.36717	0.03695
3757.002	99.8	May 22	00:24:52	0.30298	0.02617
3757.003	99.8	May 22	01:04:23	0.29509	0.02627
3757.004	99.8	May 22	02:20:36	0.32220	0.02635
3757.005	99.8	May 22	03:46:35	0.29725	0.02637
3757.006	99.8	May 22	04:37:48	0.26408	0.02653
3757.101	99.8	May 22	00:47:16	0.34147	0.02363
3757.102	99.8	May 22	01:01:18	0.32739	0.02342
3757.103	99.8	May 22	02:22:58	0.36104	0.02388
3757.104	99.8	May 22	03:40:42	0.31512	0.02380
3757.105	99.8	May 22	04:40:56	0.29581	0.02388
3759.001	24.3	May 22	06:23:20	0.34559	0.02627
3759.002	24.3	May 22	07:31:05	0.31392	0.02627
3759.003	99.8	May 22	07:48:26	0.29162	0.02617
3759.004	99.8	May 22	09:28:57	0.29572	0.02644
3759.005	99.8	May 22	12:34:09	0.32897	0.02628
3759.006	99.8	May 22	14:16:06	0.35267	0.02671
3759.007	99.8	May 22	14:35:12	0.30728	0.02672
3759.101	24.3	May 22	06:15:53	0.37415	0.02247
3759.102	99.8	May 22	07:43:56	0.32608	0.02376
3759.103	99.8	May 22	09:35:42	0.34963	0.02388
3759.104	99.8	May 22	12:25:34	0.39949	0.02379
3759.105	99.8	May 22	14:17:45	0.38792	0.02802
3762.001	24.3	May 22	20:44:27	0.34091	0.03703
3763.001	24.3	May 22	22:40:42	0.36998	0.03685
3764.001	24.3	May 23	01:06:58	0.35329	0.03718
3764.002	99.8	May 23	01:31:38	0.35729	0.03742
3764.003	99.8	May 23	01:36:12	0.27144	0.02632
3764.004	99.8	May 23	03:04:25	0.34072	0.02633
3764.005	99.8	May 23	04:12:52	0.28777	0.02642
3764.006	99.8	May 23	05:44:15	0.28665	0.02635
3764.101	99.8	May 23	01:44:25	0.36355	0.02439
3764.102	99.8	May 23	03:12:58	0.32076	0.02447
3764.103	99.8	May 23	04:22:03	0.33652	0.02558
3764.104	99.8	May 23	05:51:39	0.37200	0.02667
3765.001	24.3	May 23	07:29:18	0.38523	0.02625

3765.002	99.8	May 23	08:33:43	0.33304	0.02632
3765.003	99.8	May 23	10:09:03	0.27023	0.02643
3765.101	99.8	May 23	08:57:04	0.33622	0.02446
3765.102	99.8	May 23	09:59:46	0.31296	0.02429
3765.103	99.8	May 23	11:08:47	0.17923	0.02439
3767.001	24.3	May 23	14:04:38	0.38075	0.02634
3767.002	99.8	May 23	14:14:53	0.24809	0.02615
3767.003	99.8	May 23	15:04:10	0.22497	0.02634
3767.101	99.8	May 23	14:12:29	0.32663	0.02370
3767.102	99.8	May 23	14:40:17	0.28087	0.02457
3769.001	24.3	May 24	01:12:25	0.31322	0.02639
3769.002	99.8	May 24	01:30:42	0.28642	0.02614
3769.003	99.8	May 24	01:47:06	0.26501	0.02649
3769.004	99.8	May 24	03:25:22	0.24737	0.02634
3769.005	99.8	May 24	05:49:35	0.25080	0.02612
3769.006	99.8	May 24	08:19:35	0.27505	0.02655
3769.101	99.8	May 24	01:32:07	0.33762	0.02354
3769.102	99.8	May 24	01:44:26	0.34637	0.02439
3769.103	99.8	May 24	03:26:39	0.35277	0.02441
3769.104	99.8	May 24	05:45:51	0.39188	0.02424
3769.105	99.8	May 24	08:15:19	0.32872	0.02426
3770.001	24.3	May 24	09:35:00	0.31487	0.02651
3770.002	24.3	May 24	10:25:41	0.34973	0.03723
3770.003	99.8	May 24	10:41:45	0.26174	0.02622
3770.102	99.8	May 24	12:09:57	0.30442	0.02446
3774.001	24.3	May 25	02:44:57	0.32527	0.02626
3774.002	99.8	May 25	03:15:21	0.24924	0.02633
3774.003	99.8	May 25	03:24:52	0.22566	0.02625
3774.101	99.8	May 25	03:19:42	0.36931	0.02420
3776.001	24.3	May 25	09:34:35	0.32442	0.03743
3778.001	99.8	May 25	13:51:06	0.08417	0.03658
3778.002	99.8	May 25	14:14:04	0.07757	0.02611
3778.101	99.8	May 25	14:00:10	0.27708	0.02472
3778.102	99.8	May 25	14:16:52	0.25065	0.02474
3779.001	24.3	May 25	16:40:05	0.32666	0.02622
3779.002	99.8	May 25	16:51:43	0.05934	0.02634
3779.003	99.8	May 25	16:55:25	0.04982	0.02604
3779.004	99.8	May 25	17:09:16	0.04854	0.02616
3779.005	99.8	May 25	17:38:11	0.05608	0.02648
3779.006	99.8	May 25	18:00:19	0.05107	0.03359
3779.101	99.8	May 25	16:50:19	0.29361	0.02506
3779.102	99.8	May 25	17:07:41	0.23115	0.02416
3779.103	99.8	May 25	18:03:39	0.20987	0.02247
3780.001	24.3	May 25	19:31:06	0.41072	0.02708
3780.002	99.8	May 25	19:57:44	0.30448	0.02612
3780.003	99.8	May 25	20:01:32	0.28904	0.02617
3780.004	99.8	May 25	21:02:10	0.31155	0.02633
3780.005	99.8	May 25	21:05:13	0.23729	0.02616
3780.006	99.8	May 25	21:59:15	0.28732	0.02632
3780.007	99.8	May 25	22:02:22	0.26756	0.02641
3780.008	99.8	May 25	23:05:24	0.25893	0.02642
3780.009	99.8	May 25	23:08:43	0.22689	0.02635
3780.010	99.8	May 26	00:29:20	0.25444	0.02629
3780.011	99.8	May 26	00:32:53	0.25226	0.02627
3780.012	99.8	May 26	01:35:43	0.24627	0.02618
3780.013	99.8	May 26	01:46:07	0.23762	0.02643
3780.014	99.8	May 26	03:22:08	0.25167	0.02628
3780.015	99.8	May 26	03:27:19	0.28158	0.02629
3780.101	24.3	May 25	19:22:21	0.29627	0.02462
3780.102	99.8	May 25	19:59:17	0.21633	0.02432
3780.103	99.8	May 25	20:08:54	0.25876	0.02415
3780.104	99.8	May 25	21:03:43	0.25651	0.02439
3780.105	99.8	May 25	21:13:03	0.24071	0.02440
3780.106	99.8	May 25	22:00:57	0.22963	0.02473
3780.107	99.8	May 25	22:10:25	0.21124	0.02465
3780.108	99.8	May 25	22:12:11	0.24154	0.02488
3780.109	99.8	May 25	23:07:01	0.19056	0.02482
3780.110	99.8	May 25	23:16:01	0.22911	0.02482
3780.111	99.8	May 26	00:12:29	0.22784	0.02489
3780.112	99.8	May 26	00:14:55	0.20311	0.02464
3780.113	99.8	May 26	01:40:08	0.22225	0.02490
3780.114	99.8	May 26	01:54:49	0.26019	0.02490
3780.115	99.8	May 26	03:23:58	0.23326	0.02475
3780.116	99.8	May 26	03:36:11	0.15813	0.02474
3781.001	24.3	May 26	06:27:15	0.39722	0.03716
3784.001	24.3	May 26	09:54:35	0.26126	0.03777
3784.002	99.8	May 26	10:06:16	0.29573	0.03732
3784.003	99.8	May 26	10:15:30	0.30844	0.03674
3784.004	99.8	May 26	10:33:26	0.20964	0.03711
3784.101	99.8	May 26	10:04:30	0.25738	0.02428
3784.102	99.8	May 26	10:09:07	0.20359	0.02427
3784.103	99.8	May 26	10:31:59	-0.06244	0.02430
3787.001	24.3	May 26	16:06:13	0.36262	0.03734
3787.002	99.8	May 26	16:40:27	0.25171	0.03718
3787.101	24.3	May 26	15:24:04	0.33500	0.02458
3787.102	24.3	May 26	16:03:39	0.35602	0.02455
3793.001	24.3	May 27	00:07:34	0.34507	0.03669
3793.002	99.8	May 27	00:39:50	0.29602	0.03685
3793.003	99.8	May 27	00:43:56	0.23034	0.03719
3793.004	99.8	May 27	01:03:37	0.31687	0.03678
3793.005	99.8	May 27	03:09:04	0.25005	0.02613
3793.006	99.8	May 27	03:15:11	0.31590	0.02630
3793.007	99.8	May 27	05:23:31	0.29782	0.02616
3793.008	99.8	May 27	05:32:29	0.24685	0.02641
3793.009	99.8	May 27	07:32:08	0.29172	0.02617
3793.010	99.8	May 27	07:39:39	0.25888	0.02633
3793.101	24.3	May 26	23:57:13	0.33018	0.03424
3793.102	99.8	May 27	00:48:45	0.30489	0.03550
3793.103	99.8	May 27	00:51:14	0.30142	0.03541
3793.104	99.8	May 27	03:11:35	0.27017	0.02522
3793.105	99.8	May 27	03:23:16	0.22861	0.02514
3793.106	99.8	May 27	05:26:52	0.22071	0.02522
3793.107	99.8	May 27	05:40:42	0.20381	0.02531
3793.108	99.8	May 27	07:36:13	0.25691	0.02524
3793.109	99.8	May 27	07:50:49	0.25691	0.02524
3796.001	24.3	May 27	15:41:17	0.30001	0.02613
3796.002	99.8	May 27	16:29:27	0.25584	0.02600
3796.003	99.8	May 27	18:51:29	0.25061	0.02646
3796.101	24.3	May 27	14:21:09	0.40073	0.05458
3796.102	24.3	May 27	15:32:40	0.29091	0.02451
3796.103	99.8	May 27	16:15:45	0.24579	0.02516
3796.104	99.8	May 27	19:19:45	0.17259	0.02517

3797.001	24.3	May 27	20:58:15	0.38870	0.02629
3797.002	24.3	May 27	21:38:42	0.35194	0.02636
3797.003	99.8	May 27	22:20:48	0.24180	0.02637
3797.101	24.3	May 27	20:52:34	0.37761	0.02142
3797.102	24.3	May 27	21:16:33	0.34148	0.02214
3797.103	99.8	May 27	22:30:03	0.20974	0.02538
3797.104	99.8	May 27	22:38:34	0.21012	0.02537
3798.001	24.3	May 27	23:37:10	0.39435	0.02696
3798.101	24.3	May 27	23:14:30	0.35898	0.02459
3799.001	24.3	May 28	00:47:26	0.41027	0.03703
3799.002	99.8	May 28	01:21:15	0.25486	0.02622
3799.003	99.8	May 28	03:19:05	0.20971	0.02648
3799.004	99.8	May 28	05:31:52	0.28786	0.02658
3799.005	99.8	May 28	07:27:56	0.24704	0.02625
3799.009	99.8	May 28	09:57:39	0.01978	0.02659
3799.101	24.3	May 28	00:34:05	0.37344	0.03489
3799.102	99.8	May 28	01:12:37	0.27987	0.02521
3799.103	99.8	May 28	03:27:06	0.27554	0.02522
3799.104	99.8	May 28	05:20:55	0.25642	0.02530
3799.107	99.8	May 28	10:00:28	0.03165	0.02549
3801.001	24.3	May 28	13:05:43	0.39621	0.02640
3801.002	24.3	May 28	13:34:49	0.34855	0.02643
3801.003	99.8	May 28	14:14:17	0.27028	0.02638
3801.004	99.8	May 28	16:08:55	0.29479	0.02641
3801.101	24.3	May 28	12:58:31	0.37862	0.02866
3801.102	24.3	May 28	13:30:10	0.34989	0.02298
3801.103	99.8	May 28	14:11:47	0.28212	0.02539
3801.104	99.8	May 28	16:16:51	0.25143	0.02558
3803.001	24.3	May 28	22:31:04	0.27198	0.02551
3803.002	24.3	May 28	22:57:35	0.32013	0.02604
3803.003	99.8	May 28	23:17:34	0.17682	0.02562
3803.004	99.8	May 28	23:34:00	0.20470	0.02581
3803.005	99.8	May 28	23:48:52	0.21024	0.02596
3803.006	99.8	May 29	01:37:48	0.26030	0.02607
3803.007	99.8	May 29	03:38:23	0.21274	0.02635
3803.008	99.8	May 29	05:53:28	0.19314	0.02628
3803.009	99.8	May 29	07:35:48	0.19775	0.02645
3803.010	99.8	May 29	09:46:51	0.17026	0.02648
3803.101	24.3	May 28	22:27:55	0.32016	0.02471
3803.102	24.3	May 28	22:50:20	0.33720	0.02273
3803.103	99.8	May 28	23:25:41	0.27332	0.02636
3803.104	99.8	May 29	01:53:55	0.23474	0.02649
3803.105	99.8	May 29	03:48:24	0.23105	0.02659
3803.106	99.8	May 29	05:38:41	0.20028	0.02650
3803.107	99.8	May 29	07:45:28	0.25142	0.02668
3803.112	99.8	May 29	10:58:45	0.24287	0.04664
3809.001	24.3	May 29	20:38:35	0.28532	0.02647
3809.002	24.3	May 29	21:11:07	0.29378	0.02590
3809.003	99.8	May 29	21:28:58	0.20815	0.02623
3809.101	24.3	May 29	20:07:11	0.24136	0.02558
3809.102	24.3	May 29	20:33:20	0.27323	0.01840
3809.103	24.3	May 29	21:04:28	0.27664	0.02583
3809.104	99.8	May 29	21:27:19	0.15123	0.02613
3810.001	24.3	May 30	00:34:34	0.25829	0.02580
3810.002	99.8	May 30	01:39:16	0.17282	0.02611
3810.003	99.8	May 30	06:23:57	0.17846	0.02640
3810.004	99.8	May 30	07:49:01	0.20640	0.02633
3810.101	24.3	May 30	00:29:13	0.22010	0.02032
3810.102	99.8	May 30	01:44:50	0.11567	0.02593
3810.103	99.8	May 30	06:21:49	0.13479	0.02628
3810.104	99.8	May 30	07:47:16	0.09474	0.02647
3811.002	99.8	May 30	13:15:02	0.00321	0.03041

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