THE ASTROPHYSICAL JOURNAL SUPPLEMENT SERIES, 118:1–125, 1998 September
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THE *HUBBLE SPACE TELESCOPE* QUASAR ABSORPTION LINE KEY PROJECT. XIII. A CENSUS OF ABSORPTION-LINE SYSTEMS AT LOW REDSHIFT[1]

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Received 1997 September 2; accepted 1998 April 1

ABSTRACT

We present a catalog of absorption lines obtained from the analysis of the ultraviolet spectra of 66 quasars. The data were acquired with the Faint Object Spectrograph of the *Hubble Space Telescope* (*HST*) as part of the Quasar Absorption Line Survey, a Key Project for the first four cycles of *HST* observations. This is the third of a series of catalogs of absorption lines produced from the survey and increases the number of quasars whose higher resolution ($R = 1300$) spectra we have published from 17 to 83. The general properties and execution of the survey are reviewed, including descriptions of the final sample of observed objects and the algorithmic processes used to construct the catalog. This database is suitable for a wide variety of studies of gaseous systems in the nearby universe. This third catalog includes 2594 absorption lines and brings the total number of absorption lines in the combined catalog to 3238. The third catalog has 878 identified Lyα lines, 27 extensive metal line systems (detected absorption lines from four or more metal ions), 88 C IV systems, and 34 O VI systems. The combined catalog contains the following numbers of extragalactic absorption lines: 1129 Lyα lines, 107 C IV systems, 41 O VI systems, 16 Lyman limit systems, and one damped Lyα system (in the spectrum of PG 0935+416). In addition, there are 25 pairs of identified Lyα lines that are candidate C IV doublets. Of the 122 identified C IV and candidate C IV systems in the completely identified sample of absorption lines, 24 ± 5 are expected to be chance coincidences of other lines (based upon Monte Carlo simulations). The detection of a single damped Lyα system in a path length of $\Delta z = 49$ yields an observed number of damped systems per unit redshift of $(dN/dz)_{\rm damp}(z = 0.58) = 0.020$ with 95% confidence boundaries of 0.001–0.096 systems per unit redshift.

We include notes on our analysis of each of the observed quasars and the absorption systems detected in each spectrum. Some especially interesting systems include low-redshift Lyα absorbers suitable for extensive follow-up observations (e.g., in the spectra of TON 28 and PG 1216+069), possibly physically associated pairs of extensive metal line absorption systems (e.g., in the spectrum of PG 0117+213), and systems known to be associated with galaxies (e.g., in the spectrum of 3C 232).

The spectra of five broad absorption line (BAL) quasars (UM 425, PG 1254+047, PG 1411+442, PG 1700+518, and PG 2112+059) can be found in this third catalog, bringing the total number of BAL quasars in the combined catalog to six (including PG 0043+039).

Subject headings: catalogs — intergalactic medium — quasars: absorption lines — quasars: general

1. INTRODUCTION

The *Hubble Space Telescope* (*HST*) and its spectrographs have revolutionized the study of low-redshift gaseous systems and Galactic halo gas by providing the spectral resolution and sensitivity needed to observe ultraviolet (UV) absorption lines in the spectra of quasars. Since the majority of the strong resonance absorption lines of cosmically abundant ions, including many of the most powerful diagnostics for the physical conditions of an absorber, occur in the rest frame UV, the effective study of the nearby gaseous universe requires the use of UV spectroscopy (Spitzer 1956).

The primary goal of the Quasar Absorption Line Survey, a Key Project during the first four cycles of observations with *HST*, was to produce a large and homogeneous catalog of absorbers suitable for the study of gaseous systems at low redshifts. The results from our initial observations and analysis of the higher resolution ($R = 1300$) UV spectra of 17 quasars have been previously presented in our

[1] Based on observations with the NASA/ESA *Hubble Space Telescope*, obtained at the Space Telescope Science Institute, which is operated by the Association of Universities for Research in Astronomy, Inc., under NASA contract NAS 5-26555.

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first two catalog papers (Bahcall et al. 1993a, Paper I, but hereafter CAT1; Bahcall et al. 1996, Paper VII, but hereafter CAT2). The basic survey design, data calibration, and analysis software are discussed by Schneider et al. (1993; hereafter Paper II). In the present paper (CAT3) we present the rest of the UV spectra obtained as part of the Key Project and also the Bahcall Guaranteed Time Observer (GTO) programs. The total number of observed quasars in our sample is 92, 83 of which have been observed with one or more of the higher resolution gratings. Our analysis of these higher resolution spectra yield this third and by far the largest of our catalogs of absorption lines. A series of companion papers present the results of the analyses of the combined catalog (CAT1, CAT2, and CAT3 taken together).

The paper is organized as follows: a description of the observational properties of the survey including the final list of observed targets and a review of the calibration of the spectra (§ 2); a review of how this third catalog of absorption-line systems was constructed (§ 3), including a description of the algorithms used for the selection and measurement of the absorption lines (§ 3.1) and Lyman limit systems (§ 3.2), a summary of the current algorithms for identifying absorption lines (§ 3.3), which have undergone some changes since CAT2, and our tests for the reliability of our C IV and O VI identifications (§ 3.4); line identifications for the spectra presented in this paper including comments on the identifications on an object-by-object basis (§ 4); a discussion of what the catalog reveals about various types of absorbers (§ 5); and a brief summary of this paper (§ 6).

2. OBSERVATIONS

In this section we review the sample of quasars observed during the survey, the instrumentation and techniques used for the observations, and the calibration of the UV spectra. The original design and observational procedures used in the survey are described in detail in Paper II and the first two catalog papers (CAT1, CAT2). Here we review only the most important characteristics of the observed sample and observing procedures.

2.1. *Final Sample of Observed Objects*

The Quasar Absorption Line Survey was originally intended to be comprised of observations of two samples of objects. Observations of the "primary sample" were intended to provide the bulk of the absorption lines in the final catalog. These objects were selected to have the following properties: Galactic latitude, $|b| > 20°$; redshifts determined from slit spectroscopy that lie between 0.15 and 2.0; and well-determined apparent optical magnitudes with preference given to brighter targets. No reference was made to existing UV data on a potential target during the initial sample selection. The radio properties of the quasars were also ignored during selection of these targets. The spectra obtained of the primary sample were to be of sufficient spectral resolution ($R = 1300$) and signal-to-noise ratio (SNR = 30) for our rest equivalent width limits on absorption lines to be similar to those of existing large ground-based surveys and for important absorption-line doublets (e.g., C IV separation of 2.57 Å) to be well resolved. To investigate the strong, but rare, absorption systems such as damped Lyα and Lyman limit systems and to facilitate radio spectroscopic follow-up of these systems, we constructed a second list of targets with moderate redshifts ($0.8 < z < 2.0$), observed flux density at 11 cm greater than 0.15 Jy, and a declination range $-3° < \delta(1950) < +60°$. This sample was known as the "damped Lyα sample."

Changes to the original target list and our modes of observing, however, were required during the execution of the survey in response to updated information about our originally proposed targets, the telescope, and the spectrographs. The events leading to modification in the list of proposed targets and modes of observation included the following: changes in object brightnesses (i.e., improved ground-based photometry indicating a quasar was not as bright as originally believed, either because of errors in past photometry or variability of the source); discovery of the spherical aberration due to the primary mirror, requiring a change in spectrograph aperture in order to retain spectral resolution at the cost of increased exposure time per object; lower than anticipated efficiency of the Blue side of the Faint Object Spectrograph (FOS) initiating an attempt to switch the far-UV spectroscopy observations to the Goddard High Resolution Spectrograph (GHRS); temporary loss of side 1 (the far-UV detector) of the GHRS, requiring a switch back to the FOS at the cost of increased exposure time and hence a reduction in the number of targets that could be observed; installation of COSTAR, providing a favorable change in spectrograph aperture and reduction of observing overhead but bringing a decrease in the total efficiency of the combined observing system; changes in the list of targets protected by guaranteed time observers (GTOs) as they adapted their own programs; and cycle-to-cycle variations in the amount of observing time recommend by the TACs and assigned by STScI to the survey. The cumulative effect of these modifications was the nearly complete elimination of the secondary "damped Lyα sample" of targets from the survey, a decrease in the number of objects in the "primary sample," and a reduction in the number of far-UV observations that could be made. The latter observations were particularly expensive in observing time but were also the only means of probing the lowest redshifts ($z < 0.3$) for Lyα absorbers. A total of 76 quasars was finally observed as part of the executed Key Project observations.

In addition to the Key Project, John Bahcall led several GTO programs designed to investigate many of the problems of interest to the Key Project. These observations used identical observing modes and were planned by a subset of the Key Project team. A result of the close coordination in the design of the two programs was the ability to plan complementary observations, including modifications of the GTO program to complete observations that had to be dropped from the original Key Project plan of observations. Twenty-two objects were observed as part of the Bahcall GTO program, 19 of which met the Key Project's criteria for inclusion in the originally defined "primary sample." Six of these objects were partially observed under the Key Project and had additional observations made as part of the GTO program.

The merged data from the GTO and Key Project surveys resulted in the final sample of 92 observed objects listed in Table 1. We have included the three GTO objects that have redshifts lower than the original sample definition criteria because the data that were obtained are in all other respects comparable with the typical data in the survey. In Table 1 we present basic information about the 92 quasars that are investigated in this study. We include the Véron-Cetty &

Véron (1991) cataloged redshifts (with the exception of PG 1407+265 and PG 2302+029 as detailed in the notes on individual objects (§ 4); also note that since 1991, improved redshifts have become available for some of the objects in the sample, but the redshifts in Table 1 are those that were used in our analysis), V-band magnitudes, and B1950 coordinates. In addition we have listed the objects' Galactic coordinates and their J2000 coordinates, which were provided by the Space Telescope Science Institute (STScI). The coordinates were measured from the digitized version of the "Quick V" Survey plates (Epoch 1982) described in Lasker, Sturch, et al. (1990) using STScI's Guide Star Selection System Astrometric Support Package (GASP) and should be accurate to better than 1″. Additional information listed in Table 1 includes the UT date on which each object was observed with a particular grating (indicating the wavelength region observed, see next section) and the observed continuum flux at a representative wavelength covered by that observation. If a strong emission line is present at the listed wavelength, a measurement was made at the adjacent continuum with this shift noted in a footnote to Table 1. If there is not an entry under a particular grating, no observation was made in that mode. In Figure 1 we display, on an Aitoff projection, the Galactic coordinates of all 92 objects observed as part of the quasar absorption-line survey.

2.2. *Observing Modes*

All observations in the survey were made using the FOS of the *HST*. The observing procedures are described in detail in Paper II. A description of the FOS is given by Ford & Hartig (1990). The FOS has two Digicon detectors, denoted as "Blue" and "Red," which were used for observations below and above 1600 Å, respectively (with one exception being the use of the Blue detector for the G190H observation of PKS 0405−123). We used three higher resolution gratings (G130H, G190H, and G270H, $R = 1300$) to observe between 1150–3270 Å and a low-resolution grating (G160L, $R \approx 180$) to observe some objects between 1150 and 2400 Å. Prior to the 1993 December *HST* servicing mission, all observations were made using the 0.″25 × 2.″0 slit aperture (effectively 0.″25 × 1.″4 in size as the height of the diodes limited the length of the slit). The resulting full width at half-maximum (FWHM) of unresolved lines observed with the different gratings are the following: 1.1 Å (G130H), 1.5 Å (G190H), 2.0 Å (G270H), and 9.4 Å (G160L). After the servicing mission (cycle 4 observations), we changed to the 0.″3 circular aperture (despite the designated name for the aperture, the size when used with COSTAR was 0.″26), which resuled in changes in the FWHM of unresolved lines to the following: 0.9 Å (G130H), 1.4 Å (G190H), and 1.9 Å (G270H). No observations were made for our program using the G160L grating in cycle 4.

2.3. *Calibration of the Spectra*

The details of the calibration of the spectra are discussed in Paper II, but we review a few of the critical steps in this section: corrections for noisy diodes, the setting of the wavelength zero point, and corrections for small-scale (and

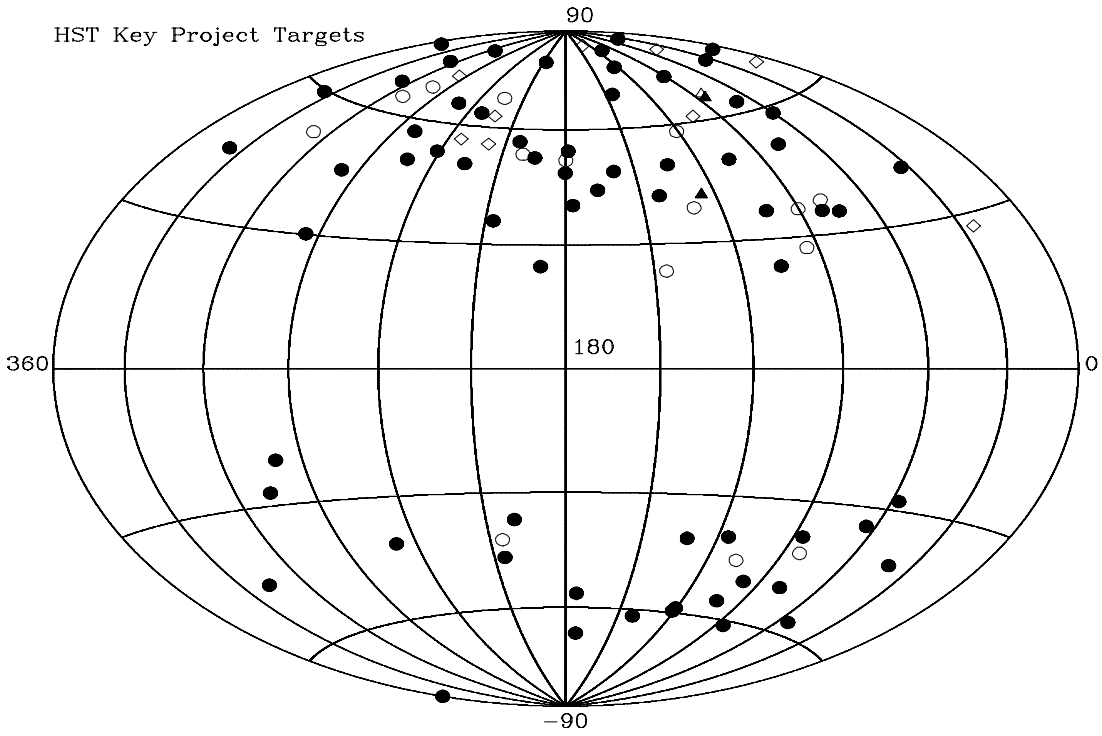


FIG. 1.—Distribution in Galactic coordinates (Aitoff projection) of the 92 quasars observed as part of the *HST* quasar absorption-line survey. The solid circles, open circles, and open diamonds are the 89 objects observed as part of the Key Project and Bahcall GTO observations that meet the original selection criteria for Key Project targets. The open circles indicate the location of 15 objects whose spectra include coverage of 1150–1600 Å observed at higher resolution (FOS G130H observations). The open diamonds are the nine objects that were observed only at low resolution, using the G160L grating. The three triangles (two of which are blended together) indicate the location of the three Bahcall GTO targets whose redshifts are too low to have met our original selection criteria (Mrk 205, PG 1411+442, and PG 1415+451) but which are included in our final catalog. PG 1411+442, indicated with an open triangle, was observed with the G130H grating, while the other two objects in this set were not. See § 2.1 for further discussion of the sample of observed objects and Table 1 for the list of the observed objects.

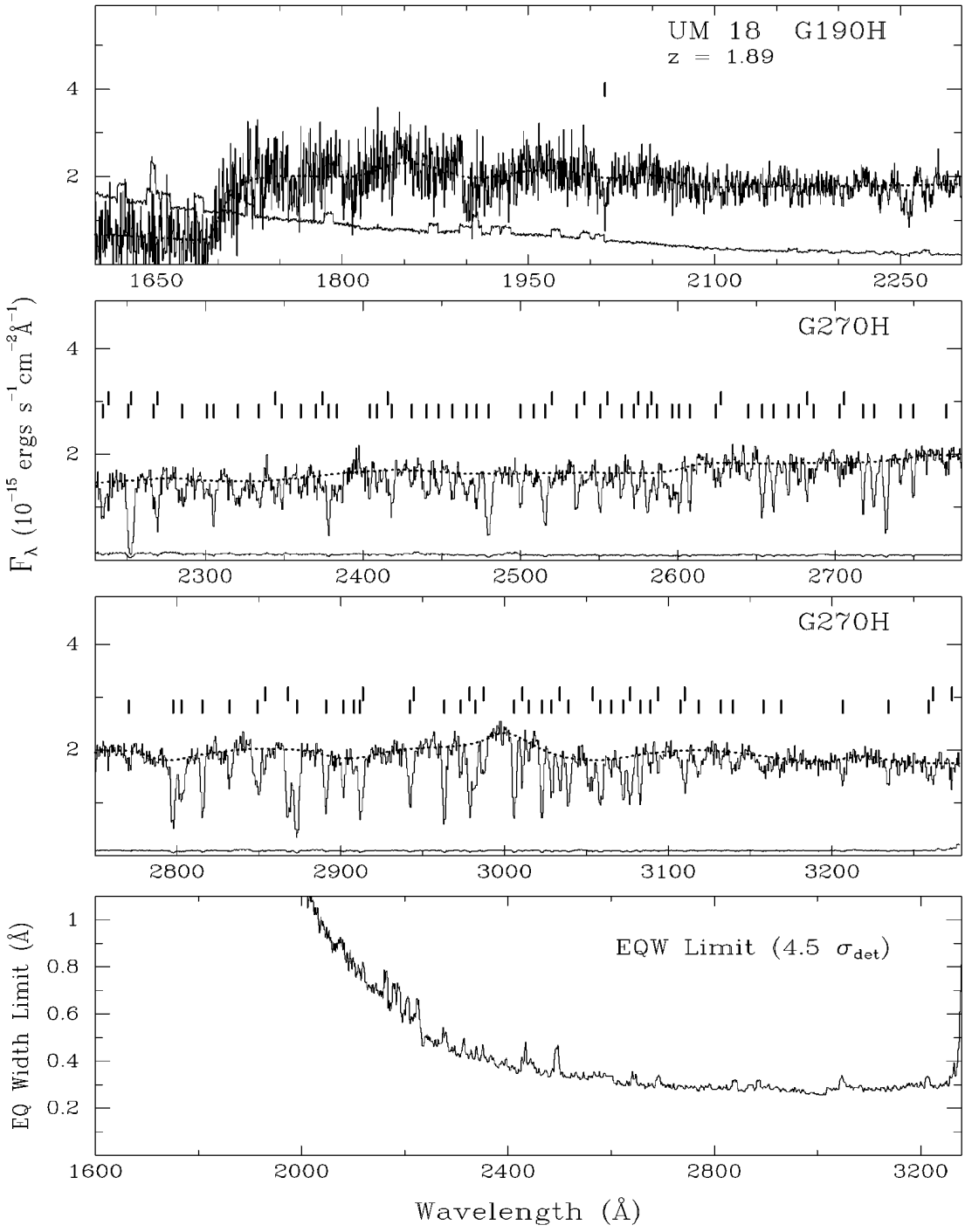


FIG. 2.—Ultraviolet spectra of 67 quasars obtained with the Faint Object Spectrograph of the *Hubble Space Telescope*. The panels contain the combined spectrum of these objects obtained with the indicated gratings (G160L, G130H, G190H, and/or G270H). The short vertical bars indicate the positions of absorption lines in the complete sample. The dotted line is the "continuum fit"; see § 3.1 and Paper II. The lower line in each spectrum plot is the 1 σ uncertainty in the flux as a function of wavelength. For the higher resolution observations, the 4.5 σ_{det} equivalent width limit (Å) for unresolved lines is also shown as a function of wavelength. Flat-field residuals that are strong enough to have a significance level greater than 4.5 σ_{det} are marked with the symbol FF. To be included in the complete sample, a feature's equivalent width must exceed the value of the 4.5 σ_{det} curve at the relevant wavelength (see eq. [2]). The objects are presented in order of increasing equinox 1950 right ascension, the same order in which the spectra are discussed in the notes on individual objects section of the paper, § 4.

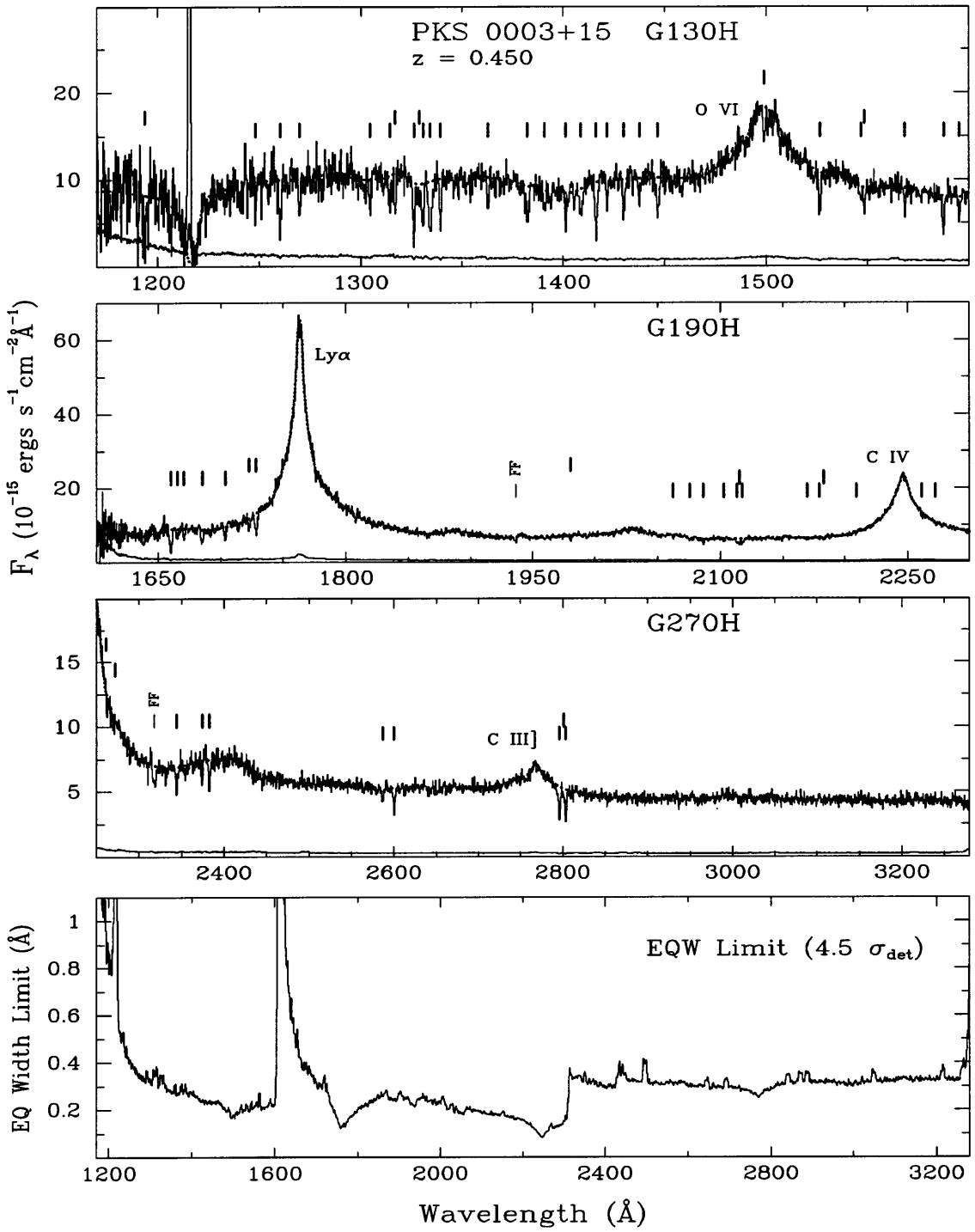


FIG. 2.—*Continued*

time-dependent) variations in the sensitivity of the detectors.

Occasionally some observations were affected by the presence of a "noisy" diode. Once identified, such diodes were generally disabled and would not affect future observations. However, if a diode intermittently malfunctioned during an observation, one could usually mitigate the effects during processing of the data: since a long integration was divided into subunits and the effects of a noisy diode were easy to identify, it was generally possible to exclude the affected subsets of the data and combine the rest. Corrections of this sort were made to the following spectra: NAB 0024+22 (G270H); PKS 0637−75 (G190H); US 1867 (G190H, G270H); PG 0953+415 (G130H); TON 28 (G130H); 1130+106Y (G160L); PG 1202+281 (G190H); PG 1216+069 (G130H); PKS 1252+11 (G160L); PG 1634+706 (G190H); PKS 2300−68 (G270H); and PKS 2344+09 (G190H).

We have placed all the higher resolution observations for a given object obtained with the different gratings (e.g., G190H and G270H spectra) on a common wavelength scale by requiring that the strong, singly ionized interstellar medium (ISM) absorption lines are at rest (zero redshift; see Paper II for details). In Table 2 we list for each spectrum the

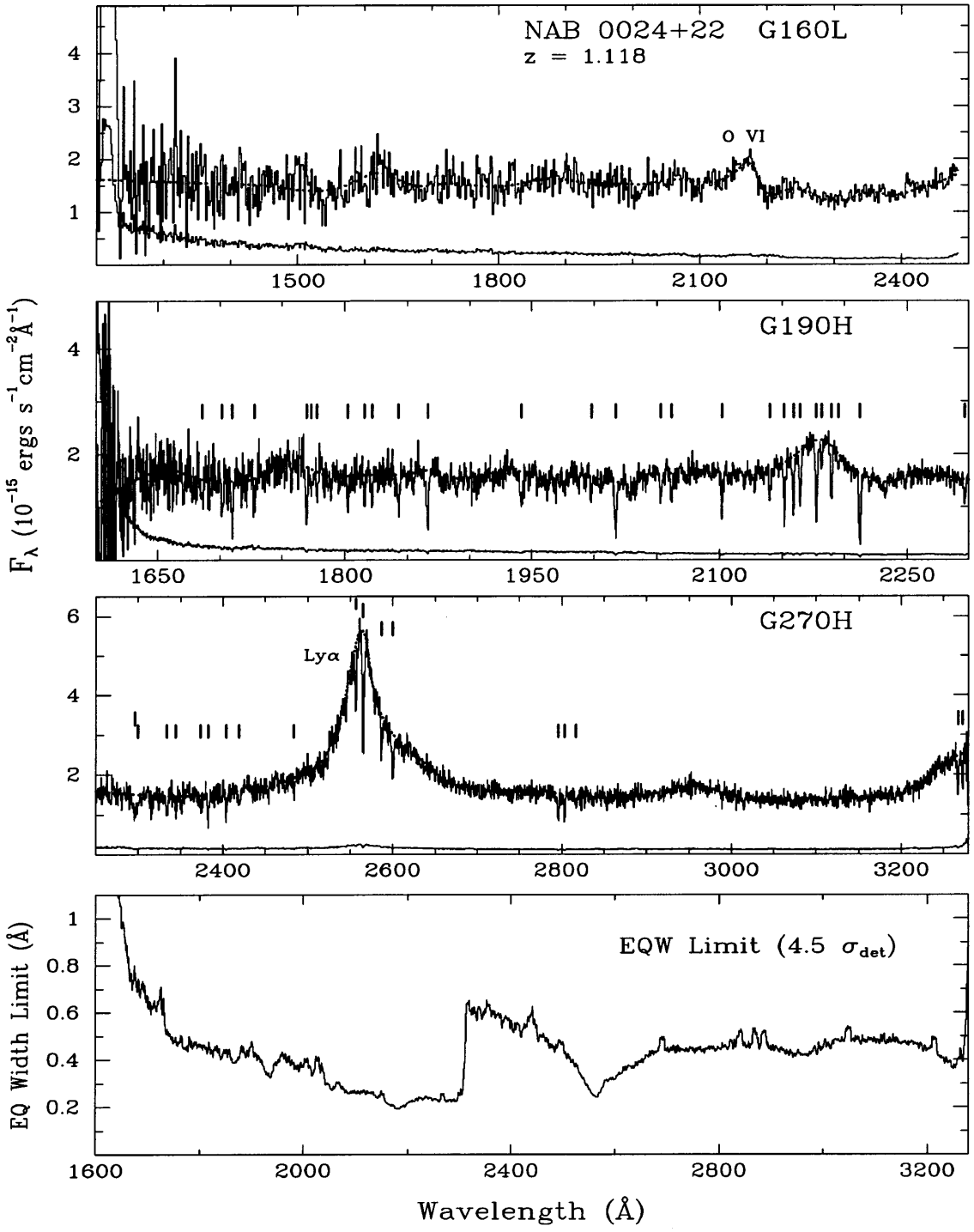


FIG. 2.—*Continued*

wavelength zero-point offsets that were *added* to the reduced spectra. No correction could be made for some of our observations (noted in Table 2) because the necessary Galactic absorption lines were not detected or well measured. In the final column of Table 2, we list the small additional offset that should be added to our spectra and line lists to place them in the heliocentric rest frame. These additional offsets are based on work described in Savage et al. (1993; hereafter Paper III) and in Lockman & Savage (1995). Vacuum wavelengths are quoted throughout this paper.

Corrections for variations in sensitivity of the photocathodes and diodes of the FOS detectors are made from flat-field exposures obtained from observations of stars. Because the variations in sensitivity were found to be time dependent, we attempted to use the flat-field data generated from calibration observations that used the same spectrograph aperture (since the corrections are also aperture dependent) and obtained closest in time to the quasar observations. However, there were periods when the interval between calibration observations was too long to enable us fully to correct some portions of some spectra. The variations in sensitivity are particularly strong in the central portions of the G190H spectra. Residual errors from the flat-fielding process dominate the statistical noise in some portions of the spectra and can create spurious weak fea-

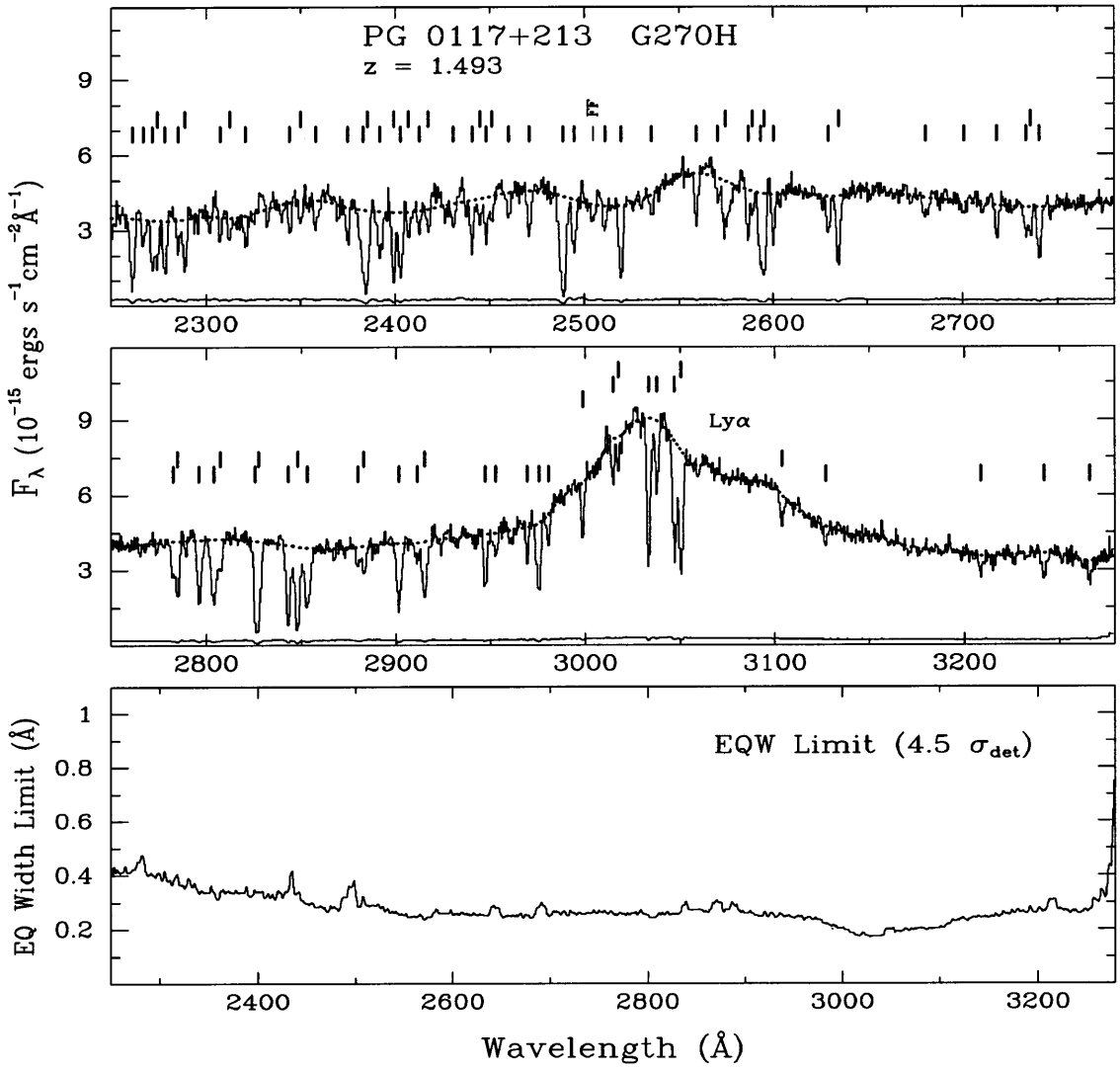


FIG. 2.—*Continued*

tures (see Paper II and Jannuzi & Hartig 1994). Features that are sufficiently strong to be in the "complete sample" of lines (defined below) but that are recognized by comparison with observations of standard stars and other quasars to be residual flat-field features (see Jannuzi & Hartig 1994) are listed at the end of the line lists for each object and are indicated by "FF" in both Table 3 and Figure 2.

The calibrated data consist of two arrays: the flux and the 1 σ uncertainty in the flux as a function of wavelength. Figure 2 shows the fully calibrated *HST* data used to construct the database presented in this paper. From each spectrum and its associated flux uncertainty array, an equivalent width detection limit array is constructed (see § 3.1 and Paper II for the definition and further discussion). This array for each object is also shown in Figure 2.

3. CONSTRUCTING THE THIRD CATALOG OF ABSORPTION LINES

In this section we review the methods used to select, measure, and identify the absorption lines that comprise our catalog.

3.1. *Selection and Measurement of the Absorption Lines*

Throughout our selection and measurement of the absorption lines in our spectra we have used well-defined and extensively tested algorithms developed by Key Project scientists in order to minimize the subjective elements in the absorption-line measurement and identification processes. The details of our line selection and measurement software are described in Paper II and in § 3 of CAT2. The notation for the line-fitting algorithms in this paper is the same as that used in Paper II. The summary presented in § 3 of CAT2 is an accurate description of our procedures, and we follow that discussion closely in this review of the more important aspects of our procedures. The few minor changes to the analysis software since CAT2, all introduced because of the complexity of some of the spectra of high-redshift quasars, are detailed in this subsection.

The fitting of the continuum remains by far the most subjective aspect of our entire analysis pipeline. This is particularly true in the vicinity of strong emission or absorption lines. The continuum fits for the objects presented in this third catalog were in general determined by at least three members of the team whose alternative fits were merged into a consensus fit by S. K. and B. T. J. The adopted continuum fit for each object is shown as a dotted line in Figure 2. In addition to defining the continuum, the fitted curves attempt to reproduce the emission line profiles.

A normalized spectrum for each of the quasars was created by dividing the calibrated data by the continuum fit.

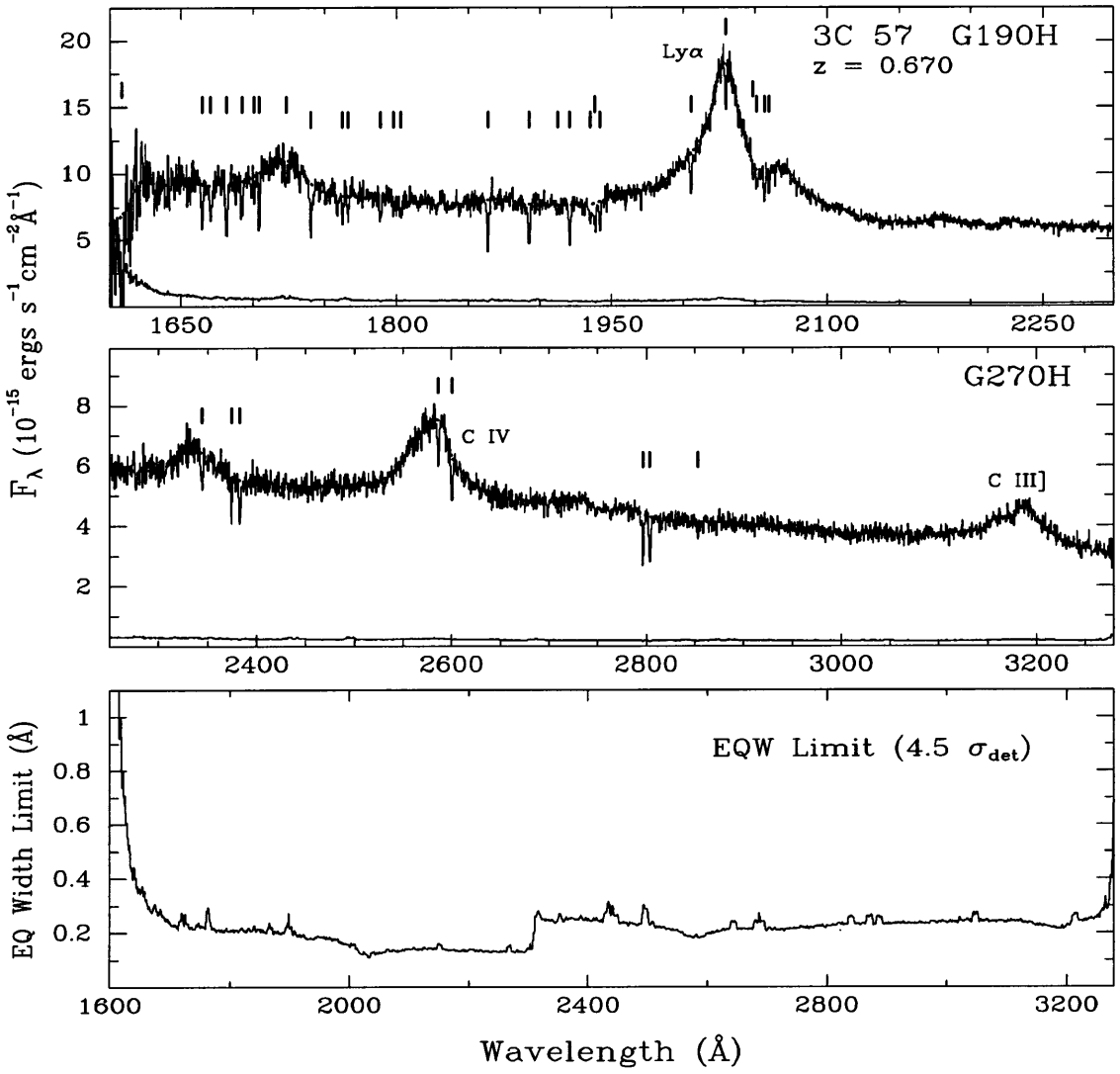


FIG. 2.—*Continued*

The fluxes in unresolved lines (absorption or emission) in the normalized spectrum were calculated using the procedure described in § 6 of Paper II. The Spectral Spread Functions (SSFs) in all of the Key Project observations have Gaussian profiles (see Fig. 1 of Paper II). Each line is assigned a significance level, SL:

$$\mathrm{SL} = \frac{|W|}{\bar{\sigma}(W)}, \tag{1}$$

where W is the observed equivalent width, and $\bar{\sigma}(W)$ is the 1 σ error in the observed equivalent width of an unresolved line. Note that $\bar{\sigma}(W)$ is calculated with the flux errors at the positions of strong absorption lines replaced by the errors interpolated from the surrounding continuum points (see Paper II). The significance level differs from the more familiar definition of signal-to-noise ratio, SNR $= |W|/\sigma(W)$, because of the use of the *interpolated* error array for the calculation of SL. This search procedure is iterated a number of times (9 times in the analysis described in this paper) so that features consisting of several closely spaced lines can be separated into individual components.

At this point one constructs the function $\sigma_{\mathrm{det}}(\lambda_{\mathrm{obs}})$ (the 1 σ detection limit for an unresolved line) from the array of 1 σ uncertainties in the flux [$\bar{\sigma}(W)$; see Figs. 9 and 10 in Paper II]. A preliminary line list is created using the features whose equivalent widths exceed a selected SL threshold [$W > C_{\mathrm{SL}}\,\sigma_{\mathrm{det}}(\lambda_{\mathrm{obs}})$; $C_{\mathrm{SL}} = 3.0$ for the preliminary line lists in this paper]. Each of these lines is fitted with a variable-width Gaussian profile; this allows one to characterize the properties of resolved lines. Note that this procedure was designed to detect and characterize unsaturated lines (see Paper II) and that parameters for individual lines whose profiles significantly deviate from the SSF or Gaussian shape cannot be reliably measured with this technique.

Some minor modifications had to be made to the version of the line measurement code used in the generation of the line lists presented in this paper because of the complexity of the spectra of the high-redshift objects. Occasionally the Gaussian fitting software used for CAT2 would completely fail to decompose complicated blends into individual components. The Gaussian fitting procedure attempts to fit a blend with as few lines as possible to produce a reasonable representation of the data; a blend is fitted first with one line (the strongest component in the initial SSF search; see Paper II), and then successive components are added until the fit does not significantly improve. When some complex features were modeled with one component, the fit was so

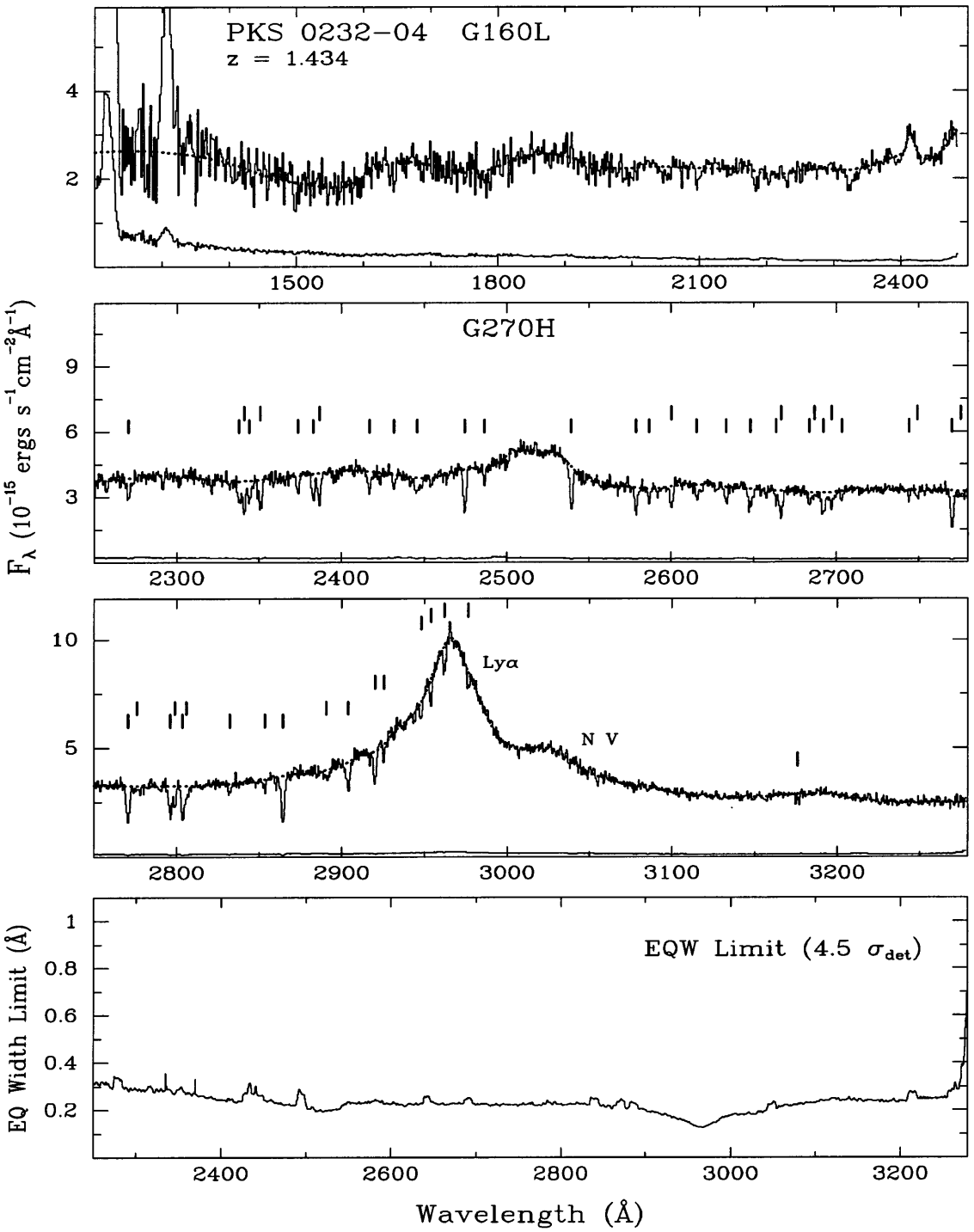


FIG. 2.—*Continued*

poor that the algorithm did not converge; this of course produced a rejection of the line. The software has been modified so that if the fitting algorithm does not converge for any single SSF line, the blend is fitted using the two strongest components as starting parameters, and the additional components are added in successive iterations just as in our previous studies.

We refer to the collection of lines having SL > 4.5 in a given spectrum as the "complete sample." The minimum observed equivalent width as a function of wavelength that a line must have to be included in the complete sample is

$$W_{\rm min}(\text{complete sample};\ \lambda) = 4.5 \times \sigma_{\rm det}(\lambda)\ , \qquad (2)$$

i.e., $W > W_{\rm min}(\lambda)$. We have also constructed lists of lines with $3.0 < \text{SL} < 4.5$; these unpublished lists are referred to as "incomplete samples." We do not use the lines in the incomplete samples in our statistical analyses, although we occasionally remark on such lines in the notes on individual spectra. In Figure 2 we display for each source the adopted 4.5 $\sigma_{\rm det}$ minimum equivalent width limit as a function of wavelength that must be exceeded in order for an absorption line to be included in the complete sample (see Paper II).

If the Gaussian fitting software identified a feature with only a single component, we counted that feature as a single line, even though the FWHM values of such lines are

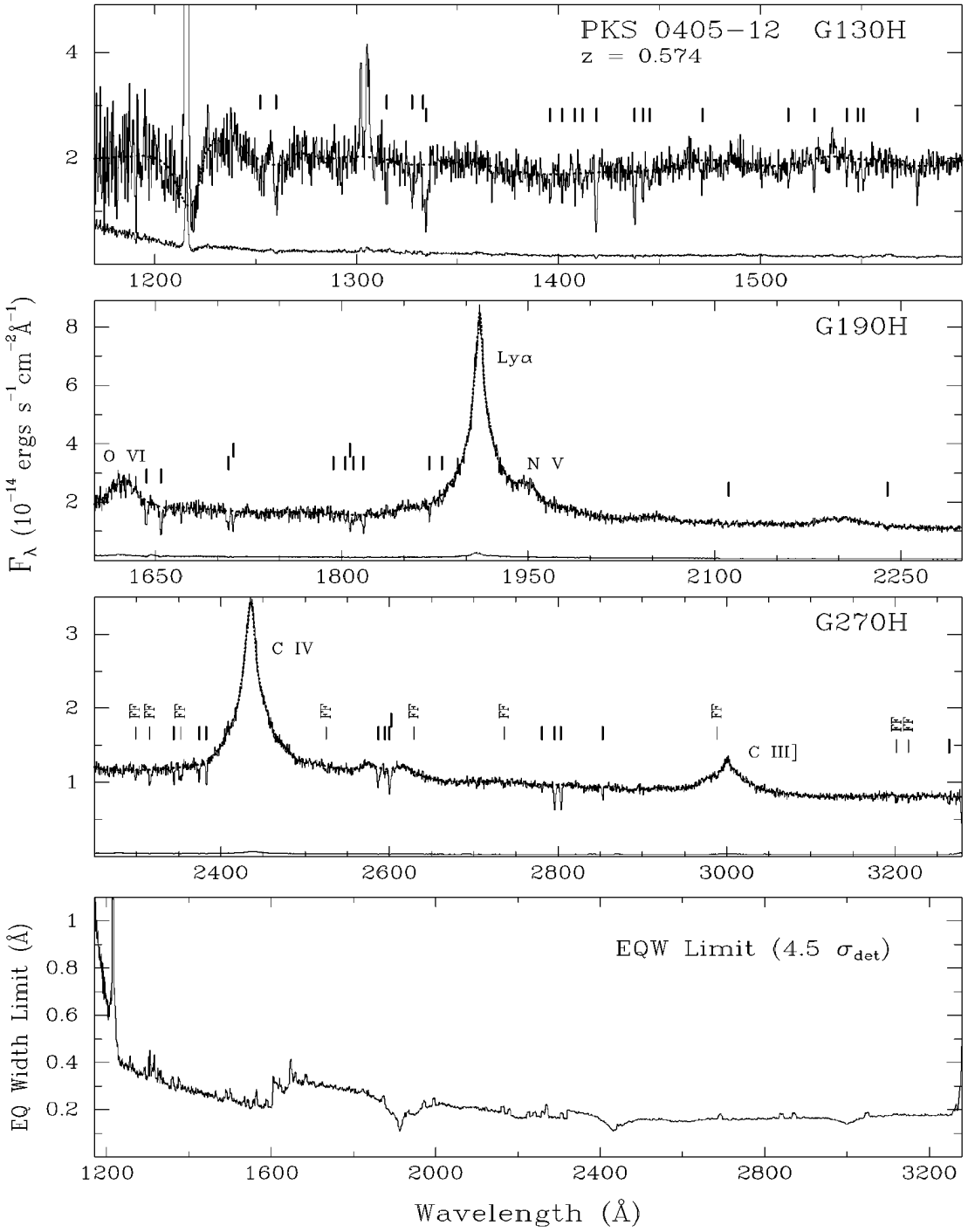


FIG. 2.—*Continued*

occasionally unphysically large. At higher resolution, we expect these broad features to break up into many components. Since blended, broad features are more likely to occur at the higher line densities found at the higher redshifts (and a much larger fraction of the objects in this third catalog are at $z > 1.0$, compared with CAT1 and CAT2), we may be slightly undercounting the $z \sim 1.3$ systems relative to lower redshift systems.

When an absorption line was detected in more than one spectrum (i.e., in both the G190H and G270H spectra), only the more accurate measurement (in general this was the G190H observation) is presented in Table 3.

Our combined catalog (CAT1, CAT2, and this paper) now includes measured line lists for 78 of the 83 quasars observed with the higher resolution gratings. The only objects not yet included are five of the six BAL quasars (PG 0043+039 is in CAT1) whose continua and broad absorption lines have proved difficult for our automated software to analyze.

3.2. *Lyman Limit Systems Search and Measurement Software*

The spectra presented in CAT1 were examined for the presence of Lyman limit systems (LLSs) with an automated

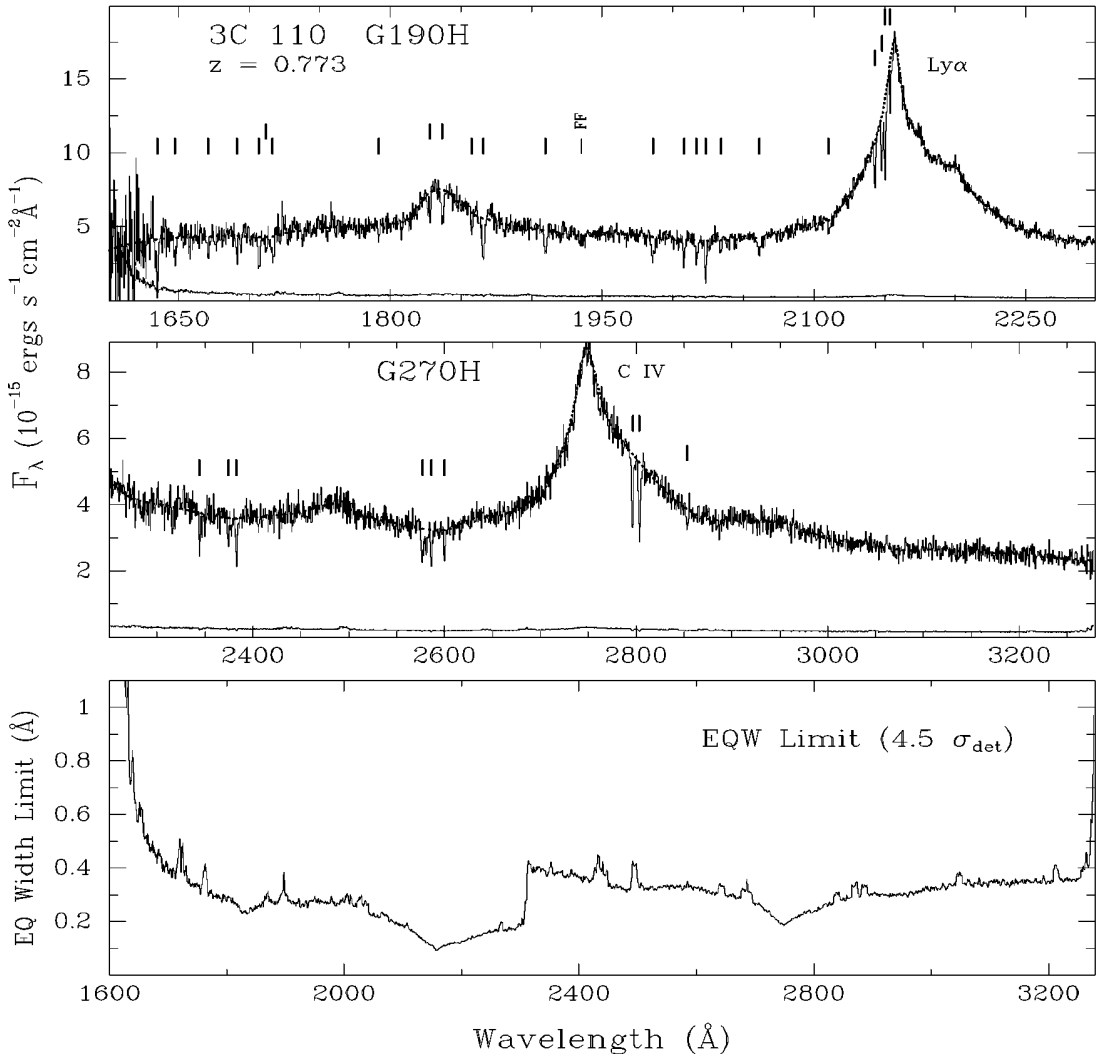


FIG. 2.—*Continued*

software algorithm (see Paper II for details). In total, 10 LLSs were identified, and an analysis combining the *HST* results with previously published *International Ultraviolet Explorer* (*IUE*) and ground-based LLSs observations was presented in Stengler-Larrea et al. (1995; hereafter Paper V).

We have made two minor modifications to the Key Project LLS search procedure since the publication of CAT1. The redshift is now calculated using an "effective" LLS rest wavelength of 914 Å instead of the 912 Å used in CAT1; the new value attempts to compensate for the blending of the high-order lines in the Lyman series that occurs at the FOS resolution. This, of course, leads to a slight reduction of the measured redshift. We have also modified the rest wavelengths used in the flux-ratio calculation; in CAT1 the "lower" and "upper" bands were 842–902 Å and 922–982 Å, whereas for this paper we adopted 883–903 Å and 933–953 Å. The widths of the bands were narrowed because examination of the FOS data showed that this produced measurements that were more acceptable to the "eye" than the earlier technique (especially on the short-wavelength side), and the short-wavelength cutoff on the upper band was moved redward to avoid the continuum rollover produced by blending of the high-order Lyman lines. The major change from the CAT1 results is that the measured optical depths are, on average, slightly higher; this is primarily due to the lowering of the flux in the short-wavelength band.

All of the survey spectra were searched for LLSs using the new parameters; the results are discussed in § 5.3.

3.3. *Identification of Absorption Lines*

The procedures for identifying the absorption lines for CAT3 remain essentially the same as those described in § 4 of CAT2. Our procedure is embodied in the software package called *ZSEARCH*, described in CAT1, Bahcall et al. (1992a), and CAT2. Our goal is to create a set of physically sound identification algorithms that can be applied objectively and efficiently to analyze large numbers of simulated spectra that have the same characteristics as the observed data. We outline here only the main aspects of the procedure we use and highlight improvements or required modifications that have been made since CAT2 was published. Many of these improvements are required by the higher absorption-line density in the spectra considered in this paper relative to the spectra in CAT1 or even CAT2.

The standard ultraviolet absorption lines that we considered as possible absorbers are the strongest allowed, one-electron, dipole transitions from ground or excited fine-structure states of cosmically abundant elements. Since the number of accidental coincidences increases with the

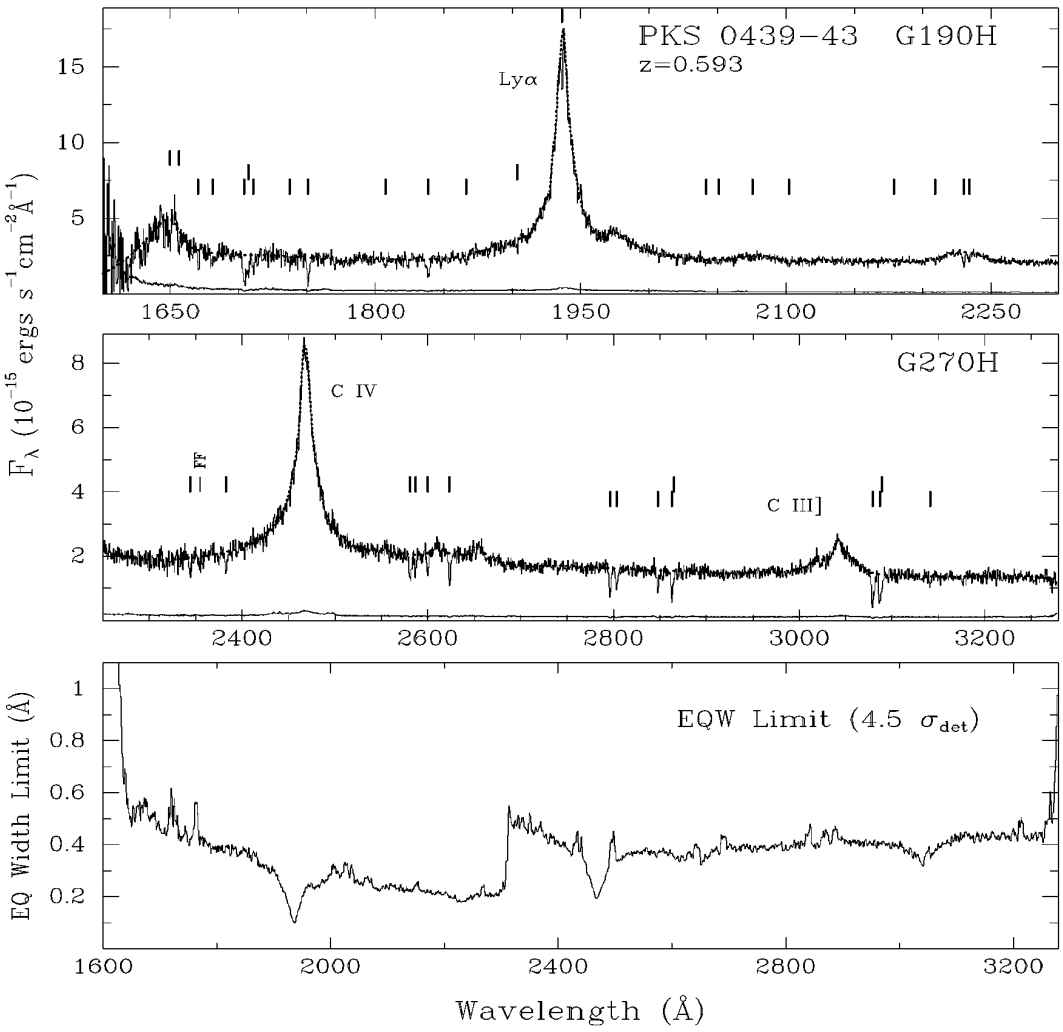


FIG. 2.—*Continued*

number of standard lines considered, we included only standard lines that are likely to have significant equivalent widths in our spectra. We used the standard line search list presented in Table 7 of CAT1 with the modifications listed in CAT2 and the addition of higher Lyman series lines (Lyζ, Lyη, Lyθ, Lyι, Lyκ, and Lyλ) that were not included in the CAT2 version of *ZSEARCH*.

To be identified as absorption due to a heavy element (in this paper we will refer to such lines as metal lines) or as members of the Lyman series of hydrogen, lines must have observed wavelengths that are consistent with the identification and are required to have relative equivalent widths consistent with their known f-values and the uncertainties in the line measurements (CAT2). The maximum allowed discrepancy in wavelength is either 1 Å or 3 $\sigma(\lambda)$, whichever is larger [where $\sigma(\lambda)$ is the root mean square wavelength measurement error in the line center; see § 6 of Paper II for a complete definition; note that any uncertainty in the wavelength zero-point offsets is not included in this term].

The identification of absorption lines consists of four phases:

1. *ZSEARCH* identifies candidate Galactic interstellar lines, which can constitute a significant "background" within which lines of extragalactic origin must be recognized.

2. The version of *ZSEARCH* used for CAT2 considered every line in the spectrum that was not identified with a Galactic ISM line to be a candidate Lyα line at the appropriate redshift, z_{cand}, and checked for lines that might be associated metal or Lyman series lines. Note that z_{cand} is constrained not to exceed the emission-line redshift of the quasar by more than 10,000 km s^{-1}. The CAT2 version of *ZSEARCH* would not allow an extragalactic identification to supersede one as a Galactic ISM line. For CAT3 we modified this step to test *all lines* as possible Lyα lines, including those tentatively identified as Galactic ISM lines. This allowed for the possibility that an extragalactic absorption line might not only be blended with a Galactic ISM line but might actually be the dominant source of absorption at that wavelength. This was found to be necessary for *ZSEARCH* to be able to identify correctly the absorption-line systems in the spectra of the sources with emission redshifts larger than approximately 1.3. Under the rules of CAT2, some metal line systems that require the presence of Lyα to be identified would have been rejected because their Lyα line had already been identified as Galactic ISM absorption.

3. The third pass through the line list by *ZSEARCH* is used to perform independent searches for the strongest expected metallic doublets (C IV, N V, O VI, Mg II, Al III, Si IV, and Zn II) that are not found in the second phase. This

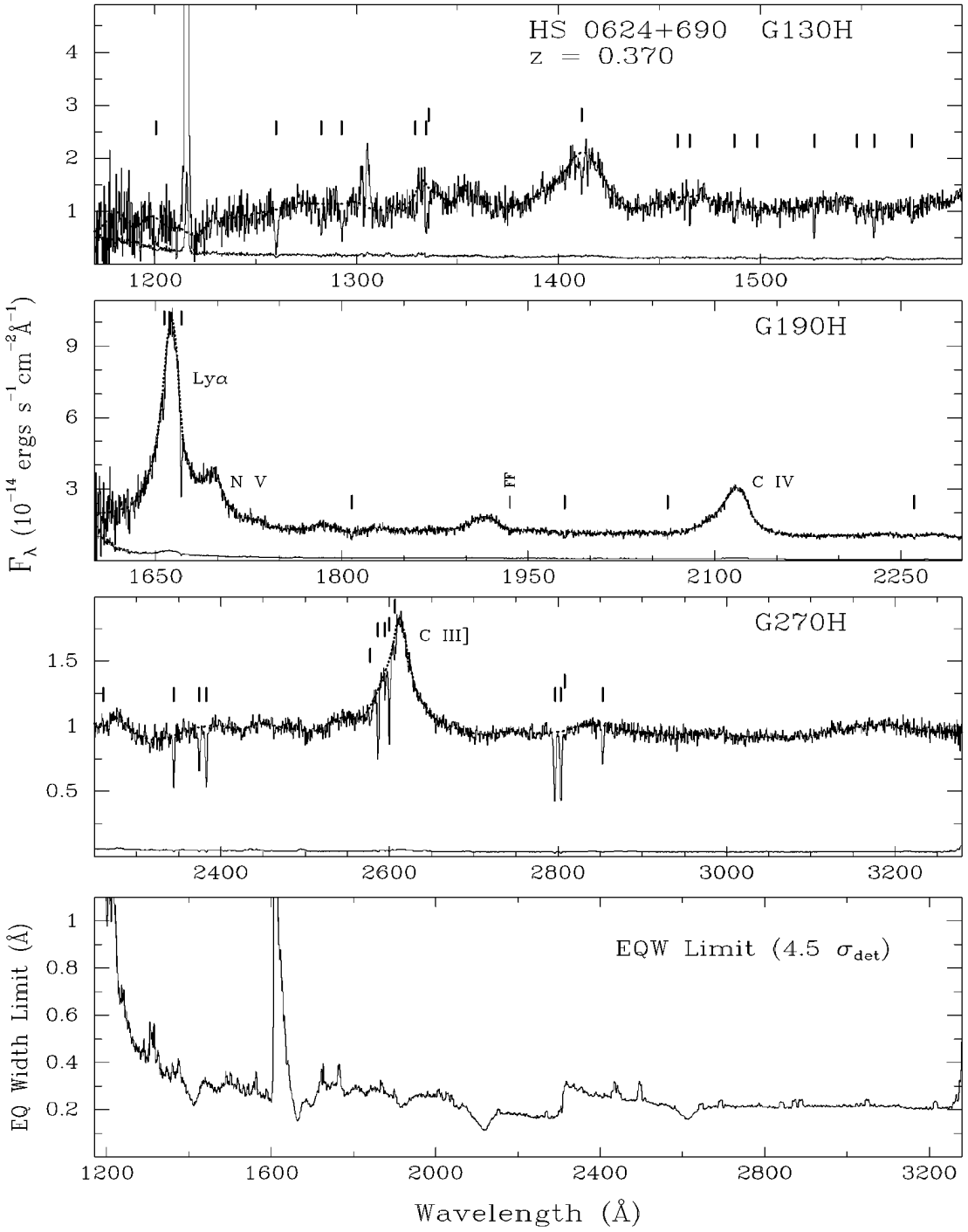


FIG. 2.—*Continued*

allows for the identification of metal line systems for which the Lyα line is not observable.

4. Finally, *ZSEARCH* makes a fourth pass through the line list, testing individually all matches of standard lines with observed lines for candidate associated-absorption systems, i.e., for systems with redshifts within 3000 km s^{-1} of the emission-line redshift.

Despite the many strengths of *ZSEARCH*, we have not yet been able to construct complete identifications for the lines in eight of the higher redshift (all have $z > 1.0$ and six have $z > 1.6$) quasars in our sample: PG 0935+416, Mrk 132, TON 34, Q1101−264, PG 1206+459, S4 1435+63, PG 1715+535, and PG 1718+481. The spectra of these objects share one or more of the following properties that complicate their analysis: some have complex continua, sometimes the result of heavily blended lines, that are difficult to fit; the high-redshift objects ($z > 1.6$) can have Lyβ lines in the observed spectrum that are indistinguishable from Lyα lines because the entire Lyα path to the emission redshift of the quasar was not observed; many of the higher redshift objects contain LLSs (including six of the eight for

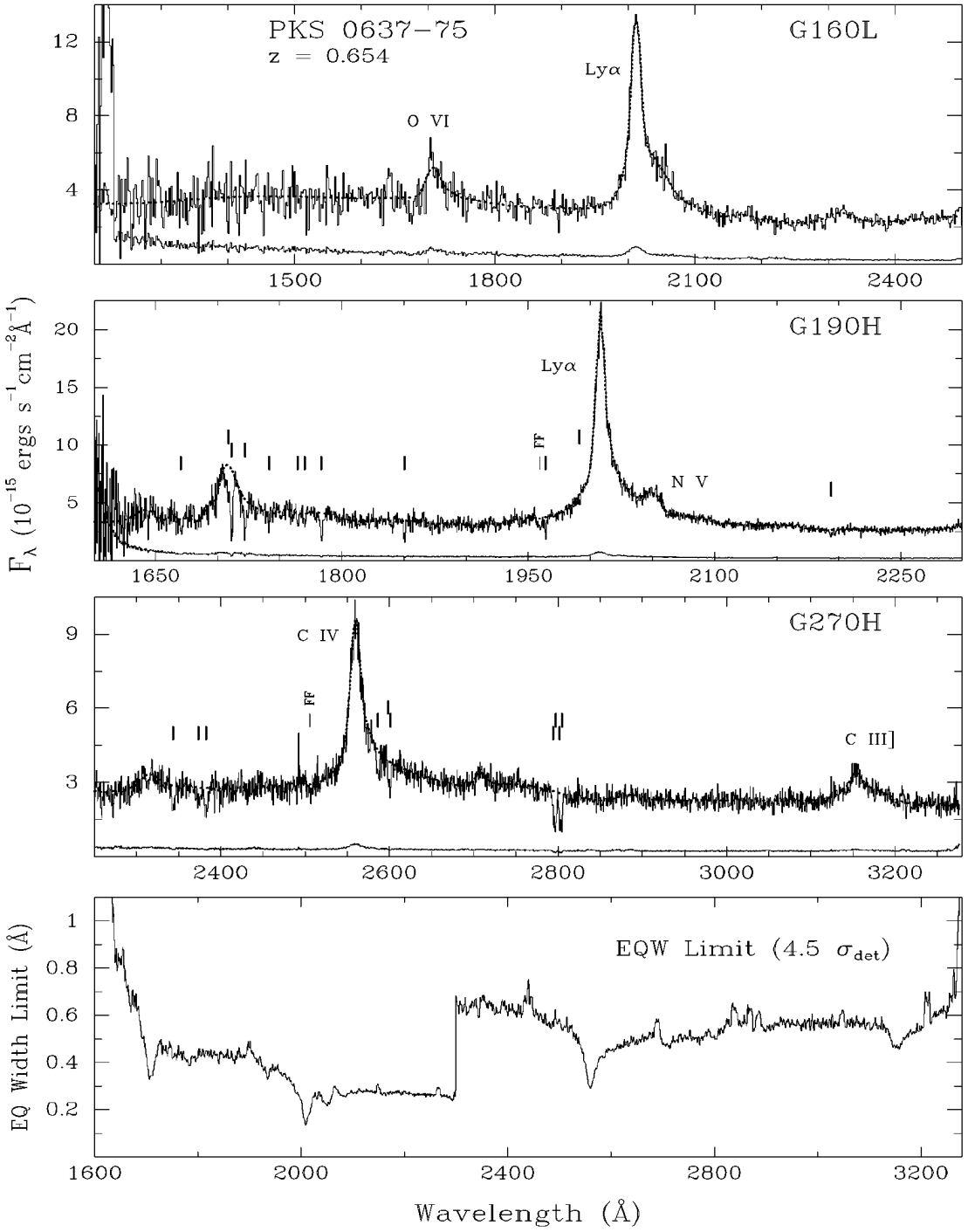


FIG. 2.—*Continued*

which our identifications are incomplete), further reducing the observed path length in each spectrum and adding numerous metal lines to the spectra so increasing the blending with Lyα lines. The low spectral resolution of our observations exacerbated all of the above problems. There is a ninth object that shares many characteristics with the eight just listed. The lines in the spectrum of UM 18 ($z = 1.89$) have a similar degree of blending and multiple possible identifications. In spite of these difficulties, we were able to generate a complete set of identifications for the lines in this spectrum. However, we caution that the identifications for this object are significantly less robust than those for the other objects in the catalog. Efforts are in progress to improve our methods in order to obtain more complete identifications of the lines in these spectra.

The numerical redshifts given in this paper are calculated as in CAT2, by iterating, for multiple-line systems, the redshift initially found by *ZSEARCH*. The software finds the redshift that minimizes χ^2, with χ^2 calculated using the unweighted differences of the observed and predicted wavelengths. The redshift with the minimum χ^2 is adopted, and a final set of identifications based upon this redshift is determined. In CAT1, no iteration was performed to determine the best-fit redshift for multiple-line systems.

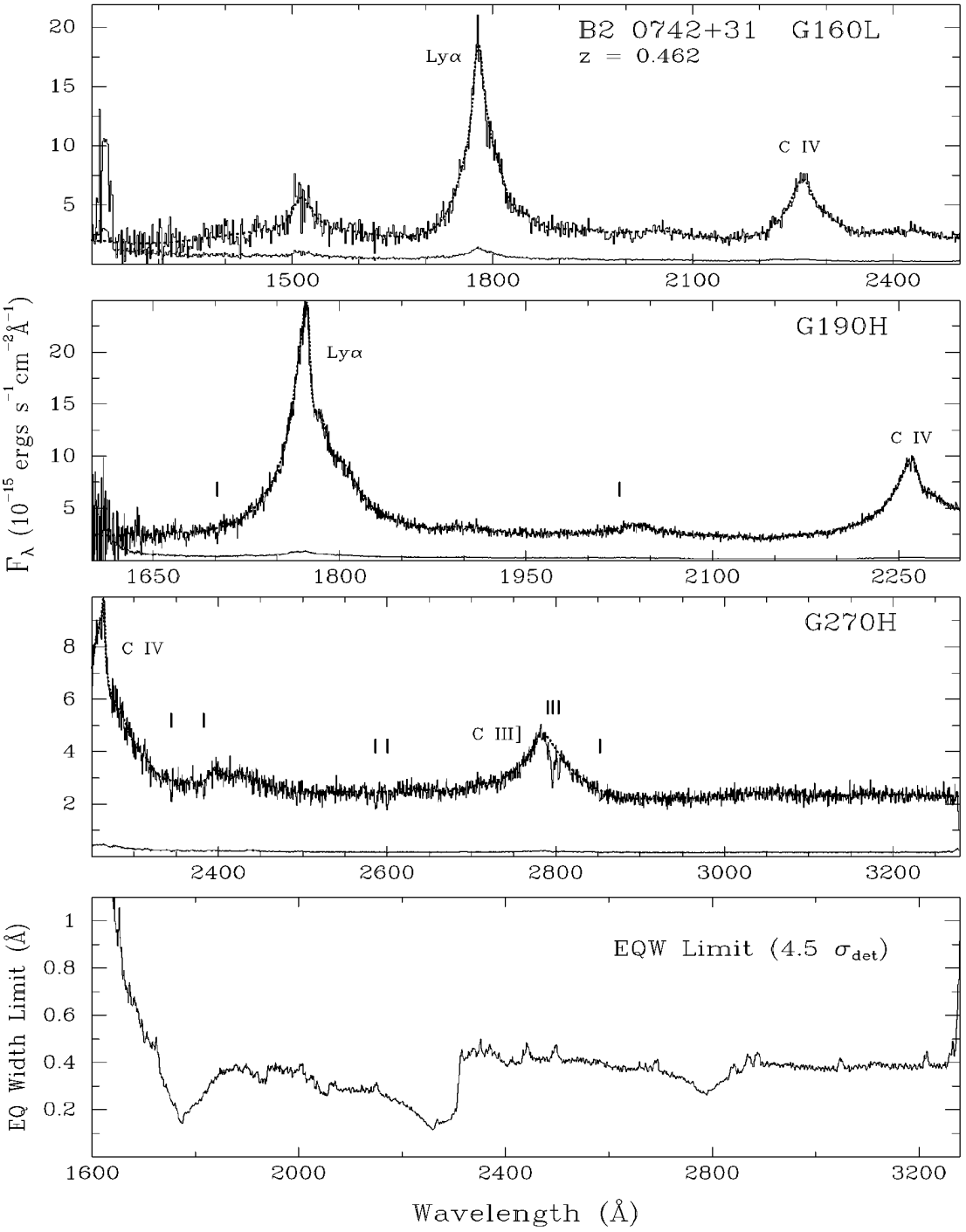


FIG. 2.—*Continued*

The probability for accidentally identifying metal line absorption systems that satisfy all of the self-consistency rules is generally small. Even if there are only three lines in a candidate redshift system (e.g., Lyα plus a strong doublet), the probability of these three lines being a chance identification is typically much less than 5% (see Tables 4 and 5 in CAT2; § 3.4, Table 4, and Table 5 in this work). Isolated doublets (doublet systems for which additional lines are not present in the line list) that occur at wavelengths shortward of the quasar Lyα emission can have a significant probability of being the product of two Lyα absorbers, and we discuss such "false identifications" in § 3.4. Furthermore, in some of the more complex cases of line identification considered in CAT3, multiple candidate metal line systems have measured features in common. While the arguments used in CAT2 and § 3.4 below still justify the belief that a candidate system with 12 lines is real and not a chance coincidence, the membership of each individual line in that real system is less certain, particularly when some lines can plausibly be associated with more than two secure (i.e., multiple-lined) redshift systems. If one line appears to occur in more than one absorption system with comparable plausibility, then we tabulate the dominant identification with the standard line and redshift but indicate in the notes

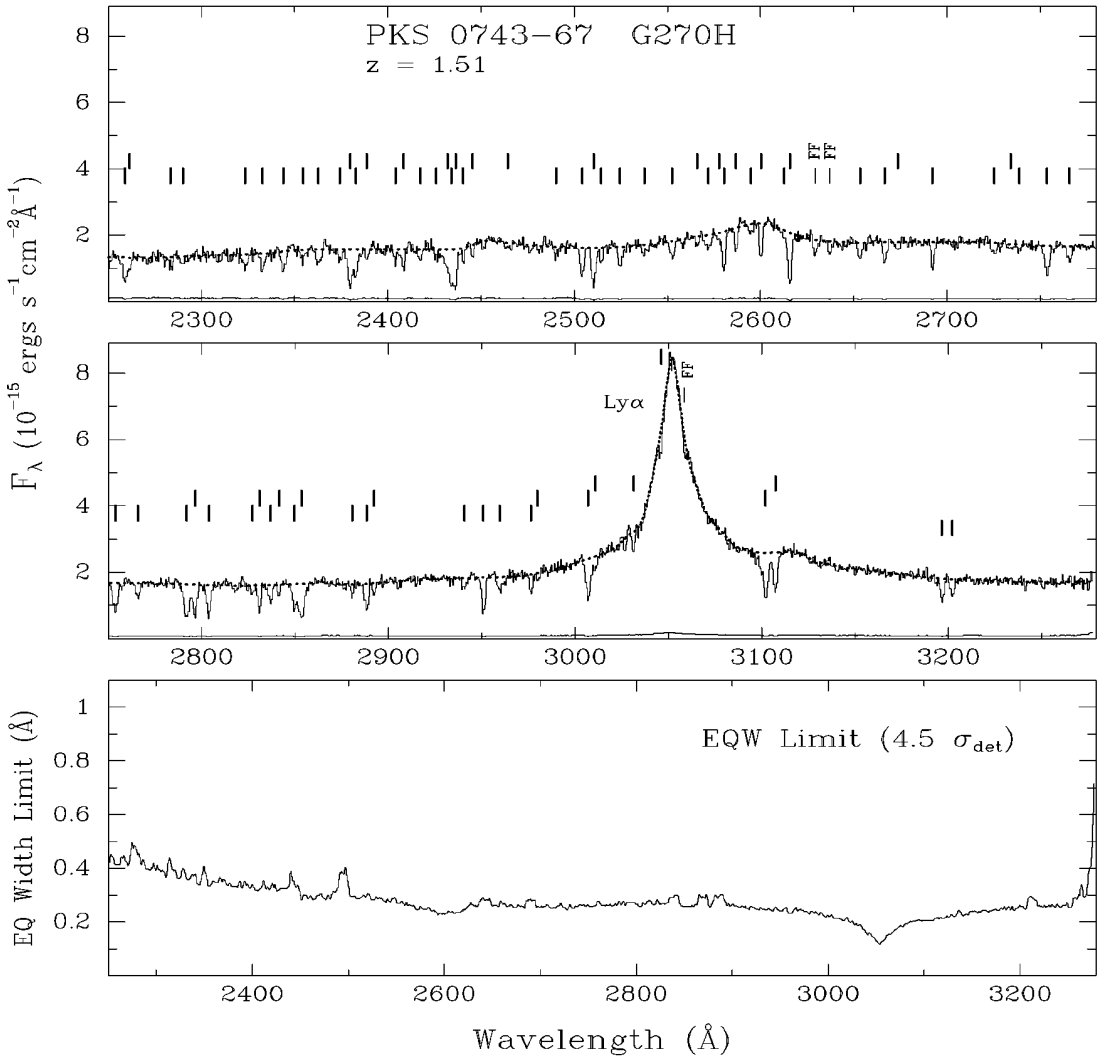


FIG. 2.—*Continued*

on individual objects (§ 4) and/or Table 3 that the line is blended. It is in resolving these multiple identification issues among several plausible identifications that errors in the identifications of individual lines will undoubtedly be made.

Absorption lines that lie shortward of the Lyα emission line are generally presumed to be Lyα or higher members of the Lyman series unless they are identified as Galactic interstellar lines or as metal lines in a multiple-line absorption system. Candidate C IV doublet systems without additional lines in the system were occasionally identified, but the significant probability that these lines are actually Lyα lines is noted with a "p," indicating that there is a specific probability (see § 3.4 for discussion) that the lines are are due to Lyα systems. Similarly, pairs of tabulated Lyα lines that could alternatively be identified as part of a C IV doublet are indicated with a "p." Finally, a small number of lines shortward of the Lyα emission line were left unidentified when there was some secondary evidence that the line might not be real (e.g., an isolated line with a high SL, but a low SNR; such lines are often the result of slight errors in the continuum fit found only after the continuum fitting stage of the analysis has been completed). In such cases the identification was usually left blank. An identification that is part of an absorption system with multiple lines is preferred algorithmically over an identification with only one other line.

Examples of how the identification rules were applied in practice can be found in the notes on individual spectra that are presented in (§ 4). The identifications of the lines are listed in Table 3.

3.4. *Reliability of* C IV *and* O VI *Identifications*

We have performed Monte Carlo simulations with pseudo–C IV or pseudo–O VI doublets to estimate the probability that a pair of absorption lines might accidentally have the appropriate properties to be identified either as C IV or an O VI absorption doublet. The technique used is identical to that described in § 5 of CAT2 with the one change that instead of 500 simulations per tested spectrum and type of simulation, 1000 were performed. The procedure described in CAT2 preserves all of the complexities in the observed spectra and in the identification algorithms while allowing us to estimate the probability of accidental identifications with pseudodoublets.

An individual simulation to test for false doublet identifications consists of identifying the lines in an object's complete sample of observed lines with the same software used for the normal identifications (*ZSEARCH*) but with a modified list of standard wavelengths for the line search list. Specifically, the doublet whose identification statistics we wish to test is removed from the standard line list and is

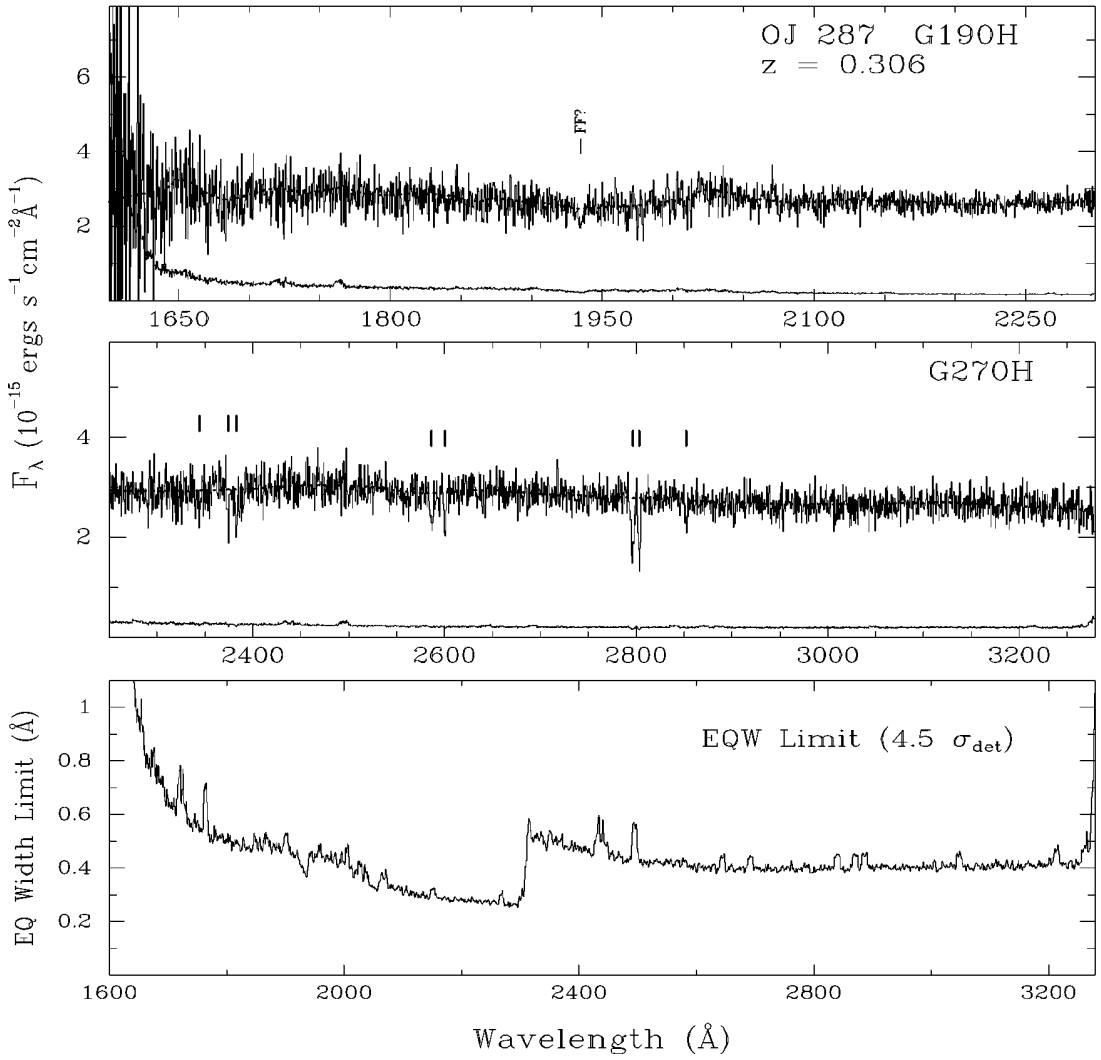


FIG. 2.—*Continued*

replaced with a pseudodoublet. The properties of each pseudodoublet are a rest frame separation that ranges randomly between that of the tested doublet (e.g., 2.57 Å in the case of C IV) and 50 Å, and the ratio of the oscillator strengths of the two lines is reversed relative to the doublet being tested.

We searched for pseudodoublets in all of the line lists of the observed spectra presented in CAT1 and this paper (simulations for the four objects in CAT2 are presented in that paper) with the same algorithmic software that was used to make the line identifications described in § 3.3. Searches were performed on line lists purged of multiple line absorption systems (metal line systems, systems with multiple Lyman series lines, and Galactic ISM lines). As discussed in CAT2, the multiple line systems have a negligible probability of being false identifications (i.e., chance systems), and their lines must be removed from the list prior to running the simulations as these lines would not be mistaken for C IV or O VI (or any other doublet). Leaving them in the line list to be tested would result in a large overestimate of the number of expected chance systems. The lines that remain are those that might be identified with real doublets or pseudodoublets; they are potential Lyα lines (without Lyβ) and miscellaneous unidentified lines longward of the Lyα emission line. Note that candidate C IV (with or without associated Lyα absorption) and O VI doublets that do not have additional metal lines associated with them are left in the line list that will be tested as it is possible that these might not be secure identifications.

The generated numbers of chance pseudodoublets can be used as an estimate of the number of false C IV and O VI doublet identifications in our final line lists. The pseudodoublets and any incorrectly identified C IV and O VI doublets are being produced predominantly by the chance distribution of Lyα lines. Any clustering among the Lyα absorbers on scales larger than the natural splitting of the doublet might produce a slight increase in the number of pseudodoublets detected. While there is evidence for some clumping of the Lyα absorbers around extensive metal line systems (over velocity scales of a few thousand kilometers per second; CAT2, Jannuzi 1998), we expect this effect to be small.

The results of the simulations provide a guide to the reliability of our identifications of C IV and O VI doublets. We first describe the results for C IV doublets and then address the less complicated case of the O VI doublets. For the C IV doublets we are interested in two types of false identifications: (1) C IV doublet plus Lyα absorption and (2) C IV doublet for which any associated Lyα absorption is not

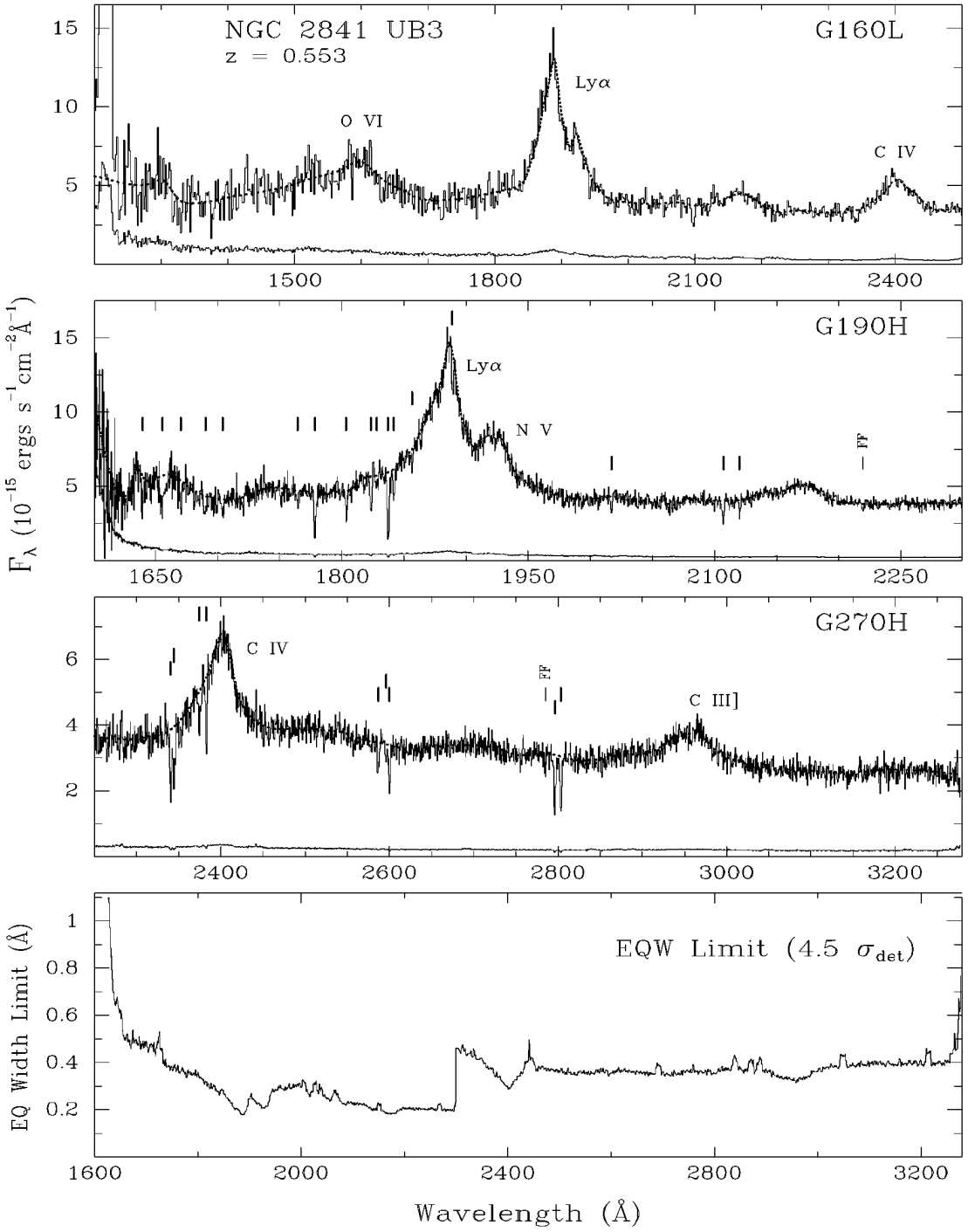


FIG. 2.—*Continued*

accessible. Multiple line systems (more than three lines) including the C IV doublet have a negligible chance of being false systems and are not considered in this discussion.

Two sets of 1000 simulations for pseudo–C IV doublets were created for each object. The first set was designed to determine the probabilities of finding false C IV doublets with Lyα absorption and to understand how many C IV doublets would be identified if the requirement that Lyα be present when observable were dropped. This set of simulations is identical in technique to those done in CAT2. The mean number of systems that would contain both lines of the pseudo–C IV doublet + Lyα is one of the values returned. This is generally a very small number, as it is rare that three lines randomly have the correct properties. The number of chance systems with the C IV doublet redward of the quasar Lyα emission was also determined by this set of simulations, and was in all cases negligible. As was done for CAT2, the simulation software also determined the average number of pseudodoublets per simulation that were found when we dropped the requirement that Lyα be present when accessible. Normally our identification software tests a candidate C IV doublet by requiring that if associated Lyα absorption would be observable (appropriate wavelength coverage provided by the spectrum and of high enough SNR that a Lyα line as strong as the stronger of the C IV lines would be detected) it is detected. If it is not possible to test for associ-

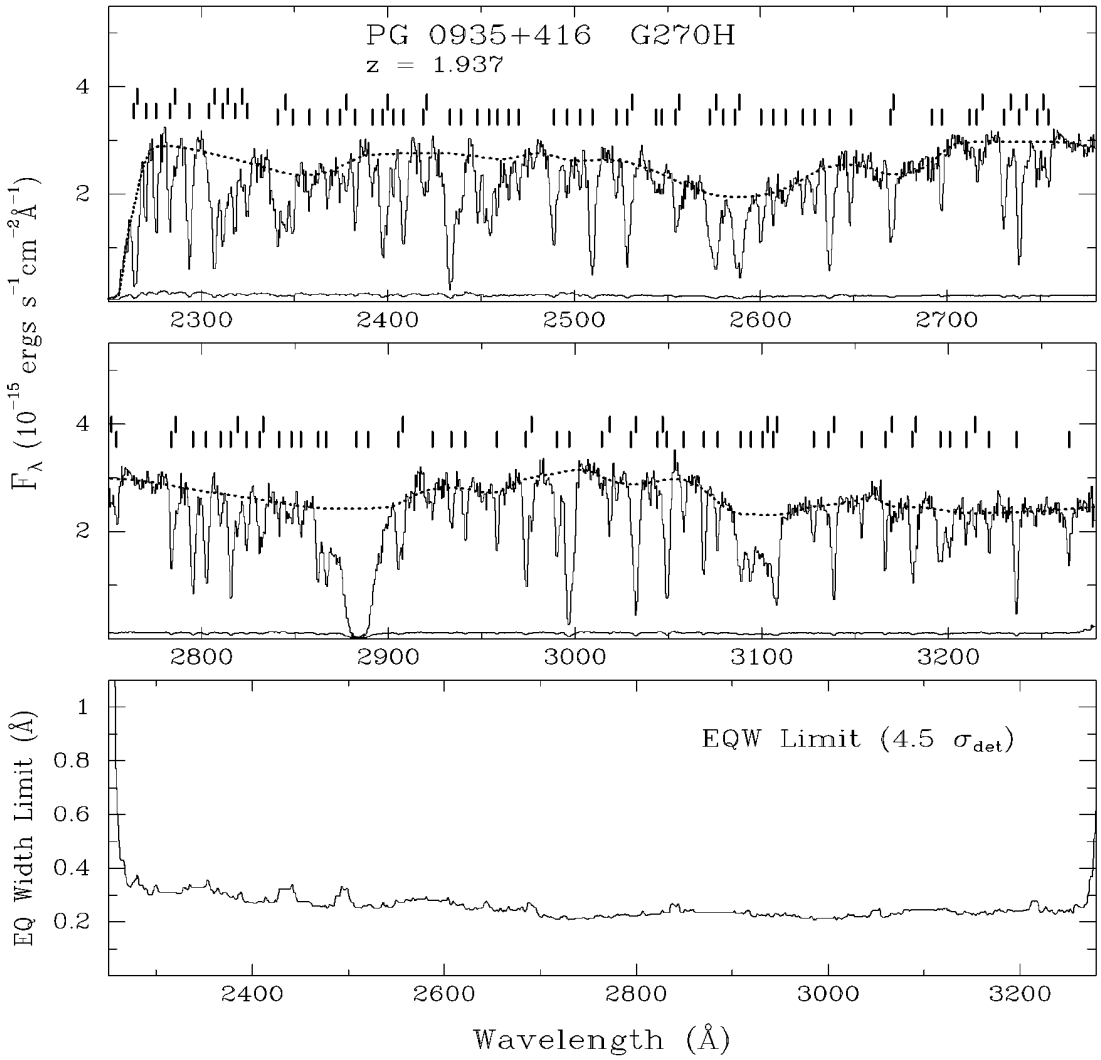


FIG. 2.—*Continued*

ated Lyα, then a candidate C IV doublet without any additional lines in the system could be accepted. Note that the mean number of systems found without making this test is an upper limit on the mean number of expected false systems that would be found by our identification software.

The test for the presence of related Lyα is not generally or uniformally made in the literature. The numbers of chance doublets found (see Table 4) is relatively large and shows that the test should always be applied if appropriate data are available.

To reproduce more closely what occurs when we make our identifications, a second set of simulations for pseudo–C IV was run using a smaller input line list limited to lines shortward of the quasar Lyα emission for which, if identified as C IV, any associated Lyα would not be accessible. This population of candidate C IV doublets is the largest source of misidentified C IV doublets in the combined catalog.

In Table 4 we show the results of simulations for the incidence of chance C IV systems; the two lines for each object refer to the two types of simulations. The columns in Table 4 are as follows: (1) the name of the quasar; (2) the quasar's emission redshift; (3) the number of potential lines that might be identified with pseudodoublets; (4) the mean number of systems per spectrum that were found to have pseudo–C IV and an associated Lyα absorber; by construction this was zero for the second set of simulations for each object; (5) the average number of pseudo–C IV identifications per simulation that were found when we dropped the requirement that Lyα be present when observable (first line) and the mean number of pseudo–C IV doublets that would be expected in the spectrum without any associated Lyα line being found (second line); (6)–(12) the percentage of the total number of simulations in which zero to six individual pseudo–C IV identifications were found (without Lyα); (13) the mean expected number of chance or false identifications of C IV doublets in the given spectrum, the result of summing the mean number of a chance C IV doublets *with* an associated Lyα absorber and the mean number of C IV systems that would have been accepted without Lyα absorption because the expected associated Lyα absorption was not observable (due to lack of wavelength coverage in the spectrum or poor SNR in that region of the spectrum).

An example will help clarify the contents of Table 4. For 3C 57 there are 23 lines in the line list purged of multiple-line systems. Four additional lines are dropped when making the test for pseudo–C IV doublets for which checking for Lyα absorption would not be possible because any Lyα line associated with a candidate pseudodoublet containing one of these lines would be observable. The first set of simulations yields a mean number of 0.01 pseudo–C IV

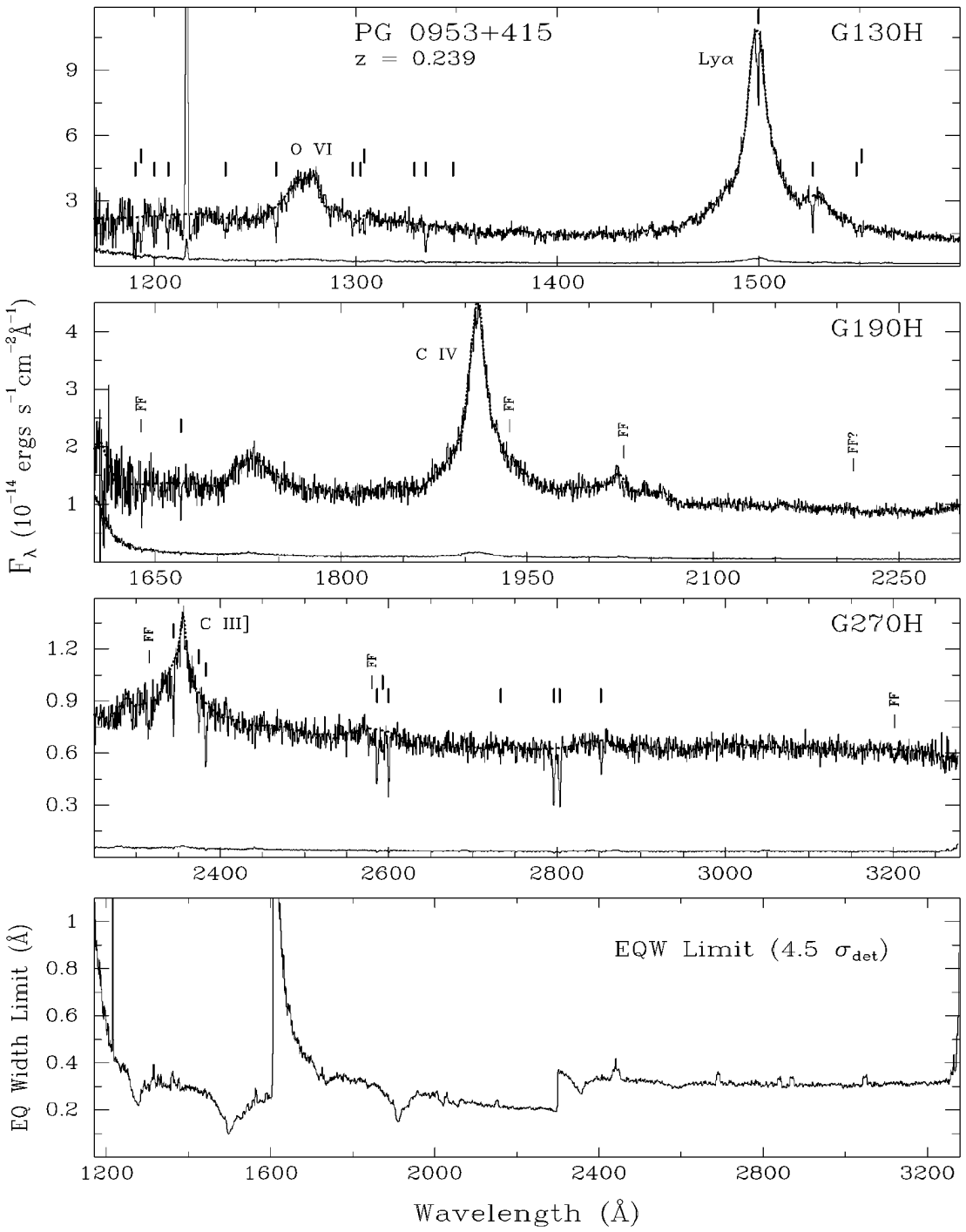


FIG. 2.—*Continued*

doublets with an associated Lyα absorber detected. In addition an average of 1.09 pseudodoublets was found when the test for associated Lyα absorption were ignored. The second set of simulations for 3C 57 reveal that a slightly lower number of false C IV doublets without Lyα identifications is actually expected (0.97) when the rules are applied in exactly the same manner used when generating the real identifications. Thirty-six percent of the simulations yielded no pseudodoublet systems without Lyα absorption, but 20.2% of the simulations contained two pseudo–C IV doublets.

There is a range in accidental probability of an order of magnitude depending upon which spectrum is being searched for pseudodoublets. The average number of pseudo–C IV doublets found in the real (observed) spectra varies from 0.0 to 2.35 (for PG 1634+706, $z = 1.334$, simulations in CAT2) per spectrum within the region that includes absorption by Lyα absorbers and is negligible outside of this range. The numbers of pseudo–C IV doublets found in the observed spectra, and hence the implied number of false C IV identifications, are sufficiently large that for some applications of the catalog they must be taken into account in the analysis.

In the combined catalog there are 21 C IV doublets for which no other associated lines are identified and for which a check for associated Lyα absorption could not be made (owing to lack of wavelength coverage or SNR in the spectrum). Similar to these 21 C IV doublets there are also

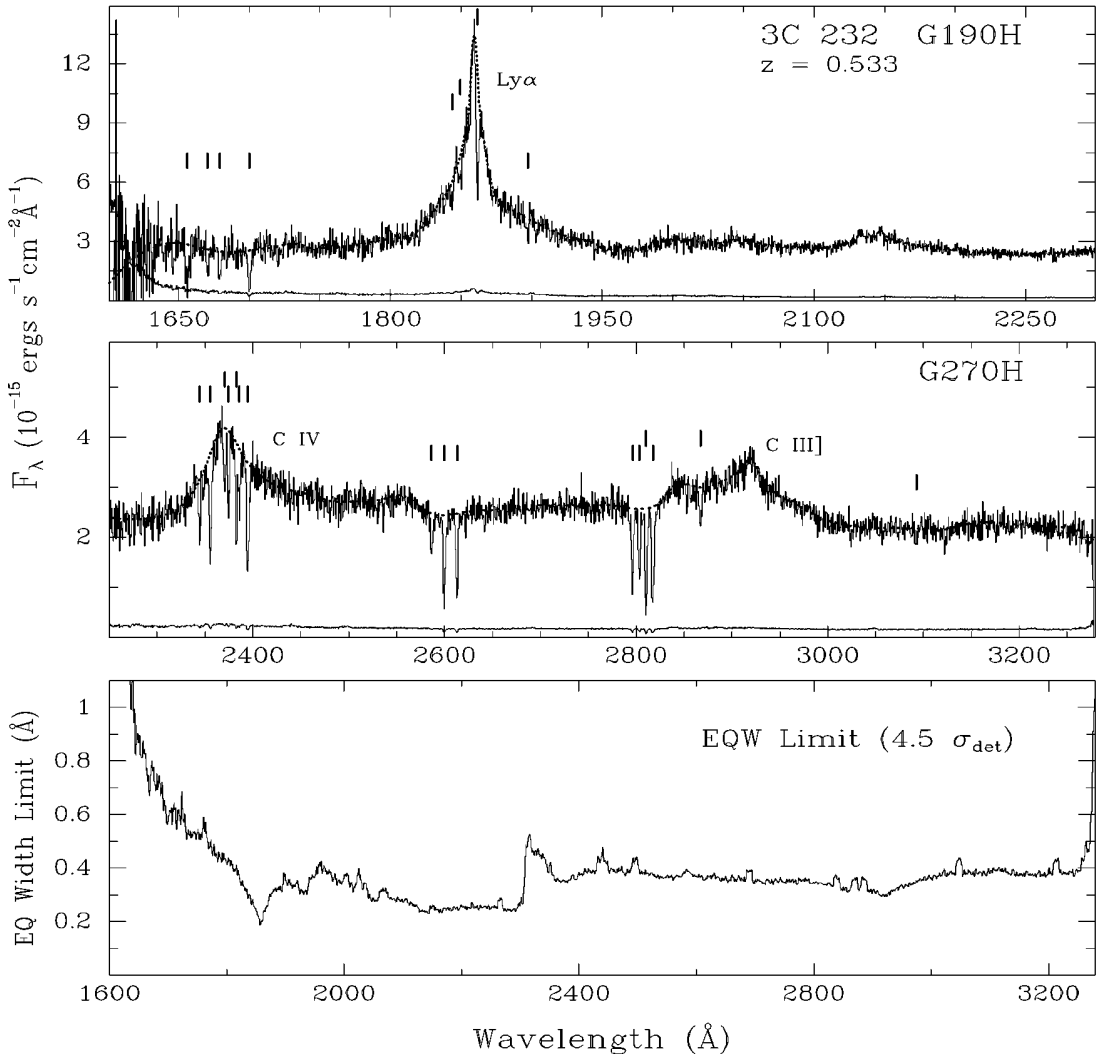


FIG. 2.—*Continued*

pairs of Lyα lines listed in the tables of identified lines in CAT1, CAT2, and CAT3 (Table 3, this paper) that could have been identified as being part of a total of 25 C IV doublets. The choice between being identified as a C IV doublet without any other associated lines or as Lyα absorption was not rigorous, and we have selected the identification that seems most likely for each case (based on the goodness of fit to the C IV doublet and the plausibility of the absence of other metal lines) but noted that formally an alternative identification would meet all of our identification rules. In CAT3, Table 3, such systems are listed as either "C IV, p" (candidate C IV, associated Lyα not observable, might be Lyα lines) or "Lyα, p" (candidate Lyα, possibly C IV doublet). The "p" indicates that there is a specific probability that the identification of the indicated line should be Lyα (or C IV). The results in Table 4 can be used to determine this specific probability, and we make use of this in our paper on the evolution of Lyα absorbers (Weymann et al. 1998). In addition to the systems listed in Table 3, there are similar systems among the objects considered in CAT1 and CAT2. In general these systems in CAT1 and CAT2 are not indicated in the line identification tables with a special note or symbol, although four of the five pairs of lines that occur in PG 1634+706 and one of the three pairs in PG 1352+011 are noted in the CAT2 tables. For completeness, we now list the objects from CAT1 and CAT2 that have such candidate C IV or pairs of Lyα lines and the wavelengths of the lines comprising such systems: PKS 0044+03 (1928.38, 1931.94 Å), 3C 454.3 (1786.37, 1789.08 Å), TON 153 (1995.65, 1999.03, 2029.16, 2032.06, 2034.49, 2036.95, 2038.76 Å), PG 1352+011 (1846.54, 1848.97, 1851.97, 1894.26, 1896.77 Å), and PG 1634+706 (2412.04, 2416.80, 2453.03, 2457.65, 2557.44, 2560.88, 2564.86, 2599.88, 2603.34, 2755.05, 2759.96 Å).

For the purposes of this section of the paper only, we will consider all of the C IV doublets without other lines that have a significant probability of actually being two Lyα lines (the "C IV, p" systems) and the pairs of Lyα lines that could have been identified as C IV doublets (the "Lyα, p" lines) as possible false identifications as C IV doublets. There are a total of 46 doublets of this type in the completely identified line lists in the combined catalog.

We can now consider the reliability of the C IV doublet identifications in our catalog and estimate the fraction of the identified C IV systems that might be the result of the chance matching of Lyα or other lines. There are 107 tabulated C IV absorption-line systems in the combined catalog of absorption systems, but since our simulations can be

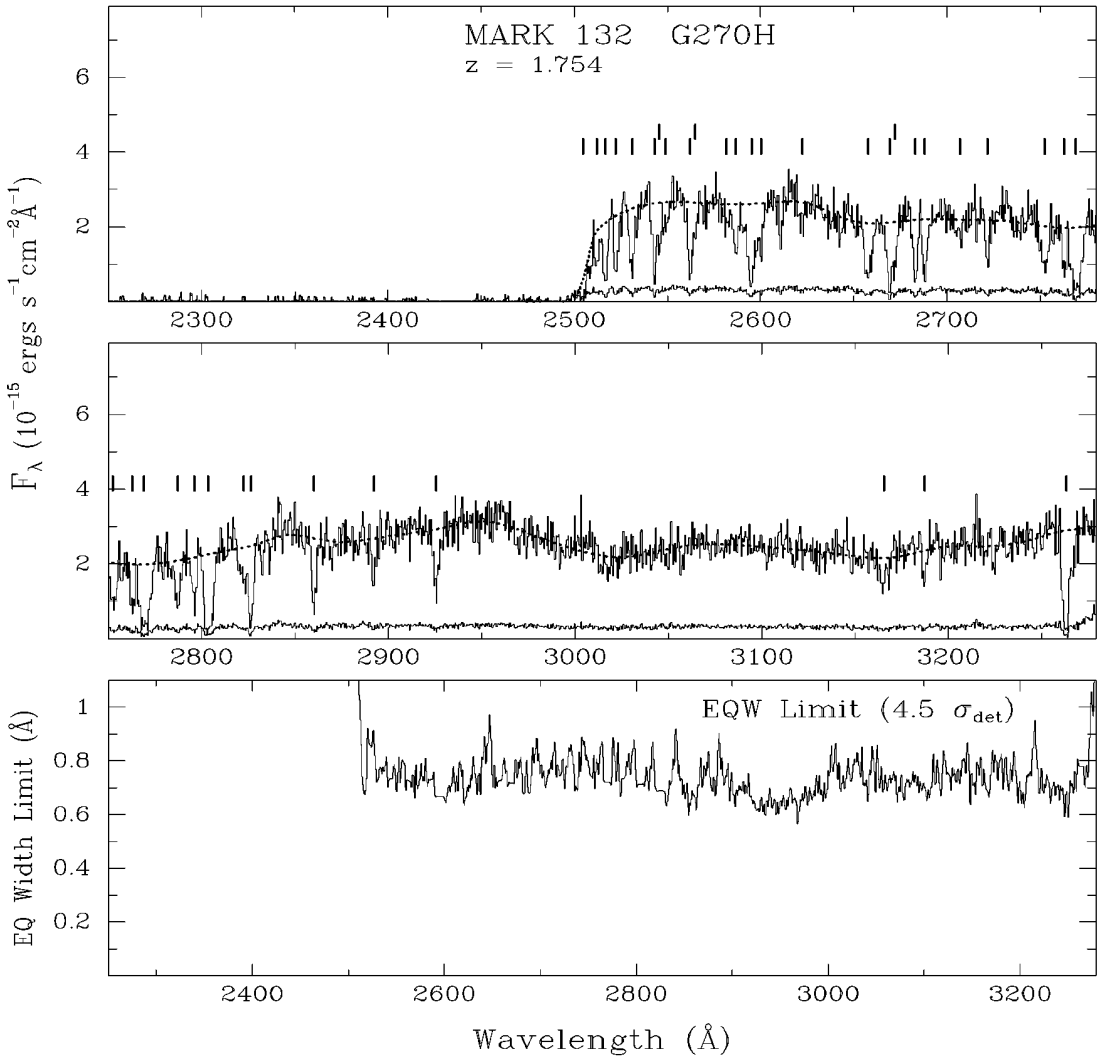


FIG. 2.—*Continued*

generated only for completely identified line lists we must restrict ourselves to 70 objects. There are 97 tabulated C IV systems in this subset of the entire catalog and an additional 25 "Lyα, p" systems, for a total of 122 candidate C IV systems. Fifty-nine of these systems occur redward (longward) of the quasar's Lyα emission, and 63 occur at wavelengths blueward (shortward) of the quasar Lyα emission. We will consider the reliability of these identifications as a function of being blueward or redward of the quasar redshift.

Of the 63 C IV systems observed blueward of the quasar Lyα emission, 14 have an extremely small probability of being chance identifications: nine systems that have both lines from the doublet, Lyα absorption, and additional associated metal line absorption and/or higher Lyman series lines; three systems that have both lines from the doublet plus multiple other metal lines detected; two systems that have one line of the C IV doublet detected (the stronger, C IV λ1548.20), Lyα absorption, and additional metal lines. Three additional systems (composed of both lines from the C IV doublet, an associated Lyα absorption line, but no additional lines) have a finite probability of being a chance system (in the entire survey, on average, only 0.48 systems of this type are expected, including both blueward or redward systems). The remaining 46 systems have a larger chance of being false identifications. These systems include 21 "C IV, p" and 25 "Lyα, p" systems. Based on the results of our simulations, we estimate that in the spectra of the 70 quasars with completely identified line lists we would expect 20.97 ± 4.6 of the 46 candidate C IV systems to be the result of the chance alignment of other lines. In summary, approximately one-third of the C IV doublets that occur blueward of the quasars' Lyα emission are expected to be Lyα lines.

Understanding the chance number of systems is more straightforward for the 59 systems with their C IV doublets redward of Lyα emission. Among the 59 are 32 systems with the C IV doublet, Lyα, and additional metal and/or H I (Lyman series) absorption lines detected. The probability for a chance system with these characteristics is negligible. Similarly, the broad system in the spectrum of PG 2302+029 is certainly a real system (see the next section and Jannuzi et al. 1996). There are 11 additional C IV doublets observed redward of the quasar Lyα emission for which Lyα absorption is also detected, but no other metal lines are associated with the system. For these systems the simula-

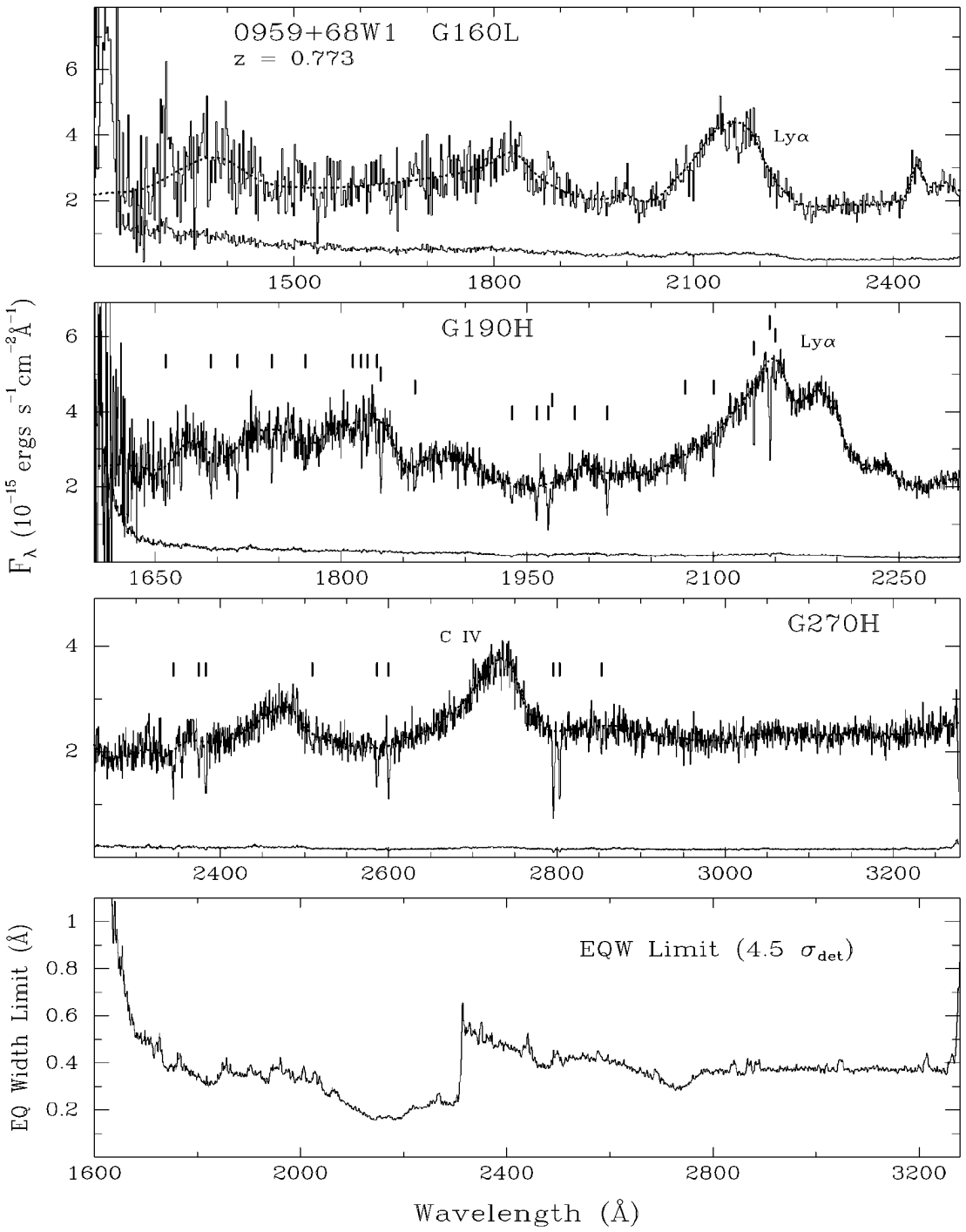


FIG. 2.—*Continued*

tions reveal that there is close to zero probability that there is a false identification. For two of the 59 redward C IV doublets, any associated Lyα absorption was not accessible in our observed wavelength region. Based on our simulations, we expect 0.5 such systems to occur in our sample drawn from the 70 completely identified quasar spectra. Finally, the 59 redward C IV systems include 13 identifications that have only the strong line of the C IV doublet detected. Twelve of these include absorption by Lyα; a subset of four systems includes additional metal lines. In the 13th system the expected wavelength of associated Lyα absorption was not observable, but the system does have the weaker line of the C IV doublet in our incomplete sample. We estimate for the observed singlet redward C IV systems and those redward C IV doublet systems that do not have detected associated Lyα absorption that a total of 2.5 ± 1.0 systems are the product of a chance occurrence of other absorption features.

Combining the results of the simulations for false C IV identifications, we estimate that among the 122 C IV systems (including the 25 Lyα,p pairs) in the completely identified line lists, there are 24 ± 5 that are false identifications.

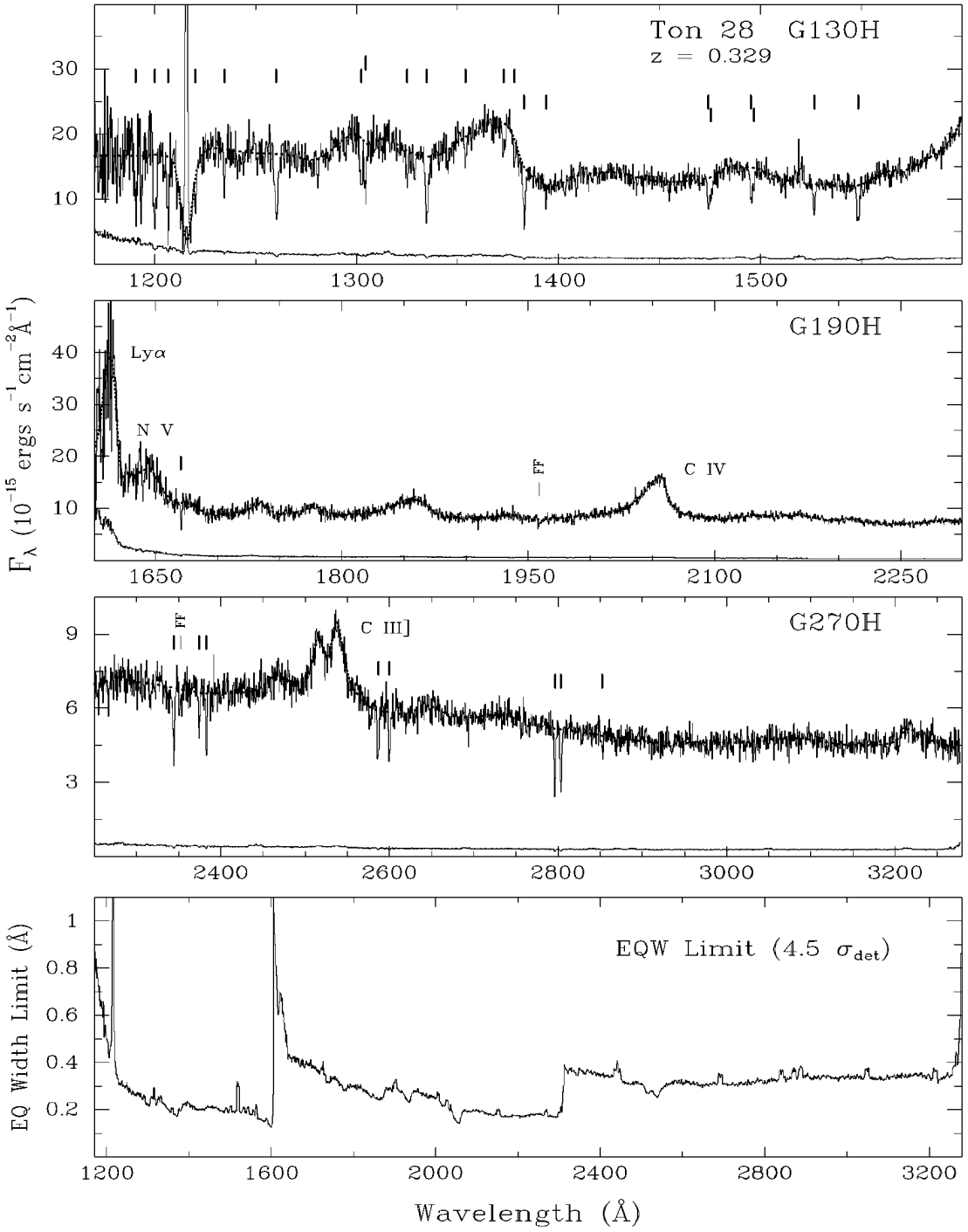


FIG. 2.—*Continued*

A similar analysis leads to an estimate of the number of false O VI identifications included in our sample of 31 O VI systems (from a total sample of 41) contained in the spectra of the 70 objects for which identifications are complete. The simulations of pseudo–O VI systems were carried out as described in CAT2, and the results are presented in Table 5. For pseudo–O VI doublets, the average number per spectrum varies from 0.0 to 0.08. Except for the case of UM 18 (see below), all of the identified O VI pseudodoublets are associated with detected Lyα lines, as is required by our identification rules. Relatively few accidental O VI doublets are found in the observed spectra, principally because of the limited redshift range in which the O VI doublets are observable and because Lyα is nearly always accessible when O VI is detected and provides a strong constraint against chance identifications. For all but one of the objects for which we performed simulations, any candidate O VI doublet would have to have its associated Lyα accessible. However, for the highest redshift quasars in our sample, and specifically for UM 18, this is not the case for the entire O VI path length; at the highest redshifts, any Lyα associated with the candidate O VI system moves beyond the red edge of the G270H

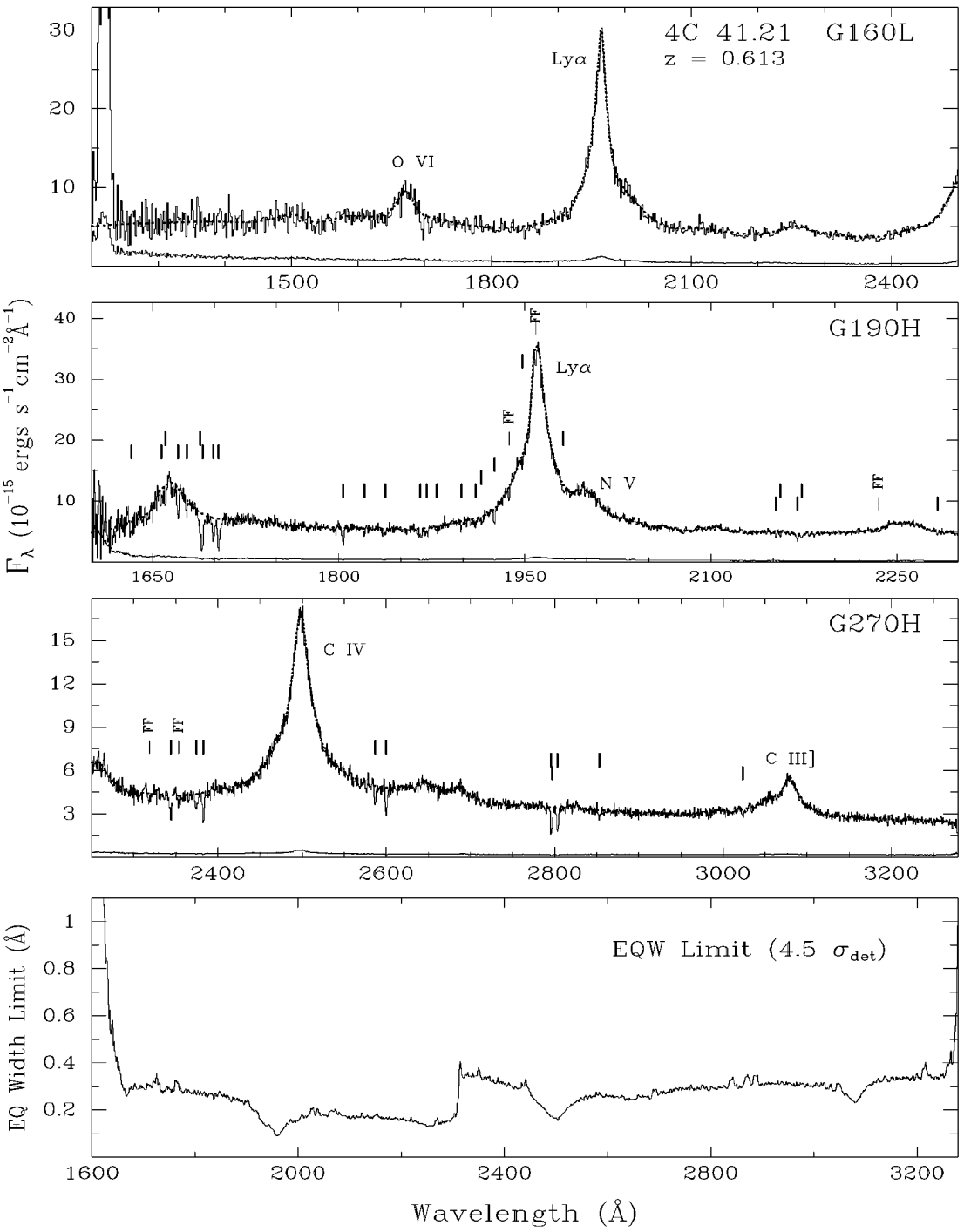


FIG. 2.—*Continued*

observations. This explains why the mean number of chance O VI systems without Lyα is different from the mean number with Lyα only for UM 18; for the rest of the higher redshift quasars the line identifications are not complete, and we did not perform any simulations for these line lists.

Twenty-two of the 31 identified O VI systems have both lines of the O VI doublet detected, and the vast majority of these systems (18) are extensive metal line systems that have a negligible probability of being a chance absorption complex. Although the reality of the associated O VI is less certain, these systems are probably real (e.g., see Table 5 for examples of the low probabilities for false isolated doublets in general). There are eight systems for which only the stronger line of the O VI doublet is in the complete sample, but six of these are also part of extensive metal line systems. While the association of O VI absorption with these systems when traced by a single line is less secure, nearly all of these identified O VI systems are expected to be real. Using our simulations we find that the sum over all 70 objects of the mean expected number of false O VI doublet systems that would contain both lines of the doublet plus associated Lyα absorption is only 0.55.

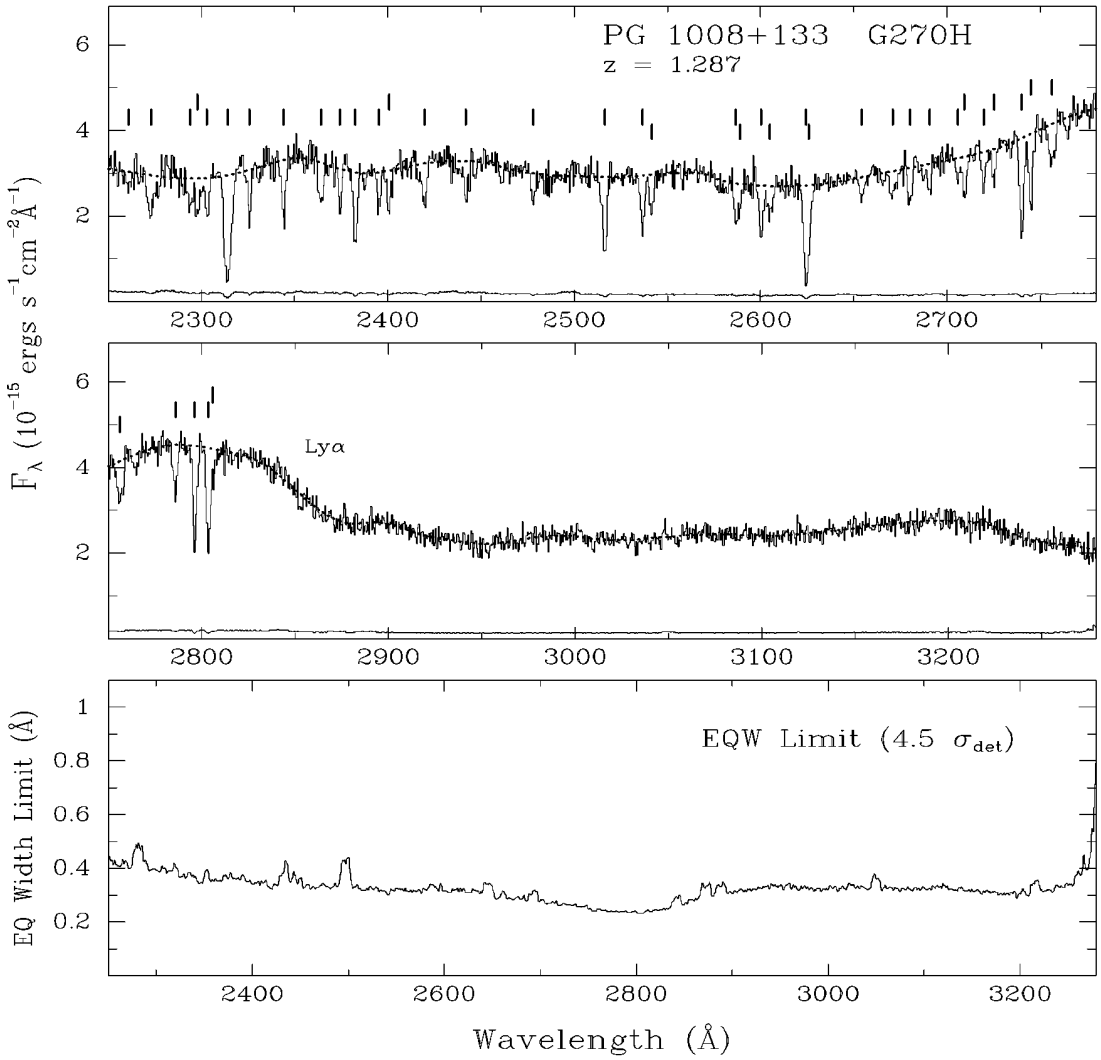


FIG. 2.—*Continued*

We estimate that of the 31 O VI systems in the sample of 70 objects with completely identified lines, one is a chance coincidence or false identification.

4. NOTES ON INDIVIDUAL SPECTRA

In this section we present descriptions and notes on the spectra obtained as part of the survey. The notes are grouped by object and presented in order of the right ascension (B1950) of the object. Entries are presented for all of the 92 objects, but complete notes, table of identifications (Table 3), and figures (Fig. 2) are included only for the objects being discussed for the first time or being reanalyzed because of the availability of additional wavelength coverage (a new G130H spectrum of PKS 2251+11 analyzed together with the G190H and G270H spectra from CAT1) or to use the same analysis software on the spectrum (PKS 0405−123 from the Bahcall GTO program).

For a small fraction of the detected features in the line lists, we have included comments in § 4 that the feature detected by the line measurement software is not believed to be a real feature but rather is an artifact of an imperfect fit to the continuum. In the vast majority of cases, these features are broad and shallow, are probably due to a systematic error in the continuum fit that placed the fit, and have a SNR in their measured equivalent width that is less than 4.5, while still having SL > 4.5. Such slight systematic shifts of the continuum were not always caught during the review of the continuum fits, but once the line identification process was started for a particular line list we did not allow revision of the continuum fit in order to avoid introducing any additional bias into the line measurement process.

In general any detected Lyα absorption due to gas associated with our Galaxy was not properly measured by the software, and in many cases the depression or dip in the spectrum was "taken out" by fitting the feature during the construction of the continuum fit. When the Galactic Lyα absorption was present, it was always a damped feature and contaminated by geocoronal Lyα emission and would not have been well measured by our software in any case. Fitting the feature as part of the continuum fitting process allowed weaker, nearby intergalactic Lyα absorbers to be detected and measured by the software.

UM 18 (R.A.: $00^h02^m46^s.3$, decl.: 05°07′29″.0, B1950; $z_{em} = 1.89$, 108 lines).—Our spectrum of UM 18 is an example of the spectra, all of moderate- to high-redshift quasars, that presented the greatest difficulties in the measurement and identification of their absorption lines. These spectra share the properties of heavy line blending, difficult

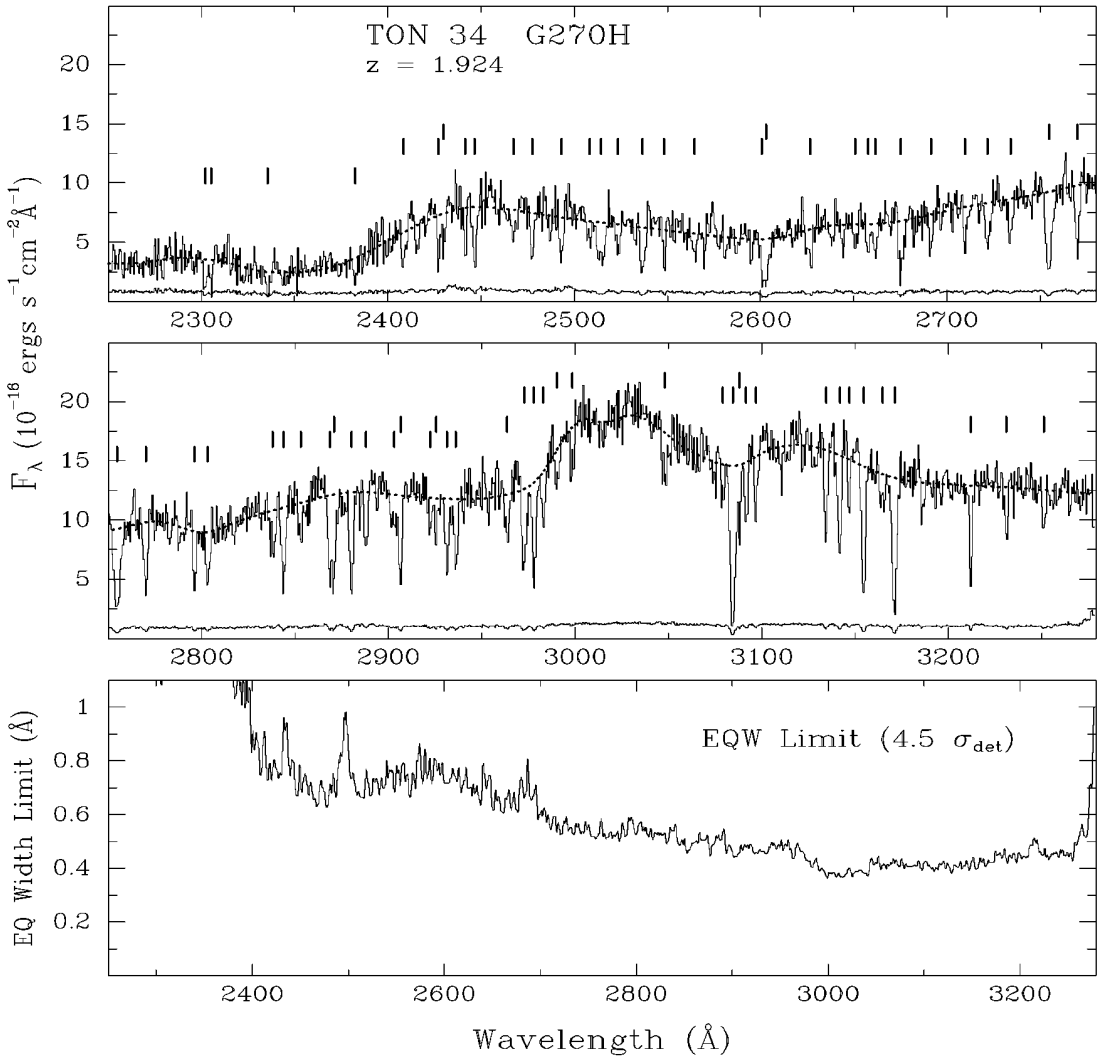


FIG. 2.—*Continued*

continua to fit, and limited total observed wavelength coverage. We will use our discussion of the identification of the lines in UM 18 to illustrate these points.

The higher redshift objects have a larger density of observed absorption lines for at least three reasons:

1. The rest equivalent width detection limits in the higher redshift quasar spectra tend to be lower (i.e., more sensitive to intrinsically weak Lyα absorption lines) than those of the low-redshift quasar spectra because the survey was designed to deliver spectra of uniform signal-to-noise ratio (i.e., uniform in observed equivalent width limit; see Fig. 1 of Weymann et al. 1998).
2. Many of the higher redshift quasars have at least one Lyman limit system in their spectra, which results in numerous associated metal lines and higher order Lyman lines in their spectra.
3. The higher order Lyman series lines (Lyβ, Lyγ, etc.) are more readily observable in these spectra owing to a larger observed path length at the higher redshifts (i.e., more of the less numerous stronger systems are included) and the more sensitive rest equivalent width detection threshold.

All of these effects are evident in the spectrum of even the moderate-redshift quasar PG 1538+477 ($z_{em} = 0.770$) as shown in Figure 3 of Jannuzi (1998).

The higher density of lines combined with the relatively low spectral resolution of our observations results in severe blending of features, complicating every aspect of the analysis: the fitting of the continuum, the selection and measurement of the absorption lines, and identification of the lines. For the objects with Lyman limit systems (including UM 18 and six of the eight objects for which we have incomplete identifications), the observed path length is also reduced, which limits our ability to cross-check candidate metal line identifications by looking for supporting lines elsewhere in the spectrum. Similarly, for any of the quasars with emission-line redshifts greater than about 1.6, our G270H spectrum does not extend far enough in the red to reach the quasar's Lyα emission line. This results in a region of each of these observed spectra that might contain Lyβ lines that are indistinguishable from Lyα because we can not check for an associated Lyα absorber longward of 3200 Å.

Given the problems discussed above, while we have listed identifications for the lines in the spectrum of UM 18, we consider these identifications to be less robust than the complete identifications presented for most of the objects in the combined catalog. As an example, while the strong lines at 2797.57 and 2802.84 Å are close to the wavelengths of

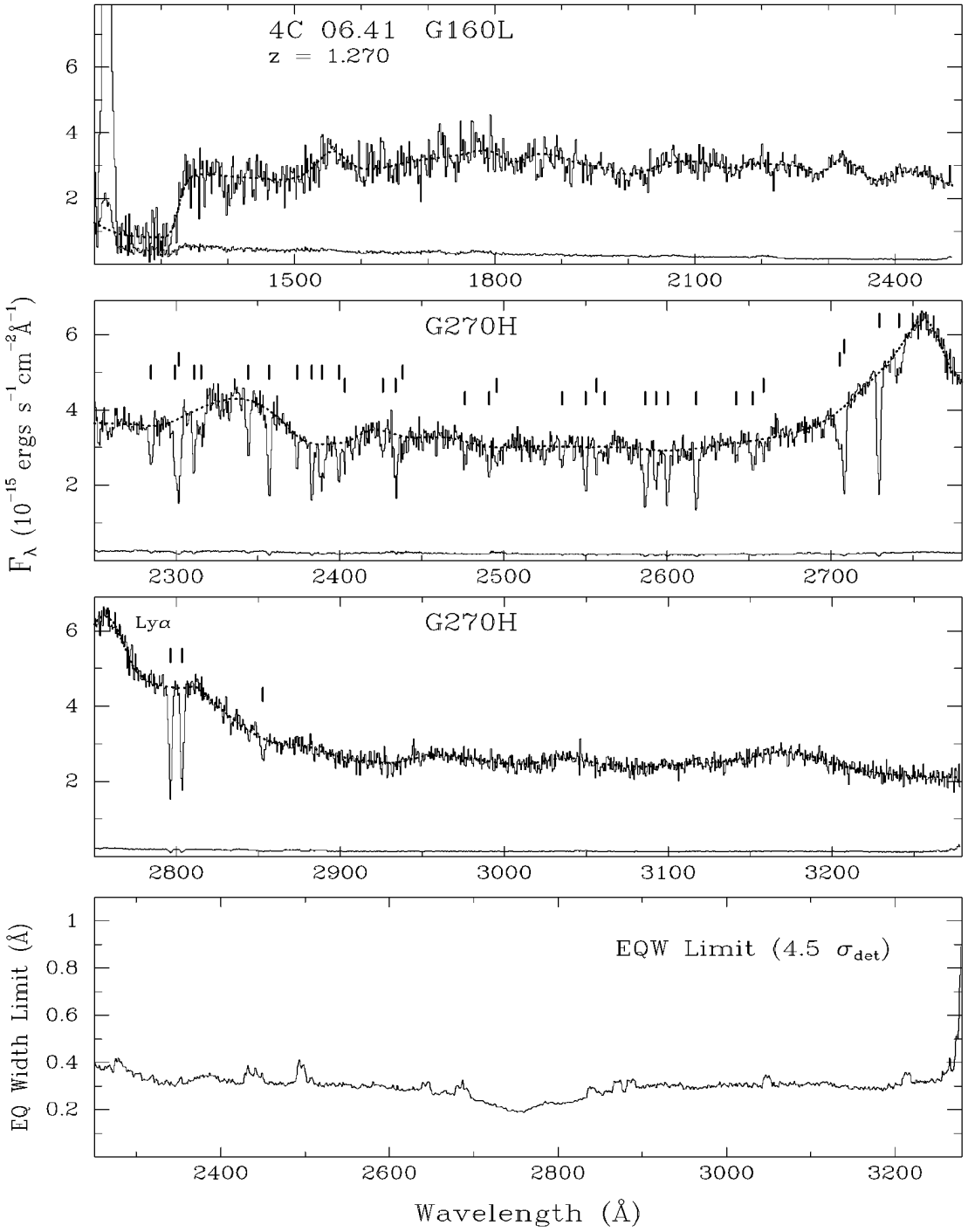


FIG. 2.—*Continued*

Galactic ISM Mg II, *ZSEARCH* formally rejected this identification in favor of either Lyα absorption systems or as a C IV doublet at $z = 0.8071$. There were also several additional possible identifications for each line.

As we were completing this paper, a G190H spectrum of UM 18, obtained as part of a program of A. Koratkar and collaborators, became available in the *HST* archive. This spectrum, taken in spectropolarimetry mode, was reduced in a manner consistent with our own observations, although since the Al II λ1670.79 Galactic ISM line was not detected, we could not check the zero point of the wavelength scale. We used the G190H spectrum to identify the redshift and measure the properties of the Lyman limit system ($z = 0.86$) listed for this object in Table 6. This LLS might be associated with a candidate metal line system present at $z = 0.8519$ or one of the other systems identified between $z = 0.85$ and 0.87. Unfortunately, the generally poor signal-to-noise ratio of the G190H spectrum yielded only one line that would normally meet our criteria for inclusion in the complete sample (at 2011.75 $\pm$ 0.76 Å,

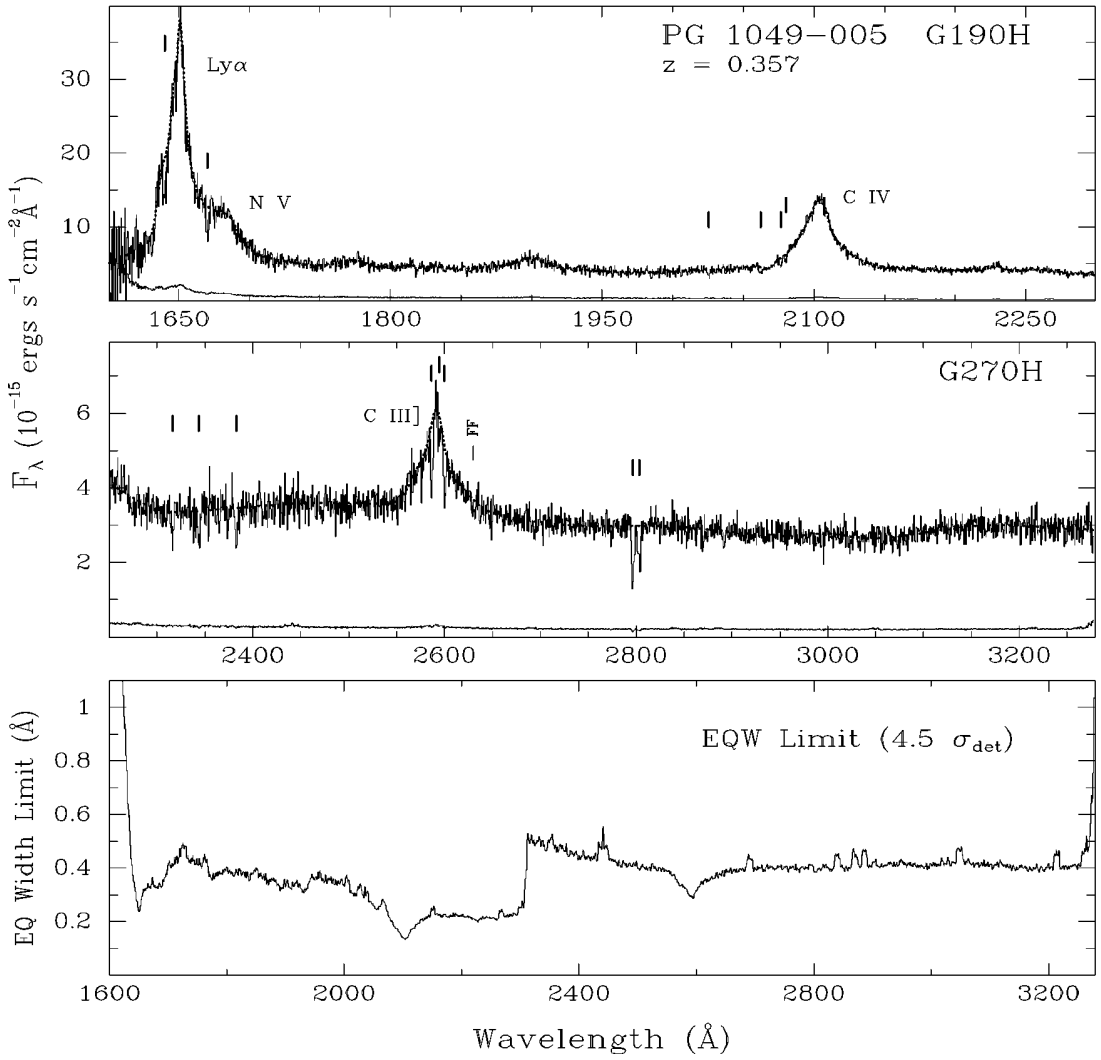


FIG. 2.—*Continued*

$W = 1.54 \pm 0.56$, FWHM = 4.24, SL = 6.5) if the spectrum had been taken in a manner consistent with our other observations; this single additional line does not significantly aid the identifications of the lines in the G270H spectrum.

The remainder of our notes on the UM 18 spectrum consist of a listing of alternative identifications for some of the observed lines. The discussion of these identifications is not exhaustive but, rather, serves to demonstrate some of the complications faced when trying to identify all of the lines in the spectra of the higher redshift objects.

As we mentioned above, because our G270H spectrum ends near 3200 Å, there is a section of the UM 18 spectrum for which unidentified lines might be Lyβ lines associated with Lyα lines between 3200 and 3513 Å (the wavelength of Lyα emission for the quasar). This wavelength range includes the measured lines between 2760 and 2965 Å. While an isolated Lyβ line in this region could not be identified without additional data, if additional higher Lyman lines or metal lines are present, such systems could be verified. This is the case for the system at $z = 1.8011$: we did not observe the region containing Lyα absorption, but the system could be identified by the presence of the Lyβ, Lyγ, Lyδ, and Lyϵ absorption lines. An analysis including ground-based observations of the near-UV portion of the spectrum would help resolve some of the uncertainties in the identifications of the lines between 2760 and 2965 Å.

The lines at 2234.94 and 2238.33 Å could also be a C IV doublet at $z = 0.4433$. The line at 2334.08 Å might be Si III in a system at $z = 0.8519$ including candidate lines from Lyα, C II λ1334.53 (alternatively Lyα at $z = 1.0335$), Al II λ1670.79 (observed at 3093.95; alternatively Lyα at $z = 1.5452$), Fe II λ1608.45 (more probably Lyα at $z = 1.4458$ or part of a C IV doublet at $z = 0.9204$), and Si IV λ1393.76 (more probably Lyβ at $z = 1.5160$). This candidate system would also be in rough agreement with the redshift of a Mg II system detected by Churchill, Steidel, & Vogt (1996), although this fact was not used in choosing the above identifications and became known to us after completion of the identifications. The 2267.12 Å line would alternatively be Lyα at $z = 0.8649$. The Lyα line at $z = 0.8670$ (observed at 2269.66 Å) has candidate O I and Al II lines at, respectively, 2431.04 and 3118.56 Å. The Lyα line at 2320.50 Å is unusually broad and is likely a blend of several lines. The line at 2360.65 Å could be Lyβ at $z = 1.3011$ or Lyα at $z = 0.9419$. The line at 2383.60 Å

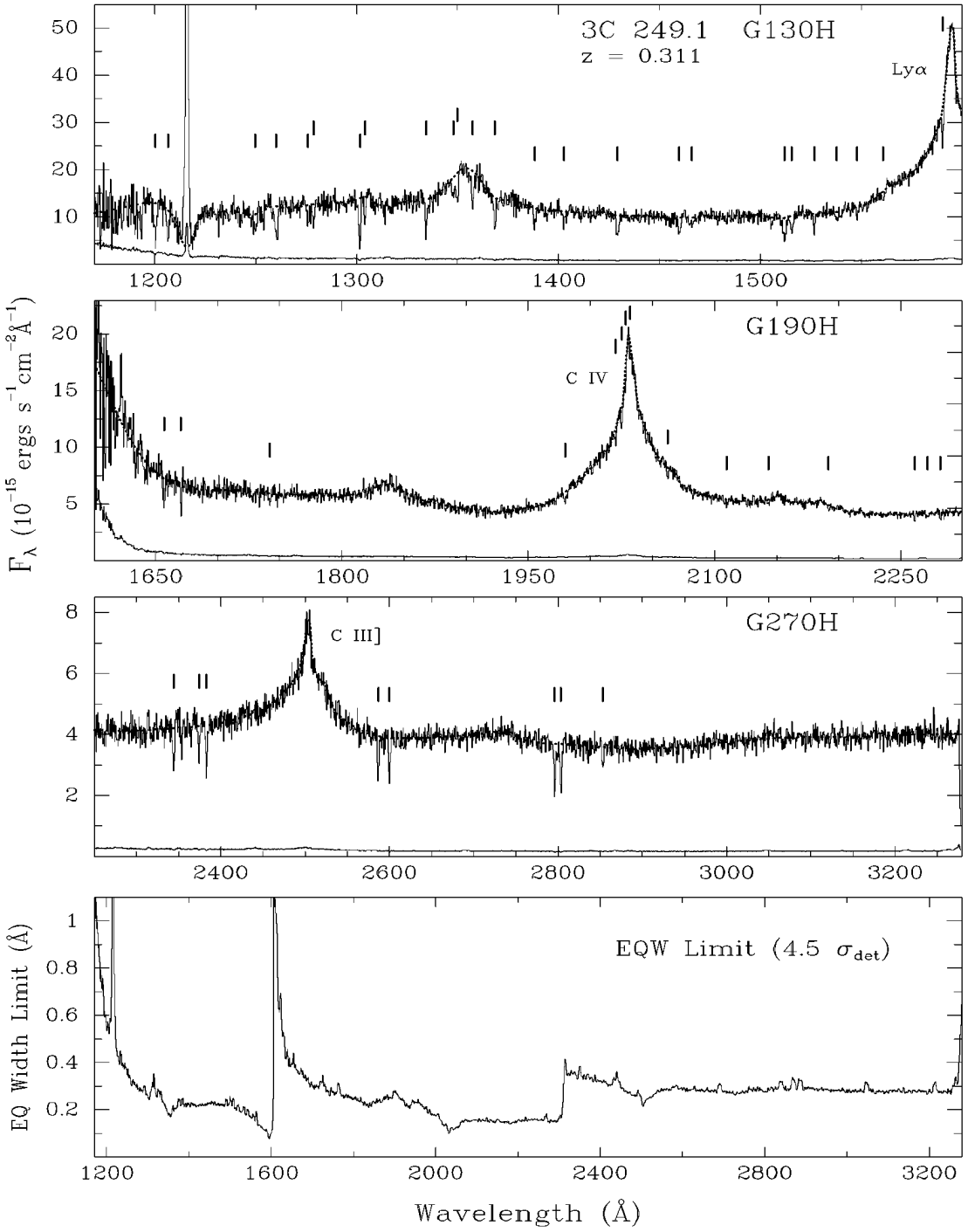


FIG. 2.—*Continued*

contains a component from the Galactic ISM Fe II λ2382.77 line but is a broad blend that certainly contains additional lines.

The system at $z = 1.4721$ might also include the O VI doublet at observed wavelengths 2550.59 and 2564.25 Å, although alternative identifications were marginally preferred. The Lyγ line of this system is alternatively Lyβ at $z = 1.3436$.

The lines at 2418.33 and 2431.04 Å might be an O VI doublet associated with other lines at $z = 1.3436$ (including the Lyα line currently listed at $z = 1.3438$, which is quite broad and probably a blend). The broad line (blend?) at 2540.53 Å might include N II at $z = 1.3436$. The line at 2944.45 Å had multiple equally probable identifications. The lines at 2973.27 and 2978.78 Å might be a C IV doublet at $z = 0.9204$. The candidate $z = 1.4377$ system currently includes identifications of absorption from Si II λ1260.42 and Si II λ1193.28 at, respectively, 3072.46 and 2908.15 Å, but these lines might alternatively be caused by Lyα absorption. The metal line identifications were slightly preferred owing to the presence of the higher supporting hydrogen absorption lines at the same redshift. The Lyγ line (at 2465.91 Å) from the $z = 1.5359$ system is blended with the Si II line from the $z = 0.9564$ system. The Lyβ line from the

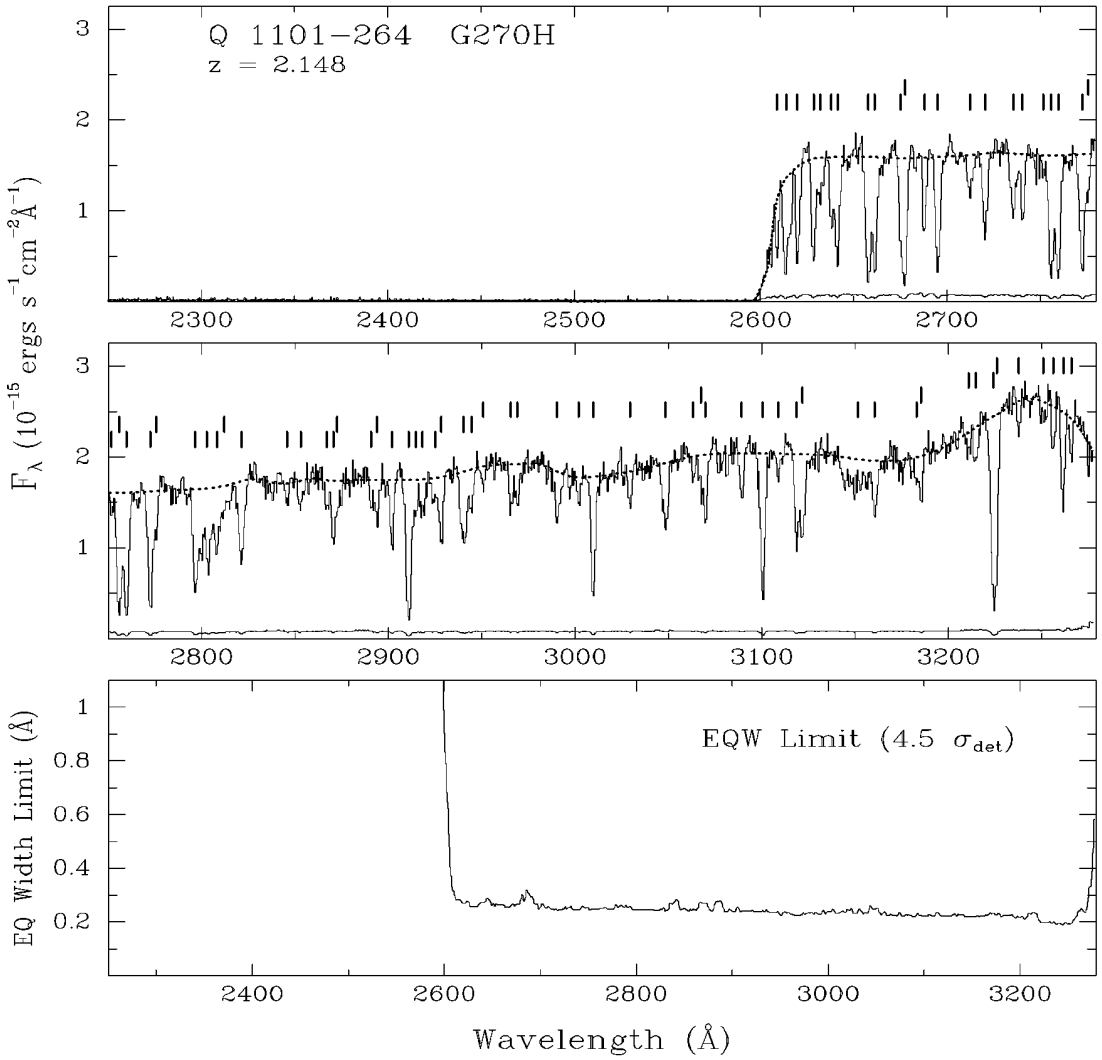


FIG. 2.—*Continued*

same system would be blended with the ISM Fe II line at 2600.89 Å. The system at $z = 1.500$ might include the O VI blended with the observed lines at 2580.59 and 2595.98 Å. Any associated C IV in this system would be redward of the observed spectrum. The line at 2607.45 Å might include a component of Galactic ISM Mn II.

PKS 0003+15 ($z_{em} = 0.450$, 58 lines).—In total there are 21 Lyα lines identified along this line of sight, two of which are associated with detected metal line systems ($z = 0.3660$ and 0.4014). The strong Lyα line in the $z = 0.3660$ system (at 1660 Å) is likely to have an associated C IV doublet contained in the very broad (most likely heavily blended) absorption complex between 2113 and 2118 Å. The expected wavelengths for the associated C IV would be 2114.82 and 2118.33 Å. The observed Lyα line is intrinsically broader than 270 km s^{-1}; it would not be too surprising for the matching C IV to be contained in more than one component. This heavy blend of candidate C IV absorption was fitted by the software as two narrow components and one broad component, but a fit to two doublets would be justifiable. We identify this complex collectively as C IV associated with the $z = 0.3660$ system. In the incomplete sample the Lyϵ line of this system is present at 1280.90 ± 0.21 Å ($W = 0.31 \pm 0.10$ Å, SL = 4.23, FWHM = 1.36 Å). The two lines at 1408.87 and 1416.41 Å and identified as Lyα lines might contain O VI associated with the $z = 0.3660$ system. The region of the spectrum between the lines at 2179.46 and 2183.15 Å was difficult to fit because of a narrow apparent emission line (probably not real) at 2184 Å and the resulting uncertainty in the continuum fit. These latter two absorption lines might be a C IV doublet at $z = 0.4078$.

Galactic ISM lines in the incomplete sample include Si III (1206.37 ± 0.23 Å; $W = 0.69 \pm 0.23$ Å; SL = 4.04; FWHM = 1.39 Å), Si IV (1393.82 ± 0.20 Å; $W = 0.19 \pm 0.06$ Å; SL = 3.28; FWHM = 1.10 Å), and Mg I (2026.46 ± 0.30 Å; $W = 0.18 \pm 0.06$ Å; SL = 3.68; FWHM = 1.72 Å). The unidentified line at 2800.97 Å might be Mg II absorption by gas in a high-velocity cloud associated with our Galaxy. In this, the asymmetry of the 2803 Å line is mirrored in the corresponding 2796 Å line, although it was not fitted separately by the software. There is strong Lyα absorption from the Galactic ISM, but the line does not appear in the line list because the absorption was "taken out" by the continuum fit.

The average equivalent width of the eight unidentified lines is 0.23 Å, considerably less than the average strength of the identified lines and significantly less than the average

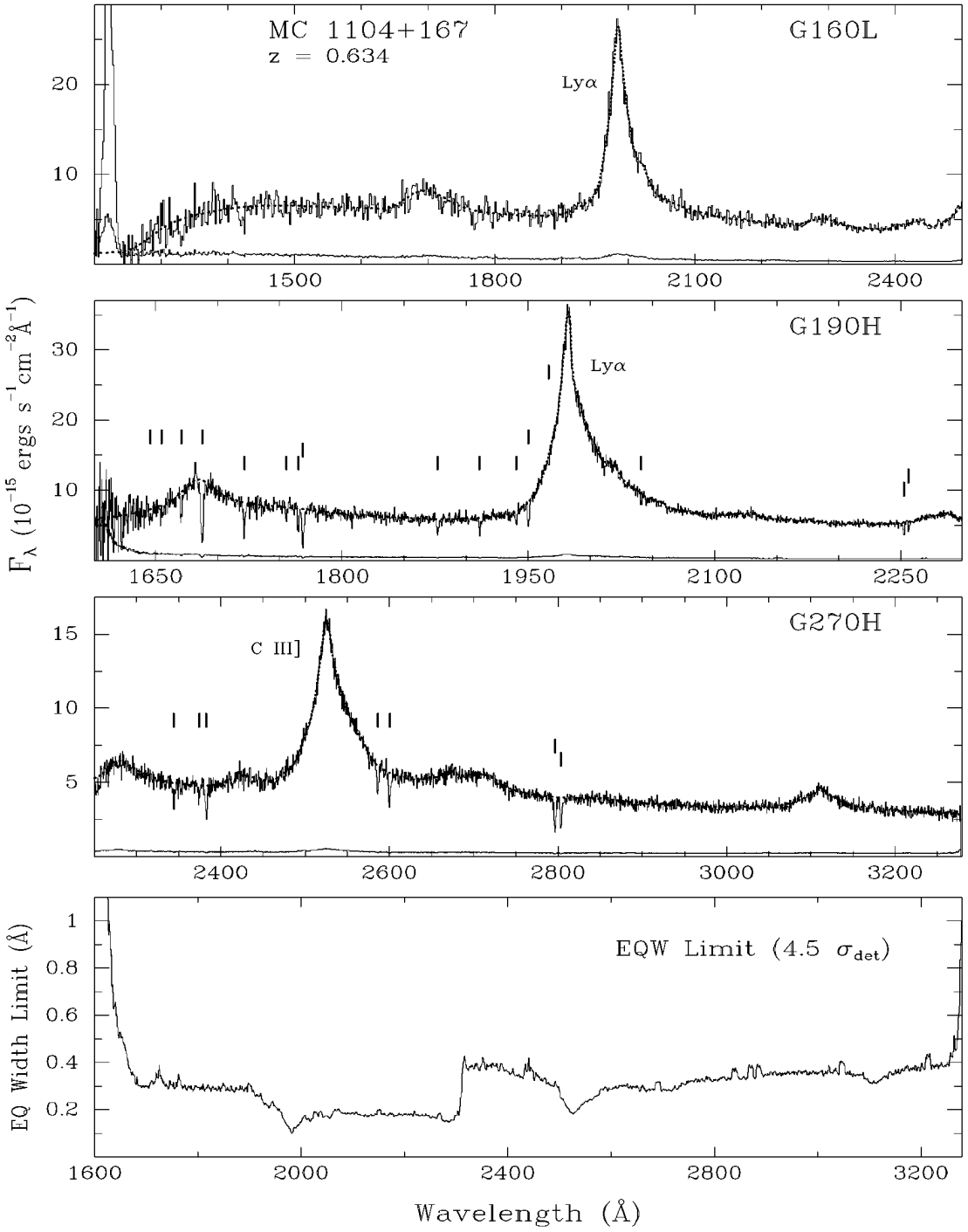


FIG. 2.—*Continued*

Lyα line identified in this spectrum (0.63 Å). A number of these unidentified lines may be unrecognized flat-field residuals or the results of errors in the continuum fit.

NAB 0024+22 ($z_{em} = 1.118$, 46 lines).—This spectrum contains 16 identified Lyα lines; five of these are associated with detected metal lines. There is a high-excitation metal line system at $z = 1.1102$, approximately 2300 km s^{-1} from the redshift of the quasar. This system contains C III, the C IV, and O VI doublets, as well as Lyα, Lyβ, and Lyγ. Lower excitation lines (e.g., of Si II, S II, N II, C II) were not detected. This system provides one of the few cases in our data set where a search for absorption by Ne VIII λλ770.4, 780.3 is possible; no statistically significant features are evident at 1625.7 and 1646.4 Å. However, the detection limits are large (more than 1 Å) because of the low signal-to-noise ratio of the spectrum near the short-wavelength edge of the G190H spectrum. The redshift of this system is less than 3000 km s^{-1} from the quasar redshift and would meet most definitions of being an associated absorber.

A metal line system at $z = 0.8196$ includes lines from C III, Si III, the strong line of the C IV doublet, Lyα, Lyβ, Lyγ, and Lyδ. There is a candidate C IV doublet at $z = 0.4069$ associ-

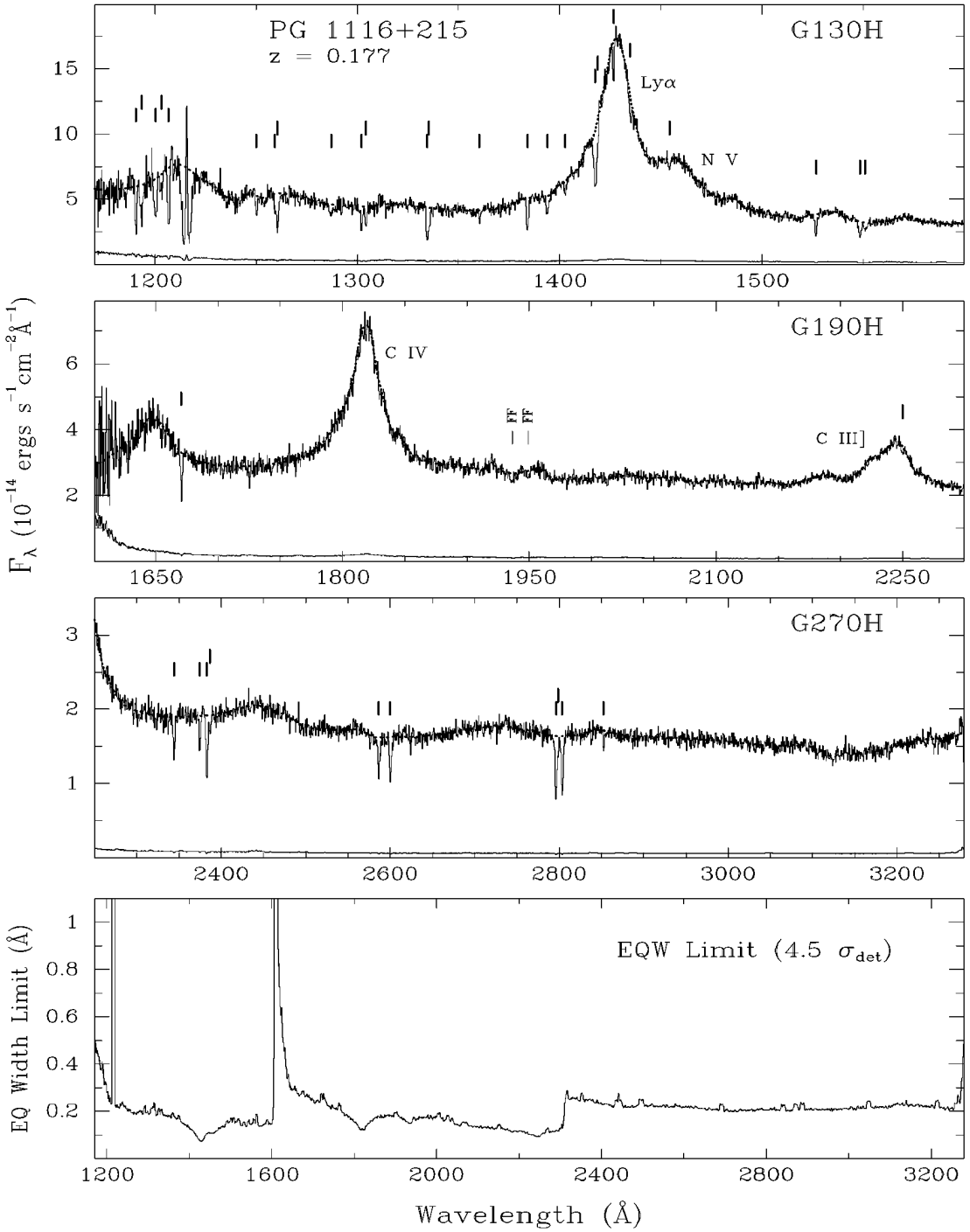


FIG. 2.—*Continued*

ated with the Lyα line at 1710 Å. The stronger line of the doublet would be blended with one of the O VI lines in the $z = 1.1102$ system.

The incomplete sample of lines contains three candidate Galactic ISM lines. These are from Al II λ1670.79 at 1670.81 ± 0.28 Å ($W = 0.50 \pm 0.15$ Å, SL = 3.22, FWHM = 1.51 Å), Mn II at 2594.26 ± 0.36 Å ($W = 0.24 \pm 0.07$ Å, SL = 3.36, FWHM = 2.04 Å), and Mg I at 2852.98 ± 0.33 Å ($W = 0.38 \pm 0.09$ Å, SL = 3.75, FWHM = 2.04 Å).

The line at 2419 Å is quite broad. If this feature is real it is likely to be a blend of the listed identification and some other unidentified feature.

Three of the lines in the spectrum are broad or resolved and have multiple possible identifications. Although these lines are likely to be blends, we have listed only one identification for each in the table. The following are possible additional contributors to the observed absorption: 1685.88 Å, Lyβ at $z = 0.6432$; 1727.75 Å, Lyγ at $z = 0.7760$; and 1773.50 Å, Si II at $z = 0.4069$.

PG 0043+039 ($z_{em} = 0.384$) CAT1.—One of six BAL quasars observed during the Key Project and Bahcall GTO program observations; the narrow absorption line identifications are presented in CAT1, and the object's BAL properties are discussed by Turnshek et al. (1994).

PKS 0044+03 ($z_{em} = 0.624$) CAT1.

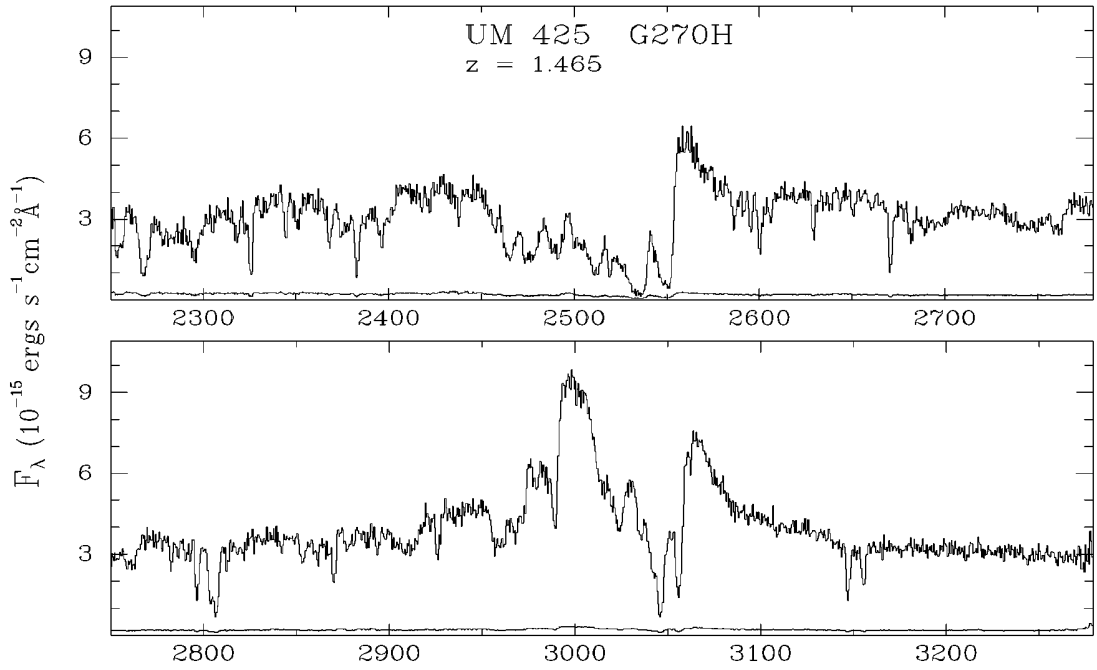


FIG. 2.—*Continued*

PG 0117+213 (z_{em} = 1.493, 84 lines).—There are 33 Lyα lines in this spectrum, seven of which are associated with detected metal lines. This spectrum contains two extensive metal line systems occurring close together in velocity space. The systems at $z = 1.3389$ (seven identified lines, including the candidate N II absorption; see below) and 1.3426 (14 lines) are of the order of 1000 km s^{-1} apart. Both systems include lines from high-ionization states of O VI. The O VI λ1037.62 line of the $z = 1.3389$ system is in the incomplete sample at 2426.72 $\pm$ 0.37 Å with an $W = 0.24 \pm 0.07$, a FWHM of 1.97 Å and a SL = 3.21.

The identification of 2271.87 and 3103.72 Å as, respectively, C III and C II in a $z = 1.3256$ system should be considered tentative. This system has both its Lyα and Lyβ lines blended with other lines. There is also a candidate O VI doublet associated with this system at 2399.18 and 2412.70 Å. The very strong line at 2488.89 Å is identified as Lyα at $z = 1.0473$. Surprisingly no other associated lines were detected in the system, although the expected wavelengths of lines from Si II, C IV, O I, and Fe II are all accessible in the spectrum. The 2574.74 Å line, a very broad feature, is likely a blend of absorption from several lines. While identified as Lyα, it likely contains O VI from the $z = 1.4952$ system. The identification of 2700.63 Å is uncertain, possibly being Lyα at $z = 1.2215$, C II at $z = 1.0237$, and/or N I at $z = 1.2503$. The reality of this feature is also uncertain, as it might be the result of an error in the continuum fit. While our identification rules lead to the 2595.24 Å line being identified as Galactic Mn II, no other lines of Mn II were detected, including the stronger line expected at 2576.89 Å. Therefore, it is possible that this line is intergalactic and caused by Lyα at $z = 1.1351$. The matching line of the C IV λ1548.20 at $z = 0.9676$ (3047.02 Å) would be expected to be blended with the observed line at 3050.44 Å, which is identified as O I in the $z = 1.3426$ system.

There are candidate systems at $z = 0.3159$ (Al III doublet observed at 2440.62 and 2451.23 Å), 0.5766 (Si II λ1526.72, C IV $\lambda\lambda$1548.20, 1550.77 doublet, Al II λ1670.79, and perhaps Fe II λ1608.45), and 0.9400 (Lyα, Al II λ1670.79, and perhaps Si II λ1260.42 and C II λ1334.53), which include several of the same lines. With only the information contained in our data, we are unable to identify firmly all of the possibly shared lines. However, the presence of Mg II absorption systems at $z = 0.5764$, 0.7289, 1.0478, and 1.3251 (Churchill 1997) support our independent decision of listing the $z = 0.5766$ identifications in the table when a choice had to be made. Alternative identifications for the lines in this system that have not already been mentioned include the following: 2407.08 Å (Lyα at $z = 0.9800$), 2444.84 Å (Si II at $z = 0.9400$), 2535.60 Å (N II λ1083.99 at $z = 1.3389$), and 2634.62 Å (Lyα at $z = 1.1672$). If the $z = 0.9400$ system is not real, then its C II line would most likely be Lyα at $z = 1.130$, and the Al II line would not have an identification.

Several pairs of lines in this spectrum are heavily blended or are asymmetric lines that our fitting software split into two components. As a result, equivalent width measurements of the individual components are uncertain, although the total equivalent width of the blended feature is accurately measured. These measured pairs include the following lines: 2382.92, 2384.98; 2593.13, 2595.24; 2782.44, 2784.87; and 2825.69, 2827.49 Å.

PG 0122−00 (z_{em} = 1.070) CAT2.

3C 57 (R.A.: 01^{h}59^{m}30^s.4, decl.: −11°47′00″, B1950; z_{em} = 0.670, 35 lines).—There are 19 lines identified as Lyα absorbers in this spectrum; none are associated with detected metal line systems. The line at 1934.94 Å, identified as Lyα, is part of a candidate C IV system at $z = 0.2498$ that includes this line and the line at 1938.24 Å. The lines at 1762.32 and 1766.24 Å might be a C IV doublet at $z = 0.1386$. The line at 1892.42 Å is probably the result of an error in the continuum fit. The strong and broad feature at 1609.20 Å needs to be confirmed as a real feature since it occurs at the end of the observed spectrum and is subject to

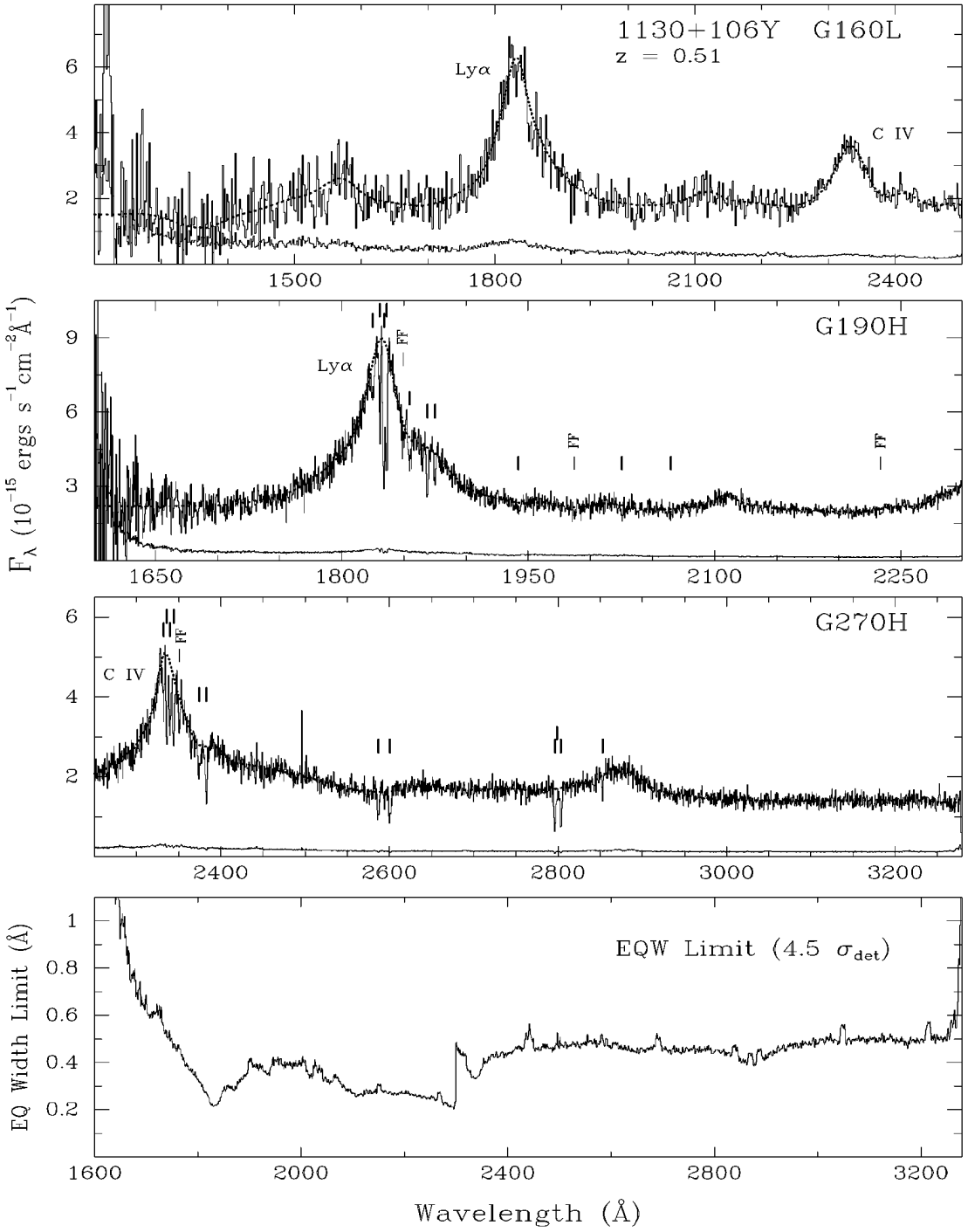


FIG. 2.—*Continued*

a large systematic error in the continuum fit. If the current measured line properties were confirmed, the line would be identified as Lyα at $z = 0.3237$ with lines of O I and C II observed, respectively, at 1723.17 and 1766.24 Å. The line at 1912.64 Å is probably an artifact of the continuum fit.

PKS 0232−04 ($z_{em} = 1.434$, 49 lines).—There are 25 Lyα lines in this spectrum, and metal lines are associated with two of these lines. The broad and shallow line at 2775.90 Å is likely to be a composite of several other lines that could not be separated at the resolution of our spectrum. The line at 2686.94 Å is blended with other lines and might not actually be an independent feature. The Lyα lines at 2890.85 and 2925.64 Å, which occur in the Lyα emission line, could be artifacts of the continuum fit. If the candidate C IV system at $z = 0.7391$ is not C IV, then the line at 2692.23 Å would be Lyα at $z = 1.2146$ with a matching Lyβ at 2270.76 Å. The 2697.12 Å line would be Lyα at $z = 1.2186$. The pair of lines at 2953.80 and 2961.95 Å were alternatively identified by *ZSEARCH* as a candidate doublet of Mg II absorption at $z = 0.0564$. *ZSEARCH* provides possible identifications of the lines at 2976.26 and 3175.91 Å as, respectively, N V ($z = 1.4021$) and Si IV ($z = 1.2788$), but in each case the weaker line of the doublet is not present. No damped systems or LLSs were detected in the G160L spec-

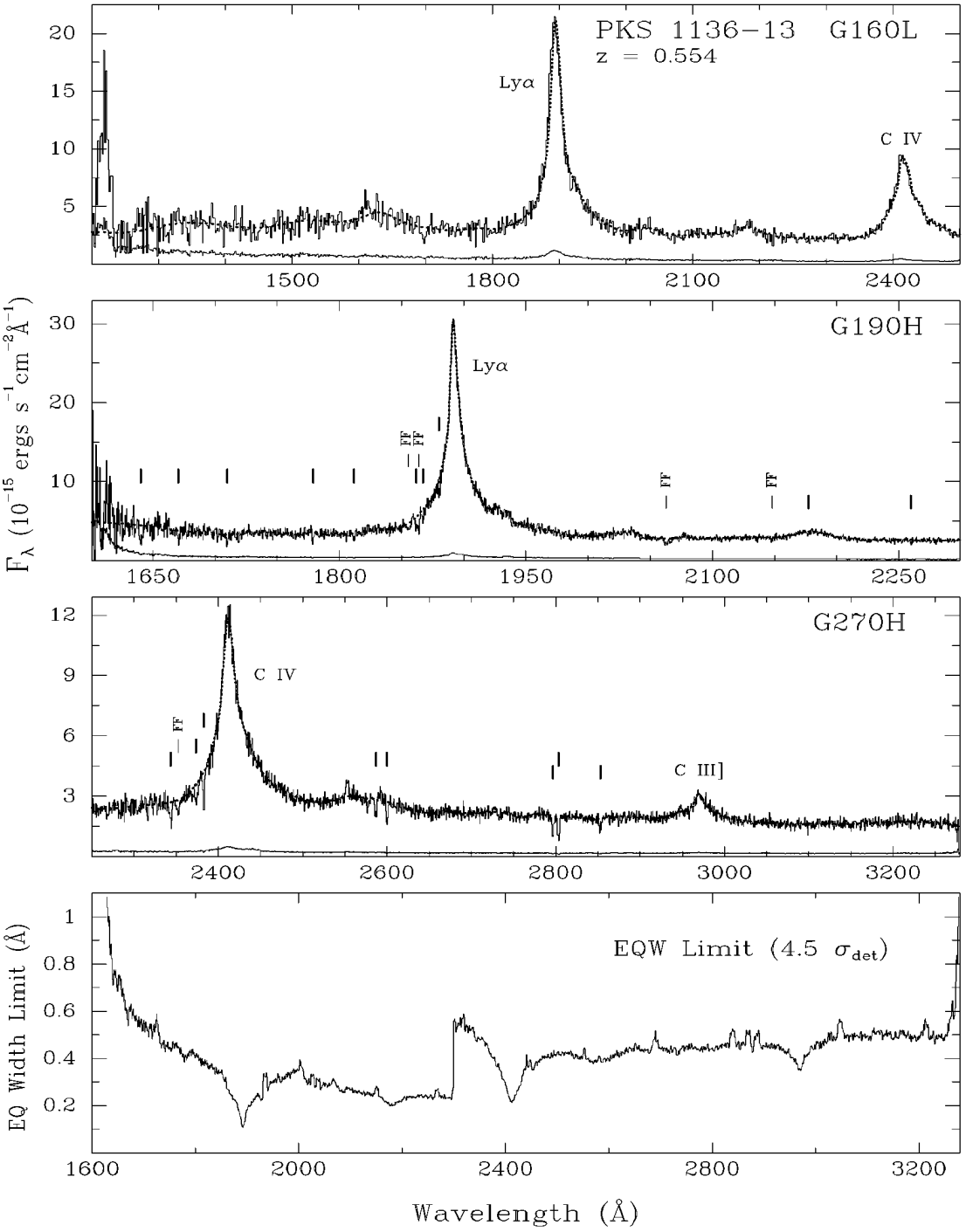


FIG. 2.—*Continued*

trum of this object.

3C 95 ($z_{em} = 0.614$) CAT1.

PKS 0405−12 ($z_{em} = 0.574$, 46 lines).—We have rereduced and reanalyzed the FOS spectra of PKS 0405−12 previously published by Bahcall et al. (1993b) using the current versions of the line measurement and identification software. The most important cause of change in the line list is the manner in which the complete sample was determined (see § 3.1 and Paper II for discussion of the difference between using the ratio of the measured equivalent width to the uncertainty in that measurement and the definition we have chosen for the quantity SL). Other modifications included an improved adjustment of the zero-point wavelength scale that resulted in a slight change of the measured velocities of the extragalactic absorption systems. A revised continuum fit for the G270H grating data caused significant changes to the measured strength of some lines.

Significant differences between the old and new line lists are the following:

1. The line at 1408 Å is now identified as Si III at a redshift of 0.1671, instead of Lyα.

2. The complex blend at 1252.27 Å is now identified as Lyα at a redshift of 0.0301. Although S II λ1253.79 probably

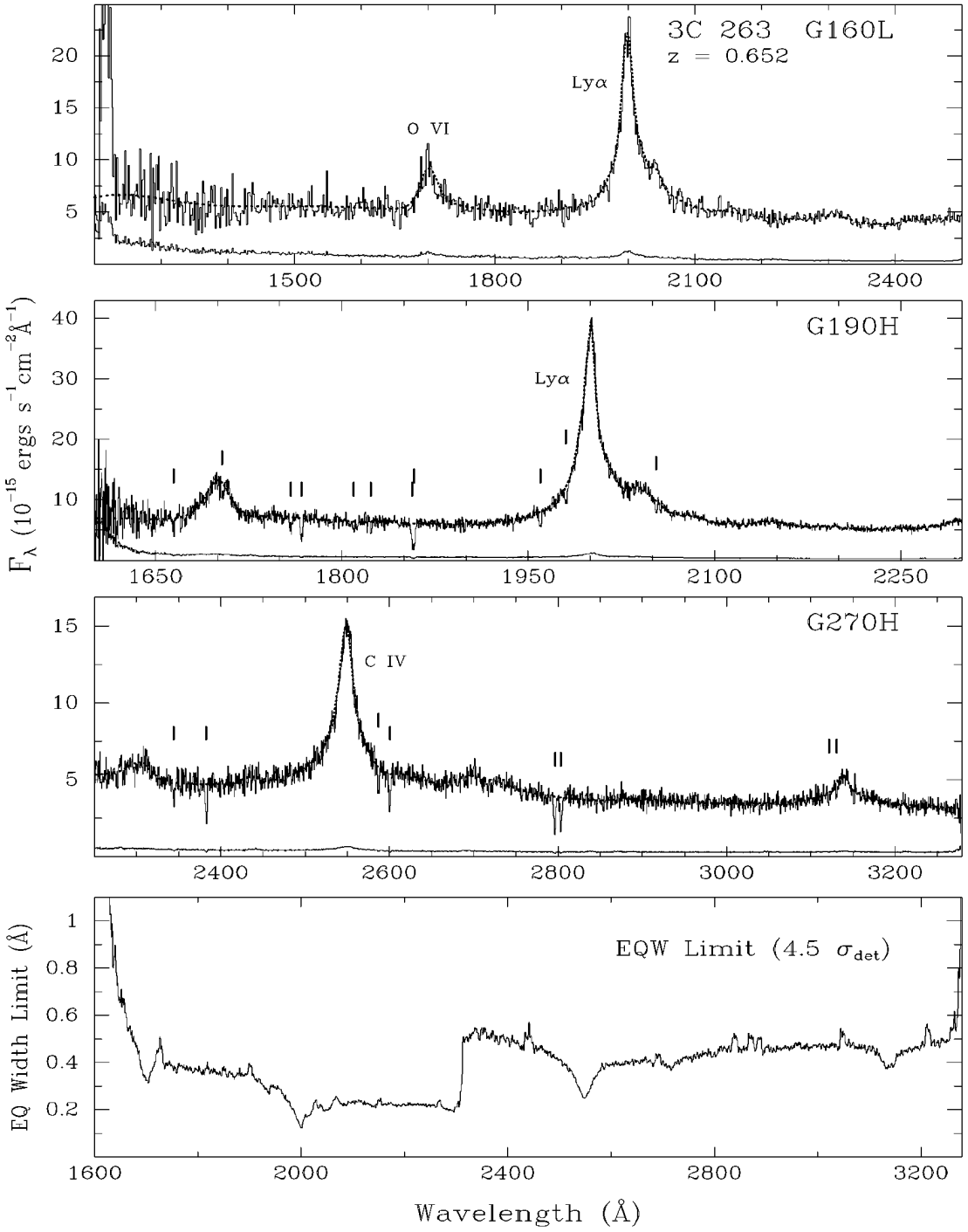


FIG. 2.—*Continued*

contributes to this blend, the wavelength difference between the expected and observed position of the line is too great for this line to be produced entirely by Galactic ISM S II. If the identification of this feature as Lyα is correct (and it would be valuable to confirm this with additional observations), then this system might be of particular interest for detailed study given its proximity.

3. We have identified three additional metal lines associated with the $z = 0.1671$ system noted by Bahcall et al. (1993b) and associated with two galaxies by Spinrad et al. (1993). The system is now known to include absorption from Lyα, C IV, Fe II, Mg II, Si II, and Si III.

4. Eleven lines appear in the new complete sample that were not in the Bahcall et al. (1993b) line list. Ten of these lines have equivalent widths less than 0.3 Å. All of the lines appear in the new line list because of either the change in the way we determined the significance of the line or a revision of the continuum fit. Of the 11 new lines, two are metal lines associated with the 0.1671 system, one is a Galactic ISM line, five are identified as Lyα, and three are unidentified. The unidentified lines are probably produced by slight errors in the continuum fit. The reason the continuum fit errors occur preferentially in the redward portion of the spectrum is because this region has a higher signal-to-

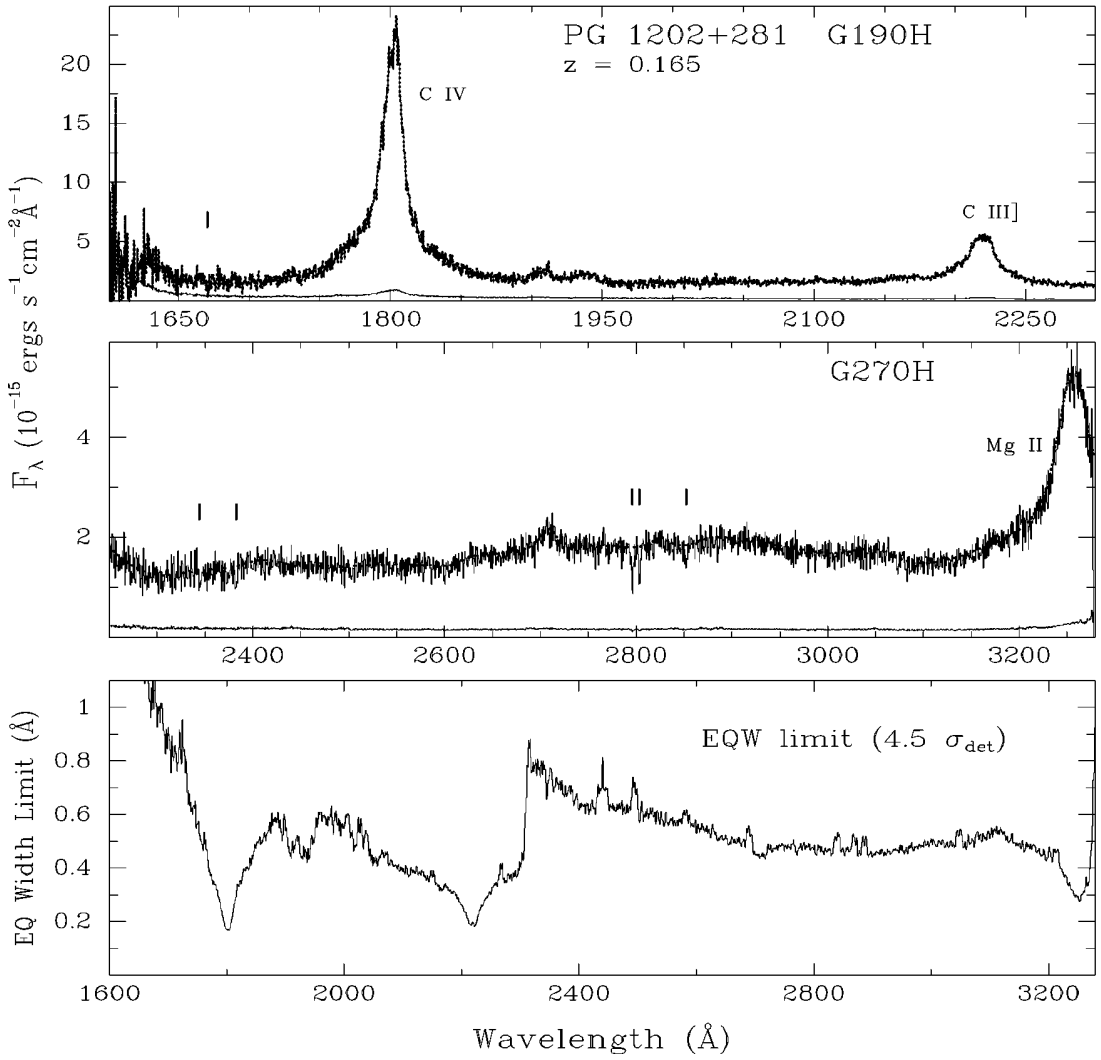


FIG. 2.—*Continued*

noise ratio and the quasar continuum emission is not well fitted by a low-order spline. The resulting "false" lines, which would normally be too weak to be included in the complete sample, have significance levels that are sufficient to require inclusion in the complete sample.

5. Six lines in the Bahcall et al. (1993b) sample are not in the new complete sample. Five of these lines are in the incomplete sample of lines: two retain their identification as Galactic ISM C II* λ1335.71 and Al II λ1670.79; two were previously unidentified lines (at 2711 and 3034 Å); one was previously identified as a Lyα line at $z = 0.3633$. One line from the old sample (at 2605 Å and previously identified as Galactic ISM Mn II) dropped below a SL of 3, and hence out of the incomplete sample, owing to the revised continuum fit. In summary, of these six lines, five are probably real, although they no longer appear in the complete sample.

Additional notes on the current identifications follow. There are 19 lines identified as Lyα with one of these lines associated with identified metal lines. The $z = 0.4056$ system might have an associated Mg II doublet detected in ground-based data (see Spinrad et al. 1993). Our revised measurements of the Lyα line that previously matched in velocity a galaxy in Spinrad et al. ($z = 0.361$) yield a larger separation in velocity than our original measurement. The line at 1577 Å is formally identified as Lyβ at $z = 0.5385$, but the line center is more than 3 σ away from the expected position, and this discrepancy might be due to another Lyα line at $z = 0.2977$. The Galactic ISM C II* λ1335.71 line is in the incomplete sample at 1335.60 ± 0.18 Å ($W = 0.28 \pm 0.07$ Å, SL = 4.00, FWHM = 1.10 Å). The Al II λ1670.79 Galactic ISM line is also in the incomplete sample at 1670.83 ± 0.21 Å ($W = 0.30 \pm 0.06$ Å, SL = 4.39, FWHM = 1.51 Å). The line at 1471 Å is identified as Si II λ1260.42 at $z = 0.1671$, but the observed width of this line suggests that it is probably produced by a blend of Si II with some other unidentified feature. The Galactic ISM Fe II λ2586.65 line is affected by a flat-field residual.

3C 110 (R.A.: $04^h14^m49^s.2$, decl.: $-06°01'04''.0$, B1950; $z_{em} = 0.773$, 33 lines).—There are 22 Lyα lines in this quasar's spectrum, but no extensive metal line systems were detected.

PKS 0439−433 ($z_{em} = 0.593$, 37 lines).—This spectrum contains an extensive metal line system at $z = 0.1010$. This mixed ionization system is 2–4 times stronger than the absorption found along typical paths halfway through the Galactic disk/halo gas observed from the position of the Sun. A total of 11 lines from this system are in the complete

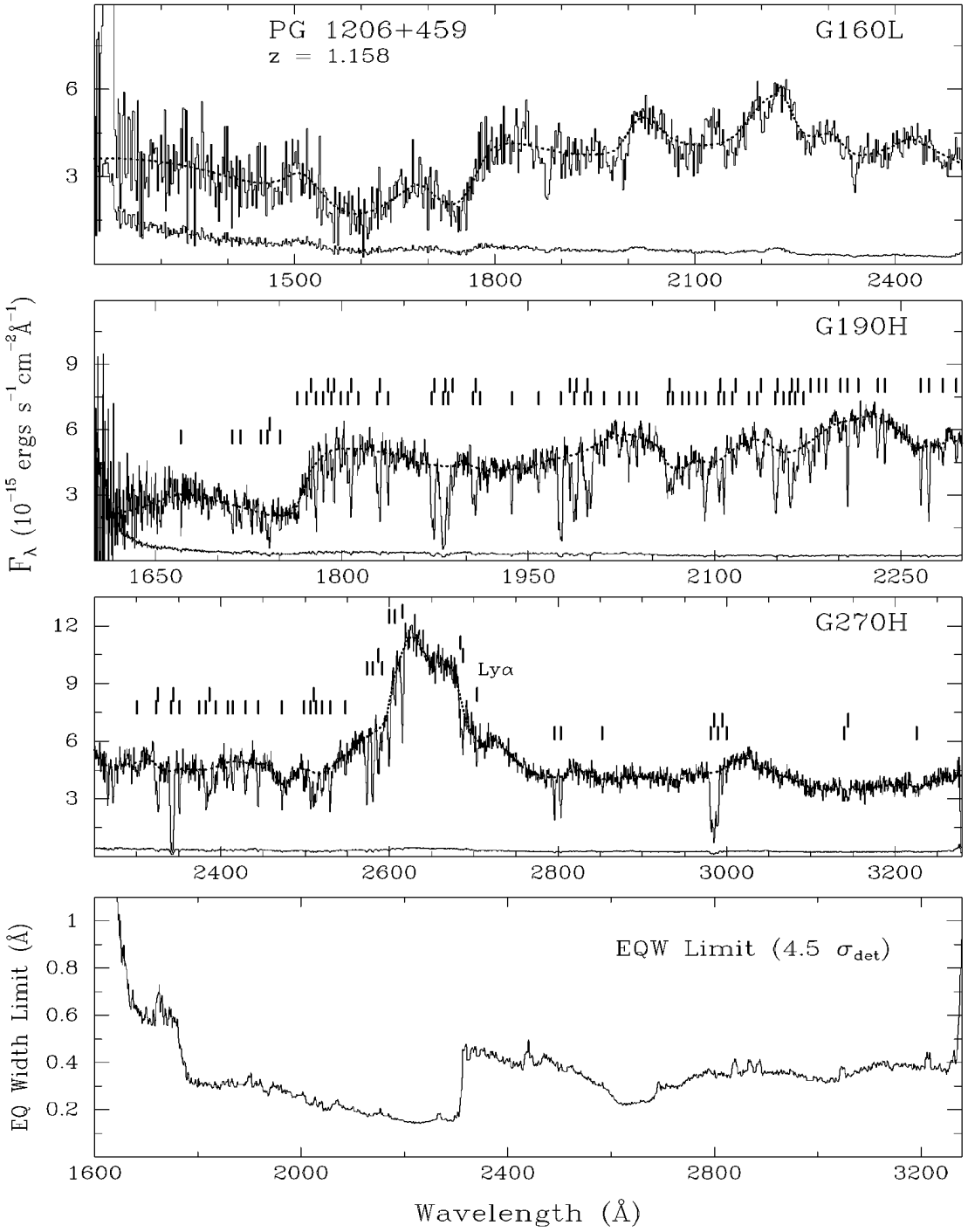


FIG. 2.—*Continued*

sample. Two additional candidate lines of Fe II ($\lambda\lambda$1608.45, 2374.46) are detected in the incomplete sample (at 1770.40 $\pm$ 0.28 Å, $W = 0.29 \pm 0.09$ Å, SL = 3.26, FWHM = 1.51 Å; and at 2614.49 $\pm$ 0.49 Å, $W = 0.29 \pm 0.10$ Å, SL = 3.94, FWHM = 2.47 Å). There are seven Galactic ISM lines in the complete sample and one line in the incomplete sample (Mg I, at 2852.79 $\pm$ 0.29 Å, $W = 0.36 \pm 0.08$ Å, SL = 3.40, FWHM = 2.03 Å). The lines observed at 2865.09 and 3088 Å are blended with, respectively, the Fe II λ2600 line and the Mg II λ2803 line of the $z = 0.1010$ system. They are very likely components of the Fe II and Mg II absorption from this system. There are seven identified Lyα lines in this spectrum with two of these lines associated with identified metal lines. The C IV λ1550.77 of the redshift 0.4075 system is in the incomplete sample (at 2182.76 $\pm$ 0.23 Å, $W = 0.20 \pm 0.06$ Å, SL = 4.26, FWHM = 1.63 Å). The C IV λ1550.77 of the redshift 0.4268 system is in the incomplete sample (at 2212.56 $\pm$ 0.26 Å, $W = 0.15 \pm 0.04$ Å, SL = 3.41, FWHM = 1.50 Å).

HS 0624+6907 ($z_{em} = 0.370$, 34 lines).—There are 11 lines identified as Lyα lines in this spectrum, including several at very low redshifts. The line at 2808.10 Å is on the wing of the Galactic ISM Mg II λ2803 line and is likely just a result of the Gaussian fit to the line not properly including

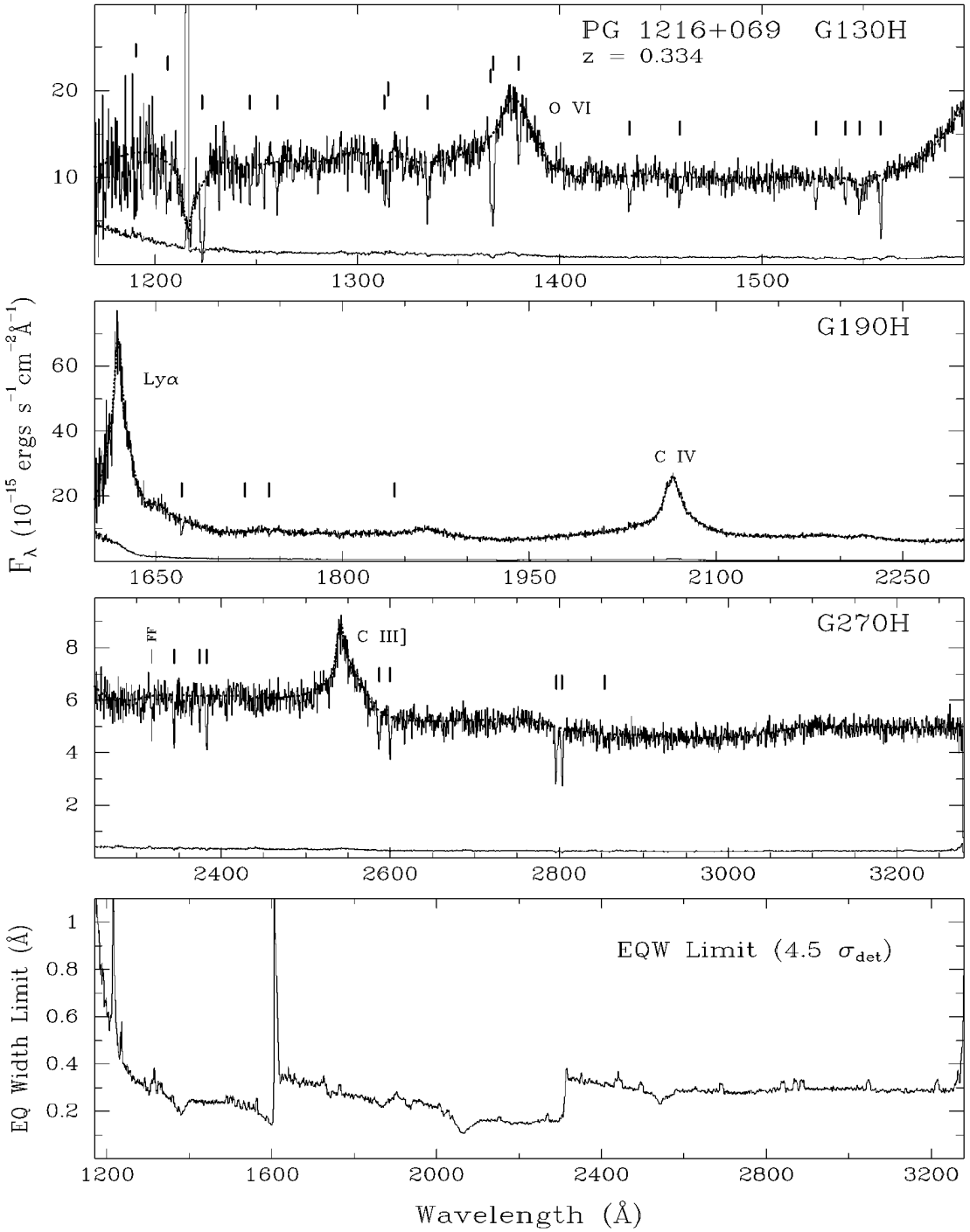


FIG. 2.—*Continued*

all of the absorption in the wings. The line identified as the Galactic ISM C IV λ1548.20 line might be a blend of both doublet features that were not well measured in this spectrum. The Galactic ISM Si IV doublet is in the incomplete sample at 1393.67 $\pm$ 0.17 and 1403.21 $\pm$ 0.20 Å with equivalent widths of 0.23 $\pm$ 0.06 and 0.18 $\pm$ 0.05 Å and SLs of 3.85 and 3.28, respectively. The Galactic ISM Zn II (Mg I) blend at 2026 Å is also in the incomplete sample at 2026.56 $\pm$ 0.20 Å with $W = 0.24 \pm 0.06$ Å and a SL = 4.06. The line at 1808.08 Å, identified as Si II λ1808.01, is somewhat stronger than expected.

PKS 0637−75 ($z_{em} = 0.654$, 22 lines).—Nine Lyα lines are identified in this spectrum, one of which is associated with the single extragalactic metal line system detected along this line of sight. This heavy element system has a redshift of 0.4168 and has the strong line of the C IV doublet, Lyα, and Si III in the complete sample. The incomplete sample contains the C IV λ1550.77 line observed at 2197.18 Å with an equivalent width of 0.24 $\pm$ 0.06 Å and a SL = 4.1. Note that the Si III line at $z = 0.4168$ is blended with the Lyα line observed at 1711 Å; this affects its measured properties.

In addition to the Galactic ISM lines in the complete sample (including lines from Al II, Fe II, and Mg II), the incomplete sample contains lines from the Zn II (Mg I) blend at 2026 Å (observed at 2025.42 Å, $W = 0.18 \pm 0.056$ Å) and

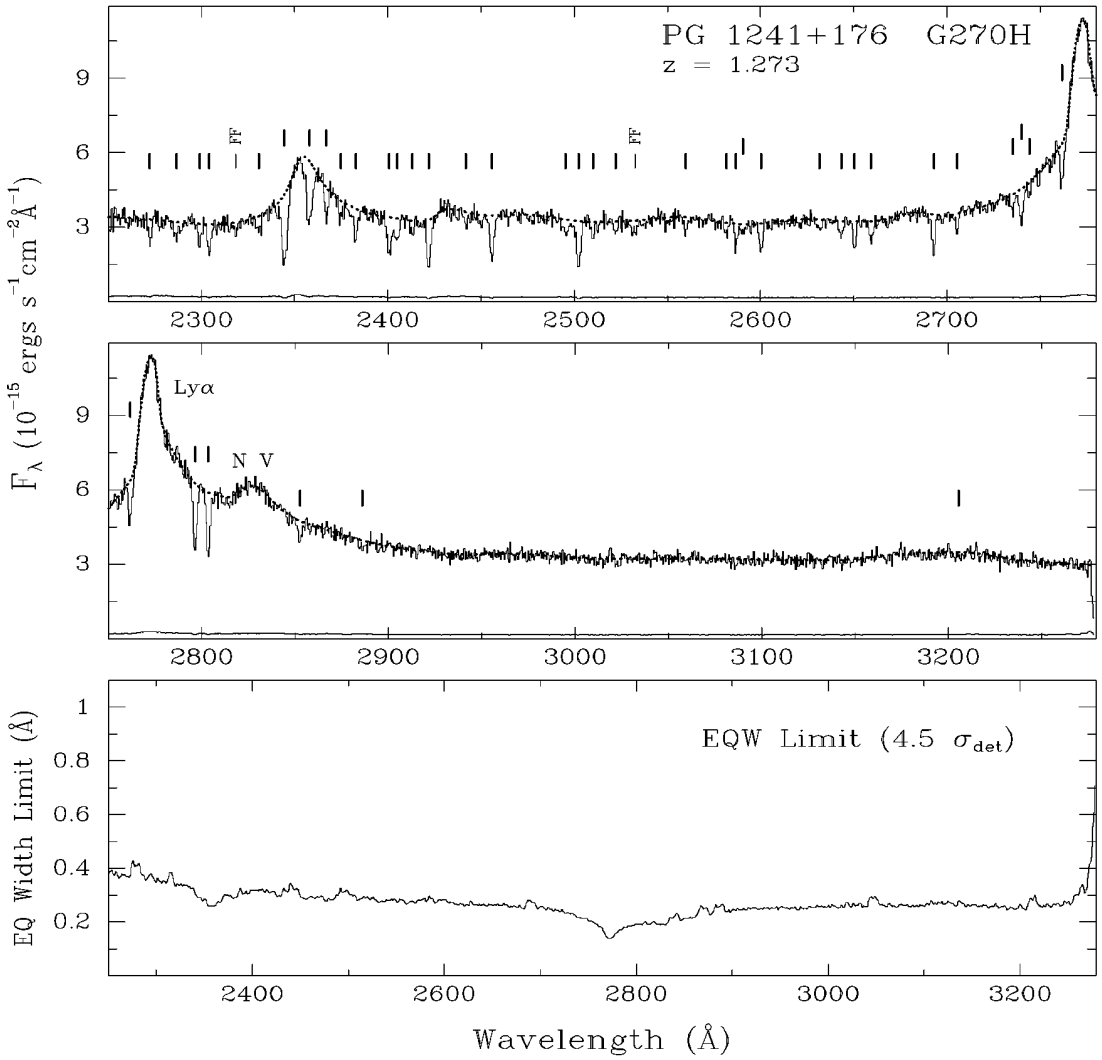


FIG. 2.—*Continued*

Mn II λ2576.88 (observed at 2576.15 Å, $W = 0.35 \pm 0.08$ Å). The presence of high-velocity gas along this line of sight ($l = 286\overset{\circ}{.}4$, $b = -27\overset{\circ}{.}2$) in the velocity range between +230 and +270 km s^{-1} has previously been reported by Bajaja et al. (1985). We therefore expect to see the combined absorption from local gas and this high-velocity gas extending from −40 to +270 km s^{-1}. This is reflected in our observations of the Galactic ISM lines in several ways. First, Al II λ1670.79 and four of the Fe II lines have very broad profiles. Second, the Fe II λ2600.17 line and Mg II lines are resolved into two components. Additional discussion of the Galactic ISM lines can be found in Savage et al. (1998).

B2 0742+31 ($z_{em} = 0.462$, 12 lines).—The Galactic ISM Mg II absorption lines occur on top of a strong quasar emission line. Together with the non-Gaussian shapes of these absorption lines, the difficulties in fitting the continuum are probably responsible for the line-fitting software splitting the very strong and broad Mg II λ2796 line into two lines, one at 2796 Å and the second at 2790 Å. The line at 1600 Å occurs on the blue edge of the wavelength coverage of the G190H grating, a region of particularly low signal-to-noise ratio in almost all our G190H spectra and in this quasar's spectrum a particularly difficult region in which to fit the continuum. The feature at 2025 Å, identified as being produced by Galactic ISM Zn II, is quite broad and unlikely to be due exclusively (if at all) to absorption by Zn II.

PKS 0743−67 ($z_{em} = 1.51$, 76 lines).—There are 44 Lyα lines identified in this spectrum; four are associated with detected metal lines, and a fifth is less than 300 km s^{-1} from the velocity of a metal line system. There are at least three systems that include absorption by the C IV doublet along this sight line. There is a very strong blend near 2435 Å that was separated by the analysis software into a nonunique fit consisting of a broad line and two narrower lines. With the current data we are unable to identify the broad component of the fit at 2432 Å. The line at 2290 Å might be a continuum artifact. The line at 2612 Å is heavily blended with the line at 2615 Å and might be a subcomponent of the 2615 Å system. Several additional lines in the complete sample might be continuum artifacts since slightly different versions of the continuum fit developed during analysis of this spectrum caused these lines to disappear. These lines are at 2464.36, 2734.18, and 2738.69 Å. These last two lines comprise a candidate C IV doublet that lacks additional supporting lines. The Galactic ISM Mg I λ2852.96 line is blended with a stronger Lyα line at $z = 1.3473$.

US 1867 ($z_{em} = 0.513$) CAT1.

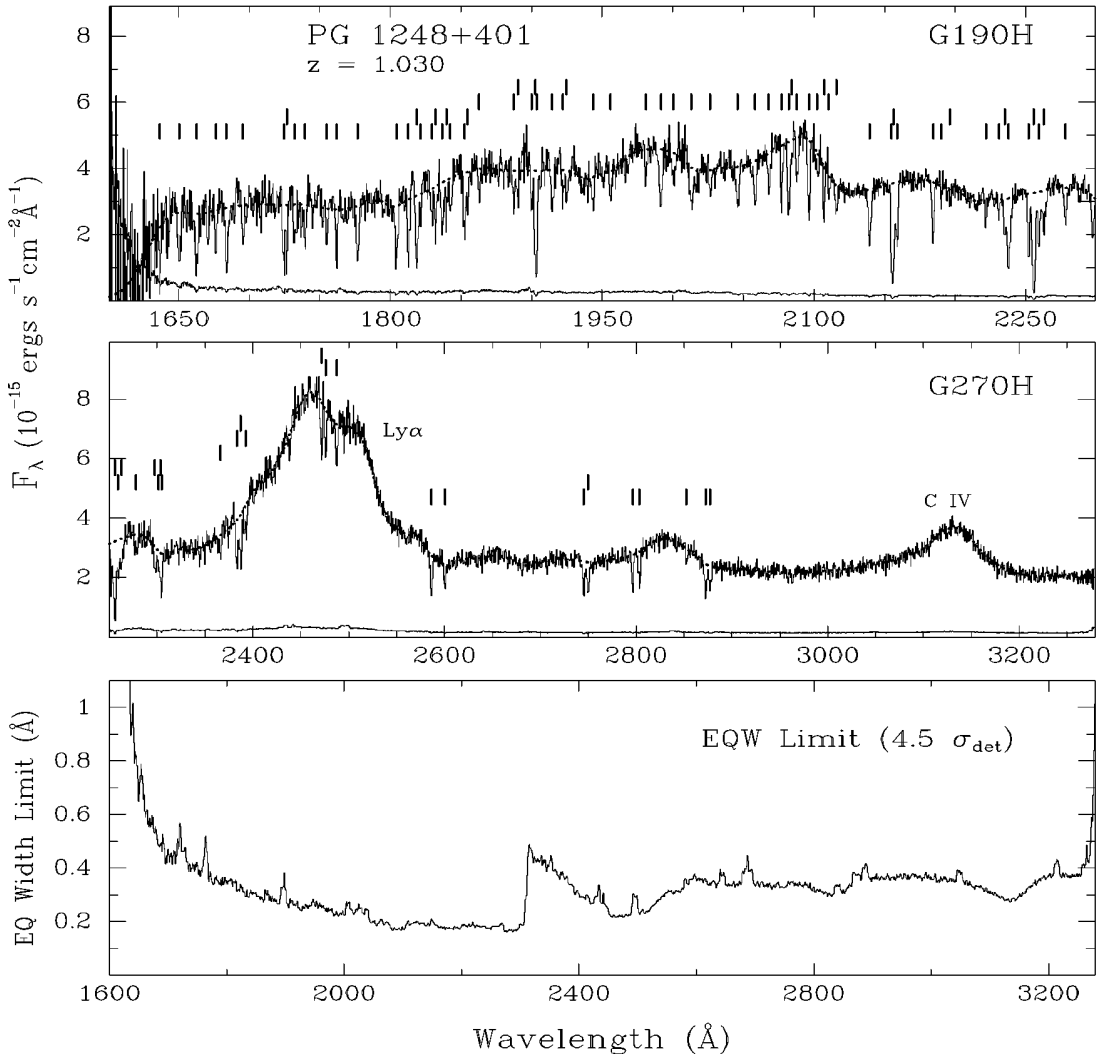


FIG. 2.—*Continued*

OJ 287 (R.A.: $08^h51^m57\overset{s}{.}2$, decl.: $+20°17'58''$, B1950; $z_{em} = 0.306$, nine lines).—No extragalactic absorption lines are identified in the complete sample. There are eight Galactic lines in the complete sample and one in the incomplete sample (Al II λ1670.79, at 1670.40 ± 0.20 Å, $W = 0.72 \pm 0.20$ Å, SL = 4.37, FWHM = 1.55 Å). Planned G130H observations of this object were unsuccessful because this object became too faint at the time the observations were scheduled. There are candidate C IV absorption lines in the incomplete sample. The line at 1934.89 Å is near a feature in the flat fields but is stronger than the typical residual seen in Key Project data. Future STIS observations of this normally bright (but variable) object (it is a well-known BL Lacertae object) would be valuable.

NGC 2841 UB3 (R.A.: $09^h16^m30\overset{s}{.}0$, decl.: $+51°18'53''$, B1950; $z_{em} = 0.553$, 26 lines).—There are 12 Lyα lines identified in this spectrum, one of which is resolved and associated with a strong metal line system detected at $z = 0.5116$. Lines from Si III, C II, and the C IV and Si IV doublets are detected in the complete sample. The stronger line of the N V doublet is present in the incomplete sample (at 1872.48 ± 0.28 Å, $W = 0.14 \pm 0.04$ Å, FWHM = 1.51 Å, SL = 3.27). The line at 1639.68 Å and identified as Lyα at $z = 0.3488$ might be blended with N II λ1083.99 associated with the $z = 0.5116$ system. Galactic ISM lines are detected from Fe II, Mg II, and Al II. It is possible that the broad unidentified line at 2596 Å is associated with Galactic ISM Mn II, but this identification was not made by *ZSEARCH* because the other expected Mn II lines were not present in the line list. However, this region of the spectrum is blended with the wings of the strong Fe II Galactic ISM absorption. Blending plus uncertainties in the continuum fit might cause the other two lines of the Mn II triplet to have been missed.

PG 0935+416 ($z_{em} = 1.937$, 131 lines).—The continuum fit for this spectrum was particularly difficult and, given the low spectral resolution of the observations and the high density of lines, is probably inadequate in several regions, adversely affecting the measurement, separation, and identification of the lines. Despite these problems, this spectrum also provides the only damped Lyα system, $z_{abs} = 1.3720$, in the entire survey. The damped line is not well fitted by our software, which assumes Gaussian line profiles for all lines. As a result, an additional line was included in the software's automated fit, at 2889.27 Å. The resulting redshift of the system (which includes absorption from C II, C III, N I, O I, Fe II, Si II, Si III, Lyα, and Lyβ) is therefore different from that measured from a proper fit to the damped absorption,

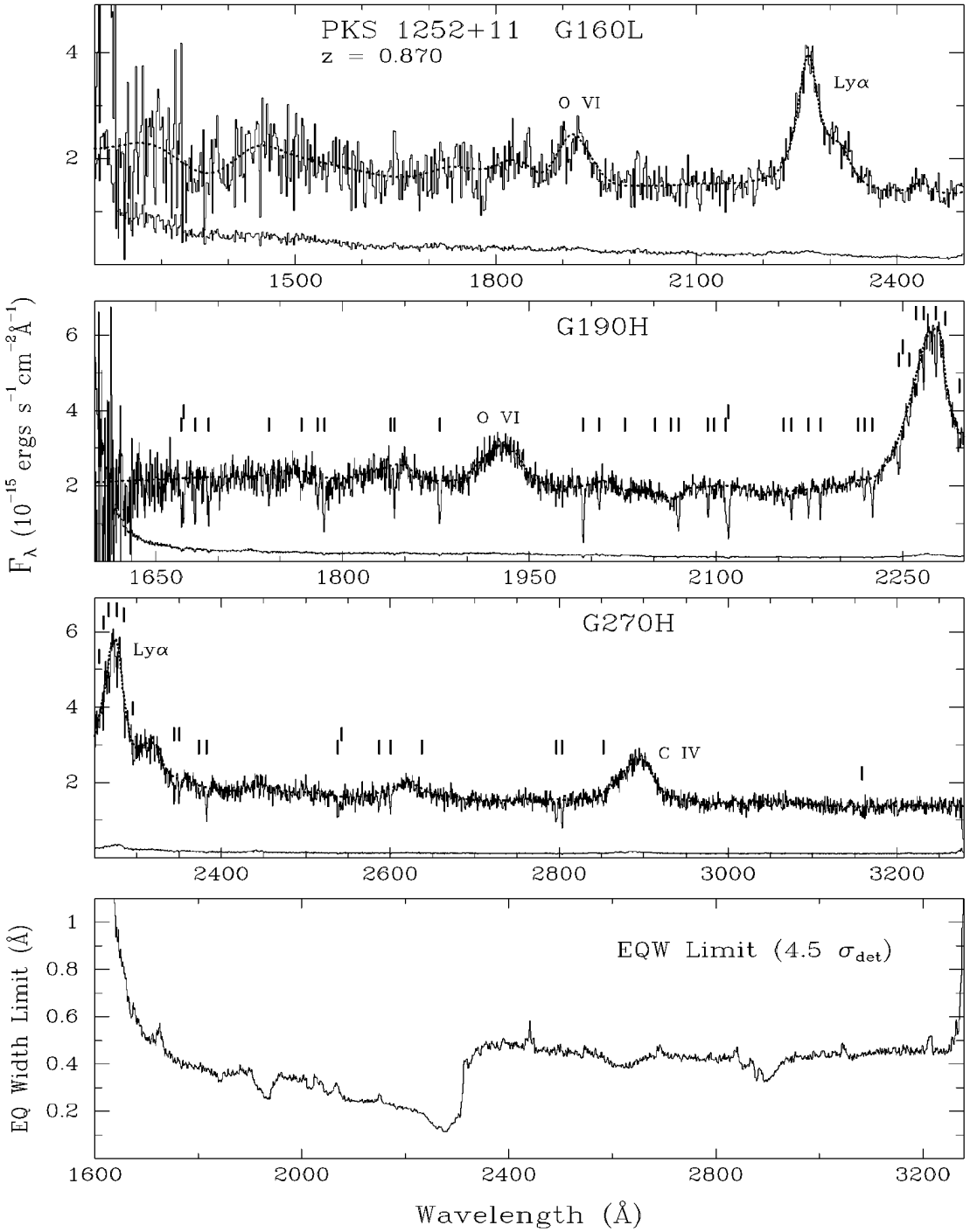


FIG. 2.—*Continued*

$z = 1.396$, which we include in § 5, our general discussion of damped systems. In addition to the detected damped system, there is an extensive metal line system at $z = 1.4649$ with an associated Lyman limit system. The properties of the LLS as determined by the LLS fitting software are listed in Table 6.

The numerous possible identifications for many of the lines prevented us from completing the identifications. Even for the lines we have identified, many are likely to be blended with absorption from other species. For example, three identifications for the line at 2317.90 Å are C III at $z = 1.3720$ (our current identification), Fe III in a candidate system at $z = 1.5085$, and C IV at $z = 0.4946$. Higher spectral resolution observations, perhaps with the Space Telescope Imaging Spectrograph (STIS), of this interesting line of sight would be valuable.

PG 0953+415 ($z_{em} = 0.239$, 28 lines).—Galactic interstellar absorption lines are identified from 10 different ions: C II, C IV, N I, O I, Al II, Mg I, Mg II, Si II, Si III, and Fe II. In the incomplete sample, Si IV λ1393.76 is present at 1393.75 ± 0.16 Å with an equivalent width of 0.26 ± 0.06 Å and SL = 4.13. The line at 1190.37 Å includes a contribution from Si II, but its large equivalent width and FWHM suggest that it is possible that the line is a blend of Si II and

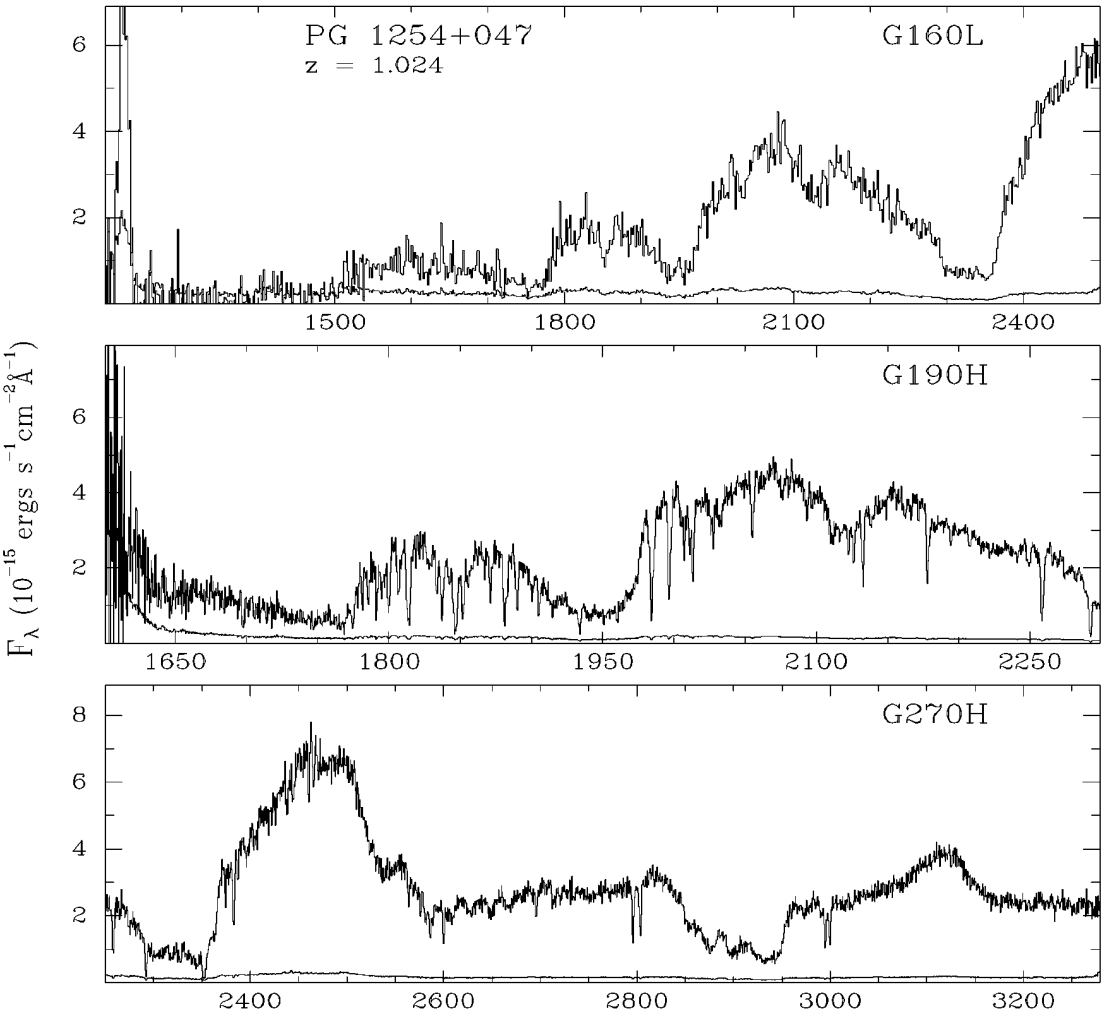


FIG. 2.—*Continued*

S III λ1190.21. The continuum was particularly difficult to fit in the region between 2570 and 2610 Å, which makes the measured equivalent widths of lines in this region more than usually uncertain and possibly affecting how many lines the software required to fit the region. Among the lines with particularly large uncertainties in their equivalent widths is a line at 2593 Å. There is some indication that this strong line might be Mn II λ2594.50 since there is a line in the incomplete sample that could be identified as Mn II λ2576.88 (this line occurs at 2576.48 Å and has an equivalent width of 0.30 ± 0.11 Å and SL = 4.49), but there is no sign in the spectrum of the expected Mn II λ2606.46, so the identification as Mn II is formally rejected. The line identified as Galactic ISM Mg I λ2852.96 is unusually strong and broad.

A total of five Lyα absorption features are identified in the complete sample, although three of the five are too broad (FWHM larger than the instrumental resolution) to be single, unresolved Lyα absorbers. There is a Lyα absorption line at $z = 0.2336$, only 1300 km s^{-1} from the emission-line redshift. The Lyβ line for this system appears in the incomplete sample at 1265.6 ± 0.153 Å with an equivalent width of 0.24 ± 0.07 Å and a significance level of 4.4, very close to the level of 4.5 required for inclusion in the complete sample.

There is weak evidence in some of the other G270H quasar spectra taken contemporaneously with these data for a flat-field contribution to the line we identify as Lyα at $z = 0.0934$ (at 1329 Å), but there is no evidence for a flat-field feature in the standard star observations at the same epoch.

The unidentified line at 2028 Å is part of a blend and falls on top of a quasar emission line. Both of these occurrences contribute to an additional unquantified uncertainty in the measured equivalent width. Despite the wavelength agreement of this line with the expected position of Al III λ1854.72 at a redshift matching that of the Lyα line at 1329 Å ($z = 0.0934$), this identification is rejected because of the absence of any of the other metal lines that might also be expected when Al III is detected.

3C 232 (R.A.: $09^h55^m25^s.5$, decl.: $+32°38'23''$, B1950; $z_{em} = 0.533$, 24 lines).—Burbidge et al. (1971) first drew attention to the close projection of 3C 232 and the nearby bright Sb III spiral galaxy NGC 3067. The separation of the quasar and the galaxy center is 1.9 on the sky, well beyond the extent of the visible disk. Haschick & Burke (1975) discovered narrow (≤ 5.5 km s^{-1}) H I 21 cm absorption at a redshift near 1420 km s^{-1}, close to the mean redshift of the galaxy; this was confirmed by Grewing & Mebold (1975), and followed by higher resolution observations (Wolfe

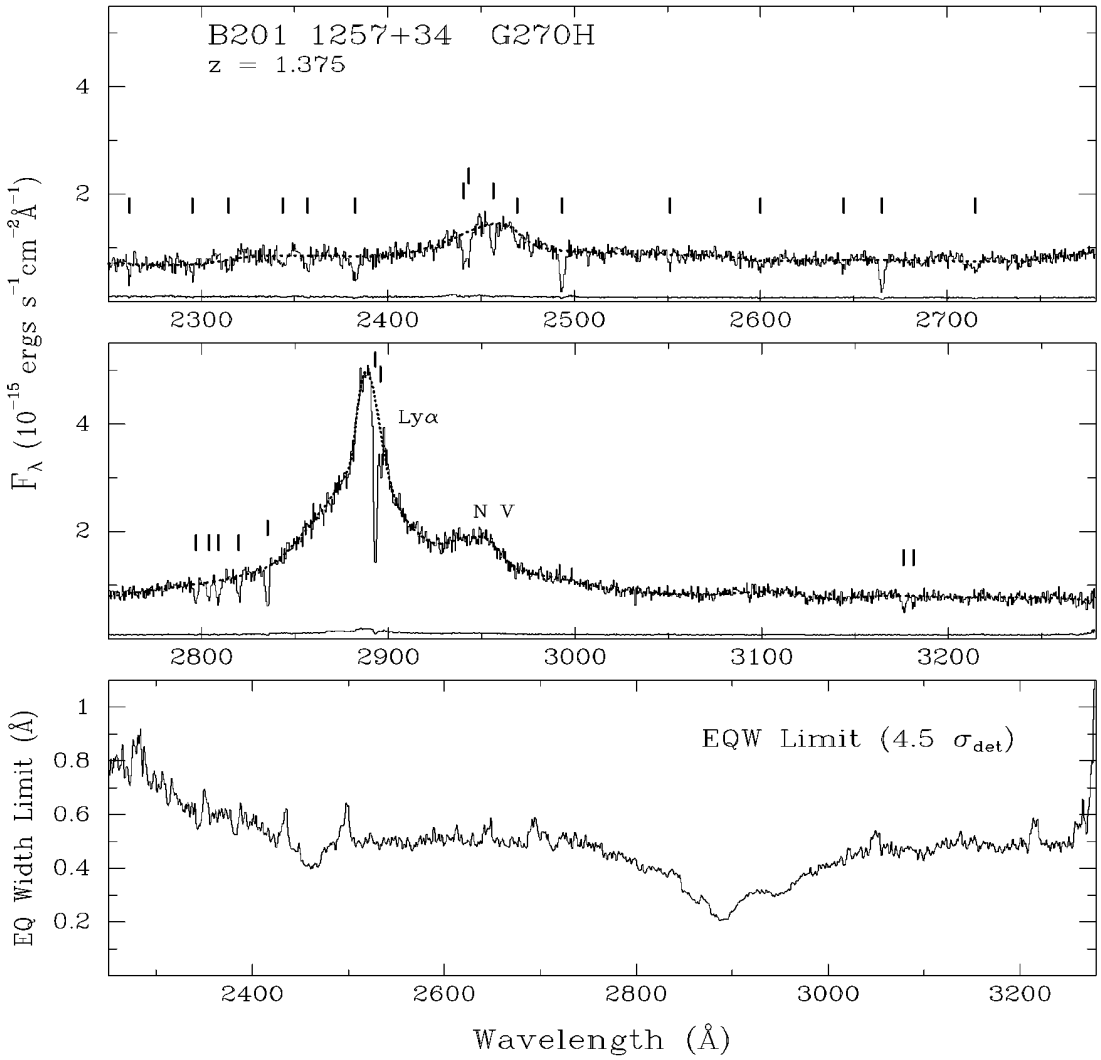


FIG. 2.—*Continued*

1979; Rubin, Thonnard, & Ford 1982). In high-dispersion optical spectra Boksenberg & Sargent (1978) found Ca II H and K absorption at nearly the same redshift as the H I but of substantially broader (and structured) velocity profile. This was the first instance of metal absorption lines in a quasar spectrum observed at large extension from an identified galaxy. From the large ratio of $N(Ca^+)/N(Na^0)$ obtained from their data (inferred from upper limits on the equivalent widths of Na I) they suggested that the absorption arises either in gas in the outer halo of the galaxy or in high-velocity gas in the plane. Low-dispersion ultraviolet observations of 3C 232 made with the *IUE* satellite (Bergeron, Savage, & Green 1987) provided a detection of Mg II in this system and set limits on the presence of C IV and Si IV. Further optical observations by Stocke et al. (1991), in which both Ca II and Na I were detected, resolved the system into two and possibly three components spread over ~ 160 km s^{-1}, and from archival *IUE* low-dispersion spectra they added Fe II to the list of detected lines. The morphology of the absorbing gas was clarified by Carilli, van Gorkom, & Stocke (1989) who obtained a VLA H I map showing a remarkably long and disturbed tail extending from the galaxy and appearing as a chance projection at the quasar position (Stocke et al. 1991).

This absorption system is strongly detected in our data and includes lines from Al II, Fe II, Mg II, and Mg I. There are five Lyα lines in the spectrum, one of which is identified with a strong associated metal line system at $z = 0.5314$ (480 km s^{-1} from the redshift of the quasar). The 1242 Å line of the N V doublet in this system is in the incomplete sample (at 1903.34 ± 0.22 Å, $W = 0.32 \pm 0.08$ Å, SL = 4.13, FWHM = 1.51 Å), while the 1550.77 Å line of the C IV doublet is blended with the Galactic ISM Fe II λ2374.46 line. The Lyα line at $z = 0.5167$ probably is related to weak Fe II and possibly Mg II absorption also found by Boksenberg & Sargent (1978) in their spectrum. The Galactic ISM Fe II λ2260.78 line is in the incomplete sample (at 2261.61 ± 0.38 Å, $W = 0.38 \pm 0.11$ Å, SL = 3.20, FWHM = 2.04 Å). A GHRS spectrum has been obtained of 3C 232 and is being analyzed by J. T. Stocke and collaborators.

Mrk 132 (R.A.: $09^h58^m08^s.1$, decl.: $+55°09'05''.0$, B1950; $z_{em} = 1.754$, 36 lines).—The low signal-to-noise ratio of the spectrum, heavy blending of the lines, and limited observed wavelength coverage (exacerbated by the presence of a LLS in this spectrum) made the fitting of the continuum quite uncertain and the possible identifications for some lines too numerous to allow complete identification of the line list at

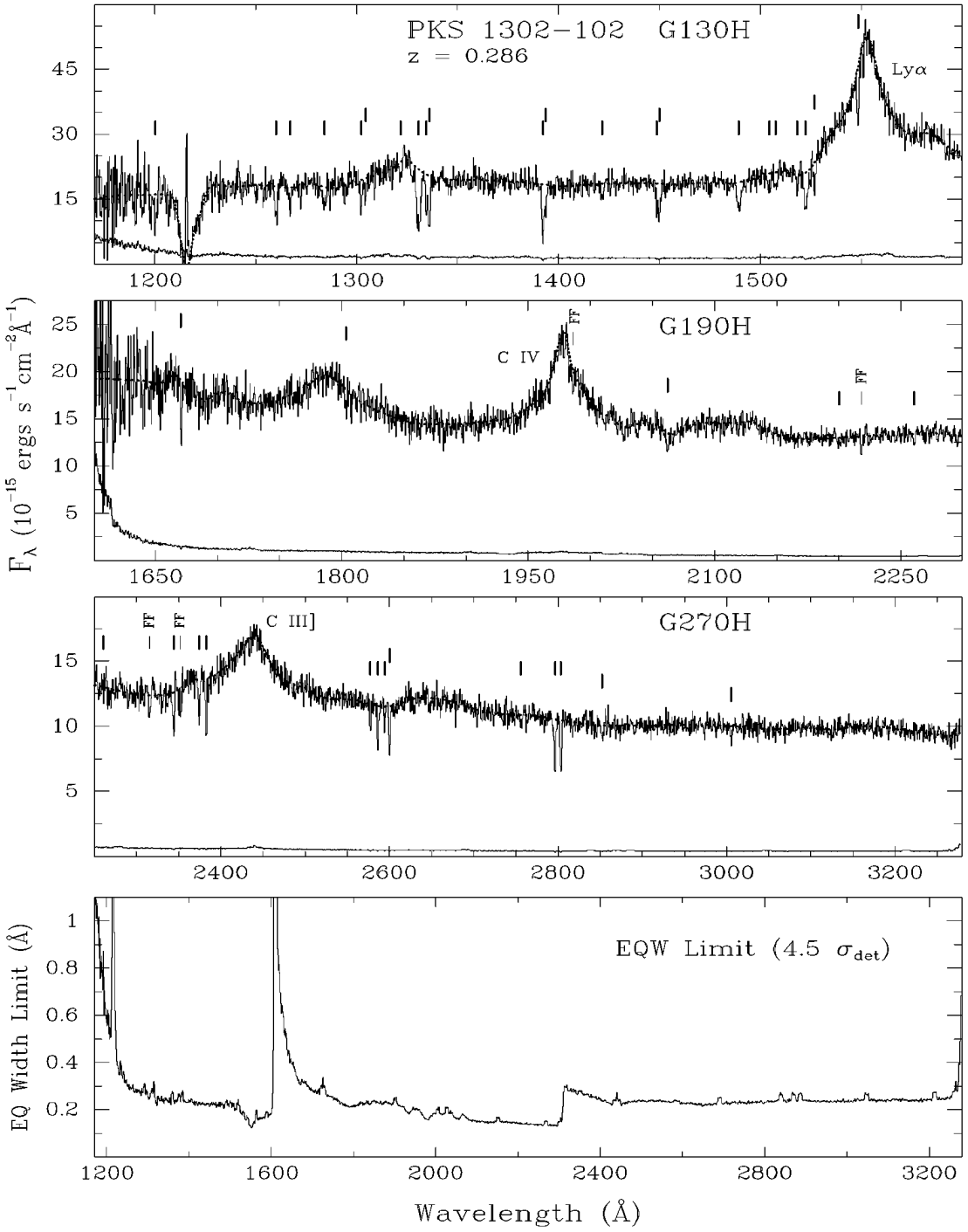


FIG. 2.—*Continued*

this time. However, the strong hydrogen lines associated with the LLS observed at $z = 1.7327$, as well as some of the other strong lines in the spectrum, could be identified. The Lyλ line of the $z = 1.7327$ system is in the incomplete sample at 2508.65 ± 0.27 Å, $W = 1.03 \pm 0.20$, FWHM = 1.97 Å, and SL = 4.12. The blend at 2504.68 Åis dominated by a blend of the higher Lyman series lines. The Lyβ line undoubtedly includes a contribution from Galactic ISM Mg II λ2803.53. C III from the $z = 1.7327$ system is a possible identification for the line (2669.22 Å) currently identified as Lyα at $z = 1.1957$, but it is the only possible metal line identification associated with the LLS. The lack of identified associated metal lines with this system, given its estimated column density, is atypical of the systems found in our survey. The properties of this system as derived from the LLS software are listed in Table 6.

0959+68W1 ($z_{em} = 0.773$, 31 lines).—This spectrum contains 20 identified Lyα lines. The line at 1658 Å is a composite of several features in a noisy region of the spectrum. Possible contributors to the feature include Lyβ at $z = 0.6179$ and a known flat-fielding residual. The lines at 1771 and 1809 Å might both be artifacts of the continuum fit.

TON 28 (R.A.: $10^h01^m12^s.0$, decl.: $+29°13'00''$, B1950,

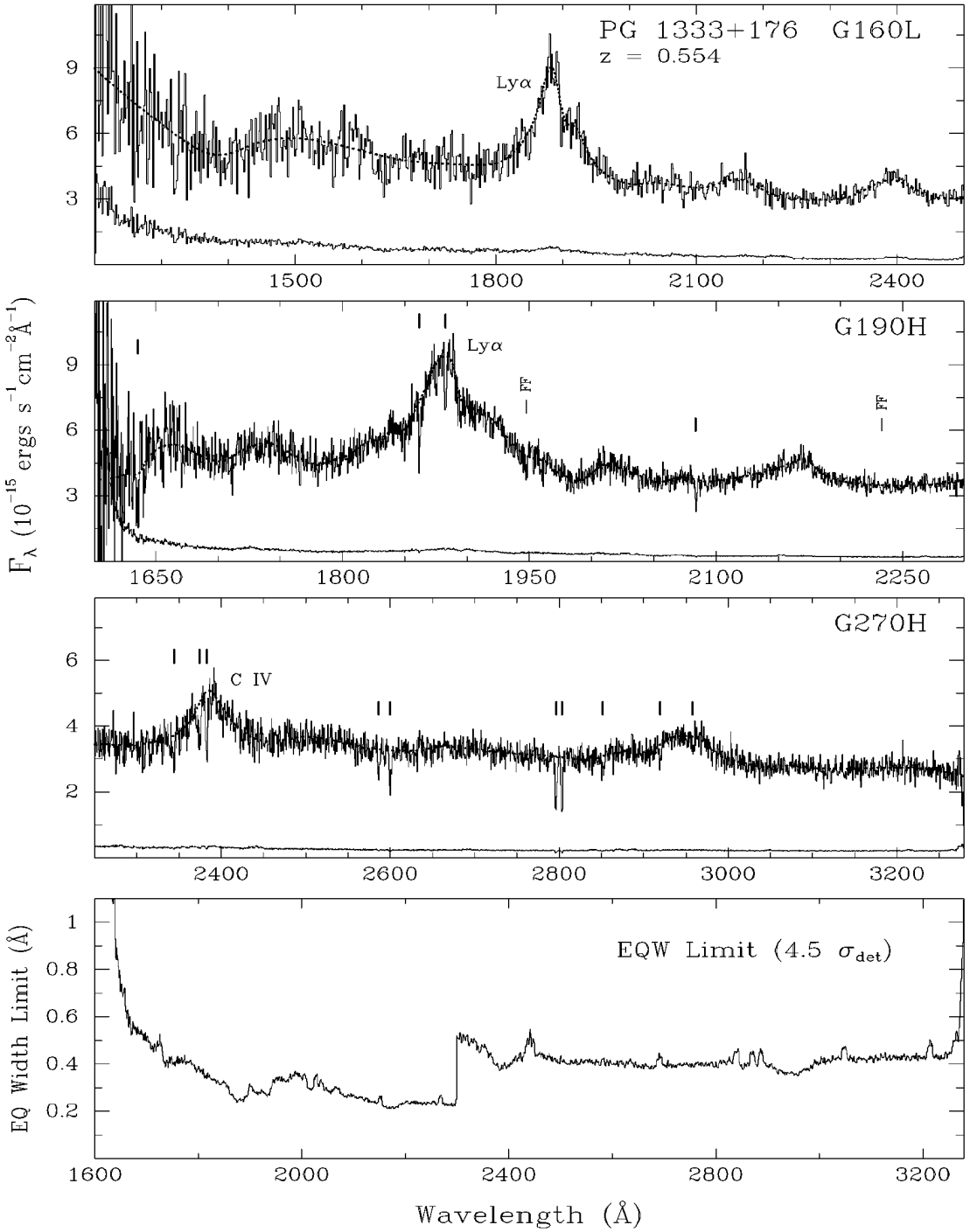


FIG. 2.—*Continued*

$z_{em} = 0.329$, 30 lines).—There are a total of 12 Lyα lines in this spectrum, including several of the lowest redshift strong lines in the entire Key Project sample (at 1220 and 1234 Å). These lines are excellent targets for follow-up investigations to study in detail the nature of low-redshift Lyα absorbers. The pairs of lines located at 1474, 1475 Å and 1495, 1496 Å are heavily blended. The line observed at 1548.48 Å is predominantly Lyα at a redshift of 0.2738, although there is probably a small amount of Galactic ISM C IV λ1548.20, since the weaker line of this doublet is detected in the incomplete sample at 1551.20 $\pm$ 0.20 Å ($W = 0.13 \pm 0.04$ Å, SL = 3.37, FWHM = 1.10 Å). Another candidate Galactic ISM line in the incomplete sample is Si IV at 1403.05 $\pm$ 0.17 Å ($W = 0.18 \pm 0.05$ Å, SL = 3.95, FWHM = 1.11 Å). There is strong Galactic Lyα absorption that was not included with the current continuum fit (see figures). A very broad and shallow feature near 2338.73 Å was not included in the final line list because it is an artifact of the continuum fit.

4C 41.21 (R.A.: $10^h07^m26^s.1$, decl.: $+41°47'24''$, B1950; $z_{em} = 0.613$, 36 lines).—This line of sight includes 18 Lyα lines, of which two have associated metal line systems including the C IV doublet and a third has an associated Si II line. All of the lines between 1630 and 1665 Å were difficult to measure because of the lower signal in this region and the

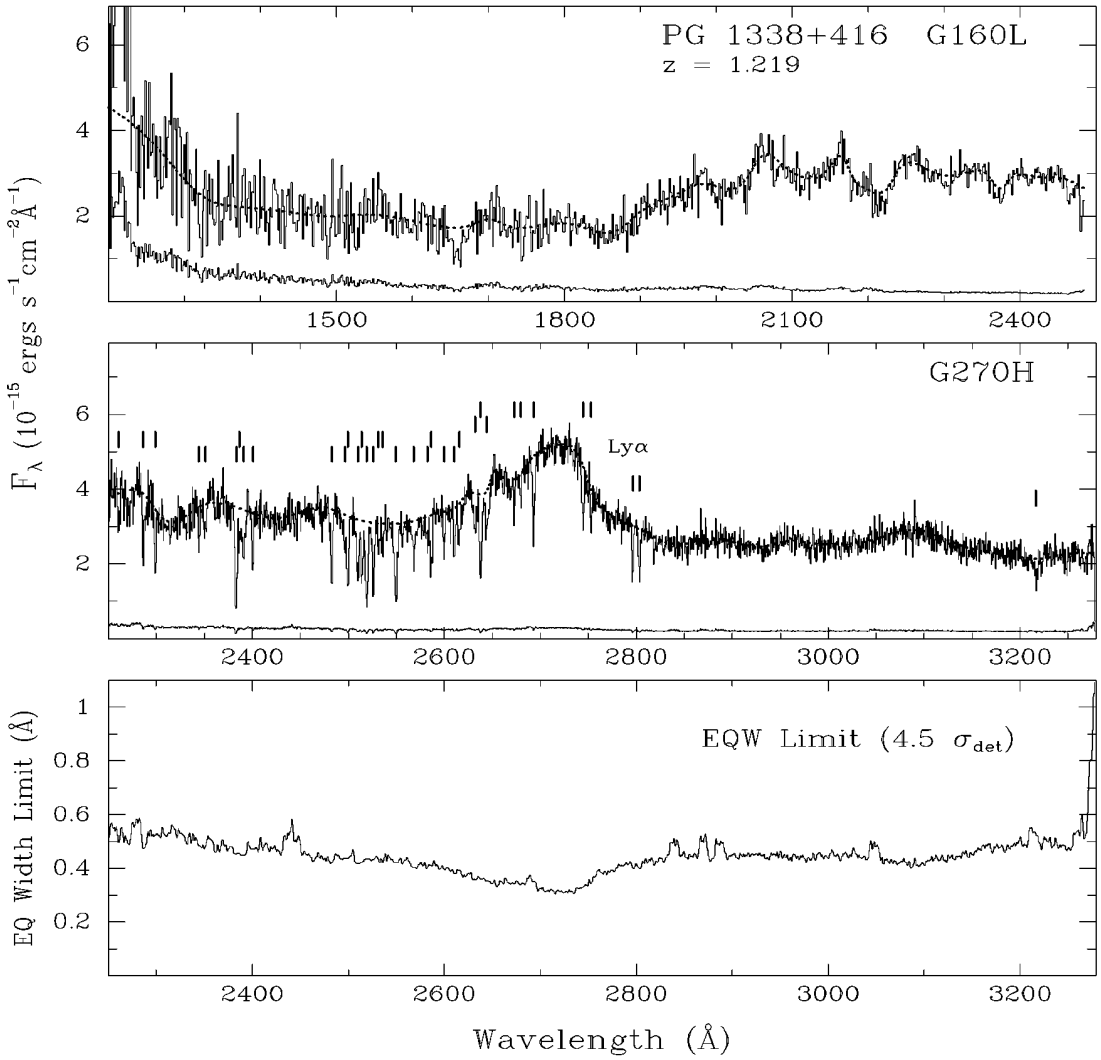


FIG. 2.—*Continued*

difficulty of placing the continuum fit. The lines at 1677, 1820, and 1866 Å might be alternatively identified as, respectively, N I, O I, and C II at $z = 0.3979$. The line at 1937 Å is strongly affected by a flat-field residual but does match in wavelength the expected position of Si IV from the $z = 0.3902$ system. There is weaker evidence that the line at 1948 Å is influenced by a flat-field residual, but the evidence is not sufficient to remove the line. For all of the metal line systems identified in this spectrum, any associated Mg II absorption would be observable in ground-based spectra. The broad non-Gaussian wing of Galactic Mg II λ2796.35 is producing the feature the line-fitting software found at 2797.56 Å.

PG 1008+133 ($z_{em} = 1.287$, 42 lines).—There are 25 lines identified as Lyα. It is difficult to determine the reality of the multiple candidate C IV systems in this spectrum because the wavelengths at which associated Lyα absorption might be observed are not in the available spectrum and there is a significant probability that one to two of the identified systems are just the chance coincidence of Lyα lines (see § 3.4 and Table 4). For each of the observed doublets, the alternative identification for the lines would generally be Lyα. The Galactic ISM Fe II λ2382.77 line is very strong and may be blended with a Lyα line.

TON 34 (R.A.: $10^h17^m06^s.0$, decl.: $+27°59'00''.0$, B1950; $z_{em} = 1.924$, 67 lines).—The heavy blending of the lines in this spectrum and limited observed wavelength coverage lead to numerous possible identifications for almost every line and here prevent complete identification of the line list. The Lyγ line for the $z = 1.6420$ system is in the incomplete sample at 2569.71 ± 0.28 Å with $W = 0.68 \pm 0.14$, FWHM = 1.97 Å, and SL = 4.39. Several metal line systems were identifiable. We now consider the candidate LLS listed in CAT1 not to be a real system (see Paper V for discussion) and no longer list it as part of our catalog. See Table 6 for a complete listing of LLSs found in the survey.

4C 19.34 (R.A.: $10^h22^m01^s.6$, decl.: $+19°27'35''$, B1950; $z_{em} = 0.828$) CAT1.—Note the slight revision (see Table 6) of the properties of the LLS first reported in CAT1. These are as a result of the changes made to the software measuring the LLSs and are not due to any change in the reduction of the spectrum.

4C 06.41 (R.A.: $10^h38^m40^s.9$, decl.: $+06°25'58''$, B1950; $z_{em} = 1.270$, 39 lines).—The G270H spectrum contains 22 Lyα lines. Given the short observed path length at the higher resolution, it is difficult to test the reality of all the candidate C IV doublets observed in this spectrum because additional lines from these systems do not fall in the spec-

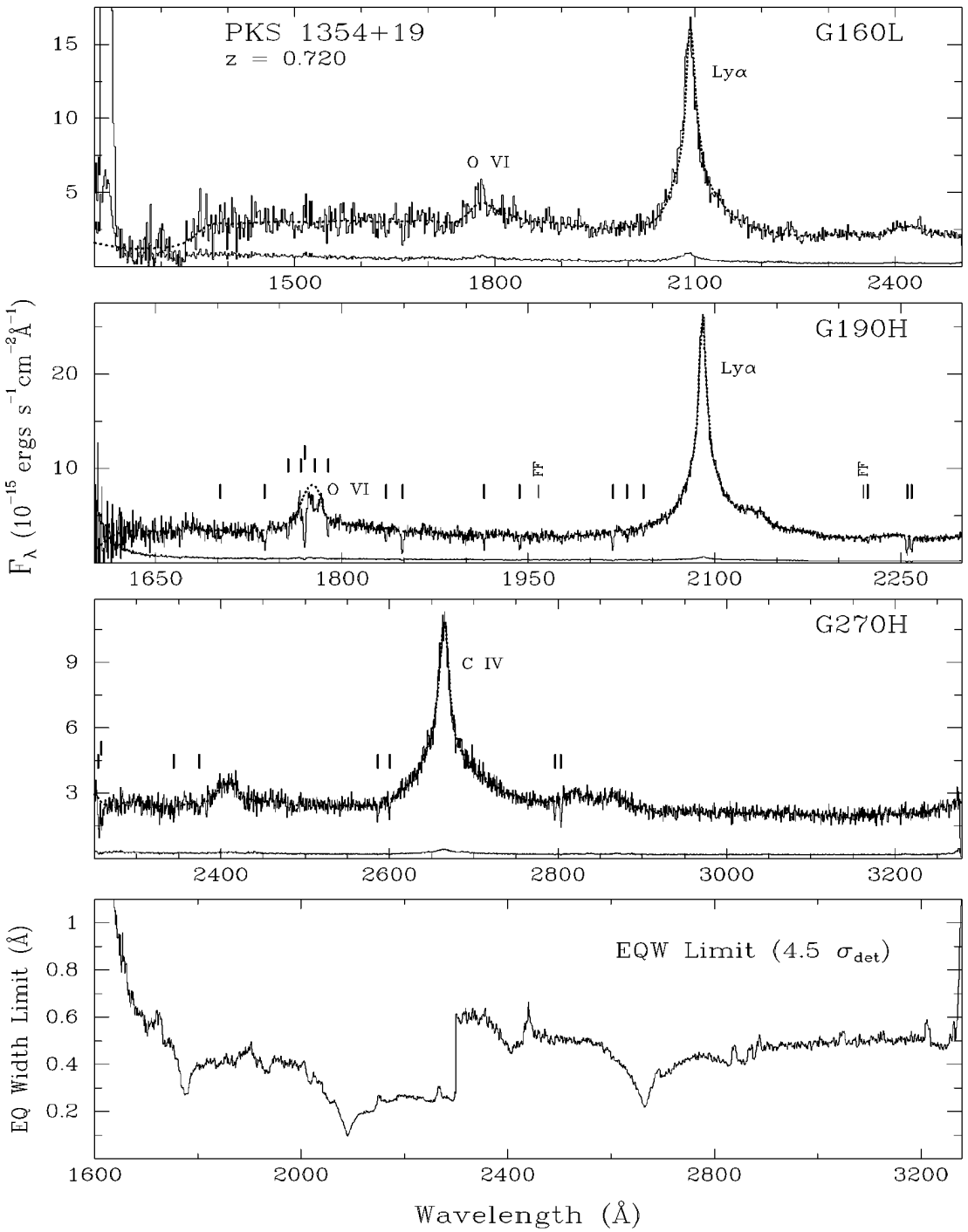


FIG. 2.—*Continued*

tral range covered by our higher resolution observations. We have identified these systems in the table, but we caution that the lines might alternatively be due to Lyα systems. The lines comprising the candidate C IV system at $z = 0.4415$ are almost certainly real as they are very likely are associated with the Lyman limit system detected in the G160L spectrum. The LLS is measured to have a redshift of $z = 0.44$ (see Table 6 for other measured properties). The weaker line of the candidate C IV doublet at $z = 0.4928$ is affected by a known flat-field feature. If this line is entirely a flat-fielding artifact, or if this doublet is a chance match of two otherwise unrelated lines, then the lines at 2310.89 and 2315.40 Å would be Lyα at $z = 0.9009$ and 0.9046. The C IV doublet at $z = 0.6093$ would be Lyα at $z = 1.0493$ and 1.0530. The Lyβ line of the Lyα line at $z = 1.2452$ might be blended with the lines near 2301 Å.

3C 245.0 (R.A.: $10^h40^m06^s.0$, decl.: $+12°19'15''$, B1950; $z_{em} = 1.028$) CAT1.

PG 1049−005 ($z_{em} = 0.3570$, 15 lines).—The C IV system at $z = 0.3414$ has an associated Lyα line in the incomplete sample at 1631.33 Å with an equivalent width of 0.52 ± 0.14 Å and SL = 3.55. There are a large number of Galactic ISM lines detected, including lines from Al II, Zn II, Fe II, Mn II, and Mg II. In the incomplete sample are additional Galactic

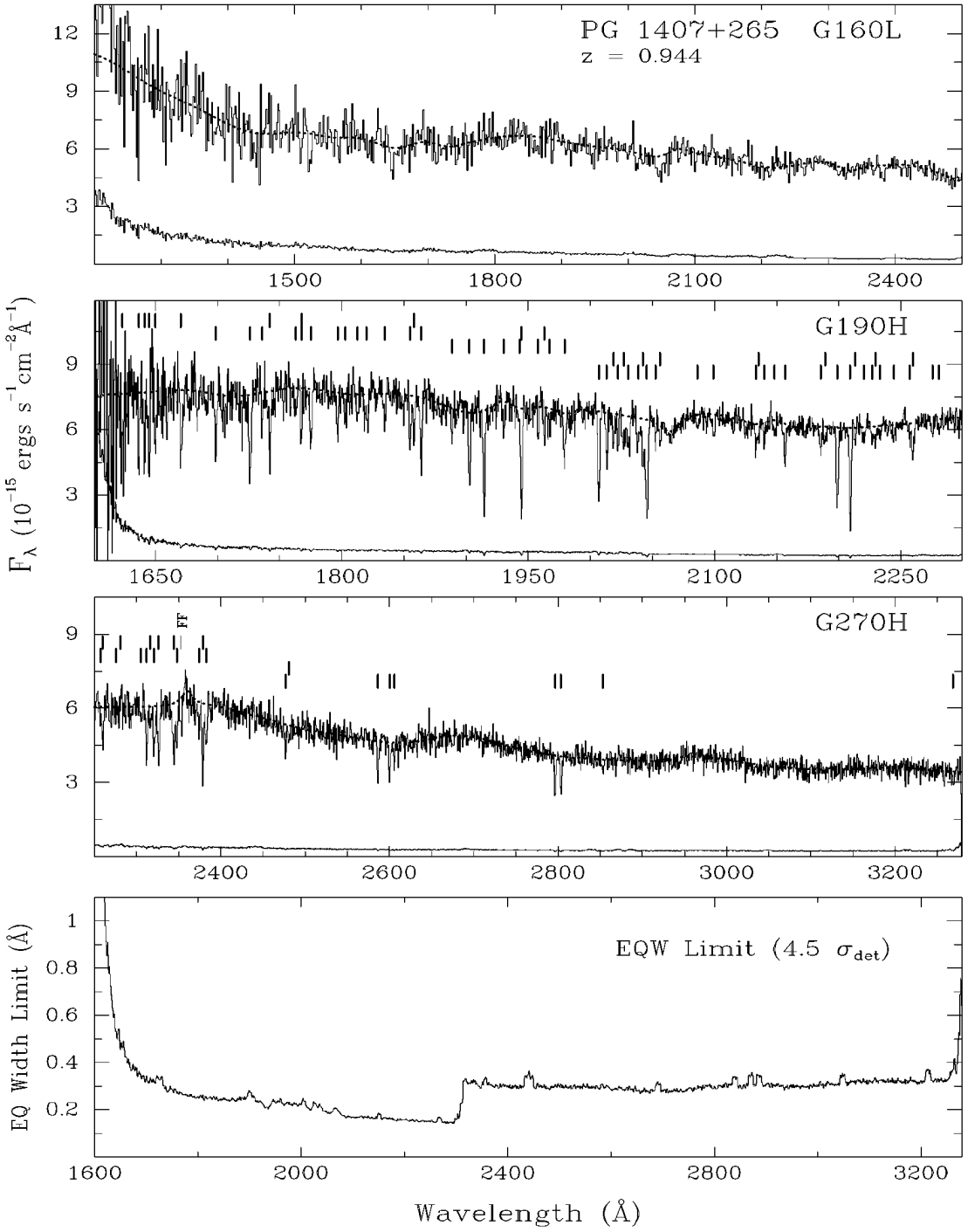


FIG. 2.—*Continued*

ISM Fe II $\lambda\lambda$2249, 2260, and 2374 (observed at 2249.44 $\pm$ 0.33, 2260.30 $\pm$ 0.29, and 2373.80 $\pm$ 0.29 Å with equivalent widths of 0.39 $\pm$ 0.10, 0.14 $\pm$ 0.5, and 0.44 $\pm$ 0.10 Å and SL = 3.72, 3.09, and 4.23) and Mn II λ2576.88 (observed at 2576.51 $\pm$ 0.30 Å with an equivalent width of 0.30 $\pm$ 0.07 Å and SL = 4.02). The line at 2107.34 Å is located on top of a narrow emission line and might be structure in the emission line rather than an absorption feature.

PKS 1055+20 (z_{em} = 1.11) CAT1.—Note the slight revision (see Table 6) of the properties of the LLS first reported in CAT1. These are as a result of the changes made to the software measuring the LLSs and are not due to any change in the reduction of the spectrum.

3C 249.1 (R.A.: 11^{h}00^{m}27^s.4, decl.: +77°15′08″, B1950; z_{em} = 0.311, 48 lines).—This line of sight contains 15 Lyα lines (one associated with metal lines) and 19 Galactic ISM lines. The line at 1402.64 Å, although matching the expected wavelength of Galactic ISM Si IV, is not identified as Si IV since the stronger line of the doublet is not present. This interpretation is supported by the weakness of C IV λ1548.20 observed at 1548.07 Å: W = 0.19 $\pm$ 0.04 Å. Galactic ISM lines from C II* (at 1335.80 $\pm$ 0.20 Å, W = 0.18 $\pm$ 0.05 Å, SL = 3.61, FWHM = 1.10 Å) and Si II

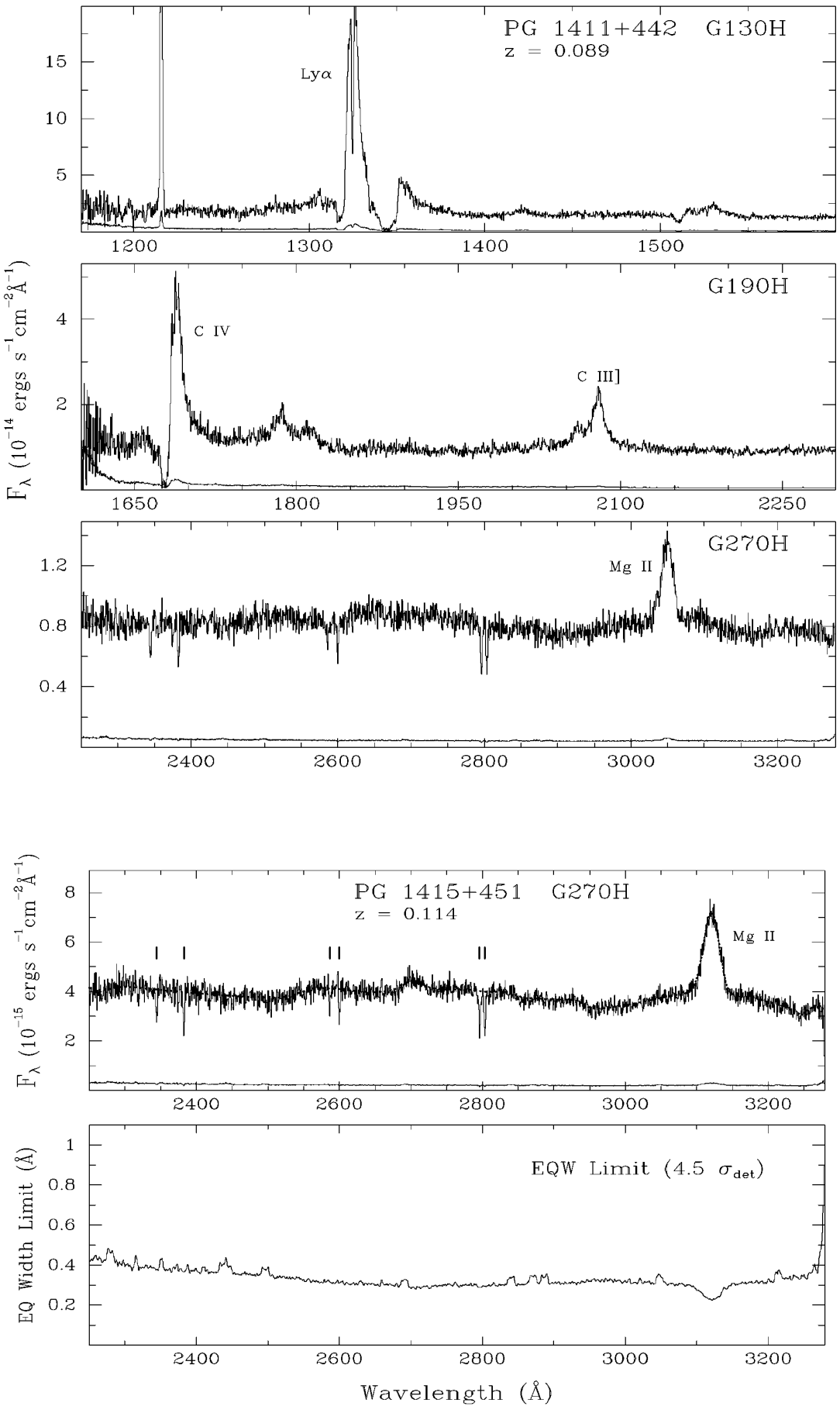


FIG. 2.—*Continued*

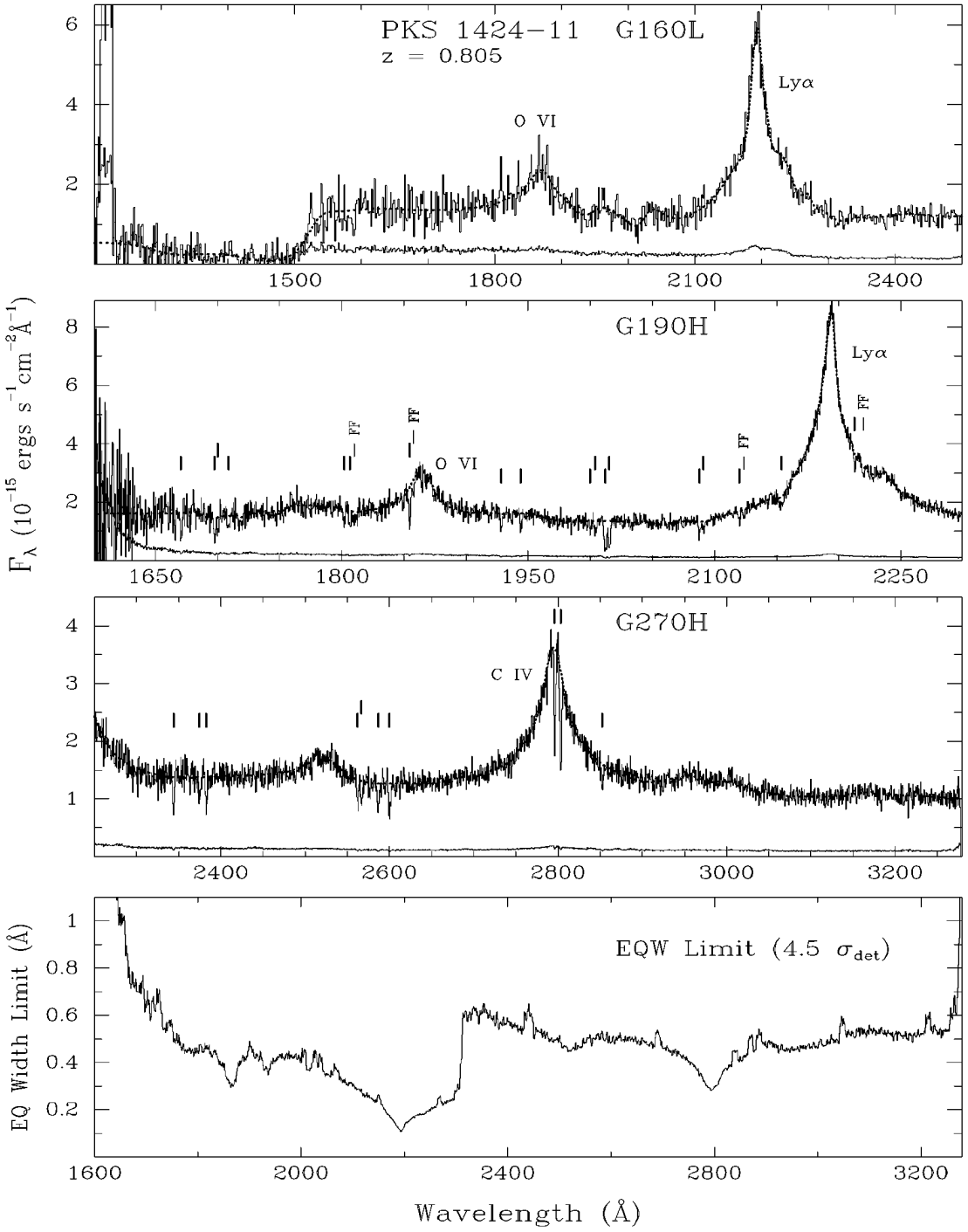


FIG. 2.—*Continued*

(at 1193.17 ± 0.17 Å, $W = 0.55 \pm 0.14$ Å, SL = 3.97, FWHM = 1.11 Å) are in the incomplete sample. The line at 1465 Å may be an artifact of the continuum fit. The line at 1657.18 Å was identified by *ZSEARCH* as possibly the stronger line of a C IV doublet at $z = 0.0706$. However, this identification was rejected because the supporting Lyα line would be blended with the line at 1301 Å, which was identified as Galactic ISM O I.

Q1101−264 ($z_{em} = 2.148$, 71 lines).—The heavy blending of the lines in this spectrum and limited observed wavelength coverage (exacerbated by the presence of a LLS in this spectrum) made the fitting of the continuum highly uncertain and caused some problems for the line-fitting software (e.g., near 2800 and 3150 Å), where alternative fits to the blends are certainly possible and would be chosen by the software with only slight changes in the continuum fit. The numerous possible identifications for almost every line prevented complete identification of the line list here. We are working on using supplementary ground-based observations to assist in the line identifications, but that analysis is beyond the scope of the current paper. We do include tentative identifications of the strong lines at $z = 1.8377$ associated with the LLS observed at $z = 1.84$, as well as some of the other strong lines in the spectrum. Additional

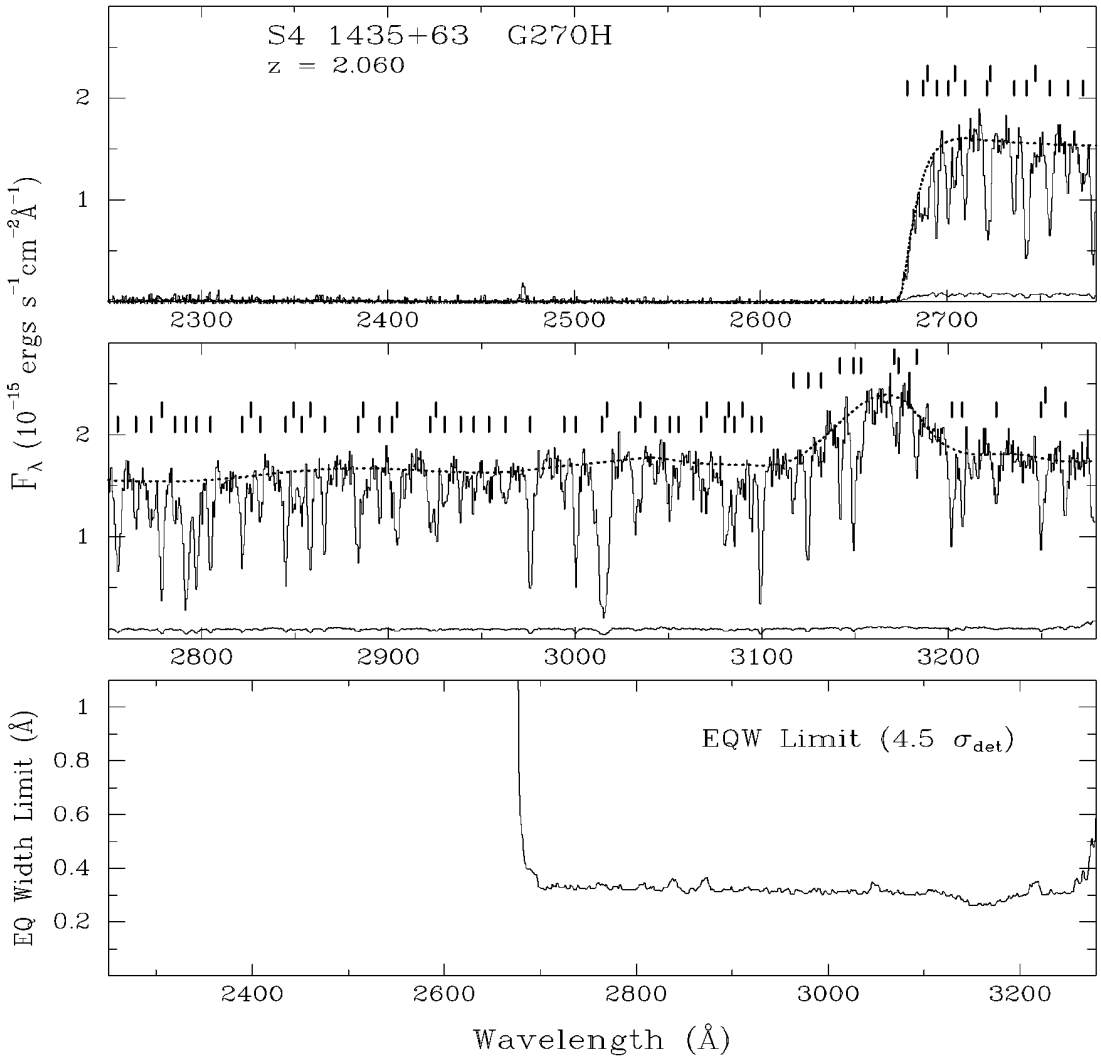


FIG. 2.—*Continued*

properties of the LLS are listed in Table 6. The broad line at 2802 Å includes Galactic ISM Mg II λ2803.

MC 1104+167 (z_{em} = 0.634, 23 lines).—There are nine Lyα systems along this line of sight, one of which (z = 0.4549) includes metal lines from C IV and Si III. The feature at 1966 Å, which occurs on the side of a strong quasar emission line, is probably an artifact of the continuum-fitting process. If the line is real, it would be Lyα at a redshift of 0.6179. There is a candidate Galactic ISM Zn II line in the incomplete sample at 2062.09 $\pm$ 0.22 Å (W = 0.17 $\pm$ 0.04 Å, SL = 4.05, FWHM = 1.51 Å).

PG 1116+215 (z_{em} = 0.177, 37 lines).—The spectrum of Galactic ISM lines detected along this line of sight is among the richest found in the Key Project sample of observations. A total of 25 Galactic ISM lines are identified in the complete sample and Al III (at 1855.09 $\pm$ 0.40 Å, W = 0.15 $\pm$ 0.06 Å, SL = 4.03, FWHM = 2.23 Å) and Zn II (at 2062.51 $\pm$ 0.21 Å, W = 0.14 $\pm$ 0.03 Å, SL = 4.01, FWHM = 1.51 Å) are in the incomplete sample. There is strong Galactic Lyα absorption that has an approximate observed equivalent width of 2.96 Å.

There are seven lines identified as extragalactic Lyα lines, two of which have an associated metal line. The line identification software accepts the line at 1203 Å as the stronger line of the O VI doublet associated with the Lyα line at 1417.79 Å, z = 0.1663, although there are no other lines in the complete sample to provide additional support for this identification. In the incomplete sample of lines, there is a possible match to the expected positions of the C IV doublet, but at very low significance level. The candidate O VI line might be part of an associated absorption-line system being produced either by gas intrinsic to the quasar or associated with the group or cluster of galaxies that is associated with the quasar (Jannuzi 1997).

There is weak evidence that a flat-field residual might be affecting the measurement of the line at 1454 Å but not enough to remove the feature from the complete sample. If this line were produced by a Lyα absorber, it would have a redshift over 5000 km s^{-1} larger than the emission redshift of the quasar. All of the detected lines from 1393 to 1454 Å occur on top of a strong quasar emission line and are particularly uncertain owing to the subjective nature of the continuum fit. In particular, the line at 1434.96 Å can be made to appear or disappear completely with slightly different continuum fits. The lines at 2386.12 and 2798.74 Å are not identified but are blended with or near strong Galactic ISM lines and might be related to high velocity Galactic ISM clouds. Alternatively they might be a result of our

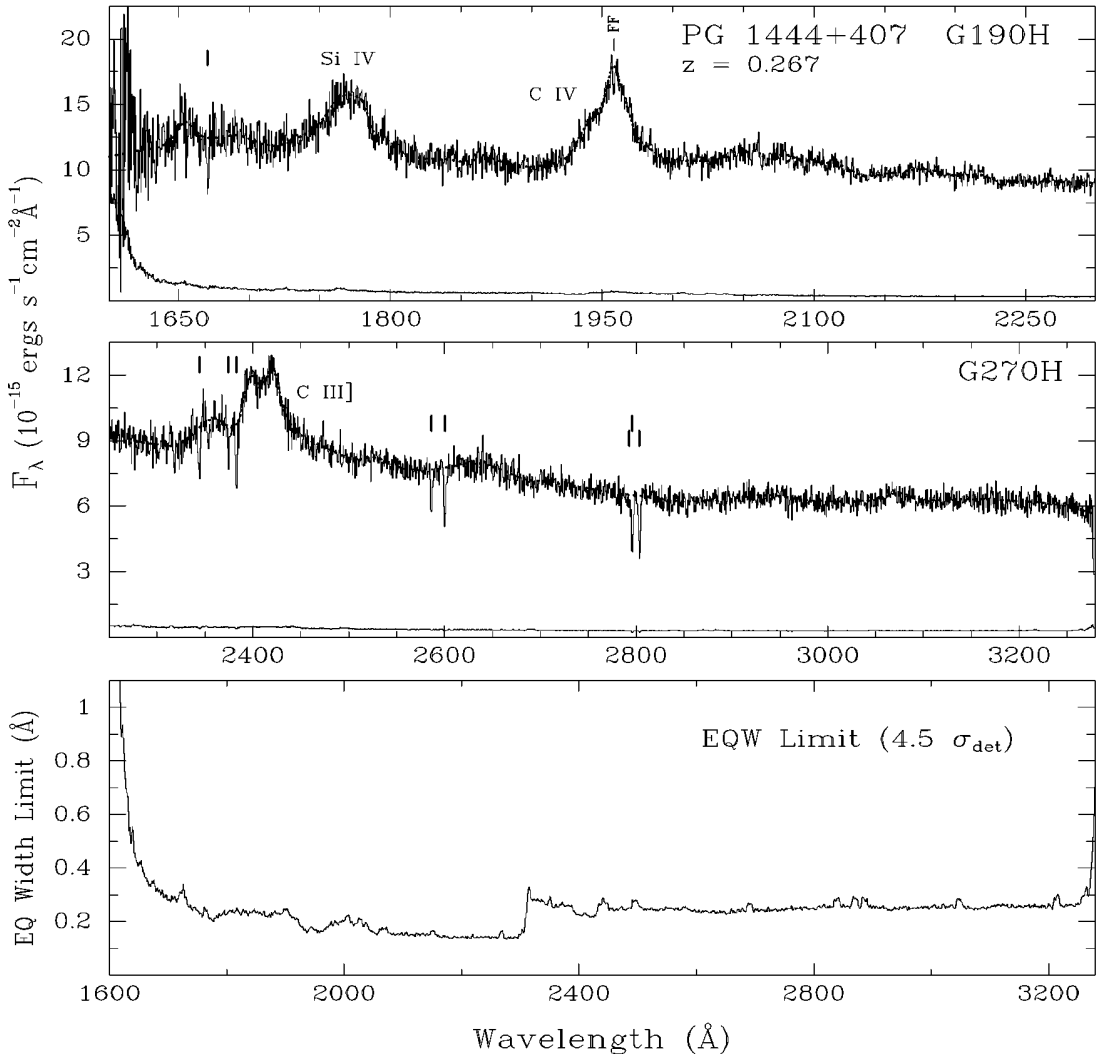


FIG. 2.—*Continued*

choice of fitting Gaussian profiles to the strong non-Gaussian profiles of the strong ISM lines, which leaves portions of the wings to be fitted as separate lines.

UM 425 (R.A.: $11^h20^m46^s.6$, decl.: +01°54′17″, B1950; $z_{em} = 1.465$).— This is one of the six BAL quasars observed by the Key Project and Bahcall GTO program. The spectrum is displayed in Figure 2, but the analysis of this spectrum will be presented in Turnshek et al. (1998b).

1130+106Y ($z_{em} = 0.51$, 22 lines).—Four Lyα lines are detected along this line of sight, two of which are associated with metal line systems. There is a strong high-excitation associated absorption-line system at $z = 0.5088$ that includes Lyα and the C IV and N V doublets. The $z = 0.5061$ system consists of Lyα and the strong line of the C IV doublet (observed at 2331 Å). This line is identified as C IV even though the weaker line of the doublet is not detected because it is probable that the strong C IV λ1548.20 line at $z = 0.5088$ is blended with C IV λ1550.77 from the $z = 0.5061$ system. The incomplete sample contains the Al II Galactic ISM line at 1670.70 ± 0.19 Å ($W = 0.72 \pm 0.14$ Å, SL = 4.39, FWHM = 1.50 Å). The line-fitting software did not handle well the strong, non-Gaussian Galactic ISM Mg II absorption. The feature at 2799 Å is actually the blended wings of the Mg II $\lambda\lambda$2796, 2803 absorption. There are no candidate damped Lyα or LLSs along this line of sight (based on the G190H and G160L observations).

PKS 1136−13 ($z_{em} = 0.554$, 18 lines).—There are seven Lyα lines identified in this spectrum, one of which is associated with a detected metal line system. For the $z = 0.4064$ system, a candidate N V λ1238.82 line is detected in the incomplete sample at 1741.86 ± 0.31 Å ($W = 0.31 \pm 0.10$ Å, SL = 3.10, FWHM = 1.51 Å)

3C 263 (R.A.: $11^h37^m09^s.4$, decl.: +66°04′27″, B1950; $z_{em} = 0.652$) CAT1.—While our G190H and G270H spectra have been previously published, the G160L spectrum shown in Figure 2 was not available when CAT1 was written. We have included the G190H and G270H spectra in Figure 2 along with the new G160L spectrum.

PG 1202+281 ($z_{em} = 0.165$, six lines).—Only Galactic ISM lines were detected along this line of sight. The Fe II λ2600.18 line is in the incomplete sample at 2600.16 ± 0.27 Å ($W = 0.52 \pm 0.11$ Å, SL = 4.48, FWHM = 2.04 Å).

PG 1206+459 ($z_{em} = 1.158$, 122 lines).—Our identifications of the lines in the UV spectra of PG 1206+459 are incomplete. This is in part due to the irregular nature of the continuum of this quasar and the difficulty of obtaining a

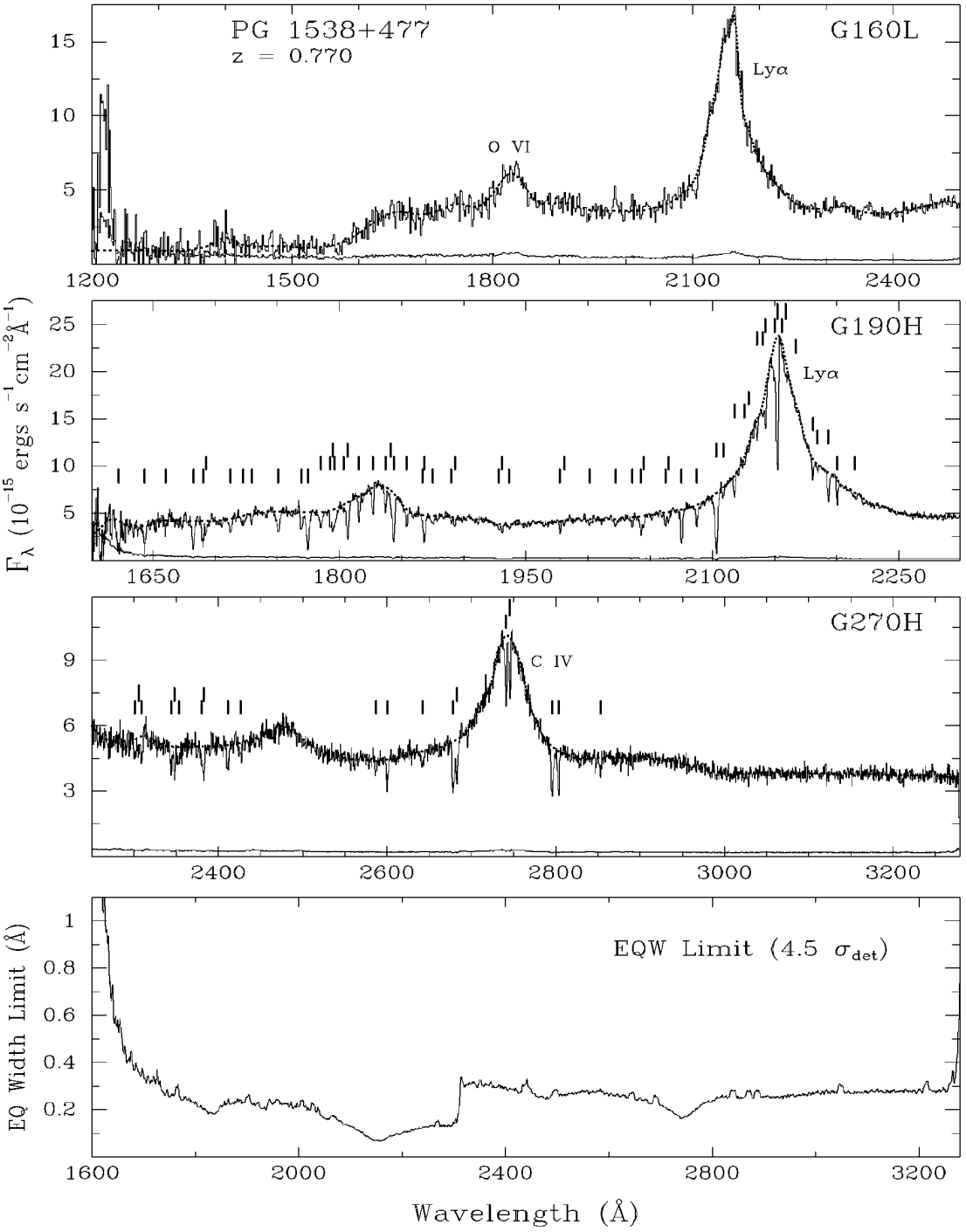


FIG. 2.—*Continued*

good fit. The Galactic ISM lines, some remarkable extensive metal line systems (at $z = 0.9254$, 0.9277, and 0.9342), and a few additional lines have been successfully identified. The Lyman limit fitting software also found a candidate system at 0.928, a redshift in remarkable agreement with the narrow-line system already mentioned ($z = 0.9277$). However, we have not included this candidate LLS in Table 6 as we consider it not to be a real system but most likely to be just the result of the irregular behavior of the quasar's continuum (Paper V). The majority of the lines in this spectrum have multiple plausible identifications, and we have not yet been able to assign a "most probable" identification for all of them. Most of the lines in Table 3 marked "notes" probably include a contribution from a line in another system as well. The other lines for which "notes" are indicated in Table 3 refer to the following: the feature at 1995.68 Å is the stronger line of the O VI doublet at $z = 0.9342$, and the second line of the doublet is in the incomplete sample at 2006.98 ± 0.24 Å with $W = 0.213 \pm 0.06$ Å, FWHM = 1.50 Å, and SL = 3.74; the line at 1997.72 Å might also include a contribution from C II λ1036.34 in the $z = 0.9277$ system; the blended lines at 2160.43 and 2162.00 Å might include

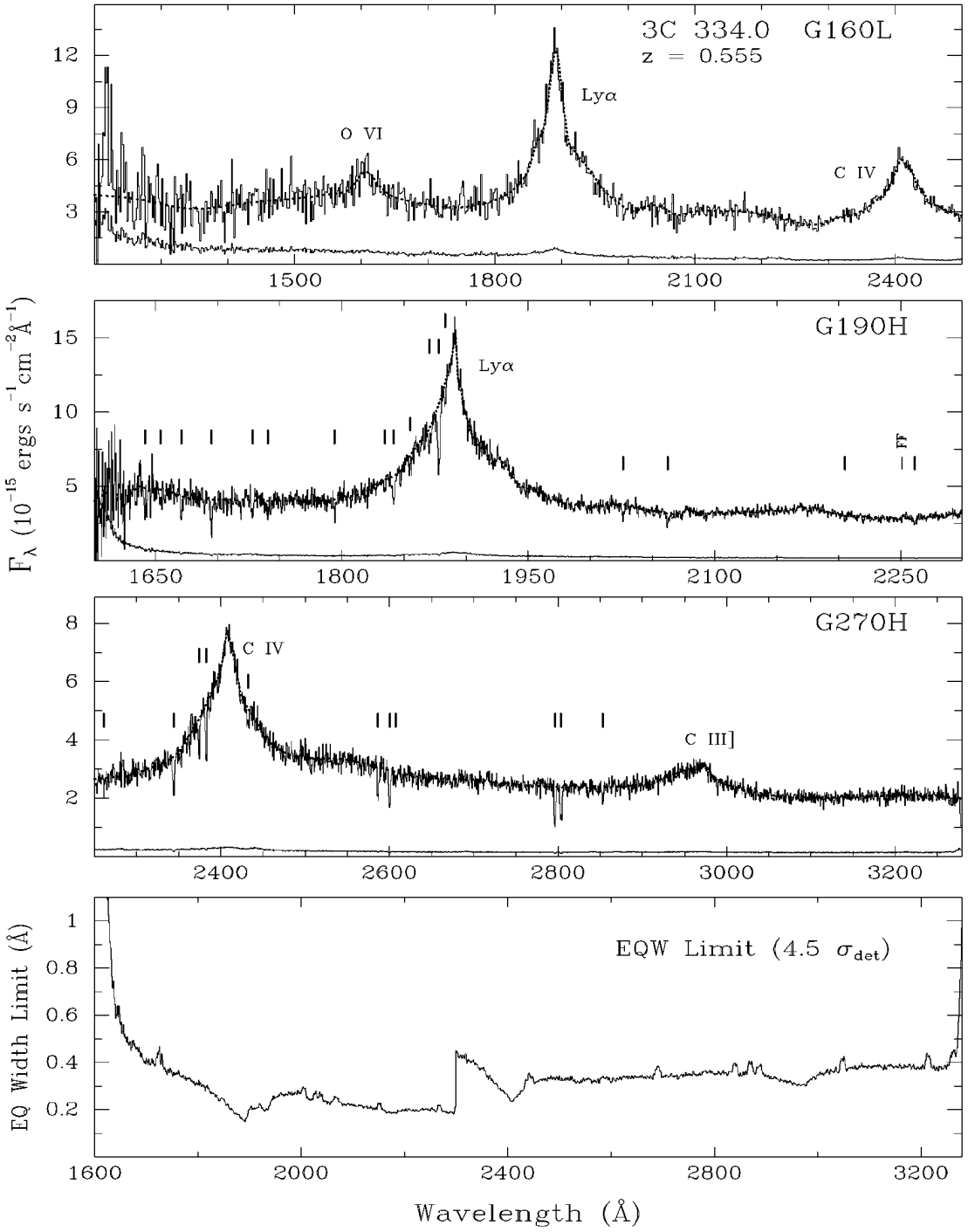


FIG. 2.—*Continued*

Fe III at $z = 0.9254$ but are likely to be produced by multiple lines (including a component of Fe II λ1121.99 at $z = 0.9277$); the blended lines at 2386.16 and 2393.38 Å are likely to include a contribution from the N V doublet at $z = 0.9254$ but probably include contributions from other lines as well; the line at 2985.12 Å is a blend of C IV λ1550.77 at $z = 0.9254$ and C IV λ1548.20 at $z = 0.9277$; the line at 3225.37 Å is most likely the result of an error in the continuum fit.

MC 1215+113 ($z_{em} = 1.396$) CAT1.—We now consider the candidate Lyman limit systems listed in CAT1 not to be real systems (see Paper V for discussion) and no longer list them as part of our catalog. See Table 6 for a complete listing of LLSs found in the survey.

PG 1216+069 ($z_{em} = 0.334$, 29 lines).—The spectrum contains nine identified Lyα lines, including one of the strongest Lyα absorbers detected in the Key Project observations. The remarkable line at 1223.34 Å ($z = 0.0063$; 1890 km s^{-1}) has no detected associated metal lines in the complete sample; however, there are possible detections of Si II λ1260.42, C II λ1334.53, and Mg II λ2796.35 in the incomplete sample. New observations with an improved signal-to-

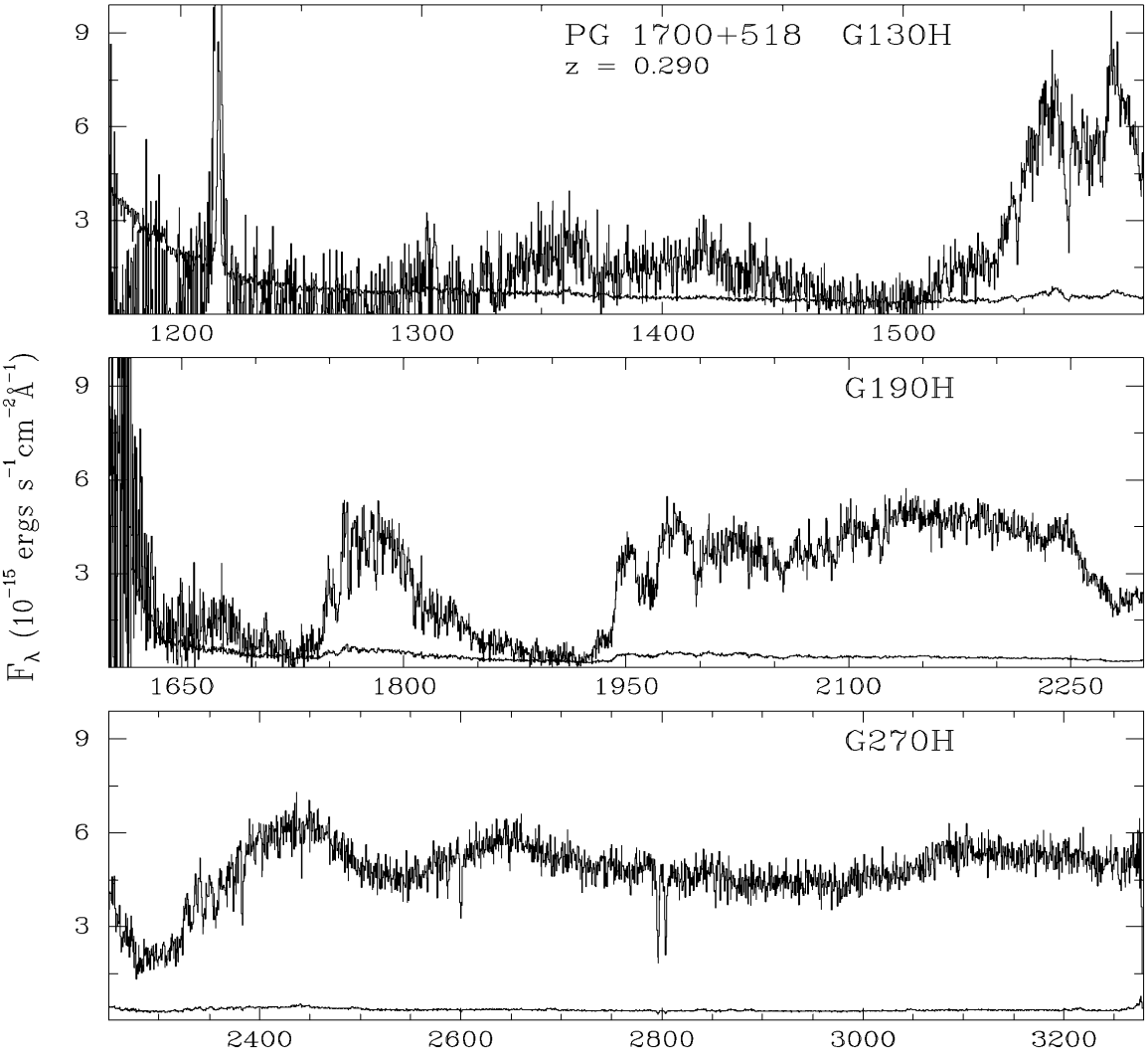


FIG. 2.—*Continued*

noise ratio are needed to test these candidate identifications and to test whether the broad Lyα line at 1223 Å can be resolved into separate components. It will be extremely interesting to look at other wavelengths (optical and radio imaging) for a counterpart to this very low redshift system.

The only acceptable identification for the line at 1741 Å is C IV associated with the Lyα line at 1367.21 Å ($z = 0.1247$). *ZSEARCH* formally identifies this line as the stronger component of the C IV doublet, but it is possible that the single broad feature found by the line measurement software is produced by both lines of the doublet blended together. In addition, the Lyα line at $z = 0.1236$ is close enough in velocity (< 300 km s^{-1}) that C IV from that system might also be blended with the $z = 0.1247$ lines. A shallow and broad line at 2664 Å was removed from the list because it is produced by an error in the continuum fit.

This line of sight contains a rich spectrum of Galactic ISM lines including 15 lines in the complete sample and possibly seven additional lines in the incomplete sample. The tentative Galactic ISM identifications in the incomplete sample are listed in Table 7. The weaker line of the C IV doublet was not detected in either the complete or incomplete samples, which raises the possibility that the line at 1548.20 Å is actually a Lyα line at $z = 0.2736$.

Mrk 205 (R.A.: $12^h19^m33^s.5$, decl.: $+75°35'16''.0$, B1950; $z_{em} = 0.070$).—Although too low a redshift to have been included in the original Key Project sample of targets, Mrk 205 was one of the GTO observations of Bahcall and is now included in this summary for the sake of completeness. The spectrum and line identifications for this object were presented by Bahcall et al. (1992b).

3C 273 (R.A.: $12^h26^m33^s.3$, decl.: $+02°19'43''$, B1950; $z_{em} = 0.158$) CAT1.—Our FOS spectra of this quasar were first analyzed by Bahcall et al. (1991a, 1991b) and reanalyzed with the Key Project analysis software in CAT1.

PG 1241+176 ($z_{em} = 1.273$, 41 lines).—This spectrum contains 19 Lyα lines (two are associated with detected metal lines), and there is a remarkably strong candidate O VI doublet at a redshift close to that of the quasar. The only additional lines in the system are Lyα and Lyβ. Other features that might have been expected (e.g., the N V and C III lines) are not present. However, it is possible that there is N V absorption present in the spectrum and that it has been removed by our choice of continuum fit (see Fig. 2). If the lines comprising the candidate O VI doublet at $z = 1.2720$ are misidentified, the alternative identifications for the lines are Lyα at $z = 0.9286$ and 0.9395. The line at 2344.53 Å also includes a small contribution from the

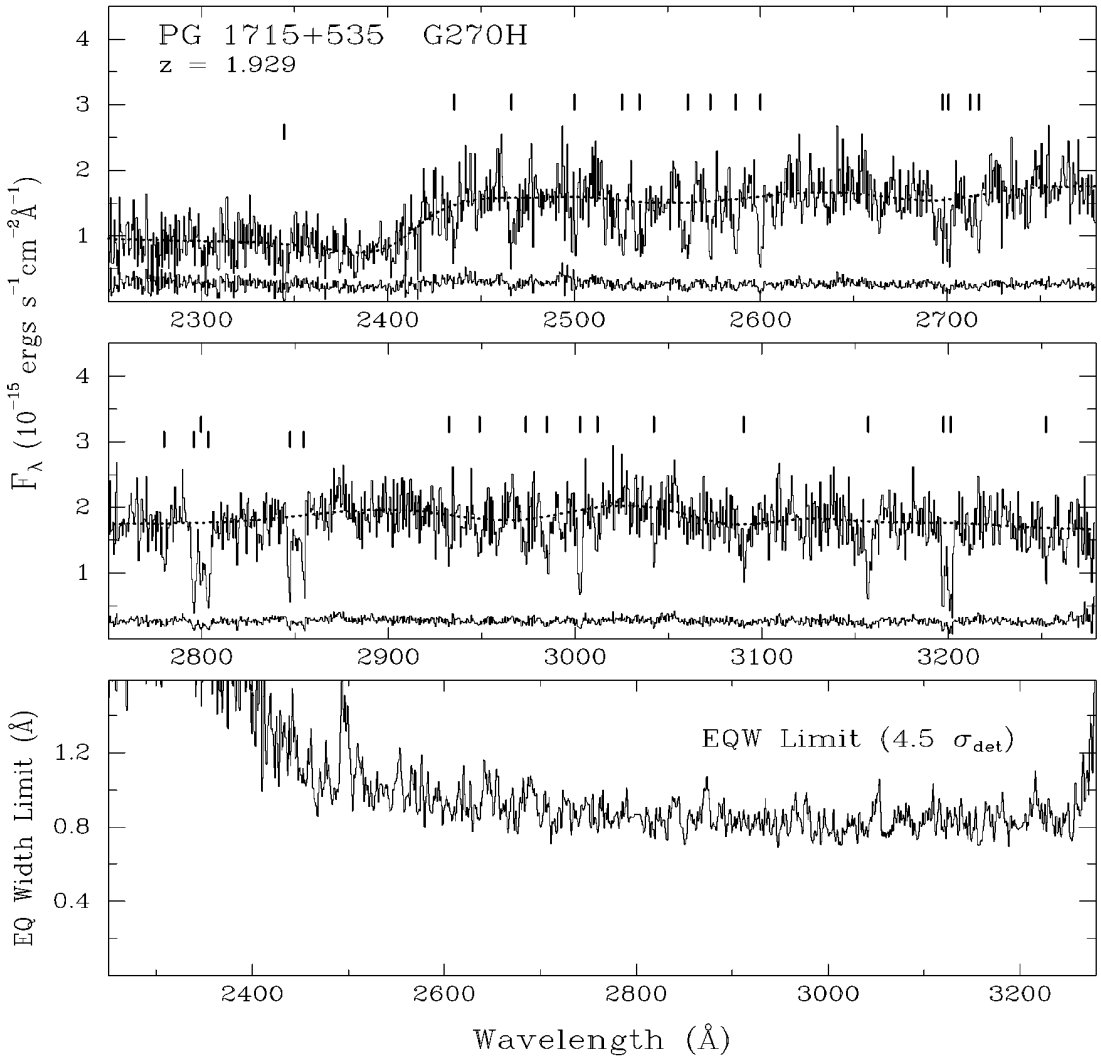


FIG. 2.—*Continued*

Galactic ISM Fe II λ2344.21 line. The line at 3205.24 Å is probably the result of an imperfect continuum fit. The feature at 2532 Å is the result of a flat-fielding residual and an error in the continuum fit. The Lyα line at 2244 Å might be the result of the continuum fitting.

B2 1244+32B ($z_{em} = 0.949$) CAT1.

PG 1248+401 ($z_{em} = 1.030$, 88 lines).—This line of sight includes four metal line systems (two very extensive) in addition to the 37 Lyα (four of which are associated with the metal line systems) and eight Galactic ISM lines. The metal line system at $z = 0.8553$ includes a broad Lyα feature that was split by the fitting software into two components. Absorption by Lyα, Lyβ, Lyγ, Lyδ, Lyϵ, C II, C III, C IV, N III, N V, O VI, Fe III, and Si III is observed in this system. The second extensive system, at $z = 0.7732$, includes lines from Lyα, Lyβ, Lyγ, Lyδ, Lyϵ, C II, C III, C IV, N II, N III, N V, O VI, Fe III, Si II, Si III, and Si IV. The Fe III line in this system was found as part of a candidate system at $z = 0.7734$ that included many, but not all of the lines in the candidate system at $z = 0.7732$—while formally the wavelength agreement is insufficient for this line to be identified with this system, it is likely to be the correct identification and that the redshift is slightly in error. The line at 1922.34 Å is listed in the table as C II in the $z = 0.8553$ system, but it is blended with the N II line from the $z = 0.7732$ system. The line at 1924.96 Å is listed as O VI in the $z = 0.8553$ system, but there is a small probability that this line is blended with N II in the $z = 0.7660$ system. The candidate metal line system at $z = 0.7760$ is of particular interest because there is no detected C IV doublet to accompany the detected O VI lines. This is an excellent candidate to be an absorber produced by collisionally excited gas, perhaps associated with a group or cluster of galaxies. If the candidate O VI lines in the $z = 0.7760$ system are not O VI (and identified lines in this system only include Lyα, Lyβ, and the O VI doublet), then they are most probably Lyα lines at $z = 0.507$ and 0.516.

Alternative identifications for the 1887.55 and 1890.21 Å lines are the lines in a C IV doublet at $z = 0.2190$. Galactic ISM Fe II λ2260.78 and Fe II λ2382.77 are probably blended with the Lyα lines at, respectively, 2259.30 and the blend at 2383, 2387 Å.

PKS 1252+11 ($z_{em} = 0.870$, 49 lines).—There are 24 identified Lyα lines in this spectrum, including one that may be associated with a detected metal line system. The O VI λ1037.62 line in the $z = 0.6395$ system is in the incomplete sample at 1702.45 ± 0.22 Å with $W = 0.45 \pm 0.10$ Å,

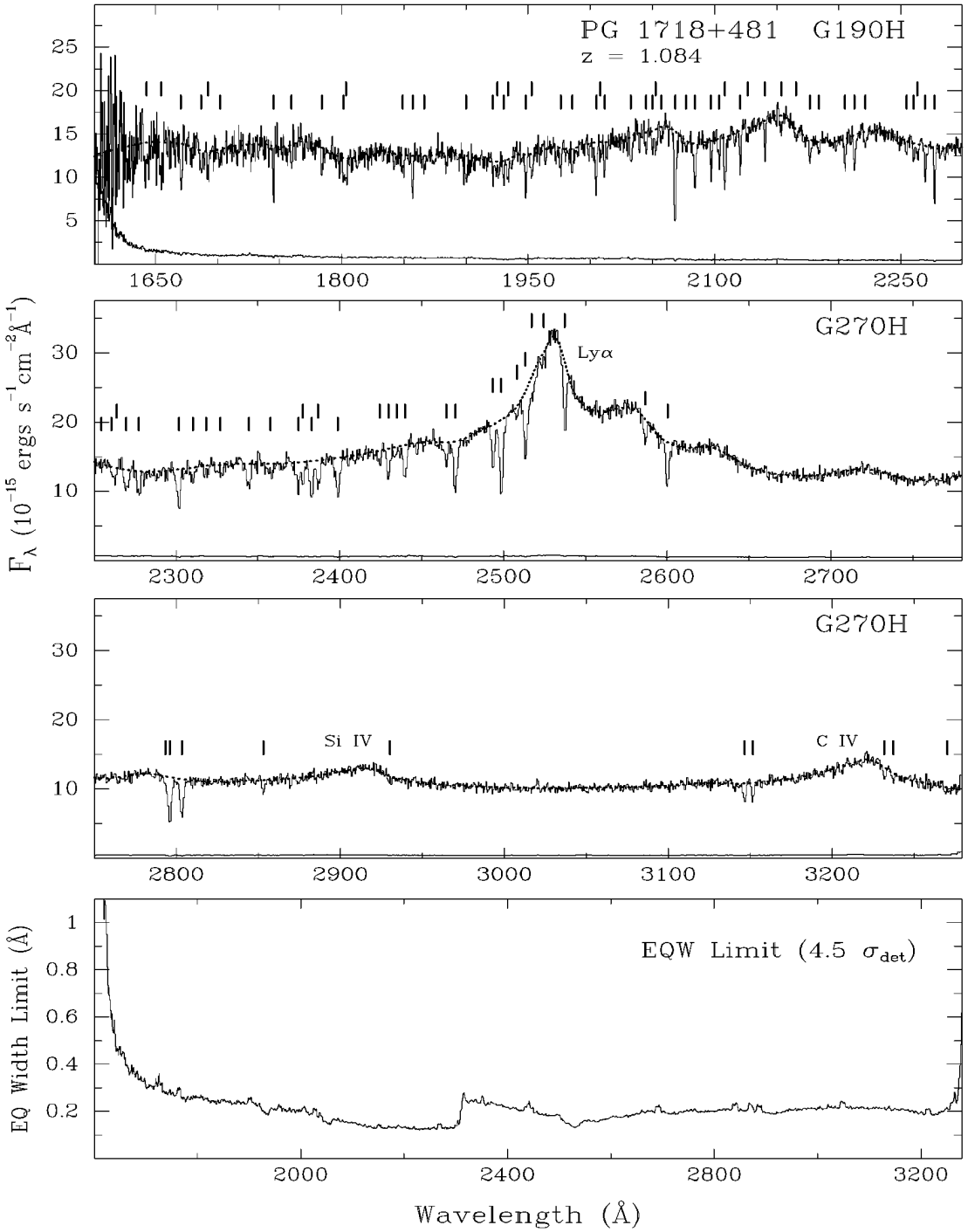
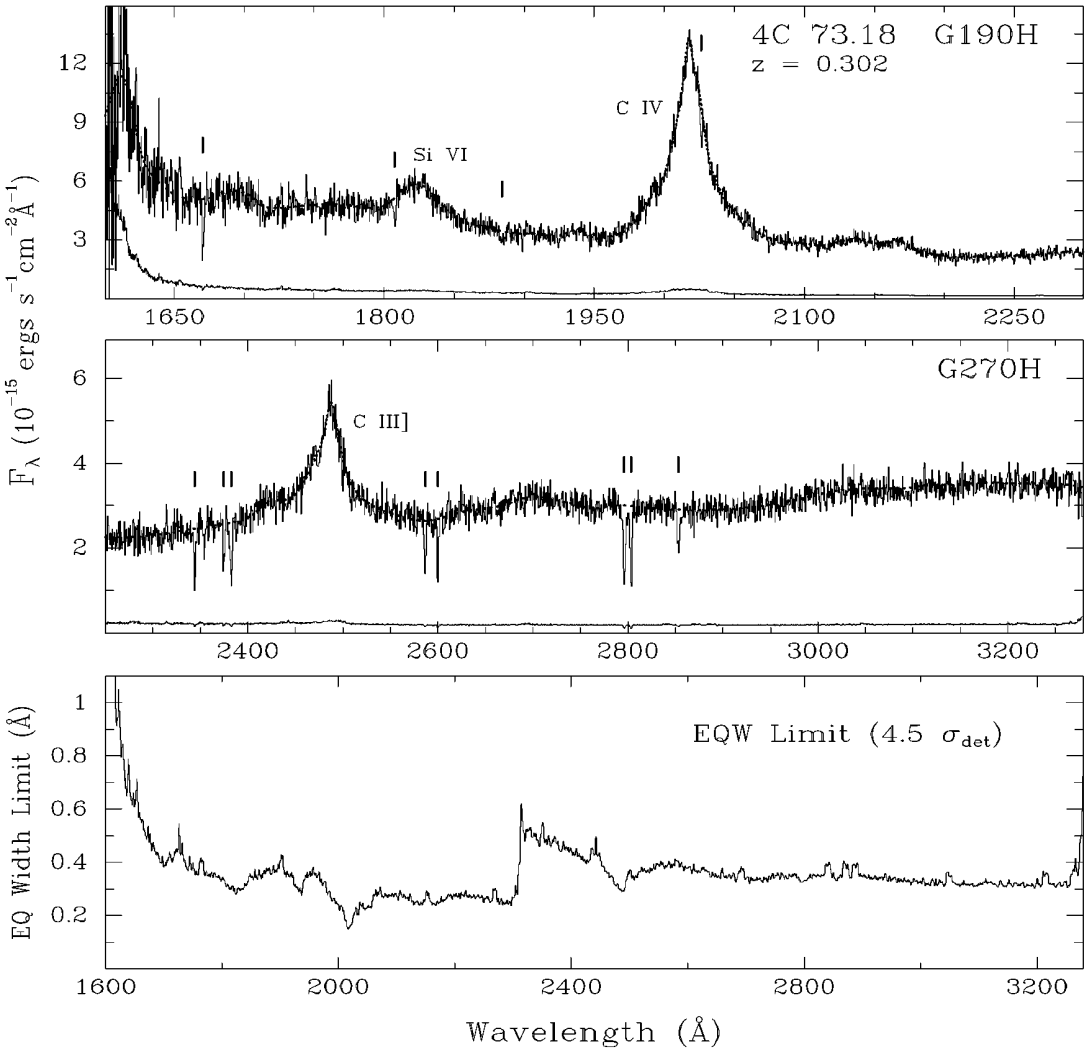


FIG. 2.—*Continued*

FWHM = 1.51 Å, and a SL = 1.51. Any Mg II associated with this system should be observable from the ground. The line at 2027.19 Å is a very broad feature produced by a real feature and an uncertain continuum fit. The features at 2063.78, 2214.15, and 2637.55 Å similarly appear to be blends of weaker features and/or slight errors in the continuum fit. The 1780.14 and 1878.12 Å lines, identified as Lyβ at $z = 0.7357$ and Lyα at $z = 0.5449$, possibly include contributions from, respectively, Lyγ and Lyβ at $z = 0.8307$. Alternative identifications for the Lyα lines at 2266.75 and 2276.58 Å are as the Al III doublet at $z = 0.2222$.

PG 1254+047 ($z_{em} = 1.024$).—This is one of the six BAL quasars observed by the Key Project and Bahcall GTO program. The spectrum is displayed in Figure 2, but the analysis of this spectrum will be presented in Turnshek et al. (1998b).

B201 1257+57 ($z_{em} = 1.375$, 25 lines).—This spectrum contains 13 Lyα lines, three of which are associated with metal lines. The Lyδ line of the associated absorption system (at $z = 1.3799$) is blended with the line identified as Galactic ISM Fe II λ2260.78. Candidate Fe II lines from the Galactic ISM are in the incomplete sample at



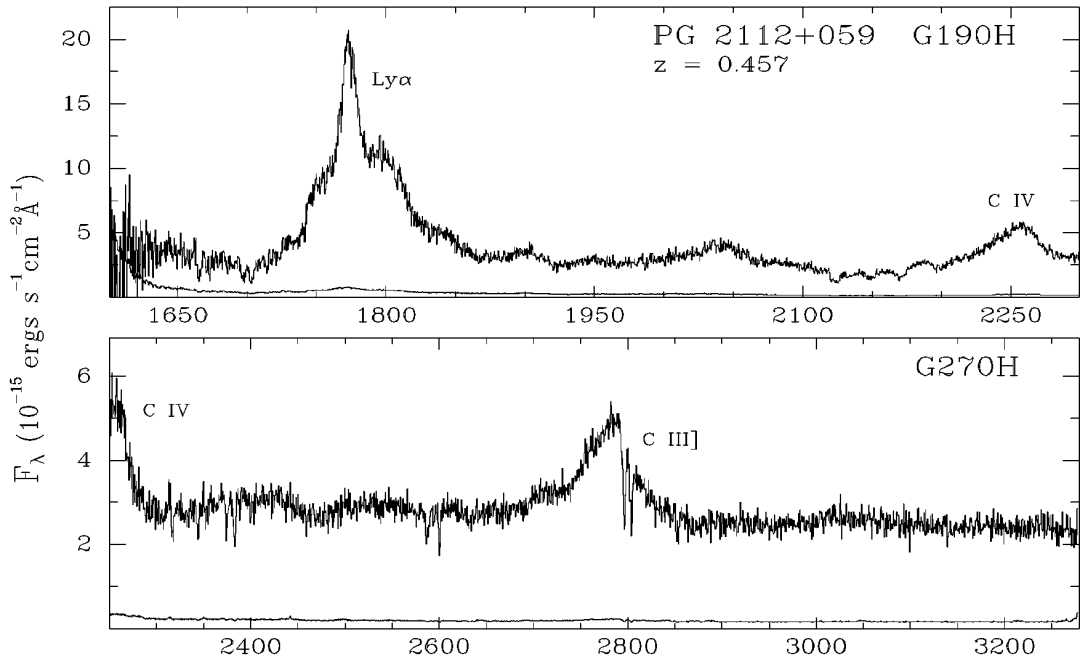


FIG. 2.—*Continued*

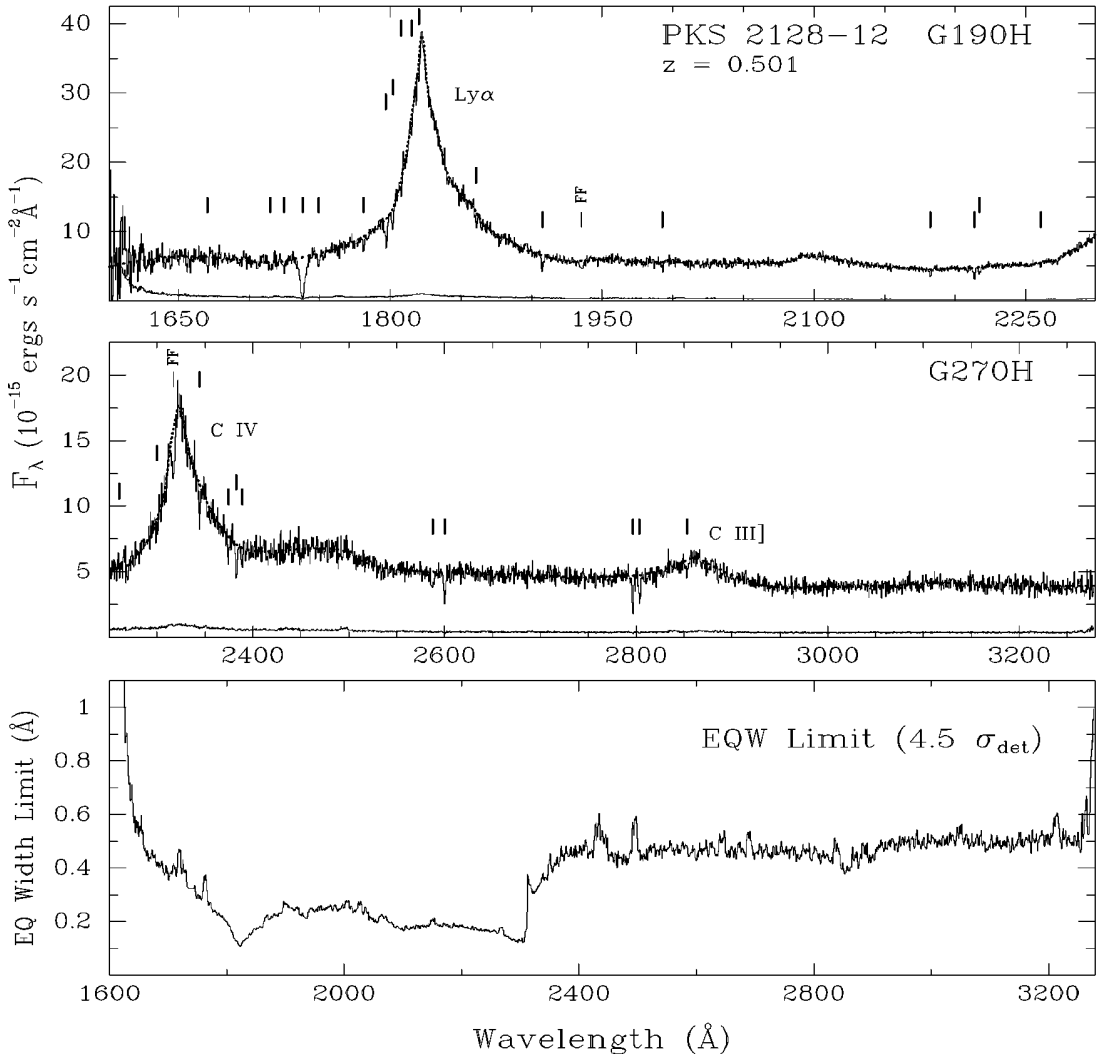


FIG. 2.—*Continued*

2248.60 ± 0.29 Å, $W = 0.70 \pm 0.16$ Å, FWHM = 2.04 Å, SL = 4.19 and 2375.02 ± 0.35 Å, $W = 0.45 \pm 0.12$ Å, FWHM = 2.04 Å, SL = 3.48. The Galactic ISM Fe II λ2382.77 line is anomalously strong, relative to the other Galactic ISM lines, and probably includes a blend from another line.

PG 1259+593 ($z_{em} = 0.472$) CAT1.

PKS 1302−102 ($z_{em} = 0.286$, 39 lines).—A total of 21 Galactic ISM lines were detected in the complete sample including absorption from N I, Si II, S II, O I, C II, C IV, Si IV, Al II, Mg I, Fe II, Mn II, and possibly Zn II. In the incomplete sample S II λ1253.81 at 1253.70 ± 0.19 Å is observed with an equivalent width of 0.22 ± 0.06 Å and SL = 3.49, and C IV λ1550.77 at 1551.01 ± 0.16 Å with an equivalent width of 0.11 ± 0.03 Å and SL = 4.05. Both of the Galactic ISM C IV lines occur on top of a strong quasar emission line that makes their measured equivalent widths uncertain owing to the uncertainty in the continuum fit. Fe II λ2249.88 is seen as a broad blend located at 2249.3 Å, and Mg I (Zn II) is in the incomplete sample (2026.89 ± 0.28 Å with $W = 0.15 \pm 0.05$ Å, FWHM = 1.51 Å, and SL = 3.30).

There are 14 Lyα lines identified in the spectrum of this object. The line at 1283.96 Å, fitted by the software as a single "resolved" line, is probably a blend of more than one line. If we force a fit with two lines, the individual components have centers at approximately 1283.8 and 1284.8 Å. The single line in the complete sample may be composed of the Lyβ line from a system at redshift 0.2521 and a Lyα line at a redshift of 0.0562; higher resolution spectroscopy is needed to resolve this question. The Lyα line at 1489.49 Å is strong and broad. Any associated C IV was too weak to appear in either the complete or incomplete samples.

TON 153 (R.A.: $13^h17^m34^s.3$, decl.: +27°43′152″, B1950; $z_{em} = 1.022$) CAT2.—Note the slight revision (see Table 6) of the properties of the Lyman limit system first reported in CAT1. These are as a result of the changes made to the software measuring the LLSs and are not due to any change in the reduction of the spectrum.

PG 1333+176 ($z_{em} = 0.554$, 14 lines).—Three Lyα lines appear in this spectrum, one of which is associated with a C IV system at a redshift 0.3458. The C IV λ1550.77 line is present in the incomplete sample with an equivalent width of 0.21 ± 0.05 Å, an observed wavelength of 2087.31 ± 0.25 Å, and a SL = 3.69. Lyα for this system is in the complete sample, and Si IV at 1893 Å is in the incomplete sample. The Si IV absorption observed at 1887 and 1893 Å occurs on top

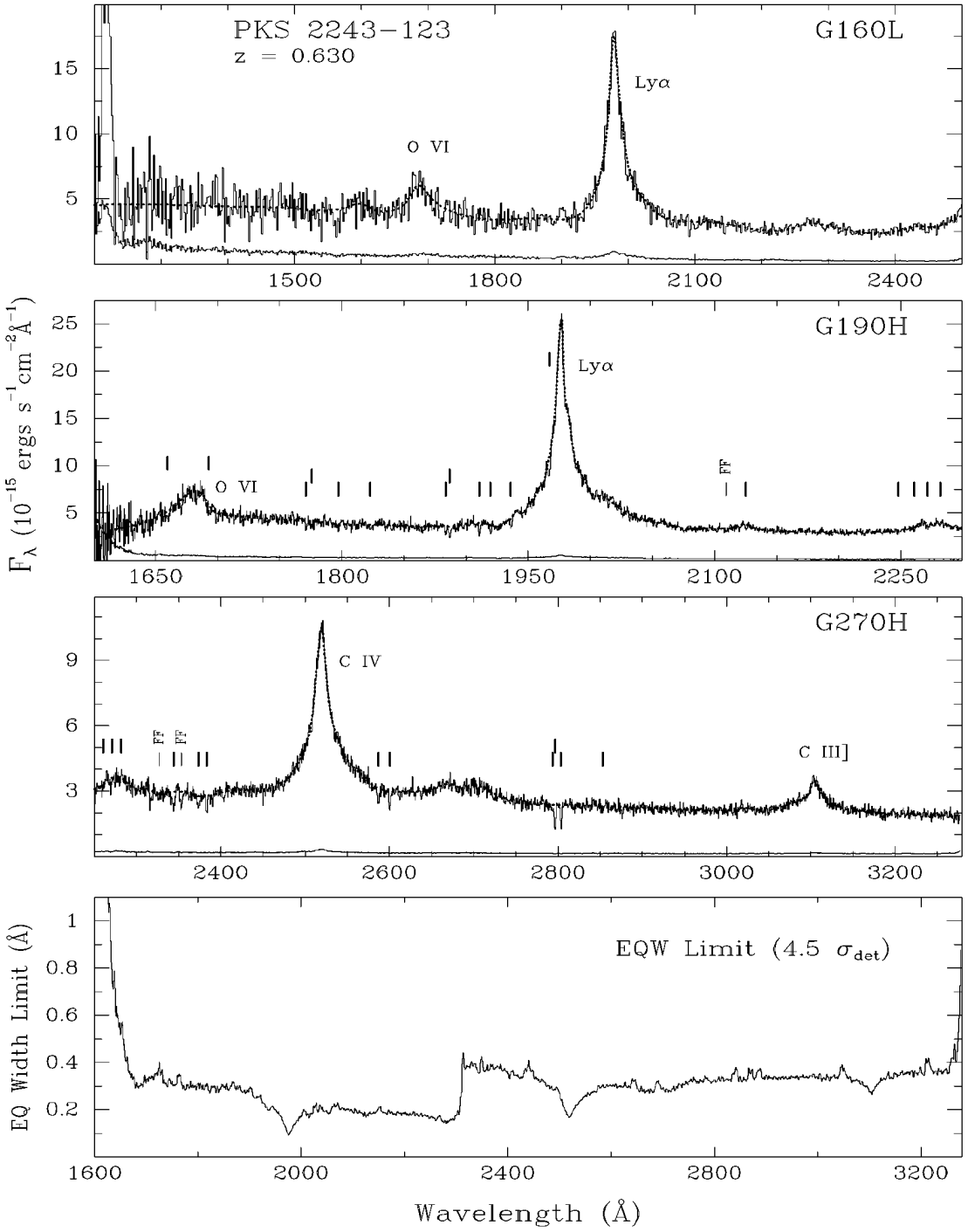


FIG. 2.—*Continued*

of one of the quasar's emission lines, and the continuum placement affected the detection of the Si IV λ1393 at 1887 Å, which is clearly present on inspection of the spectrum.

At the redshift of the Lyα line at 1861.9 Å ($z = 0.5316$) there are no detected metal lines in the complete sample; however, there is a line in the incomplete sample that matches the expected wavelength of C IV $\lambda\lambda$1548.20, 1550.77 and would be blended with Galactic Fe II λ2374. Formally, we identify the 1861.9 Å line as a Lyα absorber with no associated metals, but it is worth remembering that such statements have the implied qualifier: "no metal lines strong enough to be included in the complete sample."

Galactic ISM lines in the complete sample are detected from Fe II, Mg II, and Mg I. Al II λ1670.79 is present in the incomplete sample with an observed wavelength of 1670.78 Å, an equivalent width of 0.46 $\pm$ 0.11 Å, and a significance level of 4.00.

There is some evidence that both the 2919 and 2958 Å lines could arise from imperfect flat-field correction, but it is not sufficient to allow us to identify these features as flat-fielding artifacts.

PG 1338+416 ($z_{em} = 1.219$, 39 lines).—This spectrum has a lower signal-to-noise ratio than the vast majority of the Key Project spectra. Combined with the presence of

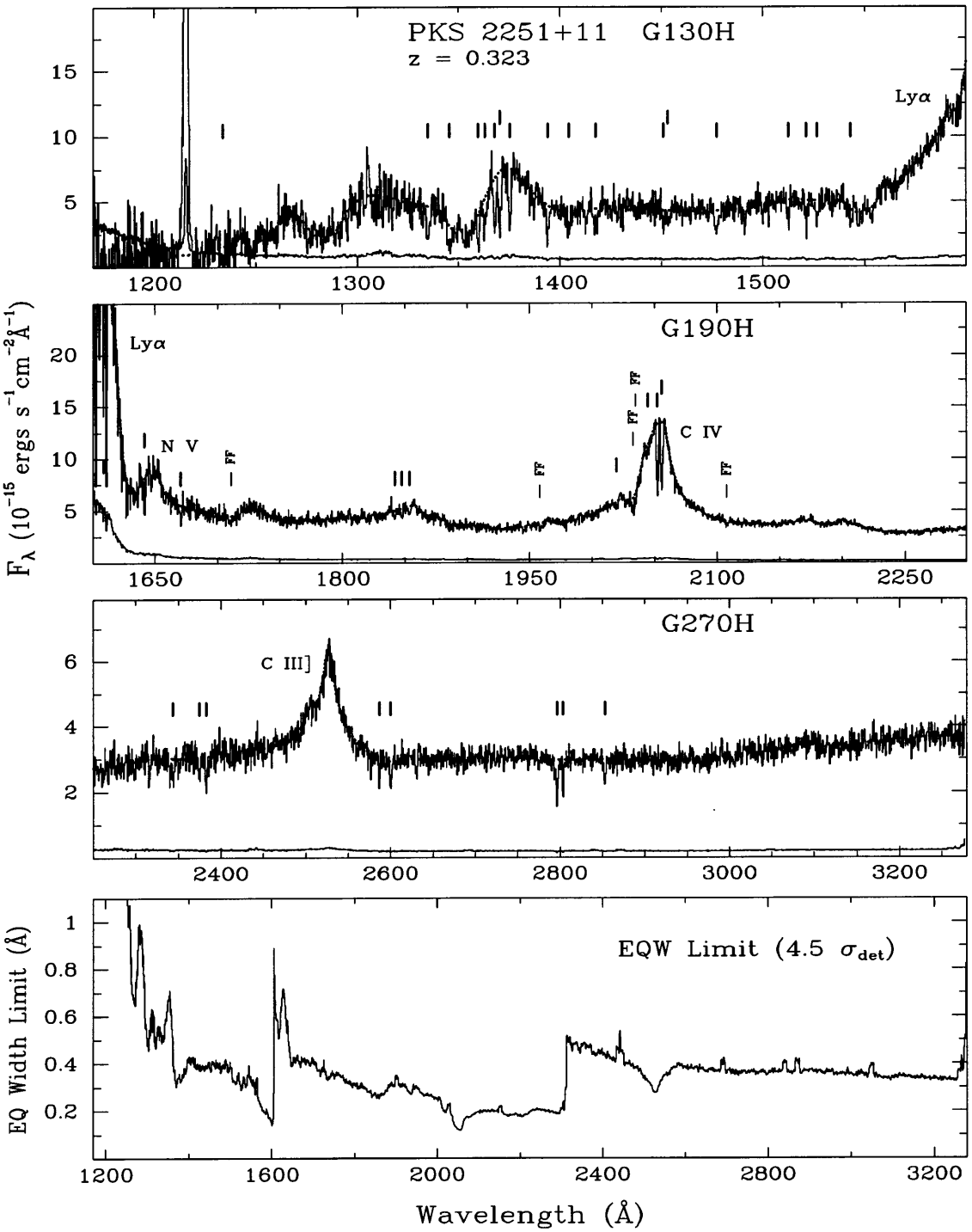


FIG. 2.—*Continued*

several strong blends or broad absorption features, the poor signal made fitting the continuum of this spectrum particularly difficult and the resulting line measurements particularly uncertain. Despite these problems, this line of sight is unusual for the number of strong Lyα lines observed in the spectrum. In total 22 Lyα lines are identified, two of which have associated metal lines. An extensive metal line system is identified at $z = 1.2152$. Only one Fe II line (1144 Å) is observed in this system, and the line (observed at 2535.85 Å) might alternatively be part of a C IV doublet at $z = 0.6351$. The line at 2400 Å might include a contribution from N II in the $z = 1.2152$ system. The second line of the C IV doublet at $z = 1.0778$ is in the incomplete sample at 3222.17 ± 0.37 Å with $W = 0.34 \pm 0.10$ Å, FWHM = 2.04 Å, and SL = 3.30. The strong line at 2383.17 Å must include some Galactic ISM Fe II in addition to the identified Lyα line. The most probable alternative identifications for the lines comprising the candidate C IV doublets at $z = 0.6213$ and $z = 0.6863$ are as Lyα lines. Galactic ISM Fe II λ2586.65, which is stronger than expected, probably includes a contribution from another line (e.g., Lyα line at $z = 1.1274$).

B2 1340+29 ($z_{em} = 0.905$) CAT1.

4C 53.28 (R.A.: $13^h47^m42^s.7$, decl.: $+53°56'09''$, B1950; $z_{em} = 0.976$) CAT1.

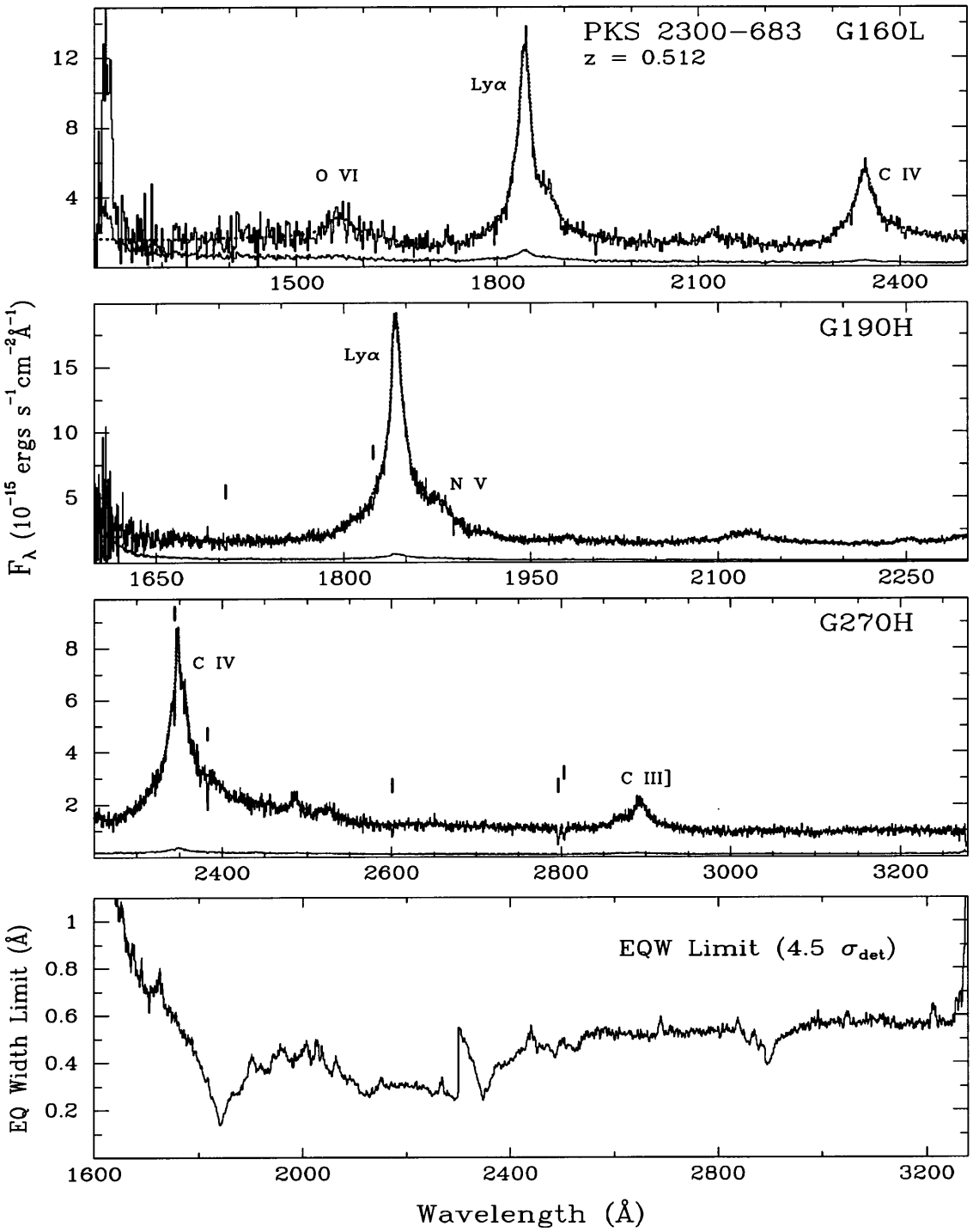


FIG. 2.—*Continued*

PG 1352+011 (z_{em} = 1.121) CAT2.

PKS 1354+19 (z_{em} = 0.720, 23 lines).—Eight Lyα lines are identified in this object's spectrum, one of which is associated with an extensive metal line system at $z = 0.4563$ that almost certainly corresponds to the LLS detected in our G160L spectrum (see CAT1 and Paper V) at $z = 0.45$; the properties of the LLS are listed in Table 6. Absorption by Si II λ1190.42 associated with this system is detected in the incomplete sample at 1733.28 ± 0.21 ($W = 0.47 \pm 0.10$ Å, SL = 4.34, FWHM = 1.51 Å).

Galactic ISM Fe II λ2382.77 is in the incomplete sample at 2382.89 ± 0.33 Å ($W = 0.43 \pm 0.11$ Å, SL = 3.73, FWHM = 2.04 Å). Contrary to expectations, the equivalent width of Galactic ISM Mg II λ2803 is observed to be stronger than the Mg II λ2796 line by 0.26 Å. If the 2803 Å line is contaminated by high-velocity Mg II λ2796 absorption, the implied velocity is approximately +800 km s^{-1}. Such extreme high velocity clouds are unlikely.

PG 1407+265 (z_{em} = 0.944, 82 lines).—Our *HST* observations of this quasar have been previously published by McDowell et al. (1995) when they discussed the unusual emission-line properties of this radio-quiet quasar. As they reported, the vast majority of the emission lines have comparatively small equivalent widths and cover a very wide

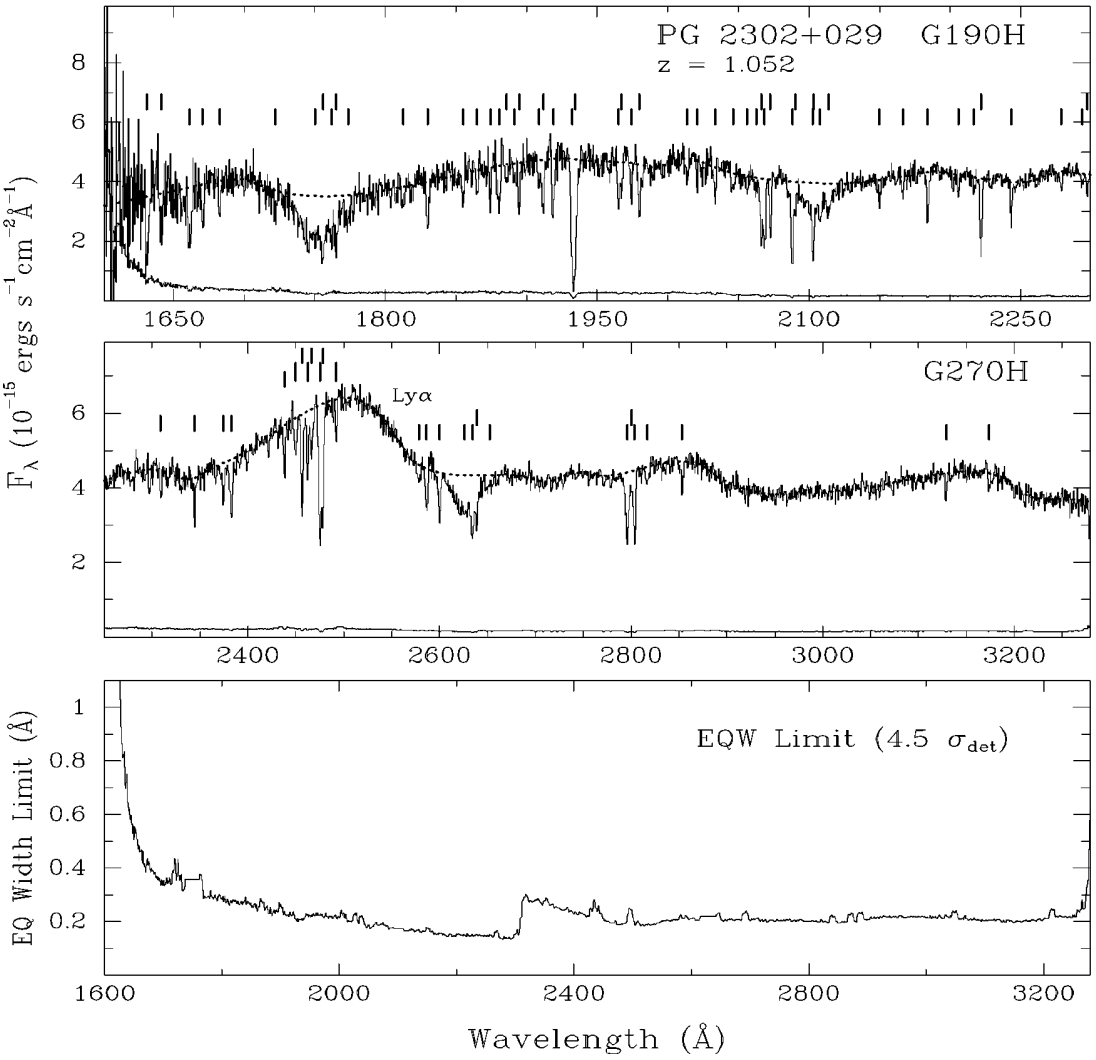


FIG. 2.—*Continued*

range in redshift (over 10,000 km s^{-1}). Because different emission lines yielded quite different redshifts, McDowell et al. quote a redshift for the quasar of $z = 0.94 \pm 0.02$. Given our detection of a metal line absorption system at $z = 0.9566$, the systemic redshift of the quasar is likely to be at least as large as 0.95.

Alternative identifications for the lines at 1855.06 and 1858.13 Å are as a C IV doublet at $z = 0.1984$. No Lyα absorption is detected in association with the candidate C IV doublet at $z = 0.4115$. Alternative identifications of this doublet are as Lyα lines at $z = 0.7976$ and 0.8006. If the candidate N V doublet with associated Lyα at $z = 0.4053$ identifications are correct, then the strength of any associated C IV absorption is less than 0.12 Å (for the stronger line of the doublet). The 2344.30 Å line is expected to include a contribution from Galactic ISM Fe II but has been identified as Lyα because of its large equivalent width. The line at 2030.67 Å has numerous possible identifications, and we have chosen the one that would place the line in the most extensive of the candidate systems; however, the identification of this line should be considered quite uncertain.

PG 1411+442 ($z_{em} = 0.089$).—PG 1411+442 has too low a redshift to have been included in the original Key Project sample of targets. It was one of the GTO targets of Bahcall and is included in this paper for completeness since our catalog contains the results of the analysis of all of the objects observed as part of both the Key Project and the Bahcall GTO program. The spectrum is presented in Figure 2. This is one of the six BAL quasars observed by the Key Project and Bahcall GTO program. The analysis of this spectrum will be presented in Turnshek et al. (1998b).

PG 1415+451 ($z_{em} = 0.114$, 6 lines).—In the spectrum of PG 1415+451 we detect in the complete sample only the familiar Galactic ISM lines of Fe II, Mg I, and Mg II. There are three Galactic ISM lines in the incomplete sample from Fe II (at 2250.77 ± 0.45 Å, $W = 0.33 \pm 0.12$ Å, SL = 3.50, FWHM = 2.40 Å and 2374.70 ± 0.28 Å, $W = 0.36 \pm 0.08$ Å, SL = 4.36, FWHM = 2.04 Å) and Mg I (at 2852.83 ± 0.45 Å, $W = 0.25 \pm 0.09$ Å, SL = 3.77, FWHM = 2.53 Å).

MC 1415+172 ($z_{em} = 0.821$) CAT1.

PKS 1424−11 ($z_{em} = 0.805$, 28 lines).—There are 15 Lyα lines identified in the spectrum of this object, one of which is associated with a detected C IV doublet at $z = 0.6553$. This metal line system's redshift is in agreement with the measured LLS redshift, $z = 0.65$, evident in the G160L spectrum (see Table 6 for measured properties of the system). In some of our other spectra there is a flat-field feature at 2120

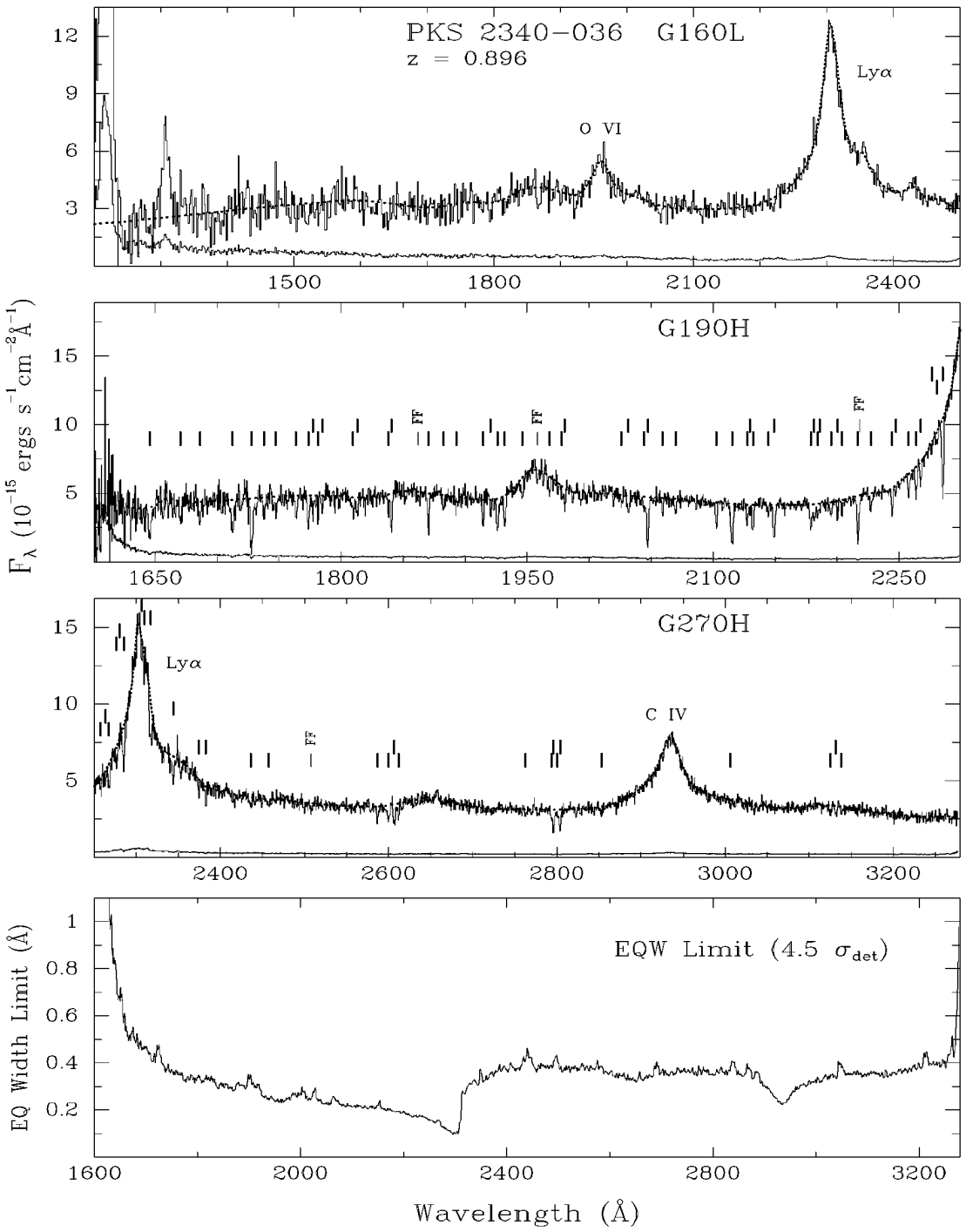


FIG. 2.—*Continued*

Å, but it is not strong enough to produce the feature observed in this spectrum. There is a candidate C IV doublet at $z = 0.0965$ whose identification lacks any additional supporting evidence (for example, the presence of other lines in the system), and these lines (1697.87 and 1700.23 Å) have been identified as Lyβ lines in other systems. If these lines are not caused by Lyβ or C IV, they most likely are Lyα lines. Similarly, there is a candidate C IV system at $z = 0.3485$, consisting of lines at 2087 and 2091 Å currently identified as being produced by Lyα absorption; however, there are no additional lines detected that support the existence of the candidate C IV system.

S4 1435+63 ($z_{em} = 2.060$, 73 lines).—The heavy blending of the lines in this spectrum and limited observed wavelength coverage (exacerbated by the presence of a LLS) made the fitting of the continuum highly uncertain and the possible identifications for some lines too numerous to allow complete identification of the line list at this time. We do include identifications of the strong hydrogen lines and tentative identifications of a few metal lines that might be associated with the LSS observed at $z = 1.9254$ (see Table 6 for additional properties of the LLS, measured by the Lyman limit search software to have $z = 1.92$), as well as some of the other strong lines in the spectrum. Three of the

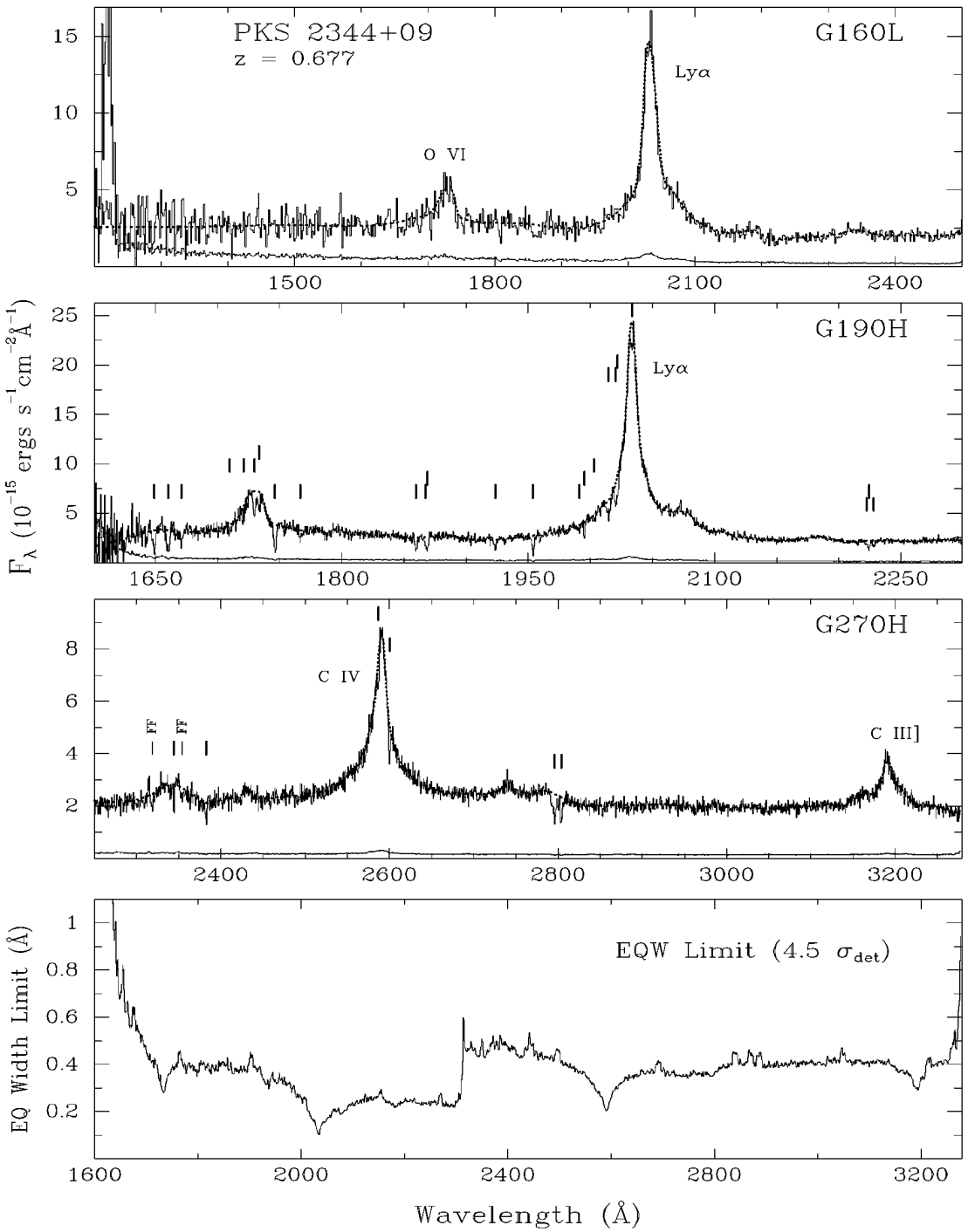


FIG. 2.—*Continued*

Lyman series lines associated with the LLS are heavily blended with other lines (Lyδ, Lyϵ, and Lyλ).

There might be a slight error in the zero point of the wavelength scale of this spectrum, since the Galactic ISM Fe II lines that we normally use to set the zero point were not observable owing to the LLS. Strong lines that are likely to have been produced by Mg II and Mg I in the Galactic ISM are present at an observed redshift of 0.0003. If these identifications are correct and the lines are due to gas in the Galaxy, the true redshift of these lines is likely to be closer to zero and all of the wavelengths presented in the table of identifications need to be shifted by approximately -0.9 to -1.0 Å. However, the redshift of the LLS measured in our G160L spectrum is in excellent agreement with the redshift measured in the system's narrow lines, which suggests that in fact the lines at 2797.28 and 2804.78 Å might have an alternative identification or be blended with other lines that are displacing the line centers. Higher spectral resolution observations would remove this uncertainty.

PG 1444+407 ($z_{em} = 0.267$, nine lines).—All the identified absorption lines are from the Galactic ISM. Planned G130H observations of this object had to be dropped when

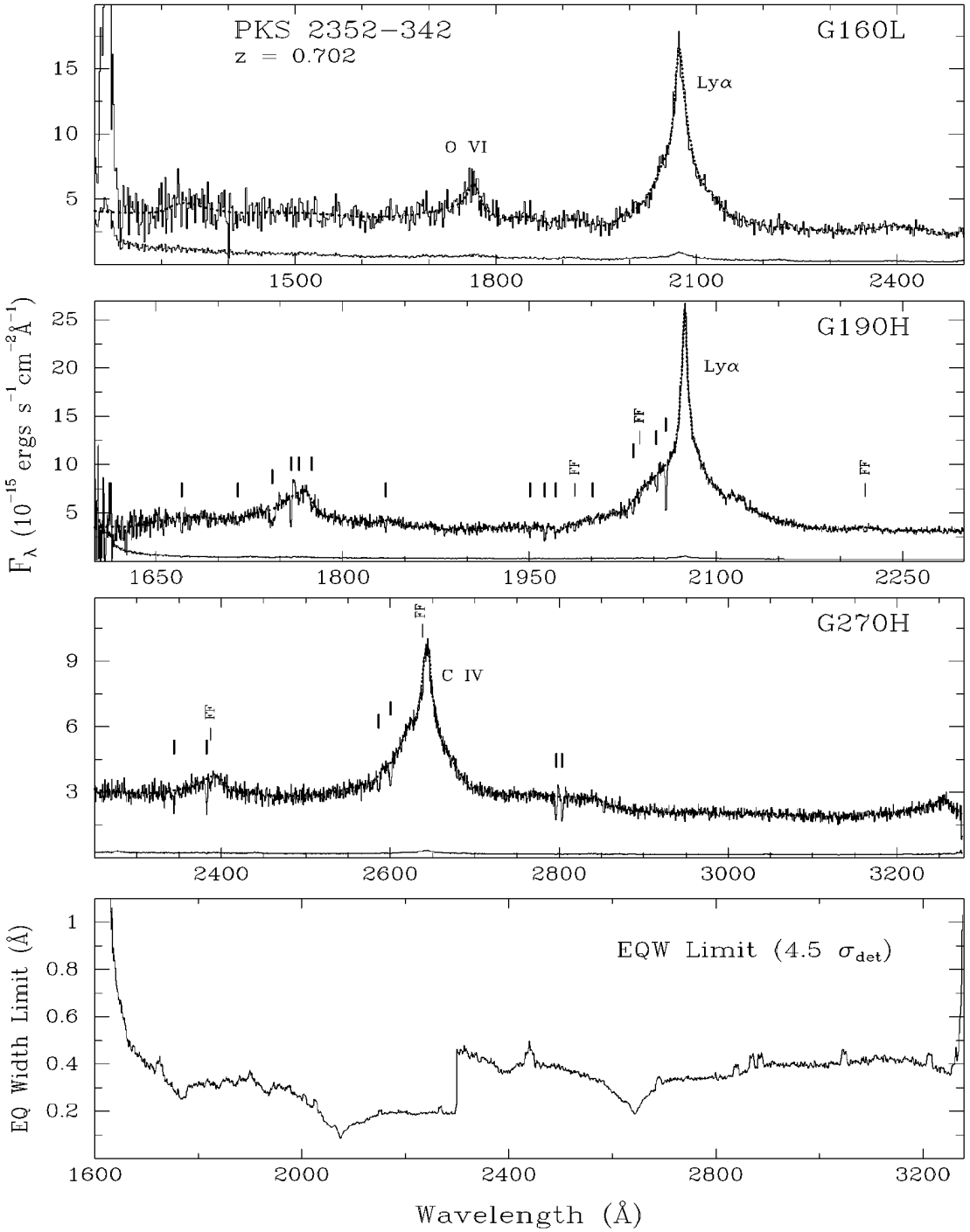


FIG. 2.—*Continued*

the original time allocation was reduced. Galactic ISM Mg I λ2852 is in the incomplete sample at 2852.90 $\pm$ 0.33 Å (W = 0.21 $\pm$ 0.05 Å, SL = 3.74, FWHM = 2.04 Å).

B2 1512+37 (z_{em} = 0.370) CAT1.

PG 1538+477 (z_{em} = 0.770, 81 lines).—This line of sight contains 31 identified Lyα lines, including four lines associated with detected metal lines. Two extensive metal line systems (at z = 0.7300, 21 lines, and z = 0.7705, 11 lines) are also present along this line of sight. The z = 0.7300 system is associated with a LLS detected in the G160L spectrum (see Table 6 for the properties of the LLS as determined by the Lyman limit search software). The weaker line of the N V doublet in the z = 0.7300 system is heavily blended with the Lyα line at z = 0.7705, and the measured properties of the line are very uncertain. The z = 0.4863 system consists of a Lyα line at 1806 Å and a candidate C IV doublet with its two lines at 2301.14 Å and blended with the line at 2305 Å, identified as O I at z = 0.7705. The Lyα line at 1622.40 Å occurs in a region of the spectrum with poor flat-fielding and flux calibration; we suspect that the true uncertainties in the measured line parameters are larger than the tabulated values. The weaker line of the candidate

C IV doublet at $z = 0.5166$ is blended with a strong flat-fielding residual at 2353 Å. The expected Lyβ line from the $z = 0.7071$ system would be blended with the line at 1750.90 Å, which is identified as Lyα. The Lyα line at 1866.98 Å is possibly affected by a flat-fielding residual and is heavily blended with the Lyα line at 1868.51 Å. The lines at 1890.06 and 1892.90 Å (1928.52 and 1931.07 Å), identified as Lyα lines, could be, under our identification rules, listed as a C IV doublet at $z = 0.2207$ ($z = 0.2456$). This spectrum provides some very weak lines ($W < 0.20$ Å) for the complete sample line list. The reality of these weak features is uncertain since our ability to identify flat-field residuals in this spectrum is limited to lines of this strength. Note that redshift of this quasar has been revised since the value we used for the analysis in this paper (from the Véron-Cetty & Véron 1991 catalog) and is now believed to be 0.772 (see reference in Véron-Cetty & Véron 1996).

3C 334.0 (R. A.: $16^h18^m07^s.3$, decl. $+17°43'29''.0$, B1950; $z_{em} = 0.555$, 27 lines).—Eleven Lyα absorption lines are identified in the complete sample. There is no evidence in the G160L spectrum for any damped Lyα or LLSs in the region between 1200 and 1600 Å.

This spectrum possesses a rich collection of Galactic ISM lines including 14 lines in the complete sample from the following: Al II, Al III, Zn II, Mg I, Mg II, Fe II, and Mn II. The large FWHM of the Al III λ1854.72 and Mn II lines suggests that they are blended with other lines. Weaker lines of Al III and Mn II are found in the incomplete sample (Al III λ1862.79 at 1862.73 Å with an equivalent width of 0.17 ± 0.04 Å, SL = 3.84; Mn II $\lambda\lambda$2576.88, 2594.50 with line centers, equivalent widths, and significance levels of 2577.9 and 2594.57 Å; 0.25 ± 0.069 and 0.29 ± 0.069 Å; and 3.66 and 4.04).

PG 1634+706 ($z_{em} = 1.334$) CAT2.—After the line list derived from our G270H spectrum of this object was published in CAT2, we obtained the G190H spectrum of Impey et al. (1995, 1996) from the *HST* archive and processed the spectrum in a manner consistent with our reductions of the other spectra. We measured the properties of the LLSs identifiable in the G190H spectrum and added their properties to the systems listed in Table 6. Both of the LLSs can be associated with extensive metal line systems first reported in CAT2. Since the Al II λ1670.79 Galactic ISM line was not detected in the G190H spectrum (due to the LLSs), we could not check the zero point of the wavelength scale for that portion of the spectrum.

PKS 1656+053 ($z_{em} = 0.879$) CAT1.

PG 1700+518 ($z_{em} = 0.290$).—This is one of the six BAL quasars observed by the Key Project or Bahcall GTO program. The spectrum is displayed in Figure 2, but the analysis of this spectrum will be presented in Turnshek et al. (1998b).

3C 351 (R.A.: $17^h04^m03^s.5$, decl.: $+60°48'31''$, B1950; $z_{em} = 0.371$) CAT1.

PG 1715+535 ($z_{em} = 1.929$, 32 lines).—The very low signal-to-noise ratio of the spectrum, heavy blending of the lines, and limited observed wavelength coverage made the fitting of the continuum uncertain and the possible identifications for some lines too numerous to allow complete identification of the line list. Some lines associated with the LLS at $z = 1.6333$ were identified (note that the Lyman limit search software found a slightly different redshift based on measurement of the general depression of the continuum near 2400 Å, $z = 1.64$; the method used in Paper V finds $z = 1.626$). The properties of the LLS as measured by the Lyman limit search software are listed in Table 6. The stronger of the N V doublet lines for the $z = 1.6333$ system is in the incomplete sample at 3262.15 ± 0.34 Å with $W = 0.84 \pm 0.25$ Å, FWHM = 2.42 Å, and SL = 4.40. Galactic ISM Fe II λ2382.77 is in the incomplete sample at 2382.27 ± 0.34 Å with $W = 1.32 \pm 0.43$, FWHM = 2.30 Å, and SL = 3.92.

PG 1718+481 ($z_{em} = 1.084$, 88 lines).—The line identifications for this spectrum are not complete. There are several metal line systems, including two C IV doublets at $z = 1.0323$ and 1.0872. The 1037 Å line of the O VI doublet in the $z = 0.8929$ system is in the incomplete sample at 1964.12 ± 0.21 Å with $W = 0.19 \pm 0.04$ Å, FWHM = 1.51 Å, and SL = 4.28. The line at 1801.34 Å might be N III at $z = 0.8200$. The broad feature at 1866.63 Å might include Lyβ at $z = 0.8200$ and Fe II at $z = 0.7012$. The absorption at 2517.30 Å might include a contribution from Si III at $z = 1.0872$. The Galactic ISM Mg II λ2796.35 line has a negative velocity wing, which suggests high-velocity gas.

H1821+643 ($z_{em} = 0.297$) CAT1.

4C 73.18 (R.A.: $19^h28^m49^s.4$, decl.: $+73°51'45''$, B1950; $z_{em} = 0.302$, 12 lines).—There are 11 Galactic ISM lines in the complete sample. Originally far-UV observations using the G130H grating were planned for this object, but reductions in subsequent time allocations necessitated dropping the G130H observations from the program. The broad line at 1884 Å might be a C IV doublet that was not well resolved because of the low signal-to-noise ratio in this spectrum.

PG 2112+059 ($z_{em} = 0.457$).—This is one of the six BAL quasars observed by the Key Project and Bahcall GTO program. While the continuum of this particular BAL is not as difficult to fit, we defer the analysis of this spectrum to our discussion of the other BAL quasars, which will be presented in Turnshek et al. (1998b). The spectrum is displayed in Figure 2.

PKS 2128−12 ($z_{em} = 0.501$, 28 lines).—The spectrum contains a rich low-excitation metal line system at $z = 0.4296$ that includes 12 lines in the complete sample (C II, C IV, O I, N I, Si II, Si III, Si IV, Fe II, Al II, and Lyα). The Lyα of this system is strong (rest equivalent width of 2.9 Å). There are five additional Lyα lines in this spectrum, none that are associated with identified metal lines.

The weak lines on top of the strong quasar emission line between 1800 and 1824 Å have larger systematic uncertainties than the quoted formal uncertainties as it is difficult to fit the continuum in this region.

PKS 2145+06 ($z_{em} = 0.990$) CAT1.

PKS 2243−123 ($z_{em} = 0.630$, 26 lines).—Ten Lyα lines are identified in the complete sample. The line at 1822 Å is possibly an artifact of the continuum fit. Galactic ISM Al II λ1670.79 is in the incomplete sample at 1670.76 ± 0.21 Å, with $W = 0.33 \pm 0.07$ Å, FHWM = 1.51 Å, and a SL = 4.44. The non-Gaussian wing to the Mg II λ2796.35 absorption produces the component near 2793 Å.

PKS 2251+11 ($z_{em} = 0.323$, 38 lines).—In this paper we combine a new G130H spectrum of this object with the previously presented G190H, G270H, and G160L spectra (CAT1). All of these data have been analyzed with the current version of the line fitting and identification software and the measurements and identifications presented in this paper replace those presented in CAT1. The G130H data confirm the metal line system identified in CAT1 at

$z = 0.3256$ from only the four lines in the G190H and G270H spectra (Lyα, C IV doublet, and N V λ1238.82). The new lines in this system found in the G130H spectrum are Lyβ and the O VI doublet. The G130H data also resolve the possible damped Lyα system noted in CAT1 (based on our lower resolution G160L data) into a combination of weaker absorption features and quasar emission. The continuum between 1300 and 1400 Å was particularly difficult to fit.

Differences between our current analysis of the G190H and G270H spectra and that appearing in CAT1 include the following: the line previously identified as Galactic ISM Fe II 1608.08 is now Lyα at $z = 0.3236$; one unidentified line from the CAT1 list dropped out of the complete sample; four new lines appear in the revised complete sample, including three unidentified lines and Si IV λ1393.76 in the $z = 0.3256$ system. The lines at 1841 and 1853 Å were selected by *ZSEARCH* as a candidate Si IV absorption doublet at $z = 0.3214$, but no other lines are found at this redshift to support this identification. The 1853 Å line might be partially produced by Galactic ISM Al III λ1854.72. The identification of 1393 Å as Galactic ISM Si IV is weakened by the lack of any Galactic ISM lines from C IV or N V in the complete sample and the absence of the 1402 Å line in the incomplete sample. The line at 1453.30 Å appears to be a blend of several lines that the software fit as a single line. The Lyα identification at 1233.80 Å should be considered quite uncertain, despite the high measured significance level of the lines, because the low signal in this region makes the systematic error in the continuum fit large. The total number of identified Lyα lines in this spectrum is 15, with one of these lines associated with the previously discussed metal line system at $z = 0.3256$.

3C 454.3 (R.A.: $22^h51^m29^s.6$, decl.: $+15°52'54''$, B1950; $z_{em} = 0.859$) CAT1.

PKS 2300−683 ($z_{em} = 0.512$, seven lines).—Only seven lines are in the complete sample from the G190H and G270H spectra of this object. There are two Lyα lines detected, one of which lies about 2000 km s^{-1} shortward of the quasar emission-line redshift. The continuum was adjusted subjectively to fit the quasar emission lines in the wavelength regions 2340–2390 Å and 1800–1890 Å. As a result, absorption lines in these regions probably have larger errors than the tabulated values, and some lines might have been added or removed from the complete sample with a slightly different continuum fit. Galactic ISM lines of Fe II and Mg II are identified. Additional Galactic ISM Fe II $\lambda\lambda$2260, 2586 lines can be found in the incomplete sample with line centers of 2260.78 and 2585.97 Å, equivalent widths of 0.22 ± 0.06 and 0.45 ± 0.11 Å, and significance levels of 3.65 and 3.99. The G160L spectrum allowed a search for Lyman limit or damped systems between 1200 and 1600 Å; no significant features were detected although there is weak evidence of a LLS near 1310 Å.

PG 2302+029 ($z_{em} = 1.052$, 80 lines).—The *HST* spectra of this quasar were previously published, and some of its absorption-line systems discussed in Jannuzi et al. (1996). The quasar emission redshift we list is from Steidel & Sargent (1991). The spectrum includes a high-ionization broad absorption line system at a redshift of $z = 0.695$ and a narrow-line system at 0.7160 that may be caused by either ejected or intervening material. Additional discussion of this object's unusual absorption systems is presented by Hamann (1997). In this paper we present measurements for the complete sample of lines in the spectrum. In total 35 Lyα lines are identified, five of which are associated with identified metal line systems. The lines at 1932.49 and 1934.56 Å are heavily blended, which results in a large uncertainty in the measurement of the equivalent widths of each line. A single fit to the feature near 1933 Å would be justifiable. This would produce better agreement between the expected wavelength of the Lyα in the $z = 0.5904$ system and the measured line. If the line at 2062.62 Å is not due to Galactic ISM Zn II, then it is Lyα at $z = 0.6967$. The identification of the line at 2652.77 Å is uncertain, but it is plausibly caused by additional C IV absorption in the $z = 0.695$ system. The Galactic ISM Mg II λ2796.35 line has a positive velocity wing, which implies the presence of high-velocity gas.

PKS 2340−036 ($z_{em} = 0.896$, 79 lines).—There are 31 Lyα lines identified in this spectrum of which seven are associated with metal line systems. Six candidate C IV doublets are detected along this line of sight at the following redshifts: 0.1509, 0.1691, 0.4088, 0.4212, 0.4621, and 0.6841. Note that there is a significant probability that some of these are false systems produced by the chance combination of other lines (see § 3.4). If the lines at 1781 and 1784 Å are not a C IV doublet at $z = 0.1509$, the 1781 Å line is probably C III at $z = 0.8238$, and the 1784 Å line would be Lyβ corresponding to the Lyα line at $z = 0.7401$. If the lines at 1809 and 1813 Å are not a C IV doublet at $z = 0.1691$, the 1809 Å line is probably Lyα at $z = 0.4888$, and the 1813 Å line would be Lyβ at $z = 0.7679$. Absorption by the weaker line of the Si IV doublet in the $z = 0.4212$ system is detected in the incomplete sample at 1993.56 ± 0.22 Å ($W = 0.24 \pm 0.06$ Å, SL = 4.23, FWHM = 1.51 Å).

Systems with candidate O VI absorption are observed at redshifts of 0.6841 and 0.8238. The O VI doublet identifications for the $z = 0.8238$ system are uncertain because several other systems also have lines expected at the wavelength of these lines (e.g., 1893 Å might be partially Lyβ at $z = 0.8463$). The O VI identification is strengthened by the possible identification of C IV λ1550.77 for this system in the incomplete sample (2823.18 ± 0.38 Å, $W = 0.25 \pm 0.08$ Å, SL = 9.35, FWHM = 2.04 Å). Even if the O VI identifications are correct, it is likely that the Lyβ line at $z = 0.8463$ contributes to the broad absorption observed at 1893 Å. Systems like the one at $z = 0.8238$ are of particular interest because they might be tracing material that has been collisionally excited by gas associated with a group or cluster of galaxies.

The line at 1773 Å identified as Lyγ at $z = 0.8238$ probably includes a contribution from Lyβ at $z = 0.7296$. The lines at 2044 and 2047 Å (both identified as Lyα at $z = 0.6817$ and 0.6841) are blended together. There are three features that appear to be real lines in the reddest portion of the G270H spectrum that remain unidentified (3125, 3131, and 3138 Å).

The Galactic ISM Mg II $\lambda\lambda$2796.35, 2803.53 lines have similar profiles, and both appear to have high-velocity wings on their blue sides that were fitted as separate components by the software. The incomplete sample includes absorption by Galactic ISM Fe II at 2260.71 ± 0.26 Å ($W = 0.11 \pm 0.03$ Å, SL = 3.53, FWHM = 1.50 Å).

PKS 2344+09 ($z_{em} = 0.677$, 30 lines).—This spectrum contains 18 Lyα lines, one of which is associated with the metal line system at $z = 0.4368$. *ZSEARCH* identified a candidate system at $z = 0.3568$ including Lyα, Si II λ1260.42, and O I λ1302.17, but we have identified all of these lines as Lyα lines pending the identification of addi-

tional supporting lines. For example, if associated Mg II lines were to be observed at approximately 3794 Å, the identifications listed above would be more likely. The Galactic ISM Mg II lines are very broad and likely contain unresolved high-velocity components.

PKS 2352−342 ($z_{em} = 0.702$, 20 lines).—Fitting the continuum near 1750 Å was particularly difficult and subjective; therefore, the reality of the tabulated lines at 1765 and 1775 Å is suspect. There are 12 Lyα lines identified in this spectrum. We have identified the strong line at 1743.5 Å as Lyα since there is no other plausible identification. Note, however, that this line is well resolved at the 270 km s^{-1} resolution of the FOS and is likely to be a blend. No evidence for any metal lines associated with this line was found in either the complete or incomplete samples. The line at 2000.8 Å is quite broad and is located on the wing of a quasar emission line. The placement of the continuum fit might have artificially inflated the significance of this line. There is no evidence of the expected Lyβ line, but the formal uncertainty is high enough that *ZSEARCH* accepts the Lyα identification. The Lyβ line at $z = 0.6727$ is considerably broader (FWHM = 3.0 Å) than its matching Lyα line (FWHM = 1.95 Å). It is likely that the Lyβ line is blended with a Lyα absorber at a redshift of about 0.42. The two Galactic Mg II absorption lines bracket a strong "emission" line that we are unable to identify (as either real or an instrumental artifact, although we strongly suspect the later). This strong feature affects the measurement of the Mg II absorption and the inferred value for the equivalent with of the Mg II λ2796.35 line (probably making it larger than its true value). In addition to the Fe II and Mg II Galactic ISM lines identified in the complete sample, there is a line produced by Mg I λ2852.96 in the incomplete sample with an equivalent width of 0.33 ± 0.08 Å and SL of 4.1. There is no evidence in the G160L spectrum for any Lyman limit or damped Lyα systems between 1200 and 2000 Å.

5. RESULTS FOR DIFFERENT CLASSES OF SYSTEMS FROM THE CENSUS

The combined catalog of absorption lines includes 3238 lines in the complete sample of lines, found in the spectra of 78 quasars observed with the higher resolution gratings. Eight of these 78 objects do not have complete identifications for the observed lines (see § 3.3). We have also not yet constructed measured line lists for the five BAL quasars presented in this paper, and they do not contribute to the total quoted above. Nine additional objects were observed only with the G160L grating and do not contribute any lines, other than some LLSs (which were not included in the total of 3238 lines), to the catalog. A rough indication of the redshift distribution of the total path lengths of the survey for selected types of absorption-line systems is presented in Figure 3. The total path lengths (Δz, ignoring for this paper variations in equivalent width limit between the spectra) for Lyman limit, damped Lyα, Lyα, C IV, and O VI absorption systems are, respectively, 21, 49, 31, 44, and 17. Almost all of the survey observations (including the objects observed only with the G160L grating but excluding the five BAL quasars presented in this paper) were included in constructing the plots of the Lyman limit and damped Lyα system paths. For the weaker Lyα, C IV, and O VI systems, only the higher resolution data (again, not including the five BAL quasars in this paper) were included. Mean or effective red-

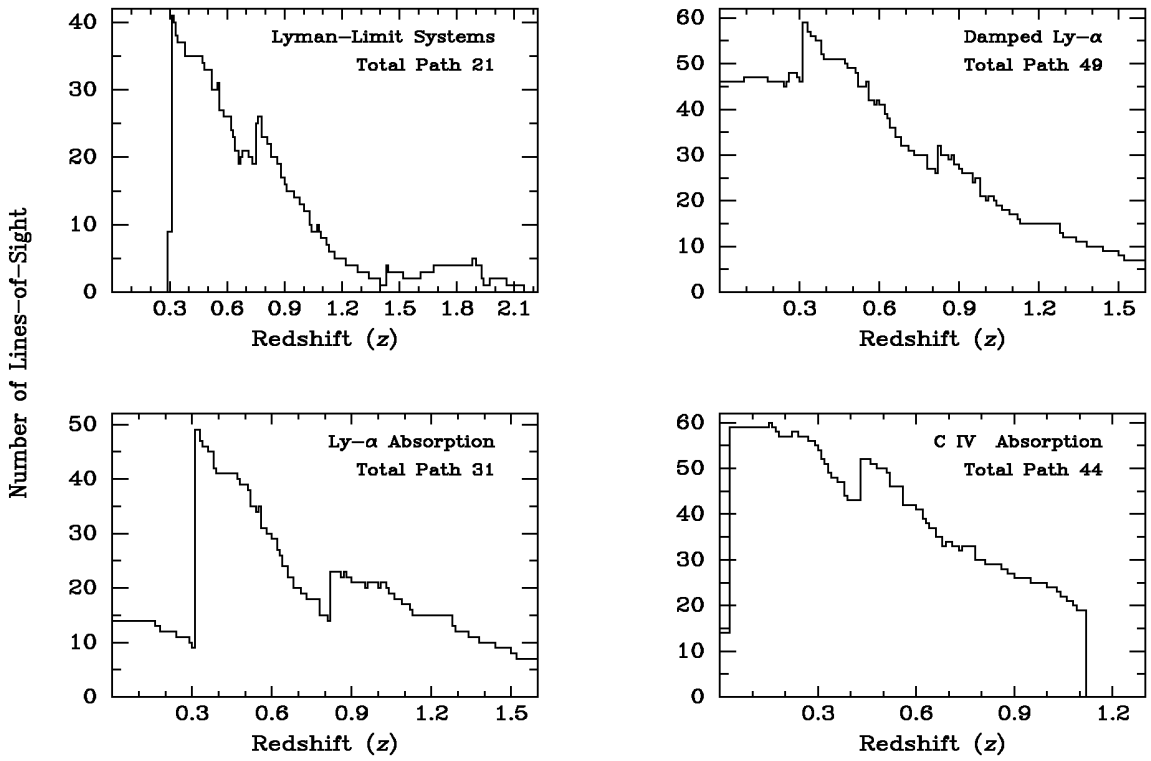


FIG. 3.—Number of lines of sight as a function of redshift that could contribute to the total path length observed for the listed type of absorption system (Lyman limit, damped Lyα, Lyα, and C IV). In constructing this figure, no effort was made to determine what corrections are necessary for the varying level of sensitivity of each FOS spectrum, and as a consequence this figure should be used only as a rough guide of the redshift distribution of the survey path length. Lines of sight that were on the short-wavelength side of a $\tau > 1$ Lyman limit system were not included in the histograms.

shifts for Lyman limit, damped Lyα, Lyα, C IV, and O VI absorber surveys are, respectively, 0.76, 0.58, 0.72, 0.47, and 0.95. A more complete discussion of the effective path length for Lyα systems is included in Weymann et al. (1998).

While the notes on individual spectra include discussions of many interesting individual absorption-line systems, in the following subsections we present brief descriptions of what the survey found regarding selected classes of absorption systems.

5.1. *The* Lyα, C IV, *and* O VI *Absorption Systems*

The study of the evolution of Lyα systems is a major focus of the Key Project. Preliminary versions of our analysis have been presented previously (e.g., CAT2; Jannuzi 1997, 1998). Our analysis based on the entire combined catalog is presented by Weymann et al. (1998), including discussion of the evolution of the number of Lyα absorbers with redshift and their distribution of rest equivalent widths. The combined catalog includes 1129 identified Lyα lines. A total of 1068 Lyα lines were detected in the higher resolution spectra of the objects whose line lists were completely identified (i.e., excluding five of the six BAL quasars and the eight higher redshift quasars for which the identification of the absorption lines are substantially incomplete; see §§3 and 4). In Figure 4 we show the observed distribution in redshift of the catalogd Lyα lines.

Similarly, the evolution and nature of C IV and O VI systems are the subject of separate papers, and we will not discuss these systems in detail in this paper. A total of 107 C IV systems were identified in the combined catalog, 97 in the completely identified line lists. Forty-one systems were identified that included absorption from O VI, 31 in the completely identified line lists. In Figure 4 we show the observed distribution in redshift of the catalogd C IV and O VI systems. The reliability of the C IV and O VI identifications is discussed in § 3.4.

5.2. *The Incidence of Damped Lyα Systems*

The Lyα redshift path of the *HST* Quasar Absorption Line Survey is comparable to previous surveys that investigated the incidence and properties of damped Lyα systems. During the course of our survey, a redshift path of $\Delta z \approx 49$ was surveyed with sufficient sensitivity to find all damped Lyα systems with $N_{\rm H\,I} > 2 \times 10^{20}$ cm^{-2}. The effective redshift of the damped Lyα survey was $\langle z \rangle \approx 0.58$. Over the redshift path, one damped Lyα system was identified (in the spectrum of PG 0935+416). This system has $z_{\rm abs} = 1.396$ as determined from a fit to the Lyα line, independent of the algorithmic fit discussed in the notes on individual spectra. The damped line and fit, with N(H I) $= 3.3 \times 10^{20}$ cm^{-2}, is shown in Figure 5. The discovery of just one system at $z < 1.65$ yields an observed number of damped systems per unit redshift at $z = 0.58$ of $(dN/dz)_{\rm KP-damp}(z = 0.58) = 0.020$. Poisson statistics apply to the determination of the uncertainty in this measurement. Given our observation of one system in a path length of 49, the minimum mean number of damped Lyα lines per unit redshift such that there is a probability of 5% that we see one line or more in our sample is 0.001 systems per unit redshift. The maximum mean number of damped Lyα lines per unit redshift such that there is a probability of 5% that we observe at most one line (i.e., zero or one line) is 0.096 per unit redshift. We adopt these values as our 95% confidence boundaries on the density per unit redshift of damped systems.

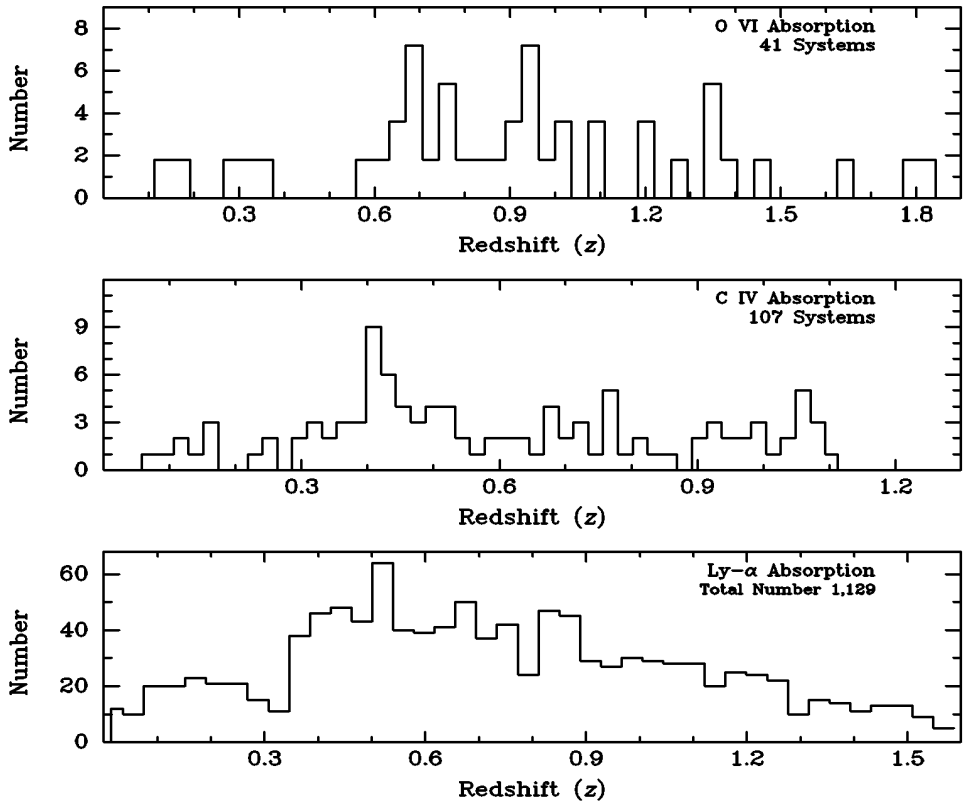


FIG. 4.—Observed redshift distributions of absorption from H I (Lyα), C IV, and O VI are shown in these three panels. For the plots of the distribution of C IV and O VI doublets, each observed doublet is counted only once. Absorption features due to gas in our Galaxy were excluded.

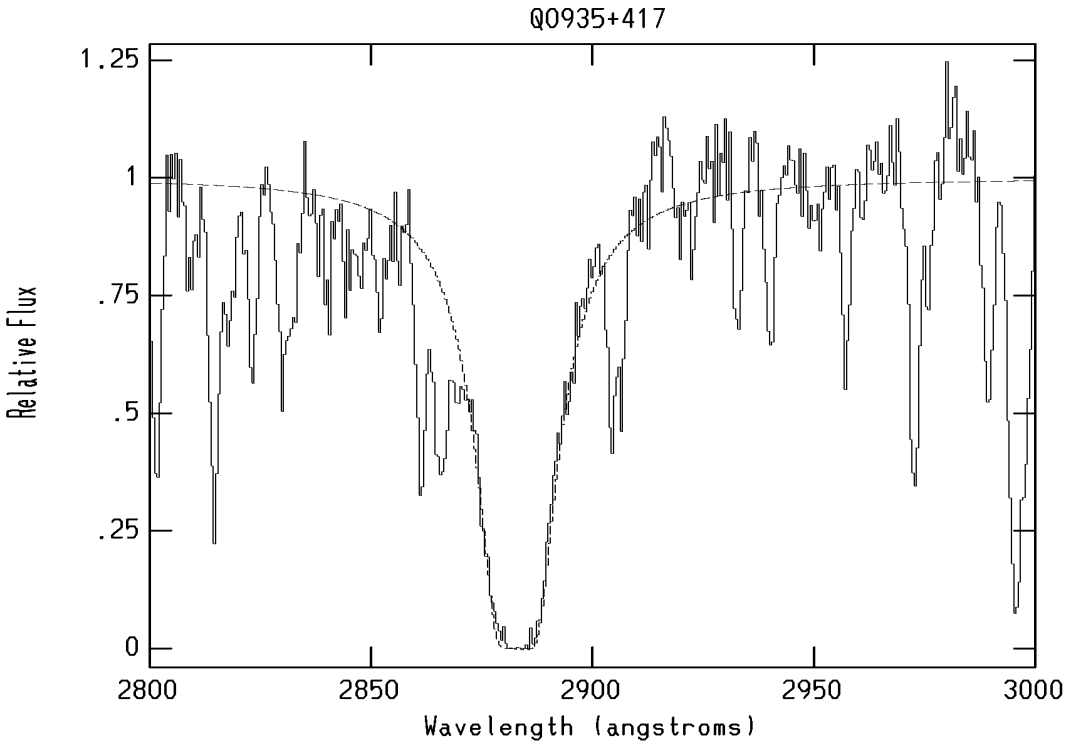


FIG. 5.—Fit to the damped Lyα absorption line in the spectrum of PG 0935+416. The derived neutral column density for this system is $N(\mathrm{H\ I}) = 3.3 \times 10^{20}\ \mathrm{cm}^{-2}$. This system is discussed further in §§ 4 and 5.2.

It is useful to compare our result with those from other studies on the incidence of damped Lyα at $z < 1.65$. Specifically, we can compare the Key Project result to what is obtained from an interpolation of results at lower and higher redshifts. Rao & Briggs (1993) used 21 cm emission studies of gas in nearby galaxies to infer that, for systems with $N(\mathrm{H\ I}) > 2 \times 10^{20}\ \mathrm{cm}^{-2}$, the local value of the incidence of damped systems should be $(dN/dz)_{\mathrm{damp}}(z = 0) \approx 0.015 \pm 0.004$. Moreover, the work of Wolfe et al. (1995) suggests that the corresponding value at moderate redshift is $(dN/dz)_{\mathrm{damp}}(z = 2) \approx 0.20 \pm 0.03$. Based on a linear interpolation of these results, the expected value for the Key Project study is $(dN/dz)(z = 0.58) \approx 0.069$ marginally consistent with our findings.

A number of previous direct studies of the incidence of damped Lyα at $z < 1.65$ have been performed. The *IUE*-based survey of Lanzetta, Wolfe, & Turnshek (1995) and the initial Mg II–selected survey of Rao, Turnshek, & Briggs (1995) reported $(dN/dz)_{IUE-\mathrm{damp}}(z = 0.8) \approx 0.082$ and $(dN/dz)_{\mathrm{Mg\ II}-\mathrm{damp}}(z = 0.8) < 0.12$, respectively. However, more information about the *IUE*-based survey and the initial Mg II–selected survey is now known in comparison to what was known at the time of their publication.

In the case of the *IUE*-based survey, for which the quoted redshift path was $\Delta z = 49$ (virtually identical to the size of path length available in our *HST* survey), five "high-probability" candidate systems with Lyα rest equivalent widths >10 Å were assumed to be damped, but it has been subsequently found that two of the candidates ($z_{\mathrm{abs}} = 0.519$ in Q1329+412 and $z_{\mathrm{abs}} = 0.204$ in Q2112+059) can be rejected on the basis of new FOS observations, while one was ruled out at the time of publication ($z_{\mathrm{abs}} = 0.399$ in Q1318+290B). Only one of the five high-probability candidate systems is confirmed, and the remaining high-probability system ($z_{\mathrm{abs}} = 0.484$ in Q2223−052) must still be observed. The confirmed high-probability candidate system is the same one found in the Key Project ($z_{\mathrm{abs}} = 1.369$ system in PG 0935+416). At the same time, a "low-probability" candidate system (with Lyα rest equivalent width <10 Å as measured in an *IUE* spectrum) was found to be damped ($z_{\mathrm{abs}} = 1.014$ in Q0302−223), which brings the total number of confirmed candidates in the *IUE*-based survey to two. While this is a factor of 2 lower than was assumed at the time of the Lanzetta et al. (1995) publication, one high-probability candidate and one low-probability candidate still need to be investigated to finish the work formally on the *IUE* sample. The success rate also raises the concern that the redshift path over which damped Lyα could be found was somewhat overestimated in the *IUE* survey. Ignoring this for now, based on the statistics of only two confirmations we find $(dN/dz)_{IUE-\mathrm{damp}}(z = 0.8) \approx 0.041$, but note that this result would increase if either of the two remaining candidates were confirmed or if it was, in fact, determined that the redshift path was overestimated. Using the $z = 0$ result to interpolate to lower redshift we find $(dN/dz)_{IUE-\mathrm{damp}}(z = 0.58) \approx 0.034$, a result consistent with the findings of this paper.

Finally, the initial Mg II–selected survey results of Rao et al. (1995) have now been considerably expanded by making new FOS observations of Mg II absorption-line systems (Rao & Turnshek 1998; Turnshek 1998a). Nine damped Lyα lines in Mg II systems were uncovered, and these new results indicate $(dN/dz)_{\mathrm{Mg\ II}-\mathrm{damp}}(z = 0.8) = 0.10 \pm 0.04$. Interpolating the Mg II survey result to $z = 0.58$, again making use of the $z = 0$ point, we find $(dN/dz)_{\mathrm{Mg\ II}-\mathrm{damp}}(z = 0.58) \approx 0.077$, which is completely consistent with the "expected" result obtained from interpolation between the zero-redshift and high-redshift statistics. However, even

assuming that none of the proposed damped lines is really a complex blend of weaker Lyα lines, there is some possibility that the $(dN/dz)_{\rm Mg\,II-damp}$ statistic is overestimated due to gravitational lensing bias (Smette, Claeskens, & Surdej 1997). But Smette et al. (1997) point out that this same bias might affect the Key Project and *IUE* survey statistics for damped Lyα, since both of those surveys also utilized bright objects. While the Mg II–selected result is nearly four times the Key Project result [$(dN/dz)_{\rm damp}(z = 0.58) \approx 0.077$ versus ≈ 0.020], available statistics for making a comparison are poor. For example, if the Mg II–selected result is taken to be the true value, we estimate that the probability of finding zero or one damped systems in the Key Project survey is $\approx 10\%$, even though the most probable observed number would then be four. Clearly more work is required to improve the accuracy of these statistics.

5.3. *Lyman Limit Systems in the Combined Catalog*

In Table 6 we list the 16 candidate Lyman limit systems observed in the objects that were targets for the combined catalog. Our analysis of the evolution of LLSs has been previously presented in Paper V. Of the 14 LLSs for which higher resolution spectroscopy is available to search for associated metal lines (for all but the systems in 4C 19.34 and PKS 1055+20), all but the system in the spectrum of Mrk 132 have identified metal lines associated with the LLS. In the cases of the systems in the spectra of PG 0935+416, Mrk 132, Q1101−264, S4 1435+63, and PG 1715+535, the line identifications are quite incomplete and the association of additional metal lines with the LLS (or in the case of Mrk 132, any metal lines) can not be ruled out. For eight of the 13 LLSs with detected metal lines the systems are "extensive" (absorption systems with four or more observed metal ions). The detection of strong metal lines, often part of an extensive system including lines from both low- and high-ionization states, is consistent with what was found in CAT1 and CAT2 regarding the correspondence between LLSs and metal line systems and provides additional circumstantial evidence that LLSs are likely to be associated with galaxies (see CAT1 and CAT2 for further discussion).

5.4. *Extensive Metal Line Systems*

There are a total of 37[13] extensive metal line systems (absorption systems with four or more observed metal ions) listed in the tables of identified lines (in CAT3, Table 3) in the combined catalog of absorption lines. Twenty-seven of these systems were added by the analysis presented in this paper. These systems are potentially valuable laboratories for understanding galaxies at intermediate redshifts if they can be associated with a particular galaxy (e.g., the case of the galaxy in the field of PKS 2145+06; Bergeron et al. 1994). Of the 37 extensive metal line systems, four (six) are associated absorption systems, i.e., have velocities within 3000 (5000) km s^{-1} of the quasar emission lines. Two additional systems in the spectrum of PG 2302+029 might be associated with the quasar although they are more than 50,000 km s^{-1} from the redshift of the quasar (Jannuzi et al. 1996). Excluding these two systems as well as the known associated systems, we are left with 29 extensive metal line systems that appear to be intervening systems. For 25 of the extensive metal line systems, the portion of the quasar spectrum that would contain any associated LLS was observed. Of these 25 systems, 21 (19) are more than 3000 (5000) km s^{-1} from the quasar, i.e., are intervening extensive metal line systems. Of these 21 (19), eight have an associated Lyman limit system. None of the associated extensive systems have an accompanying LLS.

[13] Strictly, this number is a lower limit on the total number of such systems in the combined catalog, as a small number of additional systems have candidate metal ion lines that might be blended with lines whose primary identification is with another system. Such lines are listed in the notes on individual objects. If such lines were added to the count of metal ions associated with each system, some would meet the requirement of four detected metal ions and be called "extensive." As we are using the definition only to give a qualitative impression of the abundance of metal line systems with numerous detected lines, we will restrict our discussion to systems for which at least four metal ions are included in the line identification tables.

5.5. *BAL Quasars*

Extremely broad high-ionization absorption complexes with velocity extents of 2000–25,000 km s^{-1} occur in approximately 10% of radio-quiet quasars (Weymann et al. 1991). This absorption is almost certainly produced by material ejected from the source producing the observed emission. Such objects are broad absorption line quasars (BALs; see Weymann et al. 1991 and Turnshek 1995 for reviews). In this third catalog we have included the reduced spectra of five BAL quasars observed during our survey: UM 425, PG 1254+047, PG 1411+442, PG 1700+518, and PG 2112+059. This brings the total number of BAL quasars in the combined catalog to six (including PG 0043+039). There is nothing we are aware of in the selection of targets for observation in the survey that would have biased us toward including or excluding any of these objects in our sample, even though most were known to be BAL objects before we observed them.

6. SUMMARY AND COMPANION PAPERS

Using the FOS of the *HST* we have produced a large and homogeneously constructed database of quasar absorption-line systems at low to moderate redshifts. The database is suitable for the study of many problems, and we have undertaken some of these examinations including studies of the evolution of Lyα (CAT2; Weymann et al. 1998) and C IV absorbers (CAT1; Sargent et al. 1998), the evolution of Lyman limit systems (Paper V), the evolution of damped Lyα systems (§ 5 of this paper), the clumping of Lyα absorbers around extensive metal line systems (CAT2; Jannuzi 1998; Jannuzi et al. 1998), and the Galactic halo (Savage et al. 1993, 1998). Special notice should be taken of systems including low-redshift Lyα absorbers suitable for extensive follow-up observations (e.g., in the spectra of TON 28 and PG 1216+069), possibly physically associated pairs of extensive metal line absorption systems (e.g., in the spectrum of PG 0117+213), and systems known to be associated with galaxies (e.g., in the spectrum of 3C 232). The spectra of five broad absorption line (BAL) quasars (UM 425, PG 1254+047, PG 1411+442, PG 1700+518, and PG 2112+059) can be found in this third catalog, bringing the total number of BAL quasars in the combined catalog to six (including PG 0043+039).

This work was supported by contracts NAG 5-1618, NAG 5-3259, and grant GO-2424.01 from the STScI, which is operated by the A.U.R.A., Inc., under NASA contract NAS 5-26555. We thank Digital Equipment Corporation

for providing the DEC4000 AXP Model 610 system used for portions of this work. D. Saxe and R. Deverill created significant portions of the software used to measure the properties of the absorption lines. We thank M. Burbidge and the FOS GTO team for providing the community with an excellent window into the UV. We thank the staff of STScI that facilitated the planning and scheduling of our observations, particularly R. Lucas, D. Golombek, and those who assisted us in obtaining the necessary flat-field calibration data when it was available, T. Keyes and R. Bohlin. We acknowledge useful discussions over the course of the Key Project survey with E. Jenkins, A. Laor, A. Lowell, L. Lu, D. Maoz, S. Morris, L. Spitzer, S. Rao, M. Strauss, D. Weinberg, and B. Yanny. We thank J. Barnes and M. Best for advice on the proper use of Latex and the AAS LaTeX macros. We thank the anonymous referee for a very careful reading of the paper and comments that improved the presentation of our results.

TABLE 1

OBJECTS OBSERVED FOR THE *HST* QUASAR ABSORPTION-LINE SURVEY

OBJECT	R.A. (B1950) R.A. (J2000)	Decl. (B1950) Decl. (J2000)	l^{II} b^{II}	z	V	$-\log f_\lambda$ (ergs^{-1} cm^{-2} Å^{-1}) UT DATE (mm/dd/yy) G130H	G190H	G270H	G160L[e]
UM 18	00 02 46.4	+05 07 29	102.3	1.89	16.21			14.7	
	00 05 20.2	+05 24 11	−55.6					11/04/93	
PKS 0003+15	00 03 25.1	+15 53 07	107.3	0.450	16.40	14.0	14.1	14.4	
	00 05 59.2	+16 09 49	−45.3			11/05/93	11/07/93	11/07/93	
NAB 0024+22	00 24 38.5	+22 25 23	115.7	1.118	16.57		14.8	14.8	14.8
	00 27 15.4	+22 41 59	−39.8				07/22/92	07/22/92	11/05/91
PG 0043+039	00 43 12.6	+03 54 01	120.2	0.384	15.89		14.7	14.6	
	00 45 47.2	+04 10 24	−58.7				10/28/91	10/28/91	
PKS 0044+030	00 44 31.4	+03 03 33	120.8	0.624	16.08		14.5[b]	14.7	14.5[b]
	00 47 05.9	+03 19 55	−59.5				11/03/91	11/03/91	11/03/91
PG 0117+213	01 17 34.7	+21 18 03	131.8	1.493	16.05			14.4	
	01 20 17.3	+21 33 46	−40.8					12/15/94	
PKS 0122−00	01 22 55.3	−00 21 32	141.2	1.070	16.70		14.6	14.7[d]	
	01 25 28.9	−00 05 57	−61.8				11/09/91	11/09/91	
3C 57.....	01 59 30.4	−11 47 00	173.1	0.670	16.40		14.1[b]	14.4	
	02 01 57.2	−11 32 34	−67.3				01/11/95	01/11/95	
PKS 0232−04	02 32 36.6	−04 15 11	174.5	1.434	16.46			14.4	14.7
	02 35 07.3	−04 02 06	−56.2					11/22/94	03/07/93
3C 95.....	03 49 09.5	−14 38 06	205.5	0.614	16.22		14.1[b]	14.3	14.1[b]
	03 51 28.6	−14 29 09	−46.3				12/21/91	12/21/91	12/21/91
PKS 0405−12	04 05 27.4	−12 19 32	204.9	0.574	14.86	13.8	13.8	14.0	
	04 07 48.4	−12 11 36	−41.8			07/04/91	07/04/91	07/01/91	
3C 110	04 14 49.2	−06 01 05	199.1	0.773	15.94		14.4	14.4	
	04 17 16.7	−05 53 46	−36.8				03/16/95	03/16/95	
PKS 0439−433	04 39 42.7	−43 19 25	248.0	0.593	16.36		14.5	14.8	
	04 41 17.3	−43 13 44	−41.4				10/23/93	10/23/93	
HS 0624+6907	06 24 35.0	+69 07 03	145.7	0.370	14.20	13.9[a]	13.9	14.0	
	06 30 02.5	+69 05 04	+23.3			02/04/93	10/16/94	10/16/94	
PKS 0637−75	06 37 23.5	−75 13 38	286.4	0.654	15.75		14.5[b]	14.6	14.5[b]
	06 35 46.7	−75 16 17	−27.2				05/25/92	05/25/92	05/25/92
B2 0742+31.....	07 42 30.8	+31 50 16	188.4	0.462	15.63		14.6	14.7	14.6
	07 45 41.7	+31 42 56	+24.7				12/09/92	12/09/92	12/09/92
PKS 0743−67	07 43 22.3	−67 19 08	279.5	1.51	16.37			14.8	
	07 43 31.7	−67 26 25	−20.1					10/15/93	
US 1867	08 50 13.4	+44 00 24	177.1	0.513	16.4		14.7	14.8[d]	14.6
	08 53 34.2	+43 49 01	+39.9				11/07/91	11/07/91	11/07/91
OJ 287	08 51 57.3	+20 17 58	206.8	0.306	15.43		14.6	14.6	
	08 54 48.9	+20 06 30	+35.8				11/15/93	11/15/93	
NGC 2841 UB3.....	09 16 30.0	+51 18 53	166.9	0.553	16.50		14.4	14.5	14.4
	09 19 57.7	+51 06 10	+43.8				04/03/92	04/03/92	04/03/92
PG 0935+416	09 35 48.7	+41 41 55	180.0	1.937	16.16			14.6	
	09 38 57.0	+41 28 21	+48.3					10/07/94	
PG 0953+415	09 53 48.2	+41 29 40	179.8	0.239	15.32	13.8	13.9	14.2	
	09 56 52.4	+41 15 22	+51.7			11/05/91	06/18/91	06/18/91	
3C 232	09 55 25.5	+32 38 23	194.2	0.533	15.78		14.5	14.6[d]	
	09 58 21.0	+32 24 02	+52.3				12/26/92	12/25/92	
Mrk 132	09 58 08.2	+55 09 07	158.9	1.754	16.00			14.5	
	10 01 29.8	+54 54 39	+48.6					10/08/94	
0959+68W1.....	09 59 09.7	+68 27 48	142.5	0.773	15.92		14.6	14.6	14.6
	10 03 06.8	+68 13 18	+42.0				12/11/92	12/11/92	12/11/92
TON 28.....	10 01 10.7	+29 10 09	200.1	0.329	16.05	13.9	14.1	14.3	
	10 04 02.6	+28 55 35	+53.2			03/19/92	05/21/92	05/21/92	
4C 41.21	10 07 26.1	+41 47 26	178.6	0.613	16.9		14.2[b]	14.5	14.2[b]
	10 10 27.5	+41 32 39	+54.2				12/09/92	12/10/92	12/10/92
PG 1008+133	10 08 29.8	+13 19 01	225.4	1.287	16.29			14.6[d]	
	10 11 10.8	+13 04 12	+50.0					11/22/93	
TON 34.....	10 17 07.6	+27 59 08	203.0	1.924	15.69			14.9	
	10 19 56.5	+27 44 02	+56.5					02/23/95	
4C 19.34	10 22 01.6	+19 27 35	218.3	0.828	17.49				15.1
	10 24 44.9	+19 12 20	+55.5						02/17/92
4C 06.41	10 38 40.9	+06 25 59	241.1	1.270	16.70			14.6	14.6
	10 41 17.2	+06 10 17	+52.7					01/17/95	01/31/92
3C 245.0	10 40 06.0	+12 19 15	233.1	1.028	17.29				15.1
	10 42 44.6	+12 03 31	+56.3						01/31/92
PG 1049−005	10 49 18.0	−00 35 21	252.3	0.357	16.04		14.4	14.5	
	10 51 51.5	−00 51 18	+49.9				04/01/92	04/01/92	
PKS 1055+20	10 55 37.6	+20 07 56	222.5	1.11	17.07				14.7
	10 58 17.9	+19 51 51	+63.1						01/26/92
3C 249.1	11 00 27.4	+77 15 09	130.4	0.311	15.72	13.9	14.3[b]	14.5	14.3[b]
	11 04 13.9	+76 58 58	+38.5			09/13/93	02/02/93	02/03/93	02/03/93

TABLE 1—*Continued*

Object	R.A. (B1950) R.A. (J2000)	Decl. (B1950) Decl. (J2000)	l^{II} b^{II}	z	V	$-\log f_\lambda$ (ergs^{-1} cm^{-2} Å^{-1}) UT Date (mm/dd/yy) G130H	G190H	G270H	G160L[e]
Q1101−264	11 00 59.8	−26 29 05	275.0	2.148	16.02			14.8	
	11 03 25.2	−26 45 16	+30.2					04/09/95	
MC 1104+167	11 04 36.6	+16 44 16	231.4	0.634	15.70		14.2[b]	14.4	14.2[b]
	11 07 15.0	+16 28 02	+63.6				10/30/92	10/30/92	10/30/92
PG 1116+215	11 16 30.2	+21 35 43	223.4	0.177	15.04	13.4[a]	13.6	13.8	
	11 19 08.7	+21 19 18	+68.2			02/19/93	02/19/93	02/19/93	
UM 425	11 20 46.6	+01 54 17	259.6	1.465	16.10			14.4	
	11 23 20.7	+01 37 48	+56.9					11/08/94	
1130+106Y	11 30 55.0	+11 08 58	250.8	0.51	16.9		14.7	14.8[d]	14.7
	11 33 30.3	+10 52 23	+65.5				03/07/92	03/07/92	03/07/92
PKS 1136−13	11 36 38.5	−13 34 05	277.5	0.554	16.17		14.5	14.7	14.6
	11 39 10.7	−13 50 43	+45.4				01/30/92	01/30/92	01/30/92
3C 263	11 37 09.4	+66 04 27	134.2	0.652	16.32		14.2[b]	14.4	14.3[b]
	11 39 57.1	+65 47 49	+49.7				12/12/91	12/12/91	05/19/92
PG 1202+281	12 02 09.0	+28 10 54	206.0	0.165	15.60		14.8	14.7	
	12 04 42.2	+27 54 12	+79.6				12/14/92	12/14/92	
PG 1206+459	12 06 26.6	+45 57 18	144.6	1.158	15.5		14.3	14.4	14.4
	12 08 58.0	+45 40 36	+69.6				01/28/92	01/28/92	01/28/92
MC 1215+113	12 15 53.4	+11 21 44	275.5	1.396	16.86				15.3
	12 18 26.1	+11 05 05	+72.2						01/26/92
PG 1216+069	12 16 47.8	+06 55 17	281.1	0.334	15.75	13.9	14.1	14.3	
	12 19 20.9	+06 38 38	+68.1			03/16/93	03/15/93	03/15/93	
Mrk 205	12 19 33.5	+75 35 16	125.4	0.070	15.24		13.8	14.0	
	12 21 44.1	+75 18 38	+41.7				07/11/91	07/11/91	
3C 273	12 26 33.3	+02 19 43	290.0	0.158	12.8	12.6[a]	12.8	13.0	
	12 29 06.7	+02 03 08	+64.4			01/15/91	01/14/91	01/14/91	
PG 1241+176	12 41 41.0	+17 37 29	292.8	1.273	15.9			14.4	
	12 44 10.8	+17 21 04	+80.1					12/08/92	
B2 1244+32B	12 44 55.5	+32 25 23	132.7	0.949	17.2				14.9
	12 47 20.8	+32 09 01	+84.9						01/31/92
PG 1248+401	12 48 26.6	+40 07 59	123.5	1.030	16.1		14.3	14.6	
	12 50 48.3	+39 51 40	+77.3				05/07/95	05/07/95	
PKS 1252+11	12 52 07.7	+11 57 21	305.9	0.870	16.64		14.7	14.8[d]	14.8
	12 54 38.2	+11 41 06	+74.5				03/19/92	03/19/92	03/19/92
PG 1254+047	12 54 27.5	+04 43 47	306.5	1.024	16.4		14.4	14.6[d]	14.6
	12 56 59.9	+04 27 34	+67.3				02/17/93	02/17/93	02/17/92
B201 1257+34.....	12 57 26.6	+34 39 32	109.5	1.375	16.79			15.0[d]	
	12 59 48.7	+34 23 22	+82.5					12/03/93	
PG 1259+593	12 59 08.2	+59 18 15	120.6	0.472	15.71	14.0	14.1	14.3	
	13 01 12.9	+59 02 07	+58.0			02/28/92	12/27/91	12/27/91	
PKS 1302−102.....	13 02 55.9	−10 17 17	308.6	0.286	15.23	13.7	13.8[b]	14.0	
	13 05 33.0	−10 33 20	+52.2			01/01/95	07/17/92	07/17/92	
TON 153	13 17 34.3	+27 43 52	37.6	1.022	15.98		14.2	14.4	14.2
	13 19 56.3	+27 28 08	+83.7				01/20/92	01/20/92	01/20/92
PG 1333+176	13 33 36.8	+17 40 31	351.9	0.554	16.06		14.4	14.5	14.4
	13 36 02.0	+17 25 13	+75.8				02/12/92	02/13/92	02/13/92
PG 1338+416	13 38 52.1	+41 38 22	90.6	1.219	16.07			14.6	14.6
	13 41 00.8	+41 23 14	+72.5					02/15/92	02/15/92
B2 1340+29	13 40 42.3	+28 59 13	44.0	0.905	17.07				14.8
	13 43 00.2	+28 44 08	+78.5						02/03/92
4C 53.28	13 47 42.7	+53 56 09	104.9	0.976	17.3				15.0
	13 49 34.7	+53 41 17	+61.4						12/27/91
PG 1352+011	13 52 25.5	+01 06 51	335.7	1.121	16.2		14.4	14.5	14.5
	13 54 58.7	+00 52 10	+59.6				12/14/91	12/14/91	12/14/91
PKS 1354+19	13 54 42.2	+19 33 44	9.0	0.720	16.03		14.5	14.6	14.6
	13 57 04.5	+19 19 07	+73.0				02/26/92	02/26/92	02/27/92
PG 1407+265	14 07 07.8	+26 32 31	34.7	0.94[f]	15.92		14.2	14.4	14.2
	14 09 23.9	+26 18 22	+72.6				03/08/92	03/08/92	03/08/92
PG 1411+442	14 11 50.0	+44 14 12	83.8	0.089	14.99	13.8	14.0	14.1	
	14 13 48.3	+44 00 13	+66.4			10/03/92	10/03/92	10/03/92	
PG 1415+451	14 15 04.5	+45 09 56	84.7	0.114	15.74			14.4	
	14 17 00.8	+44 56 06	+65.3					09/06/92	
MC 1415+172	14 15 41.6	+17 17 14	10.7	0.821	17.46				15.1
	14 18 03.7	+17 03 25	+67.6						02/11/92
PKS 1424−11	14 24 56.0	−11 50 25	336.8	0.805	16.49		14.9	14.9	15.0
	14 27 38.1	−12 03 50	+44.4				03/13/92	03/13/92	03/13/92
S4 1435+63.....	14 35 37.3	+63 49 36	105.2	2.060	16.1			14.8	
	14 36 45.8	+63 36 38	+49.7					11/03/91	
PG 1444+407	14 44 50.2	+40 47 38	69.9	0.267	15.66		14.0	14.2	
	14 46 45.9	+40 35 07	+62.7				09/05/92	09/05/92	
B2 1512+37	15 12 47.0	+37 01 55	59.9	0.370	16.27		14.3	14.6	
	15 14 43.1	+36 50 50	+58.3				01/26/92	01/26/92	

TABLE 1—*Continued*

Object	R.A. (B1950) R.A. (J2000)	Decl. (B1950) Decl. (J2000)	l^{II} b^{II}	z	V	$-\log f_\lambda$ (ergs^{-1} cm^{-2} Å^{-1}) UT Date (mm/dd/yy) G130H	G190H	G270H	G160L[e]
PG 1538+477	15 38 00.9	+47 45 10	76.4	0.770	16.02		14.4	14.3	14.4
	15 39 34.8	+47 35 31	+51.5				04/13/93	09/25/92	04/13/93
3C 334.0	16 18 07.3	+17 43 31	33.2	0.555	16.41		14.4	14.6	14.5
	16 20 21.8	+17 36 24	+41.1				04/03/92	04/03/92	04/03/92
PG 1634+706	16 34 51.7	+70 37 38	102.8	1.334	14.85		13.9	13.9[d]	
	16 34 28.9	+70 31 33	+36.6				07/23/92	11/03/91	
PKS 1656+053.....	16 56 05.7	+05 19 48	24.3	0.879	16.54				15.0
	16 58 33.5	+05 15 17	+27.4						02/19/92
PG 1700+518	17 00 13.4	+51 53 36	79.0	0.290	15.43	14.8	14.4	14.4	
	17 01 24.9	+51 49 20	+37.8			08/17/92	12/12/92	12/12/92	
3C 351.0	17 04 03.5	+60 48 31	90.1	0.371	15.28	14.0	14.1	14.3	
	17 04 41.3	+60 44 30	+36.4			02/15/92	10/22/91	10/22/91	
PG 1715+535	17 15 30.3	+53 31 27	81.0	1.929	16.48			14.7	
	17 16 35.4	+53 28 16	+35.4					11/11/94	
PG 1718+481	17 18 17.8	+48 07 10	74.4	1.084	14.71		13.9	14.0[d]	
	17 19 38.3	+48 04 12	+34.8				05/13/93	05/13/93	
H 1821+643	18 21 41.9	+64 19 01	94.0	0.297	14.24	13.5	13.6[b]	13.7	
	18 21 57.2	+64 20 36	+27.4			07/22/91	07/08/91	07/08/91	
4C 73.18	19 28 49.5	+73 51 44	105.6	0.302	15.5		14.5[b]	14.5	
	19 27 48.5	+73 58 01	+23.5				10/12/92	10/12/92	
PG 2112+059	21 12 23.6	+05 55 13	57.0	0.457	15.71		14.5	14.6	
	21 14 52.6	+06 07 43	−28.0				09/19/92	09/19/92	
PKS 2128−12	21 28 52.8	−12 20 21	40.5	0.501	16.11		14.2	14.4[d]	
	21 31 35.3	−12 07 05	−41.0				11/02/93	11/02/93	
PKS 2145+06	21 45 36.2	+06 43 41	63.7	0.990	16.47		14.6	14.7	
	21 48 05.5	+06 57 39	−34.1				10/22/91	10/22/91	
PKS 2243−123.....	22 43 39.8	−12 22 40	53.9	0.630	16.45		14.4[b]	14.6	14.5[b]
	22 46 18.2	−12 06 51	−57.1				10/09/93	10/09/93	10/09/93
3C 454.3	22 51 29.6	+15 52 54	86.1	0.859	16.10		14.7	14.6[d]	14.8
	22 53 57.8	+16 08 53	−38.2				11/15/91	11/15/91	11/15/91
PKS 2251+11	22 51 40.6	+11 20 39	82.8	0.323	15.82	14.4	14.3	14.5	14.4
	22 54 10.4	+11 36 39	−41.9			12/04/92	10/23/91	10/23/91	10/23/91
PKS 2300−683.....	23 00 27.9	−68 23 47	317.0	0.512	16.38		14.8	15.0[d]	14.9
	23 03 43.5	−68 07 37	−46.0				06/16/92	06/16/92	06/16/92
PG 2302+029	23 02 12.2	+02 55 34	78.5	1.052	15.8		14.3	14.4	
	23 04 45.0	+03 11 46	−50.2				10/05/94	08/02/94	
PKS 2340−036.....	23 40 22.6	−03 39 06	85.4	0.896	16.02		14.3	14.5[c]	14.4
	23 42 56.6	−03 22 27	−61.2				10/28/91	01/18/93	01/18/93
PKS 2344+09	23 44 03.9	+09 14 06	97.5	0.677	15.97		14.6[b]	14.7	14.6[b]
	23 46 36.9	+09 30 46	−50.1				10/07/92	10/07/92	10/07/92
PKS 2352−342.....	23 52 50.7	−34 14 38	359.9	0.702	16.4		14.5[b]	14.7	14.5[b]
	23 55 25.6	−33 57 56	−76.2				06/24/92	06/24/92	06/24/92

Note.—Continuum fluxes were measured at 1400 Å in the G130H spectra, at 2000 Å in the G160L and G190H spectra, and at 2900 Å in the G270H spectra. In the table we indicate with footnotes the cases for which the flux measurement at the listed wavelengths was not possible owing to the presence of an emission line and indicate the wavelength to which the quoted flux measurement refers.

[a] Flux measured at 1350 Å.

[b] Flux measured at 1900 Å.

[c] Flux measured at 2850 Å.

[d] Flux measured at 3000 Å.

[e] All of the G160L observations were made using the 1.″0 aperture. All the cycle 1–3 (prior to 12/04/93) G130H, G190H, and G270H observations were made using the 0.″25 × 2.0″ slit aperture (effectively 0.″25 × 1.″4 owing to the 1.″4 length of the diodes in the detector). Observations with the higher resolution gratings taken after the servicing mission (after 10/07/94) used the 0.″26 circular aperture.

[f] The redshift of PG 1407+265 is quite uncertain. See the discussion in § 4, the notes on individual objects.

TABLE 2

WAVELENGTH ZERO-POINT OFFSETS

OBJECT	GRATING[a] G130H	G190H	G270H	$\langle v_{\rm helio} \rangle$[b] (km s^{-1})
UM 18	...	...	0.30	−28
PKS 0003+15	−0.47	0.77	0.63	−13
NAB 0024+22	...	1.34	1.01	−19
PG 0043+039	...	[c]	−1.18	−23
PKS 0044+03	...	1.44	−0.15	−27
PG 0117+213	...	...	0.46	−25
PKS 0122−00	...	[c]	0.00	−24
3C 57	...	0.95	0.80	−3
PKS 0232−04	...	...	0.30	−5
3C 95	...	0.01	−0.81	3
PKS 0405−12	−0.26	−0.01	0.07	7
3C 110	...	0.35	−0.25	15
PKS 0439−43	...	0.69	0.43	17
HS 0624+6907	−0.15	1.64	0.43	−39
PKS 0637−75	...	[c]	−1.09	
B2 0742+31	...	−0.41	0.85	5
PKS 0743−67	...	...	−0.40	
US 1867	...	[c]	−0.51	−9
OJ 287	...	0.49	0.59	3
NGC 2841 UB3	...	−0.12	−0.42	−18
PG 0935+416	...	...	1.04	−11
PG 0953+415	−0.03	−1.02	−1.84	−19
3C 232	...	1.84	1.25	−24
Mrk 132	...	...	1.80	−25
0959+68 W1	...	1.00	0.41	−71
TON 28	−0.38	0.24	−0.27	−20
4C 41.21	...	1.06	0.58	−19
PG 1008+133	...	...	2.11	
TON 34	...	...	0.66	−22
4C 06.41	...	...	0.42	−6
PG 1049−005	...	0.11	0.07	−3
Q1101−264	...	...	[d]	18
3C 249.1	−0.05	0.60	0.32	−33
MC 1104+167	...	1.52	1.50	−14
PG 1116+215	−0.40	1.30	1.57	21
UM 425	...	...	1.24	−22
1130+106Y	...	0.28	−0.11	−9
PKS 1136−13	...	0.59	0.22	15
3C 263.0	...	0.43	−0.73	−27
PG 1202+281	...	1.04	0.96	−26
PG 1206+459	...	0.17	−0.40	−26
PG 1216+069	−0.22	1.34	0.92	−18
Mrk 205	...	0.66	0.37	
3C 273.0	−0.26	0.58	0.42	−10
PG 1241+176	...	...	0.50	−16
PG 1248+401	...	1.02	0.76	−33
PKS 1252+11	...	0.34	−0.51	−5
PG 1254+047	...	1.82	2.66	−20
B201 1257+34	...	...	1.35	−30
PG 1259+593	−0.39	0.19	−0.26	−75
PKS 1302−102	−0.33	0.23	−0.29	−5
TON 153	...	1.14	0.33	−23

TABLE 2—*Continued*

OBJECT	GRATING[a] G130H	G190H	G270H	$\langle v_{\rm helio} \rangle$[b] (km s^{-1})
PG 1333+176	...	0.80	0.02	−19
PG 1338+416	...	...	−0.27	−11
PG 1352+011	...	1.66	0.82	−6
PKS 1354+19	...	0.10	−0.24	−27
PG 1407+265	...	0.83	1.03	−17
PG 1411+442	−0.12	[c]	0.75	4
PG 1415+451	...	...	0.73	
PKS 1424−11	...	0.94	0.44	−50
S4 1435+63	...	...	0.00	−63
PG 1444+407	...	0.74	0.58	−32
B2 1512+37	...	0.87	0.69	−37
PG 1538+477	...	0.96	0.93	−18
3C 334.0	...	0.99	0.64	−23
PG 1634+70	...	[c]	−0.59	−40
PG 1700+518	[e]	0.86	1.10	−54
3C 351	0.17	0.16	−0.54	−38
PG 1715+535	...	...	0.94	
PG 1718+481	...	1.35	1.02	−33
H 1821+643	0.10	1.00	0.60	−63
4C 73.18	...	0.84	0.44	−65
PG 2112+059	...	[c]	0.10	−11
PKS 2128−12	...	0.39	0.19	−6
PKS 2145+06	...	[c]	−1.71	−31
PKS 2243−123	...	0.09	−0.61	−4
3C 454.3	...	[c]	−0.25	−29
PKS 2251+11	−0.32	−0.33	−1.62	−19
PKS 2300−683	...	[c]	−0.49	
PG 2302+029	...	0.85	1.14	−29
PKS 2340−036	...	−0.29	−0.89	−8
PKS 2344+09	...	1.92	−0.08	−23
PKS 2352−342	...	0.97	−0.07	−7

[a] Wavelength zero-point offsets that were added to the calibrated spectra in order to place them in the rest frame of the Galactic absorption lines produced by singly ionized species. See § 2.3 and Paper II for details.

[b] This column lists the average velocity (when known) relative to the heliocentric coordinate system of strong absorption lines produced in the neutral gas of the Milky Way. The values listed are based on H I 21 cm emission-line measurements of Lockman & Savage 1995. These values can be used to make small zero-point velocity corrections to the wavelength measurements reported in this paper.

[c] For these G190H observations no correction to the wavelength scale could be applied because the Al II 1670.8 Å ISM line that we normally use to define the correction was not detected or well measured.

[d] For this G270H observation no correction to the wavelength scale could be applied because the Fe II ISM lines we normally used to define the correction were not detected (Lyman limit system present).

[e] For this G130H observation no correction to the wavelength scale could be applied because the Si II ISM lines we normally used to define the correction were not detected or well measured.

TABLE 3

ABSORPTION-LINE MEASUREMENTS AND IDENTIFICATIONS

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
UM 18 (0002+05) $z_{em} = 1.89$									
2234.94.....	0.15	1.41	0.16	13.62	2.80	Lyα, p, Notes	1215.67	0.00	0.8384
2238.33.....	0.28	0.54	0.11	4.96	2.03	Lyβ, p	1025.72	−0.78	1.1830
2251.02.....	0.12	0.90	0.26	8.37	2.03	Lyα, Notes	1215.67	−0.29	0.8519
2253.14.....	0.16	3.46	0.34	32.27	3.62	Lyα	1215.67	0.00	0.8534
2267.12.....	0.28	0.60	0.12	5.65	2.03	Lyδ, Notes	949.74	0.52	1.3866
2269.66.....	0.10	1.45	0.15	13.72	2.23	Lyα, Notes	1215.67	0.00	0.8670
2285.30.....	0.30	1.59	0.19	16.20	5.10	Lyα, Bl	1215.67	0.00	0.8799
2300.97.....	0.47	0.83	0.19	8.84	4.46	Lyα, Bl	1215.67	0.00	0.8928
2305.39.....	0.10	1.10	0.09	11.60	2.03	Lyβ	1025.72	0.38	1.2472
2320.50.....	0.33	1.73	0.20	18.16	6.03	Lyα, Notes	1215.67	0.00	0.9088
2334.08.....	0.21	1.21	0.14	13.35	3.59	Lyα	1215.67	0.00	0.9200
2344.30.....	0.18	0.70	0.11	7.83	2.34	Fe II	2344.21	0.09	0.0000
2348.65.....	0.15	0.73	0.08	7.67	2.03	Lyα	1215.67	0.00	0.9320
2360.65.....	0.26	0.63	0.12	7.14	2.71	Si III, Notes	1206.50	0.25	0.9564
2370.42.....	0.24	0.46	0.09	5.02	2.03	Lyγ	972.54	−0.33	1.4377
2374.47.....	0.32	0.49	0.13	5.64	2.57	Fe II	2374.46	0.01	0.0000
2378.29.....	0.07	1.51	0.18	17.94	2.17	Lyα	1215.67	−0.05	0.9564
2383.60.....	0.47	1.81	0.27	21.06	6.97	Fe II, Notes	2382.77	0.83	0.0000
2404.31.....	0.15	0.61	0.07	7.63	2.03	Lyγ, Notes	972.54	0.09	1.4721
2408.96.....	0.21	0.47	0.08	5.57	2.03	Lyγ	972.54	0.14	1.4768
2415.76.....	0.39	0.36	0.12	4.64	2.03	C III, Notes	977.02	0.47	1.4721
2418.33.....	0.15	1.26	0.16	16.27	2.59	Lyγ, Notes	972.54	−0.07	1.4867
2431.04.....	0.34	0.48	0.13	5.42	2.59	Lyγ, Notes	972.54	−0.34	1.5000
2440.29.....	0.20	1.29	0.14	14.80	3.83	Lyα, Bl	1215.67	0.00	1.0074
2448.20.....	0.19	0.66	0.11	7.58	2.38	Lyβ	1025.72	0.27	1.3866
2456.99.....	0.15	0.89	0.10	11.45	2.65	Lyβ	1025.72	0.19	1.3952
2465.91.....	0.25	1.21	0.14	15.96	4.50	Si II, Notes	1260.42	0.02	0.9564
2472.02.....	0.12	1.00	0.10	12.52	2.50	C II, Notes	1334.53	0.59	0.8519
2479.81.....	0.06	2.92	0.10	39.35	3.68	Lyα	1215.67	0.00	1.0399
2500.03.....	0.12	1.00	0.10	11.82	2.29	Lyβ	1025.72	−0.35	1.4377
2508.22.....	0.34	0.36	0.10	4.84	2.50	Lyβ	1025.72	−0.52	1.4458
2515.53.....	0.08	2.08	0.11	28.29	3.27	Lyα	1215.67	0.00	1.0693
2520.08.....	0.32	0.38	0.11	5.19	2.43	Lyβ	1025.72	−0.25	1.4571
2535.80.....	0.10	1.05	0.15	14.30	2.21	Lyβ	1025.72	0.11	1.4721
2540.53.....	0.75	0.66	0.20	9.27	5.37	Lyβ, Notes	1025.72	−0.02	1.4768
2550.59.....	0.09	1.21	0.09	16.73	2.51	Lyβ, Notes	1025.72	−0.05	1.4867
2564.25.....	0.16	0.58	0.07	7.84	2.04	Lyβ, Notes	1025.72	−0.08	1.5000
2572.31.....	0.12	0.76	0.06	10.22	2.03	Lyα	1215.67	0.00	1.1160
2574.78.....	0.24	0.40	0.07	5.39	2.03	Lyβ	1025.72	−0.12	1.5103
2580.59.....	0.29	1.10	0.33	15.03	2.26	Lyβ, Notes	1025.72	−0.10	1.5160
2582.91.....	0.71	0.44	0.34	5.96	2.21	Lyα	1215.67	0.00	1.1247
2586.42.....	0.14	0.64	0.07	8.35	2.03	Fe II	2586.65	−0.23	0.0000
2595.98.....	0.25	2.41	0.19	32.13	7.05	Lyα, Notes	1215.67	0.00	1.1354
2600.89.....	0.09	0.80	0.09	10.62	2.03	Fe II, Notes	2600.17	0.72	0.0000
2607.45.....	0.07	1.12	0.08	16.39	2.19	Lyα, Notes	1215.67	0.00	1.1449
2624.00.....	0.19	0.53	0.09	8.04	2.32	Lyβ	1025.72	−0.22	1.5584
2627.14.....	0.19	0.47	0.07	7.11	2.03	Lyϵ	937.80	0.25	1.8011
2644.80.....	0.24	0.54	0.10	7.48	2.68	Lyα	1215.67	0.00	1.1756
2653.56.....	0.06	1.48	0.08	22.35	2.55	Lyα	1215.67	−0.20	1.1830
2660.65.....	0.07	1.11	0.08	16.69	2.17	Lyδ	949.74	0.32	1.8011
2669.84.....	0.12	0.68	0.06	10.65	2.04	Lyα	1215.67	0.00	1.1962
2676.79.....	0.15	0.49	0.06	7.32	2.03	Lyδ	949.74	0.01	1.8184
2681.96.....	0.09	0.81	0.06	12.45	2.03	C IV, p	1548.20	0.10	0.7322
2686.03.....	0.31	0.53	0.11	7.81	3.27	C IV, p	1550.77	−0.28	0.7322
2702.50.....	0.22	0.38	0.06	5.63	2.03	Lyα	1215.67	0.00	1.2231
2717.56.....	0.07	1.05	0.05	16.68	2.04	Lyα	1215.67	0.00	1.2354
2724.33.....	0.09	1.17	0.11	18.64	2.26	Lyγ	972.54	0.14	1.8011
2732.12.....	0.05	1.96	0.07	29.77	2.58	Lyα	1215.67	0.26	1.2472
2741.36.....	0.14	0.54	0.06	8.63	2.04	Lyγ	972.54	0.33	1.8184
2749.38.....	0.09	0.84	0.05	13.17	2.04	Lyα	1215.67	0.00	1.2616
2770.41.....	0.28	0.47	0.09	7.75	3.02	Lyα	1215.67	0.00	1.2789
2797.57.....	0.05	2.25	0.09	35.99	2.92	C IV, p, Notes	1548.20	−0.18	0.8071
2802.84.....	0.11	1.87	0.11	29.90	3.98	C IV, p, Notes	1550.77	0.44	0.8071
2815.67.....	0.05	1.54	0.07	24.56	2.27	Lyα	1215.67	0.00	1.3161
2832.29.....	0.11	0.92	0.08	14.27	2.63	Si II	1260.42	−0.13	1.2472
2849.26.....	0.12	1.96	0.12	32.06	4.57	Lyα, Notes	1215.67	0.00	1.3438
2853.83.....	0.21	0.36	0.07	5.94	2.03	Mg I?	2852.96	0.83	0.0000
2868.00.....	0.06	2.33	0.10	35.26	3.33	Lyα	1215.67	0.00	1.3592

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2873.11.....	0.05	3.13	0.10	47.35	3.49	Lyβ, Notes	1025.72	−0.05	1.8011
2890.95.....	0.06	1.47	0.08	22.84	2.46	Lyβ	1025.72	0.03	1.8184
2901.58.....	0.10	0.80	0.05	12.36	2.04	Lyα	1215.67	0.32	1.3866
2908.15.....	0.22	0.34	0.06	5.36	2.03	Si II, Notes	1193.29	−0.73	1.4377
2911.77.....	0.09	1.23	0.08	19.65	2.03	Lyα, Bl	1215.67	0.00	1.3952
2913.45.....	0.15	0.74	0.09	11.79	2.03	Lyα	1215.67	0.00	1.3966
2942.21.....	0.11	1.35	0.14	22.68	2.39	S III?	1190.21	−0.11	1.4721
2944.45.....	0.33	0.37	0.11	6.18	2.03	Notes	...	...	...
2963.20.....	0.04	1.70	0.06	27.61	2.21	Lyα	1215.67	−0.23	1.4377
2973.27.....	0.13	0.59	0.05	9.68	2.04	Lyα, Notes	1215.67	0.00	1.4458
2978.78.....	0.09	1.71	0.14	29.43	2.62	Lyα, Notes	1215.67	0.00	1.4503
2982.06.....	0.14	1.26	0.15	21.74	2.76	Lyα	1215.67	0.00	1.4530
2987.18.....	0.12	1.01	0.08	16.99	2.95	Lyα	1215.67	0.00	1.4571
3005.96.....	0.04	2.00	0.06	35.16	2.64	Lyα	1215.67	0.70	1.4721
3010.86.....	0.08	0.80	0.05	13.95	2.03	Lyα	1215.67	−0.16	1.4768
3014.82.....	0.23	0.30	0.05	5.35	2.03	Lyα	1215.67	0.00	1.4800
3022.90.....	0.04	1.51	0.06	24.09	2.07	Lyα	1215.67	−0.10	1.4867
3028.79.....	0.07	0.98	0.07	15.87	2.08	C IV	1548.20	−0.11	0.9564
3033.85.....	0.10	0.72	0.06	11.60	2.03	C IV	1550.77	−0.08	0.9564
3039.06.....	0.07	1.25	0.08	19.98	2.42	Lyα	1215.67	−0.16	1.5000
3051.42.....	0.15	0.62	0.07	9.06	2.03	Lyα	1215.67	−0.32	1.5103
3053.73.....	0.16	0.56	0.06	8.14	2.03	Lyα	1215.67	0.00	1.5120
3058.65.....	0.08	1.57	0.09	24.28	3.01	Lyα	1215.67	0.06	1.5160
3064.93.....	0.25	0.31	0.06	4.85	2.03	Lyα	1215.67	0.00	1.5212
3072.46.....	0.08	1.04	0.08	16.38	2.16	Si II	1260.42	−0.06	1.4377
3076.74.....	0.09	1.48	0.09	23.23	3.05	Lyα	1215.67	0.00	1.5309
3082.83.....	0.06	1.08	0.05	16.48	2.03	Lyα	1215.67	0.00	1.5359
3089.10.....	0.21	0.35	0.06	5.79	2.03	Lyα	1215.67	0.00	1.5411
3093.95.....	0.16	0.45	0.06	7.26	2.03	Al II, Notes	1670.79	−0.19	0.8519
3107.18.....	0.48	0.30	0.14	4.90	2.27	Lyα, Bl	1215.67	0.00	1.5559
3110.23.....	0.16	1.03	0.14	16.88	2.59	Lyα, Bl	1215.67	0.03	1.5584
3118.56.....	0.25	1.25	0.12	20.06	5.30	Lyα, Notes	1215.67	0.00	1.5653
3132.21.....	0.25	0.30	0.06	4.95	2.04	Lyα	1215.67	0.00	1.5765
3139.50.....	0.25	0.71	0.11	11.29	3.44	Lyα	1215.67	0.00	1.5825
3158.10.....	0.40	1.04	0.15	16.81	6.01	Lyα	1215.67	0.00	1.5978
3168.91.....	0.36	0.49	0.10	7.72	3.53	Lyα	1215.67	0.00	1.6067
3206.60.....	0.15	0.68	0.08	10.71	2.49	Lyα	1215.67	0.00	1.6377
3234.26.....	0.12	0.71	0.08	11.12	2.29	Lyα	1215.67	0.00	1.6605
3258.73.....	0.22	0.39	0.07	5.40	2.03	Lyα	1215.67	0.00	1.6806
3261.69.....	0.21	0.43	0.07	5.75	2.03	Lyα	1215.67	0.00	1.6830
3273.04.....	0.27	0.45	0.09	4.50	2.04	Lyα	1215.67	0.00	1.6924
PKS 0003+15 $z_{em} = 0.450$									
1193.55.....	0.28	1.29	0.34	6.94	2.19	Si II	1193.29	0.26	0.0000
1248.20.....	0.14	0.40	0.08	4.59	1.11	Lyα	1215.67	0.00	0.0268
1260.32.....	0.08	0.79	0.10	9.49	1.34	Si II (S II)	1260.42	−0.10	0.0000
1269.92.....	0.11	0.48	0.07	6.25	1.11	Lyγ	972.54	0.02	0.3058
1304.40.....	0.11	0.40	0.06	5.91	1.11	Si II	1304.37	0.03	0.0000
1314.32.....	0.25	0.59	0.15	6.94	2.06	Lyϵ, Bl	937.80	0.11	0.4014
1316.77.....	0.12	0.53	0.11	6.47	1.22	Lyα	1215.67	0.00	0.0832
1326.11.....	0.06	0.81	0.06	10.58	1.10	Lyα	1215.67	0.00	0.0909
1328.59.....	0.37	0.33	0.16	4.69	1.78	Lyγ	972.54	0.11	0.3660
1330.56.....	0.09	0.68	0.13	8.78	1.14	Lyα	1215.67	0.00	0.0945
1334.14.....	0.08	1.25	0.11	17.96	2.02	C II, Bl	1334.53	−0.39	0.0000
1339.21.....	0.07	0.59	0.05	9.54	1.11	Lyβ	1025.72	−0.13	0.3058
1362.84.....	0.09	0.43	0.05	7.47	1.11	Lyγ	972.54	−0.06	0.4014
1382.39.....	0.11	0.85	0.10	13.23	1.92	Lyα	1215.67	0.00	0.1371
1390.81.....	0.12	0.33	0.07	5.73	1.15	Lyα	1215.67	0.00	0.1441
1401.29.....	0.09	0.43	0.05	7.25	1.11	Lyβ	1025.72	0.16	0.3660
1408.87.....	0.11	0.66	0.09	11.65	1.83	Lyα	1215.67	0.00	0.1589
1416.41.....	0.04	0.85	0.06	15.53	1.25	Lyα	1215.67	0.00	0.1651
1421.78.....	0.11	0.31	0.05	5.99	1.11	Lyβ	1025.72	−0.04	0.3862
1429.97.....	0.07	0.52	0.06	10.17	1.21	Lyα	1215.67	0.00	0.1763
1437.57.....	0.10	0.34	0.05	6.80	1.11	Lyβ	1025.72	0.15	0.4014
1446.64.....	0.07	0.65	0.07	13.03	1.48	Lyα	1215.67	0.27	0.1898
1499.11.....	0.10	0.25	0.05	6.46	1.12	Lyα	1215.67	0.00	0.2332
1526.69.....	0.05	0.58	0.05	13.08	1.21	Si II	1526.71	−0.02	0.0000
1546.94.....	0.19	0.24	0.07	5.18	1.37	Lyα, Bl	1215.67	0.00	0.2725
1548.62.....	0.11	0.31	0.05	6.65	1.10	C IV, Bl	1548.20	0.42	0.0000
1568.55.....	0.09	0.31	0.04	7.07	1.11	Lyα	1215.67	0.00	0.2903
1587.49.....	0.05	0.67	0.06	12.99	1.14	Lyα	1215.67	0.12	0.3058

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
1595.28.....	0.08	0.39	0.06	8.17	1.12	Lyα	1215.67	0.00	0.3123
1660.38.....	0.07	1.59	0.11	16.96	2.11	Lyα	1215.67	−0.21	0.3660
1665.42.....	0.16	0.56	0.11	6.72	1.75	Lyα	1215.67	0.00	0.3700
1670.82.....	0.15	0.49	0.08	5.96	1.51	Al II	1670.79	0.03	0.0000
1685.16.....	0.09	0.76	0.09	9.25	1.60	Lyα	1215.67	0.03	0.3862
1703.58.....	0.08	0.66	0.07	10.32	1.55	Lyα	1215.67	−0.03	0.4014
1722.94.....	0.16	0.42	0.08	6.50	1.65	Lyα	1215.67	0.00	0.4173
1728.39.....	0.09	0.97	0.08	16.14	2.22	Lyα	1215.67	0.00	0.4218
1980.63.....	0.20	0.33	0.07	6.61	1.92		...	...	...
2062.38.....	0.18	0.22	0.04	5.02	1.51	Zn II	2062.66	−0.28	0.0000
2075.32.....	0.20	0.20	0.04	4.71	1.50		...	...	...
2086.41.....	0.12	0.34	0.04	7.80	1.51		...	...	...
2102.79.....	0.17	0.28	0.05	6.82	1.79		...	...	...
2113.35.....	0.12	0.32	0.04	8.08	1.50	C IV, Notes	1548.20	−1.49	0.3660
2115.25.....	0.13	0.38	0.05	9.38	1.50	C IV, Notes	1548.20	−0.41	0.3660
2117.67.....	0.16	0.54	0.08	13.44	2.39	C IV, Notes	1550.77	−0.68	0.3660
2169.52.....	0.25	0.20	0.05	5.45	1.98	C IV	1548.20	−0.09	0.4014
2179.46.....	0.20	0.16	0.04	4.55	1.50	Notes	...	...	...
2183.15.....	0.24	0.25	0.05	7.11	2.30	Notes	...	...	...
2208.93.....	0.19	0.15	0.03	4.71	1.51		...	...	...
2261.25.....	0.13	0.16	0.03	6.80	1.52	Fe II	2260.78	0.47	0.0000
2272.08.....	0.37	0.13	0.04	4.74	2.31		...	...	...
2344.38.....	0.12	0.82	0.09	11.63	2.39	Fe II	2344.21	0.17	0.0000
2374.19.....	0.19	0.44	0.06	6.53	2.04	Fe II	2374.46	−0.27	0.0000
2382.76.....	0.11	0.81	0.08	12.22	2.32	Fe II	2382.77	−0.01	0.0000
2586.72.....	0.23	0.47	0.09	6.66	2.41	Fe II	2586.65	0.07	0.0000
2600.14.....	0.11	0.76	0.08	11.65	2.17	Fe II	2600.17	−0.03	0.0000
2796.16.....	0.08	1.22	0.10	19.75	2.26	Mg II	2796.35	−0.19	0.0000
2800.97.....	0.85	0.39	0.25	6.18	2.92	Mg II wing	2796.35	4.62	0.0000
2803.59.....	0.15	1.02	0.23	16.02	2.02	Mg II	2803.53	0.06	0.0000
1936.29.....	0.13	0.42	0.06	8.80	1.87	FF	...	...	...
2318.07.....	0.26	0.77	0.12	10.08	3.54	FF	...	...	...
NAB 0024+22 $z_{em} = 1.118$									
1685.94.....	0.39	0.71	0.23	4.76	2.41	Lyδ, Bl	949.74	−0.78	0.7760
1701.98.....	0.16	0.74	0.16	5.36	1.54	Lyβ	1025.72	0.02	0.6593
1710.08.....	0.11	1.13	0.16	8.24	1.60	Lyα	1215.67	−0.20	0.4069
1727.75.....	0.25	0.77	0.19	5.70	2.10	Lyδ, Bl	949.74	−0.35	0.8196
1769.58.....	0.09	1.20	0.13	12.06	1.78	Lyγ	972.54	0.00	0.8196
1773.50.....	0.37	0.62	0.17	6.25	2.77	Lyβ, Bl	1025.72	−0.07	0.7291
1778.02.....	0.18	0.47	0.09	4.88	1.50	C III	977.02	0.27	0.8196
1802.69.....	0.14	0.64	0.12	6.28	1.55	Lyα	1215.67	−0.12	0.4830
1815.74.....	0.17	0.49	0.09	5.17	1.51	Lyβ	1025.72	0.01	0.7702
1821.73.....	0.14	0.60	0.09	6.29	1.51	Lyβ	1025.72	0.07	0.7760
1843.06.....	0.13	0.74	0.10	8.12	1.50	Lyα	1215.67	0.00	0.5161
1866.26.....	0.08	1.52	0.12	17.66	2.20	Lyβ	1025.72	−0.09	0.8196
1941.55.....	0.16	1.02	0.12	13.04	2.75	Lyα	1215.67	0.00	0.5971
1997.60.....	0.17	0.44	0.08	5.46	1.51	Lyα	1215.67	0.00	0.6432
2017.10.....	0.05	1.27	0.08	17.09	1.72	Lyα	1215.67	−0.03	0.6593
2053.10.....	0.10	0.59	0.07	9.59	1.59	Lyγ	972.54	0.88	1.1102
2061.60.....	0.10	0.58	0.08	9.09	1.62	C III	977.02	−0.08	1.1102
2102.06.....	0.06	0.79	0.05	13.84	1.51	Lyα	1215.67	0.06	0.7291
2140.48.....	0.10	0.50	0.05	9.34	1.51	Lyα	1215.67	0.00	0.7607
2151.98.....	0.05	1.02	0.04	18.15	1.51	Lyα	1215.67	0.00	0.7702
2159.17.....	0.04	0.96	0.05	19.73	1.54	Lyα	1215.67	0.16	0.7760
2164.60.....	0.04	0.87	0.05	18.37	1.56	Lyβ	1025.72	0.17	1.1102
2177.53.....	0.03	1.38	0.05	31.92	1.91	O VI, Notes	1031.93	−0.03	1.1102
2181.69.....	0.09	0.41	0.04	9.51	1.50	C IV, Notes	1550.77	−0.03	0.4069
2189.33.....	0.05	0.88	0.05	19.44	1.67	O VI	1037.62	−0.22	1.1102
2195.09.....	0.17	0.28	0.06	6.13	1.68	Si III	1206.50	−0.20	0.8196
2212.07.....	0.03	1.74	0.05	34.90	1.96	Lyα	1215.67	0.09	0.8196
2295.88.....	0.09	0.51	0.06	10.12	1.61	C IV	1548.20	−0.08	0.4830
2299.98.....	0.14	0.41	0.07	7.30	1.67	C IV	1550.77	0.21	0.4830
2333.97.....	0.26	0.87	0.18	6.94	2.64	Lyα	1215.67	−0.05	0.9199
2344.34.....	0.25	0.62	0.12	4.83	2.04	Fe II	2344.21	0.13	0.0000
2373.88.....	0.22	0.69	0.15	5.30	2.09	Fe II	2374.46	−0.58	0.0000
2382.81.....	0.16	0.94	0.10	7.89	2.04	Fe II	2382.77	0.04	0.0000
2403.84.....	0.16	0.90	0.10	7.79	2.04	Lyα	1215.67	0.00	0.9774
2419.11.....	0.34	0.77	0.17	7.01	3.16	Si II, Notes	1260.42	−0.82	0.9199
2484.09.....	0.23	0.50	0.09	5.24	2.04	Lyα	1215.67	0.00	1.0434

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2556.77.....	0.11	0.74	0.07	12.99	2.39	Lyα	1215.67	0.00	1.1032
2565.32.....	0.05	1.52	0.06	28.08	2.43	Lyα	1215.67	0.06	1.1102
2586.84.....	0.14	0.61	0.06	8.86	2.04	Fe II	2586.65	0.19	0.0000
2600.04.....	0.12	1.17	0.10	16.64	3.02	Fe II	2600.17	−0.13	0.0000
2796.02.....	0.12	0.98	0.08	9.90	2.04	Mg II	2796.35	−0.33	0.0000
2803.37.....	0.13	0.92	0.08	9.39	2.04	Mg II	2803.53	−0.16	0.0000
2817.22.....	0.44	0.60	0.16	6.05	3.45	C IV	1548.20	0.19	0.8196
2988.86.....	0.27	0.42	0.09	4.52	2.04		...	...	...
3266.67.....	0.13	0.92	0.11	10.07	2.31	C IV	1548.20	−0.28	1.1102
3272.11.....	0.20	0.63	0.10	5.74	2.03	C IV	1550.77	−0.26	1.1102
2229.70.....	0.82	0.29	0.16	5.62	3.29	FF	...	...	...
2232.60.....	0.23	0.31	0.13	5.78	1.63	FF	...	...	...
PG 0117+213 $z_{em} = 1.493$									
2224.54.....	0.17	1.73	0.25	9.21	2.56	Lyδ	949.74	−0.32	1.3426
2235.88.....	0.23	0.59	0.12	6.37	2.29	Lyα	1215.67	0.00	0.8392
2261.20.....	0.05	2.17	0.10	23.64	2.51	Lyα	1215.67	0.00	0.8600
2267.08.....	0.17	0.61	0.08	6.69	1.97	Lyδ	949.74	0.25	1.3868
2271.87.....	0.08	1.36	0.12	14.47	2.12	C III	977.02	−0.27	1.3256
2274.41.....	0.12	1.08	0.09	11.45	1.97	Lyγ	972.54	−0.26	1.3389
2278.40.....	0.07	1.50	0.11	15.01	2.13	Lyγ	972.54	0.12	1.3426
2285.46.....	0.13	0.76	0.08	8.28	1.97	C III	977.02	0.29	1.3389
2288.83.....	0.07	1.31	0.09	14.59	2.01	C III	977.02	0.04	1.3426
2307.58.....	0.23	0.42	0.08	4.96	1.97	Lyβ	1025.72	−0.42	1.2501
2312.37.....	0.18	0.54	0.08	6.58	1.97	Lyβ	1025.72	0.12	1.2543
2320.76.....	0.14	0.77	0.10	9.55	2.25	Lyγ	972.54	−0.48	1.3868
2344.15.....	0.12	0.64	0.06	8.57	1.97	Fe II	2344.21	−0.06	0.0000
2349.89.....	0.20	0.45	0.07	5.96	1.98	Lyβ	1025.72	0.21	1.2908
2358.01.....	0.16	0.66	0.09	9.54	2.39	Lyα, Notes	1215.67	−0.34	0.9400
2374.66.....	0.12	0.76	0.06	10.24	1.98	Fe II	2374.46	0.20	0.0000
2382.92.....	1.45	2.19	1.95	29.36	3.82	Fe II, Bl	2382.77	0.15	0.0000
2384.98.....	0.36	1.62	1.92	21.63	2.65	Lyβ, Bl	1025.72	−0.41	1.3256
2391.89.....	0.08	1.40	0.09	19.44	2.62	Lyα	1215.67	−0.02	0.9676
2399.18.....	0.04	1.69	0.08	22.41	2.11	Lyβ	1025.72	0.12	1.3389
2402.77.....	0.05	1.64	0.08	21.79	2.17	Lyβ	1025.72	−0.09	1.3426
2407.08.....	0.14	0.56	0.06	7.88	1.97	Si II, Notes	1526.71	0.08	0.5766
2412.70.....	0.18	0.46	0.07	6.52	1.97	O VI	1031.93	−0.91	1.3389
2417.36.....	0.18	0.45	0.06	6.50	1.97	O VI	1031.93	−0.07	1.3426
2430.75.....	0.17	0.51	0.09	6.69	1.97	O VI	1037.62	0.00	1.3426
2440.62.....	0.08	0.97	0.06	13.02	1.97	C IV, Notes	1548.20	−0.25	0.5766
2444.84.....	0.16	0.52	0.06	7.58	1.97	C IV, Notes	1550.77	−0.08	0.5766
2448.23.....	0.09	0.88	0.06	13.40	1.97	Lyβ	1025.72	0.06	1.3868
2451.23.....	0.15	0.50	0.06	7.60	1.97	Lyα	1215.67	0.00	1.0164
2460.13.....	0.14	0.50	0.07	7.87	1.99	Lyβ	1025.72	0.30	1.3981
2470.93.....	0.08	0.90	0.07	15.17	2.07	Lyα	1215.67	0.00	1.0326
2488.89.....	0.04	3.96	0.09	55.89	4.00	Lyα	1215.67	0.00	1.0473
2494.66.....	0.08	1.19	0.09	14.95	2.20	Lyα	1215.67	0.00	1.0521
2510.88.....	0.16	0.48	0.06	7.42	1.98	Lyβ	1025.72	0.22	1.4477
2519.38.....	0.04	1.78	0.06	27.80	2.23	Lyα	1215.67	0.00	1.0724
2535.60.....	0.18	0.39	0.05	6.73	1.98	Fe II, Notes	1608.45	−0.26	0.5766
2559.25.....	0.08	0.79	0.05	14.37	1.98	Lyβ	1025.72	−0.08	1.4952
2570.49.....	0.24	0.28	0.06	5.32	1.97	Lyα	1215.67	0.00	1.1145
2574.76.....	0.12	1.75	0.10	31.89	4.29	Lyα, Notes	1215.67	0.00	1.1180
2586.55.....	0.07	0.91	0.05	15.82	1.97	Fe II	2586.65	−0.10	0.0000
2589.06.....	0.20	0.36	0.05	6.30	1.97	C II, Notes	1334.53	0.12	0.9400
2593.13.....	0.08	1.57	0.13	27.29	2.39	Lyα, Bl	1215.67	0.00	1.1331
2595.24.....	0.07	1.43	0.09	24.83	1.97	Mn II, Bl	2594.50	0.74	0.0000
2600.12.....	0.07	0.86	0.05	15.17	1.97	Fe II	2600.17	−0.05	0.0000
2629.28.....	0.08	0.79	0.06	13.93	2.04	Fe III	1122.53	−0.36	1.3426
2634.62.....	0.04	1.52	0.06	27.40	2.20	Al II, Notes	1670.79	0.46	0.5766
2680.64.....	0.21	0.61	0.08	11.27	3.12	Lyα	1215.67	0.00	1.2051
2700.63.....	0.32	0.29	0.08	5.23	2.52	Notes	...	...	...
2717.99.....	0.10	0.66	0.05	11.91	1.98	Lyα	1215.67	0.00	1.2358
2733.42.....	0.16	0.64	0.10	11.25	2.19	Fe II	1144.94	0.69	1.3868
2735.79.....	0.18	0.54	0.08	9.46	1.97	Lyα	1215.67	0.38	1.2501
2740.36.....	0.05	1.30	0.06	22.51	2.25	Lyα	1215.67	−0.09	1.2543
2782.44.....	0.12	0.70	0.06	12.19	1.97	Lyα, Bl	1215.67	0.00	1.2888
2784.87.....	0.06	1.23	0.08	21.49	2.08	Lyα, Bl	1215.67	0.06	1.2908
2796.28.....	0.05	1.57	0.06	27.59	2.43	Mg II	2796.35	−0.07	0.0000
2803.90.....	0.08	2.03	0.12	37.48	3.14	Mg II	2803.53	0.37	0.0000
2807.33.....	0.16	0.69	0.12	12.78	2.32	N I	1199.97	0.72	1.3389
2825.69.....	0.09	1.29	0.18	22.66	1.97	Si III, Bl	1206.50	−0.67	1.3426

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2827.49.....	0.11	2.04	0.21	35.74	2.52	Lyα, Bl	1215.67	0.36	1.3256
2843.06.....	0.04	2.06	0.07	34.07	2.43	Lyα	1215.67	−0.27	1.3389
2847.93.....	0.03	2.79	0.07	46.15	3.03	Lyα	1215.67	0.09	1.3426
2853.20.....	0.06	2.12	0.08	35.00	3.21	Mg I	2852.96	0.24	0.0000
2879.77.....	0.19	0.46	0.09	7.56	2.20	Si III	1206.50	0.10	1.3868
2883.05.....	0.14	0.66	0.09	10.90	2.18	Lyα	1215.67	0.00	1.3716
2901.57.....	0.05	1.81	0.07	31.23	2.70	Lyα	1215.67	0.03	1.3868
2911.06.....	0.20	0.41	0.08	7.35	2.24	N V	1242.80	−0.33	1.3426
2915.13.....	0.06	1.60	0.08	29.15	2.77	Lyα	1215.67	−0.23	1.3981
2947.26.....	0.05	1.08	0.06	19.81	2.03	Lyα	1215.67	0.00	1.4244
2952.63.....	0.16	0.50	0.07	9.11	2.31	Si II	1260.42	−0.04	1.3426
2969.40.....	0.13	0.48	0.05	9.25	1.98	Lyα	1215.67	0.00	1.4426
2975.43.....	0.05	1.56	0.06	29.71	2.54	Lyα	1215.67	−0.17	1.4477
2980.54.....	0.12	0.47	0.05	9.47	1.97	Lyα	1215.67	0.00	1.4518
2998.64.....	0.08	0.64	0.04	14.26	1.98	Lyα	1215.67	0.00	1.4667
3014.58.....	0.11	0.42	0.04	10.71	1.97	Lyα	1215.67	0.00	1.4794
3017.31.....	0.18	0.27	0.04	6.90	1.97	Lyα	1215.67	0.00	1.4820
3033.34.....	0.03	1.54	0.04	40.11	2.16	Lyα	1215.67	0.06	1.4952
3037.62.....	0.06	0.67	0.04	17.39	1.97	Lyα	1215.67	0.00	1.4987
3047.02.....	0.05	1.51	0.06	33.84	2.44	C IV	1548.20	0.83	0.9676
3050.44.....	0.04	1.57	0.06	35.20	2.24	O I	1302.17	−0.03	1.3426
3103.72.....	0.14	0.43	0.06	9.47	2.15	C II	1334.53	0.18	1.3256
3126.95.....	0.18	0.38	0.06	7.25	2.11	C II	1334.53	0.68	1.3426
3208.54.....	0.17	0.47	0.08	7.70	2.13	C IV	1548.20	0.02	1.0724
3241.73.....	0.14	0.76	0.08	13.21	2.77	Al II, Notes	1670.79	0.44	0.9400
3265.66.....	0.16	0.56	0.09	7.37	2.04	Si IV	1393.76	0.63	1.3426
2504.68.....	0.22	0.34	0.06	5.38	1.98	FF	...	...	...
3C 57 (0159−11) $z_{em} = 0.670$									
1609.20.....	0.35	3.67	0.75	9.87	3.65	Notes	...	...	...
1664.85.....	0.11	0.47	0.06	7.33	1.39	Lyα	1215.67	0.00	0.3695
1670.80.....	0.15	0.53	0.09	8.70	1.94	Al II	1670.79	0.01	0.0000
1681.82.....	0.06	0.72	0.07	12.05	1.45	Lyα	1215.67	0.00	0.3834
1692.46.....	0.10	0.47	0.07	8.48	1.47	Lyβ	1025.72	0.14	0.6499
1700.99.....	0.17	0.24	0.05	4.62	1.38	Lyα	1215.67	0.00	0.3992
1704.42.....	0.06	0.65	0.04	12.87	1.38	Lyα	1215.67	0.00	0.4020
1723.17.....	0.33	0.48	0.10	8.74	3.22	Lyα, Notes	1215.67	0.00	0.4175
1740.22.....	0.07	0.90	0.06	19.01	2.01	Lyα	1215.67	0.00	0.4315
1762.32.....	0.16	0.32	0.06	5.08	1.38	Lyα, p	1215.67	0.00	0.4497
1766.24.....	0.18	0.27	0.06	4.55	1.39	Lyα, p, Notes	1215.67	0.00	0.4529
1788.69.....	0.11	0.35	0.04	7.84	1.39	Lyα	1215.67	0.00	0.4714
1798.12.....	0.25	0.26	0.07	5.77	2.00	Lyα	1215.67	0.00	0.4791
1803.07.....	0.17	0.25	0.06	5.48	1.53	Lyα	1215.67	0.00	0.4832
1863.74.....	0.06	0.75	0.05	15.69	1.61	Lyα	1215.67	0.00	0.5331
1892.42.....	0.06	0.65	0.05	13.93	1.41	Lyα, Notes	1215.67	0.00	0.5567
1912.64.....	0.35	0.20	0.06	4.84	2.23	Notes	...	...	...
1920.72.....	0.07	0.52	0.04	12.39	1.39	Lyα	1215.67	0.00	0.5800
1934.94.....	0.17	0.35	0.07	8.77	1.97	Lyα, p	1215.67	0.00	0.5917
1938.24.....	0.12	0.54	0.07	13.63	2.17	C IV, p	1548.20	−0.15	0.2520
1941.76.....	0.09	0.37	0.05	9.16	1.39	C IV, p	1550.77	0.16	0.2520
2005.39.....	0.10	0.54	0.05	15.70	2.12	Lyα	1215.67	−0.32	0.6499
2029.47.....	0.08	0.27	0.03	10.40	1.39	Lyα	1215.67	0.00	0.6694
2048.64.....	0.19	0.12	0.03	4.51	1.38	Lyα	1215.67	0.00	0.6852
2051.19.....	0.14	0.24	0.04	8.42	1.73	Lyα	1215.67	0.00	0.6873
2056.48.....	0.07	0.30	0.03	10.67	1.38	C IV	1548.20	0.05	0.3283
2059.78.....	0.10	0.24	0.03	8.22	1.38	C IV	1550.77	−0.07	0.3283
2344.19.....	0.18	0.49	0.07	9.38	2.51	Fe II	2344.21	−0.02	0.0000
2374.35.....	0.15	0.45	0.05	8.02	1.98	Fe II	2374.46	−0.11	0.0000
2382.74.....	0.11	0.61	0.07	11.05	2.13	Fe II	2382.77	−0.03	0.0000
2586.45.....	0.13	0.51	0.05	12.75	2.47	Fe II	2586.65	−0.20	0.0000
2600.38.....	0.10	0.54	0.04	12.42	1.98	Fe II	2600.17	0.21	0.0000
2796.45.....	0.08	0.77	0.04	15.66	1.98	Mg II	2796.35	0.10	0.0000
2803.64.....	0.07	0.80	0.06	16.15	2.01	Mg II	2803.53	0.11	0.0000
2853.36.....	0.36	0.36	0.08	7.04	3.32	Mg I	2852.96	0.40	0.0000

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
PKS 0232−04 $z_{em} = 1.434$									
2246.60.....	0.09	0.81	0.06	11.70	1.97	Lyα	1215.67	0.00	0.8480
2249.65.....	0.22	0.38	0.07	5.48	1.97	Fe II	2249.88	−0.24	0.0000
2270.76.....	0.17	0.64	0.09	9.74	2.49	Lyα	1215.67	0.00	0.8679
2337.90.....	0.13	0.59	0.06	9.28	2.03	Lyβ	1025.72	0.49	1.2788
2340.73.....	0.09	0.87	0.05	13.57	2.03	Lyα	1215.67	0.00	0.9255
2344.12.....	0.13	0.59	0.07	9.80	2.09	Fe II	2344.21	−0.09	0.0000
2350.64.....	0.10	0.97	0.08	15.36	2.59	Lyα	1215.67	0.00	0.9336
2373.48.....	0.17	0.42	0.05	7.19	1.98	Fe II	2374.46	−0.98	0.0000
2382.81.....	0.10	0.64	0.05	11.43	1.97	Fe II	2382.77	0.04	0.0000
2386.53.....	0.09	0.76	0.07	13.42	2.06	Lyα	1215.67	0.00	0.9631
2416.86.....	0.14	0.54	0.07	10.46	2.32	Lyβ	1025.72	0.13	1.3561
2431.70.....	0.24	0.31	0.06	4.93	1.98	O VI	1031.93	0.31	1.3561
2445.90.....	0.34	0.85	0.12	14.70	5.22	Lyα	1215.67	0.00	1.0120
2474.51.....	0.06	1.00	0.04	20.24	1.98	Lyα	1215.67	0.00	1.0355
2486.52.....	0.19	0.30	0.05	6.23	1.98	Lyβ	1025.72	−0.50	1.4247
2539.43.....	0.05	1.05	0.05	22.96	2.16	Lyα	1215.67	−0.03	1.0889
2578.88.....	0.09	0.71	0.05	13.54	1.98	Lyα	1215.67	0.00	1.1214
2586.72.....	0.18	0.35	0.05	6.64	1.97	Fe II	2586.65	0.07	0.0000
2600.25.....	0.10	0.61	0.04	12.13	1.98	Fe II	2600.17	0.08	0.0000
2615.57.....	0.15	0.40	0.05	8.32	1.97	Lyα	1215.67	0.00	1.1515
2633.29.....	0.12	0.47	0.06	9.35	2.01	Si II	1260.42	0.35	1.0889
2647.83.....	0.13	0.80	0.07	15.38	2.89	Lyα	1215.67	0.00	1.1781
2663.43.....	0.22	0.29	0.05	5.92	1.97	Lyα	1215.67	0.00	1.1909
2666.54.....	0.07	0.93	0.06	18.69	2.22	Lyα	1215.67	0.00	1.1935
2683.80.....	0.20	0.32	0.12	6.41	1.97	Lyα	1215.67	0.00	1.2077
2686.94.....	1.18	0.34	0.21	6.26	4.90	Lyα, p, Notes	1215.67	0.00	1.2103
2692.23.....	0.13	0.82	0.11	14.68	2.52	C IV, p	1548.20	−0.22	0.7391
2697.12.....	0.14	0.68	0.07	13.50	2.76	C IV, p	1550.77	0.20	0.7391
2703.34.....	0.22	0.26	0.05	5.24	1.97	Lyα	1215.67	0.00	1.2237
2744.15.....	0.24	0.24	0.05	4.93	1.97	C IV	1548.20	−0.30	0.7727
2749.18.....	0.23	0.24	0.05	5.05	1.97	C IV	1550.77	0.18	0.7727
2770.45.....	0.05	1.20	0.09	24.67	2.12	Lyα	1215.67	0.17	1.2788
2775.90.....	1.04	0.43	0.15	8.85	6.63	Notes	...	...	...
2796.23.....	0.06	1.01	0.06	20.10	2.05	Mg II	2796.35	−0.12	0.0000
2798.92.....	0.11	0.61	0.05	12.12	1.97	Mg II	2796.35	2.57	0.0000
2803.62.....	0.09	0.96	0.11	19.71	1.97	Mg II	2803.53	0.09	0.0000
2806.01.....	0.39	0.51	0.14	10.41	2.94	Mg II	2803.53	2.41	0.0000
2832.03.....	0.21	0.28	0.05	5.66	1.98	Lyα	1215.67	0.00	1.3296
2853.35.....	0.23	0.25	0.05	5.24	1.98	Mg I	2852.96	0.39	0.0000
2864.41.....	0.04	1.48	0.06	30.56	2.37	Lyα	1215.67	0.14	1.3561
2890.85.....	0.37	0.36	0.08	7.40	3.48	Lyα, Notes	1215.67	0.00	1.3780
2903.92.....	0.09	0.73	0.06	17.06	2.44	Lyα	1215.67	0.00	1.3887
2919.97.....	0.06	0.70	0.05	17.54	2.02	Lyα	1215.67	0.00	1.4019
2925.64.....	0.24	0.19	0.04	4.97	1.98	Lyα, Notes	1215.67	0.00	1.4066
2947.94.....	0.20	0.20	0.03	6.03	1.98	Lyα	1215.67	0.35	1.4247
2953.80.....	0.14	0.26	0.03	8.23	1.98	Lyα	1215.67	0.00	1.4295
2961.95.....	0.12	0.28	0.03	9.82	1.98	Al II	1670.79	0.18	0.7727
2976.26.....	0.21	0.18	0.03	5.71	1.98	Notes	...	...	...
3175.91.....	0.30	0.31	0.07	6.03	2.64	Notes	...	...	...
PKS 0405−12 $z_{em} = 0.574$									
1252.27.....	0.40	0.84	0.19	10.12	3.69	Lyα (S II)	1215.67	0.00	0.0301
1260.17.....	0.12	0.79	0.12	9.77	1.71	Si II (S II)	1260.42	−0.25	0.0000
1314.74.....	0.14	0.42	0.08	4.71	1.11	Lyα	1215.67	0.00	0.0815
1327.44.....	0.10	0.52	0.09	6.77	1.17	Lyα	1215.67	0.00	0.0919
1332.90.....	0.10	0.50	0.07	6.89	1.10	Lyα	1215.67	0.00	0.0964
1334.30.....	0.08	0.74	0.06	10.13	1.10	C II	1334.53	−0.23	0.0000
1395.89.....	0.11	0.36	0.06	5.84	1.11	Lyβ	1025.72	−0.06	0.3609
1401.82.....	0.14	0.29	0.06	4.73	1.11	Lyα	1215.67	0.00	0.1531
1408.21.....	0.14	0.29	0.05	4.76	1.10	Si III	1206.50	0.15	0.1671
1411.93.....	0.15	0.27	0.06	4.54	1.11	Lyα	1215.67	0.00	0.1614
1418.74.....	0.05	0.80	0.06	13.55	1.18	Lyα	1215.67	−0.02	0.1671
1437.74.....	0.06	0.62	0.05	10.85	1.11	Lyα	1215.67	0.00	0.1827
1441.84.....	0.12	0.32	0.05	5.57	1.11	Lyβ	1025.72	0.09	0.4056
1445.32.....	0.20	0.31	0.08	5.61	1.57	Lyβ	1025.72	0.09	0.4090
1471.33.....	0.23	0.45	0.09	8.54	2.28	Si II, Bl	1260.42	0.35	0.1671
1514.00.....	0.15	0.24	0.06	4.66	1.17	Lyα	1215.67	0.00	0.2454
1526.73.....	0.10	0.35	0.05	7.23	1.10	Si II	1526.71	0.02	0.0000

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
1542.93.....	0.14	0.23	0.05	4.58	1.11	Lyα	1215.67	0.00	0.2692
1548.35.....	0.10	0.37	0.06	8.28	1.30	C IV	1548.20	0.15	0.0000
1551.19.....	0.11	0.40	0.06	8.66	1.48	C IV	1550.77	0.42	0.0000
1577.80.....	0.08	0.37	0.04	8.03	1.11	Lyβ	1025.72	−0.32	0.5385
1642.84.....	0.11	0.99	0.10	14.45	2.32	Lyα	1215.67	0.00	0.3513
1654.51.....	0.08	1.03	0.09	14.33	1.85	Lyα	1215.67	0.06	0.3609
1708.70.....	0.13	0.94	0.10	14.49	2.50	Lyα	1215.67	−0.06	0.4056
1712.78.....	0.11	0.62	0.08	9.37	1.67	Lyα	1215.67	−0.09	0.4090
1793.45.....	0.21	0.28	0.08	4.61	1.58	Lyα	1215.67	0.00	0.4753
1803.11.....	0.19	0.29	0.06	4.84	1.50	Lyα	1215.67	0.00	0.4832
1806.70.....	0.10	0.54	0.05	8.90	1.50	C IV	1548.20	−0.14	0.1671
1809.43.....	0.18	0.41	0.08	6.96	1.86	C IV	1550.77	−0.42	0.1671
1817.54.....	0.08	0.73	0.07	11.85	1.75	Lyα	1215.67	0.00	0.4950
1870.66.....	0.12	0.42	0.05	7.48	1.51	Lyα	1215.67	0.29	0.5385
1880.80.....	0.18	0.26	0.06	5.70	1.64	Lyα	1215.67	0.00	0.5471
2111.60.....	0.30	0.23	0.06	5.23	2.14		...	...	...
2239.03.....	0.46	0.25	0.07	5.87	3.13		...	...	...
2344.27.....	0.14	0.37	0.04	8.92	2.04	Fe II	2344.21	0.06	0.0000
2374.30.....	0.12	0.41	0.05	10.54	2.11	Fe II	2374.46	−0.16	0.0000
2382.77.....	0.09	0.51	0.04	13.33	2.04	Fe II	2382.77	0.00	0.0000
2586.66.....	0.11	0.72	0.05	21.40	3.26	Fe II (FF)	2586.65	0.01	0.0000
2594.71.....	0.25	0.18	0.04	5.45	2.18	Mn II	2594.50	0.21	0.0000
2600.07.....	0.11	0.58	0.07	17.31	2.02	Fe II	2600.17	−0.10	0.0000
2602.15.....	0.40	0.18	0.06	5.37	2.03		...	...	...
2780.94.....	0.24	0.18	0.03	5.18	2.03	Fe II	2382.77	0.10	0.1671
2796.15.....	0.06	0.98	0.05	27.28	2.63	Mg II	2796.35	−0.20	0.0000
2803.56.....	0.06	0.76	0.03	21.50	2.04	Mg II	2803.53	0.03	0.0000
2852.99.....	0.12	0.38	0.03	10.40	2.04	Mg I	2852.96	0.03	0.0000
3263.59.....	0.20	0.28	0.04	6.00	2.04	Mg II (FF?)	2796.35	0.08	0.1671
2298.74.....	0.21	0.26	0.05	6.02	2.10	FF	...	...	...
2315.98.....	0.15	0.54	0.06	12.50	2.78	FF	...	...	...
2352.30.....	0.20	0.59	0.07	14.29	3.69	FF	...	...	...
2524.88.....	0.44	0.23	0.06	6.74	3.66	FF	...	...	...
2629.35.....	0.69	0.18	0.06	5.37	4.24	FF	...	...	...
2736.05.....	0.54	0.28	0.06	7.93	4.68	FF	...	...	...
2988.64.....	0.34	0.20	0.05	6.05	2.88	FF	...	...	...
3215.91.....	0.27	0.22	0.05	5.75	2.42	FF	...	...	...
3201.63.....	0.29	0.37	0.06	9.69	3.54	FF	...	...	...
3C 110 (0414−06) $z_{em} = 0.773$									
1635.17.....	0.09	1.35	0.18	8.22	1.40	Lyα	1215.67	0.00	0.3451
1647.76.....	0.20	0.73	0.17	5.71	1.73	Lyα	1215.67	0.00	0.3554
1670.86.....	0.17	0.49	0.12	4.59	1.42	Al II	1670.79	0.07	0.0000
1691.40.....	0.15	0.47	0.08	5.49	1.39	Lyα	1215.67	0.00	0.3913
1707.06.....	0.09	0.77	0.10	9.59	1.43	Lyβ	1025.72	−0.02	0.6643
1711.98.....	0.19	0.38	0.10	4.59	1.44	Lyα	1215.67	0.00	0.4083
1716.77.....	0.18	0.83	0.14	8.73	2.23	Lyα	1215.67	0.00	0.4122
1791.81.....	0.18	0.27	0.06	4.54	1.39	Lyα	1215.67	0.00	0.4739
1828.21.....	0.14	0.34	0.05	6.60	1.38	Lyα	1215.67	0.00	0.5039
1836.95.....	0.11	0.77	0.08	15.04	2.35	Lyα	1215.67	0.00	0.5111
1857.66.....	0.13	0.36	0.05	6.34	1.39	Lyα	1215.67	0.00	0.5281
1865.91.....	0.07	0.99	0.08	15.28	1.78	Lyα	1215.67	0.00	0.5349
1909.94.....	0.10	0.73	0.08	12.19	1.92	Lyα	1215.67	0.00	0.5711
1986.02.....	0.11	0.90	0.09	15.74	2.35	Lyα	1215.67	0.00	0.6337
2007.98.....	0.09	0.56	0.06	9.00	1.39	Lyα	1215.67	0.00	0.6517
2016.88.....	0.10	0.68	0.07	11.92	1.84	Lyα	1215.67	0.00	0.6591
2023.23.....	0.04	1.05	0.06	17.07	1.39	Lyα	1215.67	0.03	0.6643
2034.06.....	0.14	0.34	0.07	5.73	1.42	Lyα	1215.67	0.00	0.6732
2061.32.....	0.16	0.77	0.09	15.97	2.95	Lyα	1215.67	0.00	0.6956
2110.59.....	0.12	0.32	0.05	8.51	1.66	Lyα	1215.67	0.00	0.7362
2143.12.....	0.05	0.43	0.02	16.30	1.39	Lyα	1215.67	0.00	0.7629
2148.08.....	0.05	0.41	0.02	16.58	1.38	Lyα	1215.67	0.00	0.7670
2150.36.....	0.03	0.58	0.03	23.25	1.39	Lyα	1215.67	0.00	0.7689
2153.96.....	0.09	0.25	0.02	11.40	1.38	Lyα	1215.67	0.00	0.7718
2344.51.....	0.16	0.60	0.07	7.31	1.98	Fe II	2344.21	0.30	0.0000
2374.36.....	0.23	0.42	0.08	5.15	1.97	Fe II	2374.46	−0.09	0.0000
2383.01.....	0.15	0.65	0.07	8.06	1.98	Fe II	2382.77	0.24	0.0000
2576.86.....	0.16	0.76	0.11	10.75	2.37	Mn II	2576.88	−0.02	0.0000
2586.39.....	0.14	0.61	0.07	8.26	1.97	Fe II	2586.65	−0.26	0.0000
2600.19.....	0.15	0.57	0.06	7.87	1.98	Fe II	2600.17	0.02	0.0000

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2796.28.....	0.07	0.93	0.06	18.01	2.12	Mg II	2796.35	−0.07	0.0000
2803.52.....	0.06	0.94	0.06	17.68	1.98	Mg II	2803.53	−0.01	0.0000
2853.36.....	0.22	0.37	0.08	5.97	2.11	Mg I	2852.96	0.40	0.0000
1935.30.....	0.52	0.41	0.12	6.68	3.77	FF	...	...	...
PKS 0439−433 $z_{em} = 0.593$									
1649.91.....	0.20	0.66	0.14	6.20	1.94	Fe II	1144.94	0.68	0.4405
1656.53.....	0.19	0.53	0.10	4.89	1.51	Lyα	1215.67	0.00	0.3626
1670.78.....	0.15	0.70	0.10	6.05	1.51	Al II	1670.79	−0.01	0.0000
1681.42.....	0.40	1.11	0.22	9.88	4.09	Si II	1526.71	0.49	0.1010
1704.46.....	0.15	1.76	0.29	17.81	2.26	C IV	1548.20	−0.12	0.1010
1707.20.....	0.24	1.27	0.30	12.89	2.38	C IV	1550.77	−0.22	0.1010
1710.99.....	0.13	0.88	0.13	9.07	1.86	Lyα	1215.67	−0.05	0.4075
1737.66.....	0.19	0.45	0.08	4.87	1.51	Si III	1206.50	−0.25	0.4405
1751.01.....	0.07	1.53	0.11	17.32	1.99	Lyα	1215.67	−0.10	0.4405
1807.44.....	0.23	0.43	0.11	4.98	1.82	Lyα	1215.67	0.00	0.4868
1838.99.....	0.10	1.09	0.12	13.56	2.01	Al II, Bl	1670.79	−0.57	0.1010
1866.60.....	0.41	0.46	0.13	5.66	2.84	Lyα, Notes	1215.67	0.00	0.5355
1903.85.....	0.18	0.32	0.06	5.13	1.51	Lyα	1215.67	0.00	0.5661
1936.56.....	0.06	0.32	0.02	14.45	1.51	Lyα	1215.67	0.00	0.5930
2041.89.....	0.38	0.32	0.10	5.50	2.61	Al III	1854.72	−0.17	0.1010
2051.15.....	0.38	0.33	0.09	5.92	2.81	Al III	1862.79	0.20	0.1010
2075.57.....	0.54	0.42	0.11	8.14	4.32		...	...	...
2102.00.....	0.29	0.35	0.08	6.90	2.60		...	...	...
2179.07.....	0.15	0.26	0.04	5.69	1.50	C IV	1548.20	0.00	0.4075
2209.07.....	0.18	0.21	0.04	4.92	1.50	C IV	1548.20	0.10	0.4268
2229.91.....	0.06	0.72	0.05	18.07	1.91	C IV	1548.20	−0.20	0.4405
2233.84.....	0.11	0.42	0.05	10.37	1.85	C IV	1550.77	0.02	0.4405
2344.22.....	0.21	0.64	0.12	6.36	2.22	Fe II	2344.21	0.01	0.0000
2382.82.....	0.20	0.80	0.12	8.98	2.65	Fe II	2382.77	0.05	0.0000
2581.12.....	0.14	1.28	0.12	15.42	3.13	Fe II	2344.21	0.12	0.1010
2586.78.....	0.16	0.62	0.08	7.54	2.03	Fe II	2586.65	0.13	0.0000
2600.03.....	0.13	0.76	0.09	9.33	2.21	Fe II	2600.17	−0.14	0.0000
2623.52.....	0.09	1.40	0.10	18.45	2.61	Fe II	2382.77	0.07	0.1010
2796.21.....	0.09	1.30	0.10	15.54	2.41	Mg II	2796.35	−0.14	0.0000
2803.44.....	0.15	1.14	0.12	13.50	2.98	Mg II	2803.53	−0.09	0.0000
2847.88.....	0.12	0.99	0.11	11.14	2.37	Fe II	2586.65	−0.05	0.1010
2862.81.....	0.08	1.34	0.07	14.09	2.03	Fe II	2600.17	0.00	0.1010
2865.09.....	0.29	0.44	0.09	4.63	2.03	Notes	...	...	...
3079.14.....	0.08	2.61	0.12	29.15	3.58	Mg II	2796.35	0.33	0.1010
3086.59.....	0.14	1.28	0.18	14.24	2.03	Mg II	2803.53	−0.12	0.1010
3088.77.....	0.29	0.89	0.24	9.93	2.47	Notes	...	...	...
3141.10.....	0.21	0.53	0.09	5.81	2.04	Mg I	2852.96	−0.04	0.1010
2355.08.....	0.56	0.78	0.19	7.75	4.76	FF	...	...	...
HS 0624+6907 $z_{em} = 0.370$									
1200.44.....	0.34	1.55	0.43	7.10	2.55	N I	1199.97	0.47	0.0000
1260.22.....	0.09	1.33	0.15	12.48	1.69	Si II (S II)	1260.42	−0.20	0.0000
1282.30.....	0.14	0.78	0.14	8.57	1.65	Lyα	1215.67	0.00	0.0548
1292.64.....	0.15	1.02	0.18	10.14	1.87	Lyα	1215.67	0.00	0.0633
1329.03.....	0.14	0.52	0.11	6.59	1.42	Lyα	1215.67	0.00	0.0932
1334.35.....	0.08	0.70	0.07	8.67	1.10	C II	1334.53	−0.18	0.0000
1335.54.....	0.15	0.40	0.07	5.08	1.10	C* II	1335.71	−0.17	0.0000
1411.50.....	0.12	0.47	0.07	9.78	1.66	Lyα	1215.67	0.00	0.1611
1459.27.....	0.27	0.34	0.10	5.61	1.89	Lyα	1215.67	0.00	0.2004
1465.22.....	0.08	0.47	0.05	7.68	1.10	Lyα	1215.67	0.00	0.2053
1487.22.....	0.15	0.31	0.06	4.56	1.11	Lyα	1215.67	0.00	0.2234
1498.52.....	0.22	0.33	0.10	4.82	1.49	Lyα	1215.67	0.00	0.2327
1526.75.....	0.06	0.64	0.05	10.62	1.11	Si II	1526.71	0.04	0.0000
1548.10.....	0.32	0.34	0.10	5.93	2.23	C IV, Bl	1548.20	−0.10	0.0000
1556.31.....	0.08	0.56	0.06	8.61	1.11	Lyα	1215.67	0.00	0.2802
1575.08.....	0.12	0.31	0.05	5.59	1.11	Lyα	1215.67	0.00	0.2957
1657.04.....	0.15	0.36	0.06	8.09	1.83	Lyα	1215.67	0.00	0.3631
1670.85.....	0.05	0.77	0.03	18.06	1.39	Al II	1670.79	0.06	0.0000
1808.08.....	0.13	0.45	0.08	7.14	1.56	Si II	1808.01	0.07	0.0000
1979.33.....	0.25	0.43	0.09	7.49	2.42		...	...	...
2062.19.....	0.18	0.23	0.05	4.68	1.39	Zn II	2062.66	−0.47	0.0000
2260.66.....	0.18	0.19	0.05	4.93	1.46	Fe II	2260.78	−0.12	0.0000
2344.31.....	0.08	0.92	0.05	14.78	1.98	Fe II	2344.21	0.10	0.0000
2374.39.....	0.10	0.91	0.08	15.72	2.45	Fe II	2374.46	−0.07	0.0000

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2382.81.....	0.06	1.16	0.07	20.30	2.22	Fe II	2382.77	0.04	0.0000
2577.31.....	0.23	0.34	0.06	7.49	2.56	Mn II	2576.88	0.43	0.0000
2586.57.....	0.05	0.92	0.05	21.15	2.00	Fe II	2586.65	−0.08	0.0000
2594.88.....	0.17	0.28	0.04	6.98	1.97	Mn II	2594.50	0.38	0.0000
2600.08.....	0.04	1.03	0.04	26.48	2.12	Fe II	2600.17	−0.09	0.0000
2606.59.....	0.21	0.25	0.05	6.97	2.28	Mn II	2606.46	0.13	0.0000
2796.23.....	0.04	1.52	0.06	32.15	2.47	Mg II	2796.35	−0.12	0.0000
2803.42.....	0.04	1.38	0.06	29.44	2.20	Mg II	2803.53	−0.11	0.0000
2808.10.....	0.57	0.24	0.08	5.14	3.50	Mg II wing	2803.35	4.75	0.0000
2853.06.....	0.09	0.78	0.06	16.75	2.51	Mg I	2852.96	0.10	0.0000
1935.67.....	0.42	0.26	0.09	4.68	2.50	FF	...	...	...
PKS 0637−75 $z_{em} = 0.654$									
1670.38.....	0.51	0.95	0.27	7.00	3.67	Al II, Bl	1670.79	−0.41	0.0000
1709.04.....	0.80	1.78	0.61	23.29	4.80	Si III, Bl	1206.50	−0.33	0.4168
1711.67.....	0.07	1.35	0.53	17.67	2.07	Lyα	1215.67	0.00	0.4080
1722.30.....	0.14	1.71	0.17	17.07	3.04	Lyα	1215.67	−0.05	0.4168
1741.46.....	0.19	0.45	0.09	4.76	1.51	Lyα	1215.67	0.00	0.4325
1764.88.....	0.20	0.44	0.09	4.64	1.51	Lyα	1215.67	0.00	0.4518
1770.16.....	0.22	0.43	0.12	4.76	1.69	Lyα	1215.67	0.00	0.4561
1783.72.....	0.10	1.35	0.12	15.65	2.28	Lyα	1215.67	0.00	0.4673
1850.46.....	0.11	0.93	0.12	9.95	1.85	Lyα	1215.67	0.00	0.5222
1964.06.....	0.10	0.75	0.11	9.92	1.60	Lyα	1215.67	0.00	0.6156
1991.36.....	0.23	0.28	0.08	4.80	1.74	Lyα	1215.67	0.00	0.6381
2193.72.....	0.15	0.45	0.08	7.71	1.78	C IV	1548.20	0.24	0.4168
2343.64.....	0.28	1.39	0.22	10.55	3.69	Fe II, Bl	2344.21	0.60	0.0000
2373.87.....	0.69	1.20	0.30	8.93	5.80	Fe II, Bl	2374.46	−0.59	0.0000
2382.89.....	0.31	1.92	0.26	14.14	4.83	Fe II, Bl	2382.77	−0.12	0.0000
2586.46.....	0.29	1.08	0.16	11.54	4.12	Fe II, Bl	2586.65	−0.19	0.0000
2598.71.....	0.24	0.57	0.15	5.72	2.05	Fe II	2600.17	−0.16	0.0000
2601.17.....	0.22	0.71	0.11	7.06	2.03	Fe II	2600.17	1.00	0.0000
2794.61.....	0.20	0.98	0.17	8.67	2.03	Mg II	2796.35	−1.74	0.0000
2797.03.....	0.16	1.62	0.24	14.38	2.61	Mg II	2796.35	0.68	0.0000
2802.21.....	0.22	1.33	0.27	12.03	2.51	Mg II	2803.53	−1.32	0.0000
2804.52.....	0.20	1.10	0.20	9.91	2.03	Mg II	2803.53	0.99	0.0000
1959.47.....	0.37	1.00	0.18	12.68	4.38	FF	...	...	...
2505.75.....	0.77	0.66	0.22	5.52	4.67	FF	...	...	...
B2 0742+31 $z_{em} = 0.462$									
1600.84.....	0.37	11.64	3.19	5.74	2.75	Notes	...	...	...
1701.84.....	0.20	0.76	0.15	7.03	2.09	Lyα	1215.67	0.00	0.3999
2025.37.....	0.54	0.48	0.14	6.49	3.72	Zn II (Mg I)?	2026.14	−0.77	0.0000
2259.38.....	0.16	0.15	0.03	5.82	1.51		...	...	...
2344.35.....	0.19	0.61	0.11	6.40	2.09	Fe II	2344.21	0.14	0.0000
2383.11.....	0.29	0.57	0.13	6.13	2.66	Fe II	2382.77	0.34	0.0000
2586.53.....	0.22	0.69	0.12	7.81	2.60	Fe II	2586.65	−0.12	0.0000
2600.24.....	0.18	0.62	0.10	7.28	2.22	Fe II	2600.17	0.07	0.0000
2790.42.....	0.42	0.48	0.12	8.23	3.63	Mg II	2796.35	−5.93	0.0000
2796.34.....	0.15	1.70	0.13	26.92	4.38	Mg II	2796.35	−0.01	0.0000
2803.39.....	0.15	0.69	0.08	10.79	2.49	Mg II	2803.53	−0.14	0.0000
2852.65.....	0.29	0.41	0.10	5.17	2.31	Mg I	2852.96	−0.31	0.0000
PKS 0743−67 $z_{em} = 1.51$									
2227.75.....	0.11	2.39	0.17	21.81	3.47	Lyα	1215.67	0.20	0.8324
2232.79.....	0.16	0.68	0.09	6.96	2.03	Lyα, FF?	1215.67	0.00	0.8367
2249.83.....	0.26	0.46	0.12	4.75	2.08	Fe II	2249.88	−0.05	0.0000
2258.92.....	0.11	1.36	0.16	14.78	2.27	Lyα	1215.67	0.00	0.8582
2261.40.....	0.27	0.57	0.11	6.22	2.03	Fe II	2260.78	0.62	0.0000
2283.58.....	0.23	0.57	0.12	6.08	2.25	Lyγ	972.54	0.77	1.3473
2290.21.....	0.43	0.55	0.14	6.22	3.44	Lyα, Notes	1215.67	0.00	0.8839
2323.36.....	0.18	0.82	0.11	10.17	2.75	Lyβ	1025.72	−0.09	1.2652
2332.85.....	0.13	0.79	0.10	9.92	2.16	Lyα	1215.67	0.00	0.9190
2343.96.....	0.12	0.98	0.10	13.04	2.46	Fe II	2344.21	−0.25	0.0000
2354.29.....	0.20	0.46	0.07	6.18	2.04	Lyα, FF?	1215.67	0.00	0.9366
2362.73.....	0.17	0.83	0.10	10.84	2.80	Lyα	1215.67	0.00	0.9436
2374.37.....	0.19	0.56	0.10	7.47	2.33	Fe II	2374.46	−0.09	0.0000
2379.75.....	0.07	2.18	0.13	29.55	2.71	Lyα	1215.67	0.00	0.9576
2382.90.....	0.09	1.16	0.12	15.69	2.10	Fe II	2382.77	0.13	0.0000
2388.76.....	0.22	0.39	0.07	5.31	2.03	Lyβ	1025.72	−0.12	1.3290

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2404.07.....	0.16	0.53	0.06	7.58	2.03	Lyβ	1025.72	0.03	1.3438
2408.29.....	0.11	0.78	0.06	10.77	2.03	Lyβ	1025.72	0.65	1.3473
2417.25.....	0.19	0.45	0.07	6.31	2.04	Lyα	1215.67	0.00	0.9884
2426.09.....	0.23	0.38	0.07	5.40	2.03	Lyα	1215.67	0.00	0.9957
2432.11.....	0.69	1.86	0.51	25.55	5.37	Notes	...	...	...
2434.11.....	0.11	0.96	0.24	13.23	2.03	Lyα, Bl	1215.67	0.00	1.0023
2436.23.....	0.06	1.51	0.19	20.73	2.03	Lyα, Bl	1215.67	0.47	1.0036
2440.36.....	0.20	0.48	0.08	5.61	2.03	Lyβ	1025.72	−0.03	1.3792
2445.47.....	0.20	0.43	0.07	5.91	2.03	C II	1334.53	0.12	0.8324
2464.36.....	0.48	0.33	0.10	5.14	3.27	Lyα, Notes	1215.67	0.00	1.0272
2490.19.....	0.26	0.38	0.08	4.73	2.04	Lyβ	1025.72	0.36	1.4274
2504.18.....	0.06	1.30	0.07	19.90	2.24	Lyα	1215.67	0.00	1.0599
2510.39.....	0.04	1.82	0.07	28.42	2.34	Lyα	1215.67	0.24	1.0648
2514.53.....	0.12	0.61	0.06	9.28	2.03	Lyα	1215.67	0.00	1.0684
2524.70.....	0.10	0.91	0.08	14.55	2.34	N II	1083.99	0.11	1.3290
2537.76.....	0.32	0.49	0.10	8.02	3.37	Lyβ	1025.72	0.48	1.4737
2552.66.....	0.13	0.78	0.08	12.99	2.60	Lyα	1215.67	0.00	1.0998
2565.93.....	0.22	0.31	0.05	5.37	2.03	Lyα	1215.67	0.00	1.1107
2571.82.....	0.19	0.74	0.09	13.57	3.39	Lyα	1215.67	0.00	1.1156
2577.57.....	0.28	0.25	0.05	4.51	2.03	Mn II	2576.88	0.69	0.0000
2580.31.....	0.05	1.22	0.04	22.25	2.03	Lyα	1215.67	0.00	1.1225
2586.72.....	0.10	0.64	0.05	12.03	2.04	Fe II	2586.65	0.07	0.0000
2594.85.....	0.24	0.35	0.07	6.87	2.57	Mn II	2594.50	0.35	0.0000
2600.18.....	0.06	0.97	0.04	18.86	2.03	Fe II	2600.17	0.01	0.0000
2612.75.....	0.85	0.35	0.19	6.75	3.33	Lyα, Bl	1215.67	0.00	1.1492
2615.70.....	0.07	1.76	0.17	33.76	2.20	Lyα, Bl	1215.67	0.00	1.1516
2653.34.....	0.11	0.67	0.07	11.65	2.26	Lyα	1215.67	0.00	1.1826
2666.71.....	0.08	0.76	0.06	13.18	2.04	Fe II	1144.94	0.15	1.3290
2673.69.....	0.26	0.34	0.08	6.02	2.44	C II	1334.53	−0.23	1.0036
2692.38.....	0.08	0.98	0.05	15.76	2.04	Lyα	1215.67	0.00	1.2147
2725.34.....	0.22	0.54	0.09	9.63	2.82	Lyα	1215.67	0.00	1.2418
2734.18.....	0.41	0.28	0.08	5.03	2.88	C IV, p, Notes	1548.20	0.00	0.7660
2738.69.....	0.27	0.26	0.06	4.51	2.03	C IV, p, Notes	1550.77	0.03	0.7660
2753.78.....	0.06	1.61	0.08	28.22	2.90	Lyα	1215.67	0.06	1.2652
2765.78.....	0.13	0.72	0.08	12.43	2.56	Lyα	1215.67	0.00	1.2751
2791.99.....	0.06	2.28	0.09	37.76	3.45	Lyα	1215.67	0.00	1.2967
2796.42.....	0.05	1.40	0.07	23.13	2.19	Mg II	2796.35	0.07	0.0000
2803.75.....	0.04	1.38	0.06	24.06	2.09	Mg II	2803.53	0.22	0.0000
2827.21.....	0.23	0.31	0.06	5.19	2.03	Lyα	1215.67	0.00	1.3256
2830.92.....	0.06	1.05	0.05	17.47	2.03	Lyα	1215.67	−0.35	1.3290
2836.79.....	0.11	0.76	0.08	11.78	2.17	C IV	1548.20	−0.08	0.8324
2841.44.....	0.19	0.40	0.06	5.94	2.03	C IV	1550.77	−0.14	0.8324
2849.51.....	0.08	0.98	0.09	17.20	2.07	Lyα	1215.67	0.27	1.3438
2853.41.....	0.07	2.61	0.11	45.60	3.88	Lyα, (Mg I)	1215.67	−0.09	1.3473
2880.54.....	0.19	0.40	0.06	6.41	2.03	Lyα	1215.67	0.00	1.3695
2888.36.....	0.07	1.23	0.08	18.41	2.37	Lyα	1215.67	0.00	1.3759
2892.32.....	0.16	0.42	0.05	6.83	2.03	Lyα	1215.67	0.00	1.3792
2940.54.....	0.19	0.55	0.08	10.04	2.84	Lyα	1215.67	0.00	1.4189
2950.94.....	0.04	1.38	0.06	25.82	2.19	Lyα	1215.67	0.00	1.4274
2959.70.....	0.18	0.62	0.10	12.04	2.50	Lyα	1215.67	0.00	1.4346
2976.43.....	0.09	0.64	0.05	12.20	2.03	Lyα	1215.67	0.00	1.4484
2980.03.....	0.24	0.25	0.05	5.01	2.03	Lyα	1215.67	0.00	1.4514
3007.09.....	0.06	1.46	0.08	30.72	2.70	Lyα	1215.67	−0.06	1.4737
3010.75.....	0.21	0.43	0.08	9.03	2.50	Lyα	1215.67	0.00	1.4766
3031.25.....	0.15	0.34	0.04	8.05	2.04	Lyα	1215.67	0.00	1.4935
3045.95.....	0.16	0.25	0.03	7.62	2.04	Lyα	1215.67	0.00	1.5056
3102.02.....	0.07	2.05	0.08	44.97	3.99	C IV	1548.20	−0.01	1.0036
3107.32.....	0.05	1.15	0.06	25.29	2.35	C IV	1550.77	0.14	1.0036
3196.59.....	0.07	0.88	0.06	15.69	2.13	C IV	1548.20	−0.18	1.0648
3202.04.....	0.10	0.70	0.07	12.42	2.20	C IV	1550.77	−0.03	1.0648
2629.37.....	0.14	0.57	0.07	9.78	2.27	FF	...	...	...
2637.03.....	0.17	0.44	0.05	7.17	2.04	FF	...	...	...
3058.57.....	0.23	0.16	0.03	5.28	2.04	FF	...	...	...
OJ 287 (0851+20) $z_{em} = 0.306$									
1934.89.....	0.39	0.68	0.16	8.35	3.55	FF?	...	...	...
2344.21.....	0.35	0.49	0.14	4.71	2.47	Fe II	2344.21	0.00	0.0000
2374.54.....	0.23	0.55	0.10	5.22	2.04	Fe II	2374.46	0.08	0.0000
2382.74.....	0.21	0.65	0.13	6.29	2.23	Fe II	2382.77	−0.03	0.0000
2586.57.....	0.32	0.94	0.15	10.54	4.03	Fe II	2586.65	−0.08	0.0000

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2600.35.....	0.16	0.72	0.11	8.48	2.21	Fe II	2600.17	0.18	0.0000
2796.27.....	0.14	1.57	0.13	18.40	3.53	Mg II	2796.35	−0.08	0.0000
2803.37.....	0.09	1.15	0.10	13.38	2.19	Mg II	2803.53	−0.16	0.0000
2852.40.....	0.29	0.49	0.12	5.76	2.51	Mg I	2852.96	−0.56	0.0000
NGC 2841 UB3 (0916+51) $z_{em} = 0.553$									
1639.68.....	0.30	1.00	0.23	6.86	2.65	Lyα, Notes	1215.67	0.00	0.3488
1655.71.....	0.36	1.88	0.27	16.21	5.22	Lyα	1215.67	0.00	0.3620
1670.72.....	0.14	0.65	0.09	6.42	1.51	Al II	1670.79	−0.07	0.0000
1690.28.....	0.31	0.83	0.18	8.19	3.00	Lyα	1215.67	0.00	0.3904
1704.33.....	0.22	0.59	0.14	5.91	2.00	Lyα	1215.67	0.00	0.4020
1764.68.....	0.32	0.54	0.13	6.81	2.73	Lyα	1215.67	0.00	0.4516
1778.49.....	0.06	1.29	0.09	17.36	1.79	Lyα	1215.67	0.00	0.4630
1803.68.....	0.11	0.62	0.06	8.40	1.51	Lyα	1215.67	0.00	0.4837
1823.61.....	0.07	0.73	0.07	11.41	1.53	Si III	1206.50	−0.19	0.5116
1828.28.....	0.29	0.32	0.09	5.03	2.09	Lyα, Bl	1215.67	0.00	0.5039
1837.43.....	0.04	1.57	0.07	25.47	1.87	Lyα	1215.67	−0.22	0.5116
1841.99.....	0.10	0.58	0.07	9.99	1.63	Lyα	1215.67	0.00	0.5153
1856.68.....	0.21	0.26	0.07	4.61	1.59	Lyα	1215.67	0.00	0.5273
1889.18.....	0.11	0.32	0.04	8.20	1.51	Lyα	1215.67	0.00	0.5540
2017.07.....	0.13	0.41	0.05	7.17	1.51	C II	1334.53	−0.26	0.5116
2107.02.....	0.07	0.66	0.06	13.26	1.61	Si IV	1393.76	0.16	0.5116
2120.22.....	0.12	0.37	0.04	7.38	1.51	Si IV	1402.77	−0.26	0.5116
2340.67.....	0.10	1.24	0.12	13.42	2.30	C IV	1548.20	0.35	0.5116
2344.53.....	0.11	1.38	0.13	15.03	2.68	C IV, Bl	1550.77	0.33	0.5116
2374.76.....	0.22	0.64	0.11	8.43	2.71	Fe II	2374.46	0.30	0.0000
2382.66.....	0.11	0.86	0.06	11.40	2.04	Fe II	2382.77	−0.11	0.0000
2586.75.....	0.18	0.55	0.07	6.92	2.04	Fe II	2586.65	0.10	0.0000
2596.34.....	0.52	0.39	0.14	5.09	3.07	Notes	...	...	...
2600.16.....	0.12	1.00	0.12	12.74	2.23	Fe II	2600.17	−0.01	0.0000
2796.20.....	0.08	1.52	0.10	19.38	2.66	Mg II	2796.35	−0.15	0.0000
2803.31.....	0.08	1.43	0.09	18.23	2.43	Mg II	2803.53	−0.22	0.0000
2219.40.....	0.23	0.22	0.06	4.89	1.73	FF	...	...	...
2784.95.....	0.26	0.37	0.08	4.79	2.04	FF	...	...	...
PG 0935+416 $z_{em} = 1.937$									
2263.69.....	0.15	1.51	0.26	15.89	1.97	Lyλ	918.13	0.58	1.4649
2265.38.....	0.20	1.40	0.31	14.71	2.14	Lyκ, Bl	919.35	−0.74	1.4649
2270.05.....	0.09	0.87	0.06	11.46	1.97	Lyι	920.96	−0.03	1.4649
2275.57.....	0.06	1.27	0.08	16.40	2.03	Lyθ	923.15	0.09	1.4649
2282.95.....	0.12	1.13	0.16	15.17	2.03	Lyη	926.23	−0.13	1.4649
2285.76.....	0.42	0.46	0.17	6.12	2.49		...	...	...
2293.56.....	0.05	2.33	0.08	34.90	2.85	Lyζ, Bl	930.75	−0.66	1.4649
2304.00.....	0.22	0.45	0.09	6.50	1.97		...	...	...
2307.06.....	0.06	2.76	0.15	40.08	3.23	Lyγ	972.54	0.18	1.3720
2311.27.....	0.25	1.35	1.14	19.61	2.39	Lyϵ	937.80	−0.32	1.4649
2313.95.....	1.41	1.33	1.41	19.34	4.07		...	...	...
2317.90.....	0.15	1.20	0.37	17.44	2.17	C III	977.02	0.37	1.3720
2322.00.....	1.34	0.61	0.64	9.00	3.43		...	...	...
2324.72.....	0.37	0.92	0.55	13.42	2.33		...	...	...
2341.05.....	0.21	2.84	0.25	38.93	5.37	Lyδ, Bl	949.74	0.03	1.4649
2345.32.....	0.16	0.96	0.24	13.13	2.51		...	...	...
2348.85.....	0.10	1.35	0.12	18.55	2.57		...	...	...
2357.82.....	0.21	0.61	0.10	8.65	2.70		...	...	...
2367.70.....	0.16	0.52	0.06	7.64	1.98		...	...	...
2374.40.....	0.20	0.41	0.06	6.06	1.97	Fe II?	2374.46	−0.06	0.0000
2377.67.....	0.17	0.48	0.08	7.38	2.10		...	...	...
2382.58.....	0.06	1.13	0.07	17.85	2.11	Fe II, Notes	2382.77	−0.19	0.0000
2391.65.....	0.15	0.61	0.08	9.95	2.32		...	...	...
2397.21.....	0.12	2.24	0.21	36.98	2.97	Lyγ	972.54	−0.02	1.4649
2399.77.....	0.16	0.79	0.20	13.01	2.00		...	...	...
2402.91.....	0.12	0.59	0.05	9.88	1.97		...	...	...
2408.50.....	0.06	2.24	0.08	36.74	3.44	C III	977.02	0.22	1.4649
2418.96.....	0.15	0.56	0.06	9.36	1.97		...	...	...
2421.02.....	0.17	0.51	0.06	8.41	1.97		...	...	...
2433.45.....	0.07	4.94	0.17	68.73	5.10	Lyβ	1025.72	0.41	1.3720
2438.94.....	0.15	1.51	0.16	21.04	3.66	N III	989.80	−0.83	1.4649
2448.19.....	0.08	0.90	0.06	14.66	1.97		...	...	...
2454.07.....	0.10	3.21	0.14	52.59	5.80		...	...	...
2458.96.....	0.12	0.58	0.07	9.50	1.97	C II	1036.34	0.74	1.3720

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2464.58.....	0.17	0.86	0.09	15.02	3.30		...	...	...
2470.32.....	0.12	0.73	0.08	12.67	2.40		...	...	...
2489.01.....	0.07	2.42	0.09	36.75	3.91		...	...	...
2496.15.....	0.19	0.74	0.10	10.35	2.81		...	...	...
2503.00.....	0.15	0.43	0.05	7.12	1.97		...	...	...
2509.71.....	0.04	3.21	0.08	56.96	3.72	Lyα	1215.67	0.43	1.0641
2522.46.....	0.11	0.61	0.07	10.36	2.05		...	...	...
2528.42.....	0.09	2.46	0.17	44.01	3.07	Lyβ	1025.72	0.11	1.4649
2531.30.....	0.28	0.47	0.16	8.36	2.18		...	...	...
2543.90.....	0.39	0.57	0.14	10.07	3.44	O VI?	1031.93	0.26	1.4649
2546.90.....	0.30	0.30	0.10	5.17	1.97		...	...	...
2554.45.....	0.11	0.73	0.21	12.01	1.97	C II	1036.34	−0.03	1.4649
2556.53.....	0.50	0.88	0.26	14.55	3.50	O VI?, Bl	1037.62	−1.12	1.4649
2572.64.....	0.40	1.41	0.43	22.34	3.34		...	...	...
2576.07.....	0.24	2.69	0.46	42.42	3.65		...	...	...
2580.15.....	0.22	0.40	0.07	6.25	1.97		...	...	...
2586.08.....	0.20	0.30	0.09	4.87	1.97	Fe II?	2586.65	−0.56	0.0000
2588.63.....	0.11	4.68	0.17	75.27	6.11		...	...	...
2600.21.....	0.08	1.20	0.08	19.18	2.58	Fe II?	2600.17	0.04	0.0000
2606.90.....	0.14	0.51	0.05	8.70	1.98		...	...	...
2613.39.....	0.31	0.48	0.09	8.18	3.27		...	...	...
2622.77.....	0.11	0.57	0.05	10.43	1.98		...	...	...
2629.03.....	0.11	0.87	0.07	15.85	2.62		...	...	...
2637.17.....	0.04	2.85	0.07	50.83	3.41		...	...	...
2648.21.....	0.07	0.91	0.05	16.23	1.98		...	...	...
2669.65.....	0.09	0.98	0.07	18.06	1.97		...	...	...
2671.36.....	0.11	0.79	0.07	14.47	1.97	N II	1083.99	−0.58	1.4649
2691.97.....	0.47	0.30	0.09	5.20	3.26	N I?	1134.66	0.61	1.3720
2697.16.....	0.06	0.92	0.06	17.83	2.08		...	...	...
2711.97.....	0.61	0.31	0.10	6.40	4.09		...	...	...
2716.12.....	0.14	0.45	0.05	9.60	1.97	Fe II	1144.94	0.28	1.3720
2719.11.....	0.19	0.30	0.05	6.33	1.97		...	...	...
2730.54.....	0.06	1.44	0.08	30.98	2.44		...	...	...
2734.03.....	0.27	0.41	0.09	8.73	2.62		...	...	...
2738.90.....	0.05	2.22	0.11	46.56	2.70		...	...	...
2742.62.....	0.32	0.55	0.12	11.50	3.25		...	...	...
2748.48.....	0.11	0.68	0.07	14.46	2.41		...	...	...
2751.62.....	0.23	0.34	0.05	7.20	1.97		...	...	...
2754.42.....	0.10	0.67	0.07	14.22	2.22	C II?	1334.53	−0.20	1.0641
2783.93.....	0.07	1.05	0.13	20.77	1.97		...	...	...
2786.26.....	0.40	0.68	0.17	13.32	3.29		...	...	...
2795.42.....	0.04	2.21	0.06	44.96	3.03	Mg II	2796.35	−0.93	0.0000
2802.53.....	0.04	1.77	0.06	35.76	2.68	Mg II	2803.53	−1.00	0.0000
2810.16.....	0.12	0.46	0.05	9.17	1.97		...	...	...
2815.67.....	0.05	1.93	0.08	38.00	2.52		...	...	...
2819.30.....	0.16	0.73	0.09	14.42	2.76		...	...	...
2824.09.....	0.07	0.82	0.06	16.07	2.01	Si II (S III)	1190.42	0.39	1.3720
2831.06.....	0.12	0.78	0.08	14.96	1.97	Si II	1193.29	0.57	1.3720
2833.15.....	0.16	0.58	0.10	11.20	2.01		...	...	...
2841.34.....	0.21	0.32	0.05	5.61	1.97		...	...	...
2848.17.....	0.25	0.28	0.05	5.39	1.97		...	...	...
2853.14.....	0.12	0.48	0.06	8.93	1.97	Mg I	2852.96	0.18	0.0000
2862.34.....	0.05	1.30	0.07	24.81	2.25	Si III	1206.50	0.48	1.3720
2866.66.....	0.08	1.66	0.09	31.67	3.44		...	...	...
2883.05.....	0.10	20.41	0.23	389.95	9.18	Lyα	1215.67	−0.55	1.3720
2889.27.....	0.16	0.85	0.11	16.29	4.95		...	...	...
2905.31.....	0.07	0.94	0.08	18.31	1.96		...	...	...
2907.59.....	0.10	0.79	0.06	15.39	1.97		...	...	...
2923.54.....	0.17	0.36	0.05	7.43	1.97		...	...	...
2933.83.....	0.10	0.63	0.06	12.63	2.14	Si II (S III?)	1190.42	−0.45	1.4649
2941.21.....	0.07	0.85	0.06	17.41	2.15	Si II	1193.29	−0.13	1.4649
2958.25.....	0.07	0.81	0.04	16.39	1.98	N I	1199.97	0.43	1.4649
2973.71.....	0.04	1.94	0.06	40.88	2.67	Si III	1206.50	−0.22	1.4649
2976.86.....	0.10	0.60	0.05	12.55	1.97		...	...	...
2990.31.....	0.05	1.55	0.06	32.72	2.81	Si II	1260.42	0.57	1.3720
2996.94.....	0.03	4.84	0.07	102.44	4.94	Lyα	1215.67	0.42	1.4649
3014.24.....	0.29	0.22	0.06	4.55	2.14		...	...	...
3018.53.....	0.07	0.71	0.04	14.79	1.97		...	...	...
3029.98.....	0.21	0.33	0.07	6.85	1.97		...	...	...
3032.65.....	0.04	2.81	0.10	57.81	3.10		...	...	...
3044.28.....	0.28	0.23	0.05	4.61	1.97		...	...	...

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
3046.88.....	0.33	0.29	0.09	5.44	1.97		...	...	...
3049.31.....	0.06	2.35	0.12	43.76	2.84		...	...	...
3058.27.....	0.09	0.64	0.04	13.27	1.98		...	...	...
3069.05.....	0.05	1.28	0.04	25.22	1.98		...	...	...
3076.28.....	0.09	0.64	0.05	12.56	1.98		...	...	...
3088.83.....	0.11	2.48	0.16	45.52	4.63	O I	1302.17	0.06	1.3720
3094.05.....	0.11	1.40	0.39	25.78	3.14	Si II	1304.37	0.05	1.3720
3100.49.....	0.84	3.60	1.38	66.15	9.55		...	...	...
3103.24.....	0.20	0.41	0.17	7.59	1.97		...	...	...
3106.18.....	0.58	0.99	0.81	18.27	2.41	Si II	1260.42	−0.64	1.4649
3108.26.....	0.40	1.61	0.71	29.61	2.49		...	...	...
3127.79.....	0.10	0.59	0.06	11.17	2.07		...	...	...
3135.59.....	0.83	0.31	0.18	6.08	3.09		...	...	...
3138.58.....	0.07	1.79	0.17	35.13	2.28		...	...	...
3153.44.....	0.13	0.47	0.05	9.35	1.98		...	...	...
3166.10.....	0.05	1.05	0.04	20.65	1.97	C II	1334.53	0.56	1.3720
3169.71.....	0.24	0.28	0.05	5.44	1.97		...	...	...
3180.52.....	0.35	1.00	0.69	18.75	2.08		...	...	...
3182.35.....	0.92	0.91	0.70	16.98	2.70		...	...	...
3195.67.....	0.09	1.68	0.09	31.56	3.63	C IV	1548.20	0.00	1.0641
3200.59.....	0.12	1.03	0.09	19.34	2.93	C IV	1550.77	−0.38	1.0641
3209.53.....	0.15	0.42	0.05	7.50	1.97	O I	1302.17	−0.20	1.4649
3214.33.....	0.23	0.30	0.06	4.93	1.97	Si II	1304.37	−0.83	1.4649
3221.81.....	0.10	0.61	0.05	11.62	1.98		...	...	...
3236.37.....	0.03	2.08	0.05	40.62	2.42		...	...	...
3264.55.....	0.11	1.04	0.11	18.46	2.31		...	...	...
PG 0953+415 $z_{em} = 0.239$									
1190.37.....	0.14	1.47	0.23	10.72	1.94	Si II (S III)	1190.42	−0.05	0.0000
1193.26.....	0.14	0.93	0.19	7.16	1.47	Si II	1193.29	−0.03	0.0000
1200.06.....	0.19	0.98	0.19	8.02	1.99	N I	1199.97	0.09	0.0000
1206.73.....	0.10	0.70	0.09	6.67	1.11	Si III	1206.50	0.23	0.0000
1235.32.....	0.25	0.86	0.16	10.78	2.82	Lyα	1215.67	0.00	0.0162
1260.32.....	0.07	0.81	0.08	12.97	1.47	Si II (S II)	1260.42	−0.10	0.0000
1298.43.....	0.14	0.29	0.06	4.58	1.11	Lyα	1215.67	0.00	0.0681
1302.35.....	0.13	0.32	0.06	4.70	1.10	O I	1302.17	0.18	0.0000
1304.32.....	0.09	0.41	0.06	6.71	1.10	Si II	1304.37	−0.05	0.0000
1329.01.....	0.33	0.40	0.12	5.72	2.23	Lyα	1215.67	0.00	0.0932
1334.76.....	0.05	0.96	0.08	13.61	1.34	C II	1334.53	0.23	0.0000
1348.13.....	0.33	0.37	0.11	5.56	2.23	Lyα	1215.67	0.00	0.1090
1499.66.....	0.05	0.36	0.03	15.99	1.22	Lyα	1215.67	0.00	0.2336
1526.86.....	0.04	0.59	0.03	16.37	1.11	Si II	1526.71	0.16	0.0000
1548.55.....	0.14	0.36	0.06	8.19	1.60	C IV	1548.20	0.35	0.0000
1551.25.....	0.12	0.24	0.04	5.00	1.10	C IV	1550.77	0.48	0.0000
1670.85.....	0.15	0.58	0.09	5.93	1.51	Al II	1670.79	0.06	0.0000
2213.03.....	0.34	0.22	0.07	4.85	2.31	FF?	...	...	...
2344.25.....	0.09	0.79	0.06	12.08	2.03	Fe II	2344.21	0.04	0.0000
2374.36.....	0.17	0.49	0.08	6.99	2.09	Fe II	2374.46	−0.10	0.0000
2382.82.....	0.10	0.98	0.09	13.71	2.40	Fe II	2382.77	0.05	0.0000
2586.62.....	0.09	1.08	0.11	16.31	2.37	Fe II	2586.65	−0.03	0.0000
2593.18.....	0.41	0.84	0.14	13.02	5.32	Notes	...	...	...
2600.19.....	0.07	1.05	0.07	16.04	2.04	Fe II	2600.17	0.02	0.0000
2733.04.....	0.40	0.32	0.09	4.83	2.74		...	...	...
2796.33.....	0.07	1.39	0.08	20.98	2.45	Mg II	2796.35	−0.02	0.0000
2803.59.....	0.07	1.23	0.08	18.14	2.19	Mg II	2803.53	0.06	0.0000
2852.59.....	0.20	0.80	0.10	11.96	3.32	Mg I	2852.96	−0.37	0.0000
1639.68.....	0.19	0.66	0.12	4.93	1.51	FF	...	...	...
1936.08.....	0.30	0.22	0.07	4.56	1.98	FF	...	...	...
2028.11.....	0.19	0.32	0.07	5.67	1.69	FF	...	...	...
2315.33.....	0.36	0.75	0.13	9.82	4.20	FF	...	...	...
2580.53.....	0.85	0.56	0.21	8.54	5.55	FF	...	...	...
3201.23.....	0.57	0.50	0.13	7.37	4.61	FF	...	...	...
3C 232 (0955+32) $z_{em} = 0.533$									
1656.45.....	0.19	2.59	0.31	14.31	3.28	Lyα	1215.67	0.00	0.3626
1670.79.....	0.16	0.86	0.18	5.74	1.54	Al II	1670.79	0.00	0.0000
1679.32.....	0.16	1.26	0.21	7.93	2.08	Al II	1670.79	0.26	0.0050
1700.25.....	0.11	1.89	0.18	15.03	2.37	Lyα	1215.67	0.00	0.3986
1843.82.....	0.20	0.37	0.08	6.25	1.88	Lyα	1215.67	0.00	0.5167
1849.79.....	0.26	0.52	0.09	9.24	2.90	Lyα	1215.67	0.00	0.5216

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
1861.75.....	0.05	1.27	0.06	28.71	2.27	Lyα	1215.67	0.12	0.5314
1897.42.....	0.15	0.44	0.07	5.90	1.51	N v	1238.82	0.34	0.5314
2344.49.....	0.11	0.90	0.07	9.83	2.03	Fe II	2344.21	0.28	0.0000
2355.62.....	0.08	1.76	0.11	21.19	2.87	Fe II	2344.21	−0.20	0.0050
2370.50.....	0.15	0.81	0.10	10.44	2.49	C IV	1548.20	−0.35	0.5314
2374.69.....	0.10	1.12	0.10	14.27	2.45	Fe II (C IV)	2374.46	0.23	0.0000
2382.77.....	0.07	1.17	0.06	14.77	2.03	Fe II	2382.77	0.00	0.0000
2385.88.....	0.12	0.76	0.07	9.57	2.03	Fe II	2374.46	−0.34	0.0050
2394.72.....	0.07	2.02	0.10	25.36	2.93	Fe II	2382.77	0.15	0.0050
2586.47.....	0.17	0.93	0.12	10.81	2.82	Fe II	2586.65	−0.18	0.0000
2599.77.....	0.06	2.20	0.10	26.92	2.86	Fe II, Bl	2600.17	−0.40	0.0000
2613.04.....	0.05	1.88	0.09	23.90	2.47	Fe II	2600.17	−0.01	0.0050
2796.25.....	0.07	1.53	0.10	20.12	2.26	Mg II	2796.35	−0.10	0.0000
2803.51.....	0.07	1.38	0.09	17.89	2.28	Mg II	2803.53	−0.02	0.0000
2810.28.....	0.05	2.56	0.09	33.44	2.92	Mg II	2796.35	0.08	0.0050
2817.49.....	0.05	2.47	0.09	32.70	3.05	Mg II	2803.53	0.07	0.0050
2867.20.....	0.22	0.82	0.12	10.37	3.22	Mg I	2852.96	0.11	0.0050
3092.49.....	0.44	0.39	0.12	4.62	2.90		...	...	...
Mrk 132 (0958+55) $z_{em} = 1.754$									
2504.68.....	0.19	3.13	0.50	7.32	3.23	Notes	...	...	...
2512.17.....	0.18	1.28	0.23	5.61	2.20	Lyκ	919.35	−0.11	1.7327
2516.59.....	0.11	2.29	0.21	15.23	2.79	Lyι	920.96	−0.08	1.7327
2522.41.....	0.12	1.81	0.19	9.49	2.43	Lyθ	923.15	−0.25	1.7327
2531.01.....	0.13	2.42	0.21	14.87	3.14	Lyη	926.23	−0.06	1.7327
2543.03.....	0.09	1.72	0.20	10.58	1.96	Lyζ	930.75	−0.40	1.7327
2545.60.....	0.23	1.06	0.15	6.48	1.97		...	...	...
2548.91.....	0.44	0.93	0.28	5.62	3.16		...	...	...
2562.21.....	0.29	2.07	0.56	12.86	2.58	Lyε	937.80	−0.49	1.7327
2564.98.....	0.72	0.81	0.55	5.10	2.45	Lyα	1215.67	−0.27	1.1102
2581.54.....	0.62	0.85	0.31	5.03	3.67		...	...	...
2586.84.....	0.23	1.76	0.28	10.84	3.29	Fe II, Bl	2586.65	−0.21	0.0000
2595.03.....	0.14	4.83	0.29	32.63	5.71	Lyδ, Bl	949.74	0.00	1.7327
2600.32.....	0.15	1.03	0.12	7.03	1.97	Fe II	2600.17	0.15	0.0000
2622.30.....	0.41	0.95	0.23	6.44	3.52		...	...	...
2657.76.....	0.16	3.35	0.26	20.74	4.47	Lyγ, Bl	972.54	0.14	1.7327
2669.22.....	0.09	2.86	0.26	17.96	3.01	Lyα, Notes	1215.67	0.00	1.1957
2672.05.....	0.13	1.27	0.15	7.99	1.97		...	...	...
2682.99.....	0.09	2.01	0.17	13.35	2.41	C IV	1548.20	−0.10	0.7330
2688.10.....	0.10	2.03	0.19	13.43	2.53	C IV	1550.77	0.56	0.7330
2706.84.....	0.57	0.96	0.28	5.93	4.07		...	...	...
2721.79.....	0.13	1.21	0.17	7.24	1.99	Lyα	1215.67	0.00	1.2391
2752.54.....	0.22	2.54	0.27	15.34	4.32	Lyβ, Bl	1025.72	−0.69	1.6842
2762.82.....	0.14	1.19	0.20	6.29	2.09		...	...	...
2769.15.....	0.12	6.82	0.32	42.55	7.29		...	...	...
2787.07.....	0.16	1.96	0.22	12.02	3.14		...	...	...
2796.12.....	0.12	1.57	0.18	8.45	2.19	Mg II	2796.35	−0.23	0.0000
2803.54.....	0.10	6.20	0.26	39.15	6.12	Lyβ, Notes	1025.72	0.60	1.7327
2822.46.....	0.59	1.69	0.51	11.06	4.25		...	...	...
2826.37.....	0.14	2.56	0.44	16.77	2.77		...	...	...
2860.18.....	0.09	2.03	0.16	13.55	2.59	Lyα	1215.67	0.00	1.3528
2892.06.....	0.16	1.13	0.18	7.11	2.14	Lyα	1215.67	0.00	1.3790
2925.65.....	0.14	2.00	0.19	14.58	3.10	Lyα	1215.67	0.00	1.4066
3165.37.....	0.43	1.77	0.29	11.59	5.30	Lyα	1215.67	0.00	1.6038
3187.03.....	0.19	0.88	0.17	5.51	2.04	Lyα	1215.67	0.00	1.6216
3263.06.....	0.07	5.45	0.23	31.48	5.35	Lyα	1215.67	−0.03	1.6842
0959+68W1 $z_{em} = 0.773$									
1658.95.....	0.62	1.12	0.33	6.99	4.33	Notes	...	...	...
1695.24.....	0.14	0.66	0.09	6.00	1.50	Lyα	1215.67	0.00	0.3945
1716.36.....	0.15	0.80	0.13	8.62	1.95	Lyα	1215.67	0.00	0.4119
1744.25.....	0.14	0.55	0.08	6.68	1.51	Lyα	1215.67	0.00	0.4348
1771.15.....	0.40	0.46	0.14	5.54	2.78	Lyα, Notes	1215.67	0.00	0.4569
1809.56.....	0.61	0.43	0.14	6.00	3.81	Lyβ (FF)	1025.72	−0.72	0.7649
1816.51.....	0.15	0.40	0.06	5.90	1.50	Lyα	1215.67	0.00	0.4942
1821.18.....	0.17	0.46	0.09	6.89	1.79	Lyα	1215.67	0.00	0.4981
1828.87.....	0.18	0.33	0.06	4.69	1.50	Lyα	1215.67	0.00	0.5044
1832.33.....	0.07	0.89	0.08	13.09	1.60	Lyα	1215.67	0.00	0.5073
1859.55.....	0.18	0.54	0.11	6.62	1.90	Lyα	1215.67	0.00	0.5297
1937.82.....	0.17	0.61	0.10	8.73	2.17	Lyα	1215.67	0.00	0.5940

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
1957.77.....	0.12	0.83	0.11	10.00	1.93	Lyα	1215.67	0.00	0.6104
1967.08.....	0.09	1.17	0.11	14.91	1.98	Lyα	1215.67	0.00	0.6181
1970.07.....	0.18	0.45	0.11	5.68	1.65	Lyα	1215.67	0.00	0.6206
1988.59.....	0.31	0.41	0.11	5.67	2.40	Lyα	1215.67	0.00	0.6358
2014.88.....	0.09	0.93	0.09	12.92	1.97	Lyα	1215.67	0.00	0.6574
2077.50.....	0.13	0.44	0.07	8.32	1.78	Lyα	1215.67	0.00	0.7089
2100.46.....	0.08	0.54	0.04	11.78	1.51	Lyα	1215.67	0.00	0.7278
2133.06.....	0.07	0.51	0.03	12.96	1.51	Lyα	1215.67	0.00	0.7546
2145.86.....	0.04	0.87	0.04	24.71	1.69	Lyα	1215.67	0.34	0.7649
2150.43.....	0.16	0.26	0.05	6.79	1.71	Lyα	1215.67	0.00	0.7689
2344.15.....	0.18	1.03	0.15	9.52	2.67	Fe II	2344.21	−0.06	0.0000
2374.52.....	0.18	0.74	0.13	7.18	2.18	Fe II	2374.46	0.06	0.0000
2382.63.....	0.11	1.19	0.12	11.45	2.31	Fe II	2382.77	−0.14	0.0000
2509.40.....	0.54	0.54	0.15	6.32	3.96		...	...	...
2586.35.....	0.19	1.01	0.13	11.08	2.98	Fe II	2586.65	−0.30	0.0000
2600.14.....	0.11	1.19	0.11	13.47	2.50	Fe II	2600.17	−0.03	0.0000
2796.02.....	0.05	1.68	0.09	21.36	2.23	Mg II	2796.35	−0.33	0.0000
2803.22.....	0.07	1.28	0.09	15.87	2.11	Mg II	2803.53	−0.31	0.0000
2853.14.....	0.21	0.45	0.07	5.80	2.04	Mg I	2852.96	0.18	0.0000
TON 28 (1001+29) $z_{em} = 0.329$									
1190.48.....	0.15	0.62	0.17	4.73	1.14	Si II (S III)	1190.42	0.06	0.0000
1200.10.....	0.10	1.00	0.14	9.05	1.46	N I	1199.97	0.13	0.0000
1206.48.....	0.08	0.79	0.08	8.50	1.11	Si III	1206.50	−0.02	0.0000
1220.21.....	0.14	0.43	0.09	4.66	1.11	Lyα	1215.67	0.00	0.0037
1234.52.....	0.13	0.35	0.06	5.15	1.11	Lyα	1215.67	0.00	0.0155
1260.22.....	0.07	1.09	0.09	18.52	1.79	Si II (S II)	1260.42	−0.20	0.0000
1302.21.....	0.08	0.70	0.08	14.68	1.65	O I	1302.17	0.04	0.0000
1304.35.....	0.06	0.57	0.07	11.95	1.17	Si II	1304.37	0.02	0.0000
1324.98.....	0.13	0.28	0.05	5.27	1.11	Lyα	1215.67	0.00	0.0898
1334.69.....	0.05	0.96	0.07	18.54	1.54	C II	1334.53	0.16	0.0000
1354.01.....	0.11	0.27	0.05	6.58	1.18	Lyα	1215.67	0.00	0.1138
1372.82.....	0.14	0.31	0.06	7.92	1.55	Lyα	1215.67	0.00	0.1293
1378.18.....	0.13	0.22	0.04	5.02	1.11	Lyα	1215.67	0.00	0.1337
1383.00.....	0.04	0.79	0.05	17.14	1.23	Lyα	1215.67	0.00	0.1376
1393.90.....	0.11	0.29	0.05	6.09	1.11	Si IV	1393.76	0.14	0.0000
1474.20.....	0.13	0.32	0.11	7.45	1.10	Lyα	1215.67	0.00	0.2127
1475.56.....	0.27	0.41	0.14	9.38	1.75	Lyα	1215.67	0.00	0.2138
1495.50.....	0.08	0.39	0.04	9.34	1.10	Lyα	1215.67	0.00	0.2302
1496.83.....	0.14	0.22	0.04	5.20	1.10	Lyα	1215.67	0.00	0.2313
1526.74.....	0.05	0.48	0.05	11.57	1.12	Si II	1526.71	0.04	0.0000
1548.48.....	0.05	0.66	0.05	16.69	1.40	Lyα (C IV)	1215.67	0.00	0.2738
1670.76.....	0.12	0.62	0.07	7.36	1.51	Al II	1670.79	−0.03	0.0000
2344.27.....	0.10	0.88	0.09	11.57	2.03	Fe II	2344.21	0.06	0.0000
2374.42.....	0.19	0.51	0.07	6.45	2.04	Fe II	2374.46	−0.04	0.0000
2382.77.....	0.12	0.79	0.07	10.01	2.04	Fe II	2382.77	0.00	0.0000
2586.66.....	0.11	0.75	0.06	10.76	2.04	Fe II	2586.65	0.01	0.0000
2600.06.....	0.10	0.78	0.08	11.49	2.08	Fe II	2600.17	−0.11	0.0000
2796.36.....	0.07	1.13	0.08	16.26	2.07	Mg II	2796.35	0.01	0.0000
2803.46.....	0.08	1.02	0.06	14.86	2.04	Mg II	2803.53	−0.07	0.0000
2852.72.....	0.24	0.36	0.07	5.04	2.04	Mg I	2852.96	−0.24	0.0000
1958.91.....	0.29	0.33	0.09	5.44	2.22	FF	...	...	...
2352.62.....	0.50	0.42	0.13	5.15	3.37	FF	...	...	...
4C 41.21 (1007+41) $z_{em} = 0.613$									
1633.18.....	0.31	0.78	0.21	5.80	2.32	Lyα	1215.67	0.00	0.3434
1657.48.....	0.31	0.62	0.14	8.70	3.00	Lyα, p	1215.67	0.00	0.3634
1660.49.....	0.18	0.36	0.08	5.42	1.50	Lyα, p	1215.67	0.00	0.3659
1670.58.....	0.07	0.70	0.07	11.88	1.57	Al II	1670.79	−0.21	0.0000
1677.53.....	0.19	0.32	0.06	4.91	1.51	Si III	1206.50	0.22	0.3902
1688.30.....	0.26	0.84	0.25	13.05	1.94	Lyα	1215.67	0.00	0.3888
1690.27.....	0.13	1.40	0.25	21.69	1.80	Lyα	1215.67	0.22	0.3902
1699.25.....	0.07	1.17	0.09	17.82	2.05	Lyα	1215.67	0.00	0.3978
1703.51.....	0.05	1.61	0.08	25.29	2.12	Lyα	1215.67	0.02	0.4013
1803.58.....	0.06	0.87	0.05	14.77	1.51	Lyα	1215.67	0.00	0.4836

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
1820.85.....	0.19	0.27	0.05	4.73	1.51	Lyα	1215.67	0.00	0.4978
1837.62.....	0.19	0.28	0.05	5.04	1.50	Lyα	1215.67	0.00	0.5116
1866.08.....	0.14	0.68	0.09	12.14	2.39	Lyα	1215.67	0.00	0.5350
1870.99.....	0.26	0.51	0.09	9.85	3.03	Lyα	1215.67	0.00	0.5391
1879.30.....	0.29	0.31	0.08	5.66	2.24	Lyα	1215.67	0.00	0.5459
1898.91.....	0.14	0.32	0.05	6.25	1.51	Lyα	1215.67	0.00	0.5620
1910.24.....	0.19	0.38	0.07	8.50	2.20	Lyα	1215.67	0.06	0.5714
1915.18.....	0.27	0.30	0.07	6.92	2.49	Lyα	1215.67	0.00	0.5754
1925.71.....	0.07	0.45	0.03	12.51	1.51	Lyα	1215.67	0.00	0.5841
1948.27.....	0.16	0.15	0.03	5.69	1.51	Lyα (FF?)	1215.67	0.00	0.6026
1980.83.....	0.24	0.27	0.05	8.77	2.62	Si II	1260.42	−0.21	0.5714
2152.26.....	0.12	0.30	0.04	7.58	1.50	C IV	1548.20	−0.09	0.3902
2155.70.....	0.19	0.18	0.04	4.77	1.50	C IV	1550.77	−0.21	0.3902
2169.57.....	0.09	0.38	0.03	10.27	1.50	C IV	1548.20	0.13	0.4013
2173.00.....	0.19	0.34	0.06	9.52	2.35	C IV	1550.77	−0.05	0.4013
2282.48.....	0.18	0.16	0.03	5.12	1.51		...	...	...
2344.25.....	0.13	1.11	0.10	14.45	2.91	Fe II	2344.21	0.04	0.0000
2374.54.....	0.22	0.94	0.12	13.09	3.70	Fe II	2374.46	0.08	0.0000
2382.64.....	0.09	1.14	0.08	16.52	2.38	Fe II	2382.77	−0.13	0.0000
2586.75.....	0.11	0.64	0.07	10.90	2.14	Fe II	2586.65	0.10	0.0000
2600.09.....	0.08	1.12	0.07	19.50	2.52	Fe II	2600.17	−0.08	0.0000
2795.91.....	0.11	1.08	0.10	17.27	2.03	Mg II	2796.35	−0.44	0.0000
2797.56.....	0.30	0.42	0.10	6.74	2.03	Mg II wing	2796.35	1.21	0.0000
2803.43.....	0.06	1.21	0.07	18.45	2.24	Mg II	2803.53	−0.10	0.0000
2852.95.....	0.22	0.51	0.09	7.83	2.53	Mg I	2852.96	−0.01	0.0000
3023.73.....	0.23	0.42	0.09	6.53	2.36		...	...	...
1937.26.....	0.09	0.29	0.03	9.89	1.51	FF	...	...	...
1958.90.....	0.14	0.13	0.02	6.29	1.51	FF	...	...	...
2235.25.....	0.30	0.25	0.05	7.99	2.87	FF	...	...	...
2318.41.....	0.38	0.41	0.11	5.40	2.86	FF	...	...	...
2353.34.....	0.44	0.39	0.12	5.11	3.05	FF	...	...	...
PG 1008+133 $z_{em} = 1.287$									
2228.00.....	0.20	1.36	0.19	8.39	3.05	Lyα	1215.67	0.00	0.8327
2240.22.....	0.27	0.41	0.09	4.56	2.04	Lyβ	1025.72	0.17	1.1839
2260.82.....	0.59	0.44	0.15	4.84	3.56	Fe II	2260.78	0.04	0.0000
2272.89.....	0.26	1.49	0.17	16.76	4.85	Lyα	1215.67	0.00	0.8697
2293.82.....	0.25	0.67	0.14	7.71	2.62	C IV, p	1548.20	0.10	0.4815
2297.91.....	0.22	0.85	0.14	9.63	2.78	C IV, p	1550.77	0.38	0.4815
2303.02.....	0.16	0.79	0.11	9.17	2.37	Lyα	1215.67	0.00	0.8944
2313.95.....	0.05	3.93	0.12	45.33	4.23	Lyα	1215.67	0.00	0.9034
2325.71.....	0.13	0.79	0.07	9.67	2.04	Lyβ	1025.72	0.02	1.2674
2344.17.....	0.09	1.06	0.09	13.81	2.18	Fe II	2344.21	−0.04	0.0000
2364.08.....	0.16	0.91	0.10	11.66	2.80	Lyα	1215.67	0.00	0.9447
2374.39.....	0.15	0.65	0.07	8.06	2.04	Fe II	2374.46	−0.07	0.0000
2382.50.....	0.06	1.40	0.09	17.49	2.23	Fe II (Lyα?)	2382.77	0.27	0.0000
2395.14.....	0.14	0.65	0.09	8.38	2.05	Lyα	1215.67	0.00	0.9702
2400.63.....	0.14	0.81	0.10	10.70	2.43	Lyα	1215.67	0.00	0.9747
2419.67.....	0.14	0.87	0.11	12.08	2.54	Lyα	1215.67	0.00	0.9904
2441.87.....	0.21	0.81	0.12	9.90	2.93	Lyα	1215.67	0.00	1.0087
2477.89.....	0.16	0.54	0.09	7.34	2.12	Lyα	1215.67	0.00	1.0383
2516.34.....	0.06	1.81	0.08	25.59	2.68	Lyα	1215.67	0.00	1.0699
2536.72.....	0.09	1.09	0.08	15.60	2.34	C IV, p	1548.20	−0.27	0.6387
2541.49.....	0.12	0.81	0.09	12.05	2.34	C IV, p	1550.77	0.29	0.6387
2586.73.....	0.14	0.73	0.07	9.74	2.03	Fe II	2586.65	0.08	0.0000
2588.84.....	0.23	0.47	0.08	6.24	2.03	Lyα	1215.67	0.00	1.1296
2600.33.....	0.09	1.07	0.09	15.26	2.35	Fe II	2600.17	0.16	0.0000
2605.06.....	0.19	0.89	0.11	12.90	3.30	Lyα	1215.67	0.00	1.1429
2624.22.....	0.84	2.05	2.78	29.81	2.67	Lyα, Bl	1215.67	0.00	1.1590
2625.99.....	2.84	1.10	2.78	16.07	3.03	Lyα, Bl	1215.67	0.00	1.1601
2654.30.....	0.22	0.49	0.09	7.67	2.53	Lyα	1215.67	−0.58	1.1839
2670.95.....	0.26	0.80	0.11	12.62	3.99	Lyα	1215.67	0.00	1.1971
2680.11.....	0.12	0.69	0.08	10.85	2.26	Lyα	1215.67	0.00	1.2046
2690.60.....	0.19	0.48	0.07	7.19	2.03	Lyα	1215.67	0.00	1.2133
2705.84.....	0.22	0.35	0.06	5.85	2.03	Lyα	1215.67	0.00	1.2258
2709.49.....	0.12	0.80	0.08	13.37	2.57	Lyα	1215.67	0.00	1.2288
2719.71.....	0.14	0.58	0.07	10.10	2.31	Lyα	1215.67	0.00	1.2372
2725.27.....	0.15	0.47	0.05	7.86	2.03	Lyα	1215.67	0.00	1.2418
2740.15.....	0.05	1.60	0.06	28.14	2.42	C IV, p	1548.20	−0.15	0.7700

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2745.00.....	0.06	1.07	0.06	18.67	2.17	C IV, p	1550.77	0.16	0.7700
2756.34.....	0.16	0.86	0.08	16.05	3.45	Lyα	1215.67	−0.03	1.2674
2785.93.....	0.12	0.70	0.07	13.28	2.44	Lyα	1215.67	0.00	1.2917
2796.27.....	0.05	1.32	0.06	24.92	2.29	Mg II	2796.35	−0.08	0.0000
2803.48.....	0.07	1.17	0.13	22.71	2.03	Mg II	2803.53	−0.05	0.0000
2805.94.....	0.46	0.57	0.17	11.02	3.33		...	...	...
TON 34 (1017+27) $z_{em} = 1.924$									
2301.90.....	0.16	1.68	0.29	6.15	2.07	Lyα	1215.67	0.10	0.8934
2305.17.....	0.20	1.54	0.18	6.39	1.97		...	...	...
2335.61.....	0.22	1.65	0.36	5.68	2.11		...	...	...
2382.60.....	0.25	1.37	0.30	5.93	2.43	Fe II?	2382.77	−0.17	0.0000
2408.36.....	0.23	1.14	0.22	6.86	2.37		...	...	...
2427.21.....	0.17	1.14	0.13	6.98	1.97	Lyα	1215.67	−0.27	0.9968
2429.88.....	0.25	0.78	0.15	4.71	1.97		...	...	...
2441.35.....	0.22	0.94	0.15	5.25	1.97		...	...	...
2446.61.....	0.13	1.40	0.18	9.43	2.15		...	...	...
2467.33.....	0.30	0.90	0.20	6.38	2.72	Lyγ	972.54	−0.29	1.5373
2477.41.....	0.15	1.12	0.12	8.08	1.98	Lyδ	949.74	0.21	1.6083
2493.06.....	0.20	1.08	0.16	5.96	1.98		...	...	...
2508.29.....	0.40	0.69	0.22	4.58	2.59	Lyδ	949.74	−0.95	1.6420
2514.26.....	0.21	2.39	0.25	16.19	4.31		...	...	...
2523.53.....	0.22	0.84	0.18	5.63	2.09	Lyγ	972.54	−0.01	1.5948
2536.52.....	0.12	1.73	0.18	11.16	2.52	Lyγ	972.54	−0.15	1.6083
2548.37.....	0.20	0.91	0.13	6.00	1.98	C III	977.02	−0.01	1.6083
2564.64.....	0.25	0.78	0.19	5.23	2.11		...	...	...
2600.76.....	0.22	1.03	0.42	6.46	1.97	Fe II?, Bl	2600.17	0.59	0.0000
2602.97.....	0.35	2.34	0.54	14.68	3.30	Lyβ	1025.72	0.41	1.5373
2626.56.....	0.21	1.47	0.21	9.46	3.10		...	...	...
2650.92.....	0.24	0.67	0.17	4.88	2.02		...	...	...
2657.71.....	0.19	0.79	0.12	5.49	1.97	Lyδ	949.74	−0.13	1.7985
2661.55.....	0.17	0.89	0.12	6.63	1.97	Lyβ, Bl	1025.72	0.02	1.5948
2675.35.....	0.10	1.97	0.16	14.33	2.55	Lyβ	1025.72	−0.03	1.6083
2691.32.....	0.19	0.90	0.12	6.14	1.98		...	...	...
2709.82.....	0.18	0.84	0.11	6.75	1.98	Lyβ	1025.72	−0.16	1.6420
2721.92.....	0.16	1.26	0.16	10.74	2.64	Lyγ	972.54	0.27	1.7985
2734.03.....	0.18	1.01	0.15	8.56	2.44	C III	977.02	−0.17	1.7985
2754.71.....	0.09	2.91	0.16	25.31	3.71	Lyα	1215.67	0.00	1.2660
2770.08.....	0.09	1.37	0.12	11.94	2.14	Si II (N III)	989.87	−0.06	1.7985
2796.30.....	0.14	1.08	0.09	8.38	1.98	Mg II	2796.35	−0.05	0.0000
2803.26.....	0.12	1.13	0.13	8.93	2.08	Mg II	2803.53	−0.27	0.0000
2838.09.....	0.22	1.03	0.17	8.62	2.83		...	...	...
2843.91.....	0.09	1.43	0.13	13.15	2.18	Lyα	1215.67	0.00	1.3394
2852.94.....	0.21	0.61	0.13	5.98	2.06	Mg I	2852.96	−0.02	0.0000
2868.58.....	0.16	1.14	0.14	10.22	1.97		...	...	...
2870.78.....	0.12	1.39	0.20	12.44	2.11	Lyβ	1025.72	0.32	1.7985
2880.19.....	0.07	1.74	0.11	16.05	2.34		...	...	...
2887.96.....	0.16	0.83	0.10	7.40	1.98	O VI	1031.93	0.07	1.7985
2903.13.....	0.66	0.93	0.31	9.47	4.16	O VI	1037.62	−0.65	1.7985
2906.54.....	0.11	1.25	0.26	12.38	1.98		...	...	...
2922.38.....	0.25	0.47	0.09	4.60	1.97		...	...	...
2925.51.....	0.23	0.53	0.09	5.24	1.97		...	...	...
2931.42.....	0.09	1.18	0.11	11.48	2.00	C IV	1548.20	0.00	0.8934
2936.18.....	0.10	1.11	0.11	10.93	2.02	C IV	1550.77	−0.11	0.8934
2963.62.....	0.18	0.70	0.12	7.22	2.14		...	...	...
2972.70.....	0.10	1.51	0.12	14.78	2.63		...	...	...
2978.04.....	0.06	1.49	0.10	15.59	2.04		...	...	...
2983.11.....	0.15	0.67	0.08	7.44	1.97		...	...	...
2990.31.....	0.26	0.44	0.11	5.02	2.13		...	...	...
2998.31.....	0.21	0.46	0.08	5.64	1.98		...	...	...
3048.10.....	0.29	0.81	0.14	8.74	3.33		...	...	...
3079.03.....	0.25	0.43	0.09	4.85	1.98		...	...	...
3084.42.....	0.04	3.19	0.12	35.26	3.16	Lyα	1215.67	−0.09	1.5373
3087.95.....	0.14	0.79	0.08	8.70	1.97		...	...	...
3091.60.....	0.14	0.72	0.08	7.98	1.97	C IV	1548.20	0.12	0.9968
3096.83.....	0.16	0.62	0.08	7.02	1.97	C IV	1550.77	0.21	0.9968
3134.31.....	0.11	0.94	0.07	10.45	1.98		...	...	...
3141.67.....	0.08	1.22	0.10	13.38	2.06	Fe III	1122.53	0.28	1.7985
3146.81.....	0.24	0.44	0.08	5.02	1.98	Si III	1206.50	−0.12	1.6083
3154.54.....	0.05	1.88	0.10	21.27	2.30	Lyα	1215.67	0.13	1.5948

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
3164.66.....	0.34	0.65	0.14	7.08	3.18		...	...	...
3171.09.....	0.05	2.39	0.10	25.51	2.56	Lyα	1215.67	0.26	1.6083
3211.84.....	0.10	1.22	0.08	11.30	1.98	Lyα	1215.67	0.00	1.6420
3230.98.....	0.18	0.66	0.09	6.69	1.98		...	...	...
3251.25.....	0.24	0.48	0.09	4.86	1.98	Lyα	1215.67	0.00	1.6744
4C 06.41 (1038+06) $z_{em} = 1.270$									
2229.15.....	0.22	0.78	0.19	8.30	1.97	Lyα	1215.67	0.00	0.8337
2231.52.....	0.29	1.13	0.26	12.04	2.87	C IV, p, Notes	1548.20	−0.22	0.4415
2235.64.....	0.16	0.64	0.08	7.54	1.97	C IV, p, Notes	1550.77	0.20	0.4415
2284.62.....	0.16	0.77	0.11	9.06	2.38	Lyβ (Lyα?)	1025.72	−0.41	1.2277
2299.43.....	0.60	0.97	0.50	12.35	2.63	Lyα, Bl	1215.67	0.00	0.8915
2301.80.....	0.32	1.40	0.50	17.90	2.38	Lyα, Bl	1215.67	0.00	0.8934
2310.89.....	0.09	0.88	0.06	12.18	1.97	C IV, p	1548.20	−0.34	0.4928
2315.40.....	0.28	0.79	0.12	10.72	3.65	C IV, p, (FF)	1550.77	0.33	0.4928
2344.13.....	0.10	0.82	0.08	12.07	2.19	Fe II	2344.21	−0.08	0.0000
2356.81.....	0.06	1.48	0.08	21.59	2.32	Lyα	1215.67	0.00	0.9387
2373.95.....	0.18	0.49	0.07	6.68	1.98	Fe II	2374.46	−0.51	0.0000
2382.92.....	0.08	1.01	0.06	13.29	1.97	Fe II	2382.77	0.15	0.0000
2389.04.....	0.15	1.32	0.12	17.29	3.56	Lyα	1215.67	0.00	0.9652
2399.43.....	0.10	0.75	0.06	10.52	1.97	C IV, p	1548.20	0.24	0.5497
2402.91.....	0.22	0.38	0.07	5.36	1.97	C IV, p	1550.77	−0.26	0.5497
2426.20.....	0.23	0.52	0.10	7.49	2.52	Lyα	1215.67	0.00	0.9958
2434.24.....	0.11	1.16	0.11	14.62	2.47	Lyα	1215.67	0.00	1.0024
2438.29.....	0.24	0.37	0.09	4.85	2.00	Lyα	1215.67	0.00	1.0057
2476.52.....	0.19	0.49	0.09	7.30	2.24	Lyα	1215.67	0.00	1.0372
2491.22.....	0.18	0.60	0.10	7.06	2.12	C IV, p	1548.20	−0.24	0.6093
2495.82.....	0.37	0.43	0.12	5.17	2.64	C IV, p	1550.77	0.22	0.6093
2535.77.....	0.22	0.36	0.06	5.41	1.98	Lyα	1215.67	0.00	1.0859
2550.01.....	0.09	0.84	0.06	12.48	1.98	Lyα	1215.67	0.00	1.0976
2556.82.....	0.18	0.46	0.06	6.95	1.97	Lyα, p	1215.67	0.00	1.1032
2561.89.....	0.63	0.40	0.12	6.19	4.29	Lyα, p	1215.67	0.00	1.1074
2586.77.....	0.08	1.27	0.11	18.68	2.21	Fe II	2586.65	0.13	0.0000
2593.21.....	0.11	0.85	0.08	12.78	2.35	Lyα	1215.67	0.00	1.1332
2600.08.....	0.06	1.19	0.07	18.46	2.16	Fe II	2600.17	−0.09	0.0000
2617.79.....	0.06	1.39	0.07	22.47	2.30	Lyα	1215.67	0.00	1.1534
2642.34.....	0.30	0.35	0.09	5.35	2.40	Lyα	1215.67	0.00	1.1736
2652.43.....	0.15	0.70	0.08	11.83	2.64	Lyα	1215.67	0.00	1.1819
2658.78.....	0.24	0.29	0.06	4.92	1.98	Lyα	1215.67	0.00	1.1871
2705.29.....	0.26	1.21	0.15	22.94	4.44	Lyα	1215.67	0.00	1.2253
2708.31.....	0.05	1.09	0.10	20.71	1.97	Lyα	1215.67	0.12	1.2277
2729.45.....	0.04	1.65	0.05	35.45	2.39	Lyα	1215.67	0.00	1.2452
2741.68.....	0.29	0.57	0.08	13.04	4.28	Lyα	1215.67	0.00	1.2553
2796.47.....	0.04	1.51	0.05	30.12	2.16	Mg II	2796.35	0.11	0.0000
2803.55.....	0.04	1.41	0.05	28.14	2.16	Mg II	2803.53	0.02	0.0000
2852.83.....	0.19	0.44	0.08	7.55	2.25	Mg I	2852.96	−0.13	0.0000
PG 1049−005 $z_{em} = 0.357$									
1640.33.....	0.22	0.79	0.13	9.57	2.76	Lyα	1215.67	0.00	0.3493
1670.74.....	0.14	0.60	0.09	8.32	1.88	Al II	1670.79	−0.05	0.0000
2025.67.....	0.20	0.45	0.10	6.31	1.88	Zn II (Mg I)	2026.14	−0.47	0.0000
2062.24.....	0.22	0.48	0.09	8.32	2.43	Zn II	2062.66	−0.42	0.0000
2076.66.....	0.13	0.38	0.06	7.94	1.73	C IV	1548.20	−0.02	0.3414
2080.17.....	0.15	0.26	0.04	5.95	1.50	C IV	1550.77	0.04	0.3414
2107.34.....	0.19	0.15	0.03	4.84	1.51	Notes	...	...	...
2316.44.....	0.26	0.53	0.14	4.85	2.04		...	...	...
2343.86.....	0.22	0.69	0.13	6.70	2.36	Fe II	2344.21	−0.35	0.0000
2382.74.....	0.20	0.89	0.14	9.12	2.77	Fe II	2382.77	−0.03	0.0000
2586.65.....	0.11	0.83	0.08	12.35	2.37	Fe II	2586.65	0.00	0.0000
2594.23.....	0.31	0.37	0.09	5.72	2.67	Mn II	2594.50	−0.27	0.0000
2600.17.....	0.12	0.87	0.09	12.35	2.50	Fe II	2600.17	0.00	0.0000
2796.60.....	0.09	1.73	0.11	18.98	2.99	Mg II	2796.35	0.25	0.0000
2803.49.....	0.14	1.32	0.12	15.53	3.14	Mg II	2803.53	−0.04	0.0000
2630.08.....	0.61	0.43	0.14	5.27	3.89	FF	...	...	...

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
3C 249.1 (1100+77) $z_{em} = 0.311$									
1200.24.....	0.12	0.95	0.16	8.00	1.45	N I	1199.97	0.27	0.0000
1206.44.....	0.12	0.66	0.11	5.69	1.11	Si III	1206.50	−0.06	0.0000
1249.68.....	0.15	0.58	0.11	7.51	1.60	Lyα	1215.67	0.00	0.0280
1260.24.....	0.08	1.00	0.09	14.96	1.67	Si II (S II)	1260.42	−0.18	0.0000
1275.97.....	0.15	0.39	0.09	6.14	1.41	Lyβ	1025.72	0.09	0.2439
1278.55.....	0.09	0.43	0.06	6.95	1.10	Lyβ	1025.72	−0.17	0.2467
1301.56.....	0.03	0.97	0.06	17.36	1.20	O I	1302.17	−0.61	0.0000
1304.12.....	0.08	0.43	0.05	7.83	1.10	Si II	1304.37	−0.25	0.0000
1334.32.....	0.05	0.66	0.05	12.32	1.10	C II	1334.53	−0.21	0.0000
1347.91.....	0.14	0.36	0.08	8.73	1.51	Lyα	1215.67	0.00	0.1088
1349.80.....	0.09	0.39	0.06	9.91	1.16	Lyα	1215.67	0.00	0.1103
1357.42.....	0.08	0.57	0.06	14.08	1.54	Lyα	1215.67	0.00	0.1166
1368.51.....	0.06	0.52	0.04	11.37	1.11	Lyα	1215.67	0.00	0.1257
1388.12.....	0.08	0.41	0.06	8.60	1.13	Lyα	1215.67	0.00	0.1419
1402.64.....	0.10	0.30	0.05	6.38	1.11	Lyα	1215.67	0.00	0.1538
1429.33.....	0.07	0.62	0.06	12.98	1.40	Lyα	1215.67	0.00	0.1758
1459.92.....	0.08	0.47	0.06	9.49	1.22	Lyα	1215.67	0.00	0.2009
1465.97.....	0.33	0.41	0.10	8.47	2.87	Lyα, Notes	1215.67	0.00	0.2059
1512.07.....	0.06	0.93	0.07	20.20	1.85	Lyα	1215.67	−0.09	0.2439
1515.67.....	0.08	0.51	0.06	11.62	1.44	Lyα	1215.67	0.14	0.2467
1526.75.....	0.07	0.42	0.04	9.96	1.11	Si II	1526.71	0.04	0.0000
1537.93.....	0.16	0.21	0.05	5.27	1.26	Lyα	1215.67	0.00	0.2651
1548.07.....	0.13	0.19	0.04	5.06	1.11	C IV	1548.20	−0.13	0.0000
1560.81.....	0.16	0.16	0.04	4.66	1.21	Lyα	1215.67	0.00	0.2839
1590.41.....	0.06	0.27	0.02	11.41	1.11	Lyα	1215.67	0.17	0.3082
1657.18.....	0.17	0.49	0.10	5.76	1.62	Notes	…	…	…
1670.73.....	0.20	0.37	0.07	4.63	1.51	Al II	1670.79	−0.06	0.0000
1742.05.....	0.22	0.27	0.07	4.62	1.63		…	…	…
1980.04.....	0.24	0.36	0.07	8.41	2.58		…	…	…
2020.40.....	0.18	0.15	0.03	5.12	1.51		…	…	…
2025.37.....	0.13	0.21	0.03	6.97	1.50	C IV	1548.20	0.02	0.3082
2028.39.....	0.15	0.16	0.03	5.86	1.50	C IV	1550.77	−0.33	0.3082
2032.06.....	0.17	0.12	0.02	5.27	1.50		…	…	…
2062.43.....	0.18	0.16	0.03	5.04	1.51	Zn II	2062.66	−0.23	0.0000
2110.06.....	0.21	0.15	0.03	4.50	1.50		…	…	…
2143.52.....	0.28	0.16	0.05	4.91	1.99		…	…	…
2191.87.....	0.19	0.16	0.03	4.86	1.51		…	…	…
2261.08.....	0.17	0.18	0.03	5.34	1.51	Fe II	2260.78	0.30	0.0000
2271.39.....	0.32	0.17	0.05	4.96	2.18		…	…	…
2281.88.....	0.16	0.19	0.03	5.55	1.51		…	…	…
2344.11.....	0.12	0.79	0.06	10.87	2.25	Fe II	2344.21	−0.10	0.0000
2374.22.....	0.17	0.58	0.07	7.94	2.25	Fe II	2374.46	−0.24	0.0000
2382.83.....	0.12	0.78	0.06	10.95	2.25	Fe II	2382.77	0.06	0.0000
2586.73.....	0.13	0.72	0.06	10.70	2.25	Fe II	2586.65	0.08	0.0000
2600.13.....	0.11	0.79	0.05	12.58	2.25	Fe II	2600.17	−0.04	0.0000
2796.17.....	0.08	1.01	0.05	16.50	2.24	Mg II	2796.35	−0.18	0.0000
2803.54.....	0.08	1.00	0.05	16.34	2.24	Mg II	2803.53	0.01	0.0000
2853.15.....	0.18	0.47	0.06	7.45	2.25	Mg I	2852.96	0.19	0.0000
Q1101−264 $z_{em} = 2.148$									
2608.88.....	0.07	1.09	0.05	15.48	1.97	Lyκ	919.35	0.05	1.8377
2613.88.....	0.05	3.25	0.09	51.94	4.10	Lyι, Bl	920.96	0.47	1.8377
2619.84.....	0.04	1.73	0.07	28.89	2.29	Lyθ	923.15	0.22	1.8377
2628.40.....	0.05	1.75	0.10	30.59	2.23	Lyη	926.23	0.04	1.8377
2632.05.....	0.16	1.07	0.12	18.77	3.28		…	…	…
2638.09.....	0.07	1.13	0.09	18.67	2.10		…	…	…
2641.31.....	0.05	2.12	0.10	34.88	2.57	Lyζ	930.75	0.12	1.8377
2657.77.....	0.04	2.88	0.10	49.25	3.03		…	…	…
2661.36.....	0.05	2.12	0.09	36.32	2.55	Lyε	937.80	0.18	1.8377
2675.09.....	0.09	0.97	0.09	16.41	1.97		…	…	…
2677.32.....	0.05	2.55	0.13	43.17	2.65		…	…	…
2687.82.....	0.07	1.15	0.05	16.86	1.98		…	…	…
2695.16.....	0.03	2.33	0.06	39.17	2.64	Lyδ	949.74	0.09	1.8377
2712.40.....	0.13	0.87	0.08	15.79	2.96		…	…	…
2720.47.....	0.05	1.62	0.07	29.70	2.66		…	…	…
2735.61.....	0.09	1.41	0.08	25.68	3.22		…	…	…
2740.60.....	0.06	1.13	0.06	20.55	2.20		…	…	…
2751.70.....	0.26	0.25	0.05	4.66	1.97		…	…	…
2755.85.....	0.04	2.63	0.09	47.63	2.90		…	…	…

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2759.74.....	0.04	2.64	0.09	47.83	2.92	Lyγ	972.54	−0.03	1.8377
2772.55.....	0.04	2.42	0.08	43.86	2.79	C III	977.02	0.05	1.8377
2775.66.....	0.12	0.57	0.06	10.35	1.97		...	...	...
2796.63.....	0.06	1.89	0.23	34.45	3.02	Mg II	2796.35	0.28	0.0000
2802.69.....	0.27	3.94	0.54	72.01	8.15	Notes	...	...	...
2808.31.....	0.15	0.50	0.21	9.19	2.11	N III (Si II)	989.80	−0.44	1.8377
2811.91.....	1.29	1.16	0.48	21.11	6.92		...	...	...
2821.30.....	0.07	1.74	0.08	32.27	3.17		...	...	...
2845.71.....	0.25	0.26	0.05	4.74	1.98		...	...	...
2852.95.....	0.21	0.51	0.08	9.42	2.85	Mg I	2852.96	−0.01	0.0000
2867.16.....	0.22	0.50	0.10	8.32	2.46		...	...	...
2870.51.....	0.13	0.70	0.22	11.71	1.97		...	...	...
2872.66.....	0.83	0.68	0.30	11.26	3.78		...	...	...
2890.88.....	0.22	0.36	0.06	6.40	1.97		...	...	...
2893.87.....	0.14	0.66	0.08	12.60	2.42		...	...	...
2901.90.....	0.06	1.02	0.06	19.29	2.15		...	...	...
2910.89.....	0.03	3.07	0.07	57.88	3.18	Lyβ	1025.72	0.21	1.8377
2914.69.....	0.17	0.42	0.05	7.94	1.97		...	...	...
2918.37.....	0.17	0.73	0.09	13.72	3.05		...	...	...
2925.17.....	0.68	0.68	0.23	12.88	4.33		...	...	...
2928.44.....	0.11	0.92	0.20	17.49	2.14	O VI	1031.93	0.11	1.8377
2940.48.....	0.09	1.84	0.09	35.36	3.97	C II?, Bl	1036.34	−0.33	1.8377
2944.65.....	0.13	0.49	0.05	9.38	1.97	O VI	1037.62	0.19	1.8377
2950.71.....	0.23	0.26	0.05	5.18	1.98		...	...	...
2965.58.....	0.12	0.56	0.05	11.16	1.97		...	...	...
2969.10.....	0.18	0.74	0.09	14.76	3.21		...	...	...
2990.50.....	0.13	1.01	0.08	19.77	3.39		...	...	...
3002.05.....	0.16	0.37	0.05	7.00	1.97		...	...	...
3009.73.....	0.03	1.92	0.06	37.07	2.36		...	...	...
3029.45.....	0.14	0.45	0.05	8.77	1.98		...	...	...
3048.32.....	0.10	1.32	0.08	23.88	3.33		...	...	...
3063.26.....	0.21	0.28	0.05	5.52	1.97		...	...	...
3067.47.....	0.19	0.49	0.09	9.93	2.26		...	...	...
3069.88.....	0.11	0.75	0.06	15.15	1.97		...	...	...
3089.24.....	0.11	0.57	0.06	11.71	2.19		...	...	...
3100.55.....	0.03	2.33	0.06	47.18	2.79		...	...	...
3108.90.....	0.22	0.27	0.05	5.41	1.98		...	...	...
3118.61.....	0.08	1.08	0.10	21.95	2.07		...	...	...
3121.73.....	0.10	1.51	0.11	30.66	3.04		...	...	...
3151.45.....	0.58	2.10	0.21	43.09	3.00		...	...	...
3160.61.....	0.10	0.71	0.09	14.41	2.40		...	...	...
3182.92.....	0.25	0.28	0.05	5.70	1.97		...	...	...
3185.33.....	0.12	0.51	0.05	10.21	1.97	Fe III	1122.53	−0.07	1.8377
3210.76.....	0.31	0.25	0.07	4.80	2.17		...	...	...
3214.56.....	0.19	0.47	0.08	8.99	2.52		...	...	...
3224.15.....	0.28	2.93	0.55	66.57	3.37		...	...	...
3225.95.....	0.13	0.62	0.52	14.20	1.96		...	...	...
3237.70.....	0.20	0.25	0.04	5.89	1.98		...	...	...
3250.71.....	0.40	0.21	0.06	4.80	2.73		...	...	...
3256.16.....	0.14	0.38	0.04	8.21	1.97		...	...	...
3261.39.....	0.06	0.91	0.05	17.08	2.01	Lyα	1215.67	0.00	1.6828
3265.70.....	0.17	0.37	0.05	6.81	1.97	Lyα	1215.67	0.00	1.6863
MC 1104+167 $z_{em} = 0.634$									
1646.13.....	0.33	0.60	0.17	5.23	2.34	Lyβ, Bl	1025.72	0.47	0.6044
1655.32.....	0.49	0.68	0.20	6.09	3.44	Lyα	1215.67	0.00	0.3617
1670.86.....	0.11	0.65	0.07	8.24	1.51	Al II	1670.79	0.07	0.0000
1687.70.....	0.04	2.01	0.08	29.82	2.34	Lyα	1215.67	0.00	0.3883
1721.54.....	0.07	1.06	0.09	14.10	1.79	Lyα	1215.67	0.00	0.4161
1755.50.....	0.14	0.43	0.08	6.66	1.54	Si III	1206.50	0.13	0.4549
1765.04.....	0.08	0.71	0.06	9.69	1.50	Lyα	1215.67	0.00	0.4519
1768.78.....	0.04	1.52	0.08	22.58	1.90	Lyα	1215.67	0.07	0.4549
1877.36.....	0.10	0.73	0.08	11.56	1.84	Lyα	1215.67	0.00	0.5443
1911.13.....	0.09	0.55	0.05	9.60	1.51	Lyα	1215.67	0.00	0.5721
1940.51.....	0.10	0.41	0.04	8.65	1.51	Lyα	1215.67	0.00	0.5962
1950.30.....	0.05	0.73	0.05	15.40	1.53	Lyα	1215.67	−0.12	0.6044
1966.82.....	0.44	0.19	0.06	5.43	2.91	Notes	...	...	...
2040.81.....	0.15	0.25	0.04	6.20	1.51		...	...	...
2252.35.....	0.06	0.54	0.03	14.55	1.50	C IV	1548.20	−0.16	0.4549
2256.22.....	0.09	0.37	0.03	9.87	1.50	C IV	1550.77	−0.03	0.4549
2344.19.....	0.13	0.90	0.10	10.93	2.39	Fe II	2344.21	−0.02	0.0000

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2374.13.....	0.21	0.52	0.10	6.05	2.15	Fe II	2374.46	−0.33	0.0000
2382.98.....	0.09	1.13	0.09	14.00	2.21	Fe II	2382.77	0.21	0.0000
2586.29.....	0.11	0.70	0.06	10.91	2.04	Fe II	2586.65	−0.36	0.0000
2600.25.....	0.10	1.25	0.09	19.77	2.91	Fe II	2600.17	0.08	0.0000
2796.52.....	0.09	1.43	0.13	20.10	2.26	Mg II	2796.35	0.17	0.0000
2803.57.....	0.07	1.35	0.09	18.65	2.45	Mg II	2803.53	0.04	0.0000
PG 1116+215 $z_{em} = 0.177$									
1190.44.....	0.08	0.61	0.07	7.59	1.10	Si II (S III)	1190.42	0.02	0.0000
1193.35.....	0.08	0.64	0.09	8.89	1.17	Si II	1193.29	0.06	0.0000
1200.15.....	0.08	0.72	0.08	11.52	1.49	N I	1199.97	0.18	0.0000
1203.05.....	0.18	0.33	0.08	5.71	1.48	O VI	1031.93	−0.53	0.1663
1206.66.....	0.04	0.73	0.04	13.60	1.10	Si III	1206.50	0.16	0.0000
1250.11.....	0.09	0.31	0.04	6.98	1.11	Lyα	1215.67	0.00	0.0283
1259.26.....	0.18	0.23	0.06	5.40	1.10	S II	1259.52	−0.26	0.0000
1260.53.....	0.06	0.68	0.08	15.83	1.18	Si II	1260.42	0.11	0.0000
1287.21.....	0.22	0.45	0.08	10.66	2.58	Lyα	1215.67	0.00	0.0588
1302.06.....	0.05	0.47	0.04	11.34	1.10	O I	1302.17	−0.11	0.0000
1304.25.....	0.06	0.40	0.04	9.54	1.10	Si II	1304.37	−0.12	0.0000
1334.42.....	0.10	0.61	0.12	14.13	1.10	C II	1334.53	−0.11	0.0000
1335.38.....	0.16	0.43	0.14	9.92	1.11	C* II	1335.71	−0.33	0.0000
1360.40.....	0.13	0.22	0.04	5.16	1.11	Lyα	1215.67	0.00	0.1191
1384.14.....	0.04	0.56	0.03	16.90	1.11	Lyα	1215.67	0.00	0.1386
1393.84.....	0.07	0.40	0.04	13.15	1.46	Si IV	1393.76	0.08	0.0000
1402.81.....	0.11	0.18	0.03	6.55	1.16	Si IV	1402.77	0.04	0.0000
1417.61.....	0.10	0.64	0.09	30.33	1.52	Lyα, Bl	1215.67	−0.26	0.1663
1418.72.....	0.15	0.17	0.08	7.88	1.10	Lyα, Bl	1215.67	0.85	0.1663
1426.63.....	0.06	0.19	0.01	11.47	1.10	Lyα	1215.67	0.00	0.1735
1434.96.....	0.11	0.22	0.03	11.91	1.79	Notes	...	...	...
1454.27.....	0.13	0.12	0.02	5.08	1.11	Notes	...	...	...
1526.77.....	0.04	0.59	0.04	18.94	1.34	Si II	1526.71	0.06	0.0000
1548.55.....	0.06	0.56	0.05	17.24	1.47	C IV	1548.20	0.35	0.0000
1551.26.....	0.12	0.32	0.05	10.23	1.66	C IV	1550.77	0.49	0.0000
1670.78.....	0.08	0.62	0.07	10.31	1.55	Al II	1670.79	−0.01	0.0000
2249.68.....	0.18	0.12	0.03	5.92	1.67	Fe II	2249.88	−0.20	0.0000
2344.13.....	0.12	0.78	0.07	14.29	2.62	Fe II	2344.21	−0.08	0.0000
2374.51.....	0.11	0.58	0.06	10.54	2.08	Fe II	2374.46	0.05	0.0000
2382.80.....	0.10	1.01	0.14	19.28	2.19	Fe II	2382.77	0.03	0.0000
2386.12.....	0.58	0.45	0.16	8.55	3.54	Notes	...	...	...
2586.53.....	0.11	0.82	0.07	16.14	2.70	Fe II	2586.65	−0.12	0.0000
2600.15.....	0.08	0.93	0.06	19.06	2.40	Fe II	2600.17	−0.02	0.0000
2796.27.....	0.07	1.38	0.09	30.25	2.46	Mg II	2796.35	−0.08	0.0000
2798.74.....	0.35	0.24	0.07	5.24	2.03	Notes	...	...	...
2803.50.....	0.05	1.24	0.05	27.13	2.40	Mg II	2803.53	−0.03	0.0000
2852.45.....	0.19	0.29	0.04	6.47	2.04	Mg I	2852.96	−0.51	0.0000
1936.34.....	0.43	0.45	0.08	13.66	5.30	FF	...	...	...
1949.25.....	0.34	0.22	0.06	5.98	2.58	FF	...	...	...
1130+106Y $z_{em} = 0.51$									
1825.08.....	0.19	0.50	0.08	10.12	2.57	Lyα	1215.67	0.00	0.5013
1830.68.....	0.06	0.67	0.04	14.09	1.50	Lyα	1215.67	−0.27	0.5061
1834.02.....	0.04	1.27	0.06	26.13	1.77	Lyα	1215.67	−0.15	0.5088
1836.16.....	0.05	0.96	0.04	19.71	1.50	Lyα	1215.67	0.00	0.5104
1854.74.....	0.19	0.53	0.09	8.46	2.27	Al III	1854.72	0.02	0.0000
1869.04.....	0.07	0.74	0.07	11.64	1.52	N V	1238.82	−0.05	0.5088
1874.98.....	0.12	0.51	0.08	7.97	1.64	N V	1242.80	−0.11	0.5088
1942.31.....	0.46	0.46	0.14	5.40	2.97		...	...	...
2025.57.....	0.20	0.38	0.08	4.54	1.51	Zn II (Mg I)	2026.14	−0.57	0.0000
2065.04.....	0.28	0.35	0.10	4.72	1.95		0.00	0.00	...
2331.98.....	0.15	0.59	0.07	7.89	2.03	C IV	1548.20	0.20	0.5061
2336.04.....	0.08	1.11	0.09	15.04	2.21	C IV, Bl	1548.20	0.17	0.5088
2339.88.....	0.12	0.97	0.10	13.00	2.47	C IV	1550.77	0.13	0.5088
2344.05.....	0.10	0.93	0.09	12.23	2.12	Fe II	2344.21	−0.16	0.0000
2374.24.....	0.22	0.86	0.14	9.14	2.89	Fe II	2374.46	−0.22	0.0000
2382.78.....	0.10	1.17	0.07	12.41	2.04	Fe II	2382.77	0.01	0.0000
2586.66.....	0.14	0.91	0.09	8.56	2.04	Fe II	2586.65	0.01	0.0000
2600.44.....	0.14	1.34	0.14	13.18	2.81	Fe II	2600.17	0.27	0.0000
2796.22.....	0.18	1.41	0.92	14.52	2.22	Mg II	2796.35	−0.13	0.0000
2799.01.....	3.09	0.57	1.13	5.83	4.26	Mg II wing	2796.35	2.66	0.0000

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2803.56.....	0.14	1.48	0.25	14.65	2.35	Mg II	2803.53	0.03	0.0000
2852.77.....	0.24	0.44	0.08	5.04	2.04	Mg I	2852.96	−0.19	0.0000
1849.32.....	0.21	0.33	0.08	5.35	1.79	FF	...	...	...
1986.93.....	0.42	0.43	0.14	5.07	2.69	FF	...	...	...
2233.75.....	0.25	0.25	0.08	4.62	2.30	FF	...	...	...
2350.73.....	0.41	0.41	0.08	4.91	2.04	FF	...	...	...
PKS 1136−13 $z_{em} = 0.554$									
1640.53.....	0.22	1.44	0.26	8.80	2.57	Lyα	1215.67	0.00	0.3495
1670.72.....	0.18	0.63	0.12	5.09	1.51	Al II	1670.79	−0.07	0.0000
1710.02.....	0.18	0.57	0.11	5.03	1.51	Lyα	1215.67	0.34	0.4064
1778.75.....	0.14	0.58	0.08	6.39	1.51	Lyα	1215.67	0.00	0.4632
1811.84.....	0.20	0.40	0.08	4.62	1.51	Lyα	1215.67	0.00	0.4904
1861.84.....	0.19	0.43	0.10	6.72	1.73	Lyα	1215.67	0.00	0.5315
1867.34.....	0.15	0.48	0.08	8.01	1.82	Lyα	1215.67	0.00	0.5360
1880.31.....	0.17	0.27	0.05	5.20	1.51	Lyα	1215.67	0.00	0.5467
2177.07.....	0.31	0.22	0.07	4.64	2.04	C IV	1548.20	−0.26	0.4064
2259.85.....	0.19	0.26	0.05	4.75	1.51	Fe II	2260.78	−0.93	0.0000
2343.73.....	0.17	1.30	0.16	11.91	3.05	Fe II	2344.21	−0.49	0.0000
2373.97.....	0.31	0.99	0.17	10.50	3.82	Fe II	2374.46	−0.49	0.0000
2382.67.....	0.09	1.08	0.10	12.65	2.06	Fe II	2382.77	−0.10	0.0000
2586.70.....	0.17	0.85	0.12	9.61	2.59	Fe II	2586.65	0.05	0.0000
2600.10.....	0.12	0.95	0.08	10.39	2.04	Fe II	2600.17	−0.07	0.0000
2796.35.....	0.10	1.35	0.12	13.31	2.38	Mg II	2796.35	0.00	0.0000
2803.42.....	0.08	1.59	0.12	15.90	2.45	Mg II	2803.53	−0.11	0.0000
2852.74.....	0.26	0.76	0.15	7.41	2.89	Mg I	2852.96	−0.22	0.0000
1855.76.....	0.34	0.56	0.13	7.71	3.08	FF	...	...	...
1863.82.....	0.12	0.62	0.07	9.77	1.50	FF	...	...	...
2062.84.....	0.22	0.87	0.13	12.69	3.18	FF	...	...	...
2147.92.....	0.20	0.37	0.08	5.84	1.90	FF	...	...	...
2352.36.....	0.37	1.01	0.19	9.21	4.02	FF	...	...	...
PG 1202+281 $z_{em} = 0.165$									
1670.81.....	0.21	0.97	0.26	4.55	1.56	Al II	1670.79	0.02	0.0000
2344.51.....	0.33	0.75	0.20	4.98	2.53	Fe II	2344.21	0.31	0.0000
2382.68.....	0.31	0.95	0.21	6.07	2.97	Fe II	2382.77	−0.09	0.0000
2796.14.....	0.12	1.17	0.13	11.14	2.36	Mg II	2796.35	−0.21	0.0000
2803.39.....	0.14	0.96	0.12	9.61	2.26	Mg II	2803.53	−0.14	0.0000
2852.08.....	0.39	0.72	0.16	7.24	3.55	Mg I	2852.96	−0.88	0.0000
PG 1206+459 $z_{em} = 1.158$									
1670.71.....	0.20	0.64	0.12	4.62	1.51	Al II	1670.79	−0.08	0.0000
1712.06.....	0.15	0.75	0.11	6.04	1.51		...	...	...
1718.65.....	0.30	0.65	0.19	5.02	2.14		...	...	...
1734.79.....	0.19	0.60	0.12	4.77	1.51		...	...	...
1740.03.....	0.22	0.67	0.14	5.22	1.50		...	...	...
1741.99.....	0.12	1.23	0.19	9.96	1.69		...	...	...
1750.56.....	0.19	0.57	0.12	4.68	1.51		...	...	...
1764.36.....	0.29	0.68	0.17	6.38	2.47		...	...	...
1772.06.....	0.19	0.40	0.08	4.51	1.50		...	...	...
1775.16.....	0.14	0.47	0.07	5.28	1.50		...	...	...
1779.40.....	0.06	1.27	0.09	17.61	1.82		...	...	...
1785.36.....	0.09	0.66	0.06	9.51	1.50		...	...	...
1788.99.....	0.17	0.36	0.06	5.10	1.50		...	...	...
1791.90.....	0.19	0.33	0.06	4.83	1.50		...	...	...
1793.99.....	0.07	0.81	0.05	11.70	1.50		...	...	...
1799.47.....	0.19	0.31	0.06	4.81	1.51		...	...	...
1805.30.....	0.13	0.49	0.06	7.08	1.50		...	...	...
1807.63.....	0.06	1.18	0.08	17.09	1.76		...	...	...
1813.29.....	0.18	0.40	0.08	5.79	1.77	Lyε, Notes	937.80	−0.58	0.9342
1828.58.....	0.20	0.65	0.17	9.98	1.74		...	...	...
1830.63.....	0.10	1.16	0.16	17.76	1.71	Lyα	1215.67	0.00	0.5059
1837.16.....	0.09	0.69	0.05	10.59	1.51	Lyδ	949.74	0.20	0.9342
1872.60.....	0.12	1.21	0.19	18.28	1.80		...	...	...
1874.51.....	0.09	1.27	0.18	19.30	1.62		...	...	...
1881.60.....	0.12	3.77	0.24	55.32	4.11	Lyα, Notes	1215.67	0.00	0.5478
1883.33.....	0.12	0.39	0.13	5.79	1.50	C III	977.02	−0.07	0.9277
1886.08.....	0.05	1.08	0.10	15.87	1.55		...	...	...
1889.45.....	0.12	0.48	0.06	7.17	1.50	C III	977.02	−0.29	0.9342

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
1905.56.....	0.13	0.57	0.08	8.55	1.50	N III	989.80	−0.23	0.9254
1907.72.....	0.10	1.11	0.12	16.81	2.06	N III?	989.80	−0.30	0.9277
1911.51.....	0.19	0.31	0.06	4.52	1.50	Lyβ	1025.72	−0.47	0.8640
1936.74.....	0.08	0.69	0.05	12.08	1.51		...	...	...
1958.41.....	0.13	0.60	0.08	9.48	1.88		...	...	...
1976.20.....	0.04	3.28	0.09	53.79	3.60	Lyα, Bl	1215.67	0.00	0.6256
1983.62.....	0.08	0.61	0.05	10.89	1.50	Lyβ	1025.72	−0.31	0.9342
1986.86.....	0.05	1.39	0.09	24.73	2.01	O VI	1031.93	−0.06	0.9254
1988.98.....	0.06	0.92	0.06	16.40	1.50	O VI	1031.93	−0.27	0.9277
1995.68.....	0.36	0.62	0.24	10.69	2.06	O VI, Notes	1031.93	−0.27	0.9342
1997.72.....	0.14	1.03	0.27	17.67	1.73	O VI, Notes	1037.62	−0.15	0.9254
2000.38.....	0.09	1.34	0.12	22.99	2.31		...	...	...
2010.92.....	0.14	0.32	0.05	6.28	1.50		...	...	...
2023.56.....	0.18	0.40	0.07	7.92	2.05		...	...	...
2031.09.....	0.12	0.62	0.07	12.93	2.20		...	...	...
2037.46.....	0.12	0.37	0.05	7.47	1.51		...	...	...
2062.14.....	0.14	0.61	0.10	12.12	1.79		...	...	...
2064.01.....	0.27	0.34	0.08	6.84	1.50		...	...	...
2066.25.....	0.17	0.63	0.10	12.61	2.21		...	...	...
2073.82.....	0.25	0.32	0.07	6.51	2.23		...	...	...
2079.35.....	0.14	0.28	0.04	6.08	1.50		...	...	...
2086.00.....	0.16	0.23	0.05	5.15	1.50		...	...	...
2092.47.....	0.05	1.55	0.06	34.76	2.68		...	...	...
2103.25.....	0.17	0.52	0.15	12.27	1.50		...	...	...
2104.66.....	0.30	0.45	0.17	10.59	1.75		...	...	...
2107.73.....	0.04	0.83	0.03	19.60	1.50		...	...	...
2114.47.....	0.12	0.29	0.04	7.06	1.50	Fe II	1096.88	0.04	0.9277
2117.23.....	0.13	0.28	0.04	6.74	1.50		...	...	...
2127.86.....	0.34	0.19	0.06	4.94	2.24		...	...	...
2134.34.....	0.12	0.33	0.04	8.58	1.50		...	...	...
2137.26.....	0.12	0.85	0.07	22.02	2.99		...	...	...
2148.92.....	0.09	1.60	0.12	39.11	2.58		...	...	...
2150.84.....	0.14	0.35	0.09	8.61	1.50		...	...	...
2155.50.....	0.12	0.31	0.04	7.40	1.51		...	...	...
2160.43.....	0.34	0.70	0.49	18.27	1.70	Fe III?, Notes	1122.53	−0.92	0.9254
2162.00.....	0.50	0.90	0.51	23.25	2.10	Fe III?, Notes	1122.53	0.65	0.9254
2165.10.....	0.09	0.49	0.07	12.58	1.59		...	...	...
2167.04.....	0.15	0.30	0.04	7.73	1.50		...	...	...
2171.78.....	0.16	0.21	0.04	5.66	1.51	Fe III	1122.53	0.61	0.9342
2177.13.....	0.09	0.94	0.06	26.46	3.01		...	...	...
2183.98.....	0.15	0.20	0.03	5.77	1.50	N I	1134.66	−0.66	0.9254
2189.47.....	0.06	0.52	0.03	14.96	1.51		...	...	...
2201.26.....	0.18	0.30	0.05	9.03	2.29		...	...	...
2207.18.....	0.02	1.12	0.04	34.72	1.66		...	...	...
2215.55.....	0.09	0.38	0.04	11.93	1.70		...	...	...
2231.46.....	0.07	0.54	0.04	17.11	1.82		...	...	...
2237.27.....	0.06	0.48	0.03	14.99	1.51		...	...	...
2265.99.....	0.05	0.78	0.03	19.26	1.51	Lyα	1215.67	−0.06	0.8640
2272.32.....	0.02	1.08	0.04	30.38	1.54	Lyα	1215.67	0.00	0.8692
2283.78.....	0.13	0.32	0.05	9.49	1.85		...	...	...
2294.58.....	0.11	0.27	0.03	8.04	1.51	Si II	1190.42	−0.18	0.9277
2300.26.....	0.08	0.43	0.04	11.60	1.57	Si II	1193.29	−0.01	0.9277
2322.79.....	0.19	0.63	0.09	6.96	2.03	Si III	1206.50	−0.24	0.9254
2325.82.....	0.10	1.27	0.12	13.89	2.31	Si III	1206.50	0.06	0.9277
2341.13.....	0.25	2.30	0.55	24.18	2.67	Lyα, Bl	1215.67	0.45	0.9254
2343.46.....	0.22	2.13	0.54	22.45	2.46	Lyα, Bl	1215.67	0.03	0.9277
2351.26.....	0.13	0.95	0.08	9.41	2.04	Lyα	1215.67	−0.06	0.9342
2374.41.....	0.25	0.45	0.09	4.84	2.04	Fe II	2374.46	−0.05	0.0000
2382.18.....	0.13	0.85	0.13	9.24	2.03	Fe II	2382.77	−0.59	0.0000
2386.16.....	0.28	1.77	0.23	19.56	5.00	N V, Notes	1238.82	0.90	0.9254
2393.83.....	0.35	0.84	0.16	9.55	3.93	N V, Notes	1242.80	0.92	0.9254
2408.03.....	0.24	0.76	0.12	9.08	3.07		...	...	...
2414.62.....	0.15	0.72	0.10	8.31	2.19		...	...	...
2429.68.....	0.19	1.17	0.13	14.29	3.45	Si II	1260.42	−0.02	0.9277
2444.59.....	0.09	1.14	0.10	12.25	2.17		...	...	...
2472.73.....	0.19	0.60	0.08	6.47	2.04		...	...	...
2498.91.....	0.23	0.45	0.08	5.61	2.03		...	...	...
2506.66.....	0.11	1.10	0.10	13.54	2.38	O I	1302.17	−0.57	0.9254
2510.07.....	0.15	0.87	0.10	10.80	2.03	O I	1302.17	−0.10	0.9277
2512.98.....	0.20	1.01	0.15	12.59	2.87		...	...	...
2520.07.....	0.22	0.97	0.13	11.48	3.46		...	...	...

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2529.68.....	0.09	1.19	0.09	14.69	2.35		...	...	...
2547.73.....	0.22	0.42	0.07	5.63	2.04		...	...	...
2573.07.....	0.07	1.61	0.08	23.90	2.79	C II	1334.53	0.52	0.9277
2580.20.....	0.06	1.63	0.08	24.34	2.63		...	...	...
2586.99.....	0.12	0.96	0.09	14.89	2.73	Fe II	2586.65	0.34	0.0000
2591.43.....	0.22	0.34	0.06	5.38	2.03		...	...	...
2599.70.....	0.08	1.13	0.07	19.37	2.54	Fe II	2600.17	−0.47	0.0000
2606.67.....	0.19	0.35	0.05	6.54	2.04	Mn II?	2606.46	0.21	0.0000
2615.59.....	0.06	1.02	0.06	20.28	2.27		...	...	...
2684.40.....	0.21	0.55	0.10	9.50	2.44	Si IV	1393.76	0.82	0.9254
2687.10.....	0.15	0.64	0.07	10.77	2.03	Si IV	1393.76	0.38	0.9277
2703.84.....	0.17	0.44	0.06	6.98	2.04	Si IV	1402.77	−0.26	0.9277
2795.92.....	0.09	1.09	0.06	13.95	2.04	Mg II	2796.35	−0.43	0.0000
2803.29.....	0.08	1.08	0.08	14.54	2.08	Mg II	2803.53	−0.24	0.0000
2852.72.....	0.25	0.37	0.07	4.83	2.04	Mg I	2852.96	−0.24	0.0000
2981.40.....	0.17	1.91	0.30	26.63	2.97	C IV	1548.20	0.46	0.9254
2985.12.....	0.12	3.25	0.42	45.30	3.79	C IV, Notes	1550.77	−0.77	0.9254
2989.26.....	0.10	1.92	0.19	26.72	2.77	C IV	1550.77	−0.14	0.9277
2994.68.....	0.18	0.48	0.07	6.43	2.03	C IV	1548.20	0.18	0.9342
2999.77.....	0.26	0.34	0.07	4.74	2.03	C IV	1550.77	0.31	0.9342
3139.42.....	0.38	0.51	0.14	6.13	2.96		...	...	...
3144.16.....	0.40	0.52	0.14	6.42	3.13		...	...	...
3225.37.....	1.22	0.52	0.19	6.29	6.91	Notes	...	...	...
PG 1216+069 $z_{em} = 0.334$									
1190.42.....	0.22	0.79	0.24	4.61	1.48	Si II (S III)	1190.42	0.00	0.0000
1206.31.....	0.23	0.80	0.20	6.60	1.89	Si III	1206.50	−0.19	0.0000
1223.34.....	0.08	2.09	0.17	17.14	2.02	Lyα	1215.67	0.00	0.0063
1246.88.....	0.13	0.44	0.08	5.26	1.11	Lyγ	972.54	−0.13	0.2822
1260.28.....	0.11	0.45	0.07	6.19	1.11	Si II (S II)	1260.42	−0.14	0.0000
1313.43.....	0.10	0.47	0.07	5.98	1.10	Lyα	1215.67	0.00	0.0804
1315.29.....	0.11	0.46	0.07	5.35	1.10	Lyβ	1025.72	0.09	0.2822
1334.61.....	0.08	0.61	0.06	9.63	1.10	C II	1334.53	0.08	0.0000
1365.94.....	0.07	0.64	0.06	13.24	1.10	Lyα, Bl	1215.67	0.00	0.1236
1367.21.....	0.05	0.90	0.08	18.60	1.22	Lyα, Bl	1215.67	−0.05	0.1247
1379.75.....	0.07	0.56	0.05	13.61	1.52	Lyα	1215.67	0.00	0.1350
1434.55.....	0.09	0.62	0.07	12.34	1.60	Lyα	1215.67	0.00	0.1800
1459.38.....	0.12	0.57	0.08	11.21	1.84	Lyα	1215.67	0.00	0.2005
1526.81.....	0.08	0.48	0.06	10.28	1.28	Si II	1526.71	0.10	0.0000
1541.27.....	0.10	0.40	0.06	8.43	1.28	Lyα	1215.67	0.00	0.2678
1548.28.....	0.12	0.52	0.07	11.16	1.76	C IV	1548.20	0.08	0.0000
1558.79.....	0.03	0.94	0.05	20.39	1.27	Lyα	1215.67	0.03	0.2822
1670.97.....	0.11	0.61	0.08	8.67	1.64	Al II	1670.79	0.18	0.0000
1721.54.....	0.33	0.35	0.10	4.92	2.22		...	...	...
1741.31.....	0.25	0.52	0.10	9.01	2.81	C IV	1548.20	0.05	0.1247
1841.96.....	0.37	0.25	0.08	4.76	2.34		...	...	...
2344.25.....	0.12	0.71	0.06	9.74	2.04	Fe II	2344.21	0.04	0.0000
2374.23.....	0.22	0.41	0.07	5.70	2.04	Fe II	2374.46	−0.23	0.0000
2382.83.....	0.11	0.78	0.08	10.99	2.11	Fe II	2382.77	0.06	0.0000
2586.78.....	0.20	0.79	0.10	12.36	3.33	Fe II	2586.65	0.13	0.0000
2600.04.....	0.12	0.79	0.08	12.70	2.39	Fe II	2600.17	−0.13	0.0000
2796.41.....	0.08	1.10	0.08	17.16	2.41	Mg II	2796.35	0.06	0.0000
2803.51.....	0.08	0.99	0.07	15.87	2.20	Mg II	2803.53	−0.02	0.0000
2853.81.....	0.62	0.31	0.11	4.91	3.71	Mg I	2852.96	0.85	0.0000
2318.18.....	0.30	0.48	0.11	6.30	2.74	FF	...	...	...
PG 1241+176 $z_{em} = 1.273$									
2244.01.....	0.52	0.45	0.13	5.31	3.57	Lyα, Notes	1215.67	0.00	0.8459
2272.30.....	0.17	0.58	0.07	7.12	2.04	Lyβ	1025.72	−0.05	1.2154
2286.64.....	0.37	0.75	0.14	9.06	4.09	O VI, Bl	1031.93	0.51	1.2154
2298.88.....	0.16	0.58	0.07	7.56	2.03	O VI	1037.62	0.16	1.2154
2304.16.....	0.10	0.86	0.06	11.15	2.03	Lyα	1215.67	0.00	0.8954
2330.88.....	0.30	0.62	0.11	8.30	3.35	Lyβ	1025.72	0.40	1.2720
2344.53.....	0.06	2.36	0.09	36.43	3.38	O VI	1031.93	−0.08	1.2720
2357.82.....	0.09	1.90	0.09	33.11	4.02	O VI	1037.62	0.29	1.2720
2366.97.....	0.12	0.62	0.05	10.12	2.04	Si II	1526.71	−0.27	0.5505
2374.54.....	0.22	0.50	0.09	7.58	2.57	Fe II	2374.46	0.08	0.0000
2382.68.....	0.12	0.76	0.06	11.72	2.03	Fe II	2382.77	−0.09	0.0000
2400.80.....	0.11	1.29	0.11	18.29	2.79	C IV	1548.20	0.25	0.5505

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2404.83.....	0.17	0.78	0.11	11.10	2.65	C IV	1550.77	0.29	0.5505
2412.92.....	0.25	0.34	0.07	4.87	2.04	Lyα	1215.67	0.00	0.9848
2422.01.....	0.06	1.54	0.08	22.21	2.38	Lyα	1215.67	−0.44	0.9927
2441.92.....	0.35	0.42	0.11	5.75	2.82	Lyα	1215.67	0.00	1.0087
2455.86.....	0.07	1.36	0.08	21.31	2.44	Lyα	1215.67	0.00	1.0202
2495.54.....	0.40	0.81	0.14	11.67	4.91	Lyα	1215.67	0.00	1.0528
2502.39.....	0.06	1.54	0.08	22.96	2.50	Lyα	1215.67	0.00	1.0584
2510.04.....	0.17	0.44	0.06	6.94	2.03	S II	1259.52	0.20	0.9927
2522.19.....	0.23	0.32	0.06	5.09	2.03	Lyα	1215.67	0.00	1.0747
2559.79.....	0.18	0.40	0.06	6.71	2.03	Lyα	1215.67	0.00	1.1057
2581.64.....	0.21	0.35	0.08	5.65	2.03	Lyα	1215.67	0.00	1.1236
2586.72.....	0.12	0.67	0.06	10.48	2.03	Fe II	2586.65	0.07	0.0000
2590.46.....	0.36	0.31	0.09	5.15	2.63	Al II	1670.79	−0.18	0.5505
2600.23.....	0.09	0.84	0.07	13.36	2.15	Fe II	2600.17	0.06	0.0000
2631.59.....	0.35	0.41	0.09	7.06	3.28	Lyα	1215.67	0.00	1.1647
2643.17.....	0.18	0.51	0.08	8.74	2.47	Lyα	1215.67	0.00	1.1742
2650.36.....	0.10	0.70	0.05	12.04	2.04	Lyα	1215.67	0.00	1.1802
2659.37.....	0.12	0.61	0.07	10.55	2.11	C II	1334.53	0.07	0.9927
2692.87.....	0.06	1.10	0.07	18.23	2.11	Lyα	1215.67	−0.29	1.2154
2705.44.....	0.16	0.42	0.05	7.63	2.04	Lyα	1215.67	0.00	1.2255
2735.38.....	0.15	0.39	0.05	7.68	2.03	Lyα	1215.67	0.00	1.2501
2739.97.....	0.08	0.80	0.06	16.66	2.26	Lyα	1215.67	0.00	1.2539
2744.22.....	0.25	0.23	0.05	4.84	2.03	N V	1238.82	−0.22	1.2154
2761.70.....	0.09	0.63	0.05	15.60	2.25	Lyα	1215.67	−0.35	1.2720
2796.42.....	0.05	1.09	0.05	26.21	2.26	Mg II	2796.35	0.07	0.0000
2803.66.....	0.05	0.98	0.03	22.81	2.04	Mg II	2803.53	0.13	0.0000
2852.67.....	0.19	0.49	0.07	10.46	2.82	Mg I	2852.96	−0.29	0.0000
2886.10.....	0.63	0.37	0.10	6.40	4.49		...	...	...
3205.24.....	0.84	0.37	0.12	6.64	5.50	Notes	...	...	...
2318.24.....	0.70	0.49	0.15	6.31	4.67	FF	...	...	...
2532.61.....	0.61	0.93	0.15	15.32	7.80	FF, Notes	...	...	...
PG 1248+401 $z_{em} = 1.030$									
1636.96.....	0.17	0.98	0.18	4.93	1.39	Lyα	1215.67	0.00	0.3465
1650.86.....	0.20	1.34	0.23	9.14	2.41	Lyα	1215.67	0.00	0.3580
1662.96.....	0.12	1.63	0.18	12.02	2.29	Lyε	937.80	0.09	0.7732
1676.61.....	0.15	0.66	0.10	5.59	1.39	Lyα	1215.67	0.00	0.3792
1684.10.....	0.10	1.29	0.14	12.03	1.85	Lyδ	949.74	0.07	0.7732
1695.80.....	0.12	0.66	0.12	7.19	1.45	Lyα	1215.67	0.41	0.3946
1724.82.....	0.12	1.37	0.19	13.27	1.98	Lyγ	972.54	0.36	0.7732
1726.72.....	0.14	0.76	0.13	7.42	1.38	N V	1238.82	−0.96	0.3946
1732.40.....	0.13	0.86	0.12	9.19	1.93	C III	977.02	−0.01	0.7732
1739.80.....	0.10	0.68	0.07	7.62	1.38	Lyε	937.80	−0.09	0.8553
1755.08.....	0.11	0.70	0.10	8.50	1.54	N III	989.80	0.02	0.7732
1762.02.....	0.09	0.90	0.08	9.11	1.39	Lyδ	949.74	−0.01	0.8553
1776.96.....	0.08	1.19	0.10	15.69	2.00	Lyα	1215.67	0.00	0.4617
1804.35.....	0.07	1.28	0.10	16.40	1.95	Lyγ	972.54	0.01	0.8553
1812.85.....	0.05	1.12	0.08	14.49	1.55	C III	977.02	0.19	0.8553
1818.86.....	0.06	1.47	0.09	20.76	2.00	Lyβ	1025.72	0.10	0.7732
1821.56.....	0.15	0.39	0.06	5.56	1.38	Lyβ	1025.72	−0.07	0.7760
1829.60.....	0.13	0.42	0.06	6.07	1.38	O VI	1031.93	−0.18	0.7732
1832.21.....	0.08	0.64	0.06	9.77	1.38	O VI	1031.93	−0.46	0.7760
1836.95.....	0.11	0.87	0.09	13.42	2.06	N III	989.80	0.59	0.8553
1839.77.....	0.12	0.50	0.06	7.37	1.38	O VI	1037.62	−0.09	0.7732
1842.65.....	0.15	0.50	0.09	7.39	1.75	O VI	1037.62	−0.12	0.7760
1852.61.....	0.07	0.95	0.08	14.54	1.69	Lyα	1215.67	0.00	0.5239
1854.89.....	0.11	0.50	0.06	7.71	1.38	Al III	1854.72	0.17	0.0000
1863.08.....	0.17	0.30	0.06	4.96	1.39	Al III	1862.79	0.29	0.0000
1887.55.....	0.10	0.46	0.05	7.82	1.38	Lyα, p, Notes	1215.67	0.00	0.5527
1890.21.....	0.14	0.34	0.06	5.56	1.38	Lyα, p, Notes	1215.67	0.00	0.5549
1900.03.....	0.12	0.47	0.09	6.55	1.44	Lyβ	1025.72	0.10	0.8523
1902.80.....	0.28	1.21	0.50	20.46	1.65	Lyβ	1025.72	−0.20	0.8553
1903.87.....	0.22	0.68	0.46	11.59	1.38	Lyβ	1025.72	0.87	0.8553
1914.63.....	0.10	0.63	0.08	10.88	1.82	O VI	1031.93	0.09	0.8553
1922.34.....	0.14	0.34	0.05	6.09	1.38	C II, Notes	1036.34	−0.37	0.8553
1924.96.....	0.14	0.46	0.08	8.38	1.76	O VI, Notes	1037.62	−0.13	0.8553
1943.63.....	0.12	0.44	0.07	7.58	1.57	Si IV	1393.76	−0.12	0.3946
1956.09.....	0.14	0.34	0.05	6.15	1.39	Si IV	1402.77	−0.23	0.3946
1980.87.....	0.15	0.31	0.06	6.08	1.45	Lyα	1215.67	0.00	0.6294
1991.58.....	0.09	0.98	0.08	19.66	2.46	Fe III, Notes	1122.53	1.11	0.7732

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2000.64.....	0.18	0.56	0.08	11.34	2.51	Lyα	1215.67	0.00	0.6457
2013.34.....	0.15	0.87	0.10	16.14	2.90	Lyα	1215.67	0.00	0.6562
2026.73.....	0.16	0.35	0.07	6.30	1.55	Mg I (Zn II)	2026.48	0.25	0.0000
2046.02.....	0.10	0.68	0.06	15.71	2.15	Lyα	1215.67	0.00	0.6830
2058.40.....	0.08	0.62	0.06	14.44	1.82	Lyα	1215.67	0.00	0.6932
2068.13.....	0.09	0.50	0.05	11.86	1.67	Lyα	1215.67	0.00	0.7012
2077.04.....	0.06	0.59	0.03	14.17	1.39	Lyα	1215.67	0.00	0.7086
2082.12.....	0.05	0.84	0.06	22.54	1.71	Fe III	1122.53	−0.49	0.8553
2084.17.....	0.19	0.19	0.04	5.21	1.38	Lyα	1215.67	0.00	0.7144
2088.03.....	0.07	0.44	0.04	11.73	1.48	Lyα	1215.67	0.00	0.7176
2096.49.....	0.04	0.90	0.04	24.22	1.64	Lyα	1215.67	0.00	0.7246
2102.26.....	0.20	0.32	0.06	8.40	2.22	Lyα	1215.67	0.00	0.7293
2107.02.....	0.05	0.63	0.03	14.86	1.38	Lyα	1215.67	0.00	0.7332
2110.57.....	0.13	0.25	0.04	5.86	1.38	Si II	1190.42	−0.22	0.7732
2115.76.....	0.11	0.42	0.05	9.92	1.67	Si II	1193.29	−0.11	0.7732
2139.42.....	0.05	1.16	0.06	28.24	2.27	Si III	1206.50	0.10	0.7732
2155.06.....	0.16	0.96	0.77	23.29	1.55	Lyα	1215.67	−0.51	0.7732
2156.49.....	0.51	1.58	0.84	38.10	2.36	Lyα	1215.67	0.92	0.7732
2158.91.....	0.06	0.75	0.07	18.12	1.38	Lyα	1215.67	−0.06	0.7760
2184.27.....	0.04	0.84	0.04	21.80	1.52	Lyα	1215.67	0.00	0.7968
2190.13.....	0.18	0.18	0.04	4.60	1.39	Lyα	1215.67	0.00	0.8016
2196.50.....	0.16	0.19	0.05	5.11	1.38	N V	1238.82	−0.12	0.7732
2221.75.....	0.10	0.35	0.04	8.52	1.39	Lyα	1215.67	0.00	0.8276
2230.99.....	0.15	0.23	0.04	5.64	1.39	Lyα	1215.67	0.00	0.8352
2234.91.....	0.07	0.47	0.04	11.65	1.38	Si II	1260.42	0.00	0.7732
2237.71.....	0.04	1.97	0.06	48.76	2.76	Si III	1206.50	−0.70	0.8553
2251.98.....	0.03	0.94	0.04	23.46	1.42	Lyα	1215.67	0.20	0.8523
2255.71.....	0.02	2.75	0.05	68.53	2.70	Lyα	1215.67	0.30	0.8553
2259.30.....	0.04	0.77	0.05	19.20	1.49	Lyα, Notes	1215.67	0.00	0.8585
2262.75.....	0.09	1.08	0.07	26.84	2.95	Lyα	1215.67	0.00	0.8613
2278.14.....	0.08	0.56	0.05	15.73	1.88	Lyα	1215.67	0.00	0.8740
2297.38.....	0.06	0.77	0.05	19.79	1.79	N V	1238.82	−0.99	0.8553
2301.50.....	0.05	0.67	0.05	15.75	1.43	Lyα	1215.67	0.00	0.8932
2303.80.....	0.12	0.83	0.18	20.14	1.38	Lyα	1215.67	0.00	0.8951
2304.97.....	0.28	0.48	0.21	11.60	1.51	N V	1242.80	−0.77	0.8553
2366.38.....	0.20	0.47	0.08	5.89	1.98	C II	1334.53	0.05	0.7732
2383.66.....	0.12	1.16	0.12	15.45	2.73	Lyα, Notes	1215.67	0.00	0.9608
2387.46.....	0.12	1.01	0.11	13.40	2.31	Lyα, Notes	1215.67	0.00	0.9639
2392.72.....	0.23	0.72	0.11	10.66	3.21	Lyα	1215.67	0.00	0.9682
2471.63.....	0.10	0.53	0.04	11.01	1.97	Si IV	1393.76	0.29	0.7732
2475.96.....	0.13	0.43	0.05	8.98	1.97	C II	1334.53	0.02	0.8553
2487.34.....	0.14	0.48	0.06	9.65	2.16	Si IV	1402.77	0.02	0.7732
2586.31.....	0.09	0.96	0.06	12.77	1.98	Fe II, Bl	2586.65	−0.34	0.0000
2600.57.....	0.14	0.63	0.09	7.96	2.01	Fe II	2600.17	0.40	0.0000
2745.22.....	0.09	1.14	0.09	15.61	2.29	C IV	1548.20	0.02	0.7732
2749.72.....	0.10	1.12	0.10	15.40	2.51	C IV	1550.77	−0.03	0.7732
2796.32.....	0.10	0.87	0.06	12.30	1.98	Mg II	2796.35	−0.03	0.0000
2803.55.....	0.08	0.89	0.08	12.95	1.99	Mg II	2803.53	0.02	0.0000
2852.61.....	0.24	0.33	0.06	4.92	1.98	Mg I	2852.96	−0.35	0.0000
2872.47.....	0.12	1.25	0.12	15.06	2.63	C IV	1548.20	0.12	0.8553
2877.17.....	0.18	1.00	0.13	12.02	3.11	C IV	1550.77	0.05	0.8553
PKS 1252+11 $z_{em} = 0.870$									
1670.78.....	0.17	0.76	0.12	5.78	1.50	Al II	1670.79	−0.01	0.0000
1672.64.....	0.16	0.83	0.12	6.23	1.50	Lyα	1215.67	0.00	0.3759
1681.68.....	0.12	0.93	0.11	7.34	1.51	Lyβ	1025.72	−0.02	0.6395
1692.67.....	0.17	1.18	0.17	10.17	2.37	O VI	1031.93	0.77	0.6395
1741.21.....	0.18	0.57	0.12	5.94	1.74	Lyα	1215.67	0.00	0.4323
1767.11.....	0.34	0.71	0.15	8.37	3.20	Lyβ, Bl	1025.72	0.37	0.7224
1780.14.....	0.15	0.77	0.12	9.08	2.00	Lyβ, Notes	1025.72	−0.18	0.7357
1785.47.....	0.09	1.34	0.12	15.13	2.17	Lyα	1215.67	0.00	0.4687
1838.70.....	0.17	0.41	0.09	5.75	1.60	Lyα	1215.67	0.00	0.5125
1841.90.....	0.08	0.97	0.09	13.25	1.78	Lyα	1215.67	0.00	0.5151
1878.12.....	0.09	1.00	0.10	12.51	1.82	Lyα, Notes	1215.67	0.00	0.5449
1993.24.....	0.05	1.47	0.08	20.51	1.87	Lyα	1215.67	0.12	0.6395
2006.21.....	0.11	0.64	0.09	8.64	1.62	Lyα	1215.67	0.00	0.6503
2027.19.....	0.46	0.38	0.13	4.93	2.78	Notes	...	...	...
2051.13.....	0.30	0.35	0.09	5.92	2.34	Lyα	1215.67	0.00	0.6872
2063.73.....	0.55	0.50	0.14	7.27	4.11	Notes	...	...	...
2069.69.....	0.07	1.13	0.09	16.52	2.03	Lyα	1215.67	0.00	0.7025

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2093.62.....	0.07	0.76	0.07	14.12	1.72	Lyα	1215.67	−0.29	0.7224
2098.62.....	0.45	0.28	0.09	5.15	2.85	Lyα	1215.67	0.00	0.7263
2107.88.....	0.37	0.74	0.31	13.81	2.13	Lyα, Bl	1215.67	0.00	0.7339
2109.99.....	0.18	1.54	0.31	28.63	2.14	Lyα, Bl	1215.67	−0.03	0.7357
2154.30.....	0.17	0.44	0.08	7.84	1.98	Lyα	1215.67	0.00	0.7721
2160.57.....	0.08	0.63	0.06	12.19	1.63	Lyα	1215.67	0.00	0.7773
2174.48.....	0.08	0.60	0.04	11.95	1.51	Lyα	1215.67	0.00	0.7887
2183.79.....	0.06	0.66	0.04	14.15	1.51	Lyα	1215.67	0.00	0.7964
2214.15.....	0.45	0.20	0.07	4.51	2.58	Notes	...	...	...
2219.10.....	0.08	0.47	0.05	10.30	1.54	Lyα (FF?)	1215.67	0.00	0.8254
2225.58.....	0.06	0.89	0.05	20.83	1.95	Lyα	1215.67	0.00	0.8307
2246.79.....	0.08	0.67	0.05	18.99	2.09	Lyα	1215.67	0.00	0.8482
2250.03.....	0.27	0.16	0.05	4.79	1.84	Fe II	2249.88	0.15	0.0000
2254.97.....	0.18	0.31	0.05	9.81	2.39	Lyα	1215.67	0.00	0.8549
2260.81.....	0.21	0.22	0.04	7.91	2.30	Fe II	2260.78	0.03	0.0000
2266.75.....	0.09	0.29	0.03	9.76	1.51	Lyα	1215.67	0.00	0.8646
2276.58.....	0.06	0.36	0.03	14.08	1.57	Lyα	1215.67	0.00	0.8727
2284.35.....	0.23	0.17	0.04	6.09	2.06	Si IV?	1393.76	−0.76	0.6395
2295.29.....	0.17	0.21	0.04	6.14	1.65	FF?	...	...	...
2344.28.....	0.26	0.87	0.15	8.95	3.12	Fe II	2344.21	0.07	0.0000
2350.65.....	0.24	0.62	0.13	5.87	2.29	FF?	...	...	...
2373.84.....	0.68	0.66	0.20	6.40	4.71	Fe II	2374.46	−0.62	0.0000
2382.55.....	0.13	1.07	0.13	10.46	2.32	Fe II	2382.77	−0.22	0.0000
2538.38.....	0.17	0.74	0.09	7.64	2.03	C IV	1548.20	0.06	0.6395
2542.19.....	0.39	0.63	0.16	6.63	3.24	C IV	1550.77	−0.34	0.6395
2586.67.....	0.20	0.72	0.12	7.97	2.44	Fe II	2586.65	0.02	0.0000
2600.52.....	0.16	0.88	0.11	10.12	2.48	Fe II	2600.17	0.35	0.0000
2637.55.....	0.65	0.51	0.16	6.01	4.38	Notes	...	...	...
2796.43.....	0.14	1.14	0.12	12.32	2.68	Mg II	2796.35	0.08	0.0000
2803.73.....	0.09	1.16	0.10	12.86	2.17	Mg II	2803.53	0.20	0.0000
2852.43.....	0.29	0.55	0.12	6.58	2.71	Mg I	2852.96	−0.53	0.0000
3158.15.....	0.65	0.72	0.19	7.37	5.08		...	...	...
B201 1257+34 $z_{em} = 1.375$									
2261.30.....	0.25	0.83	0.15	4.82	2.04	Fe II	2260.78	0.52	0.0000
2295.09.....	0.27	0.72	0.14	4.60	2.04	Lyα	1215.67	0.00	0.8879
2314.65.....	0.56	0.85	0.25	5.65	3.89	Lyγ	972.54	0.07	1.3799
2343.59.....	0.40	0.88	0.20	7.16	3.61	Fe II	2344.21	−0.62	0.0000
2356.71.....	0.27	1.04	0.19	8.15	3.14	Lyα	1215.67	0.00	0.9386
2382.42.....	0.18	2.19	0.20	18.77	4.16	Fe II	2382.77	−0.35	0.0000
2440.79.....	0.14	1.09	0.16	10.33	2.08	Lyβ	1025.72	−0.36	1.3799
2443.30.....	0.16	1.00	0.11	9.52	2.03	Lyα	1215.67	0.00	1.0098
2456.46.....	0.12	1.05	0.11	11.55	2.42	O VI	1031.93	0.51	1.3799
2469.56.....	0.29	0.62	0.13	6.86	2.83	O VI	1037.62	0.08	1.3799
2493.47.....	0.09	2.48	0.16	20.06	2.92	Lyα	1215.67	−0.15	1.0512
2551.14.....	0.25	0.52	0.10	4.84	2.04	Lyα	1215.67	0.00	1.0985
2599.83.....	0.28	0.66	0.15	6.05	2.57	Fe II	2600.17	−0.34	0.0000
2644.42.....	0.28	0.69	0.16	5.71	2.54	Lyα	1215.67	0.00	1.1753
2665.09.....	0.07	2.12	0.12	19.80	2.62	Lyα	1215.67	0.00	1.1923
2715.10.....	0.36	1.04	0.18	9.81	4.19	Lyα	1215.67	0.00	1.2334
2796.83.....	0.14	0.80	0.11	8.26	2.17	Mg II	2796.35	0.48	0.0000
2803.84.....	0.14	0.71	0.08	8.13	2.03	Mg II	2803.53	0.31	0.0000
2808.85.....	0.11	0.91	0.10	10.74	2.07	Lyα	1215.67	0.00	1.3105
2819.97.....	0.13	0.80	0.07	9.13	2.04	Lyα	1215.67	0.00	1.3197
2835.14.....	0.07	1.32	0.09	15.37	2.14	Lyα	1215.67	0.00	1.3322
2892.97.....	0.03	1.68	0.06	35.93	2.29	Lyα	1215.67	−0.24	1.3799
2895.86.....	0.18	0.36	0.05	7.70	2.03	Lyα	1215.67	0.00	1.3821
3176.06.....	0.17	0.94	0.13	9.16	2.51	C IV	1548.20	0.35	1.0512
3181.20.....	0.21	0.56	0.09	5.49	2.03	C IV	1550.77	0.22	1.0512
PKS 1302−102 $z_{em} = 0.286$									
1200.40.....	0.16	0.63	0.16	5.02	1.29	N I	1199.97	0.43	0.0000
1260.20.....	0.08	0.69	0.08	10.77	1.44	Si II (S II)	1260.42	−0.22	0.0000
1267.06.....	0.10	0.39	0.05	6.40	1.11	Lyα	1215.67	0.00	0.0423
1283.96.....	0.18	0.45	0.09	7.78	1.82	Lyα	1215.67	0.00	0.0562
1302.18.....	0.07	0.46	0.05	8.40	1.10	O I	1302.17	0.01	0.0000
1304.39.....	0.11	0.31	0.05	5.57	1.10	Si II	1304.37	0.02	0.0000
1321.76.....	0.20	0.22	0.07	4.54	1.38	Lyα	1215.67	0.00	0.0873
1330.64.....	0.06	1.54	0.09	29.13	2.33	Lyα	1215.67	0.00	0.0946
1334.57.....	0.08	0.48	0.05	9.06	1.10	C II	1334.53	0.04	0.0000

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
1335.99.....	0.04	0.71	0.04	13.56	1.10	Lyα	1215.67	0.00	0.0990
1392.33.....	0.03	0.85	0.03	16.63	1.10	Lyα	1215.67	0.00	0.1453
1393.77.....	0.08	0.40	0.04	7.83	1.10	Si IV	1393.76	0.01	0.0000
1421.79.....	0.15	0.26	0.06	5.49	1.28	Lyα	1215.67	0.00	0.1696
1448.66.....	0.10	0.44	0.06	9.27	1.10	Lyα	1215.67	0.00	0.1917
1450.02.....	0.09	0.53	0.08	11.18	1.25	Lyα	1215.67	0.00	0.1928
1489.49.....	0.11	0.79	0.08	15.05	2.19	Lyα	1215.67	0.00	0.2252
1504.40.....	0.16	0.32	0.07	6.86	1.55	Lyα	1215.67	0.00	0.2375
1507.71.....	0.19	0.31	0.07	6.49	1.65	Lyα	1215.67	0.00	0.2402
1518.28.....	0.14	0.23	0.05	4.77	1.11	Lyα	1215.67	0.00	0.2489
1522.51.....	0.08	0.82	0.07	17.15	1.91	Lyα	1215.67	0.00	0.2524
1526.94.....	0.08	0.33	0.04	8.10	1.10	Si II	1526.71	0.23	0.0000
1548.45.....	0.06	0.31	0.03	10.57	1.10	C IV	1548.20	−0.25	0.0000
1670.82.....	0.11	0.55	0.06	8.07	1.51	Al II	1670.79	0.03	0.0000
1803.51.....	0.20	0.22	0.06	4.79	1.58		...	...	...
2062.20.....	0.17	0.27	0.05	6.98	1.86	Zn II?	2062.66	−0.46	0.0000
2200.19.....	0.44	0.15	0.05	4.66	2.61		...	...	...
2260.71.....	0.19	0.15	0.04	5.08	1.61	Fe II	2260.78	−0.07	0.0000
2344.09.....	0.12	0.58	0.05	9.95	2.04	Fe II	2344.21	−0.12	0.0000
2374.30.....	0.13	0.56	0.07	10.00	2.17	Fe II	2374.46	−0.16	0.0000
2382.80.....	0.11	0.64	0.05	11.41	2.04	Fe II	2382.77	0.03	0.0000
2577.17.....	0.25	0.25	0.05	4.80	2.04	Mn II	2576.88	0.29	0.0000
2586.57.....	0.11	0.59	0.05	11.08	2.04	Fe II	2586.65	−0.08	0.0000
2594.42.....	0.24	0.25	0.05	5.01	2.04	Mn II	2594.50	−0.08	0.0000
2600.26.....	0.09	0.72	0.04	14.42	2.04	Fe II	2600.17	0.09	0.0000
2756.07.....	0.39	0.23	0.07	4.68	2.65		...	...	...
2796.32.....	0.07	0.90	0.06	17.90	2.20	Mg II	2796.35	−0.03	0.0000
2803.47.....	0.07	0.86	0.04	16.70	2.04	Mg II	2803.53	−0.06	0.0000
2852.73.....	0.31	0.30	0.07	5.83	2.61	Mg I	2852.96	−0.23	0.0000
3005.56.....	0.21	0.30	0.05	5.73	2.04		...	...	...
1986.16.....	0.19	0.18	0.04	4.83	1.50	FF	...	...	...
2218.43.....	0.14	0.19	0.03	6.35	1.51	FF	...	...	...
2315.23.....	0.25	0.36	0.08	5.44	2.22	FF	...	...	...
2351.71.....	0.34	0.43	0.09	7.00	3.21	FF	...	...	...
PG 1333+176 $z_{em} = 0.554$									
1635.66.....	0.26	1.31	0.33	5.41	2.17	Lyα	1215.67	−0.41	0.3458
1861.94.....	0.09	0.60	0.05	9.97	1.51	Lyα	1215.67	0.00	0.5316
1882.82.....	0.12	0.41	0.05	7.62	1.51	Lyα	1215.67	0.00	0.5488
2083.93.....	0.08	0.64	0.07	11.07	1.54	C IV	1548.20	0.33	0.3458
2343.94.....	0.25	0.81	0.14	8.12	2.90	Fe II	2344.21	−0.27	0.0000
2374.50.....	0.21	0.94	0.14	10.72	3.00	Fe II	2374.46	0.04	0.0000
2382.85.....	0.11	1.12	0.10	13.39	2.46	Fe II	2382.77	0.08	0.0000
2586.58.....	0.20	0.59	0.11	6.80	2.21	Fe II	2586.65	−0.07	0.0000
2600.17.....	0.13	1.07	0.11	12.09	2.58	Fe II	2600.17	0.00	0.0000
2796.26.....	0.09	1.46	0.10	16.96	2.51	Mg II	2796.35	−0.09	0.0000
2803.39.....	0.08	1.26	0.10	14.68	2.15	Mg II	2803.53	−0.14	0.0000
2851.74.....	0.43	0.65	0.15	7.72	3.96	Mg I	2852.96	−1.22	0.0000
2919.51.....	0.30	0.48	0.11	6.02	2.62	Notes	...	...	...
2958.19.....	0.48	0.38	0.12	4.84	3.12	Notes	...	...	...
1947.57.....	0.21	0.34	0.09	4.73	1.62	FF	...	...	...
2233.28.....	0.32	0.25	0.08	5.02	2.19	FF	...	...	...
PG 1338+416 $z_{em} = 1.219$									
2232.76.....	0.83	1.00	0.75	7.91	2.94	Lyα, p, Bl	1215.67	0.00	0.8366
2235.87.....	0.49	2.31	0.75	18.31	3.40	Lyα, p, Bl	1215.67	0.00	0.8392
2245.31.....	0.31	0.95	0.19	8.05	3.35	Lyα	1215.67	0.00	0.8470
2260.82.....	0.28	0.60	0.15	5.45	2.40	Fe II	2260.78	0.04	0.0000
2286.27.....	0.13	1.04	0.09	9.90	2.03	O VI	1031.93	0.33	1.2152
2298.78.....	0.12	1.08	0.13	9.28	2.07	O VI	1037.62	0.25	1.2152
2344.41.....	0.21	0.63	0.09	5.86	2.04	Fe II	2344.21	0.20	0.0000
2350.92.....	0.31	0.71	0.15	6.67	2.91	Lyα	1215.67	0.00	0.9338
2383.17.....	0.06	2.27	0.12	22.45	2.66	Lyα, Notes	1215.67	0.00	0.9604
2386.70.....	0.30	0.49	0.12	4.88	2.03	Lyα	1215.67	0.00	0.9633
2390.67.....	0.25	1.44	0.19	14.45	3.99	Lyα	1215.67	0.00	0.9665
2400.57.....	0.10	1.11	0.11	10.61	2.09	Lyα, Notes	1215.67	0.00	0.9747
2482.82.....	0.08	1.64	0.11	17.48	2.57	Lyα	1215.67	0.00	1.0423
2496.34.....	0.31	1.00	0.19	10.32	3.55	Lyα, p, Bl	1215.67	0.00	1.0535
2499.64.....	0.09	1.29	0.11	13.28	2.03	Lyα, p, Bl	1215.67	0.00	1.0562

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2510.04.....	0.11	1.70	0.13	18.26	3.09	C IV, p, Notes	1548.20	0.00	0.6213
2514.20.....	0.09	1.16	0.08	12.35	2.03	C IV, p, Notes	1550.77	−0.01	0.6213
2519.10.....	0.08	2.50	0.13	25.92	3.35	Lyα	1215.67	0.00	1.0722
2526.02.....	0.08	1.78	0.11	18.46	2.57	Lyα	1215.67	0.10	1.0778
2531.54.....	0.22	0.67	0.12	6.93	2.41	Lyα	1215.67	0.00	1.0824
2535.85.....	0.19	0.65	0.12	6.94	2.19	Fe II, Notes	1144.94	−0.40	1.2152
2549.60.....	0.08	2.68	0.13	28.53	3.62	Lyα	1215.67	0.00	1.0973
2568.32.....	0.28	1.29	0.16	14.45	4.56	Lyα	1215.67	0.00	1.1127
2582.43.....	0.34	0.74	0.18	8.22	3.19	Lyα	1215.67	0.00	1.1243
2586.21.....	0.12	1.08	0.14	11.89	2.09	Fe II, Notes	2586.65	0.42	0.0000
2599.97.....	0.15	0.71	0.08	8.12	2.04	Fe II	2600.17	−0.20	0.0000
2610.60.....	0.11	0.88	0.10	10.45	2.12	C IV, p, Notes	1548.20	−0.20	0.6863
2615.31.....	0.16	0.89	0.12	10.16	2.62	C IV, p, Notes	1550.77	0.18	0.6863
2631.92.....	0.25	0.95	0.13	11.96	3.74	Lyα	1215.67	0.00	1.1650
2637.82.....	0.07	1.84	0.11	22.93	2.82	Lyα	1215.67	0.00	1.1698
2644.40.....	0.25	1.26	0.14	16.04	4.56	Lyα	1215.67	0.00	1.1753
2672.86.....	0.20	0.47	0.07	6.11	2.04	Si III	1206.50	0.24	1.2152
2679.59.....	0.27	0.35	0.07	4.58	2.04	Lyα	1215.67	0.00	1.2042
2692.95.....	0.09	1.14	0.09	14.64	2.33	Lyα	1215.67	0.03	1.2152
2744.42.....	0.12	0.89	0.09	12.25	2.45	N V	1238.82	0.22	1.2152
2753.11.....	0.19	0.50	0.07	6.60	2.04	N V	1242.80	0.09	1.2152
2796.20.....	0.11	0.97	0.07	10.82	2.04	Mg II	2796.35	−0.15	0.0000
2803.24.....	0.11	1.03	0.10	11.57	2.22	Mg II	2803.53	−0.29	0.0000
3216.79.....	0.19	0.81	0.14	6.94	2.18	C IV	1548.20	−0.07	1.0778
PKS 1354+19 $z_{em} = 0.720$									
1702.47.....	0.26	0.80	0.19	6.90	2.40	Lyβ	1025.72	−0.15	0.6599
1738.24.....	0.12	1.35	0.15	12.74	2.33	Lyα	1215.67	0.00	0.4299
1756.81.....	0.13	0.64	0.08	6.84	1.51	Si III	1206.50	−0.22	0.4563
1767.38.....	0.19	0.36	0.07	4.82	1.50	Lyα	1215.67	0.00	0.4538
1770.21.....	0.05	2.18	0.11	32.53	2.65	Lyα	1215.67	−0.17	0.4563
1778.21.....	0.22	2.20	0.16	35.94	6.44	Lyα	1215.67	0.00	0.4627
1789.15.....	0.11	0.66	0.07	8.33	1.51	Lyα	1215.67	0.00	0.4717
1835.50.....	0.13	0.57	0.08	6.76	1.51	Si II	1260.42	−0.05	0.4563
1848.85.....	0.06	1.65	0.11	18.49	2.07	Lyα	1215.67	0.00	0.5208
1914.56.....	0.11	0.71	0.08	8.18	1.51	Lyα	1215.67	0.00	0.5749
1943.26.....	0.13	1.12	0.13	12.57	2.33	C II	1334.53	−0.21	0.4563
2018.07.....	0.06	1.17	0.08	16.60	1.82	Lyα	1215.67	0.14	0.6599
2029.73.....	0.16	0.80	0.11	11.09	2.41	Si IV	1393.76	0.00	0.4563
2042.80.....	0.16	0.35	0.06	5.61	1.51	Si IV	1402.77	−0.06	0.4563
2223.47.....	0.15	0.44	0.08	7.92	1.79	Si II	1526.71	0.12	0.4563
2254.89.....	0.04	1.33	0.06	24.80	1.76	C IV	1548.20	0.24	0.4563
2258.59.....	0.05	1.01	0.06	18.67	1.68	C IV	1550.77	0.21	0.4563
2344.04.....	0.26	0.60	0.15	4.67	2.10	Fe II	2344.21	−0.17	0.0000
2374.51.....	0.46	0.60	0.18	4.99	3.07	Fe II	2374.46	0.05	0.0000
2586.44.....	0.21	0.59	0.09	5.85	2.04	Fe II	2586.65	−0.21	0.0000
2600.31.....	0.19	0.62	0.09	6.52	2.04	Fe II	2600.17	0.15	0.0000
2796.22.....	0.16	0.72	0.08	7.63	2.04	Mg II	2796.35	−0.13	0.0000
2803.59.....	0.12	0.98	0.08	10.57	2.04	Mg II	2803.53	0.06	0.0000
1958.44.....	0.28	0.49	0.13	5.31	2.19	FF	...	...	...
2219.61.....	0.38	0.34	0.10	6.12	2.77	FF	...	...	...
PG 1407+265 $z_{em} = 0.944$									
1623.68.....	0.38	0.97	0.31	5.08	2.49	Lyα	1215.67	0.00	0.3356
1636.98.....	0.19	0.64	0.12	4.74	1.51	Lyγ	972.54	0.37	0.6828
1641.22.....	0.14	0.79	0.14	6.72	1.61	Lyβ	1025.72	0.28	0.5998
1645.12.....	0.11	0.85	0.09	7.19	1.50	C III	977.02	0.96	0.6828
1650.28.....	0.17	0.53	0.09	5.27	1.51	O VI?	1031.93	−0.62	0.5998
1670.81.....	0.11	0.78	0.10	9.57	1.75	Al II	1670.79	0.02	0.0000
1698.82.....	0.11	0.57	0.06	8.12	1.51	Lyβ	1025.72	0.13	0.6561
1726.18.....	0.09	1.02	0.10	14.08	2.00	Lyβ	1025.72	0.07	0.6828
1736.24.....	0.20	0.29	0.06	4.51	1.51	O VI?	1031.93	−0.33	0.6828
1742.24.....	0.09	0.75	0.08	12.26	1.73	Lyα	1215.67	0.00	0.4332
1763.04.....	0.30	0.34	0.09	5.76	2.32	Lyα	1215.67	−0.10	0.4503
1767.54.....	0.10	0.48	0.05	7.95	1.50	Lyγ	972.54	0.18	0.8173
1775.21.....	0.10	0.70	0.07	11.99	1.89	Lyα	1215.67	0.00	0.4603
1796.62.....	0.12	0.41	0.05	7.39	1.51	N V	1238.82	−0.09	0.4503
1802.86.....	0.20	0.32	0.07	5.72	1.78	N V	1242.80	0.38	0.4503
1812.54.....	0.20	0.24	0.05	4.60	1.51	Lyη	926.23	0.25	0.9566
1819.88.....	0.28	0.65	0.10	11.69	3.63	Lyζ, Bl	930.75	−1.26	0.9566

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
1834.73.....	0.16	0.31	0.07	5.77	1.59	Lyϵ	937.80	−0.10	0.9566
1855.06.....	0.09	0.53	0.06	9.79	1.59	Lyβ, Notes	1025.72	−0.28	0.8088
1858.13.....	0.09	0.48	0.05	8.95	1.50	Lyδ, Notes	949.74	−0.07	0.9566
1863.99.....	0.06	0.80	0.06	15.09	1.72	Lyβ	1025.72	0.00	0.8173
1888.81.....	0.15	0.32	0.05	5.92	1.51	Fe III?, Notes	1122.53	−0.21	0.6828
1902.75.....	0.08	0.72	0.05	11.85	1.51	Lyγ	972.54	−0.06	0.9566
1914.67.....	0.03	1.35	0.06	26.19	1.71	Lyα	1215.67	0.00	0.5750
1930.47.....	0.14	0.41	0.06	8.87	1.94	Si III	1206.50	0.30	0.5998
1942.97.....	1.71	0.26	0.38	5.10	2.47	Lyα	1215.67	0.00	0.5983
1944.74.....	0.11	1.23	0.37	23.48	1.63	Lyα	1215.67	−0.09	0.5998
1958.19.....	0.16	0.28	0.05	5.55	1.51	Lyβ	1025.72	−0.01	0.9091
1963.07.....	0.18	0.26	0.05	5.18	1.50	Lyβ	1025.72	0.10	0.9137
1966.98.....	0.27	0.52	0.09	10.67	3.25	Bl	...	...	...
1979.29.....	0.09	0.63	0.06	12.78	1.78	Lyα	1215.67	0.00	0.6282
2006.94.....	0.04	1.11	0.06	21.15	1.72	Lyβ	1025.72	0.09	0.9566
2013.30.....	0.07	0.58	0.05	12.67	1.56	Lyα	1215.67	0.03	0.6561
2018.79.....	0.11	0.41	0.06	9.26	1.71	O VI	1031.93	−0.24	0.9566
2022.28.....	0.11	0.36	0.04	7.67	1.50	Lyα	1215.67	0.00	0.6635
2026.83.....	0.30	0.57	0.13	11.37	2.84	Mg I (Zn II)	2026.48	0.35	0.0000
2030.67.....	0.27	0.68	0.13	14.31	3.05	O VI, Notes	1037.62	0.52	0.9566
2038.64.....	0.19	0.51	0.08	10.87	2.62	Lyα	1215.67	0.00	0.6770
2042.54.....	0.08	0.65	0.07	15.01	1.81	Lyα	1215.67	0.00	0.6802
2045.55.....	0.03	1.63	0.06	37.70	2.15	Lyα	1215.67	−0.21	0.6828
2052.41.....	0.17	0.21	0.04	5.22	1.50	N V?	1238.82	0.81	0.6561
2056.11.....	0.15	0.24	0.04	5.89	1.50	Lyα	1215.67	0.00	0.6913
2086.53.....	0.34	0.21	0.06	5.63	2.47	Si II?	1304.37	−0.20	0.5998
2099.27.....	0.18	0.37	0.06	9.83	2.43	Lyα	1215.67	0.00	0.7268
2133.13.....	0.13	0.32	0.04	8.90	1.50	Lyα	1215.67	0.00	0.7547
2135.16.....	0.22	0.19	0.06	5.31	1.64	C II	1334.53	0.17	0.5998
2139.95.....	0.13	0.25	0.03	6.87	1.51	Lyα	1215.67	0.00	0.7603
2148.23.....	0.28	0.20	0.05	5.12	2.09	Lyα	1215.67	0.00	0.7671
2156.65.....	0.07	0.59	0.05	16.64	1.83	O I?	1302.17	0.13	0.6561
2185.33.....	0.10	0.35	0.04	10.41	1.72	C IV, p	1548.20	0.00	0.4115
2188.96.....	0.19	0.26	0.05	7.54	2.05	C IV, p	1550.77	0.00	0.4115
2198.75.....	0.03	1.10	0.04	31.57	1.62	Lyα	1215.67	−0.18	0.8088
2209.25.....	0.02	1.40	0.04	41.32	1.70	Lyα	1215.67	0.06	0.8173
2213.12.....	0.16	0.19	0.03	5.53	1.50	Lyα	1215.67	0.00	0.8205
2220.04.....	0.24	0.24	0.05	7.05	2.32	N I?	1134.66	0.10	0.9566
2226.91.....	0.18	0.19	0.04	5.77	1.50	Lyα	1215.67	0.00	0.8318
2229.34.....	0.19	0.24	0.05	7.38	1.93	Si IV?	1393.76	−0.40	0.5998
2233.08.....	0.26	0.21	0.05	6.17	2.19	Lyα, Bl	1215.67	0.00	0.8369
2244.29.....	0.29	0.30	0.06	9.01	3.07	Si IV?	1402.77	0.14	0.5998
2257.29.....	0.18	0.19	0.04	5.75	1.50	Lyα	1215.67	0.00	0.8568
2259.71.....	0.10	0.47	0.05	14.57	2.03	Lyα	1215.67	0.00	0.8588
2275.34.....	0.20	0.23	0.05	6.96	2.07	Lyα	1215.67	0.00	0.8717
2280.81.....	0.24	0.17	0.04	5.43	1.92	Lyα	1215.67	0.00	0.8762
2304.93.....	0.11	0.34	0.05	9.26	1.74	Lyα	1215.67	0.00	0.8960
2312.07.....	0.10	0.75	0.09	10.54	1.76	Lyα	1215.67	0.00	0.9019
2316.13.....	0.48	0.41	0.14	5.72	3.07	FF?	...	...	...
2320.96.....	0.16	0.84	0.11	11.87	2.51	Lyα	1215.67	0.12	0.9091
2326.40.....	0.12	1.08	0.10	15.58	2.62	Lyα	1215.67	−0.09	0.9137
2344.30.....	0.14	1.21	0.13	18.14	2.99	Lyα, Notes	1215.67	0.00	0.9283
2347.79.....	0.14	0.56	0.10	8.61	1.77	N I?	1199.97	0.01	0.9566
2374.13.....	0.19	0.52	0.09	7.96	2.14	Fe II	2374.46	−0.33	0.0000
2378.62.....	0.07	1.23	0.09	18.32	2.09	Lyα	1215.67	0.13	0.9566
2382.73.....	0.16	0.73	0.10	11.35	2.47	Fe II	2382.77	−0.04	0.0000
2476.75.....	0.15	0.53	0.09	8.16	1.85	C IV	1548.20	−0.06	0.5998
2480.80.....	0.42	0.37	0.11	5.89	2.88	C IV	1550.77	−0.12	0.5998
2586.55.....	0.09	0.64	0.06	9.80	1.55	Fe II	2586.65	−0.09	0.0000
2600.39.....	0.11	0.66	0.08	10.40	1.82	Fe II	2600.17	0.22	0.0000
2605.81.....	0.17	0.35	0.06	5.56	1.55	C IV	1548.20	0.47	0.6828
2796.57.....	0.09	0.89	0.08	14.03	2.01	Mg II	2796.35	0.22	0.0000
2803.55.....	0.11	0.90	0.09	13.96	2.28	Mg II	2803.53	0.02	0.0000
2853.27.....	0.34	0.39	0.10	6.12	2.64	Mg I	2852.96	0.31	0.0000
3268.79.....	0.52	0.41	0.14	5.14	3.01	Al II	1670.79	−0.18	0.9566
2352.86.....	0.29	0.38	0.10	5.52	2.23	FF	...	...	...
PG 1415+451 $z_{em} = 0.114$									
2344.24.....	0.14	0.72	0.10	8.54	2.17	Fe II	2344.21	0.03	0.0000
2382.55.....	0.10	0.94	0.09	11.58	2.15	Fe II	2382.77	−0.22	0.0000

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2586.82.....	0.18	0.47	0.06	6.70	2.04	Fe II	2586.65	0.17	0.0000
2600.06.....	0.13	0.64	0.06	9.23	2.04	Fe II	2600.17	−0.11	0.0000
2796.16.....	0.08	0.98	0.05	15.19	2.03	Mg II	2796.35	−0.19	0.0000
2803.45.....	0.07	1.02	0.07	15.71	2.14	Mg II	2803.53	−0.08	0.0000
PKS 1424−11 $z_{em} = 0.805$									
1670.79.....	0.15	0.94	0.19	5.94	1.57	Al II	1670.79	0.00	0.0000
1697.87.....	0.13	0.92	0.17	6.74	1.52	Lyβ	1025.72	−0.04	0.6553
1700.23.....	0.20	0.65	0.13	4.59	1.50	Lyβ	1025.72	−0.31	0.6579
1709.07.....	0.33	0.67	0.20	5.17	2.29	Lyα	1215.67	0.00	0.4059
1801.84.....	0.19	0.46	0.09	4.69	1.51	Lyα	1215.67	0.00	0.4822
1806.72.....	0.19	0.48	0.11	4.61	1.50	Lyα	1215.67	0.00	0.4862
1854.79.....	0.06	0.95	0.09	12.68	1.54	Lyα	1215.67	0.00	0.5257
1928.44.....	0.14	0.52	0.07	6.41	1.51	Lyα	1215.67	0.00	0.5863
1944.06.....	0.13	0.69	0.11	7.80	1.71	Lyα	1215.67	0.00	0.5992
2000.06.....	0.21	0.40	0.09	4.50	1.50	Lyα, p	1215.67	0.00	0.6452
2004.17.....	0.20	0.61	0.13	6.51	1.95	Lyα, p	1215.67	0.00	0.6486
2012.22.....	0.06	1.93	0.12	23.59	2.33	Lyα	1215.67	−0.12	0.6553
2015.43.....	0.05	1.31	0.10	16.03	1.67	Lyα	1215.67	−0.03	0.6579
2087.82.....	0.10	0.62	0.06	9.22	1.50	Lyα	1215.67	0.00	0.7174
2091.15.....	0.26	0.66	0.12	9.84	2.95	Lyα	1215.67	0.00	0.7202
2120.13.....	0.15	0.35	0.05	6.00	1.50	Lyα (FF)	1215.67	0.00	0.7440
2153.60.....	0.32	0.54	0.10	10.01	3.56	Lyα	1215.67	0.00	0.7715
2212.80.....	0.13	0.24	0.03	6.84	1.51	Lyα	1215.67	0.00	0.8202
2343.98.....	0.17	0.89	0.11	7.12	2.04	Fe II	2344.21	−0.23	0.0000
2374.64.....	0.31	0.84	0.18	6.71	2.94	Fe II	2374.46	0.18	0.0000
2382.85.....	0.15	0.93	0.14	7.76	2.06	Fe II	2382.77	0.08	0.0000
2562.50.....	0.17	0.72	0.09	6.93	2.03	C IV	1548.20	−0.29	0.6553
2566.93.....	0.20	0.80	0.14	7.17	2.39	C IV	1550.77	−0.12	0.6553
2586.84.....	0.21	0.95	0.15	8.65	2.70	Fe II	2586.65	0.19	0.0000
2600.19.....	0.13	1.38	0.14	12.79	2.66	Fe II	2600.17	0.02	0.0000
2796.14.....	0.07	1.08	0.05	17.04	2.04	Mg II	2796.35	−0.22	0.0000
2803.40.....	0.06	1.36	0.08	20.28	2.37	Mg II	2803.53	−0.13	0.0000
2852.40.....	0.22	0.73	0.12	8.09	2.64	Mg I	2852.96	−0.56	0.0000
1810.40.....	0.62	0.68	0.22	6.86	4.05	FF	...	...	...
1857.73.....	0.19	0.38	0.09	5.30	1.63	FF	...	...	...
2123.66.....	0.19	0.32	0.07	5.63	1.71	FF	...	...	...
2219.93.....	0.21	0.17	0.05	4.68	1.59	FF	...	...	...
S4 1435+63 $z_{em} = 2.060$									
2678.51.....	0.24	0.74	0.13	4.94	2.03		...	...	...
2687.15.....	0.46	1.35	0.31	15.26	4.21	Lyλ, Notes	918.13	1.25	1.9254
2689.74.....	0.19	0.58	0.22	6.60	2.03	Lyκ	919.35	0.27	1.9254
2694.45.....	0.07	1.22	0.06	14.55	2.03	Lyι	920.96	0.27	1.9254
2700.78.....	0.08	1.25	0.09	17.27	2.33	Lyθ	923.15	0.20	1.9254
2704.40.....	0.13	0.66	0.06	9.32	2.03		...	...	...
2709.70.....	0.08	1.13	0.08	15.67	2.20	Lyη	926.23	0.11	1.9254
2721.50.....	0.43	1.45	0.56	19.91	2.63		...	...	...
2723.18.....	0.31	0.70	0.50	9.55	2.03	Lyζ	930.75	0.36	1.9254
2735.99.....	0.08	1.23	0.09	17.37	2.43		...	...	...
2742.79.....	0.07	2.43	0.14	33.71	3.01	Lyϵ, Notes	937.80	−0.65	1.9254
2747.51.....	0.64	0.47	0.17	6.60	3.98		...	...	...
2755.18.....	0.08	1.87	0.10	25.79	3.09		...	...	...
2764.78.....	0.15	0.61	0.07	8.05	2.04		...	...	...
2773.07.....	0.20	1.08	0.12	15.15	3.85		...	...	...
2778.61.....	0.05	2.04	0.08	27.66	2.49	Lyδ, Notes	949.74	0.24	1.9254
2785.86.....	0.18	0.74	0.10	10.35	2.68		...	...	...
2791.68.....	0.05	3.31	0.11	46.59	3.91		...	...	...
2797.28.....	0.06	2.05	0.10	28.86	2.89	Mg II?, Notes	2796.35	0.93	0.0000
2804.78.....	0.06	1.57	0.09	20.78	2.51	Mg II?, Notes	2803.53	0.34	0.0000
2821.88.....	0.07	1.46	0.09	20.79	2.60		...	...	...
2826.51.....	0.27	0.32	0.07	4.52	2.03		...	...	...
2831.39.....	0.12	0.71	0.08	9.70	2.13		...	...	...
2845.05.....	0.06	1.65	0.09	22.63	2.40	Lyγ	972.54	−0.02	1.9254
2849.41.....	0.17	0.65	0.10	9.30	2.43		...	...	...
2853.52.....	0.16	0.79	0.10	11.55	2.60	Mg I, Notes	2852.96	−0.37	0.0003
2858.12.....	0.06	1.52	0.08	21.06	2.31	C III	977.02	−0.08	1.9254
2865.79.....	0.08	1.08	0.06	14.67	2.04		...	...	...
2883.64.....	0.08	1.48	0.11	21.40	2.55		...	...	...
2886.51.....	0.29	0.39	0.08	5.61	2.03		...	...	...
2895.19.....	0.15	0.59	0.06	8.35	2.04	N III (Si II)	989.80	−0.38	1.9254

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2901.79.....	0.31	0.35	0.09	5.06	2.03		...	...	...
2904.71.....	0.11	1.37	0.12	19.72	2.79		...	...	...
2922.60.....	0.12	1.07	0.11	15.00	2.73		...	...	...
2925.74.....	0.11	0.89	0.07	12.53	2.03		...	...	...
2930.27.....	0.21	0.71	0.10	10.22	3.05		...	...	...
2938.64.....	0.15	0.55	0.06	8.00	2.04		...	...	...
2945.83.....	0.21	0.41	0.09	5.88	2.09		...	...	...
2953.70.....	0.40	0.58	0.12	8.40	4.04		...	...	...
2962.64.....	0.28	0.77	0.12	11.41	3.89		...	...	...
2976.14.....	0.05	2.24	0.08	32.91	2.90		...	...	...
2994.00.....	0.17	0.51	0.08	7.52	2.16		...	...	...
3000.51.....	0.05	1.72	0.08	25.40	2.37	Lyβ	1025.72	−0.13	1.9254
3014.40.....	0.76	5.13	1.40	73.98	6.11		...	...	...
3017.18.....	0.17	1.00	1.31	14.43	3.36		...	...	...
3032.24.....	0.10	0.92	0.09	13.54	2.14	C II?	1036.34	0.53	1.9254
3034.99.....	0.15	0.63	0.07	9.34	2.03		...	...	...
3042.82.....	0.25	0.37	0.09	5.20	2.21		...	...	...
3050.76.....	0.16	0.89	0.10	11.94	2.85		...	...	...
3055.34.....	0.21	0.39	0.06	5.64	2.03		...	...	...
3067.51.....	0.22	0.42	0.07	6.25	2.03		...	...	...
3070.37.....	0.16	0.52	0.09	7.63	2.02		...	...	...
3080.17.....	0.11	0.96	0.08	14.36	2.03		...	...	...
3082.05.....	0.17	0.67	0.08	9.94	2.03		...	...	...
3085.15.....	0.08	1.01	0.06	15.08	2.03		...	...	...
3089.40.....	0.30	0.62	0.11	9.25	3.47		...	...	...
3094.42.....	0.10	0.79	0.06	11.73	2.03		...	...	...
3099.51.....	0.04	2.15	0.08	31.69	2.57		...	...	...
3116.99.....	0.14	0.71	0.09	10.56	2.37		...	...	...
3124.64.....	0.05	1.66	0.08	25.22	2.52		...	...	...
3131.76.....	0.32	0.46	0.10	7.11	3.15		...	...	...
3142.03.....	0.08	0.94	0.07	15.40	2.13		...	...	...
3149.14.....	0.06	1.59	0.10	27.38	2.41		...	...	...
3153.03.....	0.19	0.89	0.11	15.30	3.24		...	...	...
3171.00.....	0.23	0.37	0.06	6.36	2.03	N II	1083.99	−0.11	1.9254
3173.24.....	0.21	0.42	0.06	7.14	2.03		...	...	...
3182.80.....	0.12	0.64	0.07	10.54	2.18		...	...	...
3201.73.....	0.09	1.41	0.09	21.31	2.86	C IV	1548.20	−0.22	1.0682
3207.48.....	0.09	0.97	0.08	14.36	2.28	C IV	1550.77	0.22	1.0682
3225.60.....	0.19	0.88	0.10	13.12	3.40		...	...	...
3249.55.....	0.12	1.13	0.14	16.53	2.18		...	...	...
3251.73.....	0.34	0.41	0.11	6.02	2.03		...	...	...
3262.58.....	0.14	0.81	0.10	10.56	2.35		...	...	...
PG 1444+407 $z_{em} = 0.267$									
1670.79.....	0.13	0.50	0.07	6.84	1.51	Al II	1670.79	0.00	0.0000
2344.20.....	0.14	0.68	0.08	11.64	2.56	Fe II	2344.21	−0.01	0.0000
2374.78.....	0.19	0.38	0.05	6.54	2.04	Fe II	2374.46	0.32	0.0000
2382.68.....	0.09	0.70	0.06	12.18	2.06	Fe II	2382.77	−0.09	0.0000
2586.41.....	0.12	0.56	0.05	10.21	2.04	Fe II	2586.65	−0.24	0.0000
2600.20.....	0.08	0.83	0.06	15.92	2.14	Fe II	2600.17	0.03	0.0000
2792.56.....	1.87	0.38	0.28	6.98	5.26	Mg II	2796.35	−3.79	0.0000
2796.15.....	0.10	1.03	0.24	18.71	2.32	Mg II	2796.35	−0.20	0.0000
2803.39.....	0.07	0.92	0.05	16.96	2.04	Mg II	2803.53	−0.14	0.0000
1958.32.....	0.18	0.18	0.04	5.03	1.51	FF	...	...	...
PG 1538+477 $z_{em} = 0.770$									
1622.40.....	0.28	2.63	0.44	11.43	3.40	Lyα, Notes	1215.67	0.00	0.3346
1643.54.....	0.09	1.17	0.15	9.32	1.55	Lyδ	949.74	0.45	0.7300
1660.27.....	0.19	0.47	0.09	4.66	1.51	Lyγ	972.54	0.22	0.7069
1682.60.....	0.07	1.55	0.11	18.96	2.13	Lyγ	972.54	0.06	0.7300
1690.35.....	0.08	1.11	0.11	13.88	1.70	C III	977.02	0.06	0.7300
1692.86.....	0.14	0.59	0.11	7.71	1.62	Lyα	1215.67	0.00	0.3925
1712.62.....	0.13	0.68	0.09	9.81	1.95	N III	989.80	0.22	0.7300
1722.90.....	0.34	0.67	0.14	9.57	3.50	Lyβ	1025.72	−0.38	0.6801
1729.76.....	0.18	0.34	0.06	4.88	1.50	C III	977.02	−0.03	0.7705
1750.90.....	0.10	1.30	0.09	23.04	3.02	Lyα, Notes	1215.67	0.00	0.4403
1769.66.....	0.09	0.83	0.08	14.60	2.06	Lyα	1215.67	0.00	0.4557
1774.72.....	0.04	2.13	0.07	39.77	2.58	Lyβ	1025.72	0.18	0.7300
1785.18.....	0.12	0.84	0.08	15.71	2.51	O VI	1031.93	−0.12	0.7300
1792.95.....	0.12	0.49	0.08	9.45	1.50	C II	1036.34	0.03	0.7300

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
1794.66.....	0.14	0.45	0.19	8.80	1.50	O VI, Bl	1037.62	−0.48	0.7300
1796.32.....	0.45	0.98	0.28	18.99	3.16	Lyα, Bl	1215.67	0.00	0.4776
1803.58.....	0.28	0.25	0.08	5.04	1.96	Lyα	1215.67	0.00	0.4836
1806.80.....	0.05	1.42	0.07	30.24	2.15	Lyα	1215.67	0.00	0.4863
1816.04.....	0.06	0.65	0.04	14.36	1.50	Lyβ	1025.72	0.03	0.7705
1826.93.....	0.05	0.66	0.05	16.01	1.59	O VI	1031.93	−0.09	0.7705
1837.10.....	0.06	0.59	0.05	14.53	1.54	O VI	1037.62	0.02	0.7705
1841.54.....	0.20	0.40	0.12	9.47	1.73	Lyα, Bl	1215.67	0.00	0.5148
1843.74.....	0.07	1.69	0.12	39.75	2.16	Lyα, Bl	1215.67	0.00	0.5166
1854.25.....	0.08	0.65	0.06	13.44	1.75	Lyα (FF?)	1215.67	0.00	0.5253
1866.98.....	1.47	0.35	0.52	7.04	2.18	Lyα, Notes	1215.67	0.00	0.5358
1868.51.....	0.20	0.98	0.51	19.64	1.59	Lyα, Bl	1215.67	0.00	0.5370
1875.07.....	0.24	0.50	0.09	10.05	2.88	N II	1083.99	−0.28	0.7300
1890.06.....	0.19	0.24	0.05	4.85	1.50	Lyα, p	1215.67	0.00	0.5547
1892.90.....	0.13	0.34	0.05	6.64	1.50	Lyα, p	1215.67	0.00	0.5571
1928.52.....	0.17	0.30	0.06	6.52	1.64	Lyα, p	1215.67	0.00	0.5864
1931.07.....	0.12	0.39	0.06	8.50	1.56	Lyα, p	1215.67	0.00	0.5885
1936.68.....	0.28	0.24	0.06	5.42	2.10	FF?	...	...	...
1977.64.....	0.08	0.53	0.04	10.67	1.50	Lyα	1215.67	0.00	0.6268
1980.83.....	0.20	0.21	0.05	4.52	1.50	Fe II?	1144.94	0.03	0.7300
2001.39.....	0.30	0.43	0.08	9.02	3.07	Lyα	1215.67	0.00	0.6463
2022.27.....	0.21	0.45	0.07	10.23	2.65	Lyα	1215.67	0.00	0.6635
2035.65.....	0.11	0.36	0.05	8.41	1.53	Lyα (FF?)	1215.67	0.00	0.6745
2042.56.....	0.07	0.77	0.07	19.90	1.79	Lyα	1215.67	0.14	0.6801
2044.78.....	0.11	0.41	0.07	10.67	1.53	Lyα	1215.67	0.00	0.6820
2062.33.....	0.07	0.46	0.03	11.82	1.50	Lyα	1215.67	0.00	0.6965
2064.79.....	0.09	0.37	0.05	9.50	1.53	Si II	1193.29	0.36	0.7300
2075.24.....	0.02	1.09	0.04	31.05	1.52	Lyα	1215.67	0.18	0.7069
2087.47.....	0.05	0.85	0.04	27.95	1.99	Si III	1206.50	0.17	0.7300
2103.32.....	0.01	2.36	0.03	83.52	2.47	Lyα	1215.67	0.16	0.7300
2108.65.....	0.10	0.23	0.03	8.73	1.50	Lyα (FF?)	1215.67	0.00	0.7346
2117.78.....	0.05	0.41	0.02	16.66	1.50	Lyα (FF?)	1215.67	0.00	0.7421
2125.90.....	0.15	0.16	0.03	7.21	1.73	Lyα (FF?)	1215.67	0.00	0.7492
2129.34.....	0.17	0.11	0.02	5.39	1.54	Lyα	1215.67	0.00	0.7516
2135.95.....	0.08	0.20	0.02	11.08	1.50	Si III	1206.50	−0.13	0.7705
2140.70.....	0.12	0.15	0.02	8.93	1.50	Lyα	1215.67	0.00	0.7609
2142.78.....	0.05	0.38	0.02	22.86	1.60	N V,	1238.82	−0.43	0.7300
2150.06.....	0.23	0.55	0.08	35.56	3.13	N V, Notes	1242.80	0.02	0.7300
2152.37.....	0.03	1.09	0.08	70.17	1.77	Lyα, Bl	1215.67	0.06	0.7705
2156.06.....	0.17	0.09	0.01	5.84	1.50		...	...	...
2158.90.....	0.13	0.20	0.02	13.44	2.33		...	...	...
2167.06.....	0.25	0.08	0.02	4.72	1.79		...	...	...
2180.69.....	0.05	0.35	0.02	17.70	1.58	Si II	1260.42	0.11	0.7300
2184.67.....	0.19	0.12	0.03	5.75	1.68		...	...	...
2193.41.....	0.03	0.62	0.03	28.98	1.70	N V	1238.82	0.12	0.7705
2200.44.....	0.04	0.49	0.02	21.72	1.51	N V	1242.80	0.10	0.7705
2214.46.....	0.27	0.31	0.05	13.10	3.76		...	...	...
2301.14.....	0.11	0.25	0.03	7.92	1.50	C IV, Notes	1548.20	0.06	0.4863
2305.48.....	0.40	0.37	0.13	5.66	2.70	O I, Notes	1302.17	0.03	0.7705
2308.49.....	0.12	0.28	0.04	7.24	1.51	C II	1334.53	−0.31	0.7300
2344.23.....	0.14	0.61	0.08	9.28	2.22	Fe II	2344.21	0.02	0.0000
2348.02.....	0.15	0.57	0.06	8.35	2.03	C IV, Notes	1548.20	−0.05	0.5166
2353.13.....	0.40	0.66	0.13	9.31	4.26	C IV, Notes	1550.77	−1.16	0.5166
2380.67.....	0.89	0.58	0.27	8.94	3.91	Bl	...	...	...
2382.91.....	0.18	0.49	0.21	7.49	2.03	Fe II, Bl	2382.77	0.14	0.0000
2411.38.....	0.19	0.69	0.09	10.78	2.98	Si IV	1393.76	0.12	0.7300
2426.75.....	0.34	0.49	0.10	8.24	3.55	Si IV	1402.77	−0.11	0.7300
2586.67.....	0.27	0.28	0.06	4.60	2.04	Fe II	2586.65	0.02	0.0000
2600.31.....	0.13	0.66	0.07	11.52	2.37	Fe II	2600.17	0.14	0.0000
2641.95.....	0.34	0.58	0.10	9.68	3.98		...	...	...
2678.43.....	0.07	1.26	0.08	25.06	2.61	C IV	1548.20	−0.02	0.7300
2682.60.....	0.10	1.17	0.09	23.13	3.08	C IV	1550.77	−0.30	0.7300
2740.98.....	0.06	0.81	0.04	22.10	2.27	C IV	1548.20	−0.06	0.7705
2745.56.....	0.06	0.64	0.04	17.05	2.03	C IV	1550.77	−0.03	0.7705
2795.88.....	0.07	1.48	0.07	28.62	3.08	Mg II	2796.35	−0.48	0.0000
2803.34.....	0.06	1.03	0.06	19.52	2.23	Mg II	2803.53	−0.19	0.0000
2852.93.....	0.17	0.39	0.05	7.18	2.04	Mg I	2852.96	−0.03	0.0000

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
3C 334.0 (1618+17) $z_{em} = 0.555$									
1641.97.....	0.33	0.87	0.22	6.55	2.71	Lyα, Bl	1215.67	0.00	0.3507
1654.42.....	0.43	0.54	0.19	4.56	2.50	Lyα	1215.67	0.00	0.3609
1670.92.....	0.17	0.53	0.09	5.28	1.51	Al II	1670.79	0.13	0.0000
1695.28.....	0.08	1.03	0.10	11.34	1.66	Lyα	1215.67	0.00	0.3945
1728.26.....	0.20	0.46	0.11	5.25	1.68	Lyα	1215.67	0.00	0.4217
1740.57.....	0.43	0.87	0.17	11.17	4.56	Lyα	1215.67	0.00	0.4318
1794.54.....	0.14	0.44	0.06	6.60	1.51	Lyα	1215.67	0.00	0.4762
1834.68.....	0.20	0.26	0.07	4.69	1.55	Lyα	1215.67	0.00	0.5092
1841.75.....	0.12	0.82	0.08	15.56	2.45	Lyα	1215.67	0.00	0.5150
1855.33.....	0.28	0.38	0.08	7.76	2.71	Al III	1854.72	0.61	0.0000
1870.59.....	0.21	0.37	0.06	8.91	2.51	Lyα	1215.67	0.00	0.5387
1878.13.....	0.05	1.00	0.05	25.30	2.19	Lyα	1215.67	0.00	0.5449
1883.19.....	0.16	0.21	0.04	5.78	1.51	Lyα	1215.67	0.00	0.5491
2026.32.....	0.17	0.55	0.09	9.32	2.18	Zn II (Mg I)	2026.14	0.18	0.0000
2062.40.....	0.18	0.50	0.08	9.30	2.31	Zn II	2062.66	−0.26	0.0000
2204.94.....	0.19	0.20	0.04	4.71	1.51		...	...	...
2261.02.....	0.18	0.32	0.06	7.55	2.00	Fe II	2260.78	0.24	0.0000
2344.33.....	0.11	1.04	0.10	12.40	2.43	Fe II	2344.21	0.12	0.0000
2374.44.....	0.13	0.65	0.08	9.38	2.11	Fe II	2374.46	−0.02	0.0000
2382.64.....	0.08	0.90	0.07	14.01	2.07	Fe II	2382.77	−0.13	0.0000
2432.14.....	0.37	0.38	0.10	5.78	3.00		...	...	...
2586.56.....	0.10	0.83	0.08	11.22	2.08	Fe II	2586.65	−0.09	0.0000
2600.24.....	0.09	1.12	0.09	16.02	2.40	Fe II	2600.17	0.07	0.0000
2607.10.....	0.45	0.50	0.12	6.97	3.87	Mn II	2606.46	0.64	0.0000
2796.44.....	0.06	1.37	0.08	17.11	2.16	Mg II	2796.35	0.09	0.0000
2803.57.....	0.08	1.27	0.09	16.31	2.37	Mg II	2803.53	0.04	0.0000
2852.94.....	0.20	0.47	0.07	6.17	2.04	Mg I	2852.96	−0.02	0.0000
2251.08.....	0.66	0.53	0.18	4.97	3.94	FF	...	...	...
PG 1715+535 $z_{em} = 1.929$									
2344.41.....	0.15	2.76	0.37	6.99	3.31	Fe II?	2344.21	0.20	0.0000
2435.53.....	0.27	1.36	0.33	4.83	2.41		...	...	...
2466.45.....	0.21	2.23	0.28	11.01	3.41	Lyα	1215.67	0.00	1.0289
2499.94.....	0.29	1.77	0.35	5.90	3.35		...	...	...
2525.74.....	0.29	2.01	0.33	10.07	3.75		...	...	...
2535.14.....	0.35	2.82	0.39	12.43	5.48	Lyα	1215.67	0.00	1.0854
2560.90.....	0.24	1.74	0.33	8.12	2.96	Lyγ	972.54	−0.11	1.6333
2573.05.....	0.19	1.49	0.25	7.61	2.44	C III?	977.02	0.23	1.6333
2586.68.....	0.20	1.57	0.25	8.04	2.69	Fe II	2586.65	0.03	0.0000
2599.99.....	0.14	1.96	0.22	9.81	2.69	Fe II?	2600.17	−0.18	0.0000
2697.65.....	0.22	1.12	0.13	5.83	1.97	Lyβ	1025.72	0.01	1.6300
2700.94.....	0.12	1.63	0.21	9.12	2.27	Lyβ	1025.72	−0.11	1.6333
2712.36.....	0.58	1.46	0.39	7.91	4.90		...	...	...
2717.11.....	0.19	1.11	0.17	6.54	1.97	O VI?	1031.93	−0.33	1.6333
2779.89.....	0.29	1.15	0.23	5.85	2.88	Lyδ	949.74	−0.53	1.9276
2795.95.....	0.11	2.01	0.22	10.63	2.39	Mg II	2796.35	−0.40	0.0000
2799.79.....	0.20	1.35	0.30	6.99	2.38		...	...	...
2803.44.....	0.14	2.21	0.29	11.42	2.81	Mg II	2803.53	−0.09	0.0000
2847.26.....	0.12	1.66	0.19	9.33	2.29	Lyγ	972.54	0.09	1.9276
2854.80.....	0.13	1.45	0.19	7.47	2.14	N II?	1083.99	0.30	1.6333
2932.75.....	0.25	0.81	0.20	4.82	2.03		...	...	...
2948.77.....	0.37	0.90	0.24	5.51	2.89		...	...	...
2973.57.....	0.43	0.98	0.26	5.75	3.21		...	...	...
2985.00.....	0.33	1.52	0.27	9.14	3.94		...	...	...
3002.54.....	0.12	1.89	0.20	11.05	2.55	Lyβ	1025.72	−0.32	1.9276
3011.91.....	0.36	0.98	0.23	6.23	3.12		...	...	...
3042.37.....	0.23	0.91	0.13	5.07	1.98		...	...	...
3090.27.....	0.32	1.59	0.27	8.96	3.94	Lyα	1215.67	0.00	1.5420
3157.06.....	0.16	2.07	0.22	13.27	3.20	Lyα	1215.67	0.00	1.5970
3197.16.....	0.11	1.55	0.10	8.86	1.97	Lyα	1215.67	−0.05	1.6300
3201.22.....	0.08	2.90	0.21	16.33	3.10	Lyα	1215.67	−0.03	1.6333
3252.36.....	0.22	1.20	0.22	7.26	2.43	Lyα	1215.67	0.00	1.6754

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
PG 1718+481 $z_{em} = 1.084$									
1642.97.....	0.42	0.99	0.22	9.76	3.99		...	...	...
1654.71.....	0.22	0.86	0.15	8.76	2.52		...	...	...
1670.77.....	0.12	0.68	0.10	8.39	1.75	Al II	1670.79	−0.02	0.0000
1686.97.....	0.26	0.43	0.11	5.76	2.11		...	...	...
1692.36.....	0.16	0.45	0.09	6.06	1.63	Lyβ	1025.72	0.53	0.6494
1702.41.....	0.51	0.42	0.12	6.34	3.47		...	...	...
1745.10.....	0.08	0.67	0.05	10.75	1.51	Lyβ	1025.72	0.11	0.7012
1759.71.....	0.18	0.28	0.05	4.56	1.50	Lyα	1215.67	0.00	0.4475
1783.98.....	0.14	0.41	0.07	7.37	1.70	Lyα	1215.67	0.00	0.4675
1801.34.....	0.18	0.36	0.07	6.23	1.50	Notes	...	...	...
1803.60.....	0.19	0.50	0.10	8.71	2.09	Lyα	1215.67	0.00	0.4836
1849.24.....	0.21	0.37	0.08	6.89	2.12	C III	977.02	−0.19	0.8929
1857.01.....	0.08	0.59	0.05	11.13	1.51	Lyα	1215.67	0.00	0.5276
1866.63.....	0.47	0.32	0.09	6.39	3.33	Notes	...	...	...
1900.08.....	0.25	0.84	0.11	14.93	3.96	Lyα	1215.67	0.00	0.5630
1921.73.....	0.19	0.24	0.05	4.95	1.50	Lyβ	1025.72	0.25	0.8733
1925.41.....	0.38	0.38	0.09	8.36	3.40		...	...	...
1930.23.....	0.13	0.29	0.04	6.82	1.50	Lyδ	949.74	0.11	1.0323
1933.90.....	0.11	0.37	0.05	8.74	1.61		...	...	...
1948.15.....	0.06	0.71	0.05	15.44	1.58		...	...	...
1952.82.....	0.16	0.51	0.07	11.10	2.35	O VI	1031.93	−0.55	0.8929
1976.17.....	0.12	0.34	0.04	7.41	1.50	Lyγ	972.54	−0.29	1.0323
1985.80.....	0.20	0.44	0.07	9.46	2.50	C III	977.02	0.23	1.0323
2004.80.....	0.07	0.67	0.05	13.98	1.50	Lyα	1215.67	−0.35	0.6494
2008.30.....	0.22	0.22	0.06	4.60	1.62	Lyα	1215.67	0.00	0.6520
2011.44.....	0.09	0.43	0.04	9.69	1.50	N III	989.80	−0.10	1.0323
2032.85.....	0.12	0.43	0.05	11.08	1.95	Lyα	1215.67	0.00	0.6722
2044.83.....	0.17	0.25	0.05	7.04	1.82		...	...	...
2050.18.....	0.13	0.26	0.04	7.75	1.50		...	...	...
2052.71.....	0.14	0.37	0.05	11.38	2.07		...	...	...
2057.25.....	0.25	0.22	0.05	6.96	2.33		...	...	...
2068.23.....	0.03	1.20	0.04	33.34	1.62	Lyα	1215.67	0.09	0.7012
2077.19.....	0.30	0.17	0.05	4.86	2.07		...	...	...
2084.25.....	0.05	0.75	0.04	22.04	1.83	Lyβ	1025.72	−0.28	1.0323
2097.27.....	0.07	0.43	0.03	12.60	1.51	O VI	1031.93	0.10	1.0323
2103.73.....	0.09	0.32	0.03	9.62	1.51	Lyβ	1025.72	−0.12	1.0511
2108.43.....	0.04	0.72	0.04	22.23	1.64	Lyβ	1025.72	0.15	1.0554
2120.78.....	0.05	0.54	0.04	17.71	1.55	Lyβ	1025.72	0.14	1.0675
2126.64.....	0.18	0.17	0.04	5.78	1.65		...	...	...
2140.66.....	0.07	0.38	0.03	13.21	1.51	Lyβ	1025.72	−0.19	1.0872
2153.54.....	0.19	0.24	0.04	7.97	2.11	O VI	1031.93	−0.30	1.0872
2165.68.....	0.24	0.18	0.04	6.38	2.14	O VI	1037.62	−0.02	1.0872
2176.81.....	0.10	0.37	0.04	12.70	1.91		...	...	...
2183.94.....	0.19	0.19	0.04	6.59	1.90		...	...	...
2205.15.....	0.06	0.41	0.03	14.30	1.51	Lyα	1215.67	0.00	0.8139
2212.59.....	0.06	0.47	0.03	16.64	1.62	Lyα	1215.67	0.00	0.8201
2221.47.....	0.18	0.27	0.04	9.67	2.36		...	...	...
2254.40.....	0.16	0.17	0.03	5.86	1.51		...	...	...
2260.38.....	0.11	0.26	0.04	9.33	1.64	Fe II	2260.78	−0.41	0.0000
2263.47.....	0.13	0.23	0.04	8.14	1.68		...	...	...
2269.48.....	0.06	0.47	0.03	14.50	1.51	Lyα	1215.67	0.00	0.8669
2277.09.....	0.04	0.73	0.02	25.80	1.51	Lyα	1215.67	−0.22	0.8733
2301.56.....	0.04	0.80	0.04	25.77	1.65	Lyα	1215.67	0.39	0.8929
2310.03.....	0.24	0.40	0.07	7.46	2.62		...	...	...
2318.19.....	0.36	0.30	0.08	5.36	2.80		...	...	...
2327.00.....	0.51	0.49	0.10	9.07	5.01		...	...	...
2344.21.....	0.12	0.70	0.07	13.30	2.56	Fe II	2344.21	0.00	0.0000
2357.46.....	0.47	0.52	0.10	10.38	5.09		...	...	...
2374.50.....	0.13	0.62	0.07	11.93	2.30	Fe II	2374.46	0.04	0.0000
2377.39.....	0.15	0.48	0.05	9.18	2.03	Lyα	1215.67	0.00	0.9556
2382.68.....	0.08	0.94	0.06	18.51	2.40	Fe II	2382.77	−0.09	0.0000
2386.82.....	0.10	0.67	0.06	13.14	2.28	Lyα	1215.67	0.00	0.9634
2398.73.....	0.09	1.14	0.07	23.59	3.03	Lyα	1215.67	0.00	0.9732
2424.25.....	0.20	0.27	0.04	5.98	2.04		...	...	...
2429.66.....	0.10	0.60	0.08	13.28	2.05		...	...	...
2435.00.....	0.94	0.38	0.18	7.86	5.64		...	...	...
2439.80.....	0.10	0.67	0.11	13.14	2.15	Lyα	1215.67	0.00	1.0070
2465.00.....	0.18	0.55	0.06	13.16	3.16		...	...	...
2470.59.....	0.05	1.13	0.05	27.40	2.47	Lyα	1215.67	0.03	1.0323

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2493.62.....	0.07	0.73	0.05	17.76	2.16	Lyα	1215.67	0.11	1.0511
2498.68.....	0.04	1.39	0.05	33.70	2.45	Lyα	1215.67	−0.03	1.0554
2508.14.....	0.25	0.17	0.04	4.87	2.03		...	...	...
2513.45.....	0.08	0.99	0.11	29.91	2.50	Lyα	1215.67	0.09	1.0675
2517.30.....	0.44	0.58	0.12	17.68	4.55	Notes	...	...	...
2524.40.....	0.36	0.18	0.05	5.86	2.90		...	...	...
2537.45.....	0.05	0.81	0.04	26.16	2.18	Lyα	1215.67	0.13	1.0872
2586.50.....	0.12	0.37	0.04	10.11	2.04	Fe II	2586.65	−0.15	0.0000
2600.06.....	0.05	0.94	0.05	24.07	2.32	Fe II	2600.17	−0.11	0.0000
2793.31.....	0.34	0.20	0.05	4.56	2.03	Mg II wing	2796.35	−3.04	0.0000
2796.02.....	0.05	1.51	0.07	33.90	2.43	Mg II	2796.35	−0.33	0.0000
2803.38.....	0.05	1.34	0.05	30.24	2.60	Mg II	2803.53	−0.15	0.0000
2853.21.....	0.16	0.35	0.04	7.61	2.04	Mg I	2852.96	0.25	0.0000
2930.15.....	0.36	0.20	0.06	4.67	2.53		...	...	...
3146.45.....	0.10	0.51	0.04	11.11	2.03	C IV	1548.20	0.10	1.0323
3151.64.....	0.11	0.48	0.04	10.41	2.03	C IV	1550.77	0.07	1.0323
3231.79.....	0.20	0.26	0.04	6.20	2.04	C IV	1548.20	0.43	1.0872
3237.24.....	0.27	0.19	0.04	4.55	2.04	C IV	1550.77	0.51	1.0872
3270.00.....	0.54	0.26	0.09	4.80	3.28		...	...	...
4C 73.18 $z_{em} = 0.302$									
1670.79.....	0.12	0.84	0.09	7.69	1.51	Al II	1670.79	0.00	0.0000
1807.87.....	0.15	0.50	0.09	7.37	1.74	Si II	1808.01	−0.14	0.0000
1884.34.....	0.50	0.57	0.16	7.29	3.75		...	...	...
2026.32.....	0.12	0.32	0.04	7.31	1.51	Mg I (Zn II)	2026.48	−0.16	0.0000
2344.09.....	0.09	1.27	0.11	12.15	2.06	Fe II	2344.21	−0.12	0.0000
2374.77.....	0.16	0.79	0.09	7.54	2.04	Fe II	2374.46	0.31	0.0000
2382.59.....	0.10	1.38	0.12	14.07	2.38	Fe II	2382.77	−0.18	0.0000
2586.69.....	0.11	0.96	0.07	11.33	2.04	Fe II	2586.65	0.04	0.0000
2600.08.....	0.09	1.18	0.06	14.00	2.04	Fe II	2600.17	−0.08	0.0000
2796.18.....	0.07	1.89	0.09	26.10	2.91	Mg II	2796.35	−0.17	0.0000
2803.31.....	0.05	1.60	0.08	21.70	2.31	Mg II	2803.53	−0.22	0.0000
2853.31.....	0.14	0.98	0.10	13.09	2.85	Mg I	2852.96	0.35	0.0000
PKS 2128−12 $z_{em} = 0.501$									
1670.75.....	0.20	0.45	0.09	4.62	1.51	Al II	1670.79	−0.04	0.0000
1715.24.....	0.33	0.41	0.12	4.67	2.18	N I	1199.97	−0.20	0.4296
1724.81.....	0.20	0.40	0.09	4.58	1.51	Si III	1206.50	0.03	0.4296
1737.91.....	0.05	4.16	0.11	57.83	4.14	Lyα	1215.67	0.02	0.4296
1749.43.....	0.13	0.46	0.08	7.26	1.58	Lyα	1215.67	0.00	0.4391
1781.21.....	0.13	0.36	0.06	6.93	1.55	Lyα	1215.67	0.00	0.4652
1797.11.....	0.07	0.68	0.05	14.96	1.80	Lyα	1215.67	0.00	0.4783
1801.74.....	0.11	0.37	0.05	8.71	1.66	Si II	1260.42	−0.12	0.4296
1807.79.....	0.20	0.16	0.04	4.50	1.51	Si II	1808.01	−0.22	0.0000
1815.27.....	0.19	0.13	0.03	4.61	1.50	Lyα, Notes	1215.67	0.00	0.4932
1820.53.....	0.21	0.11	0.03	4.51	1.50	Lyα, Notes	1215.67	0.00	0.4976
1860.89.....	0.17	0.25	0.05	6.37	1.70	O I	1302.17	−0.65	0.4296
1907.70.....	0.09	0.53	0.06	9.49	1.61	C II	1334.53	−0.10	0.4296
1992.70.....	0.18	0.28	0.05	5.04	1.51	Si IV	1393.76	0.23	0.4296
2182.44.....	0.10	0.36	0.05	9.25	1.56	Si II	1526.71	−0.10	0.4296
2213.65.....	0.06	0.56	0.04	14.54	1.52	C IV	1548.20	0.39	0.4296
2217.18.....	0.13	0.31	0.05	7.87	1.64	C IV	1550.77	0.24	0.4296
2260.45.....	0.20	0.16	0.03	4.51	1.51	Fe II	2260.78	−0.33	0.0000
2299.51.....	0.18	0.14	0.03	5.11	1.51	Fe II	1608.45	0.12	0.4296
2344.19.....	0.18	0.55	0.07	6.80	2.04	Fe II	2344.21	−0.02	0.0000
2374.30.....	0.25	0.47	0.09	4.91	2.04	Fe II	2374.46	−0.16	0.0000
2382.84.....	0.13	0.88	0.12	8.97	2.12	Fe II	2382.77	0.07	0.0000
2388.59.....	0.27	0.45	0.09	4.58	2.04	Al II	1670.79	0.07	0.4296
2587.39.....	0.34	1.03	0.17	10.42	4.12	Fe II	2586.65	0.74	0.0000
2600.30.....	0.12	1.20	0.12	12.57	2.44	Fe II	2600.17	0.13	0.0000
2796.69.....	0.10	1.12	0.08	11.87	2.04	Mg II	2796.35	0.34	0.0000
2803.65.....	0.12	1.09	0.12	10.40	2.29	Mg II	2803.53	0.12	0.0000
2852.76.....	0.31	0.58	0.12	6.83	2.89	Mg I	2852.96	−0.20	0.0000
1935.44.....	0.17	0.57	0.08	12.25	2.70	FF	...	...	...
2317.01.....	0.22	0.86	0.12	11.45	3.45	FF	...	...	...

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
PKS 2243−123 $z_{em} = 0.630$									
1659.94.....	0.49	0.45	0.16	4.83	2.85	Lyβ	1025.72	0.12	0.6182
1693.04.....	0.44	0.39	0.12	5.74	3.04	Lyα	1215.67	0.00	0.3927
1771.51.....	0.17	0.34	0.06	5.34	1.50	Lyα	1215.67	0.00	0.4572
1776.04.....	0.50	0.38	0.12	5.97	3.33	Lyα	1215.67	0.00	0.4610
1797.32.....	0.19	0.30	0.08	4.77	1.53	Lyα	1215.67	0.00	0.4785
1822.82.....	0.60	0.40	0.12	6.62	3.99	Notes	...	...	...
1883.70.....	0.15	0.35	0.06	5.59	1.50	Lyα	1215.67	0.00	0.5495
1886.95.....	0.11	0.62	0.08	10.13	1.81	Lyα	1215.67	0.00	0.5522
1910.81.....	0.09	0.61	0.07	11.09	1.68	Lyα	1215.67	0.00	0.5718
1919.66.....	0.17	0.31	0.05	5.45	1.51	Lyα	1215.67	0.00	0.5791
1936.20.....	0.11	0.37	0.04	8.50	1.51	Lyα	1215.67	0.00	0.5927
1967.11.....	0.10	0.40	0.04	13.05	1.99	Lyα	1215.67	−0.09	0.6182
2125.42.....	0.16	0.22	0.05	5.90	1.53		...	...	...
2248.07.....	0.28	0.20	0.05	5.41	2.14		...	...	...
2260.86.....	0.18	0.17	0.03	5.03	1.51	Fe II	2260.78	0.08	0.0000
2271.29.....	0.23	0.31	0.06	8.93	2.65		...	...	...
2281.41.....	0.18	0.16	0.03	5.00	1.50		...	...	...
2343.92.....	0.25	0.91	0.13	11.55	3.69	Fe II	2344.10	−0.18	0.0000
2373.51.....	0.28	0.57	0.12	6.95	2.80	Fe II	2374.46	−0.95	0.0000
2383.17.....	0.17	0.59	0.07	7.03	2.04	Fe II	2382.77	0.40	0.0000
2586.78.....	0.17	0.55	0.08	8.40	2.30	Fe II	2586.65	0.13	0.0000
2600.41.....	0.13	0.61	0.06	9.12	2.04	Fe II	2600.17	0.24	0.0000
2793.22.....	0.77	0.38	0.16	5.43	3.85	Mg II wing	2796.35	−3.13	0.0000
2796.59.....	0.10	0.98	0.10	13.77	2.03	Mg II	2796.35	0.24	0.0000
2803.68.....	0.09	0.91	0.06	12.94	2.04	Mg II	2803.53	0.15	0.0000
2852.86.....	0.37	0.33	0.10	4.63	2.57	Mg I	2852.96	−0.09	0.0000
2109.13.....	0.43	0.25	0.07	6.02	3.02	FF	...	...	...
2316.78.....	0.28	0.65	0.12	7.71	2.96	FF	...	...	...
2353.05.....	0.20	0.71	0.11	8.73	2.61	FF	...	...	...
PKS 2251+11 $z_{em} = 0.323$									
1233.74.....	0.32	1.98	0.65	5.04	2.01	Lyα, Notes	1215.67	0.00	0.0149
1334.88.....	0.14	1.03	0.17	9.44	1.80	C II	1334.53	0.35	0.0000
1345.49.....	0.18	1.41	0.22	10.86	2.32	Lyα	1215.67	0.00	0.1068
1359.76.....	0.10	0.83	0.14	6.95	1.19	Lyβ	1025.72	0.10	0.3256
1363.03.....	0.17	0.95	0.15	11.13	2.17	Lyα	1215.67	0.00	0.1212
1367.88.....	0.06	0.89	0.09	12.56	1.31	O VI	1031.93	−0.02	0.3256
1370.32.....	0.06	1.00	0.09	14.95	1.39	Lyα	1215.67	0.00	0.1272
1375.22.....	0.07	0.98	0.09	12.88	1.46	O VI	1037.62	−0.22	0.3256
1393.83.....	0.07	0.77	0.07	9.43	1.11	Si IV	1393.76	0.07	0.0000
1404.37.....	0.22	0.73	0.15	8.27	2.14	Lyα	1215.67	0.00	0.1552
1417.66.....	0.20	0.77	0.14	9.07	2.26	Lyα	1215.67	0.00	0.1662
1450.99.....	0.12	0.45	0.08	5.35	1.10	Lyα	1215.67	0.00	0.1936
1453.31.....	0.25	0.44	0.13	5.35	1.74	Lyα	1215.67	0.00	0.1955
1477.26.....	0.16	0.77	0.13	9.61	1.93	Lyα	1215.67	0.00	0.2152
1512.76.....	0.11	0.41	0.06	5.94	1.11	Lyα	1215.67	0.00	0.2444
1521.60.....	0.09	0.52	0.06	7.09	1.11	Lyα	1215.67	0.00	0.2517
1526.73.....	0.11	0.48	0.09	7.50	1.29	Si II	1526.71	0.02	0.0000
1543.21.....	0.16	0.42	0.10	5.28	1.32	Lyα	1215.67	0.00	0.2694
1603.10.....	0.06	0.40	0.03	10.94	1.11	Lyα	1215.67	0.00	0.3187
1609.08.....	0.17	0.74	0.12	5.44	1.50	Lyα	1215.67	0.00	0.3236
1611.51.....	0.09	1.13	0.09	8.64	1.50	Lyα	1215.67	0.06	0.3256
1641.98.....	0.15	0.65	0.09	6.15	1.51	N V	1238.82	−0.16	0.3256
1670.69.....	0.16	0.47	0.08	5.55	1.51	Al II	1670.79	−0.10	0.0000
1841.71.....	0.24	0.28	0.08	5.00	1.80	Notes	...	...	...
1847.60.....	0.19	0.29	0.06	4.71	1.51	Si IV	1393.76	0.08	0.3256
1853.62.....	0.26	0.33	0.08	5.91	2.12	Notes	...	...	...
2019.48.....	0.26	0.27	0.06	6.23	2.23		...	...	...
2044.11.....	0.23	0.21	0.04	7.09	2.28		...	...	...
2052.28.....	0.02	0.94	0.03	35.47	1.62	C IV	1548.20	0.04	0.3256
2055.68.....	0.02	0.85	0.03	32.61	1.54	C IV	1550.77	0.03	0.3256
2343.81.....	0.29	0.71	0.15	7.13	2.88	Fe II	2344.21	−0.40	0.0000
2374.38.....	0.25	0.58	0.13	6.07	2.34	Fe II	2374.46	−0.08	0.0000
2382.59.....	0.17	0.70	0.09	7.32	2.04	Fe II	2382.77	−0.18	0.0000
2586.79.....	0.25	0.43	0.08	5.00	2.04	Fe II	2586.65	0.14	0.0000
2600.02.....	0.16	0.78	0.10	9.25	2.41	Fe II	2600.17	−0.15	0.0000
2796.42.....	0.10	0.92	0.07	11.91	2.03	Mg II	2796.35	0.07	0.0000
2803.58.....	0.13	0.74	0.07	9.19	2.04	Mg II	2803.53	0.05	0.0000

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2852.80.....	0.18	0.69	0.10	8.71	2.50	Mg I	2852.96	−0.16	0.0000
1710.78.....	0.55	0.54	0.16	6.56	3.78	FF	...	...	...
1958.17.....	0.19	0.31	0.06	5.04	1.50	FF	...	...	...
2032.68.....	0.14	0.47	0.07	11.31	1.95	FF	...	...	...
2034.80.....	0.19	0.25	0.05	6.11	1.50	FF	...	...	...
2107.66.....	0.25	0.26	0.06	6.05	2.16	FF	...	...	...
PKS 2300−683 $z_{em} = 0.512$									
1705.46.....	0.18	0.80	0.18	5.87	1.67	Lyα	1215.67	0.00	0.4029
1823.29.....	0.18	0.57	0.09	9.97	2.40	Lyα	1215.67	0.00	0.4998
2344.24.....	0.21	0.36	0.06	5.92	2.04	Fe II	2344.21	0.03	0.0000
2382.82.....	0.12	0.82	0.07	9.90	2.04	Fe II	2382.77	0.05	0.0000
2600.75.....	0.19	0.78	0.14	7.09	2.22	Fe II	2600.17	0.58	0.0000
2796.68.....	0.13	1.52	0.15	12.95	2.82	Mg II	2796.35	0.33	0.0000
2803.70.....	0.15	1.09	0.14	9.73	2.41	Mg II	2803.53	0.17	0.0000
PG 2302+029 $z_{em} = 1.052$									
1631.23.....	0.18	1.59	0.27	8.79	2.22	Lyβ	1025.72	−0.09	0.5904
1641.44.....	0.22	0.93	0.20	6.63	2.10	O VI	1031.93	0.23	0.5904
1661.55.....	0.15	1.75	0.17	17.10	3.29	C III? Bl	977.02	−0.94	0.7016
1670.78.....	0.15	0.67	0.12	7.84	1.78	Al II	1670.79	−0.01	0.0000
1682.85.....	0.17	0.44	0.08	5.03	1.39	Lyα	1215.67	0.00	0.3843
1722.19.....	0.24	0.44	0.12	5.26	1.84	Lyα	1215.67	0.00	0.4165
1750.49.....	0.07	12.56	0.65	144.88	28.02	O VI Bl	1034.79	−3.59	0.695
1755.75.....	0.15	0.54	0.11	6.83	2.08	O VI	1031.93	−0.16	0.7016
1762.01.....	0.18	0.36	0.12	4.56	1.45	Lyα	1215.67	0.00	0.4494
1765.20.....	0.14	0.66	0.14	8.26	1.83	O VI	1037.62	−0.38	0.7016
1773.86.....	0.44	1.13	0.27	17.71	6.05	O VI? Bl	1034.79	19.79	0.695
1812.76.....	0.27	0.40	0.09	6.67	2.34	Lyα	1215.67	−0.37	0.4915
1830.06.....	0.08	0.72	0.07	12.20	1.70	Lyα	1215.67	0.00	0.5054
1854.98.....	0.14	0.46	0.08	7.90	1.76	Al III	1854.72	0.26	0.0000
1865.03.....	0.16	0.31	0.07	5.05	1.42	Lyα	1215.67	0.00	0.5342
1874.40.....	0.11	0.41	0.05	7.56	1.39	Lyβ	1025.72	−0.16	0.8276
1880.51.....	0.10	0.75	0.08	14.68	2.15	Lyα	1215.67	0.00	0.5469
1885.76.....	0.24	0.28	0.07	5.63	1.90	Lyα	1215.67	0.00	0.5512
1891.67.....	0.31	0.27	0.08	5.33	2.12	Lyα	1215.67	0.00	0.5561
1894.83.....	0.08	0.68	0.07	12.97	1.72	Lyα	1215.67	0.00	0.5587
1909.01.....	0.23	0.38	0.09	7.73	2.08	Lyϵ	937.80	−0.40	1.0361
1911.75.....	0.09	0.68	0.08	13.70	1.74	Lyα	1215.67	0.00	0.5726
1918.83.....	0.07	0.76	0.06	15.27	1.73	Si III	1206.50	−0.01	0.5904
1932.49.....	0.28	1.82	0.67	39.29	2.45	Lyα, Bl	1215.67	−0.93	0.5904
1934.56.....	0.37	1.99	0.67	43.02	2.73	Lyδ, Bl	949.74	0.83	1.0361
1965.22.....	0.09	0.55	0.08	10.99	1.43	Lyγ	972.54	−0.07	1.0208
1967.36.....	0.17	0.42	0.09	8.40	1.70	Lyα	1215.67	0.00	0.6186
1974.11.....	0.10	0.38	0.04	7.94	1.39	C III	977.02	−0.24	1.0208
1979.88.....	0.08	0.76	0.08	15.73	1.78	Lyγ	972.54	−0.27	1.0361
2013.66.....	0.18	0.33	0.06	7.26	1.87	Lyα	1215.67	0.00	0.6564
2020.77.....	0.11	0.31	0.04	7.10	1.38	Lyα	1215.67	0.00	0.6623
2033.54.....	0.10	0.37	0.04	8.60	1.39	Lyα	1215.67	0.00	0.6728
2046.25.....	0.21	0.34	0.06	8.50	2.35	Lyα	1215.67	0.00	0.6832
2056.12.....	0.18	0.22	0.05	5.38	1.58	Lyα	1215.67	0.00	0.6913
2062.62.....	0.32	0.29	0.08	6.56	2.51	Zn II?	2062.66	−0.04	0.0000
2066.24.....	0.07	0.96	0.09	23.20	1.78	Lyα	1215.67	0.00	0.6997
2068.50.....	0.06	1.06	0.09	25.40	1.75	Lyα	1215.67	−0.03	0.7016
2072.66.....	0.05	0.74	0.05	17.32	1.45	Lyβ	1025.72	−0.10	1.0208
2088.12.....	0.03	1.26	0.06	31.93	1.77	Lyβ	1025.72	−0.30	1.0361
2090.41.....	0.10	0.35	0.04	8.80	1.38	Lyβ	1025.72	−0.33	1.0383
2102.89.....	0.04	0.62	0.03	16.09	1.38	Lyα	1215.67	0.00	0.7298
2103.24.....	0.55	5.67	0.25	147.11	24.23	N V Bl	1240.81	0.00	0.695
2107.92.....	0.16	0.23	0.06	7.01	1.65	N V	1238.82	−0.01	0.7016
2113.85.....	0.22	0.35	0.08	10.59	2.51	N V	1242.80	−0.84	0.7016
2149.96.....	0.10	0.36	0.05	9.14	1.48	Lyα	1215.67	0.00	0.7685
2166.43.....	0.12	0.23	0.03	6.98	1.39	Lyα	1215.67	0.00	0.7821
2184.20.....	0.04	0.68	0.04	21.34	1.53	Lyα	1215.67	0.00	0.7967
2205.88.....	0.14	0.20	0.03	6.02	1.39	Lyα	1215.67	0.00	0.8145
2216.83.....	0.14	0.20	0.04	6.30	1.43	Si IV	1393.76	0.17	0.5904
2221.81.....	0.03	0.97	0.04	29.93	1.48	Lyα	1215.67	0.12	0.8276
2243.24.....	0.05	0.52	0.03	15.73	1.38	Lyα	1215.67	0.00	0.8453
2278.61.....	0.12	0.25	0.04	8.35	1.58	Lyα	1215.67	0.00	0.8744
2293.37.....	0.22	0.18	0.04	6.18	1.93	Lyα	1215.67	0.00	0.8865

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2297.04.....	0.11	0.24	0.04	7.59	1.38	Lyα	1215.67	0.00	0.8895
2309.19.....	0.21	0.36	0.06	5.91	2.04	C IV	1548.20	0.11	0.4915
2344.44.....	0.12	0.59	0.05	9.98	2.04	Fe II	2344.21	0.23	0.0000
2374.41.....	0.18	0.77	0.09	13.80	3.35	Fe II	2374.46	−0.05	0.0000
2382.60.....	0.12	1.14	0.08	21.30	3.50	Fe II, Bl	2382.77	−0.17	0.0000
2438.29.....	0.12	0.59	0.06	10.73	2.23	Si III	1206.50	0.21	1.0208
2449.97.....	0.17	0.46	0.06	9.78	2.45	Lyα	1215.67	0.00	1.0153
2456.60.....	0.05	1.13	0.05	25.50	2.27	Lyα	1215.67	0.00	1.0208
2462.36.....	0.09	0.75	0.06	17.30	2.28	C IV	1548.20	0.07	0.5904
2466.42.....	0.14	0.62	0.07	14.25	2.83	C IV	1550.77	0.05	0.5904
2475.30.....	0.08	1.80	0.12	42.87	2.82	Lyα	1215.67	0.13	1.0361
2478.18.....	0.08	1.18	0.11	28.16	2.24	Lyα	1215.67	0.26	1.0383
2492.14.....	0.16	0.39	0.05	7.77	2.03	Lyα	1215.67	0.00	1.0500
2578.39.....	0.31	0.37	0.07	8.04	3.31		...	...	...
2586.59.....	0.12	0.68	0.06	14.63	2.58	Fe II	2586.65	−0.06	0.0000
2600.06.....	0.11	0.81	0.07	17.42	2.84	Fe II	2600.17	−0.11	0.0000
2626.52.....	0.83	6.34	0.43	130.00	26.20	C IV, Bl	1549.49	0.00	0.695
2634.53.....	0.12	0.66	0.10	13.60	2.85	C IV	1548.20	0.18	0.7016
2638.72.....	0.12	0.45	0.09	9.30	2.06	C IV	1550.77	0.00	0.7016
2652.77.....	1.63	0.66	0.25	14.55	11.67	Notes	...	...	...
2795.91.....	0.08	1.80	0.08	40.17	4.18	Mg II	2796.35	−0.44	0.0000
2800.68.....	0.28	0.24	0.05	5.46	2.03	Mg II wings	2796.35	4.33	0.0000
2803.62.....	0.06	1.15	0.06	25.76	2.37	Mg II	2803.53	0.09	0.0000
2816.74.....	0.34	0.39	0.07	8.95	3.70	Si IV	1393.76	0.26	1.0208
2853.25.....	0.16	0.53	0.06	12.31	2.82	Mg I	2852.96	0.29	0.0000
3128.68.....	0.13	0.40	0.04	9.12	2.04	C IV	1548.20	0.11	1.0208
3173.67.....	0.27	0.20	0.04	4.59	2.04	C IV	1548.20	−0.15	1.0500
PKS 2340−036 $z_{em} = 0.896$									
1645.77.....	0.19	1.42	0.23	9.35	2.46	C III, Bl	977.02	0.41	0.6841
1670.81.....	0.20	0.77	0.15	7.07	2.07	Al II	1670.79	0.02	0.0000
1686.25.....	0.17	0.61	0.13	6.00	1.66	Lyα	1215.67	0.00	0.3871
1712.55.....	0.15	1.57	0.15	17.36	3.15	Lyα	1215.67	−0.07	0.4088
1727.96.....	0.06	2.12	0.12	22.07	2.39	Lyα	1215.67	0.24	0.4212
1738.05.....	0.15	0.59	0.10	7.34	1.76	O VI	1031.93	0.21	0.6841
1747.07.....	0.29	0.82	0.15	10.17	3.40	O VI, Bl	1037.62	−0.34	0.6841
1763.89.....	0.13	0.69	0.10	8.84	1.83	Si III	1206.50	−0.11	0.4621
1773.63.....	0.09	1.06	0.09	14.73	2.01	Lyγ	972.54	−0.09	0.8238
1777.38.....	0.12	0.51	0.06	7.17	1.50	Lyα	1215.67	−0.02	0.4621
1781.53.....	0.09	0.67	0.06	8.80	1.50	C IV, p	1548.20	−0.22	0.1509
1784.94.....	0.16	0.46	0.09	6.28	1.68	C IV, p	1550.77	0.23	0.1509
1809.83.....	0.20	0.68	0.12	9.61	2.44	C IV, p	1548.20	−0.17	0.1691
1813.13.....	0.15	0.47	0.09	6.59	1.57	C IV, p	1550.77	0.12	0.1691
1838.26.....	0.14	0.44	0.06	6.60	1.50	Lyβ	1025.72	−0.08	0.7922
1840.67.....	0.05	0.92	0.05	14.22	1.50	Lyα	1215.67	0.00	0.5141
1870.43.....	0.05	0.98	0.07	15.61	1.60	Lyβ	1025.72	−0.29	0.8238
1882.72.....	0.22	0.38	0.09	5.58	1.89	O VI?	1031.93	0.66	0.8238
1893.05.....	0.35	0.38	0.10	5.91	2.67	O VI?	1037.62	0.62	0.8238
1914.57.....	0.09	0.65	0.05	9.91	1.51	Lyα	1215.67	0.00	0.5749
1920.68.....	0.14	0.41	0.06	6.29	1.50	Lyα	1215.67	0.00	0.5799
1926.07.....	0.07	0.81	0.38	14.03	1.52	Lyα	1215.67	0.00	0.5844
1932.12.....	0.07	0.74	0.10	12.82	1.50	Lyα	1215.67	0.00	0.5893
1946.17.....	0.19	0.63	0.09	11.39	2.74	Lyα (FF?)	1215.67	0.00	0.6009
1968.15.....	0.13	0.37	0.06	7.08	1.59	Lyα	1215.67	0.00	0.6190
1978.14.....	0.28	0.27	0.09	4.84	1.91	Lyα	1215.67	0.00	0.6272
1980.45.....	0.13	0.43	0.06	8.02	1.50	Si IV	1393.76	−0.38	0.4212
2026.19.....	0.27	0.28	0.08	4.62	1.86	Zn II (Mg I)	2026.14	0.05	0.0000
2031.82.....	0.15	0.62	0.08	11.30	2.29	Si III	1206.50	0.00	0.6841
2044.39.....	0.69	0.67	0.23	13.29	4.15	Lyα, Bl	1215.67	0.00	0.6817
2047.35.....	0.04	1.52	0.20	29.94	1.87	Lyα, Bl	1215.67	0.09	0.6841
2059.17.....	0.13	0.34	0.05	6.84	1.51	Lyα	1215.67	0.00	0.6939
2069.81.....	0.12	0.43	0.07	8.14	1.66	Lyα	1215.67	0.00	0.7026
2102.64.....	0.06	0.70	0.04	14.74	1.51	Lyα	1215.67	0.00	0.7296
2115.21.....	0.04	1.66	0.06	34.51	2.25	Lyα	1215.67	0.00	0.7400
2127.50.....	0.08	0.52	0.04	11.01	1.50	Lyα	1215.67	0.00	0.7501
2129.68.....	0.19	0.22	0.04	4.94	1.50	Lyα	1215.67	0.00	0.7519
2132.08.....	0.05	0.73	0.04	15.96	1.50	Lyα	1215.67	0.00	0.7538
2144.52.....	0.16	0.26	0.04	5.66	1.51	Lyα	1215.67	0.00	0.7641
2149.24.....	0.04	1.14	0.06	23.64	1.81	Lyα	1215.67	0.00	0.7679
2178.78.....	0.06	0.76	0.07	17.55	1.66	Lyα	1215.67	0.00	0.7922

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2181.49.....	0.11	0.65	0.08	14.94	2.14	C IV	1548.20	0.40	0.4088
2184.37.....	0.14	0.33	0.04	7.73	1.50	C IV	1550.77	−0.34	0.4088
2186.11.....	0.22	0.20	0.04	4.64	1.50	Si II	1193.29	−0.09	0.8321
2195.06.....	0.09	0.40	0.05	9.60	1.52	Lyα	1215.67	−0.22	0.8058
2200.35.....	0.08	0.46	0.04	10.57	1.50	C IV	1548.20	0.04	0.4212
2204.12.....	0.09	0.40	0.04	9.69	1.50	C IV	1550.77	0.16	0.4212
2216.78.....	0.04	1.27	0.08	33.54	1.64	Lyα, Bl	1215.67	−0.37	0.8238
2227.27.....	0.09	0.54	0.05	13.98	1.90	Lyα	1215.67	0.06	0.8321
2244.54.....	0.05	0.61	0.03	16.58	1.50	Lyα	1215.67	0.00	0.8463
2247.17.....	0.16	0.19	0.03	5.51	1.50	C II	1334.53	−0.25	0.6841
2257.84.....	0.07	0.42	0.03	12.63	1.50	Lyα	1215.67	0.00	0.8573
2263.71.....	0.06	0.54	0.04	16.08	1.61	C IV	1548.20	0.12	0.4621
2267.36.....	0.08	0.35	0.03	10.34	1.50	C IV	1550.77	0.01	0.4621
2276.28.....	0.19	0.13	0.03	4.61	1.50	Si II	1260.42	0.19	0.8058
2280.42.....	0.17	0.17	0.04	6.34	1.73	Lyα	1215.67	0.00	0.8759
2285.23.....	0.02	0.95	0.03	37.34	1.62	Lyα	1215.67	0.00	0.8798
2306.26.....	0.21	0.14	0.03	5.82	1.88		...	...	...
2309.24.....	0.23	0.28	0.05	5.66	2.03	Si II	1260.42	0.04	0.8321
2317.17.....	0.14	0.91	0.09	15.13	3.06	FF?	...	...	...
2343.96.....	0.19	0.76	0.10	11.15	2.87	Fe II	2344.21	−0.25	0.0000
2374.45.....	0.24	0.39	0.07	5.16	2.04	Fe II	2374.46	−0.01	0.0000
2382.69.....	0.18	0.55	0.07	6.74	2.04	Fe II	2382.77	−0.08	0.0000
2435.91.....	0.42	0.45	0.13	4.94	2.89		...	...	...
2457.23.....	0.65	0.51	0.15	6.32	4.49		...	...	...
2586.91.....	0.16	0.63	0.07	7.60	2.04	Fe II	2586.65	0.26	0.0000
2599.79.....	0.20	1.10	0.12	13.75	3.70	Fe II	2600.17	−0.38	0.0000
2606.96.....	0.12	1.09	0.10	14.20	2.65	C IV	1548.20	−0.29	0.6841
2611.53.....	0.17	0.54	0.07	7.19	2.03	C IV	1550.77	−0.12	0.6841
2762.99.....	0.38	0.38	0.11	4.87	2.64		...	...	...
2793.42.....	0.28	0.43	0.09	5.50	2.03	Mg II wing	2796.35	−2.93	0.0000
2796.16.....	0.10	1.20	0.14	15.46	2.25	Mg II	2796.35	−0.20	0.0000
2800.66.....	0.82	0.49	0.30	6.37	3.35	Mg II wing	2803.53	−2.87	0.0000
2803.74.....	0.19	0.95	0.25	12.23	2.14	Mg II	2803.53	0.21	0.0000
2853.12.....	0.42	0.55	0.13	7.03	3.72	Mg I	2852.96	0.16	0.0000
3006.28.....	0.38	0.32	0.10	4.50	2.54		...	...	...
3125.27.....	0.27	0.44	0.10	5.85	2.42		...	...	...
3131.56.....	0.26	0.46	0.10	6.15	2.46		...	...	...
3138.42.....	0.33	0.43	0.11	5.63	2.68		...	...	...
1862.17.....	0.58	0.37	0.12	5.62	3.56	FF	...	...	...
1958.33.....	0.19	0.24	0.05	4.75	1.51	FF	...	...	...
2218.39.....	0.32	0.18	0.06	4.74	1.50	FF	...	...	...
2508.02.....	0.32	0.40	0.11	5.02	2.44	FF	...	...	...
PKS 2344+09 $z_{em} = 0.677$									
1649.20.....	0.17	1.62	0.22	10.73	2.50	Lyα, Notes	1215.67	0.00	0.3566
1660.31.....	0.13	1.96	0.21	14.16	2.69	Lyα	1215.67	0.00	0.3658
1670.92.....	0.21	0.84	0.17	6.71	2.07	Al II	1670.79	0.13	0.0000
1710.12.....	0.34	0.58	0.15	6.35	2.70	Lyα, Notes	1215.67	0.00	0.4067
1720.94.....	0.27	0.62	0.13	7.06	2.58	Lyα	1215.67	0.00	0.4156
1729.79.....	0.12	0.80	0.10	11.90	2.10	C IV, p	1548.20	−0.49	0.1176
1733.36.....	0.19	0.57	0.10	9.12	2.25	C IV, p	1550.77	0.21	0.1176
1746.48.....	0.06	1.69	0.10	20.99	2.14	Lyα	1215.67	−0.19	0.4368
1766.91.....	0.27	0.73	0.15	7.32	2.65	Lyα, Notes	1215.67	0.00	0.4534
1859.89.....	0.09	1.08	0.10	12.95	1.92	Lyα	1215.67	0.00	0.5299
1867.56.....	0.31	0.65	0.25	8.08	1.79	Lyα, Bl	1215.67	0.00	0.5362
1869.08.....	0.18	0.75	0.20	9.43	1.50	Lyα, Bl	1215.67	0.00	0.5375
1923.59.....	0.09	0.85	0.09	10.61	1.65	Lyα	1215.67	0.00	0.5823
1954.11.....	0.05	1.36	0.08	19.16	1.76	Lyα	1215.67	0.00	0.6074
1991.12.....	0.22	0.32	0.08	5.61	1.85	Lyα, p	1215.67	0.00	0.6379
1995.41.....	0.11	0.46	0.05	8.02	1.50	Lyα, p	1215.67	0.00	0.6414
2002.99.....	0.35	0.27	0.08	5.13	2.33	Lyα	1215.67	0.00	0.6476
2014.80.....	0.15	0.79	0.08	17.67	3.14	Lyα	1215.67	0.00	0.6574
2020.41.....	0.10	0.47	0.07	12.52	1.50	Lyα, Bl	1215.67	0.00	0.6620
2022.04.....	0.14	0.37	0.05	9.80	1.50	Lyα, Bl	1215.67	0.00	0.6633
2033.41.....	0.11	0.19	0.02	8.23	1.51	Lyα	1215.67	0.00	0.6727
2222.26.....	0.44	0.38	0.15	7.20	2.45	C IV?, Bl	1548.20	−1.81	0.4368
2224.23.....	0.10	0.65	0.11	12.53	1.50	C IV, Bl	1548.20	−0.01	0.4368
2227.93.....	0.13	0.71	0.08	13.58	2.48	C IV	1550.77	−0.01	0.4368
2344.07.....	0.22	0.75	0.13	7.74	2.65	Fe II	2344.21	−0.14	0.0000
2382.68.....	0.19	0.66	0.12	6.39	2.06	Fe II	2382.77	−0.09	0.0000
2586.77.....	0.22	0.27	0.05	5.43	2.04	Fe II	2586.65	0.12	0.0000

TABLE 3—*Continued*

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	Line ID[a] Ion	Line ID[a] (Å)	$\Delta\lambda$ (Å)	z_{obs}
2600.26.....	0.12	0.60	0.05	10.37	2.04	Fe II	2600.17	0.09	0.0000
2795.49.....	0.20	1.93	0.16	24.70	5.21	Mg II	2796.35	−0.86	0.0000
2803.87.....	0.11	1.10	0.11	13.38	2.47	Mg II	2803.53	0.34	0.0000
2318.47.....	0.34	0.64	0.15	6.17	2.91	FF	...	...	...
2354.19.....	0.45	0.60	0.16	6.30	3.51	FF	...	...	...
PKS 2352−342 $z_{em} = 0.702$									
1670.85.....	0.16	0.57	0.09	5.59	1.51	Al II	1670.79	0.06	0.0000
1716.10.....	0.43	0.48	0.14	6.06	3.00	Lyβ, Bl	1025.72	0.22	0.6729
1743.53.....	0.19	1.25	0.13	17.90	3.90	Lyα	1215.67	0.00	0.4342
1758.81.....	0.07	0.78	0.05	12.96	1.50	Lyα	1215.67	0.00	0.4468
1765.09.....	0.22	0.27	0.07	4.69	1.66	Lyα?	1215.67	0.00	0.4520
1775.27.....	0.25	0.30	0.08	5.25	1.95	Lyα?	1215.67	0.00	0.4603
1834.74.....	0.15	0.40	0.06	6.13	1.51	Lyα	1215.67	0.00	0.5092
1950.63.....	0.14	0.44	0.06	6.75	1.51	Lyα	1215.67	0.00	0.6046
1962.73.....	0.08	0.67	0.07	10.15	1.53	Lyα	1215.67	0.00	0.6145
1971.07.....	0.19	0.31	0.06	4.72	1.51	Lyα	1215.67	0.00	0.6214
2000.82.....	0.45	0.35	0.10	6.56	3.23	Lyα	1215.67	0.00	0.6459
2033.44.....	0.12	0.45	0.06	10.59	1.95	Lyα	1215.67	0.00	0.6729
2052.23.....	0.08	0.35	0.03	11.34	1.51	Lyα	1215.67	0.00	0.6881
2059.78.....	0.04	0.78	0.02	26.07	1.51	Lyα	1215.67	0.00	0.6944
2344.18.....	0.19	0.58	0.08	6.44	2.04	Fe II	2344.21	−0.03	0.0000
2382.75.....	0.10	0.89	0.07	10.94	2.03	Fe II	2382.77	−0.02	0.0000
2586.58.....	0.23	0.68	0.10	9.75	3.14	Fe II	2586.65	−0.07	0.0000
2600.39.....	0.16	0.73	0.09	11.82	2.76	Fe II	2600.17	0.22	0.0000
2796.36.....	0.21	1.05	0.19	14.03	2.60	Mg II	2796.35	0.01	0.0000
2803.49.....	0.10	0.89	0.09	12.05	2.14	Mg II	2803.53	−0.04	0.0000
1986.58.....	0.19	0.28	0.06	4.68	1.51	FF	...	...	...
2038.67.....	0.17	0.22	0.05	5.43	1.52	FF	...	...	...
2219.86.....	0.20	0.36	0.06	8.72	2.36	FF	...	...	...
2387.40.....	0.34	0.37	0.11	4.56	2.40	FF	...	...	...
2638.02.....	0.25	0.22	0.04	4.98	2.04	FF	...	...	...

[a] In the Line ID column the primary identification of the feature is listed. If "Notes" appears in this column, it indicates that the identification of this feature is discussed in § 4 under the appropriate object heading. The letters "Bl" indicate that the line was fitted as part of a particularly strong blend of features. The letter "p" indicates that this line is part of a C IV doublet (pair of Lyα lines that could have been identified as a C IV doublet) that has a specific probability of being two Lyα lines (a C IV doublet); see discussion in § 3.4. "FF" indicates that the feature is either a residual flat-fielding feature or possibly affected by such a feature. A "?" indicates that there is some question or greater than typical uncertainty in this identification.

TABLE 4

PSEUDO–C IV DOUBLETS FOUND IN OBSERVED SPECTRA[a]

Object (1)	z (2)	Number of Lines[b] (per spect.)	⟨C IV + Lyα⟩ (per spect.)	⟨C IV⟩[c] (per spect.)	0 (%)	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	6 (%)	
		Number of Lines[d] (3)	⟨C IV + Lyα⟩ (per spect.) (4)	⟨C IV⟩[e] (per spect.) (5)	0 (%) (6)	1 (%) (7)	2 (%) (8)	3 (%) (9)	4 (%) (10)	5 (%) (11)	6 (%) (12)	⟨Chance C IV⟩[f] (per spect.) (13)
UM 18	1.89	52	0.03	1.25	28.6	39.2	19.4	8.1	4.3	0.3	0.1	…
		27	…	1.09	34.0	38.0	15.1	9.2	3.6	0.1	0.0	1.12
PKS 0003+15	0.450	25	0.02	0.02	98.7	1.3	0.0	0.0	0.0	0.0	0.0	…
		0	…	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02
NAB 0024+22	1.118	17	0.00	0.06	94.5	5.3	0.1	0.1	0.0	0.0	0.0	…
		6	…	0.05	94.2	5.8	0.0	0.0	0.0	0.0	0.0	0.05
PG 0043+039	0.384	3	0.00	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	…
		1	…	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
PKS 0044+03	0.624	8	0.00	0.21	78.3	20.9	0.8	0.0	0.0	0.0	0.0	…
		7	…	0.21	79.1	19.7	1.2	0.0	0.0	0.0	0.0	0.21
PG 0117+213	1.493	22	0.00	0.26	82.5	16.8	0.7	0.0	0.0	0.0	0.0	…
		14	…	0.19	81.3	17.8	0.9	0.0	0.0	0.0	0.0	0.19
3C 57	0.670	23	0.01	1.09	34.5	36.2	20.9	7.7	0.7	0.0	0.0	…
		19	…	0.97	36.5	37.2	20.2	6.1	0.0	0.0	0.0	0.98
PKS 0232−04	1.434	26	0.00	0.84	33.0	43.3	20.2	2.6	0.9	0.0	0.0	…
		19	…	0.83	34.9	42.8	18.2	3.3	0.8	0.0	0.0	0.83
3C 95	0.614	7	0.00	0.04	96.6	3.4	0.0	0.0	0.0	0.0	0.0	…
		5	…	0.04	97.4	2.6	0.0	0.0	0.0	0.0	0.0	0.04
PKS 0405−12	0.574	16	0.00	0.00	99.8	0.2	0.0	0.0	0.0	0.0	0.0	…
		0	…	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
3C 110	0.773	21	0.05	0.59	63.2	29.5	5.7	1.2	0.4	0.0	0.0	…
		15	…	0.42	64.0	30.5	4.9	0.6	0.0	0.0	0.0	0.47
PKS 0439−433	0.593	7	0.00	0.11	91.4	8.6	0.0	0.0	0.0	0.0	0.0	…
		5	…	0.06	91.6	8.4	0.0	0.0	0.0	0.0	0.0	0.06
HS 0624+6907	0.370	12	0.00	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	…
		0	…	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
PKS 0637−75	0.654	8	0.00	0.22	80.0	18.4	1.6	0.0	0.0	0.0	0.0	…
		8	…	0.22	80.0	18.4	1.6	0.0	0.0	0.0	0.0	0.22
B2 0742+31	0.462	3	0.00	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	…
		2	…	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
PKS 0743−67	1.51	36	0.04	1.22	32.3	38.4	20.4	6.3	2.1	0.5	0.0	…
		26	…	1.20	34.4	39.0	18.7	5.3	2.0	0.4	0.2	1.24
NGC 2841 UB3	0.553	12	0.00	0.50	67.8	23.1	7.5	1.6	0.0	0.0	0.0	…
		11	…	0.26	70.0	22.0	7.1	0.9	0.0	0.0	0.0	0.26
PG 0953+415	0.239	7	0.00	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	…
		0	…	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
3C 232	0.533	4	0.00	0.03	94.6	5.4	0.0	0.0	0.0	0.0	0.0	…
		4	…	0.03	94.6	5.4	0.0	0.0	0.0	0.0	0.0	0.03
0959+68W1	0.773	19	0.00	0.71	47.6	39.6	11.1	1.6	0.1	0.0	0.0	…
		14	…	0.59	49.1	36.7	11.0	3.0	0.2	0.0	0.0	0.59
TON 28	0.329	11	0.00	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	…
		0	…	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
4C 41.21	0.613	21	0.00	1.04	32.8	35.9	21.0	8.2	2.1	0.0	0.0	…
		15	…	0.72	43.5	37.0	16.3	2.6	0.6	0.0	0.0	0.72
PG 1008+133	1.287	30	0.00	1.85	15.8	27.2	28.8	16.6	9.1	1.9	0.6	…
		29	…	1.73	13.2	29.4	26.6	20.6	8.8	1.0	0.4	1.73
4C 06.41	1.270	29	0.00	1.63	12.1	36.7	30.5	12.1	5.4	2.7	0.3	…
		29	…	1.63	12.1	36.7	30.5	12.1	5.4	2.7	0.3	1.63
PG 1049−005	0.357	4	0.00	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	…
		1	…	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
3C 249.1	0.311	21	0.00	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	…
		0	…	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
MC 1104+167	0.634	9	0.00	0.08	91.2	8.8	0.0	0.0	0.0	0.0	0.0	…
		7	…	0.08	91.4	8.2	0.0	0.0	0.0	0.0	0.0	0.08
PG 1116+215	0.177	10	0.00	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	…
		0	…	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
1130+106Y	0.51	4	0.00	0.02	97.8	2.2	0.0	0.0	0.0	0.0	0.0	…
		2	…	0.01	98.7	1.3	0.0	0.0	0.0	0.0	0.0	0.01
3C 263	0.652	11	0.00	0.27	78.0	20.7	1.3	0.0	0.0	0.0	0.0	…
		10	…	0.25	77.9	21.7	0.4	0.0	0.0	0.0	0.0	0.25
PKS 1136−13	0.554	8	0.00	0.39	71.7	24.6	3.7	0.0	0.0	0.0	0.0	…
		6	…	0.26	73.6	23.6	2.8	0.0	0.0	0.0	0.0	0.26
PG 1216+069	0.334	11	0.00	0.00	99.9	0.1	0.0	0.0	0.0	0.0	0.0	…
		0	…	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
PG 1241+176	1.273	18	0.00	0.56	57.9	29.6	10.3	2.2	0.0	0.0	0.0	…
		17	…	0.41	59.0	30.4	9.8	0.8	0.0	0.0	0.0	0.41

TABLE 4—*Continued*

Object (1)	z (2)	Number of Lines[b]	⟨C IV + Lyα⟩ (per spect.)	⟨C IV⟩[c] (per spect.)	0 (%)	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	6 (%)	
		Number of Lines[d] (3)	⟨C IV + Lyα⟩ (per spect.) (4)	⟨C IV⟩[e] (per spect.) (5)	0 (%) (6)	1 (%) (7)	2 (%) (8)	3 (%) (9)	4 (%) (10)	5 (%) (11)	6 (%) (12)	⟨Chance C IV⟩[f] (per spect.) (13)
PG 1248+401	1.030	36	0.07	0.40	61.0	30.6	7.8	0.6	0.0	0.0	0.0	...
		11	...	0.17	80.4	19.0	0.6	0.0	0.0	0.0	0.0	0.24
PKS 1252+11	0.870	28	0.03	0.16	83.7	16.1	0.2	0.0	0.0	0.0	0.0	...
		7	...	0.10	90.2	9.8	0.0	0.0	0.0	0.0	0.0	0.13
B201 1257+34.....	1.375	11	0.00	0.08	90.5	6.7	2.7	0.1	0.0	0.0	0.0	...
		7	...	0.04	95.6	1.9	2.5	0.0	0.0	0.0	0.0	0.04
PKS 1302−102.....	0.286	18	0.00	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	...
		0	...	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
PG 1333+176	0.554	6	0.00	0.02	98.9	1.1	0.0	0.0	0.0	0.0	0.0	...
		2	...	0.02	98.4	1.6	0.0	0.0	0.0	0.0	0.0	0.02
PG 1338+416	1.219	26	0.00	1.63	21.6	37.4	24.6	9.2	6.1	1.1	0.0	...
		24	...	1.14	26.2	37.7	20.9	9.4	5.1	0.7	0.0	1.14
PKS 1354+19	0.720	6	0.00	0.03	92.1	7.9	0.0	0.0	0.0	0.0	0.0	...
		6	...	0.03	92.1	7.9	0.0	0.0	0.0	0.0	0.0	0.03
PG 1407+265	0.944	28	0.06	0.29	77.0	20.2	2.5	0.3	0.0	0.0	0.0	...
		8	...	0.21	85.1	12.4	2.5	0.0	0.0	0.0	0.0	0.27
PKS 1424−11	0.805	13	0.00	0.20	81.8	17.0	1.2	0.0	0.0	0.0	0.0	...
		8	...	0.16	83.7	15.2	1.1	0.0	0.0	0.0	0.0	0.16
PG 1538+477	0.770	35	0.05	1.00	34.3	38.1	20.0	6.1	1.5	0.0	0.0	...
		19	...	0.92	38.6	37.4	19.2	3.3	1.4	0.1	0.0	0.97
3C 334.0	0.555	13	0.00	0.34	75.1	20.0	3.3	1.6	0.0	0.0	0.0	...
		11	...	0.33	73.8	19.4	4.8	2.0	0.0	0.0	0.0	0.33
PKS 2128−12	0.501	5	0.00	0.08	89.6	10.3	0.1	0.0	0.0	0.0	0.0	...
		5	...	0.08	89.6	10.3	0.1	0.0	0.0	0.0	0.0	0.08
PKS 2145+06	0.990	20	0.00	0.25	78.3	20.7	1.0	0.0	0.0	0.0	0.0	...
		7	...	0.21	81.2	18.3	0.5	0.0	0.0	0.0	0.0	0.21
PKS 2243−123.....	0.630	14	0.01	0.42	62.0	30.5	6.0	1.5	0.0	0.0	0.0	...
		10	...	0.36	65.5	28.7	4.1	1.7	0.0	0.0	0.0	0.37
3C 454.3	0.859	17	0.00	0.34	72.9	22.7	4.4	0.0	0.0	0.0	0.0	...
		9	...	0.30	73.7	23.2	3.1	0.0	0.0	0.0	0.0	0.30
PKS 2251+11	0.323	22	0.01	0.01	98.4	1.6	0.0	0.0	0.0	0.0	0.0	...
		0	...	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01
PKS 2300−683.....	0.512	2	0.00	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	...
		2	...	0.00	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
PG 2302+029	1.052	34	0.01	0.75	45.7	35.2	14.7	4.0	0.4	0.0	0.0	...
		16	...	0.63	52.9	36.5	9.2	1.4	0.0	0.0	0.0	0.64
PKS 2340−036.....	0.896	41	0.02	0.82	42.2	37.8	14.2	4.4	1.4	0.0	0.0	...
		14	...	0.60	47.0	37.0	11.1	3.2	1.7	0.0	0.0	0.62
PKS 2344+09	0.677	19	0.00	0.66	47.4	34.0	14.6	3.4	0.6	0.0	0.0	...
		18	...	0.59	46.3	36.9	14.2	2.6	0.0	0.0	0.0	0.59
PKS 2352−342.....	0.702	11	0.00	0.23	76.1	22.1	1.8	0.0	0.0	0.0	0.0	...
		9	...	0.23	75.4	22.9	1.7	0.0	0.0	0.0	0.0	0.23

[a] Simulations were generated for all the objects in the combined catalog for which the line identifications are complete. However, we have tabulated results only for objects in CAT1 and CAT3 for which there were nonzero probabilities of finding pseudodoublets, plus a representative set of the simulations that yielded no pseudodoublets. The results for the CAT2 objects are in CAT2.

[b] For each object two sets of simulations were generated. Each simulation used a line list purged of multiple line absorption systems (see text for further discussion). The results from the first set of simulations, which made use of the entire path length available for each object, are presented on the top line of the two-line entry for each object. On the second line we show the results of a set of simulations that tested for chance doublets only among the lines shortward of the quasar Lyα emission. The "Number of Lines" refers to the number of lines that were in the purged line list used for the simulations.

[c] This entry corresponds to the mean number of pseudo– or false C IV doublets that were found per spectrum in the simulations that made use of the purged line list for the entire path when the test for the presence of associated Lyα absorption was not applied. This result is an upper limit to the number of expected false C IV identification that should be expected in the line list because it is possible to make the test for associated Lyα over a significant fraction of the observed path.

[d] See note b. The number of lines for the second set of simulations is smaller because only lines that could be candidates for a pseudodoublet that would be shortward of the quasar Lyα emission and for which it would not be possible to test for associated Lyα absorption have been retained.

[e] This entry corresponds to the mean number of pseudo– or false C IV doublets that were found per spectrum in the simulations. This value corresponds to the number of false C IV identifications we might expect to find shortward of the quasar Lyα emission line and for which associated Lyα absorption would not be observable because of a lack of wavelength coverage in the object spectrum.

[f] The total number of expected false C IV doublet identifications in this spectrum, obtained from the sum of the number of false pseudo–C IV identifications for which checking for associated Lyα absorption is not possible with the number of false identifications including chance C IV doublet + Lyα.

TABLE 5

PSEUDO–O VI DOUBLETS FOUND IN OBSERVED SPECTRA[a]

Object	z	Number of Lines	⟨O VI + Lyα⟩ (per spectrum)	⟨O VI⟩ (per spectrum)	0 (%)	1 (%)	2 (%)	3 (%)	4 (%)
UM 18	1.89	52	0.08	0.64	52.0	31.5	13.2	2.8	0.4
PKS 0003+15	0.450	25	0.02	0.02	99.4	0.0	0.0	0.0	0.0
NAB 0024+22	1.118	17	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PG 0043+039	0.384	3	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PKS 0044+03	0.624	8	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PG 0117+213	1.493	22	0.00	0.00	99.7	0.3	0.0	0.0	0.0
3C 57	0.670	23	0.02	0.02	98.3	1.7	0.0	0.0	0.0
3C 95	0.614	7	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PKS 0232−04	1.434	26	0.00	0.00	99.5	0.5	0.0	0.0	0.0
PKS 0405−12	0.574	16	0.00	0.00	99.7	0.3	0.0	0.0	0.0
3C 110	0.773	21	0.01	0.01	99.3	0.7	0.0	0.0	0.0
PKS 0439−433	0.593	7	0.00	0.00	100.0	0.0	0.0	0.0	0.0
HS 0624+6907	0.370	12	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PKS 0637−75	0.654	8	0.00	0.00	100.0	0.0	0.0	0.0	0.0
B2 0742+31	0.462	3	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PKS 0743−67	1.51	36	0.03	0.03	97.2	2.8	0.0	0.0	0.0
NGC 2841 UB3	0.553	12	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PG 0953+415	0.239	7	0.00	0.00	100.0	0.0	0.0	0.0	0.0
3C 232	0.533	4	0.00	0.00	100.0	0.0	0.0	0.0	0.0
0959+68W1	0.773	19	0.01	0.01	99.1	0.9	0.0	0.0	0.0
TON 28	0.329	11	0.00	0.00	100.0	0.0	0.0	0.0	0.0
4C 41.21	0.613	21	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PG 1008+133	1.287	30	0.02	0.02	96.5	3.5	0.0	0.0	0.0
4C 06.41	1.270	29	0.02	0.02	98.0	2.0	0.0	0.0	0.0
PG 1049−005	0.357	4	0.00	0.00	100.0	0.0	0.0	0.0	0.0
3C 249.1	0.311	21	0.00	0.00	100.0	0.0	0.0	0.0	0.0
MC 1104+167	0.634	9	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PG 1116+215	0.177	10	0.00	0.00	99.9	0.1	0.0	0.0	0.0
1130+106Y	0.51	4	0.00	0.00	100.0	0.0	0.0	0.0	0.0
3C 263	0.652	11	0.00	0.00	99.9	0.1	0.0	0.0	0.0
PKS 1136−13	0.554	8	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PG 1216+069	0.334	11	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PG 1241+176	1.273	18	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PG 1248+401	1.030	36	0.05	0.05	94.6	5.3	0.1	0.0	0.0
PKS 1252+11	0.870	28	0.01	0.01	99.5	0.5	0.0	0.0	0.0
B201 1257+34	1.375	11	0.00	0.00	99.9	0.1	0.0	0.0	0.0
PKS 1302−102	0.286	18	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PG 1333+176	0.554	6	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PG 1338+416	1.219	26	0.00	0.00	99.7	0.3	0.0	0.0	0.0
PKS 1354+19	0.720	6	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PG 1407+265	0.944	28	0.01	0.01	98.4	1.6	0.0	0.0	0.0
PKS 1424−11	0.805	13	0.01	0.01	99.9	0.1	0.0	0.0	0.0
PG 1538+477	0.770	35	0.01	0.01	98.1	1.9	0.0	0.0	0.0
3C 334.0	0.555	13	0.00	0.00	0.0	0.0	0.0	0.0	0.0
PKS 2128−12	0.501	5	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PKS 2145+06	0.990	20	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PKS 2243−123	0.630	14	0.00	0.00	100.0	0.0	0.0	0.0	0.0
3C 454.3	0.859	17	0.02	0.02	99.5	0.5	0.0	0.0	0.0
PKS 2251+11	0.323	22	0.01	0.01	99.9	0.1	0.0	0.0	0.0
PKS 2300−683	0.512	2	0.00	0.00	100.0	0.0	0.0	0.0	0.0
PG 2302+029	1.052	41	0.07	0.07	95.2	4.6	0.2	0.0	0.0
PKS 2340−036	0.896	41	0.03	0.03	97.5	2.5	0.0	0.0	0.0
PKS 2344+09	0.677	19	0.02	0.02	99.1	0.9	0.0	0.0	0.0
PKS 2352−342	0.702	11	0.01	0.01	99.8	0.2	0.0	0.0	0.0

[a] Simulations were generated for all the objects in the combined catalog for which the line identifications are complete. However, we have tabulated results only for objects in CAT1 and CAT3 for which there were nonzero probabilities of finding pseudodoublets, plus a representative set of the simulations that yielded no pseudodoublets. The results for the CAT2 objects are in CAT2.

TABLE 6

PROPERTIES OF OBSERVED LYMAN LIMIT SYSTEMS

Source	z_{em}	z_{LLS}	τ_{912}	τ_{min}	τ_{max}	log N_{HI}
UM 18[a]	1.89	0.86	1.35	1.26	1.44	17.3
PG 0935+416	1.937	1.46	4.19	4.05	4.35	17.8
Mrk 132	1.754	1.73	>6.00	7.00	>6.00	18.2
4C 19.34	0.828	0.53	1.30	1.14	1.48	17.3
4C 06.41	1.270	0.44	1.32	1.17	1.49	17.3
PKS 1055+20	1.11	1.03	2.71	2.61	2.82	17.6
Q1101−264	2.148	1.84	6.12	5.96	6.31	18.0
TON 153	1.022	0.65	5.42	4.90	6.46	17.9
PG 1352+011	1.121	0.66	>6.00	4.51	>6.00	18.2
PKS 1354+19	0.720	0.45	0.90	0.76	1.08	17.2
PKS 1424−11	0.805	0.65[b]	2.26	1.96	2.67	17.6
S4 1435+63	2.060	1.92	5.62	5.43	5.85	18.0
PG 1538+477	0.770	0.73	1.12	1.05	1.20	17.3
PG 1634+706[c]	1.334	0.99	>6.00	5.02	>6.00	18.2
		1.04	1.35	1.33	1.37	17.3
PG 1715+535	1.929	1.64[d]	0.65	0.62	0.69	17.0

[a] The G190H spectrum in which the Lyman limit system was found was obtained by Koratkar and collaborators in 1996. We extracted the spectrum from the *HST* archive and analyzed it in a manner consistent with our other spectra.

[b] Note this redshift, determined by the analysis software described in § 3.2, is significantly different from the value we presented in Paper V, $z = 0.621$.

[c] The G190H spectrum in which the two Lyman limit systems were found was obtained by Impey et al. 1996. We extracted the spectrum from the *HST* archive and analyzed it in a manner consistent with our other spectra.

[d] Using the method described in Paper V for the determination of the redshift of this system a lower redshift of $z = 1.626$ is found.

TABLE 7

GALACTIC ISM LINES IN THE INCOMPLETE SAMPLE OF ABSORPTION LINES FOR PG 1216+069

λ_{obs} (Å)	$\sigma(\lambda)$ (Å)	W_{obs} (Å)	$\sigma(W)$ (Å)	SL	FWHM (Å)	LINE ID Ion	LINE ID (Å)	$\Delta\lambda$ (Å)	z_{obs}
1193.50.....	0.19	0.51	0.14	3.54	1.10	Si II	1193.29	0.21	0.0000
1200.52.....	0.20	0.44	0.13	3.28	1.11	N I	1199.97	0.55	0.0000
1253.67.....	0.16	0.34	0.08	4.28	1.11	S II	1253.81	−0.14	0.0000
1301.94.....	0.16	0.25	0.06	4.25	1.10	O I	1302.17	−0.23	0.0000
1304.13.....	0.16	0.26	0.06	4.16	1.10	Si II	1304.37	−0.24	0.0000
1335.88.....	0.19	0.25	0.06	4.17	1.10	C II*	1335.71	0.17	0.0000
1393.60.....	0.18	0.19	0.05	3.77	1.11	Si IV	1393.76	−0.16	0.0000

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