VLA OBSERVING APPLICATION

A

rcvd:

DEADLINES: 1st of Feb., June., Oct. for next configuration following review
INSTRUCTIONS: Each numbered item must have an entry or N/A
E-MAIL TO: propsoc@nrao.edu (different for some Rapid Response Science)
OR MAIL TO: Director NRAO, 520 Edgemont Rd., Charlottesville, VA 22903-2475

(1) Date Prepared: Jan 13 2004

(2) Title of Proposal: Morphology and Spectral Energy Distribution of a z=3.4 radio-loud BAL QSS

(3) AUTHORS (Add * for new location)	INSTITUTION	E-mail	G/U	Students Only For Thesis?	Ph.D. Year
R. Perley	NRAO	rperley@nrao.edu			
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(4) Related VLA previous proposal number(s):

(5) Contact author for scheduling: Rick Perley
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(7) Scientific Category: ○ solar system ○ galactic ⊗ extragalactic ○ other:
Rapid Response Science: ○ Known Transient ⊗ Exploratory ○ Target of Opportunity

(8) Configurations (one per column) (A+Pt, A, B, C, D, BnA, CnB, DnC, Any)	C				
(9) Wavelength(s) (400, 90, 20, 6, 3.5, 2, 1.3, 0.7 cm)	3.5, 2				
(10) Time requested (hours)	total: 0.85				

(11) Type of observation: ⊗ continuum ○ spectroscopy ○ multichannel continuum ○ polarimetry ○ solar
(check all that apply) ○ pulsar ○ high-time resolution ○ Pie Town link ○ other:

(12) Suitable for dynamic scheduling? ⊗ Suitable ○ Unsuitable

(13) ABSTRACT (do not write outside this space)

As a by-product of a survey of radio-loud QSS at redshift = 4 (Vigotti et al. 2003, Holt et al. 2004) we have recently discovered a very interesting object. BAL 1623+37 is a z=3.4 radio quasar with an unusually rich absorption spectrum showing ~ 50 absorption lines. So far, we have collected spectral information from the existing radio surveys (WENSS, NVSS) and observations with the Effelsberg telescope. Because of its compactness (point-like in FIRST) and its steep high-frequency spectrum this source is also classified as Compact Steep Spectrum Source (CSS). In order to make use of the maximum resolution at radio frequencies available now we propose to observe BAL 1623+37 at 8 and 15 GHz with the VLA while it is still in C-array configuration. With a beam of 1.5 arcsec (at 15GHz) the angular extension of the source will be known at the level of 0.3 arcsec. This information will be used for a VLBI proposal to be submitted for the next deadline.

NRAO use only
(08/03)

(14) Observer present for observations? ◯ Yes ◯ No Data analysis at? ⊗ Home ◯ AOC or CV (2 weeks notice)

(15) Help required: ⊗ None ◯ Consultation ◯ Friend (extensive help)

(16) Spectroscopy only	line 1	line 2	line 3	line 4
Transition (HI, OH, etc.)				
Rest Frequency (MHz)				
Velocity (km/s)				
Observing frequency (MHz)				
Correlator mode				
IF bandwidth(s) (MHz)				
Hanning smoothing (y/n)				
Number of channels per IF				
Frequency Resolution (kHz/channel)				
Rms noise (mJy/bm, nat. weight., 1 hr)				
Rms noise (K, nat. weight., 1 hr)				

(17) Number of sources:	**1**

(If more than 10 please attach list. If more than 30 give only selection criteria and LST range(s).)

(18) NAME	Coordinates 1950 ◯ 2000 ⊗ RA hh mm Dec. ± xx.x°	Conf.	λ (cm)	Corr. mode	Band-width per IF (MHz)	Total Flux (Jy)*	LAS	Required rms (mJy/bm)	Required dynamic range	Time request (hr)
1624+37	16 24, +38.0	C	3.5		50	15	$< 1''$	0.2		0.25
1624+37	16 24, +38.0	C	2		50	10	$<1''$	0.2		0.5

*For spectral line, this should be the total flux at the peak of the line

Notes to the table (if any):

(19) Restrictions to elevation (other than hardware limits) or HA range (give reason):

(20) Preferred range of dates for scheduling (give reason):

(21) Dates which are not acceptable:

(22) Special hardware, software, or operating requirements:

(23) Please attach a self-contained Scientific Justification **not in excess of 1000 words.** (Preprints or reprints will be ignored.) Please include the full addresses (postal and e-mail) for first-time users or for those that have moved (if not contact author). When your proposal is scheduled, the contents of the cover sheets become public information (Any supporting pages are for refereeing only).

v4.2 8/03