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: November 5, 2003

(2) Title of Proposal: VLA Confirmation of High Velocity Water Masers in a Maser Outburst of the Young Stellar Object IRAS 16293−2422

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

(5) Contact author for scheduling: M. Claussen
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E-mail: mclausse@nrao.edu
Fax: 505 835 7027

(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)	B				
(9) Wavelength(s) (400, 90, 20, 6, 3.5, 2, 1.3, 0.7 cm)	1.3 cm				
(10) Time requested (hours)	1				

(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)

We request one-half to one hour on the VLA to confirm the reality of high velocity water maser features that have appeared along with a 10000 Jy flaring of the systemic velocity masers in the young stellar object IRAS 16293−2422 in our recent GBT observations. Although maser flares have been observed in the source as large as 6000 Jy previously, this is the brightest maser flare known for this source. In over 17 years of observations of this maser source we have never seen maser features with such high radial velocities as just detected; indeed we have never seen such high velocity features in any low-mass YSO.

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.)	H_2O			
Rest Frequency (MHz)	22235.08			
Velocity (km/s)	0.0			
Observing frequency (MHz)				
Correlator mode	2AC			
IF bandwidth(s) (MHz)	3.125	3.125		
Hanning smoothing (y/n)	n			
Number of channels per IF	128			
Frequency Resolution (kHz/channel)	24.4			
Rms noise (mJy/bm, nat. weight., 1 hr)	3.5 mJy			
Rms noise (K, nat. weight., 1 hr)	106			

(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)
IRAS 16293	16 32, −24.5	B	1.3	2AC	3.125	10000 Jy		5		1

*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): As soon as possible.

(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).