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: 30 April 2004

(2) Title of Proposal: Confirmation and Position of a Weak Water Maser in L1551-IRS5

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

(5) Contact author for scheduling: Mark Claussen
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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)	Any				
(9) Wavelength(s) (400, 90, 20, 6, 3.5, 2, 1.3, 0.7 cm)	1.3				
(10) Time requested (hours)	0.5				

(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 propose to confirm our 29 April 2004 GBT discovery of a weak water maser in the well-known protostellar object L1551-IRS5. Many water maser observations over the last 10 - 12 years have targeted this source without success, although it has all the characteristics of embedded YSOs which almost always exhibit water maser activity. The confirmation of the detection of this weak maser will allow some conclusions to be drawn about the water maser activity cycle in young stellar objects (YSOs). A reasonable position measurement may also be made, allowing us to place the maser in relation to the astrometric measurement of the binary system in this 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)	22235.080			
Velocity (km/s)	+10.0			
Observing frequency (MHz)				
Correlator mode	1A			
IF bandwidth(s) (MHz)	3.125			
Hanning smoothing (y/n)				
Number of channels per IF	256			
Frequency Resolution (kHz/channel)	12.2			
Rms noise (mJy/bm, nat. weight., 1 hr)	2.3			
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)
L1551-IRS5	04 32, +18.1	any	1.3	1A	3.125	0.13 Jy		5		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): within a week of April 29

(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