



# Observing Application

Date : Jul, 28 2008  
 Proposal ID : VLA/08C-228  
 Legacy ID : AW750  
 PI : Jeff Wagg  
 Type : Rapid Response -  
 Exploratory Time  
 Category : Extragalactic  
 Total Time : 10.0

## Confirming a tentative detection of H<sub>2</sub>O megamaser emission at z~2.5

### Abstract:

We have recently used the new EVLA C-band antennas to conduct the first search for water megamaser emission in FIR luminous submm galaxies at z~2.5. We find tentative evidence for a water megamaser in SMMJ16359, a strongly lensed submm galaxy whose lensing geometry allows us to obtain very deep constraints on the intrinsic luminosity of any maser emission present.

Confirming that such water maser lines exist in these high-redshift submm galaxies would open up a powerful new route to estimate redshifts for these objects and to study their dense, interstellar molecular gas.

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### Related proposals:

### Joint:

Not a Joint Proposal

### Observing type(s):

Spectroscopy

**VLA Resources**

Name	Conf.	Frontend & Backend	Setup
cbandJ16359	D	C Band 6 cm 4200-7700 MHz VLA Correlator - Spectral Line	Rest frequencies: 6322.0 MHz Bandwidth: 6.25 MHz Spectral resolution: 97.656 kHz IF Mode: 2 No. of Channels: 64

**Sources:**

Name	RA / RA Range	Dec / Dec Range	Epoch	Velocity / z	Group
SMMJ16359	16:35:52.5 00:00:00.0	+66:12:15 00:00:00	J2000	Redshift : 2.5165	firgalsz25

**Sessions:**

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
observeJ16359	5.00	2	1 day	14:00:00	19:00:00	30

**Session Constraints:**

Name	Constraints	Comments

**Session Source/Resource Pairs:**

Session Name	Source	Resource	Time	Figure of Merit	Subarray
observeJ16359	SMMJ16359	cbandJ16359	5.0 hour	0.6 mJy/bm	

Present for observation: yes

Staff support: None

Plan of Dissertation: no