



## What is the procedure in sorting the Spectral Line Picker results by column?

Andy Biggs - 2023-11-01 - ALMA Observing Tool (OT)

The default primary sorting in the Spectral Line Picker is by Rest Frequency.

In order to change the primary sorting column, it is necessary to first double-click the desired column. This will cause a triangle to appear in that column's heading and subsequent single clicks will cause the sort order, indicated by the direction of the triangle, to change.

Note that it is also possible to refine the sort with secondary and tertiary, etc., criteria by single-clicking on additional columns - smaller triangles will appear in the column headings and, as with the primary sort, further single clicks will change the sort order of that column. For example, double-clicking first on Description will produce many examples of the same molecule.

A secondary sort can then be performed on the Rest Frequency and, if there are multiple entries with the same Rest Frequency, a further sort might be possible with the  $S_{ij} \mu^2$  column (line strength multiplied by the square of the dipole moment). The sort can be reset by double-clicking on a column i.e. only this primary sort will now be enabled. By default, the OT performs a primary sort using the **Rest Frequency** and a secondary sort using the **Transition** column.

For more information, please see the Spectral Line Picker chapter of the [OT User Manual](#).

The screenshot shows the ALMA Spectral Line Picker interface. On the left, there are filter settings for Transition Filter, Frequency Filters (ALMA Band), Sky Frequency (GHz), Receiver/Back End Configuration, and Molecule Filter/Environment. The main area displays a table of transitions matching the filter settings. The table has columns for Transition, Description, Rest Frequency, Sky Frequency, Upper-state Energy, Lovas Intensity,  $S_{ij} \mu^2$ , and Catalog. A blue arrow points to the 'Transition' column header, and a red arrow points to the 'Sky Frequency' column header. Below the table, there are options to 'Add to spectral window list' and 'Spectral windows in this baseband (maximum of four)'. The table contains 20 rows of data, including transitions for molecules like 2,4-Pentadiynylidyne, 1,3-Butadiynyl radical, Ethyl Cyanide, Methanol, Silicon Monoxide, Cyclopropenylidene, Methyl Cyanide, Sulfur dioxide, UNIDENTIFIED, Sulfur Monoxide, and Methanol.

Transition	Description	Rest Frequency	Sky Frequency	Upper-state Energy	Lovas Intensity	$S_{ij} \mu^2$	Catalog
I-CSH J=35/2-33/2, Q=3/2, F=17-16, l=1	2,4-Pentadiynylidyne	84.108238 GHz	84.108319 GHz	71.861 K	4.7	401.709 D <sup>a</sup>	Offline
I-CSH J=35/2-33/2, Q=3/2, F=16-17, l=1	2,4-Pentadiynylidyne	84.108398 GHz	84.108480 GHz	71.861 K	4.7	425.314 D <sup>a</sup>	Offline
I-CSH J=35/2-33/2, Q=3/2, F=17-16, l=0	2,4-Pentadiynylidyne	84.110087 GHz	84.110168 GHz	71.862 K		401.692 D <sup>a</sup>	Offline
I-CSH J=35/2-33/2, Q=3/2, F=16-17, l=0	2,4-Pentadiynylidyne	84.110244 GHz	84.110325 GHz	71.862 K		425.395 D <sup>a</sup>	Offline
C4H v7 = 1 J=17/2-15/2, Q=1/2, l=1	1,3-Butadiynyl radical	84.123003 GHz	84.123065 GHz	211.871 K	2.1	12.771 D <sup>a</sup>	Offline
CH3CH2CN v=0 11(0,11)-10(1,10)	Ethyl Cyanide	84.151838 GHz	84.151919 GHz	28.102 K	0.1	10.328 D <sup>a</sup>	Offline
CH3OH v t=1 11(10,1)-11(11,0)	Methanol	84.158571 GHz	84.158652 GHz	1066.119 K		1.459 D <sup>a</sup>	Offline
U-84163	UNIDENTIFIED	84.163000 GHz	84.163081 GHz		0.06		Offline
3OSiO v=1 2-1	Silicon Monoxide	84.164253 GHz	84.164334 GHz	1753.828 K		19.441 D <sup>a</sup>	Offline
c-H13CCH 2(1,2)-1(0,1)	Cyclopropenylidene	84.165621 GHz	84.165703 GHz	6.331 K	0.13	17.24 D <sup>a</sup>	Offline
U-84215	UNIDENTIFIED	84.215000 GHz	84.215081 GHz		0.08		Offline
CH3CN v6=1 J=36-36, K=3-1	Methyl Cyanide	84.271390 GHz	84.271472 GHz	1139.034 K	0.122	D <sup>a</sup>	Offline
SO2 v=0 32(5,27)-31(6,26)	Sulfur dioxide	84.320876 GHz	84.320958 GHz	549.36 K	0.1	13.463 D <sup>a</sup>	Offline
U-84356	UNIDENTIFIED	84.356000 GHz	84.356082 GHz		0.07		Offline
U-84385	UNIDENTIFIED	84.385000 GHz	84.385082 GHz		0.08		Offline
34SO 2(2)-1(1)	Sulfur Monoxide	84.410690 GHz	84.410772 GHz	19.233 K	0.03	3.534 D <sup>a</sup>	Offline
CH3OH v t=0 13(-3,11)-14(-2,13)	Methanol	84.423776 GHz	84.423858 GHz	273.898 K	0.8	4.303 D <sup>a</sup>	Offline
13CH3OH v t=0 13(-3,11)-12(-4,9)	Methanol	84.444140 GHz	84.444222 GHz	269.033 K		3.267 D <sup>a</sup>	Offline
U-84468	UNIDENTIFIED	84.468000 GHz	84.468082 GHz		0.18		Offline
U-84478	UNIDENTIFIED	84.478000 GHz	84.478082 GHz		0.18		Offline
CH3CN v6=1 J=69-69, lK=-1-1	Methyl Cyanide	84.495766 GHz	84.495848 GHz	2655.452 K		0.823 D <sup>a</sup>	Offline
U-84496	UNIDENTIFIED	84.496000 GHz	84.496082 GHz		0.1		Offline
CH3OH v t=0 5(-1,5)-4(0,4)	Methanol	84.521169 GHz	84.521251 GHz	40.391 K	2.8	3.083 D <sup>a</sup>	Offline