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## I'm having problems setting up an observation of a line transition that is very close to the edge of a sideband. What should I do?

John Hibbard - 2024-03-14 - ALMA Observing Tool (OT)

If the transition of interest is so close to the edge of a sideband that the half-width of the desired spectral window puts the edge of the window beyond the band edge, you need to either (1) **choose a narrower spectral window**, or (2) **change the central frequency of the spectral window** so that the spectral window falls entirely within the observable bandwidth.

To change the location of the spectral window, edit the "**Centre Freq**" field in the spectral line table on the "Spectral Setup" page of the OT until the error message goes away, i.e. change it until the width of the blue line in the OT spectral visualizer falls within the yellow region that designates the extent of the sideband. It doesn't matter if the central frequency does not correspond exactly to the line transition, as long as the spectral range of interest falls entirely within the spectral window.

Observing lines close to the band edge and observing multiple lines is further described in the [ALMA Technical Handbook](#).

Note: Moving LO1 here is for experimentation only - the actual setup is determined by the spectral windows

Observed Frequency (GHz)

Rest Frequency (GHz)

CH3OH v1=0 12(-3,10)-13(2,11)

Overlays:  Receiver Bands  Transmission  DSB Image  Spectral Lines

Water Vapour Column Density:  Automatic Choice  Manual Choice 1.796mm (5th Octile)

Viewport:

Spectral Type

Spectral Type:  Spectral Line  Single Continuum  Spectral Scan

Produce image sidebands (Bands 9 and 10 only)

Polarization products desired:  XX  DUAL  FULL

Spectral Setup Errors

No suitable receiver band for the range [210.97035307899392 GHz, 211.2203532082788 GHz]

Spectral Line

Fraction	Centre Freq (rest, Jsrk)	Centre Freq (sky, Jbar)	Transition	Bandwidth, Resolution (smoothed)	Spec. Avg.	Representative Window
1(Full)	211.09515 GHz	211.09535 GHz	CH3OH v1=0 12(-3,10)-13(2,11)	234.375 MHz, 564.453 kHz (4-b1t)	2	9