OT Practical

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Overview

- You will be using the Cycle-0 version
  - Cycle-1 version still under development
  - Main change is to Spectral Setup
  - Otherwise both versions are quite similar
- Task: Create a proposal!
  - Register in Science Portal (almascience.eso.org)
  - Enter proposal information
  - Create Science Goals

New Spectral Setup Page

Spectral setup guidance

Most observations with ALMA will require you to choose either "Spectral line" or "Single continuum". Polarization products will usually be "DUAL".

Spectral line: Create one or more spectral windows in each baseband, either by using the Spectral Line Selection Tool, or manually using the "Add" button. Various restrictions apply which, if not adhered to, will result in an error message. They are:

* A baseband is 2-GHz wide and all its spectral windows must fit inside this range.
* All basebands must fit in the sidebands. The width and separation of the sidebands are most easily seen in the Spectral Visual Editor (SVE). For bands 3 and 7, they are 4 GHz wide and separated by 8 GHz.
* For bands 3, 6 and 7, either all the basebands must be in same sideband, or up to two must be in one and the remainder in the other i.e. a 3+1 split is not possible. See the SVE.

Continuum: Choosing a single frequency will cause the OT to automatically choose 4 spws with the maximum frequency coverage. Note that for bands 3, 6 and 7, the requested frequency falls midway between the two sidebands and will not actually be observed – see the Spectral Visual Editor.

Representative Frequency: This is set by choosing one of the defined spectral windows. The sensitivity entered on the Control & Performance page should correspond to this spectral window.

Spectral Type

Spectral Type: Choose the type of spectral observation you wish to make
- ● Spectral line
- ○ Single continuum
- ○ Spectral scan

Polarization Products desired   ○ SINGLE-X ● DUAL

Spectral Line

Baseband-0 [Select Lines to Observe...] [Add] [Delete]

Fraction	Center Freq Rest	Center Freq Sky	Transition	Bandwidth,Channel Spacing	Set Representative Frequency
1/2	105.00000 GHz	101.52764 GHz		234.375 MHz(692 km/s), 122.070 kHz(0.360 km/s)	○
1/2	105.50000 GHz	102.01111 GHz		234.375 MHz(689 km/s), 122.070 kHz(0.359 km/s)	○

Baseband-1 [Select Lines to Observe...] [Add] [Delete]

1(Full)	90.00000 GHz	87.02369 GHz		117.188 MHz(404 km/s), 30.518 kHz(0.105 km/s)	●

Baseband-2 [Select Lines to Observe...] [Add] [Delete]

1(Full)	93.00000 GHz	89.92448 GHz		468.750 MHz(1563 km/s), 122.070 kHz(0.407 km/s)	○

Baseband-3 [Select Lines to Observe...] [Add] [Delete]

Representative Frequency

The Representative frequency is used in conjunction with the sensitivity entered on the Control & Performance page to estimate the required observing time and to set the size of the antenna beam shown in the Spatial Visual Editor. If the transition you are most interested in does not fall in the centre of the chosen spectral window, its frequency can be changed here. The sky equivalents of the Representative Frequency are shown below.

[90.0] [GHz ▼]

Make sure you try the following:

- Spatial Visual Editor
  - Define a rectangular area and view mosaics
- Spectral Visual Editor
  - Zoom in on spectral windows
  - Grab LO1 and move sidebands
- Create continuum and spectral line Science Goals
- Spectral Line Picker
- Sensitivity Calculator
- Online help (also at almascience.eso.org)