Example OT script 1: Mosaicing the Nearby Spiral Galaxy M100

1. **Enter the basic information**

Click on ‘Proposal’ to bring up the Proposal Information editor pane. Enter the Title, Abstract, Proposal Type, Scientific Category, Keywords, set yourself as PI, add any co-Is

2. **Attach supporting material**

Attach a .pdf file up to 5 pages long containing a scientific justification and technical justification

3. **Create a Science Goal**

Press the cross-hair icon or Edit -> New Phase 1 Science Goal. The Science Goal is where all the information on the source and the spectral setup will go.

4. **Add the source information**

Select the ‘Field Setup’ editor pane. Type in ‘M100’ as Source Name, and resolve from Simbad. Enter the Expected Source Properties (see project description):

Peak Continuum Flux Density per Beam: 0.5 mJy

Peak Line Flux Density per Beam: 3 mJy

Line Width: 10 km/s

5. **Configure the spectral setup**

Select the Spectral Setup editor pane and the Spectral tab. The Spectral Type should be set to Spectral Line.

Press ‘Select Lines to Observe’ for Baseband 0, this brings up the Spectral Line picker window. Type ‘CO’ in the Species Filter Field and select the CO 1-0 transition, ‘Add to Selected Transitions’, press ‘OK’. In the spectral line table, double-click on the ‘Bandwidth, Resolution’ column and change the bandwidth to 1875 MHz. The resulting resolution (2.5 km/s) is fine enough to resolve the CO line (10 km/s width).

For Baseband 1-3 press ‘Add’ to manually add spectral windows in order to sample the continuum emission. Double-click the ‘Center Freq (Rest)’ column and enter 113.3, 101.2 and 103.2 GHz for BB 1, 2 and 3 respectively. Change the bandwidth to 2000 MHz for all three spectral windows to get the widest frequency range possible. You can visualise your spectral setup in the Spectral Visualiser Tool. Notice that the representative frequency defaults to the centre of the first spectral window, which in this case is what we want.

6. **Finalise the spatial setup**

Go back to the Field Setup pane and select the Spatial tab. Change the Target Type to ‘1 Rectangular Field’, which brings up the Rectangle parameter box. Enter 260” for both the p- and q-length. Do an image Query to bring up an image of M100 from an image server (Digitized Sky (Version II) at ESO works well) and visualise the rectangle and the pointings.

7. **Select the calibration strategy**

Keep the default option ‘System-defined Calibration’ in the Calibration Setup editor pane. We strongly discourage User-defined calibrations except for expert users whose projects have special calibration requirements.

8. **Enter the control and performance parameters**

Select the Control and Performance editor pane. Fill in the Desired Performance parameters (again, see the project description):

Desired Angular Resolution: 2”

Largest Angular Structure in source: extended source – 60”

Desired Mosaic Sensitivity: 3 mJy

Bandwidth used for Sensitivity: User – 10 km/s (corresponds to the width of the CO spectral line)

Check whether the OT suggests ACA observations (press the ‘Suggest’ button – the OT should recommend ACA observations) and view the Time Estimate (total time should be 2.33 days).

9. **Validate your project**

Press the green tick icon or File -> Validate. If you have followed the instructions correctly, you should get no errors. If you do get errors you can double-click on the error message to go to the relevant pane.

10. **Submit and save your proposal**

File -> Submit Project will submit your project (should not be done for test projects!), after which you will also be prompted to save it locally. Upon submission your project will be assigned a Project Code, and you can re-submit edited versions until the proposal deadline, overwriting the previous version. You can save your project locally at any time by pressing the disk icon or File -> Save / Save As.