

# ALMA Science

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## Why are the beam size value(s) in the Phase 2 OT different from the requested values in the "Control and Performance" tab?

Sarah Wood - 2020-09-21 - ALMA Observing Tool (OT)

Since Cycle 5, the PI has had the ability to input a range of resolutions in the OT (a single value is considered a very tiny range). Based on this information, the OT writes a range of acceptable angular resolution into the Scheduling Block as follows:

- 1) If the range is very narrow or a single value. It will widen it to a range  $\pm 20\%$  around the center of the range or around the single value. This widening is performed to ensure a reasonable chance of schedulability.
- 2) Using either the AR range defined by the PI, or the one derived in step 1, it is checked whether the resolution of any nominal configuration falls within the range. IF NOT, then the range is extended in the direction of the closest nominal configuration resolution by  $+5\%$  of that resolution (this extra tolerance is to further enhance the chances of schedulability when we are around that configuration).
- 3) For Cycle 6, if an SB can only be executed in C43-1 or C43-10, the lower or higher resolution in the range will be set  $5\%$  lower or higher than the nominal C43-1 or C43-10 resolutions, respectively. This, again is a safeguard for flexibility in scheduling. (For example, it covers the hypothetical case of the resolution request being right in exactly C43-1, but with the telescope operating with the blocker number of antennas (41), where the resolution would be just a bit coarser than C43-1, and the observation would not be scheduled.)
- 4) Also the resolutions are cropped if including long baseline configurations, or for optimizing combinations of configurations (this is also explained in the proposer's guide: "If the execution of an SB is time wise significantly more efficient in a subset of the allowed configurations, only that subset will be considered").