



NATIONAL RADIO ASTRONOMY OBSERVATORY

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GBT Beam Offset Parameters

1 Beam Offset Coefficients

The GBT pointing system needs the nominal locations of each beam in arcseconds, relative to a cardinal direction. The natural cardinal direction is the center of the feed turret mounting plate, the beam direction of a center (boresight) feed, so this is considered to be the (0,0) offset. The pointing plate scale for feed offsets was calculated and given in GBT Memo 155 as 26.72 arcseconds/inch in both elevation and cross-elevation directions. Later the plate scale was refined empirically by the PTCS project (see

<http://www.local.gb.nrao.edu/ptcs/ptcspn/ptcspn42/ptcspn42.pdf>) to 27.50 arcseconds/inch.

Figure 1 illustrates the signs expected for each offset direction by the GBT pointing system. For example, a feed moved to the left and up in this diagram will have positive offsets in both elevation and cross-elevation. Note that a feed moved in the positive EL direction moves the beam lower in elevation; a feed moved in the positive XEL direction moves the beam to the left on the sky.

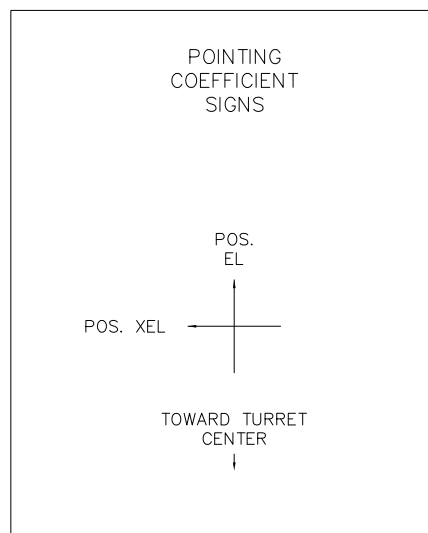


Figure 1: Diagram showing the signs of the beam offset coefficients versus feed displacements. The view is again looking down on the turret with the top toward the main reflector and the bottom toward the turret center.