ISAC Operations Note

Title: Aligning the beam into DRAGON

Date: May 25, 2009

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After an energy change has been completed and the tune from HEBT to DRAGON has been scaled (see energy change instruction), DRAGON will check the energy of the beam. Once they have confirmed that the beam energy is correct they will request that ISAC Ops to align the beam (meaning the beam is not entering with an angle) and center it on their CCD camera.

The goal of the exercise is to center the beam on their camera while ensuring that the beam is aligned on the axis of DRA:Q1 and DRA:Q2 (confirmed by monitoring the X and Y profiles on the harp DRA:PROFCH with these quadrupoles on and off; if the beam doesn't move while going from quads off to quads on it means that the quads doesn't steer the beam so it is aligned on the axis).

Here is the procedure:

1) turn on DRA:Q1 and DRA:Q2 (by DRAGON);

2) insert DRA:PROFCH (by DRAGON);

3) with beam on the harp DRA:PROFCH take a screen grab of the page and note the position of the X and Y profiles;

4) turn off DRA:Q1 and DRA:Q2 (by DRAGON). The beam profiles will become wider and most likely move;

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5) first adjust the horizontal position (you can adjust first the vertical, see point 6): Adjust HEBT2:XCB2 to center the beam on the DRAGON CCD (the beam may move on the harp in the wrong direction with respect where you want to go, harp snapshot, but it should move less effectively than on the camera). Adjust HEBT2:XCB6 in order to move the beam on the harp in the right direction (the beam may move now on the camera less effectively than on the harp). Readjust HEBT2:XCB2 and then HEBT2:XCB6 until the beam is center on the camera and in the right spot on the harp. This can be tricky. Sometimes this two sets of steerers are enough other times you may need to use HEBT2:MB1 or HEBT2:XCB4. You can also find the you have to invert the role of the steerers meaning some time HEBT2:XCB6 move more the beam on the camera than the harp and viceversa for HEBT2:XCB2;

6) second adjust the vertical position: the recipe is the same as in point five with HEBT2: YCB2 and HEBT2:YCB2 playing the main role and HEBT2:YCB4 as backup;

7) Once you are happy with the centering on the camera and the position on DRA: PROFCH asked DRAGON to turn DRA:Q1 and DRA:Q2 on. If the profiles don't move (or they move slightly, it's up to DRAGON decide if it's good enough) then the beam is centered and aligned and you are done other wise you need to repeat steps 3) through 6).

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