

About the ASI, its lens, and the field of view:

The LENS used is capable of seeing a full 180 degrees field of view. (in fact, slightly more)

The optics system in the ASI is arranged such that there is no field stop preventing imaging of the entire 180-degree field of view.

The optics, intensifier, and fibre-optic reduction coupling to the CCD are arranged such that the 180 degree field of view is projected across (nominally) 240 CCD pixels. Thus a nominal per-pixel field of 0.75 degrees.

More accurately, the lens projection function is non-linear at greater zenith angles. A second-order fit to the function is presented each year in the calibration report. It is:

ro = 126.00 row intersected by the optic axis  
co = 130.00 col intersected by the optic axis  
k1 = 0.624315 linear coeff for the radial function  
k2 = 0.000828 quadratic coeff for the radial function

So, more precisely, the 180-degree field of view seen by the ASI lens is projected across 248 CCD pixels.

The present cropping algorithm cuts out a circle centred on the centre of the CCD (pixel 128,128), with a radius of 99 pixels. I have said before that this corresponds (nominally) to a zenith angle of 74 degrees. To be more precise, taking the above-mentioned lens projection function into account, the present "crop circle" has an angular extent of 70 degrees zenith angle. Please note also that the centre of the cropping mechanism is NOT the centre of the field of view. Adjusting this each season would require software changes, and could change the size of the downstream duty mode data records.

So, during normal datataking operations, the "whole sky" is "seen" by the image intensifier. I think this answers your question. Having the moon in the field of view, but out of the "crop circle" would cause some problems:

When the moon is in the FOV, scattering in the dome and lens is quite noticeable, and would raise the detectivity floor by some variable amount.

If the moon is bright enough to cause CCD column bleeding, these columns can bleed up into the "cropped" image area.

If the moon is imaged for long periods by the intensifier, the areas of the intensifier on which the moon has been imaged will suffer permanent gain degradation.

If the image of the moon on the intensifier is bright enough, it can trigger the intensifier's bulk gain-reduction over-brightness protection scheme, and cause significant, unknown gain reductions over the entire field of view.