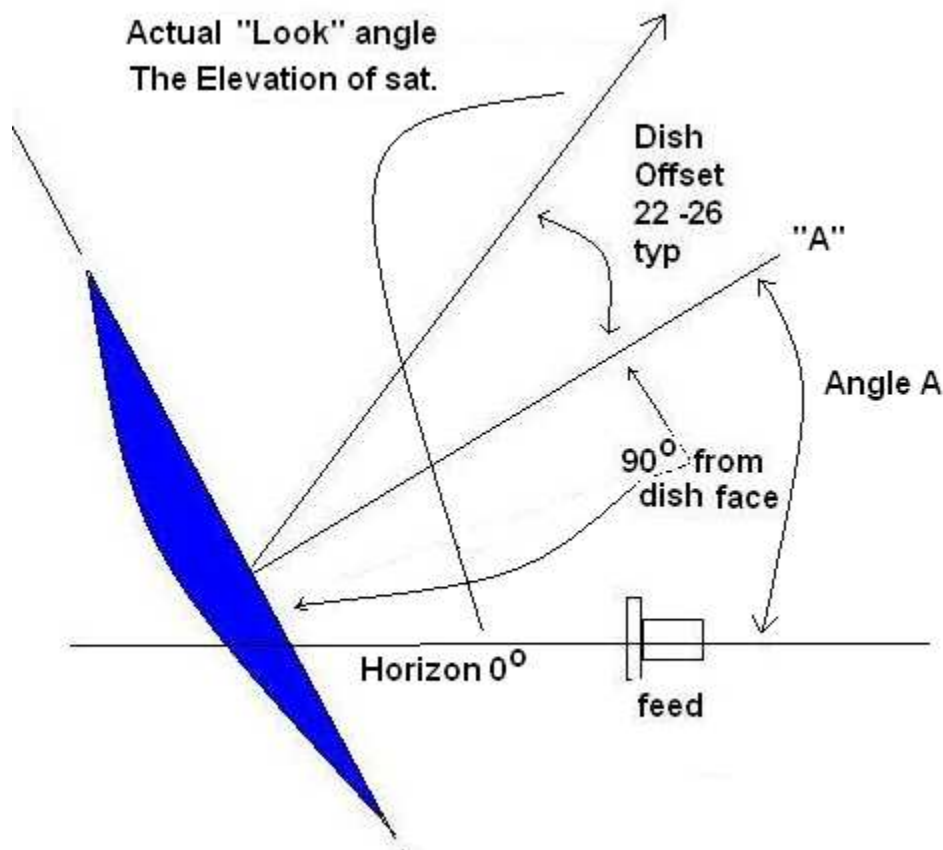


Here's what the geometry looks like in a normal "Offset" dish configuration.



Notice that the actual angle above the horizon to the sat is Offset from the elevation of the face of the dish. If you don't know the offset of your dish, it can be calculated after making a few measurements.

First aim it at a known satellite. Look up it's elevation for your location on a good website. (www.dishpointer.com) Note its elevation, for this example it is 35 degrees. Now we measure the angle of the dish face above the horizon. This would be Line "A" in our example, which is 90 degrees off the face of the dish. Our example, we measure 11 degrees.

Our dishes "offset" is $35 - 11 = 24$.

Sat. Elevation (minus) dish "A" elevation (equals) offset angle.

We have a 24 degree offset dish.

This can then be used to aim at other sats, Say we want a sat at an elevation of 40 degrees. We would adjust angle "A" on our dish to:
 $40 - 24 = 16$ Degrees

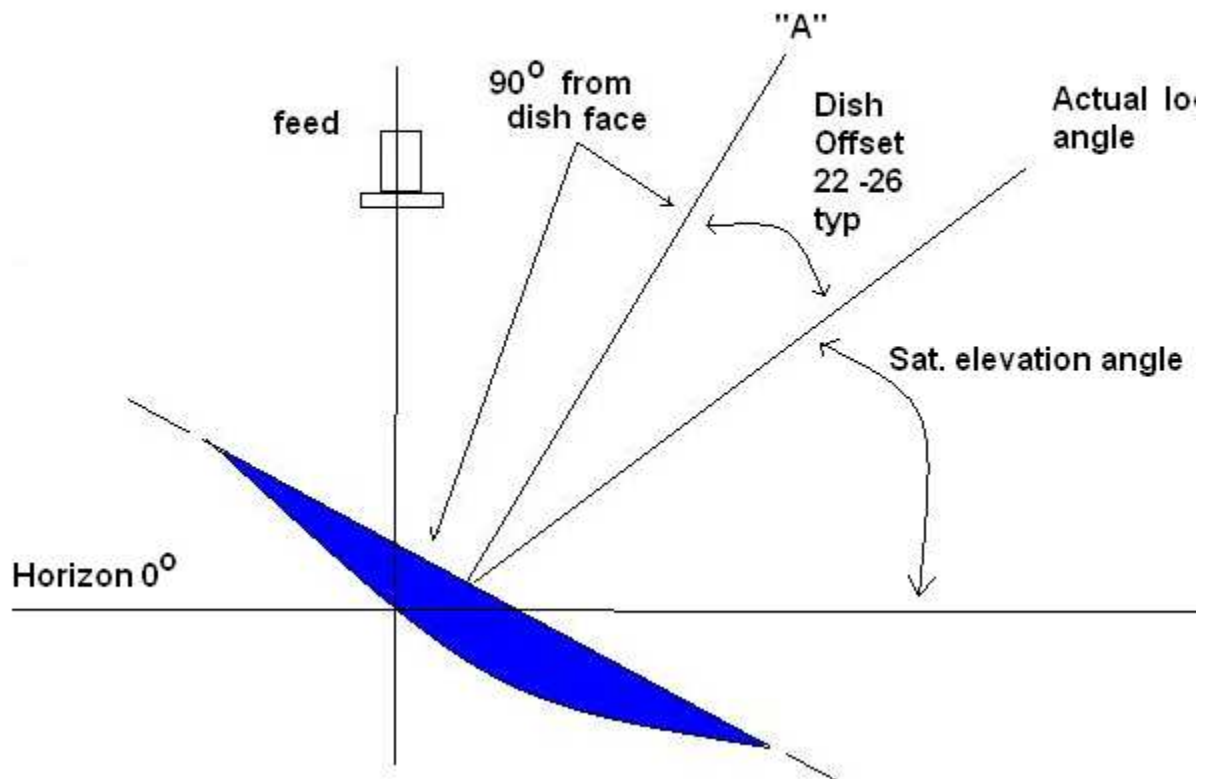
Sat elevation (minus) offset (equals) dish "A" elevation.

Or: Sat elevation = dish elevation + offset.

Note: many manufacturers incorporate a lip on the top edge of the dish which is $90 \pm$ some degrees to the face of the dish. Check yours for a usable lip, mark how many degrees different it is to the True (satellite) elevation. Lip angle + difference = sat elevation.

This can be especially handy if your AZ-EL mount doesn't have a calibrated scale.

Calculation for an "Inverted Offset" as shown here:



This is often used to aim at satellites close to the horizon as many AZ-EL mounts do not allow aiming at a satellite less than 20 degrees above the horizon.

In the inverted position, the "A" angle is higher, to the horizon, than what the actual dish look angle. So our math will be:

Angle "A" (minus) offset (equals) satellite elevation.

Again we will use our example dish that we've calculated the offset being 24 degrees. The satellite we want to aim at is at an elevation of 22 degrees.

sat elevation (22)+ offset(24) = Dish elevation(46)

The face of the dish. aimed up at an angle of 46 degrees, will be actually looking at an angle of 22 degrees, above the horizon.

Using the standard AZ-El mount on an inverted installation.

Most AZ-El mount elevation scale reads the actual elevation that the dish is looking (satellite elevation) when used in a normal installation, (Page 01) This is offset degrees above the dish angle "A".

The AZ_EL mounts, in an inverted installation, (page02) the scale may read offset degrees above what it is actually looking. This is the "A" angle. Satellite elevation will be = "A" angle (scale) - offset,

The AZ-EL mount. on many 1.2 meter offset dishes, elevation scale goes from 10 to 70. But adjustment below approx. 25 is impossible as the bottom of the dish hits the pole it is mounted to. This will allow the dish to be aimed at sats at least 25 degrees, and as high as 70 degrees from the horizon in a conventional configuration.

In an inverted configuration, it reads the "A" elevation. Here, the satellite elevation can be as high as 46 degrees, (70- offset) and as low as, 25 (elevation scale) - 24 (offset) = 1 degree.

So to aim our satellite at 34.4° degrees elevation, we would set our scale, the "A" angle to: $34.4 + 24(\text{offset}) = 58.4$ degrees

Easy way is to try an inverted mount is to:
align on a sat, invert, readjust elevation, check numbers.
Keep notes.

I think this has made it possible to

- 1) calculate the offset of the dish
- 2) and understand the geometry to
- 3) get that sat that's low on the horizon with an inverted configuration.

Happy satellite Hunting!