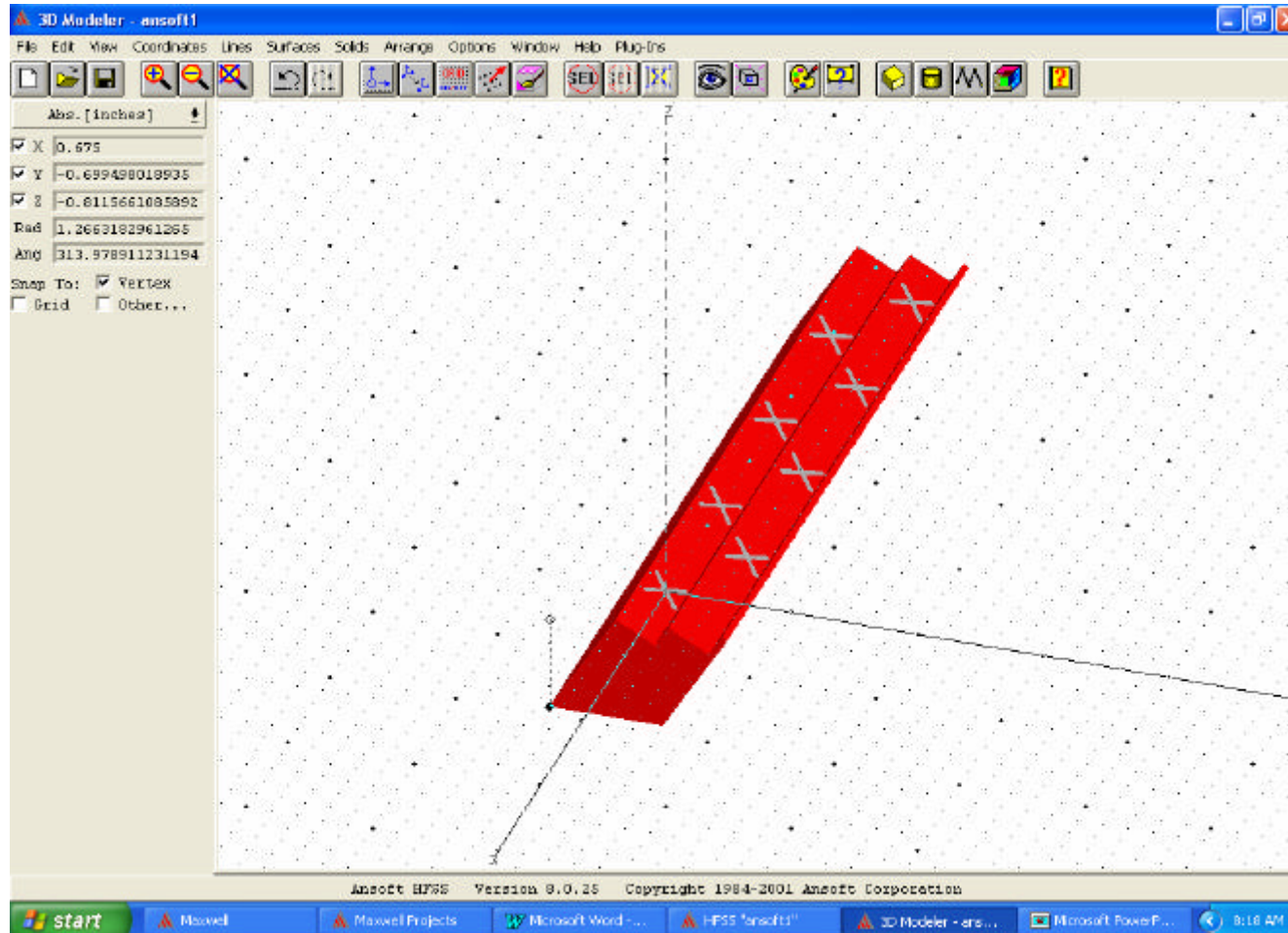


Tips for Avoiding Solid Modeling Issues

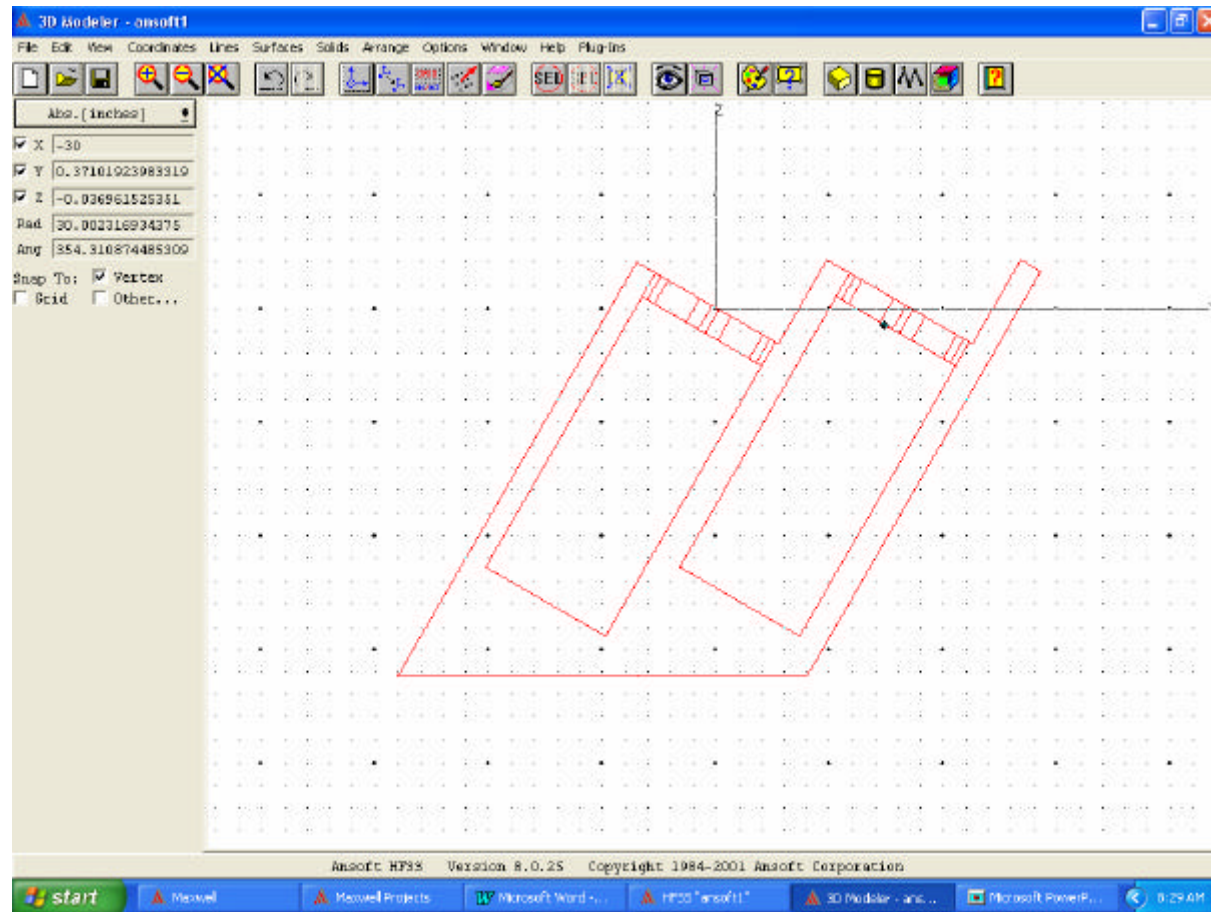
Bad Outcomes From Errors Made in The “Draw” Mode

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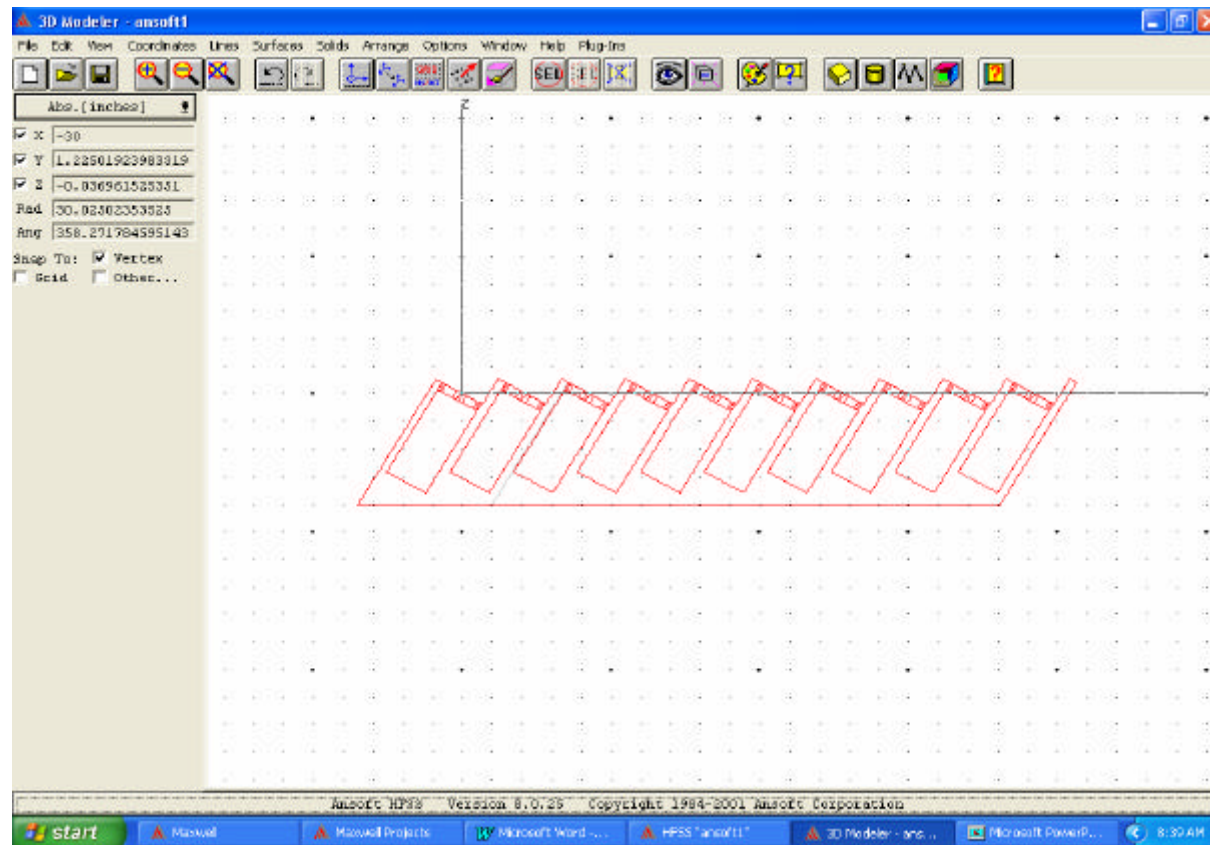
Slotted Waveguide Problem



Slotted Waveguide Problem Ran Well



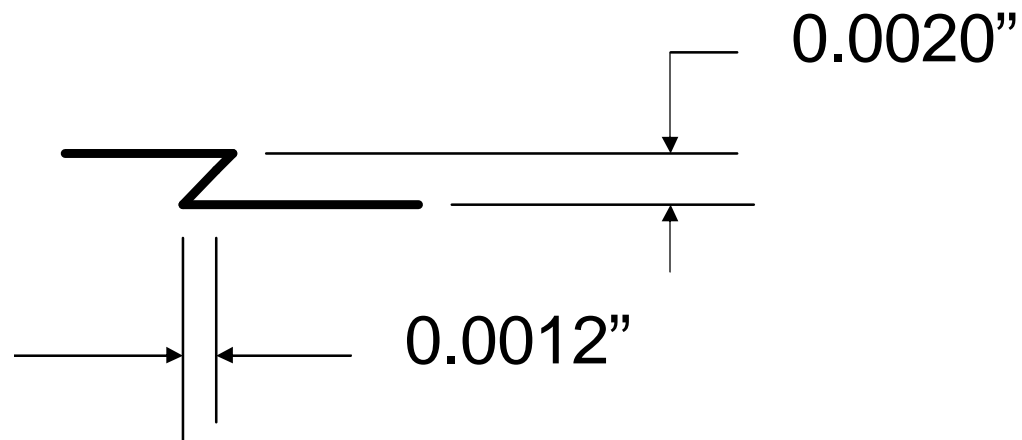
Then, Increased Array Size Using HFSS “Duplicate”



Problem Wouldn't Mesh!!

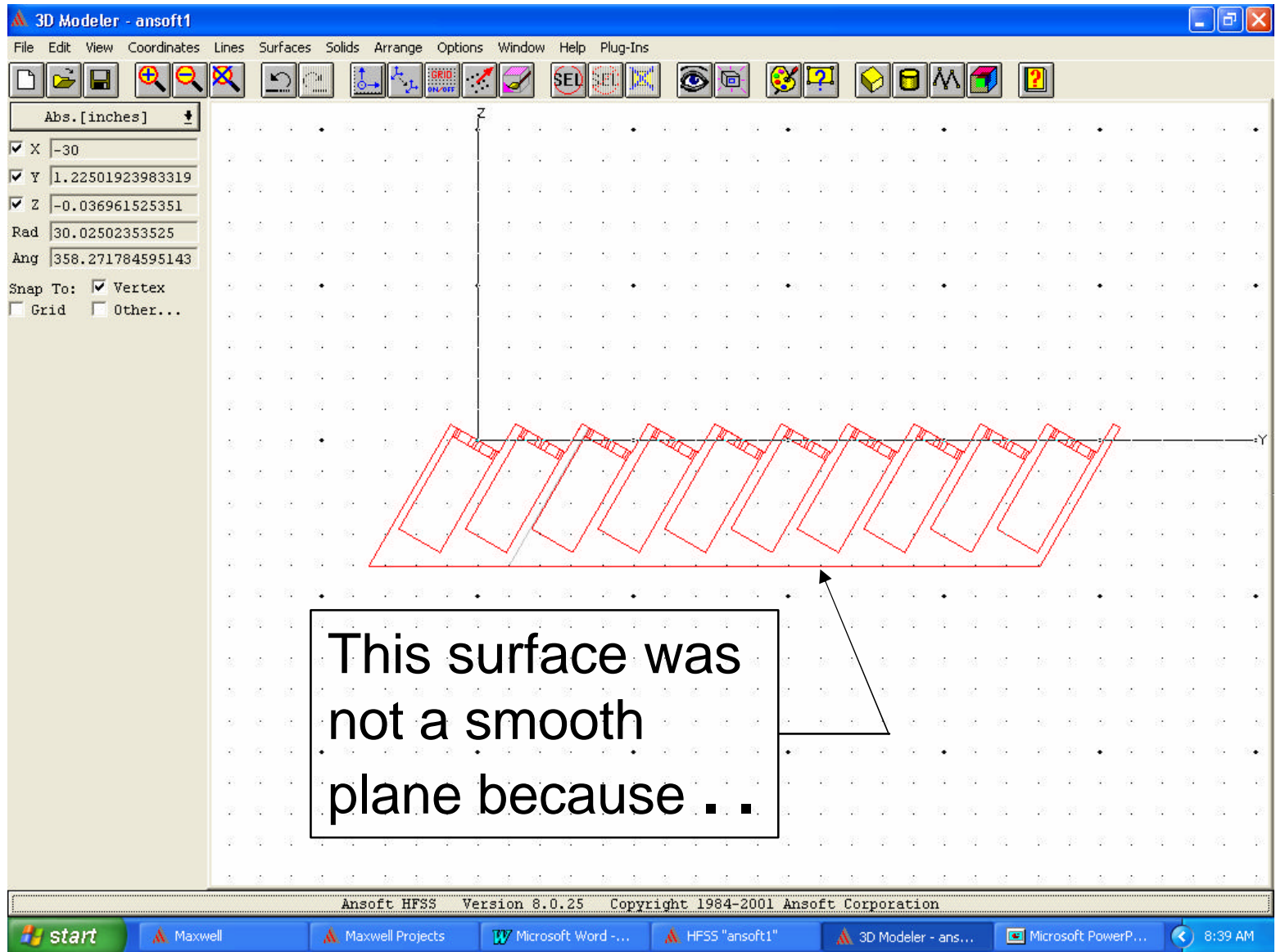
- Original module ran well
- “Duplicate” is great way to build periodic structures of identical elements
- Checked every common fault that I could think of
- Sent problem to others for help
- One day, I was in a high magnification state while in “Draw” mode I saw

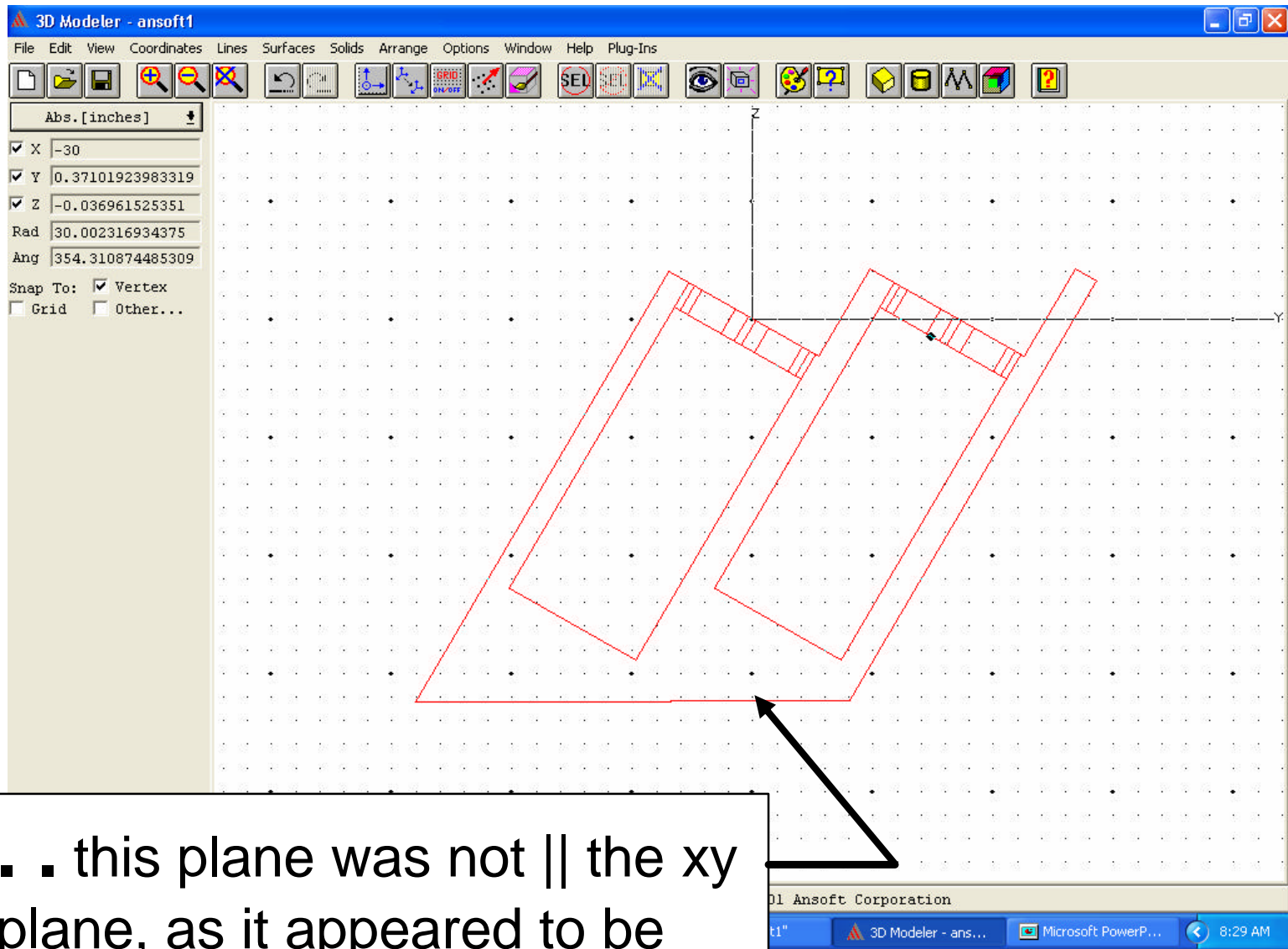
... this



... was at every point where the duplicated elements joined each other! This view is in the yz plane. In the xz plane the creases run 10".

$$l_0 = 0.98''$$



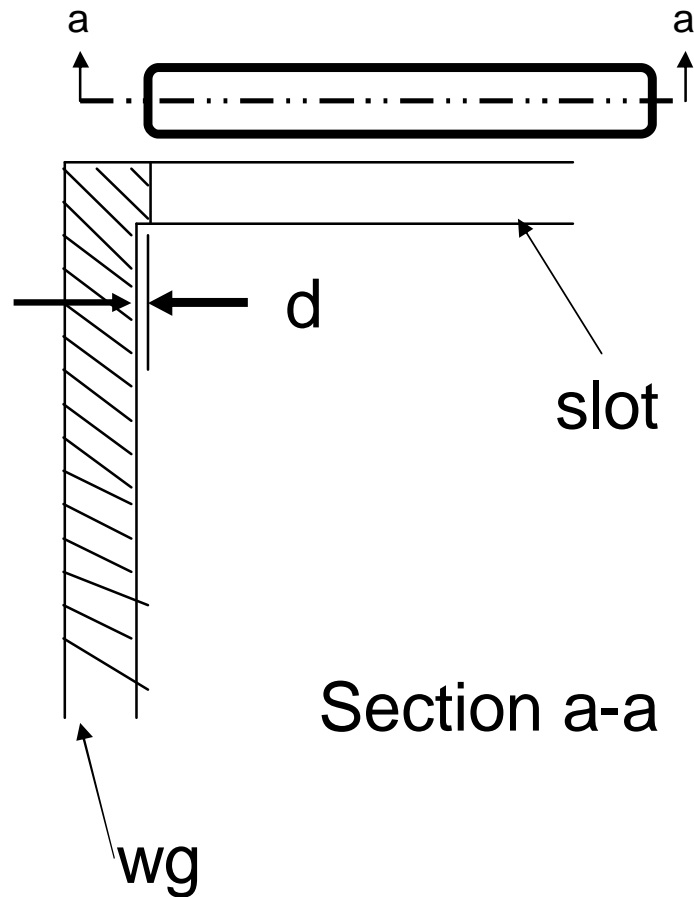


■ ■ this plane was not || the xy plane, as it appeared to be

Lesson Learned

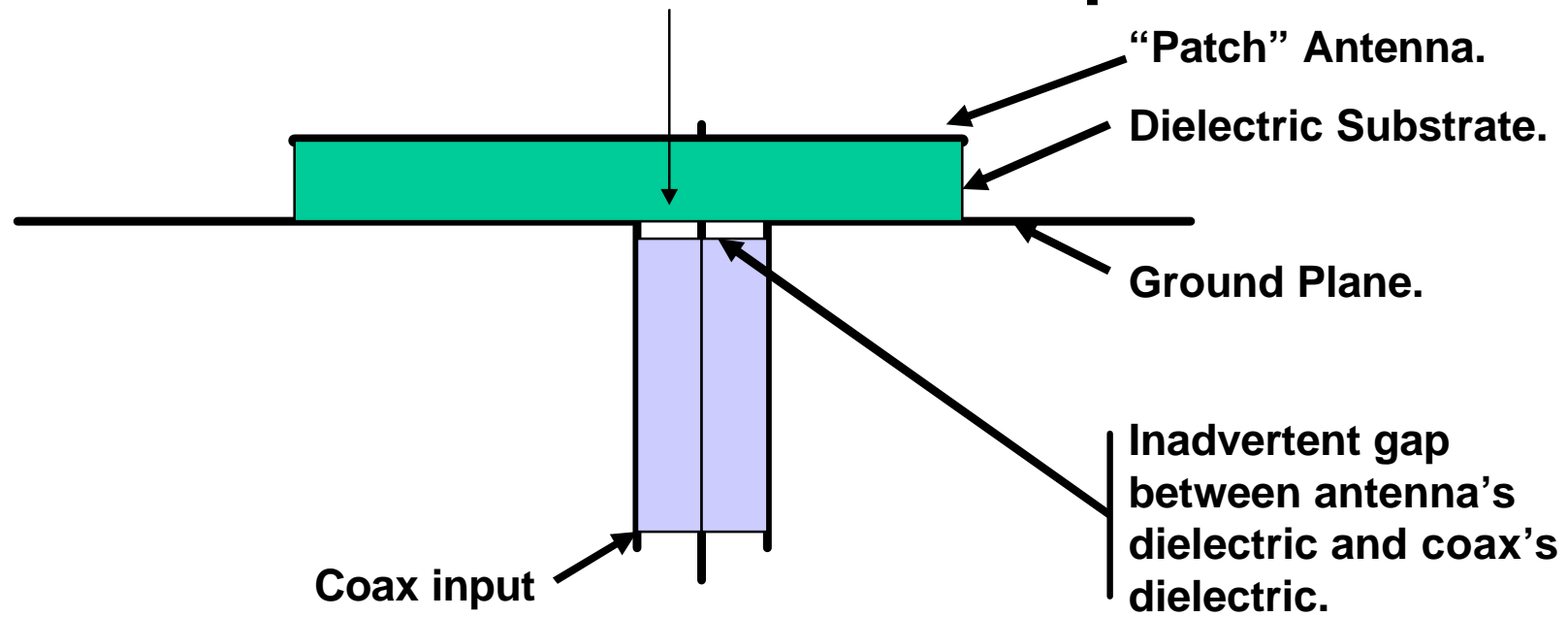
- Know every detail of object to be used with “Duplicate” command. The sum can produce problems not present in the parts.
- Minute ridges and creases is surfaces can impede or defeat meshing.
- High magnification examination of models can reveal potential problems.

Meshing, and the slotted wg.



- As slot length increases, d becomes a very small and sharp step
- When there are many slots and d is small, consider changing d if project won't mesh.

The Coax and a Gap Mistake



Drawing error leaves gap between the two dielectrics. Space is unidentified and receives no material identification. Such a space is automatically identified as "background", i. e., a short circuiting thin disk! Problem solves OK, but $S_{11} = 1.0$ /tan b/ is for *all* frequencies was not what I was expecting!