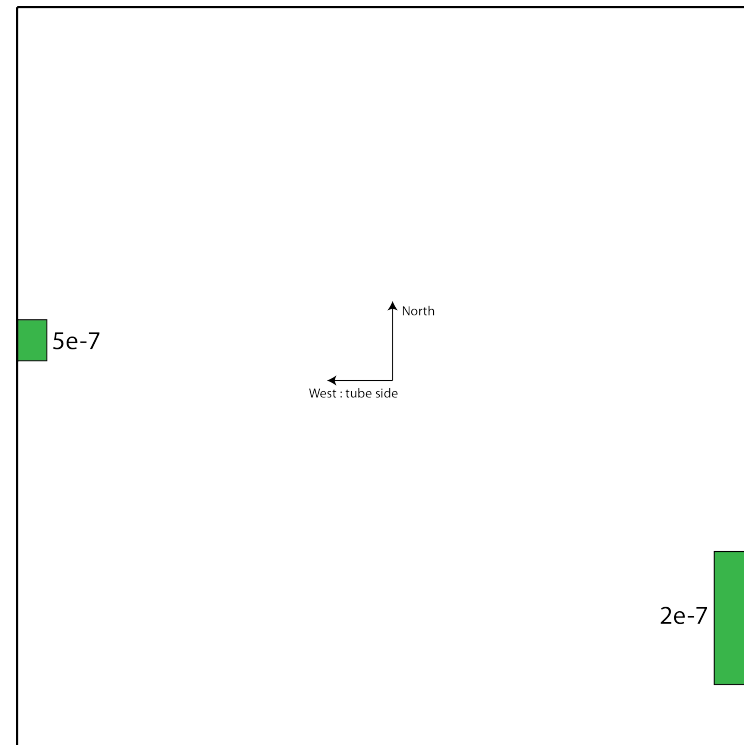
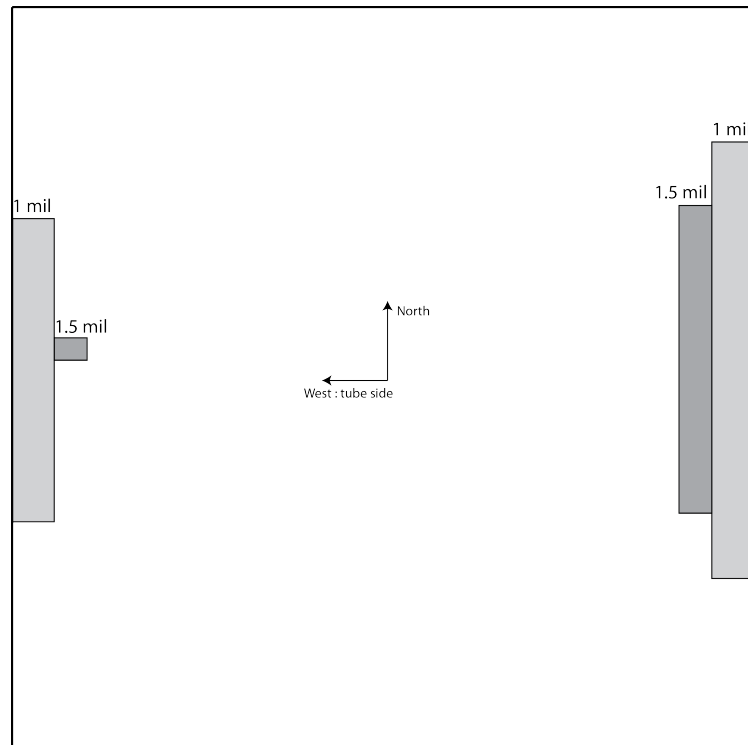


In-situ process recent data: Tile 21

Features:

- ICE ceramic tile, 99.8% pure alumina
- Clausing seal-metal coating
- Window with big tabs and extraneous metalization
- 20% of indium lost outside the tile



Results/Lessons:

- Shim test leaves major scratches on window
- Window and sidewall do not always sit flush (even with no stack)
- Gaps in shim test disappear with as little as 0.7 lbs pressure per spring
- Vac-seal got total leak rate down to 2e-9

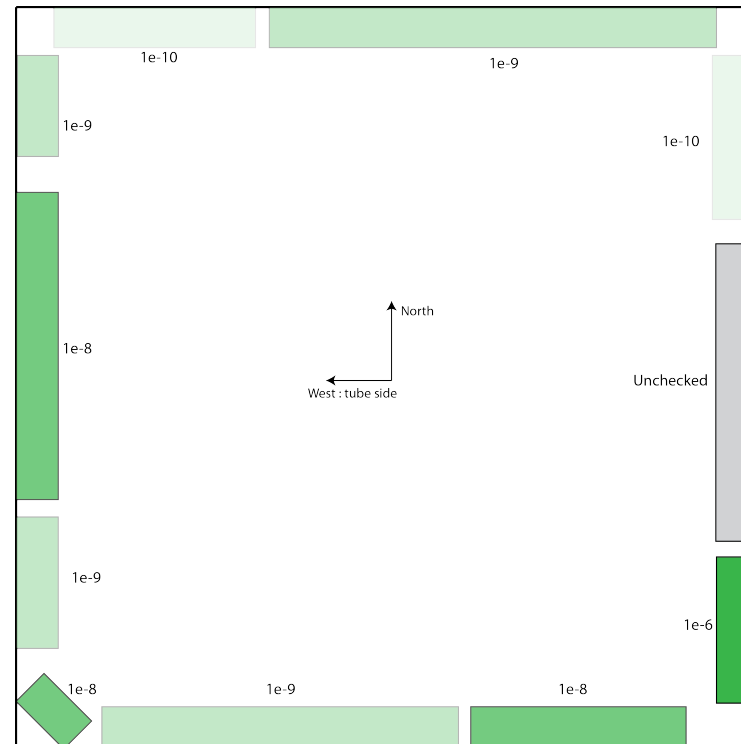
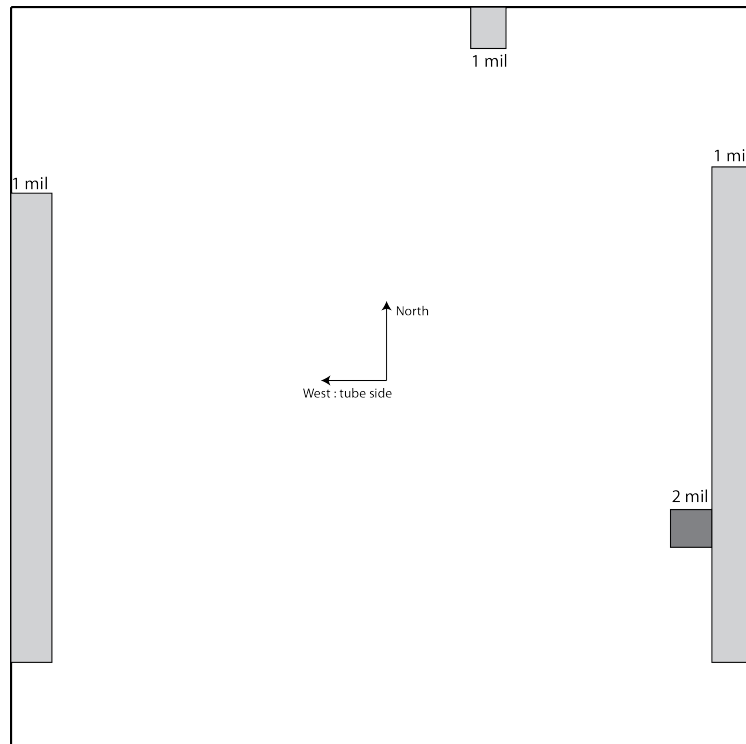
In-situ process recent data: Tile 23

Features:

- ICE ceramic tile, 99.8% pure alumina
- Clausing seal-metal coating
- Window metalization matches the sidewall, small tabs
- 25% of indium lost outside of tile, more lost inside

Results/Lessons:

- Tubes leak at $1e-4$, pins leak at $1e-5$
- External HV electrodes work and do not arc, but discharging on empty sidewall at 2600V
- First tile with 10g of getter material, did not spark
- **Leaky patch in seal has BARE ALUMINA showing after we pry off the window**
- Many SEM pictures and thoughts after prying off window



In-situ process recent data: Tile 24

Features:

- **Friatec** ceramic, 99.8% pure alumina
- **Abrisa** seal-metal coating
- Window metalization matches the sidewall, small tabs
- Antimony film on window has no Nickel tie-layer
- 0% indium lost

Results/Lessons:

- 1mil – 3mil gaps in the seal perimeter where leaks are found: **something held the window up (or other interpretation)**

- The most hermetically sealed tile to date: never have we seen $< 1e-12$ leak on a sidewall, let alone two full sides
- All tubes and pins are completely hermetic to $< 1e-12$

