

1.3GHz single-cell cavity TE1ACC004 3rd inspection report

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Brief history:

1.3GHz single-cell TESLA shape cavity TE1ACC004 is manufactured by ACCEL. It had been optically inspected after arrival at FNAL, after that it was tumbled about 100~120 μ m at IB4 Fermilab, and then was shipped to ANL to do 40 μ m light EP and HPR'd and assembled for vertical test. The vertical test result shows this cavity has Q-disease, Q value is about 1E7. Before shipping this cavity to Jlab for 800C baking, we inspected the surface by Questar system.

Features have been found:

All images are stored at

Q:\TD_SCRF\Cavity Imaging\Fermilab\single cell cavity\TE1ACC004\3rd inspection_2009-10-14_after tumbling and light EP

Equator section:

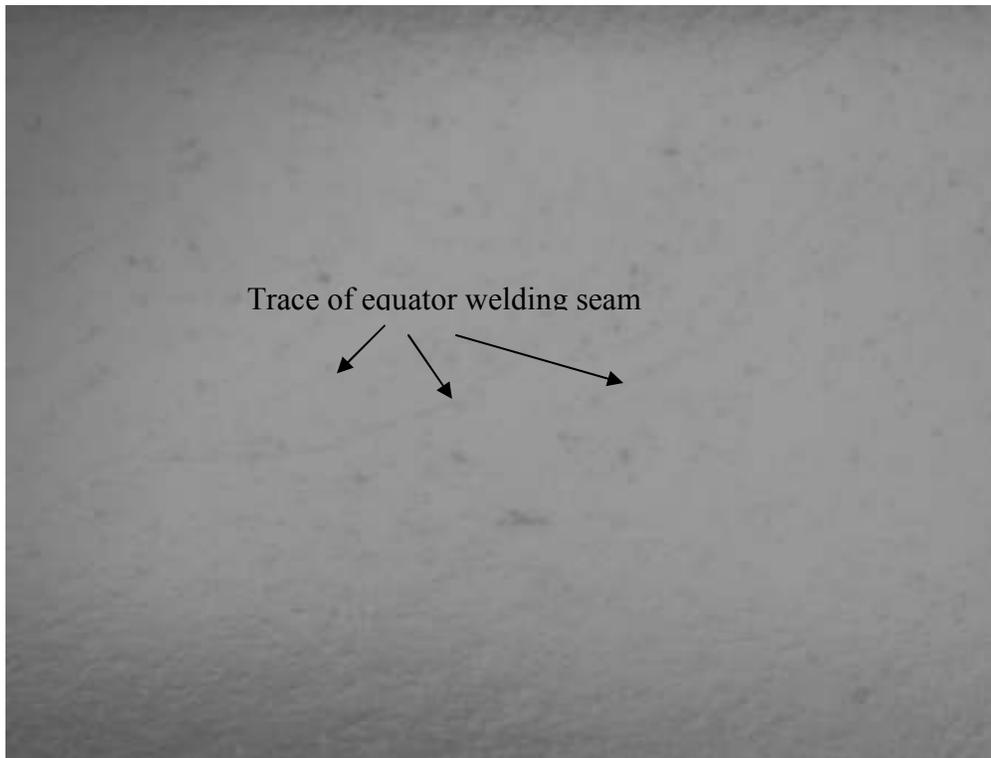
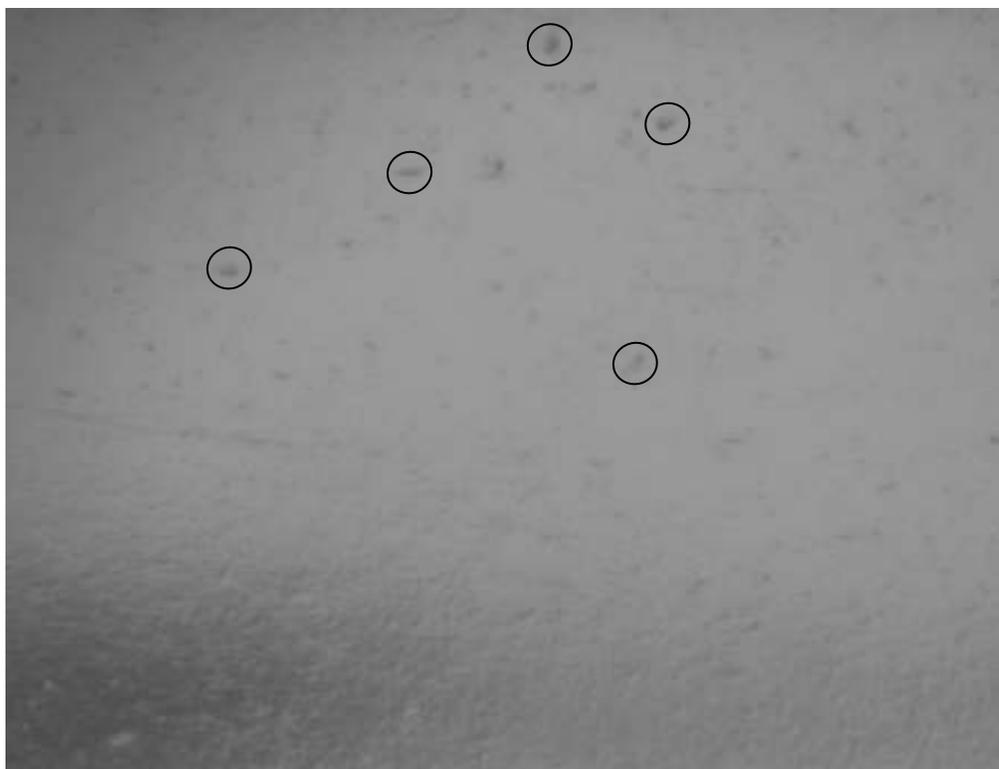


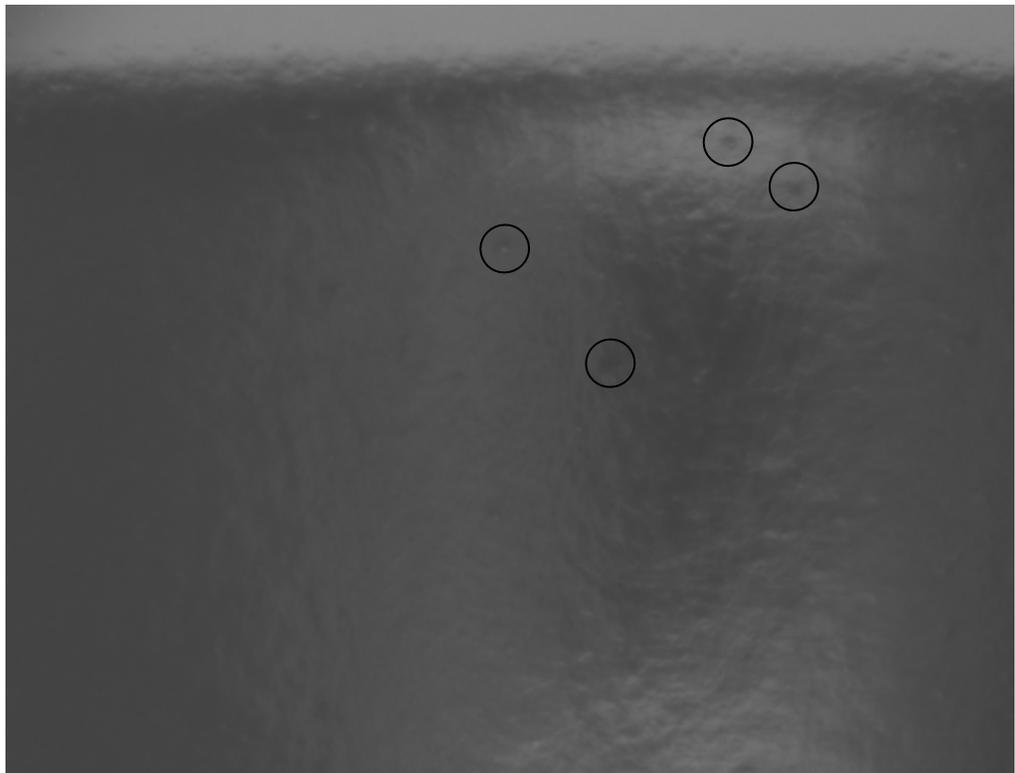
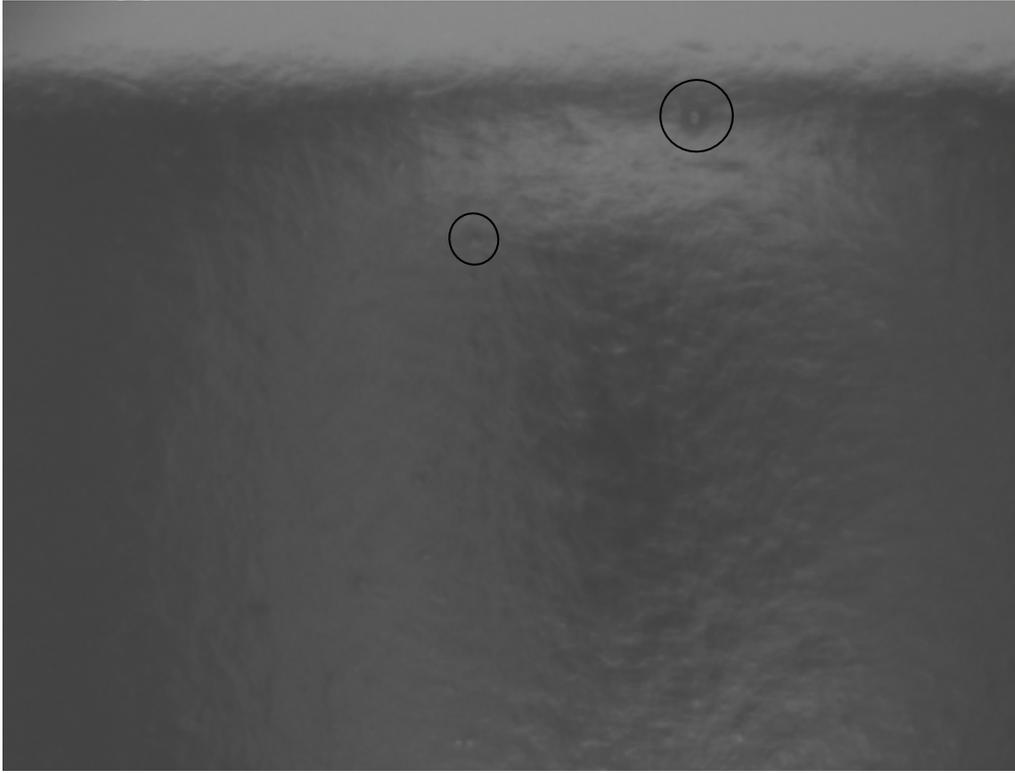
Fig 1

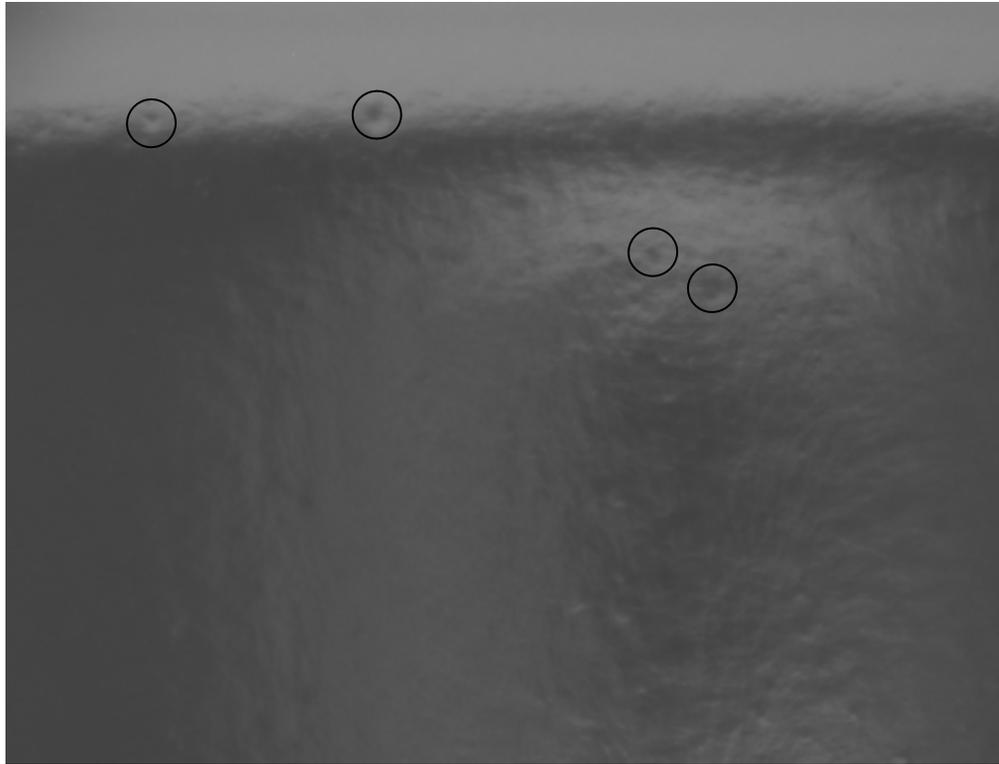






Iris and beam pipe section





Summary and Conclusion:

1. This cavity looks like mirror surface by eyes inspection.
2. From the Questar lens, the welding seams have been wiped out, but you still can find the trace of it, Fig 1 shows that.
3. Tiny pits spread the whole cavity surface, wherever the equator section or iris and beam pipe section.
4. Several long slots have been found in equator section whose direction is parallel to equator welding seam, that means it parallel to the rotation direction, and it could be produced by stones.