



Report of TDR Part I Writing

Cavity

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Cavity Section Outlines

ILC TDR Part 1, Chapter 3, Section 3 (15 pages)

3.3 High-gradient SCRF cavity R&D and the yield evaluation (Rongli Geng, Camille Ginsburg)

3.3.1 Baseline cavity

3.3.1.1 Cavity shape design

3.3.1.2 Cavity material, fabrication, processing and cryogenic RF testing

3.3.2 Results of ILC high-gradient cavity R&D program

3.3.2.1 Cavity processing optimization and repeatable processing procedure

3.3.2.2 New diagnostics leading to new understandings into gradient limitations

3.3.2.3 New results in understanding and overcoming field emission and quench limit



Cavity Section Outlines

3.3.2.4 Summary of high-gradient R&D results and impact to baseline design

3.3.3 Global database and yield evaluation

3.3.3.1 Definition of yield and cavity selection criterion

3.3.3.2 Second-pass re-processing strategy

3.3.4 ACD cavity development

3.3.4.1 Alternate shape cavities

3.3.4.2 Large-grain niobium cavities

3.3.4.3 Seamless cavities

3.3.4.4 Mechanical polishing

3.3.5. 1 TeV upgrade

3.3.5.1 Cavity performance goal: gradient and quality factor

3.3.5.2 Challenges and path forward

3.3.5.3 Global high-gradient R&D resources and priorities