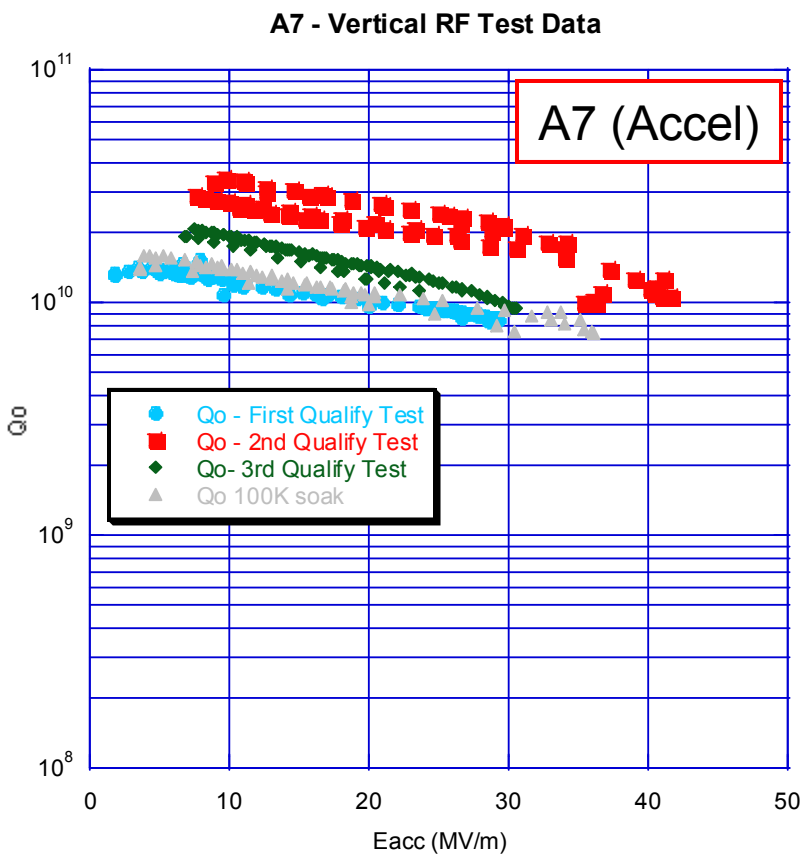
Overview of US work on ACCEL7

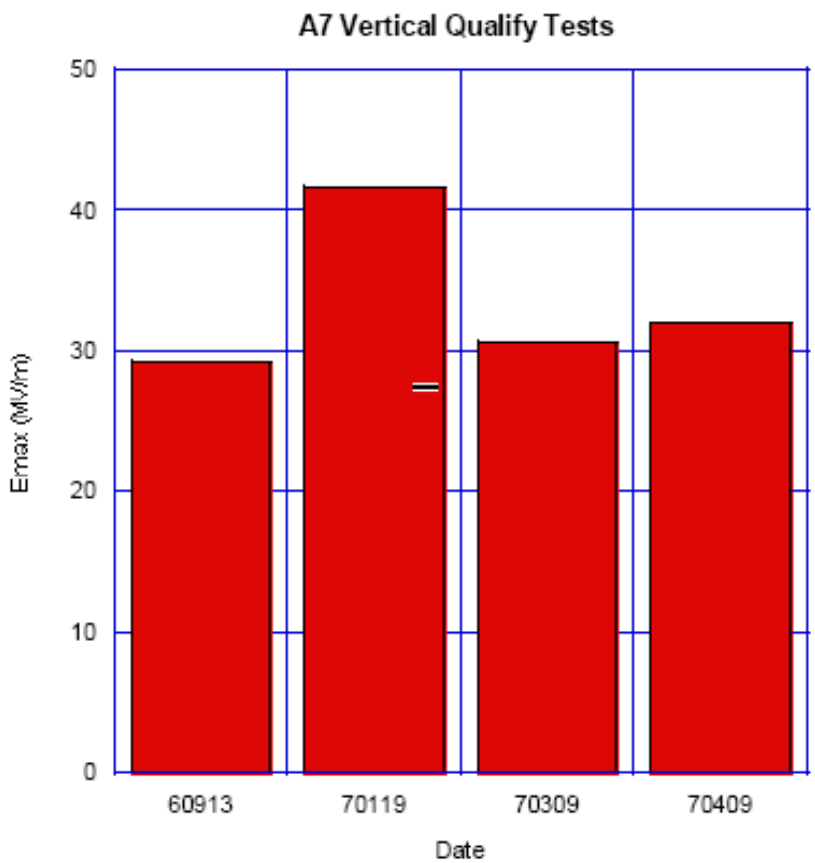
C.M. Ginsburg (Fermilab)

December 12, 2007

JLab ACCEL7 Results

J. Mammosser, TTC Meeting at Fermilab, April 2007





All cavity processing done @JLab

Processing Recipe
J. Mammosser, TTC Meeting at Fermilab, April 2007

- Processing recipe
  - –Degrease
  - –Electropolishing (20 μm)
  - –Degrease
  - –First HPR+dry
  - –First cleanroom assembly
  - –Second HPR+dry
  - –Final cleanroom assembly
  - –Evacuation and leak check
  - –Low temperature (110 C) bake

Note: all cavities get 150 um bulk EP

Material Removal (microns)
R. Geng, AES Meeting at JLab, Aug 2007

	1st test	2nd test	3rd test	4th test
A7	172	198	224	251
A6	187	213	239	265
AES1	213	236	252	269
AES2	164	190		
AES3	177	200		
AES4	221	257	277	

Note: updates to AES2,3,4 since August 2007 are not shown

Fermilab ACCEL7 Activity

- Status
  - December 11, 2007: arrived at Fermilab IB4 from JLab
  - December 12, 2007: Field Flatness measurement (T. Khabiboulline)
- Plans
  - December 13, 2007: Transport to Argonne for 9-cell EP commissioning (D. Olis)
  - ?: Ultrasonic thickness measurement (M. Kelly)
  - ?: 9-cell EP commissioning (M. Kelly)
  - ?: 9-cell HPR commissioning (D. Olis)
  - ?: Mock-up assembly (A. Rowe)

ACCEL-7
Field Flatness Measurement

Timergali Khabiboulline, Dec. 13, 2007

- π-mode frequency = 1297.54 MHz
  - Too low by about 0.5 MHz if this is "push" cavity
  - Too high by 0.15 MHz if "pull" cavity
  - field flatness slope = -12%.
- Normalization is

  $E_{acc}^2(1) + E_{acc}^2(2) + \ldots + E_{acc}^2(9) = 9$
- No eccentricity measurement
- No tuning done

Cell #	Normalized Eacc
1	1.024
2	1.034
3	1.047
4	1.023
5	1.01
6	0.995
7	0.983
8	0.953
9	0.923

Note: We count cell #from the opposite end to the input coupler port

Fermilab ACCEL7 notes

– When referring to a cell #, we count from the opposite end to the input coupler port.