JLab Cavity Performance Analysis Update since ASAC March 2004

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Jefferson Lab

27 April 2004

Status Medium Beta

33 medium β cavities have been qualified (>10 MV/m at 5 10^9, 2.1K)
0 remaining to be qualified

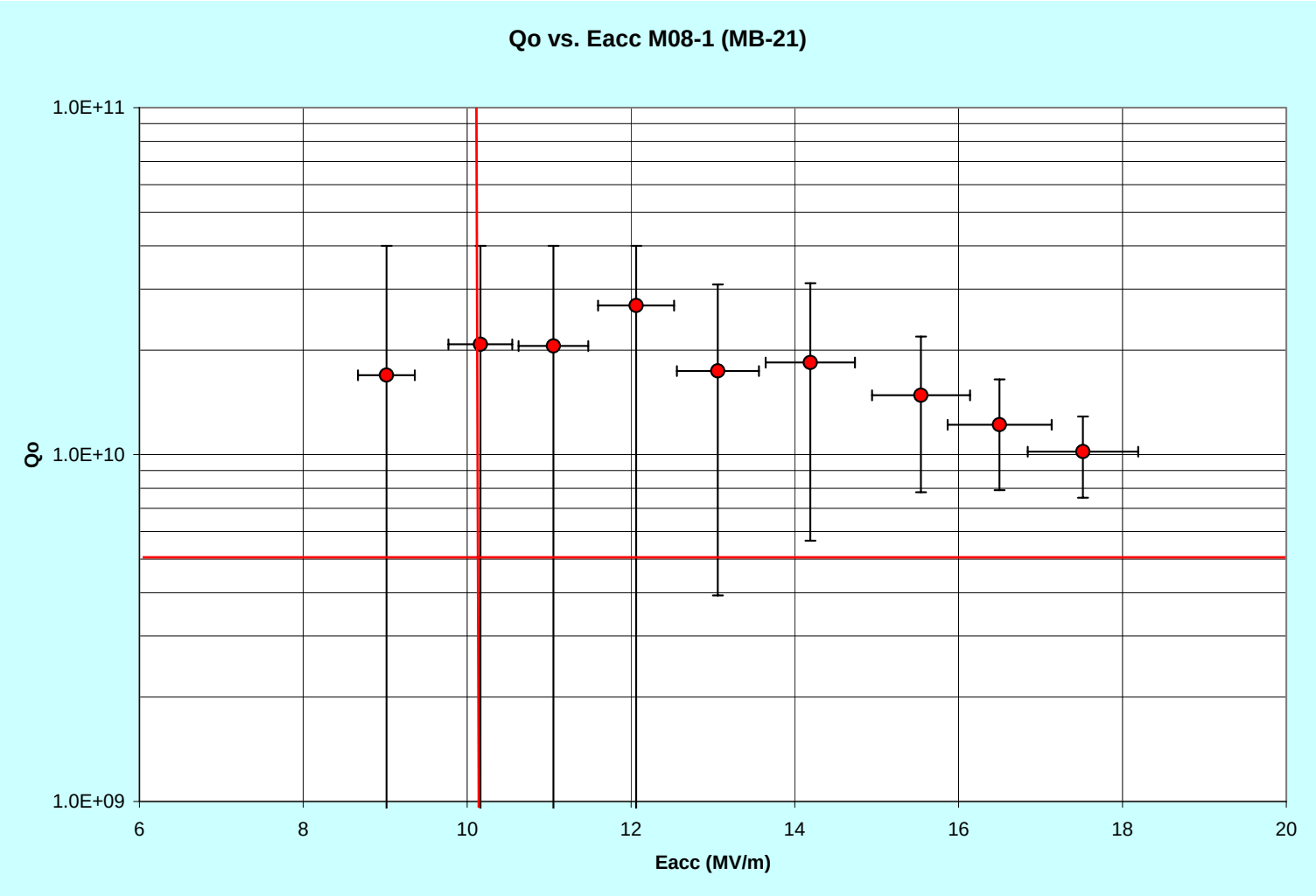
All MB CM built
Warm valves need replacing in some.

Testing of M8 Completed
All cavities exceeded performance specifications

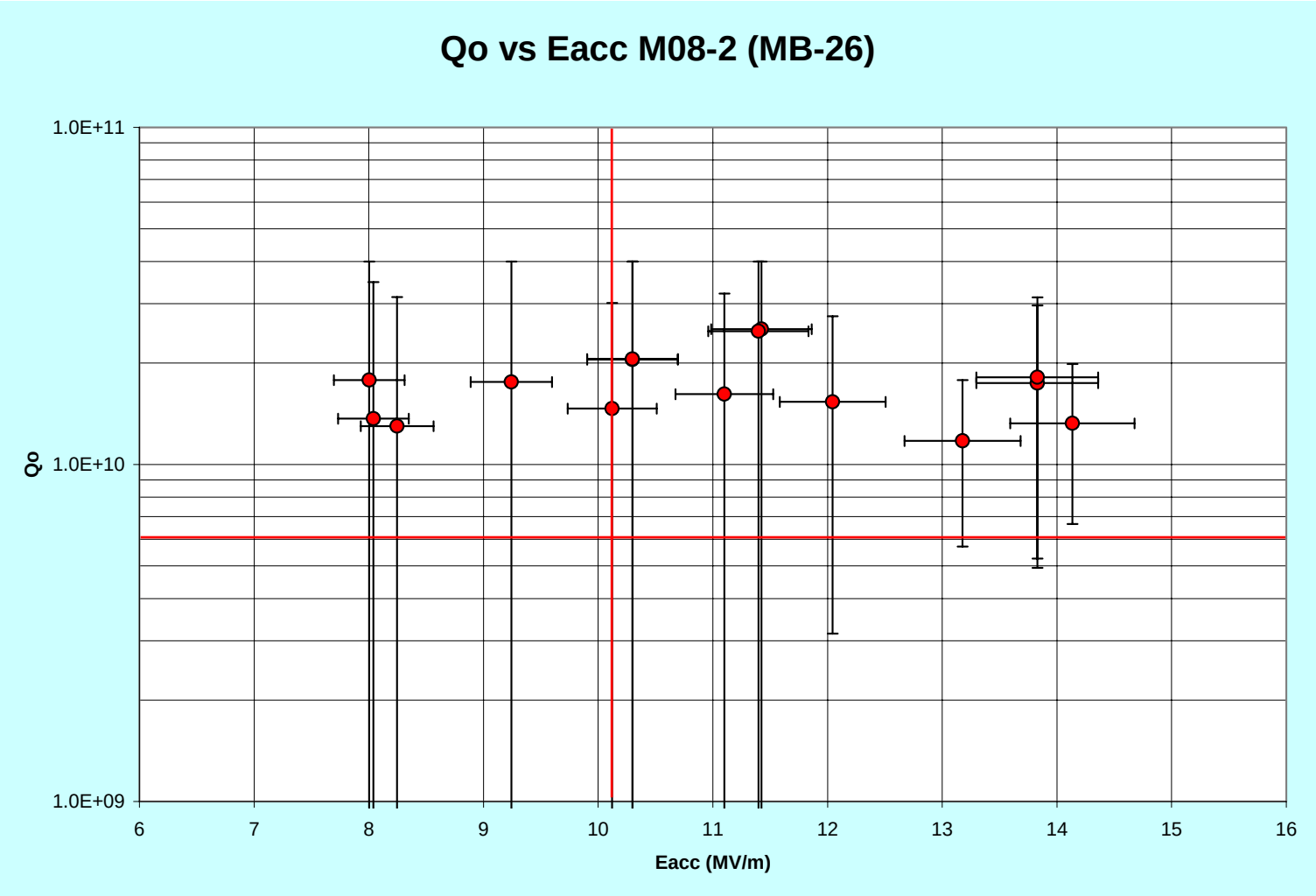
M11 in CMTF awaiting testing
at 4.2K yesterday
at 2K today

M7, M9, and M10 not tested

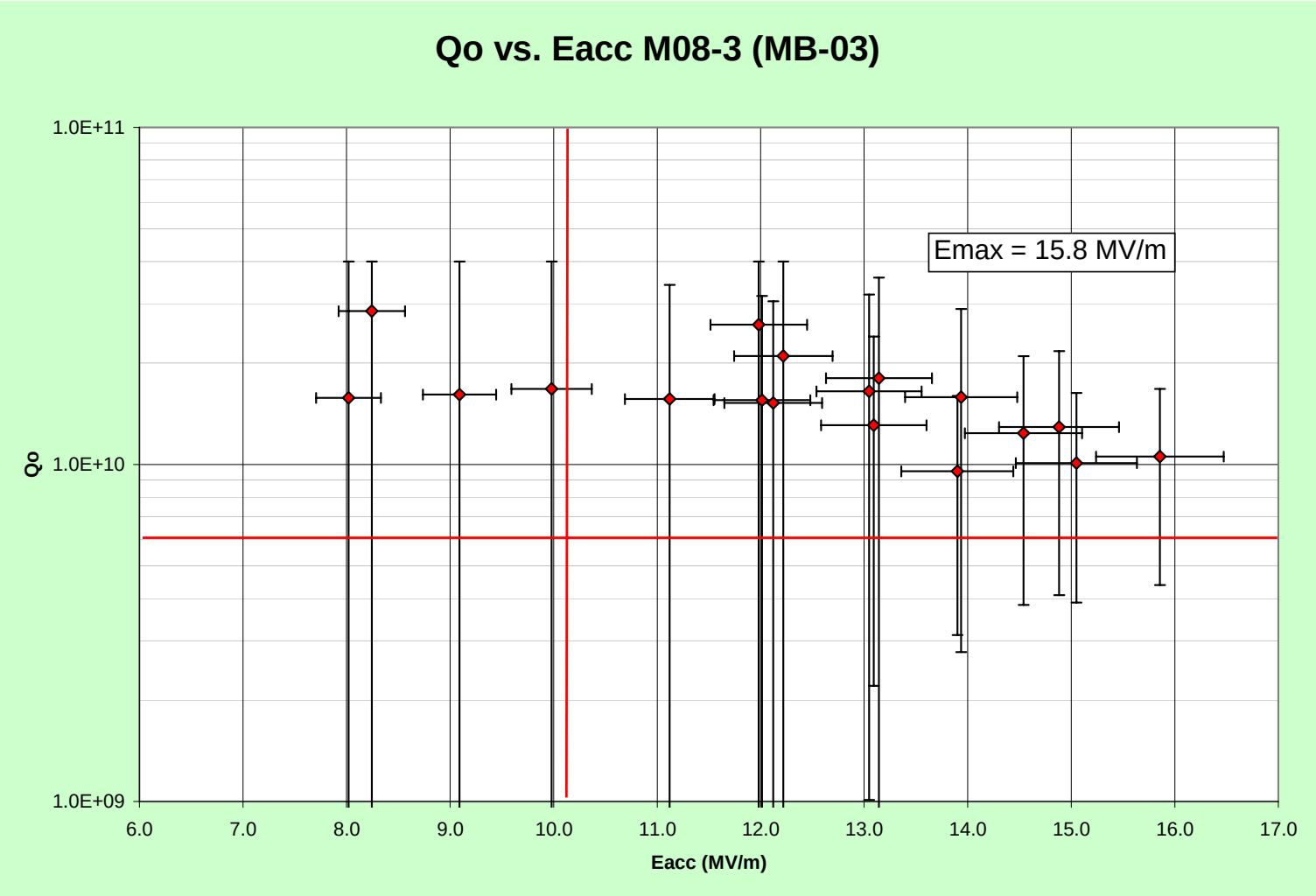
Cavity M08-1 in CMTF



Cavity M08-2 in CMTF



Cavity M08-3 in CMTF



Status High Beta

17 high β cavities qualified (>16 MV/m at 5 10^9 , 2.1K)

- 31 remaining
- No failure in qualifying HB cavities since ASAC
- All show MP level, all processed away
- All show FE (x-rays) at fairly low level, improved by processing
- HB17 to be tested today

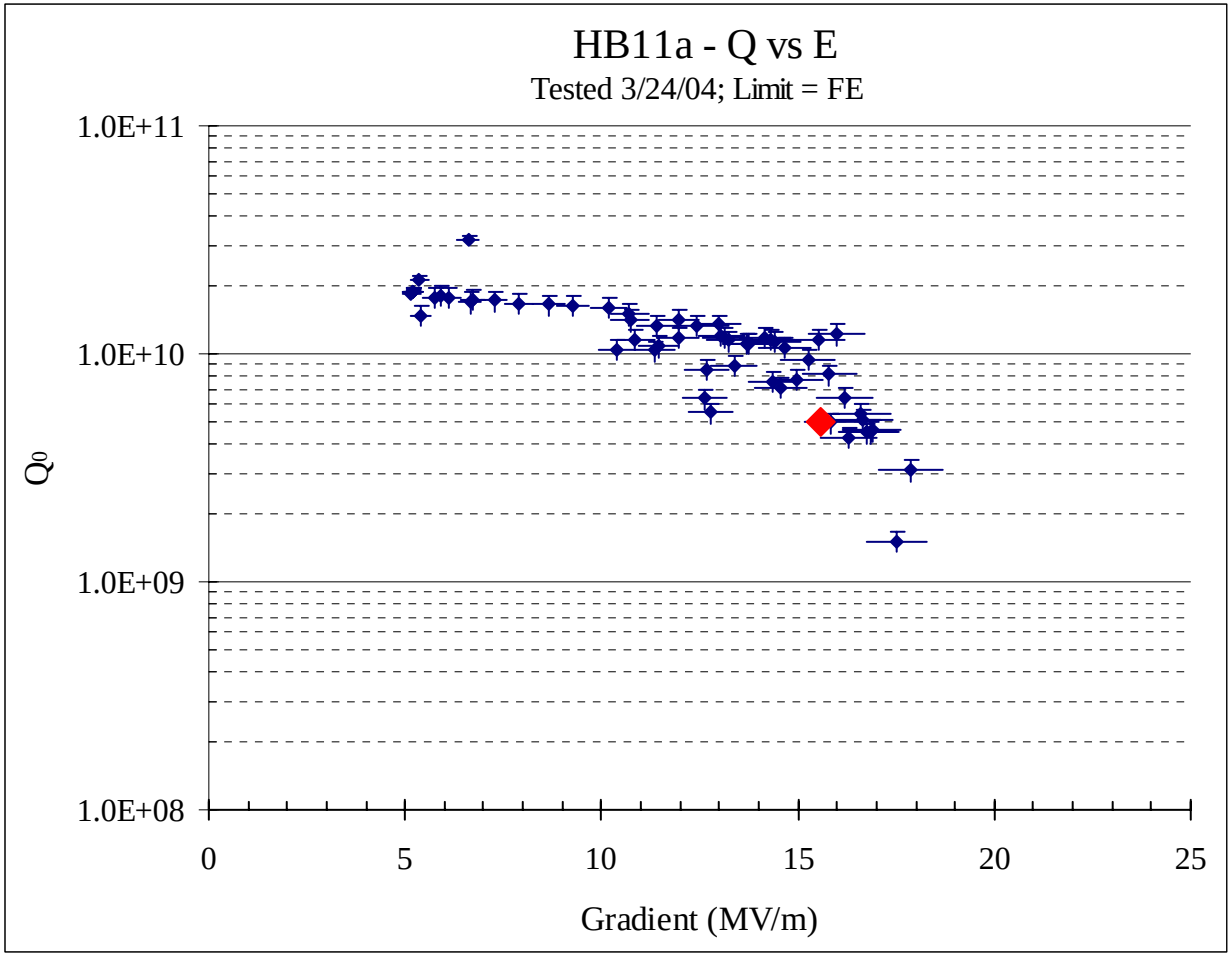
Strings H1 and H3 done

String H4 is under way

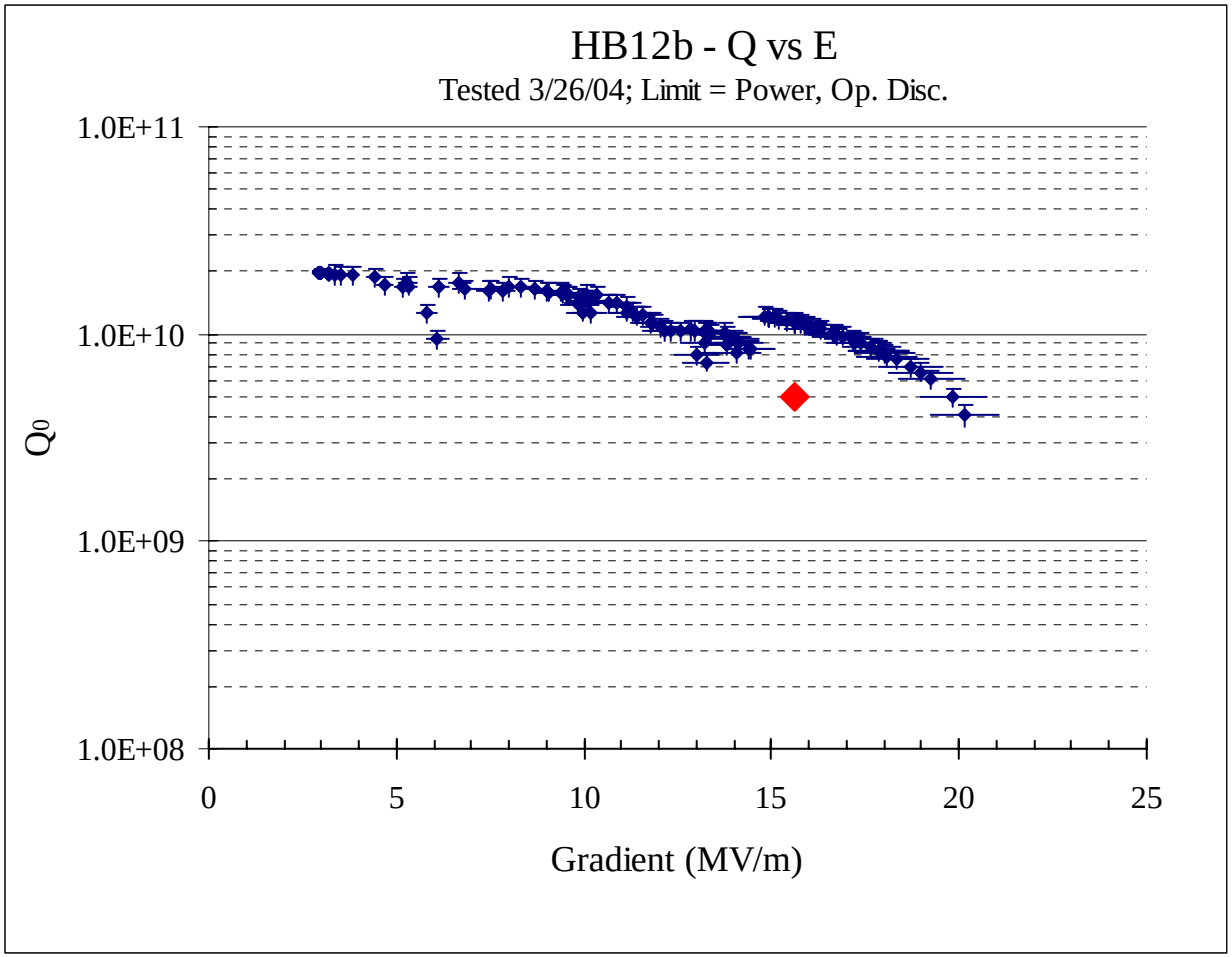
1st cavity for H5 qualified

H1 scheduled or testing mid May

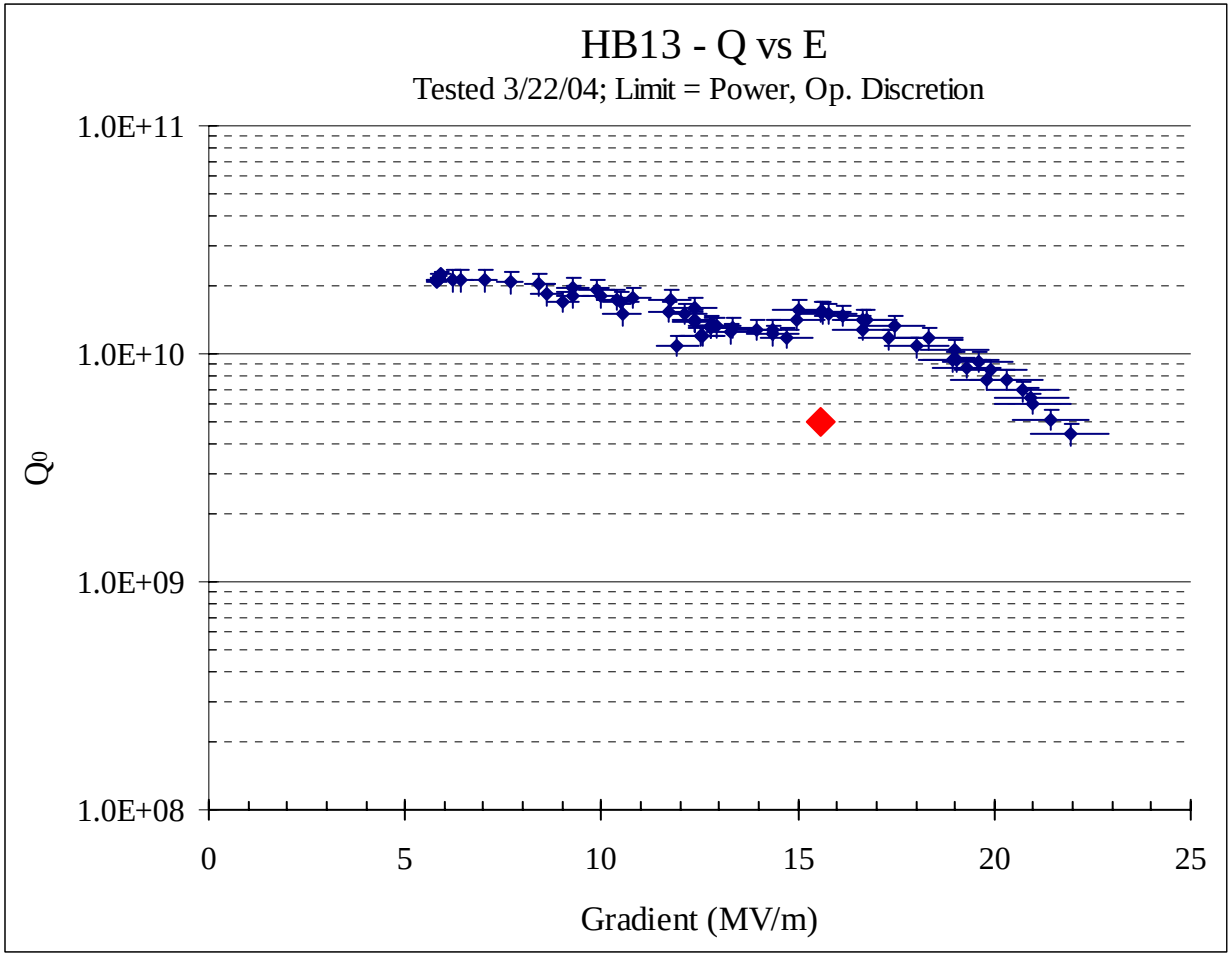
HB11


HB11a - Q vs E
Tested 3/24/04; Limit = FE
1.0E+11
1.0E+10
1.0E+09
1.0E+08
Q0
0
5
10
15
20
25
Gradient (MV/m)

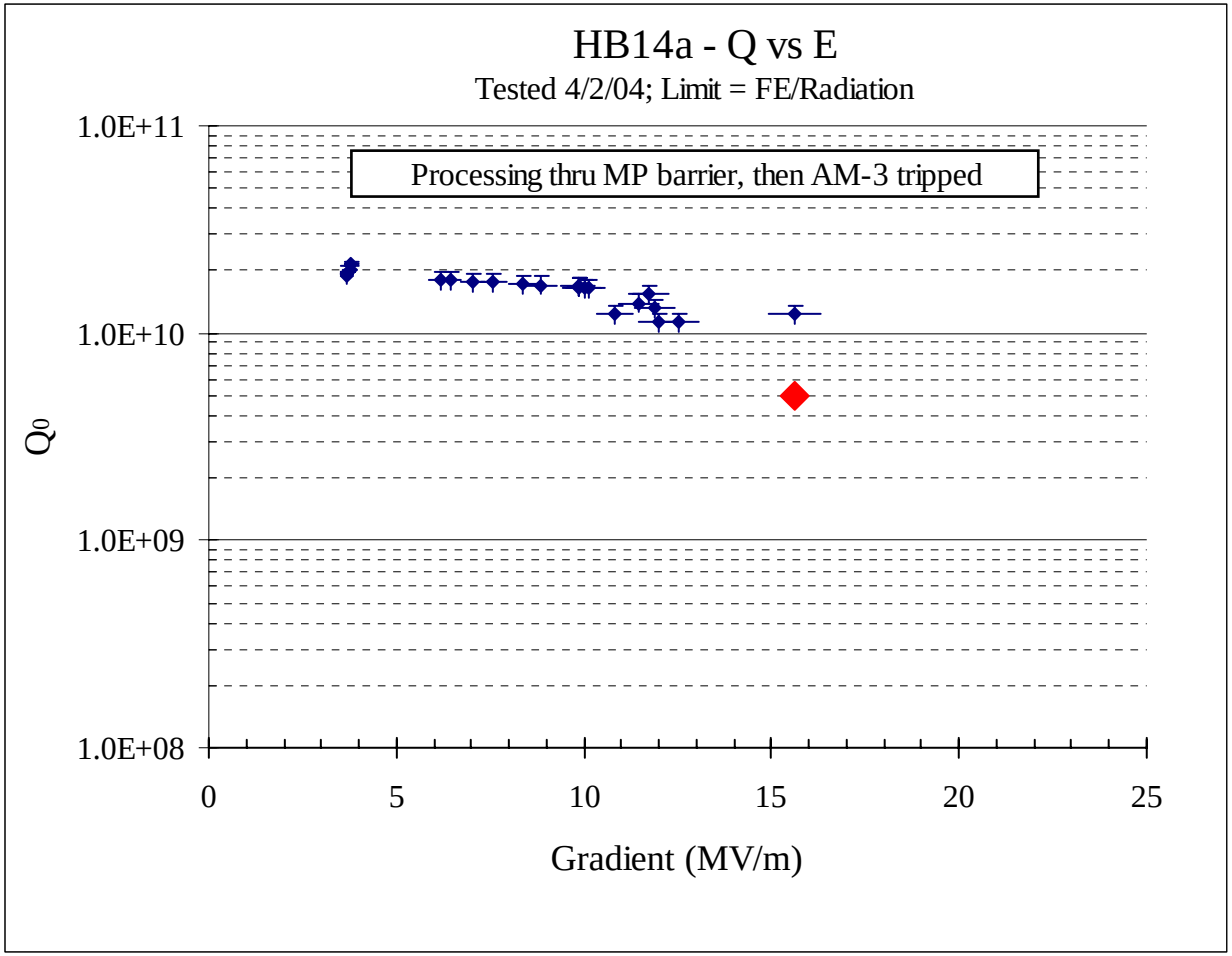
HB12


HB12b - Q vs E
Tested 3/26/04; Limit = Power, Op. Disc.
1.0E+11
1.0E+10
1.0E+09
1.0E+08
Q0
0
5
10
15
20
25
Gradient (MV/m)

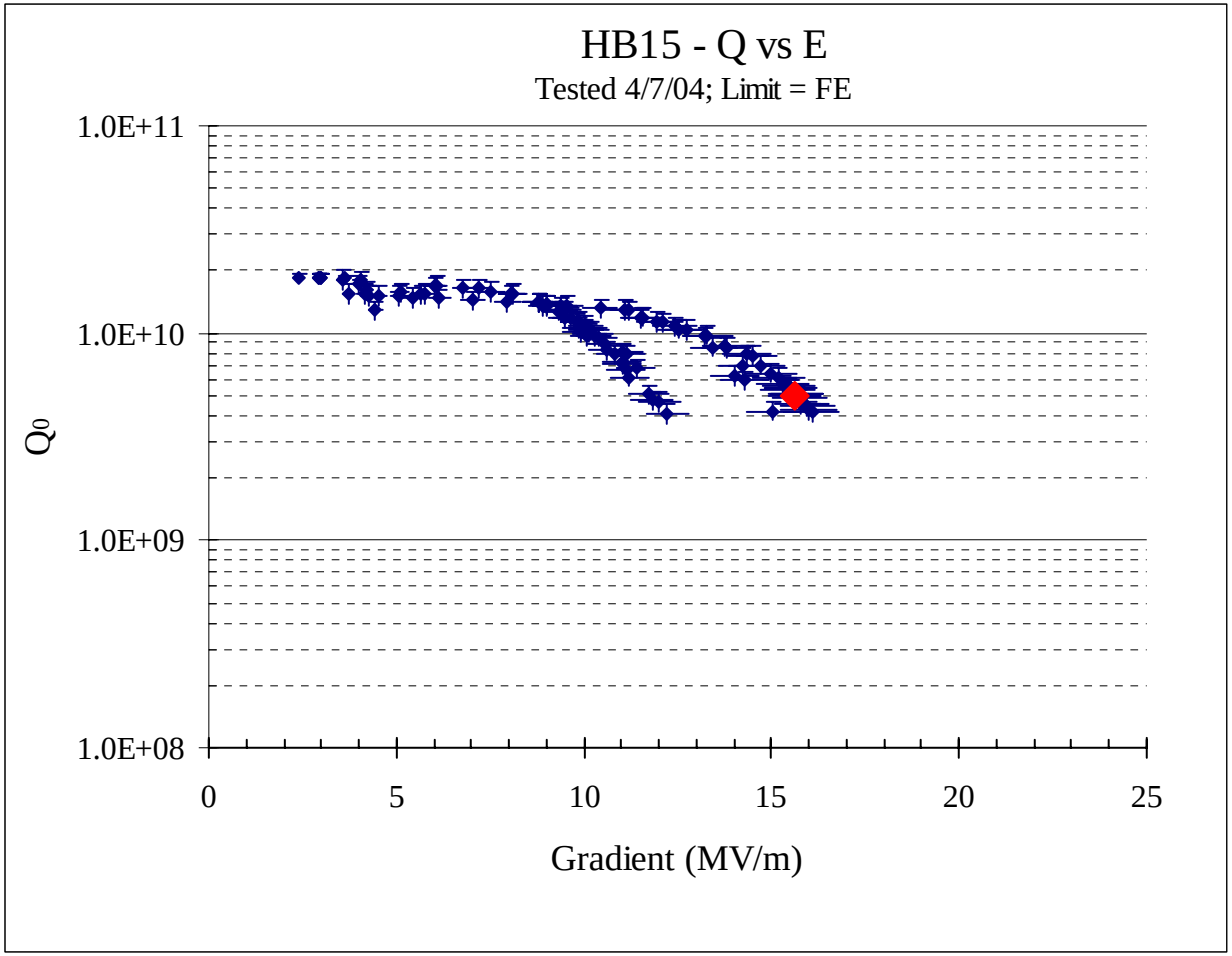
HB13


HB13 - Q vs E
Tested 3/22/04; Limit = Power, Op. Discretion
1.0E+11
1.0E+10
1.0E+09
1.0E+08
Q0
0
5
10
15
20
25
Gradient (MV/m)

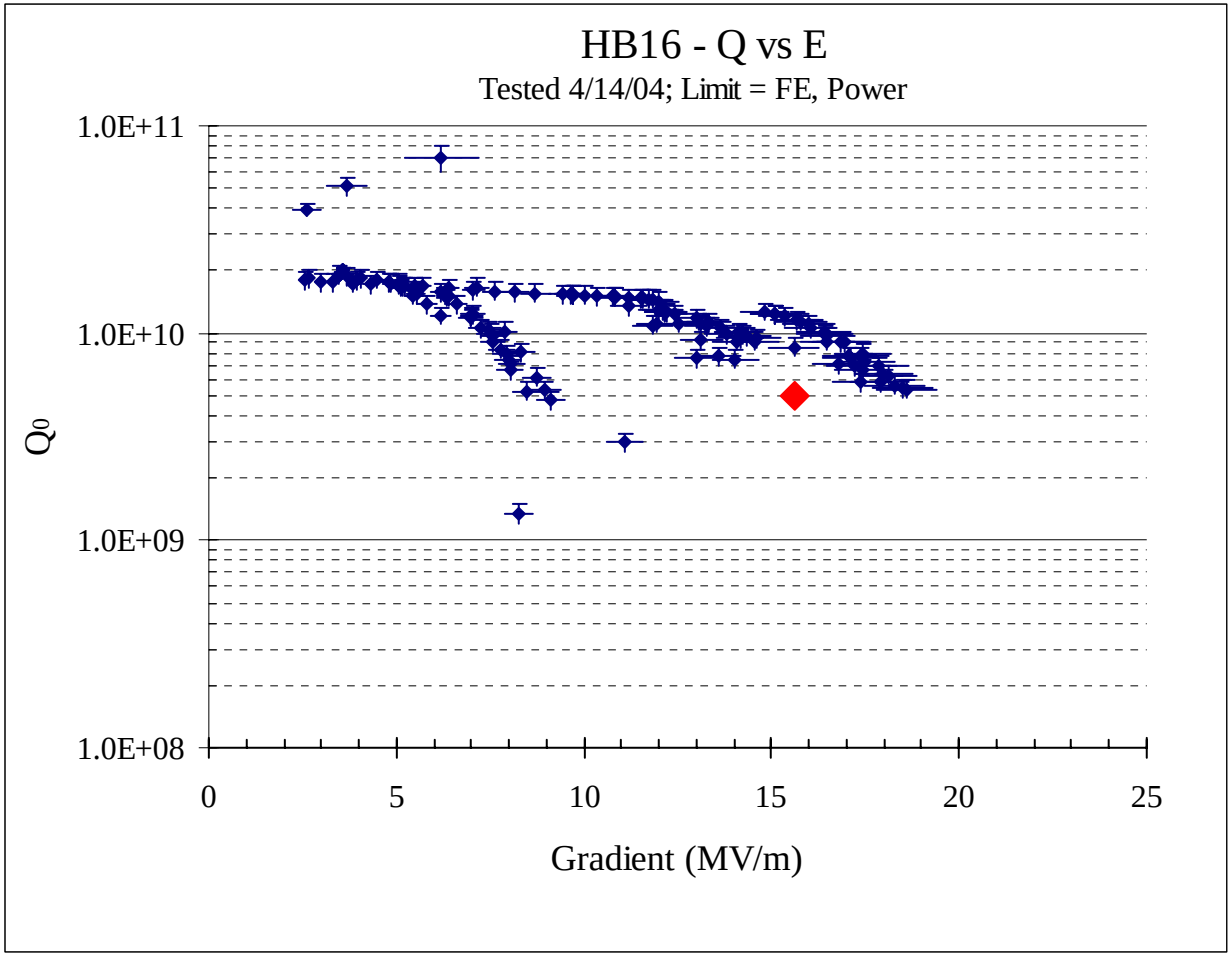
HB14


HB14a - Q vs E
Tested 4/2/04; Limit = FE/Radiation
Processing thru MP barrier, then AM-3 tripped
1.0E+11
1.0E+10
1.0E+09
1.0E+08
Q0
0
5
10
15
20
25
Gradient (MV/m)

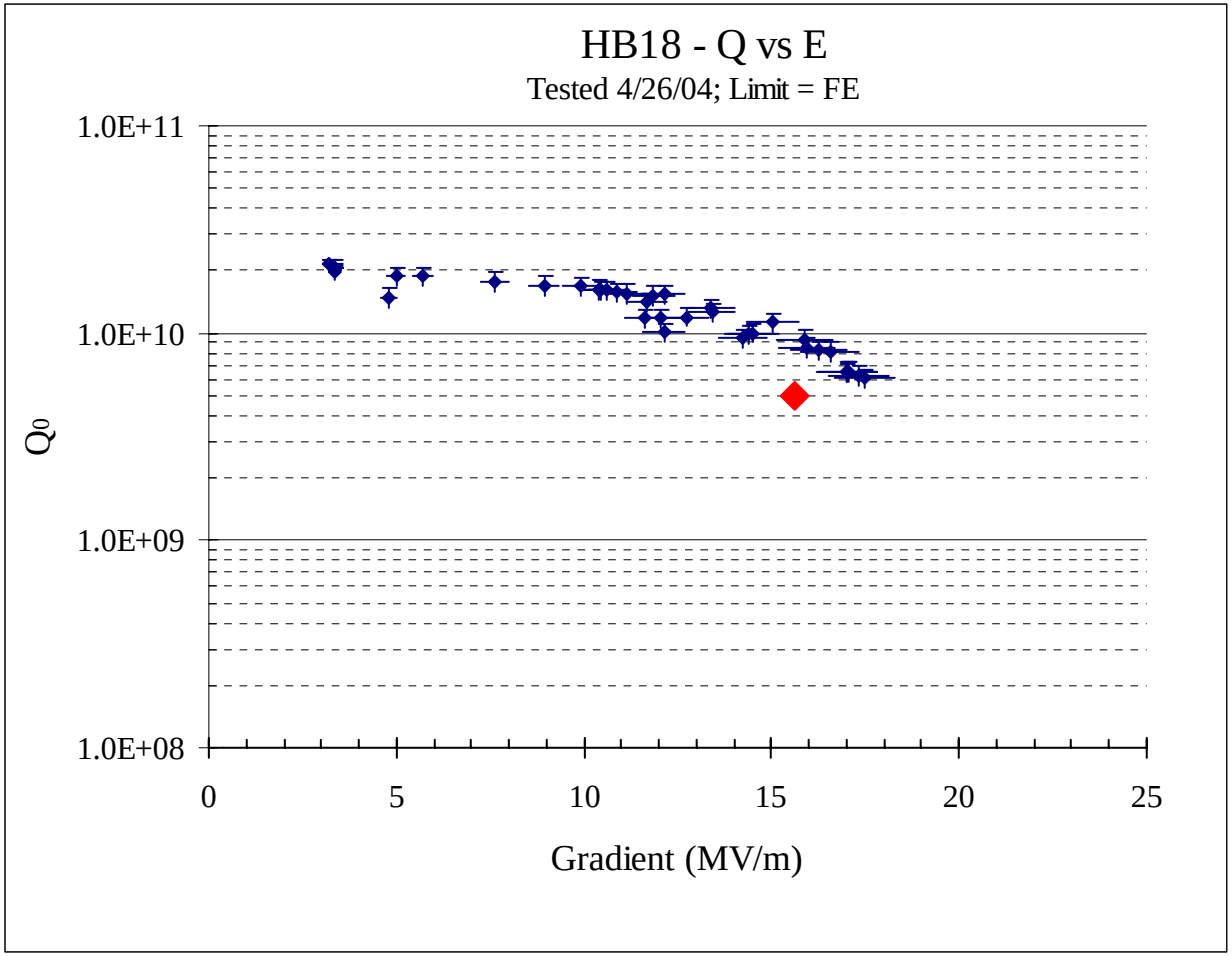
HB15


HB15 - Q vs E
Tested 4/7/04; Limit = FE
1.0E+11
1.0E+10
1.0E+09
1.0E+08
Q0
0
5
10
15
20
25
Gradient (MV/m)

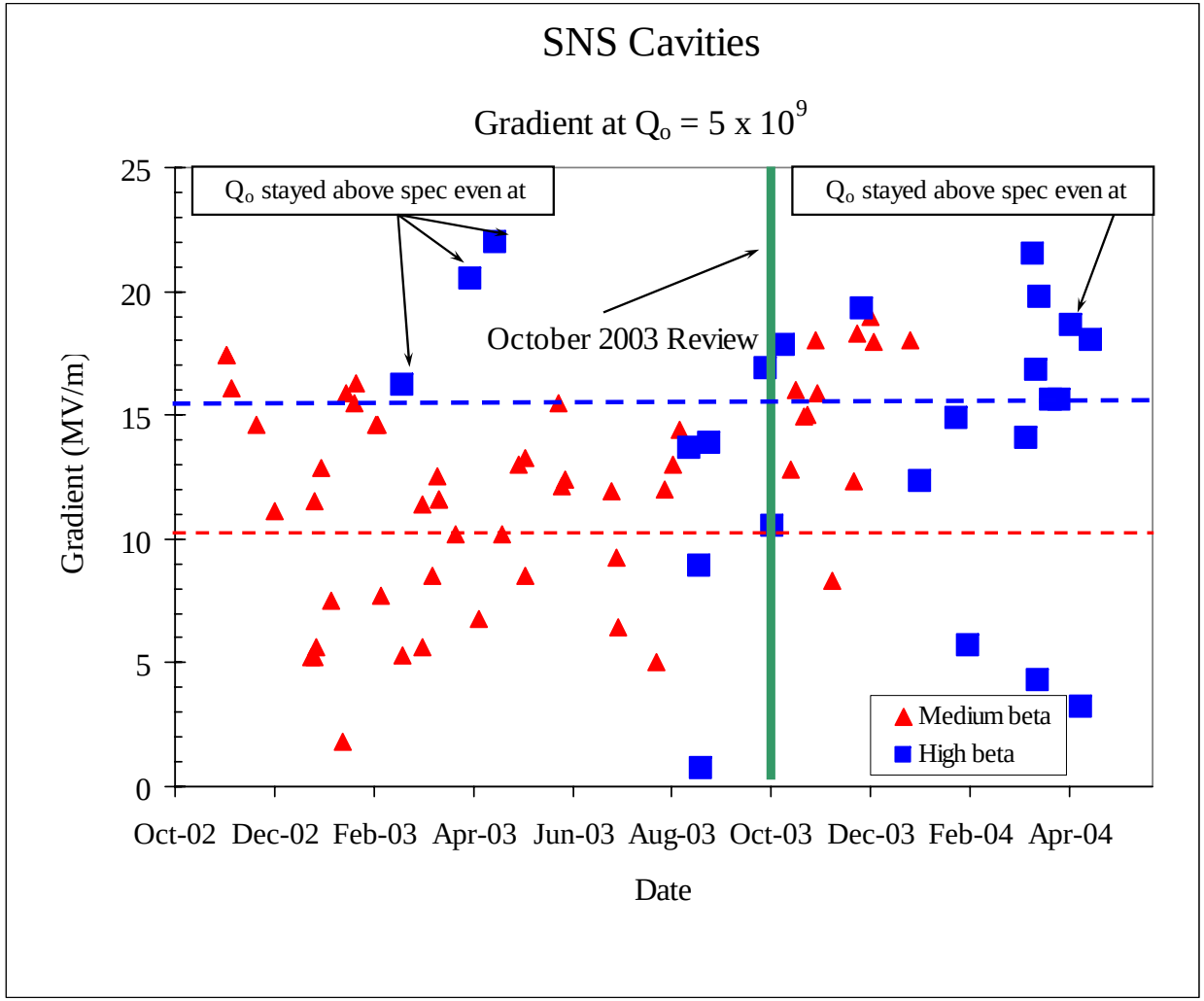
HB16


HB16 - Q vs E
Tested 4/14/04; Limit = FE, Power
1.0E+11
1.0E+10
1.0E+09
1.0E+08
Q0
0
5
10
15
20
25
Gradient (MV/m)

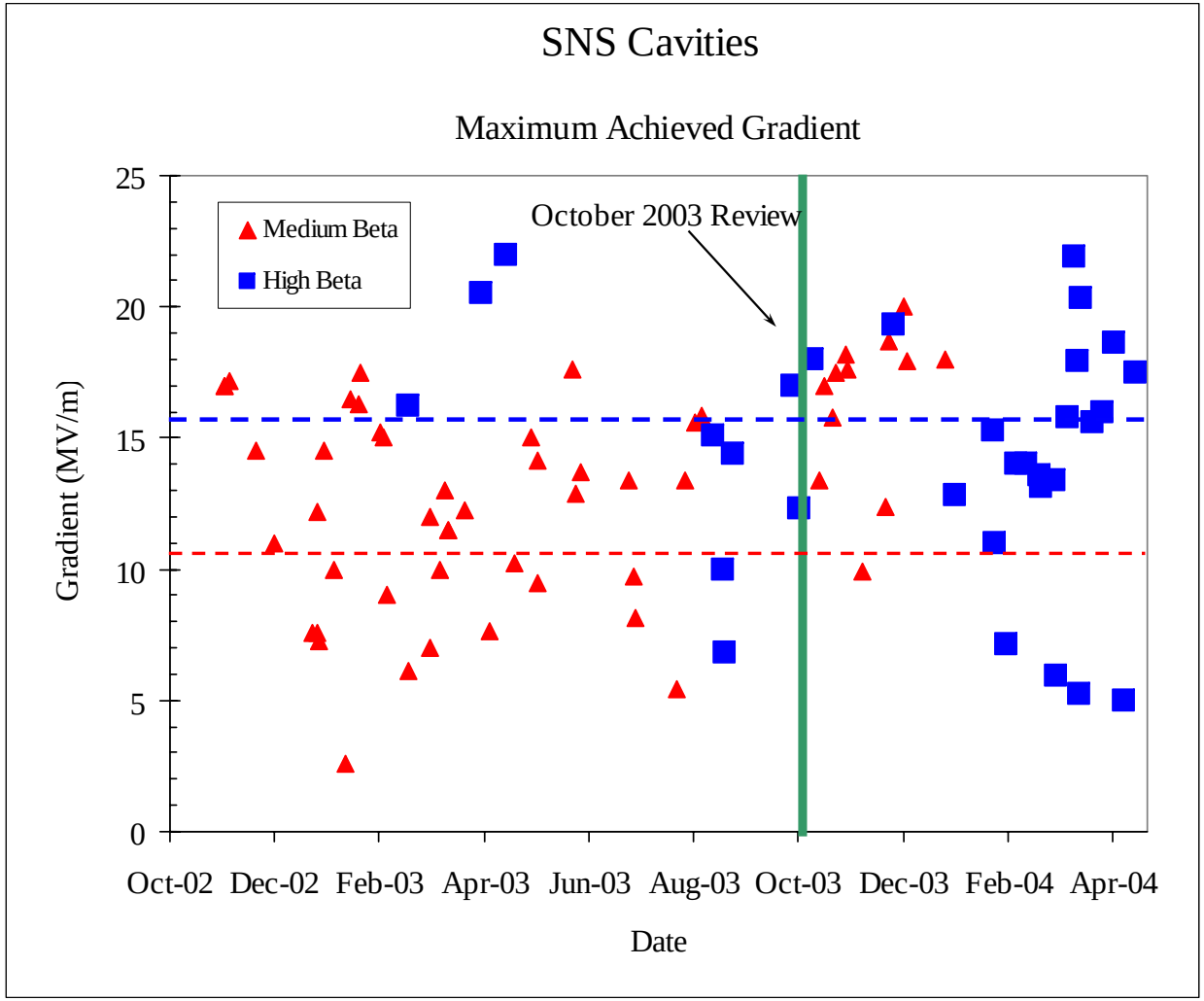
HB18


HB18 - Q vs E
Tested 4/26/04; Limit = FE
1.0E+11
1.0E+10
1.0E+09
1.0E+08
Q0
0
5
10
15
20
25
Gradient (MV/m)

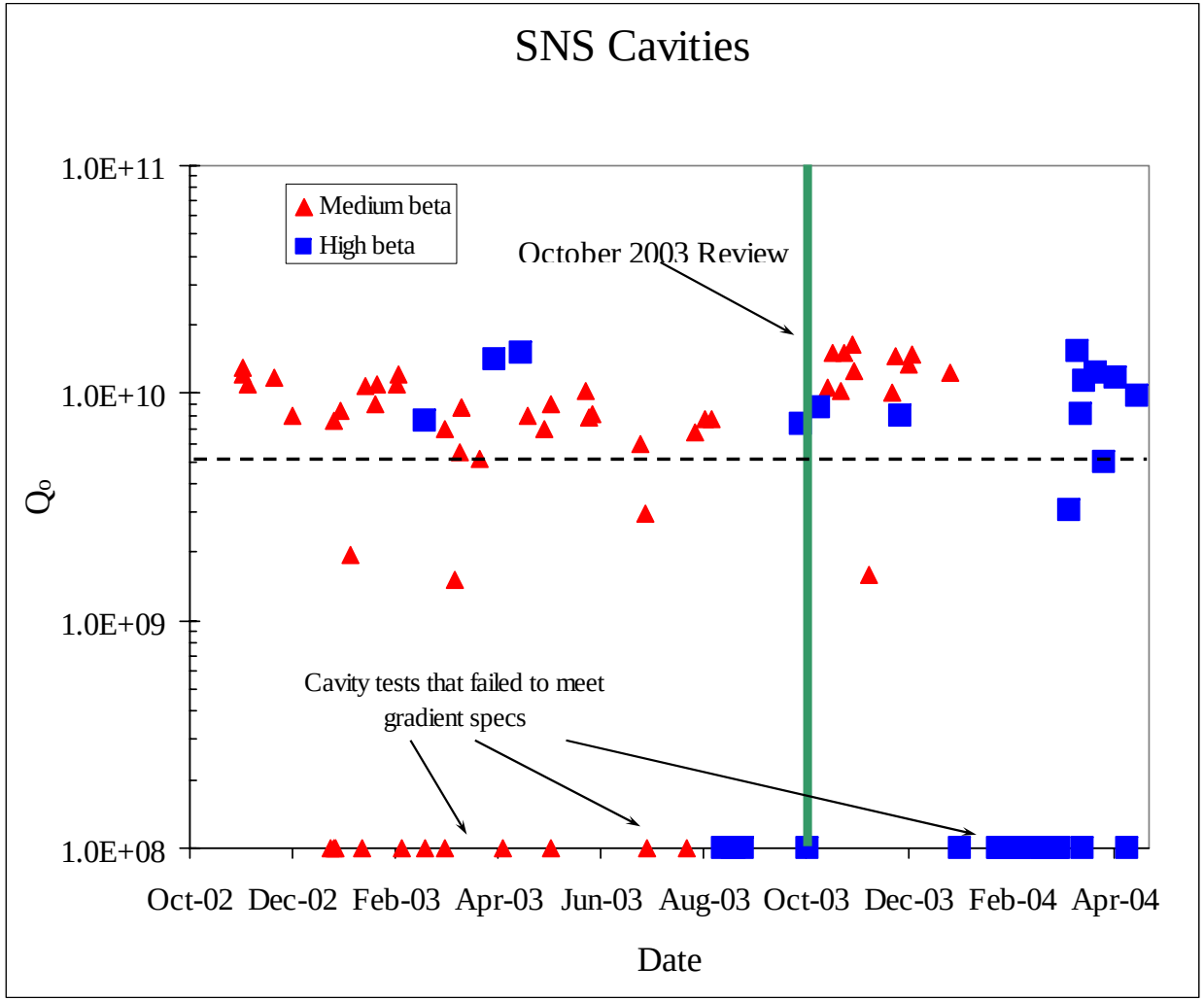
VTA Tests - Medium and High β



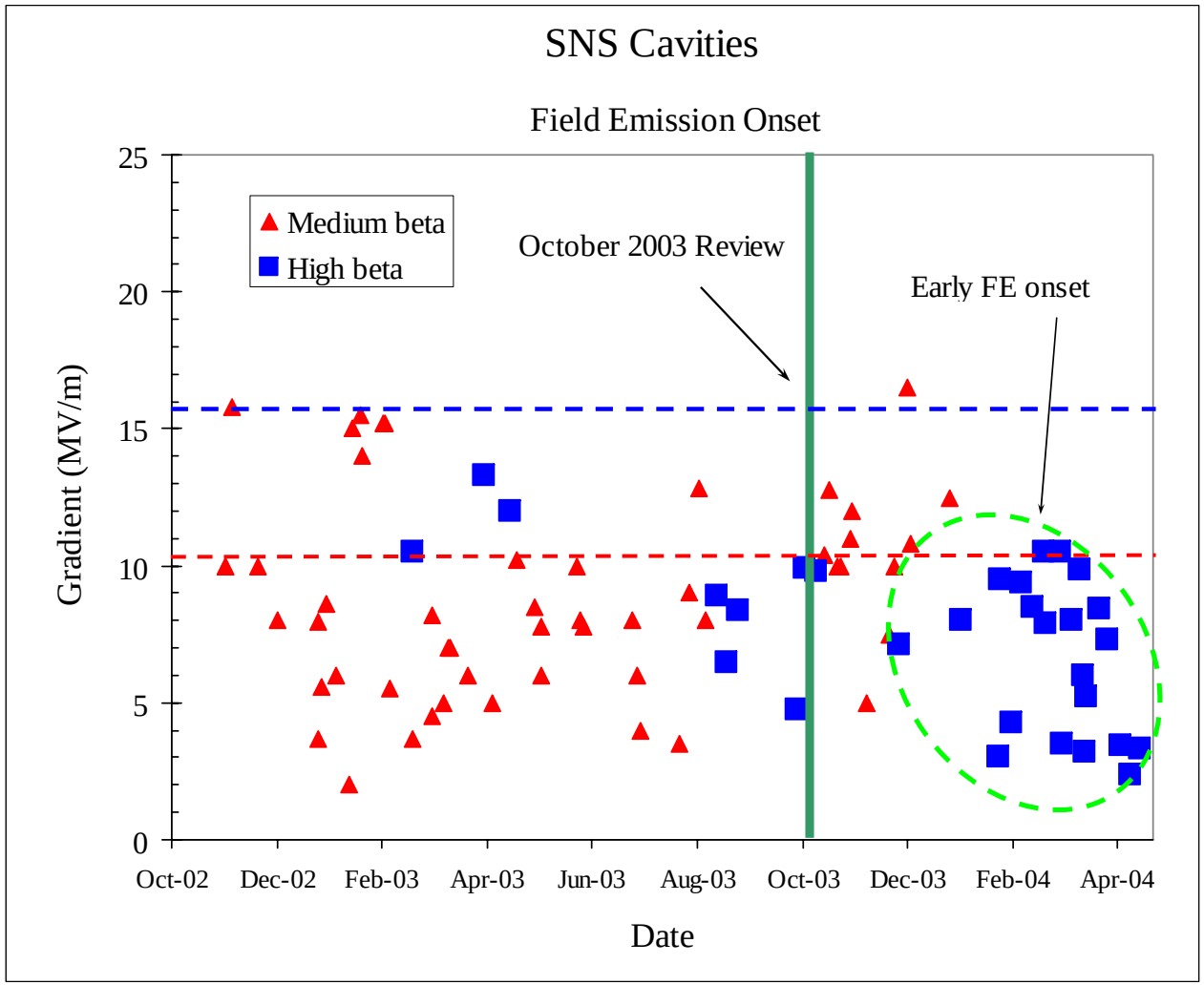
VTA Tests - Medium and High β



VTA Tests - Medium and High β



VTA Tests - Medium and High β



VTA Tests - High β

As of 9 March

High β

Averages:	14.5	11.5	6.07E+09	8.20	18.31	37242	1.58E+10	3.62E+09
	Emax	E @ Q spec	Q@Emax	E FE On	Epk FE On	Radmax	Q@2MV/m	Q@15.6MV/m

As of 26 April

High β

Averages:	14.4	31.5	14.2	5.80E+09
	Emax	Emax Pk	E @ Q spec	Q@Emax

7.45	16.50	40482	1.69E+10	4.33E+09
E FE On	Epk FE On	Radmax	Q@2MV/m	Q@Espec