

# Status and Outlook of Vertical Tests in KEK-STF

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1. **Status of Infrastructure at STF**
2. **Status of Vertical Tests  
for S-1 Global**
3. **Outlook for 2009 ~2011**
4. **Summary**



# Contributors for V.T at STF

- **STF Cavity Group;**
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  - K. Watanabe, Y. Yamamoto (KEK)**
  - T. Okada, M. Iitake (K-Vac Co.)**
- **In charge of Surface Treatment at STF;**
  - M. Sawabe, H. Hayano, K. Ueno (KEK)**
  - T. Suzuki (Nomura Plating Co.)**
  - K. Nakamura, N. Tasaki (Assist Eng. Co.)**

# Vertical Test at STF

New vertical test system was completed in July 2008.



## 1. Surface Inspection System



## 2. Temperature Mapping System



## 3. Passband-modes Measurement

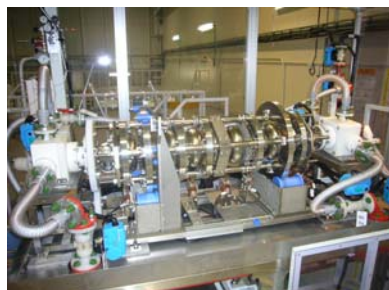




# A Cycle of Vertical Test at STF



Flange-CP



EP



Hot bath  
Rinsing



HPR



Assembly  
(Class 10)

## Infrastructure in the STF Hall

System check with AES#1 cavity was carried out in Oct., 2008.



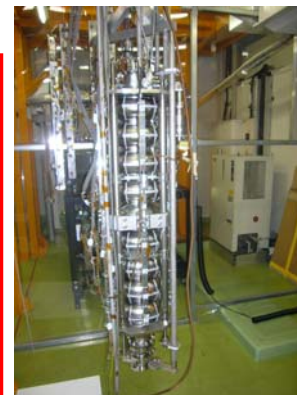
Pre-tuning  
fo adjustment



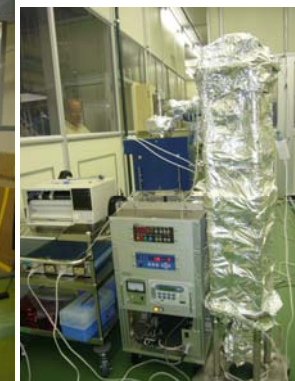
Inspection of  
Inner Surface



Vertical Test

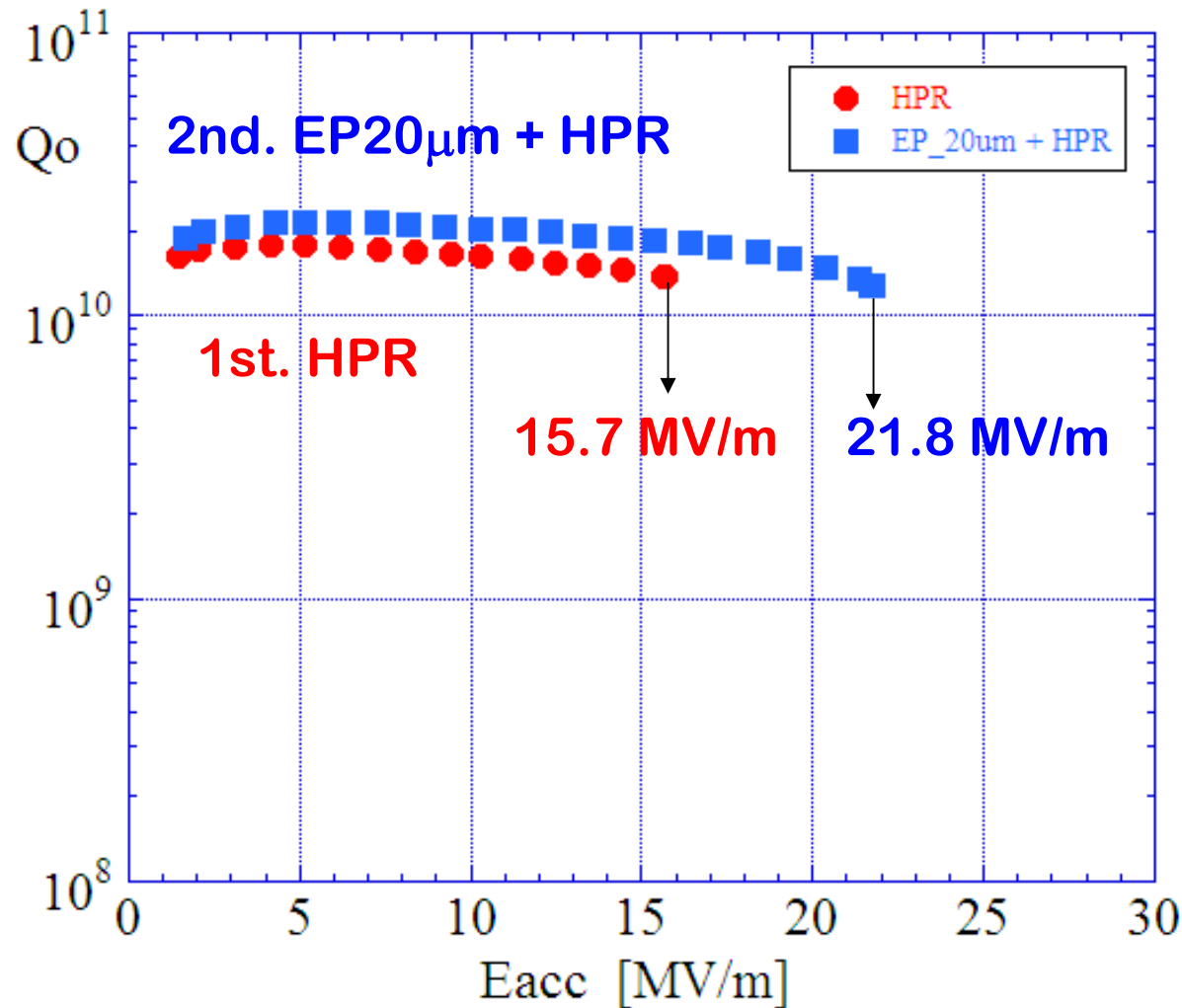


Hanging  
Stand



Baking  
(Class 1000)

# Test Results of AES#1 Cavity at STF





# 9-cell Cavities for S-1 Global

STF-BL #5 Cavity (MHI-05)  
STF-BL #6 Cavity (MHI-06)

STF-BL #7 Cavity (MHI-07)  
STF-BL #8 Cavity (MHI-08)  
STF-BL #9 Cavity (MHI-09)



Delivery in 2008' March

Delivery in 2009' March





# Surface Preparation for V.T

5 new STF-BL Cavity x 2 or 3 V.T → 12 Tests for S0

First EP (125 $\mu$ m) + HT at 750°C, (no Barrel Polishing) →

MHI-05 Cavity; I. EP(50)+H<sub>2</sub>O<sub>2</sub> II. EP(50)+H<sub>2</sub>O<sub>2</sub>  
III. EP(20)+Alcohol

MHI-06 Cavity; I. EP(50)+H<sub>2</sub>O<sub>2</sub> II. EP(50)+H<sub>2</sub>O<sub>2</sub>  
III. EP(20)+Alcohol

MHI-07 Cavity; I. EP(20)+Alcohol  
II. EP(20)+Degreese

MHI-08 Cavity; I. EP(20)+Alcohol  
II. EP(20)+Degreese

MHI-09 Cavity; I. EP(20)+Degreese, II. EP(20)+Alcohol

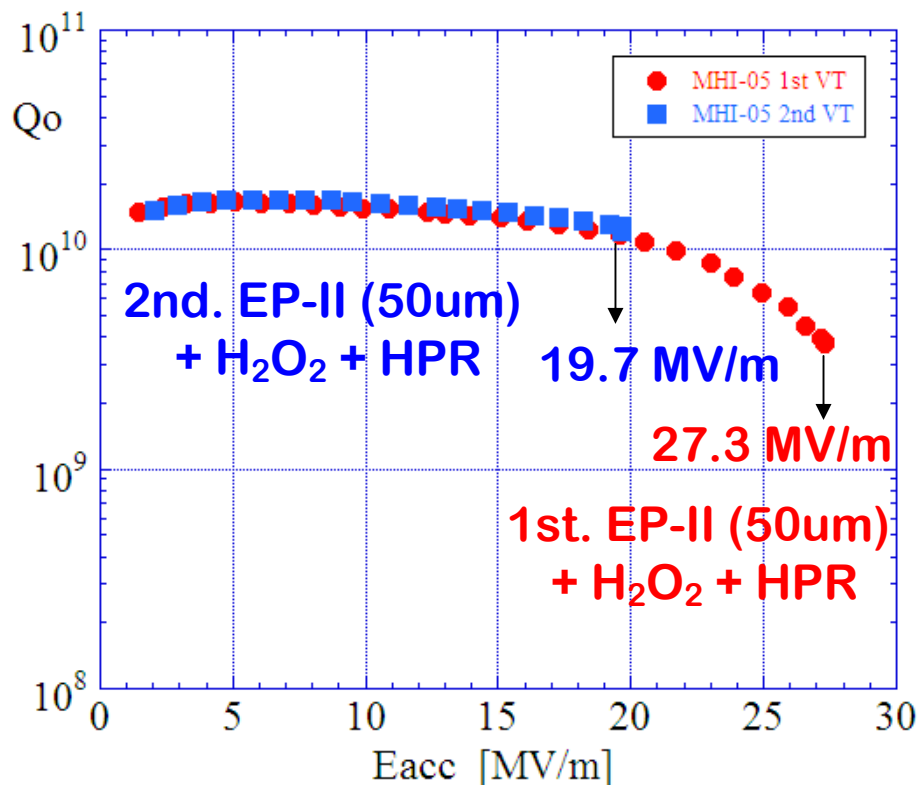
Four cavities for S1-G will be selected in November.



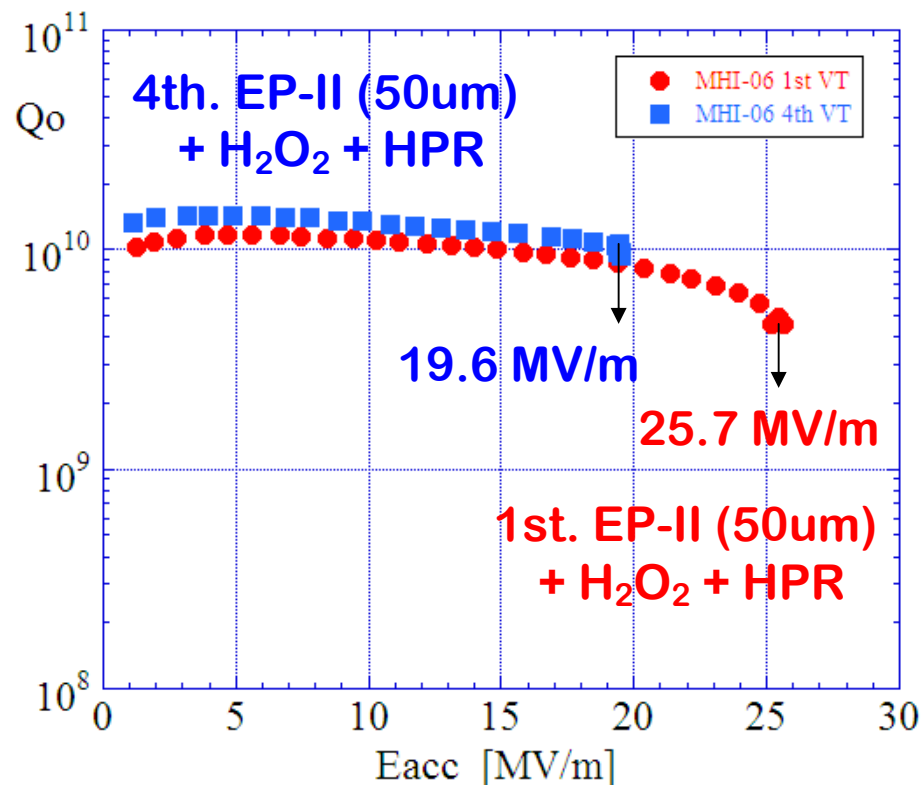


# Test Results of MHI-05, MHI-06 Cavity

## MHI-05 Cavity



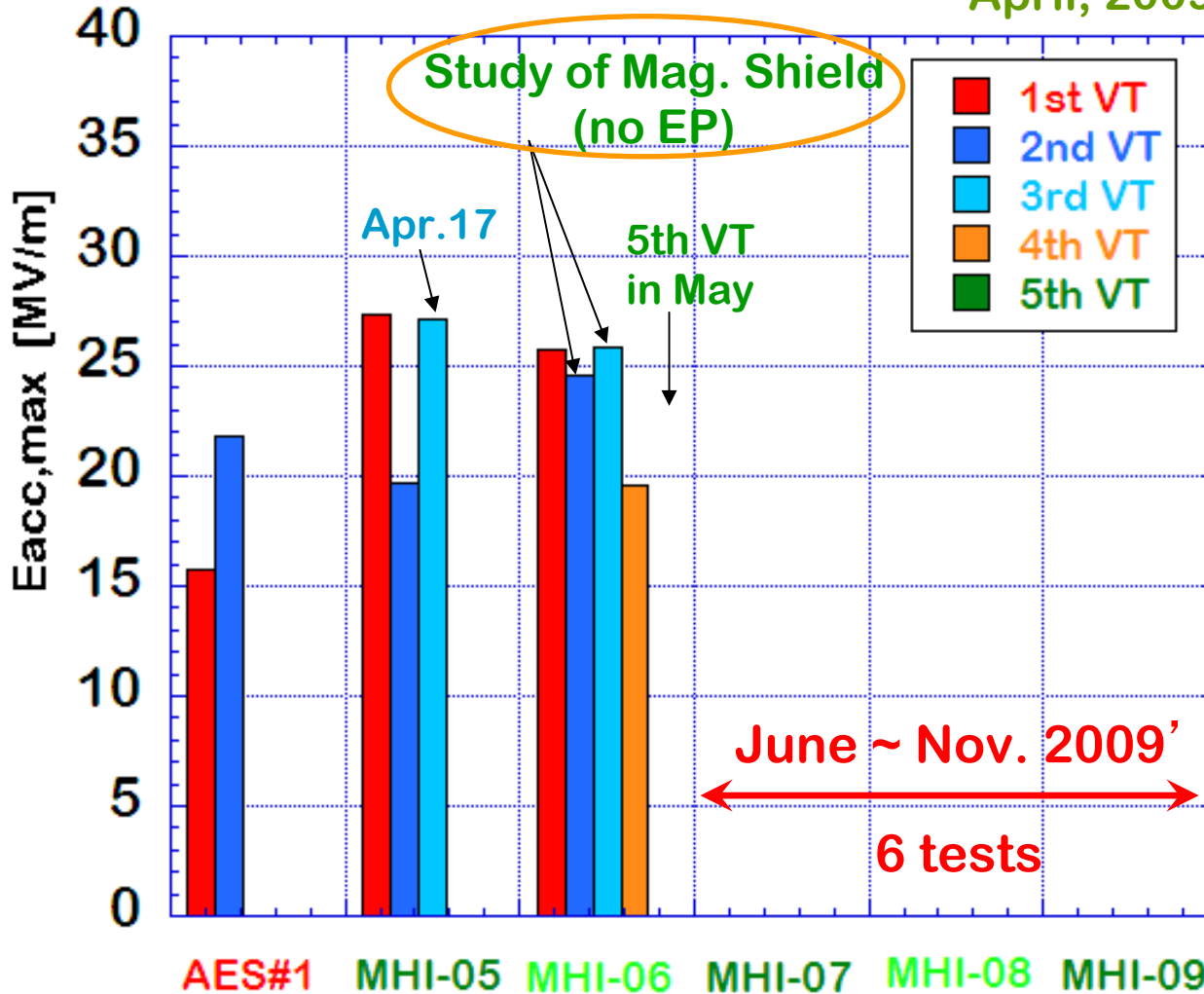
## MHI-06 Cavity



The next test is to try alcohol rinsing, instead of  $H_2O_2$ .

# Summary of V.T Results at STF

April, 2009





# Schedule of V.T for S1-Global

2009' April ~ December

Schedule of V.T (9-cell/2cell Cavities)		Symbol;	EP1 EP1/STF	EP2 EP2/STF	VT VT/STF	Anl Aneal	Ins Inspection	Tur Pretuning	MHI MHI																															
Year	2009																																							
Month	4		5			6			7			8			9			10			11			12																
Week	30	6	13	20	27	4	11	18	25	1	8	15	22	29	6	13	20	27	3	10	17	24	31	7	14	21	28	5	12	19	26	2	9	16	23	30	7	14	21	28
STF-BL#1	STF Phase-1																																							
STF-BL#2	STF Phase-1																																							
STF-BL#3	STF Phase-1																																							
STF-BL#4	STF Phase-1																																							
STF-BL#5	for S1-Global																																							
STF-BL#6	for S1-Global																																							
STF-BL#7	for S1-Global																																							
STF-BL#8	for S1-Global																																							
STF-BL#9	for S1-Global																																							
STF-BL#10	for SO																																							
STF-BL#11	for SO																																							
STF-BL#12	for Capture Cavity																																							
STF-BL#13	for Capture Cavity																																							
ERL-2cell #1	Prototype -I																																							
ERL-2cell #2	Prototype -II																																							

8 V.T

Time limit for welding He Jacket

String assembly of four cavities for the S1-Global will be started in January, 2010.



# Delivery of New 9-cell Cavities

2009' Nov. for S0,

STF-BL#10, STF-BL#11

2010' July

for Capture Cavity (Quantum Beam),

STF-BL#12, STF-BL#13

2010~2011' March

for Cryomodule #1 in STF-Phase 2,

STF-BL#14, STF-BL#15, STF-BL#16,

STF-BL#17, STF-BL#18, STF-BL#19,

STF-BL#20, STF-BL#21, STF-BL#22





# Schedule for V.T in 2010, 2011

**2009' Dec. ~ 2010' June** (1 V.T / 4 week)

STF-BL#10, #11, (#??)

2 Cavity x 3 V.T + ( $\alpha$ )  $\rightarrow$  ~ 8 Tests

**2010' July ~ Dec.** (1 V.T / 3 week)

STF-BL#12, #13

2 Cavity x 3 V.T  $\rightarrow$  ~ 6 Tests

**2011' Jan. ~ Dec.** (1 V.T / 2 week)

STF-BL#14, #15, #16, #17, #18, #19,  
#20, #21, #22

9 Cavity x 2 or 3 V.T  $\rightarrow$  ~ 20 Tests

# SUMMARY

- Infrastructure for the vertical test at STF was completed in July 2008, and the check of the whole system was finished in Oct. 2008.
- Vertical tests of five cavities for the S1-global cryomodule is being routinely continued.  
(Total 12 tests till Nov. 2009.)
- Number of available vertical tests is estimated to be ~14 tests in 2010 and ~20 tests in 2011.



Thank you  
for your attention.....