

DESY status

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ALCPG 2011

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Cavities for XFEL

- Contracts placed at Research Instruments and E. Zanon

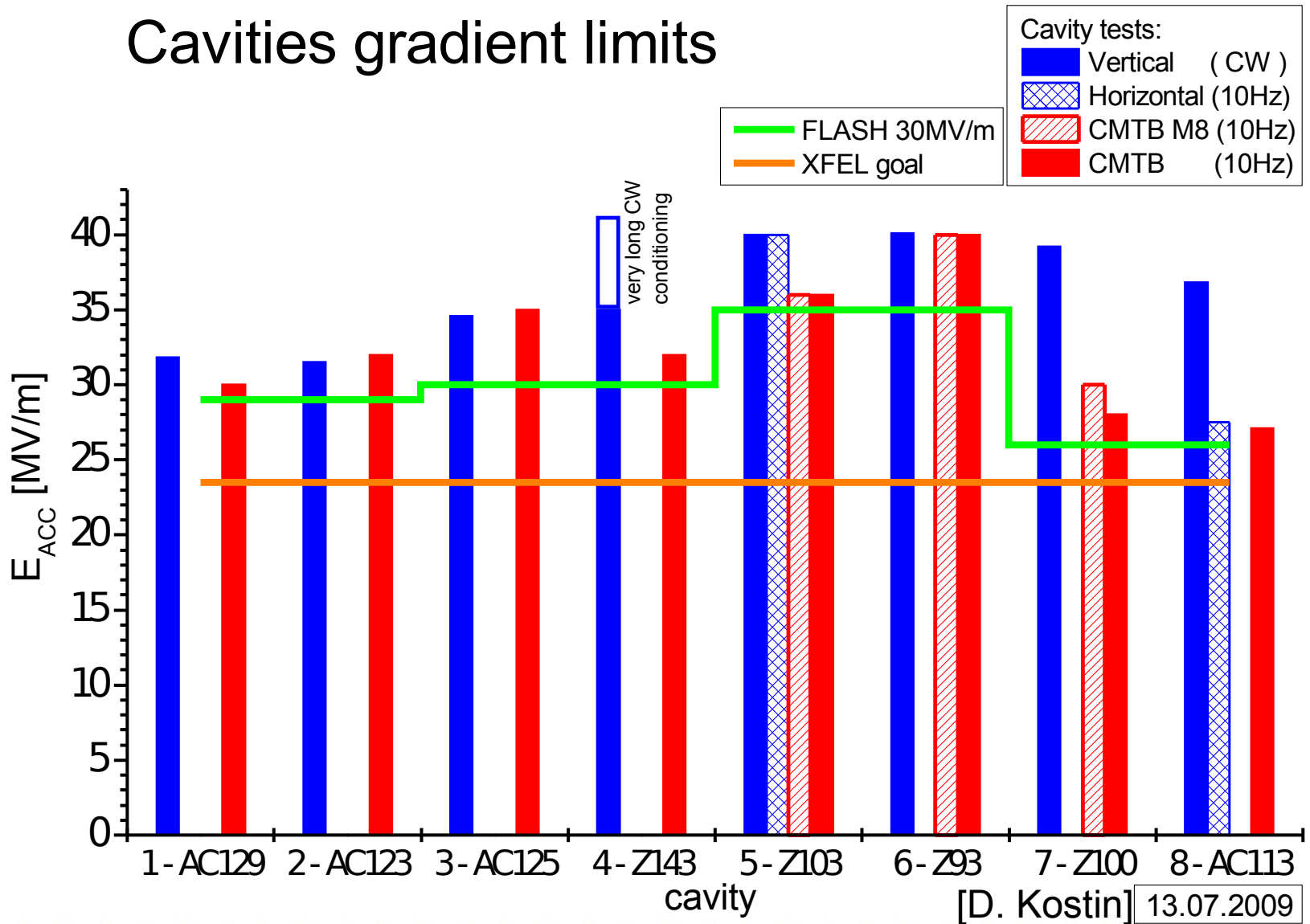
Each company will produce:

- 4+4 pre-series cavities
- 280 XFEL-type series cavities
- 12 HiGrade cavities, will be used for quality assurance first, later available for additional investigations and treatments (high gradient ILC R&D)
- material (Nb/NbTi) will be supplied by DESY
- Production according to an exact specification (including definition of infrastructure)
- Bulk treatment EP, final treatment EP at RI and flash BCP at Z
- No performance guarantee by the vendors, i.e. risk of low gradient and field emission is with DESY (responsibility for re-treatment)

Goal: average usable XFEL gradient 24.3 MV/m

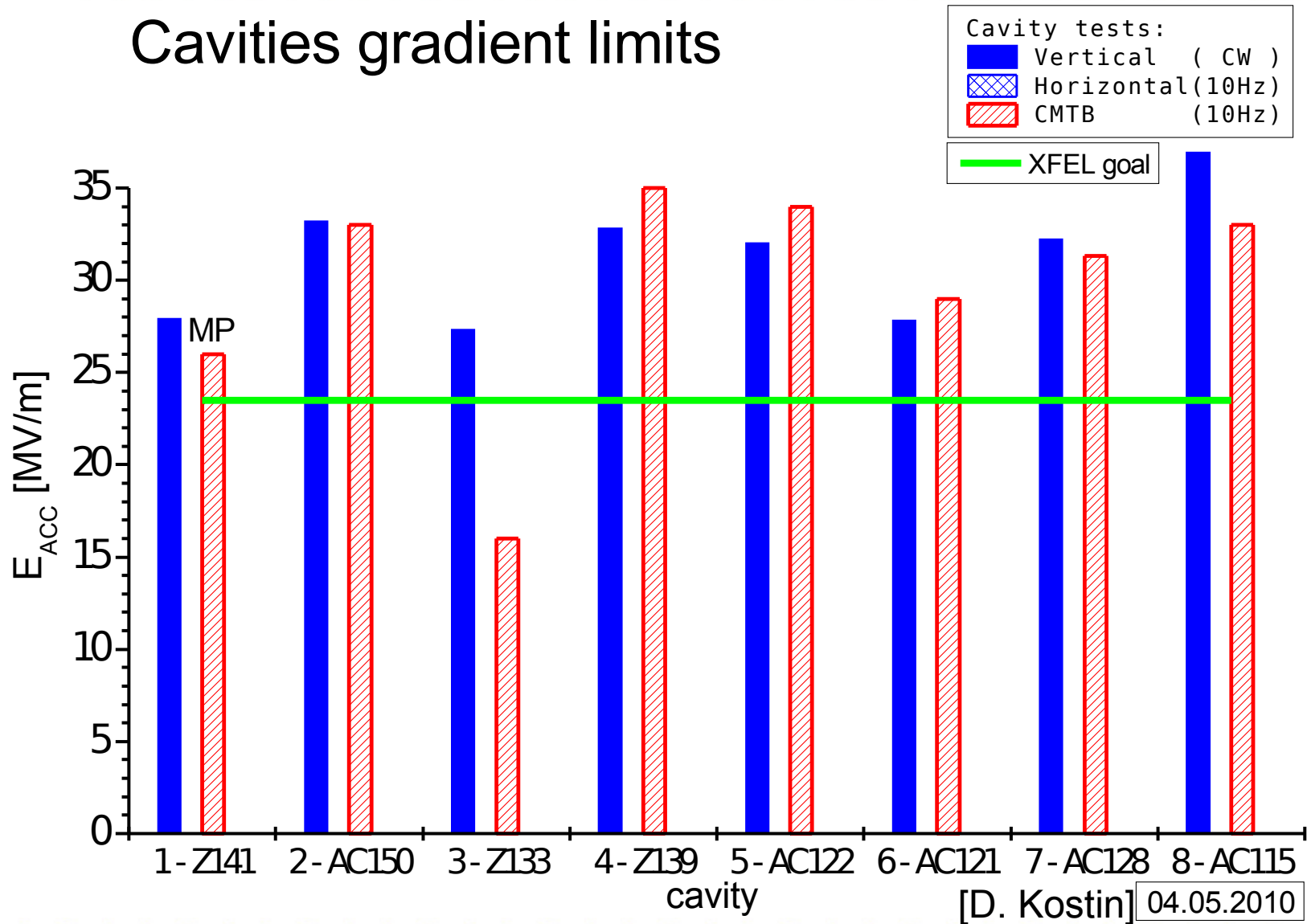
- additional 80 cavities to be ordered as an option after evaluation of the successful start of series production
- First series cavities expected in beginning of 2012, all cavities to be delivered within two years

Cavities gradient limits

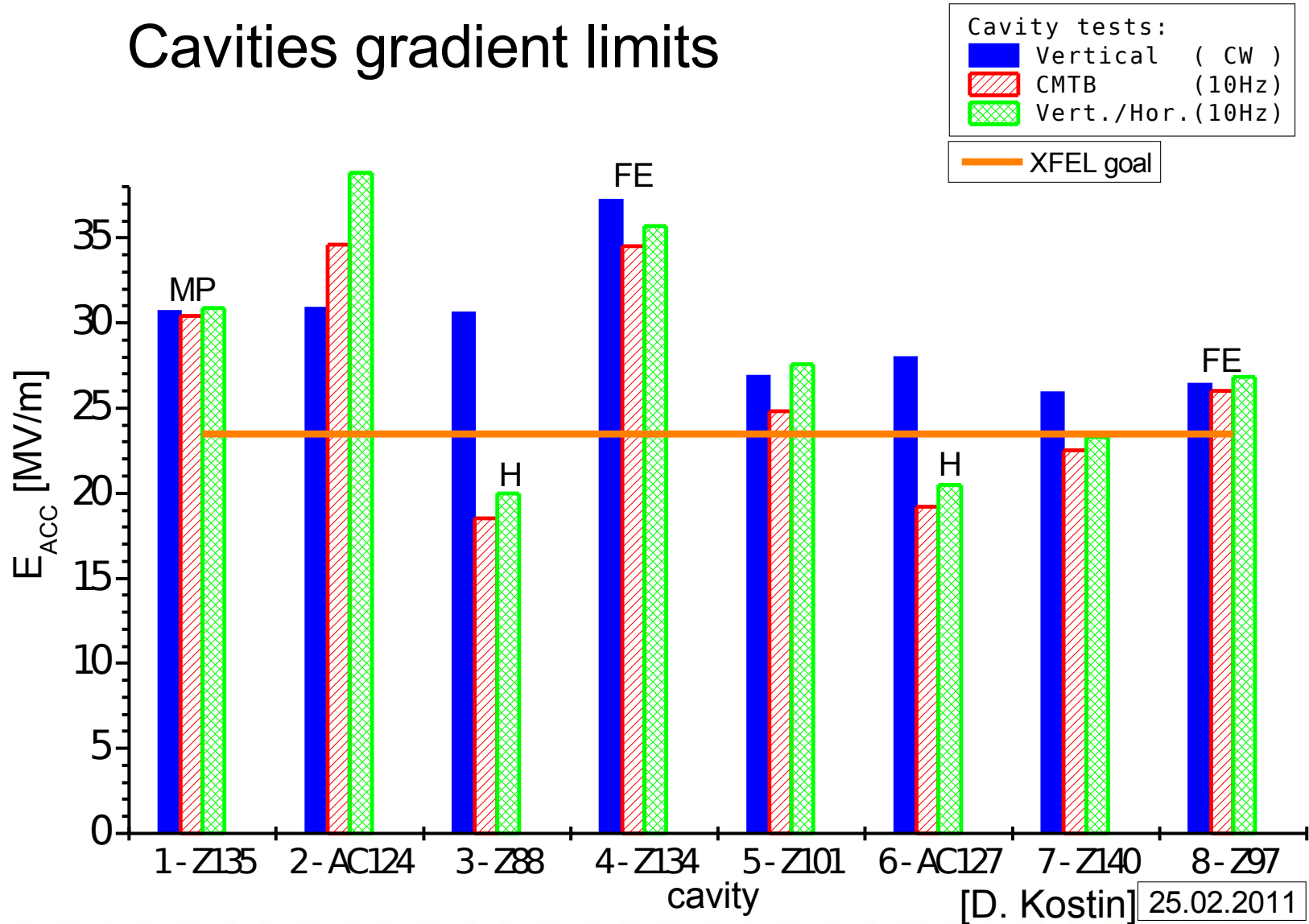


[D. Kostin] 13.07.2009

Cavities gradient limits



Cavities gradient limits



- tested on CMTB with plan of string disassembly and re-assembly at Saclay
- disassembly done
- testing and investigation of „bad“ cavities ongoing

- 2nd sound
 - **All 4 vertical inserts equipped with OSTs**
 - **2nd sound measurement can be done routinely for every test of non-dressed cavities**
 - **Working on improved resolution and non-align of sight calculations**
- automated inspection setup OBACHT close to mechanical completeness
- automatic pattern recognition under development (see M. Wenskat's talk later)



LG cavities AC151-AC158

- 8 LG-cavities built from Heraeus material by RI
 - first test after BCP removal of 120-130 μm , HPR and bake at 120C for 48h
 - three cavities with considerable FE in first test
 - additional HPR and 2nd test
 - now 7 out of 8 are limited by BD at 25-28 MV/m with no or very low FE
 - Quench location found by 2nd sound for two cavities: optical inspection done → no obvious defect
 - one cavity (AC158) with leaks and FE (~ 28 MV/m) in two tests, third test ongoing
- next: EP of all eight cavities

LG first test

