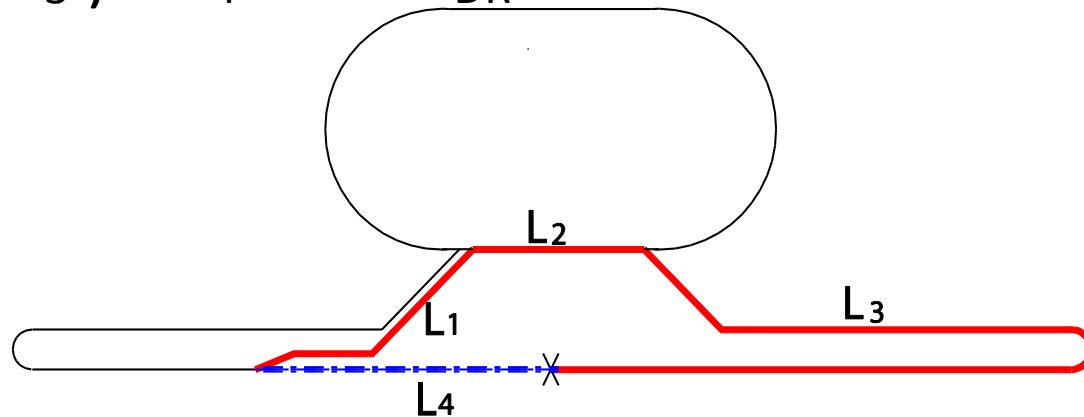# Timing Issue

- $(L_1 + L_2 + L_3) - L_4 = n \times C_{DR}$


- TDR values give

    $(L_1 + L_2 + L_3) - L_4 = 9 \times C_{DR} + 294m$

- It is possible to adjust the value either by
    - Shortening the BDS by ~150m

  or by
    - Expanding the DR circumference by ~30m

- This will nearly keep the TDR layout
- But no margin for 500GeV, no way to reach 550GeV

Physics Issue

- TDR Design : Maximum energy E_{CM}=500GeV
  - ✓ Decided before the discovery of Higgs at ~125GeV
- 500GeV is close to the threshold of e+ e- → t t H at E_{CM}=475GeV
- E_{CM}~550GeV is preferable for measuring top-Yukawa coupling
  - The crosssection at 550GeV is factor ~4 larger than at 500GeV
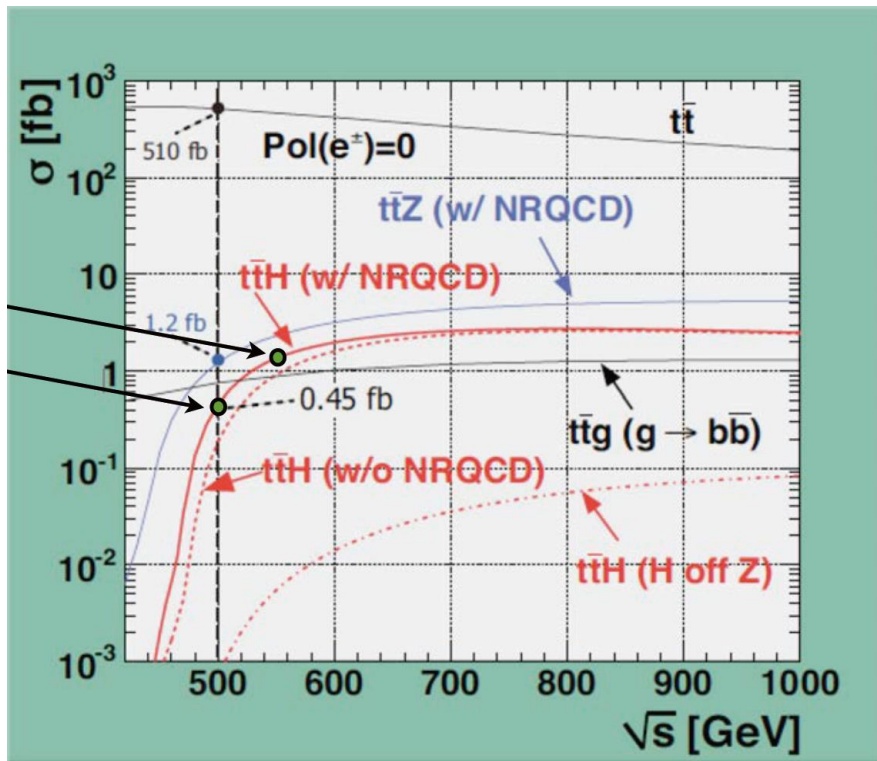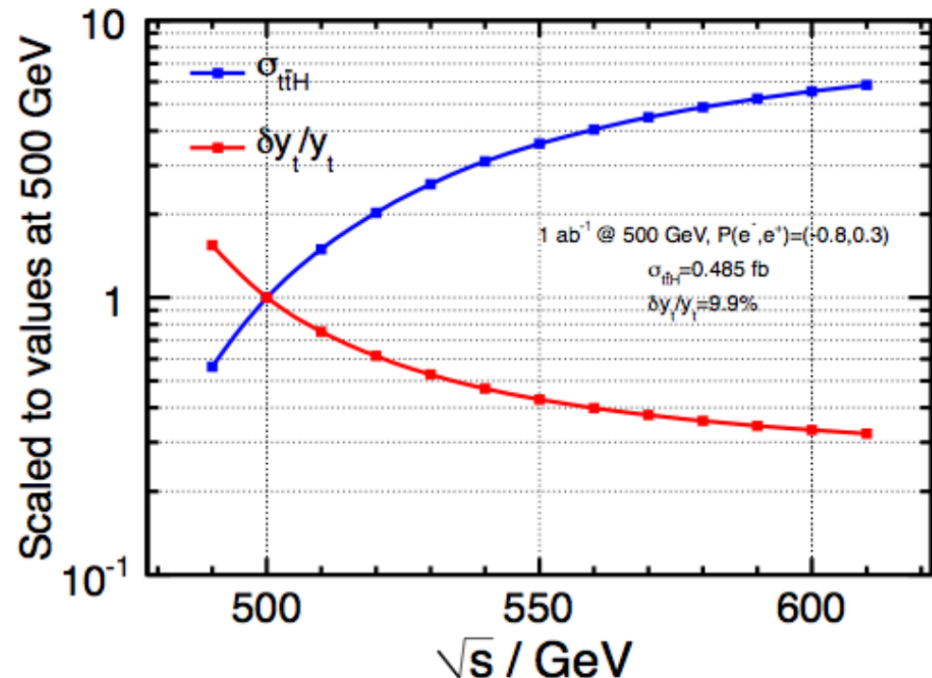
Parameter Group report (Oct.2014)

Module Test Results II

- **Average Operational gradients** of modules with individual rf distribution
- **All modules can be operated above 23.6 MV/m !!**
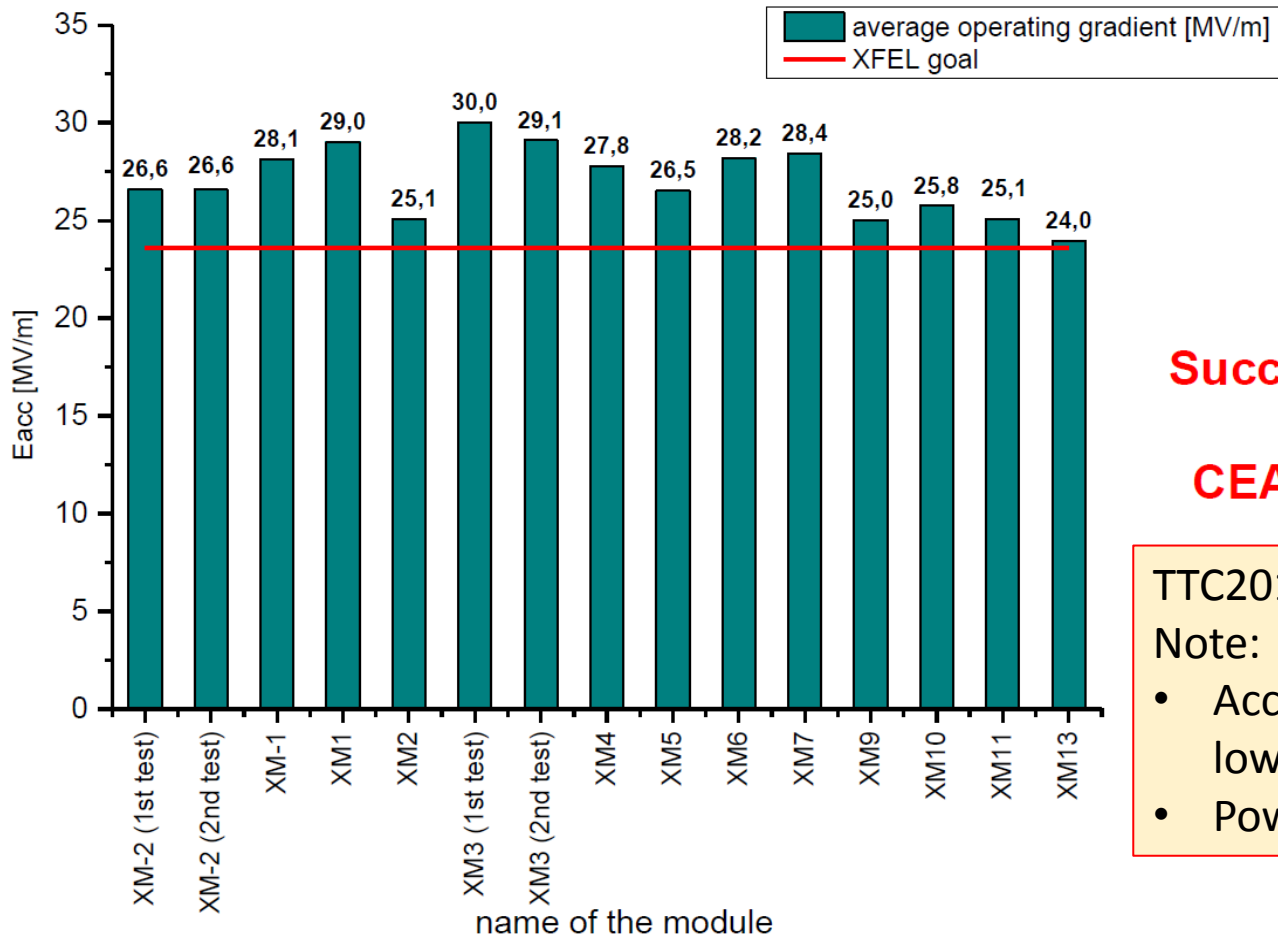
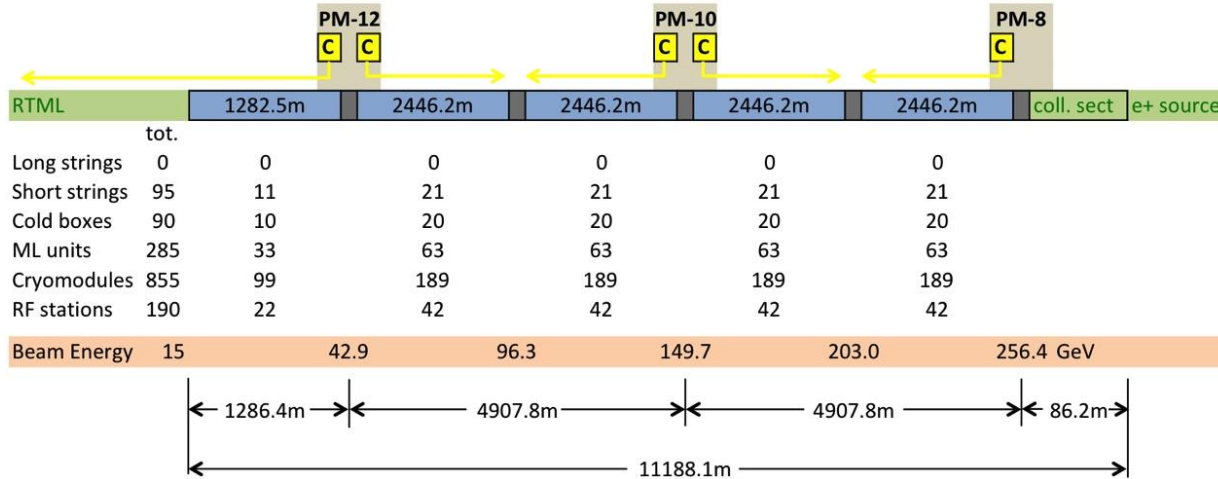**Successful technology transfer to CEA Saclay + Alsyom**

TTC2014@KEK D. Reschke
Note:
- Acceptance criterion at lower gradient
- Power-limit 31MV/m

2014/12/4 ADI-CFS Yokoya

Preliminary data; results are not published

3

Key:

- ▮ warm drift space (7.625 m)
- [L m] cryo unit (with length)
- ▮ warm beam line
- ▮ Major Vertical shaft (cryo)
- [C] Cryo plant
- → extent / direction of cryo unit

Electron Linac

PM-12 PM-10 PM-8

| RTML | 1282.5m | 2446.2m | 2446.2m | 2446.2m | 2446.2m | coll. sect | e+ source |

	tot.					
Long strings	0	0	0	0	0	0
Short strings	95	11	21	21	21	21
Cold boxes	90	10	20	20	20	20
ML units	285	33	63	63	63	63
Cryomodules	855	99	189	189	189	189
RF stations	190	22	42	42	42	42

| Beam Energy | 15 | 42.9 | 96.3 | 149.7 | 203.0 | 256.4 GeV |

←1286.4m→ ←4907.8m→ ←4907.8m→ ←86.2m→

←————— 11188.1m —————→

Positron Linac

PM+12 PM+10 PM+8

| RTML | 1282.5m | 2446.2m | 2446.2m | 2446.2m | 2329.9m | coll. sect | BDS |

	tot.					
Long strings	0	0	0	0	0	0
Short strings	94	11	21	21	21	20
Cold boxes	89	10	20	20	20	19
ML units	282	33	63	63	63	60
Cryomodules	846	99	189	189	189	180
RF stations	188	22	42	42	42	40

| Beam Energy | 15 | 42.9 | 96.3 | 149.7 | 203.0 | 253.8 GeV |

←1286.4m→ ←4907.8m→ ←4791.4m→ ←86.2m→

←————— 11071.8m —————→