Small aperture L-band structure

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For discussion only

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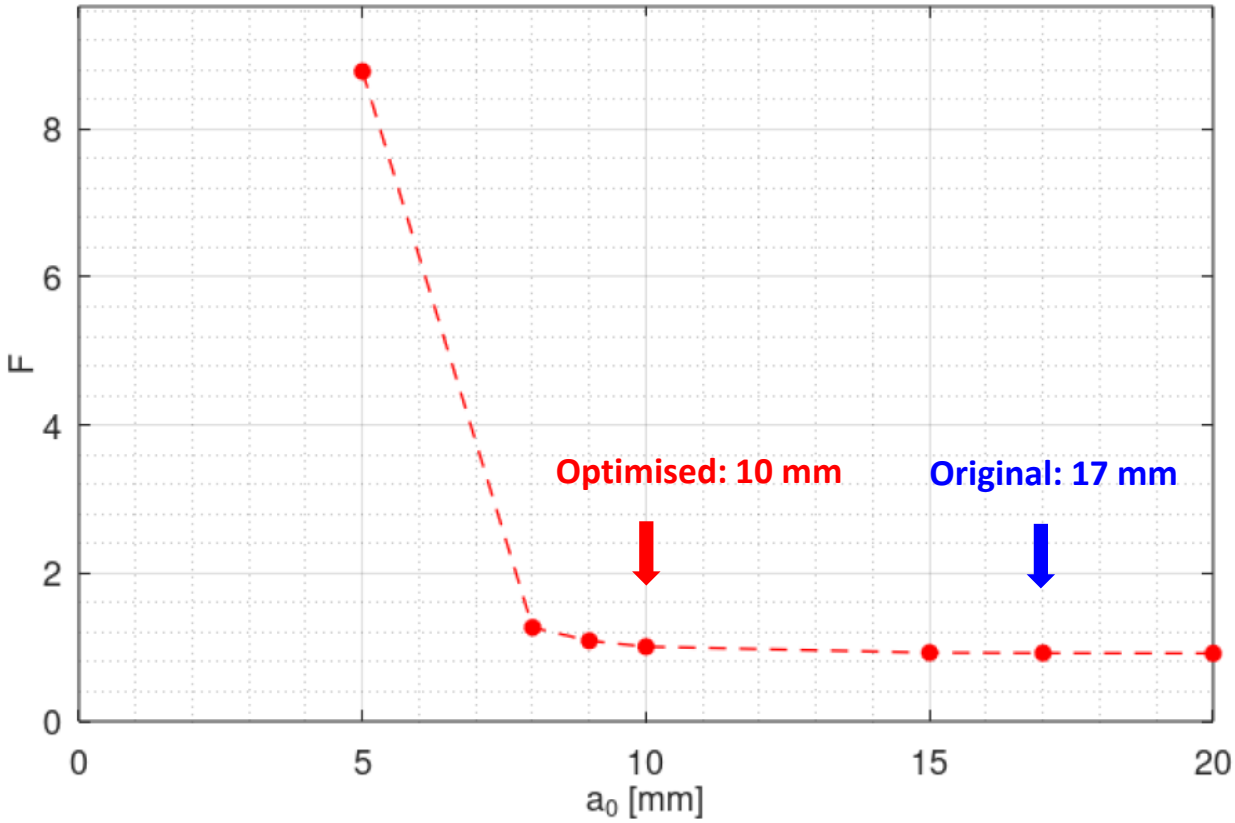
Review of aperture scan

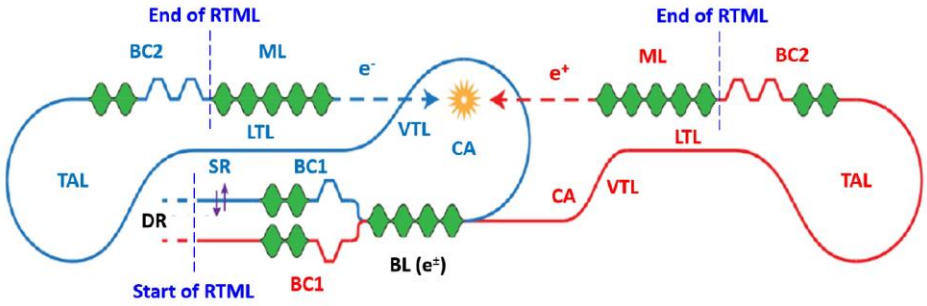
- **Jitter** amplification in booster linac, due to **short-range** wakefield, as a function of “CLIC L-band” aperture



Structure parameters

- Original

Parameter	Unit	BC1
Structure name		CLIC L-band
RF frequency	GHz	1.999
Structure length	m	1.5
Number of cells		30
Phase advance per cell	°	120
Working RF phase	°	90
First iris radius	mm	20
Last iris radius	mm	14
First iris thickness	mm	8
Last iris thickness	mm	8



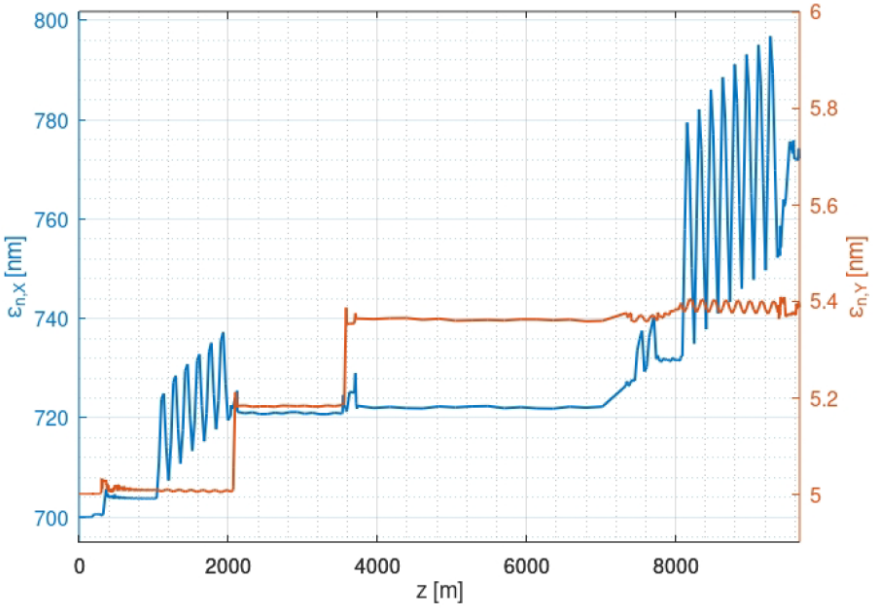
Used in **BC1** & **booster linac (BL)**

- Small aperture (for test):
  - Iris radius: 12 mm – 8 mm
  - Other parameters kept the same

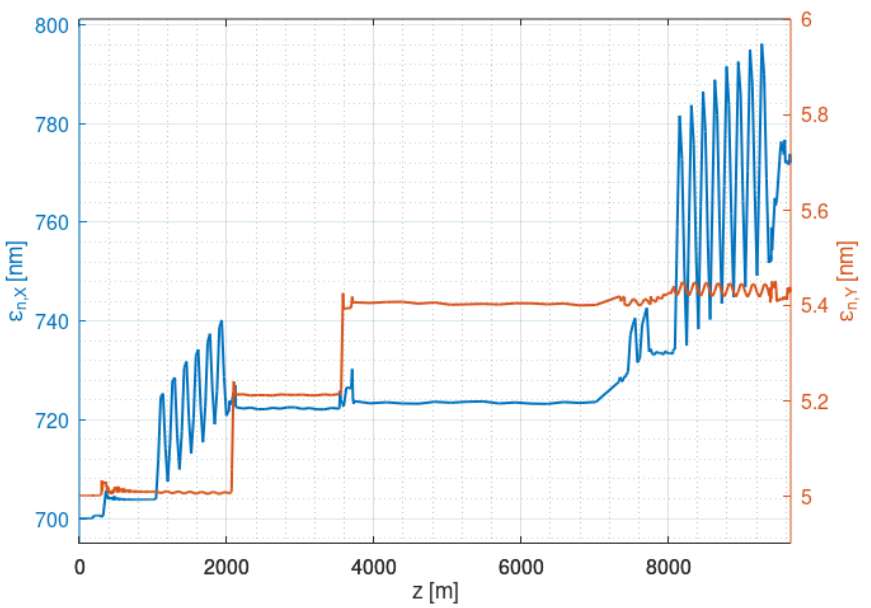
Emittance growth

- Emittance growth in RTML

Original L-band (20—14 mm)



Small aperture L-band (12--8 mm)



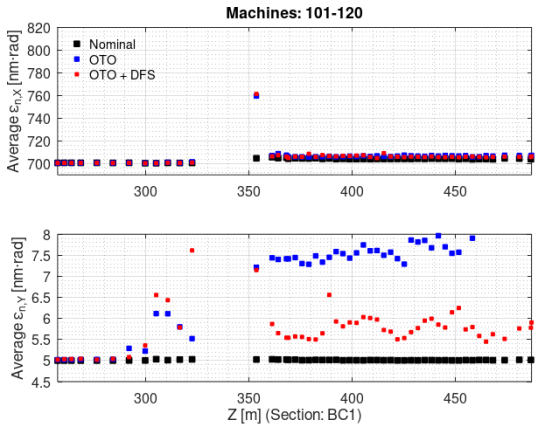
➢ **Nominal results are not affected much**

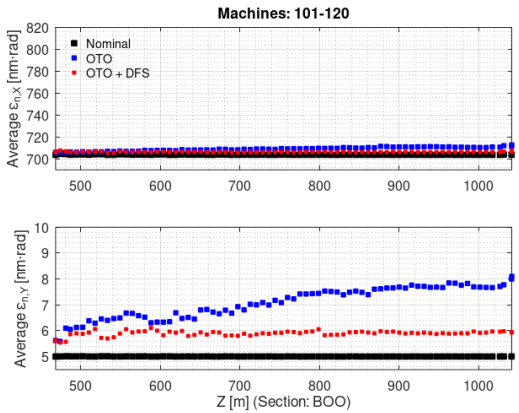
Misalignment & BBA

- BBA in BC1 and booster linac (BOO)

Original L-band (20—14 mm)

a0 = 17 mm

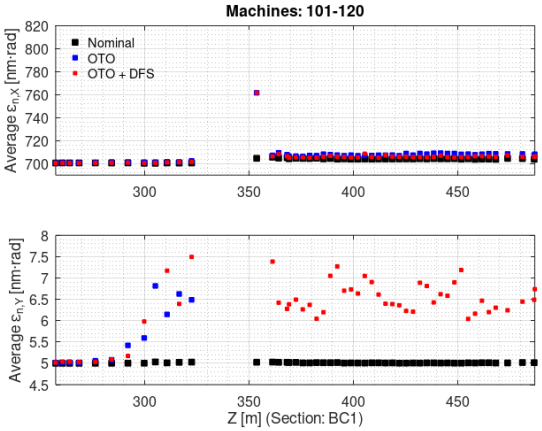


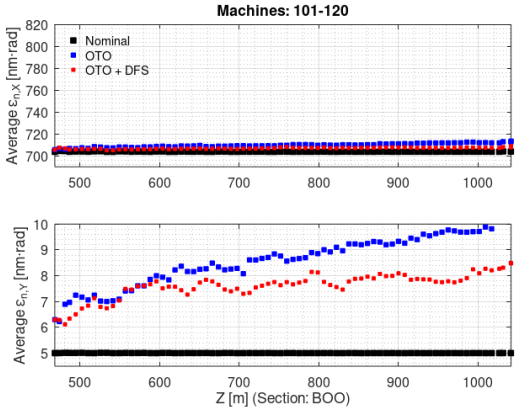


Small aperture L-band

(12—8 mm)

a0 = 10 mm





➢ **BBA seems quite difficult**

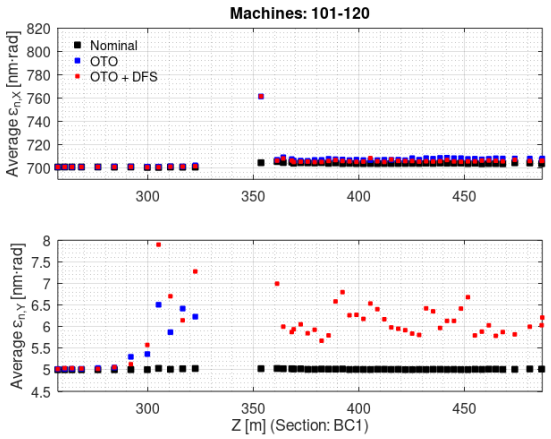
Misalignment & BBA

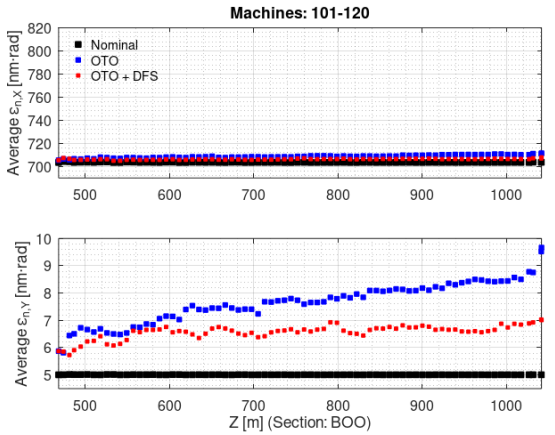
- BBA in BC1 and booster linac (BOO)

Small aperture L-band

(14—10 mm)

a0 = 12 mm

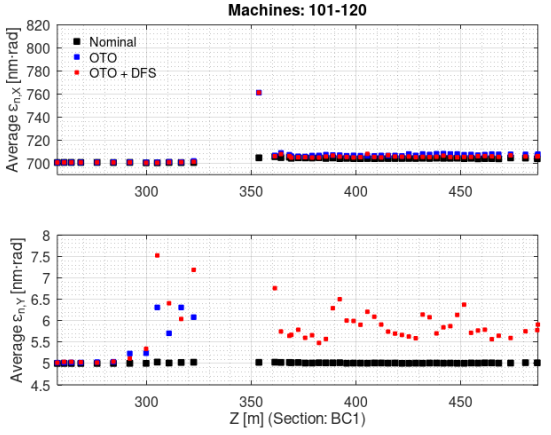


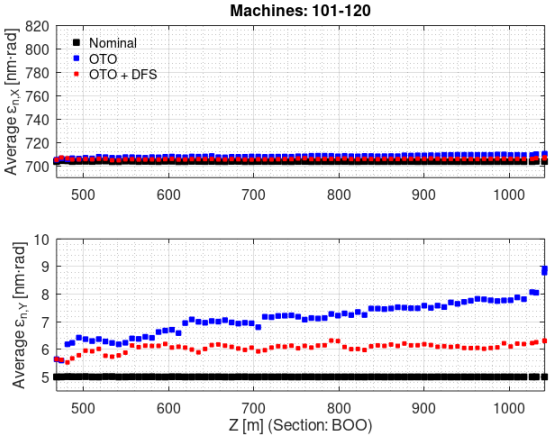


Small aperture L-band

(18—12 mm)

a0 = 15 mm





- **Still a bit challenging for a0 = 12 mm (to be checked for full RTML)**
- **Might be OK for a0 = 15 mm (to be checked for full RTML)**