

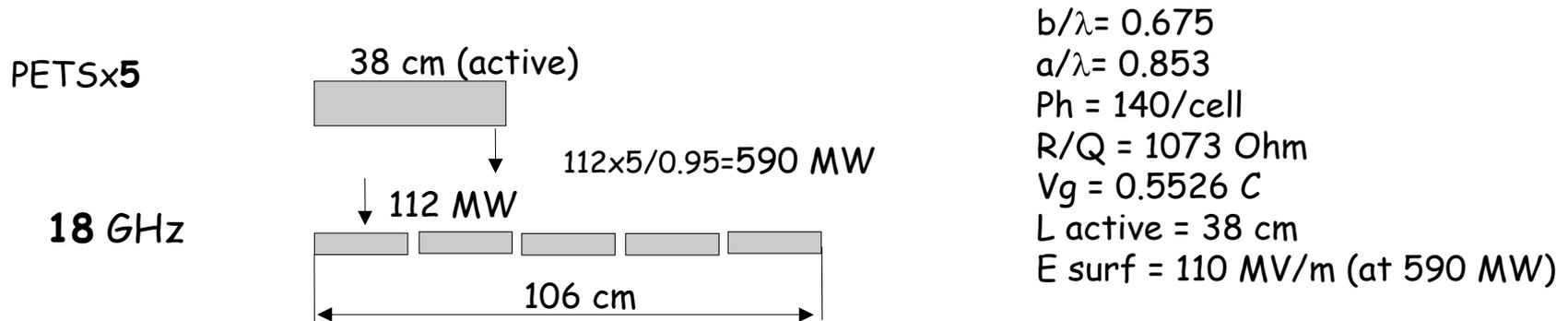
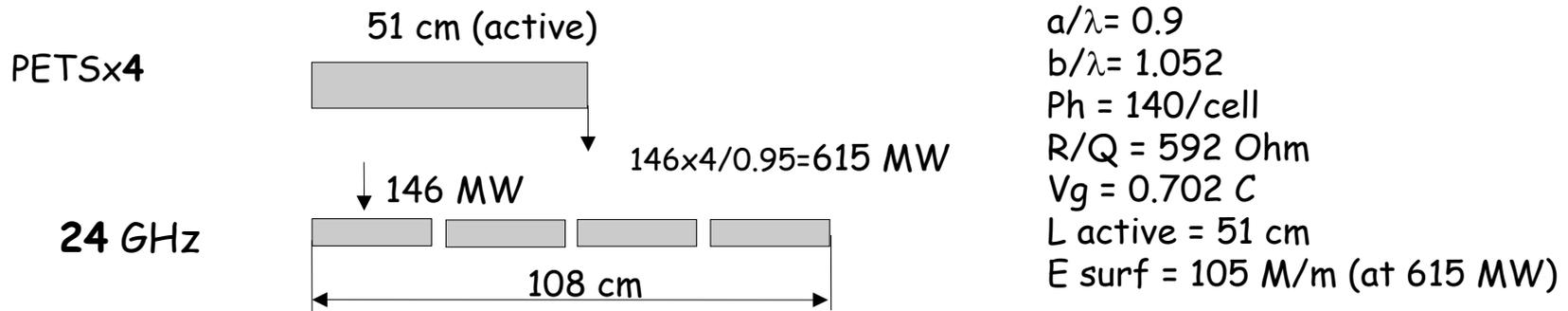
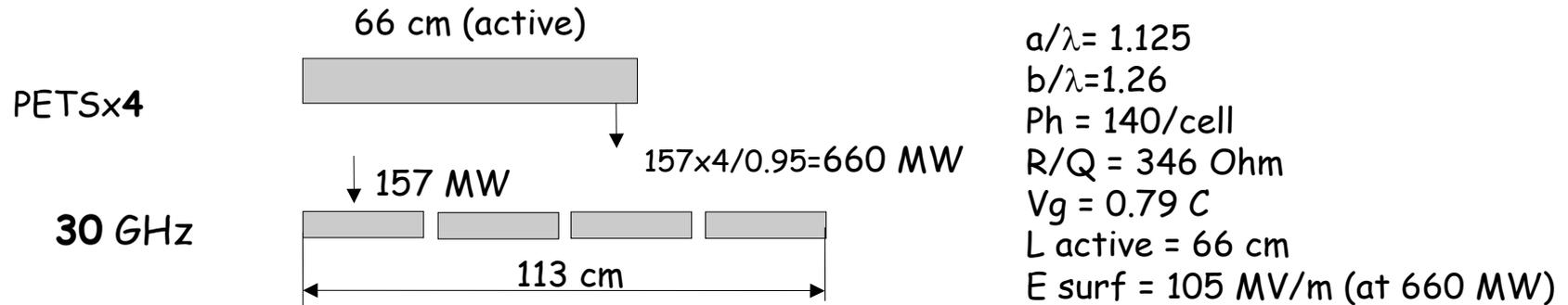
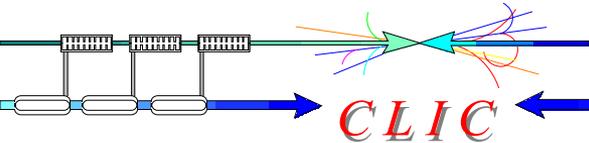


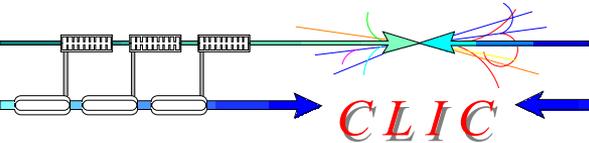
Boundary conditions:

The PETS aperture and phase advance were fixed:

$$2a=22.5 \text{ mm}, \text{ ph}=140^\circ/\text{cell}$$

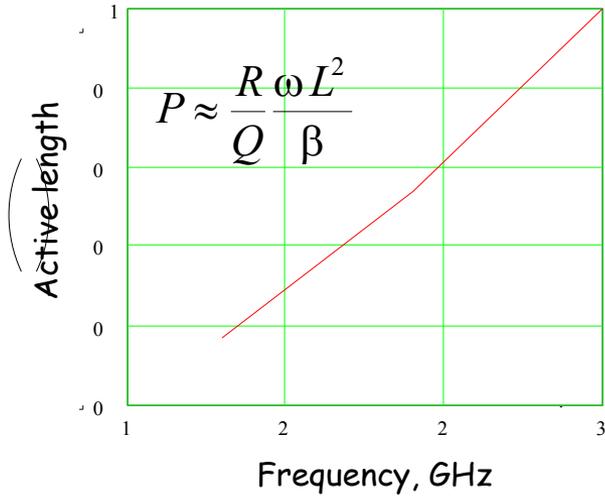
Drive Beam - 150 A
Beam aperture - 22.5 mm



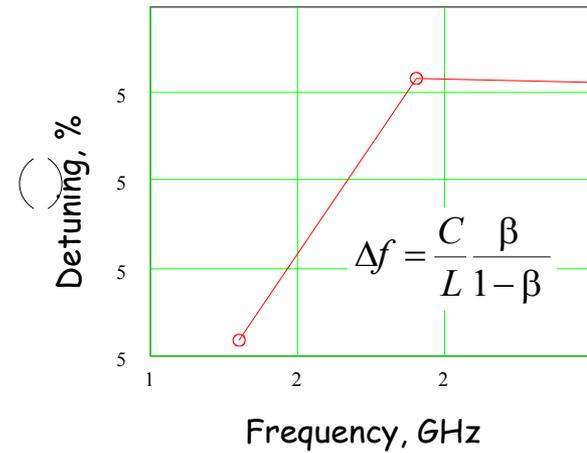


1. PETS active length scaling

For given power and current:



2. PETS switching off

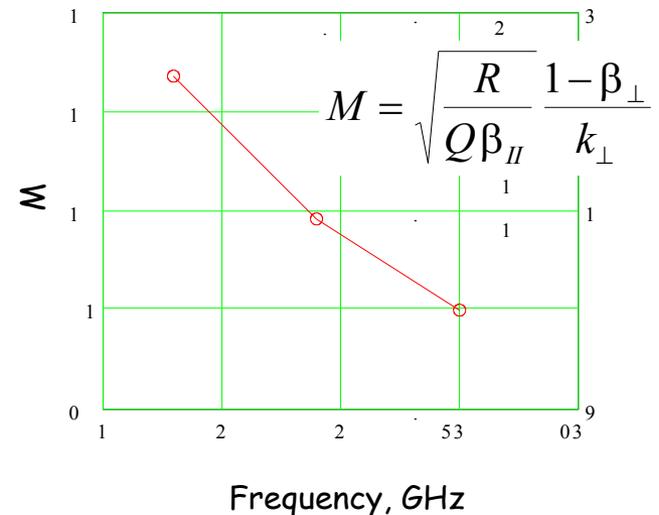


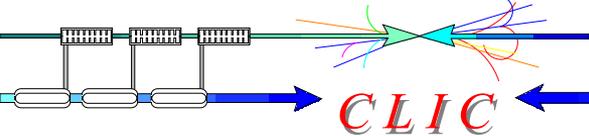
3. Dipole modes

	18 GHz	24 GHz	30 GHz
Freq., GHz	18.643	24.497	30.371
Ph, deg/cell	145	142.9	141.8
Vg/C, %	0.607	0.7522	0.832
$k_{\perp}/(1-\beta)$			
(V/pc/mm/m)	2.375	2.050	1.801

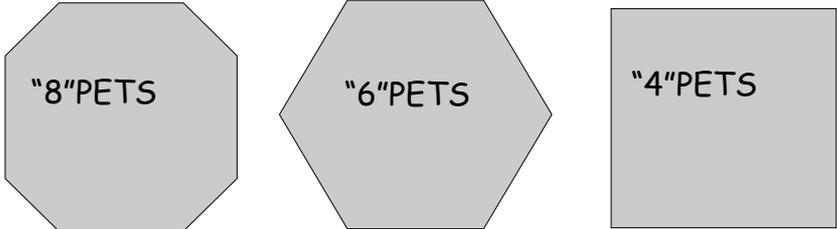
Smaller a/λ favors damping

4. Merits - Power vs. beam stability

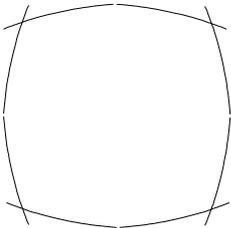


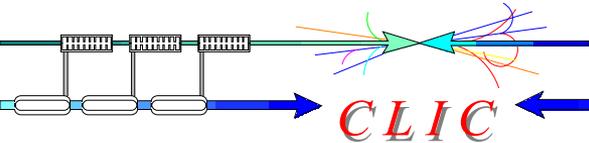


We can revise the PETS cross-section if the frequency have been changed.



Should be re-shaped to reduce surface filed enhancement (a la' HDS)





CLIC

24 GHz

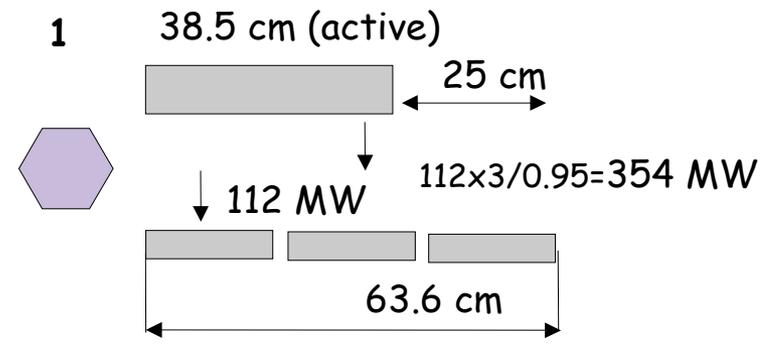
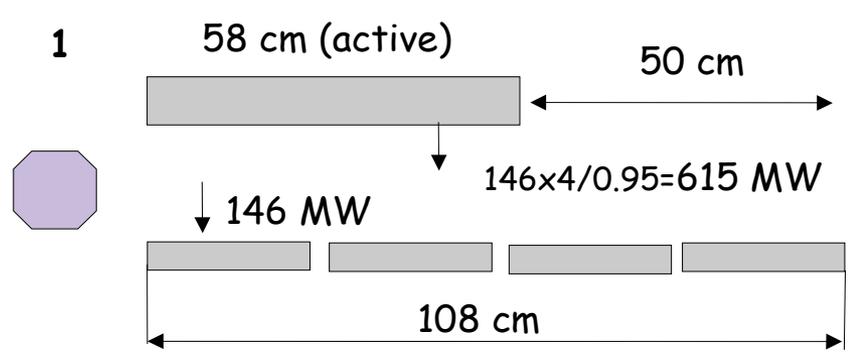
18 GHz

To keep transverse wake amplitude similar to 30 GHz drive beam current is reduced by ~10% **$I_d = 132 \text{ A}$**

To keep transverse wake amplitude similar to 30 GHz drive beam current is reduced by ~24 % **$I_d = 114 \text{ A}$**

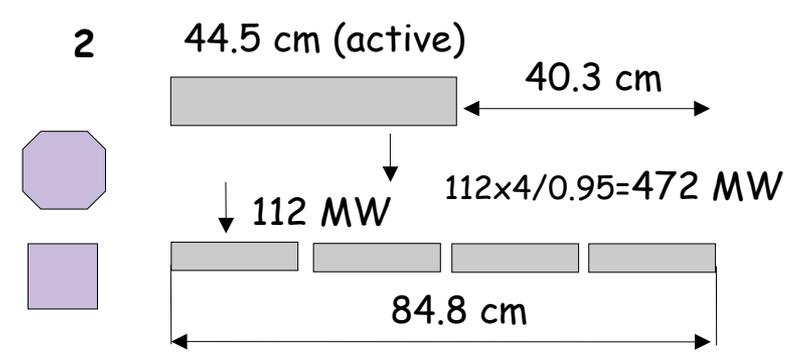
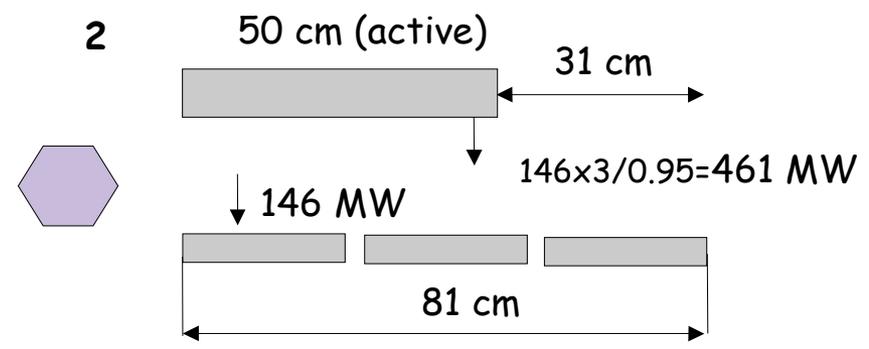
"8"PETS x 8 WG coupler x 4 structures

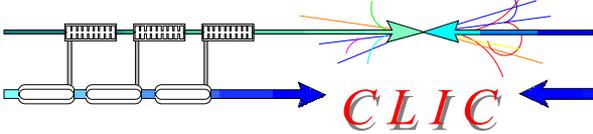
"6"PETS x 6 WG coupler x 3 structures



"6"PETS x 6 WG coupler x 3 structures

"4(8)"PETS x 4(8) WG coupler x 4 structures

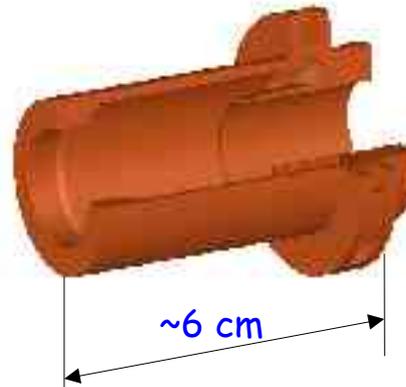




24 GHz

The PETS still remains over-moded, cut-off frequency of the mode TM_{02} is 23.4 GHz. Power extractor can be scaled version of original 30 GHz PETS extractor. Scaled extraction length **7.5 cm**

New (radial) 30 GHz PETS extractor



18 GHz

Single mode operation will allow simplify the extractor. Possible solution could be analogous to that is used for CTF3 PETS, where equivalent aperture at 18 GHz is already 16.7 mm (cf. 22.5 mm). Bringing extraction length to about **2 cm**.