

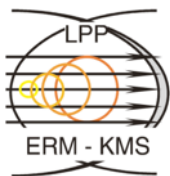


# Status of the WEST Travelling Wave Array antenna design and results from the high power mock-up

(ENR-MFE19.LPP-ERM-KMS-03)

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J.-M. Bernard, G. Lombard, J. Ongena, R. Dumont,  
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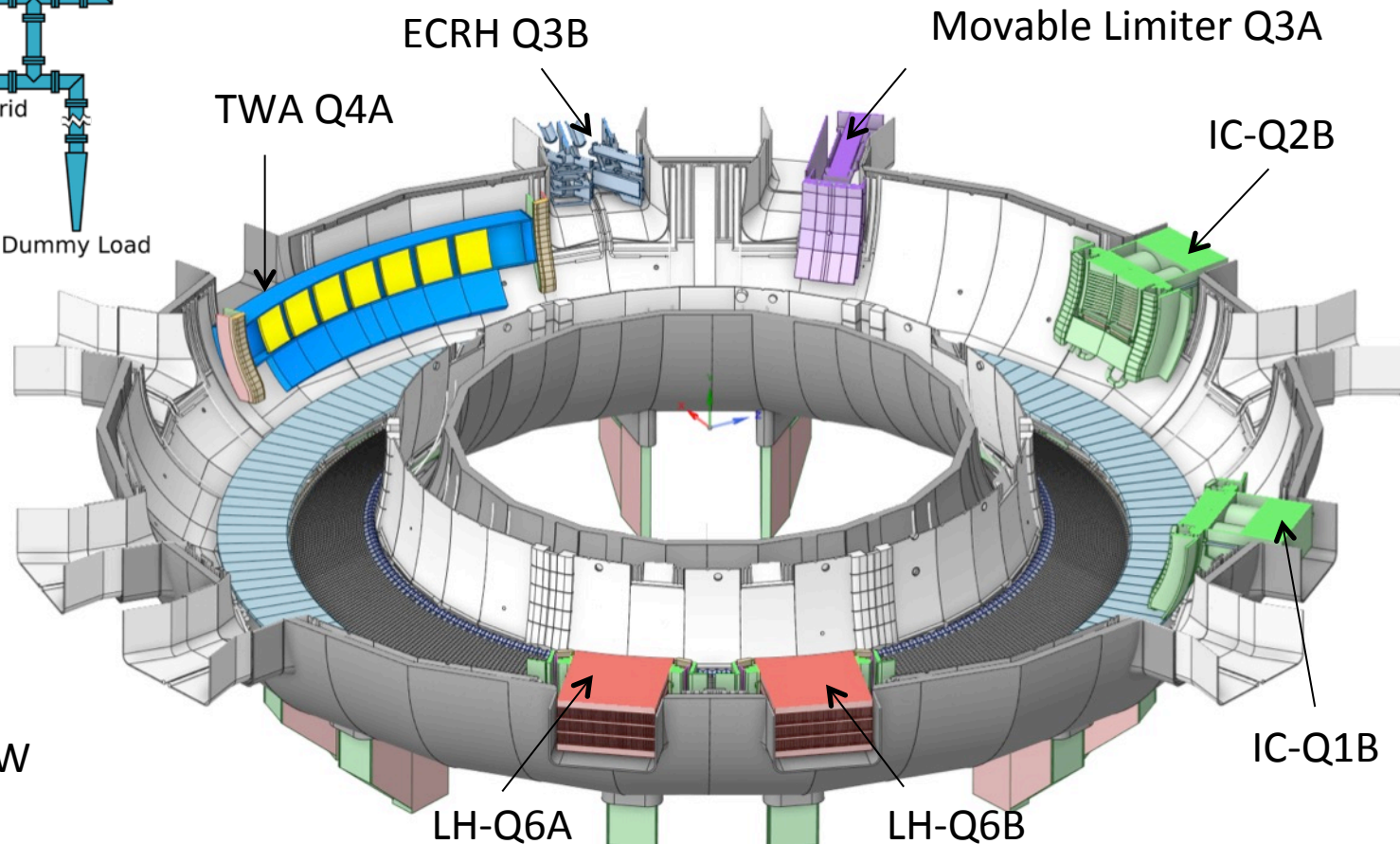
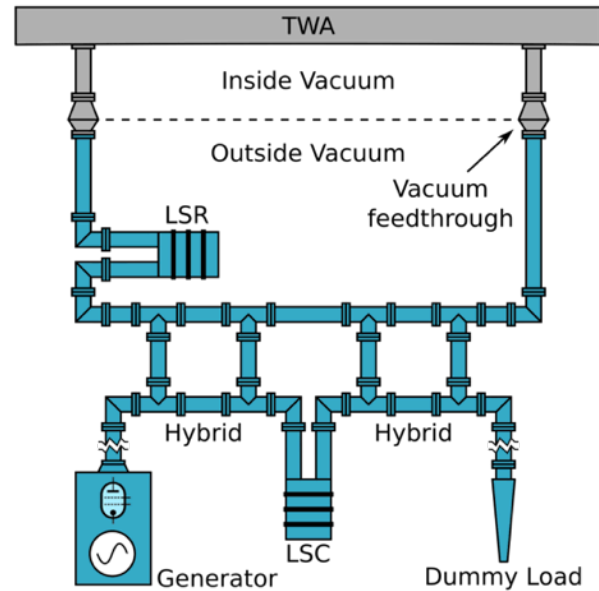
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# TWA on WEST



Two rows separated poloidally:

- 7 straps
- 1.5MW-30s & 0.5MW-1000s
- resonant ring feeding



All elements are in Stainless Steel

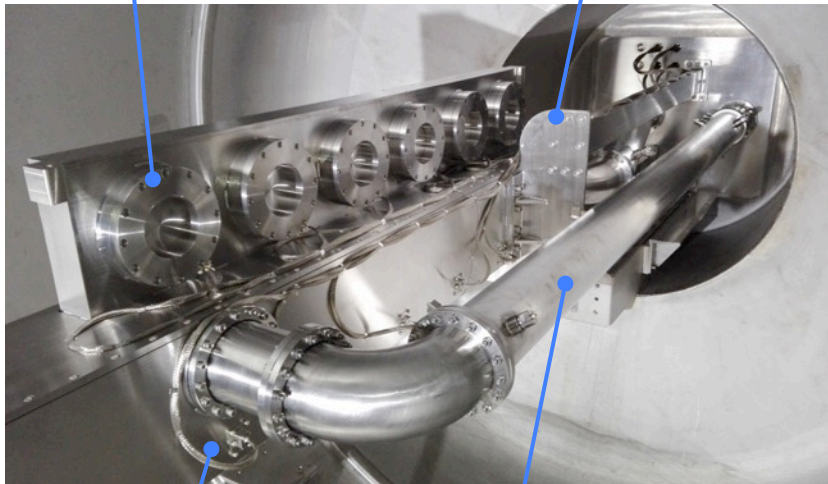
Water cooling for CW operation

# TWA mock-up in TITAN (March 2021)



Trimmers

Main support



strap

capacitor box

tap



current probes

Output coaxial line

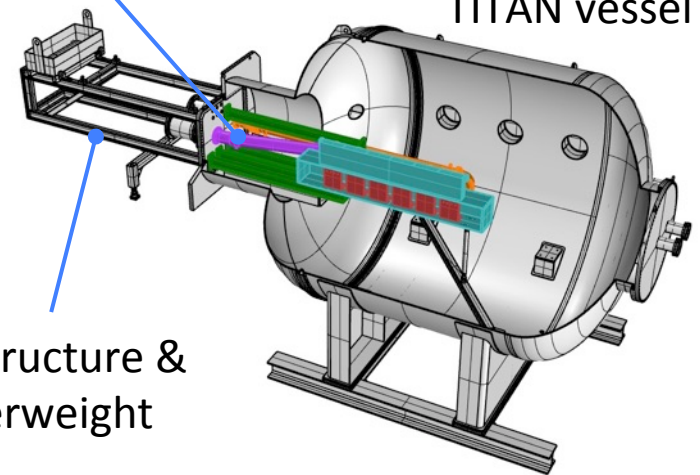
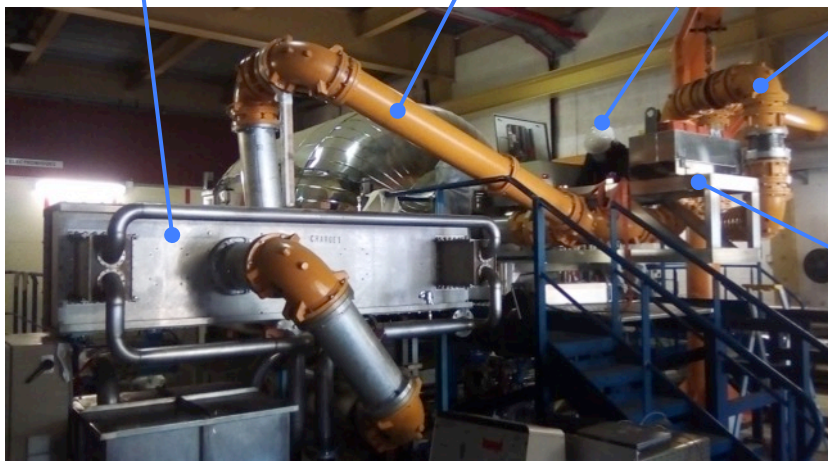
Internal support

2MW Load

Julien

Input coaxial line

TITAN vessel

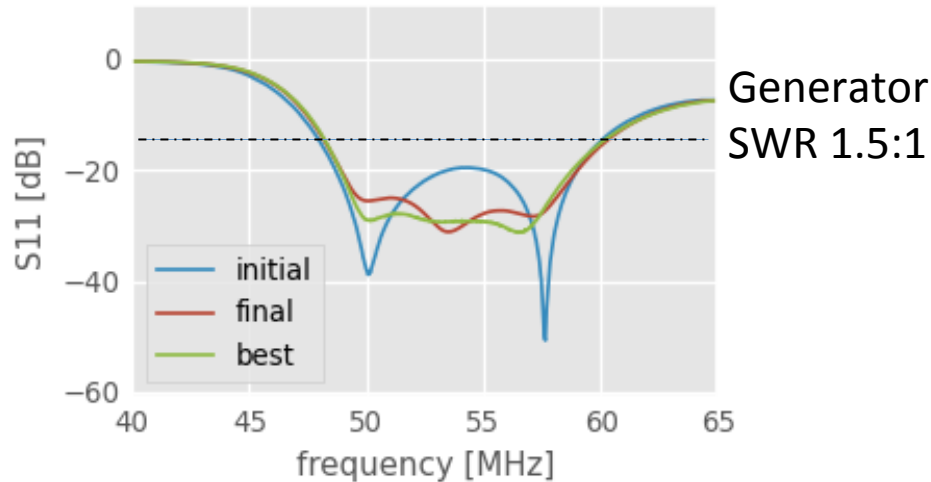


Lifting structure & counterweight

# Preliminary results & next steps



Response tuning



Movable trimmers



Wide band at low SWR

Resilience to thermal and mechanical deformation

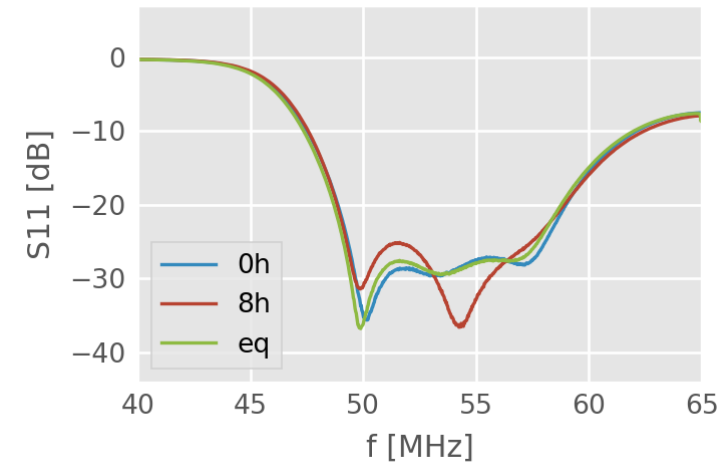
Coax/strap

0h - 21/21 °C

8h - 180/100 °C

eq - 220/220 °C

Measured response during baking



## Next steps:

- RF conditioning
- Voltage stand-off
- High power envelope (2 MW/10 s & 500 kW/120 s)
- Differential deformations (RF losses)