



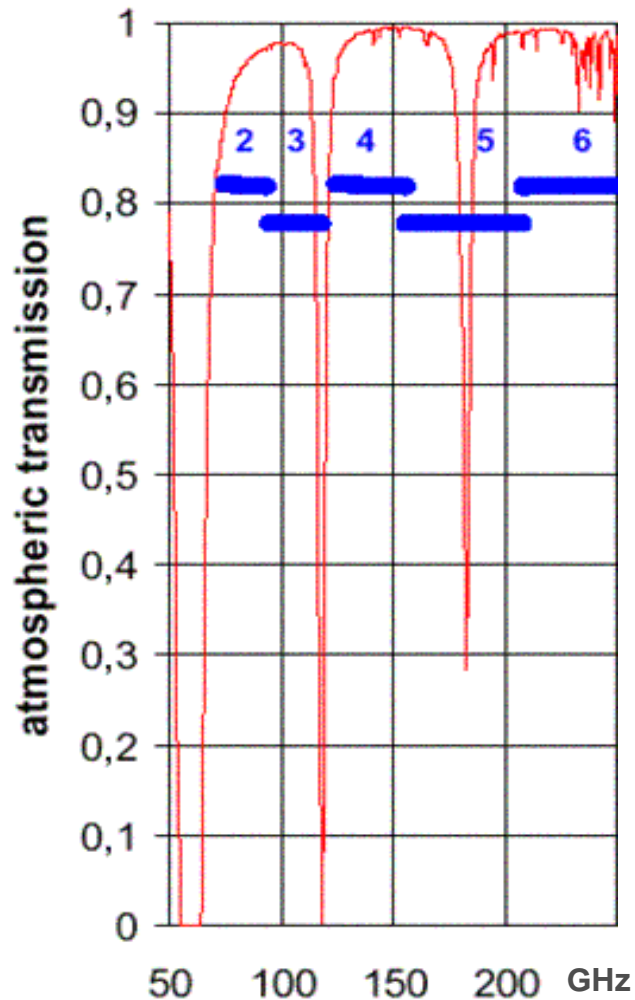
Centro de Astrofísica y Tecnologías Afines



U. Chile Mm-wave Laboratory Contribution to ALMA Band 5

Ricardo Finger

Band 5 Features



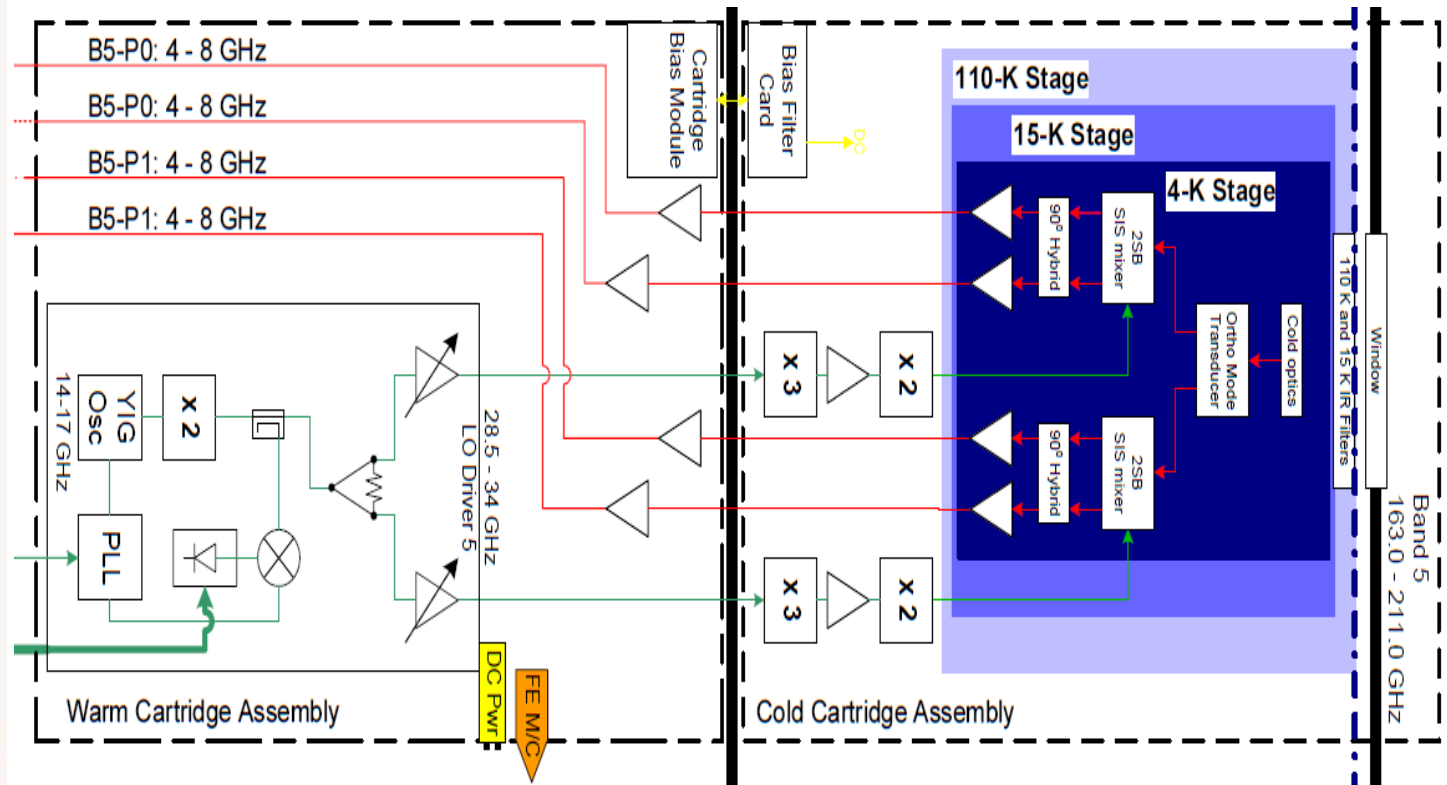
Astronomical drives

- 📡 Planetary atmospheres
- 📡 Water in near-by protoplanetary disks
- 📡 Extragalactic water
- 📡 H₂O masers
- 📡 C⁺ and CO in high redshift quasars
- 📡 high-redshift lines

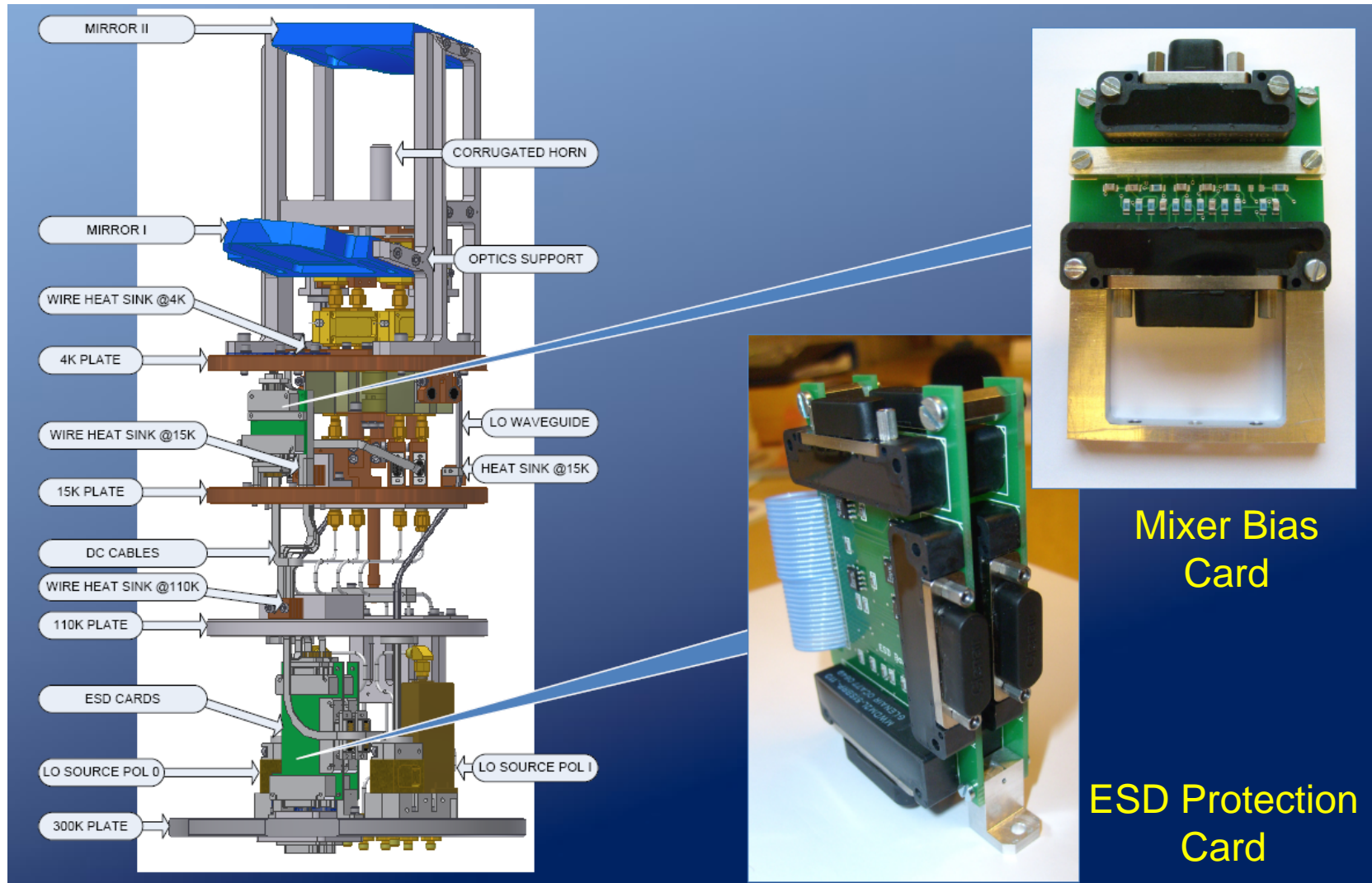
ALMA Band 5 Receiver



Fabricated at **Chalmers University Group** for **Advance Receiver Development (GARD)**



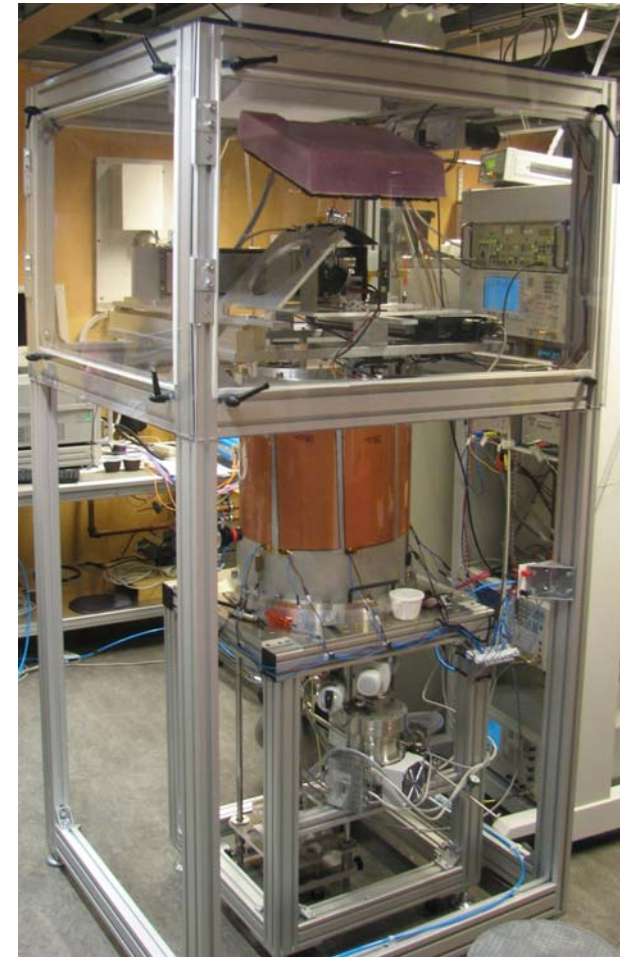
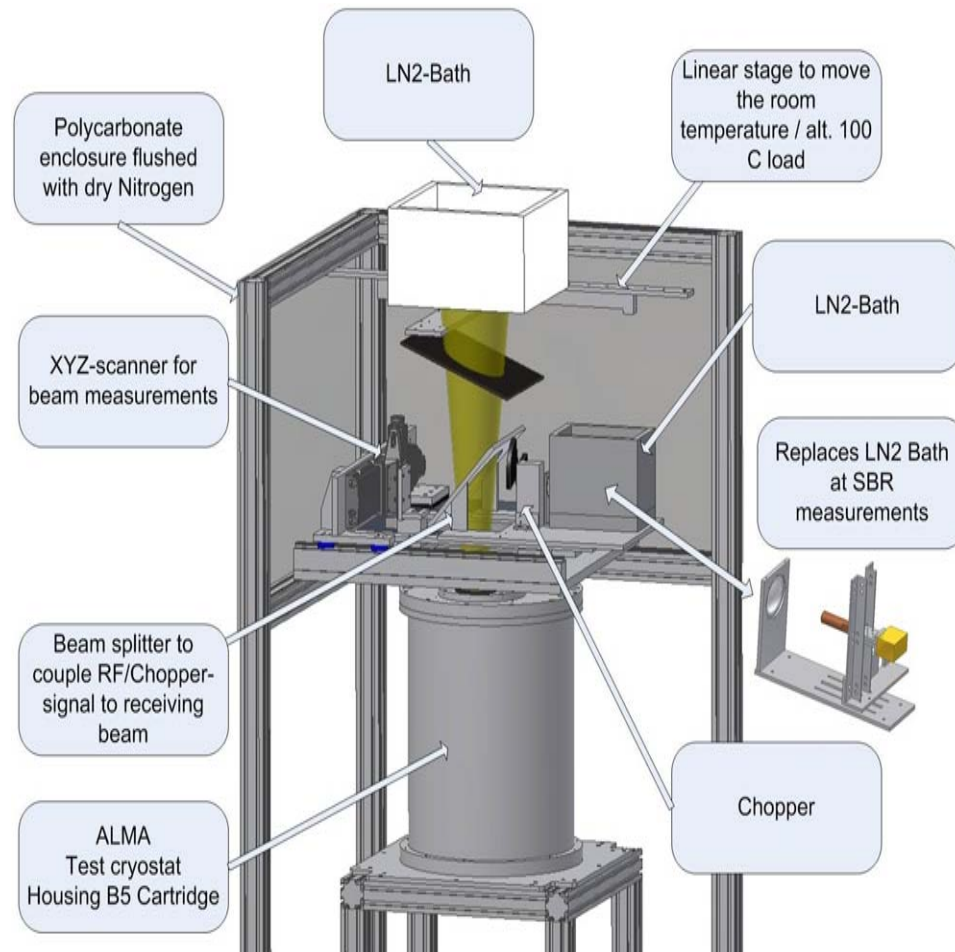
What we have done



What we have done



We helped with the construction of the automatic measurement test set up

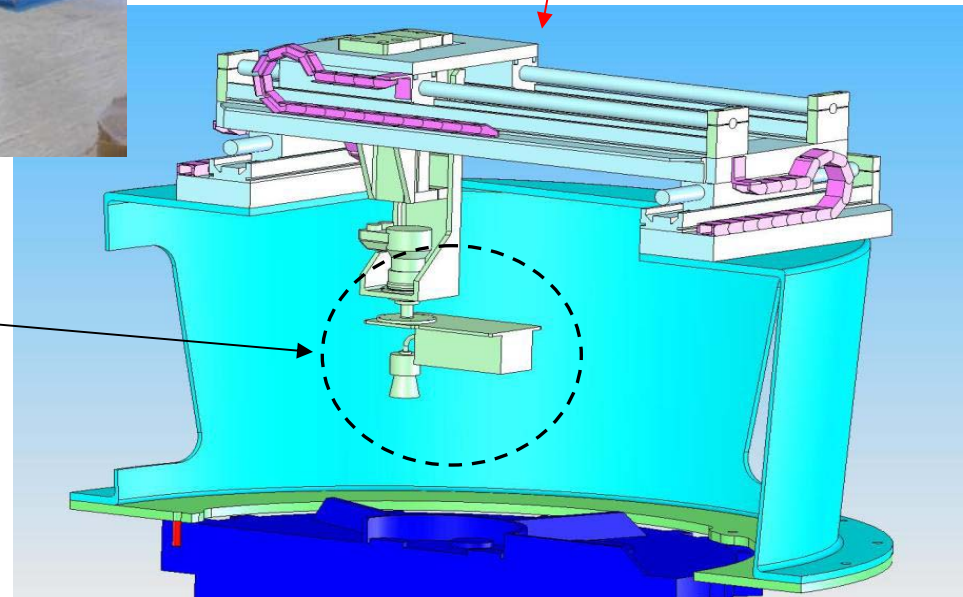


What we are doing



Tilt Table

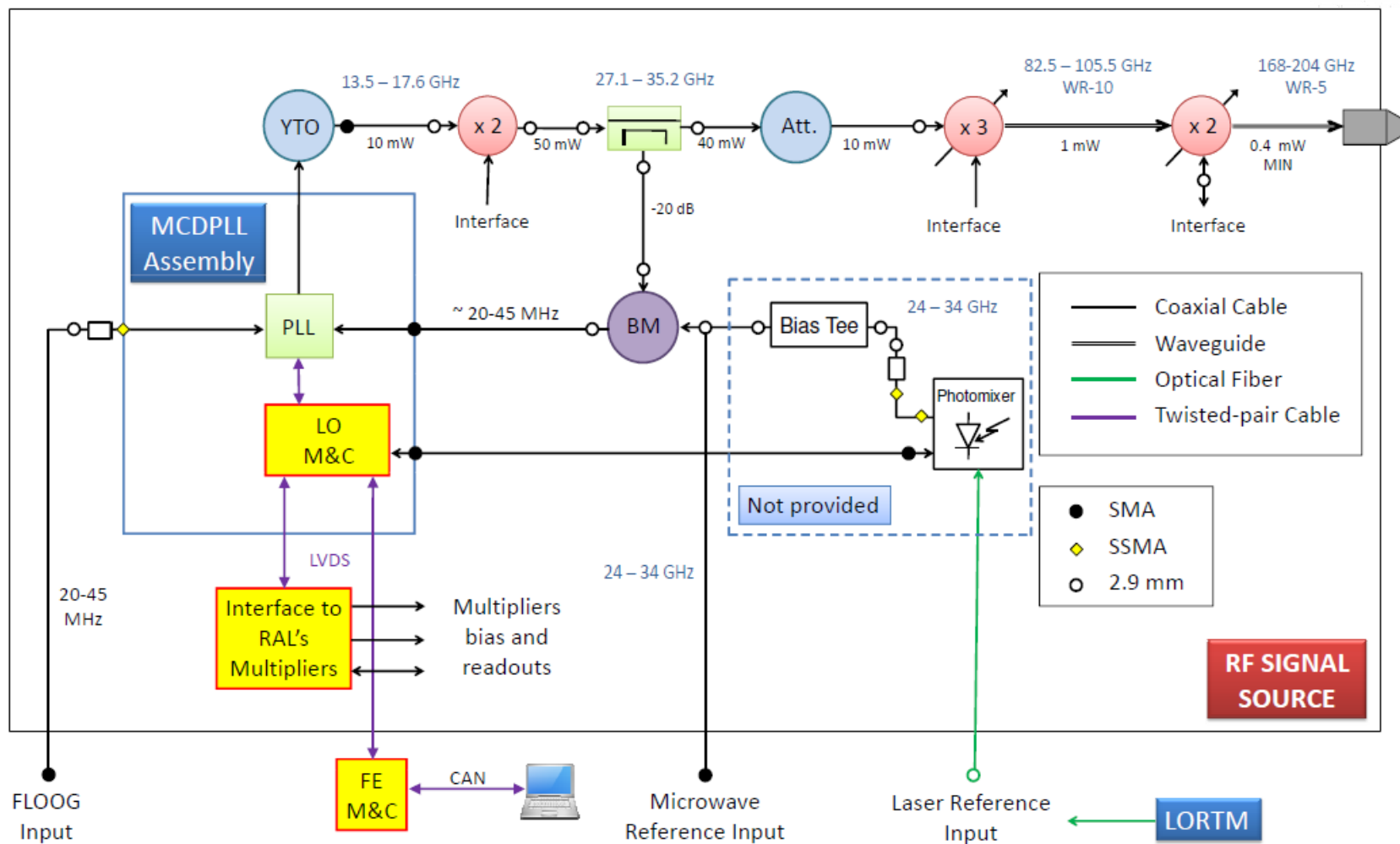
ALMA Front End
Beam Scanner



BeaSTS

*(We are building the
Beam Scanner Test
Source)*

What we are doing



What we are doing



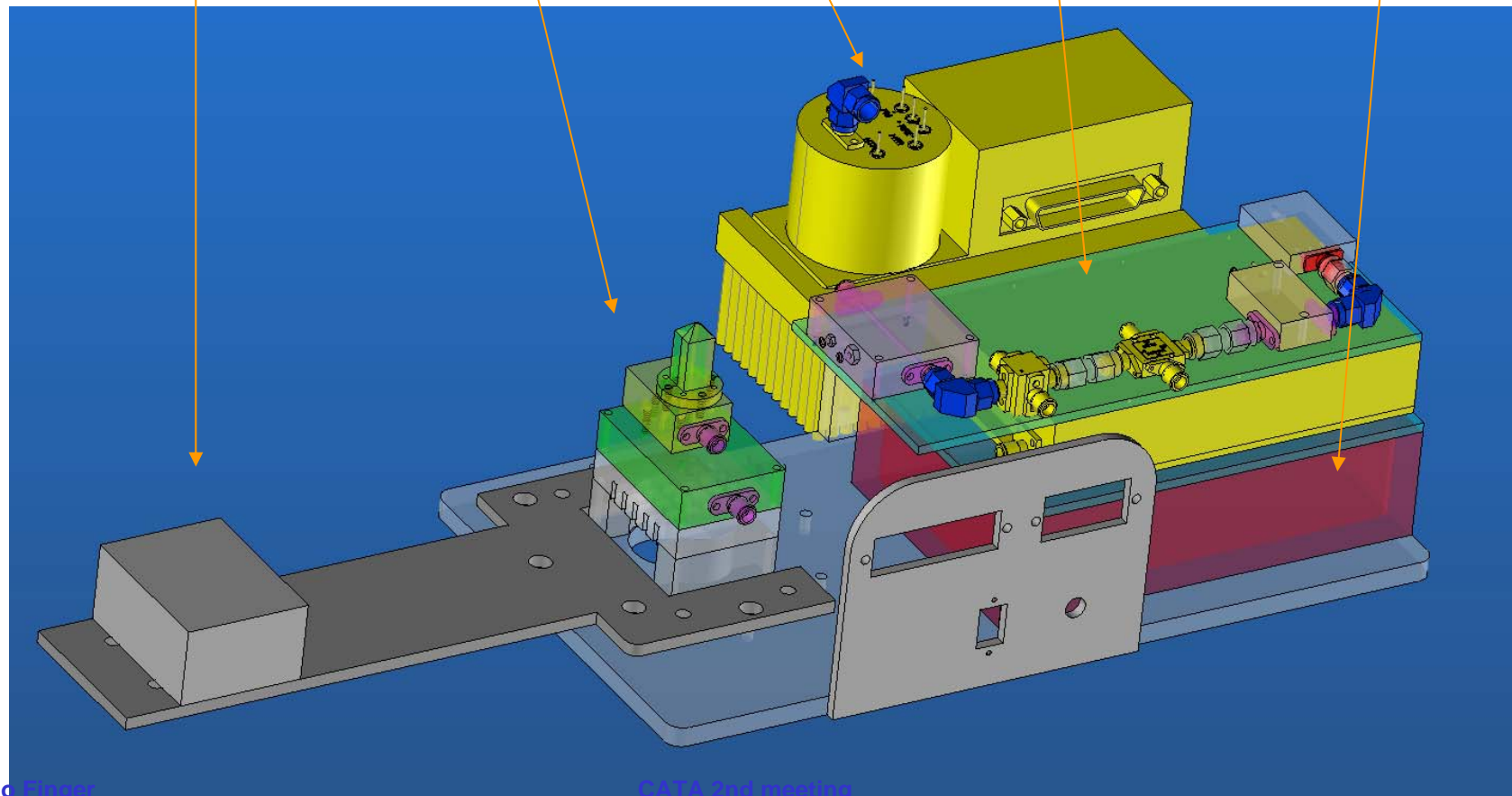
Counterweight

mm-wave
Assembly

YIG
oscillator

Microwave
plate

PLL and Bias
Interface

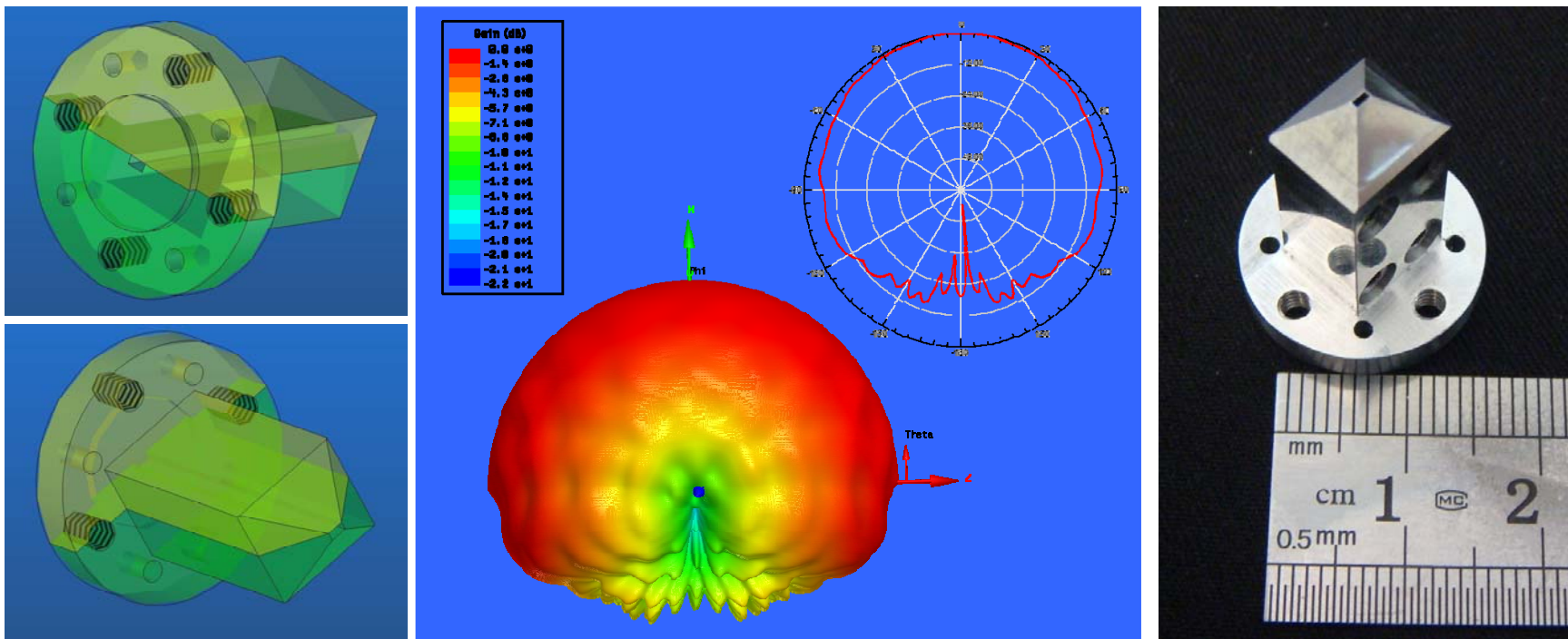


What we are doing



RF Open ended waveguide probe design and construction:

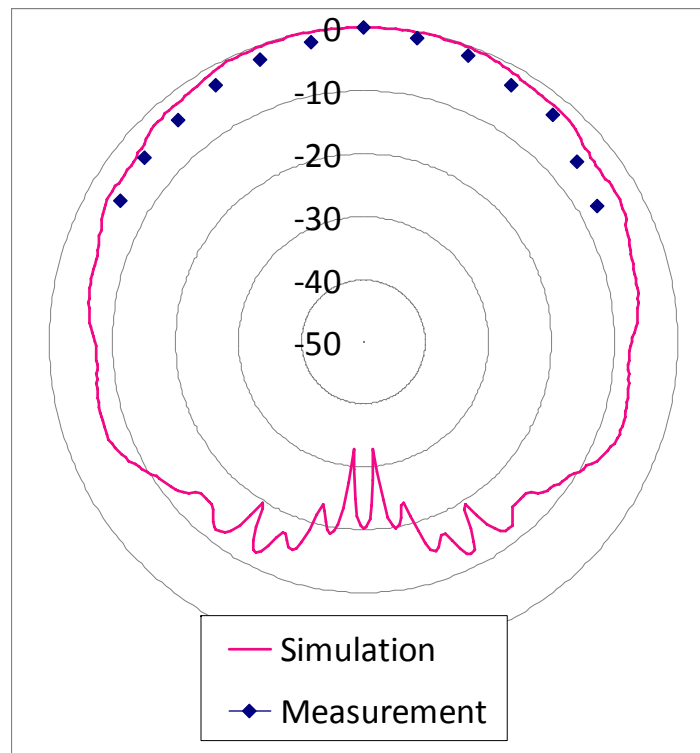
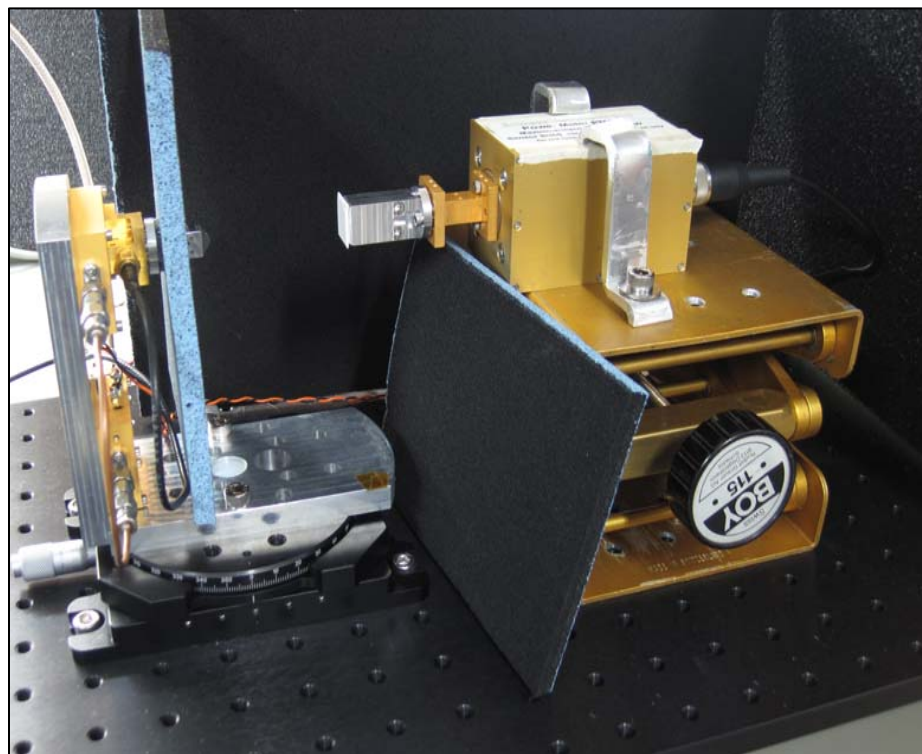
The probe beam pattern has to be very isotropic in order to allow to sample the cartridge beam pattern at any angle.



What we are doing



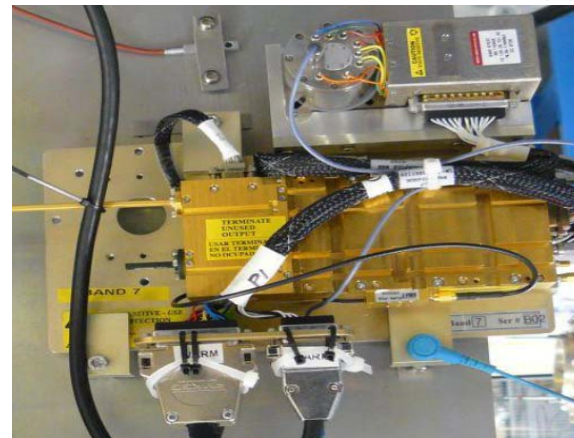
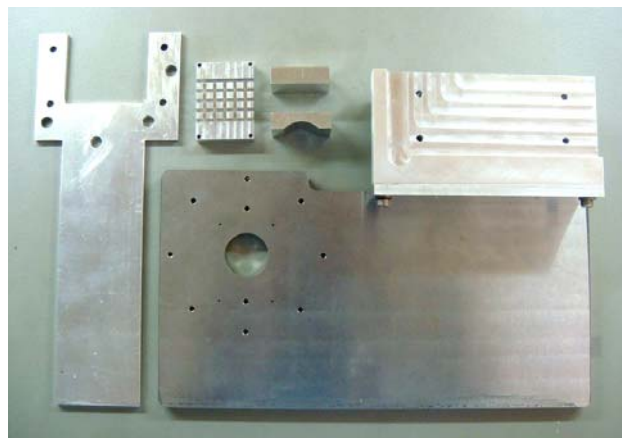
RF Probe Beam pattern measurements



Future work



Assembly and
final tests at the
Mm-wave Lab



Installation of the
source at the Eu-FEIC
on Rutherford Appleton
Laboratory (UK)

Help with the
verification of the
cartridges





Prototype ALMA Band 5 Cartridge: Design and Performance

V. Belitsky, I. Lapkin, B. Billade, E. Sundin, A. Pavolotsky, D. Meledin, V. Desmaris,
M. Strandberg, R. Finger, O. Nyström, M. Fredrixon, S.-E. Ferm, H. Rashid, D. Henke

Integrated Setup for THz Receiver Characterization

O. Nyström^{1,*}, H. Rashid¹, B. Billade¹, E. Sundin¹, M. Fredrixson¹, G. Johnsen¹, I. Lapkin¹, D. Meledin¹, M. Strandberg¹,
R. Finger², A. Pavolotsky¹, V. Desmaris¹, and V. Belitsky¹

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