



HIGH ALTITUDE TERAHERTZ SOLAR TELESCOPE (HATS)

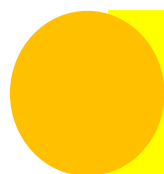
Tiago Giorgetti

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São Paulo, 25 de outubro de 2019



Universidade Presbiteriana
Mackenzie

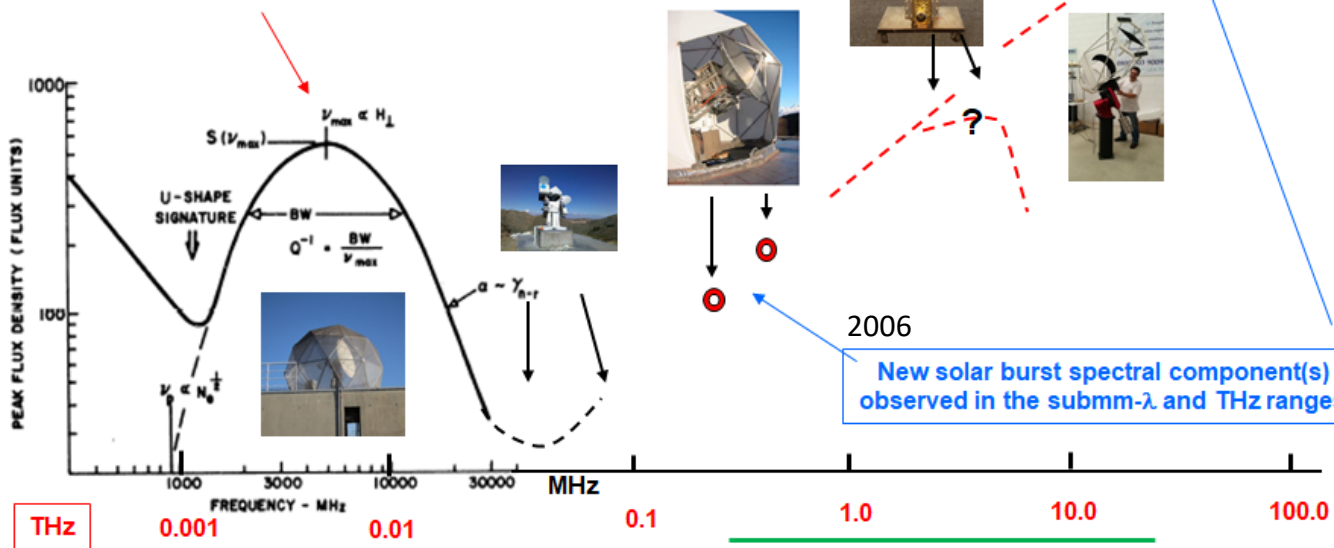


MOTIVAÇÃO

INDICATION OF ANOTHER SOLAR BURST CONTINUUM SPECTRUM IN THz

CRAA

U-shaped spectrum (Castelli 1972)
Assumed as typical and common to all bursts



Kaufmann et al. (2004; 2009) Luethi et al. 2004; Trotter et al. 2008; 2011); Silva et al. 2007; Raulin et al. (2003; 2004; 2014)



SUN-TERAHERTZ onboard ISS
0.2 – 15 THz

OBSERVATIONS IN THE THz RANGE ARE NEEDED TO UNDERSTAND THE EMISSION MECHANISMS INVOLVED



LOCALIZAÇÃO

**Observatório Astronômico
Félix Aguilar (OAFa)**

Elev. \approx 2500 m



LOCALIZAÇÃO

Observatório Astronômico Félix Aguilar (OAF)

Elev. \approx 2500 m

Lat.: -31,802017

Lon.: -69,324172



LOCALIZAÇÃO

Observatório Astronômico Félix Aguilar (OAFA)

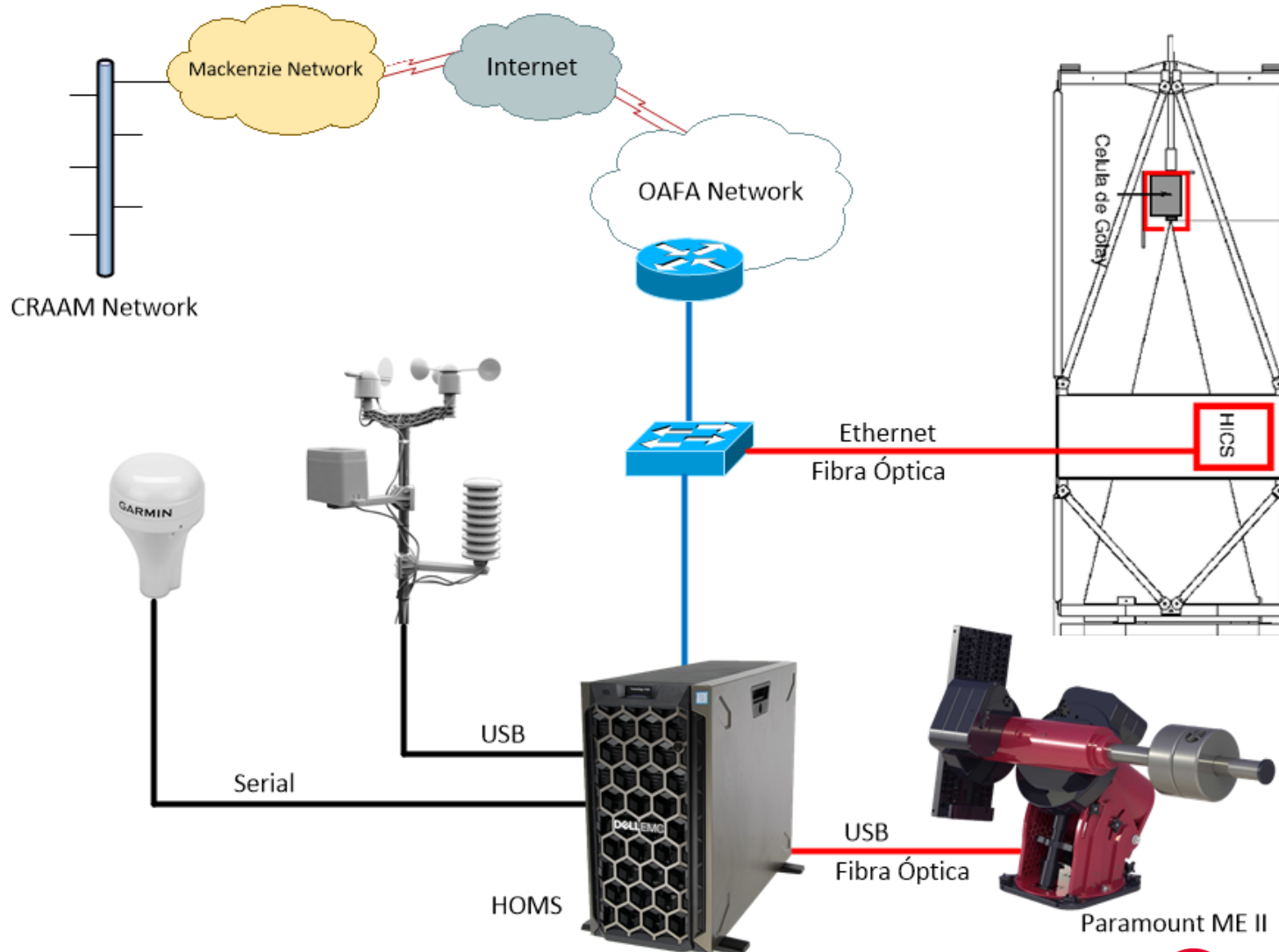
Elev. \approx 2500 m

Lat.: -31,802017

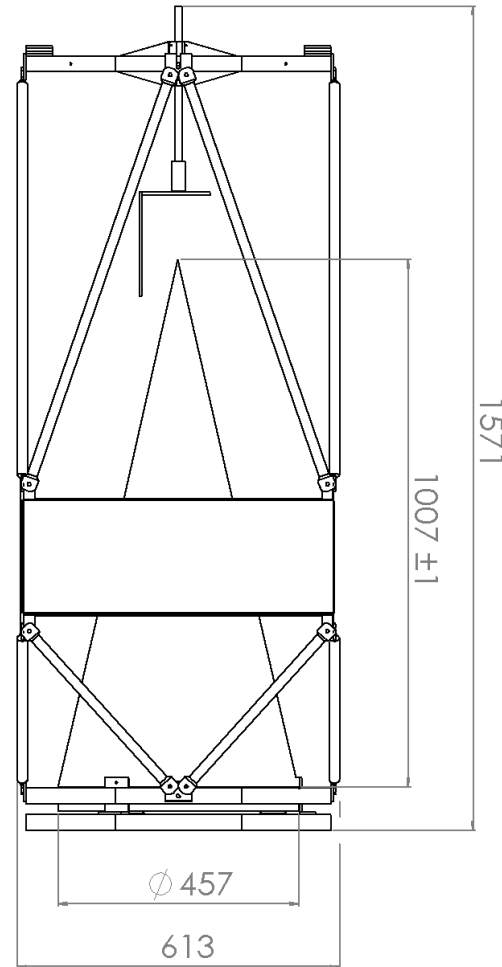
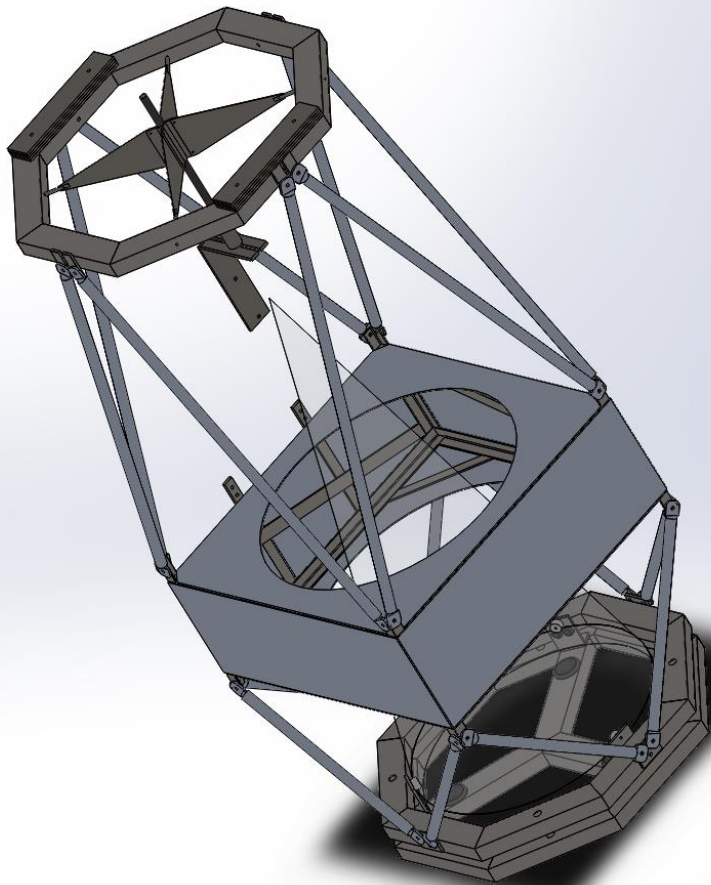
Lon.: -69,324172



SUB-SISTEMAS

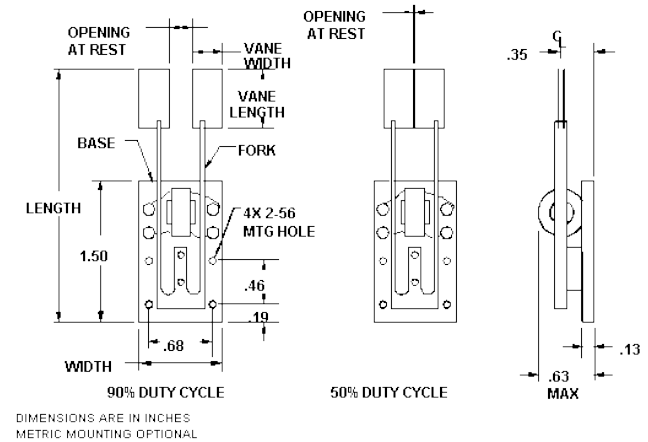
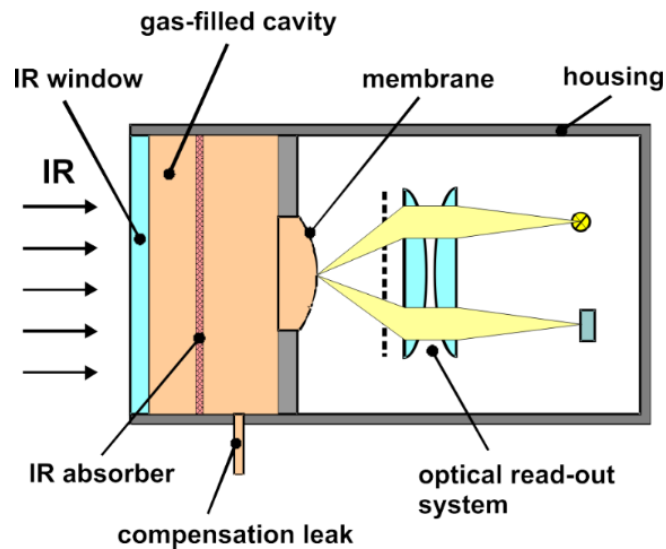
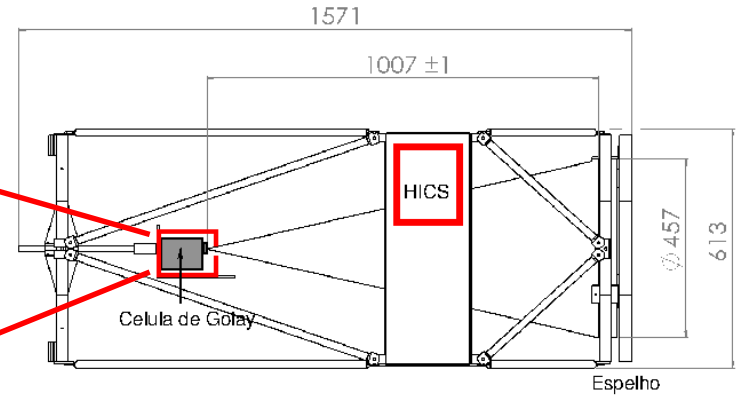
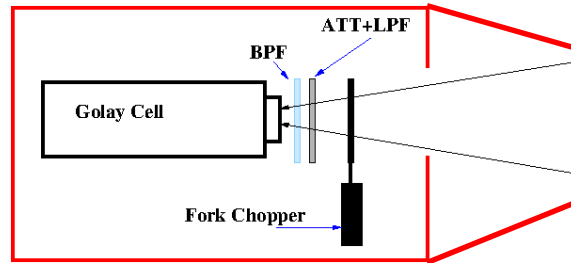


SUB-SISTEMAS: Telescópio

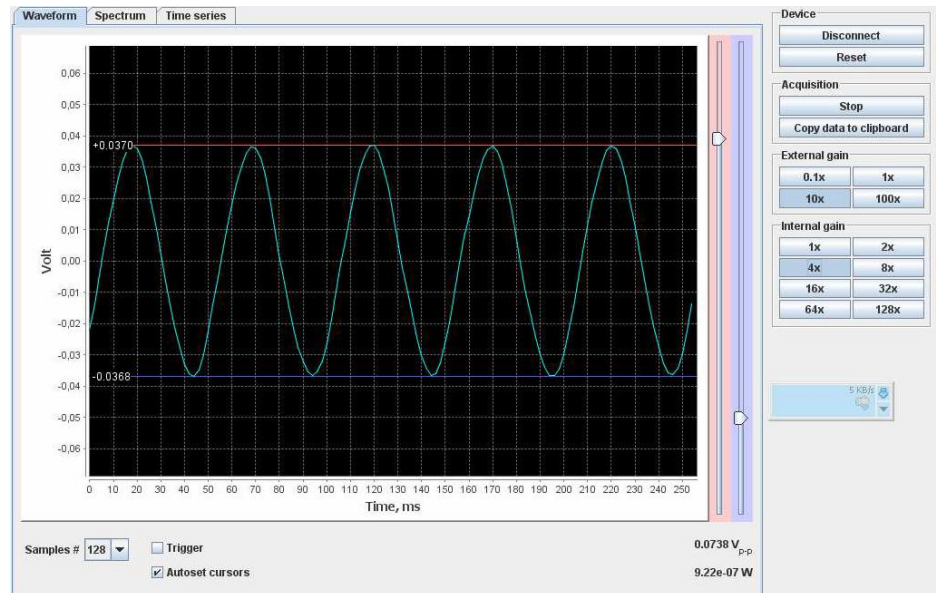
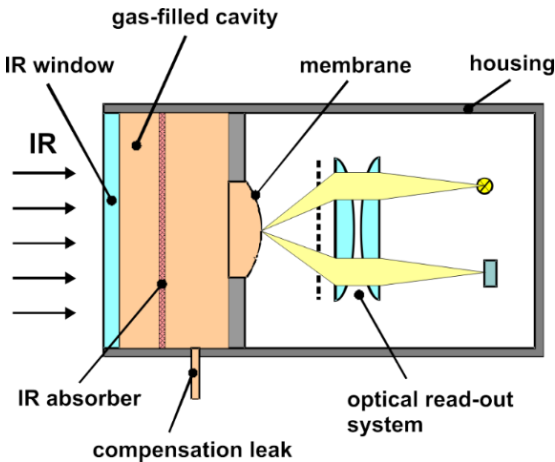
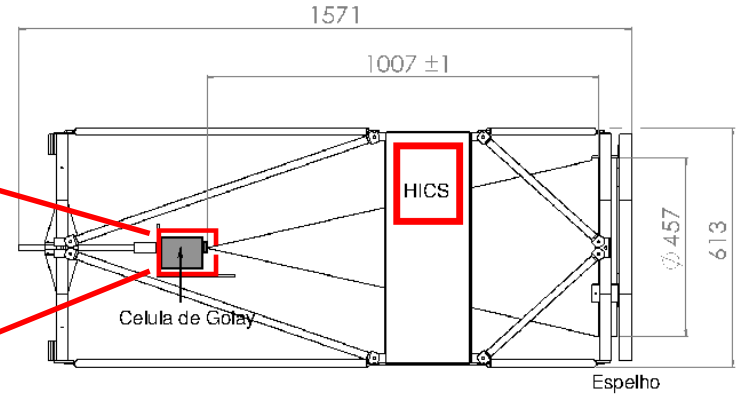
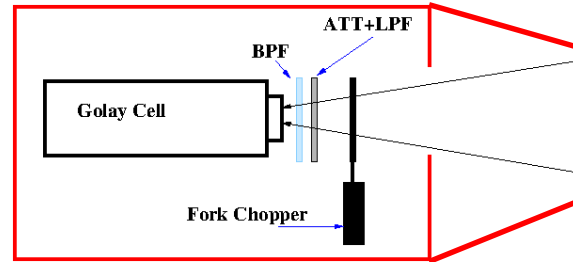


Objetiva: 457mm
Dist. Focal: 1007mm
Imagem: 9,4mm
Ra: 0,819 μ m

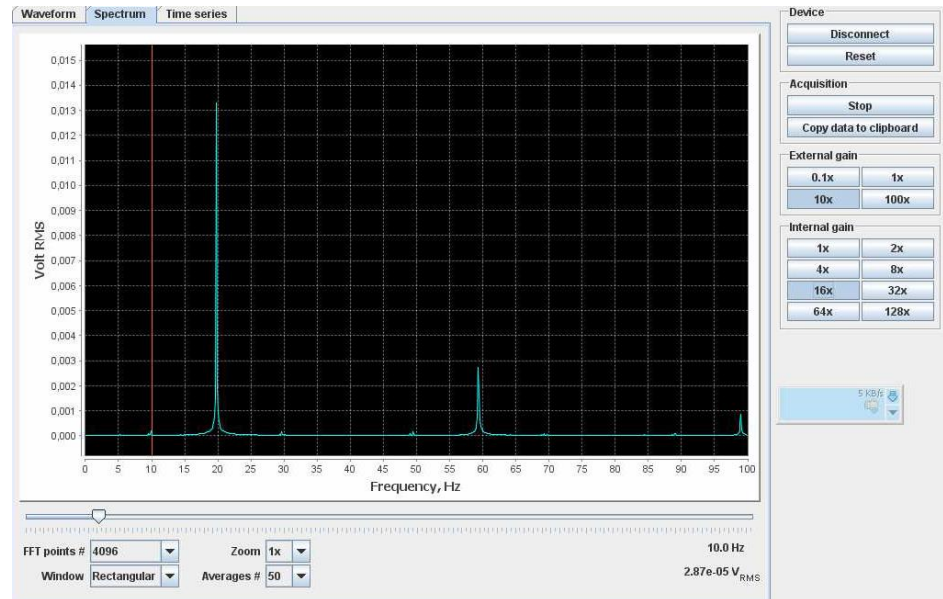
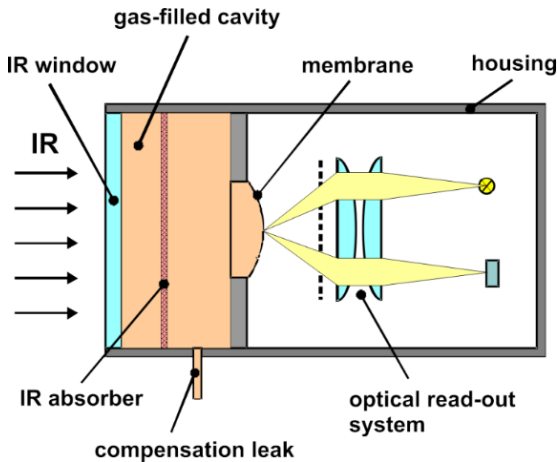
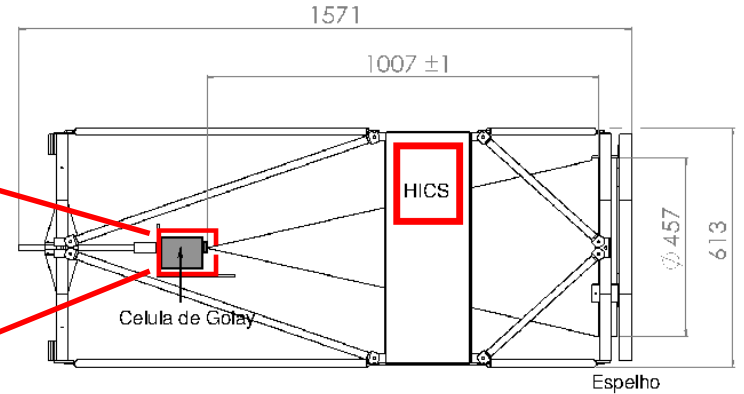
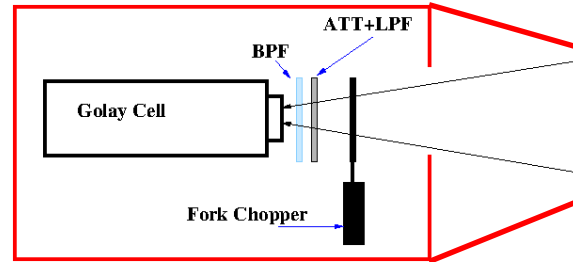
SUB-SISTEMAS: Detector



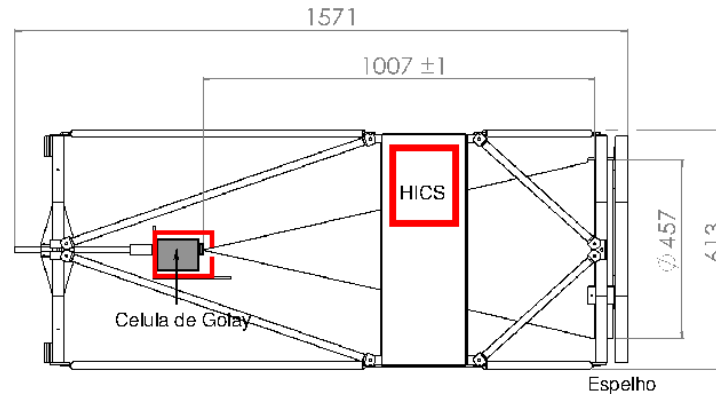
SUB-SISTEMAS: Detector



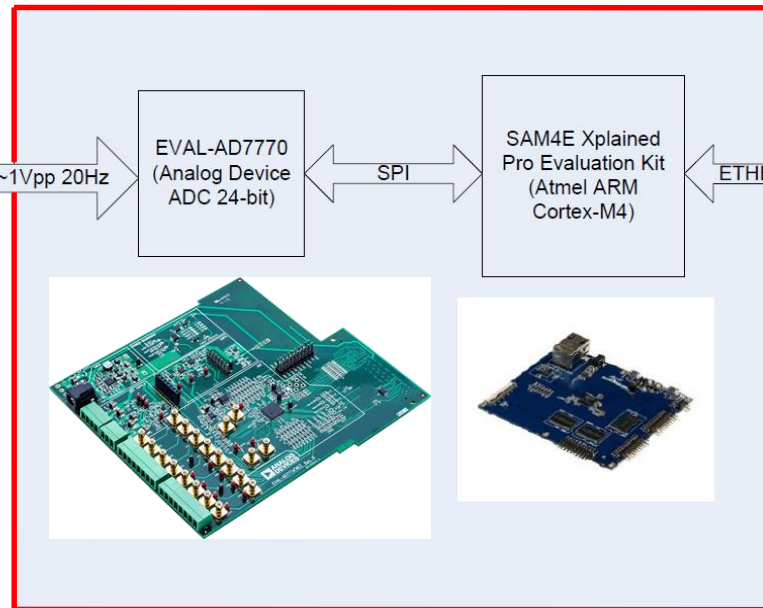
SUB-SISTEMAS: Detector



SUB-SISTEMAS: Aquisição



TYDEX – Golay Cell



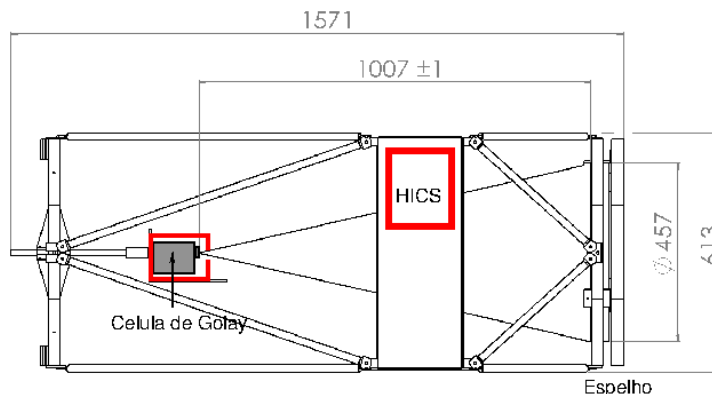
HOMS - HATS Operation, Monitoring & Storage

HICS – HATS Interface and Control System

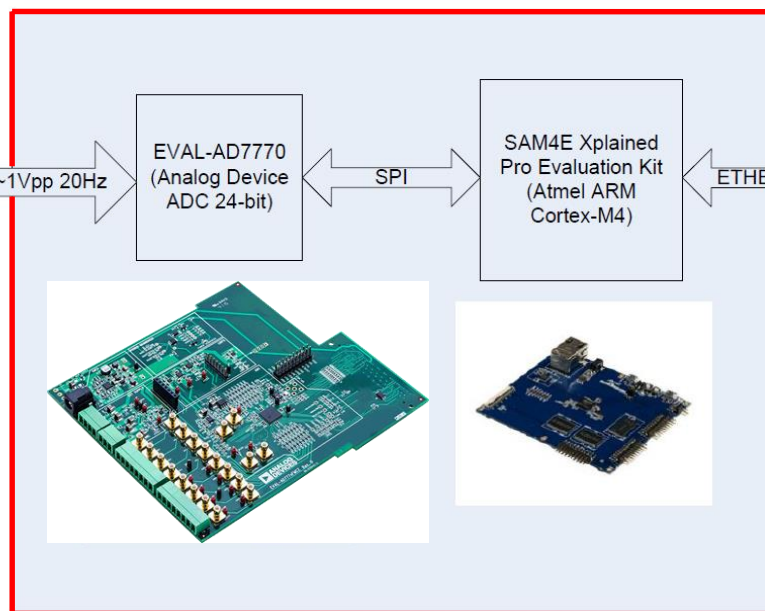
SUB-SISTEMAS: Aquisição

Conversor A/D

- Resolução: 24-bit
- Conversão simultânea de 8 canais
- Amplificador de ganho programável 1, 2, 4 e 8x (PGA)
- Tensão referência 2,5V alta precisão e baixo ruído
- Taxa de amostragem de 32 KSPS
- Range Dinâmico de 103 dB
- Distorção harmônica total -109 dB



TYDEX – Golay Cell



HOMS - HATS Operation, Monitoring & Storage

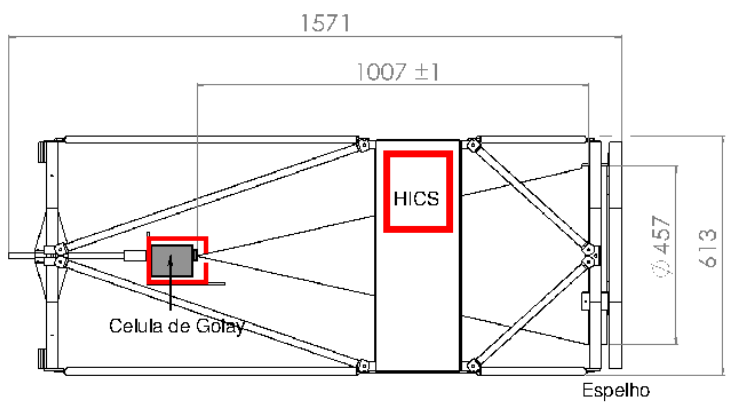
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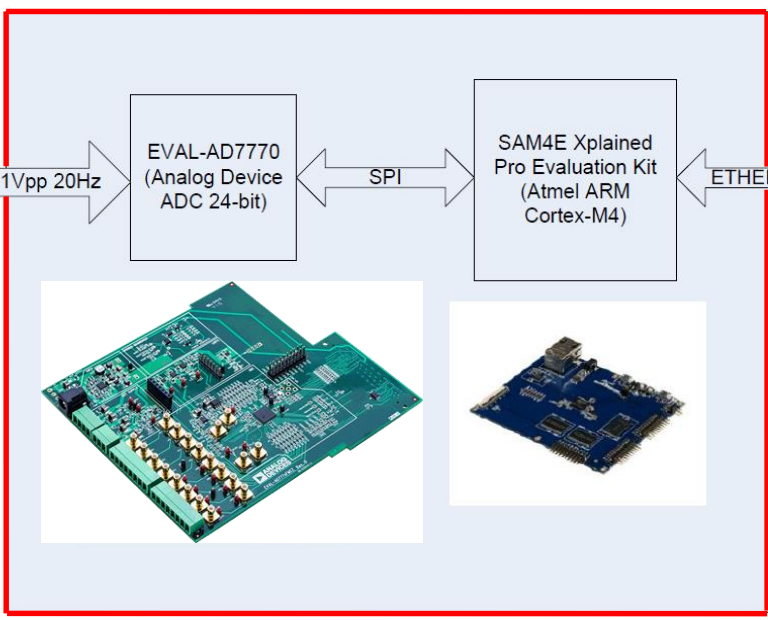
SUB-SISTEMAS: Aquisição

Microcontrolador

- 32-bit ARM Cortex M4 RISC Artmel ATSAM4E16E
- Unidade de ponto flutuante (FPU)
- Instrução DSP
- Cache 2 KB a 120MHz
- Memória SRAM de 128KB
- Interface Ethernet 10/100-Base-T
- Interface USB
- Interface SPI



TYDEX – Golay Cell



HOMS - HATS Operation, Monitoring & Storage

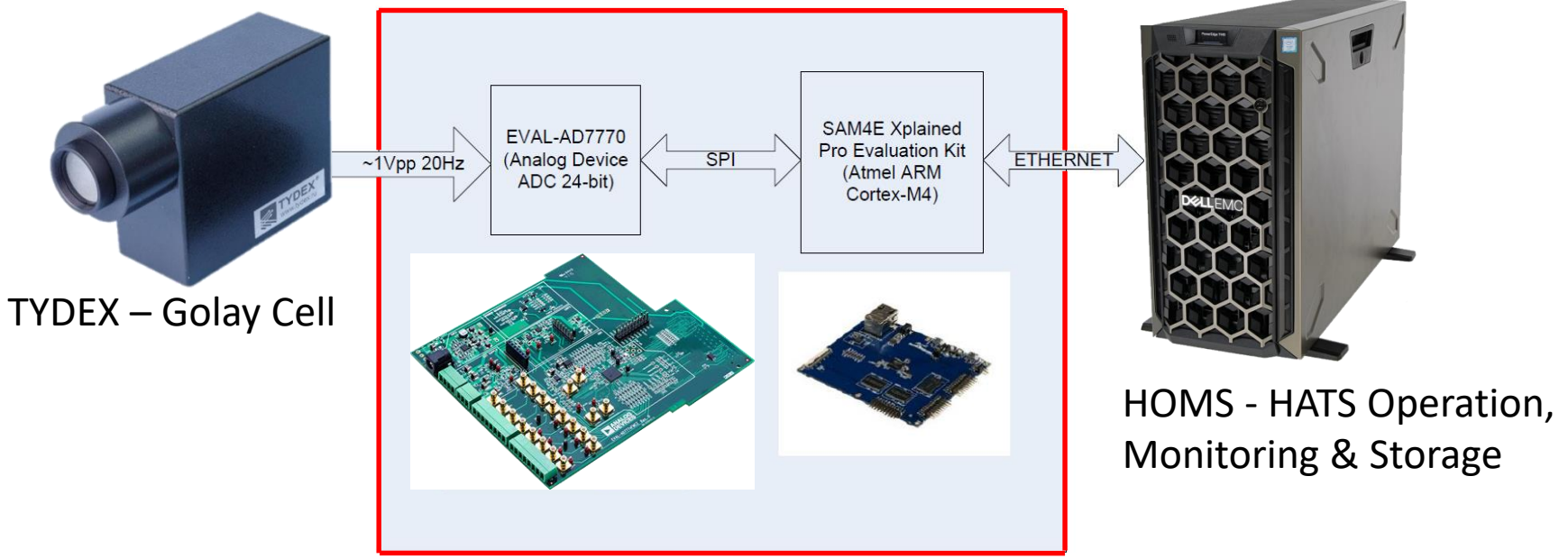
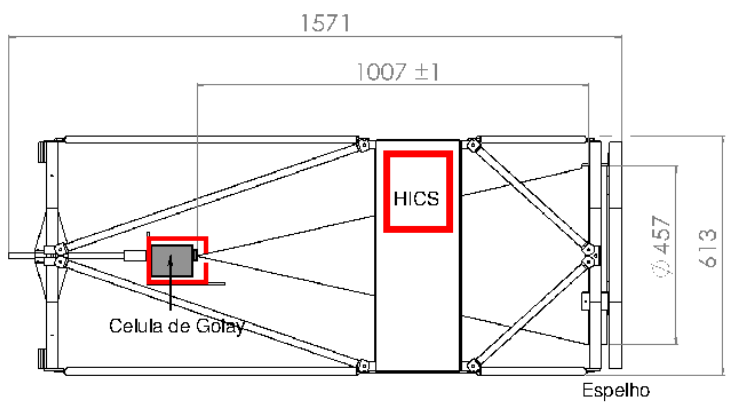
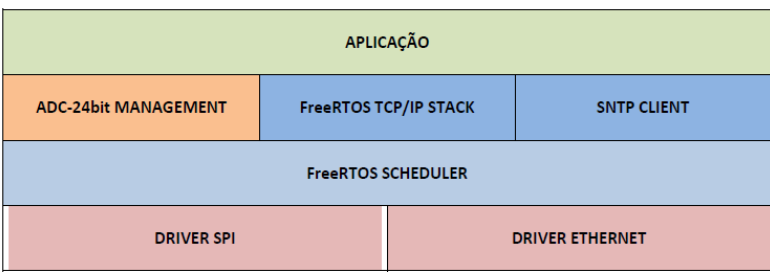
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SUB-SISTEMAS: Aquisição

Arquitetura

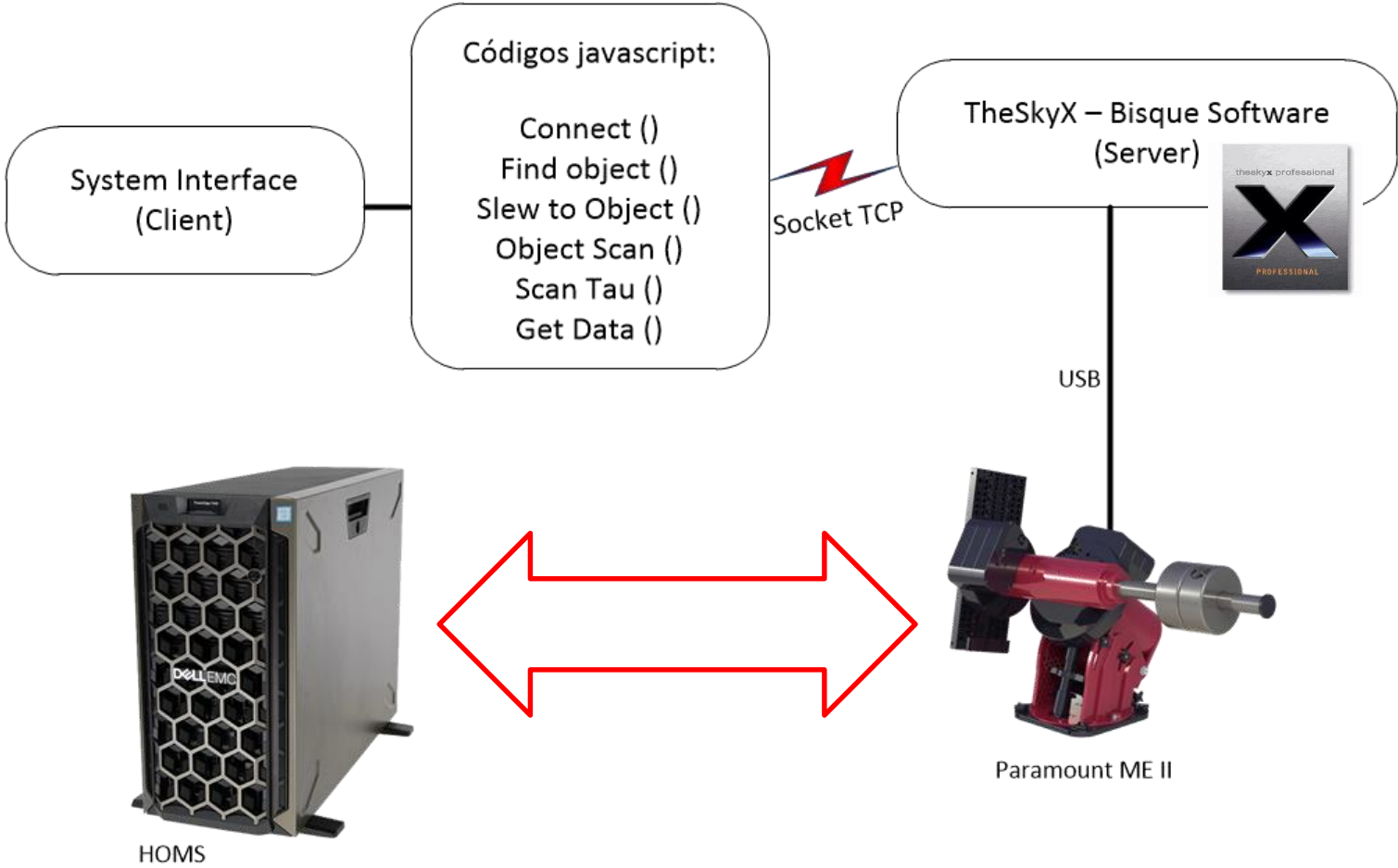


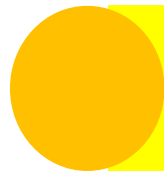
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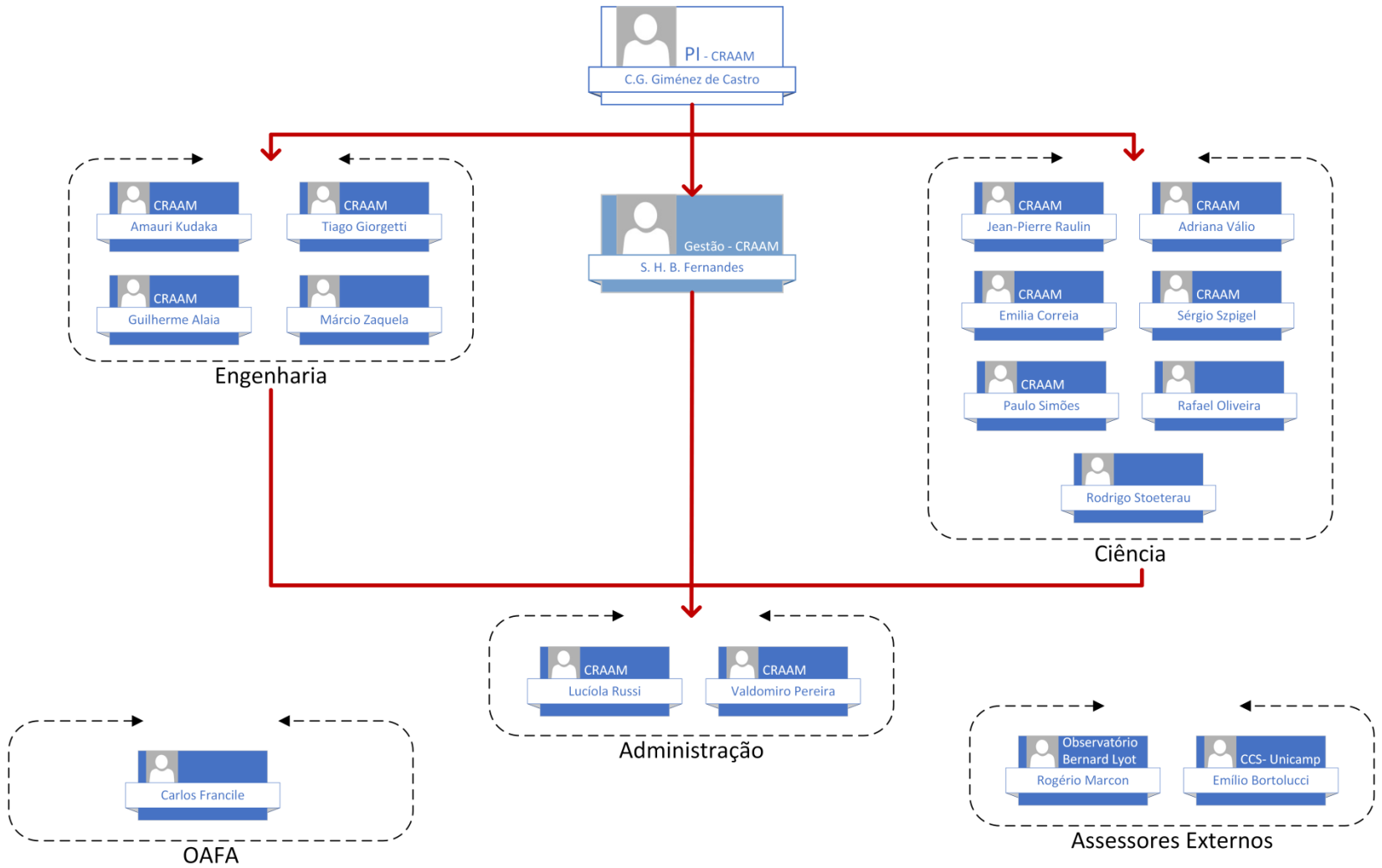


SUB-SISTEMAS: Apontamento





EQUIPE



CRONOGRAMA: Próx. etapas



Obrigado!

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