EPIC Online Technology meeting on Photonics for New Space

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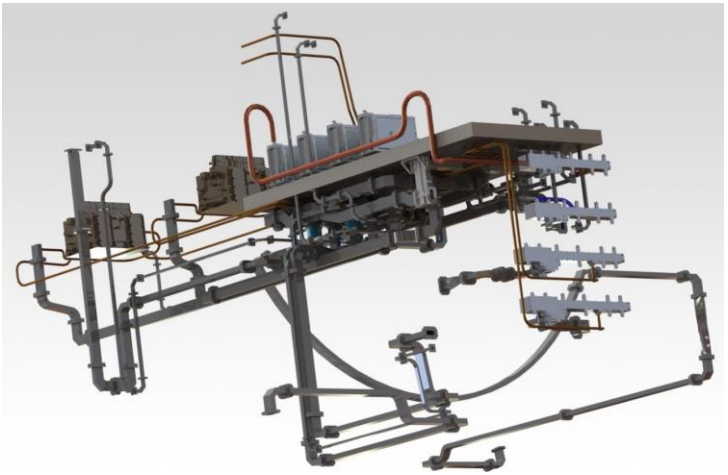
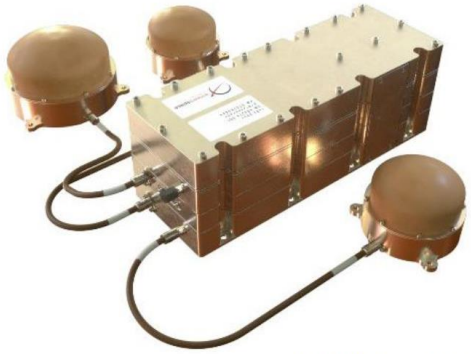
Antwerp Space: Space communication: Recent achievements

JUICE Com Subsystems



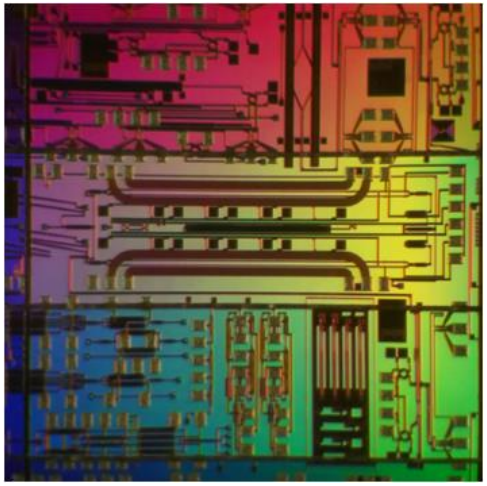
Very compact Radio-Science coherent transponder instrument to Land on Mars's surface (ExoMars 2020 mission)



Model of the LaRa instrument

This is the rationale to consider Photonic Integration Technology (PIC) for communication satellites

From 2015: Photonics



Feb 2020: Integrated Software-defined radio modem on ISS

Antwerp Space uses of photonics in Spaceborn applications

Core element of Laser communication terminals

Credit: Mynaric
https://Mynaric.com/products/air/

Satellite Beam Steering Antennas

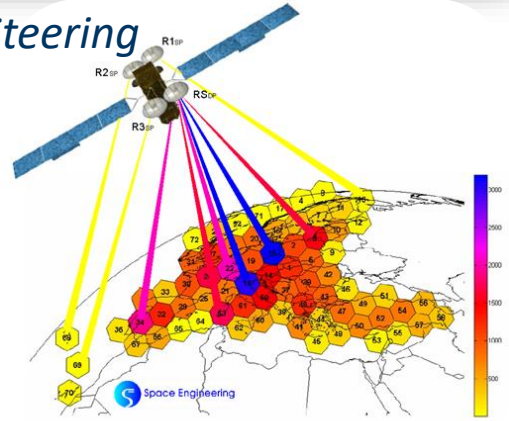
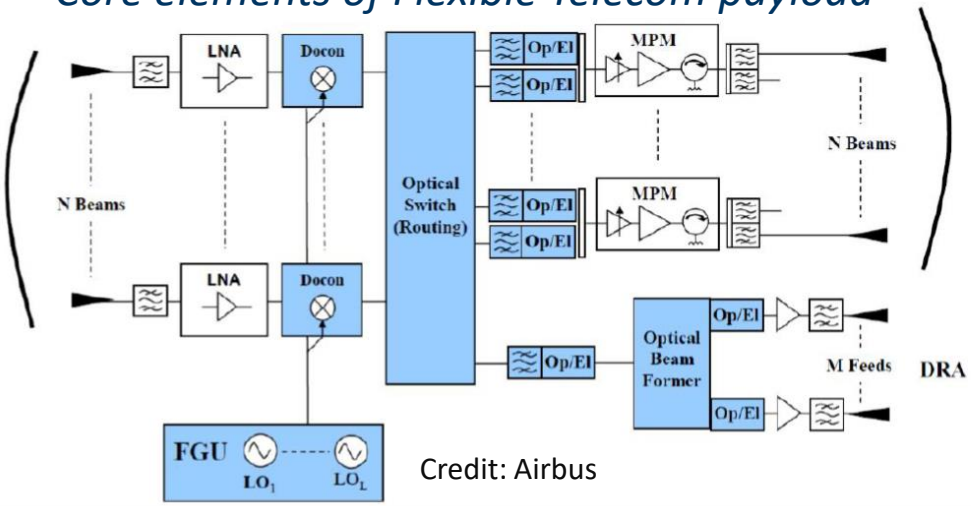


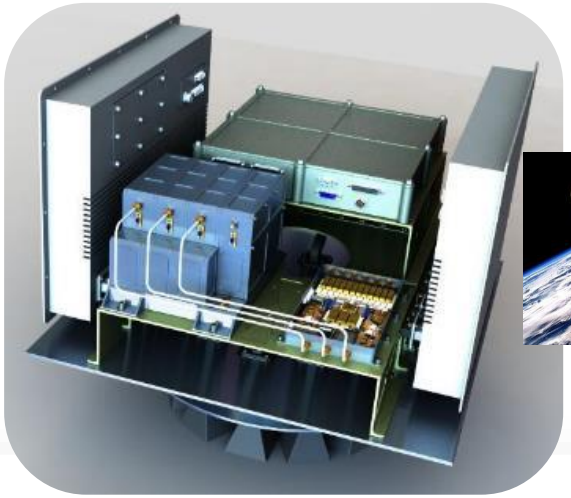
Fig. 1 – Ka-band Multi-Beam Traffic [Mbps] Scenario for BBS

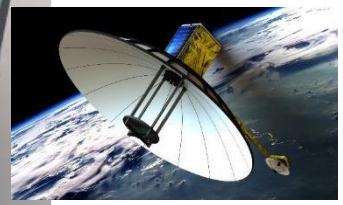
Core elements of Flexible Telecom payload



Credit: Airbus

Radar instrument front-end

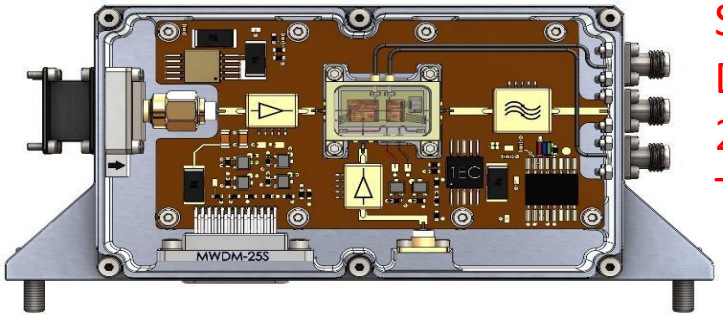




Antwerp Space current activities: uses of Photonic Integration Technology: frequency converter, radar, lantern

Q/V band frequency downconverter

EPFCv2
Duration:
2019-2022
TRL-level:
5-6

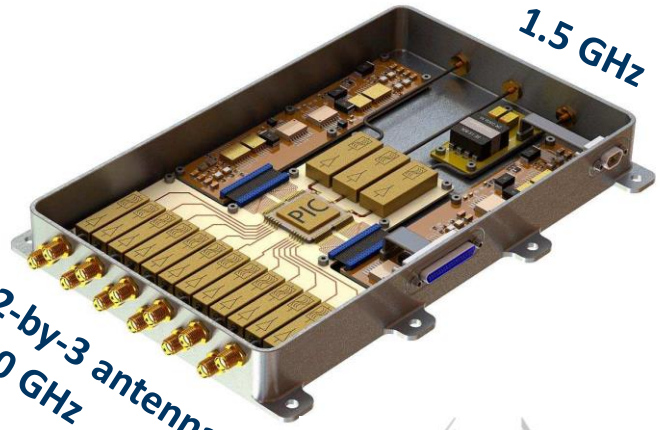


RF Input:
47-50 GHz

IF output:
17-20 GHz

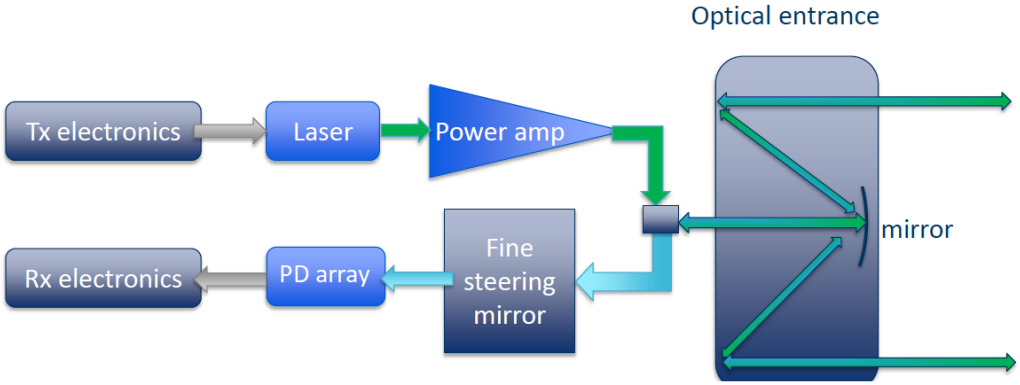
photonic beamformer for a radar receiver

Spacebeam
Duration:
2020-2023
TRL-level:
5-6



Photonic Lantern Receiver
Duration:
2020-2021
TRL-level:3

PIC technology to implement fine steering mirror
With a powerful, integrated & multi-functional solution



What we can do for you & you can do for us?!

- Discuss your space-application with us:

Antwerp Space as

- End-user requirement/ Equipment Integrator
- Integrated Microwave photonic system design, generation of requirements for PIC
- Control electronics
- RF-front-end design

- We would like to collaborate with you:

Antwerp Space looks for partners for:

- Space-qualified components & procedures:
- Photonic building blocks (BBs)
- High-speed, low-power, RF front-ends
- Packaging
- Photonics & RF interconnects

- **End-users (Satellite/payload integrators) in the space sector**
- For the targeted application uses

Antwerp Space working/taking with many partners : PIC, Packaging, Design houses…& many more…

PICs are enabler for AWS for improved and new communication equipment for Space Applications

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Thank you !

Is there any Questions ?

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