

Status of on-board radiocommunication system of OUFTI-1 nanosatellite as of mid-2012: design, implementation, and tests

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Functions

Receive (uplink at 435 MHz, UHF)

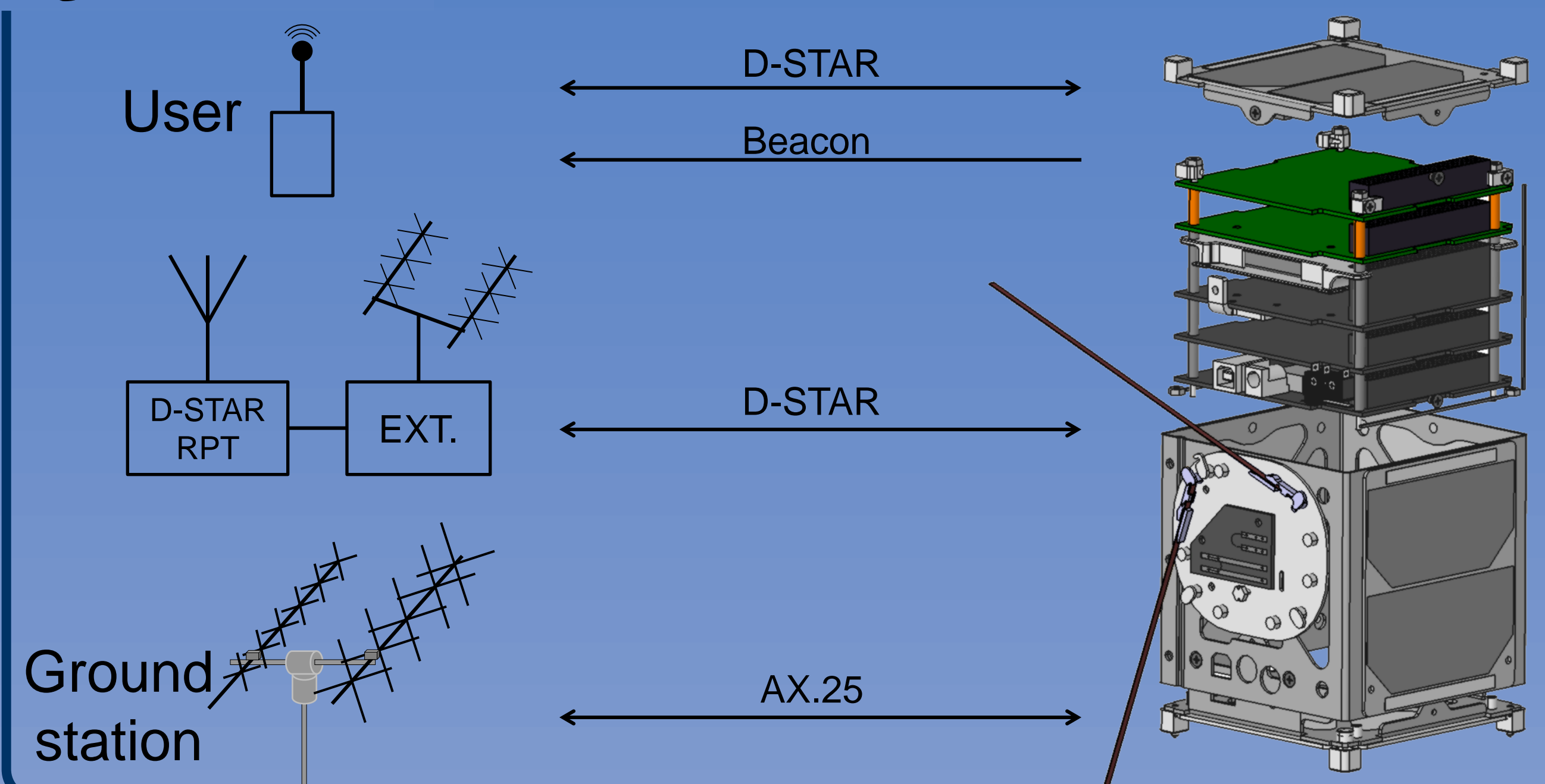
- AX.25 telecommand (FSK, at -100 dBm)*
- D-STAR communication (GMSK, at -106 dBm)

Transmit (downlink at 145 MHz, VHF)

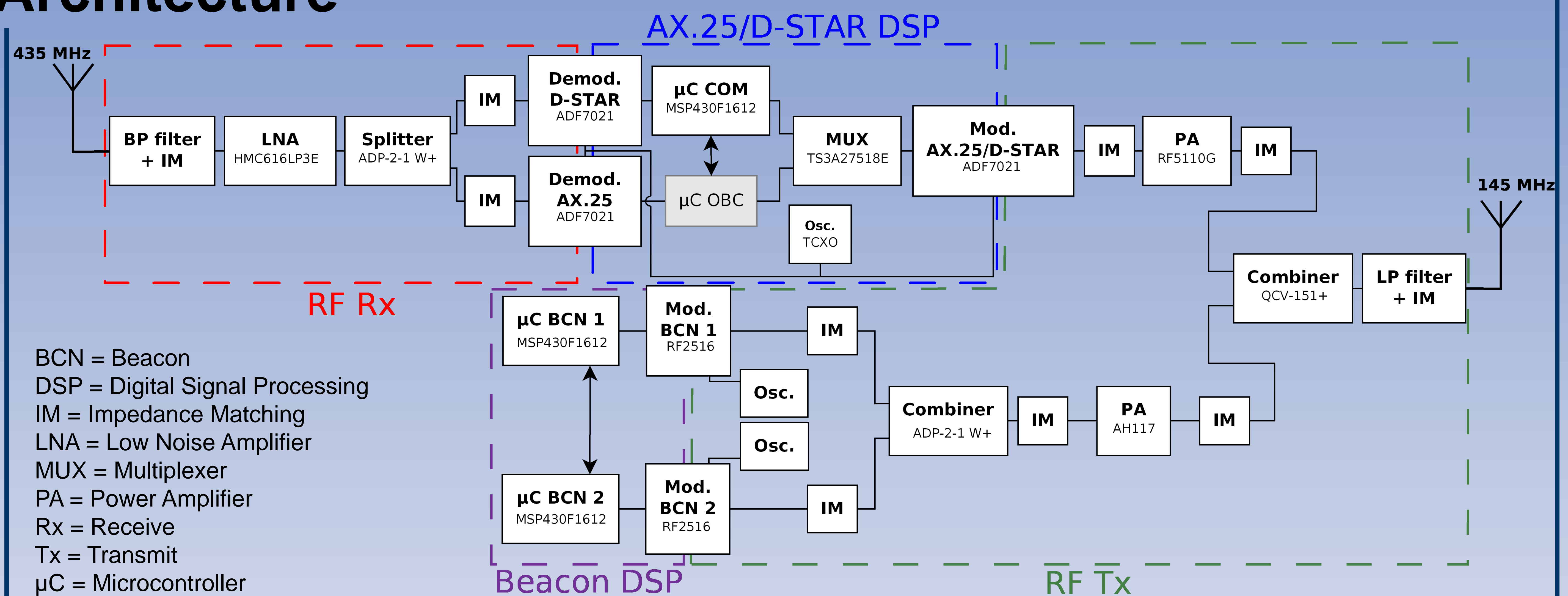
- AX.25 telemetry (FSK, at 28 dBm)
- D-STAR communication (GMSK, at 28 dBm)
- Beacon telemetry (OOK, at 20 dBm)

* Always ON

System



Architecture

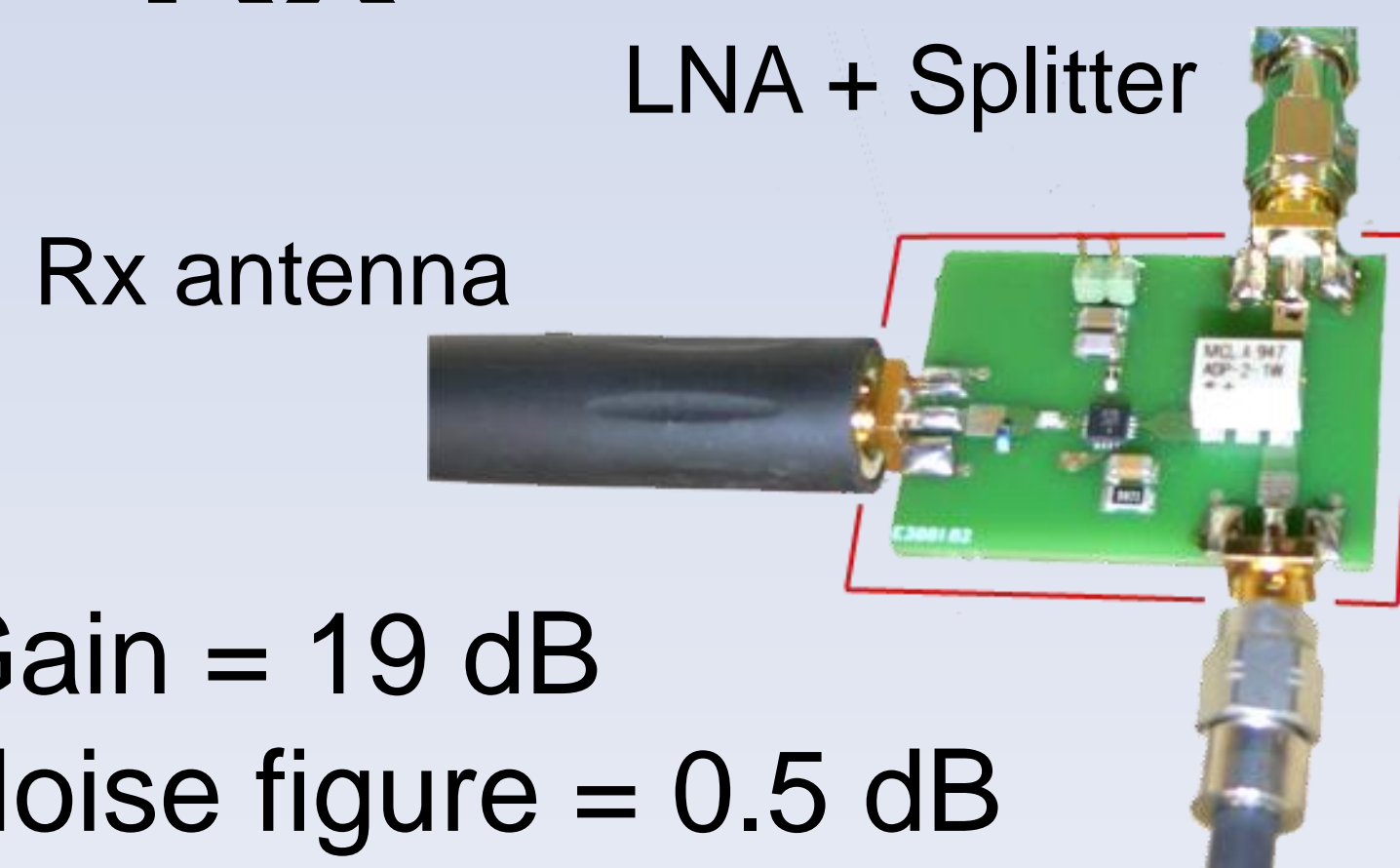


Antennas



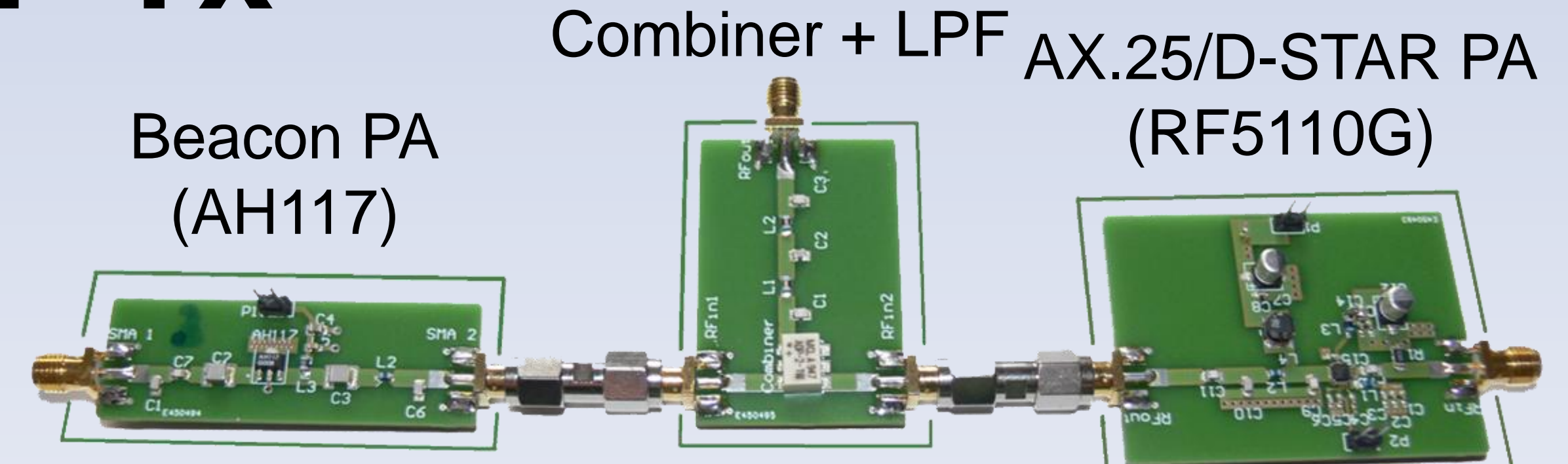
Quarter wave monopoles
• 517 mm for VHF
• 173 mm for UHF

RF Rx



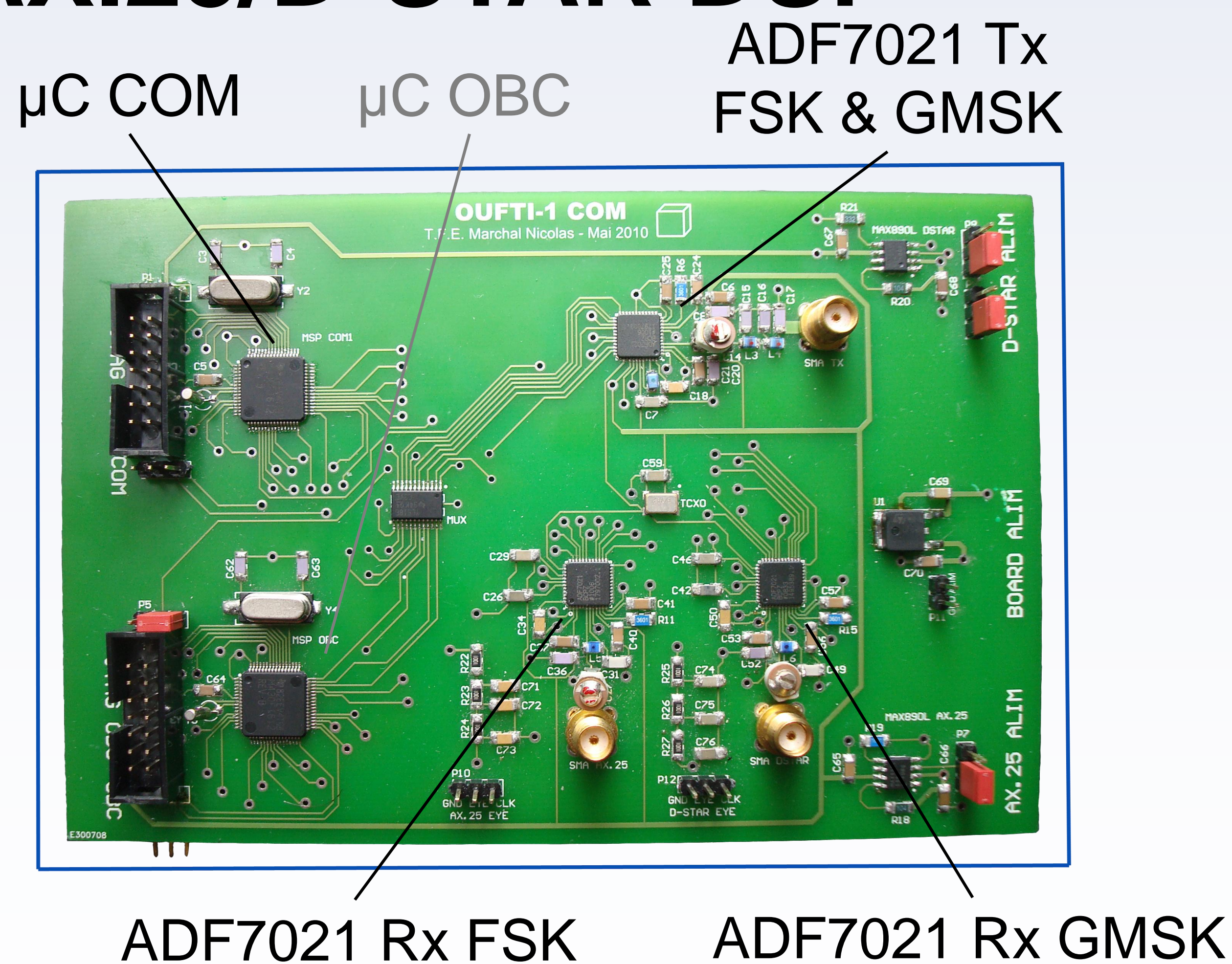
Gain = 19 dB
Noise figure = 0.5 dB

RF Tx



G = 16.5 dB L = 3.9 dB G = 31.5 dB
 η = 17% η = 42.4%

AX.25/D-STAR DSP



Beacon DSP

