Design of integrated active antenna for mmW phased array in advanced technology nodes

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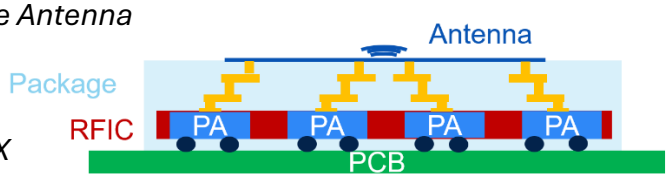
Why?

- *Reduce cost and increase lifespan of satellites*
- *Investigate ST's SiGe processes capabilities to address satellite application challenges*

How?

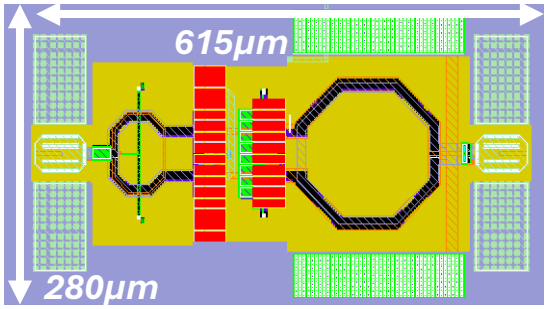
- *Benchmark ST SiGe technologies for Ka-Band(20GHz) PAs*
- *Development of a new charge modulation amplifier architecture*
  - ❖ *Enhance PA efficiency at Output Back-Off (OBO)*
- *Co-integration of the PA with an Antenna in Package (AiP)*
  - ❖ *Allow signal recombination in the Antenna*

What?



- *High-efficiency and reliable PAs in B9MW/B55X*
- *Co-design of the RFIC with its package to improve electrical and thermal properties*

Results



- *PA cell in B55X*
- *Measurement results at 19 GHz:*
  - ❖ *Psat = 25 dBm*
  - ❖ *PAE = 40 %*

Perspectives

- *Development of a combiner to meet power specifications*
- *Study and design of AiP*
- *Co-design of the RFIC with an AiP*