Ultra-Low-Power RF Transceiver

0.5-V 5.8-GHz Transceiver

- 0.5V supply voltage
- Foward Body Bias
- OOK Receiver
- Low Power
- QPSK Transmitter
- high datarate PLL using ILFD and Current-reuse VCO

Active-mixer-first Receiver

- Active-mixer-first
- Low Power
- Moderate sensitivity
- Uncertain IF
- Low power of LO (free-running Osc.)

Inverter-based Transmitter

- Inverter-based DA
- Reduction of Z-match ratio

Current-reuse VCO

- Current-reuse VCO
- Low Power
- Amplitude-mismatch by its asymmetry
- Large capacitor for AC gnd
- AC components of $V_{ref}$ & $V_{out}$ are same

Measurement Results

Low Noise Sub-Sampling PLL

Motivation: Low voltage, Low phase noise PLL

Sub-Sampling PLL with DtMOS

Double-Balanced-SSPD

Sub-Sampling Charge Pump

Low phase noise and good power consumption