In case the bladeRF is transmitting at +4dBm the bypass path should be engaged to protect the RF frontend. The maximum RF input of the bladeRF is +23dBm.

The TX PA has a gain of 30dB, the LNA has a gain of 20dB, the RF switch has an isolation of 38dB, and the LNA has 7dB of loss in bypass mode.

The on-board TX to RX power headroom then becomes:

\[ +23\text{dBm} - ( +4\text{dBm} + 30\text{dB} - 38\text{dB} - 7\text{dB} ) = 34\text{dB} \]

Assuming a free space loss of 17dB at 2.4GHz at a distance of 6 inches and a TX output of +30dBm. The antenna TX to RF headroom becomes:

\[ +23\text{dBm} - ( 30\text{dBm} - 17\text{dB} - 7\text{dB} ) = 17\text{dB} \]
Place bulk capacitance closer to TX PA
0 Ohm resistors can be used to reroute combiner out of RF path.

LOW NOISE AMPLIFIER