RFID reader

Transmitted power:
$P_{TX,\text{Reader}}$

Channel gain of the forward link:
$|S_{21}|^2$

Received power:
$P_{Tag} = |S_{21}|^2 P_{TX,\text{Reader}}$

Reflected power:
$\eta P_{Tag}$

Absorbed power:
$P_{\text{Chip}} = \tau P_{Tag}$

RFID transponder

Antenna

Chip

Received power:
$P_{RX,\text{Reader}} = |S_{12}|^2 \eta P_{Tag}$

Channel gain of the backward link:
$|S_{12}|^2$

Forward link

Backward link