December 23, 2022

NJG1187AKGC-A

GNSS High Gain Low Noise Amplifier

S-parameter, noise parameter simulation data (Standard condition) Ver. 1

- S-parameter simulation data
- Max gain, NFmin simulation data
- Gain circle simulation data
- NF circle simulation data
- s2p/s4p file
- s2p/s4p file extraction simulation circuit

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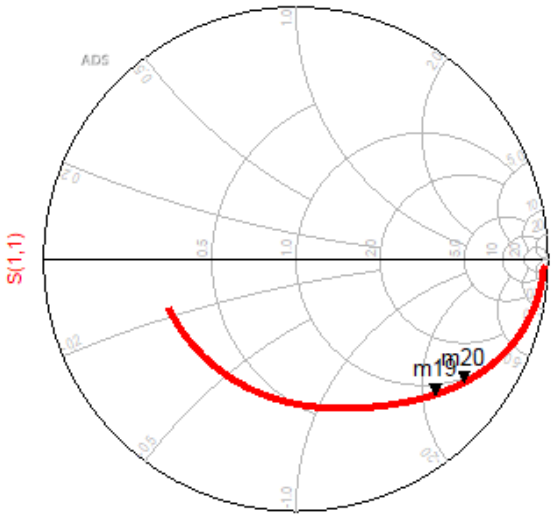
RF Product Development Department
RFIC Design Section

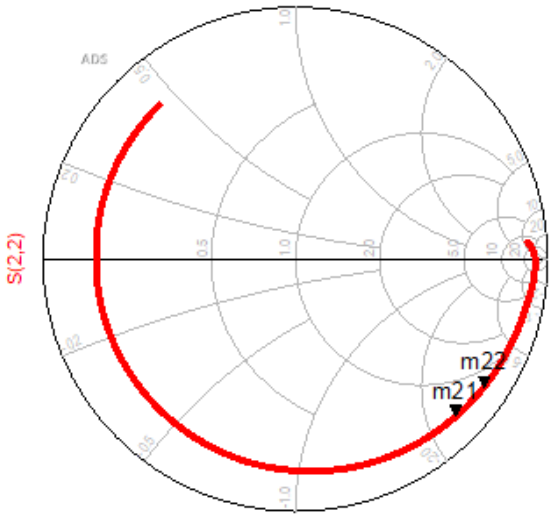
■ S-parameter simulation data

Condition: f=50MHz to 6GHz, V_{DD}=3.3V, Ta=+25°C, Zs=Zl=50Ω

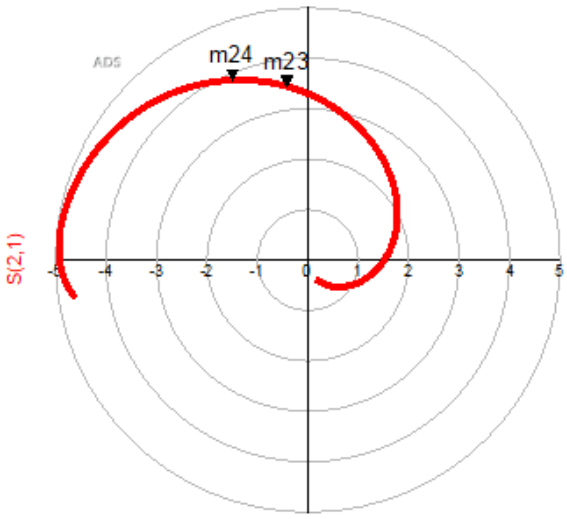
1st LNA (s2p file)



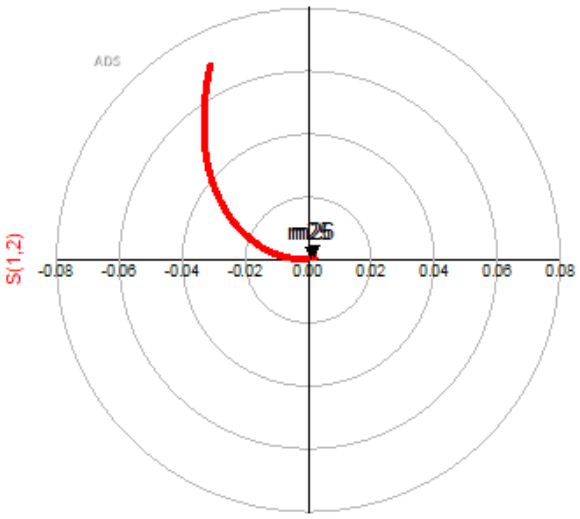
S11



S22



S21

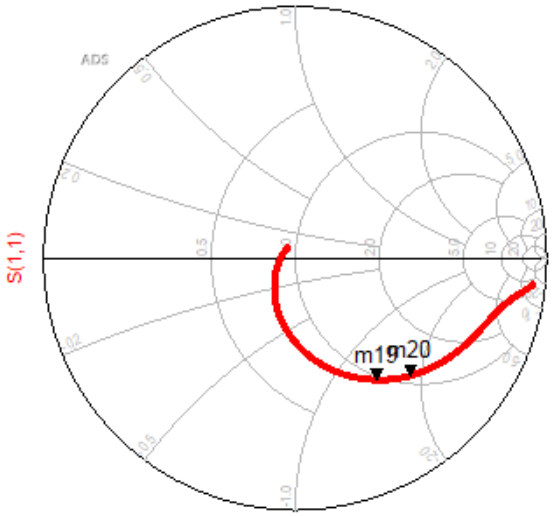


S12

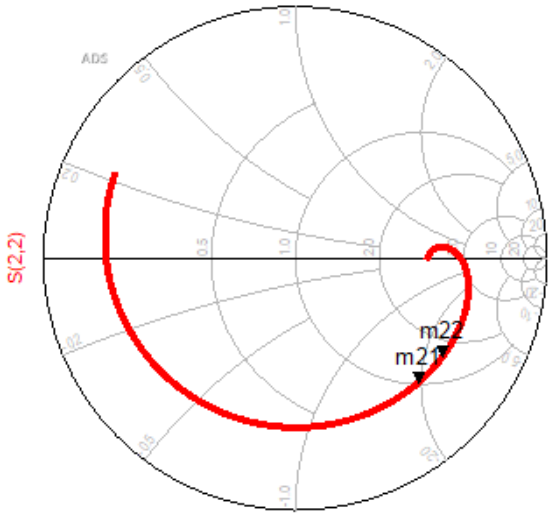
■ S-parameter simulation data

Condition: f=50MHz to 6GHz, V_{DD}=3.3V, Ta=+25°C, Zs=Zl=50Ω

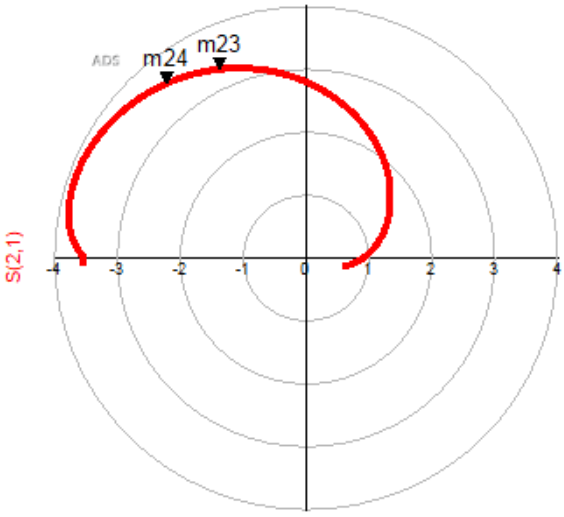
2nd LNA (s2p file)



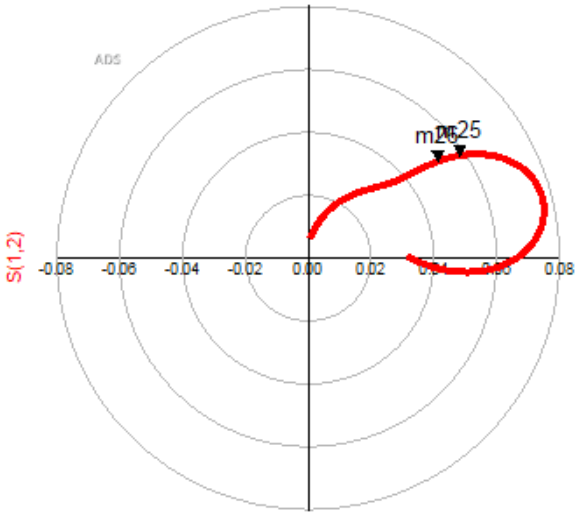
S11



S22



S21

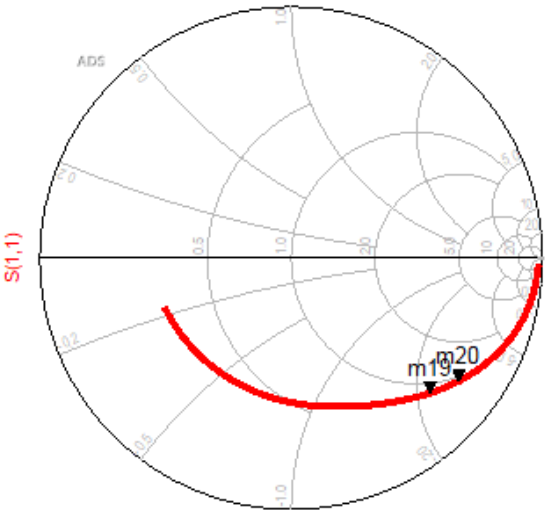


S12

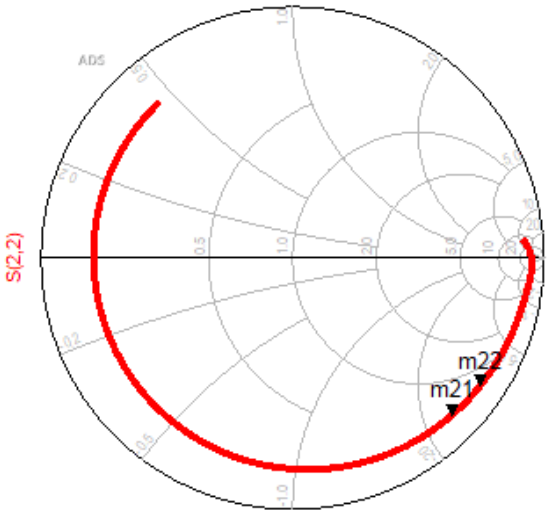
■ S-parameter simulation data

Condition: f=50MHz to 6GHz, V_{DD}=3.3V, Ta=+25°C, Zs=Zl=50Ω

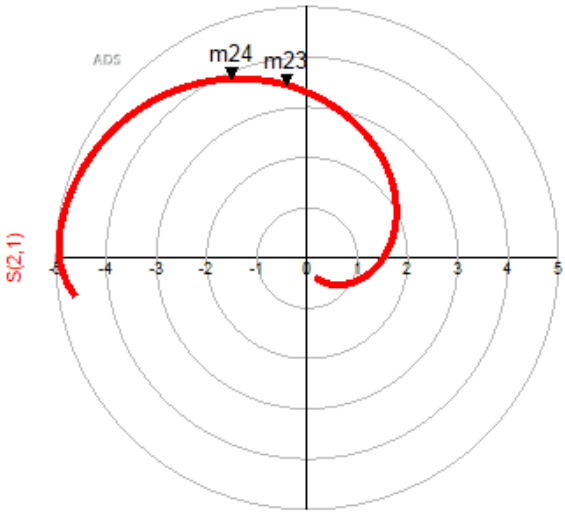
1st LNA (***s4p file***)



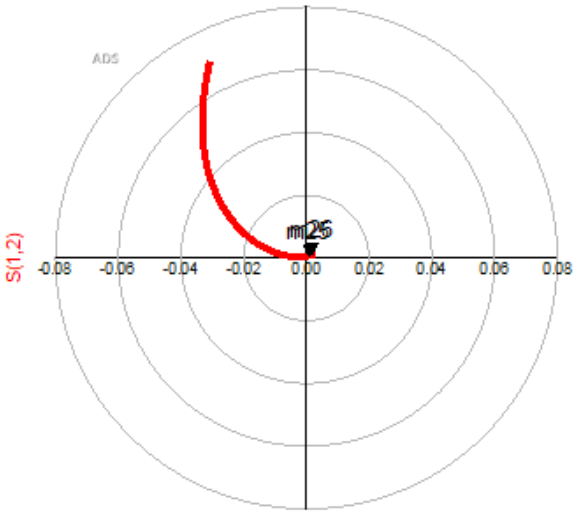
S11



S22



S21

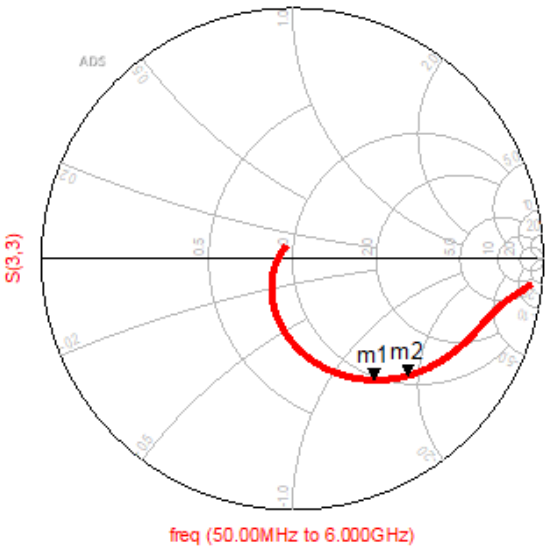


S12

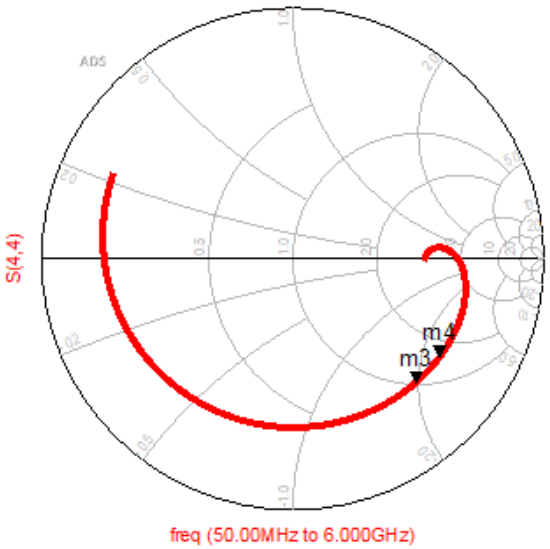
■ S-parameter simulation data

Condition: f=50MHz to 6GHz, V_{DD}=3.3V, Ta=+25°C, Zs=Zl=50Ω

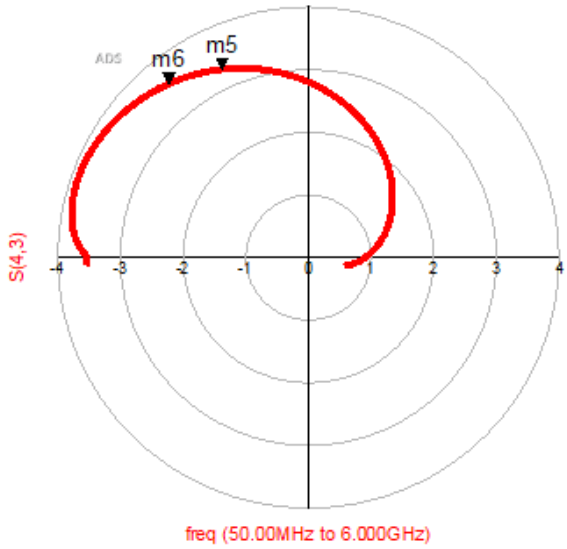
2nd LNA (***s4p file***)



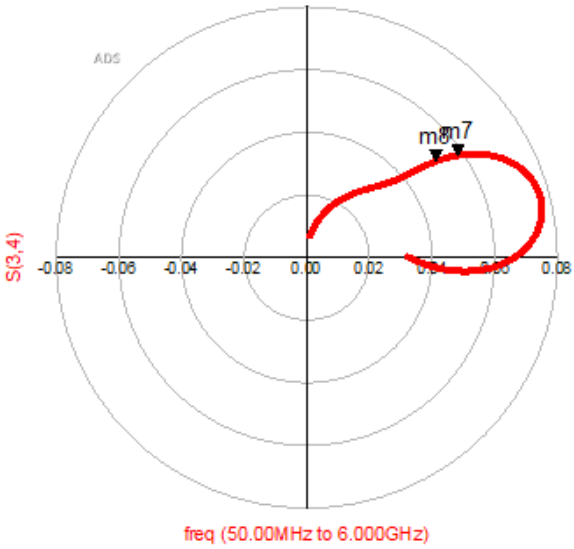
S33



S44



S43

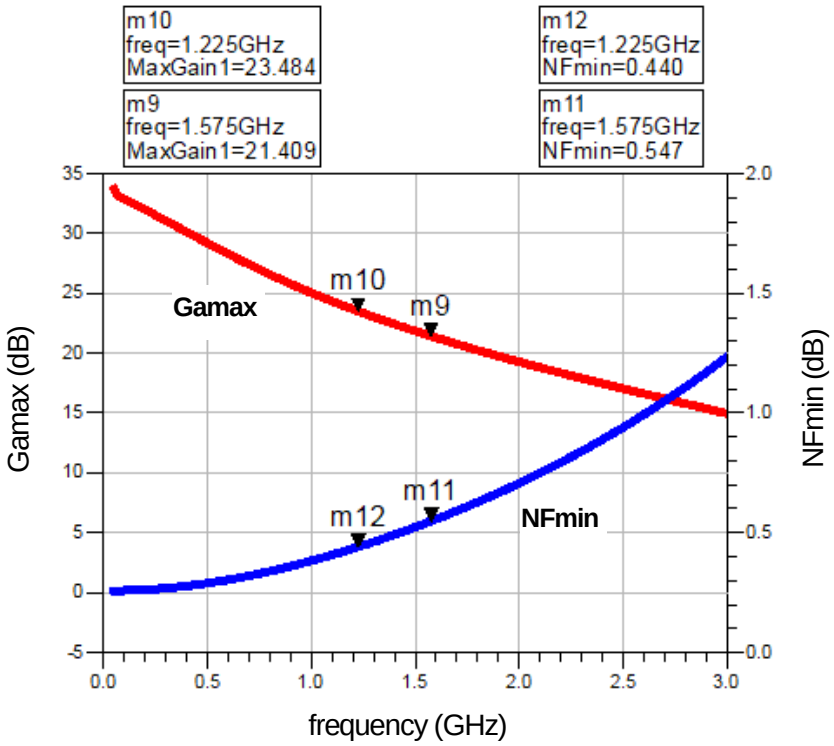


S34

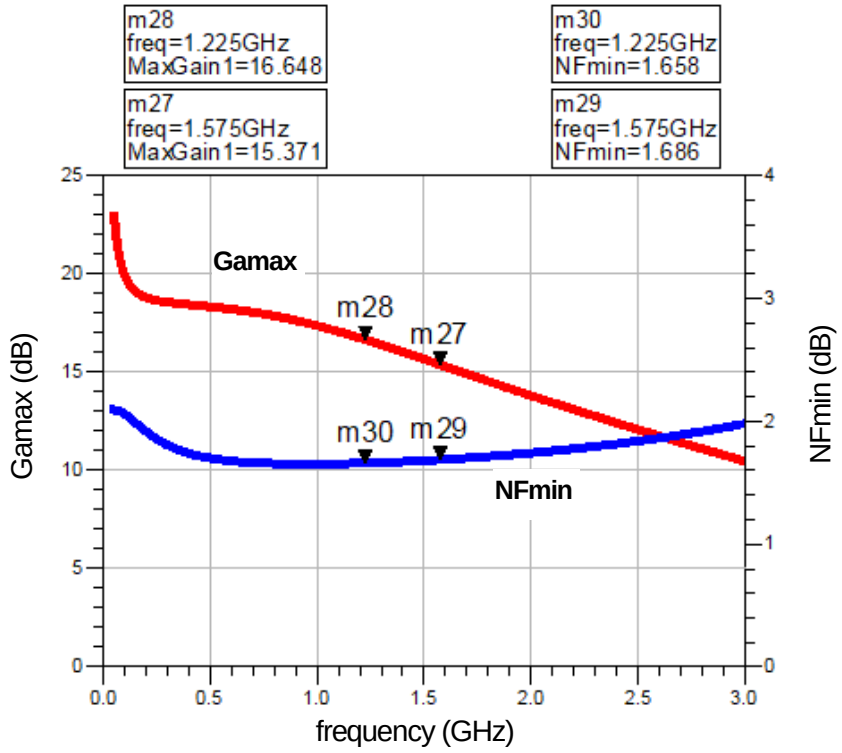
■ Max gain, NFmin simulation data

Condition: f=50MHz to 3GHz, V_{DD}=3.3V, Ta=+25°C, Zs=Zl=50Ω

1st LNA (s2p file)



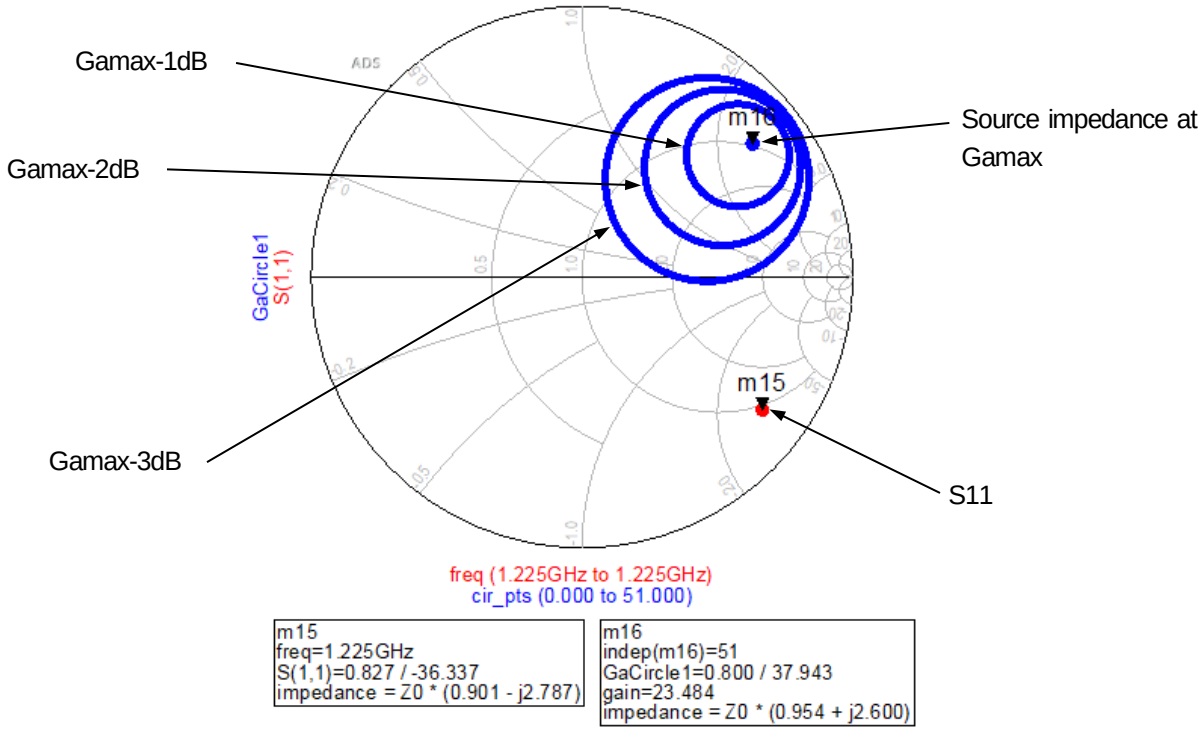
2nd LNA (s2p file)



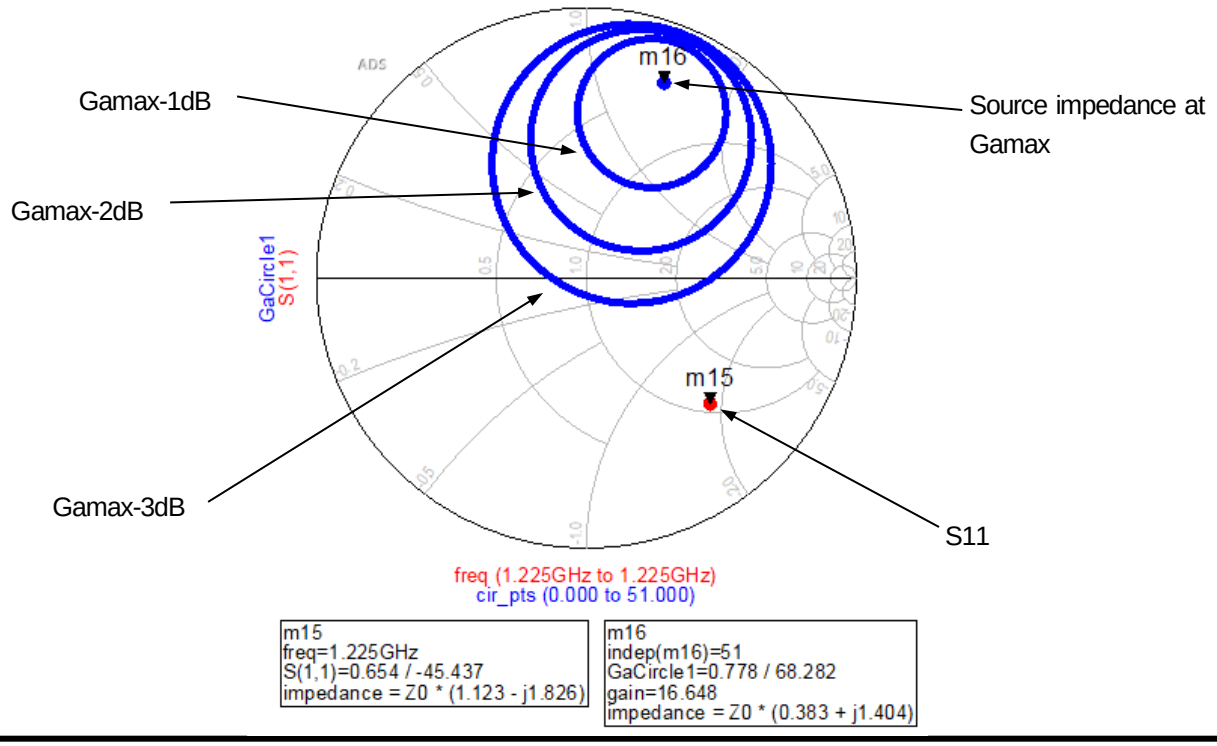
■ Gain circle simulation data (Source impedance)

Condition: **f=1225MHz**, V_{DD}=3.3V, Ta=+25ºC, Zs=Zl=50Ω

1st LNA (s2p file)



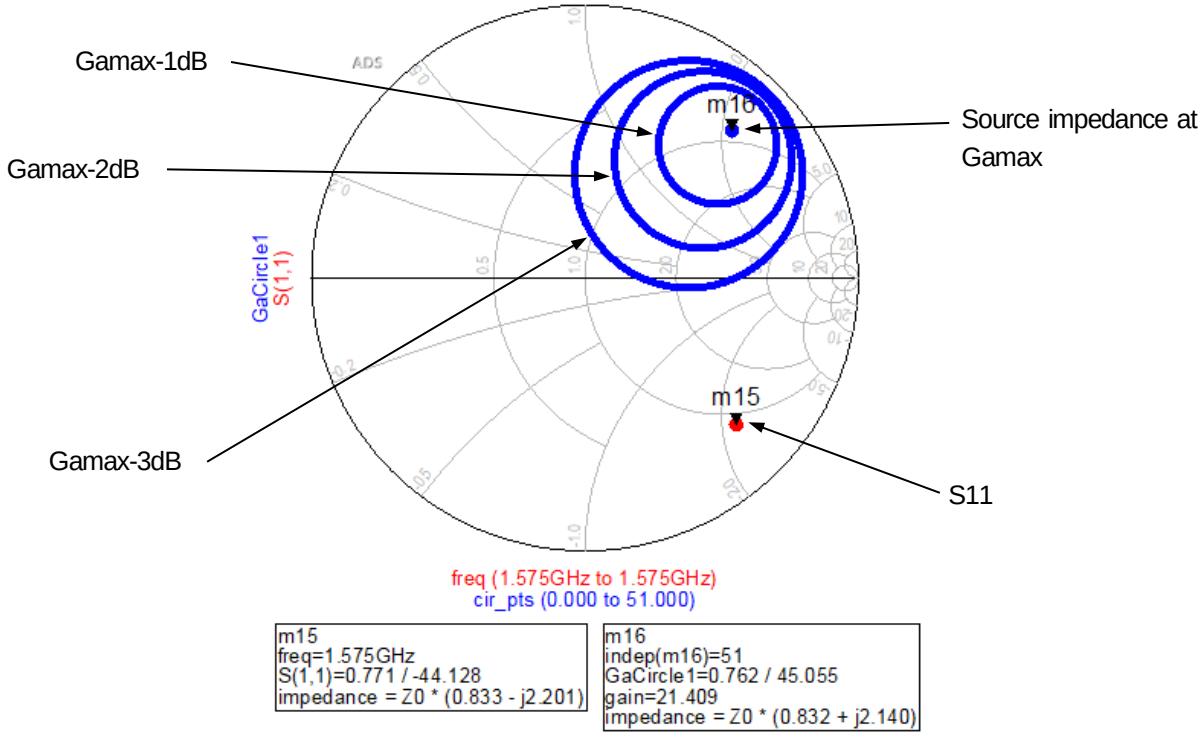
2nd LNA (s2p file)



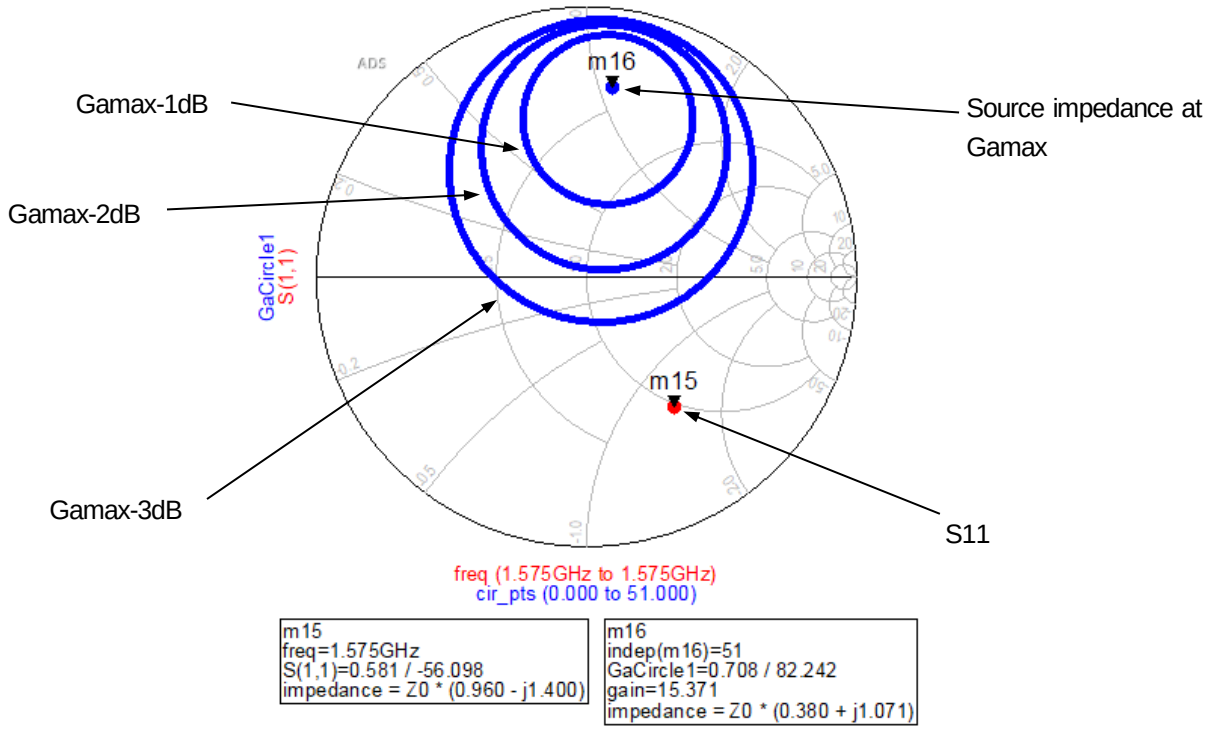
■ Gain circle simulation data (Source impedance)

Condition: **f=1575MHz**, V_{DD}=3.3V, Ta=+25ºC, Zs=Zl=50Ω

1st LNA (s2p file)



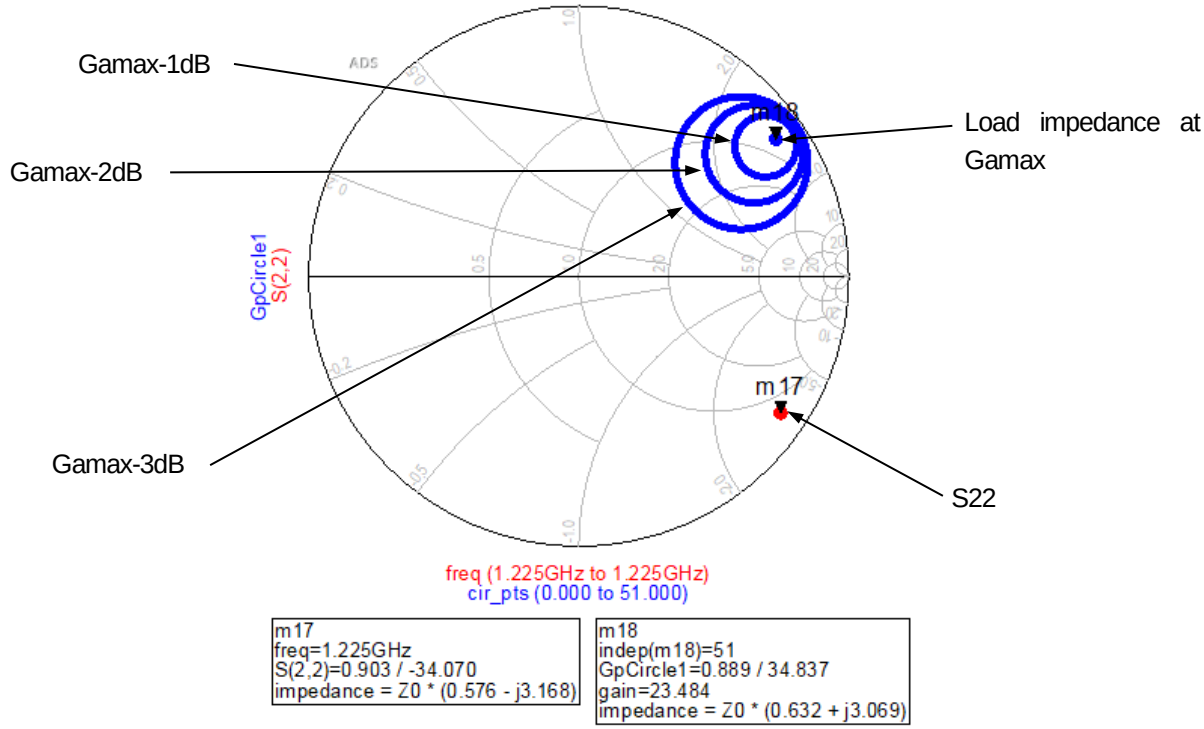
2nd LNA (s2p file)



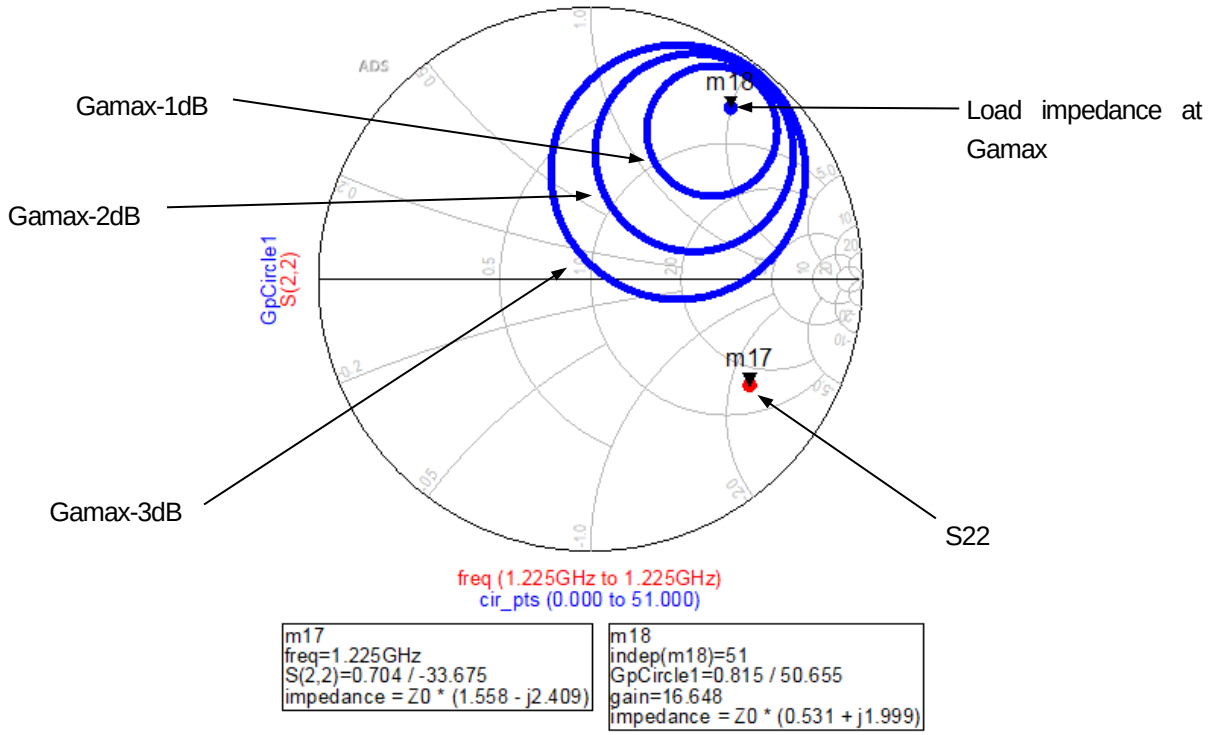
■ Gain circle simulation data (Load impedance)

Condition: **f=1225MHz**, V_{DD}=3.3V, Ta=+25ºC, Zs=Zl=50Ω

1st LNA (s2p file)



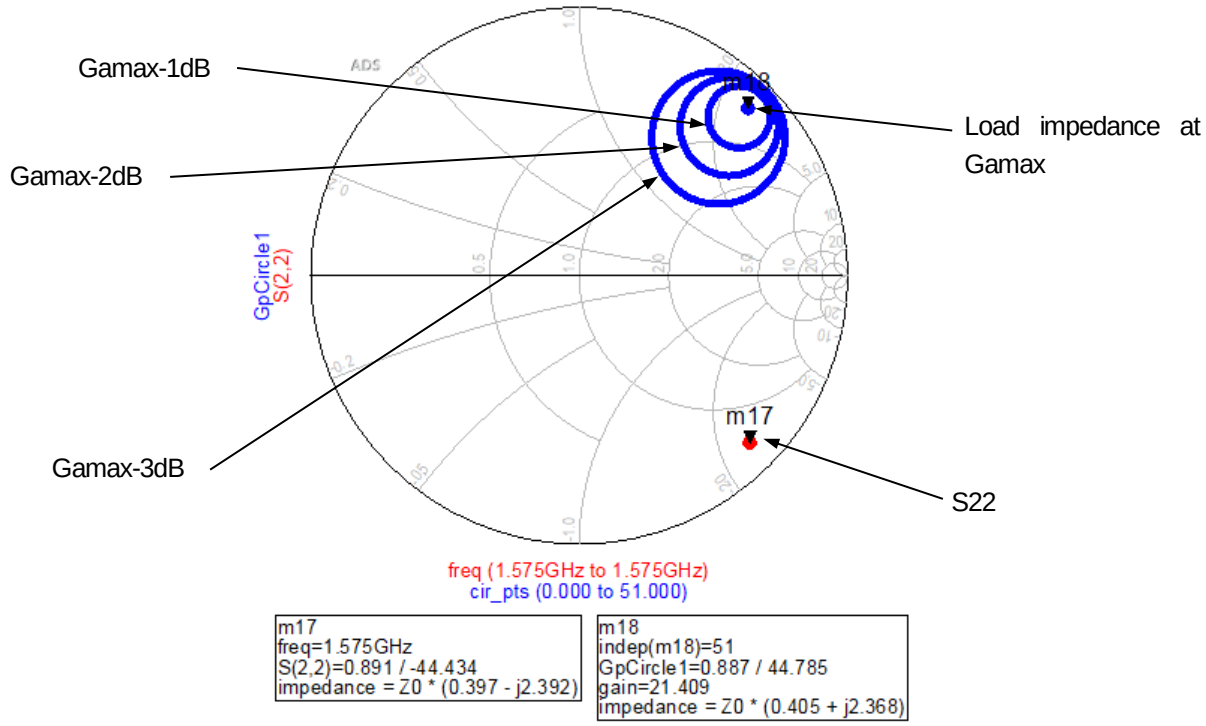
2nd LNA (s2p file)



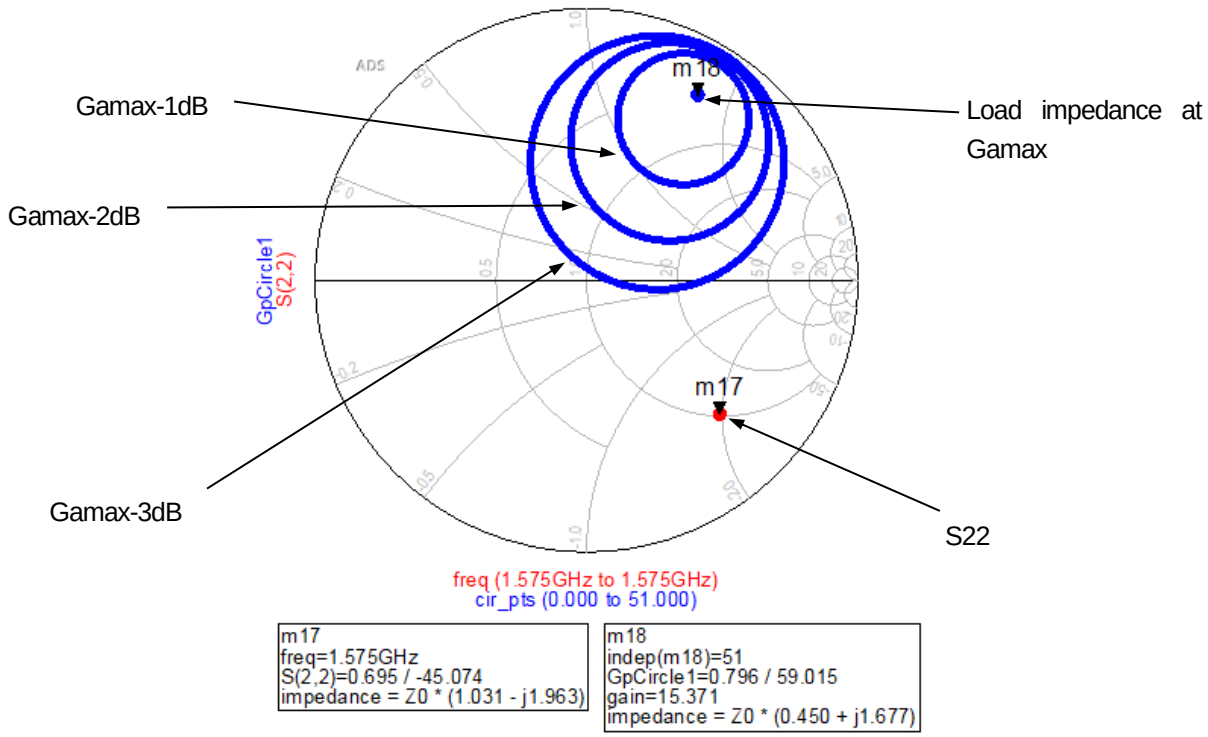
■ Gain circle simulation data (Load impedance)

Condition: **f=1575MHz**, V_{DD}=3.3V, Ta=+25ºC, Zs=Zl=50Ω

1st LNA (s2p file)



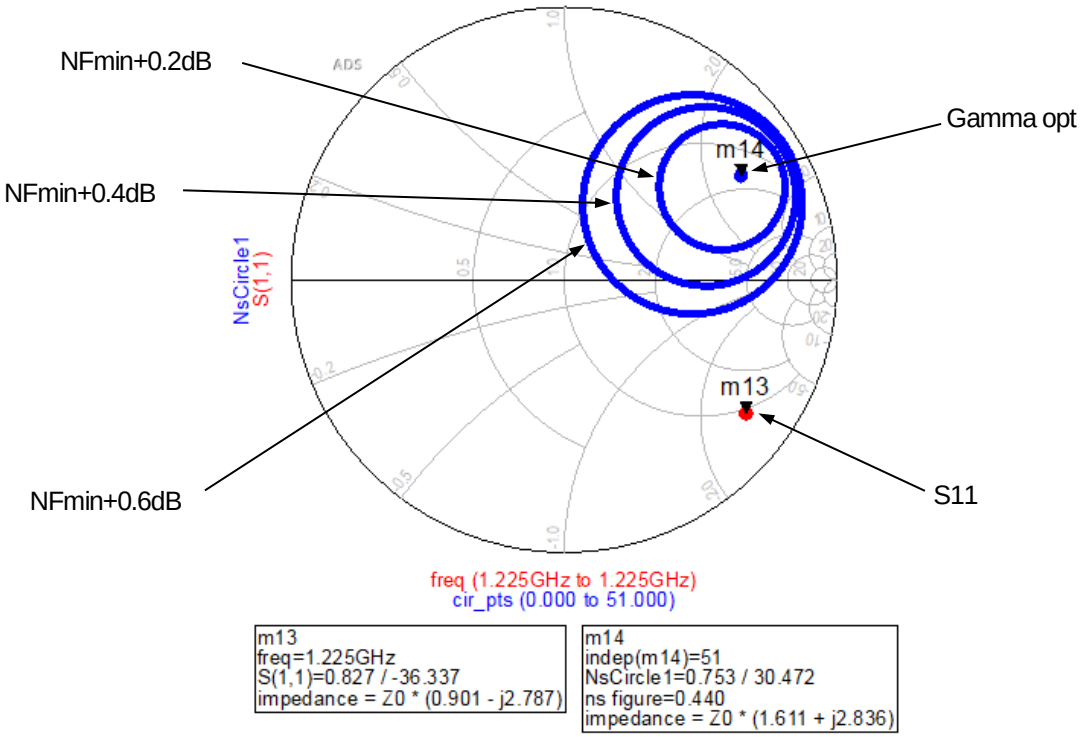
2nd LNA (s2p file)



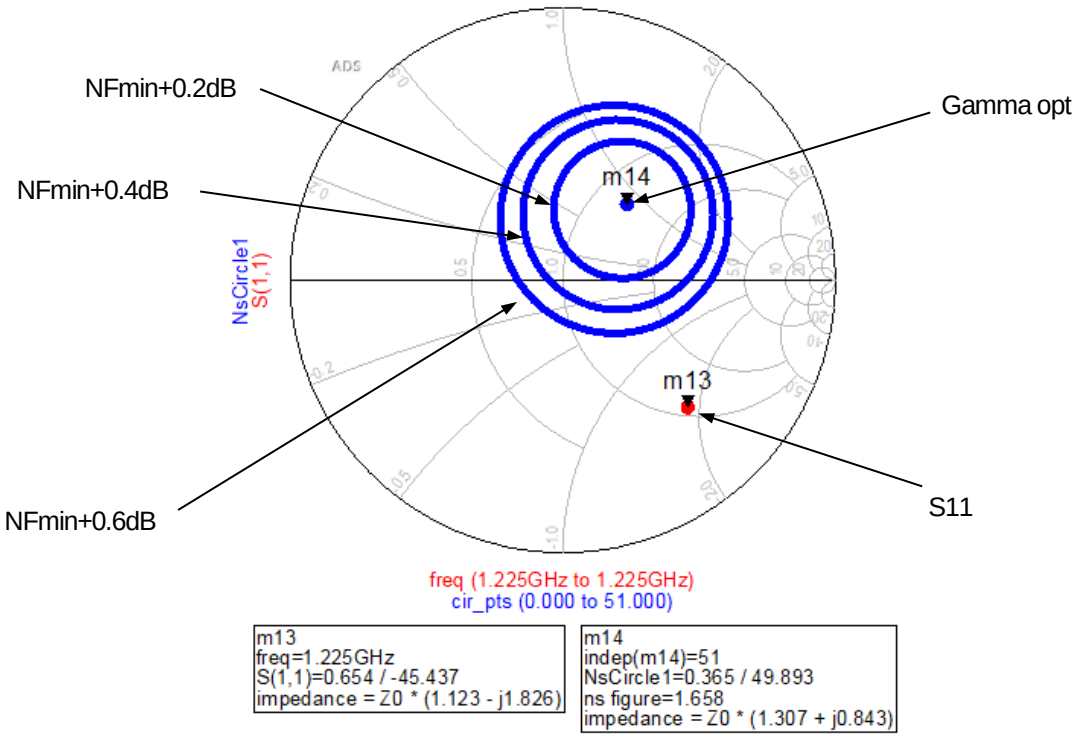
■ NF circle simulation data

Condition: **f=1225MHz**, V_{DD}=3.3V, Ta=+25ºC, Zs=Zl=50Ω

1st LNA (s2p file)



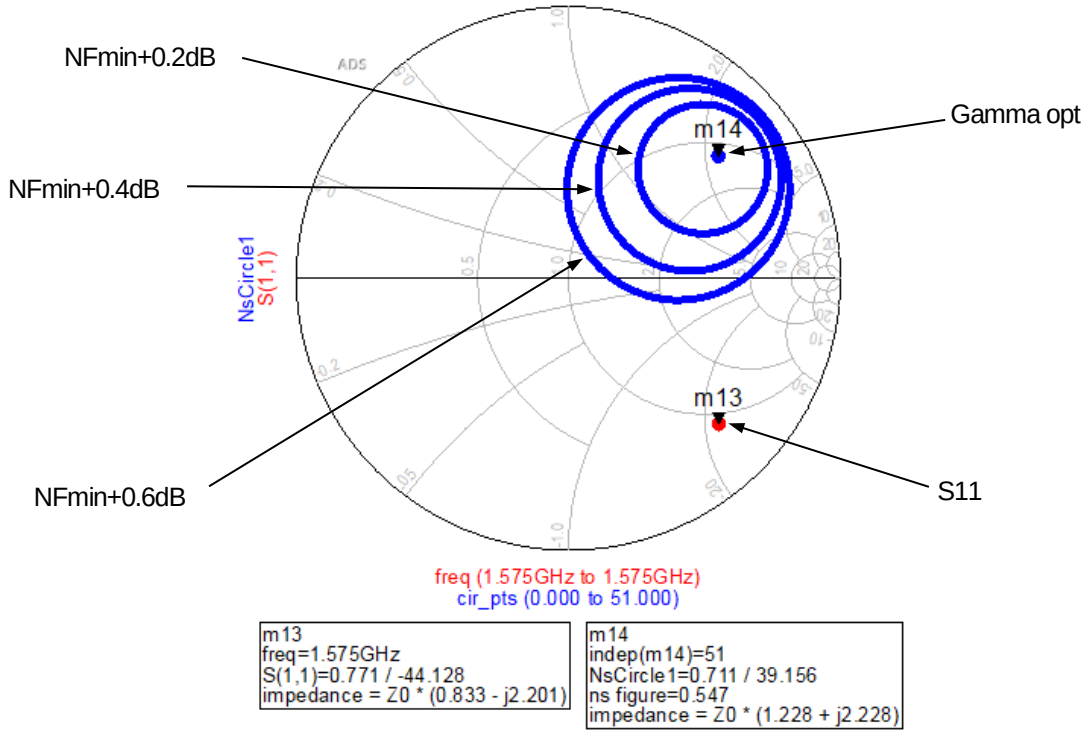
2nd LNA (s2p file)



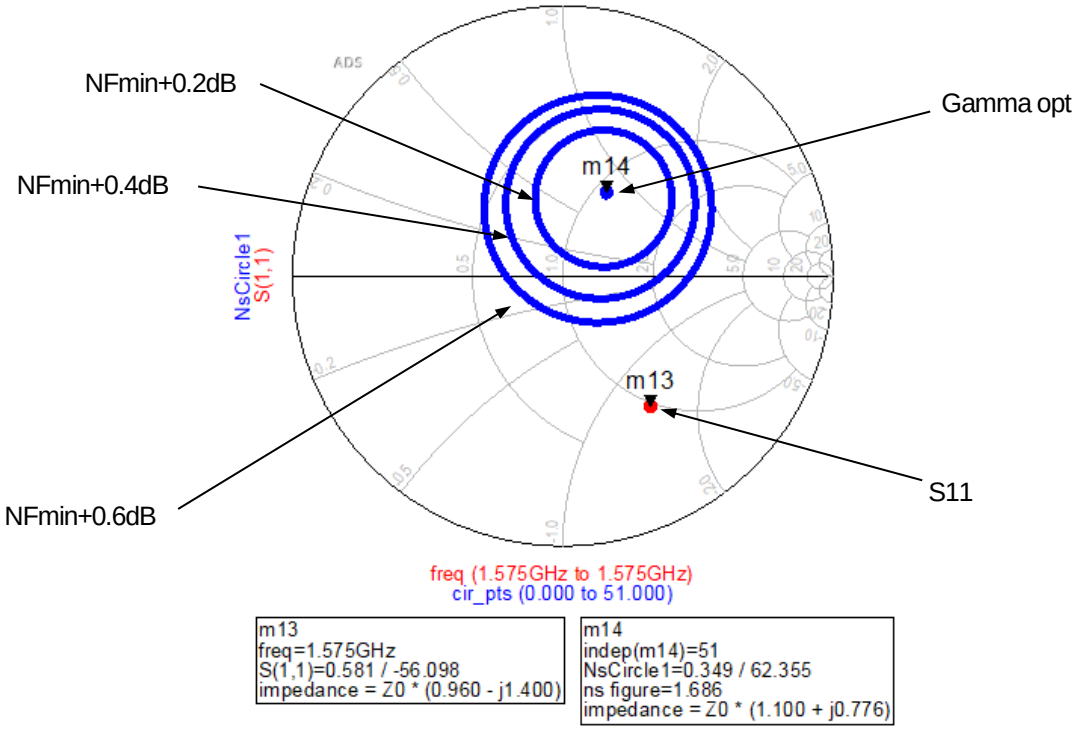
■ NF circle simulation data

Condition: **f=1575MHz**, V_{DD}=3.3V, Ta=+25ºC, Zs=Zl=50Ω

1st LNA (s2p file)



2nd LNA (s2p file)



■ **s2p/s4p file**

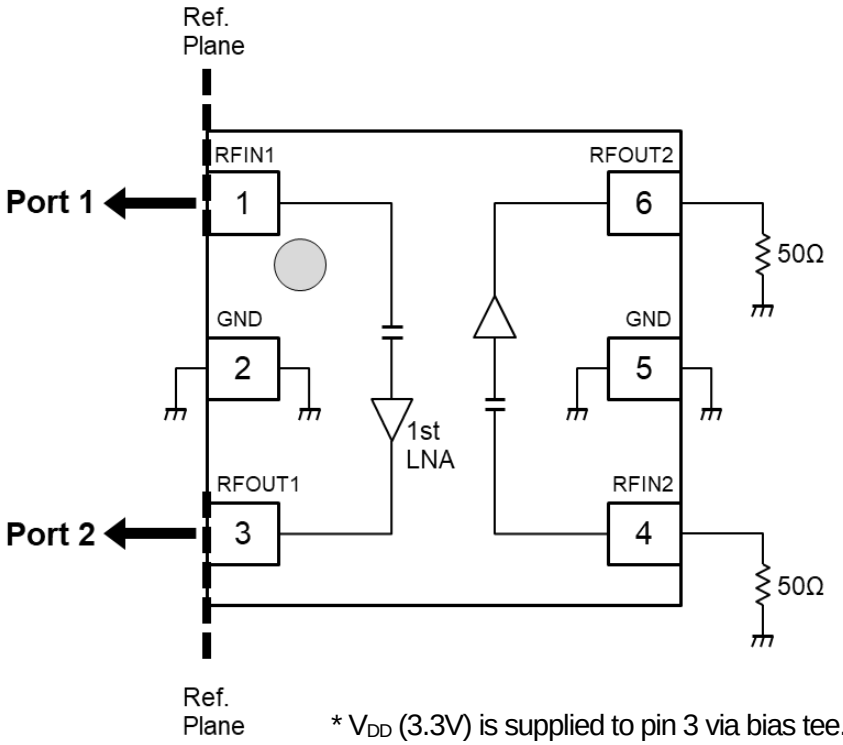
Simulation condition
f=50MHz to 6GHz, Step=10MHz
Ta=+25°C,
Zs=Zl=50Ω

s2p file
V_{DD}=3.3V
$I_{DD}1$=4.5mA, $I_{DD}2$=3.5mA
s2p file at 1st LNA: NJG1187A_1stLNA_Spar_Ver0.s2p
s2p file at 2nd LNA: NJG1187A_2ndLNA_Spar_Ver0.s2p

s4p file
V_{DD}=3.3V
$I_{DD}1$=4.5mA, $I_{DD}2$=3.5mA
s4p file: NJG1187A_Spar_ver0.s4p

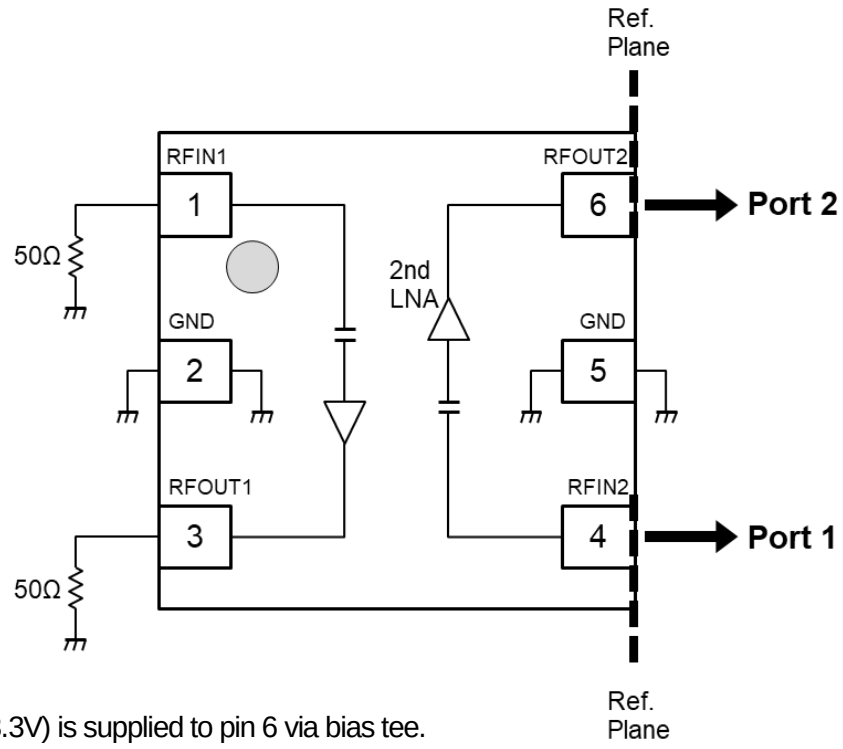
■ s2p file extraction simulation circuit

1st LNA



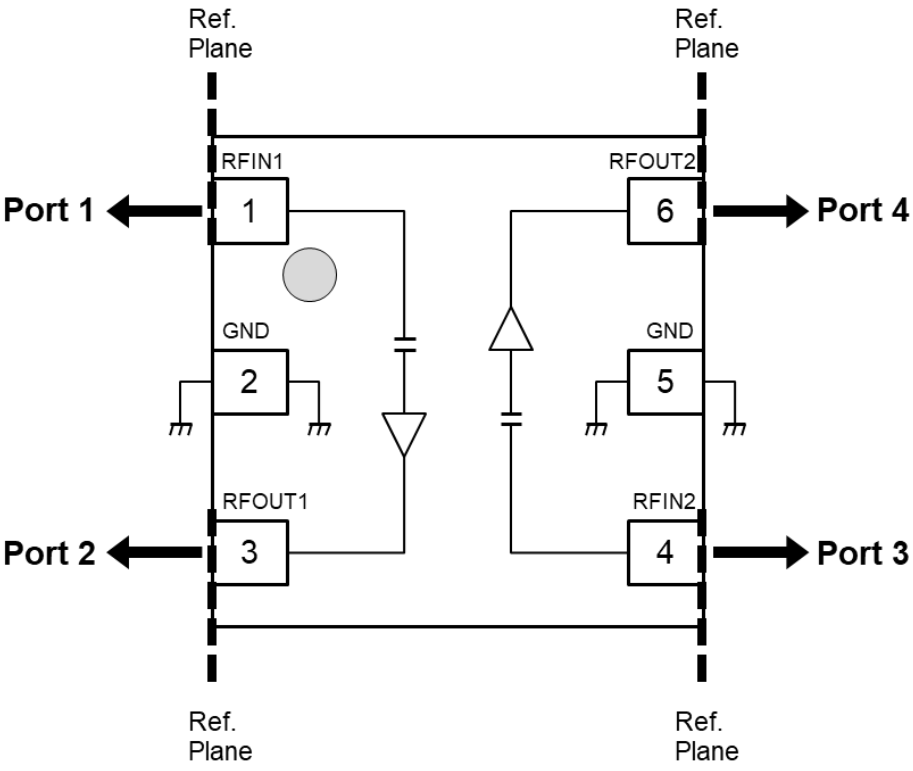
* V_{DD} (3.3V) is supplied to pin 3 via bias tee.

2nd LNA



* V_{DD} (3.3V) is supplied to pin 6 via bias tee.

■ **s4p file extraction simulation circuit**



* V_{DD} (3.3V) is supplied to pin 3 and pin 6 via bias tee.