**Document No. : 18-056797-01 Rev A**

**Title : ADL8112-EVALZ Customer Evaluation Board Test Procedure**

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| REVISION HISTORY | | | | |
| **Revision** | **ECR #** | **Description of Change** | **Date** | **Author** |
| B | ECR-115694 | Optimized overall prog | 8/01/23 | Cheyenne Pearl Nelvis |
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| **Required Approvers** | |
| **Approver Roles** | **Approver Names** |
| Product Engineer | Cheyenne Pearl Nelvis |
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**Test 1: S-parameter Sweep:**

**Equipment Needed:**

5 Power Supply: Keithley 2400 or equivalent – PS1, PS2, PS3, PS4, PS5

1x 2-port Network Analyzer – N5245B or its equivalent

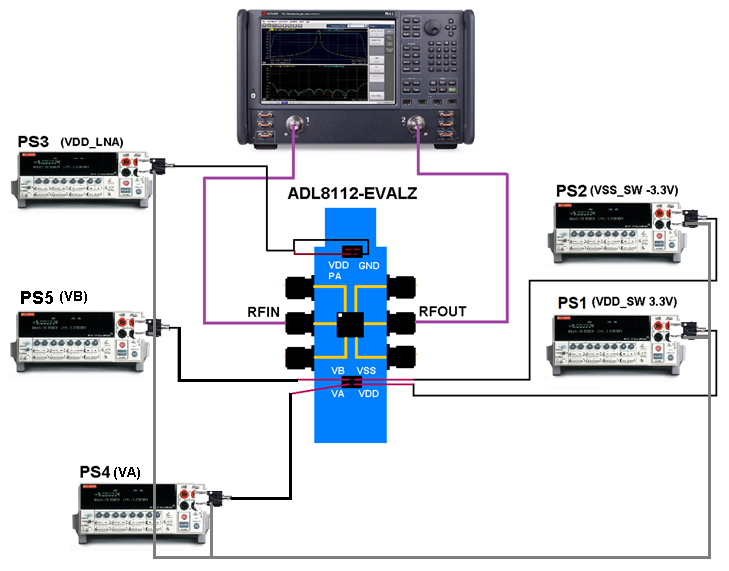
**Setup:**

Connect the Network Analyzer as shown:

Port 1 – RFin

Port 2 – RFout

Connect the Keithley Power supplies as shown:



**Network Analyzer Settings:**

Min/Max Frequency: 10MHz – 28GHz

Number of Points: 401 points

Input Power: -25dBm

**Setting up notes:**

1. Calibrate the Network Analyzer to compensate for the loss of both input and output cables
2. Record the **S11, S12, S21(Gain), S22** of the DUT.
3. Measure the S21 of the thru cal path and compensate the loss of the cal path in the measurement of the DUT.
4. Compare the data recorded for S21 across evaluation boards to the reference S21 plot below.

There should be no dips nor spikes and it should be within the limits (refer to the next test section).

Bias the part according to the Biasing steps below.   
**Biasing steps:**

**Amp State** **Power on and measurement:**

Connect RF port 1 to ***RFIN*** and port 2 to ***RFOUT***

1. (PS1) Set VDD\_SW = 3.3V
2. (PS2) Set VSS\_SW= -3.3V
3. (PS3) Set VDD\_LNA= 8.5V
4. (PS4) Set VA= 0V
5. (PS5) Set VB= 0V
6. Measure and record IDD\_SW, ISS\_SW & ITOTAL
7. Apply the RF signal (Measure & record S21, S12, S11, S22).

**Bypass State Power on and measurement:**

Connect RF port 1 to ***RFIN*** and port 2 to ***RFOUT***

1. (PS1) Set VDD\_SW = 3.3V
2. (PS2) Set VSS\_SW= -3.3V
3. (PS3) Set VDD\_LNA= 0V
4. (PS4) Set VA= 3.3V
5. (PS5) Set VB= 3.3V
6. Measure and record IDD\_SW, ISS\_SW, IA, & IB
7. Apply the RF signal (Measure & record S21, S12, S11, S22).

**Path A1 Power on and measurement:**

Connect RF port 1 to ***RFIN*** and port 2 to ***OUT\_A***

1. (PS1) Set VDD\_SW = 3.3V
2. (PS2) Set VSS\_SW= -3.3V
3. (PS3) Set VDD\_LNA= 0V
4. (PS4) Set VA= 0V
5. (PS5) Set VB= 3.3V
6. Measure and record IDD\_SW, ISS\_SW, & IB
7. Apply the RF signal (Measure & record S21, S12, S11, S22).

**Path A2 Power on and measurement:**

Connect RF port 1 to ***IN\_A*** and port 2 to ***RFOUT***

*Follow steps 1 to 7 under path A1*

**Path B1 Power on and measurement:**

Connect RF port 1 to ***RFIN*** and port 2 to ***OUT\_B***

1. (PS1) Set VDD\_SW = 3.3V
2. (PS2) Set VSS\_SW= -3.3V
3. (PS3) Set VDD\_LNA= 0V
4. (PS4) Set VA= 3.3V
5. (PS5) Set VB= 0V
6. Measure and record IDD\_SW, ISS\_SW, & IA
7. Apply the RF signal (Measure & record S21, S12, S11, S22).

**Path B2 Power on and measurement:**

Connect RF port 1 to ***IN\_B*** and port 2 to ***RFOUT***

*Follow steps 1 to 7 under path B1*

**Power off:**

1. Turn off the RF signal.
2. Power supplies that First ON should be last OFF.

Expected Currents:

(PS1) **IDD\_SW**= (LL=3uA, **mean=4.2uA**, UL=6.5uA)

(PS2) **ISS\_SW**= (LL=-240uA, **mean=-212uA**, UL=-180uA)

(PS3) **ITOTAL**= (LL=78mA, **mean=90mA**, UL=108mA)

(PS4) **IA**= (LL=4.5uA, **mean=6uA**, UL=7.5uA)

(PS5) **IB**= (LL=4.5uA, **mean=6uA**, UL=7.5uA)

**Reference Plot****s**

**Test 2: ATE Test Setup:**

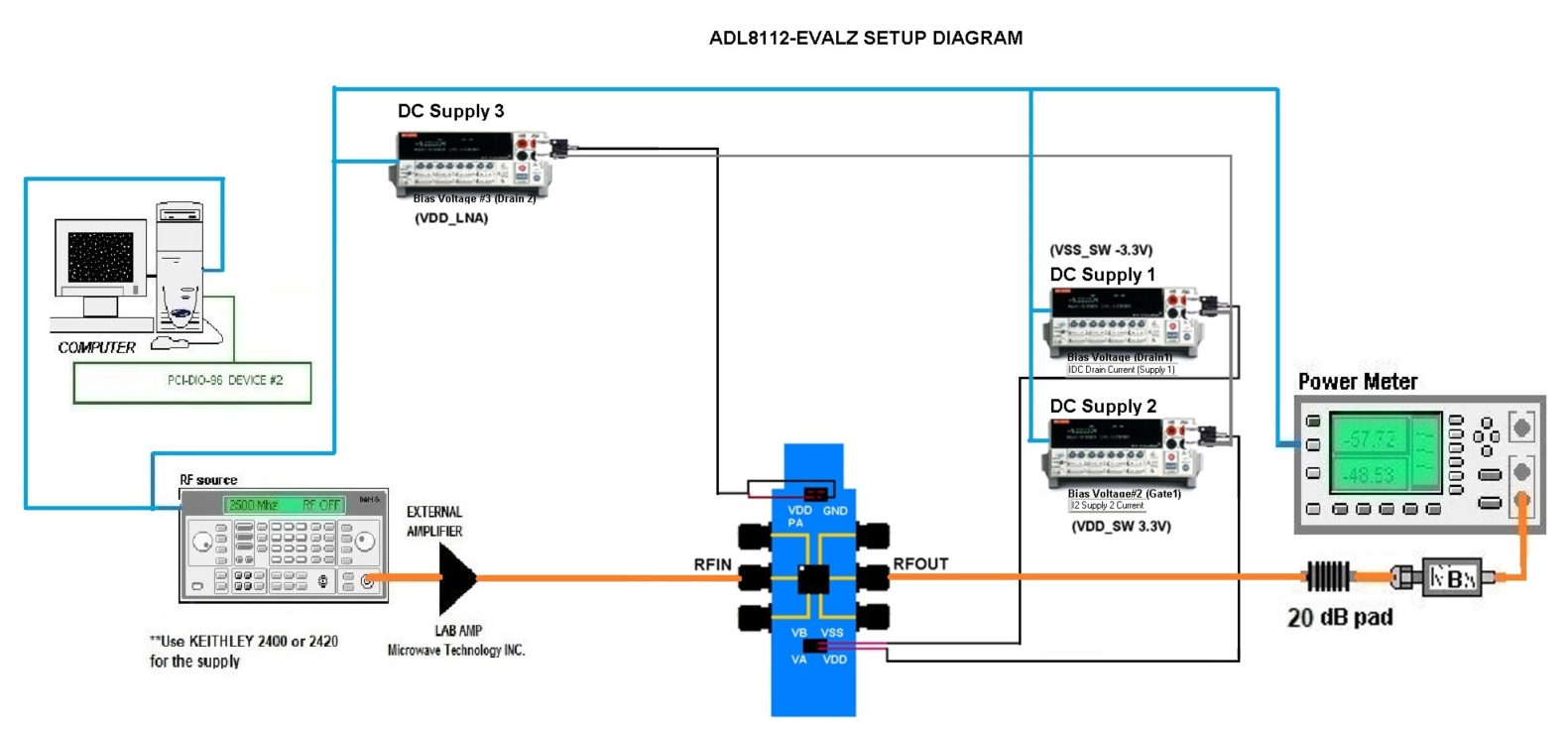
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| **Model Name** | **C-Spec** | **Tester Program** |
| ADL8112-EVALZ | C-06155 | **ADL8112-EVALZ.par** |

Test set-up:

GPIB line- blue

RF line- orange

DC line- black/grey & red



Test Parameters:

