


Power Coefficient Test for RF Fixed Attenuator

1. Test Purpose

To evaluate the Power Coefficient of **DC-6GHz 10W 30dB** Fixed Attenuator from RF ONE.

2. DUT Product Information

Product Name	6GHz 10W 30dB SMA Attenuator	
P/N	RFH0630SC10	
Qty	1 PC	

3. Test Instrument and Tools

No.	Instrument	Model
1	49dBm Power Amplifier	BXT PA082096-49
2	Large Signal S21 Test System	BXT PM2000A-LS60

4. Test Description

Test set-up is shown in below Diagram 1 and Picture 1.

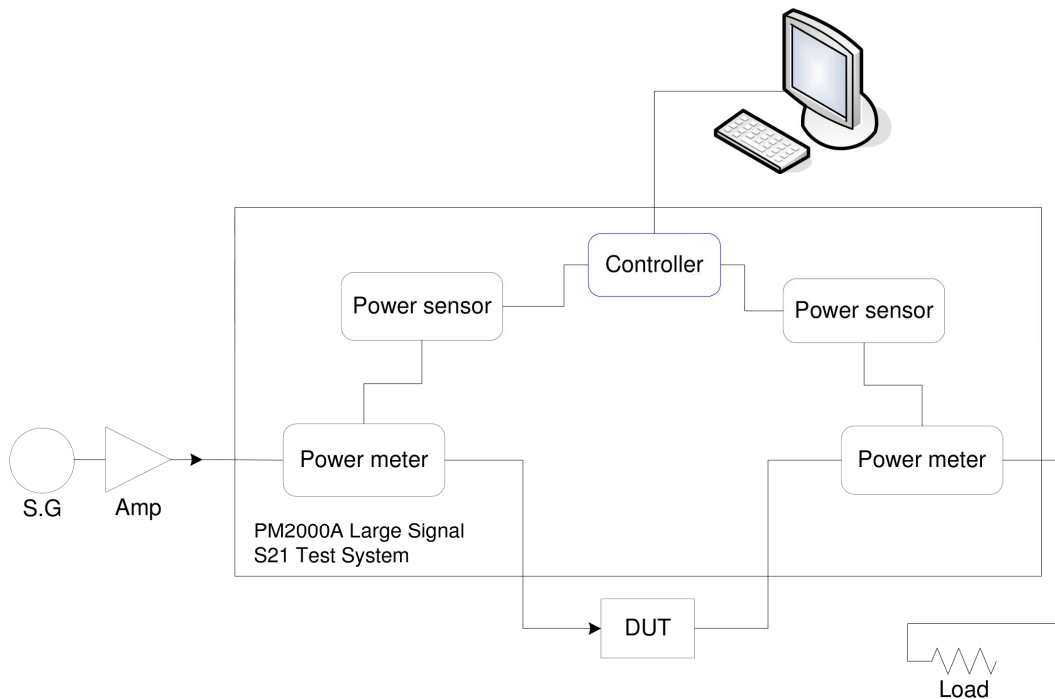
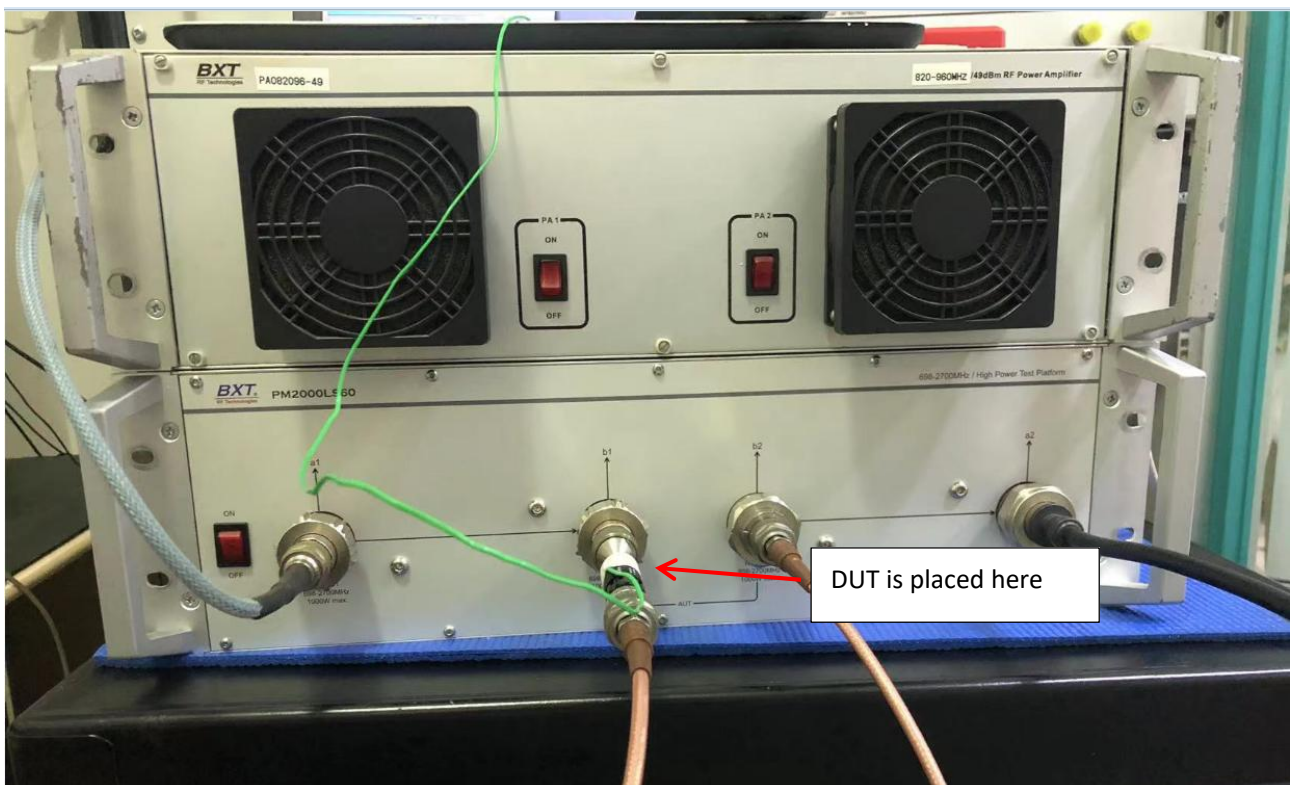


Diagram 1 Power Coefficient Test Block for Fixed Attenuator

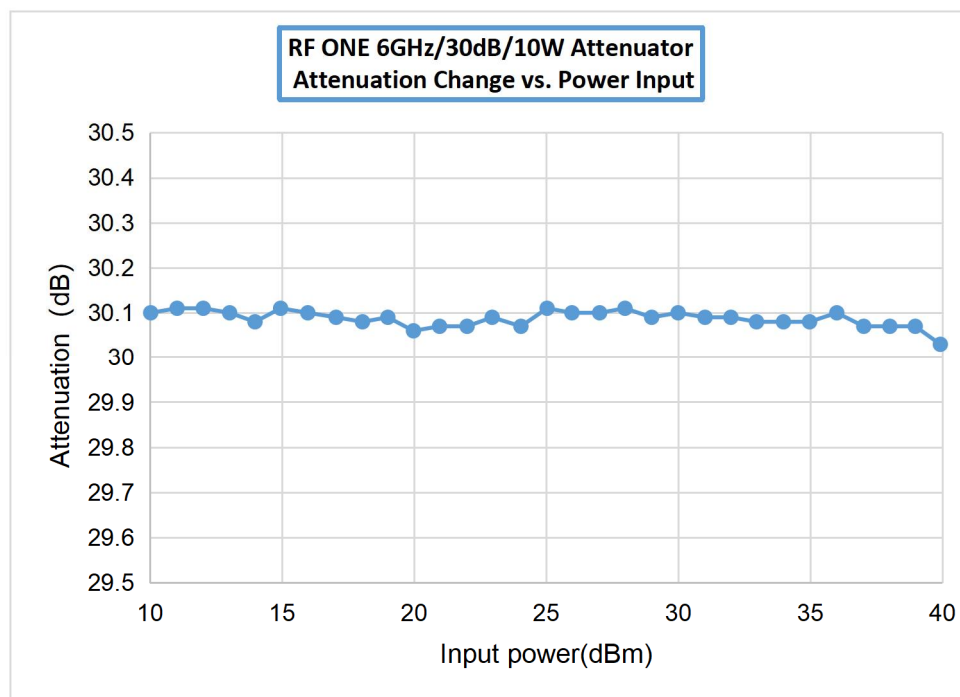


Picture 1 Photo for Large Signal S21 Test System BXT PM2000A-LS60 & 49dBm Power Amplifier BXT PA082096-49

Test condition and process

1. At $25 \pm 2^{\circ}\text{C}$, input 10dBm, 11dBm, 12dBm, 13dBm by 1 dBm increment till 40dBm into DUT attenuator, each power level is maintained and stabilized for 60 seconds, the test results was recorded automatically and simultaneously by the Large Signal S21 Test System into an excel file.
2. The power input from 10dBm, 11dBm, 12dBm, 13dBm by 1 dBm step till 40dBm is operated continuously. The DUT is not allowed to cool before the next power is applied.

Test Results



Test results are recorded in below table.

INPUT(dBm)	OUTPUT(dBm)	ATTENUATION (dB)
39.93	9.3	30.03
38.98	8.31	30.07
38.02	7.35	30.07
37.03	6.36	30.07
36.01	5.31	30.1
34.98	4.3	30.08
33.99	3.31	30.08
32.97	2.29	30.08
32	1.31	30.09
31.02	0.33	30.09
30	-0.7	30.1
29	-1.69	30.09
27.99	-2.72	30.11
27.03	-3.67	30.1
25.98	-4.72	30.1
25.04	-5.67	30.11
24.05	-6.62	30.07
22.96	-7.73	30.09
22.01	-8.66	30.07
20.97	-9.7	30.07
19.98	-10.68	30.06
19.01	-11.68	30.09
18.05	-12.63	30.08
17.05	-13.64	30.09
15.98	-14.72	30.1
14.95	-15.76	30.11
13.98	-16.7	30.08
13.02	-17.68	30.1
12.02	-18.69	30.11
11.03	-19.68	30.11
10.03	-20.67	30.1

Power Coefficient formula: $\Phi = \frac{\Delta A}{S \cdot P}$

Φ refer to power coefficient, [dB/(dB·W)]

ΔA refer to the attenuation change from 10mW input power till full rated power input

S refers to the nominal attenuation value, [dB]

P refers to the full rated power, [W]

The calculated Power Coefficient for the DUT 6GHz 30dB 10W attenuator is 0.000267dB/(dB·W).

Conclusion

An attempt has been made to provide the real test results for the Power Coefficient of RF ONE's DC-6GHz 30dB 10W attenuator, with typical result is 0.000267dB/(dB · W)., specified value is <0.00032dB/(dB·W).