



**SPA-18-40-40**  
**Broadband Power Amplifier**  
**S/N: S56033032**

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S/N: S56033032

DATE: Mar 31th, 2023

## 1. Small Signal Test:

Fig.1: Small Signal Gain at 25°C (Pin=-30dBm)

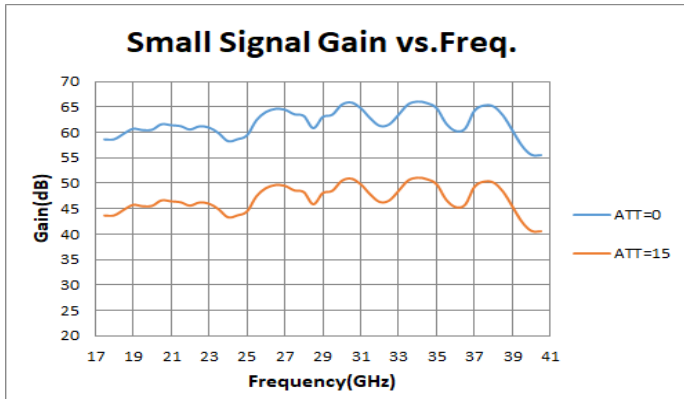
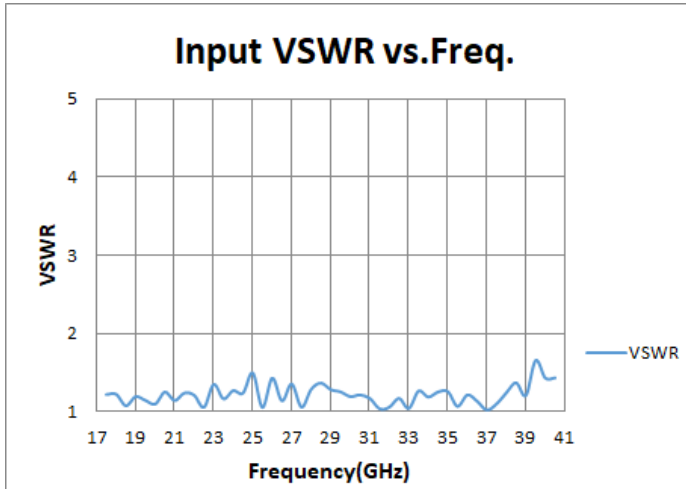


Fig.2: Input VSWR at 25°C (Pin=-30dBm)



## 2. Large Signal Test:

Fig.3: P1dB , P3dB and Psat at 25°C

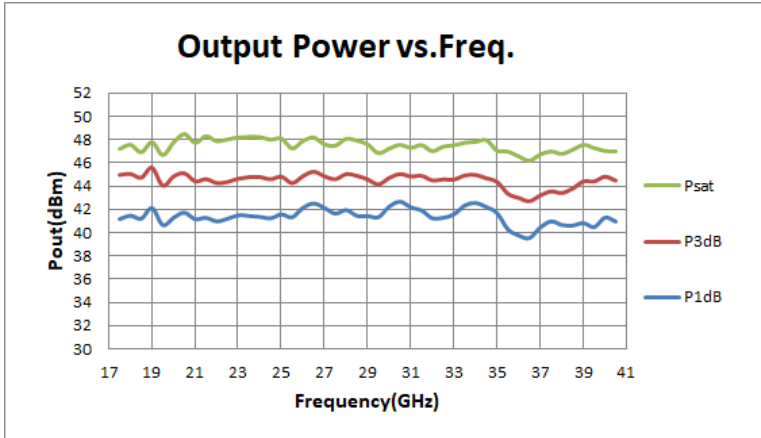


Fig.4: Power Gain vs Frequency at 25°C (Pout= Psat)

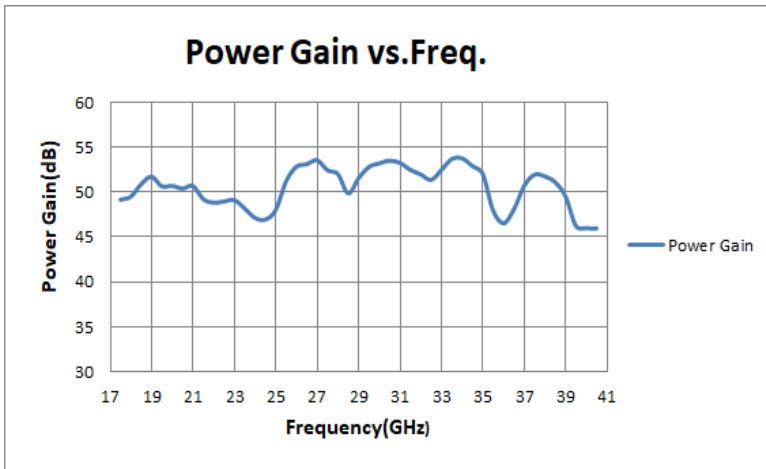


Fig.5: Output Power vs Frequency at 25°C

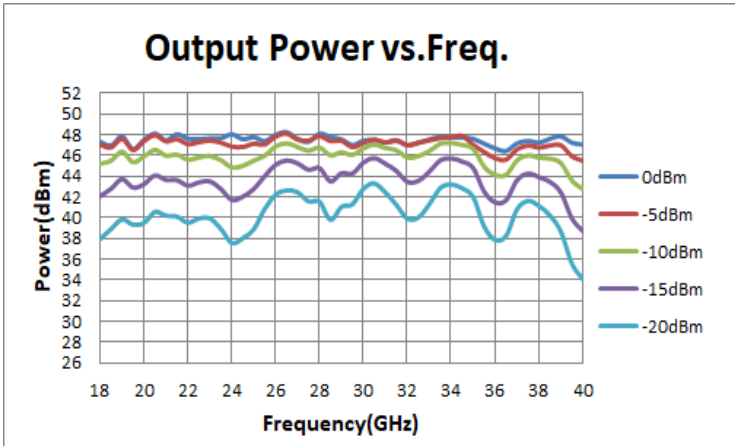


Fig.6:Gain Compression at 25°C

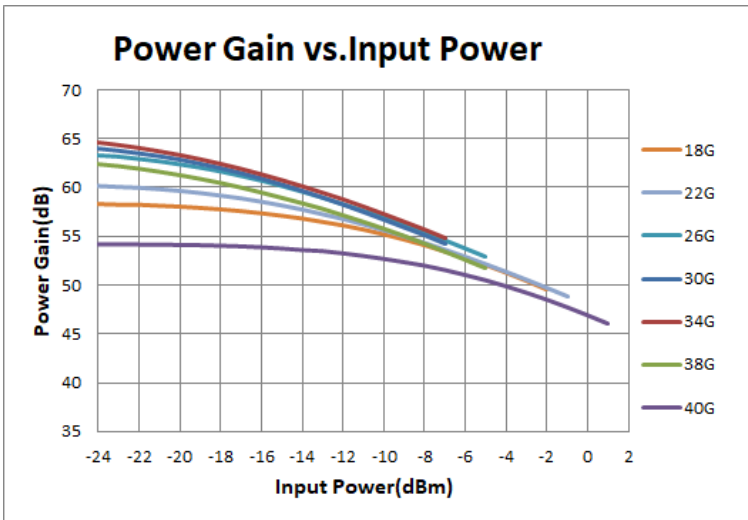


Fig. 7: Noise Floor vs Frequency at 25°C

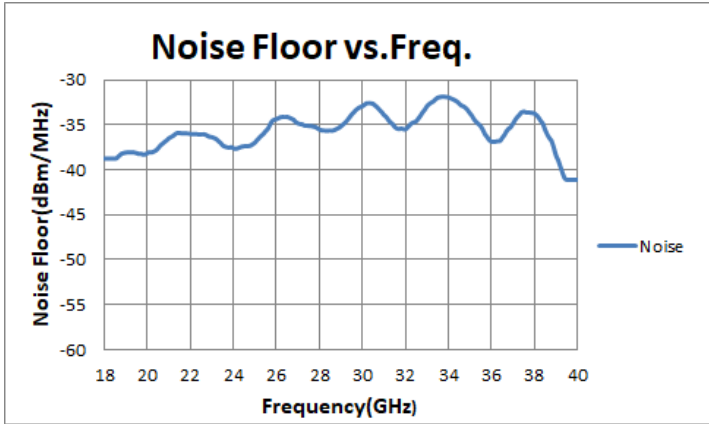


Fig.8: Output Power vs.Gain.at 25°C

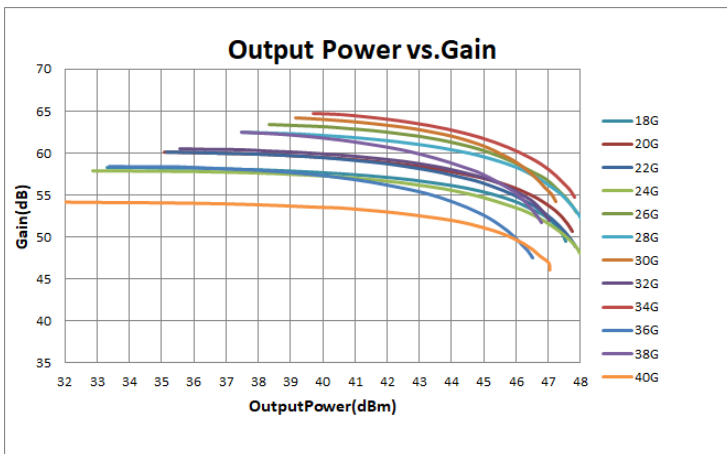


Table 1: Spurious vs Frequency (@Pout=46dBm, 25°C)

Serial Number	Frequency (GHz)	2nd Harmonic (dBc)	Spurious (dBc)
1	18.0	-31.7	-66.2
2	19.0	-23.7	-65.5
3	20.0	-25.6	-66.8
4	21.0	-32.6	-67.6
5	22.0	-51.0	-71.0
6	23.0	-51.2	-67.0
7	24.0	-47.5	-67.4
8	25.0	-48.0	-64.3
9	26.0	/	-62.0
10	27.0	/	-66.0
11	28.0	/	-65.0
12	29.0	/	-61.0
13	30.0	/	-63.0
14	31.0	/	-63.8
15	32.0	/	-67.3
16	33.0	/	-68.2
17	34.0	/	-67.7
18	35.0	/	-64.9
19	36.0	/	-65.5
20	37.0	/	-66.6
21	38.0	/	-68.3
22	39.0	/	-64.7
23	40.0	/	-62.3

## 1. Product Description

SPA-18-40-40

18-40GHz 40Watts

Broadband Power Amplifier

Features: Multi-octave Broadband, High output power,

High efficiency, High reliability

Applications: Test &amp; Measurement, SATCOM, EW

### GENERAL SPECIFICATIONS:

Parameter	Unit	Min.	Typical	Max.
Frequency	GHz	18	-	40
Small Signal Gain	dB	46	-	-
Gain Adjustment	dB	-	15	-
Gain Flatness	+/-dB	-	-	8
Psat	dBm	46	-	-
Input Return Loss	dB	-	-	-10
Max. input power	dBm	-	-	5
Harmonic	dBc	-	-15	-10
Spurious	dBc	-	-65	-60



## 2. Specifications

### ENVIRONMENTAL SPECIFICATIONS:

Parameter	Unit	Min.	Typical	Max.
Voltage	V(AC)	90	220	240
Current@220V	A	0.8	-	3.5
Operating Temperature	°C	0	-	50
Non-Operating Temperature	°C	-20	-	65

### MECHANICAL SPECIFICATIONS:

Parameter	Unit	Min.	Typical	Max.
Dimensions LxWxH	mm	-	588x483x192	-
	inch	-	23.15x19.02x7.56	-
Weight	Kg	-	20.0	-
RF Input&Output	-	2.92-Female& 24JS18000		

### MODEL APPEARANCE(inch/mm)

## 3. Operation Instructions

- **Steps to turn on the power amplifier:** Firstly, press the power switch. Secondly, press the RF switch.

Then, turn on the source output.

- **Steps to turn off the power amplifier:** Firstly, turn off the source output. Secondly, turn off the RF switch. Then, turn off the power switch.
- Always keep the voltage within 90V-240V. It is suggested to connect the AC power wire first, then turn on the rear AC switch, and finally switch on the front DC button.
- Quiescent current is 0.8A at 220V-AC input. Operating current will rise to 3.5A at 220V-AC full output power.
- The Max. input power is 5dBm@18-40GHz, Typical: 0dBm@18-40GHz.
- The gain will increase by turning the knob clockwise, otherwise the gain will decrease.
- Please always connect to a good load or attenuator that can handle 100W or higher at the output port of the amplifier. Cool the attenuator properly.
- When the temperature of the final stage is higher than 75 °C, the Alarm LED on the front panel will be lighted. please turn off the PA right now, and

check if the environmental temperature higher than 50 °C, or the fans work improperly.