Application Note

Evaluation Board : P/N VWA0000925AA

Die : VWA50015AB

	Written	Controlled by	Approved by
Name	CTU	GDE	
Date	05/10/22	05/10/22	
Signature	OK	OK	

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I. HISTORIC

Edition	Date	Description of Evolutions
1.0	05/10/22	Creation

II. SUMMARY

III. LIST OF ILLUSTRATION

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IV. INTRODUCTION

IV-1. Description

The VWA0000925AA is a Wideband Distributed Amplifier "evaluation board". It is working in the 60 kHz - 27 GHz frequency bandwidth. It uses the VWA50015AB die.
The evaluation board is composed by 2 mains parts:

- A Wideband Distributed Amplifier die VWA50015AB (1)
- A test structure support : Mechanic, PCBs, decoupling components, Input DC-block, Output DC-Block, Output bias-tee and K connectors (2)

This document describes the way to use the evaluation board VWA0000920AB.

IV-2. Evaluation Board PHOTO

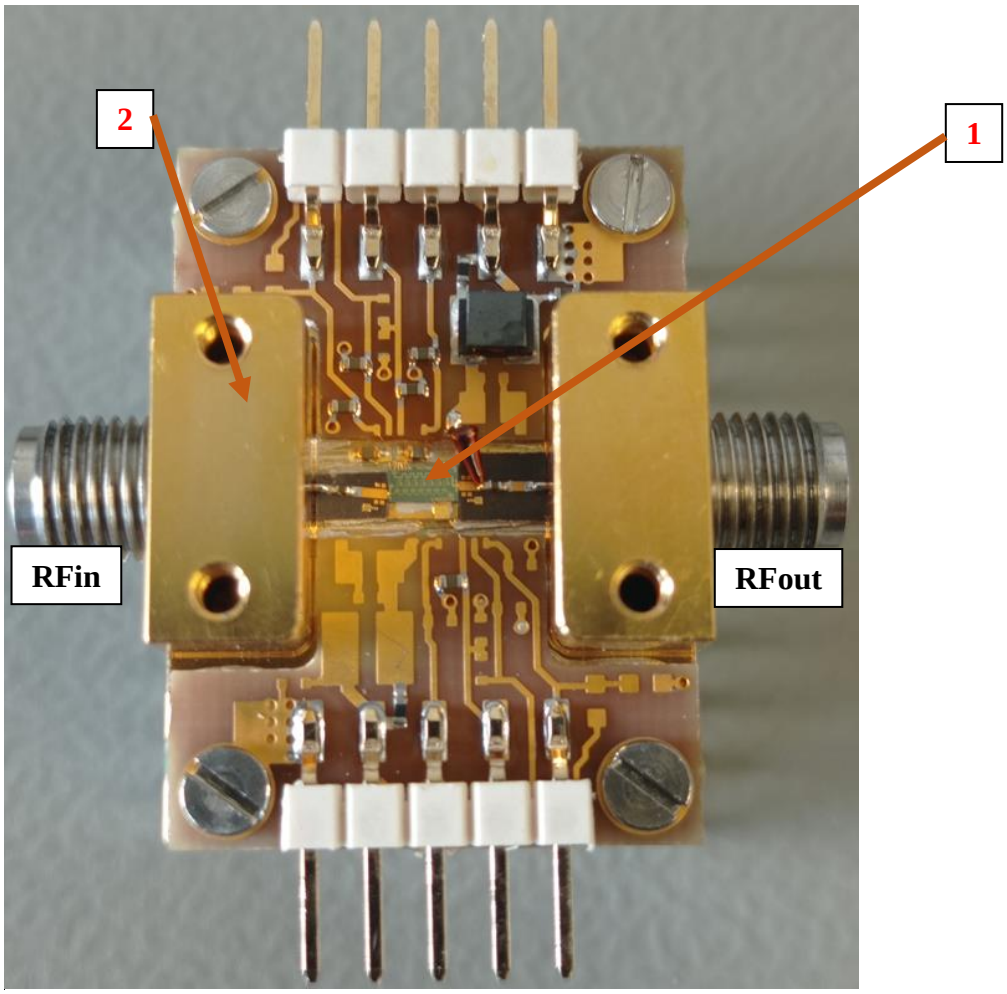

Figure 1. Evaluation board VWA0000925AA photo

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V. INTERFACE

V-1. Evaluation board VWA 0000925 AA Interface

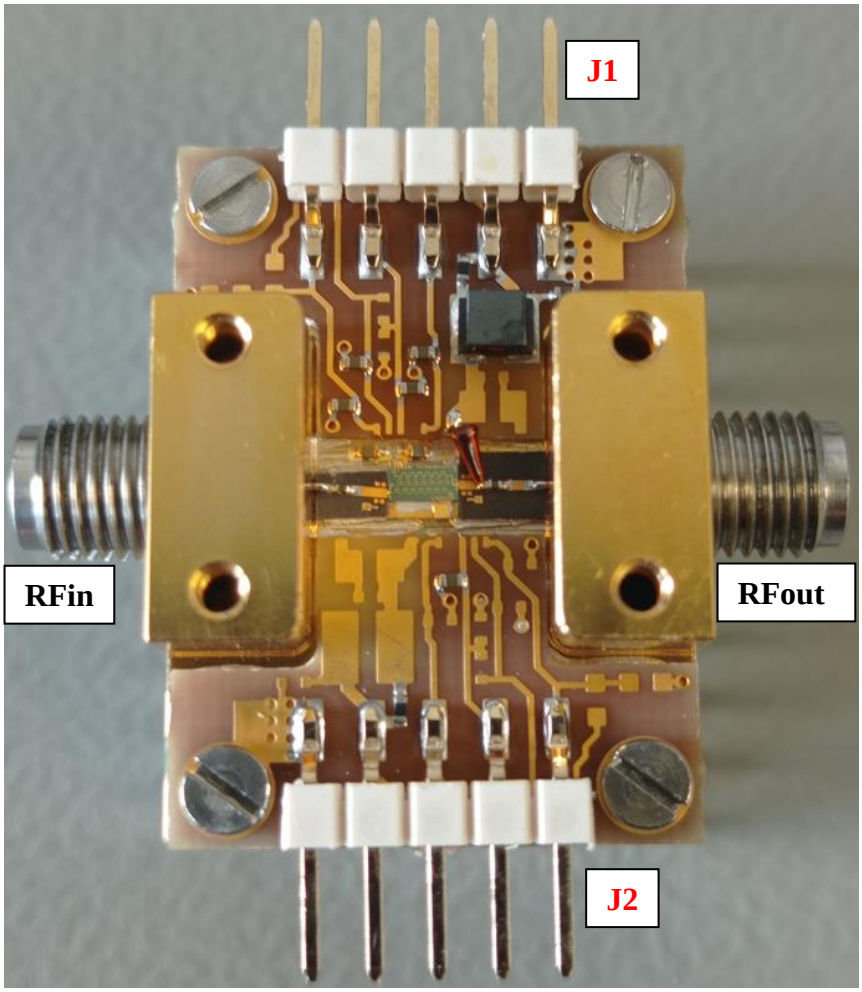

Figure 2. Evaluation board VWA0000925AA interface

Connector	Type	Allocation
J1	MOLEX 50-57-9005	VBIAS, VG2 power supply and GND.
J2	MOLEX 50-57-9005	VG1 power supply and GND
RFin	K female	RF Input
RFout	K female	RF Output

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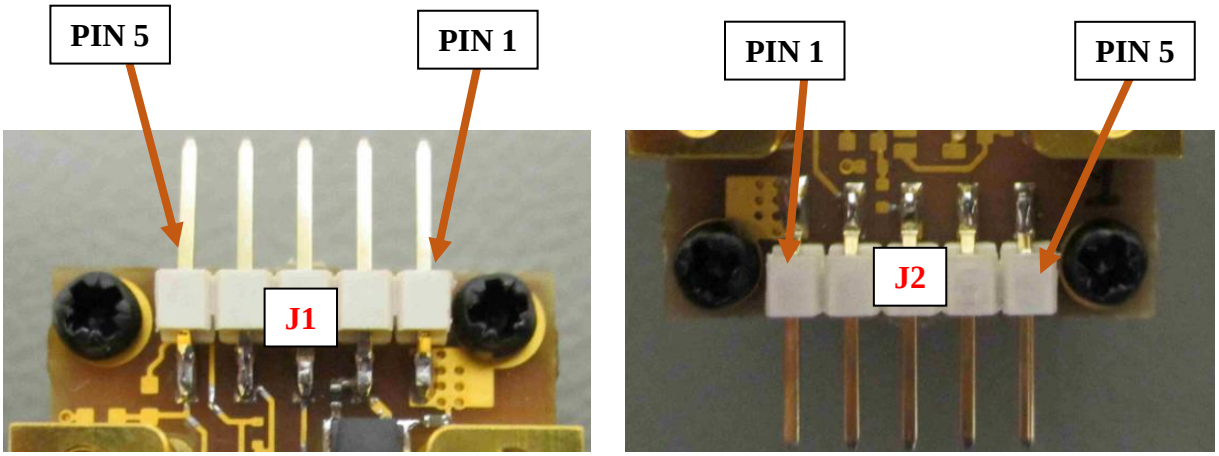

Figure 3. J1 and J2 PINOUT

PIN	J1 Identification	J2 Identification
1	GND	GND
2	VBIAS	NC
3	NC	NC
4	NC	VG1
5	VG2	NC

Figure 4. J1 and J2 PINOUT identification

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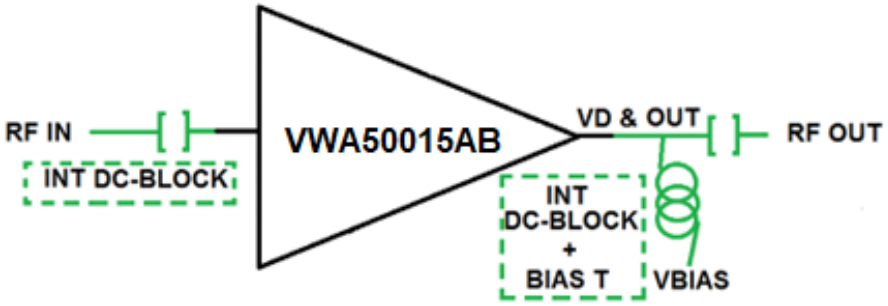
VI. BIASING PROCEDURE AND OPERATING CONDITIONS

An RFout Bias Tee is included in the VWA0000925AA module
An RFin DC block is included in the VWA0000925AA module



Electrical operating conditions

- VBIAS = +8.5V
- VG2 = +2V
- VG1 = 0V

Biasing procedure

Switch on

1. Set VG1 to 0V
2. Set VBIAS to +8.5V
3. Set VG2 to +2V
4. Turn RF ON

VG2 can be tune to adjust linear Gain and Psat.
VG1 can be adjust (from -1.5V to +0.15V) to tune the operating point of the amplification line.

Switch off

1. Turn RF OFF
2. Set VG1 to 0V
3. Set VG2 to 0V
4. Set VBIAS to 0V

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VII. ABSOLUTE MAXIMUM RATINGS

Maximum ratings	Symbols	Min	Max	Units
VBIAS Voltage	VBIAS		+9.5	V
Cross point control	VG1	-1.5	+0.15	V
Output amplitude control	VG2	-1	VBIAS/2	V
CW Input Power	Pin		+20	dBm
Junction temperature	Tj		+150	°C
Tstg	Storage Temperature	-55	+125	°C

Operation of this device above any of these parameters may cause permanent damages.

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VIII. TYPICAL EVB MEASUREMENT RESULTS

VIII-1. Measurement conditions

Reference plane measurements :

K connectors

Measurement conditions

- VBIAS = +8.5V
- VG2 = +2V
- VG1 = 0V
- ID = 120 mA typically

VIII-2. Small Signal

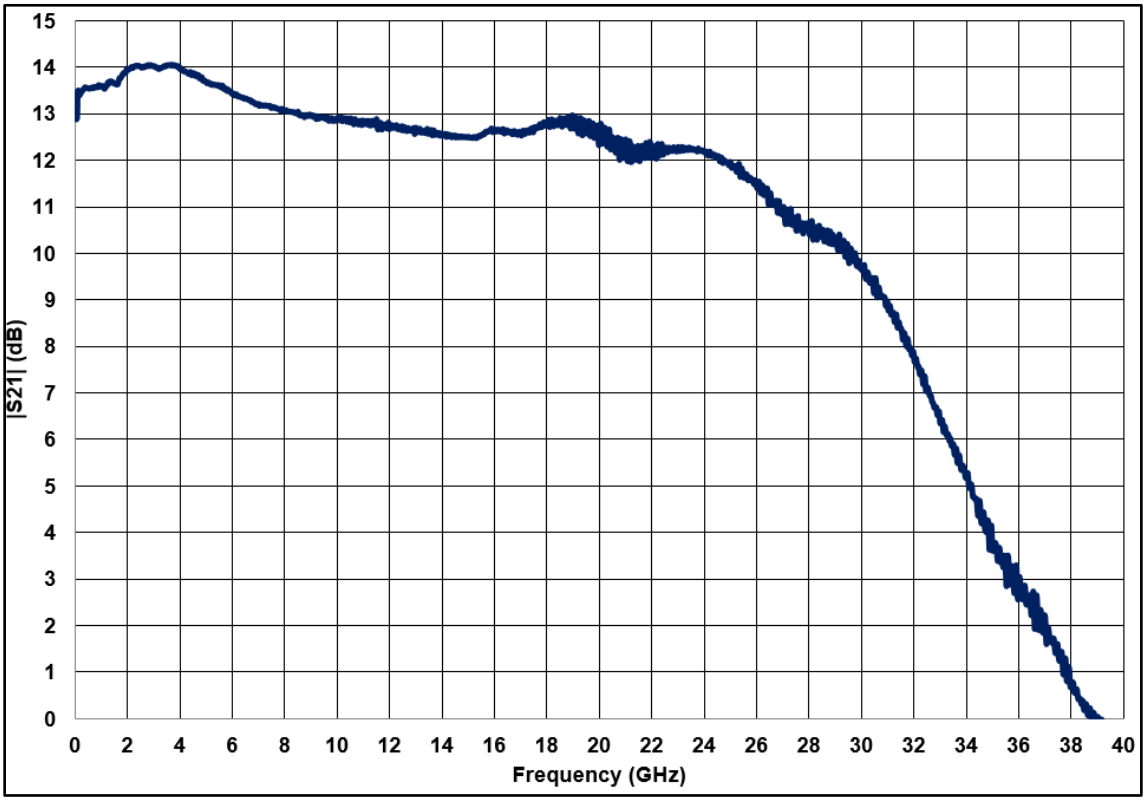

Figure 5. Small Signal Gain

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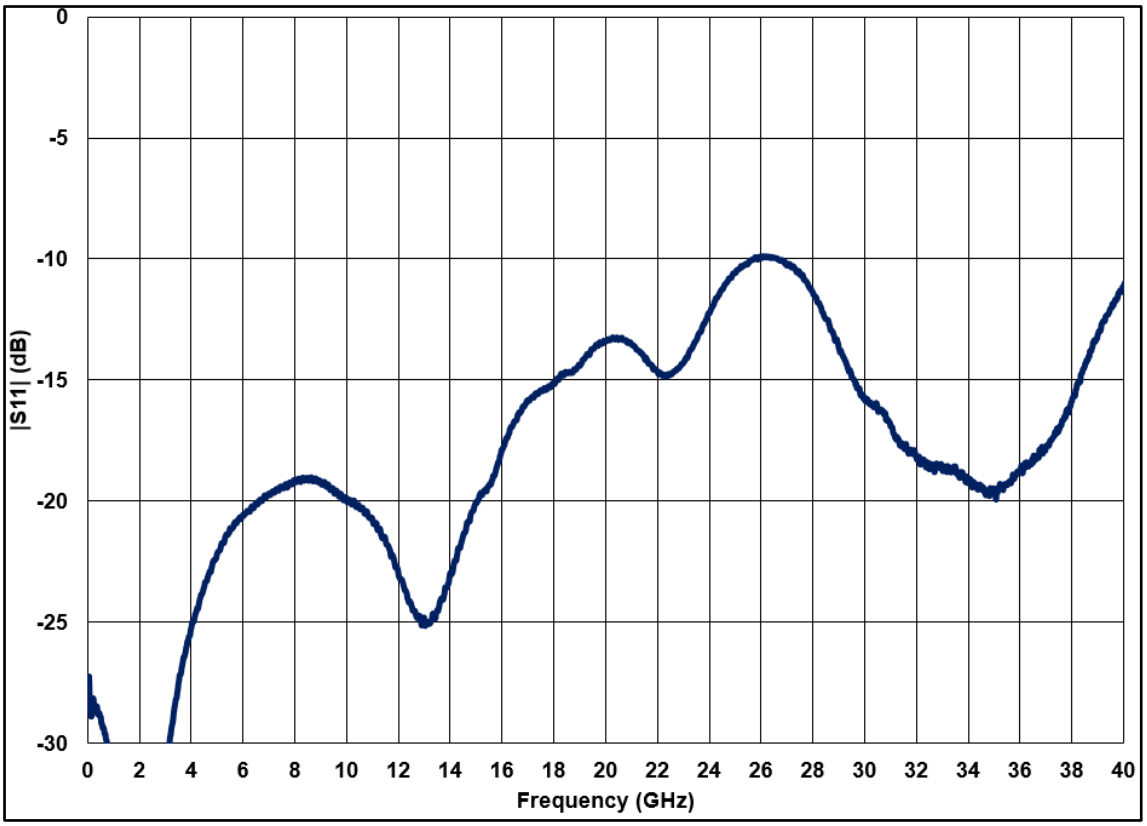

Figure 6. Input Return Loss

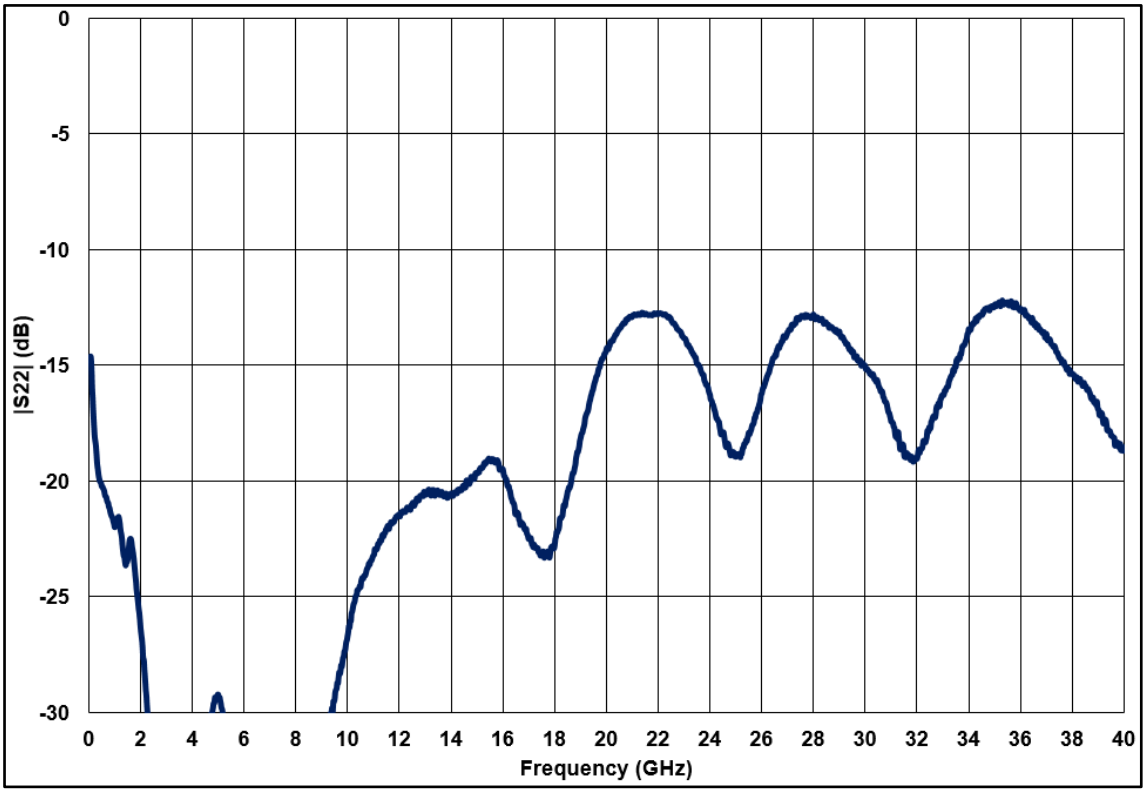

Figure 7. Output Return Loss

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VIII-3. Large Signal

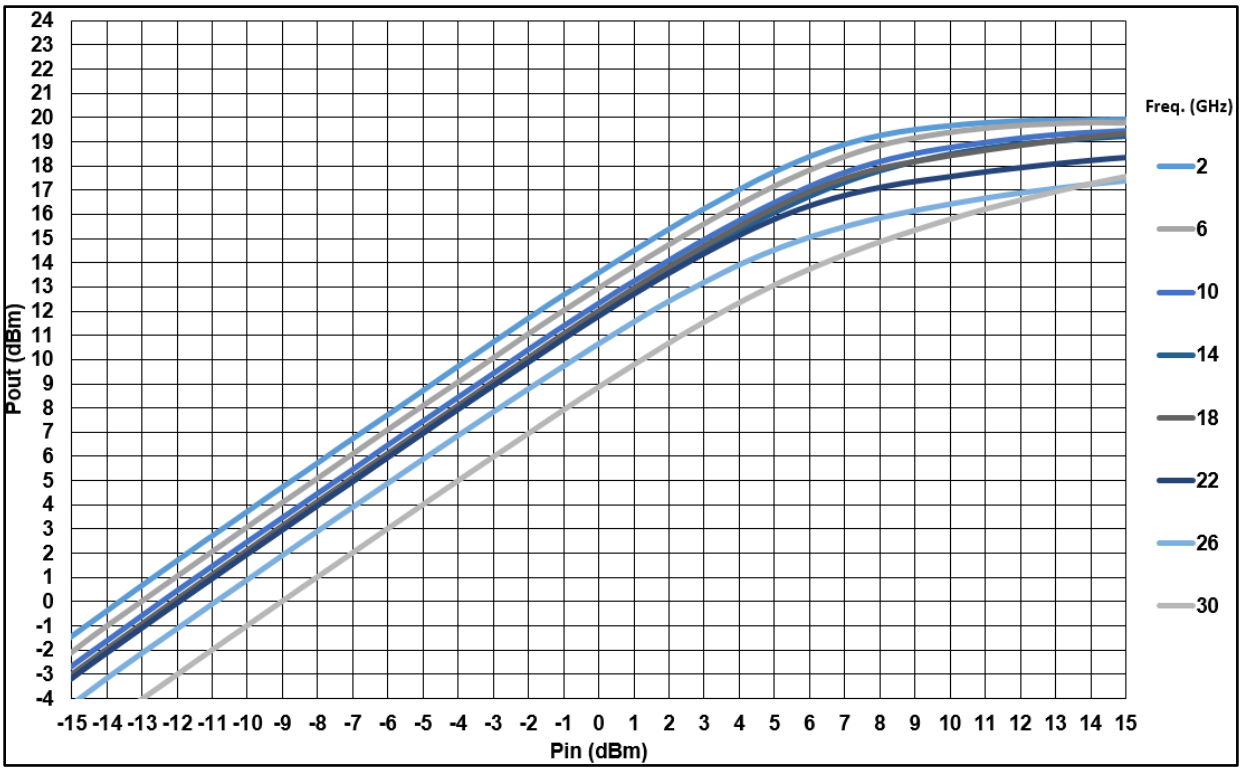

Figure 8. Output Power vs Input Power vs Frequency

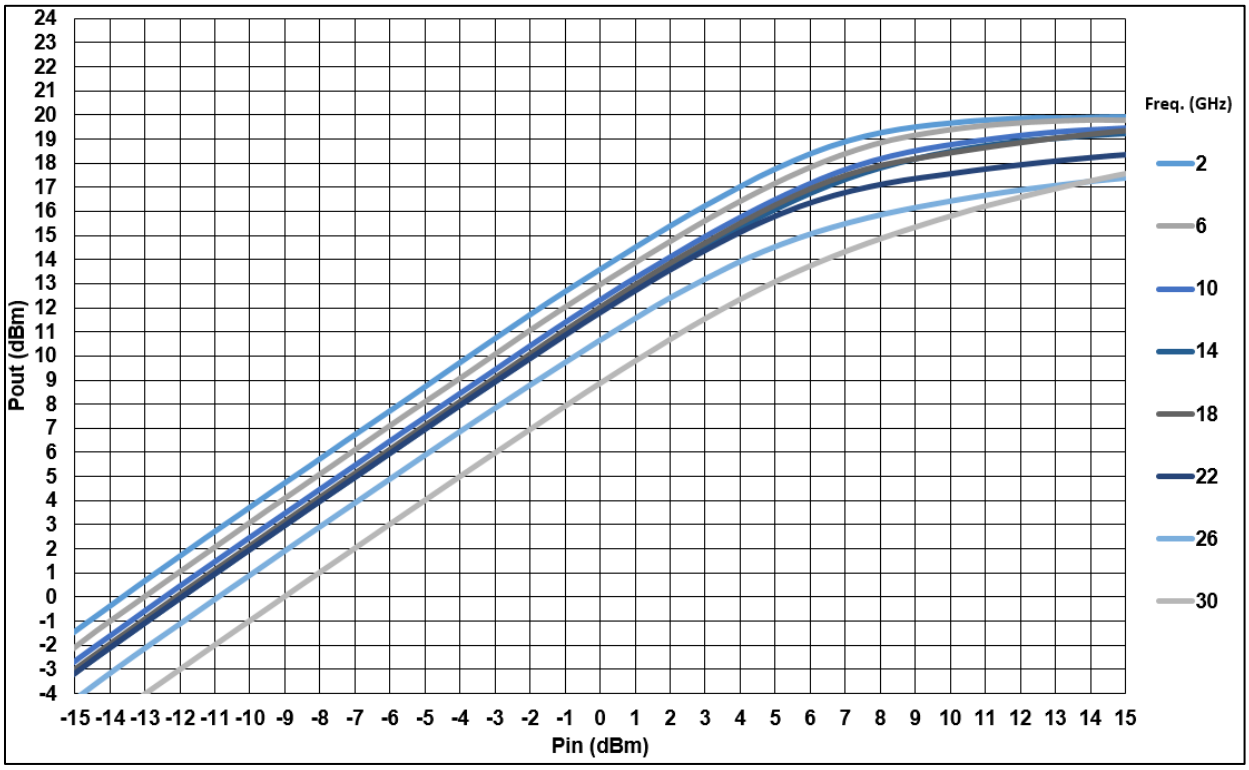

Figure 9. Gain vs Input Power vs Frequency

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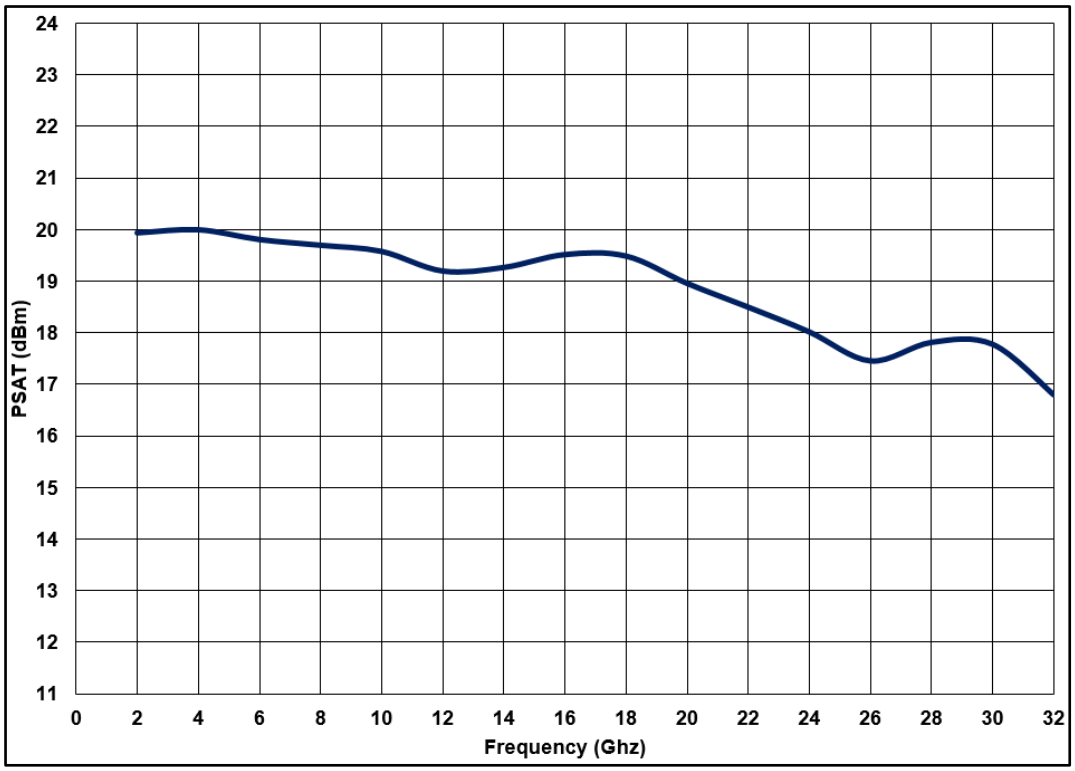

Figure 10. PSAT vs Frequency

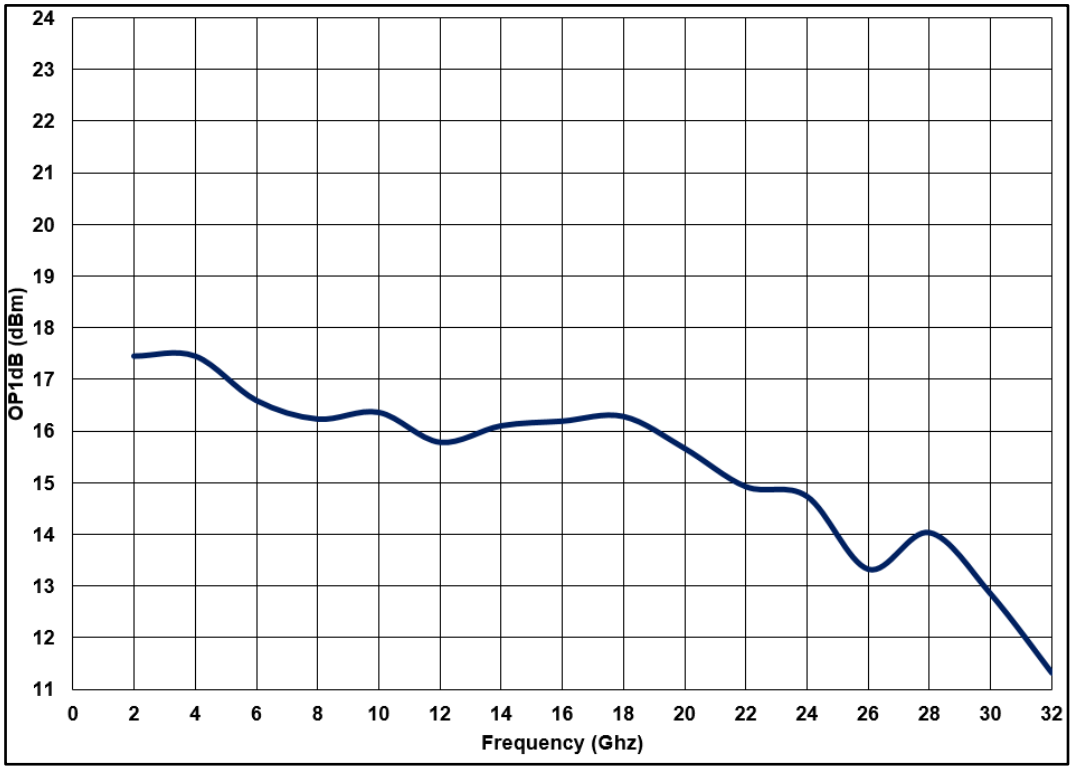

Figure 11. Output P1dB vs Frequency

End of document

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