



farran

Operational Manual

Power Amplifier





7. Technical Specifications

Table 1. Power Amplifier Specifications

Model	Parameters												
	Operating Frequency (GHz)		Gain (dB)		P_{sat} (dBm)	P_{1dB} (dBm)	S_{11} (dB)	S_{22} (dB)	DC Requirements (V/mA)			Input/Output Connector Port	Dimensions LxWxH (mm)
	Min	Max	Min	Typ	Typ	Typ	Typ	Typ	Min	Typ	Max	Typ	Typ
FPA-19-0001	40	60	15.5	18.5	-	20	-	-	5/300	6/350	9/500	WR-19 UG383/UM	41.5x29x37
FPA-15-0002	50	75	10	12	20	16	-10	-10	5/350	6/450	9/600	WR-15 UG385/U	38x32x20
FPA-15-0001	55	65	15	18	24	21	-	-	-	6/750	9/850	WR-15 UG385/U	38x32x20
FPA-12-0006	60	90	10	12	20	16	-10	-10	5/350	6/450	9/600	WR-12 UG387/U	38x32x20
FPA-12-0008	60	90	-	12	12	-	-	-	-	6/120	9/150	WR-12 UG387/UM	36x20x20
FPA-12-0007	67	80	10	15	23	21	-5	-5	5/600	6/700	9/850	WR-12 UG387/U	38x32x20
FPA-12-0001	71	78	-	20	28	-	-	-	13/400	15/450	18/500	WR-12 UG387/U	38x22x20
FPA-12-0003	71	78	15	15	23.5	-	-	-	-	6/800	9/1000	WR-12 UG387/U	32x40x20
FPA-10-0009	75	110	-	12	11	-	-	-	-	6/120	9/150	WR-10 UG387/UM	36x20x20
FPA-10-0006	75	110	-	15	20	-	-	-	-	15/200	-	WR-10 UG387/UM	34x22x20
FPA-10-0005	88	96	-	25	30	-	-	-	14/1000	15/1200	16/1400	WR-10 UG387/UM	115x46x50
FPA-10-0004	88	96	-	16	27	-	-	-	13/350	15/400	18/450	WR-10 UG387/UM	38x22x20
FPA-06-0001	110	150	15	18	15	12	-10	-10	5/190	6/220	9/260	WR-06 UG387/U	31.5x20x22

Note:

- . Min - Minimum
- . Typ - Typical
- . Max - Maximum
- . P_{1dB} - 1 dB compression point
- . P_{sat} - Saturated power

Specification Definitions

Nominal value (nom.) – ensured by design, not tested. **Measured value (min, max)** – expected and warranted product performance obtained from the actual measurements of product sample. **Non-traceable measured value (n. trc. meas.)** – expected product performance obtained from the actual measurements of a product sample by means of using Farran's own equipment and methods. Traceable only to Farran laboratory equipment. **Typical data (typ.)** – value that represents the product specification met over 90% of bandwidth or a mean value. **Specifications without limits** – represent the warranted product performance; with values of no or a negligible deviation from the given value and as such have a secondary impact on the product performance.

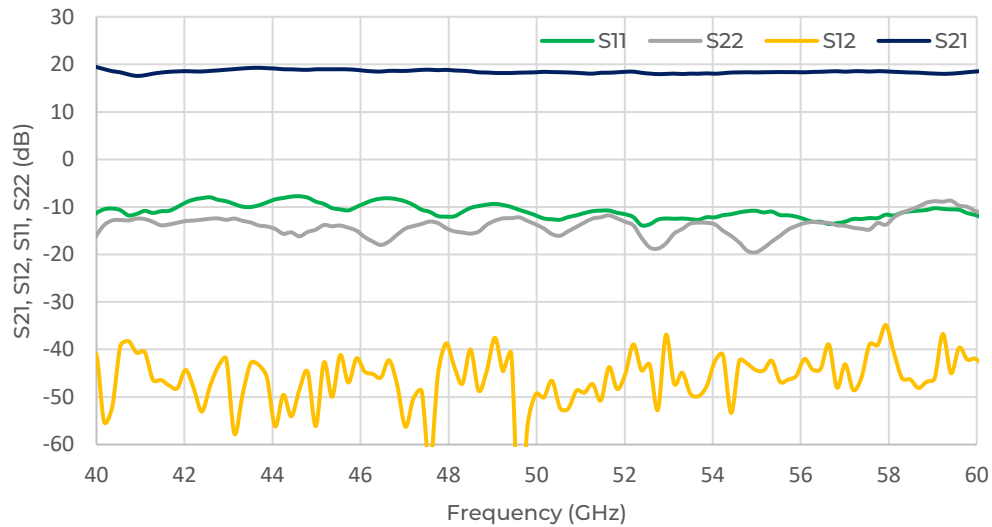


8. Typical Performance

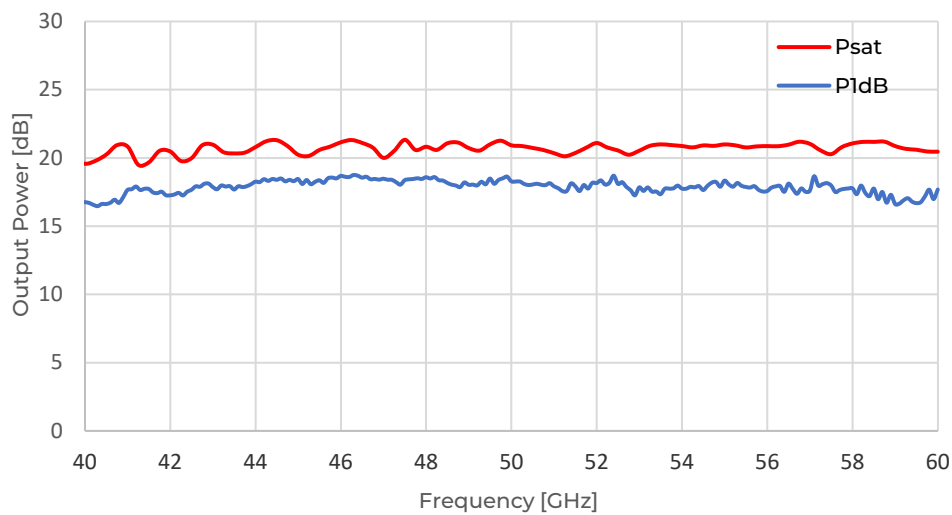
Farran's Power Amplifier performance plots are provided in this section, for all models. Unless otherwise stated, all performance data furnished here has been obtained from in-house measurements, at room temperature.

8.1 FPA-19-0001

S-Parameters



Typical P_{1dB} and P_{sat} vs Frequency

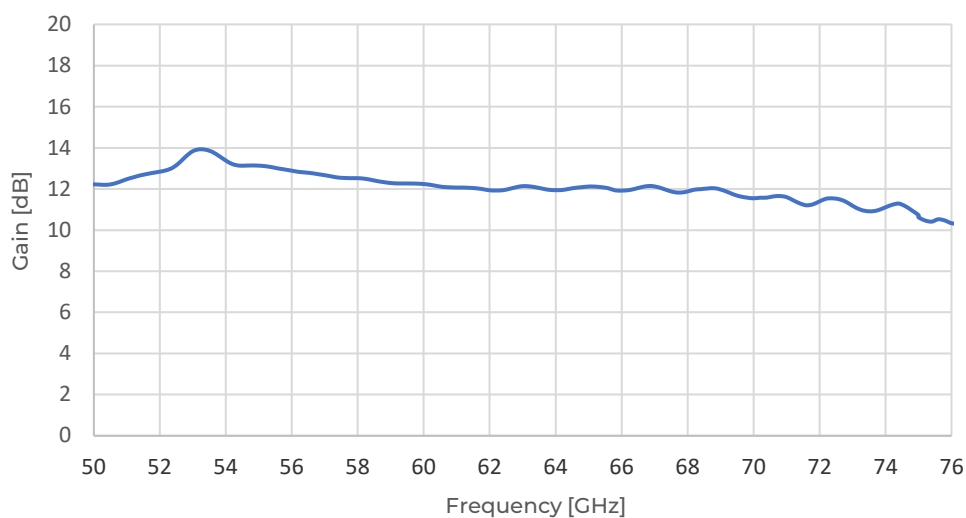




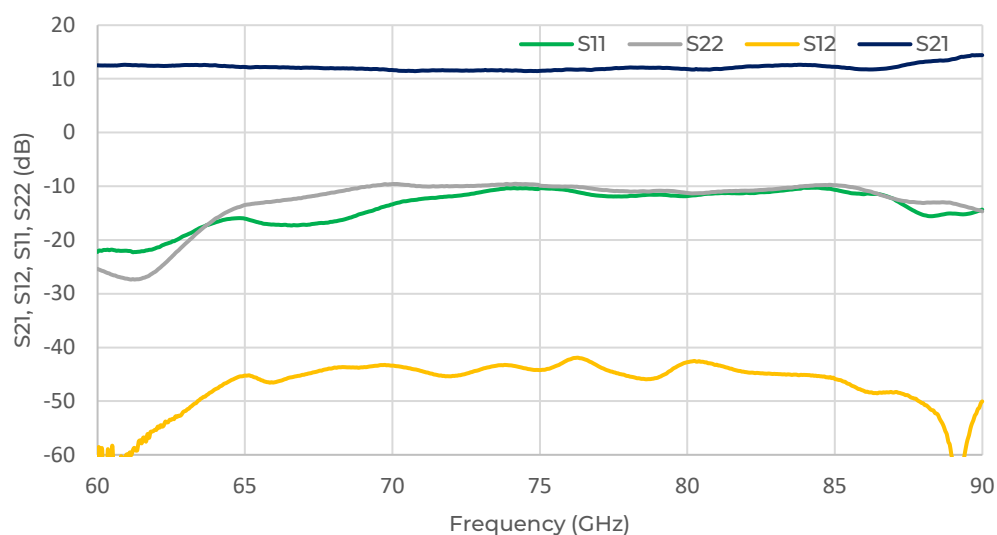
8. Typical Performance

8.2 FPA-15-0002

Typical Gain vs Frequency



S-Parameters

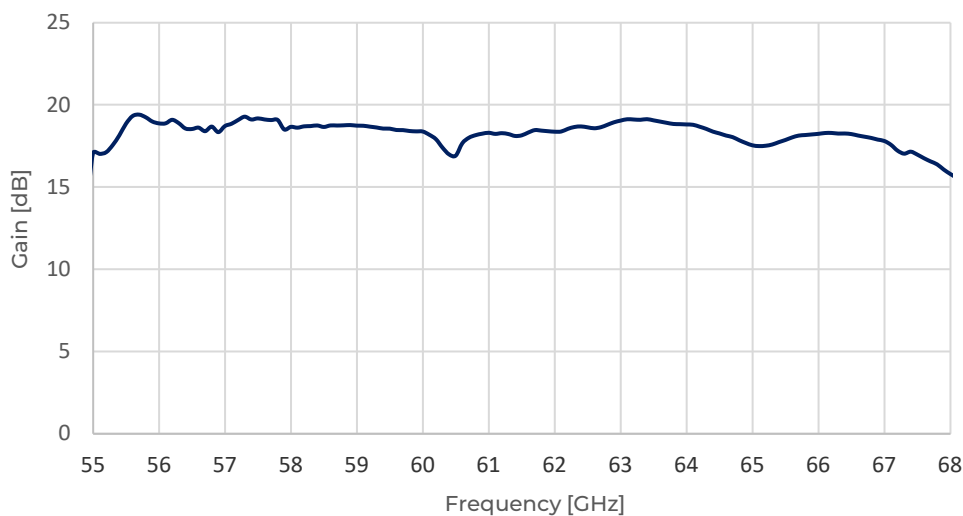




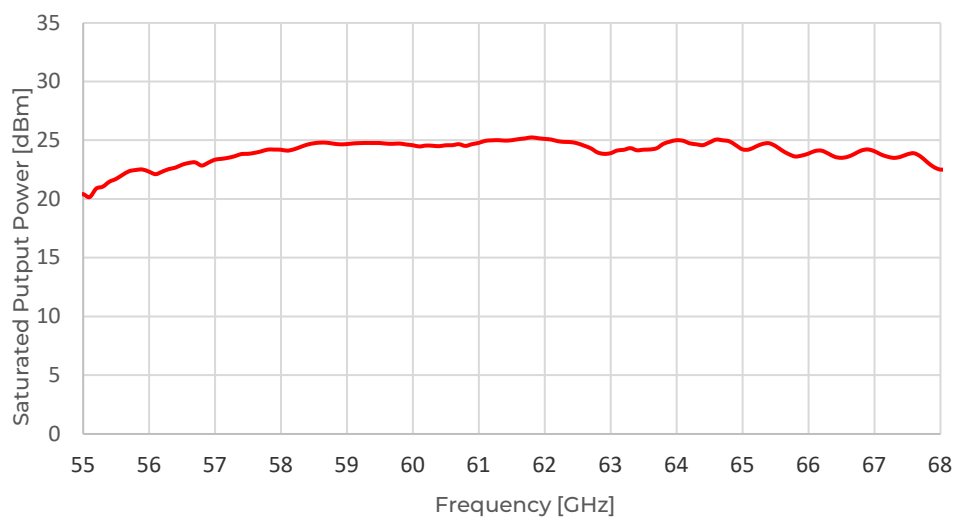
8. Typical Performance

8.3 FPA-15-0001

Typical Gain vs Frequency



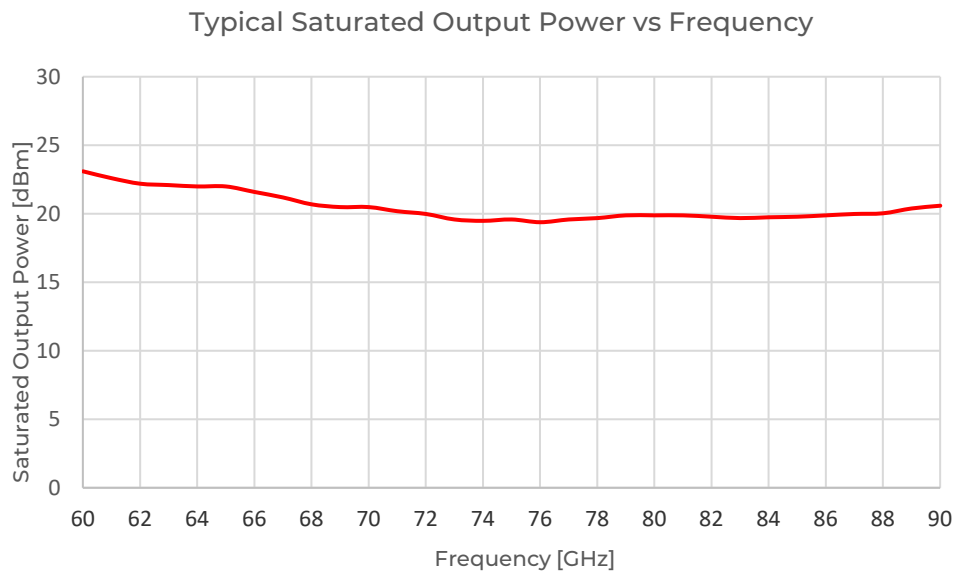
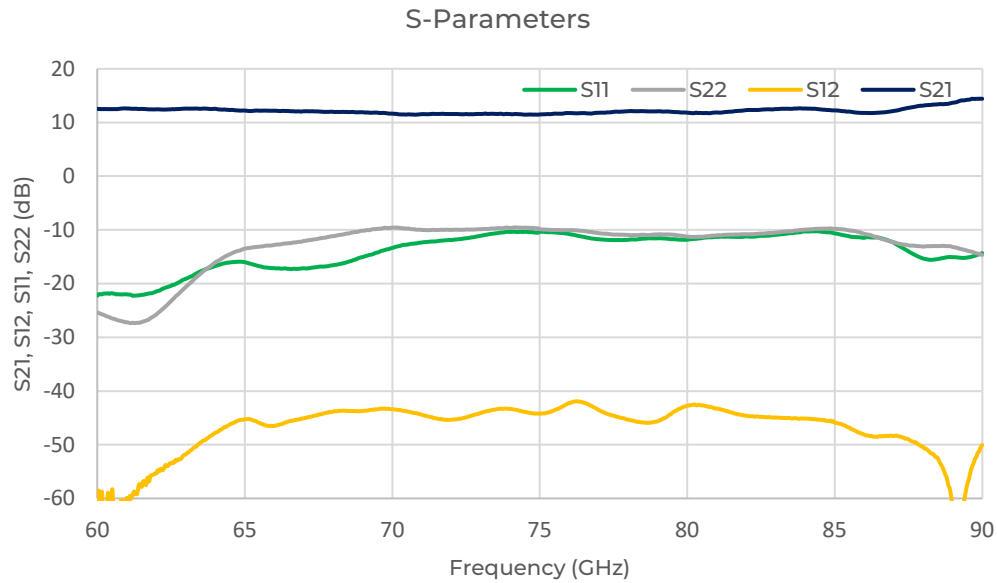
Typical Saturated Output Power vs Frequency





8. Typical Performance

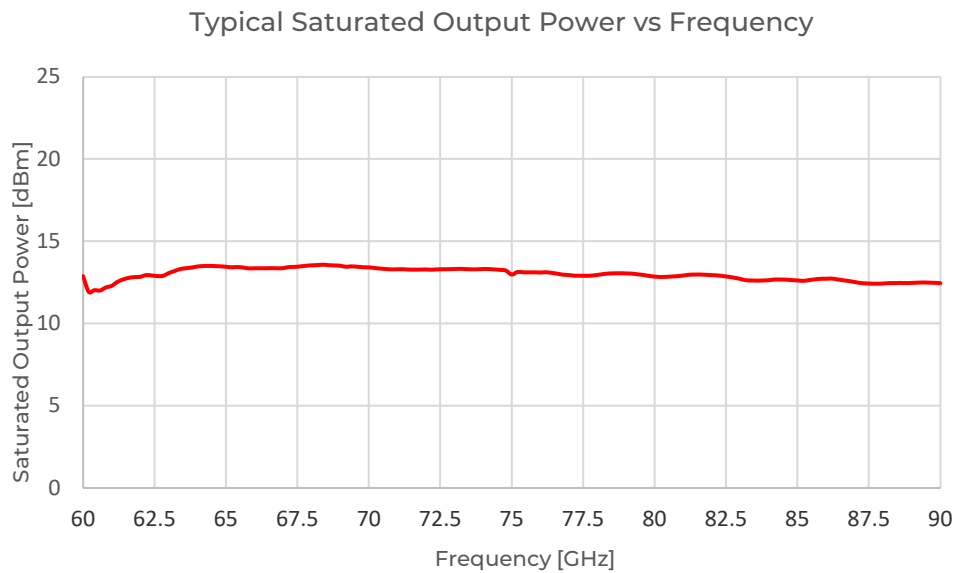
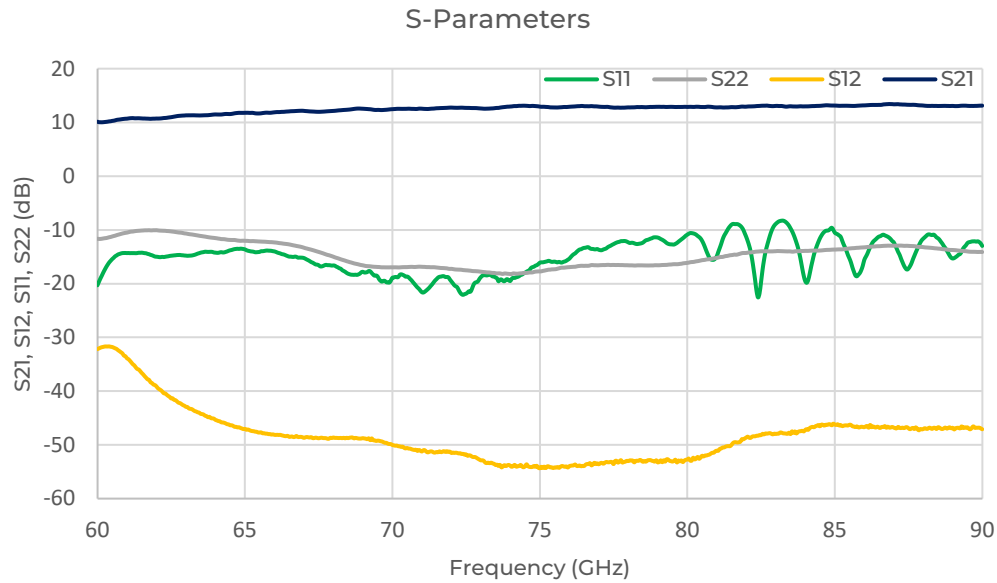
8.4 FPA-12-0006





8. Typical Performance

8.5 FPA-12-0008

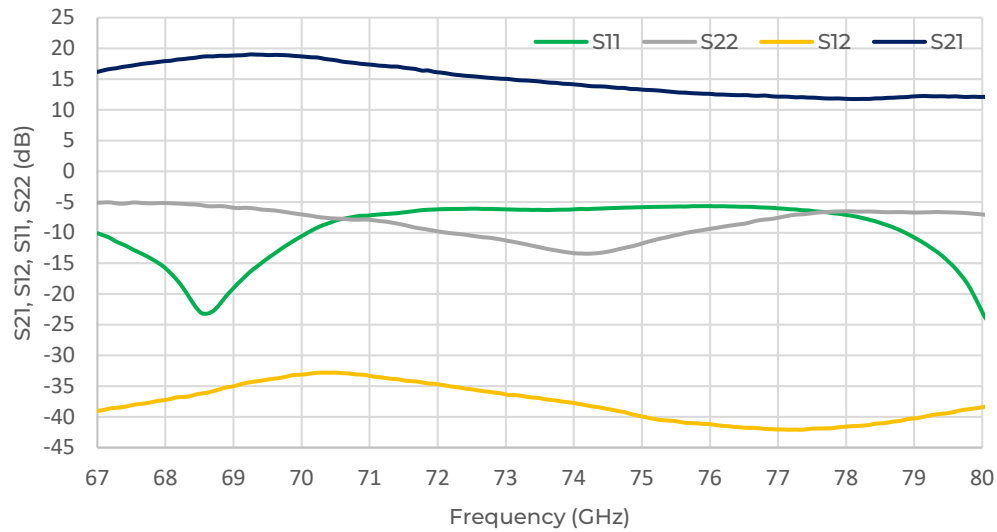




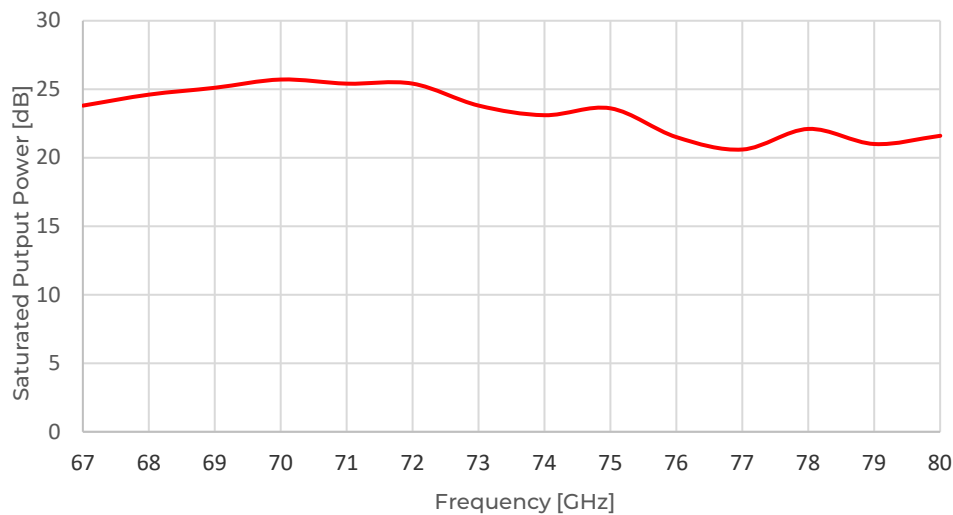
8. Typical Performance

8.6 FPA-12-0007

S-Parameters



Typical Saturated Output Power vs Frequency

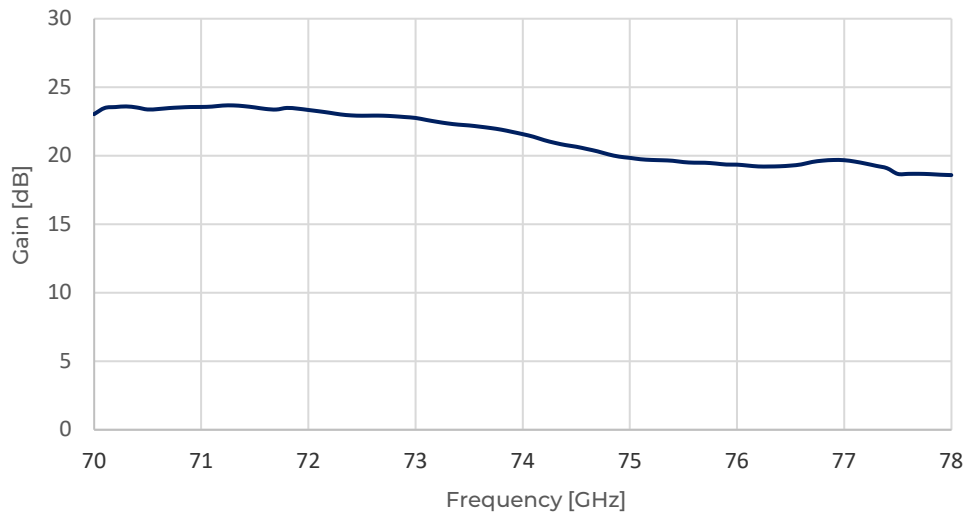




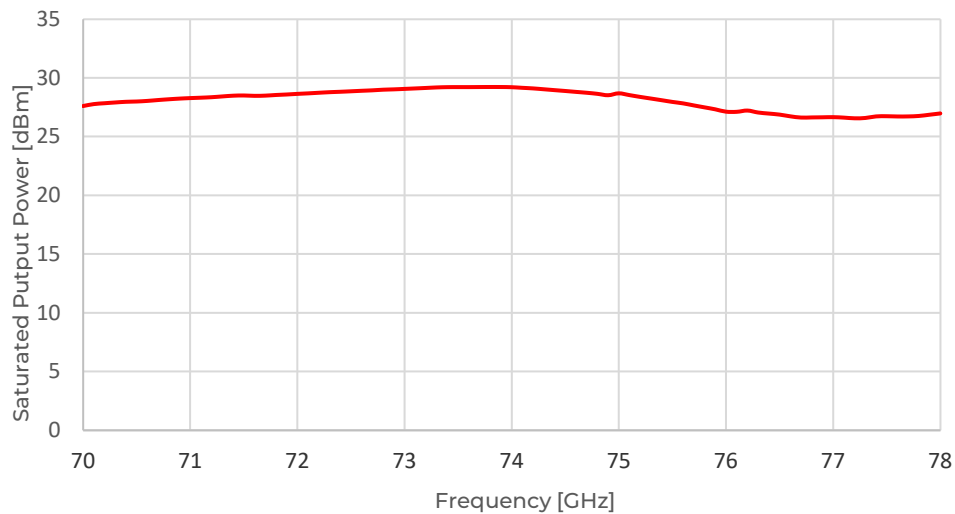
8. Typical Performance

8.7 FPA-12-0001

Typical Gain vs Frequency



Typical Saturated Output Power vs Frequency

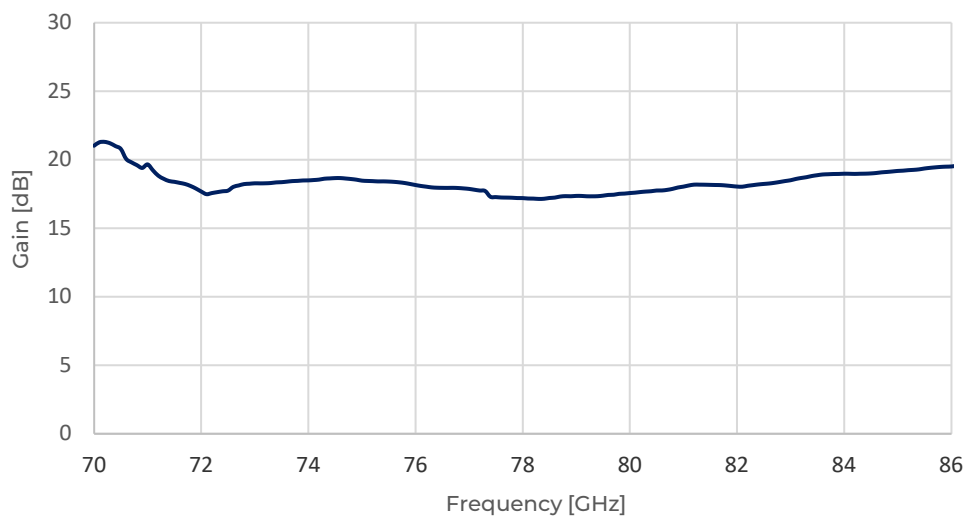




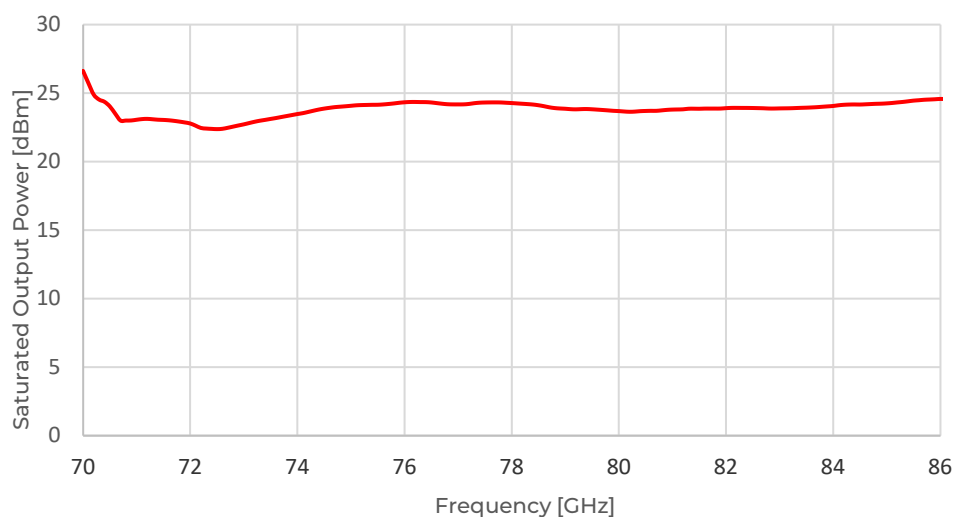
8. Typical Performance

8.8 FPA-12-0003

Typical Gain vs Frequency



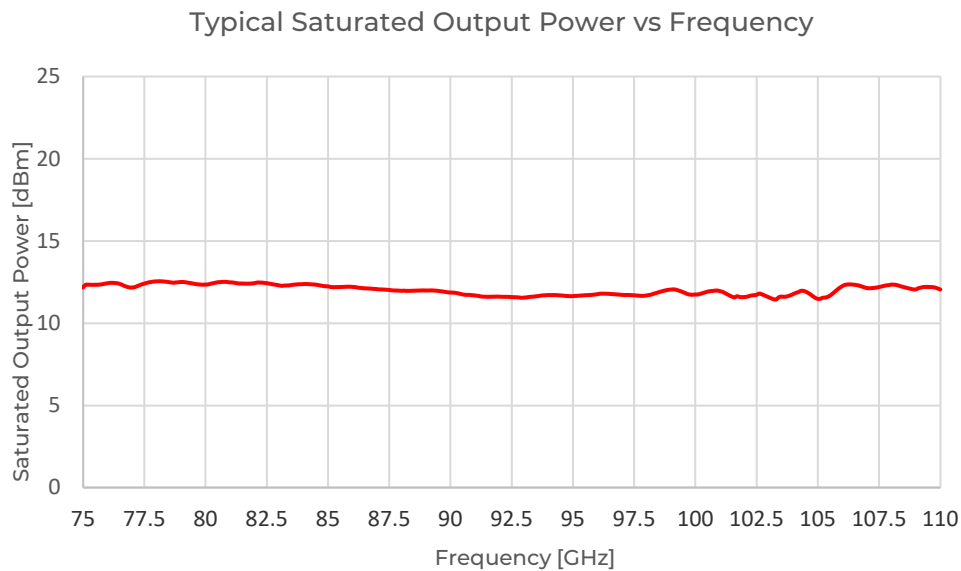
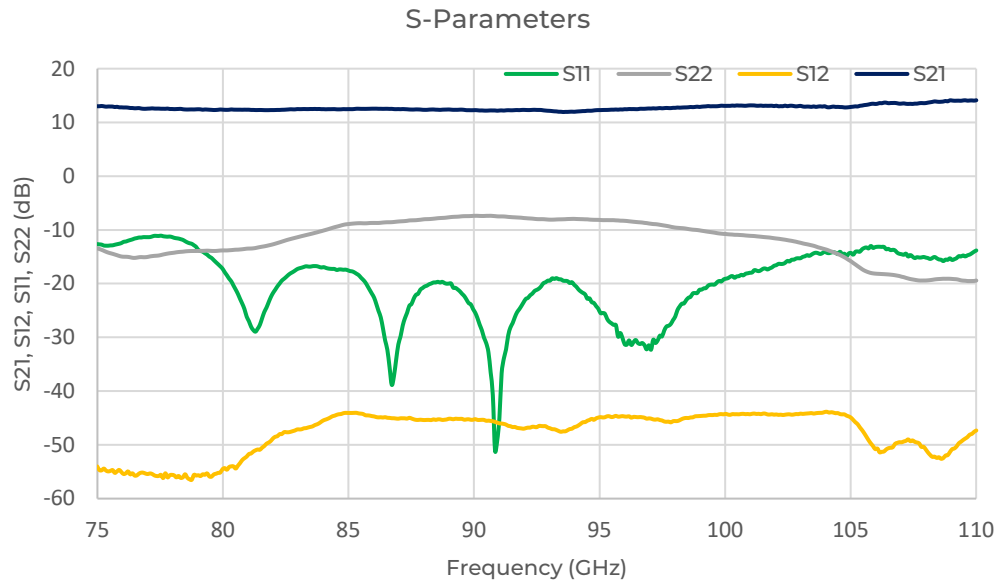
Typical Saturated Output Power vs Frequency





8. Typical Performance

8.9 FPA-10-0009

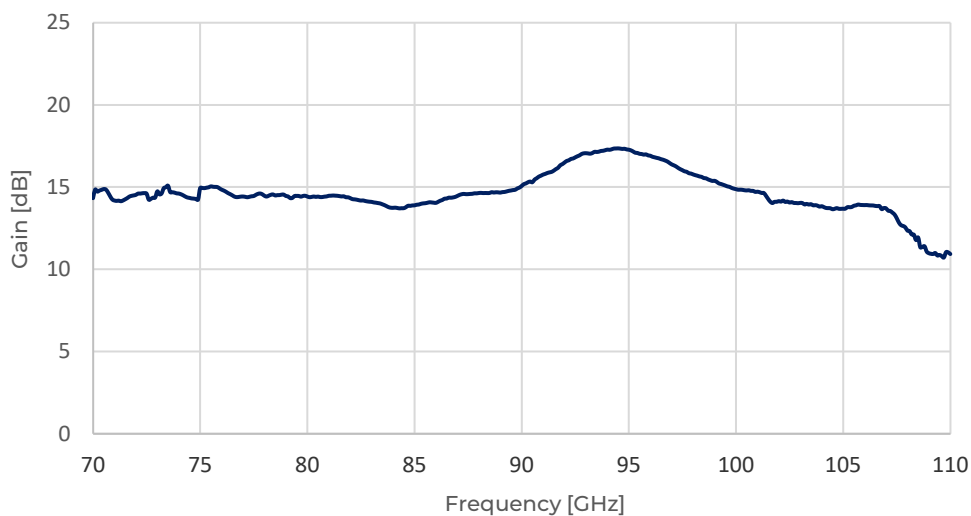




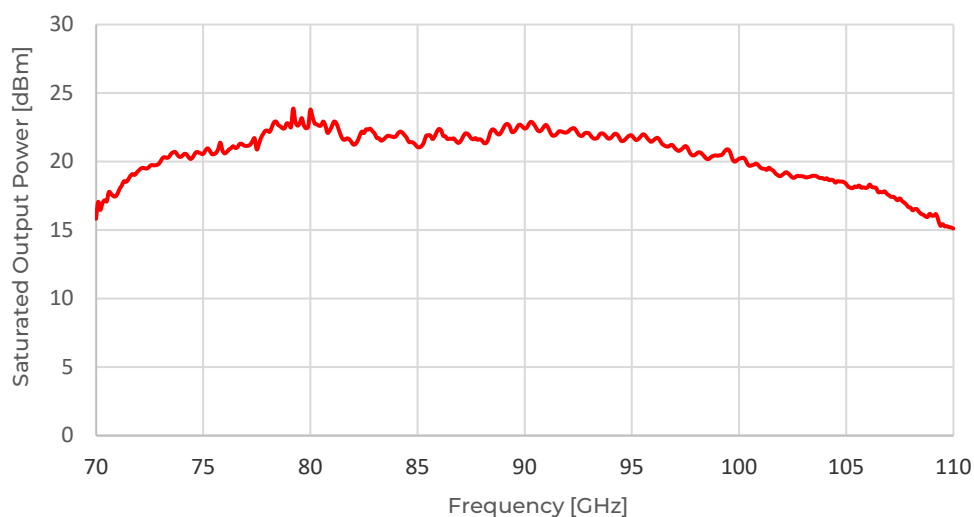
8. Typical Performance

8.10 FPA-10-0006

Typical Gain vs Frequency



Typical Saturated Output Power vs Frequency

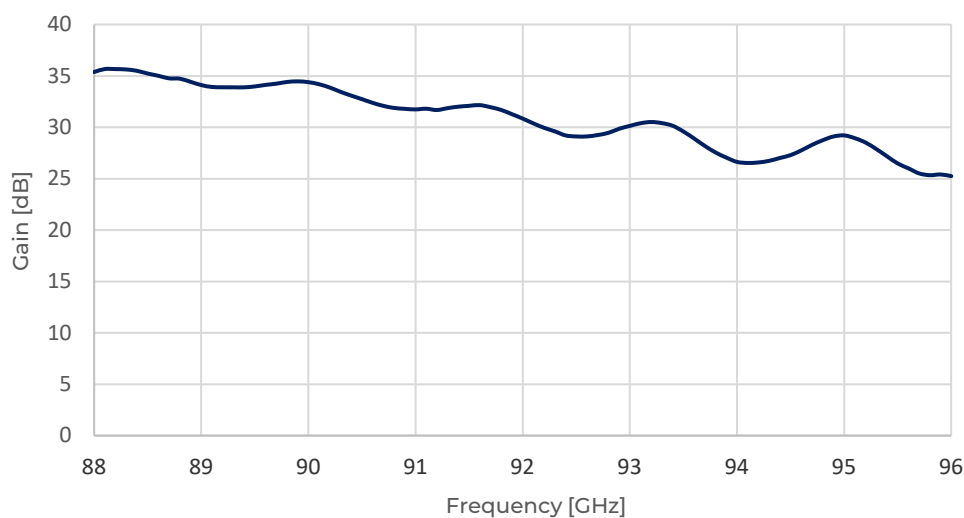




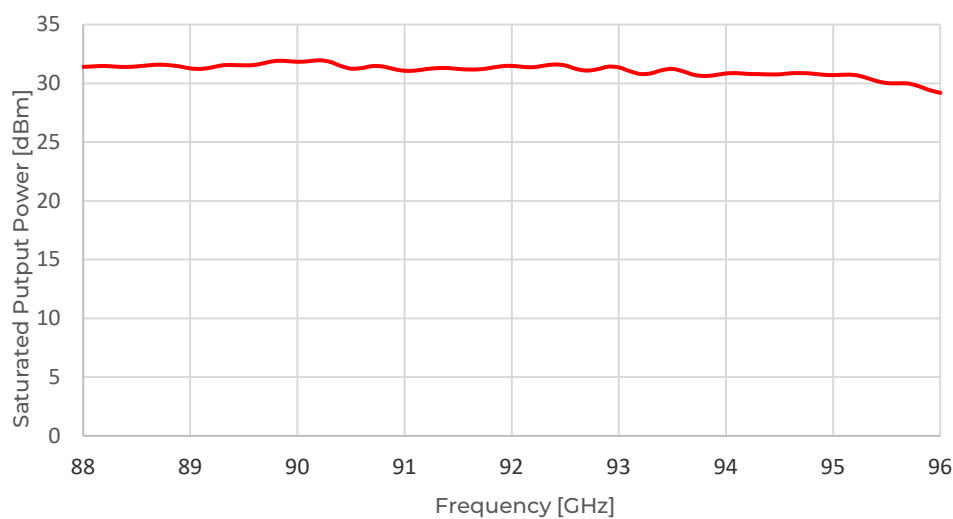
8. Typical Performance

8.11 FPA-10-0005

Typical Gain vs Frequency



Typical Saturated Output Power vs Frequency

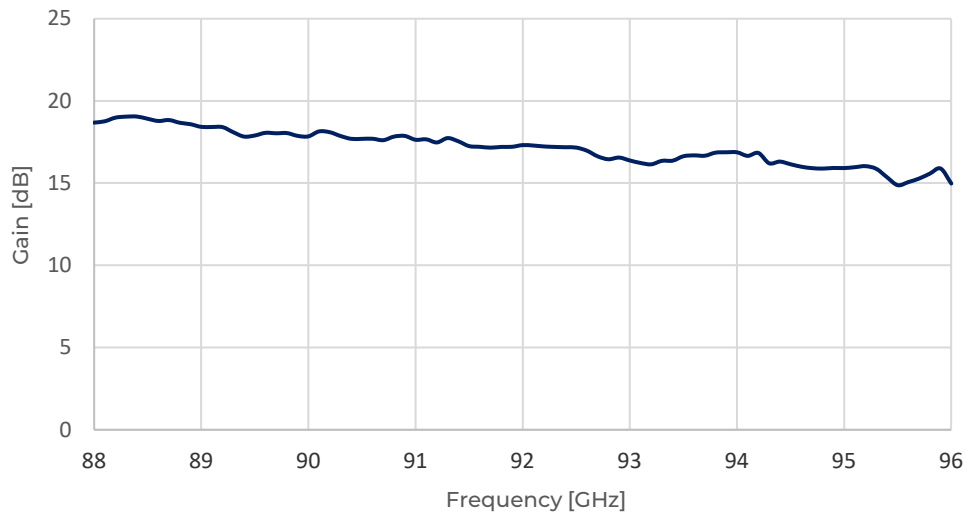




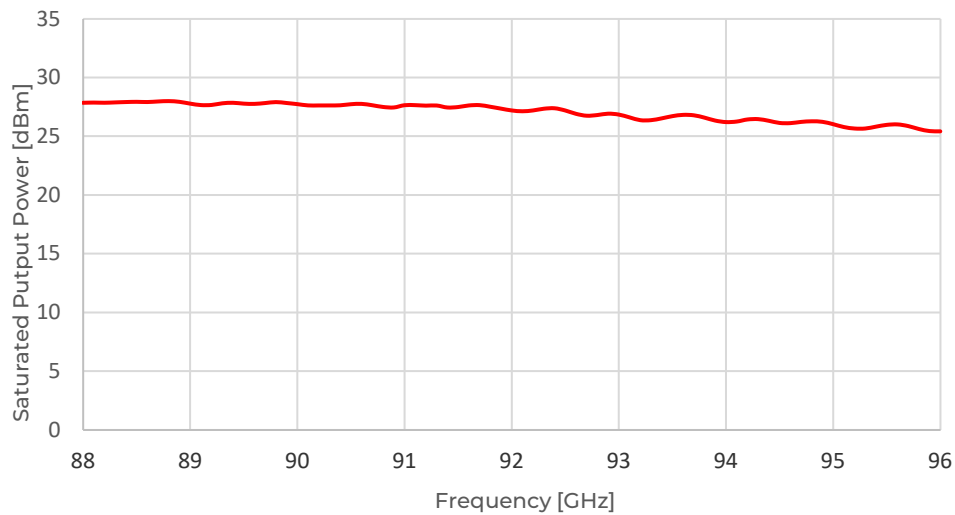
8. Typical Performance

8.12 FPA-10-0004

Typical Gain vs Frequency



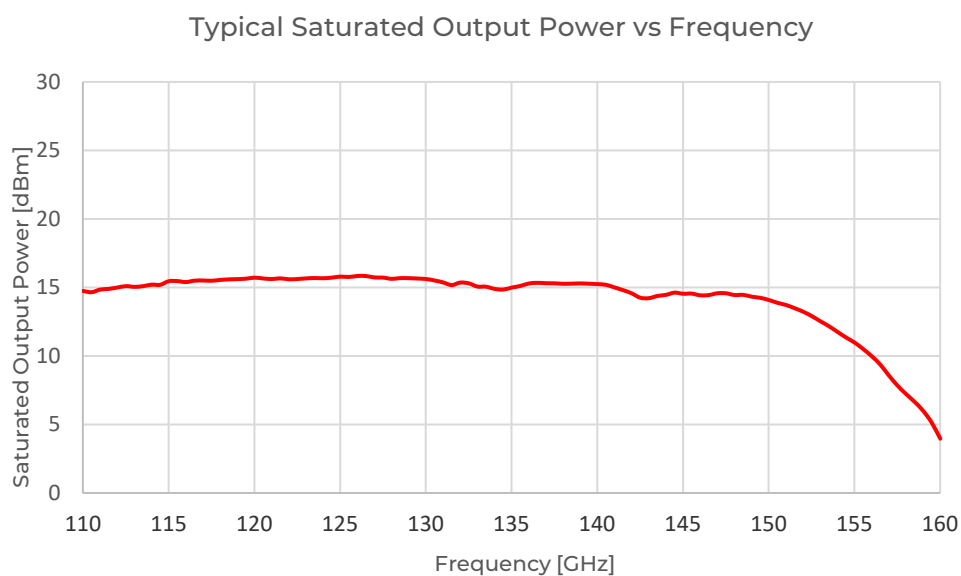
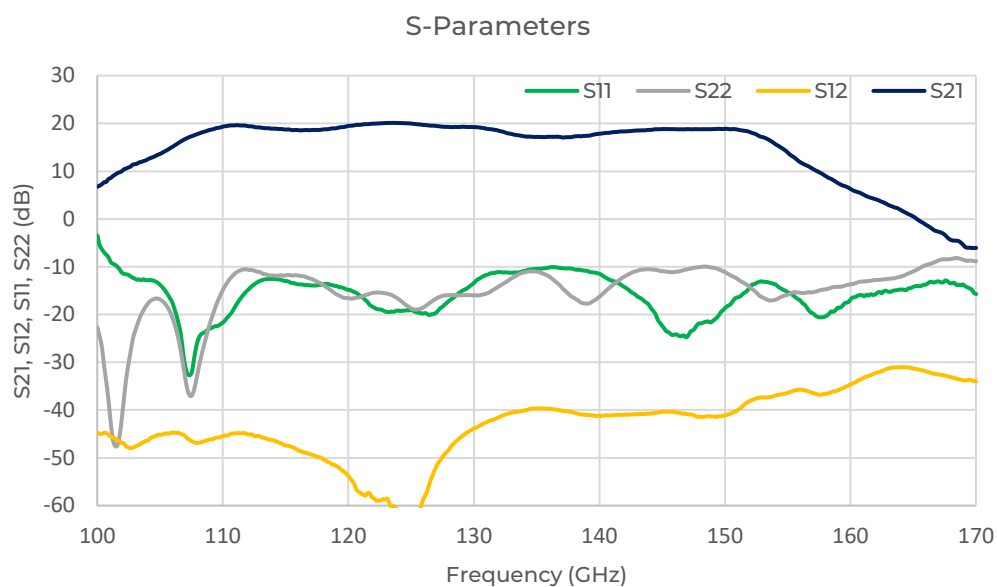
Typical Saturated Output Power vs Frequency





8. Typical Performance

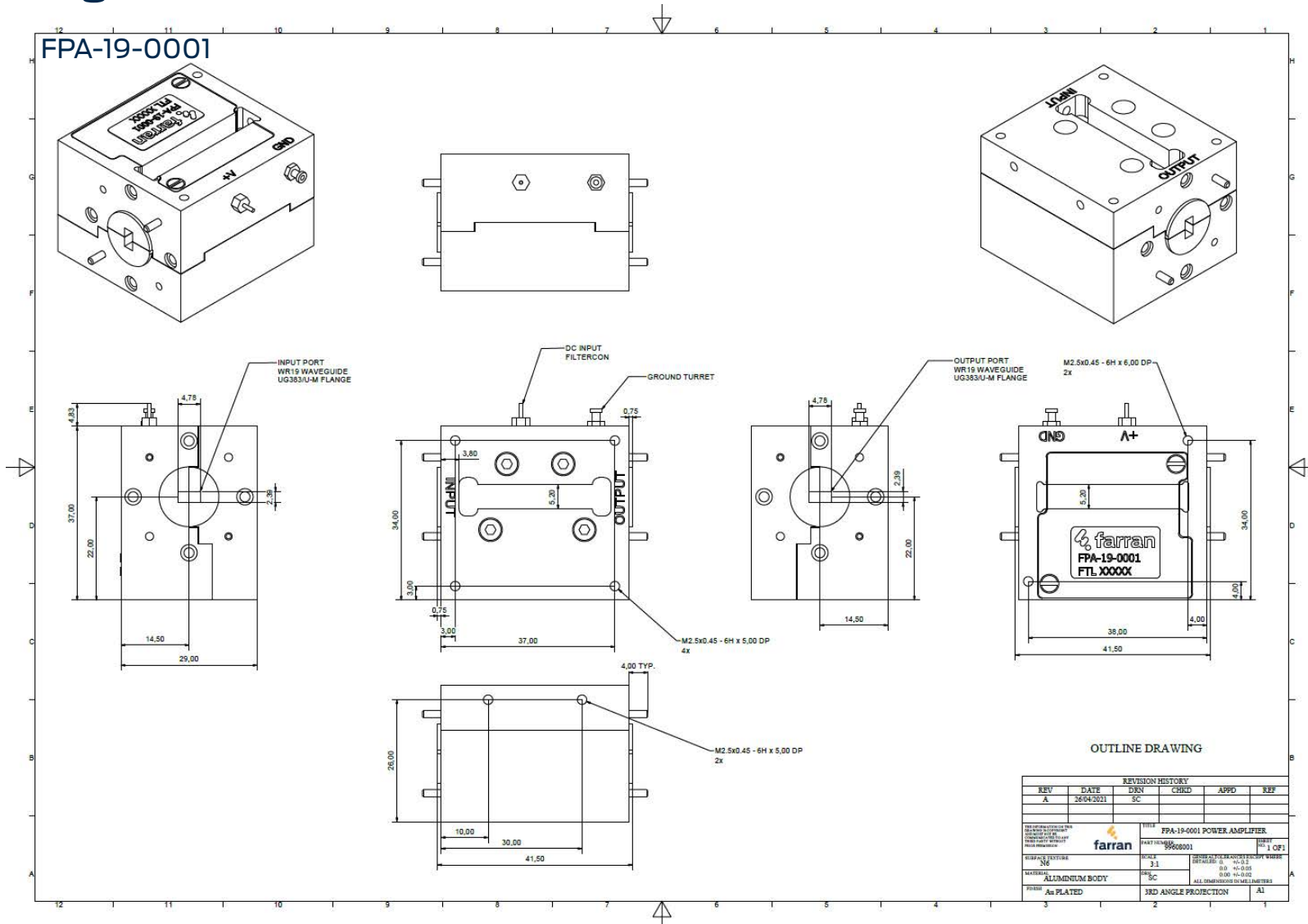
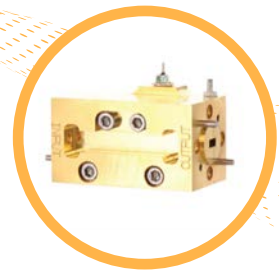
8.13 FPA-6-0001





12. Appendices

12.1 Drawings



OUTLINE DRAWING

REVISION HISTORY					
REV	DATE	DWN	CHKD	APPD	REF
A	24/04/2021		SC		

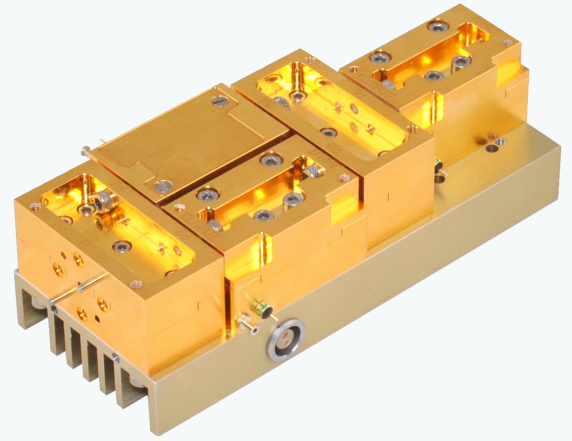
TITLE FPA-19-0001 POWER AMPLIFIER	PART NUMBER 99600001	DRAWING NUMBER 001 OF 1
SURFACE FINISH NE	DIMENSIONS 3:1 UNLESS OTHERWISE SPECIFIED	MATERIAL ALUMINUM BODY ANODIZED
FINISH An PLATED	3RD ANGLE PROJECTION	ALL DIMENSIONS IN MILLIMETRES





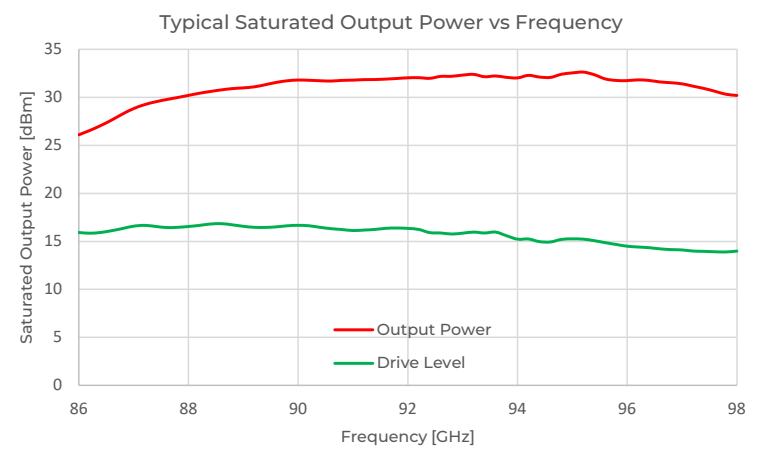
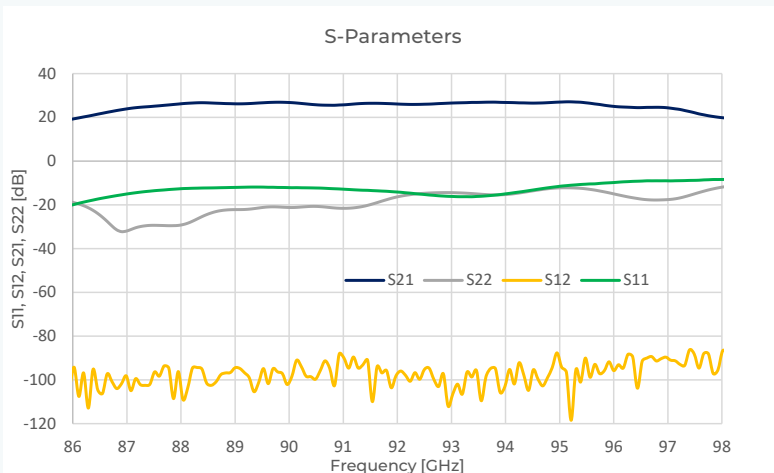
WR-10 High Power Amplifier 88-96 GHz: FPA-10-0012

Farran's FPA-10-0012 is a high power WR-10 waveguide amplifier providing +32 dBm typical output power.



Key Facts:

- High gain
- High Psat
- Wide bandwidth
- Compact and lightweight



APPLICATIONS

- Communication receivers
- Radar front ends
- Driver amplifiers
- Point to point communication



ACCESSORIES

- User manual





Product Specification

Specification	Unit	Min	Typ	Max
Operating Frequency	GHz	88	-	96
Output Psat	dBm	-	+32	-
Gain	dB	-	26	-
Input / Output Port	-	WR-10 UG-387/U-M		
DC Power Requirements	V / mA	-	15/1800	-
Case Operating Temp. (nom.)	deg. C	-20	-	+50
Dimensions (L x W x H)	mm	115 x 46 x 50		

We have made many Farran purchases, including amplifiers, mixers and multipliers. They are all high-performance devices and always meet our expectations. Farran supplied each component with comprehensive set of test results and a manual, which is not necessarily a given in this industry. Moreover, due to the accessibility of Farran’s engineering team we were able to get CAD models of the devices prior to placing an order. This was a nice touch from the Farran team and helped with integrating the components into our system so that we could meet our project’s deadline with confidence.”

Microwave Circuit Designer & Engineer, Multinational Electronic Test Equipment Manufacturer.



SERVICES AVAILABLE

- Technical Support
- Installation and Setup
- Maintenance
- Application Support
- Hardware Support

For more information on any of our products or services please visit our website: www.farran.com



TECHNICAL SUPPORT

- Technical support provided directly by our knowledgeable and friendly engineers.
- Support for pre- and post-purchase: system configuration, installation and troubleshooting.



PRODUCT INSIGHTS

- For more product insights register at www.farran.com/customer
- Additional information: test data, CAD drawings and 3D models available.



WARRANTY

- Standard 1 year warranty.

Specification Definitions

Nominal value (nom.) – ensured by design, not tested. **Measured value (min, max)** – expected and warranted product performance obtained from the actual measurements of product sample. **Non-traceable measured value (n. trc. meas.)** – expected product performance obtained from the actual measurements of a product sample by means of using Farran’s own equipment and methods. Traceable only to Farran laboratory equipment. **Typical data (typ.)** – value that represents the product specification met over 90% of bandwidth or a mean value. **Specifications without limits** – represent the warranted product performance; with values of no or a negligible deviation from the given value and as such have a secondary impact on the product performance.

