

# AR184005

BLP0427M9S20, 88-108MHz

V1.0---27 June 2018

Application  
Measurement  
Report

## Document information

**Status** Public

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**Abstract** Measurement results of CW design with BLP0427M9S20,  
this circuit works at 88-108MHz

## 1. Revision History

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Table 1: *Report revisions*

Revision	Date	Description	Author
1.0	20180627	Initial document	Rock Qiu

## 2. Contents

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## General description

This report presents the measurement results of the CW demo AR184005. The device is BLP0427M9S20 LDMOS plastic package. The presented demo is tuned for the frequency 88-108MHz. this circuit can output >37W CW.

## 5. Biasing

The biasing is as follows:

$$V_{DS} = 32V$$

$$I_{dq} = 50mA$$

## 6. Performance Indication

Table 2: *Performance indication*

Parameter	Condition	Unit	CW
V <sub>DD</sub>		V	32
S11 at input		dB	-7
P <sub>1dB</sub>	G <sub>MAX</sub> -1dB	W	30
P <sub>3dB</sub>	G <sub>MAX</sub> -3dB	W	37
P <sub>OUT</sub> of operation	P <sub>o</sub>	W	35
Gain	@P <sub>o</sub>	dB	19
Drain Efficiency	@P <sub>o</sub>	%	60

## 7. Performance Details

### 7.1 Return loss at input side

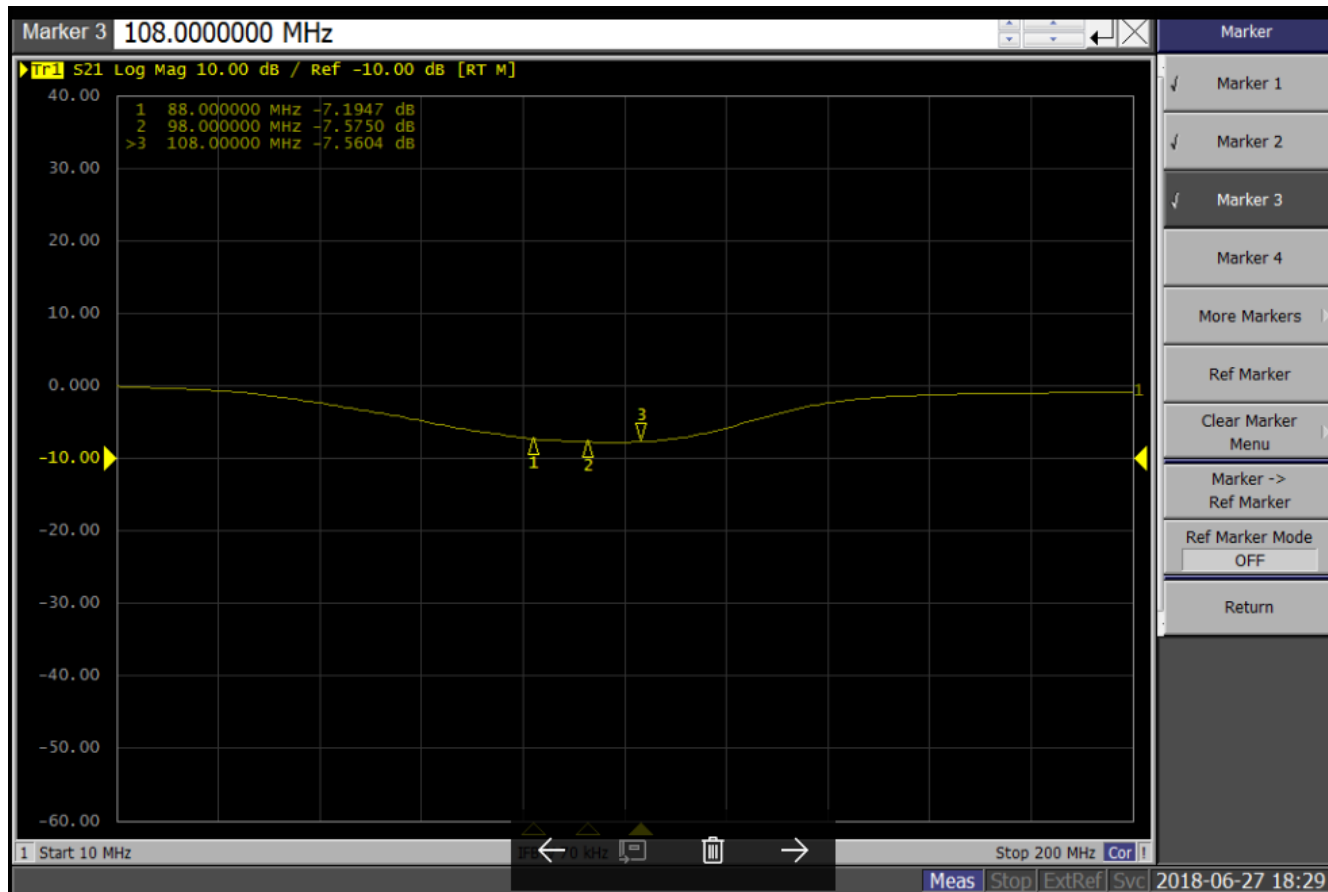


Figure 1 return loss

7.2 Test data:

7.2.1 P1dB and P3dB test (50mA bias)

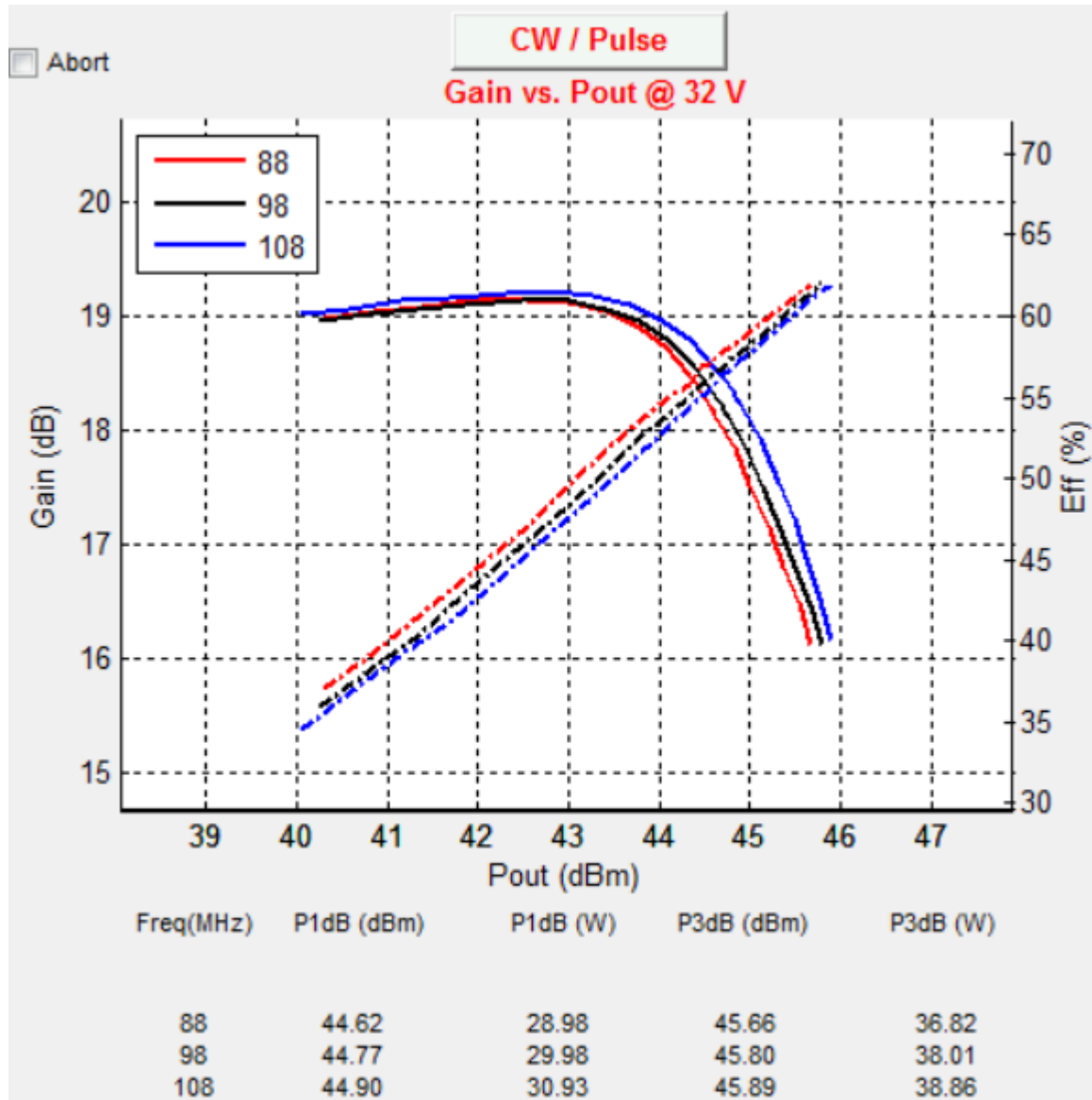


Figure 2 P1dB and P3dB vs efficiency

7.2.2 Small signal gain(400mA bias)

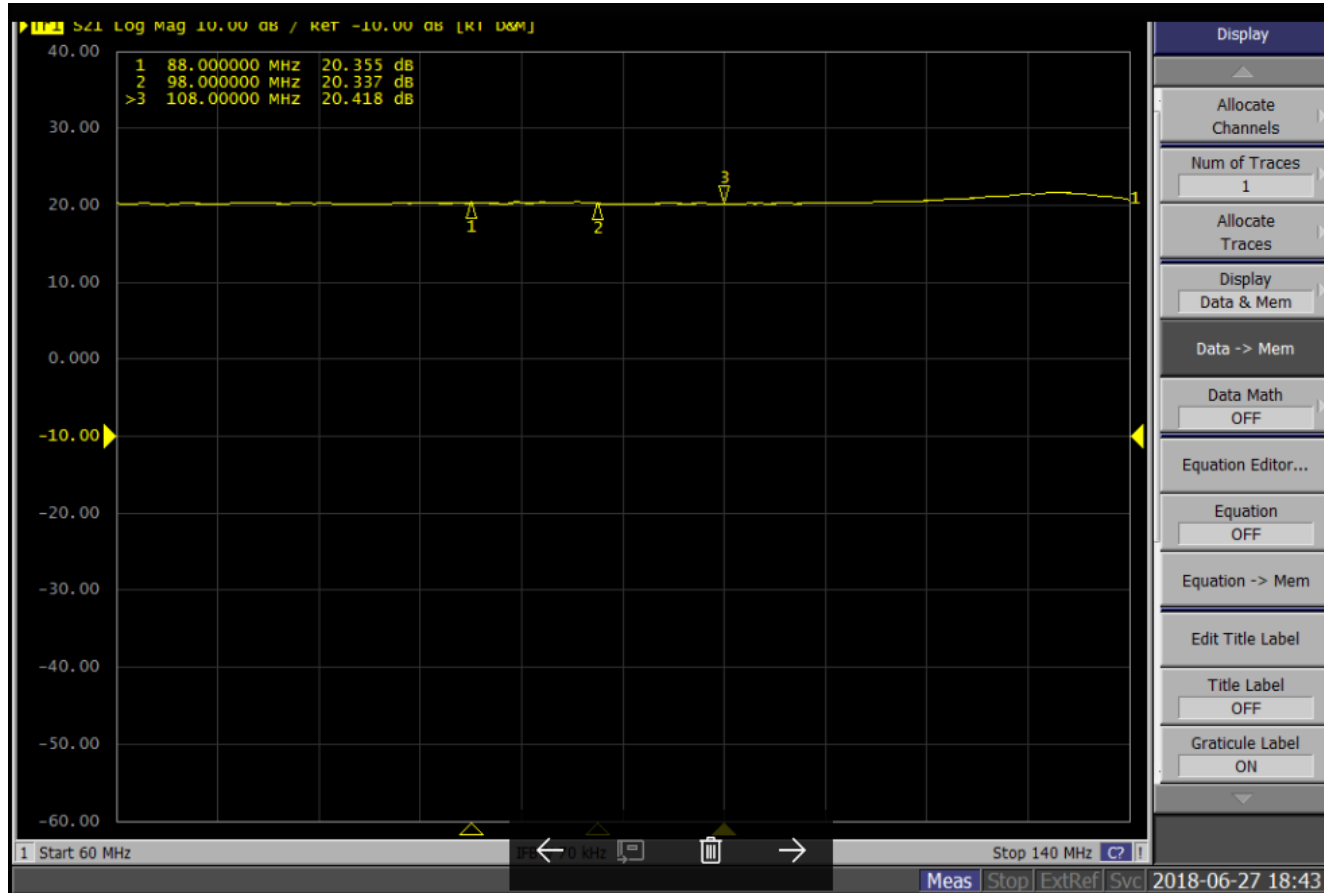


Figure 3 small signal Gain

7.2.3 Harmonics (35W output)

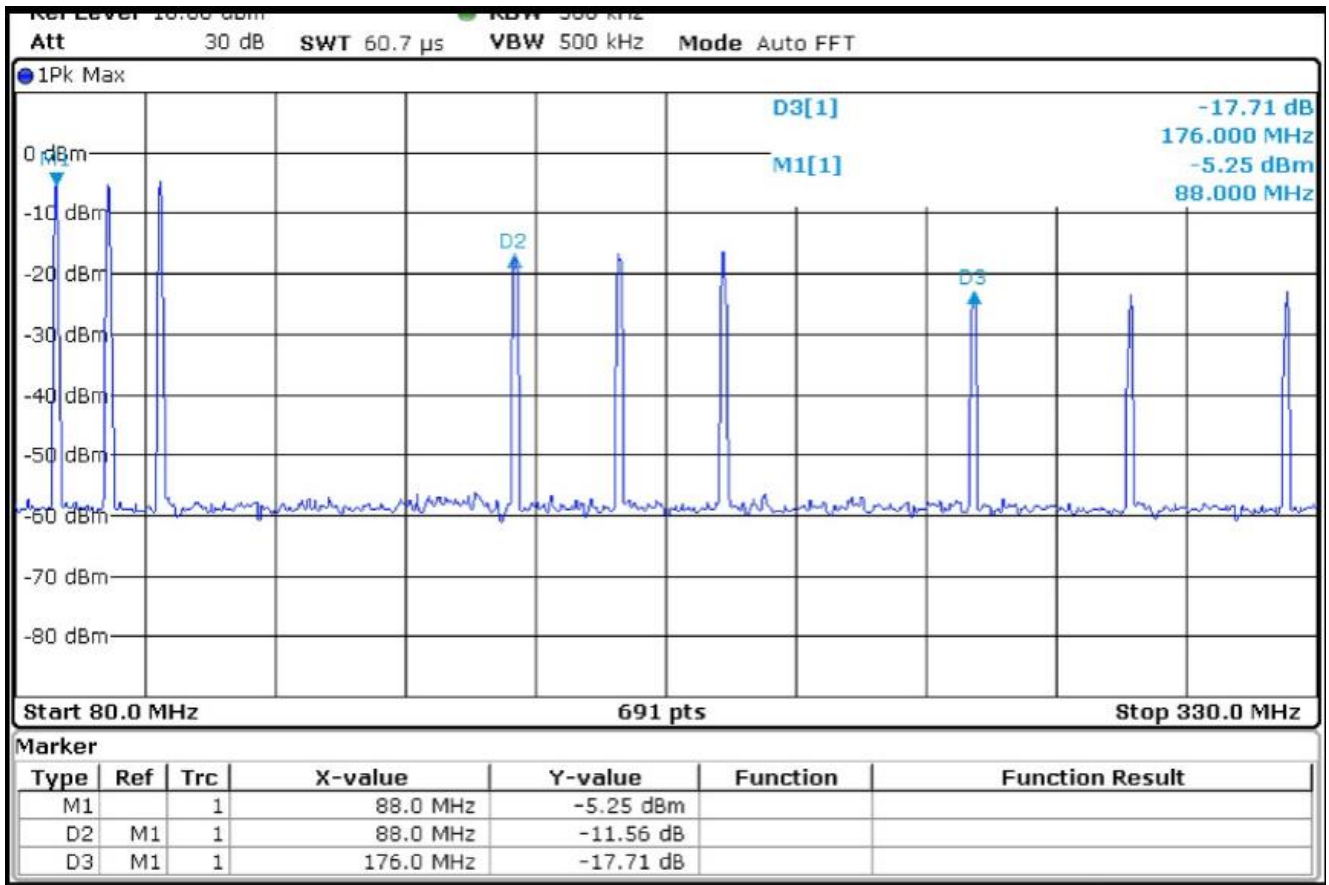
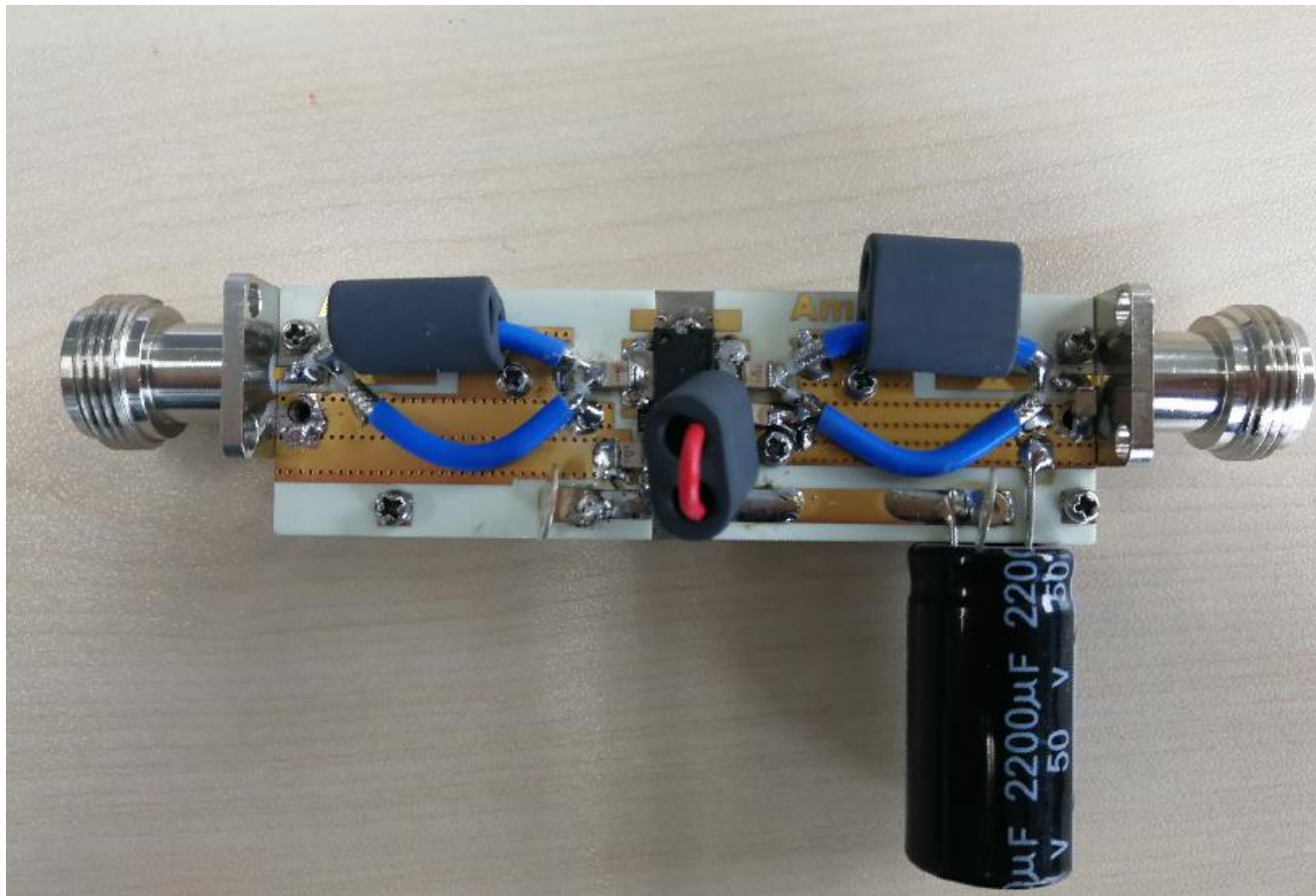


Figure 4 2<sup>nd</sup>&3<sup>rd</sup> harmonics

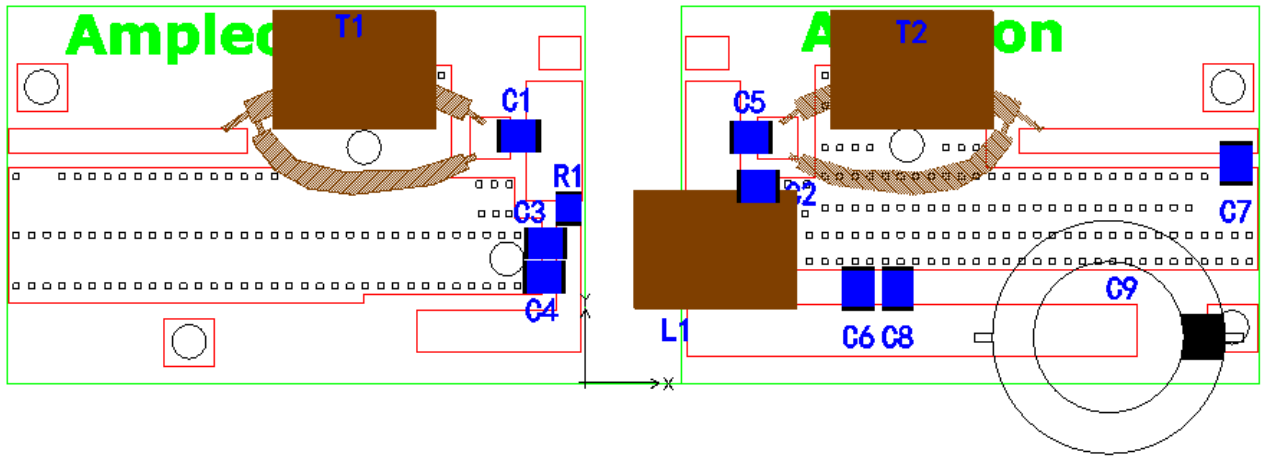


8. Hardware

8.1 Board Image



8.2 Copper Layout and components mapping(layout, BOM is attached in the PDF report)



8.3 Bill of materials

Table 3: *Bill of Materials*

Quantity	Description	Part Number	Manufacturer
R1	10 ohm Resistor	1206	
C8	10uF	GRM32DF51H106ZA01L	Murata
C1	470P	100B	ATC
C2	10P	100B	ATC
C3,C5,C6	1000P	100B	ATC
C7	10P	100B	ATC
C4	1uF	0805	Murata
C9	470 uF 63V Electrolytic Capacitor	MCRH63V477M13X26-RH	MULTICOMP
L1	1T coil, ferrite core BN61202		Handwound
T1,T2	ferrite core BN61202, 27mm coaxial cable 086-25		
PCB	RO4350B 30mil		Rogers

## 8.4 Board material

Table 4: *Board specifications*

Parameter	Value
Manufacturer	Rogers
Type	RO4350B
Thickness	30mil, 0.762mm
Layers	2, top/bottom. Bottom all copper

## 8.5 Device markings

Table 5: *Device specifics*

Parameter	Value
Manufacturer	Ampleon
Device	<i>BLP0427M9S20</i>

## 9. Legal information

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