

# AR174011

BLP35M805, 30-512MHz

V1.0---3 November 2017

Application  
Measurement  
Report

## Document information

**Status** Public

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**Abstract** Measurement results of CW design with BLP35M805,  
this circuit works at 30-512MHz

## 1. Revision History

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Table 1: *Report revisions*

Revision	Date	Description	Author
1.0	20171103	Initial document	Rock Qiu

## 2. Contents

<b>1. Revision History</b> .....	<b>2</b>
<b>2. Contents</b> .....	<b>3</b>
<b>3. List of figures</b> .....	<b>3</b>
<b>4. List of tables</b> .....	<b>3</b>
<b>5. General description</b> .....	<b>4</b>
<b>6. Biasing</b> .....	<b>5</b>
<b>7. Performance Indication</b> .....	<b>4</b>
<b>8. Performance Details</b> .....	<b>5</b>
8.1 Return loss.....	6
8.2 Test data.....	7
<b>9. Hardware</b> .....	<b>10</b>
9.1 Board Image .....	10
9.2 Copper Layout and components mapping .....	11
9.3 Bill of materials.....	12
9.4 Board material.....	13
9.5 Device markings.....	13
<b>10. Legal information</b> .....	<b>14</b>
10.1 Definitions .....	14
10.2 Disclaimers .....	14
10.3 Trademarks.....	14
10.4 Contact information .....	14

## 3. List of figures

Figure 1 CW.....	Return loss of input side.....	5
Figure 2 CW.....	P1dB and P3dB vs frequency .....	6
Figure 3 CW.....	CW efficiency @ 6W Pout.....	7
Figure 4 CW.....	small signal gain.....	8
Figure 5 CW.....	harmonics.....	9

## 4. List of tables

Table 1:.....	Report revisions .....	2
Table 2:.....	Performance Indication .....	4
Table 3:.....	Bill of Materials .....	12
Table 4:.....	Board specifications .....	13
Table 5:.....	Device specifics.....	13

## General description

This report presents the measurement results of the CW demo AR174010. The device is BLP35M805 LDMOS with plastic package. The presented demo is tuned for the frequency 30-512MHz. this circuit can output >6W CW.

## 5. Biasing

The biasing is as follows:

$$V_{DS} = 28V$$

$$I_{dq} = 25mA$$

## 6. Performance Indication

Table 2: *Performance indication*

Parameter	Condition	Unit	
$V_{DD}$		V	28
S11 at input		dB	-7
$P_{1dB}$	$G_{MAX}-1dB$	W	5.5
$P_{3dB}$	$G_{MAX}-3dB$	W	7
$P_{OUT}$ of operation	$P_o$	W	6
Gain	@ $P_o$	dB	21
Drain Efficiency	@ $P_o$	%	61

## 7. Performance Details

### 7.1 Return loss at input side

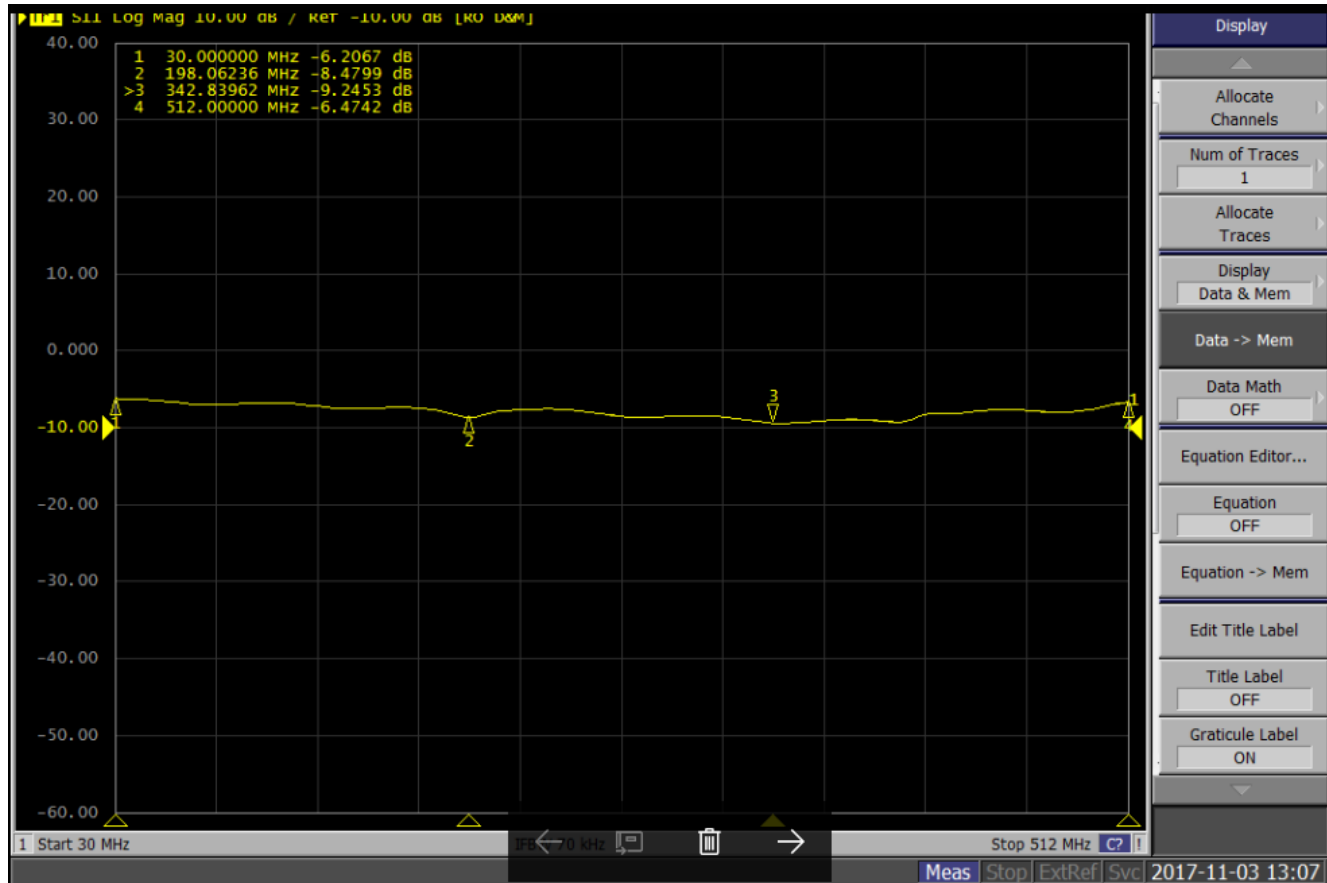


Figure 1 return loss

7.2 Test data:

7.2.1 P1dB and P3dB test (25mA bias, test with 100us 10% pulse)

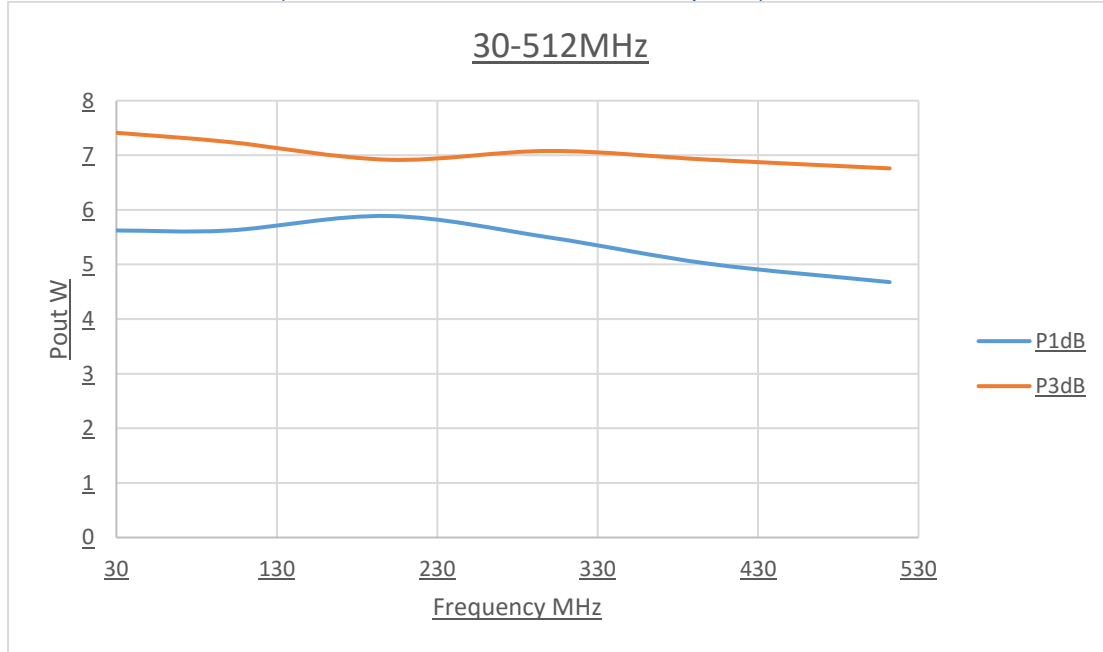


Figure 2 P1dB and P3dB vs frequency(30-512MHz)

7.2.2 Efficiency @ 6W CW (25mA bias)

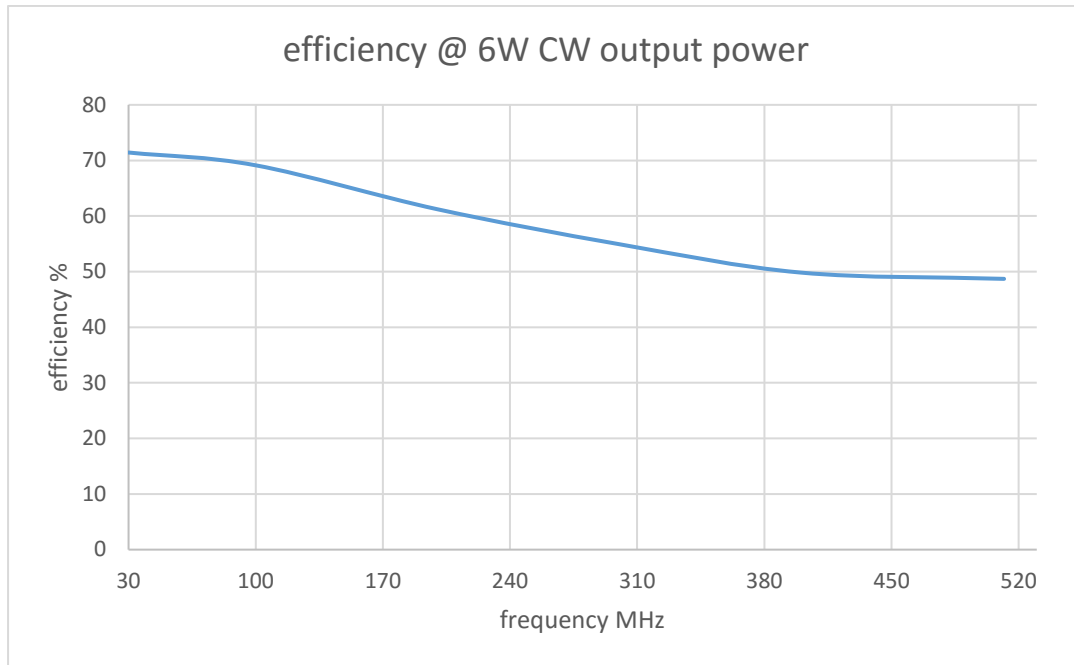


Figure 3 CW efficiency @ 6W (30-512MHz)

7.2.3 Small signal gain(200mA bias)

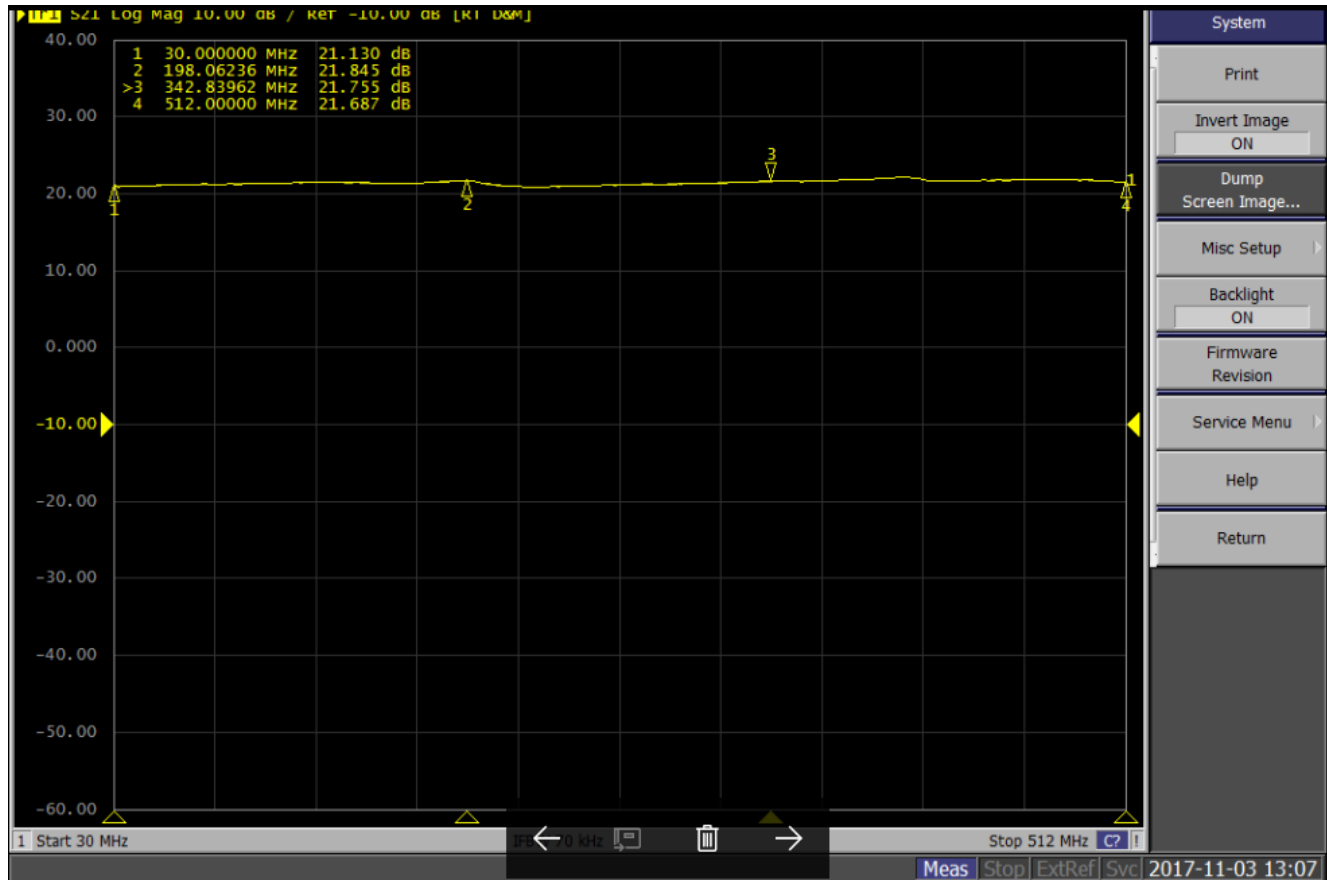


Figure 4 small signal Gain



7.2.4 linearity (IMD3)

test condition: 28V 450mA 100KHz 2 tone

keep the IMD3<-35dBc, get the output power below

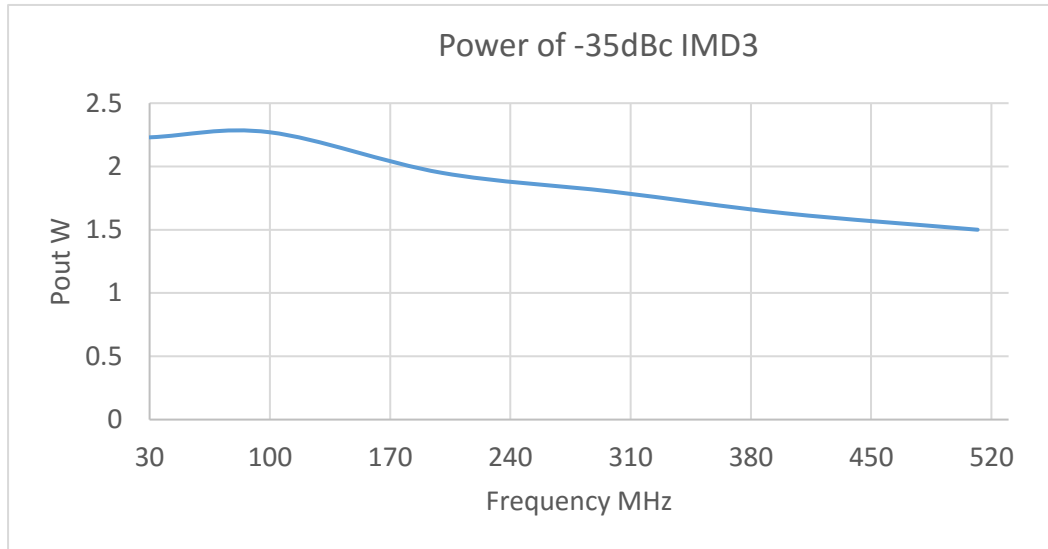
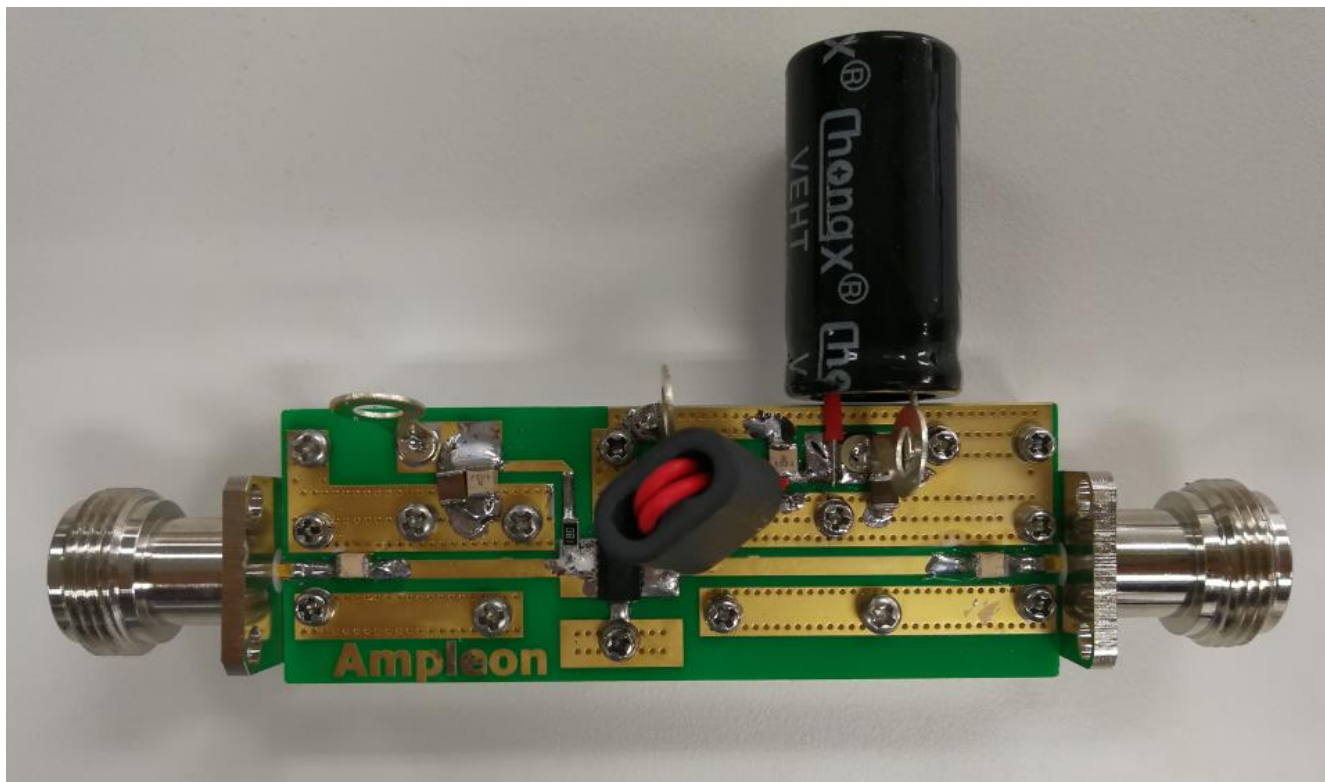


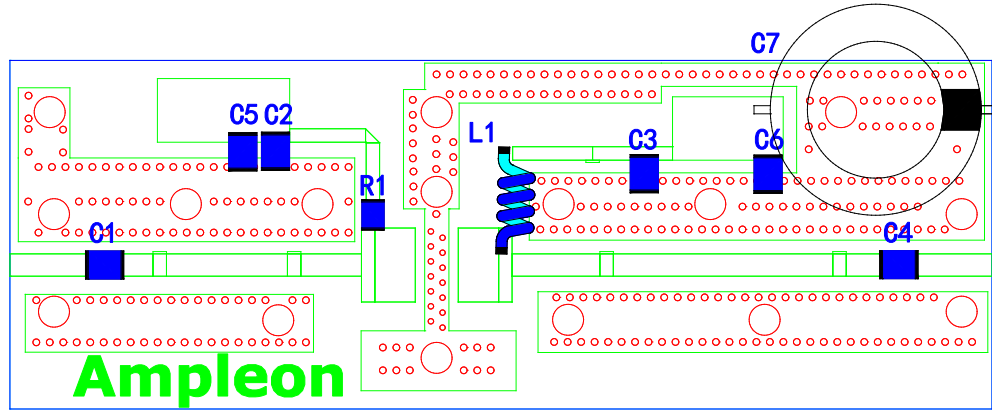
Figure 5 IMD3---28V 450mA 100KHz 2 tone

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	18 ohm Resistor	1206	
C5,C6	10uF	GRM32DF51H106ZA01L	Murata
C2,C3	1000P	100B	ATC
C1,C4	560P	100B	ATC
C7	470 uF 63V Electrolytic Capacitor	MCRH63V477M13X26-RH	MULTICOMP
L1	2T coil, ferrite core BN61202		Handwound
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	BLP35M805

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