

CD-103-13

BLF642 at 470-860 MHz

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AMPLEON

Application Measurement
Report

Document information

Info	Content
Keywords	BLF642, UHF, broadband
Abstract	Measurement results of a demo board for 470-860 MHz with 1x BLF642.

Revision history

Rev	Date	Description
1	20130418	Original
2	20150428	Update for web publication
3	20151005	The format of this document has been redesigned to comply with the new identity guidelines of Ampleon. Legal texts have been adapted to the new company name where appropriate.

1. Introduction

This report describes a broadband amplifier based on Ampleon’s BLF642, which works well from 470-860MHz, get 5W output power with about -39dBc shoulder(± 4.2 MHz) .

Specified frequency range	470-860MHz
Drain voltage	32 V
Quiescent drain current	300 mA typ
Test signal	DVB-T signal with deltamaker @ 4.2MHz from fc

2. RF performance

2.1 Gain with frequency sweep

The plot below shows Gain with frequency sweep(470-860MHz). The bias point is $V_{ds}=32V$ and $I_q=300mA$.

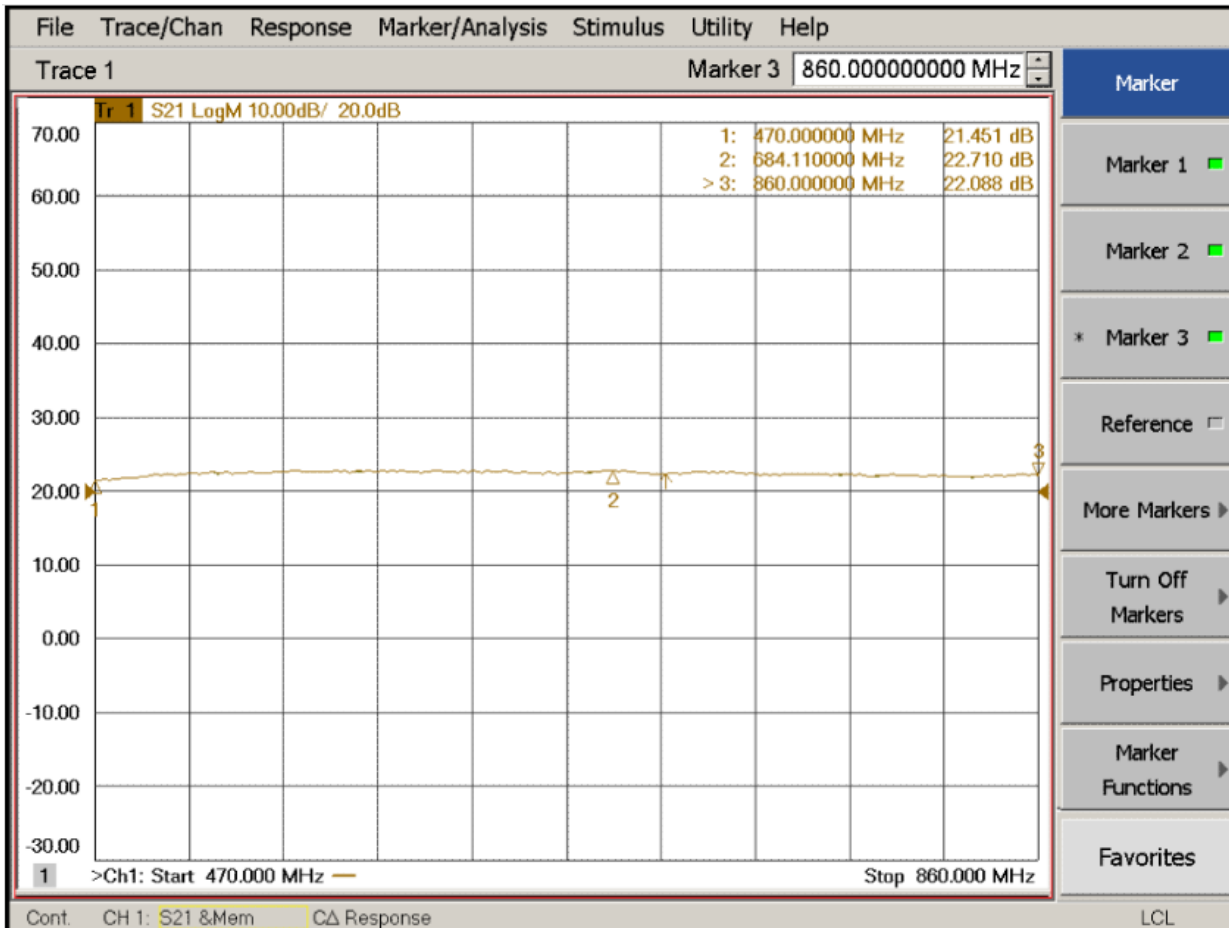


Fig 1. Gain with frequency sweep(470-860MHz)

2.2 Return loss

The plot below shows return loss(470-860MHz). The bias point is $V_{ds}=32V$ and $I_q=300mA$.

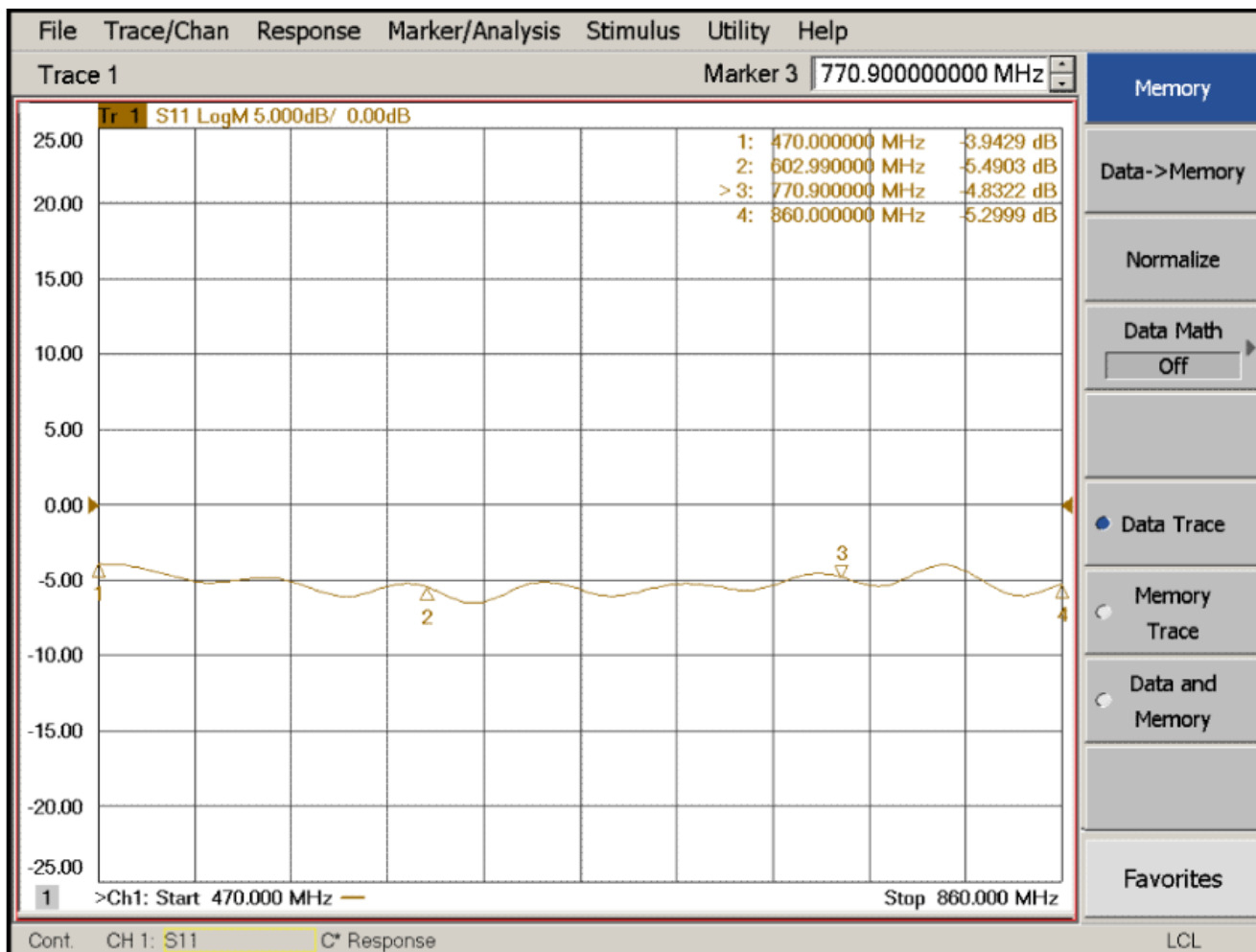


Fig 2. IRL

2.3 P1dB and P3dB with frequency sweep

The plot below shows P1dB and P3dB with frequency sweep. The bias point is $V_{ds}=32V$ and $I_q=300mA$.

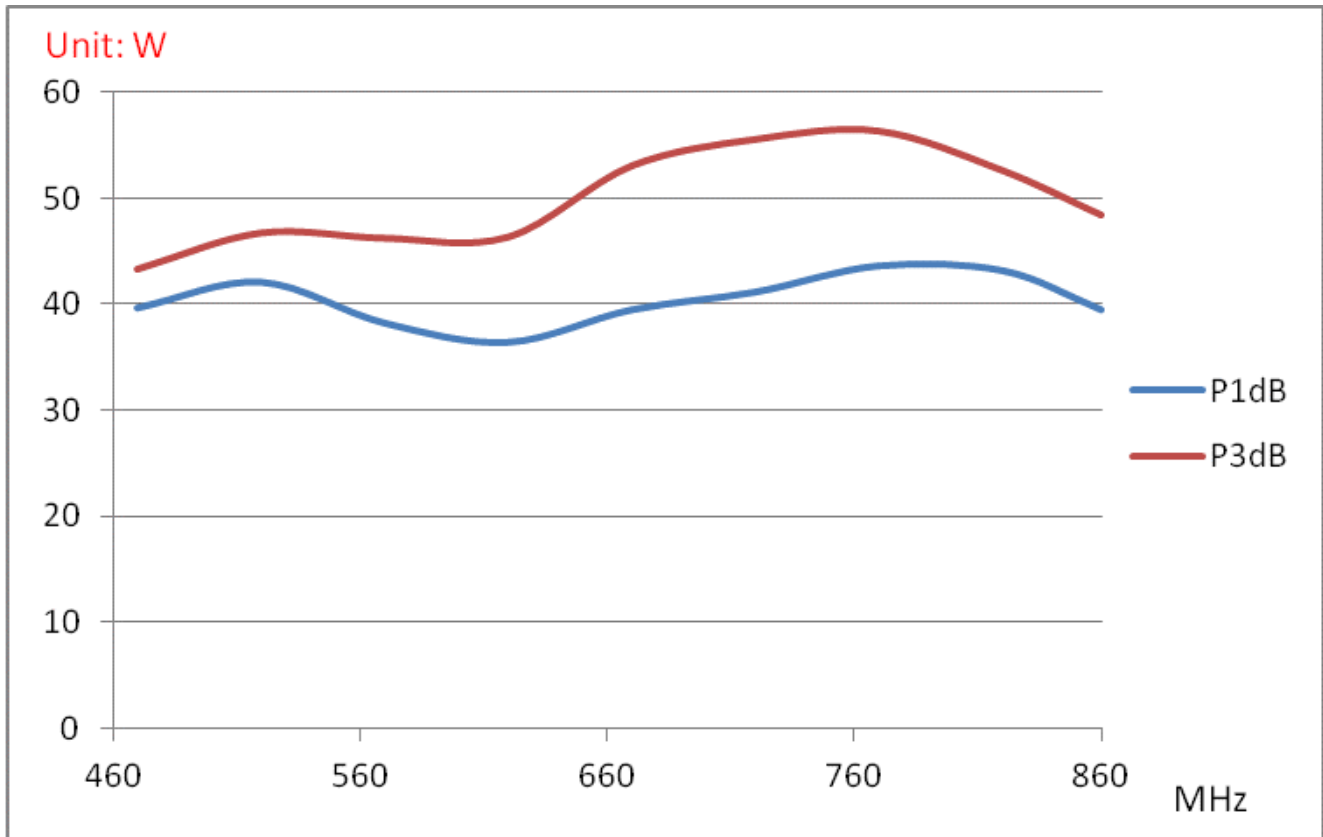


Fig 3. P1dB and P3dB with frequency sweep

2.4 DVBT signal testing

The plot below shows delta maker(± 4.2 MHz) and efficiency of 5W output power. The bias point is $V_{ds}=32V$ and $I_q=300mA$.

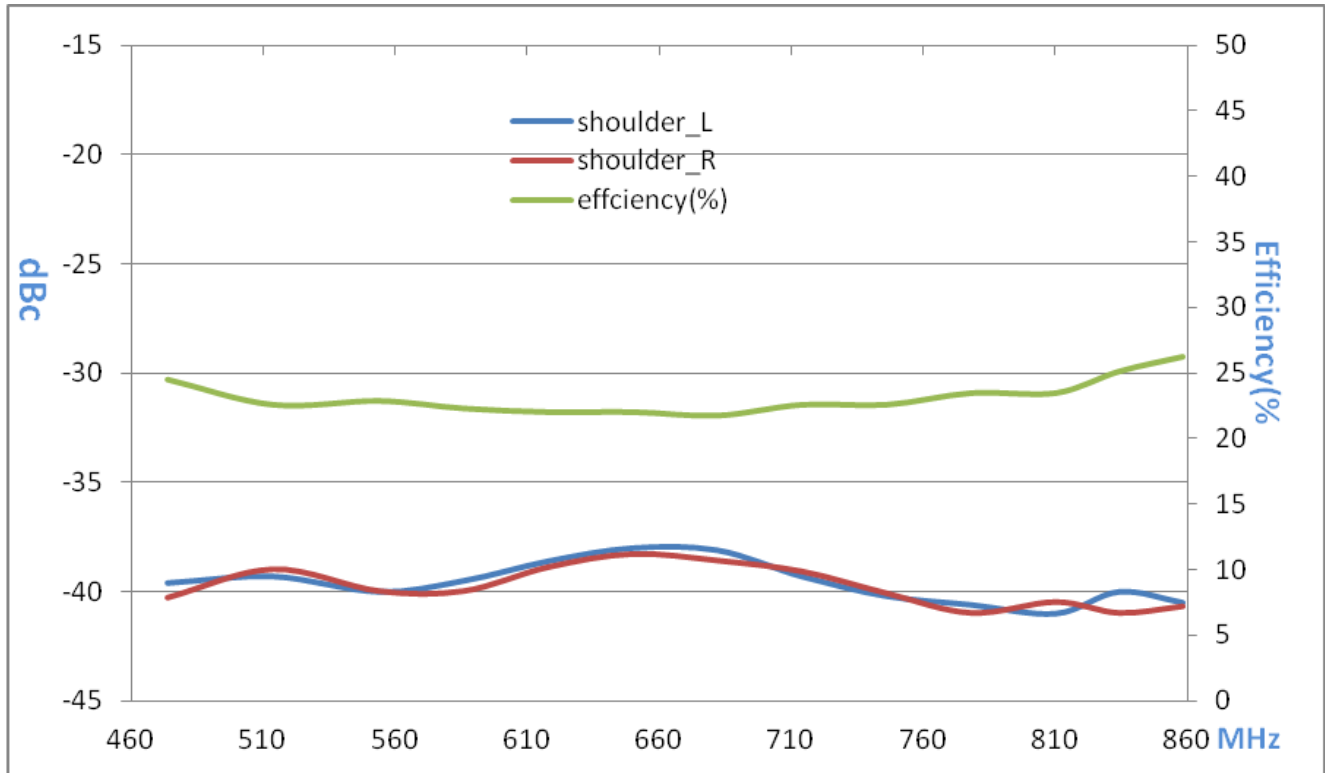


Fig 4. DVBT signal testing with 5W output power

2.5 CCDF testing

The plot below shows input and output CCDF(0.01%) of 5W output power. Tested with 9.83(0.01%CCDF) input DVBT signal. The bias point is $V_{ds}=32V$ and $I_q=300mA$. Test instrument is R&S FSV signal analyzer.

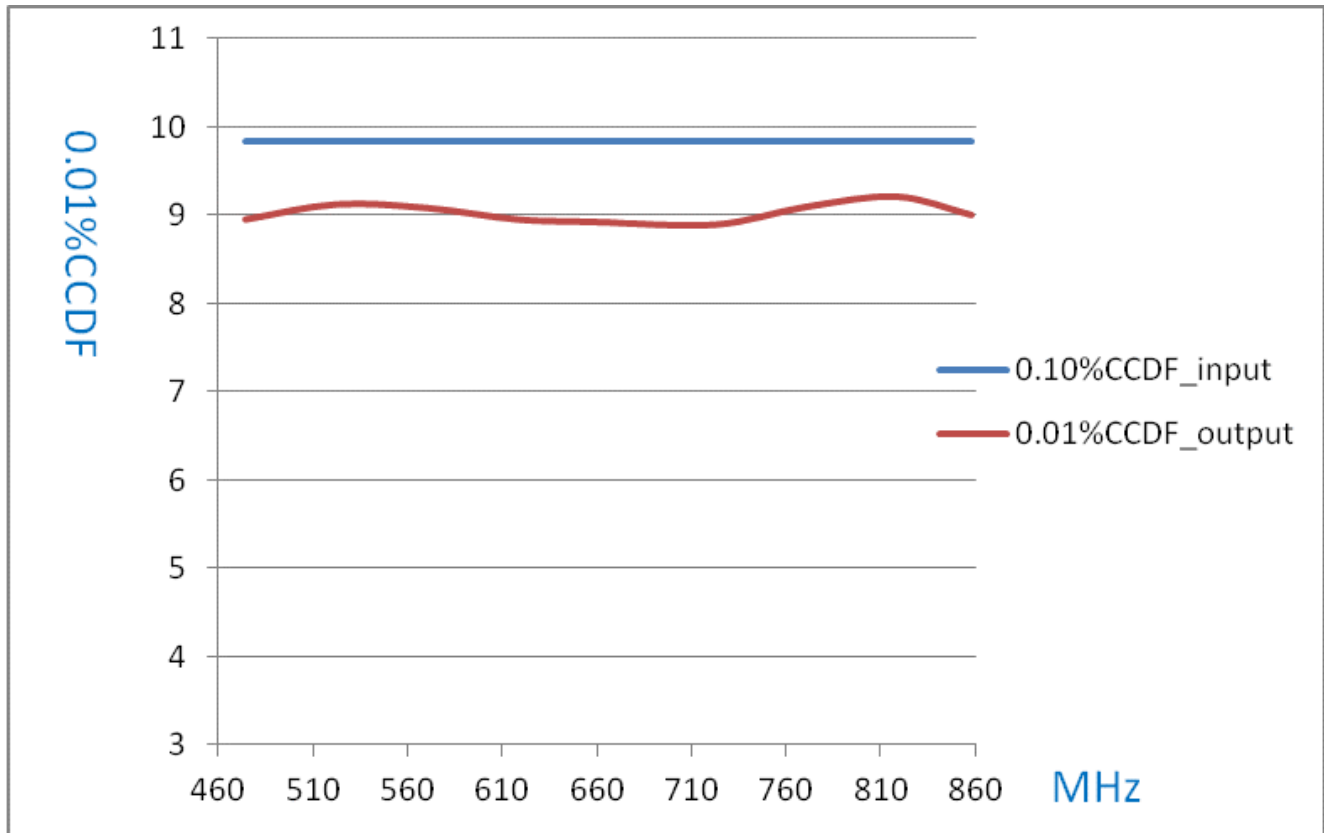


Fig 5. CCDF testing at 5W output power

3. Circuits information

The PCB layout drawing is attached to this report, please find it in the attachment button.

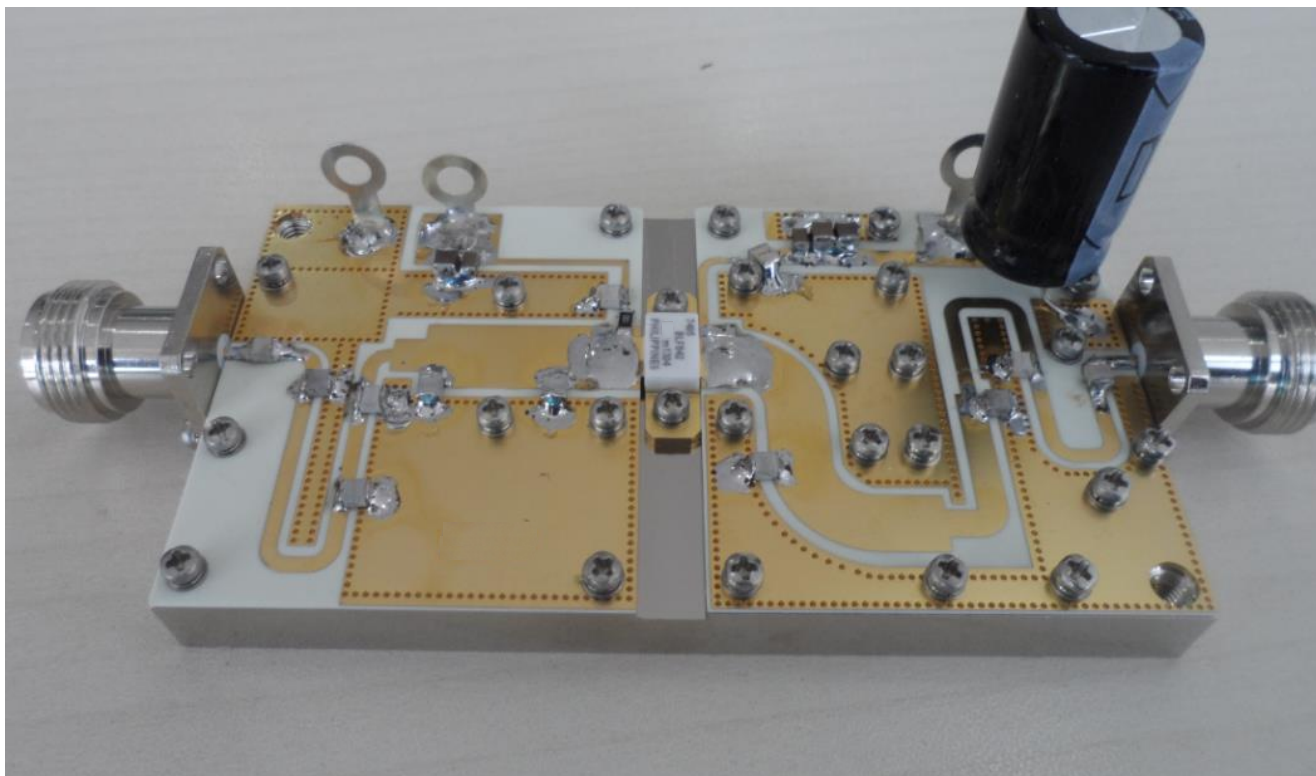


Fig 6. BLF642 UHF linear power amplifier

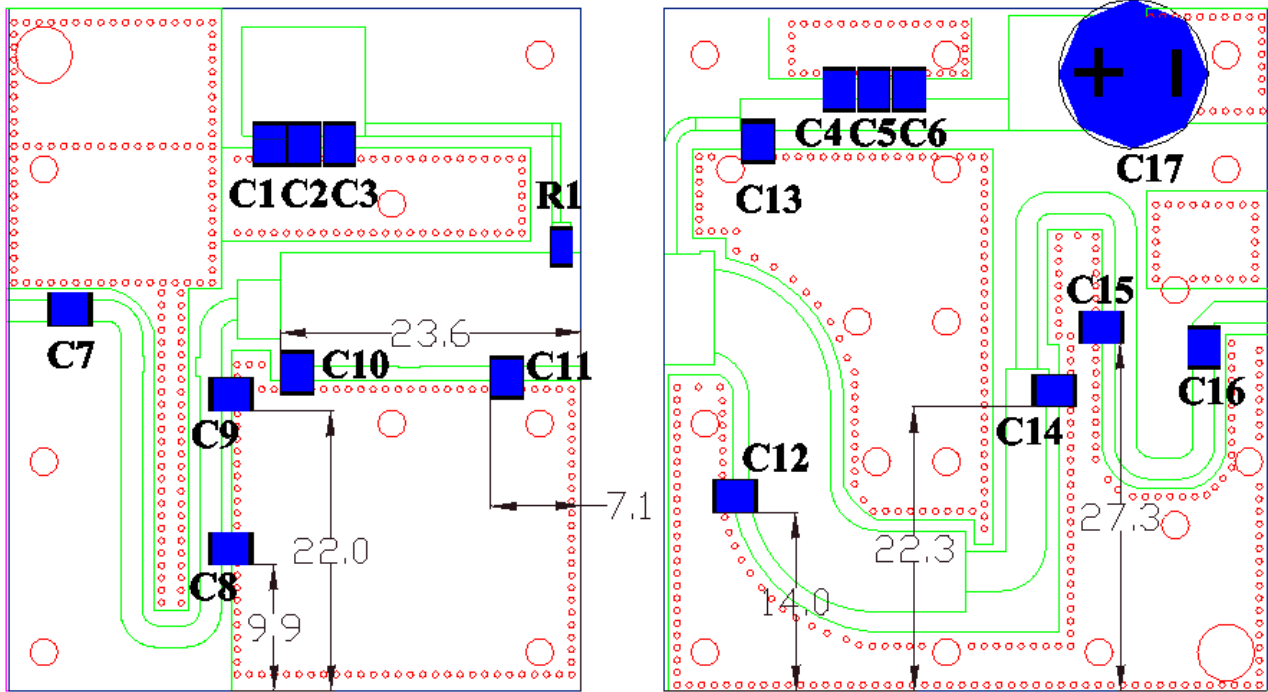


Fig 7. PCB layout

Quantity	Description	Part Number	Manufacturer
R1	10ohm 1/2W Resistor		
C7,C16,C18	100P	800B	ATC
C8	4.7P	800B	ATC
C9	12P	800B	ATC
C10	18P	800B	ATC
C11	20P	800B	ATC
C12	9.1P	800B	ATC
C13	150P	100B150JT500X	ATC
C14	4.7P	800B	ATC
C15	1.5P	800B	ATC
C19	1.8P	800B	ATC
C1,C6	10 uF Ceramic Capacitor	CDR33BX106AKWS	Kemet
C2,C5	2.2 uF Ceramic Capacitor	CDR33BX225AKWS	Kemet
C3,C4	0.1 uF Ceramic Capacitor	CDR33BX104AKWS	Kemet
C17	470 uF 63V Electrolytic Capacitor	MCRH63V477M13X 26-RH	MULTICOM P
PCB	RO4350B 30mil		Rogers

Table 1. Bill of materials

4. Attachments

Please see the attachment for the support files.

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6. Contents

1. Introduction 3

2. RF performance 3

2.1 Gain with frequency sweep 3

2.2 Return loss 4

2.3 P1dB and P3dB with frequency sweep 5

2.4 DVBT signal testing 6

2.5 CCDF testing 7

3. Circuits information 8

4. Attachments 9

5. Legal information 10

5.1 Definitions 10

5.2 Disclaimers 10

5.3 Trademarks 10

5.4 Contact information 10

6. Contents 11

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