EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH
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CERN - PS DIVISION

PS/ RF/ Note 95-08

2W - 0.3 - 20 MHZ AMPLIFIER
(PS/RF-HC 3193)

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1. CIRCUIT DESCRIPTION

The amplifier (Figure 1) is composed of a single stage using a Motorola rf power mosfet type MRF136 and working in class A.

A 2 ways power combiner (T1, T2, R1, R2) allows two independent signals to be applied to the mosfet gate and ensures adequate (>26 dB) insulation between the two input ports.

Q1 amplifies the gate signal which is then applied to the output port whose matching to 50 Ω is ensured by R7, R8.

The amplifier transfer function, input ports insulation and group delay are plotted in Figures 2, 3 and 4 respectively.

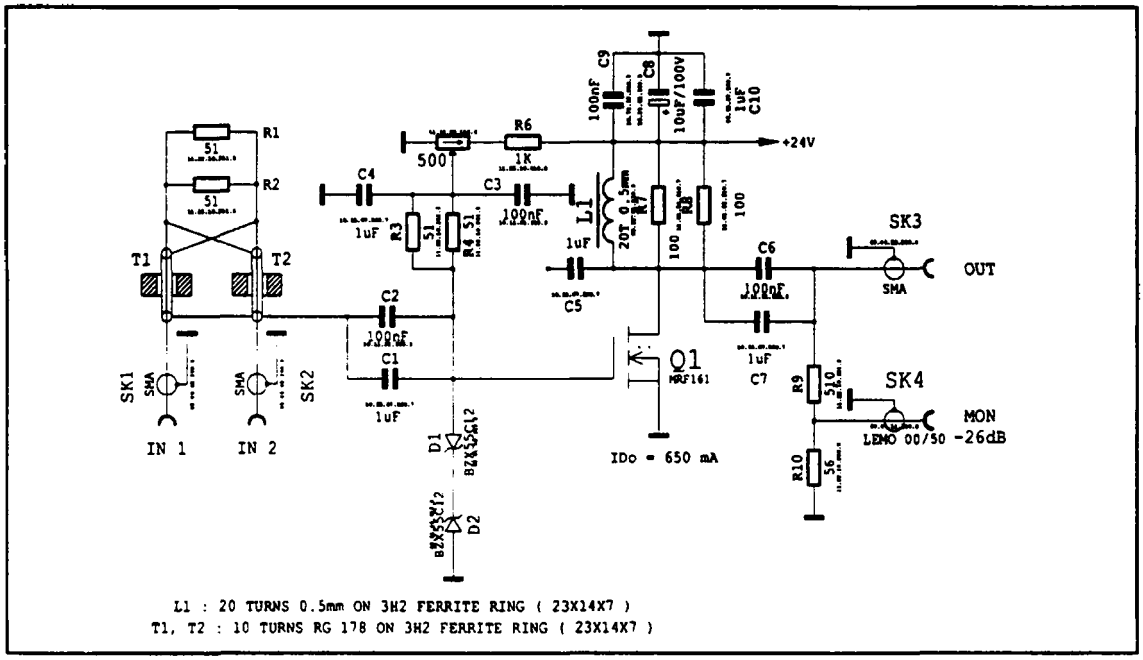

Figure 1. Amplifier Circuit Diagram.

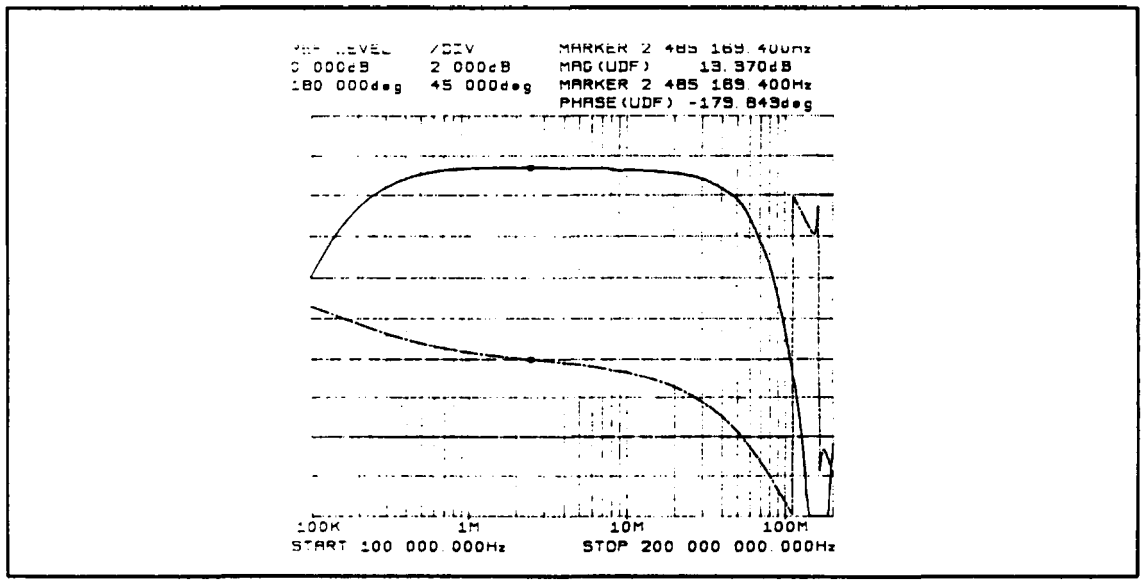

Figure 2. Amplifier Transfer Function.

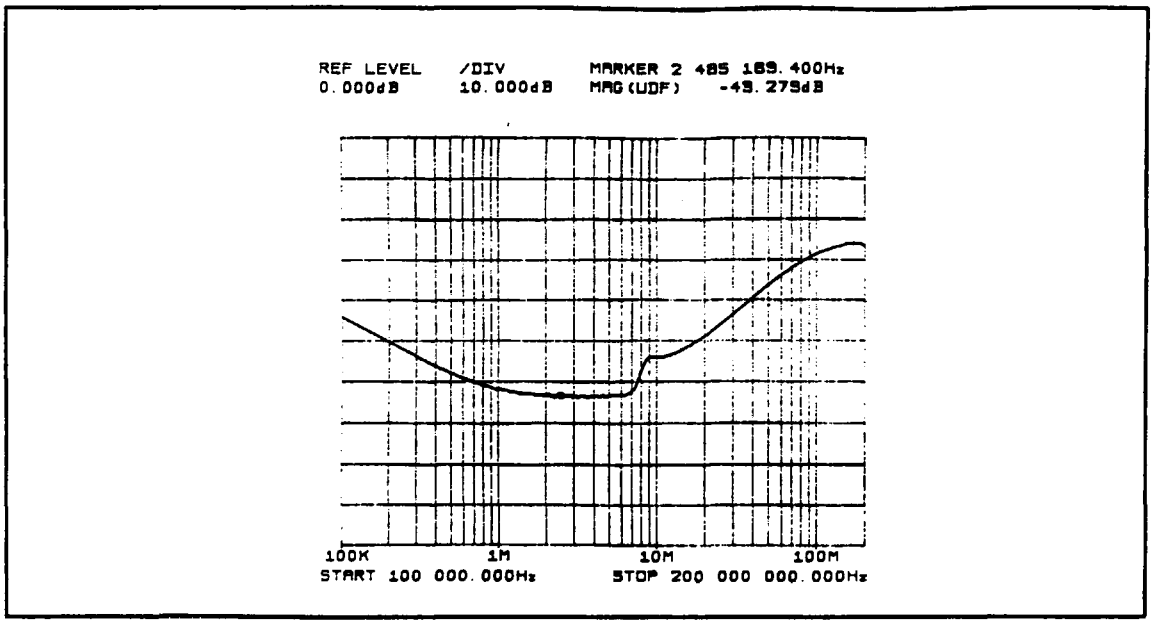

Figure 3. Amplifier Input Ports Insulation.

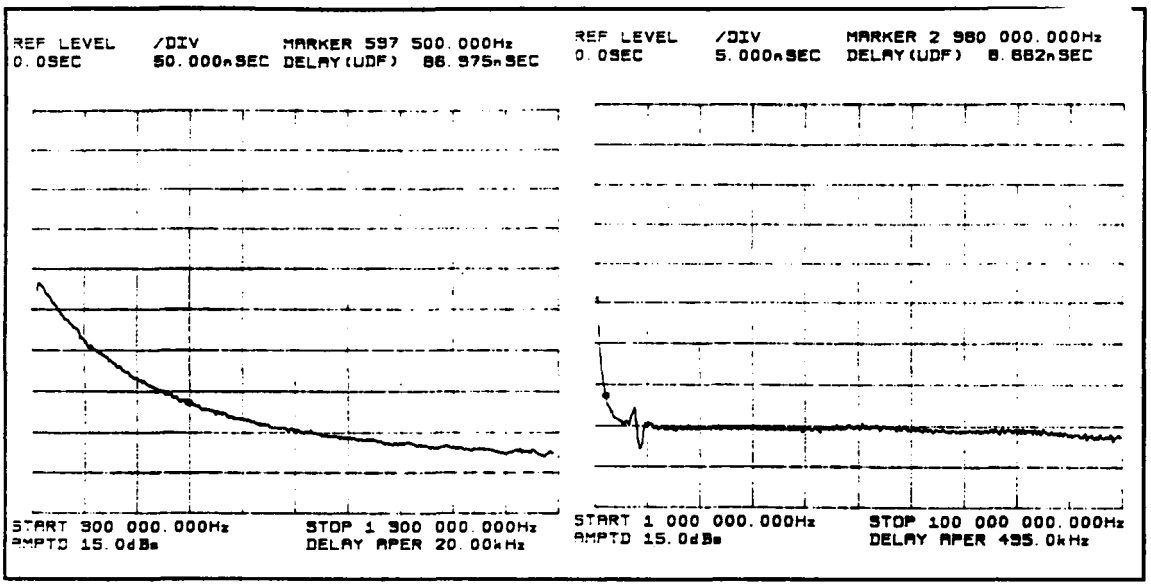

Figure 4. Amplifier Group Delay.

2. ADJUSTMENT

1	**Preliminary Adjustment**
1.1	By visual inspection verify that the module does not present evident manufacture errors and verify that it has been properly cleaned.
1.2	Preset P1 at minimum.
1.3	Supply the circuit with 24 V and adjust P1 so as to obtain a rest-current of 650 mA.

2	RF Measurements
2.1	Using the test set-up shown in Figure 5 measure the amplifier transfer function (B/R) and input ports insulation (A/R). Verify that the Gain at 2.5 MHz is 13.5 dB +/- 0.5 dB. Verify that the -1 dB bandwidth is at least 0.3 MHz to 40 MHz. Verify the in the band 0.3 MHz - 20 MHz the insulation is better than 26 dB

3	Labeling
3.1	Put a drop of paint on P1.
3.2	Label the module 'OK+Date'

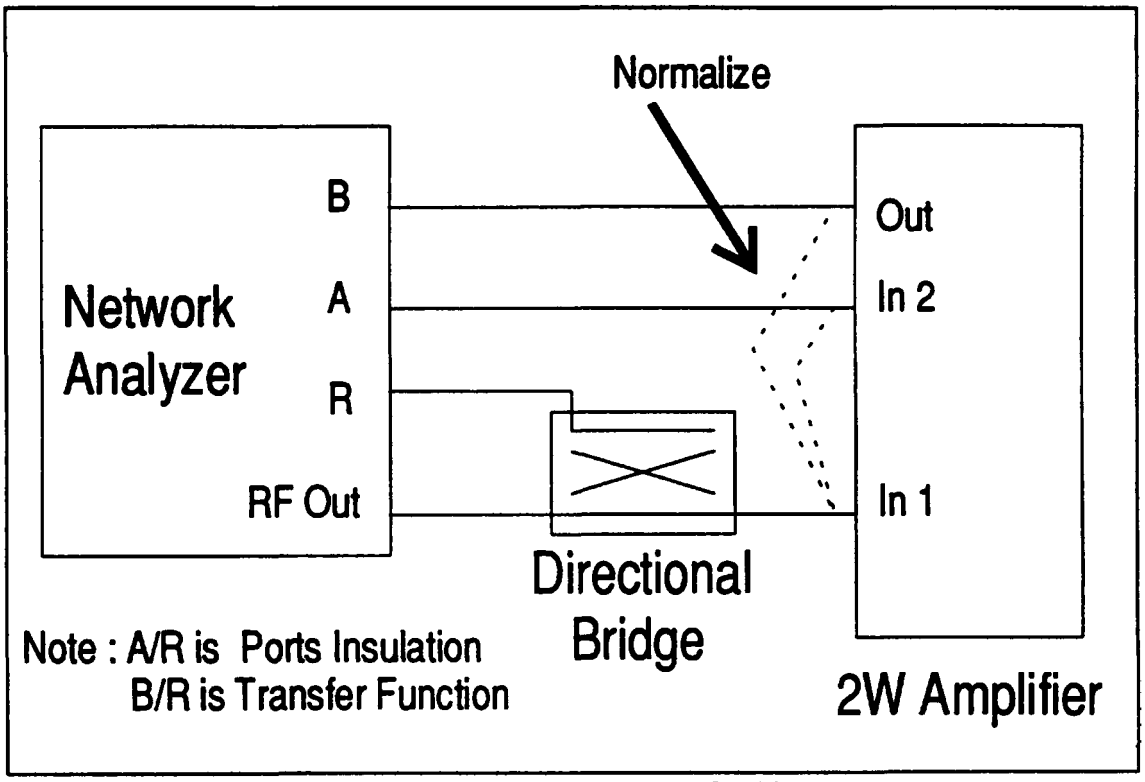

Figure 5. RF Measurement Set-Up.

Distribution :

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