DIODE INCOMMING INSPECTION (Manual)

1. TEST EQUIPMENT

    8620C   Sweep osc
    86290B   RF plug in
    8746B   S parameter test set
    8410   Polar display
    59306A   Relay actuator (2)
    59313A   A/D converter
    TM500   Mainframe
    DM501   Digital multimeter
    PS501   Power supply

2. TEST EQUIPMENT HOOK UP

    8620C   Band slect 2-18
            Full sweep off start marker on 2GHz
            ΔF Off x1
            CW marker off markers off
            CW vernier x1
            Marker sweep on marker stop 12GHz
            Mode Auto
            Trigger Int
            Time .1

    86290B   RF on
            ALC Int
            Power Level $\simeq$ "2" o'clock

    8746B   S11 light on
            0db incident atten
            Ref plane 000

    8410   Freq range auto detent (red knob)
            Amp test channel $\simeq$ 21db
            Move - Ampl
            Phase offset -
            Amp db/Div 1
            Degrees 0
            Phase degrees 10
            BW 10KHz

    59306A   Where ever they come up (system hook up)
            Black wire thru 51K Ω resistor to LO input on DM501
            orange & white w/bananna lead to - input on the p.s.501.
            Ignore other two wires.

    59313A   Where ever it comes up (system hook up).

TM500 Mainframe install ps501 & DM501

DM501   Hi input goes to and output ps501 Hard wire 2 DCMA range
        Lo input goes thru 51K Ω resistor to black lead from 59306A.

P.S.501 - output orange & white wire w/bananna to 59306A
        + to Hi input DM501 ≈ 7.70v 0-10v scale

3. .CALIBRATING THE SYSTEM

   A. Connect short to port S11. Turn ref plane to get the fusse display
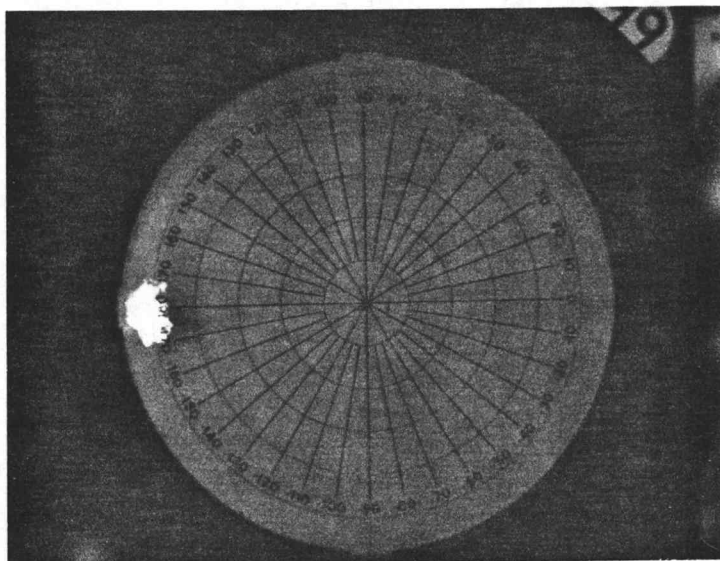   to group on the left side of the screen of the 8418A. See fig. 1

Fig. 1

   B. Now push the CW marker and adjust the AMPL VERNIER on the 8410 to
       mid screen w/the horiz position center it on the center vertical line
       also. See fig. 2

   C. Now with the ampl vernier and phase vernier, adjust the dot on the
       8418A to 180°, See fig. 3.

   D. Remove short, you are ready to test at 2GHz.
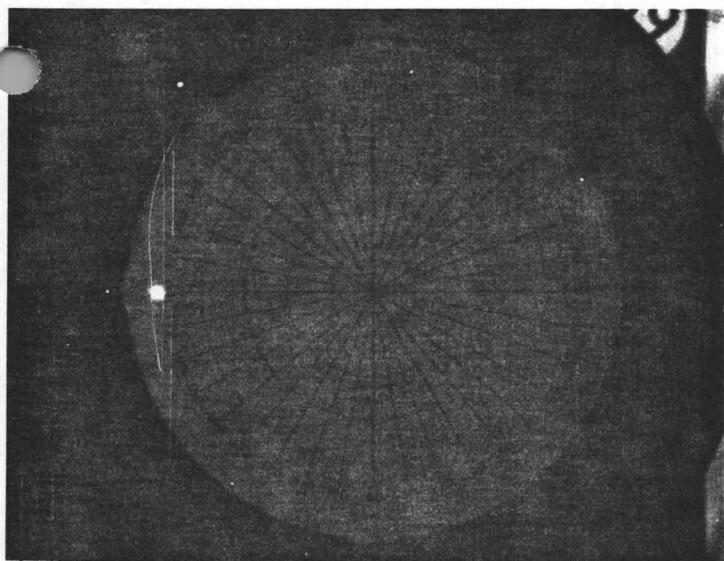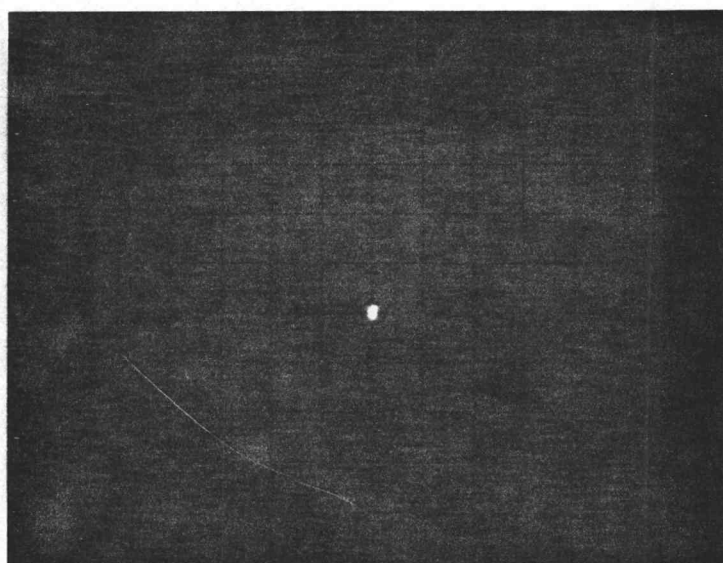
Fig. 2

Fig. 3

4. TESTING

A. Install diode. Set volts to approx. 7.70 on ps 501. Look on DM501 and adjust ps 501 for exactly 150µa. Turn current limit up.

B. Record data that is where dot moves to on 8410, see fig. 4 for example.

C. Move mode switch to phase on 8418A and record data. See fig. 5 for example.

D. Turn current limit down (remove power) and remove diode.
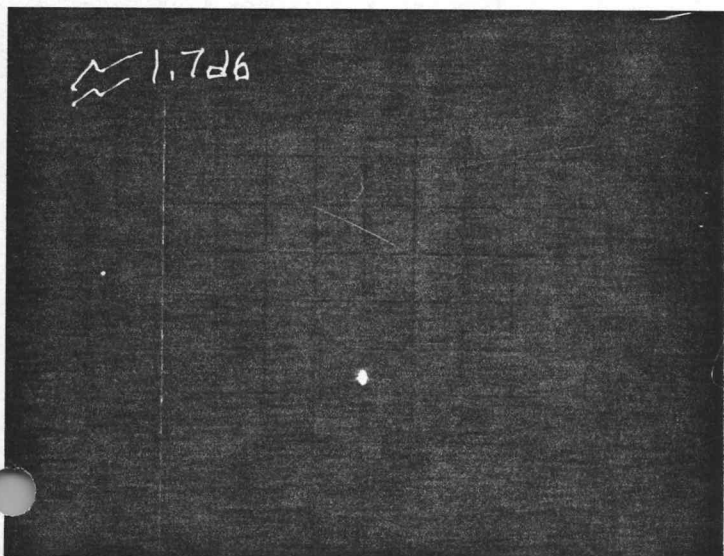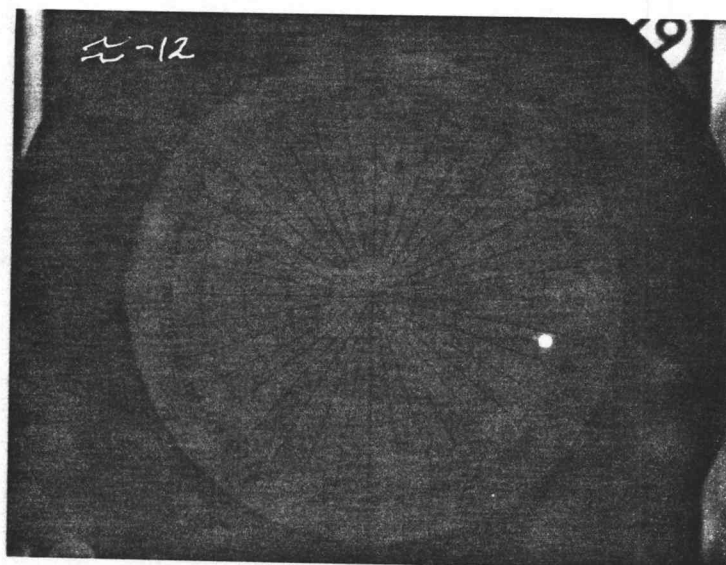

Fig. 4

Fig. 5

E. Repeat this procedure until all diodes have been tested at 2GHz.

F. Now with the CW marker, turn it clockwise until you've reached 4GHz.

G. Put short back on 511 and retweek the controls to reset as prescribed in Fig. 2 and 3.

H. Retest all of the diodes at this frequency.

I. Repeat this procedure until all diodes are tested thru 12GHz.

5. USING THE TEST DATA

A. Add all of the data that has been taken from the 8746B and divide it by the total number of diodes.

B. Do the same for the data taken from the 8418A.

C. Take ave. and insert into this formula:

$$(AVE) \div 20 = (Change\ \bar{}\ sign)\ STO\ 10y^X\ RCL = (Converted\ value)$$

D. Load data into cyber terminal.