

The following test procedure is a general guide for calibrating the M9H module. It is not to be

- I module set up & visual insp
- II Linearity
- III RF output
- IV sweep sample output
- V Harmonics
- VI filter
- VII unlevelled output power
- VIII zero

Test and Calibration Procedure M9H

I Test fixture set up

1. cable from sweep sample out M9H (52) to sweep sample in M5H (52)
2. cable from RF out M9H (51) to 50 Ω detector to Demod In on front panel of test fixture
3. VERT of test fixture to VERT of scope
4. HOZ of test fixture to HOZ of scope
5. sweep time of test fixture to line position
6. marker switch to wide
7. 50 Harmonic markers on (all others off)
8. Band switch to band 1
9. Scope VERT scale to 10 milli volts
10. Scope HOZ to .5 Volts (center scope)
11. Centering switch on test fixture to center
12. CHECK INPUTS TO M9H (+18 Vdc, -18 Vdc, +16 Vdc, -16 Vdc, blanking \approx -1V to +15V square wave, Sweep drive = 12V typical)

I Module set up

1. VISUAL inspect module (BROKEN COMPONENTS, SHORTS, ETC)
2. Push varicaps in both OSC. down
3. Adjust R2 and R9 fully clockwise (RIGHT)
4. Adjust R12 fully Counterclockwise (left)
5. Set R13 midrange (1 'O'clock)

II LINEARITY 0-500MHZ 1% or Better

1. Pull up varicaps in low OSC (2 varicap box) until 250MHZ marker is centered on scope display. (IF OK, GO TO 2, IF NOT OK, GO TO T1)
 2. Adjust test fixture front panel sweep width control to place 500MHZ marker to fifth gradicule to right of center of scope display (IF OK, GO TO 5, IF NOT OK, GO TO 3)
 3. Adjust R2 CCW moving 250MHZ marker to the right of center approx 1/2 cm
 4. Adjust R12 to bring 250MHZ marker back to center of scope (GO TO 2)
 5. Adjust R9 to spread low end markers to place zero on fifth gradicule to left of center on scope.
- NOTE: readjustment of test fixture front panel sweep width control will be needed to return 500MHZ marker to fifth gradicule to right of center on scope (IF OK, GO TO 6 IF NOT OK GO TO T2)

6. Install lids on OSC boxes
7. Readjust linearity (very small adjustments)
8. Check range of R13 (approx. equal change left and right of center with 250MHZ marker)
9. Final check linearity must be 1% or better 0-500MHZ (IF OK, GO TO III, IF NOT GO TO T3)

- III Detected RF Output 30 milli volts to 50 milli volts (without glitches or sharp changes)
1. Remove lid from low OSE box
 2. Raise or lower L5 in low OSE box to bring RF output level within range
 3. Reinstall lid on OSE box (IF OK, GO TO 4; IF NOT OK GO TO 1)
 4. Check for 30 milli volts to 50 milli volts detected RF output from 0-500 MHz (IF OK GO TO 5, IF NOT OK GO TO T6)
 5. Check for sharp changes or glitches in detected RF output
IF OK GO TO IV, IF NOT OK GO TO T7)

- IV Detected sweep sample output 100 milli volts to 200 milli volts (without sharp changes or glitches)
1. 50 Ω RF detector to sweep sample output J2 on M9H to demod in on front panel
 2. RF output J1 on M9H connected to sweep sample input J2 on M5H
 3. Check for 100 milli volts to 200 milli volts detected RF output from 0-500 MHz at sweep sample output J2
(IF OK, GO TO 4, IF NOT OK GO TO T11)
 4. Reconnect sweep sample output J2 of M9H to sweep sample input J2 of M5H
 5. GO TO V Harmonics

V Harmonics -31db 10MHz to 500MHz
NOTE: when measured through an average
M10H and M19H in an average unit on
test fixture

M9H Harmonics at J1 RF output
-34db to -35db to approx 400MHz
-30db to -32db 400MHz to 500MHz

M9H M10H M19H -31db Harmonics and spurious
from 10MHz to 1000MHz

1.

VI JITTER (FM)

VII Unlevel output - MIN 10% over level
NO CHANGE WHEN M9H is tapped

1. test fixture centering switch to normal
2. 50 Ω RF detector to RF output on front
panel of test fixture

VIII ZERO - 500KHZ or less