

## 4920M Instrument Test Procedure

### Equipment Required.

1. DMM eg Datron 1081
2. Spectrum Analyser with VSWR Bridge.

### Abbreviations Used.

1. UUT Unit Under Test
2. i/p Input
3. o/p Output

### Procedure.

#### Pre-Burn In Checks.

- 1.1. Visually inspect the UUT to ensure that all assemblies are fitted and correctly connected and that all relevant ECO's have been incorporated.
- 1.2. Ensure that TL201, 202 and 203 on the A-D assembly are broken.
- 1.3. Switch on UUT. This will start Operation Test which will probably fail the address check almost immediately. If this occurs clear the N.V. Ram by using the following sequence of key-strokes:-

Status, Config, Addr, 16, Enter. This sets the address to 16.  
Press Cal, Spcl, Yes, ClrNV, All.  
The right hand display will display: Writing New BITSUMS  
When this message disappears press Caltrig.  
The right hand display will display: NV Ram Clear in Progress.  
When this message disappears press Quit twice.  
Press Date, enter Month, Day, Year, Hour, Minutes and press Enter.  
Press Due, Intvl, enter 90 and press Enter. Press New, Quit.

- 1.4. Enter the UUT serial no. by pressing Cal, Ser#. Key in the UUT serial no. and press Enter. Press Due, Quit.
- 1.5. Press Test, followed by Oper. Ensure successful completion of test is obtained:- Oper Test : Completed is displayed. On successful completion of Oper Test pass the UUT on to Burn In. If any Fail messages occur during test investigate the problem using Diagnostic Test or Pathways as appropriate and rectify any faults found. Repeat Oper Test until successfully completed.

#### Post Burn-In Checks.

##### 2.0. High Acc. AC Checks.

- 2.1. On UUT select ACV, 1V, Ext Trig. On the AC pcb (400937) measure

the voltage across R424, R427, and R434. Check that they are between 34mV and 54mV and that they are matched to within  $\pm 5mV$ . In the Additional Notes section on the UUT history folder write "High Acc. AC Q416 checked." and initial and date.

- 2.2. Clean High Accuracy AC board (400938) and avoid an further handling of it.
- 3.0. VSWR Checks.  
Due to availability of the spectrum analyser it is acceptable for these checks to be omitted at this point but they must be carried out before final calibration of the UUT.
  - 3.1. Connect o/p of bridge to 50 $\Omega$  i/p on spectrum analyser.
  - 3.2. Connect i/p of bridge to tracking generator o/p on spectrum analyser.
  - 3.3. Set spectrum analyser to -5dBm by pressing RANGE and then up or down keys as appropriate.
  - 3.4. Adjust tracking generator o/p so that the trace lies one square down from the top of the display.
  - 3.5. Press Start Freq. followed by 100 then kHz.
  - 3.6. Press Stop Freq. followed by 20 then MHz.
  - 3.7. Press Offset followed by Enter Offset.  
There should now be a straight line across the screen.
  - 3.8. Apply the short. The line should not move by more than  $\pm 0.5dB$ .
  - 3.9. Apply the precision 50 $\Omega$  load.
  - 3.10. Press Video BW and use up or down keys to drop VBW to 300Hz. The trace should be below -65 dB. (Shown in the top right hand corner.)
  - 3.11. On the UUT select WBV, 3V, Ext Trig and connect the bridge to the WB i/p of the UUT.
  - 3.12. Check that the trace always remains below -55dB.
  - 3.13. On the UUT select ACV, Ext Trig and leave the bridge on the WB i/p of the UUT.
  - 3.14. Check that the trace always remains below -50dB.  
This completes VSWR checks. In the Additional Notes section on the UUT history folder write "VSWR Checked." and initial and date. Pass the UUT to stock.

### Appendix.

#### Equipment Required.

1. Calibrator eg Datron 4708
2. 4 wire input terminal adaptor.
3. DC Power Supply.

The bulb in the wideband assembly and the 1kV attenuator chain must be burned in. This should have been carried out on receipt of the components but in the unlikely event of parts being fitted to sub-assemblies without this happening the following are the procedures for carrying this out.

#### Bulb Burn In.

1. Ensure UUT has been powered up for 2 hours. Select WBV, Ext Trig.
2. Connect a 1081 DMM, in 4 wire, 100 $\Omega$  range, to the WB I/P via a 4 wire "N" type connector adapter. Measure the resistance of the WB I/P and record the result.
3. Connect DC supply to WBV input and apply 6.3V (126mA required) or between 8 and 16 hours.
4. Remove the 6.3V supply and allow UUT to settle for .5 hour.
5. Repeat 2 and note reading. Calculate the difference between the two readings and take the following action:

If diff < 200ppm Test complete.

If diff is between 200 and 300ppm Repeat 1 - 5

If diff > 300ppm replace Bulb and repeat 1 - 5

6. Record Pass on the History Folder

#### Attenuator Burn In

1. Connect calibrator to ACV input and apply 1kV at 1kHz, If UUT display shows Error Overload then perform a Gain cal by selecting CAL and then CAL TRIG.
2. Leave running for at least 5 hours.
3. Record Attenuator Burn In Complete on the History Folder.

4920M Instrument Test Procedure

Serial No.:-

Operator:-

Pre Burn In

- 1. Visual Check ..... ( )
- 2. Test Links Broken ..... ( )
- 3. Clear NV Ram ..... ( )
- 4. Enter Serial No. .... ( )
- 5. Oper. Test ..... ( )

Post Burn In

- 1. High Acc. AC Checks ..... ( )
- 2. VSWR Checks ..... ( )
- 3. Pass To Stock ..... ( )