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Test Procedure for Test Oscillator Boxes.

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## 1 Introduction

The following Test Procedure describes the test of proper operation of the Test Oscillator Boxes, D0902705-v2.

## 2 Test Equipment

- Voltmeter
- Oscilloscope
- Stanford Research SR785 analyzer
- RF Power Meter HP E4418A or Agilent N1914A
- Board Schematics—D1100663

## 3 Tests

*The Test Oscillators use the Low Noise Power Module (D0901846-D).*

- 1) **Verify the proper current draw.** Using a bench DC supply apply  $\pm 24$  Volts to P7 and  $\pm 17$  Volts to P6 of the low noise power Module (D0901846-D). Measure the current draw of the board.

+24 Volt current \_\_\_\_\_ 0.1 A Nom.

-24 Volt current \_\_\_\_\_ 0.0 A Nom.

+17 Volt current \_\_\_\_\_ less than 1.1 A

-17 Volt current \_\_\_\_\_ less than 0.01 A

**2) On the low noise power module check the voltage on TP 1-13.**

TP1 (+17V) \_\_\_\_\_ TP2 (-17V) \_\_\_\_\_

TP3 , 4 ( GND ) TP5 (+ 5V) \_\_\_\_\_

TP6 (-15V) \_\_\_\_\_ TP7 (+24V) \_\_\_\_\_

TP8 ( GND ) TP9 (-24V) \_\_\_\_\_

TP10 ( GND ) TP11 (+15V) \_\_\_\_\_

TP12 (+VREF) \_\_\_\_\_ TP13 (-VREF) \_\_\_\_\_

**3) If TP 1 , 2 , 7 , 9 and 8 are correct then TP14 ( OK ) should be logic high ~3Volts.**

**Confirm.** \_\_\_\_\_

**4) The noise on TP 12, 13, 11 and 6 should be measured with a SR785 using an rms power spectrum.**

TP12 noise \_\_\_\_\_ less than 20 nVrms/ $\sqrt{\text{Hz}}$  at 140 Hz

TP13 noise \_\_\_\_\_ less than 20 nVrms/ $\sqrt{\text{Hz}}$  at 140 Hz

TP11 noise \_\_\_\_\_ less than 20 nVrms/ $\sqrt{\text{Hz}}$  at 140 Hz

TP6 noise \_\_\_\_\_ less than 30 nVrms/ $\sqrt{\text{Hz}}$  at 140 Hz.

This concludes the test of the power supply. Now test the crystal oscillators.

5) With the frequency control input grounded measure the RF output with a RF Power meter. The nominal output level is 12 dBm ± 2dBm.

RF Output levels (dBm)

OSC1	OSC2	OSC3	OSC4

5) Apply a dc voltage to the frequency control input. Measure the output frequency as a function of input voltage. The frequency change is typically 50 ppm for ± 10 Volt input.

Oscillator 1 frequency change for 10 Volt input change \_\_\_\_\_ ppm

Oscillator 2 frequency change for 10 Volt input change \_\_\_\_\_ ppm.

Oscillator 3 frequency change for 10 Volt input change \_\_\_\_\_ ppm.

Oscillator 4 frequency change for 10 Volt input change \_\_\_\_\_ ppm

**Oscillator 1:**

Center Frequency =

Frequency					
Voltage	10	9	8	7	6
Voltage	1	2	3	4	5
Frequency					
Frequency					
Voltage	-1	-2	-3	-4	-5
Voltage	-10	-9	-8	-7	-6
Frequency					

**Oscillator 2:**

Center Frequency =

Frequency					
Voltage	10	9	8	7	6
Voltage	1	2	3	4	5
Frequency					
Frequency					
Voltage	-1	-2	-3	-4	-5
Voltage	-10	-9	-8	-7	-6
Frequency					

**Oscillator 3:**

Center Frequency =

Frequency					
Voltage	10	9	8	7	6
Voltage	1	2	3	4	5
Frequency					
Frequency					
Voltage	-1	-2	-3	-4	-5
Voltage	-10	-9	-8	-7	-6
Frequency					

**Oscillator 4:**

Center Frequency =

Frequency					
Voltage	10	9	8	7	6
Voltage	1	2	3	4	5
Frequency					
Frequency					
Voltage	-1	-2	-3	-4	-5
Voltage	-10	-9	-8	-7	-6
Frequency					