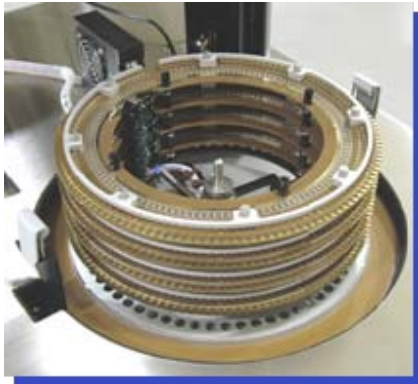


- Automated, software-based oscillator, VCXO and TCXO temperature test system
- Measures over 50 different tests
- Precision time interval analysis of oscillator startup characteristics
- Parameter and curve fit characteristics are checked against easy to define QC limits
- Oscillators of different frequencies can be tested in a single temperature run
- All data is published in a *Microsoft Access*[™] data base
- Data can be exported to *Microsoft Excel*[™] for custom data analysis
- Oscillator part number can be used to set complete measurement parameters, QC limits, temperature test points and data printouts



- Chamber holds four disc pallets for a total of up to 512 parts
- Standard SMD sizes available include 2.0x2.5, 2.5x3.2, 3.2x5, 3.5x6, 5x7, 5x7.5, 9x14, DIP (full & half)
- Measures LVDS, PECL, ECL, CMOS, and TTL devices
- Load circuitry easily changed via plug-in module

SPECIFICATIONS

Oscillator Frequency Range:	10 KHz to 1 GHz
Oscilloscope Analog Bandwidth:	600 MHz (rise time 1% error at 5 nsec)
Oscillator X10 Probe Bandwidth:	1 KHz to 850 MHz (2.5 K Ohm Max Impedance)
Oscillator X50 Probe Bandwidth:	1 KHz to 500 MHz (12.5 K Ohm Max Impedance)
Temperature Stability:	± 0.1° C
Temperature Range:	-55° C to 125° C (MR or LCO ₂) -65° C to 125° C (LN ₂)

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SYSTEM CONFIGURATION

- S&A Probe Test Head
- S&A 4220 Temperature Test Chamber (LCO₂, LN₂ or MR option)
- Oscilloscope
- 20A Power Supply
- Printer (optional)
- Computer (minimum Pentium III, 2 PCI slots, 1 full size PCI slot)
- S&A MFC-100 Card (requires full size PCI slot)
- GPIB Card
- Windows® based System Software

SAMPLE REPORTS

Oscillator Group Summary

Run Name: example run 0 to 80 degrees
 Run Start: 02-May-2003 5:40 pm
 Print All Operator: Run Finish: 02-May-2003 7:30 pm
 Ref: F @ 25.00°C (Set) S&A W2800 Rev: 0701 Report: 1700

Setup: C:\Program Files\Saunders & Associates\QSD04\40MHz.qso
 Reference Fr: 40,990,000 Hz Vcc: 5.000 V Vcc: 5.000 V Trigger: CMOS Level: 1.300 V
 Group: 0 Default

Setup: C:\Program Files\Saunders & Associates\QSD04\40MHz.qso
 Reference Fr: 8,192,000.0 Hz Vcc: 5.000 V Vcc: 5.000 V Trigger: CMOS Level: 1.300 V
 Group: 0 Default
 A001 A002 A003 A004 A005 A006

Graph showing multiple green curves representing oscillator frequency vs temperature. The x-axis is temperature in degrees Celsius (20 to 95) and the y-axis is frequency in MHz (35 to 42).

Oscillator Group File

Run Name: 0 to 80 degrees
 Author:
 Model:
 Operator:

Setup: test

Run Date: 17-Dec-2002 5:19 pm
 Description: CMOS 50 pf Load
 Reference Fr: 40,990,283 Hz
 Print: All

Vcc: 5.000 Volts Vcc: 2.500 Volts
 Trigger: TTL Level: 1.300 Volts
 S&A 280A Rev: 1.00 Report: 1.00

STATUS	FR	FR	I	Pmax	Pmin	DTV	TR	TF	VR	VL
	ppm	Hz	mk	ppm	ppm	%	ns	ns	V	V
1	Pass	-0.4 40,989,283	27.5	-2.4	2.7	54	3.7	2.0	4.9	-0.1
2	Pass	-0.3 40,989,276	27.3	-2.4	2.4	54	3.7	2.9	4.9	-0.1
3	Pass	-0.3 40,989,373	27.3	-2.4	2.1	54	3.7	2.8	4.9	-0.1
4	Pass	-0.3 40,989,289	27.3	-2.1	2.4	54	3.8	2.9	4.9	-0.1
5	Pass	-0.3 40,989,289	27.3	-2.7	2.4	54	3.7	2.9	4.9	-0.1

TCXO Crystal perturbation test

Graph showing TCXO crystal perturbation test results. The y-axis is frequency in ppm (-2 to 2) and the x-axis is time in minutes (0 to 2).

Configuration

Wheel Name: 08 Wheel Position: 104 Wheel

Group: A001-A005 Setup File: 40MHz
 Reference Fr: 40,990,000 Hz Vcc: 5.00

Group: A006-A010 Setup File: 8MHz
 Reference Fr: 8,192,000 Hz Vcc: 5.000

Temperature Table

Set Temp: 0.00 °C Soak: 20.00 min Me
 Step Temp: 80.00 °C Step: 5.00 °C Soak:

Setup: Test Device C

Run Date: 17-Dec-2002 2:44 pm
 Description: CMOS 60 pf
 Reference Fr: 40,990,283 Hz
 Print: All

Vcc: 5.000 Volts Vcc: 2.500 Volts
 Trigger: TTL Level: 1.300 Volts
 S&A 280A Rev: 1.00 Report: 1.00

STATUS	FR	Vcc (Screen 1)	Waveform
	ppm		
1	Pass	-1.0	
2	Pass	-1.4	
3	Pass	-1.4	
4	Pass	-1.0	

Oscillator Tabular

Run Name: example run 0 to 80 degrees
 Run Start: 02-May-2003 5:40 pm
 Run Finish: 02-May-2003 7:30 pm
 Ref: F @ 25.00°C (Set) S&A W2800 Rev: 0701 Report: 1700

A001	A002	A003	A004	A005										
Setup: 40MHz	Setup: 40MHz	Setup: 40MHz	Setup: 40MHz	Setup: 40MHz										
Ref F: 40,987,800 Hz	Ref F: 40,987,799 Hz	Ref F: 40,987,728 Hz	Ref F: 40,988,151 Hz	Ref F: 40,988,188 Hz										
°C	°C	°C	°C	°C										
F, ppm	F, ppm	F, ppm	F, ppm	F, ppm										
0.00	14.0K	21.02	5.01	-0.07	20.02	0.00	-0.78	20.27	0.00	-2.20	20.37	0.00	-0.04	20.52
5.01	5.0K	20.77	5.01	1.70	20.02	5.01	-0.86	20.27	5.01	-1.93	20.27	5.00	0.12	20.52
10.00	577.8	20.77	10.00	0.11	19.77	9.99	-0.95	20.27	9.99	-1.25	20.27	9.99	0.31	20.27
15.02	25.99	20.77	15.02	1.54	19.77	15.01	-0.76	20.02	15.00	-0.74	20.02	14.99	0.26	20.27
19.98	-0.85	20.52	19.99	1.28	19.52	19.99	-0.51	20.02	19.98	-0.31	20.02	19.98	0.24	20.02
25.01	0.00	20.52	25.01	0.00	19.52	25.01	0.00	19.77	25.00	0.00	19.77	24.99	0.00	20.02
29.97	0.06	20.27	29.97	-1.48	19.52	29.97	0.96	19.77	29.97	0.61	19.77	29.98	0.48	20.02
35.00	1.10	20.52	35.00	-2.80	19.52	35.00	1.63	19.77	35.00	1.21	19.77	34.99	0.36	19.77
40.01	1.96	20.27	40.01	-3.91	19.27	40.00	18.07	19.52	39.99	1.87	19.52	39.98	0.52	19.77
44.98	2.99	20.02	44.98	-4.94	19.27	44.99	36.35	19.52	44.99	3.04	19.52	45.00	63.95	19.77
50.00	4.84	20.27	49.99	-5.20	19.27	49.99	129.5	19.52	49.98	4.36	19.52	49.99	244.6	19.77
55.02	6.69	20.02	55.02	-5.30	19.27	55.02	45.51	19.52	55.01	6.06	19.52	55.01	17.97	19.52
60.01	9.23	20.02	60.01	-4.85	19.02	60.02	17.25	19.27	60.01	8.52	19.02	60.00	862.7	19.52
65.03	12.41	19.77	65.03	-3.16	19.02	65.02	64.10	19.27	65.01	11.27	19.27	64.08	10.71	19.52
70.01	16.62	19.77	70.00	-1.25	19.02	70.01	20.15	19.27	70.01	14.84	19.27	70.01	10.40	19.27
75.02	21.21	19.77	75.01	1.46	19.77	75.01	14.13	19.27	75.01	19.21	19.27	75.00	14.20	19.52
79.98	26.45	19.77	79.99	5.82	19.02	79.99	18.98	19.27	80.00	24.52	19.27	80.00	19.10	19.27

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