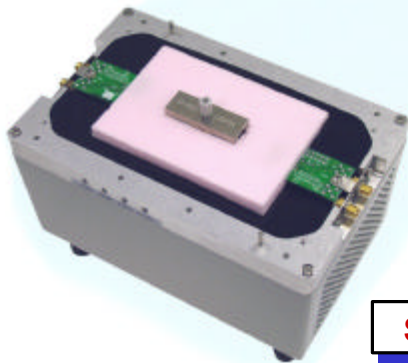




## W-2200 BENCH TOP TEMPERATURE TEST SYSTEM With 250B-1 or 250C Network Analyzer

- Automated, software-based quartz dual crystal temperature test system
- Measures over 75 different tests
- Two crystal capacity
- Parameter and curve fit characteristics are checked against easy to define QC limits
- Precision Crystal Temperature Perturbation Analysis
- Example Perturbation Test:
  - - 40° C to +105° C
  - Over 1000 temperature points
  - Total test time of 45 minutes for SMD crystals
- Available test fixtures holding two SMD devices:
  - 2x2.5mm, 2.5x3mm, 3.2x5mm
  - 3.5x6mm, 5x7mm
  - HC-49U, HC-49SMD, HC-49SMD-LP
  - Custom



- All data is published in a *Microsoft Access™* data base
- Data can be exported to *Microsoft Excel™* for custom data analysis
- Printouts are generated using *Crystal Reports®*

### SPECIFICATIONS

250B-1 Frequency Range:	15 KHz to 220 MHz
250C Frequency Range:	15 KHz to 500 MHz
Frequency Correlation:	+/- 1 ppm* at series (typical)
Crystal power:	1 nW to 1000 uW (1 MHz to 50 MHz) 1 nW to 500 uW (>50 MHz to 200 MHz)
Temperature Range:	- 40° C to +105° C @ 25° C Ambient
Temperature Stability:	±0.1° C

\* Proprietary measurement and calibration algorithms provide correlation to industry standard crystal measurement equipment.

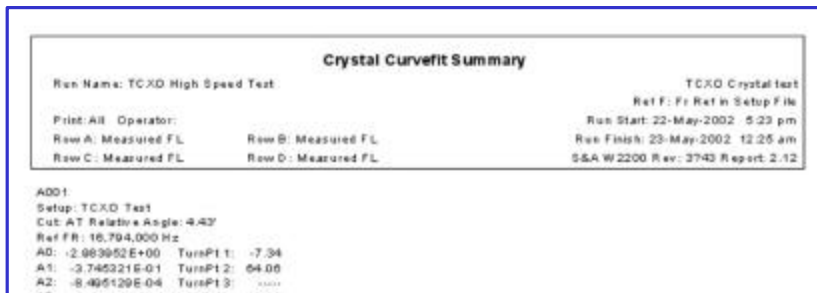
## SAUNDERS & ASSOCIATES, LLC

2520 E. Rose Garden Lane - Phoenix, Arizona 85050 USA (602) 971-9977 FAX (602) 971-5522  
E-Mail [sales@saunders-assoc.com](mailto:sales@saunders-assoc.com) - World Wide Web <http://www.saunders-assoc.com>

## SYSTEM CONFIGURATION

- S&A 250B-1 or 250C Network Analyzer
- S&A 4310 Bench Top Temperature Test Chamber
- Dual IEC-444 Pi-Network Test Head
- S&A PCI TTL I/O CARD
- **Windows® based System Software**
- **Printer (Optional)**
- **Computer Requirements:**  
 Minimum 500 MHz Pentium III  
 One full PCI slot with +3.3V & 5V power,  
 Windows XP®

## SAMPLE REPORTS



**Crystal Tabular**

Run Name: TCXO High Speed Test TCXO Crystal test  
 Ref F: Fr Ref in Setup File  
 Print: All Operator: Run Start: 22-May-2002 5:23 pm  
 Row A: Measured FL Row B: Measured FL Run Finish: 23-May-2002 12:25 am  
 Row C: Measured FL Row D: Measured FL S&A W2200 Rev: 3743 Report: 2.12

A001  
 Setup: TCXO Test  
 Ref F: 16.794,000 Hz  

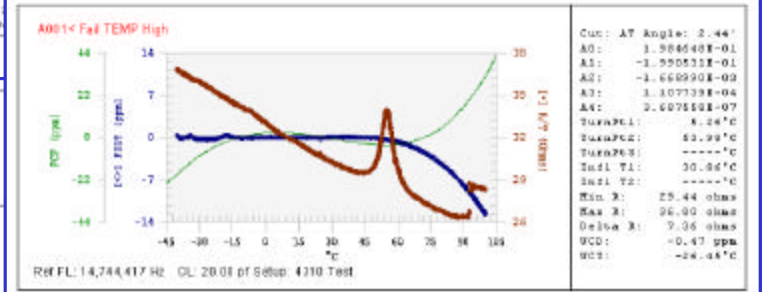
°C	FR ppm	R
-40.00	-0.00	18.89
-39.88	-0.95	18.81
-39.10	-0.20	18.56
-38.20	-7.37	18.55
-37.37	-6.62	18.47
-36.53	-5.92	18.48
-35.89	-5.24	18.41
-34.88	-4.58	18.37
-34.01	-3.95	18.35
-33.20	-3.37	18.34
-32.32	-2.77	18.27
-31.51	-2.24	18.25
-30.88	-1.73	18.20
-29.84	-1.19	18.12
-28.99	-0.71	18.15
-28.16	-0.25	18.11
-27.33	0.21	18.09
-26.50	0.65	18.04
-25.65	1.08	18.01
-24.83	1.41	17.95
-23.99	1.77	17.94
-23.15	2.08	17.92
-22.34	2.41	17.88
-21.49	2.69	17.85
-20.87	2.97	17.82
-19.84	3.21	17.80
-18.87	3.43	17.78

**Crystal Curvfit Tabular**

Run Name: TCXO High Speed Test  
 Print: All Operator:  
 Row A: Measured FL Row B: Measured FL  
 Row C: Measured FL Row D: Measured FL

A001  
 Setup: TCXO Test  
 Angle: AT(4.43°)  
 Ref F: 16.794,000 Hz  

°C	FR ppm	Curva	Delta	R
-40.00	-0.00	-0.00	-0.02	18.49
-39.88	-0.95	-0.99	-0.07	18.61
-39.10	-0.20	-0.17	-0.03	18.56
-38.20	-7.37	-7.36	-0.02	18.55
-37.37	-6.62	-6.64	0.02	18.47
-36.53	-5.92	-5.93	0.02	18.48
-35.89	-5.24	-5.25	0.01	18.41
-34.88	-4.58	-4.61	0.03	18.37
-34.01	-3.95	-3.97	0.02	18.35
-33.20	-3.37	-3.39	0.02	18.34
-32.32	-2.77	-2.78	0.01	18.27
-31.51	-2.24	-2.24	0.00	18.25
-30.88	-1.73	-1.71	-0.02	18.20
-29.84	-1.19	-1.20	0.01	18.12
-28.99	-0.71	-0.71	0.00	18.15
-28.16	-0.25	-0.25	-0.01	18.11
-27.33	0.21	0.19	0.01	18.09
-26.50	0.65	0.61	0.04	18.04
-25.65	1.08	1.01	0.04	18.01
-24.83	1.41	1.39	0.02	17.95
-23.99	1.77	1.74	0.02	17.94
-23.15	2.08	2.08	0.00	17.92
-22.34	2.41	2.39	0.02	17.88
-21.49	2.69	2.68	0.01	17.85



# SAUNDERS & ASSOCIATES, LLC