

S&A

W-2200B DUAL CHAMBER TEMPERATURE TEST SYSTEM With 250B-1 or 250C Network Analyzer

- Automated software based quartz crystal temperature test system
- Measures over 75 different parameters
- Parameter and curve fit characteristics are checked against easy to define QC limits
- Crystals of different frequencies can be tested in a single temperature run
- All data published in a *Microsoft Access*[™] data base and can be exported to *Microsoft Excel*[™] for custom data analysis
- Crystal part number can be used to set complete measurement parameters, QC limits, temperature test points, and data printouts
- Printouts are generated using *Crystal Reports*[®]



- Accommodates two dual row test wheels with extended life test head contacts
- Easily loaded S&A proprietary sockets accept HC-45, HC-49, HC-43, HC-49US, HC-18, SMD and tubular type packages
- Typically holds 1016 devices per run

SPECIFICATIONS

250B-1 Frequency Range:
250C Frequency Range:

15 KHz to 220 MHz
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 Stability:

± 0.1°

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

SAUNDERS & ASSOCIATES, LLC

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SYSTEM CONFIGURATION

- S&A 250B-1 or 250C Network Analyzer
- Two S&A 2451 Switch Controllers
- Two S&A 4220 Temperature Test Chambers (LCO₂, LN₂, or Mechanical Refrigeration Cooling)
- Two IEC-444 Pi-Network Test Heads
- **Windows[®] based System Software**
- **Printer (Optional)**
- **Computer Requirements:**
 Minimum 500 MHz Pentium III
 One full PCI slot with +3.3V & 5V power,
 Windows 98[®]

SAMPLE REPORTS

Crystal Plots
Run Name: Crystal Test Run
Print All Operator: RMB
Row A: Measured FL
Row B: Measured FL
Row C: Measured FL
Row D: Measured FL
Ref F: F @ 25.00°C (Set)
Run Start: 10-Nov-2001 9:37 am
Run Finish: 10-Nov-2001 10:15 am
S&A W2200 Rev: 1722

Cur: AT Angle: 4.42°
A0: -4.1294278+92
A1: -9.3929478+82
A2: 1.0134408+84
A3: 1.0134408+84
A4: 3.9244318+98
TurnP1: 17.33°C
TurnP2: 44.44°C
TurnP3: 66.66°C
TurnP4: 88.88°C
Thes T1: 0.94°C
Thes T2: 0.94°C
Rin A: 14.40 ohms
Rin B: 17.27 ohms
Rin C: 8.47 ohms
Rin D: 8.06 ohms
QCT: 40.02°C

Crystal Condensed Plots
Run Name: Crystal Test Run
Print All Operator: RMB
Row A: Measured FL
Row B: Measured FL
Row C: Measured FL
Row D: Measured FL
Ref F: F @ 25.00°C (Set)
Run Start: 10-Nov-2001 9:37 am
Run Finish: 10-Nov-2001 10:15 am
S&A W2200 Rev: 1722

Crystal Tabular
Run Name: Example Run
Print All Operator:
Row A: Measured FL
Row B: Measured FL
Row C: Measured FL
Row D: Measured FL
Ref F: F @ 25.00°C (Set)
Run Start: 26-Oct-2001
Run Finish: 26-Oct-2001
S&A W2200 Rev: 1722

A001 +2a001+		A002 +2a002+		A003 +2a003+		A004 +2a004+		A005 +2a005+				
Setup: 12magw0	Setup: 12magw0	Setup: 12magw0	Setup: 12magw0	Setup: 12magw0	Setup: 12magw0	Setup: 12magw0	Setup: 12magw0	Setup: 12magw0	Setup: 12magw0			
Ref F: 12,795,817 Hz	Ref F: 12,795,865 Hz	Ref F: 12,795,913 Hz	Ref F: 12,795,961 Hz	Ref F: 12,796,009 Hz	Ref F: 12,796,057 Hz	Ref F: 12,796,105 Hz	Ref F: 12,796,153 Hz	Ref F: 12,796,201 Hz	Ref F: 12,796,249 Hz			
% FR	% FR	% FR	% FR	% FR	% FR	% FR	% FR	% FR	% FR			
25.01	0.00	4.92	25.02	0.00	18.71	25.02	0.00	12.39	25.01	0.00	11.97	25.01
3.01	0.01	5.13	3.01	0.00	21.44	3.00	3.28	12.96	-0.01	3.74	13.49	0.00
5.02	0.33	4.90	5.00	0.79	20.77	4.98	3.16	12.92	-4.98	3.52	12.30	0.01
8.88	0.44	5.03	10.00	5.24	20.39	10.00	2.88	12.83	10.00	2.94	12.39	0.01
15.02	0.50	5.03	15.01	15.00	19.84	15.00	2.67	12.88	14.99	2.53	12.32	0.01
20.50	0.36	5.02	20.00									
25.00	0.09	5.05	25.01									
30.02	-3.12	5.04	30.01									
34.88	-3.39	5.03	35.00									
40.02	-3.55	5.04	40.02									
45.03	-3.52	5.06	45.02									
49.99	-3.20	5.00	49.99									
54.99	0.33	4.98	55.00									
59.99	1.33	5.05	59.99									

Crystal Curvfit Summary
Run Name: Example Run
Print All Operator:
Row A: Measured FL
Row B: Measured FL
Row C: Measured FL
Row D: Measured FL
Ref F: F @ 25.00°C (Set)
Run Start: 26-Oct-2001 4:51 pm
Run Finish: 26-Oct-2001 6:34 pm
S&A W2200 Rev: 1722

Run	Cur	AT	Angle	TurnP	Thes	Rin	QCT
001	A0	-4.787982E-02	TurnP1: 1	12.88	0.13		
002	A1	-2.088933E-01	TurnP2: 2	68.86	0.17		
003	A2	-1.032941E-03	TurnP3: 3	24.38	0.16		
004	A3	0.513246E-05	TurnP4: 4	29.06	0.16		
005	A4	2.248727E-07	TurnP5: 5		0.16		

Crystal Curvfit Tabular
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003	A2	-1.032941E-03	TurnP3: 3	24.38	0.16		
004	A3	0.513246E-05	TurnP4: 4	29.06	0.16		
005	A4	2.248727E-07	TurnP5: 5		0.16		

Crystal Setup File Parameters
Run Name: Example Run
Print All Operator:
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Crystal Failures Only
Run Name: Example Run
Print All Operator:
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