



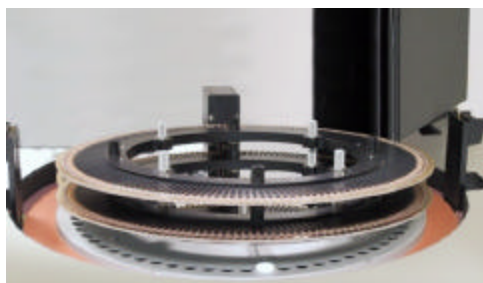
W-2200 SMD DISC PALLET TEMPERATURE TEST SYSTEM

With 250B-1 or 250C Network Analyzer

- Automated, software based quartz crystal temperature test system
- Up to 2 disc pallets can be stacked
- Standard SMD sizes available include:

SMD TYPE	DISC CAPACITY	TOTAL CAPACITY/ PER CHAMBER
5 x 7mm	140	280
4.5 x 8mm	140	280
3.5 x 6mm	160	320
3.2 x 5mm	160	320
2.5 x 4mm	160	320
2.5 x 3.2mm	160	320
2.0 x 2.5mm	160	320
HC-49USMD	100	200
Leaded	100	200

- Custom SMD Sizes available
- Disc pallet platform can be easily integrated into dedicated machine for automatic loading / unloading SMD devices
- Measures over 75 different tests



- 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 is published in a *Microsoft Access*™ data base and can be exported to *Microsoft Excel*™ for custom data analysis
- Printouts are generated using *Crystal Reports*®
- Dual chamber configuration available

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 Stability:	± 0.1° C

* 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
- S&A 2451 Switch Controller (only required in dual chamber configuration)
- S&A 4220 Temperature Test Chamber (LCO₂, LN₂, or Mechanical Refrigeration Cooling)
- IEC-444 Pi-Network Test Head
- 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
Ref F: F @ 25.00°C (Std)
Print All Operator: RMB
Row A: Measured FL
Row B: Measured FL
Row C: Measured FL
Row D: Measured FL
Run Start: 10-Nov-2001 9:37 am
Run Finish: 10-Nov-2001 10:15 am
S&A W2200 Rev: 1722

Crystal Condensed Plots
Run Name: Crystal Test Run
Ref F: F @ 25.00°C (Std)
Print All Operator: RMB
Row A: Measured FL
Row B: Measured FL
Row C: Measured FL
Row D: Measured FL
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
Ref F: F @ 25.00°C (Std)
Print All Operator: RMB
Row A: Measured FL
Row B: Measured FL
Row C: Measured FL
Row D: Measured FL
Run Start: 26-03-2001 4:51 pm
Run Finish: 26-03-2001 6:34 pm
S&A W2200 Rev: 1722

Setup: 12magv0	Setup: 12magv0	Setup: 12magv0	Setup: 12magv0	Setup: 12magv0									
Ref F: 12,795,817 Hz	Ref F: 12,795,866 Hz	Ref F: 12,795,917 Hz	Ref F: 12,795,942 Hz	Ref F: 12,795,942 Hz									
% FR ppm	% FR ppm	% FR ppm	% FR ppm	% FR ppm									
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	0.00
8.01	0.01	5.13	9.01	0.08	21.44	8.00	3.28	12.96	-0.01	3.74	13.49	0.00	0.00
5.02	0.32	4.98	5.00	0.79	20.77	4.98	3.16	12.82	4.99	3.52	12.39	5.01	0.00
8.88	0.44	5.03	10.00	5.24	30.39	10.00	2.88	12.83	10.00	2.94	12.39	8.88	0.00
15.02	0.50	5.03	15.01	1.89	10.84	16.00	5.07	13.89	14.00	5.53	13.52	14.00	1.33
20.00	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 Curvefit Summary
Run Name: Example Run
Ref F: F @ 25.00°C (Std)
Print All Operator: RMB
Row A: Measured FL
Row B: Measured FL
Row C: Measured FL
Row D: Measured FL
Run Start: 26-03-2001 4:51 pm
Run Finish: 26-03-2001 6:34 pm
S&A W2200 Rev: 1722

Crystal Curvefit Tabular
Run Name: Example Run
Ref F: F @ 25.00°C (Std)
Print All Operator: RMB
Row A: Measured FL
Row B: Measured FL
Row C: Measured FL
Row D: Measured FL
Run Start: 26-03-2001 4:51 pm
Run Finish: 26-03-2001 6:34 pm
S&A W2200 Rev: 1722

Crystal Setup File Parameters
Run Name: Example Run
Ref F: F @ 25.00°C (Std)
Print All Operator: RMB
Row A: Measured FL
Row B: Measured FL
Row C: Measured FL
Row D: Measured FL
Run Start: 26-03-2001 4:51 pm
Run Finish: 26-03-2001 6:34 pm
S&A W2200 Rev: 1722

Crystal Failures Only
Run Name: Example Run
Ref F: F @ 25.00°C (Std)
Print All Operator: RMB
Row A: Measured FL
Row B: Measured FL
Row C: Measured FL
Row D: Measured FL
Run Start: 26-03-2001 4:51 pm
Run Finish: 26-03-2001 6:34 pm
S&A W2200 Rev: 1722

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