

- Automated software based quartz crystal temperature test system
- Holds up to 1280 devices per run
- Standard sizes available include:

TYPE	DISC CAPACITY	TOTAL CHAMBER CAPACITY
SMD 5 x 7mm	140	560
SMD 4.5 x 8mm	140	560
SMD 3.5 x 6mm	160	640
SMD 3.2 x 5mm	160	640
SMD 2.5 x 4mm	160	640
SMD HC-49USMD	100	400
LEADED HC-45/49	100	400

- Custom SMD sizes available
- High speed fan mounted inside the chamber cover provides fast temperature soak time
- Disc pallet platform can be easily integrated into S&A 901A machine for automatic unloading / loading SMD devices



- Measures over 75 different parameters
- Parameter and curve fit characteristics checked against easy to define QC limits
- Crystals of different frequencies tested in a single temperature run
- All data published in a *Microsoft Access*™ database and 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 Stability:	± 0.1°
Example Throughput:	5 temperature points (-20 0 25 50 85) 1200 parts per hour

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

Roditi International Corp. Ltd,

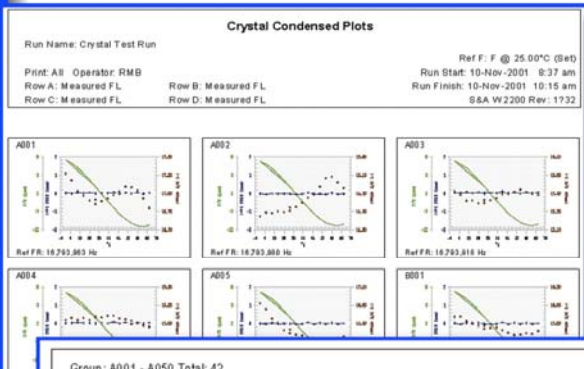
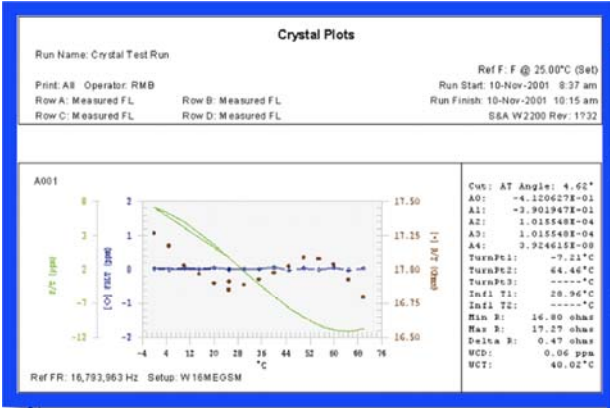
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SYSTEM CONFIGURATION

- 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[®]

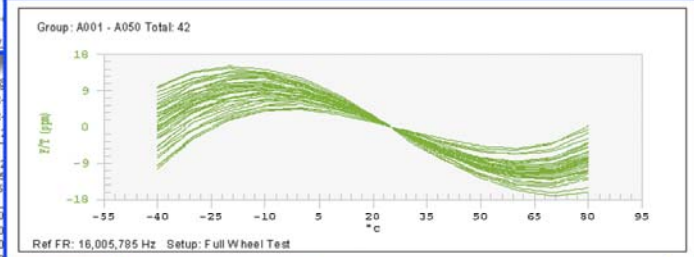
SAMPLE REPORTS



Crystal Tabular

Run Name: Example Run	Ref F: F @ 25.00°C (Set)
Print: All Operator: RMB	Run Start: 10-Nov-2001 8:37 am
Row A: Measured FL	Row B: Measured FL
Row C: Measured FL	Row D: Measured FL
S&A W2200 Rev: 1732	

A001 <2a001>	A002 <2a002>	A003 <2a003>	A004 <2a004>	A005 <2a005>							
Setup: 12megw2	Setup: 12megw2	Setup: 12megw2	Setup: 12megw2	Setup: 5							
Ref F: 12,795,174 Hz	Ref F: 12,795,955 Hz	Ref F: 12,795,917 Hz	Ref F: 12,795,942 Hz	Ref F: 5							
°C	FR ppm	R	°C	FR ppm	R	°C	FR ppm	R	°C	FR ppm	R
25.01	0.00	4.92	25.03	0.00	18.71	25.02	0.00	12.39	25.01	0.00	11.97
0.01	0.01	5.13	0.01	0.00	21.44	0.00	3.28	12.96	-0.01	3.74	12.49
5.02	0.33	4.90	5.00	6.79	20.77	4.98	3.16	12.82	4.99	3.52	12.38
9.98	0.44	5.03	10.00	5.24	20.39	10.00	2.68	12.83	10.00	2.94	12.39
15.02	0.50	5.03	15.01	3.60	10.81	15.00	3.07	13.68	14.00	3.33	13.33
20.00	0.36	5.02	20.00								
25.00	0.09	5.05	25.01	-0							
30.02	-0.12	5.04	30.01	-2							
34.99	-0.39	5.03	35.00	-3							
40.02	-0.55	5.04	40.02	-5							
45.03	-0.52	5.06	45.02	-7							
49.99	-0.20	5.00	49.99	-8							
54.99	0.33	4.98	55.00	-9							
59.99	1.33	5.05	59.99	-9							



Crystal Curvfit Summary

Run Name: Example Run	Ref F: F @ 25.00°C (Set)
Print: All Operator: RMB	Run Start: 26-Oct-2001 4:51 pm
Row A: Measured FL	Row B: Measured FL
Row C: Measured FL	Row D: Measured FL
S&A W2200 Rev: 1725	

Crystal Curvfit Tabular

Run Name: Example Run	Ref F: F @ 25.00°C (Set)
Print: All Operator: RMB	Run Start: 26-Oct-2001 4:51 pm
Row A: Measured FL	Row B: Measured FL
Row C: Measured FL	Row D: Measured FL
S&A W2200 Rev: 1725	

Crystal Setup File Parameters

Run Name: Example Run	Ref F: F @ 25.00°C (Set)
Print: All Operator: RMB	Run Start: 26-Oct-2001 4:51 pm
Row A: Measured FL	Row B: Measured FL
Row C: Measured FL	Row D: Measured FL
S&A W2200 Rev: 1725	

Setup: 12megw2	Reference F: 12,795,900 Hz	CL: 0.00 pF	Power: 100.00 mW	Into: 12.00 Ohms	Measure: FR/T				
STATUS	FR	CO	DR	Q	CL	L	PWR	TEMP	F/T
	ppm	pF	Ohms	k	FF	mW	mW	°C	ppm
	10.0	3.0	25.0		13.0	13.00			
	-10.0	2.8			12.0	11.00			
Delta	WCD	K/F	CUT	ANG					
Ohms	ppm	Ohms							
		25.0							

A001 <2a001>	Pass	FR	CO	DR	Q	CL	L	PWR	TEMP	F/T
		-56.74	4.64	4.9	119	21.3	7.264	77	25.01	-4
		0.2	-9.3	5.1	AT	0.60				

Crystal Failures Only

Run Name: Example Run	Ref F: F @ 25.00°C (Set)
Print: All Operator: RMB	Run Start: 26-Oct-2001 4:51 pm
Row A: Measured FL	Row B: Measured FL
Row C: Measured FL	Row D: Measured FL
S&A W2200 Rev: 1725	

A003 <2a003>	Setup: 12megw2	Cut: AT	Angle: 2.51°	Ref F: 12,795,917 Hz							
99	A0: -4.797002E-02	TurnP1: 0.12	25.03	0.00	0.00	0.00	18.71	25.02	0.00	0.00	12.39
94	A1: -2.089013E-01	TurnP2: 57.04	0.01	0.08	8.23	-0.16	21.44	0.00	3.28	3.14	0.14
93	A2: -1.032941E-03	TurnP3: 29.96	0.00	8.79	6.98	-0.18	20.77	4.98	3.16	2.88	0.18
38	A3: 8.513240E-05	Infl T 1: 29.96	10.00	5.24	6.45	-0.22	20.39	10.00	2.69	2.64	0.14
92	A4: -9.575956E-08	Infl T 2: 29.96	15.01	3.60	3.74	-0.14	19.81	15.00	2.07	1.86	0.21
44			20.00	1.68	1.81	-0.23	19.39	20.00	1.16	0.99	0.17
44			25.01	-0.23	0.01	-0.24	19.12	25.01	0.17	0.00	0.17
95	WCD: -0.16 ppm	Min R: 11.77	30.01	-2.04	-1.88	-0.16	18.87	30.01	-0.93	-1.05	0.23
40	WCT: 25.02 °C	Delta R: 1.18	40.02	-5.61	-5.38	-0.23	18.62	40.01	-2.04	-3.09	0.15
			45.02	-7.04	-6.86	-0.18	18.66	45.00	-3.78	-3.93	0.15
			49.99	-8.22	-8.09	-0.13	18.50	50.01	-4.39	-4.56	0.17
			54.99	0.33	0.27	0.08	4.98	55.00	-0.15	-0.01	-0.14
			59.99	1.33	1.24	0.09	5.05	59.99	-0.78	-0.86	-0.20
								60.01	-4.71	-4.85	0.14
								65.01	-5.13	-5.17	0.11
								70.01	-5.57	-5.61	0.11

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