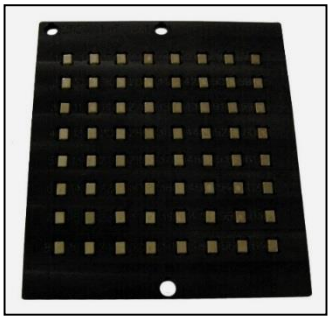
S&A

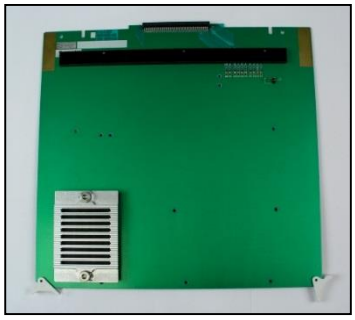
W-2211MR CRYSTAL TEMPERATURE TEST SYSTEM

Extremely high speed, high precision frequency measurement using calculated FL over temperature, measures 2,048 parts in ≤ 1 minute

- **Industry's first crystal temperature test system with 100% electronic switching**
- **Proprietary 50 ohm reflection network provides typical frequency measurement repeatability 10 ppb !**
- **Chamber holds thirty-two 64-position pallet socket DUT PCBs for a total of 2,048 parts**
- **RTD sensor mounted on DUT PCB for precision temperature measurement**
- **Crystals of different frequencies can be tested in a single temperature run**
- **Supports part sizes from 8045 to 1210**
- **Thermistor-crystal testing for GPS application :**
  - **Residual frequency stability slope RFSS (ppb/°C)**
  - **5°C small orbit hysteresis 1 RFHS (ppb/°C)**
  - **5°C small orbit hysteresis 2 HSO (ppb pk-pk)**



64 Position Pallet



64 Position Pallet Socket DUT PCB

SPECIFICATIONS

250B-1 Frequency Range:	1 MHz to 220 MHz
250C Frequency Range:	1 MHz to 500 MHz
Frequency Correlation:	± 1 ppm* at series (typical)
Frequency Repeatability:	10 ppb (typical)
Temperature Stability:	± 0.1° C
Temperature Range:	-55° C to 125° C (MR)
	-65° C to 125° C (MR with LN_2 Boost)

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

SAUNDERS & ASSOCIATES, LLC

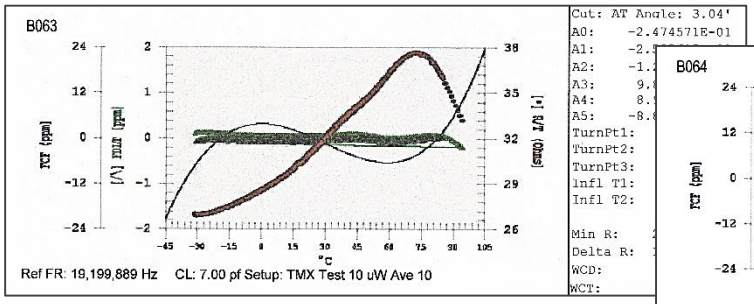
2520 E. Rose Garden Lane - Phoenix, Arizona 85050 USA (602) 971-9977 FAX (602) 971-5522

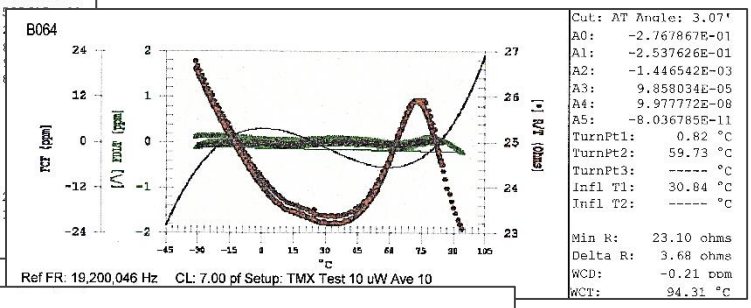
E-Mail sales@saunders-assoc.com - World Wide Web http://www.saunders-assoc.com

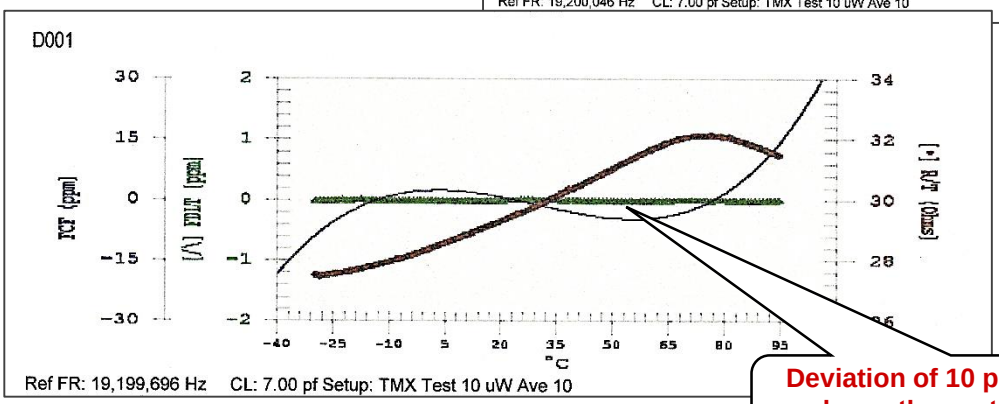
SYSTEM CONFIGURATION

- **Two S&A 250B-1 or 250C Network Analyzers**
- **S&A 4365MR Option 1 Temperature Test Chamber**
- **Four 8-position card cages and backplane PCBs**
- **50 Ohm Reflection Networks**
- ***Windows*® based System Software**
- **System Controller**
- **Printer (Optional)**

SAMPLE REPORTS







Deviation of 10 ppb from curvefit shows the system's excellent measurement repeatability

Start: D001 Stop: D064
Setup: TMX Test 10 uW Ave 10
Reference F: 19,200,000 Hz CL: 7.00 pF Power: 10.00 uW into 40.00 Ohms

Measurement to locate resonance or micro-jumps

Measurement to locate small orbit hysteresis 1

Measurement to locate small orbit hysteresis 2

	L mH	TS ppm/pF	PWR uW	RFSS ppb/°C	RFSST °C	RFHS ppb/°C	RFHST °C	HSO ppb	HSOT °C	
D001	99.162	-154.493	19,197,034	-20.32	19,199,610	1.92	29.63	113	2.47	
	27.83	15.5	10	-11.75	-21.51	-26.6	76.11	42.4	32.09	
D002	99.162	-154.112	19,197,041	-23.45	19,199,550	2.00	24.05	141	2.44	
	28.17	15.1	10	11.65	6.32	-23.4	76.11	43.2	-23.09	
D003	99.162	-153.494	19,197,053	-21.55	19,199,586	1.97	25.52	133	2.45	
	28.10	15.2	10	-11.19	-21.51	-23.1	76.85	54.1	-23.09	

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