A single system to simultaneously …

– Determine life expectancy of compound semiconductor components
– Characterize components during test to show RF and DC degradation

Multidimensional Dynamic Testing

– Automatically perform 3-temperature life tests
– Automatically characterize components

Stimulate each DUT with …

– **RF**
  - Independent RF drive level for each DUT
  - Standard frequency ranges to 78 GHz
  - Input drive levels to 0.25 watts with SSPA option

– **DC**
  - Two independent bias sources
  - Bias can be constant voltage or constant current sources

– **Temperature**
  - Independent control for each DUT
  - +50°C to +250°C
### Specifications

**Versions**

- Simultaneous DUTs per system
  - RF: 4, 8, or 16

**Applications Software**

- Setup: Pull down menus with forms that define test scenarios for each DUT. Includes: DC, RF, temperature, and over 40 parameters.
- Control: DUT temperature, 2-DC biases, RF input and output signals
- Calibration: Automated calibration of temperature, DC, and RF
- Limit checking: Continuous

**RF Ranges (custom ranges available)**

- 26 to 40 GHz
- 58 to 62 GHz
- 76 to 78 GHz

**Maximum RF Drive Power per DUT**

- 12 dBm (typical)
- 10 dBm (minimum)

**Maximum RF Output Power per DUT**

- 37 dBm
- > 20 dB

**DUT Configuration**

- RF & DC: Any die, standard packages or custom design (contact factory for availability)
- Accuracy: ±2°C
- Range: +50°C to +250°C (under no load)
- Sensor: Thermocouple per DUT fixture

**Heater Control Unit (HCU)**

- Independent Channels: 4, 8, or 16
- Setup & Control: GPIB

**RF Distribution Unit (RFU)**

- Independent Channels: 4, 8, or 16
- Input Power per DUT: +10 dBm maximum (without SSPA)
- Output Power per DUT: > 20 dB
- DUT Input Level Adjust: Setup & Control

**Solid State Power Amplifiers (SSPA)**

- Independent Channels: 4, 8, or 16
- Power per DUT: Up to +23 dBm at the DUT (frequency dependent contact factory)

**DC Power Control Unit (PCU)**

- Independent Channels: 4, 8, or 16
- Bias 1: 0.5V to 100V; up to 3A - (Pmax = 60W)
- Bias 2: -12.5V to +12.5V; up to 0.2A
- Driven: Constant I, V or P
- Shutdown: w/in 10 ms (depends load capacitance)
- Setup & Control: GPIB

**Switch Matrix Unit (SMU)**

- Independent Channels: 4, 8, or 16 (Triaxial)
- Setup & Control: GPIB

**Semiconductor Parameter Analyzer (SPA)**

- Independent Channels: 4, 8, or 16 multiplexed
- Type: Agilent E5270B DC Source/Monitor
- Setup & Control: GPIB

**Uninterruptible Power Supply (UPS)**

- 6 - 10 KW
- Setup & Control: Ethernet

**Personal Computer (Rackmount)**

- System Control: PCi GPiB
- Network Support: PCI 10/100 Ethernet
- Mass Storage: Two internal Hard drives
- Removable: R/W CDROM
- Monitor: 17” diagonal color LCD
- Operating System: MS Windows XP Pro or 2000 Pro

**Physical Characteristics**

<table>
<thead>
<tr>
<th>Size</th>
<th>Single-Rack (8-standard channels)</th>
<th>Double-Rack (8-special channels, 16 channels)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-Rack</td>
<td>22.5”W x 55”H x 36”D (1-bay)</td>
<td>45”W x 55”H x 36”D (2-bay)</td>
</tr>
<tr>
<td></td>
<td>(57.2 x 139.7 x 91.4 cm)</td>
<td>(114.3 x 139.7 x 91.4 cm)</td>
</tr>
<tr>
<td>Weight</td>
<td>560 pounds typical 1-bay (260 Kg)</td>
<td>1150 pounds typical 2-bay (520 Kg)</td>
</tr>
<tr>
<td>Power</td>
<td>208V to 220V, 3-Phase, 40A</td>
<td></td>
</tr>
<tr>
<td>Peak Power</td>
<td>6.7 KW (8-Channel)</td>
<td>10.0 KW (16-Channel)</td>
</tr>
<tr>
<td>Nitrogen (N2) Input</td>
<td>Connect to a 1/4” inch Swagelok®</td>
<td></td>
</tr>
</tbody>
</table>

**Environmental Requirements**

- Standard laboratory

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**Contact**

Accel-RF Instruments Corporation  
4380 Viewridge, Suite D  
San Diego, CA 92123, USA  
Tel: 858 278-2074  
Fax: 858-278-2472  
Email: Info@accelrf.com  

www.accelrf.com