

Multiport Antenna Testing Solution



Key Features

- Expand VNA ports to increase antenna test throughput
- Flexible configuration to expand VNA ports to 4x, 6x ports
- Automation program to control all hardware and provide pass / fail result
- Smart queuing algorithm to save operation dead time
- Easy access to RF input/output connections from front panel permits easy maintenance and reconfiguration
- Standard calibration method and performance check to allow operator to perform accurate test

Key Features (continued)

- RF switches of test set are capable of millions cycles operating life, reduce cost of test
- Picture and data saving in local PC and can be upload to server via LAN
- Different display format and independent Windows for operator easily sorting
- Real-time tuning option is available

The Essentials of Solution

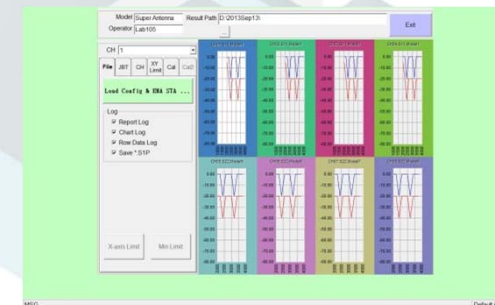
- Keysight E5071C – 2 / 4 Ports ENA Network Analyzer
- J2300A Series Multi-DUT Test Set
 - with 1 to 16 OP Agent Boxes
- Multiport Antenna Test Software
- RF Cables
- Calibration Kit
- PC or NB



E5071C

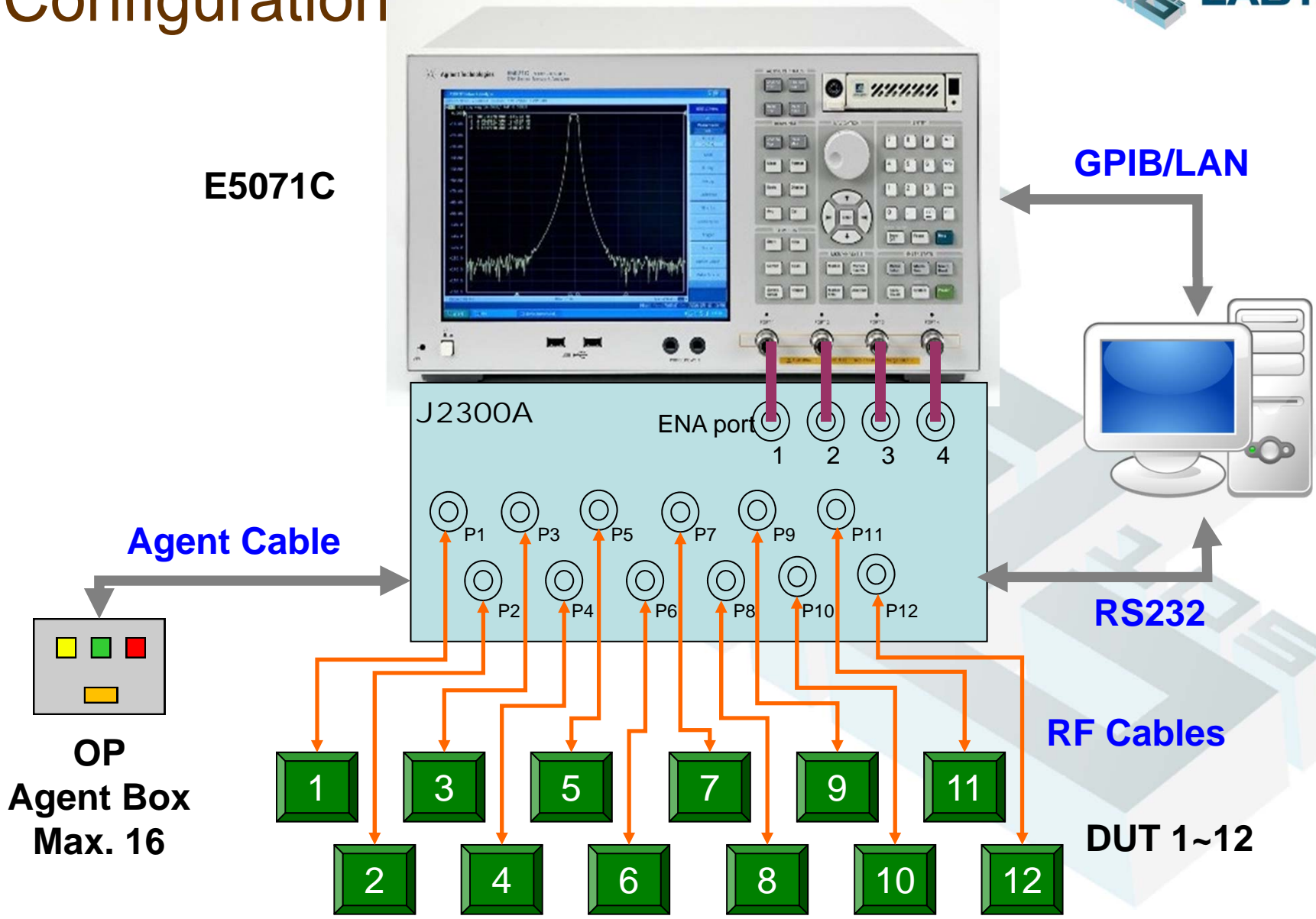


J2300A



**Multiport Antenna
Test Software**

Configuration



Target Customers & Applications

- System frequency bandwidth up to 20 GHz
- Applicable for antenna PL and QA, IQC
- All kinds of antenna: patch, ceramic, dipole,...
- Application:
 - DTV: DVB-S/H/T, ISDB-T, ATSC, ...GPS
 - Emergency Comm: GSM/3G/3.5G/LTE
 - WiFi: 802.11a/b/g/n
 - WiMax: 802.15d, 802.16e
 - RFID
 - Zigbee



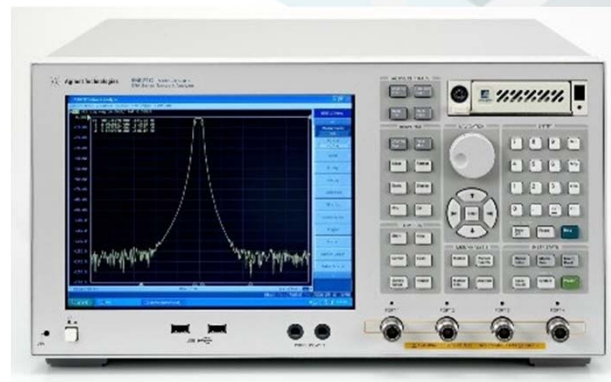
Increase Throughput

- Complete 12-port test in 1.35 second
 - Daily throughput : 512K
 - 16 hours per day
 - $60 \text{ (sec/min)} / 1.35 \text{ (sec)} * 12 \text{ (ports)} * 60 \text{ (min/hr)} * 16 \text{ (hours)}$
 - Achieve throughput 10 KK units monthly
 - $512\text{K} * 20 \text{ (working days)} = 10 \text{ KK (Monthly)}$

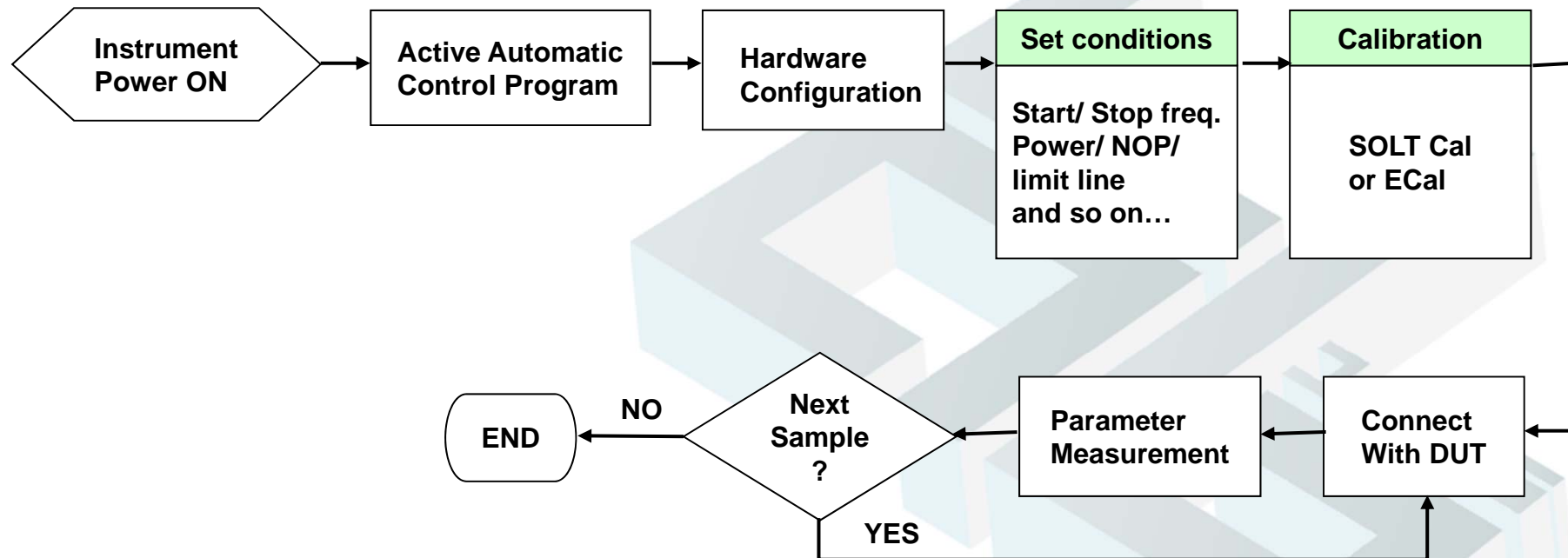


Keysight Network Analyzer ENA (E5071C)

	ENA (E5071C)
Frequency	300K ~ 20GHz
RF Ports	2 / 4 ports, S parameters, 50 ohm
Auto port extension	Yes
Calibration	SOLT, TRL, Unknown thru
Post data processing	VBA programming
PC connectivity	GPIB, LAN, USBTMC
Screen	10.4" touch screen
PC-based OS	Windows 7

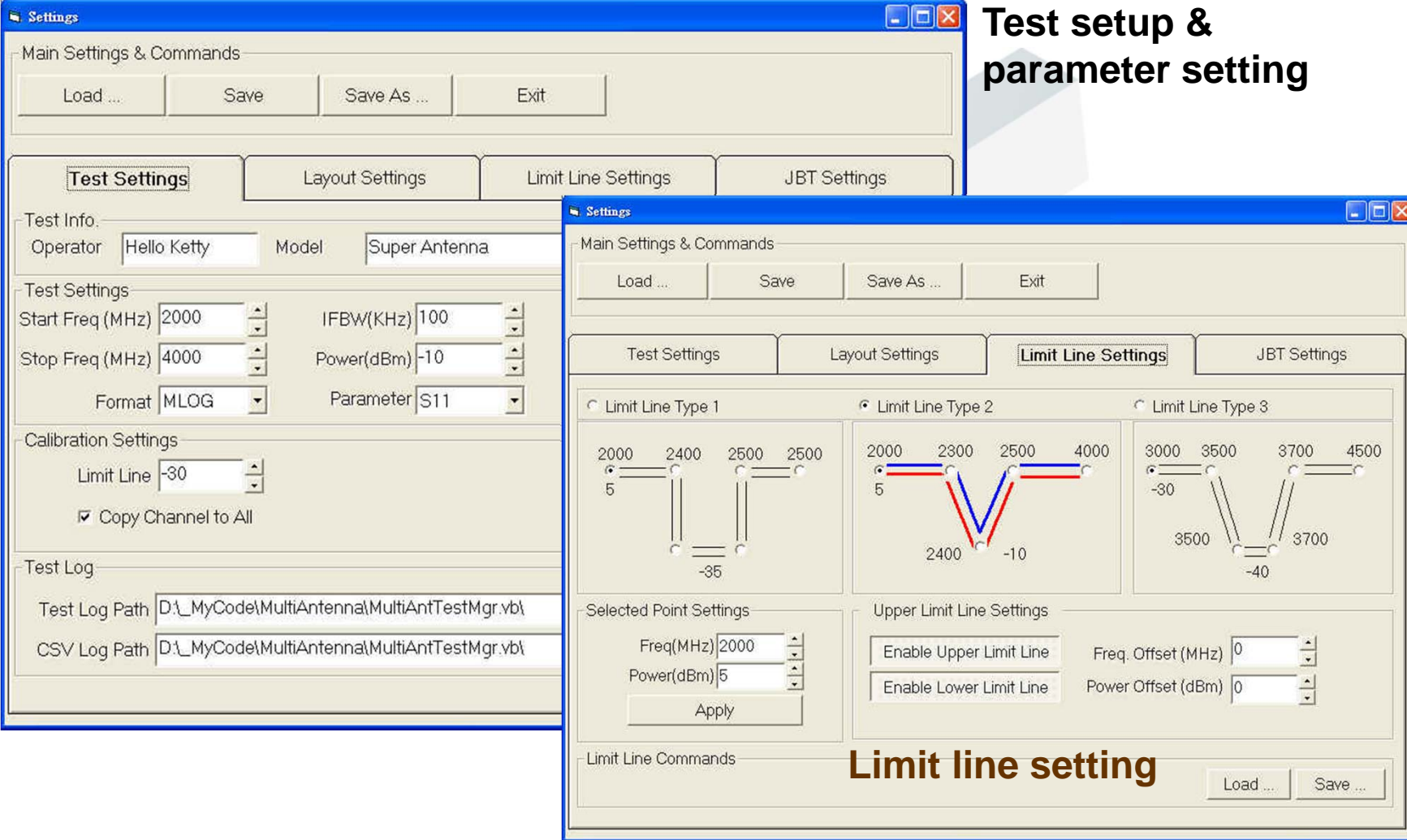


Test Flow



Software Screenshot

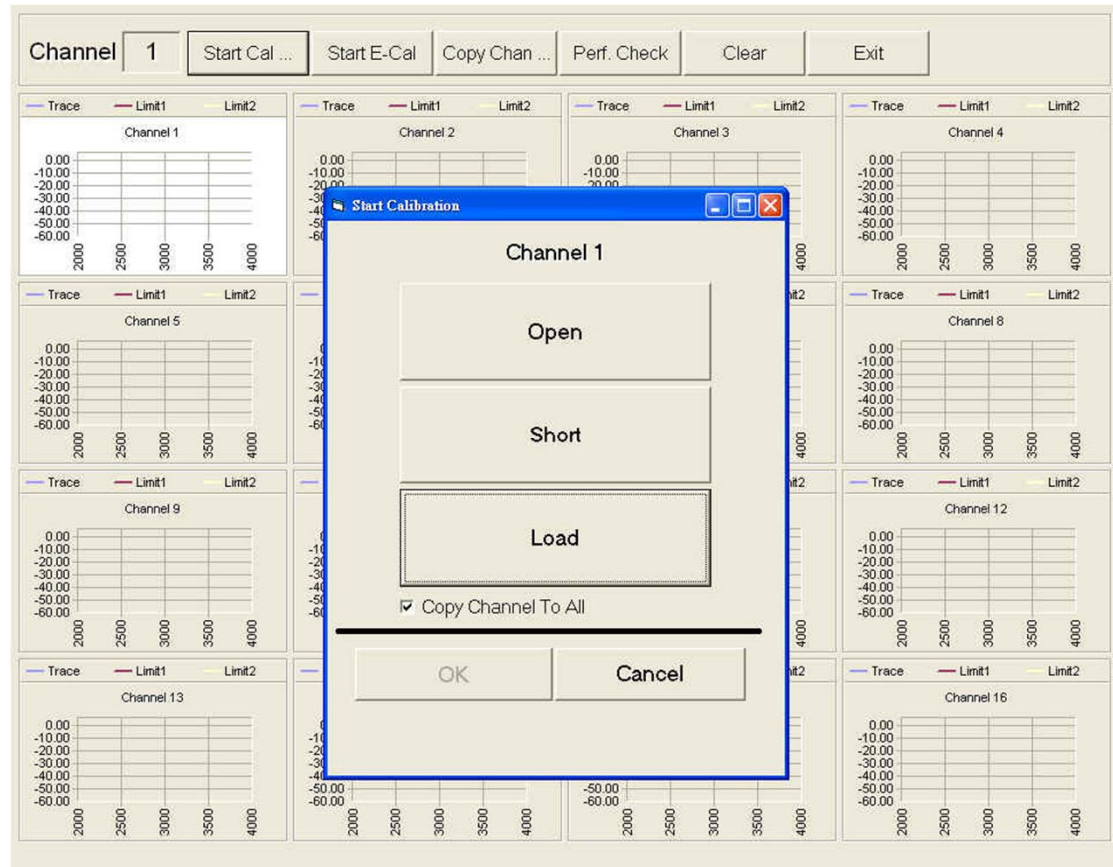
Settings



The screenshot displays two overlapping windows from a software application. The background window is titled 'Settings' and shows the 'Test Settings' tab. It includes fields for 'Operator' (Hello Ketty), 'Model' (Super Antenna), 'Start Freq (MHz)' (2000), 'IFBW(KHz)' (100), 'Stop Freq (MHz)' (4000), 'Power(dBm)' (-10), 'Format' (MLOG), and 'Parameter' (S11). The foreground window is also titled 'Settings' but shows the 'Limit Line Settings' tab. It features three graphs for 'Limit Line Type 1', 'Limit Line Type 2', and 'Limit Line Type 3'. The 'Limit Line Type 2' graph is selected and shows a V-shaped curve with a minimum at 2400 MHz and -10 dBm. Below the graphs are sections for 'Selected Point Settings' (Freq: 2000 MHz, Power: 5 dBm) and 'Upper Limit Line Settings' (Enable Upper Limit Line, Freq. Offset: 0 MHz, Power Offset: 0 dBm). The text 'Test setup & parameter setting' is overlaid on the top right of the background window, and 'Limit line setting' is overlaid on the bottom right of the foreground window.

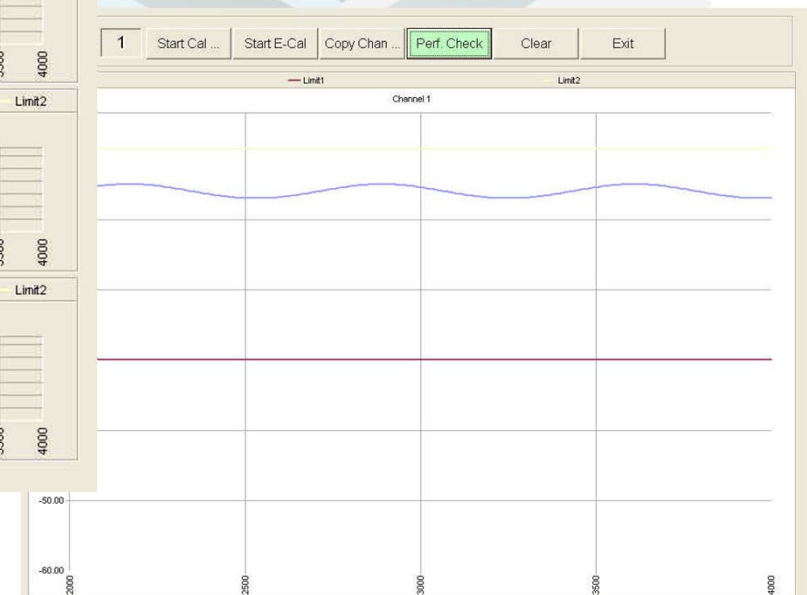
Software Screenshot (cont'd)

Calibration and System Performance Check



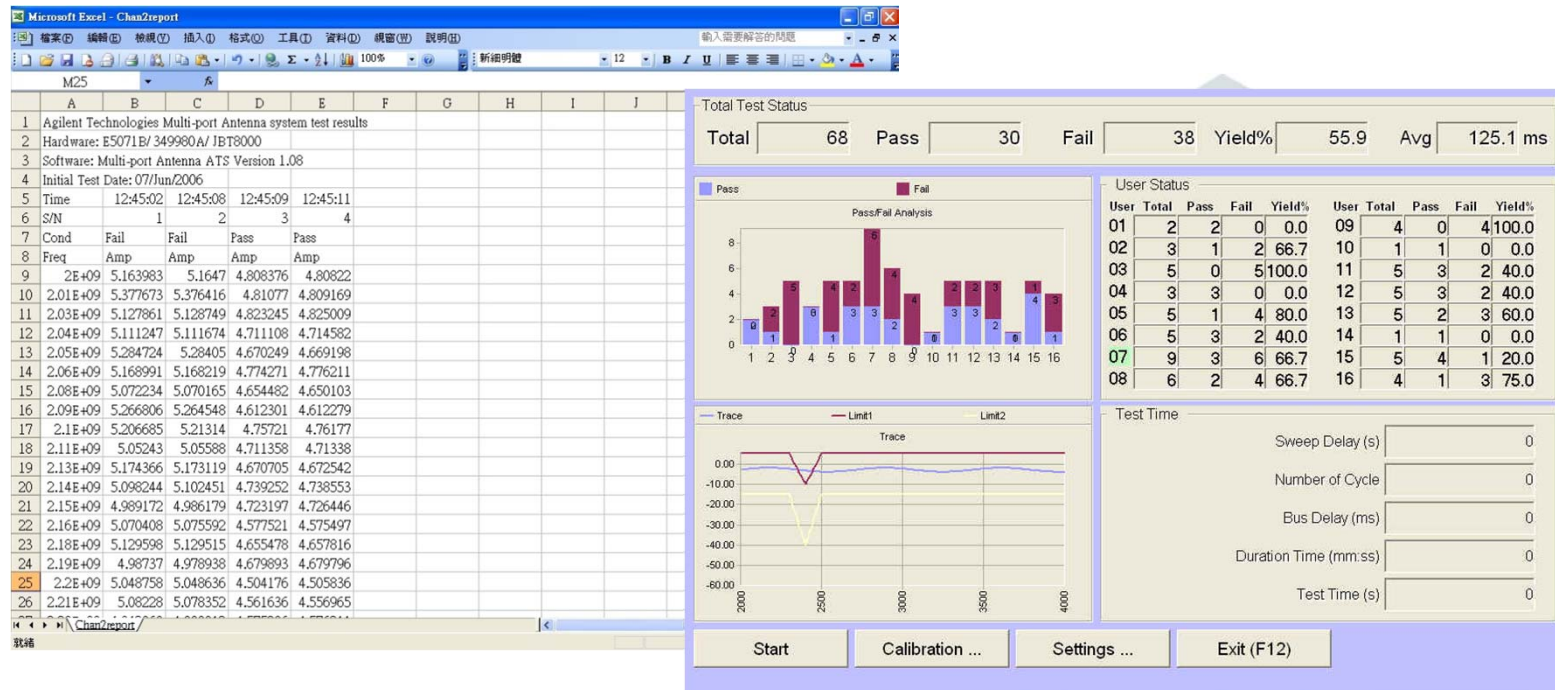
Calibration

Performance Check Zoom in



Software Screenshot (cont'd)

Measurement Results



- Large display to show pass/fail and bin number
- Statistics result to show yield rate, and total test number
- Link barcode system for database management
- Excel data format available for detail analysis

System Specification

Item	Specification
Frequency range	300KHz ~ 20GHz
ENA ports	2 / 4 ports
ENA model	E5071C
Test set ports	8 / 12 / 16 / 24
Return loss	< 60dB
Calibration	SOLT / ECal
Measurement speed	
Single port	< 0.15 sec.
Full ports	< 2 sec.
Trigger panel	Push button / Foot switch
Job agent box	1 ~ 16
Job LED indicator	Pass / Fail / Queue
Barcode support	Yes (single / dual)
Data saved format	CSV
Picture saved format	JPG

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