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Indian Institute of Technology Kanpur
Samtel Centre for Display Technologies

Enquiry number: SCDT/FlexE/2015-16/18 Date: 23/10/2015

Quotations from prospective vendors are invited by Samtel Center for Display Technologies; IIT Kanpur for Semiconductor Device Characterization Analyzer & Semiconductor Device Characterization Analyzer must have following minimum technical specifications.

Specifications				Company specifications and model number of system	Complies/Does not comply/Not applicable
2. Semiconductor Device Characterization Analyzer					
S.No	**Qty.**	**Description**			
1	Semiconductor Device Analyzer should have a upgradability and support of 10 slot modules and include a 4.2 Amp ground unit with 5 (Five) Medium Power SMU, & 1 (ONE) Pulse generator Unit, 1 (ONE) Multi Frequency Capacitance Measure unit, Waveform generator/fast measurement unit and support device modeling software and parameter extraction software.				
2	5	Medium Power SMU Range & Resolution	10fA / 0.5µV to 100mA/100V , Optional atto-sense and switch unit for 100aAresolution and IV/CV switching capability		
3	1	High voltage semiconductor pulse generator unit	High voltage output up to ±40 V applicable for non-volatile memory testing ,Two-level and three-level pulse capability by single channel, Flexible arbitrary waveform generation with 10 ns resolution (arbitrary linear waveform generation function) & Two channels per module		
4		Ground Unit (Maximum sink current)	4.2 A		
5		Ground Unit (Output Voltage)	0V ±100µV		
6		Knob sweep mode	In knob sweep mode, sweep range is controlled instantaneously with the front-panel rotary knob ,		
7		Sweep Measurements	SMU's should support a unique range management feature that can prevent damage to sensitive devices when making sweep measurements. This feature can be used to prevent voltage glitches from occurring by forcing the SMU to uprange before any damage can occur		
8		IV Sweep Mode	Single & double Staircase sweep, Pulsed sweep, staircase sweep with pulsed bias, IV sampling, CV sweep, C-t Sweep, C-f Sweep, List sweep Linear interval, log interval, stop condition, bias hold and negative hold time.		
9		IV Sampling Capability	1ms and 100µS in Fast sampling, linear and log sampling		
10		QSCV Measurement	Quasi Static CV measurement with leak compensation.		

11		CV measurement function	Cp-G, Cp-D, Cp-Q, Cp-Rp, Cs-Rs, Cs-D, Cs-Q, Lp-G, Lp-D, Lp-Q, Lp-Rp, Ls-Rs, Ls-D, Ls-Q, R-X, G-B, Z-θ, Y-θ		
12		CV Measurement Test Signal Frequency	1kHz to 5MHz with 1mHz resolution and accuracy of +/-0.2% 10mV to 250mV with 1mVrms resolution , 25 V built-in DC bias and 100 V DC bias with SMU & capacitance unit.		
13(a)	1	IV CV measurement switching	**Switching unit to switch between SMUs & CMU including cables** , to do IV & CV measurement without physically changing the connection & support device modeling software **IC-CAP a**nd parameter extraction software		
13(b)	1	**Waveform generator/fast measurement unit (supports Pulsed waveform)**	Waveform generator/fast measurement unit should have lower noise, higher resolution and accurate voltage source capabilities. The noise level 0.1mV RMS, minimum output voltage resolution 96uV. **100 nanosecond pulsed IV parametric test solution with 1 nA current measurement resolution, Dual pulse capability to apply to both gate and drain. it should offer No load line effect for accurate pulsed IV measurement by dynamic SMU technology and RSU ,cables , include probe cable kit (8 probe cables) include wave for generator unit.**		
14		Arithmetic Functions & User Functions	USER FUNCTIONS should be definable using arithmetic expressions. Measured data and analyzed variables from graphics analysis (marker, cursor, and line data) can be used in computation.		
15		Marker Analysis Function	Marker to min/max, interpolation, direct marker, and marker slip		
16		Line Analysis Function	Two lines, normal mode, grad mode, tangent mode, and regression mode		
17		Automatic Analysis Function	On a graphics plot, the markers and lines can be automatically located using the auto analysis setup. Parameters can be automatically determined using automatic analysis, user function, and read out functions.		
18		Data variable display & analysis functions	At least 20 user-defined parameters & 20 user defined analysis functions		
19		Trigger	Input: External trigger input starts a sweep or sampling Input Level: TTL level, negative or positive edge trigger		
20		Interfaces	GPIB, interlock, USB (USB 2.0, front 2,rear 2), LAN (100BASE-TX/10BASE-T), trigger in/out, digital I/O		
21		Offline software	Offline Software		
22		Application Libraries	Application libraries for testing CMOS, FET BJTs, Diode etc.		
23	1	**Test Fixture**	Test fixture for **testing packaged devices.**		
24		Operating System	Windows 7		
25		Control from Remote PC	FLEX, VXI plug & play		
26	1	USB to GPIB interface cable with all accessories/softwar e required	**Cable and any other accessory/software to interface USB to GPIB ports to control the unit using laptop etc**		
27		User Interface Options	Touch panel, knob, soft keys, USB keyboard & mouse		

28		Device Modeling software support	**Hardware should support device modeling software and parameter extraction software,Integrated Circuit Characterization and Analysis Program (ICCAP)**which is used to extract complete sets of nonlinear model parameters based on precision DC, CV, and Sparameter characterization. It enables users to easily set up measurements, perform circuit simulations and optimizations. Should support Turnkey extraction solutions for industry standard CMOS models, such as BSIM3/BSIM4, PSP and HiSIM, minimize the learning curve and maximize model accuracy. Note – should be compatible with existing ICCAP software and do not add software cost in the quotation.		
29		Future Upgradability	System should be future upgradable : High current device measurement upto 40A High Voltage device measurement upto 3000V		
30		Triaxial Cables	Each SMU unit must come with at least 2 (TWO) Triaxial cables supporting low current measurement below 1pA		
31	5	Kelvin Triaxial Cables	Provide 5 (FIVE) extra Kelvin Triaxial cables of 3m length supporting low current measurement below 1pA		
32		Keyboard & Mouse	Keyboard and Mouse to operate the unit.		
33	8	Coaxial Cables	Provide 8 (EIGHT) extra coaxial cables of 3m length supporting low current measurement below 1pA		
34	4	Triax to BNC connectors	Provide (a) 4 (FOUR) Triax(M) to BNC(F) connectors (b) 4 (FOUR Triax(F) to BNC(M) connectors (c) 4 (FOUR Triax(F)to BNC(F) connectors All connectors should support low current measurement below 1pA		
35	4	BNC tree connectors	Provide 4 (Four) BNC tee connectors All connectors should support low current measurement below 1pA		
Warranty		Vendor must provide 5(Five)-years warranty and 5 year calibration for all parts/components and should have service capbility and upgradationcentre in India.			
Parent company should be an established company with good number of installations and after sales support in India as well : Provide proof					
Future Upgradeable: (as per application or requirement any one)					
1		High power SMU Range & Resolution	10fA / 2µV to 1A/200V		
2		High ResolutionSMU Range & Resolution	1fA / 0.5µV to 100mA/100V , supports an optional atto-sense (upgradeable) and switch unit that both increases the measurement resolution down to 100 aA and allows to switch in another instrument (such as a capacitance meter) without having to change any cables		

3	50 µs Pulse medium current source/ monitor unit (50 µs Puls)	Range up to 30 V/1 A pulsed (0.1 A DC) with 4-quadrant operation , Pulse measurement from 50 µs pulse width with 2 µs resolution , Oscilloscope view (voltage/current waveform viewer) is supported , Minimum measurement resolution 10 pA/0.2 µV		

Terms and Conditions:

1. Please do mention tender number clearly on envelop.
2. Supplier/Vendors should submit technical and financial bid together in separately sealed envelopes.
3. Evaluation will be done on the basis of technical specifications format provided as per our tender notice
4. Supplier who have experienced in for Semiconductor Device Characterization Analyzer & Semiconductor Device Characterization Analyzer and supplied in the national and international institutions will be preferred.
5. Financial bid will be open only for those, who meet tender technical specification.
6. The format for specification and complies statement is same as provided tender sheet for supplier/vendors for submitting technical specification in their own letter heads.
7. Please send the name and contact details of the person to whom company had supplied a similar systems. Committee may ask for the feedback.
8. Vendors should have to submit the detail's designed as per tender specification.
9. The supplier must have supplied systems to institutions of national and/or international repute.
10. Quotation must indicate FCA/FOB or FOR IIT Kanpur prices.
11. Payment terms & condition is 70% against delivery, 20% after installation and 10% after successful running of equipment for 3 months & approval.
12. Warranty/Guarantee should be clearly mentioned. The Warranty must start from the date of installation at IITK.
13. Installation, demonstration, and training-sessions at IIT Kanpur will have to be provided by the manufacturer or the vendor for the quoted system.
14. Quotation should carry proper certifications like proprietary certificate, authorization certificate from manufacturer, etc.
15. Validity of quotation should be at least for 60 days.
16. Maximum educational discounts should be applied.
17. Institute is exempted for partial custom duty (CD applicable to IIT Kanpur is 5.15%).
18. Institute is exempted from payment of Excise Duty under notification No. 10/97.
19. The delivery period should be specifically stated. Earlier delivery may be preferred.
20. The indenter reserves the right to withhold placement of final order. The right to reject all or any of the quotations and to split up the requirements or relax any or all of the above conditions without assigning any reason is reserved.

Kindly send the quotation in sealed envelope latest by dated 06/11/2015 to the following address:

To,
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