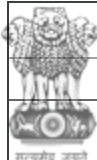



Government eProcurement System		Government eProcurement System		
Tender Details		Date : 15-Jan-2024 04:32 PM		
				
 Print				
Basic Details				
Organisation Chain	Council of Scientific and Industrial Research CSIO-Chandigarh - CSIR Purchase-CSIO - CSIR			
Tender Reference Number	CSIO/7(199)2023-PUR			
Tender ID	2024_CSIR_181767_1	Withdrawal Allowed	Yes	
Tender Type	Open Tender	Form of contract	Supply	
Tender Category	Goods	No. of Covers	1	
General Technical Evaluation Allowed	No	ItemWise Technical Evaluation Allowed	No	
Payment Mode	Offline	Is Multi Currency Allowed For BOQ	No	
Is Multi Currency Allowed For Fee	No	Allow Two Stage Bidding	No	
Payment Instruments		Cover Details, No. Of Covers - 1		
Offline	S.No	Instrument Type	Cover No	
	1	Direct Credit		
	2	Demand Draft		
	3	FDR		
	4	Bank Guarantee		
	5	NEFT		
	6	R-T-G-S		
			Cover	
			Document Type	
			Description	
	1	Fee/PreQual/Technical/Finance	.pdf	ANSYS SIMULATION SOFTWARE HIGH FREQUENCY AND HIGH SPEED ELECTRONICS COMPONENT DESIGNS-5 TASK
			.xls	ANSYS SIMULATION SOFTWARE HIGH FREQUENCY AND HIGH SPEED ELECTRONICS COMPONENT DESIGNS-5 TASK
Tender Fee Details, [Total Fee in ₹ * - 0.00]		EMD Fee Details		
Tender Fee in ₹	0.00	EMD Amount in ₹	2,25,000	
Fee Payable To	Nil	EMD through BG/ST or EMD Exemption Allowed	Yes	
Fee Payable At	Nil	EMD Fee Type	fixed	
Tender Fee Exemption Allowed	No	EMD Percentage	NA	
		EMD Payable To	DIRECTOR,CSIO	
		EMD Payable At	CHANDIGARH	
Click to view modification history				
Work /Item(s)				
Title	CSIO/7(199)2023-PUR			

Work Description	ANSYS SIMULATION SOFTWARE HIGH FREQUENCY AND HIGH SPEED ELECTRONICS COMPONENT DESIGNS-5 TASK				
Pre Qualification Details	Please refer Tender documents.				
Independent External Monitor/Remarks	NA				
Show Tender Value in Public Domain	No				
Tender Value in ₹	0.00	Product Category	Computer- S/W	Sub category	NA
Contract Type	Tender	Bid Validity(Days)	90	Period Of Work (Days)	45
Location	CSIR-CSIO	Pincode	160030	Pre Bid Meeting Place	NA
Pre Bid Meeting Address	NA	Pre Bid Meeting Date	NA	Bid Opening Place	CSIR-CSIO
Should Allow NDA Tender	No	Allow Preferential Bidder	No		

Critical Dates

Publish Date	15-Jan-2024 05:00 PM	Bid Opening Date	30-Jan-2024 03:30 PM
Document Download / Sale Start Date	15-Jan-2024 05:00 PM	Document Download / Sale End Date	29-Jan-2024 03:00 PM
Clarification Start Date	15-Jan-2024 05:00 PM	Clarification End Date	26-Jan-2024 03:00 PM
Bid Submission Start Date	15-Jan-2024 05:00 PM	Bid Submission End Date	29-Jan-2024 03:00 PM

Tender Documents

NIT Document	S.No	Document Name	Description	Document Size (in KB)
	1	Tendernotice_1.pdf	ANSYS SIMULATION SOFTWARE HIGH FREQUENCY AND HIGH SPEED ELECTRONICS COMPONENT DESIGNS-5 TASK	1963.01

Work Item Documents	S.No	Document Type	Document Name	Description	Document Size (in KB)
	1	BOQ	BOQ_198970.xls	ANSYS SIMULATION SOFTWARE HIGH FREQUENCY AND HIGH SPEED ELECTRONICS COMPONENT DESIGNS-5 TASK	234.00

Auto Extension Corrigendum Properties for Tender

Iteration	No. of bids required for bid opening a tender	Tender gets extended to No. of days
1.	2	7

Bid Openers List

S.No	Bid Opener Login Id	Bid Opener Name	Certificate Name
1.	sarveshkumar.eproc@csir.res.in	Sarvesh Kumar	SARVESH KUMAR
2.	sunder.eproc@csir.res.in	Sunder Lal	SUNDER LAL
3.	jayantrao.eproc@csir.res.in	Jayant Mohan Rao	JAYANT MOHAN RAO

GeMARPTS Details

GeMARPTS ID	XK84Y8NKA1KQ
Description	ansys simulation software
Report Initiated On	15-Jan-2024

Valid Until	14-Feb-2024
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Tender Properties

Auto Tendering Process allowed	No	Show Technical bid status	Yes
Show Finance bid status	Yes	Show Bids Details	No
BoQ Comparative Chart model	Normal	BoQ Comparative chart decimal places	2
BoQ Comparative Chart Rank Type	L	Form Based BoQ	No
Show Bid Details in Public Domain stage	Technical Bid Opening		

TIA Undertaking

S.No	Undertaking to Order	Tender complying with Order	Reason for non compliance of Order
1	TIA UNDERTAKING GEM	Agree	
2	PPP-MII Order 2017	Agree	
3	MSEs Order 2012	Agree	

Tender Inviting Authority

Name	STORES AND PURCHASE OFFICER
Address	CSIR-CSIO, SECTOR 30C CHANDIGARH

Tender Creator Details

Created By	Jayant Mohan Rao
Designation	SSA
Created Date	15-Jan-2024 04:30 PM



CSIR-CSIO

सी.एस.आई.आर - केन्द्रीय वैज्ञानिक उपकरण संगठन

CSIR-CENTRAL SCIENTIFIC INSTRUMENTS ORGANISATION

सैक्टर 30 सी चंडीगढ़, 160 030(भारत)

Sector - 30/C, Chandigarh - 160 030 (India)

Phone: 0172-2672429, 652651, 2672311

e-mail: spo@csio.res.in

निविदा संख्या / Tender No.	CSIO/7(199)/2023-Pur	दिनांक / Issue Date:	15 January 2024
निविदा प्राप्त का अंतिम समय एवं दिनांक / Date & time of receipt of tender	29.01.2024 upto 3.00 P.M.	निविदा खोलने का समय एवं दिनांक / Date & time of opening of Tender	30.01.2024 at 3.30 P.M.

E-Tender

हम निम्नानुसार उपस्कर/सामग्री खरीदने के इच्छुक हैं। कृपया अपनी कोटेशन निदेशक, सी.एस.आई.आर-सी.एस.आई.ओ. के नाम ई-टेंडर द्वारा भेजें। जिसे निर्धारित दिनांक व समय पर आपूर्तिकर्ताओं के प्रतिनिधियों (जो भी सवेच्छा से उपस्थित हों) के समक्ष खोला जाएगा।

We are interest to purchase the below given items/attached items. Kindly upload your Tender/Quotation/Proforma Invoice through E-Tender. Tenders/quotation will be opened in the presence of supplier's representatives who wish to present themselves at that time.

S. No.	Item Description	Qty	BD* (SB/TB)	EMD (Rs.)
1.	Ansys simulation software (high frequency and high-speed electronics component designs- 5 task)	01	Single Bid	₹ 2,25,000.00
NOTE: - For financial bid, please fill the BOQ, as attached after going through the specifications and terms & conditions. The tender through e-mail/FAX will not be considered				
1) Provide Order Copies for supply of similar item to other Govt. Organisations, if any. 2) Please quote alongwith Proprietary Certificate 3) The quoting party should give a certificate to the effect that the quoted prices are the minimum and they have not quoted the same item on lesser rates than those being offered to CSIO to any other customer nor they will do so till the validity of offer or execution of the purchase order, whichever is later. 4) Successful bidder has to submit PBG @5% of the order value.				
Please carefully refer all the Terms & conditions (attached), before submission of Tender to avoid rejection.				
Note:- The offer received without mentioning the terms & conditions i.e validity of offer, deliver period, payment terms, warranty, submission of Performance Bank Gurantttee etc, and all the enclosed desired documents & Annexures will not be considered and summarily rejected.				

E-Tender has been published on www.etenders.gov.in. Prospective bidders are requested to get themselves registered on www.etenders.gov.in & do the needful.

Yours faithfully

Arvind Kumar

Arvind Kumar

(Stores and Purchase officer)

Website: www.csio.res.in E.Mail: spo@csio.res.in Phone: 91-172-2672429

Annexure – 1

TECHNICAL SPECIFICATIONS – ANSYS ACADEMIC ASSOCIATE HF

S.NO	Technical Specifications
1	<ul style="list-style-type: none">• Capability to simulate any arbitrary 2D or 3D model for EM simulation from DC to THz frequency and can also extend the solution to Multiphysics Thermal Analysis. Moreover Circuit simulation tool allow user to integrate multiple electromagnetically analyzed models to carry out a system-level analysis.
2	<p>Numerical Solver Technology:</p> <ul style="list-style-type: none">▪ HFSS (High Frequency 3D Electromagnetic Field simulation)<ul style="list-style-type: none">• Frequency Domain-based electromagnetic field solver based on the Finite Element Method (FEM).• Frequency Domain-based electromagnetic field solver based on Integral Equation Method (MoM).• Time Domain-based electromagnetic field solver based on Discontinuous Galerkin (DG) and FEM Time Domain Methods.• Frequency Domain-based Asymptotical electromagnetic field solver based on Shooting and Bouncing Ray + (SBR+) method.• Frequency Domain, Eigen Mode Solver, based on FEM• Full-wave Frequency Domain Characteristic Mode Analysis Solver based on MoM• Multipaction solver for finding RF breakdown inside High Power RF components• Simulation tools support Hybridization FEM, IE and SBR+/PO solver in a single design.• SBR+ solver should automatically combine following asymptotic methods to arrive at an accurate solution<ul style="list-style-type: none">○ Physical Optic (PO),○ Geometrical Optic (GO),○ Physical Theory of Diffraction (PTD),○ Uniform Theory of Diffraction (UTD),○ Creeping Wave (CW)▪ Q3D (Quasi-static electromagnetic field simulation for 2D/3D RLGC extraction)<ul style="list-style-type: none">• 3D EM Solver for RLGC Extraction of Busbar, PCB, IC Packages• Quasi-static 3D electromagnetic field analysis using Method of Moments accelerated by Fast Multipole Method• DCRL, ACRL & CG Solver• Quasi-static 2D electromagnetic field analysis using Finite Element Method• There should be a capability to solve just the 2D cross-section of transmission lines to extract its characteristic impedance.▪ AEDT ICEPAK (CFD - Thermal Analysis)

	<ul style="list-style-type: none"> • 3D CFD solver for Transient and Static Thermal Analysis • Capable to handle types of heat transfer: Conduction, Convection and radiation: Combination of all modes of heat transfer • 3D Static Solver for Transient and Static Thermal Analysis • 3D FEA solver Mechanical Stress Analysis ▪ SIwave(2.5D Electromagnetic solver for PCB, Planar structures) <ul style="list-style-type: none"> • 2.5D Hybrid (FEM + MOM) solver for PCB, Package • EMI Scanner - Capable • Able to model and simulate following SI and PI effects: • resonance frequencies of complete power and ground structures, <ul style="list-style-type: none"> ○ power and ground bounce, ○ simultaneous switching noise, ○ impedance discontinuities due to changes in signal layers or split supply planes, ○ noise coupling between signal lines and supply planes, ○ time-domain effects such as propagation delay, rise and fall times, reflections and ringing, ○ frequency-domain phenomena such as resonant modes and S, Y, and Z-parameters. ○ DC IR analysis to compute DC voltage drop and current density • Near and far field analysis, automatically from circuit simulation waveforms for accurate source modeling and thus accurate emissions analysis (EMI/EMC). ▪ Circuit simulation (Designer, Simplorer and EMIT) <ul style="list-style-type: none"> • ID circuit simulation capability for following RF simulations <ul style="list-style-type: none"> ○ Linear analysis ○ DC analysis ○ Oscillator Analysis ○ Harmonic Balance Analysis (1-Tone and N-Tone) ○ Transient Analysis ○ Time Varying noise Analysis ○ Phase noise Analysis ○ Multi-tone harmonic balance analysis ○ Envelope analysis ○ Load pull analysis and model support ○ Periodic transfer function analysis • Circuit System solver should have <ul style="list-style-type: none"> ○ Build power electronic circuits using IGBT, BJT, MOSFET, etc. ○ Capability to characterize semiconductor switches from manufacturer datasheet ○ Capability to do time and frequency domain simulations ○ Capability to co-simulate with physics-based models ○ Capability to import Reduced-Order Models generated for Physics-based simulations
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	<ul style="list-style-type: none"> • 1D Power Spectral Based solver for finding RF interference between different Microwave system • System-level solver for Integrating physics-based model with multi-domain based components, Power Electronic circuits, etc. • Power Spectral solver should provide following RFI metrics across multiple Transmitter and Receiver platform: EMI Margin, Sensitivity, Availability, Desense, Noise In-Band EMI Margin • Power Spectral solver should provide RF interference of Multiple Transmitter to the single receiver. • Power Spectral solver should support Non-Linear Interference Effects in RF interference analysis
<p>3</p>	<p>Graphical User Interface for EM analysis</p> <p>The software package should have the following features:</p> <ul style="list-style-type: none"> • Tools should have an option or toolkit to automatically setup simulations for following RCS/Radar simulation: Range Profile, ISAR, Range Doppler Processing and waterfall. • The tool should have an option to encrypt the 3D component, which a user can share with others without revealing the IP • The tool should have an option to import/export encrypted/unencrypted 3D component models for simulation. • The tool should have templates for setting up EMI EMC simulation like Radiated Emission, Conducted Emission, ESD, BCI • The tool should have the capability to model and parameterize any arbitrary 3D model • The tool should have the capability to do operations such as unite, subtract, intersect different objects to create a model • There should be a provision for creating equation-based curves/surfaces for creating more complex models. • There should be provision for wrapping sheets onto curved surfaces. • The software should have the ability to import, edit, simplify and parameterize 3D CAD models from third-party tools. • The capability to clean up 3D CAD and detection tools for Short Edges, Overlap Faces, Corrupt Faces • The tool should allow users to edit STL files directly and leverage automatic repair tools • Options for cleaning imported 3D models <ul style="list-style-type: none"> ○ Options for analyzing individual objects of the complete 3D model to locate any faults in the modelling ○ Possibility to find inter-object misalignments • There should option for healing the geometry • There should be provision to model layouts into a stackup based environment and simulate in the same environment • Layout interface should have options to change the stackup, trace widths, via and padstack.

	<ul style="list-style-type: none"> • PCB Trace modelling options in the Layout interface <ul style="list-style-type: none"> ○ Surface roughness – Huray and Grosse ○ Options for Etching
	<p>Import ECAD/MCAD</p> <ul style="list-style-type: none"> • Integrated design flow that allows user to easily import design geometry from commercial layout packages • Ability to import circuit component models of various types HSPICE and spectre models • Ability to import Chip Power Model (CPM) for the die/IC, to perform accurate power integrity analyses. • The tool should support the import of following 3D DATA: ACIS, Acrobat 3D, 2D PDF, AMF, AutoCAD, CATIA, Creo Elements/Direct Modeling, Design Modeler, ECAD IDF, IGES, Image Files, Inventor, JT Open, Keyshot, Acrobat PDF 2D, AMF, AutoCAD, CATIA, Excel, ECAD IDF, IGES, Image files, NX, Parasolid, Point curve text, POV-Ray, Microsoft PowerPoint, Pro/ENGINEER • The tool should support the export of following 3D DATA: ACIS, Acrobat PDF 3D, Acrobat 2D PDF, AMF, AutoCAD, CATIA, ECAD IDF, IGES, Image Files, Inventor, JT Open, Keyshot, Acrobat PDF 2D, AMF, AutoCAD, CATIA, Excel, ECAD IDF, IGES, Image files, NX, Parasolid, Point curve text, POV-Ray, Microsoft PowerPoint, Pro/ENGINEER, Rhino, SketchUp, SolidWorks, STEP, STL
5	<p>Mesh Options</p> <ul style="list-style-type: none"> • Use tetrahedron element for 3D models and triangles for sheet structures (HFSS/Q3D) • Option to have curvilinear mesh elements for accurately solving curved geometries (HFSS) • Mesh Control (HFSS/Q3D/) • Options to specify surface deviation, normal deviation and aspect ratio to control mesh density(HFSS/Q3D) • Ability to restrict the number of elements/size of the elements within an object or just on the surface of the object (HFSS/Q3D) • Skin-depth based seeding capability (HFSS) • Advanced capability like Assembly Meshing: Independent component meshing allows mesh reuse, no re-meshing in parametric variations, independent mesh settings for different components and more robust meshing for models with a significant difference in scale. Especially useful for Antenna Placement and scattering problems where mesh reuse can be done (HFSS) • Phi mesher (Prism elements) for faster meshing of the planar structures (HFSS). • Provision of automatic & manual meshing to be available (Icepak) • Automatic meshing for fluid & solid regions to be available(Icepak) • Different type of mesh models like body fitted Cartesian mesh etc. to be available to represent complain shapes in the electronic model (Icepak) • Ability to import external mesh in addition to native mesh (Icepak)

6	<p>Advanced Material Library which should include;</p> <ul style="list-style-type: none"> • A comprehensive materials database containing permittivity, permeability, electric and magnetic loss tangents for common substances. • Users must be able to include anisotropic materials, ferrites, temperature and frequency-dependent material properties. Frequency-dependent material models like Debye and Djordjevic-Sarkar models to ensure that the material satisfies causality conditions. • Provision for Spatially dependent material properties and boundary conditions. • Data base of interface materials like thermal components (manufactures like 3M, Aavid, etc). • Heat sinks: Standard heat sinks of different manufactures like Aavid, Thermshield etc to be provided. Minimum of 500 No's of heat sink database.
7	<p>Excitation and Boundary Condition</p> <ul style="list-style-type: none"> • Excitation for Ports SYZ parameter excitation <ul style="list-style-type: none"> ○ Arbitrary internal and external ports – Waveport and Lumped Port ○ Ability to solve all ports in one solution and not port-by-port ○ Floquet ports for antenna arrays, frequency selective surfaces (FSS) and other periodic structures ○ The software should have a provision for extracting fields/active S parameter as per user specified excitation magnitude and phase • Option to provide voltage source and current source • Magnetic bias for ferrite models • Incident wave excitations available from following wave types: <ul style="list-style-type: none"> ○ Plane Wave, Hertzian dipole wave, Cylindrical wave, Gaussian Beam Wave ○ Linear Antenna wave, Far Field Wave, Near Field Wave ○ Far-field wave and near field wave can be from another design or the measurement. • Boundary conditions available: <ul style="list-style-type: none"> ○ Radiating, perfectly matched layers and FEBI ○ Impedance boundary ○ Layered Impedance with shell elements which can account for thickness even when modelled as sheets ○ Lumped RLC boundary ○ Symmetry boundary for reducing the problem size ○ Period boundary condition for solving arrays ○ Finite conductivity boundary with the capability to include metal roughness using Huray or Grosse algorithm ○ Fresnel Boundary
8	<p>General Solver Options</p> <ul style="list-style-type: none"> • Direct or Iterative approach for solving the matrices

- Hybrid solver with Integral equation solver should support matrix solving with ACA (Adaptive Cross Approximation) or MLFMM (multilevel fast multipole method).
- Basis functions are available as zero, first, second and mixed order for simulation of various class of problems.
- Import mesh to design from other similar design
- Frequency sweep options
 - Interpolation sweep
 - Discrete sweep
 - Fast sweep
- Broadband frequency sweeps with the capability to take into account dispersive ports, materials and skin effect.
- Enforce passivity / enforce causality for the broadband sweep
- DC point solver option for PCBs for accurate DC point characterization
- The asymptotic solver should enable all SBR solver like PTD, UTD, and CW in a single simulation
- PO and SBR+ asymptotic solver should support lossy dielectrics
- SBR solver should support multilayer dielectrics
- FEM frequency-domain solver should have the capability to simulate even in THz region for applications such as metamaterials, FSS etc.
- There should be an option of using 2.5D MOM or FEM solver to analyze planar layouts.
- Solution convergence and control: Convergence based on S parameter, field quantities or user-defined expressions
- The software should have the capability for adaptive meshing across different frequencies of broadband structures.
- Eigenmode solver should be able to find the natural resonances and quality factor of the lossy structure.
- The solver (FEM) should have an option to
 - physically divide the simulation model into the different sections
 - Enable parallel meshing and solving for each section individually
- Solver has the capability for solving a single unit cell of an array for Active Element Patterns using Periodic Boundary Conditions
- The solver should have the ability to create and solve Finite Array Simulation by combining different types of unit cells.
- Finite Array simulation should support features like Array Mask creation for arbitrary sparse array configuration.
- Scattered field simulation for solving RCS problems. Provision for both bistatic and monostatic RCS along with incident field excitations.
- RCS calculation should be able to conduct with FEM, IE and SBR+ solvers
- RCS simulation using SBR solver should automatically combine additional solvers like PTD, UTD and CW in a single design
- Broadband frequency sweeps with the capability to take into account dispersive ports, materials and skin effect.

	<ul style="list-style-type: none"> • The IE and SBR should have an option to create an ISAR image, Near Filed Radar ROM (Waterfall plot) of the Radar target • SBR+ Radar simulation should support Pulsed Radar and FMCW Radar • Capability to generate raw IQ data from Radar simulation (FMCW) • Multitpaction solver should support multiple port simultaneous excitations for RF breakdown analysis • Basic Solver should enable 4 cores HPC (High Performance Computation) capability. • Built-in Antenna model for RF interference and SBR+ simulation: Short Dipole, Half-wave dipole, Quarter wave Monopole, Pyramidal Horn, Small Loop, Parametric Beam Antenna, Wire Monopole • SBR solver should have the ability to simulate Radar Simulation <ul style="list-style-type: none"> ○ Able to incorporate multiple transmitting and receiving antenna ○ Able to create Radar simulation scenarios ○ Scenario simulation with respect to time • Calculate Range, Velocity and Angle of Arrival • Types of flow for thermal analysis: <ul style="list-style-type: none"> ○ Laminar, transition & turbulent flows ○ Ability to model multiple fluids. • Transient, steady state and parametric analysis (Thermal) • Joule heating in objects with temperature dependent properties supported • In case of transient simulation, ability to model variables as a function of time (Thermal). • Bi-directional coupling with Q3D, Maxwell, HFSS for node to node EM loss mapping and coupled electro-thermal simulation • Bi-directional coupling with SIwave for electro-thermal analysis with automatic transfer of power dissipation on PCB along with temperature dependency on material properties • Importing of Chip Thermal model powermap from Apache Redhawk for accurate power dissipation from chip level tool
	<p>Pre-Processing Options</p> <ul style="list-style-type: none"> • Ability to perform package merge with PCB. • Advanced and easy-to-use layout-based GUI allowing users to easily manipulate layouts, with features as follows: <ul style="list-style-type: none"> ○ trace drawing utilities, ○ layer stackup editor, ○ padstack editors, ○ add bondwire - standard JEDEC bondwire, non-standard bondwire, ○ solderball and bump creation utilities, ○ generate 3D models of selected nets, areas or both ○ pin grouping • Ability to import Chip Power Model (CPM) for the die/IC, to perform accurate power integrity analyses.

	<ul style="list-style-type: none"> • Feature to perform optimization of decoupling capacitor scheme on the PDN of PCB/package design, based on constraints like target impedance, number and types of capacitors, cost etc. • Built-in Circuit and system components library including wide range of active, passive, and distributed device models from transistors to transmission lines, including sources and probes. • Should be able to identify electronics objects from the imported CAD geometry and convert them automatically in native objects (Icepak) • Import power maps in form of X, Y, Z, P. X, Y and Z are the coordinates and P is the heat flux
9	<p>Post-processing options- The output from the tool should be</p> <ul style="list-style-type: none"> • Network parameters like SYZ • Characteristic port impedances and propagation constants • Capability to observe near field and far-field radiations • Far field antenna parameters like <ul style="list-style-type: none"> ○ Gain ○ Directivity ○ Radiation efficiency ○ Axial ratio • Capability to observe co-pol and x-pol antenna patterns • Observe antenna array patterns based on array factor and pattern multiplication • Characterize RCS of structure <ul style="list-style-type: none"> ○ Monostatic RCS and Bistatic RCS • SAR plot • Capability to dynamically link electromagnetic models to circuit simulator for further system analysis. There should be an option to push excitation back from circuit to the electromagnetic solver to observe fields based on actual excitation • Feature to perform optimization of decoupling capacitor scheme on the PDN of PCB/package design, based on constraints like target impedance, number and types of capacitors, cost etc. • The electromagnetic solver should have the option to export s parameter data in touchstone format, generate equivalent RLGC models, export W element model, export equivalent spice models • Field Animation <ul style="list-style-type: none"> ○ Capability to animate E-field/H-field and Current density • User Defined Field Calculations using Field Calculator • RF Link Budget analysis: using simulation or measured data • Option to add rain and atmospheric attenuation in RF interference and Link budget calculation. • Wireless Propagation Models support for RF interference and Link Budget calculation: Hata model, S parameter model, Path loss coupling, two ray path loss coupling, Log distance coupling, Walfisch-Ikegami model, Erceg Coupling, Indoor propagation model, Two-ray ground-reflection model

	<ul style="list-style-type: none"> • The tool should have option or toolkit to automatically post process and display the following RCS/Radar outputs: Range, Range Doppler, ISAR, Waterfall • The tool should have option or toolkit to automatically calculate Power Density and Cumulate Derivative Function from phased array or antenna simulations • Ability to get a quick idea of characteristic impedance by generating an impedance delay plot for each trace path selected and also to rapidly generate transient voltage waveforms of pin-to-pin signal propagation. • Ability to simulate for TDR and TDT for specified nets in design • Provide impedance scan feature to quickly examine trace impedance profiles and identify any viola-tions according to user chosen criteria • Provides two-way coupling with thermal or electronics cooling solver to solve for joule heating • Perform QuickEye analysis, a pattern-dependent convolution based approach to calculate eye diagram from transient analysis of single transitions. • Perform VerifEye analysis using a fully statistical approach to calculate the BER directly. • Perform IBIS-AMI analysis allowing time-domain simulation of a linear channel using customer-supplied models for the transmitter and receiver. • Direct integration with HSPICE simulation software, allowing transient simulations with HSPICE and also plot results directly from HSPICE output data files.
10	<p>Advanced analysis features and parallel solve</p> <ul style="list-style-type: none"> • Analytical derivatives to find output sensitivity to design parameters without resolving structure. • Capability for simulation of very large models across a network of machines using all of the available memory using Domain Decomposition. • Data link for field-to-field 3D electromagnetic linking – Enabling fields from one simulation to be used as source in another simulation. • Dynamic link for circuit and EM co-simulation with smith tool capability for matching circuit design. • The capability of tools to integrate with other application such as Thermal, Mechanical for Multiphysics Problems • 64-Bit Support: <ul style="list-style-type: none"> ○ The software should be able to support 64-bit CPU architecture on Windows and Unix Operating system for both solver and user interface. ○ Should support unbounded 64-bit Solver Memory allocation.
11	<p>Optimetrics – For optimizing designs</p> <ul style="list-style-type: none"> • Integrated optimization capability including: <ul style="list-style-type: none"> ○ Parametric analysis ○ Optimization analysis ○ Sensitivity analysis ○ Statistical analysis

	<ul style="list-style-type: none"> • Optimizer should have these algorithms: <ul style="list-style-type: none"> ○ Pattern search algorithm ○ Quasi-Newton search algorithm ○ Sequential Non-Linear Programming (SNLP) Optimizer ○ Genetic optimization algorithm ○ Link to Matlab for custom optimization codes ○ Screening (Shifted Hammersley) ○ MOGA (Multi-Objective Genetic Algorithm) ○ NLPQL (Non-linear Programming by Quadratic Lagrangian) ○ MISQP (Mixed-Integer Sequential Quadratic Programming Method) ○ Adaptive Single-Objective ○ Adaptive Multiple-Objective • Analytical derivatives to find output sensitivity to design parameters without resolving structure. • Capability to solve parametric variations of a design in parallel using processor cores in a single machine or spread over networks
12	<p>Automation and distributed computing</p> <ul style="list-style-type: none"> • Scripting options for model creations, plotting, exporting results thus providing automation • Able to use multiple cores in simulation for faster simulations. <ul style="list-style-type: none"> ○ Multiple cores can be a single machine or across the network • Should be capable to Queue the projects for solving • Support for remote analysis with client and server each on any supported platforms

TERMS & CONDITIONS

1. **The quotation/tender must be in the form furnished by the Purchaser/as per tender specifications and should be free from corrections/erasures. In case there is any unavoidable correction it should be properly attested. If not the quotation will not be considered. Hand written Quotations will not be considered. Please refer our CSIO Website for complete tender terms & conditions. Ensure to provide the required documents to avoid rejection.**
 - (a) The rates should be on FOR, CSIO, Chandigarh (Central Stores) basis for indigenous items. Where there is no mention of packing, forwarding, freight, insurance charges, taxes etc. **such offer shall be rejected as incomplete.** Clearly mention these charges to avoid rejection. Gross weight of the consignment may be mentioned in the Quotation/Tender/Proforma to decide the mode of dispatch. **Our GST No. is 04AAATC2716R1ZN.**
 - (b) The bidder should give a clear cut break up of ex-works, FOB/FCA, CIF/CIP price to facilitate the proper comparison **failing which the bid would be summarily ignored/rejected.** CSIR reserves the right to order on the basis of any of the Incoterms. The Exchange selling rates will be taken from www.xe.com.
 - (c) **In case any of the supplier/Dealer/distributor quotes their prices of foreign items in Indian currency he should clearly mention the price break up viz. Basic price, custom duty, packing & forwarding, insurance and freight etc. This lab/Instt is registered with Dept. of Scientific & Industrial Research, Govt. of India and concessional customs duty and GST & IGST are leviable vide notification no. Custom Duty under Govt. Notification No. 51/96-Custom dated 23.07.1996 and No. 43/2007-Customs dated 30.06.2017 and Govt. Notification No. 45/2017-Central Tax (rate) & No. 45/2017-Integrated Tax (rate) dated 14.11.2017. Only basic duty is applicable under this notification, hence bidders will have to submit their offer accordingly. We are exempted from payment of Customs Duty under notification No.51/96 dated 23.07.1996. Hence IGST and Customs Duty, if any, should be shown separately. No other charges than those mentioned clearly in the quotation will be paid**
 - (d) **The Bidder is expected to examine all instructions, forms, terms, and specifications in the bidding documents. Failure to furnish all information required by the bidding documents or submission of a bid not substantially responsive to the bidding documents in every respect will be at the Bidder's risk and may result in rejection of its bid. Our Pan No. PANCSIR AAATC2716R, IEC 0588137685.**
2. **The E-Tenders will be accepted through online only. The tender received in any other mode or physical tender will not be accepted and will be ignored. This is not applicable for E-Publish Tender Notice. It may kindly be noted that your bid should (A) be in single part. (single part/two part bidding)(retain one only) Accompany Bid Security(EMD)/5F (Annexure) of Rs (retain only if applicable). EMD should be in favour of the Director, CSIO payable at Chandigarh. Our Banking details: State Bank of India, Sector 30-C, Chandigarh Account No. 30267029400 IFC Code 01443 (Attach the proof of document of online deposit of EMD). Bidders that are currently registered with the purchaser or registered as MSEs will continue to remain registered during the tender validity period also and are exempted from payment of EMD. In case the tenderer falls in these categories. The bidder should furnish a certified copy of its valid registration details. Except for MSEs. This exemption is valid for the trade group and monetary value of registration only. **The MSEs are provided tender document free of cost and are exempted from the payment of Bid Security provided the goods are produced and the services are rendered by them and not for any trading activities undertaken by them. As such, if you are manufacturer, item produced by you exemption is applicable otherwise EMD should be submitted to avoid rejection.** Whenever the bidder chooses to submit the Bid Security in the form of Bank Guarantee, then he should advise the banker issuing the Bank Guarantee to immediately send by Registered Post (A.D.) an unstamped duplicate copy of the Guarantee directly to the Purchaser with a covering letter to compare with the original BG for the correctness, genuineness, etc **EMD will be returned with the approval of the Sr.Most Officer of the Purchase when the bidding process is complete.****
3. On the event of award of Contract in your favour, you need to submit a Performance Bank Guarantee valid for a period of 60 days beyond the Warranty period of(retain only, if applicable)
4. Each quotation/Tender in case of E-Publish Tender sent by post is to be enclosed in double cover addressed to **The Director, CSIO, Sector-30, Chandigarh-160 030.** Quotations delivered personally should be put in the tender box kept in the office of Stores & Purchase Officer.
5. The acceptance of the quotation will rest with the competent authority of **Central Scientific Instruments Organisation, Sector-30, Chandigarh** who does not bind himself to accept the lowest quotation and reserves the right to himself to reject, or partially accept any or all the quotations received without assigning any reason.
6. **Price & Validity:** Price quoted should be net (separately mention required charges as Sr.No. 1(a,b) above) and valid for a minimum period of **90 days** from the date of opening of the quotation, **failing which the offer will be ignored/rejected. In case of Single/PAC tender lesser validity will be acceptable.**
7. The bidder must submit the applicable Price Schedule Form as Annexed to the tender document available on the website.
8. Complete specification with manufacturer's name and address should be given while quoting. Literature/Pamphlets should also be enclosed wherever applicable **to avoid rejection.**
9. Prices are required to be quoted in units indicated in the enquiry. When quotations are given in terms of other units, relationship between two sets of units should be furnished. Quantity discounts, if any should also be indicated. The items should be quoted indicating the serial No. of our RFQ.
10. In cases of quoting on behalf of their foreign manufacturers, Indian Manufacturer, one agent/dealer/stockist cannot represent two manufacturers or quote on their behalf in a particular tender enquiry. One manufacturer can also authorize only one agent/dealer. There can be only one bid from the following:
 1. The foreign manufacturer directly or through one Indian agent on his behalf; or
 2. Indian/foreign agent/dealer on behalf of only one principal.

11. Please indicate the name and address of the agents in India if any, the details of service to be rendered by them & the percentage of commission payable to them. Agency commission payable to the Indian Agent should be clearly indicated. The Agency commission would be payable only in Indian Rupees after acceptance. Further an Indian Agent cannot quote on behalf of two different foreign suppliers. If they submit two offers on behalf of two different foreign suppliers/Indian manufacturer, their offers may not be considered. **If the offer is submitted by the Authorised Dealer/Agent/Distributors, it should be alongwith Authorisation Certificate, failing which the offer will be ignored/rejected.** The offer submitted through authorisation on behalf of the principal, the terms & conditions settled by the Agent/dealer with buyer will be binding on their principal. **Bidder who does not manufacture the goods it offers to supply shall submit Manufacturers' Authorization Form (MAF) using the form specified in the bidding document to demonstrate that it has been duly authorized by the manufacturer of the goods to quote and/or supply the goods, failing which offer will not be considered/rejected.**
12. **Taxes as are applicable should be indicated clearly failing which the offer shall not be considered and rejected.** This lab/Instt is registered with Dept. of Scientific & Industrial Research, Govt. of India and concessional customs duty and GST@5% are leviable vide notification No. Custom Duty under Govt. Notification No. 51/96-Custom dated 23.07.1996 and & No. 43/2007-Customs dated 30.06.2017 and Govt. Notification No. 45/2017-Central Tax (rate) & No. 45/2017-Integrated Tax (rate) dated 14.11.2017. Only basic duty is applicable under this notification, hence bidders will have to submit their offer accordingly. We are exempted from payment of Customs Duty under notification No.51/96 dated 23.07.1996. Hence IGST and Customs Duty, if any, should be shown separately. No other charges than those mentioned clearly in the quotation will be paid
13. The mode of dispatch/transportation of the items must be by **Air/Sea/Rail/Road only. (Retain one only).**
14. In case the items in the enquiry are covered by any rate contract or running contract finalised by any other state or central Government, it should be specified in your quotation and accepted contract rates should also be mentioned.
15. **Delivery period** required for supplying the material should be invariably specified in the quotation. The offered delivery period shall have to be strictly adhered to in case an order is placed.
16. **Liquidated Damages Clause for delays:** The applicable rate is 0.5% per week and maximum deduction is 10% of the contract price. **Installation/commissioning:** Equipment/Instruments are required to be commissioned/installed/ demonstrated successfully immediately or within 30 days from the date of receipt of the system in CSIO by the Principal or by their authorized Agent, **failing which the Liquidated Damage Clause will be applicable as mentioned** above.
17. If the deliveries are not maintained and due to that account the purchaser is forced to buy the material at your risk and cost from elsewhere, the loss or damage that may be sustained there by will be recovered from the defaulting supplier.
18. **Warranty Period:**Please mention the warranty period of equipment, which should be from the date of satisfactory installation. **The offer received for lesser warranty, as asked for in the tender, will be rejected/ignored.** All supplies are subject to inspection and approval before acceptance. Manufacturer warranty certificates and manufacturer/Government approved lab test certificate shall be furnished along with the supply, wherever applicable.
19. **Terms of Payment:** Our normal payment terms are 100% (hundred percent) within 30 (thirty) days on receipt and acceptance of material at our site in good condition. Please inform your Bank details for RTGS payment. Banking details should be available on Bill/invoice. Other mode of payment may be decided by the by the Committee with the approval of the Director. For Foreign Currency order: Letter of Credit, wire transfer within 30 days on satisfactory receipt and installation of the materials. **Should furnish your PAN & GST Number in your quotation & on Invoice. TDS would be recovered as per rules.**
20. **Reasonability of Prices/Fall Clause**
- i) Quote best minimum prices applicable for a CSIO, Research Institution, leaving no scope for any further negotiations on prices.
- ii) **The quoting party should give a certificate to the effect that the quoted prices are the minimum and they have not quoted the same item on lesser rates than those being offered to CSIO to any other customer nor they will do so till the validity of offer or execution of the purchase order, whichever is later.**
- iii) Copies of atleast two recently supplied orders of the last two years received from other customers alongwith details of such supply orders preferably in India for the same item/model may be submitted with the offer giving reasons of price difference of their supply order & those quoted to us, if any. The party must give details of identical or similar equipment, if any, supplied to any CSIR lab during the last three years alongwith the final price paid and Performance certificate from them.
21. Certificate of undertaking that the equipment is of latest technology & will not be obsolete within 5 years after warranty will be attached with the offer. All essential spares parts of the offered equipment will be available with the manufacturer or in India with your Indian Agents for a period of at least 5-7 years after warranty period which will be required at later stage
22. MSME benefits will be given to the eligible supplier as per the Govt. guidelines subject to submission of proper document as per policy or Udyog Adhar Udyog Memorandum in respective category
23. Code of Integrity has to be maintained by Bidders/Suppliers/Contractors by maintaining highest standards of ethics in the Procurement process and prohibits corrupt practice/Fraudulent practice/Anti- Competitive practice / Coercive Practice/ Conflict of Interest and Obstructive practice either directly or indirectly during the process of contract.
24. Tender conditions (printed on the reverse), if any, or otherwise sent along with the tender shall not be binding on us.
25. Above instructions & our standard terms & conditions must be complied failing which your offer may be liable for rejection.
26. As per Govt. of India procurement policies (under Make in India (MII))
- a. The purchaser intends to give purchase preference to local suppliers* in case the cost of procurement is in the range of more than Rs 5.00 lakhs and up to Rs. 50.00 lakhs.
- b. The eligibility of the supplier is restricted to Indian Suppliers or there is no restriction on the eligibility of the suppliers. **(retain any one only)**
- c. The procuring entity intends to give purchase preference to products/goods manufactured by micro, small and medium enterprises.

*"Local supplier" means a supplier or service provider whose product or service offered for procurement meets the minimum local content as prescribed in DIPP Order No.P-45021/2/2017-PP (BE-II) dated 28th May, 2018 or by the competent Ministries/Departments in pursuance of this order.

'Local content' means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the items procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent.

27. Director, CSIR-CSIO, Chandigarh reserves the right to reject all or even the lowest quotation without assigning any reason. All disputes shall be settled in the courts of **Chandigarh Jurisdiction** only.

ARBITRATION

1. In the event of any question/dispute/difference arising under the agreement or in connection herewith (except as to matters the decision of which is specially provided under this agreement) the same shall be referred to the Delhi International Arbitration Centre for appointment of Arbitrator to adjudicate the dispute.
 2. The award of the Arbitrator shall be final and binding on the parties. The Arbitrator may give interim award(s) and / or directions, as may be required.
 3. Subject to the aforesaid provision, the arbitration and conciliation act, 1996 and the rules made hereunder and any modification thereof from time to time being in force shall be deemed to apply to the Arbitration proceedings under this clause.
28. Instructions to Bidders, General Conditions of Contract applicable to limited tenders originating from S&P Division along with different formats can be viewed on our website www.csio.res.in under the heading tenders.
29. If the ordered materials are covered under restricted category of EXIM policy in India, the vendor/agent may intimate such information for obtaining necessary licence in India

Yours faithfully,

SO / SPO
For & on behalf of CSIR-CSIO

(TO BE FURNISHED ON BIDDER'S LETTER HEAD)

Date: _____

To

Sub.: **Acceptance of Terms & Conditions of Tender**

Tender Reference No. _____

Name of Tender: _____

Dear Sir,

“I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from a country or, if from such a country, has been registered with the Competent Authority, I hereby certify that this bidder fulfills all requirement in this regard and is eligible to be considered. (Where applicable, evidence of valid registration by the Competent Authority shall be attached.)”

Yours faithfully,

(Signature & Name of the Authorized
Signatory with Company Seal)

Format for declaration by the Bidder for Code of Integrity & conflict of interest

(On the Letter Head of the Bidder)

Ref. No: _____

Date _____

To,

(Name & address of the Purchaser)

Sir,

With reference to your Tender No. _____ dated _____ I/We hereby declare that we shall abide by the Code of Integrity for Public Procurement and have no conflict of interest.

The details of previous transgressions of the code of integrity, if any, with any entity in any country during the last three years or of being debarred by any other Procuring Entity are as under:

- a
- b
- c

We undertake that we shall be liable for any punitive action in case of transgression/contravention of this code.

Thanking you,

Yours sincerely,

CSIR-CSIO Tender No. _____

(Signature & Name of the Authorized Signatory with Company Seal)

Self Certification by the Bidder for Local Content
(Refer to Order No. P-45021/2/2017-PP (BE-II) dated 16 September 2020)
(On the Letter Head of the Bidder)

Ref.No: _____

Date _____

To:

(Name & address of the Purchaser)

S.No.	Name of Item	Percentage of Local Content	Location at which value Addition is made	Status of the bidder, whether, Local Supplier I /Local Supplier II or Non-Local Supplier.

Formore details in this connection you may kindly go through the "Public Procurement (Preference to Make in India), Order 2017 as revised from time to time and available on the website of the Department for Promotion of Industry and Internal Trade at <http://dipp.gov.in>.

(As per OM No. P-45021/102/2019-BE-II-Part(2) (E-50310) dt March 4, 2021 issued by Public Procurement Section, Department of Promotion of Industry and Internal Trade, Government of India, Bidders offering imported products will fall under the category of Non-Local Supplier). Class-I & Class-II Supplier is as:

A) I / We certify that I / we come under **Class-I Local Supplier** Category whose goods / services local content is equal to 50% or more than 50%.

OR

B) I / We certify that I / we come under **Class-II Local Supplier** Category whose goods / services local content is more than 20% but less than 50%.

(Please Tick from A or B which is appropriate)

We state that the value addition of local content is _____% and value addition has been made by us at _____ (mention the address please).

I / We hereby certify that the above statement is true and correct to the best of my knowledge. I understand that a false statement / declaration will disqualify / debar me from the process.

CSIR-CSIO Tender No. _____

Signature
(Name of the Authorized Signatory)
Company Seal

PRICE REASONABILITY CERTIFICATE

(Should be printed in Company Letter head and signed by the authorized signatory with seal.)

This is to certify that the prices quoted for (Name of the Item offered) are best and minimum and we have not quoted the same on lesser rates than those being offered to CSIR-CSIO to any customer nor we will do till the validity of offer or execution of Purchase Order.

CSIR-CSIO Tender No. _____

Signature
(Name of the Authorized Signatory)
Company Seal

Bid-Security Declaration Form

(Refer para 5.1.2 (ix)(d) & 6.1.1 (02) of the CSIR Manual)

Date: _____

Bid No. _____

To:

(insert complete name and address of the purchaser)

I/We. The undersigned, declare that:

I/We understand that, according to your conditions, bids must be supported by a Bid Securing Declaration.

I/We accept that I/We may be disqualified from bidding for any contract with you for a period of one year from the date of notification if I am /We are in a breach of any obligation under the bid conditions, because I/We

(a) have withdrawn/modified/amended, impairs or derogates from the tender, my/our Bid during the period of bid validity specified in the form of Bid; or

(b) having been notified of the acceptance of our Bid by the purchaser during the period of bid validity (i) fail or reuse to execute the contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the Instructions to Bidders.

I/We understand this Bid Securing Declaration shall cease to be valid if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our Bid.

Signed: (insert signature of person whose name and capacity are shown) in the capacity of (insert legal capacity of person signing the Bid Securing Declaration).

Name: (insert complete name of person signing he Bid Securing Declaration)

Duly authorized to sign the bid for an on behalf of : (insert complete name of Bidder)

Dated on _____ day of _____ (insert date of signing)

Corporate Seal (where appropriate)

(Note: In case of a Joint Venture, the Bid Securing Declaration must be in the name of all partners to the Joint Venture that submits the bid)

MANUFACTURERS' AUTHORIZATION FORM

(The Bidder shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. This letter of authorization should be on the letter head of the Manufacturer and should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer.)

Date: (insert date (as day, month and year) of Bid submission)

Tender No: (insert number from Invitation for Bids)

To (insert complete name and address of Purchaser) WHEREAS

We (insert complete name of Manufacturer), who are official manufacturers of

(insert category of goods manufactured), having factories at (insert full address of Manufacturer's factories), do hereby authorize (insert complete name of Bidder) to submit a bid the purpose of which is to provide the Goods, manufactured by us (insert the category of Goods), and to subsequently negotiate to sign the Contract.

We hereby confirm that we shall be solely and fully responsible in case of discrepancy with regard to quality, quantity, Packages or defects at the time of supply/usage. In such cases we shall provide free replacement immediately.

Signed (insert signature(s) of authorized representative(s) of the Manufacturer)

Name: (insert complete name(s) of authorized representative(s) of the Manufacturer)

Title (insert Title)

Duly authorized to sign this Authorization on behalf of: (insert complete name of Bidder)

Dated on.....day of, [Insert date of signing]