CPPP Tender ID: 2023_CSIR_170190_1

Dt: 17-10-2023

Minutes of Pre-Bid Conference (PBC) held on 17-10-2023 for proposed procurement of "Fluorescence Spectrophotometer".

As scheduled Pre-Bid conference (PBC) has been conducted on 17-10-2023 for proposed procurement of Fluorescence Spectrophotometer.

<u>Chairpersons / Members of the Technical Sub Committee (TSC) present during PBC including domain expertspresent during PBC:-</u>

- 1. Dr. PratyayBasak, Chairperson
- 2. Dr.G. Jithender Reddy, Member
- 3. Sri. D. Venkateswara Rao, Member
- 4. IO/PL Dr. S. P. Singh
- 5. Dr. Abhijit Hazarika- user scientist/expert

Representatives of the following firm attended the PBC:

- 1. M/s. Laser Spectra Services India Private Limited
- 2. M/s. Specialise Instruments Marketing Company

The following points were discussed during the PBC:

Query raised by M/s. Laser Spectra Services India Private Limited, and response of CSIR-IICT:

CSIR-IICT Specifications	Query	Response
Point number 4:	The vendor has	After discussing with users at
450Watt continuous wave	proposed alternative	other institutes, IICT Technical
Xenon lamp with all	lamp source of a newly	Teamagreed to modify the
reflective collection optics	designed 75 Watt Xenon	specification to "suitable
and integrated power supply	lamp instead of 450	continuous wave Xenon lamp
for steady state fluorescence	Watt Xenon lamp as	with flux matching to 450
measurements. Wavelength	mentioned in the	Watt Xenon lamp at the
range: 220nm - 1100 nm or	technical specification.	output as proven by the
longer.	The vendor mentioned	signal-to-noise ration of water
	the about the users	Raman signal (as specified in
	whom they supplied this	the technical document) as
	unit.	well as intensities of the
		produced white light spectrum
bas not bein introck to		at all wavelengths".
Point number 6	The vendor asked for	IICT Technical Team clarified
(accessories):	clarification whether 1-	that single turret sample



4-turret sample	turret or 4-turret sample	compartment is required. The
1	1.2.2	
compartment	compartment is	particular point of 4-turret
and the second s	required, as in the	sample compartment will be
	general specification	removed from the revised
	"standard single/four	technical specification.
2	turret sample	ta contrata nemia e en en esperar de la f
	compartment" was	
Esua V market 1 tens	mentioned.	ac ad are balthered as
Point number 6	The vendor asks for	IICT Technical Team clarified
(accessories):	clarification what sample	that the sample measurement
-Low temperature (liquid	measurement	temperature range of -10 °C
nitrogen) measurement	temperature range is	to +100°C or better with
accessory (upgrade option	required. The vendor	optional upgrade system to
should be available up to 4K	also pointed out "Cell	liquid nitrogen temperature of
by attaching He cryostat)	holder with temp	-77K to 500K or better.
-Thermostatic cell holder	control" is repetition of	These three points will now be
with stirrer	"Thermostatic cell	made one in the revised
-Cell holder with temp	holder with stirrer".	technical specification as
control	The state of the s	"Peltier-controlled
4	CITTO OF SHEET WATER MINE	Thermostatic cell holder with
		temperature range -10 °C to
	unica beinera an ilan	+100 °C or better with optional
The same of the sa	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	upgrade system to liquid
		nitrogen temperature of -77K
		to 500K or better. The cell
-	had and an make brooks with	holder should have stirrer
		option".
Point number 6	The vendor asks for	IICT Technical Team clarified
(accessories):	clarification filter	that "long pass filters with
-Filter set (long pass and	wavelength and optical	different wavelengths in the
neutral density) with filter	density	range of 300 nm -1000 nm
holder both in excitation	The section of the se	and neutral density filters with
emission side	and the second s	OD 0.1-4.0" are required.
emission side		OD 0.1-4.0 are required.

Query raised by M/s. Specialise Instruments Marketing Company, and response of CSIR-IICT:

CSIR-IICT Specifications	Query	Response
Point number 1:	The vendor proposed to	CSIR-IICT opted for all
A combined steady-	change the "all-reflective	reflective optics to have less
state, nanosecond	optics" to "a lens or mirror or	chromatic aberration
fluorescence lifetime and	suitable optics".	resulted from lens
phosphorescence	u i	optics.Requested change
lifetime measurement		has not been agreed to.
spectrometer with	**	
modular design and all		



A Miles and A section of the Control		
reflective optics with	THE DAY THE DESTRUCTION	TOPET TO TO TOPETH
perfect focus at all	To senative or stan multipage	170 : - alicementistatori
wavelengths and the	THE REAL PROPERTY.	The read or restrict the
highest sensitivity.	Terena eran militaktur.	COLD HOT TO A LAND TO THE
Point number 2:	The vendor requested to	CSIR-IICT Technical team
Double excitation 350	modify the wavelength as 325	agreed to amend the
mm Czerny-Turner coma-corrected	mm – 350mm Czerny-Turner coma-corrected	modifications suggested by the vendor.
monochromators (700	monochromators (650mm -	the vehicor.
mm total focal length)	700 mm total focal	THE SECTION SECTION
each with triple grating	length)and1200 line/mm	We of du sin nephingar
turrets for extended	grating or better blazed at	Limited against a supplicational tra-
wavelength selection	300-400 nm	- Into as our sea morninger
(one grating included		-mant-matte
each), computer-		
controlled excitation		lifet itt og kræ mintden
shutter and computer-		E. KHM
controlled slits, including	the gender inquestral to	T turbum smg1
computer controlled	chapter dispersesson edit yilbare	totrette.
intermediate slit.	ा २००-७७० चल चलता १४७० च	The run been been from the
Supplied with 1200	Transcription to the second	They seeled werran related
line/mm grating blazed	ann UBL to vastic	Team Self section has I
at 300 nm blaze or		
better.	The vendor requested to	CSIR-IICT Technical team
Point number 3: Single emission 350 mm	The vendor requested to modify the wavelength as 325	CSIR-IICT Technical team agreed to amend the
Czerny-Turner coma-	mm – 350mm Czerny-Turner	modifications suggested by
corrected	coma-corrected	the vendor.
monochromator with	monochromators and 1200-	
triple grating turrets for	1800 line/mm grating or better	
extended wavelength	blazed at 400-500 nm	Tamoda satta 5 fembro /
selection, and computer-		Les School placed 1200
controlled slits, including		10052 to the Name of Table 1
computer controlled		painan whysepoper i
intermediate slit.		
Supplied with 1200	The basseuper milney or	Tall Sadment Index
line/mm grating blazed	I serifi fighterwier, sit viteon	
at 400 nm or better.	d rises will Edition with 1975 6-975 co	LTT. an assistatio aliantes 1
Point number 4:	The vendor requested to	CSIR-IICT Technical team
Excitation light sources	change the wavelength range	agreed to amend the
-Wavelength range:	to 230-1000 nm.	modifications as "230nm –
220nm - 1100 nm or		1000 nm or wider below 230
longer.		nm and above 1000 nm".
Point number 4:	The vendor requested to	CSIR-IICT Technical team
Excitation light sources	modify the pulsed LED/pulsed	agreed to amend the
-Pulsed laser diodes and	laser diode wavelength ranges	modifications as "Pulsed

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pulsed LEDs for TCSPC measurements (4 numbers in total) with peak wavelengths of 360nm±10nm (pulsed LED with repetition rate to 20 MHz), up 390nm±10nm (pulsed diodes laser with repetition rate up to 20 MHz), 450nm±10nm (pulsed laser diodes with repetition rate up to 100 MHz), 532nm±10nm (pulsed laser diodes with repetition rate up to 100 MHz).

to ±20-30 nm and the repetition rate to 20 MHz or better to make the specification more general.

laser diodes and pulsed laser LEDs with repetition rate 20MHz or higher for TCSPC measurements (4 numbers in total) with peak wavelength 360-370 nm (pulsed LED), 390-410 nm (pulsed laser diode), 430-450 nm (pulsed laser diode) and 510-540 nm (pulsed laser diode)".

Point number 5: Detector

- PMT (200-850 nm or wider range below 200 and above 850 nm) detector kit with TE cooled housing with four detection modes (steady state in photon counting or analog mode, TCSPC lifetimes phosphorescence) selected under computer control. Grating: 400nm or 500nm blazed, 1200 1800 I/mm or grooves/mm density.

The vendor requested to modify the wavelength range to 200-870 nm with 1800 grooves/mm density grating blazed at 500 nm.

CSIR-IICT technical team noted that already the specification covers the requested range. So, no further change was agreed upon.

Point number 5: Detector

- Liquid nitrogen or TE cooled InGaAs solid-state photodiode-based detector (900-1600 nm or wider range with below 900 and above 1600 nm). Grating between 800nm and 1000nm blazed, density 600 l/mm or higher.

The vendor requested to modify the wavelength range to 870-1650 nm with830l/mm density grating blazed at 1200 nm.

CSIR-IICT Technical team noticed that the requested wavelength range is already covered in the specification, and agreed to amend the modifications on grating specification as "Grating with 600-850 I/mm density blazed at 800-1200 nm".

Point number 6	The vendor asked for	IICT Technical Team clarified
(accessories):	clarification whether 1-	that single turret sample
4-turret sample	turret or 4-turret sample	compartment is required. The
compartment	compartment is	particular point of 4-turret
	required, as in the	sample compartment will be
	general specification	removed from the revised
As seed that	"standard single/four	technical specification.
	turret sample	. dien dien
	compartment" was	
A.S	mentioned.	
Point number 6	The vendor asks for	IICT Technical Team clarified
(accessories):	clarification what sample	that the sample measurement
-Low temperature (liquid	measurement	temperature range of -10 °C
nitrogen) measurement	temperature range is	to +100 °C or better with
accessory (upgrade option	required. The vendor	optional upgrade system to
should be available up to 4K	also pointed out "Cell	liquid nitrogen temperature of
by attaching He cryostat)	holder with temp	-77K to 500K or better.
-Thermostatic cell holder	control" is repetition of	These three points will now be
with stirrer	"Thermostatic cell	made one in the revised
-Cell holder with temp	holder with stirrer".	technical specification as
control	ra Nus of Joseph St. 1888	"Peltier-controlled
	i du a company de company de la	Thermostatic cell holder with
	a garagaman sa sita da da sa	temperature range -10 °C to
1 - Harri G. 1 - 1 - 1 - 1 - 1 - 1 - 1	Mark T.,	+100 °C or better with optional
		upgrade system to liquid
	7	nitrogen temperature of -77K
		to 500K or better. The cell
		holder should have stirrer
Point number 6	The wonder cale for	option".
Point number 6 (accessories):	The vendor asks for clarification filter	IICT Technical Team clarified
-Filter set (long pass and		that "long pass filters with different wavelengths in the
neutral density) with filter	density. The vendor also	range of 300 nm - 1000 nm
holder both in excitation	asked clarification for	and neutral density filters with
emission side	whether in-built	OD 0.1 - 4.0" are required. It is
Cilission side	computer-controlled ND	also clarified that stand-alone
	filter wheel is required	ND filter set is required.
	or stand-alone ND filter	The fitter set is required.
	set is required.	
Point number 6	The vendor requested to	IICT Technical team agreed to
(accessories):	make this more general	amend the modifications.
-All necessary Time resolved	as "All necessary kits for	
kit for Diode source on	time resolved	
Spectrometer including Hub,	measurements".	
Diode controller, delay box,	F	
sample compartment, and all	_	
The second secon	-	

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Point suggested by CSIR-IICT Team during PBC:

IICT Technical team suggested that in the accessories related to computer work station, one amendment may be added as "software upgradation should be available for lifetime of the equipment". This amendment will be added in the revised specification.

Points clarified by CSIR-IICT Team during PBC:

M/s. Laser Spectra Services India Private Limited and M/s.Specialise Instruments Marketing Companyinformed that they do not have problem with other points of tendered specifications and requirements. Participating bidder has been informed that points raised by them during PBC will be examined by CSIR-IICT's **Technical Sub Committee (TSC)** constituted for the purpose of procurement of said equipment and **post PBC changes** in tendered specifications and requirements to be agreed after due consideration of the same by TSC, as agreed, will be uploaded in **CPPP** as part of **revised/amended tendered specifications**.

Minutes of the PBC with changes agreed (if any) will be uploaded in due course at CPPP for information and reference of prospective bidders on or before 20.10.2023. All bidders are requested kindly to take a note of changes in tendered specifications subsequent to PBC held today, i.e., 17-10-2023 before they start submitting their online bids through CPPP.

(Dr.Jithender Reddy)

Member

👺. D V Rao)

Member

Dr S P Singh

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(Dr. Abhijit Hazarika)

user scientist expert

(Dr. Pratya∮Basak)

Chairperson

Revised Specifications/Corrigendum

File Ref. No. PUR/IICT/DMS/1338/RE/22-23 CPPP Tender ID: 2023_CSIR_170190_1 Dt. 17.10.2023

Revised Specifications/Corrigendum subsequent to PBC are as under-

SI No.	Point No. of Tendered specifications	Existing Specifications under Chapter 4	REVISED/AMENDED Specifications after PBC under Chapter 4
1.	2	Excitation Monochromator: Double excitation 350 mm	Excitation Monochromator: Double excitation 325mm-350
- 110	HILL TO WITH A LI	Czerny-Turner coma-corrected	mm Czerny-Turner coma-
n a	1 11 Wor 15 Oc	monochromators (700 mm total	corrected monochromators
rit of	the property of the property o	focal length) each with triple	(650mm-700 mm total focal
	200 m 8 m	grating turrets for extended	length) each with triple grating
1.00	NEW TRANSFER	wavelength selection (one	turrets for extended
20.14	L L Smoo	grating included each),	wavelength selection (one
		computer-controlled excitation	grating included each),
4	and the second second second	shutter and computer-	computer-controlled excitation
give to	The second	controlled slits, including	shutter and computer-
WY.	nit many man	computer controlled	controlled slits, including
	in the set when it	intermediate slit. Supplied with	computer controlled
inni'.	and the dist	1200 line/mm grating blazed at	intermediate slit. Supplied with
la l	Marine, mas	300 nm blaze or better.	1200 line/mm grating blazed at
Ji 19.17	riga i aldrid t	n. 014.	300-400 nm blaze.
2.	3	Emission Monochromator:	Emission Monochromator:
1 - 4 D		Single emission 350 mm Czerny-	Single emission 325mm-350
ļ.,		Turner coma-corrected	mm Czerny-Turner coma-
	wite 10.08 11 -06.0	monochromator with triple	corrected monochromator with
FF en	or i Lik or in	grating turrets for extended	triple grating turrets for
	A Company of the Comp	wavelength selection, and	extended wavelength selection,
	13.4	computer-controlled slits,	and computer-controlled slits,
-14	to the state of th	including computer controlled	including computer controlled
	an is in parabolic Miles	intermediate slit. Supplied with	intermediate slit. Supplied with
	10 E B	1200 line/mm grating blazed at	1200-1800 line/mm grating
	J445(15 45 H	400 nm or better.	blazed at 400-500 nm.
3.	4	Excitation Light Sources:	Excitation Light Sources:
107		-450Watt continuous wave	-Suitable continuous wave
		Xenon lamp with all reflective	Xenon lamp with flux matching
	- 15 to 15 Pr	collection optics and integrated	to 450 Watt Xenon lamp at the
		power supply for steady state	output as proven by the signal-
91.6		fluorescence measurements.	to-noise ration of water Raman
4	ald - all based	Wavelength range: 220nm -	signal (as specified in the
la J ^{hr} sa	is In all g. T	1100 nm or longer.	technical document) as well as
ign tal		-Pulsed micro second Xenon	intensities of the produced
_		flash lamp with integrated	white light spectrum at all

power supply and computer wavelengths. The Xenon lamp controlled high repetition rate should be with all reflective collection optics and integrated (0.1Hz - 100Hz or better) and low optical pulse width (~3 power supply for steady state microsecond less) fluorescence measurements. or phosphorescence Wavelength range: 230nm measurements in the range of 1000 nm or wider below 230 nm and above 1000 nm. microsecond to second -Pulsed micro second Xenon timescale. -Pulsed laser diodes and pulsed flash lamp with integrated LEDs for TCSPC measurements power supply and computer controlled high repetition rate (4 numbers in total) with peak wavelengths of 360nm±10nm (0.1Hz - 100Hz or better) and low optical pulse width (~3 (pulsed LED with repetition rate up to 20 MHz), 390nm±10nm microsecond or less) for (pulsed laser diodes with phosphorescence measurements in the range of repetition rate up to 20 MHz), 450nm±10nm (pulsed microsecond second laser diodes with repetition rate up timescale. -Pulsed laser diodes and pulsed to 100 MHz), 532nm±10nm diodes laser LEDs with repetition rate (pulsed laser 20MHz or higher for TCSPC repetition rate up to 100 MHz). measurements (4 numbers in total) with peak wavelength 360-370 nm (pulsed LED), 390-410 nm (pulsed laser diode), 430-450 nm (pulsed laser diode) and 510-540 nm (pulsed laser diode). 4. **Detectors:** - PMT (200-850 nm or wider range below 200 and above 850 - PMT (200-850 nm or wider range below 200 and above 850 nm) detector kit with TE cooled nm) detector kit with TE cooled housing with four detection modes (steady state in photon housing with four detection modes (steady state in photon counting or analog mode, TCSPC lifetimes or counting or analog mode, TCSPC phosphorescence) selected lifetimes or phosphorescence) selected under computer under computer control. control. Grating: 400nm or Grating: 400nm or 500nm 500nm blazed, 1200 l/mm or blazed, 1200 l/mm or 1800 1800 grooves/mm density. grooves/mm density. - Liquid nitrogen or TE cooled - Liquid nitrogen or TE cooled InGaAs solid-state photodiode-InGaAs solid-state photodiodebased detector (900-1600 nm based detector (900-1600 nm or wider range with below 900 and or wider range with below 900 and above 1600 nm). Grating above 1600 nm). Grating between 800nm and 1000nm with 600-850 I/mm density

		blazed, density 600 l/mm or higher.	blazed at 800-1200 nm.
5.	6	Accessories: - 4-turret sample compartment	This point is deleted.
6.	6	Accessories: - Low temperature (liquid nitrogen) measurement accessory (upgrade option should be available up to 4K by attaching He cryostat) - Thermostatic cell holder with stirrer - Cell holder with temp control	-Peltier-controlled Thermostatic cell holder with temperature range -10 °C to +100 °C or better with optional upgrade system to liquid nitrogen temperature of -77K to 500K or better. The cell holder should have stirrer option.
7.		Accessories: - Filter set (long pass and neutral density) with filter holder both in excitation emission side	-long pass filters (with different wavelengths in the range of 300 nm - 1000 nm and neutral density filters with OD 0.1 - 4.0) with filter holder both in excitation emission side.
8.		Accessories: - All necessary Time resolved kit for Diode source on Spectrometer including Hub, Diode controller, delay box, sample compartment, and all cables and connections.	-All necessary kits for time resolved measurements
9.	6	Accessories: - Computer work station with compatible software for hardware control, data acquisition and processing.	-Computer work station with compatible software for hardware control, data acquisition and processing. Software upgradation should be available for lifetime of the equipment.

Complete Revised Specifications/Corrigendum

File Ref. No. PUR/IICT/DMS/1338/RE/22-23

4.1 Specifications

General Description:

1. A combined steady-state, nanosecond fluorescence lifetime and phosphorescence lifetime measurement spectrometer with modular design and all reflective optics with perfect focus at all wavelengths and the highest sensitivity. The system should be consisting of comprehensive fluorescence spectroscopy package, manual and electronic interface. It should have all reflective L-Format optics sample compartment with reference channel excitation correction detector, standard single/four turret cuvette sample tray with one 10 mm quartz cuvette, manual filter holders. High sensitivity with >20,000:1 or better for the Signal-to-Noise ratio of the water Raman signal (measured with excitation at 350 nm with a 1 second integration time and 5 nm spectral bandwidth). Wavelength accuracy of ±0.5nm or better. Computer-controlled, continuously adjustable slits 0-20nm or more.

2. Excitation Monochromator:

Double excitation 325mm-350 mm Czerny-Turner coma-corrected monochromators (650mm-700 mm total focal length) each with triple grating turrets for extended wavelength selection (one grating included each), computer-controlled excitation shutter and computer-controlled slits, including computer controlled intermediate slit. Supplied with 1200 line/mm grating blazed at 300-400 nm blaze.

3. Emission Monochromator:

Single emission 325mm-350 mm Czerny-Turner coma-corrected monochromator with triple grating turrets for extended wavelength selection, and computer-controlled slits, including computer controlled intermediate slit. Supplied with 1200-1800 line/mm grating blazed at 400-500 nm.

4. Excitation Light Sources:

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-Suitable continuous wave Xenon lamp with flux matching to 450 Watt Xenon lamp at the output as proven by the signal-to-noise ration of water Raman signal (as specified in the technical document) as well as intensities of the produced white light spectrum at all

wavelengths. The Xenon lamp should be with all reflective collection optics and integrated

power supply for steady state fluorescence measurements. Wavelength range: 230nm -

1000 nm or wider below 230 nm and above 1000 nm.

-Pulsed micro second Xenon flash lamp with integrated power supply and computer

controlled high repetition rate (0.1Hz - 100Hz or better) and low optical pulse width (~3

microsecond or less) for phosphorescence measurements in the range of microsecond to

second timescale.

- Pulsed laser diodes and pulsed laser LEDs with repetition rate 20MHz or higher for TCSPC

measurements (4 numbers in total) with peak wavelength 360-370 nm (pulsed LED), 390-

410 nm (pulsed laser diode), 430-450 nm (pulsed laser diode) and 510-540 nm (pulsed laser

diode).

5. Detectors:

- PMT (200-850 nm or wider range below 200 and above 850 nm) detector kit with TE

cooled housing with four detection modes (steady state in photon counting or analog mode,

TCSPC lifetimes or phosphorescence) selected under computer control. Grating: 400nm or

500nm blazed, 1200 l/mm or 1800 grooves/mm density.

- Liquid nitrogen or TE cooled InGaAs solid-state photodiode-based detector (900-1600 nm

or wider range with below 900 and above 1600 nm). Grating with 600-850 l/mm density

blazed at 800-1200 nm.

6. Accessories:

- Sample holder: Liquid/solid/powder

- Integrating Sphere for absolute Quantum Yield Measurement. Should be easily mounted

with the spectrofluorimeter. Reflectivity from 250-2500nm. Should come with 10mm

cuvette holder for liquid, and sample tray for solid or powders.

- Automatic Polarization accessory for UV/VIS/NIR range

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- -Peltier-controlled Thermostatic cell holder with temperature range -10 °C to +100 °C or better with optional upgrade system to liquid nitrogen temperature of -77K to 500K or better. The cell holder should have stirrer option.
- long pass filters (with different wavelengths in the range of 300 nm 1000 nm and neutral density filters with OD 0.1 4.0) with filter holder both in excitation emission side.
- Quartz Fluorescence Cell, 4-sides and base polished, 10mm pathlength with 3.5 ml nominal volume with white PTFE screw cap: at least 4 No.
- All necessary kits for time resolved measurements
- Computer work station with compatible software for hardware control, data acquisition and processing. Software upgradation should be available for lifetime of the equipment.
- -Suitable UPS with 30 min power back up with batteries.
- **4.2** Scopeof Supplyandincidentalworks: Please refer to Para 4.2 above.

4.3 Inspection&Tests-

Will be done to check the efficiency and efficacy of the contractual supply, if required.

<u>Important Terms and Conditions that must be met by the bidder/supplier:</u>

- 1. Total Cost must include comprehensive _____ (labor + parts, etc.) warranty on the complete system.
- 2. Total price must include transportation and complete installation of the units.
- 3. Detailed original literature indicating all technical specifications and features must be enclosed with the offer. Merely stating "compiled" in the compliance statement will not be considered and offer made will be disqualified.
- 4. Commitment for the supply of Complete Operating Instruction manuals, Manuals / diagrams and engineering details (including Refrigeration) to be supplied along with the system. Commitment to be made in the offer.
- 5. In case, CSIR-IICT opts for AMC/CMC after expiry of the warranty period, bidder should accept to extend the service on bill basis on completion of prescribed billing cycle (Half Yearly/Quarterly, etc) and no advance payment to be made.
- 6. All standard accessories that would be supplied with the system must be clearly mentioned in the offer.

- 7. Technical presentation/ demonstration of the offered equipment as per tendered and need to be provided, if so required by CSIR-IICT.
- 8. List of users (Govt. of India Institutes and research laboratories) of the similar models as the one(s) offered along with the names, addresses, telephone numbers and mail ID's to be enclosed.
- 9. Availability of service support at site and response time for a service call during and after warranty to be specified.
- 10. The principals / local agents are responsible for the installation, testing and commissioning of the system and accessories.
- 11. Pre-installation and utility requirements for installation and running the system, if any, should be clearly mentioned in advance.
- 12. All other clauses of payment details, validity of quotation, delivering schedule, shipment etc. to be indicated.
- 4.4 **Training**: Free training should be imparted at the purchaser's premises on operation of the supplied item.
- 4.4.1: Total Cost must include 36 Months comprehensive onsite warranty (labor + parts, etc.) on the complete system.

4.5 Warranty:

36 Months comprehensive onsite warranty from the date of successful installation and final acceptance of the supplied system by CSIR-IICT user.

All the other tender specifications and requirements under Chapter 4 remains unchanged. Bidders may please submit their bids accordingly.

(Dr.Jithender Reddy)

Member

(r. D V Rao)

Member

(Dr. S. P. Singh)

1/0

(Dr. Abhijit Hazarika)

user scientist/expert

(Dr. PratyayBasak)

Chairperson