

ANNOUNCEMENT OF OPPORTUNITY

FOR

MANUFACTURE OF THE PROTOTYPE ACTUATORS

REF: PUBLIC TENDER NOTICE NO. IIA/ITCC/TMT-ACTU/01-02

THIRTY METER TELESCOPE PROJECT

APRIL 25, 2017

**INDIAN INSTITUTE OF ASTROPHYSICS
INDIA TMT CO-ORDINATION CENTRE
KORAMANGALA, BENGALURU - 560 034.**

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1. LIST OF ABBREVIATIONS

AD	Applicable Document
ANSI	American National Standards Institute
ARIES	Aryabhata Research Institute for Observational Sciences
ASME	American Society of Mechanical Engineers
EIDP	End Item Data Package
FFA	Fixed Frame Assembly
FRR	Fabrication Readiness Review
GD&T	Geometric Dimensioning and Tolerancing
IGES	Initial Graphics Exchange Specification
IIA	Indian Institute of Astrophysics
ISPM 15	International Standards For Phytosanitary Measures No. 15
ITCC	India TMT Co-ordination Centre
IUCAA	Inter-University Centre for Astronomy and Astrophysics
LH	Left Handed
M1	Primary Mirror
M1CS	Primary Mirror Control System
NCR	Non-Conformance Report
QA	Quality Assurance
RD	Reference Document
rev	Revision
RFP	Request for Proposal
RH	Right Handed
SOW	Statement of Work
SSA	Segment Support Assembly
STEP	Standard for the exchange of Product model data
TIO	Thirty Meter Telescope International Observatory
TMT	Thirty Meter Telescope
TMTPO	Thirty Meter Telescope Project Office
TPI	Third Party Inspection

2. BACKGROUND INFORMATION

The Thirty Meter Telescope (TMT) International Observatory (TIO) is a joint venture of scientific institutions in Canada, China, India, Japan and the US to build a 30 meter diameter optical infra-red telescope. As a part of India's contribution to TIO, the India-TMT Coordination Centre (ITCC) intends to develop various sub-systems needed for the telescope to be delivered to the observatory.

The India-TMT group is led by the Indian Institute of Astrophysics (IIA), Bangalore, the Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune and the Aryabhata Research Institute for Observational Sciences (ARIES), Nainital. The activities of India-TMT are coordinated by ITCC that is hosted at IIA, Bengaluru.

The primary mirror ("M1") of the TMT is comprised of 492 hexagonal mirror segments. Each mirror segment is 1.44 meters measured across corners. These segments need to be maintained at the required surface accuracy and stability, against structural deformations caused by temperature, gravity, wind and seismic vibrations. For this, each segment is actively controlled by three Actuators and passively controlled by the Segment Support Assemblies (SSA). In order to achieve very high spatial resolution as well as sensitivity, all the 492 hexagonal mirror segments of TMT must be precisely positioned with respect of each other to form a 30 meter hyperboloid primary mirror. The M1 control system (M1CS) performs this task, with the help of the Actuators that correct for the segments tip-tilt and piston errors measured by edge sensors. Altogether 1476 Actuators are required to keep the 492 segments aligned.

This announcement of Opportunity is for the manufacture 20 or more prototype Actuators for the purpose of identifying additional niche industries in the country which demonstrate manufacturing ability adhering to tight schedule and stringent quality requirements. A detailed Statement of Work (SOW) (section 5), Methodology of Submission of Bids (section 3 & 6), and Terms and Conditions (section 7 and 8) are provided. The TMT Project Office in Pasadena, California, USA is responsible for the design of the Actuator, and will support ITCC in managing the prototype and production Actuator build contracts.

ITCC intends to engage multiple contractors for the manufacture of the 20 or more prototype Actuators. Each selected Contractor will be awarded a minimum of 5 Actuators subject to price and technical competency. Contractors who were previously awarded a contract (by ITCC and/or TMT) for the manufacture of prototype Actuators will not be considered during this round. Contractors who were previously awarded a contract (by ITCC and/or TMT) for manufacturing prototype Actuators and successfully built prototype Actuators with the required quality, performance, and on schedule will be invited to bid on the contract for the 1546 production Actuators including spares subject to continued funding by the Government of India.

3. SUBMISSION OF THE BIDS

Bids are invited from industries with proven technical expertise, track record, and experience in executing precision fabrication and assembly. The companies willing to submit bids are invited to put a proposal as per the procedure given below:

Submission of offer in two parts,

- a) Technical Bid: including commercial terms and conditions,
- b) Price Bid

Guidelines for submission of bids, including the details of documents required, are provided in Section 6.

3.1 PROCESS SCHEDULE

Date of this Announcement of RFP	25-April-2017
Last date for receiving Proposals	17-May-2017
Opening of Technical Bids at ITCC/IIA, Bengaluru	17-May-2017
Opening of Price Bids at ITCC/IIA, Bengaluru (Technically Qualified Bidders only)	02-June-2017
Award of Contract	16-June-2017

4. CONTACTS

4.1 TECHNICAL CLARIFICATIONS:

Shri P.K.Mahesh,

Head, Mechanical Engineering,
Indian Institute of Astrophysics
Koramangala, Bengaluru-560 034
(pkmahesh@iiap.res.in)

4.2 ADMINISTRATIVE CLARIFICATIONS:

Shri K.P.Vishnu Vardhan,

Stores and Purchase Officer
Indian Institute of Astrophysics
Koramangala, Bengaluru-560 034
(vishnu.vardhan@iiap.res.in)

Shri C.H.Basavaraju,

Consultant, Administration,
Indian Institute of Astrophysics/ITCC,
Koramangala, Bengaluru, India-560 034
(basavaraju@iiap.res.in)

5. STATEMENT OF WORK

5.1 OVERVIEW

This SOW is for the manufacture, inspect, assemble, test, and delivery of a specified number of prototype Actuators based on the existing P2D Actuator design.

In addition the SOW requests the development of a detailed non-binding cost estimate for 773 and 1546 production Actuators, based on the experience gained by building the prototype Actuators.

5.12 Exhibit A provides a listing of PDF and IGES drawings for all fabricated parts.

5.13 Exhibit B provides the listing of the procured parts SUPPLIED BY ITCC for the prototyping phase. All fasteners are to be provided by the Contractor.

5.2 LEFT AND RIGHT HANDED ACTUATORS

Actuators are designed in two variants: right-handed Actuators and left-handed Actuators, to accommodate the interface between the Actuator and the Segment Support Assembly-Fixed Frame when installed in the telescope mirror cell. The only difference between right handed and left handed Actuators are the SAT housing and the output limit switch bracket.

5.3 APPLICABLE DOCUMENTS

- AD1. P2 Actuator Drawings and Models which includes the following;
 - a) 01.PDF (see Exhibit A for a complete list of PDF drawings provided)
 - b) TMT SAT LH rev M.PDF
 - c) TMT SAT RH rev M.PDF
 - d) 02 IGES (see Exhibit A for a complete list of IGES drawings provided)
 - e) 03 STEP which includes the following STEP files;
 - i. TMT SAT LH rev M.STEP
 - ii. TMT SAT RH rev M.STEP
 - f) P2d Redlines
 - g) Additional Actuator Drawing Changes
- AD2. TMT P2d prototype Actuator Assembly Process, Parts List, and Assembly Diagrams, April 28, 2015, TMT.CTR.TEC.14.022.DRF07
- AD3. TMT P2 prototype Actuator Draft Test Plan, July 21, 2014, TMT.CTR.TEC.14.028.DRF02
- AD4. TMT Quality Assurance Plan, March 16, 2016, TMT.PMO.MGT.10.008.CCR09
- AD5. Request for Waiver or Deviation, TMT.PMO.ECR.15.001.REL01
- AD6. TMT Part Marking Requirements, TMT.SEN.SPE.13.002.REL01
- AD7. Draft Statement of Work for production Actuators

There will be some changes in the drawings between those that are provided as part of the RFP package and the drawings released for the contract. The "P2d redlines" [AD1 f] lists the known changes that are to be made. The "Additional Actuator Drawing Changes" [AD1 g] describes those changes that have not been fully defined at the time of the release of this RFP. Both sets of changes are relatively minor and ITCC's expectation is that they will not incur any change in cost. If desired these changes can be more fully described at the pre-bid meeting.

All these documents are available at <ftp://ftp.iiap.res.in/Actuator/>

5.4 DESCRIPTION OF WORK TO BE PERFORMED

Contractor shall perform the following as the Work:

5.4.1 Contractor shall review all Applicable Documents, and communicate in writing to ITCC any questions, concerns or comments, including recommended edits to improve accuracy/clarity.

5.4.2 Upon receipt of ITCC's written Authorization to Proceed after the Pre-build meeting, Contractor shall manufacture a specified number of prototype Actuators ("The prototype Actuators").

- a) Contractor shall procure required material and fasteners. Substitute material, fasteners or treatments shall only be allowed with ITCC's prior written approval. Contractor shall use [AD5] to propose any substitutions.

Note: Exhibit B provides the list of procured parts supplied by ITCC to Contractor.

- b) Contractor shall fabricate the custom mechanical parts per [AD1] and Exhibit A.

Note: It is acceptable to machine the Actuator housing rather than using a casting for prototype and/or production Actuators. The finished housing shall comply with drawings (10388219B and 10388220B) for left hand Actuators and (10331952K and 10331183J) for right hand Actuators.

- c) Contractor shall label parts per [AD6].
- d) Contractor shall inspect all incoming material, parts and fabricated parts per the Contractor's Inspection Plan.
- e) Contractor shall assemble the prototype Actuators per [AD2]. ITCC shall assist Contractor in the assembly and test of the first Actuator to be assembled and tested.

Note: Contractor shall pay attention to special handling needs of magnets. See Section 2.1 in [AD2].

- f) Contractor shall test the prototype Actuators per [AD3] and document all test results.
- g) Contractor shall provide a description of the proposed shipping approach and shipping container materials for approval by ITCC.
- h) Contractor shall pack and ship prototype Actuators to TMTPO at the location designated in the Contract for hardware deliverables.

- i) Contractor shall provide a detailed non-binding cost estimate for production of 773 and 1546 Actuators based on the experience gained by building the prototype Actuators. The cost shall be provided in INR. Contractor shall cost the purchase of ALL procured parts.

A draft of the production Actuator SOW [AD7] is provided for reference purposes only. AD7 is not final, and is subject to change at the discretion of ITCC. AD7 is to be used by Contractor as guidance for the development of the production Actuator cost estimate. The term “production Actuators” collectively refers to Actuators built as part of the pilot run and production run.

- Contractor shall provide a rough schedule for the build of the production Actuators
- The Contractor shall provide written feedback on any aspect of Actuator design, manufacturing, assembly, or test that if modified would decrease cost or ease manufacturing without compromising performance. If possible, an estimate of any potential cost savings is to be provided.
- Contractor shall assume that tasks for the production Actuators will fall into the following three phases: Planning Phase, Pilot Phase, and Production Phase. The first phase will be focused on planning and the completion of an Actuator Manufacturing Plan. The second phase will be the build and test of an initial quantity of Actuators, to validate the Actuator Manufacturing Plan and processes, and to make any adjustments and modifications prior to the build and test of the remaining production Actuators. Finally, the Production Phase is for the build and test of the remaining production Actuators, along with packing and shipping of the Actuators to TMT in California, USA.
- Table 1 in [AD7] shall be used for estimating the non-binding production Actuator cost for 773 LH, 773 RH and 1546 (equal no of LH & RH) Actuators respectively.

5.5 TABLE 1: COSTING TEMPLATE FOR PROTOTYPE ACTUATOR

All highlighted cells shall be completed. The template of this table is given as Annexure - A to this RFP.

Sl.No.	Item Description	Sub Items		Cost per Actuator for 5 to 9 nos of Actuators in INR	Sub Items		Cost per Actuator for 10 to 20 nos of Actuators in INR	Remarks
A	Total Cost for One (1) Actuator			0			0	<i>Per Actuator Cost here</i>
B	Non-Recurring costs (facility prep, jigs, etc.)							Jigs & fixtures, measurement equipment, excluding mould & casting of SAT Housing
		Mould of LH SAT Housing			Mould of LH SAT Housing			(if applicable)
		Casting of LH SAT Housing			Casting of LH SAT Housing			
		Mould of RH SAT Housing			Mould of RH SAT Housing			
		Casting of RH SAT Housing			Casting of RH SAT Housing			
		Mould of LH & RH SAT Housing together			Mould of LH & RH SAT Housing together			
		Casting of LH & RH SAT Housing together			Casting of LH & RH SAT Housing together			
C	Cost of off-the-shelf components							
D	Cost of custom fabricated components	Total			Total			
		Machining			Machining			
		SAT Housing (if applicable)			SAT Housing (if applicable)			
		Raw Material			Raw Material			
		Secondary Treatments			Secondary Treatments			
		Other(s)			Other(s)			<i>Add additional rows as needed</i>
E	Cost of Assembly and Test							
F	Cost of all additional manufacturing labour (Inspection, Quality Control, Reporting, etc.)	Total			Total			
		Inspection			Inspection			
		Quality Control			Quality Control			
		Reports			Reports			
		Stores function			Stores function			
		Other(s)			Other(s)			<i>Add additional rows as needed</i>
G	All Taxes and Duties							Approximate Taxes & Duties in India
H	Packing and shipping to Pasadena, California, USA	Packing			Packing			
		Shipping			Shipping			Freight, Customs, Local taxes in USA
I	Overhead and Profit	Total			Total			
		Overheads			Overheads			<i>Identify here %</i>
		Financing costs (if any)			Financing costs (if any)			
		Profit			Profit			<i>Identify here %</i>

5.6 QUALITY ASSURANCE

Contractor Quality Assurance activities shall comply with [AD4].

Contractor shall submit an Actuator Specific Quality Assurance Plan to ITCC for approval no later than one week before the Pre-build meeting. The Contractor's quality plan shall be in conformance with TMT's Quality Assurance Plan. Particular attention shall be paid by the Contractor to the approach for processing of non-conformances, and also the adequate preparation of a full Quality Assurance End-item Data Package.

The Contractor shall submit an Inspection Plan to ITCC for approval no later than one week prior before the Pre-Build meeting. The inspection plan shall call for 100% inspection of all features. The inspection plan shall include bubble drawings of all parts and indicate what type of tool or machine will be used for each measurement. ITCC reserves the right to provide bubble drawings of all or some of the parts. The inspection plan shall include where the inspections will take place.

5.6.1 TREATMENT OF NON-CONFORMANCES

ITCC shall be informed of any non-conformance of components manufactured, raw material procured, off the shelf items procured or any other matter which does not meet the specification (collectively referenced as "Non-conforming Components"). Non-conforming components shall be identified and segregated immediately upon detection. If non-conforming components can be reworked, re-made or purchased to comply with the drawing and/or specifications required under this Contract with no delay on the delivery date, then ITCC does not need to be notified.

If the non-conforming components are reworked or remade to comply with the drawing and/or specifications but the process will adversely affect the delivery date, then ITCC shall be notified within 48 hours of the Contractor's identification of the non-conformance.

Contractor shall use the TMT form "Request for Waiver or Deviation" [AD 5] to request a waiver of any kind. Contractor shall maintain sufficiently detailed non-conformance reports ("NCR") on all non-conforming components. Contractor shall attach pertinent NCRs to the applicable "Request for Waiver or Deviation" form(s) for that non-conforming component. Contractor shall email the completed Request for Waiver or Deviation form(s) to quality@tmt.org, with copies to pkmahesh@iiap.res.in, msirota@tmt.org, and agulati@tmt.org. Contractors may use their standard NCR forms.

A root cause analysis shall be performed for all non-conformances for which ITCC is notified. The root cause analysis shall be provided within 5 working days of the when the non-conformance is noticed.

5.6.2 INSPECTION

One hundred percent inspection of all features of all prototype Actuator components shall be performed. ITCC reserves the right to witness all inspections, in process and end item, and to utilize a third party inspection company to inspect and verify Contractor's fabricated Actuator components and inspection results in full or partial. ITCC reserves the right to include TMTPO staff in the above activities.

5.7 PROVISION OF END ITEM DATA PACKAGE

Contractor shall prepare and submit to ITCC an End Item Data Package (EIDP) that contains all critical data pertinent to each prototype Actuator. The EIDP shall comply, at a minimum, with the following quality assurance requirements:

- a) Formal acceptance document signed by Contractor's Quality Assurance Officer.
- b) Certificates of Compliance (for all purchased components)
- c) A set of released fabrication drawings and specifications for the delivered subsystem.
- d) Material and process certifications and reports.
- e) Material traceability data.
- f) Copies of all inspection and test reports.
- g) Assembly procedure cum log (including photographs at all stages) for each Actuator
- h) Assembly verification reports.
- i) Acceptance test procedure report including results and data.
- j) Requests for Waivers and associated NCRs and dispositions.
- k) A list of any non-conformances,
- l) Equipment calibration and certification requirements records.

5.8 REPORTS AND MEETINGS

5.8.1 REPORTS

Contractor shall submit a bi-weekly (every two weeks) written "progress report" by email to ITCC, describing all work carried out and the corresponding schedule status. The Contractor shall provide a process list detailing the status relative to schedule of each piece of procured material, fasteners, and machined parts. The progress report shall include all questions and areas of concern regarding the Work. All written communication by Contractor to ITCC shall have pkmahesh@iiap.res.in in distribution. The "progress report" shall be made available to ITCC two days prior to the "Bi-Weekly Progress Meetings". See Section 5.8.2 e).

5.8.2 MEETINGS

The Contractor shall participate in the following meetings. The meetings may be via telephone or video. ITCC reserves the right to meet at the Contractor's facility.

- a) A "Kick-off Meeting" will be held no later than seven (7) days after the Effective Date of the Contract. The meeting shall review the prototype Actuator drawings and assembly and test procedures, and answer any Contractor questions. This meeting may be in person at the Contractor's facility or via video or telecom at ITCC's discretion.

- b) A “Pre-Build meeting” will be held at date to be determined by the Parties. At the Pre-Build meeting, ITCC shall finalise decision on any changes to the drawings or component/material substitutions proposed by Contractor. The Contractor shall provide a list of all sub-contractors it intends to use for ITCC’s review. Sub-contractors may only perform Work if they receive prior written approval from ITCC. Contractor shall formally qualify all sub-contractors for the Work they will be assigned before submitting them for ITCC’s review. Contractor is responsible for all work provided by any Sub-contractor. Of particular note is the sub-contractor proposed by the Contractor for the SAT housing casting and the mould design. The Contractor’s proposed detailed schedule shall be submitted to ITCC for approval no later than one week prior to the “Pre-Build meeting”. The Contractor shall provide its Actuator Specific Quality Assurance Plan to ITCC for approval no later than 1 week prior to the Pre-build Meeting. The Contractor Inspection and Process Plan shall be provided to ITCC for approval no later than one week prior to the Pre-Build meeting.
- c) An “Assembly and Test Meeting” shall be held at Contractor premises in order to train Contractor staff on assembly and test of the first Actuator.
- d) A “Pre-ship Meeting” shall be held after the completion of assembly and test of the specified number of prototype Actuators. The Contractor shall deliver to ITCC the EIDP for all Actuators two weeks prior to the Pre-ship meeting. The Pre-ship meeting shall be used to discuss any questions related to the EIDP, as-built changes, and any lessons learned that might be relevant to the production Phase. Contractor shall deliver to ITCC the production Actuator cost estimate two weeks prior to the Pre-Ship meeting. The production Actuator cost estimate shall be reviewed in detail at this meeting. The Contractor shall ship the specified number of prototype Actuators to the TMTPO Laboratory in Monrovia, CA, subject to a successful conclusion to the Pre-ship meeting.
- e) Progress meetings shall be held bi-weekly (every two weeks) during the term of this Contract. The bi-weekly meetings shall review status, progress reports and address any outstanding concerns or issues regarding the Work. Contractor shall maintain an action item list with due dates and priorities. Progress meetings may be held via telecon, videocon or in person at the Contractor’s facility as determined by ITCC.
- f) ITCC reserves the right to convene any other meetings with the Contractor as required, to complete the build and test of the prototype Actuators in accordance with the Contract.
- g) ITCC reserves the right to invite TMT Project Office Staff to participate in any of the above meetings.

5.9 SCHEDULE

Meetings and deliverables shall be per the following Work schedule. All dates are from the Effective Date of the Contract (T_0). This schedule may be modified during contract negotiations or at the Pre-Build meeting.

Phase	Description	Completion Date, from T_0
1	Kick-Off Meeting	Week 1
2	Submission of Contractor's QA Plan	Week 4
3	Submission of Detailed Work Schedule	Week 4
4	Submission of Contractor's Actuator Specific Quality Assurance Plan	Week 4
5	Submission of Contractor's Inspection and Process Plan	Week 4
6	Pre-Build Meeting	Week 5
7	Bi-weekly Progress Reports	Two days prior to every bi-weekly meeting
8	Build and test complete	Week 18
9	Submission of EIDPs & As-built documents & production Actuator Cost Estimate	Week 19
10	Pre-Ship Meeting	Week 21
11	Shipment of prototype Actuators, Actuator test reports, corrected drawings and documentation	Week 22

5.10 DELIVERABLES

The Contractor shall deliver the following.

- a) A specified number of assembled and tested prototype Actuators.
- b) End Item Data Package for each prototype Actuator.
- c) As-built document for each prototype Actuator.
- d) Contractor Quality Assurance Plan specific for the prototype Actuator build (one week prior to the Pre-build meeting)
- e) Detailed Schedule (one week prior to the Pre-build Meeting)
- f) Contractor Inspection and Process Plan (one week prior to the Pre-build Meeting)
- g) Bi-weekly (every 2 weeks) progress reports
- h) The cost estimate for the build of the 1546 production Actuators and innovative suggestions for cost optimisation.

5.11 DELIVERY LOCATION

Hardware and Documentation Hardcopies: to

TMT Observatory Corporation,
137 West Walnut Avenue
Monrovia,
CA 91016
USA

Documentation Softcopies: by electronic delivery to pkmahesh@iiap.res.in, quality@tmt.org, msirota@tmt.org, and agulati@tmt.org.

5.12 EXHIBIT A: LIST OF ACTUATOR MANUFACTURING DRAWINGS PDF AND IGES FILES

No.	Title	PDF Dwg No.	IGES File No.
1	Lower Arm	10329947K	10329947K.IGS
2	Upper Arm	10329948K	10329948K.IGS
3	Connecting Link	10329949L	10329949L.IGS
4	Lower Connect Block	10329950K	10329950K.IGS
5	Vert Link Connect Block	10329951L	10329951L.IGS
6	VC Mounting Plate	10329952H	10329952H.IGS
7	Clamp Block	10329953H	10329953H.IGS
8	Tracking Screw	10329954L	10329954L.IGS
9	Delrin Guide	10329955M	10329955M.IGS
10	Connecting Link Inner	10329956L	10329956L.IGS
11	Steel Side Bar	10329958J	10329958J.IGS
12	Upper Connect Block	10329963K	10329963K.IGS
13	Copper Plate	10329964J	10329964J.IGS
14	Spring Block	10329965H	10329965H.IGS
15	Actuator Clamp	10329966J	10329966J.IGS
16	Actuator End Block	10329967J	10329967J.IGS
17	Steel End Bar	10329968J	10329968J.IGS
18	Offload Flexure	10329969K	none
19	Connecting Rod	10329970H	10329970H.IGS
20	Offload Arm	10329971K	10329971K.IGS
21	Flexure Stiffner	10330589K	10330589K.IGS
22	Y Connect Clevis	10330590H	10330590H.IGS
23	Encoder Mounting Bracket RH	10330591J	10330591J.IGS
24	Encoder Output Brkt RH	10330592J	10330592J.IGS
25	SAT to SSA Adapater	10330594K	10330594K.IGS
26	SAT Housing RH	10331183J	10331183J.IGS
27	Flexure Rod SSA Connect	10331948J	10331948J.IGS
28	Offload Pivot Pin	10331949J	10331949J.IGS
29	SAT Housing Casting RH	10331952K	10331952K CASTING.IGS
30	Flexure Clamp	10331953J	10331953J.IGS
31	Magnet Adapter	10331956J	10331956J.IGS
32	SAT Housing Casting LH	10388219B	10388219B CASTING LH.IGS
33	SAT Housing LH	10388220B	10388220B.IGS
34	Encoder Mounting Bracket LH	10388221A	10388221A.IGS
35	Encoder Output Brkt LH	10388222B	10388222B.IGS

5.13 EXHIBIT B: LIST OF PROCURED PARTS SUPPLIED BY ITCC FOR PROTOTYPING PHASE

Procured mechanical parts		
TMT201	4	Rulon-J flanged bushing: 5/16" ID, 3/8" OD x 1/2" [McMaster-Carr 6377K106 or equivalent Rulon-J bushing] (note 1)
TMT202	2	0.75" flex pivot, C-Flex Bearing Co. part # ID-20
TMT203	2	1" flex pivot C-Flex Bearing Co. part # JD-20
TMT204	2	0.5" flex pivot C-Flex Bearing Co. part # GD-20
TMT210	2	Lee Spring Co. HEFTY die spring part # LHL 1250B 04 (note 5)
TMT220	1	Various fasteners (see separate fastener list) These are provided by prototype contractor
TMT230	2	Magnets for damper: 2" x 2" x 1/2" N52 NdFeB magnet with standard Ni-Cu-Ni coating [CMS Magnetics NB026-52NM or similar N52 magnet] (note 2)
TMT241	2	Plastic flanged bushing: 1/4" ID, 5/16" OD x 1/4" [McMaster-Carr 6627K13 (PEEK) or IGUS JFI-0405-04 or equivalent plastic bushing]
TMT242	2	Retaining clip 5/16" E-style stainless steel [McMaster-Carr 98408A132 or equivalent]
TMT243	2	Dowel pin 5/16" x 1.5", 416 stainless steel RC 36-42 per MS 16555 [McMaster-Carr 98380A587 or equivalent]
TMT244	approx 20	UHMW polyethylene (UHMW-PE) washers for 5/16" shaft, 0.32" ID, 0.57" OD, 0.02-0.04" thick [McMaster-Carr 95649A236 or equivalent]
TMT245	1	Clamp-on Al or SS knob for $\phi 5$ mm snubber motor (TMT330) back shaft, procured or custom. For prototypes, could an Al coupling hub from an Oldam coupler (e.g., McMaster-Carr 9889T1 for 5mm), an inexpensive Al beam coupling, or something similar.
TMT246	approx 15"	Adhesive-backed Teflon PTFE tape 0.0115" thick, 1/4" width X 15 ft roll. McMaster-Carr 76475A51 or equivalent.
TMT247	1	Flex coupling: Helical WAC25-6-5. For prototypes, can use Helical WAC25-6-6 available from Stock Drive Products (sdp-si.com) as S50HAWM25H0606 with 6 to 5 mm bore reducer A 7A30M060509 to connect to motor.
TMT248	2	Century Spring part# B-24 0.453" OD x 0.271" ID x 0.340" free length. For production, a slightly stiffer custom spring would be used.
Procured active parts		
TMT301	1	UltraMotion Digit linear actuator C347229 (note 6)
TMT310	1	MicroE Systems MII linear encoder, MII5830-AB-16384-1-1-0 (note 7)
TMT311	1	MicroE Systems MII scale MIIL18 (note 3)
TMT312	1, total	MicroE Systems ATMII5000-S-US SmartPrecision Alignment Tool (note 4)
TMT320	1	Voice-coil actuator, H2W Technologies, NCC15-24-050-1R
TMT330	1	Stepper motor NEMA-15 40 oz-in, double-shaft [Anaheim Automation 15Y202S-LW4 (40oz-in, 0.7A, 12 Ω) or similar]
TMT340	1	Not required for prototype: limit switches
TMT341	2	Not required for prototype: magnets for snubber position sensor: 1/4"sq x 1/4" N40 or N42 NdFeB magnets with standard Ni-Cu-Ni coating; a small 416 SS strip is required for mounting the magnets
TMT342	1	Not required for prototype: Hall effect sensor Allegro: A1326-LUA-T 2.5 mV/G, SIP package
TMT343	2	Not required for prototype: magnets for gravity preload $\phi 1$ " x 1/4" or 3/8" N40 or N42 NdFeB magnets with standard Ni-Cu-Ni coating.
Notes		
Note 1		For production quantities, it will likely be less expensive to fabricate the bushings from Rulon J stock, or do a volume purchase from a plastics house like TriStar.
Note 2		If N52 is not available, contact TMT about substituting N50 (provides 6% lower damping)
Note 3		While only one scale is needed per actuator, the scales are inexpensive and some spares should be purchased in case of damage during installation. Production may use a custom glass scale.
Note 4		This is a electronic interface for aligning the encoders, either standalone, or attached to a laptop using free software from MicroE (as needed for testing). Only one of these is needed for all of the prototype actuators.
Note 5		Production units may need to be semi custom for coating or material for long-term corrosion protection.
Note 6		This uses an 18:1 gearmotor (PKP243D15B-SG18-L [1.5A, 0.58 Ω , double-shaft]). The production motor will be single-shaft, and possibly with different windings.
Note 7		Production will use a 1900 series analog-output encoder.
x		

6. METHODOLOGY OF SUBMISSION OF BIDS

Sealed Bids in two part bid system, enclosing documents listed below and any other documents as appropriate is hereby invited:

- a) Technical Bid with commercial terms
- b) Price Bid
 - 1) Profile of the company.
 - 2) Manufacturing plants and equipment of the company.
 - 3) Audited balance sheets for the last three years.
 - 4) Solvency certificate (not older than 12 months) (for the quoted amount; this certificate may be provided along with the price bid) issued by scheduled/nationalized bank with which the bidder holds the current account.
 - 5) Copy of Registration, LST/CST/WCT No., PAN No. and TIN No. allotted by concerned authorities.
 - 6) Appreciation/Reward letters from clients.
 - 7) Confidentiality agreement.
 - 8) Any other information relevant to the bid.

The envelopes must bear the following: "Manufacture of prototype Actuators for the Thirty Meter Telescope Project; name and address of the vendor and it shall be addressed to:

The Director

Indian Institute of Astrophysics
Koramangala, Bengaluru-560 034

6.1 SUBMISSION OF TECHNICAL AND PRICE BIDS – GENERAL TERMS

6.1.1 The Bidder shall prepare original and a copy of the Bid, clearly marking each as "Original Bid" and "Copy of Bid," as appropriate. In the event of any discrepancy between them, the Original shall govern.

6.1.2 Either the Original and Copies of the Bid shall be signed by the Bidder or a person or persons duly authorized by the Bidder. The latter's authorization shall be indicated by written Power of Attorney accompanying the Bid.

6.1.3 The bid must be submitted in an organized and structured manner. No brochures/leaflets etc. should be submitted in loose form. Please indicate page nos. on your quotations. For e.g., if the quotation is containing 25 pages, please indicate as 1/25, 2/25, 3/25,.... 25/25.

6.1.4 The contents must be clearly typed without any cancellation/corrections or overwriting. Each page of the bid and cutting/corrections (if any) shall be duly signed and stamped by the bidder. Failure to comply with this requirement may result in the bid being rejected.

6.1.5 All pages of the Bid (except for un-amended printed literature) shall be initialed by the person or persons signing the Bid. The Bidder's name stated on the proposal shall be the exact legal name of the firm.

6.1.6 The Technical and Price Bids shall be sealed in separate envelopes. The envelopes shall bear the following: “Manufacture of prototype Actuators for the Thirty Meter Telescope Project”, and “Technical Bid” or “Price Bid” as appropriate.

6.1.7 Both the envelopes shall bear the name and address of the vendor.

6.1.8 The two sealed envelopes shall be enclosed in a third sealed envelope. The envelopes shall bear the following: “Manufacture of prototype Actuators for the Thirty Meter Telescope Project: Technical and Price Bids”, bear the name and address of the vendor, and shall be addressed to:

The Director

Indian Institute of Astrophysics
Koramangala, Bengaluru-560 034

6.1.9 If the envelopes are not sealed and marked as required, IIA/ITCC will not take any responsibility for the bid’s misplacement or premature opening, whatsoever the reason may be.

6.1.10 The bidder has the option of sending the bid by registered post or submitting the bid in person so as to reach IIA/ITCC by the date and time indicated. IIA/ITCC will not be responsible for late, delayed bids and loss of bids in transit, whatsoever the reason may be.

6.1.11 IIA/ITCC reserves the right to accept/reject any or all bids without assigning any reasons.

6.1.12 Any other condition or guideline for submission of the bids shall be notified by IIA/ITCC, if it finds necessary.

6.1.13 IIA/ITCC may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Documents, in which case all rights and obligations of IIA/ITCC and Bidder previously subject to the deadline will thereafter be subject to the deadline as extended.

6.1.14 At any time prior to the deadline for submission of Bids, IIA/ITCC may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, notify changes in the bidding documents through an amendment.

6.1.15 In order to allow reasonable time for the prospective bidders for taking the amendment into account in preparation of their bids, IIA/ITCC may, at its discretion, extend the deadline for the submission of the bids.

6.1.16 The amendments, if any, shall be notified in writing at IIA/ITCC website and the amendments shall be binding on all the bidders. Hence the bidders shall view the notification in complete before submitting their bids.

6.1.17 The company responding to announcement shall be deemed to have read and understood the documents in complete. Where counter terms and conditions have been offered by the company, the same shall not be deemed to have been accepted by IIA/ITCC, unless a specific written acceptance thereof is obtained.

6.1.18 Any effort by a bidder to influence IIA/ITCC in the bid Evaluation, bid Comparison or contract award decisions may result in the rejection of their bid.

6.1.19 Any clarifications pertaining to this document may be obtained from IIA/ITCC by the bidders by writing at the following address at least fifteen days prior to the due date for submission of bids.

The Director

Indian Institute of Astrophysics
Koramangala, Bengaluru-560 034

Contact for Technical Queries:

P.K.Mahesh (pkmahesh@iiap.res.in)

Contact for Commercial/Price Bids:

K.P.Vishnu Vardhan (vishnu.vardhan@iiap.res.in)

C.H.Basavaraju (basavaraju@iiap.res.in)

6.2 TECHNICAL BID - DETAILS

6.2.1 A compliance sheet clearly indicating any deviation with reference to the terms and specifications shall be included. Limitations and assumptions, if any, should be clearly mentioned. Scope description may explicitly state anything which is not covered.

6.2.2 The Technical bid shall include but not limited to the following items:

- a) The bidder should be registered in India.
- b) Raw material sourceability and incoming inspection.
- c) In-house precision machining capability and various types of machines, capacity and quantity held including Non-conventional machines.
- d) Details of Inspection Laboratory, Instruments, High end measuring systems like Profile Projector, 3D CMM, Surface roughness tester, Microhite, non-contact measuring instruments, etc.,
- e) Any other information / Facilities related to Laser hole drilling/machining, Additive manufacturing, Plasma/ water jet cutting, Secondary coating/plating, Casting process, details of facility available for any sub-vendors associated etc., special operations if any.
- f) Experience in ASME Y 14.5 - 2009.
- g) Sub-vendor qualification program.
- h) Strategy to be followed for the execution of the project including tools and technologies to be used.
- i) Project execution and management details, including details of the project team, escalation paths etc.
- j) Prior experience in executing similar technically challenging projects.
- k) List of Customers within the State/Country/abroad.
- l) Details of the resources, infrastructure or data expected to be provided by IIA/ITCC to the successful bidder for undertaking the project.
- m) Risk identification and mitigation plans.

- n) Quality audit, control and assurance plans.
- o) On-site inspection capability.
- p) Detail of Environmental, health and Safety standard followed.
- q) General workmanship standards for fabricated components
- r) Change control process.
- s) Detailed time schedule for the project.
- t) Commercial terms and conditions.
- u) Responsiveness & Communication: facility of Video Conferencing.
- v) Acceptance criteria and test plans in the factory and on-site.
- w) A copy of the Price Bid without indicating the quoted Price
- x) Earnest money deposit for Rs. 2,00,000.00/- (Rupees two lakhs only) by way of Demand Draft drawn on a Nationalized Bank only in favour of Director, IIA.

6.3 PRICE BID – DETAILS

The Price bids shall include the following:

- a) An item wise break-up of the cost (as per the format given in Table 1, page 11) in Indian Rupees, clearly indicating any free-issue material, imports etc.
- b) Contractors shall provide the cost per actuator for (i) 5 to 9 nos; and (ii) 10 to 20 nos of actuators.
- c) Applicable taxes, duties or other statutory payments.
- d) Any other cost such as for tooling, packaging, etc.,
- e) Total cost along with proposed payment stages, schedule and percentage to be paid at each stage.

The offer should be complete to indicate that all products and services asked for are quoted.

Price bids shall be valid for a period of 90 days from the date of opening of bids. IIA/ITCC may ask for the bidder's consent to extend the period of validity. Such request and the response shall be made in writing only. A bidder agreeing to the request of IIA/ITCC for extension of the bid will not be permitted to modify the bid.

6.4 ELIGIBILITY CRITERIA AND QUALIFICATION PROCESS

The technical bids will be evaluated by an Expert Committee. The criteria for qualifying for the tender evaluation stage shall include the following:

6.4.1 Technical criteria:

- a) Core technical competencies.
- b) Quality Assurance, including Quality Control.
- c) Project management capabilities, including scheduling, planning and availability of suitable staff.
- d) Prior experience in executing similar technically challenging projects.

6.4.2 Price Criteria:

- a) Price of prototype Actuator phase.

6.5 EVALUATION OF BIDS

Suitable offer will be determined through a weighted evaluation of Technical and Price bids. The procedure is as following:-

6.5.1 Scoring technical criteria: The non-price i.e. technical criteria a - d will be scored from 0 (poor) to 10 (excellent). The technical criteria a - d will be given weightages (w) 30%, 35%, 25%, and 10 % respectively. The total technical score for a 'Technical bid' will be:

- a) Total technical score = $\sum s_i w_i$
- b) Whereas "s" are scores and "w" weights for criteria, i = a to d respectively

6.5.2 Normalized technical score: The technical scores will be normalized to 10 as following:

$$\text{Normalized technical score} = 10 \times \frac{\text{Total technical score for a bid}}{\text{Highest technical score}}$$

- a) Obviously, the 'Technical bid' with the highest technical score will have a "normalized technical score" of 10
- b) The technical bid with a normalized technical score of less than 7.0 will not be considered and the price bid will not be opened / considered.

6.5.3 Normalized price score: The normalized price score for a 'Price bid' will be determined as following:

$$\text{Normalized price score} = 10 \times \frac{\text{Lowest quoted cost}}{\text{Quoted cost by contractor per Actuator}}$$

- a) Where denominator is the total cost of the Actuator as estimated by a contractor. The 'Price bid' with the lowest quoted cost will have a "normalized price score" of 10.
- b) Weighted normalized price and technical scores: These are obtained by multiplying "normalized price score" and "normalized technical score" by 20% and 80% respectively.
- c) Total score: The total score for a bid is simply the sum of weighted normalized price and technical scores.

The bids with high "Total score" will be identified as most suitable.

However, ITCC reserves the right to decrease or increase the number of prototype Actuators to be awarded to each contractor based on combined index of technical competence and price.

6.5.4 Bidders can email to the given contacts to obtain clarifications regarding the technical and price bid terms and conditions. ITCC shall organize a pre-bid meeting approximately two weeks prior to the last date of submission of the bids.

- a) Technical Bid shall be opened on the date specified by IIA/ITCC. Bidders or their authorized agents may be present at their own interest when the Bids are being opened.
- b) The Technical Bids shall be evaluated by an Expert Committee and the shortlisted Bidders may have to make presentations on their detailed proposals to the Committee. The points to be covered for presentation are as per the details indicated at clause 6.2.2.
- c) To assist in the evaluation of bids, IIA/ITCC may at its discretion ask the bidder for a clarification of its bid. IIA/ITCC may call for meetings with bidders to seek clarification at appropriate times in its premises in Bengaluru. The bidders shall attend the meeting at their own cost. The request for clarification and the response shall be in writing.
- d) Expert committee shall visit and evaluate Bidder facilities where they have planned to execute the work.
- e) Following the evaluation of technical bids, the price bids of qualified bidders shall be opened to choose the bidder to execute the work.
- f) The evaluation committee may hold techno-commercial discussion with short listed and select the vendor or vendors or consortium to manufacture and deliver the product as per drawings, technical specifications and delivery schedule given in the tender document.

7. TERMS AND CONDITIONS PART 1

Vendor must procure the required raw materials, manufacture, assemble, test and deliver Actuators as per the design and schedule provided by IIA/ITCC and must meet the specifications and quantities set forth in section 5 of this RFP. The successful Vendor who is awarded the contract shall be subjected to the following terms and conditions:-

7.1 SCHEDULE

A schedule for the work with defined milestones must be provided by Vendor.

7.2 TRANSPORTATION AND INSURANCE

The cost towards shipment, transit insurance, taxes, will be borne by Vendor. However, custom duties, if any will be paid or reimbursed at actual against submission of proof of dispatch by Vendor to the location stipulated by ITCC. All documentation required for customs clearance will be provided by ITCC.

Contractor is responsible for its delivery at TMTPO Laboratory in Monrovia, CA, including transportation charges and transit insurance. In case of any change in the delivery location, the same will be decided and intimated later.

7.3 SUBCONTRACTS

The Vendor is an independent contractor. The Vendor shall provide as an independent contractor and not agent of IIA/ITCC, all necessary personnel, materials, equipment and facilities to perform the Work.

The Vendor shall not assign its rights or obligations to a third party without the prior written approval of IIA/ITCC.

Notwithstanding any subcontract under this Agreement, whether approved by IIA/ITCC or not, the Vendor shall remain fully liable and responsible for the satisfactory and timely completion of the Work.

7.4 PAYMENT

IIA/ITCC shall pay the Vendor the price in accordance with a milestone schedule.

Upon completion of each milestone, the Vendor shall submit to IIA/ITCC an Invoice for the amount corresponding to that milestone in Schedule.

The Vendor shall submit reasonable documentary evidence, including but not limited to photographs and illustrations, as verification of completion of each Milestone. IIA/ITCC may at its own discretion verify and substantiate that the milestone has indeed been performed or completed as invoiced by the Vendor. Such verification may require Vendor to submit to IIA/ITCC additional documentation with regard to quality control normally expected during process of manufacture, and/or inspection by IIA/ITCC representatives. Any request for substantiation under this clause shall be made by IIA/ITCC within fourteen (14) days of IIA/ITCC's receipt of the corresponding Invoice.

7.5 FUNCTIONAL TESTING

Relevant electronic equipment to conduct the functional test for the Actuator will be provided by ITCC. The test will be conducted by ITCC. Vendor has to provide required human resources and infrastructure.

7.6 ACCEPTANCE CRITERIA

ITCC/TMT reserves the right to witness all inspections, in process and end item, and to utilize a third party inspection company to verify Contractors fabricated Actuator components and inspection results in full or partial, and only qualified components shall be considered for acceptance.

7.7 PACKAGING

The packing of the product for shipment shall be appropriate depending upon the nature of transportation and handling hazards. The stores shall be packed securely to avoid any damage and pilferage to the consignment in transit, loading, unloading and storage. The packing shall be airworthy and if using wood, it shall be chemically treated and seasoned, so that the packing case shall be free from fungus and other vermin. Packages and packing filler should be made of moisture-resistant material, such as silica gel inside the container at appropriate locations and quantity. The packing case shall be provided with ISPM-15 Standard certification issued from government agencies. Sealing of all joints shall be done using PU sealants (use of silicones are not allowed).

The package shall contain a packing note quoting contract number and date and copy of shipping release. The package shall be palletized to accommodate forklifts, marked with name and address of the contractor, lifting points and special handling instructions, such as "HANDLE WITH CARE", "THIS SIDE UP", "FRAGILE", etc.

The contractor shall provide a shipping plan and this has to be approved by ITCC prior to start of shipment and contain some, if not, all of the criteria listed below.

- a) Summarize loads and container type planned.
- b) Summarize the International Commercial Terms that applies to each shipment.
- c) Describe the planned insurance coverage during transport and storage.
- d) Describe the planned shipping route including point of embarkation, any intermediate transfer locations, and debarkation points.
- e) Describe plans for pre and post shipping inspections.
- f) Summarize plans for avoiding transmission of invasive species.
- g) Inland transport and storage conditions.
- h) Mitigations to adhere to predetermined environmental conditions.

7.8 ACCESS TO WORK

Work in progress and data and documentation related to the work, including design and test data necessary to understand the ability of the work to meet the specifications are subject to examination, evaluation, and inspection by IIA/ITCC, on behalf of TMT-India, at reasonable times and with reasonable notice to the Vendor.

The Vendor shall provide IIA/ITCC access to such documentation and to those of its premises where work on or in connection with the subject of this contract is being performed during normal business hours and subject to prior arrangement.

IIA/ITCC may depute Engineers/Scientists of its choice from time to time who will be allowed by the Vendor to witness the Work in respect of the disciplines in which they are specialized.

7.9 VESTING OF TITLE AND ASSUMPTION OF RISK

7.9.1 On each item to be delivered by the Vendor, including an item of work in progress, in respect of which payments have been made, ITCC shall have a security interest in such items which shall be deemed to be released only at the time when the applicable deliverable item is finally accepted by ITCC and received undamaged at the TMTPO Laboratory in Monrovia, CA. In case of any change in the delivery location, the same will be decided and intimated later.

7.9.2 Risk for loss or damage to deliverable Items provided by the Vendor shall rest with the Vendor, until final acceptance by IIA/ITCC and TMTPO Laboratory in Monrovia, CA. In case of any change in the delivery location, the same will be decided and intimated later.

7.9.3 Title to all deliverable Items provided by the Vendor shall pass from the Vendor to IIA/ITCC upon final acceptance or the final payment, whichever last occurs.

7.9.4 ITCC shall not accept any liability for the Vendor and its subcontractors, their subsidiaries and/or their officers, employees or agents, servants, and assignees, or any of them or for their property. The Vendor shall indemnify and keep harmless IIA/ITCC, its officers, employees consultants, servants, agents and assignees, or any of them, against any loss or liability, costs or claims, action or proceedings which they or any of them may incur by reasons of damage to property or injury, including death, caused to the employees of the Vendor, its subsidiaries and/or their officers, employees or agents, servants and assignees, or any of them in connection with the performance of Work under this Agreement, and caused by an act of commission or omission by the Vendor, its subsidiaries and/or their officers, employees or agents, servants and assignees, or all or any of them.

7.10 WARRANTY

The Vendor warrants that all Deliverable Items shall be free and clear of all liens and encumbrances pertaining to title at the time of acceptance by IIA/ITCC, India. The Vendor's liability and IIA/ITCC's sole remedy under this warranty shall be limited to the Vendor procuring the removal of any such lien or encumbrance or the replacement of the goods and parts thereof that has been identified as defective of title. The Vendor will provide a one year warranty from date of acceptance of the deliverables by IIA/ITCC.

Also the Vendor warrants that:

- a) All deliverable Items that are procured or furnished by the Vendor or its subcontractors or suppliers shall be new and shall conform in grade and quality to all the requirements of the contract; where the grade or quality is not specifically defined therein, deliverable items shall be of a grade or quality suitable for their intended use;
- b) All workmanship employed in the manufacture of deliverable Items shall be of good quality, free from faults and defects, and shall conform to the relevant specifications applicable to the said manufacture; and

- c) All deliverable Items shall be free from defects arising out of the use of defective equipment or materials that would result in a total or partial failure of any deliverable item or which would render a deliverable item unsafe for its intended use.

7.11 PERFORMANCE GUARANTEE

IIA/ITCC shall withhold 5% part of each Milestone Payment towards performance guarantee and pay the total sum on completion of 12 months since delivery, subject to the deliverable items meeting the final drawing requirements.

8. TERMS AND CONDITIONS (PART 2)

The successful Vendor who is awarded the contract shall be subjected to the Terms and Conditions that include, but not limited to the following. A detailed Contract Agreement will be drawn and signed by both the parties before the award of the contract.

8.1 INTELLECTUAL PROPERTY RIGHTS

All Intellectual Property Rights existing in a party prior to the Contract (“Existing Intellectual Property Rights”) shall remain with that party. Except to the extent necessary to complete the Work or expressly stated otherwise, neither party grants any rights in its Existing Intellectual Property Rights to the other party.

Intellectual Property Rights arising directly from the Work (“Work Intellectual Property Rights”) shall, upon completion of the Work, vest in IIA/ITCC and TMT project.

8.2 CONFIDENTIAL INFORMATION

The Receiving Party shall protect the confidential information and keep it secure, and shall not at any time (except with the prior written consent of the disclosing Party):

- a) Directly or indirectly disclose or distribute the confidential information to a representative, employee, agent or advisor of the receiving party except where such disclosure is necessary for the purpose of the Work.
- b) Use or copy the confidential information except for the purpose of the work.

Where the receiving party discloses confidential information to a representative, employee, agent or advisor, the receiving party shall ensure that such person is aware of the confidential nature of that confidential information and is bound by suitable obligations of confidentiality to ensure that that person protects and keeps secure that confidential information and does not use the confidential information for any reason other than the purpose of the Work.

The receiving party shall, on demand by the disclosing party, or where the purpose of this agreement has been served, promptly return to the disclosing party all confidential information (including copies or reproductions of the same) which is reasonably capable of being returned which is in the possession or control of the receiving party.

This agreement is not intended to restrict the use or disclosure of confidential information by the receiving party to the extent that it is required to be disclosed by law provided that the receiving party has taken such steps as are available under law (but not the institution of legal action) to protect such confidential information and notifies the disclosing party hereunder of its obligation to make such disclosure prior to the time such disclosure is made.

The provisions of this Clause 8.2 are subject to the provisions of Clause 8.1.

8.3 SETTLEMENT OF DISPUTES

8.3.1 All disputes arising in connection with the interpretation or implementation of the contract shall be amicably settled by IIA/ITCC and the Vendor, by direct discussion.

8.3.2 If IIA/ITCC and the Vendor are unable to resolve a dispute within 30 working days of the dispute being referred to them in accordance with Clause 8.3.1, the parties may agree to refer the dispute to mediation.

8.3.3 ITCC and the Vendor appoint a mediation committee comprising of two nominees by IIA/ITCC and two nominees by the Vendor. IIA/ITCC and the Vendor will seek the opinion of this mediation committee to amicably settle the disputes.

8.3.4 In the event of a dispute or difference which cannot be resolved by mediation, the same shall be referred to an Arbitration Tribunal consisting of three members. Either party shall give notice to the other regarding its decision to refer the matter to arbitration. Within 30 days of such notice, one Arbitrator shall be nominated by each party and the third Arbitrator shall be nominated by agreement between the parties to this agreement. The venue of the arbitration will be Bengaluru, India. Subject to the aforesaid, the Indian Arbitration and Conciliation Act, 1996 and the rules there under and any statutory modification thereof for the time being in force shall be deemed to apply to the Arbitration proceedings.

8.4 FORCE MAJEURE

8.4.1 Neither party shall be held responsible for any losses, if the fulfilment of any terms and conditions of this contract are delayed or prevented by acts of lawful Government, revolutions and other disorders, wars (declared or undeclared), acts of enemies, strikes, fires, floods, acts of God and, without limiting the foregoing, any other cause not within the control of the party whose performance is interfered with and which, by the exercise of reasonable diligence, they are unable to prevent.

8.4.2 Each party will promptly notify the other in writing when a condition of Force Majeure described in Clause 8.4.1 arises. Neither party will be liable for any failure to perform its obligations hereunder if prevented from doing so by reason of Force Majeure, provided that it will have used all reasonable endeavours to perform its obligations notwithstanding such situation or event.

8.4.3 As soon as practicable after the lodging of such notice the Vendor and IIA/ITCC shall jointly determine whether the situation constitutes Force Majeure and if so the appropriate measures to meet the situation. Either party shall not be liable for any penalty or damage resulting in delays to perform its obligations as a consequence of Force Majeure.

8.5 TERMINATION

8.5.1 Repeated failure to maintain schedule and/or inadequate/wrong communication to ITCC/IIA and/or repeated technical errors will lead to termination of the work.

8.5.2 IIA/ITCC may terminate the Work with sixty (60) days prior written notice any time without assigning any reason or cause by notifying the Vendor in writing. In the event that the Work is so terminated by IIA/ITCC then ITCC shall pay the Vendor total amount of the costs and liabilities incurred by the Vendor up to the date of termination.

8.5.3 IIA/ITCC may at any time terminate the contract by giving written notice with immediate effect in any of the following cases.

- a) If the Vendor is adjudged insolvent or if its financial position is such that within the framework of its national law, legal action leading towards bankruptcy is taken against it by its creditors or its Government, or
- b) If it is determined through appropriate proceedings that the Vendor has resorted to fraudulent or corrupt practices in connection with its securing or implementation of this Agreement.

8.6 PATENTS, COPYRIGHTS AND OTHER PROPRIETARY RIGHTS

The Vendor warrants that any deliverable Item provided to IIA/ITCC shall to the best of its knowledge and belief be free of any rightful claim of any third party for infringement of patent, copyright, or other proprietary right.

8.7 LIQUIDATED DAMAGES

If the party fails to deliver, as per Delivery schedule, within the stipulated time specified or any extension thereof, there will no liability for the first 30 (thirty) days of delay. Thereafter, for each completed calendar month of such failure, the ITCC will be entitled to claim from the party as liquidated damages, a sum of one-half of one per cent (0.5%) per week of the contract price relating to that portion of the delay up to a maximum value of ten per cent (10%) of the contract price of the portion of delay. The work or part thereof will be deemed to have been delivered / completed only when all its component parts are accepted by ITCC.

The detailed statement of liquidated damages will be notified to the party who will be entitled to submit the reasons against levy of liquidated damages to ITCC within 30 (thirty) days from the date of notification of the statement. Beyond this thirty (30) days period, the party is deemed to have accepted the liquidated damages claimed to have to be paid. This clause is not applicable when the delay is due to a failure on the part of the ITCC.

8.8 GOVERNING LAW

This Agreement shall be governed by, and construed in accordance with, the law for the time being in force in India.