



**Expression of Interest
for
Empanelment of Agencies for Supply, Installation,
Testing, Commissioning and Maintenance (SITCaM)
of KFON Access Fibre**

Reference No: KFON/EOI/25-26/AF/1225

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**Published by
Kerala Fibre Optic Network Limited
2nd Floor, B Block, Jeevan Prakash, LIC Divisional Office, Pattom PO,
Thiruvananthapuram-695004**

DISCLAIMER

The information contained in this EOI or subsequently provided to Applicants, whether verbally or in documentary or any other form by or on behalf of the Authority or any of its employees or advisers, is provided to Applicants on the terms and conditions set out in this document and such other terms and conditions subject to which such information is provided.

This EOI is issued by The Managing Director, Kerala Fibre Optic Network Ltd. This EOI is not an agreement and is neither an offer nor an invitation by the Authority to the prospective Applicants or any other person. The purpose of this EOI is to provide interested parties with information that may be useful to them in the formulation of their Bid. This EOI includes statements, which reflect various assumptions and assessments arrived by the Authority in relation to identifying a **Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance (SITCAM) of KFON Access Fibre**. Such assumptions, assessments and statements do not purport to contain all the information that each Applicant may require. This EOI may not be appropriate for all persons, and it is not possible for the Authority, its employees or advisers to consider the objectives, technical expertise and particular needs of each party who reads or uses this EOI. The assumptions, assessments, statements and information contained in this document, may not be complete, accurate, adequate or correct. Each Applicant should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments and information contained in this document and obtain independent advice from appropriate sources.

Information provided in this EOI to the Applicants is on a wide range of matters, some of which depends upon interpretation of law. The information given is not an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Authority accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on the law expressed herein.

The Authority, its employees and advisers make no representation or warranty and shall have no liability to any person including any Applicant under any law, statute, and rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this EOI or otherwise, including the accuracy, adequacy, correctness, reliability or completeness of the document and any assessment, assumption, statement or information contained therein or deemed to form part of this document or arising in any way in this selection process.

The Authority also accepts no liability of any nature whether resulting from negligence or otherwise however caused arising from reliance of any Applicant upon the statements contained in this document. The Authority may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumption contained in this document. The issue of this EOI does not imply that the Authority is bound to select an Applicant or Applicants, as the case may be, and the Authority reserves the right to reject all or any of the Proposals without assigning any reason whatsoever.

The Applicant shall bear all costs associated with or relating to the preparation and submission of its Proposal including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by the Authority, or any other costs incurred in connection with or relating to its

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Proposal. All such costs and expenses will remain with the Applicant and the Authority shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by an Applicant in preparation or submission of the Bid, regardless of the conduct or outcome of the selection process.

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Glossary of Terms

Abbreviation	Description
ASN	Autonomous System Number
BG	Bank Guarantee
BoQ	Bill of Quantity
CoS	Class of Service
DC	Data Centre
DD	Demand Draft
EMD	Earnest Money Deposit
EoI	Expression of Interest
FTB	Fiber Termination Box
FTTH	Fiber-to-the-Home
GoI	Government of India
GoK	Government of Kerala
IXP	Internet Exchange Point
JC	Joint Closure
KFON	Kerala Fibre Optic Network
KIIFB	Kerala Infrastructure Investment Fund Board
LoI	Letter of Intent
MoU	Memorandum of Understanding
NDA	Non-Disclosure Agreement
NIT	Notice Inviting Tender
NOC	Network Operation Center
ODN	Optical Distribution Network
OEM	Original Equipment Manufacturer
OFC	Optical Fibre Cable
P2P	Point to Point
PG	Performance Guarantee
PoP	Point of Presence
QoS	Quality of Service
RFP	Request for Proposal
RoW	Right of Way
RTD	Round Trip Delay
SI	System Integrator
SLA	Service Level Agreement
TFD	Treasury Fixed Deposit
TSP	Telecom Service Provider
WO	Work Order

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Definitions

#	Term	Definition
1.	Agreement/ Contract	The Agreement entered between Authority and the Successful Bidder including all attachments, schedules, annexure thereto and all documents incorporated by reference therein and all amendments, corrigendum /corrigenda, changes thereto
2.	Authority	Kerala Fibre Optic Network Ltd, represented by its Managing Director
3.	Bidder	The use of the term “Bidder” in the EOI means the Agency(s) participating in this EOI.
4.	Bid/Proposal	Offer by the Bidder to fulfil the requirement of the Client/Authority under this EOI.
5.	Breach	A breach by Bidder of any of its obligations under this Agreement
6.	Confidential Information	All information including Authority’s data (whether in written, oral, electronic or other format) which relates to the technical, financial and business affairs, dealers, suppliers, products, developments, operations, processes, data, trade secrets, design rights, know-how, plans, budget and personnel of each department and its affiliates which is disclosed to or otherwise learned by the other Party in the course of or in connection with this Agreement (including without limitation such information received during negotiations, location visits and meetings in connection with this Agreement);
7.	Control	Control means the term “Control” as defined in section 2(27) of the Companies Act, 2013
8.	Deliverables	Products, infrastructure, platform and services agreed to be delivered by the Bidder in pursuance of the agreement as defined more elaborately in the EOI and includes all related documents like manuals inter alia payment and/or process related etc., source code and all its modifications
9.	Intellectual Property Rights	All rights in written designs and copyrights, trademarks, moral rights, rights in databases and Bespoke Software / Pre-existing work including its up-gradation systems and compilation rights (whether or not any of these are registered and including application for registration)

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#	Term	Definition
10.	Month/ Week	The Month shall mean calendar month & Week shall mean calendar week
11.	Project Implementation	Project Implementation as per the quality and testing standards and acceptance criteria prescribed by the Authority or its nominated agencies.
12.	Expression of Interest (EOI)	A formal document or communication that demonstrates an organization's interest in participating in a particular project, service, or business opportunity.
13.	Service Level	The level of service and other performance criteria which will apply to the Services delivered by the Bidder, executed as part of the Service Agreement
14.	Network System	Network System shall mean the network infrastructure to be laid at each location
15.	Go-Live	Go-live is the official launch of the solution, marking the point when the service becomes available to users.
16.	Successful Bidder	The Bidder who is qualified & successful in the bidding process and awarded the Contract and will be referred to as Agency
17.	Point to Point	A dedicated and private link established between two endpoints
18.	TSP	An organization or company that provides telecommunications services, such as voice, data, internet, and other communication services, to individuals, businesses, or other entities
19.	Commissioning	Commissioning is the process of making the installed KFON Access Fibre system ready for use. It includes final testing, integration, performance checks, documentation and approval from Authority to ensure proper functionality. Additionally, customer confirmation & feedback is collected to confirm satisfaction and completion of the work.
20.	Last mile	The physical connectivity provided by the selected service provider from his nearest POP to the end locations.

1 Bidding Data Sheet

1.	Name of the Authority	Kerala Fibre Optic Network Limited
2.	Officer EOI Inviting Authority	Managing Director, KFON
3.	Name of the EOI	EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance (SITCAM) of KFON Access Fibre
4.	Reference Number	KFON/EOI/25-26/AF/1225
5.	Category	Service
6.	Publication of EOI Document	https://kfon.kerala.gov.in/
7.	Contact Person	CTO, KFON
8.	Address	Kerala Fibre Optic Network Ltd., Second Floor, B Block, Jeevan Prakash, LIC Divisional Office Pattom P.O Thiruvananthapuram 695004
9.	Contact No.	0471-6630830
10.	E-Mail ID, for any clarifications	cto@kfon.in , am.it@kfon.in
11.	Time & last date to submit queries.	05:00 PM; Date: 26/06/2025
12.	Pre-bid Meeting	11:30 AM; Date: 28/06/2025
13.	Pre-Bid Meeting Venue	Online
14.	Procedure for Bid Submission	Physical proposal/bid at HQ
15.	Last Date of Submission of Bids	Time: 03:00 PM; Date:08/07/2025
16.	Opening of Bids	Time: 03:00 PM; Date:09/07/2025
17.	Bid System	1. Pre-qualification bid cover 2. Technical bid cover 3. Commercial Bid cover

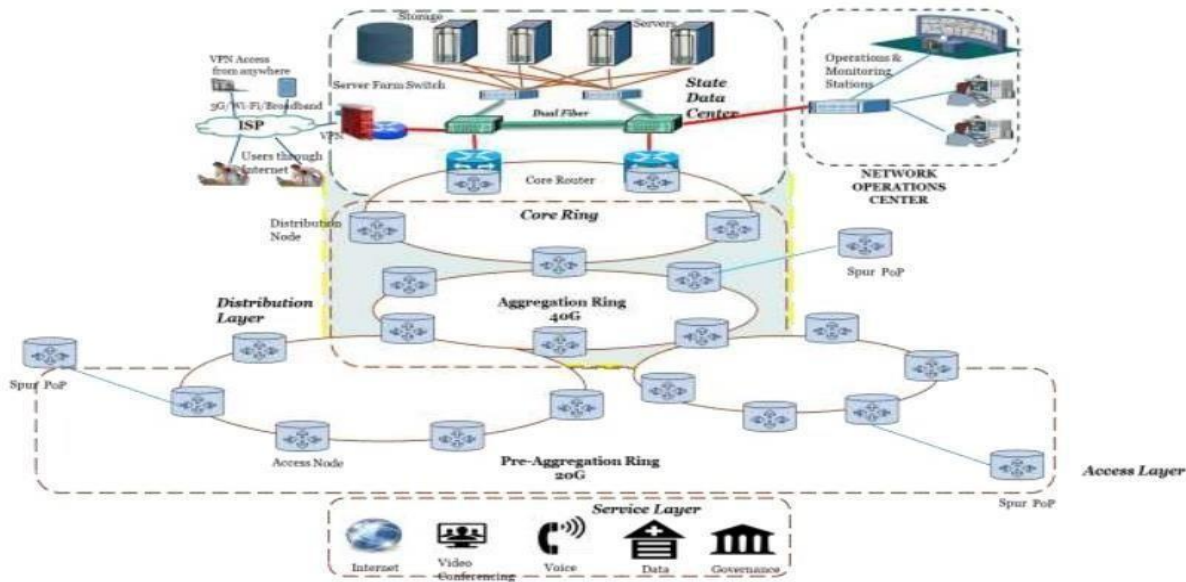
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18.	Validity of the Bid	180 days from the date of opening of price bid
19.	Contract period	1 year extendable to 3 years on mutual terms and agreement.
20.	Performance Guarantee (PG)	Rs. 3,00,000 (Rupees Three Lakhs Only) as interest-free deposit in the name of Kerala Fibre Optic Ltd for a period of three (3) months beyond the service period. Performance Guarantee must be furnished within 14 days from the date of receipt of Work Order.
21.	Performance Guarantee validity period	Three (3) months beyond the Service Period.
22.	Period of Signing the Contract	Within 14 days from the date of receipt Work Order.
23.	Terms & Conditions	As per the EOI document

2 About the Project

Government of Kerala has commissioned a dedicated optical fibre network capable of efficient service delivery, assured Quality of Service (QoS), reliability, interoperability, redundancy, security, and scalability, across Kerala covering 14 districts through the KFON project. This project has enabled connectivity to 30,000 plus Government institutions and is about to embark on providing FTTH connectivity.

KFON Network Architecture



KFON Network Description

Point of Presence (PoP)

The PoPs for Kerala Fibre Optic Network are located inside KSEBL owned substations. These PoPs have been divided into Core, Aggregation, Pre-Aggregation and Spur PoPs. The substations which could not be brought under either core, aggregation or pre-aggregation rings shall be treated as Spur PoPs.

Core POP

One substation in each district is the Core PoP. All the Core PoPs are interconnected with NOC and State Data Centre, thus creating an inter-district route through the DWDM equipment. This ring will carry all the traffic from the districts up to the NOC and the State Data Centre. Also, the core ring is designed to carry the traffic from one district to another.

Aggregation POP

Each district has one aggregation ring which shall connect the Core PoP with 4 or 5 PoPs within that district. This layer of the network will aggregate traffic coming from all the horizontal offices/homes/enterprises connected to the aggregation PoPs, spurs to aggregation rings and pre-aggregation rings' traffic and route into NOC, Data Centre, and district to district through core ring. The traffic will aggregate at Core PoP of the respective district.

Pre-Aggregation POP

The remaining rings are considered as pre-aggregation rings within the district, and it connects to the aggregation ring. These rings will aggregate at an aggregation PoP and will carry the traffic coming from all the horizontal offices/homes/enterprises connected to the pre-aggregation PoPs and spurs to pre-aggregation rings. There may be multiple pre-aggregation rings in a district.

Spur POP

Remote location PoPs which could not be connected in the ring are termed as Spur PoPs.

Network Operating Centre (NOC)

The State level NOC of Kerala Fibre Optic Network is the heart of operations and management of the statewide network under this project.

3 Instructions to Bidders

3.1 Procurement under Kerala Fibre Optic Network

MD, KFON invites proposals from qualified bidders to submit proposals for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance (SITCAM) of KFON Access Fibre on a district wise basis under Kerala State.

The bidder shall submit bids for single/multiple districts across Kerala at the same unit price. However, the bidder must clearly indicate all the districts they intend to bid for at the time of submission of the commercial bid. This information should be provided in the format specified in Annexure 11 of this EOI document. Failure to declare the intended districts in the prescribed format may result in the rejection of the commercial bid for those districts.

Participating entities shall agree to adhere to the Terms & Conditions and Scope & Services mentioned in this EOI.

The following entities are not eligible to participate in this tender and any bids submitted by them will be rejected at the initial evaluation stage:

- The existing System Integrator responsible of KFON project.
- Consortium partners of the existing System Integrator.
- Subsidiary companies of the existing System Integrator (or its consortium partners).
- Companies associated with the existing System Integrator or its consortium companies in any way.
- The current Managed Service provider of KFON or subsidiary companies of MSP.
- Any other company with a conflict of interest, as determined by the tendering authority. For e.g. any Director or Partner of the of the above companies shall not be eligible to bid.

This restriction is in place to ensure fairness and impartiality in the tendering process. Any organization found to violate this clause will have their bid automatically disqualified.

- a) The EOI document is available on the KFON official website (<https://kfon.kerala.gov.in/>).

3.2 General

- a) While every effort has been made to provide comprehensive and accurate background information, requirements and specifications, Bidders must form their own conclusions

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about the services required. Bidders and recipients may wish to consult their own legal advisers in relation to this EOI.

- b) All information supplied by Bidders may be treated as contractually binding on the Bidders, on successful award of the assignment by the Authority on the basis of this document.
- c) The Authority may cancel this public procurement at any time prior to a formal written contract being executed by or on behalf of the Authority.
- d) This EOI supersedes and replaces any previous public documentation and communications, and Bidders should place no reliance on such communications.

3.3 Due Diligence

Bidder is expected to examine all instructions, forms, terms and specifications in this Document. The Bid should be precise, complete and in the prescribed format as per the requirement of this document. Failure to furnish all information required by this document or submission of a bid not responsive to the Document in every respect will be at the Bidder's risk and may result in rejection of the bid.

3.4 Cost of Bidding

Bidder shall bear all costs associated with the preparation and submission of its Bid and the Authority shall in no event be held responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

3.5 Pre-Bid Meeting & Clarifications

- a) The Authority will host a Pre-Bid meeting for answering queries (if any) by the prospective bidders. The purpose of the pre-bid meeting is to provide a forum to the bidders to clarify their doubts / seek clarification or additional information necessary for them to submit their Bid. The Authority reserves the right to hold or re-schedule the Pre-Bid meeting.
- b) The Pre-Bid meeting will be held on the date and venue as specified in the Bidding Data Sheet. The bidder or the representatives of the bidders as authorized in writing by the respective organization (limited to two) may attend the pre-bid meeting at their own cost.
- c) The Bidders will have to ensure that their queries should reach the Authority by **email only (Excel File)** on or before **26rd June 2026 05.00 PM** with subject line: **"Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance (SITCAM) of KFON Access Fibre"** to the mail ID cto@kfon.in and am.it@kfon.in.
- d) The queries should necessarily be submitted in the following format:

**EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance
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Sl. No.	Page No.	Section No.	Content/ Clause requiring clarification	Clarification Sought

- e) Queries submitted post the deadline, or which do not adhere to the above-mentioned format may not be responded to. The Authority shall not be responsible for ensuring that they have received the Bidder's queries.
- f) Bidders are requested to submit the e-mail address, mobile no. of the bidder/authorized representatives and registered address for all communications. **(Annexure: 5)**

3.6 Responses to Clarifications and Issue of Corrigendum

- a) The Authority shall provide timely response to the queries. However, the Authority makes no representation or warranty as to the completeness or accuracy of any response made in good faith, nor does the Authority undertake to answer all the queries that have been posted by the Bidders.
- b) At any time prior to the last date for receipt of bids, the Authority may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the document by a corrigendum.
- c) The Corrigendum (if any) & clarifications to the queries from all bidders will be posted only on <https://kfon.kerala.gov.in/>
- d) Any such Corrigendum shall be deemed to be incorporated into this EOI. In each instance in which provisions of the Corrigenda contradict or are inconsistent/inapplicable with the provisions of this Document, the provisions of the Corrigendum shall prevail and govern, and the contradicted or inconsistent/inapplicable provisions of the EOI shall be deemed amended accordingly.
- e) In order to provide prospective Bidders reasonable time for taking the Corrigendum into account, the Authority may, at its discretion, extend the last date for the receipt of Proposals.

3.7 Completeness of Response

- a) Bidders are advised to study all instructions, forms, terms, requirements, appendices and other information in this this document carefully. Submission of the bid / proposal shall be deemed to have been done after careful study and examination of the document with full understanding of its implications.

b) Failure to comply with the requirements of this paragraph may render the Proposal non-compliant and the Proposal may be rejected. Bidders must:

1. Comply with all requirements contained in the EOI;
2. Include all supporting documentations specified in the EOI;
3. All pages of the Bid must be numbered and duly signed by the Authorized Signatory accompanied by a Power of Attorney/Board Resolution.

3.8 Bid Prices

- a) The Bidder shall indicate in the proforma prescribed, the quote for the services, it proposes to provide under the scope of this EOI. The quote shall be inclusive of all charges **excluding GST**. GST shall be payable extra at actual rates.
- b) The Bidder shall carry out all the tasks in accordance with the requirement of the document and with due diligence. It shall be the responsibility of the Bidder to fully meet all the requirements of the Document and to meet objectives of the service.

3.9 Firm Prices

- a) The quote in the bid must be firm and final and shall not be subject to any modifications, on any account whatsoever.
- b) The quote in the Commercial Bid should be without any ambiguity / qualifications whatsoever and should include all applicable taxes, duties, fees, levies, and other charges as may be applicable, **excluding GST** in relation to the activities proposed to be carried out.
- c) The quote in any form or by any reason before opening the Commercial Bid should not be revealed, failing which the offer shall be liable for rejection.

3.10 Conditional bids by the bidders

The Bidder should abide by all terms and conditions specified in this Document. Conditional offers shall be liable for dis-qualification.

3.11 Bid Validity Period

Bids shall be valid for a period of **180 days** from the date of opening of price bid. A Bid valid for shorter period may be considered as non-responsive. In exceptional circumstances, at its discretion, the Authority may solicit the Bidder's consent for an extension of the validity period. The request and the responses thereto shall be made in writing or email.

3.12 Local Conditions

- a) Each Bidder is expected to become fully acquainted with the local conditions and factors, which may affect the delivery of the service and /or the cost.
- b) The Bidder is expected to know all conditions and factors, which may have any effect on the execution of the scope of this EOI. The Authority shall not entertain any request for clarification from the Bidder regarding such local conditions.
- c) It is the Bidder 's responsibility that such factors have been properly investigated and considered before submitting the proposal. No claim, whatsoever, including that for financial adjustment to the contract awarded under the bidding document will be entertained by the Authority. Neither any change in the time schedule of the contract nor any financial adjustments arising there-of shall be permitted by the Authority on account of failure of the Bidder to know the local laws / conditions.

3.13 Bid Opening

Received bids will be opened at the Head Office of KFON. The result of bids will be published in the portal (<https://kfon.kerala.gov.in/>).

3.14 Clarification of Bids

To assist in the scrutiny, evaluation and comparison of bids, the Authority may, at its discretion, ask some or all Bidders for clarifications with regards to their Bid. The request for such clarifications and the response will necessarily be in writing. Failure of a Bidder to submit additional information or clarification as sought by the Authority within the prescribed period will be considered as a non-compliance and the Bid may be evaluated based on the limited information furnished along with the Bids.

3.15 Right to accept any Bid and reject any or all Bids

The Authority reserves the right to accept or reject any Bid, and to annul the process and reject all Bids at any time prior to award of contract, without thereby incurring any liability to the affected Bidder(s) or any obligation to inform the affected Bidder(s) of the grounds for such action.

3.16 Notification of Award

The Authority will notify the Successful Bidder via Work Order. The Successful Bidder shall be required to sign and return the same to the address and within the specified time period as a token of acceptance of the Work order.

3.17 Performance Guarantee (PG)

As a condition precedent to execution of the Agreement, the Successful Bidder shall ensure submission of the requisite unconditional irrevocable Performance Guarantee, in the prescribed format within the time period prescribed in the Bidding Data Sheet. The Performance Guarantee amount and its validity shall be equivalent to that mentioned in the

Bidding Data Sheet. Performance Guarantee may be subject to forfeiture as per the clauses mentioned in this Document.

The Performance Guarantee may be liquidated by the Authority as penalty / liquidated damages resulting from the agency's failure to honour its obligations under the resultant Agreement. The Performance Guarantee shall be returned by the Authority to the Bidder within ninety (90) days of the term/expiration of the resultant Agreement after applicable deductions as per the Agreement, if any.

3.18 Signing of Contract

Subsequent to the Authority's notification to the Successful Bidder(s) by way of a Work Order, acceptance of the Work Order and submission of the Performance Guarantee, the Successful Bidder(s) shall execute the Agreement with the Authority. The Successful Bidder(s) will be liable to indemnify the Authority for any additional cost or expense, incurred on account of failure of the Successful Bidder(s) to execute the Agreement.

Notwithstanding anything to the contrary mentioned above, the Authority at its sole discretion shall have the right to extend the timelines for execution of Agreement on the request of the Successful Bidder(s), provided the same is bona fide.

3.19 Terms and conditions

Bidder is required to enter into a Master Service Agreement for all the terms and conditions (including project timelines) to be adhered to by the Successful Bidder(s) for the delivery of the service. The following documents shall be deemed to form and be read and construed as part of the Agreement viz.:

- i. The Master Service Agreement confirmed by the Authority with the successful bidder(s).
- ii. The Work Order.
- iii. The EOI.
- iv. The Proposal and any other documents submitted by the bidder to the extent accepted by the Authority.

4 Bid Submission

The proposal has to be submitted in three separate sealed envelopes, as:

Envelope - 1 containing the signed and sealed Pre-qualification document (as per Section - 5.4 – Pre-Qualification Criteria),

Envelope- 2 containing the signed and sealed technical proposal (as per Section -5.5 - Technical Evaluation Criteria) and

Envelope - 3 containing the Commercial Bid Form (Annexure-6).

Bidders to ensure that the Annexure-6 (Commercial Bid Form) is NOT attached along with the technical proposal.

All the three covers shall be enclosed in a fourth sealed cover (Envelope 4) and submitted as your proposal. Envelope - 1 shall be super scribed "Pre-Qualification document, Envelope - 2 shall be super scribed "Technical proposal', Envelope 3 'Financial Proposal (Commercial Bid Form-Annexure-6)' and Envelope - 4 as “**Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance (SITCAM) of KFON Access Fibre**” and submit at KFON Office or /courier/Speed Post to the Office of the **Managing Director, Kerala Fibre Optic Network Limited, LIC, Divisional office, Jeevan Prakash, Pattom, Thiruvananthapuram, Pin-695004.**

The bid document to reach the KFON office on or before **03:00 PM; Date: 08/07/2025.** Any document received after this shall not be considered.

The sealed Financial Proposal of technically qualified bidders shall be opened in the presence of the bidders or their authorized representatives who may like to be present at the time and date fixed by KFON. However, KFON shall have the right to change the date and time of opening of the bid. The changed date and time shall be notified in advance to each technically qualified bidder.

5 Evaluation Framework

5.1 Bid Evaluation

Initial Bid scrutiny will be held. Bid will be treated as non-responsive, if it is

- Not submitted in the format as specified in this document.
- Received without the Letter of Authorization (Power-of-Attorney).
- Found with suppression of details.
- Without complete information, subjective, conditional offers and partial offers submitted.
- Submitted without the documents requested in this document.
- Have non-compliance of any of the clauses stipulated in this EOI.
- With lesser validity period.

5.2 Examination of Bid documents against Eligibility Criteria

The Bid document will be examined to determine whether the bidder meets the eligibility criteria, whether the proposal is complete in all respects, whether the documents have been properly signed and whether the bids are generally in order. Any bids found to be non-responsive for any reason or not meeting the minimum levels of the performance or eligibility criteria specified in various sections of this Document will be rejected and will not be considered further.

5.3 Evaluation of document

A detailed evaluation of the bids shall be carried out in order to determine whether the bidders are competent enough and whether the technical aspects are substantially responsive to the requirements set forth in this Document.

All supporting document submitted in support of Eligibility and Technical Evaluation Criteria should comply the following:

- a) Supporting documents should be submitted.
- b) Supporting document should clearly indicate the scope of work/ services.
- c) Completion certificate/existing contract should clearly indicate the value and duration of the project.
- d) In case the Bidder is having Non-Disclosure Agreement (NDA) with their client, no such experience will be counted (if agreement copy not submitted).
- e) Incomplete order copy submitted by the Bidder will not be considered for evaluation.
- f) In case of projects where order for recurring /Extension and subsequent order has been placed on the Bidder only the mentioned order value will be considered for evaluation.
- g) Bidders failing to comply any of the above, may result in rejection of their bid.

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5.4 Pre-Qualification Criteria

Qualifying criteria under this clause lays down minimum acceptable qualifications in various areas to ensure that qualified bidder has necessary experience, technical expertise, equipment, and financial and human resources to successfully deliver the service. Bids from bidder not meeting these qualification criteria may be liable to be rejected.

S. No.	Criteria	Documents Required to be submitted
1	The Bidder Company should be an Indian registered company, incorporated under the Indian Companies Act.	Certification of Incorporation Copy of PAN card
2	The bidder should be in operation in India for a period of at least 3 Years as on publication of this EOI	Copy of GST registration
3	The bidding company must have a cumulative total turnover of at least Rs 3 Crores over three financial years (2021-2022, 2022-2023, and 2023-2024)	a) Bidders must submit audited balance sheet of the company for the financial years ending 21-22, 22-23 and 23-24 and audited P&L statement of 3 financial years 21-22, 22-23 and 23-24. b) Copy of certificate from statutory auditor/CA clearly specifying annual turnover for the said period.
4	Must have an existing office in Kerala or a declaration to establish one within 30 days of award	Address proof /Declaration of intent
5	Blacklisting- The bidder should not have defaulted/blacklisted/debarred regarding bad performance or issues by any State/Central/PSU of India at the time of bidding	Self-declaration on bidder's letter head.

The Bidders shall submit necessary documentary proof showing that they meet the pre-qualification criteria along with their bid.

All documents submitted shall also be signed by the Authorized signatory of the Bidder.

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5.5 Technical Evaluation Criteria

Bidders who have qualified in the Pre-Qualification criteria would undergo Technical Evaluation as per the criteria as follows:

Sl. No.	Criteria	Evaluation Parameter	Marks	Documents to be submitted
1	Relevant Project Experience in years	3-5 years	15	WO & Work completion certificate
		>5years	25	
2	Fiber Network Executed (in KM) in last 3 years	500-650 KM	10	WO & Work completion certificate
		651–1000 KM	15	
		>1000 KM	20	
3	Technical Presentation			
3.1	Approach & Methodology Proposal	Project Understanding, Project Management Plan, Resource deployment plan, safety compliance	15	
3.2	Operational Strategies	Technology & Tools, Quality & Compliance, Risk Assessment & Mitigation, Operational Efficiency, Post-Installation Support, Innovation & Value Addition, GIS tagging	20	
3.3	Governance	Risk mitigation strategies, resource allocation, and project governance framework, Ticket Management	20	

The bidders who score above 75 marks in the Technical Evaluation will be selected for the Commercial bid opening

Note: -

1. KFON reserves the right to verify submitted documents, call for clarifications, or conduct physical inspections if required.
2. The bidder(s) shall submit dully filled
 - a. Annexure 9 (Product details)
 - b. Annexure 10 (Material Specification Compliance sheet)
 - c. Data sheet of proposed make and models of the proposed materials.

5.6 Evaluation of Bid

The evaluation of the bid will be as follows:

1. KFON intended to empanel up to 3 Agencies per district.
2. The evaluation will be in three stages i.e., Pre-Qualification, Technical Evaluation & Commercial of the proposal submitted by the bidders.
3. The bidders will be shortlisted based on the Pre-Qualification criteria as given in this document.
4. The bidders who qualify in Pre-Qualification evaluation will be eligible for Technical Evaluation.
5. The bidders must score a minimum of 75 marks in technical evaluation to be considered for commercial bid evaluation.
6. Commercial evaluation will be done based on the **total cost of the Schedule of Rates (SOR)** submitted by technically qualified bidders
7. The bidder offering the **lowest total cost** will be considered as L1 for the respective District. Other qualified bidder who matches L1 BOQ-wise line-item prices will be considered for empanelment for the respective district. KFON shall at its discretion will allocate or distribute the work to all empanelled agencies for that district.
8. KFON shall monitor the performance of each empaneled agency regularly. Further assignment of the work order will be based on the performance basis.
9. In the event of a tie in the commercial proposals, the Technical Evaluation score will be used as the tiebreaker.
10. The empanelment will be conducted **at the district level under Kerala State**, L1 bidders may be selected for each district.
11. The bidders are expected to quote a single, uniform price applicable across the assigned district(s).
12. Bidders must quote for all items in the SOR, and the offer will be evaluated in totality.
13. Partial bids or conditional offers will be rejected.
14. Bidders should clearly indicate the **brand name, type/model number** of each product offered in the Annexure 9.
15. Any additional features offered by the bidder, over and above those specified in the tender documents, shall not be considered for evaluation purposes.

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5.7 Commercial bid format

Sl. No.	Item Description	Unit	Unit Rate (INR)
A. Optical Fiber Cable			
1	ADSS Fiber Cable – 12F	Per KM	₹
2	Armoured Fiber Cable (UG) – 12F	Per KM	₹
3	ADSS Fiber Cable – 24F	Per KM	₹
4	Armoured Fiber Cable (UG) – 24F	Per KM	₹
5	ADSS Fiber Cable – 48F	Per KM	₹
6	Armoured Fiber Cable (UG) – 48F	Per KM	₹
7	ADSS Fiber Cable – 4F	Per KM	₹
8	Armoured Fiber Cable (UG)– 4F	Per KM	₹
B. Accessories			
9	Anchoring Tension Clamp Assembly- 48F/24F/12F	Nos	₹
10	Anchoring Tension Clamp Assembly- 4F	Nos	₹
11	Suspension Clamp -48F/24F/12F	Nos	₹
12	Down Lead Clamps Assembly	Nos	₹
13	Universal Pole Bracket	Nos	₹
14	Stainless Steel Strap and Buckles	Nos	₹
15	Cross arm	Nos	₹
16	PSC Pole (8Mtr)	Nos	₹
17	PSC Pole (9Mtr)	Nos	₹
18	LT pole stay	Nos	₹
19	HT pole stay	Nos	₹
20	Adjustable Cable Storage Bracket	Nos	₹
21	PLB HDPE pipe	Per KM	₹
22	RCC route indicators	Nos	₹
23	Manholes (RCC Joint Chambers)	Nos	₹
24	Fiber Termination Box –Type – I)	Nos	₹
25	Fiber Termination Box –Type – II (Street box)	Nos	₹
26	Joint Closure (JC) (Dome Type)	Nos	₹
27	1:4 optical splitter	Nos	₹
28	1:8 optical splitter	Nos	₹
29	Fibre Patch Cord (SC/LC-APC)	Nos	₹
30	Pole & Fiber ID Tags	Nos	₹
C. Installation, Testing & Commissioning			

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31	Survey of route , Installation of ADSS optic fiber cable, fixing of hardware set, cable fittings, accessories, joint closures, FTB, splicing, terminations, testing, commissioning, Documentation, Reporting, GIS data updation (As-built diagram) & mapping.	Per KM	₹
32	Survey of route, Installation of underground optical fiber cable , including trenching, HDD (Horizontal Directional Drilling) where applicable, duct laying, cable fittings, joint closures, FTB, splicing, terminations, testing, commissioning, Documentation, Reporting, GIS data updation (As-built diagram) & mapping	Per KM	₹
33	Concrete Breaking (manual/mechanical), Excavation for existing duct identification, Backfilling and Compaction, Re-concreting (PCC 1:4:8), Reinforced Concrete (RCC M20)	Cubic Meter	₹
D. Operation & maintenance			
34	Operation & maintenance of ADSS fibre and all accessories (Year 1) per Km including	Annually	₹
35	Operation & maintenance of UG fibre and all accessories (Year 1) per Km including	Annually	₹
Total (A+B+C+D)			

Note to Bidders:

- The amount shall be inclusive of all incidental costs, but exclusive of GST.

5.8 Rejection Criteria

Besides other conditions and terms highlighted in the Document, bids may be rejected under following circumstances:

5.8.1 General rejection criteria

- Conditional Bids.
- If the information provided by the Bidder(s) is found to be incorrect / misleading / fraudulent at any stage / time during the evaluation Process.
- Any effort on the part of a Bidder(s) to influence the bid evaluation, bid comparison or contract award decisions; Bidder shall not approach Authority's officers from the time of the proposal opening till the time the Contract is awarded.
- Bids received after the prescribed time and date for receipt of bids.
- Bids without signature of person (s) duly authorized on required pages of the bid.

- f) Bids without power of attorney/ board resolution.
- g) Any other reasons mentioned in this document elsewhere.

5.8.2 Technical Rejection Criteria

- a) Technical Bid containing commercial details.
- b) Revelation of prices in any form or by any reason before opening the Commercial Bid.
- c) Failure to furnish all information required by the Document or submission of a bid not substantially responsive to the this Document in every respect.
- d) Bidders not quoting for the complete scope of work as indicated in the Documents, addendum (if any) and any subsequent information given to the Bidder.
- e) Bidders not complying with the technical and general terms and conditions as stated in the Documents.
- f) Bidder not confirming unconditional acceptance of full responsibility of providing services in accordance with the scope of work of this EOI.
- g) Any other reasons mentioned in this document elsewhere.

5.8.3 Commercial Rejection Criteria

- a) Incomplete Price Bid.
- b) Price Bids that do not conform to the price bid format.
- c) Total price quoted by the Bidder shall exclude all statutory taxes and levies applicable.
- d) If there is discrepancy in numerical and words, prices in word shall prevail.
- e) If there is discrepancy in unit rates and total, unit rates shall prevail.

5.8.4 Fraud and Corrupt Practices

- i. The Bidders and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Selection Process.
- ii. Notwithstanding anything to the contrary contained in this document, the Authority shall reject a Proposal without being liable in any manner whatsoever to the Bidder, if it determines that the Bidder has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice (collectively the — Prohibited Practices) in the Selection Process. In such an event, the Authority shall, without prejudice to its any other rights or remedies, forfeit and appropriate the Performance Guarantee, as the case may be, as mutually agreed genuine pre-estimated compensation and damages payable to the Authority for, inter alia, time, cost and effort of the Authority, in regard to the EOI, including consideration and evaluation of such Bidders Proposal.
- iii. Without prejudice to the rights of the Authority under Clause above and the rights and remedies which the Authority may have under the Agreement, if the Bidder or Agency, as the case may be, is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Selection Process, or after the issue of the Work Order or the execution of the Agreement, such Bidder shall not be eligible to participate in any tender or tender issued by the Authority during a

period of 5 (five) years from the date such Bidder, as the case may be, is found by the Authority to have directly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as the case may be.

- iv. For the purposes of this Section, the following terms shall have the meaning hereinafter respectively assigned to them.

“Corrupt practice” means:

- a) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of any person connected with the Selection Process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of the Authority who is or has been associated in any manner, directly or indirectly with the Selection Process or has dealt with matters concerning the Agreement or arising there from, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Authority, shall be deemed to constitute influencing the actions of a person connected with the Selection Process; or
- b) save as provided herein, engaging in any manner whatsoever, whether during the Selection Process or after the issue of the WO or after the execution of the Agreement, as the case may be, any person in respect of any matter relating to the Project or the WO or the Agreement, who at any time has been or is a legal, financial or technical consultant/ adviser of the Authority in relation to any matter concerning the Project;
 - **“Fraudulent practice”** means a misrepresentation or omission of facts or disclosure of incomplete facts, in order to influence the Selection Process;
 - **“Coercive practice”** means impairing or harming or threatening to impair or harm, directly or indirectly, any persons or property to influence any person’s participation or action in the Selection Process;

“Undesirable practice” means:

- a) establishing contact with any person connected with or employed or engaged by Authority with the objective of canvassing,
- b) lobbying or in any manner influencing or attempting to influence the Selection Process; or
- c) having a Conflict of Interest; and

“Restrictive practice” means:

Forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Selection Process.

5.8.5 Conflict of Interest

The Bidder(s) shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidder may be considered to be in a conflict of interest with one or more parties in the bidding process if including but not limited to:

- a) they have controlling shareholders in common; or
- b) they receive or have received any direct or indirect subsidy from any of them; or
- c) they have the same legal representative for purposes of this bid; or
- d) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to material information about or improperly influence the Bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or
- e) A Bidder participates in more than one bid in this bidding process, either individually or as a partner in a joint venture/ consortium. This will result in the disqualification of all Bids in which it is involved.

6 Scope of Work of Agency

This EOI invites applications for the Empanelment of Agencies for the Supply, Installation, Testing, Commissioning, and Maintenance (SITCAM) of KFON Access Fibre within the district(s) of Kerala. The bidders are expected to quote a single, uniform price applicable across the assigned district(s). The empanelled agency will be responsible for executing the following activities as per POs/ WOs issued by KFON from time to time, ensuring completion within the defined timelines.

The scope of work includes, but is not limited to, the following major components:

6.1 Supply of Materials

1. The successful Agencies shall supply all necessary materials required to the designated location for the successful execution of the WO/PO within the district
2. All supplied materials must meet the specifications mentioned in Annexure 7 of this EOI.

6.2 Site Survey & Planning

1. Conduct **pre-installation surveys** across designated routes for **both aerial and underground fibre deployment**
2. Assess **pole availability, trench feasibility, duct routes, and alignment** with KFON's proposed fibre network plans
3. Submit **detailed survey reports** indicating pole spacing, span lengths, trench depths, proposed cable routes, and HDD (Horizontal Directional Drilling) requirements. Refer Annexure 8 for Guidelines
4. Survey report shall be submitted in either of the following file type detailing the proposed BOQ for approval
 - KMZ
 - KML
 - SHP

6.3 Installation of Fiber Cables

- Aerial Fiber Installation
 - Perform pole-to-pole aerial laying of ADSS cables using industry-standard installation techniques.
 - Ensure proper cable tensioning, sag calculation, and securing using approved clamps and brackets.
 - Maintain safe working practices and adhere to local electrical safety regulations during installation.

- Label and tag fiber routes and poles with identification codes and caution signage.
- The labeling to be finalized in consultation with Authority.
- Underground Fiber Installation
 - Perform **trenching and HDD** where applicable for fiber cable laying.
 - Install **HDPE ducts or direct fiber insertion (DIT)** based on site requirements.
 - Ensure proper **duct sealing, cable protection, and cable pulling/blowing** techniques.
 - Secure fiber **inside underground joint closures** and enclosures.

Note: Refer Annexure 8 for Fibre installation guidelines

6.4 Splicing & Termination

- Execute fiber splicing using calibrated splicing equipment with <0.1 dB average loss per splice.
- Install Joint enclosures as per design approved by the Authority.
- Perform termination at distribution points, POPs (Point of Presence), or customer premises as specified in the work order.

6.5 Testing & Documentation

- Conduct OTDR and power meter testing of all installed links.
- Submit comprehensive test reports including splice loss, overall link loss, and end-to-end attenuation
- Provide as-built documentation in the agreed format with route maps, pole numbers, joint locations, and test results .(As per SOP mutually agreed between Agency and Authority)

6.6 Logistics & Delivery

- Transport all materials to designated storage or installation sites across various districts of Kerala.
- Ensure secure handling and storage of fiber and accessories to prevent damage or degradation.

6.7 Compliance & Quality Control

- Ensure compliance with KFON's quality control guidelines and technical standards, adhering to industry best practices.
- Allow for periodic inspections by the KFON project monitoring team.
- Rectify any defects or non-conformities identified during or after installation during the stipulated timeline.

6.8 Project Management & Reporting

- Provide daily/weekly progress reports, issue logs, and installation status updates to KFON Authorities.
- Maintain a project dashboard to track material usage, installation progress, and testing status.

6.9 Operation, maintenance and Support

- Regular inspections and maintenance of installed fibre networks.
- Timely resolution of faults and service disruptions to ensure network reliability.
- Compliance with KFON's operational and maintenance standards.

6.10 Regulatory & Safety Compliance

- Adherence to environmental, safety, and labour regulations.
- Coordination with local authorities for permits, if required.
- Compliance with guidelines from DoT, TRAI, and other regulatory bodies.

6.11 Monitoring & Reporting

- Reports must include tracking & monitoring during Implementation & O&M.
- The tracking must include the following but not limited to fault type, response time, resolution time, root cause, action taken etc as per mutually agreed format.
- Provide periodic insights and recommendations to enhance operational efficiency and fault mitigation strategies.

6.12 Field Resource

The bidder should deploy adequate team (1 team per 200 KMs) to maintain SLA as defined in the EOI

Team should comprise of following minimum

- 1 Splicer
- 1 Technician
- 1 Driver

Team should be equipped with sufficient tools not limited to

- Splicing Machine
- OTDR
- LSPM

7 General terms and conditions

- a) Based on the requirement, Authority may place PO/WO for
 - 1. Supply, Install, testing, commissioning and Maintenance(O&M)
 - 2. Operation and Maintenance of existing KFON Fiber Network
 - 3. Dismantling/Shifting of existing network Infrastructure of KFON
 - 4. Supply of material only
- b) Against each BoQ item, Bidder shall propose maximum up to 3 Make & Models.
- c) The Bidder(s)/Agency(s) must propose products and materials that align with KFON's approved specifications and industry best standards
- d) The proposed product/make submitted in the bid must be the same as the one used in project execution. Any deviation from the approved make shall require written justification and prior approval from KFON
- e) Prior to the commencement of work, a SOP must be finalized through discussions with the designated KFON Authority for all the activities.
- f) The SOP shall outline detailed workflows, governance, quality control measures, safety protocols, and compliance requirements for all activities involved in fiber deployment and maintenance.
- g) No work shall proceed until the SOP has been formally reviewed, approved, and documented for execution.
- h) The selected Bidder(s)/Agency(s) shall be solely responsible for the collection, disposal, and management of all scrap materials generated during fiber deployment, installation, and maintenance.
- i) The selected Bidder(s)/Agency(s) shall submit a scrap disposal plan ensuring safe, eco-friendly, and legally compliant disposal or recycling methods.
- j) The selected bidder(s)/Agency(s) shall ensure that the installed fiber network maintains optimal performance throughout the entire contract period.
- k) Regular monitoring, testing, and preventive maintenance must be conducted to uphold service reliability and network integrity.
- l) The selected Bidder(s)/Agency(s) must adhere to KFON's technical standards and implement industry best practices to prevent degradation in signal quality, latency, and uptime.
- m) Any performance deviations or faults must be immediately addressed, with resolution timelines aligned to the agreed SLAs.
- n) Periodic network audits and quality assurance reports shall be submitted to KFON for review and compliance verification.
- o) The selected Bidder(s)/Agency(s) shall be solely responsible for obtaining access permissions to customer premises and carrying out all associated civil works. The Agency(s) shall also ensure the provision of all necessary requirements for the execution of the work, including the supply of all materials required for fibre routing and installation.

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- p) Any damage caused to public property or customer premises during the execution, installation, or operation of the fibre network shall be the sole responsibility of the selected Bidder(s)/Agency(s). The selected Bidder(s)/Agency(s) shall be liable for repairing such damages at its own cost and to the satisfaction of the concerned authorities or property owners.
- q) The selected Bidder(s)/Agencies shall be responsible for the safe and systematic dismantling of fibre infrastructure, either partially or fully, as and when instructed by KFON or the designated authority
- r) The dismantling shall be carried out without causing damage to public or private property.
- s) All dismantled materials shall be returned to KFON or handled as per the instructions provided. Any cost incurred for such dismantling activities shall be borne by the selected Bidder(s)/Agency(s)
- t) The selected Bidder(s)/Agency(s) shall be responsible for completing all tasks and deliverables explicitly mentioned in the Work Order (WO) issued by KFON.
- u) If any claims arise from Government departments regarding the payment due/paid, the Selected agency must take responsibility and pay them.
- v) Any activity including material supply, services, operations, or maintenance that are not specified in the RFP but are necessary to complete the scope of work shall be reimbursed at actual costs. Bidders must take prior approval from KFON in such cases and provide adequate documentation or proof to substantiate such claims.
- w) The existing System Integrator or its consortium are not allowed to participate in this EOI.

8 Roles and Responsibilities of Authority

- a) The finalization of the fiber deployment route shall be the sole responsibility of KFON.
- b) Finalization of ODN, civil works, and splice plan shall be the sole responsibility of KFON.
- c) KSEB Pole Rental, RoW charges and other related infrastructure usage, shall be the sole responsibility of KFON.
- d) KFON shall make best efforts to complete commissioning within 7 days from the date it is offered by the selected Agency(s).

9 Payment Terms

The payment to the selected Agency(s). will be made based on submission of Invoice after successful completion and acceptance by KFON

S. Nos	Work Type	Billing	Conditions	Frequency
1	Supply of material	Based on 100% of quoted value on actuals	On delivery of passive and active components at designated locations, certified by KFON Authority.	Monthly
2	Supply, Installation, Testing, Commissioning and Documentation	Based on 100% of quoted value on actuals	On successful laying of fibre, installation of all passive components, and jointing. Verified by site engineer (KFON) followed by submission and approval of complete documentation (As-Built drawings, test reports, asset register, etc.) and formal handover	Monthly
3	Operation and maintenance of work executed by the selected Bidder(s)/Agency(s)	Based on quoted value on actuals	Based on SLA calculation	Quarterly
4	Operation and Maintenance of Existing Fibre Network of KFON	Based on quoted value on actuals	<ul style="list-style-type: none"> Subject to compliance with SLA/Uptime requirements and submission of monthly reports. The first invoice shall be processed on a pro-rata basis, calculated from the actual date of commencement of services until the end of the ongoing quarter. 	Quarterly

- Authority will make the best effort to make all payments within 30 days of submission of invoice and all relevant documents according to the payment milestone.

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- All invoices must be supported by relevant documents (delivery challans, installation reports, test results, As-Built diagram, KML file etc.).
- Applicable taxes (GST, TDS, etc.) will be deducted as per government norms.
- In case of delays or non-compliance, penalties or deductions will be applied as per the EoI Terms.

10 Termination of Contract

The contracting authority reserves the right to terminate the agreement with the selected Agency(s) under the following conditions:

10.1 Termination of Contract

The contract may be terminated, in whole or in part, by written notice to the selected Agency(s) if:

- The selected Agency(s) fails to deliver materials or repeatedly fail to complete the scope of work within the agreed timelines.
- The selected Agency(s) fails to meet performance standards or repeatedly breaches SLA terms.
- The selected Agency(s) engages in any unlawful activity, misrepresentation, or fraud.
- The selected Agency(s) becomes bankrupt or insolvent.

In such cases, the authority may procure similar goods/services from alternate sources and recover any additional costs from the defaulting Agency(s), including forfeiture of Performance Bank Guarantee.

10.2 Termination for Convenience

The authority may terminate the contract, in whole or in part, at any time by providing 30 days' written notice to the selected Agency(s), without assigning any reason. In this case:

- The selected Agency(s) will be entitled to payment for all satisfactorily completed work and delivered materials up to the termination date.
- No further claims or compensation shall be entertained for unexecuted portions of the contract.

10.3 Termination by selected Bidder(s)/Agency(s)

The selected Agency(s) may request contract termination in writing with a notice period of 45 days, citing valid reasons (e.g., unforeseen circumstances, regulatory restrictions), subject to approval by the contracting authority. All obligations until the date of termination must be fulfilled.

10.4 Consequences of Termination

- All unfinished or partially completed work, along with related documentation and materials, shall be handed over to the contracting authority.
- Any advance payments made for undelivered goods/services may be recovered.
- The selected Bidder(s)/Agency(s) shall be liable for damages or losses incurred by the authority.

11 Service Level Agreements

The selected Bidder(s)/Agency(s) will be required to comply with the following Service Level Agreements to ensure high-quality, timely, and reliable delivery and installation of fiber network under the KFON project.

11.1 Delay in WO/PO Timelines

- a) For each week of delay from the date mentioned in the WO, a penalty of **2%** of the WO value shall be deducted.
- b) If the delay extends beyond **four weeks**, KFON reserves the right for contract termination or forfeiture of performance security in addition to the applicable penalties.
- c) Any exceptions due to force majeure events (natural disasters, government-imposed restrictions, etc.) shall be reviewed and considered by KFON before imposing penalties.
- d) The selected Bidder(s)/Agency(s) must submit a formal justification and mitigation plan for any unavoidable delays to minimize penalty enforcement.

11.2 Performance & Quality Metrics

- a) The selected Bidder(s)/Agency(s) shall ensure that each reported incident is resolved within 4 hours from the time it is logged.
- b) In case of any complex issues, the selected Bidder(s)/Agency(s) shall resort to temporary restoration activity followed by permanent resolution.
- c) Compliance with the Service Level Agreement (SLA) and network up time standards shall be strictly monitored.
- d) Persistent failure to adhere to the 4-hour resolution window may result in penalties or further corrective actions as determined by KFON.

12 Escalation Matrix

The selected Bidder(s)/Agency(s) must provide a **detailed escalation matrix** in consultation with **KFON Authority**, ensuring a clear hierarchy for issue resolution and responsiveness.

Annexure-1 FORMAT FOR BID COVER LETTER

(On Company Letter Head)

To,

Managing Director
Kerala Fibre Optic Network Ltd,
2nd Floor, B Block,
Jeevan Prakash, LIC Divisional Office,
Pattom P. O,
Thiruvananthapuram – 695004
Kerala

Sub: Submission of the response to the EOI No. KFON/EOI/25-26/AF/1225 for
Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance (SITCAM) of KFON Access Fibre

We, the undersigned, offer the Supply, Installation and Delivery of Network for KFON in response to the EOI dated <insert date> and reference **no <> “EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance (SITCAM) of KFON Access Fibre”**. We are hereby submitting our proposal, which includes the pre-qualification, technical bid, and commercial bid.

We hereby declare that all the information and statements made in this bid are true and accept that any misinterpretation contained in it may lead to our disqualification.

We undertake, if our proposal is accepted, to initiate the implementation services related to the assignment not later than the date indicated in the EOI.

We agree to abide by all the terms and conditions of the EOI and related corrigendum(s)/ addendum(s). We would hold the terms of our bid valid for 180 days from the date of opening of the commercial bid as stipulated in the EOI.

We hereby declare that as per EOI requirement, we have not been blacklisted/ debarred by any Central/ State Government and we are not the subject of legal proceedings for any of the foregoing.

We understand you are not bound to accept any proposal you receive.

Signature of Bidder

Place:

Name

Date:

Annexure-2 FORMAT FOR COMMERCIAL BID COVER LETTER

(On Company Letter Head)

To,

Managing Director
Kerala Fibre Optic Network Ltd,
2nd Floor, B Block,
Jeevan Prakash, LIC Divisional Office,
Pattom P. O,
Thiruvananthapuram – 695004
Kerala

Dear Sir,

We, the undersigned Bidder, having read and examined in detail all the documents with respect to EOI for **EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance (SITCAM) of KFON Access Fibre** as specified in the EOI reference No. _____.

Price and Validity

- a. The quote mentioned in our bid are in accordance with the terms & conditions as specified in the EOI. The validity of bid is 180 days from the date of opening of the commercial bid.
- b. We are an Indian firm and do hereby confirm that our quote is inclusive of all duties, levies etc., excluding GST.
- c. We have studied the clause relating to Indian Income Tax and hereby declare that if any income tax, surcharge on income tax, professional and any other corporate tax in altered under the law, we shall pay the same.

Deviations: we declare that all the services shall be performed strictly in accordance with the EOI irrespective of whatever has been stated to the contrary anywhere else in our bid. Further, we agree that additional conditions, if any, found in our bid documents, shall not be given effect to.

Bid pricing: we further confirm that the prices stated in our bid are in accordance with your instruction to bidders included in the EOI document.

**EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance
(SITCaM) of KFON Access Fibre**

Qualifying data: we confirm having submitted the information as required by you in your instruction to bidders. In case you require any other further information/ documentary proof in this regard before evaluation of our bid, we agree to furnish the same in time to your satisfaction.

Bid price: we declare that our quote is for the entire scope of the work as specified in the EOI.

Performance Guarantee: we hereby declare that in case the contract is awarded to us, we shall submit the performance Guarantee.

We hereby declare that our bid is made in good faith, without collusion or fraud and the information contained is true and correct to the best of our knowledge and belief.

Signature of Bidder

Place:

Name

Date:

Annexure-3 Format for Malicious Code Certificate

(to be provided from Vendor letter head)

Tender Ref. No.:_____ & Date: _____

To,

Managing Director
Kerala Fibre Optic Network Ltd,
2nd Floor, B Block,
Jeevan Prakash, LIC Divisional Office,
Pattom P. O,
Thiruvananthapuram – 695004
Kerala

- a) This is to certify that the Hardware and the Software being offered, as part of the contract, does not contain Embedded Malicious code/ malware or trojan that would activate procedures to :-
- I. Inhibit the desires and designed function of the equipment.
 - II. Cause physical damage to the user or equipment during the exploitation.
 - III. Tap information resident or transient in the equipment/network.
- b) The firm will be considered to be in breach of the procurement contract, in case physical damage, loss of information or infringements related to copyright and Intellectual Property Right (IPRs) are caused due to activation of any such malicious code in embedded software.

Date :

Place :

Authorized Signatory :

Name of the Person :

Designation :

Firm Name & Seal :

Annexure-4 Land border declaration

(On Company Letter Head)

EOI Ref. No.: _____

Date:

To

Managing Director

Kerala Fibre Optic Network Ltd,

2nd Floor, B Block,

Jeevan Prakash, LIC Divisional Office,

Pattom P. O,

Thiruvananthapuram – 695004

- a) This is to certify that the Hardware and the Software being offered, as part of the contract, does not contain Embedded Malicious code/ malware or trojan that would activate procedures to :-
- i. Inhibit the desires and designed function of the equipment.
 - ii. Cause physical damage to the user or equipment during the exploitation.
 - iii. Tap information resident or transient in the equipment/network.
- b) The firm will be considered to be in breach of the procurement contract, in case physical damage, loss of information or infringements related to copyright and Intellectual Property Right (IPRs) are caused due to activation of any such malicious code in embedded software.

Date :

Authorized Signatory:

Place :

Name of the Person:

Designation :

Firm Name & Seal :

EOI Name:

Reference No:

**EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance
(SITCaM) of KFON Access Fibre**

DECLARATION BY AUTHORISED SIGNATORY OF THE FIRM

I, the undersigned, (*full names*),
do hereby declare, in my capacity as
of M/s.....(*name of bidder entity*), that:

- 1) The facts contained herein are within my own personal knowledge.
- 2) I have read the Order (Public Procurement No.1, 2 & 3) dtd 23 Jul 2020 & 24 Jul 2020 on the subject of Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017 regarding restrictions on procurement from a bidder of a country which shares a land border with India and comply to all the provisions of the Order
- 3) I certify that M/s(*name of bidder entity*) **is not from such a country or, is from such a country** (*strike out whichever is not applicable*), has been registered with the Competent Authority. I hereby certify that we fulfill all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority is attached]
- 4) I understand that the submission of incorrect data and / or if certificate / declaration given by M/s(*name of bidder entity*) is found to be

AUTHORISED SIGNATURE: _____

DATE: _____

Seal / Stamp of Bidder

**EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance
(SITCaM) of KFON Access Fibre**

Annexure-5 Bidder Details

(to be provided from letter head)

EOI Name:

Reference No:

S. No	Particulars	Details
1	Company/ Organization Name	
2	Date of Incorporation and /or commencement of business	
3	Certificate of incorporation	
4	Brief description of the Bidders including details of its main of business	
5	Company websites URL	
6	Company PAN Number	
7	Company GSTIN Number	
8	Particulars of the Authorized Signatory of the Bidder a)Name b)Designation c)Address d)Phone Number(landline) e)Mobile Number f) Email Address	

Name & Signature of authorized signatory:

Seal of Company:

Date:

**EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance
(SITCaM) of KFON Access Fibre**

Annexure-6 Commercial Bid Form

(to be provided from letter head)

EOI Name:

EOI Reference No:

Sl. No.	Item Description	Unit	Unit Rate (INR)
A. Optical Fiber Cable			
1	ADSS Fiber Cable – 12F	Per KM	₹
2	Armoured Fiber Cable (UG) – 12F	Per KM	₹
3	ADSS Fiber Cable – 24F	Per KM	₹
4	Armoured Fiber Cable (UG) – 24F	Per KM	₹
5	ADSS Fiber Cable – 48F	Per KM	₹
6	Armoured Fiber Cable (UG) – 48F	Per KM	₹
7	ADSS Fiber Cable – 4F	Per KM	₹
8	Armoured Fiber Cable (UG)– 4F	Per KM	₹
B. Accessories			
9	Anchoring Tension Clamp Assembly- 48F/24F/12F	Nos	₹
10	Anchoring Tension Clamp Assembly- 4F	Nos	₹
11	Suspension Clamp -48F/24F/12F	Nos	₹
12	Down Lead Clamps Assembly	Nos	₹
13	Universal Pole Bracket	Nos	₹
14	Stainless Steel Strap and Buckles	Nos	₹
15	Cross arm	Nos	₹
16	PSC Pole (8Mtr)	Nos	₹
17	PSC Pole (9Mtr)	Nos	₹
18	LT pole stay	Nos	₹
19	HT pole stay	Nos	₹
20	Adjustable Cable Storage Bracket	Nos	₹
21	PLB HDPE pipe	Per KM	₹
22	RCC route indicators	Nos	₹
23	Manholes (RCC Joint Chambers)	Nos	₹
24	Fiber Termination Box –Type – I)	Nos	₹
25	Fiber Termination Box –Type – II (Street box)	Nos	₹
26	Joint Closure (JC) (Dome Type)	Nos	₹
27	1:4 optical splitter	Nos	₹
28	1:8 optical splitter	Nos	₹
29	Fibre Patch Cord (SC/LC-APC)	Nos	₹
30	Pole & Fiber ID Tags	Nos	₹
C. Installation, Testing & Commissioning			

EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance (SITCaM) of KFON Access Fibre

31	Survey of route , Installation of ADSS optic fiber cable, fixing of hardware set, cable fittings, accessories, joint closures, FTB, splicing, terminations, testing, commissioning, Documentation, Reporting, GIS data updation (As-built diagram) & mapping.	Per KM	₹
32	Survey of route, Installation of underground optical fiber cable , including trenching, HDD (Horizontal Directional Drilling) where applicable, duct laying, cable fittings, joint closures, FTB, splicing, terminations, testing, commissioning, Documentation, Reporting, GIS data updation (As-built diagram) & mapping	Per KM	₹
33	Concrete Breaking (manual/mechanical), Excavation for existing duct identification, Backfilling and Compaction, Re-concreting (PCC 1:4:8), Reinforced Concrete (RCC M20)	Cubic Meter	₹
D. Operation & maintenance			
33	Operation & maintenance of ADSS fibre and all accessories (Year 1) per Km including	Annually	₹
34	Operation & maintenance of UG fibre and all accessories (Year 1) per Km including	Annually	₹
Total (A+B+C+D)			

1. The quote shall be firm and shall not be subjected to variations because of fluctuation in market rates, taxes or any other reasons whatsoever during the contract period.
2. Bidders are not permitted to add/delete/change the format of the commercial bid format under any circumstances and such bids are considered to be invalid and shall be rejected.
3. The conditional bids are considered to be invalid and shall be rejected.

Date:
(Authorized Signatory):

Name and Signature of the Bidder

Place:

Business Address:

Annexure-7 Material Specification

Optical Fibre {ADSS (48F/24F/12F)/Underground(48F/24F/12F)}		
SL No	Parameter	Minimum Specification
	Optical Fibre	ITU-TG.652.D
	Type of fibre	Single mode (Section I (Type III) of TEC GR No: TEC/GR/TX/ORM-001/05/DEC-17 and subsequent amendments, if any)
	Max Span length	100m
	Operational Wind Velocity (ADSS)	100 Kmph and 150 Kmph
	Sag of span length(ADSS)	Max sag allowed without excess load: 1% of span length Max sag allowed with excess load: 2% of span length
	Tensile Strength	9.81 x 4W Newton (where w is the mass of 1 Km of cable in Kg)
	FRP Rod EAA coated	2.5 +0.1/-0.0 mm for 48F 2.3 +0.1/-0.0 mm for 24/12F
	Tube ID(min)	1.7 mm for 48F 1.4 mm for 24/12F
	Tube OD	2.4 ± 0.1 mm for 48F 2.2 ± 0.1 mm for 24/12F
	48F	Fibre per tube: 12 No. of Loose tube :4
	24F	Fibre per tube: 4 No. of Loose tube :6
	12F	Fibre per tube: 4 No. of Loose tube :3
	No. of dummy cord	48F : 2 24F : 0 12F : 3
	Tube stranding layover strength for 48F/24F/12F	90-110 mm
	Min. Sheath Thickness	Inner: 1.0 mm Outer: 1.8 mm
	Outer Sheath Colour	Black with white stripes
	Aramid Quantity (Minimum)	10.0 Kg/Km for 48/24/12F of 100 Km/hour 13.0 Kg/Km for 48F of 150 Km/hour
	Cable Diameter	14.0 ± 0.5 mm for 24/12F of 100 Km/hour 14.5 ± 0.5 mm for 48F of 100/150 Km/hour

**EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance
(SITCaM) of KFON Access Fibre**

	Cable Weight	150 -180 Kg/Km for 24/12F of 100 Km/hour 160-190 Kg/Km for 48F of 100/150 Km/hour
	Cable to be designed to Fibre strain value of	0.10%
	Cable to be tested at defined load for fibre strain value of	0.25%

Functional Requirements

	<ul style="list-style-type: none"> The design and construction of Optical fibre cable shall be inherently robust and rigid under all conditions of installation, operation, adjustment, replacement, storage and transport. The cable shall possess good performance characteristics such as anti-impact, anti-vibration, anti-bending, prevention of thermal ageing, etc. All elements consisting of ADSS cable shall be non-metallic The Optical fibre cable shall be able to work in a saline atmosphere in coastal areas and should be protected against corrosion. Life of cable shall be at least 25 years. Necessary statistical calculations shall be submitted by the manufacturer, based upon life of the fibre and other component parts of the cable. The cable shall meet the cable aging test requirement. It shall be possible to operate and handle the Optical fibre cable with tools as per GR No. GR/OFT-01/03 APR 2006 and subsequent amendment, if any. If any special tool is required for operating and handling the optical fibre cable the same shall be provided along with the cable. It shall be possible to install the ADSS cable with accessories and fixtures as per specifications given in this EOI The Optical fibre cable supplied shall be suitable and compatible to match with the dimensions, fixing, terminating & splicing arrangement of the splice closure. The cable supplied shall also meet other requirement of splice closure (GR No. TEC/GR/TX/OJC-002/03/APR-2010) and subsequent amendments, if any. The manufacturer shall submit an undertaking that the optical and mechanical fibre characteristics shall not change during the lifetime of the cable against the manufacturing defects. It is mandatory that the Optical fibre cable supplied in a particular route is manufactured from a single source of optical fibers.
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Aerial /UG Drop Cable - 4F

SL No	Parameter	Minimum Specification
	Optical Fibre	As per ITU-T Rec. G 657 A1

**EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance
(SITCaM) of KFON Access Fibre**

	Type of fibre (wavelength band optimized nominal 1310 nm)	Single mode (Section I (Type V) of TEC/GR/TX/ORM-001/05/DEC-17 and subsequent amendments, if any)
	Operational Wind Velocity (ADSS)	75 Kmph
	Sag of span length(ADSS)	Max sag allowed without excess load: 1% of span length Max sag allowed with excess load: 2% of span length
	Fibre per tube	4(Color:BL,OR,GR, BR)
	No. of Loose tube	1(Colour:Natural)
	Loose Tube ID/OD	1.4 ± 0.1 / 2.0 ± 0.1 mm
	Loose Tube Material	PBT
	Embedded Strength Material	FRP/ARP
	Diameter of FRP	1.0 + 0.1 mm
	Aramid Yarns (Peripheral Strength Member)	3.9 ± 0.4 Kg/Km
	Sheath Material	UV Proof HDPE
	sheath Colour	Black with white stripes
	Min. Thickness of Sheath Material	1.8 mm
	Cable Weight	38 ± 10%
	Cable Diameter	6.5 ± 0.5 mm
Functional Requirements		

**EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance
(SITCaM) of KFON Access Fibre**

- The design and construction of Optical fibre cable shall be inherently robust and rigid under all conditions of installation, operation, adjustment, replacement, storage and transport.
The Optical fibre cable shall be able to work in a saline atmosphere in coastal areas and should be protected against corrosion.
Life of cable shall be at least 25 years. Necessary statistical calculations shall be submitted by the manufacturer, based upon life of the fibre and other component parts of the cable. The cable shall meet the cable aging test requirement.
It shall be possible to operate and handle the Optical fibre cable with tools as per GR No. GR/OFT-01/03 APR 2006 and subsequent amendment, if any. If any special tool is required for operating and handling the optical fibre cable the same shall be provided along with the cable.
The Optical fibre cable supplied shall be suitable and compatible to match with the dimensions, fixing, terminating & splicing arrangement of the splice closure
- requirement of splice closure (GR No. TEC/GR/TX/OJC-002/03/APR-2010) and subsequent amendments, if any.
The manufacturer shall submit an undertaking that the optical and mechanical fibre characteristics shall not change during the lifetime of the cable against the manufacturing defects.
It is mandatory that the Optical fibre cable supplied in a particular route is manufactured from a single source of optical fibres.

Optical Splitter

SL No	Parameter	Minimum Specification
	1:4/1:8	As per TEC GR No. TEC/GR/TX/OPT001/01/ APRIL-12 with latest amendments. Valid Type Approval Certificate (TAC) from Telecom Engineering Centre (TEC), New Delhi

Street Box Type I (Joint Closure (Dome Type))

SL No	Parameter	Minimum Specification
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**EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance
(SITCaM) of KFON Access Fibre**

	TEC compliant	TEC/GR/TX/OJC-002/03/APR-2010, with latest amendments if any. Wherever specifications under this section shall contradict with TEC GR, then specifications under this section shall prevail. Valid Type Approval Certificate (TAC) from Telecom Engineering Centre (TEC), New Delhi Bidder is allowed to submit maximum Two BJC manufacturer's/OEMs QF-103 along with Back-to-Back Legal Supply & Support Agreements. Also manufacturers who have got TSEC/TAC against GR No.TEC/GR/TX/OJC002/03/APR-2010 and TEC GR No. TEC/GR/TX/OPT-001/01/ APRIL-12 will be allowed to make supplies against the same approval
	Tray	The closure should have an additional tray (total of 5 splice trays) to accommodate minimum 2 splitter. The splitter should be tube type with 0.9mm leads un-connectorized and 1.5 meters long. The Input of the splitter shall be white, and outputs shall be coloured for ease of identification
	Accessories	The closure shall be supplied with pole mount kit. The kit should have at least 2 hose clamps (75mm ~ 130mm) for securing to the pole
	Cable Entry	The closure shall be supplied with 4 round port seals and 1 oval port seal of sealing of port with OFC cable. An extra round port seal shall be supplied which can take multiple 48/4F drop cables.
FTB Type I		
SL No	Parameter	Minimum Specification
	TEC Compliant	TEC/GR/TX/FTB-02/02/APR-2010 – Type – I, with latest amendments if any. Wherever specifications under this section shall contradict with TEC GR, then specifications under this section shall prevail. Valid Type Approval Certificate (TAC) from Telecom Engineering Centre (TEC), New Delhi.
	Others	FTB shall be supplied with 2 nos of SC-APC adapters and pigtails. The fibre used in the pigtail shall be G657A1 type
		FTB shall be able to properly secure the 4F cable inside the unit

EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance (SITCaM) of KFON Access Fibre

		FTB shall be indoor type and shall be supplied with wall mounting accessories
Street box Type II (FTB Type II)		
SL No	Parameter	Minimum Specification
	TEC compliant	TEC/GR/TX/FTB-02/02/APR-2010 – Type – II, with latest amendments if any. Wherever specifications under this section shall contradict with TEC GR, then specifications under this section shall prevail. Valid Type Approval Certificate (TAC) from Telecom Engineering Centre (TEC), New Delhi.
		FTB shall be supplied with 48 nos of SC-APC adapters and pigtails. The fibre used in the pigtail shall be G657A1 type
		The FTB shall be supplied with pole mount and wall mount kit
		FTB size can be smaller than the one specified in the GR
		It shall have the following provisions for cable entry 1 Express loop entry for mid span cable entry 12 nos of drop cable entries
		Provision for holding 48 nos of splice protection sleeves
		Provision for locking the box
		Should IP 65 rated
		Should have provision to integrate tube type splitter (upto 1x8)
Fibre Patch Cord		
SL No	Parameter	Minimum Specification
	TEC Compliant	TEC/GR/TX/OFJ-01/05. NOV 2009, with latest amendments if any – length as per field requirement Valid Type Approval Certificate (TAC) from Telecom Engineering Centre (TEC)
	Type of Connect	SC/APC – LC/PC – Single mode, Simplex/Duplex, 0.5 M/1 M/2 M/3M etc
Pole		
SL No	Parameter	Minimum Specification
PSC Pole (8M)		
	Working Load	200kgs

EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance (SITCaM) of KFON Access Fibre

	Cross section-Bottom	290mmx90mm
	Cross section-Top	145mmx90mm
	No of Steel wires (Tensioned 4mm dia)	12
	No of Steel wires (Intentioned 4mm dia)	2(3.95m long)

PSC Pole (9M)

	Working Load	200kgs
	Cross section-Bottom	315mmx105mm
	Cross section-Top	115mmx105mm
	No of Steel wires (Tensioned 4mm dia)	12
	No of Steel wires (Intentioned 4mm dia)	2(4.47m long)

PLB HDPE pipe

SL No	Parameter	Minimum Specification
		<p>The expected service life of HDPE pipe and accessories shall not be less than 25 years IS: 4984 / IS: 2530/IS:14151/(part1)/ IS:9938/IS:7328/IS12235(Part-9)/ IS:5175 ASTM D 1693/ ASTM D 638/ ASTM D 648/ ASTM D 790 / ASTM D 1712/ ASTM D 2240/ ASTM D 4565 / ASTM F 2160/ ASTM G 154 TEC-spec no TEC/GR/FA/CDS-008/04/AUG-19 (including all amendments)-HDPE pipe for use as duct for optical fibre cable The Ducts shall be in Grey colour and have the identification markings as per TEC GR wherein Authority logo shall be marked as Authority's name.</p>
	Outside diameter	40 mm + 0.4 mm
	Wall thickness	3.5 mm (+0.2 mm/ -0.00 mm)
	Standard length	1000 meters ± 100 meter

EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance (SITCaM) of KFON Access Fibre

	Thickness of permanent lubricant	>0.4 mm
	Maximum outer diameter of FO cable	13.4±0.5 mm or cable dia whichever is that can be installed by blowing technique higher
	Density (outer and inner layer)	: 940 to 958kg/m ³ at 27°C. The density of completed PLB HDPE shall not be differ by more than 0.003gms/cc by this value when tested as per IS:2530 or IS:7328
	Melt Flow Rate (MFR)	0.2 to 1.1 g/10 minutes at 190°C & 5 kg load: when tested as per IS:2530. The MFR of the outer layer of the completed PLB HDPE pipe shall not differ by more than 30% of this value
	Tensile Strength at Yield	20 N/mm ² minimum, when tested As per ASTM D 638, Type-IV specimens
	Elongation at break:	>600%, when tested as per ASTM D638, Type-IV specimens
	Flexural Modulus at 1% strain	690 N/mm ² minimum, when tested as per ASTM D 790
	Hardness, Shore-D	Between 60 and 65 units, when tested as per ASTM D 2240
	Accessories of PLB HDPE pipe	Plastic coupler, End plug, Cable sealing plug, End cap, PP Rope etc
UG components		
	RCC route indicators	Base - 250 mm x 150 mm Top - 200 mm x 75 mm Height - 1250 mm
	Manholes	RCC joint chamber with diameter of 120 cm and height of 100 cm and thickness of 5 cm (iii) round top cover will be in two halves with diameter of 140 cm and thickness of 5 cm having one handle for each half in centre and word 'KFON' engraved on it.
Cable Accessories		
	Anchoring Tension Clamp Assembly - 48F/24F/12F	Anchoring clamp for ADSS cables, span up to 100m, cable diameter range 10-15mm
	Anchoring Tension Clamp Assembly - 4F	Anchoring clamp for ADSS cables, span up to 100m, cable diameter range 4.5- 7 mm
	Suspension Clamp Assembly - 48F/24F/12F	8mm-20mm

**EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance
(SITCaM) of KFON Access Fibre**

	Universal Pole Bracket	Type of design:6-Line Servicing Type and grade of metallic / non-metallic materials: Heat treated Aluminium alloy for bracket Manufacturing process :Gravity die casting Min. Ultimate tensile strength: In 15 KN Marking :To be furnished by the selected Bidder(s)/Agency(s) Dimension & Weight: Drawing to be submitted in the Tender
	Stainless Steel Strap and Buckles	f size 10 mm ± 0.2 x 0.4mm ± 0.05 mm, tensile strength of 2.4KN min, S S Buckle should suit Strap, width of SS Buckle not less than 10.5 mm x 1 mm
	Down Lead Clamps Assembly	Pole Mounting & UV Resistant ThermoplasticAs per cable design requirement Drawing to be submitted in the Tender
	Slack Storage Bracket	Adjustable Cable Storage Bracket (1No) MALICOIL XM + (1.5 Mtr) IF207 SS Strap + (2 Nos) CF20 SS Buckle
	Cross Arm	AS PER IS:2062 STEEL ANGLE - 50X50X5, GALVANIZATION: AS PER ISO 1461
	LT & HT Pole Stay	Material :Porcelain, Dry one minute power withstand voltage : 27 KV(nms) Wet one minute power withstand voltage : 13 KV(nms) Minimum Failing Load : 88kN Size of Insulator Insulator diameter:85mm Height of Insulator : 140mm Creepage distance(min) :57mm Hole Dia: 25 +- 1.5mm Standard : IS:5300/1969 Tolerance in dimension, if any : As per IS 5300-1969 Weight of Insulator : 1.1 Kgs

Annexure-8 Generic Guidelines

1. Route Survey

This outlines the standard methodology for conducting a route survey to assess feasibility, support design planning, and document essential infrastructure details as prescribed by the Authority.

Data Collection:

1. Route Length: Measure and document the total length of each proposed route.
2. Road Width: Record road dimensions to ensure compatibility with infrastructure requirements.
3. Existing Pole Details: Map and catalog existing poles with specifications such as height, type, and condition.
4. Topographical Features: Identify and record terrain variations, obstacles, water bodies, and elevation changes.
5. Buildings & Infrastructure: Document proximity of structures that may impact the project.
6. OFC (Optical Fiber Cable) Route: Identify existing underground and aerial fiber lines along the proposed routes.
7. Planned Facilities: Account for upcoming developments, including road expansions, metro projects, or utility installations.

Documentation & Reporting

Survey findings must be compiled into prescribed geospatial file formats as directed by the Authority:

1. KMZ / KML / SHP files for mapping and GIS integration.
2. Detailed reports with photographic evidence, coordinates, and annotations.

Final Submission:

1. Cross-check collected data for accuracy and completeness.
2. Submit findings to the designated Authority within the agreed timeline.
3. Maintain backup copies of all files for future reference and validation

2. Fibre Network Design

Ensure a cost-effective fiber network design along the approved route while maintaining high performance, compliance, and scalability.

Responsibilities

1. **Network Planning Team:** Develops initial feasibility and cost assessments.
2. **Design Team:** Prepares detailed design guidelines for submission to the authority.
3. **Approval Authority:** Reviews and approves the submitted design guidelines before implementation.

Design Submission & Approval Process

The design team must prepare a comprehensive **fibre network design document** that includes:

- Route maps, infrastructure layouts, and connection points.
- Fiber type selection, capacity planning, and network topology.
- Cost estimation and optimization strategies.
- Risk assessment and mitigation plans.

Submit the final design as well as the as-built update, typically in Shapefile (.shp), KMZ (.kmz), or KML (.kml) format.

3. Aerial Fibre Installation

This defines the standard methodology for installing ADSS Optical Fiber Cable (OFC), ensuring compliance with technical requirements, safety measures, and efficient execution

Pre-Installation Preparation

- **Communication Protocols:**
 - Notify the **Authority** and relevant stakeholders about the commencement of installation activities.
 - Establish clear communication protocols among teams for coordination and emergency handling.
- **Team Mobilization:**
 - Deploy trained personnel with **mandatory safety gear**, including helmets, gloves, and reflective jackets.
 - Install **sign boards** at work locations to alert pedestrians and vehicles.

Cable Pulling Process

- **Equipment & Tensioning:**

- Cable pulling shall be accomplished using a Cable Pulling Winch.
- Pulling tension must not exceed 60% of the specified tension value for the cable.
- A Dynamometer shall be used for precise measurement of cable tensioning.
- **Cable Handling:**
 - Avoid ground dragging to prevent damage to the sheath and kinking.
 - Prevent stepping or driving over the cable to reduce risks of mechanical damage.
 - Un-spooling must be conducted carefully to prevent overlapping or tangling.
 - Temporary end caps must be used when cutting cable into smaller lengths to prevent dirt, moisture ingress, and preserve filling compounds

Placement of Joint Enclosures & Cable Loops

- **Joint Enclosure Placement:**
 - Must not be placed at Suspension Clamp pole locations.
 - Preferably placed at Adjustable Cable Storage Bracket or Tensioning Pole and secured using Stainless Steel straps and buckles.
- **Cable Looping Requirements:**
 - A 15-meter cable loop must be placed every 400 meters (+/- 10% based on pole conditions).

ADSS Optical Fiber Cable (OFC) Installation Guidelines

- ADSS OFC shall not be pulled directly.
- First, a **Protective Helix** must be wound around the cable before pulling using:
 - A **Cable Pulling Grip** or
 - A **Nylon Rope (minimum diameter: 12mm)**.
- Bending radius must always comply with the minimum permissible radius as recommended by the manufacturer or RFP specifications

Installation Accessories

The following wedge-type accessories shall be utilized:

- **Anchoring (Dead End) Assembly**

- **Pole Bracket**
- **Suspension Clamp Assembly**
- **Adjustable Cable Storage Bracket**
- **Stainless Steel Strap with Buckle**

Anchoring (Dead End) Assembly

Used to securely hold ADSS cable to concrete, wood, or steel poles to transmit mechanical tension at:

- **End of a run**
- **Tensioning points**
- **Major directional changes exceeding 20 degrees**
- **Junction box/joint closure locations**

Components:

- **Two wedge-type Tension Clamps (Dead End Clamp)**
- **One Pole Bracket or Universal Wall Bracket**

Adjustable Cable Storage Bracket & Down Lead Clamps

- **Adjustable Cable Storage Bracket:**
 - Stores excess cable to be used later for jointing in the middle of a run.
- **Down Lead Clamps:**
 - Secure the cable on the pole, preventing movement due to wind conditions.
 - Fixed on the pole using Stainless Steel straps.

Span Length

Voltage type	Max. Span length in Meters	Permissible Sag	Remarks
230/ 415V	80	<1% of Span length	If there are intermediate poles, within 80 meters, a pole that is located between shall be considered for tensioning the cable. Also, in case of any bends/curves, Consecutive poles are considered for tensioning/suspension of the cable

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11 KV	80	<1% of Span length	If there are intermediate poles, within 80 meters, a pole that is located between shall be considered for tensioning the cable. Also, in case of any bends/curves, intermediate poles within 80 meters shall be considered for tensioning/suspension of the cable
33 KV	100	<1% of Span length	In exceptional cases, where the span length of the transmission line is more than 100 meters and there is no option for installing a new pole between the span, an additional 10% span length can be increased and sag shall be allowed up to maximum of 2% of the span length. In this case, cable shall be laid with maximum ground clearance

- **Ground Clearance**

- A minimum ground clearance of 3.05 m shall be maintained for the cable taken along the street
- When cables are drawn across the road, a minimum ground clearance of 5.8 m shall be maintained.
- Mounting height from ground of storage bracket suggested is 6' to 7' from Ground level.

- **Minimum Safe Distance from Live Conductors**

Reference Voltage	Safe Distance (m)
230/415 V	0.7
11 KV	1
33 KV	1.2

- **General Conditions**

- All main OFC routes will have Type-1 Street boxes (Dome type Joint enclosures) at every 2 Km. A service loop of 2 times length of height of the poles and additional 10 meters shall be considered.
- Minimum bend radius ($20 \times D$ where D is the outer diameter of the cable) shall be

always complied

4. Pole installation

This defines the standard methodology for installing PSC poles, ensuring compliance with depth specifications, safety precautions, and corrective measures for challenging terrain conditions.

Depth-Based Installation Guidelines

Case 1: Depth Achieved $\geq 1.50\text{m}$

- Proceed with **standard installation** as per specifications.
- **Backfill with excavated soil** and **compact thoroughly** using manual ramming.

Case 2: Depth Achieved $\leq 1.20\text{m}$ (*Corrective Measure Required*)

- Implement **Concrete Muffing** at the base of the pole to provide **additional grip and load stability**.

PCC Installation Requirements

A. Concrete Grade

- Use M10 grade concrete (1:3:6 ratio of cement, sand, and aggregate) with a compression strength of 1450 psi.

B. Shuttering Box Setup

- Use a shuttering metal box with dimensions 45cm × 45cm × 150cm.
- Ensure nut and bolt fastening to prevent displacement during concrete pouring.

C. PCC Installation Process

1. Excavate pit dimensions: 45cm × 45cm × 150cm, ensuring 100cm below ground level (NGL) and 50cm above NGL.
2. Install shuttering metal box securely around the pit.
3. Prepare M10 concrete mix and pour into the pit while compacting thoroughly.
4. Allow **24 hours** for concrete setting before removing the shutter box.
5. Begin **curing for 3 days** to ensure structural integrity.

Pole Installation Guidelines

- Ensure perpendicular placement of poles before backfilling.

- Backfilling must be performed layer-wise using compacted hard soil.
- Manual ramming with an adequate-weight hand rammer is required for packing.

Cable Handling & Stay-Wire Requirements

- ADSS cable should only be drawn after complete compaction of backfilled soil.
- Stay-wires must be installed at locations where cable tension creates a lateral load on the pole.
- Where stay-wires are not recommended, temporary nylon rope support must be used during tensioning to prevent pole bending or damage.
- For concrete-reinforced installations, allow a minimum setting time of 2 days before drawing ADSS cable.

5. UG Cable/HDPE Duct Installation

This outlines the best practices for underground fiber optic cable (OFC) installation to ensure network reliability, minimize unnecessary joints, and adhere to statutory regulations.

Cable Installation Guidelines

- **Short Span Lengths:** For distances up to **500 meters**, **ADSS cables** shall be used to avoid unnecessary joints, except for **gantry to POP/control room connections**.

Man-Holes and Hand-Holes:

- Man-holes shall be installed at **all OFC jointing locations**, approximately **4 km apart** for inter-city routes.
- Branching requirements will be considered for additional man-holes.
- Major turning points (such as road crossings) shall have additional man-holes to facilitate OFC installation.
- If the gap between two consecutive man-holes or hand-holes exceeds **1 km**, additional **hand-holes** shall be installed so that the interval does not exceed **1 km**.
- This applies **only where UG fibre is used**

Installation Methods

HDPE ducts shall be installed using one of the following techniques:

- **Open-cut method:** Involves trenching, laying the ducts, and backfilling.
- **Trenchless techniques:** Includes **Horizontal Directional Drilling (HDD)**, **moiling**, **boring**, etc., where only small entry and exit pits are dug for duct installation.

OFC Duct Route Alignment

- The route must comply with permissions granted by regulatory authorities.
- **Underground utilities** shall be identified using as-built records and verified via **manual cross pits** at adequate intervals.
- For **open-cut installation**, trench boundaries shall be **marked with rope and lime powder** before digging.
- If a **clamping method** is used, the **route line shall be clearly marked**.

OFC Duct Depth Requirements

- **Standard soil conditions:** Minimum **depth of 1.65m (1650mm)** for ducts, regardless of installation method.
- **Rocky terrains:**
 - If **open trenching** requires rock excavation tools (chisels, rock hammers, blasting), minimum depth shall be **1.20m (1200mm)** or **400mm below the rock surface** (whichever is greater), with a maximum depth of **1.60m (1600mm)**.
 - **Additional 50mm soft padding** shall be provided beneath the ducts.
 - **HDD method** should maintain **1.65m (1650mm)** depth, except at entry and exit pits where depth is **1.20m + 50mm padding**.
- Areas requiring continuous excavation deeper than 400mm over a stretch of at least 100m shall be classified as a rocky area

Gradient Transition Requirements

- Variations in trench depth should be gradual, maintaining a maximum gradient of 15 degrees.
- Duct curvature radius must be **at least 1300mm** for smooth transitions.

Trench Padding and Backfilling

- Rocky terrain: Minimum 50mm soft soil padding at the trench bottom before duct installation.
- After placing the ducts, backfilling shall involve:
 - 200mm soft soil cover over ducts before filling with excavated material.

Compliance and Extra Protection

- If regulatory authorities **restrict trench depth**, additional duct protection shall be applied **as per Table-1**.

- Reduction of duct depth below **1200mm in rocky areas** is **not permitted**.

HDD Installation Guidelines

- HDD shall be the **preferred method** for **road and railway crossings**, unless otherwise approved by the **construction manager/head**.
- Ducts should be installed **below existing utilities** where practical.
- HDD profile must ensure a **minimum clearance of 500mm** between the installed ducts and existing utilities.

Duct Joining and Coupling

- If unavoidable, duct sections shall be joined using HDPE duct couplers conforming to standards.
- Maximum two couplers permitted between adjacent man-holes/hand-holes (for open trenching only).
- This limitation does not apply to ducts installed using HDD.
- Duct couplers, tools, and equipment shall be provided by the selected Bidder(s)/Agency(s), unless stated otherwise in the contract.
- Coupler locations (LAT/LONG coordinates) must be recorded for inclusion in as-built drawings.
- Duct joints must be airtight to allow smooth cable blowing operations.
- Hacksaws are prohibited for duct cutting—only proper duct cutters shall be used.

General Installation Guidelines

- Crossing existing utilities and infrastructure:
 - HDPE ducts may cross pipelines, cables, drains, highways, railroads, roads, bridges, culverts, rivers, estuaries, and other natural/manmade obstructions using open-cut methods, trenchless techniques, or other suitable methods.
 - Method selection is subject to approval by the relevant authorities overseeing the utilities/infrastructure.
 - The selected Bidder(s)/Agency(s) is responsible for identifying all obstructions before beginning installation work and planning the most appropriate installation method.
- Precautions for underground utilities:

- During excavation or trenching, underground pipelines (water, drainage, gas, or oil) and cables (communications or power) shall be identified and handled with utmost care.
- Necessary support structures shall be used to maintain the stability and safety of the utilities.
- If alignment obstruction occurs, the owners of the utility must be informed and invited to oversee the execution of work.
- In case of accidental damage to any existing utility, the selected Bidder(s)/Agency(s) must repair and restore it to its original operating condition at no additional cost to the Company.

Crossings Using Existing Bridges / Culverts

- Existing **bridges and culverts** shall be used for crossings where possible, provided **official permission is granted**
- Above-ground installations:
 - Above-ground installation of ducts is limited to bridges and culverts only.
 - At these locations, ducts shall be installed inside GI Pipe or HDPE DWC pipes, wrapped with metal sheet protection (GI sheet wrapping) of appropriate size (4" to 6"), depending on the number of ducts.
- Extension beyond water bodies:
 - GI Pipe, GI sheet wrapping, or DWC ducts must extend at least 6 meters beyond the banks/limits of the bridge or water body.
 - Protective covering shall be extended accordingly.
 - Man-hole/hand-hole installations (if needed) must be located at least 6 meters away from the end of the GI sheet wrapping/DWC pipe.
- For spans less than 500 meters, ADSS fibre should be kept in a 30-meter loop on the nearest possible pole using ACSB.
- If there is a bend or turn, a manhole must be installed.

Bridge Installation Methods

- **Where trenching is not possible, the following techniques shall be applied:**
 - **GI Pipe or GI wrapping/DWC pipe** (as per selection criteria) must be installed in a **designated safe location for utilities** on the bridge.

- Pipes shall be **firmly fixed** using **clamps or encased in M15 concrete** at **6-meter intervals**.
- HDPE ducts shall be **pulled inside the pipe** securely.

Flood Protection Measures

- If GI Pipe or GI wrapping/DWC duct is installed under a bridge or culvert, additional precautions shall be taken to prevent washout during flooding.
- Adjacent areas (banks of the water body) shall be protected against soil erosion and settlement.

Pre-Cast Manhole Dimensions for KFON

- **Inner Diameter:** 100 cm
- **Outer Diameter:** 110 cm
- **Height:** 50/100 cm
- **Thickness:** 5 cm
- **Cable/Duct Entry Holes:** Four rectangular holes (150×150 mm / 80×80 mm), diametrically opposite at the center of the chamber.
- **Round Base Plate:** 120 cm diameter, 4 cm thick.
- **Top Lids:** Two half-circular plates, combined **diameter of 120 cm**, each **4 cm thick**.

Duct Integrity Testing (DIT)

- Foam Cleaning Pig: Blown through the duct to remove water, mud, and obstacles.
- Gauge Pig: Shuttle of wood (80% of duct nominal I.D, 150 mm length) blown through the duct to detect kinks or obstructions.
- Air pressure test at 7-10 barg for 30 minutes.
- Pressure decay should not exceed 0.1 bar/min (1.45 psi/min).
- Compressed air temperature must not exceed 55°C during testing.

Cable Blowing and Pulling

Cable Blowing Using Blowing Machine

- Conduct duct route survey and inspect locations for manholes, coiling, and splicing.

- Identify cable reel and pulling locations.
- Ensure duct continuity is clear for cable pulling.
- OFC Drum Test to be conducted before blowing.
- Special blowing machine using compressed air not exceeding 10 bar.
- OFC shall be unwound from the drum and laid in a figure-8 shape.
- Half-length blowing:
 - **Unwind cable at the pay-off stand in figure-8 form.**
 - **Blow the inner end of the OFC in the opposite direction.**
- Avoid kinks during and after blowing.

Cable Pulling (Manual Method)

- If span length between pulling/coupler points exceeds 40 meters and no pulling rope is inside the ducts, use rodder (cable puller).
- Rodder Process:
 - Push rodder rod through one end of the duct.
 - Tie cable at the other end when rodder rod reaches.
 - Reel back the rodder rod to pull the cable through.

Route Marker Installation

- Base Dimensions: 250 mm × 150 mm.
- Top Dimensions: 200 mm × 75 mm.
- Height: 1250 mm.
- Painting:
 - Route indicators shall be painted blue.
 - Engraved letters should be painted white with enamel paint (reputed brand).
- Placement:
 - 50 cm away from the trench center.
 - One marker near the chamber.
 - Second marker after 500 meters in long spans.

Route Marker Installation Process

- Dig pits of size: 60 cm × 60 cm × 75 cm depth.
- Secure indicator upright by proper ramming and backfilling with soil.
- If depth is less due to hard strata:
 - Use soil mixed with stone/aggregate/murum.
 - PCC top layer (15 cm) for stability.
 - Adequate water curing for structural hardening.
- Install route markers every 250 meters and on both sides of road/rail crossings.

Annexure-9 Product details

Sl. No.	Item Description	Make & Model
A. Optical Fiber Cable		
1	ADSS Fiber Cable – 12F	
2	Armoured Fiber Cable (UG) – 12F	
3	ADSS Fiber Cable – 24F	
4	Armoured Fiber Cable (UG) – 24F	
5	ADSS Fiber Cable – 48F	
6	Armoured Fiber Cable (UG) – 48F	
7	ADSS Fiber Cable – 4F	
8	Armoured Fiber Cable (UG)– 4F	
B. Accessories		
9	Anchoring Tension Clamp Assembly- 48F/24F/12F	
10	Anchoring Tension Clamp Assembly- 4F	
11	Suspension Clamp -48F/24F/12F	
12	Down Lead Clamps Assembly	
13	Universal Pole Bracket	
14	Stainless Steel Strap and Buckles	
15	Cross arm	
16	PSC Pole (8Mtr)	
17	PSC Pole (9Mtr)	
18	LT pole stay	
19	HT pole stay	
20	Adjustable Cable Storage Bracket	
21	PLB HDPE pipe	
22	RCC route indicators	
23	Manholes (RCC Joint Chambers)	
24	Fiber Termination Box –Type – I)	
25	Fiber Termination Box –Type – II (Street box)	
26	Joint Closure (JC) (Dome Type)	
27	1:4 optical splitter	
28	1:8 optical splitter	
29	Fibre Patch Cord	
30	Pole & Fiber ID Tags	

Annexure-10 Material Specification Compliance Sheet

Material	Parameter	Minimum Specification	Compliance (Yes/No)
Optical Fibre {ADSS (48F/24F/12F)/Underground(48F/24F/ 12F)}	Optical Fibre	ITU-TG.652.D	
	Type of fibre	Single mode (Section I (Type III) of TEC	
		GR No: TEC/GR/TX/ORM-001/05/DEC-17	
		and subsequent amendments, if any)	
	Max Span length	100m	
	Operational Wind Velocity (ADSS)	100 Kmph and 150 Kmph	
	Sag of span length(ADSS)	Max sag allowed without excess load: 1% of span length	
		Max sag allowed with excess load: 2% of span length	
	Tensile Strength	9.81 x 4W Newton (where w is the mass of 1 Km of cable in Kg)	
	FRP Rod EAA coated	2.5 +0.1/-0.0 mm for 48F	
		2.3 +0.1/-0.0 mm for 24/12F	
	Tube ID(min)	1.7 mm for 48F	
		1.4 mm for 24/12F	
	Tube OD	2.4 ± 0.1 mm for 48F	
		2.2 ± 0.1 mm for 24/12F	
	48F	Fibre per tube: 12	
		No. of Loose tube :4	
	24F	Fibre per tube: 4	
		No. of Loose tube :6	
	12F	Fibre per tube: 4	
		No. of Loose tube :3	
	No. of dummy cord	48F : 2	
		24F : 0	
		12F : 3	
	Tube stranding layover	90-110 mm	
	strength for 48F/24F/12F		
	Min. Sheath Thickness	Inner: 1.0 mm	
		Outer: 1.8 mm	

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Material	Parameter	Minimum Specification	Compliance (Yes/No)
	Outer Sheath Colour	Black with white stripes	
	Aramid Quantity (Minimum)	10.0 Kg/Km for 48/24/12F of 100 Km/hour	
		13.0 Kg/Km for 48F of 150 Km/hour	
	Cable Diameter	14.0 ± 0.5 mm for 24/12F of 100 Km/hour	
		14.5 ± 0.5 mm for 48F of 100/150 Km/hour	
	Cable Weight	150 -180 Kg/Km for 24/12F of 100 Km/hour	
		160-190 Kg/Km for 48F of 100/150 Km/hour	
	Cable to be designed to Fibre strain value of	0.10%	
	Cable to be tested at defined load for fibre strain value of	0.25%	
	Cable Weight	150 -180 Kg/Km for 24/12F of 100 Km/hour	
		160-190 Kg/Km for 48F of 100/150 Km/hour	
	Cable to be designed to Fibre strain value of	0.10%	
	Cable to be tested at defined load for fibre strain value of	0.25%	
Aerial /UG Drop Cable - 4F	Optical Fibre	As per ITU-T Rec. G 657 A1	
	Type of fibre (wavelength band optimized	Single mode (Section I (Type V) of TEC/GR/TX/ORM-001/05/DEC-17 and subsequent	
	nominal 1310 nm)	amendments, if any)	
	Operational Wind Velocity (ADSS)	75 Kmph	
	Sag of span length(ADSS)	Max sag allowed without excess load: 1% of	

**EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance
(SITCaM) of KFON Access Fibre**

Material	Parameter	Minimum Specification	Compliance (Yes/No)
		span length	
		Max sag allowed with excess load: 2% of span	
		length	
	Fibre per tube	4(Color:BL,OR,GR, BR)	
	No. of Loose tube	1(Colour:Natural)	
	Loose Tube ID/OD	1.4 ± 0.1 / 2.0 ± 0.1 mm	
	Loose Tube Material	PBT	
	Embedded Strength Material	FRP/ARP	
	Diameter of FRP	1.0 + 0.1 mm	
	Aramid Yarns (Peripheral Strength Member)	3.9 ± 0.4 Kg/Km	
	Sheath Material	UV Proof HDPE	
	sheath Colour	Black with white stripes	
	Min. Thickness of Sheath Material	1.8 mm	
	Cable Weight	38 ± 10%	
	Cable Diameter	6.5 ± 0.5 mm	
Optical Splitter	1:4/1:8	As per TEC GR No. TEC/GR/TX/OPT001/01/ APRIL-12 with latest amendments.	
		Valid Type Approval Certificate (TAC) from Telecom Engineering Centre (TEC), New Delhi	
Street Box Type I (Joint Closure (Dome Type))	TEC compliant	TEC/GR/TX/OJC-002/03/APR-2010, with latest amendments if any. Wherever specifications under this section shall contradict with TEC GR, then specifications under this section shall prevail.	
		Valid Type Approval Certificate (TAC) from Telecom Engineering Centre (TEC), New Delhi	

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Material	Parameter	Minimum Specification	Compliance (Yes/No)
		Bidder is allowed to submit maximum Two BJC manufacturer's/OEMs QF-103 along with Back-to-Back Legal Supply & Support Agreements. Also manufacturers who have got TSEC/TAC against GR No.TEC/GR/TX/OJC002/03/APR-2010 and TEC GR No. TEC/GR/TX/OPT-001/01/ APRIL-12 will be allowed to make supplies against the same approval	
	Tray	The closure should have an additional tray (total of 5 splice trays) to accommodate minimum 2 splitter. The splitter should be tube type with 0.9mm leads un-connectorized and 1.5 meters long. The Input of the splitter shall be white, and outputs shall be coloured for ease of identification	
	Accessories	The closure shall be supplied with pole mount kit. The kit should have at least 2 hose clamps (75mm ~ 130mm) for securing to the pole	
	Cable Entry	The closure shall be supplied with 4 round port seals and 1 oval port seal of sealing of port with OFC cable. An extra round port seal shall be supplied which can take multiple 48/4F drop cables.	
FTB Type I	TEC Compliant	TEC/GR/TX/FTB-02/02/APR-2010 – Type – I, with latest amendments if any. Wherever specifications under this section shall contradict with TEC GR, then specifications under this section shall prevail. Valid Type Approval Certificate (TAC) from Telecom Engineering Centre (TEC), New Delhi.	

EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance (SITCaM) of KFON Access Fibre

Material	Parameter	Minimum Specification	Compliance (Yes/No)
	Others	FTB shall be supplied with 2 nos of SC-APC adapters and pigtails. The fibre used in the pigtail shall be G657A1 type	
		FTB shall be able to properly secure the 4F cable inside the unit	
		FTB shall be indoor type and shall be supplied with wall mounting accessories	
Street box Type II (FTB Type II)	TEC Compliant	TEC/GR/TX/FTB-02/02/APR-2010 – Type – II, with latest amendments if any. Wherever specifications under this section shall contradict with TEC GR, then specifications under this section shall prevail. Valid Type Approval Certificate (TAC) from Telecom Engineering Centre (TEC), New Delhi.	
		FTB shall be supplied with 48 nos of SC-APC adapters and pigtails. The fibre used in the pigtail shall be G657A1 type	
		The FTB shall be supplied with pole mount and wall mount kit	
		FTB size can be smaller than the one specified in the GR	
		It shall have the following provisions for cable entry 1 Express loop entry for mid span cable entry 12 nos of drop cable entries	
		Provision for holding 48 nos of splice protection sleeves	
		Provision for locking the box	
		Should IP 65 rated	
		Should have provision to integrate tube type splitter (upto 1x8)	
Fibre Patch Cord	TEC Compliant	TEC/GR/TX/OFJ-01/05. NOV 2009, with latest amendments if any – length as per field requirement Valid Type Approval	

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Material	Parameter	Minimum Specification	Compliance (Yes/No)
		Certificate (TAC) from Telecom Engineering Centre (TEC)	
	Type of Connect	SC/APC – LC/PC – Single mode, Simplex/Duplex, 0.5 M/1 M/2 M/3M etc	
8Mtr PSC Pole	Working Load	200kgs	
	Cross section-Bottom	290mmx90mm	
	Cross section-Top	145mmx90mm	
	No of Steel wires (Tensioned 4mm dia)	12	
	No of Steel wires (Intentioned 4mm dia)	2(3.95m long)	
9Mtr PSC Pole	Working Load	200kgs	
	Cross section-Bottom	315mmx105mm	
	Cross section-Top	115mmx105mm	
	No of Steel wires (Tensioned 4mm dia)	12	
	No of Steel wires (Intentioned 4mm dia)	2(4.47m long)	
PLB HDPE pipe		The expected service life of HDPE pipe and accessories shall not be less than 25 years	
		IS: 4984 / IS: 2530/IS:14151/(part1)/ IS:9938/IS:7328/IS12235(Part-9)/ IS:5175 ASTM D 1693/ ASTM D 638/ ASTM D 648/ ASTM D 790 / ASTM D 1712/ ASTM D 2240/ ASTM D 4565 / ASTM F 2160/ ASTM G 154	
		TEC-spec no TEC/GR/FA/CDS-008/04/AUG-19 (including all amendments)-HDPE pipe for use as duct for optical fibre cable	
		The Ducts shall be in Grey colour and have the identification markings as per TEC GR wherein Authority logo shall be marked as Authority's name.	

EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance (SITCaM) of KFON Access Fibre

Material	Parameter	Minimum Specification	Compliance (Yes/No)
	Outside diameter	40 mm + 0.4 mm	
	Wall thickness	3.5 mm (+0.2 mm/ -0.00 mm)	
	Standard length	1000 meters ± 100 meter	
	Thickness of permanent lubricant	>0.4 mm	
	Maximum outer diameter of FO cable	13.4±0.5 mm or cable dia whichever is that can be installed by blowing technique higher	
	Density (outer and inner layer)	: 940 to 958kg/m ³ at 27°C. The density of completed PLB HDPE shall not be differ by more than 0.003gms/cc by this value when tested as per IS:2530 or IS:7328	
	Melt Flow Rate (MFR)	0.2 to 1.1 g/10 minutes at 190°C & 5 kg load: when tested as per IS:2530. The MFR of the outer layer of the completed PLB HDPE pipe shall not differ by more than 30% of this value	
	Tensile Strength at Yield	20 N/mm ² minimum, when tested As per ASTM D 638, Type-IV specimens	
	Elongation at break:	>600%, when tested as per ASTM D638, Type-IV specimens	
	Flexural Modulus at 1% strain	690 N/mm ² minimum, when tested as per ASTM D 790	
	Hardness, Shore-D	Between 60 and 65 units, when tested as per ASTM D 2240	
	Accessories of PLB HDPE pipe	Plastic coupler, End plug, Cable sealing plug, End cap, PP Rope etc	
RCC route indicators		Base - 250 mm x 150 mm Top - 200 mm x 75 mm Height - 1250 mm	
Manholes		RCC joint chamber with diameter of 120 cm and height of 100 cm and thickness of 5 cm	
		round top cover will be in two halves with diameter of 140 cm and thickness of 5 cm having one handle for each half in centre and word 'KFON' engraved on it.	

EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance (SITCaM) of KFON Access Fibre

Material	Parameter	Minimum Specification	Compliance (Yes/No)
Anchoring Tension Clamp Assembly - 48F/24F/12F		Anchoring clamp for ADSS cables, span up to 100m, cable diameter range 10-15mm	
Anchoring Tension Clamp Assembly - 4F		Anchoring clamp for ADSS cables, span up to 100m, cable diameter range 4.5- 7 mm	
Suspension Clamp Assembly - 48F/24F/12F		8mm-20mm	
Universal Pole Bracket	Type of design	6-Line Servicing	
	Type and grade of metallic / non-metallic materials	Heat treated Aluminium alloy for bracket	
	Manufacturing process	Gravity die casting	
	Min. Ultimate tensile strength	15 KN	
Stainless Steel Strap and Buckles		f size 10 mm ± 0.2 x 0.4mm ± 0.05 mm, tensile strength of 2.4KN min, S S Buckle should suit Strap, width of SS Buckle not less than 10.5 mm x 1 mm	
Down Lead Clamps Assembly		Pole Mounting & UV Resistant ThermoplasticAs per cable design requirement Drawing to be submitted in the Tender	
Slack Storage Bracket		Adjustable Cable Storage Bracket (1No) MALICOIL XM + (1.5 Mtr) IF207 SS Strap + (2 Nos) CF20 SS Buckle	
Cross Arm		AS PER IS:2062 STEEL ANGLE - 50X50X5, GALVANIZATION: AS PER ISO 1461	
LT & HT Pole Stay	Material	Porcelain	

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Material	Parameter	Minimum Specification	Compliance (Yes/No)
	Dry one minute power withstand voltage	27 KV(nms)	
	Wet one minute power withstand voltage	13 KV(nms)	
	Minimum Failing Load	88kN	
	Size of Insulator	Insulator diameter:85mm Height of Insulator : 140mm Creepage distance(min) :57mm Hole Dia: 25 +- 1.5mm Standard : IS:5300/1969 Tolerance in dimension, if any : As per IS 5300-1969 Weight of Insulator : 1.1 Kgs	

**Annexure-11 Declaration of Districts for Which Bid is Submitted (At Uniform Unit
Price)**

SL. No	District Name	Willing to Bid (Yes/No)
1	Trivandrum	
2	Kollam	
3	Pathanamthitta	
4	Alappuzha	
5	Kottayam	
6	Idukki	
7	Ernakulam	
8	Thrissur	
9	Palakkad	
10	Malappuram	
11	Kozhikode	
12	Wayanad	
13	Kannur	
14	Kasargod	

**EOI for Empanelment of Agencies for Supply, Installation, Testing, Commissioning and Maintenance
(SITCaM) of KFON Access Fibre**

Check List for Document Submission

Check List form			
SL NO	Annexure No	Description	Submitted Yes/No
1	Annexure - 1	Format for Bid Cover Letter	
2	Annexure - 2	Format for Commercial Bid Cover Letter	
3	Annexure - 3	Format for Malicious Code Certificate	
4	Annexure - 4	Land border declaration	
5	Annexure - 5	Bidder Details	
6	Annexure - 6	Commercial Bid Form	
7	Annexure - 9	Product details	
8	Annexure - 10	Material Specification Compliance Sheet	
9	Annexure - 11	Declaration of Districts for Which Bid is Submitted	