Section-1

Introduction, General Information and General Requirement

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Section 1

Introduction, General Information and General Requirement

This part of the Tender Documents describes the technical specifications of OPGW and associated hardware & fittings including joint box etc. This specification describes the functional and performance requirements of the system.

This part of specification describes the functional and performance requirement of the Fibre Optic cable and its associated hardware & fittings.

1.1 Scope and General Requirements

The scope of OPGW requirement is described as follows:

The scope shall include include the survey, planning, design, engineering, manufacturing, supply, transportation, insurance, delivery at site, unloading, handling, storage, Supervision of erection/installation , installation, splicing, termination, testing, training, and demonstration for acceptance, commissioning and documentation for:

a) OPGW including all associated hardware accessories & fittings
b) Fibre Optic Approach Cable including installation hardware
c) Underground Fiber Optic cable(UGFO)/All Dielectric Self Supporting(ADSS) cable including installation material, accessories and fixtures
d) Fibre Optic Distribution Panels (FODP) & Joint Box
e) Supply of spares
f) All other associated work/items described in the technical specifications.

"The existing earthwire/OPGW alongwith its hardware & fittings shall be dismantled & taken away by the contractor on installation of OPGW. The contractor shall quote the buyback price for the dismantled earth wire / OPGW(along with hardware fittings & accessories)."

The various Sections of this specification define the design, performance, test and implementation requirements for OPGW Cable system.

1.2 General Requirements

The Contractor is encouraged to offer standard products and designs. However, the Contractor must conform to the requirements and provide any special equipment necessary to meet the requirements stated herein.

It should be noted that parameters for OPGW cable design has been specified in the tender. Standard OPGW designs are to be used for various voltage levels & wind zones of transmission lines that are mentioned at Section-02 of Technical Specifications . In case of constraints in adopting standard design for any of the transmission line(s) or for any specific sections such as higher spans (>600m), Valley crossings, snow covered sections or for other voltage levels & wind zones etc., the Contractor may propose customized design(s) during detailed engineering to

meet the requirement.

The various sections of these specifications defines the survey, design, performance, installation, testing & implementation for the fibre optic cable system.

The Bidder's proposal shall address all functional and performance requirements within this specification and shall include sufficient information and supporting documentation in order to determine compliance with this specification without further necessity for inquiries.

The Bidder's proposal shall clearly identify all features described in the specifications or in any supporting reference material that will not be implemented; otherwise, those features shall become binding as part of the final contract.

The offered items shall be designed to operate in varying environments. Adequate measures shall be taken to provide protection against rodents, contaminants, pollutants, water & moisture, lightning & short circuit, vibration and electro-magnetic interference etc.

The Contractor shall demonstrate a specified level of performance of the offered items during well-structured factory tests and field testing wherever required.

1.2.1 General Technical Requirements

List of items, goods, services or works from Class-I Local supplier meeting the Minimum Local Content notified in Annexure-1 of Ministry of Power (MoP) order on 'Pubic Procurement (Preference to Make In India) to provide for purchase preference (linked with local content) in respect of Power Sector ' dated 16.11.2021 is enclosed at Appendix-J to this Technical Specifications.

List of items, goods, services or works from Local supplier meeting the Minimum Local Content notified in Table-A, B & C of Department of Telecommunications(DoT), Ministry of Communications order dated 29.08.2018 on 'Public Procurement (Preference to Make In India) Order 2017 –Notification of Telecom products, Services or Works – regarding " is enclosed at Appendix-K to this Technical Specifications.

Fibre Optic Cable

Fibre Optic Approach Cable and Under Ground Fibre Optic Cable shall be offered from a manufacturer(s) **who is a "Local Supplier" as per latest DPIIT and DoT notification.**

Aerial Fibre Optic (ADSS) Cable manufacturer

The Aerial Fibre Optic cable shall be offered from a manufacturer(s) who is a "Local Supplier" as per latest DPIIT and DoT notification and has been manufacturing Aerial Fibre Optic cable for the last three (3) years and at least 100 Km of Aerial Fibre Optic cable manufactured by such manufacturer(s) shall have been in satisfactory operation for at least two (2) years as on the date of bid opening.

Provision to be complied as per latest guidelines of GOI/ MOP/DPIIT/DOT.

1) Mandatory Testing and Certification of Telecom Equipments (MTCTE) under Indian Telegrah(Amendment) Act, 2017 : Mandatory Testing and Certification of Telecom Equipment (MTCTE)' under the provision of Indian Telegraph (Amendment) Rules 2007

shall apply on all equipment to be supplied under subject Package. Contractor has to supply only certified equipment as per MTCTE. Please refer the weblink https://www.mtcte.tec.gov.in for more details

1.3 Organization of the Technical Specification Document

Section 3 through 4 and Appendices provide the project requirements of the fibre optic cabling system to be provided.

Section 2 contains specifications for OPGW cabling & associated hardware & fittings
Section 3 contains the requirement for Inspection & Testing requirement
Section 4 contains the Support Services & documentation
Section 5 contains specifications for ADSS
Section 6 Technical Specifications for UGFO

The following is a list of the Appendices:

Appendix A - General Information
Appendix B - Data Requirement Sheets (DRS)
Appendix C - Guidelines for Live Line Installation
Appendix D - Guidelines for Off Line Installation
Appendix E - Splicing Guide Lines
Appendix F - Type Test Procedure
Appendix G - FAT Procedure
Appendix H - SAT Procedure
Appendix I - Guidelines for Approach Cable Installation
Appendix J - Annexure-1 of Ministry of Power (MoP) order on 'Pubic Procurement (Preference to Make In India)

Appendix K` - Table-A, B & C of Department of Telecommunications(DoT), Ministry of Communications order dated 29.08.2018 on 'Public Procurement (Preference to Make In India)

1.4 Applicable Standards

The applicable standards are mentioned in the respective technical section. The offered equipment shall conform to the standards mentioned in the specification except to the extent modified by this specification. In case of any discrepancy between the description given in the specification and the standards, the provisions of the technical specification shall be followed. The parameters not specifically mentioned in this specification shall conform to the standard mentioned in this specification.

Specifications and codes shall be the latest version, inclusive of revisions, which are in force at the date of the contract award. Where new specifications, codes, and revisions are issued during the period of the contract, the Contractor shall attempt to comply with such, provided that no additional expenses are charged to the Employer without Employer's written consent.

In the event the Contractor offers to supply material and/or equipment in compliance to any

standard other than Standards listed herein, the Contractor shall include with their proposal, full salient characteristics of the new standard for comparison.

In case values indicated for certain parameters in the specifications are more stringent than those specified by the standards, the specification shall override the standards.

The following standards and codes shall be generally applicable to the equipment and works supplied under this Contract:

(i) IEEE 802.3, 1138-2021
(ii) ITU-T/CCITT Recommendations, G.652, G.701, G.702, G.703, G.711/ 12/ 14/ 35/ 36, G.721, G.742, G.811 and G.823
(iii) ITU-T/CCITT Recommendations M3010, G771
(iv) International Electrotechnical Commission standards, IEC 60801-2/3/4/5, IEC-60255-4, IEC-60255-5, IEC-60870-2-1, IEC-60721-3-3, IEC-60529.
(v) International Electrotechnical Commission standards, IEC 1000-4-xx series.
(vi) IEC publication 60068, 60068-2-2, 60068-2-3, 60068-2-14, 60068-2-27, 60068-2-32.
(vii) ITU-T/CCITT Recommendations K.11, K.17, K.20.

1.5 References

(1) CIGRE Guide for Planning of Power Utility Digital Communications Networks
(2) CIGRE Optical Fibre Planning Guide for Power Utilities
(3) CIGRE New Opportunities for Optical Fibre Technology in Electricity Utilities
(4) CIGRE guide to fittings for Optical Cables on Transmission Lines

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