

## प्रसार भारती PRASAR BHARATI (Broadcasting Corporation of India)

दूरदर्शन महानिदेशालय

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**Subject:** Draft Specification for Supply of Optical Fiber Communication link (OFC) at 11 Earth Stations.

The Draft specification of the upcoming tenders is enclosed herewith to offer comments, if any by due date at e-mail address <a href="mailto:ddpurchase401@yahoo.co.in">ddpurchase401@yahoo.co.in</a> or on following Address:

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Specification For: Draft Specification for Supply of Optical Fiber Communication

link (OFC) at 11 Earth Stations

Specification no: SATD/OFC Link/11 Nos./Jan\_2019 dated 15/01/2019

Due Date to offer Comments: 04.02.2019

Encl.: As above

Prabhat Kumar Singh Assistant Engineer

For DG: DD



Prasar Bharati
Directorate General: Doordarshan
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New Delhi-110001

Specification for "Supply of Optical Fiber Communication link (OFC) at 11 Earth Stations"

Specification No.: SATD/OFC Link/11 Nos./Jan\_2019
Date: 15/01/2019



# Specification No.: SATD/OFC Links/11 Nos./Jan\_2019

Technical Specification for Supply of Optical Fiber Communication link (OFC) for Earth Stations at 11 Locations (Jallandhar, Shimla, Ahmadabad, Bhopal, Bhubaneswar, Chennai, Jaipur, Jammu, Kolkata, Lucknow, Thiruvananthapuram)

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### Specification No.: SATD/OFC Links/11 Nos./Jan 2019

#### 1. Introduction:

1.1 This document lays down technical specifications for Supply of Optical Fiber Communication link (OFC) for Earth Stations in 2 X (1+1) configuration at 11 Locations namely, Jallandhar, Shimla, Ahmadabad, Bhopal, Bhubaneswar, Chennai, Jaipur, Jammu, Kolkata, Lucknow and Thiruvananthapuram.

### 2. Scope:

- 2.1 The scope of the tender shall include "Supply of Optical Fiber Communication link (OFC) from Master Switching Room (MSR) to Earth Station (ES) required for transporting baseband signal for the Earth stations at Jallandhar, Shimla, Ahmedabad, Bhopal, Bhubaneshwar, Chennai, Jaipur, Jammu, Kolkata, Lucknow and Thiruvananthapuram for use in existing input chain at each of the 11 Earth Stations".
- 2.2 The offered system shall meet the International standards for digital satellite broadcasting.
- 2.3 The offered system would also include the standard accessories supplied by the Manufacturers alongwith the Optical Fiber Communication link (OFC).

### 3. Eligibility Criteria:

- 3.1 The bidder should be the original equipment manufacturer (OEM) of Optical Fiber Transmitter/Receiver or their authorized representative/dealer in India.
- 3.2 Bidders shall offer Optical Fiber Communication link (OFC) of only those OEMs who are having past experience of at least Five years of manufacturing and supplying similar Optical Fiber Communication link (OFC).
  - 3.3 OEM should meet the following eligibility criteria:
    - 3.3.1 The OEM of Optical Fiber Transmitters/Receivers must have experience of Supplying at least 25 sets or more of offered Optical Fiber Transmitters/Receivers in the past five years.
    - 3.3.2 Copies of supply order and receipt certificates/delivery challans/dispatch certificates in respect of above said quantities of Optical Fiber Transmitter/Receiver in the preceding past five year should essentially be submitted along with the bid document.
  - 3.4 In case bidder is the authorized representative/dealer of Optical Fiber Transmitter/Receiver, it should be in the business of sales and supply of Broadcast Equipment for at least past three years. Copies of orders and

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- completion certificates/delivery challans/dispatch certificates to support this must be provided.
- 3.5 The bidder must have his local office/authorized representative/dealer in India for after sales support
- 3.6 The cutoff date for the experience shall be the date of NIT.

## 4. General requirement for completing the offer:

- 4.1 The bidder shall submit only one solution (Single BOM) for the offered system. Bid with multiple options against any requirement is liable to be rejected.
- 4.2 The offered equipment and accessories including software should be from internationally reputed manufacturer and the quoted model should be of high class, high MTBF, field proven and in use by leading broadcasters/organizations in various continents of the World. Any customized product which is not field proven in the industry will not be acceptable.
- 4.3 All software being offered, are to be licensed to Doordarshan on perpetual basis without specifying any time limit or without specifying any end of life of the software. Software upgrades within warrantee period will have to be supplied free of cost.
- 4.4 For facilitating maintenance issues, bidder must also submit firm's self certified copies of Bill of Entry/Custom Invoice of all imported items to DG: DD for release of PBG.
- 4.5 The installation, testing and commissioning of the equipment supplied at site will be done by Doordarshan as per procedure laid down in the installation manual of respective equipment. The installation manual should also include list of Do's & Don'ts and step by step procedure for configuration etc. Bidder must submit copy of the installation manual alongwith the bid.
- 4.6 The local office/authorized representative/dealer in India will be nodal point for resolving issues, related to installation, integration, configuration, testing, commissioning and after sales service support. Details of OEM office and its location are to be provided along with bid.

## 4.7 **Testing and Commissioning at site**: Site Acceptance Test (SAT)

- 4.7.1 The Optical Fiber Communication link (OFC) system shall be installed, configured, tested and commissioned at site by Doordarshan as per the instructions contained in the manufacturer's installation manual.
- 4.7.2 However, the local representative of the OEM/bidder shall be responsible for resolving any issues related with installation, configuration, testing and



commissioning of the Optical Fiber Communication link (OFC) system. If required, local representative of the OEM/bidder may also arrange the visit of OEM Engineer at site.

- 4.8 In the process of technical evaluation Doordarshan can ask for any clarification/ query as required through e-mail/FAX/Post etc, which shall be treated as a part of tender and invariably attended and replied by the bidder within the time stipulated therein.
- 4.9 Bidder may have to demonstrate the features of equipment offered as and when asked as part of technical evaluation of Tender. However it will not bestow any right of acceptance of the bid.
- 4.10 Cross reference in respect of supporting documents, should be given with proper page number and volume no. etc. If required Doordarshan may also ask for any other supporting document to ascertain the claim of bidder and their OEM.

### 5. Technical Specifications of Equipment:

## 5.1. Specifications for OFC link from MSR to ES

1. Input system is an OFC link from MSR to Earth Station Room of the Kendra, consisting of Single Channel Optical Transmitter and Receiver Units through suitable OFC and Video cables, and Chassis for the above with control card for configuration & monitoring and dual redundant power supply units. However, OFC cable and Video Cables are not in the scope of this tender.

#### 5.1.1 Single Channel Optical Transmitter & Receiver Units

- 1. Four Links, between MSR to Earth station for transport of HD/SD-SDI signals, would be established using Optical fiber cables. For accomplishment of the same, Electrical to optical and optical to electrical converters are to be provisioned.
- 2. The optical Transmitter cards (Electrical to optical converter) will take HD/SD-SDI (with embedded audio) input and convert it suitably in optical format so that the optical information is carried to optical receiver unit at Earth Station using OFC cable.
- 3. The optical Receiver cards (Optical to electrical convertors) will accept the optical information coming from Optical Transmitter through fiber cable and convert it into HD/SD-SDI (with embedded audio).



### A. Essential Features:

- 1. The optical cards should support single mode optical transport for better link margin.
- 2. The chassis with optical transmitter cards will be installed in MSR.
- 3. The chassis with optical receiver cards will be installed in Earth Station Room.
- 4. Both Optical transmitter and receiver should be able to auto detect the format of video and switch the output to corresponding format.

# B. Technical Specification (Single Channel Optical Transmitter)

I	Input	
1)	Input type	HD/SD-SDI (with embedded audio)
2)	Standard	SMPTE 259-M and SMPTE 292-M
3)	Connector	BNC
4)	Impedance	75 ohms
5)	Return loss	>15 dB
6)	Cable Equalization	250m Belden 1694A SD-SDI
		100m Belden 1694A HD-SDI
7)	No. of Inputs	lno.
II	Output	
1)	Output type	one Optical SMPTE 297-2006 and one
		SDI SMPTE-259M or one HD-SDI
		SMPTE 292M
2)	Wave length	1310 nm OR 1550 nm
3)	Connector	SC or LC type
4)	Optical Power	-2 dBm (min)
5)	Mode	Single
6)	No. of Output	1 No.

# C. Technical Specification(Single Channel Optical Receiver)

I	INPUT	
1)	Input type	Optical SMPTE 297-2006
2)	Wave length	1310 nm OR1550 nm
3)	Connector	SC or LC type
4)	Input power (minimum)	-18 dBm or better
5)	Over load (damage) input	3 dBm or more
6)	Mode	Single
II	OUTPUT	
1)	Output type	HD/SD-SDI (with embedded audio)

2)	Connector	BNC
3)	Impedance	75 ohms
4)	No. of outputs	2 nos.
5)	Standard	SMPTE 259 M and SMPTE 292M

# D. Chassis with control cards and redundant power supply

- (a) Offer should include chassis with 20 slots for card type peripherals.
- (b) The chassis would be installed by DD at MSR and Earth station to house Optical transmitters/Receivers.
- (c) The frames should have redundant power supply and control & monitoring card. Software for control and monitoring is also to be provided.

# 6 Physical, Environmental & Mechanical Specifications

# 6.1 Power Supply

Equipment shall operate from a wide range of power supply voltages without interruption or damage.

	46	100			
Parameter	44	Ŋ.	1	Specification	
(a) Voltage	Range		he sa	220/240 V AC nominal	8
(b) Frequer				48-52 Hz	

# 6.2 Environmental Specifications

Parameter	Specification
(a) Operating Temperature (Indoor)	0°C to 45°C
(b) Storage Temperature	- 20°C to 80°C
(c) Humidity (Indoor) non-condensing	0 to 85%
(d) Altitude	0 to 2000 m

# 6.3 Mechanical Specifications

Offered equipment shall be rack mounted.

Officied equi	princit start of tweet
Parameter	Specification
(a) Construction	Modular approach, EIA RS-310C, 19" rack-mount

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### 7 Complement of Equipment:

- 7.1 The quantity, make and model/part no. of all the equipment should be clearly mentioned in the offered Bill of Material (BoM).
- 7.2 The suggestive Bill of Material (BOM) has been provided in **Annexure-I**. The bidder is required to provide the complete list of equipment, software and accessories etc. offered to meet the specifications requirement. The quantity of each item including sub-module etc. are to be specified clearly and compulsorily, failing which the bid is liable to be rejected summarily.
- 7.3 Any substandard equipment included in the offer may result into the rejection of complete offer with the sole responsibility of bidder.
- 7.4 The offer should also include the detailed technical brochure and technical manual containing all the technical specifications of all the offered equipment, accessories, and software etc.
- 7.5 General specifications applicable to the equipment wherever applicable have been given in Clause No. 5.

#### 8 General

### 8.1 Compliance and Authorization:

- 8.1.1 The bidder must submit a point-by-point compliance statement in respect of all the points, sub-points and clauses laid down in this specification from page 1 onwards along with the offer.
- 8.1.2 In addition to the above, compliance from the OEM of Optical transmitter & receiver on their letter head should necessarily be given, with reference to the points, sub-points and clauses laid down in the technical specifications.
- 8.1.3 The OEM's authorization (not from representative) should also be given on their letter head along with bid in the format prescribed in Annexure II.
- 8.1.4 Mere signature on a copy of Doordarshan specifications shall not be accepted as a compliance statement.
- 8.1.5 Compliance statement in the format as indicated below shall only be accepted.

Sr. No. of DD specs.	DD Specs.	Compliance (Yes/No)	Performance fig. of equipment offered.	Deviations, in case of non- compliance	Optional items if any required to make the system Compliant to DD specs.	Features in the system	Which exceed DD specs.	Page No.	Remarks
1									
2									

- 8.1.6 The manufacturer should also record the performance figures of the equipment offered in the quote for which the compliance statement is enclosed.
- 8.1.7 The compliance statement should be supported by highlighted record of these in the technical literature/data sheets enclosed with the tender and a clear reference to the attached supporting document should be given in the remarks column against each & every specs. Any offer without proper supporting document of each & every specs and containing only a commercial hand out/pamphlet is liable to be rejected.
- 8.1.8 Data sheets/relevant technical literature should be submitted in respect of all offered equipment. Any deviation from the specification detailed in the compliance statement is to be highlighted separately. Page no. of location of data sheet should be given in page no. column above.
- 8.1.9 Offers without proper & duly completed compliance statement are likely to be rejected with the sole responsibility of bidder and no further claim/correspondence will be entertained.

#### 8.2 **Documentation**

8.2.1 One set of technical literature for the equipment are to be provided along with the tender to facilitate the technical evaluation, otherwise the tender is liable to be ignored.



- 8.2.2 The Technical literature would include Installation Manual and Operation & Maintenance manual.
- 8.2.3 The successful bidder will have to supply set of printed technical manuals along with factory test report of the offered equipment.
- 8.2.4 Technical Manual for all equipments should also be supplied on CD/DVDs with search facility.
- 8.2.5 All offered software should be in the name of Doordarshan and should have perpetual validity. All software backups should also be supplied on CD/DVDs.
- 8.2.6 For facilitating maintenance issues, the bidder must submit the firm's self certified copies of Bill of Entry/Bill of Laden/Custom Invoice of all imported items to DG:DD at the time of release of PBG.

#### 8.3 Guarantee

- 8.3.1 The manufacturer shall guarantee satisfactory working of the offered Optical Fiber Communication link (OFC) without any fault and defect for three years from the date of receipt of final accepted consignment at respective consignee's premises.
- 8.3.2 Any defect or failure of any module/equipment during the guarantee period shall be repaired/replaced free of charge by the successful bidder at site. For repairing of any defective module/equipment during guarantee period, the defective module or equipment requiring repairs will be handed over to local office/local authorized representative/ dealer who will arrange repairs locally at site or send/export the defective modules to OEM factory and re-import/send back after repairs.
- 8.3.3 It is the responsibility of local office/Authorized representative/ dealer of the bidder to arrange the repair/ replacement of faulty items for Doordarshan i.e. transportation charges would not be paid by DD for transporting the defective/ repaired items, if required to be removed from site, during the guarantee period.
- 8.3.4 Guarantee period is to be extended corresponding to the outage period if the failure rectification takes more than 15 days time.
- 8.3.5 Bidder shall provide the guarantee/warrantee through the OEM. A certificate duly signed by the OEM on the OEM's letterhead, in this regard of offered Embedder and Optical transmitter & receiver must be

- submitted with the offer by the bidder in the format as prescribed in Annexure III.
- 8.3.6 After sales service support for additional 2 (TWO) years for the repairs/maintenance of offered equipment after the completion of guarantee/warrantee period shall also be provided by the OEM of the offered equipment either directly or through his representative in India. In this regard a certificate, duly signed by the OEM on the letterhead, must be submitted with the offer by the bidder.
- 8.3.7 The successful bidder will be responsible for providing after sales support of all the offered equipment for Five years from the date of receipt of final accepted consignment at respective consignee's premises including three (3) years warranty period. The bidder must submit undertaking for providing after sales support for additional Two (2) years after the end of warranty period along with bid.
- 8.3.8 If bidder is not the OEM of the offered equipment, then after sales service support for the repairs/maintenance for 3 years warranty period and for 2 years after the completion of guarantee/warrantee period shall also be provided by the OEM either directly or through its representative in India. A certificate, on the letterhead, in this regard duly signed by the OEM must be submitted with offer by the bidder in the format as prescribed in Annexure V.

# 8.4 Inspection:

- 8.4.1 All the equipment to be supplied against the supply order for this tender shall be subjected to pre-dispatch inspection in India by Doordarshan. The successful bidder should produce the factory test reports of all the offered equipment to facilitate inspection.
- 8.4.2 The inspection of equipment will be carried out by a team of Doordarshan authorized by Doordarshan Directorate. A draft copy of ATP (Acceptance Test Procedure) must be submitted by the bidder within one month of issue of A/T. ATP should describe the standard test procedure of individual equipment and of the integrated system chain. The factory test report will not be treated as ATP. The accepted ATP with or without changes shall be sent back to the successful bidder and it will also be used for inspection and commissioning of equipment by DD Engineer(s) at site.

# 8.5 Delivery Period

Four months from the date of issue of purchase order.

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#### 8.6 Pre-bid Conference

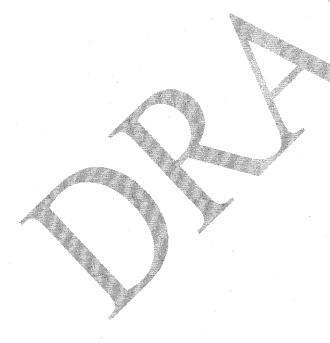
- 8.6.1 A pre bid conference on technical Specifications and other issues shall be held on date and time specified in the NIT. All prospective bidders may attend the pre bid conference to discuss their queries and suggestions.
- 8.6.2 All the queries and suggestions should be sent to Doordarshan at least 2 days before the date of pre bid conference. No queries/suggestions shall be entertained after pre bid conference.
- 8.6.3 Amendments subsequent to the pre bid conference shall be sent to prospective bidders, who have purchased tender document, by e-mail/fax/post.
- 8.6.4 It shall be bidder's responsibility to check for any amendments/addendum on the website before submitting their duly completed bids.

#### 8.7 Check List and Enclosures

The bidders may ensure the following check list while submitting the bid including some important list of enclosures for ease of technical evaluation.

- 8.7.1 Whether documents related to fulfilment of the eligibility criteria as per Clause 3 have been submitted.
- 8.7.2 Whether point-by-point compliance statement of the bidder in respect of all the points, sub-points and clauses laid down in this specification from page 1 onwards along with the offer as given in Clause 8.1.1 has been included.
- Whether point-by-point compliance statement of OEM in respect of all the points, sub-points and clauses laid down in the specification of respective equipment and their authorization mentioned in Clause 8.1.2 have been included. Authorization and Compliance Statement from OEMs will only be acceptable and not from the authorized dealer of the OEMs.
- 8.7.4 Whether the authorisation has been submitted in the prescribed format as given in Clause 8.1.3.
- 8.7.5 Ensure that all equipment and accessories as given in the Suggestive bill of material have been included in the offered BOM.

- 8.7.6 Whether the page numbers of the relevant enclosed technical data sheet/manual against each parameter of the specifications have been given in the compliance statements.
- 8.7.7 Whether the requisite undertakings for after sales support by OEMs and bidder have been submitted.
- 8.7.8 Ensure that no alternate item has been offered.
- 8.7.9 Ensure that the installation manual, relevant technical brochures containing all the parameters of technical specifications of all the offered equipment and accessories have been included with proper indexing for ease of identification.
- 8.7.10 Ensure that the Un-priced BOM has been included.
- 8.7.11 Any other item mentioned elsewhere in the tender.



### Annexure-I

# Suggestive Bill of Material (BOM)

For Providing Optical Fiber Communication link (OFC) at 11 Earth Stations Locations (Jallandhar, Shimla, Ahmedabad, Bhopal, Bhubaneswar, Chennai, Jaipur, Jammu, Kolkata, Lucknow, and Thiruvananthapuram)

Sr.	Description of Item as per	Description	Qty. per	Total	Make	Model	Remarks
No.	Specification	of Item as	site	Qty.			
	(Suggestive BOM)	offered by		as per		·	
		Bidder		suggesti	,		
			d	ve			
			4	BOM			
1	OFC Link from MSR to ES con	sisting of:					
a)	Single channel Optical		4 nos.	44 nos.	N. b.		
	Transmitter unit.	4					
b)	Single channel Optical receiver		4 nos.	44 Lots			
	unit.	***	The second second				
c)	Chassis to house the above OFC		2 nos.	22 nos.			:
	Link units with dual power	The state of the s	llh.				
	supply units (One chassis to be						
	installed in MSR and one in		4	49			
	Earth Station).	*1	u Ali				
d)	Any other item found essential		1 Lot	11 Lots			
	to meet DD specifications.						- '
	Note: If offered, bidder must				:		
	provide the detail.	A Share space					
2	Equipment manuals consisting		1 Lot	11 Lots	·		
	of:						
a)	Installation, Operation/User	,					
	Manual Hard copy and Soft						
	copy on CDs with Search					i.	
	facility for all the supplied						
	equipment. (2 Sets for each	*					
	Kendra, 1 Set for DG:DD and 1						
	Set each for ADG(NZ),		٠,				٠,
	ADG(SZ), $ADG(EZ)$ and						
	ADG(WZ))						
<b>b</b> )	All coffware healthing are to be						
b)	All software backups are to be supplied on CDs.						
	supplied off CDs.						

3	Training		T :			T
<u>a)</u>	In India: One day on site training (including Theoretical (alongwith basic		1 Lot	11 Lots	 	
	study material) & Practical training, hands on experience) on OFC Link for Doordarshan					
	personnel at each site. (Note: Training will not be treated as					
	part of the delivery period)	·				



## Annexure II

# **OEM's LETTER HEAD**

# **CERTIFICATE FOR AUTHORIZATION**

Date:					
Tender No. :					
We, M/sand Address of	the	OEM),	do	hereby	(Name authorize
M/s	• • • • • • • • • • • • • • • • • • • •	(БК	ider s name	), naving (Bidder's	address) to
submit the bid and sign the oby us against the above tende		Doordarsha			
Signature	William Control of the Control of th	,/	· · · · · · · · · · · · · · · · · · ·		• • • • • • • • •
Name & Designation of auth Name of the OEM Stamp			······································	•••••••	••••••

## **Annexure III**

# **OEM's LETTER HEAD**

# CERTIFICATE FOR GUARANTEE

Date:	
Tender No.:	
<ul> <li>We, M/s</li></ul>	oi oi oe
representative/dealer> who will arrange repairs locally at site or send/export the defective modules to our factory and re-import/send back after repairs.  3. It is the responsibility of M/s	d e il r e
<ul> <li>5. After sales service support for additional 2 (TWO) years for the repairs/maintenance of Earth Station equipment after the completion of guarantee/warrantee period shall also be provided by M/s</li></ul>	1 -
upgrades within warranty period will be supplied free of cost.  Signature  Name & Designation of authorized signatory  Name of the OEM -  Stamp of the OEM	

Annexure IV

# **OEM's LETTER HEAD**

# CERTIFICATE FOR AFTER SALES SERVICE SUPPORT

	Date:			
	Tender No.:			
	Two (2) years for the three (3) Years gurepresentatives/author accessories in India as		fered products and shall be pler for the of	after the completion of provided through our
S.	Name of the	After sales & support	Telephone/	Email of concerned
No.	authorized person	office address	Fax	personnel
1		<b>1</b>		
.,	Signature			
	Signature Name & Designation of Name of the OEM Stamp	of authorized signatory		

### Annexure V

# BIDDER's LETTER HEAD

# **DECLARATION BY THE BIDDER**

1. Bill of aterial (BOM)
2. Bidder's compliance (As per specs clause no. 8.1.1)

[Yes/No]

3. The copy of Dealer Possession License in case of possession of RF
[Yes/No]

4. Copy of the Memorandum of Understanding (MOU) (if any) of [Yes/No]

partnership (as per clause no. 3.7)

5. OEM Compliance for following equipment from respective OEMs (as per clause no. 8.1.2):

S. No.	Name of equipment	Name	of OEM	OEM compliance
i.	.0000000m			submitted (Yes/ No)
ii.		Kirista Til		

6. Certificate for Authorization for following equipment from their respective OEMs:

S.No.	Name of equipment	Name of OEM	Authorization certificate submitted
i.			(Yes/No)
ii.			

7. Certificate for Guarantee for following equipment from their respective OEMs:

S.No.	Name of equipment	Name of OEM	Guarantee certificate
i.			submitted (Yes/ No)
ii.			

(12)

8. Certificate for After sales service support for following equipment from their respective OEMs:

S.No.	Name of equipment	Name of OEM	After sales service support certificate submitted (Yes/ No)
i.			
ii.			

9.	Datasheet for the offered equipment:		[Yes/No]
	1.		
	ii.		
	Signature		
	Name & Designation of authorize	zed signatory of the bidder	
	Name of the Bidder		
	Stamp of the hidder		• • • • • • • • • • • • • • • • • • • •