



GOVERNMENT OF INDIA MINISTRY OF COMMUNICATIONS DEPARTMENT OF TELECOMMUNICATIONS TELECOMMUNICATION ENGINEERING CENTRE

Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi-110001

CERTIFICATE OF DESIGNATION

M/S HFCL LTD. (OFC TEST LAB), TELANGANA

has been assessed and designated as Conformity Assessment Body (CAB) for its facilities at

PLOT NO-S-9, SURVEY NO.-26P, 62P, 88P, ELECTRONIC CITY, RAVIRYALA, MAHESHWARAM (M), RANGAREDDY DISTRICT, TELANGANA – 501 359

In the field of Testing

Certificate No. TEC/MRA/CAB/IND-D/92

Issue Date: 04/04/2024 Validity: 04/04/2024 to 03/04/2027

This Certificate remains valid for the Scope of Designation as specified in the Annexure subject to the continued validity of NABL Accreditation and satisfied compliance to the Standards/specifications against which lab has been designated and strict compliance to the relevant terms and conditions of TEC CAB Designation Scheme.

(To see the scope of designation of this laboratory, you may also visit TEC website www.tec.gov.in)

Signed for and on behalf of TEC

Signed by Vijay Dixit
Date: 04-04-2024 11:46:28

Vijay Dixit Director (CA) For Designating Authority TEC

Certificate No: TEC/MRA/CAB/IND-D/92 dated 04/04/2024 issued to M/S HFCL Ltd. (OFC Test Lab), Telangana Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District, Telangana – 501 359



Validity: - 04/04/2024 to 03/04/2027

Terms & Conditions

This certificate is issued as per the terms and conditions stipulated in the TEC SCHEME FOR DESIGNATING DOMESTIC CONFORMITY ASSESEMENT BODIES AND CERTIFICATION BODIES FOR CONFORMITY ASSESEMENT AND CERTIFICATION OF TELECOMMUNICATION EQUIPMENT ISSUE 3 NO. TEC 04019:2023.

Some of the conditions are reiterated as under:

A. Obligations of the Designated CAB.

- 1. It shall ensure that it maintains its accreditation status from any recognised Indian accreditation body like NABL during validity period of certificate.
- 2. It shall follow the stipulated procedures, rules and policies laid down by Designating Authority (DA) or Mutual Recognition Agreement (MRA)* partner for testing and evaluation.
- 3. In respect of tests for which it is seeking designation, it shall have no interest whatsoever in any business to carry on testing in an unfair or biased manner.
- 4. It shall fully indemnify DA from and against all liabilities, damages, claims, costs, and expenses incurred or sustained by DA as a result of any action taken or omitted by DA relating to the process of designation.
- 5. It shall comply with DA's or MRA partner's terms and conditions for designation and recognition as modified from time to time.
- 6. It shall be under obligation to participate in the online process prescribed by TEC for test and certification against TEC's GR/IR/ER and standards.
- 7. It shall have a record system which shall have a retention period of at least 5 years for documents related to the equipment testing. It shall maintain all the relevant documents including list of products submitted for testing, product-wise testing and evaluation reports. These documents shall be produced before the DA within seven days, as and when required.
- 8. It shall ensure the Intellectual Property Rights of the customers in the course of testing by maintaining professional ethics, secrecy and keeping all the product related information confidential.

^{*}Applicable only if recognized by MRA (Mutual Recognition Agreement) partner.

9. It shall notify the DA in writing of occurrence of any of the following incident(s) within 2 weeks of its occurrence

- a) Cessation of its business of conformity assessment for which it is Designated or accredited
- b) Changes in its legal, commercial, or Organisational status
- c) Changes, which may affect continuing compliance with any of the criteria or requirement specified by DA or MRA partner.
- d) Change of premises

B. REFERENCE TO DESIGNATION STATUS

- 1. Designated CABs may advertise their designation status with regard to standards or parts thereof which are included in the scope of designation.
- 2. The advertisement should not imply, or otherwise suggest that DA or MRA Partner has endorsed the product or imply that the designated CAB is an agent or representative of DA or MRA Partner.
- 3. CABs whose designations have been suspended or withdrawn for any reason, shall discontinue advertisement of their designated status and not make any misleading statements regarding their designation status.

C. POST-DESIGNATION SURVEILLANCE

As and when required, DA shall conduct surveillance assessments and other non-routine assessments on the Designated CABs to ensure that standards of practices are maintained as well as to investigate complaints made against them.

D. SUSPENSION OR WITHDRAWAL OF DESIGNATION

- 1. DA shall suspend or withdraw the designation of a CAB if
 - a. Its accreditation is withdrawn.
 - b. It is found that the CAB is not complying with the stipulated criteria or requirements.
 - c. It is guilty of any offence involving fraud or dishonesty.
 - d. DA concludes that there is a just cause for withdrawing the designation.
- 2. A CAB whose designation, and recognition in case of MRA, has been suspended or withdrawn shall be removed from the list of designated CABs, in case it fails to take corrective measures.
- 3. DA shall keep the designation of a Designated CAB under suspension, until the completion of formal review process.

E. AMENDMENT TO THE SCHEME

DA reserves the rights to amend the scheme, as and when required, for the purpose of streamlining designation process.

GOVERNMENT OF INDIA MINISTRY OF COMMUNICATIONS DEPARTMENT OF TELECOMMUNICATIONS TELECOMMUNICATION ENGINEERING CENTRE



Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

SCOPE OF DESIGNATION (ANNEXURE)

Laboratory Name: M/S HFCL Ltd. (OFC Test Lab), Telangana

Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

Telangana –501 359

Certificate Number: TEC/MRA/CAB/IND-D/92 Page 1 of 36

Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		

Sl. No.	Product	Test Parameters	with Standard	Standards
1.	Optical Fibre Cable-	Transmission Characteristics	Attenuation at 1310 nm IEC 60793-1-40	TEC ER No. TEC 70022401
	Duct		Attenuation at 1550 nm IEC 60793-1-40	TEC ER No. TEC 70022401
			Attenuation at 1625 nm IEC 60793-1-40	TEC ER No. TEC 70022401
			PMD Cabled Loose Fibre IEC 60793-1-48	TEC ER No. TEC 70022401
			PMD Cabled Ribbon Fibre IEC 60793-1-48	TEC ER No. TEC 70022401
		Mechanical Characteristics	Tensile Strength IEC 60794-1-21	TEC ER No. TEC 70022401
			Crush Resistance IEC 60794-1-21	TEC ER No. TEC 70022401
			Impact IEC 60794-1-21	TEC ER No. TEC 70022401
			Bend Test IEC 60794-1-21	TEC ER No. TEC 70022401
			Repeated Bend Test IEC 60794-1-21	TEC ER No. TEC 70022401
			Torsion Test IEC 60794-1-21	TEC ER No. TEC 70022401
			Cable Drip Test IEC 60794-1-22	TEC ER No. TEC 70022401

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GOVERNMENT OF INDIA MINISTRY OF COMMUNICATIONS DEPARTMENT OF TELECOMMUNICATIONS TELECOMMUNICATION ENGINEERING CENTRE



Standard/

Specification

TEC ER No.

TEC 70022401

Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

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Laboratory Name: M/S HFCL Ltd. (OFC Test Lab), Telangana

Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

Telangana –501 359

Sl.

No.

Telecom

/ Product

Equipment

Certificate Number: TEC/MRA/CAB/IND-D/92 Page 2 of 36

Test Parameter or Type of Testing

/ Product			
	1		T
Optical	Environmental	Temperature Cycling	TEC ER No.
Fibre Cable-	Characteristics	IEC 60794-1-22	TEC 7002240
Duct		Cable Aging Test	TEC ER No.
		IEC 60794-1-22	TEC 7002240
		Water Blocking Test/	TEC ER No.
		Water penetration Test	TEC 7002240
		IEC 60794-1-22	
		Electrical Continuity Test	TEC ER No.
		IEC 60794-1-403	TEC 7002240
	Characteristics	Kink Resistance Test	TEC ER No.
	of Cable	IEC 60794-1-23	TEC 7002240
	Elements		
	(Buffer Tube)		
Optical Fibre	Transmission	Attenuation at 1310 nm	TEC ER No.
Cable-Micro	Characteristics	IEC 60793-1-40	TEC 7002240
Duct		Attenuation at 1550 nm	TEC ER No.
		IEC 60793-1-40	TEC 7002240
		Attenuation at 1625 nm	TEC ER No.
		IEC 60793-1-40	TEC 7002240
		PMD Cabled Loose Fibre	TEC ER No.
		IEC 60793-1-48	TEC 7002240
		PMD Cabled Ribbon Fibre	TEC ER No.
		IEC 60793-1-48	TEC 70022401

Mechanical

Characteristics

IEC 60793-1-48
Tensile Strength

IEC 60794-1-21

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Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

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Sl. No.	Telecom Equipment / Product	Test Parameter	or Type of Testing	Standard/ Specification
	Ontical Fibre	Mechanical	Crush Resistance	TEC ER No

Optical Fibre	Mechanical	Crush Resistance	TEC ER No.
Cable-Micro	Characteristics	IEC 60794-1-21	TEC 70022401
Duct		Impact	TEC ER No.
		IEC 60794-1-21	TEC 70022401
		Bend Test	TEC ER No.
		IEC 60794-1-21	TEC 70022401
		Repeated Bend Test	TEC ER No.
		IEC 60794-1-21	TEC 70022401
		Torsion Test	TEC ER No.
		IEC 60794-1-21	TEC 70022401
		Cable Drip Test	TEC ER No.
		IEC 60794-1-22	TEC 70022401
	Environmental	Temperature Cycling	TEC ER No.
	Characteristics	IEC 60794-1-22	TEC 70022401
		Cable Aging Test	TEC ER No.
		IEC 60794-1-22	TEC 70022401
		Water Blocking Test/	TEC ER No.
		Water penetration Test	TEC 70022401
		IEC 60794-1-22	
	Characteristics	Kink Resistance Test	TEC ER No.
	of Cable	IEC 60794-1-23	TEC 70022401
	Elements		
	(Buffer Tube)		

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Standard/

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Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

Telangana –501 359

Sl.

Telecom

Certificate Number: TEC/MRA/CAB/IND-D/92 Page 4 of 36

Test Parameter or Type of Testing

No.	Equipment / Product	Test I diameter of	Type of Testing	Specification
	1			
	Cable-Direct	Transmission Characteristics	Attenuation at 1310 nm IEC 60793-1-40	TEC ER No. TEC 70022401
	Buried		Attenuation at 1550 nm IEC 60793-1-40	TEC ER No. TEC 70022401
			Attenuation at 1625 nm IEC 60793-1-40	TEC ER No. TEC 70022401
			PMD Cabled Loose Fibre IEC 60793-1-48	TEC ER No. TEC 70022401
			PMD Cabled Ribbon Fibre IEC 60793-1-48	TEC ER No. TEC 70022401
		Mechanical Characteristics	Tensile Strength IEC 60794-1-21	TEC ER No. TEC 70022401
			Crush Resistance IEC 60794-1-21	TEC ER No. TEC 70022401
			Impact IEC 60794-1-21	TEC ER No. TEC 70022401
			Bend Test IEC 60794-1-21	TEC ER No. TEC 70022401
			Repeated Bend Test IEC 60794-1-21	TEC ER No. TEC 70022401
			Torsion Test IEC 60794-1-21	TEC ER No. TEC 70022401
			Cable Drip Test IEC 60794-1-22	TEC ER No. TEC 70022401
		Environmental Characteristics	Temperature Cycling IEC 60794-1-22	TEC ER No. TEC 70022401

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Standard/

Specification

TEC 70022401

Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

SCOPE OF DESIGNATION (ANNEXURE)

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Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

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No.

Telecom

Equipment

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Test Parameter or Type of Testing

/ Product			
Ontical Fibra	Environmental	Cable Aging Test	TEC ER No.
Cable-Direct		IEC 60794-1-22	TEC 700224
Buried		Water Blocking Test/	TEC ER No.
		Water penetration Test IEC 60794-1-22	TEC 700224
		Electrical Continuity Test IEC 60794-1-403	TEC ER No. TEC 700224
	Characteristics	Kink Resistance Test	TEC ER No
	of Cable	IEC 60794-1-23	TEC ER No.
	Elements (Buffer Tube)	120 00171 1 20	126 70022
Optical Fibre		Attenuation at 1310 nm	TEC ER No
Cable-ADSS	Characteristics	IEC 60793-1-40	TEC 700224
along Power		Attenuation at 1550 nm	TEC ER No
Line		IEC 60793-1-40	TEC 700224
		Attenuation at 1625 nm	TEC ER No
		IEC 60793-1-40	TEC 700224
		PMD Cabled Loose Fibre	TEC ER No
		IEC 60793-1-48	TEC 700224
		PMD Cabled Ribbon Fibre	TEC ER No
		IEC 60793-1-48	TEC 700224
	Mechanical	Tensile Strength	TEC ER No
	Characteristics	IEC 60794-1-21	TEC 700224
		Crush Resistance	TEC ER No

IEC 60794-1-21

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Standard/

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Telangana –501 359

Sl.

No.

Telecom

Equipment

Certificate Number: TEC/MRA/CAB/IND-D/92 Page 6 of 36

Test Parameter or Type of Testing

/ Product			
Optical Fibre	Mechanical	Impact	TEC ER No.
-	Characteristics	IEC 60794-1-21	TEC 700224
along Power		Bend Test	TEC ER No.
Line		IEC 60794-1-21	TEC 700224
		Repeated Bend Test	TEC ER No.
		IEC 60794-1-21	TEC 700224
		Torsion Test	TEC ER No.
		IEC 60794-1-21	TEC 700224
		Cable Drip Test	TEC ER No.
		IEC 60794-1-22	TEC 700224
		Galloping Test	TEC ER No.
		IEC 60794-1-21, IEEE 1222	TEC 700224
	Environmental	Temperature Cycling	TEC ER No.
	Characteristics	IEC 60794-1-22	TEC 700224
		Cable Aging Test	TEC ER No.
		IEC 60794-1-22	TEC 700224
		Water Blocking Test/	TEC ER No.
		Water penetration Test	TEC 700224
		IEC 60794-1-22	
	Characteristics	Kink Resistance Test	TEC ER No.
	of Cable	IEC 60794-1-23	TEC 700224

Elements

(Buffer Tube)

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Telangana –501 359

Sl. Telecom

Certificate Number: TEC/MRA/CAB/IND-D/92 Page 7 of 36

Test Parameter or Type of Testing

No.	Equipment / Product			Specification
	Optical Fibre	Transmission	Attenuation at 1310 nm	TEC ER No.
	Cable- ADSS	Characteristics	IEC 60793-1-40	TEC 70022401
	on Aerial alignment		Attenuation at 1550 nm IEC 60793-1-40	TEC ER No. TEC 70022401
			Attenuation at 1625 nm IEC 60793-1-40	TEC ER No. TEC 70022401
			PMD Cabled Loose Fibre IEC 60793-1-48	TEC ER No. TEC 70022401
			PMD Cabled Ribbon Fibre IEC 60793-1-48	TEC ER No. TEC 70022401
		Mechanical Characteristics	Tensile Strength IEC 60794-1-21	TEC ER No. TEC 70022401
			Crush Resistance IEC 60794-1-21	TEC ER No. TEC 70022401
			Impact IEC 60794-1-21	TEC ER No. TEC 70022401
			Bend Test IEC 60794-1-21	TEC ER No. TEC 70022401
			Repeated Bend Test IEC 60794-1-21	TEC ER No. TEC 70022401
			Torsion Test IEC 60794-1-21	TEC ER No. TEC 70022401
			Cable Drip Test IEC 60794-1-22	TEC ER No. TEC 70022401

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GOVERNMENT OF INDIA MINISTRY OF COMMUNICATIONS DEPARTMENT OF TELECOMMUNICATIONS TELECOMMUNICATION ENGINEERING CENTRE



Standard/

Specification

TEC 70022401

Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

SCOPE OF DESIGNATION (ANNEXURE)

Laboratory Name: M/S HFCL Ltd. (OFC Test Lab), Telangana

Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

Telangana –501 359

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No.

Telecom

Equipment

Certificate Number: TEC/MRA/CAB/IND-D/92 Page 8 of 36

Test Parameter or Type of Testing

/ Product			-
Optical Fibre	Mechanical	Galloping Test	TEC ER No.
Cable- ADSS	Characteristics	IEC 60794-1-21, IEEE 1222	TEC 700224
on Aerial	Environmental	Temperature Cycling	TEC ER No.
alignment	Characteristics	IEC 60794-1-22	TEC 700224
		Cable Aging Test	TEC ER No.
		IEC 60794-1-22	TEC 700224
		Water Blocking Test/	TEC ER No.
		Water penetration Test	TEC 700224
		IEC 60794-1-22	
	Characteristics	Kink Resistance Test	TEC ER No.
	of Cable	IEC 60794-1-23	TEC 700224
	Elements		
	(Buffer Tube)		
Optical Fibre	Transmission	Attenuation at 1310 nm	TEC ER No.
Cable-	Characteristics	IEC 60793-1-40	TEC 700224
Indoor		Attenuation at 1550 nm	TEC ER No.
		IEC 60793-1-40	TEC 700224
		Attenuation at 1625 nm	TEC ER No.
		IEC 60793-1-40	TEC 700224
		PMD Cabled Loose Fibre	TEC ER No.
		IEC 60793-1-48	TEC 700224
		PMD Cabled Ribbon Fibre	TEC ER No.

IEC 60793-1-48

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Telangana –501 359

Sl Telecom

Certificate Number: TEC/MRA/CAB/IND-D/92 Page 9 of 36

Test Parameter or Type of Testing

No.	Equipment / Product	Test Parameter or Type of Testing		Standard/ Specification
	Optical Fibre Cable-	Mechanical Characteristics	Tensile Strength IEC 60794-1-21	TEC ER No. TEC 70022401
	Indoor	Characteristics	Crush Resistance IEC 60794-1-21	TEC ER No. TEC 70022401
			Impact IEC 60794-1-21	TEC ER No. TEC 70022401
			Bend Test IEC 60794-1-21	TEC ER No. TEC 70022401
			Repeated Bend Test IEC 60794-1-21	TEC ER No. TEC 70022401
			Torsion Test IEC 60794-1-21	TEC ER No. TEC 70022401
			Cable Drip Test IEC 60794-1-22	TEC ER No. TEC 70022401
		Environmental Characteristics	Temperature Cycling IEC 60794-1-22	TEC ER No. TEC 70022401
			Cable Aging Test IEC 60794-1-22	TEC ER No. TEC 70022401
			Water Blocking Test/ Water penetration Test IEC 60794-1-22	TEC ER No. TEC 70022401

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Certificate Number: TEC/MRA/CAB/IND-D/92 Page 10 of 36

Validity: 04/04/2024 to 03/04/2027 Last Amended on: ----

Sl. No.	Telecom Equipment / Product	Test Parameter (Standard/ Specification	
	Optical Fibre Cable- Indoor	Characteristics of Cable Elements (Buffer Tube)	Kink Resistance Test IEC 60794-1-23	TEC ER No. TEC 70022401
	Optical Fibre Cable- Access Outdoor	Transmission Characteristics	Attenuation at 1310 nm IEC 60793-1-40 Attenuation at 1550 nm IEC 60793-1-40	TEC ER No. TEC 70022401 TEC ER No. TEC 70022401
			Attenuation at 1625 nm IEC 60793-1-40 PMD Cabled Loose Fibre IEC 60793-1-48	TEC ER No. TEC 70022401 TEC ER No. TEC 70022401
			PMD Cabled Ribbon Fibre IEC 60793-1-48	TEC ER No. TEC 70022401
		Mechanical Characteristics	Tensile Strength IEC 60794-1-21 Crush Resistance	TEC ER No. TEC 70022401 TEC ER No.
			IEC 60794-1-21 Impact IEC 60794-1-21	TEC 70022401 TEC ER No. TEC 70022401
			Bend Test IEC 60794-1-21	TEC ER No. TEC 70022401
			Repeated Bend Test IEC 60794-1-21	TEC ER No. TEC 70022401

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Sl.	Telecom	Test Parameter or Type of Testing		Standard/
No.	Equipment			Specification
	/ Product			
	T		<u></u>	
	Optical	Mechanical	Torsion Test	TEC ER No.
	Fibre Cable-	Characteristics	IEC 60794-1-21	TEC 70022401
	Access		Cable Drip Test	TEC ER No.
	Outdoor		IEC 60794-1-22	TEC 70022401
		Environmental	Temperature Cycling	TEC ER No.
		Characteristics	IEC 60794-1-22	TEC 70022401
			Cable Aging Test	TEC ER No.
			IEC 60794-1-22	TEC 70022401
			Water Blocking Test/	TEC ER No.
			Water penetration Test	TEC 70022401
			IEC 60794-1-22	
		Characteristics	Kink Resistance Test	TEC ER No.
		of Cable	IEC 60794-1-23	TEC 70022401
		Elements		
		(Buffer Tube)		
	Optical	Transmission	Attenuation at 1310 nm	TEC ER No.
	Fibre Cable-	Characteristics	IEC 60793-1-40	TEC 70022401
	Indoor-		Attenuation at 1550 nm	TEC ER No.
	Outdoor		IEC 60793-1-40	TEC 70022401
			Attenuation at 1625 nm	TEC ER No.
			IEC 60793-1-40	TEC 70022401
			PMD Cabled Loose Fibre	TEC ER No.
			IEC 60793-1-48	TEC 70022401

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GOVERNMENT OF INDIA MINISTRY OF COMMUNICATIONS DEPARTMENT OF TELECOMMUNICATIONS TELECOMMUNICATION ENGINEERING CENTRE



Standard/

Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

SCOPE OF DESIGNATION (ANNEXURE)

Laboratory Name: M/S HFCL Ltd. (OFC Test Lab), Telangana

Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

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Test Parameter or Type of Testing

No.	Equipment / Product		••	Specification
	Optical	Transmission	PMD Cabled Ribbon Fibre	TEC ER No.
	Fibre Cable-	Characteristics	IEC 60793-1-48	TEC ER No. TEC 70022401
	Indoor-	Mechanical	Tensile Strength	TEC ER No.
	Outdoor	Characteristics	IEC 60794-1-21	TEC 70022401
			Crush Resistance	TEC ER No.
			IEC 60794-1-21	TEC 70022401
			Impact	TEC ER No.
			IEC 60794-1-21	TEC 70022401
			Bend Test	TEC ER No.
			IEC 60794-1-21	TEC 70022401
			Repeated Bend Test	TEC ER No.
			IEC 60794-1-21	TEC 70022401
			Torsion Test	TEC ER No.
			IEC 60794-1-21	TEC 70022401
			Cable Drip Test	TEC ER No.
			IEC 60794-1-22	TEC 70022401
		Environmental	Temperature Cycling	TEC ER No.
		Characteristics	IEC 60794-1-22	TEC 70022401
			Cable Aging Test	TEC ER No.
			IEC 60794-1-22	TEC 70022401
			Water Blocking Test/	TEC ER No.
			Water penetration Test	TEC 70022401
			IEC 60794-1-22	

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Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

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Test Parameter or Type of Testing

No.	Equipment / Product		or Type or Testing	Specification
	Optical	Characteristics	Kink Resistance Test	TEC ER No.
	Fibre Cable-	of Cable	IEC 60794-1-23	TEC 70022401
	Indoor-	Elements	120 00751 1 20	
	Outdoor	(Buffer Tube)		
	Optical	Transmission	Attenuation at 1310 nm	TEC ER No.
	Fibre Cable-	Characteristics	IEC 60793-1-40	TEC 70022401
	In Home		Attenuation at 1550 nm	TEC ER No.
			IEC 60793-1-40	TEC 70022401
			Attenuation at 1625 nm	TEC ER No.
			IEC 60793-1-40	TEC 70022401
			PMD Cabled Loose Fibre	TEC ER No.
			IEC 60793-1-48	TEC 70022401
			PMD Cabled Ribbon Fibre	TEC ER No.
			IEC 60793-1-48	TEC 70022401
		Mechanical	Tensile Strength	TEC ER No.
		Characteristics	IEC 60794-1-21, ITU-T Rec. L.111	TEC 70022401
			Crush Resistance	TEC ER No.
			IEC 60794-1-21, ITU-T Rec. L.111	TEC 70022401
			Impact	TEC ER No.
			IEC 60794-1-21, ITU-T Rec. L.111	TEC 70022401
			Bend Test	TEC ER No.
			IEC 60794-1-21, ITU-T Rec. L.111	TEC 70022401
			Repeated Bend Test	TEC ER No.
			IEC 60794-1-21, ITU-T Rec. L.111	TEC 70022401

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SCOPE OF DESIGNATION (ANNEXURE)

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Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

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Sl. No.	Telecom Equipment / Product	Test Paramete	r or Type of Testing	Standard/ Specification
	0 4 1	36 1 1	m · m	TEC ED V
	Ontical	Mechanical	Torsion Test	TEC FR No

	T		1
Optical	Mechanical	Torsion Test	TEC ER No.
Fibre Cable-	Characteristics	IEC 60794-1-21, ITU-T Rec. L.111	TEC 70022401
In Home	Environmental	Temperature Cycling	TEC ER No.
	Characteristics	IEC 60794-1-22, ITU-T Rec. L.111	TEC 70022401
		Cable Aging Test	TEC ER No.
		IEC 60794-1-22, ITU-T Rec. L.111	TEC 70022401
Optical Fibre		Attenuation at 1310 nm	TEC ER No.
Cable-Direct	Characteristics	IEC 60793-1-40	TEC 70022401
Surface		Attenuation at 1550 nm	TEC ER No.
Application		IEC 60793-1-40	TEC 70022401
(DSA)		Attenuation at 1625 nm	TEC ER No.
		IEC 60793-1-40	TEC 70022401
		PMD Cabled Loose Fibre	TEC ER No.
		IEC 60793-1-48	TEC 70022401
		PMD Cabled Ribbon Fibre	TEC ER No.
		IEC 60793-1-48	TEC 70022401
	Mechanical	Tensile Strength	TEC ER No.
	Characteristics	IEC 60794-1-21	TEC 70022401
		Crush Resistance	TEC ER No.
		IEC 60794-1-21	TEC 70022401
		Impact	TEC ER No.
		IEC 60794-1-21	TEC 70022401
		Bend Test	TEC ER No.
		IEC 60794-1-21	TEC 70022401

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Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

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Test Parameter or Type of Testing

No.	Equipment / Product			Specification
	Optical Fibre Cable-Direct Surface Application	Mechanical Characteristics	Repeated Bend Test IEC 60794-1-21 Torsion Test IEC 60794-1-21	TEC ER No. TEC 70022401 TEC ER No. TEC 70022401
	(DSA)		Cable Drip Test IEC 60794-1-22	TEC ER No. TEC 70022401
		Environmental Characteristics	Temperature Cycling IEC 60794-1-22	TEC ER No. TEC 70022401
			Cable Aging Test IEC 60794-1-22	TEC ER No. TEC 70022401
			Water Blocking Test/ Water penetration Test IEC 60794-1-22	TEC ER No. TEC 70022401
			Electrical Continuity Test IEC 60794-1-403	TEC ER No. TEC 70022401
		Characteristics of Cable Elements (Buffer Tube)	Kink resistance Test IEC 60794-1-23	TEC ER No. TEC 70022401
2.	Optical Fibre-Single Mode	Geometrical Characteristics	Mode Field Diameter at 1310 nm ITU-T G.652 and ITU-T G.650.1; IEC 60793-2-50 and IEC 60793-1-45	TEC ER No. TEC 70112401
	ITU-T G.652.D		Cladding Diameter ITU-T G.652 and ITU-T G.650.1; IEC 60793-2-50 and IEC 60793-1-20	TEC ER No. TEC 70112401

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SCOPE OF DESIGNATION (ANNEXURE)

Laboratory Name: M/S HFCL Ltd. (OFC Test Lab), Telangana

Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

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Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		

Optical	Geometrical	Cladding non-circularity	TEC ER No.
Fibre-Single	Characteristics	ITU-T G.652 and ITU-T G.650.1;	TEC 70112401
Mode		IEC 60793-2-50 and IEC 60793-1-20	
ITU-T		Core Clad concentricity error	TEC ER No.
G.652.D		ITU-T G.652 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-20	
		Coating diameter	TEC ER No.
		IEC 60793-2-50 and IEC 60793-1-21	TEC 70112401
		Coating /Cladding concentricity	TEC ER No.
		IEC 60793-2-50 and IEC 60793-1-21	TEC 70112401
	Transmission	At 1310 nm	TEC ER No.
	Characteristics	ITU-T G.652 and ITU-T G.650.1;	TEC 70112401
	(Attenuation of	IEC 60793-2-50 and IEC 60793-1-40	
	uncabled	At 1550 nm	TEC ER No.
	Fibre)	ITU-T G.652 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-40	
		At 1490 nm	TEC ER No.
		ITU-T G.652 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-40	
		At 1270 nm	TEC ER No.
		ITU-T G.652 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-40	
		At 1625 nm	TEC ER No.
		ITU-T G.652 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-40	

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Laboratory Name: M/S HFCL Ltd. (OFC Test Lab), Telangana

Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

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Test Parameter or Type of Testing

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No.	Equipment / Product			Specification
	/ Product			
	Ontical	Tuonamiasion	Water Back attenuation at 1200 to	TEC ED Ma
	Optical	Transmission	Water Peak attenuation at 1380 to	
	Fibre-Single	Characteristics	1390 nm	TEC 70112401
	Mode	(Attenuation of	*	
	ITU-T	uncabled	IEC 60793-2-50 and IEC 60793-1-40	
	G.652.D	Fibre)	Sudden irregularity in attenuation	TEC ER No.
			Telcordia GR-20-CORE,2013 and	TEC 70112401
			IEC 60793-1-40	
		Transmission	At 1550 nm	TEC ER No.
		Characteristics	ITU-T G.652 and ITU-T G.650.1;	TEC 70112401
		(Chromatic	IEC 60793-2-50 and IEC 60793-1-42	
		Dispersion)	At 1625 nm	TEC ER No.
			ITU-T G.652 and ITU-T G.650.1;	TEC 70112401
			IEC 60793-2-50 and IEC 60793-1-42	
			In 1285-1330 nm band	TEC ER No.
			ITU-T G.652 and ITU-T G.650.1;	TEC 70112401
			IEC 60793-2-50 and IEC 60793-1-42	
			In 1270-1340 nm band	TEC ER No.
			ITU-T G.652 and ITU-T G.650.1;	TEC 70112401
			IEC 60793-2-50 and IEC 60793-1-42	
			Zero Dispersion Slope	TEC ER No.
			ITU-T G.652 and ITU-T G.650.1;	TEC 70112401
			IEC 60793-2-50 and IEC 60793-1-42	
			Zero Dispersion wavelength range	TEC ER No.
			ITU-T G.652 and ITU-T G.650.1;	TEC 70112401
			IEC 60793-2-50 and IEC 60793-1-42	, 5112.01
			120 00.70 2 00 and 120 00775 1 12	
	1	1	1	1

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GOVERNMENT OF INDIA MINISTRY OF COMMUNICATIONS DEPARTMENT OF TELECOMMUNICATIONS TELECOMMUNICATION ENGINEERING CENTRE



Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

SCOPE OF DESIGNATION (ANNEXURE)

Laboratory Name: M/S HFCL Ltd. (OFC Test Lab), Telangana

Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

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Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		_

Optical	Transmission	Uncabled Fiber	TEC ER No.
Fibre-Single	Characteristics	ITU-T G.652 and ITU-T G.650.1;	TEC 70112401
Mode	(Polarization	IEC 60793-2-50 and IEC 60793-1-48	
ITU-T	mode	Link design value for un-cabled fibre	TEC ER No.
G.652.D	dispersion)	ITU-T G.652 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-48	
	Transmission	Cable cut-off wavelength	TEC ER No.
	Characteristics	ITU-T G.652 and ITU-T G.650.1;	TEC 70112401
	(Cutoff	IEC 60793-2-50 and IEC 60793-1-44	
	wavelength)		
	Transmission	Change in attenuation when fiber is	TEC ER No.
	Characteristics	coiled with 100 turns on 60 ± 1.0 mm	TEC 70112401
	(Fibre Macro	diameter mandrel	
	bend loss)	ITU-T G.652, ITU-T G.650.1, IEC	
		60793- 2-50 and IEC 60793-1-47	
		Change in attenuation when fiber is	TEC ER No.
		coiled with 1 turn around 32 ± 0.5 mm	TEC 70112401
		diameter mandrel	
		ITU-T G.652, ITU-T G.650.1, IEC	
		60793-2-50 and IEC 60793-1-47	
		Change in attenuation when fiber is	TEC ER No.
		coiled with 100 turns on 50 ± 0.5 mm	TEC 70112401
		diameter mandrel	
		ITU-T G.652, ITU-T G.650.1, IEC	
		60793-2-50 and IEC 60793-1-47	

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Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		

Op	ptical	Mechanical	Peak Stripability force to remove	TEC ER No.
Fib	bre-Single	Characteristics	primary coating of the fiber	TEC 70112401
Mo	ode		(Unaged, Water aged, Damp heat	
IT	TU-T		aged)	
G.	.652.D		IEC 60793-2-50, IEC 60793-1-32	
			Dynamic Tensile Strength (Un aged)	TEC ER No.
			IEC 60793-2-50 and IEC 60793-1-31	TEC 70112401
			Dynamic Tensile Strength	TEC ER No.
			Aged (Damp Heat aged)	TEC 70112401
			IEC 60793-2-50 and IEC 60793-1-31	
			Dynamic Fatigue	TEC ER No.
			(Unaged and Damp heat aged)	TEC 70112401
			IEC 60793-2-50 and IEC 60793-1-33	
			Fiber Curl	TEC ER No.
			IEC 60793-2-50, 60793-1-34	TEC 70112401
		Environmental	Temperature Cycle Test:	TEC ER No.
		Characteristics	Temperature Dependence of	TEC 70112401
		of Fiber for	Attenuation: Induced Attenuation at	
		both color and	1550 nm and 1625 nm at -60°C to	
			+85°C	
		uncolor fibres	IEC 60793-2-50 and IEC 60793-1-52	
			Temperature-Humidity Cycle Test:	TEC ER No.
			Induced attenuation at 1550 nm and	TEC 70112401
			1625 nm at -10°C to +85°C and 95%	
			relative humidity	
			EIA/TIA 455-73	

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Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

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Certificate Number: TEC/MRA/CAB/IND-D/92 Page 20 of 36

Sl. No.	Telecom Equipment / Product	Test Parameter or	Type of Testing	Standard/ Specification

_	ptical	Environmental	Water Immersion Test: Induced	TEC ER No.
	bre-Single	Characteristics	attenuation at 1550 nm and 1625 nm	TEC 70112401
	ode	of Fiber for	due to water immersion at $23 \pm 2^{\circ}C$	
	TU-T	both color and	IEC 60793-2-50 and IEC 60793-1-53	
G.0	.652.D	uncolor fibres	Accelerated Aging (Dry Heat) Test:	TEC ER No.
			Induced attenuation at 1550 nm and	TEC 70112401
			1625 nm due to Temperature aging at	
			85 ± 2 °C	
			IEC 60793-2-50 and IEC 60793-1-51	
			Retention of Coating Color: Coated	TEC ER No.
			fibre aged for 30 days at 85°C	TEC 70112401
			temperature with 95% Humidity and	
			then 20 days in 85°C dry heat	
			IEC 60793-2-50 and IEC 60793-1-51	
			High Temperature and High	TEC ER No.
			Humidity (Damp Heat) Test: Induced	TEC 70112401
			attenuation at 1550 nm & 1625 nm at	
			85°C temperature and 85% Relative	
			Humidity for 30 days	
			IEC 60793-2-50 and IEC 60793-1-50	
			Cable Material Compatibility test for	TEC ER No.
			fibre:	TEC 70112401
			Fibre to be aged with filling	
			compound for 30 days at 85°C	
			temperature and 85% Relative	
			Humidity	
			Telcordia GR-20-CORE,2013;	
			IEC 60794-1-219	

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Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

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Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		_

Optical Fibre-Single Mode ITU-T G.652.D	Colour qualification for color fibres	MEK RUB Test (Methyl Ethyl Ketone) IEC 60794-1-219	TEC ER No. TEC 70112401
Optical Fibre- Single Mode ITU-T G.655	Geometrical Characteristics	Mode Field Diameter at 1550 nm ITU-T G.655 and ITU-T G.650.1; IEC 60793-2-50 and IEC 60793-1-45 Cladding Diameter ITU-T G.655 and ITU-T G.650.1;	TEC ER No. TEC 70112401 TEC ER No. TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-20 Cladding non-circularity ITU-T G.655 and ITU-T G.650.1; IEC 60793-2-50 and IEC 60793-1-20 Core Clad concentricity error ITU-T G.655 and ITU-T G.650.1; IEC 60793-2-50 and IEC 60793-1-20 Coating diameter IEC 60793-2-50 and IEC 60793-1-21	TEC ER No. TEC 70112401 TEC ER No. TEC 70112401 TEC ER No. TEC 70112401
		Coating /Cladding concentricity IEC 60793-2-50 and IEC 60793-1-21	TEC ER No. TEC 70112401
	Transmission Characteristics (Attenuation of uncabled Fibre)	At 1550 nm ITU-T G.655 and ITU-T G.650.1; IEC 60793- 2-50 and IEC 60793-1-40	TEC ER No. TEC 70112401

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Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		

Optical	Transmission	At 1625 nm	TEC ER No.
Fibre- Single	Characteristics	ITU-T G.655 and ITU-T G.650.1;	TEC 70112401
Mode	(Attenuation of	IEC 60793- 2-50 and IEC 60793-1-40	
ITU-T G.655	uncabled	Sudden irregularity in attenuation	TEC ER No.
	Fibre)	Telcordia GR-20-CORE,2013 and	TEC 70112401
		IEC 60793-1-40	
	Transmission	At 1530 to 1565 nm	TEC ER No.
	Characteristics	ITU-T G.655, G.650.1 and	TEC 70112401
	(Chromatic	IEC 60793-2-50, IEC 60793-1-42	
	Dispersion)	At 1565 to 1625 nm	TEC ER No.
		ITU-T G.655, G.650.1 and	TEC 70112401
		IEC 60793-2-50, IEC 60793-1-42	
		Dispersion slope at 1550 nm	TEC ER No.
		ITU-T G.655, G.650.1 and	TEC 70112401
		IEC 60793-2-50, IEC 60793-1-42	
	Transmission	Uncabled Fiber	TEC ER No.
	Characteristics	ITU-T G.655 and ITU-T G.650.1;	TEC 70112401
	(Polarization	IEC 60793- 2-50 and IEC 60793-1-48	
	mode	Link design value for un-cabled fibre	TEC ER No.
	dispersion)	ITU-T G.655 and ITU-T G.650.1;	TEC 70112401
		IEC 60793- 2-50 and IEC 60793-1-48	
	Transmission	Cable cut off wavelength	TEC ER No.
	Characteristics	ITU-T G.655 and ITU-T G.650.1;	TEC 70112401
	(Cutoff	IEC 60793- 2-50 and IEC 60793-1-44	
	wavelength)		

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Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

SCOPE OF DESIGNATION (ANNEXURE)

Laboratory Name: M/S HFCL Ltd. (OFC Test Lab), Telangana

Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

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Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		

Optical	Transmission	Change in attenuation when fiber is	TEC ER No.
Fibre- Sin	ngle Characteristics	coiled with 100 turns on 60 ± 1.0 mm	TEC 70112401
Mode	(Fibre Macro	diameter mandrel	
ITU-T G.	655 bend loss)	ITU-T G.655, ITU-T G.650.1, IEC	
		60793-2-50 and IEC 60793-1-47	
		Change in attenuation when fiber is	TEC ER No.
		coiled with 1 turn around 32 ± 0.5 mm	TEC 70112401
		diameter mandrel	
		ITU-T G.655, ITU-T G.650.1, IEC	
		60793-2-50 and IEC 60793-1-47	
	Mechanical	Peak Stripability force to remove	TEC ER No.
	Characteristics	primary coating of the fiber (Unaged,	TEC 70112401
		Water aged, Damp heat aged)	
		IEC 60793-2-50, 60793-1-32	
		Dynamic Tensile Strength (Un aged)	TEC ER No.
		IEC 60793-2-50 and IEC 60793-1-31	TEC 70112401
		Dynamic Tensile Strength Aged	TEC ER No.
		(Damp heat aged)	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-31	
		Dynamic Fatigue	TEC ER No.
		(Unaged and Damp heat aged)	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-33	
		Fiber Curl	TEC ER No.
		IEC 60793-2-50, IEC 60793-1-34	TEC 70112401

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Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No	Equipment		Specification
	/ Product		_

0.4:1	- · · · · ·	T	TEC ED M
Optical	Environmental	Temperature-Humidity Cycle Test:	TEC ER No.
Fibre- Single	Characteristics	Induced attenuation at 1550 nm and	TEC 70112401
Mode	of Fiber for	1625 nm at -10°C to +85°C and 95%	
ITU-T G.655	both color and	relative humidity	
	uncolor fibres	EIA/TIA 455-73	
		Water Immersion Test: Induced	TEC ER No.
		attenuation at 1550 nm and 1625 nm	TEC 70112401
		due to water immersion at $23 \pm 2^{\circ}$ C	
		IEC 60793-2-50 and IEC 60793-1-53	
		Accelerated Aging (Dry Heat) Test:	TEC ER No.
		Induced attenuation at 1550 nm and	TEC 70112401
		1625 nm due to Temperature aging at	
		85 ± 2 °C	
		IEC 60793-2-50 and IEC 60793-1-51	
		Retention of Coating Color: Coated	TEC ER No.
		fibre aged for 30 days at 85°C	TEC 70112401
		temperature with 95% Humidity and	
		then 20 days in 85°C dry heat	
		IEC 60793-2-50 and IEC 60793-1-51	
		High Temperature and High	TEC ER No.
		Humidity (Damp Heat) Test: Induced	TEC 70112401
		attenuation at 1550 nm & 1625 nm at	
		85°C temperature and 85% Relative	
		Humidity for 30 days	
		IEC 60793-2-50 and IEC 60793-1-50	
		122 00.75 2 50 and 122 00775 1 50	

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Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		

Optical Fibre- Single Mode	Environmental Characteristics of Fiber for	Cable Material Compatibility test for fibre: Fibre to be aged with filling	TEC ER No. TEC 70112401
ITU-T G.655	both color and	compound for 30 days at 85°C	
	uncolor fibres	temperature and 85% Relative	
		Humidity	
		Telcordia GR-20-CORE,2013; IEC 60794-1-219	
	Colour	MEK RUB Test (Methyl Ethyl	TEC ER No.
	qualification	Ketone)	TEC 70112401
		IEC 60794-1-219	
Optical	Geometrical	Mode Field Diameter at 1310 nm	TEC ER No.
Fibre- Single	Characteristics	ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
Mode		IEC 60793-2-50 and IEC 60793-1-45	
ITU-T		Cladding Diameter	TEC ER No.
G.657.A1		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-20	
		Cladding non-circularity	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-20	
		Core Clad concentricity error	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-20	
		Coating diameter	TEC ER No.
		a) 250µm fibre	TEC 70112401
		b) 200µm fibre	
		IEC 60793-2-50 and IEC 60793-1-21	

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Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		

Optical	Geometrical	Coating /Cladding concentricity	TEC ER No.
Fibre-Single	Characteristics	a) 250µm fibre	TEC 70112401
Mode		b) 200µm fibre	
ITU-T		IEC 60793-2-50 and IEC 60793-1-21	
G.657.A1	Transmission	At 1310 nm	TEC ER No.
	Characteristics	ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
	(Attenuation of	IEC 60793-2-50 and IEC 60793-1-40	
	uncabled	At 1550 nm	TEC ER No.
	Fibre)	ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-40	
		At 1490 nm	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-40	
		At 1270 nm	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-40	
		At 1625 nm	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-40	
		Water Peak attenuation at 1380 to	TEC ER No.
		1390 nm	TEC 70112401
		ITU-T G.657 and ITU-T G.650.1;	
		IEC 60793-2-50 and IEC 60793-1-40	
		Sudden irregularity in attenuation	TEC ER No.
		Telcordia GR-20-CORE,2013 and	TEC 70112401
		IEC 60793-1-40	

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Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		_

Optical	Transmission	At 1550 nm	TEC ER No.
Fibre-Single	Characteristics	ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
Mode	(Chromatic	IEC 60793-2-50 and IEC 60793-1-42	
ITU-T	Dispersion)	At 1625 nm	TEC ER No.
G.657.A1		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-42	
		In 1285-1330 nm band	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793- 2-50 and IEC 60793-1-42	
		In 1270-1340 nm band	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-42	
		Zero Dispersion slope	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-42	
		Zero Dispersion wavelength range	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-42	
	Transmission	Un-cabled Fiber	TEC ER No.
	Characteristics	ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
	(Polarization	IEC 60793- 2-50 and IEC 60793-1-48	
	mode		
	dispersion)	Link design value for un-cabled fibre	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-48	

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Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		

Optical	Transmission	Fiber cut off wavelength for fibre	TEC ER No.
Fibre- Single	Characteristics	used in Patch cords & Pig-tails (2m	TEC 70112401
Mode	(Cutoff	sample)	
ITU-T	wavelength)	ITU-T G.657 and ITU-T	
G.657.A1		G.650.1; IEC 60793-2-50 and IEC	
		60793-1-44	
		Cable cut off wavelength	TEC ER No.
		ITU-T G.657 and ITU-T	TEC 70112401
		G.650.1; IEC 60793-2-50 and IEC	
		60793-1-44	
	Transmission	Change in attenuation when fibre is	TEC ER No.
	Characteristics	coiled with 10 turns on 15 mm radius	TEC 70112401
	(Fibre Macro	mandrel	
	bend loss)	ITU-T G.657, G.650.1 and IEC	
		60793-2-50, IEC 60793-1-47	
		Change in attenuation when fibre is	TEC ER No.
		coiled with 1 turn on 10 mm radius	TEC 70112401
		mandrel	
		ITU-T G.657, G.650.1 and IEC	
		60793-2-50, IEC 60793-1-47	
	Mechanical	Peak Stripability force to remove	TEC ER No.
	Characteristics	primary coating of the fiber (Unaged,	TEC 70112401
		Water aged, Damp heat aged)	
		a) 250µm fibre	
		b) 200µm fibre	
		IEC 60793-2-50, 60793-1-32	
		Dynamic Tensile Strength (Un aged)	TEC ER No.
		IEC 60793-2-50 and IEC 60793-1-31	TEC 70112401

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Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		_

Opt	ical	Mechanical	Dynamic Tensile Strength	TEC ER No.
Fibr	re- Single	Characteristics	Aged (Damp Heat aged)	TEC 70112401
Mod	de		IEC 60793-2-50 and IEC 60793-1-31	
ITU	J -T		Dynamic Fatigue	TEC ER No.
G.65	57.A1		(Unaged and Damp heat aged)	TEC 70112401
			IEC 60793-2-50 and IEC 60793-1-33	
			Fiber Curl	TEC ER No.
			IEC 60793-2-50, IEC 60793-1-34	TEC 70112401
		Environmental	Temperature-Humidity Cycle Test:	TEC ER No.
		Characteristics	Induced attenuation at 1550 nm and	TEC 70112401
		of Fiber for	1625 nm at -10°C to +85°C and 95%	
		both color and	relative humidity	
		uncolor fibres	EIA/TIA 455-73	
			Water Immersion Test: Induced	TEC ER No.
			attenuation at 1550 nm and 1625 nm	TEC 70112401
			due to water immersion at 23 ± 2 °C	
			IEC 60793-2-50 and IEC 60793-1-53	
			Accelerated Aging (Dry Heat) Test:	TEC ER No.
			Induced attenuation at 1550 nm and	TEC 70112401
			1625 nm due to Temperature aging at	
			85 ± 2 °C	
			IEC 60793-2-50 and IEC 60793-1-51	
			Retention of Coating Color: Coated	TEC ER No.
			fibre aged for 30 days at 85°C	TEC 70112401
			temperature with 95% Humidity and	
			then 20 days in 85°C dry heat	
			IEC 60793-2-50 and IEC 60793-1-51	

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Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		_

Optical	Environmental	High Temperature and High	TEC ER No.
-			
Fibre-Single	Characteristics	Humidity (Damp Heat) Test: Induced	TEC 70112401
Mode	of Fiber for	attenuation at 1550 nm & 1625 nm at	
ITU-T	both color and	85°C temperature and 85% Relative	
G.657.A1	uncolor fibres	Humidity for 30 days	
		IEC 60793-2-50 and IEC 60793-1-50	
		Cable Material Compatibility test for	TEC ER No.
		fibre:	TEC 70112401
		Fibre to be aged with filling	
		compound for 30 days at 85°C	
		temperature and 85% Relative	
		Humidity	
		Telcordia GR-20-CORE,2013; IEC	
		60794-1-219	
	Colour	MEK RUB Test (Methyl Ethyl	TEC ER No.
	qualification	Ketone)	TEC 70112401
	•	IEC 60794-1-219	
Optical	Geometrical	Mode Field Diameter at 1310 nm	TEC ER No.
Fibre-Single	Characteristics	ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
Mode		IEC 60793-2-50 and IEC 60793-1-45	
ITU-T		Cladding Diameter	TEC ER No.
G.657 A2		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-20	
		Cladding non-circularity	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-20	

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Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		_

Optical	Geometrical	Core Clad concentricity error	TEC ER No.
Fibre-Single	Characteristics	ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
Mode		IEC 60793-2-50 and IEC 60793-1-20	
ITU-T		Coating diameter	TEC ER No.
G.657 A2		a) 250µm fibre	TEC 70112401
		b) 200µm fibre	
		IEC 60793-2-50 and IEC 60793-1-21	
		Coating /Cladding concentricity	TEC ER No.
		a) 250µm fibre	TEC 70112401
		b) 200µm fibre	
		IEC 60793-2-50 and IEC 60793-1-21	
	Transmission	At 1310 nm	TEC ER No.
	Characteristics	ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
	(Attenuation of	IEC 60793-2-50 and IEC 60793-1-40	
	uncabled	At 1550 nm	TEC ER No.
	Fibre)	ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-40	
		At 1490 nm	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-40	
		At 1270 nm	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-40	
		At 1625 nm	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793- 2-50 and IEC 60793-1-40	

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No.	Equipment / Product	Test Parameter or Type of Testing S S					Specification	
				1				

Optical	Transmission	Water peak attenuation at 1380 to	TEC ER No.
Fibre-Single	Characteristics	1390 nm	TEC 70112401
Mode	(Attenuation of	ITU-T G.657 and ITU-T G.650.1;	
ITU-T	uncabled	IEC 60793-2-50 and IEC 60793-1-40	
G.657 A2	Fibre)	Sudden irregularity in attenuation	TEC ER No.
		Telcordia GR-20-CORE,2013 and	TEC 70112401
		IEC 60793-1-40	
	Transmission	At 1550 nm	TEC ER No.
	Characteristics	ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
	(Chromatic	IEC 60793-2-50 and IEC 60793-1-42	
	Dispersion)	At 1625 nm	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-42	
		In 1270 – 1340 nm band	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-42	
		In 1285-1330 nm band	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-42	
		Zero Dispersion slope	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-42	
		Zero Dispersion wavelength range	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-42	

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Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		_

Optical	Transmission	Uncabled Fiber	TEC ER No.
Fibre-Single	Characteristics	ITU-T G.657 and ITU-T	TEC 70112401
Mode	(Polarization	G.650.1; IEC 60793-2-50 and IEC	
ITU-T	mode	60793-1-48	
G.657 A2	dispersion)	Link design value for un-cabled fibre	TEC ER No.
		ITU-T G.657 and ITU-T	TEC 70112401
		G.650.1; IEC 60793-2-50 and IEC	
		60793-1-48	
	Transmission	Fiber cut off wavelength for fibre	TEC ER No.
	Characteristics	used in Patch cords & Pig-tails (2m	TEC 70112401
	(Cutoff	sample)	
	wavelength)	ITU-T G.657 and ITU-T G.650.1;	
		IEC 60793-2-50 and IEC 60793-1-44	
		Cable cut off wavelength	TEC ER No.
		ITU-T G.657 and ITU-T G.650.1;	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-44	
	Transmission	Change in attenuation when fibre is	TEC ER No.
	Characteristics	coiled with 1 turn on 10 mm radius	TEC 70112401
	(Fibre Macro	mandrel	
	bend loss)	ITU-T G.657, G.650.1 and IEC	
		60793-2-50, IEC 60793-1-47	
		Change in attenuation when fibre is	TEC ER No.
		coiled with 1 turn on 7.5 mm radius	TEC 70112401
		mandrel	
		ITU-T G.657, G.650.1 and IEC	
		60793-2-50, IEC 60793-1-47	

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GOVERNMENT OF INDIA MINISTRY OF COMMUNICATIONS DEPARTMENT OF TELECOMMUNICATIONS TELECOMMUNICATION ENGINEERING CENTRE



Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

SCOPE OF DESIGNATION (ANNEXURE)

Laboratory Name: M/S HFCL Ltd. (OFC Test Lab), Telangana

Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

Telangana –501 359

Certificate Number: TEC/MRA/CAB/IND-D/92 Page 34 of 36

Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		

Optical	Transmission	Change in attenuation when fibre is	TEC ER No.
Fibre-Single	Characteristics	coiled with 10 turns on 15 mm radius	TEC 70112401
Mode	(Fibre Macro	mandrel	
ITU-T	bend loss)	ITU-T G.657, G.650.1 and IEC	
G.657 A2		60793-2-50, IEC 60793-1-47	
	Mechanical	Peak Stripability force to remove	TEC ER No.
	Characteristics	primary coating of the fiber (Unaged,	TEC 70112401
		Water aged, Damp heat aged)	
		a) 250µm fibre	
		b) 200µm fibre	
		IEC 60793-2-50, IEC 60793-1-32	
		Dynamic Tensile Strength (Un aged)	TEC ER No.
		IEC 60793-2-50 and IEC 60793-1-31	TEC 70112401
		Dynamic Tensile Strength	TEC ER No.
		Aged (Damp heat aged)	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-31	
		Dynamic Fatigue	TEC ER No.
		Unaged and Damp heat aged	TEC 70112401
		IEC 60793-2-50 and IEC 60793-1-33	
		Fiber Curl	TEC ER No.
		IEC 60793-2-50, IEC 60793-1-34	TEC 70112401
	Environmental	Temperature-Humidity Cycle Test:	TEC ER No.
	Characteristics	Induced attenuation at 1550 nm and	TEC 70112401
	of Fiber for	1625 nm at -10°C to +85°C and 95%	
	both color and	relative humidity	
	uncolor fibres	EIA/TIA 455-73	

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Certificate Number: TEC/MRA/CAB/IND-D/92 Page 35 of 36

Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		

Optical	Environmental	Water Immersion Test: Induced	TEC ER No.
Fibre-Single	Characteristics	attenuation at 1550 nm and 1625 nm	TEC 70112401
Mode	of Fiber for	due to water immersion at 23±2°C	
ITU-T	both color and	IEC 60793-2-50 and IEC 60793-1-53	
G.657 A2	uncolor fibres	Accelerated Aging (Dry Heat) Test:	TEC ER No.
		Induced attenuation at 1550 nm and	TEC 70112401
		1625 nm due to Temperature aging at	
		85±2°C	
		IEC 60793-2-50 and IEC 60793-1-51	
		Retention of Coating Color: Coated	TEC ER No.
		fibre aged for 30 days at 85°C	TEC 70112401
		temperature with 95% Humidity and	
		then 20 days in 85°C dry heat	
		IEC 60793-2-50 and IEC 60793-1-51	
		High Temperature and High	TEC ER No.
		Humidity (Damp Heat) Test: Induced	TEC 70112401
		attenuation at 1550 nm & 1625 nm at	
		85°C temperature and 85% Relative	
		Humidity for 30 days	
		IEC 60793-2-50 and IEC 60793-1-	
		50	
		Cable Material Compatibility test for	TEC ER No.
		fibre: Fibre to be aged with filling	TEC 70112401
		compound for 30 days at 85°C	
		temperature and 85% Relative	
		Humidity	
		Telcordia GR-20-CORE,2013; IEC	
		60794-1-219	

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Plot No-S-9, Survey No.-26P, 62P, 88P, Electronic City, Raviryala, Maheshwaram (M), Rangareddy District,

Telangana –501 359

Certificate Number: TEC/MRA/CAB/IND-D/92 Page 36 of 36

Sl.	Telecom	Test Parameter or Type of Testing	Standard/
No.	Equipment		Specification
	/ Product		_

0	ptical	Colour	MEK	RUB	Test	(Methyl	Ethyl	TEC ER No.
F	ibre- Single	qualification	Ketone	e)				TEC 70112401
\mathbf{M}	Iode		IEC 60)794-1-	219			
[I]	ГU-Т							
G	5.657 A2							

Signed by Sanjay Bhardwaj Date: 04-04-2024 12:24:11

AD (CA), TEC

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