BUREAU OF INDIAN STANDARDS

Program of Work

ETD 40 : Hvdc Power Systems

Scope: To prepare standards and guidelines on equipment and performance of high-voltage

d.c(HVDC) Transmission Systems

Liaison: IEC TC-115 (P): High Voltage Direct Current (HVDC) transmission for DC voltages above 100

kV IEC TC-22 SC-22F (P): Power electronics for electrical transmission and distribution

systems

Published Standards

S.No	IS No.	TITLE	Reaffirm M-Y	No. of Amds	Fav
1	IS 14801 : 2021	High-voltage direct current HVDC	Acaiiii iii ivi- i	100. 01 Amus	Eqv. Identical under dual
1	IEC 60633 : 2019	transmission Vocabulary first		-	numbering
	IEC 60633 : 2019	revision of IS 14801 : 2021			numbering
2		Performance of high-voltage direct		_	Identical under dual
	2022	current HVDC systems with		_	numbering
		linecommutated converters : Part 1			numbering
	2020	Steady-state conditions second			
	IEC TR 60919-1:	revision			
	2020	Tevision			
3	IS 14902 (Part 2):	Performance of high - Voltage	June, 2024	2	Identical under dual
	2013	direct current (Hvdc) systems with	June, 2024		numbering
		line - Commutated converters: Part			numbering
	IEC/TR 60919-2:	2 faults and switching (First			
	2008	Revision)			
4	IS 14902 (Part 3):	Performance of high - Voltage	June, 2024	2	Identical under dual
	2013	direct current (Hvdc) systems with	June, 202 i	_	numbering
		line - Commutated converters: Part			g
	IEC/TR	3 dynamic conditions (First			
	60919-3:2009	Revision)			
5	IS 14911 (Part 1):	Thyristor Valves for High Voltage	June, 2024	1	Identical under dual
	2020	Direct Current (HVDC) Power	, -		numbering
	IEC 60700-1:2015	Transmission Part 1 Electrical			5
	Reviewed In: 2024	Testing (First Revision)			
	IEC 60700-1:2015	,			
6	IS 14911 (Part 2):	Thyristor Valves for High Voltage		-	Identical under dual
	2024	Direct Current (HVDC) Power			numbering
	60700-2:2016+AMD	Transmission Part 2 Terminology			
	1:2021 CSV				
	60700-2:2016+AMD				
	1:2021 CSV				
7	IS 15597 : 2023	Determination of Power Losses In		-	Identical under dual
	IEC 61803:2020	High-Voltage Direct Current			numbering
	IEC 61803:2020	HVDC Converter Stations With			
		Line-Commutated Converters first			

ĺ		revision		I	1
8	IS 15617 : 2017	Static var compensators (Svc)	December, 2020	-	Identical under dual
	IEC 61954 : 2013	testing of thyristor valves (First			numbering
	Reviewed In: 2020	Revision)			
	IEC 61954 : 2021				
9	IS 15617 : 2024	Static VAR Compensators (SVC)		-	Identical under dual
	IEC 61954 : 2021	â€" Testing of Thyristor Valves (numbering
	IEC 61954 : 2021	Second Revision)			
10	IS 16071 (Part 1):	High-Voltage Direct-Current		-	Identical under dual
	2024	(HVDC) Systems - Guidance to the			numbering
	IEC TR 62001-1:	Specification and Design			
	2021	Evaluation of a.c. Filters Part 1			
	IEC TR 62001-1:	Overview (Second Revision)			
	2021				
11		High-voltage direct current HVDC		-	Identical under dual
	2021	systems Guidance to the			numbering
	IEC TR	specification and design evaluation			
	62001-1:2016	of AC filters Part 1: Overview first			
	IEC TR 62001-1:	revision			
1.0	2021	77.1			
12		High-voltage direct current HVDC		-	Identical under dual
	2021	systems Guidance to the			numbering
	IEC TR	specification and design evaluation			
	62001-2:2016	of AC filters Part 2: Performance			
	IEC TR	first revision			
13	62001-2:2016 IS 16071 (Part 3) :	High-Voltage Direct Current			Identical under dual
13	2021	HVDC systems Guidance to the		-	numbering
	IEC TR	specification and design evaluation			numbering
	62001-3:2016	of ac filters Part 3: Modelling first			
	IEC TR	revision			
	62001-3:2016	16 (131011			
14		High-voltage direct current HVDC		_	Identical under dual
	2021	systems Guidance to the			numbering
	IEC TR	specification and design evaluation			
	62001-4:2016	of AC filters Part 4: Equipment			
	IEC TR 62001-4:	first revision			
	2021				
15	IS 16071 (Part 4):	High-Voltage Direct Current		-	Identical under dual
	2024	(HVDC) Systems � Guidance to			numbering
	IEC TR 62001-4:	the Specification and Design			
	2021	Evaluation of a.c. Filter Part 4			
	IEC TR 62001-4:	Equipment (Second Revision)			
<u> </u>	2021				
16	IS 16071 (Part 5):	High-voltage direct current		-	Identical under dual
		(HVDC) systems - Guidance to the			numbering
		specification and design evaluation			
	2021	of a.c. filters Part 5 a.c. side			
	IEC TR 62001-5:	harmonics and appropriate			
	2021	harmonic limits for HVDC systems			
		with voltage sourced converters			
17	IS 16075 : 2013	(VSC)	June 2024	1	Identical under dual
1/	Reviewed In : 2024	Voltage sourced converter (Vsc)	June, 2024	1	
	IEC 62501 : 2009	valves for high - Voltage direct current (Hvdc) power transmission			numbering
	1EC 02301 , 2009	- Electrical testing			
18	IS 16076 : 2013	High - Voltage direct current	June, 2024	1	Identical under dual
10	Reviewed In : 2024	(Hvdc) installations - System tests	Julic, 2024	1	numbering
	IEC 61975 : 2010	(11.de) installations System tests			numbering
	120 017/3 . 2010	 		 	+

19	IS 16665 : 2017 IEC/TS 61973 : 2012 Reviewed In : 2022 IEC/TS 61973 : 2012	High Voltage Direct Current (HVDC) Substation Audible Noise	January, 2022	1	Identical under dual numbering
20	IS 16666 : 2017 IEC/TR 62544 : 2010 Reviewed In : 2022 IEC/TR 62544 : 2011	High Voltage Direct Current (HVDC) Systems-Application of Active Filters	January, 2022	1	Identical under dual numbering
21	IS 16667: 2018 IEC/TR 62543: 2011 IEC TR 62543: 2022	High - Voltage direct current (Hvdc) power transmission using voltage sourced converters (Vsc)		-	Identical under dual numbering
22	IS 16667 : 2024 IEC TR 62543: 2022 IEC TR 62543: 2022	High-Voltage Direct Current (HVDC) Power Transmission Using Voltage Sourced Converters (VSC) (First Revision)		-	Identical under dual numbering
23	IS 17575 (Part 5): 2021 IEC TR 62681: 2014 IEC TR 62681:2022	Electromagnetic performance of high voltage direct current HVDC overhead transmission lines		-	Identical under dual numbering
24	IS 17575 : 2024 IEC TR 62681:2022 IEC TR 62681:2022	Electromagnetic Performance of High-Voltage Direct-Current		-	Identical under dual numbering
25	IS 17576 : 2021 IEC TR 62978 : 2017 IEC TR 62978 : 2017	HVDC installations Guidelines on asset management		-	Identical under dual numbering
26	IS 17577 : 2021 IEC TR 62672 : 2018 IEC TR 62672 : 2018	Reliability and availability evaluation of HVDC systems		-	Identical under dual numbering
27		High voltage direct current HVDC power transmission System requirements for DC-side equipment Part 1: Using line-commutated converters		-	Identical under dual numbering
28	IS 17591 : 2021 IEC TR 63127 : 2019 IEC TR 63127 : 2019	Guideline for the system design of HVDC converter stations with line- commutated converters		_	Identical under dual numbering
29	IS 17775 (Part 1): 2021 IEC TR 63179-1: 202 IEC TR 63179-1: 202	Guideline for planning of HVDC systems: Part 1 HVDC systems with line-commutated converters		-	Identical under dual numbering
30	IS 17860 : 2024 IEC TS 62344:2023	Design of Earth Electrode Stations for High-Voltage Direct Current		-	Identical under dual numbering

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33 18 17860 2022 Design of earth electrode stations Tris (2444 2013 for high-voltage direct current Herrical meter dual Identical under dual numbering TR (32062 2019 Flow Controller UPFC in Electric Power Systems 13 18322 (Part 1): Power Systems in Voltage Sourced 2023 2023 2023 2023 2023 2023 2023 2023 2023 2023 2023 2024 2023 2024 2023 2023 2024 2023 2023 2024 2025 2015 2010		IEC TS 62344:2023	` '			
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32 S 1832 2023 Performance of Unified Power TR 6326 2019 Power Controlled Perfect Electric Power Systems Power Losses in Voltage Sourced Converter VSC Valves for High-Voltage Direct Current HVDC Systems Part 1 Sensition Power Losses in Voltage Sourced Converter VSC Valves for High-Voltage Direct Current HVDC Systems Part 1 Sensition Power Losses in Voltage Sourced Converter VSC Valves for High-Voltage Direct Current HVDC Systems Part 2 Power Losses in Voltage Sourced Converter VSC Valves for high-Voltage Direct Current HVDC Systems Part 2 Power Losses in Voltage Sourced Converter VSC Valves for High-Voltage Direct Current HVDC Systems Part 2 Power Losses in Voltage Sourced Converter VSC Valves for High-Voltage Direct Current HVDC Systems Part 2 Modular multilevel Converter VSC Valves for Hybritor-Converter VSC Valves for Hybritor-Converter VSC Systems Part 2 Modular multilevel Converter VSC Systems Part 3 Systems			e e			numbering
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33 St 18322 (Part 1)						C
1.2018 CSV	33	IS 18322 (Part 1):			-	Identical under dual
1:2018 CSV Systems Part 1: General Requirements		2023	Converter VSC Valves for High-			numbering
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35 IS 18323 : 2023 Controlled series capacitors TCSC Electrical testing - Identical under dual numbering - Identical under single numbering - Identical under single numbering - Identical under single numbering - Identical under single numbering - Identical under single numbering - Identical under single numbering - Identical under single numbering - Identical under single numbering - Identical under single numbering - Identical under single numbering - Identical under s						
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42	IS/IEC/TR 63363-1:	Performance of Voltage Sourced	-	Identical under single
	2022	Converter (VSC) Based High-		numbering
	IEC TR 63363-1:	Voltage Direct Current (HVDC)		
	2022	Transmission Part 1 Steady-State		
	IEC TR 63363-1:	Conditions		
	2022			

Standards under Development

		Projects Approved	
SI. No.	SI. No. Doc No. Title		
No Records Found			

		Preliminary Draft Standards	
SI. No.	SI. No. Doc No. Title		
No Records Found			

	Drafts Standards in WC Stage				
SI. No.	Doc No.	Title			
1	ETD 40 (26321) Revision	Voltage sourced converter VSC valves for high - Voltage direct current HVDC power transmission			
	of: IS 16075:2013	- Electrical testing			
2	ETD 40 (26322)	High - Voltage direct current Hvdc installations - System tests Amendment - 2			
3	ETD 40 (26324)	Power Losses in Voltage Sourced Converter VSC Valves for High-Voltage Direct Current HVDC			
		Systems Part 1 General Requirements Amendment - 1			
4	ETD 40 (26325)	Power losses in voltage sourced converter VSC valves for high-voltage direct current HVDC			
		systems Part 2 Modular multilevel converters Amendment - 1			
5	ETD 40 (26326)	Voltage sourced converter VSC valves for static synchronous compensator STATCOM Electrical			
		testing Amendment - 1			

		Draft Standards Completed WC Stage	
SI. No.	SI. No. Doc No. Title		
No Records Found			

	Finalized Draft Indian Standard				
SI. No.	Doc No.	Title			
1	ETD 40 (25760)	Insulation co-ordination - Part 11Definitions principles and rules for HVDC system			

		Finalized Draft Indian Standards under Print
SI. No.	Doc No.	Title
1	ETD 40 (25563)	Life extension guidelines for HVDC converter stations
2	ETD 40 (25564)	DC voltages for HVDC grids
3	ETD 40 (25761)	Insulation co-ordination - Part 12 Application guidelines for LCC HVDC converter stations

Total Published Standards:24 Total Standards Under development:9

Aspect Wise Report

Product: 5 Code of Practices: 11 Methods of Test: 5 Terminology: 4 Dimensions: 0 System Standard: 3 Safety Standard: 1 Others: 5

Service Specification: 1 Process Specification: 1 Unclassified: 0

Annexure-I :List of Indian Standards Withdrawn/Superseded

SI. No.	IS No. & Year	Title
1	IS 16071 : 2013	High - Voltage direct current Hvdc systems - Guidebook to the specification and design evaluation
	Reviewed In: 2018 IEC/TR	of a c filters
	62001 : 2003	
2	IS 2165 (Part 5): 2005	Insulation co - Ordination Part 5 procedures for high - Voltage direct current Hvdc converter
	Reviewed In: 2015 IEC	stations
	60071-5 (2002)	

Annexure-II :List of Indian Product Standards

SI. No.	IS No. & Year	Title
1	IS 14902 (Part 2): 2013	Performance of high - Voltage direct current Hvdc systems with line - Commutated converters
	Reviewed In: 2024 IEC/TR	Part 2 faults and switching First Revision
	60919-2 : 2008	
2	IS 14902 (Part 3): 2013	Performance of high - Voltage direct current Hvdc systems with line - Commutated converters
	Reviewed In: 2024 IEC/TR	Part 3 dynamic conditions First Revision
	60919-3:2009	
3	IS 16071 (Part 4): 2024	High-Voltage Direct Current HVDC Systems Guidance to the Specification and Design Evaluation
	IEC TR 62001-4 : 2021	of a c Filter Part 4 Equipment Second Revision
4	IS 16075 : 2013	Voltage sourced converter Vsc valves for high - Voltage direct current Hvdc power transmission -
	Reviewed In: 2024 IEC	Electrical testing
	62501 : 2009	
5	IS 17590 (Part 1): 2021	High voltage direct current HVDC power transmission System requirements for DC-side
	IEC TS 63014-1:201	equipment Part 1 Using line-commutated converters