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BUREAU OF INDIAN STANDARDS

AGENDA

Name of the Committee	No. of Meeting	Day	Date	Time	Venue
Power Systems Relays Sectional Committee, ETD 35	20th	Wednesday	18 December 2024	1100 hrs	**Vimarsha (Blue room), Manak Bhawan, 9 Bahadur Shah Zafar Marg, New Delhi + Online** **(Hybrid Meeting)**

CHAIRMAN: Shri Rajil Srivastava **MEMBER SECRETARY:** Shri Tushar Sharma

Item 0 WELCOME & OPENING REMARKS BY THE CHAIRPERSON

Item 1 CONFIRMATION OF THE MINUTES OF THE LAST MEETING

1.1 The minutes of the last meeting (19th meeting) of Power Systems Relays Sectional Committee, ETD 35 held on 19 June 2024 were circulated via BIS Standards portal and e-mail dated 25-07-2024. In view of no technical comments received, the committee may formally approve the Minutes of last meeting.

Item 2 COMPOSITION OF POWER SYSTEMS RELAYS SECTIONAL COMMITTEE, ETD 35

2.1 The present composition of Power Systems Relays Sectional Committee, ETD 35 is given at **Annex 1**.

The committee may consider.

2.2 Status of participation of members in the previous two meetings inviting suggestions for improvement

Standardization is a collaborative effort, and its success largely depends on the participation and contribution of the members of the concerned technical committees. Further, for standards to be relevant it is also important that viewpoints of all interested stakeholders are brought on board and duly considered while building consensus on the standard being developed. Hence, participation in the technical committee meetings is extremely important in order to ensure that the views of all stakeholder interests are given due consideration by the committee in the formulation of Indian Standards.

The status of participation of committee members in the previous two meetings is given in **Annex 1. It is informed that absence from two consecutive meetings of the Sectional Committee will result in the lapse of committee membership.**

The committee members are requested to provide suggestions for improvement.

2.3 Sector Wise Classification of ETD 35 Sectional Committee

The sector wise classification of ETD 35 Sectional Committee is given at **Annex 4**.

The committee may note and provide details of experts for standardization work in the corresponding sector/sub-sector.

Item 3 ACTIONS ARISING OUT OF PREVIOUS MEETING

Sl. No.	Item No. of last minutes	Item	Decision	Action Taken/Proposed
1.	3.1	Application Guide for Electrical Relays for a.c. Power Systems	GE T&D India Limited, Noida agreed to submit draft for revision of Application Guide for Electrical Relays for a.c. Power Systems within 2 months.	Member to update the committee
2.	5.1	Finalization of ETD 35 (24590) : Electromechanical elementary relays - Part 4 General and safety requirements for reed relays	It was decided to finalize the document for printing. Member secretary was authorised by the committee to make editorial changes in finalized documents.	The document is under printing.

3.	5.2	Finalization of ETD 35 (24597): Electromechanical elementary relays - Part 10 Additional functional aspects and safety requirements for high-capacity relays	It was decided to finalize the document for printing. Member secretary was authorised by the committee to make editorial changes in finalized documents.	The document is under printing.
4.	5.3	Finalization of ETD 35 (24600): Measuring relays and protection equipment - Part 187-1 Functional requirements for differential protection - Restrained and unrestrained differential protection of motors generators and transformers	It was decided to finalize the document for printing. Member secretary was authorised by the committee to make editorial changes in finalized documents.	The document is under printing.
5.	3.4	**R&D Projects:**	Committee noted the information that a combined project for the following 3 types of relays has been awarded to Dr. Shelly Vadhera and Dr. M P R Prasad, NIT Kurukshetra a) Revision of IS 5834 (Part 1): 1994-- Electrical timer relays for industrial purposes - Specification: Part 1 pneumatic. b) Electrical timer relays for industrial purposes - Specification: Part 2 motorised (First Revision) c) Revision of IS 5834 : 1994 Specification for electrical timber relays for industrial purposes: Part 3 'electronic'	The project report submitted by the team from NIT Kurukshetra is given in **Annex 5** for perusal of the committee**. Project leader Dr. Shelly Vadhera may kindly brief the committee about the work carried out under the project and resultant findings.**

The Committee may consider.

Item 4 DRAFT STANDARDS/AMENDMENTS FOR APPROVAL FOR WIDE CIRCULATION

S. No.	Doc no. and Title	Decision Taken in the last meeting	Action Taken
1.	**ETD/35/26302** **Revision of** IS/IEC 62314 : 2006	Revision P-draft of Solid-State Relays (to harmonise the standard with the revised IEC 62314:2023) to be circulated for 45 days for comments.	P-draft was circulated on 05-08-2024. Only comments of agreement with the draft were received during circulation, the no. of comments being 10. **It is proposed that draft document may be approved for wide circulation.**
2.	**ETD/35/26305** **Revision of** IS/IEC 61812-1 : 2011	Revision P-draft of Time Relays for Industrial and Residential Use Part 1 Requirements and Tests (to harmonise the standard with the revised IEC 61812-1:2023) to be circulated for 45 days for comments.	P-draft was circulated on 05-08-2024. Only comments of agreement with the draft were received during circulation, the no. of comments being 10. **It is proposed that draft document may be approved for wide circulation.**
3.	**ETD/35/26351** IS 3637: 1966 **Revision of** Specification for gas - Operated relays	It was decided to circulate the draft document as P-draft for 1 month for comments.	P-draft was circulated on 08-08-2024. Only comments of agreement with the draft were received during circulation, the no. of comments being 10. **It is proposed that draft document may be approved for wide circulation.**

Item 5 PRESENT POSITION OF WORK

5.1 The present position of work under the scope of ETD 35 is given at **Annex 2.**

The Committee may consider.

5.2 Progress as per Annual Programme for Standardization for the year 2024-25

S.No	Committee No	IS No/Subject	New/Revision	Status/Proposal
1.	ETD 35	Electromechanical elementary relays - General and safety requirements for reed relays	NEW	Final document under printing.
2.	ETD 35	Electromechanical elementary relays - Additional functional aspects and safety requirements for high-capacity relays	NEW	Final document under printing.
3.	ETD 35	Measuring relays and protection equipment Part 187-1 Functional requirements for differential protection Restrained and Unrestrained differential protection of motors generators and transformers	NEW	Final document under printing.
4.	ETD 35	Electrical relays Tests and Measurements - Part 1: Visual inspection and check of dimensions	NEW	At FDIS stage in IEC
5.	ETD 35	Electrical relays - Tests and Measurements - Part 2: Mechanical tests and weighing	NEW	At FDIS stage in IEC
6.	ETD 35	Electrical relays - Tests and Measurements Part 4: Dielectric strength test	NEW	At PRVD stage in IEC
7.	ETD 35	Electrical relays - Tests and Measurements - Part 5: Insulation resistance	NEW	At FDIS stage in IEC
8.	ETD 35	IS 5834 : Part 2 : 1993 Electrical timer relays for industrial purposes - Specification: Part 2 motorued (First Revision)	Revision	R&D project completed
9.	ETD 35	IS/IEC 62314 : 2006 Solid - State relays	Revision	Revision draft proposed for wide circulation.
10.	ETD 35	IS/IEC 61812 : Part 1 : 2011 Time Relays for Industrial and Residential Use Part 1 Reuirements and Tests	Revision	Revision draft proposed for wide circulation.
11.	ETD 35	IS/IEC 60255 : Part 24 : 2013 Measuring Relays and Protection Equipment Part 24 Common Format for Transient Data Exchange (COMTRADE) for Power Systems (First Revision)	Revision	Aligned with latest IEC version
12.	ETD 35	IS/IEC 60255 : Part 27 : 2013 Measuring Relays and Protection Equipment Part 27 Product Safety Requirements (First Revision)	Revision	To be aligned with latest IEC version
13.	ETD 35	IS/IEC 60255 : Part 26 : 2013 Measuring Relays and Protection Equipment Part 26 Electromagnetic Compatibility Requirements (First	Revision	To be aligned with latest IEC version

		Revision)		
14.	ETD 35	IS/IEC 62246 : Part 1 : Sec 1 : 2018 Reed Switches Part 1 Generic Specification Section 1 Blank detail specification (First Revision)	Revision	Aligned with latest IEC version
15.	ETD 35	IS 17064 : Part 3 : 2020 Electromechanical Elementary Relays Part 3 Relays with Forcibly Guided (Mechanically Linked) Contacts	Revision	Aligned with latest IEC version
16.	ETD 35	IS/IEC 60255 : Part 149 : 2013 Measuring Relays and Protection Equipment Part 149 Functional Requirements for Thermal Electrical Relays	Revision	Aligned with latest IEC version
17.	ETD 35	IS/IEC/IEEE 60255 : Part 118 : Sec 1 : 2018 Measuring Relays and Protection Equipment Part 118 Synchrophasor for Power Systems Section 1 Measurements	Revision	Aligned with latest IEC version
18.	ETD 35	IS 5834 : Part 1 : 1994 Electrical timer relays for industrial purposes - Specification: Part 1 pneumatic (First Revision)	Revision	R&D project completed
19.	ETD 35	IS 5834 : Part 3 : 1981 Specification for electrical timber relays for industrial purposes: Part 3 electronic	Revision	R&D project completed
20.	ETD 35	IS/IEC 60255 : Part 21 : Sec 2 : 1988 Electrical Relays Part 21 Vibration, Shock, Bump and Seismic Tests on Measuring Relays and Protection Equipment Section 2 Shock and bump tests	Revision	Aligned with latest IEC version
21.	ETD 35	IS 10075 : 1981 Specification for start relay and overload protector for resistance start induction run hermetic compressor	To be archived	IS has been archived
22.	ETD 35	IS 9994: 1981 : Specification for potential relays for capacitor - Start capacitor - Run hermetic compressors	To be archived	IS has been archived
23.	ETD 35	IS 9124: 1979 : Guide for maintenance and field testing of electrical relays	To be archived	IS has been archived
24.	ETD 35	IS 8714: 1978: Specification for electrical protective relays for use in seismic areas	To be archived	IS has been archived
25.	ETD 35	IS 4483 (Part 1) : Preferred panel cut - Out dimensions for electrical relays: Part 1 flush mounting IDMTL relays	To be archived	IS has been archived

The committee may note and review.

5.3 Review of other Indian Standards under ETD 35

S. No.	IS No & Year	Title	Corresponding IEC/Reference Standard	Latest IEC Standard	Remarks
1.	IS 3638:1966	Application guide for gas operated relays			
2.	IS 3842(Part 1):1967	Application guide for electrical relays for ac Systems Part 1 Overcurrent relays for feeders and transformers			
3.	IS 3842 (Part 2) : 1966	Application guide for electrical relays for ac systems Part 2 Overcurrent relays for generators and motors			
4.	IS 3842 (Part 3) : 1966	Application guide for electrical relays for ac systems Part 3 Phase unbalance relays including negative phase sequence relays			
5.	IS 3842 (Part 4) : 1966	Application Guide for Electrical Relays for ac Systems - Part 4 Thermal Relays			
6.	IS 3842 (Part 5) : 1968	Application guide for electrical relays for ac systems Part 5 Distance protection relays			
7.	IS 3842 (Part 6) : 1972	Application Guide for Electrical Relays for ac Systems - Part 6 Power Relays			
8.	IS 3842 (Part 7) : 1972	Application guide for electrical relays for ac systems Part 7 Frequency relays			
9.	IS 3842 (Part 8) : 1976	Application guide for electrical relays for ac systems Part 8 Voltage relays			
10.	IS 3842 (Part 9) : 1977	Applcation guide for electrical relays for ac systems Part 9 Relays for busbar			

		protection			
11.	IS 3842 (Part 10) : 1976	Application Guide for Electrical Relays for ac Systems - Part X Relays for Transverse Differential Protection			
12.	IS 3842 (Part 12) : 1976	Application guide for electrical relays for ac systems Part 12 Differential relays for transformers			
13.	IS 14122 : 1994	Built In Thermal Protection For Electric Motors Rated Up To 660 V Ac	IEC 60034-11 : 1978	IEC 60034-11:2020	To be aligned
14.	IS/IEC 60255 (Part 1) : 2009	Measuring Relays and Protection Equipment Part 1 Common Requirements	IEC 60255-1 : 2009	IEC 60255-1:2022	To be aligned with latest IEC version
15.	IS/IEC 60255 (Part 12) : 1980	Electrical Relays Part 12 Directional Relays and Power Relays With Two Input Energizing Quantities	IEC 60255-12 : 1980	IEC 60255-12 : 1980	Aligned with latest IEC version
16.	IS/IEC 60255 (Part 13) : 1980	Electrical Relays Part 13 Biased Percentage Differential Relays	IEC 60255-13 : 1980	IEC 60255-13 : 1980	Aligned with latest IEC version
17.	IS/IEC 60255 (Part 21 / Sec 1) : 1988	Electrical Relays Part 21 Vibration Shock Bump and Seismic Tests on Measuring Relays and Protection Equipment Section 1 Vibration tests Sinusoidal	IEC 60255-21-1 : 1988	IEC 60255-21-1 : 1988	Aligned with latest IEC version
18.	IS/IEC 60255-21-3:1993	Electrical Relays Part 21 Vibration Shock Bump and Seismic Tests on Measuring Relays and Protection Equipment Section 3 Seismic tests	IEC 60255-21-3:1993	IEC 60255-21-3:1993	Aligned with latest IEC version
19.	IS/IEC 60255 (Part 121) : 2014	Measuring Relays and Protection Equipment Part 121 Functional	IEC 60255-121 :2014	IEC 60255-121 :2014	Aligned with latest IEC version

		Requirements for Distance Protection			
20.	IS/IEC 60255 (Part 127) : 2010	Measuring Relays and Protection Equipment Part 127 Functional Requirements for Over Under Voltage Protection	IEC 60255-127 : 2010	IEC 60255-127 : 2010	Aligned with latest IEC version
21.	IS/IEC 60255 (Part 151) : 2009	Measuring Relays and Protection Equipment Part 151 Functional Requirements for Over Under Current Protection	IEC 60255-151 : 2009	IEC 60255-151 : 2009	Aligned with latest IEC version

The committee may note and review.

Item 6 INTERNATIONAL ACTIVITIES

6.1 India is a P member in IEC TC 94 and IEC TC 95.

Present position of work of IEC TC 94 and IEC TC 95 is given at **Annex 3.**

The committee may note.

6.2 As a `P' member of IEC TC 94 and IEC TC 95, India has an obligation to send voting on IEC drafts and comments wherever necessary. The details of voting/comments sent since last meeting of ETD 35 Sectional Committee is given in **Annex 6**.

The committee may note.

6.3 Review of the Projects under IEC TC 94 and IEC TC 95 and designation of experts

a) The Member Secretary, in consultation with the Chair of the SC and the HoD, and if felt necessary, with the entire SC, shall establish and indicate the Level of Interest in respect of each of the NWIPs or draft standards received from ISO/IEC in the IRD Portal.

b) The next step will be to designate one or two members of the SC to represent BIS in respect of the standards of the Level H (High) and M(Medium). The designated experts will be the face and voice of BIS for that project at the ISO/IEC level.

c) The designated expert shall have the responsibilities of sharing detailed comments on the Drafts/documents received from ISO/IEC, helping the SC in putting together the rationale for proposing NWIPs and firming up proposals for leadership positions and secretariats and briefing the SC on the deliberations at ISO/EC level.

The projects under IEC TC 94 and IEC TC 95 are listed below. Committee members may consider

proposing themselves as experts in the IEC WG/MT. The following roles and responsibilities of experts may be noted:

I. As a member registered in the working group from India (BIS), registered expert is required to share in advance each time he/she wishes to attend the meeting of the WG so that India's view point can be consolidated in the National Mirror Committee on the subject under discussion and the same shall then be presented by him/her in the Working Group.

II. As a member registered in the working group from India (BIS), expert is also required to de-brief the members of the committee on return and submit a detailed report of their participation in the meeting containing the following:

i. Main topics and issues under discussion in the WG/MT
ii. Any specific project/standard(s) you are associated with
iii. Your specific contributions (please highlight) and any significant input provided between two meetings, or since you joined the WG, whichever is later
iv. Your vision on how your continued participation in these WG will help India's interest and development of standards at national level as well.

Sl. No.	Project Reference	Title	Working Group	Level of Interest	Designated Experts
TC 94					
1.	IEC 63522-0 ED1	Electrical relays - Tests and Measurements - Part 0: General and Guidance	WG 11	H (High)	Shri Rahul Srivastava, Shri Tushar Sharma
2.	IEC 63522-1 ED1	Electrical relays – Tests and Measurements - Part 1: Visual inspection and check of dimensions	WG 11		
3.	IEC 63522-2 ED1	Electrical relays - Tests and Measurements - Part 2: Mechanical tests and weighing	WG 11		
4.	IEC 63522-3 ED1	Electrical relays - Tests and Measurements - Part 3: Relay coil properties	WG 11		
5.	IEC 63522-4 ED1	Electrical relays - Tests and measurements - Part 4: Dielectric strength test	WG 11		
6.	IEC 63522-5 ED1	Electrical relays - Tests and Measurements - Part 5: Insulation resistance	WG 11		
7.	IEC 63522-6 ED1	Electrical relays - Tests and Measurements - Part 6: Contact-circuit resistance (or voltage drop)	WG 11		
8.	IEC 63522-7 ED1	Electrical relays - Tests and measurements - Part 7: Functional tests	WG 11		

9.	IEC 63522-9 ED1	Electrical relays - Tests and Measurements - Part 9: Climatic tests	WG 11		
10.	IEC 63522-10 ED1	Electrical relays - Tests and measurements - Part 10: Heating	WG 11		
11.	IEC 63522-11 ED1	Electrical relays - Tests and measurements - Part 11: Enclosure protection and degree of protection	WG 11		
12.	IEC 63522-12 ED1	Electrical relays - Tests and measurements - Part 12: Internal moisture	WG 11		
13.	IEC 63522-14 ED1	Electrical relays - Tests and measurements - Part 14: Mould growth	WG 11		
14.	IEC 63522-16 ED1	Electrical relays - Tests and Measurements - Part 16: Soldering	WG 11		
15.	IEC 63522-18 ED1	Electrical relays – Tests and Measurements – Part 18: Thermal resistance of the coil	WG 11	H (High)	Shri Rahul Srivastava, Shri Tushar Sharma
16.	IEC 63522-19 ED1	Electrical relays - Tests and Measurements - Part 19: Electrical endurance	WG 11		
17.	IEC 63522-20 ED1	Electrical relays – Tests and Measurements - Part 20: Mechanical endurance	WG 11		
18.	IEC 63522-21 ED1	Electrical relays - Tests and Measurements - Part 21: Thermal Endurance	WG 11		
19.	IEC 63522-22 ED1	Electrical relays - Tests and measurements - Part 22: Limiting continuous current	WG 11		
20.	IEC 63522-24 ED1	Electrical relays - Tests and Measurements - Part 24: Load transfer	WG 11		
21.	IEC 63522-25 ED1	Electrical relays - Tests and Measurements - Part 25: Magnetic interference	WG 11		
22.	IEC 63522-26 ED1	Electrical relays - Tests and Measurement - Part 26: Crosstalk and insertion loss	WG 11		
23.	IEC 63522-27 ED1	Electrical relays - Testing and Measurement - Part 27: Electrical contact noise	WG 11	H (High)	Shri Rahul Srivastava, Shri Tushar Sharma

24.	IEC 63522-28 ED1	Electrical relays - Tests and Measurement - Part 28: Thermoelectric electromotive force (e.m.f.)	WG 11		
25.	IEC 63522-29 ED1	Electrical relays - Tests and Measurements - Part 29: Capacitance	WG 11		
26.	IEC 63522-30 ED1	Electrical relays - Tests and measurements - Part 30: Contact sticking (delayed release)	WG 11	H (High)	Shri Rahul Srivastava, Shri Tushar Sharma
27.	IEC 63522-31 ED1	Electrical relays - Tests and Measurements - Part 31: Magnetic Remanence	WG 11		
28.	IEC 63522-32 ED1	Electrical relays - Tests and Measurements - Part 32: Acoustic Noise	WG 11		
29.	IEC 63522-33 ED1	Electrical relays - Tests and Measurements - Part 33: Continuity of protective earth connection	WG 11		
30.	IEC 63522-34 ED1	Electrical relays - Testing and Measurement - Part 34: Fluid contamination	WG 11		
31.	IEC 63522-35 ED1	Electrical relays - Tests and Measurements - Part 35: Resistance to cleaning solvents	WG 11		
32.	IEC 63522-36 ED1	Electrical relays - Tests and Measurements - Part 36: Fire hazard	WG 11		
33.	IEC 63522-37 ED1	Electrical relays -Tests and Measurements - Part 37: Terminal temperature rise at rated load	WG 11		
34.	IEC 63522-38 ED1	Electrical relays - Testing and Measurement - Part 38: Mechanical interlock	WG 11		
35.	IEC 63522-39 ED1	Electrical relays - Tests and measurements - Part 39: Insertion and withdrawal force	WG 11		
36.	IEC 63522-40 ED1	Electrical relays - Tests and measurements - Part 40: Short circuit testing	WG 11		
37.	IEC 63522-41 ED1	Electrical relays - Tests and Measurements - Part 41: Insulation coordination	WG 11		
38.	IEC 63522-42 ED1	Electrical relays - Tests and Measurements - Part 42: EMC	WG 11		

39.	IEC 63522-43 ED1	Electrical relays - Tests and measurements - Part 43: Proof tracking index (PTI)	WG 11	H (High)	Shri Rahul Srivastava, Shri Tushar Sharma
40.	IEC 63522-44 ED1	Electrical relays - Tests and Measurements - Part 44: Corrosive atmosphere due to salt mist	WG 11		
41.	IEC 63522-45 ED1	Electrical relays - Tests and Measurements - Part 45: Maximum frequency of operation	WG 11		
42.	IEC 63522-46 ED1	Electrical relays - Tests and Measurements - Part 46: Impulse voltage test	WG 11		
43.	IEC 63522-49 ED1	Electrical relays - Tests and Measurements - Part 49: Long term stability of sealing	WG 11		
44.	IEC 63522-52 ED1	Electrical relays - Tests and Measurements - Part 52: Coil overvoltage	WG 11		
45.	IEC 63522-54 ED1	Electrical relays - Tests and Measurements - Part 54: Critical DC load current test	WG 11	H (High)	Shri Rahul Srivastava, Shri Tushar Sharma
46.	IEC 63522-55 ED1	Electrical Relays - Tests and measurements - Part 55: Maximum load breaking capacity	WG 11		
47.	IEC 63522-56 ED1	Electrical relays - Tests and Measurements - Part 56: Ball Pressure Test	WG 11		
48.	IEC 63613-1 ED1	Electrical relays - Product data and properties for information exchange - Part 1: General data	WG 10	M (Medium)	-
49.	IEC 61811-1/AMD1 ED2	Amendment 1 - Electromechanical telecom elementary relays of assessed quality - Part 1: Generic specification and blank detail specification	WG 4	M (Medium)	-
TC 95					
50.	IEC 60255-21 ED1	Measuring relays and protection equipment - Part 21: Vibration, shock, bump and seismic tests requirements	MT 3	H (High)	
51.	IEC 60255-24 ED3	Measuring relays and protection equipment - Part 24: Common format for transient data exchange (COMTRADE) for power systems	JMT DLMT	H (High)	

52.	IEC 60255-27/AMD1 ED3	Amendment 1 - Measuring relays and protection equipment - Part 27: Product safety requirements	MT 3	H (High)	
53.	IEC 60255-132 ED1	Measuring relays and protection equipment - Part 132: Functional requirements for directional power protection	MT 4	L (Low)	
54.	IEC 60255-167 ED1	Measuring relays and protection equipment - Part 167: Functional requirements for directional overcurrent protection	MT 4	L (Low)	
55.	IEC 60255-187-3 ED1	Measuring relays and protection equipment - Part 187-3: Functional requirements for differential protection - Line current differential protection	MT 4	M (Medium)	
56.	IEC TS 60255-216-1 ED1	Measuring relays and protection equipment - Part 216-1: Digital Interface - General Requirements and Tests for Protection Functions using digital communication as input and output	WG 2	L (Low)	
57.	IEC 60255-216-3 ED1	Measuring relays and protection equipment - Part 216-3: Digital Interface - Test specification for protection data communication of Line Current Differential Protection	PT 60255-216-3	L (Low)	

The Committee may review the levels of interest and designate experts against the above-mentioned projects.

6.4 Participation of Indian Delegation in the Working Group 3 - Electromechanical Elementary Relays and Test Requirements – and Plenary Meeting of IEC TC 94 – Electrical Relays, held during 09 October 2024 to 11 October 2024 in Paris, France

The Indian Delegation comprising of the following delegates participated in the Working Group 3 - Electromechanical Elementary Relays and Test Requirements – and Plenary Meeting of IEC TC 94 – Electrical Relays, held during 09 October 2024 to 11 October 2024 in Paris, France.

Sl. No.	Name and Organization of the delegate	Mode of Participation
1.	Sh. Tushar Sharma, Scientist-D/Joint Director (BIS)	Physical
2.	Sh. Rahul Srivastava, Siemens Limited	Virtual

The delegates may brief the committee.

Item 7 DATE AND PLACE OF NEXT MEETING

Sectional Committee	**Q1**	**~~Q2~~**	**Q3**	**Q4**
ETD 35	19/6/2024✓	~~18/9/2024~~**~~X~~**	18/12/2024✓	18/3/2025

Item 8 ANY OTHER BUSINESS

Annex 1

COMMITTEE COMPOSITION AND STATUS OF PARTICIPATION IN THE LAST TWO MEETINGS

Sl. No.	Organization	Member Name	Member Email	Attendance Out of last 2 Meetings	
				18th	19th
1.	Power Grid Corporation of India, Gurugram	Shri Rajil Srivastava	rajil@powergrid.in	P	P
2.	ABB India Limited, Bengaluru	Shri M. V. Girish	m.v.girish@in.abb.com	P	P
		Shri Arulselvan G	arulselvan.g@hitachienergy.com		
3.	Adani Transmission Limited, Ahmedabad	Shri Sanjay Bhatt	sanjay.bhatt@adani.com	P	N
4.	Ashida Electronics Private Limited, Thane	Shri Suyash Kulkarni	suyash.kulkarni@ashidaelectronics.in	P	P
		Shri Sujay Kulkarni	sujay@ashida.co.in		
5.	Bharat Heavy Electrical Limited, New Delhi	Smt. Sunita Rani Asu	sunitarani@bhel.in	P	P
		Shri Anil Pakalapati	anilp@bhel.in		
6.	Calcutta Electric Supply Corporation Limited, Kolkata	Shri Arghya Ghosal	arghya.ghoshal@rpsg.in	P	P
		Shri Sucharit Mondal	sucharit.mondal@rpsg.in		
7.	Central Electricity Authority, New Delhi	Shri Bhanwar Singh Meena	bhanwar.cea@gov.in	N	P
		Shri Pankaj Kumar Verma	kvermap@nic.in		
8.	Central Power Research Institute, Bengaluru	Shri Kaliappan P.	kaliappan@cpri.in	P	N
9.	Delhi Metro Rail Corporation Limited, Delhi	Shri Shriniwas Agrawal	snag2270@gmail.com	P	P
		Shri Ashish Arora	ashish.arora@dmrc.org		
10.	Delhi Transco Limited, Delhi	Shri Paritosh Joshi	paritoshjoshi2013@gmail.com	P	P
		Shri B. L. Gujar	bl.gujar@dtl.gov.in		
11.	Electrical Research and Development Association, Vadodara	Shri Vatsal Parmar	vatsal.parmar@erda.org	P	P
		Miss Shefali Talati	shefali.talati@erda.org		
12.	GE T&D India Limited, Noida	Shri Sunish P	sukumaran.sunish@ge.com	P	P
		Shri Sreenatha Rao	sreenatha.rao@ge.com		
13.	Gujarat Energy Transmission Corporation Limited, Vadodara	Shri N.M.Sheth	deprt.getco@gebmail.com	P	N
		Shri Dipak Singh	deprot1.getco@gebmail.com		
14.	Haryana vidyut Prasaran Nigam Limited , Gurugram	Shri Ram Nand Mishra	rnmishraggn@gmail.com	N	P
		Shri Piyush Saini	sedesign@hvpn.org.in		
15.	NTPC Limited, New Delhi	Praveena Parimi	praveenaparimi@ntpc.co.in	P	P
		Shri S.K. Lal	sklal@ntpc.co.in		

		Shri Ankur Tripathi	ankurtripathy@ntpc.co.in		
16.	NHPC Ltd.	Shri Niraj Kumar Singh	nirajsingh@nhpc.nic.in	P	N
		Shri Pranav Kumar	kumarpranav@nhpc.nic.in		
17.	Nuclear Power Corporation of India Limited, Mumbai	Shri Shashank Singh	em.shashank@gmail.com	P	P
		Smt Purva Bhoj	purvabhoj@npcil.co.in		
18.	Power Grid Corporation of India, Gurugram	Shri Abhay Kumar	abhaykumar@powergrid.in	P	N
19.	Punjab Engineering College, Chandigarh	Shri Manohar Singh	manoharsingh@pec.edu.in	-	-
20.	Siemens Limited, Mumbai	Shri Gagan Kapoor	gagan.kapoor@siemens.com	N	P
		Shri Rahul Srivastava	srivastava.rahul@siemens.com		
21.	Sterlite Power Transmission Limited, New Delhi	Shri Sandip Maity	sandip.maity@sterlite.com	P	P
		Shri Jayachandra bendi	jayachandra.bendi1@sterlite.com		
22.	Tata Power Limited, Mumbai	Shri G. T. Jawale	gtjawale@tatapower.com	N	P
		Shri Surendra Joshi	sjoshi@tatapower.com		

Annex 2

ETD 35 PUBLICATIONS

Scope : To prepare standards for power systems relays including those incorporating solid state devices, also taking into account combination of relays and devices to form schemes for power systems including control equipment associated with that protection

Liaison:

- IEC TC 94 - Electrical relays - Participating (P)
- IEC TC 95 - Measuring relays and protection equipment - Participating (P)

Standards Published					
S. No.	**IS No & Year**	**Title**	**Corresponding IEC/Reference Standard**	**Latest IEC Standard**	**Remarks**
1.	IS 3637:1966	Gas operated relays			
2.	IS 3638:1966	Application guide for gas operated relays			
3.	IS 3842(Part 1):1967	Application guide for electrical relays for ac Systems Part 1 Overcurrent relays for feeders and transformers			
4.	IS 3842 (Part 2) : 1966	Application guide for electrical relays for ac systems Part 2 Overcurrent relays for generators and motors			
5.	IS 3842 (Part 3) : 1966	Application guide for electrical relays for ac systems Part 3 Phase unbalance relays including negative phase sequence relays			
6.	IS 3842 (Part 4) : 1966	Application Guide for Electrical Relays for ac Systems - Part 4 Thermal Relays			

7.	IS 3842 (Part 5) : 1968	Application guide for electrical relays for ac systems Part 5 Distance protection relays			
8.	IS 3842 (Part 6) : 1972	Application Guide for Electrical Relays for ac Systems - Part 6 Power Relays			
9.	IS 3842 (Part 7) : 1972	Application guide for electrical relays for ac systems Part 7 Frequency relays			
10.	IS 3842 (Part 8) : 1976	Application guide for electrical relays for ac systems Part 8 Voltage relays			
11.	IS 3842 (Part 9) : 1977	Applcation guide for electrical relays for ac systems Part 9 Relays for busbar protection			
12.	IS 3842 (Part 10) : 1976	Application Guide for Electrical Relays for ac Systems - Part X Relays for Transverse Differential Protection			
13.	IS 3842 (Part 12) : 1976	Application guide for electrical relays for ac systems Part 12 Differential relays for transformers			
14.	IS 4483 (Part 1) : 1968	Preferred panel cutout dimensions for electrical relays Part 1 Flush mounting IDMTL relays			
15.	IS 5834 (Part 1) : 1994	Electrical Timer Relays for Industrial Purposes - Part 1 Pneumatic			
16.	IS 5834 (Part 2) : 1993	Electrical Timer Relays for Industrial			

		Purposes - Part 2 Motorized			
17.	IS 5834 (Part 3) : 1981	electrical timber relays industrial purposes - Part 3 Electronic			
18.	IS 8714 : 1978 BS 142: 1966, ANSI C 37. 90-1971	Electrical protective relays for use in siesmic areas	BS 142: 1966, ANSI C 37. 90-1971		
19.	IS 9124 : 1979	Guide for maintenance and field testing of electrical relays			
20.	IS 9994 : 1981	Potential relays for capacitor start-capacitor run hermetic compressors			
21.	IS 10075 : 1981	Start Relay And Overload Protector For Resistance Start Induction Run Hermetic Compressors			
22.	IS 14122 : 1994	Built In Thermal Protection For Electric Motors Rated Up To 660 V Ac	IEC 60034-11 : 1978	IEC 60034-11:2020	To be aligned
23.	IS 17064 (Part 1) : 2018	Electromechanical Elementary Relays Part 1 General and Safety Requirements	IEC 61810-1:2015	IEC 61810-1:2015+AMD1:2019	AMD 1 published in October 2022. Aligned
24.	IS 17064 (Part 2) : 2019	Electromechanical Elementary Relays Part 2 Reliability	IEC 61810-2: 2017	IEC 61810-2: 2017	Aligned
25.	IS 17064 (Part 2 / Sec 1) : 2019	Electromechanical Elementary Relays Part 2 Reliability Section 1 Procedure for the verification of B10 values	IEC 61810-2-1 : 2017	IEC 61810-2-1 : 2017	Aligned

26.	IS 17064 (Part 3) : 2020	Electromechanical Elementary Relays Part 3 Relays with Forcibly Guided Mechanically Linked Contacts	IEC 61810-3: 2015	IEC 61810-3: 2015	Aligned
27.	IS 17065 (Part 1) : 2018	Electromechanical Telecom Elementary Relays of Assessed Quality Part 1 Generic Specification and Blank Detail Specification	IEC 61811-1 :2015	IEC 61811-1 :2015	Aligned
28.	IS 17066 (Part 1) : 2018	Reed Switches Part 1 Generic Specification	IEC 62246-1:2015	IEC 62246-1:2015	Aligned
29.	IS/IEC 60255 (Part 1) : 2009	Measuring Relays and Protection Equipment Part 1 Common Requirements	IEC 60255-1 : 2009	IEC 60255-1:2022	To be aligned
30.	IS/IEC 60255 (Part 12) : 1980	Electrical Relays Part 12 Directional Relays and Power Relays With Two Input Energizing Quantities	IEC 60255-12 : 1980	IEC 60255-12 : 1980	Aligned
31.	IS/IEC 60255 (Part 13) : 1980	Electrical Relays Part 13 Biased Percentage Differential Relays	IEC 60255-13 : 1980	IEC 60255-13 : 1980	Aligned
32.	IS/IEC 60255 (Part 21 / Sec 1) : 1988	Electrical Relays Part 21 Vibration Shock Bump and Seismic Tests on Measuring Relays and Protection Equipment Section 1 Vibration tests Sinusoidal	IEC 60255-21-1 : 1988	IEC 60255-21-1 : 1988	Aligned
33.	IS/IEC 60255-21-2:1988	Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section Two: Shock and bump tests	IEC 60255-21-2 : 1988	IEC 60255-21-2 : 1988	Aligned

34.	IS/IEC 60255-21-3:1988	Electrical Relays Part 21 Vibration Shock Bump and Seismic Tests on Measuring Relays and Protection Equipment Section 3 Seismic tests	IEC 60255-21-3:1993	IEC 60255-21-3:1993	Aligned
35.	IS/IEC 60255-24:2013	Measuring relays and protection equipment - Part 24: Common format for transient data exchange (COMTRADE) for power systems	IEC 60255-24:2013	IEC 60255-24:2013	Aligned
36.	IS/IEC 60255-26:2013	Measuring relays and protection equipment - Part 26: Electromagnetic compatibility requirements	IEC 60255-26:2013	IEC 60255-26:2023	To be aligned
37.	IS/IEC 60255-27: 2013	Measuring relays and protection equipment - Part 27: Product safety requirements	IEC 60255-27: 2013	IEC 60255-27:2023	To be aligned
38.	IS/IEC/IEEE 60255-118-1:2018	Measuring relays and protection equipment - Part 118-1: Synchrophasor for power systems - Measurements	IEC 60255-118-1:2018	IEC 60255-118-1:2018	Aligned
39.	IS/IEC 60255 (Part 121) : 2014	Measuring Relays and Protection Equipment Part 121 Functional Requirements for Distance Protection	IEC 60255-121 :2014	IEC 60255-121 :2014	Aligned
40.	IS/IEC 60255 (Part 127) : 2010	Measuring Relays and Protection Equipment Part 127 Functional Requirements for Over Under Voltage Protection	IEC 60255-127 : 2010	IEC 60255-127 : 2010	Aligned
41.	IS/IEC 60255-149:2013	Measuring relays and protection equipment	IEC 60255-149:2013	IEC 60255-149:2013	Aligned

		- Part 149: Functional requirements for thermal electrical relays			
42.	IS/IEC 60255 (Part 151) : 2009	Measuring Relays and Protection Equipment Part 151 Functional Requirements for Over Under Current Protection	IEC 60255-151 : 2009	IEC 60255-151 : 2009	Aligned
43.	IS/IEC 60255-181:2019	Measuring relays and protection equipment - Part 181: Functional requirements for frequency protection	IEC 60255-181:2019	IEC 60255-181:2019	Aligned
44.	IS/IEC 61810 (Part 7) : 2006	Electromechanical Elementary Relays Part 7 Test and Measurement Procedures	IEC 61810-7 : 2006	IEC 61810-7 : 2006	Aligned
45.	IS/IEC 61812-1 : 2011	Time Relays for Industrial and Residential Use Part 1 Reuirements and Tests	IS/IEC 61812-1 : 2011	IEC 61812-1:2023	To be aligned
46.	IS/IEC 62246 (Part 1 / Sec 1) : 2018	Reed Switches Part 1 Generic Specification Section 1 Quality Assessment	IEC 62246-1-1 :2018	IEC 62246-1-1 :2018	Aligned
47.	IS/IEC 62314 : 2006	Solid-State Relays	IEC 62314 : 2006	IEC 62314:2022	To be aligned
48.	IS 18488 : 2024	GUIDELINES FOR SUBSTATION AUTOMATION SYSTEM BASED ON IEC 61850			Published in February 2024

Annex 3

IEC TC 94 PUBLICATIONS

Sr. No	Reference	Title
1.	IEC 61810-1:2015+AMD1:2019 CSV	Electromechanical elementary relays - Part 1: General and safety requirements
2.	IEC 61810-1:2015	Electromechanical elementary relays - Part 1: General and safety requirements
3.	IEC 61810-1:2015/ISH1:2023	Interpretation Sheet 1 - Electromechanical elementary relays - Part 1: General and safety requirements
4.	IEC 61810-1:2015/COR1:2017	Corrigendum 1 - Electromechanical elementary relays - Part 1: General and safety requirements
5.	IEC 61810-1:2015/COR2:2018	Corrigendum 2 - Electromechanical elementary relays - Part 1: General and safety requirements
6.	IEC 61810-1:2015/AMD1:2019	Amendment 1 - Electromechanical elementary relays - Part 1: General and safety requirements
7.	IEC 61810-2:2017	Electromechanical elementary relays - Part 2: Reliability
8.	IEC 61810-2-1:2017	Electromechanical elementary relays - Part 2-1: Reliability - Procedure for the verification of B₁₀ values
9.	IEC 61810-3:2015	Electromechanical elementary relays - Part 3: Relays with forcibly guided (mechanically linked) contacts
10.	IEC 61810-4:2020	Electromechanical elementary relays - Part 4: General and safety requirements for reed relays
11.	IEC 61810-7:2006	Electromechanical elementary relays - Part 7: Test and measurement procedures
12.	IEC 61810-10:2019	Electromechanical elementary relays - Part 10: Additional functional aspects and safety requirements for high-capacity relays

13.	IEC 61811-1:2015	Electromechanical telecom elementary relays of assessed quality - Part 1: Generic specification and blank detail specification
14.	IEC 61812-1:2023 RLV	Time relays and coupling relays for industrial and residential use - Part 1: Requirements and tests
15.	IEC 61812-1:2023	Time relays and coupling relays for industrial and residential use - Part 1: Requirements and tests
16.	IEC 62246-1:2015	Reed switches - Part 1: Generic specification
17.	IEC 62246-1-1:2018	Reed switches - Part 1-1: Generic specification - Blank detail specification
18.	IEC 62246-4:2023	Reed switches – Part 4: Application in conjunction with magnetic actuator used for magnetic sensing devices
19.	IEC 62314:2022	Solid-state relays - Safety requirements
20.	IEC 63522-8:2024	Electrical relays - Tests and measurements - Part 8: Timing
21.	IEC 63522-13:2024	Electrical relays - Tests and measurements - Part 13: Corrosive atmospheres due to sulfur impact
22.	IEC 63522-15:2024	Electrical relays - Tests and measurements - Part 15: Robustness of terminals
23.	IEC 63522-17:2024	Electrical relays - Tests and measurements - Part 17: Shock, acceleration and vibration
24.	IEC 63522-48:2024	Electrical relays - Tests and measurements - Part 48: Contact failure rate test

TC 94 Work Programme as on 2024-12-14

Sr. No	Project Reference	Title	Current Stage	Next Stage Date	Working Group
1.	IEC 61811-1/ AMDI ED2	Electrical relays - Tests and Measurements - Part 0: General and Guidance	ACDV	2025-01	WG 4
2.	IEC 65322-0 ED2	Electrical relays – Tests and measurements – Part O: General and Guidance	PRVC	2024-10	WG 3
3.	IEC 63522-1 ED1	Electrical relays – test and measurments – Part-1 visual inspection and check of inspection	RFDIS	2024-08	WG 3
4.	IEC 63522-2	Electrical relays - Tests and Measurements - Part 2: Mechanical tests	RFDIS	2025-02	WG 3

	ED1	and weighing			
5.	IEC 63522-3 ED1	Electrical relays - Tests and Measurements - Part 3: Relay coil properties	PRVC	2024-12	WG 3
6.	IEC 63522-4 ED1	Electrical relays - Tests and Measurements Part 4: Dielectricstrength test	PRVD	2024-09	WG 3
7.	IEC 63522-5 ED1	Electrical relays - Tests and Measurements - Part 5: Insulation resistance	RFDIS	2024-12	WG 3
8.	IEC 63522-6 ED1	Electrical relays - Tests and Measurements - Part 6: Contact-circuit resistance (or voltage drop)	PRVD	2024-12	WG 3
9.	IEC 63522-7 ED1	Electrical relays - Tests and measurements - Part 7: Functional tests	BPUB	2024-12	WG 3
10.	IEC 63522-9 ED1	Electrical relays - Tests and Measurements - Part 9: Climatic tests	BPUB	2024-12	WG 3
11.	IEC 63522-10 ED1	Electrical relays - Tests and Measurements - Part 10: Heating	RFDIS	2024-10	WG 3
12.	IEC 63522-11 ED1	Electrical relays - Tests and measurements - Part 11: Enclosure protection and degree of protection	PRVD	2024-09	WG 3
13.	IEC 63522-12 ED1	Electrical relays - Tests and measurements - Part 12: Internal moisture	PRVD	2024-09	WG 3
14.	IEC 63522-14 ED1	Electrical relays - Tests and measurements - Part 14: Mould growth	PRVD	2024-09	WG 3
15.	IEC 63522-16 ED1	Electrical relays - Tests and Measurements - Part 16: Soldering	PRVD	2024-11	WG 3
16.	IEC 63522-18 ED1	Electrical relays – Tests and Measurements – Part 18: Thermal resistance of the coil	PRVD	2024-09	WG 3
17.	IEC 63522-19 ED1	Electrical relays - Tests and Measurements - Part 19: Electrical endurance	PRVC	2024-12	WG 3
18.	IEC 63522-20 ED1	Electrical relays – Tests and Measurements - Part 20: Mechanical endurance	PRVD	2024-09	WG 3
19.	IEC 63522-21 ED1	Electrical relays - Tests and Measurements - Part 21: Thermal Endurance	BPUB	2024-12	WG 3

20.	IEC 63522-22 ED1	Electrical relays - Tests and Measurements - Part 22: Limiting continuous current	PRVD	2024-09	WG 3
21.	IEC 63522-24 ED1	Electrical relays - Tests and Measurements - Part 24: Load transfer	PRVD	2024-09	WG 3
22.	IEC 63522-25 ED1	Electrical relays - Tests and Measurements - Part 25: Magnetic interference	PRVD	2024-09	WG 3
23.	IEC 63522-26 ED1	Electrical relays - Tests and Measurement - Part 26: Crosstalk and insertion loss	PCC	2023-12	WG 3
24.	IEC 63522-27 ED1	Electrical relays - Testing and Measurement - Part 27: Electrical contact noise	RFDIS	2025-03	WG 3
25.	IEC 63522-28 ED1	Electrical relays - Tests and Measurement - Part 28: Thermoelectric electromotive force (e.m.f.)	RFDIS	2025-03	WG 3
26.	IEC 63522-29 ED1	Electrical relays - Tests and Measurements - Part 29: Capacitance	BPUB	2025-01	WG 3
27.	IEC 63522-30 ED1	Electrical relays - Tests and measurements - Part 30: Contact sticking (delayed release)	PRVD	2024-11	WG 3
28.	IEC 63522-31 ED1	Electrical relays - Tests and Measurements - Part 31: Magnetic Remanence	RFDIS	2025-02	WG 3
29.	IEC 63522-32 ED1	Electrical relays - Tests and Measurements - Part 32: Acoustic Noise	BPUB	2024-12	WG 3
30.	IEC 63522-33 ED1	Electrical relays - Tests and Measurements - Part 33: Continuity of protective earth connection	RFDIS	2025-02	WG 3
31.	IEC 63522-34 ED1	Electrical relays - Testing and Measurement - Part 34: Fluid contamination	RFDIS	2025-02	WG 3
32.	IEC 63522-35 ED1	Electrical relays - Tests and Measurements - Part 35: Resistance to cleaning solvents	CFDIS	2024-12	WG 3
33.	IEC 63522-36 ED1	Electrical relays - Tests and Measurements - Part 36: Fire hazard	PRVD	2024-11	WG 3
34.	IEC 63522-37 ED1	Electrical relays -Tests and Measurements - Part 37: Terminal temperature rise at rated load	RFDIS	2025-02	WG 3
35.	IEC 63522-38 ED1	Electrical relays - Testing and Measurement - Part 38: Mechanical interlock	DECFDIS	2024-12	WG 3

36.	IEC 63522-39 ED1	Electrical relays - Tests and measurements - Part 39: Insertion and withdrawal force	PRVD	2024-11	WG 3
37.	IEC 63522-40 ED1	Electrical relays - Tests and measurements - Part 40: Short circuit testing	PRVD	2024-09	WG 3
38.	IEC 63522-41 ED1	Electrical relays - Tests and Measurements - Part 41: Insulation coordination	PRVC	2024-12	WG 3
39.	IEC 63522-42 ED1	Electrical relays - Tests and Measurements - Part 42: EMC	PCC	2023-08	WG 3
40.	IEC 63522-43 ED1	Electrical relays - Tests and measurements - Part 43: Proof tracking index (PTI)	PRVD	2024-11	WG 3
41.	IEC 63522-44 ED1	Electrical relays - Tests and Measurements - Part 44: Corrosive atmosphere due to salt mist	DECFDIS	2024-12	WG 3
42.	IEC 63522-45 ED1	Electrical relays - Tests and Measurements - Part 45: Maximum frequency of operation	PRVD	2024-07	WG 3
43.	IEC 63522-46 ED1	Electrical relays - Tests and Measurements - Part 46: Impulse voltage test	PRVC	2024-11	WG 3
44.	IEC 63522-49 ED1	Electrical relays - Tests and Measurements - Part 49: Long term stability of sealing	DECFDIS	2024-12	WG 3
45.	IEC 63522-52 ED1	Electrical relays - Tests and Measurements - Part 52: Coilovervoltage	PRVC	2025-01	WG 3
46.	IEC 63522-54 ED1	Electrical relays - Tests and Measurements - Part 54: Critical DCload current test	PRVC	2025-02	WG 3
47.	IEC 63522-55 ED1	Electrical Relays - Tests and measurements - Part 55: Maximum load breaking capacity	ACD	2024-12	WG 3
48.	IEC 63522-56 ED1	Electrical relays - Tests and Measurements - Part 56: Ball Pressure Test	PRVD	2024-10	WG 3
49.	IEC 63613-1 ED1	Electrical relays - Product data and properties for information exchange - Part 1: General data	ACD	2025-06	WG 10

IEC TC 95 PUBLICATIONS

Sr. No	Reference	Title
1.	IEC 60255-1:2022	Measuring relays and protection equipment - Part 1: Common requirements
2.	IEC 60255-12:1980	Electrical relays - Part 12: Directional relays and power relays with two input energizing quantities
3.	IEC 60255-13:1980	Electrical relays - Part 13: Biased (percentage) differential relays
4.	IEC 60255-21-1:1988	Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section One: Vibration tests (sinusoidal)
5.	IEC 60255-21-2:1988	Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section Two: Shock and bump tests
6.	IEC 60255-21-3:1993	Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section 3: Seismic tests
7.	IEC 60255-24:2013	Measuring relays and protection equipment - Part 24: Common format for transient data exchange (COMTRADE) for power systems
8.	IEC 60255-26:2023	Measuring relays and protection equipment - Part 26: Electromagnetic compatibility requirements

9.	IEC 60255-27:2023	Measuring relays and protection equipment - Part 27: Product safety requirements
10.	IEC 60255-27:2023 CMV	Measuring relays and protection equipment - Part 27: Product safety requirements
11.	IEC/IEEE 60255-118-1:2018	Measuring relays and protection equipment - Part 118-1: Synchrophasor for power systems - Measurements
12.	IEC 60255-121:2014	Measuring relays and protection equipment - Part 121: Functional requirements for distance protection
13.	IEC 60255-127:2010	Measuring relays and protection equipment - Part 127: Functional requirements for over/under voltage protection
14.	IEC 60255-149:2013	Measuring relays and protection equipment - Part 149: Functional requirements for thermal electrical relays
15.	IEC 60255-151:2009	Measuring relays and protection equipment - Part 151: Functional requirements for over/under current protection
16.	IEC 60255-181:2019	Measuring relays and protection equipment - Part 181: Functional requirements for frequency protection
17.	IEC 60255-187-1:2021	Measuring relays and protection equipment - Part 187-1: Functional requirements for differential protection - Restrained and unrestrained differential protection of motors, generators and transformers
18.	IEC 60255-187-1:2021/COR1:2023	Corrigendum 1 - Measuring relays and protection equipment - Part 187-1: Functional requirements for differential protection - Restrained and unrestrained differential protection of motors, generators and transformers

TC 95 Work Programme as on 2024-12-14

Sr. No	Project Reference	Title	Current Stage	Next Stage Date	Working Group
1.	PWI TR 95-1	Requirements and roadmap for DC protection function standardisation	PWI	2026-12	WG 3
2.	IEC 60255-21 ED1	Measuring relays and protection equipment - Part 21: Vibration, shock, bump and seismic tests requirements	PCC	2024-05	MT 3
3.	IEC 60255-24 ED3	Measuring relays and protection equipment - Part 24: Common format for transient data exchange (COMTRADE) for power systems	ACD	2025-02	JMT DLMT
4.	IEC 60255-27/AMD1 ED3	Amendment 1 - Measuring relays and protection equipment - Part 27: Product safety requirements	PCC	2024-03	MT 3
5.	IEC 60255-132 ED1	Measuring relays and protection equipment - Part 132: Functional requirements for directional power protection	ACD	2024-09	MT 4
6.	IEC 60255-167 ED1	Measuring relays and protection equipment - Part 167: Functional requirements for directional overcurrent protection	ACD	2024-10	MT 4
7.	IEC 60255-187-3 ED1	Measuring relays and protection equipment - Part 187-3: Functional requirements for differential protection - Line current differential protection	ACD		MT 4
8.	IEC TS 60255-216-1 ED1	Measuring relays and protection equipment - Part 216-1: Digital Interface - General Requirements and Tests for Protection Functions using digital communication as input and output	ADTS	2025-01	WG 2
9.	IEC 60255-216-3 ED1	Measuring relays and protection equipment - Part 216-3: Digital Interface - Test specification for protection data communication of Line Current Differential Protection	ACD	2025-03	PT 60255-216-3

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Sectors under ETD 35

Sectors	Sr. No.	IS No	Title of Indian Standard	Name of Sectoral Expert
Application guide for electrical relays	1	IS 3638 : 1966	Application guide for gas - Operated relays	
	2	IS 3842 (Part 1) : 1967	Application guide for electrical relays for AC systems: Part 1 overcurrent relays for feeders and transformers	
	3	IS 3842 (Part 2) : 1966	Application guide for electrical relays for AC systems: Part 2 overcurent relays for generators and motors	
	4	IS 3842 (Part 3) : 1966	Application guide for electrical relays for AC systems: Part 3 phase unbalance relays including negative phase sequence relays	
	5	IS 3842 (Part 4) : 1966	Application guide for electrical relays for AC systems: Part 4 thermal relays	
	6	IS 3842 (Part 5) : 1968	Application guide for electrical relays for AC systems: Part 5 distance protection relays	
	7	IS 3842 (Part 6) : 1972	Application guide for electrical relays for AC systems: Part 6 power relays	
	8	IS 3842 (Part 7) : 1972	Application guide for electrical relays for AC systems: Part 7 frequency relays	

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Sectors under ETD 35

	9	IS 3842 (Part 8) : 1976	Application guide for electrical relays for AC systems: Part 8 voltage relays	
	10	IS 3842 (Part 9) : 1977	Application guide for electrical relays for AC systems: Part 9 relays for bus bar protection	
	11	IS 3842 (Part 10) : 1976	Application guide for electrical relays for AC systems: Part 10 relays for transverse differential protection	
	12	IS 3842 (Part 12) : 1976	Application guide for electrical relays for AC systems: Part 12 differential relays for transformers	
	13	IS 9124 : 1979	Guide for maintenance and field testing of electrical relays	
Electromechanical elementary relays	1	IS 17064 (Part 1) : 2018 IEC 61810-1 : 2015	Electromechanical elementary relays: Part 1 general and safety requirements	
	2	IS 17064 (Part 2) : 2019 IEC 61810-2: 2017	Electromechanical elementary relays: Part 2 reliability	
	3	IS 17064 (Part 2/Sec 1) : 2019 IEC 61810-2-1 : 2017	Electromechanical elementary relays: Part 2 reliability: Sec 1 procedure for the verification of b10 values	
	4	IS 17064 (Part 3) : 2020	Electromechanical Elementary Relays Part 3 Relays with Forcibly Guided (Mechanically Linked) Contacts	
	5	IS/IEC 61810-7 : 2006	Electromechanical elementary relays:	

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Sectors under ETD 35

			Part 7 test and measurement procedures	
	6	IS 17065 (Part 1) : 2018 IEC 61811-1 :2015	Electromechanical telecom elementary relays of assessed quality: Part 1 generic specification and blank detail specification	
Measuring relays and protection equipment	1	IS/IEC 60255-1 : 2009	Measuring relays and protection equipment: Part 1 common requirements	
	2	IS/IEC 60255-12 : 1980	Electrical relays: Part 12 directional relays and power relays with two input energizing quantities	
	3	IS/IEC 60255-13 : 1980	Electrical relays: Part 13 biased (Percentage) differential relays	
	4	IS/IEC 60255-21-2) : 1988	Electrical Relays Part 21 Vibration, Shock, Bump and Seismic Tests on Measuring Relays and Protection Equipment Section 2 Shock and bump tests	
	5	IS/IEC 60255-21-3) : 1993 IEC 60255-21-3 : 199	Electrical Relays Part 21 Vibration, Shock, Bump and Seismic Tests on Measuring Relays and Protection Equipment Section 3 Seismic tests	
	6	IS/IEC 60255-21-1) : 1988	Electrical relays: Part 21 vibration, shock, bump and seismic tests on measuring relays	

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Sectors under ETD 35

			and protection equipment: Sec 1 vibration tests (Sinusoidal)	
	7	IS/IEC 60255-24 : 2013	Measuring Relays and Protection Equipment Part 24 Common Format for Transient Data Exchange (COMTRADE) for Power Systems (First Revision)	
	8	IS/IEC 60255-26 : 2013 IEC 60255-26 : 2008	Measuring Relays and Protection Equipment Part 26 Electromagnetic Compatibility Requirements (First Revision)	
	9	IS/IEC 60255-27 : 2013	Measuring Relays and Protection Equipment Part 27 Product Safety Requirements (First Revision)	
	10	IS/IEC/IEEE 60255-118-1) : 2018	Measuring Relays and Protection Equipment Part 118 Synchrophasor for Power Systems Section 1 Measurements	
	11	IS/IEC 60255-121 : 2014	Measuring relays and protection equipment: Part 121 functional requirements for distance protection	
	12	IS/IEC 60255-127 : 2010 IEC 60255-127 : 2010	Measuring relays and protection equipment: Part 127 functional requirements for over/under voltage protection	
	13	IS/IEC 60255-149 : 2013	Measuring Relays and Protection	

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Sectors under ETD 35

			Equipment Part 149 Functional Requirements for Thermal Electrical Relays	
	14	IS/IEC 60255-151 : 2009 IEC 60255-151 : 2009	Measuring relays and protection equipment: Part 151 functional requirements for over/under current protection	
	15	IS/IEC 60255-181 : 2019	Measuring Relays and Protection Equipment Part 181 Functional Requirements for Frequency Protection	
Reed switches	1	IS 17066 (Part 1) : 2018 IEC 62246-1 :2015	Reed switches: Part 1 generic specification	
	2	IS/IEC 62246-1-1) : 2018	Reed Switches Part 1 Generic Specification Section 1 Blank detail specification (First Revision)	
Solid-state relays	1	IS/IEC 62314 : 2006	Solid - State relays	
Substation automation	1	IS 18488 : 2024	GUIDELINES FOR SUBSTATION AUTOMATION SYSTEM BASED ON IEC 61850	
Time Relays	1	IS 5834 (Part 1) : 1994	Electrical timer relays for industrial purposes - Specification: Part 1 pneumatic (First Revision)	
	2	IS 5834 (Part 2) : 1993	Electrical timer relays for industrial purposes -	

Annex 4

Sectors under ETD 35

			Specification: Part 2 motorued (First Revision)	
	3	IS 5834 (Part 3) : 1981	Specification for electrical timber relays for industrial purposes: Part 3 electronic	
	4	IS/IEC 61812-1 : 2011 IEC 61812-1 : 2011	Time Relays for Industrial and Residential Use Part 1 Reuirements and Tests	
Relays for special applications	1	IS 10075 : 1981	Specification for start relay and overload protector for resistance start induction run hermetic compressor	
	2	IS 14122 : 1994	Built - In thermal protection for electric motors rated up to 660 V AC - Specification	
	3	IS 3637 : 1966	Specification for gas - Operated relays	
	4	IS 4483 (Part 1) : 1968	Preferred panel cut - Out dimensions for electrical relays: Part 1 flush mounting IDMTL relays	
	5	IS 8714 : 1978	Specification for electrical protective relays for use in seismic areas	
	6	IS 9994 : 1981	Specification for potential relays for capacitor - Start capacitor - Run hermetic compressors	

Annex 5

ANNEX E

OPERATION OF FUNDS AND PROGRESS REPORT 3rd (Final)

1. Title of the Project: **Study of Safety and Performance parameters of Electrical timer relays for industrial purposes - Pneumatic, Motorised and Electronic**	Project number: **ETD 0059**
2. Name & Address of Project leader: **Shelly Vadhera** **Associate Professor** **Electrical Engineering Department** **National Institute of Technology, Kurukshetra** **Haryana , India-136119**	Date of Commencement: **25/06/2024**

3. Details of Equipment Purchased (if any):**NIL**

Name of equipment	Cost	Supplier	Date of purchase/ placing order for each item of equipment
NOTE - The equipment fund once fixed cannot be enhanced. Project leaders are advised to give authenticated estimates of the cost of equipment. Equipment should invariably be purchased within 1 month from the date of receipt of the fund and/or sanction letter.			

4. Fund received 1,66,050____.
5. Expenditure made in Rupees: (Please provide the details) NA

Expenditure	Amount	Taxes (as applicable)	Total
Manpower cost			
Consumables			
Equipment			
Travel			
Others			
Grand Total			

6. Amount saved (if any) from the last instalment: Rs 1,66,050_____.

7. Date on which scheme will complete its normal tenure of months 25.11.2024 (5 months).

8. Whether extension beyond normal tenure has been requested. ~~Yes~~ /No.

If yes, justification for extension and programme of work to be completed. Also mention as to why the work could not be completed as per the original plan.

{Extension beyond normal tenure should be requested at the Project Monitoring Session before end of tenure (as given in ToR)}.

9. Constraints (if any) faced in the progress of work and suggestions to overcome them
The cooperation and response from industry was very limited.

10. Any deviation from original plan with its nature and cause.
Nil

11. List of publication giving full bibliographic details accrued from this project (copies ofthe paper (s) should be enclosed). NA

12. Summary of work done.

The primary objective of this project was to conduct a thorough comparison of three types of timer relays—Pneumatic, Motorized, and Electronic—by studying their safety and performance parameters according to the IS 5834 standards. By identifying gaps in the current IS standards, the study seeks to provide actionable insights that can lead to the modernization of relay specifications, thereby meeting the increasing demands of industry and match international standard.
Project focused on detailed comparison of IS5834 with the international standards (IEE and IEC) for electric timer relay and provides recommendation for the changes in BIS.
By doing the detailed comparison the gaps in performance, safety, and reliability parameters are found. The key parameters that need to be taken onboard for standards are humidity, altitude, insulation voltage, operational voltage, thermal current, time-setting range, accuracy, endurance.
To perform a thorough comparative analysis of Pneumatic, Motorized, and electronic timer relays under IS 5834 and international standards a systematic methodology was adopted. This methodology ensures consistency in evaluation and highlights both strengths and areas for improvement in the Indian standards to meet the increasing demands of industry.
The approach to comparison was designed to assess the parameters critical to relay performance, safety, and reliability. Prime steps in the methodology includes: -

1. **Parameter Identification**
2. **Standards Referencing**
3. **Comparison Framework**
4. **Critical Analysis**
5. **Recommendation**

Comparison of BIS with international standards result in finding that Indian standard standards are tailored for domestic needs but lack the flexibility and detailed guidelines necessary for modern applications or to match international standard.
Main challenge in this project was to take manufacturer or user insights on the improvement of IS for electric timer relay.

13. Proposed programme of work for the next month.
Incorporating any suggestions as desired from BIS.
Doing the paperwork/formalities for completion of project.

14. Detailed Progress Report enlisting the objectives in beginning briefly (up to five pages maximum).

Objective: The primary objective of this project is to conduct a thorough comparison of three types of timer relays—Pneumatic, Motorized, and Electronic—by studying their safety and performance parameters according to the IS 5834 standards. By identifying gaps in the current IS standards, the study seeks to provide actionable insights that can lead to the modernization of relay specifications, thereby meeting the increasing demands of industry.

Objective Achievement: Under this project work the gaps present in the IS5834 standard for electric timer relay:- Pneumatic, Motorized and Electronic types are being reported.
The analysis highlights that international standards (IEEE & IEC) are more comprehensive,

offering precise benchmarks and broader applicability for international markets. In contrast, IS standards are tailored for domestic needs and somewhat lack the flexibility and detailed guidelines necessary for modern applications. So, to bring parity with international standards some recommendations are made.
Key recommendations include adopting numerical benchmarks for insulation voltage, align humidity and altitude rating to the international standard, expanding operational ranges to align with international requirements, standardizing making and breaking capacities, improving accuracy specifications, introducing detailed IP enclosure rating and broadening time-setting ranges. These changes will enhance the performance, safety, reliability, and global competitiveness of Indian timer relays.

Methodology: To perform a thorough comparative analysis of Pneumatic, Motorized, and electronic timer relays under IS 5834 and international standards, a systematic methodology was adopted. This methodology ensures consistency in evaluation and highlights both strengths and areas for improvement in the Indian standards to meet the increasing demands of industry.
The approach to comparison was designed to assess the parameters critical to relay performance, safety, and reliability. Key steps in the methodology included:-

1. **Parameter Identification**
2. **Standards Referencing**
3. **Comparison Framework**
4. **Critical Analysis**
5. **Recommendation**

✓ **Following is the list of recommendations made based on extensive analysis undertaken: -**

1. MOTORIZED TIMER RELAY

Parameters	IS-5834-PART2	IEEEC37.90 -2005	IEC 61812-1	Recommendation	Justification
HIGHLY RECOMMENDED					
Humidity	Not Mentioned	Must withstand an average relative humidity of up to 55% and occasional peaks of 95% for up to 96 hours.	25 % to 75 %	Must tolerate relative humidity of up to 60% and occasional peak of 95% for maximum hours.	India has large coastal area **(Gujarat,Maharashtra,Karnataka toWest Bengal)** so, to make relay perform better in every region, IS should add more larger humidity range.
Altitude	Up to 1000 m above sea level	The usual condition of altitude shall be less than 1500 m.	Installation altitude shall not exceed 2,000 m. Adjustments needed for higher altitude based on IEC 60664-1	Altitude range must be more than 1000m.	Because of the topological variation in India ***(EASTERN & NORTH-EAST REGION),*** BIS should add more broader range of altitude.

Enclosure	The relay should be housed in enclosures as specified in IS 2147:1962.	The manufacturer shall specify the relay's operational temperature range, chosen from: -40°C to +70°C, -30°C to +65°C, -20°C to +55°C.	For use in industrial environments with pollution level 3 and in residential, commercial, and light-industrial environments with pollution level 2, according to IEC 60664-1 standards.	Enclosure standard mentioned in IS standard should be clearer and match the international standard. BIS should add pollution level for the enclosure according to the level 3 pollution and level 2 pollution.	As India has pollution level 3 in most of the industrial area and now in some of the residential area (New Delhi, Kolkata).
Dielectric Test	The test voltage applied depends on the rated contact circuit voltage: Up to 60 V: 1000 V AC	Manufacturers must label relay products as Series B or C and choose a test voltage.	The time relay or coupling relay shall withstand the impulse withstand test and dielectric test specified in clause14.	For the dielectric test, class of the material should be specified.	Different material behaves differently under extensive testing conditions. If class of the material is known then it is beneficial.
Operational Temperature	Relay shall be suitable for operation in ambient temperature of - 5 to +45°C.	Must encompass at least −20°C to +55°C	Preferred range: –10 °C to +40 °C. Storage: –25 °C to +55 °C; Transport: –40 °C to +70 °C.	Operational voltage range should be broader (-10 °C to 50 °C).	India has dynamic temperature range. It has lowest -20°C **(**Jammu & Kashmir, Leh & Ladakh) and highest 50°C (Rajasthan) where human lives.
MODERATELY RECOMMENDED					
Electrical Endurance	At least 0.05 × 10^6 operations at specified VA rating of contacts.	Shall be capable of performing 10,000 operations with no load.	Preferred endurance values: Operating cycles range from 0.03 × 10^6 to 30 × 10^6 under maximum load conditions.	Operating cycle range should be more.	To make relay more durable.
Rated Making and Breaking Capacities	Shall be stated by the manufacturer.	For tripping output circuits: The contacts or output circuit shall make and carry 30 A for at least 2000	Not Mentioned	Minimum making and breaking capacities of the relay should be fixed by the BIS.	Meet the IEEE standards to improvise the capacities.

		operations in a duty cycle: 200 ms on, 15 s off.			
Time-Setting Range	Shall be stated by the manufacturer.	The standard does not specify numerical ranges but manufacturer should declare tolerance.	Recommended as 0.1 to 600 seconds, minutes, or hours.	Minimum and maximum time setting range should be added in the BIS (0.1s to 120s).	This makes all relay work on the same standard and user friendly.
High-Frequency Disturbance Test	Not Mentioned	High-frequency disturbance tests are covered by IEEE Std C37.90.2	Immunity to conducted disturbances induced by radio-frequency fields is performed as per IEC 61000-4-6	High frequency test should be added in BIS.	To match the global standards.
LEAST RECOMMENDED					
Rated Voltage and Current	**Rated motor circuit voltage:** 24, 48, 110, 240, and 415 V AC **Rated contact circuit voltage: For AC systems**, 110, 240, and 415 V; **for DC systems**, 24, 48, 110, and 220 V	**Rated Voltage: AC:** 12/24/48, 100/110/120, 220/240, 480, 600 Volts **DC:** 12, 24, 40/48/60, 110/125, 220/250Volts **Rated Current**: 1, 2, 5, 10, 15 A	**AC rated input voltage:** 12 V; 20 V; 24 V; 48 V; 100 V; 110 V; 115 V; 120 .3V. **DC rated voltage values**: 5 V; 6 V;220 V to 360 V **Rated Current:** 1 to 30 A (according to IEC 61810-1)	No Change Required	
Repeat and Setting Accuracy	Repeat Accuracy: Within ±2% at constant frequency and 85-110% of rated voltage.	The accuracy of the relay settings is tied to the environmental and operational conditions declared by the manufacturer.	Preferred values for repeatability of functional time values include ±0.01 %, ±0.05 %, ±0.1 %, ±0.2 %, ±0.3.	No Change Required	
	Should not exceed 0.3	Does not explicitly	Specified by the		

Resetting Time	seconds.	define resetting time.	manufacturer and depends on the relay type and design.	No Change Required

2. PNEUMATIC TIMER RELAY

Parameters	IS-5834-PART2	IEEEC37.90-2005	IEC 61812-1	Recommendation	Justification
HIGHLY RECOMMENDED					
Rated Operational Voltage	**For AC** -110V, 240V and 415 volts. **For DC** -24, 48, 110, and 220 volts.	**For Vrms** - 12, 24, 48,100,110 480,600 volts. **For DC-** 12,24,40,48,60,110,250 Volts.	**For Vrms**-12 V; 20 V; 24 V; 48 V; 480 V. **For Vdc-** 5 V; 6 V; 12 V; 20 V; 24 V; 48 V; 60 V; 100 V	Range of voltage should be increased up to 600V for AC and up to 360V for DC.	Relays with higher voltage ratings can cater to wider industrial applications.
Altitude	1000m	Usual condition of altitude shall be less than 1500m.	Shall not exceed 2000m.	Increase the altitude up to 2000m.	Increasing altitude will help in covering high altitude areas in India.
Pollution Degree	Not Mentioned	Not Mentioned	Pollution Degree 3 for Industrial use Pollution Degree 2 for residential use.	We should use pollution degree 3 for the Indian Standard.	Using pollution degree 3 since Delhi and Mumbai are one of the polluted cities in the world.
Relative Humidity	Not Mentioned	Must withstand average relative humidity up to 55% and occasional peaks of 95% for up to 96 hours.	25% to 75%	Relays should withstand relative humidity from 20% to 80%.	Due to large coastal areas India has high humidity that can go up to 80% in summers near coastal areas.
MODERATELY RECOMMENDED					
Rated Thermal Current	1, 2.5, 4, 6 and 10A	1,2,5,10,15 depend on the rated operational voltage	Depending On the Power Rating of The Relay.	Thermal currents should be defined by operational voltage.	On defining thermal currents with operational voltages life span of relays will be increased.
Rated operational current	1,2.5,4,6 and 10 A	1,2,5,10,15 Depend on the rated operational voltage	1 to 30A	Operational currents can be increased up-to 30A.	Increasing the operational currents will allow to handle larger loads.
Rated Time Setting Range	Stated by the manufacturer	Not Specified	From 0.1 sec to 1hr Maximum time delay can go to 100hr.	Should increase the time setting or delay up-to 1hr.	Wider time range will allow the relay to be used in equipment that uses different time

					intervals.
Rated Making and Breaking Capacity	For AC: 50 times in succession (according to test) For DC: 20 times in succession (according to test).	For tripping output circuits: The contacts or output circuit shall make and carry 30A for at least 2000 operations in a duty cycle: -200 ms on, 15 s off.	Not Mentioned	Should be mentioned by manufacturer according to the rating relay.	To match the international standard.
Mechanical and Electrical Endurance	Relay should be capable of performing the operating cycles given at rated switching frequency under rated making and breaking conditions.	Shall be capable of performing 10,000 operations with no load in the output circuit when tested under the specified conditions.	Operating cycles range from 0.03×10^6 to 30×10^6 under maximum load conditions.	Increase the endurance requirement from 30,000 to 10,00,000 operations under maximum load.	High Endurance will increase the life span.
LEAST RECOMMENDED					
Operational Temperature	**-20°C to 75°C.**	−20 °C to +55 °C. AMBIENT TEMPERATURE : **20 °C to 25 °C**	**Preferred Range:** -10°C to +40°C **Storage:** −25 °C to +55 °C.	No Change Required	
Rated Frequency	50 Hz	50 Hz, 60 Hz	50 Hz, 60 Hz 400 Hz	No Change Required	

3. ELECTRONIC TIMER RELAY

Parameters	**IS-5834-PART2**	**IEEEC37.90-2005**	**IEC 61812-1**	**Recommendation**	**Justification**
HIGHLY RECOMMENDED					
Enclosure	Relays should be enclosed or covered to prevent dust and moisture ingress.	The manufacturer shall declare the operational range of ambient temperature for which the relay or relay system is	For use in industrial environments with pollution level 3 and in residential, commercial, and	Specify pollution level classifications: Level 3 for industrial environments and Level 2 for	To ensure compatibility with diverse environmental conditions in India, especially in industrial regions

		rated. The temperature range shall be selected from the following: -40 °C to +70 °C; -30 °C to 65°C, -20°C to 55°C	light-industrial environments with pollution level 2, according to IEC 60664-1 standards.	residential environments.	with high pollution levels **(**Specially In Gujarat, Haryana, Delhi Region)
Dielectric Test	The dielectric test shall be carried out as specified in IS:3231-1965	Manufacturers shall declare relay products as Series B or Series C.	The relay shall withstand the impulse test and dielectric test as specified IN CLAUSE14.	For the dielectric test class of the material should be specified.	This ensures the relay can handle over voltages and maintain safety in Indian grid systems, where voltage fluctuations are common.
Impulse Voltage Test	This test, conducted by mutual agreement between the manufacturer and the user, evaluates the relay's response to high voltage surges. The procedure and requirements are outlined in Section 5.1 of IS:8686-1977	The impulse voltage tests consist of applying a specified impulse voltage (5 kV ± 10%) with a rise time of 1.2 µs ± 30% and a time to half value of 50 µs ± 20%.	The impulse withstand test is carried out with a voltage having a 1.2/50 µs waveform. The test is conducted for a minimum of three pulses of each polarity with an interval of at least 1 s between pulse.	Test with an impulse voltage of 5 kV with a 1.2/50 µs wave shape.	Higher impulse voltage rating accounts for frequent lightning strikes and transient surges in Indian power systems.
Rated Voltage and Current	Rated Voltage: AC: 110, 240 and 415 volts DC: 24, 48, 110 and 220 volts	Rated Voltage: AC: 12/24/48, 100/110/120, 220/240, 480, 600 Volts; DC: 12, 24, 40/48/60, 110/125, 220/250 Volts	AC rated input voltage: 12 V; 20 V; 24 V; 48 V; 100 V; 110 V; 277 V; 400 V; 415 V; 480 V. DC rated voltage values: 5 V; 6 V; 12 V; 20 V; 24 V; 48 V; 250 V; 360 V	Large range of rated voltage and current should be added in IS.	Expansion of rated voltage aligns with the growing adoption of high-voltage systems in industries.
	Ripple Content for DC Supply: Preferable dc supply should not have a ripple content more than 3 percent.				
	Rated Continuous Current of Contacts: 1, 1.25, 1.6, 2.0,	Rated Current: 1, 2, 5, 10, 15 A	Rated Current: 1 to 30 A (according to IEC 61810-1)		

	2.5, 3.15, 4, 5, 6.3, 8 Amperes.				
Operational Temperature	Not Mentioned	Must encompass at least −20°C to +55°C	Preferred range: –10 °C to +40 °C. Storage: –25 °C to +55 °C; Transport: –40 °C to +70 °C	Range should be between - 40°C to +70°C	Suits the harsh operating environments found in different regions of India.
Relative Humidity	Not Mentioned	Must withstand an average relative humidity of up to 55% and occasional peaks of 95% for up to 96 hours.	25 % to 75 %	Ensure operation at 25% to 75% relative humidity.	Ensures performance reliability in India's high-humidity in coastal regions **(**Indian Ocean Coastal Line**)**
Altitude	Not Mentioned	The usual condition of altitude shall be less than 1500 m.	Installation altitude shall not exceed 2,000 m. Adjustments needed for higher altitudes based on IEC 60664-1	Specify testing conditions for altitudes up to 1500 meters above sea level.	Covers most operational areas in India, including high-altitude regions like Himachal Pradesh and Uttarakhand.
Rated Frequency	50 Hz	45-65 Hz	50 Hz, 60 Hz, 400 Hz	Frequency range of 50 Hz, 60 Hz, and 400 Hz.	Adds flexibility to accommodate system using different frequencies, especially in industrial and aerospace sectors in India.
MODERATELY RECOMMENDED					
Rated Making and Breaking Capacities	The manufacturer shall state the rated making and breaking capacities of the relay contacts.	For tripping output circuits: The contacts or output circuit shall make and carry 30 A for at least 2000 operations in a duty cycle: 200 ms on, 15 s off.	Specified based on the output load category; refer to Table 2 and Table 3 for endurance and operating frequency limits.	A minimum standard for making and breaking capacities should be made mandatory by BIS for relay manufacturer.	This will make relay equipped with mandatory standard made by BIS. This will make relay more user friendly at national and international level.
Repeat and Setting Accuracy	Setting Accuracy = (Operating Time - Setting Time) / Setting Time	The accuracy of the relay settings is tied to the environmental and operational	Preferred values for repeatability of functional time values include ±0.01	Specify accuracy levels of ±0.01%, ±0.05%, ±0.1%, ±1%,	Tighter accuracy levels are essential for critical applications like automation and

	Repeat Accuracy = 1/2 * (T1 - T2/Tmean); T1: Maximum operating time, T2: Minimum operating time, Tmean: Average operating time over 'n' operations.	conditions declared by the manufacturer.	%, ±0.05 %, ±0.1 %, ±0.2 %, ±0.3 %, ±0.5 %, ±1 %, ±2 %, ±3 %, ±5 %	or ±5% based on application requirements.	protection systems.
High-Frequency Disturbance Test	The requirements and method of test of high-frequency disturbance test shall be in accordance with 5.2 of IS:8686-1977.	High-frequency disturbance tests are covered by IEEE Std C37.90.2 .	Immunity to conducted disturbances induced by radio-frequency fields is performed as per IEC 61000-4-6	The relay should withstand a test voltage of 5 kV (±10%) with a rise time of 1.2 μs and a half-value time of 50 μs for at least five positive and five negative pulses without malfunction.	This ensures immunity to high-frequency noise and transient disturbances, which are prevalent in industrial environments and critical for the reliable operation of electronic systems.
Electrical Endurance	The relays shall be capable of operating at the rated frequency of operations and under the specified making and breaking capacities for the number of operations stated by the manufacturer.	Shall be capable of performing 10,000 operations with no load in the output circuit when tested under the specified conditions.	Preferred endurance values: Operating cycles range from 0.03×10^6 to 30×10^6 under maximum load conditions.	Increase the endurance requirement to 30,000 to 40,000 operations under maximum load.	Enhanced endurance improves lifecycle in high-duty applications **(**at power plants and industrial machinery**).**
Resetting Time	Not Mentioned	Does not explicitly define resetting time.	Specified by the manufacturer and depends on the relay type and design.	Between 0.1 seconds and 5 seconds depending on the application and manufacturer's specification.	A shorter resetting time boosts relay performance in critical systems, ensuring quick resets and compatibility with modern high-speed breakers and automation in Indian industries.

LEAST RECOMMENDED

Service Conditions	The relays shall operate satisfactorily at any value between -20 to +10 percent of rated voltage, ±5 percent of rated frequency, and -5°C to 45°C ambient temperature.	Relays shall operate satisfactorily under the following service conditions: voltage variations of 80% to 110% for DC and 85% to 110% for AC; frequency variations of ±5% within 45–65 Hz; and ambient temperatures of -40°C to +70°C for operation, and -50°C to +85°C for storage.	The service conditions for the equipment are as follows: the operational temperature should be within the range of –10 °C to +40 °C, with storage temperatures between –25 °C to +55 °C and transport temperatures between –40 °C to +70 °C.	Extend the operational temperature range from -20°C to +70°C and the storage temperature range from -50°C to +85°C.	It will enable relay to work efficiently in India's extreme temperatures and humid monsoon season.
Time-Setting Range	Shall be stated by the manufacturer.	The standard does not specify numerical ranges but states that timing accuracy must fall within the manufacturer-declared tolerance.	Recommended as 0.1 to 600 seconds, minutes, or hours.	Define the time-setting range as 0.1 seconds to 60 minutes.	A wider range ensures adaptability for various applications, including industrial automation and energy systems.

Benefit of result/outcome for the development of the national standard: The study about standards of Electrical timer relays ensures that the recommendations made by in this report upgrade the safety and performance parameters of the relay and align it completely with industry-recognized technical specifications. The recommendations are mentioned for all three types of Electrical timer relays i.e. Pneumatic, Motorised and Electronic. The parameters for these three types are identified at different level of priority to be upgraded and accordingly recommendation levels are set as high, moderate and low. However, if all recommendations are integrated in present IS 5834 standards then surely it will enhance the overall performance, reliability, and global competitiveness of Electric timer relays.

Conlusion:

If India wants to be a global manufacturer in electric timer relay then this project provide path to BIS to improve their standard for electric timer relay. Hence by improving the standard, we are able match the international standard and manufacture more sophisticated, smart and durable electric timer relay.

Refrences:

1. Bureau of Indian Standards. *Indian Standard Electrical Timer Relays for Industrial Purposes—Specification Part 1: Pneumatic.* IS 5834 Part 1: 1994, 1994. https://standardsbis.bsbedge.com/BIS_SearchStandard.aspx?Standard_Number=IS+5834&id=0.

2. Bureau of Indian Standards. *IS 5834 (Part 2): Indian Standard Electrical Timer Relays for Industrial Purposes - Specification Part 2 Motorized.* 1993. https://standardsbis.bsbedge.com/BIS_SearchStandard.aspx?Standard_Number=IS+5834&id=0.
3. Bureau of Indian Standards. *IS 5834 (Part 3): Indian Standard Electrical Timer Relays for Industrial Purposes – Specification Part 3 Electronic.* 1981. https://standardsbis.bsbedge.com/BIS_SearchStandard.aspx?Standard_Number=IS+5834&id=0.
4. IEEE Standard for Relays and Relay Systems Associated with Electric Power Apparatus, in *IEEE Std C37.90-2005* (Revision of IEEE Std C37.90-1989), vol., no., pp.1-25, 31 Jan. 2006, doi: 10.1109/IEEESTD.2006.98985.
5. International Electrotechnical Commission. IEC 61812-1: Time Relays and Coupling Relays for Industrial and Residential Use – Part 1: Requirements and Tests. Edition 3.0. 2023. https://webstore.iec.ch/publication/69840.
6. Link for survey excel sheet https://docs.google.com/spreadsheets/d/10aXOsq9McqAlHRz2O6eOm94beIOmeNbTVFNu0itjIYY/edit?usp=sharing

Signature of Project leader
Date: 20.11.2024

Annex 6

IEC TC 94 and TC 95 Voting ballot

Sl No.	Document No.	Closing Date	Vote
1.	94/1022/FDIS	21/06/2024	In favour
2.	94/979/CDV	21/06/2024	In favour
3.	94/1000/CDV	28/06/2024	In favour
4.	94/983/CDV	19/07/2024	In favour
5.	94/984/CDV	19/07/2024	In favour
6.	94/990/CDV	19/07/2024	In favour
7.	94/1036/FDIS	19/07/2024	In favour
8.	95/576/DTS	19/07/2024	In favour
9.	94/1035/CD	26/07/2024	Comment sent
10.	94/1039/FDIS	02/08/2024	In favour comment sent
11.	94/1011/CDV	09/08/2024	In favour comment sent
12.	94/1012/CDV	09/08/2024	In favour comment sent
13.	94/1013/CDV	09/08/2024	In favour comment sent
14.	94/1014/CDV	09/08/2024	In favour comment sent
15.	94/1015/CDV	16/08/2024	In favour comment sent
16.	94/1016/CDV	16/08/2024	In favour comment sent
17.	94/1048/FDIS	16/08/2024	In favour comment sent
18.	94/1050/FDIS	23/08/2024	In favour comment sent
19.	94/1051/FDIS	23/08/2024	In favour comment sent
20.	94/1052/FDIS	23/08/2024	In favour comment sent
21.	94/1053/FDIS	23/08/2024	In favour comment sent
22.	94/1054/FDIS	23/08/2024	In favour comment sent
23.	94/1055/FDIS	23/08/2024	In favour comment sent
24.	94/1056/FDIS	23/08/2024	In favour comment sent
25.	94/1057/FDIS	23/08/2024	In favour comment sent
26.	94/1033/CDV	30/08/2024	In favour comment sent
27.	94/1058/FDIS	30/08/2024	In favour
28.	94/1059/FDIS	30/08/2024	In favour
29.	94/1060/FDIS	30/08/2024	In favour

30.	94/1061/FDIS	30/08/2024	In favour
31.	94/1062/FDIS	06/09/2024	In favour comment sent
32.	94/1042/NP	06/09/2024	In favour comment sent
33.	95/578/AC	13/09/2024	No comment
34.	94/1065/FDIS	13/09/2024	In favour
35.	94/1064/FDIS	13/09/2024	In favour
36.	94/1023/CDV	13/09/2024	In favour
37.	94/1066/FDIS	20/09/2024	In favour
38.	94/1067/FDIS	20/09/2024	In favour
39.	94/1068/FDIS	20/09/2024	In favour
40.	94/1040/CDV	27/09/2024	In favour comment sent
41.	94/1043/CDV	01/11/2024	In favour
42.	94/1044/CDV	04/10/2024	In favour
43.	94/1063/CDV	06/12/2024	In favour
44.	94/1072/FDIS	25/10/2024	In favour
45.	94/1071/FDIS	25/10/2024	In favour
46.	94/1076/FDIS	15/11/2024	In favour
47.	94/1075/FDIS	15/11/2024	In favour
48.	94/1074/FDIS	15/11/2024	In favour
49.	94/1077/FDIS	22/11/2024	In favour
50.	95/580/Q	29/11/2024	In favour

Date: 04/08/2024	Document: 94/1011/CDV	Project: IEC 63522-27 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN	41	-	-	ed	IEC 61810-7 is being replaced by IEC 63522-x series for testing of electrical relays	May replace 'IEC 61810-7-27' by 'IEC 63522-27'	
IN	48	-	-	ed	IEC 61810-7 is being replaced by IEC 63522-x series for testing of electrical relays	May replace 'IEC 61810' by 'IEC 63522'	
IN	73-74	1	Note	te	Coherence and clarity in the note is missing. Also, as per ISO / IEC Directives Part 2, Clause 24.5, notes shall not contain recommendations.	The note may be reworded as "Note: The measurement of electrical contact noise is dependent on the relay design as well the complete test setup, and is therefore influenced by many parameters. Thus, defining the entire test setup to the customer is effective for electrical contact noise measurement."	
IN	92-94	3.2	-	te	'Voltage' is contained within the definition of 'contact noise'. Hence 'noise voltage' need not be defined or used as a separate term.	Clause 3.2 may be deleted.	
IN	100	4.2	Para 1	ed	'Cross section' clarity needs to be given and terminological consistency with IEC 63522-0 needs to be maintained.	'Cross section' may be replaced by 'cross-sectional area of conductors'	
IN	112	4.3d)		te	'Voltage' is contained within the definition of 'contact noise'. Hence 'noise voltage' need not be defined or used as a separate term.	May be reworded as 'waveform of contact noise, if applicable;'	
IN	114	4.3f)		te	'Voltage' is contained within the definition of 'contact noise'. Hence 'noise voltage' need not be defined or used as a separate term.	May be reworded as 'limits of contact noise'	
IN	116	4.3h)		te	'1 M ohm resistor' is already prescribed in Clause 4.2 (line 103). So, 'resistor' is not required to be 'specified' separately.	This condition may be removed.	
IN	117	4.3i)		te	'Voltage source of 24 V DC' is already prescribed in Clause 4.2 (line 103). So, 'voltage source' is not required to be 'specified' separately.	This condition may be removed.	
IN	120	5.1	Para 1	te	'Voltage' is contained within the definition of 'contact noise'. Hence 'noise voltage' need not be defined or used as a separate term. Also, the	May be reworded as 'The measured contact noise shall not exceed the specified limits.'	

					measured contact noise has to be checked against **specified** limits, in line with Clause 4.1		
IN	130	5.2	Para 3	te	'Voltage' is contained within the definition of 'contact noise'. Hence 'noise voltage' need not be defined or used as a separate term.	May be reworded as 'waveform of contact noise, if applicable;'	
IN	132	5.2	Para 3	te	'Voltage' is contained within the definition of 'contact noise'. Hence 'noise voltage' need not be defined or used as a separate term.	May be reworded as 'limits of contact noise'	
IN	136	5.2	Para 3	te	Measured contact noise should be part of the test report	'Measured contact noise' may be inserted	
IN	137-139	Bibliography		ed	IEC 61810-7 is being replaced by IEC 63522-x series for testing of electrical relays. Hence mentioned of IEC 61810-7:2006 would not serve any purpose	This bibliography may be removed.	

IN	48	-	-	ed	IEC 61810-7 is being replaced by IEC 63522-x series for testing of electrical relays	May replace 'IEC 61810' by 'IEC 63522' and title '*Electromechanical elementary relays*' by '*Electrical relays - Tests and Measurement*'	
IN	72	-	Note	te	'Temperatures' can not be 'held' at 'different temperatures.	The note may be reworded as "Note: If different metals are attached at both ends and the temperatures where the metals are connected are different, current will flow in one direction in the circuit. The electromotive force that causes this current is called thermoelectromotive force."	
IN	94-95	4.1	Para 1	ed	Purpose is being distorted due to incoherent language.	May be reworded as "To check that the electromotive force (e.m.f.) generated by relay contacts subjected to elevated temperatures does not exceed specified limits."	
IN	98-99	4.2	Para 1	te	Table 2 of IEC 63522-0 does not talk about cross-sectional areas. Moreover, as the area is already being defined in this standard itself, reference to IEC 63522-0 is not required.	Sentence 2 may be reworded as "The cross-sectional area of the bare copper wire shall be 0,5 mm^2"	

IN	108	4.3d)	-	te	This point is redundant, as bare copper wire cross-sectional area has already been specified in Clause 4.2	May be deleted.	
IN	122	5.2	Dash 5	te	This point is redundant, as bare copper wire cross-sectional area has already been specified in Clause 4.2	May be deleted.	
IN	124-126	Bibliography		ed	IEC 61810-7 is being replaced by IEC 63522-x series for testing of electrical relays. Hence mentioned of IEC 61810-7:2006 would not serve any purpose	This bibliography may be removed.	

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IN	48	-	-	ed	IEC 61810-7 is being replaced by IEC 63522-x series for testing of electrical relays	May replace 'IEC 61810' by 'IEC 63522' and title '*Electromechanical elementary relays*' by '*Electrical relays - Tests and Measurement*'	
IN	78	2	-	ed	Normative references are missing.	Reference of "IEC 63522-0:2024, Electrical relays – Tests and measurements Part 0: General and Guidance and IEC 61810-1:2015+AMD1:2019 CSV, Electromechanical elementary relays – Part 1: General and safety requirements" may be added	
IN	91	3.2	-	ed	Definition needs to be clearly defined.	Definition may be reworded as "Mechanism to mechanically prevent the operation of the DUT if certain conditions are not met"	
IN	100-102	4.1	Notes	te	Non-applicability of requirements of this standard to relays with forcibly guided contacts and to bistable relays is an important aspect which	Content of Note 1 and Note 2 may be included in Scope (Clause 1)	

					should be covered under Scope (Clause 1)		
IN	113	4.3a)	-	te	This point is redundant, as a particular test procedure has been laid down in Clause 4.2, and no deviations have been allowed.	May be deleted and subsequent points may be renumbered.	
IN	123-133	5.2	Para 3	te	The points mentioned do not pertain to the test defined in this standard	May be replaced by: The test report shall contain all the information necessary to reproduce the test. In particular. the following shall be recorded: – details of mechanical means to keep one contact circuit closed, if applicable; – test contact set which shall be made closed position, and which shall be closed position; – evaluation result whether opposing contact has closed or not	
IN	135-138	Bibliography		ed	IEC 61810-7 is being replaced by IEC 63522-x series for testing of electrical relays. Hence mentioned of IEC 61810-7:2006 would not serve any purpose	This bibliography may be removed.	

Date: 07/08/2024	Document: 94/1014/CDV	Project: IEC 63522-46 ED1

MB/NC[1]	**Line number** (e.g. 17)	**Clause/ Subclause** (e.g. 3.1)	**Paragraph/ Figure/ Table/** (e.g. Table 1)	**Type of comment[2]**	**Comments**	**Proposed change**	**Observations of the secretariat**
IN	48	-	-	ed	IEC 61810-7 is being replaced by IEC 63522-x series for testing of electrical relays	May replace 'IEC 61810' by 'IEC 63522' and title '*Electromechanical elementary relays*' by '*Electrical relays - Tests and Measurement*'	
IN	79	2	-	ed	Normative references are missing.	Reference of "IEC 61180:2016, High-voltage test techniques for low-voltage equipment - Definitions + test and procedure requirements + test equipment" and "IEC 60060-1:2010, High-voltage test techniques - Part 1: General definitions and test requirements" may be added	

IN	97	4.2.2	Para 1	te	Standard atmospheric conditions vary from country to country. Hence there is a need to specify them.	May be reworded as “The test shall be performed under specified standard atmospheric conditions.”	
IN	98	4.2.2	Para 2	ed	More scientific language is warranted, befitting an IEC standard	May be replaced by “The DUT shall be kept for conditioning at specified standard atmospheric conditions for 1-2 h before testing.”	
IN	100	4.2.2	Para 3	te	Definition or context of “application standard” has not been mentioned in the standard.	“application standard” may be defined under clause 3 or under any other clause of the standard.	
IN	105	4.2.2	Para 7	te	There is no subclause 4.2c) in the standard. Test terminals are to be specified in Clause 4.3	May be reworded as “– test points shall be the terminals as specified in subclause 4.3 b).”	
IN	119	4.3	-	te	There is room to specify Impulse waveform as per “application standard” mentioned in subclause 4.2.2	“Impulse waveform” may be included in the subclause 4.3 as a specified condition.	
IN	119	4.3	-	te	Standard atmospheric conditions vary from country to country. Hence there is a need to specify them.	“Standard atmospheric conditions” may be included in the subclause 4.3 as a specified condition.	
IN	144	5.3	-	te	As leakage current is being measured, it should be a part of the test report.	“Leakage current” may be included as a test report point under this subclause.	
IN	144	5.3	-	te	Standard atmospheric conditions under which the test is being carried out should be mentioned in the test report.	“Standard atmospheric conditions” may be included as a test report point under this subclause.	
IN	155-159	A.1	Figure A.1	ed	U: High-voltage source not indicated in the figure	“U” may be labelled in the circuit	
IN	162-166	A.1	Figure A.1	te	“Rs1”, “Rs2”, “Rm”, “Lr” are not defined under the circuit.	These terms may be defined.	
IN	162-166	A.1	Figure A.1	ed	Rc definition repetition is there.	The repeat entries may be removed.	
IN	176-177	Bibliography	Para 1	ed	IEC 60664-1:2020 has already been given as a normative reference. Hence its repetition in bibliography is not warranted.	This entry of bibliography may be removed.	
IN	135-138	Bibliography	Para 2	ed	IEC 61810-7 is being replaced by IEC 63522-x series for testing of electrical relays. Hence mentioned of IEC 61810-7:2006 would not serve any purpose	This entry of bibliography may be removed.	

Date: 26/07/2024	Document: 94/1035/CD	Project: IEC 63522-55 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN	56	Foreword	Para 10	ed	Technical committee name is mentioned as 'All-or-nothing electrical relays'	It may be changed to 'Electrical Relays' to reflect accurate committee name	
IN	All headers, 92,93,94,95,98,122,160,161,	2,3,4.2,5.1		ed	Standard number is given as 'IEC 63255' instead of 'IEC 63522'	'IEC 63255' may be replaced by 'IEC 63522' wherever it appears, to reflect accurate standard number	
IN	122	4.2	Para 1	te	Standard test circuit is already given in the document.	The phrase 'of IEC 63255-0' may be omitted from line 1.	
IN	159	5.1	Para 1	te	'Electrical endurance test' is mentioned. However, it is carried out in another part (IEC CDV 61810-7-19:2023).	The phrase 'electrical endurance test' may be omitted from line 1.	
IN	164-165	5.1	Para 2	te	Clarity in the paragraph is missing	Para 2 may be worded as "A relay opening is performed for an accurate visual inspection. No melted parts shall be present during the inspection."	
IN	173	5.1	Para 4	ed	Wording in the last line can be improved.	Para 4 may be worded as "When all the tested samples are successfully reaching the prescribed number of cycles, and passing the above-mentioned tests, the correspondence voltage and current are defined; consequently, using interpolation, a diagram for breaking capacity can be drawn. An example of such a breaking capacity diagram is shown in Figure 2."	
IN	187	5.2	Para 2 c)	ed	Mismatch in notation between this line and 4.3 d) (line 140)	This line may be written as 'L/R value (in ms) or cos ϕ, for inductive loads;'	

Date: 02/08/2024	Document: 94/1039/FDIS	Project: IEC 63522-48 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN	-	2,4.2.6,5.2	-	ed	IEC 63522-6, Electrical relays – Tests and measurements – Part 6: Contact-circuit resistance (or voltage drop) is also under preparation	“Under preparation” footnote may be added for IEC 63522-6 also	
IN	-	2,4.2.6,5.2	-	ed	IEC 63522-7, Electrical relays – Tests and measurements – Part 7: Functional tests is also under preparation	“Under preparation” footnote 3 may be added for IEC 63522-7 also	
IN	2	4.2.1	Para 1	te	Monitoring method is specified in 4.2.5 as well as 4.2.6. However, the phrase “(according to 4.2.2 to 4.2.5)” is used.	“4.2.5” may be replaced by “4.2.6” to cover both methods.	
IN	3	4.2.1	Para 1	ed	“Examples of electromechanical elementary relays are given in Annex A.” seems inappropriate since Annex A actually gives the examples of the **test procedures** for electromechanical elementary relays. Thus this line is inconsistent with Para 1 of Annex A and title of Table A.1	Last sentence may be reworded as “Examples of test procedures for electromechanical elementary relays are given in Annex A.”	
IN	-	4.2.1	Para 2	ed	Bulleting of the last 2 provisions given in this clause is incongruous with the structure and format of the FDIS	Bullet 1 provision may be merged with the previous para and bullet 2 content can be made as a standalone paragraph.	
IN	1	4.2.2	Para 1	ed	Figure-to-test circuit description linkage is not being clarified strongly.	Para 1 may be reworded as “Test circuits with monitoring equipment using relays and a monitoring device with capability of storing measurement results are given in Figure C.1 and Figure C.2**, respectively,** in Annex C**,** based on IEC 63522-0:– [4], Figure A.1.”	
IN	1	4.2.3	Para 2	te	In the sentence “The recommended values of test current and test voltage shall be selected from Table 2 and Table 3 respectively.”, the words “recommended” and “shall” are springing up a contradiction, as “recommended” appears to be giving an option, whereas “shall” is making it compulsory.	The word “recommended” may be omitted.	

IN	1	4.2.4	Para 3	te	In the sentence “The recommended frequency of operation shall be either one of those given in Table 2 of IEC 63522-45:– [5].”, the words “recommended” and “shall” are springing up a contradiction, as “recommended” appears to be giving an option, whereas “shall” is making it compulsory. It is also in contrast with sentence 2 of para 2, which states that “The frequency of operation shall be as specified”.	The word “recommended” may be omitted.	
IN	1	4.2.4	Para 5	te	In the sentence “The recommended number of testing cycles shall be either one of those given in Table 4, as specified in the detail specification.”, the words “recommended” and “shall” are springing up a contradiction, as “recommended” appears to be giving an option, whereas “shall” is making it compulsory. It is also in contrast with the part “as specified in the detail specification”	The word “recommended” may be omitted.	
IN	-	4.2.5	Para 2	ed	Bulleting of the 2 provisions given under this para is incongruous with the structure and format of the FDIS	Bullet 1 provision may be merged with the previous para and bullet 2 content can be made as a standalone paragraph.	
IN	-	4.2.5	Para 3/4	ed	Selection of maximum value of contact-circuit resistance does not seem to be part of “failure criteria” per se	“The maximum value of contact-circuit resistance shall be selected from Table 5 by the manufacturer to set the fault level voltage(s);” – this sentence can **precede** the failure criteria	
IN	-	4.2.5	Para 3/4	ed	Consistency in clear declaration of failures is lacking between bullet 1 and bullets 2 and 3	Bullet 1 may be reworded as “If the voltage across contacts exceeds the fault level voltage when the coil is energized, **it is judged as a failure**;”	
IN		4.3c)	-	te	4.4 of IEC 63522-0 defines ambient temperature as 23 °C ±5 K. As per the standard atmospheric conditions of India, test temperature is 27 $\pm$ 2 ºC.	The temperature requirements to accommodate India-specific conditions may be added here.	
IN	-	5.1	Title	ed	“criterion” is mentioned despite there being multiple criteria	“Criterion” may be replaced by “Criteria”	
IN	1	5.1	Para 1	te	As per clause 4.2.1, acceptable number of failures during the test is being **specified** by the manufacturer. As per clause 4.3 h) also, the acceptable number of failures is being **specified**. However, in evaluation, **established** acceptable number of failures during the test is being considered.	Whether the reference acceptable number of failures during the test is to be a **specified** one or an **established** one (as per D.4) – this may be clarified here.	
IN		5.3	Para 1	te	Compliance criteria for visual inspection test has	The following para may be added after para 1	

					not been defined.	"The visual inspection shall show absence of: - mechanical defects - melted parts - deformed enclosures"	
IN	-	D.4	Table D.3	ed	"Confidence level" not mentioned for 60% and 90%	Row 2 contents may be modified to "Confidence level 60%" and "Confidence level 90%"	

Date: 2024-08-16	Document: 94/1015/CDV	Project: IEC 63522-44 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN	48	-	-	ed	IEC 61810-7 is being replaced by IEC 63522-x series for testing of electrical relays	May replace 'IEC 61810' by 'IEC 63522' and title '*Electromechanical elementary relays*' by '*Electrical relays - Tests and Measurement*'	
IN	79	2	-	ed	IEC 61810-1 reference not given	Reference of IEC 61810-1:2015, Electromechanical elementary relays – Part 1: General and safety requirements – may be added	
IN	102	4.1	Para 2	ed	It is an incomplete sentence and an unnecessary reference (correct reference already given in Cl. 4.2.2.1)	May be deleted.	
IN	103	4.1	Para 3	ed	It is an incomplete sentence and an unnecessary reference (correct reference already given in Cl. 4.2.2.2)	May be deleted.	
IN	106	4.2.1	Para 1	ed	IEC 63522-9 FDIS has dry heat test at Clause 4.2.2. Further, the word 'test' is missing.	Clause reference may be corrected to '4.2.2'. The word 'test' may be added after 'dry heat'	
IN	107	4.2.1	Para 1	te	IEC 63522-9 FDIS has damp heat tests at Clauses 4.2.5 and 4.2.6	It may be clarified which damp heat test is to be carried out, and the clause reference may be given accordingly.	
IN	113-114	4.2.2.1	Para 1	te	Technical consistency and uniformity between 4.2.2.1 and 4.2.2.2 is required to be maintained.	May be reworded as: "The relay shall be subjected to Test Ka of IEC 60068-2-11. Test conditions for test Ka shall be as	

						specified by manufacturer (see 4.3.2)."	
IN	117-118	4.2.2.2	Para 2	ed	Language befitting an international standard should be used.	May be reworded as: "Test conditions for test Kb shall be specified by manufacturer (see 4.3.2). If not otherwise defined, test method 1 of IEC 60068-2-52 shall be used.	
IN	129	4.3.1c)	-	ed	Language befitting an international standard should be used.	'the test duration' after 'If not otherwise defined' may be removed.	
IN	153	5.3	Dash 1	ed	Language befitting an international standard should be used.	Instead of 'measured', 'carried out' may be used.	
IN	155	5.3	Dash 2	ed	Language befitting an international standard should be used.	Instead of 'measured', 'carried out' may be used.	
IN	157	5.3	Dash 3	ed	Language befitting an international standard should be used.	Instead of 'measured', 'carried out' may be used.	
IN	159	5.3	Dash 4	ed	IEC 63522-11 FDIS has sealing test at Clause 4.2.1.3. Further, language needs to be improved.	Clause reference may be corrected to '4.2.1.3'. And instead of 'measured', 'carried out' may be used.	
IN	170-179	5.5	-	te	Test report should cover the conditions specified for the tests.	The following may also be added: a) Number of DUTs b) Acceptable number of DUT for test failures c) Recovery, if other than 4.2.3 (only for Test Kb)	

Date: 2024-08-16	Document: 94/1016/CDV	Project: IEC 63552-49 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN	48	-	-	ed	IEC 61810-7 is being replaced by IEC 63522-x series for testing of electrical relays	May replace 'IEC 61810' by 'IEC 63522' and title '*Electromechanical elementary relays*' by '*Electrical relays - Tests and Measurement*'	
IN	81	2	-	te	While Table 2 of IEC 61810-1 gives the level of	Reference of IEC 63522-0 may be added.	

					protection description against the different Relay Technology categories, these are being explicitly defined under Clause 3.2 of IEC 63522-0. Hence reference of the latter is crucial for clearing 'RT IV' and 'RT V'.		
IN	98	4.1	Para 1	ed	Functionality spellings needs to be corrected and both functionality as well as safety aspects need to be stressed upon.	May be reworded as "This test applies where the sealing is needed to ensure the proper functionality, safety and performance against specified parameters."	
IN	105	4.2.	-	te	Since possible requirement of preconditioning has been mentioned in 4.3a) and 5.2a), a suitable preconditioning clause should be added in the standard.	The following may be inserted and subsequent clauses may be renumbered: **"4.2.1 Preconditioning** If required, the DUT may be subjected to preconditioning as specified in the relevant specification."	
IN	107-108	4.2.1	Para 1	te	Supporting elements' requirements need to be unambiguously spelt out.	May be reworded as "The supporting element(s) of the test sample shall have the lowest possible impact on the sample itself and shall withstand the temperatures during the test."	
IN	122	4.2.2	Para 5	ed	Symbolical consistency is required to be maintained.	"+" may be added before "30 ºC"	
IN	154	4.2.3	Para 8	ed	No point in mentioning symbol "ΔT", as it is not being used anywhere else within the standard.	"ΔT" may be removed.	
IN	155	4.2.3	Para 8	ed	Typographical error to be removed.	"hour" may be removed. It may only be "specified exposure time (t1)."	
IN	156	4.2.3	Para 9	te	The number of cycles need not be only 50, and can even be specified (as mentioned at 4.2.2, line 134-135).	Para may be reworded as "At the conclusion of the 50/specified number of consecutive cycles, the DUT shall be kept at an ambient temperature of 25 ± 5 °C for a minimum of 2 hours."	
IN	158-159	4.2.3, 4.3	Para 10, Title (also…in CONTENTS)	ed	Typographical error to be removed. Further, IEC 63522-11 FDIS has sealing test for RT IV and RT V relays at Clause 4.2.1.4.	Following should form Para 10 of 4.2.3: "After the test above, sealing test according to 4.2.1.4 of IEC 63522-11 shall be carried out." The title of 4.3 should be "Conditions"	
IN	167	4.3	-	te	Temperature change rate has to be specified, as mentioned in 4.2.2	"h) Rate of temperature change" may be added in the clause	
IN	193	5.2	-	te	Temperature change rate has to be specified, as mentioned in 4.2.2	"h) Rate of temperature change" may be added in	

						the clause	
IN	193	5.2	-	te	Final results should form part of the test report	“i) Final measurements and results” may be added in the clause	

Date: 2024-08-16	Document: 94/1048/FDIS	Project: IEC 63522-7 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN		1	Para 1		Typographical error may be corrected.	In line 2, “combinations” may be written instead of “combination”	
IN		Bibliography		ed	IEC 61810-7 is being replaced by IEC 63522-x series for testing of electrical relays. Hence mentioned of IEC 61810-7:2006 would not serve any purpose. It is not mentioned anywhere else in the draft either.	This bibliography entry may be removed.	
IN		Bibliography		ed	Relays with forcibly guided (mechanically linked) contacts are to be tested in accordance with IEC 61810-3:2015 for forcibly guided operation function. Hence this standard should be mentioned in the “Normative Reference” clause.	IEC 61810-3:2015, Electromechanical elementary relays – Part 3: Relays with forcibly guided (mechanically linked) contacts – may be moved from Bibliography to Clause 2, Normative References.	
IN		Bibliography		ed	Tests for influence of magnetic interferences (A.1.5) are in accordance with IEC 61810-4:2020, 9.4. Hence this standard should be mentioned in the “Normative Reference” clause.	IEC 61810-4:2020, Electromechanical elementary relays – Part 4: General and safety requirements for reed relays – may be moved from Bibliography to Clause 2, Normative References.	
IN		Bibliography		ed	Time relays for industrial and residential use shall be tested in accordance with the following procedures, in accordance with IEC 61812-1:2011, Clause 9 for also proving functional stability of switching times (A.2.1). Hence this standard should be mentioned in the “Normative Reference” clause.	IEC 61812-1:2011, Time relays and coupling relays for industrial and residential use – Part 1: Requirements and tests – may be moved from Bibliography to Clause 2, Normative References.	
IN		Bibliography		ed	IEC 62246-1:2015, Reed switches – Part 1: Generic specification – already rightly mentioned Clause 2, Normative References.	This bibliography entry may be removed.	
IN		Bibliography		ed	Solid-state relays shall be tested also as follows for their basic operating function, in accordance with IEC 62314:2022, Clause 9 (A.3.1). Hence this standard should be mentioned in the	IEC 62314:2022, Solid-state relays – Safety requirements – may be moved from Bibliography to Clause 2, Normative References.	

					“Normative Reference” clause.		

Date: 2024-08-22	Document: 94/1050/FDIS	Project: IEC 63522-12 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN		1	Para 1	ed	Typographical error may be corrected.	In line 2, “combinations” may be written instead of “combination”	
IN		5.1	Para 1	te	Insulation resistance readings are not “specified” in IEC 63522-5. It is a test method standard. Language needs to be corrected. Further, compliance criteria for the final insulation resistance, measured in accordance with Para 3 of Clause 4.2.2, needs to be mentioned.	Second sentence may be reworded as “Neither any of the insulation resistance readings measured in accordance with IEC 63522-5 during the 20 min intervals, nor the final insulation resistance reading, shall be lower than the value specified as per 4.3 e).”	
IN		5.1c)		te	Insulation resistance at 20 min intervals is already being measured and compliance criteria is given in Para 1 of Clause 5.1. Measuring insulation resistance again, 30 minutes after test procedure, that too without any compliance criteria, is not required.	This entry may be deleted.	
IN		5.2	Para 1	ed	Insulation resistance readings are not “specified” in IEC 63522-5. It is a test method standard. Language needs to be corrected.	Second sentence may be reworded as “None of the insulation resistance readings measured in accordance with IEC 63522-5 during the 30 s intervals shall be lower than the value specified as per 4.3 e).”	
IN		Bibliography		ed	IEC 61810-7 is being replaced by IEC 63522-x series for testing of electrical relays. Hence mentioned of IEC 61810-7:2006 would not serve any purpose. It is not mentioned anywhere else in the draft either.	This bibliography entry may be removed.	

Date: 2024-08-23	Document: 94/1051/FDIS	Project: IEC 63522-13 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN				ge	British English is preferred in IEC.	“Sulfur” may be replaced by “Sulphur” throughout the text.	
IN		1	Para 1	ed	Typographical error may be corrected.	In line 2, “combinations” may be written instead of “combination”	
IN		4.2	Para 2	te	4.4 of IEC 63522-0 defines ambient temperature as 23 °C ±5 K. As per the standard atmospheric conditions of India, test temperature is 27 ± 2 ºC.	The temperature requirements to accommodate India-specific conditions may be added here.	
IN		4.2	Para 3	ed	Edition citing consistency needs to be maintained.	“IEC 60068-2-42:2003” may be mentioned instead of “IEC 60068-2-42”. Similarly, “IEC 60068-2-43:2003” may be mentioned instead of “IEC 60068-2-43”	
IN		4.2	Para 6	te	“Recovery” conditions have not been defined.	Second sentence may be reworded as “After a recovery period of not more than 2 h under conditions specified by the manufacturer, the functional performance of each DUT shall be evaluated and the contact circuit resistance of all of its contacts shall be measured.”	
IN		4.3		te	“Recovery” conditions have not been specified.	“Recovery conditions” may be added as a point here.	
IN		5.1	Para 2, Bullet 1	ed	Contact resistance values are to be “measured” as per IEC 63522-6. It is a test method standard. Language needs to be corrected.	First sentence may be reworded as “The contact resistance is measured in accordance with IEC 63522-6.”	
IN		5.2	Para 4, Bullet 2	ed	Edition citing consistency needs to be maintained.	“IEC 60068-2-42:2003” may be mentioned instead of “IEC 60068-2-42”. Similarly, “IEC 60068-2-43:2003” may be mentioned instead of “IEC 60068-2-43”	
IN		Bibliography		ed	IEC 61810-7 is being replaced by IEC 63522-x series for testing of electrical relays. Hence mentioned of IEC 61810-7:2006 would not serve any purpose	This bibliography may be removed.	

Date: 2024-08-23	Document: 94/1052/FDIS	Project: IEC 63522-15 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN		1	Para 1	ed	Typographical error may be corrected.	In line 2, “combinations” may be written instead of “combination”	
IN		4.2	Para 3	ed	Editorial consistency needs to be maintained, while clauses of other standards are being referred.	May be reworded as “Flat quick-connect terminations shall be tested as specified in IEC 61210:2010, Clause 7, and IEC 61210:2010, Clause 8.1 and 8.2.”	
IN		4.3	Para 1	te	4.4 of IEC 63522-0 defines ambient temperature as 23 °C ±5 K. As per the standard atmospheric conditions of India, test temperature is 27 ± 2 °C.	The temperature requirements to accommodate India-specific conditions may be added here.	
IN		4.3a)	Bullets 1,2	ed	Edition citing consistency needs to be maintained.	“IEC 60999-1:1999” may be mentioned instead of “IEC 60999-1”. Similarly, “IEC 61210:2010” may be mentioned instead of “IEC 61210”	
IN		4.3b)		te	As per clause 4.2, a minimum of 3 relay samples are to be tested, and on every sample, at least three terminations of the same size and type shall be tested. This brings the total number of terminals to be tested to 3X3 = 9 at least. Even this number can vary. Hence it is cleaner to just mentioned the number of terminals to be tested, as it is clearly going to be much more than 3.	Existing text may be replaced by “number of terminals to be tested.”	
IN		5.1		ed	The bullet points need some editorial context.	The following may be added as a para under which the bullet points are listed: “Final evaluation shall be done and documented as follows:”	
IN		5.1	Bullet 1	ed	Edition citing consistency needs to be maintained.	“IEC 60999-1:1999” may be mentioned instead of “IEC 60999-1”. Similarly, “IEC 61210:2010” may be mentioned instead of “IEC 61210”	
IN		5.1	Bullet 3	ed	Coil resistance values are to be “measured” as per IEC 63522-3. It is a test method standard. Language needs to be corrected.	May be reworded as “The coil resistance is measured in accordance with IEC 63522-3.”	
IN		5.1	Bullet 4	ed	Contact-circuit resistance values are to be “measured” as per IEC 63522-6. It is a test	May be reworded as “The contact-circuit resistance is measured in accordance with	

					method standard. Language needs to be corrected.	IEC 63522-6.”	
IN		Bibliography		ed	IEC 61810-7 is being replaced by IEC 63522-x series for testing of electrical relays. Hence mentioned of IEC 61810-7:2006 would not serve any purpose	This bibliography may be removed.	

Date: 2024-08-23	Document: 94/1053/FDIS	Project: IEC 63522-17 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN		1	Para 1	Ed	Typographical error may be corrected.	In line 2, “combinations” may be written instead of “combination”	
IN		4.1.2	Para 3	te	4.4 of IEC 63522-0 defines ambient temperature as 23 °C ±5 K. As per the standard atmospheric conditions of India, test temperature is 27 ± 2 °C.	The temperature requirements to accommodate India-specific conditions may be added here.	
IN		4.2.2.1	Para 1,2	ed	Edition citing consistency needs to be maintained.	“IEC 60068-2-27:2008” may be mentioned instead of “IEC 60068-2-27”.	
IN		4.3.2.1	Para 1	ed	Edition citing consistency needs to be maintained.	“IEC 60068-2-7:1983” may be mentioned instead of “IEC 60068-2-7”.	
IN		4.4.2.2	Para 1	ed	Edition citing consistency needs to be maintained.	“IEC 60068-2-6:2007” may be mentioned instead of “IEC 60068-2-6”.	
IN		4.4.2.3	Para 1	ed	Edition citing consistency needs to be maintained.	“IEC 60068-2-64:2008” may be mentioned instead of “IEC 60068-2-64”.	
IN		5.1	Table 1, Columns 2 and 3	ed	Contact-circuit resistance values are to be “measured” as per IEC 63522-6. It is a test method standard. Language needs to be corrected.	May be reworded as “The contact-circuit resistance is measured in accordance with IEC 63522-6.”	

Date: 2024-08-23	Document: 94/1054/FDIS	Project: IEC 63522-24 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN		1	Para 1	ed	Scope should commence with the types of relays covered. Consistency among different parts of IEC 63522 regarding scope should be maintained.	Para may be reworded as “This document is used for testing electromechanical elementary relays (electromechanical relays, reed relays, reed contacts, reed switches and technology combinations of these) and evaluates their ability to perform under expected conditions of transportation, storage and all aspects of operational use.”	
IN		5.1	Para 1, Para 2 Dash 2	te	No contact malfunction shall be detected as per Para 1. This is in contradiction to allowance given by manufacturer for contact malfunction in Para 2, Dash 2.	Para 2 may be reworded as follows, with removal of the 2 dashes: “During the test, no phase-to-phase arcing and other abnormal sparking longer than a half period is allowed.”	
IN		5.2	Para 3	te	Final measurements should invariably form a part of test report.	Add the following in the end: “-final measurements, as specified in 5.1”	

Date: 2024-08-23	Document: 94/1055/FDIS	Project: IEC 63522-25 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN		1	Para 1	ed	Scope should commence with the types of relays covered. Consistency among different parts of IEC 63522 regarding scope should be maintained.	Para may be reworded as “This document is used for testing electromechanical elementary relays (electromechanical relays, reed relays, reed contacts, reed switches and technology combinations of these) and evaluates their ability to perform under expected conditions of transportation, storage and all aspects of operational use.”	
IN		5.2	Para 3	ed	“Impulse shape” parameter is part of Method 3	1 c) may be reworded as:	

					and should be numbered as an entry accordingly	"method 3: • number of current impulses and their frequency, if more than one impulse, • impulse shape;"	
IN		5.2	Para 3	te	Evaluation results should form a part of the test report.	Add "Evaluation results, as defined in 5.1" as the final point.	

Date: 2024-08-23	Document: 94/1056/FDIS	Project: IEC 63522-4 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN		1	Para 1	ed	Scope should commence with the types of relays covered. Consistency among different parts of IEC 63522 regarding scope should be maintained.	Para may be reworded as "This document is used for testing electromechanical elementary relays (electromechanical relays, reed relays, reed contacts, reed switches and technology combinations of these) and evaluates their ability to perform under expected conditions of transportation, storage and all aspects of operational use."	
IN		3.2	Note 1 to entry	ed	Grammatical correction required.	"separate" may be replaced by "separately"	
IN		4.2.2	Para 5	te	Table 2 of IEC 63522-0 defines ambient temperature as 23 °C ±5 K. As per the standard atmospheric conditions of India, test temperature is 27 ± 2 °C.	The temperature requirements to accommodate India-specific conditions may be added here.	
IN		4.3f)	-	te	This point is not a "specified condition"	May be deleted.	
IN		5.2	Para 3	te	Conditions specified should form a part of the test report.	"Test conditions as specified in 4.3" may be added as one of the points to be recorded in the test report.	

Date: 2024-08-23	Document: 94/1057/FDIS	Project: IEC 63522-40 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN		1	Para 1	ed	Scope should commence with the types of relays covered. Consistency among different parts of IEC 63522 regarding scope should be maintained.	Para may be reworded as “This document is used for testing electromechanical elementary relays (electromechanical relays, reed relays, reed contacts, reed switches and technology combinations of these) and evaluates their ability to perform under expected conditions of transportation, storage and all aspects of operational use.”	
IN		4.2.1	Para 4	te	4.4 of IEC 63522-0 defines ambient temperature as 23 °C ±5 K. As per the standard atmospheric conditions of India, test temperature is 27 ± 2 °C.	The temperature requirements to accommodate India-specific conditions may be added here.	
IN		4.2.4	Para 5	te	“If a SCPD is used and renewed for the next shoot, the time can potentially be much longer.” This is a vague statement.	Time limit between each shoot in case of SCPD renewal after each shoot may be clearly defined.	
IN		4.3	Para 1, Dash 8	te	Grammatical correction needed.	Add “shots” after “number of applied short circuit current”	
IN		5.1	Para 2	ed	Spelling error	“life” may be replaced by “live”	
IN		5.1	Para 3	ed	Drafting can be improved.	May be reworded as “In case of basic insulation is, the dielectric test according to IEC 63522-4 shall be carried out.”	
IN		5.2	Para 3	te	All specified test conditions should form a part of the test report. So should the current form as per 4.2.3	Add the following: – number of applied short circuit current shots; – used SCPD (specification of the SCPD), if applicable. - Preconditioning, as specified in 4.2.2 - Current form, as per 4.2.3	

Template for comments and secretariat observations

Date: 2024-08-30	Document: 94/1033/CDV	Project: IEC 63522-2 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN		1	Para 1	ed	Scope should commence with the types of relays covered. Consistency among different parts of IEC 63522 regarding scope should be maintained.	Para may be reworded as “This document is used for testing electromechanical elementary relays (electromechanical relays, reed relays, reed contacts, reed switches and technology combinations of these) and evaluates their ability to perform under expected conditions of transportation, storage and all aspects of operational use.”	
IN	254	5.1	Para 1	ed	Grammatical correction required.	Replace “value” by “values”.	
IN	266	5.2.2	Para 1	te	Specified conditions should form part of the test report.	Add “d) Conditions specified in 4.1.3”	
IN	270	5.2.3	Para 1	te	Specified conditions should form part of the test report.	Add “c) Conditions specified in 4.2.3”	
IN	310	Bibliography	Para 1	ed	IEC 61810-7 is being replaced by IEC 63522-x series for testing of electrical relays. Hence mentioned of IEC 61810-7:2006 would not serve any purpose	This bibliography may be removed.	

Template for comments and secretariat observations

Date: 06/09/2024	Document: 94/1042/NP	Project: PNW 94-1042 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN	-	-	Table C.3	te	Contact-resistance and Clause 4.12 mention is given in Subgroup “A4”, not “A3” as proposed in the earlier part of the document	May replace existing ‘B4’ in Table C.3 Group 19 by ‘A4’	

Template for comments and secretariat observations

Date: 2024-09-06	Document: 94/1062/FDIS	Project: IEC 63522-20 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN		1	Para 1	ed	Scope should commence with the types of relays covered. Consistency among different parts of IEC 63522 regarding scope should be maintained.	Para may be reworded as “This document is used for testing electromechanical elementary relays (electromechanical relays, reed relays, reed contacts, reed switches and technology combinations of these) and evaluates their ability to perform under expected conditions of transportation, storage and all aspects of operational use.”	
IN		4.2.3	Para 1	te	The test method needs to be clearly defined in terms of intermediate checking.	Replace existing content with “After each 20 % of the mechanical endurance specified, intermediate measurements shall be made as specified.”	
IN		4.3	Para 1	te	4.4 of IEC 63522-0 defines ambient temperature as 23 °C ±5 K. As per the standard atmospheric conditions of India, test temperature is 27 ± 2 °C.	The temperature requirements to accommodate India-specific conditions may be added here.	
IN		4.3	Para 2	te	Mounting arrangements are not mentioned anywhere in the draft	“b) mounting conditions;” may be removed	
IN		4.3	Para 2	te	Allowable number of malfunctions can be specified by the manufacturer/in a specification, in case of Method 1	“method 1: allowable number of malfunctions;” may also be added in the clause	
IN		5.2	Para 3	te	All specified test conditions should form a part of the test report.	Add the following: – Conditions as specified in 4.3	

Template for comments and secretariat observations

Date: 2024-09-27	Document: 94/1040/CDV	Project: IEC 63522-19 ED1

MB/NC[1]	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Observations of the secretariat
IN	255	4.2.3.1	Para 5	ed	The note in the present form is not making any sense. There is no context.	The note needs to be fleshed out more so that its meaning and utility becomes clear.	

IN	272	4.2.3.2	Title	ed	Grammatical correction required.	Insert “to” between ‘according’ and ‘Annex’	
IN	314	5.1.1	Title	ed	Grammatical correction required.	Insert “to” between ‘according’ and ‘4.2.1’	
IN	359	5.2	Para 1	te	Specified conditions should form part of the test report.	Add “j) Conditions specified in 4.3.1 and 4.3.2”	
IN	640	Annex C		ed	In lieu of Clause 5.2, this Annex is a repetition and hence is not required.	May be deleted.	
IN	678	Bibliography		ed	IEC 61810-2 is referred in Clause 4.1 note. Its reference should be there in the standard.	Following may be added: IEC 61810-2:2017, Electromechanical elementary relays – Part 2: Reliability	