SCHEME OF TESTING AND INSPECTION
FOR CERTIFICATION OF
CABLES FOR MOTOR VEHICLES
ACCORDING TO IS 2465-1984

1. **LABORATORY** – A laboratory shall be maintained, which shall be suitably equipped and staffed where different tests given in the specification shall be carried out.

1.1 All testing apparatus shall be periodically checked and records of all such checks shall be maintained.

2. **RECORDS** - All records of tests and inspection shall be kept in suitable forms approved by the Bureau.

2.1 Copies of any records or charts that may be required by the Bureau shall be made available at any time on request.

2.2 It is recommended that, as far as possible, Statistical Quality Control (SQC) methods may be used for controlling the quality during production as envisaged in this Scheme [See IS 397 (Part I):1972, IS 397 (Part 2):1985 and IS 397 (Part 3): 1980].

3. **MARK** – The manufacturer's label attached to each coil of wire as also to each reel on which wires are wound shall carry the standard mark as given in column (1) of the First Schedule of the licence, provided always that the cable on the coil to which this mark is thus applied conforms to every requirement of the specification.

4. **MARKING** – In addition, the label shall contain the following information:

a) Name of the manufacturer and his recognized trade mark, if any;
b) Type of cable;
c) Number of cores;
d) Cable code;
e) Nominal cross-sectional area of the conductor;
f) Colour of the core (In case of single core cables);
g) Length of the cable contained in the coil or reel; and
h) Identification in code or otherwise to enable the date and lot of manufacture to be traced back to factory records.

4.1 The standard mark shallbe applied in such a manner that, as far as possible, it is destroyed when the coil or reel is opened.

5. The tests, as indicated in Table 1 attached and at the levels of control specified therein, shall be carried out on the whole production of the factory covered by this scheme and appropriate records and charts maintained in accordance with paragraph 2 above. All the production which conforms to the Indian Standard and covered by this licence shall be marked with the certification mark.

5.1 On the basis of test and inspection results, decision regarding conformity or otherwise of the production as a whole with the requirements of the specification shall be made as follows :

5.1.1 Each of the samples taken for test shall satisfy the requirements of the specification.

5.1.2 For the purpose of this scheme, the specified length of the cable wound as one continuous length on a drum (before cutting it into lengths of 100 meters) shall bonstitute a control unit.

5.1.3 Whenever testing of 2 samples has been stipulated in the scheme, they shall be taken from the beginning and the end parts of a control unit.

5.1.4 Whenever testing of 3 samples has been stipulated in the scheme, they shall be taken from the beginning, middle and the end parts of a control unit.

6. In respect of all other clauses of the specification and at all stages of manufacture, the factory shall maintain appropriate control and checks to ensure that their product conforms to the various requirements of the specification.

7. **REJECTIONS** – A separate record shall be maintained giving information relating to the rejection of cables which do not conform to the specification, and the method of their disposal. Such cables, in no case, be stored together with those conforming to the specification.

8. **SAMPLES** – The licensee shall supply, free of charge, the samples required in accordance with Regulations 10 of the Indian Standards Institution (Certification Mark) Regulations, 1955, as subsequently amended, from his factory or godowns. The Bureau shall pay for the samples taken by it from the open market.

9. **REPLACEMENT** – Whenever a complaint is received soon after the goods with Standard Mark have been purchased and used, and if there is adequate evidence that the goods have not been misused, defective goods are replaced free of cost by the licensee in case the complaint is proved to be genuine and the warranty period (where applicable) has not expired. The final authority to judge the conformity of the product to the Indian Standard shall be with the Bureau.

10. **SUSPENSI0N OF MARKING** – The marking of the product shall be suspended under intimation to the Bureau if, at any time, there is some difficulty in maintaining the conformity of their product to the specification, or the testing equipment goes out of order, or if directed to do so by the Bureau for any reason. The marking may be resumed as soon as the defects are removed or the Bureau gives the permission to do so. The information regarding resumption of marking shall also be sent to the Bureau.

11. **PRODUCTION DATA** – The licensee shall send to the Bureau as per the enclosed Proforma a statement of quantity produced, marked and exported by him and the trade value thereof during the half year ending 30 June and 31 December. This statement is required to be forwarded to the Bureau on or before the 31st day of July and January for the preceding half year.

IS: 2465-1984
CABLES FOR MOTOR VEHICLES
TABLE 1 LEVELS OF CONTROL
(Para 5 of Scheme of Testing and Inspection)

TEST DETAILS			LEVELS OF CONTROL		
Clause	**Requirements**	**Test Method** **Clause Reference**	**No. of Samples**	**Frequency**	**Remarks**
14.2, 14.3 & 15	High Voltage, or Spark test	IS: 10810 (Part 45)-1984) IS: 10810 (Part 44)-1984)	Each Coil		One sample from each type every week shall be tested as given in 14.1 of IS: 2465-1984
6.1 & 12.3	Resistance	IS: 10810 (Part 5)-1984)	Each Coil		
6.1 & 11	Dimensional Checks	IS: 10810 (Part 6)-1984)	2	Each control unit of 5000 metres or less.	
7.2, 10.3	Thickness of Insulation and sheath		3	Each control unit of over 5000 metres.	
12.1 -do-	Annealing test Persulphate test (When applicable)	IS: 10810 (Part 1)-1984) IS: 10810 (Part 4)-1984)	1	Each control unit	Annealing test maybe carried out on one sample from each spool of drawn wire before stranding
-do-	Physical tests for PVC insulation and Sheath Tensile strength and elongation at break	IS: 10810 (Part 7)-1984)	1	Each control unit	
	Ageing in air oven Loss of mass Hot deformation Heat Shock Shrinkage	IS: 10810 (Part 11)-1984)] IS: 10810 (Part 10)-1984)] IS: 10810 (Part 15)-1984)] IS: 10810 (Part 14)-1984)] IS: 10810 (Part 12)-1984)]	1	Every week for each of cable and each batch of PVC compound	In case of failure, one sample from every day's production of that type shall be tested and marking done only if the samples pass. After five consecutive samples have passed, the original frequency shall be resumed.
-do-	Physical tests for electric insulation: Tensile strength and elongation at break Ageing in air oven Ageing in oxygen bomb	IS: 10810 (Part 7)-1984) IS: 10810 (Part 11)-1984) IS: 10810 (Part 16)-1984)	 1 1	Each control unit Every week for each batch of elastomer material.	-do-

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TEST DETAILS				LEVELS OF CONTROL		
Clause	**Requirements**	**Test Method**		**No. of Samples**	**Frequency**	**Remarks**
		Clause	**Reference**			
12.5	Capacitance test	16	IS: 2465-1984	1	Every week for each size and type	For applicability of these tests, refer 16 to 22 of IS: 2465-1984
-do-	Ozone resistance test	17	-do-			
-do-	Effect of heat on Flexibility	18	-do-			
-do-	Effect of Oil	19	-do-			
-do-	Effect of cooling on Flexibility	21	-do-			
-do-	Flammability	22	-do-			
-do-	Effect of lubricating oil, brakefluid, diesel and petrol	20	-do-	1	Every month for each size and type	