

Research Designs and Standards Organisation
(TRACTION INSTALLATION DIRECTORATE)

Subject: Reasoned Document for Final Draft of earthing Specification

S N	Clause no.	Existing Clause	Comment Received	Remarks
1.	6.1	A typical arrangement of an earth electrode shall be as per Drawing number ETI/PSI/222-1 (Annexure-5)	Southern Railway A typical arrangement of an earth electrode shall be as per Drawing number ETI/PSI/222-1 (Annexure-VII).	Accepted Typographical correction
2.	6.3	If the value of earth resistance specified in clause 5 cannot be achieved with a reasonable number of electrodes connected in parallel such as in rocky soil or soil of high resistivity, the earth surrounding the electrodes shall be chemically treated.	Southern Railway the earth surrounding the electrode shall be chemically treated using earth enhancing compound and such.....	It is mentioned that the procedure for identification of Earth Enhancement Material has been initiated by separately through Expression of Interest (EOI) procedure, After finalization same shall be issued.
3.	6.4	In high embankments, it may be difficult to achieve earth resistance specified in clause 5 even after chemical treatment of electrodes. In those locations, use of electrodes longer than 4 m so as to reach the parent soil is recommended	Southern Railway It also may be included that "Mutual separation between them should be twice the length of the electrode."	This can be mentioned in this Para also as already mentioned in the para 6.2.
4.	7.2.1The buried rail shall also be connected by means of two separate and distinct connections made with 75mm x 8 mm MS flat to the traction rail in a single rail track circuited section and to the neutral point (s) of the impedance bond(s) in a double rail track circuited section	Southern Railway Related diagram and connection details of AFTC area may be specified.	Related Diagram is already mentioned at Annexure-IV. The details of AFTC may pertains to S&T department.
5.	Annexure-I Para 5.0	Duration of fault current in second (taken as one second for TSS & 3 second for SP/SSP of 2X25kV 160kmph)	Southern Railway Reference/Base for assuming duration of fault current in second for 25kV system and 2x25 kV system for TSS, SSP & SP may be indicated.	It is not required to mention the basis in the specification.
6.	Annexure-III	Drawing No ETI/PSI/224 (45x6mm MS flat)	Southern Railway In the legend, 45x6mm MS flat should be substituted by 50x6 mm MS flat.	In the specification it is mentioned to provide to 50X6mm MS flat. For update in drawing, the revision of drawing is required, same shall be processed separately.

523695/2021/O/o PED/TT/RDSO

7.	7.3.2	One designated terminal of the secondary of each potential, current and auxiliary transformer shall be connected to the earthing grid by means of two separate and distinct earth connections made with 50 mm x 6 mm MS flat.	<p>Southern Railway</p> <p>Due to two different metal connections like MS Flat and Aluminum flat, high temperature being noticed during maintenance. In order to avoid heat development, suitable bimetallic arrangement or any other arrangement may be specified. Measures like provision of galvanized spray paint may be incorporated in order to avoid rusting of MS flat connection</p>	<p>This para in the specification is mentioned since the issue of the specification (1991). On the 25kV side of the equipments, there are various drawings of the RDSO of the connectors. Due to less current on the secondary side of the said equipments, MS flats can be In para 13 of the specification already it is mentioned to provide the painting for protection against corrosion.</p>
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