

6.5 INVESTIGATION TESTS

Based on the performance, field experience, in case of critical failures in the system or in view of the improvement measures, investigation tests shall be carried out. These tests shall be specially requested either by RDSO or user or by the manufacturer.

6.6 TESTING SCHEDULE

| S.No | Test | Type # | Routine | Acceptance test | Sub Clause no. of IEC 62040-3. |
|------|--|--------|---------|-----------------|--------------------------------|
| 1. | Interconnection Cable Check | X | X | | 6.6.1 |
| 2. | Light Load Test | X | X | X | 6.6.3 |
| 3. | Synchronisation Test | X | | | 6.6.5 |
| 4. | AC Input failure test | X | X | X | 6.6.6 |
| 5. | AC Input return test | X | X | X | 6.6.7 |
| 6. | Transfer Test | X | X | X | 6.6.9 |
| 7. | Full Load Test | X | X | X | 6.6.10* |
| 8. | UPS Efficiency | X | X | X | 6.6.11 |
| 9. | Unbalance Load Test | X | | | 6.6.12 |
| 10. | Output voltage unbalance | X | | | 6.3.4.5 |
| 11. | Rated stored energy time/Battery backup test | X | | X | 6.6.15 |
| 12. | Rated restored energy time | X | | X | 6.6.16 |
| 13. | Battery Ripple current | X | | | 6.6.17 |
| 14. | Overload capability test | X | | | 6.6.18 |
| 15. | Short circuit current capability | X | X | X | 6.6.19 |
| 16. | Restart | X | X | X | 6.6.21 |
| 17. | Output over voltage test | X | | | 6.6.22 |
| 18. | Harmonic component test | X | | | 6.6.26 |
| | Audible Noise test | | | | 7.3 |
| 20. | Simulation of hot standby redundant test. | X | X | X | As per RDSO clause 4.2 |
| 21. | Dry heat test | X | | | As per IS 9000 and 60068-2-2 |

Note-1 - A certificate from NABL approved test laboratory shall be provided for compliance to EMI/EMC requirements for UPS.

Note-2 - For certain tests, the type testing authority i.e. RDSO may choose to rely upon previous type test reports/conformance certificates, as long as they pertain to similar design and comparable rating. However, the manufacturer cannot demand this as a matter of right.

* In addition to the setup specified in Clause 6.6.10 of IEC 62040-3, the UPS is to be tested at rated full load unity power factor and battery connected in fully discharged condition. The temperature rise should be within 70% of the rated temperature of the device.

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* Until the railways are able to issue their vendor list, they may in the interim period invite tender/ place order with the provision of accepting the material on the basis of firm's written clause-by-clause confirmation of the spec. and acceptance test alone, in instances where such recourse is considered necessary by CEE. In absence of any mention to the contrary in the tender and purchase order, it will be deemed that both type-test as well as acceptance test will be involved.

7.0 OTHER CONDITIONS :

- (i) The manufacturer (s) shall possess ISO 9001 certification.
- (ii) Deleted.
- (iii) Deleted.
- (i) Manufacturer must submit the details of approval certificates of ISO, Railways, DGS&D etc.
- (ii) Clause-by clause statement of compliance with the specification
- (v) Deleted.
- (vi) Deleted.
- (vii) Deleted.

8.0 INFRASTRUCTURE FOR QUALITY ASSURANCE

-Deleted.

9.0 TECHNICAL PARTICULARS ALONG WITH THE OFFER

The manufacturer shall furnish/submit full technical details of offer together with full descriptive literature and technical particulars, wiring diagram and working diagrams of the equipments offered. Clause by clause compliance along with other details, as called for in this specification, has to be furnished along with the offer. Incomplete details shall render the offer being rejected.

10. INFORMATION TO BE SUPPLIED BY THE MANUFACTURER AND PURCHASER

10.1 The manufacturer shall submit the following information while offering for prototype testing :

- i. Details of foundations for equipment.
- ii. Load data.
- iii. Location etc. for various assembled equipment as may be needed.
- iv. Complete layout dimensions for every unit/all units with dimensions required for erection purposes.
- v. Any other drawing/information not specifically mentioned but considered essential for installation of plant.

10.2 **Manuals, Data and Technical Information** - The following detailed data and information shall be supplied in triplicate by the manufacturer :

- i. Installation procedure.
- ii. Operation and maintenance manuals and maintenance schedule - 3 sets.
- iii. Test certificates of the major components.

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