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Document Title: STR for Vendor Approval for Manufacturing and Supply of Automatic Fire Detection & Alarm System for Signalling Installations				



**Government of India
Ministry of Railways**

**Schedule of Technical Requirement (STR)
for
Vendor Approval for Manufacturing and Supply of
Automatic Fire Detection & Alarm System for Signalling Installations
(Specification No.: RDSO/SPN/217/2016 Ver. 1.0)
STR No.: SIQ 0211
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DOCUMENT DATA SHEET		
STR No. : SIQ 0211		Version 1.0
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SCHEDULE OF TECHNICAL REQUIREMENT (STR) FOR VENDOR APPROVAL FOR MANUFACTURING AND SUPPLY OF AUTOMATIC FIRE DETECTION & ALARM SYSTEM FOR SIGNALLING INSTALLATIONS (SPECIFICATION NO. RDSO/SPN/217/2016 Ver. 1.0)		
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Document Control Sheet

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AMENDMENTS

Number	Chapter/ Annexure	Amendments	Date
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SCHEDULE OF TECHNICAL REQUIREMENT (STR) FOR VENDOR APPROVAL FOR MANUFACTURING AND SUPPLY FOR AUTOMATIC FIRE DETECTION & ALARM SYSTEM FOR SIGNALLING INSTALLATIONS
(SPECIFICATION NO.: RDSO/SPN/217/2016 Ver. 1.0)

1.0 SCOPE:

The Schedule of Technical Requirement covers the norms, machinery & plants, testing equipment and quality assurance plan required for manufacturing of Automatic Fire Detection & Alarm System for Signalling Installations (Specification No. RDSO/SPN/217/2016 Ver. 1.0)

2.0 REQUIREMENTS:

Vendors seeking approval for manufacture and supply of Automatic Fire Detection & Alarm System for Signalling Installations shall procure the specification and go through the detailed technical stipulations. They shall comply the requirements given below:-

2.1 GENERAL INFRASTRUCTURE:

2.1.1 The infrastructure should be adequate for manufacturing of the Automatic Fire Detection & Alarm System for Signalling Installations and its sub-units as per specification and to ensure adherence to quality assurance plan. The manufacturing, testing, storage facilities etc. shall be close by and adjacent to each other. It should have a proper shed/ manufacturing hall.

2.1.2 All the statutory approvals by local, state & Central Government authorities (as applicable) for running the factory at the given premises, manufacture & sale of the product by the firm shall be available & submitted.

2.1.3 The plant & machinery shall be suitably laid out process wise and each line duly labeled. It shall be so arranged as to facilitate smooth flow of product from one stage to the next stage & avoid unnecessary blockages or to & fro movement.

2.1.4 Sanctioned Power Load should be adequate for meeting the load requirements for the plant. Diesel generator set back up facility shall also be available.

2.1.5 There should be proper approach road to the factory.

2.1.6 **Essential Plant & Machinery:** The minimum essential plant and machinery shall be available for the Automatic Fire Detection & Alarm System for Signalling Installations and its sub-units as stipulated in Clause 4.0 of this document. The plant and machinery should be in good working condition. The complete details of each plant and machinery like make, rating, date of installation, serial number

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etc. shall be duly maintained and submitted. Suitable arrangements for maintenance and upkeep of the plant and machinery by way of AMC or in-house maintenance shall be ensured. For equipments requiring calibration, valid calibration shall be ensured.

2.1.7 Test and measuring facilities: The testing and measuring equipments shall be available as stipulated in Clause 5.0 of this document. All the equipments shall be calibrated at regular interval specified by calibrating agency (Govt. test house or other agency having trace-ability to National standards). The complete detail of each testing and measuring equipment like Sl. No. , make, rating, date of installation etc. shall be duly maintained and submitted along with the application for registration.

2.1.8 The firm shall not withdraw any machinery and plants or testing equipments, which have been indicated at the time of capacity-cum-capability assessment except for repairs/renewals.

2.2 QUALITY CONTROL:

2.2.1 The Quality Assurance Plan for the product should detail various parameters and to ensure control over them. Quality Assurance Process Flow Chart for broad guideline is given at Annexure-I to this document. The quality assurance plan & flow chart shall cover the complete process from the testing of raw material, stage by stage in process testing to final product testing i.e. complete process.

2.2.2 There should be a system to ensure the traceability of the product from raw material stage to finished product stage. This system should also facilitate to identify the raw material composition from the finished product stage.

2.2.3 Inward goods Inspection report should be maintained by firm and verified by Inspecting Official (I/O).

2.2.4 In process testing should be verified by various high level/competent officials of firm.

2.2.5 Adequate qualified and trained technical manpower shall be available.

2.2.6 Quality In-charge shall be responsible for day to day inspection, testing and quality control and compliance of QAP etc. of the product right from raw material stage till the finished goods stage. He shall be technically qualified and have adequate experience.

2.2.7 The firm should have experience of manufacturing of Automatic Fire Detection & Alarm System for Signalling Installations and its sub-units.

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2.2.8 All the relevant specification, relevant standards mentioned in the specification should be available and properly documented with the firm.

3.0 CHECK LIST

3.1 Local, state, & central authorities & other commercial documents/certificates required to be ensured & submitted with the application along with the summary/checklist.

4.0 ESSENTIAL MACHINERY & PLANT REQUIRED FOR PRODUCTION:

4.1 All manufacturing process stages should be automatic to the maximum extent. Correction, minimal human intervention and synchronization between processes shall be ensured. Vendors should specify make, model and details of machines used and get it approved from RDSO.

4.2 Required essential machinery & plant shall be as follows:-

S. No.	Description of the Machinery & Plant
1.	Pick and Place Machine and other accessories i.e., Stencil Printer, Reflow oven, Solder paste mixing machine and visual inspection system of PCB.
2.	Temperature controlled Soldering Machine.
3.	In Circuit Test Setup.
4.	Computer Aided Design system with Microcomputer based Work station (for Aspirating type smoke detector only).
5.	Piping Design CAD software aided with inventory generator of components required for installation, operation and reporting for Aspirating type smoke detector.
6.	ROM / Microcontroller Programmer (for control unit only).
7.	Mechanical system assembling work stations.
8.	Electrical assembly work stations.
9.	System Testing work stations.
10.	Fire and smoke simulation test bench/room.
11.	Non erasable printing setup for instruction printings.
12.	Drill machines.
13.	Grinding Machine.
14.	Hot Chamber and Cold chambers.

5.0 ESSENTIAL TESTING EQUIPMENTS REQUIRED FOR QUALITY ASSURANCE:

5.1 The firm shall have full furnished laboratory for conducting testing as per specification. All testing equipment shall have calibration certificate with NABL traceability with valid calibration certificate.

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5.1.1 Probe Type Bimetallic Heat Detector:

S. No.	Essential Testing Equipments
1.	Heat Detector Tester.
2.	Digital Temperature meter.

5.1.2 UV & IR Flame Detector:

S. No.	Essential Testing Equipments
1.	Diesel fire test room.
2.	Timer.

5.1.3 Heat and Smoke Multi Sensor:

S. No.	Essential Testing Equipments
1.	Heat & Smoke Detector Tester.
2.	Humidity meter.
3.	Digital Temperature meter.
4.	Computerized Obscuration level indicator or optical smoke density meter.

5.1.4 Aspirating Type smoke Detector:

S. No.	Essential Testing Equipments
1.	Piping network.
2.	Computerized Obscuration level indicator or optical smoke density meter.
3.	Stop Watch.
4.	In house Calibrated reference test bench.

5.1.5 Linear Heat Sensing Cable & Interface Module:

S. No.	Essential Testing Equipments
1.	Complete Test setup to test response of cable to heat along its length at fixed intervals.
2.	Facility to creation of Open Circuit Fault, Short Circuit Fault in ambience to LHS cable and test its response.
3.	The LHS cable manufacturer shall be specified by the OEMs of Detectors. The LHS cable manufacturer should provide test certificate related to the manufacturing of fire resistant wires & cables from UL/EN/VDS/FM/ LPCB / BRE Global or any accredited Lab.

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S. No.	Essential Testing Equipments
	The LHS Cable manufacturer shall also give self certification.
4.	Complete Test setup to test response of cable to heat along its length at fixed intervals.

5.1.6 Control Panel:

S. No.	Essential Testing Equipments
1.	High Voltage Tester.
2.	Digital Multimeter.
3.	IR tester.
4.	Computerized process debugger.
5.	Zone wise NO/NC contact test setup.

5.1.7 Manual Call Point:

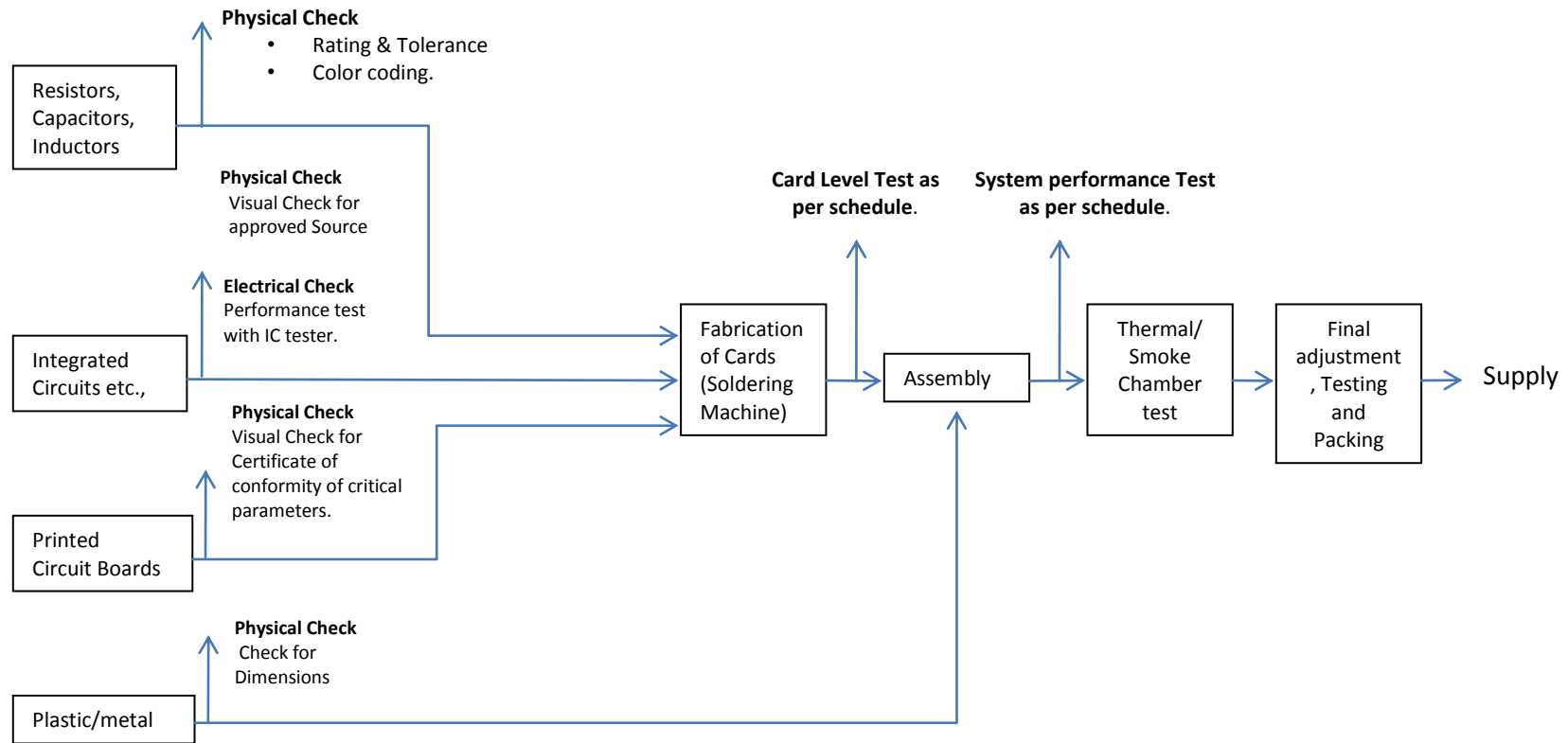
(1) Test bench to test its functionality.

5.1.8 Common Tools to be provided for testing and production when required:

S. No.	Essential Testing Equipments
1.	Sound level measurement meter.
2.	True R.M.S digital multimeter- 4 ½ digits suitable up to 50 KHz, high accuracy.
3.	Function generator.
4.	Frequencies counter 10 MHz.
5.	Variable DC power supply (0-48V) (of suitable current capacity as required).
6.	Digital LCR/Q meter.
7.	Digital Megger 500V DC.
8.	Milli Ohm meter.
9.	Digital IR and HV tester with configurable timer, Vernier calipers, Micrometers, measuring scales etc.

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6.0 Quality Assurance flow chart for “Automatic Fire Detection & Alarm System for Signalling installations



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