

## SCOPE OF WORK- ANNEXURE B

Scope of work for up-gradation of existing Next Signal Red Alert Device (NSRAD) to Signal Location Announcement System (SILAS)

1. Existing Next Signal Red Alert Device (NSRAD) is already commissioned in EMU D'cabs of Mumbai Central Carshed. NSRAD is a device which gives audio alert to M/man 'Next Signal is Red, Be Careful' after passing yellow signal. This device takes input of yellow signal passing from indication panel of AAWS using photodiode. It has inbuilt speaker and device is programmed.
2. These units are to be removed and lifted for up-gradation to SILAS and supply after upgradation as per specification mentioned in Annexure A at firm's premises on Railway gate-pass after joint with railway representative.
3. Firm must incorporate all items mentioned in specification of SILAS like soft keypad (to enter route), USB slot (to upload necessary changes in software and database into the device and to download the events), Small LCD display (to indicate Route selected and other messages, etc. in the physical dimension of existing NSRAD and given in the specification.
4. SILAS unit must be installed next to Motorman's seat in the clear line of vision such that it does not obstruct the visibility of the rail track and train operation is unaffected.
5. For installation of SILAS unit in place of NSRAD, required hardwares must be supplied by firm.
6. Cable (2 core 1sqmm) will be supplied and laid by firm approx. 10 meters from existing MCB in CRW panel to SILAS unit to provide 110 V dc supply and 2 meters from SILAS to IP (Indication Panel) of AAWS for taking feedback of yellow signal. Cable will also be connected from IP panel of AAWS to photo diode sensor (If applicable)
7. Suitable connectors for cable connection will be provided by firm as well as connection will be done by firm (If applicable)
8. SILAS unit shall be equipped with GSM Module.
9. GPS antenna with bracket will be supplied by firm and GPS antenna installed on roof of EMU D'cab with special bracket welded on roof after removing IV couplers of coach by Railways. Safety instructions regarding working on roof must be followed and installation done in consultation of Sr.DEE/RS representative. Water proofing to be done on roof after installation of GPS antenna.
10. GPS antenna along with its cable of sufficient length shall be provided with each SILAS unit. GPS antenna to Silas unit , cable laying and connection will be done by firm. The antenna shall be portable which can be fixed on EMU cab outside. Mounting should be strong enough to keep the antenna fixing intact even under vibrations experienced by a running EMU. The length of the antenna cable should be sufficient to connect between antenna & SILAS unit installed in EMU cab.

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Verified

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AKSHAY  
CHANDRAKANT  
MARATHE  
Date: 2026.05.14  
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Reason: IREPS-CRIS  
Location: New Delhi

SSE/AWS-PTS/MMCT

9. Firm will supply user friendly interface in terms of mobile app or through web server to enter the train journey for next halt announcement as per train journey.

10. Software tool will be supplied for changing the signal location or other data base as per yard re modelling or as per changes done at site.

11. Software tool will be provided to download all required reports and data.

12. SILAS unit to be commissioned in EMU D'cab in such a way that rake could be send on line without affecting passenger service.

13. Work involves welding of GPS antenna on EMU roof below OHE lines. Before starting working near OHE, ensure 25 KV OHE is turned off, by taking proper permit from competent authority. Written permission shall be obtained from SSI office of the concerned shed before starting of work during installation and maintenance work. Ensure that OHE line is dead & earthed by discharging rods from both ends to avoid any unforeseen circumstances. Railway will not pay any compensation toward loss of life, injuries etc.

14. All safety measures to be taken by the contractor for his staff. Contractor should provide Safety Helmet, Safety Belt and Safety Shoes etc. to his staff for safe working.

15. The contractor should not cause damages to any equipment/Railway properties while executing of this work. If damaged, the same shall be got repaired by the contractor free of cost or cost of the same will be recovered from contractor.


16. The contractor shall note that no compensation due to any loss of life or material or on any other account shall be made by the Railway Administration. Contractor shall be fully responsible for compensation in case of any accident, injury to their labor and on any other account.

17. All necessary tools and accessories required for general maintenance and operation should be handed over to railway against subject work and as per railway requirement.

18. Manufacturer shall provide following documents with equipment:

- (i) Manual of installation and maintenance.
- (ii) Manual for downloading & analyzing event log.
- (iii) Diagnostic procedure including troubleshooting charts.
- (iv) User Manual for Motorman (English and Hindi).

19. Overall work should be completed within 6 months after issuing P.O..

  
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