



भारत सरकार- रेल मंत्रालय Govt. of India – Ministry of Railways
भारतीय रेल सिगनल इंजीनियरी और दूरसंचार संस्थान
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IRISET/CoE/Kavach/Misc

Date: 31.07.2023

**PED/S&T/Dev
Railway Board**

Sub: Comprehensive segregated protocol for commencing Kavach loco trials

Ref: (i) Item 13 of Minutes of Meeting held at Railway Board on 20.07.2023

Railway Board vide above reference has directed for preparing the comprehensive protocol for Loco (Onboard) trials. Accordingly, the proposed comprehensive protocol prepared is as under. Such document for similar item (SAT for Stationary Kavach Unit) has been issued by RDSO. Moreover, certain RDSO documents also have been referred hereunder which include RDSO doc for which CoE has given technical observations / comments. In view of above, it would be prudent to get it checked / verified / consented by RDSO also to avoid any mismatch or duplicity or gaps. Railway Board may like to decided whether following is to be issued to Zonal Railways after obtaining comments from RDSO or without waiting for comments from RDSO.

Moreover, attention is drawn to Railway Board ACS-1 reg addition of Para 9.2.2(j) which covers Kavach installations at Station/IBS/LC Gates/ABS huts etc but without explicit mention of Onboard Kavach. The request is reiterated to clarify whether Onboard Kavach also is included in SEM Para Para 9.2.2(j) or not.

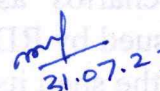
Comprehensive segregated protocol for commencing Kavach loco trials

1. Kavach loco trials for Loco acceptance certification

- After completion of the Kavach fitment in the Locomotive/EMU, OEM should load the RDSO's approved braking parameters.
- Signing of RDSO's approved Pre-commissioning Checklist (PCCL) by nominated Loco shed/EMU car shed official and OEM shall be completed.
- The test scenarios as envisaged in "Onboard Testing with SKavach simulator document issued by RDSO" may be carried in Loco shed/EMU car shed with SKavach simulator in the shed itself with RFID tags over the tracks and with virtual signals.
- After satisfactory results, One day field acceptance test with atleast one SPAD prevention and one loop line speed control scenarios to be jointly conducted by railways and OEM.
- Preferably these tests are to be carried out in fully tested Kavach territory.
- After satisfactory results of the one-day field test, OEM & railways shall issue the Kavach Loco acceptance certification.

2. Site Acceptance Test of Kavach Station:

- a) Railways should ensure the completion of the Skavach works like installation of SKavach, SMOCIP, E1 connectivity for NMS and tower works including powering ON of the radio modems.
- b) Kavach relay/EI Interface wiring & bell testing to be carried out as per the approved interface circuits.
- c) After completion of the Kavach fitment in the Station/LC gates/ABS huts, OEM should load the tested and certified (FAT) application logic in SKavach.
- d) Railways should complete the signal, points, tracks etc., correspondence test with Loco simulator to ensure the proper wiring of the signalling functions to SKavach.
- e) OEM should issue the installation certificate after successful completion of the installation.
- f) Confirmation certificate regarding proper fixing of RFID Tags at correct locations with correct data as per approved RFID layout & approved RFID tag data to be obtained from OEM.
- g) Railways should enforce the provision of Kavach NMS to analyse incidents from initial stage itself. Until Kavach NMS is installed, suitable mechanism of collection, analysis and sharing of Kavach data log by downloading from Kavach equipped Locomotives and stations may be ensured.
- h) With available data from internal data logger of SKavach, Computer based Local simulation may be used to facilitate the display of station/block section movements to carry out the input field correspondence.
- i) Field correspondence tests, movement authority at various signals, speed restriction messages for various routes/sections, functioning of individual Station radios may be tested with radio based Loco simulator.
- j) Sequence of RFID tags including block section (communication non mandatory zone outside the jurisdiction of the stationary Kavach) may be verified with radio based Loco simulator.
- k) After satisfactory results from Loco simulator testing, Kavach loco trials with certified Kavach loco for Site Acceptance Test of Kavach station may be carried out as per the RDSO's approved format SIF0524.
- l) It is recommended to revise SIF0524 duly including the verification of Physical placement and tag data of RFID tags including block section (communication non mandatory zone outside the jurisdiction of the stationary Kavach) with Kavach fitted Loco as part of SAT of Station Kavach.
- m) Radio survey with Kavach fitted on-board in brake isolation to be carried out as part of SAT of Station Kavach.


31.07.23
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Officer on Special Duty (OSD) /Centre of Excellence

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ED/Tele-II/RDSO, Secunderabad