

INDEPENDENT TRANSPORT SAFETY REGULATOR

# UK SPAD risk ranking tool



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The SPAD risk ranking tool (SRRT) has been developed by the UKRSSB to assess SPAD risk.

The SRRT approach involves rating a SPAD on a number of criteria related to the likelihood of an accident and its potential consequences. It thereby provides a better measure of the potential risk of each SPAD.

The risk ranking result is made up of three elements:

Part 1 – An initial collision potential assessment;

- Part 2 An accident vulnerability ranking;
- Part 3 The risk ranking score.

#### Part 1 – Initial collision potential assessment

The initial collision potential assessment is noted in the first character of the risk ranking code. That first character can only be a 'Y' (meaning yes) or 'N' (meaning no). This is in response to the railway undertaking (RU) question: Following the Category A SPAD (crew/train performance SPAD), could the train, before it reached another stop aspect, have come into conflict with another train on a cleared route joining or crossing the route ahead of the signal passed at danger?

#### Part 2 – Accident vulnerability ranking

The SPAD accident vulnerability ranking is the second character of the three-part code and represents the weighting of the probability and severity of the incident.

The ranking focuses on the characteristics of the actual SPAD incident that occurred, highlighting how close the train involved came to an accident and what factors were employed to prevent an accident occurring. The accident vulnerability rankings are:

- A. Accident occurred.
- B. SPAD train stopped on the first potential conflict point, with potential conflicting train stopped by the actions of the driver and/or signallers prior to collision [Collision only prevented by recovery action].
- C. SPAD train stopped on the first potential conflict point, with the potential conflicting train stopped by the automatic action of the signalling system (i.e. signal flank protection) prior to collision.
- D. SPAD or potential conflict train crossed the conflict zone without accident [Restricted time window for accident].

- E. SPAD train stopped less than or equal to 50 metres before reaching the first potential conflict point by the actions of the signaller(s) prior to an accident [Potential accident prevented by recovery action].
- F. SPAD train stopped less than or equal to 50 metres before reaching the first potential conflict point by the actions of the driver only. TPWS, automatic train protection (ATP) or a train stop system are either not fitted or do not work. [Escalation of SPAD required before an accident could occur].
- G. SPAD train stopped less than or equal to 50 metres before reaching the first potential conflict point by the activation or intervention of TPWS, ATP or a trip cock system [Escalation of SPAD required before an accident could occur].
- H. SPAD train stopped more than 50 metres before reaching the first potential conflict point by the actions of the driver only. TPWS, ATP or a trip cock system are either not fitted or do not work. [Significant escalation of SPAD required before accident could occur].
- I. SPAD train stopped more than 50 metres before reaching the first potential conflict point by the activation or intervention of TPWS, ATP or a trip cock system [Significant escalation of SPAD required before accident could occur].
- J. The design of the track layout and/or signalling controls prevents the possibility of a conflict beyond the signal (eg at first signal of a double blocking) [Accident highly unlikely].
- U. Unknown risk ranking result. (Generally relates to events from 2002-2004 that were not ranked, plus a few current events for which results are still awaited).

### Part 3 – the risk ranking score

The risk ranking score assigned to each SPAD is used to measure changes in SPAD risk over time. It is a combination of parameters established in Part 1 and Part 2.

Estimation of the current risk level is performed using a two-year moving average as this provides a more robust estimate of the underlying risk.