

| WHO | PAGE | REFERENCE | COMMENT |
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| These comments are from Robert Wood, Principal Design Engineer, Invensys Rail, York. | | | |
| RAW | general | | Blank pages should be numbered |
| RAW | general | | The use of speeds only in km/h may have unintended consequences, for instance 160 km/h is less than 100 mile/h, whereas the intention is to limit speeds to 100 mile/h, not 95 mile/h. Other speeds are similarly ambiguous. Suggest x mile/h (y km/h) is used throughout. This means that either unit may be used, depending only on the units in which the permissible speed over the crossing is specified. |
| RAW | general | | Red road traffic lights are described as "intermittent" or "flashing" in different parts of the document. Should be consistent. |
| RAW | general | | Where reference is made to an audible warning changing in character when a second train is approaching, it should be described as changing to a more urgent character or tone, otherwise the requirement could be met by a less urgent tone which is not the intention. |
| RAW | 12 | 7 | Why does the guidance apply to new crossings only in exceptional circumstances? Is the intention here that new crossings are provided only in exceptional circumstances, in which case the guidance applies to them in all cases? The wording needs to be clarified as it is ambiguous. |
| RAW | 16 | Figure 1 | There is no mention of footpath, bridleway, or UWCs with MSLS, which are therefore protected. |
| RAW | 17 | 20, Table 1; 4 | Second "it is" should be "is it". |
| RAW | 17 | 20, Table, 4 & 5 | Consider a requirement for signals being free of approach locking here, as in 5A, to be consistent with paragraphs 38 and 51. |
| RAW | 17, 25, 26 | 20, Table 1; 5A, 5A Section heading, 60 | Crossings are not actually <i>operated</i> by the obstacle detector. Should the crossing type read "Automatic barrier crossings with obstacle detection" or something similar? |
| RAW | 17 | 20, Table, 6 | "Carriage" should read "carriageway". |
| RAW | 18 | 20, Table 1; 10 | No mention of UWCs with MSLS. |
| RAW | 21 | 35 | For consistency with other crossing types using road traffic lights, the time for which the amber lights should show should be stated here, especially if it may be either 3 or 5 seconds. |
| RAW | 23 | 42 Note | It isn't clear that the sentence "As a guide..." only applies to the previous sentence, not the whole of 42. Suggest precede with "Where road traffic lights are omitted, ...". Also, correct term is permissible speed, not line speed. |
| RAW | 23 | 43 | Typo - should read "...required where barriers can be..." |
| RAW | 23, 26, 30, 33, 36 | 46 (a), 61 (a), 76 (a), 93 (a), 117 (a) | The term "higher speed road" should be defined - what speed requires 5 seconds instead of 3? Could be defined in Appendix D. |
| RAW | 24, 27 | 49, 62 | Would read better as "...initiated or maintained...", as the barriers should stay down for a second train which technically hasn't initiated the lower sequence. |
| RAW | 25 | 51 | Typo - should read "...signals must be..." |
| RAW | 25 | 52 | Is it strictly necessary for a stop control to be provided, if the barrier direction can be reversed immediately? Given the problems with getting a stop control to operate sufficiently fast to be of any use, consider removing this requirement entirely. |

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| RAW | 25-28 | 5A (several places) | To "scan" for an obstruction implies a particular type of obstacle detector, typically RADAR. Suggest a more general description is used instead (e.g. "obstacle detection system confirms no significant obstruction present"). The detector may even comprise a number of different technologies. |
| RAW | 28 | 66 | The term "operating position" isn't defined anywhere. Do you mean "control point", or is it intended to mean a local control position close to the crossing? |
| RAW | 28, 32 | 71, 88 | "Can" should read "cannot"! |
| RAW | 29 | 75 | Should there be any monitoring of the amber lights at AHBCs? For instance if all amber lights have failed in one direction, should the the red road lights come on immediately? This becomes more important if the amber light shows for 5 instead of 3 seconds. |
| RAW | 29 | 75 | Typo - first sentence should read "...should be at least 27...". |
| RAW | 29 | 75 | Consider providing some guidance on the tolerability of short warnings at predictor crossings, to complement the existing guidance on long warnings. Suggest "Not more than 1% of trains should arrive in less than 27 seconds, and not more than 0.5% in less than 25 seconds." |
| RAW | 30, 33, 36 | 76, 93, 117 | Where the amber time is extended to 5 seconds at an automatic crossing, it isn't clear whether the whole of the barrier or light sequence is to be extended by 2 seconds (e.g. the AHBC warning time is extended from 27 to 29 seconds), or whether the train can still arrive in 27 seconds but with 2 seconds less red light. Logically the longest warning time is required by long slow vehicles that don't need 5 seconds of amber, so it would be entirely safe to extend the amber but have the barriers fall 2-4 seconds after the amber (instead of 4-6 seconds), which would still only require 27 seconds warning. Vehicles needing 5 seconds of amber would be travelling at high speed so would clear the crossing quickly. Please clarify the required sequence of events and timing. |
| RAW | 34 | 100 | Since there is no mention of the red light indication in this section, the term "indication" should be expanded to read "indication...that all crossing equipment is functioning correctly". Alternatively mention both the red and white lights in this section. |
| RAW | 31, 35, 35, 38, 38 | 82 (a), 106 (a), 107 (b), 128 (a), 129 (b) | Suggest adding after "accurately" : "or the control system can automatically delay the crossing initiation for a stopping train...". This allows for a predictor crossing where the crossing will not be initiated when a train stops at the station. |
| RAW | 41 | 142 | The minimum 20 seconds quoted here is inconsistent with Table 6 page 62 that requires 40 seconds. |
| RAW | 42 | 147 | There may actually be a telephone at the crossing, which the user should use. |
| RAW | 46 | 172 | Include MCB-OD (in both manual or automatic mode) in the last sentence. |
| RAW | 57 | 235 | Suggest allowing barriers to be inclined between 0 and 10 degrees from the vertical (which allows USA barrier machines to be used without modification, as they are designed to go fully vertical when raised), provided that all barriers at a single crossing, or at closely adjacent crossings, are at the same nominal angle and therefore present a uniform appearance when raised (this avoids allowing barriers to be at obviously different angles and presenting road users with a noticeably different appearance). |
| RAW | 58 | 239 | Suggest adding: "Where three lamps are fitted, the two lamps nearest the barrier machine may flash alternately.". This allows for the use of USA boom lights without modification, and in my opinion will provide more visual impact at night. |
| RAW | 63 | 276 | Allow the signal to be located "...adjacent to or above the barrier machine...". This clarifies the provision of a signal attached to the same post as the barrier machine, where a USA barrier machine fixing arrangement is used. |

R A Wood 19/5/10