Consultation comments and responses

Document Title: Rail Industry Standard for Driving Cabs

Document number: RIS-2761-RST

Consultation closing date: **18th January 2024**

1. Responders to consultation

No	Name	Company
1	Martin Prosser	Not representing any organisation
2	Jonathan Evans	Network Rail
3	Sam Newcombe-Malins	Alstom
4	Peter Hughes	GWR
5	Peter Hubbard (during pre-consultation RST SC)	c2c
6	Laura Sutton	ORR
7	TOM SC	-
8	Jonathan Evans (during pre-consultation CCS SC)	Network Rail
9	PLT SC	-
10	RST SC	-
11	Adrian Hugill	Cross Country
12	ANONYMOUS	ANONYMOUS

2. Summary of comments

Code	Description	Total
-	Consulted	0
CE	Critical errors	4
ED	Editorial errors	8
TY	Typographical errors	2
OB	Observations	47
-	Total comments returned	61

Classification codes for a way forward:

- DC – Document change (36)
- NC – No change (25)

3. Collated consultation comments and responses

No	Page	Clause	Comment	Suggestion	By	Way forward	Page	Clause	Response
1	7	1, 1.1	For clarity on why some areas have detailed info and others don't, it would be helpful to highlight the topic areas (*Drivers seat design, Control placement, Display screens and positioning, force of controls, Seatbelts, Airbags and Energy Absorbing Desks, Second driver's seat and Standing position)* that are currently beyond the scope of this project. Could it be useful to include the reasoning behind this document i.e. There is a lack of standardisation / human factors integration in driver cab design and therefore could result in human error, injury and discomfort. It aims to set out a safer more functional drivers cab based on human centred design.		6	DC	6	1.1.1	[OB] The purpose of the standard has been updated to include the reason for including human factors design principles.
2	15	4.1.1	An extra point should be added here to require that the side window should be positioned such that drivers can adopt a safe posture from the seated position to view DCO monitors with no risk of neck or back strain, MSD risk, etc.		6	NC	21	G 7.2.8	[OB] The addition of this point would result in a human factors assessment taking place to assess the positioning of the window in relation to equipment mounted on the platform, the requirement for which varies by operator and fleet type. Adding a requirement would add assessment complexity which would likely be difficult to reach. Guidance is included to prompt the user to establish what equipment outside of the train a driver may need to view so that they can determine glazing size and position.
3	12	G5.1.5	Would be useful to add text to signpost to the helpful information in section 7.3 on Side Windows having an opening ability to overcome this		12	DC	15	G5.1.5	[OB] Additional guidance has been added to G5.1.5.
4	18	6.3.1	Not sure this is always true. We provide our drivers with reset keys. Other controls such as OTDR and remote TCMS event reporting discourage deliberate misuse.	*None*	5	NC			[OB] The requirement establishes that “except where resetting of train safety systems is required as part of routine operational duties” – therefore the provision of reset keys remains permitted, but there are systems which are not, and should not, be reset by operational staff.

No	Page	Clause	Comment	Suggestion	By	Way forward	Page	Clause	Response
5	18	G 6.2.3	RIS-0797-CCS and RIS-0798-CCS have both been replaced by RIS-0799-CCS. Suggest the opportunity should be taken to amend the cross-reference accordingly.	System-specific isolation requirements are set out in RIS-0775-CCS for AWS / TPWS and in RIS-0799-CCS for ERTMS/ETCS.	2	DC	18	G 6.2.3	[ED] Reference updated as suggested.
6	22	7	As discussed at CCS SC, to support effective integration of rolling stock with infrastructure and operational tasks on routes provided with Train Crew Operated Barrier level crossings I recommend that Part 7 (or perhaps Part 2) should highlight the need for a driver to be able to use a side window to operate the external level crossing controls to start or stop the crossing sequence whilst being able to visually monitor the level crossing area. This potentially involves a new requirement, I have provided an initial suggestion in the next column, together with supporting rationale and guidance.	Requirement: Trains that are to operate on lines fitted with Train Crew Operated level crossings shall be provided with a side window that is positioned such that it allows the driver to operate the level crossing control equipment whilst observing the level crossing area. Rationale: To enable the driver to stop the level crossing closure sequence quickly if they observe a hazardous situation in the level crossing area. Guidance: Where there is not a station platform on the approach to a Train Crew Operated level crossing, the level crossing control equipment for the level crossing typically comprises a pull cord arrangement mounted alongside the track. The pull cord is positioned so that it can be operated by the driver via a side window without them having to leave the train. Guidance: The driver normally observes the level crossing area through the cab windscreen. Guidance: The level crossing control equipment is normally configured so that the pull cord can be used to both start and stop the level crossing closure sequence.	2	DC	22	7.3	[CE] Guidance has been added that promotes the use of openable side windows where train crew operated level crossings are fitted on a line where the vehicle is intended to operate. A new requirement was not added as the TCO level crossing can be operated through a door droplight, whereas specifying that this happens through a side window only would be limiting for train designers.
7	20	7	The Eurostar 373s were deliberately designed without side windows due to the risk of hypnotic effects from the strobe effects of running through a tunnel at high speed with lights. There is potential to put in mitigation for that, which could be a blind across the window, but it will not be obligatory to include it.		9	DC	21	G 7.2.8	[OB] Guidance has been added in the side glazing section on where light strobing may occur and that the provision of a side blind will prevent this from causing a distraction to the driver.

No	Page	Clause	Comment	Suggestion	By	Way forward	Page	Clause	Response
8		7	Include guidance on offside signage visibility			DC	21	G 7.2.12	[ED] Guidance has been added for offside signage that may need to be visible if corridor stock is being operated.
9	21	7.2	Glazing - what about consideration of reflections? Also, possibly worth mentioning something about the importance of being able to keep the glazing clean, smear free etc.		6	DC	21	G 7.2.9 G 7.2.10	[OB] Guidance has been added to highlight the importance of keeping glazing free and that reflections can impact a drivers view to the outside of the train.
10	20	7.2.1	Is there a TSI clause related to long tunnels that contradicts this e.g. eurostar cab has no side windows to avoid tunnel flicker. As mentioned in meeting a blind could resolve.	*None*	5	DC	21	G 7.2.8	[OB] Guidance has been added in the side glazing section on where light strobing may occur and that the provision of a side blind will prevent this from causing a distraction to the driver.
11		7.2.2	In requirement 7.2.2 remove 'loss of visibility' as this could result in the dimension of the window being large		10	DC	20	G 7.2.2	[ED] Requirement amended as suggested.
12	21	7.2.13	A picture to illustrate the differing positions of signage etc would help describe the issue here. Not necesarily to scale, but to avoid looking at all 4 documents mentioned to understand the issues.	*None*	5	NC			[OB] The guidance purposely omits illustrative information on the positions of signage, screens and other features which can impact the side and shape of glazing as these can differ significantly between routes. As an example, RIS-3782-TOM does not set out any specific requirements for stop car marker height but sets out a process where all interested parties collaborate to decide on their location so that they are positioned where drivers can see them from the driving position at the train stopping position. This would not be possible to illustrate succinctly in the standard.
13	21	G 7.2.5	*Glazing shall. … Variations in the sitting or standing eye height of the driver;* Words missing – *Ensure … are accommodated.* Also who designing for? Percentile range? Including females? Because industry driver to increase number of female drivers? Has this been taken into account? Says later – sort of.		6	NC			[OB] The word ensure is not used in a standard as it is difficult to assess whether something has been 'ensured'. Anthropometric measurements have purposely been left out as they are mentioned elsewhere and are a consideration of whole cab design. Males and females are not referenced in the standard, instead 5th – 95th percentile is used as the standard terminology without gender.
14	21	7.2.5 c	*Consider the objects which are expected to be viewed through the window* - DCO monitors / mirrors should be specifically mentioned here it's crucial they can be seen and comfortably from the driver's seated position – see above.		6	DC	21	G 7.2.5 (c)	[OB] Guidance amended as suggested.

No	Page	Clause	Comment	Suggestion	By	Way forward	Page	Clause	Response
15	34	7.3	Members suggested the detail of opening side windows was excessive, although acknowledged that the emphasis is intended to be on the provision of side glazing rather than opening windows.		7	NC			[OB] Guidance has been added that promotes the use of openable side windows where train crew operated level crossings are installed. The guidance given for side windows remains valid and useful to support the installation of such windows.
16	25	A.2	Whats the difference ? We don't just get drivers to use DRA at stations	*None*	5	NC			[OB] RIS-2761-RST clause 3.1.1 sets out the requirement for DRA installation, which is only for trains in passenger service and performing station duties. The fitment of DRA is otherwise optional.

17	27 onwards	Appendix C		While the information on human factors is welcome, I suggest that there is much that can be done to assist the driver in interpreting alarms/alerts in driving cabs that could be added to this section. Currently, most traction with a train management system (TMS) will alert the driver to the presence of a fault or event using an audible alarm (usually a fast-paced intermittent bleeping) and a text message on the TMS screen. It can take some time to interpret the nature of the alert which in some safety critical situations can lead to a delay in responding. Text messages can often be extensive, and sometimes written from an engineering perspective, missing critical operational information. The use of the same audible alarm for all alerts makes interpreting and distinguishing between different types of alert difficult. I would suggest the following is added to the human factors guidance: • Each alert and text message must be for an individual event; using a single alert for multiple events must be avoided (for example, on the Hitachi 80x fleet, a passcomm activation and egress operation are notified by the same alert, despite the driver's response to these two scenarios potentially being very different). • If the alert applies to an individual vehicle, the vehicle must be clearly distinguishable on the TMS. • Voice messages should be used for critical alerts to help the driver identify as quickly as possible what is happening. Thus, instead of the same bleeping alarm for passcomm, egress, serious defect etc., pre-recorded voice messages could be embedded as .mp3 files, for example 'passenger alarm activation', 'egress activation' etc. (in the same way that airline pilots receive a clear and unambiguous voice alert, e.g., 'terrain – pull up', in the event of needing to take urgent action). The voice messages should be configurable by the operator's maintenance function to allow messages to be bespoke to their operation, and to allow changes to any	4	NC			[CE] For existing alarms and alerts, the good practice guide from RSSB research project S369 applies, which includes guidance on alert individuality. The inclusion of TMS data that corresponds to the alert and voice messages will require a research project to gather industry experience on this, including that of the airline industry, to make sure that the driver is not overwhelmed. Guidance on this cannot be added during this project as it is beyond the project scope, not fully understood by RSSB and difficult to estimate whether this will create a positive or negative outcome if it is applied.

No	Page	Clause	Comment	Suggestion	By	Way forward	Page	Clause	Response
				operational procedures to be implemented as soon as possible. • TMS text messages should follow the ABC of communication, i.e. accurate, brief and clear, stating concisely and unambiguously what is happening. The text should be configurable by the operator's maintenance function to ensure that any instructions to the driver are compliant with the Rule Book, and not just focussed on the necessary engineering information, and can be amended quickly in the event of any changes to operational procedures. To minimise distraction, any alerts that do not need an immediate response from the driver should be suppressed until a suitable point at which the driver can respond to the event without compromising the primary task of driving the train – this could be upon releasing doors at a station stop.					
18	27	G C.1.3	Would recommend adding into the Guidance that the audibility of alarms & alerts is verified during train testing with a practical assessment, particularly for any spoken alerts which may vary in the sound level dependent on the human voice recording level (which can vary compared to an electronically produced tone)		12	DC	28	G C.1.2	[OB] Guidance has been added to highlight the usefulness of verifying the audibility of alarms and alerts with a practical assessment.
19		C.3	The guidance section on in-cab amenities would benefit from an additional clause on litter bins being included in the cab. CC Trains have recently installed litter bins and it has had a positive impact with drivers and reduced instances of spillages from disposable coffee cups.		11	DC	30	G C.3.2	[OB] Guidance has been added for the inclusion of litter bins in cabs.
20	30	G C.5	Glare but no mention of reflections. What about risk of reflections e.g. white shirts on Cambrian? See G.C.7.7		6	DC	30	G C.5	[OB] Guidance has been updated to include reference to reflections as well as glare.

No	Page	Clause	Comment	Suggestion	By	Way forward	Page	Clause	Response
21	30	C7	Would recommend adding into Guidance an assessment of the position of illuminated indicators on the cab back wall and the risk of reflection in the windscreen and desk screens (such as CCTV, ETCS or TMS HMIs), particularly for any indicators that are lit continuously (eg OTDR healthy light) or for a sustained period when driving		12	DC	32	G C.7.8	[OB] Guidance has been added for assessing the impact of continuously illuminated indicator positioning on the cab back wall.
22	31	G C.7.7	Would recommend adding guidance on consideration of guarding/shielding (and the verification of such beyond the initial train testing phase which may not occur during the periods of the year where sunlight intensity and angle can affect this – and which can vary between routes, such as a route with an East/West dominance vs a North/South). This to cover the effect of sunlight "washing out" of the indicator		12	DC	32	G C.7.9	[OB] Guidance has been added added for guarding / shielding around instruments, indicators and screens.
23	31	G C.8.4	Add height for "adjustable DSD pedal height"		5	DC	33	G C.8.4	[ED] 'Height' added to guidance clause.
24	32	G C.8.4	Why is bit about good HF integration hidden in bit on DSD? Should be front and centre of HF section. Make explicit about including HFIP – so that can be audited that done this.		6	DC	8	G 2.1.8	[OB] This clause has been moved to the main body of the standard.
25	31	G C.8.5	Designs that prevent the ingress of small stones from shoes that can jam the pedal should be encouraged.		5	DC	33	G C.8.6	[OB] Guidance has been added on DSD pedal design to reduce the likelihood of ingress of small objects.
26	17	G.5.1.2	Ergonomic assessment would consider the task, the individual and the organisational environment. For example, the demands on the worker, information presented (signs), physical environment (obstacles), training, supervision, communications etc. This should ideally apply to the whole of the cab not just access and egress.		6	NC			[OB] G 5.1.2 identifies additional ergonomic assessment for access and egress which is in addition to the requirements and guidance set out in part 2 for cab layout and appendix C for good human factors practices. This guidance remains valid and directly applicable to access and egress only as it highlights specific observations that should be considered during these assessments.

No	Page	Clause	Comment	Suggestion	By	Way forward	Page	Clause	Response
27	28	G.C.1.5	This point seems to be about control placement rather than cab noise so perhaps needs to be placed in section below (although one of the controls mentioned is to do with noise)!		6	DC	9	G 2.1.15	[OB] Guidance clause G C.1.5 has been deleted as it duplicated G 2.1.15.
28	32	G.C.7.7	White shirt issue mentioned here - BUT there is no specific guidance or requirement to ensure reflections are minimised?		6	NC			[OB] The guidance clause identifies that the use of halo type indicator lights and consideration of reflective garments can reduce the impact of glare. Additionally, two new guidance clauses have been added regarding an assessment of continuously illuminated indicators and shielding / guarding of equipment that is expected to be visible at all times but may be subjects to glare and/or reflections.
29	33	G.C.9.3	As previously mentioned, it does seem odd that back rest with lumbar support is mentioned for the second seat here and not for the driver's seat, but it is understood that the driver's seat is out of scope of this document. This should be made very clear at the start of the document, as stated above.		6	DC	28	G C.2.7	[OB] The start of the document does not specifically exclude drivers' seats as this is not typical practice in a standard. New guidance has been added as G C.2.7 to support the addition of lumbar support in drivers' seats, similar to that given for second persons seats.
30	9	G2.1.7 c	Please can we refer to platform monitors and mirrors here – as a note – it is essential they are considered too to optimise the driver's ability to see them – even though I know they're not in the cab – the task is still in the cab though.		6	DC	30	G 2.1.7 (c)	[OB] Guidance has been updated as suggested.
31	10	G2.1.8, G2.1.9. G.C.2.1	It may be beneficial to mention the use of Computer Aided Design (CAD) modelling as a method to evaluate cab design. Some design packages will have access to anthropometric databases which includes UK data. However, it is worth considering a combination of nationality/gender data sets to establish relevant 5th to 95th percentile data. For example, designing reach for smallest user might be 5th female UK and clearance for 95th percentile US male. Depending on the definition of the user (driver) population in the UK.		6	DC	30	G 2.1.9	[OB] Guidance has been added within G 2.1.9 to promote the use of CAD for modelling cab design.

No	Page	Clause	Comment	Suggestion	By	Way forward	Page	Clause	Response
32	10	G2.1.9	Please can we strengthen this - it's really weak. 'likelihood of achieving suitable design WILL be improved by early engagement... This process SHOULD include		6	DC	30	G 2.1.9	[OB] Guidance clause strengthened as much as possible; however, the use of the word 'should' is not permitted in standards published by RSSB as it implies a requirement.
33	15	G4.2.3	This appears to be referring to the DSD or vigilance device? Now described as the Driver's Activity Control Function - why has this been changed? Is the term well-understood throughout the industry? It sounds more like control of driving activity?		6	NC			[OB] Guidance clause G 4.2.4 identifies that a driver's activity control function device is set out in the LOC&PAS NTSN but can be different from the DSD and driver's vigilance equipment. Historically, a 'hold-over' button has been located adjacent to a cab droplight that can be held whilst the driver is looking out the window. Additionally, DSD does not just relate to the pedal but is the name of the system – certain inputs from cab equipment, such as the movement of the power controller, reset the vigilance timer.
34	17	G5.1.5	*'door / traction interlock can be problematic where the vehicle cannot be moved unless all doors are closed and locked'*. The aim of this para is not clear. Is there a subtle instruction for designers here? If so – please make it a lot less subtle!		6	DC	15	G 5.1.5	[ED] Guidance reworded for clarity.
35	21	G7.2.3	don't understand statement that *glazing should be in line with driver's seat and not obscured* - isn't it the view through the glazing that's meant? Also, *'side glazing that is in line with the driver's seat, and not obscured, supports these tasks along with those for train dispatch'* – side glazing in line with driver's seat does more than support – it's essential!		6	DC	20	G 7.2.3	[ED] Rationale reworded for clarity.
36	22	G7.2.4	Why no mention of 5th percentile female drivers here in particular – need to ensure designers take account of them?		6	NC			[OB] 5th percentile people are referenced in G 7.2.7 with reference to the height of the window. The rationale given in G 7.2.4 is for requirement 7.2.1 which is not related to anthropometric indexes.
37	22	G7.2.5	Uses for side glazing… can aid – surely should be SHOULD aid. Make stronger.		6	NC			[OB] The word 'should' cannot be used in a standard and does not align with the RSSB style guide.
38	22	G7.2.7	Again – believe it should say SHOULD?		6	NC			[OB] The word 'should' cannot be used in a standard and does not align with the RSSB style guide.

No	Page	Clause	Comment	Suggestion	By	Way forward	Page	Clause	Response
39	22	G7.2.9	Isn't seat position ALWAYS critical to the location of the glazing? *'can be useful'* – seems too vague.		6	NC			[OB] The seat reference point is just one way of relating seat position to the side window, but there are others. As this is not a requirement the guidance wording has to permit optional application, and there is no indication that this method has been used historically.
40	24	G8.2.5	Add something on avoiding air flow directly onto driver and noisy fans that could distract		5	DC	25	G 8.2.5	[OB] The guidance already includes driver's being distracted by an air flow. Guidance updated with regards to noise from air conditioning via vents.
41	24	G8.2.5	Should ability for angling vents for air con be a requirement? Seems important if it has the potential to distract drivers and it would not be hard to achieve.		6	DC	25	G 8.2.5	[OB] There is no written evidence of driving cab air conditioning vents causing a distraction, only anecdotal evidence. It is possibility that distraction could be caused by air conditioning vents and therefore the guidance remains but it has been reviewed and strengthened.
42	25	GA.1.1	Whats the logic to this list ? Were these the fleets already in existance when DRA was introduced ? Why not state to fit when an opportunity arises ? Would have thought class 56 would be in this list.		5	NC			[OB] The list given in A.1.1 is a list of locomotives, legacy rolling stock or vehicles that operate on specific infrastructure, such as LUL. They all either predate the requirements for DRA or do not require it due to their mode of operation. Requirements set out in part 3 of the standard are for trains that operate in passenger service and perform station duties only, and therefore the exclusion list is making clear what these trains are. It is beyond the scope of project 20-005 to make amendments to the list.
43	25	GA.2.1	So the parcels 321 will get DRA removed ?	*None*	5	NC			[OB] Based on the information given in the appendix, it is permitted for Class 321 vehicles to have their DRA removed if they are operating only as parcel services and not in passenger service.
44	27	GC.1.2	vent fans can also cause distraction if noisy	*None*	5	DC	25	G 8.2.5	[OB] Guidance has been added with regards to noise from air conditioning via vents.
45	27	GC.1.5	This appears to be a duplicate of G2.1.15	Delete G.C.1.5	3	DC			[OB] Guidance Deleted as suggested.
46	27	GC.2.1	EN16186-1 is now mandatory under the new NTSN. UIC651 is no longer referenced	Update to align with latest NTSN	3	NC			[OB] The LOC&PAS NTSN update has not yet come into force and therefore UIC 651 remains applicable.

No	Page	Clause	Comment	Suggestion	By	Way forward	Page	Clause	Response
47	29	GC.2.2	*good practice for cabs to cater for 5th to 95th percentiles in all dimensions and to consistently use one anthropometric data set from G C.2.1 across all cab design aspects.* Can we make this stronger than good practice? It's essential for the design of a cab that it will meet the needs of the user. Without it we risk future cabs not being designed to accommodate train drivers adequately with the associated risks for both driver health and railway safety.		6	NC			[OB] The project scope does not include setting out requirements for human factors good practice, only guidance, and the guidance given is as strong as possible.
48	27	GC2.2	5th and 95th percentile are no longer used in EN16186	Suggest aligning terminology with EN16186	3	NC			[OB] Although 5th to 95th percentile is not used in BS EN 16186, it is common terminology used by human factors experts and therefore remains applicable where used in guidance.
49	28	GC2.4	1800mm and 1200mm references are in EN16186-4	Correct references	3	DC	29	G C.2.4	[ED] References corrected as suggested.
50	28	GC3.1	Concern that the driver needs to look away from the direction of travel and reach to get their drink and therefore may be subject to other injury	Suggest adding more guidance or reviewing this	3	NC			[OB] If a drinks holder is placed within the line of sight or peripheral vision of a driver, there is a greater likelihood of risk of scalding. The guidance identifies that a cup holder should be within the usual range of motion of the driver and is flexible enough for designers to create their own solutions on where cup holders should be installed.
51	29	GC3.5	Typo cab for can	Correct to can	3	DC	30	G C.3.5	[TY] Typographical error corrected.
52	29	GC4.1	Would be useful to have the title on S329	Add in title	3	NC			[OB] The reference to RSSB research project S329 (2018) is given in accordance with the RSSB writing style guide.

No	Page	Clause	Comment	Suggestion	By	Way forward	Page	Clause	Response
53		General	The standard is silent on security requirements for locks and master keys / main power isolators. On August 10, 2018, a Horizon Air De Havilland Canada Dash 8-400 was stolen from Seattle–Tacoma International Airport (Sea–Tac) in Seattle, Washington. The perpetrator, 29-year-old Richard Russell, was a Horizon Air ground service agent with no piloting experience. It is now possible to acquire the knowledge required to start and move locomotives / rail vehicles from youtube and driver experience courses on preserved railways.	The standard is expanded in scope to include security design requirements for master keys. This could be a simple requirement to withstand operation by hand tools for 10 minutes or a reference to a testing standard eg https://www.thatcham.org/thatcham-security-certifications/	1	DC	15	G 5.1.6	[OB] Guidance added on the importance of cab-to-saloon door locks and keys. Additional updates, such as to recommend a different type of master key, will need to be included in a future revision as the current key arrangement is typical across industry (which is the problem) and will therefore require additional research and acknowledgement by all standards committees.
54		General	Input from the TOCs may be useful to this document, as previously discussed.		6	NC			[OB] Three TOC and an RDG representative were present at the drafting meetings where the new content was developed.

No	Page	Clause	Comment	Suggestion	By	Way forward	Page	Clause	Response
55		General	It would be beneficial to specify that there should be a process defining how human factors will be managed throughout the whole project (i.e., design, development, installation, operating, maintaining (you asked to be reminded about "what about maintenance?"!) and that this process should be detailed in a Human Factors Integration Plan or Project Integration plan. Essentially, a planned, iterative process for considering HF throughout the whole lifecycle of a project with active end user participation throughout. In simple terms, it's about identifying who will use / maintain etc it; The task(s) that they need to do; Consideration of user capabilities and limitations e.g., by application of data; Involving the users from the outset and that it is an iterative process. It's noted that some of these key elements are drawn out in G.2.1.8. There are some Standards that could be noted e.g. BS EN ISO 6385:2004, ISO 9241. Additional information can be found in ORR's ORR HF Integration guide: https://www.orr.gov.uk/media/15720		6	DC	28	G C.2.1	[CE] Guidance has been added on the implementation of a human factors integration plan.
56		General	The driver should have the ability to interact with something out of the side of the train and see out of the front of the train simultaneously and might need additional guidance.		8	DC	22	G 7.3.5 G 7.3.6 G 7.3.7	[CE] Guidance has been to the standard that suggests openable side windows should be installed where train crew operated level crossings are fitted on a line where the vehicle is intended to operate.

No	Page	Clause	Comment	Suggestion	By	Way forward	Page	Clause	Response
57		General	Should there be some guidance for Pictograms? Recognising this may require some research on what's used on new trains in the UK currently, perhaps one for an Issue 3? Would be very helpful for manufacturers and procurers to have a common set of pictograms to refer to	Future Issue 3	12	NC			[OB] The addition of guidance on pictograms is beyond the scope of the project and will be considered in a future revision.
58		General	Should there be some guidance for common phrases/text used in TMS Events & Guidance…eg the term to "Contact Signaller" Have found this beneficial on a range of new trains projects as this activity can otherwise be very time-consuming for manufacturers and clients. Will also bring safety benefit in having a common set of terms used Happy to share the approach used on the Class 810 project which was a carry over of that developed with ASLEF representatives on the IEP project	Future Issue 3	12	NC			[OB] TMS message standardisation is beyond the scope of the project and will be considered in a future revision.
59		General	Wwould recommend future guidance on "Spoken Alerts" where rather than a tone for a major alarm, the alert is a spoken term such as "Stop Immediately" or "Lower Pantograph" (as examples) where the driver needs to take immediate action to maintain the safety of the train Happy to share the approach used on the Class 810 project which was a carry over of that developed with ASLEF representatives on the IEP project	Future Issue 3	12	NC			[OB] A research project to gather rail industry experience on spoken alerts, which includes experience of the airline industry, to make sure that the driver is not overwhelmed needs to be carried out before any guidance can be included in the standard.
60	3	Issue record	Typo of '*appendix*' in Table		6	DC	2	Issue record	[TY] Typographical error corrected.

No	Page	Clause	Comment	Suggestion	By	Way forward	Page	Clause	Response
61	36	References	Remove references to RIS-0797-CCS and RIS-0798-CCS and replace with RIS-0799-CCS	Remove references to RIS-0797-CCS and RIS-0798-CCS and replace with RIS-0799-CCS	2	DC	38	References	[ED] References corrected as suggested.