22-008 Update of GMGN2460 Guidance on Compliance with Noise and Vibration Legislation

Version:	1.04		
Purpose:	Approval to proceed to consultation		
Authors:	Robert Shemilt – former Lead Rolling Stock Systems and Assurance Engineer		
Sponsor:	Tom Lee – Director of Standards		
Lead industry committee:	Rolling Stock Standards Committee (RST SC)	**Date:**	18 January 2024
Supporting industry committee:	Plant Standards Committee (PLT SC)	**Date:**	04 January 2024
Supporting industry committee:	Infrastructure Standards Committee (INS SC)	**Date:**	09 January 2024

Decision

Rolling Stock Standards Committee (RST SC) is asked to:

- **APPROVE** that the proposed withdrawal of GMGN2460 issue one is consulted on.
- **UNDERTAKE** consultation on the withdrawal of GMGN2460 issue one at the meeting.
- **APPROVE** that GMGN2460 issue one is withdrawn.

Plant Standards Committee (PLT SC) and Infrastructure Standards Committee (INS SC) are asked to:

- **SUPPORT** that the proposed withdrawal of GMGN2460 issue one is consulted on.
- **UNDERTAKE** consultation on the withdrawal of GMGN2460 issue one at the meeting.
- **SUPPORT** that GMGN2460 issue one is withdrawn.

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This business case for change has been developed to support standards committees in taking decisions related to changes to standards, it includes an assessment of the predicted impacts arising from the change.

Document for withdrawal

Number	Title	Issue
GMGN2460	Guidance on Compliance with Noise and Vibration Legislation	One

Summary

Background and change

GMGN2460 issue one provides guidance on workplace noise and vibration legislation; a brief outline of its history is provided in Appendix C. The guidance provided overlaps and conflicts with the legal guidance provided on these regulations by the Health and Safety Executive (HSE). Preliminary work has identified that the amount of work required to make the guidance fit for purpose as a Guidance Note is such that the cost would be disproportionate compared to any benefit so obtained. The Guidance Note will instead be withdrawn, with the legislation and (external) guidance that are of relevance to railway organisations being set out in a Technical Note to maintain visibility.

Industry impact due to changes

Impact areas	Scale of impact	Estimated value £ 000's
A. Legal compliance and assurance	Low	Not proportionate to quantify
B. Health, safety and security	Low	Not proportionate to quantify
C. Reliability and operational performance	N/A	
D. Design and maintenance	Neutral	No benefit claimed
E. People, process and systems	Neutral	No benefit claimed
F. Environment and sustainability	N/A	
G. Customer experience and industry reputation	N/A	
Total value of industry opportunity =		**Not proportionate to quantify**

The standards change contribution to the total value of industry opportunity				
☐ None or low	☐ Minor but useful	☐ Moderate	☑ Important / essential	☐ Urgent / critical

Detail

1. What are the objectives associated with this change?

Objective one – Provide clear and unambiguous guidance on noise and vibration legislation

1.1 GMGN2460 overlaps with the Health and Safety Executive's (HSE's) approved codes of practice on the Control of Noise at Work 2005 and Control of Vibration at Work 2005 regulations. GMGN2460 contains clauses that in certain cases duplicate or contradict information within these approved codes of practice on, for example, testing methodologies. Failing to comply with the approved codes of practice may be used in evidence against a railway organisation being prosecuted under the Health and Safety at Work etc. Act 1974.

1.2 The limited additional information GMGN2460 does contain does not significantly assist railway organisations in the discharge of their responsibilities under the Health and Safety at Work etc. Act 1974. This is because it is outdated or already included in other Railway Group Standards.

2. How does the content in the standard need to change to achieve the objective?

Objective one – Provide clear and unambiguous guidance on noise and vibration legislation

2.1 The possibility of a complete overhaul of the Guidance Note has been investigated, employing RSSB research project T315 'EU Physical Agents Directives: vibration and noise consultation response' (2004) combined with new research commissioned to supplement this with more recent data.

2.2 Existing industry guidance approved by the HSE (for example 'The Management of Hand-Arm Vibration in Tunnelling' by the British Tunnelling Society) takes a task targeted approach to providing guidance. On the railways, this would have limited general application - separate guidance would be required for, among other areas:

a) Train operations (predominantly driving)
b) Rolling stock construction
c) Rolling stock maintenance
d) Infrastructure construction
e) Infrastructure maintenance

2.3 Each of these areas encompasses distinct activities with limited overlap in the tasks undertaken that could risk breaching noise and vibration exposure limits, and even within these areas, tasks are likely to differ on a site-by-site basis. Given the amount of work to prepare guidance in each instance for a limited audience, it is judged that the business case for producing targeted guidance at a railway group level would show no benefit compared to assessments being undertaken by railway organisations locally. Generic guidance which could

cover multiple areas would ultimately provide the equivalent of the HSE approved codes of practice.

2.4 GEGN8575, 'Management of Electrical Risk Related to Operational Tasks on Electrified Lines', was published by RSSB in December 2021. This provides guidance on the Electricity at Work Regulations 1989 (as amended) and, as such, it is comparable in intent to GMGN2460. In this case, GEGN8575 addresses clauses in the regulations that are affected by a number of peculiarities of the railway environment, in particular the need for extensive provision of uninsulated conductors which remain live and accessible during normal working. Since this affects a wide range of railway organisations, both operational and maintenance, guidance on a consistent approach is of use. For GMGN2460, the degree of interpretation required by the noise and vibration regulations is, by contrast, strictly limited, and differing interpretations by railway organisations is valid in the context of the variety of tasks undertaken.

2.5 As such, the only practicable way to address the objective is by withdrawal of GMGN2460. Attention will instead be directed toward the following HSE approved codes of practice on the topics:

a) L108, Control of noise at work
b) L140, Hand-arm vibration
c) L141, Whole body vibration

2.6 GMGN2460 has been reviewed and a disposition table prepared as **Error! Reference source not found.** to this business case for change, with justification on a clause-by-clause basis being provided therein. This demonstrates that the content within the Guidance Note is, in general, adequately covered by the HSE approved codes of practice, National Technical Specification Notices (NTSNs), legislation or other existing Rail Industry Standards.

3. How urgently does the change need to happen to achieve the objectives?

3.1 While the document remains live within the standards catalogue, there remains the possibility that the information contained therein which does not align to the HSE approved codes of practice causes confusion. As such, withdrawal should be completed as soon as reasonably practicable. This is currently programmed for the March 2024 standards catalogue update subject to approval/support to withdraw at January 2024 standards committee meetings.

4. What are the positive and negative impacts of implementing the change?

Justification of impact, scale and quantification for the seven impact areas

A. Legal compliance and assurance

4.1 By withdrawing GMGN2460, there will not be the potential for railway organisations to be misled into incomplete discharge of their statutory obligations with respect to noise and vibration in the belief that they are aligning their processes with industry agreed guidance. This has a value in avoiding the need for the Office of Rail and Road (ORR) to exercise

enforcement powers granted under the Health and Safety (Enforcing Authority for Railways and Other Guided Transport Systems) Regulations 2006 (as amended). These range from information and advice of a non-compliance to prosecution of an offending railway organisation. However, it is judged that the benefit is low and therefore it is not considered proportionate to attempt to quantify a cost benefit, because competent persons are likely to have sufficient knowledge to already be referring to the HSE approved codes of practice rather than the Guidance Note where these are in conflict or the latter omits statutory requirements.

B. Health, safety and security

4.2 Noise and vibration can adversely affect colleagues working on the railway; increase of levels above legal limits can lead to injury (for example, vibration white finger) or quality of life impact. The withdrawal of the guidance will remove potential confusion for duty holders. Since the approved codes of practice are more comprehensive, the likelihood of health and safety issues being identified and correctly addressed will be increased. As is the case for legal compliance and assurance (see 4.1), it is not considered proportionate to attempt to define a cost benefit due to the likely low use of the Guidance Note as it currently exists.

C. Reliability and operation performance

4.3 There is no impact from the proposed withdrawal of GMGN2460 on reliability and operation performance.

D. Design and maintenance

4.4 There is no impact from the proposed withdrawal of GMGN2460 on design and maintenance so impact is considered neutral and no benefit is claimed. Where clauses apply to the manufacture of equipment there is already specific guidance in the Plant standards suite and NTSNs (see **Error! Reference source not found.**).

E. People, process and systems

4.5 The withdrawal of the guidance note will not substantially affect people, processes or systems, assuming that applicable legislation is already being complied with therefore no benefit is claimed.

F. Environment and sustainability

4.6 Noise and vibration can adversely affect those living or working in areas neighbouring the railway. However, in general, this is not covered by legislation except in specific cases, for example construction or where the noise is subject to action as a statutory nuisance. As such, it was not generally within the scope of GMGN2460, and thus withdrawal of this Guidance Note has no direct impact.

G. Customer experience and industry reputation

4.7 While onboard rolling stock noise and vibration is a significant factor for customer experience, there is currently no direct legislation applying to it and it thus lies outside the scope of GMGN2460. Levels of noise and vibration that pose a risk to the public are covered by the

Health and Safety at Work etc. Act 1974 3(1), and thus should be considered by the railway organisation in line with the HSE approved codes of practice.

5. What is the contribution of this standards change in realising the value to industry opportunity?

5.1 GMGN2460 currently has the potential to deceive railway organisations about their responsibilities in line with current legislation as described in this business case for change. As such, withdrawal of GMGN2460 is therefore categorised as important in respect of the standards change contribution to the total value of industry opportunity.

6. What is the effort required by RSSB to make the change?

6.1 Withdrawal of GMGN2460 will require a technical specialist supported by a project manager.

6.2 In order to ensure that stakeholders are directed to the relevant Acts of Parliament, statutory instruments and the corresponding HSE approved codes of practice relating to noise and vibration, a Technical Note will be published setting these out. The Technical Note will also reference the research on the topic undertaken by the RSSB, which provided the basis for the legacy guidance provided in GMGN2460.

6.3 The Technical Note will be published at the same time as GMGN2460 is withdrawn, and attention will be drawn to it by reference to it in the briefing material accompanying the withdrawal. As with other Technical Notes, it will be referenced on the standards catalogue pages of relevant standards in perpetuity.

6.4 Incorporation of the information in a Technical Note ensures continued visibility for railway duty holders, despite the content not meeting the threshold for incorporation in a Rail Industry Guidance Note as set out in the Standards Manual. As a Technical Note, update of the content can be made relatively quickly in the event of new legislation or changes to existing references.

7. Can RSSB deliver against industry's expected timescales?

7.1 The project is currently scheduled for completion in line with the programme identified in section 3 which is withdraw GMGN2460 issue one and publish an associated technical note in March 2024, subject to receipt of approval/support to withdraw at January 2024 standards committee meetings.

8. How will the industry implement the change?

8.1 Fundamentally, there is no change that industry needs to undertake following withdrawal of GMGN2460; railway organisations should continue to comply with all applicable health and safety regulations. The only identified consequence is that organisations will need to amend their safety management systems (SMSs) to refer to the HSE approved codes of practice rather than GMGN2460, should reference have been made.

9. How will RSSB assess whether the change is achieving the objectives?

9.1 Hand-Arm Vibration Syndrome (HAVS) is a Recording of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR) reportable occupational disease, and as such the incidence of it across the rail industry can be tracked by the returns provided to the ORR.

9.2 Withdrawal of GMGN2460 should cause no immediate change to levels of HAVS occurring. However, awareness will be increased by the work surrounding the withdrawal of the Guidance Note and consequent review of SMSs and, as such, there may be a short-term increase in the levels reported due to greater health surveillance effectiveness. However, in that case there should, in the long term, be a slight reduction in reported incidents, since the same increase in awareness will prompt railway organisations to review their procedures, addressing the precursor issues at source.

Appendix A Disposition Table

A.1.1 This disposition table covers the individual clauses of the document being withdrawn, describing where the content is otherwise covered. Note that all clauses are being withdrawn and that they all relate to objective one above of this Business Case for Change above.

A.1.2 Description of text used in the 'Alternative sources' column of the table:

- Legislation – Current statutory instruments in UK law
- NTSN – The National Technical Specification Notices; in this case for that for Noise (NOI NTSN)
- Approved code of practice – The legal guidance documents issued by the HSE (L108: Controlling Noise at Work; L140: Hand-Arm Vibration; L141: Whole Body Vibration)
- RIS – A current document within the suite of Rail Industry Standards
- NA – A clause for which there is no requirement to identify an alternative source, due to it being redundant.

A.1.3 Standard front- and rear-matter is dealt with as a whole for the respective parts, rather than on a per-clause basis.

Table A1: GMGN2460 issue one clause by clause withdrawal

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
Part 1	**Introduction**	NA	NA	[This part is entirely standard front matter or a summary of the document scope which does not need to have an identified alternative source in order to withdraw]
Part 2	**Guidance on Noise**			
2.1	**Scope**			
2.1.1	Part 2 applies to all railway vehicles (locomotives, coaches, wagons, multiple units, on-track machines (OTMs) and possession-only rail vehicles) and portable and transportable plant.	NA	NA	[Statement of applicability of part so the content is not required if the document as a whole is withdrawn]
2.1.2	This guidance is for individual items and does not cover the noise mapping of the railway environment.	NA	NA	[Statement of intent of standard so the content is not required if the document as a whole is withdrawn]
2.2	**Legislative and other controls**			

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
2.2.1	**Noise TSI (2006/66/EC)**			
2.2.1.1	All new railway vehicles are required to meet the Noise TSI (2006/66/EC). New vehicles in this context means vehicles subject to acceptance under the Interoperability of the Conventional Rail System Directive (2001/16/EC). In Britain this is enacted by the Railways (Interoperability) Regulations (SI 2006 No. 397). There is also a requirement to comply with the TSI, as far as reasonably practicable, when modifying or upgrading an existing vehicle. The TSI requires measurement of start-up noise, stationary noise, interior cab noise and pass-by noise sound pressure levels. The TSI sets out the testing requirements and measurement methods, verification of which is required to be made by a notified body.	Legislation	Railway (Interoperability) Regulations (RIR)	[The more recent version of the TSI requires the retrofitment of composite brake blocks to wagons operated on quiet routes, and thus the summary provided is now incorrect]
2.2.1.2	The Noise TSI (2006/66/EC) applies to OTMs when they are in travelling configuration. There are currently no mandatory requirements in the Noise TSI for possession-only rail vehicles and OTMs when in working mode.	NTSN	NOI NTSN Chapter 2, Definition of the subsystem	The requirements of this NTSN apply to the following categories of rolling stock: (a) Locomotives and passenger rolling stock including thermal or electric traction units, self-propelling thermal or electric passenger trains, and passenger coaches. This category is further defined in chapter 2 in the annex to the LOC&PAS NTSN and shall be referred to in this NTSN as locomotives, electric multiple units (EMU), diesel multiple units (DMU) and coaches; (b) Freight wagons, including low-deck vehicles designed for the entire network and vehicles designed to carry lorries. This category is further defined in chapter 2 in the annex to the WAG NTSN and shall be referred to in this NTSN as wagons; (c) Special vehicles, such as on-track machines. This category is further defined in chapter 2 in the annex to the LOC&PAS NTSN and consists of on-track machines (referred to in this NTSN as OTMs) and infrastructure inspection vehicles, which belong to the categories in points (a) or (b) depending on their design.

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
2.2.2	**The Machinery Directives (98/37/EC and 2006/42/EC)**			
2.2.2.1	The Machinery Directives apply to OTMs only in working mode, possession-only rail vehicles and portable and transportable plant. 98/37/EC is currently enacted in Great Britain by The Supply of Machinery (Safety) Regulations 1992 (SI 1992 No. 3073) (as amended). The regulations state that the manufacturer of the equipment is required to reduce the noise level to as low as technically possible, and to publish the actual values where these exceed a sound pressure level of 70 dB (A) Leq and sound power level of 85 dB (A).	Legislation	The Supply of Machinery (Safety) Regulations 2008, Schedule 2 1.5.8	Machinery must be designed and constructed in such a way that risks resulting from the emission of airborne noise are reduced to the lowest level, taking account of technical progress and the availability of means of reducing noise, in particular at source.
2.2.2.2	Machinery Directive 2006/42/EC was published in June 2006 and Machinery Directive 98/37/EC will be withdrawn on 29 December 2009. Directive 2006/42/EC requires the supplier to provide the following information on airborne noise emissions: a) The A-weighted emission sound pressure level at workstations, where this exceeds 70 dB (A). Where this level does not exceed 70 dB (A), this fact must be indicated. b) The peak C-weighted instantaneous sound pressure value at workstations, where this exceeds 63 Pa (equivalent to 130 dB in relation to 20 µPa). c) The A-weighted sound power level emitted by the machinery, where the A-weighted emission sound pressure level at workstations exceeds 80 dB (A).	Legislation	The Supply of Machinery (Safety) Regulations 2008 (as amended), Schedule 2 1.7.4.2	[...]the following information on airborne noise emissions: - the A-weighted emission sound pressure level at workstations, where this exceeds 70 dB(A); where this level does not exceed 70 dB(A), this fact must be indicated, - the peak C-weighted instantaneous sound pressure value at workstations, where this exceeds 63 Pa 130 dB in relation to 20 µPa), - the A-weighted sound power level emitted by the machinery, where the A-weighted emission sound pressure level at workstations exceeds 80 dB(A).
2.2.2.3	In the case of very large machinery, instead of the A-weighted sound power level, the A-weighted sound pressure levels at specified positions around the machinery may be indicated.	Legislation	The Supply of Machinery (Safety) Regulations 2008 (as amended), Schedule 2 1.7.4.2	In the case of very large machinery, instead of the A-weighted sound power level, the A-weighted emission sound pressure levels at specified positions around the machinery may be indicated.

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
2.2.2.4	Where workstations are undefined or cannot be defined, A-weighted sound pressure levels must be measured at a distance of 1 m from the surface of the machinery and at a height of 1.6 m from the floor or access platform. The position and value of the maximum sound pressure level must be indicated.	Legislation	The Supply of Machinery (Safety) Regulations 2008 (as amended), Schedule 2 1.7.4.2	Where the workstation(s) are undefined or cannot be defined, A-weighted sound pressure levels must be measured at a distance of 1 metre from the surface of the machinery and at a height of 1.6 metres from the floor or access platform. The position and value of the maximum sound pressure must be indicated.
2.2.3	**The Control of Noise at Work Regulations 2005 (SI 2005 No. 1643)**			
2.2.3.1	These regulations define levels of noise exposure for employees which must not be exceeded. These are called exposure limit values. These values are taken with the hearing protection provided taken into consideration. The values are as follows: a) Daily or weekly exposure of 87 dB $L_{EP,d}$ or $L_{EP,w}$ b) Peak sound pressure of 140 dB (C).	Legislation	The Control of Noise at Work Regulations 2005 regulation 4	(3) The exposure limit values are – (a) a daily or weekly personal noise exposure of 87 dB (A-weighted); and (b) a peak sound pressure of 140 dB (C-weighted).
2.2.3.2	These regulations require specific action at specific action values. These specific action values relate to: a) The levels of exposure to noise for employees averaged over a working day or week and b) The maximum noise (peak sound pressure value) to which employees are exposed in a working day.	Approved code of practice	L108 Part 1, 'Shall assess the levels of noise'	Your risk assessment must contain an assessment of the noise levels to which your employees are exposed. The noise level will be combined with the duration to give an exposure suitable for comparison with the [Exposure Action Values] EAVs. Where exposure varies from day to day you will need to assess the various daily exposures, taking into account both a typical day and a worst-case day. If variations are marked, you can use weekly averaging of the exposures.
2.2.3.3	The values of the specific action level measurements are: a) Lower exposure action values: i) Daily or weekly exposure of 80 dB (A) ii) Peak sound pressure of 135 dB (C) b) Upper exposure action values: i) Daily or weekly exposure of 85 dB (A) ii) Peak sound pressure of 137 dB (C).	Legislation	The Control of Noise at Work Regulations 2005 regulation 4	1) The lower exposure action values are – (a) a daily or weekly personal noise exposure of 80 dB (A-weighted); and (b) a peak sound pressure of 135 dB (C-weighted). 2) The upper exposure action values are – (a) a daily or weekly personal noise exposure of 85 dB (A-weighted); and (b) a peak sound pressure of 137 dB (C-weighted).

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
2.2.3.4	The weekly average noise exposure level can be used where the daily average varies greatly.	Approved code of practice	L108 Part 1, Daily and weekly exposure	Regulation 4(4) allows you to calculate exposures on a daily or weekly basis. Use of daily exposure is appropriate where noise exposure is similar from day to day. Weekly exposure (also known as weekly averaging) can be appropriate where noise exposure varies markedly from day to day, eg where people use noisy machinery on one day in the week but not on others. Weekly averaging is only likely to be appropriate where daily noise exposure on one or two working days in a week is at least 5 dB higher than the other days, or the working week comprises three or fewer days of exposure.
2.2.3.5	Guidance on compliance with the Noise at Work Regulations is given in Noise at Work Guidance for Employers on The Control of Noise at Work Regulations 2005 (INDG362(rev1)).	Approved code of practice	(L108 is more exhaustive than the document cited)	
2.2.4	**The Noise Emission in the Environment by Equipment for use Outdoors Regulations 2001 (SI 2001 No. 1701)**			
2.2.4.1	These regulations do not apply to railway trains for carriage of passengers or goods but do apply to machines used for maintenance of the infrastructure. These regulations require the manufacturer of such machines to measure the noise emission levels and publish the data on a plate mounted on the machine. Additionally, some machines are limited to the amount of noise they emit, that is some new machines will have an upper noise emission limit. The list of applicable machines is contained in an amendment order to these regulations (SI 2005 No. 3525).	Legislation	The Noise Emission in the Environment by Equipment for use Outdoors Regulations 2001 regulation 4, 8	These Regulations shall not apply to— [...] (b)all equipment primarily intended for the transport of goods or persons by road or rail or by air or on waterways; or […] The requirements concerning noise emission in the environment in the case of equipment listed in Schedule 2 and defined in Schedule 4 are that the guaranteed sound power level shall be marked on the equipment.

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
2.2.4.2	Specific details for OTMs are not included in these regulations but a test code for measurement of noise by the manufacturer is given in EN 14033-3 Annex C (which is currently available as a draft Euronorm prEN 14033-3:2006).	RIS, Legislation	RIS-1710-PLT, G2.2.1 The Supply of Machinery (Safety) Regulations 2008 (as amended)	The principal statutory requirement is for railborne plant to be declared compliant with the Machinery Directive (as set out in 1.3) and this is the responsibility of the supplier / manufacturer. To claim presumption of conformity to the machinery directive, the following European Standards are used: a) On-track Machine – BS EN 14033-3:2017. b) Road-rail vehicle – BS EN 15746-2:2010+A1:2011. c) Demountable Machine – BS EN 15955-2:2013. d) Trailers – BS EN 15954-2:2013. e) Trolleys – BS EN 13977:2011.
2.2.4.3	A test code for measurement of noise by manufacturers of portable and transportable plant is given in BS EN 13977:2005 Annex J, which is currently available as a draft amendment prA1 to BS EN 13977.	Legislation	The Supply of Machinery (Safety) Regulations 2008 (as amended)	[The current issue of RIS-1710-PLT only explicitly references BS EN 13977 as guidance for railborne plant (track trolleys). There is no corresponding clause for non-railborne portable machines – this should be assessed for incorporation in the RIS for the sake of completeness. This will be included in the corporate memory of the RSSB Requirements Management DataBase (RMDB) for consideration at the next update of the standard]
2.3	**Methods of measurement - general**			
2.3.1	The measurement of noise should be carried out by competent personnel.	Approved code of practice	L108 Part 1, Measurement of the level of noise	The Noise Regulations require you to make measurements of noise 'if necessary'. Measurements will be necessary if you cannot find reliable noise information from other sources. You should ensure that any measurements are carried out by someone who is competent (see regulation 10(4)).
2.3.2	The Noise TSI prescribes the methods of measurement.	NA	NA	[Statement of fact]

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
2.3.3	Methods of measurement to assess noise exposure levels of employees under The Control of Noise at Work Regulations are not specified. For application in the rail industry the methods shown in 2.4 are recommended.	Approved code of practice	L108 Appendix 2, Measuring Noise in the Workplace	[This section provides a recommended method of measuring; in general it aligns with the existing guidance in section 2.4, and where at variance previous consultation comments (see below against specific clauses) suggest it is the more desirable option]
2.4	**Methods of measurement for The Control of Noise at Work Regulations**			
2.4.1	**Calibration**			
2.4.1.1	Measurements of noise exposure levels should be taken with a meter complying with the requirements of Class 1 of BS EN 61672-1:2003. All measurement equipment should be reference calibrated every 2 years to a recognised United Kingdom Accreditation Service (UKAS) certified reference source, and should be field calibrated before and after each measurement exercise using an acoustic calibrator complying with the requirements of Class 1 of BS EN 60942:2003.	Approved code of practice	L108 Appendix 2, Measuring noise in the workplace, What instruments should I use?	Instruments used should conform to specification standards as given in Table 9. You should find the standard number and class or type marked on the instrument by the manufacturer. [L108 Appendix 2 table 9 stipulates the standards measurement and calibration equipment should comply with]
2.4.1.2	Any drift between the before and after measurement calibrations should be noted and recorded to certify the accuracy of the measurements. A maximum drift during each measurement exercise should be no more than ± 0.5 dB.	Approved code of practice	L108 Appendix 2, Measuring noise in the workplace, Making measurements	Field calibration check Calibrate the meter using its sound calibrator before you start the measurements, following the manufacturer's instructions. At the end of the measurement period apply the calibration tone again. Note and check the reading is still within 1 dB of its pre-measurement value.
2.4.1.3	Noise measurement meters should be fitted with a microphone wind shield in order to protect the microphone from the effects of any breeze or wind during the measurement exercise.	Approved code of practice	L108 Appendix 2, Measuring noise in the workplace, What instruments should I use?	Whether you use a sound level meter or a dosemeter you will need the correct sound calibrator for your meter or dosemeter and a windshield to protect the microphone against air movement and dirt.

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
2.4.1.4	No noise measurements should be undertaken in wind speeds in excess of 5 m/s. Note that where the wind speed is in excess of 3 m/s there is the potential for gusts above 5 m/s.	NTSN	BS EN ISO 3095 (cited in NOI NTSN)	Heavy rain or wind speed higher than 5 m/s can affect the background noise, see 5.2.3. [There is no particular guidance on this in the approved code of practice. However, this is arguably of more relevance to environmental noise, where the noise source is likely to be some distance away from the point of recording. Ultimately, it is up to the competent person undertaking the work to determine what are acceptable conditions.]
2.4.1.5	No noise measurements should be undertaken during periods of mist, fog, snow or rain as these have a detrimental effect upon the measurement equipment and the measured results.	NTSN	BS EN ISO 3095 (cited in NOI NTSN)	The following weather parameters shall be recorded at representative times during the noise measurement exercise: wind speed and direction at the level of the highest microphone, temperature, humidity, barometric pressure. Any observed precipitation shall be noted. [As noted above, this is predominantly related to environmental noise, and the competent person should determine if the conditions prevailing are acceptable for testing]
2.4.2	**Driving, operating and maintenance positions**			
2.4.2.1	In order to assess the impact of the operation of a railway vehicle upon the staff driving, operating or maintaining the vehicle, it is necessary to assess all the likely employee positions in all applicable modes of operation. The applicable modes of operation are: a) Vehicle stationary with engine idling b) Moving along the track c) Working modes for OTMs, possession-only rail vehicles and portable and transportable plant.	RIS NTSN	RIS-1530-PLT issue seven, Appendix L Noise Measurement Test Code, Table 15 NOI NTSN 4.2.4 Limits for Driver's Cab Interior Noise, Table 5	[The sections cited are more comprehensive than the GMGN2460 clause]

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
2.4.2.2	Noise measurements should be taken within 0.3 m of the driver or operator position in the approximate location of the driver's or operator's ear. Measurements should be taken during the applicable modes of operation and records kept in order that specific calculations required by The Control of Noise at Work Regulations, for differing operational situations, can be made to assess hearing damage risk.	Approved code of practice RIS	L108 Appendix 2, Measuring noise in the workplace RIS-1530-PLT issue seven, Appendix L Noise Measurement Test Code	You should measure where the person's head would normally be. Ideally, do this without the person present, but if they are needed to control the machine or process, measure with the microphone close enough to their ear to obtain a reliable measure of the sound they are exposed to but no closer than 15 cm from their head (see Figure 23). You should make measurements at the side of the head where the noise level is highest. In certain circumstances you may need to take into account noise exposure from sounds that only occur close to or in the ear. This might be the sound under a motorcycle helmet while riding, or the sound from a communication headset. There are two techniques for measurements at the ear: a microphone in real ear technique (MIRE) and a manikin technique. Specialist equipment and expertise is required. Reference should be made to BS EN ISO 11904-129 or BS EN ISO 11904-230. L.7 Information to be recorded L.7.1 The information to be recorded shall cover all of the technical requirements of this noise test code. L.7.2 Any deviations from the noise test code or from the basic standards upon which it is based shall be recorded together with the technical justification for such deviations.

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
2.4.2.3	All noise measurements should be taken with windows closed and with windows open if the latter forms part of normal operating procedures.	Approved code of practice	L108 Appendix 2, Measuring noise in the workplace (Note: this does not state the existing text explicitly, but it is implicit that normal operating modes should be applied when measuring; text given is an example of how the approved code of practice goes further)	Where should I measure with a sound level meter? To estimate a person's noise exposure, you should make measurements during each noisy task and at every location they work in or pass through. You should also note the time spent on each task and at each location. Include all sound present in your measurements, including radios and other people's speech. Also, make sure you take account of noisy work that may not be in the work schedule on the day(s) of your measurements. It is generally not necessary to record exposures to sound pressure levels below 75 dB(A) because they usually make an insignificant contribution to noise exposures above the EAVs.
2.4.2.4	Noise measurements should be undertaken over 1 minute of stable operation for each applicable mode of operation and each driver or operator and maintainer position. In the particular case of tamping machines the measurement should be undertaken over the tamping of 10 beds if this is greater than one minute.	Approved code of practice	L108 Appendix 2, Measuring noise in the workplace	How long should I measure for? There is no fixed time for a measurement. You should measure for long enough to obtain a representative measurement of the [Equivalent Noise Level] LAeq or noise dose the person is exposed to. In general, the steadier the noise, the shorter the measurement can be (Figure 25): (a) if the noise is steady and the person stationary, a short duration measurement may be enough; (b) if the noise is from a cyclic operation, measure the LAeq over a whole number of cycles (preferably three or more); (c) if the noise is changing, wait for the LAeq reading to settle to within 1 dB or measure for the whole exposure period.
2.4.3	**Hearing Protection Zones**			

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
2.4.3.1	In order to protect staff around the vicinity of OTMs, possession-only rail vehicles and portable and transportable plant, it is necessary to establish the acoustic envelope. This should be undertaken around the machine at both tick-over and in full working mode. Noise measurements are to be taken along the two sides of the machine at 1 m from the side and at a height of 1.6 m above rail level to establish an envelope.	RIS	RIS-1530-PLT issue seven, Appendix L Noise Measurement Test Code	L.2 Determination of the sound pressure level L.2.1 The A-weighted emission sound pressure level at the personnel positions shall be determined by measurements as set out in Table 15. L.2.2 Further specified positions for the determination of the emission sound pressure level are described by the position of axis A in Table 16. L.2.3 The definition of the reference box components of the machine, which can swing out, is not to be taken into consideration. L.2.4 If required, the C-weighted peak sound pressure level shall be determined at the personnel positions or specified positions.

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
2.4.3.2	The locations chosen for noise measurement along the sides of the machine should correspond to the principal noise sources along the sides. These measurements should be repeated to establish the distances at which sound pressure levels of 85 dB (A) and 80 dB (A) are met. The maximum distance at which the sound pressure level of 85 dB (A) is exceeded should be recorded on the side of the machine as the hearing protection zone required around that vehicle using standard Health and Safety signage, as set out in BS ISO 7000:2004.	Approved code of practice	L108 Part 1, Hearing protective zones (The BS ISO 7000:2004 signage is included as figures)	You must mark hearing protection zones with signs showing that they are areas where hearing protection must be worn. You should locate these signs at all entrances to the zones and at appropriate places within the zones. The sign need not include any words, but where wording is included it should convey the same meaning as the sign (see Figure 1). In situations where the boundaries of the zone cannot be marked, eg where the work requires people to move the noise sources about a great deal, you should make adequate alternative arrangements to help make sure that people know where or when protectors should be worn. These could include: (a) attaching signs to machines warning that people who are using them (and others receiving a high noise exposure from the machine) must wear hearing protectors; (b) written and verbal instructions on how to recognise where and when protectors should be worn, eg by designating particular tasks or operations as ones where protectors must be used.
2.5	**Recommendations for manufacturers**			
2.5.1	The Noise TSI gives limit values for driving cabs. It is recommended that these values should also be used for all crew areas of locomotives and OTMs in travelling configuration that could be populated whilst the vehicle is travelling (for which no such limit values are published).	NTSN	NOI NTSN	[Application to crew areas not currently covered. Suggest if this is really a requirement it is added to RIS-1530-PLT issue seven. However, arguably, Control of Noise at Work Regulations 2005 already covers this; the difficulty with applying the NOI NTSN driving cab level to crew areas is that the exposure times / nature will be different.]

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
2.5.2	The production of the Euronorm for OTMs referred to in 2.2.4.2 is at an advanced stage. There are currently similar Euronorms in production for road-rail vehicles (RRVs) and rail mounted maintenance machines (RMMMs), however these two documents are at an early stage of production. Therefore currently manufacturers of RRVs and RMMMs are recommended to use the test code set out in prEN 14033-3:2006 Annex C.	RIS	RIS-1710-PLT, G2.2.1	The principal statutory requirement is for railborne plant to be declared compliant with the Machinery Directive (as set out in 1.3) and this is the responsibility of the supplier / manufacturer. To claim presumption of conformity to the machinery directive, the following European Standards are used: a) On-track Machine – BS EN 14033-3:2017. b) Road-rail vehicle – BS EN 15746-2:2010+A1:2011. c) Demountable Machine – BS EN 15955-2:2013. d) Trailers – BS EN 15954-2:2013. e) Trolleys – BS EN 13977:2011.
2.6	**Recommendations for employers and owners**			
2.6.1	Where, after measurements of noise are taken, it is found that an exposure action value has been exceeded, action should to be taken to bring the noise level down, limit the employee's exposure, or provide hearing protection. These three actions are written in descending order of preference.	Legislation, Approved code of practice	Control of Noise at Work Regulations 2005 Regulations 6 and 7 L108 Part 2, Control of noise exposure and risk	You should consider the methods of controlling noise in the following order: (a) Eliminate or minimise risks from exposure to noise by doing the work in a different way. (b) Modify the work, process or machine to reduce noise emissions. (c) Replace the machinery and equipment used with lower noise alternatives. (d) Arrange the workplace and workflow to separate people from the noise. (e) Control noise on its path from the source to reduce the noise reaching people.

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
2.6.2	Employers / owners have a responsibility to monitor the noise levels throughout the life of the vehicle or machine. The manufacturer should have supplied noise emission data with a new vehicle or machine. Depending on the type of vehicle or machine, some will have the data given in publicity information, others will have the information plated on the side of the machine; however all vehicles and machines should have the information provided in the technical documentation.	Approved code of practice	L108 Part 6, Selecting quieter tools and machinery	Noise data supplied by manufacturers of tools and machines should: (a) help you to compare the noise of similar machines; (b) be useful for assessing workplace risk due to noise from the machine. Manufacturers must report in the instructions and in sales literature characterising the performance: (a) the emission sound pressure level and associated uncertainty at workstations if it is above 70 dB(A); (b) the peak noise at workstations if it exceeds 130 dB(C); (c) the sound power level and associated uncertainty if the emission sound pressure level at workstations exceeds 80 dB(A) (see note). Note: For machinery designated as outdoor by the Noise Emission in the Environment by Equipment for Use Outdoors Regulations (as amended),15 the reported sound power level should be the guaranteed A-weighted sound power level (a value that should not be exceeded when the test is reproduced), determined according to the methods specified in those Regulations.

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
2.6.3	Assistance in the assessment of exposure can be found on the HSE website. This website includes a dose calculation sheet. See: http://www.hse.gov.uk/noise/calculator.htm	Approved code of practice	L108 Appendix 3, Practical estimation of personal noise exposure	The equations given in Schedule 1 to the Noise Regulations and in the noise exposure points system have been used in a spreadsheet available from the HSE website (www.hse.gov.uk/noise) to help you make calculations of daily and weekly personal noise exposure. The spreadsheet may be downloaded and saved on your computer as a Microsoft Excel (macro-enabled workbook) file. You should read the Instructions contained in the spreadsheet when using the calculators. Throughout the spreadsheet, you enter data in the white cells and the calculator displays results in the yellow cells. Information and warnings may appear, highlighted in coloured boxes, according to values entered.

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
2.6.4	Employers / owners should assess whether the monitoring shows any changes to the noise levels (as a result of wear or the vehicle undergoing engineering change) to see if amendments need to be made to working practices to keep exposure values of each employee within the specified limit.	Approved code of practice	L108 Part 2, clauses 168-171 Figure 2, Managing Noise Risks - Review	Maintain machinery and noise-control equipment 168 Machine maintenance can be critical in sustaining control of noise. Machines deteriorate with age and use, and if not maintained are likely to produce more noise due to factors such as worn parts, poor lubrication and loose panels vibrating. Maintenance can, if carried out periodically, minimise increases in noise emission. 169 Encourage operators to report machines that have become noisier as this is an indication that the machine requires attention. Training operators to recognise when machines are not running correctly will help you to rectify defects early, keeping noise levels under control and preventing more significant faults developing. 170 Ensure that routine maintenance of machines includes checks of the noise-control features to make sure that they have not deteriorated, broken or been removed. 171 You have a duty to maintain anything you provide that is intended to control noise. You should put in place a system to ensure that noise-control equipment is maintained so that it continues to be effective. This can be incorporated into your systems for routine and reactive maintenance. The effectiveness of many noise-control measures can be significantly reduced by what may appear to be minor damage or wear.
Part 3	**Guidance on Whole Body Vibration**			
3.1	**Scope**			
3.1.1	Part 3 applies to all railway vehicles (locomotives, coaches, multiple units, wagons, OTMs, possession-only rail vehicles) and portable and transportable plant.	NA	NA	[Statement of applicability of part so content is not required if the document as a whole is withdrawn]
3.2	**Legislative and other controls**			

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
3.2.1	**The Control of Vibration at Work Regulations 2005 (SI 2005 No. 1093)**			
3.2.1.1	Employers are required under The Control of Vibration at Work Regulations (CoVAWR) to understand the whole body vibration (often referred to as WBV) levels to which they are exposing their employees. These regulations provide a daily exposure action value at which employers are required to make arrangements to reduce the daily exposure to below the action value or as close as reasonably practicable. These regulations also provide a daily exposure limit value which must not be exceeded. These values are shown in Table 1.	Approved code of practice	L141, Part 1, Legal duties of employers to control the risks to Health and Safety from Whole-Body Vibration	The Vibration Regulations are designed to protect against risks to both health and safety from whole-body vibration, ie the risk of back pain in those exposed and situations where vibration may affect ability to handle controls or read indicators. […] The daily exposure limit value is the maximum amount of vibration an employee may be exposed to on any single day (see regulation 6(4)). The daily exposure action value is the level of daily exposure to vibration above which you are required to take actions to reduce exposure (see regulations 62), 71)(b) and 81)(b)).

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
3.2.1.2	When vibration measurements are taken under these regulations it is important to note that all measurements for whole body vibration have a reference time period in relation to personal exposure - this is the A(8) value and shows that all measurements have to be referenced against a standard 8 hour working day. These regulations allow the use of equipment that produces high levels of vibration for short periods of time, allowing employers to manage the way in which staff are exposed.	Approved code of practice	L141 Part 3, Risk assessment and control	You should estimate how long employees spend operating/driving the machines, excluding breaks, pauses and switching to other tasks. These details can be obtained by observing the employee. The person need not be observed for a complete day, but for a period or periods sufficient to provide a representative sample of typical machine use. Many sources of shocks and jolts can be identified by observation. If observation is not practicable, you may need to ask the employee to note these details and let you have them. Work patterns need careful consideration. For example some workers may only use vehicles for specific periods in a day or week. Typical usage patterns should be established as these will be an important factor in estimating a person's vibration exposure. If daily durations of exposure are variable, use the longest estimated daily duration of exposure as a basis for your vibration assessment. This will help you identify likely maximum levels of exposure.
3.2.2	**Superseded requirements from GM/RT2160 issue 2**			
3.2.2.1	The levels previously required by GM/RT2160 are different from those set out in the Control of Vibration at Work Regulations (CoVAWR). Table 1 shows the differences in values.	NA	NA	[Statement of fact so Content is not required if the document as a whole is withdrawn]
3.2.2.2	These regulations now require that for any vibration daily exposure value above 0.5 m/s^2 every reasonably practicable effort is to be made to reduce it to below 0.5 m/s^2. Because the railway has achieved the values shown in Appendix A, A.2 a) to d), the implication is that these values should be seen as reasonably practical limits. It should be noted that the values given in A.2 a) to d) are actual historical data and have not had the 'degree of uncertainty' applied (see 3.3.5 for an explanation of 'degree of uncertainty').	NA	NA	[This clause does not necessarily follow. What is reasonably practical to achieve in a legacy design of vehicle (on legacy track) does not align to what is now reasonably practicable to achieve with modern designs. Conversely, it may be impractical to achieve certain of the legacy values, depending on the context.]

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
3.2.3	**The Machinery Directives (98/37/EC and 2006/42/EC)**			
3.2.3.1	The Machinery Directives apply to OTMs only in working mode, possession-only rail vehicles and portable and transportable plant. The Machinery Directive 98/37/EC is enacted in Great Britain by The Supply of Machinery (Safety) Regulations 1992 (SI 1992 No. 3073) (as amended). The regulations state that the manufacturer of the equipment is required to either state the root mean square (rms) acceleration value to which the body (posterior or feet) is subjected by their vehicle or machine if it exceeds 0.5 m/s^2, or otherwise state that it is less than 0.5 m/s^2.	Legislation, RIS	The Supply of Machinery (Safety) Regulations 2008 (as amended), Schedule 2 3.6.3.1, Schedule 3 RIS-1530-PLT issue seven, 5.28.2	The instructions must give the following information concerning vibrations transmitted by the machinery to the hand-arm system or to the whole body: [...] the highest root mean square value of weighted acceleration to which the whole body is subjected, if it exceeds 0.5 m/s^2. Where this value does not exceed 0.5 m/s^2, this must be mentioned, These regulations do not apply to [...] means of transport on rail networks [excepting] machinery mounted on the means of transport. 5.28.1 Positions intended for personnel to be present shall be designed so that the vibration level is as low as possible. 5.28.2 The manufacturer's declaration of the values for vibration at the working positions shall be included in the instruction handbook. 5.28.3 For machines first certificated after 5 December 2009, the measurements shall be made, or verified, in accordance with Appendix M.
3.2.3.2	Manufacturers are required to give information regarding the testing method, actual test results and 'degree of uncertainty' of those results (see 3.3.5).	Legislation	The Supply of Machinery (Safety) Regulations 2008 (as amended), Schedule 2 3.6.3.1	The instructions must give the following information concerning vibrations transmitted by the machinery to the hand-arm system or to the whole body: [...] the uncertainty of measurement. Where harmonised standards are not applied, the vibration must be measured using the most appropriate measurement code for the machinery concerned. The operating conditions during measurement and the measurement codes used must be described.

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
3.2.3.3	Guidance for manufacturers for the design to reduce whole body vibration is given in PD CEN/TR 15172-1:2005.	RIS	RIS-1530-PLT issue seven, G 5.28.5	It is good practice to design the machine to reduce whole body vibration levels, in areas that could have persons present. Guidance for manufacturers on design to reduce whole body vibration is given in PD CEN/TR 15172-1:2005.
3.3	**Methods of measurement**			
3.3.1	The measurement of vibration should be carried out by competent personnel.	Approved code of practice	L141, Appendix 1	Regulation 5 of the Vibration Regulations requires you to make a suitable and sufficient assessment of the risk. You will need to ensure that a competent person is appointed to do this. This Appendix gives advice on what you should be looking for in a competent person and what training they should receive.
3.3.2	Measurements should be made in accordance with the requirements of BS EN 1032:2003. Only the largest of the three readings required by the BS need be used in the assessment process.	Approved code of practice	L141, Part 4, Machinery manufacturers' duties on Whole-Body Vibration	Where no test code exists for a specific type of machine, a general standard method (BS EN 1032) is available to manufacturers to determine vibration emission. They should select operating conditions for vibration tests with care, and should report the test procedures they have adopted, including: - machine configuration, operating and loading conditions during the test; and - the positions and directions in which the vibration was measured.

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
3.3.3	Measurements should be taken under the following conditions, where these conditions are applicable for the intended use of the vehicle: a) Vehicle stationary with the engine idling b) Vehicle at its maximum permitted travelling speed on continuous welded rail for a statistically significant length of time as determined by the technically competent person c) Vehicle at its maximum permitted travelling speed on jointed track for a statistically significant length of time as determined by the technically competent person d) In working mode (for OTMs and possession-only rail vehicles) for each of the working functions for a statistically significant length of time as determined by the technically competent person.	RIS	RIS-1530-PLT issue seven, M.2.4	Measurements shall be taken under all of the following conditions, as appropriate for the intended use of the machine: a) Machine stationary with the engine running; b) Machine at maximum permitted running speed on continuous welded rail for a period of a statistically significant length of time, as determined by the technically competent person; c) Machine at maximum permitted running speed on jointed track for a statistically significant length of time, as determined by a technically competent person; d) In working mode for each of the working functions for a statistically significant length of time, as determined by a technically competent person; and including at least one set of switch and crossing (S&C), as applicable. [Note: there is no equivalent form of words for non-plant. However, this is merely listing the operating conditions which any sufficiently competent person would select for assessment under The Control of Vibration at Work regulations, and doesn't cover (for example) electric vehicles where a reciprocating compressor may be the primary source of vibration when stationary.]
3.3.4	The Machinery Directive 2006/42/EC) specifically requires the values to be measured. Therefore the manufacturer is not permitted to derive the level of vibration using simulation techniques.	Legislation	The Supply of Machinery (Safety) Regulations 2008 (as amended), Schedule 2 3.6.3.1	These values must be either those actually measured for the machinery in question or those established on the basis of measurements taken for technically comparable machinery which is representative of the machinery to be produced.

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
3.3.5	When the manufacturer carries out measurements of whole body vibration they are required to give the 'degree of uncertainty' of each measurement, that is the accuracy and repeatability of the results of the testing method. Guidance for manufacturers assessing the 'degree of uncertainty' is given in 3.4.3.	Legislation	The Supply of Machinery (Safety) Regulations 2008 (as amended), Schedule 2 3.6.3.1	The instructions must give the following information concerning vibrations transmitted by the machinery to the hand-arm system or to the whole body: [...] the uncertainty of measurement.
3.4	**Recommendations for manufacturers**			
3.4.1	Manufacturers of all railway vehicles should comply with the whole body vibration requirements of The Machinery Directive 2006/42/EC) (as described in 3.2.3) and are recommended to measure and provide information for vibration.	NA	NA	[There is no statutory requirement for all manufacturers to comply with, just plant in working mode as per clause 3.2.3.1 of GMGN2460. Ultimately it is driven by the operator's statutory duty as laid out in The Control of Vibration at Work Regulations that drives the need for these measurements; the manufacturer might undertake measurements if contracted, but the operator could undertake testing instead; indeed dynamic tests would need to be undertaken on the operators' normal network to be valid]
3.4.2	The manufacturer should clearly state how the vibration value was derived, that is how the vehicle was used and the type of track being traversed. The manufacturer should record the actual measured vibration levels measured and the 'degree of uncertainty' of these results. The information should be declared to the purchaser in the accompanying technical documentation.	Legislation	The Supply of Machinery (Safety) Regulations 2008 (as amended), Schedule 2 3.6.3.1	The instructions must give the following information concerning vibrations transmitted by the machinery to the hand-arm system or to the whole body: [...] the uncertainty of measurement. Where harmonised standards are not applied, the vibration must be measured using the most appropriate measurement code for the machinery concerned. The operating conditions during measurement and the measurement codes used must be described.

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
3.4.3	The 'degree of uncertainty' should be determined either by compliance with the recommendation given in BS EN 12096:1997 Annex D, or through an analysis of test methods and repeating results where the production run is large enough to give readings from at least ten vehicles.	Approved code of practice	L141, Part 4, Machinery manufacturers' duties on Whole-Body Vibration	According to BS EN ISO 12096,22 two values should be reported by machine manufacturers: a (the average measured acceleration value) and K (the uncertainty). The supplier guarantees that the value obtained from a reproduction of the vibration test used to determine the emission will produce a measured magnitude of less than a + K. The difference between the a values for two machines should not be considered significant if it is smaller than one of the quoted K values. Note: it may not be essential or desirable to choose the machine with the lowest declared vibration emission, but it must be safe and suitable for the particular task – just aim to avoid machines with above average vibration.
3.5	**Recommendations for employers and owners**			
3.5.1	Employers / owners should take all reasonable steps to ensure their employees are not subjected to daily exposure above the action value of 0.5 m/s^2.	Approved code of practice	L141, Part 1, Legal duties of employers to control the risks to Health and Safety from Whole-Body Vibration	An assessment will be suitable and sufficient if it identifies: (a) where there may be a risk from WBV; (b) a reasonable estimate of the extent of your employees' exposure and a comparison with the exposure action and limit values; [...] (e) the steps that have been taken and their effectiveness.
3.5.2	Employers / owners have a responsibility to monitor the vibration levels throughout the life of the vehicle. The manufacturer should have supplied vibration data with a new vehicle or machine, provided in the technical documentation.	Approved code of practice	L141, Part 1, Legal duties of employers to control the risks to Health and Safety from Whole-Body Vibration	An assessment will be suitable and sufficient if it identifies: […] (d) the steps you plan to take to control and monitor those risks;

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
3.5.3	Assistance in the assessment of exposure can be found on the HSE website. This website includes a dose calculation sheet. See: http://www.hse.gov.uk/vibration/wbv/wholebodycalc.htm	Approved code of practice	L141, Part 3, Risk assessment and control	You will be able to use the vibration information, adjusted to take into account the conditions under which the machine is used (eg if the ground is very uneven you should assume a higher level of WBV), and combine it with the daily exposure time to produce a WBV exposure figure using the downloadable calculator available on HSE's vibration website (www.hse.gov.uk/vibration).
3.5.4	Employers / owners should assess any changes in the vibration levels found during the monitoring process (as a result of wear or the vehicle undergoing engineering change) to establish if amendments need to be made to working practices to keep exposure values of each employee within the specified limit.	Legislation	The Control of Vibration at Work Regulations 2005, Regulation 5 (4)	The risk assessment shall be reviewed regularly, and forthwith if – (a) there is reason to suspect that the risk assessment is no longer valid; or (b) there has been a significant change in the work to which the assessment relates, and where, as a result of the review, changes to the risk assessment are required, those changes shall be made.
3.5.5	Guidance for employers / owners on the practical management measures to reduce whole body vibration exposure is given in PD CEN/TR 15172-2:2005.	RIS	RIS-1530-PLT issue seven, G 5.28.5	It is good practice to design the machine to reduce whole body vibration levels, in areas that could have persons present. Guidance for manufacturers on design to reduce whole body vibration is given in PD CEN/TR 15172-1:2005.
Part 4	**Guidance on Hand-Arm Vibration**			
4.1	**Scope**			
4.1.1	Part 4 applies to all railway vehicles (locomotives, coaches, multiple units, wagons, OTMs, possession-only rail vehicles) and portable and transportable plant and also hand-held tools.	NA	NA	[Statement of applicability of part so content is not required if the document as a whole is withdrawn]
4.2	**Legislative and other controls**			
4.2.1	**The Control of Vibration at Work Regulations 2005 (SI 2005 No. 1093)**			

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
4.2.1.1	Employers / owners are required under these regulations to determine the hand-arm vibration levels to which they are exposing their employees. There are requirements to reduce and limit the exposure levels to the following values: a) A daily exposure action value of 2.5 m/s^2 b) A daily exposure limit value of 5 m/s^2	Approved code of practice	L140, Part 1, Legal duties of employers to control the risks to health and safety from hand-arm vibration	The daily exposure limit value (ELV) is the maximum amount of vibration an employee may be exposed to on any single day (see regulation 6(4)). The daily exposure action value (EAV) is the level of daily exposure to vibration at or above which you are required to take certain actions to reduce exposure (see regulations 62), 71)(b) and 81)(b)).
4.2.1.2	When measurements of vibration are taken under these regulations it is important to note that all measurements for hand-arm vibration have a reference time period in relation to personal exposure - this is the A(8) value and shows that all measurements have to be referenced against a standard 8 hour working day. These regulations allow the use of equipment that produces high levels of vibration for short periods of time, allowing for employers / owners to manage the way in which staff are exposed.	Approved code of practice	L140, Part 2, Management and control of risk from hand-arm vibration	When the vibration levels have been reduced so far as is reasonably practicable, further reduction in exposure can only be achieved by limiting the time for which employees are exposed to vibration. Limiting the duration is sometimes essential to keep exposures below the ELV.
4.2.1.3	Examples of railway equipment that should be considered for hand-arm vibration assessment include (but are not limited to): a) Hand-held workshop tools b) Small powered RMMM c) Powered pneumatic tools d) Control handles of vehicles (where the control is held for periods of operation).	RIS	RIS-1530-PLT issue seven, M.3.3	Measurements shall be taken for all handheld equipment, for example: a) Handheld tools; b) Handle bars and guard rails; c) Powered pneumatic tools; d) Control handles of machines where the control is held for periods of operation; e) This list is not exhaustive.
4.2.1.4	In the following sections the term 'machines' includes powered hand tools.	NA	NA	[Clarification of intent so content is not required if the document as a whole is withdrawn]
4.2.2	**The Machinery Directives (98/37/EC and 2006/42/EC)**			

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
4.2.2.1	The Machinery Directives apply to OTMs only in working mode, possession-only rail vehicles and portable and transportable plant. 98/37/EC is enacted in Great Britain by The Supply of Machinery (Safety) Regulations 1992 (SI 1992 No. 3073) (as amended). The manufacturer of the equipment is required to either state the root mean square (rms) acceleration value to which the hand-arm is subjected by their vehicle or machine if it exceeds 2.5 m/s^2, or otherwise state that it is less than 2.5 m/s^2.	Legislation, RIS	The Supply of Machinery (Safety) Regulations 2008 (as amended), Schedule 2 3.6.3.1, Schedule 3 RIS-1530-PLT issue seven, 5.28	The instructions must give the following information concerning vibrations transmitted by the machinery to the hand-arm system or to the whole body: the vibration total value to which the hand-arm system is subjected, if it exceeds 2.5 m/s^2. Where this value does not exceed 2.5 m/s^2, this must be mentioned, These regulations do not apply to [...] means of transport on rail networks [excepting] machinery mounted on the means of transport. 5.28.2 The manufacturer's declaration of the values for vibration at the working positions shall be included in the instruction handbook. 5.28.3 For machines first certificated after 5 December 2009, the measurements shall be made, or verified, in accordance with Appendix M.
4.2.2.2	Manufacturers are required to provide information regarding the testing method, actual test results and 'degree of uncertainty' of those results. (See 4.3.4).	Legislation	The Supply of Machinery (Safety) Regulations 2008 (as amended), Schedule 2 3.6.3.1	The instructions must give the following information concerning vibrations transmitted by the machinery to the hand-arm system or to the whole body: [...] the uncertainty of measurement. Where harmonised standards are not applied, the vibration must be measured using the most appropriate measurement code for the machinery concerned. The operating conditions during measurement and the measurement codes used must be described.
4.2.2.3	Guidance for manufacturers for the design to reduce hand-arm vibration is given in CR 1030-1:1995 (also known as PD 6585-1).	RIS	RIS-1530-PLT issue seven, G 5.28.5	It is good practice to design the machine to reduce vibration levels of handheld components. Guidance for manufacturers on design to reduce hand-arm vibration is given in CR1030-1:1995, also known as PD 6585-1:1996.

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
4.2.2.4	Guidance for employers / owners to reduce hand-arm vibration is given in CR 1030-2:1995 (also known as PD 6585-2).	Approved code of practice	L140, Part 2, Management and control of risk from hand-arm vibration	[Guidance in the cited section of the approved code of practice is equivalent to CR 1030-2: 1995, giving both technical and management means to reduce vibration exposure]
4.3	**Methods of measurement**			
4.3.1	The measurement of hand-arm vibration should be carried out by competent personnel.	Approved code of practice	L140, Appendix 7, Training and competence for those advising employers	People who help employers achieve control of vibration risks must be able to follow the guidance for employers in Part 2. In general, they should have: [...] (e) where measurements of HAV are made, competence in measurement and interpretation of those measurements;
4.3.2	Measurements should be made by using a tri-axial instrument fixed to the piece of equipment being held in the hand (as described in BS EN 28662-1:1992). The method of fixing the instrument to the equipment should be carefully considered – it has been common practice to attach the instrument to the hand grip with plastic cable ties, however this should be avoided because of the elasticity of the cable tie. It is recommended that the instrument be physically mounted, or as a minimum a metal screw clip should be used.	Approved Code of Practice	L140, Appendix 2, Vibration measurement and instrumentation	Vibration meters and other items of measuring equipment should meet the correct specification for the measurement of hand-transmitted vibration given in BS EN ISO 8041.21 Accelerometers (vibration transducers) and the accessories and methods for mounting them should be carefully selected; BS EN ISO 5349-2 contains useful guidance. Suppliers of vibration-measuring instruments should be able to advise on the selection of equipment suitable for the purpose.
4.3.3	The vector sum of the three readings is used in the assessment process. The equipment to be measured should be in use in its intended mode and its intended environment (for example a hand-held ballast tamper should be measured when in use with ballast).	Approved Code of Practice	L140, Appendix 2, Vibration measurement and instrumentation	A single measurement for a machine, an operator and a task provides limited information on vibration risk. This is because vibration magnitudes vary due to factors such as changes in forces, posture and techniques adopted by the operator as well as variation in materials and product. When making measurements you should plan to measure several operators, each working across a range of common operating conditions. This will help you establish the likely range in vibration emissions for a particular machine.

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
4.3.4	When the manufacturer carries out measurements of hand-arm vibration, the manufacturer is required to give the 'degree of uncertainty' of each measurement, that is the accuracy and repeatability of the results of the testing method. Guidance for manufacturers assessing the 'degree of uncertainty' is given in 4.4.3.	Approved Code of Practice	L140, Appendix 1, Estimation of daily vibration exposure	Whether you have obtained your vibration magnitude through measurement in the workplace or from other information, this value, your estimate of exposure duration, and the daily exposure you derive from them, will be subject to uncertainty. Research conducted for HSE has shown that errors arising from the process of sampling and measuring vibration magnitude, and estimating exposure duration, can result in an uncertainty in the A(8) value of at least ±20%. To comply with the Vibration Regulations you do not need to produce exposure values with high precision, but if your estimated exposures are close to the EAV or ELV, then you should assume that it is likely that they will be exceeded and the employer should take the appropriate action to reduce the exposure, control the risk, start health surveillance and provide training.
4.4	**Recommendations for manufacturers**			
4.4.1	Manufacturers of all railway vehicles should comply with the hand-arm vibration requirements of The Machinery Directive 2006/42/EC) (as described in 4.2.2) and are recommended to measure and provide information for vibration.	NA	NA	[There is no statutory requirement for all manufacturers to comply with, just plant in working mode as per clause 3.2.3.1 of GMGN2460. Ultimately it is driven by the operator's statutory duty as laid out in The Control of Vibration at Work Regulations that drives the need for these measurements; the manufacturer might undertake measurements if contracted]

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
4.4.2	The manufacturer should clearly state how the hand-arm vibration value was derived, that is how the machine was being used and the actual test method. The manufacturer should record the measured vibration levels and the 'degree of uncertainty' of these results. The information should be declared to the purchaser in the accompanying technical documentation.	Legislation	The Supply of Machinery (Safety) Regulations 2008 (as amended), Schedule 2 3.6.3.1	The instructions must give the following information concerning vibrations transmitted by the machinery to the hand-arm system or to the whole body: [...] the uncertainty of measurement. Where harmonised standards are not applied, the vibration must be measured using the most appropriate measurement code for the machinery concerned. The operating conditions during measurement and the measurement codes used must be described.
4.4.3	The 'degree of uncertainty' should either be determined by compliance with the recommendation given in BS EN 12096:1997 Annex D or through an analysis of test methods and repeating results where the production run is large enough to give readings from at least ten vehicles or machines.	Approved Code of Practice	L140, Appendix 6, Guidance for machinery manufacturers: A suggested approach to warning of residual risk from vibration	Supplying vibration information in accordance with harmonised European standards can provide manufacturers with a presumption of conformity with the essential health and safety requirements addressed in those standards. Harmonised standards for vibration test codes for different types of machines can be found in the harmonised standards webpage supporting the Machinery Directive (see Further information). In Britain, these test codes are published as British Standards. Harmonised standards for vibration test codes do not always produce emission values that adequately represent vibration risk. Methods of providing adequate supplementary information on vibration risk are set out in BS EN 12786. Harmonised safety standards should follow BS EN 12786 to guide provision of sufficient supplementary information about vibration risk. [BS EN 12786 cites the use of BS EN 12096 as described]
4.5	**Recommendations for employers and owners**			

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
4.5.1	Employers / owners have a responsibility to monitor the hand-arm vibration levels throughout the life of the vehicle or machine. The manufacturer should have supplied vibration values with a new vehicle or machine in the technical documentation.	Approved Code of Practice	L140, Part 2, Management and control of risk from hand-arm vibration	Your assessment of vibration should first consider the actions that could be taken to reduce vibration exposure. The hierarchy for control which minimises the risk from vibration exposure, in order of priority, is as follows: [...] (e) Maintain machines and accessories.
4.5.2	Employers / owners should assess any changes found in the hand-arm vibration levels (as a result of wear or the vehicle undergoing engineering change) to establish if amendments need to be made to working practices to keep exposure values of each employee within the specified limit.	Legislation	The Control of Vibration at Work Regulations 2005, Regulation 5 (4)	The risk assessment shall be reviewed regularly, and forthwith if – (a) there is reason to suspect that the risk assessment is no longer valid; or (b) there has been a significant change in the work to which the assessment relates, and where, as a result of the review, changes to the risk assessment are required, those changes shall be made.
4.5.3	Assistance in the assessment of exposure can be found on the HSE website. This website includes a dose calculation sheet. See: http://www.hse.gov.uk/vibration/hav/vibrationcalc.htm	Approved Code of Practice	L140, Part 2, Management and control of risk from hand-arm vibration	When you have obtained vibration magnitudes for each model of tool or vibrating process used on a job, and corresponding exposure durations for each of them, you can calculate the daily vibration exposure for each employee, group of employees, or job. The method of calculating vibration exposure is set out in Schedule 1 to the Vibration Regulations. The calculation of exposures in accordance with Schedule 1 is discussed further in Appendix 1. To assist you with calculation of vibration exposures, HSE has developed a 'ready-reckoner' and a spreadsheet calculator.
Appendix A	**History of Railway Vibration Measurement**			
A.1	**Comparison of vibration dose value (VDV) and A(8) vibration dose measurement**			

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
A.1.1	GM/RT2160 mandated that 'The ride acceleration environment inside a railway vehicle shall be such that traincrew are not subjected to a vibration dose value of more than 15 $ms^{-1.75}$' during a working day'. The estimated equivalent A(8) WBV daily exposure value corresponding to this limit is given as 0.9 m/s^2 in Table 1 in 3.2.2.1. This estimated equivalent value is based on Figure 3 of BS 6841:1987 (which is reproduced in simplified form as Figure A2 in Appendix A of GM/RT2160). However, there are a number of reasons why the real relationship between the GM/RT2160 VDV limit and the A(8) WBV daily exposure values calculated for The Control of Vibration at Work Regulations may be different: a) Railway vibrations usually have varying amplitudes with a crest factor higher than 6. b) The VDV limit in GM/RT2160 applied to the vector sum of the accelerations in the vertical, lateral and longitudinal directions, whereas the A(8) limits in the regulations apply to each direction separately. c) For vertical accelerations, GM/RT2160 used the W_b weighting filter whereas the regulations use the W_k weighting filter. These can differ by up to 20% depending on frequency. d) The A(8) measurement is more dependent on exposure time than the VDV measurement. For exposures shorter than 8 hours, the VDV limit will equate to lower A(8) values while for exposures longer than 8 hours the VDV limit will equate to higher A(8) values.	NA	NA	[Historical context for A.2 only so content is not required if that clause is withdrawn]
A.1.2	The effects of the differences listed above will vary from case to case depending on the variability, crest factor, frequency content and dominant direction of the vibration. There is, therefore, no exact relationship between the former GM/RT2160 VDV limit and the A(8) limits in the regulations.	NA	NA	[Explaining why a straight read of Vibration Dose Value to A(8) is not practical. Historical context for A.2 only so content is not required if that clause is withdrawn]
A.2	**Historical measurements**			

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
A.2.1	A review of the results of historical ride acceleration measurements, originally reported in VDV form, has been made. There were 23 vehicle types over a variety of routes. The vehicles considered fall broadly into four groups: a) Bogie passenger vehicles with air suspension A(8) = 0.10 – 0.41 m/s^2 This group includes electric and diesel multiple units and hauled passenger stock. All the measured data is for air suspended vehicles. Vehicles with older bogie designs may give higher vibration levels. All of the vehicles are below the exposure action value of 0.5 m/s^2. b) Two-axle railbus A(8) = 0.25 and 0.45 m/s^2 The two values represent different routes. There is insufficient data to state with confidence that these vehicles would remain within the exposure action value on all routes. c) Locomotives A(8) = 0.31 – 0.75 m/s^2 Four different locomotives were represented in this survey, including an high speed train (HST) power car. All but one of the locomotives were found to exceed the exposure action value. d) OTMs A(8) (seat): 0.33 – 0.59 m/s^2 A(8) (floor): 0.62 – 1.53 m/s^2 These measurements were made with the vehicles in transit at or near their maximum permitted speed.	NA	NA	[As explained under clause 3.2.2.2, reference to these values does not amount to reasonably practicable levels of vibration to achieve with regards to The Control of Vibration at Work Regulations 2005. Insufficient granularity is provided to allow these values to be used as the basis of an A(8) assessment of existing vehicles.]
Definitions	NA	As above	As above	[The definitions in general align to those in other standards (particularly RIS-1710-PLT and RIS-1530-PLT) or are given in the relevant legislation. Content is not required if the document as a whole is withdrawn]

GMGN2460 Clause	Issue one text	Alternative sources	Citation	Example content of alternative source / [Comments]
References	NA	As above	As above	[References are generally the alternative sources listed themselves or are cited in the same. Content is not required if the document as a whole is withdrawn]

Appendix B Reference Table

B.1.1 The reference table identifies railway group documents that currently refer to GMGN2460.

Table B1: References to GMGN2460 in railway group documents

Document	Title	Clause	Text	Notes
RIS-0700-CCS	Internet Access on Trains for Customer and Operational Railway Purposes	G 3.3.4.4	Guidance and requirements for the measurement of noise and vibration are provided in EN 15892 and GMGN2460.	This is with reference to requirement 3.3.4.1: The onboard Internet access equipment and any new power supplies shall not cause other equipment to vibrate at their resonant frequencies or introduce additional noise or vibration. Direct reference to the means of measurement as-per the HSE approved codes of practice should be made.
RIS-0799-CCS	ERTMS/ETCS Baseline 3 Onboard Subsystem Requirements	G 6.3.2.4	GMGN2460 provides guidance on compliance with noise and vibration legislation in the railway environment. Acceptable limits for passengers are not prescribed but can be assessed on the basis of avoiding any appreciable increase in noise (sound power level) or vibration beyond the level experienced while the ETCS onboard subsystem is neither fitted, nor operating.	This is with reference to requirement 6.3.2.1: The ETCS onboard subsystem shall not induce other equipment to vibrate or introduce noise which may cause discomfort or distraction to train crew or passengers. (Normative). This derives from NEPT/ERTMS/REQ/0007 version 3.2 EOSS-173. Since GMGN2460 does not provide context for noise / vibration for passengers, it makes little sense to reference here - instead reference should be made to the standards defining the method of measurement (as defined in the HSE approved codes of practice).
RIS-1701-PLT	Non-Railborne Plant Used for Infrastructure Work	G 3.32.6	Further guidance on noise requirements and measurement, HAV and whole body vibration is set out in GMGN2460.	When read in the context of this section, and that non-railborne plant has to conform to the machinery directive, GMGN2460 adds little that is not already stated. Reference could be made to the HSE approved codes of practice here if desired.

Appendix C Background to GMGN2460

C.1.1 The topic of vibration control and monitoring was first raised at the Mechanical and Electrical Engineering (M&EE) and Operations National Network group engineering meeting on 25 May 2005 as minute number 05/03/6.2. This was further expanded to noise as-per the physical agents directives. At this time, there was concern that the transposition of these EU directives into UK law would lead to issues for operators of rail borne plant, who previously had no statutory threshold values for vibration, only the requirement to manage the risk arising under the Health and Safety at Work etc. Act 1974 and previous British Rail work on whole-body vibration to go by. To address the topic, a working group within the Technical Sub-group was formed to generate the content for a guidance document, first meeting in December 2005.

C.1.2 At an early stage, the decision was taken to cover rail vehicles generally, rather than just plant, and incorporate the findings of research undertaken on the implications of the physical agents directives commissioned by the RSSB research report T315 'EU Physical Agents Directives: vibration and noise consultation response'. This would then provide guidance to cover the scope of clauses of GMRT2160, Ride Vibration and Noise Environment Inside Railway Vehicles, withdrawn on introduction of the 2005 regulations. The focus of the content remained aligned to plant, however, since the greatest noise and vibration risks were taken to be in relation to use of this equipment and, under the machinery directive, statutory requirements were also placed on the manufacturers of such equipment.

C.1.3 The approved codes of practice prepared by the HSE were identified during the course of the work, but were not consulted nor was the content generated intended to align. Instead, measurement methodologies were developed independently for inclusion as guidance, with the caveat that a competent person was to be employed when undertaking them. Reference was only made to the shortened 'guidance for employers' produced by the HSE, intended as a brief introduction to the topic, which did not include the methodologies incorporated within the approved codes of practice.

C.1.4 The draft guidance document was completed by the working group in January 2007 and final review was undertaken by RSSB. Following this process and approval by the Rolling Stock Standards Committee, GMGN2460 was published in April 2008.

C.1.5 A twelve-month review was undertaken in 2010 and did not identify any issues.

C.1.6 An initial five-year review with consultation was undertaken in 2015. This focused on the proposal for a national database for noise and vibration data (TSI-compliance for noise only being incorporated as non-mandatory data in R2), rather than the content of the guidance note. The consultation found that such a database was not strongly desired, nor was likely to be practicable for commercial reasons.

C.1.7 Despite the distortion of the consultation process by the proposal, a number of consultation comments received in 2015 questioned the currency of the information

and comprehensiveness of the guidance note. In particular, the ORR Occupational Health Manager considered that on these grounds the document was not fit for purpose. As a result of the five-year review, an amendment was prepared to update some of the outdated references, but no serious attempt was made to amend the content.

C.1.8 A second five-year (ten-year) review and consultation was undertaken in 2020/21. This again identified the document was to be found wanting in several important respects, and a project was commenced to update it, 22-008. Initial work on this has identified that withdrawal of the guidance note is likely to have the highest net benefit to the industry, for the reasons described in the business case for change.