Human response to vibration in residential environments (NANR209), technical report 2: measurement of response

Condie, JM, Steele, A, Whittle, N, Brown, P and Waddington, DC

<table>
<thead>
<tr>
<th>Title</th>
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<tr>
<td>Authors</td>
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</tr>
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<td>Type</td>
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<td>Published Date</td>
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Social Survey Questionnaire

Introduction

My name is [ ] and I work for the University of Salford [show badge]. We are conducting a neighbourhood satisfaction survey on behalf of the Department for the Environment, Food and Rural Affairs and would really like to get your views. It should take no more than 25 minutes. Is that okay?

Before I start, can I just ask how long you have been living in this home?

[If the answer is less than 9 months, say: “Unfortunately we need to talk to people who have been here for more than 9 months. Thank you for your time.”]

[If the respondent answers that they do not have the time, ask: “Is there a better time for you?” If this is not possible ask: “Do you have a few minutes for me to just ask some brief questions?” If yes, complete the non-response sheet.]

Throughout the questionnaire we want to know your personal views and opinions rather than the opinions of other people you might live with. I will be writing down your answers but the information will be completely anonymous.

If there are any questions you don’t want to answer, just let me know and if you’re not happy, I’ll move on to the next question

Full Address: __________________________________________________________

________________________________________________________

Postcode: __________________________________________________________

Telephone [record at end]: __________________________________________

Date of Interview: ____________________________________________________

Start time: ___________ End time: ___________

Complete after survey has been administered

I declare that this is a true record of an interview for this survey.

Interviewer name: ____________________________

Signature: ____________________________

Case study number: ____________________________

Site Name/Number: ____________________________

Proximity to Source: ____________________________
SECTION A: Dwelling Information

This section is to be completed by the interviewer (not with respondent).

A1. In which of the following is the property situated?

Centre of a large city □1
Suburbs/Outskirts of a large city □2
Large town or small city □3
Small town □4
Village □5
Countryside □6
Other □7

[If ‘Other’ record below]

_________________________________

A2a. What type of dwelling is the property?

Detached □1 [Go to A3]
Semi-detached □2 [Go to A3]
Terraced □3 [Go to A3]
End terrace □4 [Go to A3]
Maisonette □5 [Go to A3]
Apartment/Flat □6 [Go to A2b]
Bedsit □7 [Go to A2b]
Mobile home/Caravan □8 [Go to A5]
Other [record below] □9 [Go to A3]

_________________________________

A2b. Is the property:

Purpose built □1
Conversion □2

[Go to A4]
A3. If the property is detached, semi-detached, terraced (including end terrace) or maisonette, how many storeys does it have?
[Record number] ____________

A4. If the property is an apartment, flat, bedsit or maisonette.
(a) On which floor is the entrance to the property?
[i.e. entrance to individual property, not the building in which it is located]

[Record floor number] ____________
[G = ground floor, B = below ground]

How many floors are there in the whole building? ______________

(b) Does the living space include the top floor of the building (i.e. directly below the roof or loft space)?

Yes ☐ 1
No ☐ 0

A5. In what type of residential area is the property located?

Residential/housing estate only (i.e. no commercial/industrial buildings) ☐ 1
Residential/housing estate with some commercial buildings (shops, offices etc.) ☐ 2
Residential/housing estate with some industrial facilities (factories) nearby ☐ 3
Primarily a commercial area with some residential (e.g. city centres) ☐ 4
Primarily an industrial area with some residential ☐ 5
Mixed residential/countryside ☐ 6
Mostly countryside ☐ 7
Other [record below] ☐ 8
SECTION B: Neighbourhood Satisfaction

This first set of questions is about this neighbourhood and how satisfied you are with it. We will talk about satisfaction with this home later on in the survey.

B1. To begin with we’d like to know what first attracted you to live in this neighbourhood. Was it because you:

<table>
<thead>
<tr>
<th>Reason</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were born in this neighbourhood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liked the neighbourhood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wanted to be nearer family/friends</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wanted to be nearer to work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wanted to be nearer your own community</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did not have a choice</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Were there any other reasons? [ ]

[If ‘yes’ to other reasons, ask: “What were the other reasons?” and record below]

______________________________________________________________________________

[If respondent answers that they did not have a choice, route to B2; if not, route to B3]

B2. Do you mind telling me why you did not have a choice?

[Record below]

______________________________________________________________________________

B3. When did you move into this neighbourhood?

Month ________ Year ____________

[If respondent only states the year, ask: “Do you remember what month it was?”]
B4. Looking at this card [show card 1], overall, how satisfied or dissatisfied are you personally with living in this neighbourhood? Would you say that you are very satisfied, satisfied, neither satisfied nor dissatisfied, dissatisfied or very dissatisfied?

Very satisfied ☐1
Satisfied ☐2
Neither satisfied nor dissatisfied ☐3
Dissatisfied ☐4
Very dissatisfied ☐5

B5. In giving this rating, are there particular aspects of this neighbourhood that you are thinking of?
[Record below]

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
Code if respondent mentions

N ☐
V ☐
Appendix 3 – NANR209 – Human Response to Vibration in Residential Environments: Internal sources specific questionnaire

B6. Looking at this card [show card 2], how would you personally rate this neighbourhood on [insert neighbourhood characteristic]? Would you say that it is very good, good, neither good nor poor, poor or very poor?

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Very good</th>
<th>Good</th>
<th>Neither good nor poor</th>
<th>Poor</th>
<th>Very poor</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard of schools</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Childcare facilities</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Public transport</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Closeness to shops</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Standard of health care services</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Upkeep of roads</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Parking facilities</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Leisure facilities</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>How peaceful it is</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>How quiet it is</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Standard of the parks and other open spaces</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Closeness to place of worship</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Reputation of neighbourhood</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Appearance of buildings</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

B7. Is there anything else that you personally particularly like about this neighbourhood?

[Record below]

[Prompt: “Why do you like this?”]

______________________________________________________________________________________
______________________________________________________________________________________
______________________________________________________________________________________

Code if respondent mentions

N  □
V  □
B8. Is there anything else that you personally particularly dislike about this neighbourhood?

[Record below]

[Prompt: “Why do you dislike this?”]

Code if respondent mentions

<table>
<thead>
<tr>
<th>N</th>
<th>☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>☐</td>
</tr>
</tbody>
</table>
SECTION C: Satisfaction with Home

The next set of questions is about how satisfied you are with this home, where we are now, rather than this neighbourhood as a whole.

C1. Can you tell me why you first moved to this home here?

[Record below]

____________________________________________________________________________________

____________________________________________________________________________________

Code if respondent mentions
N  □
V  □

C2. Looking at this card [show card 1], overall, how satisfied or dissatisfied are you personally with living in this home? Would you say that you are very satisfied, satisfied, neither satisfied nor dissatisfied, dissatisfied or very dissatisfied?

Very satisfied  □1
Satisfied  □2
Neither satisfied nor dissatisfied  □3
Dissatisfied  □4
Very dissatisfied  □5

C3. In giving this rating, are there any particular things that you are thinking about?

[Record below]

____________________________________________________________________________________

____________________________________________________________________________________

Code if respondent mentions
N  □
V  □
C4. Is there anything else that you personally particularly like about living in this home?
[Record below]
[Prompt: “Why do you like this?”]
________________________________________________________________________________
________________________________________________________________________________

Code if respondent mentions
N □
V □

C5. Is there anything else that you personally particularly dislike about living in this home?
[Record below]
[Prompt: “Why do you dislike this?”]
________________________________________________________________________________
________________________________________________________________________________

Code if respondent mentions
N □
V □

C6. Can I just check again, when did you move into this home?

Month_________ Year___________
[If respondent only states the year, ask: “Do you remember what month it was?”]

C7. Do you want to move home?

Yes □1 [Go to C8]
No □0 [Go to C9]
Don’t know □2 [Go to C9]
C8. Why do you want to move?
[Record below]

Code if respondent mentions
N
V

C9. Looking at this list [show card 3], which best describes your current situation with this home?
Do you or your family:

- Own outright or with a mortgage
- Part-rent and part-own with a mortgage
- Rent from a private landlord/letting agency
- Rent from a Housing Association or Council
- Other

[If stating ‘other’ ask: “Can you tell me what that is?”]
[Record below]

C10. What kind of windows do you have here? Is it:

<table>
<thead>
<tr>
<th>Glazing Type</th>
<th>None</th>
<th>Some</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single glazing</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Double glazing</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Secondary glazing</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Triple glazing</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

[If stating ‘other’ ask: “Can you tell me what kind they are?”]
[Record below]
C11. [If property is a house or ground floor flat] Do you have a cellar or basement?

Yes □ 1  
No □ 0

[If yes ask]

Yes No

Is it used as a living space? □ 1 □ 0
Is it used as a working space? □ 1 □ 0
Is it used for storage? □ 1 □ 0

C12. From any room in this home, can you see:

Yes No

A motorway or any motorway traffic □ 1 □ 0
A dual carriageway road or traffic on one □ 1 □ 0
A residential or estate road or traffic on one □ 1 □ 0
A town or city road or traffic on one □ 1 □ 0
A country lane or traffic on one □ 1 □ 0
Any other type of road □ 1 □ 0

[If yes to ‘any other type of road’ ask: “Can you tell me what type it is?”]

[Record below]

A railway track or any type of passing train □ 1 □ 0
Construction activity □ 1 □ 0
SECTION D: Vibration Questions

One of the things that we are interested in in this questionnaire is the impact of vibration and noise from sources both outside and inside this home. The next set of questions is about any vibration or shaking you personally experience whilst in this home. This includes vibration that you think may be caused by noise, but I will ask about the noise itself later on.

D1. Thinking about the last 12 months or so, when indoors at home, have you felt any vibration or shaking anywhere that you think was caused by:

<table>
<thead>
<tr>
<th>Source</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars, lorries, buses and other road vehicles</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Aeroplanes</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Helicopters</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Railway activity</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Underground trains like the tube or metro</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Trains in tunnels</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Construction activity, including building, demolition and road works</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Quarrying or mining</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Footsteps, slamming doors, domestic appliances inside this home</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Sources of vibration outside your control from within the building, from human activity such as footsteps, doorslams or machinery such as air conditioning and washing machines, or any other activity</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>An unidentified source</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Any other source</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
</tbody>
</table>

[If yes to 'any other source' ask: “Can you tell me what the source is?”]
[Record below]

________________________________________________________________________

[If the respondent has answered ‘yes’ to any above, route to D2; if not, route to D5]
Appendix 3 – NANR209 – Human Response to Vibration in Residential Environments: Internal sources specific questionnaire

### D2. When you have felt vibration, have you felt it:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>From the floor</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>When you have been sitting on a chair</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>When you have been lying on a bed</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>When you have touched any surfaces with your hands</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>From any other surfaces in this home</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
</tbody>
</table>

[If yes to ‘any other surfaces’ ask: “Where else have you felt it?”] [Record below]

________________________________

### D3. Can you tell me where in this home you have felt the vibration or shaking, starting with where you have felt it the most?

[Record room and floor below. If unsure, ask: “On which floor is that?” after the response]

<table>
<thead>
<tr>
<th>Room</th>
<th>Floor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>

### D4. Has feeling vibration or shaking of the floor, chair, bed or other surfaces bothered, annoyed or disturbed you personally when you have been:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watching the television</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Listening to the radio or music</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Talking to someone in person or on the telephone</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Reading or doing any other quiet activities</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Writing, drawing, painting or doing any other activity requiring a steady surface</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Resting</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Sleeping</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Using any rooms in this home</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Doing anything else</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
</tbody>
</table>

[If yes to ‘doing anything else’ ask: “Can you tell me what that was?”] [Record below]

________________________________
We’d now like to find out if you have heard or seen anything rattle, vibrate or shake in this home over the last 12 months or so.

D5. Thinking about the last 12 months or so, when indoors at home, have you heard or seen things rattle, vibrate or shake that you think was caused by:

<table>
<thead>
<tr>
<th>Source</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars, lorries, buses and other road vehicles</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Aeroplanes</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Helicopters</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Railway activity</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Underground trains like the tube or metro</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Trains in tunnels</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Construction activity, including building, demolition and road works</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Quarrying or mining</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Footsteps, slamming doors, domestic appliances inside this home</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Sources of vibration outside your control from within the building, from human activity such as footsteps, doorslams or machinery such as air conditioning and washing machines, or any other activity</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>An unidentified source</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Any other source</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

[If yes to ‘any other source’ ask: “Can you tell me what the source is?”]
[Record below]

[If the respondent has answered ‘no’ to all above, route to D9]

D6. Have you personally ever heard or seen any rattling, vibrating or shaking of:

<table>
<thead>
<tr>
<th>Source</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>The windows</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>The doors</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Any other part of this home</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Crockery, like plates, or glasses in your cupboards</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Any other objects in this home</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

[If yes to ‘any other part of this home’ or ‘any other objects in this home’ ask: “What other things have you heard or seen rattle, vibrate or shake in this home?”]
[Record below]
D7. Can you tell me where in this home you have heard or seen things rattle, vibrate or shake, starting with where you have heard or seen it the most?
[Record room and floor below. If unsure ask: “On which floor is that?” after the response]

<table>
<thead>
<tr>
<th>Room</th>
<th>Floor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>

D8. Has hearing or seeing things rattle, vibrate or shake bothered, annoyed or disturbed you when you have been:

- Watching the television
- Listening to the radio or music
- Talking to someone in person or on the telephone
- Reading or doing any other quiet activities
- Writing, drawing, painting or doing any other activity requiring a steady surface
- Resting
- Sleeping
- Using any rooms in this home
- Doing anything else

[If yes to ‘doing anything else’ ask: “Can you tell me what that was?”]
[Record below]

_______________________________________
[If the respondent has not identified that they feel vibration or hear or see any effects of it, go to E1]

**D9.** Thinking about the last 12 months or so, when indoors at home, how bothered, annoyed or disturbed have you been by feeling vibration or shaking or hearing or seeing things rattle, vibrate or shake caused by [insert source identified in D1 and D5]? Would you say not at all, slightly, moderately, very or extremely?

[Show card 4]

[Repeat question for all sources identified at D1 and/or D5]

[For sources not noticed at D1 and D5, record as ‘Don’t notice’]

<table>
<thead>
<tr>
<th>Source</th>
<th>Don’t notice</th>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Very</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars, lorries, buses or other road vehicles</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Aeroplanes</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Helicopters</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Railway activity</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Underground trains (i.e. tube or metro)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Trains in tunnels</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Construction activity, including building, demolition and road works</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Quarrying or mining</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Footsteps, slamming doors, domestic appliances inside this home</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Sources of vibration outside your control from within the building, from human activity such as footsteps, doorslams or machinery such as air conditioning and washing machines, or any other activity</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Unidentified source/don’t know</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Other things [record below]</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

[If respondent is bothered, annoyed or disturbed, mark Section J (Yellow section) as a reminder to complete this section]
Next is a 0–10 opinion scale for how bothered, annoyed or disturbed you were when you felt or feel vibration here at home [show card 5]. If you are not at all annoyed choose 0, if you are extremely annoyed choose 10; if you are somewhere in between, choose a number between 1 and 10.

D10. Thinking about the last 12 months or so, when indoors at home, what number from 0 to 10 best shows how bothered, annoyed or disturbed you have been by feeling vibration or shaking or hearing or seeing things rattle, vibrate or shake caused by [insert source identified at D1 and/or D5]?

[Repeat question for all sources identified at D1 and/or D5]
[For sources not noticed at D1 and D5, record as ‘Don’t notice’]

<table>
<thead>
<tr>
<th>Source</th>
<th>Don’t notice</th>
<th>Not at all</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars, lorries, buses or other road vehicles</td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Aeroplanes</td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Helicopters</td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Railway activity</td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Underground trains (i.e. tube or metro)</td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Trains in tunnels</td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Construction activity, including building, demolition and road works</td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Quarrying or mining</td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Footsteps, slamming doors, domestic appliances inside this home</td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Sources of vibration outside your control from within the building, from human activity such as footsteps, doorslams or machinery such as air conditioning and washing machines, or any other activity</td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Unidentified source/don’t know</td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Other things [record below]</td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
</tbody>
</table>

D11. In the future, do you think the level of vibration you experience whilst indoors at home will get worse, get better or remain the same?

Worse □1 Better □2 Same □3 Don’t know □4
**D12.** Can I ask why you think that?

[Record below]

______________________________________________________________________________________
______________________________________________________________________________________
______________________________________________________________________________________
______________________________________________________________________________________

**D13.** We would like to know if you are concerned that the vibration may damage this home or your possessions inside it in any way. [Show card 4]

Are you not at all concerned, slightly concerned, moderately concerned, very concerned or extremely concerned?

No - Not at all [□1] [Go to D15]
Yes - Slightly [□2] [Go to D14]
Yes - Moderately [□3] [Go to D14]
Yes - Very [□4] [Go to D14]
Yes - Extremely [□5] [Go to D14]

**D14.** Are you concerned about damage to:

<table>
<thead>
<tr>
<th>Damage</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>The way this home looks</td>
<td>[□1]</td>
<td>[□0]</td>
</tr>
<tr>
<td>The structure of this home</td>
<td>[□1]</td>
<td>[□0]</td>
</tr>
<tr>
<td>Your possessions inside this home</td>
<td>[□1]</td>
<td>[□0]</td>
</tr>
<tr>
<td>The value of this home</td>
<td>[□1]</td>
<td>[□0]</td>
</tr>
<tr>
<td>Anything else</td>
<td>[□1]</td>
<td>[□0]</td>
</tr>
</tbody>
</table>

[If ‘yes’ to ‘Anything else’ ask: “What other things?”]

[Record below]

______________________________________________________________________________________
______________________________________________________________________________________
______________________________________________________________________________________

18
**D15.** How sensitive would you say you are personally to vibration in general? Would you say you are not at all sensitive, slightly sensitive, moderately sensitive, very sensitive or extremely sensitive?

**[Show card 4]**

- Not at all □
- Slightly □
- Moderately □
- Very □
- Extremely □

**D16.** Looking at this scale **[show card 6]** and given all that you have said, over the last 12 months or so, how acceptable have you found the level of vibration you have experienced in this home. Would you say it has been very acceptable, acceptable, neither acceptable nor unacceptable, unacceptable or very unacceptable?

- Very acceptable □
- Acceptable □
- Neither acceptable nor unacceptable □
- Unacceptable □
- Very unacceptable □
SECTION E: Noise Questions

Moving on from any vibration or shaking you may experience when in this home, the following set of questions is about noise you may hear whilst inside this home. We have already talked about the noise of things rattling or shaking in this home which might be caused by vibration, so now we just want to know about the actual noise from the sources. For example, when we say the noise of cars, lorries and other road vehicles, we don’t want to know about the noise of the windows shaking when they pass, but the noise of things like the engines, brakes, doors slamming and things like that. Is that okay?

E1. Thinking about the last 12 months or so, when indoors at home, have you heard any noise that you think was caused by:

<table>
<thead>
<tr>
<th>Noise Source</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars, lorries, buses and other road vehicles</td>
<td>☐️ 1</td>
<td>☐️ 0</td>
</tr>
<tr>
<td>Aeroplanes</td>
<td>☐️ 1</td>
<td>☐️ 0</td>
</tr>
<tr>
<td>Helicopters</td>
<td>☐️ 1</td>
<td>☐️ 0</td>
</tr>
<tr>
<td>Railway activity</td>
<td>☐️ 1</td>
<td>☐️ 0</td>
</tr>
<tr>
<td>Underground trains (i.e. tube or metro)</td>
<td>☐️ 1</td>
<td>☐️ 0</td>
</tr>
<tr>
<td>Trains in tunnels</td>
<td>☐️ 1</td>
<td>☐️ 0</td>
</tr>
<tr>
<td>Construction activity, including building, demolition and road works</td>
<td>☐️ 1</td>
<td>☐️ 0</td>
</tr>
<tr>
<td>Quarrying or mining</td>
<td>☐️ 1</td>
<td>☐️ 0</td>
</tr>
<tr>
<td>Footsteps, slamming doors, domestic appliances inside this home</td>
<td>☐️ 1</td>
<td>☐️ 0</td>
</tr>
<tr>
<td>Sources of noise outside your control from within the building, from human activity such as footsteps, doorslams or machinery such as air conditioning and washing machines, or any other activity</td>
<td>☐️ 1</td>
<td>☐️ 0</td>
</tr>
<tr>
<td>An unidentified source</td>
<td>☐️ 1</td>
<td>☐️ 0</td>
</tr>
<tr>
<td>Any other source</td>
<td>☐️ 1</td>
<td>☐️ 0</td>
</tr>
</tbody>
</table>

[If yes to ‘any other source’ ask: “Can you tell me what the source is?”]

[Record below]
E2. Has hearing noise from these sources bothered, annoyed or disturbed you when you have been:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watching the television</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Listening to the radio or music</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Talking to someone in person or on the telephone</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Reading or with any other quiet activities</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Writing, drawing, painting or any doing any other activity requiring a steady surface</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Resting</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Sleeping</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Using any rooms in your house</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Opening any windows in your house</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Doing anything else</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

[If yes to ‘doing anything else’ ask: “Can you tell me what that was?”]
[Record below]

__________________________________________
E3. Thinking about the last 12 months or so, when indoors at home, how bothered, annoyed or disturbed have you been by hearing noise caused by [insert source identified in E1]? Would you say not at all, slightly, moderately, very or extremely?

[Show card 4]

[Repeat question for all sources identified in E1]

<table>
<thead>
<tr>
<th>Source</th>
<th>Don’t notice</th>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Very</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars, lorries, buses or other road vehicles</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Aeroplanes</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Helicopters</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Railway activity</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Underground trains (i.e. tube or metro)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Trains in tunnels</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Construction activity, including building, demolition and road works</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Quarrying or mining</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Footsteps, slamming doors, domestic appliances inside this home</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Sources of noise outside your control from within the building, from human activity such as footsteps, doorslams or machinery such as air conditioning and washing machines, or any other activity</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Unidentified source/don’t know</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Other things [record below]</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

[If respondent is bothered, annoyed or disturbed, mark Section K (Blue section) as a reminder to complete this section]
Next is the 0–10 opinion scale for how bothered, annoyed or disturbed you have been when you have heard noise here at home [show card 5]. If you are not at all annoyed choose 0, if you are extremely annoyed choose 10; if you are somewhere in between choose a number between 1 and 10.

**E4.** Thinking about the last 12 months or so, when indoors at home, what number from 0 to 10 best shows how bothered, annoyed or disturbed you have been by hearing noise caused by [insert source identified at E1]?

[Repeat question for all sources identified at E1]

[For sources not noticed at E1, record as ‘Don’t notice’]

<table>
<thead>
<tr>
<th>Source</th>
<th>Don’t notice</th>
<th>Not at all</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars, lorries, buses or other road vehicles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aeroplanes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helicopters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Railway activity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underground trains (i.e. tube or metro)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trains in tunnels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction activity, including building, demolition and road works</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quarrying or mining</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Footsteps, slamming doors, domestic appliances inside this home</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sources of vibration outside your control from within the building,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>from human activity such as footsteps, doorslams or machinery such as</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>air conditioning and washing machines, or any other activity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unidentified source/don’t know</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other things [record below]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>___________________________</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>___________________________</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>___________________________</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
E5. How sensitive would you say you are personally to noise in general? Would you say you are not at all sensitive, slightly sensitive, moderately sensitive, very sensitive or extremely sensitive?

[Show card 4]

Not at all □1
Slightly □2
Moderately □3
Very □4
Extremely □5

E6. Looking at this scale [show card 6] and given all that you have said, over the last 12 months or so, how acceptable have you found the level of noise you have experienced in this home. Would you say very it has been acceptable, acceptable, neither acceptable nor unacceptable, unacceptable or very unacceptable?

Very acceptable □1
Acceptable □2
Neither acceptable nor unacceptable □3
Unacceptable □4
Very unacceptable □5
For internal sources sites only

SECTION J: Internal sources vibration

(This section is only to be completed if the respondent has previously identified that they have been bothered, annoyed or disturbed by internal vibration beyond their control)

You previously said that you have been bothered, annoyed or disturbed by vibration from the internal sources beyond your control whilst in this home. The next set of questions is more specific to vibration from those sources.

J1. Thinking about the last 12 months or so, when indoors at home, how bothered, annoyed or disturbed have you been by feeling vibration or hearing or seeing things rattle, vibrate or shake caused by [insert sources below]? Would you say not at all, slightly, moderately, very or extremely?

[Show card 4]

[Repeat question for all sources]

<table>
<thead>
<tr>
<th>Source</th>
<th>Don't notice</th>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Very</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human activity such as footsteps</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Doorslams</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Machinery such as air conditioning and washing machines</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Other internal sources [Record below]</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

[Record below]
J2. Thinking about the last 12 months or so, when indoors at home, what number from 0 to 10 best shows how bothered, annoyed or disturbed you have been by feeling vibration or hearing or seeing things rattle, vibrate or shake caused by [insert source identified at J1]?

[Show card 5]

[Repeat question for all sources identified at J1]
[For sources not noticed at J1, record as ‘Don’t notice’]

<table>
<thead>
<tr>
<th>Source</th>
<th>Don’t notice</th>
<th>Not at all</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human activity such as footsteps</td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Doorslams</td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Machinery such as air conditioning and washing machines</td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Other internal sources [Record below]</td>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
</tbody>
</table>

J3. Looking at this scale [show card 6], and thinking about the last 12 months or so, when indoors at home, how acceptable have you found the level of vibration you have experienced caused by the internal sources beyond your control. Would you say it has been very acceptable, acceptable, neither acceptable nor unacceptable, unacceptable or very unacceptable?

Very acceptable □1
Acceptable □2
Neither acceptable nor unacceptable □3
Unacceptable □4
Very unacceptable □5

J4. In giving this rating, are there particular aspects of the vibration that you are thinking of?

[Record below]
Appendix 3 – NANR209 – Human Response to Vibration in Residential Environments: Internal sources specific questionnaire

We would now like to find out if the vibration from internal sources beyond your control has bothered, annoyed or disturbed you more or less at different times of the day.

J5. Thinking about the last 12 months or so, when indoors at home how bothered, annoyed or disturbed have you been by feeling vibration or hearing or seeing things rattle, vibrate or shake caused by internal sources beyond your control between [insert time of day]? Would you say not at all, slightly, moderately, very or extremely?

[Show card 4]
[Repeat question for each time of day]

<table>
<thead>
<tr>
<th>Time of day</th>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Very</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day (7am to 7pm)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Evening (7pm to 11pm)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Night (11pm to 7am)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

J6. Thinking about the last 12 months or so, when indoors at home, what number from 0 to 10 best shows how bothered, annoyed or disturbed you have been by feeling vibration or hearing or seeing things rattle, vibrate or shake caused by internal sources beyond your control between [insert time of day]?

[Show card 5]
[Repeat question for each time of day]

<table>
<thead>
<tr>
<th>Time of day</th>
<th>Not at all</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day (7am to 7pm)</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Evening (7pm to 11pm)</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Night (11pm to 7am)</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
</tbody>
</table>

J7. Compared with the last quarter of an hour or so, would you say that you usually experience:

- More vibration from the internal sources [ ]
- Less vibration from the internal sources [ ]
- The same amount of vibration from the internal sources [ ]
J8. Do you have any other comments about vibration from internal sources beyond your control that we have not discussed?

[Record below]

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
For internal sources sites only

Section K: Internal Sources Noise

[This section is only to be completed if the respondent has previously identified that they have been bothered, annoyed or disturbed by noise from internal sources beyond their control]

You previously said that you have been bothered, annoyd or disturbed by noise from internal sources beyond your control whilst in this home. The next set of questions is more specific to noise from those sources.

K1. Thinking about the last 12 months or so, when indoors at home, how bothered, annoyed or disturbed have you been by hearing noise caused by [insert sources below]? Would you say not at all, slightly, moderately, very or extremely?

[show card 4]

<table>
<thead>
<tr>
<th>Noise</th>
<th>Don't hear</th>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Very</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human activity such as footsteps</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Doorslams</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Machinery such as air conditioning and washing machines</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Other internal sources [Record below]</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
K2. Thinking about the last 12 months or so, when indoors at home, what number from 0 to 10 best shows how bothered, annoyed or disturbed you have been by hearing noise caused by [insert source identified at K1]?

[Show card 5]

[Repeat question for all sources identified at K1]

[For sources not noticed at K1, record as ‘Don’t notice’]

<table>
<thead>
<tr>
<th>Source</th>
<th>Don’t notice</th>
<th>Not at all</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human activity such as footsteps</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doorslams</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machinery such as air conditioning and washing machines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other internal sources</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

K3. Looking at this scale [show card 6], and thinking about the last 12 months or so, when indoors at home, how acceptable have you found the level of noise you have experienced caused by internal sources beyond your control? Would you say very acceptable, acceptable, neither acceptable nor unacceptable, unacceptable or very unacceptable?

- Very acceptable
- Acceptable
- Neither acceptable nor unacceptable
- Unacceptable
- Very unacceptable

K4. In giving this rating, are there particular aspects of the noise that you are thinking of?

[Record below]
Appendix 3 – NANR209 – Human Response to Vibration in Residential Environments: Internal sources specific questionnaire

We would now like to find out if the noise from the internal sources bothers, annoys or disturbs you more or less at different times of the day.

K5. Thinking about the last 12 months or so, when indoors at home, how bothered, annoyed or disturbed have you personally been by hearing noise caused by internal sources beyond your control between [insert time of day]? Would you say not at all, slightly, moderately, very or extremely?

[Show card 4]
[Repeat question for each time of day]

<table>
<thead>
<tr>
<th>Time of day</th>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Very</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day (7am to 7pm)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Evening (7pm to 11pm)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Night (11pm to 7am)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

K6. Thinking about the last 12 months or so, when indoors at home, what number from 0 to 10 best shows how bothered, annoyed or disturbed you have been by hearing noise caused by internal sources beyond your control between [insert time of day]?

[Show card 5]
[Repeat question for each time of day]

<table>
<thead>
<tr>
<th>Time of day</th>
<th>Not at all</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day (7am to 7pm)</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Evening (7pm to 11pm)</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Night (11pm to 7am)</td>
<td>0</td>
<td>10</td>
</tr>
</tbody>
</table>

K7. Compared with the last quarter of an hour or so, would you say that you usually hear:

More noise from the internal sources □1
Less noise from the internal sources □2
The same amount of noise from the internal sources □3
K8. Do you have any other comments about noise from internal sources beyond your control that we have not discussed?

[Record below]
Section Y: Personal and Occupancy Information

This is the final section of the questionnaire. We would just like to finish by getting some basic information about you.

**Y1.** During a typical weekday, that is, Monday to Friday, what times are you usually at home? Are you at home between:

<table>
<thead>
<tr>
<th>Time</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>06:01 and 09:00</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>09:01 and 12:00</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>12:01 and 15:00</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>15:01 and 18:00</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>18:01 and 21:00</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>21:01 and 00:00</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>00:01 and 03:00</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>03:01 and 06:00</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

**Y2.** During a typical weekend, that is, Saturday and Sunday, what times are you usually at home? Are you at home between:

<table>
<thead>
<tr>
<th>Time</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>06:01 and 09:00</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>09:01 and 12:00</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>12:01 and 15:00</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>15:01 and 18:00</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>18:01 and 21:00</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>21:01 and 00:00</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>00:01 and 03:00</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>03:01 and 06:00</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

**Y3.** Do you mind me asking how old you are?

[Record specific age] _____________

If respondent does not want to give their age ask “Would you mind telling me which age group you fit into?” [Show card 7]

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>17–24</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>25–39</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>40–49</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>50–59</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>60–74</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>75–84</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>85+</td>
<td>7</td>
<td>0</td>
</tr>
</tbody>
</table>
Appendix 3 – NANR209 – Human Response to Vibration in Residential Environments: Internal sources specific questionnaire

Y4. Thinking about the people who you live with:

i) How many members of the household are there, including you? ________________

ii) How many members of the household are aged 18 or over? ________________

iii) How many members of the household are aged under 18? ________________

Y5. From this list [show card 8], how would you describe your ethnicity?

A. White
   British □1
   Irish □2
   Romany Gypsy □3
   Irish Traveller □4
   Other white background □5 please specify ________________

B. Mixed
   White & Black Caribbean □6
   White & Black African □7
   White & Asian □8
   Other mixed background □9 please specify ________________

C. Asian or Asian British
   Indian □10
   Pakistani □11
   Bangladeshi □12
   Other Asian background □13 please specify ________________

D. Black or Black British
   Caribbean □14
   African □15
   Other black background □16 please specify ________________

E. Chinese or other ethnic group
   Chinese □17
   Any other □18 please specify ________________
Appendix 3 – NANR209 – Human Response to Vibration in Residential Environments: Internal sources specific questionnaire

Y6. From this list [show card 9] what best describes your employment status. Are you:

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>☐1</td>
<td>☐</td>
</tr>
<tr>
<td>Self-employed/business owner</td>
<td>☐2</td>
<td>☐</td>
</tr>
<tr>
<td>Student</td>
<td>☐3</td>
<td>☐</td>
</tr>
<tr>
<td>Retired</td>
<td>☐4</td>
<td>☐</td>
</tr>
<tr>
<td>Unemployed</td>
<td>☐5</td>
<td>☐</td>
</tr>
<tr>
<td>Carer/homemaker</td>
<td>☐6</td>
<td>☐</td>
</tr>
<tr>
<td>Volunteer worker</td>
<td>☐7</td>
<td>☐</td>
</tr>
<tr>
<td>Other</td>
<td>☐8</td>
<td>☐</td>
</tr>
</tbody>
</table>

[If yes to ‘other’ ask: “How would you describe your employment status?”]

[Record below]

___________________________________________________________________________

Y7. We would like to ask a few questions about your work.

a. What type of industry is it in?

[Record below]

___________________________________________________________________________

b. What is your job title

[Record below]

___________________________________________________________________________

___________________________________________________________________________

c. Are you employed in shift work?

Yes ☐1
No ☐0

[If yes, ask: “Can you summarise what the shifts are?”]

[Record below]

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________
Appendix 3 – NANR209 – Human Response to Vibration in Residential Environments: Internal sources specific questionnaire

Y8. Is there anything else you would like to say about noise and vibration in this home?

[Record below]

__________________________________________________________________________________________________________________________________________
__________________________________________________________________________________________________________________________________________
__________________________________________________________________________________________________________________________________________
__________________________________________________________________________________________________________________________________________
__________________________________________________________________________________________________________________________________________

Y9. Record if respondent is

Male □1
Female □2

Thank you for your time and for taking part in this survey.

The research is for the Department for the Environment, Food and Rural Affairs and, as you have seen, is particularly looking at how people respond to vibration and noise experienced within their homes. The purpose of this survey was to gather information about how you feel about sources of vibration and noise beyond your control. We were not able to tell you this at the start as we did not want to influence your answers.

In order to provide some context to your answers we would like, if possible, to take some vibration measurements inside your home. This will involve a member of our team placing a small measuring device on the floor for no more than half an hour so that we can measure how much vibration there is in this home. It is powered by a battery so they will not need to plug it in and you won’t need to do anything with it. Is it okay for them to do this?

If you would like any further information about the project, I can give you the phone numbers of the project managers at the University of Salford who will be able to answer any more questions you have about the project. Would you mind if we recorded your telephone number in case we need to contact you again? It will not be passed on to any other organisations or made public in any way. [Record on front sheet if given]

Thank you once again for taking part.

Allowed vibration measurement

Yes □1
No □0
### SECTION Z: Interviewer Assessment of Vibration and Noise

**Z1.** Whilst in the property, did you feel vibration of any of the following?  

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>The floor</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>The chair you were sitting on</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Other [Record below]</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
</tbody>
</table>

**Z2.** What do you think this was caused by?  

<table>
<thead>
<tr>
<th>Cause</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars, lorries, buses and other road vehicles</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Aeroplanes</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Helicopters</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Railway activity</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Underground trains (i.e. tube or metro)</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Trains in tunnels</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Quarrying or mining</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Construction activity, including building, demolition and road works</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Footsteps, slamming doors, domestic appliances inside the home</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Sources of vibration outside your control from within the building, from human activity such as footsteps, doorslams or machinery such as air conditioning and washing machines, or any other activity</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>An unidentified source</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Any other source [record source below]</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
</tbody>
</table>

**Z3.** While in the dwelling did you hear or see any of the following?  

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rattling of windows</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Rattling of objects [record objects below]</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Swaying of pendulum lights</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Other [record below]</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
</tbody>
</table>
### Z4. While in the dwelling, did you hear noise from the following?

<table>
<thead>
<tr>
<th>Noise Source</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars, lorries, buses and other road vehicles</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Aeroplanes</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Helicopters</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Railway activity</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Underground trains (i.e. tube or metro)</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Trains in tunnels</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Quarrying or mining</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Construction activity, including building, demolition and road works</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Footsteps, slamming doors, domestic appliances inside the home</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Sources of vibration outside your control from within the building, from human activity such as footsteps, doorslams or machinery such as air conditioning and washing machines, or any other activity</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>An unidentified source</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
<tr>
<td>Any other source [record source below]</td>
<td>☐ 1</td>
<td>☐ 0</td>
</tr>
</tbody>
</table>

### Z5. Any other comments you would like to make about vibration and/or noise in this property?

[Record below]