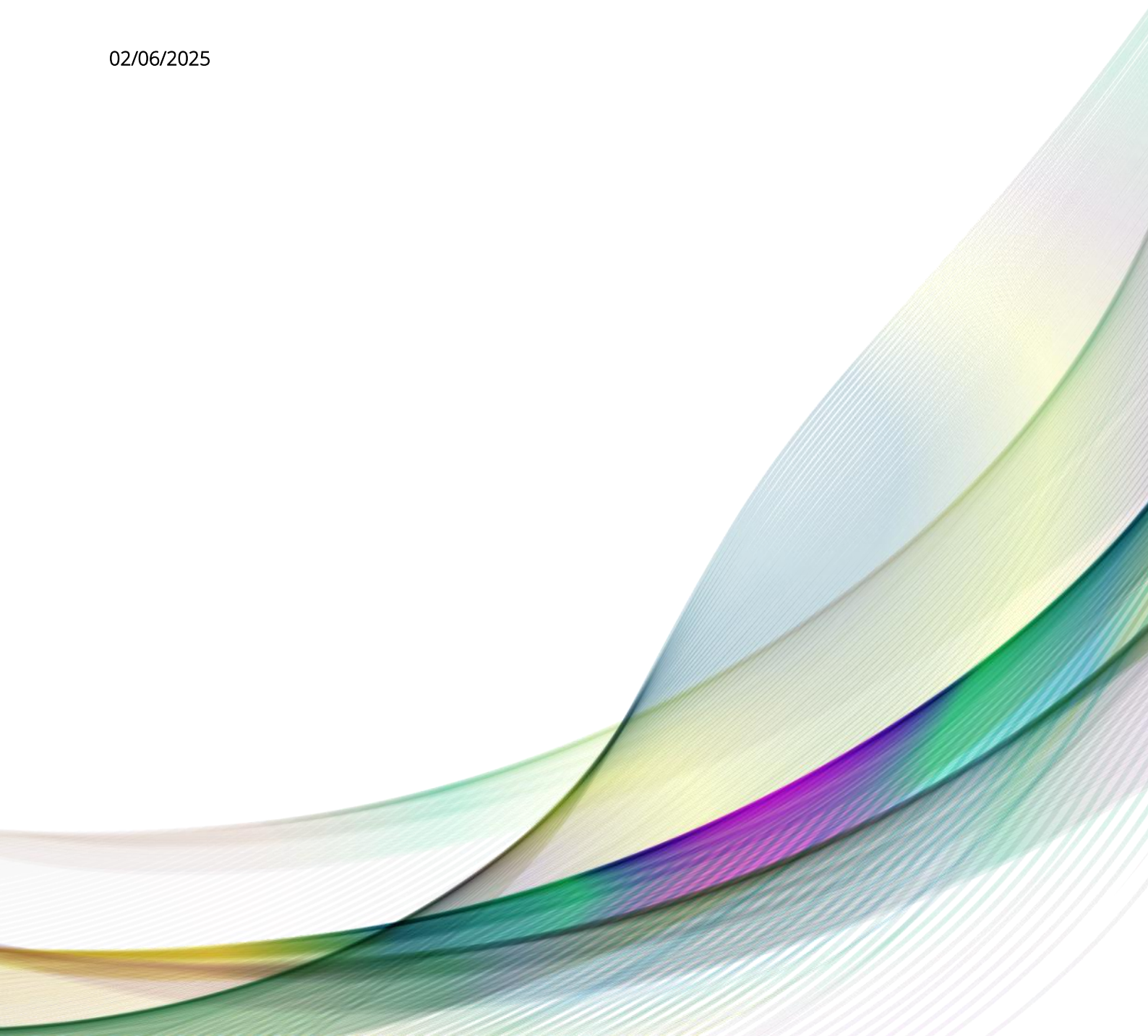
MACH GROUP

CARNIVAL PLACE APARTMENTS

PART-E SOUND INSULATION TEST REPORT

02/06/2025



Revision	Description	Issued by	Checked By	Issue date
-	Part E Test Results	Sujitesh	Ze Nunes	2/06/2025
	Signed: [redacted]		Signed: [redacted]	

ANC Member Number	179
ANC Task Number	149897
ANC Password	U12I2S

Client Name	Feltham Construction
Full Client Address	42 London Road, Newbury, Berkshire RG14 1LA
Full Site Address	Wellington Rd, Wokingham RG40 2AF
Test Date	29/05/2025

MACH Acoustics Ltd

3rd Floor 1 York Court
Upper York Street
Bristol
BS2 8QF
0117 944 1388

Eagle House
163 City Road
London
EC1V 1NR
0203 488 4559

info@machacoustics.com
www.machgroup.co.uk

Notice to Building Control Officer

Certification of Test Results

ANC operates an online, secure, paperless certification system for sound insulation tests.

The online verification (certification) system means that Building Control Bodies will need to follow the steps below to verify the results quoted in the relevant test report:

1. Go to the ANC secure server at www.theanc.co.uk
2. Navigate to the ADvANCE page which links to the ANC site available for use by BCOs.
3. Enter the following in the spaces provided:

   Task Number: 149897 Task Password: U12I2S
4. Select role "Building Control Officer" and press "Login"
5. You will then see a summary list of results of all the Tests undertaken to date for this project (Task) as held on the secure primary server and you can print this table for your records.

TABLE OF CONTENTS

1.0 INTRODUCTION

MACH Group was engaged to carry out sound insulation tests on a residential development at Carnival Place. This report is an ANC registered report with the unique registration number 149897 (MACH - ANC registered number 179 at the time of testing). Tests were undertaken by Chase Bartlett of MACH on the 29/05/2025. All the procedures in Annex B of the Approved Document E to the building regulations have been followed.

2.0 SOUND INSULATION PERFORMANCE STANDARDS

The adopted standard for 'Approved Document E (ADE) Resistance to the Passage of Sound' of the Building Regulations (England and Wales) came into force in 1st July 2003. This document stipulates minimum requirements for the sound insulation levels within residential dwellings. Approved Document E states:

> *"In the Secretary of State's view, the normal way of satisfying Requirements E1 will be to build separating walls, separating floors and stairs that have a separating function, together with associated flanking construction, in such a way that they achieve the sound insulation values for dwelling-houses and flats set out in Table 1a, and the values for residential purposes set out in Table 1b."*

Table 1a of ADE 2003 summarises the sound insulation performance standards for dwelling houses and flats.

Table 1a: Dwelling-houses and flats – performance standards separating walls, separating floors, and stairs that have a separating function.

	Airborne sound insulation $D_{nT,w}+C_{tr}$ dB (Minimum Values)	Impact sound insulation $L'_{nT,w}$ dB (Maximum Values)
Purpose built dwelling houses and flats		
Walls	45	-
Floors and stairs	45	62
Dwelling-houses and flats formed by material change of use		
Walls	43	-
Floors and stairs	43	64

Table 2.1 – ADE 2003 sound insulation performance standards – Dwelling houses and flats (Table 1a)

3.0 TESTING REQUIREMENTS

Approved Document E states that at least one set of tests per 10 dwellings in a group or sub-group should be undertaken. Where applicable, one set of tests should comprise of 6 individual sound insulation tests (2 airborne wall tests, 2 airborne floor tests and 2 impact floor tests).

The development consists of:

- 55 flats in 2 connected new-build residential blocks, spread over 3 storeys.

In order to satisfy the requirements of Approved Document E, 36 individual sound insulation tests have been carried out (12 airborne wall tests, 12 airborne floor tests and 12 impact floor tests).

4.0 TEST PROCEDURE

The sound insulation testing was carried out in full accordance with the procedure described in BS EN 140 'Acoustics – Measurement of Sound Insulation in Buildings and of Building Elements'. All of the procedures in Annex B of the Approved Document E to the building regulations have been followed. Appendix A provides further information of the test procedure used along with a list of standards followed.

4.1 Deviations from Test Procedure

None.

5.0 MEASUREMENT EQUIPMENT

The following equipment was used to carry out the sound insulation testing.

Item	Serial No.	Certificate No.	Last Calibration	Calibration Due
NTI Precision Sound Analyser XL2 TA	A2A-08695-E0	197909	24/08/2023	24/08/2025
NTI Pre-amplifier MA220	7182	197909	24/08/2023	24/08/2025
Cirrus Microphone Capsule MK:224	217326D	197909	24/08/2023	24/08/2025
Svantek Acoustic Calibrator SV33A	64138	U47924	29/05/2024	29/05/2025
NTI Precision Sound Analyser XL2 TA	A2A-11002-E0	239096	25/04/2025	25/04/2027
NTI Pre-amplifier MA220	7183	239096	25/04/2025	25/04/2027
Cirrus Microphone Capsule MK:224	214341A	239096	25/04/2025	25/04/2027
01dB & Sound Solutions Products Limited TM01 Tapping Machine	TP02058	UCRT24/2192	06/09/2024	06/09/2026
QTX Speakers x 2	178-843	-	-	-

Table 5.1 - Test equipment used on site.

5.1 Calibration

The Sound Level Meter was calibrated on site, at the start and end of the measurement sequence, to a level of 114.0 dB at 1000Hz. No drift was noted. The operation of the Tapping Machine was also inspected, with no deviations from acceptable function. The hammer drop height was checked and conformed to the correct falling height.

6.0 RESULTS

The test procedures in Annex B of ADE have been followed in full. The results of these tests are summarised below:

6.1 Airborne Wall Tests

Test	Source Room	Approx. Volume (m^3)	Receiver Room	Approx. Volume (m^3)	ADE Requirement dB $D_{nT,w}+C_{tr}$	Measured Sound Insulation	Pass / Fail
ABW 1	02-12 Bedroom 1	30	02-11 Bedroom	30	$D_{nTw} + C_{tr} \geq 45$	62	Pass
ABW 2	02-13 Bedroom 1	40	02-14 Bedroom	30	$D_{nTw} + C_{tr} \geq 45$	56	Pass
ABW 3	02-11 KDL	60	02-10 Bedroom	30	$D_{nTw} + C_{tr} \geq 45$	56	Pass
ABW 4	02-14 KDL	60	02-15 Bedroom	30	$D_{nTw} + C_{tr} \geq 45$	56	Pass
ABW 5	02-04 KDL	60	02-03 KDL	60	$D_{nTw} + C_{tr} \geq 45$	56	Pass
ABW 6	02-15 KDL	60	02-16 KDL	60	$D_{nTw} + C_{tr} \geq 45$	57	Pass
ABW 7	02-08 Bedroom 1	40	02-09 Bedroom	30	$D_{nTw} + C_{tr} \geq 45$	57	Pass
ABW 8	02-17 Bedroom 1	40	02-16 Bedroom	30	$D_{nTw} + C_{tr} \geq 45$	58	Pass
ABW 9	02-01 Bedroom 1	40	02-02 Bedroom	30	$D_{nTw} + C_{tr} \geq 45$	56	Pass
ABW 10	South 02-08 KDL	60	South 02-09 Bedroom 1	30	$D_{nTw} + C_{tr} \geq 45$	59	Pass
ABW 11	02-02 KDL	60	02-03 Bedroom	30	$D_{nTw} + C_{tr} \geq 45$	58	Pass
ABW 12	South 02-07 KDL	60	South 02-08 Bedroom 1	40	$D_{nTw} + C_{tr} \geq 45$	58	Pass

Table 6.1 - Results of airborne walls sound insulation testing

The table indicates all tested areas have passed.

6.2 Airborne Floor Tests

Test	Source Room	Approx. Volume (m^3)	Receiver Room	Approx. Volume (m^3)	ADE Requirement dB $D_{nT,w}+C_{tr}$	Measured Sound Insulation	Pass / Fail
ABF 1	02-11 KDL	60	01-11 KDL	60	$D_{nTw} + C_{tr} \geq 45$	59	Pass
ABF 2	02-14 KDL	60	01-14 KDL	60	$D_{nTw} + C_{tr} \geq 45$	60	Pass
ABF 3	02-10 Bedroom	30	01-10 Bedroom	30	$D_{nTw} + C_{tr} \geq 45$	60	Pass
ABF 4	02-15 Bedroom	30	01-15 Bedroom	30	$D_{nTw} + C_{tr} \geq 45$	59	Pass
ABF 5	02-10 KDL	60	01-10 KDL	60	$D_{nTw} + C_{tr} \geq 45$	60	Pass
ABF 6	02-15 KDL	60	01-15 KDL	60	$D_{nTw} + C_{tr} \geq 45$	59	Pass
ABF 7	02-16 KDL	60	01-16 KDL	60	$D_{nTw} + C_{tr} \geq 45$	60	Pass
ABF 8	02-16 Bedroom	30	01-16 Bedroom	30	$D_{nTw} + C_{tr} \geq 45$	61	Pass
ABF 9	02-08 Bedroom 1	40	01-08 Bedroom 1	40	$D_{nTw} + C_{tr} \geq 45$	59	Pass
ABF 10	02-17 Bedroom 1	40	01-17 Bedroom 1	40	$D_{nTw} + C_{tr} \geq 45$	59	Pass
ABF 11	02-8 kdl	50	01-8 kdl	50	$D_{nTw} + C_{tr} \geq 45$	60	Pass
ABF 12	02-17 kdl	50	01-17 kdl	50	$D_{nTw} + C_{tr} \geq 45$	60	Pass

Table 6.2 - Results of airborne floors sound insulation testing

The table indicates all tested areas have passed.

6.3 Impact Tests

Test	Source Room	Approx. Volume (m^3)	Receiver Room	Approx. Volume (m^3)	ADE Requirement $L'_{nT,w}$	Measured Sound Insulation	Pass / Fail
IP 1	02-11 KDL	60	01-11 KDL	60	$L'_{nTw} \leq 62$	46	Pass
IP 2	02-14 KDL	60	01-14 KDL	60	$L'_{nTw} \leq 62$	45	Pass
IP 3	02-10 Bedroom	30	01-10 Bedroom	30	$L'_{nTw} \leq 62$	47	Pass
IP 4	02-15 Bedroom	30	01-15 Bedroom	30	$L'_{nTw} \leq 62$	47	Pass
IP 5	02-10 KDL	60	01-10 KDL	60	$L'_{nTw} \leq 62$	45	Pass
IP 6	02-15 KDL	60	01-15 KDL	60	$L'_{nTw} \leq 62$	45	Pass
IP 7	02-16 KDL	60	01-16 KDL	60	$L'_{nTw} \leq 62$	44	Pass
IP 8	02-16 Bedroom	30	01-16 Bedroom	30	$L'_{nTw} \leq 62$	45	Pass
IP 9	02-08 Bedroom 1	40	01-08 Bedroom 1	40	$L'_{nTw} \leq 62$	46	Pass
IP 10	02-17 Bedroom 1	40	01-17 Bedroom 1	40	$L'_{nTw} \leq 62$	47	Pass
IP 11	02-8 kdl	50	01-8 kdl	50	$L'_{nTw} \leq 62$	47	Pass
IP 12	02-17 kdl	50	01-17 kdl	50	$L'_{nTw} \leq 62$	46	Pass

Table 6.3 - Results of impact sound insulation testing

The table indicates all tested areas have passed. Standard graphical results are presented in Appendix C.

6.4 Description of Constructions Tested

The party wall construction tested has been identified as PE 1.2 - Dense aggregate concrete cast in-situ with plaster facing. Party floors have been identified as PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber battens or Resi. Channels.

6.5 Background Noise

Construction noise constitutes the main source of noise on site, Background noise levels are intermittent due to construction noise during the test procedure.

Where receiver room measurements are between 6 and 10 dB above measured background noise levels, a correction has been applied as outlined in ISO 140-4. Where 1/3 octave results are seen to be at the limit of measurement, a correction has also been applied in line with ISO 140-4. All 1/3 octave results at the limit of measurement have been indicated within the test certificates presented in Appendix C. Procedure for correction is outlined in Appendix B.

7.0 CONCLUSION

In order to demonstrate compliance with the requirements of Approved Document E (ADE), sound insulation testing has been undertaken at Carnival Place. The sound insulation testing was carried out in full accordance with the procedure described in BS EN 140-4 and BS EN 140-7 'Acoustics – Measurement of Sound Insulation in Buildings and of Building Elements'.

8.0 REFERENCES

Approved Document E – The Building Regulations 2010 – Resistance to the passage of sound, July 2003

BS EN ISO 140-4:1998 – Acoustics – Measurement of sound insulation in buildings and of building elements – Part 4: Field measurements of airborne sound insulation between rooms.

BS EN ISO 140-7:1998 – Acoustics – Measurement of sound insulation in buildings and of building elements – Part 4: Field measurements of impact sound insulation between rooms.

BS EN ISO 717-1: 1997: Acoustics - Rating of sound insulation in buildings and of building elements – Airborne sound insulation.

BS EN ISO 717-2: 1997: Acoustics - Rating of sound insulation in buildings and of building elements – Impact sound insulation.

ANC Testers' Manual for Sound Insulation Testing in Dwellings – 2024.

BS EN ISO 3382-2:2008: Acoustics — Measurement of room acoustic parameters.

APPENDIX A - TEST PROCEDURE

The sound insulation testing was carried out according to the procedure described in Annex B of Approved Document E and in full accordance with the following standards:

- BS EN ISO 140-4: 1998: Field measurements of airborne sound insulation between rooms.
- BS EN ISO 140-7: 1998: Field measurements of impact sound insulation of floors.

Note: All measurements described below were undertaken using simultaneously recorded 1/3 octave frequency bands between 100 – 3150 Hz.

A.1 Airborne Sound Insulation - Testing Procedure

1. Two sources of pink noise were placed in the 'source' room such that a diffuse sound field was created within the room.

2. Spatially averaged noise levels were recorded in the 'source' room using the moving microphone method for a minimum sample period of 45 seconds.

3. Noise levels were recorded in the 'receiver' room at 5 discrete locations, for a minimum sample period of 6 seconds at each location. The following minimum separating distances were used between measurement locations;

    - 0.7 m between microphone positions
    - 0.5 m between any microphone position and the room boundaries
    - 1.0 m between any microphone position and the sound source.

    The 5 samples measured in the 'receiver' room were then logarithmically averaged to give the 'receiver' room noise level. Although a moving microphone has been employed within the 'source' room, discrete locations have been employed in the 'receiver' room in order to avoid measurement of unwanted noise (e.g. movement of the engineer).

4. Reverberation time measurements were undertaken within the 'receiving' room using an interrupted noise method (loudspeaker). 2 source positions were used, with a total of 6 measurements of reverberation time undertaken at discrete positions within the room. The following minimum separating distances were used between measurement locations;

    - 0.7 m between microphone positions
    - 0.5 m between any microphone position and the room boundaries
    - 1.0 m between any microphone position and the sound source.

5. Finally, background noise measurements were taken at 6 fixed microphone positions in the 'receiver' room, for a sample period of 6 seconds at each position. These were logarithmically averaged to establish the background noise level.

A.2 Impact Sound Insulation - Testing Procedure

1. A single tapping machine was used, positioned at 4 different locations. 8 fixed microphone positions were measured. A minimum duration of 6 seconds was used for each measurement. The average sound pressure level in the receiver room was determined by logarithmically averaging the samples recorded.

   Where the floor construction has an anisotropic construction (with ribs, beams etc.). The hammer connecting line has been orientated at 45° to the direction of the ribs/beams.

   The following minimum separating distances have been used:

   - 1.0 m between microphone and the upper floor being excited by the tapping machine.
   - 0.7 m between microphone positions
   - 0.5 m between any microphone position and the room boundaries

2. Reverberation time measurements were undertaken within the 'receiving' room using an interrupted noise method (loudspeaker). 2 source positions were used, with a total of 6 measurements of reverberation time undertaken at discrete positions within the room. The following minimum separating distances are used between measurement locations;

   - 0.7 m between microphone positions
   - 0.5 m between any microphone position and the room boundaries
   - 1.0 m between any microphone position and the sound source.

3. Finally, background noise measurements were taken at 6 fixed microphone positions in the 'receiver' room, for a sample period of 6 seconds at each position. These were logarithmically averaged to establish the background noise level.

APPENDIX B - ANALYSIS PROCEDURE

The sound insulation testing analysis was carried out according to the procedure described in Annex B of Approved Document E and in full accordance with the following standards:

- BS EN ISO 717-1: 1997: Acoustics - Rating of sound insulation in buildings and of building elements – Airborne sound insulation.
- BS EN ISO 717-2: 1997: Acoustics - Rating of sound insulation in buildings and of building elements – Impact sound insulation.

B.1 Airborne Sound Insulation - Analysis Procedure

If the sound pressure levels in the receiver room are less than 10 dB above the background noise levels (but still greater than 6 dB above the background noise), the following correction will be applied to the measured receiver room levels:

$$L = 10\log\left(10^{L_{sb}/10} - 10^{L_b/10}\right)\ dB$$

Where:

L	= adjusted signal level, dB
L_{sb}	= level of signal and background noise combined, dB
L_b	= background noise level, dB

If the sound pressure levels in the receiver room are 6 dB or less above measured background noise, the correction 1, 3 dB is applied, corresponding to a difference of 6 dB.

Noise levels within the receiver room are then subtracted from the measured noise levels in the source room, thus providing the sound level difference in each 1/3 octave band.

Sound level differences are then corrected for reverberation time in the receiver room to a standardised time of 0.5 seconds, which is considered to be typical of reverberant conditions in most domestic properties.

The following formula describes the above process for each 1/3 octave band centre frequency:

$$D_{nT} = D + 10\log\left(\frac{T}{T_0}\right)$$

Where:

D_{nT}	= Standardised level difference
D	= Measured sound level difference
T	= Measured reverberation time in the 'receive' room
T_0	= Reference reverberation time (0.5 seconds)

Each 1/3 octave band D_{nT} value is then compared against a standard curve, as defined in BS EN ISO 717-1 and shifted in 1 dB increments, until a point is found where the value of deviations on the measured curve from the standard curve is as close to 32 dB as possible, without exceeding this value. The value of the

shifted standard curve in the 500 Hz 1/3 octave band centre frequency band is then taken to be the single figure weighted standardised level difference ($D_{nT,w}$).

A further low frequency correction is then calculated from the same 1/3 octave band values in full accordance with BS EN ISO 717-1 and this value is added to the previous value. This gives an overall standardised level difference of $D_{nT,w}+ C_{tr}$ which may then be directly compared against the minimum airborne sound insulation requirements in Approved Document E of the Building Regulations.

B.2 Impact Sound Insulation - Analysis Procedure

If the sound pressure levels in the receiver room are less than 10 dB above the background noise levels (but still greater than 6 dB above the background noise), the following correction will be applied to the measured receiver room levels:

$$L = 10\log\left(10^{L_{sb}/10} - 10^{L_b/10}\right)\ dB$$

Where:

L	= adjusted signal level, dB
L_{sb}	= level of signal and background noise combined, dB
L_b	= background noise level, dB

If the sound pressure levels in the receiver room are 6 dB or less above measured background noise, the correction 1, 3 dB is applied, corresponding to a difference of 6 dB.

The noise levels in the receiver room are then corrected for the reverberation time in the 'receiver' room to a standardised time of 0.5 seconds, which is considered to be typical of reverberant conditions in most domestic properties.

The following formula describes the above process for each 1/3 octave band centre frequency:

$$L'_{nT} = L_i - 10\log\left(\frac{T}{T_0}\right)$$

Where:

L'_{nT}	= Standardised impact sound level
L_i	= Measured impact sound level
T	= Measured reverberation time in the 'receive' room
T_0	= Reference reverberation time (0.5 seconds)

Following the above, each 1/3 octave band L'_{nT} value is compared against a standard curve, as defined in BS EN ISO 717-2 and shifted in 1 dB increments until a point is found where the value of deviations on the measured curve from the standard curve is as close to 32 dB as possible but does not exceed this value. The value of the shifted standard curve in the 500 Hz 1/3 octave band centre frequency band is then taken to be the single figure weighted standardised impact sound pressure level ($L'_{nT,w}$). This figure may be directly compared against the minimum impact sound insulation requirements in Approved Document E of the Building Regulations.

APPENDIX C – TEST CERTIFICATES

Test certificates for all tests conducted are provided below.

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place Test date: 2025-05-29 Test No: 179 : ABW1

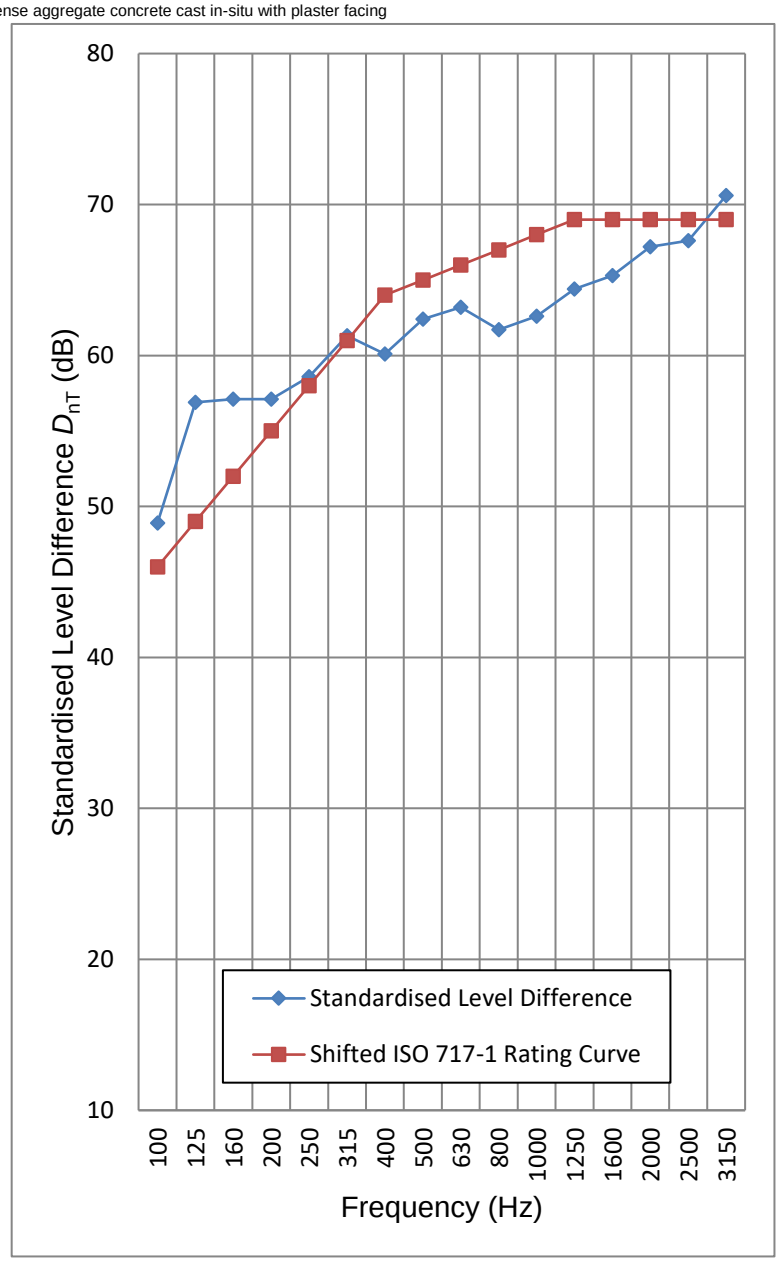
Client: Feltham Construction

Source Room: 02-12 Bedroom 1 Receiver Room: 02-11 Bedroom

Volume (m3): 30 Volume (m3): 30

Construction: PE 1.2 - Dense aggregate concrete cast in-situ with plaster facing

Frequency f (Hz)	D_{nT} (1/3 Octave) dB
50	46
63	50.7
80	52.2
100	48.9
125	56.9
160	57.1
200	57.1
250	58.6
315	61.3
400	60.1
500	62.4
630	63.2
800	61.7
1000	62.6
1250	64.4
1600	65.3
2000	67.2
2500	67.6
3150	70.6
4000	73.9
5000	76



Rating according to ISO 717-1

$D_{nT,w}$ = 65 dB **$D_{nT,w} + C_{tr}$ = 62 dB** **D_w = 59 dB**

C_{tr} = -3 dB

$D_{nT,w} + C$ = 64 dB

$D_{nT,w} + C_{tr}$ 50-3150 = 61 dB

$D_{nT,w} + C_{tr}$ 50-5k = 61 dB

$D_{nT,w} + C$ 50 - 5k = 65 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 Name of Test Institute: MACH

Date: 2025-05-29 Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABW2

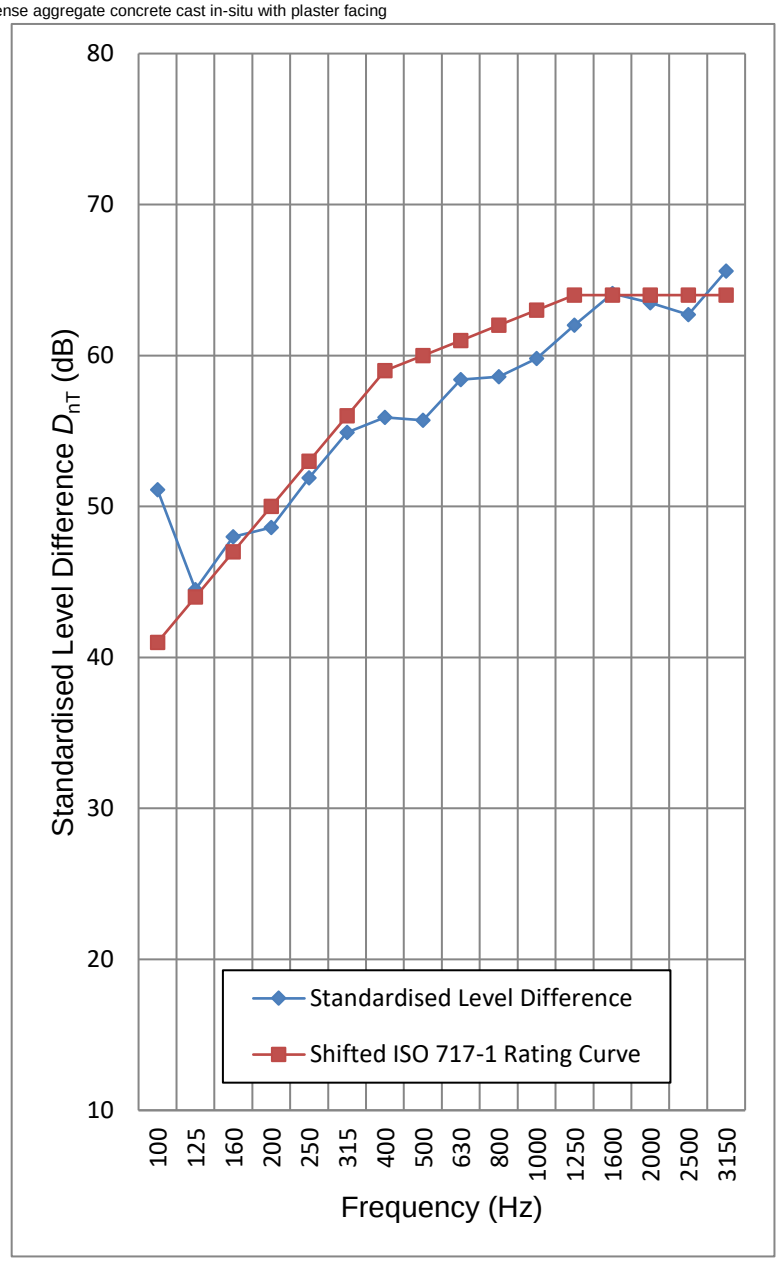
Client: Feltham Construction

Source Room: 02-13 Bedroom 1 | Receiver Room: 02-14 Bedroom

Volume (m3): 40 | Volume (m3): 30

Construction: PE 1.2 - Dense aggregate concrete cast in-situ with plaster facing

Frequency f (Hz)	D_{nT} (1/3 Octave) dB
50	34
63	33.1
80	37.8
100	51.1
125	44.5
160	48
200	48.6
250	51.9
315	54.9
400	55.9
500	55.7
630	58.4
800	58.6
1000	59.8
1250	62
1600	64.1
2000	63.5
2500	62.7
3150	65.6
4000	68.7
5000	70.5



Rating according to ISO 717-1

$D_{nT,w}$ = 60 dB | **$D_{nT,w} + C_{tr}$ = 56 dB** | **D_w = 55 dB**

C_{tr} = -4 dB

$D_{nT,w} + C_{tr}$ 50-3150 = 51 dB

$D_{nT,w} + C$ = 59 dB | $D_{nT,w} + C_{tr}$ 50-5k = 51 dB | $D_{nT,w} + C$ 50 - 5k = 59 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABW3

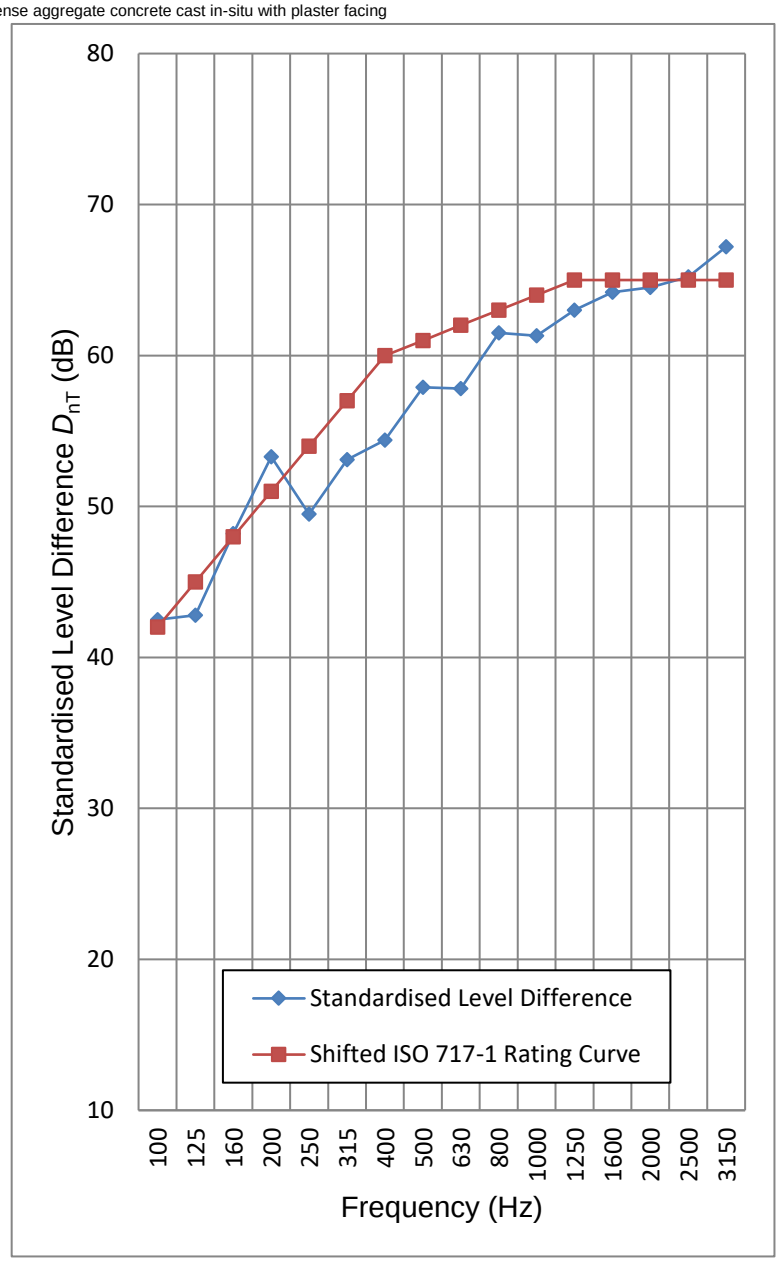
Client: Feltham Construction

Source Room: 02-11 KDL | Receiver Room: 02-10 Bedroom

Volume (m3): 60 | Volume (m3): 30

Construction: PE 1.2 - Dense aggregate concrete cast in-situ with plaster facing

Frequency f (Hz)	D_{nT} (1/3 Octave) dB
50	26.1
63	28
80	40.9
100	42.5
125	42.8
160	48.2
200	53.3
250	49.5
315	53.1
400	54.4
500	57.9
630	57.8
800	61.5
1000	61.3
1250	63
1600	64.2
2000	64.5
2500	65.2
3150	67.2
4000	70.2
5000	72.3



Rating according to ISO 717-1

$D_{nT,w}$ = 61 dB | **$D_{nT,w} + C_{tr}$ = 56 dB** | **D_w = 55 dB**

C_{tr} = -5 dB

$D_{nT,w} + C_{tr}$ 50-3150 = 47 dB

$D_{nT,w} + C$ = 59 dB | $D_{nT,w} + C_{tr}$ 50-5k = 47 dB | $D_{nT,w} + C$ 50 - 5k = 58 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABW4

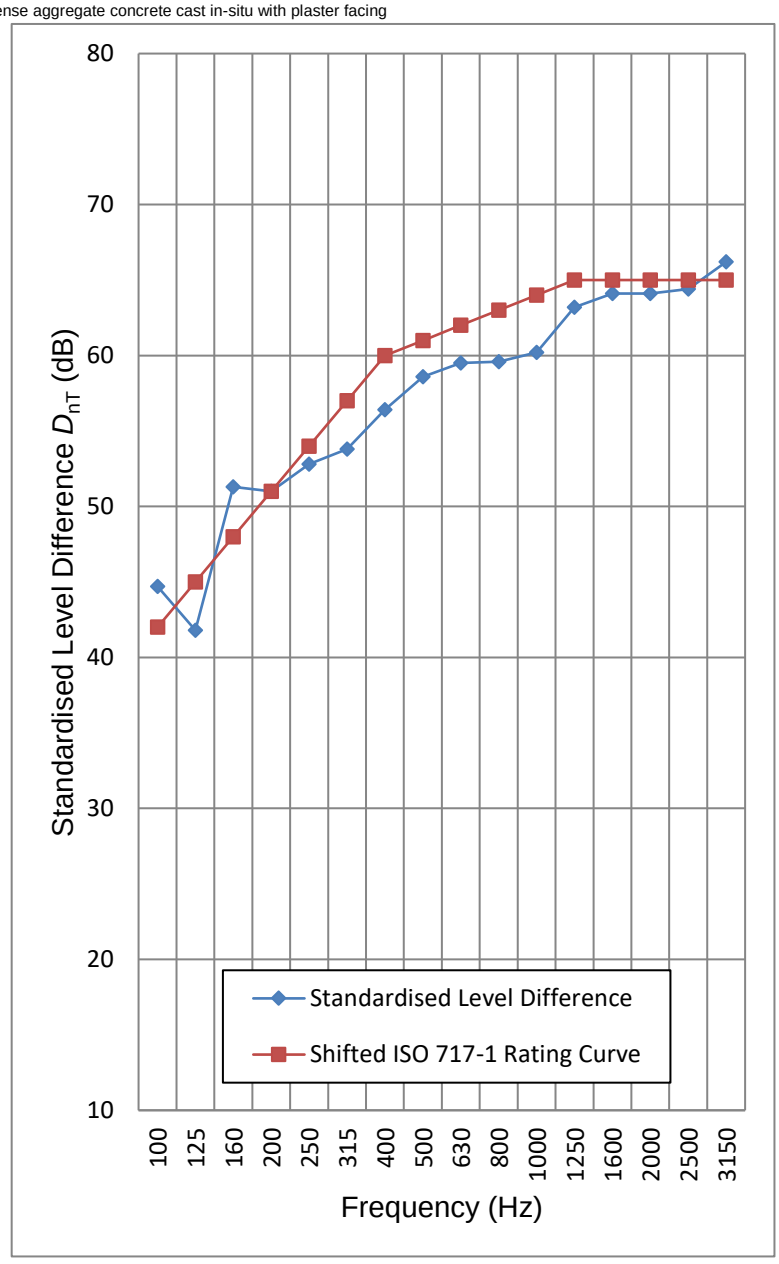
Client: Feltham Construction

Source Room: 02-14 KDL | Receiver Room: 02-15 Bedroom

Volume (m3): 60 | Volume (m3): 30

Construction: PE 1.2 - Dense aggregate concrete cast in-situ with plaster facing

Frequency f (Hz)	D_{nT} (1/3 Octave) dB
50	29.6
63	33.7
80	38.7
100	44.7
125	41.8
160	51.3
200	51
250	52.8
315	53.8
400	56.4
500	58.6
630	59.5
800	59.6
1000	60.2
1250	63.2
1600	64.1
2000	64.1
2500	64.4
3150	66.2
4000	68.6
5000	70.2



Rating according to ISO 717-1

$D_{nT,w}$ = 61 dB | **$D_{nT,w} + C_{tr}$ = 56 dB** | **D_w = 55 dB**

C_{tr} = -5 dB

$D_{nT,w} + C_{tr}$ 50-3150 = 50 dB

$D_{nT,w}$ + C = 60 dB | $D_{nT,w} + C_{tr}$ 50-5k = 50 dB | $D_{nT,w}$ + C 50 - 5k = 60 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABW5

Client: Feltham Construction

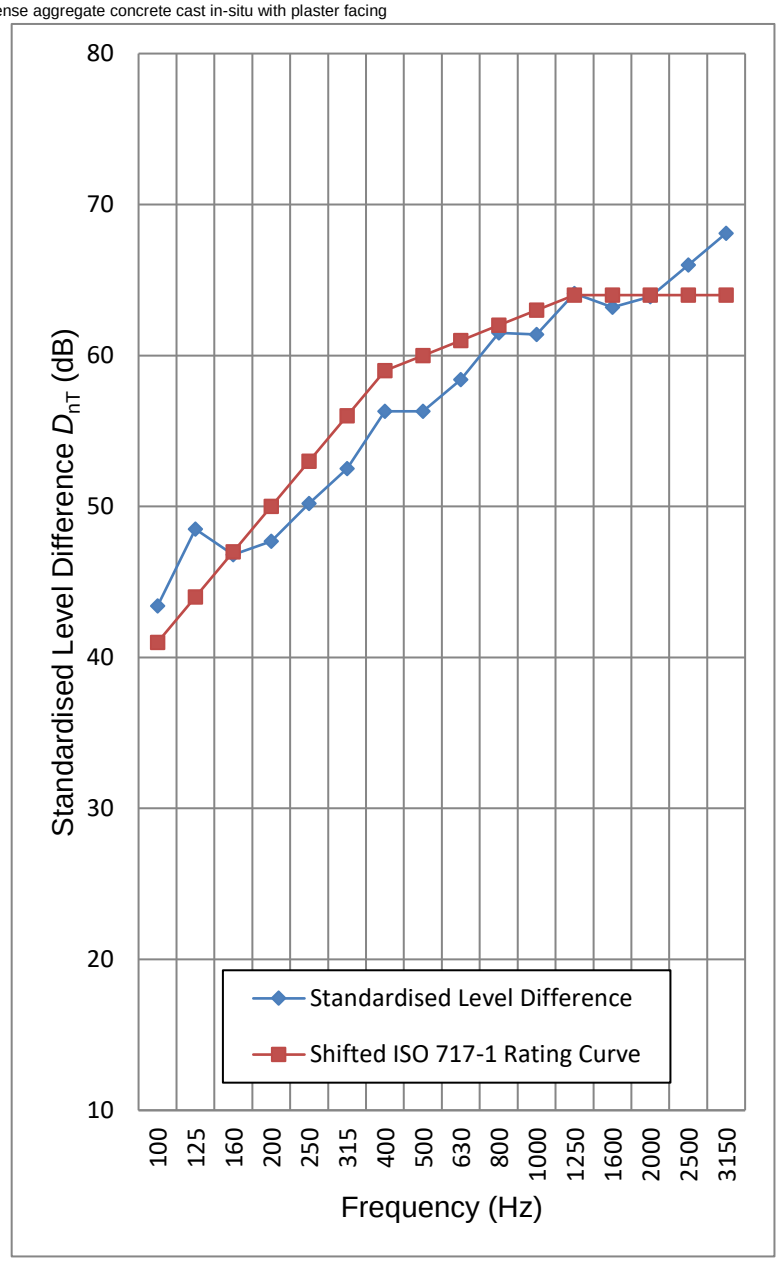
Source Room: 02-04 KDL | Receiver Room: 02-03 KDL

Volume (m3): 60 | Volume (m3): 60

Construction: PE 1.2 - Dense aggregate concrete cast in-situ with plaster facing

Frequency f (Hz)	D_{nT} (1/3 Octave) dB	
50	38.2	
63	40.4	>=
80	36.7	
100	43.4	
125	48.5	
160	46.8	
200	47.7	
250	50.2	
315	52.5	
400	56.3	
500	56.3	
630	58.4	
800	61.5	
1000	61.4	
1250	64.1	
1600	63.2	
2000	63.9	
2500	66	
3150	68.1	
4000	72.3	
5000	74.3	

Limit of Measurement >=



Rating according to ISO 717-1

$D_{nT,w}$ =	**60 dB**	**$D_{nT,w} + C_{tr}$ =**	**56 dB**	**D_w =**	**56 dB**
C_{tr} =	-4 dB				
		$D_{nT,w} + C_{tr}$ 50-3150 =	53 dB		
$D_{nT,w} + C$ =	59 dB	$D_{nT,w} + C_{tr}$ 50-5k =	53 dB	$D_{nT,w} + C$ 50 - 5k =	60 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place Test date: 2025-05-29 Test No: 179 : ABW6

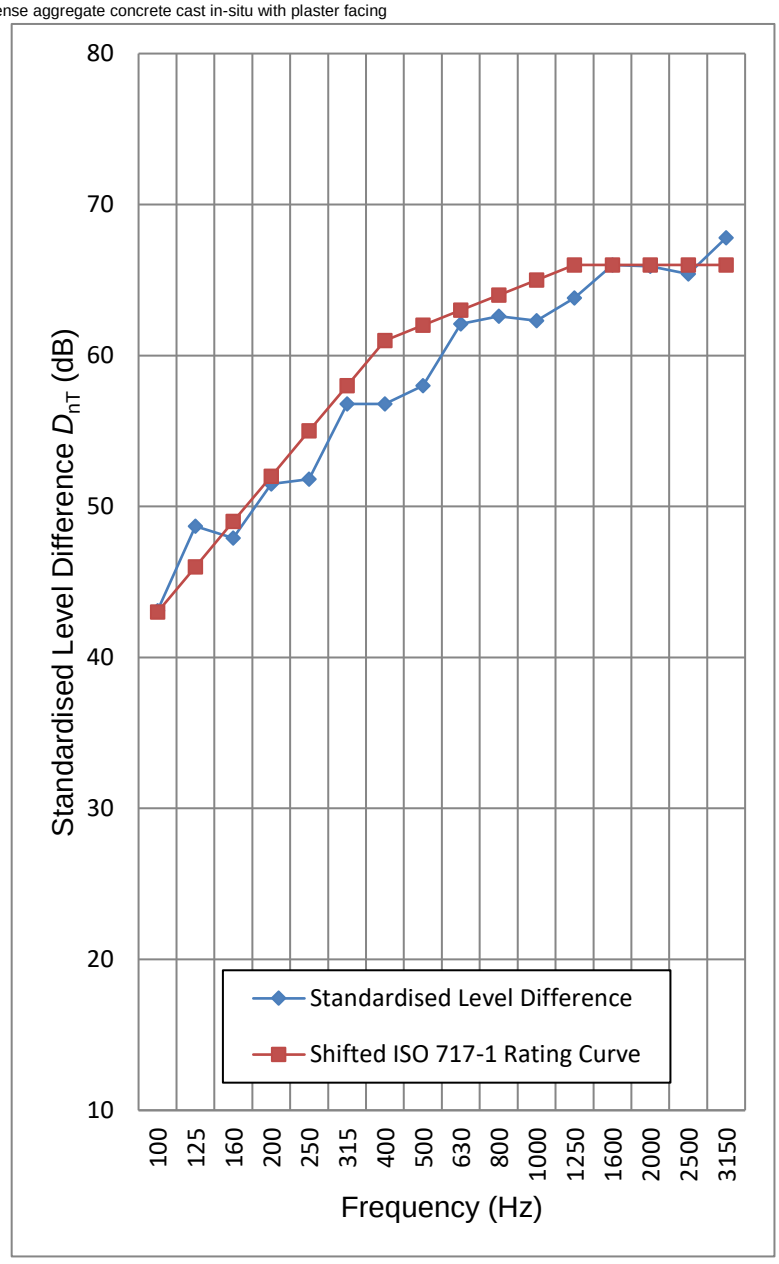
Client: Feltham Construction

Source Room: 02-15 KDL Receiver Room: 02-16 KDL

Volume (m3): 60 Volume (m3): 60

Construction: PE 1.2 - Dense aggregate concrete cast in-situ with plaster facing

Frequency f (Hz)	D_{nT} (1/3 Octave) dB
50	37.7
63	39.1
80	39.8
100	43.1
125	48.7
160	47.9
200	51.5
250	51.8
315	56.8
400	56.8
500	58
630	62.1
800	62.6
1000	62.3
1250	63.8
1600	66
2000	65.9
2500	65.4
3150	67.8
4000	70.7
5000	71.9



Rating according to ISO 717-1

$D_{nT,w}$ = 62 dB **$D_{nT,w} + C_{tr}$ = 57 dB** **D_w = 59 dB**

C_{tr} = -5 dB

$D_{nT,w} + C_{tr}$ 50-3150 = 54 dB

$D_{nT,w} + C$ = 61 dB $D_{nT,w} + C_{tr}$ 50-5k = 54 dB $D_{nT,w} + C$ 50 - 5k = 61 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 Name of Test Institute: MACH

Date: 2025-05-29 Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABW7

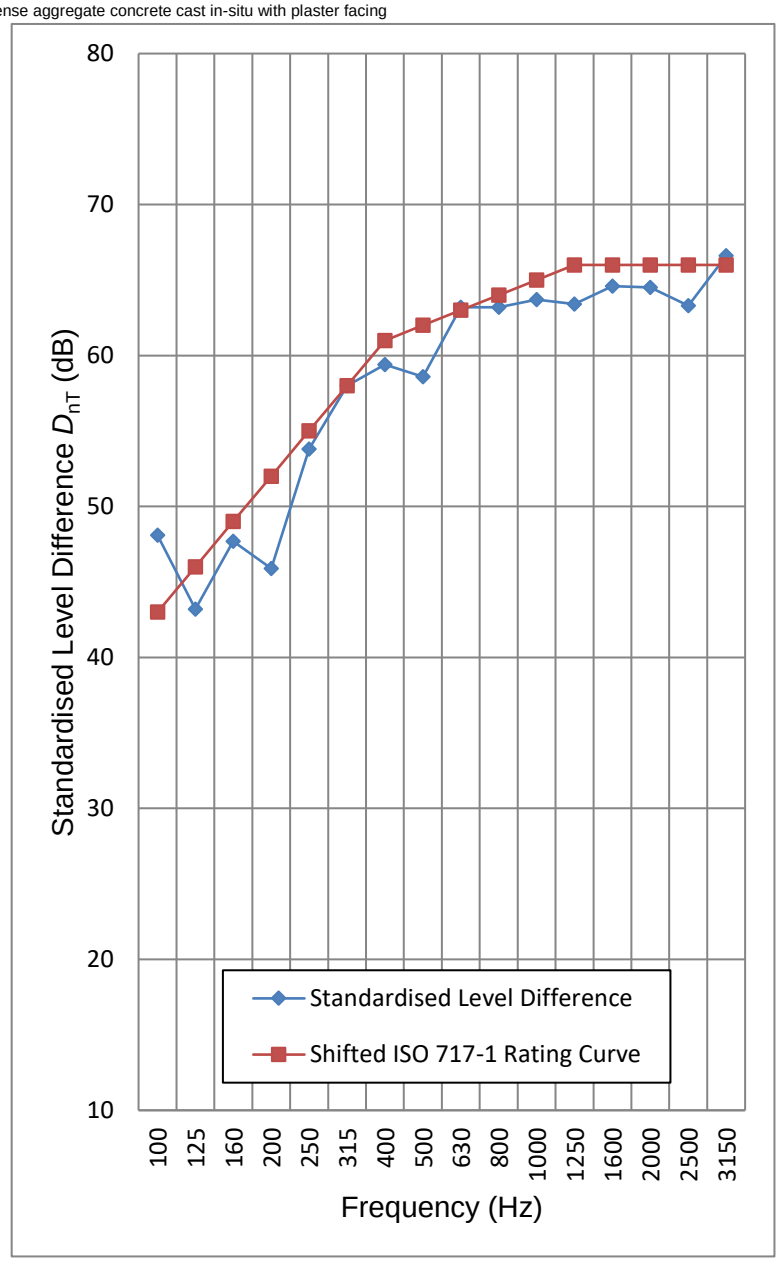
Client: Feltham Construction

Source Room: 02-08 Bedroom 1 | Receiver Room: 02-09 Bedroom

Volume (m3): 40 | Volume (m3): 30

Construction: PE 1.2 - Dense aggregate concrete cast in-situ with plaster facing

Frequency f (Hz)	D_{nT} (1/3 Octave) dB
50	43
63	41.9
80	37.8
100	48.1
125	43.2
160	47.7
200	45.9
250	53.8
315	58
400	59.4
500	58.6
630	63.2
800	63.2
1000	63.7
1250	63.4
1600	64.6
2000	64.5
2500	63.3
3150	66.6
4000	69.2
5000	71.9



Rating according to ISO 717-1

$D_{nT,w}$ = 62 dB | **$D_{nT,w} + C_{tr}$ = 57 dB** | **D_w = 57 dB**

C_{tr} = -5 dB

$D_{nT,w} + C_{tr}$ 50-3150 = 54 dB

$D_{nT,w} + C$ = 60 dB | $D_{nT,w} + C_{tr}$ 50-5k = 54 dB | $D_{nT,w} + C$ 50 - 5k = 61 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABW8

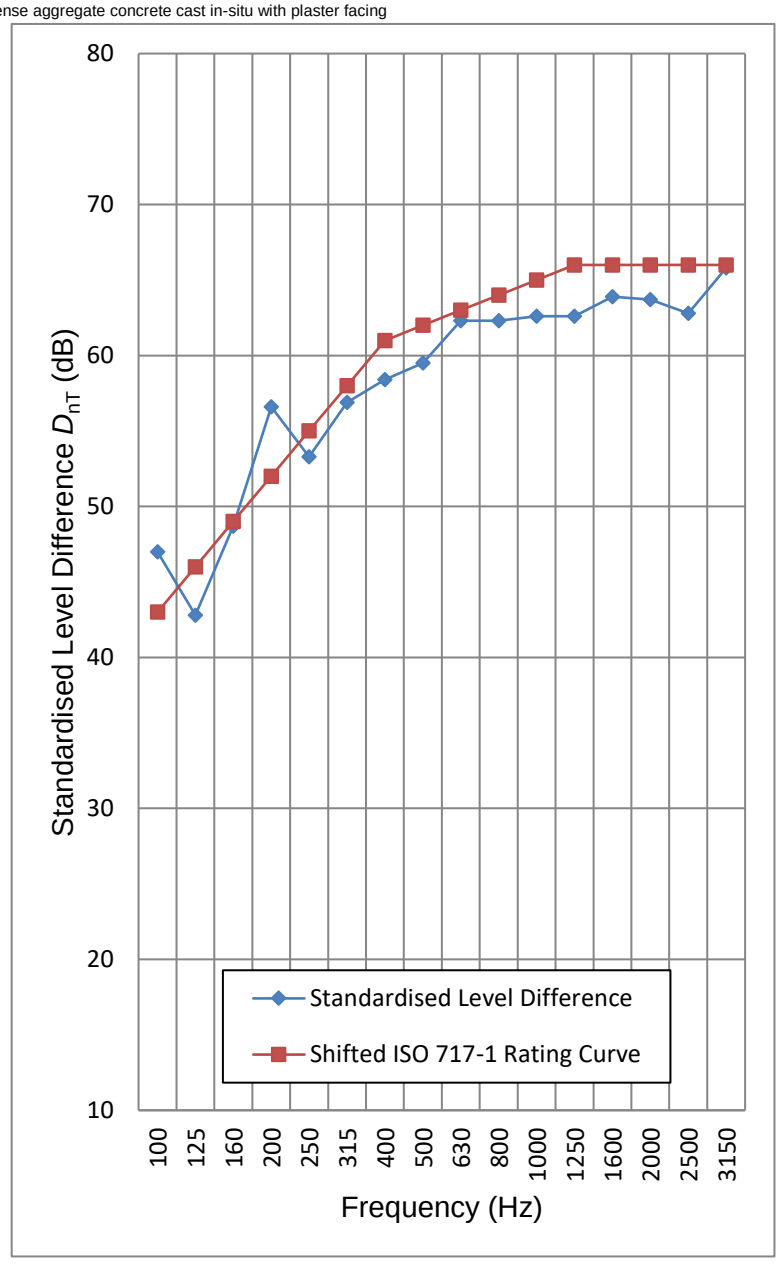
Client: Feltham Construction

Source Room: 02-17 Bedroom 1 | Receiver Room: 02-16 Bedroom

Volume (m3): 40 | Volume (m3): 30

Construction: PE 1.2 - Dense aggregate concrete cast in-situ with plaster facing

Frequency f (Hz)	D_{nT} (1/3 Octave) dB
50	46.3
63	42.6
80	50.8
100	47
125	42.8
160	48.7
200	56.6
250	53.3
315	56.9
400	58.4
500	59.5
630	62.3
800	62.3
1000	62.6
1250	62.6
1600	63.9
2000	63.7
2500	62.8
3150	65.8
4000	69
5000	70.7



Rating according to ISO 717-1

$D_{nT,w}$ = 62 dB | **$D_{nT,w} + C_{tr}$ = 58 dB** | **D_w = 57 dB**

C_{tr} = -4 dB

$D_{nT,w} + C_{tr}$ 50-3150 = 57 dB

$D_{nT,w} + C$ = 61 dB | $D_{nT,w} + C_{tr}$ 50-5k = 57 dB | $D_{nT,w} + C$ 50 - 5k = 61 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place Test date: 2025-05-29 Test No: 179 : ABW9

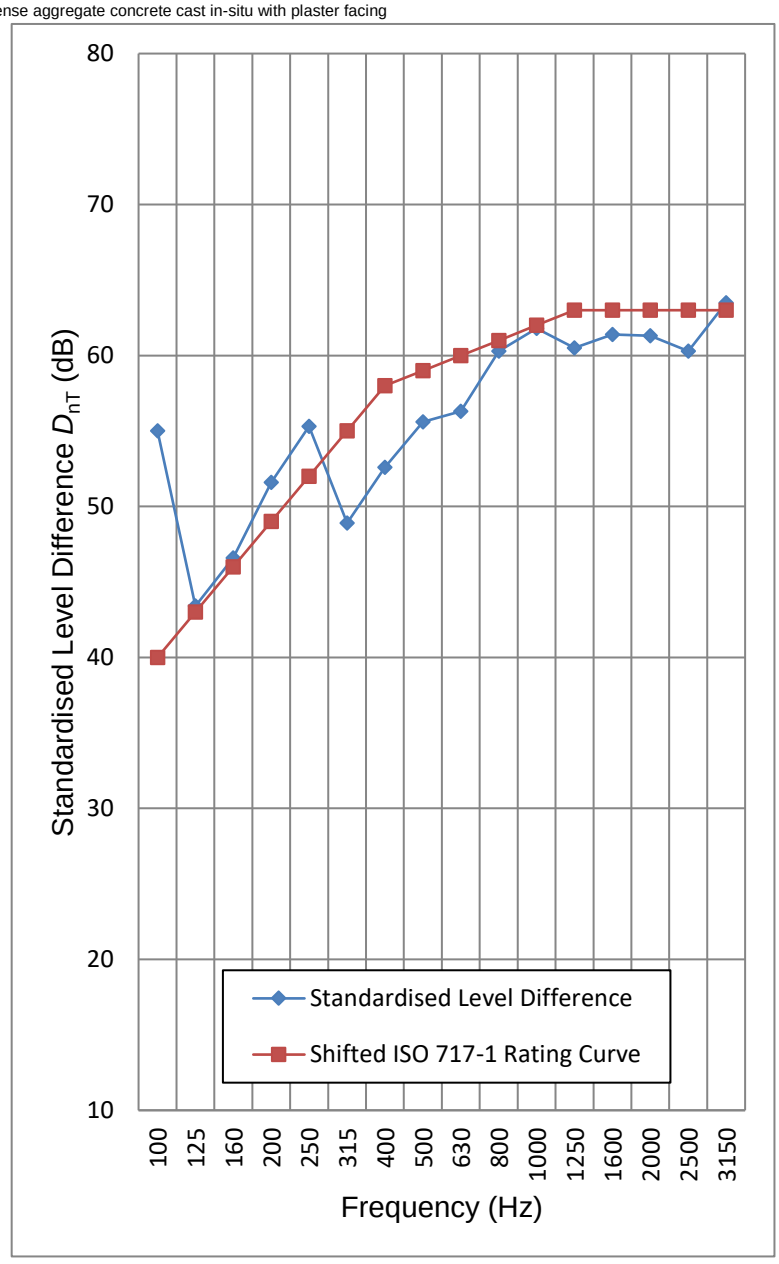
Client: Feltham Construction

Source Room: 02-01 Bedroom 1 Receiver Room: 02-02 Bedroom

Volume (m3): 40 Volume (m3): 30

Construction: PE 1.2 - Dense aggregate concrete cast in-situ with plaster facing

Frequency f (Hz)	D_{nT} (1/3 Octave) dB
50	41.9
63	44
80	51.2
100	55
125	43.4
160	46.6
200	51.6
250	55.3
315	48.9
400	52.6
500	55.6
630	56.3
800	60.3
1000	61.8
1250	60.5
1600	61.4
2000	61.3
2500	60.3
3150	63.5
4000	66.8
5000	71.6



Rating according to ISO 717-1

$D_{nT,w}$ = 59 dB **$D_{nT,w} + C_{tr}$ = 56 dB** **D_w = 54 dB**

C_{tr} = -3 dB

$D_{nT,w} + C$ = 58 dB $D_{nT,w} + C_{tr}$ 50-3150 = 55 dB

$D_{nT,w} + C_{tr}$ 50-5k = 55 dB $D_{nT,w} + C$ 50 - 5k = 59 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 Name of Test Institute: MACH

Date: 2025-05-29 Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABW10

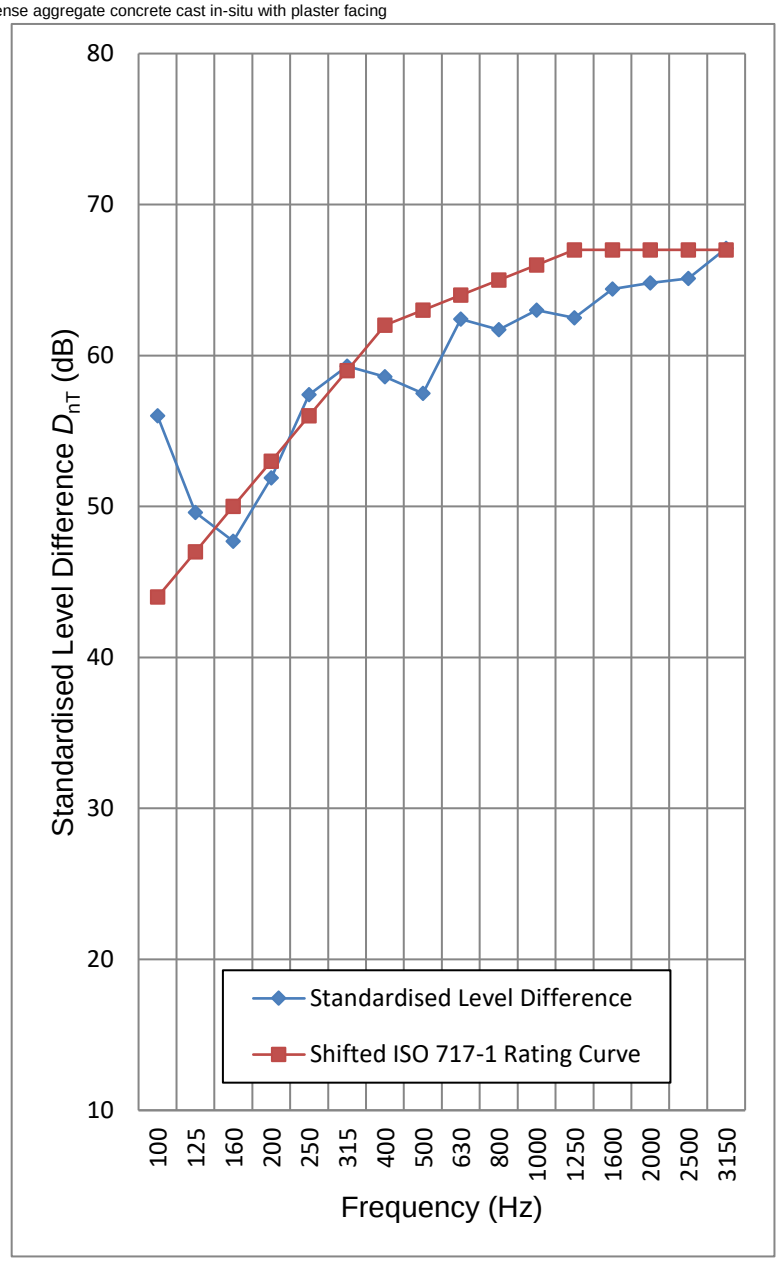
Client: Feltham Construction

Source Room: South 02-08 KDL | Receiver Room: South 02-09 Bedroom 1

Volume (m3): 60 | Volume (m3): 30

Construction: PE 1.2 - Dense aggregate concrete cast in-situ with plaster facing

Frequency f (Hz)	D_{nT} (1/3 Octave) dB
50	42.2
63	49.2
80	54
100	56
125	49.6
160	47.7
200	51.9
250	57.4
315	59.3
400	58.6
500	57.5
630	62.4
800	61.7
1000	63
1250	62.5
1600	64.4
2000	64.8
2500	65.1
3150	67.1
4000	70.8
5000	74



Rating according to ISO 717-1

$D_{nT,w}$ = 63 dB | **$D_{nT,w} + C_{tr}$ = 59 dB** | **D_w = 57 dB**

C_{tr} = -4 dB

$D_{nT,w} + C$ = 61 dB

$D_{nT,w} + C_{tr}$ 50-3150 = 58 dB

$D_{nT,w} + C_{tr}$ 50-5k = 58 dB

$D_{nT,w} + C$ 50 - 5k = 62 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABW11

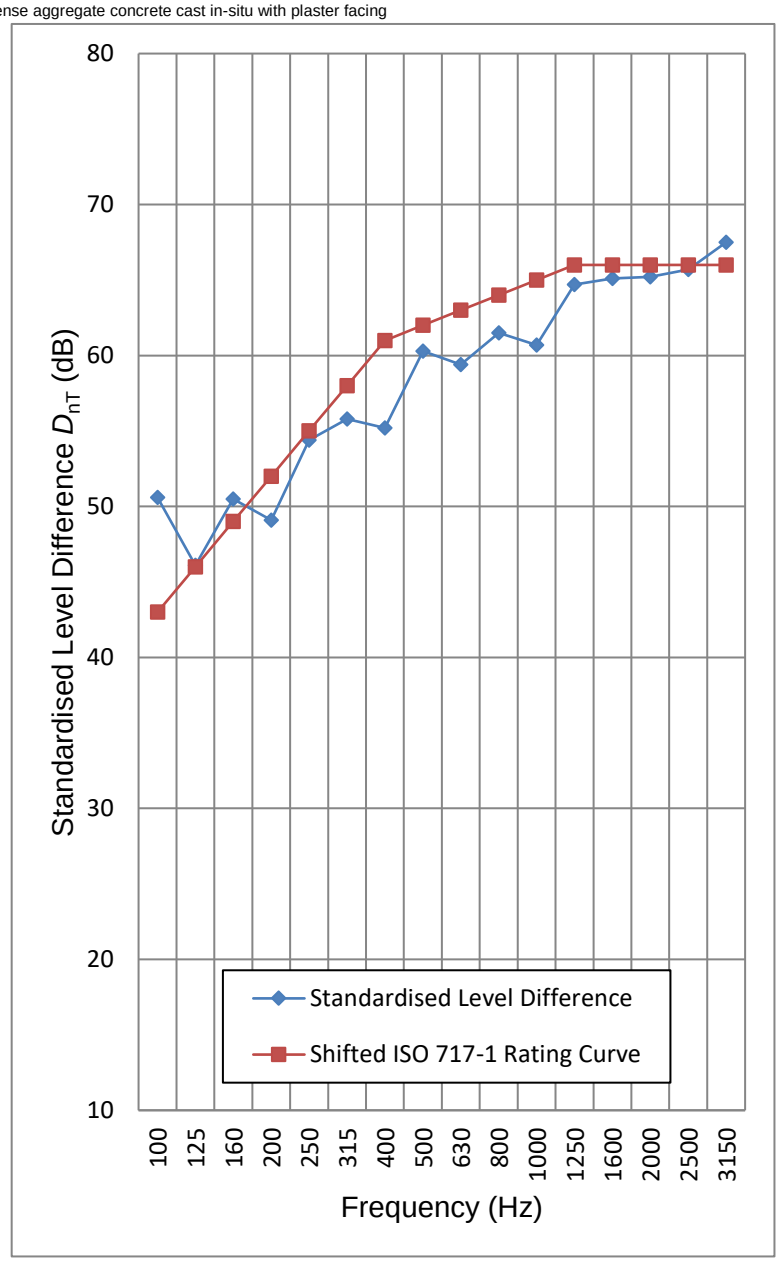
Client: Feltham Construction

Source Room: 02-02 KDL | Receiver Room: 02-03 Bedroom

Volume (m3): 60 | Volume (m3): 30

Construction: PE 1.2 - Dense aggregate concrete cast in-situ with plaster facing

Frequency f (Hz)	D_{nT} (1/3 Octave) dB
50	48
63	47.2
80	51.6
100	50.6
125	46.1
160	50.5
200	49.1
250	54.4
315	55.8
400	55.2
500	60.3
630	59.4
800	61.5
1000	60.7
1250	64.7
1600	65.1
2000	65.2
2500	65.7
3150	67.5
4000	71.1
5000	74.5



Rating according to ISO 717-1

$D_{nT,w}$ = 62 dB | **$D_{nT,w} + C_{tr}$ = 58 dB** | **D_w = 56 dB**

C_{tr} = -4 dB

$D_{nT,w} + C_{tr}$ 50-3150 = 57 dB

$D_{nT,w} + C$ = 61 dB | $D_{nT,w} + C_{tr}$ 50-5k = 57 dB | $D_{nT,w} + C$ 50 - 5k = 62 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABW12

Client: Feltham Construction

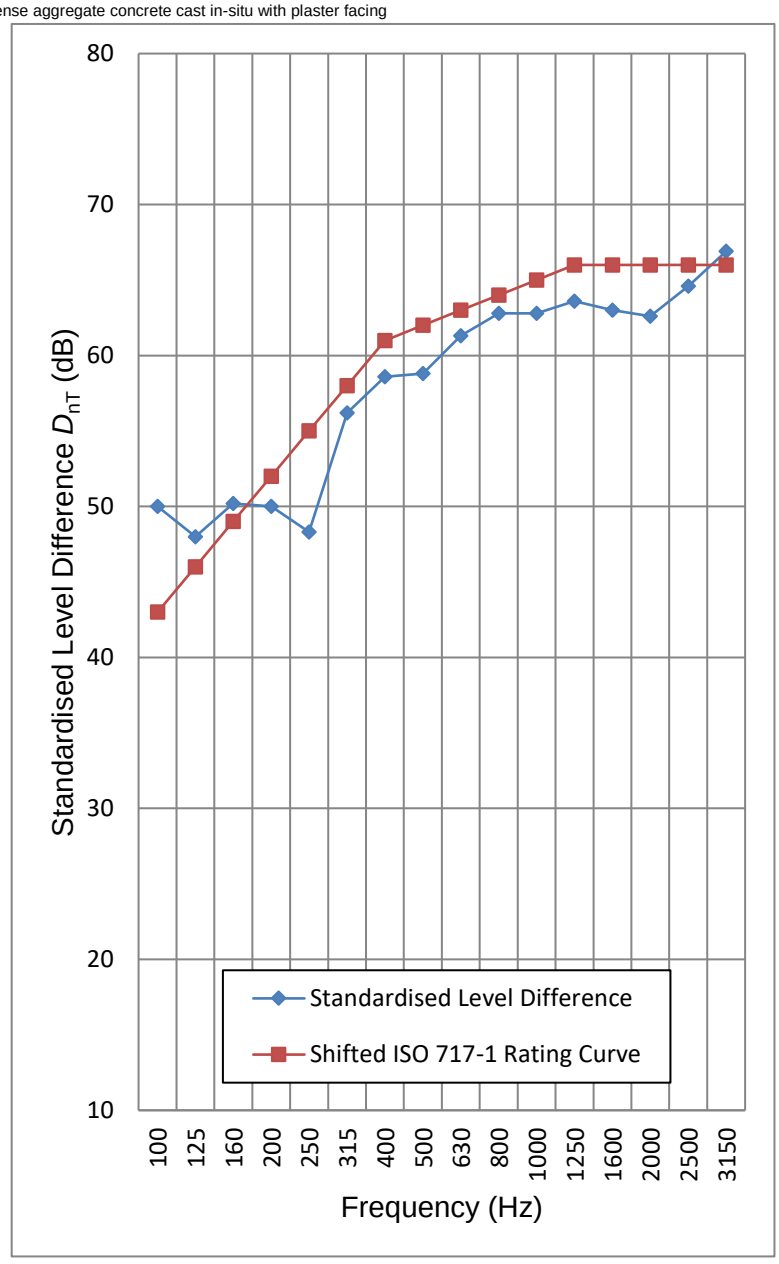
Source Room: South 02-07 KDL | Receiver Room: South 02-08 Bedroom 1

Volume (m3): 60 | Volume (m3): 40

Construction: PE 1.2 - Dense aggregate concrete cast in-situ with plaster facing

Frequency f (Hz)	D_{nT} (1/3 Octave) dB	
50	37	>=
63	38.3	
80	38.3	
100	50	
125	48	
160	50.2	
200	50	
250	48.3	
315	56.2	
400	58.6	
500	58.8	
630	61.3	
800	62.8	
1000	62.8	
1250	63.6	
1600	63	
2000	62.6	
2500	64.6	
3150	66.9	
4000	70.1	
5000	73.2	

Limit of Measurement >=



Rating according to ISO 717-1

$D_{nT,w}$ = 62 dB | **$D_{nT,w} + C_{tr}$ = 58 dB** | **D_w = 55 dB**

C_{tr} = -4 dB

$D_{nT,w} + C_{tr}$ 50-3150 = 54 dB

$D_{nT,w} + C$ = 60 dB | $D_{nT,w} + C_{tr}$ 50-5k = 54 dB | $D_{nT,w} + C$ 50 - 5k = 61 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABF1

Client: Feltham Construction

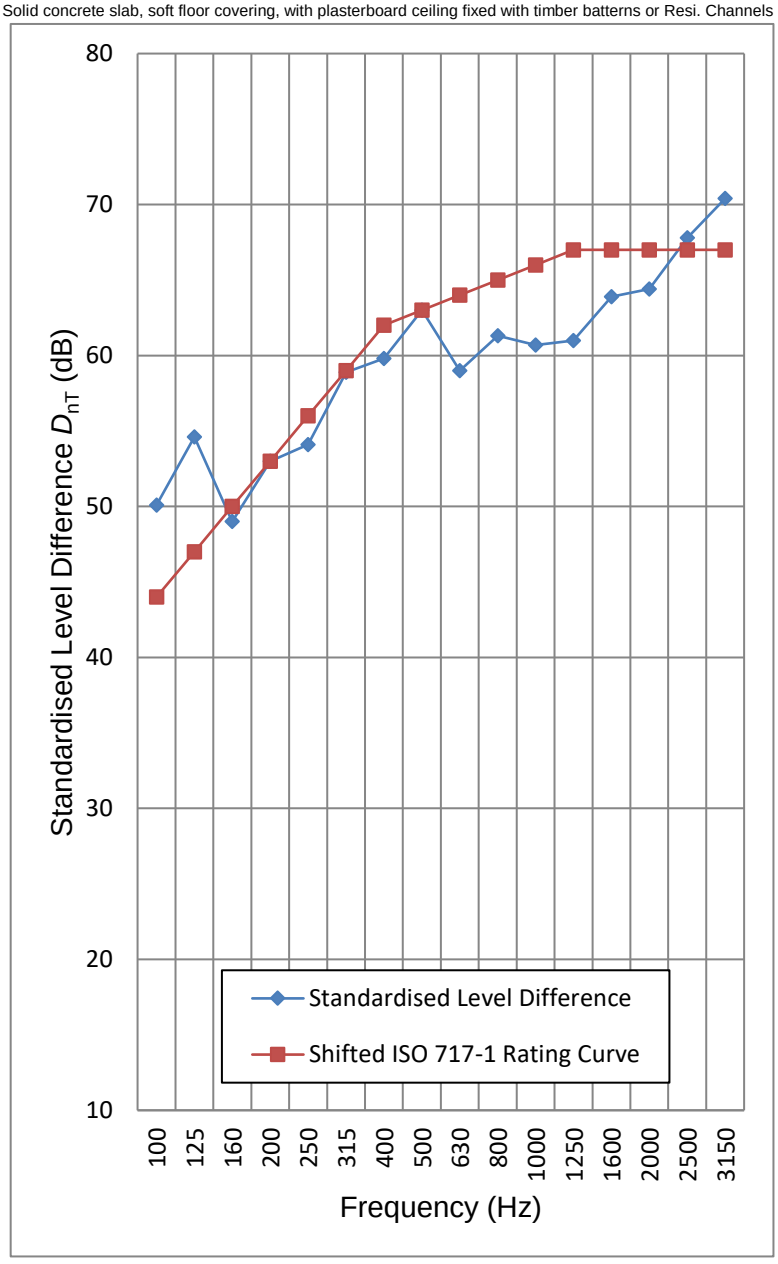
Source Room: 02-11 KDL | Receiver Room: 01-11 KDL

Volume (m3): 60 | Volume (m3): 60

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	D_{nT} (1/3 Octave) dB	
50	26	>=
63	20.6	
80	33.9	
100	50.1	
125	54.6	
160	49	
200	53	
250	54.1	
315	58.9	
400	59.8	
500	63	
630	59	
800	61.3	
1000	60.7	
1250	61	
1600	63.9	
2000	64.4	
2500	67.8	
3150	70.4	
4000	73.9	
5000	76.6	

Limit of Measurement >=



Rating according to ISO 717-1

$D_{nT,w}$ =	**63 dB**	**$D_{nT,w} + C_{tr}$ =**	**59 dB**	**D_w =**	**59 dB**
C_{tr} =	-4 dB				
		$D_{nT,w} + C_{tr}$ 50-3150 =	43 dB		
$D_{nT,w} + C$ =	61 dB	$D_{nT,w} + C_{tr}$ 50-5k =	43 dB	$D_{nT,w} + C$ 50 - 5k =	56 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABF2

Client: Feltham Construction

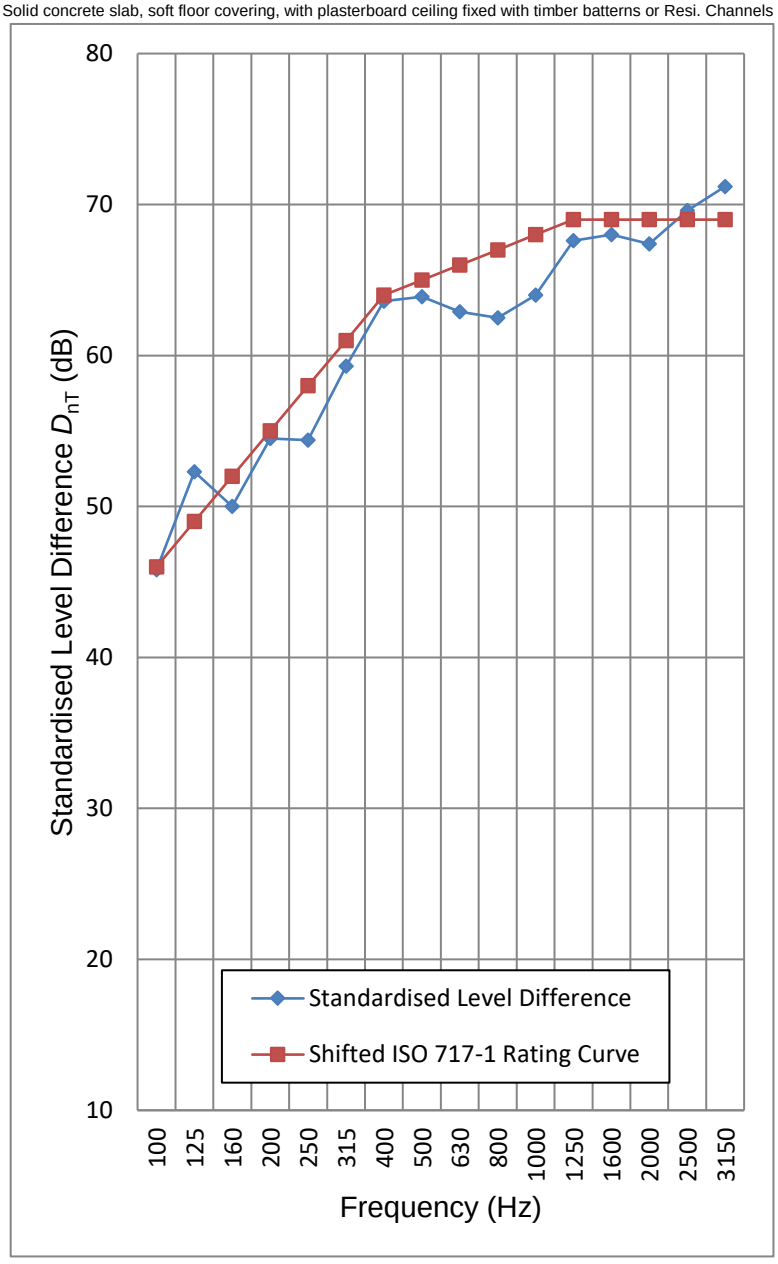
Source Room: 02-14 KDL | Receiver Room: 01-14 KDL

Volume (m3): 60 | Volume (m3): 60

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	D_{nT} (1/3 Octave) dB	
50	31.5	>=
63	32.2	
80	34.7	
100	45.8	
125	52.3	
160	50	
200	54.5	
250	54.4	
315	59.3	
400	63.6	
500	63.9	
630	62.9	
800	62.5	
1000	64	
1250	67.6	
1600	68	
2000	67.4	
2500	69.6	
3150	71.2	
4000	73.5	
5000	76.5	

Limit of Measurement >=



Rating according to ISO 717-1

$D_{nT,w}$ =	**65 dB**	**$D_{nT,w} + C_{tr}$ =**	**60 dB**	**D_w =**	**62 dB**
C_{tr} =	-5 dB				
		$D_{nT,w} + C_{tr}$ 50-3150 =	50 dB		
$D_{nT,w} + C$ =	64 dB	$D_{nT,w} + C_{tr}$ 50-5k =	50 dB	$D_{nT,w} + C$ 50 - 5k =	62 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABF3

Client: Feltham Construction

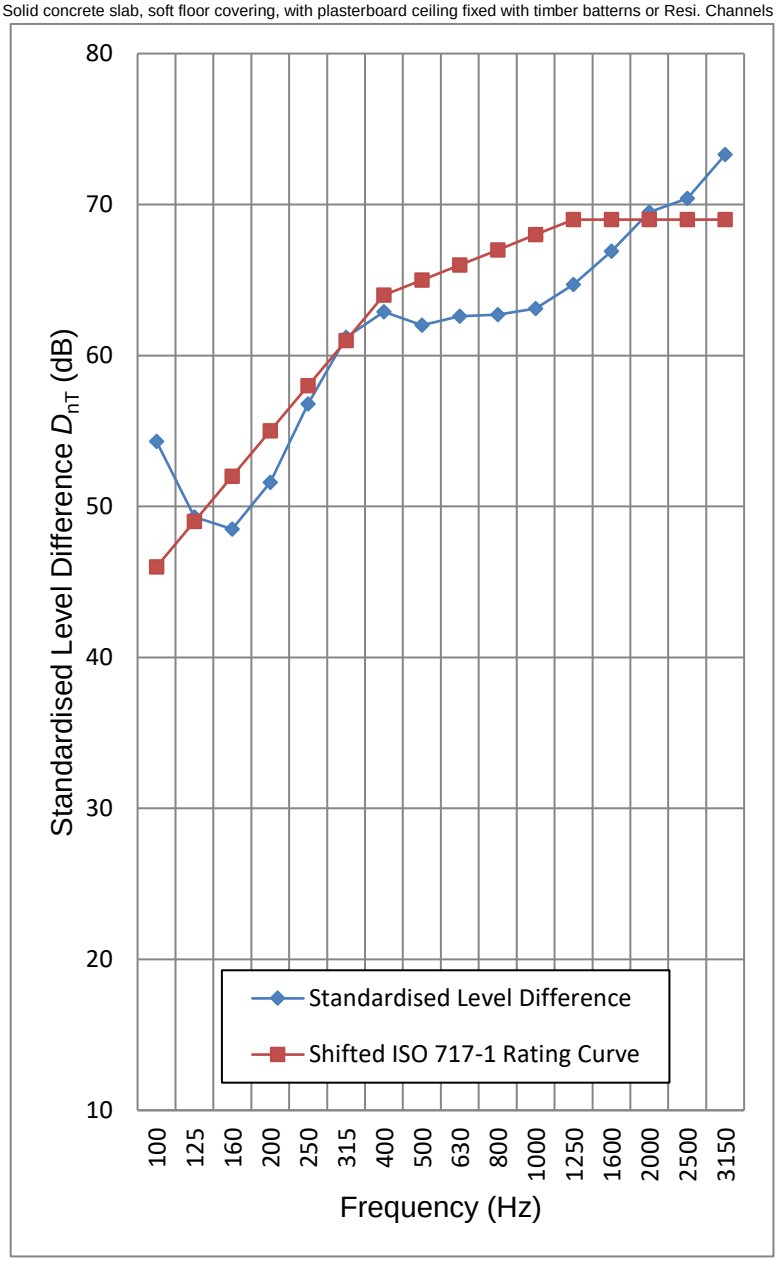
Source Room: 02-10 Bedroom | Receiver Room: 01-10 Bedroom

Volume (m3): 30 | Volume (m3): 30

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	D_{nT} (1/3 Octave) dB	
50	32.8	>=
63	37.7	
80	42.4	
100	54.3	
125	49.3	
160	48.5	
200	51.6	
250	56.8	
315	61.2	
400	62.9	
500	62	
630	62.6	
800	62.7	
1000	63.1	
1250	64.7	
1600	66.9	
2000	69.5	
2500	70.4	
3150	73.3	
4000	76.5	
5000	79.2	

Limit of Measurement >=



Rating according to ISO 717-1

$D_{nT,w}$ =	**65 dB**	**$D_{nT,w} + C_{tr}$ =**	**60 dB**	**D_w =**	**59 dB**
C_{tr} =	-5 dB				
		$D_{nT,w} + C_{tr}$ 50-3150 =	54 dB		
$D_{nT,w} + C$ =	63 dB	$D_{nT,w} + C_{tr}$ 50-5k =	54 dB	$D_{nT,w} + C$ 50 - 5k =	63 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABF4

Client: Feltham Construction

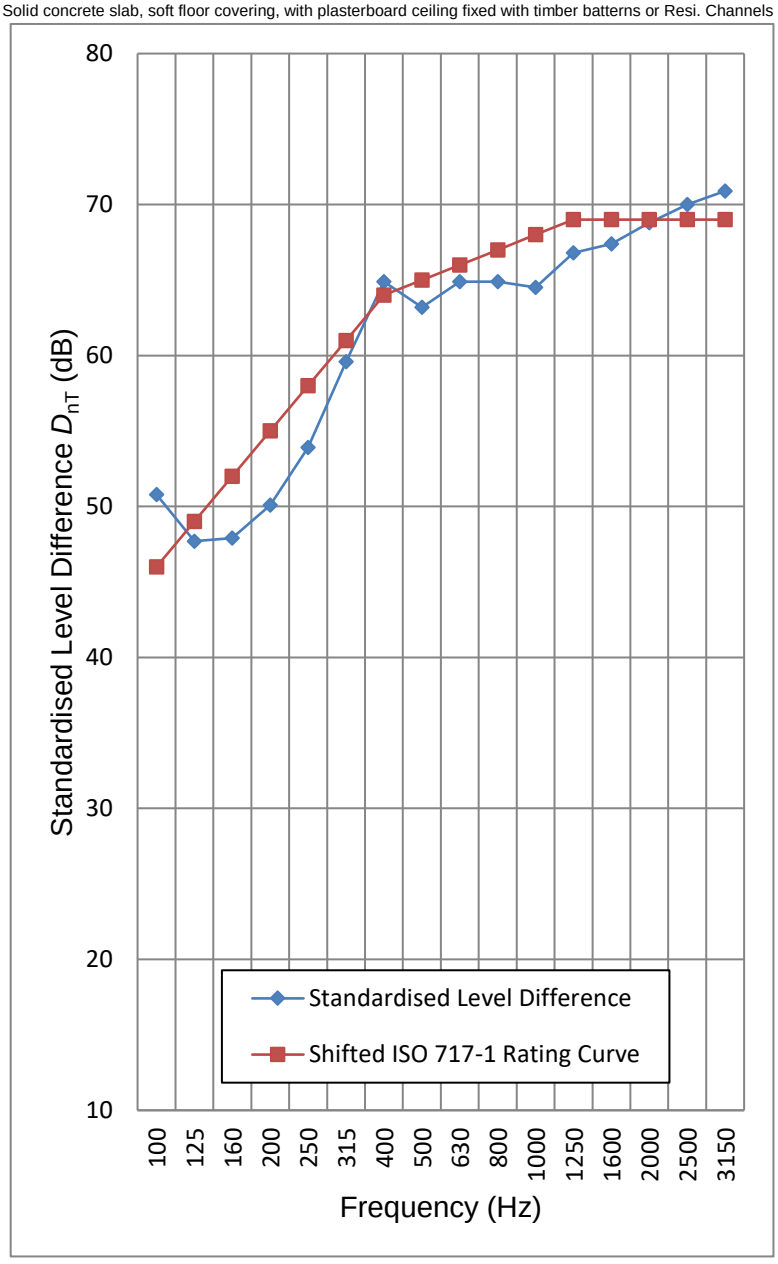
Source Room: 02-15 Bedroom | Receiver Room: 01-15 Bedroom

Volume (m3): 30 | Volume (m3): 30

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	D_{nT} (1/3 Octave) dB	
50	37	>=
63	34.5	
80	40.8	
100	50.8	
125	47.7	
160	47.9	
200	50.1	
250	53.9	
315	59.6	
400	64.9	
500	63.2	
630	64.9	
800	64.9	
1000	64.5	
1250	66.8	
1600	67.4	
2000	68.8	
2500	70	
3150	70.9	
4000	72.2	
5000	74.3	

Limit of Measurement >=



Rating according to ISO 717-1

$D_{nT,w}$ = 65 dB | **$D_{nT,w} + C_{tr}$ = 59 dB** | **D_w = 60 dB**

C_{tr} = -6 dB

$D_{nT,w} + C_{tr}$ 50-3150 = 54 dB

$D_{nT,w} + C$ = 63 dB | $D_{nT,w} + C_{tr}$ 50-5k = 54 dB | $D_{nT,w} + C$ 50 - 5k = 63 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABF5

Client: Feltham Construction

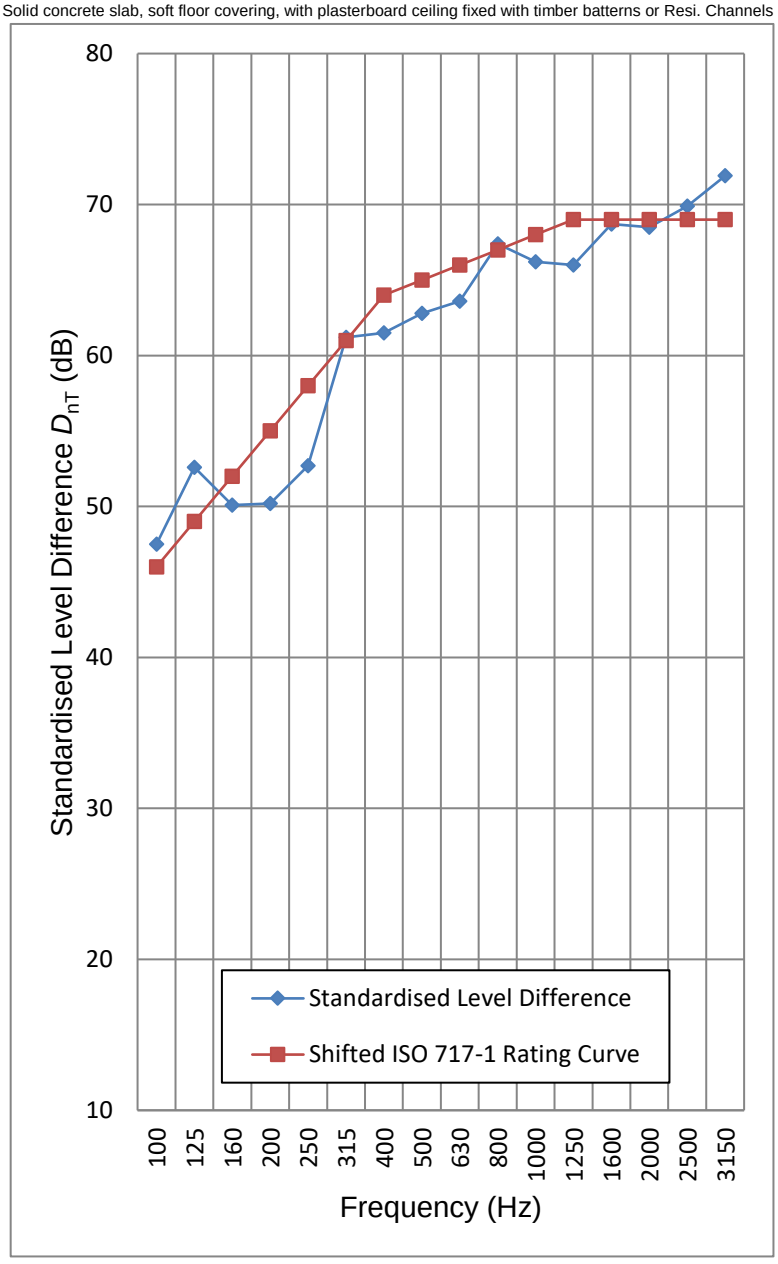
Source Room: 02-10 KDL | Receiver Room: 01-10 KDL

Volume (m3): 60 | Volume (m3): 60

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	D_{nT} (1/3 Octave) dB	
50	28.7	>=
63	30.4	
80	38.8	
100	47.5	
125	52.6	
160	50.1	
200	50.2	
250	52.7	
315	61.2	
400	61.5	
500	62.8	
630	63.6	
800	67.4	
1000	66.2	
1250	66	
1600	68.7	
2000	68.5	
2500	69.9	
3150	71.9	
4000	75.2	
5000	79	

Limit of Measurement >=



Rating according to ISO 717-1

$D_{nT,w}$ =	**65 dB**	**$D_{nT,w} + C_{tr}$ =**	**60 dB**	**D_w =**	**62 dB**
C_{tr} =	-5 dB				
		$D_{nT,w} + C_{tr}$ 50-3150 =	50 dB		
$D_{nT,w} + C$ =	64 dB	$D_{nT,w} + C_{tr}$ 50-5k =	50 dB	$D_{nT,w} + C$ 50 - 5k =	62 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place Test date: 2025-05-29 Test No: 179 : ABF6

Client: Feltham Construction

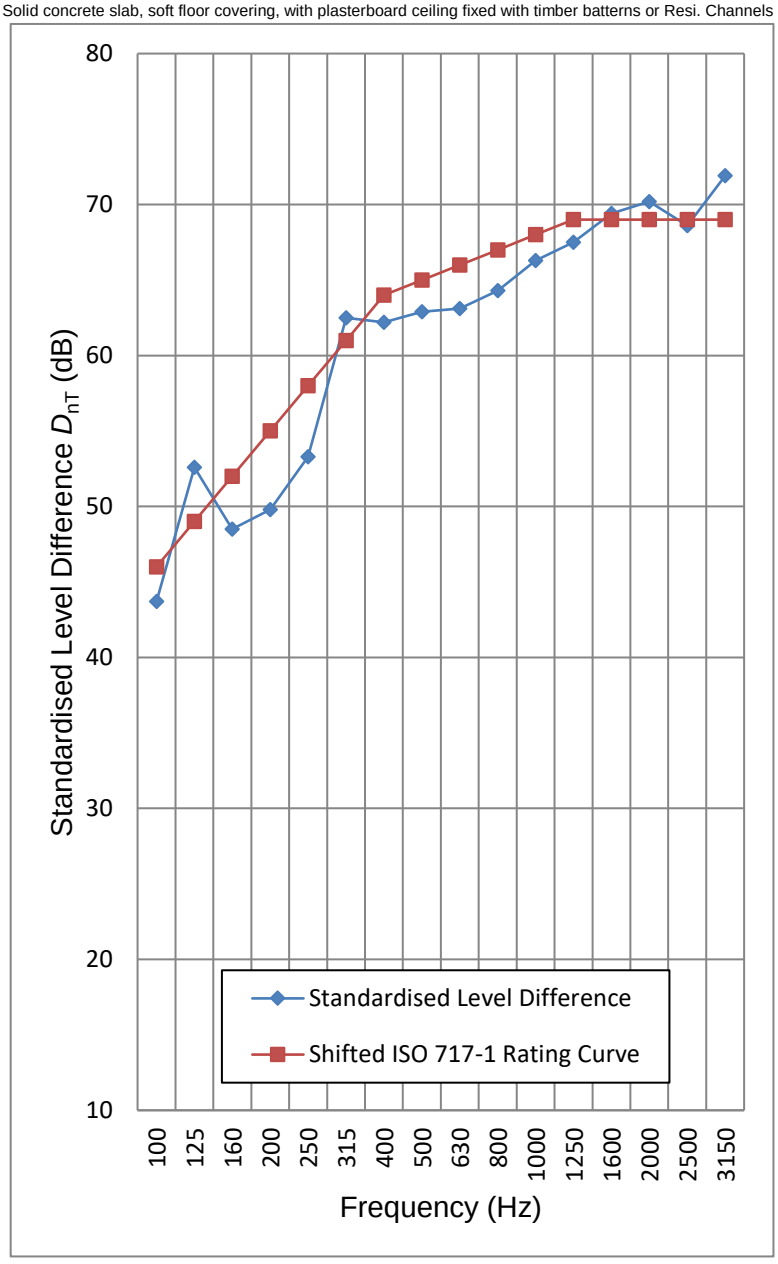
Source Room: 02-15 KDL Receiver Room: 01-15 KDL

Volume (m3): 60 Volume (m3): 60

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	D_{nT} (1/3 Octave) dB	
50	42.3	>=
63	35.1	
80	34.8	
100	43.7	
125	52.6	
160	48.5	
200	49.8	
250	53.3	
315	62.5	
400	62.2	
500	62.9	
630	63.1	
800	64.3	
1000	66.3	
1250	67.5	
1600	69.4	
2000	70.2	
2500	68.6	
3150	71.9	
4000	75	
5000	77.9	

Limit of Measurement >=



Rating according to ISO 717-1

$D_{nT,w}$ = 65 dB C_{tr} = -6 dB **$D_{nT,w} + C_{tr}$ = 59 dB** **D_w = 61 dB**

$D_{nT,w} + C$ = 63 dB $D_{nT,w} + C_{tr}$ 50-3150 = 52 dB $D_{nT,w} + C_{tr}$ 50-5k = 52 dB $D_{nT,w} + C$ 50 - 5k = 62 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 Name of Test Institute: MACH

Date: 2025-05-29 Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place Test date: 2025-05-29 Test No: 179 : ABF7

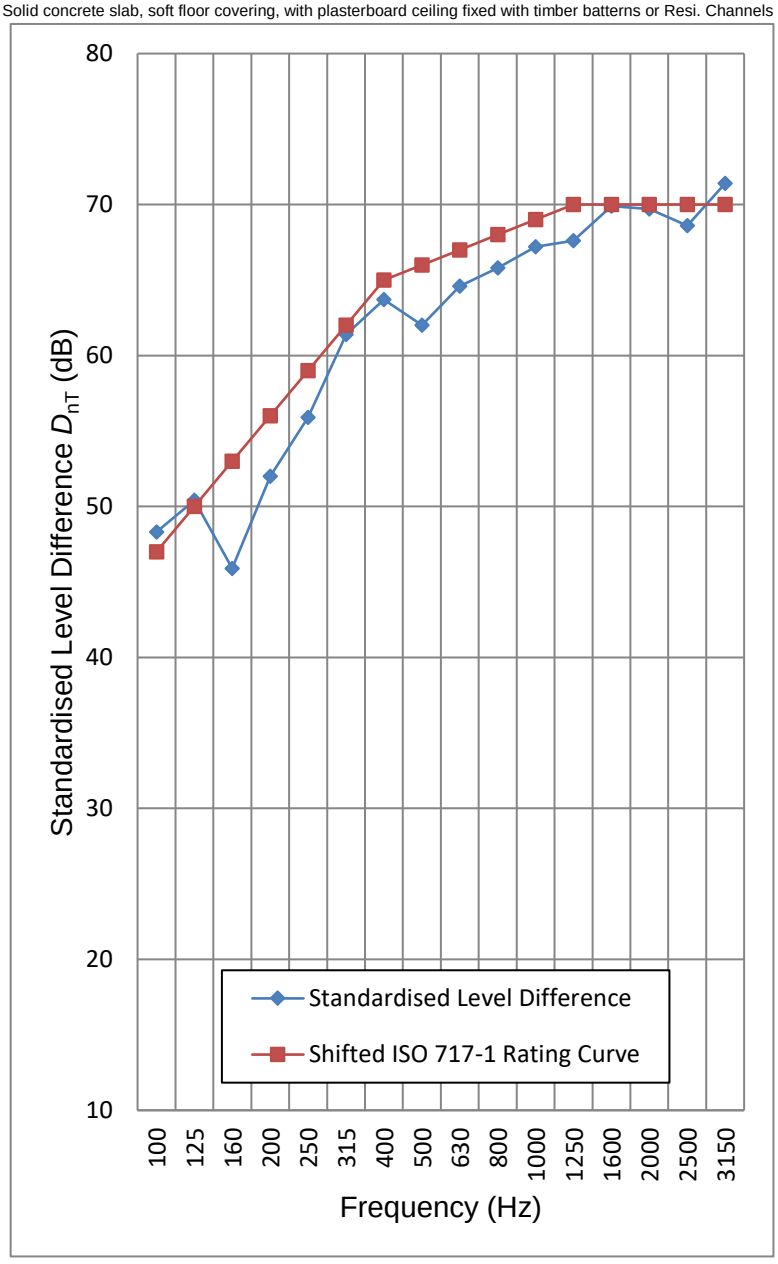
Client: Feltham Construction

Source Room: 02-16 KDL Receiver Room: 01-16 KDL

Volume (m3): 60 Volume (m3): 60

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	D_{nT} (1/3 Octave) dB
50	39.9
63	36.5
80	38.4
100	48.3
125	50.4
160	45.9
200	52
250	55.9
315	61.4
400	63.7
500	62
630	64.6
800	65.8
1000	67.2
1250	67.6
1600	69.9
2000	69.7
2500	68.6
3150	71.4
4000	75.7
5000	77.5



Rating according to ISO 717-1

$D_{nT,w}$ = 66 dB **$D_{nT,w} + C_{tr}$ = 60 dB** **D_w = 62 dB**

C_{tr} = -6 dB

$D_{nT,w} + C_{tr}$ 50-3150 = 54 dB

$D_{nT,w} + C$ = 63 dB $D_{nT,w} + C_{tr}$ 50-5k = 54 dB $D_{nT,w} + C$ 50 - 5k = 63 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 Name of Test Institute: MACH

Date: 2025-05-29 Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABF8

Client: Feltham Construction

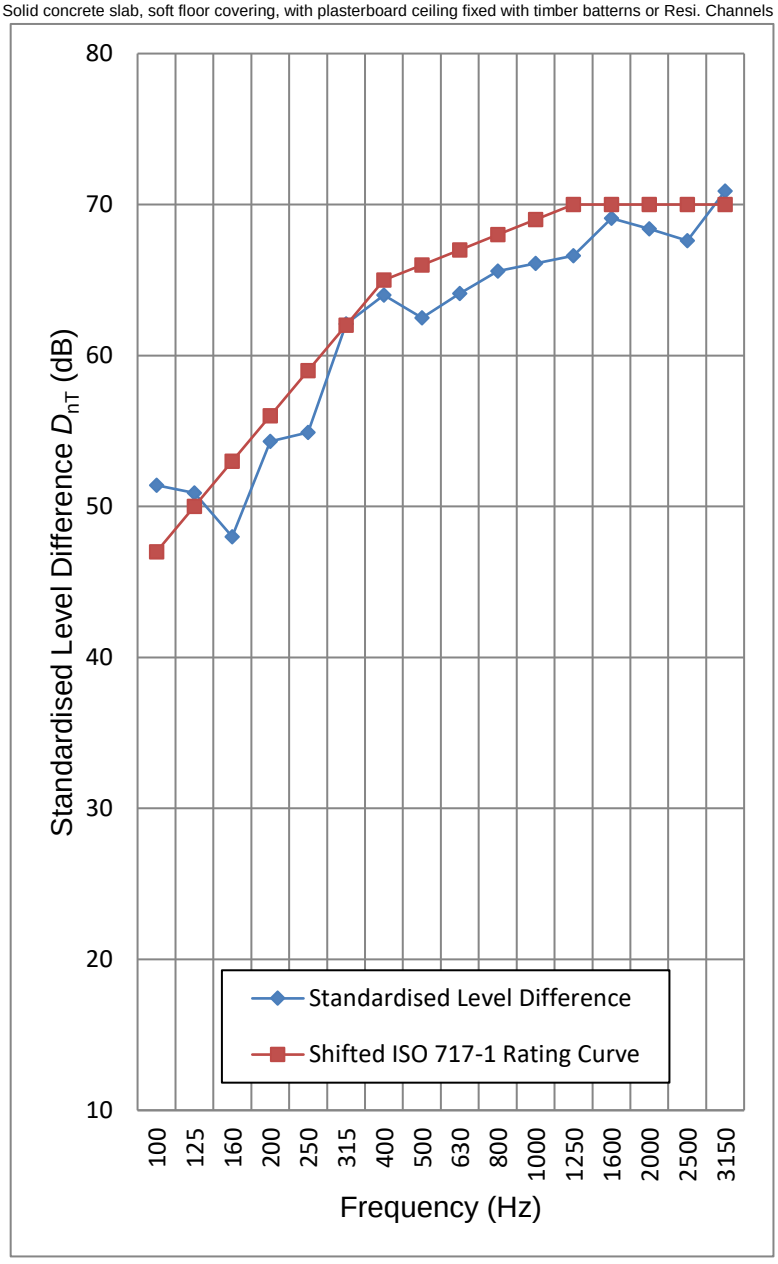
Source Room: 02-16 Bedroom | Receiver Room: 01-16 Bedroom

Volume (m3): 30 | Volume (m3): 30

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	D_{nT} (1/3 Octave) dB	
50	35.7	>=
63	47.2	
80	50	
100	51.4	
125	50.9	
160	48	
200	54.3	
250	54.9	
315	62.1	
400	64	
500	62.5	
630	64.1	
800	65.6	
1000	66.1	
1250	66.6	
1600	69.1	
2000	68.4	
2500	67.6	
3150	70.9	
4000	72.8	
5000	76.1	

Limit of Measurement >=



Rating according to ISO 717-1

$D_{nT,w}$ =	**66 dB**	**$D_{nT,w} + C_{tr}$ =**	**61 dB**	**D_w =**	**61 dB**
C_{tr} =	-5 dB				
		$D_{nT,w} + C_{tr}$ 50-3150 =	57 dB		
$D_{nT,w} + C$ =	64 dB	$D_{nT,w} + C_{tr}$ 50-5k =	57 dB	$D_{nT,w} + C$ 50 - 5k =	65 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place Test date: 2025-05-29 Test No: 179 : ABF9

Client: Feltham Construction

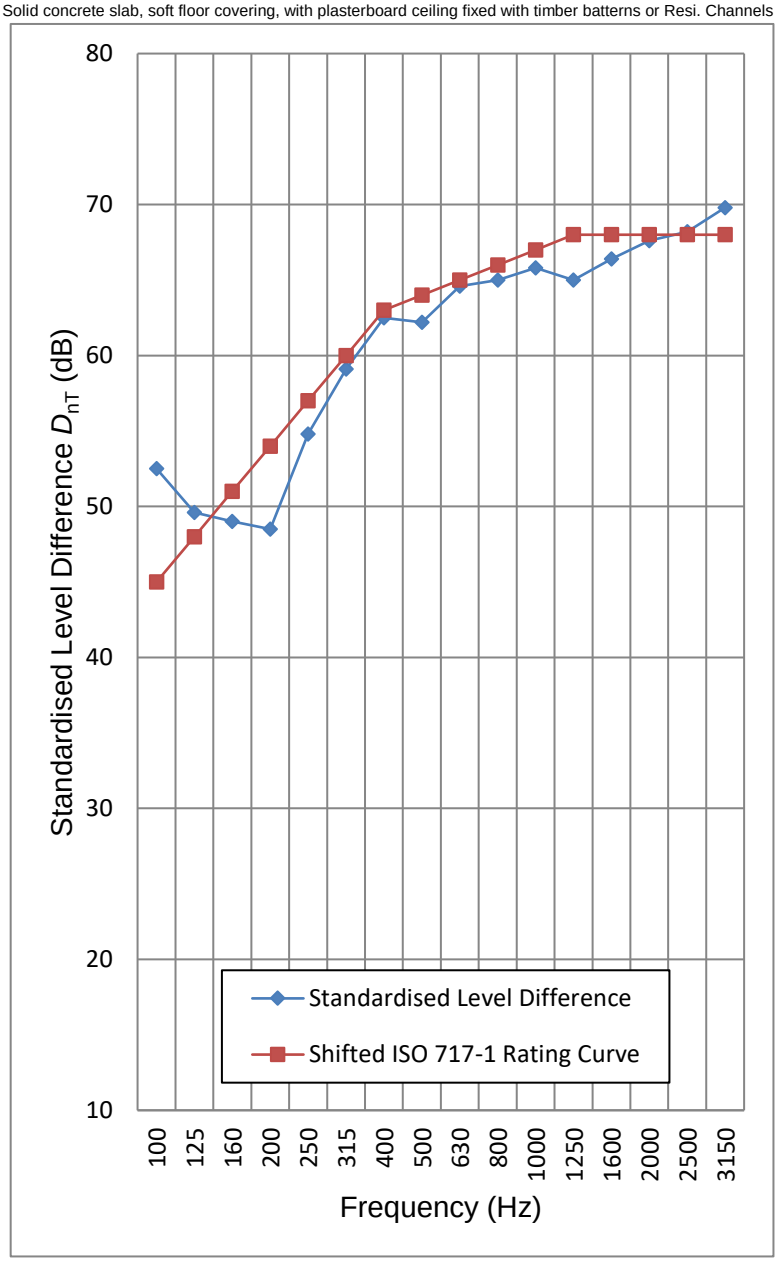
Source Room: 02-08 Bedroom 1 Receiver Room: 01-08 Bedroom 1

Volume (m3): 40 Volume (m3): 40

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	D_{nT} (1/3 Octave) dB	
50	40.7	>=
63	38.9	
80	37.5	
100	52.5	
125	49.6	
160	49	
200	48.5	
250	54.8	
315	59.1	
400	62.5	
500	62.2	
630	64.6	
800	65	
1000	65.8	
1250	65	
1600	66.4	
2000	67.6	
2500	68.2	
3150	69.8	
4000	72.7	
5000	76.9	

Limit of Measurement >=



Rating according to ISO 717-1

$D_{nT,w}$ =	**64 dB**	**$D_{nT,w} + C_{tr}$ =**	**59 dB**	**D_w =**	**59 dB**
C_{tr} =	-5 dB				
		$D_{nT,w} + C_{tr}$ 50-3150 =	55 dB		
$D_{nT,w} + C$ =	63 dB	$D_{nT,w} + C_{tr}$ 50-5k =	55 dB	$D_{nT,w} + C$ 50 - 5k =	63 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 Name of Test Institute: MACH

Date: 2025-05-29 Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABF10

Client: Feltham Construction

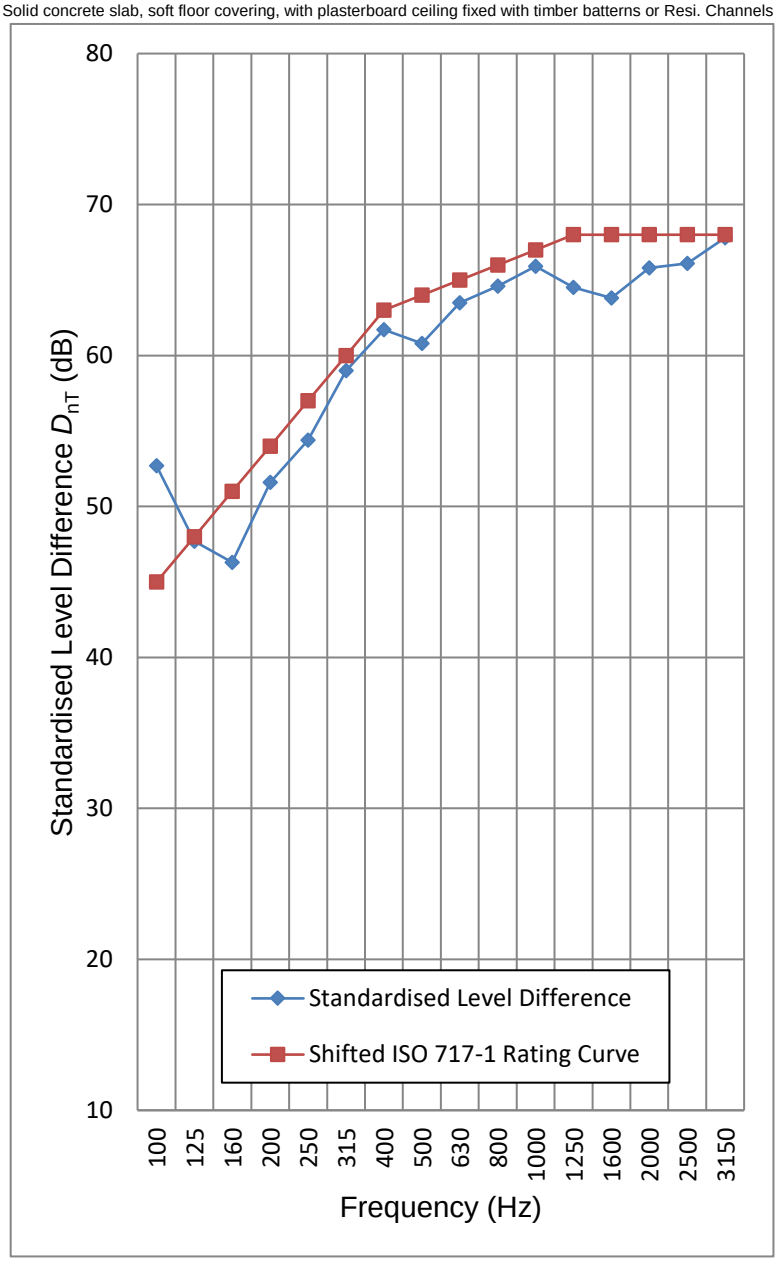
Source Room: 02-17 Bedroom 1 | Receiver Room: 01-17 Bedroom 1

Volume (m3): 40 | Volume (m3): 40

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	D_{nT} (1/3 Octave) dB	
50	40	>=
63	39.9	
80	44	
100	52.7	
125	47.7	
160	46.3	
200	51.6	
250	54.4	
315	59	
400	61.7	
500	60.8	
630	63.5	
800	64.6	
1000	65.9	
1250	64.5	
1600	63.8	
2000	65.8	
2500	66.1	
3150	67.8	
4000	72.2	
5000	77	

Limit of Measurement >=



Rating according to ISO 717-1

$D_{nT,w}$ =	**64 dB**	**$D_{nT,w} + C_{tr}$ =**	**59 dB**	**D_w =**	**58 dB**
C_{tr} =	-5 dB				
		$D_{nT,w} + C_{tr}$ 50-3150 =	56 dB		
$D_{nT,w} + C$ =	62 dB	$D_{nT,w} + C_{tr}$ 50-5k =	56 dB	$D_{nT,w} + C$ 50 - 5k =	63 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABF11

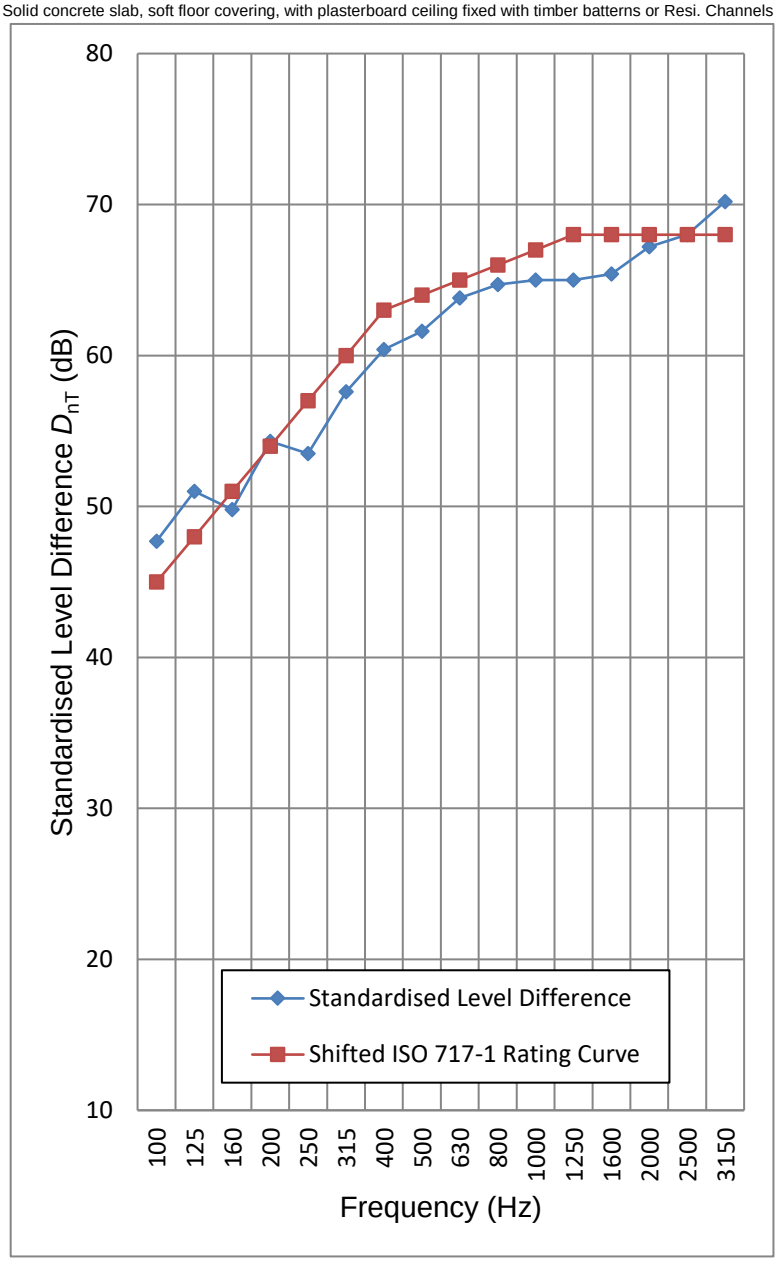
Client: Feltham Construction

Source Room: 02-8 kdl | Receiver Room: 01-8 kdl

Volume (m3): 50 | Volume (m3): 50

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	D_{nT} (1/3 Octave) dB
50	29.6
63	30.1
80	34.3
100	47.7
125	51
160	49.8
200	54.3
250	53.5
315	57.6
400	60.4
500	61.6
630	63.8
800	64.7
1000	65
1250	65
1600	65.4
2000	67.2
2500	68
3150	70.2
4000	74.1
5000	77.5



Rating according to ISO 717-1

$D_{nT,w}$ =	**64 dB**	**$D_{nT,w} + C_{tr}$ =**	**60 dB**	**D_w =**	**60 dB**
C_{tr} =	-4 dB				
		$D_{nT,w} + C_{tr}$ 50-3150 =	49 dB		
$D_{nT,w} + C$ =	63 dB	$D_{nT,w} + C_{tr}$ 50-5k =	49 dB	$D_{nT,w} + C$ 50 - 5k =	61 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : ABF12

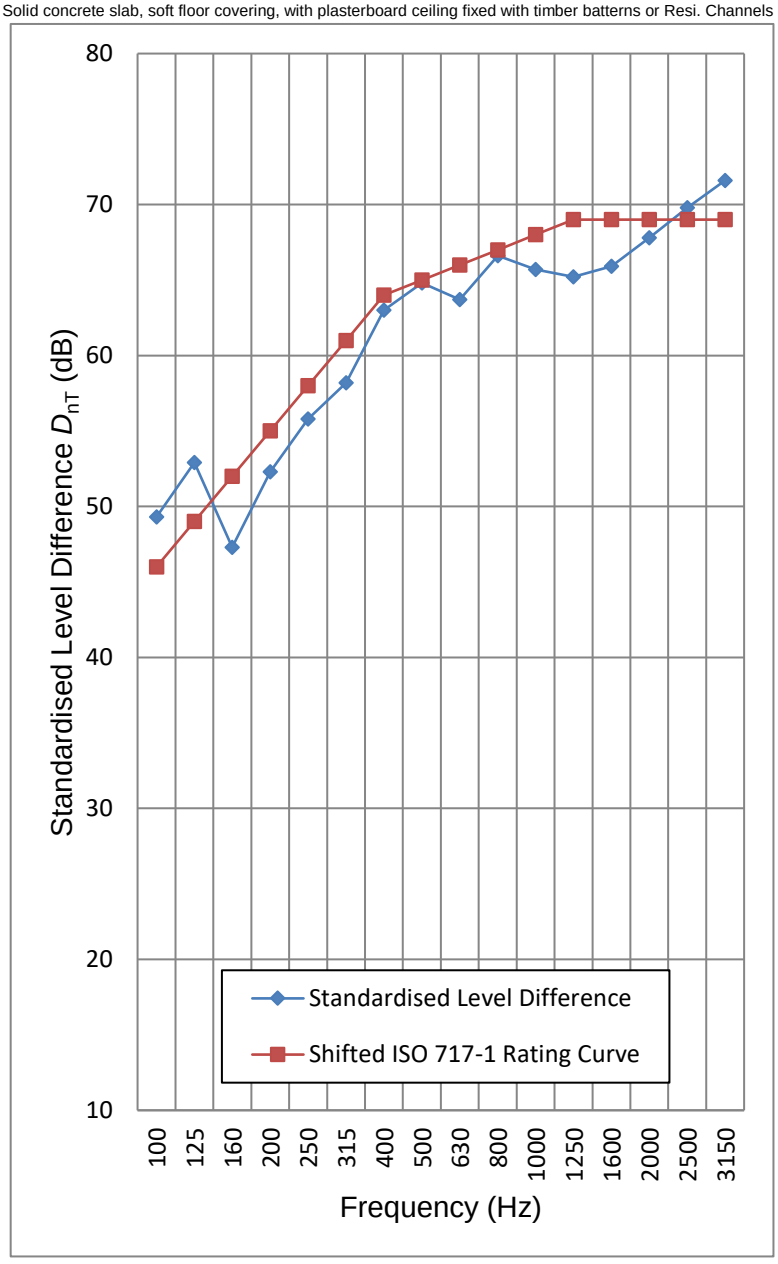
Client: Feltham Construction

Source Room: 02-17 kdl | Receiver Room: 01-17 kdl

Volume (m3): 50 | Volume (m3): 50

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	D_{nT} (1/3 Octave) dB
50	32.1
63	37.5
80	37.4
100	49.3
125	52.9
160	47.3
200	52.3
250	55.8
315	58.2
400	63
500	64.8
630	63.7
800	66.6
1000	65.7
1250	65.2
1600	65.9
2000	67.8
2500	69.8
3150	71.6
4000	74.6
5000	78.2



Rating according to ISO 717-1

$D_{nT,w}$ = 65 dB | **$D_{nT,w} + C_{tr}$ = 60 dB** | **D_w = 61 dB**

C_{tr} = -5 dB

$D_{nT,w} + C_{tr}$ 50-3150 = 53 dB

$D_{nT,w} + C$ = 63 dB | $D_{nT,w} + C_{tr}$ 50-5k = 53 dB | $D_{nT,w} + C$ 50 - 5k = 63 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised impact sound pressure levels according to ISO 140-4. Field measurements of impact sound insulation of floors

Site: Carnival Place Test date: 2025-05-29 Test No: 179 : IP1

Client: Feltham Construction

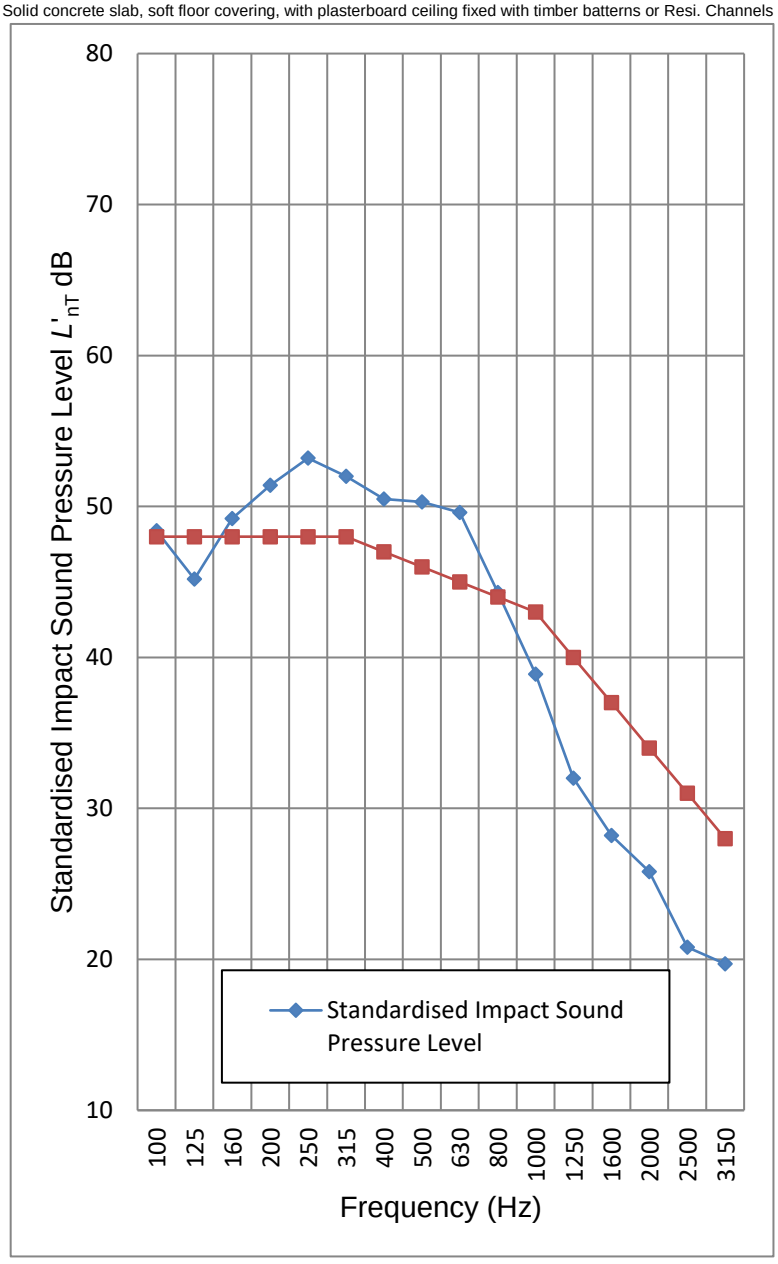
Source Room: 02-11 KDL Receiver Room: 01-11 KDL

Volume (m3): 60 Volume (m3): 60

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	L'_{nT} (1/3 Octave) dB	
50	48	
63	53.4	
80	50	
100	48.4	
125	45.2	
160	49.2	
200	51.4	
250	53.2	
315	52	
400	50.5	
500	50.3	
630	49.6	
800	44.3	
1000	38.9	
1250	32	
1600	28.2	
2000	25.8	
2500	20.8	
3150	19.7	
4000	14.7	
5000	12.4	<=

Limit of Measurement <=



Rating according to ISO 717-2

$L'_{nT,w}$ = 46 dB $L'_{nT,w}$ + C150-2500 47 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 Name of Test Institute: MACH

Date: 2025-05-29 Signature: [redacted]

Standardised impact sound pressure levels according to ISO 140-4. Field measurements of impact sound insulation of floors

Site: Carnival Place Test date: 2025-05-29 Test No: 179 : IP2

Client: Feltham Construction

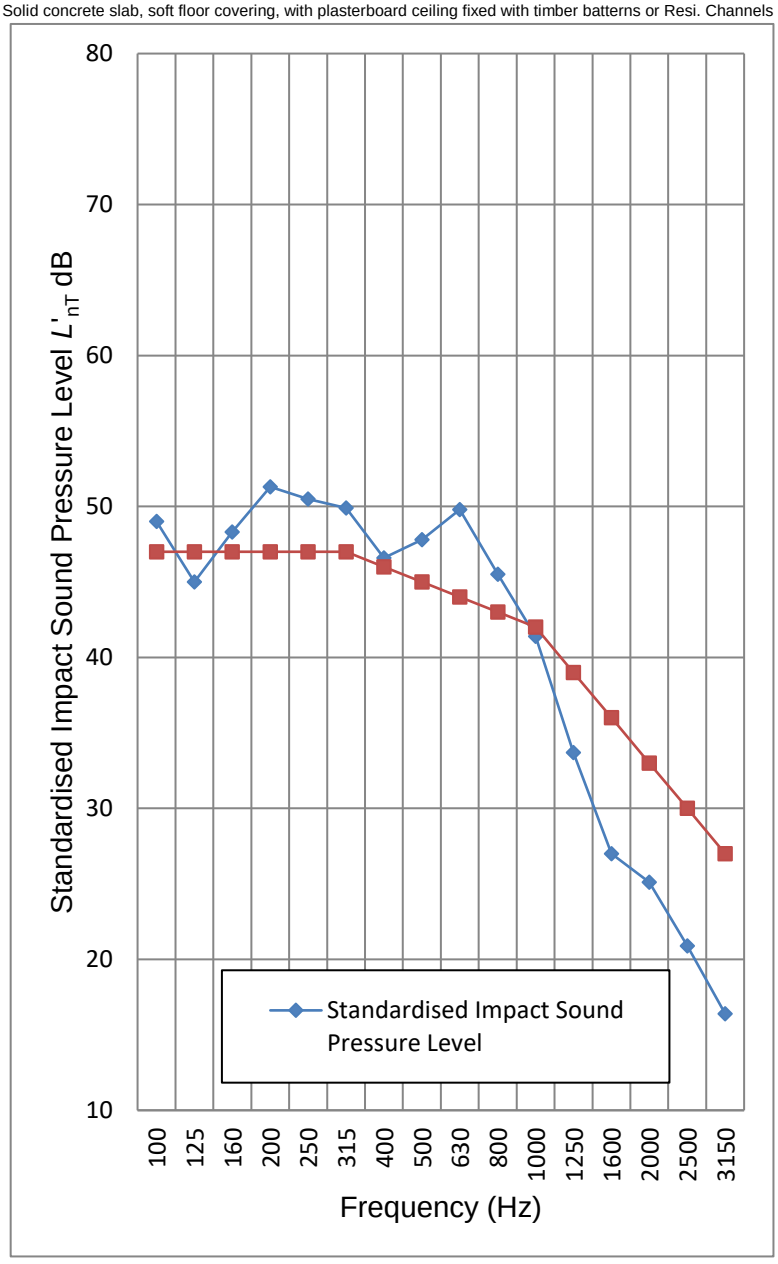
Source Room: 02-14 KDL Receiver Room: 01-14 KDL

Volume (m3): 60 Volume (m3): 60

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	L'_{nT} (1/3 Octave) dB	
50	52.8	
63	50.9	
80	53.9	
100	49	
125	45	
160	48.3	
200	51.3	
250	50.5	
315	49.9	
400	46.6	
500	47.8	
630	49.8	
800	45.5	
1000	41.4	
1250	33.7	
1600	27	
2000	25.1	
2500	20.9	
3150	16.4	
4000	14.9	
5000	13	<=

Limit of Measurement <=



Rating according to ISO 717-2

$L'_{nT,w}$ = 45 dB $L'_{nT,w}$ + C150-2500 46 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 Name of Test Institute: MACH

Date: 2025-05-29 Signature: [redacted]

Standardised impact sound pressure levels according to ISO 140-4. Field measurements of impact sound insulation of floors

Site: Carnival Place Test date: 2025-05-29 Test No: 179 : IP3

Client: Feltham Construction

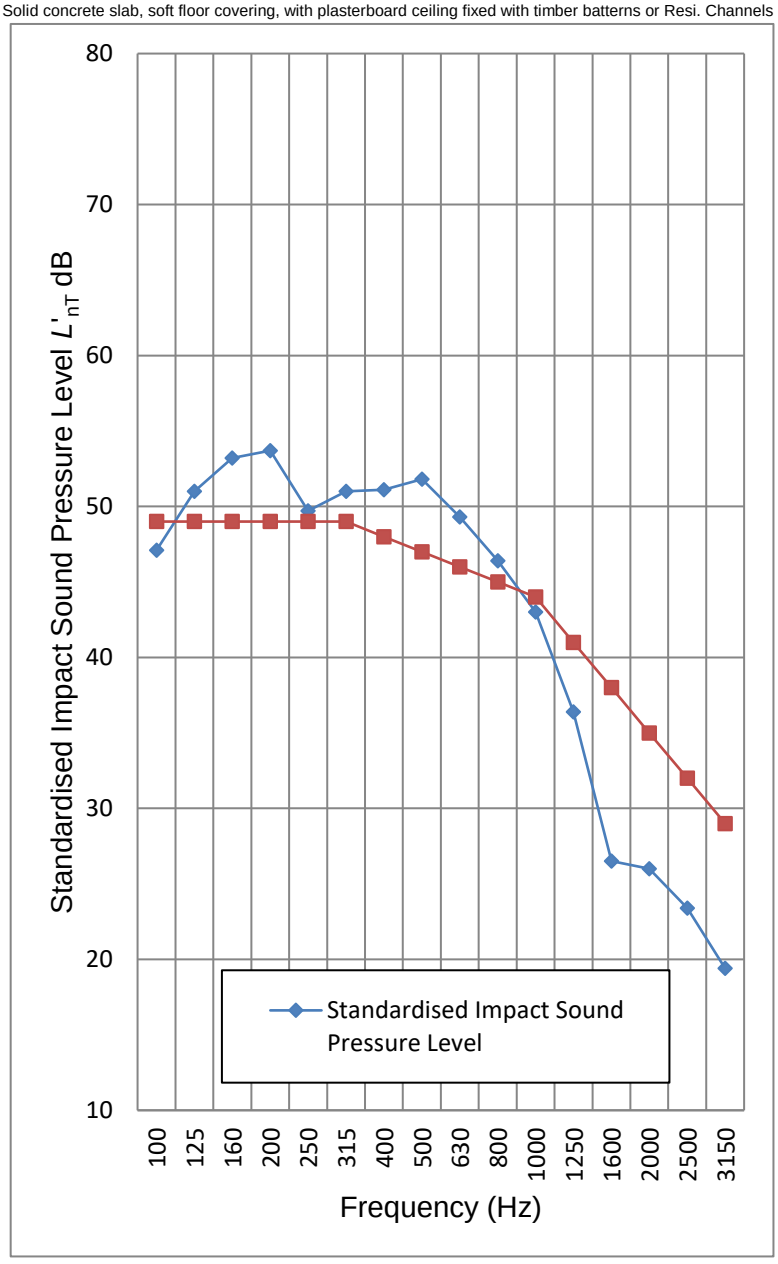
Source Room: 02-10 Bedroom Receiver Room: 01-10 Bedroom

Volume (m3): 30 Volume (m3): 30

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	L'_{nT} (1/3 Octave) dB	
50	56.2	
63	50.7	
80	43.8	
100	47.1	
125	51	
160	53.2	
200	53.7	
250	49.7	
315	51	
400	51.1	
500	51.8	
630	49.3	
800	46.4	
1000	43	
1250	36.4	
1600	26.5	
2000	26	
2500	23.4	
3150	19.4	
4000	11	<=
5000	7.9	<=

Limit of Measurement <=



Rating according to ISO 717-2

$L'_{nT,w}$ = 47 dB $L'_{nT,w}$ + C150-2500 48 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 Name of Test Institute: MACH

Date: 2025-05-29 Signature: [redacted]

Standardised impact sound pressure levels according to ISO 140-4. Field measurements of impact sound insulation of floors

Site: Carnival Place Test date: 2025-05-29 Test No: 179 : IP4

Client: Feltham Construction

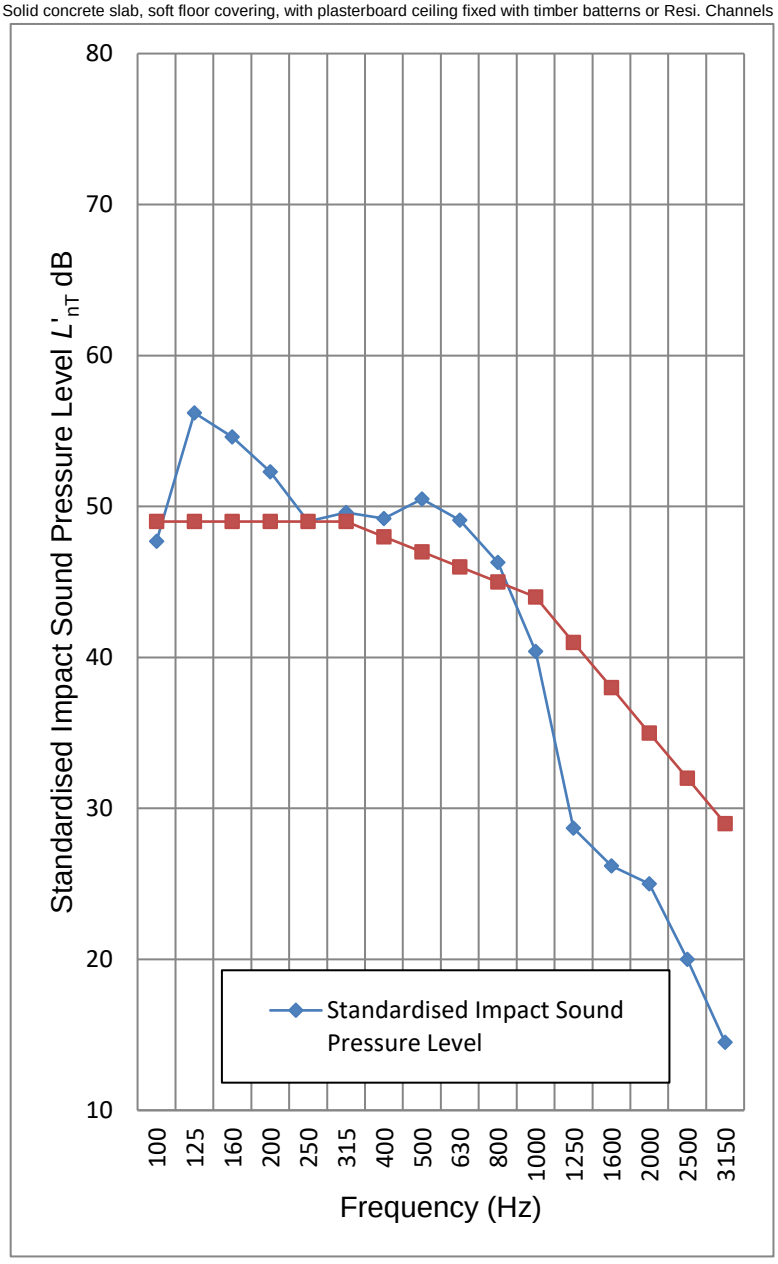
Source Room: 02-15 Bedroom Receiver Room: 01-15 Bedroom

Volume (m3): 30 Volume (m3): 30

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	L'_{nT} (1/3 Octave) dB	
50	55.9	
63	49.9	
80	48.5	
100	47.7	
125	56.2	
160	54.6	
200	52.3	
250	49	
315	49.6	
400	49.2	
500	50.5	
630	49.1	
800	46.3	
1000	40.4	
1250	28.7	
1600	26.2	
2000	25	
2500	20	
3150	14.5	
4000	10.8	<=
5000	9.7	<=

Limit of Measurement <=



Rating according to ISO 717-2

$L'_{nT,w}$ = 47 dB $L'_{nT,w}$ + C150-2500 48 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 Name of Test Institute: MACH

Date: 2025-05-29 Signature: [redacted]

Standardised impact sound pressure levels according to ISO 140-4. Field measurements of impact sound insulation of floors

Site: Carnival Place Test date: 2025-05-29 Test No: 179 : IP5

Client: Feltham Construction

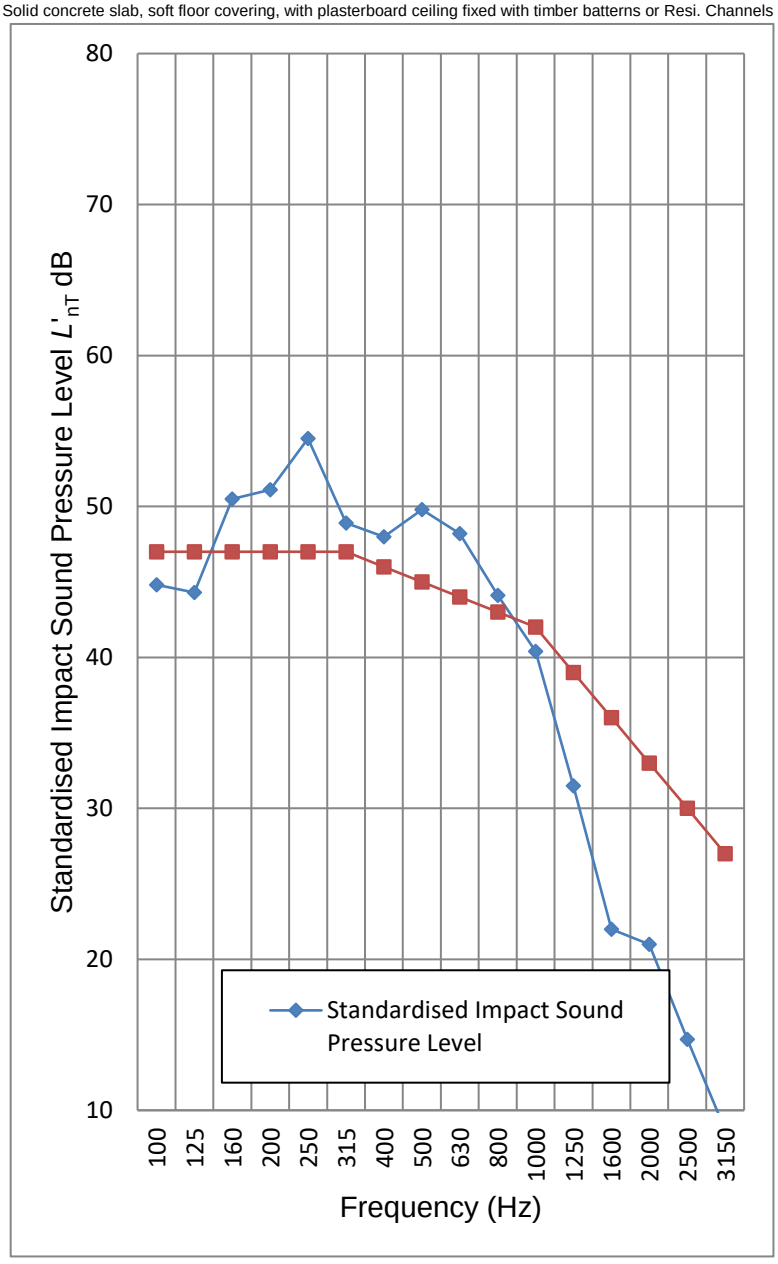
Source Room: 02-10 KDL Receiver Room: 01-10 KDL

Volume (m3): 60 Volume (m3): 60

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	L'_{nT} (1/3 Octave) dB	
50	50.6	
63	49.3	
80	50.9	
100	44.8	
125	44.3	
160	50.5	
200	51.1	
250	54.5	
315	48.9	
400	48	
500	49.8	
630	48.2	
800	44.1	
1000	40.4	
1250	31.5	
1600	22	
2000	21	
2500	14.7	
3150	8.7	<=
4000	6.8	<=
5000	7	<=

Limit of Measurement <=



Rating according to ISO 717-2

$L'_{nT,w}$ = 45 dB $L'_{nT,w}$ + C150-2500 46 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 Name of Test Institute: MACH

Date: 2025-05-29 Signature: [redacted]

Standardised impact sound pressure levels according to ISO 140-4. Field measurements of impact sound insulation of floors

Site: Carnival Place Test date: 2025-05-29 Test No: 179 : IP6

Client: Feltham Construction

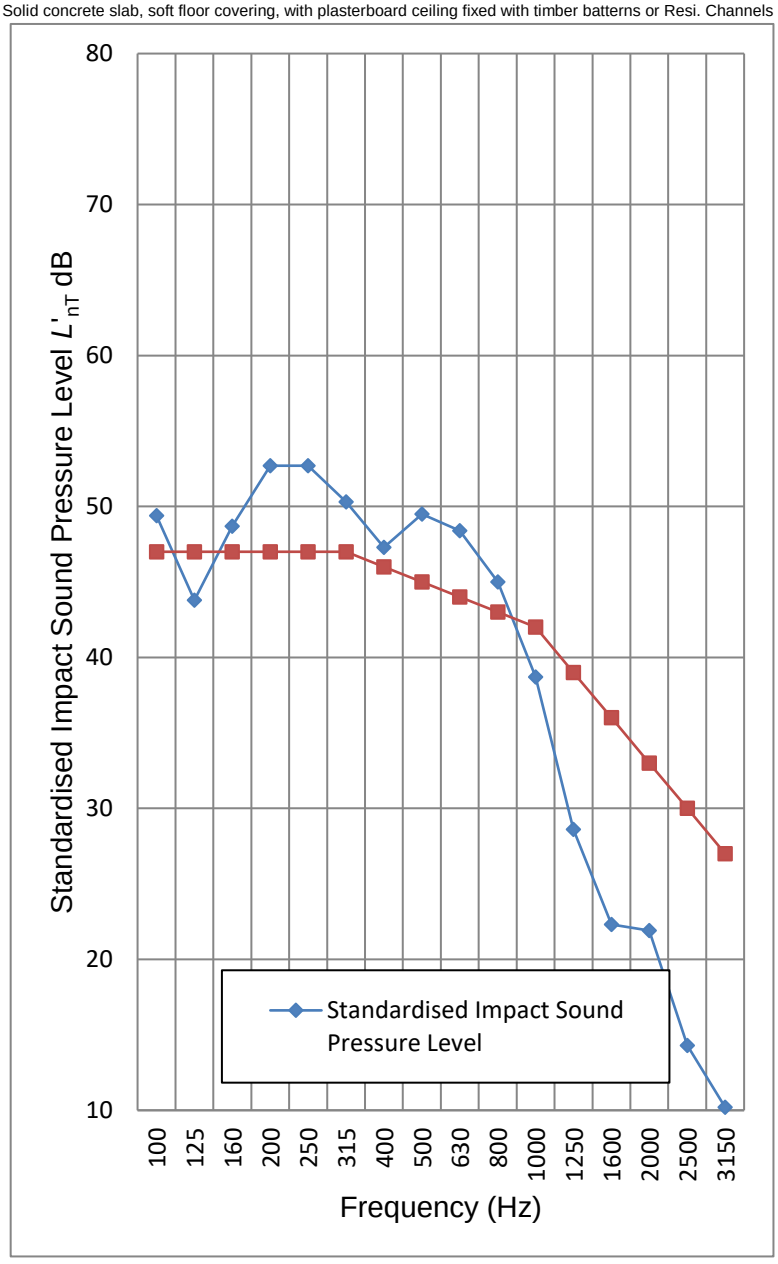
Source Room: 02-15 KDL Receiver Room: 01-15 KDL

Volume (m3): 60 Volume (m3): 60

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	L'_{nT} (1/3 Octave) dB	
50	52.3	
63	51.8	
80	53.3	
100	49.4	
125	43.8	
160	48.7	
200	52.7	
250	52.7	
315	50.3	
400	47.3	
500	49.5	
630	48.4	
800	45	
1000	38.7	
1250	28.6	
1600	22.3	
2000	21.9	
2500	14.3	
3150	10.2	<=
4000	7	<=
5000	7.3	<=

Limit of Measurement <=



Rating according to ISO 717-2

$L'_{nT,w}$ = 45 dB $L'_{nT,w}$ + C150-2500 47 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 Name of Test Institute: MACH

Date: 2025-05-29 Signature: [redacted]

Standardised impact sound pressure levels according to ISO 140-4. Field measurements of impact sound insulation of floors

Site: Carnival Place Test date: 2025-05-29 Test No: 179 : IP7

Client: Feltham Construction

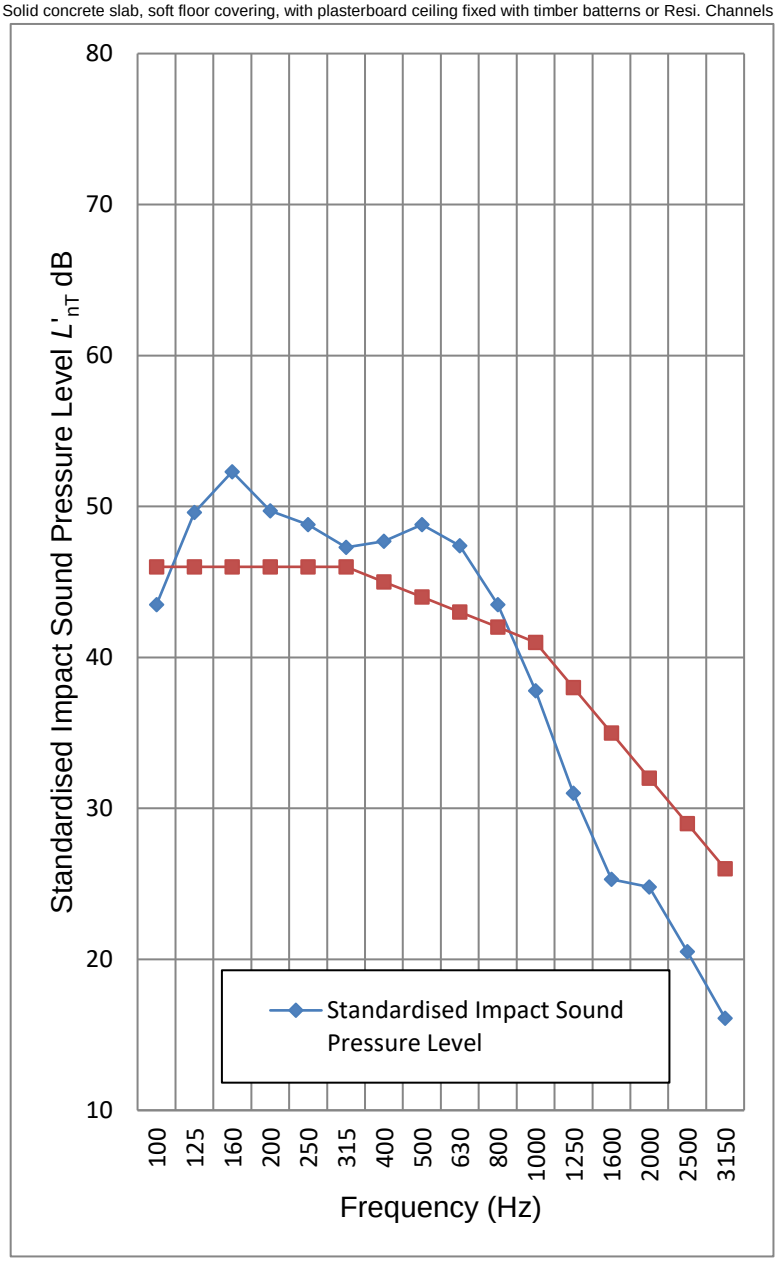
Source Room: 02-16 KDL Receiver Room: 01-16 KDL

Volume (m3): 60 Volume (m3): 60

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	L'_{nT} (1/3 Octave) dB	
50	53.1	
63	51.3	
80	49.8	
100	43.5	
125	49.6	
160	52.3	
200	49.7	
250	48.8	
315	47.3	
400	47.7	
500	48.8	
630	47.4	
800	43.5	
1000	37.8	
1250	31	
1600	25.3	
2000	24.8	
2500	20.5	
3150	16.1	
4000	15.4	
5000	10.5	<=

Limit of Measurement <=



Rating according to ISO 717-2

$L'_{nT,w}$ = 44 dB $L'_{nT,w}$ + C150-2500 46 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 Name of Test Institute: MACH

Date: 2025-05-29 Signature: [redacted]

Standardised impact sound pressure levels according to ISO 140-4. Field measurements of impact sound insulation of floors

Site: Carnival Place Test date: 2025-05-29 Test No: 179 : IP8

Client: Feltham Construction

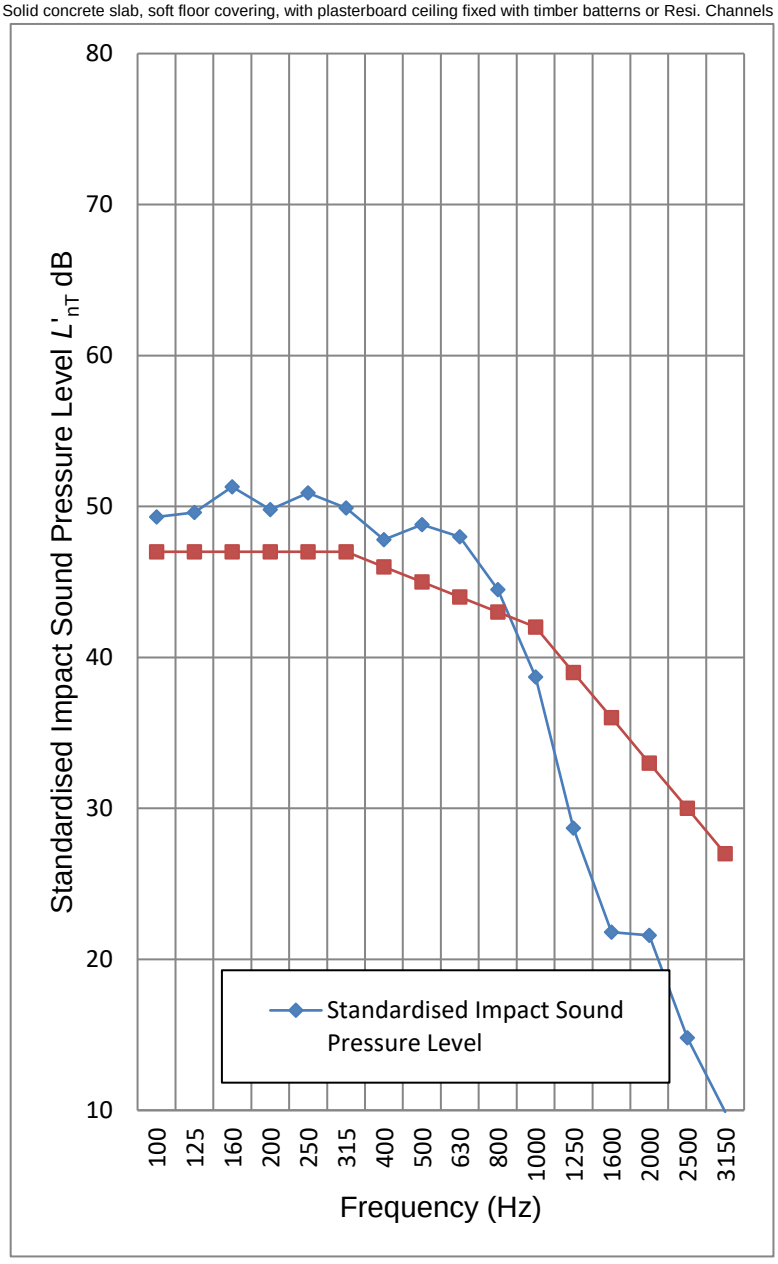
Source Room: 02-16 Bedroom Receiver Room: 01-16 Bedroom

Volume (m3): 30 Volume (m3): 30

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	L'_{nT} (1/3 Octave) dB	
50	58	
63	49	
80	45.7	
100	49.3	
125	49.6	
160	51.3	
200	49.8	
250	50.9	
315	49.9	
400	47.8	
500	48.8	
630	48	
800	44.5	
1000	38.7	
1250	28.7	
1600	21.8	
2000	21.6	
2500	14.8	
3150	9.9	<=
4000	7.2	<=
5000	7.3	<=

Limit of Measurement <=



Rating according to ISO 717-2

$L'_{nT,w}$ = 45 dB $L'_{nT,w}$ + C150-2500 47 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 Name of Test Institute: MACH

Date: 2025-05-29 Signature: [redacted]

Standardised impact sound pressure levels according to ISO 140-4. Field measurements of impact sound insulation of floors

Site: Carnival Place Test date: 2025-05-29 Test No: 179 : IP9

Client: Feltham Construction

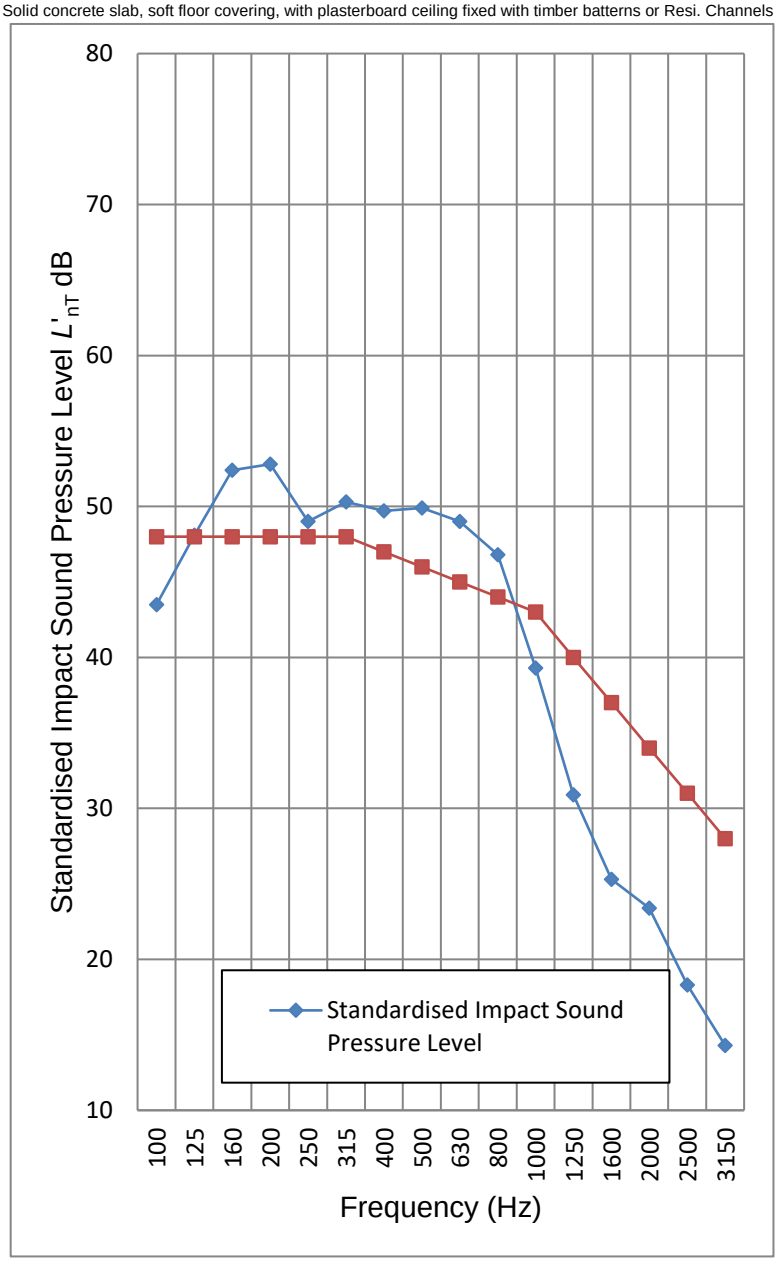
Source Room: 02-08 Bedroom 1 Receiver Room: 01-08 Bedroom 1

Volume (m3): 40 Volume (m3): 40

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	L'_{nT} (1/3 Octave) dB	
50	46.1	
63	58.5	
80	47.9	
100	43.5	
125	48.1	
160	52.4	
200	52.8	
250	49	
315	50.3	
400	49.7	
500	49.9	
630	49	
800	46.8	
1000	39.3	
1250	30.9	
1600	25.3	
2000	23.4	
2500	18.3	<=
3150	14.3	<=
4000	11	<=
5000	10.4	<=

Limit of Measurement <=



Rating according to ISO 717-2

$L'_{nT,w}$ = 46 dB $L'_{nT,w}$ + C150-2500 47 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 Name of Test Institute: MACH

Date: 2025-05-29 Signature: [redacted]

Standardised impact sound pressure levels according to ISO 140-4. Field measurements of impact sound insulation of floors

Site: Carnival Place | Test date: 2025-05-29 | Test No: 179 : IP10

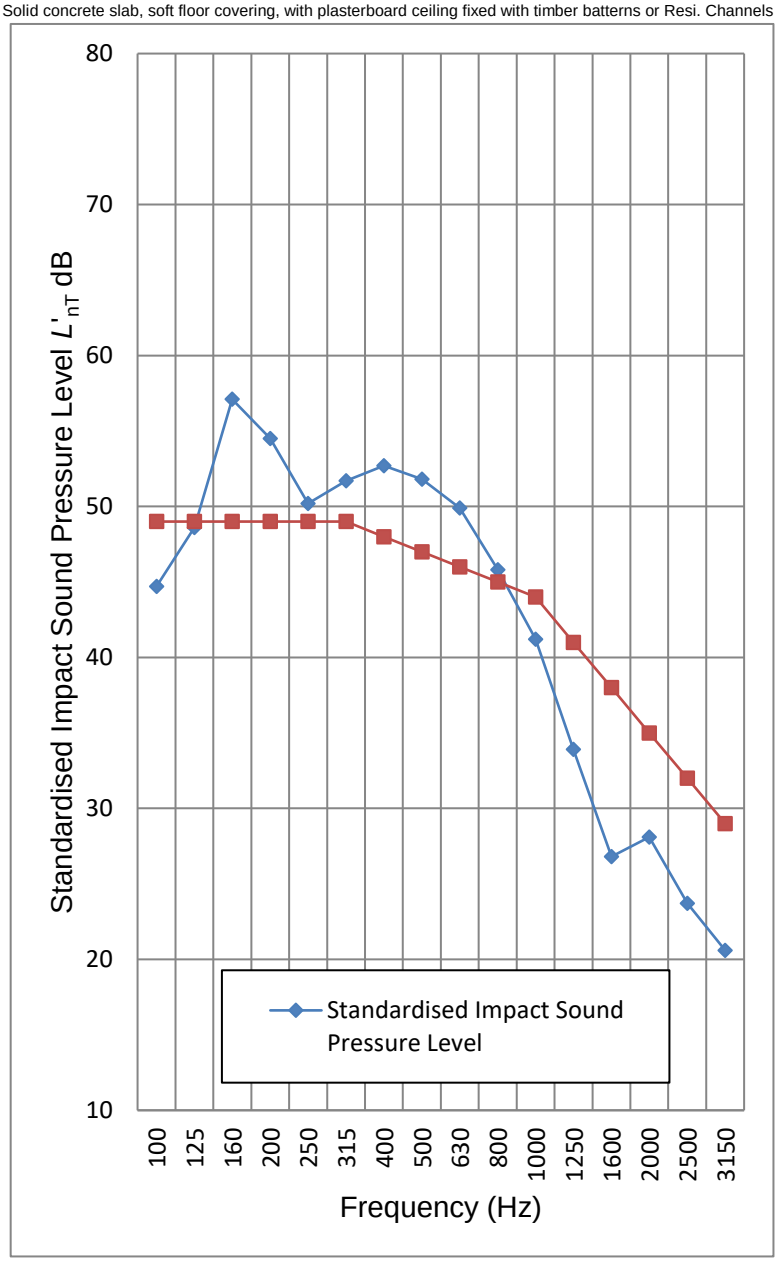
Client: Feltham Construction

Source Room: 02-17 Bedroom 1 | Receiver Room: 01-17 Bedroom 1

Volume (m3): 40 | Volume (m3): 40

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	L'_{nT} (1/3 Octave) dB
50	53
63	58.5
80	51.9
100	44.7
125	48.6
160	57.1
200	54.5
250	50.2
315	51.7
400	52.7
500	51.8
630	49.9
800	45.8
1000	41.2
1250	33.9
1600	26.8
2000	28.1
2500	23.7
3150	20.6
4000	17
5000	15.5



Rating according to ISO 717-2

$L'_{nT,w}$ = 47 dB $L'_{nT,w}$ + C150-2500 49 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 | Name of Test Institute: MACH

Date: 2025-05-29 | Signature: [redacted]

Standardised impact sound pressure levels according to ISO 140-4. Field measurements of impact sound insulation of floors

Site: Carnival Place Test date: 2025-05-29 Test No: 179 : IP11

Client: Feltham Construction

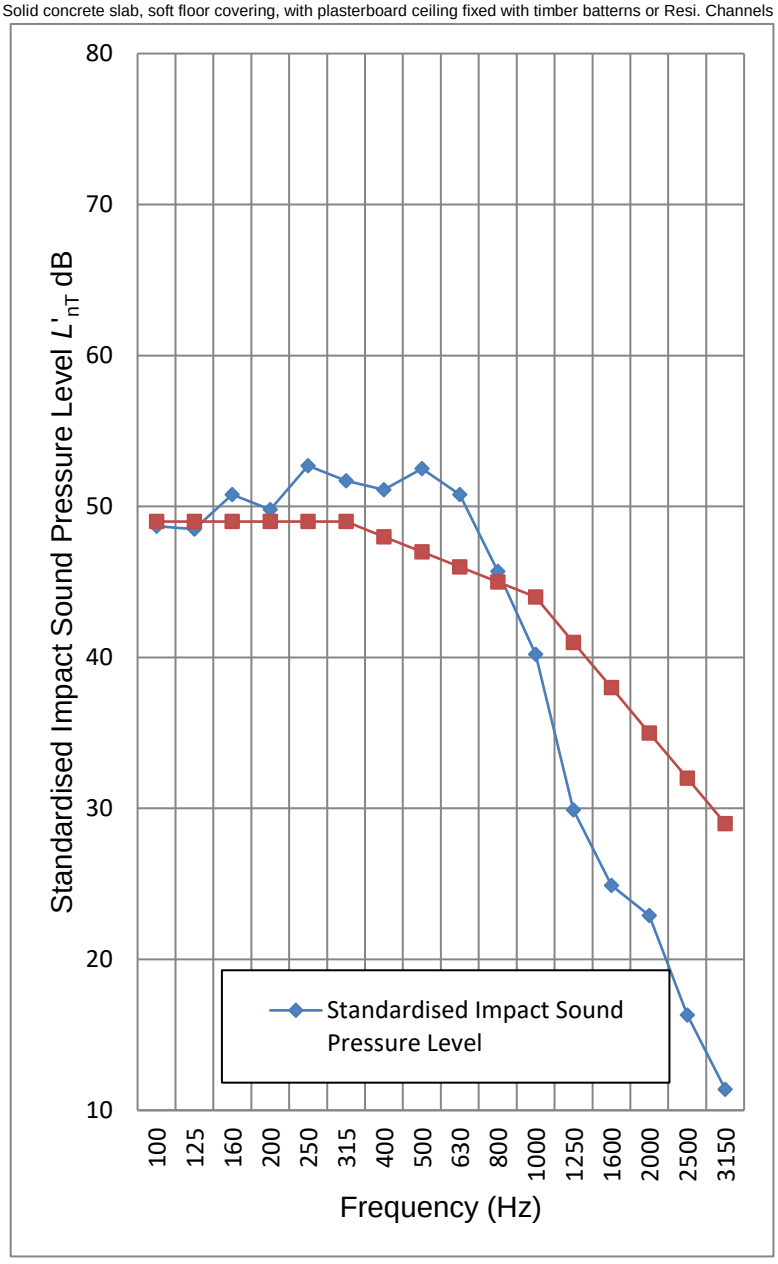
Source Room: 02-8 kdl Receiver Room: 01-8 kdl

Volume (m3): 50 Volume (m3): 50

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	L'_{nT} (1/3 Octave) dB	
50	51	
63	49.8	
80	48.1	
100	48.7	
125	48.5	
160	50.8	
200	49.8	
250	52.7	
315	51.7	
400	51.1	
500	52.5	
630	50.8	
800	45.7	
1000	40.2	
1250	29.9	
1600	24.9	
2000	22.9	
2500	16.3	
3150	11.4	<=
4000	8.5	<=
5000	7.8	<=

Limit of Measurement <=



Rating according to ISO 717-2

$L'_{nT,w}$ = 47 dB $L'_{nT,w}$ + C150-2500 47 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 Name of Test Institute: MACH

Date: 2025-05-29 Signature: [redacted]

Standardised impact sound pressure levels according to ISO 140-4. Field measurements of impact sound insulation of floors

Site: Carnival Place Test date: 2025-05-29 Test No: 179 : IP12

Client: Feltham Construction

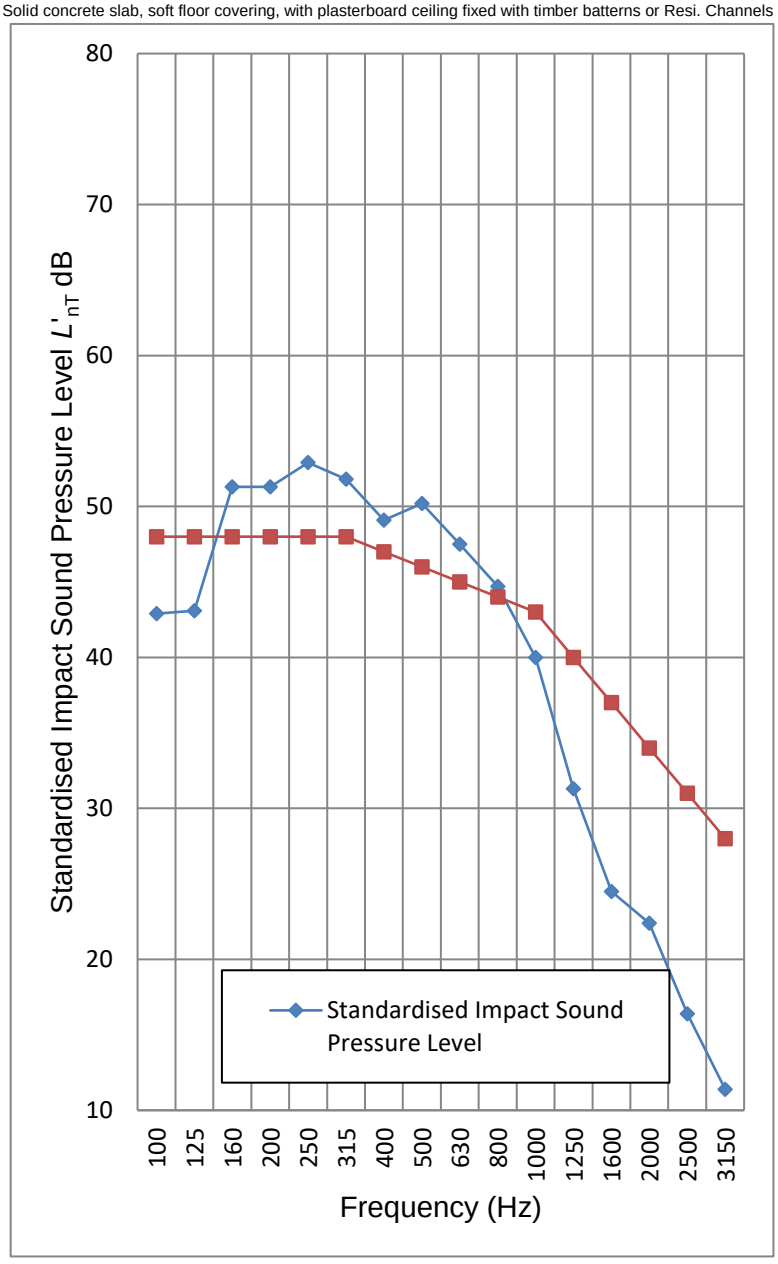
Source Room: 02-17 kdl Receiver Room: 01-17 kdl

Volume (m3): 50 Volume (m3): 50

Construction: PE - 1.1C - Solid concrete slab, soft floor covering, with plasterboard ceiling fixed with timber batterns or Resi. Channels

Frequency f (Hz)	L'_{nT} (1/3 Octave) dB	
50	51.3	
63	51.6	
80	48.3	
100	42.9	
125	43.1	
160	51.3	
200	51.3	
250	52.9	
315	51.8	
400	49.1	
500	50.2	
630	47.5	
800	44.7	
1000	40	
1250	31.3	
1600	24.5	
2000	22.4	
2500	16.4	
3150	11.4	<=
4000	8	<=
5000	6.9	<=

Limit of Measurement <=



Rating according to ISO 717-2

$L'_{nT,w}$ = 46 dB $L'_{nT,w}$ + C150-2500 46 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

No. of Test Report: 1552 Name of Test Institute: MACH

Date: 2025-05-29 Signature: [redacted]