

ENVIRONMENTAL NOISE ASSESSMENT

On behalf of

One Silk Street Ltd

For the site at:

1 Silk Street, Manchester, M4 6LZ

REPORT DATE: 30th May 2022

REPORT REF: AA/22/5/NG/1SS/NIA



CLIENT: One Silk Street Ltd

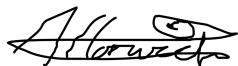
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1. INTRODUCTION

1.1. General

Amber Acoustics has been commissioned by One Silk Street Ltd to carry out an Environmental Noise assessment to discharge a planning condition at 1 Silk Street, Manchester, M4 6LZ.

1.2. Assessment Scope

This report will seek to demonstrate that the completed apartments, meet the internal sound level standards of BS 8233:2014 and WHO Guidelines.

Amber Acoustics have completed this report for the benefit of the individuals referred to in Section 1.1 and any other relevant statutory authority which may require reference in relation to approvals for the proposed development. Other third parties should not use, or rely upon, the contents of this report unless explicit written approval has been gained from Amber Acoustics.

Amber Acoustics accepts no responsibility or liability for the consequences of this documentation being used for any purpose or project other than that for which it was commissioned. It should also be noted herein that the issue of this document to any third party with whom approval for use has not been agreed.



2. SITE DESCRIPTION

The development site is the erection of a 9 storey building to form ground, first and second floor office accommodation (Use Class B1) (3124 sqm) together with 75 residential apartments (Use Class C3a) with associated car parking, amenity provision and other associated works following demolition of existing buildings at 1 Silk Street, Manchester, M4 6LZ.

Condition 13 of the planning decision (ref 120893/FO/2018) dated 9th August 2018, stated

13) Notwithstanding the noise and vibration report stamped as received by the City Council, as Local Planning Authority, on the 3 August 2018, (a) prior to the first occupation of the residential accommodation a scheme of acoustic insulation shall be submitted for approval in writing by the City Council, as Local Planning Authority.

(b) Prior to the first occupation of the residential element a post construction survey (including appropriate mitigation measures and timescales for implementation if necessary) shall be submitted for approval in writing by the City Council, as Local Planning Authority. The measures agreed thereafter shall be retained and maintained in situ.

3. ASSESSMENT STANDARDS

This section of the report outlines the context of the proposed development with respect to noise.

Following correspondence with Laura Miller, the Environmental Protection Officer at Manchester City Council, a methodology was proposed for a noise survey involving 3 hour measurements in 8 different locations between the hours of 7am and 5pm to be extrapolated to a 16hr L_{Aeq} day time and 8hr Night time L_{Aeq} . This methodology was approved in email correspondence between 5th - 13th May 2022.

3.1. National Planning Policy Framework and Planning Practice Guidance

The NPPF, published in March 2012, sets out the Government's planning policies for England and how these are to be expected to be applied. The NPPF must be taken into account in the preparation of local and neighbourhood plans and is to be a material consideration in planning decisions.

Paragraph 123 of the NPPF advises that, with respect to noise emissions, planning policies and decisions should aim to:

- Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
- Mitigate and reduce to a minimum, other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions

Planning Practice Guidance, published in March 2014, advises on how planning can manage potential noise impacts in new development. The guidance states that noise needs to be considered when “...new developments would be sensitive to the prevailing acoustic environment.” Although noise can override other planning concerns, “neither the NPSE1 nor the NPPF expects noise to be considered in isolation from the economic, social and other environmental dimensions of the proposed development.”

When making decisions, local planning authorities should take account of the acoustic environment and in doing so consider:

- Whether or not a significant adverse effect is likely to occur;
- Whether or not an adverse effect is occurring or likely to occur; and
- Whether or not a good standard of amenity can be achieved.

In line with the Explanatory Note of the NPSE this would include identifying whether the overall effect of the noise exposure would be above or below the significant observed adverse effect level. The guidance points to the Explanatory Note for Noise Policy Statement for England 2010 for further information.

3.2. Noise Policy Statement for England 2010

The NPSE sets out the long-term vision of Government noise policy. The Noise Policy Vision is supported by the following Noise Policy Aims:

- Avoid significant impacts on health and quality of life;
- Mitigate and minimise adverse effects on health and quality of life; and
- Where possible, contribute to the improvement of health and quality of life.

The NPSE categorises noise exposure through the concept of observed effect levels:

No Observed Effect Level (NOEL): The level below which no effect can be detected.

Lowest Observed Adverse Effect Level (LOAEL): the level above which adverse effects on health and quality of life can be detected.

Significant Observed Adverse Effect Level (SOAEL): the level of noise exposure above which significant adverse effects on health and quality of life occur.

The second Noise Policy Aim refers to the situation where the noise impact lies between the LOAEL and the SOAEL. It requires that, *"...all reasonable steps should be taken to mitigate and minimise effects on health and quality of life... This does not mean that such adverse effects cannot occur."*

The NPSE does not contain specific noise level limits to define the SOAEL as it is likely to be different for different noise sources and parameters. In the absence of national LOAEL and SOAEL noise level criteria, noise levels have been assessed against criteria contained within BS8233:2014 and WHO Guidelines.

3.3. The World Health Organisation Guidelines

The WHO Guidelines for Community Noise 1999 consolidate scientific knowledge on the health impacts of community noise and provide guidance to protect people from the harmful effects of noise in non-industrial environments.

Although this guidance was updated in 2018, the specific references to noise levels were omitted, and have still, to the best of the authors' knowledge, not been updated or clarified by the WHO. Therefore, the 1999 guidelines are referenced herein as they contain the specific noise level targets which tie in nicely with those listed in other British Standards.

The WHO Guidelines for Community Noise set out health-based guideline values for community noise, including recommended noise level values for the onset of sleep disturbance, annoyance and speech interference for the general population. Guideline values are provided for outdoor living areas, living rooms and bedrooms, for both continuous noise and discrete noise events. These are:

$LA_{eq,T}$ - the A-weighted equivalent continuous noise energy level over a given period of time T, applied to fluctuating noise levels to give single figure descriptor and sometimes referred to as the 'average'; and

LA_{Fmax} - the maximum A-weighted noise instantaneous sound pressure level recorded during a measurement period using a fast time response.

With regard to outdoor living areas, the WHO Guidelines for Community Noise state that, "... in order to protect the majority of people from being seriously annoyed during the daytime, the outdoor sound level from steady,

continuous noise should not exceed 55dB(A) L_{Aeq} on balconies, terraces, and in outdoor living areas”.

Table 1: WHO Guideline Values for Community Noise

Specific Environment	Critical Health Effect (s)	L_{Aeq} dB(A)	Time base (hours)	$L_{A_{Fmax}}$ fast dB(A)
Outdoor living area	Serious annoyance, daytime and evening.	55	16	-
	Moderate annoyance, daytime evening.	50	16	-
Dwelling indoors	Speech intelligibility and moderate annoyance, daytime and evening	35	16	-
Inside bedroom	Sleep disturbance night-time	30	8	45
Outside bedroom	Sleep disturbance, window open (outdoor values)	45	8	60

Source: World Health Organisation 1999

3.4. BS8233:2014

BS8233:2014 contains suggested criteria for common situations, such as resting and sleeping, and proposes noise levels that normally satisfy those criteria for most people. For dwellings, the main considerations are:

- For bedrooms, the acoustic effect on sleep; and
- For other rooms, the acoustic effect on resting, listening and communicating.

Suggested noise levels reflect those contained within the WHO Guidelines. BS8233:2014 advises that the time period T, should be appropriate for the activity involved, in this case the daytime $L_{Aeq,16hr}$ (07:00-23:00) and night-time $L_{Aeq,8hr}$ (23:00-07:00).

Table 2 below details guideline values for dwellings as recommended within BS8233:2014.



Table 2: BS8233:2014 Recommended Noise Levels

Criterion	Typical situations	Time		
		Daytime 07:00 to 23:00 (L_{Aeq})	Night-time 23:00 to 07:00 (L_{Aeq})	Night-time 23:00 to 07:00 (L_{AMax})
Resting	Living room	35	-	
Sleeping (daytime resting)	Bedroom	35	30	45

Source: BS8233:2014

With regard to external noise levels in amenity spaces such as gardens, the guidance advises that “...it is desirable that the external noise level does not exceed 50dB $L_{Aeq,T}$, with an upper guideline value of 55dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognised that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces but should not be prohibited.”

3.5. Assessment Methodology

The primary noise source identified in correspondence with Laura Miller, The Environmental Protection Officer at Manchester City Council, was the road traffic noise from the nearby Oldham Road.

4. SURVEY MEASUREMENTS

The Environmental Noise Assessment took place over several days between 17th and 23rd May 2022.

The Noise survey was carried out generally in accordance with BS7445: 2003 ‘Description and Measurement of Environmental Noise’.

4.1. Measurement Locations

The Measurement locations as agreed by email correspondence in the methodology approved by Laura Miller, The Environmental Protection Officer at Manchester City Council, were as follows:

Measurement Position	Apt No	Room Type
MP1	Apartment 8.02	Living Room
MP2	Apartment 8.09	Living Room
MP3	Apartment 8.03	Bedroom
MP4	Apartment 8.08	Bedroom
MP5	Apartment 7.10	Bedroom
MP6	Apartment 7.05	Bedroom
MP7	Apartment 6.01	Living Room
MP8	Apartment 5.12	Living Room

4.2. Meteorological Conditions

No excessive precipitation was noted during the survey, and the general wind speed in all directions was less than 5m/s, which is suitable for a noise survey. Detailed weather conditions are given in **Appendix C**.

4.3. Measurement Equipment

$L_{Aeq,T}$ and L_{AFmax} sound levels were recorded using 2 Type 1 Svantek SV307 Sound Analyser (serial numbers 100907 and 116709). Measurements were A-weighted and recorded using a fast time response.

The sound level meter was calibrated using a Svantek SV36 Sound Calibrator (serial number 83149) at the start and finish of the monitoring period. No significant calibration drifts were observed. A detailed equipment list is given in **Appendix B** with calibration information in **Appendix D**.

4.4. Observations

The primary noise source identified on-site was the road traffic from Oldham Road.

5. RESULTS

To assess the environmental noise climate, shortened noise surveys took place over 3 hours. The results of the surveys are set out below.

Measurement Position	Location	Date	Time From	Until	L _{A10, 3hr}
MP1	Apartment 8.02	19/05/2022	10:00	13:00	34.5
MP2	Apartment 8.09	17/05/2022	07:00	10:00	36.2
MP3	Apartment 8.03	18/05/2022	10:00	13:00	26.5
MP4	Apartment 8.08	17/05/2022	10:15	13:15	33.9
MP5	Apartment 7.10	19/05/2022	13:30	16:30	27.5
MP6	Apartment 7.05	17/05/2022	13:30	16:30	28.8
MP7	Apartment 6.01	23/05/2022	07:00	10:00	36.9
MP8	Apartment 5.12	17/05/2022	13:30	16:30	26.8

Table 1: Measurement Summary of Noise Survey Positions Results.

As per the methodology set out in the Calculation for Road traffic Noise, the L_{A10, 3HR} is converted to an L_{Aeq, 18hr} by deducting 1db, then the results are further adjusted by using the correction of subtracting 2db as per paragraph 6.2.2 in BS8233:2014 to Produce an L_{Aeq, 16hr} result.

The L_{Aeq, 8hr} for the night time period is derived from the L_{A10, 18hr} utilising Formula 4.11 of the TRL report as set out below.

$$L_{night} = 0.90 \times L_{A10, 18h} - 3.77 \text{ dB}$$

The resulting L_{Aeq16hr} and L_{Aeq8hr} results can then be seen in the table below.

Measurement Position	L _{A10 3hr}	L _{A10 18hr}	L _{Aeq 16hr}	L _{Aeq 8hr}
MP1	34.5	33.5	31.5	26.4
MP2	36.2	35.2	33.2	27.9
MP3	26.5	25.5	23.5	19.2
MP4	33.9	32.9	30.9	25.8
MP5	27.5	26.5	24.5	20.1
MP6	28.8	27.8	25.8	21.3
MP7	36.9	35.9	33.9	28.5
MP8	26.8	25.8	23.8	19.5

Table 2: Measurement Summary of Noise Survey Results with indices corrections.

6. ASSESSMENT

6.1. Existing Noise Climate

Sound levels in the vicinity of the site were mainly affected by the road traffic from Oldham Road.

BS8233: 2014 and WHO Guidelines Assessment

A summary of the relevant internal sound levels to be achieved at the proposed development is provided below:

Living rooms (daytime)	$L_{Aeq,T}$ 35dB(A);
Bedrooms(daytime)	$L_{Aeq,T}$ 35dB(A)
Bedrooms(night-time)	$L_{Aeq,T}$ 30dB(A); and
Bedrooms (night-time)	L_{AFmax} 45dB(A);

With regard to internal sound levels, from the site measurement data, it may be extrapolated that, the internal sound levels **DO** achieve BS8233: 2014 and WHO criteria.

7.0 Conclusion

Amber Acoustics was commissioned by One Silk Street Ltd to carry out an Environmental Noise assessment to discharge a planning condition at 1 Silk Street, Manchester, M4 6LZ.

The Environmental Noise Assessment has sought to establish existing daytime and night-time sound levels at the site, and to confirm based off of sampling of the apartments, that the internal sound level criteria are as set out within BS8233:2014 'Guidance on sound insulation and noise reduction for buildings' and World Health Organisation 'Guidelines for Community Noise'.

Noise survey results and assessment indicate that based on the sample measurements taken, the internal sound levels **ARE** within the standards required, and no further mitigation is required.



APPENDICES

APPENDIX A - Measurement Details

Measurement	Kit	Start Date	Start Time	End Date	End Time
MP1	AA2	19 th May 2022	10:00	19 th May 2022	13:00
MP2	AA1	17 th May 2022	7:00	17 th May 2022	10:00
MP3	AA2	18 th May 2022	10:00	18 th May 2022	13:00
MP4	AA1	17 th May 2022	10:15	17 th May 2022	13:15
MP5	AA2	19 th May 2022	13:30	19 th May 2022	16:30
MP6	AA1	17 th May 2022	13:30	17 th May 2022	16:00
MP7	AA2	23 rd May 2022	07:00	23 rd May 2022	10:00
MP8	AA2	17 th May 2022	13:30	17 th May 2022	16:30

APPENDIX B - Equipment Details

Kit	Equipment	Make	Model	Class	Serial Number
AA1	Sound Meter	Svantek	SV307	1	116709
AA2	Sound Meter	Svantek	SV307	1	100907
AA3	Calibrator	Svantek	SV36	1	83149

APPENDIX C - Meteorology Details

Measurement	Temp C (Average)	Wind Speed m/s	Humidity %
MP1-MP8	20.3	1.2	55

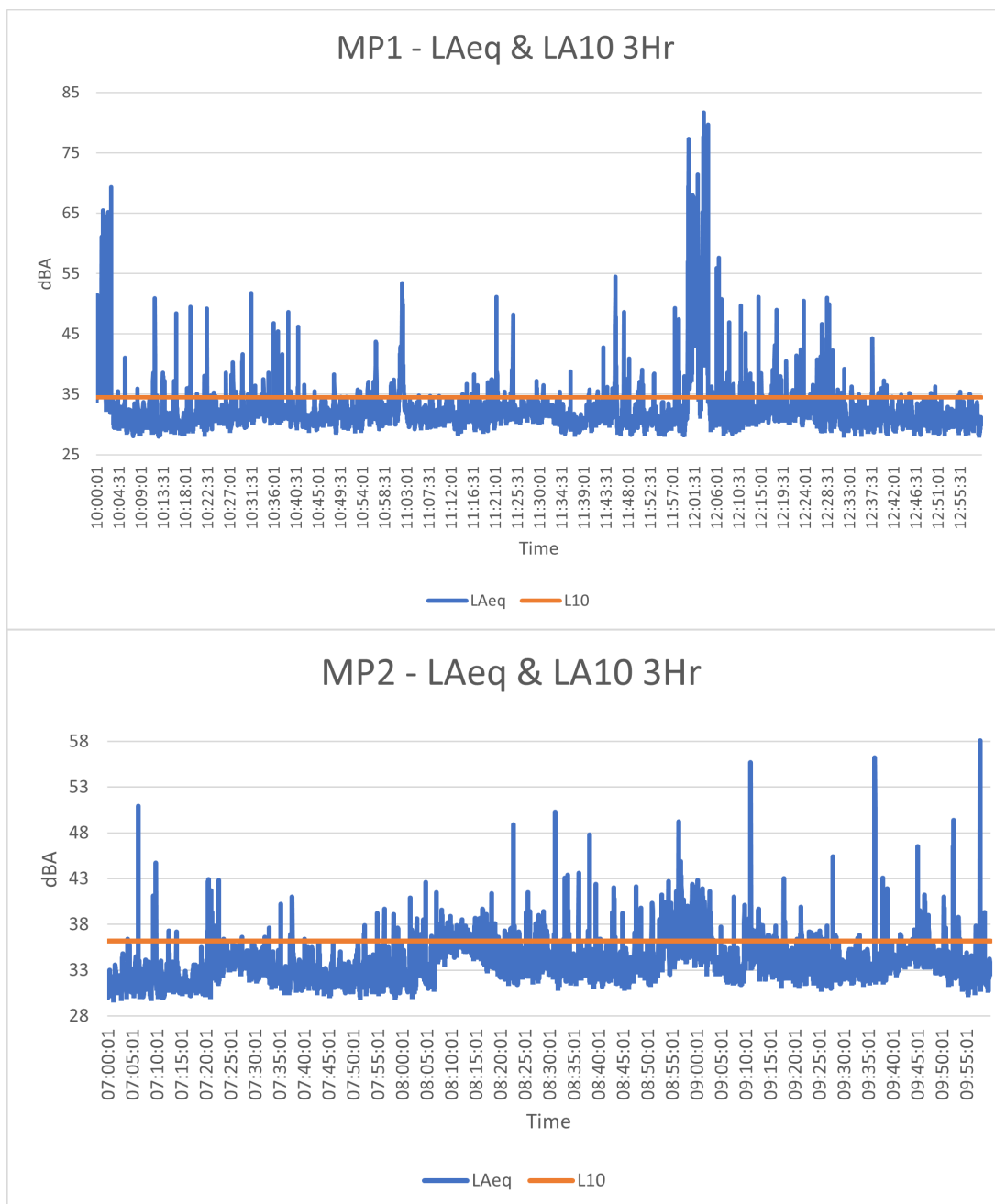
APPENDIX D - Calibration Details

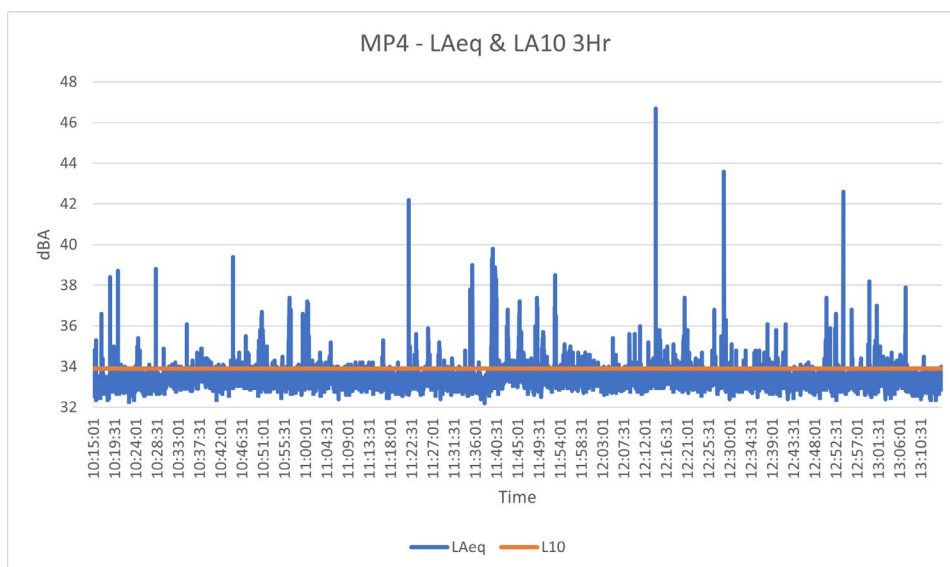
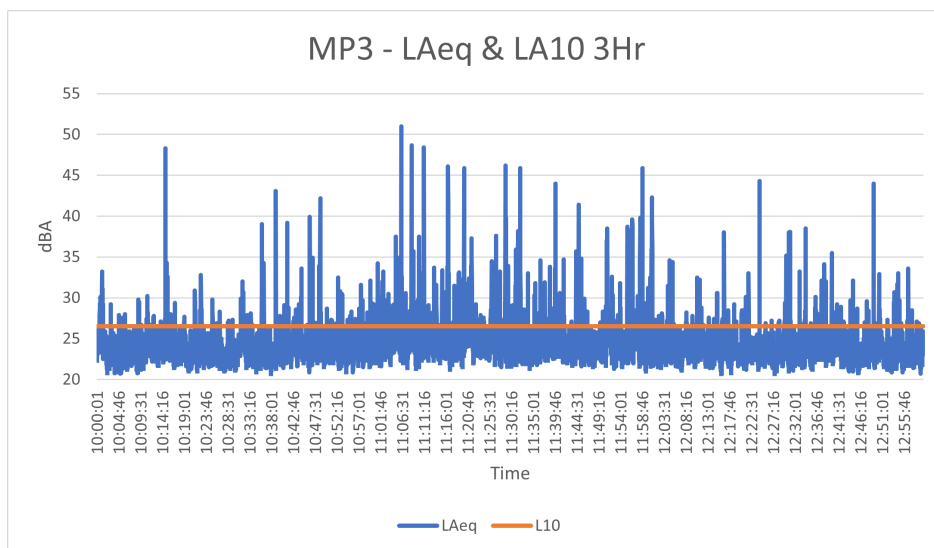
Measurement	Calibrator Ref Level (dB)	Level Before (dB)	Deviation Before (dB)	Level After (dB)	Deviation After (dB)
MP1-MP8	114	114.1	-0.1	114.0	0



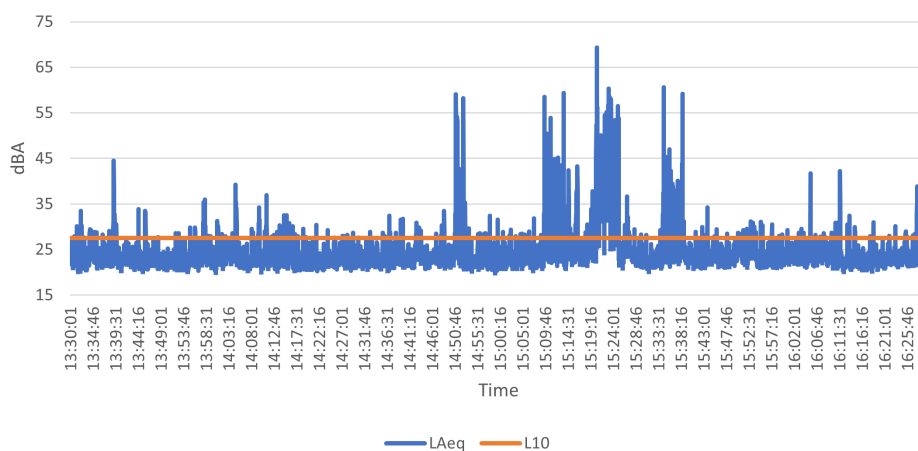
APPENDIX E – Survey Data

LA10 3Hr Noise Survey Data





MP5 - LAeq & LA10 3Hr



MP6 - LAeq & LA10 3Hr

