

6th December 2017

Open-Air Theatre Preliminary Noise Survey

Purpose

The survey is to assess whether the noise from the activities held at the Valletta Open-Air Theatre could cause justifiable complaints by the sensitive receptors in the vicinity.

Method

The Residue and Specific noise levels were measured at the locations, as indicated on the map. The measured time varied between 10 to 27 minutes at the different locations. If an in-depth survey is required the measured time during the day/evening would be of 60 minutes and 10 minutes during the night, at each location. Apart from this issue, the noise was measured as recommended by the BS 8233:2014

References:

WHO: Daytime Outdoors Noise recommendations

During daytime, few people are highly annoyed at LAeq levels below 55 dB (A), and few are moderately annoyed at LAeq levels below 50 dB (A). Sound levels during the evening and night should be 5–10 dB lower than during the day.

BS 8233:2014: Sound Insulation and Noise Reduction for Buildings - Code of Practice:

The standard suggests suitable internal noise levels within different types of buildings, including residential dwellings, for steady external noise sources. The noise shall be below 55dB during the day and 50 dB (A) during the Evening. Noise levels during the Night must not exceed 45 dB (A).

BS 8233:2014 Define the likelihood of complaint as such:

A difference of +5 is of marginal significance

A difference of +10 indicate that complaints are justified

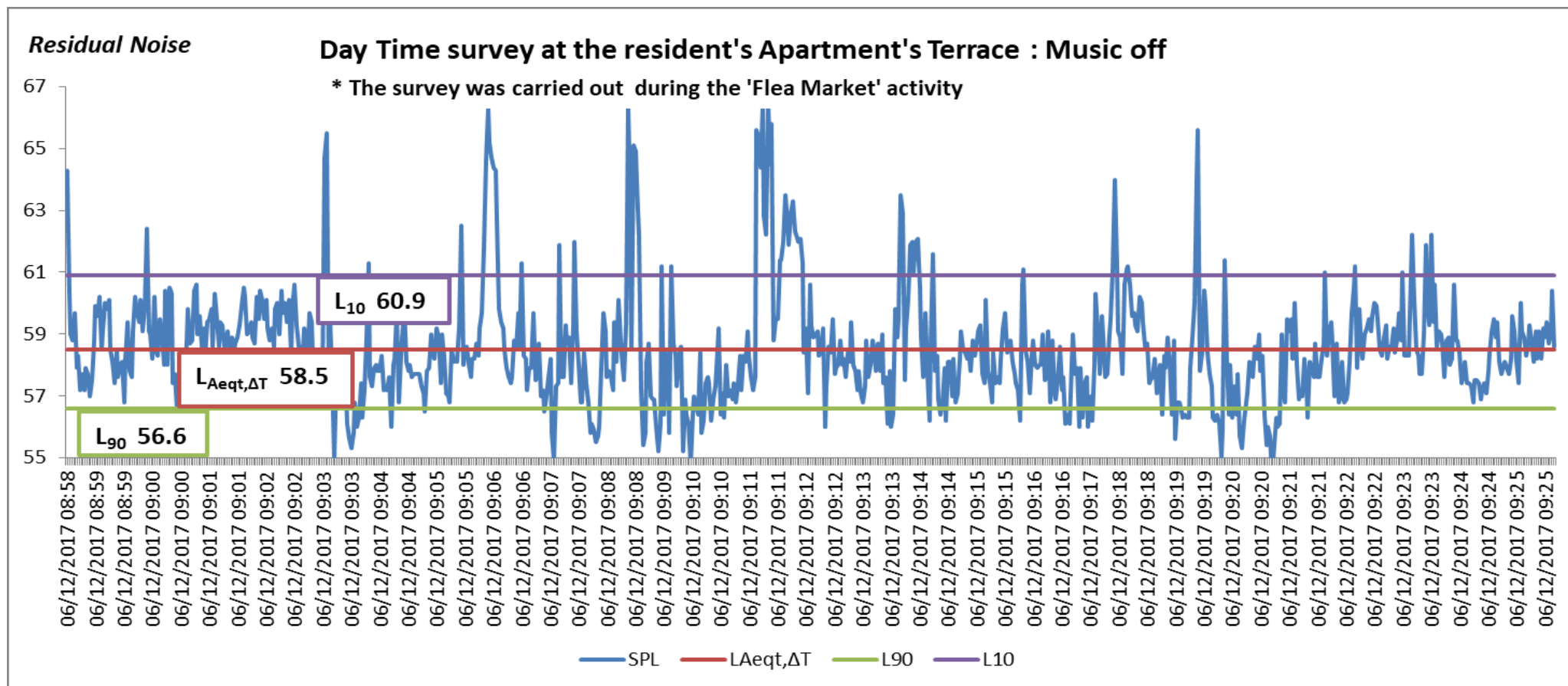
Data recorder specifications:

Integrated Data Recorder specs:

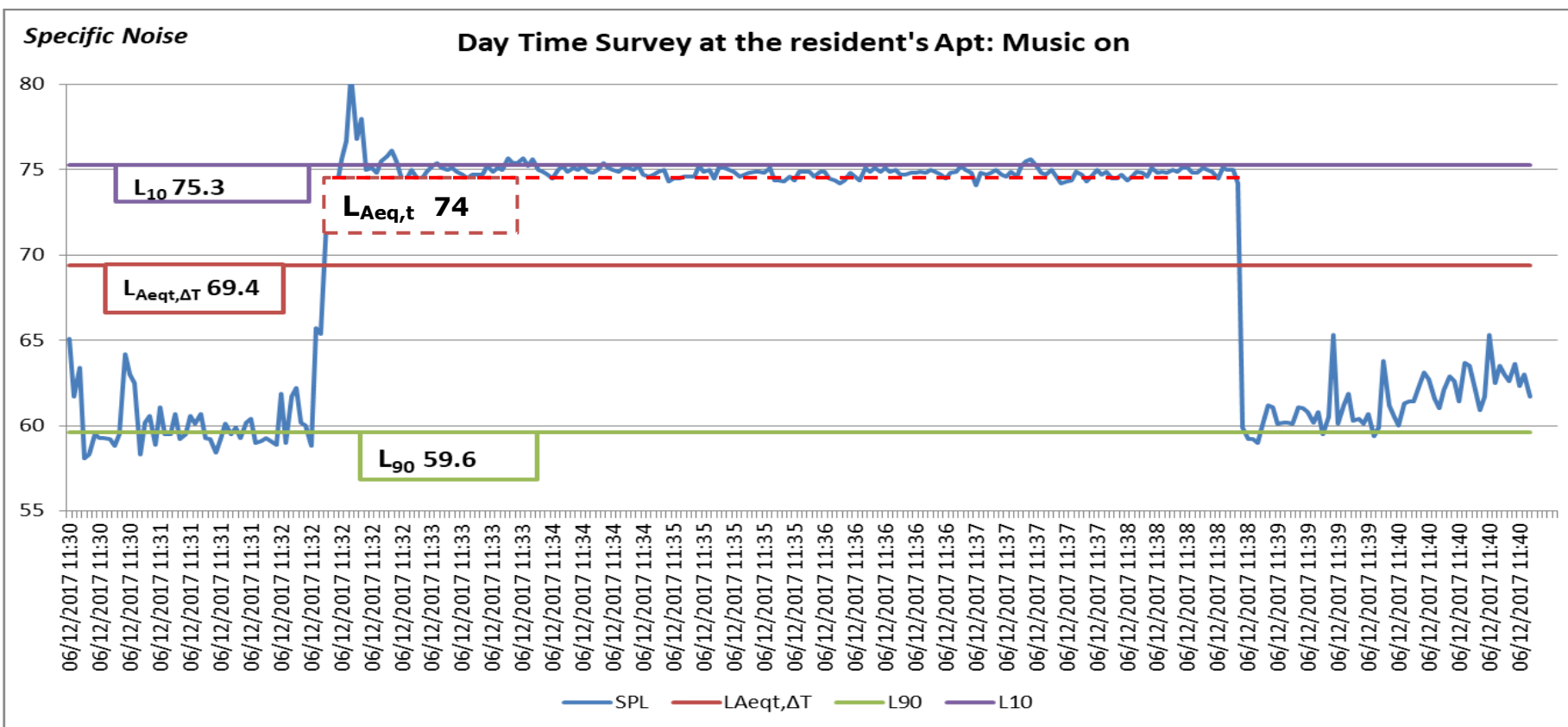
IEC 61672 Class 2

IEC 60651 and IEC 60804 Type 2

ANSI S1.4, ANSI S1.43 Type 2



The residual noise level is the continuous A-weighted sound pressure level when the specific noise source is suppressed to a degree that it does not contribute to the background noise.



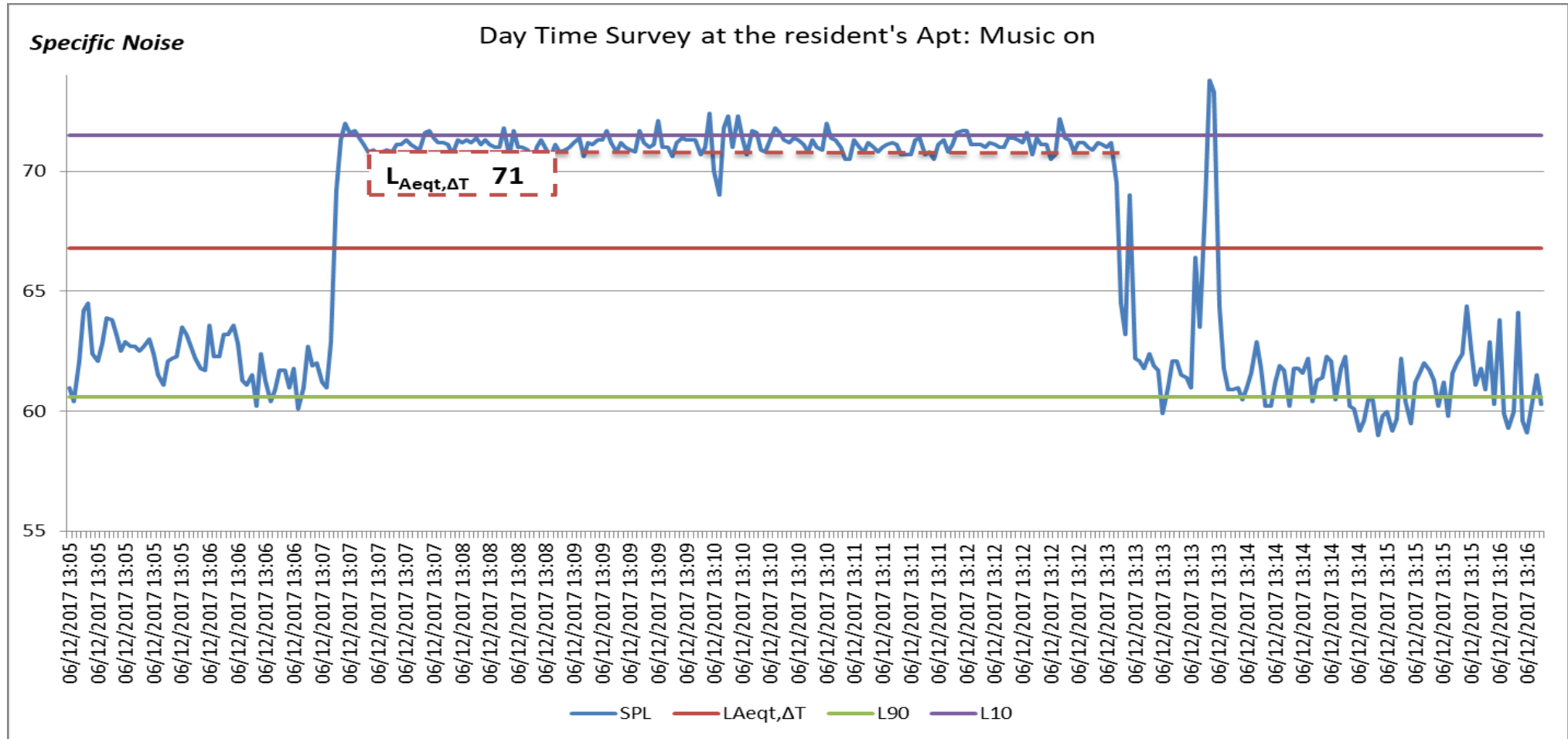
The specific noise level is the continuous A-weighted sound pressure level at the assessment position over a given reference time interval that is produced by the noise source that is being investigated for assessing the likelihood of complaints.

The lead and lag two minutes monitored in the graph, specify the residual noise level; hence the true $L_{Aeq,t}$ is 74 dB(A)
Therefore, the difference between Specific & Residual Noise is $74 - 59 = 15$ dB (A)

BS 8233:2014 Define the likelihood of complaint as such:

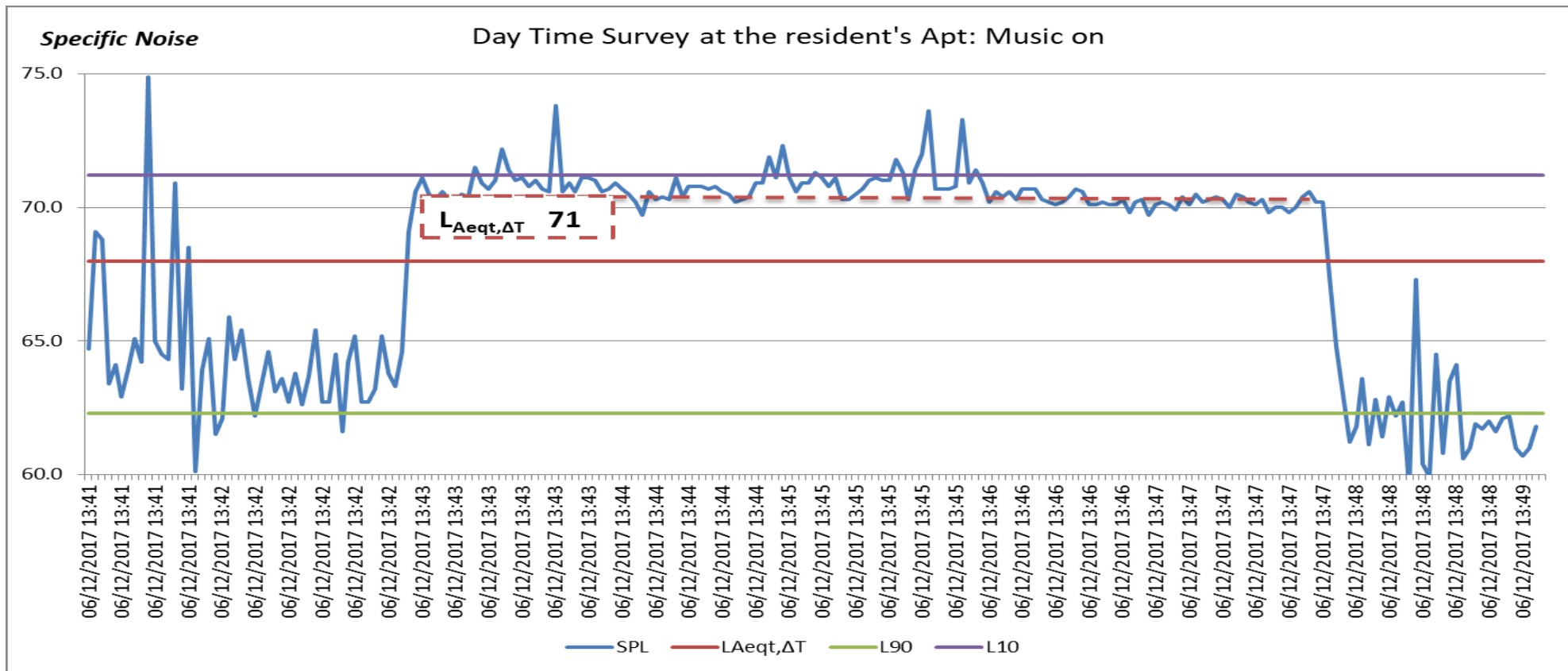
A difference of +5 is of marginal significance

A difference of +10 indicate that complaints are justified



The lead and lag two minutes monitored in the graph, specify the residual noise level; hence the true **L_{Aeq,t}** is 71 dB(A)
Therefore, the difference between Specific & Residual Noise is $71 - 59 = 12$ dB (A)

BS 8233:2014 Define the likelihood of complaint as such:
A difference of +5 is of marginal significance
A difference of +10 indicate that complaints are justified



The lead and lag one minute monitored in the graph, specify the residual noise level; hence the true $L_{Aeq,t}$ is 71 dB(A)
Therefore, the difference between Specific & Residual Noise is $71 - 59 = 11$ dB (A)

BS 8233:2014 Define the likelihood of complaint as such:

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References:

WHO: Daytime Outdoors Noise recommendations

During daytime, few people are highly annoyed at LAeq levels below 55 dB (A), and few are moderately annoyed at LAeq levels below 50 dB (A). Sound levels during the evening and night should be 5–10 dB lower than during the day.

Location	Noise Source Road Traffic	Time		Test duration	Noise Level in dB(A)			Surveyor's comments
					L _{Aeq, T} fast	L _{A, 90 T}	L _{A, Max}	
Res. Apt	Residual	08:58	09:25	27.00 min	58.5	56.6	66.4	The LAeq is 3.8 higher than the *GL. <input checked="" type="checkbox"/>
Res. Apt	Specific	11:30	11:41	11:00 min	69.4	59.6	80.6	The LAeq is 14.4 higher than the *GL. <input checked="" type="checkbox"/> > 14 dB(A)
Res. Apt	Specific	13:05	13:17	12:00 min	66.8	60.6	73.8	The LAeq is 12.0 higher than the *GL. <input checked="" type="checkbox"/> > 12 dB(A)
Res. Apt	Specific	13:41	13:49	08:00 min	68.0	62.3	75.0	The LAeq is 12.0 higher than the *GL. <input checked="" type="checkbox"/> > 15 dB(A)

* WHO Guidelines

Criteria	Guideline values	Measured values	Status
Equivalent noise level	< 55 dB LAeq,16hr	69.4/68.0	<input checked="" type="checkbox"/>
Peak level	< 60 dB LAmax, fast	73.9/80.6	<input checked="" type="checkbox"/>

BS 8233:2014 Define the likelihood of complaint as such:

A difference of +5 is of marginal significance

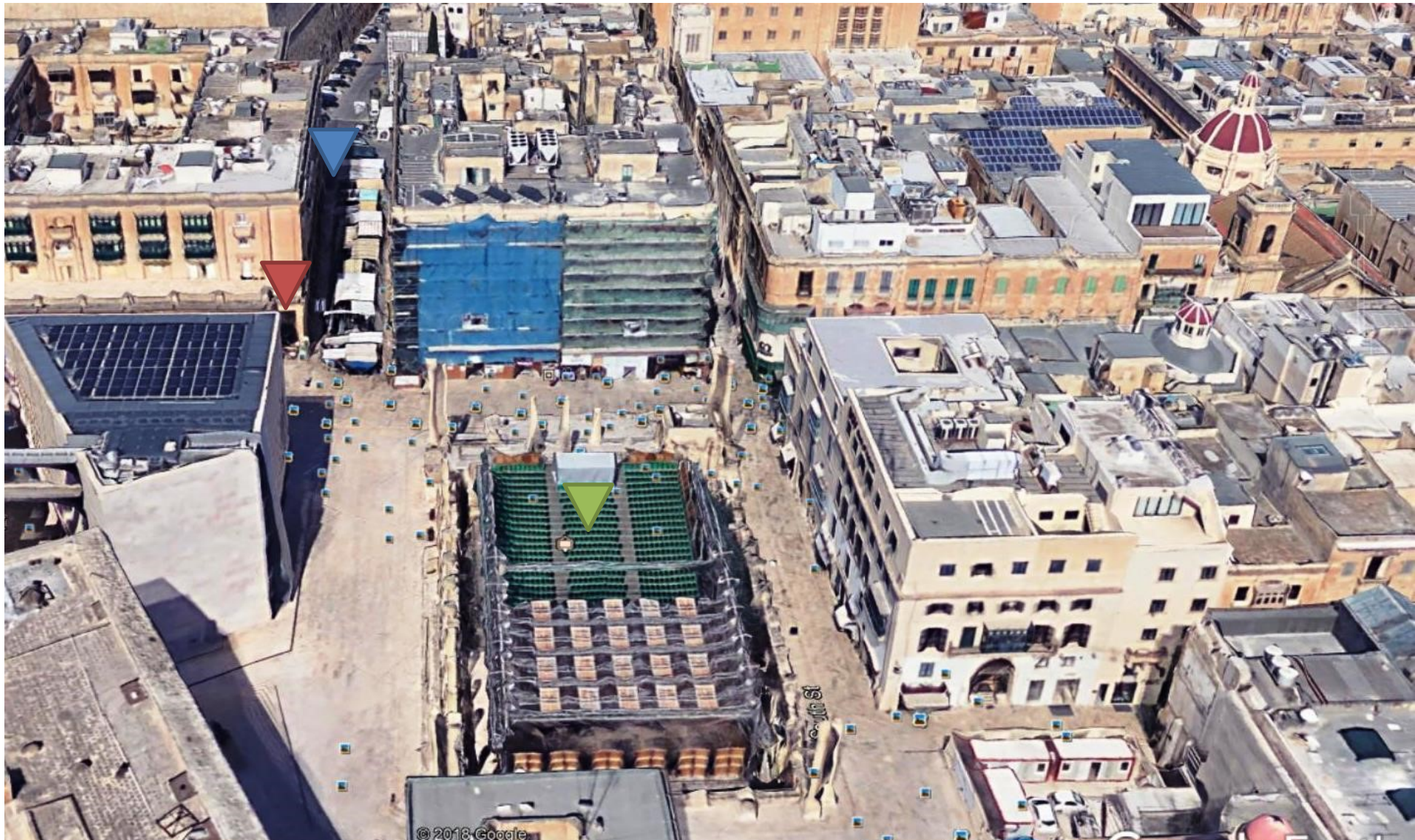
A difference of +10 indicate that complaints are justified

Latitude from Street Level

Distance from OAT Auditorium

- ▼ OAT: 4.0 M
- ▼ Apartment's terrace: 8.0 M
- ▼ Ordinance Square: 1.5 M

- ▼ Apartment's terrace: 44M
- ▼ Ordinance Square: 140M



Map 02 – Latitude from street level

▲ Residential area – 1.5

