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# 115 Frognal

Reply to PPS, regarding BS4142 Assessment 30/06/2017

## 1.0 INTORDUCTION

MACH Acoustics is replying to concerns raised by the note from PPS, dated 13/06/17, regarding the BS4142 noise assessment. The assessment was carried out by MACH Acoustics between 11:30 on Friday 28<sup>th</sup> May and 01:50 on Monday 31<sup>st</sup> May at 115 Frognal.

#### 2.0 MICROPHONE POSITIONING

BS4142 states that measurements locations should be chosen which give a "representative" measure of the background level at the "assessment location". It does not specify that the microphone position needs to be exactly at the assessment location. In this case the assessment location is the window of the residential annex at 113 Frognal.

The microphone has been positioned a similar distance from the road to that of the residential annex at 113 Frognal. It is estimated that the microphone was placed 8.5 m from the road and that the window of the residential annex of 113 Frognal is approximately 9.0 m from the road. This difference in distance equates to a difference in sound level of 0.2 dB, which is an inaudible, and insignificant difference.

In addition the line of sight from the road to the measurement location was partially obscured by the roof of 115 Frognal. This means that the noise from the road was potentially screened by a certain amount. The window of the residential annex at 115 Frognal has a direct line of sight to the road, therefore the microphone position may actually give a lower level than would be observed at the residential annex of 113 Frognal.

Therefore, MACH Acoustics considers the position of the microphone to be representative, or lower than the ambient level, and hence the background level, at the residential annex of 113 Frognal. A lower reading would be a worst-case scenario and therefore mean that the assessment is more robust.

For clarification, according to BS4142 the location of the noise source, i.e. the air conditioning unit, does not have a bearing on the positioning of the microphone.



## 3.0 CONSTRUCTION NOISE

The night time measurement on the evening of 28/04/17 will be representative, as no construction work will have been carried out during this time.

The daytime of Saturday 29<sup>th</sup> April was used to ascertain the background level. MACH Acoustics understands that the Saturday noisy working hours in Camden are from 8:00 until 13:00. Therefore, work should not have been carried out in the afternoon. If there had been work on that day at all, it would not have been carried out in the afternoon. Therefore, the background noise level quoted in the report is representative.

MACH Acoustics also highlight that the daytime difference between the background level and the specific noise source is, in the worst case, 8 dB. This is a large difference indicating that disturbance during the day is unlikely. The scenario modelled during the day time is with the air conditioning unit on full power throughout the entire day. Something which is unlikely to ever occur. Therefore, with these aspects considered the overall outcome of the daytime assessment is deemed to be reliable.

MACH Acoustics would also like to re-iterate the final paragraph of section 5.2 of the BS4142 report, which states that:

"It should be noted that there is no direct line of sight from the air conditioning units to the nearest noise sensitive window on the garage of 113 Frognal. Therefore, 10 dB of attenuation has been added. This is generally considered to be a conservative estimate of the level attenuation due to no line of sight. Therefore, the assessment is a worst-case scenario, and robust."

# 4.0 USE OF MANUFACTURER DATA

The use of manufacturer data within BS4142 assessments is widespread and recommended by the BS4142:2014 standard itself. In 7.3.6 the standard states that "if the source is not yet in operation" then "it is necessary to have appropriate representative data on source sound emission, for example as a source sound power level".

MACH Acoustics have used the sound power levels provided by Daikin, the manufacturer of the unit. The sound power measured by Daikin has been carried out to ISO 3744: determination of sound power levels and sound energy levels of noise sources using sound pressure. Therefore, the data is deemed to be as accurate and reliable as is reasonably possible.

The subsequent sound propagation calculations have taken into account hemispherical spreading and the distance loss from the source to the window of the residential annex of 113 Frognal. This is a reliable calculation based on simple, and well documented, physics of sound propagation.



#### 5.0 NIGHT MODE

MACH Acoustics deems it reasonable that the night mode should be implemented during the night time. The manufacturers data sheet states that:

On a "customized mode" the "starting and ending times can be input."

Therefore, the night mode can be set to reliably turn on and off at certain times every day.

# 6.0 CONCLUSION

MACH Acoustics understands that the concerns surrounding the BS4142 assessment where, microphone position, construction noise, the use of manufacturer data and the reliability of the night mode. In our reply, each of these issues has been discussed in turn. Our conclusion is that the BS4142 assessment is a worst-case scenario of the noise levels which will be present on site. Therefore, it is robust, and that the outcome of the assessment has not changed.