



Palvesh Patel
Perfect Smile Dental Group
(via email)

20th July 2021

Dear Palvesh

J3112– 163-165 Oxford Road, Reading. RG1 7UZ

This addendum, must be read in conjunction with the submitted noise report dated 25/02/2021 for a change of use planning application- J3112

Through liaison with the local planning authority, it is understood that Environmental Health staff as Technical Consultees to the planning application remain concerned over the noise levels generated within the dentistry treatment rooms. To overcome this uncertainty, a visit was made to the Client's dental surgery on 20th July 2021. The specific day was selected due to the number of surgeries/appointments happening which would utilise the dentistry tools known as hand pieces. It is of course relevant to note that hand pieces are not used for all appointments. Routine examinations, reviews and items such as denture fittings, are predominantly speech based between the dentist and the patient and/or technician/s.

It is relevant to note that the premises specialise in Sedation dentistry.

The sound sources inside the treatment room are numerous and include:

- Speech and discussion between the dentist, patient, dental technician and doctor. Sedation practices require at least 3 persons in the room. It was noted that between patient appointments, there can be additional staff members also in the room.
- The hand pieces are driven by turbines using compressed air and run from an air compressor located in the basement.
- A suction pump to remove saliva etc, which is located under the patient's chair.
- Due to the warm weather (22 degrees externally and rising), an air conditioner unit was also running to regulate thermal comfort inside the treatment room. Windows were closed.

The above factors therefore present a worst-case scenario in terms of dentistry operations.

The duration of appointments is variable and the running order seen for the measured time period was obtained from the practice manager.

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Start	Finish	Description
08:00	08:10	Patient Review
08:15	09:00	45 minute sedation
09:00	09:45	45 Minute sedation
09:45	10:00	15 minute check up
10:00	10:15	15 minute check up

Figure 1. Appointment Slots Measured

Given the variation in timings and appointments, and the varied use of hand pieces, A class 1 Norsonic 118 calibrated sound level meter was left running using 5-minute measured periods which could be later correlated to the time history and appointments schedule. The sound level meter measured 1/3 octave bands in order that an assessment could be made against the sound insulation tests which were already carried out as part of the initial survey work.

Measured Sound Pressure Levels and Time History

Figure 2 below details the measured sound pressure levels for the different appointments.

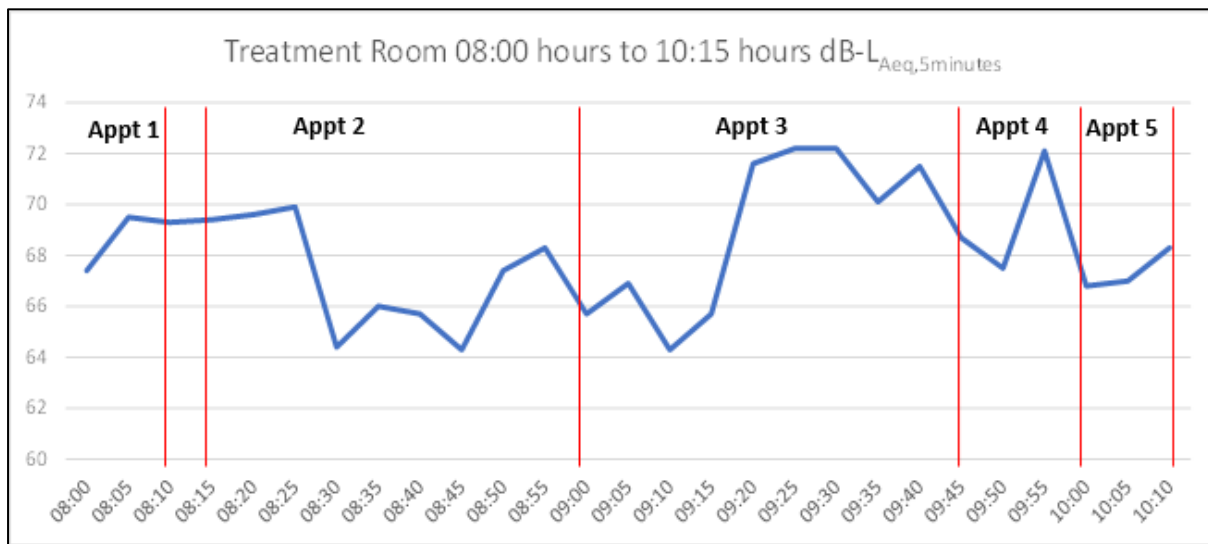


Figure 2. Time/Level(dB(A) Presentation)

Start	Finish	Description	Measured Sound Pressure Level- dB L _{Aeq,T}
08:00	08:10	Patient Review	69
08:15	09:00	45 minute sedation	68
09:00	09:45	45 Minute sedation	70
09:45	10:00	15 minute check up	70
10:00	10:15	15 minute check up	67

Figure 3. Measured Sound Pressure Levels Inside the Treatment Room

Likely Sound Pressure Levels in Residential Room Above.

Given that the spectral frequencies were also measured, a worst case five-minute period (72.2.dB L_{Aeq, 5 minutes}) may be assessed against the measured 1/3 octave band sound insulation testing performance (D_{nT}) of the floor partition between ground floor and first floor carried out on 19th February 2021.

As seen below in Figure 4, the A weighted sum in the flat above is likely to be 28.5 dB(A) which is well below the criteria in BS8233:2014 Table 4 values. Whilst it is recognised that the Table 4 values apply to continuous and anonymous sound, the resulting sound pressure levels in the flat above are predicted to be low enough that, even if the criterion were lowered to account for sound that is not continuous and anonymous, then the criterion would still be deemed to be met. The calculations can be seen below in figure 4:

Frequency	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1.0 kHz	1.25 kHz	1.6 kHz	2.0 kHz	2.5 kHz	3.15 kHz	4.0 kHz	5.0 kHz
Worst case 5 minutes (dB Linear)	66.6	59.2	58.8	57.9	62.3	65	63.1	63	64.2	66.1	67.4	67.1	65.1	61.4	60.4	59.5	57.5	54.9	53.9	51.8	48.7
Ceiling Performance (D _{nT})	27.2	23.3	27.7	32.1	28.7	26.9	32.9	39.6	40.9	43.8	48.2	49.4	51.7	55.2	59.4	60.7	59.9	59	61.3	64.5	66.9
Result	39.4	35.9	31.1	25.8	33.6	38.1	30.2	23.4	23.3	22.3	19.2	17.7	13.4	6.2	1	-1.2	-2.4	-4.1	-7.4	-12.7	-18.2
A weighting Correction	-30.2	-26.2	-22.5	-19.1	-16.1	-13.4	-10.9	-8.6	-6.6	-4.8	-3.2	-1.9	-0.8	0	0.6	1	1.2	1.3	1.2	1	0.6
Result	9.2	9.7	8.6	6.7	17.5	24.7	19.3	14.8	16.7	17.5	16	15.8	12.6	6.2	1.6	-0.2	-1.2	-2.8	-6.2	-11.7	-17.6
Anti Log	8.3176	9.33	7.24	4.677	56.23	295.1	85.11	30.2	46.77	56.23	39.81	38.02	18.2	4.169	1.4454	0.955	0.7586	0.5248	0.23988	0.0676	0.0174
A Weighted Sum in flat	28.5																				

Figure 4. Spectral Performance of the Partition/Floor Between Ground and First Floor

The A weighted sound profile has also been produced which does not reveal any tonal qualities or concerns, this can be seen below:

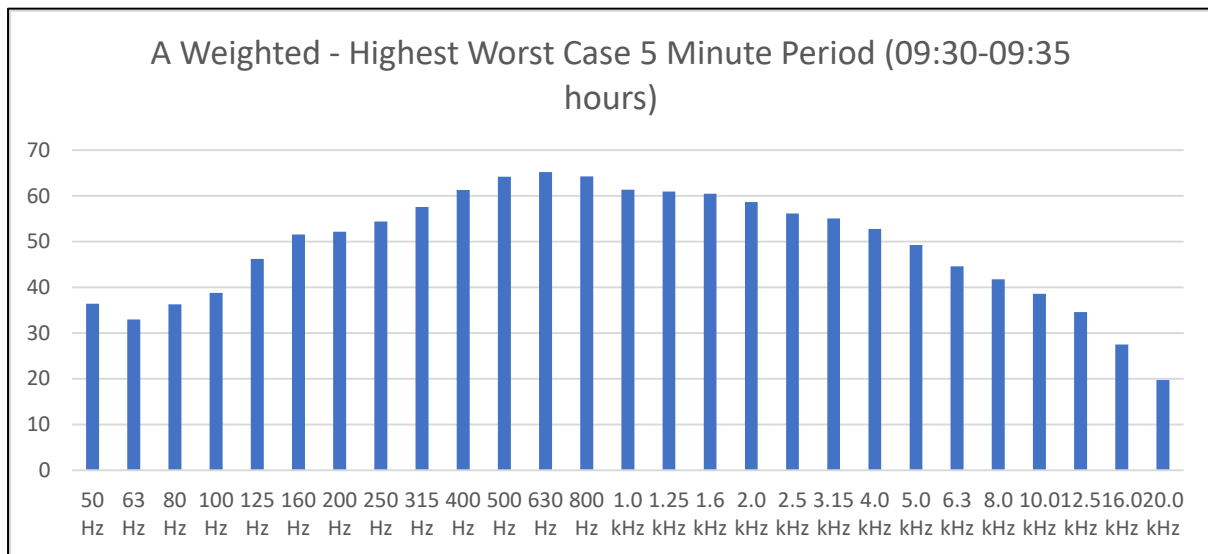


Figure 5. Worst Case 5-minute Period - A Weighted - 09:30-09:35 hours

Context and Summary

The worst-case appointment period over 45 minutes inside the room achieves an $L_{Aeq,45 \text{ minutes}}$ of only 70dB.

Dentistry tools such as the hand pieces/drills are not used all of the time. A 45-minute appointment saw elevated noise levels in only 20 minutes of the 45-minute duration.

The dentistry operations do not occur throughout all of the daytime period.

The measurement period was made during a hot day with an air conditioning unit running inside the room and a number of dental technicians working and represents a worst-case scenario.

The measured data indicates that the resulting sound pressure levels inside the room above arising from dentistry activities with the current ceiling performance is 28.5 dB $L_{Aeq, 5 \text{ minutes}}$ well below the daytime criterion in BS8233:2014 Table 4 values.

The site is a grade II listed building.

It is therefore concluded that the dentistry activities in the treatment rooms are not a significant sound source and do not adversely impact the proposed residential room above. Planning permission should not therefore be withheld any longer on noise grounds.

Yours sincerely

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Senior Consultant

cc. Alex Bateman, Mohsin Cooper Planning Limited