SS3

GUIDELINES ON THE USE OF SOUND METERS

MOTOCROSS AND OFF ROAD MOTORCYCLES

Revised 2007

D18

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The smallest sound level change detectable to the human ear is about 3 decibels.

Variation in energy loss is caused by temperature, height, humidity, type of ground surface and frequency of sound source.

Objects such as cars, vans, walls or embankments will reflect sound and invalidates a meter reading in the immediate area.

Wind can blow 'sound' to or away from the noise meter or listener.

An interesting phenomenon which lessons our problem is that measured sound levels do not double when energy sources double, increasing only by 3 dBA. That is if a Motocross machine, measured from say 100 meters away gave 70 dBA, two machines would give 73, four - - 76, 8 – 79 and 32 – 85 and 40 machines 86 dBA.

The Static Noise Test

Due to the length of time a dynamic or 'ride by' would take and perhaps more impossibly the fact that the riding would need to be done by someone in the noise control team, a static 'close up' method of testing is used by both the ACU and FIM.

The close up method requires only two people plus the rider and the result due to the microphone being only half a meter from the exhaust pipe end is less influenced by noise such as public address and other machines although rattley engines can be a problem.

It is important however that the test is conducted in a clear area, well away from any sound reflective objects with only the minimum number of persons present, it is recommended that the test is conducted in the centre of a clear area, a minimum clear distance of five metres from objects.

For Motocross 94 dBA(4 stroke) 96dB/A (2 stroke) (2008) operate according to the FIM method that is instead of using the machine piston stroke to calculate the test RPM, the fixed RPM according to the capacity must be used, with exception of the over 500cc fours strokes.

Up to 85cc	8,000 RPM
Over 85cc up to 125cc	7,000 RPM.
Over 125cc up to 250cc	5,000 RPM
Over 250cc up to 500cc	4,500 RPM
Over 500cc	4,000 RPM (two stroke only)

There is no 2 stroke / 4 stroke differential below 500cc (RPM)
Over 500cc four stroke use the table at 11m/sec at the engines stroke
e.g. 525cc with 75mm stroke would be tested at 4,400 RPM

Always be aware of the introduction of different types of variable exhaust timing and expansion chamber volume and much higher safe mean piston speed. This combined with balance shafts, overhead camshafts and new ignition systems mean that confirmation of the correct engine revolutions when testing is critical.

The Sound Level Meter (SLM) And Noise Equipment

Minimum requirements	Type 1 or 2 Instrument International Standard IEC 651 British Standard BS 5969 Range 70 – 120 dBA
Standard instrument used in A.C.U.	TES 1540 Measuring Stick Rev Counter Thermometer Paint / Labels

The site chosen must allow the test to be conducted at least FIVE METRES from any obstruction such as parked vehicles, trees walls or steeply rising ground. All persons excluded other than those involved, a roped area well way from spectators being preferred. Machines waiting to be tested must also be at least five meters away, with dead engines. A fire extinguisher should be sited in this area.

The Test Procedure

The test should not take place in excessively damp conditions as results will be inconsistent and expensive equipment will be damaged.
Machines, which seem excessively noisy to the opinion of the Noise Inspector may however be individually tested and subject to the Clerk of Courses opinion be excluded from the event until the sound level is reduced.

The test should not take place where the sound level of all sound sources including wind effect is less that 10 dBA below the maximum allowed in the discipline being tested. In other moderate wind conditions the motorcycle should face forward in the same direction as the wind, extraneous engine noises will then blow forward away from the microphone.

Procedure in accordance with ACU / FIM rules on noise control.

Deploy test equipment on chosen site, and mark where the machine for testing is to positioned.

Have available on clipboard, list of riders and standard noise test result forms, three copies required for Clerk of Course, Permit Issuing Authority and retention, have columns for machine number, riders name, make and capacity, test RPM and test results.

Ensure sound level meter is at ambient temperature and calibrate prior to start of testing, note temperature and time on report form, together with meter type. Check and if necessary recalibrate SLM every hour whilst in use.

Adjust SLM to the 'A' weighted scale with 'slow' response setting.

Signal riders forward to test position, record rest RPM.

Attach tachometer or prepare to use probe or 'treysit' meter, the latter being held against the cylinder, just above crankcase level.

Briefly explain the test to the rider particularly the test RPM is about 30-40% of his usual maximum, and that the engine speed should be gradually increased to the required figure, machine must be in neutral.

Request engine to be started, assistant should position tacho in such a way that it can clearly be seen by the rider and noise inspector. If the noise inspector cannot see the tacho a signal system must be devised to indicate when the test RPM is reached. The noise inspector must position the SLM microphone in accordance with the noise test regulation and the makers instruction, standing aside the machine at a 45 degree angle and at least 0.2m above the ground in case of quads or sidecars..

FIM rule 79.06 (2004) The piston speed for Motocross (11m/s) is only an equivalent approximate figure, for reference only. For convenience, made possible by similarity of the engine stroke on current Motocross machines, within capacity classes, the test will be conducted at a fixed RPM.

FIM rule 79.07 (2004) The noise level for engines with more than one cylinder will be measured on each exhaust end.

Record the actual SLM reading - rounded down to the nearest decibel (e.g. 95.9 dBA rounded down to 95 dBA) - and inform the rider. Only the rider is allowed to suppress any external vibratory parts such as number plates, suspension springs, etc.

If the sound level exceeds the discipline limit taking into account the allowance detailed below, repeat the test. If the level is still exceeded check and if necessary recalibrate the SLM, check the temperature and retest.

Whatever your findings always mark them on the silencer of the tested machine, if they fail write on the fail figure followed by an F within a circle.

Sound Control – RPM Figures – Application

13 meters/sec - TWO STROKES i.e. Road Racing and Grass Track where applicable.

11 meters/sec – FOUR STROKE i.e. Road Racing, Motocross, and Grass Track where applicable and ALL Trials and Enduro machines (two and four stroke)

Stroke (mm)	Mean Piston Speed (13 m/sec)	Mean Piston Speed (11 m/sec)	Stroke (mm)	Mean Piston Speed (13 m/sec)	Mean Piston Speed (11 m/sec)
30	13,000	11,000	66	5,909	5,000
31	12,580	10,645	67	5,820	4,925
32	12,187	10,313	68	5,735	4,853
33	11,818	10,000	69	5,652	4,783
34	11,470	9,706	70	5,571	4,714
35	11,142	9,429	71	5,492	4,648
36	10,833	9,167	72	5,416	4,583
37	10,540	8,919	73	5,342	4,521
38	10,263	8,684	74	5,270	4,459
39	10,000	8,462	75	5,200	4,400
40	9,750	8,250	76	5,132	4,342
41	9,512	8,049	77	5,065	4,286
42	9,285	7,857	78	5,000	4,231
43	9,069	7,674	79	4,937	4,177
44	8,863	7,500	80	4,875	4,125
45	8,666	7,333	81	4,815	4,074
46	8,478	7,174	82	4,756	4,024
47	8,297	7,021	83	4,699	3,976
48	8,125	6,875	84	4,643	3,929
49	7,959	6,735	85	4,588	3,882
50	7,800	6,600	86	4,535	3,837
51	7,647	6,471	87	4,483	3,793
52	7,500	6,346	88	4,432	3,750
53	7,358	6,226	89	4,382	3,708
54	7,222	6,111	90	4,333	3,667
55	7,090	6,000	91	4,286	3,626
56	6,964	5,893	92	4,239	3,587
57	6,842	5,789	93	4,194	3,548
58	6,724	5,690	94	4,149	3,510
59	6,610	5,593	95	4,105	3,474
60	6,500	5,500	96	4,063	3,438
61	6,393	5,410	97	4,021	3,402
62	6,290	5,323	98	3,980	3,367
63	6,190	5,238	99	3,939	3,333
64	6,093	5,156	100	3,900	3,300
65	6,000	5,077			

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Final version

IN THE HIGH COURT OF JUSTICE CO Ref: CO/10427/2007

QUEEN'S BENCH DIVISION

ADMINISTRATIVE COURT

IN THE MATTER OF AN APPLICATION FOR JUDICIAL REVIEW

THE QUEEN

On the application of
(1) FREDERICK BROOK DRUMMOND
(2) EVELYN CLARE ANN DRUMMOND

Claimants

-and-

HINCKLEY & BOSWORTH BOROUGH COUNCIL

Defendant

WITNESS STATEMENT
OF PHILIP METCALFE

I, PHILIP PETER METCALFE, of Hinckley & Bosworth Borough Council, Argents Mead, Hinckley Leicestershire, LE10 1BZ, planning officer, SAY AS FOLLOWS:

1. This matter relates to a planning permission in respect of land north of Cow Lane, Ratby. I was at the time of that application, and its determination, the planning officer with responsibility within the Defendant Council for the area in which the site falls, and was

responsible for the Committee Report on which the planning permission was based. I hold a Bachelor of Arts Honours Degree in Geography, a Masters Degree in Town Planning and I am a member of the Royal Town Planning Institute.

2. I make this statement from matters within my own knowledge or from information obtained from the planning file.

3. I wish to deal with three specific aspects of this matter.

Design & Access Statement

4. Complaint is made by the Claimants (in their first ground of challenge: paragraph 4.1 on page 7 of the Claimant's bundle) that a design and access statement should have been obtained from the applicant before the grant of permission was entertained.

5. The permission sought was for change of use only, as the application form at page 35 of the Claimant's bundle shows.

6. The only permission granted was for change of use of the land as page 92 of the Claimant's bundle shows.

7. There were at the time of the grant two small wooden sheds or similar structures on site (one currently housing a chemical toilet). I do not know exactly how long they had been there but they were very low key structures in a relatively remote area of countryside and not visible from public view. I now produce two photographs of the site, marked "PM1". One is a photograph of the sheds, taken

by me on site on 27th July 2007, the other is an aerial photograph taken by Bluesky International Ltd on 24th July 2006 putting the sheds in context. I was able to see these on the site, as I did, and there was plainly no issue arising out of their appearance in this rural location.

8. There is no perimeter fencing on the site, which is enclosed by mature hedges. Following the grant of permission there was a suggestion by the applicant, Mr O'Donnell of buffalo fencing on the site. It was pointed out to him this would require a separate planning permission (and was not considered acceptable).

9. The only access from the site is onto Cow Lane, which serves only two dwellings and the Highways Authority were satisfied of its suitability (as confirmed at exhibit "PM2").

Conditions

10. In relation to condition 6 of the planning permission, which has been referred to, a noise measurement scheme was agreed with Mr O'Donnell on 21st December 2007 prior to use of the site for motorcycling commencing following the grant of planning permission (around March 2008). I refer to the exchange of correspondence marked "PM3". In relation to condition 9 a dust suppression scheme was agreed with Mr O'Donnell on 29th January 2008 (again prior to commencement of the use following the grant of permission), as the correspondence marked "PM3" shows, and is being complied with.

11. In drawing up condition 8 I used the wording of a standard landscaping condition, and this referred to 5 years. The reference to 5 years was an error, though it benefits the Claimants/public if anything in being longer than I intended. However, I would not expect the Council to take enforcement action beyond the period of the temporary consent.

Charnwood Forest Area

12. I produce marked "PM4" a copy of the Key Diagram to the Structure Plan. This states in the bottom right hand corner *"The Key Diagram is only illustrative of Policies and does not represent precise land allocations"*.

13. A copy of Strategy Policy 14 (relating to Charnwood Forest Policy Area) which the Claimants' complain (in paragraph 4.3 of their Grounds at page 8 of the Claimants' bundle) should have been taken into account but was not is at page 97 of their own bundle. The first line states "The defined boundary of the Charnwood Forest Policy Area will be shown on local proposals maps."

14. I now produce "PM5" a copy of the Hinckley & Bosworth Borough Council local proposals map. I have marked the site on it with a red line. It is plainly not within the Charnwood Forest Policy Area.

15. Accordingly, as the site was not within as the Charnwood Forest Policy Area as defined by the Structure Plan, the requirements in Strategy Policy 14 did not apply to it.

Other Matters

16. For completeness, I produce, marked "PM6", a copy of the Planning Committee Late Item document relating to this site which was also before the planning committee at the time permission was granted.

I believe that the facts set out in this statement are true.

..... Date .....

Philip Metcalfe

PM 1 – Colour photo of buildings + 2x Aerial
PM 2 - Highways comments
PM3 – Correspondence on discharge.
PM4 – Key diagram Structure Plan
PM5 – Local plan map
PM6 – Late Items.