APPENDIX 5.2
SOUND LIMITS AND TESTING PROCEDURES

Sound Requirements

1. The maximum sound limit is set at:

Pre-race inspection		Post-race Inspection	
Maximum dB/A	Engine Type	Maximum dB/A	Engine Type
96 dB/A	2-stroke	98 dB/A	2-stroke
94 dB/A	4-stroke	96 dB/A	4-stroke
101 dB/A	*Vintage	101 dB/A	*Vintage

2. The test will be conducted at a fixed RPM as follows:

Race Motorcycles/ATV		Trail bikes/Utility ATV	
Engine size	RPM	Engine size	RPM
0cc – 85cc	6,000 RPM	0cc – 85cc	4,000 RPM
86cc – 125cc	6,000 RPM	86cc – 125cc	4,500 RPM
126cc – 250cc	5,000 RPM	126cc – 250cc	4,000 RPM
251cc – 500cc	4,500 RPM	251cc – 500cc	3,000 RPM
501cc - Open	4,000 RPM	501cc - Open	**3,000 RPM**

Examples of Trail bikes are XR, KLX, TTR, DR, etc.

3. Machines entered in all meets (except drag racing and land speed trials) shall have mufflers/silencers that don't exceed the maximum dB/A required by the state where the meet is being held or the prescribed dB/A above, whichever is less.

4. Applicable sound test limits may not be exceeded at any time during an event.

5. Testing by a club or organizer is required. The testing may be conducted at any time. Any motorcycle not complying with applicable sound rules may be penalized.

Sound Testing Procedures

A. Sound Test Equipment

The sound level meter must meet international standard IEC 651 or American National Standards Institute (ANSI) S1.4-1983 specifications, or newer meeting ANSI Type 1, Type S1A, Type 2 or Type S2A. The sound level meter must include a compatible calibrator, which must be used immediately before mass testing begins and always just prior to a re-test if a disciplinary sanction may be imposed.

For convenience, a 20-inch string may be attached to the front of the sound level meter for the stationary sound test.

It is recommended that the sound meter be attached to a tripod and then placed into position for the test.
Allow the sound meter to come to the same temperature as

the surroundings.

Set the sound meter to slow dynamic response and A-weighting.

Always round down the meter reading, that is: 100.9 dB/A = 100 dB/A.

An electric tachometer or vibrating reed tachometer shall be used to determine RPM.

B. Test Site

No one should be within 10 feet (3 meters) of the machine other than the rider, the sound meter operator, an assistant to hold the front of the vehicle and one other person directly behind the sound meter operator.

The test area should be a flat, open surface free of large sound-reflecting surfaces within 16 feet, such as a parked vehicle, buildings, signs, and hillsides.

The surface should be free of loose soil, snow or grass higher than 6 inches.

The surrounding sound should not exceed 90 dB/A within a 16-foot radius of the machine during the test.

Always use a windscreen under windy conditions. The stationary test procedure should not be conducted if the wind speed is 20 mph or higher.

If wind is present, the machine should face forward in the wind direction (mechanical sound will blow forward, away from the microphone).

Testing shouldn't take place in rain, snow or excessively damp conditions.

C. Guidelines for Measuring the Sound

For initial sound control and technical inspection, a rider (or his mechanic) shall present only one spare silencer per machine. Other spare silencers may be presented after all participants have presented their motorcycles, or on the following days of the event.

During the sound test, only the rider (or his mechanic) may sit on the machine in the normal riding position and will follow the directions of the sound test official. No other team personnel may influence the sound test.

Readings will be taken with the microphone placed at 20 inches from the exhaust pipe at an angle of 45 degrees measured from the centerline of the exhaust end and at the height of the exhaust pipe, but at least 8 inches above the ground. If this is not possible, the measurement can be taken at 45 degrees upwards.

Attach an electric tachometer or set the vibrating reed tachometer to the test RPM.

Make sure the engine is warmed up and the transmission is in neutral.

Have the vehicle operator slowly increase the engine speed to the test RPM.

Have the rider or assistant read the meter of the electric tachometer, or have the rider or assistant hold the vibrating reed tachometer against any solid part of the vehicle
Have the vehicle operator or assistant signal when the correct RPM is held (e.g., by tapping his foot).

Read the sound level meter when the correct RPM is held.

All silencers will be checked and marked once they have successfully passed the sound check. The end opening of the silencer shall remain unmodified once it has been checked and marked.

Silencers fitted with adapters aimed to reduce the sound levels shall be permanently fitted (e.g., welding).

Silencers must be securely fitted and non-movable to the extent that sound levels are not increased above the specified level while the machine is running or in motion. Silencers must be functional at all times.

The silencer may only be exchanged with a spare silencer, which has also been checked and marked for that machine.

D. Sound Testing Corrections

Always round down the meter reading. For example: 100.9 dB/A = 100 dB/A.

Type 1 Sound Meter: deduct 1 dB/A
Type 2 Sound Meter: deduct 2 dB/A
Below 50-degrees Fahrenheit: deduct 1 dB/A
Below 32-degrees Fahrenheit: deduct 2 dB/A