

SQ CLASSES

Novice

Advanced

Expert

NOVICE DIVISION

The intent of the Novice division is to provide a category for consumers to compete in an entry-level contest that mostly evaluates the system's sound quality and key points of installation quality that promote a system that is safe

Novice Classifications: There is only one class in the Novice Division, the Novice Class. Novice competitors must not work in the mobile electronics industry or receive industry support (sponsorship). Competitors may request special privilege to enter this class if, for example, they are a shipping clerk or bookkeeper working for a large electronics department store. The basis for this is that this person would have no technological advantage over other Novice Competitors from the private sector.

Competitors in this division are limited to one (1) competition season, after which the competitor must make a decision to advance to either the Advanced or Expert Divisions. Should a Rookie competitor wish to enter one of the higher divisions during their Rookie year, they may do so; however, once the choice is made to do so, they cannot return to novice

ADVANCED DIVISION

The intent of the Advanced Division is to provide a more competitive entry level format for competitors who do not have the inclination or the budget to build a system with an elaborate installation. The Intermediate format focuses on sound and installation quality.

EXPERT DIVISION

The intent of the Expert Division is to provide a more competitive format for competitors who have an extraordinary sound system with a more elaborate installation. Points are awarded for cosmetic integration and system enhancements. A competitor who receives a structured payment or salary from a manufacturer or distributor to build and compete with a system must enter this Division and Class. Once a competitor enters into this class he/she will remain an Expert indefinitely.

The Following Procedures are Applied in All Classes.

VOLUME & TRACK SELECTION

1. Judge/s will only adjust the volume control, track selection and control the main system power switch as designated by the competitor. With multiple volume controls, the competitor must specify which one (1) volume control should be used throughout the contest. This is to be indicated to the Judge/s at the beginning of the judging process.

2. During the judging process, the volume of the sound system will be set by the Judge according to the Judges' Training. Any track may be adjusted in volume at the Judge/s discretion.

SOUND QUALITY JUDGING GUIDELINES

1. Competitors must prepare their vehicles for Sound Quality testing prior to entering the judging lanes. The Judge/s are not allowed to participate in this preparation process.
2. The Judge/s are not allowed to enter the vehicle until ALL sound quality adjustments have been made. Once the vehicle is in the judging lane, it will be judged as presented; no other adjustments are allowed.
3. For purposes of clarification, the “driver’s” seat is the seat directly behind the steering wheel; right hand drive vehicles are judged from the right side front seat and left hand drive vehicles are judged from the left side front seat.
4. A competitor may elect to remove their speakers grilles for the purposes of judging sound quality. However, if a competitor elects to remove their speaker grilles, they must be removed prior to entering the judging lanes. Once the competitor’s vehicle has entered the judging lane, it will be judged as presented. If a competitor opts to remove their grilles for Sound judging, they will be allowed to replace them between Sound and Install judging.
5. A competitor may elect to cover the dash with a damping pad or cloth for the purposes of sound quality judging.
6. A competitor may NOT cover or block the front windshield with any device, blanket or cloth.
7. Gas, brake, or clutch pedals are not required to be within the reach of the sound quality Judge/s. There will be NO point deductions by the Judge/s, including the judging of Ergonomics, if the Judge/s cannot reach these pedals.
8. During testing and scoring, Judge/s must sit in the front seat/s of the vehicle, facing forward; this applies to all vehicles. Competing vehicles must have at least two front seating positions, aligned side to side (1 left seat, 1 right seat), not front to rear.
9. A Sound Quality Judge is not allowed to change the position of the seat to judge the sound system, UNLESS this position is deemed unreasonable or uncomfortable for the Judge. The Judge must involve the competitor when making any adjustments. It will be the decision of the Sound Judge/s to determine if the seat positions are uncomfortable. Any seats that are reclined to more than a 45 degree angle may be considered unreasonable. Channel Verification. This is the first track the Judge/s will play when the judging process begins. If the system has correct left and right channel integrity, the Judge/s will circle the “Pass” entry on the lower part of the score sheet and continue the judging process. If the Judge/s notice that the channels are reversed from left to right, they will stop judging and notify the competitor of the problem. A mark of a “Fail” is considered a breakdown. The competitor then has five (5) minutes to correct the problem. If the problem cannot be corrected in five (5) minutes, the Head Judge will allow the vehicle to compete as is. Note: Under sound quality judging rules, reversed channels will typically cause poor judging scores in stereo imaging.
11. All doors, windows, hoods, trunks and any other panel in the vehicle, must be in their fully closed position for sound judging. Convertibles must be judged with the top up and locked in place.
12. Prior to the first vehicle being judged, the Head Judge shall inform the Judges and competitors whether vehicles will be judged for sound quality with the engine running or the engine off. This announcement should be made at the competitor and Judge’s meeting. The Head Judge’s decision will be based on weather and/or ventilation considerations (indoor events). It is within the Head Judge’s discretion to make exceptions based on extenuating circumstances.

TONAL ACCURACY

Competitor Point of Interest This is an area of the score sheet where competitors should focus on receiving the maximum amount of points possible. Concentrate your tuning efforts on Tonal Accuracy & Spectral Balance first. Then, once you have accomplished good Tonal Accuracy, adjust your system for Staging and Imaging. In this section, Judges will evaluate the tonal characteristics of the system based on how well it reproduces the four frequency ranges; Sub Bass, Mid Bass, Mid Range and High Frequencies. For a system to reproduce a recording with superior tonal accuracy, it must perform without significantly affecting the delicate parameters previously listed. When all of the above parameters come together well, a system is said to sound natural and spectrally accurate. This is readily apparent to an experienced listener, who is processing thousands of sonic cues to form that opinion. The Judge/s will evaluate whether the sound of the instruments and voices reproduced by the system sound real and natural in and of themselves. At this point, the Judges should concentrate on instruments in each range specifically, ignoring the relative balance of the whole spectrum (which is judged next). There are six basic characteristics that describe a tone; they are:

Loudness: The magnitude of the auditory sensation produced by the sound (can be affected by equalization or improper level matching between speakers). Pitch: The subjective quality of a sound which determines its position on a musical scale. (Excessive distortion and non-linearity can affect pitch.) Timbre: The interaction of the harmonics and fundamentals of a sound which give it its sonic signature. (Example: The sound of a guitar can be affected by poor reproduction of high frequencies in the system if the harmonics of the fundamental

tones produced by the guitar are not reproduced accurately.) Modulation: A change in amplitude, phase or frequency which occurs to a sound. (Can be affected by systems with phase problems, frequency response problems, etc.) Duration: Literally, the duration of a sound (for example this can be affected by systems with poor transient response or panel resonance). Attack and Decay: The time it takes for a sound to build up (attack) or die down (decay). Attack and decay can be affected by systems with poor transient response, panel resonance and excessive reflections.

SUB-BASS (1Hz-60Hz)

The Judge/s should concentrate on the lowest notes of the large string instruments (bass guitar and stand-up bass, in particular), large drums (kick drums, timpani), low synthesizer sounds, low pipe organ notes, etc. The sounds reproduced by the system in this range should be immediately recognizable, articulate, free of distortion and have proper attack and decay. Accurate low-frequency extension is a desirable trait. An example is the lowest frequency range of very large pipe organs.

MID-BASS (60Hz-200Hz)

The Judge/s should focus on the sounds produced by the mid-size drums (tom-toms, large congas, etc.), the middle range of the bass guitar and stand-up bass, lower notes of the piano and synthesizer. These should be reproduced smoothly with good detail and proper attack and decay. Particular attention should be paid to the attack and decay of drums and bass guitars. Because of the small size of the vehicle as a listening area, problems with resonance are common in this frequency range.

MID-RANGE (200Hz-3KHz)

This range contains the vast majority of musical information in most recordings. The Judge/s should focus on: the human voice, brass instruments, woodwinds, strings, the upper range of the bass guitar, electric and acoustic guitar, synthesizer, piano, smaller drums and other percussion instruments. Resonance and sibilance are common system flaws in this frequency range. Voices should sound full and natural. All instruments should sound realistic without sounding thin, dull or contain uncharacteristic ringing or distortion. Large stringed instruments, for example, should have the characteristic 'wood' sound without undue resonance.

HIGH FREQUENCIES (3kHz-+)

The Judge/s should concentrate on cymbals, triangles, bells, the upper frequencies of the snare drum, rim shots, hand clapping, synthesizers, the upper stretches of string and woodwind instruments, and the tendency to exaggerate "s" or "f", or "t" sounds in the voice recordings. These should sound accurate, smooth, neither too dull nor too bright and should not exhibit any harsh, thin, metallic sounds or distortion.

SPECTRAL BALANCE Overall Spectral Balance is the tonal accuracy of the system across the entire audio bandwidth. The same factors described under "Tonal Accuracy" affect Overall Spectral Balance. The system will be judged according to its ability to reproduce the recording as a whole, rather than by dissecting it into individual frequency ranges. Superior systems will sound effortless and natural with any of the judging tracks. Weaker systems will exhibit distortion, unnatural coloration, dynamic compression, and frequency response errors, which lead to listening fatigue and lend an unnatural sound to the music.

SOUND STAGE

The object of this section is to define the boundaries of the sound stage as they are reproduced by the vehicle's audio system and to evaluate the placement of images within that defined sound stage. The ideal car audio system creates the illusion that the sound is originating in front of the listener, with additional ambient content. The sound stage produced by an audio system can be defined as the perceived space from which the sound originates. (Much like the stage in a concert hall is the space from which the sound originates.) While judging the sound stage, the Judge/s should draw maps describing the sound stage boundaries for each seat. This map will not only help in judging the sound stage elements, but will be vital to the evaluation of imaging. Judge/s should not let any visual cues (apparent speaker locations or lack of them, for instance) influence their judgment. If distractions are making it hard to determine staging, it is helpful to close one's eyes when judging. Taking away the distractions and only concentrating on the music will help properly determine the staging characteristics of the vehicle being judged. Sound quality Judge/s should be "blind" to any equipment in the vehicle.

LISTENING POSITION

In this category, a system is judged on the direction of the sound stage relative to the listener and the apparent distance of the sound stage from the listener. The best systems will give the illusion of the stage being well in front of the listeners (even apparently exceeding the front boundary of the vehicle). This is considered ideal as it approximates the experience of listening to a concert. Listen carefully to the bass. Does it seem to come from up front or from behind? Maximum points within each scoring tier should only be given to systems which convincingly create the illusion that all the sound originates from the specified location. Some systems will exhibit some localization of the low bass towards the rear.

STAGE WIDTH (left / right)

Stage Width refers to the distance between the left and right boundaries of the sound stage. Better systems will create a wide sound stage for both listeners. Exceptional sound systems will have sound stages that seem to exceed the physical boundaries of the vehicle interior.

STAGE HEIGHT

Stage height refers to the apparent height of the sound stage and the vertical spread above that level. The center of the vertical spread of the stage should be at horizon level with appropriate instruments/vocalists being above or below this plane from left to right of the stage. The height of the stage should also remain horizontal from the front of the stage, where the lead singer may be placed, to the rear of the stage, where the drums may be located. This spread should not be exaggerated or incoherent and should be proportional to the other stage dimensions.

STAGE DEPTH

The illusion that some instruments or voices are in front of others is referred to as stage depth.

AMBIENCE

Ambience is a psycho-acoustic phenomenon that can be defined as the perceived space around a sound source. Most recordings contain ambient cues, which are either naturally created by the room used for recording or created by recording engineers using processing equipment. These will interact with the acoustics of the vehicle and the design of the sound system to create a sense of space. Rear speakers or sound field processors are not always necessary to create ambience (nor do they guarantee the creation of natural ambience.)

IMAGING

The term "imaging" describes a sound system's ability to reproduce the sounds of instruments in their correct locations and proportions on the sound stage. The correct locations are defined by their placement as they are actually recorded. Systems are judged based on their ability to place instruments and vocals accurately across the sound stage.

SOUND LINEARITY

The object of this section is to evaluate an audio system's ability to reproduce a recording with accurate spectral balance and accurate dynamics at different volume levels.

ABSENCE OF NOISE

A well executed installation, with a properly adjusted gain structure, should be free from noise at all listening levels. Noise is defined as any sound not present in the original program material that has been added by either the vehicle electronics/charging system or by the audio system.

ENGINE-ON TESTING (Headlights ON)

NO AUDIBLE ALTERNATOR WHINE

Alternator Whine is a high-pitched whine audible through the speakers when the engine is running. It may or may not vary in loudness as the volume control is adjusted up and down but it will vary in frequency as the engine is revved.