



Designation: F747 – 23

Standard Terminology Relating to Amusement Rides and Devices¹

This standard is issued under the fixed designation F747; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope

1.1 This terminology is a repository of terms approved by Committee F24 and its subcommittees. Reproducing terms approved within all other individual F24 standards and guides, this terminology will provide a single location where terms related to amusement rides and devices are freely accessible to the public, committee members and can be maintained, updated and utilized as effective communication tools. Although published alphabetically, terms unique to a specific F24 standard or guide are indicated as such by the reference which follows the applicable term.

1.2 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

[F2375 Practice for Design, Manufacture, Installation and Testing of Climbing Nets and Netting/Mesh used in Amusement Rides, Devices, Play Areas and Attractions](#)

[F2376 Practice for Classification, Design, Manufacture, Construction, and Operation of Water Slide Systems](#)

[F2959 Practice for Aerial Adventure Courses](#)

[F2970 Practice for Design, Manufacture, Installation, Operation, Maintenance, Inspection and Major Modification of Trampoline Courts](#)

[F3168 Practice for Hayride Attractions](#)

3. Terminology

acceleration, impact—those accelerations with duration of less than 200 ms.

¹ This terminology is under the jurisdiction of ASTM Committee F24 on Amusement Rides and Devices and is the direct responsibility of Subcommittee F24.20 on Specifications and Terminology.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

acceleration, sustained—those accelerations with duration greater than or equal to 200 ms.

accepted engineering practice—that which conforms to accepted principles, tests, or standards of nationally recognized technical or scientific authorities.

aerial trekking course—self-guided aerial adventure course containing elements intended to be obstacles. **F2959**

agritourism—the act of conducting an activity for the enjoyment of the public that is related in some way to agriculture. **F3168**

air-supported structure—an amusement device that incorporates a structural and mechanical system and employs a high-strength fabric or film that achieves its strength, shape, and stability by pretensioning with internal air pressure, all of which are intended to provide an enclosed area for the self enjoyment of those so confined within.

aliasing—a phenomenon associated with sampled data systems, wherein a signal containing significant energy at frequencies greater than one half of the system sample frequency manifests itself in the sampled data as a lower frequency (aliased) signal. Aliasing can be avoided only by limiting the frequency content of the signal prior to the sampling process. Once a signal has been aliased, it is not possible to reconstruct the original signal from the sampled data.

amusement railway ride—an amusement ride that may have multiple vehicles (for example, locomotive(s), coach(es), etc.) linked together, at least one of which has on board mechanical propulsion that has an on board operator(s), utilizing flanged wheels on railroad type rails with a gauge of 12 in. or greater, that is insular to national regulations, which is designated by the Designer/Engineer as an amusement railway ride.

amusement ride or amusement device—a device or combination of devices or elements that carry, convey, or direct a person(s) over or through a fixed or restricted course or within a defined area, for the primary purpose of amusement or entertainment.

assembly area—a designated area primarily used for mounting or dismounting the trampoline court. **F2970**

calibration constant—the arithmetic mean of the sensitivity coefficients, evaluated at frequencies that are evenly spaced on a logarithmic scale between FL and FH.

calibration value—the ratio of the reference calibration system output, in engineering units relevant to the transducer, to the data channel output, in volts, as measured at constant excitation frequency and amplitude.

canopy tour—aerial adventure course which provides patron access to the canopy of a forest. **F2959**

carnival—a mobile enterprise principally devoted to offering amusement or entertainment to the public in, upon, or by means of portable amusement rides or devices or temporary structures in any number or combination, whether or not associated with other structures or forms of public attraction.

challenge course—guided aerial adventure course containing elements intended to be obstacles. **F2959**

channel frequency class (CFC)—a frequency response envelope that conforms to Fig. 1 and is referred to by the value FH in hertz. The CFC frequency response envelope is defined by the boundaries shown in Fig. 1 and the following characteristic frequencies:

F_L —Pass band lower limit (hertz). Always equal to zero (0.0) hertz.

F_H —Pass band upper limit (hertz). The CFC designator.

F_N —The corner or knee of the frequency response envelope. Always equal to or greater than $1.667 \times F_H$.

F_S —The minimum sample frequency for a sampled data system that corresponds to the designated CFC. Always equal to or greater than $12 \times F_H$.

DISCUSSION— F_L , F_H , F_N , and F_S are always specified in hertz. While the characteristics of the CFC may be applied to individual components of a data channel, the CFC is, by definition, the frequency

response envelope of the entire data channel from the mounted transducer to the final representation of the acquired data.

children zone—a trampoline court, an area within a trampoline court, or an area adjacent to a trampoline court designated by the designer/engineer, manufacturer, or owner/operator primarily for use, activity, entry, or dismount by young children. **F2970**

concession go-kart—an amusement ride or device, which meets all of the following specifications: the device is a single vehicle, unattached to other vehicles or a common frame system, which is powered without connection to a common energy source, which is driver controlled with respect to acceleration, speed, braking, and steering, which operates within the containment system of a defined track, and which simulates competitive motor sports, which is used by members of the general public for a fee. A concession go-kart has a maximum capacity of two persons and no cargo capacity.

DISCUSSION—This definition specifically excludes similar go-kart devices that are intended for use as competitive (racing) karts or similar go-kart devices intended for ownership and use by private owners. This definition specifically excludes devices, such as electronically or rail guided amusement rides and bumper cars or other similar amusement motor sports devices that operate under circumstances where there is no defined direction of travel.

concession go-kart attendant—the person or persons whose duties may include but are not limited to the instruction, dispatch, and limitation of ride duration of persons driving concession go-karts.

containment system—a device installed on the concession go-kart track, which defines the boundaries of the track, and whose primary purpose is to contain the vehicles within the defined boundary.

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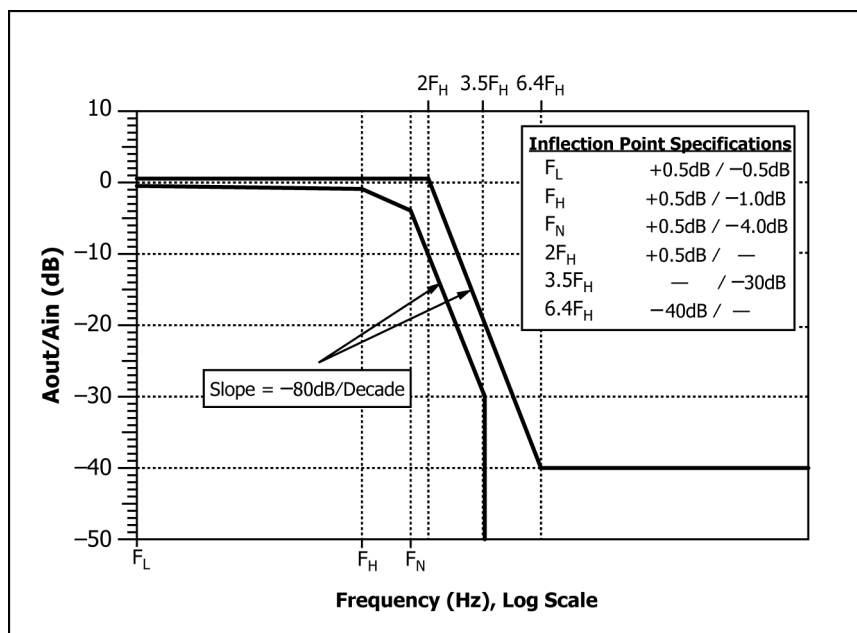


FIG. 1 Frequency Response Envelope

control access system—a device, barrier or mechanism that prohibits unauthorized activation of a ride or device control system.

control station—a location where buttons, switches or other controls are provided for the purpose of operating ride equipment.

coordinate system—three orthogonal axes that intersect at an origin whose positive directions correspond to the right-hand rule.

measurement coordinate system—a coordinate system that provides the reference axes and sign convention for the test data record(s).

patron coordinate system—a coordinate system that is fixed with respect to the human upper torso and oriented as in Fig. 2.

vehicle coordinate system—a coordinate system that is fixed with respect to the ride or device being tested.

court attendant—individual trained in facility emergency procedures, familiar with fundamental trampolining and TC

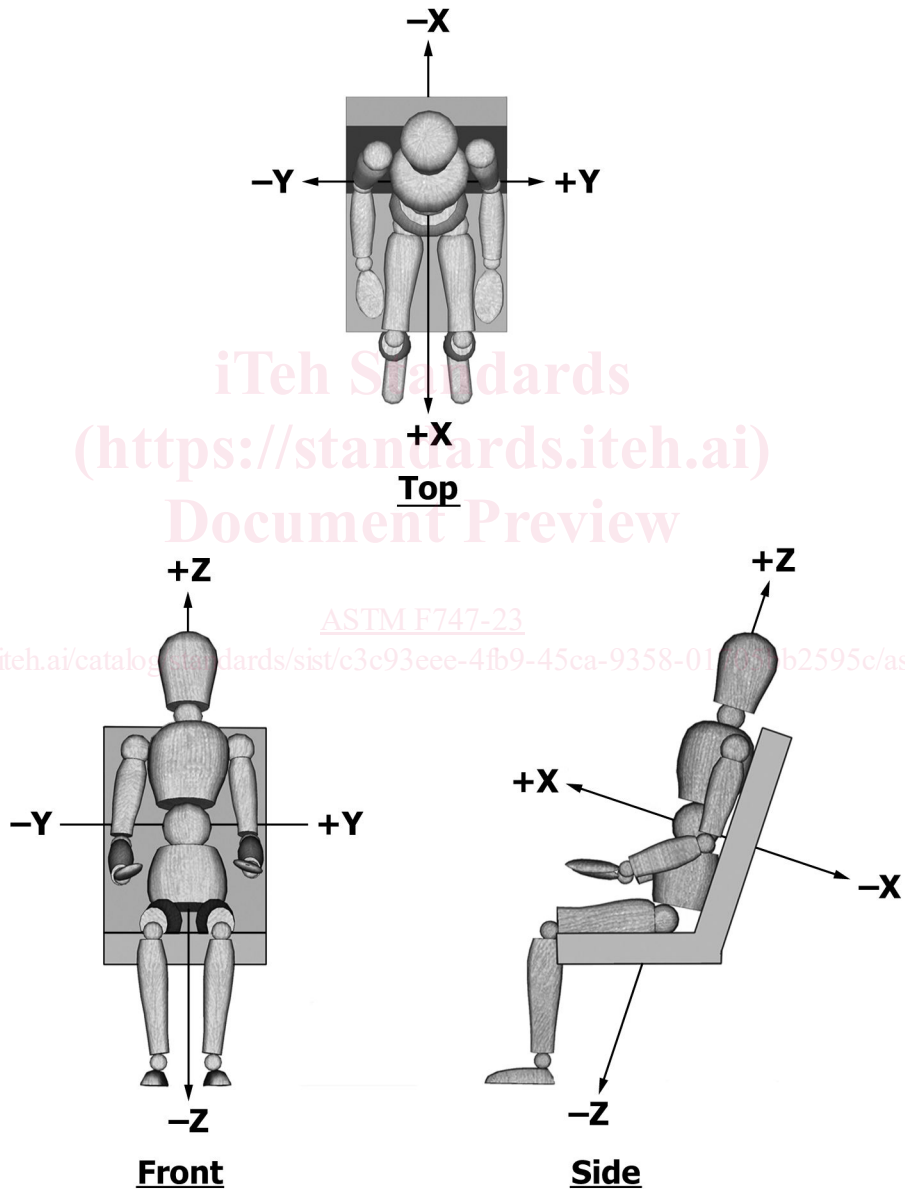


FIG. 2 Patron Coordinate System

- foam pit operations, monitoring patrons and responding to TC trampoline, and TC foam pit emergencies. **F2970**
- data channel**—the entire instrumentation system for a single channel of data acquisition; from the transducer to the final representation of the data, including all post-acquisition data processing that may alter the amplitude or frequency content of the data.
- data channel full scale**—the maximum usable value, in units of the physical phenomenon being measured, that may be represented by a data channel. This value is determined by the data channel component with the lowest full-scale range.
- designer/engineer**—party(s) that establishes and describes the configuration of the amusement ride or device, establishes strength and fatigue life, designs and develops electrical/electronic control systems, and defines inspection criteria.
- dismount platform**—any surface for standing, walking, sitting, or climbing, or a flat surface larger than 2.0 in. (51 mm) wide by 2.0 in. (51 mm) long having less than 30° angle from horizontal. **F2970**
- driver**—the person who manipulates and controls the direction of travel, braking, and speed of a concession go-kart.
- engineer**—an engineer as defined by and licensed in accordance with the applicable provincial or territorial statute.
- fail-safe**—characteristic of an amusement ride or device, or component thereof, that is designed such that the normal and expected failure mode results in a safe condition.
- fence**—a type of barrier consisting of, but not limited to, posts, boards, wire, stakes, or rails that is used to inhibit patrons from coming into contact with the moving portion or restricted portion of an amusement ride or device.
- filter corner frequency (Fn)**—with reference to a low-pass filter, Fn is the frequency (specified in Hz) where the frequency response curve of the filter has magnitude of -3 dB.
- force limiting**—when pertaining to restraint devices, a characteristic that, regardless of the amount of force available from the system actuators, limits the amount of force applied to the patron(s).
- free-run time**—a period of time during the ride cycle when no energy is added to the ride vehicle.
- full-scale**—the maximum usable value, in units of the physical phenomenon being measured, which may be represented by a data channel or some component thereof.
- fun kart**—a motorized vehicle with four wheels, sold commercially as consumer goods and intended for private personal recreational use by the consumers for off-road use on suitable terrain, as recommended by the manufacturer.
- “g”**—the standard acceleration due to gravity at the surface of the earth. Defined as 32.2 ft/s/s or 9.81 m/s/s.
- hayride attraction**—an experience in which passengers board a wagon or trailer, typically a wagon filled with straw or hay, and are taken on a set course. **F3168**
- illness**—personal discomfort resulting in treatment including a personal illness, food poisoning, drug abuse, toxic inhalation, insect sting, or other similar occurrence.
- inflatable amusement device**—an amusement ride or device designed for use that may include but not be limited to bounce, climb, slide, or interactive play. They are made of flexible fabric, kept inflated by continuous air flow by one or more blowers, and rely upon air pressure to maintain their shape.
- injury**—sustained bodily harm resulting in treatment such as trauma, cuts, bruises, burns, and sprains.
- installation or erection**—the actual act of onsite construction or the physical setting up and making ready for use of a ride or device.
- institutional trampoline**—a trampoline intended for use in a commercial or institutional facility. **F2970**
- kiddie ride**—an amusement ride designed primarily for use by children up to 12 years of age.
- landing pool**—pool intended to receive riders from a water slide. **F2376**
- landing zone**—area in a landing pool intended for receiving riders from a particular slide. **F2376**
- latching**—when pertaining to restraint devices, held secure against opening except by intentional action of the patron, operator, or other means. This can include restraints (for example, drop bars) held in place by gravity, detents or other means.
- lifeguard**—individual specially trained in lifesaving and emergency procedures, responsible for monitoring patrons and responding to aquatic and other emergencies. **F2376**
- locking**—when pertaining to restraint devices, held securely against opening except by intentional action of the operator or other means not accessible by the patron.
- major modification**—any change in either the structural or operational characteristics of the ride or device which will alter its performance from that specified in the manufacturer’s design criteria.
- manual release**—when pertaining to restraint devices, a hand or foot operated mechanism that allows for opening the patron restraint.
- manufacturer**—party producing the amusement ride or device, performing major modifications and can include the designer/engineer.
- minor injuries/illnesses**—injuries and illnesses which may or may not require emergency first aid or significant treatment, or both, but cannot be otherwise classified as a serious injury or illness. This category includes incidents where treatment is limited to such things as the dispensation of over-the-counter medication or plastic adhesive strips, cleansing, rest, and other similar duties or assistance.