

EAASI

European Association Amusement Supplier Industry

Amsterdam 28th September 2009

Object: Draft of **Appendix GUEST BEHAVIOUR (Informative)** for the revision of EN 13814 and for proposal to Global Standard Harmonization Group:

Appendix GUEST BEHAVIOUR (Informative)

Scope

This appendix give indications about the Guest = Patrons behaviour (passenger and public) to be considered in the risk assessment for Amusement Rides. It express qualitative considerations as isn't possible to evaluate exactly quantitative risks associated to the behaviour. Some research and studies developed in the Amusement field present statistics that are useful to estimate the probability of occurrence of certain common behaviour.

One of the objectives of this appendix is to provide a benchmark of behaviour

It contain some basic concept to define the behaviour to be considered related to:

- Children
- Teenagers ??
- Adults
- Physically Disabled people
- Mentally impaired people.
- Sensory Abilities
- Cognitive abilities

Define the “reasonable foreseeable behaviour is one of the base for safety, in particular on Rides that “interact with passengers and public” leaving a certain degree of freedom.

Definitions

Guests or Patrons : person that interact with an amusement device. They can have a “passive” interaction (spectators) or an “active” interaction (passengers)

SPECTATORS or PUBLIC: The persons watching the operation of the amusement device or waiting to gain access to the use of the attraction as passengers.

PASSENGERS: the persons using the attraction, loaded in the passenger carrying devices such as cars, seats, passenger compartments, corridors, platforms, gangways and so on, behaving actively or passively according to the movement characteristics of the attraction and for their amusement.

Behaviour¹

A non-passive physical activity or movement made by a passenger during a ride cycle.

- ‘A behaviour’ refers to an instance of one type of behaviour (including the action and the pattern, repetition rate etc.).

¹ HSL

EAASI EUROPE OFFICE : Square de Meeûs 38/40, 1000 – Brussels - Belgium

EAASI OPERATIVE OFFICE : Via Treccani 2/A - 42100 REGGIO EMILIA - Italy

Ph. ++39 0522 554176 - Fax ++39 0522 554176 - E mail : info@eaasi.org - <http://www.eaasi.org>

EAASI

European Association Amusement Supplier Industry

- An ‘incidence’ of a behaviour refers to an occurrence of a behaviour.

Foreseeable misbehaviour (foreseeable misuse)²

“The concept of “reasonably foreseeable” excludes the irrational (eg drying the cat in the microwave). The foreseeability of the danger includes considering the likelihood of the combination of circumstances that there would need to be for the potential of harm to be realized. You will need to consider foreseeable situations in which the passenger’s expected actions, as a result of not being able to fully perceive the danger or a result of something unexpected happening, may expose them to an increased risk.”

Typical examples of foreseeable behaviour³

The following behaviour are the normal observed in the amusement rides. In some situations and some rides these behaviour could create risks and become a “misbehaviour” (e.g. 2 hand waving on a carousel horse)

1 hand waving

Waving one hand in the air
(e.g. waving to parents or friends watching the ride)

2 hand waving

Waving two hands in the air
(e.g. holding both hands in the air during a descent on a coaster)

Turning head / trunk

Significant turning of head and trunk originating at the waist
(e.g. often accompanies one hand waving; as the ride moves a passenger may continue to wave and turns in order to carry on waving in the same direction)

Turning around in seat

Turning of head, trunk and legs away from the typical and intended neutral riding posture
(e.g. sitting facing backwards on carousel horse)

Kneeling in seat

Turning around and kneeling on the seat pan (facing either sideways or backwards)

² HSG 175 Fairground and amusement park – Guidance on safe practice

³ HSL

EAASI EUROPE OFFICE : Square de Meeûs 38/40, 1000 – Brussels - Belgium

EAASI OPERATIVE OFFICE : Via Treccani 2/A - 42100 REGGIO EMILIA - Italy

Ph. ++39 0522 554176 - Fax ++39 0522 554176 - E mail : info@eaasi.org - <http://www.eaasi.org>

EAASI

European Association Amusement Supplier Industry

Leaning out of containment

Leaning out of the containment system with head and possibly shoulders (e.g. resulting from leaning heavily against the side of a low walled containment system, as found on smaller coasters and children's rides.)

Reaching out of containment

(arm(s) only)

Reaching hand(s) and arm(s) out of the containment system (e.g. reaching out to touch a stanchion or rail as a coaster passes by)

Reaching out of containment

(leg(s) only)

Reaching foot(pl) and leg(s) out of the containment system (e.g. hanging leg out of side of pirate ship)

Extended reaching out of containment

(arm and body part)

Pronounced or extreme reaching out of the containment (e.g. moving chest, head, shoulder and arm out of containment in an effort to reach a passing object while riding on a coaster)

Interfering with containment device

Trying to open or break a part of the containment system (e.g. reaching forward to open the locking lever on the front of a twister car)

Inappropriate exiting of ride

Exiting the ride (or trying to exit) while it is still in the middle of a ride cycle / running at normal speed (e.g. exiting a carousel in the middle of a ride cycle)

Inappropriate exiting of ride

(related to egress / exiting)

Trying to exit the ride via a route / method which is inappropriate during a scheduled slow-down or stop period. Also exiting a ride too soon during a slow-down period.

(e.g. exiting towards the inside of a rotating ride such as a Mini jet)

EAASI EUROPE OFFICE : Square de Meeûs 38/40, 1000 – Brussels - Belgium

EAASI OPERATIVE OFFICE : Via Treccani 2/A - 42100 REGGIO EMILIA - Italy

Ph. ++39 0522 554176 - Fax ++39 0522 554176 - E mail : info@eaasi.org - <http://www.eaasi.org>

EAASI

European Association Amusement Supplier Industry

and walking onto the lifting arms etc.)

Standing up

Standing up at any time when the ride is in motion
(this is different from inappropriate egress from ride by passengers because it does not imply a continued effort to exit the ride)

Pointing

Pointing towards an object / person outside the containment system
(e.g. pointing to parents with one hand)

Interacting with containment system

Acting upon a part of the containment system in any way other than passive due to weight / ride forces etc.
(e.g. pulling sideways on handrail on Twister).

Kicking

Kicking legs
(e.g. kicking while sitting on a bench ride as though swinging in a swing).

Potential motives for behaviour/misbehaviour

Positive social interaction / Communication
Waving at friends / parents

Peer pressure

Being persuaded by friends to reach out of containment system

Copying

Child copying a parent who has waved to another adult

Aggression / competition

Fighting for use of a shared control

Exhibitionism (showing off)

Waving two hands in the air to ‘show off’

Encouragement (being encouraged or encouraging)

EAASI EUROPE OFFICE : Square de Meeûs 38/40, 1000 – Brussels - Belgium

EAASI OPERATIVE OFFICE : Via Treccani 2/A - 42100 REGGIO EMILIA - Italy

Ph. ++39 0522 554176 - Fax ++39 0522 554176 - E mail : info@eaasi.org - <http://www.eaasi.org>

EAASI

European Association Amusement Supplier Industry

others)

Waving hands in the air because of announcement over loudspeaker to “wave your hands”.

Curiosity

Turning around in seat to see what is behind

Natural comfortable pose / boredom

Leaning / slouching over handrail on bench ride, (making an action / assuming a posture in a nonchalant manner)

Impatience

Standing up on small coaster shortly before it stops

Lack of information / knowledge

Standing up during a mid-cycle stop (e.g. an ‘emergency’ stop on a juvenile track ride) and trying to get off the ride

Illness

Leaning forwards over lap-bar due to nausea

Fear

Trying to get out of a ride because it has caused feelings of fear

Thrill enhancement / Perceived risk enhancement

Holding two hands in the air during a drop on a coaster – to increase the feeling of danger

Discomfort

Standing up after a log-flume drop – to avoid sitting in a wet seat

Excitement

Waving hands in the air due to excitement

EAASI EUROPE OFFICE : Square de Meeûs 38/40, 1000 – Brussels - Belgium

EAASI OPERATIVE OFFICE : Via Treccani 2/A - 42100 REGGIO EMILIA - Italy

Ph. ++39 0522 554176 - Fax ++39 0522 554176 - E mail : info@eaasi.org - <http://www.eaasi.org>

EAASI

European Association Amusement Supplier Industry

Children

child

person aged from birth to 14 years⁴. In Amusement field it's helpful to consider different ages for children, in function of their physical, psychological, social, educational development.

General

?? Children are always to be found in situations that contain a certain risk of injury.

Children will have to learn how to deal with these risk factors.

This applies to all aspects of their life as children, and it goes without saying that it also applies to playing.

Exploring and pushing back their own limits, experiencing tension and adventure, all of these things involve certain risks.

Without that tension playing would lose its appeal. Dealing with risks is part of playing; there is always a risk connected to play.

However, this risk should remain within acceptable limits, and the risks involved should be known.

Unforeseen risks are quite unacceptable.

Children have to be able to take risks instead of being confronted with them unexpectedly.

We must not let children fall into a trap of hidden danger.

Playing therefore means a permanent tension between safety and play. We have to provide a good balance of safety and play value.

This is true for play equipment, but it also applies to the entire amusement environment.

There is however another side to this; playing without any risk at all does not exist!! 100% safety cannot be achieved and besides, children will also look for risks!

Now, how can we unite these two facts that seem to be on strained terms with each other, and how can we create the safest possible play areas, at the same time offering a maximum of play value *and fun?*

Safety aspects — Guidelines for child safety⁵

Children are born into an adult world, without experience or appreciation of risk but with a natural desire to explore.

Intervention strategies aimed at protecting children must recognize that children are not little adults. Therefore, intervention strategies intended to protect children might differ from those intended to protect adults.

Prevention of injuries can be addressed through design and technology, legislation and education.

⁴ Draft guide ISO IEC 50 -2001

⁵ Draft ISO IEC 50 2001

EAASI EUROPE OFFICE : Square de Meeûs 38/40, 1000 – Brussels - Belgium

EAASI OPERATIVE OFFICE : Via Treccani 2/A - 42100 REGGIO EMILIA - Italy

Ph. ++39 0522 554176 - Fax ++39 0522 554176 - E mail : info@eaasi.org - <http://www.eaasi.org>

EAASI

European Association Amusement Supplier Industry

No specific guidance is given in this Appendix for the prevention or reduction of psychological or moral harm and of intentional injuries.

When addressing child safety, the answers to these questions must take into account the following special factors

for children:

- a) their likelihood of being injured;
- b) their interactions with persons and products;**
- c) their development and behaviour;
- d) their lack of knowledge and experience;
- e) social/environmental factors.

In addition, strategies can be passive or active. Passive strategies work without the individual having to take any action to be protected. Active strategies require the individual to take some action.

Injuries to children are closely related to their developmental stage and their exposure to hazards at various ages

Children are not small adults. Inherent characteristics of children, including their stage of development, together with their exposure to hazards, put them at risk of injury in ways different from adults. Developmental stage broadly encompasses children's size, shape, physiology, physical and cognitive ability, emotional development and behaviour. These characteristics change quickly as children develop. Consequently, parents and carers often over nor under-estimate children's abilities at different stages of development, thus resulting in exposure to hazards.

Child development and behaviour must be taken in account

- Body size
- Motor development
- Physiological development
- Cognitive development
- Physical environment
- Social environment
- Inadequate information
- Communication
- Curiosity
- exhibitionism
- thrill enhancement
- gender

EAASI EUROPE OFFICE : Square de Meeûs 38/40, 1000 – Brussels - Belgium

EAASI OPERATIVE OFFICE : Via Treccani 2/A - 42100 REGGIO EMILIA - Italy

Ph. ++39 0522 554176 - Fax ++39 0522 554176 - E mail : info@eaasi.org - <http://www.eaasi.org>

EAASI

European Association Amusement Supplier Industry

In addition safety might be affected by the:

- natural and built environments,
- climate,
- language,
- customs,
- attitudes and beliefs,
- knowledge and users' experience.

Information to public⁶

?? Information shall be made available to Patrons and Supervising Companions clearly stating that failure to adhere to posted, published and/or audibly announced ride or device rules may result in injury. Use of signs or spiels that addresses the specifics of the ride or device design meets this requirement.

Supervision Companion

A person who accompanies children less than 48-inches tall on rides or devices to assure that they follow all rules and instructions. A supervising companion must be at least 60-inches tall or at least 14 years (USA)?? 16 years (EU)?? old and meet all the criteria for riding.

Duties of Parents or Companions

Parents should take several additional safety precautions for their children, especially small children, when participating in amusement rides or attractions.

Parents or Companions should:

- Know your child's capabilities and limitations with regard to whether the ride is appropriate for them
- Watch the ride in operation before entering to make sure your child can ride it safely
- Remind your child of Ride Safety 'Dos' and 'Don'ts'
- Remind your child to stay seated, hold on to safety bars and obey the ride operator's instructions
- Designate an easily recognizable place to meet your child after the ride is over
- Supervise your child at all times

⁶ ASTM F2291 rev

EAASI EUROPE OFFICE : Square de Meeûs 38/40, 1000 – Brussels - Belgium

EAASI OPERATIVE OFFICE : Via Treccani 2/A - 42100 REGGIO EMILIA - Italy

Ph. ++39 0522 554176 - Fax ++39 0522 554176 - E mail : info@eaasi.org - <http://www.eaasi.org>

EAASI

European Association Amusement Supplier Industry

Classification can be made by age and basic capabilities:

L0) children between 90 cm and 105 cm of height corresponding to approx. 2 and 4 years;

Perceptual abilities: ??

Cognitive abilities: ??

L1) children between 105 cm and 120 cm of height corresponding to approx. 4 and 6 years;

Perceptual abilities: ??

Cognitive abilities: ??

L2) children between 120 cm and 130 cm of height corresponding to approx. 6 and 8 years;

Perceptual abilities: ??

Cognitive abilities: ??

L3) children between 130 cm and 140 cm of height corresponding to approx. 8 and 10 years;

Perceptual abilities: ??

Cognitive abilities: ??

L4) children between 140 cm and 160 cm of height corresponding to approx. 10 and 14 years;

Perceptual abilities: ??

Cognitive abilities: ??

L5) adults

EAASI EUROPE OFFICE : Square de Meeûs 38/40, 1000 – Brussels - Belgium

EAASI OPERATIVE OFFICE : Via Treccani 2/A - 42100 REGGIO EMILIA - Italy

Ph. ++39 0522 554176 - Fax ++39 0522 554176 - E mail : info@eaasi.org - <http://www.eaasi.org>

National Members
AFFFEL France
BARM Benelux
CNA Italy



RAAPA Russia
VDV Germany
Switzerland

EAASI

European Association Amusement Supplier Industry

ADULTS

Especially for the Adults the concept of “reasonably foreseeable” excludes the irrational, the voluntary hazardous actions, the deliberate actions to damage themselves or others, violence

While it’s natural that an amusement park represent a relaxed placed and people doesn’t pay much attention, it’s necessary that public and passengers maintain a basic acceptable behaviour to mitigate the potential residual risks that is not possible to reduce with safety measurers, it’s only reasonably practical to give information using signs.

Adults shall:

In general

observe each ride before participating – make sure you are comfortable with it
read and obey all written and verbal warnings and instructions
observe age, height and weight, and other physical restrictions for each ride

Before the Ride Begins:

fasten safety equipment such as a seatbelt, shoulder harness, lap bar or chain
secure all clothing and personal possessions
follow instructions of ride operators

While the Ride is in Motion:

keep hands, arms, legs and feet inside the ride at all times

Before Getting off of the Ride:

keep all safety equipment fastened until the operator instructs you to exit
stay in the ride until it comes to a complete stop and wait for the operator to tell you to get out
enter or dismount a ride only in the area instructed by the ride operator

Main Misbehaviour of Ride Safety due voluntary actions:

throw any object from an amusement ride or attraction
endanger or injure yourself or others around you on the ride by behaving in a reckless manner
enter any ride that you are uncomfortable with or that your child fears
horseplay around, on or near a ride at any time
enter a ride without the supervision of the ride operator
bring food or drinks on any ride, and don’t Smoke

EAASI EUROPE OFFICE : Square de Meeûs 38/40, 1000 – Brussels - Belgium

EAASI OPERATIVE OFFICE : Via Treccani 2/A - 42100 REGGIO EMILIA - Italy

Ph. ++39 0522 554176 - Fax ++39 0522 554176 - E mail : info@eaasi.org - <http://www.eaasi.org>

EAASI

European Association Amusement Supplier Industry

Violent behaviour

Any clearly aggressive and physically violent behaviour (e.g. striking another passenger, an operator or the ride itself)

Boisterous behaviour

Aggressive playful behaviour amongst groups of friends
(e.g. tapping friends on the head)

Alcohol

Drogu

Physically disabled people

(Person with physical different abilities??)

The possibility to use safely a ride depend by the performance of the ride related to the physical condition of the person. It's not possible in principle to define a general approach to this as it depends on the health condition of the single person and the performances of the single ride.

If the person is an adult should be in the condition to decide by himself what kind of rides he/she can afford.

In this case the ride Responsible person (Controller or Operator) should give him/her the necessary information: speed, acceleration, jerk, duration ect.

The person, being an adults should know his/her physical limit and the potential silent disease.

In case of child the decision is a duty of the Parents or Companion that shall know the limit and shall decide with prudence.

To preclude the use of a ride for safety reason, e.g. in case of doubt, isn't discrimination.

Mentally impaired people

The behaviour of these people can change dramatically in function of several situations and emotions. It can be influenced by the ride performance, by panic, by fear

In this case it's necessary a Companion knowing the ability and vulnerability of the person and decide witch ride he/she can afford and the appropriate additional safety measures/precautions.

Also in this case to preclude the use of a ride for safety reason, e.g. in case of doubt, isn't discrimination.

Sensory Abilities⁷

Seeing

Hearing

Touch

⁷ ISO/IEC Guide 71

EAASI EUROPE OFFICE : Square de Meeûs 38/40, 1000 – Brussels - Belgium

EAASI OPERATIVE OFFICE : Via Treccani 2/A - 42100 REGGIO EMILIA - Italy

Ph. ++39 0522 554176 - Fax ++39 0522 554176 - E mail : info@eaasi.org - <http://www.eaasi.org>

EAASI

European Association Amusement Supplier Industry

Taste/smell
Balance

Cognitive abilities⁸

Intellect

Memory

Language/literacy

Attention

General Strategy of Risk mitigation

Information

Additional safety measures ??

Other ??

⁸ ISO/IEC Guide 71

EAASI EUROPE OFFICE : Square de Meeûs 38/40, 1000 – Brussels - Belgium

EAASI OPERATIVE OFFICE : Via Treccani 2/A - 42100 REGGIO EMILIA - Italy

Ph. ++39 0522 554176 - Fax ++39 0522 554176 - E mail : info@eaasi.org - <http://www.eaasi.org>

National Members
AFFFEL France
BARM Benelux
CNA Italy



RAAPA Russia
VDV Germany
Switzerland