



BUSINESS PLAN

ISO/TC 254

Safety of Amusement Rides and Amusement Devices

EXECUTIVE SUMMARY

A major focus of the amusement industry in the world are the amusement and theme parks, family entertainment centers and other recreational facilities accommodating various amusement rides and devices.

At the present time, different countries of the world and the European Union have developed standards for safety of amusement rides and devices but all of them have differences in terminology and in the requirements as well as in the quantity of standards.

Many countries have accumulated considerable experience in assessing and preventing risks and there are regulations for the safe design, manufacture, operation of amusement rides and devices. Such areas as design, manufacture and operation of amusement rides and devices are sufficiently developed and stable, but progress in the field of leisure/entertainment is very fast, which is caused by the release of new types of amusement rides and devices as well as developing new technologies and it is necessary to create a common international terminology and classification of amusement rides, as well as a series of documents containing a full list of harmonized safety requirements for different types of amusement rides and devices. This will enable to ensure safe amusement environment for amusement facility and ride guests and avoid barriers to trade in the amusement industry. Understanding the importance of harmonizing standards on safety of amusement rides and devices, the main activity of the ISO / TC 254 is standardization in the field of safety of amusement rides and amusement devices and their related structures.

1 INTRODUCTION

1.1 ISO technical committees and business planning

The extension of formal business planning to ISO Technical Committees (ISO/TCs) is an important measure which forms part of a major review of business. The aim is to align the ISO work programme with expressed business environment needs and trends and to allow ISO/TCs to prioritize among different projects, to identify the benefits expected from the availability of International Standards, and to ensure adequate resources for projects throughout their development.

1.2 International standardization and the role of ISO

The foremost aim of international standardization is to facilitate the exchange of goods and services through the elimination of technical barriers to trade.

Three bodies are responsible for the planning, development and adoption of International Standards: [ISO](#) (International Organization for Standardization) is responsible for all sectors excluding Electrotechnical, which is the responsibility of [IEC](#) (International Electrotechnical Committee), and most of the Telecommunications Technologies, which are largely the responsibility of [ITU](#) (International Telecommunication Union).

ISO is a legal association, the members of which are the National Standards Bodies (NSBs) of some 140 countries (organizations representing social and economic interests at the international level), supported by a Central Secretariat based in Geneva, Switzerland.

The principal deliverable of ISO is the [International Standard](#).

An International Standard embodies the essential principles of global openness and transparency, consensus and technical coherence. These are safeguarded through its development in an ISO Technical Committee (ISO/TC), representative of all interested parties, supported by a public comment phase (the ISO Technical Enquiry). ISO and its [Technical Committees](#) are also able to offer the ISO Technical Specification (ISO/TS), the ISO Public Available Specification (ISO/PAS) and the ISO Technical Report (ISO/TR) as solutions to market needs. These ISO products represent lower levels of consensus and have therefore not the same status as an International Standard.

ISO offers also the International Workshop Agreement (IWA) as a deliverable which aims to bridge the gap between the activities of consortia and the formal process of standardization represented by ISO and its national members. An important distinction is that the IWA is developed by ISO workshops and fora, comprising only participants with direct interest, and so it is not accorded the status of an International Standard.

2 BUSINESS ENVIRONMENT OF THE ISO/TC

2.1 Description of the Business Environment

The following political, economic, technical, regulatory, legal and social dynamics describe the business environment of the industry sector, products, materials, disciplines or practices related to the scope of this ISO/TC, and they may significantly influence how the relevant standards development processes are conducted and the content of the resulting standards:

In most developed countries, the successful development of the economy led to increased incomes, purchasing power and the rise of a consumer lifestyle, which means spending of money not only to vital goods, but also for entertainment.

Satisfaction with amusement, leisure and entertainment, and their availability are indicators of a social position for the person, and of performance of the economy in general and the social sphere in particular for the society. With the development needs in amusement, leisure and entertainment, a significant sector of the economy has been formed, including business and entertainment destinations giving billions of dollars in turnover. As the interests and demands of guests change, the worldwide amusement industry is working overtime to develop new experiences, implement new technologies and generate unique thrills. It seems the hard work is paying off in terms of more visitors and higher profits.

One of the primary reasons for this ongoing expansion, both today and in the future, is creativity. The amusement industry has always prided itself on offering the newest rides, experiences and services to its guests, as it has long known that you must continually invest to keep crowds coming back year after year. Parks have targeted an ever-widening demographic by increasing the number of options for guests of all ages, such as more live entertainment, animal shows, more family rides, interactive experiences and nightlife offerings.

This results in market introduction of new amusement industry producers that, in turns, requires a clear understanding of the requirements for amusement rides and devices and their safety risk assessment. Given that the structure of amusement rides designed to suit individual operating conditions, each manufacturer defines safety requirements for amusement rides according to the standards used in the country. Currently, different countries and European Union developed standards for safety of amusement rides, however, all of them have differences both in terminology and requirements as well as in standards application scopes. If we compare definitions of basic terms "amusement ride" or "amusement device" in EN 13814 and ASTM F747-06, we will see descriptions of totally different devices.

It is obvious that there is a need in ISO standards as universal and most applicable means for harmonizing of all national standards that will enable to remove barriers to trade in the truly International amusement industry.

2.2 Quantitative Indicators of the Business Environment

The following list of quantitative indicators describes the business environment in order to provide adequate information to support actions of the ISO/TC:

Every year, more than 350 million people visit amusement parks and rides. Around the world, amusement parks and rides generate \$20 billion in revenues. And by all accounts, the popularity of amusement facilities is on the rise.

Themed Entertainment Association (TEA) and AECOM have released the TEA/AECOM 2010 Theme Index, a worldwide report of attendance at major theme parks, amusement parks and waterparks.

Key figures from TEA/AECOM 2010 Theme Index are as follows:

189.1 million: Total attendance for top 25 worldwide parks, an increase of 1.9 percent from 2009

123.6 million: Total visits to top 20 theme parks in North America, an increase of 1.8 percent from 2009

56.3 million: Attendance for the top 20 European theme parks, a decrease of 1.8 percent from 2009 numbers

83.3 million: Total visits to the top 15 Asian theme parks up 7.3 percent from 2009

13.3 million: Attendance to top 10 theme parks in Mexico and Latin America up 8.2 percent from 2009. Total attendance for top 10 Mexico and Latin America theme parks has grown by 20.5 percent since 2006.

22.2 million: Top 20 worldwide waterparks attendance in 2010 - an increase of 7.3 percent from 2009. Since 2006, total attendance for top 20 worldwide waterparks has grown by 27.4 percent.

15.1 million: Total visits to top 20 waterparks in U.S., growth of 2.9 percent from 2009

There are more than 400 amusement parks in the United States alone. In 2008, amusement parks in the United States entertained 300 million visitors who safely enjoyed more than 1.7 billion “rides.” Family Entertainment Centers (FECs) host an average of 381,000 guests annually, with the larger facilities hosting up to 622,000 guests annually. FECs also experience comparatively high levels of repeat visitation—more than three visits per season.

Amusement parks and attractions in the United States generated \$11.5 billion in revenues in 2006.

The United States amusement park industry provides jobs for approximately 500,000 year-round and seasonal employees. Top ten most visited parks are in the United States.

The 2010 TEA/AECOM Theme Index reveals an average attendance increase of 1.8 percent in North American parks. Both Universal and Disney parks reaped the rewards of substantial reinvestment with outstanding new attractions in Orlando and Los Angeles. Orlando saw regional tourism grow by 10.5 percent and preliminary estimates indicate 8 percent growth in Los Angeles. Both residents and tourists are coming back to the parks. The remarkable success of Universal Studios’ Wizarding World of Harry Potter lifted attendance at Universal’s two parks in Orlando by more than 1.7 million visitors in 2010 according to Brian Sands, AICP, vice president, Economics at AECOM. Universal Studios Hollywood was also up significantly due to the opening of King Kong 360 3-D. World of Color, at Disney California Adventure, helped offset a mostly flat year for Disney parks. These are great examples of how valuable strong content and excellent execution are for the themed entertainment industry, in what remains a challenging economic environment. Throughout 2011, the North American theme parks industry continued on its re-investment plan, with the region’s major operators installing large-scale theme areas and new rides.

There are approximately 300 amusement parks in Europe. In 2003, Europe’s top ten theme parks had 40 million visitors. One of the world’s top ten most visited amusement parks is in Europe.

Four of the world’s top ten most visited amusement parks are in Asia. Parks across the Asia-Pacific region continue to prosper. According to Pricewaterhouse Coopers, the region’s market will be worth nearly 8.5 bn USD by 2012, up from 6.4 bn USD in 2007.

As of 2010, the total number of amusement rides in operation in Russia is more than 7000. The number of visitors to the Russian parks and family entertainment centers is more than 40 million per year.

Clearly, the worldwide amusement sector is achieving continued success. The amusement industry progress is very fast that is caused by producing new types of amusement rides, creating new technologies and establishing state-of-the-art amusement facilities.

3 BENEFITS EXPECTED FROM THE WORK OF THE ISO/TC

Activities of ISO / TC 254 in the international standardization would establish uniform requirements for the amusement rides and devices at all stages of development that will enable not only to improve safety of the International community as a whole, but will manage the development of International standards in this area and influence the strategy of standardization in the amusement field.

4 REPRESENTATION AND PARTICIPATION IN THE ISO/TC

4.1 *Countries/ISO members bodies that are P and O members of the ISO committee*

4.2 Analysis of the participation

At present 12 countries made a decision to take part in the committee as participating members and 16 countries expressed their wish to participate as observers. ISO/TC 254 has a truly world-wide representation covering all continents and parts of the world such as: Africa, Asia, Australia, Europe, North America, South America. This again confirms that the amusement industry is growing fast around the world and needs harmonized state-of-the-art standards to ensure guests' safety and to remove barriers to trade.

The following liaisons have been established so far:

with the ISO committee TC 083 "Standardization of terms, dimensions, tolerances and functional and safety requirements, as well as their testing, for sports and recreational equipment";

with the industry organization - International Association of Amusement Parks and Attractions. Founded in 1918, IAAPA is the largest international trade association for permanently situated amusement facilities worldwide. The organization represents over 4,000 facility, supplier, and individual members from more than 93 countries. IAAPA strives to help members improve their efficiency, marketing, safety, and profitability while maintaining the highest possible professional standards in the industry.

5 OBJECTIVES OF THE ISO/TC AND STRATEGIES FOR THEIR ACHIEVEMENT

5.1 Defined objectives of the ISO/TC

The main strategic targets of ISO/TC 254 "Safety of Amusement Rides and Amusement Devices" are:

- co-operation with International organizations and other bodies for standardization, which deal with safety problems during design, manufacture and operation of amusement rides and devices to provide a high level of mutual harmonization for amusement rides safety requirements, which are effective in different countries of the world;
- support for harmonization of national and regional standards with International standards in this industry;
- continuous updating of the normative base in this field, which is currently is insufficient and incomplete, which is caused by continuous emerging of new types of amusement rides;
- removing problems in the International trade, which are related difference in requirements for the amusement rides. The problems are resulted from difference in technical requirements existing in various countries, especially it concerns safety requirements, test methods and inspection as well as devices compatibility.

Currently, the following standards relating to safety of amusement rides and devices are planned to be developed within ISO/TC 254 "Safety of Amusement Rides and Amusement Devices":

- Safety of Amusement Rides and Amusement Devices - Part 1: Design and Manufacture
- Safety of Amusement Rides and Amusement Devices - Part 2: Operation and Use
- Safety of Amusement Rides and Amusement Devices - Biomechanical Effects

5.2 Identified strategies to achieve the ISO/TC's defined objectives

ISO/TC 254 "Safety of Amusement Rides and Amusement Devices" is set to develop those favorable trends and principles which have been in existence for many years in the European group for harmonization of the European standard (EN 13814) and in the IAAPA (International Association of Amusement Parks and Attractions) technical committee for harmonization of the so-called world standard. Owing to these groups, ISO/TC 254 will not have to start its work from zero and it will be able to use a lot of developments made by these groups and implement them in the ISO standard for safety of amusement rides and amusement devices.

To list just a few, the following existing regulatory documents have been used as a basis for the work of harmonization group:

- EN 13814:2004 Fairground and amusement park machinery and structures - Safety
- ASTM F2291-06a Standard Practice for Design of Amusement Rides and Devices
- AS 3533.1-2009 series, Amusement Rides and Devices
- GOST R 53130-2008 Safety of Attractions. General Requirements
- HSG175 series, Fairgrounds and Amusement Parks - Guidance on Safe Practice
- ASTM F 747-06 Standard Terminology Relating to Amusement Rides and Devices

To achieve its objectives in the best possible way, ISO/TC 254 formally establishes Working Groups (WGs) with the following structure and appoints their convenors:

ISO/TC 254/WG 1 Biomechanical effects including: Acceleration, Ergonomics, Anthropometrics. Convenor: Prof. B. Rabinovich, GOST R

ISO/TC 254/WG 2 Design, manufacture and construction including: Guest behaviour, Control systems, Electrical system, Structural system, Mechanical system, Risk assessment, Terms and definition. Convenor: Mr. Stefan Kasper

ISO/TC 254/WG 3 Operation and use including: Initial approval, examination and acceptance, Requirements for operation, Maintenance and in-service inspection. Convenor: Mr. Ken Rundle, BSI.

The working groups are planning to meet at least once a year with involvement of experts in the relevant fields. Between the meetings, experts of the working groups will communicate using Internet, telephone conferences, etc.

6 FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE ISO/TC WORK PROGRAMME

The main challenges which are expected to be addressed during the work of ISO/TC 254 are as follows:

- The number of experts in the amusement industry is limited. It is especially true for experts in such particular fields as biomechanical effects, risk assessment, etc.
- The experts take part on a voluntary basis in many activities linked to harmonization and development of standards in the amusement industry, therefore, they are pressed in time and money to make personal meetings.
- There is a difference in the legislation system in various countries that may create additional complications while harmonizing the contents of the International standard.
- There is a need to receive an official approval to use as a basis the contents of standards of other standards-developing bodies such as ASTM, etc.

7 STRUCTURE, CURRENT PROJECTS AND PUBLICATIONS OF THE ISO/TC

This section gives an overview of the ISO/TC's structure, scopes of the ISO/TCs and any existing subcommittees and information on existing and planned standardization projects, publication of the ISO/TC and its subcommittees.

7.1 Structure of the ISO committee

7.2 Current projects of the ISO technical committee and its subcommittees

7.3 Publications of the ISO technical committee and its subcommittees

Reference information

Glossary of terms and abbreviations used in ISO/TC Business Plans

General information on the principles of ISO's technical work