



SMB/7690/SBP

STRATEGIC BUSINESS PLAN (SBP)

IEC/COMMITTEE: TC 100	SECRETARIAT: Japan	DATE: 2022-10-03
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Please ensure this form is annexed to the Report to the Standardization Management Board if it has been prepared during a meeting, or sent to the Central Office promptly after its contents have been agreed by the committee.

A. STATE TITLE AND SCOPE OF COMMITTEE

Title: Audio, video and multimedia systems and equipment

Scope:

To prepare international publications in the field of audio, video and multimedia systems and equipment.

These publications mainly include specification of the performance, methods of measurement for consumer and professional equipment and their application in systems and its interoperability with other systems or equipment.

Note: Multimedia is the integration of any form of audio, video, graphics, data and telecommunication and integration includes the production, storage, processing, transmission, display and reproduction of such information.

B. MANAGEMENT STRUCTURE OF THE COMMITTEE

The TC 100 required flexible procedures and organizations that could reflect market changes in a timely manner in order to respond to a wide range of rapidly changing technologies such as voice, video and multimedia. Therefore, the TC 100 adopted the TA (Technical Area) system. (For the TA systems, see the IEC Supplement to the ISO/IEC Directives, Annex SM.)

- TA 1: Terminals for audio, video and data services and content
- TA 2: Colour measurement and management
- TA 4: Digital system interfaces and protocols
- TA 5: Cable networks for television signals, sound signals and interactive services
- TA 6: Storage media, storage data structures, storage systems and equipment
- TA 15: Wireless power transfer (WPT)
- TA 16: Active Assisted Living (AAL), wearable electronic devices and technologies, accessibility and user interfaces
- TA 17: Multimedia systems and equipment for vehicles
- TA 18: Multimedia home systems and applications for end-user networks
- TA 19: Environmental and energy aspects for multimedia systems and equipment
- TA 20: Analogue and digital audio
- TC 100/WG 11: User's Quality of Experience (QoE) on Multimedia Conferencing Services

For the scope of each TA, see the TC100 web site <http://tc100.iec.ch>

In addition, TC 100 has following advisory groups, an Editing Committee and ad hoc groups.

- AG 1: Advisory Group on Strategy (AGS)
- AG 2: Advisory Group on Management (AGM)
- AG 3: General Maintenance Team (GMT)
- EG 5: Editing Committee
- ahG8: Revision of the SBP
- ahG9: Use cases and related studies
- ahG10: TC 100 AGS strategic priorities and future topics

TC 100, TC 124 and SyC AAL established a Joint Advisory Group.

JAG 8: SyC AAL Joint Advisory Group Communication with TC 100 and TC 124 Managed by SyC AAL

C. BUSINESS ENVIRONMENT

Provide the rationale for the market relevance of the future standards being produced in the TC.

If readily available, provide an indication of global or regional sales of products or services related to the TC/SC work and state the source of the data.

Specify if standards will be significantly effective for assessing regulatory compliance.

Due to world-wide economic slowdown, some of the electronic industry markets have been facing negative growth. However, some markets show recovery.

The worldwide market sizes of products relating to TC 100 in 2021 are:

(All comparison is an estimated average from 2021 to 2026)

- TV equipment (Flat panel TV, 4K TV and 8K TV): 2026/2021 = 116%
- Speaker sound system (Smart speaker, home theatre, Stereo set): 2026/2021 = 131%
- Vehicle multimedia (In-vehicle audio, navigation system, event video recorder): 2026/2021 = 114%
- DVD/Blu-ray Disc recorder/player: 2026/2021 = 42%
- Digital video camera: 2026/2021 = 87%

DVD/BD devices are on the decline due to the spread of video streaming services using the Internet and smart phones. With the spread of smart phones, demand for video cameras is also expected to decline. On the other hand, demand for 4K and 8K TV devices is expected in the future, and the spread of smart speakers and in-vehicle multimedia is expected to increase.

TC 100 addresses standards related to functionality, performance, interoperability and connectivity for these devices and systems. In addition, in recent years, there has been a growing demand for equipment/system accessibility and consideration of environmental impact. TC 100 will develop standards that meet accessibility and environmental requirements while closely monitoring trends in regulations and guidelines in various countries.

Because many of the equipment and systems covered by TC 100 are related to other TC/SCs, TC 100 is continuing its efforts not to compete with existing standards developed by other organizations through effective liaison.

Some of the specifications covered in TC 100 are previously standardized in consortia or fora and proposed to TC 100 for international endorsement. Therefore TC 100 has liaisons with consortia and fora such as SMPTE, AES, USB-IF and WPC, and others as deemed necessary.

D. MARKET DEMAND

The table below indicates customers of TC 100 publication by each Technical Area (TA).

	Examples of IS	Customers
TA 1	Digital broadcasting receiver and terminal specifications for IPTV, digital TV and Radio Data System (RDS), and multimedia for e-publishing and e-book	Digital TV, Set Top Box (STB), IPTV manufacturers Radio data, digital audio and video broadcasting receiver manufacturers Publishers and consumers for multimedia e-publishing and e-book
TA 2	IEC 61966 series (Colour measurement management)	Various kinds of Manufacturer (TV, Printer, Digital Camera, Scanner, Projector, etc.)
TA 4	Interfaces and protocols related to transmission, interconnection, encoding/decoding, synchronization and control of video, data and metadata	CE, PC, IT manufacturers, broadcasters and professional equipment manufacturers
	Requirements and measurement methods for electrical and physical characteristics	Testing Laboratories
TA 5	IEC 60728 Series (Cable system)	TV, STB Manufacturers, cable operators, cable- and cable system equipment manufacturers and cable system installers
TA 6	Professional tape-less camera recorder specifications	Broadcasters, Professional equipment manufacturers
	Portable CE products specifications	Manufacturers, Consumers
	Measuring methods for various recorders/players	Manufacturers, Consumers
	Time-code specification Audio archive system	Professional equipment manufacturers Library, Archive system providers and manufacturers
TA 15	Wireless Power Transfer for audio, video and multimedia systems and equipment	Manufacturers, Consumers
TA 16	Active Assisted Living (AAL), wearable electronic devices and technologies, accessibility and user interfaces	CE, IT and mobile device Manufacturers, Consumers, Life support service providers, Health Care Providers, Regulators
TA 17	VDR for road vehicle accidents, surround view system, in-vehicle infotainment products	Consumer, Manufacture, Car industry
TA 18	Multimedia home server and gateway specifications Audio, video and multimedia interoperability specifications for end-user Networks USB interface	PC, CE device, IT system, Smart device and consumer/B2B electronics product manufactures, and Content service providers
TA 19	Measurement method for power consumption, energy efficiency and environmentally conscious design	CE, ITE, PC and Multimedia Audio & Video Manufacturers. Regulators, NGOs, Consumers
TA 20	Sound system equipment	Manufactures, Installers, Consumers
	Audio quality (AV lip sync, loudness, multichannel assignment)	Broadcasting studio, Manufactures, Installers, Consumers
	Audio and multimedia interface (analogue/digital audio interface, MIDI)	Manufactures, Installers, Consumers

E. SUSTAINABILITY DEVELOPMENT GOALS

Indicate the Sustainable Development Goals (SDGs) that are addressed by work within the committee. Indicate each SDG Indicator affected (reference spreadsheet available at <https://www.iec.ch/SDG/>, and provide specific information about how the committee is addressing the SDG. Consider both direct and indirect impacts of the work of the committee.

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|--|--|
| <input type="checkbox"/> GOAL 1: No Poverty | <input type="checkbox"/> GOAL 10: Reduced Inequality |
| <input type="checkbox"/> GOAL 2: Zero Hunger | <input type="checkbox"/> GOAL 11: Sustainable Cities and Communities |
| <input type="checkbox"/> GOAL 3: Good Health and Well-being | <input checked="" type="checkbox"/> GOAL 12: Responsible Consumption & Production |
| <input checked="" type="checkbox"/> GOAL 4: Quality Education | <input type="checkbox"/> GOAL 13: Climate Action |
| <input type="checkbox"/> GOAL 5: Gender Equality | <input type="checkbox"/> GOAL 14: Life Below Water |
| <input type="checkbox"/> GOAL 6: Clean Water and Sanitation | <input type="checkbox"/> GOAL 15: Life on Land |
| <input type="checkbox"/> GOAL 7: Affordable and Clean Energy | <input type="checkbox"/> GOAL 16: Peace & Justice Strong Institutions |
| <input checked="" type="checkbox"/> GOAL 8: Decent Work & Economic Growth | <input type="checkbox"/> GOAL 17: Partnerships to achieve the Goal |
| <input type="checkbox"/> GOAL 9: Industry, Innovation & Infrastructure | |

F. TRENDS IN TECHNOLOGY AND IN THE MARKET

Because TC 100 covers a wide range of technical areas, it summarizes the trends in technology and markets from the following 4 perspectives.

- a) Audio, video and multimedia technologies
- b) Power efficiency and environmental aspects
- c) Wireless power transfer for multimedia equipment
- d) Other new technologies (wearables data, haptics, remote control/assist systems.)

(1) Audio, video and multimedia technologies

• Audio

Since the beginning of the COVID-19 pandemic two years ago, the demand for electronic gadgets like TVs, games and home audio products such as sound bar systems has increased because people needed to find ways to entertain themselves at home.

In the TV category, we continue to see an evolution and diversification of thinness/slimness, installation condition, and speaker position. It is difficult to evaluate the acoustics performance by the current standards of the loudspeaker systems. TA20 is working on the development of new standards.

In the audio category, the noise cancellation performance of headphones and earphones has evolved dramatically. Nowadays, wireless earbuds have become compact, lightweight, and require low power.

• Terminals for audio, video and multimedia services

From the consumers' point of view, terminals for audio, video and data services including e-books are converging into smart mobile devices such as tablet PCs and smart phones with the development of mobile network, except for specific multimedia services requiring dedicated terminals or built-in receivers.

Relevantly, form factor issues and visual comfort considerations for terminals will be considered in TA 1.

Accordingly, TA 1 will be finding new opportunities in the smart mobile devices as terminals for multimedia services, and will keep connection with other SDOs, industrial consortia and forums, in terms of terminals, for future multimedia services and content.

• Interfaces for multimedia systems and equipment

Physical interfaces for multimedia systems and equipment are required to support higher bandwidth as realistic multimedia, such as XR content and higher resolution of videos, are becoming main service content. It is also required to support wireless connection in some cases of consumer use. In addition, as the legacy media, physical repositories for multimedia content are rarely in use and moved to cloud platforms, it becomes important to transmit metadata together with multimedia data. Accordingly, TA 4 will be finding opportunities in new digital interfaces and protocols for transmitting new types of multimedia content.

• Cable networks/television

In Europe, in the current cable television transmission line (HFC: Hybrid fibre-coaxial), speedup and capacity enlargement of communication for advanced utilization of the transmission line are being promoted. However, in major European countries, cables for communications and broadcasting are often buried underground. Therefore, it is expensive to replace these coaxial cables with optical fibres, and for the time being, advanced utilization of HFC transmission lines will be promoted.

• Storage for multimedia data

Concerning trends regarding a file format in the next three to five years, we guess the IMF (Interoperable Master Format) will be used more widely for broadcasting systems.

The IMF has been standardized as a distribution master in SMPTE, on the other hand, it began to be used for broadcasting systems from improving a material management, saving a storage capacity and improving a workflow point of view.

Also, we guess rendering/QC of materials applied the IMF will be done in the cloud in the future.

As for the description about a video codec in SMPTE IMF documents, it is very simple, e.g. profile, level and so on. We have a plan to make a video codec guideline for the IMF in TA6 because it must be useful for improving interoperability.

• AAL

Demographic studies indicate that the population will age considerably, with implications for multimedia technology and there is also a general demand for increased convenience and comfort. There is continual innovation in audio, video and multimedia. Systems and devices are becoming more complex and need consumers and other users to tailor the device e.g. privacy settings to match their needs. The increasing need for security and privacy aspects of devices and systems to be set up for individuals makes designing accessible systems and devices more complex. The Covid pandemic saw a global increase in working from home, remote education and remote telehealth monitoring. Again providing accessible interfaces for such systems will be increasingly important as remote access to many services becomes the norm.

(2) Power efficiency and environmental aspects

Environmental conscious design requirements in general and especially basic energy efficiency are more and more regulated in the regions, but beyond this are taken as market differentiators. For this multimedia performance specifications are matched with environmental measurement methods. After focusing on stand-alone multimedia equipment, connected devices and networked systems will move in the focus. As additional aspects material efficiency and circularity will approach.

(3) Wireless power transfer for multimedia equipment

Recently, various wireless charging pads for smartphones have been released. Among them, products capable of super-fast charging of up to 15 W are the mainstream. Some products are compatible with USB Power Delivery (PD) and Adaptive Fast Charging (AFC) power adapters to increase charging efficiency, and up to two smart mobile devices can be charged at the same time. In addition, many high-speed wireless charging cradles for vehicles have been released.

(4) Others (AR/VR, haptics, wearables, remote education, remote audio/video communication, etc.)

- Wearable Data

IoT devices that can be worn are called wearable devices, and are typically wristwatch-type, eyeglass-type and various types of sensors attached to the surface of the body. Environment sensors connected to the network, such as thermometers and hygrometers, are also included in IoT devices.

Wearable devices have characteristic sensing functions such as detection of mental and physical information (pulse, respiration, heartbeat, etc.).

Utilization of sensing data obtained from such devices will greatly contribute to improving the efficiency of insurance, long-term care, and healthcare services, and further spread is expected in the future.

- Haptics

By converting it into data and using it as "Haptics", it is possible to change the feel and reproduce the same movement.

By adding the haptics to remote work and AR/VR, it is possible to enrich the experience.

It is also expected to be applied in many fields such as nursing care and rehabilitation, industry and agriculture, machinery and robots, automobiles and aircraft, and entertainment.

- Remote Control and Remote Assist System

With the spread of the new coronavirus infection, it has become a "New Normal" and the way of working is changing.

Remote control that allows you to talk while watching the video of a distant site in real time, and to visually instruct and confirm, assuming non-contact in various scenes such as manufacturing, agriculture, medical care, education, entertainment, etc. Technologies such as remote monitoring and remote assistance have become effective solutions in new normal.

In order to accelerate the use of remote devices, it is necessary to specify a comprehensive architecture, unify terms, ensure interoperability between devices, and eliminate risks due to communication delays.

G. SYSTEMS APPROACH ASPECTS (SEE DIRECTIVES PART 1 ANNEX SP)

TC 100 is both a product committee and a system committee. TC 100 attempts to focus on the customer role as a user of components while also addressing the supplier role as a developer of common platforms, for example, colour gamut standards.

Component committee (TC 100 role of a customer)	IEC SC 3C	Graphical symbols for use on equipment
	IEC TC 46	Cables, wires, waveguides, R.F. connectors, R.F. and microwave passive components and accessories
	IEC SC 48B	Connectors
	IEC TC 86	Fibre Optics
	IEC TC 110	Flat panel display devices
	IEC TC 124	Wearable Electronic Devices and Technologies
	ISO/IEC JTC 1/SC 23	Removable Digital Storage Media Utilizing Optical and/or Magnetic Recording
	ISO/IEC JTC 1/SC 25	Interconnection of IT equipment
	ISO/IEC JTC 1/SC 29	Coded Audio, Picture and Multimedia/Hypermedia information
	ISO/IEC JTC 1/SC 41	Internet of Things

System committee (TC 100 role of supplier)	ISO/IEC JTC 1/SC 24	Computer graphics, image processing and environmental data representation
	ISO TC 42/WG 18	Photography/Digital imaging
	ISO TC 130	Graphic technology
	Syc AAL	Active Assisted Living
Others (System to System)	ISO/IEC JTC 1/SC 25	Interconnection of IT equipment
	ISO/IEC JTC 1/SC 41	Internet of things and digital twin

H. CONFORMITY ASSESSMENT

With reference to Clause 33 of Part 2 of the ISO/IEC directives, are all your publications in line with the requirements related to conformity assessment aspects?

Will the TC/SC publications be used for IEC Conformity Assessment Systems (IECEE, IECEx, IECQ, IECRE)?

Will any of your standards include test specifications, reproducible test requirements, and test methods?

Are there likely to be special conformity assessment requirements generated by any standards projects? If yes, list which projects.

Currently there are no TC 100 standards used in IEC CA systems. Almost all of the standards developed in TC 100 are not used for regulatory purposes. However, recent energy-efficiency-related standards, for example as IEC 62087 "Methods of measurement for the power consumption of audio, video and related equipment" are referred to by Energy Star Programmes and ErP. Such types of standard will increase. TC100 has produced many standards that include methods of measurement and a number that specify performance requirements.

I. 3-5 YEAR PROJECTED STRATEGIC OBJECTIVES, ACTIONS, TARGET DATES

STRATEGIC OBJECTIVES 3-5 YEARS	ACTIONS TO SUPPORT THE STRATEGIC OBJECTIVES	TARGET DATE(S) TO COMPLETE THE ACTIONS
(1) Audio, video, and multimedia technologies	<p>a) Terminals Standards for Radio Data System (RDS) will be updated according to the development of RDS2. With the emergence of new types of multimedia devices in terms of "terminals for audio, video and data services and content", use cases and impacts on consumers and services will be surveyed for potential new work items. (TA 1)</p> <p>b) Colour management Will develop and maintain standards related to colour gamut, and high dynamic range, blue light, and metadata for contents and displays. (TA 2)</p> <p>c) Interfaces and protocols As the needs for applications delivering audio-visual sensing data and the corresponding metadata in the IoT-based devices as well as XR devices arise, studies and surveys on interfaces and protocols will be started for potential new work items. (TA 4)</p> <p>d) Cable networks</p>	<p>2023 (RDS2)</p> <p>2026 (SMD-related new items)</p> <p>Colour gamut: 2023</p> <p>Blue light: 2023</p> <p>Metadata: 2023</p> <p>2026</p> <p>2026</p>

<p>Standardization for efficient use of CATV transmission lines will be promoted. The new work items are the creations of the standard for applying DOCSIS 4.0 on a CATV network, which was created by SCTE in the United States.</p> <p>In addition, standards related to a series of digital broadcast transmissions for transmitting digitized all broadcast programs on CATV transmission lines (including FTTH) will be completed. (TA5)</p>	<p>2025</p>
<p>e) Storage for audio, video and multimedia</p> <p>Will develop Universal Archival Disk Format (UADF), camera metadata guideline and future time labelling related specification. To improve interoperability, a video codec guideline for the IMF (Interoperable Master Format) will be developed. (TA 6)</p>	<p>UADF: 2024</p>
<p>f) AAL</p> <p>Will develop standards and other publications to help ensure that audio, video and multimedia equipment and systems are sufficiently accessible not only to elderly persons but also to persons in general with disabilities. This extends to work on emerging technologies for AAL (active assistive living), including working collaboratively with committees covering applications accessibility technologies, where these depend on audio, video and multimedia equipment and services whose standardisation falls within the scope of IEC TC 100. Close collaboration is also planned with industry associations such as CTA, JEITA and DIGITALEUROPE to support harmonized international standards for accessibility in the framework of upcoming regulations, e.g. the European Accessibility Act. (TA 16)</p>	<p>2026</p>
<p>g) Equipment for vehicles</p> <p>With the spread of autonomous driving vehicles and the evolution of the autonomous driving level, the function of linking vehicles and the cloud will be enhanced. The video of the in-vehicle camera that the driver no longer needs to see in real time will be aggregated</p>	<p>2027</p>

	<p>in the cloud as one of the sensing data, and the cloud side will be the main performer of recording processing, composition processing of multiple in-vehicle cameras, etc.</p> <p>Corresponding to the thin client of such an in-vehicle camera system providing an interface is becoming more and more important. (TA 17)</p> <p>h) Sound system equipment and audio quality Will develop standards for immersive audio and wearable speakers such as XR or Neckband Speaker. Will maintain standards related to analogue and digital audio. (TA 20)</p>	2028
(2) Power efficiency and environmental aspects	<p>a) USB data and power delivery Continue to maintain USB Power Delivery, USB Type-C® standards and related common charging interoperability standards. Furthermore, the standardization work for USB4® will be initiated. (TA 18)</p> <p>b) Networked standby power consumption measurement (TA 19)</p> <p>c) Measurement method for energy efficiency of projectors based on image quality (TA 19)</p> <p>d) Material efficiency aspects for multimedia equipment and systems (TA 19)</p>	<p>2023</p> <p>2025</p> <p>2025</p> <p>2026</p>
(3) Wireless power transfer (WPT) for multimedia equipment	<p>a) Wireless charging technology is rapidly expanding beyond mobile phones into multimedia systems and equipment. Wireless charging technology is growing rapidly to increase charging distance, speed, and efficiency. Based on this trend, WPT standards for multimedia systems and equipment will be developed in consideration of laws and regulations and safety in each country.</p>	2025

(4) Others (wearable data, haptics, remote control/assist systems.)	a) Haptics and wearables: Further advance IEC TR 63344, confirm the necessity of standardization, and formulate the necessary standards. Will develop the Data container format for wearable sensor (TA 18)	2025
	b) Remote Control and Remote Assist System: Will develop standards for Remote Control and Remote Assist System. (TA 18)	2024
	c) AR/VR: As a new type of terminals delivering multimedia services and content to consumers, standards for reference models and functional requirements of AR/VR devices will be considered. (TA 1)	2026
	As multimedia data and content combined with application-specific sensory data is regarded as a main application of AR/VR devices, controllers and the corresponding service systems, standards for those interfaces and protocols will be considered. (TA 4)	2026
d) develop the standards on the Quality of Experience (QoE) for multimedia conferencing services and applications, which includes the requirements, measurement and assessment methods, and the use cases. (TC 100/WG 11)	2026	

Note: The progress on the actions should be reported in the RSMB.