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| The International Teleocmmunication Union - Connecting the World. | **International telecommunication union****Telecommunication Standardization Bureau** |  |
|  | Geneva, 27 June 2019 |
| **Ref:** | **TSB Circular 182**SG9/SP | **To:**- Administrations of Member States of the Union |
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| **E-mail:** | tsbsg9@itu.int  | **Copy to:**- ITU-T Sector Members;- Associates of ITU-T Study Group 9;- ITU Academia; - The Chairman and Vice-Chairmen of Study Group 9;- The Director of the Telecommunication Development Bureau;- The Director of the Radiocommunication Bureau |
| **Subject:** | **Revision of ToR for Questions 4/9 and 9/9** |

Dear Sir/Madam,

1 At the request of the Chairman of Study Group 9, *"Broadband cable and TV",* I have the honour to inform you that, in accordance with the provisions of Section 7, § 7.2.2, of Resolution 1 (Rev. Hammamet, 2016), the following is the decision reached by consensus among those present:

– This Study Group, in its meeting in Bogotá, Colombia, 21-28 November 2018 agreed to revise the Questions texts of both Question 4/9 *“Guidelines for implementations and deployment of transmission of multichannel digital television signals over optical access networks and Hybrid Fibre-Coaxial (HFC)”* and Question 9/9 *“Requirements, methods, and interfaces of the advanced service platforms to enhance the delivery of sound, television, and other multimedia interactive services over integrated broadband cable networks”.*

– NOTE: the title of the revised Question 4/9 and Question 9/9 were slightly updated.

2 TSAG, in its meeting in Geneva, 10-14 December 2018, endorsed the revisions of the terms of reference of the above-mentioned Questions

3 At its meeting in Geneva, 6-13 June 2019, Study Group 9 finally approved the revision of the terms of reference of Questions 4/9 and 9/9.

4 **Annex 1** contains the updated text of Question 4/9 and **Annex 2** contains the updated text of Question 9/9.

Yours faithfully,

Chaesub Lee
Director of the Telecommunication
Standardization Bureau

**ANNEX 1
Question 4/9**

**Guidelines for implementations and deployment of transmission of multichannel digital television signals over optical access networks and Hybrid Fibre-Coaxial (HFC)**

(Continuation of Question 11/9)

**Motivation**
Recent fibre optical transmission technology allows extending fibre networks to the curb, the building or the home.

Fibre networks can be brought closer to users' premises than hybrid fibre–coaxial (HFC) networks. However, HFC is still widely used in developed countries and expected to be used in some developing countries as the primary cable access infrastructure.

Fibre technology can provide the higher capacity in the forward and return channel, which is required for the provision of typical cable television services, including interactive ones.

Fibre technology provides the fat bandwidth (100 Mbps or more) on its communication links and is being deployed as the Internet access network. Although fibre networks have the potential to transmit high quality television signals and several Recommendations on optical access networks such as G.983 and G.984-series have been developed, further study on the interworking and interfaces between digital video systems and fibre networks is needed.

**Question**
Study items to be considered include, but are not limited to:

* Which mechanisms can be used to transport multichannel digital television signals over fibre networks and hybrid fibre–coaxial (HFC), in view of the high loss of optical splitters used for PON (passive optical networks)?
* Which mechanisms can be used to ensure the low composite distortion and high carrier-to-noise ratio (CNR) that are required for frequency division multiplex (FDM) transport of digital television signals over fibre networks?
* Which mechanism can be used to transport multichannel digital television signals over fibre networks in term of a high-speed digital communication link?
* Which mechanism can be used to compensate the jitter arising from transporting over asynchronous communication links over fibre networks?
* Which mechanism can be used to compensate the packet loss arising from transporting over best effort communication links over fibre networks?
* Which mechanism can be used to control access to the traffic in term of traffic management and security?
* Which mechanism or interface can be used between content providers, core networks and optical access networks/HFC?
* What enhancements to existing Recommendations are required to provide energy savings directly or indirectly in information and communication technologies (ICTs) or in other industries? What enhancements to developed or new Recommendations are required to provide such energy savings?
* How ITU-T SG9 can support developing countries to deploy digital television services on optical fibres and HFC, taking into account their limited resources as well as other specific needs?

**Tasks**
Tasks include, but are not limited to:

* Preparation of new Recommendation(s) regarding the above study items listed under “questions” as well as maintenance of existing Recommendations such as ITU-T J.185 and J.186;
* Publish useful information (e.g. Reports, Surveys, Supplements, Guidelines or Handbooks) to support the deployment of digital television services on optical fibres and HFC in developing countries.

An up-to-date status of work under this Question is contained in the Study Group 9 work programme (<http://itu.int/ITU-T/workprog/wp_search.aspx?sp=16&q=4/9>).

**Relationships**

**Recommendations**

* ITU-T G.983-series, G.984-series and other G-series Recommendations addressing optical fibre networks, systems and interfaces

**Questions**

* All relevant Questions in SG9

**Study groups**

* ITU‑T SG15 (optical network architectures, particularly those related to PON systems, and optical interfaces)
* ITU-D SG1 and SG2

**Standardization bodies**

* IEEE
* IEC

**ANNEX 2
Question 9/9
Requirements, methods, and interfaces of the advanced service platforms to enhance the delivery of sound, television, and other multimedia interactive services over integrated broadband cable networks**

(Continuation of Question 10/9)

**Motivation**
The use of the service platform, including cloud computing platform, for the delivery of sound and television signals as multimedia content, is spreading at an impressive pace. Existing cable television platform is based on conventional functions including user management, accounting, terminal management, content management, content delivery, and so on. These functions are still useful and will be used continuously in the future cable television systems. On the other hand, a lot of advanced server side technologies for service enhancement (e.g. target specific content distribution system, artificial intelligence assisted operation and maintenance system, multi-device content distribution, content recommendation system, and cloud-based content storage) become viable. To adopt these server side technologies to the existing cable television service efficiently and quickly, the common interfaces between existing cable systems and other advanced platforms are indispensable. Therefore, it is quite important and urgent to study the requirements, architectures, methods, and interfaces to leverage the platform side technology to enhance the existing cable television systems. This study will include, but is not limited to, advanced service platforms which include:

* advanced content management including cloud-based content storage to realize the cable contents TV everywhere;
* user's account/terminal management for TV everywhere services;
* platform side technologies and interfaces to realize the harmonization between existing cable television services and over-the-top (OTT) services;
* management functions of the user/service statistics and analyses to enhance the personalization services.

The work area includes the interface between cable television systems and advanced platforms. In some cases, not only cable TV systems but also the advanced platforms are operated by the cable operator (e.g. TV everywhere service system, target specific content distribution system, application market). In other cases, multiple cable systems work together through interfaces with the outside systems such as (but not limited to) machine-to-machine (M2M) system, Internet of things (IoT) system, and cloud-based system.

**Question**
Study items to be considered include, but are not limited to:

* What are the service requirements applicable to the service platform to enhance the existing cable television services?
* What is the appropriate platform architecture to provide enhanced service with the satisfaction of the above-described service requirements?
* What interfaces and compatibility are required between existing cable platform and the advanced service platform?
* What user account/terminal management method can be used for the TV everywhere service and how should it harmonize with existing user account/terminal management system? More specifically, when the cable operator provides the TV everywhere service, the content distribution to second devices (such as the mobile phone, tablet, etc.) will be controlled based on the subscriber information of cable television systems. Therefore, the communication between the subscriber management function of cable TV system and the TV everywhere service platform is necessary.
* What interface can be used to realize the harmonization between OTT video services and existing cable TV content management system?
* What interface can be used to adopt device-independent content recommendation system to the existing cable television system?
* What management functions can be used for the aggregation of user/service statistics and analyses, enabling the enhancement of personalization services?
* What management method and interface can be used to utilize the social media information to the content recommendation?

**Tasks**
Tasks include, but are not limited to:

* The preparation of revised or new Recommendations as required.

An up-to-date status of work under this Question is contained in the Study Group 9 work programme (<http://itu.int/ITU-T/workprog/wp_search.aspx?sp=16&q=9/9>).

**Relationships**

**Recommendations**

* API of terminal platform: ITU-T J.200, J.201, J.202
* Set-top box: ITU-T J.295, J.296
* Server platform: ITU-T J.287, J.301, J.302, J.380-series, J.704, J.706, J.707

**Questions**

* 2, 5, 6 and 8/9

**Study groups**

* ITU-T SG12
* ITU‑T SG13
* ITU-T SG15
* ITU‑T SG16
* ITU‑T SG20

**Standardization bodies**

* Broadband forum
* ETSI TC Cable
* SCTE

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