Question ITU-r 15-2/6[[1]](#footnote-1)1, [[2]](#footnote-2)\*

Large screen digital imagery (LSDI)[[3]](#footnote-3)2

(2002-2003-2007)

The ITU Radiocommunications Assembly,

considering

*a)* that new very high resolution, LSDI are being introduced in some countries, whereby dramas, plays, sporting events, concerts, cultural events, etc., photographed electronically or on film, can be delivered, and exhibited in high resolution quality in theatres, halls, and other venues equipped with digital imaging capabilities;

*b)* that such practice has the potential to produce excellent picture quality, equal or superior to that available heretofore, and opens the possibility for program delivery in various digital forms for exhibition to large audiences;

*c)* that such practice is reported to also offer significant benefits in terms of a faster, lower cost production/postproduction and distribution, including to smaller, less-developed markets;

*d)* that high resolution, bright, large screen projection equipment is available from several international manufacturers;

*e)* that it may be beneficial to develop a uniform or compatible hierarchy of technical standards for program recording, mastering[[4]](#footnote-4)3, exchange, delivery and exhibition, harmonized with those established for the recording and mastering, exchange and delivery of programs for other applications, since this can ease international program exchange;

*f)* that the ITU-R has been studying extremely high resolution imagery under Question ITU‑R 40/6 based on the concept of a tiered or hierarchical approach;

*g)* that the introduction of digital technologies results in the converging of broadcast and telecommunication data channels, so that the secondary distribution of digital programs now also foresees the possible distribution of digital packetized data, in real-time and non-real-time, program-related and non-program-related, to the general public as well as to individual recipients or groups of recipients;

*h)* that the definition of broadcasting included in the ITU Constitution (CS/A.1010)[[5]](#footnote-5)4 from the regulatory point of view, makes no distinction between real-time and non-real-time service delivery, nor between interactive and non-interactive programming, nor among sound, television or other types of content, nor among analog, digital or digital packetized delivery;

*j)* that various aspects of LSDI are within the scope of Study Group 6 as defined in Resolution ITU-R 4-4[[6]](#footnote-6)5, e.g.:

– acquisition, production, postproduction and mastering;

– storage and transfer to and from film for international exchange;

– encoding, encryption and assembling with control and metadata;

– delivery by terrestrial or satellite means;

– quality assessments of the proposed technical solutions;

*k)* that some other aspects of LSDI are in the scope of ITU-T Study Group 9; the IEC and ISO; other international or regional standardizing bodies as well as other relevant fora;

*l)* that, in view of its scope, Study Group 6 is well placed to act as a focal point to coordinate relevant studies among the various concerned ITU and non-ITU bodies;

*m)* that studies on LSDI are important both for the theatre and for broadcasting, and the opening of some LSDI operational services makes it urgent for the ITU‑R to initiate those studies;

*n)* that although studies are currently being carried out in various countries on all aspects of LSDI, those specifically related to motion pictures[[7]](#footnote-7)6 are not yet fully completed,

decides that the following Questions should be studied

1 What are the picture and sound performance goals, in subjective and objective terms, of the LSDI applications that require the use of the higher members of the expanded LSDI hierarchy of image systems?

2 What methods are appropriate for the subjective and objective assessment of the sound and image quality of LSDI systems including those intended for applications that require the use of the higher members of the expanded LSDI hierarchy of image systems?

3 Which digital formats, standards and operating practices for program production, storage and international exchange should be recommended in order to reliably meet the performance goals of LSDI applications, including those intended for applications that require the use of the higher members of the expanded LSDI hierarchy of image systems?

4 Which information related to LSDI programs should be included as metadata through the mastering and carried through the digital distribution chain, and in which form?

5 Which methods can be recommended for the bit-rate-reduction encoding and for the encryption of LSDI programs?

6 Which methods can be recommended for conditional access and copy protection of LSDI programs?

7 Which methods can be recommended to adapt LSDI programs for delivery by terrestrial emission?

8 Which methods can be recommended to adapt LSDI programs for delivery by satellite emission?

9 Which methods can be recommended for archiving of LSDI material?

further decides

1 that co-operation between ITU-T Study Group 9 and ITU-R Study Group 6 is desirable in the selection of methods for the delivery of LSDI programs to their end users by television cable, fiber networks and telecommunications networks;

2 that co-operation with the ISO/IEC JTC1/SC29/WG11 (MPEG) is desirable in the selection of compression tools for the delivery of LSDI programs to their end users;

3 that co-operation with ISO, IEC and the other international and regional standardizing bodies and fora (see examples in Annex 1) is desirable in the study of the LSDI’s presentation environment objectives and the related methods and devices;

4 that co-operation with other bodies such as those given as examples in Annex 1 is desirable in the selection of methods compatible with the end-to-end LSDI specifications currently being developed;

5 that the bodies selected for liaison should be chosen on a case-by-case basis depending on their relevance to the particular topic;

6 that SG 6 studies of the methods for the production, delivery and presentation of LSDI programs should rely, where appropriate, on the use of existing tools and toolkits;

7that the LSDI studies should result in a set of Recommendations based on a hierarchy of levels of system performance that harmonize where possible with existing systems for digital imagery;

8 That while studies of LSDI may include characteristics[[8]](#footnote-8)7 that are common to motion pictures[[9]](#footnote-9)8 and in the purview of Study Group 6, Study Group 6 recognizes that aspects[[10]](#footnote-10)9 specifically relating to motion pictures should be based on standards developed by the motion picture expert groups;

9 that the LSDI studies should be completed by the year 2015.

Category: S2

Annex 1

Some bodies within and outside the ITU that could provide
cooperation on LSDI studies

The list below provides an indication of some entities within and outside the ITU that possess an expertise relevant to LSDI and could co-operate to LSDI studies within ITU-R Study Group 6.

ITU bodies

ITU-T Study Group 9

ITU-T Study Group 16

Some other international or regional standardizing bodies and fora

ARIB – Association of Radio Industries and Businesses

ATSC – Advanced Television Systems Committee

DVB – Digital Video Broadcasting

EDCF – European Digital Cinema Forum

IEC – International Electrotechnical Commission

ISO – International Standards Organisation

ISO/IEC JTC1/SC29/WG11 (MPEG) –Moving Picture Experts Group

SMPTE – Society of Motion Picture and Television Engineers

International or regional Unions and Associations of broadcasters

WBU-TC – Technical Committee of the World Broadcasting Unions

Regional Unions and Associations of Broadcasters (ABU, ASBU, CBU, EBU, IAB, NABA, OTI, URTNA)

Other bodies

Associations of manufacturers

Associations of program distributors

Associations of theatre owners and operators (e.g., U. S. National Association of Theatre Owners (NATO), International Union of Cinemas (UNIC) and Motion Picture Theatre Owners Association of Canada (MPTAC), etc.).

1. 1 This Question should be brought to the attention of Working Parties 6B, 6E, 6M, 6Q and 6S. [↑](#footnote-ref-1)
2. \* In the year 2012, Radiocommunication Study Group 6 extended the completion date of studies for this Question. [↑](#footnote-ref-2)
3. 2 Large Screen Digital Imagery is a family of digital imagery systems applicable to programs such as dramas, plays, sporting events, concerts, cultural events, etc., from capture to large screen presentation in high resolution quality in appropriately equipped theatres, halls, and other venues. [↑](#footnote-ref-3)
4. 3 The term “mastering” indicates the set of those technical activities that lead to the finished edited master of a program, which normally materializes the creative intent of its authors (see for instance Rec. ITU‑R BR.1292). [↑](#footnote-ref-4)
5. 4 The definition of broadcasting given in the ITU Constitution (CS/A.1010) is broadcasting service: A radiocommunication service in which the transmissions are intended for direct reception by the general public. This service may include sound transmissions, television transmissions or other types of transmission.

 This definition appears also as 1.38 in Art. 1 of the ITU Radio Regulations, and the scope of ITU-R Study Group 6 in Resolution ITU-R 4-4 provides details on it. [↑](#footnote-ref-5)
6. 5 Resolution ITU-R 4-4 – Structure of Radiocommunication Study Groups. [↑](#footnote-ref-6)
7. 6 The term “motion pictures” (also called movies, features, etc.), is used to indicate content that is intended for first release in a cinema theatre setting. [↑](#footnote-ref-7)
8. 7 Such as frame rates, colorimetry, resolution, and aspect ratios. [↑](#footnote-ref-8)
9. 8 The term “motion pictures” (also called movies, features, etc.), is used to indicate content that, which is intended for first release in a cinema theatre setting. [↑](#footnote-ref-9)
10. 9 Such as production, post-production, distribution, exhibition, trailers, etc. [↑](#footnote-ref-10)