



Future of Broadcast Terrestrial Television Initiative

Memorandum of Understanding

Considering:

- That from monochrome to colour, and from analogue to digital, television technology has undergone revolutionary changes. In the analogue age, colour television technology fragmented into three major systems (PAL, NTSC and SECAM, with many sub-variations). In the digital age, the splintering has continued across the globe with multiple, separately developed digital systems. While television has prospered, it has not been possible for the world to take full advantage of the convenience and economies of scale of a single broadcast standard.
- That terrestrial broadcasting is uniquely important because it is wireless (supports receivers that can move), infinitely scalable (point-to-multipoint and one-to-many architecture), local (capable of delivering geographically local content), timely (provides real time and non-real time delivery of content) and flexible (supports free-to-air and subscription services). The attribute of wireless delivery of media content to a potentially unlimited number of receivers makes terrestrial broadcasting a vital technology all over the world. Broadcasting is, in fact, the most spectrum-efficient wireless delivery means for popular real-time and file-based media content.
- That today, technological innovation may be able to break down many of the long-standing barriers that have prevented common systems. This could enable removing the gaps between the different television signal formats and transmission systems used around the world. The 21st Century is an era of integration of broadcasting, internet, and communications, all of which have evolved in parallel. Consumers are calling for more convenient and user-friendly services. The development of digital technology opens the possibility of cooperation among all the different networks and transmission systems.
- This is a defining moment for the terrestrial television broadcast industry.

Hereby establish The Future of Broadcast Television Initiative (FoBTv) as an unincorporated, not-for-profit, voluntary association and agree to the following:

I. Goals of FoBTv

a) Develop future ecosystem models for terrestrial broadcasting taking into account business, regulatory and technical environments.

Broadcasters around the world face numerous challenges on technical, business and regulatory fronts. Spectrum is being sought after for broadband by global technology providers, putting pressure on the broadcast industry to improve spectral efficiency. Media consumption style is changing drastically with the desire for time-shifting, place-shifting, connected and multi-screen services. The next generation of broadcast television technology has the potential to revolutionize the industry. National and local broadcasters have the expertise to employ that technology to provide high quality entertainment and news content to viewers, both fixed and on the move. The global development of a next generation system uniting broadcasters around the world should show the commitment of the broadcasting industry to embrace new technologies and leverage interest from global technology developers. The overall ecosystem that supports the television industry however is large, and success in the marketplace will necessitate holistic understanding and treatment of business and regulatory issues and environments, in addition to development of the underlying technologies.

b) Develop requirements for next generation terrestrial broadcast systems.

Requirements should reflect the broadcast industry's commitment to developing necessary technologies to create and deliver new media and information services by taking advantage of future broadcast systems. Requirements will be developed in an environment promoting cooperation among broadcasters, communications companies and manufacturers of broadcast equipment and all types of receiving devices. Requirements will be developed to fulfil the needs of a connected society and for widely demanded information and entertainment content, based on the fact that communities will continue to be served by terrestrial broadcasters. Requirements will also take into account the need to maximize proper and efficient use of spectrum resources, as well as exchanges and cooperation among communication systems and broadcasting on both a technological and business level.

Next generation systems may include the following requirements:

- i) Mobility--broadcasting to devices that are on the move;
- ii) Configurability--the ability to dynamically change transmission parameters subject to service multiplex and channel conditions;

- iii) Adaptability--intelligent receivers that can adapt to changes in transmission parameters such as service configuration, location, and support for emergency wake-up; and
- iv) Scalability--video quality such as resolution and frame rate, audio multiplex and bandwidth use.

Requirements will also take into account relevant factors such as the following:

- i) The importance of mobility in future broadcast systems and the desire for mobile, handheld and portable devices to be capable of working across borders and across different communications networks;
- ii) The benefits of deploying higher-resolution systems toward a closer representation of reality, and human friendly services for those who require special needs;
- iii) The collaboration between broadcast and Internet content ('cooperative content') playing a vital role in providing attractive services;
- iv) The critical role played by broadcasters in times of emergency; and
- v) The world's resources are limited, and unnecessary spectrum and resource consumption fuelled by competition between different sectors or delivery platforms should be avoided. The best balance among economic prosperity, technological advances and sustainable development should be pursued, and the possibilities of cross-sectoral, cross-border and cross-regional cooperation should be explored.

FoBTV will seek to find common ground in developing requirements in the areas of emission systems, receivers and system operation.

c) Foster collaboration of DTV development laboratories.

A future broadcast ecosystem, with collaboration among broadcasters, research institutes and development laboratories, and manufacturers, will foster new broadcast technological innovation. Collaboration will aid in the desire to eliminate broadcasting technological gaps and advances in broadcasting technologies should benefit both developed and developing countries. Global technology sharing should thus be an integral part of the future broadcast system standardization.

d) Recommend major technologies to be used as the basis for new standards.

Full exploration of the benefits of common tool sets and interface points in the development of new digital systems and standards that can be globally supported and eventually deployed worldwide will be pursued. By fully exploiting the advantages of

different technology systems, global standards unification and achievement of industrial convergence with technology integration will be thoroughly investigated.

Common ground for emission systems may include defining a core set of tools for the physical layer and defining the interface for real time and file-based applications in the transport and management layer.

Common ground for receivers may include defining a baseline receiver profile for fixed, handheld, portable and mobile applications. Receivers must be capable of receiving, processing and presenting signals that conform to specifications for defined physical layer transmission transport and management tools as well as software definable applications.

Common ground for system operation may include pursuing low power consumption, low cost and environmentally-friendly technology and industrial development models.

In each area, existing tools may be used if they meet the next generation system requirements.

e) Request standardization of selected technologies (layers) by appropriate standards development organizations (ATSC, DVB, ARIB, TTA, etc.).

FoBTV does not intend to operate as, or take the place of, a standards development organization. Rather, its goal is to form consensus around basic system requirements and common technology platforms as described in the previous points above. FoBTV will request standardization of selected technologies (layers) by appropriate standards development organizations. With this directional guidance from the FoBTV activity, the detailed work of technical standards development for different regions and markets should then be undertaken by the relevant standards bodies in the appropriate regions and industry sectors in accordance with their rules of operation and due process procedures.

II. Organization

a) General

The FoBTV is an unincorporated not-for-profit voluntary association that is open to any organization ("Participant") that signs this Memorandum of Understanding (MOU).

b) The FoBTV has no tangible assets and no paid staff. The FoBTV will not generate any revenue, income, profits or losses.

c) Management Committee

The activities and affairs of FoBTV shall be managed under the direction of the Management Committee. The Management Committee may exercise all administrative powers of FoBTV from time to time as required. The Management Committee is responsible for setting the strategic goals for the organization. The Management Committee shall monitor the progress of the work of the organization, and modify the timetables and/or refine or change the goals as appropriate. The Management Committee is responsible for overseeing all of FoBTV's activities, including the creation

and dissolution of subsidiary committees, admission and expulsion of Participants, creation and modification of FoBTv policies, and all other business of FoBTv.

i) Appointment of Management Committee

Each of the Founding Organizations¹ may appoint one member of the Management Committee. The Management Committee may appoint representatives of other interested organizations to the Management Committee so long as the total number of members of the Management Committee does not exceed 25. The members of the Management Committee should be reasonably geographically balanced. To ensure representation of the complete value chain of broadcasting, six seats on the Management Committee shall be reserved for professional and consumer equipment manufacturers.

ii) Chairman

The Chairman of the Management Committee must be confirmed by, at least, two-thirds of votes cast by the Management Committee. This appointment is subject to a maximum term of twelve months with no possibility of serving consecutive terms.

iii) Vice-Chairman

The Vice-Chair of the Management Committee must be confirmed by, at least, two-thirds of votes cast by the Management Committee. This appointment is subject to a maximum term of twelve months with no possibility of serving consecutive terms. The presumption is that the Vice-Chair will succeed the Chair subject to election.

iv) Schedule of Meetings

The Management Committee will set its schedule of meetings to ensure adequate oversight of FoBTv's activities.

d) Secretariat

The National Engineering Research Center of Digital TV of China (NERC) shall serve as the FoBTv Secretariat. The Secretariat shall

i) maintain and update the FoBTv web site

ii) coordinate voice/video conference support for FoBTv meetings.

iii) maintain document archives.

¹ Advanced Television Systems Committee (ATSC), Canadian Broadcast Corporation (CBC), Communications Research Center (CRC), Digital Video Broadcast Project (DVB), European Broadcast Union (EBU), Electronics and Telecommunications Research Institute (ETRI), Globo TV Network, IEEE Broadcast Technology Society, National Association of Broadcasters, National Engineering Research Center of Digital TV of China, NHK Science and Technology Research Laboratories, Public Broadcasting Service and the Brazilian Society of Television Engineering (SET)

iv) draft minutes for the Management Committee and Technical Committee meetings.

e) Technical Committee of FoBTV

The Management Committee shall form a Technical Committee, which is responsible for conduct of the work, including but not limited to, solicitation of proposals, evaluating proposals, reporting the results of analysis and evaluations to the Management Committee and recommending major technologies to be used as the basis for new standards. The Technical Committee may conduct other work as directed by the Management Committee.

i) Participation

Participation in the work of FoBTV Technical Committee is open to all organizations that have a direct and material interest in the work of FoBTV as determined by the Management Committee. Participants must agree to the terms of this MOU and all policies established by the Management Committee.

ii) Chairman & Vice-Chairmen

The Management Committee shall appoint a Chair and up to three Vice-Chairs of the Technical Committee. The Technical Committee Chair and Vice-Chairs will serve two year terms. The Technical Committee Chair may not serve consecutive terms.

iii) Decision Making

The Technical Committee shall make decisions by consensus. Consensus requires that under due process procedures, substantial agreement shall have been achieved among the Technical Committee members attending any meeting where a decision is made. Substantial agreement means much more than a simple majority, but not necessarily unanimity. It is the Technical Committee Chair's responsibility to determine when a consensus has been established and to have it noted in the minutes. When judicious attempts to apply the test of consensus are delaying the promulgation of a document or progress on other important issues, the Technical Committee Chair may choose to apply the alternate "Two-Thirds" rule. The Two-Thirds rule may also be invoked by a motion approved by a majority of those voting, excluding abstentions. This rule requires that a formal recorded vote with approval by at least two-thirds of those Technical Committee members voting, excluding abstentions, be achieved. The outcome of a Two-Thirds rule procedure shall overrule a determination of consensus by the Technical Committee Chair.

iv) Process

The rules contained in the current edition of Robert's Rules of Order Newly Revised shall govern FoBTV in all cases to which they are applicable and in which they are not inconsistent with this MOU and any special rules of order approved by the Management Committee.

- v) Final recommendations and requirements made by the Technical Committee will be approved by ballot distributed and received by electronic mail or other means of electronic communication approved by the Management Committee. As requested and submitted by any participant, minority viewpoints and objections shall be incorporated into any final recommendations.

III. Intellectual Property

It is the expectation of the FoBTV that all organizations that are signatories to this MOU and all other participants in the work of FoBTV would agree to provide a license to each Essential Claim that will be made available upon request on a non-discriminatory basis to all applicants on reasonable terms or without compensation. The FoBTV shall not be responsible for identifying Essential Claims or for conducting inquiries into the legal validity or scope of potential claims. Material presented or included on FoBTV activities shall place no burden of confidentiality on the participants and all participants will be expected to agree to honour and support protection rights of all intellectual property discussed and/or included in FoBTV technical documents.

Except as expressly set forth in this MOU, intellectual property owned by or licensed to a Participant which the Participant supplies to FoBTV activities will remain the property or exclusive license of the Participant with respect to the other Participants and the FoBTV. This MOU shall not be interpreted to bring about the sale, assignment, conveyance or other transfer of any property rights from one Participant to another Participant, to the FoBTV, or to any third party.

IV. Meetings

- a) Participants may attend FoBTV Management and Technical Committee meetings
- b) The schedule of Management and Technical Committee meetings shall be determined by the Management Committee.
 - i) Whenever practical, face-to-face meetings should be held in conjunction with major industry conferences.
 - ii) Whenever practical, participants may attend meetings by designated video conference/phone conference systems.
- c) Meeting costs will be covered by Participants, with respect to each Participant's own participation, and voluntary sponsorship.

V. Revisions to MOU

Any proposals for a change to this MOU need to be approved by the Management Committee requiring at least two-thirds of the votes (excluding abstentions) cast in favour of the change.

VI. Communications

- a) Participants shall not divulge views expressed by specific parties other than themselves to the press.
- b) The Chairman, the Vice-Chairman of the Management Committee or their designee may provide general status reports regarding the progress of FoBTV.

VII. Participant Obligations and Liabilities

Participants shall not be bound to adopt or implement technologies selected by FoBTV. Each Participant may contribute resources to FoBTV activities at that Participant's sole discretion, expense, liability and risk of loss; and shall retain title, ownership and/or other rights to control such resources to the exclusion of the other Participants and the FoBTV. Each Participant shall be solely liable for its participation in the FoBTV, including but not limited to liability arising from the Participant's real or personal property, intellectual property, funders and funding sources, staff, managers, directors, owners, subsidiaries, contractors, all laws and regulations governing said Participant, and any other source whether known or unknown to the Participant or the FoBTV at the time of executing this MOU. Income generated by a Participant, whether or not attributable to the Participant's participation in the FoBTV, is the sole property and responsibility of that Participant, including but not limited to any and all tax and reporting liability. Participants shall not have any control or right of accounting over other Participants' income.

This MOU is not intended to impose any obligation on any member of a signatory hereto solely as a result of being a member of such signatory.

VIII. Interpretation

The Management Committee shall provide guidance on any questions of interpretation of the statutes (MoU).

IX. No agency

Neither the FoBTV, nor any Participant, shall act or represent or hold itself out as having authority to act as an agent or partner of any other Participant or in any way bind or commit any other Participant to any obligations, including but not limited to the use of any Participant's name, logos, or other marks.

X. Withdrawal

A Participant may withdraw from the FoBTv at any time for any or no reason by giving notice in writing to the Chairman of the Management Committee.

XI. Duration and Dissolution

- a) The FoBTv may be dissolved by a two-thirds majority vote (excluding abstentions) of the Management Committee.
- b) The FoBTv will automatically close down 5 years after its initial meeting unless 2/3 or more of its Participants vote in favour of its continuation.