

IPR POLICY OF THE DVB PROJECT

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ABSTRACT

From its inception in 1993, the DVB Project has addressed issues related to the intellectual property rights associated with the specifications it was developing for digital video broadcasting. Its IPR policy first confronted the risk that patents essential to DVB specifications for terrestrial, cable and satellite transmissions could block implementation. In addition, the DVB Project has worked to resolve “gateway” issues posed by proprietary technology, notably related to conditional access technology controlled by European pay television services. The DVB Project early adopted an IPR amendment under which its members agree to grant licences to essential IPRs on terms which are fair, reasonable and non-discriminatory. In addition, the amendment, now incorporated in the Memorandum of Understanding of the DVB Project, also fosters the creation of voluntary, agreed upon licensing programmes, in other words, patent pools of essential IPRs.

This paper discusses the DVB’s approach to blocking patents, the fostering of patent pools, and its resolution of a perceived technology “gateway” controlled by dominant broadcast players in a DVB “conditional access package”. The paper concludes with an overview of the novel issues raised by the incorporation in the DVB’s Multimedia Home Platform of technology from a significant technology supplier.

INTRODUCTION

The DVB Project has been responsible for the successful development of standards for digital video broadcasting. Founded in September 1993 under a Memorandum of Understanding, the DVB Project in 2001 has over 200 members from throughout the world. The standards which the DVB has specified are used in Europe and have been adopted, among other territories, in Singapore, Australia and Africa, often in preference to the the rival ATSC standard.

The DVB Project was formed at a time when the institutions of the European

Union were acknowledging the weakness of their industrial policy for high definition television. The failure of this voluntarist, state-directed approach for the analogue D2MAC standard appeared to leave open to the EU’s trading partners the commercial advantages of development of successful HDTV standards. On the other hand, the EU’s abandonment of D2MAC meant that European industrial actors could address the significant opportunities brought by digital technologies without the constraints of a regime based on analogue standards.

Also during the early 1990s, the traditional role of the standard-setting bodies was under review. A number of

issues confronted them: responsiveness to rapidly developing technologies; representativity; IPR policy. On this last point, the policy of the European Telecommunications Standards Institute was subject to attack based on the Community's competition law. Thus there was a general willingness to consider alternative standard-setting structures.

It was under these circumstances that the DVB Project was formed, with the objective of creating European standards for new broadcast technology before de facto or competing proprietary standards were introduced. Several principal European pay television operators were in 1993 actively examining the introduction of digital television based on the on-going work within the International Standards Organisation on compression techniques to complete a standard called MPEG. In order to exploit MPEG2, a broadcaster would have to develop complementary transmission technology. The risk was that in a rush to launch services, competing incompatible transmission technologies would be introduced.

The risk was assessed by the participants in the European Launching Group, an informal group initially composed of public service broadcasters and equipment manufacturers working on digital terrestrial standards. The ELG's membership grew to include Europe's leading pay television broadcasters, who announced that instead of pressing forward with their own development programmes in isolation they were willing to work within a market-led standards body to agree on common European standards for digital video broadcasting. By September 1993, the ELG had formalised its structure as the European Project –

Digital Video Broadcasting. Through its MoU, the DVB Project was assured of broad membership across industrial sectors, with a representative governing body comprised of colleges grouping together industrial interests and with its decisions driven by consensus.

IPR POLICY

Background

From its inception the DVB Project recognised the problems raised by the exercise of rights by holders of intellectual property essential to the standards which the Technical Module was to develop. There were several areas of concern: First the holder of essential IPR could have his IPR (generally considered to be patents, but including copyright and other forms of IPR) "written into" a DVB specification and would thus be able to control a gateway for the launch of digital video broadcasting. Such a holder could demand elevated royalties for his IPR and indeed refuse to license. Moreover, in a cooperative activity such as the DVB Project it was possible that the IPR of multiple holders would be essential, creating an onerous overall royalty and difficult administrative burden. Thus the danger was that an entity implementing digital video broadcasting could choose a standard where the IPR situation was less opaque.

At the same time, many members of the DVB Project were participating in the debate within ETSI over its IPR policy. The European Commission was concluding that a recognised European standardisation organisation, such as ETSI, could not, because of the EU competition policy, reach a complete resolution of IPR questions associated with standards. For this reason, it was

possible that a standards forum, such as the DVB, could go farther and remove major elements of IPR uncertainty.

The DVB Project was not alone in attempting to resolve IPR uncertainties: During the ISO process leading to the MPEG2 standards, several participants were independently working to form a pool of patents essential to the compression technology. This effort included a patent search, negotiations with potential members of the pool, the development of a standard form licence agreement, government clearances and ultimately the formation of a commercial licensing company, MPEG LA. This company would later prove useful to the pool for the DVB-T standard.

Formulation of the IPR Policy

During the formation of the DVB Project in 1993, an attempt was made to include in the initial MoU an IPR policy calling for members to commit themselves to licensing on terms fair, reasonable and non-discriminatory. That effort was unsuccessful because of the uncertainties caused by challenges to ETSI's policy and the view held by some members that the DVB Project should go beyond the initial modest proposal. The Steering Board named an ad-hoc group jointly led by an equipment manufacturer (with a significant patent portfolio) and a pay-TV broadcaster (whose interest would like with cheaper consumer equipment). Following their work a more robust proposal soon emerged and after extensive debate it was adopted as an amendment to the MoU by the DVB's members.

The IPR policy of the DVB Project has several provisions. First, the policy's core provision is that its members commit themselves and their affiliates to license their IPRs essential to adopted DVB specifications on terms which are fair, reasonable and non-discriminatory. An essential IPR is one which is "necessarily infringed", from a technical point of view, when implementing such a specification. Second, a member must notify the DVB Project if it does not have free right to grant licences on such terms (for example, if it has granted an exclusive right to a third party). In addition, each can, until the specification is finally adopted by a recognised standards body, declare that it will not make licenses available under such terms "only in the exceptional circumstances that the Member can demonstrate that a major business interest will be seriously jeopardised".

Third, disputes over the IPR policy are to be resolved by arbitration. Finally, the DVB Project fosters the creation of a "voluntary agreed upon joint licensing programme" for each specification; when such a pool has been created, then the duty to arbitrate disputes no longer applies for that specification.

Thus the policy contains three core elements: a central (and unsurprising) principle of licensing on terms which are fair, reasonable and non-discriminatory; notice of inability to license; and patent pooling (or arbitration). The IPR policy was very much a compromise document reflecting the strong views of participants in the ETSI debate (where arbitration was a key concern) and significant contributions made by the principal rightsholders. The "negative notice" scheme was an anomalous arrangement because it fails to put DVB members on notice on

where the essential IPRs might lie. But it has worked well because no notice of an inability to grant licences and no declaration of “exceptional circumstances” has to date been made. This is important also in a document which is contractually binding and where the failure to give notice could give rights to those prejudiced by such failure. Moreover, at least part of the perceived information gap has been filled by the declarations made in connection with the patent pooling process. Finally, an important objective was to settle IPR uncertainties through an efficient pooling regime. It is not a process binding on DVB members, but the MoU provides an incentive (the risk of having to submit to arbitration) to encourage the formation of a pool by a critical mass of IPR holders.

IPR Licensing Programme: DVB-T

The process of forming a “voluntary agreed upon joint licensing programmes” has been complex. Shortly after the adoption of the IPR policy, the DVB Project issued a call in early 1997 for declaration of patents essential to the specifications previously adopted. The declarations were submitted to an outside patent expert who reached conclusions as to the accuracy of their claims of essentiality. Based on his assessment of the declarations, he found that 9 patents, held by four companies, were essential (or potentially essential) for the DVB specification on framing structure, channel coding and modulation for digital terrestrial television (ETS 300 744 (DVB-T)). The expert also concluded that he had not found any declared patent rights to be essential/potentially essential in respect of the specifications for DVB-S and DVB-C and that of the other specifications, there was gener-

ally speaking a single holder of essential IPRs.

In late 1998, the focus was therefore on the progress of the four companies which held the DVB-T patents to conclude their patent pooling arrangement. The process was not free from controversy, in part because of the strong commercial interests which divide rightsholders from those without patent portfolios. A number of issues were raised, including the suitability of the DVB Project to provide a forum to discuss commercial terms for licensing and technical details of the patent claims; the uncertainty of whether the DVB-T pool is comprehensive; the accumulation of royalties for standards (adding to DVB-T, MPEG, MPEG audio); and core commercial terms. Over time, the members of the patent pool have decided to ask MPEG LA to administer their patent portfolio; it intends to launch the licensing programme by summer 2001.

OPENNESS IN DIGITAL CONDITIONAL ACCESS

As the DVB Project was developing its initial standards, some members expressed concern over the perceived risk that European analogue pay television operators would be able to dominate the new markets for digital video broadcasting. The concern was based in part on the structure of pay television in Europe; operators provide programming content and operate conditional access systems and the related installed base of set-top decoders. Thus, the argument ran, the pay television operators were vertically integrated and their decoder base constituted an “essential facility” through which competitors would be constrained to offer programming.

The entrenched operators would be able, it was asserted, to leverage this position in the conditional access market to ensure continued market dominance in the digital environment.

In response to the risk of an anticompetitive gateway, the DVB Project in late 1994 adopted a number of solutions, comprising the DVB Conditional Access Package. The core elements of the package are set out in the Exhibit.

DVB Conditional Access Package

- Code of conduct for conditional access providers for third party access to digital decoders
- Standardised Common Interface: optional, but no commercial bar to this structural solution
- Development of DVB Common Scrambling Algorithm; advantageous licensing terms offered by developers
- Cost-effective transcontrol for cable operators
- Future legislative action against piracy of digital decoders
- Elements of package incorporated in 1995 DVB Standards Directive

This package represented a mix of laissez-faire, standard-setting and legislative instruments in order to address the perceived conditional access gateway. For example, the companies which developed the Common Scrambling Algorithm, which in three cases were affiliates of pay television operators, were willing to grant licenses for the technology for nominal royalties. Moreover, the Steering Board contemplated two solutions for the gateway, structural (Common Interface/ Multicrypt) and behavioural (Code of Conduct/Simulcrypt). There was also a measure of direct regulatory intervention in the decision by the European Parliament to incorporate the essential provision of the Code of Conduct –

access to digital decoders on terms fair, reasonable and non-discriminatory – into a binding European Directive. In other words, the European Parliament refused to accept that industry's Code of Conduct, a complex and over-lawyered document, would be sufficient to reduce the gateway.

Overall, despite the contentiousness of the issue, the DVB Project as a standards forum was able to find broad consensus on the Conditional Access Package. The institutions of the European Union generally ratified the DVB's package. The DVB Project created a model for licensing IPR essential to resolve a gateway issue and was able to adopt other mechanisms for the resolution of openness. This was an important success in the early days of the DVB Project.

The package has continued to have an impact on the roll-out of DVB services. Its model for governing behaviour of gatekeepers has been considered by the European Commission in its 1999 Telecommunications Review for application to other gateways, for example to application programming interfaces and electronic programming guides. Moreover the licensing regime for the DVB Common Scrambling Algorithm has resulted in the grant of 117 licences for the descrambling technology (largely to set-top box manufacturers) and 55 for scrambling technology (for the manufacture of scramblers). Also the concern expressed by the DVB about the piracy caused by illicit decoding devices has led the European Union to adopt in 1998 a Directive on the legal protection of conditional access services.

JAVA-BASED MHP: ADDRESSING THE SINGLE TECHNOLOGY PROVIDER

In 1997 the DVB Project decided to extend its development of specifications to the Multimedia Home Platform, the set-top box for the household which would include not only standard broadcast functionalities but also interactivity and links to the Internet. When considering the operating system suitable for the platform, the DVB Project selected for the work of its Technical Module the Java technology owned by Sun Microsystems Inc.

Java technology is based on a “virtual machine” which can provide to applications written in Java the ability to run on a number of operating systems without the need for a software developer to write for (or “port” to) multiple systems. For this reason, the choice of Java technology was attractive to DVB. At the same time Sun’s policy of “write once, run anywhere” have brought it to impose rigorous licensing terms including a prohibition against a licensee’s implementation of variations for the Java specification and regime of conformance tests including test suites developed by Sun. Sun has its own process for evolution of its specifications and for the extension of its core Java technology to other platforms.

Faced with this complex policy, there was uncertainty within the DVB Project on whether Sun, although a DVB member, could satisfy the test of the MoU for licensing IPRs essential for the forthcoming MHP on terms fair, reasonable and non-discriminatory. Some of these issues are discussed below.

Conformance Testing

The DVB has earlier not favoured a conformance testing regime, largely out of concern that it could be subject to the control of a few market players. For this reason, the use of the DVB mark is granted by the project office of the DVB Project, based solely on the submission of a certificate by the implementer.

For MHP, the concern was that the specification was of such a complexity that conformance testing would be needed to ensure a broad market in interoperable consumer equipment. In other words, the objective was to avoid the risk that variant implementations could divide the European market, complicating the ability of service providers to reach as many installed MHP consumer units as possible. A further concern was that if there was no conformance testing regime, MHP applications would need to be written (or ported) to multiple MHP platforms.

While conformance testing was attractive, there was concern that Sun, as lead technology provider, would be providing the majority of the test applications which would serve as the basis for the MHP Test Suite. Thus, it was argued, the MHP implementer would be using a test suite biased toward Sun technology. A series of safeguards was developed: An MHP Experts Group was named to approve the MHP Test Suite, based on submission by Sun and others of test applications. This experts group would be mandated to refuse “any test application that does not conform to the MHP specification or is more restrictive . . .” Other detailed rules and procedures were established for the experts group to ensure genuine independence of test applications and allowing evolution of

the MHP specification. Further safeguards lie in the relative ease in the process of conformance compliance and the naming of ETSI as a neutral custodian to administer the certification process.

Licensing Terms

As noted above, the IPR policy of the DVB Project calls for licensing of patents and other IPRs essential to a DVB specification on terms fair, reasonable and non-discriminatory. Early in the development of the MHP specification, there was uncertainty on how Sun's own IPR policy could be reconciled with the DVB's: its prohibition against variations of java technology, against supersetting, conformance testing, the special role of the "Java Community process" in evolving the standard, etc.

As a result, the Steering Board and the ad hoc groups named to discuss with Sun its licensing policy addressed over 30 legal and practical issues. The scope of this paper does not permit a lengthier discussion of these issues, for which, however, there has now been, generally speaking, broad consensus within the Steering Board. Among the most notable issues have been:

- the ability of the clean room implementer to implement, test and market its implementation without being bound by the constraints of the Sun licensing arrangements and by the terms of reference of the MHP Experts Group;
- the restriction Sun places on implementers forbidding supersetting in the Java namespace;
- the appearance of discrimination in the licensing and other arrangements which, it was argued, give a competitive advantage to Sun's direct licensees.

Implementing MHP

With this complex history in mind, what are the practicalities for obtaining the MHP Test Suite and for becoming a licensee? The regime for conformance testing and licensing involves four parties, the Licensor, the DVB Project, the Custodian and the implementer. But as a practical matter the implementer deals only with ETSI as Custodian.

For obtaining the MHP Test Suite, the implementer makes a request to ETSI, for the MHP Test Suite. The Implementer also has the option to ask for further testing materials, including source code offered by Licensors and test harness.

As a practical matter, the Implementer will find all the licences for the use of the MHP Test Suite, source code, etc on the ETSI website. It completes these licences and sends them to ETSI, together with ETSI's administrative fee of 1000 euros. Based on the licences delivered to date for test applications and source code – these are the Sun licences – there is no royalty for the MHP Test Suite.

The Implementer runs the MHP Test Suite and when it has successfully completed the conformance testing the Implementer delivers to ETSI as Custodian a set of documents: The first item is its Certificate of Completion of Conformance Testing, a single page self-certification attesting to successful completion of the testing using the

MHP Test Suite. Second, it downloads from the ETSI website, and delivers the essential IPR Licences from Licensors, such as Sun, together with the MHP Mark Licence Agreement. Finally it submits evidence that it has paid the initial fee – 10,000 euros – for the use of the MHP Mark.

When it has received this information, ETSI examines the Certificate for formal regularity and then signs as agent the essential IPR Licences and the MHP Mark Licence Agreement which the implementer has submitted. One fully signed set of these documents is returned to the implementer.

There are two variations to this process: A clean room implementer may take the view that it does not need all of the testing materials, so it will take only the MHP Test Suite. And the clean room implementer may choose not to accept any Essential IPR Licence. In any event, it must sign the MHP Mark Licence Agreement to use the MHP Mark. A second variation occurs when the implementer chooses to go beyond the one-stop shop Custodian arrangements and enter into a direct contractual, licensing arrangement with a Licensor, such as Sun.

CONCLUSION

The DVB Project has gone beyond the IPR policy – the admonition to license on terms fair, reasonable and non-discriminatory – typical for standards bodies. By providing for arbitration and fostering licensing programmes, it has been able to tackle issues as a voluntary standards forum which a recognized standards body such as ETSI could not. The DVB and its IPR Module have

also served as a forum to review IPR concerns and develop creative solutions in response to perceived gateways in conditional access and technology dominance.

Based on these experiences, the IPR policy of the DVB Project could well evolve to address new issues. For example, over time, the nature of the IPR issues has shifted, notably from the focus on patents held by manufacturers of consumer equipment to the rights – copyright, trademark -- held by software houses. In addition, as other players have entered our markets, the IPR module has been brought to debate alternative licensing models, for example the “open-source” or GNU model. Also, to a certain extent, the DVB’s IPR process is “backward looking”. Generally IPR is addressed after a specification has been set (“negative disclosure”; patent pooling under article 14.9). Some colleagues have suggested that heavier weighting be given to prior review before the specification process is completed by the Technical Module.

Overall, the DVB’s success in defining an explicit IPR policy and working through gateway issues has helped distinguish its specifications from other competing standards, such as the ATSC alternative. It has given a commercial advantage which makes the DVB easier to adopt by countries and operators throughout the world.