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Dr

Forename:

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Cant

Representing:

Self

Organisation (if applicable):

Email:

What do you want Ofcom to keep confidential?:

Keep nothing confidential

If you want part of your response kept confidential, which parts?:

Ofcom may publish a response summary:

Yes

I confirm that I have read the declaration:

Yes

Ofcom should only publish this response after the consultation has ended:

You may publish my response on receipt

Additional comments:

In general I support the submission made by the Open Rights Group. However There are some point that I would like to emphasise and also some additional comments that I would like to make.

I speak as an academic computer scientist with almost 40 years of experience. For nearly 30 years I have specialised in computer graphics especially real time image generation and associated video technologies. My academic research includes publication in the most prestigious journals (including ACM Transactions on Graphics) and presentation at the

annual SIGGRAPH conference. In addition I also have substantial commercial experience in the field having been lead designer for real time image generation systems sold to the UK, US and Australian navies during the 1980's.

Question 1: Do you agree that copy management would broaden the range of HD content available on DTT and help secure its long term viability as a platform? :

No.

There is no evidence for this other than unsubstantiated assertions made by the supporters of the technology. The ORG submission makes a detailed analysis of this point. However I would like to emphasise two points

1) The equivalent initiative in the US (the so called broadcast flag mandate) was rejected in the US.

To quote from the EFF website
"Viacom said that

[i]f a broadcast flag is not implemented and enforced by Summer 2003, Viacom's CBS Television Network will not provide any programming in high definition for the 2003-2004 television season.

It's six years later and these threats have all fallen flat. This week, CBS will broadcast dozens of popular programs, like CSI, Without a Trace, Survivor, and The New Adventures of Old Christine, in high definition via over-the-air broadcast. So will all the other major networks. Digital TV also continues to feature popular movies with no DRM."

Clearly copy management in the US has been rejected and the range of content supplied is not affected. There is no reason to suppose that the UK would be any different.

2) Research has shown that the majority of premium film content leaks onto the internet from insiders at an early stage, often before theatrical release. Given that content providers are not sufficiently worried by this to police their own internal organisations securely it seems unlikely that the prospect of DRM free distribution would really prevent them from making content available. Any provider that did withhold content would simply forfeit revenue.

Question 2: Do you agree that the BBC's proposed multiplex licence amendment represents the most appropriate means for securing an effective content management system on HD DTT? :

Since I disagree fundamentally with the imposition of content management anyway this question is somewhat moot. However I would like to point out that the technical means proposed are unlikely to be effective.

In fact content management is widely viewed in security research circles as an intractable problem because the level of access that has to be provided to allow consumers to view the content makes it impossible to properly secure the system.

Such schemes (including the one at issue here) violate Kerckhoff's principle, which is one of the foundations of security theory.

In this particular case the system appears to be especially weak since within the broadcast data stream only certain ancillary information is encrypted, and then only by the weak method of withholding the Huffman codes.

Professor Ed Felten of Princeton has analysed the HDCP system (used to protect HD data streams between receiver and display device) and concluded that it was much weaker than it could have been.

His comments can be found here

<http://www.freedom-to-tinker.com/blog/felten/hdcp-why-so-weak>

This system seems to be even weaker, almost laughably weak in fact. I am left wondering why it was proposed at all.

The only conclusion I can come to is that it is designed, like HDCP itself purely as a mechanism to enable lawsuits against non-compliant manufacturers. As Prof Felten puts it: "The bottom line is clear. In HDCP, "security" technologies serve not to disable pirates but to enable lawsuits. When you buy an HDCP-enabled TV or player, you are paying for this ? your device will cost more and do less."

Question 3: Do you agree with the proposed change to Condition 6 in the Multiplex B Licence? :

No

Question 4: Do you agree that Multiplexes C and D should be granted a similar amendment to their Licences as Multiplex B?. :

No

Question 5: Do you agree that the BBC's proposed approach for implementing content management would safeguard citizens and consumers legitimate use of HD content, and if not, what additional guarantees would be appropriate? :

The only proper way to protect consumers rights is to provide everything in an unencrypted form.

At present consumers tolerate copyright restrictions because they are not strictly enforced. For example many people will keep video recordings of a few programmes they particularly enjoyed (or perhaps where a family member or friend appeared) indefinitely As things stand this is not strictly allowed within the letter of the law. Similarly format shifting is not strictly legal in the UK (although it is in some other countries). We accept such activities (which do not harm rights holders in any way) along with the official fair dealing rights to reproduce short extracts for criticism research etc.

The proposal would almost certainly prevent long term storage of treasured clips because technologies will change with time and there can be no guarantee that the proposed system will be supported forever. The only safe option to protect consumer rights is to allow unencrypted HD recordings.

When copyright is enforced mechanistically such activity tends to be prevented

Question 6: Do you agree that the BBC's proposed choice of content management technologies will have only a negligible impact on the cost of HD DTT receivers and their interoperability with other HD consumer equipment?

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No.

Although the technical cost of compliance with the specific BBC scheme is negligible, the associated HDCP scheme does impose a significant computational requirement which will result in greater expense and power consumption (making a small but nonzero contribution to global warming).

However the major concern is the fact that the scheme allows an unaccountable body (the DTLA) to create a monopoly on HDTV equipment. As noted above the real purpose of the content management scheme is not to prevent piracy (which it will not do anyway) but rather to secure the equipment market for DTLA members.

One major concern is that it will be impossible for a computer running open source software to display HD content. The consultation document did point out that open source software was already used within HDTV systems that have content protection, however this does not prove open source compatibility with content protection, rather it shows the generosity of open source providers in allowing their software to be used by companies that operate against the spirit of open source.

Unfortunately this generosity is not reciprocated. The DTLA charge a substantial sum simply to be allowed to read their documents, a measure that can only have the purpose of limiting competition.

It will be impossible for a truly open system to display or record HDTV since that would require the disclosure of information that the DTLA and the BBC need to keep secret.

Question 7: Do stakeholders agree that the BBC's proposed Huffman Code licensing arrangements would have a negligible effect on the market for HD DTT receivers? :

I am puzzled by the idea that the BBC can protect the system by licensing the Huffman codes. The consultation documents suggest that the whole scheme depends on the BBC being able to protect the "intellectual property" of the Huffman codes. However it seems to me that if such a scheme were to be tested in the courts it should fail because there can be no IP in Huffman codes. They are not patentable, they do not constitute a trademark and they do not fall under any of the items listed as protected by copyright. They are essentially random data with a weak statistical link to the information in the programme guides. There is no intellectual property here.

So I conclude that the Huffman code licensing arrangements should have a negligible effect, but only because they should fail to be effective. In this case what is the point of pursuing them?

Question 8: Do the BBC's proposed content management states and their permitted use for different categories of HD content meet the requirements of other HD broadcasters on DTT? . :

They do not meet the requirements of the public. The customer is always right and that should be given priority.

Since a scheme without content management now operates in the US it is clear that a scheme without content management would meet the requirements of other HD broadcasters.

Question 9: Are there any issues that you consider Ofcom should take into account in assessing the BBC's proposal, that have not been addressed by this consultation?:

I think that approving this proposal will have a serious effect on the standing of OFCOM in the world and in history. I hope that OFCOM will choose not to associate itself with a scheme which is likely to be regarded with contempt by future generations. The FCC in the US has so far rejected this. OFCOM should do the same.