

Chris Woolf.txt

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From: chris woolf [mailto:chris@chriswoolf.co.uk]
Sent: 12 February 2002 10:23
To: catherine.smajda@culture.gsi.gov.uk; Jane.humphreys@dti.gsi.gov.uk
Cc: Paul Gill
Subject: Comments on Digital Television and Spectrum Planning

I read the paper from the JMFG website - with some interest. My position is one of a technical consultant with a long background in the broadcast engineering field.

I won't comment on the bulk of the paper because it would take too long but I am perturbed by the apparent ignorance of the effect that any of these changes will have on the enormous infrastructure of support services that lies beneath the broadcast channels. There is a great web of what might best be called saprophytic infrastructure which uses the "dead" space in analogue broadcasting channels to provide program source material, links and control information. Some of this is mentioned briefly in 4.4 but dismissed as an area for potential use and expansion. The problem is that it exists now and has to be considered as part of the frequency reallocation if there is not to be severe disruption to programme making.

This infrastructure includes radio microphones in theatres, film production, TV program and news production, the in-ear-monitoring returns commonly associated with radio mics, talkbacks, links within buildings and sports arenas, and between centres and a host of other functions - without which the source material for television would stop dead. These links use not only "quiet" TV channels but also in many cases the edges of analogue broadcast channels which are adequately quiet for low power local work. Ch69 is widely used but other UHF and even old VHF TV channels still provide a home for necessary links. Many of these are co-ordinated by JMFG but there is a large area of relatively benign, though illicit, use which is undocumented but essential to production and fostered by the break-up of the TV industry into a mesh of tiny production companies.

The problem with COFDM broadcasting is that it obliterates spectrum totally - the useful analogue "quiet corners" disappear and all the users who have found convenient spaces of spectrum over 40odd years now have to be officially accommodated or shut down. The only almost-declared refuge is 1800MHz for a handful of (preferably digital) radio mics - anorexic in channel terms and a frequency that is far from attractive. The paper makes no mention of Ch69 except to indicate that it would be very interesting to 3G. If an increased volume of television broadcasting in terms of channel hours is being promulgated, then all the current users of low-power spectrum for programme generation must be given space that they can make use of -prior- to digital TV spectrum re-allocation in order to guarantee continuity of program services.

Parameters that need to be considered include the fact that at least some of the spectrum needed will have to be suitable for analogue use for a long while. Digital radio mics do not exist commercially yet and there is good reason to suppose that they will be inadequate for programme generation purposes for some years - it is also unlikely that they will provide any reduction in bandwidth demand since the conventional data reduction methods are inapplicable to source recording.

A complete evaluation of all the current infrastructure uses - licensed and de facto - is essential, and full provision for them within a spectrum plan before any changeover must be made to prevent massive disruption of programme production. The time required for a re-equipping or conversion of current devices must also be considered given that the manufacturing support for these essential services is highly specialised

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and very limited in its ability to cope with dramatic short-term changes.

Failure to address these problems would mean either the collapse of the infrastructure - or more plausibly a wholesale move towards illegal spectrum use. Given the increasing availability of frequency agile systems this would be feasible but is definitely unwanted since it carries with it the problems of reliability of links for legitimate users and the massive costs of large-scale spectrum policing. Proper provision of accessible and practicable channel space is the correct answer.

Chris Woolf

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