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Our response to the DIGITAL TELEVISION: THE PRINCIPLES FOR SPECTRUM PLANNING consultation paper reflects the expertise within the Broadcast Division of ntl Group Ltd.

1. General Comments

The main thrust of this consultation paper concerns the basis on which we should plan the use of spectrum currently used for analogue television broadcasting once analogue transmissions have been switched off. There are many assumptions made in this paper which may help overcome some of the difficult obstacles in the short term. However, great care should be exercised to ensure that such assumptions do not restrict a wider ranging debate, and are not made at the expense of the Digital Terrestrial Television (DTT) platform in the future.

Inevitably, with the switch off of analogue there will be the opportunity to use released spectrum for applications outside the field of traditional broadcast. Indeed, recent growth in mobile communications has led many to extrapolate to the conclusion that future demand will outstrip spectrum currently allocated to GSM/3G, and to speculate that this gap should be filled by released analogue broadcast spectrum. WAP and GPRS have yet to capture the imagination of the public, and it is our assertion that the case for claiming that such communications applications need more spectrum for future applications is unproven.

The consultation paper states that "the Government has a duty to ensure that the spectrum can be used after switchover to support the services (including television) that are most valuable - economically and socially - to the UK as a whole". Digital terrestrial broadcast applications, currently starved of spectrum, have the potential to thrive post switchover, offering a greater breadth of choice and meeting the stated objective of utilising the spectrum to provide some of the most economically and socially valuable services:

* Portable and mobile services - competition on three digital television platforms works best if each is developed to maximise its unique capability. Whilst it would undoubtedly be beneficial to have the opportunity to offer more video and data services (the latter are currently capped at 10% of available capacity), DTT should be actively developed for portable and mobile applications, a) to provide an alternative to in-house wireless solutions as a means of overcoming the problem of second and third television sets in the home, and b) to provide new broadcast entertainment and information services to people on the move.

* Higher quality broadcast services - DVD quality has set a level of expectation amongst digital television viewers that television broadcasters can only aspire to. In their efforts to squeeze more channels into limited available bandwidth, broadcasters have tended to compromise on data rates, which in spite of improvements in encoding efficiency and statistical multiplexing techniques, has resulted in relatively poor definition and low picture quality compared to DVD. This situation is already being exacerbated by the trend towards larger screens which only serve to highlight artefacts. Substantially more capacity is required to approach anything like DVD quality.

* Regional and local television services - as key differentiators for the DTT platform, regional and local television services, post switchover, would benefit from additional headroom to extend their somewhat patchy existence alongside current analogue services. With enormous potential to deliver services for ethnic groups and for those with special needs, regional and local services may additionally prove to be a valuable vehicle to deliver Government services that are referred to throughout the Consultation paper.

One of the key issues in the switchover process is that of timing. The Government has stated that switchover could start to happen as early as 2006 and

be completed by 2010. In the absence of a spectrum plan, we would recommend that the optimistic time frames given in this paper are given a more conservative estimate. Statements such as "developing and implementing the spectrum plan is likely to take over 3 years" and "switching off analogue signals so that the digital signals could migrate to those channels could take over 2 years" sets in our view an overoptimistic tone which could give rise to false expectations.

In conclusion, the paper addresses many of the complex issues that will form the debate about the future spectrum requirements and hence overall shape of digital terrestrial television in the UK. However, many of the stated or implied working assumptions in this paper such as number of multiplexes, number of frequency channels per multiplex, number of DTT sites and number of released channels may restrict a wide enough debate and ultimately constrain the development of DTT. In our response we make the case for broadcast applications retaining released spectrum at switchover in order to develop the unique capabilities of DTT which will give viewers maximum choice across all three competing platforms.

The following section gives specific answers to the questions that are raised in the consultation paper and this is followed by a number of specific points relating to the body of the document that ntl wish to raise.

2.
Response to Questions

Q1 Our working assumption is that planning will continue for six multiplexes, as today. However we would also be interested in views on the costs and benefits of a more radical re-planning. This could be either reducing or increasing the number of multiplexes by one. Do you have views on this?

To the extent that only a limited number of digital multiplexes could initially be squeezed into the spectrum whilst analogue services were being transmitted, a future six multiplex network plan is an assumption made on a somewhat artificial basis. ntl are in favour of allocating more than six multiplexes on the basis that this will promote competition on the three platforms (a stated Government commitment in section 1.12).

The assumption that planning will continue for six multiplexes as today is one of a number of such 'working assumptions' that give the impression that the future DTT network configuration post switchover has already been broadly decided based on a 'we are where we are' kind of approach, and that this consultation is merely an exercise in 'fine tuning' the plan. In this context, it could be argued that reducing or increasing the number of multiplexes by one is relatively radical - it certainly avoids some of the difficult transition issues that a more radical approach could involve. If, on the other hand, we were to stand back and examine the overall picture by conducting a fundamental review of capacity requirements for terrestrial broadcasters in the future, a plus or minus one approach cannot be regarded as "radical re-planning".

In our view, a more radical re-planning approach using, for example, SFNs (Single Frequency Networks) that makes possible the licensing of further digital television multiplexes, could promote a wealth of benefits to viewers and industry stakeholders alike, including new free-to-view and pay-tv services from both existing and new operators. Furthermore, additional multiplexes would serve to give DTT the headroom it requires to focus on developing its unique capabilities in portable and mobile reception, regional and local services, thereby maintaining a competitive position within the three main platforms.

Q2 What do you see as the costs and the benefits of maintaining the current basis for network configuration compared with those for adopting a configuration using fewer frequency channels?

The approach taken by the question is too simplistic. The assumptions made about the number of channels required per multiplex for a given coverage are crucial in determining the amount of spectrum available for release. However, the assumptions are questionable and the basis for them is not made clear. Any false assumptions made at this point could have serious consequences on the

ability of future DTT to meet its coverage targets.

Q3 Do you agree that we should continue to plan on an interleaved basis to support regional services?

Yes, regional services are key to the success of the terrestrial platform. Providing that necessary agreements between operators can be achieved, this is an efficient way of utilising valuable spectrum.

Q4 To what extent should the future planning of this spectrum take account of the provision of local services?

An important differentiator for terrestrial television, local services have the potential to be delivered cost effectively on DTT in a way that they have not been on competing platforms. Given that spectrum allocation would take secondary priority to digital national and regional services, local television would itself benefit from going digital, adding value to the overall digital terrestrial television proposition, helping to sustain healthy competition on all platforms.

Q5 What factors would have to be taken into account in order to plan to support mobile broadcasting services?

Whilst for many, mobile and portable reception applications for terrestrial hold the key to the platform's future viability, both have significantly different planning criteria and should be dealt with largely independently. At the same time, they should be treated as adding value to fixed terrestrial reception which will continue to provide choice and competition to satellite and cable platforms.

Portable reception is a key issue which will, if planned properly, facilitate the take up of digital television but could equally inhibit take up if ignored. Bearing in mind that portable reception has significant implications for the spectrum available for release, ntl do not believe that this subject has been properly dealt with in this consultation paper. Suggesting in section 2.13 that 'planning based on providing reception to television sets with a good roof-top aerial fortuitously allows a certain level of reception by televisions using set-top aerials', underplays the importance of portable terrestrial reception in the future all-digital environment.

Mobile broadcasting services are already commercially viable on the Singapore Bus System which relays live pictures to commuters via an ntl built Single Frequency Network. Mobile broadcasting has enormous future potential for terrestrial television but the right planning decisions must be taken to ensure that growth will not be stifled by post switchover spectrum constraints.

In summary, all relevant factors should be rigorously taken into account in order to plan to support both mobile and portable broadcasting services.

Q6 Does this analysis of coverage potential and associated costs adequately inform those taking decisions about the level of coverage by terrestrial means that should be required for public service broadcasters?

No. More information is required, for instance, on the size and number of residual gaps in coverage after switchover and the level of portable coverage before and after switchover.

This analysis considers Public Service coverage and costs based on current 80 sites and 120 and 1100 sites total. It is ntl's view that a wider range of options should be presented (for example 200 and 500 sites) to support the coverage decision making process, and to dispel the idea that around 120 sites (which is repeatedly used in worked examples) is not the answer that is being sought.

Clearly, the costs at this stage are estimates, and whilst being in broad agreement with the transmitter cost estimates, ntl would like to take the opportunity to emphasise that such costs do not take account of existing infrastructure overheads that are currently being borne by the analogue networks

and which may need to be re-apportioned at switchover.

Q7 Our working assumption is that the public service broadcasters should be required to reach a certain minimum percentage of households by the terrestrial platform. However, we would like your views on whether it is right to require a minimum, what that might be and the associated costs and benefits?

PSBs should be required to reach the same 99.4% households (that receive analogue) by the terrestrial platform. In a reduced terrestrial network scenario (say, 120 sites) using satellite to supplement coverage is likely to allow the possibility that around 50,000 to 100,000 homes with current access to free-to-air analogue services would be left completely unserved after switchover. Apart from going against the concepts of platform choice for the viewer and Government commitment to competition between the three platforms, this would contradict one of the three basic criteria for switchover, namely that 'everyone who currently receives free-to-air analogue TV channels must be able to receive those channels digitally'. Notwithstanding satellite filling, a significant proportion of the 1.0 to 1.2 million homes left unserved by DTT would have their current access to television via set-top reception removed.

Q8 Do you agree that the level of coverage provided by the networks supporting the four multiplexes carrying predominantly pay-tv services should be left to the commercial judgement of the operators?

Ideally the coverage of the multiplexes carrying the predominantly pay-tv services would match that of the public service broadcasters to maximise the appeal of the platform. It is, however, recognised that operators should be free to exercise some commercial judgement, providing that the timing of their judgement does not conflict with the requirement to make efficient use of spectrum. It could, for example, be a very wasteful use of spectrum if they were to elect to take less than that allocated to support 90% coverage. Conversely, it would not be in the platform's interest to preclude these multiplex operators from matching the public service broadcasters' higher level of coverage based on a prior inadequate spectrum allocation.

Q9 Which channels are cleared will depend on the costs and benefits of different replanning options. For example clearing 5 channels at the top and bottom of the frequency range is less disruptive to consumers and has lower switching costs than clearing ten at the top end. The benefits, though, will depend on the use to which such freed up spectrum can be put. We would like your views on the costs and benefits of different options.

Q10 Which frequency channels should we clear?

In the face of a distinct lack of published evidence supporting the demand for spectrum from non-broadcast services, there are increasing demands for existing users to keep the spectrum for broadcast services such as mobile and portable applications.

The release of the top and bottom five channels was explored in the Genesis Project1. These channels lend themselves well to broadcasting applications because of the low cost antennas and receivers, and the compatibility with the use of this same spectrum for broadcasting in neighbouring countries. ntl would, however, argue that it is not known if this is the 'least cost plan', and question some of the optimistic costs of clearing spectrum that are presented in this consultation paper. Certainly, options requiring the release of more than 10 channels and substantial reconfiguration of the network, would involve significantly higher costs in both re-engineering and in replacement receiving aerials.

3.
Specific Comments

* Section 1.1
Under the Affordability criterion for analogue television switch-off, the term "access to digital equipment" is used. The term "access" should be more clearly defined. Does this mean that 95% of homes shall actually possess a (single?) digital receiver before switchover and that 5% of the population would

have television withdrawn unless they buy new equipment? What consideration will be given to the millions of 2nd and 3rd analogue receivers which are to be found in many homes, and to the large numbers of analogue video recorders?

* Section 1.2
"Over 8 million households (roughly 33%) have now chosen to access digital television by one of the available platforms (cable, satellite or terrestrial)."

This statement can be is misleading because in the majority of those homes that have more than one television, there is only a partial migration to digital (i.e. the main living room TV set). The 33% access is thus incomplete.

* Section 1.15
"When it comes to converting second and subsequent sets in a digital home, terrestrial customers should find that reception on portable sets using a set-top aerial should be at least as good as for current analogue reception if the digital services can make use of the converted analogue frequencies."

This seems to ignore the problem that viewers currently with low-grade analogue set-top reception may have no digital set-top reception at all. For these viewers, reception on portable sets would not be 'at least as good'.

* Section 3.2
"There will be costs of approximately £50m for each network (averaging around £1.6m at each of the 80 sites)..."

Two Public Service networks should on this basis cost £100m which is only £1.25m for each of the 80 sites.

* Section 3.2-3.4
It should be clearly stated in the tables in these sections that the costs quoted are estimates.

* Section 3.5
"An indication of the cost of purchase and installation is the £100 charged by BskyB..."

This offer has been withdrawn and as a subsidised cost, does probably not reflect the real cost anyway.

* Section 4.2
The number of channels per multiplex used in the table is crucial to the amount of spectrum released. Is fixed reception assumed? For high levels of portable coverage, the numbers of channels per multiplex may be higher. Are the numbers of channels per multiplex used based on published studies (reference)?

If a plan based on analogue conversions is being proposed (with all the benefits of using conversions), then the planning would be constrained by the analogue channel plan, which has a greater number (nine) of channels per programme coverage.

* Section 4.3 & 4.6
The text quotes a range of between 12 and 20 channels for clearance, whereas the table above indicates between 14 and 22.

Furthermore, the Genesis 5+2+5 channel release in Section 4.6 does not tally with the potential number of channels that could be released from the table in section 4.2.
1 The Genesis Project, Final Report. Prepared by ntl and The Smith Group on behalf of the Independent Television Commission, February 2000
ntl response to:
DIGITAL TELEVISION: THE PRINCIPLES FOR SPECTRUM PLANNING