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Ireland

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Tuning in to the public's voice

A submission in response to ComReg's consultation on radio spectrum management

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Scagaire document 05/01

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*Scagaire is a public interest policy research group focused on communications,
technology and citizenship*

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1 Introduction

The Commission for Communications Regulation has issued a consultation document on radio spectrum policy, 2005-7.¹ This submission is a response to that document and the questions asked within it. It is made by *Scagaire*, a public interest policy research group focused on communications, technology and citizenship. The lead author of the document, for *Scagaire*, is Andrew Ó Baoill, a media specialist based at the University of Illinois. The submission focuses on a small subset of the issues raised in 05/01. Those are:

1. The evaluation of radio spectrum use, specifically broadcasting (Q. 3)
2. DAB (Q. 15)
3. The development of wireless broadband internet (Q. 18-19)
4. Wireless public address systems (Q. 26-28)

The questions asked in the consultation document do not always specifically address what we believe to be the core issues at play in an area - see for example Q. 15 - and so while we have used the question topics to structure our response, we have not felt ourselves bound to respond only to the precise questions asked, and have gone beyond them to interrogate the topics involved. We are confident that this is consistent with ComReg's intent in soliciting responses to its proposals.

2 Evaluation of radio spectrum use

2.1 Q. 3. *Is there any further detail ComReg has not taken into account in this general assessment of the economic and social impact of radio spectrum?*

Although ComReg pays passing attention in section 5.1 to the social benefits of uses of the radio spectrum most attention is given to the economic benefits of impact on GDP

¹ ComReg. 05/01.

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and employment. In section B4, where the impact of broadcasting is considered, “the importance attached to broadcasting from a political, social and cultural perspective broadcasting” is mentioned but not explored, and the remainder of the section is given over to a consideration of GDP and employment impacts, and to the ‘consumer surplus’ associated with broadcasting.

In relation to economic factors ComReg states that:

The economic contribution of the broadcasting sector comprises the GDP and employment associated with the operations of RTE, independent national terrestrial TV, independent commercial radio, cable/MMDS and satellite pay TV. (05/01 B.4.3)

Given the approach adopted it is perhaps unsurprising that community radio is not mentioned in 05/01. Although community radio is generally a low-profile activity we estimate that the combined budgets of licensed community radio stations in Ireland are of the scale of several percent of that of RTE. But GDP impact is not an important goal of community radio, nor is it the most significant impact. Community stations provide space for interaction among community members, outlets for small community-based organizations, and opportunities for individual citizens to gain experience and express themselves. Further, each week hundreds if not thousands of people contribute thousands of hours towards the operation of community radio stations, both on and off air. Apart from the benefit to listeners and communities² from the availability of the content produced by these stations there is extensive evidence that there are substantial social and economic benefits from involvement in such socially-grounded activities. Putnam’s *Bowling Alone*, for example, connects a lack of hobbies and social life with destruction of community and attendant loss of economic activity³. None of these contributions are measured in GDP; though these contributions often have secondary impacts on GDP (e.g.

² Lewis. 2002. 58-59.

³ Putnam. 2001.

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how many radio enthusiasts go on to buy mini-disk recorders, microphones, tapes, etc.). Some of this issue is common to other broadcasters where there are social benefits that are not captured by GDP or similar measurements of direct spending.

If GDP is insufficient to capture the totality of the contributions of broadcasting to society, consumer surplus seems wholly inappropriate for measuring broadcasting “value” since it only represents one desire (to capture the surplus in order to achieve full 'efficiency'). This can be achieved in several ways; for example: reduce the perceived value of the broadcasting service; increase the costs to citizens, by increasing the license fee or by placing more content behind pay-for-content walls; capture extra revenue from another source, such as sponsorship or advertising, in a manner that, in passing, reduces the consumer surplus. None of these can be understood to further the social goals of broadcasting. For this reason the use of consumer surplus as one of a very small number of measures of the value of broadcasting, particularly in the absence of any method for capturing the social contributions of radio, provides a highly incomplete impact assessment and is of great concern.

3 DAB

3.1 Q. 15. Do you consider that there will be significant demand for DVB or DAB technologies?

The DAB standard does not appear, to us, to provide a particularly attractive solution for listeners. Some of the touted benefits of DAB – removing the need for retuning when traveling, tagging for station signals – are actually already provided in RDS. Using MPEG2 encoding the multiplexes are either going to have poor quality audio or hold few channels. The experiences with DAB in the UK indicate that although radio stations on the DAB multiplexes were allocated reasonably high quality streams at first (typically 128Kb/s), economic pressures led to this being reduced to around 64Kb/s, so that more stations could be accommodated. Experiences with webcasting also suggest that the audio quality envisaged when the standard was developed will not satisfy listeners, especially those who want to listen to the radio using anything other than headphones or low-quality speakers.

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From the point of view of providers, if DAB is adopted as a standard it will be important to all providers to be carried on the platform. First, the adoption of DAB is often described as a transition, and it is generally understood that analogue signals will eventually be turned off. ComReg itself, for example, discusses in document 04/93 ways to encourage a “more rapid phasing out of the analogue network.”⁴ Second, even if and while the analogue band remains available, those stations not on DAB will be disadvantaged if DAB gains acceptance with listeners, since listeners are loath to change band in any event; and DAB radios, even if they include analogue bands, will reinforce this tendency.

For these reasons we strenuously disagree with the ComReg approach articulated in 04/93 that 1. rejects suggestions from DCMNR concerning accommodation of community radio in a future DAB service; and 2. suggests that policy should be to “continue operating community radio in the FM Band.”⁵ We suggest that Ireland, and ComReg, consider following the lead of countries such as Germany in looking towards adopting a more advanced service than DAB (Eureka 147) to accommodate audio service needs. We also believe that ComReg needs to guarantee the availability of audio services, specifically local and community services, and the spectrum space necessary to maintain and develop them. We therefore disagree with the suggestions made by ComReg in 04/93 that Ireland should adopt DVB-T without allocating specific space for audio services and that priority should be given to building networks that will mainly facilitate stations of a national scope – to do so undermines the value of local and community broadcasting.

⁴ ComReg. 04/93 2.3.

⁵ ComReg. 04/93 2.4.

4 Wireless broadband

4.1 Q. 18. *Do you have a view on the balance between licensed and licensed exempt spectrum that will best facilitate wireless broadband?*

We support any policy that will enhance and support the availability of non-commercial, community-based and non-profit wireless services. We also recognize that Article 10 of the European Convention on Human Rights places restrictions on when and how licenses or other limitations can be put on the ability “to receive and impart information and ideas” and believe that it is difficult in the context of the technologies used for wireless internet to meet the standard required to mandate that licenses be required. We therefore support significant expansion in the amount of spectrum available for unlicensed use for the purposes of wireless broadband provision. We should stress that we believe that both intranet and internet applications of wireless connectivity have a future, and so wish to note our support for the availability of unlicensed spectrum for both intranet purposes and for providing internet connectivity.

We would further note that our position is predicated on a ‘good neighbour’ approach to spectrum use. To this end we advocate the explicit mandating of sharing as part of any declaration of the license-exempt status of a piece of spectrum. We further support regulation of the equipment permitted, as outlined below, to ensure that good neighbour activity is supported. Finally in this section we note that it is important, for community networks to be effective, that consumers retain the right to share or resell their internet access with others through such networks, and we ask ComReg to ensure that telecommunications operators do not place restrictions on the service that consumers have already paid for.

4.2 Q. 19. *How can wireless broadband applications and technologies best facilitate the rollout of broadband access in Ireland?*

We note that community and non-profit wireless networks are a source of extensive innovations in this area internationally. The Champaign-Urbana Community Wireless Network (CUWiN), for example, has been developing an open source, turnkey wireless

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networking solution. This technology facilitates the development of mesh networks in an organic fashion in a community setting. In Ireland a number of groups are working on the development and roll-out of community and open wireless networks (www.irishwan.org). Open source technologies such as CUWiN offer promising possibilities for cheap and efficient wireless connectivity.

We recommend that hardware and software standards for wireless nodes be required to meet certain criteria associated with a good neighbour approach – using either type acceptance or self-certification – including that nodes not hold channels open unnecessarily or use other techniques designed to limit the availability of a channel to others or prevent other equipment and software from utilizing unlicensed frequencies. We would particularly like to see the following properties adopted by 802.11 nodes⁶:

- 802.11 access points (APs) should send beacons less often, or not at all. Much of the time these broadcasts are just pollution.
- All APs should scan all of the available 802.11 channels for users, and choose the least-busy channel. Some APs are already doing this. There is already source code to do this in open source.
- Use transmit power control. New APs and clients can and should detect when they're using too much power and adjust accordingly. APs and client machines should broadcast at the minimum power level necessary to ensure communication.
- Match sensing range to transmit range, so that "listen before talk" is a fair heuristic. Spectrum sharing is detrimentally impacted if the loudest nodes are also hard of hearing, because then they speak out of turn. It is also bad if nodes with exquisitely sensitive receivers are always waiting for distant nodes to talk.

⁶ These points were first brought to our attention by David Young, Chief Engineer, Champaign-Urbana Community Wireless Network.

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Devices that use "listen before talk" should be carefully calibrated at the factory, and/or they should automatically recalibrate their sensing/transmit range based on the local electromagnetic topology.

Finally in this section we note the potential of software-defined radio (SDR) to allow easier transition to new frequencies and coding techniques in the future. There are, however, a number of caveats we would enter as regards this technology:

- SDR reduces the feasibility and utility of self-certification of equipment, since the properties of equipment can be easily modified in the field, subverting any regulations such as those outlined above.
- The use of ‘hidden interfaces’ in currently available equipment, to allow future control by manufacturers of the features users can access in equipment they have, supposedly, already bought, has been documented⁷ and represents a serious danger to wireless networking.

5 Wireless public address systems

5.1 Q. 26. Do you agree that there is a demand for the provision of religious and community based Wireless Public Address services in Ireland?

Anecdotal evidence suggests to us that many Irish churches currently operate radio systems for the purpose outlined here – to allow parishioners to experience Mass from their homes – and as ComReg notes⁸ these systems constitute unlicensed transmissions on the broadcast band. It seems clear that if the proposed ‘wireless public address services’ were to be made available they would attract a user base.

⁷ Sandvig et al. 2004.

⁸ ComReg. 05/01. p126.

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We have, however, a number of concerns about the proposal. First, while this offers *a* solution it is not certain that it is *the best* solution, or even a sufficiently efficient and effective solution. Transmissions on the broadcast band have the advantage for churches (and others) that no additional or specialized equipment is needed at the listener end. Although we are generally supportive of the idea of opening more spectrum to non-commercial purposes we are unsure whether introducing a new class of operations that seem incompatible, technically and practically, with other systems is the most useful approach.

Our most significant concern with this proposal, however, arises from the use of the term ‘community’ to describe the proposed services, given the disdain that ComReg has demonstrated for existing community broadcasting elsewhere. As described above, ComReg has ignored community radio in its calculation of the value of broadcasting – both in excluding it from its enumeration of the classes of broadcasters contributing to GDP and in not considering any rubrics that would measure, or even recognize, the social value of broadcasting. Further, in 04/93 ComReg, in answer to a DCMNR consultation paper⁹, rejected all suggestions as to how community radio might be accommodated in a future DAB system, suggesting that it should remain on FM, proposed that DAB should be designed to cater primarily for large-scale radio operations, and pushed for DAB to be a purely commercial operation free of regulation such as must-carry rules.¹⁰ ComReg’s response to our queries on this issue, in which we questioned the basis and development of ComReg’s position on community radio as enunciated in 04/93, suggest that ComReg has not engaged with or properly considered the implications for community broadcasting in constructing its position on this matter.¹¹

⁹ DCMNR. 2004a.

¹⁰ ComReg. 04/93.

¹¹ Butler. 2005.

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An objective reader will understand, therefore, our concern when an agency which has indicated its antagonism towards community broadcasting suddenly proposes a new uni-directional radio transmission (or ‘broadcast’) service that is labeled as ‘community’ and which would operate on non-broadcast bands, on a non-exclusive, non-interference basis. The proposed service would, further, operate outside of the regulatory control of the BCI, which has been generally supportive of community broadcasting.¹² We would have a potential situation where both stations located wholly inside an institution (hospital radio etc.) and temporary ‘special event’ stations require both BCI contracts and ComReg licenses, but these new services merely require a once-off registration with ComReg.

This is not to say that we do not support the idea of more opportunities for non-commercial groups to access the airwaves or the lessening of bureaucratic restrictions. Rather, in the context of ComReg’s recent approach to community radio we fear that this proposal could – intentionally or not – act as a form of Trojan Horse, being used as justification for undermining community radio in later debate. This would be unacceptable to us. We recognize that the term ‘community’ may have been invoked in order to avoid the appearance that ComReg was setting aside a portion of radio spectrum specifically for church groups. Recognising the great social importance of religion – and access to church services – across Ireland we have no objection to facilitating this service, and support attempts to generate a solution. We must stress, however, that such services are no replacement for community access to the standard broadcast spectrum. Nor are we certain that this proposal will sufficiently meet the needs and desires of those wishing to provide access to religious services to members of their communities.

5.2 Q. 27. Do you agree with the proposal to permit Wireless Public Address Systems in the 27.6 – 27.99 MHz band?

In line with our response to Q. 26, any decision to implement the proposal must take place in the context of a commitment by ComReg to support the needs of community

¹² BCI. 2005; BCI. 2004.

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broadcasters, a recognition that this service provides no replacement for community radio and an understanding that the existence of this service will not be used – now or in the future – as an excuse for proposals that undermine community broadcasters.

We would also suggest that registration of equipment be on the basis of type-acceptance. If this system is to be on a non-exclusive, non-interference basis the equipment should be of a type that ensures this (thus ensuring also that larger groups or first-come operators cannot monopolize channels). Further, if equipment does meet approval it should be possible for operators to upgrade or replace equipment with a minimum of bureaucracy.

5.3 Q. 28. Do you agree with the proposal to charge a €25 processing fee per application?

We have no objection to this portion of the proposal provided our other concerns are properly addressed.

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7 About Scagaire

Scagaire is a public interest public policy research group focused on communications, technology and citizenship. Its name comes from the Irish for *filter* and we hope to bring a fresh perspective to debate in this area through a focus on access and the strengthening on public discourse and through a critical analysis of structural limitations on public participation.

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Andrew Ó Baoill

Mr. Ó Baoill is an Illinois Distinguished Fellow at the University of Illinois, where he is currently pursuing a PhD in communications within the Institute of Communications Research. A former member of the Broadcasting Complaints Commission, and founding station manager of Galway's Flirt FM he specializes in research on communications, technology and public discourse.

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Mr. Meinrath is the co-founder and Project Coordinator of the Champaign-Urbana Community Wireless Network (CUWiN), one of the world's leading open-source, ad-hoc mesh network research and development projects. He is a wireless policy analyst for Free Press, a Washington, DC-based think-tank. A Telecommunications Fellow at the University of Illinois, he recently began a PhD program at the Institute of Communications Research where he is currently conducting research on community empowerment impacts of participatory media and communications infrastructures.

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Brian Foley is a Research Assistant pursuing a PhD in Computer Science in the University of Warwick. He graduated from both NUI, Galway with a BSc. in Mathematics/Computing and the University of Edinburgh with an Msc. in Informatics; and has extensive experience as a professional software developer. He was a committee member of ‘*At What Cost?*’ an activist group focused on critical analysis of the introduction of electronic voting in Ireland.