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### **Memorandum by Andy Aldridge, Cumbria**

I am writing in request for views on the above process to move broadcast services over to digital. I live in the area chosen for the first digital TV switch-over but if I did not have Sky satellite TV then I would have no TV at all because; a. the terrestrial signal is not adequate to provide freeview services (too many hills), and b. as trees grow around me my Sky signal is fast disappearing too, particularly in the summer when the trees are in leaf and when it rains which is quite often around here.

I understand that the government is now planning to remove FM radio services in favour of DAB which is something else we cannot get and probably never will, so I will only be able to receive AM radio which is pushing us back half a century, which is what will happen to countryside communities in general. The quality of DAB is far below FM why are we replacing a good service with something inferior? At the last count I have 6 FM radios in the house one of which is a high specification tuner costing many hundreds of pounds. I also have an FM radio in each of our 2 cars. All of these radios would be redundant on switchover to digital. What's in it for the public? Absolutely nothing. Great cost and an inferior service, or in my case no service at all. THIS IS NOT PROGRESS.

27 January 2010

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**Memorandum by Les Banstead, Gloucestershire**

May I show my concern for this unnecessary change. I am perfectly happy with FM; the DAB radio I bought is consigned to the loft as it failed to match my FM radio for channels and quality. Thank you.

31 January 2010

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**Memorandum by Tim Bar, Guildford**

TV - I am happy current plan to switch to digital.

Radio - I am completely dissatisfied with the plan to drop FM. My view is that DAB is both not good enough and not compatible with European DAB (which apparently is DAB+). FM is also pretty good for me and I am not dissatisfied with it. Coverage is good. Radios last a long time and so I would like a long extension for FM rather than have to throw away my radios (of which I have three). I would like FM to continue until at least 2020. If the Government wants to encourage conversion it should drop DAB as an outdated technically poor choice. I would support DAB+ as the standard with a long conversion period to 2020. In the meantime, I will not be buying a DAB radio as it is useless.

30 January 2010

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### **Memorandum by Richard Barnes, Halifax**

I wish to object in the strongest possible terms to the switchoff of FM radio in 2015. As far as I am aware neither the BBC nor the Government have yet proved the case for DAB radio. Over 90% of the population are quite happy with FM, in terms of both available stations and technical quality. This particularly applies to Radio 4 where the DAB bit rate has been less than that on R3, so that music programmes such as the annual Kings College Carol Service on Dec 24th sound absolutely dire compared to FM.

If the BBC proposes to increase the bit rate on all its "quality" services that might go some way to reducing my objections. The only way to get decent quality after the switchoff would otherwise be via a TV set top box, but radio only listeners would then have to buy a TV licence simply to listen to the Radio which in my view is grossly unfair.

27 January 2010

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### **Memorandum by Mike Barr**

There is a growing concern over the planned move to digital transmission of national and regional radio coupled to the switch off of the current FM analogue system sometime during or after 2015.

I am one of many who are concerned with this change and especially the direction taken by Ofcom and UK Government.

First I must make it clear I am not against digital broadcasting as such, providing it delivers quality audio that is equal to or better than FM. But I do question the unnecessary waste of the FM system that is delivering such high broadcast quality and has been doing so for so long.

The main concern is for the current UK "DAB" digital broadcast system that Ofcom, BBC, various others and the present government is building towards for the future under the published Digital Britain initiative. It is universally agreed that the DAB digital broadcast system currently used in UK is obsolete and inherently suffers from a number of technical limitations that cannot be solved. It is also the agreed opinion of leading experts in the field of radio that it fails to deliver to the same standard as FM in audio quality terms and due to its technical limitations will never be able to do so.

UK is almost alone globally in the use of DAB. Europe generally has rejected DAB and has either delayed or abandoned switching off FM. Most countries have either moved already or are planning for the more advanced, flexible & future upgradable DAB+ or a similar system called T-DMB.

### *The automotive industry*

This is the largest and most significant market sector for radio receiver sales and seems it will opt for the European broadcaster preference of DAB+ or T-DMB or a Cell Phone type of technology.

### *The cost of DAB*

Published costs for this are many and varied and none of the various authorities have published a budget estimate that is agreed by the other.

What is certain is that for the Digital Britain plan to succeed many more local transmitters such as are needed for TV relay "infill" at a cost of many hundreds of millions.

### *The cost of FM*

It's accepted that FM system requires maintenance, conversely so will DAB, but the cost will be higher due to the significant number of extra transmitters & associated network system.

### *The cost to the public*

Existing FM radios will become useless at FM switch off. The estimated number of radio receivers in UK is estimated to be in excess of 200,000,000. The cost to the public to replace this equipment will be significant in household budget terms.

### *What's wrong with FM?*

It is universally accepted to deliver the best audio quality available today, even when measured against the best digital transmission systems using DAB+ with AAC+ codec. National transmitters already cover the whole country and only the remote and mountainous regions have problems, usually only noticed when driving around in a car. DAB in these remote areas and many more far less remote is not available today and probably will still not be in many cases after the final completion date in 2015 or after.

The once world leading and pioneering BBC has agreed to adopt an inferior system. Ofcom do not seem to be regulating to achieve public satisfaction and is therefore in my opinion failing their mandate, and between themselves and the various working groups seem to be accepting 2nd rate standards.

Various politicians, the BBC and Ofcom have all said DAB is "CD quality". This has been universally condemned by so many experts, commentators and the radio industry. Many believe it to be at best "sales speak" but at worse is a blatant untruth and a deliberate attempt to mislead the general public.

27 January 2010

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## **Letter from David Birt, Surrey**

I am writing as a retired Engineer with a background in broadcasting and telecommunications. I spent some years in the Engineering Designs department of the BBC, at a time when the ethos was to provide the highest possible broadcast quality.

I wish to express my profound opposition to the proposed shut-down of analogue radio services in the UK, which is in my opinion misconceived. I set out below my principal objections.

### 1. Robustness of Service

Analogue radio works virtually anywhere in the UK, and indeed the world. It is simple and robust – especially in situations of unforeseen emergency – and receivers can be built and maintained with simple freely-available basic components by those with modest skills. Government advice in emergencies is to stay tuned to the radio. That advice is currently practical because coverage is universal. Long Wave and to a lesser extent Medium Wave “goes everywhere” whereas VHF does not because of the laws of physics governing radio propagation. Thus DAB coverage in the UK is not universal, and never can be because of the transmission frequencies used. With analogue systems, degradation of reception within a service area is gradual, so that speech can be recognised even if there is interference. Conversely, a digital system just stops completely. Incidentally, DAB is wholly dependent on the American satellite GPS transmission for synchronisation.

### 2. DAB developments

DAB is an immature, emergent technology, and there are currently several mutually-incompatible “standards”, of which the Eureka 147 proposal used in the UK is one. This may be considered obsolete, and it has been superseded in Europe by the superior DAB+ specification. This means that anyone taking their UK (car) receiver abroad on holiday will find it doesn’t work. (No problem with analogue FM however.) One can draw analogies with 405 line television of the past. A migration to DAB+ in the UK would disenfranchise the 9 million who have invested in DAB receivers, so I don’t think this is likely to happen.

### 3. Sound quality

DAB uses loss compression to enable the maximum number of channels within the allocated spectrum bandwidth. It doesn’t transmit sounds which “Mr/Mrs Average” is thought unlikely to hear. Unfortunately the initial assessment of the audible artifacts of compression was flawed, because they were conducted in mono. In stereo, some of

these coding artifacts are unmasked, resulting in objectionable distortions. That is why the sound quality is inferior to FM. The determination of the quality standard has a new dimension not seen in analogue systems, in that it can be altered and set at will by commercial considerations. The trend has been towards lower bit rates and more channels/ graphics/ and text. Thus earlier claims of “CD quality” have proved false, and have been abandoned. I don’t think it is right or fair to abandon the serious listener as a minority to be disregarded on the basis that the majority are claimed to only use the radio as background, and listen on poor equipment.

#### 4. The marketing ploy

I can’t imagine a “harder sell” for DAB than the proposed removal of alternatives!

Indications have been that the public is strongly opposed to the removal of the analogue services to which they are accustomed, with which they are satisfied. Nor does the enforced scrapping of millions of radios and hi-fi tuners appeal! The public are at liberty to purchase DAB receivers now *as a matter of choice*. Why compulsion?

Closing down analogue radio removes choice utterly, and relegates the BBC to an enforced inferior medium. I fail to comprehend how switching off FM radio could ever be good for consumers. I am uncomfortable with the situation where the Government assumes the role of a marketing agency wherein we find the common accoutrements of hype, misinformation, and untruths. There are indications that the “salesmen” (/politicians) do not have adequate technical knowledge to understand the “product” they are trying to sell. I am enclosing an article on DAB by John Watkinson which has just appeared in the current edition of *Resolution* which is a magazine for the audio media industry. I think this gives a good and digestible overview of DAB, and I do hope that you will find time to read it, and that you will find it helpful. It exposes some of the hype and untruths to which I refer. Why should not DAB sell itself on perceived merit (if it has any) as was the case with FM mono transmissions in the 1950s followed by stereo in the 1960s? Then, listeners only had to buy new equipment if they *wanted* stereo sound; otherwise they could continue to use their existing equipment for mono listening. An analogous situation applied to LP stereo records which could be played on existing equipment in mono. In my opinion, talk of notional “set-top boxes” for local re-transmission of DAB stations on FM is a nonsense, given two things: a household typically has several self-contained receivers (with integral aerial, and without cabling to a common aerial) in different locations, and not infrequently tuned simultaneously to different stations. In my understanding, re-radiation in Band II to enable reception on portable receivers in the locality does not accord with the provisions of the Wireless Telegraphy Act for the very good reason of interference with other nearby receivers e.g. in the flat next door. Set top boxes work for television receivers because these are intended for wired-connection to a distribution system or external aerial.

28 January 2010

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## **Letter from David Bowman, Cornwall**

I have just found out about the consultation on Radio Cornwall today and must advise that all is not well with digital TV here.

We receive our transmission from CARADON transmitter and full switchover was at the end of September 2009. Initially all was well. However two weeks before Christmas reception went and the TV was unwatchable. We called Digital who advised they were working on it and it would be ok by Monday. The TV did come back but went again the following weekend. Since then reception has been very unreliable and we had no TV from Christmas Eve to 4 January apart from New Year's Eve and 2 January when reception came back at 2.15 pm.

The TV worked on 5 January 2010 (when it was snowing), but then no TV again on 7, 8, 9 and 10 January. We called Digital early January, reported it and asked for a call-back but no one ever called us back.

Since then reception has been erratic. This last weekend 24 January, 25, 26, and 27 again – NO TV. On 28 January we had TV until 12 noon, when it disappeared and returned at 10.30 pm. Today we had TV until approximately 12 then it went off, came back at 2 pm.

Digital is completely unreliable and more often than not, we cannot get it. This ruined Christmas and New Year and it is very stressful to keep retuning it and finding nothing. Very often there is a message on screen saying technical difficulties – please try later; this is shown on BBC 1 and BBC2. Very often BBC disappears more often than the others.

TV before Digital was reliable. Digital at the moment is hopeless. When it does work, the picture is good.

I would be grateful if this can be looked into and considered.

29 January 2010

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## Memorandum by Colin Bradbury, London

1. The BBC, as a public service broadcaster, has a duty to ensure that its transmissions are of the highest obtainable standard, not only in content but in technical quality. In my experience as a musician on the staff of the Corporation (BBC Symphony Orchestra) for over thirty years, this quality was striven for by all my colleagues on the technical and production side, and I was never aware of any management policy which inhibited this.
2. With the advent of DAB this has changed. Unlike FM radio, the sound quality of a DAB transmission is dependent on the bandwidth allocated to a particular station, and this in its turn determines the bit rate allowed to the digital signal. It is an accepted fact that the ideal bit rate for music is 256 kbps, as used in some European music broadcasts, and that a bit rate of 192 kbps is the absolute minimum if the quality of sound is to rival that of an FM transmission. At present, this rate is only maintained on BBC Radio 3 for some of the time, and never on the other BBC radio channels.
3. The case for DAB rests largely on the number of stations which it makes available to the listener, but, within the available bandwidth, there is a clear trade-off between the number of stations and the bit rate used by each. Were there to be a statutory limit below which the bit rate was not allowed to fall, quality could be maintained, but there is no likelihood this would ever be the case. As it is, all the pressures, both on the BBC and on the commercial sector, are for a greater number of channels. More up to date methods of coding the signal would alleviate the problem to some extent, but the BBC standard, in which it has heavily invested, is not the most modern, and, in any case, the basic principle of the trade-off between quality and quantity still applies.
4. I am unaware of any controlled trials of people's perception of the sound quality of DAB. There have been surveys, notably by OFCOM, of opinions on the subject, but none of these seem to have taken account of listening conditions or the expectations of people listening to different types of broadcast. In particular, the OFCOM document, *The Future of Radio* scathingly refers to audiophiles, as if a concern for sound quality were the preserve of a tiny minority of technical enthusiasts. A controlled trial would, at the very least, involve a random selection of people listening to the same material on DAB at different bit rates and on FM radio. No trial like this has, to my knowledge, been conducted by or brought to the attention of OFCOM.
5. The audience for music (and in this I do not include pop music, a separate subject) is growing, and the BBC is rightly proud of its contribution. Not only does it maintain its own orchestras, but it presents the Promenade Concerts, the world's largest music festival. It is inconceivable that, of the huge audience for these alone, only a tiny minority of enthusiasts are concerned about the quality of the sound. Add to these the audience for the Saturday evening opera

broadcasts, the lunchtime Wigmore Hall recitals and the broadcast concerts of the BBC orchestras, let alone all those who listen to other broadcast music on other channels during the day in the quiet of the home, and it is clear that there is a huge number and a large variety of listeners who deserve the best.

6. Were a different art form being considered, the need for quality would be self evident. Although the majority of visitors to an art exhibition might take only a casual interest in each picture, the curator is nevertheless expected to display every item in a favourable position and ensure that the lighting is the best available. It is his or her duty to cater for the most critical and perceptive visitor. Why should music be any different?
7. I am driven to the conclusion that those within the BBC who regard sound quality as of first importance are outnumbered by those who, for all kinds of reasons, regard the sheer number of radio channels as paramount. Were there to be a guarantee that FM transmissions, universally regarded as being of the highest quality, would continue indefinitely, this would not matter, and those who wanted DAB's advantages, and who were indifferent to its drawbacks, would be well catered for. Were, however, FM to be turned off, the BBC would, for the first time in its history, be making a deliberate decision to reduce the quality of its output. I have witnessed at first hand, as listener, musician and BBC employee, the steady improvement in broadcast music quality over many years, from AM, through FM and on to the present superb standard of the best stereo broadcasts. It is surely unthinkable that this progress be reversed.

21 January 2010

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### **Memorandum by Derek Brand**

I wish to submit the following to the Select Committee on Communications regarding the future of radio platforms in this country.

I am against making DAB the standard platform for radio broadcasting in this country for the following reasons:

1. DAB is inferior in terms of CD-quality which newer digital systems can offer and which other European countries are adopting. Only FM, the present standard, comes close to offering a near high-fidelity audio quality.
2. Reception quality outside urban areas on DAB is poor, especially compared to FM. When set up properly, FM has a more robust signal. In vehicles, DAB reception can also be variable.

3. The sheer cost of a changeover to the public, in terms of the larger number of DAB transmitters for full coverage and, particularly, the changing of radio equipment, most households have multiple sets.

28 January 2010

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### **Memorandum by John Brice, Colchester**

As a consumer I would like to add my views to the debate about digital radio. Unlike many other people I do use DAB radio and listen to a variety of stations. As a medium and long wave replacement DAB does rather well – BBC's Five Live and Five Live Sports Extra are much better than their analogue equivalent's, indeed listening to Test Match Special is a pleasure rather than a trial. A perhaps contentious extra with digital TMS is the absence of the shipping forecasts.

When it comes to a replacement for FM I find DAB less satisfactory, the quality is simply not there, there is an ambience with FM that DAB simply cannot match. Quantity is the only plus point here because the BBC give us Six Music (which I listen to) and Radio One Extra (which I do not).

I believe I am lucky and get a reasonable signal at home on the DAB radios but I also have an in-car DAB radio (an add-on one – I do not know of any cars with built in DABs, certainly not in my price range) and there I find that the signal is very variable. I experience cut-outs and interference, as well as the "bubbling mud" sound that DAB users know so well.

I believe that we could improve matters quite a bit if we were to adopt the European standard DAB+ in this country. This is equivalent to MP4 which is a superior sound to MP3. Many DAB radios can be updated to DAB+ unfortunately only one of the three I have can but I am willing to sacrifice those for an improvement in the system.

The BBC have sacrificed sound quality to give us all the extra stations, only an increase in technology to DAB+ will give us the number of stations they have at the level of quality I want, and then, only then would I sanction the removal of FM. If the quality was better perhaps the demand would pick up and car manufacturers would include them as standard.

A footnote on digital television, I get television through cable via Virgin Media and analogue was turned off several months ago, in the early days of digital the quality was variable but now it is fine.

27 January 2010

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## **Memorandum by Rob and Lin Briggs, Cornwall**

We wish to register the fact that we are extremely disappointed with the outcome for us of the digital switchover. When we had analogue TV, we also used digital TV (with a purpose built tuner and freeview). We expected our reception to get better at switchover, but it has got very much worse. The picture pixelates, the sound frequently comes and goes at different times to the picture and we frequently get no signal at all for many seconds at a time. Please appreciate that this makes very frustrating viewing, as we constantly miss parts of programmes. We understand that we are not alone in this and trust that you will investigate and improve the situation of viewers here in Cornwall.

29 January 2010

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## **Memorandum by Glenn Campbell, London**

I am an individual member of the public who does not own a television, but listens to radio every day. I own, at home, five radios:-

- (1) a Bush VHF 90 set (manufactured in the early 1960's)
- (2) two Hacker transistor sets, one from the 1960's the other from the 1970's
- (3) a Roberts transistor radio, around 12 years old
- (4) a late 1950's Murphy A272C floor standing radio

All of the above were, I think, made in the UK. They all work perfectly. I also have a set which was manufactured by Roberts in the last year or so, and which can receive internet, DAB or FM. I have, in the past, owned a DAB set at home, but got rid of it. I listen, mainly, to Radio 4, but also to Radio Three and, on occasion, to commercial popular music stations.

I understand that the House of Lords Communications Select Committee is considering the question of a proposed "switch over" to digital radio. As a consumer of radio, I would be very upset by any change which made it difficult or impossible to carry on using my radios. They all work well, sound great, and are a pleasure to use. I like the fact that the two valve sets were, for example, around to receive news and music before I was even born. If changes are brought in which lead to the decline of FM, I will almost inevitably be forced to stop using them which seems pointless and a complete waste. If the national BBC stations are taken off FM, I will stop listening to them at home which is something I'd regret.

As a member of the listening public, I hope the Committee will conclude that the current arrangement which makes BBC and commercial FM/AM radio broadcasts available locally and nationwide, ought to continue. Whatever benefits there may be to forcing digital on the listening public are outweighed by the consequences of having to abandon good FM/AM radios which supply a perfectly good and reliable service.

29 January 2010

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### **Memorandum by M Chaffey**

I am informed that it is to this address I should raise objections to the Government's proposals for elimination of FM in favour of DAB radio broadcasts. Whilst DAB offers broader station choice the quality of reception is often poor within the BH23 area and regularly results in no R4 or BBC World service reception. Without DAB I would have no BBC World service but without FM I would often have no radio service at all.

28 January 2010

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### **Letter from Michael Chare**

I write as a member of the public and wish to express my concern that FM radio broadcasts may be discontinued.

In my household we have a number of FM radios in the house, in our cars and my mobile phone which would become redundant should FM broadcasts cease. I would not like this to happen. We can receive 21 FM stations, though we mostly listen to BBC3, BBC4 and Classic FM.

I have one receiver that can receive both FM and DAB broadcasts. I do not use DAB as the sound quality is limited by the low bit rates used even for stations such as BBC3. Many of the DAB stations that I can receive are the same as those I can receive on FM, satellite and Freeview.

Our relatively modern standard VW car radios are able to find the main BBC stations all over the UK without the need for retuning. (One of the advantages originally claimed for DAB.)

I have considered buying a portable radio which could also receive DAB, but I dropped the idea when I discovered how poor the battery life was because of the power

requirement of the DAB signal processor. A further concern is the lack of clarity about what digital broadcast standards will be used in the future.

The biggest recent improvement to 'radio' technology has been the introduction of Internet Radio. This provides a very wide choice and allows me to listen to specialist Country and Western and Jazz stations that are not available on DAB or FM, and high quality (bit rate) stations such as those broadcast by AVRO from Holland. Further I was even able to listen to Radio 4 using the loudspeaker in my mobile phone whilst in Switzerland by using the wifi in a hotel room.

If the government wishes to conserve broadcast bandwidth discontinuing DAB would be my preferred option. DAB is redundant as it has been superseded by Internet Radio where wifi and mains power are available.

9 February 2010

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#### **Memorandum by Donald Cheetham**

I would just like to say that since the switchover to digital we have had no satisfaction, we have called out 2 engineers who have been unable to cure the problem at the cost to ourselves of £100 this is a great deal of money to two pensioners. The problem is that the picture freezes at regular intervals i.e. every 10 minutes also we do not have any channels on some evenings. This problem is all over Cornwall as our local radio has a phone-in programme in which there is never enough time for all the viewers to air their problems on this subject. I would like you to know that we bought 2 new TVs for the switchover and are feeling very cheated by this government who have not done their homework once again. You have put the voter to a great deal of cost and at the end of it all the digital signal is rubbish. I suggest that you do not roll this out to the rest of the country as you will have an outcry of unbelievable proportions.

I would like to see someone from your office come down to Cornwall and sort this problem at a local level.

2 February 2010

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#### **Memorandum by John Clancy, Wiltshire**

I understand that the Lords' Inquiry is asking for people's views on "the outstanding technical issues, including the appropriateness of DAB as the digital radio standard" and on "the current state of the Government's plans for switchover to digital radio".

I would like to state that I do not believe the current, already outdated, DAB system in the UK is an appropriate digital standard.

Likewise, I, and apparently 91% of people surveyed by Ofcom are "satisfied" with the choice of radio stations available at the moment. The fact is that while the argument exists to not disadvantage early adopters of the current DAB system, there are many, many more times regular, and perfectly satisfied, users of FM equipment, not to mention the environmental effects of having the majority of this equipment rendered useless by the analogue switch-off.

27 January 2010

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### **Letter from Dennis Connor**

I am writing to express my view that the digital radio switch over should certainly be postponed, or preferably abandoned. My reasons are two.

1. The audio quality that can be obtained from a good quality FM receiver is higher than that presently available on the DAB channel using a comparable quality receiver. Excellent FM receivers do not deserve relegation to the scrap bin!
2. The system being used for digital broadcasting at present i.e. DAB is already obsolescent. It seems unlikely that there will be a stampede to purchase the later DAB+ receivers by people, like my wife and I, who have already purchased a DAB radio. To "push" for the retention of the DAB system in place of any other superior broadcasting medium seems to me to be perverse.

27 January 2010

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### **Memorandum by David Cooper**

Whilst sitting composing this, I am listening to my greatest musical pleasure, BBC Radio 3 on my beautiful FM tuner. The thought of losing this, the best quality source of music available, leaves me feeling extremely sad.

Please, please, please do not allow BBC FM transmissions to be switched off. The proposed replacement, DAB, is inferior and a major step backwards.

31 January 2010

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**Memorandum by Charles Cope, Lincoln**

I wish to express my total opposition to the planned digital switchover. The technology is already outdated, being inferior in quality both to the existing FM broadcasts and internet radio. Furthermore we are practically the only country with this DAB standard – this is one time where being an early adopter has conferred no advantage (compare the adoption by the USA of the inferior NTSC TV system which they are still living with, when most countries in Europe adopted the superior PAL standard). I don't like my licence money being used to push this energy hungry system either. My DAB radios demand at least five times the power of my FM radios, which offer superior listening quality from every point of view.

27 January 2010

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**Memorandum by P Creevy**

How can this switchover possibly be justified, Yet again a case of this government together with their cronies in the BBC manipulating the public to satisfy their own egos, Even they (the experts @ the bbc) must agree that they cannot justify this switchover on sound quality grounds, if you take the time to sit down & listen to the two systems there can only be one conclusion, FM is a far superior system, However if the only criteria is money, then of course you can make a argument for digital. It certainly cannot be justified on demand grounds. Let's hope that the committee puts aside their own interests & concludes that this is a waste of money & not in the public interest.

28 January 2010

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**Memorandum by Edward Cribley**

DO WHAT YOU LIKE WITH TELEVISION .....IT'S IN THE GUTTER ANYWAY.

BUT HANDS OFF FM RADIO.

DAB SHOULD NEVER HAVE BEEN LAUNCHED; IT IS A TRAGEDY. I WILL NOT HAVE IT IN MY HOUSE...

29 January 2010

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### **Letter from Diana Curl, East Sussex**

I was pleased to read of your comments concerning digital radios to the Lords Communications Committee. It is indeed 'quite a sensitive' subject.

We have acquired a large number of FM radios over the years – all of which work perfectly – and five of these are used regularly in different rooms. Why should we ditch these for no good reason? Waste is frequently decried by governments and we are often urged to conserve and recycle. Throwing away millions of perfectly good radios seems senseless.

We do have a digital radio but, although a good make, it has been disappointing; the quality of the sound is not as sharp as FM and, worse than that, the transmission cuts out for several minutes at odd intervals – very irritating when listening to an engrossing play or discussion. I gather that this problem is not uncommon.

There is also the question of how portable digital radios are – how large will the batteries have to be? And how many car radios will be useless – we do not propose to change our new car in five years' time just to have a workable radio!

I urge you to consider these very serious concerns.

4 February 2010

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### **Memorandum by Stephen Czarnota**

This evidence is submitted on an individual basis.

#### **Environmental Issues**

A seldom mentioned fact with the proposed change over from analogue to digital radio. It was relatively easy to convert a serviceable TV using a set-top box. With a portable FM radio, or hi-fi FM set-up, car radio or alarm/radio the only option is to buy a new radio and scrap the analogue receiver. This is not good for the environment or people's finances. I have 12 radios in total all of which will presumably have to be replaced with a massive environmental and personal cost to myself of about £450.

## Quality of Service

There are serious issues surrounding the quality of FM transmission as compared with DAB.

### *Overview of Quality of the proposed new DAB system*

If someone has good FM reception quality -- which means that they receive FM with a high signal-to-noise ratio (SNR) and without or with very little multipath distortion -- then what they're effectively listening to is the digital audio format used by the broadcasters to distribute their audio signals to the FM transmitter sites -- the FM system itself would be classified as "transparent", i.e. people would not be able to tell the difference in a blind listening test between the (correctly lowpass filtered and limited) audio going into the FM modulator and the audio coming out of the FM demodulator (think of the hypothetical situation where there's a wire connecting the transmitter and receiver, so there's no loss or distortion). The BBC uses NICAM to distribute the audio signals of its stations to the FM transmitter sites, and NICAM uses a bit rate of 728 kbps where 14-bit linear PCM samples are 'companded' down to 10-bit where large amplitude input samples only have 10-bit resolution but small amplitude input samples have the full 14-bit resolution -- the human hearing system is less sensitive to relative errors when the amplitude is high than it is to errors when the signal is small, and the SNR of high amplitude samples is also higher than for small amplitude samples, hence why NICAM uses a lower resolution for large amplitude samples and higher resolution for small samples. Basically, in a perfectly fair comparison where the same signal is being transmitted via 128 kbps MP2 on DAB and via FM with NICAM distribution to the transmitter sites, and where there was good reception quality on both DAB and FM, then if 128 kbps DAB ever sounded better than FM then I'm afraid that bears no longer shit in woods.

Commercial radio stations use 384 kbps or 256 kbps with the APT-X audio codec to distribute its audio signals to the FM transmitter sites, and again, it is doubtful if 128 kbps DAB is better. BBC Radio 3 is the only radio station in the UK where it's even arguable whether it sounds better on DAB or FM, and Radio 3 uses 192 kbps on DAB -- a 50% higher bit rate than the 128 kbps used by 98% of all stereo stations on DAB in the UK, and if Channel 4 wins the licence for the new national DAB multiplex it's planning to use 112 kbps for stereo stations, and you can bet that a lot of other stations on DAB that are currently using 128 kbps would follow suit.

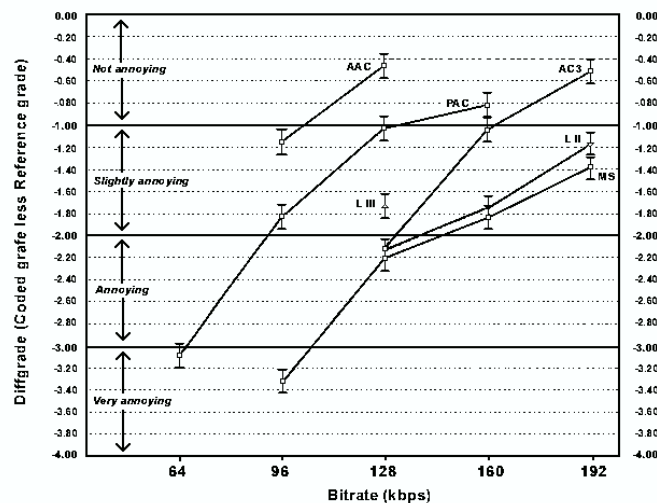
128 kbps AAC vs NICAM would be a far better comparison. Unfortunately the broadcasters and regulators who decided to use the old DAB system in the UK precluded the use of AAC on DAB -- although all of the BBC's stations will be available using 128 kbps AAC via Internet multicasting from this summer once the BBC iPlayer has launched.

With the issue of stereo separation between FM's stereo separation and MP2's outdated "stereo separation". The reason is that all radio stations that use 128 kbps use joint

stereo, and joint stereo using the MP2 audio codec means having to use 'intensity stereo' where the left and right channel signal amplitudes are added together on a sub-band by sub-band basis and the ratio of the energies (the intensity) of the left and right sub-band signals is encoded. Intensity stereo destroys the 'signal envelopes' of the left and right channels, which is unfortunately the precise thing that gives the human hearing system its cues for which direction a signal is coming from so it doesn't actually even deserve to be compared on the basis of stereo separation.

### Bit Rate vs Audio Quality

In general, for a certain audio encoding scheme, the subjective audio quality as measured from listening tests of the encoded sound when compared to the original sound on a CD will increase when the bit rate is increased. There is a law of diminishing returns however because when the subjective audio quality approaches 'near CD quality' then using a higher bit rate will not gain a great deal. At the lower bit rates though the subjective audio quality is far lower and improves quickly as the bit rate is increased. The following table shows the subjective audio quality results for a test carried out on the MP2 encoder as is used for DAB:



AAC = Advanced Audio Coding, PAC = Lucent PAC (Sirius Radio in the US uses this), LII = MP2, LIII = MP3

The above figure is from the paper: "Subjective Evaluation of State-of-the-Art 2-Channel Audio Codecs", by Soulodre, Grusec, Lavoie and Libault.

In the table above the 'subjective diff-grade' is the measure of how different the sound is in comparison to the original where a diff-grade of zero means that the encoded signal is indistinguishable from the original. A diff-grade of zero is classed as CD-quality and small diff-grades such as those for 192kbps and higher bit rates are classed as 'near CD-quality'. As can be seen from the table, 128kbps scores far worse than the higher bit

rates and this cannot be classed as 'near CD-quality'. The following table shows the relationship between diff-grades and subjective audio quality.

So from the above table, the 128 kbps bit rate for MP2 has been classified as "annoying". Unfortunately this is the bit rate that is most used by 98% of music stations on DAB in the UK! The reason why the stations use this bit rate are that there are too many stations crammed into the multiplexes. The Radio Authority (now Ofcom) who govern the licensing of commercial radio stations have a set of guidelines that the commercial stations must abide by. In these guidelines the minimum bit rate for stations that play music is given as 128 kbps. What seems to be happening is a similar situation to digital satellite TV where more and more channels appear but the quality of programming is reduced. Here, it is more the case of the audio quality being sacrificed so as to provide the maximum number of stations that can fit into the multiplexes that are available.

The BBC are the latest broadcaster to succumb to the 'content is king' theory. Before Christmas 2001, Radios 1-4 were all being transmitted at 192 kbps. Because of the plans to start transmitting 4 new stations in 2002 (6 Music, 1xtra, The Asian Network and an Network Z which is a temporary name for a light-entertainment station transmitting repeat comedy programmes and similar material) the bit rates of Radio 1, 2 & 4 have been reduced to 128 kbps and 6 Music that started in March 2002 also started at this bit rate. As 3 of the stations have not yet started transmitting more reductions in bit rates are inevitable on the BBC multiplex. Predictions are that Radios 1 & 2 will be set permanently to 128 kbps, Radio 4 will be reduced from 128 kbps and Radio 3 will be reduced from 192 kbps to 160 kbps. Radio 3 requires a higher bit rate because its signal has a higher dynamic range (ratio of the largest amplitude of the signal to the smallest amplitude) and is more difficult to encode well as a result.

Therefore, because of these low bit rates and because there is no opportunity for DAB to be allocated any additional spectrum so as to add new multiplexes until 2007, this situation is set to continue until then. Even when new spectrum is allocated to DAB there is no guarantee that the same situation as at the moment where the multiplexes are overcrowded won't happen again.

At present, the situation with regards to the audio quality on DAB is very mixed. Listeners to Radio 3, Radio 4, and those that listen to AM stations are usually happy with the audio quality while listeners to other stations such as Radios 1 & 2 and the commercial stations, are generally very unhappy.

### **The Adoption of DAB in the UK**

When you look at the history of radio broadcasting, one of the most striking things is how long the systems have lasted:

- AM radio was first commercially broadcast in 1920

- FM was invented in 1935, there was an FM broadcast band in the US in the 1940s, and the Zenith-GE pilot tone system was standardised in 1961 to provide FM stereo, and FM stereo has remained unchanged up to the present day

DAB on the other hand was "properly" launched in the UK in 2002, yet just 3 years later the World DAB Forum pulled the plug on the old DAB system by ordering that the AAC+ audio codec be adopted, which led to the design of the new DAB+ system, which will make all DAB receivers obsolete in the coming years. Because 3 years is such an extremely short duration in broadcasting system terms, the launch of the old DAB system in the UK has got to go down as the most poorly informed technical decision ever made in the history of broadcasting.

28 January 2010

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### **Letter from Wendy Dalgetty, Cornwall**

Since the digital switchover I have had very bad problems with reception. These have ranged from the picture fading in and out to an unwatchable picture to having absolutely no picture at all for hours, even days, on end e.g. 27 and 28 January no picture. Christmas Eve no picture. Boxing day no picture and many days before that.

This is nothing to do with retuning but everything to do with transmission and it seems only those who have to rely solely on a Freeview box are severely affected.

I do not want Sky nor can I fund a Freesat besides why should I? This initiative was foisted on us by the Government without first doing their homework and despite knowing the system does not work properly have done nothing to rectify the situation.

Despite repeated requests to said Government I can get no answers as to why this is happening and more importantly what action do they intend. I do get the feeling this is being swept under the carpet and yes I am very, very angry.

Perhaps you can succeed where I have failed. Thank you.

28 January 2010

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## Letter from L.J. Darlow

'Hurrah', and more power to you as the enclosed press cutting actually proves that someone in the corridors of power is seemingly listening – and not only that but is aware of the ramifications and possible medium- and long-term consequences; especially as the changeover deadline could well coincide with an election during the self-same period in five years' time – with all that entails, particularly for the Conservative Party whose natural support base is likely to be the most disadvantaged and adversely affected by both the projected TV and radio digital revolutions and is perceived as a wholly unnecessary attack on their quality of life and resent bitterly all of these changes for change sake amounting as is all too often the case nowadays with the general public paying more and more and receiving less and less as a result!

Now for some actual personalised facts and cost imposition factors previously outlined to your party colleagues John Whittingham and Theresa May with no response whatsoever I regret to report.

Re. compensation, I would need somewhere in the region of £500 plus (a 'conservative' estimate – pardon the pun!) as my eight radios would need replacing in addition to the three housed and integrated into other multiple sound systems and might well involve a further £250 and already my housing association has compulsorily installed a digital TV aerial at a cost of £87 per tenant and my £140 DAB radio in this area only six to eight miles from Windsor Castle is negative function (being what is known as a 'dead zone') and is a complete 'write-off' to all intents and purposes and hundreds of thousands of the electorate are not calculated to feel very receptive and benevolent to whichever political party is responsible!

Even then (it doesn't end there), as the EU's swingeing 'landfill' taxes are due to be implemented and enforced on the UK in short order and what does HMG: do instead of reducing the overall amounts thereof, but introduces these addle-pated measures designed to add massively to our financial burdens. Brilliant - you wouldn't pay them in reject second-hand washers or brass 'razoos' if you were allowed the choice and these people expect us to vote for them!

Of course it could all be viewed as a conspiracy against the general public; especially the senior citizens amongst us (whom tune into Radio 4 on long wave for most part and apart from the occasional foray into Radio 5 shun the other channels and wouldn't entertain computers at any price and couldn't afford the electricity bills anyway. It is all change for change's sake at our expense and Gordon Brown squandered the £23.5b he realised from the 3G switchover and this has all the hallmarks of yet another fiasco engineered by this bunch of bungling incompetents. Please rescue something from this expensive shambles!

P.S. Being cynical, maybe certain politicians driving this technology possess holdings in the digital TV and radio sets?

Please clarify the compensation factors!

2 February 2010

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**Memorandum by Annabel Darrall-Rew**

Since the switch over in 2009 my television reception has not only deteriorated but sometimes is non-existent.

Some channels have been lost; some pixilate at intervals and freeze.

It is an infuriating situation and digital TV in its present state is definitely NOT FIT FOR PURPOSE.

1 February 2010

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**Memorandum by Terence Davidson**

I live in West Cornwall and am served by the Redruth transmitter. I bought a new aerial three years ago because I was having a problem receiving a good signal for channel 5; it was said that if you could receive a good reception then the aerial would be perfect for digital broadcast when analogue was switched off.

I am very disappointed in the reception that I now have, late evenings the picture pixelates and the sound breaks up. I receive my signal through a top of the range PVR due to the fact that I have a comparatively new television that cost over £1000. Remembering that this switch was forced upon all of us I am very angry and disillusioned.

29 January 2010

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**Memorandum by Nyall Davies**

May I say that I feel very strongly about the loss of FM radio. DAB is no substitute unless the data rate is adequate. It is accepted that people complain about the quality if it is transmitted at less than 190 kB/second. There is only one station that achieves that and that is radio 3. We should transmit with something in hand and that would be at least 250 B/S.

I have a very strong suspicion that this is all so that the government can flog off as many channels as possible in order to make money and will at the same time be depriving HiFi enthusiasts of their hobby.

The cost to the country is going to be very large. I have seven radios in my house if you take the ones in the bedrooms and two high fidelity ones. An FM radio can be bought for £10 to £15. As soon as it is DAB the price goes up to £30 plus. It would cost me £450 or thereabout to replace them all. If this is replicated throughout the country it will cost say, £8 billion and this will all go to China.

27 January 2010

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### **Memorandum by David Dingley**

The proposal to discontinue these services, even given substantial notice, is unwise, unjustified and contrary to the public interest. Whilst the adoption of new technologies and "moving with the times" is frequently a good thing to do there are circumstances when blind change for change's sake is wrong - and this is such a circumstance. We are in danger of being conned by an industry that has a solution looking for a problem to solve! They have failed, miserably, to convince either public or broadcasters (apart from the Beeb, whose interests are suspect because of the way they are involved in setting the technical definitions). All they can do is fall back on trying to mandate change over the heads of the public.

There are millions of FM listeners who are overwhelmingly satisfied with the service they receive. If it ain't broke - why fix it? Despite arguments to the contrary DAB radio brings no benefits in terms of quality of sound, quality of programming nor enhanced choice. DAB+ might be better technically, but still fails the "so what" test and any consideration of whether the cost of change is worth it. Discontinuing FM services will render obsolete MILLIONS of radio receivers all of which have many many years of useful life. This will cost listeners many millions of pounds for no worthwhile gain. Don't be sidetracked into arguments about DAB+ being "better" than FM - it may be - but does the listening public care about or value this "better"???

To argue that this is a "good thing" because it will pump money into the broadcasting and manufacturing sector may be true, but misses the point that it will force millions to spend money they have no wish or need to spend. Where this is discretionary spending for the individuals concerned they will probably spend it, albeit on something else, hence generally supporting the economy any way. In those cases where it is not discretionary spending it amounts, during what everyone agrees are going to be difficult economic times, to an involuntary tax on those with less income.

Arguing that the resulting auction of spectrum is a "good thing" because it will bring in revenues the government needs is disingenuous. Whoever buys the spectrum will simply

get their money back one way or the other from the populous at large. In other words, an indirect "stealth" charge on the public, in addition to the cost of equipment they neither want nor need. For example, the Beeb could well spend the money on better programming rather than new technology infrastructure.

Trying to cite the "we need to align with the EU move to DAB+" is also a fallacious. Why do we need to align with them? What proportion of UK radio receivers are ever used elsewhere in Europe? Since terrestrial DAB, like FM, is a very short range broadcast, I suspect the answer is "very few" - mostly in cars. So, let the proponents of DAB risk their own money on a market for DAB car adaptors for the few who would need them - rather than forcing the existence of a market by thrusting DAB on an unwilling public. Do we care if the foreign lorry drivers can no longer listen to the radio when here? Frankly, no we don't, particularly if it has cost us money we don't need to spend to enable them do so! Tell the Euro standardisers to mind their own business!

Parallels with the introduction of HD TV are irrelevant, largely because the devices for delivering this support both old and new versions. HD TV is significantly better than standard digital TV is gaining public support because of that (although more slowly than most people realise). The advocates of DAB, as already mentioned, have totally failed to convince anyone their "product" is better.

Should you suspect that this letter is from a Luddite technology hater - it is not. I have 35+ years experience at the leading edge of IT, and am avid enthusiast for new technological gadgets such as smartphones, internet broadcasting etc. etc. Enthusiasm for the new should not blind one to thoughtful analysis of what it offers - or does not, in this case.

What the public needs to see is that our legislators have the strength of will and sheer guts to face down industry lobbyists who only pretend to have our interests at heart. Just tell them that you are perfectly happy for them to try to convince the public of the merits of their case and spend their own money doing it, but that you will not do anything that forces the public to change against their will. This process is called DEMOCRACY. Tell the Beeb to stop wasting my money of something their listeners don't want.

I look forward to your enquiry producing a robust defence of real public wishes as opposed to a lobbyist driven outcome.

29 January 2010

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### **Memorandum by Ernest Dobson, Northumberland**

I would like to submit evidence as an individual radio listener. I was amongst the first people in the country to buy and listen to a digital radio. I was very excited about the

prospect of “interference free, near CD quality”. Unfortunately, the reality is somewhat different. As well as portable FM and DAB radios, I have a DAB/FM Tuner connected to my hi-fi with a rooftop aerial. There is no question that the quality of FM is superior to DAB. I only listen to DAB if the station I want is not available on FM.

I now understand that the reason for this is to do with the bit rates many DAB stations use for transmission. It is generally accepted that the minimum bit rate for “near CD” quality is 192kbps. To my knowledge, only Radio 3 transmits at this bit rate – it appears only high-brow stations deserve high quality. All other stations broadcast at below this and some transmit in mono because of the DAB bandwidth limitations. Listening to DAB in a car is a frustrating experience as there are frequent drop-outs and warbling.

Below is a complaint I sent to the BBC last year. I did not get a satisfactory response.

Suggestions for resolution of this problem:

- Continue to increase the quality of internet radio broadcasts
- Do not increase the number of DAB stations – instead look for opportunities to reduce the number so that quality can be improved
- Explore the possibility of satellite radio receivers – signal is higher quality than DAB
- In the longer term, switch over from DAB to a better quality digital platform such as DAB+ which many other countries are adopting.

In the meantime, until the issue of poor quality DAB radio is addressed, I think there can be no justification for an FM switch off. There is no consumer demand for this and to replace FM with an inferior quality platform would be a retrograde step.

30 January 2010

BBC Complaint – Feedback programme

Tim Davie was interviewed on this programme about the switchover from analogue to digital radio. His answers on audio quality of DAB were, at best, misleading, at worst, factually incorrect. Despite being pressed for an answer about audio quality, he repeated an answer that quality is about reception strength. Broadcast quality and reception strength are two different issues.

This is important because there is plenty of evidence to show that the audio quality of a good FM signal is superior to a good DAB signal. The possible exception to this is Radio 3 - the only station which is broadcast at 192kbps. Until 2002, Radio 1-4 were broadcast using this bit rate. To squeeze in more stations, these rates were cut to 128kbps. Sometimes Radio 4 is broadcast at 80kbps. BBC7 bit rate has always been so poor, at 80kbps, that it broadcasts in mono, despite the fact that many of its programmes were made in stereo. What a great step forward for radio - mono broadcasts. This is not just a technical point. It is an explanation as to why overall, DAB offers poorer audio quality. Other countries are opting for superior platforms. Ideally the BBC should do the same. At the very least, there should be a commitment to broadcasting good quality DAB radio signals i.e. 192kbps for Radios 1-4, 6 & 7 with perhaps a slightly lower quality for speech based stations such as Radio 5.

In the meantime, we should expect that the BBC, including Tim Davie, does not mislead listeners. To resolve this complaint, can I suggest that the BBC issues a statement correcting Tim Davie's interview, clearly stating the difference between reception quality and broadcast quality and answering the question put to Tim Davie about broadcast (audio) quality.

26.06.09

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### **Memorandum by Elsie Dowling**

Reference our digital switchover here in Cornwall last year. We had upgraded to digital tv many years previously and received the signal with no problems whatsoever, perfect picture, sound, all channels except 5 available on freeview, so after being told the switchover would give us even better dtv, we were and still are BITTERLY DISAPPOINTED with the results of this switchover. After repeated re-tunes and other attempts to improve things, including having to purchase a new PVR, we've just found out that in our area we need a GROUP B aerial (we were not previously informed of this) and have now ordered one, price £31.99 plus p&p of £4.99 with hopes of that solving our problems. So far this switchover has cost us around £120 from our meagre savings. As far as we can see it is all a total waste of money as things were just fine before, we are quite disgusted with the whole debacle. Other people in Cornwall have also had problems, according to our local radio station, so we are not alone in our disgust.

29 January 2010

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**Memorandum by George Dugdale**

Excuse this late email response to the above question but I have only just become aware of the opportunity for the public to give their views. I have two points.

- 1) Most households own between five and ten radios including at least one expensive Hi-Fi system.

These have a long lifetime and would cost several hundred pounds to replace with no appreciable benefit to the householder. If digital radio is inevitable the present FM/LW//MW channels should be run in parallel with digital for at least ten years.

- 2) There is no public demand for this change.

29 January 2010

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**Supplementary memorandum by George Dugdale**

A major impact on the changeover would be on car radios. Few new cars are fitted with digital radios. The cost of changeover for modern cars is estimated at about £250 and for many older cars it may be twice that. This would hit low income families most.

15 February 2010

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**Memorandum by Iain Dunbar, Aberdeenshire**

May I ask you add my name to the list of listeners who are most concerned to learn that the BBC proposes to discontinue VHF FM radio mode transmissions and in place of these to revert to only DAB digital mode transmissions.

You will be aware that the listener perceived audio quality of the current degraded DAB digital transmissions are that these are of a much poorer quality most than those carried on the VHF FM transmission systems.

27 January 2010

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## Letter from Ben Duncan, Lincoln

I am Ben Duncan, International Authority in Audio - particularly including sound quality. Prolific Electronics Engineer, with historic knowledge of many aspects of Broadcasting transmission & reception. Also product designer, and senior assessor for makers and review journals, importers, etc.

I am writing solely about BBC Radio (not TV).

DAB is the worst possible standard. It is over 20 years old. It is similar to foisting a 1980s computer program on the UK public.

Squeezing extra stations on-board just makes it even worse. Almost no one wants, or needs, many of the extra stations. Let alone that the dilution of quality with finite budgets, will drive people away - *vide* many of the BBC's programs are already bad enough these days, due to budget restriction.

DAB has execrable sound quality. It destroys music and has an adverse effect on hearing. It will destroy people's emotional connection to both music & people. DAB listeners quickly become fatigued and switch off. In demonstration of this, relatively few DAB radios have been bought, and many are 'gathering dust'. Also, sales of DAB sets have fallen so low that they are not dissimilar to the sales of VHF/FM sets.

Your Lordships should try reading the past 7 years of the serious Hi-Fi press, the radio columns of, for example, Hi-Fi World, published in London, Steve Green's accurate reporting of DAB shortcomings and BBC incompetency. A suggested internet Link: >> <http://www.guardian.co.uk/technology/blog/2009/feb/01/dab-plus-internet-radio> <<

With dire sound and poor reliability, mass "DAB switch off" (by users) and thus, mass listenership loss, will be the result. **People will simply move to listening to a far wider range of stations (worldwide) via the internet.**

Then "national consensus listening" will be lost - forever. With the VHF/FM network, and relatively few stations, and definitive national stations also receivable outside UK (on MW & Long Wave), Britain is, in radio terms, a united country. (Contrast the USA)

No one I have met or heard from, ever, anywhere, has liked DAB. It (just) doesn't work reliably.

VHF/FM radio works almost perfectly. It is over 99% reliable (places in UK; weather) and has good sound quality - not the best possible, but *unfatiguing* enough for prolonged listening. Such near perfections are rare in life. This should be given more contemplation, before potential destruction. The result of many millions of hours of hard work by former BBC engineers. (Before BBC engineering was apparently sold off/'outsourced' to a foreign and *wholly disconnected* businesses.) Destroying a near

perfect system, positive for the everyday life of the British people, is to take place, to achieve what?

DAB is a poor technology. It is less good than the LW & MW (AM) radio that we had in the 1930s. The signal breaks down in rain, fog & icy-mists; DAB also cannot 'handle' urban areas (close, tall buildings). It has proved unworkable in vehicles. If the BBC stops broadcasting on VHF/FM, some 30 million car, van, lorry, boat, etc radios will be become worthless. And without a reliable replacement, if DAB is most unwisely used as the sole 'channel' for BBC national radio.

To the BBC, whom you should interrogate robustly, you need to say "Do please try reading some serious papers on Radio Engineering."

If VHF/FM is switched off, the BBC *will lose overnight 90%* of its listeners. An incredible act by any government.

The UK will then be (in due course) fined by the EU for the likely 100 million radio sets (between 5 and 10 per household) that are of no further use, & are thus dumped to landfill or subject to WEEE costs. As there won't be any usable replacement sets, many people will switch to using the internet for radio listening - where there are far more stations, and generally better sound quality than DAB (although still a second best to VHF/FM radio). And, no need to listen (or be limited to listening) to the BBC at all, or indeed, any British station.

DAB sets (receivers) also use far more battery power. This sends a *deeply* wrong message to people about saving energy and reducing pollution (reducing the number of dead batteries). The per-transmitter power is also said to need to be raised, possibly by ten-fold, to deal with direly poor reception problems. We have not previously met any new technology that steps backwards in so many areas, until I met DAB.

Later on, were the UK to have a national emergency, and the phone system (thus internet) is 'down', no national broadcasts will be able to be made, with so few people wishing to use DAB.

Broadcasting on VHF/FM as well as Long Wave and Medium Wave are *the* reliable means to reach millions of people in a disaster situation. If useful stations are withdrawn on these LW, MW and VHF/FM bands, emergency communication capacities will be eviscerated.

Those people at the BBC trying to 'sell' DAB are technically inept to an extraordinary degree. They should all leave their jobs in disgrace, without further pay, and without further delay.

Talking of delay, DAB can't even broadcast the time signal on time. Technology was far more advanced in the 1920s: UK has had an accurate time signal 'pips' on radio, until recently, since 1924.

A far better system is DAB+ (**DAB plus**); or at least that is a start. This greatly improves the audio quality. DAB+ (**DAB plus**) may come, but whatever happens, switching off the BBC main stations on the VHF/FM system should wait until, as with 'old' 405 line (black & white) TV, well under 5% of population are actually using it.

10 March 2010

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### **Memorandum by Jenny Dyson, Cornwall**

Since the 'Digital Switch-Over' the reception at the above property has been patchy & somewhat unreliable. It varies from excellent to non-existent.

I decided not to touch the aerial until after switch-over as I had a perfectly good analogue signal & the general information was that if the analogue reception was good before the switch-over then the digital signal would be fine after switch-over.

I am able to receive a sizeable number of channels & provided it is not raining or windy the reception is generally good but, as soon as it is wet or windy the picture fractures (as does the sound) & frequently disappears altogether, this affects most channels but the BBC is particularly bad & is sometimes poor for no apparent reason. In fact during the switch-over I was unable to get the BBC channels at all for several weeks.

With the analogue there were occasionally times when the picture was not quite 100% but, never so bad that you could not watch it &, unless there was a catastrophic failure of the transmitter the picture never disappeared completely.

It would be nice to be able to rely on being able to watch the programs of my own choosing instead of something else or having to switch off altogether.

29 January 2010

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### **Memorandum by Arthur Edwards**

I live in a major town and have twice tried digital - it was hopeless.

Analogue was not broken so why are you trying to fix it? Please maintain radio analogue signals.

1 February 2010

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## **Memorandum by Fred Edwards, Cornwall**

WE HAVE BEEN CONNED ONCE AGAIN.

We have been told to get new aerials, not correct.

I have an aerial which is, to my knowledge, over 15 years old. I can get all the channels at 100% signal on all channels, except the SKY channels which are now weaker than when we were on low power.

I live in St Austell and according to the information given out before digital came on line I would not be able to get digital as St Austell is on the fringe of both main transmitters.

WRONG. WRONG. WRONG.

I could get digital from the start with no trouble.

WE have been CONNED and THIEVED from once again.

New aerials? RUBBISH.

It's DECIMALISATION all over again.

What have we in Cornwall done wrong?

We are being STUNG by all and sundry.

GET IT RIGHT AND LEAVE US ALONE.

29 January 2010

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## **Memorandum by James Edwards**

My pocket FM radio cost £7.50 from Tesco. It has a built in alarm clock and a battery life that's so long I've never needed to change it. It's nearest DAB equivalent costs anything between £50 and £150, and the ads for them claim 'over 40 hours' battery life as if that was something to be proud of. (A whole 4 or 5 days then shell out another £6 for batteries). It's about the most un-green device you could imagine. How do they square conservation with going digital? These sets which perform less than a good FM set consume 7 times the power of a standard FM radio. The transmission costs are of the same order.

In-car it's even worse. I have a FM/AM radio that has a full iPod interface displaying track names etc. and a CD player built in. It cost less than £100. No such model exists to

replace it with DAB. Even if I were to find such a set, I would first need to pay for a new antenna, end up with an ugly aerial sticking out of the bonnet, then pay the inflated DAB prices. Not going to happen.

This is just a con to suit the ego of Mark Thompson, his geeks and their need to develop technology for the technology's sake. It's completely unnecessary and brings nothing but cost and degraded listening to the listening public. But of course profits for the retail radio industry who would just love to see the public forced to cough up serious money for a digital radio.

Millions of serviceable radios will end up in land fill (do you really think any government in the future is going to ship even 50% of the 100 million plus radios we own, to Africa, as has been mooted?) That's about 20,000 20ft containers! Say a modest fleet of four container ships. Will they be checked for electrical compatibility? Who pays for this? You can see the depth of thought that has been expended on this 'initiative'.

Expensive, power hungry, non hi-fi, the DAB radio is not needed, not wanted. Scrappage or not, if they're waiting for 50% of people to get DAB then someone will cook the books and magically the 'target' will be reached. We have had enough of waste (26 billion pounds of failed IT projects) under this government, it's about time someone drew a line under theirs and the BBC's excesses.

3 February 2010

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### **Memorandum by Norman and Iris Emberson**

We understand that you wish to have feedback on how the digital switchover has gone in Cornwall. We live in Hayle in the west of Cornwall and for us it has been an absolute nightmare. We have a good television, good digital box and a proper digital aerial was fitted before switchover. However, much of the time the picture is pixilated, breaks up and there is no sound. In particular if it is raining or windy it is even worse. We have tried all the things we are told to do, such as switching off, re-booting etc., but to no avail. In particular we find BBC 1 and 2 are very bad. These are the channels we prefer to watch and which we are paying a very high licence fee for and which we are now often not able to see. Surely these problems should have been sorted out before the switchover, and why should those of us in Cornwall have been used as guinea pigs. What are we supposed to do now to get a decent picture? Spend out even more money to get a Freesat dish, which we most definitely as senior citizens cannot afford and nor can 80% of the rest of Cornwall. I hope this will give you food for thought before you switchover the rest of the country.

29 January 2010

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### **Memorandum by David Fellows**

I would like to register my opposition to the proposed switch off of FM. The FM system works perfectly well with millions of working radios in use and does not need phasing out.

11 February 2010

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### **Memorandum by John Foster, Kent**

I would to raise a serious objection to the intended closure of the FM spectrum by 2015. The quality of current FM broadcasts cannot be matched by DAB. Having done lengthy comparisons of both types on the superb Radio 3 & Radio 2 audio output, I find the quality of DAB transmissions to be abysmal.

There are much better alternatives, and these are often mentioned in audio & technical magazines and papers.

Please do not replace current FM with DAB.

28 January 2010

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### **Memorandum by Friends of Radio 3**

This submission is sent on behalf of Friends of Radio 3, an independent, informally constituted group of BBC Radio 3 listeners by Sarah Spilsbury, coordinator, Friends of Radio 3.

*Friends of Radio 3 established a small working group to consider the proposed digital radio upgrade and the switch-off of the FM service. The following are the relevant conclusions:*

1. The BBC has recognised that Radio 3's classical music output requires a high standard of audio quality (that is, fidelity of *reproduction*, not clarity of *reception*) by allocating a higher bit rate (192 kb/s) to Radio 3's DAB service than to the other stations. BBC stations broadcasting speech and amplified musics have typically had bit rates of 128 kb/s or 160 kb/s.

2. The necessity for the higher bit rate was confirmed when Radio 3's bit rate was reduced, without public announcement, to 160kb/s in 2006: listeners immediately noticed and complained strongly. The higher bit rate was then restored.
3. Professional opinion – including that of BBC engineers – is that a bit rate of 192 kb/s is barely satisfactory for the broadcasting of classical music: the major European broadcasters transmit at 256kb/s at least – a quality which it appears BBC is unable to match due to the number of stations occupying the spectrum and the consequent lack of bandwidth.
4. It is not clear, even if DAB services are migrated to one of the newer systems (DAB+ or DMB), that the BBC will be able to provide any improvement to the sound quality in the foreseeable future.
5. Many listeners have deliberately chosen to stay with FM rather than switch to DAB because they find the DAB sound quality inferior ('slightly irritating' was the description of BBC sound engineers); this is in spite of the fact that FM sound quality on Radio 3 has itself been unnecessarily compromised by the use of Optimod compression. It does not appear that anyone – either the BBC or the government – is addressing the question of sound quality in the sense of fidelity of reproduction.
6. The so-called 'choice' offered by the BBC's digital radio is being swiftly superseded by the introduction of internet radio which offers a small portable set with greater choice (including all the BBC stations) and sound quality which is as good, or better, than the BBC's DAB. Whereas internet radio may bring overseas listeners to the BBC, it will also certainly take UK listeners away from the BBC. In the case of Radio 3 listeners, the BBC digital provision offers nothing of quality in the field of arts broadcasting other than Radio 3 itself, whereas internet radio gives access to high quality classical music stations all over Europe (in Germany, Austria, France, Spain and Hungary in particular) and beyond.
7. Friends of Radio 3 have already asked the BBC about the possibility of Radio 3 remaining on the FM frequency, alongside the 'ultra-local' services, after the digital upgrade. However, we are now well aware that it is not only classical music listeners who are concerned about this aspect of sound quality; indeed anyone who has bought high-end equipment in order to enjoy superior sound quality is likely to feel that the switchover to DAB is a downgrade rather than an upgrade.
8. We are not persuaded that the switchover to DAB will immediately offer as a good a service as FM, nor that it is capable of doing so in the foreseeable future.

30 January 2010

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### **Letter from Roger Galley, Lancashire**

I object to the suggestion national analogue radio services should be switched off prior to any satisfactory digital alternative being available.

By analogue I mean particularly the national FM radio services. When DAB began it offered relative freedom from analogue type imperfections such as multipath distortion and background hiss **but at the expense of inferior audio quality.**

I have taken the trouble to equip myself with decent receiving equipment and a good external aerial. The audio quality of FM far exceeds the present implementation of DAB. The problem is too many stations have been squeezed into each multiplex resulting in absolutely dire audio quality. This situation can be corrected by cutting the number of stations by about 40%. However I accept this is unlikely to happen.

The problem is the number of stations broadcasting **and** the use of an outdated and obsolete MPEG Layer II encoding system. This was developed in the late 1980's and is inappropriate for the demands of today's radio audience.

A new internationally recognised world standard for digital radio now exists colloquially known as 'DAB+' utilising the 'Advanced Audio Codec'. If this were deployed instead of the present system it would be possible to fit nearly all today's radio stations into the existing multiplexes, all with **superlative** audio quality.

Only some of the most recent digital radios support DAB+, mainly because the semiconductor chips are now manufactured for the international market. Nevertheless most DAB radios in use today in the UK are not upgradeable to the new standard and are therefore obsolescent. Despite this DAB is still being promoted as the future. It is not. It is the equivalent of forcing 405-line monochrome television on the UK population when the rest of the world has adopted 625-line colour.

At present stereo Radio 4 programmes are broadcast on DAB in mono when Five Live Sports extra broadcasts because there is insufficient capacity on the multiplex. This cannot be the future.

The radio service audio quality is marginally better when listening via Freeview or Freesat but TVs are not as portable as radio sets. Nor is DAB an option for in-car use which suffers from muting when the signal quality falls beneath a particular threshold with complete loss of reception - at which point FM continues to sail on.

Please oppose the suggestion FM should be switched off until such time as a satisfactory alternative, such as DAB+, has been implemented.

27 January 2010

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### **Letter from Brian Geddes, Glasgow**

It is well documented especially on the internet that DAB as it stands at the moment is inferior in sound quality to FM. I can personally confirm this because I used to own a DAB tuner but due to the quality of the sound, I sold it and went back to FM.

By all means switch off FM if you need to but not until you have equalled or bettered the sound quality on DAB when compared to FM.

27 January 2010

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### **Memorandum by Trevor Goldsworthy**

I have received an email from the savefm.org group of which I signed some time ago regarding saving FM, and I would like to make some comments for your forthcoming House of Lords committee meeting regarding the switchover.

As I live in an area, i.e. West Cornwall, where we have had full tv switchover and also seeing I am an experienced licensed radio amateur having held a full UK licence since 1972 I feel I am in a good position to do so.

I was, and still am, totally against being forced to switch to digital tv or radio as I know it is nowhere near as reliable as analogue. Also we are told we are in a society where we should have freedom of choice, but this government has taken that away from us by the switchover.

Digital transmissions do not have the same range and reliability as analogue, and this has been born out in Cornwall by the number of complaints of poor reception and in many cases, no reception of terrestrial broadcasts at all since the switchover. Obviously, the best way to go is satellite which is very reliable under most circumstances, but many do not want the cost of that move. When switchover came, we were promised a better and more reliable service, but that has NOT been born out in reality. I am fortunate to live only 5 miles from the local transmitter at Redruth, but even then, I get breakup on terrestrial. Again, due to my hobby, I have satellite and I subscribe to Sky for British Eurosport.

I have friends here in the town who regularly complain of breakup and who have invested in new equipment, but who are totally dissatisfied with it all.

As for digital radio, I binned mine a long time ago. The quality that we were told is CD quality is nowhere near CD quality, it lacks depth and base, and sounds compressed and frankly unlistenable. With extra stations planned for each group of stations, the quality will suffer again.

Again, the range is very restricted, and just taking a portable DAB radio around the house, the aerial had to be fully pulled up, whereas in FM the aerial could be left folded down. This unreliability is why motor manufacturers ceased fitting DAB in cars a long time ago. Germany has even abandoned DAB altogether, and also has a limited digital terrestrial tv system, most of the services are on satellite, BUT they still have the choice of analogue or digital tv on satellite.

With radio and tv being the medium by which emergency messages are broadcast to the people, if we are in a serious situation and the communication system is unreliable as it will be with digital communications, how are we going to communicate with the population?

It has already been seen in other parts of the world where the communication systems have broken down, coverage has been provided by radio amateurs with their simple analogue systems. Most radio amateurs DO NOT use digital communications as we know it is unreliable. We forecast the unreliability of the digital tv switchover a long time ago, and it has come to fruition.

I hope these comments will be of use, but as the government seems hell bent on the switchover, I doubt if they will make any difference. Sadly, the switchover is commercially led, it is nothing to do with quality, just quantity. It seems the only people to be consulted over the switchover are the commercial concerns and the media especially the BBC. The end user, i.e. the consumer has NOT been consulted at all, which is an utter disgrace.

28 January 2010

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**Memorandum by Peter Graves, Cleveland**

- I. I understand that the House of Lords Communication Select Committee is holding an enquiry into the digital switchover of both TV and radio. Written submissions need to be submitted to the Committee by the 1<sup>st</sup> February 2010. I would be pleased if you would accept my comments and views on the proposed digital switchover of radio from FM to DAB and present them to the

Committee. These comments are made on an individual basis as a listener to radio.

2. I have objections to the proposed digital radio switchover from FM radio to DAB radio based on sound quality, reception quality and environmental considerations. Each of my objections is given in detail below.
3. I would object to the proposed switchover from FM to DAB on sound quality grounds. FM radio has a superior sound quality compared to DAB radio, particularly noticeable on broadcast of music on Radio 2 or 3 but also plays on Radio 4 and live broadcasts. The reason I believe is that FM radio is a very high quality digital signal in the first place and remains so up to the local transmitter where it is converted to analogue for local transmission. The DAB signal is derived from this original high quality digital signal but goes through a dramatic reduction in quality (about a 5 times data reduction) which accounts for the poor sound quality of DAB compared to FM. It also accounts for the time delay between the two signals.
4. The reception quality of DAB is inferior to FM radio. FM radio is transmitted from relatively small number high powered transmitters which can cover a wide area with good reception coverage achieved in almost all locations. DAB is based on an extensive system of low powered transmitters with the consequence the signal coverage is very restricted with the presence of nearby buildings for example in a particular location causing the complete loss of signal. This point is also related to my next one.
5. I would object to the switchover to DAB from FM on environmental grounds. As indicated in my last point the switchover to DAB will require the creation of a large number of DAB transmitters to achieve the reception coverage of FM radio. This will also be a substantial financial investment. The switchover from FM to DAB will make obsolete an estimated 120 to 180 million FM radios of various types. The current estimate of the number of DAB radios is 9 million. There is an environmental implication in the wholesale loss of the embodied energy and materials contained in the vast number of FM radios and the energy and materials implication of the manufacture of an equivalent number of replacement DAB radios. The other environmental issue is that DAB radios are power hungry, due to their digital processing compared to an FM radio, resulting in a greater demand for electrical power. All this is contrary to the Governments stated carbon reduction targets of 80% by 2050. CO2 reduction has to start somewhere and the proposed digital radio switchover is maybe a place to start.

6. In summary the existing FM radio system provides a higher quality, trouble free reception and environmentally friendly radio service which can continue into the future with very little further overall additional cost. From Ofcom market research 91% of listeners are "satisfied" with the choice of radio station available. The proposed switchover from FM to DAB offers no advantages, but a system which suffers from poor sound quality and indifferent reception performance with an increased environmental impact in a future which needs to reduce impacts.

28 January 2010

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### **Memorandum by Mr Len Gurrie**

I would like to comment on the suitability of dab as a carrier of digital radio and would mention that I have no connection with the industry.

However, I must have been one of the earliest and most enthusiastic supporters of dab but have now totally lost interest, mainly because of its rotten sound. This could be easily remedied by the introduction of dab+, provided, of course, that the industry uses it to improve quality rather than as an opportunity to reduce bit-rates and save money.

The position at the moment is that not only do we have poor sound but a situation whereby most new stations broadcast in mono-over 50 years after FM stereo was introduced! It is incredible to me that Ofcom would permit such a situation to arise resulting in the UK going from a leader in the technology to a laggard and probably a bit of a laughing stock but it does and leaves people like myself strongly opposed to the proposal to switch off FM.

Thank you for giving me the opportunity to express my views.

28 January 2010

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### **Letter from Alex Hamilton**

I have accessed and read the "Digital Britain" report.

I have also contacted my elected representative to the national parliament, and asked her to draw the attention of the Secretary of State for Culture, Media and Sport; the Minister for Communications, Technology and Broadcasting; the BBC; and Ofcom to the following points:

1. I have never been consulted, by government or by the BBC, on any proposal to switch off FM radio national stations;
2. I do not believe that any such proposal featured in any election manifesto;
3. I listen to very high fidelity radio and have very high fidelity FM equipment; I also have DAB equipment, whose sound quality is vastly inferior to FM;
4. I resent the possibility that I shall be required to spend a considerable amount of money, in order to replace or convert my very expensive equipment, so as to receive sound of vastly inferior quality; and
5. I counsel that the unaccountable; misguided; sound quality regressive; and consumer/voter-expensive proposal to switch off FM radio national stations be abandoned.

I should be obliged greatly if you would consider the above points in the course of your deliberations on the proposal to switch off FM radio national stations.

27 January 2010

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#### **Memorandum by Jonathan Hanslip, Northamptonshire**

I wish to express my displeasure at the proposed switching off of the FM radio transmissions in 2015 for the following reasons.

- 1) The FM signal delivers a much better sound quality, as it is not so compressed.
- 2) The UK DAB radio transmissions are not of the best quality and are too compressed to squeeze in all those missing stations!
- 3) I have a NAIM FM radio tuner with a good outside aerial and I get superb sound quality from the FM broadcasts, which are vastly superior to the equivalent DAB broadcasts.
- 4) DAB was originally introduced to improve radio reception in cars. This has not been developed as yet, and I don't know of any cars with DAB radios! So why do we need DAB?
- 5) Both 2008 and 2009 were disastrous years for DAB radio. Many of the stations ceased to exist, and in the main there is very little additional choice over FM radio.
- 6) There are moves to reduce the number of BBC digital radio stations, such as BBC 6 and BBC 7, so where is the incentive or the need to purchase a DAB radio receiver?
- 7) Channel 4 has pulled out its investment in DAB radio broadcasts.
- 8) Coverage is still poor, particularly in more rural areas.

- 9) I live near Daventry (we have a DAB transmitter close by) but only the BBC broadcast from this and Digital 1. None of the other multiplexes are available!!! Why not??
- 10) The former CEO of GCap described DAB radio as 'being not an economically viable platform'!!!!
- 11) All broadcasts and receivers should be able to support the DAB, DAB+ and DMB- Audio standards as found in Europe and Australia. We in the UK have opted for second best and it is not good enough to switch off analogue/FM radio until a more superior format is adopted.

There are many more reasons for not switching off FM radio.

Please listen to the public who don't seem to have been consulted.

27 January 2010

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### **Memorandum by Collin Heath, Cornwall**

I write to give you my opinion and experiences of digital television transmissions in Cornwall. I live in Flushing (near Falmouth), Cornwall.

I bought my 50" Pioneer "HD Ready" television mid-2005 and immediately was able to receive digital transmissions. Reception was excellent and techno-fanatic friends from London commented on the picture and said it could be mistaken for a HD picture. About 2 ½ years later I purchased a cheap 19" set from ASDA and again the picture was good but sometimes the signal was too weak to operate the decoder and I was told that was because the digital signals had to be transmitted at low power until the analogue signals were turned off.

My reception continued in this manner until complete switchover and then: **disaster**.

Pixellation and VERY loud "splats" in the sound (sometimes muting the audio part of the programmes) were common. A night's viewing does not pass without being spoilt by this interference; some evenings it is so bad it makes the programmes unwatchable. Frequent calls to the 0800 "Digit Al" Help Line proved fruitless; after frequent re-tunes and deep reboots their final suggestion was to contact the manufacturer of the television set – what a cop-out. I duly contacted Pioneer who directed me to their South West Service Centre. The gentleman there was very helpful but told me: "Mr Heath, I can assure you I have been inundated with reports from people all over Cornwall with the same problems on all makes of television. I am certain there have not

been problems with their sets; I don't know what is causing the problems and no one is admitting liability”.

Some months after experiencing these problems I was once again thinking about them and it occurred to me that the only thing that had changed since pre-switchover (as far as I was aware) was the signal strength. Wondering if the signal was now too strong I purchased an attenuator and it seemed to make an improvement but did not completely overcome the problems so I bought another to reduce the signal strength even more. Even that did not prove to be completely successful and identified another problem – one of varying signal strength. Some channels appear to need more attenuation than others but from day-to-day the signal strength varies so that even un-attenuated signals can be too weak to operate the decoders. My sets often show the signal strengths varying from 65% to 85% (as far as I can see, a signal less than about 60% is too weak to be recognised by the TV. sets).

On Friday 29 January, an expert on the subject was interviewed on the Laurence Reed “Lunch Time” programme on BBC Radio Cornwall. That expert suggested that viewers within the Caradon Hill transmitter area would solve any problems they have by changing their aerial. Frankly I do not believe it and I am fearful that some of those viewers could waste even more money! How will a new aerial overcome very large variations in signal strength? What about all the people who live outside the Caradon area and who are having problems? If his recommendation holds true, what happened to the pre-switchover promise of “You will be able to receive digital transmissions through your existing terrestrial aerial”? Furthermore, I gather from that Laurence Reed programme that viewers were advised/persuaded to buy new aerials for switchover and now they are being told by the expert that the aerials they threw away would work better now than the replacement ones they had installed.

I know people who live in the Zennor area, not far from St. Ives and from Penzance. Before switchover the area was receiving satisfactory analogue signals. A lot of people there are quite hard up but had to spend their scarce money on new televisions or digital set-top boxes so they would be able to receive television programmes after switchover. So bad is the reception in that area now people are spending even more money so they can receive Freesat.

The conversion to digital television in this area has been a shambles and a bloody disgrace and no one seems to be getting to grips with the on-going problem.

30 January 2010

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## **Memorandum by Rob Heaton**

As a consumer and interested engineer attending DTG (<http://www.dtg.org.uk/>) meetings please consider my submission. (Digital TV Group Represents companies working to bring digital television to the U.K.)

**The strengths and weaknesses of the switchover process as they have emerged in the regions which have already switched over:** As experienced in the North of England (post code BB7 1QA) I found the switchover effective and well run. For older people, my 93 year old mother, assistance was essential for rescanning. Some set top boxes include password/code before they can be retuned!

**The effectiveness of the Digital Switchover Help Scheme and the public communications campaign:** (I did not make use of the help scheme): Pamphlets advertising the changeover and help were received in good time. The changeover was prominently advertised locally.

**The current state of the Government's plans for switchover to digital radio:** In my view in as far as this switchover requires switching off FM it should be reversed. FM should continue and possibly be enhanced with better traffic and travel information. Positive, effective and quantifiable government support should be given to UK manufacturers.

**The outstanding technical issues, including the appropriateness of DAB as the digital radio standard:** The DAB standard is highly suitable but the 'standard' sadly is in continual flux (viz WorldDAB, DRM, Korean, Chinese and Japanese 'standards' etc). UK manufacturers, content suppliers, commercial and license tax funded broadcasters should be encouraged to invest locally substantially so that revenue flows to UK manufacturers and content providers on an ongoing basis. They should be forced to work cooperatively in as far as that is possible. The relationship between UK manufacturers and broadcasters should be much more cooperative to the common UK good than it now is. I would start a regular series of 'Sunday Soviets' using a little imagination to encourage or force cooperation (license requirement) to sort out the lamentable situation whereby much of the UK's broadcast equipment, transmitting, receiving and car radio is sourced by foreign companies. I would regularly monitor progress. The UK DAB standard and broadcast data limitations need to be evolved whilst maintaining backward compatibility in my view.

**The views of UK consumers, and radio interest groups.** As a UK consumer my own view is that we have one of the best broadcasting networks in the world. However much more could be done to support local manufacturers, broadcasters and content providers by organising them to cooperate in supplying novel digital and other content without unnecessary restrictions. UK organisations could be encouraged to innovate, rewarded if they are profitable and only censored if a majority of the governing body responsible detects unethical conduct. Traffic and travel information is an obvious first start for innovation.

31 January 2010

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**Letter from Richard Hellowell, Leeds**

I should like to make the following submission to the committee:

I am a private individual making this submission to the committee because in my experience The House Of Lords is now our most effective means of implementing democracy.

My submission concerns the digital switchover of radio only.

The bill gives power to the Secretary of State to nominate a date for digital switchover.

We are being presented with a fait accompli. The public have not even been given the opportunity to debate whether they want digital switchover or not. Surely the public should be given an opportunity to debate this issue first.

I strongly oppose the switch from the FM to DAB for the following reasons:

1. The quality of DAB reception is infinitely poorer than FM.
2. It is not therefore surprising that the take up of DAB radio has been slow.
3. There are far more FM radios than DAB radios. Many are built into cars. Why should all FM radio owners incur the expense of switching to DAB radios only to endure poorer audio quality?
4. The BBC has never bothered to enquire what its listeners want.
5. The Carter report on which the current Bill is based was largely based on what the commercial radio industry wanted.
6. Carter never bothered to ask what the listeners want.
7. DAB radio is an infinitely poorer solution to the problem of mobile radio than FM. Dab radios in cars frequently drop out whereas FM reception is far more robust.
8. This government has never bothered to ask what the listeners want. I have no doubt that listeners want to stay as they are, with choice.
9. This ridiculous legislation is being steamrolled through Parliament just like so much else. As so often happens The House of Lords is our only defence.
10. Is the committee aware of a single piece of evidence to show that the public wants FM stations to be switched off?
11. An Ofcom market research survey conducted last year showed that 91% of people are satisfied with the choice of radio stations at the moment and only 3% are dissatisfied.

28 January 2010

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### **Letter from Michael Hills, Cornwall**

It is understood that you are studying the switchover in order to produce a report on the success, or otherwise, of the switchover to date, and that you would be interested in comments from the public as well as the industry.

I would like to make the following observations:-

I bought a Digital Integrated Receiver TV in 2001, when I was resident in Essex, in the expectation that I would be future proof. I moved to Cornwall in 2003, and though Freeview was reported as being not available at my new postcode, I was able to receive digital transmissions from the Redruth station with some modifications to my aerial system. The day before the actual switchover started in 2009 for the Cornwall area, I checked the Digital Switchover website again to check on progress and picked up a FAQ on whether it was true that older digital TV's and set-top boxes would not work as the changeover commenced. Further investigation proved this to be true as the old 2K specification did not meet the new 8K specification.

I felt somewhat aggrieved at this situation and felt that the publicity given to this fact was essentially nonexistent, and it was only a matter of luck that I picked it up prior to the event. When visiting the various suppliers a few days later to overcome the problems introduced it became apparent there was a substantial number of customers in the same position.

I think you need to advise, or recommend, Digital UK to highlight that some digital TV receivers, as well as analogue TV's, will not be compliant after the switchover takes place.

Once I had the correct equipment the actual switchover went reasonably well, and has continued to do so, though with no noticeable improvement in picture quality.

29 January 2010

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### **Memorandum by Celia Hodges**

I am writing to express my concern about the proposed shut down of FM radio in favour of digital. You will be wasting thousands and thousands of radio sets which will become useless clutter up landfill sites and use more resources for people to buy new ones to replace them - a crazy idea when we are trying to save the environment. Many people will not be able to afford to buy new radios and in fact I believe they use up more energy than a normal FM radio. According to Ofcom market research 91% of the

country are happy with the choice of radio stations available on FM and only 3% are dissatisfied so where's the logic? You'll spend more money on informing people about the change over when it could be better spent elsewhere.

PLEASE DO NOT SWITCH OFF FM - it makes no sense perhaps this is something you could consider in 25 years time if it is necessary but 2015 it just too soon.

For those who want more stations they can tune in to the DAB radio via their TVs.

28 January 2010

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### **Memorandum by Roger Hook, Gloucester**

This may be technically late, but I really am concerned about this issue.

I am a licensed radio amateur (G3ZLM) a keen audiophile, a degree holder in electronics, an IT manager, analyst, designer, and at 60 years of age very experienced in the subject as a whole.

My desperate concern is that almost all governments' interference with use of the electromagnetic spectrum and allied industries seems to be bizarre at best. Everything from ensuring that BT are part of almost all communications delivery contracts (when the objective was to break up the monopoly) through the segmentation of the television operation into vertical instead of horizontally competitive industries (resulting in the re-merger of the divisions) to the specification of 27MHz for local communications when it is well known that at this frequency you get the most efficient global communications possible. - a single hop to Australia.

The massive EM pollution by digital equipment has totally wrecked the use of many HF bands and is causing a continuous spiral of increased power and therefore pollution too. It will have to be halted. If a radio amateur caused the level of pollution that most digital devices do, they would lose their license!

The ultimate digital system is analogue. The human receptors are analogue - not digital. Digital has no time line (hence the dreadful affect of interference or momentary loss of signal) - also there can be no simulcast any more. Dreadful 'lip sync' because no one knows how long the data will take to get to the other end. Good TVs have massive post reception processing - it would be easier to have put up a decent set of analogue transmitters. The bandwidth required to carry information is governed by physical laws and sampling theory defeats the maintenance of quality - the really big issue.

FM is THE method of choice for quality in moving data. More importantly the circuits required to receive perfectly are fantastically simple and cheap and use very little power.

Digital receivers use huge amounts of electrical power - just when we are supposed to be going efficient.

Digital is truly un-green. And of course that is also why they pollute - they are massively inefficient.

Once FM is gone there is no quality audio source left in the country for the normal public. DAB is poor quality, TV is poor, CDs are limited in quality with some characteristic faults.

I'll admit, that with sound pollution at the current level, it is near impossible to listen to anything in comfort.

Forget exploiting the ether for financial reward, let's get back to quality and caring for the environment. We only have one earth!

3 February 2010

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#### **Memorandum by Ms Wendy Hughes**

I understand that you wish to have comments regarding the Digital switchover in Cornwall.

Unfortunately I only have negative ones with regards to the Redruth transmitter. The picture keeps freezing, leaving just the sound or else I believe they call it pixilation, picture splits, freezes with no sound if you change channels then it comes OK.

Before the changeover we could get a lovely picture (including Channel 5) from either transmitter Redruth or Caradon Hill with just an indoor aerial.

Seems to be just another back door tax, by getting people to spend unnecessarily. If it ain't broke don't fix it.

29 January 2010

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#### **Memorandum by Jan Hyla, Chorley**

I am a TV license holder, an avid Radio 4 listener, and I listen to the station on three separate receivers, depending where I am, or what I am doing.

- I. An FM receiver while I am getting ready in the morning.

2. A DAB radio receiver while I am in the kitchen
3. An FM receiver while I am driving in my car.

In my opinion - there is **ABSOLUTELY NO COMPARISON** between the quality of FM and DAB radio. I am an electronic engineer by profession, and work with like minded engineers. We all agree that DAB radio (as is), is a **very poor substitute** to standard FM radio. You do not have to be an 'audiophile' to appreciate this.

Yes, DAB does offer choice (though I personally don't take advantage of this - I mainly listen to Radio 4, and sometimes Radio 2 & 3), but the quality is very disappointing ("half way between medium wave and FM" in terms of perceived quality), particularly when listening to music.

If DAB could provide the same quality as FM or "near CD quality", it would be a different argument - but as it is publicly known, the BBC/DAB industry jumped the gun far too soon, and adopted an inferior compression standard (MP2), instead of waiting a little longer and adopt a more appropriate standard e.g. AAC which has been widely adopted on the internet.

I wish to air my concerns about the possibility that major FM radio stations (including Radio 4) may be switched off in the future. It would be a really bad decision - we'd be going backwards in technology not forwards.

30 January 2010

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### **Memorandum by Valerie Iles**

I would like to make a case for the retention of FM radio.

Not only does it use far less energy than digital, it is of no lesser sound quality and radios all over the house can be heard in synchrony.

With digital radio it depends entirely on the kind of chip whether different radios are synchronized or not and this is never made clear to purchasers so different digital radios all play at different times making moving about the house miserable.

Of the 11 radios I possess half are digital but I play all but two of them on FM mode. So although my purchases have contributed to the figures always mentioned I am not using them as digital radios. And since most houses have very many radios the figures given of some 10m digital radios having been sold are derisory in comparison with the number of FM sets in current use.

This will be a not inconsiderable expense for most members of the public, causing considerable irritation in use, and for no increase in sound quality. It is complete craziness.

27 January 2010

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**Memorandum by David Isaacs, East Sussex**

My family and I listen to radio quite a lot. We listen on FM to BBC Radio 1, 2, 3 and 4 and local Sussex radio (Heart). We also listen to the BBC on-line and Spotify. I have a digital radio alarm but that is tuned to BBC stations that are also available on FM. In other words we are quite happy with the radio stations available to us on FM and on-line.

We do listen to radios in many places including bedrooms, kitchen, bathrooms, living room and have radio receivers in all of these places. In the event of a digital switchover we would need to replace 7 receivers in the house and one in the car. This would cost a significant amount and would offer me no benefit. In addition there would be an environmental impact of goodness knows how many radio receivers being disposed of.

In my view many of the advantages that DAB promised have been overtaken by on-line radio, especially services such as Spotify and although people will occasionally replace a radio that breaks down (FM radios go on and on) with a digital model, there is really very little to make most people want to switch and pay for doing so. I fear that a switch off of analogue broadcasting could result in many listeners deserting broadcast radio in favour of TV or on-line services and, far from being the salvation of radio it could be very harmful to the medium.

Let's have digital running alongside FM providing new services and serving divers audiences but let's keep the lovely sound of FM.

29 January 2010

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**Memorandum by Ian Jackson, South Lanarkshire**

As a "consumer" my response to your call for comment concerns radio. I use FM and I value highly the quality of sound when listening to classical and other music that demands full-time listening attention. In my reading about DAB technology I understand

that the UK presently has the world's lowest average bit rate of 128kbps for stereo transmission. This I interpret as resulting in the lowest audio quality and a direct result of too many stations on the available BBC bandwidth or commercial stations "reserving bandwidth rather than increasing bit rate.

In addition to the above I understand that stations including the BBC (except radio 3) use signal processing to boost or compress certain audio frequencies to maximise the average sound output, especially evident on news program introduction music and on all advertising. This I understand is done so that the received average sound level limits are not exceeded.

I do understand that UK satellite broadcasts use a higher bit rate of 192kps but this is significantly lower than say DAB transmission bitrates in Germany.

The UK public has been conned by the BBC using announcers to promote "the increase in quality by changing to DAB radio". No such increase actually exists unless you were listening on a low cost portable FM radio.

Concerning DAB+ and its superior encoding technology such as AAC+, this is being used/trialled in some countries but apparently being shunned in the UK because of around 9 million existing DAB users would have their set made obsolete as they are not compatible. How can this view be right when perhaps ten times that amount of FM sets would be made obsolete by switching off FM?

Interesting that the BBC DAB Postcode checker webpage to check program availability is now not accessible.

In summary I am most unhappy at the thought that for non-internet or non-satellite radio sound quality will continue to deteriorate even for broadcasts that demand equivalent to currently available FM quality. If however a DAB+ solution is available AND the broadcasters do not reduce the aac bit rate below 64kbps then we would have equivalent or better audio quality than a good FM installation.

I look forward in due course to hearing about your committee's deliberations.

27 January 2010

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**Memorandum by Jan-Paul Jeffrey**

I am very worried about your plan on digital world as this will be a step back in the quality of Radio today FM is far better audio quality than the poorly implemented DAB radio. This country should be moving with technology not backwards.

On the radio side, the inquiry is asking for people's views on "the outstanding technical issues, including the appropriateness of DAB as the digital radio standard" and on "the current state of the Government's plans for switchover to digital radio".

I've yet to see the Government or the BBC provide a single piece of evidence to show that the public wants FM stations to be switched off, whereas there's evidence to suggest that the public is perfectly happy with FM. For example, an Ofcom market research survey conducted last year showed that 91% of people are "satisfied" with the choice of radio stations available at the moment, and only 3% are "dissatisfied". Therefore there's negligible demand for the main feature that DAB has to offer. Also, presenters on BBC radio programmes said that people were "almost unanimous" in their opposition to the plans to switch off FM stations when the 2015 switchover date was announced last summer.

I think it stands to reason that the public doesn't want FM stations to be switched off, so I think it would be perfectly justifiable for people who're opposed to that happening to send their views to this inquiry as well, especially considering that the public has been completely ignored up to now on this matter by the BBC and the Government.

28 January 2010

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### **Memorandum by Sue Johns**

I am writing to express my concern over the plans to abolish FM radio. I am opposed to this for many reasons, not least of which is the cost to individuals who will have to buy new radios not only sets for use in the home, but also all those like myself who listen to the radio in the car. Why should older people be forced to buy new radios? I cannot see the benefit of digital radio which is prone to interference from passing vehicles etc.

There seems to be no public appetite for this move, for example, an Ofcom market research survey conducted last year showed that 91% of people are "satisfied" with the choice of radio stations available at the moment, and only 3% are "dissatisfied". I would suggest that there is practically no demand for the main features that that DAB has to offer. I am also aware that BBC radio programmes I have listened to have shown how there is great opposition to the 2015 switchover date which was announced last summer.

31 January 2010

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## **Memorandum by Andrew Jones, Glasbury-on-Wye**

I am appalled to hear that there is a serious proposal to switch off the FM radio network as early as 2015. I am shocked that such a blunder would even be considered.

Let me be plain. I am no die-hard supporter of analogue at any cost. I will be happy to receive my broadcasts digitally in due course and when there is a system that works. Sadly DAB is not it. This simple fact is beyond dispute. It is a commercial dud. Just look at the millions of MP3 players in circulation and at the speed with which the cassette walkman has been consigned to history, and you will understand what a commercially successful launch looks like. DAB is not only a tiny market in comparison, it does not even yet dominate its sector. The launch of DAB has been an embarrassment: the biggest power in broadcasting in the land (the BBC) plugs it incessantly, yet still it refuses to take off.

Now it's moment has passed. Everyone knows it is an old and inadequate technology. People have had enough exposure to digital sound media to know the difference between decent digital and rubbish digital. The public is not actually terribly demanding, and has happily adopted the very basic 128kbps mp3/aac download as a useful standard. Yet even in comparison to this rudimentary base line DAB is obviously flawed. It sounds scratchy and uses a ton of bandwidth. It's a crock and everyone knows it.

OK, sorry about the few million DAB radios that will become obsolete, but the system is in a hole SO STOP DIGGING. This lunatic effort to foist an inadequate system on us is arrogant, insulting and ultimately wasteful. The longer we wait, the more wasteful it will become.

In the meantime, my radio addicted household (2 adults, 2 kids) owns a total of 11 FM radios including the hi-fi, various trannies, personal players (built into mp3 players) and car radios. I estimate that a turn-off of the FM network tomorrow would cost me something like £800 to recover my current position. And it would still sound horrid.

30 January 2010

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## **Memorandum by Lee Jordan, Birmingham**

I would like to add my opinion as a member of the public on the upcoming debate of Radio Digital Switchover in the UK, to make sure we have a fit for purpose radio

broadcast system that offers REAL choice and real advantages for the public as well as harmonising and reducing the number of platforms radio operators face currently.

I feel the current Digital system is not fit for purpose for the future of digital radio and adopting the original DAB MPEG2 specification will not only put British Broadcasting at a disadvantage on the global stage, it will allow Internet Radio to continue to offer far better audio quality to the detriment of what radio is all about; portable devices. DAB is much worse than FM, and before we move away from FM we need something far better than DAB.

There's a danger that the internet could make radio over the air irrelevant as a broadcasting platform. Moving British radio online as a preferred broadcast system opens up potential dangers to the reliability of our burgeoning broadband capacity which lags behind the rest of the world as well as forcing smaller stations to pay extortionate fees for broadcast online as more legal action on copyright is targeting small operations and making an environment where they cannot afford to broadcast online.

Having too many digital platforms for broadcast also pushes costs up for large broadcasters, leading to poor business models for any operator to offer diversity in programming to its listeners and ensures the BBC have a monopoly over content which is unduly unfair.

There is niche content that can be commercially viable only if the radio broadcasting industry offers low costs to broadcast licensing.

What should we standardise Digital radio on? The answer is clearly DAB+ with a far more effective AAC encoding which is now being adopted worldwide for digital radio offers more effective use of airwaves and thus offers far higher quality to listeners, and is perfect for mobile receivers as you may find in cars and traditional portable radios.

Further all digital radio equipment must be upgradeable to allow the improvement of the UK's digital radio network, to add new features we haven't yet imagined such as purchasing songs on the device the listener is listening to the station through.

Please do not pass up this opportunity to save the radio industry in the UK.

27 January 2010

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### **Memorandum by Michael and Rosamund Jordan**

- I. We are writing to express the view that the planned early switch off (as early as 2015) of FM transmitters is extremely ill-advised. Our objections centre on the relatively small (and static) installed base of DAB receivers compared to FM receivers, the expense, high power consumption and relative complexity of DAB

- receivers, particularly for the visually impaired, and the inferior transmitted sound quality of DAB transmissions.
2. The sales of DAB receivers have consistently been below projections. Even now, fifteen years after the launch of the service, according to RAJAR, the number of households that have a DAB radio is static at just under 17m. By contrast, there are estimated to be 180m analogue radios in circulation in the UK, all of which would become obsolete. Almost none of the nation's 30m cars have a digital radio.
  3. The cheapest DAB radio is around £20. To upgrade the transmitter network to the same coverage as the current FM network would cost over £100m<sup>1</sup>. Some estimates put the cost as high as £40m per annum for 15 years.<sup>2</sup>
  4. There is currently no DAB receiver suitable for visually-impaired listeners. We know, as one of us is registered blind.
  5. DAB is obsolete 1980s technology, very expensive in transmitter capacity. In consequence, the number of stations on the existing multiplexes can only be transmitted in poor quality, typically 128kbps or less. Those of us who owned a DAB receiver prior to 2001 can remember the high quality of early transmissions at 192kbps. On the launch of the service, the opportunity to adopt the far more efficient DAB+ codec was missed – a very serious error.
  6. In consequence of the overloading of DAB multiplexes, the audio quality of DAB transmissions is universally inferior to FM. This is deplorable – FM technology was developed over seventy years ago.
  7. FM is cheap to buy and run, capable of high quality, ubiquitous and popular. DAB, at least as currently implemented, is none of these. It represents the biggest missed opportunity in the history of broadcasting technology.

28 January 2010

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### **Letter from Brendan Kelly, Stockport**

I write as a private individual and a technology “early-adopter”, living in the Granada TV region that has already undergone its digital TV switchover, and as an electronic designer of well over twenty years experience. I am moved to write because, as I see it, the television digital switchover has been poorly conceived and managed, and the proposed digital radio switchover appears to be a needless event that has the potential to cause even more disruption and downright waste.

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<sup>1</sup> Scott Taunton, the chief executive of UTV Radio, in an interview with the Mediaguardian

<sup>2</sup> <http://www.digitalradiotech.co.uk/index.htm>

## Evidence

1. Digital television switchover has rendered many existing and quite recently acquired digital FreeView Set-Top-Boxes and integrated tuners permanently unusable, or “bricked” in the terms of audio visual forum users. Some will be recycled while others will unfortunately find their way into landfill. I have one early adopter colleague who has six digital receivers in his household, of which five are no longer usable as a result of the switchover. Now he’s in the process of purchasing new STBs, and unbeknown to him, the new boxes aren’t exactly future proof either. Frankly, when multiplied around all the similarly affected households, this is a diabolical and unnecessary waste, and it certainly doesn’t suggest a well executed technology introduction!
2. The change from analogue to digital terrestrial television in the UK has been one of those rare examples of “progress” where a highly evolved and constantly improved quality standard is suddenly no longer met by the replacement. All previous television standard changes, e.g. 405 to 625 lines, monochrome to colour, monaural to NICAM stereo, etc., have provided in improved picture and sound resolution and fidelity. The change to FreeView has actually downgraded the ultimate picture quality available (although it has helped with some interference problems for some channels). The pictures usually look clean but they lack the ultimate resolution and information content of a well received analogue transmission. The only tangible benefit is that FreeView delivers more channels, albeit with lower picture quality.
3. In my own household there are two standalone FreeView set top box (STB) receivers, one personal computer FreeView receiver, two televisions with integrated FreeView receivers, and one FreeView receiver providing personal video recorder (PVR) facilities via a PlayStation3. All six of these have been successfully retuned following switchover. However, re-tuning all these different units was far from straightforward: one unit required an incredibly complex process to instigate a factory reset – many users would have probably scrapped it instead.
4. Like many consumers, I found I needed to obtain an additional receiver to convert an analogue TV, and the only option was to buy an existing DVB-T receiver. In my region DVB-T2 is already being used to broadcast HD channels, but consumers are unable to buy DVB-T2 receivers, so the timing of the digital switchover has forced consumers to purchase (yet more) already obsolete DVB-T receivers (or do without television).
5. To choose to only broadcast High Definition (HD) content via DVB-T2 was never in the best interests of the consumer or the environment. Other countries have chosen to broadcast HD as MPEG4 over DVB-T, meaning that many existing DVB-T STBs, PVRs and integrated TV receivers can receive, or be “firmware upgraded” to receive, HD broadcasts. This caused some confusion in the UK, as many DVB-T

products such as Sony's PlayTV, various HD Ready digital televisions and countless high end PVRs and STB, can already receive HD programming in other countries where they're marketed, but not at all in the UK. In those other countries these pieces of DVB-T hardware will be able soldier on for years to come, delivering terrestrial HD to satisfied consumers. However, thanks to the UK decision to prioritise bandwidth efficiency (so as to deliver countless channels of dubious programming content), anyone wishing to receive HD, to utilise their new HD Ready TVs, will need to replace their almost new and perfectly good DVB-T receivers with DVB-T2. Consumers thinking they've rationalised to a single box solution will once again have to add an STB, or do without the HD they thought they were buying.

6. Eventually, after consumers have finally added new DVB-T2 receiver STBs and/or PVRs to their "not-so-HD-Ready-after-all" televisions, or procured HD programming through other delivery mechanisms (Sky, cable etc), they will have a receiving capability that actually exceeds the old analogue capabilities. But in the process, integrated receivers, STBs and PVRs, perhaps even TVs, purchased to meet the timescale of the digital switchover, will be rendered obsolete – this nearly new equipment will end up discarded and, if we're lucky, recycled, perhaps within one or two years.
7. The key driving force for digital TV, and for the almost secret plans to introduce DVB-T2 for HD, appears to have been to maximise revenue from the sale of bandwidth. The results have been the unnecessary sale of vast quantities of (DVB-T) equipment with built-in obsolescence, and a plethora of channels carrying poor quality programming, many seemingly delivering nothing but socially reprehensible and misleading marketing. The consumer would have been far better served by a few quality channels of HD via MPEG4 over DVB-T, or by delaying the analogue switch off until DVB-T2 was generally known about, understood and widely available.
8. When it comes to digital radio the tangible benefits to the consumer are even harder to rationalise than for television, for example: (a) DAB is not capable of the near CD quality sound it was claimed to be, it isn't even capable of near FM quality sound (though, as with digital TV, it may outperform analogue in the case of interference); (b) consumers have even less demand for additional radio channels than additional TV channels; and (c) there is surely less revenue to be made from sale or re-allocation of the frequencies presently used for FM, as far less information can be carried in this narrow band.
9. Any a switch off of FM radio, within the next decade, would incur great inconveniences for consumers as many households have more FM receivers, covering a wider range of applications, than TV receivers.
10. An audit of my own household revealed two personal FM radio receivers, three FM receivers built into mobile phones, one hi-fi FM receiver, one FM receiver

integrated into a home theatre system, one receiver built into in-car entertainment equipment, and a few very cheap portable devices. Of the seven regularly used receivers, five are extremely compact and low power battery operated devices, a function that cannot be adequately replicated by DAB, three are integral to expensive highly functional equipment that should not be needlessly consigned to unnecessary obsolescence, and at least one is capable of better fidelity than the DAB mechanisms provide for. My household would therefore be badly served if FM were to be switched off.

11. Our household has just one car, but many households have two or more cars, many of them including highly integrated model-specific FM radio receivers with special fascias such that they cannot easily or cost effectively, if at all, be upgraded. Such designs are used as disincentives to thieves, but they also make upgrade very difficult. Most of these units have RDS, Traffic Announcements, EON etc, and MP3 inputs, meaning there is no reason why they shouldn't satisfy the consumer for the life of the vehicle. In addition some cars rely on FM transmissions for traffic information and congestion updates to their integrated, or self-contained add-on, satellite navigation systems. These expensive, recently developed and highly functional entertainment and navigations systems should not be consigned to the scrap heap at a whim of the government. Cars and their ancillary equipment should be expected to last at least a decade, and the government should do nothing to lessen this.
12. Due to the range of FM receiving equipment, from tiny personal radios from "pound shops", to expensive highly integrated home entertainment and vehicular systems, it may be far more inconvenient and damaging to many consumers to switch off FM than it has been to switch off analogue TV.

27 February 2010

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### **Memorandum by Dave Kimber, St Neots**

I have little to say about the switchover to digital television, except that I am disappointed that technical standards seem to be low. Digital JPEG artefacts are often visible on digital terrestrial TV, presumably due to low bit rates, and can even be seen on analogue signals from time to time. Pictures containing much movement, such as live football, are noticeably inferior to analogue. It is probably too late to improve things, apart from reducing the number of stations sharing a multiplex, so my main concern is that the same mistakes are not forced on radio listeners.

DAB, in its current UK form, is not a suitable replacement for FM radio. Sound quality is poor due to low bit rates. At best (BBC Radio 3) the quality approaches that of FM – hardly the 'near-CD quality' or 'crystal clear digital sound' we were promised. Engineering tests in the early days of DAB established that to obtain high quality sound

requires a bit rate of 256k. The UK started with 192k, then in most cases dropped to 160k or 128k. Commercial stations are particularly bad. If such low bit rates had been envisaged at the start then the coding method used should have been MP3 rather than MP2, as this copes better at such low rates. The UK has the lowest DAB bit rates of any country. Ofcom seem unconcerned by this, but their remit nowadays seems to be to save money or make money for the Government rather than maintain high technical standards.

DAB was designed to provide high-quality sound broadcasting in mountainous regions where FM is spoilt by multipath reception. It is therefore curious that in the UK such regions are precisely those where DAB is unlikely to penetrate! In lowland areas multipath is less of an issue so FM is a suitable technology. DAB could potentially provide one of two advantages over FM, at considerable cost: better sound quality or more stations. The UK has chosen the latter while pretending to have the former too. More stations means mainly more commercial stations, but then the listeners and advertising revenue are spread too thinly so it is very difficult to make a DAB station economically viable.

DAB in its current UK form should be scrapped. There are then three sensible options:

1. Stay with FM for now, with a likely gradual transfer to internet digital radio in the long term.
2. Re-engineer the DAB spectrum, with many fewer stations but at higher quality e.g. 256k for Radio 3, 192k for others. There would then be an incentive for the purchase of new equipment. If this proves popular, then eventually (2025?) DAB stations can stop simulcasting on FM.
3. Re-engineer the DAB spectrum using DAB+, which is what most other countries are doing. This allows both higher audio quality and more stations, but would be incompatible with most current DAB receivers. A DAB to DAB+ switchover is inevitable, unless DAB is dropped altogether, and the sooner it happens the better. A switch-off date for DAB should be announced now, with a requirement that all digital radio receivers sold in the UK support (or can be upgraded to support) DAB+.

In any of these scenarios there will be a continuing need for a robust national FM transmitter service, which may require refurbishment or replacement of current equipment. It has been suggested that the Government's apparent haste in pushing DAB is partly based on a wish to avoid spending money on FM.

It seems clear that there is no public appetite for a switch-off of FM. DAB is not popular in the way that digital TV has been, despite the vast advertising spend of the BBC. People do not wish to replace large numbers of perfectly functional radios, nor augment all of them with DAB converters. Given that many FM portables have no antenna socket it is unclear how a DAB converter could interface to them without creating severe

interference problems. DAB equipment will always be more power-hungry than FM, so extra power sockets or frequent battery replacement will be needed. This is both inconvenient and wasteful.

DAB in its current form is a mistake. The sooner this is admitted by those in authority, the sooner we can have a sensible debate about the way forward.

*Personal information*

I am not a technophobe. On the contrary, I have degrees in science and engineering and worked for many years in the IT industry. I am both a hi-fi enthusiast and licensed radio amateur.

These remarks are made in a personal capacity. I hope you find them helpful.

27 January 2010

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**Letter from Boyd Lee, Lancashire**

I am writing this as an individual having just experienced the digital switchover in my region.

Various things have occurred to me regarding TV viewing. When I first moved to this town a single black and white TV gave all the entertainment we needed and quite simple to use, we now have 2 colour TVs but only one digital box so one of the TVs is now defunct although in perfect working order. Should we have to buy a digital box in this day and age to revive it or do we send it to landfill?

My youngest son has been lucky enough to get a digital TV at Xmas with freeview built into it and so he only needs one 'box' in his room thus cutting high carbon electricity all TVs use from our local coal power station.

My thinking is... if only we could share the benefits of digital TV more easily to older TVs in the home we'd reduce our need for extra energy consuming digital TV signal boxes and their almost certain landfill capacity.

Another observation began when snow came last week I noticed a reduction in digital service to our TV. Suddenly we couldn't get off the drive and I needed to put on the news. We put on the Sky box for news and eventually got only one signal after 15 minutes and that was Sky News no BBC or any other usual choice of channels. This happened for about 3 days when we were able to get BBC and other channels but despite a higher temperature today (2 degrees) we still have to wait about 12 minutes to get a signal.

Does this mean our TV and old Sky box now need replacing to take advantage of the digital revolution or was it a bit of snow on the Sky box or was it simply a weak signal due to bad weather? Have I got time to find out? No, but I wonder if we should have expected this sort of practical loss of a useful TV and loss of signal/service when I needed it from the switchover.

PS I was able to get the best info by leaving on an old analogue radio on Radio 4 for the duration of the worst weather and not a glitch from it. A lesson for future communications in poor weather?

11 January 2010

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### **Memorandum by Gary Leighton-Jones, Conwy**

As a matter of chance while channel hopping I noticed the select committee on possible radio switchover and felt that I must comment. I'm 55 years old and have embraced new technology over many years - iphone, dab radio, Freesat, internet radio and love these. But and it is a big but, while DAB radio is worth while it suffers from terrible reception problems in rural areas. I purchased my 1st DAB radio about 5 years ago and this only works in the kitchen area of my home. I have to rely on FM radio elsewhere or internet radio up stairs. The position outside is not much better, so dab portable devices are not very worthwhile in many areas. I'm very afraid that we could end up with a position were Government once again widens the digital divide rather than take steps to improve situation.

Large centres will have many multiplexes while smaller communities are left with 1 or 2 but with reception problems. My worry is that I've now had TV switchover which is good but I like many others have been left with a substandard service were only 3 multiplexes received because we are on relays. To compound this in rural areas broadband speeds are in the most part terrible compared to main cities and towns so iplayer etc will not run. Therefore, because Government tend to take easy options we lose out.

In the case of radio which is a highly portable media, we could see a return of the outside aerial to a fixed radio; in that case we might as well dig out the value radio and start again.

16 February 2010

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## **Letter from Robert Liddon, London**

I understand that the House Of Lords Communications Select Committee is holding an enquiry into the digital switch-over of TV and radio. With this in mind I would very much like somebody to ask the fundamental question, "why must analogue radio be switched off and why must we go digital at all?" We are constantly told that we must but I have yet to hear any reason why. Maybe this point could be included in your enquiry?

27 January 2010

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## **Memorandum by Michael Lowe, Essex**

1. This submission is concerned only with the proposed switchover to digital radio.
2. There appears to be little evidence that the public wishes to change to digital radio. Ofcom's market research has shown 90% of people are "very satisfied" with what they are already receiving on FM. FM broadcasting covers 99% of the country, DAB is approximately 70% and the coverage is never likely to reach 99%.
3. The audio quality of DAB is inferior to FM. When DAB was developed by the BBC a transmission rate of 256Kbps was established as giving the same audio quality as FM. None of the current DAB stations in the UK transmit at 256Kbps, the highest is Radio 3 at 192Kbps, with some at 64Kbps giving a very dull and lifeless sound.
4. A higher quality DAB+ system has been developed and adopted as the world standard for digital broadcasting. However, there appear to be no plans to adopt DAB+ in the UK. It appears crazy to proceed DAB (an outdated system designed in the 1980s) and ignore the superior DAB+ international standard.
5. Green issues. DAB radios have substantially higher power consumption than FM radios. Most DAB radios are mains powered and those portables that exist usually run rechargeable batteries. FM radios because of their lower energy consumption normally use disposable batteries and are fully portable. I have an FM radio which runs for a year on three C cells, no DAB radio can even approach this performance.
6. The other important Green issue is the cost to consumers of replacing the 120 – 150 million devices in use that can receive FM perfectly well. It should be remembered that radio in common with all other broadcasting systems most of

the investment is made by the consumers not the broadcasters. In this case the consumers appear to be getting very little out of the proposed change.

7. DAB is unpopular with consumers. Currently, according to the latest Rajar figures only 13.3% of listening is done via DAB and 66% via FM/AM (Rajar do not break this figure down). The growth area in listening is via mobile phones, mostly on FM. Although it is expected that listening via the internet will be a major growth area in the future.
8. In many ways DAB has already failed, the commercial broadcasters are in trouble and a number of stations have already closed. The plans to close FM appears to be an attempt to bail them out, to save them the cost of transmitting on FM. However, it seems totally unclear why consumers should bear the cost of this bailout, lose something that they are satisfied with FM and have it replaced by something inferior and for which they have shown little enthusiasm DAB.
9. There is the extraordinary suggestion in the Carter report that FM transmission should be switched off when 'digital listening' reaches 50% of total listening. However, 'digital listening' includes not just DAB, but Freeview, Freesat and the Internet, why this should be a reason to switch off FM which would still have been far the largest share of the audience was never properly explained. Certainly, it is hard to see any broadcasters being happy to lose a substantial part of their audience if this happens.
10. A date of 2015 has been suggested for the possible switch off of FM, it is difficult to see DAB expanding enough to replace FM in such a short timescale. Take listening in cars (approximately 20% of all radio listening) very few cars currently have DAB radios and almost none are currently sold with them as standard. With an average lifespan of ten years it is going to be many years into the future before even a bare majority of cars have DAB radios.
11. The government's proposal that it will announce the switchover two years in advance is clearly quite inadequate for a major change of this magnitude. If it is to happen it should be a minimum of five years notice, preferably longer. The switchover to digital television provides a useful template in respect of appropriate timescales.
12. It appears that there has never been any serious attempt to consult the public, who will have to bear most of the cost, if they want this proposed change. Certainly DAB has not been a roaring success so far. It will be noted that almost every DAB radio sold also includes FM.

13. There must be serious doubts if DAB is the correct way to go in the future, it is being overtaken by technological change. More listening is being done via the internet, with a choice of thousands of stations and the invaluable BBC iPlayer service. The government wants to provide a universal basic 2Mbps internet service, which is more than adequate for listening to radio broadcasts. Almost every computer can be used to listen to Internet radio, better speakers are often an advantage. Specialist Internet radios are also available, although they are currently relatively expensive. Shouldn't the Internet be the main means of listening to radio, with FM retained to for mobile users in cars?
  
14. The Government/Ofcom approach to digital radio seems confused and half hearted as if they are not quite sure what to do. It is based on trying to help commercial broadcasters and set manufacturers and totally ignoring the interests of consumers. The best approach would be to have a proper high powered inquiry into all aspects commercial, technical, costs etc and seriously consult all interested parties. Then produce a suggested blueprint for the way forward.

31 January 2010

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**Memorandum by Chris McCarthy, Suffolk**

I am rather concerned about the proposed switch off of the FM radio services and being replaced with DAB. My experience of DAB reception has not been very satisfactory. I live just 8 miles away from the Manningtree relay and have found reception in my house to be a bit critical. In some circumstances when weather is bad I have almost lost reception with the radio making a ghastly stuttering sound. This seems rather surprising as I don't live very far from the local relay and am on top of a hill with a clear outlook towards Manningtree.

At work, which is down a dip, in the centre of Ipswich, I have found reception there to be un-usable. Positioning of the radio/aerial is very critical.

If I thought I was going to have improved quality I would have an outside DAB aerial put up, but I feel that quality wise FM is superior. From what I have read and understand DAB + seems to have a lot more going for it and yet to my knowledge it has not even been tried in this country.

I wouldn't dream of having a DAB radio in my car. My experiences so far indicate that it is not worth bothering with and I can't see it improving in the near future.

What is happening to AM radio? Is this being switched off? I know we have had DRM trials and yet information seems rather muddled on what if anything is being proposed for medium and long wave radio.

27 January 2010

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**Memorandum by Ian Macdougall, Glasgow**

I have only found out about the deadline for submissions on this subject (clearly not widely advertised) and hope you will accept my view.

I have no problem with the concept or the content of digital radio but have a major complaint about the ability to receive a reliable signal. I have 3 digital radios, one a high end house radio, a portable 'kitchen' radio and a pocket portable which cost £60. To be honest I have recently given the first 2 away and use instead 3 high end American made FM radios at home.

I travel extensively and whilst the DAB reception in Manchester is excellent in Glasgow it is appalling. In many major conurbations reception is very patchy and on the move it sounds like one's head is in a goldfish bowl.

My comment is simple. If you cannot get DAB to work you should not eliminate FM which is tried and tested and in my view sounds better as well.

27 January 2010

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**Memorandum by Melvyn McGann**

I would like to register my dismay, no, my incomprehension, at the proposal to switch off FM broadcasting. As a professional engineer, formerly engaged in broadcasting, I like to think I have some reasonable background in the subject.

The reason it would be a very bad idea is in accordance with the old engineering motto "If it ain't broke, don't fix it". More seriously, there is no need to turn it off as it provides a perfectly satisfactory service to almost every listener. The coverage is good, reception is predictable, receivers are cheap and small (due to be an established technology), the time pips are not delayed by several seconds (just try listening on Digital at 6pm), and lastly, which I personally think is the most important point of all, FM sounds better!

Yes, I know that digital TV pictures are often better than the analogue, but the same by no means applies to DAB sound broadcasts. This is due to technical reasons, basically that the BBC picked a very poor system for the broadcasts, and are now also actually compounding the situation by sending the broadcasts using a very low bit-rate. Sorry about the technical term, but basically it means that money is supposedly saved by operating the equipment in an unwarranted cost-saving mode. This might appeal in the current climate, but it makes the sound much worse than the FM broadcasts, and is not really necessary... Go on.....try a direct comparison preferably using Radio 3!

The change to Digital Audio Broadcasts is supposed to be progress, but this should not involve the disposal of millions of perfectly serviceable FM radios, a large cost of buying new receivers, greater power consumption of receivers, an inconvenient time delay, and above all, worse sound.

Please please do not turn off FM unless all these concerns have been addressed.

31 January 2010

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#### **Memorandum by David Mcgregor, Gloucestershire**

I live in Stroud, Gloucestershire, and am unable to get reception for digital radio at all. Admittedly we live near the bottom of the Slad valley in the centre of Stroud, which is fairly low-lying among the surrounding hills and uplands. I still find it unacceptable in 2010, in a part of Britain which is hardly remote, to be unable to receive *any* digital signal for radio at all.

I would urge that provision be made to provide digital delivery of radio to the whole mainland and outlying islands of the United Kingdom, including the Isle of Man and the Channel Islands.

1 February 2010

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#### **Memorandum by Philip Mallory**

Hello, I wish to make my expectations as to the continuing need for the provision of Radio services via the existing FM transmitter network very clear.

- 1) The expectation that there will be a sufficient number of DAB receivers by the planned cutoff date for transfer of radio services is completely wrong, most households have several FM receivers spread across portable units, hi-fi units,

car radios etc. it is completely unacceptable to expect all of these to be replaced within so short a time frame. Further with the vast majority of cars being sold today DAB is an still on-cost option and likely to remain so, with modern cars it is no longer a question of going to Comet or wherever to buy a replacement unit, car radios are an integral part of the car design both as a piece of hardware and with regard to the way the unit is designed to function in the car in conjunction with other systems such as navigation etc as well as the software compatibility issues as to remote displays of radio information etc.

For example in my own household there are 3 hi-fi units with FM receiving capability, 3 portable FM radios and 3 cars with FM radios, none of this equipment is life expired, nor will it be so by 2015, in the case of the car radios I think it is unlikely that 2 out of 3 will be able to be replaced with DAB radios without other modifications to the vehicles and or loss of other functionality within the vehicle, we are not planning to replace any of these vehicles or domestic FM receiving equipment before 2015.

- 2) I am a BBC license payer, I feel I have a right to determine together with my fellow license payers in which format I access the public service broadcasting financed via the license fee, this debate is not happening and the decision to potentially stop FM broadcasting in 2015 absolutely does not have the support of the general public as recent polls have shown
- 3) The quality of DAB broadcasts is in no way comparable with the current FM service, in particular the bit-rate of current DAB broadcasts is woefully inadequate for music programming of all kinds, this covers the vast majority of all radio output, neither is the market there for extra channels the BBC claim we need , if there was a great many more people would already have bought DAB radios and be listening to, these channels, they haven't and aren't, and still won't even if we are forced to deal with this unwanted change of broadcasting technology
- 4) The environmental aspect of a switch to DAB transmission instead of the current FM system is also being completely ignored, in order to achieve the same reach as current FM broadcasting services upwards of 60 to 70 million FM units would have to be unnecessarily replaced by DAB units before the currently mooted switch to DAB at a massive and completely avoidable cost in materials and energy which is also completely unacceptable in this era where the world is trying to move towards a greener lifestyle.

The BBC budget has been coming under a great deal of scrutiny recently as always from time to time, the BBC should absolutely not be allowed to spend any more license

payers money on this unwanted broadcasting medium with the support of those who finance it - us the license payers. The BBC does not have that support and never will have if it means the end of FM broadcasting in the UK.

1 February 2010

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### **Memorandum by Brigitte Mann, Cornwall**

I have just found out about your call for evidence. I appear to have missed the deadline but hope you can take my views into account.

We receive our TV signal from the Caradon (Cornwall) mast. We switched to digital last autumn (2009). My views are as follows:

- In my experience we have no better signal and no more channels than before switchover so have gained nothing from the changeover.
- To the contrary, switchover has cost us a significant amount of money. We have to replace our perfectly good and not that old DVD recorder as it no longer records any programme other than the one we are watching. The recorder was sold to us by a major department store. We purchased it together with a digital ready TV. We requested that the TV be digital ready and it was. The DVD recorder isn't and we weren't knowledgeable enough to realise this until it was too late. I believe the switchover has led to consumers being mis-sold TV/audio equipment that is not switchover-proof. Whether this is through design or ignorance I do not know.
- We are not the only members of our family who are replacing our DVD recorders as they no longer do what they were purchased for - record programmes we are *not* watching. How do all these obsolete DVD recorders, TVs, etc fit in with the so-called 'green' agenda? There will be a significant waste of resources. Even if some components and materials can be recycled - although many machines will end up in landfill - you cannot recycle the energy costs bound up in the manufacture of these now-obsolete products.
- Digital UK should stop 'spinning' - it's not their role. They should not continue to tell consumers such as myself who are angry about the imposed obsolescence of their recording equipment, that it's not useless - they kindly and patronisingly explained three times that I could still use it to playback things I had already recorded or that I could record the programme I was watching!

- I have found it very difficult to get a straight answer as to whether I should be able to receive BBC Radio Cornwall through my TV.

3 February 2010

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**Memorandum by Mary Mantell**

Please note my disquiet about the proposed switch to Digital.

I have two digital radios both are now tuned to FM as digital reception is so poor. Also the personal cost of replacing my other radios is prohibitive.

I do NOT want to switch.

27 January 2010

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**Memorandum by Steve Mayes**

Please do not switch off FM radio. If you do then the seven FM receivers in my house will be consigned to landfill.

Multiply that by the number of households in the country.... that is not sensible, rational or responsible behaviour, is it?

27 January 2010

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**Memorandum by Steve Mott**

I am writing in submission to the House of Lords Communications Select Committee inquiry into the digital switchover of TV and radio.

We need to consider radio as not just an entertainment medium, but also as an important means to address the nation in the event of a national emergency, such as a terrorist attack or natural disaster. Such an event could result in large areas of the country being without electricity for a significant period of time. In this case, people would need a battery operated radio as an essential means of staying informed. The most useful transmission medium under these circumstances is good old fashioned AM, as one AM transmitter can cover the entire country if necessary, for instance the radio 4 Long Wave transmitter can be heard all over Europe, and we can receive many foreign

stations on AM, especially after dark, meaning that in a real disaster, UK survivors could be addressed from a station on the continent. Analogue AM and FM receivers are also very economical on batteries, important in an event where replacements or the means of charging are not available. DAB and to a lesser extent FM, relies on a network of relay transmitters, and the receivers have a very short battery life, rendering them far more likely to be useless in an emergency situation. Far from switching off analogue radio, we need to keep sport and news/talk stations on AM (where the sound quality is less important), to ensure that people have a reason to keep buying and have access to battery operated AM radio's for use in the event of the above scenarios.

27 January 2010

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**Memorandum by Geoff Nock, Bournemouth**

As an individual with considerable technical knowledge, I would like to convey my objection to the proposed switch-off of FM radio national networks.

There are numerous technical and economic reasons against total reliance on DAB radio, just one being the large increase in power consumption of all the receivers.

Further, the current DAB standard for the UK is very outdated. Much more efficient systems are now available.

Thank you for your time.

27 January 2010

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**Memorandum by David Park**

I am an ordinary radio listener and I am shocked to hear that my FM radio is going to be switched off.

We have a DAB radio set which cost far more to buy than a good FM radio set. The sound of the DAB is no better than the FM sets we have, in fact the DAB is mono sound and the FM sets are stereo.

The DAB stations are hard to find and tune to when wishing to change station, older people well DAB is just beyond them. In fact this DAB is now unused.

I know no one who as a car radio capable of receiving DAB and cost of changing the factory installed car radio is prohibitive.

I'm also shocked to read Ofcom say most of the general public want this changeover to happen, from what I see of my friends' feelings I would say Ofcom are completely out of touch.

Please keep FM as our standard for radio to home and cars.

27 January 2010

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### **Memorandum by Keith Parsons, Parwich**

I would like to bring to your attention the following points regarding the proposal to scrap the fm signal and replace it with DAB:

There are an estimated 370 million fm radios in the UK. (You may have another figure.) To make these sets redundant at a stroke would be a scandalous waste of money when they already do a good job. Unless they are forcibly made redundant they are not redundant.

The additional cost of having to buy new radios would run into billions of pounds of private expenditure, most of which would be spent on imports, so there would be little benefit to the economy. This is unnecessary expenditure since the present FM system works perfectly well.

The carbon footprint associated with the scrapping of the country's entire stock of radios and replacement with new ones, would be enormous and I beg you to find an expert estimate before you implement the DAB policy. Reducing our carbon footprint is a Government priority.

With DAB digital, there will no longer be a single accurate time signal for the whole of the UK, since DAB has a few seconds time delay built into it. It is a very valuable service for time keepers to be able to have accurate coordinated time anywhere in the UK, and this service should not be scrapped. It does not represent progress to scrap it.

If we live in a democracy. For the word democracy means anything, you will hopefully listen to the vast majority of people who are satisfied with fm reception and fm radios.

Be aware that the manufacturers of equipment have a vested interest in this vandalism of a vast quantity of capital equipment, and that the views of ordinary people should be set against this.

The issue of DAB reception in cars has not yet been satisfactorily resolved. Whereas FM reception in cars could not be better.

Will the supposed increase in stations provide better programming? Taking television as an example, the answer must be negative. Since the Thatcher television revolution we have more channels with more dumb repeats. Quality has not improved with more stations. Why repeat this mistake with radio?

To summarise: If it ain't broke, don't fix it!!!

27 January 2010

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### **Memorandum by Robert Parsons**

It is probably pointless to argue against the FM switch-off per se, but I am dismayed that the intended replacement platform is the very low resolution, already obsolete (1980s MP2) DAB which, in quality terms is incapable of matching even CD, and is incapable of improvement (so no future-proofing with this expensive, power-hungry one-off).

That former centre of excellence, the BBC has recommended DAB, and lies continuously in support of its decision. There isn't sufficient coverage to justify the decision in audience terms, and no model anywhere suggests that this will change. There is much greater and continuing uptake of internet radio, with much higher resolution available, with a much smaller footprint, even from the BBC. The BBC is capable of manipulating its internet output to reduce the difference - which is what they have already done to Freesat video output in order to match down to the inferior Freeview.

PLEASE, demand a better, greener digital platform before agreeing to Ofcom/BBC proposals. You are all listeners. Do you really want to lose the wonderful Radio 3 and 4 performances we enjoy now? And bring the best down to the worst of commercial radio?

Bob Parsons, prompted by savefm.org

27 January 2010

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### **Letter from Tim Passingham, Hertfordshire**

This is a brief individual contribution to the public consultation on digital switchover as it applies to radio.

To provide some background to my comments, the radio equipment I have consists of:

- a DAB alarm clock radio
- a DAB/FM alarm clock radio

- a mini-hi-fi with FM radio built in
- a hi-fi DAB/FM radio
- a hi-fi FM radio
- a kitchen fm radio
- a car FM radio
- a top-of-the-range shortwave/FM radio (for travelling as well as home use).

I use all these radios frequently, most of them daily.

My concerns are two-fold.

#### 1. The number of Radios to be replaced

If FM radio becomes defunct, so do many radios. Unlike televisions, where £50 or less will buy a digital convertor, I have to throw away some very high quality radios. I estimate this would cost me well over £1000 (hi-fi 'tuners' are not cheap).

I do not think I am particularly unusual in possessing so many radios. This is in stark contrast with the situation with televisions. Most households possess one or two, possibly three.

#### 2. The possible 'enhancement' of DAB

I understand that DAB may be enhanced to DAB+, with existing DAB radios being incompatible. This will cost me another £450 or thereabouts.

#### Conclusion

I do not believe this conversion process is necessary. It will cost many people an inordinate amount of money for no significant benefit. Many people will not be able to afford this replacement process. Further, DAB quality is, in many cases, less than FM, so I would be spending a lot of money to get a worse service. This cannot be right.

Yours, in the hope that common sense will prevail.

27 January 2010

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#### **Memorandum by Barry Pearce, Cornwall**

Having seen details in a newspaper of an opportunity to comment on the merits, or otherwise, of the Television/Radio Digital Switchover I would like to do so.

I had been an avid viewer/listener to digital services before the loss of the analogue signal (September 2009) but I always used the analogue version for the main channels

because of the fantastic teletext service. Despite assurances from the professionals I was dreading 'D-Day' because I realised how poor the alternative text service was.

Certain aspects (where they are still available!) of the digital text service are good such as the quick change between pages and the provision of other regions' news/sport but that is of little consolation for the loss of so much useful information. The new system does not even have a page for TV programmes. Not only that, the speed of the text service is markedly slower than its forerunner.

Having ranted about the text service, my personal experience of the digital TV service itself has left a little to be desired. The tuning of our main TV has been more or less free of problems but my second set (with a very good picture) still cannot provide channels in the correct order or with the expected channel number. BBC1 and BBC2, for instance, are numbered 825/832 and 826/828 despite several goes at re-tuning.

My conclusion is that the whole episode was little more than a money-making scam. We have had trouble-free TV for years and years in the UK so why should the public have to take such a backward step?

Thank you for the opportunity to have my say.

30 January 2010

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### **Memorandum by Steve Pendlebury, Bolton**

I have today been able to see the report about Digital Switchover and will make the following comments which I hope will be passed to the enquiry.

1: TV Digital Switchover. This has not entirely worked and many working sets are being scrapped as a result of this. If you haven't got Satellite or Cable, you are expected to buy a box to view TV now, and the quality and longevity of these vary dramatically. Here in Bolton, very close to Winter Hill, we got three of these boxes and they simply do not work - missing channels and blocking. With the Analogue system, the sets worked on their own set top aerials. Now, whether they work or not varies from day to day. This is not progress. Also, people on relay stations will not get all channels but still pay a licence fee. And who really wants some of these channels anyway? Setting them up again lately, I noticed a channel called 'Gay Rabbit'. I am not gay nor am I a rabbit owner, and I doubt it's that kind of rabbit anyway...

2: Digital Radio - Sorry, no go. I can get better quality off my Satellite Receiver and the DAB radio has nothing on it worth listening to anyway. I can't remember when it was last switched on, because the quality is poor and our original FM radios give better quality. DAB is not going to be the new standard because it isn't good enough. The same system applies to any system, Digital or Analogue. More channels, less space, lower

bandwidth so poorer quality. It's a step BACK, not forward. Add to that the interference on sets in some areas, no operation in others and you can see that despite business and large players wanting to shut off FM, and some shops not selling FM radios any more, there are millions of sets in everyday use that will be made useless. Would these businesses like to have their audiences halved overnight? And the environmental factors of so many sets being chucked as well? The one in the shed or garage, the one in the back room, the one in my new car outside....

3: Dare I suggest that you only hear what THEY want you to hear?

4: In a national emergency, we are all told to 'tune in'. What to with DAB. I know that the big aerial at Droitwich needs maintenance. It should be considered.

It's not too reasonable to see that it's a bad idea and so far badly managed. Stop radio going the same way as TV is doing.

27 January 2010

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### **Memorandum by Richard Pole**

I have been asked to express my views on the FM switch off proposal.

13. Sound quality: FM has a far better sound quality when listening to music than DAB. The reason for this is that transmitting music over 128K compressed bandwidth only provides a quality frequency response of up to 8kHz, compared with FM frequency which has no restrictions up to 15kHz. For example, in Europe DAB is transmitted at 256K which provides superior sound quality. The frequency response for music should go up to 20kHz for the human ear.
14. Portable radios: Using a portable radio with batteries, FM takes far less power consumption than DAB - a comparison of approximately 4:1.
15. Standby: All DAB radios in standby mode are using 90% of the power. With our attempts to reduce global power usage this is not the way to go.
16. Ease of use: FM radios are easy to use, particularly for elderly people. DAB is complex and with 100s of channels it makes it very difficult to change from one channel to another.

17. Car radios: All car radios run on FM because it is nationwide. DAB transmission is patchy. Reception may be excellent in London but other places do exist in the UK which don't benefit from infrastructure investment.
18. Regional stations: Here in the north west we have a local radio station called Heart. Unfortunately the Heart that we are able to receive on our DAB radio is the London station's broadcast. This is not a one-off situation.

1 February 2010

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### **Memorandum by David Prewett, Gloucestershire**

My evidence is submitted on an individual basis and encompasses my concerns for the future plans for radio broadcasting in the UK. This is not written in technical terms, but solely from the position of a listener, a consumer of the services.

Over the last 50 years progression in radio broadcasting has been evolutionary, driven by the desire of broadcasters and listeners for higher quality of sound reproduction and ease of use. Following the Second World War the need for additional frequencies led to the development of Vhf/fm transmissions. These provided vastly improved quality and bandwidth compared to the AM/MF services and these qualities remain true to this day.

Later developments included the introduction of stereo and programme labelling with the Radio Data Service [RDS] service, all these were evolutionary and have provided the listener with a quality sound reproduction and universal coverage in car radios. The addition of RDS allowing car radios to automatically stay tuned to a particular programme label regardless of where the car is driven or the transmission frequency carrying the desired programme

I have included this historical detail in order to emphasis the point that, for the listener, we have arrived at a point where we have with Vhf/FM a really excellent quality of stereo sound reproduction combined with optimal ease of in car use with RDS. This is combined with a huge user base for these existing systems.

The Government has expressed plans to further move to digitally encoded radio by expanding the current service of DAB. The date of 2015 having been mentioned to achieve this move, presumably with a concurrent run-down of existing Vhf/FM services.

I believe that for listeners this would be a disastrous move, leading to lower quality all round. Broadcasting is moving to a world where it is being driven by technology, by marketers and by equipment manufactures eager to see the next generation of products before the ink is dry on the latest brochures. The listener is in second place to this

process. Taking DAB, the BBC in introducing this system some years ago has paid the price of using encoder technology that has rapidly been superseded by DAB+ which offers some improvement in sound quality. The DAB transmission band widths have been progressively reduced so that we now have a system which is very inferior in sound quality to Vhf/FM. Many of our European neighbours are not following our lead and are introducing DAB + from the outset, are we in the UK going to continue to build up a listener base using old technology with DAB or are we going to bite the bullet now and change before the public has been persuaded to buy more DAB sets on the basis of "quality reproduction"

Turning to the future of Vhf/FM services I would suggest that the proposal to end these services around 2015 is impractical. It would engender a huge public backlash, for example the number of digital car receivers cannot be increased that rapidly to cater for a switch off in that time scale. There is also the steady evolution and adoption by many countries of digital broadcasting using the open Digital Radio Mondiale [DRM] system using MF/HF/Vhf frequencies. I would argue that a longer timescale is required before any switch off of current Vhf/FM is contemplated and that this time should be given to proper planning internationally for the possible introduction of higher quality digital DRM radio in the MF/HF/Vhf bands.

In summary;

I do not believe that the current DAB is appropriate as the digital standard for the future.

I do not believe that Vhf/FM should be made obsolete by 2015 but that much more consideration has to be given to other possible digital services i.e. DRM on these frequencies, always bearing in mind that in the interests of consumers new services should bring higher standards of quality not playing to lower standards.

30 January 2010

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**Memorandum by Barry Price, Bedfordshire**

I have no opinion to impart with regard to the switchover of television except to advise your Lordships that each of the television receivers in my house receive their signals digitally and I have no problem with the quality of signal...the same cannot necessarily be said regarding the quality of the content of some of the additional stations.

I am much more concerned about the possible switchover of radio to Digital Audio Broadcasting (DAB) and my concerns relate mainly to the listening publics' requirement for the switchover and the audio quality of the proposed media.

As far as the first matter is concerned the latest figures I have from the Radio Joint Audience Research Ltd. (RAJAR) website for "All Radio Listening - Share by Platform" for Quarter 3 2009 (up until 29th October 2009) shows 13.3% of respondents listening via DAB and another 7.8% listening either via Digital Television, the Internet or an unspecified digital source (RAJAR Data Release attached). This 7.8% would not be affected whether FM was left switched on as they are already listening to digital transmissions by an alternative medium (to DAB). This take up for DAB is despite the fact that there has been a media campaign on BBC Television highlighting the supposed advantages of DAB since at least 2007.

Unfortunately the Government's Digital Britain report recommends the 'digital migration' of the majority of radio services in the UK, by a proposed target of 2015. It specified an interim 2013 milestone of 50% of all radio listening to be through a digital platform. Theoretically this could mean that 50% of all radio listening was through the Internet but FM would still be switched off.

OFCOM's latest figures (Quarter 1 of 2009) indicate that cumulative sales of DAB digital radio sets passed 9 million. When compared to the estimated 100+ million FM receivers currently estimated to be in use it seems inconceivable that the thrust toward DAB radio carries the general public with it.

It should also be noted that there are some vested interests in this proposal (to switch off FM): the Government could raise billions of pounds selling the FM frequencies; commercial radio could make savings in transmission costs and by the possible income generated by charging for traffic and weather information, etc; radio manufacturers would be delighted that many DAB receivers would have to be purchased although, unfortunately, most of the income and employment generated would not benefit the UK as we barely have a radio manufacturer of note.

What is equally incomprehensible is the total lack of evidence that the general public is pressing for DAB to supersede FM.

Now if I may I shall ask your Lordships to turn your attention to the sound quality of DAB as proposed.

In BBC R&D White Paper WHP 061 published by C Gandy in June 2003 entitled "DAB: an introduction to the EUREKA DAB system and a guide to how it works" the following statement appears on Page 26 under the heading "5. SOURCE CODING":

"A value of 256 kbit/s has been judged to provide a high quality stereo broadcast signal. However, a small reduction, to 224 kbit/s is often adequate, and in some cases it may be possible to accept a further reduction to 192 kbit/s, especially if redundancy in the stereo signal is exploited by a process of 'joint stereo' encoding (i.e. some sounds appearing at the centre of the stereo image need not be sent twice). At 192 kbit/s, it is relatively easy to hear imperfections in critical audio material."

(The link for this document is <http://downloads.bbc.co.uk/rd/pubs/whp/whp-pdf-files/WHP061.pdf>)

The current proposals do not, as far as I can ascertain, set a minimum bit rate of 256kbit/s or even 224kbit/s - even Radio 3 is only being broadcast at a bit rate of 192 kbit/s after complaints from the public - so it can only be assumed that the sound quality of broadcasts received on anything other than a portable radio or car stereo will be worse than current FM transmissions - hardly a selling point for the majority of listeners in the UK.

If the bit rates suggested to give FM quality (224kbit/s) or CD quality (256kbit/s) (which was the original premise for introducing DAB) are adopted the number of DAB stations available would be seriously restricted because of the bandwidth which would be taken up.

There is, of course, an alternative to DAB known as DAB+ which has the capability of providing sound of much higher quality. If the government would be prepared to offer this as an affordable alternative to FM then I am sure that take-up would be greater and the government would not alienate a large number of the listening public.

27 January 2010

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#### **Letter from Geoffrey Price, Bristol**

This is the fourth time the BBC has cost us, the public, money, plus the disposal of often perfectly good radios for little real benefit.

Living as we do, in the Severn Vale, with our TV and radio signals from the MENDIP transmitters, we recently bought a digital radio, but the only channels we could receive were Radio 4 and some Welsh gibberish. We have been informed that the BBC do not intend to do anything to improve our reception owing to the limited numbers of people affected. As a result we returned our digital radio, so we will presumably soon live in a radio-less world.

As 76 year olds, my wife and I do not wish to spend a lot of cash to listen to basically rubbish.

3 February 2010

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## **Memorandum by John Rayner**

I wish to make known my views in relation to the proposed switch - off of FM radio transmissions. We were all told recently that DAB+ could not be adopted, despite its clear superiority over DAB, because the "many" who had purchased DAB sets would lose out as their radios would become redundant. Why have the BBC not considered the millions of people who will have useless FM radios as and when DAB is introduced? At a conservative estimate they must number approaching 100 million sets. Do the views of their owners count for nothing while the BBC ride roughshod over those of us who will not embrace a new technology because the old one is better or because there are newer and better alternatives? I have no problem with digital per se. and will happily embrace digital TV because it is better but to rail-road people into accepting DAB for what can only be suspect motives is worrying, to say the least. Why, when the rest of the world is looking to second and third - generation technologies is the BBC blindly carrying on with an inferior and 20 years out-of-date technology. We should be looking at, as a minimum, DAB+, and leaving FM well alone until better alternatives have been developed. The BBC have a long enough history of wasting money, this fiasco should be halted now.

31 January 2010

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## **Memorandum by Jon Rennison**

I oppose the FM radio switch over for 4 reasons

Am assuming it would cost me, one of the tax payers, money for I feel no gain at all FM sounds much better than the bit rates that are currently being broadcast

If I want more choice of stations I connect via internet radio either through wi - fi at home or through 3g on my mobile phone on the move

My car radio is FM

I look forward to hearing from you

27 January 2010

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## **Letter from Maurice Richardson, Hatfield**

It has only just come to my notice that the deadline for submission of comments to your committee is 1 February 2010. I am therefore sending this by post and, as requested, as an attachment to an email.

1. I take an interest in the subject of radio and television, and the fact that I have not realised that the deadline is almost upon us indicates how lamentably poor has been the publicising of this matter. I hesitate to suggest that this may result from the wishes of interested parties to see the programme of change slip through without attracting the objections of the vast majority of the watching and listening public. This means that the amount of opposition is grossly under-represented.

### **2. TELEVISION**

2.1 Many, including me, will regret the abolition of analogue television, since it has some advantages in breadth of coverage, absence of pixellating and other breaks, and also its immediacy, which means that we know the exact time, not an indeterminate period when the computers have finished processing the data. On the other hand, there is an advantage in the provision of extra worth-while services such as BBC4 and, dare I say, the Parliament channel. This does perhaps outweigh the extra cost - which most people have probably not yet appreciated - of scrapping all those extra TV sets in bedrooms, work-sheds and garages.

### **3. RADIO**

3.1 In the case of radio there does not seem to be any similar compensating advantage, since there is room for numerous channels on FM and AM.

3.2 I have various FM and AM radios, but have also purchased one DAB set from a good supplier to test the technology. My impression of the two is that FM quality is distinctly better than that of DAB.

3.3 DAB suffers from a similar unpredictable time-lag, so the removal of FM would leave us with no way of getting accurate time checks.

3.4 Since radio transmissions have become available on digital television channels, and a lot of people just do not bother with separate radio sets, there seems to be a cogent argument for discontinuing DAB transmissions to save an unnecessary cost to the licence-payer. The quality of the channels carried by television is adequate for most people, and the small number of listeners who want good quality reproduction will prefer to listen to Radio 3 or Classic on FM radio sets. FM, too, is easily connected into hi-fi installations, but DAB is not suitable for this. I have also read reviews which indicate that the particular DAB technology chosen by the UK is an inferior one and should be brought into line with other EU nations. All-in-all I think DAB radio should be

recognised for the disaster that it is and totally discontinued while FM should continue to please the vast majority of listeners.

27 January 2010

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### **Memorandum by Philip Riley, Derbyshire**

I was minded to contribute my thoughts to this debate as a long time listener to radio broadcasts mainly from the BBC.

I would say at the outset that the move to switch FM off is a bad decision. I have so far owned two DAB sets. A very early purchase, to try out the new technology was a portable from Perstel and latterly a PURE set designed for use in the car. I live in the largest town in Derbyshire, Chesterfield, population around 100,000. When I bought the Perstel set it was incapable of picking up a signal at all in the shopping area of town. I live at about the highest point in the town and can get a signal on it in some parts of the house but not all. I enjoy listening to the radio on an earphone when I am gardening or grass mowing. With the DAB set this is impossible. The burden of needing an extended aerial is a significant drawback but even with it extended, reception is still intermittent. I can use my Sony pocket radio on FM with none of these drawbacks.

The PURE radio in the car is a little better. In order to get it to work I have to carry a magnetic mount aerial on the roof of the car. I drive 9 miles to work in Matlock and at about 8 miles, I lose all signal and the radio falls quiet. I have to revert to listening on AM at this point on my journey every day. A hopeless situation. If only Radio 5 was on FM, I could continue to listen in the clear.

I think there is an environmental issue with the DAB sets generally which is their huge appetite for power. My two sets will each consume a pair of AA cells in about 6 hours or so (which at supermarket prices can be up to £2 for a set of two). My Sony AM/FM pocket radio consumes a pair in about a week or so. Many of the radios I have encountered do not enjoy running on rechargeable batteries due to their initial 1.2 Volt charge rather than the 1.5 Volt in an alkaline cell. The widespread adoption of DAB sets will, I believe flood landfill with dead batteries.

If I wish to listen on the digital freeview platform in the house, I have to run the TV set using around 100 Watts (or 15 pence worth of electricity every ten hours) - So much for saving the planet and reducing CO2 - this digital switchover and the abandonment of FM will positively increase CO2 production.

On the quality front - DAB is good when it is a good signal but none existent with a less than perfect signal. All users of both FM and AM would acknowledge that whilst a less than perfect signal is not ideal, it is at least still intelligible and one can still get the gist of one's programme rather than finding a chunk missing.

So in summary, for me, DAB has its role to play as a broadcast carrier but if it is at the cost of Analogue FM then it is an undesirable change, will make many millions of sets redundant and will stop someone like me who likes to listen out of doors from listening at all.

An unwelcome, retrograde step.

31 January 2010

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**Memorandum by Douglas Ritherdon, Essex**

This is a cry of anguish from an ordinary householder. In this house BBC Radio 4 is on most of the day and some other FM stations, such as BBC Radio 3, offering good music and plays, are also listened to. We currently have nineteen FM radios and one DAB radio. This latter is now infrequently used as the sound quality is not good enough to enjoy the programme being played.

Please do not switch off FM broadcasting at least until there is a digital broadcasting standard available that is as good as, or better than, FM. And of course in radio sets that are comparable with the price of FM radios today.

Please either scrap the proposed changeover, or at least postpone it until a better standard is available at a realistic price.

27 January 2010

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**Memorandum by Mike Rodway, Dorset**

I strongly object to the intention to "switch off" fm radio, in favour of dab. DAB sounds awful and does not match the "musicality of the fm signal.

27 January 2010

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**Memorandum by Vincent Roels**

Over the years I have made about 4 or 5 FM radio sets the last one being a Heathkit FM and AM model in 1967 together with a stereo multiplex adaptor. This model still functions well today. I use it with the hifi set up I have.

I cannot see any reason to switch FM off. It serves the country very well as it is. DAB is much more costly to run and not as good quality as FM. There is no international standard agreement for broadcasting DAB with other countries. I am lead to believe the standards in Germany, USA are of a higher quality than DAB.

It will cost this country a lot more money to change from FM to DAB, it is much better left as it is. The country would save a lot of money by not doing it.

27 January 2010

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### **Letter from Colin Ross, Bristol**

I write in response to your call for the views of consumers and others regarding the Government's proposal to switch public broadcast radio services to a digital format. I am a lay person without any professional or specialist knowledge of the technology, nevertheless I would be very grateful if you would consider a few points I wish to make;

- (1) in regard to the failings of the current DAB radio system and
- (2) the manner in which the BBC are failing, as a public service, to present information in respect of this aspect of their operations in fair and balanced way.

I am far away from being a musicologist or passionate audiophile but I very much enjoy listening to a range of classical music. My VHF radio tuner is of the 'entry level' standard but is adequate for my needs.

I do not have a true line of sight connection between my VHF aerial and the transmitter. I would challenge anyone, nevertheless, to say that the sound quality of the VHF transmission I receive, the occasional exception apart, was not markedly better than that of a CD played through the same equipment. In my experience VHF provides a very good quality radio signal.

I also have a DAB set. The differences in sound reproduction on the two systems are not large but are important. The analogue signal produces more colour and tonality and a greater spatial feel than the clear but abrupt digital output. This is a subjective assessment but there is a wealth of objective information on the net, from the BBC's own, as well as other engineers, detailing the different audio characteristics of the two carrier signals. The Corporation itself, in offering the boosted R.3 192 kbps signal, explicitly acknowledges the quality issue although its solution to the problem seems simply to be a gesture. (I understand the Germans broadcast similar content at 320 kbps.)

The BBC's false depiction of DAB's superiority in sound quality during its early nineties promotions has abated but the unseemly disposition of its officers to dissemble on the

subject, continues. On every occasion the issue of DAB versus VHF has been aired on programmes, such as Bolton's "Feedback" or the "You and Yours programme", BBC executives have attributed differences between the two as merely the 'subjective' perceptions of a hard core minority, whose self serving pronouncements, by implication, cannot be trusted. The officers have a clear right to voice corporate policy and collective opinion but it has surely to be balanced, in the BBC's case, with an absolute public service obligation to also truthfully present the relevant facts and options to licence payers in a disinterested and unambiguous way.

The BBC points to 'consumer data' that seems to suggest that the vast majority. (88%), of DAB listeners favour its 'clarity' of output over that of VHF. Was the loss of high fidelity and loss of stereo effect, made clear in the questions put or explicit in their context? Were alternative options, such as DAB+, explained to respondents? It is probably reasonable to assume that not all the essential adjuncts to such questions were highlighted, so preventing interviewees from getting a transparently clear view of the relevant facts before answering. We are, nevertheless asked to accept the survey findings as definitive.

In line with such surveys, it appears that the current authorities regard qualitative aspects of the radio experience to be of little interest to the bulk of licence fee payers and this seems to underlie much of BBC policy. Leaving aside the ugly condescension that, for many, that view may imply, is there not a deal of inconsistency in the BBC's position. It is currently pumping millions, possibly hundreds of millions, into high definition TV. Why so for TV alone? It is not too many years since the Corporation was trumpeting its high fidelity VHF radio output and its superior stereo capability as hallmarks of an advanced, civilized, broadcasting service. Have we changed or is it the corporation's attitudes towards us, - that have changed? From where I sit, it feels that the BBC and linked organisations are not responding simply to demand at all. There has also been an unhealthy chunk of PR control and, having talked to engineers, it seems, a suppression of real debate.

The most flagrant and insulting inconsistency, however, must be the yawning void between the aspirations of programme makers aiming to deliver such delights as the 'Proms' season and the sort of corrosive cynicism exhibited by the Chief Executive of the Digital Radio Development Bureau, when he said "You will *get some audiophiles that take issue* (but) the vast majority of people are not that bothered about the audio quality."\* Really!

Over the last thirty years audio manufacturers, driven by the attractions of ever smaller size and portability, have discovered, with the aid of modern marketing, that they can progressively reduce the sound quality of their devices for sections of the market, without public outcry, - CDs, cassette tapes, minidisks, MP3 players and so forth. It appears our broadcasters have not been slow to catch on. The BBC, now, apparently more than ever, fully engaged in the 'market' and anxious to match commercial concerns in every respect, has,- in the age of the ear phone, -managed to massively lower the quality of its audio output across the entire range of its DAB stations, seemingly without recrimination. But is this right?

Should the BBC, for example, be allowed to deploy its very considerable public relations capability to stifle proper public debate and defend, along with the Digital Radio Bureau, a perhaps inappropriate decision to retain the DAB format - come what may! A proper, open and balanced debate would surely come down to recommending VHF be retained until DAB+, is brought into operation. As it is, there is little doubt that manufacturers of popular music equipment will return to promoting high fidelity audio at some time; in the past it has proved a profitable route to new product sales. There is a danger that DAB radio will be left high and dry.

But it is not just about sound quality; it's about fairness and opportunity as well. We pay for the BBC. In return, over the years, the Corporation has helped construct some truly marvellous extensions to our cultural heritage, even to our sense of liberty. It is a wonderful thing, in common with others throughout the country, to be able to experience music which would otherwise be mainly the prerogative of a few wealthy metropolitans. How is it that some unelected, hardnosed, market driven apparatchik should so easily be allowed to fence off and suppress this beautiful, shared space?

Please help retain VHF until DAB+ is available and ensure that all DAB equipment sold in future can function with the incoming technology.

Help to give our programme makers the quality of radio that their work deserves and do not allow us to be deprived of our commons, - again!

29 January 2010

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#### **Memorandum by Lee Sanderson, Scotland**

I would like to raise a formal complaint about the poor quality of digital signal in the Ayrshire area as well as the lack of transmitters in Scotland.

There are only nine transmitters for the whole of Scotland compared to 27 just for the London area. This is very prejudiced and discriminating against the Scottish people and I demand that something be done about it.

16 February 2010

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#### **Memorandum by Roy Sandgren, Sweden**

I have notice a letter from Digitaltech UK which says that the FM band will be closed down within the next 10 years. Have to inform you that the European Union rules and regulation of broadcasting inside Europe is this; all broadcasting bands have to be open to all kinds of broadcasting of radio. Digital or analogue.

1. All broadcasting bands below 30 MHz in AM or DRM to private broadcasting. Commercial or community radio. LW, MW and SW.
2. Band I and II for FM and DRM+.
3. Band III for DAB+ and the L-band.
4. Band IV/V UHF to DVB-T2 Radio = radio via the TV-net.

All of this band above will be available in all European countries to broadcasters of radio. Sweden will open up the AM band to broadcasters 1 of July.

My recommendation is to convert in band III to dab+, to band I and II for drm+, which is better than even dab+.

Community radio in AM with no restrictions of criteria. Use the AM band to more power of local radio and community radio.

The OFCOM in England is an authority, which has too much more power against the freedom of speech. European law is bigger than OFCOM.

Please notice that!!

27 January 2010

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### **Letter from Martin Scott, London**

I, my family, and many friends listen a great deal to the radio and are horrified to hear that you are considering switching off FM radio transmission. I am writing to encourage you to vigorously reject any such proposal, and ignore the lobbying by vested interests such as the BBC. I will list my reasons below, however, the dominant reason is that the sound quality with DAB is much worse and hence very irritating.

- 1) I have six FM radios (1 Kenwood, 2 Sony and 3 Eton) and, largely as a result of hearing repeated exhortations from the BBC to try DAB, I have persisted and tried three different DAB radios (one Roberts and 2 Pure). Despite my efforts to try to like the sound quality, we all find it definitely woolly. This is pretty awful on BBC 4 (which we listen to most) and other stations and slightly less bad on BBC 3. Also if one moves the radio around (as we do) one gets an absolutely maddening occasional intermittent cut-out.

- 2) DAB uses a lot of power and when a radio is carried around the house, as some of us do all the time with our FM radios, it uses a set of batteries in little over a day.
- 3) As a result of 2), the consumption of power is considerably higher. Thus at a time when we are trying to reduce our power consumption and carbon emissions, such a move is a retrograde step. DAB radios are also more complex and use more energy and resources to manufacture.
- 4) The “Pause” and “Rewind” capabilities that one has on DAB are sometimes convenient, but NOT worth the woolly reception and occasional cut-outs.

28 January 2010

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#### **Memorandum by Devinder Sehmbi**

I am totally opposed to the FM shutdown. Apart from the current bit rate of current DAB transmissions woefully low, not up to CD standard but more importantly, FM transmissions are of much higher audio quality. All you need is a half decent aerial. I have a ‘very good’ DAB tuner which was purchased 2 years ago and an FM tuner way back in 1990. The DAB is very average in comparison. It is not only a difference in type of the sound but sonically the FM sound is preferable by a long way.

30 January 2010

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#### **Letter from Scott Simpson, Glasgow**

The following is my written evidence for the inquiry into the progress of, and prospects for, digital switchover of both television and radio in the United Kingdom.

In my view the present digital audio broadcasting (DAB) system is not ‘fit for purpose’ as a replacement for FM radio.

The sound quality of DAB radio is significantly inferior to the existing analogue FM system ([www.digitalradiotech.co.uk](http://www.digitalradiotech.co.uk)). FM (then referred to as VHF) was introduced in the 1950s. It would be bizarre for this to be replaced – some 60 years later – by a system that provides worse sound quality than the present system.

Before FM can be switched off, one of two changes is needed. Either the bitrate for DAB should be increased to at least 192 and preferably 224 kilobits per second (which was I understand the original design specification for DAB) or a replacement digital

radio system such as DAB+ should be introduced, with an acceptable level of coverage and number of radios in use.

It would be a retrograde and wholly unacceptable proposition to replace a 60 year old system of radio broadcasting with a new system that is not as good in terms of sound quality as the system it is intended to replace.

31 January 2010

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### **Memorandum by David Small, Kent**

I understand that there is to be some discussion about DAB radio and the switching off of FM. I'd like to comment.

I have at least a dozen radios about the house, three of them DAB.

The major, maybe only, benefit of DAB is the variety of stations available.

The disadvantages of DAB are:

1. Power usage - a set of six batteries will not last a night. In this green age I think this is a very important consideration. An ordinary FM radio will keep playing at least ten times longer and is therefore less harmful to the planet.

2. 'Ease of tuning'. DAB radios claim the tuning is easy but it is not. One needs to click through all the available stations alphabetically to the required station, select it and then wait a couple of seconds before it plays. This usually needs two hands and good eye sight (I have to wear specs to see the digital readout). Admittedly most DAB radios have preset buttons, but usually no more than six which is ridiculous when there are up to 80 stations available! But 80 presets is also ridiculous.

It is so much faster and easier to spin a knob on an AM/FM radio, and I can do this with one hand and my eyes shut!

3. Each of the three DAB radios I own finds different stations eg. One can't receive Radio 7, and another can't find LBC! There is no method of fine tuning to find these missing stations.

4. Time delay. I like to listen as I move around my house but if I'm using, for example, the TV to play a radio station in one room, a computer in another, a DAB radio in the kitchen and an FM radio upstairs they are all out of synchronisation with each other. Very exasperating, and of course the time signals all vary too.

5. Signal quality. I know that signal quality can be much higher using DAB, but here in Britain we trim it to allow more stations to be transmitted. Radio 3, I'm informed, has a higher 'bit rate' because they play high quality music whereas a speech station is allocated less. FM has a better quality signal (in the same way that a vinyl recording holds more information than a CD) and it shows when heard on good equipment. Other countries have a more up-to-date and higher quality DAB + system but if we adopted that does it mean that my batteries would last even less time?

To summarise, DAB is fine for its variety of stations but FM is still better and it would be a mistake to turn it off in 2015 as planned.

I took my 83 year old mother to the radio shop this week. She is fed up with her DAB radio, which often loses its presets when turned off for a time and she finds it difficult to reset the presets. She bought a Roberts FM radio with two large knobs - one for tuning and one for volume - so easy. She didn't need a book to tell her how to work it and it cost a quarter of the price of a DAB equivalent.

Keep FM until DAB works properly and easily.

27 January 2010

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### **Memorandum by William Stevenson, Lancashire**

This is a short response to the House of Lords Select Committee on Communications Call for Evidence relating to 'Digital switchover of television and radio'. I use digital radio a lot, and was impressed by the TV digital switchover, which went very well in North Lancashire. My concern is the designation of DAB radio as the 'radio standard', and consequent shutdown of FM radio.

The evidence so far is that DAB is no doubt excellent in the metropolitan areas, but often won't work even in the only relatively challenging reception areas, such as the moderately hilly parts of England. I use my DAB portable while cycling around here, and it's good where it works as it provides better compensation for reduced signal. However, it just disappears completely in the Trough of Bowland and other areas where FM still works, albeit at reduced quality. If the technical experts claim that this is just a matter of increasing DAB transmit power, then this should be easily verifiable.

In the *really* challenging reception areas of course, such as much of mountainous Wales and Scotland, there is no sensible speech radio other than Radio 4 Longwave when it is not afflicted by cricket for days on end, so the FM v DAB choice does not apply.

Therefore, it may come down to costs: if both DAB and FM networks cannot be afforded, it may be necessary to think the unthinkable and shut down DAB.

27 January 2010

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**Memorandum by Richard Stickland**

I would like to submit my plea that FM is NOT switched off until programmes (my preferred is Radio 3) are transmitted in "DAB Plus". DAB reception is nowhere up to the high standards of VHF-FM. This is made clear by the fact that there are no truly hi-fi DAB radio receivers to add to a hi-fi system, but there are numerous VHF-FM receivers. I would be slightly less concerned if DAB were transmitted at 256 Mbytes/second. "DAB Plus" is being used more and more elsewhere, since it is a much higher quality, and uses less bandwidth.

27 January 2010

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**Memorandum by Stefan Szoka**

I would like to register my complaint and lack of faith in digital broadcasting.

Up until 15 years ago, I worked in television and hi-fi retail sector for some 25 years. I reside in Cornwall where DTV switchover is complete.

I also have eyes and ears!

I am sure you will have numerous complaints on reception problems with DTV and DAB which I will not repeat. There are still problems however when one has full signal strength.

The point I wish to make is the degradation of sound and picture quality over the years due to digital technology. I could foresee the problems that digital might create some years ago. Why didn't the engineers and consultants? (Extract of my letter to the B.B.C. in September 1998 is below.)

For a long time the public have been told lies by government and broadcasters about the promised picture and sound quality of DTV & DAB. Moving pictures are particular bad on DTV with stroboscopic, jerky motion, blocking, artefacts, sound out of sync. Some freeview channels are worse than others, probably due to squeezed bandwidth, limitation on bitrates and over compression.

DAB radio also has not come up with the promises. The typical digital reception problems of quick drop off of signal. Sound quality not as good as FM. Too low bitrate, old technology. DAB+ may be an improvement but most existing DAB radios not compatible.

In the government race to raise revenue we now have a third rate broadcasting system. A downgrade from analogue. There are too many channels squeezing bandwidths, too low bitrates, too much compression.

I do object strongly when I have spoken on air on BBC local Radio Cornwall to representatives of Digital UK and the like of passing off my perception as being 'Subjective'. 'It is only a minority of people who notice a difference'. The truth is that subjectively and technically digital broadcasting is inferior as it stands at the moment.

The way forward to improve matters perhaps is for the government, consultants & broadcasters to issue a public apology. To reduce number of channels to increase bandwidths, reduce compression, but hey, I am not an engineer!

29 January 2010

Extract from my letter to the B.B.C. 24th September 1998!

Sound quality.

I consider that the sound quality of radio has decreased in the past few years. Contributory factors are the increased use of digital systems, compressors, automatic gain controllers, automatic recording levellers.

Digital.

I do not think I need to explain in detail the inferior sound quality derived from digital systems. Most audiophiles still maintain that analogue is still superior. The sound is more lifelike, wider frequency response which improves harmonics, not clinical etc.

I do object to the B.B.C. currently advertising improved sound and picture quality claims on the impending digital broadcasts.

The compact disc held many claims when released. Superior sound quality, unaffected by dirt, scratches. Most of these claims were and still are untrue. How the compact disc has escaped prosecution from the Trade Descriptions Act bemuses me!

There seems no doubt that broadcasters have more problems with compact discs jumping and sticking than they ever did with vinyl!

I am sceptical about the claims of improved reception with digital radio. With analogue, a weak signal can result in a reduced volume of programme material making background noise more noticeable.

My illusions (or delusions) of digital is that the programme material is either there or is not. There are no graduations in between. I fear that a weak signal in digital will result in complete silence for the listener. However, we shall have to wait and see.

Compression (A.G.C., A.R.L.)

One advantage that digital has over analogue is increased dynamic range, around 100db.

The introduction of VHF/FM improved dynamic range tremendously.

Why then do broadcasters kill dynamic range with compression?

I understand that one reason is - car radios, to avoid quieter passages being swamped in road/engine noise. That is quite valid, but ruins ones listening pleasure on a decent hi-fi system.

Commercial stations and Radio 1 seem to be the worst offenders, using the most compression. (I was once informed by a B.B.C. engineer that Radio 1 is compressed so much to be the 'loudest on the dial'.)

Radio 1 is so bad that it is quite distorted and annoying to listen to. The type of music played on Radio 1 has a narrow dynamic range as it is. I am sure that a vast reduction in the amount of compression would make it much more listenable. If a Radio 1 engineer takes the trouble to listen to an announcer's voice on Radio 4 then compare it to a D.J. voice on Radio 1, the difference is immediately apparent. I would pick the Radio 4 sound engineer every time!

Also listening to compressed music at high volumes can do more damage to hearing than retaining a wide dynamic range.

Recorded news interviews using compression or auto record levels are most annoying due to the characteristic 'pumping/breathing' of these circuits. Any slight pause in the conversation is interceded by the ambient noise shooting up and down. It is also most noticeable in the sound of applause on radio and television. A hand clapping near the microphone causes the level of general applause volume to fluctuate.

I therefore propose that broadcasters would save money by no longer purchasing compressors and to throw their existing ones into the dustbin!

I feel that the recording industry today mixes the sound through so much electronics that much of the quality is lost. Some of the most lifelike, enjoyable recordings made can be achieved with a simple pair of microphones led straight to a 2 channel recorder.

Within a couple of generations, there will be no-one left alive to know what good sound quality is like, apart from listening to a live acoustic band.

Digital Television.

I have noticed that many television programmes over recent years seem to have an inferior picture quality. Many of them are American, but more recently some British programmes have the same characteristics. I suspect that they may have been recorded using digital cameras or recording systems. It is difficult to describe, but the picture appears jerky, stroboscopic, flat, lacking in depth and a slight picture/sound time lapse.

If I am correct that these programmes are digitally sourced, then I fear it is a retrograde step.

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### **Memorandum by Rod Theobald, Lancashire**

I understand that a House of Lords committee is looking at the government's proposed switch off of FM Radio. I would like to make my views known to that committee.

I understand that the BBC Trust is charged with considering customers' needs and wishes and ensuring that the publicly funded BBC corporation (which is getting far too big for its boots, as is the way with organisations that forget their *raison d'être*) uses its money in the best interests of its customers. But it is NOT doing its job and is shamefully taking the side of the government and the BBC.

I wish to register my disgust at the proposed enforced shutdown of FM radio in 2015 in favour of the unpopular and vastly inferior DAB radio. DAB radio in its current form is very ill-chosen; low bit rates combined with an old, outdated codec (MPEG2) mean that the sound quality of DAB is dreadful, yet HMG is set about forcing it upon us, so that it can sell the FM bandwidth for as much as possible. This is disgusting, and shows what contempt the government and the BBC has for its "customers", the taxpayers who pay dearly for its very existence! The BBC in particular shows scant regard for its public obligations. FM radio is a good quality medium; it can be prone to a little interference occasionally, and some areas may experience less than ideal reception, but DAB is unlikely to improve matters for those unfortunates. Typically for this government, it takes the 'nanny' attitude that it knows best, and we should all do as we are told; I will be showing all political parties what I think of this attitude at the ballot box this year.

I intend to also write to my MP and to the Minister responsible for this fiasco, which seems to me to be driven entirely by money, and has little to do with good customer service for radio listeners. There is also the small matter of approximately 120 million FM radios that will be turned into scrap in one fell swoop; one day in 2015 they will work as usual, the next they will be dead, and fit only for landfill. What a waste of

resources and money! Not very 'green' either, is it. Think also of all the cars that have FM/AM radios fitted. There are very few people who opt for DAB radio in their cars - what does the government propose to do - FORCE car manufacturers to FORCE customers to have DAB radios? - in a so-called democracy? We are constantly told that we must recycle and save the planet's resources, yet the same government that tells us this proposes such a wasteful course of action!

I have a radio that has DAB in addition to FM; the FM section is very audibly superior to the DAB section, so of course I listen to FM. If FM is turned off in 2015, I will not be coerced into listening to vastly inferior DAB radio; I will simply not listen to radio at all. Which will be a shame and a betrayal of my human rights. We, the voting and taxpaying public, who PAY for the service, who fund the BBC, should NOT be FORCED to have to listen to DAB because FM has been turned off. I will never vote for any government that makes this happen. Be it Labour, Conservative or Liberal.

I have a high quality hi-fi system (worth around £9000 new) with a high quality FM tuner; I also, like most people, have other audio systems that incorporate an FM tuner. I fact my wife and I have 10 FM tuners in our house and cars. All of which will be rendered useless by a forced change to DAB only. I have one radio that has a DAB tuner that is never used. But the numbers are not really the point; sound quality is. DAB is appalling. It has the potential to be half-decent, but broadcasters, with the BBC at the head of the queue, have reduced bit rates to such low levels, in order to cram more into their bandwidth allocation, that sound quality is very poor. To add insult to injury, current radio adverts (on Classic FM, to which I mainly listen) extol the "CD sound quality" of DAB radio, and pour scorn on 'those old hard to tune analogue radios' - as if they are really difficult to use - which they are not, in the main. Such advertisements should be reined back by the Advertising Standards Authority as inaccurate and misleading. Of course, I understand why the government and its cohort the BBC is so desperate to promote DAB radio - they have already spent a fortune on it, sales of sets have been very slow, and the public are not fooled by the hype; they have ears, and their ears tell them the truth. They do not want to be bullied into buying DAB radios to replace the perfectly good FM ones they already have.

Most other countries have taken a much more cautious approach to digital radio, and refused to implement DAB, recognising its shortcomings; those that are now moving to digital radio are using DAB+ with the AAC+ codec that allows better (but far from perfect) quality at lower bit rates. I just hope that broadcasters don't use this as an excuse to lower bit rates even further.

There are also other broadcast systems, such as DVB-T2 and eMBMS, that are superior to DAB, and cheaper to operate too. It is also quite likely that DAB will fail, as Internet radio quality improves and broadband speeds increase. Fail with the loss of a great deal of public money!

And what of the vast sums the BBC has spent on this outdated technology so far? How ill-judged was their decision to push ahead with mediocre DAB. What a waste of public

funds and total disregard for sound quality. And I understand that the BBC is even now planning to build many more DAB transmitters, at great (public) expense. No doubt it will be looking for a big increase in the licence fee before long. None of this is really necessary. FM radio is good quality, and long established. DAB is much more expensive to transmit than FM, as evidenced by the closure of many DAB broadcasters, who could not afford to stay on air. All that is digital is not gold, as some seem to think.

I am a member of Mensa, and to me this whole affair smacks of illogicality. These people in their ivory towers (many on huge salaries) can have no idea what the public really want; they have never bothered to ask; they think they know, but don't even realise how far removed from reality they are. Politicians are much the same, as illustrated by the expenses scandal; what MPs see as normal behaviour, claiming public money for everyday things (and some very non-everyday things!) the public rightly see as greed and totally unacceptable standards of behaviour in public life.

FM is not broken, so leave it alone, BBC and government. My views are not those of Mensa the organisation and should not be interpreted as such.

If broadcasters wish to ignore their listeners and shut down their FM transmissions, that is their (suicidal) choice, but I will not be listening to their DAB transmissions. Any sane organisation would have realised by now that DAB is unattractive to the public, and decided that enough is enough; stop spending more and more public money chasing a system that few want, and we certainly don't need.

By the way, there is no comparison to digital TV; there are no pictures on radio, so sound quality is paramount. Ironically, radio sound quality on Freeview is of a higher standard than DAB, in many cases. The mind boggles.

27 January 2010

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### **Memorandum by Martin Thomas, Herefordshire**

I should like you to consider my objections to the proposed switch-off of FM radio, with the transfer of listening to DAB services.

#### **Environmental Objections**

- Millions of radios will be made redundant overnight, and will either need a set-top box (unlikely) or be scrapped. Apart from being wasteful, any scrappage would need careful handling to avoid environmental degradation. Many houses have a small radio in (almost) every room.
- Currently DAB radios use far more energy than FM radios, leading to short battery life (hence waste) or lack of portability.

### Practical Objections

- DAB is old technology, into which we are locked because the system was promoted before it was ready and is not up-gradable. It is not long-term viable, and any short / medium-term promotion of DAB risks a second round of scrapping when the eventual (incompatible) upgrade comes.
- Coverage is poor, especially in rural areas
- Sound quality has been degraded in order to squeeze in extra stations
- There seems to be no common European way forward, with member nations adopting their own solutions. I can foresee not being able to listen to radio as I travel across Europe in my car. Already many European countries use DAB L-band or DAB + not receivable by most UK DAB sets.

### Social Exclusion

- Many older people and those on limited incomes will find it difficult to replace their radios, either because of cost, lack of flexibility or lack of familiarity with the technology. The number of sets involved nationally and per household make this change-over a very difficult one from that concerning television.

Finally, the sound quality of DAB as used at present does not compete in HiFi terms with a good quality FM broadcast (Radio 3, for example).

27 January 2010

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### **Letter from Mike Thomson, Hants**

I have pleasure in submitting my views on the above subject for your consideration. My comments are limited to my experience of listening only to BBC Radio 3 and should not be taken to apply to other radio stations.

**To summarise:** I believe we should move quickly and decisively to DAB+ as the means of radio transmission in the UK. Here are my reasons.

FM stereo is old technology which has not kept pace with developments in the quality of sound now routinely available to the consumer

1. The stereo image is not consistent throughout the frequency range
2. Hiss and other forms of interference are still audible unless you have a very good signal from the aerial. Technology in which stereo has a lower S/N ratio than mono is simply antiquated.
3. Even with a high-quality tuner and 5-element roof-mounted aerial I have experienced distracting "shushing" noises in the background and clicks from nearby sources of interference.
4. The frequency response is rolled off above 15kHz because of the pilot tone.

5. BBC Radio 3 is mostly unlistenable in a moving vehicle because of the multipath interference. This is a particular problem for Radio 3 because the signal level is so low.
6. The BBC routinely applies dynamic range compression to Radio 3 broadcasts specifically for the benefit of car listeners (and possibly to compete with Classic FM) but at the expense of those listening on a hi-fi system at home. It is possible that such compression is bypassed for live concerts in the evenings, but even live Proms Concerts broadcast during the day can be subject to very audible compression.

#### Radio 3 on DAB at 192 kbps sounds better than FM

7. It is not subject to FM's shortcomings as outlined above.
8. It was designed originally for mobile use and I would therefore presume that Radio 3 reception in the car would be very much better. It allows the user to decide whether or not to deploy dynamic range compression, whereas FM cannot offer that choice. Thus, mobile listeners can switch on compression so that orchestral and chamber music can be listened to in the car, while home listeners can leave it off and benefit from a more realistic sound.
9. I recognise that this view is not universally accepted and I accept that DAB may sometimes sound very slightly less smooth than FM, but on balance I find DAB far more satisfactory than FM via a good hi-fi system.
10. Radio 3 via DAB is currently unique in using 192 kbps (occasionally degraded to 160 kbps).

It is inconceivable that the Government will actually switch off FM radio transmissions in 2015, and forecasts to that effect are simply wishful thinking.

11. There are too many cars on the road with FM radios and too few with DAB.
12. New vehicles are still being sold with FM radios
13. The cost of upgrading to a DAB receiver has remained too high for the aftermarket.
14. Many cars have aerials with built-in amplifiers that are unsuitable for DAB reception.
15. Add-on units for the car that provide DAB reception via an FM receiver will simply become a magnet for thieves, as indeed will DAB radios themselves. They will also be more distracting for the driver to operate than a properly installed head unit.

#### DAB+ is the only sensible way forward

16. In making decisions for the future we should aim to deploy modern and up-to-date technology.
  1. Other correspondents will undoubtedly make much of DAB's relatively old technology versus the benefits of DAB+ in terms of sound quality and efficiency. They will criticise previous decisions, probably with justification. We want to get it right this time.
  2. We should bite the bullet and go for DAB+ as the standard, and gently phase out DAB and FM.

17. DAB+ would assure Radio 3 listeners that sound quality could be closer to that of CDs, while overcoming the vociferous objections to DAB when used as at present with low bitrates.
18. Internet radio may offer high quality (high bitrates) and a large number of stations, but it requires broadband access and it will use up bandwidth. It is unlikely to be suitable for mobile use.
19. Freeview radio is not suitable for mobile use.

27 January 2010

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### **Memorandum by Tony Trent**

I wish to submit the following views to the Select Committee on the subject of digital radio, the proposed switchover, and the DAB system.

The options...

The first generation DAB system may fall short of some people's expectations but there are an estimated 10.5 million sets in circulation in the UK, most will have been purchased quite recently. I personally feel that the shortcomings have been overstated. Apart from BBC Radio Three, which despite being given a greater bit rate (bandwidth) on DAB, still sounds for the most part better on FM, the sound quality on the comparatively well engineered BBC stations is generally satisfactory. It would be extremely wasteful and unfair on those who have bought into DAB to scrap it in favour of a newer system. Any change would have to be phased in over a number of years.

If, for example, it was felt that DAB+ was the way forward, then space would have to be provided within current and planned multiplexes to allow for those stations where sound quality is important to be transmitted in parallel with the standard output. New sets that are compatible with the newer systems being adopted within Europe are backwards compatible with first generation DAB, but it would be some time before these sets replaced the 10M in current circulation – so standard DAB would need to be used for many years yet. In 2020 or whenever a newer system started to replace the existing one then a “scrappage” scheme would then be appropriate – but should be a last resort as it is environmentally unsound to waste so many sets ahead of their natural end of life.

Migration from FM should be phased over a number of years, and the best use of the remaining FM band needs to be re-appraised. I would suggest that FM has two key roles. The one accepted to date is that it would provide for low power community based radio stations. This is sound, and as broadcasters licenses come up for renewal they could be offered a choice, full on local and community broadcasting within tight parameters or the almost national or regional branded output that would fit better on DAB.

The other main purpose of FM might also be to provide a high quality National network of stations that justify high quality audio, and have a proven track record. I would suggest that BBC Radio Three and BBC Radio Two would be prime candidates to retain an FM network with perhaps one commercial station.

So where next?

1. The BBC should be required (and supported) to maintain its extra digital radio stations throughout this changeover. Their purpose and format of these stations could be reviewed once this process is complete. The existence of these extra stations provides a good reason for adopting DAB. It was mainly BBC 6 Music for example which persuaded me to invest in DAB. For others it might be 1 Xtra, BBC7 or Sports Extra. There should be no reduction in these services for several years (if ever).
2. FM switch off or partial migration should be delayed, and the premise of what it should be used for longer term be re-examined. I would suggest we are looking at 2018 or beyond, and only agreed in advance when the overall strategy is clear.
3. We should adopt a similar ruling to the French regarding in car digital enabled radios. They are suggesting 2013. We should be looking at multi standard digitally enabled sets by that date in all new cars, and be encouraging them as an easy after market option even earlier (I have had one fitted since 2005 and it is a simple exchange and well worth the small effort). The standard need only be a Pan European one.
4. We should decide whether there is a more advanced digital broadcast system compatible with DAB that is worth adopting, and make it possible to introduce it in parallel with the existing system using the present and soon to be expanded transmitter network (the various systems can be mixed on the same platform with existing DAB). We should consider the allocation of an additional Band III frequency (as they have in London), which should have some space allocated to the BBC for a limited time for the twin tracking of their selected existing services (there would be no need to waste these frequencies on speech based output – it is the perceived quality issue that needs addressing).
5. If an eventual upgraded system was agreed upon and rolled out then we should plan for an all out changeover from DAB to DAB+ (or whatever) from a much later date (2022?), maybe leaving the balance of the main stations not on the reduced FM on standard DAB for a while after. In my scenario the most effective

time to consider a radio set scrappage scheme would be 2017 to 2023, which with good planning would be very minimal.

I would be happy to provide any clarity needed on the above – which has been prepared hastily to meet a deadline for a process I have only just become aware of. I am a consumer representing my own views, aided only by what I have learned as a mild enthusiast. I have had retail experience in the past selling radios, and am an elected local councillor and aware of the scrutiny and select committee process. I have no interest in any broadcasting provider or manufacturer of radio sets or microchips. I travel to London from time to time to attend seminars, and would be happy to give evidence to the committee if needed (I come from Poole and travel from Bournemouth).

Please let me know if you need any more details,

P.S. It is British owned companies that lead the way in the marketing of good quality DAB radios (and the microchips). There is therefore a National interest in keeping on top of the game. This is something we can only rarely say nowadays.

1 February 2010

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### **Letter from Colin Vincent, Fife**

I understand that the House of Lords Select Committee on Communications will consider, *inter alia*, HM Government's plans for switchover to digital radio and the termination of FM transmission of national radio stations. As an individual "consumer" of high quality audio broadcasts, I wish to submit the following two points to the Select Committee.

The importance of maintaining *high quality* audio broadcast signals

I strongly oppose the proposed ending of the FM broadcast of national stations because the audio quality (frequency range etc) of a digital system, especially DAB, is markedly inferior.

I understand that the cost of maintaining national FM broadcasts is a negligible £10 M per annum, and that the current frequencies would remain available if the national FM stations were to be switched off.

I therefore argue that the maintenance of *high quality* audio broadcasts using FM would provide a cost-effective service that would be impossible with the current DAB system.

## Timetable

While I am informed that the timetable for the proposed switchover to digital radio has not yet been fixed, the *Digital Britain* report suggests a date of 2015. I consider that this is absurdly early.

The lifetime of radio receivers and high quality FM tuners is at least twenty years.

There are in excess of 100 million FM receivers in the UK that would need to be replaced.

I submit that the date for the proposed radio digital switchover should not be before 2035.

27 January 2010

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### **Memorandum by John Watkinson<sup>3</sup>**

1. The advent of digital audio as far as the consumer was concerned was represented by the Compact Disc in 1982. There is no doubt that it resulted in a significant improvement in sound quality over previous media such as vinyl disc and cassette tape, as well as non-quality-related improvements such as long life and ease of access.

2. For many years the quality standard in radio broadcasting has been FM, which was to AM radio what CD was to vinyl disc. It is not quite as good technically as CD, because the audio bandwidth is only 15kHz instead of 20kHz, but many people can't hear that difference in practice. In UK the transmitter locations and power were for many years based on the assumption that a roof-top VHF antenna would be used. This made reception of FM on portable equipment marginal in some places, although later receiver designs would work practically anywhere with a simple telescopic antenna. Successful FM car radios have been available for some time and of course will work all over Europe.

3. I would argue that the quality of VHF FM is actually perfectly adequate for radio broadcasting purposes. As a result, I did not expect the introduction of digital audio broadcasting to offer a quality improvement. As DAB uses an audio sampling rate of 32kHz, rather than the 44.1kHz of CD, the audio bandwidth will be no greater than that of FM.

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<sup>3</sup> John Watkinson is a totally independent consultant. He is a Fellow of the Audio Engineering Society, a Chartered Information Systems Practitioner and has a Master's Degree in Sound and Vibration. He wrote "The Art of Digital Audio" described by New Scientist as the bible of an industry, as well as "The MPEG Handbook" which considers audio and video compression. He is a member of the Society of Expert Witnesses and of the British Computer Society.

4. The basic advantage of digital audio is that if the numbers representing the audio waveform are faithfully transmitted down some channel to the reproducing device, the channel appears to be ideal. The use of error correction in digital recording and transmission means that there is no loss of sound quality due to the channel.

5. However, unlike CD, which uses linear PCM in which every audio sample is represented by a 16-bit binary number, DAB uses bit rate reduction, also known as compression. The type of compression used is lossy; in other words the decoded signal is not identical to the original. As a result, even though the channel from transmitter to receiver is ideal because it is digital and it has error correction, the channel faithfully delivers the approximations of the compression process.

6. In many of the marketing statements issued extolling the virtues of DAB, the advantage of the ideal digital channel was emphasised. The disadvantage of the use of compression was not mentioned. Statements were made that DAB offered “CD quality”, which it did not and could not. These statements were in my view misleading to the public. It is not for me to say whether there was intent to mislead or whether those responsible simply did not understand the technology, but the result was the same: the public were misled.

7. The claim of CD quality had to be withdrawn, but it has been replaced by other misleading statements upon which I can enlarge if necessary.

8. DAB should have been as good as FM technically. The public were led to believe it would be better. The fact of the matter is that DAB sounds significantly worse than FM. The Committee should be aware that there are a significant number of listeners, myself included, who if given a choice, prefer to listen to FM because it sounds better. From a sound quality standpoint, DAB has failed. The Committee will be aware that the Swedish Government has recently decided not to invest further in DAB because of sound quality concerns.

9. The difficulty DAB has is the use of compression. There are several factors involved and they have not all been considered. Firstly, if an ideal, or perfect, compressor is available, that could somehow sort the audible from the inaudible, then that compressor would have to dictate the bit rate needed for no quality loss because it would depend on the program material. Some types of sound contain more information than others. Gustave Mahler needs more data than Bob Marley. If a lower bit rate was used, there would be quality loss.

10. Secondly, the compression algorithm, or coder, used in DAB is not ideal. I would describe it as primitive by today's standards. For a given sound quality, the DAB coder needs a higher bit rate than more recent coders. At the time the coder was selected for DAB, it was known that audio compression was a rapidly advancing art and that more efficient coders would subsequently (and quite quickly) be available. In my opinion DAB was rushed into service before the supporting technology was really ready and now we are paying the price.

11. Thirdly, whatever coder is used, and however efficient or inefficient, good quality can still be obtained provided an adequate bit rate is provided. It is necessary to perform tests that derive suitable bit rates for acceptable quality in various types of sound. Unfortunately, the tests carried out on the DAB coder were not rigorous. Some testing was done on headphones, some on legacy loudspeaker designs, neither of which could reproduce good stereophonic images. When it was concluded that no damage was being done to the stereophonic image by a certain bit rate, that conclusion was false because better loudspeakers would have revealed the defects. In other words the DAB coder was testing the speakers and not the other way round. If the tests had been more rigorous, it might have been understood that a better coder was needed.

12. Fourthly, the DAB transmitter simply radiates a constant torrent of bits. It is up to the broadcaster whether that bit flow is used for a small number of high bit rate channels or a large number of low bit rate channels.

13. The combined result of these factors has been disastrous. The primitive coder requires a higher bit rate than a better coder for the same quality, yet the bit rate it needed was underestimated during quality tests, following which broadcasters put more channels in the DAB multiplex thus further starving each of bit rate. The result is that the listener has a wide choice of channels of mediocre sound quality. In my opinion that is not much of a choice.

14. In view of these problems, to turn off the existing high quality FM radio service would be extremely unwise. I gather that there are plans to re-use the FM band for ultra-local broadcasting. This is technically unwise. The siting and spectrum planning of FM transmitters has to be done with care and a large number of FM transmitters, even of low power, could result in chaos. Ultra local radio channels are unlikely to produce high sound quality. FM is too good for the purpose. If a large number of local channels of moderate quality are needed, then the multiplex principle of DAB is ideal for that. In my view the present plans, if true, have the solution completely back to front.

15. A further concern is that a national DAB radio network requires synchronisation of all the nation's transmitters to a high degree of precision. This is done using GPS, an American operated system that cannot be guaranteed to operate in an emergency. If GPS goes down, DAB goes down with it, leaving no national radio system with which to advise the population in an emergency. The present FM radio system is simple and robust and not dependent on distant equipment. To close it down would be to take a grave safety risk.

31 January 2010

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### **Memorandum by Maurice Watton**

I don't think the Digital switch over should take place as early as 2015. I have worked in Radio and TV most of my working life and feel the FM Service still has a lot to offer.

29 January 2010

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### **Memorandum from Michael Weighell**

Please DO not switch off FM radio.

27 January 2010

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### **Memorandum by Andrew Wellings, Cornwall**

I wish you to consider this communication as notice of the shortcoming of digital reception of DAB – digital freeview.

DAB

It is my contention that DAB radio was ill conceived by attempting to implement digital radio before technology could replicate perfectly the existing analogue FM standard for audio quality.

As is known, DAB may offer more radio programmes over a specific spectrum than analogue FM radio. DAB is more robust with regards to noise and multipath fading for mobile listening, but DAB reception quality degrades rapidly when the signal strength isn't strong, whereas FM reception quality degrades slowly.

Listening tests have shown that for stationary listening the audio quality on DAB is lower than FM stereo, due to most stations using a bit rate of 128 kbit/s or less, with the MP2 audio codec, which requires 160 kbit/s to achieve perceived FM quality. 128 kbit/s gives a more smeared stereo image, and an upper cutoff frequency of 14 kHz, corresponding to 15 kHz of FM radio. If broadcasts were made at 192 kbit/s, CD quality audio is possible.

The roll out of transmitters has been by placing them on the national map to appear to have 'coverage' in most areas of the UK when in fact unless the receiver was placed stationary in an upstairs room with an extended aerial attached reception was very poor and intermittent. Using a portable DAB radio downstairs was impossible. The Digital Radio authorities have informed me recently that they have just increased 'signal

strength' in my TRI post code area. I have re tried reception with a quality 'PURE' branded portable DAB radio. The radio reception is hardly any better, if I move about in the room downstairs I lose reception.

I believe the main financial reason for moving radio transmission to digital is to gain revenue for the Government by achieving new licenses to broadcasters and gaining more 'air space' for additional licence issuing, generating further income without improving or keeping the same the quality of broadcast for the consumer, instead, 'selling' the more choice card.

With DAB+ now a possibility with improved sound quality, perhaps the broadcasters should have waited to implement DAB.

Even better with the available bandwidth on Satellite, it may have been better to adopt the 'Sirius Broadcasters' format of using satellite (coast to coast) in the USA and Canada. Yes this is a subscription service, but the PBS version in this country could be as it is with Freesat TV broadcasting, part of the license fee and commercial advertising for commercial radio content broadcasters. Using this route for broadcasting radio would negate the need for additional terrestrial transmitters to be installed with additional associated costs and improve listening quality for everyone instead of 'dumbing down' the quality.

Freeview

The implementation of digital TV broadcasting is of the same vein as above DAB, where the quality of definition is below par of analogue transmissions. Yes the digital signal does not suffer from multipath issues ghosting and the like, however unless the programming is watched on a small screen the digital artifacts can be easily seen. Some individuals in remote locations cannot receive terrestrial digital TV at all, whereas they previously received analogue TV. This is not acceptable.

This is completely unnecessary if the appropriate bandwidth was adopted with less crude compression. I believe this is purely down to governmental budgets set to achieve their goal of switch over to digital, to release the air waves to license more air wave space to achieve more income at the expense of the individuals viewing quality.

Quantity of stations broadcasting does not equate to quality of transmission. As a larger number of consumers have larger screen televisions, the broadcaster commissions must see that the quality of transmission is maintained, and not see a retrograde step. This should not be at the expense of the consumers.

I would also like to state the financial and logistical impact was NOT made clear to consumers.

With the implementation of digital TV, the consumers have had to unwittingly buy more than one 'set top box ' due to different locations of televisions in dwellings but also

because video/DVD recorders, only a few years old, require two tuners/ set top boxes to simply watch one channel and record another which has been standard fare for 20 years.

I hope this submission will not just stay in a pile of paper gathering dust but hopefully have some (small) influence on the future of digital transmissions and their implementation.

31 January 2010

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### **Memorandum by David White**

It is scandalous that the Government has proposed to switch off FM radio transmissions, at huge cost to the public, in favour of a low grade digital system (DAB), which has nothing like the same quality as a good FM transmission.

This should be stopped. Either the government elects for a higher grade digital system, as chosen by many other countries that have purposely avoided the primitive DAB, or FM should stay. And even in the latter case, the changeover period should be at least 10 years.

Have the people concerned ever listened to a good Radio 3 broadcast captured by a decent FM radio? And then compared it to the ear-offending DAB? They are not on the same planet.

I understand that I should send my observations by post, but I am on assignment in South Africa at the moment and have no confidence that a letter would arrive in time. I therefore ask you to please accept this e-mail as the equivalent of a letter.

Incidentally, none of that stupid DAB nonsense in South Africa. Excellent FM transmissions on Classic FM here. I never thought that I would see the day when there is more respect for quality transmissions of fine music here than in Britain.

27 January 2010

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### **Memorandum by Hugh Williams**

I would be deeply offended if FM Transmissions were EVER turned off... it is a disgraceful and unnecessary concept, I do not like compressed digital radio... and like most people, do not want it. As a radio lover, I would be forced to abandon radio listening altogether; I would never buy a cheap junk Chinese digital radio. Think about it, all these perfect fm radios going for scrap... It's deplorable!

27 January 2010

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**Memorandum by Ian Wilson**

I do not want FM to be switched off.

I do not want to scrap more radios than the number of DAB sets that have been sold.

I want people to be able to use interesting quality radios from earlier years.

I do not want battery-hungry DAB radios that have an “eco” sticker on them.

I do not want to be stuck with antiquated DAB sound that will forever constrain audio quality to low MP2 standards.

DAB+ may be acceptable but only in addition to FM.

Other countries have scrapped DAB instead of FM. Britain should too. Let's avoid the sunk costs fallacy, recognise the lies that have been told and admit that DAB was a mistake.

27 January 2010

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**Memorandum by Gordon Wood, Cornwall**

I have a television, tape recorder and CD player.

Prior to changeover to Digital Broadcasts all these items performed perfectly.

I purchased a Digibox and after changeover to Digital Broadcasts I have experienced numerous problems with the reception, namely:

Picture Freezing

Picture and Sound out of sync

Digital Clock on Recorder not working

Sound not working at times

Not able to switch the set off from the Digital Remote, has to be switched off at the set.

Yes it gives me some 700 odd channels, all of which are rubbish.

Someone is making a huge amount of money out of this changeover, why do I have to pay for all of this and get rubbish reception?

29 January 2010

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### **Memorandum by Claire and Matt Woodgate**

I understand you are looking for people's comments on the digital switchover in Cornwall. This is my experience....

We have 2 properties on the farm, at the closest they are 20ft apart, so I think you will agree that is hardly miles. The main farmhouse has a new TV that had the digital tick etc on when it was purchased, the signal is 50/50 to say the least. It worked quite well until the final re-tune in September that we were all told to do. After that re-tune the channels are still showing, on a good day they work but break up so it's almost unwatchable and on a bad day there is no signal at all. My parents live in the farmhouse and cannot afford SKY on their pension, so they are stuck with television that is a joke.

In the other property, there are 4 televisions. The 2 in the children's bedrooms no longer work since the switchover. We cannot afford SKY in extra rooms so they have lost their TV's. We got new TV's for the lounge and main bedroom to make sure we had the best chance of getting a signal. We ran both with a digibox to start with, even though they were digital ready, it worked, but not well. The digital helpline said that all would be wonderful as long as they worked a bit, after the switchover it would be fine. In August we re-tuned and the TV's picked up the digital signal so the digiboxes were taken away. We re-tuned again in late August and it was quite good, we didn't have a huge range of channels but those we had worked quite well. We re-tuned in September and the bedroom TV had a few shopping channels but nothing else and the TV in the lounge had BBC1 and nothing else.

We replaced the Aerial for a all singing and dancing digital one....nothing! We tried the digiboxes but it was no better....We gave up and had SKY installed, which we can ill afford.

You need to be aware that Cornwall is rural and people do not have the social life of those who live in cities, a loss of television is a huge impact to the elderly, farmers and their children etc. All that happened is that they were cut off from being able to watch TV at all. Even a basic SKY package is expensive to those on low income, which is most of Cornwall.

As far as I can see, the advice was worse than useless. Its cost people money they do not have and achieved very little except make SKY rich. I also note we still have to pay TV licence for a service that is not provided. I think we did everything possible to make it work, from new Televisions to Aerials and it failed miserably, and whoever thought it was a good idea should be ashamed of themselves.

30 January 2010

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### **Letter from Stephen Younger, Fife**

I write to express my belief that to remove FM radio services would have costs that far outweigh any possible benefit. In a nutshell, switching TV to digital makes sense. Switching radio wholly to DAB does not.

- Existing analogue TVs can be easily converted by way of a set top box costing from £18.99. Every analogue radio in the country would have to be binned and replaced as no conversion is possible. Surely the government must perceive that throwing away millions of radios is waste on an epic scale.
- Study of the published information shows that the benefits of DAB over FM are slight and that in some respects DAB is inferior to FM. If FM is trashed in favour of DAB in 2015 then as night follows day we will be subjected to a further mass trashing in (say) 2020 of DAB in favour of DAB+. Aren't we supposed to be keeping landfill to a minimum?
- There is no guarantee that DAB coverage will be adequate in all areas. Have weather broadcasts available for fishermen been adequately considered?

I therefore put it to you that switching off FM would be an unnecessary evil that would be most bitterly resented by almost all of the public.

I write to you as a private individual in the hope that my lack of official position does not allow you to dismiss my concerns as irrelevant. My position is 'seated'.

27 January 2010