

**To the Rapporteur of RSPG10-349, Mr. Magnus Falk, Sweden and  
the EC DG Information Society & Media (Unit B-4), RSPG Secretariat**

## **Terrestrial Radio's Digital Future in Europe**

A submission from the RDS Forum 2011 to the RSPG

The RDS Forum is a not for profit organization dedicated to the pursuit of excellence in the implementation of the Radio Data System and FM broadcasting. It has over 40 members most of them very experienced engineers. These people recently spent two days discussing the digital future of radio in the light of the RSPG report and respectfully offer the following paper as their collective thoughts on the best way forward. Their only motive is to ensure that the listener is the ultimate beneficiary of the change to digital broadcasting.

### **Executive summary**

1. There is too much fragmentation of digital radio standards, so DAB+ should be the universal standard for digital radio in Europe in Band III, however not excluding other options to add even more functionality. Keep radios simple and cheap and abandon the L-Band, as it only adds to cost of receivers.
2. The Car industry is not yet line fitting DAB radios, so an increase in geographic coverage is to be encouraged with public broadcasters leading the way.
3. There is no uniform approach to digital radio, so it is expanding on a country by country basis rather than across the whole of Europe. The only way to help the spread is to offer new programme services which are not available on FM, particularly those with appeal to the younger generation of portable devices with rich-media and interactivity.
4. There is a lack of a 'killer' application. Maybe Traffic and Travel Information using TPEG could be given an implementation push to offer an innovative data service. Also, encourage the design of 'smart' radios that have the same appeal as the recent smart phones, i.e. easy to use and so the end user does not have any difficulty in finding the programme of his/her choice with the ability to record, tag and rewind the content. This smart radio should also have the ability to move seamlessly from Digital to FM without any awareness on the part of the listener.
5. FM broadcasting needs to continue until such time as countries adopting digital broadcasting have achieved over 95% geographic coverage and 15 years after the line fitting of motor vehicles with digital radios has started to become a reality all over the EU.

## **Detailed observations made by the RDS Forum 2011**

Since Digital Radio DAB (Eureka 147) started over 15 years ago in some European countries, some 20 million radios with that technology have been sold. However, if this figure is compared to the total number of radios that exist within the EU, far over 1000 million, this is almost nothing. In addition, a large part of radio listening takes place in cars and there the penetration of digital radio achieved so far is almost none. Also, in most cars it is no longer possible to exchange the line-equipped FM/RDS radio against a newer model that would support digital radio. To receive digital broadcasts in the car, one would have to buy a new car, but new cars are not yet line-fitted with digital radios and the date from which the car industry will do this, is as yet unknown. Several car manufacturers already offer digital radios as an option others do not do so yet. One of the very big car makers has even stated that it will now withdraw its digital radio option, given the fact that the market has really not accepted this technology.

So, what then is the problem with the DAB digital radio technology?

In the EU, the UK has been a kind of forerunner in the introduction of Digital Radio. Thus it is helpful to try to understand this forerunner's development.

Although the BBC launched DAB (Eureka147) in 1995, and was joined a few years later by the commercial sector in the UK, by any measure, DAB has not been a success and it has failed to excite the public. A total of about 12 million DAB receivers have been sold there over the fifteen years, this however represents only a very small percentage of the total installed base of receivers in use, estimated at around 200 million.

Outside of the UK, a number of other countries also began DAB broadcasting, but had even less success than the UK in persuading the public to 'upgrade' to DAB, and consequentially in some counties DAB services have even been switched off. The total sales of DAB outside of the UK totals only around 4 million receivers within 15 years, which is very few when compared to the total number of radios used in the EU, estimated at over 1000 million.

Why has DAB not been a success?

DAB promised:

- a) improved audio quality of existing services;
- b) exciting additional unique DAB-only audio services;
- c) innovative data services and features.

Unfortunately, these promises are mutually incompatible: DAB uses MPEG1, layer 2 audio coding. This standard is capable of good quality, provided sufficient bandwidth is used. Although audio quality is subjective, 256 kbps for stereo materials is widely agreed as being the absolute minimum bandwidth necessary to achieve artifact-free listening to typical material, with rates over 300kbps for especially critical material. However, the greater the bandwidth used, the fewer are the audio channels that can be carried within a multiplex.

## **RDS Forum – the association of RDS users**

There is no evidence of widespread dissatisfaction with the audio quality offered by FM, and in many cases radio listening is done in noisy environments – whilst driving, whilst doing household chores, and often on 'kitchen portables' which are not intended for high quality listening. Consequentially, it appears to have been recognized that for the *majority* of listeners, audio quality improvement is not a reason to buy DAB.

The second of the promises 'exciting new unique DAB-only radio services' has also not been fulfilled, with many broadcasters only replicating existing FM offerings.

The third promise concerned the abilities of DAB to offer 'innovative additional features' that also have barely been fulfilled. Text support – details of song title and artist and web-site addresses etc. merely replicate the same features established in RDS a decade earlier, similarly the ability to select listening by genre-type. Some key features available in RDS – the ability to listen to a national radio network with the option of receiving local traffic reports for example – are not even technically possible on DAB.

There is a much greater capacity for data services available on DAB than FM, and theoretically, advanced travel and traffic information services – TPEG and TMC at much higher data rates than possible on RDS, seemed to be the obvious advanced 'killer' data applications that could set DAB apart. To date though, there is as yet, no active advanced data service in operation. While there have been tests and demonstrations, there is not yet any receiver available to support this feature. Since 1995, when DAB was started, several commercial RDS-TMC services have been launched on FM radio in the UK and elsewhere with over 20 million users. These users would expect that these services will be maintained on FM as otherwise their receivers and associated navigational devices will become redundant. In addition, virtually almost all automotive FM radios use today the EON/TA traffic announcement feature to provide local spoken traffic news, which is set to override and have priority over other audio source listening.

So in short, DAB has provided no incentive for listeners to buy and migrate to Digital Radio.

What can be done? The RDS Forum suggests the following steps:

There is too much fragmentation of digital radio standards, so DAB+ should be the universal standard for digital in Europe and Band III, but other options like DMB and IP could also be added to offer even more innovative functionality. Keep radios simple and cheap and abandon the L- Band then, as it only adds to cost to the receivers and is not really needed to increase even further the over 40 programmes offer that could be made available without the L-Band.

Here is the rationale.

DAB was developed to provide improved audio coding with increased quality at lower bandwidth. The new standard, DAB+, achieves this and technically is compatible with DAB, however none of the existing installed base of DAB receivers could use DAB+ if implemented exclusively. We recommend that there should be no future DAB implementations, only DAB+.

If Digital Radio is ever to succeed, fundamental changes may need to be made in the approach to get this technology widely adopted by the public.

These include:

Reduction in the number of different standards and Bands that the receivers need to support.

Realistically, this means that DAB+ should form the backbone of Europe's geographic coverage, but without a need to support L-Band.

DAB should be phased out as a new generation of receivers is on the market and these are capable of decoding both DAB and DAB+. In any case DAB does not have the ability to provide both high quality audio and many channels simultaneously.

The decision to cease DAB in favour of DAB+ in the UK, might seem unattainable given that the UK has an installed base of DAB devices in service. However, although 12 million sets have been sold since 1995, it is doubtful that more than about 4 million of these are in active use, and the more recent models also support DAB+. The majority of these early sets were low priced (circa GBP 25 - 50) units, so the 'loss' of the units should not present a major obstacle. Certainly, the experience of ceasing analogue TV broadcasting and transitioning to all-digital TV demonstrated well how willing consumers have been, and understand that they may need to 'throw-out' devices that are legacy. As has happened previously, it would be reasonable to offer a subsidy to those consumers having DAB receivers who wish to migrate to DAB+.

The car industry is not line fitting DAB radios, so an increase in coverage is to be encouraged with public broadcasters leading the way. Once this is done, we are sure there would be a bigger incentive to the car manufacturers to line fit them.

There is no uniform approach to digital broadcasting, so it is expanding on a country by country basis rather than across the whole of Europe. The only way to help the spread is to offer new radio programme services, which are not available on FM, particularly those with appeal to the younger generation using mostly portable 'smart' devices with rich-media and interactivity.

There is no doubt that the appeal of digital radio would be enormously enhanced if broadcasters stopped replicating so many existing FM services and offered unique entertainment and information that is not currently available. The public will buy new technology, if it is perceived as giving value for money.

The same approach to migration to Digital Radio should be taken as adopted for the migration to FM from AM, viz. a date is set by which 'simulcasting' - the transmission of the same audio on Digital Radio and FM - must cease, except for those mainstream radio programmes that provide also the essential traffic information and/or TMC for vehicle drivers. For road safety reasons these services will have to continue on FM for many years to come.

Phasing out 'simulcasting' may seem extreme, but this would certainly fulfil the promise of exclusive content available only on Digital Radio. When it is announced that many established stations will no longer be available on FM or AM, without any doubt, listeners will be rushing to buy Digital Radios. This would do away with the need for legislation to have a Digital Radio receiving option in every new radio sold. The result – Digital Radio will be carrying the most popular radio programmes – this will convince both the public and commercial radio stations of the need to complete Digital Radio coverage quickly.

There is still the lack of a 'killer' app. Everyone should be encouraged to design 'smart' radios that have the same appeal as recent smart phones with touch screens, easy to use and so that the end user does not have any difficulty in finding the radio programme of his/her choice with the added ability to record, tag and rewind the content. This smart radio should also have the ability to move seamlessly from Digital to FM without any awareness on the part of the listener.

FM broadcasting needs to continue until such time as countries adopting digital broadcasting have achieved over 95% geographic coverage and almost all vehicles can receive Digital Radio.

Until there is universal coverage in Europe with digital signals for those serious services, news, classical music etc which are simulcast, the listener will be a continually irritated and annoyed, if the change-over results in the loss of his or her favourite radio programme. Could there be some kind of EC legislation that compels broadcasters to continue with FM services, where they are simulcasting DAB ones, until such time as 95% of their area coverage is achieved? Only after this could they then stop FM simulcasting?

## **Conclusions**

The RDS Forum holds the view that Digital Radio has the full potential for new business solutions and it may have a bright future, particularly for automotive.

If our recommendations are followed, we believe there could be a much faster take up of Digital Radio for both, the manufacturing industry for portables and car radios and consequently for all the mobile listeners. All listeners would receive the benefits of a broader choice of radio programmes and gain from the obvious benefits of 'going digital!'.

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