

August 16, 2004

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: In the Matter of Digital Audio broadcasting Systems and Their
Impact on Terrestrial Radio Broadcast Service
MM Docket No. 99-325

Dear Ms. Dortch:

Pursuant to Section 1.1206(b) of the Commission's rules, the Recording Industry Association of America, Inc. ("RIAA") through undersigned counsel, hereby submits the attached material in support of content protection rules for digital audio broadcasting ("DAB") in the above-reference proceeding.

1. In its Comments and Reply Comments in this proceeding, RIAA provided extensive evidence and analysis that DAB without content protection will enable consumers to record and retain large personal collections of sound recordings broadcast on DAB without having to pay for the content and that DAB without content protection will provide a better vehicle than unauthorized peer-to-peer services for copying the same variety of music. The attached press release and advertisement provide additional support for RIAA's position.

As the press release demonstrates, consumers who have abandoned illegal Internet downloading of music in recent years because of the risk of prosecution are eager to find new and flexible ways to obtain sound recordings without having to pay the copyright owners. Software recently introduced allows consumers to automatically search the Internet for radio stations and record songs as MP3 files; eliminate and reduce overlap at the beginning and end of songs; play songs on a personal computer; and burn songs onto CDs. Similar technology will undoubtedly be developed and used to automatically cherry-pick DAB broadcasts for recording and retention of particular songs. As this press release and advertisement further show, the threat described in RIAA's Comments and Reply Comments is real and imminent.

Ms. Marlene Dortch
August 16, 2004
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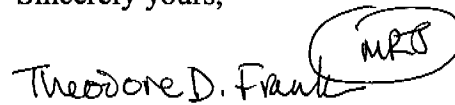
2. In its *Notice of Inquiry*, the Commission sought additional information concerning the experience with DAB in the United Kingdom with respect to the unauthorized copying and redistribution of copyright content. During the meeting on July 8, 2004, between RIAA and members of the Media Bureau staff, the discussion touched on whether the audio quality of the Eureka system was comparable to that of the iBiquity system. The attached material from Digital Radio Information, <http://www.digitalradiotech.co.uk>, indicates that most of the DAB stations in the United Kingdom are not using the full digital capacity of the Eureka system (see pages 19-24) and that one station has been admonished not to advertise its DAB service as CD quality. (see pages 3-4). Thus, although the Eureka system has a higher bit rate than the iBiquity IBOC system, it is not clear that stations in the United Kingdom are employing the full capabilities of the system, thereby reducing the quality of the broadcast transmission.

In addition, the Eureka system was deployed some time ago and the iBiquity system exploits the developments in codec technology since the Eureka system was deployed. As a result, the iBiquity system offers higher quality audio using a lower bit rate. Given these two factors, it appears that DAB broadcasters in the United Kingdom have not offered the quality of signal that iBiquity promises and thus the impetus for equipment manufacturers to introduce DAB receivers/recorders was comparably reduced. However, as RIAA demonstrated in its Comments and Reply Comments, those devices are now available in the market there, the recording industry is aggressively addressing the problem there, and the problem of unauthorized recording of DAB content has been recognized by the BBC, which has committed to address the problem.

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If you have any questions concerning this matter, please do not hesitate to contact me.

Sincerely yours,

Theodore D. Frank

Theodore D. Frank
Counsel for Recording Industry Association
of America, Inc.

Enclosures

cc: Steven Broeckaert, Esq.
Ben Golant, Esq.
Ms. Stefanie Zalewski
Ms. Susan Crawford
Ms. Ann Gallagher

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Music Press Releases

Press release distributed by PR Newswire

Students Get Free MP3s Without Peer-to-Peer Music-Sharing Fears

Audio Xtract Software Records Streaming Internet Radio Stations, Converts Files to Separate Songs With Artist and Title

ST. LOUIS, Aug. 3 /PRNewswire/ -- Millions of Americans have abandoned peer-to-peer music sharing in the past year, since the initiation of a series of lawsuits filed by the Recording Industry Association of America (RIAA) against individuals suspected of copyright infringement. In fact, a survey conducted by the Pew Internet & American Life Project indicates that over fifty percent of former downloaders have abandoned the practice. Now, many of those young music aficionados - especially students - are turning to Audio Xtract, the Internet radio recording software that works like a VCR or TiVo for streaming music.

Jambalaya Brands, a St. Louis-based software marketing firm, today introduced Audio Xtract Professional Edition - an enhanced version of the now popular Internet radio recording software that has sold throughout the United States and in over 20 countries around the world. Audio Xtract Pro is geared toward Internet music lovers who want even greater flexibility to rip, mix, edit and convert all their music files.

"Students in particular have been looking for a way to 'time shift' the great music now available on Internet radio. With Audio Xtract, they can record now and listen later, wherever their busy lives take them," said Gene Schenberg, Vice President of Business & Customer Development. "And because Audio Xtract lets you record up to 8 stations at once, you can literally fill your MP3 player with new music in a matter of hours, with no per-song fees."

Audio Xtract allows you to choose what genre of music you would like to record. You can then search the Internet for radio stations and set Audio Xtract to record. Walk away and return later to find dozens, even hundreds of your favorite songs neatly stored on your computer as MP3 files, even listed by song title and artist. And with no per-song fees, you can fill your MP3 player for free!

Audio Xtract comes in two versions:

- Audio Xtract (\$49.99)
 - Record Internet radio songs or talk shows as MP3 files
 - Play on your computer with Audio Player
 - Burn a compilation CD to play in your car or CD player

- COMMENTARY
- Opinion
- Columnists
- Letters
- David Horsey
- Saturday Spin
- Forums
- COFFEE BREAK
- Comics & Games
- Mike Mailway
- TV Listings

- FIND IT!
- NWclassifieds
 - Jobs
 - Autos
 - Real Estate
 - Rentals
- NWsource
 - Shopping
 - Personals
 - Yellow pages
 - Maps/directions

P-I Archives
Obituaries

P-I ANYWHERE
E-mail Newsletters
News Alerts
PDA

Cell Phones
RSS Feeds

- Duplicate file remover automatically removes duplicate songs
- Schedule Audio Xtract to record a favorite radio station at a certain time of the day
- Record up to 8 Internet radio stations at one time

ADVERTISING

Vue
Saturn.
People
First.

SATURN *joos* **SEATTLE**
It's different in a Saturn.

Audio Xtract Professional Edition (\$69.99)

All of the above, plus:

- Sound Edit Pro will eliminate/reduce overlap at the beginning and end of songs
- Transfer songs from your CD collection to Audio Xtract with Audio Ripper
- Convert freely to various file formats (MP3, WAV, WMA, OGG) and bitrates to maximize the number of songs you can fit on your MP3 player

Audio Xtract will soon be available in Fry's and other popular stores, and is available immediately online at <http://www.audioxtract.com>.

About Jambalaya Brands

Jambalaya Brands is a new St. Louis-based software marketing firm. Jambalaya publishes the Audio Xtract and Swiss Army Ware brands of software, and is dedicated to offering the latest technologies in a consumer-friendly format. For more information, please visit <http://www.audioxtract.com>.

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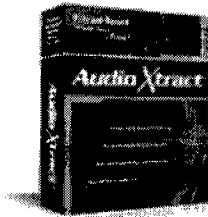
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Audio Xtract Software, Receive, Play and Record Internet Radio to Fill your MP3 Player for Free



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:: Descriptions ::

- **Create An Endless MP3 Library**
- **Fill your MP3 player for Free!**
- **100% legal - Just like a VCR**
- **Record any Station, Any Time**
- **Split and Name Songs Automatically**
- **Record Multiple Streams at Once**

Features:

- Receive, play and record internet radio stations
- Record now and listen later
- Search the web for stations by genre
- Add stations manually
- Create a Favorites List
- Record internet radio on your PC as MP3 files
- Split a recording into individual tracks
- Name artist and song title automatically

System Requirements:

- Pentium 166 MHz
- 128 MB RAM
- Internet connection
- Windows 98/Me/2000/XP
- MME compatible Soundcard
- 256 colors at 800 x 600
- ADSL/Cable (recommended)

- Create an endless MP3 library
- Manage all your recordings in a music library
- Load music on your MP3 player
- Burn MP3s to an audio CD
- Set up automatic scheduling
- Record multiple streams at the same time
- Avoid duplicate song recording

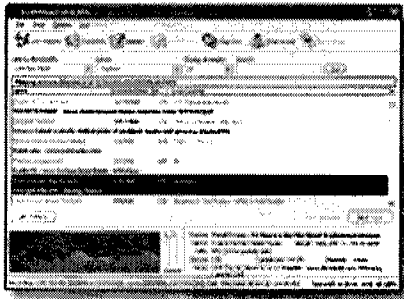
Order Now!

Only \$49.99

Like a VCR for Music

Audio Xtract™ is the revolutionary new software that allows you to receive and record thousands of radio stations that are currently available on the internet. That way, you can listen to your favorite music or talk show when you want, where you want...It's just like a VCR: begin recording now, or set a schedule to automatically record specific stations and times!

Record Any Station, Any Time



Search the internet for hundreds of radio stations around the world in just seconds, or add your own by entering the URL, and create a favorite station list. Select stations by bandwidth or genre — Oldies, Rock, Talk, etc. — then play and record them right at your computer! Browse through the radio stations, selecting by genre and bandwidth, and then make your selection. Or search by keyword, like "Top 40"...it's so easy, anyone can do it!

[Click to Enlarge](#)

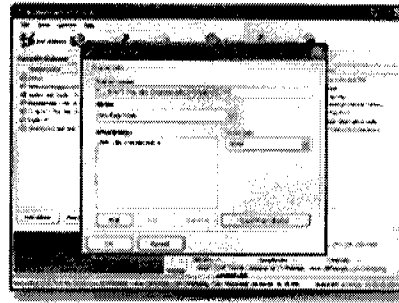
Up to 8 Stations at Once

Audio Xtract is a powerful recording utility! Now you can select and record up to 8 streaming radio stations simultaneously. Pick from the same genre, or mix it up — it's your choice. Never miss a favorite music or talk radio show, even if they air at the same time.

Create an Endless MP3 Library

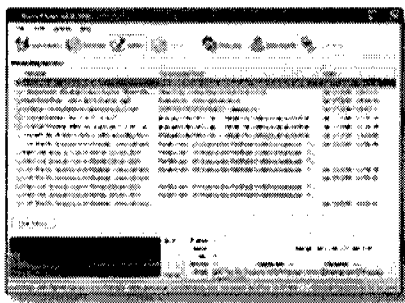
How many MP3s would you like to have? 1000? 100,000? With **Audio Xtract**, you record from the radio, like in the old days, and there are no per-song fees! So go

ahead — start your collection today! This is not peer-to-peer file sharing like Grokster or Kazaa, so you can build your MP3 library privately and worry **free**. Record now, and listen later, at home or on the go!



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Split and Name Songs Automatically



[Click to Enlarge](#)

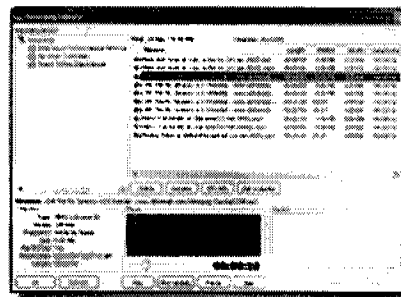
Audio Xtract records music or talk from the internet to your hard drive as individual high-quality MP3 files and automatically adds key information, including artist and title, so you can easily manage your music. Keep the songs you like, arranged just the way you like them. Edit the file information and organize your collection into playlists to suit your own preferences. Soon you're ready to enjoy your new collection at home or on the go!

Duplicate Files Deleted for You

Even the best stations eventually play the same songs again. But when you are recording, that just wastes valuable storage space on your hard drive. Now, **Audio Xtract** eliminates the hassle for you and automatically deletes duplicate MP3 files within a folder!

Burn MP3s to Audio CDs

Once you have a new MP3 library, you'll want to listen on your player or in your car. With **Audio Xtract** it's so easy...just click on the menu and you'll be burning CDs — in just the format you need — in no time at all. Or load the songs onto your MP3 player and you're ready to roll!



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Order Now!

Only \$49.99

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<p>Media</p> <ul style="list-style-type: none"> DVD-R, DVD-RW DVD+R/DVD+RW CD-R, CD-RW DVD-RAM DLT/LTO Tape Data Cartridge Floppy Disk Zip, Jaz Disk, ORB Magneto Optical Mini DV Tape Audio Cassette VHS Video Tape 	<p>Memory</p> <ul style="list-style-type: none"> USB Watch USB Pen Drive CompactFlash Card SmartMedia Card MultiMedia Card Secure Digital Card Microdrive/PC Card Memory Stick XD-Picture Cards Card Reader PC Memory Apple Memory 	<p>Ink/Toner</p> <ul style="list-style-type: none"> Epson Compatible Epson OEM Canon HP/Hewlett Packard IBM/Lexmark Apple Brother Xerox Ink Refill Kits Toner Refill Kits Sublimation Ink Cleaning Cartridges 	<p>Paper/Labels</p> <ul style="list-style-type: none"> CD/DVD Labels CD/DVD Case Inserts DVD Mailers CD/DVD Label Software Audio/Video Label Avery Compatible Labels Photo Paper Check Books/Refills 	<p>E</p> <ul style="list-style-type: none"> CD/DVD CD/DVD Laptop Ca Laptop Ba Organizer Sport Bac Camera C Camcorde CD Player Cell Phon
<p>Accessories/Batteries</p> <ul style="list-style-type: none"> Media Accessories PDA Accessories Laptop Accessories Cables Security Locks Mice & Keyboards Computer Desks Fresh Batteries Rechargeable Batteries Camcorder Batteries LapTop Batteries 	<p>Hardware</p> <ul style="list-style-type: none"> DVD Burners/Recorders CD-RW Burners/Drives CD/DVD Duplicators Monitors, Desktops USB/FireWire Hubs Printers & Scanners Hard Drives External Enclosures Firewire Products USB Products Video Capture 	<p>Electronics</p> <ul style="list-style-type: none"> VISART Album TV Toys/Computer Toy GPS System Media Convert, Capture Detector/Control PC Camera/WebCam DVD Players MP3 Players Speakers/Headphones DVD Movies 	<p>NetWorking/Wireless</p> <ul style="list-style-type: none"> Network Cards/Adapters Ethernet Hubs/Routers 11b Wireless LAN 11g Wireless LAN Wireless Routers Modems 	<p>Multimer</p> <ul style="list-style-type: none"> Multimedi CD/DVD CD/DVD Xelerate 5 Stompsof Business Check Cre E-Comme

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Regulation of Digital Radio in the UK Has Failed Consumers

digitalradiotech.co.uk

UK Has Lowest Audio Quality on DAB in the World

Home Home	Digital Radio Samples	DAB DAB	Digital Satellite	Freeview Freeview	DRM DRM	Broadband Internet	Tech Tech	Newsletter Newsletter	Contact Us Contact Us
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News



Radio 2 'Digital Push' in September

Radio 2 "will be encouraging listeners to go online, sample digital radio and explore digital technology during September" and "will also team up with digital only networks such as 1Xtra, BBC7 and the Asian Network to give audiences a taste of the new services output for the campaign".

This should be a good test of the BBC's new management's desire for the BBC to be less arrogant, because the BBC's record until recently has been to push consumers towards DAB and try to ignore the existence of digital radio stations on Freeview, digital satellite and cable. This was nicely summed-up when Simon Nelson (BBC Controller of Radio & Music Interactive, and the man in charge of DAB at the BBC) said on Radio 4 Feedback:

"We would prefer it if everybody listened to digital radio via DAB"

Out of all the major BBC TV advertising campaigns for digital radio and their new services over the last 2 years, only the recent 6 Music adverts have mentioned that their digital radio stations are available via the digital TV platforms.

What will be most interesting about this "digital push" on Radio 2 is whether the BBC are honest and open about the fact that the audio quality of digital radio is far better on the digital TV platforms than it is on DAB. This is something that I've been asking them to admit for a long time, but you will not find any such admission on the

New Products

digitalradiotech.co.uk advises people **NOT** to buy DAB hi-fi tuners or micro systems as the audio quality on DAB in the UK is very poor and much better audio quality is available on free-to-air digital satellite and Freeview.



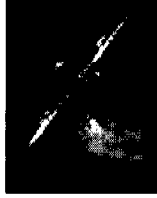
**Thomson
DHD4000 £204**
Freeview twin-tuner PVR with 40 GB hard drive (17th July)

BBC Digital Radio website. Failure to provide this information is simply being dishonest and would be proof that, despite the new management's best intentions about being more honest and open, the BBC Digital Radio department is still being dishonest and intentionally misleading the general public. One example that sticks in my mind of the BBC intentionally misleading the general public was when Simon Nelson said (in an impassioned voice) at the end of his interview on Radio 4 Feedback (after having to answer complaints about the audio quality of the BBC DAB stations!):

"And the message we have to get across is that, for the vast majority of listeners, the audio quality they will get from their digital radio will be vastly superior to that which they've ever had from their analogue radio."

I've got a DAB "hi-fi" tuner and a PC card, so I knew very well that the audio quality of the DAB music stations is far lower than the audio quality on FM with a half-decent FM signal, so the above statement was clearly a lie. Also, I recently bought an Evoke-1 for £45 from Argos (see further down this page for details of the offer, which is still on-going as I write this) and I have to say that my £25 Sony ICF703L (this seems to have been replaced by the Sony ICF704 for £18) analogue portable radio on FM wipes the floor with the Evoke-1 in terms of audio quality, which compounds the fact that his statement was a pure lie.

11th August



A Bit of 'Freesat' News

The above article suggests that the BBC have been in talks with other broadcasters regarding their plans for a Freesat system, which is good news. It is well known that Sky are planning to launch their own free-to-air (FTA) satellite system later this year for a one-off fee of £150, but if Sky alone launch an FTA satellite system then there's a serious issue with regards to whether consumers will be able to view ITV1, Channel 4 and five and be allowed to use non-Sky satellite receivers. If Sky are the only broadcaster to launch an FTA satellite system then they will try and keep ITV1, Channel 4 and five free-to-view, which means that consumers would have to have a Sky digibox and a viewing card that allows them to watch these channels. But this would rule out consumers being able to use PVRs, because Sky's PVR, Sky+, can only be used if the household has subscribed to one of the relatively expensive -- about £35-£40 per month -- Sky packages, which obviously rules out all FTA viewers. Satellite will become increasingly important in years to come when HDTV transmissions become more commonplace, because satellite has so much bandwidth available, especially compared to terrestrial (the BBC alone has 200 Mbps of capacity on satellite whereas the 5 DTT multiplexes in the UK only have a capacity of 102 Mbps altogether), so, in the HDTV-age, Sky should not be allowed to be the only satellite provider and force



BT Re-branded
Netgem i-player
£65 (17th July)



VisionDTV
Freeview PCI card
£47 (11th August)
Full Review



Humax F2FoxT
Freeview Receiver
£65 with channel
number display
(17th July)



Pioneer DBRTF100
Freeview Receiver
£71 (17th July)

Pioneer Receiver
Review

people to use their equipment if they want to watch 3 of the current 5 analogue TV channels.

11th August



Ofcom - DAB isn't CD-Quality... But Lets Advert Run for 6 More Weeks

Ofcom have upheld complaints about an advert for DAB claiming that it provides CD-quality, but the advert ran for 6 more weeks after complaints were made!!

Also, Ofcom did not have to qualify their decision; **DAB simply cannot provide CD-quality at 128kbps** for music stations, and 98% of music stations on DAB in the UK use 128kbps.

To be precise, the 12-year old codec that DAB uses (MPEG Layer 2, or MP2) doesn't provide CD-quality unless a bit rate of 256kbps or above is used, so DAB at 128kbps should really be described as "nowhere-near-CD-quality"

"Misleading

Switchdigital
102.2 Jazz FM

Issue

An advertisement to promote DAB digital radio referred to its provision of "CD-quality sound."

Nine listeners believed that DAB did not provide CD-quality sound, as most broadcasters used bit rates that were too low to achieve it.

Response



Sony VTXD800
Freeview Receiver
£90 (17th July)

Sony Receiver
Review



Philips DTR1500
Freeview Receiver
£69 (17th July)



Goodmans GDB5
(Freeview & DAB
(Band III only)) £99
(17th July)

DAB Car Stereos



Goodmans

GCE7007
DAB/FM/CD (Band
III only)

GCE7007 Review

GMG Radio, owners of 102.2 Jazz FM, confirmed that it had "suspended all Switchdigital and DAB advertising on air... pending [its] own investigation and subsequent ruling from Ofcom."

However, it added that "the commercial was broadcast in good faith and in the true spirit of communication in order to help the consumer rather than mislead" and that it formed "part of a London wide regional campaign by The Wireless Group."

The advertiser said it had been its aim "to introduce a technologically new method of broadcasting" in listener appropriate language" to an untechnically qualified broad demographic of all sociographic backgrounds." It added that DAB was "theoretically permanently clean from the vagaries of analogue transmission systems."

Decision

We agreed that many listeners were likely to appreciate the absence of analogue transmission "vagaries" and equate the "clean" sound of DAB with that of CDs. While we recognised that it is possible to transmit services at bit rates sufficiently high for most listeners to equate with CD-quality, broadcasters can choose to transmit at lower bit rates or in mono. Our expert confirmed that some listeners, in particular listening circumstances, would perceive a difference in sound quality between services using lower bit rates or broadcasting in mono compared to the quality attainable on CDs. We therefore believed the advertisement breached Section 2 Rule 3a (Misleadingness) of the Advertising and Sponsorship Code.

Conclusion

The advertisement must not be broadcast again without amendment."

3rd August



Channel 4 Planning New National Digital Talk Radio Station

Channel 4 are planning to launch a new national digital talk radio station to take on Radio 4, according to the

Telegraph. As the plan is for the station to be a national station, and because UBC Media own Oneword, which has only attracted 87,000 listeners despite being on all digital platforms, the article suggests that Channel 4's planned station might be launched in conjunction with UBC Media so that the station can be carried on the Digital One multiplex in place of Oneword.

3rd August



Digital RAJARs - Period Ending June 2004

The following table shows the number of digital-only listeners. The figures are arrived at either:

- directly, if the station only transmits on digital platforms;
- by subtracting the number of analogue listeners from the total number of listeners for a station.

It is impossible to arrive at a figure for digital-only listeners for certain stations such as the BBC Radios 1-5, Classic FM, talkSPORT and Virgin, because there is insufficient data in the publicly-available RAJAR figures.

Station	Weekly Reach ('000s)	Company
BBC Radio 5 Sports Extra	415	BBC
BBC 6 Music	200	BBC
BBC 1Xtra	293	BBC
BBC7	388	BBC
BBC Asian Network	296	BBC
The Arrow	24	Chrysalis
Capital Disney	31	Capital Radio
Capital Gold	327	Capital Radio
Classic Gold	253	GWR
Core	132	GWR
Galaxy	473	Chrysalis
Heart	474	Chrysalis
Heat	150	Emap
The Hits	880	Emap

Jazz / Smooth FM	348	Guardian Media Group
Kerrang	723	Emap
Kiss	978	Emap
LBC	27	Chrysalis
Magic	419	Emap
Mojo	136	Emap
Oneword	87	UBC Media
Planet Rock	221	GWR
Q	348	Emap
Saga's PrimeTime	127	Saga
Smash Hits	725	Emap
The Storm	78	GWR
Sunrise	156	Sunrise Group
XFM	124	Capital Radio
Yarr Radio	17	Sunrise Group

Compared to the last RAJAR figures, BBC7 looks like it has continued to gain listeners, whereas the other BBC stations look to have very similar figures to recent RAJARs.

With regard to the commercial stations, some of the Emap stations still have very high listener numbers, and although I was sceptical that people would not realise the difference between the TV and radio versions of, say, Kerrang, it does look suspiciously like some people are not differentiating between the two and are saying that they listen to the radio stations when in fact they watch the TV channel that plays music videos on Sky, cable or Freeview. An example of why this looks extremely suspicious is that XFM only manages to get 124,000 listeners, whereas Kerrang manages to get 723,000 listeners, yet both are aimed at a similar audience and, if anything, XFM has the better reputation.

29th July

SBN Have Gone Bust

SBN (Student Broadcast Network) has become insolvent, and owners, Campus Media plc, have decided not to continue funding the business. A buyer for SBN is being sought, failing which it will be wound-up.

SBN has been removed from the DRg London DAB multiplex. Also likely to be affected are the Now Access services which carry SBN programmes.

You have to wonder what this station was doing on a DAB multiplex if they weren't in very good financial health. Stations on DAB know they will make a loss in the early years (which is why you don't get many adverts on digital-only stations), and unless the station is owned by the big commercial radio groups -- who own all of the multiplex operator companies -- then radio stations get charged extortionate amounts of money for carriage on DAB, and because of the tiny number of listeners on DAB then they cannot hope to recoup the money from advertising revenue, and a loss is inevitable. Clearly, this was an unsuitable platform for a student radio station, which wouldn't attract the large audiences like the big stations do.

29th July

the gadget show

DAB Reviewed on The Gadget Show

The Gadget Show on channel five reviewed DAB on Monday 26th July, and the show will be repeated at Midnight Friday night / Saturday morning.

The points made were as follows:

- DAB's audio quality isn't CD-quality and nor is it as good as FM;
- DAB portables eat batteries (10 hours use per set of batteries, or less) compared to FM portables;
- DAB coverage is patchy;
- In-car DAB reception was pretty good;
- Recommendation: If you don't mind plugging portable radios into the mains and you want the extra choice then getting a DAB portable is okay. Otherwise, for home use, stick to FM.

On reflection, the review was pretty fair, although I was pretty disappointed that only DAB portables and DAB car stereos were mentioned, and hi-fi equipment was completely ignored. The reason why I was disappointed was that the difference in audio quality level between DAB and FM is minimised on portable radios, because they're simply not capable of providing hi-fi sound anyway due to the small size of speakers. Also, he didn't mention what the audio quality of DAB was like for in-car use, and he was driving a soft-top car, which is hardly conducive to assessing audio quality. So, although the review in itself came to pretty fair conclusions, it omitted to inform people of the differences in audio quality between DAB and FM on hi-fi systems or on car stereos, which is where

audio quality matters the most, in my opinion. People argue that because of the wind and engine noise in cars that audio quality doesn't matter. I do not subscribe to this view whatsoever, because modern car stereos are pretty powerful, and my experience is that just turning the volume up even just to a moderate level drowns out the environmental noise, and differences in audio quality are very readily perceptible in cars.

I was also disappointed that the article didn't even mention the fact that digital radio was available on the digital TV platforms, because if he'd have compared DAB with digital radio via Freeview, satellite or cable then the only conclusion you can come to is that the audio quality is much higher via the digital TV platforms than it is via DAB. Hopefully the above issues will be addressed in a future Gadget Show.

And, by the way, this website was shown on TV! There goes my 15 seconds of fame.

28th July



Pure Evoke-1 from Argos Ring & Reserve for £44.99

To reserve this you need to know the 3-digit store number that you want to pick it up from (store numbers are just before the index in the Argos catalogue), ring Argos Ring & Reserve on 0870 600 1010, then in the automated service go to check on product availability and prices and enter the product code 5002553 when prompted.

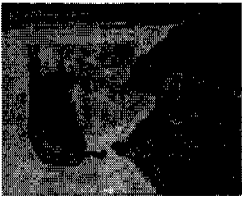
28th July



Freeview 7-day EPG Being Rolled-Out Nationally 26th & 27th July

There are reports that a few more transmitters are receiving the EPG (electronic programme guide) today, and the rumour is that it is being rolled-out nationally today and tomorrow. However, only certain receivers can decode the EPG at the moment, and if yours isn't one of these receivers then it will carry on displaying Now & Next information as usual. Some (not all) of the receivers that cannot currently decode the EPG will get an over-the-air software download at some point to enable the receiver to decode the EPG. Details of over-the-air software download schedules can be found [here](#).

26th July



Kerrang Being Added to Emap Multiplexes in Mono

Kerrang is finally being added to Emap's DAB multiplexes in the North of England – it was reported that Kerrang was supposed to have been added on 1st July.

Kerrang is using 64 kbps mono, and has been reported to be transmitting on the Central Lancashire, Leeds, Liverpool and South Yorkshire Emap-owned multiplexes, and The Hits has been removed from these multiplexes.

24th July (Edited 26th July)

Now digital Now Digital Reading & Basingstoke Multiplex Now Testing

The above DAB multiplex is now testing with the following services:

Station	Bit Rate (kbps)
BBC Berks	128
2-10 FM	128
Test	128
The Storm	128
Classic Gold	128

24th July



Analogue TV Switch-Off Put Back to 2012

Tessa Jowell has put back analogue TV switch-off from 2010 to 2012, with the phasing-in of switch-over starting in some regions in 2007.

She's also revealed a rather strange "initiative" to put "sell-by date" stickers on TV sets to warn customers the TVs

will have a limited lifespan. This is simply wrong, because all analogue TVs only need a set-top box to allow them to receive digital TV, so no TV sets will become obsolete.

The article also mentions that Datamonitor predict that digital TV market penetration will reach 82% by 2008.

It has to be said that if they can't switch-off analogue TV by 2010, then I suspect Ofcom's Kip Meek will live to regret the following comment he made on the 13th July:

"We're aiming for 2010 to 2012 in digital switchover in TV and I don't think it will be that long thereafter [for radio]"

because radio is going to be far more difficult to get everybody to replace all their multiple FM receivers with DAB receivers -- especially given that DAB provides lower audio quality than FM -- than it is to get everybody to buy a couple of £50 Freeview set-top boxes per household, and the article mentions that Freeview boxes might be as cheap as £10 - £15 in future.

22nd July



L-Band - What the Broadcasters & Manufacturers Fail To Tell You

From 2007, DAB in the UK will also be broadcast on L-band, and this will make the vast majority of current DAB radios partially obsolete, because virtually all DAB radios sold to date, and on sale at the current time, cannot receive L-band channels, and are only capable of receiving Band III signals.

DAB can be transmitted on 2 frequency bands:

- Band III, which is the band of frequencies from 174 - 239 MHz;
- L-band, which is the band of frequencies from 1452 - 1490 MHz.

Currently, L-band cannot be used for DAB because licences are held for it for other applications, but these licences end in 2007, and L-band will then become available for use by DAB, and all the L-band channels have already been nominally allocated. As the L-band channel allocations show, it is envisaged that L-band will be used for small-area local DAB multiplexes, for instance covering the size of a small town. But the allocations are only nominal, and the reality could be very different to the current allocation. A lot will depend on how much spectrum DAB in the UK gets in Band III, and this depends on the on-going Regional Radio Conference that is due to end in 2006. Many think that DAB will be able to use 5 extra channels on Band III (currently there are 7

Band III channels in use in the UK), but however many Band III channels are allocated for use in the UK it is virtually certain that L-band will still be used for DAB in the UK.

I'm sure many of you will be thinking that the increase in the number of channels will put an end to the current bit rates debacle -- 98% of stereo stations on DAB in the UK use 128kbps MP2, and 128kbps MP2 is classified as providing "Annoying" audio quality -- but unfortunately this is extremely unlikely to be the case, because the 2 leading commercial DAB broadcasters, Emap and GWR, have both expressed their desire that the minimum bit rate levels (under the control of promoter of self-regulation organisation, Ofcom) should be reduced. Additionally, the commercial radio groups said that they were against the BBC getting any more spectrum on DAB because this would be anti-competitive, and if Ofcom agree with them then the BBC bit rates may never be able to increase on DAB.

So, why do the broadcasters and manufacturers keep the fact that the vast majority of DAB radios already sold, and the vast majority of DAB radios currently in the shops will be partially obsolete in 2007? It would certainly make their DAB advertising messages more confused, but most importantly, it would put some people off buying DAB radios until they can buy radios with both bands on them, and that's the last thing the broadcasters and manufacturers want.

Thankfully, there are DAB products that can receive both Band III and L-band, but they're the exception rather than the rule. The following products can receive both bands:

- [Aria A-2000 portable radio](#)
- [Aria A-3000 personal radio](#)
- [Aria A-6000 PC receiver](#) (not recommended due to audio quality on DAB not being hi-fi quality)
- Pure Digital DRX702ES tuner (not recommended due to audio quality on DAB not being hi-fi quality)

Sony's forthcoming DAB radios will be able to receive both bands, but they're incredibly expensive. It's also assumed that radios capable of reception of both bands will become more commonplace in the foreseeable future, so unless you fancy one of the Aria products listed above then it's a good idea to wait until, say, the run-up to Christmas before getting a DAB radio if you want to avoid owning a radio that will be partially obsolete by 2007.

So, when you go into a shop asking "does it do digital?", remember to ask them "does it do L-band?". And if they don't know, then the answer is almost certainly 'no'.

19th July

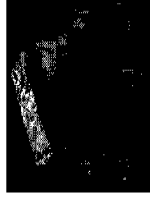


Goodmans £100 Micro Systems

Two new Goodmans micro systems containing DAB tuners have appeared for £100, the DAB 500 available from Comet, and the 1104 DAB available from Dixons and Currys. Both are £100, and both are CD plus DAB micro systems. Neither have FM, neither can receive L-band, and neither can playback MP3s. Also, due to the price, these micro systems will undoubtedly have relatively poor analogue audio components in them, so they're unlikely to sound good.

You can't argue with the price of these systems, but don't overlook the fact that they cannot receive L-band channels. See above for more details about L-band

19th July



Capital & GWR Radio Groups in Merger Talks

Capital and GWR commercial radio groups are in merger talks that would see the formation of an £800m radio group according to the Scotsman (and also in the Sunday Times Business section, page 3). The 2 companies do seem to complement one another as can be seen by some of the stations that the 2 groups own:

Capital Radio Group stations:

- Capital FM
- Century
- Xfm
- Capital Disney
- Capital Gold
- Urban Choice
- Life

GWR-owned stations:

- Classic FM

- Core
- Planet Rock
- loads of regional FM stations

(above lists are by no means exhaustive)

So, Capital is more London-centric, whereas GWR has Classic FM -- the largest commercial radio station -- plus a load of regional FM stations, plus GWR has invested heavily into DAB and owns 66% of the Digital One multiplex operator and owns the Now Digital multiplex operator, who have far more local DAB multiplex licences than any other radio group.

In terms of what this *might* mean for DAB listeners, it is possible that Capital Disney and Core could combine to form a single station, because they target the same listeners, although the cynic in me expects them to carry on individually. Let's face it, bandwidth being reclaimed to improve audio quality is the last thing on the minds of these greedy commercial radio groups...

18th July



Nokia Sign Deal to Use aacPlus Audio Codec

Nokia have signed-up to use Coding Technologies' aacPlus audio codec (aacPlus is Coding Technologies' name for their High-Efficiency Advanced Audio Coding codec (or HE AAC for short)). The relevance of this to broadcasting is that Nokia are one of the leading supporters of the new DVB-H standard which will allow mobile phones to receive digital TV, digital radio, and data services.

It's interesting to compare the combination of DVB-H using the HE AAC codec with the DAB system which uses the MP2 codec. The best way to compare these 2 systems is to compare how many digital radio stations with the same level of audio quality they can fit into a given amount of spectrum:

DVB-H allows a capacity of 11 Mbps in an 8 MHz channel, which gives a spectral efficiency of 1.375 bits/s/Hz.

DAB allows a capacity of 1.15 Mbps in a 1.7 MHz channel, which gives a spectral efficiency of 0.676 bits/s/Hz.

HE AAC at 64kbps (ignore the values in the article linked-to, they're not correct) can provide an audio quality similar to 192 kbps MP2, so HE AAC is 3 times as efficient as MP2.

Combining the above figures:

relative efficiency = $(1.375 / 0.676) \times 3 = 6.1$

So, DVB-H using the HE AAC codec is 6.1 times as efficient as DAB using the MP2 codec, which means that you could fit 6.1 times as many digital radio stations into a given bandwidth using DVB-H as you can with DAB.

Unfortunately, the UK radio broadcasters have taken a lead in the roll-out of DAB despite the alternative -- and far superior (mobile DVB-T for instance) -- technologies available to them at the time they made their decisions, and this along with some lamentable regulatory decisions by the Radio Authority (now under Ofcom), has now left the UK with a relatively highly developed DAB system, but although it provides a wider range of choice to listeners it provides a significantly lower audio quality than FM.

I have to say that the first phrase that springs to mind is "fools rush in where angels fear to tread", and given that the expected life-time of any new digital radio system is 3, 4 or more decades (once we've gone digital what motivation is there for the broadcasters to invest further in an expensive transmitter network?), then it looks highly likely that the UK will end up with a smaller range of stations all with a far lower audio quality than countries that hung back to assess the different technologies available and then choose to use DVB-H with the HE AAC codec (although DVB-H has primarily been targeted at mobile phones it is perfectly suited to be used for a digital radio system). It seems that there's a bit of a deja vu going on with Ofcom announcing that they back a switch-off of FM...

The BBC and the Radio Authority (whose staff now work for Ofcom) have a hell of a lot to answer for....

14th July



Ofcom Back Analogue Radio Switch-Off

Ofcom senior partner, Kip Meek, said the following at the Radio Festival in Birmingham today:

"We're aiming for 2010 to 2012 in digital switchover in TV and I don't think it will be that long thereafter [for radio]"

I've said this before: bring it on, because if they think they're going to replace high audio quality on FM with low audio quality on DAB then I think they underestimate the resistance they will get.

It's interesting to compare digital TV with DAB. People do complain about the picture quality on digital TV, but my experience of the picture quality on Freeview is that it's relatively rare that you see bad pixellation due to difficult to encode video and an insufficient bit rate available to encode it, or blurring occurs when some fast action is on-screen and again there's insufficient bit rate available; but again, this is quite rare because most TV programmes

don't have much, if any, fast action in them. Compare this to your typical DAB music station at 128kbps which permanently sounds dull, muffled, lacking in detail, has no top-end, and has a non-existent stereo image due to the use of joint stereo coding. Digital TV picture quality compared to that is vastly superior.

Anyway, I welcome the news that they plan to set a date for analogue switch-off, because the sooner the debate about the dire audio quality on DAB gets some serious attention the better.

13th July



Click image to go to

Ofcom's website

Emap - The Undisputed Kings of Mono Music on DAB

To quote from the article:

"As of July 1st, the digital version of Kerrang! Radio is now available on Emap's seven wholly-owned multiplexes across the north of England."

It's past July 1st, but I assume Kerrang will go on their muxes eventually. The problem is though that the multiplexes they're going on are already completely full, which inevitably means that once Kerrang is added to these muxes yet more Emap-owned music stations will have to be reduced to mono to fit on Kerrang, which itself is a music station and will also have to be mono. The following table shows the number of Emap-owned mono music stations on their 7 wholly-owned DAB multiplexes after Kerrang has been added:

Local Multiplex	No. of Mono Music Stations
<u>C. Lancs</u>	4
<u>Humberside</u>	4
<u>Leeds</u>	5
<u>Liverpool</u>	4
<u>S. Yorks</u>	4
<u>Teesside</u>	4
<u>Tyne & Wear</u>	4

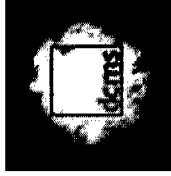
information in table from <http://www.wohnoft.demon.co.uk/DAB/ukloc.html>

Not that mono DAB portable radio owners would know the difference, but it makes a complete mockery of the

DAB-industry's claims that DAB is "radio for the 21st century". I wouldn't mind if they admitted that DAB was only suitable for listening on small portable radios (which is all DAB is good for), but I believe the DRDB's latest DAB advertising campaign is promoting the fact that DAB is available on micro hi-fi systems and car stereos, and DAB is nowhere near good enough to be played on hi-fi or in-car systems even at 128kbps, let alone 64kbps mono.

Incidentally, all of the Emap music stations that are mono on DAB are available in stereo on Freeview and free-to-air digital satellite, and some of them are available on selected digital cable networks.

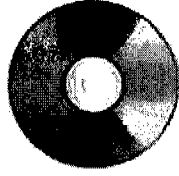
9th July



Minister Considering Analogue Radio Switch-Off

Although switching-off analogue radio couldn't happen for many years simply due to the fact that there's such a vast number of analogue radios out there, I'd be in favour of an early switch-off date because then people will realise just what they'll be missing once analogue is switched-off, and if they think they will be able to replace FM with the much lower audio quality DAB system in the UK I think they underestimate how much resistance they will have.

6th July



Australians Want CD-Quality on DAB

Market research conducted in Sydney which surveyed 1,500 people about their attitudes towards digital radio found that:

"CD-quality sound with no interference was nominated as the most attractive feature of digital radio (nominated by 75 per cent of respondents)."

This is no different from results from the largest every market research survey into what consumers wanted from DAB carried out by the WorldDAB Forum which surveyed 5,000 people across Europe and the most attractive feature of digital radio was audio enhancement, which consisted of:

- CD-quality sound

- interference-free reception
- no re-tuning in cars

Twice as many people were very interested in getting DAB to acquire audio enhancement as the number that were very interested in getting DAB to provide extra stations.[1]

Unfortunately, the BBC, the Radio Authority (now under Ofcom), and the commercial radio groups decided to ignore the results from this large survey into consumer preferences and we now have literally 98% of all stereo radio stations on DAB using 128kbps which can only provide audio quality that is classified as being "Annoying" and is miles away from providing CD-quality sound, and as you can see below a large number of radio stations that carry stereo content but transmit it on DAB in mono.

Just to show the BBC's extreme arrogance with regards to the matter of audio quality on DAB, here's an extract from an email sent by Simon Nelson, Controller of BBC Radio & Music Interactive (the man basically in charge of DAB at the BBC) where he's responding to a point made about why the BBC failed to even mention the fact that the audio quality of Radio 1, Radio 2, Radio 4, BBC7, 1Xtra, 6 Music, World Service and the Asian Network would all end up with very low audio quality and/or mono instead of stereo on DAB if all the new services were added to their multiplex (which they were, despite low acceptance levels in the feedback to their sham public consultation):

"the BBC didn't raise the consequences for audio quality of additional stations when we consulted the public about them. I take your point about how this might have affected the responses we received but the reason we didn't stems from that fundamental disagreement I referred to earlier: we took the decision, informed by the technical advice we received from our engineers, that audio quality would not be unacceptably impaired by the number of services we proposed. Now obviously, you don't agree with that assessment, but that was the assessment we backed and in so doing, felt that the issue did not need to be included in our consultation."

Pure BBC arrogance!


[1] [The Market Potential for DAB Executive Summary: Europe](#), Table 3, Page 8

6th July



Yet Another Music Station Using Mono

The Urban Choice radio station has started transmitting on the regional MXR West Midlands DAB multiplex at 64 kbps mono.

Click image to go to  The DAB industry hype makes out that DAB is "radio for the 21st century", yet there's now the following stations that broadcast stereo content in mono on one or more DAB multiplex in the UK:

- BBC7
- BBC Asian Network (carries music)
- World Service (some music shows)
- Smash Hits
- The Hits
- Kerrang
- Urban Choice
- UCA Radio Ayr
- Passion
- Beat 106
- Sunrise Radio
- Yarr Radio
- Heat
- Magic
- Asian Plus
- Sabras Sound
- Capital Disney
- LBC 97.3
- Spectrum Radio
- Classic Gold
- Easy Radio
- SBN
- The Mix
- Prime Time Radio
- The Beach
- Swindon FM

The above list speaks volumes about Ofcom's method of "regulation"...

6th July

Archive Articles

Receive the Digital Radio Listeners' Group Newsletter

Enter your name and email address:

Name:

Email:

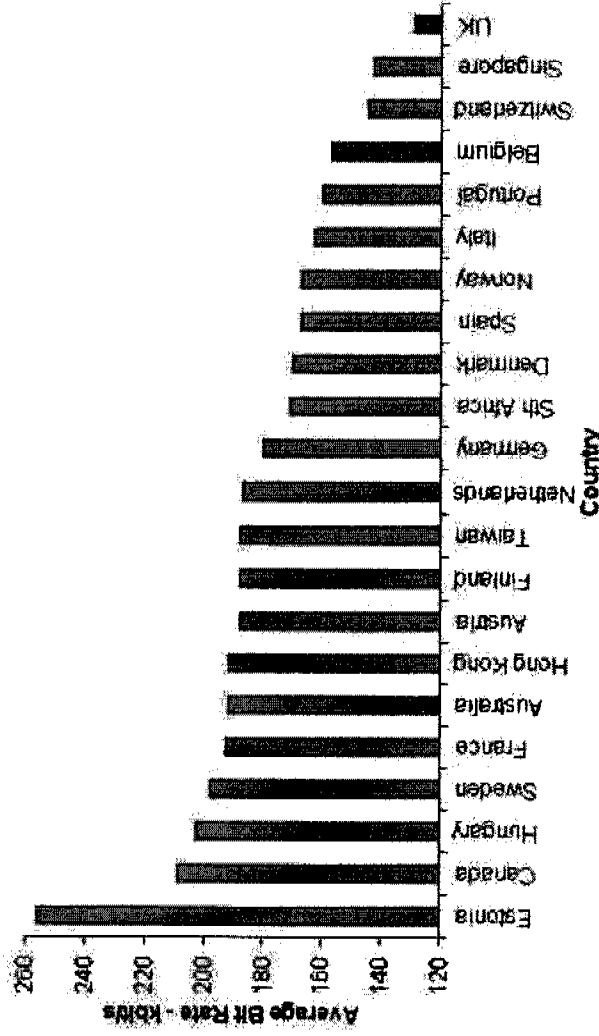
Subscribe Unsubscribe



DAB = Rip-Off Britain?

The audio quality of a digital radio station is heavily dependent on the *bit rate* used. For DAB, which uses MPEG Audio Layer 2, 192 kbps is generally accepted as being a good bit rate to use for stereo music stations, and the *higher the bit rate the better the audio quality, and vice versa*. As the following bar chart clearly shows, the UK implementation of DAB is trailing the world by a very significant margin and I can only conclude that DAB in the UK is just another example of Rip-Off Britain because the rest of the world are providing decent audio quality on DAB yet in the UK the broadcasters are providing far lower audio quality.

Worldwide Average Bit Rates for DAB Stereo Stations



Digital Radio Platform Bit Rates

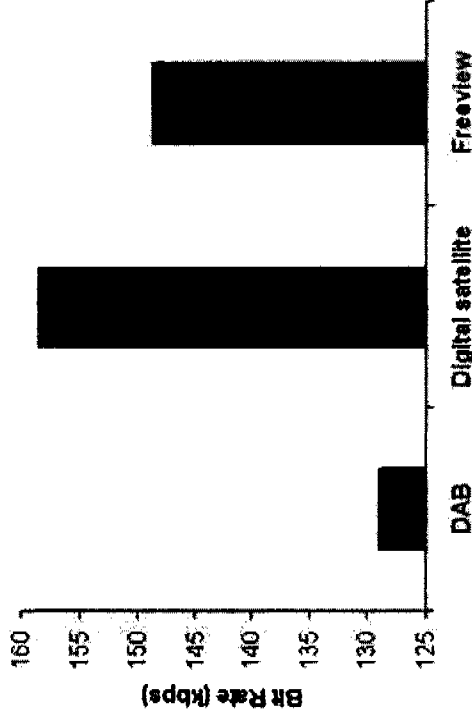
In the Freeview and digital satellite (DSat) columns in the table below, the bit rate is listed for all the stations available in the UK on those platforms. There are also 200-300 European free radio stations that can be received on satellite but only the UK stations are listed.

The rows in green and sky-blue at the top of the table are the stations that are available on DAB on the national BBC and Digital One multiplexes. Below this the DAB stations that have a bit rate listed are the most commonly occurring DAB stations that are on regional and local DAB multiplexes. However, the stations that are available in your area may vary significantly from those listed in the DAB column in the Miscellaneous Other Stations part of the table and you will need to check what stations are available in your area by going to this [postcode checker](#) (please bear in mind that that website is run by the Digital Radio Development Bureau (DRDB) whose sole purpose is to promote DAB in the UK, so treat any claims about good audio quality with skepticism).

The important thing to remember in the table below is that the higher the bit rate used for a station, the higher the

audio quality will be, and vice versa. So for example, stations on digital satellite (DSat) usually use a higher bit rate than on DAB, so their audio quality will be higher on DSat than on DAB. Also note that bit rates below 128 kbps will virtually always be mono stations so the bit rate required is approximately half that of a stereo station.

Average Bit Rates of Stereo Stations on UK Digital Platforms



National DAB Stations	DAB (kbps)	Digital Satellite (non-subscription) (kbps)	Freeview (kbps)	ntl.digital	Telewest digital	Wight Cable Digital North
BBC Radio 1	128	192	192	y	y	y
BBC Radio 2	128	192	192	y	y	y
BBC Radio 3	192 or 160	192	192	y	y	y
BBC Radio 4 FM	128 or 80	192	192	y	y	y
BBC Radio 4 LW	64	96			y	y
BBC Radio 5 Live	80	96	96	y	y	y
BBC Radio 5 Sports Extra	64	96	96	y	y	
BBC 6 Music	128	160	160	y	y	
BBC7	80	160	160	y	y	
BBC 1Xtra	128	160	160	y	y	
BBC Asian Network	64	128	128	y	y	y

Cross Rhythm					96
Desi Radio					96
DNN	48				
Dream FM					192
Easy Radio	80				192
EWTN					96
Family Radio					128
FCUK FM					128
Galaxy	128		y	y	160
Gaydar					128
heat	64	128			128
Heart	128		y	y	160
Jazz FM	128		y	y	128
Kerrang	64		y	y	128
Kiss 100	128		y		128
LBC 97.3	64				192
Liberty Radio					192
Magic	128			y	128
Mojo Radio					128
Panjab Radio					128
Passion	128				
Premier				y	96
Pure Dance					128
Q					128
RTE Europe					96
RTE Lyric FM					192
RTE Radio 1					192
RTE Radio 2				y	192
RTE 2FM					192
Radio Caroline					64
Radio na Gaeltachta					128
Real Radio	128				160
Saga	128				
Smash Hits	128				128
				y	

Smooth	128				
Solar		128			
Spectrum 1		64			
Sukh Sagar		128			
Sunrise	64	160	y		y
The Arrow	128	160		y	
The Dream		192			
The Hits	96	128	y	128	
The Mix		160	y		
The Storm	128	160	y		y
TWR TransWorld Radio		160			y
UCB Europe		?	y		
Urban Choice	128	192	y		
WRN EuroMax		96	y		
XFM	128	192	y		
Yarr Radio	64	96		y	y
3C Cool Country	128				

Digital Satellite
(non-subscription)
Channel Number

Chart Show TV	455	Freeview Channel Number
The Vault	456	
P-Rock	461	
Classic FM TV	464	
Channel U	467	
TMF		21
The Hits		18



Visitors:

073145

