



Making **WAVES** in a Digital World

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To:

J. Shalak
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FRANCE

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Dear Jamil,

My colleagues and I will be delighted to provide you with the information that you requested regarding multi format Digital Radio Ensembles.

1 Radioscape has supplying Encoding and Multiplex equipment since 2006 that have been able to deliver an ensemble with a mixture of DAB, DAB+, DAB-IP, T-DMB and DMB channels.

2. It is not only possible to deliver a mixed format ensemble – but RadioScape has been delivering such systems for operation in countries as diverse as Canada, Ireland, Poland, China, New Zealand and Australia, with NO adverse effects on the Multiplex, or the receivers (Radios etc) that were being used to pick up the signals.

There is **NO** cost penalty in operating a multi standard ensemble.

3. It is difficult to provide guidance on the number of stations that are able to populate an ensemble as the variables in terms of DAB Mode, Data Rate for the Sub channel and its associated Data Services deliver a huge number of variables.

For example, In some market, 48 kbps is considered ample for an audio service in HE AAC V2 – with an associated 4 kbps data channel, - in others 96 kbps is considered the minimum and the need for a data service of at least 32 kbps to be obvious.

Further, Ensembles usually have a wide mixture of services and many of them will undergo re configurations as their requirement to utilise their capacity units changes. This will often deliver a change in the number services available on the multiplex as, for instance, a high quality service “Splits” its capacity to deliver a lower grade audio (music service) with a speech channel for a particular event.

This could also happen when a station wishes to deliver a more “Data Rich” content – for example additional Slide show material – and hence it gives up some of its Audio quality.

It is one of the many advantages that is available from Digital Radio, that the services on an Ensemble are Dynamic.



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4. There are a great number of receivers on the market that can receive Multi format ensembles. The influence of the Australian Market with its DAB+ services is having an early influence on the manufacturers and hence the number of receivers that can operate in DAB, DAB+, T-DMB and DMB-A is rising and will continue so to do.

The Receiver profiles delivered by World DMB in 2009 also help manufactures to work to delivering receivers with multi standard capabilities.

Also – the influence of organisations like IDAG will have a further positive influence on the availability of more multi format receivers.

It is important to note that the ability of Eureka 147 ensembles to host multi format content is inherent in its architecture and places NO ADDITIONAL strain or overhead on the multiplex at all. Impartial comment is available from the EBU:-

<http://tech.ebu.ch/Jahia/site/tech/cache/offonce/dab;jsessionid=C60CF3F256BBBC386DAB9F1B042699CF.jahia1>

5. It is understood that France wishes to use DMB-A for the majority of its Digital Radio Transmissions, but Eureka 147 delivers no barriers to the ensemble / multiplex containing what ever mix of the family of formats that are required. RadioScape has delivered numerous multiplexes that have been delivering continuous service in such configuration with no adverse effects.

Also, it may be of interest that such ensembles can be re configured to include or discard any services or formats as often as is required with no adverse effects.

DAB+ has many advantages in terms of efficiency, cost effectiveness and availability and as such could deliver numerous technical, operational and commercial advantages to the Broadcasters, Service providers AND Audiences of French Radio. It should not be dismissed as a competitor to DMB-A, - rather welcomed as a potential partner in delivering Frances Digital Radio Future.

I trust that you will have found our comments useful; however, if we can be of any further assistance to you please do not hesitate to contact us.

Yours sincerely

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