Automotive Workshop XXIV

Summary of Discussions

Tuesday 12th May 2026

This workshop was moderated by Nick Piggott (RadioDNS) and Rosemary Smith (WorldDAB) with attendees from across broadcasters and manufacturers. Nick introduced the workshop with a review of the agenda, and the objective to find solutions to problems affecting the experience of radio in vehicles today. The attendees briefly introduced themselves.

The agenda topics were chosen by the attendees, and Nick opened each item with a short overview of the topic and the current problems.

1. **Ensuring good quality experiences for drivers using voice assistants / agentic LLMs in vehicles**

   It is assumed that drivers want logical and consistent phrases to access radio, but recognising requests for radio stations is hard and some radio station names can be cryptic from a voice recognition point of view.

   It was noted that the SPI standard has the feature to add phonemes and aliases to help with recognition of a station name, but many stations are not using it to improve the quality of recognition. Stations should provide a reasonable number of phonemes and aliases to cover the most likely requests that do not exactly match the station name.

   It was noted that if a station name contains the word "FM" (e.g. "Classic fm"), then many voice assistants will tune to that radio station on FM, even if it's available on digital radio. This is a quirk that manufacturers should be aware of.

   It was noted that detecting the use of key words, such as "radio", avoids selecting incorrect sources like streamed music services / playlists.

   It was noted that some streaming music services have content / playlists that include the word "radio", and it's important to distinguish between a request for a radio station, versus a request for a streaming music playlist with a title that contains the word "radio". Broadcast radio should be assumed to be more likely to be the target for the word "radio" than a playlist containing the word "radio".

   It was noted that LLMs need additional, contextual data, and should include learning based on user history (e.g. play the station I listened to on Friday).

   There was a consensus that voice assistants should be able to select stations from

broadcast radio, and this should be an early design choice when introducing voice assistants into vehicles. They should not rely on streaming for radio services available on broadcast.

It was noted that voice assistants should recognise a variety of ways in which listeners will request a radio service, which may not use / should not require using the word "radio" explicitly. Many users are familiar with asking to "play" a radio station by name, rather than "tune in".

It was noted that SPI already provides a way for a broadcaster to indicate their preference for use of broadcast (DAB/FM/HD) versus IP for listening to a radio station, and that should be considered by the voice assistant / radio receiver.

It was noted that radio stations should provide geo-location data to improve the accuracy of recognition by voice assistants in vehicles.

The Radioplayer noted that their stand at Radiodays Europe allowed broadcasters could check the quality of their metadata - core data, phonemes etc. and it was interesting to see how well they scored.

It was noted that many broadcasters still consider SPI to be a "Electronic Programme Guide" and don't understand it as a container for very important metadata about their radio services that will help with discovery.

It was noted that the success/failure rate of voice assistants is unknown to radio stations. Although they can see when a stream successfully starts, no other data is currently available. It would be helpful to have this data to assist with optimising metadata / phonemes / aliases to improve recognition rate.

It was noted that the User Experience Guidelines document/website may be the right way to communicate this information to radio stations and to manufacturers, and it could be expanded beyond simple visual/text/graphical navigation into discussing implementation of voice assistants as well.

2. **Problems caused by incorrect broadcast identifiers (e.g. RDS PI code, DAB SId code, HD Radio FCC ID)**

It is important that the codes that are sent within the radio signal to identify the signal are correct. If there are incorrect, functionality like station logos, visual content and service following will not work as intended.

It was noted that often broadcasters do not notice when they are transmitting incorrect identifiers, which then causes driver complaints which are expensive for manufacturers to investigate. Broadcasters need to understand how significant the impact of transmitting incorrect identifiers can be.

A manufacturer attendee noted that they see this problem frequently and is usually one of 2 issues; a misconfiguration of the transmission equipment or a station has been sold/changed owners and the metadata has not been updated.

It was noted that discrepancies can occur between teams within radio stations (engineering and online), but also published information from regulators can be wrong / outdated.

It was noted that broadcasters should monitor their entire metadata chain (from transmitter to receiver) in the same way they monitor the audio chain.

It was noted that some countries suffer from bad implementations, and a lack of regulatory coordination of identifiers. It was assumed this is because the regulators don't consider identifiers to be critical to the correct operation of the radio stations,

which is not a good assumption any more.

RadioDNS noted that they will refuse to register a station that is using a clearly incorrect identifier, but there are more complicated situations where two stations are using the same, potentially legitimate identifier, because there has been no regulatory coordination to make them unique.

It was noted that transmitter manufacturers could use the SPI as a way of configuring the identifiers that it is transmitting, which might avoid unintentional errors when configuring the transmitter.

It was asked if RadioDNS or WorldDAB could work with countries who have problems coordinating station identifiers. Nick said the current RadioDNS policy is to help correct stations with wrong identifiers. Rosemary added that WorldDAB's approach is to offer guidance.

It was asked if the wrongradiostationlogos.com project would help with this problem. Nick confirmed that it would help identify stations transmitting incorrect identifiers and hopefully speed up corrections / resolutions.

The conclusion is to communicate clearly to broadcasters and regulators that identifiers are critical to making broadcast radio systems work properly, and that they should review their process to allocate and monitor their use.

3. **Problems with prioritising broadcaster provided metadata & content - logos, visuals, phonemes etc.**

   Broadcasters want their authentic content delivered to drivers, but in some cases content is being added in/replaced without the broadcaster's knowledge or consent in an attempt to create a consistent experience for the driver.

   It was noted that the request to prioritise broadcaster provided content is complex. The amount of data used (deliberately or accidentally) by providing the content is unknown / hard to quantify / unregulated (in comparison to the consistent bitrate of an audio stream). It is not possible to determine if the broadcaster provided content is of good quality (or just a static logo) compared to the content that could be provided locally.

   There was a consensus that the broadcast should have some control over whether content not provided by them is being shown to the driver and therefore associated with the radio station.

   It was noted that there are some potential questions over how copyright applies to visual content provided alongside broadcast radio.

   It was agreed that broadcaster-provided content should take priority, but there should be guidelines on data usage, including the assumption that manufacturers will hard throttle excessive use. It was suggested that broadcasters could still block third party content insertion with a simple static logo presentation.

4. **Implications of prominence regulation (and equivalent regulatory interventions)**

   Germany has introduced regulations requiring selected radio services to be given prominence in service lists, according to a list of rules which include location and classification. There is concern that this is already a complex requirement, and the implications of similar regulation in other countries could make implementation impossibly complex and expensive.

   It was noted that the German regulation originated in IP TV, which is a very different user experience and platform to broadcast radio in a moving vehicle. A number of attendees said they would prefer that it was not applied to broadcast radio, given the

complexity of implementation, and that over 330 radio stations now qualify for "prominence", making the outcome less useful to drivers.

It was noted that similar requirements from regulators in other countries could create a significant / unmanageable workload for manufacturers, which could lead to pressure to remove broadcast radio functionality from vehicles.

It was noted that guidance to user interface designers and education to drivers is required as well as technical implementation.

There was consensus that the draft responses provided by BLM to the collated list of questions from previous workshops still provides insufficient detail for implementations, and relies on individual regulators inspecting / validating individual implementations.

There was consensus that some form of standardisation of the format of information from regulators (in all countries) would make implementation easier. The RadioDNS Technical Group have been considering this issue, and have a draft proposal to make to regulators.

It was noted that WorldDAB and RadioDNS will help to derisk this functionality requirement as much as possible, both in terms of technical implementation and user experience implementation guidance.

It was noted that some vehicle manufacturers are querying whether this regulation is required or proportionate.

An action will be taken to contact BLM (as the German regulator who has engaged with the workshop) and feedback the meeting's notes and conclusions to them.

5. **Implications of HMI design/functionality lagging available features/functionality**

As broadcasters want to add additional functionality to broadcast radio, it is necessary for user interfaces to be similarly updated to surface the new functionality to drivers. As this potentially adds quite a significant bottleneck to providing new functionality, it has been asked if there is anything that can be done retrospectively to enhance what head units can do once a vehicle has been manufactured.

One of the attendees noted that the software is about different layers; the tuner is in the bottom layer and then the hardware adaption layer and then the application layer. On the app layer, new functionality can be introduced, and this is getting easier to do during the lifetime of the car, especially with newer cars. Older cars are more custom and it is more difficult to add newer features, as well as lacking processing power. It is very difficult to change functionality in the lower (hardware) layers.

It was noted that speeding up the cycle of adding new functionality was not necessarily a priority for manufacturers. Their focus is on primary vehicle functionality, and software updates can be difficult and costly to deploy without compromising system integrity.

It was concluded hardware is impossible to change but the application layer (which tends to lean more toward hybrid functionality) should be easier as it is within app development, however, there is an engineering cost involved in that and it needs to take driver distraction into account.

6. **Importance of implementing soft-linking for consistent driver experience**

Service linking helps drivers keep listening to their chosen station and drivers understand this as it has been working in various forms for many years in FM RDS. Almost identical functionality is provided in DAB, however soft linking is not fully implemented and there is no clear reason why. This means the service following

experience on DAB is lesser than that on FM RDS.

It was noted that a potential deterrent is because the soft linking sets become quite large (to replicate the behaviour of RDS PI code 2nd nibble), but it's not clear why this is a practical obstacle.

It was noted that the standard (TS 103 176) is comprehensive on the subject, and therefore quite long and describes some quite complex use cases. It may benefit from being more clearly summarised as "The same as RDS regional coding".

It was noted that more generally, there is a question of what Service Following to implement if the receiver has a choice between switching to streaming of the original selected service, or switching to a soft link of a "similar" service. There was no specific conclusion.

We will add this topic to the education and communication requirements along with the User Experience Guidelines work.

Any other Business

An attendee noted that the standard requires radio stations to provide two sizes of non-square logos (32 x 112px and 320 x 240px) and asked if any vehicles are still using those logos. There was no conclusive answer, but a warning that some vehicles may rely on the standard logos being provided (even if they don't seem to be using them), so omitting may cause issues in some vehicles.

Nick briefly reminded attendees of the project to improve the Android Automotive Broadcast HAL through an open-source collaboration, and asked for potential contributors to contact him or Gregor Poetsch at CARIAD. (Chair of the WorldDAB Automotive User Experience Group).

Nick and Rosemary updated the meeting that the update to the UX Guidelines needs a small amount more work and then will be taken to broadcasters and manufacturers as part of the education activities. wrongradiostationlogo.com is still in process but will not be further developed until the UX guidelines project is completed.