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## **DRAFT NOTES from Automotive Workshop XI**

Tuesday 1st March 2022 - 14:00 - 16:00 (UTC)<sup>1</sup>

These notes have yet to be approved.

The purpose of the automotive workshops is to interactively discuss issues affecting the experience of broadcast radio today, to find solutions that can be quickly implemented, the meeting on 1st March was online, we are hoping to be in-person or hybrid in a meeting later this year.

### **Discussion Topics**

The attendees asked that we discuss the following topics, below each you can see the notes from the discussions on these. All updates from Nick Piggott (RadioDNS unless otherwise stated)

#### **Driver Distraction Guidelines**

These are in their final draft, so this is a final opportunity to discuss the implications of their implementation, on both current and future vehicle radios.

We believe these to be compatible and they explain how to use the functionality so as not distracting to drivers and then how to display so as also not to be a distraction. There are lots of factors to consider including legibility, relevance and frequency of updates. The document will be available to have a look at and most will have seen a version of it as input was sought, a brief summary is:

- Design consideration is more prescriptive about legibility and visibility as there was little direction to broadcasters for what it will look like in a car. Minimum text size is 12% of screen size. Dazzle in dark conditions is considered and overall this should mean it is easy for visual content to be seen without the driver having to interact.
- There is now a set limit on updates of information, and manufacturers can limit that even if the broadcaster is sending more information. The guidelines are only on one stream, so each stream can be updated every 20 secs.
- Discussion as the next time this is seen it will be a formalised set of guidelines that we would want to see broadcasters and manufacturers following these.

Dave Walters (BBC) asked about time zones, specifically if the broadcaster is in daylight and the listener is in darkness. Nick Piggott replied that you are likely to be within the same timezone as the transmitter so this would be up to the broadcaster to take into account the

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<sup>1</sup> Regional Times:

CET: 15:00 - 17:00, EST: 09:00 - 11:00, PST: 06:00 - 08:00, KST: 23:00 - 01:00+1

nature of the timezone around broadcast. In the IP environment we can probably see what timezone a vehicle is in.

David Layer (NAB) asked why there is a 20 second limit on change. Nick Piggott replied that it is not mandated or legislated and comes from a couple of years of discussion and it seems reasonable. Rosemary Smith (WorldDAB) added that 20 seconds seems to be the industry standard.

Rosemary further added that this document is ready for release but as with all guidelines it will be live so it can be revised. There has been some desk research and so far there doesn't appear to be any legislation on radio visuals in the car; please get in touch if you have any other thoughts on this.

Nick Piggott said the conceptual idea of sending animated gifs and PNGs hasn't been covered as conceptually it exists but we don't think anyone does it and if it did arise we would probably put it out of scope

Kirk Nesbitt (Rogers) asked if there was a limit on brightness for a repeat and Nick Piggott replied that he would assume the generation of visuals is done in real time regardless of when the programme was originally broadcast, so the images will be generated at the time, so hopefully that would fix that problem.

Dave Walters (BBC) asked about other receiver types not in vehicles and Nick Piggitt replied that it would be expected that the manufacturer works to the guidelines for vehicles, and would not advocate for doing something differently just to hit domestic receivers. Dave added that forward caching to time-deliver is possible so what would happen in the time change. Nick said the 20 seconds would still apply and there is a recommendation in the document that manufacturers implement trigger times and caching.

There were no further queries for discussion, so these guidelines will be published.

## Android Automotive Update

Nick Piggott's update on Android Automotive included there is a disappointing stock app provided by Google, then there are the options for broadcasters to create their own apps as well as third party and aggregator apps, so they can all become hybrid radio apps. The key decision is defined by the restrictions on access to radio functionality.

He asked if this means only apps provided by vehicle OEM will be able to access the radio, or will there be a set of apps trusted by the vehicle OEM to access radio and therefore each app developer has to do bilateral agreement with manufacturers and is this manageable? Will access to radio be through the media server or will apps be able to be accessed through the hardware directly? How does radio work in Android Automotive? It is time to synchronise everyone's understanding of where they are at.

The objective for Android Automotive is write your app once and it will run everywhere so should give a consistent way of accessing radio.

Elisha Sessions (BBC) said he doesn't believe Android Automotive allows 3rd party access, but should they? Radio has traditionally enjoyed a privileged position with a physical button.

There could be a danger that radio starts to become another optional app, which would be a mistake if we allowed radio to fall into that world.

Furhad Jidda (Garmin) added that if there isn't a good user experience it could be the app or the implementation of radio within the app. Custom apps would only utilise what Google publicly exposes.

Nick Piggott said there should be a set of standardised commands within android and each supplier can enhance them with discreet commands for additional functionality but these are vendor specific APIs. If Google fails to standardise enough functionality within Android Automotive, this is the worst case scenario. There is concern there won't be enough standardisation of APIs. Would it be of use to have the relationship managed by a third party to achieve agreements between manufacturers and broadcasters and remove the need for lots of bilateral agreements?

Kirk Nesbitt (Rogers) asked if there was a list of manufacturers adopting Android Automotive. Nick Piggott replied that we should assume that everyone is looking at it.

## Using Broadcast and Streaming Audio

Nick Piggott began by saying that depending on the region, there are different rules for different countries, for example with music streaming and royalties. Costs can mean broadcasters want to stream as little as possible. RadioDNS sends hits to the broadcaster of when to and not to, and they are must-haves rather than nice to.

Another question is how to stream as there are inconsistent time relations between streaming and broadcast, not new, it is just visible when running side by side there is a time divergence. There are hints regarding time off-set and different capabilities from the radio station to use the information that is there.

Kirk Nesbitt (Rogers) said for some US broadcasters it is impractical to support in their area. In Canada there are many stations where the coverage area is limited by the interference protection to other stations, not by the market so it would be ideal if the decision of when to stream was in the individual broadcasters control, not just geofencing of when not to stream, but also when to stream - either targeted programming or micro targeted advertising for zones of coverage.

Nick Piggott replied that we saw geofencing as an encouragement to manufacturers not to degrade the sensitivity of their receivers. Geofencing means you should be able to receive FM in that area. Targeted programming and advertising is being addressed in a separate piece of work at RadioDNS and will be a more effective way of doing it than trying to adapt current service information to make it more dynamic.

Kirk Nesbitt (Rogers) asked if this was personalisation, not just location based and Nick replied it is and intended to be entirely seamless with the intention to sustain the linear broadcast experience and also the hybrid model. The IP audio can be targeted to a specific user and location but this work is currently in progress. He continued by asking in broader terms, do the rules about when to stream seem reasonable given the circumstances.

Caroline Hollands (JLR) said she has been looking for some demos for seamless switching but they don't seem to deliver a true reflection of the time differences and would like to know

what are the differences and what are the possibilities for alignment. Nick Piggott replied that most are accurate demos but what is significant is how much of a delay there is between broadcast and IP and how much memory is available to buffer and the speed at which you can time stretch. Amongst broadcasters, there is a wide spread of latency, some at 5 secs between broadcast and IP and some at 60 seconds. What is more of a problem is pre-roll audio, the broadcaster likes the extra advertising revenue but it makes it harder as it pushes the delay out and there is no equivalent to search for in the broadcast stream. We should discuss if broadcasters can provide a smaller delay and no pre-roll, not for everyone, just for the vehicles requesting it. Is this a reasonable ask?

Dave Walters (BBC) said he thought this is just a scenario that hasn't been considered yet. It sounds reasonable, but just hasn't been discussed.

Jay Hackett (JLR) said he thinks we need to look at how we got to how good radio is today. From the broadcasting side there has been a lot of work and customers and drivers are used to very good radio reception and seamless handover. It is understood why broadcasters want a pre-roll ad but if we continue along this path we are going backwards so we need to look at where we have come from to where we are today.

Nick Piggott said he agreed as a driver, that he would like a great experience so maybe we need to speak more clearly to broadcasters and provide a demo video of what happens when you put a pre-roll in and when you don't. Last year we talked about the implications of switching and there were anxieties about how much of it would happen. At the time it wasn't material and wouldn't be developed that fast, we could bring some of the data forward regarding the allocated stream without a pre-roll.

Eugenio La Teana (RTL) said we should think about the experience in the car and people continuing to listen to the radio and run a complete service and seamless radio switching.

There was a question in chat about time stretching and Nick Piggott replied about pitch shift saying that a 3% pitch shift will take a long time for the IP broadcast to catch up. Dave Walters (BBC) added that time stretching plus pitch shift allows for a more rapid time stretch, but you are paying someone else's IP. Nick also said that if you get it wrong you can hear it. We put a 60 second buffer in because of mobile apps and dealing with mobile connections, not wanting to drop out too much. What we are lacking from the automotive industry is what is the maximum? We have talked about 15 secs, but is that correct for an automotive specific stream? Is it going to work? Maybe we need to be more precise to broadcasters?

Nick continued there has always been anxiety from OEMs who didn't want to be seen to be unnecessarily delaying broadcast. If FM broadcast was delayed as well that would remove this anxiety. Dave Walters added that this is technically possible, but there has never been any editorial ambition to do it.

Nick summarised by saying that this is active and we should be more explicit to broadcasters, but we need more precision input on what works before presenting to broadcasters, so we know it will work before we set out to broadcasters.

## Real-time Metadata over IP

The RadioDNS Technical Group has been working on a new version of sending real time metadata over IP. There have been some implementation issues and we would like to discuss

this now.

The metadata push creates a rich experience and there are big screens to fill. The BBC is currently offering us RadioVIS over IP but has not seen much adoption from manufacturers looking at adding metadata delivery to vehicles alongside text and images.

This metadata would go to manufacturers and aggregators and then they decide what to distribute. It is an extension to TS 101 499, a current standard that everyone is probably already implementing.

The BBC shares programme information and events within programmes, and say it has been really useful; a simple but effective way of using metadata. Some changes have been made to the specification after the implementation and we are grateful to the BBC for building the prototype based on what we thought was going to work and then found small things that needed changing, this has been incredibly valuable.

Metadata is such a fundamental part of making radio work now, and we know everybody has done a lot, all with best intentions but some have not worked out well, sometimes because there have been misunderstandings, so it's really important we keep talking about metadata so there is a shared understanding of what does and doesn't look good. This is an opportunity to see early on another form of metadata coming and we need to ask will the broadcasters be able to populate and the manufacturers be able to implement.

Dave Walters (BBC) said that these things seem really simple, and the BBC wanted to test it because we know it is important and is coming so we are trying to get those foundations in for the way forward.

Nick Piggott said that for manufacturers interested in this new source, it is similar to DL+ so it might be easy to implement. Dave Walters added that it requires time and effort, so let's do it once and do it right to make it easier. Adoption is some way off, but this is the foundation of that conversation. Nick said that it would be expected sometime this year and will be in the next standards update.

Elisha Sessions (BBC) said this lets the BBC put our high-quality imagery to radio devices, not just album artwork but also custom photography that we can then provide to those implementing it. Dave Walters said the BBC are looking to work with manufacturers to do beta testing, if anyone interested would like to get in touch.

## Sensitivity Calculations

Nick Piggott said that sensitivity assumptions on receivers are standardised to harmonise expectations and introduced Roberto Moro from SRG-SSR.

Roberto spoke about receiver performance and how it matters to the user experience. He said that receiver sensitivity is important but also the capability to handle large signals. What has been seen in the field is that some cars are not compliant with the standards on receiver sensitivity. From their research they are providing guidance to create an online calculator; enter the design spec and then see if the design fits the standards or not and the values can be manipulated so you can see where the boundaries are and where to make changes. This will be published soon on the WorldDAB members area and feedback is welcomed.

There was a discussion on power and pre-amplification and how more powerful signals can create a hole punching effect in the broadcast area.

## Standards Update

Nick Piggott provided the following update on the forthcoming standards updates:

- Service and programming info standard: there are new elements for programme credits, better support for the way people address radio stations and accurate voice control. Addition of credit elements which need to be searchable.
- Alternative names is an extension to voice and text space where people have different names for radio stations than the official ones. Radio stations can add in searchable fields that are never to be shown on a display to a user, only to search based on something someone has said or typed in.
- Phonemes will start appearing in SPI docs, to match what people have said in voice assistant and can be marked as preferred pronunciation and use these if you are doing voice synthesis, we can point you in the direction of some tools to help starting populating your SPI info with the phonemes
- Hybrid radio lookup - few changes, main are the clarify issue we had between Canada and USA on RDS PI codes in the B range - there is no transfer of European behaviour of regional RDS codes except in B block. Consequently B block is shared between services in US and Canada and there is an allocation between the CDC, Radio Canada and NPR and we have had to clarify the nature of that split in the document.
- RadioDNS IPV6 - don't need to do anything different to IPV4

Please look out for these and make sure you use the latest versions.

Please email any discussion points for the next meeting.

The meeting ended with thanking all for their attendance and contributions.