WorldDAB Driver Distraction Guidelines

June 2022 - v1

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1. Introduction

Explanation for why we have Driver Distraction Guidelines

Why create Driver Distraction Guidelines for Radio Visuals in the car?

- These Guidelines have been created to clarify what a 'good' DAB visual should look like to ensure the driver is not distracted

Driver Distraction Guidelines for both broadcasters and car manufacturers?

- With **more functionality on the screen** in the car, digital radio stations sending information to this screen need some clear guidance on how to create visuals that do not distract the driver
- Car manufacturers have also indicated that as visual images become a great feature in cars these **images must remain legible, relevant & their frequency updated** so as not to cause distraction

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1 Introduction

Three issues contribute to driver distraction:

- Legibility
- Relevance
- Frequency of Update

1.1 Legibility

1.1 Legibility

If content isn't legible, the driver is distracted trying to understand it

Broadcasters - must design content for legibility and relevance

Manufacturers - must optimise the display of content for legibility

Establish mutual understanding of display environments

1.2 Relevance

1.2 Relevance

Updating content causes driver distraction

Broadcasters - must provide content that is unique and helpful to the driver.
(e.g. do not cycle through the station name and current date and time)

Manufacturers - must update content so it is legible without driver intervention

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1.3 Frequency of update

1.3 Frequency of Update

Updating content causes driver distraction

Broadcasters - must update content only when relevant and necessary, and not more frequently than every 20 seconds

Manufacturers - must update content so it is legible without driver intervention, but block updates that are sent more frequently than every 20 seconds

1.4 Local Legislation

1.4 Local Legislation

Local legislation may be more constraining than these guidelines, and will **override** these guidelines

Broadcasters - consider that local legislation may prevent some content being displayed

Manufacturers - you can always follow local legislation above this document, but please contact WorldDAB if you have to modify behaviour in some markets

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2. Design Considerations

2.1 Design Considerations: Broadcasters

Designing Visuals for Quick and Easy Legibility (Slideshow)
"The entire image, including text, should be understandable with a 1 second glance"

- **When designing visuals,** validate against the physical size and location of a typical display:
  - Usually about 50-80cm from the driver's eyes, 7 inches / 18cm diagonal display size
  - Standard DAB resolution: 320px (W) by 240px (H), IP resolution : 640px (W) x 480px (H)
  - Smallest physical rendering of 70mm (vertical)

- **Text incorporated in visuals** must be easily readable.
  - Guideline size of not less than 12% of the vertical height of the image
  - Proportionally spaced non-condensed characters
  - Don't use thin / lightweight characters

- **Variable resolution / responsive design considerations:**
  - Some vehicles may request visuals in different resolutions / aspect ratios
  - Use HTML 5 / CSS 3 responsive design techniques to generate images on demand
  - Validate that responsive designs still meet the design requirements

- **Brightness and dazzle in darkness**
  - At night, reduce the maximum brightness of visuals to 60%

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*Approximations are used here due to variations between vehicle makes/models.
Designing to these parameters will be appropriate for most vehicles

2.1 Design Considerations: Broadcasters

Text Information (DLS)
"Convey useful information quickly"

- **When constructing text information, consider the display conditions**
    - Don't duplicate information already visible on the display (station name, date, time)
    - Don't include information the driver can't use (station website address)
    - Not all the text may be visible immediately, and it may scroll slowly

General Content Considerations (for DLS Text and Visual Slideshow)

- **Consider what information the driver wants from a visual / text**
    - Closely related to what they're listening to now
    - Gives further context or detail (e.g. information on the current song / advertisement)
    - Cycling and repetition of information is distracting (e.g. switching frequently between a station slogan and information about the current song)

2.1 Design Considerations: Broadcasters

Station Logos
"Every station's logo is clearly identifiable in a list of radio stations"

- **Station Logos**
    - Provide all the required image sizes
    - Only use PNG file format
    - Consider using cropped or stylised versions of your logo at the smaller resolutions, to maintain legibility, rather than simply re-scaling your logo

- **File formats and structures (Logos and Visuals)**
    - Don't use transparency layers (on PNG), as the background is undefined
    - Produce JPG or PNG images in the <u>correct</u> formats (see TS 101 499 section 9.3)
        - these are often not the default file formats for popular image creation applications.

- **Special considerations for DAB Slideshow and DAB Station Logos**
    - Maximise image compression without artefacts that affect legibility
    - Exclude all EXIF, preview, thumbnail and other metadata
    - File sizes of 15 kbytes or less are typical

2.2 Design Considerations: Vehicle Manufacturers

Visual and Text Content is easily and fully legible
"Show the content sent by the broadcaster as intended while remaining safe"

- **Visual considerations:**
    - The driver should not have to interact to see visuals and/or text information when they select a service to listen to
    - Display visuals at the highest physical screen space available
    - Do not change the aspect ratio of logos or visuals
    - Do not rescale logos or visuals up by more than 100% (x2), or down by more than 50% (x0.5).

- **Text considerations:**
    - Display as much text information as possible without scrolling
    - Scroll text information automatically if it overspills the available display area
    - Display the full (16 character) station name
    - Do not scroll the station name

- **Text and Visual considerations:**
    - If it is possible to expand the available space for text information / visual information, show this clearly to the driver on the display (e.g. ⤢ symbol or similar).
    - Do not crop logos or visuals, or truncate text information

3. Operation Considerations

3.1 Operation Considerations: Broadcasters

Minimise distractions from updates

- **Do not update the text or visual more frequently than once every 20 seconds. Updates more frequent than every 20 seconds may not be shown to the driver.**
- Don't provide information that's already shown on the display (e.g. station name, date, time)

Text Functionality

- **DLS and DL+ Functionality:**
    - Consider using DL+ tags within your DLS text string where it would describe the current audio well (e.g. artist and title of a song)
    - Use the DLS Remove / DL+ Item Running/Toggle commands to assist synchronising text to audio, as it will halt any scrolling and remove the text immediately

3.2 Operation Considerations: Broadcasters

- **Slideshow Functionality**

- **MOT Trigger Time**
    - Use MOT Trigger Time to assist synchronising visuals to audio
    - Some vehicles do not currently support DAB Slideshow MOT Trigger Time* and will simply display the most recently received image.

- **Slideshow Caching**
    - Use caching of DAB Slideshow images to assist with synchronising visuals to audio
    - Be aware that many receivers cannot cache DAB Slideshow images
    - Also note the problem with inconsistent implementation of MOT Trigger Time above

*As a workaround, you can deliver the MOT Object ahead of display time, but to prevent it being shown until the required time, hold back transmission of the final data packet. At the required display time, send the final data packet in several repetitions, and the MOT object assembly will complete, and the image will be displayed.

3.2 Operation Considerations: Vehicle Manufacturers

Minimise driver requirements to interact

- The driver should not have to interact to see visuals and/or text information when they select a service to listen to
- Scroll text information automatically if it overspills the available display area
- If automatic scrolling is not permitted, provide an obvious option for the driver to see more text information
- If it's possible to enlarge the text/image display area, provide an obvious option for the driver
- If an update to DLS/DL+ or Slideshow is received more than 20 seconds after the previous update, you may ignore it.
- Monitor update times for text (DLS), DL+ and Slideshow <u>separately</u>.

DLS and DL+ Functionality:
- Implement DLS Remove and DL+ Running/Toggle command to assist synchronising text to audio

Slideshow Functionality
- Implement DAB Slideshow MOT Trigger Time to assist synchronising visuals to audio
- Support caching of DAB Slideshow images to assist with synchronising visuals to audio
- Implement visuals over IP (RadioVIS) where possible, and make sure your device sends its physical screen size (DPI) as well as preferred image resolution, when requesting an image

3. Further Considerations

Justification for producing visual content

- Producing and transmitting visuals is <u>expensive</u>, so commercial broadcasters need to sell visualisation (text and images) of audio advertising to meet their business case.

- They can only do that if the display of content to drivers is accurately timed and consistently visible.

Voice Control

- Driver distraction can be reduced through use of voice control

- Broadcasters should provide accurate metadata to improve the accuracy of voice control, for example, by the provision of alias and phoneme information for radio services (see TS 102 818)

- Manufacturers should use that metadata to improve the recognition of radio services when using voice control.

- Manufacturers should allow voice control of functionality to display content - for example, to allow the visual content to be shown full screen/large, or to scroll the text information if it cannot be fully shown

5. Design Patterns

Design Patterns

Legibility is affected by physical rendering size

- For each of the common components of a radio display, guidance is given on how to render the component for legibility (content, scaling, behaviour, physical size, prohibitions)
- The physical sizes are guidelines, and assume the same physical screen size as referred to in section 2.1 (7" / 18cm diagonal screen at 50-80cm from the driver's eyes)
- These components can be assembled into any layout, allowing flexibility and innovation in user interface design

Maximising Available Screen Space

- Some information is superfluous, and is rarely important to the end user. This can usually be omitted
    - Ensemble Name, Ensemble Frequency, DAB PTy (Programme Type)

Common Service Information Components

Service logo
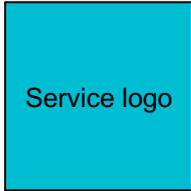
Service Name

Content = SPI service logo @ 600 x 600px, or

= SPI service logo @ 128 x 128px, or
= default icon, or
= not shown

Presentation

X do NOT amend aspect ratio

Physical Size >= 25mm x 25mm

Content = SPI longName, or

= SPI mediumName, or
= SPI shortName, or
= DAB Label, or
= DAB Short Label

Presentation

font style = 200% size, emphasis
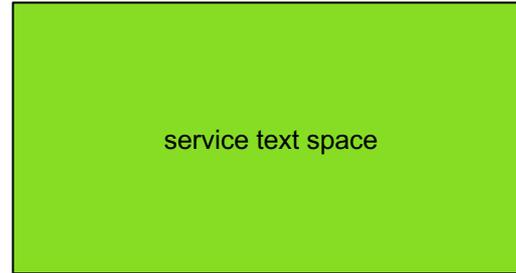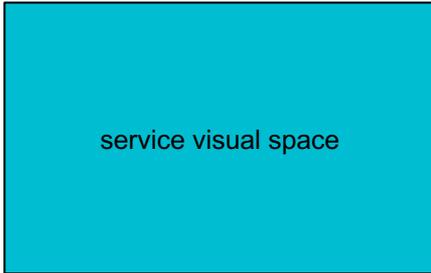overflow = scroll automatically
X do NOT

split text over lines
X do NOT

truncate text

Physical Size >= 20% of vertical screen size

Common Service Information Components

service visual space

service text space

Content   = IP Slideshow visual @ native
resolution, or
                    = IP Slideshow visual @ 640px x 480px, or
                    = Slideshow visual @ 320px x
240px at 200%, or
                    = current programme visual, or
                    = Station logo @ 600px x 600px, or
                    = Station logo @ 320px x 240px at
200%, or

                    = not shown

Presentation

                    X do NOT amend aspect ratio

Physical Size   >= 70mm in both dimensions
                    (smaller permitted for "thumbnails",
providing

Content   = DLS text,
or
                                  = RT text, or
                                  = not shown

Presentation

              font style   = 100% size, normal
              overflow   = scroll automatically
                                  X do NOT truncate

Physical Size   >= 20% of vertical screen
size

Common Programme Information Components

programme visual space

Programme Name

Content = mediaDescription (at largest available size), or

= not shown

Presentation

X do NOT amend aspect ratio

Physical Size >= 70mm in both dimensions

(smaller permitted for "thumbnails",

providing

access is possible to a full-size rendering)

Content =
longName, or

= mediumName, or
= shortName

Presentation

font style = 200% size, emphasis
overflow = scroll automatically

X do NOT
split text over lines

X do NOT
truncate text

Physical Size >= 20% of vertical screen
size

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Common Programme Information Components

Programme Description

Programme Start Time - Programme End Time

Content = start time - end
time (in local time)

Presentation
font style = 80% size, normal

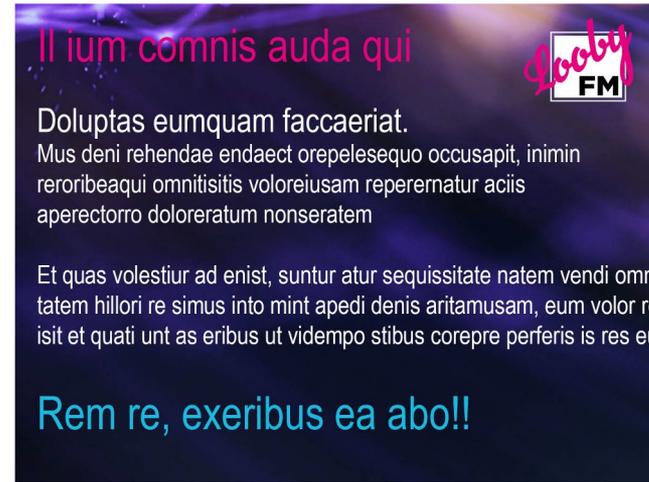Physical Size >= 8% of vertical screen size

Content = longDescription, or
= shortDescription, or
= not shown

Presentation
font style = 100% size, normal
overflow = scroll automatically
X do NOT truncate

Physical Size >= 20% of vertical screen
size

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5.1 Example Visuals

Example Visuals

❌ Text size is not legible

❌ Too much text to read in 1 second

❌ Background is very busy

❌ Text positioning is poor (overflows)
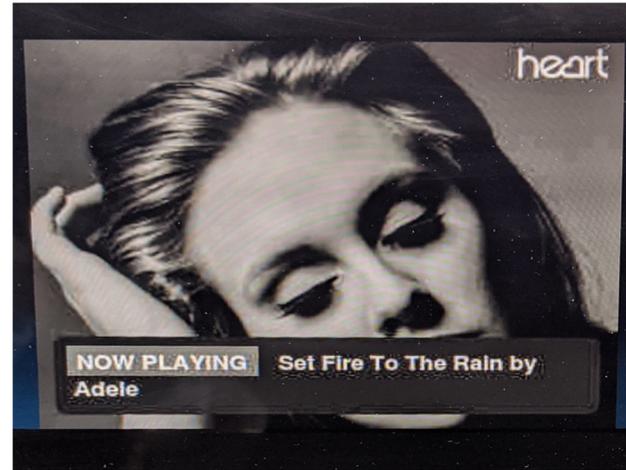
❌ Too much text to read in 1 second

Example Visuals

✅ Text is legible

✅ Artist photo is clear / good quality

✅ Everything can be understood in 1 second

✅ Text is legible

✅ Album art is clear / good quality

✅ Everything can be understood in 1 second

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Example Visuals

✅ Text is legible

✅ Artist photo is clear / good quality

✅ Everything can be understood in 1 second

✅ Text is legible

✅ Artist photo is clear / good quality

✅ Everything can be understood in 1 second

Annex

List of Country / Region and Relevant Local Contact

This section will be updated with information on local legislation restrictions which prevent adhering to these guidelines in specific territories.

If you are a manufacturer, and are aware of a restriction not listed here, please contact us.

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