Radio in the Connected Car: DAB/FM and online

Christian Winter, WorldDAB Automotive Event Munich, 2017-06-21

Connected Car
Customer expectations on a modern Radio

Reliable and fast

To entertain and inform

Modern UI

Great UX

Seamless integration

Hifi-Sound

Screenshot: AUDI MMI Navigation plus 2016

» **What is possible today and where are the problems?**

Broadcast Radio
Features AUDI MMI Navigation plus 2016

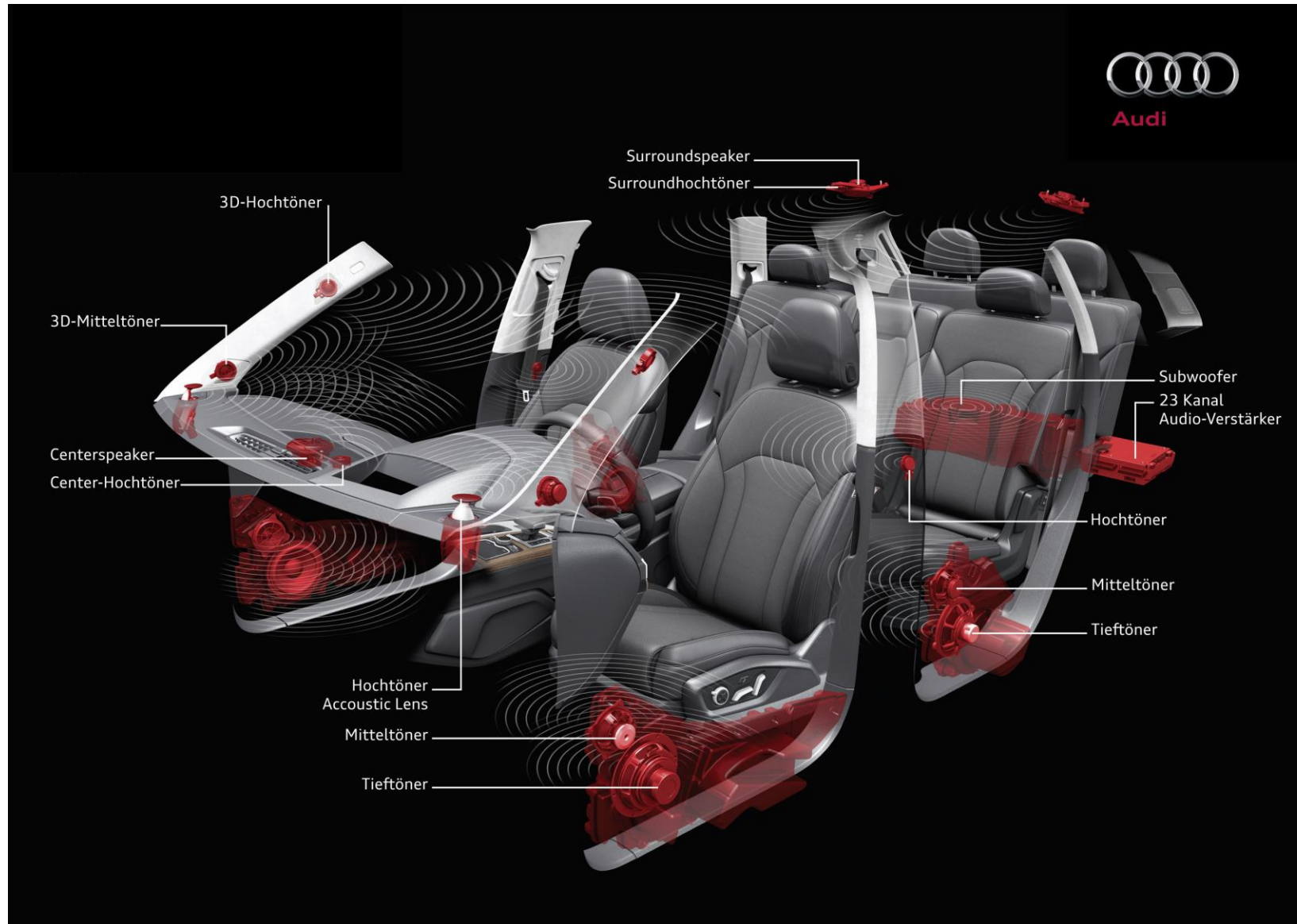**Screenshot: AUDI MMI Navigation plus 2016 – Station with DAB EPG Logo**

> Triple FM-Tuner

> Dual DAB+ Tuner

> Unified station list

> DAB SlideShow, EPG, Station logo

> Seamless DAB-DAB and DAB-FM Linking

> Traffic: TMC, TPEG

> Cover Art database

> Radiotext+ and Dynamic Label+

> Online radio via AUDI MMI Connect App

Additonal

> Integrated LTE-modem

> B&O 3D-Sound

Audi Q7 3D-Sound
Bang & Olufsen Advanced Sound

Broadcast Radio
Audi S5 Coupé 2016 interior

» **There is some pretty neat technology in the car but...**

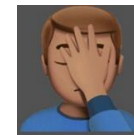# Broadcast Radio
Observations from a radio engineer

Coverage

> DAB EPG
> DAB SlideShow
> DAB Station logo
> DAB expansion

Quality

> Resolution of logos and slides
> SlideShow content
> Encoder settings
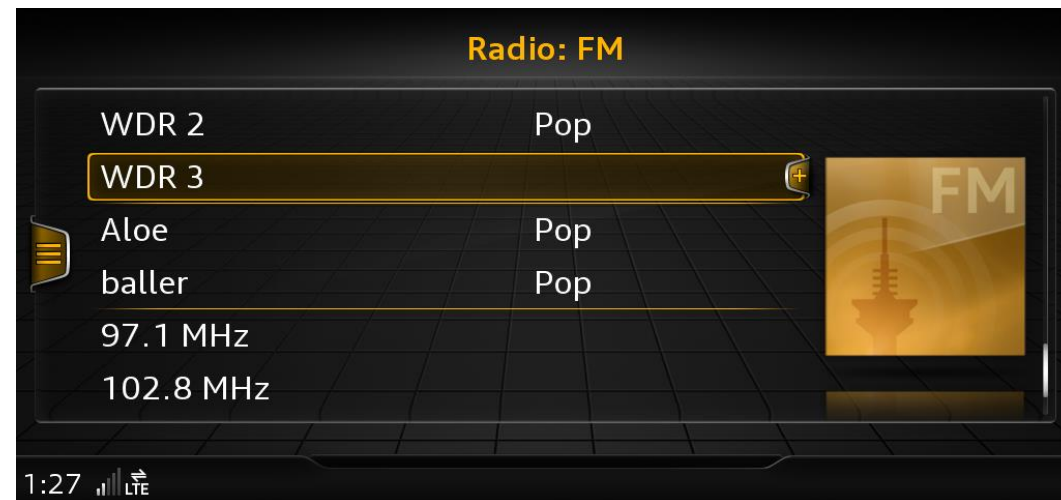> Volume level

Missing dialogue Manufacturer – Broadcaster

> Driver distraction
>> SlideShow
>> Radiotext

> Scrolling PS on FM
> DAB-Mono in UK
> Missing Radiotext

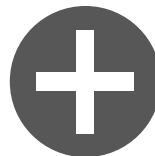Screenshot: Example slide with high compression and low resolution

Radio: FM

WDR 2	Pop
WDR 3	
Aloe	Pop
baller	Pop
97.1 MHz	
102.8 MHz	

1:27 LTE

Screenshot: Example FM Station with PS Scrolling

Hybrid Radio
Broadcast with an online connection

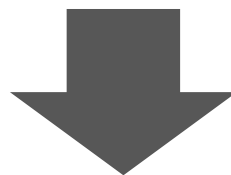### Broadcast Radio DAB/FM

› Free reception

› Additonal basic information

  › Station name

  › Radiotext

  › EPG

  › SlideShow

  › Station logo

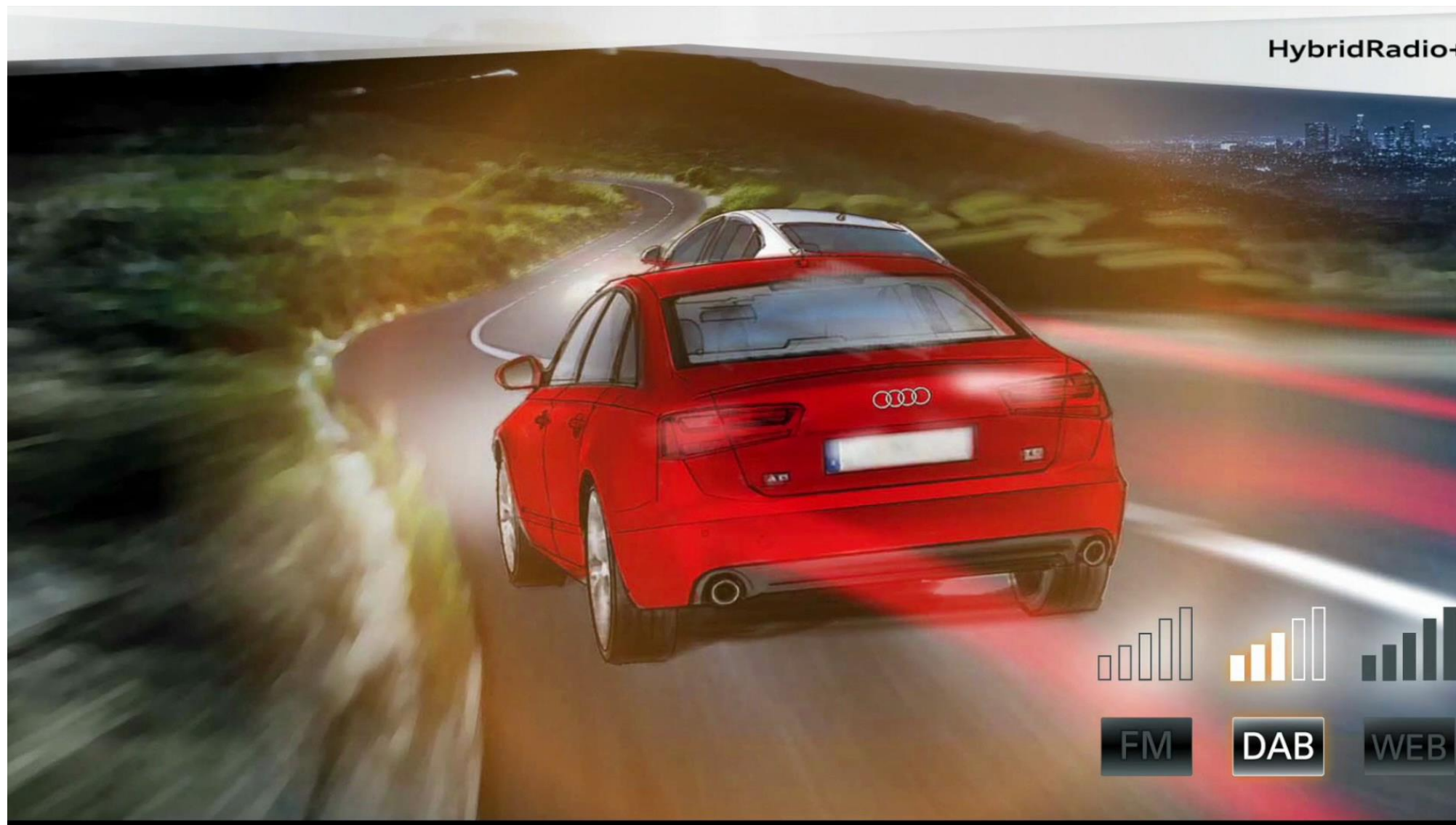### Online connection

› Seamless Experience

  › Broadcast – Online Service Linking

  › Podcast access

  › Connection Radio + Smartphone

› HQ content for logos and slides
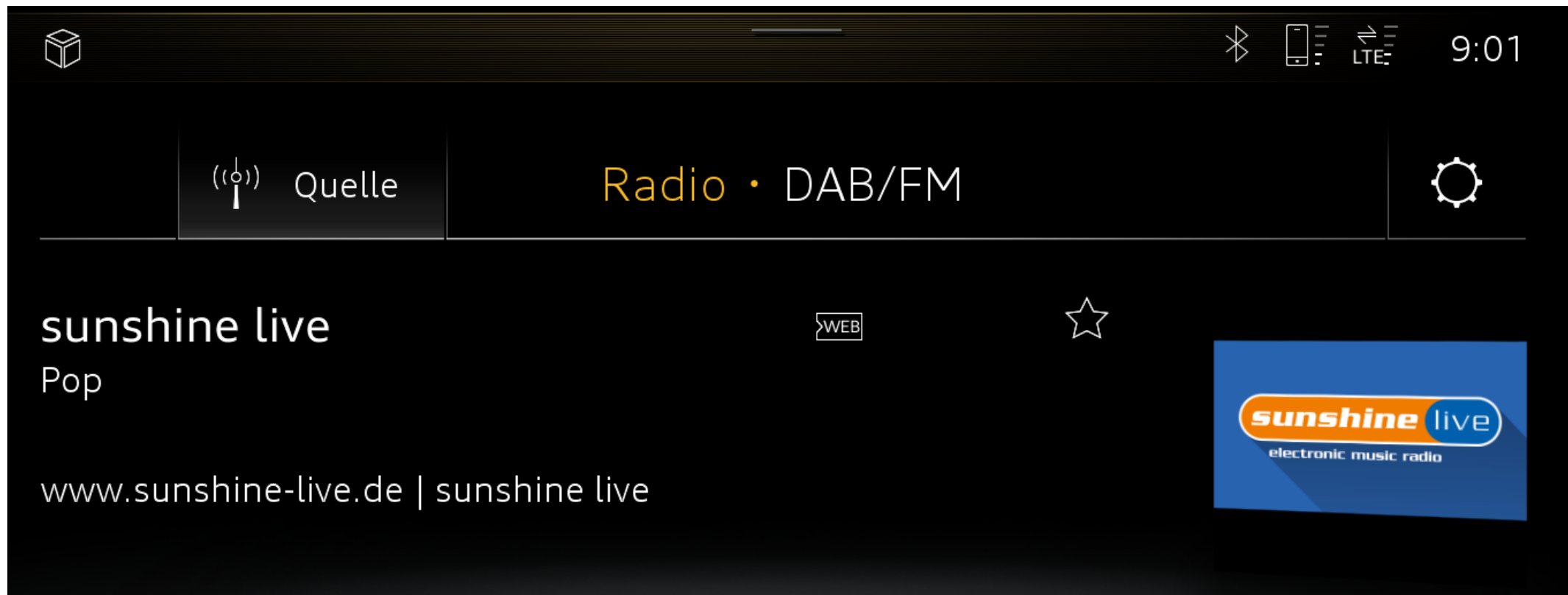
› Tagging

› Enabler for new radio functions

» Hybrid Radio uses the best out of two worlds and generates a better user experience.

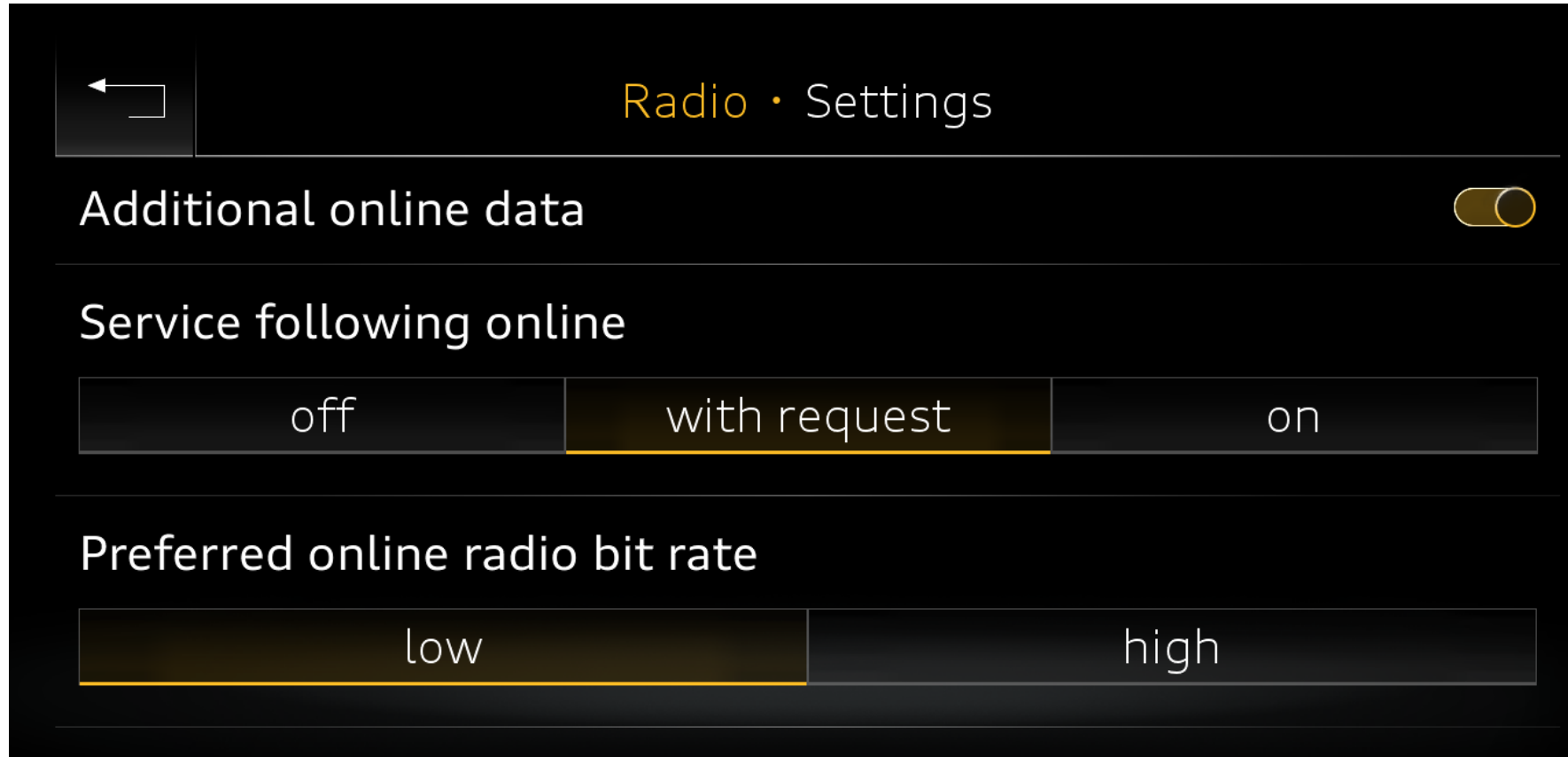# Hybrid Radio

Hybrid Radio
First in an Audi

Screenshot: Radio station in linking mode online

> With „service following online" the system links to the online stream if neccessary.

> Station logos will be downloaded online and cached to the system.
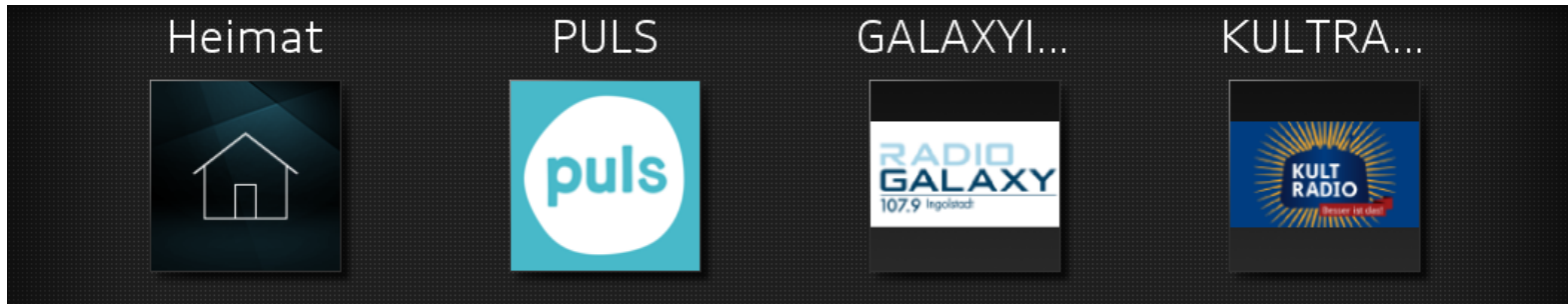
Hybrid Radio
Settings

Screenshot: Radio settings for Hybrid Radio

› The customer can decide upon the features of Hybrid Radio that he wants to use.

› The internet connection is established via the integrated LTE-modem over an embeddedSIM or a customer SIM-card.

Hybrid Radio
Presets and now playing screen

Screenshot: Customizable Shortcuts

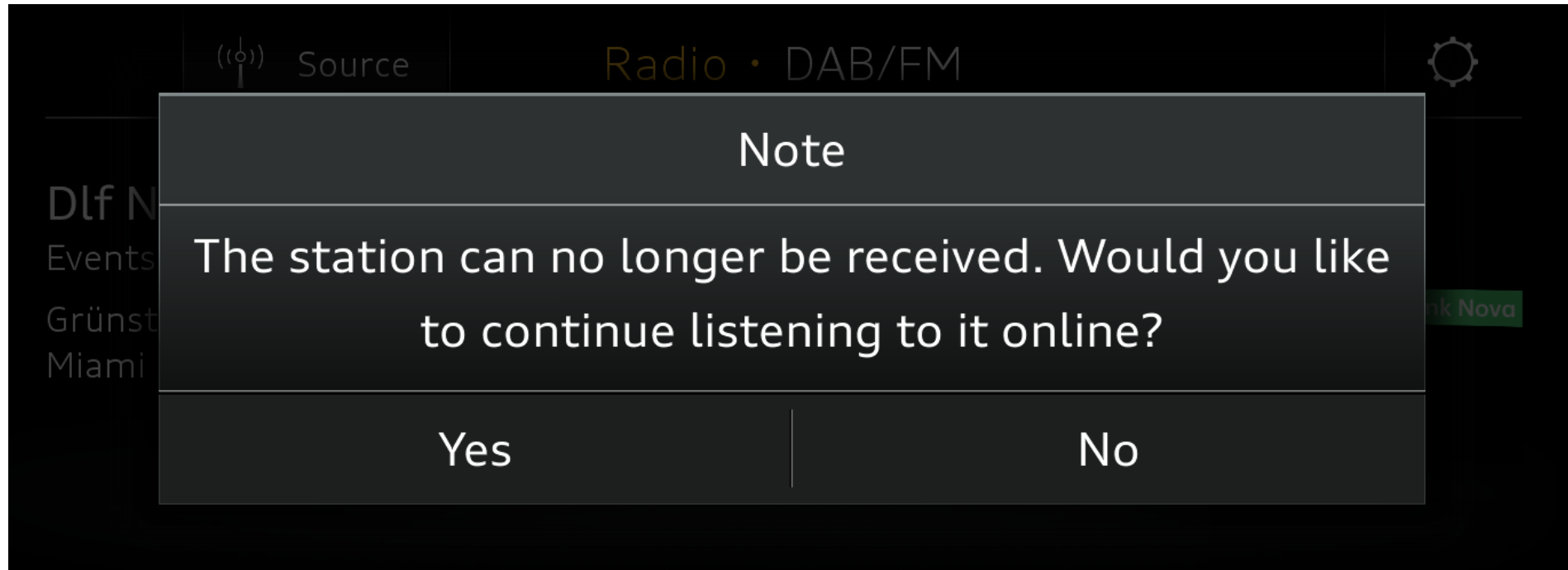› The presets of Hybrid Radio will always work independently from the broadcast reception area.

Screenshot: Now Playing Screen

› Latest station logos with high resolutions enable a modern presentation of the station.

Hybrid Radio
Service following on request

Screenshot: Service following online on request

> A connection to the online stream will only be established in mode „Service following online – on request" when the customer gives his permission.

Hybrid Radio
First in an Audi

» Hybrid Radio debuts as a part of Audi connect in the new Audi A8 later this year.

› Hybrid Radio will be rolled out to other Audi models as well as models from Porsche and VW soon.

Hybrid Radio
Kudos to RadioDNS and Radioplayer

The open standards of RadioDNS allowed us to build the first integrated Hybrid Radio in the car.

› Using standards helps that a feature is working independently from a content provider during the lifetime of a car.
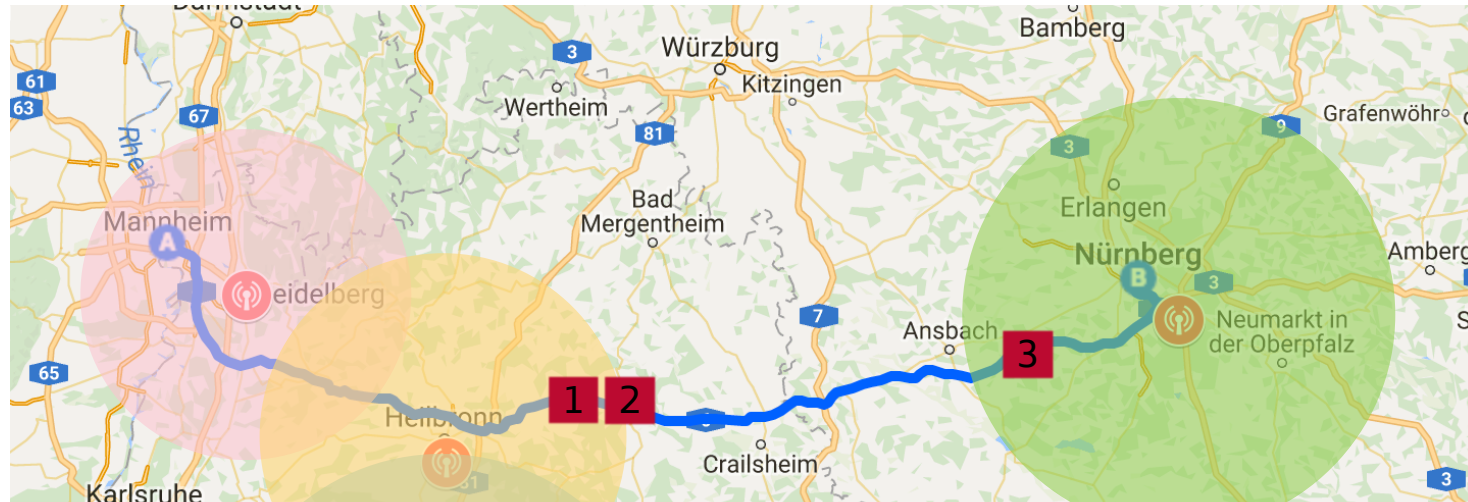
› Products can be launched faster worldwide.

› Radioplayer supports RadioDNS via offering their data in the RadioDNS-Format.

› Additional access to the Radioplayer-API helps getting Streaming URLs, Now Playing Information or Podcasts.

Hybrid Radio
Seamless Linking

The functionality "Service following online – automatic" allows to switch seamlessly between broadcast audio and the online stream.
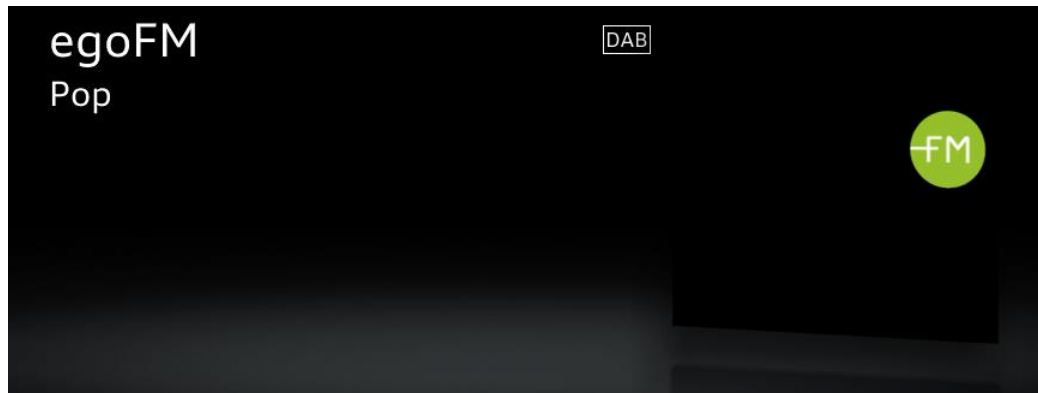

1. When the broadcast reception is poor the online stream will be preloaded.

   › The system adapts the volume and time difference between DAB/FM and the online stream.

2. If possible the system switches seamlessly to the online stream before audio loss.

3. When the car drives into a broadcast reception area the system switches seamlessly back to DAB/FM and stops the online stream.
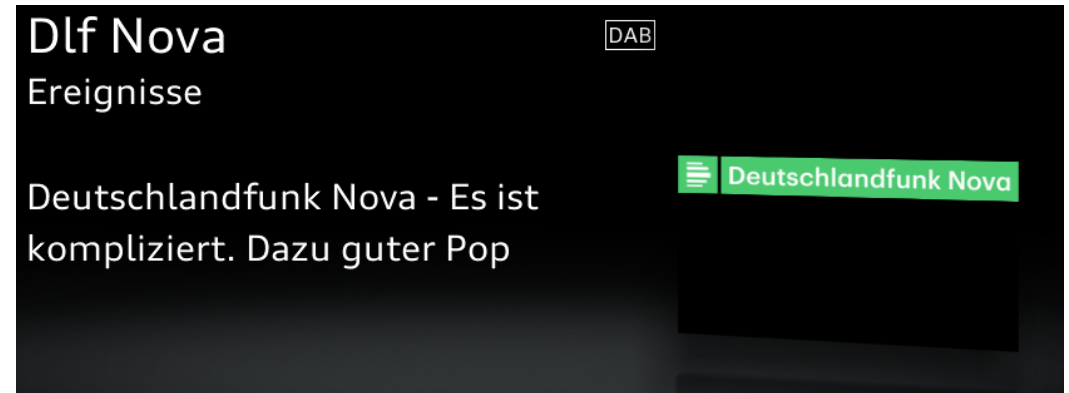
Hybrid Radio
Feedback

Without the help of the radio stations hybrid radio won't work satisfying.

> High streaming delays minimize the seamless linking experience.

> Pre-roll advertising are counterproductive for seamless linking.

> Logos should have reasonable sizes, formats, content and transparencies.

Screenshot: egoFM logo with transparency

Screenshot: too small logo in incorrect format

> Without a RadioDNS or Radioplayer entry Hybrid Radio won't work for your station.

> RadioDNS- and Radioplayer-Data need to be up-to-date.

Hybrid Radio
Summary

Hybrid Radio is an opportunity for all radio stations

> Radio can become more attractive in the car dashboards again.

> Up-to-date logos and slogans represent the radio station as its best.

> With service following online the listener stays on your station longer.

> Streaming will only be used if necessary.

Audi Q8 sport concept 2017

Thank you!