RDS fORUM 2016

RDS2
# - IEC 62106 adaptation progress

- **First RDS specification published by EBU in 1984**
- **First RDS CENELEC standard published in 1990**
- **CENELEC RDS standard updated in 1992 and 1998**
- **First RBDS US standard published in 1993, updated in 2005 and 2011**
- **30th anniversary of RDS specification was in 2014**
- **First RDS IEC standard published in 2000, updated in 2009 and 2015**

- **RDS is a very mature technology**
  - Widely used worldwide
  - FM radio is over 60 years old
  - RDS is over 30 years old
  - Over one billion FM/RDS receiver chips are now made per year worldwide
  - Price is as low as 1 USD per FM/RDS chip
  - Smart phones have been the largest market
  - Car radio market is next and in Europe almost 100%
  - Most radio receivers sold in Europe and in the USA have RDS
  - In the USA the national variant, RBDS, is widely used
  - RDS has been a kind of "silent revolution"

Possibilities to enhance RDS

- **RDS2 will increase the current limited data capacity significantly
  Remains within the ITU modulation limits of 10% (Rec ITU-R BS.450-3)**
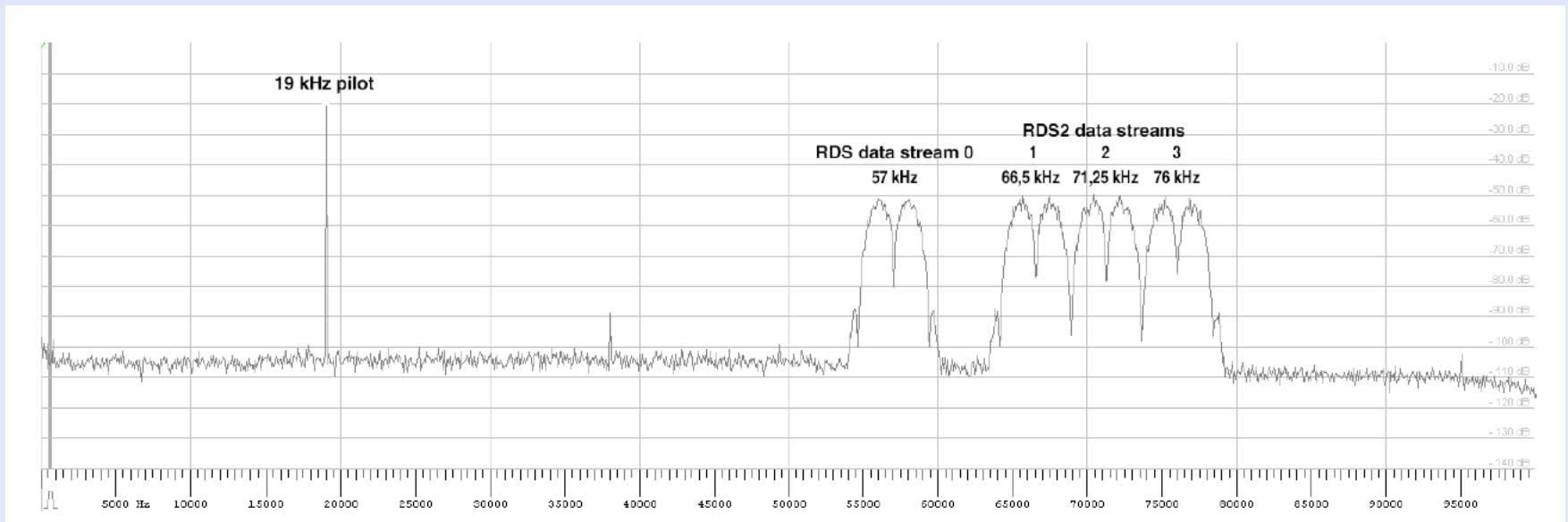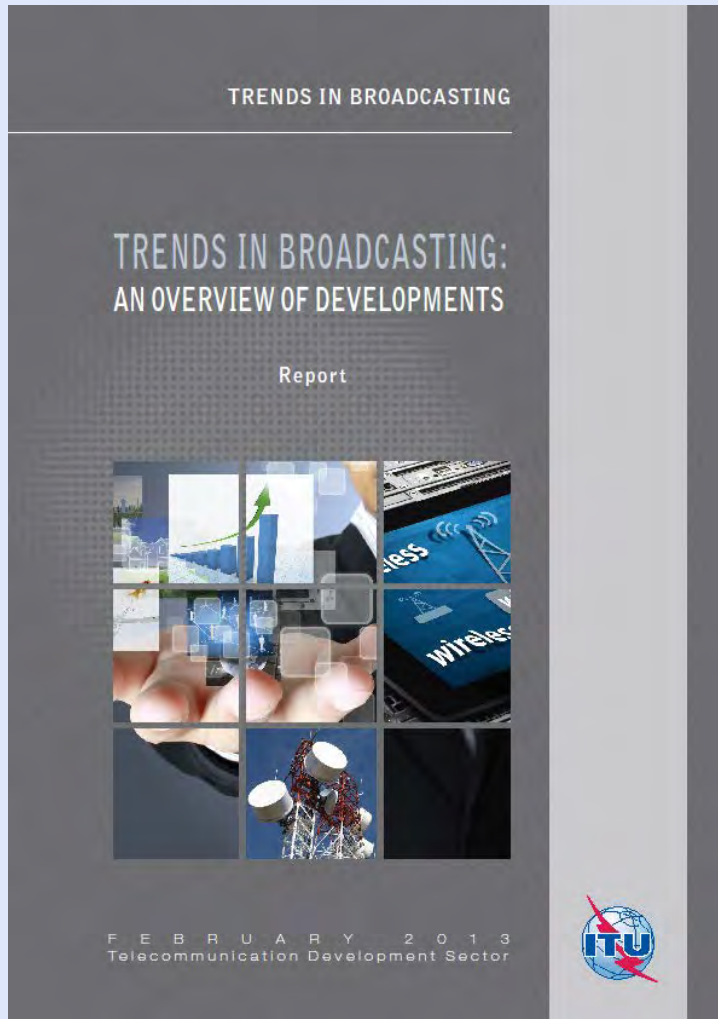

- RDS2 will provide backwards compatibility on stream 0
  - Streams 1 to 3 are optional and can transmit enhanced or new features

- The structure of RDS will be completely maintained
    - It simply adds three more 'pipes' to deliver the RDS data stream to the RDS device

- In traffic terms it's like
    - widening a single carriageway road to four lanes

- The data throughput is increased quite dramatically
    - not just by a factor of four, but by more, as it's not necessary to carry in the additional sub-carriers 'mandatory' RDS elements that are already in the 'main' sub-carrier

RDS2 development objectives

- **Designed for the next 30 years**

- **Fully backwards compatible with RDS**

- **Makes use of experience gained with RDS**

- **Achieves a higher data through-put**
    - Improvement is mainly for open data applications

- **Character coding with UTF-8 will support many languages worldwide**

- **Support for larger displays as used in Smart phones and navigational devices in cars**

- **Hybrid radio for connected devices to be supported**

- **New structure of IEC 62106 consisting of 8 parts**

- **Aim to be achieved is also a more flexible maintenance**

- **Enhanced support for application development**
  - Part 1: RDS system: Modulation characteristics and baseband coding
  - Part 2: RDS message format, coding and definition of RDS features
  - Part 3: Coding of Open Data Applications ODAs
  - Part 4: Registered code tables
  - Part 5: Marking of RDS and RDS2 devices
  - Part 6: Compilation of technical specifications for Open Data Applications in the public domain
  - Part 7: RBDS
  - Part 8: Universal Encoder Communication Protocol UECP
    - To be issued at a later date as it needs Parts 1 to 7 to be completed

FM/RDS is **prepared** for the future

- FM radio with RDS is mature, cheap and universally available

- FM radio attracts by far the largest number of listeners everywhere

- Traffic services TA/TP and TMC are well established

- Due to sophisticated technologies like multiple tuners; multiple antenna systems and RDS algorithms this system is just about perfect

- The perceived audio quality does not differ significantly from that heard via Digital Radio

- A general FM switch-off is unlikely within the next 20 to 30 years and on top of this, it is ecologically crazy to throw away millions of FM/RDS radios

- Outside Europe the number of FM radio listeners even increases as increasingly smart phones are used as FM radio receivers

TRENDS IN BROADCASTING

TRENDS IN BROADCASTING:
AN OVERVIEW OF DEVELOPMENTS

Report

FEBRUARY 2013
Telecommunication Development Sector

ITU

Conclusions by "Trends in Broadcasting"

by the end of this decade:

"FM will remain an important means of delivery of audio broadcasting. In general switch-off of FM stations lies far ahead, but a few countries may have switched-off analogue radio."

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- Everything that is obsolete can be deleted from the RDS standard

- A good alternative to redefining unused bits will be to declare them as "rfu - reserved for future use"

- New attractive features that would be nice to have in RDS2, such as PS (32 bytes long) with UTF-8 coding can be included

- The ODA open data applications concept will be become dominant in RDS2

- The main features of RDS will of course be kept

- In April 2015 the IEC TC100 AGS in Milano approved the new concept for re-structuring the RDS standard in IEC TC 100 – TA1

- **In June 2015 the RDS Forum's annual meeting decided to go ahead with the development of the new structure**

- **During the RDS2 development**
  - RDS has been critically reviewed
  - Unused RDS features have been identified for deletion
    - This will simplify the RDS standard
- **However, changes made to the RDS standard**
  - Must remain backwards compatible with respect to existing RDS receivers
  - This is the ultimate aim to be achieved

The new RDS2 standard version

- The RDS standard will remain the IEC 62106 with an incremented edition counter

- However, the setup and partitioning of the various sections will be entirely new

- RDS in the next standard edition will cover now also the frequency band extension from 64 MHz to 87.5 MHz (China) and 76 to 87.5 MHz (Brazil)

- The difference of RDS2 with respect to the existing RDS standard will be clearly explained

- The backwards compatibility issue is fully secured

- ICs for RDS2 will not much increase in price

- Thanks to state of the art DSP technologies RDS2 is proven to be feasible

RDS-PS name is the best known as the station's identity

The PS- Programme Service name in RDS now has only 8 characters at maximum. It shall be static so that listeners can see what radio programme they hear

In this particular case PS is toggled, once as ENERGY and then as BERN

• A good example why a long PS is now needed

Screen shot: VW - 2014

In addition to the existing "short" PS there will be a long PS with max. 32 byte
Character coding in all languages worldwide will then be possible

The power of RDS2 – more examples

All screen shots: VW - 2014
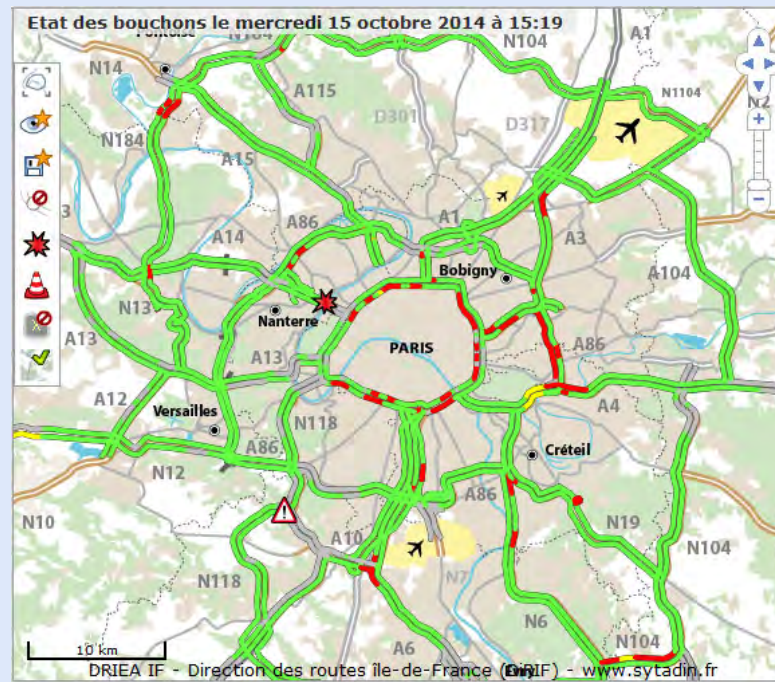
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- ## Best example is **RadioText Plus**

  - ### Used up to now mostly in Germany and the USA
    - The potential for being used more widely remains very high
      - Not only in car radios but also in smart phones
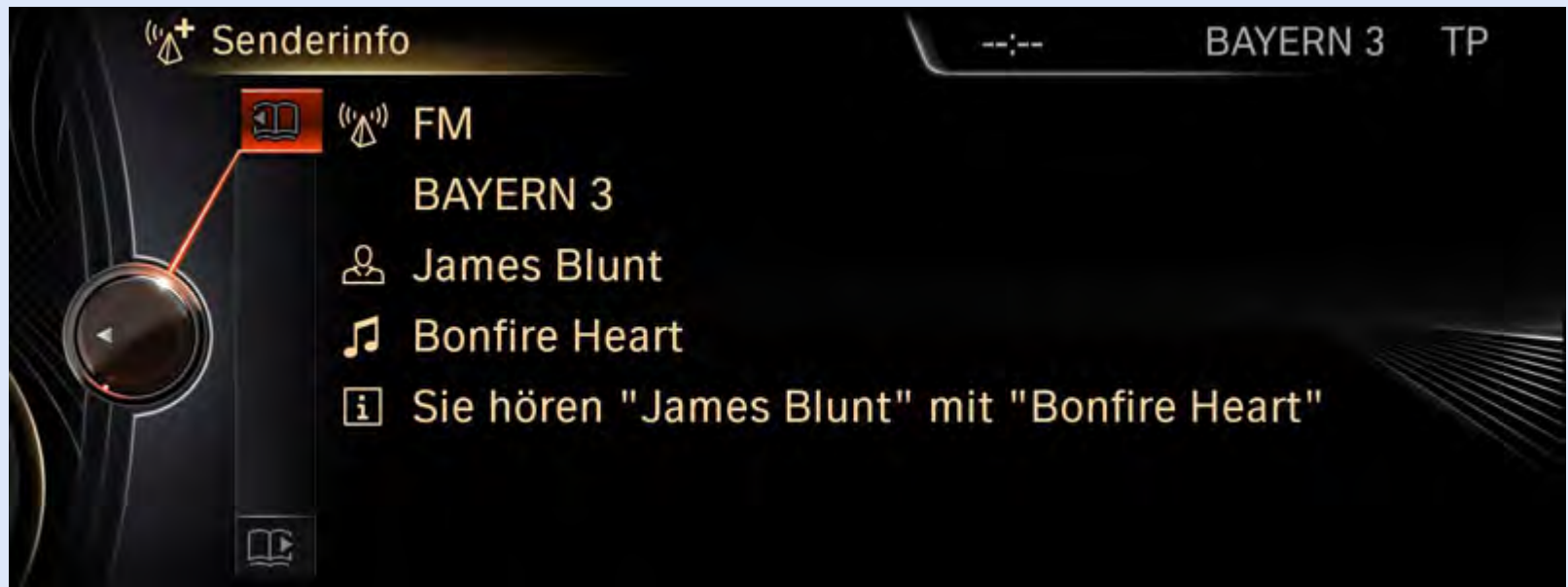
Screen shot: BMW Professional nav car radio - 2013

- **RDS2 could be a turbo engine for TMC**
  - Supra-regional TMC can remain on the basic RDS subcarrier 57 kHz, stream 0
  - RDS2 on data-streams 1 – 3 could offer more regional and urban info
  - TISA has started in 2016 to study options offered by RDS2

Etat des bouchons le mercredi 15 octobre 2014 à 15:19

DRIEA IF - Direction des routes Île-de-France (DiRIF) - www.sytadin.fr

Unique Selling Points

- **PS name in characters used worldwide**

- **Two kinds of 64 character RadioText will be possible in parallel**
  - RT with group type 2A can be used for English text
  - eRT as ODA with UTF-8 and 128 byte long can be used in addition for Russian, Chinese , Arabic or Indian text

- **Further enhanced and better TMC will be powered up**
  - To provide also more regional & and better local traffic information in urban areas

- **RDS2 will be able to support simple graphical features, logos etc**

- **RDS2 will be able to support Hybrid radio** (device connected to Internet)
  - Also, o capture additional programme related information from the broadcaster's web site

- **Improved and more attractive Presentation on FM radio**
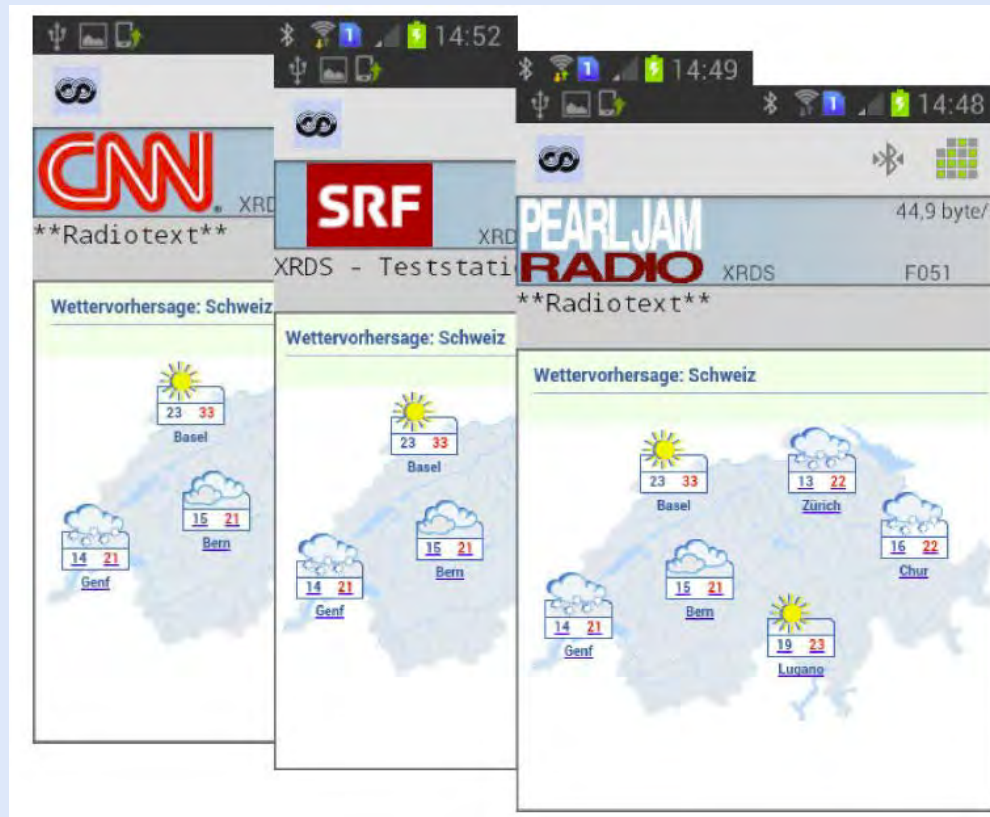
- **Support the connected car concept**
  - Provide Internet links using the Hybrid radio concept
    - Radio France is developing an ODA application since 2013
- **Better support applications development**
  - Example: Android OS
  - Use ODAs to achieve this
  - Support for RDS decoding with Java programming is under study
- **Support character coding as used on the Internet**
  - UTF-8 coding is already applicable worldwide
  - Supports Chinese, Arabic, Cyrillic, Indian etc.
- **Make FM radio look more modern and interactive**
  - Create above all business opportunities for the next 30 years of FM radio with RDS

Positioning of RDS2

- RDS2 will offer very strong opportunities where increased data capacity for added value features and services is required

- RDS2 is not meant as a competitor for DAB or HD Radio. These will have their own roll-out scenarios

- FM/RDS will continue to co-exist next to Digital Radio

- This will particularly be the case for countries where Digital Radio does not rapidly expand

- RDS2 may offer a great chance for enriched TMC services, particularly for detailed road information in large urban areas, increasingly required and feasible

Roadmap for RDS2

- **June 2014 -** Decision taken in the RDS Forum

- **November 2014 -** Concept worked out in a workshop in Budapest in a small team of specialists

- **January 2015 -** Feasibility report written

- **June 2015 -** Presentation in the RDS Forum and decision on how to move forward

- **Autumn 2015 -** Official release to the outside world (RDS2 Day Berlin)

- **April 2016 –** Draft version 2 of Parts 1-6 ready for review

- **May 2016** – Drafting of Part 7 (RBDS) started

- **June 2016** – Next annual meeting of RDS Forum to approve the new drafts for the next edition of IEC 62106

- **End of 2016:** Submission of Parts 1 to 7 for standardisation to IEC

- **End of 2017:** Submission of Part 8 for standardisation to IEC

- **Thank you for your attention**

  and thanks to all those colleagues who gave me feedback

  above all

  RDS Forum management team members

  - Frits de Jong, Mark Saunders and Attila Ladanyi

- **For feedback contact us at the RDS FORUM**

  - rdsforum@bluewin.ch