Progress on the RadioText Plus (RT+) implementation

*RT+ is a new RDS feature permitting more than just tagging **music titles** and **artist names** in RadioText*

Dietmar Kopitz (RDS Forum Office)

RDS-RT+ development history

- **The ODA-RT+ enhancement came from**
  - IRT / Nokia / WDR and was a joint development within the RDS Forum
- **The RDS Forum 2008 agreed the proposed RDS standard upgrade**
  - WorldDMB agreed an equivalent feature (DL+) for DAB/DMB radio
  - US NRSC mapped HD Radio text features to equivalent RT+ features
- **August 2009 – IEC published upgraded RDS standard with RT+**
  - Annex P of IEC 62106 /ed.2

How RT+ works

- **There exist two good sources of information**
  - The EBU published a very general article to explain the new RT+ feature
    - You can download this article from here
    - http://tech.ebu.ch/docs/techreview/trev_307-radiotext.pdf
  - In the newly upgraded RDS standard
    - The RT+ specification is in Annex P
    - You can find this specification on the RDS Forum web site
    - Just go to section “Publications” Sub section “RDS specification”
  - The new RDS Standard reference is
    - IEC 62106 Edition 3 : 2013
  - Also available from the IEC web store
    - http://webstore.iec.ch

Is RT+ easy to implement ?

- **RT+ is an open ODA**
- **It is supported by all RDS encoders with the UECP version 7**
- **All RDS encoder manufacturers in the RDS Forum support RT+**
  - They have suitable RDS encoders
  - They have suitable monitoring software
- **In the play-out centre to tag music titles and artist names a special software is needed (also for digital radio to do the same)**
  - **Good industry contacts for broadcasters are on the next page**

Play-out centres that can RT+ tag

- **In Germany are used:**
  - David is used by many ARD radio stations
    http://www.davidsystems.com
  - Some ARD radio stations use dira! http://www.scisys.co.uk
- **In the USA are used:**
  - Artic Palms Center Stage Live CS RDS
    http://www.arcticpalm.com/CSRDS.htm
  - Broadcast Electronics / The Radio Experience (TRE)
    http://www.bdcast.com/products/studio-products/datacasting-the-radio-experience/
  - ENCOs PADapult
    http://www.enco.com/products/padapult.html
  - Jump2Go
    http://www.jump2go.com/
  - NextRadio / TagStation
    http://tagstation.com/
  - WideOrbit Automation for Radio
    http://www.wideorbit.com/wideorbit-products/wo-automation-for-radio/

- **Yes, but from where to get the metadata?**
  - If recorded music is used, the record industry can provide the metadata needed for music title & artist names
  - This ensures that the notation is correct and as published by the record labels
  - Errors of misspelling are thus easily avoided
  - Pop music stations can also consider these
    - MusicMaster www.musicmaster.com
    - Selector http://www.rcsworks.com/en/
    - Powergold http://www.powergold.com/
  - The metadata also permit the correct retrieval of any music item, if the listener wants to purchase it from one of the Internet providers

There is commercial interest in tagging music

- **Here is an interesting viewpoint held by the US radio marketing expert Jeff Haley ***
  - He points to recent products launched by Apple (iPod nano) and Microsoft (Zune)
    - "The broadcaster distribution of the FM signal on mobile devices will change radio misperceptions and drive more listeners. Our next opportunity will be to drive greater listener satisfaction through the direct purchase of music from our programming."
    - "If radio was available on every mobile phone, and if half of the subscribers listened to it half an hour a day, then that would create $ 3 billion annual increase in radio advertising revenue."
    - The RDS technology helps to enable song tagging and radio stations should increasingly use this feature ...

*** Jeff Haley is CEO of the US Radio Advertising Bureau / Previously Global Marketing manager for Time Warner**

First RT+ transmissions

- **In 2008 – Clear Channel Radio / USA implemented RT+ on over 450 stations**
  - **Since then over 200 commercial radio stations followed**
  - **They belong to the Greater Media, Radio One and Hubbard broadcast groups**
- **Several German public broadcasters started RT+ in 2006**
  - **In 2012** - there were already 25 FM programmes
    - The number is likely to increase

BR hr mdr NDR SWR WDR

antenne BAYERN

- **2009: in London the commercial station**

  Absolute Radio introduced RT+ music tagging

Absolute. absoluteradio.co.uk

First car radios with RT+

In 2009 Kenwood converted its entire RBDS car radio line to also support RT+

There is an interesting observation to make in this context:

- To display tagged music titles and artist names via RT+ is much less distracting than using dynamic PS for the same purpose, just because the displayed text remains stable for the few minutes of a music title and is logically on two lines, title and artist, and thus distracts less the driver's attention as the info can be read at a glance
- RT+ is a very good feature to be implemented in car radios

2013 car radios with RT+

Since July 2012 BMW has an FM/RDS car radio with RT+

- Now an option for most of its models:
  - The **BMW Navigation System Professional**

- **Only the upper screen with the RT+ elements Artist and Title is shown in the normal listening mode**
  - If RT+ is not implemented, then the full RT is displayed in the normal listening mode
- **The lower screen shows the full RT (which can be switched on in the Info mode)**

RT+ in the iPod nano 5G, 6G & 7G

^ *September 2012:*

Apple implemented also RT+ in the current iPod nano 7G

This 91.3 screen was captured in October 2009 on radio BAYERN 1 in Munich:

- Upper line shows normal RadioText scrolling through the display

- Lower two lines show
-RT+ tagged music info
> Music title on line 1
> Artist name on line 2

RT+ in the iPod nano

RadioText Plus in smart phones (1/4)

- **In some previous smart phone models**
  - Nokia implemented RT+
  - These were the Nokia models: N8, E7, E6-00, C7-00, 700, 701, 500, 603 and X7

More models with the RDS/RT+ feature may be coming soon

These phones have all an FM/RDS radio with RT/RT+ for

- **Music titles** (to purchase the song)
- **Artist names**
- **Radio programme web address** (stored to non-volatile memory)
  - That web address is then always available on your phone !!!

Broadcasters – This brings a real digital breeze to your listeners of your so popular analogue FM radio with RDS

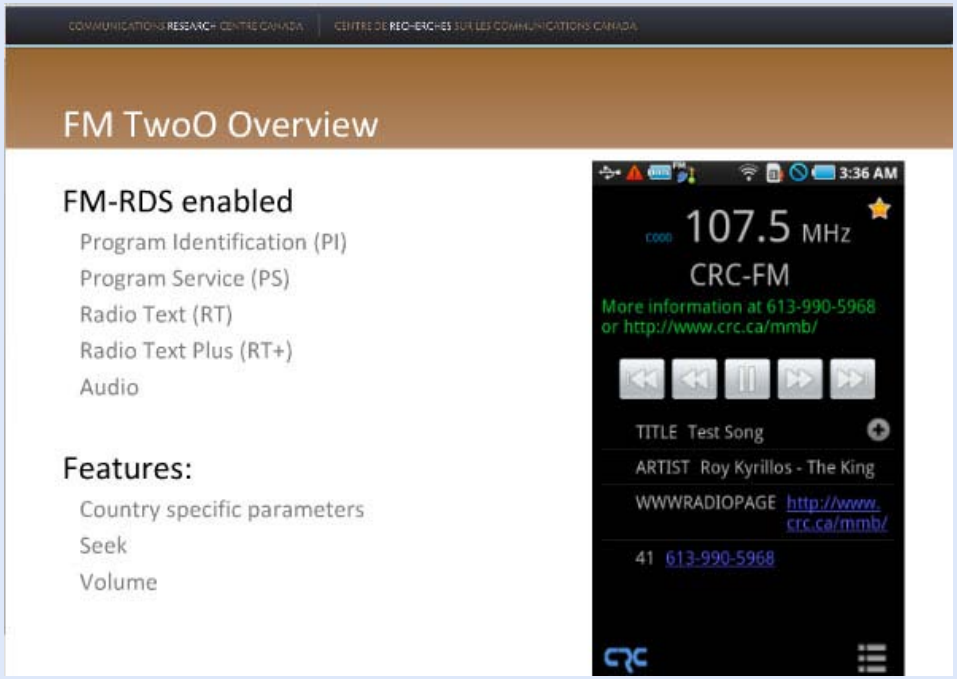
- If you go for that RDS/RT+ feature, you can only win-win-win

- Watch also this video to learn what the N8 does

http://www.youtube.com/watch?v=zGuY3tMvbC4

RadioText Plus in smart phones (2/4)

- **The Communication Research Centre Canada**
  - In 2010/11 the CRC had a project “Mobile Multimedia Broadcasting”
  - This included FM/RDS broadcast applications (http://mmbtools.crc.ca)
  - For the FM/RDS SiLabs chip Android API they got help from Silicon Labs



They built an open application called
CRC FM-RDS Android library
for **Android** mobile phones with an FM radio
Details are explained here

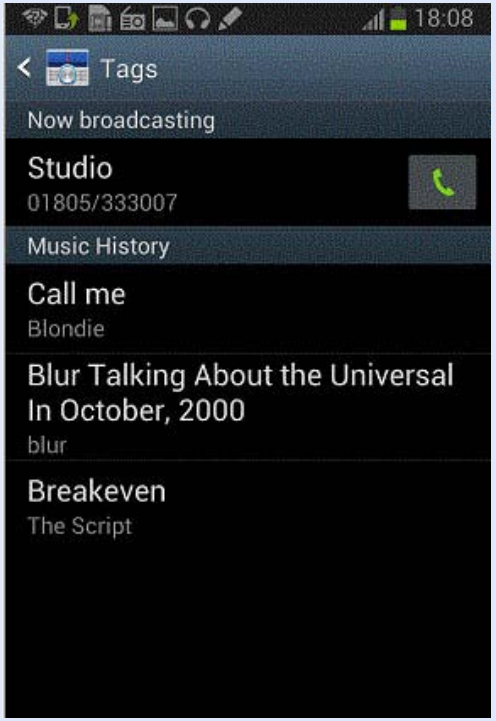
http://www.slideshare.net/roykilo/fm-twoo-crc-fmrds-android-library
and in the slideshow here:
http://www.slideshare.net/jmbouffard/fmrds-developments-at-crc?src=related_normal&rel=7360966

RadioText Plus in smart phones (3/4)

- **2012 at NAB Las Vegas Show**
  - CRC demonstrated the
    - RIM Blackberry Curve 9360& 9380
      - with the CRC APP FMTwoO for RT+ and FM hybrid radio

RadioText Plus in mobile phones (4/4)

- **Recent Samsung phones with RT+ are**
  - The Samsung Galaxy S II and III (but not the S4 !)



- **Only in the USA: Zune (now discontinued)**
  - had FM/RDS radio with RT+

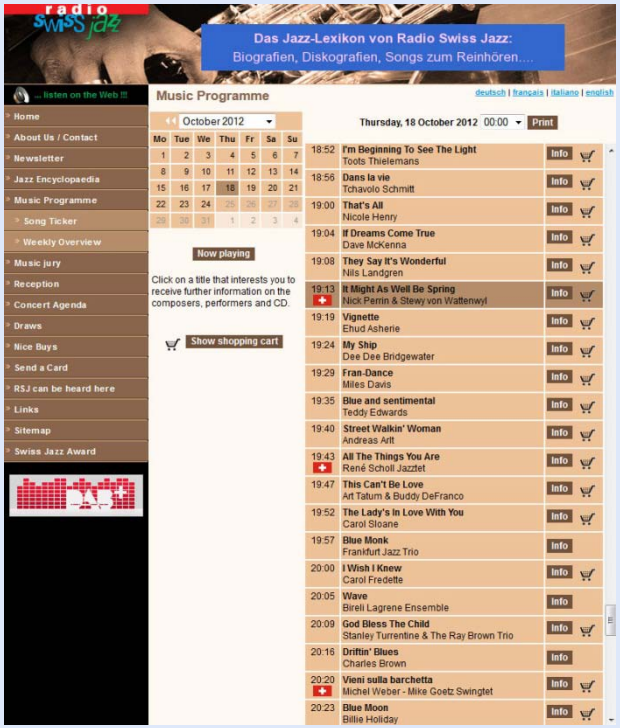
RT+ is more than just music tagging

- **The iPod nano implemented only title & artist name**
  - The motivation was definitely commercial
    - To sell music items via the Internet iTune shop
    - Share some of the profit made with the broadcasters that implement music tagging by offering them a percentage and motivate them to support the business
- **RT+ can make radio much more interesting**
  - Broadcaster benefit: Listeners will listen more radio
  - Listeners are interested in new music presented by DJ's
    - Advertising is accepted if programme content is interesting
    - RT+ enables web addresses and phone numbers
    - Mobile phone/PDA enables the listener to access the radio station's web services like the homepage with programme guides, competitions, pictures, advertisements, wikipedias and music stores
    - Broadcasters can achieve a much higher listener satisfaction
      - They can only win-win-win & a return on their investment is then possible

Deliver multimedia content with RDS (1/2)

- **The ideal multimedia content**
  - to show on a (mobile smart phone) FM radio connected to Internet will be the **home page of the radio station (**RT+ tag 39)

    Example: http://www.radioswissjazz.ch/en/



Deliver multimedia content with RDS (2/2)

- The web address can be captured and stored from RT with RT+
- Thus the home page will automatically appear on the display
  - like on the radio shown above

- **FM radio now is becoming “digital” !!! – thanks to RT+**

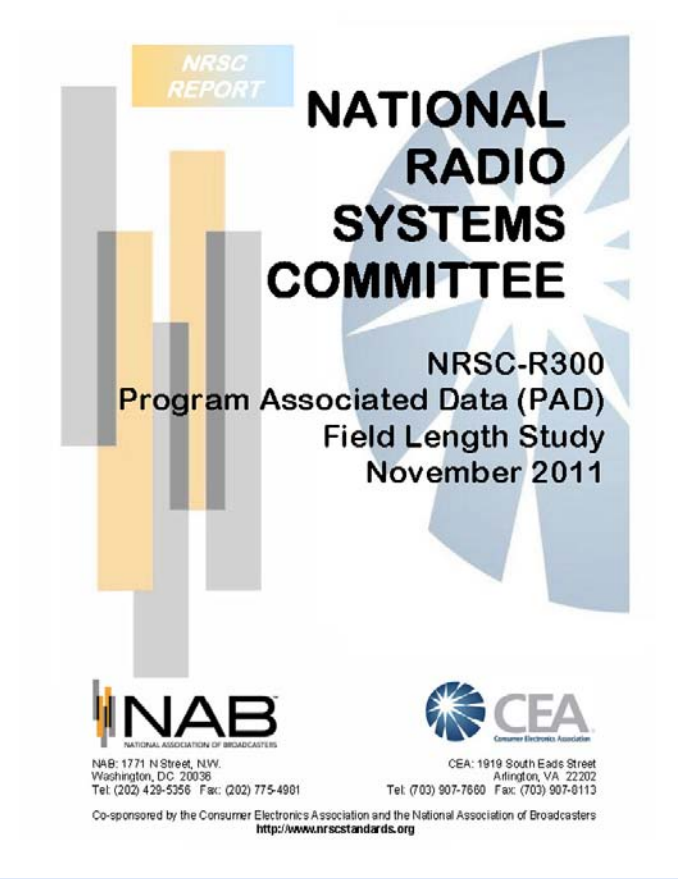
Broadcasters -

- **If you find that RT+ is interesting for you**
  - I can arrange a contact to experts with broadcast implementation experience
  - Just contact me
    - dkopitz@compuserve.com

- **The investment in RT+ will be future proof**
  - RT+ equivalents exist in all digital radio technologies
    - DMB/DAB/DAB+
    - DRM+
    - HD Radio

RT/RT+ implementers (1/2)

- Please have a look at this study from the US NRSC



Free download available from
http://www.nrscstandards.org/Reports/NRSC-R300.pdf

Get a better understanding about
- The music title & artist name options used for pop music and
- How to display that info on receivers

RT/RT+ implementers (2/2)

- **Test any RT/RT+ receiver implementation**
- With this **brand new product** you can test over the air
  - Create your own FM/ RDS broadcast signal
  - Short range transmit your own RT+ and test any receiver
  - Find out which RT+ tags are implemented in a product
    - How?
      - Use your own RT/RT+ test messages tagged with any of the over 60 RT+ options to test the receiver and find out how it will react
      - With two of these modules you can short range transmit and receive RT/RT+ and receive

NEW -
TRX011

For details contact RDS Forum member CATENA
http://www.trx011.com/

Credits -

- Hans-Christoph Quelle (formerly Nokia)
- Werner Richter (formerly IRT, Germany)
- Matthias Ewert (WDR, Germany)
- Andreas Niendorf (formerly Digenius, Germany)
- Jeff Littlejohn (ClearChannel Radio, USA)
- Jyrki Hoisko (formerly Nokia, USA)
- Allen Hartle (Jump2Go, USA)
- Mike Bergman (Kenwood, USA)
- Jonathan Pearce (Silicon Labs, UK)
- Joop Beunders (Catena, Netherlands)

They all helped the RDS Forum to achieve the RT+ development objectives

RDS development status today

- RDS specification first 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
- First RDS IEC standard published in 2000, updated in 2009 & 2013
- RDS technology is maintained by RDS Forum in 2013 since 20 years already

Total number of FM radio / RDS decoder ICs annual sales now:

Far over one billion chips per year