Short meeting notes of the 35th RDS Forum meeting, Lake Geneva Hotel, Geneva (Versoix), Switzerland,
21rst and 22nd October 2024

1 Joop Beunders as an RDS and RDS2 innovator – in memoriam

During this special session Joop Beunders was remembered by Frits de Jong, Dietmar Kopitz and Allen Hartle. An impressive list of exceptional contributions and developments was reviewed,.The products that Joop had developed to test and evaluate RDS and RDS2 were shown and described.

2 RDS Surveyor and PI-FM-RDS: customizable open-source RDS tools – a presentation from Christophe Jacquet

Christoph Jacquet is an open-source developer of RDS tools. The presentation contains the links to download the software he is offering to the RDS community.

The RDS Forum applauded Christoph Jacquet and Frits de Jong congratulated him for his ongoing RDS tool development work. He asked him to stay in touch with Dietmar Kopitz who will update the Forum on any new development from him to be reported.

3 Making RDS/RDS2 happen by software only

3.1 The RDS2 demo experience in Nantes – a presentation from David Jaillet

David Jaillet was invited to present his ongoing RDS and RDS2 development work. David was the first to implement RDS2 for demo purposes with Station logo and Slideshow using the RDS2-ready encoder from WorldCast Systems. This implementation was done in 2021 for a small private radio station, Euradio in Nantes, France. David showed the short video that captured a brief comparison using the Slideshow with DAB+ from the same station. In his presentation David briefly reviewed the RDS and RDS2 applications that his company Biyotee is capable to develop.

David was applauded by the RDS Forum for his innovative development work.

3.2 A new RDS/RDS2 terminal still under development – a presentation from Allen Hartle

Allen Hartle was invited to present his ongoing RDS2 development work. He was also invited to give his presentation as a long friend and joint RDS and RDS2 developer working with late Joop Beunders**.** Allen informed the meeting that the FCC issued a few days ago a license for his hometown station owned by him on Orcas Island in state Washington. He has now pretty much finished building his studio facility. With the FCC ruling, this completes his goal of literally creating his first test market for RDS2. He also finished the installation of a Worldcast Systems RDS2-ready encoder on a powerful neighbour station at 63,000 watts and installed his RDS ODA software at their transmitter facility that can transmit ODA data at will. The RDS2 test signal created by him then covers the Bellingham WA market and the Vancouver BC as well. He will as a start be emphasizing Tsunami warnings, the greatest threat for being part of an island community. This test will be part of a new project called StayAlert.

Allen Hartle will continue to keep the RDS Forum informed on the progress made. He was applauded for his innovative development work.

4 A revolutionary way of distribution of FM/RDS programme content

4.1 MPX and microMPX – a presentation from Hans van Zutphen

Traditionally, the broadcast of RDS has been achieved by installing an encoder at each transmitter site, where its data and audio have been combined and broadcast. It has been necessary for the dynamic RDS data to be sent separately to the site, independently to the audio. Recently this process has been

streamlined by distributing from the studio centre both audio and RDS data in a combined multiplex, removing the need for RDS encoders at each transmitter site.

Hans van Zutphen from Thimeo Audio Technology was invited to present his microMPX developments. The developments from Thimeo which are software only can and are already incorporated into audio processing devices from other brands, including the popular Omnia9s, all widely used, especially in the US. For the broadcaster, use of intelligent composite clipping and other technologies have led to more dynamic sound and better stereo, and for RDS and RDS2, data to be produced entirely in software. RDS2 features such as Station Logo, are made available since Spring 2024. Car information system dashboards looking like 'glass cockpits' found in several new vehicle models can now be easily produced and need visual information to be broadcast. The bandwidth required over IP for microMPX is between 800 and 320 kbit/second, depending on audio quality requirements from the broadcaster.

Hans van Zutphen was applauded for his innovative development work.

4.2 Implementation experience of MPX and microMPX – a presentation from Nicolas Croiset

In his presentation Nicolas Croiset of TDF, echoed the advantages of the MicroMPX solution eliminating the need for individual sound processors at each transmitter site, ensuring consistency across a broadcaster's network. In France, currently there are nationwide nine radio programme services on air which are fed by satellite with audio and UECP data for the respective encoders, all operated by TDF.

4.3 AptMPX, a new MPX distribution algorithm - a presentation from Hartmut Foerster

Hartmut Foerster from Worldcast Systems presented their solution for MicroMPX, AptMPX, achieving the same effect with low delay, low bitrate requirement and high audio quality. Their next 3rd generation product will add also RDS.

5 Conclusions to be drawn from the presentations given under item 10

For the RDS Forum the MicroMPX of audio with RDS data distributed via IP or satellite is a software innovation to be followed.

Frits de Jong thanked all three, Hans van Zutphen, Nicolas Croiset and Hartmut Foerster for having introduced us to this topic.

6 The Connected Car - DTS Autostage, a video presentation given by Joe d'Angelo

Joe d'Angelo from XPERI, wasn't able to be present in person, so sent a video presentation of the DTS Autostage which is a global infotainment platform for the connected car that seamlessly combines linear broadcast with IP-delivered content in a unified, user-centric experience.

7 News on RDS/RDS2 from Korea - a presentation from SangWoon Lee

Lee SangWoon presented on behalf of the four project partners Namseoul University, Hyundai Mobis, chipmaker Pnp Network Technologies and testing specialist ATBiS. The presentation gives some details of a three-year project in South Korea which started in 2023, due to complete in 2025.

The goal of the project is to develop an RDS2 chipset and a mobile testbed for Hyundai cars. Following this the aim is to add to standardization of the applications, introduce revenue producing commercial RDS2 services, and the mass production of devices.

Frits de Jong thanked Professor Lee SangWoon for having helped to create this very interesting industrial project which hopefully will lead to FM radio receivers that can decode RDS2.

8 ODAs designed for energy demand management and RDS2

8.1 Dynamic flexible loads created by FM broadcasting - a presentation from Jackson Wang

Jackson Wang from eRadio in Toronto updated his presentations from previous years using RDS technology to match electricity generation to demand. Electricity demand varies considerably around the clock, and by reducing the demand for electricity at certain times can achieve substantial savings in the infrastructure needed to supply houses with electricity. To achieve this, it is necessary to selectively control high consumption appliances, particularly water heaters. An ideal mechanism to reach these devices is RDS as FM reaches >90% of them, and with <1% attrition (as a comparison, devices connected by wi-fi have a much higher attrition rate due to changes in ISP provider, new hub etc.). Giving the utility companies the mechanism to control the times at which devices, for example water heaters or electric vehicle chargers, use electricity – overnight when other demands are low - saves considerably in infrastructure costs. Similarly controlling the rate and times at which electric vehicles charge spreads the load, optimizing the use of the electricity supply network.

8.2 Management of diffuse power loads – A presentation from Hartmut Foerster on the Fleximax Project

Hartmut Foerster from WorldCast Systems presented the Fleximax project to manage power loads. This is a national research project that was operated in France. The significant difference in approach to that of eRadio is that rather than control devices directly using RDS is that Fleximax communicates to the home hub, which in turn could link to connected in-home smart devices.

8.3 ODAs designed for RDS2 – A presentation from Attila Ladanyi

In his presentation, Attila Ladanyi presents us with a view over the top of a mountain range. He gives us his vision where we are now with RDS2 in 2024 compared to where we were with RDS in 1984. FM radio with RDS/RDS2 is designed for the world market. It can be used in any of the countries that use FM radio, 193 altogether. Attila uses his experience gained from car radio design in which he was involved over the past decade. Nowadays, car-radios resemble a computer. They can be universally used for receiving radio programmes coded in a number of different transmission modes. The decoding of a specific radio programme is done by software that includes the possibility to decode the metadata sent together with the audio content. These metadata can be radio programme related or not and can be used for display on the dashboard with the infosystem screen as required by the car manufacturer. What and how to display information is only a matter of software. The receiver hardware remains valid for a long time, but the software is updated more frequently, depending on the new data services being available. RDS and RDS2 are well situated in this kind of a scenario as both use the Open Data Application feature that can be used like the apps designed for handheld devices such as smartphones etc. Thus, with RDS/RDS2 many innovations are still possible, and Attila showed us a few examples to stimulate our imagination.

Frits de Jong thanked Attila for his interesting vision of the future for FM radio with RDS/RDS2.

9 RDS Forum / DRM Consortium Liaison by Radu Obreja

Since our last meeting in 2022 we wish to continue our liaison relation for widening the scope for our future development with the DRM Consortium. We asked them to update us on the progress made. Radu Obreja, who is their marketing director, undertook to give us a presentation. Due to other commitments, he could not be present, and he talked to us via Zioom showing us his very detailed presentation.

Frits de Jong thanked Radu Obreja for the quantity of information provided. The progress made is indeed impressive also as far as the availability of DRM radio receivers and chips needed to design them is concerned.

10 Observations on the evolution in the Swiss FM radio switch-off plan

Dietmar Kopitz, together with Frits de Jong and several other Swiss radio experts have observed over more than three years what has been decided by the Swiss authorities. Their decision is based on a study that was made within a small working group under the direction of the Swiss regulator OFCOM involving the Swiss broadcasters concerned. The details that were made public and those ones one could guess from a technical expert viewpoint are all summarized in documents R24/004_2 and R24/008_3. Both documents can be downloaded from the RDS Forum's web site. This information was collected with a lot of effort to inform the RDS Forum members about the context. FM radio will be switched off by the public broadcaster SRF/RTS/RSI by 2025, but commercial broadcasters can still continue until 2027, if they want so. The future of Swiss radio is regulated by the State on DAB+ and IP streaming which is what the Swiss authorities have decided. The decision is motivated mainly on saving money as in Switzerland DAB+ has been installed to cover the whole country with at least three ensembles. In Geneva, for example, there are now over 100 radio programmes receivable with DAB+. From a technical point of view the decision taken by the Swiss authorities is controversial as it will result in forbidding FM radio in Switzerland as from 2027. The arguments used by the authorities make from a technical point of view no sense and perhaps this may change as a hard position taken such as this one is also untypical for Switzerland when over 190 countries in the world continue to broadcast on FM and in the very large majority does not go in the same direction.

11 RDS turned 40 in March 2024 / RDS Forum turned 30 in 2023

Dietmar Kopitz reviewed the RDS Forum milestones achieved since 1993, most notably EON defended against unjustified trademark claims, RT+ and use of the UTF 8-character coding method with eRT/eRT+ and LPS followed by RDS2 with Station logo, Slideshow with optional synchronization in a sequence of music items, Internet connection for service following using IP streaming and a protocol to transmit RDS data over IP.

Above all this is also the achievement since 2018 of the restructuring the worldwide RDS IEC standard 62106 into eight parts and adding to Part 2 the RFT protocol for transferring files, and RBDS as well as the UECP adapted to RDS2 were added to the worldwide RDS standard.IEC 62106, completing the restructuring work in 2021 and now we have to update and maintain what we achieved since 2018.

In addition, we achieved the RDS receiver measurement standard IEC 62634 first in 2011 and updated it to edition 2 in 2015.

We also achieved the updating of ITU-R Rec BS 643-4 on RDS and RDS2 in 2022.

12 Liaison with the US NRSC - a video presentation from David Layer

David Layer from the NAB had a tight working schedule and could not attend in person. He sent us a video presentation and updated us on a number of observations made regarding the usage of RDS in the USA.

Frits de Jong thanked David Layer for keeping the RDS Forum updated on RBDS.

13 Date and venue of the next meeting

The next RDS Forum meeting was agreed to be held at the same venue in two years from now. It was also agreed that in between we can hold virtual meetings to resolve upcoming issues as required.