Status of the digital radio implementation in Poland

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Geneva, 11 February 2015
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996.04.28</td>
<td>Starting experimental broadcasting of four programs of Polskie Radio in Warsaw on DAB multiplex. Freq. 105,008 MHz. Telefunken transmitter with output of 0.25 kW.</td>
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<tr>
<td>1996.05.17</td>
<td>On the initiative of Polskie Radio &quot;Agreement on digital radio in Poland&quot; is signed (Signatories: PRSA, MŁ, PAR, KRRiT, TPSA), called &quot;Polish DAB Platform&quot;, transformed in 2000 as “Polish Digital Radio Forum.” Since the foundation of the Platform / Forum it has been managed by the following representatives of the Polskie Radio: Włodzimierz Pałka, Stanisław Popiołek, Adam Brodziak, Wojciech Makowski, Paweł Mathia.</td>
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<tr>
<td>1999.</td>
<td>Polskie Radio purchases a DAB transmitter made by Thomcast (0.4 kW), adapted for operation within block 10B and bandwidth VHF-3.</td>
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<tr>
<td>2001.10.16</td>
<td>Trial activation of DAB transmitter on channel 10B during proceedings of RCP (Radio Conference Poland) 2001 in Warsaw. After protests from cable operators caused by interference of the DAB signal in the cable TV network, the transmitter was switched off.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
</tr>
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<td>---------------</td>
<td>----------------------------------------------------------------------</td>
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<tr>
<td>2003.09.01 - 2005.05.02</td>
<td>After mastering the problems of distortion caused by DAB signal to television programs, available on cable, permanent test broadcasting of DAB was launched from PKiN in Warsaw. Block 10B , five programs: PR1, PR2, PR3 , PR4 -Radio BIS, RDC.</td>
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<tr>
<td>2005.10.16</td>
<td>Test broadcasting of radio programs on DVB-T multiplex in Warsaw (PR1, PR2, PR3, RDC) and Wrocław (PR1, PR2, PR3, municipal program of Radio Wrocław)</td>
</tr>
<tr>
<td>2009.06.02</td>
<td>Test broadcasting of DAB+/DMB launched in Warsaw and Wrocław.</td>
</tr>
<tr>
<td>2012.02.24</td>
<td>Polskie Radio S.A. received decision of President of the Office of Electronic Communications, reserving radio multiplex no. 3 in VHF for broadcasting of public radio programs in T-DAB+ technology. This decision opens a new chapter in digitalization of radio broadcasting in Poland.</td>
</tr>
</tbody>
</table>
Goals:

- Launching broadcasting of Polskie Radio programs in DAB+ from 2013
- Filling in of gaps in the terrestrial range of Polskie Radio Programs as a target
- Quality improvement through implementation of digital broadcasting in metropolitan areas
- Extension of program offer
Polskie Radio S.A. – FM networks

Population coverage: 93,15%  Surface coverage: 91,7%

Population coverage: 72,00%  Surface coverage: 57,36%
Polskie Radio S.A. – FM networks

Population coverage: 93,91%  Surface coverage: 93,35%

Population coverage: 35,35%  Surface coverage: 17,93%
Rules of implementation and cooperation with Radio Stations


✓ POLSKIE RADIO S.A. APPOINTS TECHNICAL OPERATORS OF THE MULTIPLEX AND TRANSMISSION STATIONS BY WAY OF TENDER PROCEDURES.

✓ REGIONAL RADIO STATIONS ORDER SERVICES OF REGIONALISATION AND BROADCASTING OF THEIR PROGRAMS IN APPROPRIATE AREA FROM POLSKIE RADIO S.A.
Since 01.10.2013

- Katowice
- Warszawa

Population coverage: 7.2 MLN (18.8 %)

Surface coverage: 11 500 km² (3.7 %)
DAB+ COVERAGE MAP

SINCE 01.08.2014

- Szczecin
- Wrocław

Population coverage: 8,8 MLN (22,6 %)

Surface coverage: 20 900 km² (6,7 %)
DAB+ COVERAGE MAP

SINCE 01.10.2014

- ŁÓDZ
- OPOLE

POPULATION COVERAGE:
11,2 MLN (29,26 %)

SURFACE COVERAGE:
39 400 KM² (12,18 %)
DAB+ COVERAGE MAP

SINCE 31.12.2014

- Gdańsk
- Kielce
- Kraków
- Poznań

Population coverage:
15.7 million (41.24%)

Surface coverage:
56,100 km² (17.93%)
DAB+ COVERAGE MAP

SINCE 01.04.2015

- Białystok
- Bydgoszcz
- Koszalin
- Lublin
- Olsztyn
- Rzeszów
- Zielona Góra

Population coverage: 21,2 MLN (55,52 %)

Surface coverage: 103,900 KM² (32,95 %)
DAB+ COVERAGE MAP

SINCE 01.07.2016

- Gżycko
- Kalisz
- Płock
- Siedlce

**Population coverage:**
23,5 MLN (62,61 %)

**Surface coverage:**
134 100 KM² (42,87 %)
**DAB+ COVERAGE MAP**

**SINCE 01.07.2017**

**POPULATION COVERAGE:**
27,0 MLN (70,49 %)

**SURFACE COVERAGE:**
161 500 KM² (51,56 %)
Population coverage: 32.3 MLN (84.40%)

Surface coverage: 227 800 KM² (72.85%)
DAB+ COVERAGE MAP

SINCE 01.07.2019

POPULATION COVERAGE: 36.4 MLN (95.15%)

SURFACE COVERAGE: 279 000 KM² (89.23%)
**DAB+ COVERAGE MAP**

**SINCE 31.12.2020**

**Population coverage:**
38,3 MLN (99,5%)

**Surface coverage:**
312 600 KM² (99,5%)
DAB+ POPULATION COVERAGE

POPULATION (MLN)


7.2 8.8 11.2 15.7 21.2 23.5 27.0 32.3 36.4 38.3
Regional public broadcasters in DAB+ Ensemble

Regional Services (February 2015)

- Gdańsk – Radio Gdańsk
- Katowice – Radio Katowice
- Kielce – Radio Kielce
- Kraków
  - Radio Kraków
  - OFF Radio Kraków
- Łódź – Radio Łódź
- Opole – Radio Opole
- Poznań – Radio Merkury
- Szczecin
  - Radio Szczecin
  - Radio 9414
- Warszawa – Radio Dla Ciebie
- Wrocław
  - Radio Wrocław
  - Radio Wrocław Kultura
## Bitrate of services and associated data in DAB+ Ensemble

<table>
<thead>
<tr>
<th>No.</th>
<th>Service name</th>
<th>bitrate (kbit/s)</th>
<th>PAD SLS, DLS</th>
<th>Audio type</th>
<th>CU (EEP 3-A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Polskie Radio - ‘Jedynka’</td>
<td>112</td>
<td>4</td>
<td>stereo</td>
<td>84</td>
</tr>
<tr>
<td>2</td>
<td>Polskie Radio - ‘Dwójka’</td>
<td>128</td>
<td>4</td>
<td>stereo</td>
<td>96</td>
</tr>
<tr>
<td>3</td>
<td>Polskie Radio - ‘Trójka’</td>
<td>112</td>
<td>4</td>
<td>stereo</td>
<td>84</td>
</tr>
<tr>
<td>4</td>
<td>Polskie Radio - ‘Czwórka’</td>
<td>112</td>
<td>8</td>
<td>stereo</td>
<td>84</td>
</tr>
<tr>
<td>5</td>
<td>Radio Poland</td>
<td>64</td>
<td>4</td>
<td>mono +SBR</td>
<td>48</td>
</tr>
<tr>
<td>6</td>
<td>Polskie Radio 24</td>
<td>64</td>
<td>2</td>
<td>mono +SBR</td>
<td>48</td>
</tr>
<tr>
<td>7</td>
<td>Radio Rytm</td>
<td>96</td>
<td>2</td>
<td>stereo +SBR</td>
<td>72</td>
</tr>
<tr>
<td>8</td>
<td>Program Regionalny 1 (2)</td>
<td>112 (72)</td>
<td>8</td>
<td>stereo +SBR</td>
<td>84 (54)</td>
</tr>
</tbody>
</table>
Polskie Radio **Rytm**

No ads, no talk!

Mainstream pop/dance music 24h/day.

Chosen by popular demand.

Targeted for younger audience.

Short news twice an hour.
Polskie Radio Rytm – web page

Rytm muzyki

Co nowego gramy? Kto nagrał nowy klip? Po co szukań, ale miejsce w którym znajdziesz na nie odpowiedzi tylko jedno. W Rytmie Muzyki dowiesz się wszystkiego co chciałbyś wiedzieć o nowej muzyce i artystach.

Dziesiątka Radia Rytm

Playlista

03.02.2015 09:00 - 23:59

1. Crazy - CHARLIE BARKLEY
2. Do It Just One Time - SIA
3. I'm On Again - AUCOA KEYS
4. Never Say Never - BANDIT JAXX, ETYL
5. Roso - ZAKOPower
6. It's my Life - TALK TALK
7. Coming Back - DEAN RAY
8. Antenna - FLICE ODEG, WYBREJ DEAN
9. Bloc - MEREDITH BROOKS
10. Cudowne dni - VARIUS MANX
11. All About That Bass - MEGHAN TRAINOR
12. Crazy In Love - BEYONCE, JAY Z

Cheryl zapowiada nowy singiel
Ewa Farna w pinurek Tomka Luberta. "Wiśnije raniłkami"
Gromee wydał higienizujący singiel "Follow You"
Polskie Radio **Rytm** – new idea

**Online playlist voting**

Innovative and intuitive voting system available via our webpage, connected with music scheduling software.

Up-voted songs will be put on heavier rotation based on the score.
Polskie Radio 24 – Here and now!

News channel.

Talk radio.

Current affairs.

Politics, culture, economy, sport.

Expert commentary, high profile journalism, radio report.
Polskie Radio 24 – web page
Kids and children (age 4-12) channel.

Education + entertainment.

Parenting advice & tips.

Audiobooks & fairy tales.

Children’s music on day programming, jazz at night shift.
Senior channel (age 50+).

Focusing on older people's issues.

Preventing social isolation and loneliness.

Health advice, entertainment, reruns.

Music content based on top of the last 50 years.
FUTURE OFFER: Polskie Radio **Edukacyjne**

Educational channel (age 18+).

Popular science & technology.

History & general knowledge.

Leisure, recreation and hobby programming for 30+ listeners.

Suggested music format – adult CHR.
Associated data in DAB+

Presentation of DLS and SLS:

DLS and SLS services are used to present information about the programs and currently broadcasted items.
Presentation of Journaline:

Journaline service is fed with information from the website and linked to the Polskie Radio 24 - the news channel.
Associated data in DAB+
THANK YOU FOR YOUR ATTENTION

Geneva, 11 February 2015