Digital Radio Mondiale

HFCC-ASBU B15
Coordination Conference

Brisbane

24th - 28th August 2015

The DRM Consortium

The DRM Consortium

- **Founded in 1998** by international organizations in China to promote the adoption of the DRM standard worldwide
- **Not-for-profit**
- **Around 100 international members** (broadcasters, manufacturers, network operators, regulators, research institutes, etc.)
- **Experts and technologists** ready to give expert, objective advice on the technology
- **Open** to companies, organisations, associations and individuals who can join at any time

For joining the DRM Consortium, write to: **projectoffice@drm.org**

Selection of DRM Consortium Members

NEW Pakistan Broad. Corp

The not-for-profit DRM Consortium
supports and promotes the DRM Standard and its take-up globally

DRM Receives ITU Award -1st Oct 2014
For its Outstanding Contribution in the last 10 years In the Field of Telecommunications

DRM Key Features

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- **More choice** for listeners
  - Up to 4 programmes on 1 frequency
  - Simulcast analog / digital
- **Excellent audio** quality
  - No distortion
  - Stereo and 5.1 surround sound
- **Multimedia Applications**
  - Great listener benefits
  - Extra revenue opportunities for broadcasters
- **Good coverage** area and robust signal
  - Supporting SFN (Single Frequency Networks)
  - Green and energy efficient
- **Automatic tuning**
  - by station name, no longer by frequency
  - re-tunes when leaving coverage area
- **Emergency warning & alert**
  - All stations switch, present audio and text information

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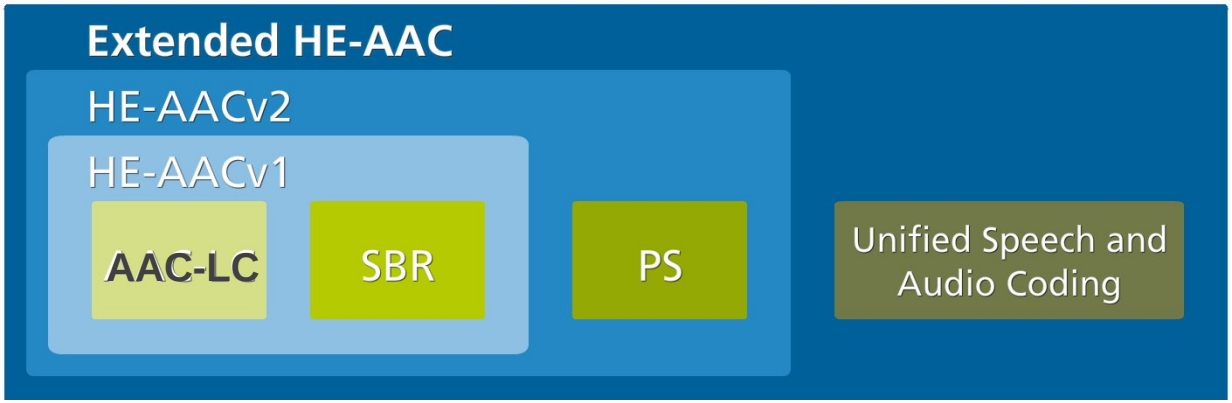
DRM Trial South Africa: Two Services One AM Frequency
BBC World Service

DRM Trial South Africa: Two Services One AM Frequency Radio Pulpit

MPEG xHE-AAC – Extended HE-AAC



– Equally suits **speech and music coding at very low bit rates**

– MPEG/ISO standardised in 2012

– Applications:
Media download (mobile devices), Streaming, Digital Radio, Mobile TV

DRM in the World

DRM Key Markets

Some Key Markets

- India
- Southern Africa
- Brazil
- Russia
- Arab Countries?

India

Population – 1.2 Billion

Public Service Broadcaster - All India Radio

- Transmitters – 574
  - **MW – 144**, SW – 48 & FM - 382
- Domestic Coverage – Almost 100%
- External Services – 72 Hrs/day in 27 Languages (15 Foreign & 12 Indian)

Private FM Broadcasters – 245 Stations

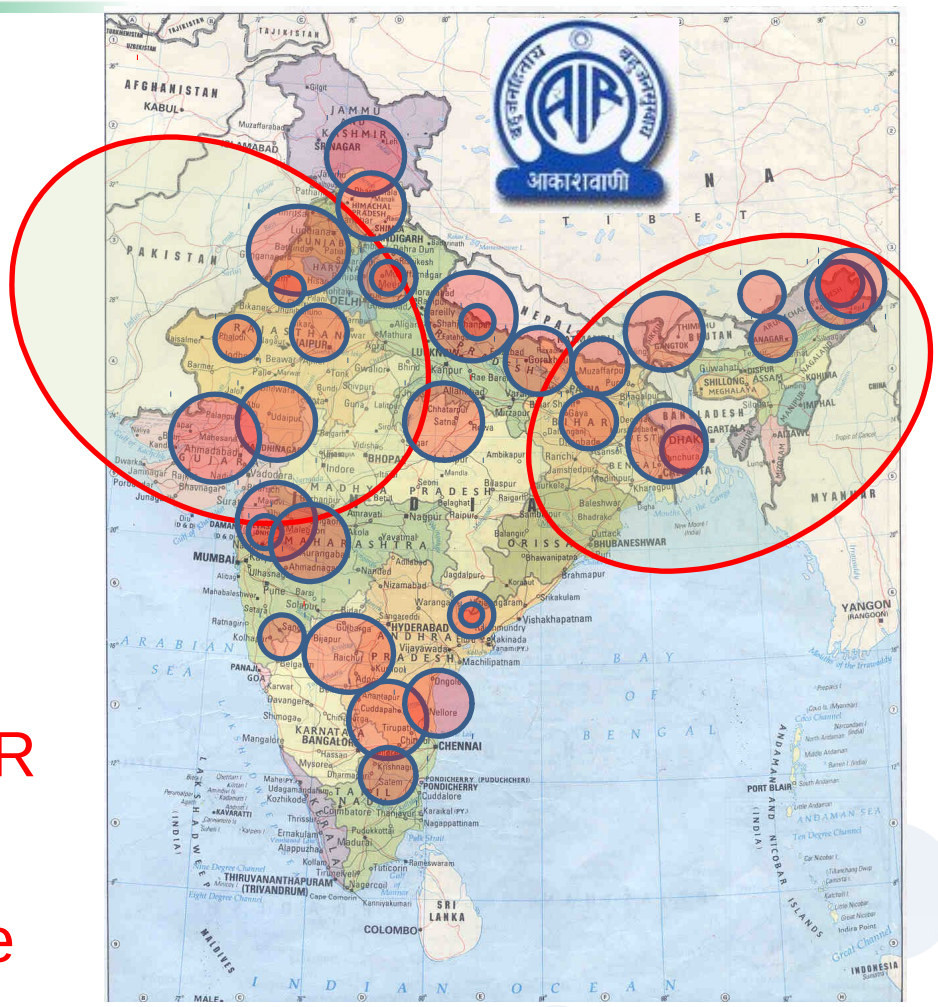
- Coverage – About 30%
- Expansion Planned – 839 Stations

Community Radio Stations - 167

Internet Users – Over 220 Million

India

"One of the world's largest digital radio deployments"



Transmitters	39
Investment	Over 3 Billion INR
Power	8,000 kW
Coverage	0.6 Billion people

DRM MW Transmitters - Status

Power (kW)	No.	Operational (as reported in Paris GA)	Operational subsequently	Total operational
1000	2	Rajkot & Kolkata	-	2
300	6	-	Rajkot, Lucknow, Jammu	3
200	10	Delhi	Bangalore	2
100	11	Panaji & Pune	Mumbai A, Mumbai B, Vijayawada, Patna & Varanasi	7
20	6	Delhi, Chennai, Guwahati, Tawang,	-	6

DRM SW Transmitters - Status

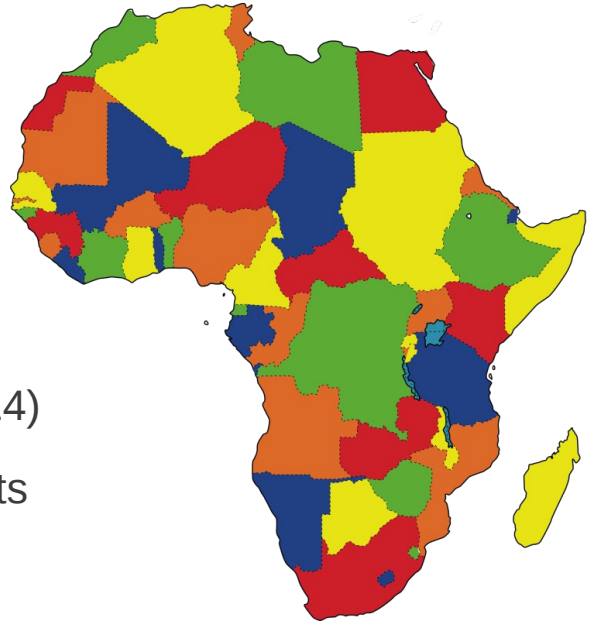
Power (kW)	No.	Operational (as reported in Paris GA)	To be made operational
500	1	Bangalore	-
250	1	Delhi	-
100	2	-	Aligarh
Total	**4**	**2**	**2**

AIR enters `Digital Transmission` era

19th Jun 2015

AIR started transmitting two channels
– Vividh Bharati and FM Rainbow –
in pure digital (DRM) mode from New Delhi
from 20kW MW transmitter
at 1368 kHz

Africa



Significant interest in DRM in **Southern Africa** in last 2 years

DRM30 tests started or in preparation in several countries

SW DRM transmissions in October 2011, July 2013, April 2014

DRM Consortium attends regularly **major SABA events** (2013 – 2014)

Increasing African countries attracted to DRM broadcasting benefits (such as Mozambique, Botswana, Zambia)

Nigeria adopted DRM and is broadcasting for abroad from Abuja since March 2012 with increased DRM output since May 2014

Mozambique (adopted DRM), Zambia, Botswana, (Tanzania) showing great interest

Algeria adopted DRM and installed transmitters in 2013

Southern Africa

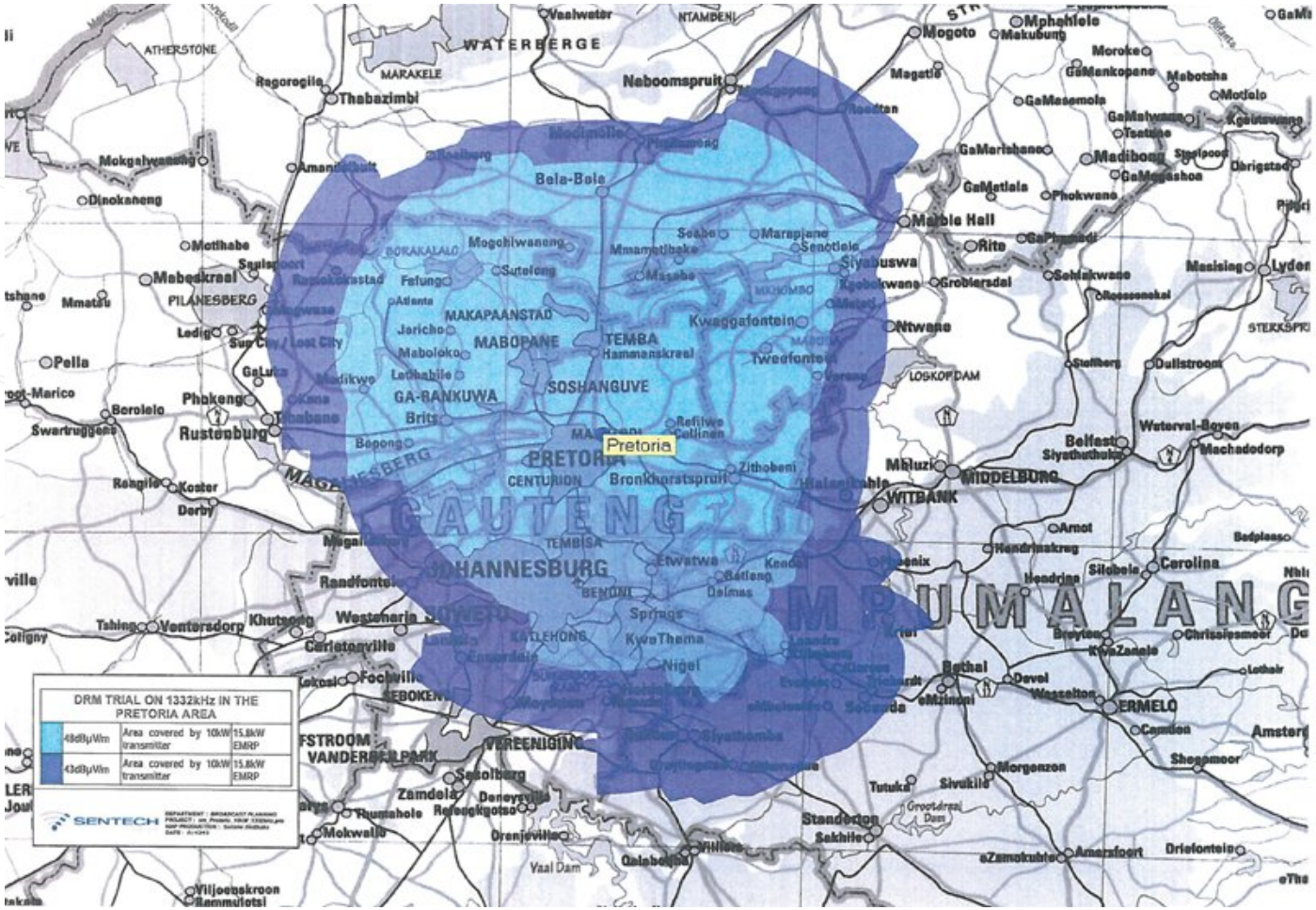
Launch of the DRM Southern Africa Platform in Pretoria in June 2014 to promote DRM across Southern Africa http://www.drmsa.org/

Radio Pulpit has made history by leading the South African radio broadcasting industry into the digital era with the first LIVE digital medium wave broadcast in South Africa in July 2014 in Pretoria and Johannesburg

Second Channel with BBC content launched on February 1st 2015 with extra features (RSS, Journaline, text - Pretoria News Update) contributed to a S. Africa government consultation including holding a comprehensive workshop with live BBC broadcast from Ascension Island in July 2013 and April 2014, April 2015

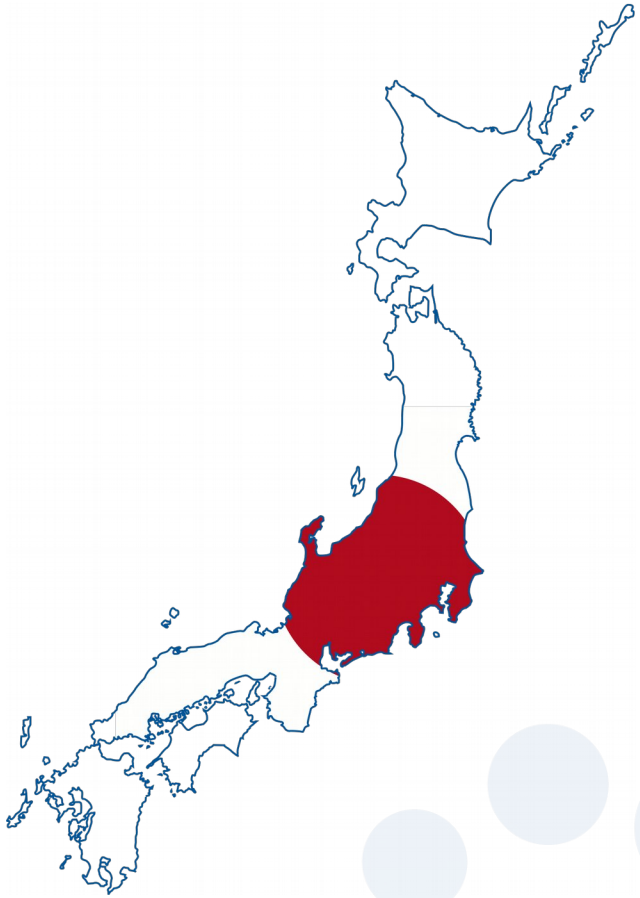
Car industry, receiver and equipment manufacturers show interest

DRM Trial – Expected Coverage (10kW)



Japan – DRM Upgrade

- Japan acquired four x 300kW short wave Transmitters
- First new Transmitter went on-air in April 2013
- Three more planned at yearly intervals
- All DRM equipped and tested
- National decision to reinvest in DRM SW primarily after national disasters



Kingdom of Saudi Arabia

- The **Saudi Broadcasting Corporation** has adopted the DRM digital standard for MW and SW
- MW Transmission stations are located in Gazan, Taiba, Hafr Elbatin, Abha
- SW transmissions take place from Al-Khumra (Jeddah City)
- Current Projects: in Afif, in Layla (Al-aflag), in Duba and Riyadh

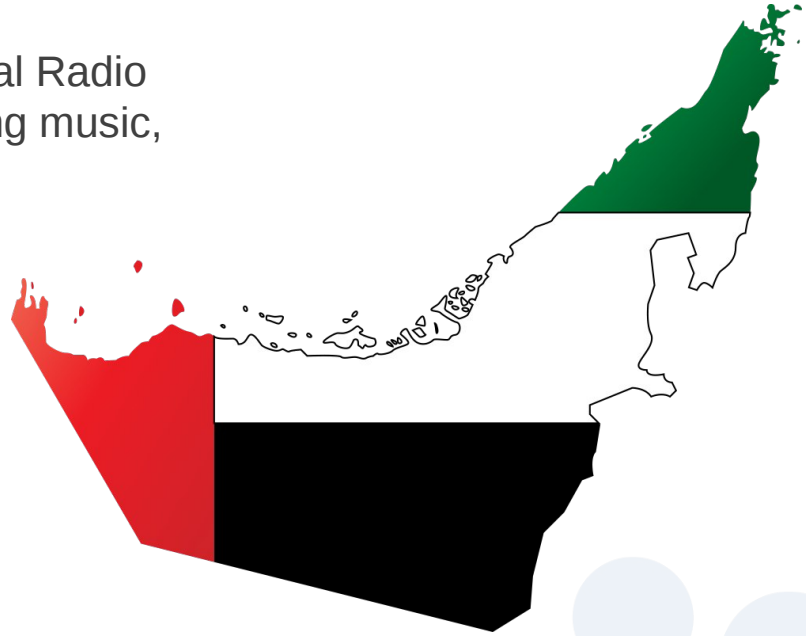
United Arab Emirates

7th Dec 2013: launch of the world's first Malayalam digital radio on UAE airwaves

he channel, Pravasi Bharathi 810 AM, Malayalam Digital Radio
DRM), aims to reach out to millions of listeners streaming music,
iscussions, news, current affairs and entertainment

Reaching all Golf Cooperation Council nations
ith excellent DRM:

- like FM quality in digital radios
- and super AM quality in ordinary receivers



DRM in Europe


Greenland Sea
Norwegian Sea
Reykjavik
ICELAND
NORWAY
SWEDEN
FINLAND
RUSSIA
Helsinki
Stockholm
Oslo
Tallinn
ESTONIA
LATVIA
Riga
LITHUANIA
Vilnius
Minsk
BELARUS
Moscow
North Atlantic Ocean
North Sea
UNITED KINGDOM
Dublin
IRELAND
London
DENMARK
Copenhagen
GERMANY
Berlin
POLAND
Warsaw
UKRAINE
Kyiv
CZECH REPUBLIC
Prague
SLOVAKIA
Vienna
AUSTRIA
Budapest
HUNGARY
ROMANIA
Bucharest
MOLDOVA
Black Sea
BULGARIA
Sofia
FRANCE
Paris
Bay of Biscay
SPAIN
Madrid
PORTUGAL
Lisbon
ITALY
Rome
Zagreb
CROATIA
Belgrade
SERBIA
Sarajevo
Skopje
Tirana
GREECE
Athens
TURKEY
Mediterranean Sea
Tyrrhenian Sea
Adriatic Sea
Ionian Sea
Algiers
ALGERIA
Tunis
TUNISIA
Rabat
MOROCCO
Scale 1:19,300,000
Lambert Conformal Conic Projection,
standard parallels 40°N and 68°N

Germany

- DRM German Platform - the oldest and most active, website, comparative reports between DRM / DAB & DAB+

- Distribution of data on board of ships (navy, passenger, freight)
- **Test, Kaiserslautern** (2008-2010) band II, III
- **Test DRM+, Hannover** (2008-2011) band II, III
- Bit Express broadcasts in DRM+

- Publication of a report on available technologies for the digitisation of terrestrial radio in Europe: **"Digitalisation of Terrestrial Radio Broadcasting in Europe"**

- That document is a summary of the report of **"Considerations for the Digital Transition of Local and Regional Terrestrial Broadcast Radio in Germany"** published on 3rd Sept 2013 and consultable on the EBU site *https://tech.ebu.ch/digitalradio*

DRM for Data Distribution (Germany)

On Board Infotainment Service „News on the ship“

- **Audio service** from Radio Andernach
- **RSS news feeds** from Deutschlandradio and WAZ-group
- **News** from n-tv (images, videos)

Usage of existing SW antenna

DRM receiver

DRM-BoardNetServer

IP-insertion in IP-boardnet

Audio insertion ship loudspeaker

Video insertion in Bord-BK-Netz

Outlook:

- On service with **German Navy**
- Tested with **ocean freight vessels** from Germany to China
- Tested with a **cruise ships** from the Baltic sea to Alaska

DRM Signs The EBU Smart Radio Memorandum of Understanding (MoU)

ARD
APR Arbeitsgemeinschaft Privater Rundfunk
BBC
Český rozhlas
Deutschlandradio
DIE NEUE WELLE the broadcasters
fun radio LE SON DANCEFLOOR
klassik radio
MTG
NRK
NPO Netherlands Public Broadcasting
4
POLSKIE RADIO
rtbf.be
REGIOCAST Deutsches Radio unternehmen
RTL.be
Rai
Sky Radio
SRG SSR
vsp Verband Schweizer Privatradios
sverigesradio
drm DIGITAL radio mondiale
EBU OPERATING EUROVISION AND EURORADIO
SNRL SYNDICAT NATIONAL DES RADIOS LIBRES
WORLD DMB

http://www3.ebu.ch/files/live/sites/ebu/files/Programming/Radio/Digital%20Radio/MOU_signed.pdf

All Major Chipsets Manufacturers have Multi-Standard chipsets ready or announced with DRM!

Dec 2014: Parrot launches ready-to-use multi-standard Radio modules for Automotive
Based on SDR Octopus chip supporting **DRM30/DRM+,** DAB/DAB+, DVB-T2Lite, ISDB-Tsb, AM/FM

Feb 2014: **Siano** launches Advanced Multi-Standard Digital Radio Receiver Chip
Supporting **DRM+,** T-DMB/DAB/DAB+, and Legacy FM Radio –

Dec 2013: **Frontier Silicon** announces details of its multi-standard chipset with **DRM**
http://www.frontier-silicon.com/new-digital-radio-chip-targets-smart-devices-and-global-markets

March 2013 : NXP launches Multi-standard and multi-tuner digital radio baseband processors for **DRM** radio, HD, DAB, DAB+, T-DMB

Other Chipset manufacturers: Analog Devices, PnP etc.

Latest DRM Receiver

AV DR1401

Full DRM feature set

Available now

Commercially launched at IBC 2015

ankit@avionelectronics.in

Latest DRM Receiver AV DR1401

REQUEST

The DRM CONSORTIUM
Asks HFCC to pull together all DRM broadcasts in order to make them available at a click of a button (to feature also on new DRM APP.) now receiver is reality!

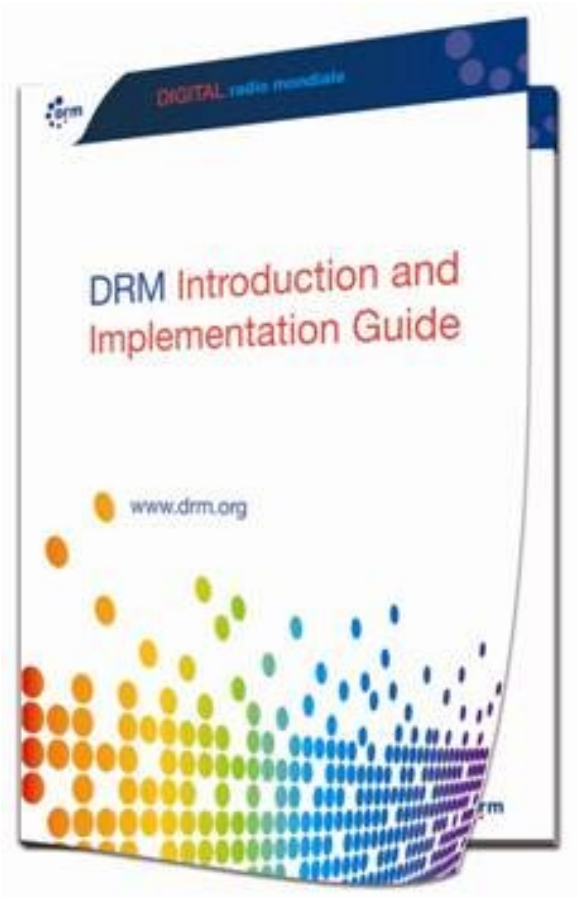
CONCLUSION

- DRM is new and flexible. It is ready and can be deployed NOW
- DRM helps you reach all listeners (in city or rural areas)
- DRM creates more channels, offers possibility for more content and multimedia with excellent coverage and sound quality
- DRM uses existing infrastructure and builds on it
- No need for multiplexes – be your own master
- DRM saves energy costs (significantly)
- DRM offers monetisation opportunities and creates JOBS!

All you need to know on DRM – Free

DRM Introduction and Implementation Guide

Updated – Version 2



More Information on DRM

www.drm.org

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