DRM Digital Radio

Overview and Business Proposition

DRM DIGITAL radio mondiale

Workshop Rádio Digital

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www.drm.org

DIGITAL radio mondiale

Introduction

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Chair of DRM Consortium

DRM Consortium

DRM Consortium

drm **DIGITAL** radio mondiale

Not for profit organization

Global Presence

- Germany, India, Brazil, *South Africa (www.drmsa.org)*
- Expert groups in Pakistan, Indonesia

Over 100 International Members

- Includes: broadcasters, network operators, regulators, manufacturers, research organizations etc.

Internal Experts and Technologists

- Maintains DRM standards
- Provides subject matter expertise and advise

Become a member today

by writing to

projectoffice@drm.org

ONE YEAR OFFER OF FREE ASSOCIATE MEMBERSIP!!

Several of the DRM Consortium Members

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

DRM Digital Radio Mondiale – Some Facts

DRM Technology

Standard
- Global open digital radio standard
- ITU Endorsed
- Public Specification

Accessible to All
- Non-proprietary
- Full and free access to spec by all
- No trade secrets or not under control of a single company

LF	MF	HF	VHF

DRM

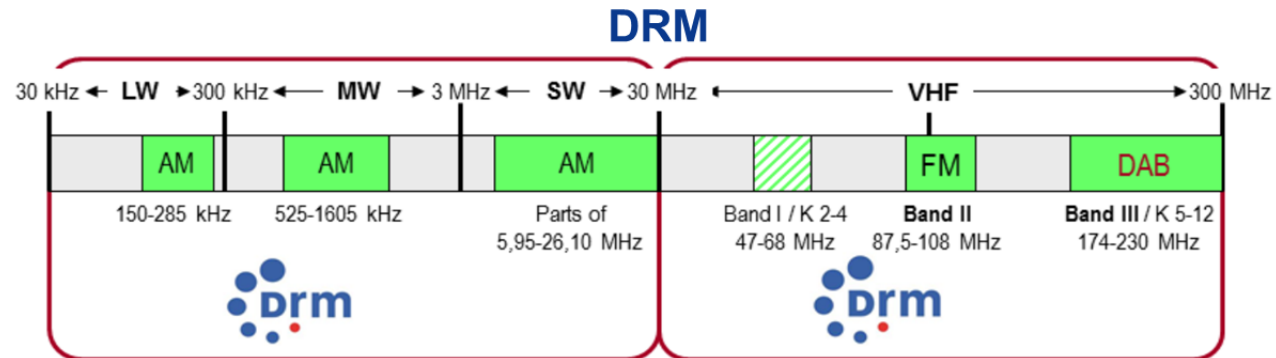### All Band Support
- The only ITU standard supporting all frequency bands and coverage needs
- Same standard and features for all bands
- → **Direct digital successor technology for analogue AM/FM**

DRM Works In All Frequency Bands

DRM for local / regional coverage (VHF bands)
(Band I, II – FM band, III)

_____ *30 MHz*

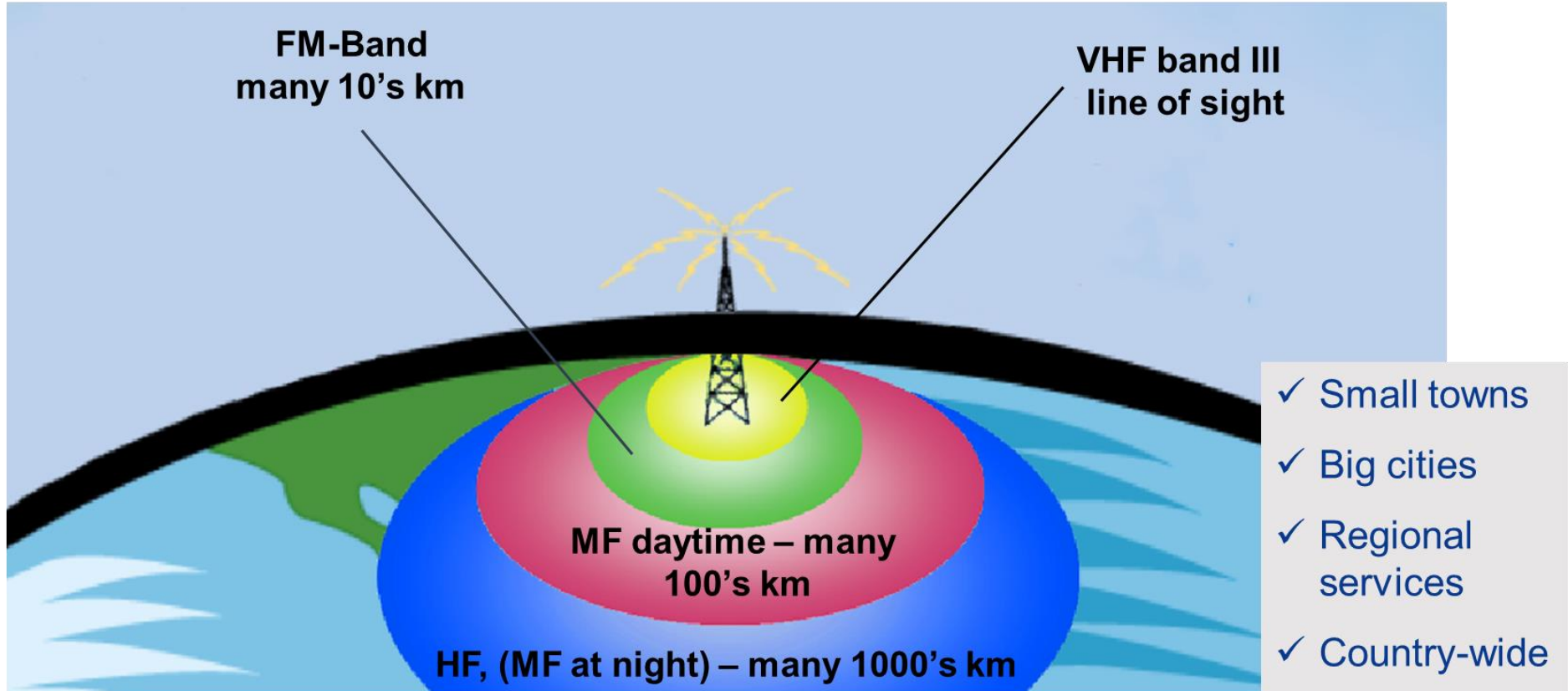**DRM for medium/large area coverage** (AM bands)
(or LW, MW, SW) – the AM bands

DRM

30 kHz ← **LW** → 300 kHz	← **MW** → 3 MHz	← **SW** → 30 MHz	←	**VHF**	→ 300 MHz

AM / AM / AM / FM / DAB

150-285 kHz 525-1605 kHz Parts of 5,95-26,10 MHz Band I / K 2-4 47-68 MHz **Band II** 87,5-108 MHz **Band III** / K 5-12 174-230 MHz

DRM Digital Radio standard – One single standard:
Same key features throughout

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DRM Serves all Coverage Needs

VHF bands
Local/regional coverage

AM bands
Large-area coverage

FM-Band
many 10's km

VHF band III
line of sight

MF daytime – many 100's km

HF, (MF at night) – many 1000's km

✓ Small towns

✓ Big cities

✓ Regional services

✓ Country-wide

DRM Global Status

India

South Africa/Key African countries

China

Brazil

Indonesia

Pakistan

DRM Key Features and Benefits – Listeners' Perspective

- **More choice** for listeners
  - Up to **3 programmes + multimedia on 1 frequency**
  - Simulcast analogue / digital

- **Excellent audio** quality
  - No distortion or interference
  - Stereo and 5.1 surround sound

- **Multimedia Applications**
  - Great listener benefits
  - Extra revenue opportunities for broadcasters

- **Good coverage** area and robust signal
  - Supporting (Single Frequency Networks)

- **Automatic tuning**
  - by station name, no longer by frequency
  - re-tunes when leaving coverage area

- **Emergency Warning Functionality EWF**
  - Automatic wake-up, all stations switch, present audio and text information

Emergency Warning Functionality

DRM EWF – Emergency Warning Functionality

DRM Digital Radio **has all required tools built-in** for a quick and complete mass-notification in case of disasters

"Digital Radio Mondiale (DRM) natively supports emergency alert signalling (… EWF).
DRM receivers are triggered to re-tune automatically to an emergency transmission (including optional auto-switch-on) while flashing the screen and increasing the audio volume."

ITU-R Study Group 6 chair Yukihiro Nishida - Advantages of radio broadcasting in emergency and disaster situations

Benefits – DRM Distance Learning

- Lessons and textbook-content via **Journaline**
  → Always available on-demand, even for self-study

- At specific times, with **live teacher** (audio service)
  → Scheduled by language / class level / subject
     (up to 3 in parallel per channel → **scalable**!)
  → Referencing the current Journaline textbook location

- Options for student **interactivity**: Journaline Quiz, Q&A re-broadcast, etc.

FM-Band 100 km 0110101101

or **Short Wave > 2000 km** 0110101101

WiFi

How it works: Please check out this video: s.drm.org/video-education

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Benefits - Spectrum Efficiency – White Spaces in the FM Band

DRM fits anywhere in the FM gaps!

DRM in the FM band

87,5 MHz

108 MHz
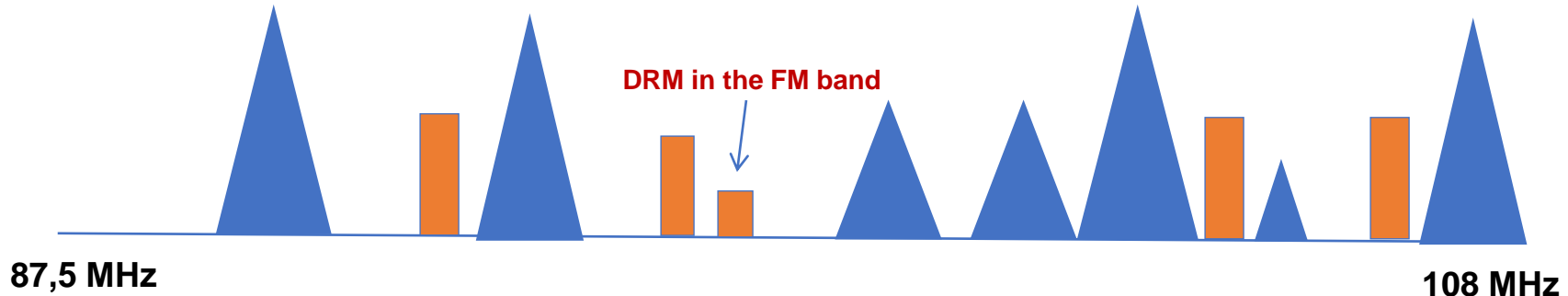
DRM can be accommodated even in the congested FM Band in Johannesburg, (e.g; 50 extra programmes!)
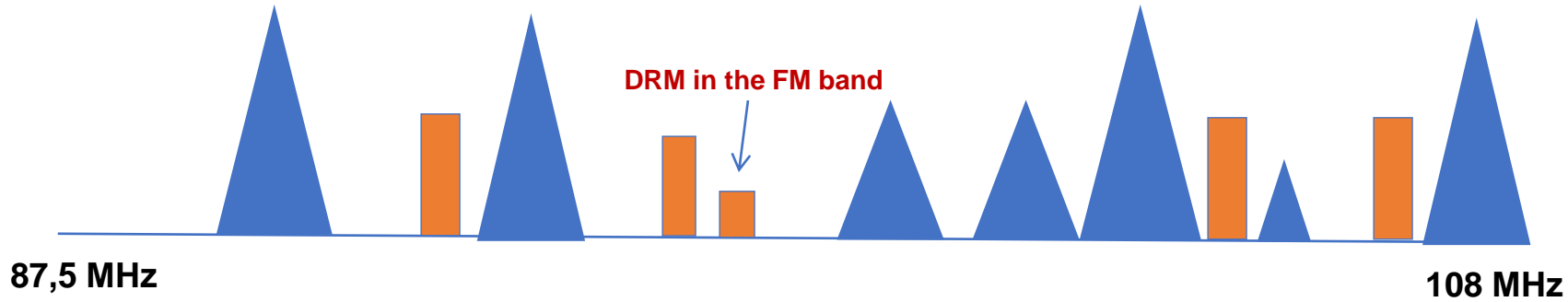
3 Programmes
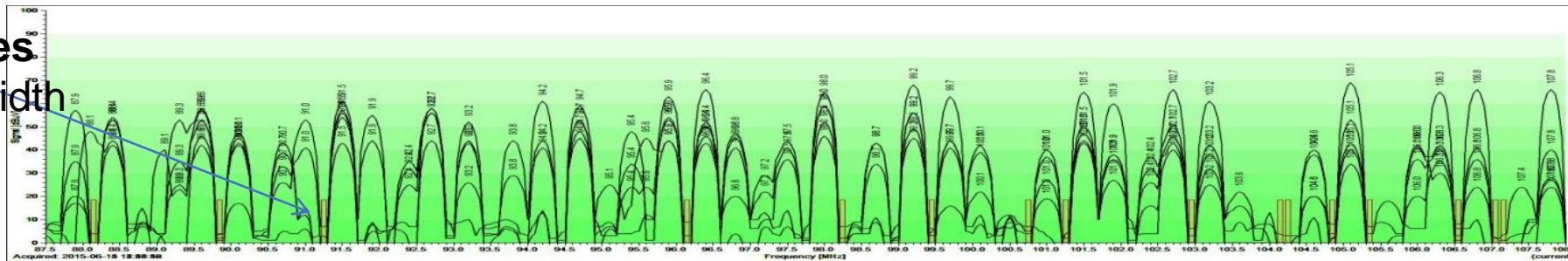100 kHz bandwidth
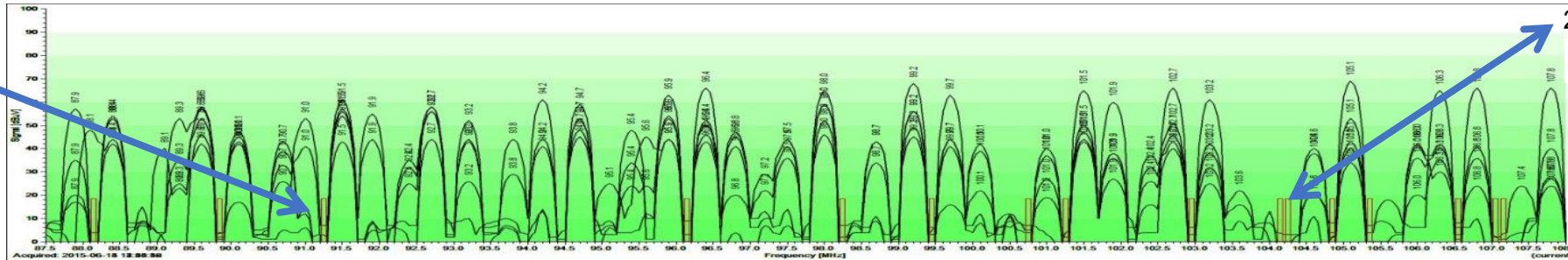
Multichannel: 6 Programmes
2 x 100 kHz bandwidth

Benefits - Spectrum Efficiency – White Spaces in the FM Band

DRM fits anywhere in the FM gaps!

DRM in the FM band

87,5 MHz

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DRM can be accommodated even in the congested FM Band in Johannesburg, (e.g; 50 extra programmes!)

3 Programmes
100 kHz bandwidth

**Multichannel: 6 Programmes**
2 x 100 kHz bandwidth

Benefits with Newest Development - DRM Multichannel

✓ Broadcast multiple digital radio signals from a single transmitter

→ Save CAPEX and OPEX!

✓ Optimize FM spectrum resources – needs only 1/3 of the spectrum of a DAB multiplex (0.6 vs 1.7 MHz for 18 audio channels)

✓ Fully compatible – no special receivers required

✓ Successfuly demonstrated in India in 2020 on-air (Report: s.drm.org/8wBg)

✓ Will be tested in Johannesburg (trial license application in progress)

Multi-DRM Broadcasts by a Single FM Transmitter
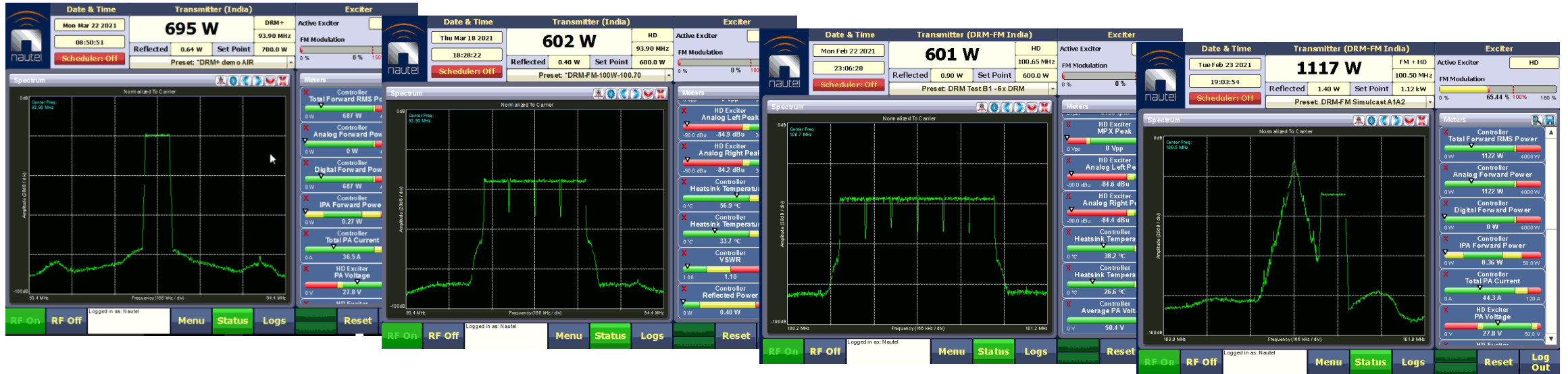
1x DRM   4x DRM   6x DRM   FM+DRM

✓ **Not a 'multiplex' solution operated by a third party**
✓ **All broadcasters are in full control of their content and operation**

Receiver Ecosystem Built on Solid Ground: Our Foundation is Set

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Car, Portable, Mobile DRM Receivers and chip, module solutions

Manufacturers in **China, Germany, India, UK, South Korea** are producing DRM receivers and are willing to do **local manufacturing**.

DRM Standard – Superior Technology

✓ **DRM** is efficient, green - saves spectrum and energy

✓ **DRM** reaches people wherever they are, even outside broadband/internet coverage

✓ **DRM** offers more than audio**:** access to information, entertainment, **emergency warnings** and **education**

✓ **DRM** offers broadcasters the latest broadcast options (**transmitter sharing – Multichannel**)

✓ **DRM** enables **local stations to be heard!**

✓ **DRM** offers **more channels, more creative services, ad revenue (with text), communication – more jobs and $$$!!**

The DRM ecosystem is ready, and the Consortium is prepared to support its implementation

Information and Contacts
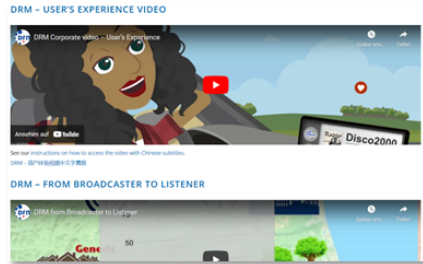
To access information on specific DRM subjects type in your browser:
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