Transition from AM to DRM

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- Conversion AM to DRM30
- New information required
- DRM+

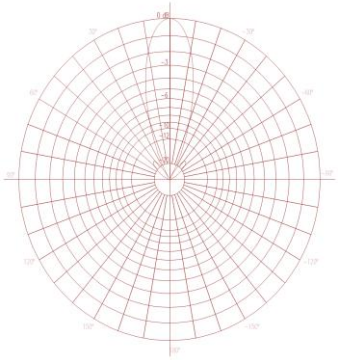
Engineering – System Optimisation

Transmitter

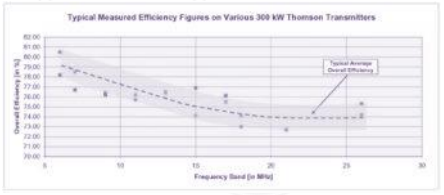
Feeder Lines

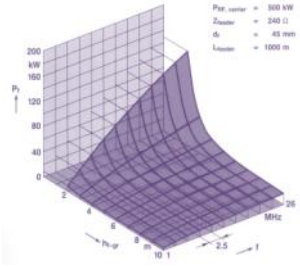
Antenna

Radiation



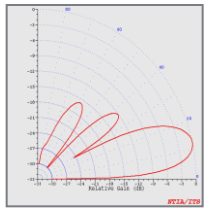
Perfect Coverage

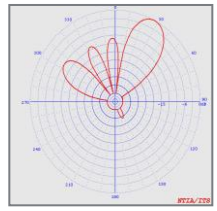




- ground losses
- ohmic losses
- Radiation losses

Reality with slewing "rotating beams"





η TX	η Feeder	η Antenna	η Radiation	η Total
Modern TX: 75 to 80 % Older TX: 50 to 55 %	Best: 95 % Very Often: 70 %	Best: 98 % Very Often: 95 %	Perfect Design: 99 % With Shielding: 70 %	Best: ~ 70 % Very Often: ~ 25 %

System Efficiency = $\eta_{Transmitter} \times \eta_{Feeder} \times \eta_{Antenna} \times \eta_{Radiation}$

- technical standard available and confirmed by ITU and ETSI
- transmitter developments are done and implemented for DRM30
- Various LW / MW / SW transmitter versions and power levels are available
- Shortwave stations mainly are equipped with one DRM30 system

AM Sound

DRM30 Sound

DRM Multimedia Applications

- Text Messages
  - Programme accompanying labels (Unicode)
- EPG
  - Electronic Program Guide. What's up now & next; Search for programs and schedule recording
- Journaline
  - Text based information service (Unicode), supporting all classes of receivers, triggers interactivity and geo-awareness
- MOT Slideshow
  - Programme accompanying images + animation
- TPEG / TMC Traffic Information.

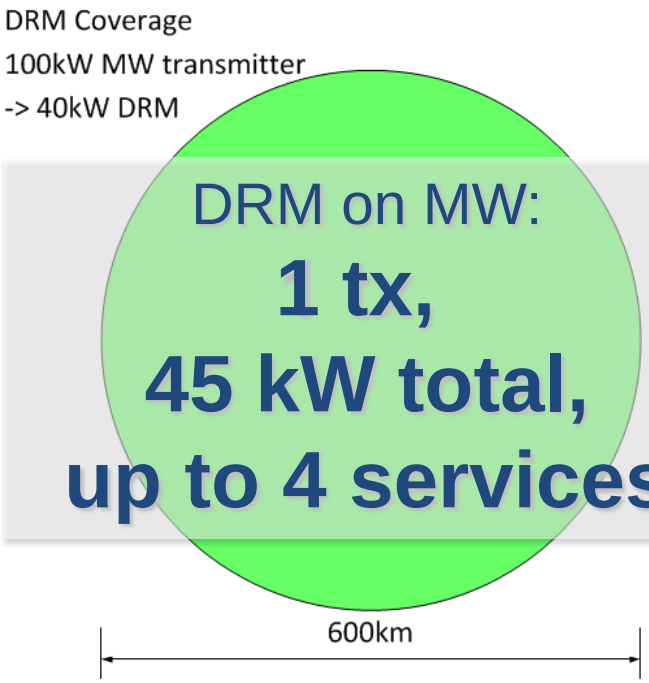
NewsService Journaline®

- Who is responsible for the additional data input ?
- How to coordinate new responsible input to the broadcast chain?
- The broadcast chain is now more complex compared to the former pure AM audio situation.

DRM+ Sound 5.1

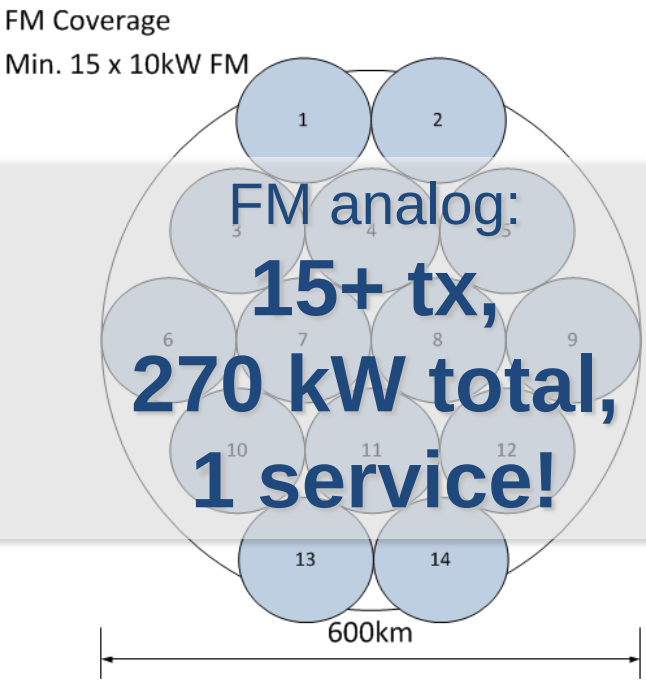
Same Coverage – FM vs DRM30

DRM: 1 tx



40kW @ 90% efficiency
→ 45kW (up to 4 service)

FM: min 15 tx



150kW @ 55% efficiency
→ 270kW (+ modulation)

- The quality and content matter and count for the user.

- Complexity need to be observed for the transformation.
  Change from AM to a DRM system on air

- DRM30 and DRM+ linking
  additional coordination between AM Broadcaster and FM Broadcaster
  This is not yet existing!

- Other authorities (traffic or security) need to be involved for the broadcast.
  More complex arrangement need to organised and coordinated.