

Recent DRM developments and the Receiver market

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International big developments:

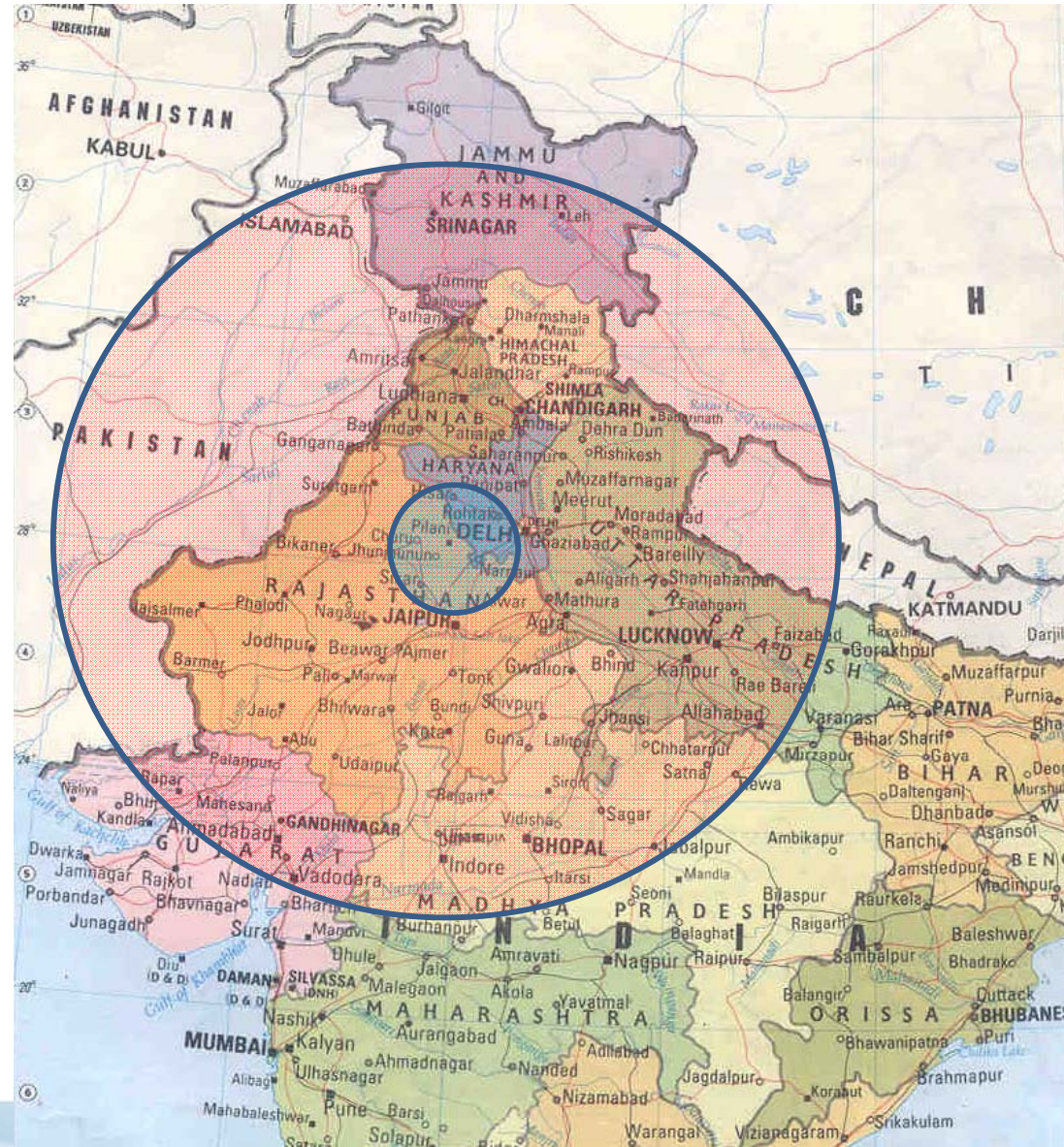
- **Russia:** The Russian Radio Frequency Centre, **decided to introduce DRM in the MW and SW (decision no N 09-01-05 on 20 January 2009).** During IBC 09 Alexander Zharov, Deputy Minister of Telecommunications and Mass Communications of Russia, announced that DRM is their chosen radio technology for digital change-over **in a phased manner from 2009-2015.**
- **India:** State broadcaster All India Radio (AIR) decided that **DRM is the best technology for converting its vast public service broadcasting network to digital.** AIR is converting 4 shortwave transmitters (250 kW) to DRM mode and there are plans to introduce DRM transmissions in 34 new medium wave, 36 existing medium wave and 5 new short wave transmitters.
- **Brazil:** Included **DRM as a platform under consideration for a 180-day public consultation period in establishing national digital radio standards.** The announcement **came during ABERT Congress in Brasilia in June.** DRM is being considered alongside other standards in order to get best option for the country's future digital radio infrastructure.

More Broadcasts:

- BBC and Deutsche Welle (DW) launched a DRM channel for Europe in Dec 2008.
(An 18-hour daily broadcast of the best international programmes in English, the channel covers much of western Europe - France, Germany, Belgium, Netherlands, Luxemburg and other adjacent countries. It is available from early morning (06:00 CET) till late at night (24:00 CET) on SW and on 1296 MW.)
- Rádio e Televisão de Portugal (RTP) with DW started a DRM shortwave tx to Central Europe on 31st January 2009 (the RDP International channel is available on Saturdays and Sundays from 09:30 UTC to 11:00 UTC on the frequency 9815 kHz.)
- TDPradio, the Belgium-based dance music station started its channel for Asia using DRM in July 2009. (This station will broadcast from 0700-0800 UTC on 17755 kHz everyday across Asia. The transmission originates from Darwin, Australia via CVC Network Ltd.)
- AIR started regular DRM transmissions daily SW tx from New Delhi in January 09
(Approx five hours of transmission are beamed towards listeners in the UK and Europe between 2315 to 0400 IST on 9950 KHz, with an additional three hours of local tx within India from 1430 to 1730 IST on 6100 kHz.)



BBC-DW DRM Channel for Europe



DRM+

- DRM+ was presented to a select audience in Hannover, Germany, on 19th August 2009.
- DRM+ was successfully demonstrated in Paris on Thursday, July 16th 2009. A DRM+ signal was broadcast in band I on 64.5 MHz from Tour Pleyel, in the North of Paris
- The DRM system enhancement was approved by ETSI. The DRM system revision v3.1.1 had two major improvements - extension to all broadcast bands up to 174MHz and the introduction of MPEG surround support. The DRM system specification was revised to incorporate an additional mode designed for the lower VHF band (i.e. broadcast frequencies between 30MHz and 174MHz) allowing operation in bands I and II (the FM band). This standard enhancement is called DRM+.

DRM Receiver Market:

DRM Receivers have faced the classic chicken and egg story

Where are the
affordable
receivers?

Where are the
Broadcasts?



BROADCASTERS

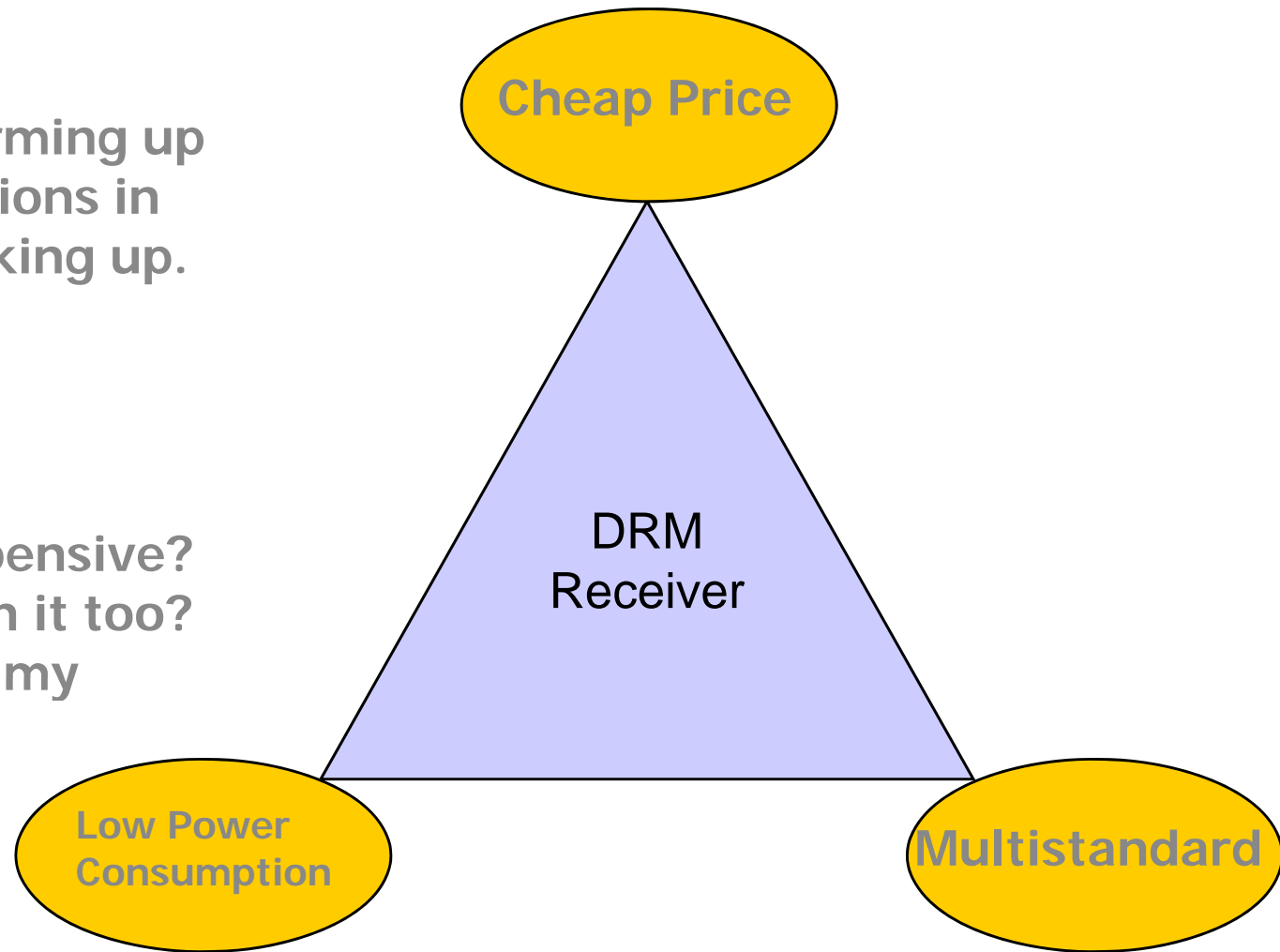
MANUFACTURERS

Broadcasters' Demand:

With broadcasters now firming up plans and more transmissions in the air, the demand is picking up.

We get queries:

- Where are the radios?
- Why are they still so expensive?
- Do they have FM/DAB on it too?
- How is it different from my present radio set?



The Manufacturers' view:



UniWave
Di-Wave 100 DRM Radio Receiver
Digital Radio Mondiale

Watch and Hear Digital Radio

DRM FUNCTIONS

- Station name, program information
- Journaline *
- MOT Slideshow
- Listening time shift: 10min
- Alternative Frequency Switching

RADIO RECEPTION

- DRM on shortwave, long wave and medium wave
- FM - RDS stereo on phones
- 768 Station memories
- 256 DRM/256 FM/256 AM

MULTIMEDIA

- MMC/SD card reader
- USB connection
- MP3 playback
- MPEG4 playback
- Photo Album Viewer

OTHER FEATURES

- 3.5" TFT LCD display
- Multi-language graphic User Interface English, Chinese, German, French, Spanish
- Time/date
- Headphone Jack
- External antenna socket
- Swivable Telescopic antenna
- Speaker: 3" - 1 W

POWER SUPPLY

- AC adapter: DC 6V
- 4x1.5V (R14, UM2, C)
- Time Battery Back-up 3V (CR2025)

DIMENSIONS

- 125mm (H) x 65mm (W) x 232mm (L)

700 DRM channels worldwide

DRM Journaline *

DRM broadcast pictures

Contact:

UNI-WAVE Development SAS
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Uniwave: 3,5" color screen, Journaline, SD card, music, videos, time Shift.
(Its second production lot of 1000 pcs to be available by end of February)

Himalaya: The current DRM2009 model supports DRM/DAB/AM/FM, with SD card support for stereo listening.

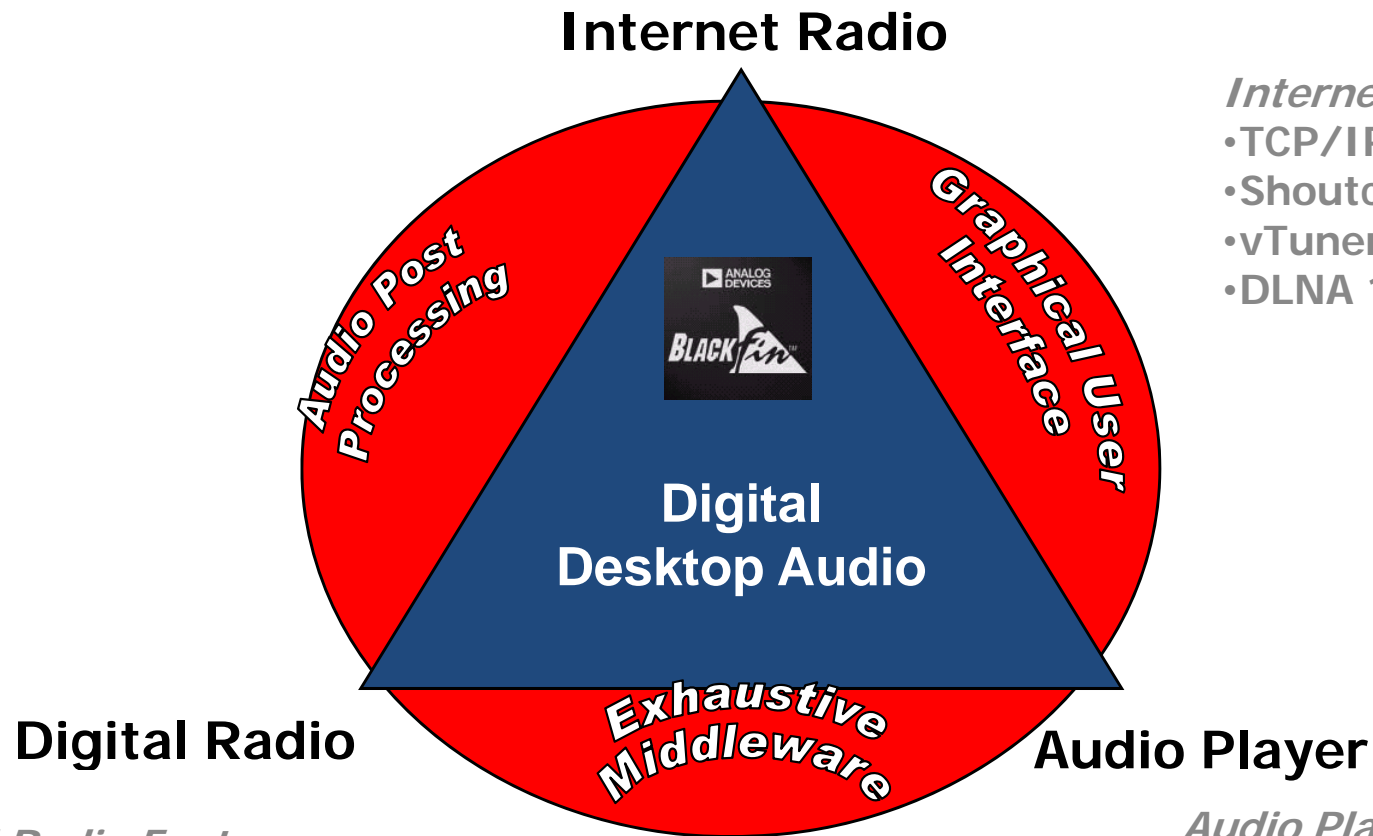
Manufacturer's Feedback:

- When would more broadcasts be available ..
- What other content would be there (pictures , data etc) ...

According to Uniwave " *The market has changed. Earlier this year, the request was DRM . Now starting in August, and depending on the area , the request is DRM and DRM+ ; or DRM with DAB+ (Australia , Scandinavian area).*"

According to Himalaya: " *We are motivated to evaluate many alternative solutions and plan to put that into productions by confirmations in terms of the technology readiness and market demand. We have many years of testing and perfecting the units before massive productions and we seek to contribute in a significant way to the different roll-outs all over the world. We think this kind of global cooperation is key to success for DRM, which is an international standard.*"

The Manufacturer:



Internet Radio Features:

- TCP/IP protocols
- Shoutcast
- vTuner
- DLNA 1.0 & 1.5

Digital Radio Features:

- DRM, DRM+**
- DAB, DAB+ & T-DMBA
- AM/FM
- Middleware

Audio Player Features:

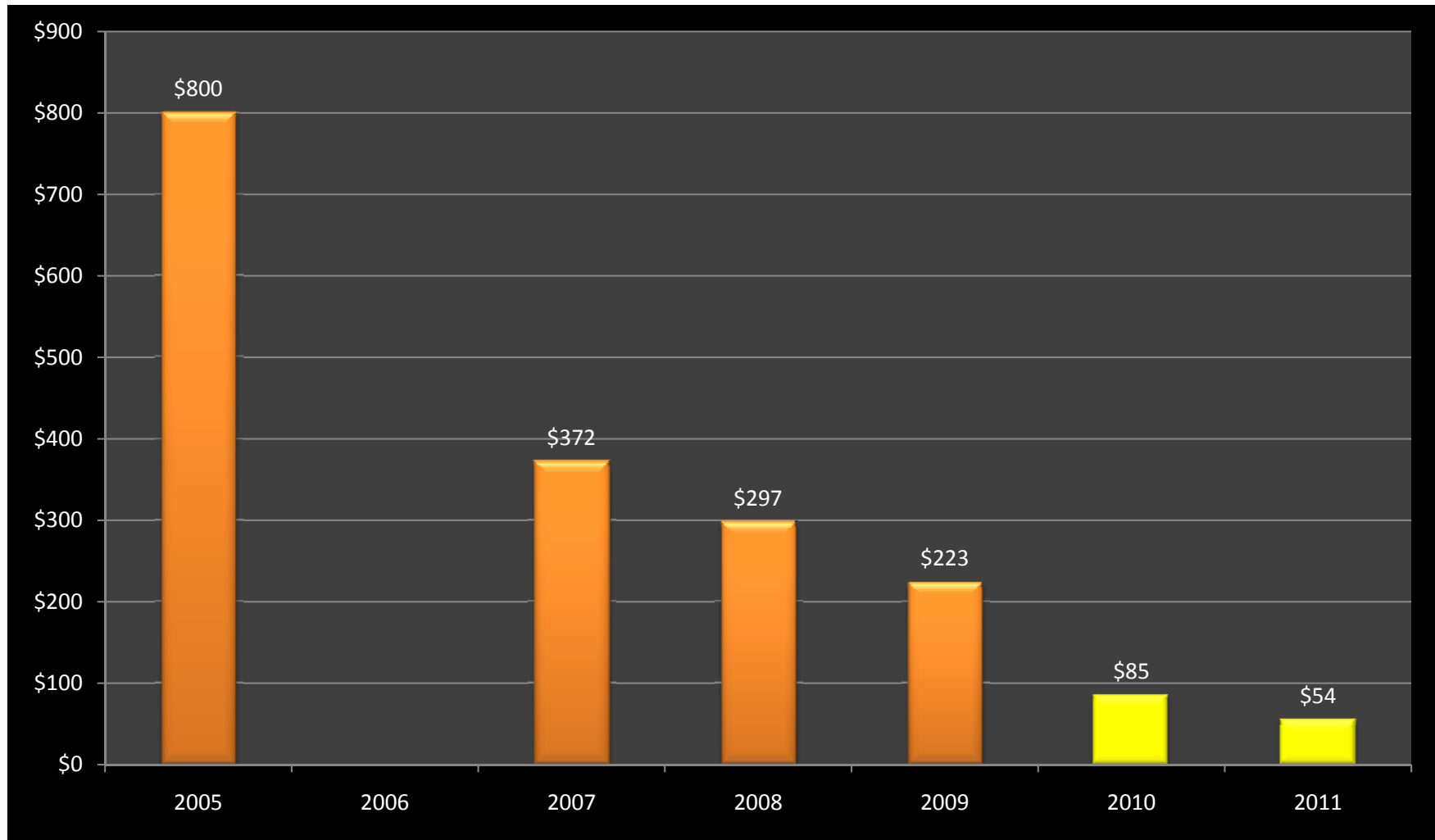
- Plays from SDCard, USB, HDD, CD Player
- MP3, WMA, AAC, Real, Ogg Vorbis, FLAC, etc.
- CD Ripping

Design can be used in a Variety of Products

Kitchen Radios
Boom-boxes
Hi Fi Systems
Clock Radios
Portable Players
Mini Systems
Micro Systems
AV Receivers
Car radios



DRM Receivers' Cost



Actual street price



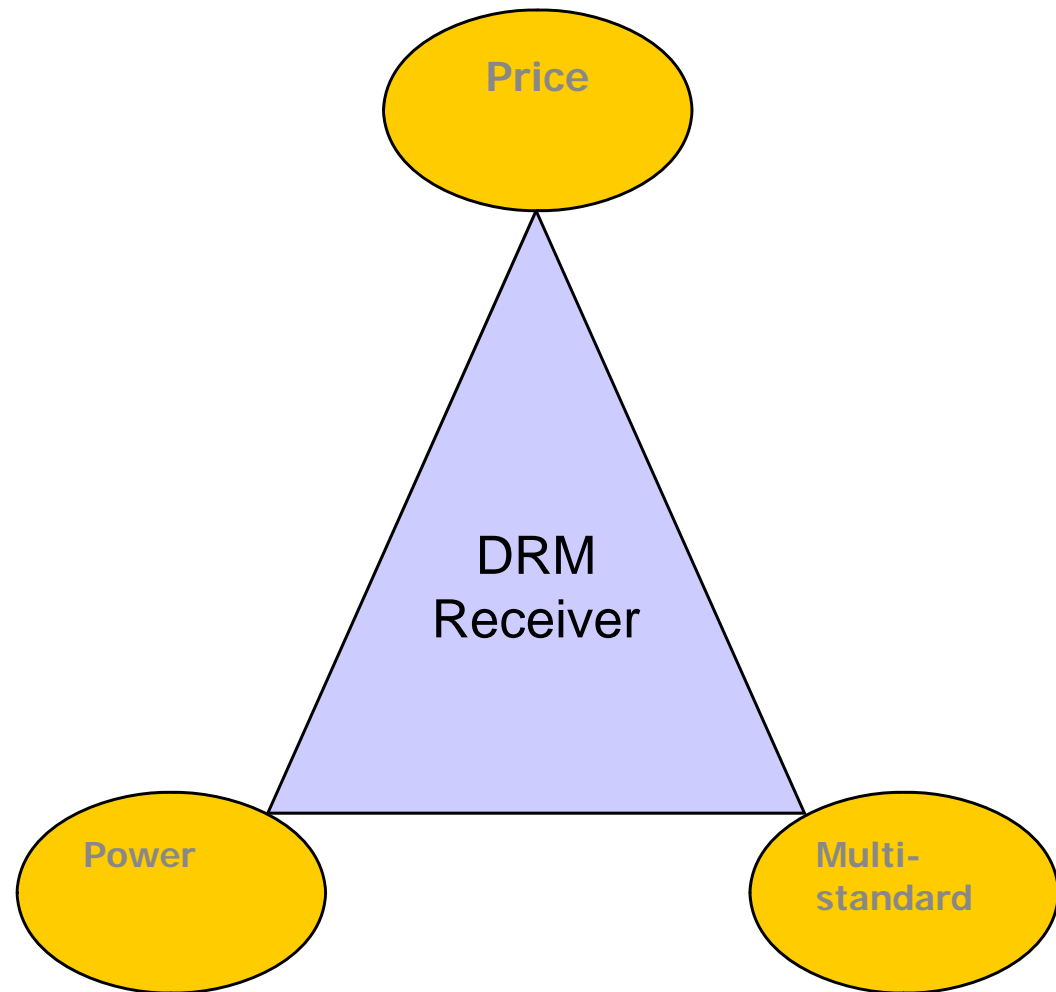
Estimated future price

How the cost can go down:

- **Firm Broadcast plans** and launch with a **critical mass of services on the air**
- **Lowering the cost of the chip-set/processor:** As an example, ADI plans to introduce the next generation radios that will have a very low cost tuner by early 2010. Target to reach an electronic Bill of Materials (eBOM) of ~\$ 20. By early 2011, lower cost DSP processors will enable reduction in eBOM cost further
- Encouraging **local radio manufacturers** for individual markets.
- The introduction of **simple and sophisticated variants** of the receivers – one with basic functionality needed for rural areas and one with attractive add-on features.
- **Subsidies** by NGOs or governments or other bodies which support radio and see it as a platform to reach huge masses of population without the dependence on electricity or internet.

In Conclusion:

- The DRM technology is spreading.
- Broadcasters need to increase transmissions and inform listeners.
- Manufacturers need to react to the demand and supply the market.
- The DRM Consortium provides the forum for exchange of ideas and spreading information.
- We need support from organisations like the EBU and ABU in bringing the stakeholders together.



Thank you

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