

The importance of UHF Spectrum for DTT and European Consumers

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Represents Terrestrial Network
Operators in 22 countries



BNE 16 members, 22 countries



Spain



UK



Czech Republic



Greece



Finland



Serbia



Italy



Norway, Belgium,



Croatia



Austria



swisscom

Switzerland



Romania



Italy



Ireland



*France, Germany, Estonia,
Hungary, Poland, Monaco*



*Sweden,
Denmark*

The issues – all connected to spectrum

- Is Digital Terrestrial Broadcasting (DTT) viable over time?
- Yes, 52% of European households, 275 million viewers, 2000+ channels.
- What about new services?
- SD channels will generally migrate to HD. 3D is on air. Ultra High Definition TV may be coming. Other new services underway.
- How much spectrum does terrestrial broadcasting need?
- Ch 21-60, 470-790 MHz. Current spectrum fully utilized in many countries.
- What about SFNs?
- Regional SFNs in widespread use. National SFNs will be a compromise.
- Is the high tower infrastructure viable?
- Yes. It is the most cost efficient way of mass media delivery.

The issues – all connected to spectrum

- Will LTE be able to provide linear broadcast?
- No. Any cost optimized cellular network struggles to deliver the consumer experience typical of traditional broadcast networks.
- Can DTT use to more efficient broadcast technologies?
- Yes, introduction of new technologies can primarily be expected to go hand in hand with the introduction of new services, such as HD. Possible change is also subject to spectrum availability. Migrating already existing services is a more complex issue.
- Can broadcast services provide offload for mobile networks?
- Yes, high consumption video and news is readily available on broadcast networks subject to access to the mobile device.
- Really, how much of mobile broadband is “mobile” and how much is WiFi?
- Fixed networks and WiFi will carry the bulk of traffic to small screens.

DTT is a Great European success story (1)

- The European DTT standards are the most widely accepted in the world (Europe, Russia, India, Thailand, Australia, Africa ..).
- More than 1 billion TV receivers with integrated DTT tuners are now in use.
- DTT is now launched in nearly all EU member states.
- The Terrestrial Broadcast industry is investing and continuously optimizing its network design to efficiently utilize the spectrum available based on GE06. Substantial investments have been made to clear the 800 MHz band.
- Development of networks and services will continue in cooperation with Broadcasters taking account of technical enhancements. DTT is continuously innovating. HDTV and Connected TV are already growing and we can see 3D and UHDTV coming pending availability of spectrum.
- DTT networks now serves some 2000 TV channels, about 50% of European households with 275 million viewers, each spending some 4 hours watching linear TV every day.
- In addition, secondary TVs rely on DTT.
- European consumers have embraced DTT and are investing in new receiving equipment.

DTT is a Great European success story (2)

Low cost , easy access, popular and important for content creation

- Low cost for media delivery. Network cost is typically between € 0.2-1 per household per month for up to 60 channels distributed 24/7.
- Per channel distribution cost can be as low as € 1c per household per month.
- Very easy access for consumers and no cost at point of consumption of a wide offering of free-to-air content.
- In some member states low-cost and premium subscription TV have been successfully introduced in the DTT networks.
- Linear TV consumption is increasing at all age categories.
- DTT is a part of the Audiovisual Ecosystem and a key pillar for European content creation.

- Viewing figures and delivery models.

Type of content	% of viewing time	% delivered by Broadcast	% delivered by The Internet
Linear	98%	>96%	<4%
On-demand	2%	<4%	>99%

DTT and the Importance of Spectrum

- DTT depends on UHF spectrum for provision.
- Consumers and the Broadcasting Industry have made substantial efforts and investments in the Digital Switchover and in making the 800 MHz band available for other services than TV.
- Currently available spectrum for DTT is fully utilized in many countries.
- Migration to more efficient technologies for DTT is underway to meet demand for additional and higher higher bandwidth services, e.g. HD.
- The 700 MHz band represents 30% of available spectrum for DTT. Any changed use would imply severe constraints for service delivery, prevent innovation and technology migration, require a long time to re-plan current usage and demand very significant investments for Consumers and the Broadcast Industry.
- The emerging discussion on the long term use of the whole UHF TV spectrum is a threat and may lead to a regulatory induced failure of DTT. This is not in the interest of the European Consumer.

Data traffic comparison

DTT networks vs Cisco Mobile Traffic Forecast

Data Traffic Consumed 2013 from DTT Networks for ONE standard Definition Television channel across EU27.

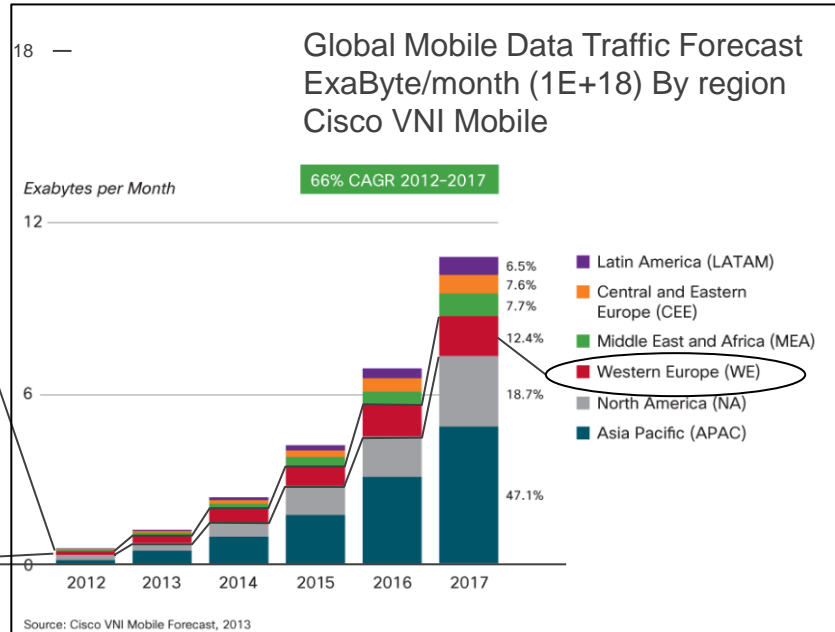
120 mio households
4 hours per day.
(A conservative estimate)

The conclusion is that the mobile networks will never be used for wireless delivery of linear television to large screens.

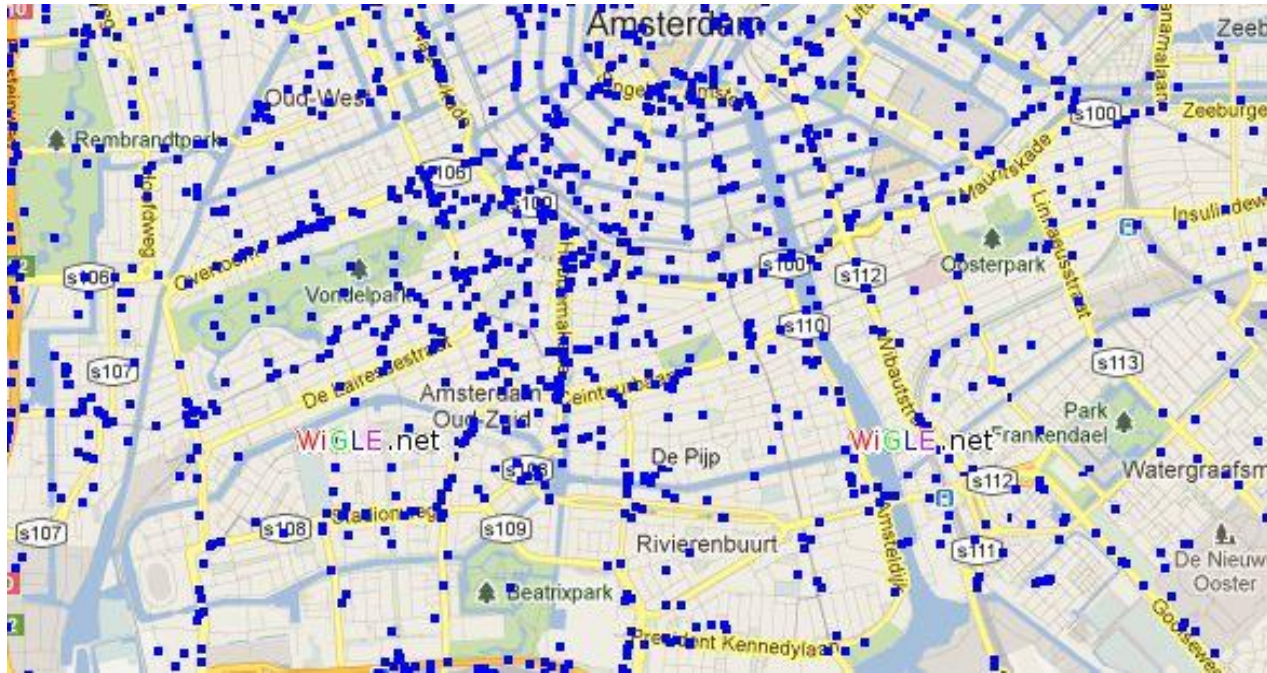
19,4 EB/month



2013



GSM Base stations in central Amsterdam



Source: www.wigle.net

Actually recorded WiFi networks along streets in central Amsterdam



Source: www.wigle.net

A sustainable DTT Future



How to migrate all channels to HD?

How to introduce T2 and other technology improvements gracefully?

Which other services can add value for consumers and broadcasters ?

What decisions on future spectrum use will be made on European level?



**DTT is a European Success Story – 275 million consumers – 2000 TV channels
Platform and consumer investment underpin spectrum efficiency gains and
competition**

**DTT's political and social impact has been overlooked – inclusion in the Digital
Agenda is imperative**

A sustainable DTT future = Certainty of Spectrum Access