INTERNATIONAL DMB
ADVANCEMENT GROUP

Creating one global DMB market


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T-DMB is **NOT** a standard only for Korea.

LG has just announced another Digital Multimedia Broadcasting (DMB) mobile phone LB1700 in Korea. While DMB has yet to start in most part of the world, Korean got the chance to enjoy the new mobile technology before others.

South Koreans will soon be able to make purchases with nothing but their phone as KT introduced the country's first NFC (Near Field Communication)-enabled device – Samsung SHW-A170K, which uses NFC compatible USIM.

The new contactless card will allow folks to buy such items as tickets, gift cards and food, with companies like GS Caltex, Lotte, Dunkin' Donuts and Baskin Robbins announcing their support for NFC payments.

Specs wise, Samsung's baby is an all-touchscreen phone, sporting a 3-inch WQVGA display, 3-megapixel camera, Bluetooth 2.1, GPS and of course (for South Korean mobile market) a T-DMB mobile TV receiver. Pricing was not unveiled but something tells me we're not talking about a super-expensive piece of technology here.

THE KILLER APP

Radio.

DMB also **INCLUDES** DAB and DAB+.

DMB, DAB and DAB+ services are live in **36 countries** on 4 continents.

200 000 000 people will have access to DMB, DAB and/or DAB+ services in 2011 (not counting Korea).

miniTV

TV:

NRK1 NRK2 NRK3 NRK super 3 2 2 NYHETSKANALEN

DAB-Radio:

P4 NRK P1 NRK P2 NRK P3 NRK ALLTID NYHETER mP3 NRK super

NRK GULL NRK SPORT NRK KLASSISK NRK JAZZ NRK BÅTVÆR NRK FOLKEMUSIKK NRK SÁMI RADIO


SAS

Required handsets

- Support for DMB, DAB and DAB+
- Return channel (GSM, 3G, WiFi)
- Open OS (i.e. Android)
- Open API to DMB
- Band 3 and L Band
- Software based CAS (DigiCAP)
- A variety of models in different price ranges.

Identity Tab from Enspert (The ’other’ Korean tab)

Opens up for:

Touch screen shopping
Voting for radio and TV shows (i.e. American Idol)
Connection to social media (i.e. ’I like this show’)
A trigger of on demand programmes

Content is king.

Combination is the new king.

One CAS for all DMB countries

IDAG organized an RFP for CAS in late 2009. 12 companies from three continents took part.

DigiCAP was finally selected in July 2010.

Software based, low bandwidths, proven track record.

Solution has been tested and will be implemented Q1, 2011, first in Norway and Netherlands.

One CAS everywhere will lower costs and create one market for terminals.

DigiCAP®

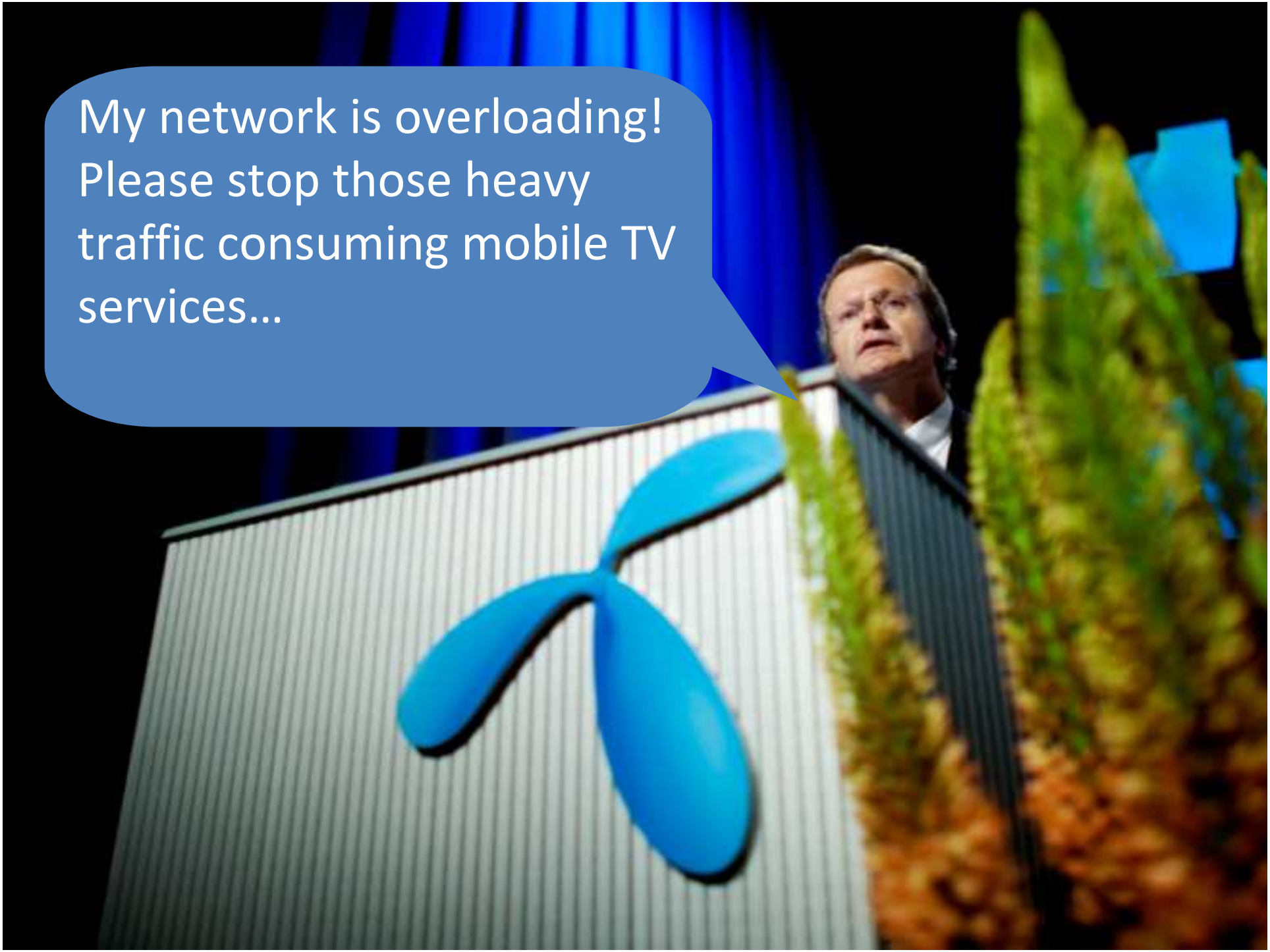

84 I 84 EB
Century Way
Exit 50B Cole Rd
W Spectrum S
S Cole Rd
SE
171
miles
758 M
12:33 hrs
10:26 pm
11:00 am
71 mph
I 84 EB Ogden
P4: Ulykke på E6 sør for Verdal. Lange køer.
Abonnér (19,- per måned)
Anycall
SHOW


Sverige
Sweden
Suomi
Finland
Norge
Norway
B
Bergen
Uppsala
Helsinki
Sankt-Peterburg
Tallinn
Stockholm
Eesti
Estonia
Göteborg
Latvija
Latvia
Moskva
Glasgow
Edinburgh
Danmark
Denmark
Malmö
Lietuva
Lithuania
United
Kingdom
Belfast
Gdańsk
Minsk
Vilnius
Mogilev
Liverpool
Manchester
Hamburg
Kiel
Szczecin
Беларусь
Belarus
Ireland
Cork
Birmingham
Bremen
Berlin
Gomel
Nederland
Bydgoszcz
Polska
Poland
London
Hannover
Bristol
België
Belgique
Belgium
Deutschland
Germany
Dresden
Kraków
Kiev
Kharkov
A
Česká Rep
Czech Rep
Frankfurt
am Main
Ostrava
Le Havre
Paris
Reims
Україна
Ukraine
Dnepropetrovsk
Slovensko
Slovakia
Rennes
München
Wien
Strasbourg
Österreich
Austria
Moldova
Donets'k
Nantes
Bern
Zürich
Magyarország
Hungary
Zaporozhye
France
Lyon
Milano
Zagreb
Belgrade
România
Odessa
Torino
Hrvatska
Croatia
Bucuresti
Bordeaux
Montpellier
Nice
Genova
Србија
Toulouse
Italia
Italy
Sarajevo
Serbia
Marseille
Skopje
България
Bulgaria
Barcelona
Roma
Napoli
Bari
Samsun
Porto

Telecom operators to broadcasters (2008).


We need more traffic in our networks to make money! Give us a lot of mobile TV. Live, on demand, all kinds of content. Now!

Telecom operators to broadcasters (2010).


My network is overloading! Please stop those heavy traffic consuming mobile TV services…

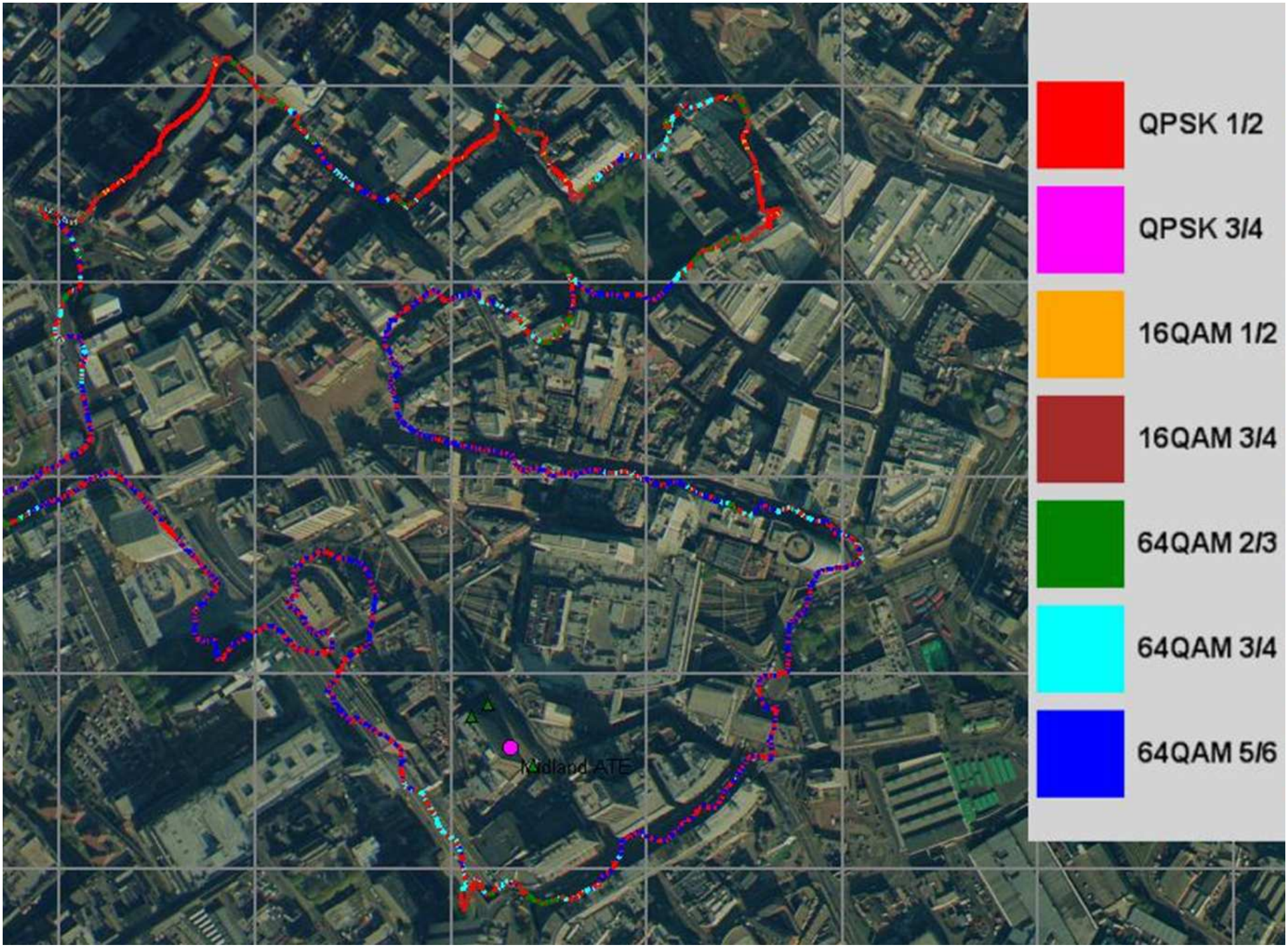
But LTE will solve all the problems.

(Won’t it?)

Bit rates for a channel given completely over to a single modulation scheme

Mod.	Code Rate	5 MHz Channel		10 MHz Channel	
		Downlink Rate, Mbps	Uplink Rate, Mbps	Downlink Rate, Mbps	Uplink Rate, Mbps
QPSK	1/2 CTC, 6x	0.53	0.38	1.06	0.78
	1/2 CTC, 4x	0.79	0.57	1.58	1.18
	1/2 CTC, 2x	1.58	1.14	3.17	2.35
	1/2 CTC, 1x	3.17	2.28	6.34	4.70
	3/4 CTC	4.75	3.43	9.50	7.06
16QAM	1/2 CTC	6.34	4.57	12.67	9.41
	3/4 CTC	9.50	6.85	19.01	14.11
64QAM	1/2 CTC	9.50	*6.85*	19.01	*14.11*
	2/3 CTC	12.67	*9.14*	25.34	*18.82*
	3/4 CTC	14.26	*10.28*	28.51	*21.17*
	5/6 CTC	15.84	*11.42*	31.68	*23.52*

arqiva


QPSK 1/2
QPSK 3/4
16QAM 1/2
16QAM 3/4
64QAM 2/3
64QAM 3/4
64QAM 5/6
Midland ATE

Live radio and TV via LTE (‘4G’)

40% of radio listening, outside homes (20+ hrs/month, 128Kbps)	1.09GB
11% of TV viewing outside homes (4+ hrs/month, 384Kbps)	0.74GB
Data per month	**1.84GB**
Price to telecom operator from each user	$95 - $395
Monthly price to telecom operator, all Norwegians (cheapest plan)	**$370 500 000**
Data traffic shifted per month	**6.8 Petabyte**
Monthly price to telecom operator from broadcasters ($0.04/GB)	**$297 662**
Data traffic shifted per year	81.7 Petabyte
Yearly price to telecom operator from broadcasters ($0.04/GB)	**$3 571 944**

LTE Network Costs

60% population coverage in the UK, LTE sites needed	6 000
90% population coverage in the UK, LTE sites needed	16 000
Cost to build each site	$250 000
Operating costs per site per year	$60 000
Investment	$4 000 000 000
Operating costs per year	$933 000 000
Cost of money (2%), interest $113 million, 7 year payback linear depreciation:	$810 000 000
Cost per year to run network	$1 830 000 000

Assume 4 million customers, operator needs $550 revenue/customer to break even.

Will the network operator allow radio and TV consumption for

30 minutes to 3 hours per day for free?

Should broadcasting be
a part of the future?

Why not DVB-H?

1. There are no available DVB-H frequencies in several countries.
2. The frequencies used for DVB-H are anyhow wanted for HDTV in most countries.
3. DVB-H: higher frequencies, costs more, more difficult to build, uses more power.
4. DVB-T is built for rooftop reception, DVB-H needs to be built the same way or DVB totally replanned.
5. DMB is an open technology and is not tied to SIM-cards. DVB-H is currently found in phones.
6. Freedom of choice of receivers is important. The users should choose what kind of device they want, not be dictated by which phone models their telecom operators decide to subsidize.
7. DVB-H can be limited to certain phone models by the MNOs, for instance to only the 3 Nokia handsets that is subsidized.
8. DMB is a more robust technology and can handle high speeds and all sorts of weather. I have watched MiniTV in over 800 km/h in several airplanes up to 9km above the ground.
9. DMB is using the same distribution technology as DAB and DAB+, giving the audiences both radio and TV. In Norway there are over 20 channels available.
10. DMB supports a range of additional services that also works for radio.
11. There are many DMB devices available: mobile phones, GPS units, mp4 players, USB plugs, etc.
12. Poor availability of DVB-H devices and hardware problems with several of the few existing devices.
13. DVB-H is hard to make on the chipset side. One chip maker lost 20 million dollars on developments. And the aging handsets on the market are having hardware issues.
14. There are **ZERO** DVB-H successes in the world.
15. DMB is now being launched, tested or planned in many countries, something that makes receivers cheaper and opens up for experience sharing and the usage of the same applications and business models: Poland, Norway, South Korea, France, Netherlands, Italy, Malta, Ghana, Malaysia, Ireland, Vietnam, Cambodia, Singapore, Great Britain, Indonesia, Hong Kong, Egypt, China, South Africa, Mongolia.
16. Stelacon, a Swedish independent research institute, reported this to the Swedish government in 2007:
    - For 90% DMB coverage of Sweden only 2-300 transmitters are needed.
    - For only 25-30% DVB-H coverage of Sweden, 3,000 – 11,000 transmitters are needed.

    Similar figures have been presented for France:

    - DMB: 95% coverage to cost 2 million Euro per channel
    - DVB-H: 25% coverage to cost 8 million Euro per channel

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