

# ***BEING HUNGRY, NOT ANGRY***



**CLEC conference**  
*Spectrum for wireless broadband communications*

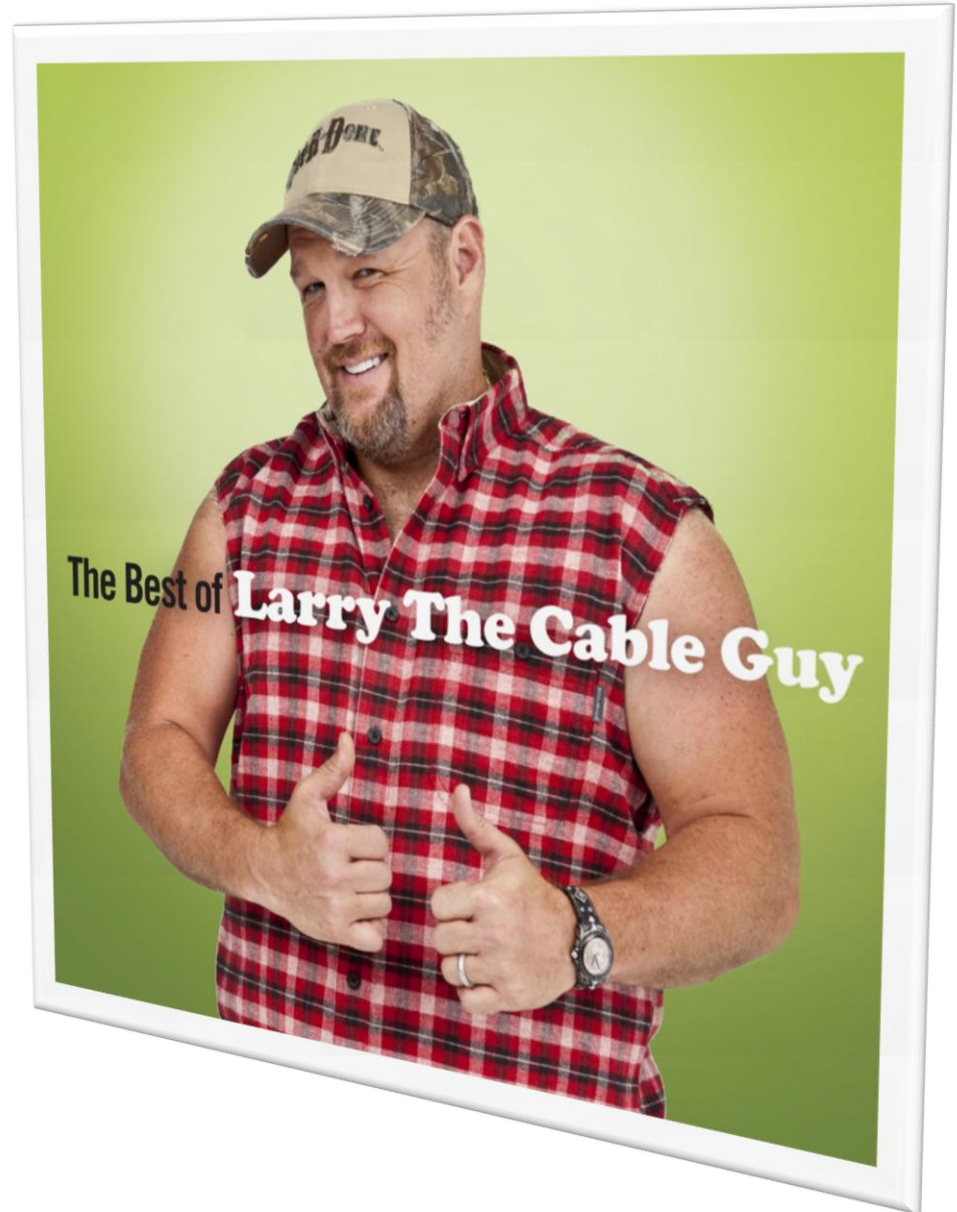
**14 December 2010**

**Thomas Nogues**  
*Director of Technology*  
*Cable Europe*



# AGENDA

1. Where is the Cable industry now?
2. What does Cable have to do with Mobile broadband?
3. What happened from a Spectrum standpoint?
4. What services/devices are likely to be affected?
5. What does Cable Europe suggest moving forward?





# Cable Europe



Kabel Deutschland



upc



Providing services to **72m** households  
(about 35% of European households)

**Broadband Internet**

> 100Mbps



**Cable TV**

DTV, VOD, HD, 3D...

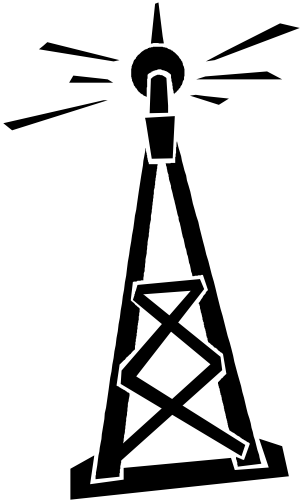
**Telephony**

VOIP

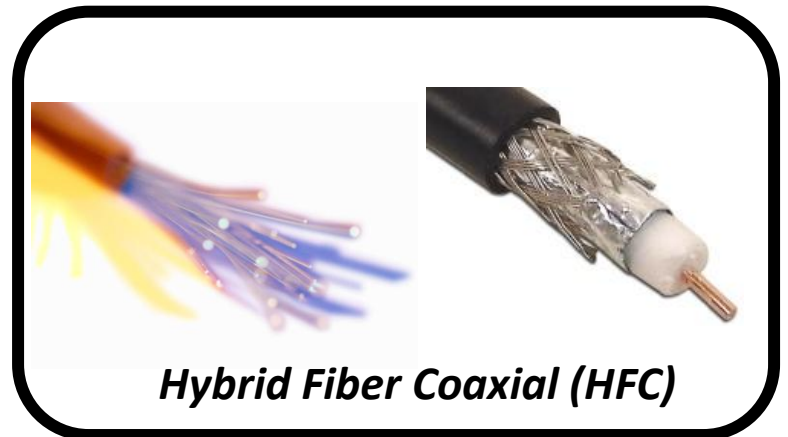
**€18bn** Annual Revenues

**€20bn** Re-invested in network and technology platforms during the last 5 years

# *What does Cable have to do with Mobile Broadband ?*

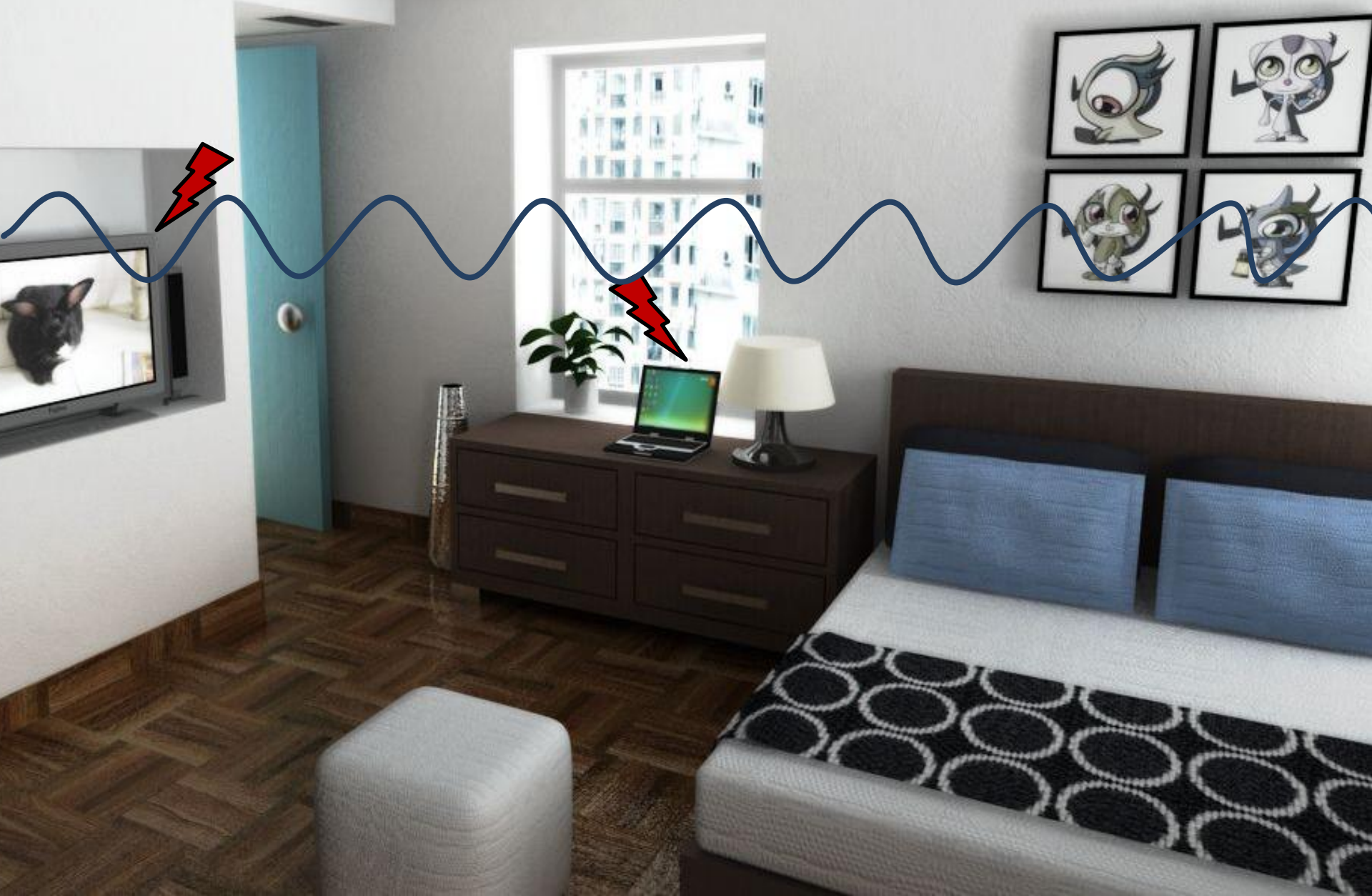


## Cable

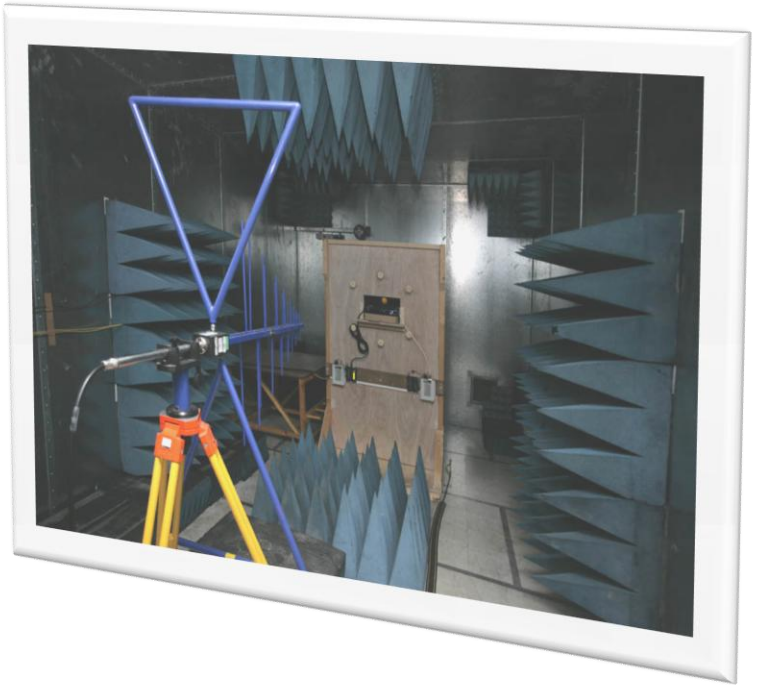


*Hybrid Fiber Coaxial (HFC)*

***Electromagnetic environment will change drastically***

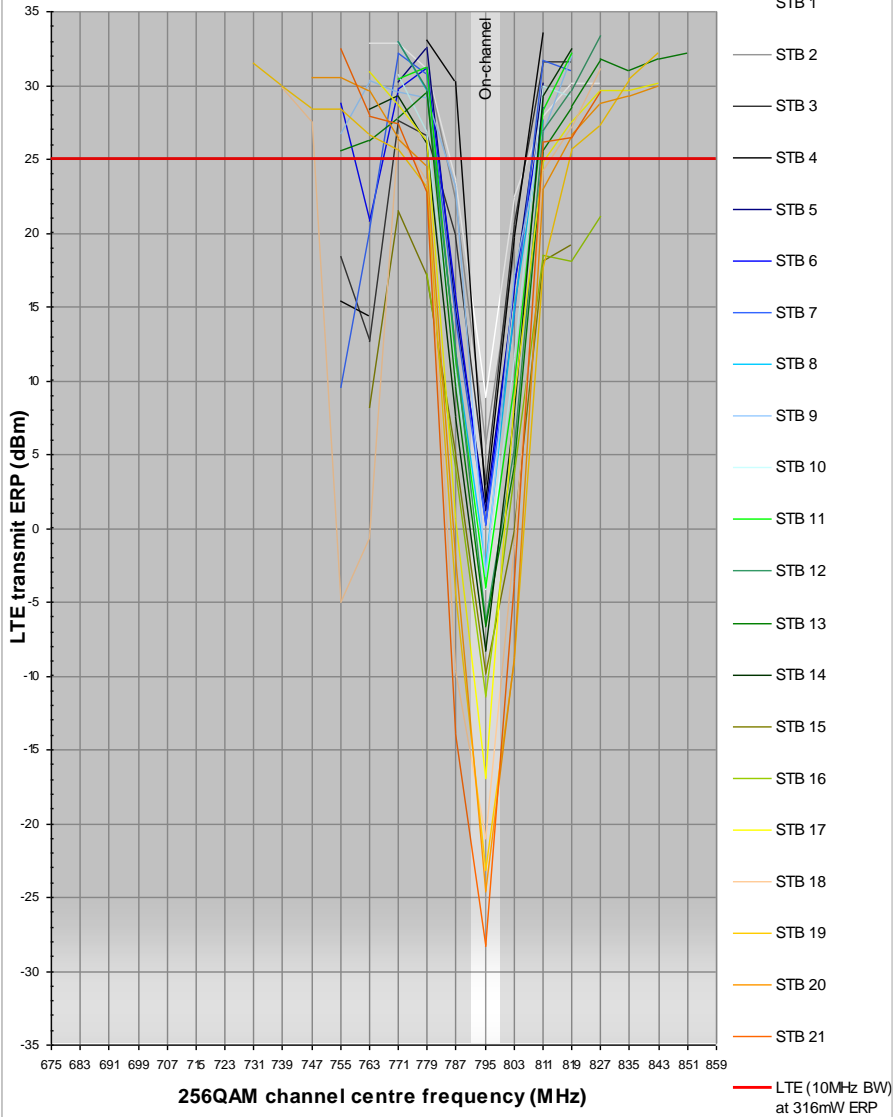


# STUDIES...

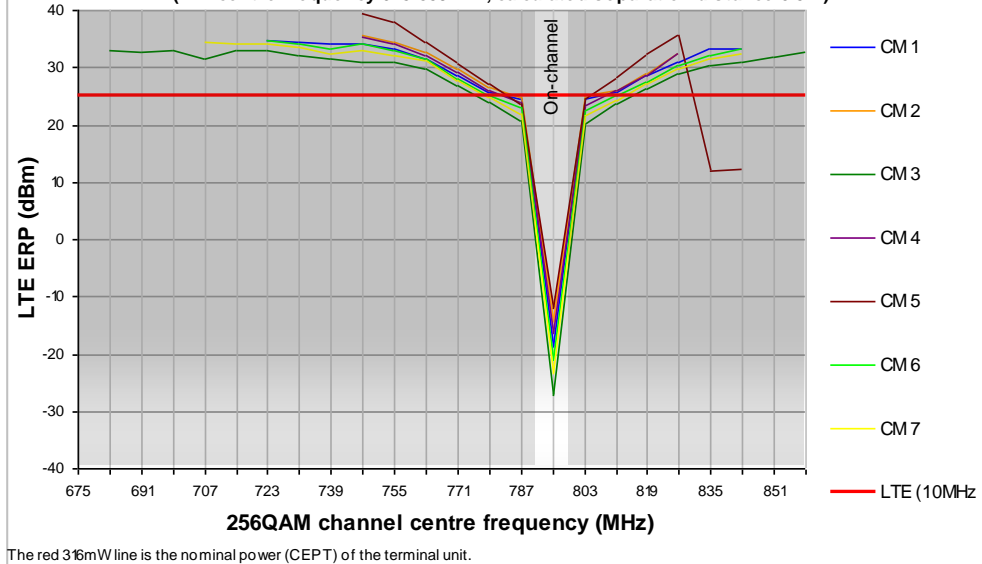


**DVB-C STB tests: Maximum LTE level permitting stable audio and video on 256QAM channels from 675-859MHz. STBs in representative networks, -10dBmV DVB-C input level (LTE centre frequency 795 MHz, calculated separation distance 0.5m)**

The red 316mW line is the nominal power (CEPT) of the terminal unit.



**Test 14: Maximum LTE level permitting stable data on a 256QAM channel at 795MHz. CM in representative networks, -10dBmV DOCSIS (Annex B) input level from cable (LTE centre frequency 675-859MHz, calculated separation distance 0.5m)**





***What happened from a spectrum standpoint?***

# Stakeholders

## Radio

Terrestrial  
Broadcast



Mobile  
Broadband



Cable services

## Cable



# The view of CEPT

## Radio

Terrestrial  
Broadcast



Mobile  
Broadband



Cable services

## Cable



# Extent of Interference

## Radio

Terrestrial  
Broadcast



Mobile  
Broadband



Cable services

## Cable



# Mitigation

## Radio

Terrestrial  
Broadcast



Mobile  
Broadband



Reduce  
power level



Cable services

Increase  
immunity

## Cable



# ***Cable customer services affected...***



**Television**

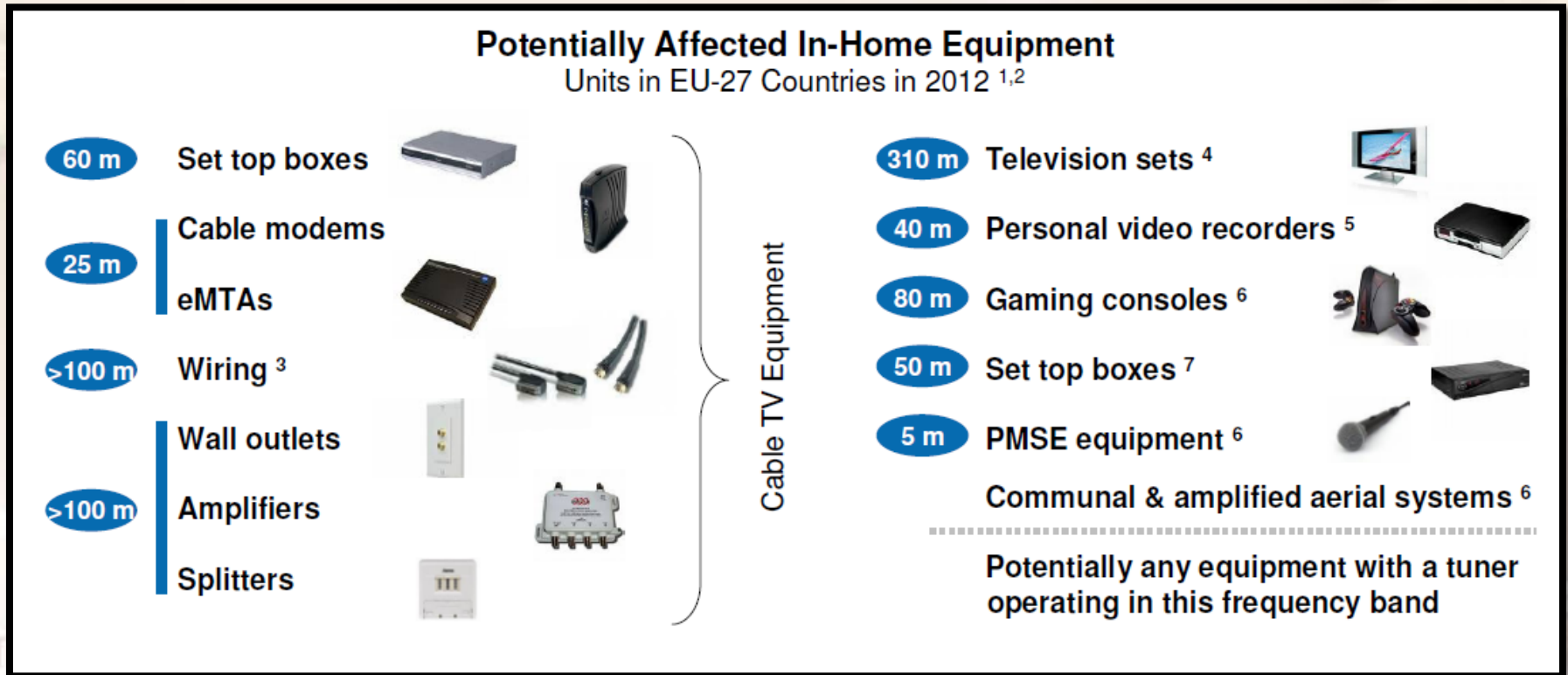


**Telephony**



**Broadband Internet**

# ... and potentially many consumer devices



- 1) Number of units estimated for 2012 when the roll-out of mobile broadband is expected to start; affected number of units depends on penetration rate of mobile broadband services
- 2) Tests with non-cable equipment still ongoing, only preliminary results available so far
- 3) Includes coaxial cables, HDMI cables, and scart cables
- 4) All kinds of TV sets, also including the newest flat screen TV sets
- 5) Personal video recorders (PVR) are partly supplied by the cable industry, e.g. in the UK about 10% of all cable customers received their PVR from a cable operator
- 6) Tests with gaming consoles, PMSE equipment as well as communal aerial systems are currently in progress, only preliminary results available so far
- 7) Additional 50m set top boxes for digital terrestrial television, potential interference with other set top boxes still investigated

# What does Cable Europe suggest moving forward?

## ➤ **Make sure it does not happen again**

- *Mandate CEPT to consider not only the protection of Radio services but of Cable services as well*
- *More collaboration between CEPT and Standards Organizations, more specifically establish a liaison with CENELEC*

## ➤ **Facilitate the introduction of mobile broadband for consumers**

- *Accelerate our work with manufacturers to increase the immunity of equipments*
- *Apply more restrictive power levels than CEPT 30*
- *Make some provisions from the auction proceedings in order to:*
  1. *Accelerate the introduction of increased immunity for consumer equipments*
  2. *Set up an independent authority to serve as a point of contact in case of interference issue*
- *Better coordination between stakeholders during LTE trials*