

# UWB

## Where to From Here?

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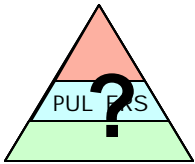
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# Current Situation

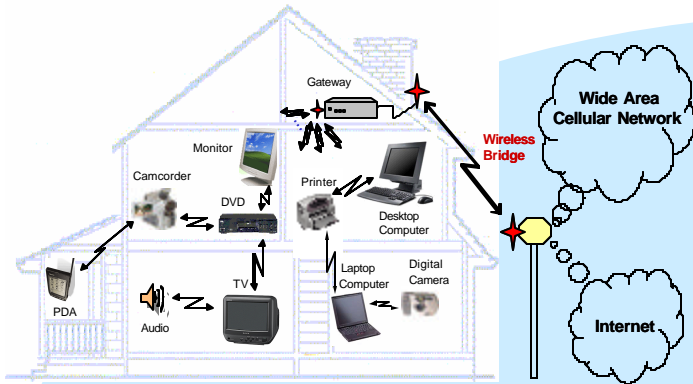


- IEEE UWB HDR Standardisation effort in deadlock
- Low Data Rate group making better progress
- Europe taking cautious steps – fears for existing systems
- PULSERS effort attempt to move ahead looking at best technology



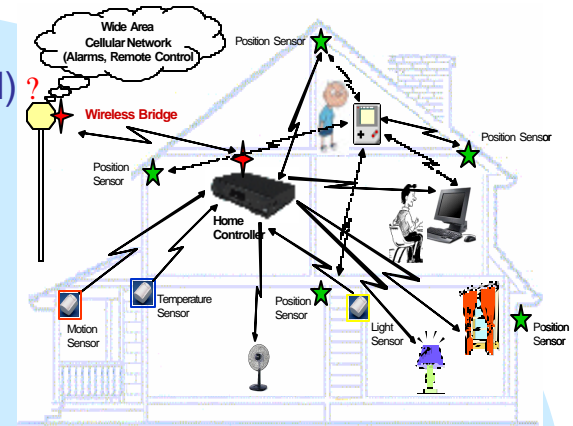
# Some Potential Application Scenarios for UWB Radio

## Pervasive Ultra-wideband Low Spectral Energy Radio Systems

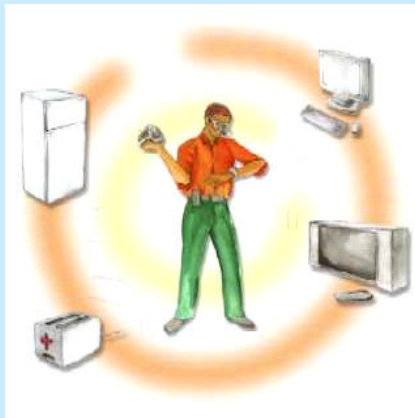


Intelligent Wireless Area Network (IWAN)

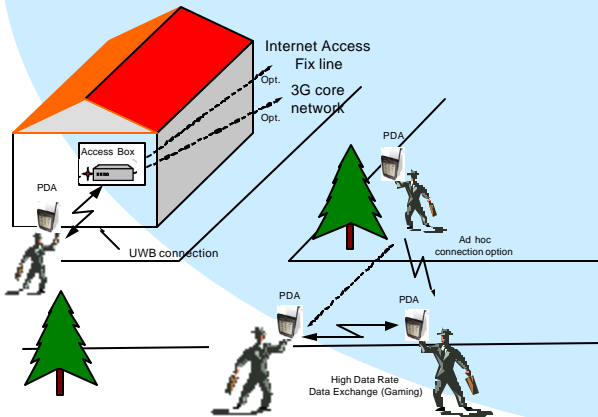
Wireless Body Area Network (WBAN)



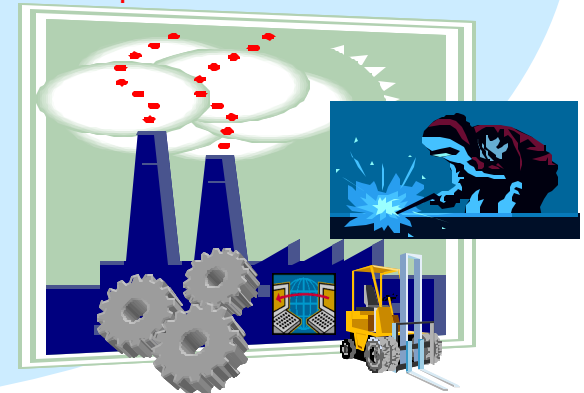
Hot-spot Wireless Personal Area Network (WPAN)

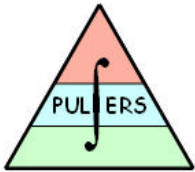


Sensor, Positioning, and Identification Network (SPIN)



Outdoor Peer-to-Peer Networking (OPPN)





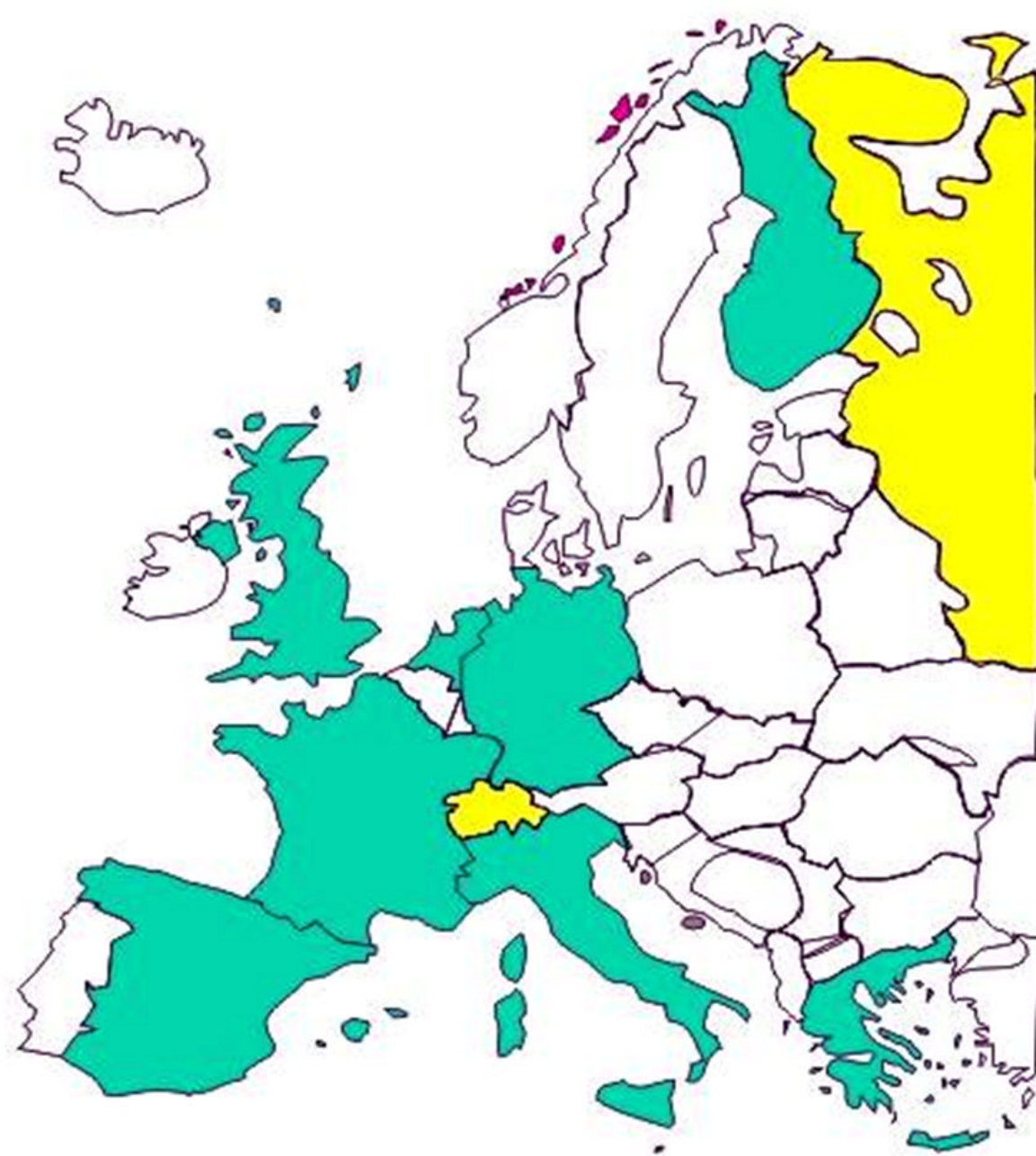
### **30 partners from 12 countries:**

- 23 partners from 8 EU countries
- 5 partners from associated countries
- 2 partners from third countries

56 People for 2 Years in  
First Project Phase (started 1.1.2004)

### **Industry Drivers**

IBM, Mitsubishi,  
Motorola, Philips, STM,  
Thales, Telefonica



# What are the challenges?



- Bringing science back into the debate
- Understanding what *acceptable* means
- Ensuring players know what is at stake

# What are we doing?



- Working to be technology agnostic
- Development of VHDR, HDR and LDR concepts for PHY and MAC
- Looking at location based services
- Coexistence Measurements
- Working towards minimum global standard

# Measurements with spectrum analyzer



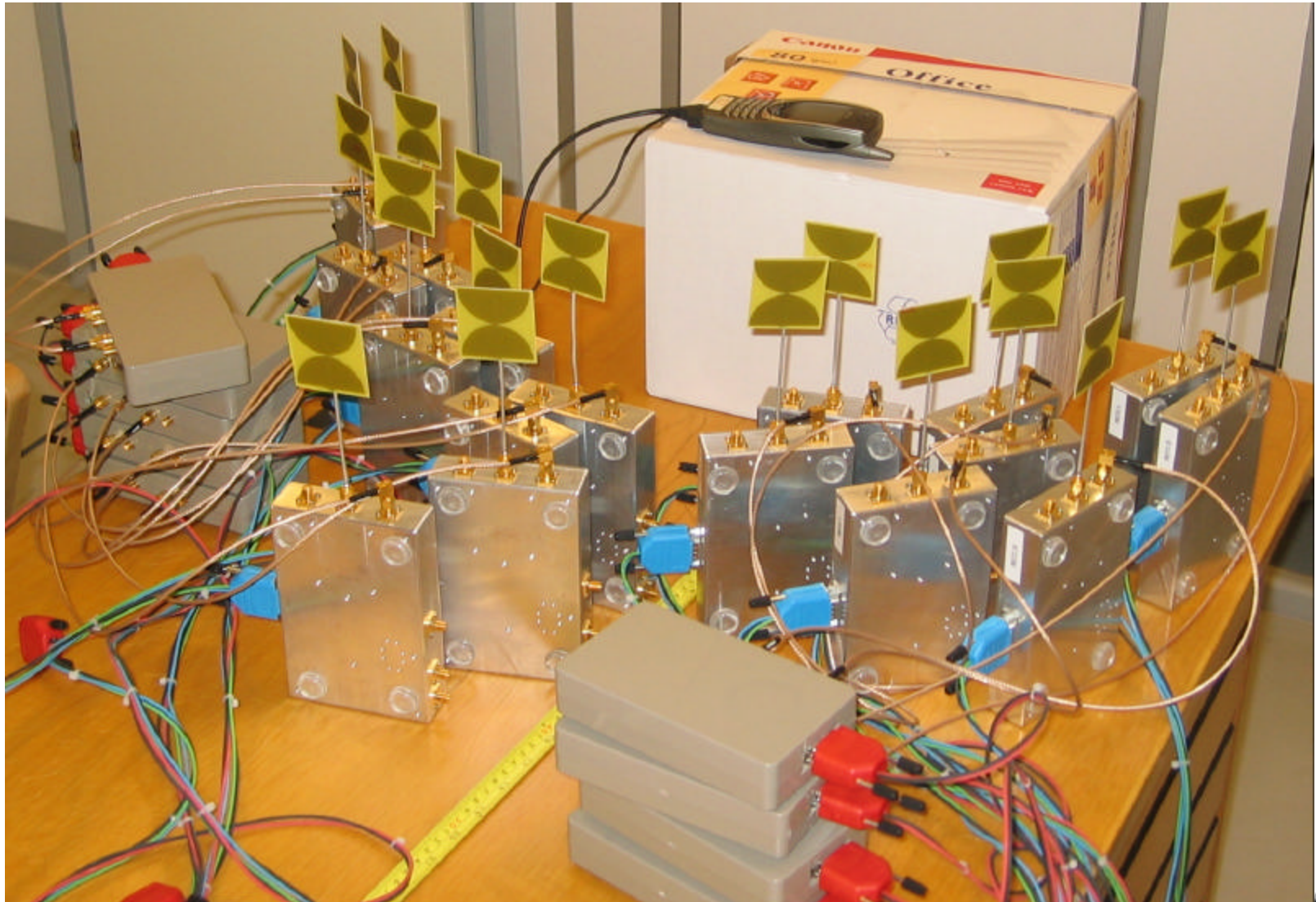
30/05/2005

VTC Spring 05, Stockholm

CWC Oulu

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# UMTS Measurement Setup

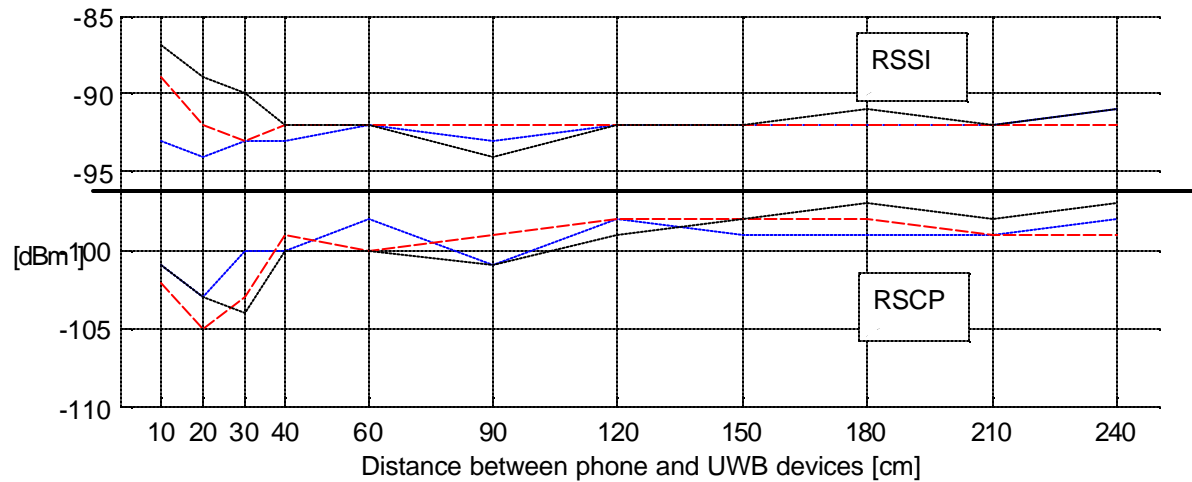
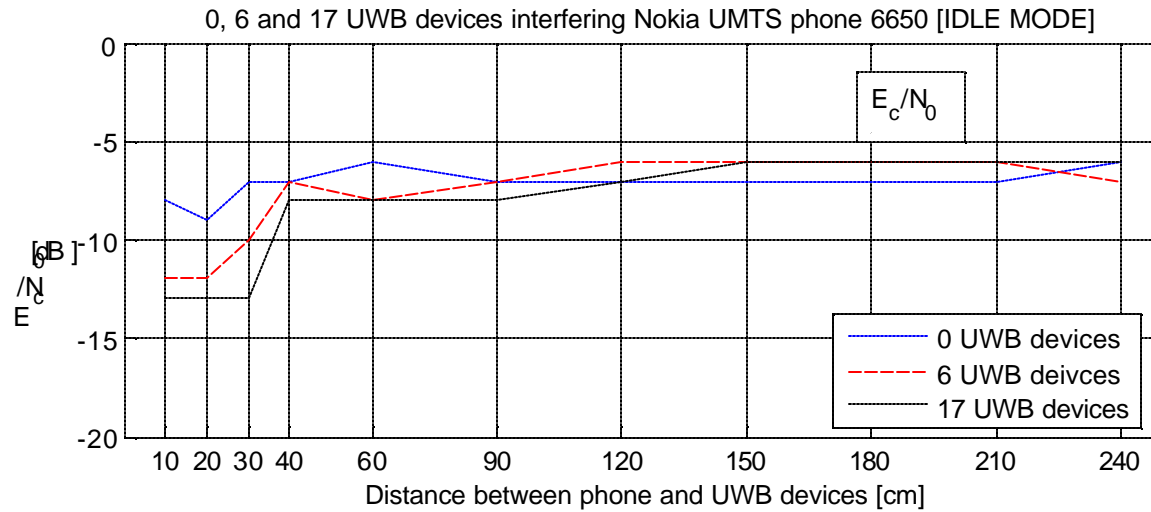


# Qualitative Results - UMTS



- No quality change in quality perceived for voice service when measured by the human ear.
- UMTS throughput was at not maximum in any case examined because of the “cell edge” condition simulated by shielded room.
- Throughput was effected more by the metal boxes than the UWB radiation.
- Non-sheilded room conditions show even less impact from UWB devices (high  $E_c/N_0$  case)

$E_c/N_0$  = Carrier-to-noise Ratio  
 RSSI = Received Signal Power Level, BW=3.84MHz  
 RSCP = Received Signal Code Power



# And Now?



- Convincing stakeholders
- Working on real solutions
- Develop technology which can use UWB potential
- Work on something global