

# Elti - transmitting together



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Network experience and upcoming technology

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## User benefits:

- Many more channels = more program
- Pictures and sound have more consistency and less interference = better quality
- Extra information and interactive features can accompany each programme
- An electronic programme guide gives you far more information about what is being transmitted
- Interactivity through return channel



## Technical benefits:

- Flexible terrestrial transmission system
- SFN vs. MFN
- Powerful error correction
- Efficient equipment operation
- Extend the scope to mobile field (DVB-H)

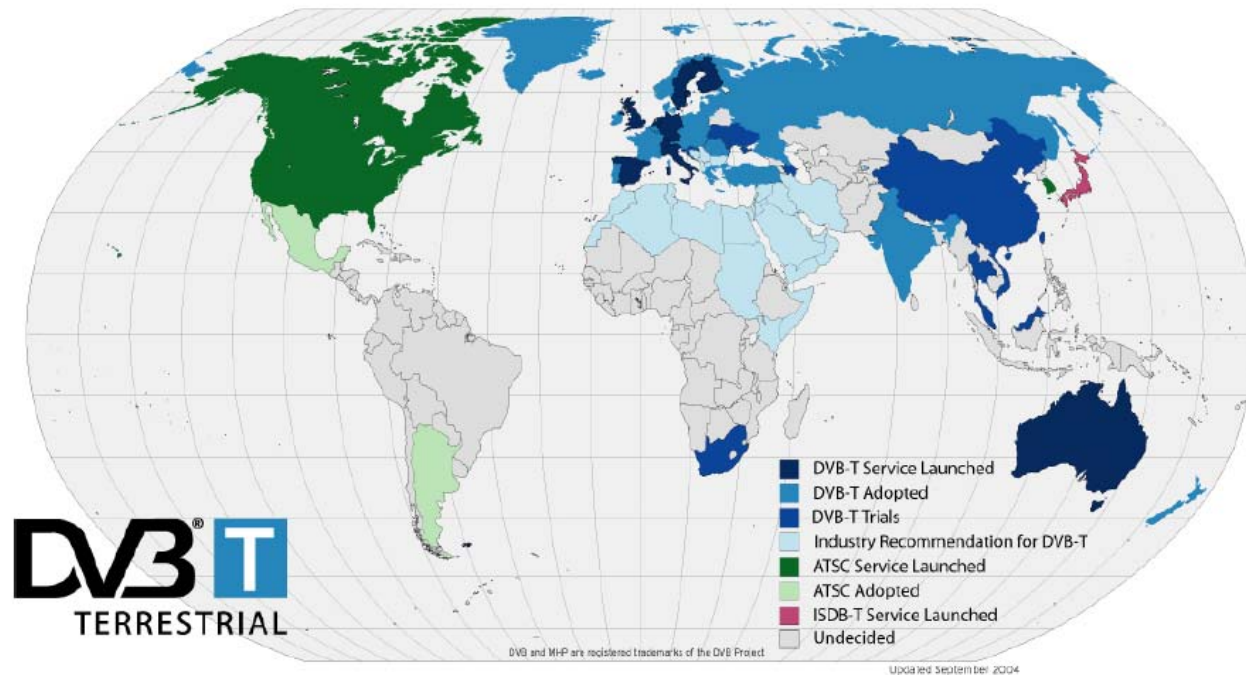
## Business opportunity



# Current status



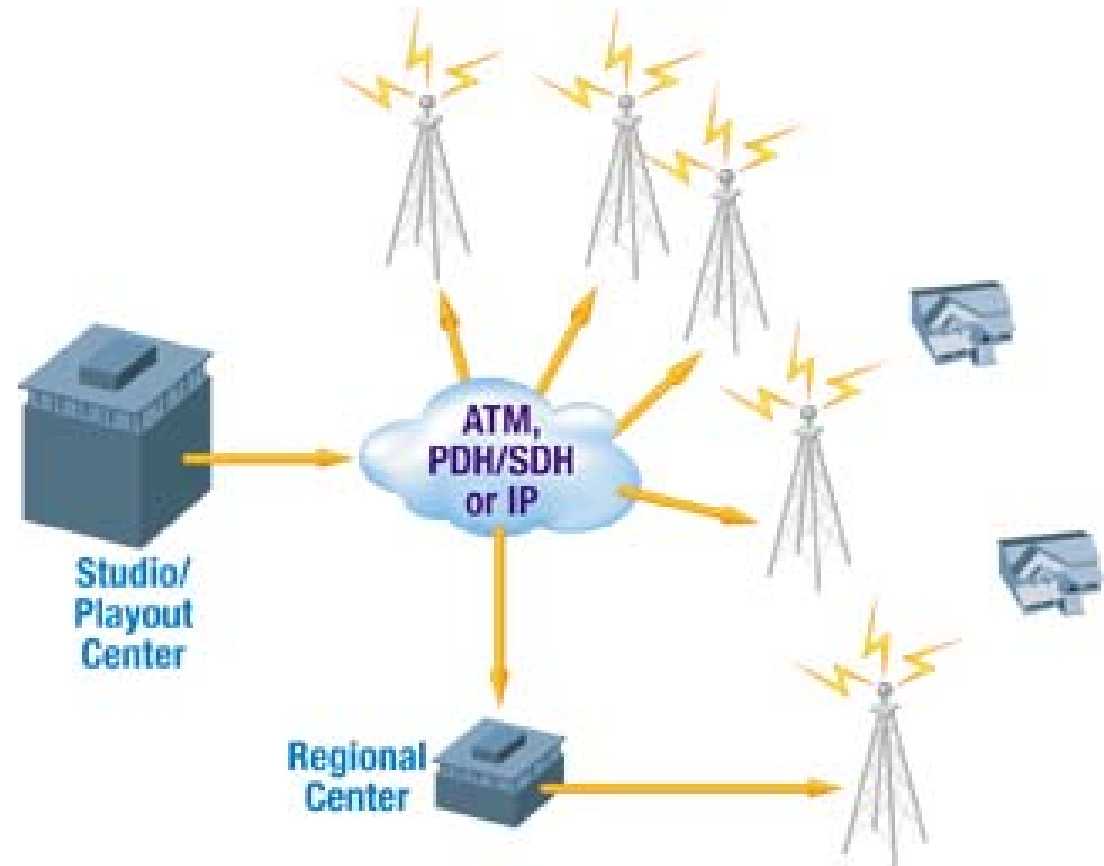
- DVB-T standard well accepted
- DVB-T fastest growing platform
- Business model experience
- Technical experiences
- Receivers available



# Digital network players

- Broadcaster
- Distribution network operator
- Transmission network operator
- Audience

Benefits to all players !



## Content aggregation and processing

- Receiving – decrypting (distribution satellite)
- Encoding
- Multiplexing
- Signal processing – EPG
- Optimization for optimal distribution (transrating)

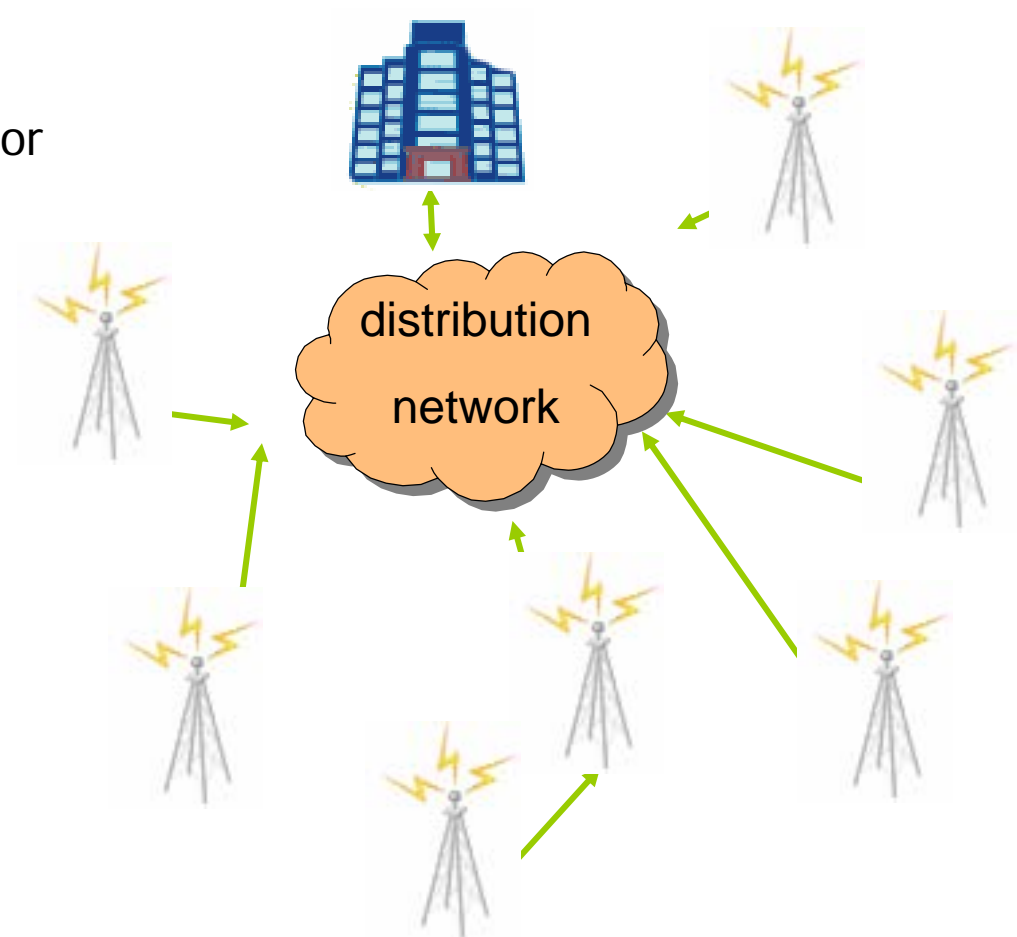


## Distribution network

- network based on the fiber optics or microwaves

## Transmission network

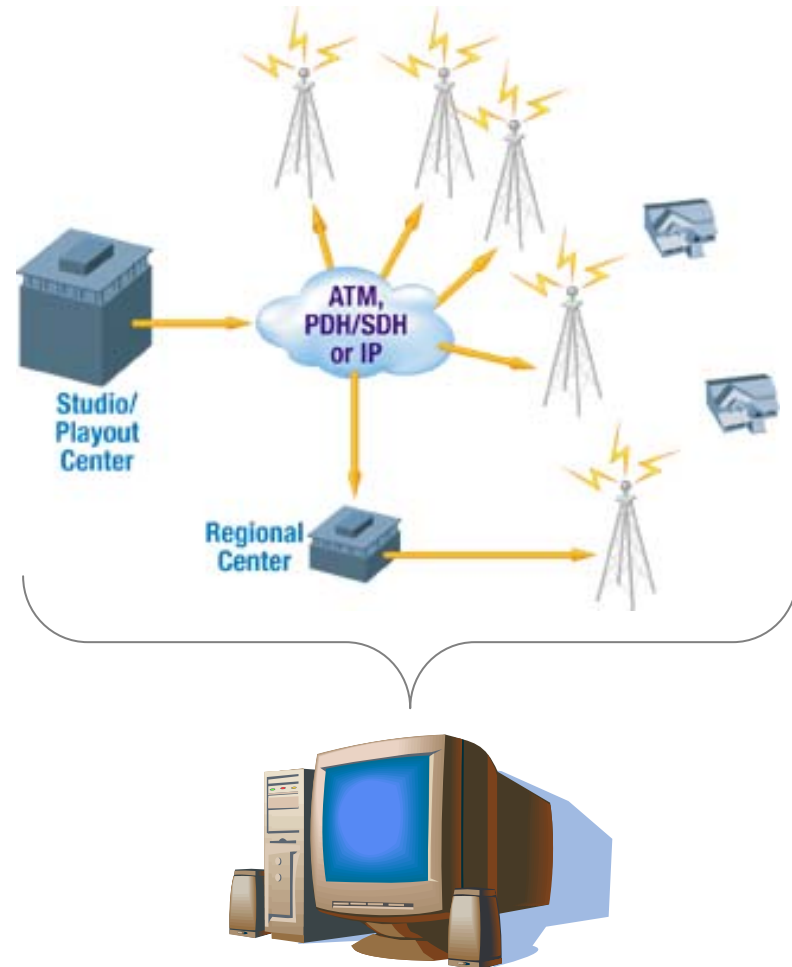
- Transmitter/repeater equipment
- Antenna systems





# Network management

- Provides an instant view of entire network and services status
- Telemerty and remote control of equipment
- QoS monitoring
- Enables you to prove your service availability



# Activities



Development and supply of  
analog and DVB-T/H components

Turnkey solutions design and project

Business in 44 countries

Digital broadcasting solutions from 1999

Digital equipment working in 18 countries



# Equipment around the world



DVB-T NTL Great Britain  
DVB-T/H NOKIA and Digita, Finland  
DVB-T/H Double Advance Technologies, Taiwan  
DVB-T/H ThueCom, T-Systems Germany  
DVB-T/H Telenor, Norway  
DVB-T/H RDC, Monte Negro  
DVB-T/H RTS, Serbia  
DVB-T/H Radiocomunicatii, Moldova  
DVB-T/H RTE, Ireland  
DVB-T/H Teracom and Teracom components, Sweden  
DVB-T/H TelecomCorp, Slovak republic  
DVB-T/H RTE, Morocco  
DVB-T/H Abertis and Axion, Spain  
DVB-T/H Emitel, Poland  
DVB-T/H RTV SLO, Slovenia  
.....





## DVB-T

Transmitter SKY  
Regenerative Repeater ARX  
SFN Repeater HALO

sky

arx

## DVB-H

Transmitter SKY  
SFN Repeater HALO  
Indoor repeater

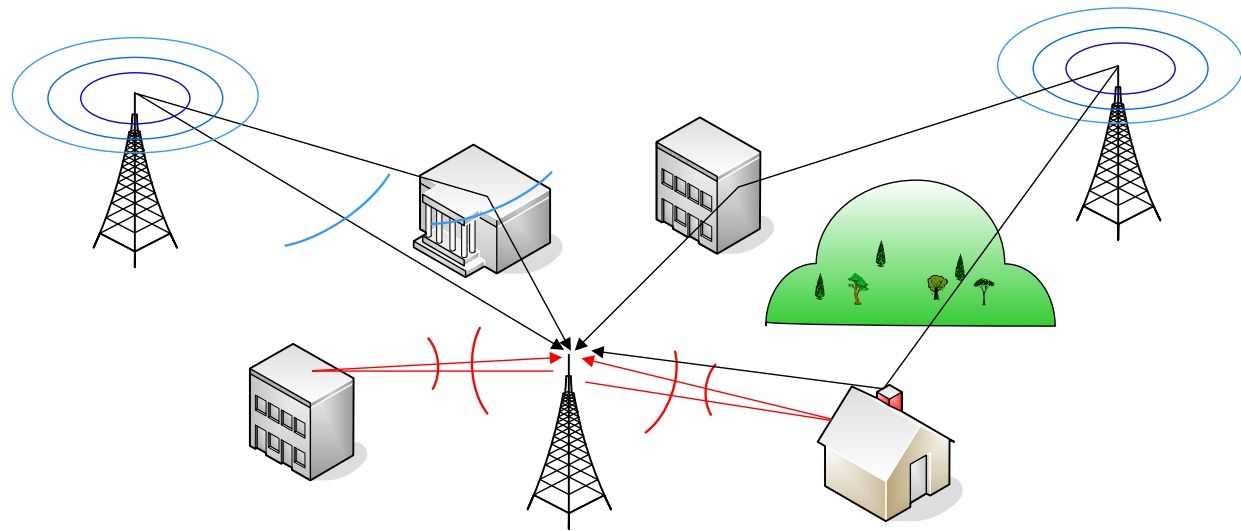
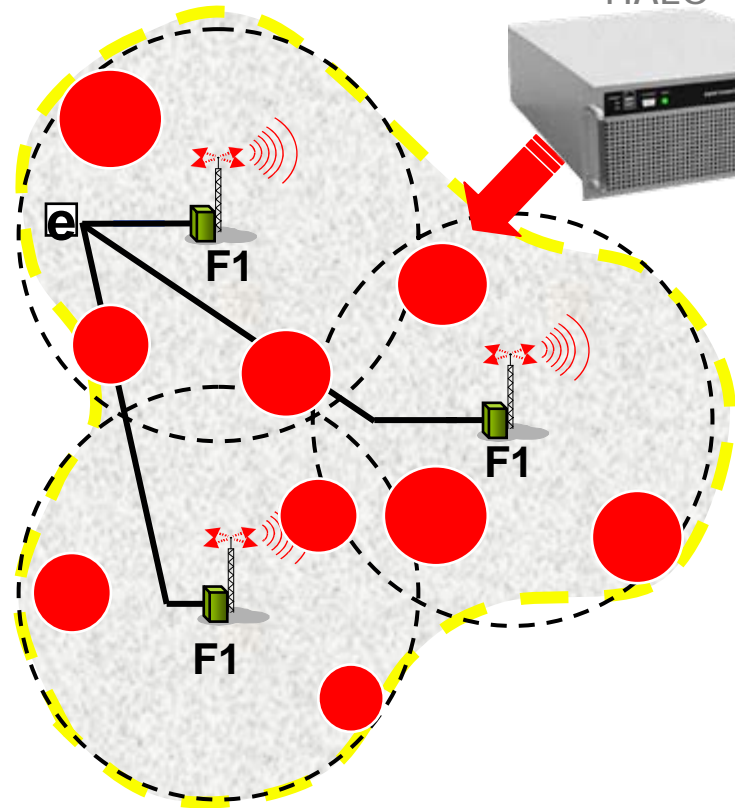


halo

# Upcoming equipment

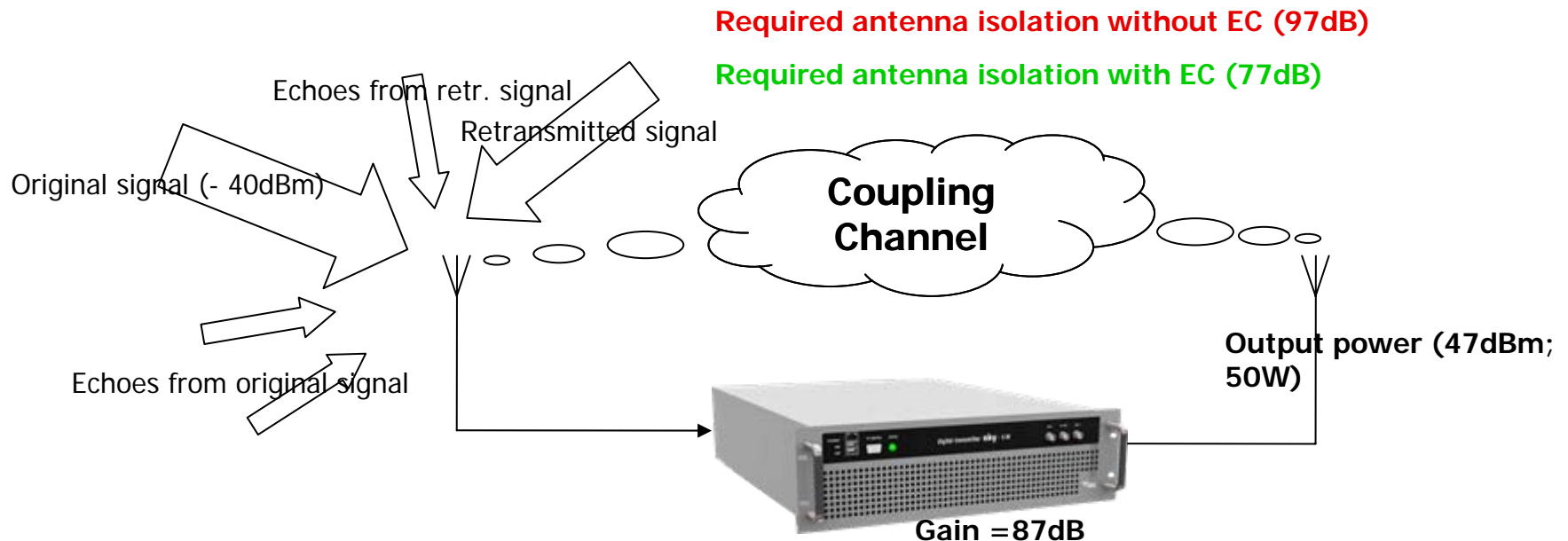


SFN repeater with EC HALO

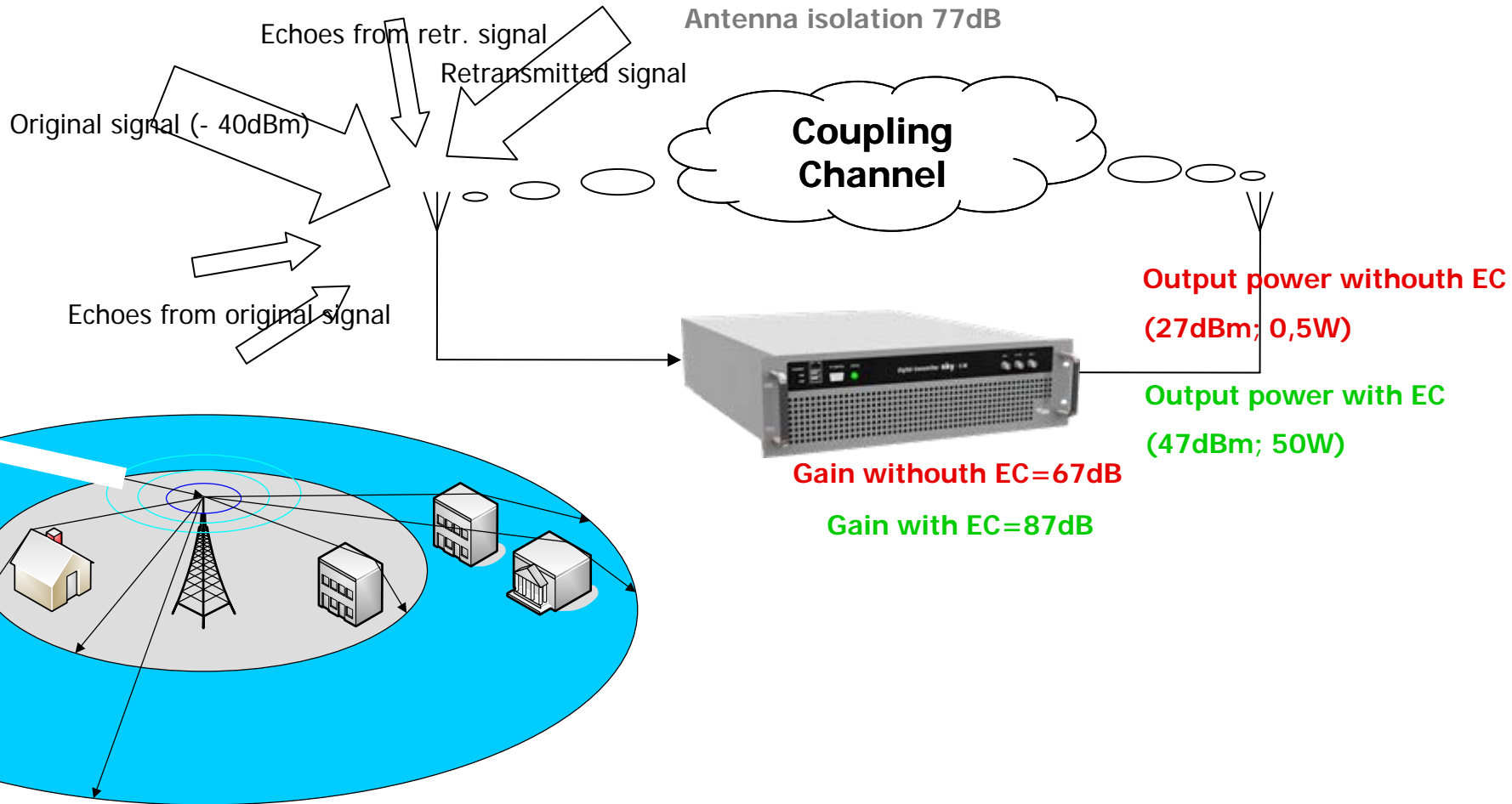


## lower isolation between repeater's receiving and transmitting antenna

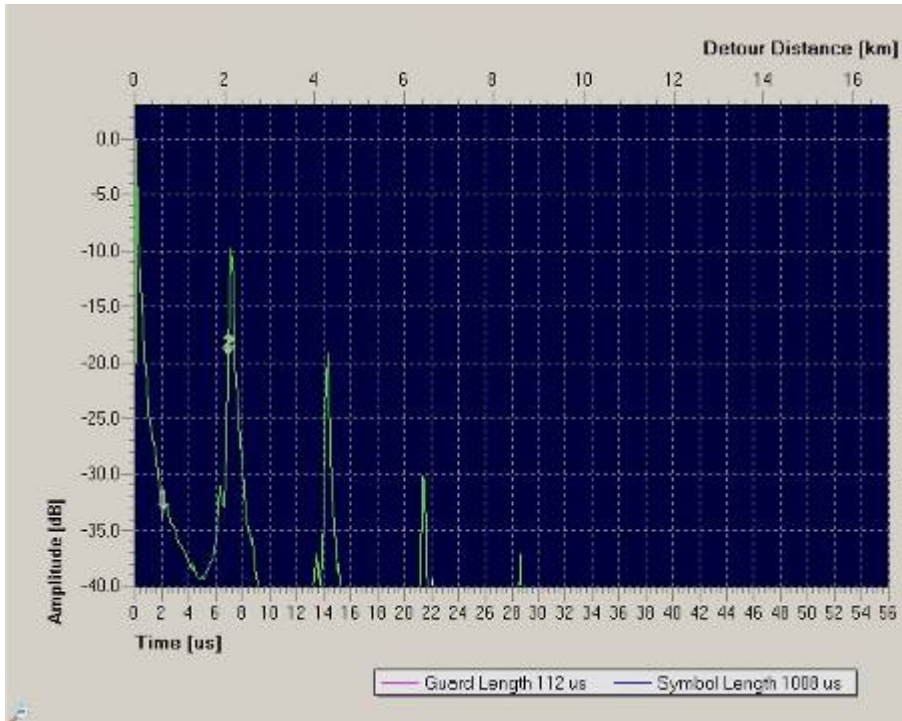
Height difference between reception and transmitting antennas	Isolation
10 m	75 dB
20 m	80 dB
30 m	90 dB
40 m	95 dB



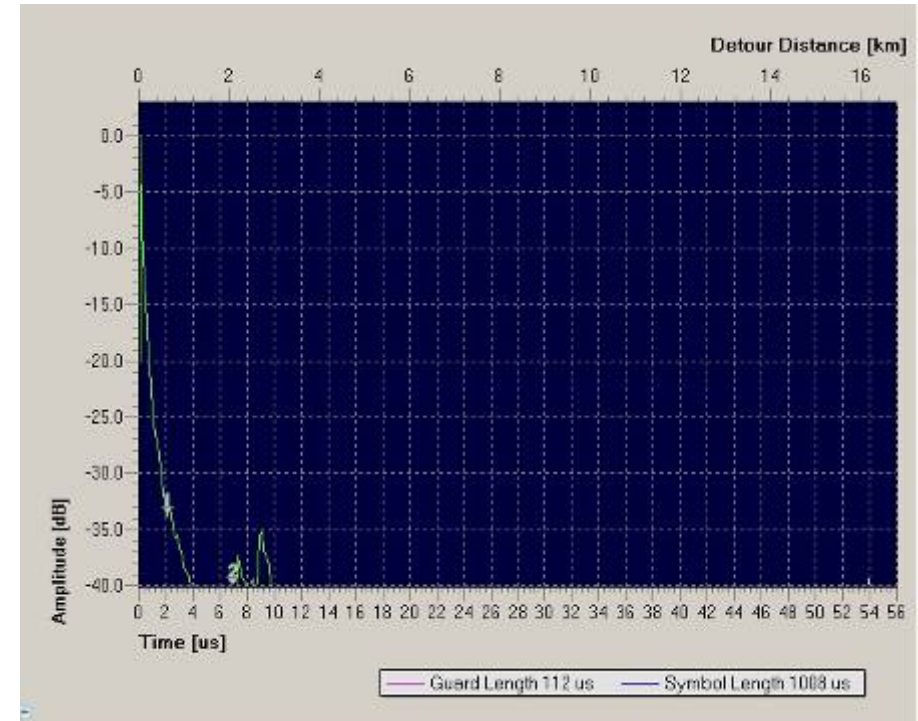
## increased coverage area



# Impulse response, output of the device



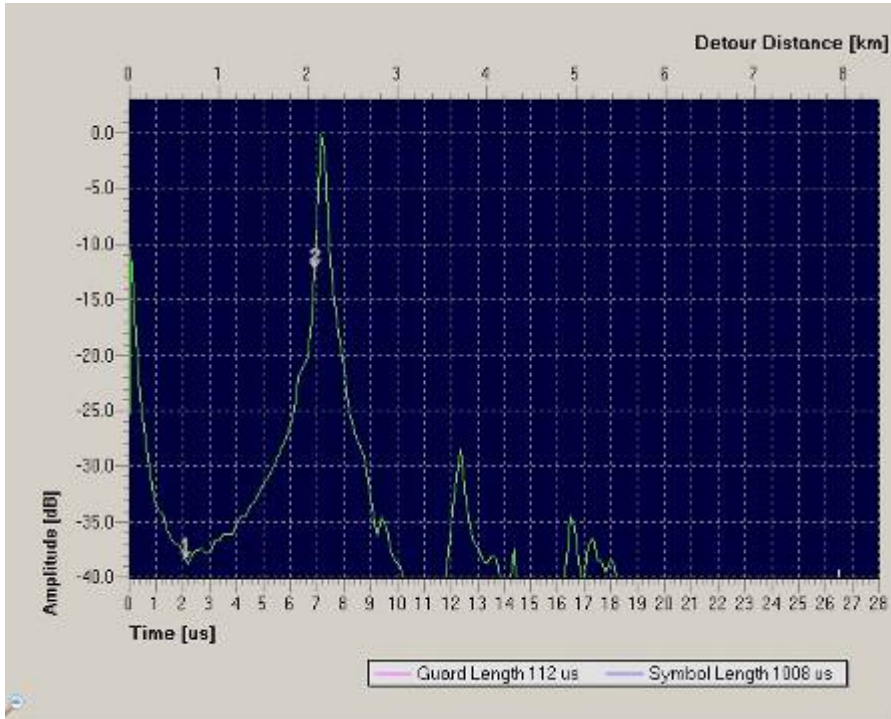
When the echo level is 10 dB lower than incoming signal, loop interference is visible in output impulse response



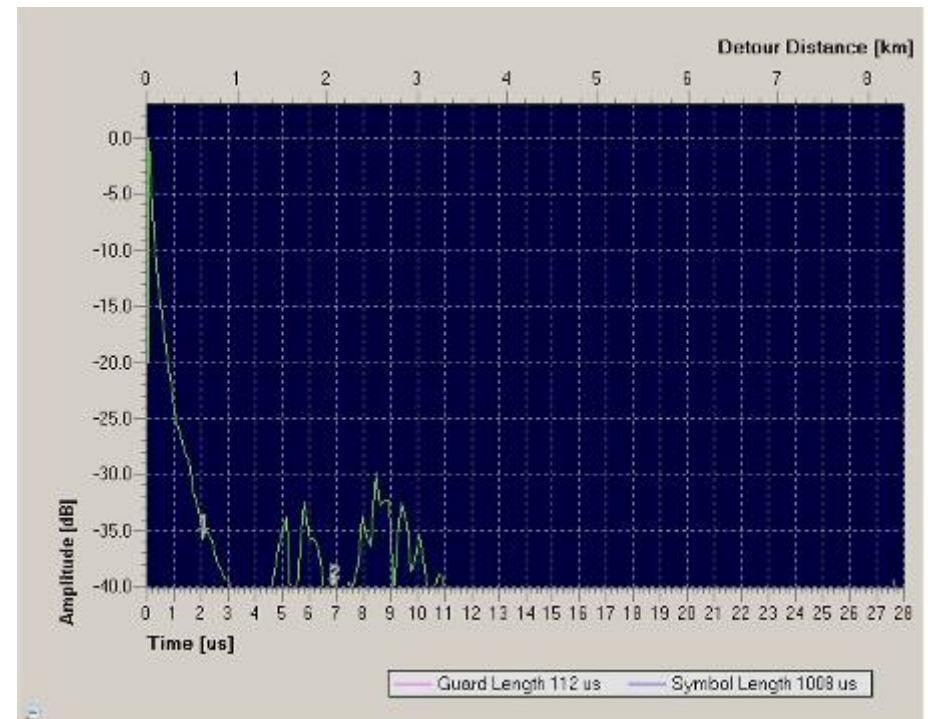
When the echo canceller is working, interference level is decreased by 25dB!



# Impulse response: echo is 10 dB over input level



Echo is visible in the input of the device,  
but the interference is removed



In the output the echo is removed, residual  
interference is 30 dB below signal level

# Conclusion



We offer our competence and experiences

- in house projecting, designing and R&D
- supporting trials DVB-T and DVB-H around the Europe
- 50 years of experiences in broadcasting
- complete portfolio of equipment available

ELTI, your partner for digital network.



# Thank you for your attention!



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