

# DEVELOPMENT OF TELEVISION AND VIDEO ENGINEERING

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## ABSTRACT

*This paper presents the potential of Ultra-High Definition (UD), that has sixteen times the definition of High Definition (HD), cable tv broadcasting. we tend to assume that future audio and video codec technology, viz. H.265, provides or so a twenty fifth bit rate savings for equivalent quality over MPEG-2. concerning 80Mbps is needed per UD service, however this exceeds the technologist capability for a 6MHz channel. Hence, we tend to study the potential of UD transmission via 2 TV channels, to attain each a satisfactory bit rate and threshold of visibility. This paper analyses the background of the procedures to assess video quality. It outlines the methodology to perform valid subjective tests, yet because the basic aspects of objective ways. right along the paper some experiences, resources and tools developed by the VQI Project (<http://ingenieria.um.edu.uy/vqi>) or given, especially a constant quantity model for digital tv coded with H.264.*

**KEYWORDS :-**video quality assessment; Quality of Experience; objective methods; subjective method, Distance learning, DVB, DVB\_T, e-learning, MHP, Interactive Digital Television (I DTV), t-learning.

## INTRODUCTION

Next generation broadcasting technology is evolving into Ultra-High Definition (UD) or 3D broadcasting that delivers pictures therefore realistic that viewers feel as if they're truly experiencing the published nose to nose, and have the urge to succeed in out and bit the pictures on the screen. not like current High Definition (HD), UD is fourfold as wide and 4 times as high, manufacturing a seven,680x4,320 component resolution, as shown in Fig. 1.

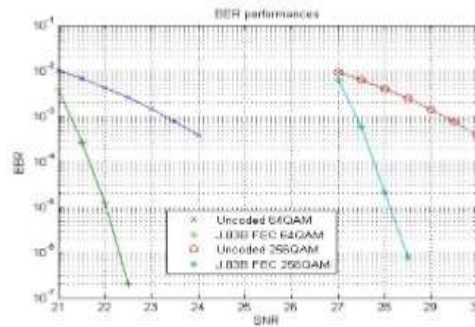
HD 1920x1080			

UD  
7680x4320

**Fig. 1. Comparison of High Definition and Ultra-High Definition.**

UD pictures were ab initio projected by NHK, the Japanese Broadcasting Corporation, and its standardization is being advanced by ITU [1]. However, analysis regarding transmission of UD pictures continues to be restricted. In UD TV transmission, sixteen times the maximum amount audio any video (AV) information should be transmitted. H.264 provides about five hundredth savings for equivalent quality over current MPEG-2 [2]. a more modern Ab compression technology, known as H.265, provides over five hundredth savings over H.264, it's still being researched and standardized

[3]. we have a tendency to assume that future Ab technology can offer as high as twenty fifth savings for equivalent quality over MPEG.

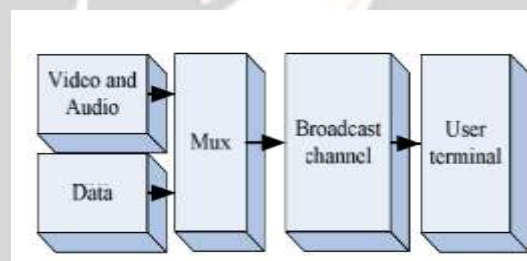


**Fig. 2. BER performance of uncoded and J.83 Annex B FEC.**

Only 2 bits among six or eight bits per image are differentially coded and that they are singly encoded by a binary convolutional technologist (BCC). every BCC uses 4/5 code rates, therefore the general code rate for 64QAM trellis coded modulation (TCM) and 256QAM is 14/15 and 19/20, severally. The differential pre-coder performs 90° rotationally invariant trellis cryptography for sixty four and 256 QAM. the premise of a strong electronic equipment style is to modify in no time recovery from carrier part slips. Non-rotationally invariant cryptography needs resynchronization of FEC once carrier part pursuit changes quadrant alignments, resulting in burst errors at the FEC output[4].

Household penetration of digital TV is high in some EU countries and growing in others, analogue switch-off is scheduled for amount from 2007 to 2015 in EU member states. Paper presents a number of the newest advances within the use of iDTV for instructional functions giving learner to actively participate within the show. we have a tendency to explore the potentials to expand the facility of iDTV.

by delivering interactive learning into the house.



**Figure 3: DVB allows inclusion of data in to a broadcast stream. This allows inclusion of content not directly connected to audio/video stream.**

## II.FRAME WORK

Goal of the study is to research the probabilities to bring learning opportunities to households equipped with tv and low-cost Set-Top-Boxes (STB). we tend to try to succeed in whole EU population, particularly those while not pc or / and web association. the full chain of making a learning course for Digital tv is being discovered and evaluated. Europe has adopted DVB-T (digital video broadcasting – terrestrial) for broadcasting the digital tv signal. The DVB- T commonplace could also be thought-about as a substitute to free air analogue broadcast. DVB-T commonplace was picked by the ELU thanks to its availableness in each manage.

### A. Digital Television

The introduction of DVB DTV services has opened several new vistas. DTV brings a lot of TV channels, higher quality in image and sound. moreover DTV has the flexibility to incorporate information during a DTV broadcast stream beside the audio and video. This capability may be wont to offer AN increased expertise for tv viewers (interactive tv information broadcasting), and it may be wont to deliver information for applications that don't have

any direct association to tv programming (general purpose information broadcasting), like Electronic program guide (EPG)(Figure 4).[5]

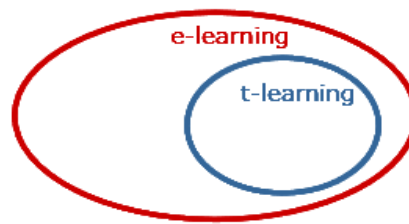


Figure 4: t-learning in the framework of e-learning

### III. T-LEARNING OVERVIEW

T-learning context has specific features:

- the chance to use prime quality video
- restricted interactivity caused by the device as the sole end-user tool
- restricted interactivity for users with low-end STB
- restricted prospects for personalization

The video stream is that the core of the tv program. it's a conventional TV learning component that has been used for several years, together with in analog TV. It offers the likelihood to gift learner with the content in realistic and visually illustrative means.

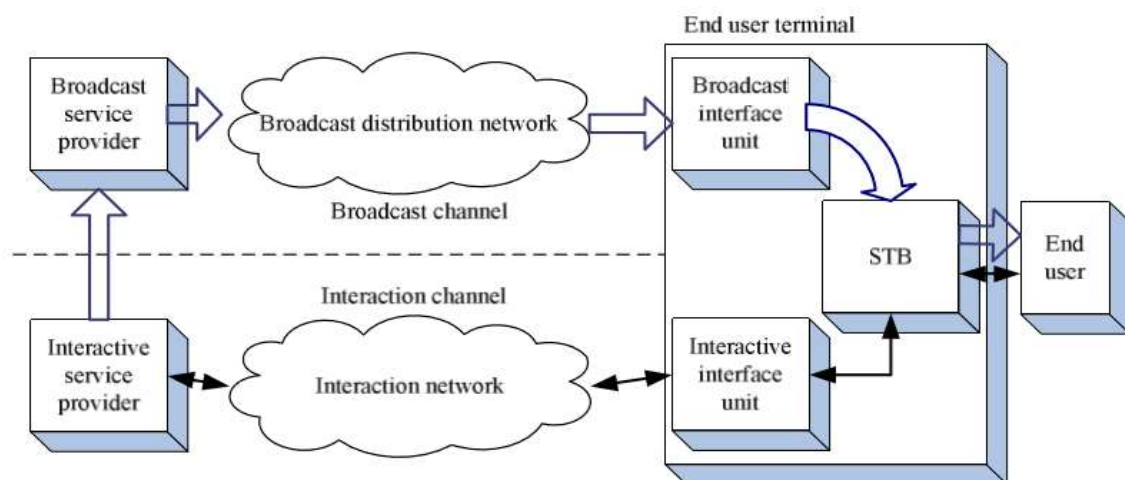


Figure 5: DVB standard allows implementation of return channel through which additional content is accessible or user feedback is collected. It allows interaction between the end user and the interactive service provider or user can interact only with the content held on a STB.

Remote control may be a straightforward device and offers solely restricted prospects for interaction. All the content ready is passable with straightforward directions that may be done through remote. High personalization of content is feasible through the employment of come back channel. It permits content creators to conceive course during a thanks to support people who need to be told a lot of or to urge a lot of specific content. come backchannel is in apply not accessible with the DVBT customary. come back channel has got to be enforced through the information processing supporting channel supporting technology as for example PSTN, local area network or x DSL. what is more technology has got to be supported by a STB[6].

#### IV .Potentials for t-learning

Interactive TV offers potentials for increasing learning opportunities reception, college and work. an on the spot impact on the pedagogic approach could also be associated with the provision of a come back channel. ancient tv broadcasts offer just one manner data transmission. additionally, learner must schedule his learning activities per program schema. As a result, Analog broadcasted TV is found to be meagerly medium for a lot of engaged learning . presently 2 styles of services that change on-demand learning activities are available:

- Video or Content-on-demand services from remote servers.
- Home storage victimisation personal digital video recorders. Each ways have similar functions thereto of a tape recorder - stop, start, pause, rewind and quick forward. it's even potential to prevent a live broadcast and begin it once more at the purpose the viewer has left off.

#### V. Hierarchically Distributed Transmission

To overcome this limitation, we tend to utilize 2 hierarchical UD channels. For reliable reception, 256QAM associated 1024QAM is adopted as an HP and L-P channel, severally. HP signals will guarantee reliable reception, which means at a resolution a minimum off our times as high is bonded. Full UD broadcasting is just doable {in a| during a |in associate exceedingly |in a very} high SNR setting for an L-P channel[7].

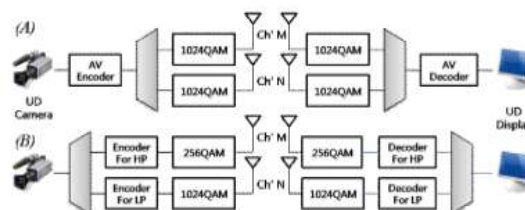


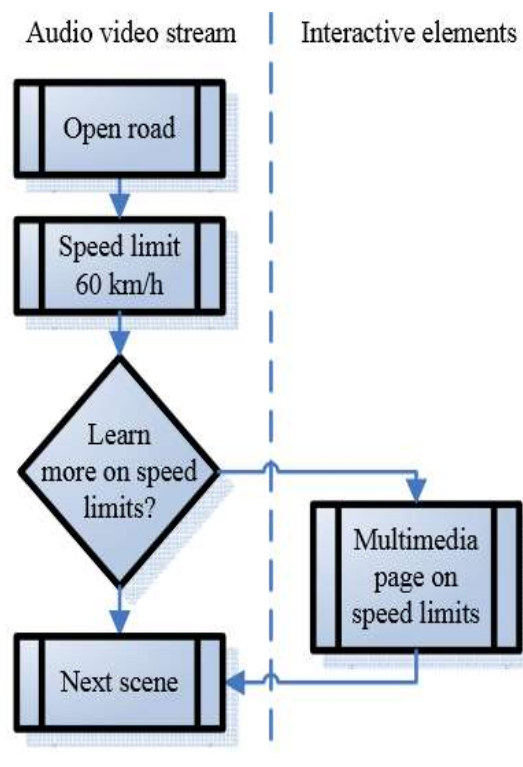
Fig. 6. Conceptual block diagram of two kinds of UD broadcasting scenarios based on J.83 Annex B.

#### VI. Authoring Tool

In addition to making custom courses the technological framework to permit modularity, reusability, customizability and adaptability has been engineered. All expressed interactive parts given in IV.B and IV.C are often integrated through the Authoring tool, that was engineered by the ELU association. [8]. every card is also thought of as a instrumentation that may be full of varied forms of services and multimedia system parts. Cards are totally configurable in terms of content and look.

To keep the interactive a part of the course as tiny in size as potential card templates may be instantiated one or a lot of times during a course. on every occasion the cardboard is employed it uses instance specific

configuration file process the card's specific content and look. Configuration of cards takes in to account totally different users. this enables content creator to change cards for numerous teams of learners.



**Figure 7: Simple scenario of possible paths through the score. Learner is at the time of the event offered to navigate the course to the complementary content.**

## VII. CONCLUSION

Digital tv may be a reality. initial EU countries have already switched to digital transmission, before long the remainder can follow. it's indisputable fact that with medical aid of tv brings far more than higher image and sound quality. At the instant comes square measure exploring choices like t-government, t-shopping, t-gambling, etc. solely time can show what square measure the user expectations. sort of presently accessible applications has totally different technical demands. they will demand world interaction. As long as come back channel, particularly broadband come back channel, isn't accessible in majority of households, developers should respect these limitations and work on applications that relay in the main on broadcast content. In t-learning, broadcast video is seen because the primary medium, being increased by totally different instructional applications.

All laptop simulations introduced during this paper were performed with all FEC blocks in J.83 Annex B, together with a RS encoder (128,122), a convolutional inter leaver(I=128, J=1) and a TCM, while not a randomizer [9]. supported the Claude Shannon capability and also the assumption of future Jewish calendar month compression technology, we have a tendency to assume 2 situations of UD broadcasting supported J.83 Annex B and its 2extended versions. However, issues still stay with the extended versions in this they're too sensitive for reliable reception.

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