

# ABU TECHNICAL COMMITTEE

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**Kazim Pektaş**

TRT -Türkiye

Chairman of Production Topic Area

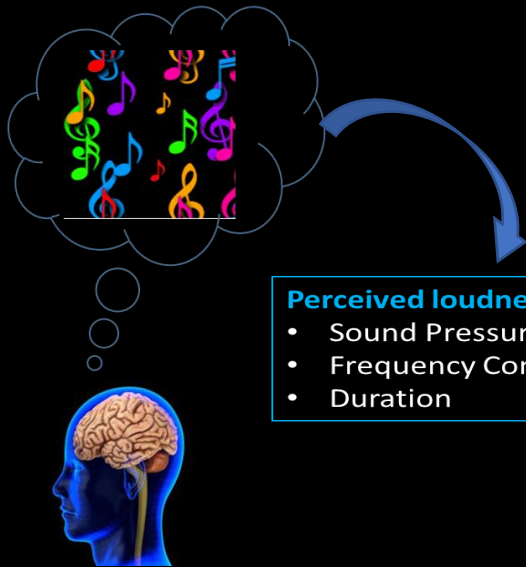


# Production Topic Area

1. Radio & Television Archiving Including Metadata for International Programme Exchange (P/RTA)
2. Ultra High Definition TV (P/UHDTV)
3. Systems for people with special needs (P/SN)
4. IT-based Production System and File Based Workflows (P/ITPS)
5. Big Data, Personalisation and Artificial Intelligence (P/BDAI)

## 2. Ultra High Definition TV(P/UHDTV)

- Loudness is the subjective perception of the level of sound.



**Perceived loudness depends on:**

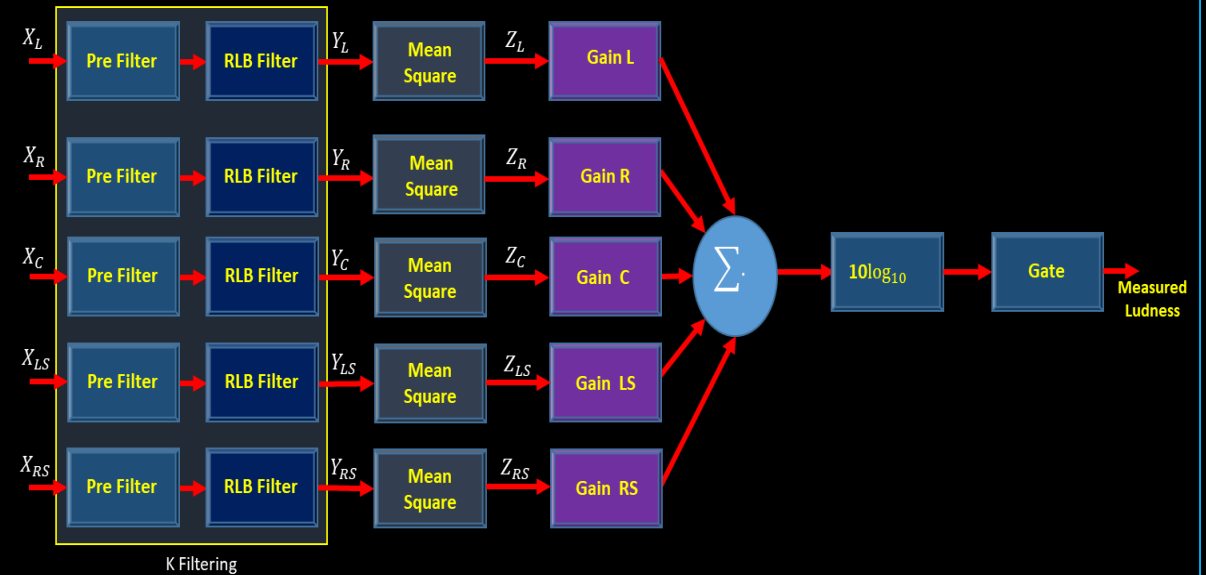
- Sound Pressure Level
- Frequency Contents
- Duration

ITU-R BS.1770: Algorithms to measure audio programme loudness and true-peak audio level



The algorithm consists of four stages:

- "K" frequency weighting
- Mean square calculation
- Channel-weighted summation
- Gating



Block diagram of proposed multichannel loudness meter

## 2. Ultra High Definition TV(P/UHDTV)

Some of Loudness Related Standards – Recommendations - Specifications

<b>ITU</b> ITU-R BS.1770	<b>EBU</b> EBU R 128	<b>USA</b> ATSC A/85	<b>JAPAN</b> ARIB TR-B32	<b>CHINA</b> GY/T282-2014	<b>ITALY</b> AGCOM	<b>AUSTRALIA</b> FREE TV OP-59
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- **ITU-R BS.1770** Algorithms to measure audio programme loudness and true-peak audio level.
- **EBU R 128** Loudness normalisation and permitted maximum level of audio signals
- **ATSC A/85** was specified by The Advanced Television Systems Committee in 2009 and applies to US broadcast digital television.
- **ARIB TR-B32 11:2-832** is a Japanese broadcast standard that builds on ITU R-BS 1770, which means that relative gate is employed
- **FREE TV AUSTRALIA OP-59** OP-59 is rooted in BS.1770 Loudness and True-peak level and recommends a speech based as well as a universal approach to audio normalization

## 3. *Systems for people with special needs (P/SN)*

### Risks of Virtual Reality



#### Virtual Reality Sickness

- Nausea,
- Dizziness,
- Sweating
- Pallor,
- Loss of balance
- .....

Virtual reality can also induce a temporary change in a person's sensory, motor and perceptual abilities, affecting their manual dexterity or ability to orientate their body

## 4. IT-based Production System and file-based workflows (P/ITPS)



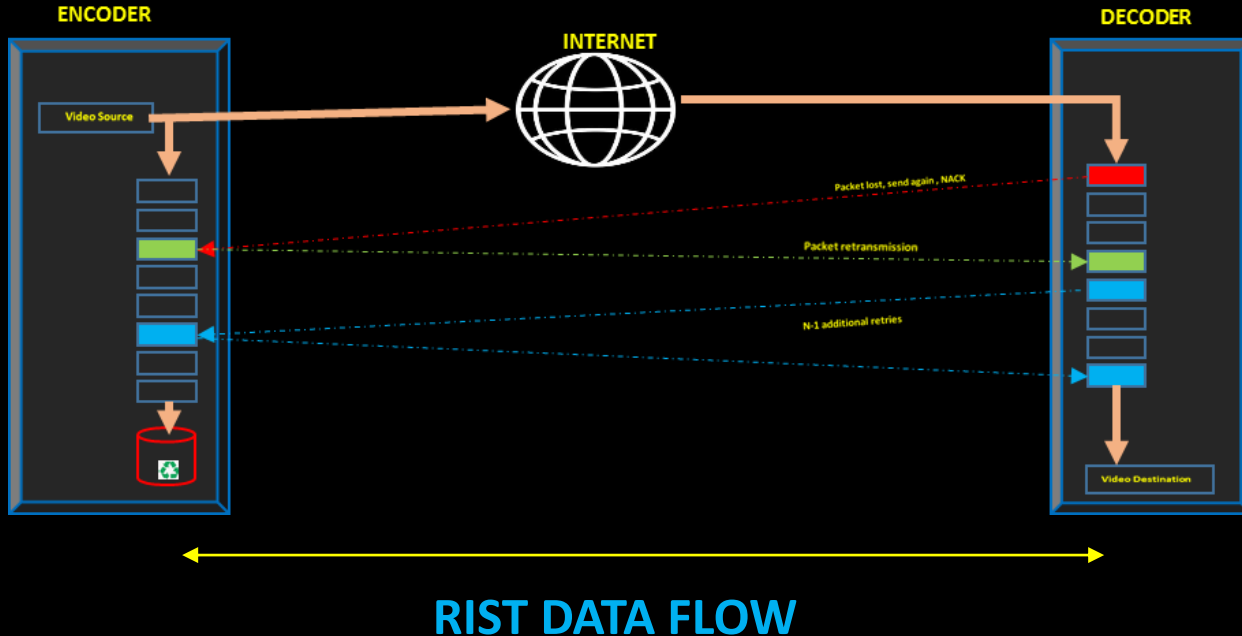
**Internet Protocol Media Experience**, is the new free and open standard for AV over IP, the transmission of very high quality video, audio and control signals over standard IP networks

<b>BASELINE</b>	
<b>SMPTE ST 2110-22</b>	CBR Compression in ST 2110
<b>ISO/IEC 21122</b>	JPEG XS Codec
<b>NMOS IS-04 &amp; IS-05</b>	Discovery, registration & connection management
<b>EDID / DisplayID / HPD Support</b>	Device handshake
<b>OPTIONAL</b>	
<b>HDCP</b>	Copy protection
<b>General Purpose I/O</b>	IR Remotes, GPIO, USB, RS232 over IP
<b>NMOS IS-08</b>	Audio channel mapping
<b>IPv6</b>	Network addressing

## 4. IT-based Production System and file-based workflows (P/ITPS)



**Reliable Internet Stream Transport (RIST)** is an open-source, open-specification transport protocol designed for reliable transmission of video over lossy networks (including the Internet) with low latency and high quality



### RIST PROFILES

#### SIMPLE PROFILE:

- Interoperable Automatic Repeat reQuest (ARQ)
- Transport of point-to-point SMPTE2022-2 services
- Bonding of several links using link aggregation
- Optional Forward Error Correction using SMPTE 2022-1

#### MAIN PROFILE:

- Transport of point-to-multipoint services
- Stream encryption for secure content
- VPN tunnelling for secure sender/receiver communication
- NAT traversal for improved interworking with consumer-style internet connectivity
- Null packet suppression for saving bandwidth
- Transport of high bandwidth streams (>100Mbps) for uncompressed or lightly compressed content
- Auto stream configuration for simpler operations

#### ENHANCED PROFILE:

- Automatic video bitrate adjustment (ABR) based on available network bandwidth
- Capability (i.e. profiles supported) communication for simpler operations

#### SCALABLE PROFILE:

- Transport of Scalable Video Coding (H.264 annex G) to better adapt video quality to available network bandwidth

# THANK YOU

