

# Technical Review

## ALSO INSIDE:

Revisited: The Future of Radio in  
Malaysia Perspective (Page 2)

New TV Generation Standards (Page 18)



# ABU TECHNICAL BUREAU

*MID-YEAR MEETING 2025*

16 – 17 April 2025  
Kuala Lumpur



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\*\*Assumes a leasing plan successfully negotiated with no upfront payments. Leasing plans under this program only available in the USA but MDCL savings are applicable worldwide. Customer is responsible for existing Tx decommissioning and new Tx installation.



- 02 Revisited: The Future of Radio in Malaysia Perspective
- 05 ABU Technical Bureau Mid-Year Meeting 2025 in Kuala Lumpur | 16-17 April 2025
- 08 Accelerating Media Innovation: ABU and NRTA Host First CCBN-ABU Nexus AI Workshop | 22 - 25 April 2025
- 13 ABU-DRM Webinar Highlights Advancements and Implementation of Digital Radio Mondiale | 6 May 2025
- 16 ABU Participates in Broadcast Asia 2025 as Industry Partner | 27 - 29 May 2025
- 18 New TV Generation Standards
- 26 News from the ABU Region
- 30 Digital Broadcasting Updates
- 34 Equipment Trends
- 37 Personalities & Posts
- 38 Calendar of Events



**Cover:** ABU Technical Bureau Mid-Year Meeting 2025 was held in Kuala Lumpur, Malaysia

## from The Editor

A warm welcome to the 302nd issue of Technical Review! This issue arrives at a time when our industry continues to redefine itself amid accelerating technological change. As ever, the role of broadcasters is evolving – but the strength of our union lies in our ability to adapt together, share knowledge, and continually revisit how we approach our mission.

At the heart of this quarter's activity was the ABU Technical Bureau Mid-Year Meeting, held in Kuala Lumpur in April. This internal gathering of bureau members served as a meaningful platform for dialogue on how to better align our workflows with the demands of a rapidly transforming media landscape. One of the key focuses was finding new ways to foster collaboration among ABU members – exploring how we might create more space for shared innovation, technical exchange, and collective problem-solving.

This issue also covers a range of events and initiatives that reflect the dynamic energy across our region. From our participation at BroadcastAsia 2025 as an industry partner to the launch of the first CCBN-ABU Nexus AI Workshop, held in collaboration with NRTA, we are continuing to explore future-facing technologies with practical impact. The recent ABU-DRM webinar, spotlighting developments in digital radio, further underlines the growing momentum behind radio digitisation in our member countries.

We also revisit the future of radio from a Malaysian perspective – a timely reflection, as radio continues to adapt to new listening habits and platforms. In the realm of television, this issue includes a very insightful discussion about standards & possible landscape of media delivery for the near future.

Finally, as always, we include updates from across the region, trends in equipment, and highlights of personalities shaping our sector. With each edition, our goal is not only to inform but to reflect the rich diversity and shared challenges of broadcasting in the Asia-Pacific.

Thank you for continuing to be part of this journey.

Warm regards,  
**Dr Veyssel Binbay**  
veysel@abu.org.my

The Asia-Pacific Broadcasting Union (ABU) is a professional union of broadcasting organisations in the Asia-Pacific area which aims to co-ordinate and promote the development of radio, television and allied services in the region. It is non-governmental, non-political and non-commercial.

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# REVISITED: THE FUTURE OF RADIO IN MALAYSIA PERSPECTIVE

## ABSTRACT

In 2015-2018, we studied how 16 people in key positions related to the radio industry in Malaysia viewed the transformation from conventional to digital radio. We discovered that the transformation of the radio industry in the digital era is relatively gradual, triggered by the refusal to change (digital resistor) and uncertainty among industrial players such as the government and private sector radio stations due to a lack of interest. As a result, this refusal caused the saturation of FM standards and profound implications on the radio ecosystem. The future of radio is unpredictable since the role of conventional radio is increasingly challenging from 2018 until 2023. Instead of transforming from conventional to digital radio, there was a selection of alternative technological options for digital audio delivery. Looking back on 2018 and considering the results of expert interviews, document analysis and listener survey, we found an exciting perspective to explore and think about by the government and industrial players. In the future, we need more comparative studies from Malaysia's or Asia's perspectives.

**Keywords:** radio, digital disruptive, management, Malaysia

## INTRODUCTION

The earliest broadcasting medium, radio, is currently undergoing change as television and the Internet gain prominence over it. When we speak about the need to transform the radio world and enhance the quality and quantity of radio programs, we always get pushback from people who believe that the radio industry is “dying”. They point to the deteriorated breakthroughs that have occurred in many years and say that the radio is irrelevant. They even question whether people listen to it. Some predict an era of abundance in which everyone on Earth will stop listening to the radio.

It shows that radio studies are vital in questioning, answering, verifying and analysing the radio industry. However, Malaysia's lack of radio studies has left us in a void, and we do not bother about the radio industry. Compared to Western and European countries, research on radio is extensive and in-depth. As a result, the findings from their study navigate the long-term plan for the public and private radio industry in those respective countries. Hitherto, this is missing in Malaysia – nevertheless, Adhikarya, 1977; Sarji, 1996; Abu Bakar, 2000; and Ibrahim, 2020 are the scholars who examined radio development in Malaysia.

Conventional radio is at an exciting point in its history when digitalisation and convergence change the radio

ecosystem. Interestingly, new technology (podcast, digital terrestrial radio, Internet radio, satellite radio, OTT and 5G) has been launched to replace analogue radio entirely and gradually adapt to all markets. However, it is always the other way around. The result is a significant gap in the technology marketplace – people still listen through Frequency Modulation radio.

The transformation from conventional to digital radio in Malaysia has its history. The radio digitalisation project was started in 1997 through Working Party 14. However, due to push and pull factors, bureaucracy, and the refusal to change in changing scenarios by the industrial player is disrupted the project. In this article, we will discuss the future projection of radio from Malaysia's perspective.

## REVIEW FROM PAST RESEARCH FROM MALAYSIA PERSPECTIVE

Based on our readings, research about digital radio, radio migration, radio transformation and digital disruptive are popular in western and European countries. The questions is, why? World dab reported that 30 countries have regular digital radio services - DAB+. From that figure, Norway became the first country to ceases analogue radio frequency. In contrast, the rest of the countries are announcing deadlines so that they can follow suit. The United Kingdom has also succeeded in reaching its objective of having at least 50% of radio listeners tune in

to digital stations.

The lack of research about radio digitalisation in Malaysia makes it hard to convince policymakers and free-to-air (FTA) players of the necessity of conventional radio transformation in Malaysia. Our data-based search through AI Dimensions, Google Scholar, and SagePub revealed that research using keywords like digital radio, Malaysia, migration, transformation, and digital disruption is genuinely absent in the Malaysian context. This gap should be filled in the future.

Research on the digitisation of the radio industry in Malaysia is limited. However, there are studies on the radio that have been done, but they are not specific to the digitalisation of the conventional radio industry.

Rosidayu and Siti Suriani (2009) studied the development of broadcasting and journalism from 1990 to 2000. Both scholars questioned the impact of the financial crisis on the development of the two fields. For the purpose of the development of radio broadcasting, both scholars think that in the years studied (1990-2000), radio broadcasting was a commodity tool for making a profit. For the profit motive, it has influenced the role and content of radio based on entertainment and music (Rosidayu & Siti Suriani, 2009). The challenges that the radio industry will face have been formulated by the two scholars as “almost the same as television”, especially in the delivery of media content that focuses on entertainment.

Roslina, Wan Amizah, and Ali (2013) analysed the history of the broadcasting industry in Malaysia by examining the changes and progress of the country's broadcasting industry. In fact, the article focuses more on the establishment and development of the television and journalism industries than the radio industry. All three scholars argue that the development of the country's broadcasting industry is influenced by political factors, which involve the power structure of the government or the ruling party. Therefore, the study suggests that the ownership of the broadcasting industry should be independent of the power structure that monopolises or owns shares in the industry.

Ahmad and Monica (2012) are scholars who conducted a study on the approach and strategy applied by RTM in facing digitisation and going through the migration process of the radio and television broadcasting industry smoothly. Among the approaches used by RTM is to attract new viewers without neglecting loyal viewers. In addition, Ahmad and Monica (2012) said that for RTM to not lose viewers and add new viewers, it must focus on the creation of creative content by adapting open source software (OSS) to improve the quality of broadcasting. The second approach is for RTM to plan a programme that has a niche with the help of attractive graphics. The third strategy is to develop multichannel and multilingual services that give the main focus to the development of the television industry compared to radio.

## MALAYSIA SCENARIO

In Malaysia there are five eras of radio as identified by Adhikarya, 1977; Asiah Sarji, 1996; Darussalam, 2000; and Ibrahim, 2020; in different research as below;

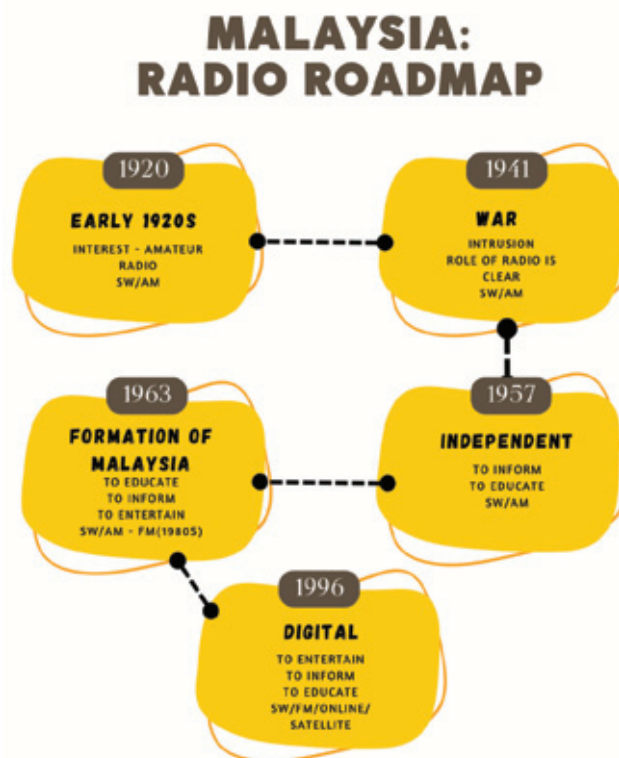


Figure 1: Malaysia's Radio History

Each eras shows different development of radio from many significant aspects such as technology (the use of Short Wave and Amplitude Modulation to Frequency Modulation), content (from one hour radio drama to 5 minutes radio drama), production (from open reel to the nagra, record player to audio mixer and computerised), distribution (from analogue terrestrial to satellite, online, podcast and digital terrestrial) and consumption.

Interestingly, in digital era, we discovered that radio industry in Malaysia went through four phase which is the beginning of digital era (1996-1999); Millennium era and diversity of medium (2000-2009); and digital disruptive era and radio migration in bureaucratic streams (2010-2018) as shows on the **Figure 2**.

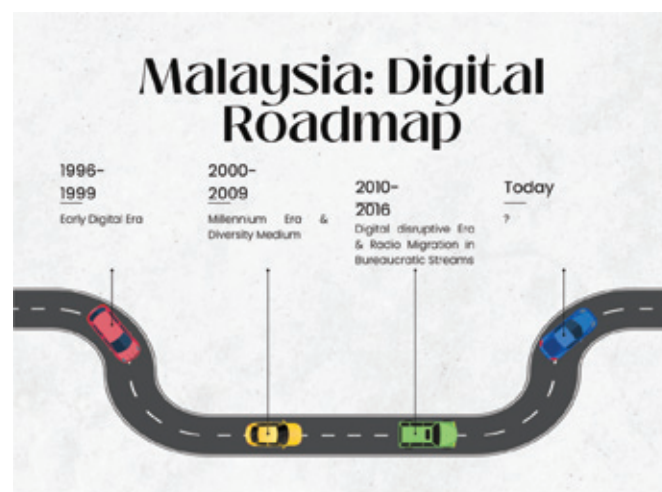


Figure 2: Malaysia's Radio Roadmap

In Malaysia, we found out that the migration project from analogue to digital was planned as early as 1997, with the establishment of Working Group Party 14. However, the plan failed when the government's plans and efforts to digitise FTA broadcasting were not implemented in 2005. We discovered that the transformation of the radio industry in the digital era is relatively gradual, triggered by the refusal to change (*digital resistor*) and uncertainty among industrial players such as the government and private sector radio stations due to no specific business model for the radio industry. As a result, this refusal caused the saturation of FM standards and profound implications on the radio ecosystem. The future of radio is unpredictable since the role of conventional radio is increasingly challenging in 2018. Instead of transforming from conventional to digital radio, there was a selection of alternative technological options for digital audio delivery.

While waiting for migration from Analog Terrestrial (FM) migration to new establish form of Digital Terrestrial (DSB), Malaysia Radio Broadcasting industry have made initiative to embark into alternative technology to transmit radio via digital technology such as DVB-S (Astro Radio services via DMT), DVB-T2 Digital Terrestrial TV (MyTV), and OTT platform (MyKlik, Media Prima Audio+, Syok, Mana2). However the exercise still not possible to solve the issue on getting alternative for terrestrial radio transmission due to technology limitations for each technology.

### WHAT'S NEXT?

But as the years passed, setting the date for replacing FM with digital radio did not become any easier, but rather the opposite. FM radio remained highly popular while the progress of Digital Audio Broadcasting (DAB) or Digital Radio Mondiale (DRM) was null in Malaysia. The emergence of 5G Broadcasting and OTT as a solution to FM saturation must be considered or reconsidered in "broad" and "casting". Robust research is needed to help fasten the transition or analogue shut-off (ASO).

### CONCLUSION

The loss of sense of radio's history, and the subsequent failure to develop a coherent set of critical tools with which to analyse and understand its unique contributions to culture and society, is particularly acute in Malaysia and other countries. Private broadcasters had little interest in investing for DAB+ or DRM especially when they can use alternative distribution in disseminating their content.

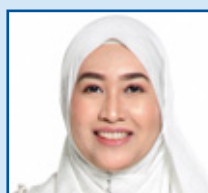
Technologies that bring new levels of speed, flexibility, and power to activities like health care, agriculture, transportations and especially to communication and telecommunication are revolutionising many industries. However, these changes are not being driven by a broad vision. Great ideas are mostly created and geared at achieving commercial success. Creativity is drawn in the direction of possible markets by business people. Radio curation websites, research databases, permanent web interfaces for conventional radio outlets, audio archives, podcasts, streaming radio, digital music services, and so on are just a few of the new sites and resources for radio

and sound scholarship that have emerged as a result of the digital revolution, which has also had an impact on other media.

New Industry study or research recommended to be conduct to re-look again on the possibility implementation of Terrestrial Digital Sound Broadcasting in Malaysia. This will be followed by Technology trial in Malaysia by interested party that coming from public, private and community broadcaster or any other parties that have interest in the Digital Radio Broadcasting Technology before commercial / bigscale implementation can be carry out. Full support from regulatory and government agency in Malaysia in-term of financial grant would help to make this initiative successful.

This research was funded by FRGS - 0595-1/2023.

### AUTHORS



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Universiti Malaysia Sabah

Dr Intan Soliha Ibrahim is a senior lecturer in Communication Program and currently holds the position of UMS Radio Station Manager, UMSfm. She received her doctorate in Broadcasting and Telecommunication from Universiti Sains Malaysia in 2020. Master's Degree in Communication (radio) in 2012 and Bachelor's Degree with honours in Social Science (Communication - Broadcasting/ Journalism) in 2007 from Universiti Malaysia Sabah. She's actively participated and won in research and teaching and learning competition at university, national and international level. In 2024, she won first prize in Alternative Assessment, Anugerah khas YB Menteri Pendidikan Tinggi Rekabentuk Kurikulum & Penyampaian Inovatif (AKRI).



**Ts. Azhar Bin Abdul Latiff**  
MediaLab Alliance Sdn Bhd

Ts. Azhar Bin Abdul Latiff in his role as Managing Director with Medialab Alliance Sdn. Bhd. Experience in managing local and international Broadcast Technology projects since 2004, specialized in Audio Systems, Ts. Azhar has obtain his working experience in various company like ASTRO, Salzbrenner Stageteck Mediagroup, Junger Audio Asia and JAA Systems. Among projects that he has completed are Masjid Haram Holy Mosque, Makkah; Radio Televisyen Malaysia Auditorium Perdana Hall, Astro Radio Studio, Astro Cyberjaya Broadcast Centre; Manis FM, CATS FM, KK12FM, Pi Mai FM, Star Radio, Kristal FM Brunei, RTB OB Van Brunei, RTM KK OB Van, IKIM FM and RTM Radio Studios many more. ■

# ABU TECHNICAL BUREAU MID-YEAR MEETING 2025 IN KUALA LUMPUR

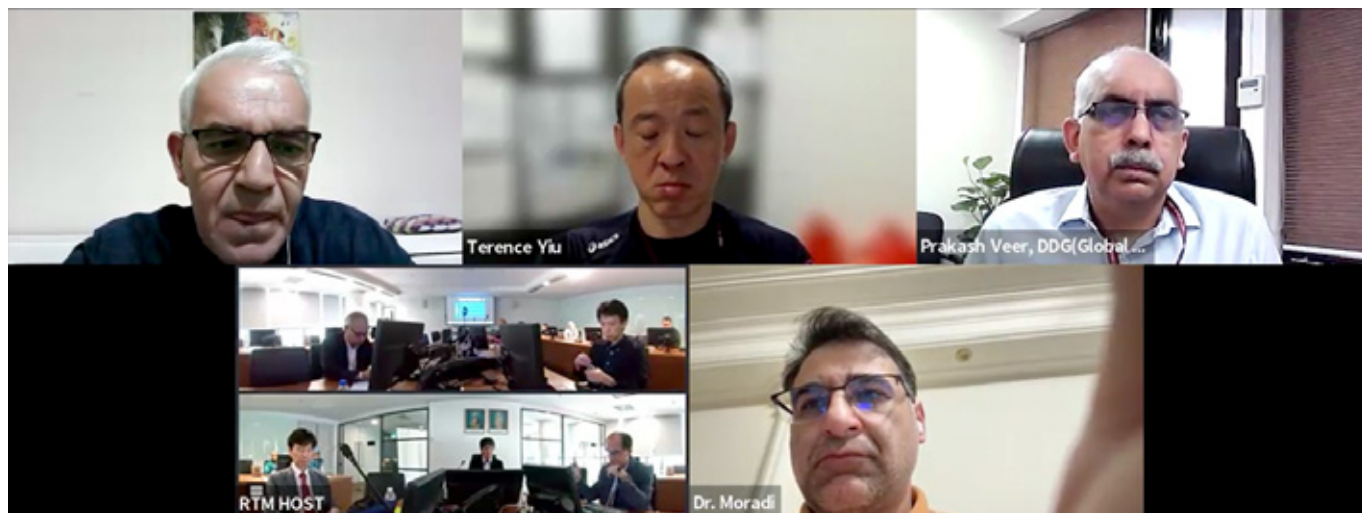


The ABU Technical Department successfully organized the ABU Technical Bureau (TB) Mid-Year Meeting 2025, graciously hosted by ABU Full Member, Radio Televisyen Malaysia (RTM). The meeting was held on April 16-17, 2025, at Angkasapuri, Kuala Lumpur.

Conducted in a hybrid format, the meeting was chaired by **Mr Masashi Kamei** of NHK-Japan, Chairperson of the ABU Technical Committee. Vice-Chairman **Mr Kazim Pektas** of TRT-Türkiye participated virtually. While a small group of delegates attended in person, the majority

actively engaged online via Zoom.

The meeting commenced with a welcome address by **Dr Veyssel Binbay**, Director of ABU Technology, followed by opening remarks from Mr. Masashi Kamei, who expressed heartfelt appreciation to RTM for their excellent hosting. Representatives from NHK-Japan, RTM-Malaysia, PB-India, TRT-Türkiye, VOV-Vietnam, IRIB-Iran, Mediacorp-Singapore, and Phoenix TV-Hong Kong, China, participated both onsite and online.



During the discussions, the Chairperson presented a strategic vision for 2030-2040, highlighting advancements in immersive media, satellite transmission integration, and volumetric video production for virtual environments. NHK's Science & Technology Research Laboratories (STRL) also showcased initiatives addressing social challenges and enhancing broadcasting technologies under three pillars: Immersive Media, Universal Services, and Frontier Science. Key highlights included layered satellite transmission techniques, photorealistic volumetric video production, technologies for ensuring content provenance and reliability, and research on optimizing head-mounted displays for improved field of view and image resolution.

The Bureau then reviewed the Activity Report presented by Dr Veysel Binbay, which outlined progress on TB tasks and actions since the General Assembly in Istanbul. Notable achievements included workshops on Cloud Services and Remote Tools for Broadcasters, a webinar on AI TV in collaboration with NETSTAIRS and VYPA, and the successful organization of the Digital Broadcasting Symposium. Participant feedback is actively being incorporated to continually enhance ABU events.

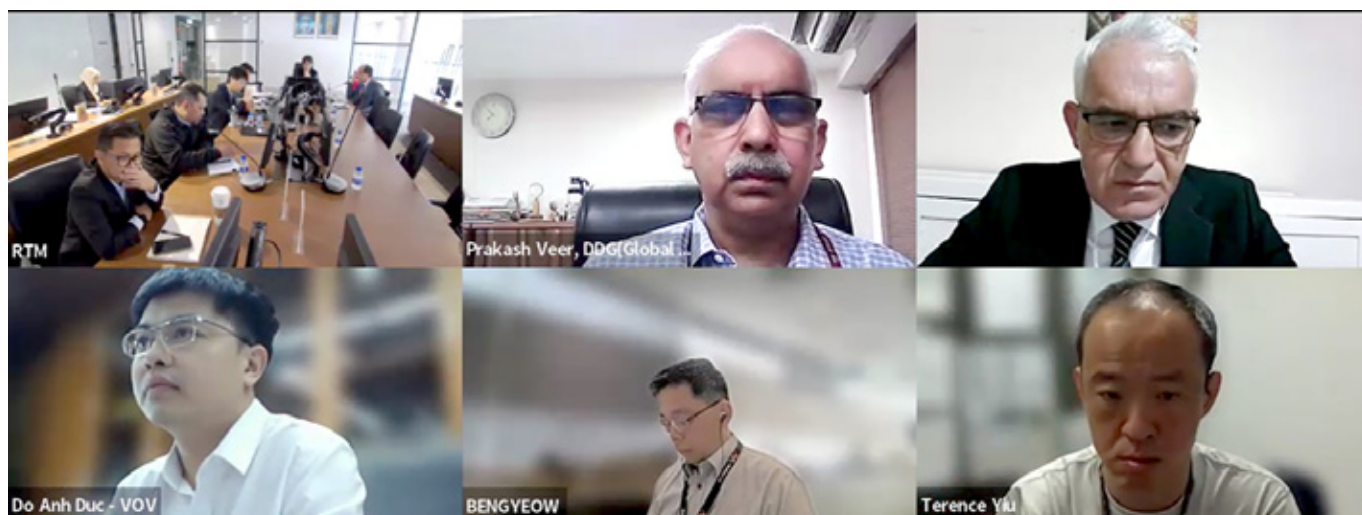
A significant discussion centered around a newly updated questionnaire circulated prior to the meeting. Designed by the Chairperson, the questionnaire gathered insights on TV and radio broadcasting practices across

member organizations. This initiative fostered valuable experience-sharing and helped identify best practices, offering members a deeper understanding of each other's operations and challenges.

Following this, reports on Study Topic Areas were delivered by designated chairpersons: **Mr Prakash Veer** from Prasar Bharati-India for Training & Services, **Dr Hirokazu Kamoda** from NHK-Japan for Distribution, and **Mr Kazim Pektaş** from TRT-Türkiye for Production. Regrettably, Dr Li Leilei from NRTA-China, responsible for the Spectrum study area, was unable to attend.

The meeting concluded with a review and discussion of the upcoming schedule for the annual Technical Bureau and Technical Committee meetings, set to take place during the ABU General Assembly in Ulaanbaatar, Mongolia, this September.

The session was adjourned with sincere thanks from Dr Veysel Binbay to RTM-Malaysia, all attendees, and the Chairperson and his team for their invaluable contributions. As a gesture of appreciation, small tokens were presented by the Director of ABU Technology to RTM and key participants. Mr Kamei also expressed his gratitude to all participants for their engagement and support throughout the meeting. ■





# ACCELERATING MEDIA INNOVATION: ABU AND NRTA HOST FIRST CCBN-ABU NEXUS AI WORKSHOP



The inaugural CCBN-ABU Nexus Event AI Workshop was held on April 23, 2025, at the Shougang International Exhibition and Convention Centre in Beijing. Jointly organized by the Academy of Broadcasting Science, the National Radio and Television Administration (NRTA), and the Asia-Pacific Broadcasting Union (ABU), the

workshop emerged as a key feature of the event. It convened professionals from the broadcasting, academic, and technology sectors to examine the accelerating impact of artificial intelligence (AI) and machine learning technologies on media production, operations, and governance.



Opening remarks were made by **Mr Sheng Zhifan**, Vice President of the Academy of Broadcasting Science, National Radio and Television Administration and Vice Chair of the ABU Technical Bureau, along with **Dr Veysel Binbay**, Director of ABU's Technology & Innovation Department. Both speakers emphasized the importance

of collaboration among broadcasters and the exchange of technical expertise to responsibly integrate next-generation technologies, thereby improving service delivery across various platforms.

The program featured leading experts addressing a

spectrum of AI applications and challenges. **Mr Chen Jiaxing** of Hangzhou Danghong Technology provided insights into the deployment of large-scale AI models, including natural language processing and text-to-video generation, within media workflows. **Mr Zhang Lejong**, Head of the Technology Department at Radio Television Hong Kong (RTHK), outlined RTHK's AI-enhanced production infrastructure and its operational benefits regarding automation and efficiency. **Ir. Ts. Ahmad Shafiq Mirza bin Mansor** of RTM-Malaysia discussed regulatory and risk management strategies in the context of AI usage for editorial content and news verification. **Dr Liu Jie** from the Beijing University of Posts and Telecommunications explored the policy and governance challenges posed by artificial intelligence-generated content (AIGC), focusing on oversight frameworks and ethical standards.

In addition to the workshop, representatives from the ABU Secretariat and member organizations, including TRT-Türkiye, MTVA-Hungary, MNB-Mongolia, NHK Foundation-Japan, and RT-Russia, actively participated in the CCBN Exhibition. These engagements provided valuable opportunities to connect with industry leaders and explore cutting-edge developments in AI-powered broadcasting technologies and emerging content delivery trends.

Participants throughout the event underscored the importance of collaboration, adaptability, and ongoing knowledge-sharing to keep pace with rapid technological changes. The CCBN-ABU Nexus Event, with the AI Workshop at its core, reaffirmed ABU's commitment to fostering technical innovation and strengthening regional collaboration across the Asia-Pacific broadcasting landscape.

The workshop successfully demonstrated strong international interest in leveraging AI to transform media systems. It reaffirmed the industry's collective vision for a smarter, more adaptive, and forward-looking broadcasting landscape. ■





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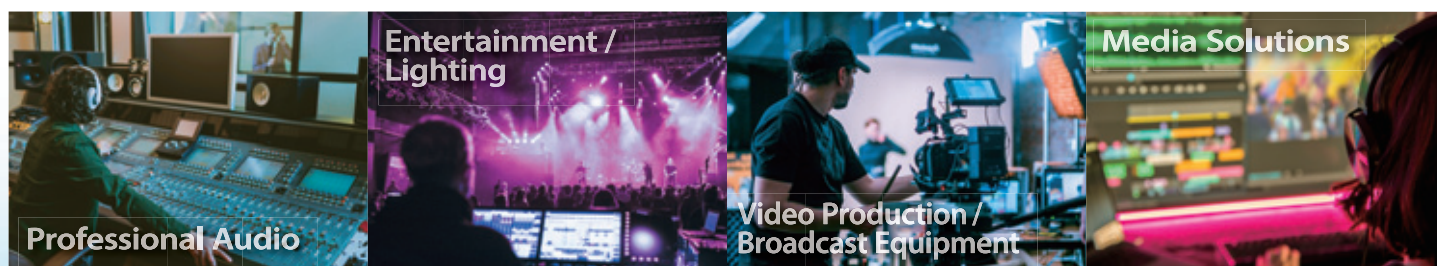
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# ABU-DRM WEBINAR HIGHLIGHTS ADVANCEMENTS AND IMPLEMENTATION OF DIGITAL RADIO MONDIALE

**DRM Latest Developments and Aspects of Implementation**

Speakers:  
Alexander Zink, DRM Vice Chair, DRM  
Ruxandra Obreja, DRM Consortium Chairman, DRM

**drm**  
DIGITAL radio mondiale

**ABU**  
Asia-Pacific Broadcasting Union

**Tuesday,  
6<sup>th</sup> May  
2025  
3:00–5:00PM MYT**

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**Speakers**

**Ruxandra Obreja**  
Chair DRM Consortium

**Alexander Zink**  
Vice-Chairman DRM Consortium,  
Chief BDM Digital Radio, Fraunhofer IIS

**Yogendra Pal**  
Hon Chairman  
DRM India Chapter

**Radu Obreja**  
DRM Consortium  
Marketing Director

**DRM - ABU Workshop – 6th May 2025**

On 6 May 2025, the ABU Technical Department successfully hosted a dedicated webinar titled “DRM Latest Developments and Aspects of Implementation”, drawing 15 participants from seven-member organisations across seven countries. The session brought together digital radio experts and regional broadcasters to explore the latest progress in Digital Radio Mondiale (DRM) technology and its growing relevance for public

service media across the Asia-Pacific. Opening remarks from ABU Technology highlighted the importance of digital transformation in broadcasting, reaffirming DRM’s strategic value in enhancing coverage, resilience, and media access. The webinar provided participants with global and regional updates on DRM deployment, and practical perspectives on scaling digital radio infrastructure in their own contexts.

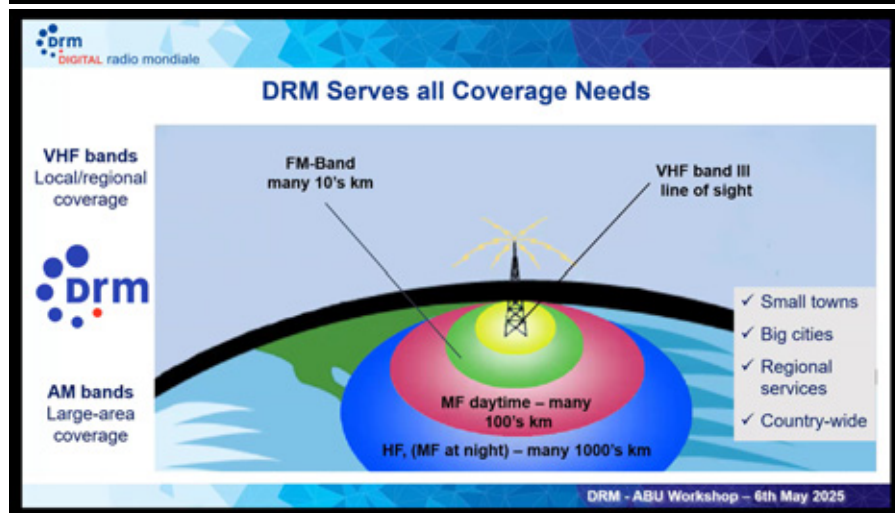
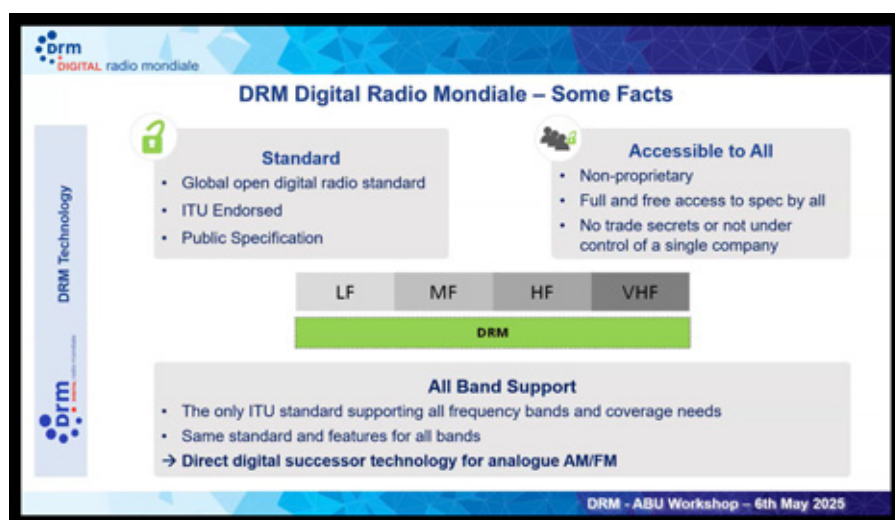


**Ruxandra Obreja**, Chair of the DRM Consortium, opened the speaker session by outlining DRM's position as the only all-band digital radio standard, covering AM, SW, FM, and VHF. She emphasized its cost-efficiency, energy savings, and flexibility, making it suitable for a wide range of markets. Obreja reinforced DRM's standing as a mature, scalable, and future-proof solution that supports both national and local broadcasting goals.

**Alexander Zink**, Vice-Chairman of the DRM Consortium, presented the technical strengths of the system. He introduced DRM's multimedia features such as Journaline (interactive text), Slideshow, and Station Logos, and highlighted its Emergency Warning Functionality (EWF) – particularly relevant for disaster-prone regions. Zink also noted DRM's efficiency in transmitting multiple audio programmes over a single frequency, and its compatibility with existing analogue infrastructure. One compelling example he shared was DRM's use in The Gambia, where scheduled educational broadcasts are combined with digital content to support remote learning in underserved areas.

**Yogendra Pal**, Honorary Chairman of the DRM India Chapter, provided practical insights from India's wide-scale DRM rollout. India has already deployed 37 DRM medium wave transmitters, now covering more than 900 million people, and more than seven million cars in the country

are DRM-enabled. He described how DRM's emergency warning system has been integrated into India's national disaster preparedness strategy. Pal also shared updates from other countries pursuing DRM deployment, including Indonesia, where five DRM FM transmitters are operational, as well as initiatives underway in China, Nepal, Pakistan, and South Africa.

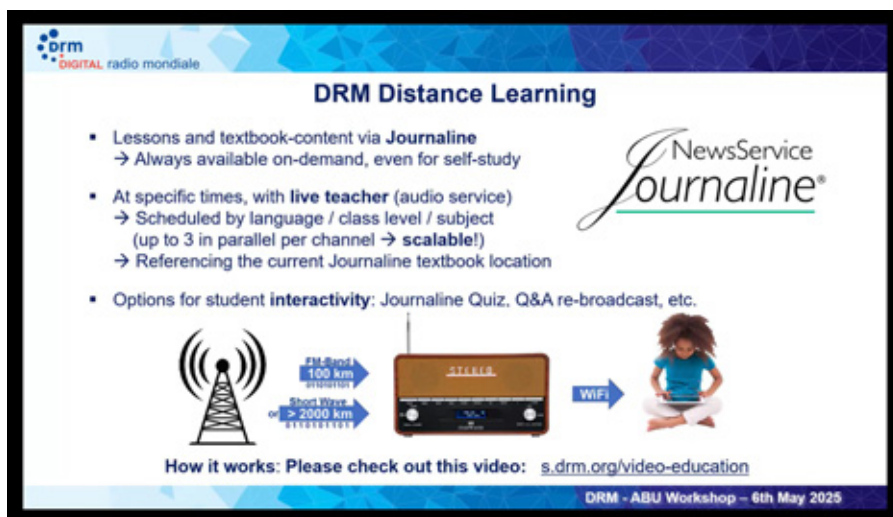


**Radu P. Obreja**, Marketing Director of the DRM Consortium, focused on the growing ecosystem of DRM receivers and industry engagement. He introduced new, affordable receivers such as India's N88 model and STARWAVES car units. Obreja pointed to the increasing interest from both governments and private sector players across the Asia-Pacific, especially in leveraging DRM to bridge information gaps in rural and hard-to-reach communities.

Advancing Technical Innovation In the second part of the session, Alexander Zink returned to share updates on technical innovations, including Multichannel DRM and simulcasting with analogue FM – allowing broadcasters to deliver both digital and analogue services using a single transmission facility. He also introduced the latest edition of DRM receiver guidelines, aimed at supporting consistent device performance and interoperability across markets.

The webinar concluded with a lively Q&A segment. Participants asked questions about the availability and pricing of DRM receivers, integration with analogue networks, and operational planning. The speakers offered practical responses, encouraged collaboration, and invited broadcasters to consider pilot projects and engage more deeply with the DRM Consortium.

ABU Technology expressed its appreciation to the speakers and attendees for their active participation. The session reinforced DRM's value as a robust and forward-looking platform for public broadcasting, offering innovative, cost-effective, and inclusive solutions to meet evolving media needs across the region. ■



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DRM - ABU Workshop – 6th May 2025



**DRM Digital Radio for Emergency Warnings – Complete Cover of All Disaster Stages**

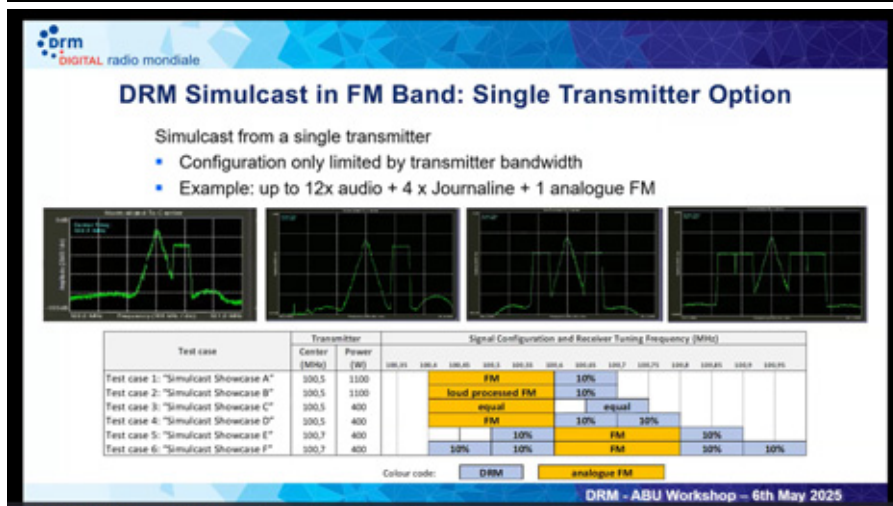
Detection of pending disaster → Disaster hits

Preparatory General Education → Instant Warning Dissemination → Crisis / Rescue Support → Post-Disaster Services

Digital Radio provides essential services as it:

- reaches the affected people reliably
- enables detailed multi-lingual text infos

DRM - ABU Workshop – 6th May 2025



**DRM Simulcast in FM Band: Single Transmitter Option**

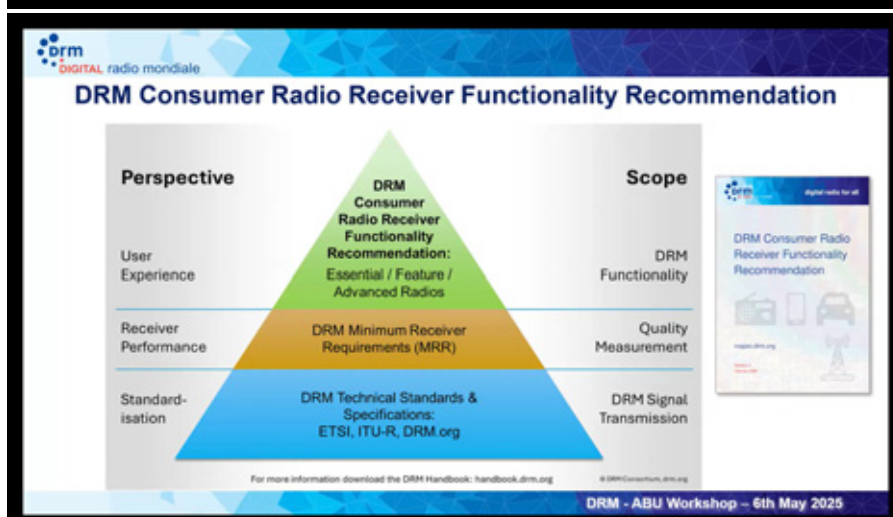
Simulcast from a single transmitter

- Configuration only limited by transmitter bandwidth
- Example: up to 12x audio + 4 x Journaline + 1 analogue FM

| Test case                           | Center (MHz) | Power (W) | Signal Configuration and Receiver Tuning Frequency (MHz)                                                          |
|-------------------------------------|--------------|-----------|-------------------------------------------------------------------------------------------------------------------|
| Test case 1: "Simulcast Showcase A" | 100.5        | 1100      | FM 100.5, 100.6, 100.7, 100.8, 100.9, 101.0, 101.1, 101.2, 101.3, 101.4, 101.5, 101.6, 101.7, 101.8, 101.9, 102.0 |
| Test case 2: "Simulcast Showcase B" | 100.5        | 1100      | FM 100.5, 100.6, 100.7, 100.8, 100.9, 101.0, 101.1, 101.2, 101.3, 101.4, 101.5, 101.6, 101.7, 101.8, 101.9, 102.0 |
| Test case 3: "Simulcast Showcase C" | 100.5        | 400       | FM 100.5, 100.6, 100.7, 100.8, 100.9, 101.0, 101.1, 101.2, 101.3, 101.4, 101.5, 101.6, 101.7, 101.8, 101.9, 102.0 |
| Test case 4: "Simulcast Showcase D" | 100.5        | 400       | FM 100.5, 100.6, 100.7, 100.8, 100.9, 101.0, 101.1, 101.2, 101.3, 101.4, 101.5, 101.6, 101.7, 101.8, 101.9, 102.0 |
| Test case 5: "Simulcast Showcase E" | 100.7        | 400       | FM 100.7, 100.8, 100.9, 101.0, 101.1, 101.2, 101.3, 101.4, 101.5, 101.6, 101.7, 101.8, 101.9, 102.0, 102.1        |
| Test case 6: "Simulcast Showcase F" | 100.7        | 400       | FM 100.7, 100.8, 100.9, 101.0, 101.1, 101.2, 101.3, 101.4, 101.5, 101.6, 101.7, 101.8, 101.9, 102.0, 102.1        |

Colour code:     DRM     analogue FM

DRM - ABU Workshop – 6th May 2025



**DRM Consumer Radio Receiver Functionality Recommendation**

**Perspective**

- User Experience
- Receiver Performance
- Standardisation

**Scope**

- DRM Functionality
- Quality Measurement
- DRM Signal Transmission

**DRM Consumer Radio Receiver Functionality Recommendation:**

- Essential / Feature / Advanced Radios
- DRM Minimum Receiver Requirements (MRR)
- DRM Technical Standards & Specifications: ETSI, ITU-R, DRM.org

For more information download the DRM Handbook: [handbook.drmm.org](https://handbook.drmm.org)

DRM - ABU Workshop – 6th May 2025

# ABU PARTICIPATES IN BROADCAST ASIA 2025 AS INDUSTRY PARTNER

The ABU is a proud partner of BroadcastAsia 2025, which is taking place in Singapore EXPO from 27 May to 29 May 2025. BroadcastAsia 2025 showcased cutting-edge technologies and emerging trends, while providing a vital platform for global networking and collaboration.

Throughout the three-day event, keynote addresses, panel discussions, and expert presentations provided in-depth insights into the challenges and opportunities currently facing the media and broadcasting sector.

The ABU and its members actively engaged with industry peers, media professionals, and technology experts, fostering rich discussions around regulatory frameworks, technological advancements, and content strategies.

As part of its contribution to the event, the ABU hosted a



workshop titled “Future of Media Delivery: Expectations & Facts” on 28 May 2025, at Hall 5 of the Singapore EXPO. The session was part of the AsiaTechX Singapore programme and brought together media and technology professionals for an engaging discussion on the evolution of content delivery systems.

Moderated by **Mr Peh Beng Yeow**, Lead of Content Preparation at Mediacorp, the workshop explored how rapidly advancing technologies and changing audience behaviours are reshaping media delivery. The conversation focused on bridging the gap between expectations and operational realities, offering attendees practical insights into implementation challenges and emerging trends.

The panel featured **Ms Emily Dubs**, Head of Technology at the DVB Project; **Mr Michael McEwen**, a media consultant; and **Dr Peter Siebert**, Vice President of the IEEE Broadcast Technology Society (BTS).

**Dr Peter Siebert** discussed the growing move away from traditional, dedicated broadcast infrastructure in favour of more flexible telecommunications networks. He noted that this shift is driven by cost efficiency and the increasingly multi-platform habits of today’s viewers.

**Mr Michael McEwen** emphasised the importance of maintaining universal, free-to-air access. He cautioned against over-reliance on commercial telecom operators, whose business priorities may not always align with the public interest. While supporting the need for evolution,

he stressed that media systems must remain inclusive, particularly during emergencies and for public service broadcasting.

From a technical perspective, **Ms Emily Dubs** highlighted that while broadcast may no longer be the default channel for most viewers, it continues to play a crucial role within the media ecosystem – especially as a reliable backup in times of crisis. She advocated for a hybrid model that combines broadcast, telecom, and IP-based systems to create a more adaptable and resilient infrastructure.

The ABU’s workshop provided a valuable forum for exchanging perspectives and strategies to meet the challenges of a rapidly evolving media landscape. By fostering open dialogue among broadcasters, technologists, and policymakers, the ABU continues to play a pivotal role in shaping the future of media delivery across the Asia-Pacific region. ■



# NEW TV GENERATION STANDARDS

## RT

To mark RT's 20<sup>th</sup> anniversary, we reflect on how television technologies have influenced and continue to influence global companies like ours. Since our inception, we have actively explored cutting-edge technologies that help us find bold and candid answers to our audience's questions. We have tirelessly striven to expand the horizons of the news space by applying innovative interactive approaches in storytelling, while earning a reputation for consistently exceeding expectations in the process.

RT is founded on two key pillars: quality journalism and visualization. These aspects are closely interconnected: every image serves the story, and the story cannot exist without captivating visualization. It is by rigorously upholding these principles that we ensure that the quality of all our news material is always of the highest standard.

We use all the tools available to achieve our goal. For us, even a small or secondary story must be presented as a quality product.

But how did simple and often boring news turn into something more than just a person sitting behind a desk reading text from a sheet of paper? Today, we see a world where all areas of the media industry are intertwined. News today includes social media, messaging apps on mobile phones, educational platforms where viewers become direct participants in events, and even cinema in its purest form.

## AT THE DAWN OF TELEVISION

News is one of the most popular formats on television. News programs appeared at the dawn of the media industry and gradually evolved, while entertainment programs have changed, gained, and lost popularity.

People watch the news because it tells them about important events. Without news, people would be in an informational vacuum. News is a reflection of reality. Reports about incidents and events will always evoke emotions and stir people.

In the modern world, technological development has made news more accessible. People can receive information about events in real time using various devices and platforms. This has contributed to the emergence of new formats for delivering news, such as live broadcasts, streams, video reports,

and podcasts.

News programs continue to evolve and adapt to changing conditions. They are becoming more interactive, allowing viewers to participate in discussions of events and share their opinions. In addition, news programs actively use social media to disseminate information and attract an audience.

Thus, the development of news programming has not stopped but is, rather, becoming more diverse and accessible to viewers. People have the opportunity to stay informed about important events and make well-considered decisions based on the information received.

For the past century, the format of television news has evolved, while remaining fundamentally unchanged. A studio room with good sound



*Soviet TV news, 1957. The presenter sits in front of a chroma key displaying a graphic map.*

insulation, a table with a microphone in the center – behind it sits the anchor. The first television news broadcasts began in 1951 with the development of analog broadcasting, generally in the same format used for radio programs.

With the expansion of television networks and the development of video equipment, studios with anchors began to be supplemented by on-scene footage. At first, these were recordings, and later – live broadcasts.

Different TV channels competed in creativity, striving to make their picture more appealing. Projectors like those in movie theaters began to be installed in studios to broadcast news stories.

Modern news studios are equipped with various innovations: bright and engaging designs with multi-screens, advanced equipment, powerful cameras, and satellite communication for live broadcasts. Such studios have become the new standard in the television news industry.

But what comes next? What is the next step in the evolution of this established format? How can we diversify and surprise the viewer in the second quarter of the 21st century? What new or adjacent solutions can be introduced into the news without changing its familiar format? Perhaps it is worth turning our attention to another popular and experienced industry – cinema!

### LIGHTS, CAMERA, ACTION!

The process of filmmaking has always been complex and expensive. Films were often shot on-location, although sets built at movie studios also played an important

role. However, it is not just about location, but also the amount of resources involved. A large number of people may participate in a film shoot: camera operators, lighting technicians, makeup artists, costume designers, stunt performers, and many others.

Unlike film production, television shoots are usually smaller in scale. Television is aimed at a wide audience, so the main focus is on accessibility and content variety. Television studios often use simpler and more cost-effective production methods, such as multi-camera setups and chroma key for creating special effects.

Over time, some countries saw the emergence of paid cable television. Programs became more engaging and spectacular, but production remained limited. Channels primarily invested in so-called prime-time shows, which paid off through advertisers. As a rule, such programs aired in the evening, when most families were at home. This allowed advertisers to maximize their reach to their target audience.

Made-for-TV movies were less expensive than full-length theatrical films and attracted viewers who preferred to watch movies at home. In addition, they gave film studios an opportunity to experiment with new ideas and formats with less financial risk. Thus, the emergence of made-for-TV films became an important step in the development of the media industry, combining the best features of cinema and television. However, with the advancement of technology and the appearance of new formats such as streaming services, the boundaries between cinema and television are becoming

blurred. Television channels can now create content that rivals feature films in quality and scale. Film studios, in turn, are beginning to experiment with formats to attract more viewers.

As the home viewing format grew in popularity, so did expectations for the quality and ambition of the ideas and projects that filmmakers wanted to realize. Budgets became comparable to those of major theatrical films. In the competitive struggle for viewers, creators had to find new ways to reduce production costs without compromising quality.

Thus, the media industry is in a state of constant motion and transformation. It adapts to new technologies, changes in audience demands, and other factors. This development has been made possible thanks to the efforts and creativity of the people working in this field. Unlike cinema, television – or more precisely, news – is a live operation. Therefore, when broadcasting a “live” signal, it is always taken into account that any technology must work in real time.

Realistic special effects were actively used in cinema but creating them required extensive preparation and hundreds of hours of pre-calculation. News, weather forecasts, or sports broadcasts also used 3D graphics, but due to the limitations of real-time rendering performance, it remained fairly primitive.

### THE OLE SWITCHEROO!

The newer the technology, the more difficult it is to manage and the more expensive it often turns out to be. Therefore, it is logical that cinema was the first to begin using the latest tools that made it possible to



Courtesy: arri.com



*The Battle for the Reichstag. A project dedicated to Victory Day on RT Arabic.*

shoot films not only on real physical sets, but also against a backdrop of artificial ones, drawn on a computer and displayed on large screens in real time.

This reduced production costs and allowed for a more creative approach to filming in computer-generated environments. The entire crew, including the actors, could see where they were and perform their roles more convincingly than against a green chroma key background. Real-time imaging technologies became well-established and turned into an additional tool for creating feature films and television series.

News television quickly picked up this idea and started using new technologies in producing special reports, while integrating the familiar news studio with an anchor on screen.

In this way, a reporter can create a news story by being directly “inside the action” and describe what is happening live on air, without even leaving the studio. For example, a reporter can talk about the fall of a meteorite 1,000 years ago, about taking part in battles during the Second World War, or about the presentation of a concept for a future space station, while clearly illustrating to viewers the technologies of the future.

News has changed forever. Directors

can now give free rein to their imagination when preparing a new report. Political events, such as parliamentary elections, can be presented as virtual spaces with numerous interactive elements: animated candidate profiles or graphs that clearly illustrate the essence of what is happening.

RT’s production complex houses seven news studios. Five of these are dedicated to specific channels that broadcast in English, Arabic, Spanish, French, and German. Each studio is fully equipped with everything necessary to go live at any time. The cameras are mounted on telescopic cranes and fitted with optical tracking systems for positioning augmented reality elements, both through LED panels and on chroma key screens.

Studio 6 is a multipurpose space designed for a variety of tasks and is primarily used for non-news programs, special broadcasts, and post-production. The advantage of Studio 6 is that it is fully programmable, with transformable screens that can move along the studio’s coordinate grid. This allows the set designer to quickly reconfigure the space to match the desired preset of the program.

#### CHALLENGES!

What are the advantages and disadvantages of working with real-

time 3D graphics?

The advantage is that the entire team working on the project has more time for preparation. Shooting content in real time implies that all virtual sets are prepared in such a way that, after filming, a fully finished result is obtained that requires no further adjustments.

A similar logic applies to television news, which is understandable, since news broadcasts are live, and the viewer always sees a finished result. However, there is a nuance – the preparatory work in the studios. In news studios, no one waits for you to prepare your graphic material. Every hour, regardless of anything other than the news itself, the anchor must be on camera and go on air. No artistic or technical specialist is allowed to interfere during the broadcast.

Therefore, it can be confidently stated that the most difficult preparation of high-quality, cinematic-level content takes place precisely in television news. Projects are developed within tight deadlines to match current news events. Technical specialists integrate the visuals into the real studio sets in the very short intervals between broadcasts, which run nonstop, 24/7.

Every project is a challenge for the team, which is why highly qualified specialists work in this field. The



Special live broadcast of the Bundestag election results. RT Deutsch (Studio 6)



RT Deutsch news studio



Augmented reality on RT International. Project: Victory Photo

integrate augmented reality into the studio by adjusting the lighting and color balance.

### TECHNICAL TASKS

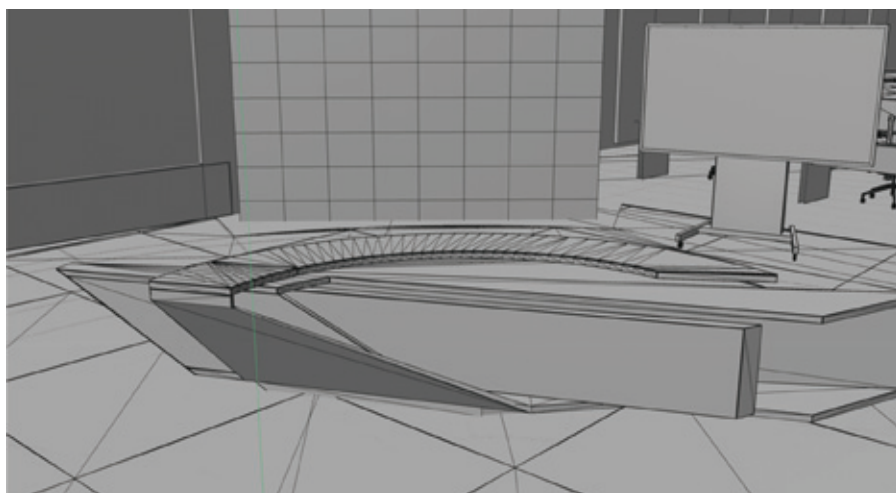
The artistic element is often subjective, unlike the technical or scientific component, which is more objective.

One of the key aspects of creating the correct perception of the final image is anchoring virtual objects to real physical locations. First and foremost, attention should be paid to setting up the tracking system properly and calibrating the camera lens accurately. It is also important to ensure that global coordinate systems are configured correctly.

production follows a clear, step-by-step process.

First, concept art is created. Then, computer graphics artists begin their work: they handle 3D modeling and develop visual effects. After that, the animators and programmers responsible for the event logic within the projects join the process.

The second part of the work is engineering: graphic elements are integrated into studios equipped with complex tracking systems. The camera's position in space, as well as data on zoom, focus, and even lens distortion, is transmitted to the graphics component by the system. The final stage is the work of compositing artists, who fully



3D reconstruction of the RT Español studio

As of today, the most effective solution is an optical tracking system with its own camera that reads reflective markers pre-attached to the studio ceiling. This system instantly scans the markers and transmits the spatial coordinates of the camera with virtually no delay.

If the tracking system is not configured correctly, virtual objects in the frame will either move ahead of or lag behind the image transmitted by the camera during motion. Incorrect lens distortion compensation settings will cause virtual objects to become distorted as the camera moves, and the images will drift apart relative to each other.

To create a cohesive perception and avoid distractions for the viewer, all images must be in perfect sync.

The second important aspect is the actual scale of the relative objects in the frame. Each virtual object must correspond to its proper scale and proportions. For example, if a 3D model of a car is prepared with

incorrect proportions and sizes – say, two-thirds of the real one – it will appear unnatural and toy-like in the frame. On a subconscious level, the viewer will sense that something is wrong. However, the goal of any visualization, even one for entertainment purposes, is to convey the story or deliver the information that it is supposed to illustrate.

To create virtual objects correctly, it is best to use LiDAR. This technology uses laser radiation to precisely measure distances to objects and their placement in space. Simply put, a laser rangefinder analyzes the environment by emitting laser pulses and registering their reflections. Scanning objects using this technology allows for millimeter-level precision.

#### FUTURE

Many people have already encountered artificial intelligence (AI), whether consciously or not. An average viewer might have seen generative graphics and been amazed by the bizarre shapes or

amusing videos created by AI.

In reality, the scope of AI application is much broader. Images on the internet are just the tip of the iceberg. As interest in augmented reality (AR) grows and the demand for cinematic quality in news increases, new AI tools are coming to the forefront.

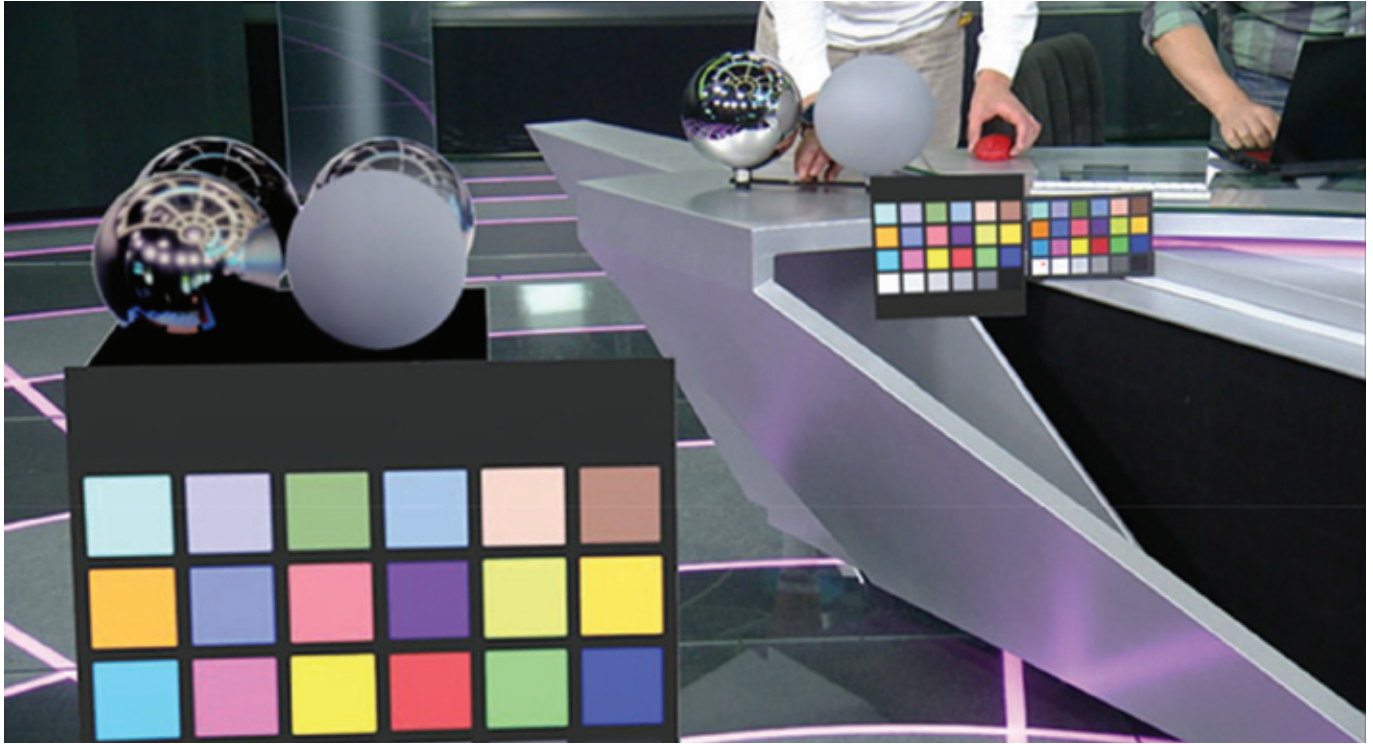
Many people don't even realize which elements they see on the screen are real and which are AI generated. For example, AI can reconstruct physical processes like light, reflections, and weather phenomena, as well as create fully generated sets. It can even replace on-screen anchors with virtual avatars.

Meanwhile, AI-powered data analysis is employed to understand which content attracts viewers the most. These days, it doesn't matter how content reaches the end user – through an internet browser, a messenger app, or a Smart TV. Data is collected across all platforms to determine how best to allocate resources and more effectively draw attention to one's own media service.

At RT, we place great importance on developing AI and maintaining control over it. For us, it is crucial that any information processed through AI is reliable.

The main directions for AI development in the future include harnessing its analytical capabilities and creative solutions, as well as its assistance in dealing with medical issues and natural disaster prevention and information.

Professionals working with special effects at the dawn of cinema and television already understood a simple truth: even the most complex tools are secondary when it comes to creating something extraordinary. What matters most is how artistically and creatively designers and programmers approach the realization of their own thoughts and ideas. What's important is how passionate a person is about their work. Any professional will tell you that the most valuable asset in an artist's work is experience and having



Color correction tools. The final stage of producing augmented reality for the studio



'Our Dialogue' program on RT Arabic. A combination of augmented reality and artificial intelligence. Generative sets.

ARTIFICIAL  
INTELLIGENCE

## AI AVATAR



*Virtual presenter generated by artificial intelligence. Project: AI AVATAR.*

a well-trained artistic vision. All technologies are merely tools to help achieve set goals. No AI can replace the passion for one's craft that comes from the heart.

That is why RT always supports and values its employees. In a large company, it is easy to lose the lightness and corporate spirit that unites people. However, we strive to ensure that our employees not only work together but also form

friendships, value family, and nurture their children.

It is important to pass knowledge on to future generations, to ensure that our children are proud of us and understand the important work we are doing. We are confident that our achievements will continue to grow, new ones will emerge, and all of them will be aimed at benefiting society and the entire world.

### AUTHOR



**Roman Nikitin** is the Head of VFX & 3D Graphics Department at RT, the global multilingual TV news network. Roman leads the team in charge of the network's VFX, AI and Augmented Reality projects and manages the entire production pipeline, including the work of all of the VFX artists. He is responsible for all 3D Graphics elements produced for newscasts, programs and special projects alike. ■



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# QUESTION MORE

# News from The ABU Region

## NHK WORLD-JAPAN ENHANCES APP SERVICES FOR EMERGENCIES

In response to the rising number of foreign residents and international visitors in Japan, which reached record levels in 2024, NHK WORLD-JAPAN has expanded and enhanced its mobile app to better serve non-Japanese speakers during emergencies. Originally offering disaster alerts – including earthquake and tsunami warnings – in four languages (English, simplified and traditional Chinese, Portuguese, and Vietnamese), the app now supports 11 languages across 12 writing systems, reflecting a significant upgrade in multilingual accessibility.

Seven new languages – French, Hindi, Indonesian, Korean, Russian, Spanish, and Thai – have been added to meet the diverse linguistic needs of Japan's international population. This development broadens the app's reach, enabling a larger audience to receive life-saving emergency information during natural disasters.

In addition to language expansion, NHK WORLD-JAPAN has introduced push notification alerts for meteorological emergencies, such as torrential rain and severe storms. These alerts are triggered immediately after the Japan Meteorological Agency (JMA) issues an official warning, providing users with timely and accurate information to help them take necessary precautions.

To benefit from these services, users must download the app, choose their preferred language, and activate the appropriate notifications for earthquakes, tsunamis, and weather emergencies. The app's improved functionality ensures that both foreign tourists and residents can stay informed and react swiftly during

crises – a vital service in a country frequently affected by natural disasters.

With this enhancement, NHK WORLD-JAPAN reinforces its role as a trusted source of multilingual emergency communication. The initiative reflects NHK's commitment to public service and disaster preparedness, helping to ensure the safety and well-being of non-Japanese speakers living in or visiting Japan. By making critical information more accessible, NHK WORLD-JAPAN strengthens community resilience and supports the integration and protection of Japan's growing international population. [\[ABU News\]](#)

## MEDIA PRIMA REAPS NEW OTT REVENUES VIA BROADPEAK'S DYNAMIC AD PLATFORM

Launched in 2010 by Malaysian media company Media Prima, Tonton is a rapidly growing over-the-top (OTT) streaming platform offering a variety of local and exclusive live content, including popular channels like TV3. As part of its revenue transformation strategy, Media Prima has partnered with Broadpeak to implement dynamic ad insertion through the broadpeak.io Software-as-a-Service (SaaS) platform.

Gregory Eu, Head of Product at Tonton, stated that the company sought a reliable partner to enhance its monetisation capabilities and ensure scalability. Broadpeak's server-side ad insertion (SSAI) allows Tonton to deliver seamless ad experiences with dynamic personalisation across devices, helping to maximise advertising value while maintaining viewer satisfaction.

In addition to ad monetisation, Tonton leverages Switch Media's MediaHQ platform for content

management and high-performance video playback. MediaHQ's modular architecture supports efficient workflows, from content ingestion and management to distribution and analytics, ensuring high-quality delivery of both live and on-demand programming.

This integrated tech ecosystem between Broadpeak and Switch Media enhances Tonton's ability to deliver smooth, engaging viewing experiences across multiple devices. It allows the platform to offer superior content experiences to a growing subscriber base while supporting future-ready monetisation strategies.

Jacques Le Mancq, President & CEO of Broadpeak, praised the collaboration, noting Media Prima's strong vision and leadership in the OTT space. He highlighted how the partnership enables quick deployment and impactful results, positioning Tonton as a national favourite in Malaysian streaming.

With these advancements, Tonton is not only improving ad performance and viewer engagement but also reinforcing its role as a leader in Malaysia's digital media landscape. The platform's focus on innovation, monetisation, and user experience underlines its commitment to sustained growth in a competitive OTT market. [\[APB News\]](#)

## ABC HOSTS GLOBAL MEDIA LEADERS IN SYDNEY AND SIGNS MOU WITH KBS

ABC (Australian Broadcasting Corporation) International recently hosted the 119<sup>th</sup> Administrative Council meeting of the Asia-Pacific Broadcasting Union (ABU) on 8 and 9 May in Sydney. The ABU, the world's largest broadcasting union, represents media organisations from

nearly 70 countries and reaches over half the global population. As a founding member of the ABU, ABC was elected to its 18-member Administrative Council in 2022, a key decision-making body within the organisation.

The two-day meeting brought together high-level media leaders from prominent broadcasters across the Asia-Pacific region, including Korean Broadcasting System (KBS), Nippon Hoso Kyokai (NHK, Japan), MTV Channel (Sri Lanka), Prasar Bharati (India), Radio Republik Indonesia (RRI), Radio Television Malaysia (RTM), Radio Television Hong Kong (RTHK), TVB (Hong Kong), Teledifusao de Macau (TDM), Vanuatu Broadcasting and Television Corporation (VBTC), Turkish Radio and Television Corporation (TRT), The Voice of Vietnam (VOV), and Radio and Television of the People's Republic of China (RTPRC).

Key agenda items focused on ABU's financial management, administrative matters, and collaborative policy development to strengthen regional cooperation in broadcasting.

ABC International Head Claire M. Gorman expressed gratitude and pride in hosting the meeting, emphasizing the importance of partnership and collective growth among regional broadcasters. She underscored the shared commitment to enhancing international media cooperation and information exchange.

During the event, ABC Managing Director Hugh Marks held bilateral meetings with attendees and formalised a Memorandum of Understanding (MoU) with KBS, reinforcing a strategic commitment to content exchange, collaboration, and innovation between the two public broadcasters.

Marks praised KBS as a cultural leader and acknowledged the Korean parliament's recent passage of an integrated licence fee, which will secure long-term funding and operational stability for KBS. He emphasized the need for strong partnerships among public service media to deliver diverse, high-quality

content to audiences, especially in a rapidly evolving media landscape.

The meeting highlighted ABC's leadership role in regional media and reaffirmed ABU's mission to foster cooperation and excellence in public broadcasting across the Asia-Pacific. [\[ABC\]](#)

### **SARAWAK MEDIA GROUP EARNs TWO RECOGNITIONS AT ASIA-PACIFIC BROADCASTING+ AWARDS 2025**

Sarawak Media Group (SMG) received recognition at the Asia-Pacific Broadcasting Awards 2025 for its exceptional coverage of the Sarawak Regatta 2024, SUKMA 2024, and PARA SUKMA 2024. This award highlights SMG's commitment to technological innovation and inclusive broadcasting.

The Sarawak Regatta 2024, held from November 1 to 3, was more than a boat race – it was a vibrant cultural celebration with deep historical roots, uniting Sarawak's diverse communities. Featuring the iconic River King Race, cultural performances, and local cuisine, the event symbolized unity and heritage. SMG's use of cutting-edge broadcast technology – including 14 professional cameras, four drones, and a two-kilometer camera track – enabled global audiences to virtually experience the regatta's energy. The broadcast garnered over 661,000 views, with a peak of 300,935 unique viewers on the final day, positioning Sarawak as a global cultural and tourism hub.

SMG's television arm, TVS, also broke new ground with live coverage of SUKMA 2024 and PARA SUKMA 2024, marking the network's debut in live sports broadcasting. It was also the first time the PARA SUKMA was broadcast live on any television platform. TVS provided full daily coverage of 21 SUKMA events and all 10 PARA SUKMA events, supported by highlight reels, capsule features, and viewer-controlled access through four new digital channels.

The technical setup included a 21-feed Multiple Camera Production (MCP) system, with feeds transmitted via IP technology to the SUKMA

Broadcast Center and distributed to TVS, RTM, and Astro. The SUKMA Games achieved over 15.6 million views, while PARA SUKMA reached 1.6 million views, demonstrating substantial audience engagement.

Through its strategic use of digital platforms and commitment to accessibility, Sarawak Media Group has set a new benchmark in Malaysian broadcasting for innovation, inclusivity, and cultural storytelling. [\[APB News\]](#)

### **NBTC URGED BY ADTEB TO ACCELERATE DIGITAL TV PLANS AHEAD OF 2029 LICENCE EXPIRY**

The Association of Digital Television Broadcasting (ADTEB) has formally urged Thailand's National Broadcasting and Telecommunications Commission (NBTC) to accelerate its review and decision-making on critical issues affecting the digital television sector as the expiry of current broadcasting licenses in 2029 draws near. ADTEB representatives Adisak Limparungpatanakij, Charkrit Direkwattanachai, and Dew Waratangtragoon delivered a letter of appreciation to NBTC Chairman Sarana Boonbaichaiyapruk, recognizing recent efforts while simultaneously emphasizing the urgency of advancing key policy decisions.

The submission followed a focus group hosted by the NBTC on May 26, aimed at gathering stakeholder feedback to shape a roadmap for the future of Thailand's television and broadcasting landscape. At that session – attended by ADTEB, commercial and public broadcasters, and multiplex (MUX) providers – it was revealed that digital TV would be included as an urgent matter on the NBTC board agenda for May 28.

Adisak highlighted two pivotal items on the board's agenda: a consultancy-led proposal outlining future broadcasting scenarios and recommendations for facilitating access to terrestrial TV via digital platforms. He underscored the need for a structured, forward-looking policy to help the industry navigate rapid technological shifts and

evolving consumer preferences, such as the mass migration from terrestrial viewing (now just 15%) to streaming and OTT platforms.

Despite rising concerns about the lack of concrete action from the NBTC, Adisak expressed hope that movement on these agenda items would enable digital TV operators and network providers to prepare and adjust business strategies well ahead of the 2029 license expirations. He warned, however, that delays in decision-making could endanger the industry's viability, exacerbated by economic uncertainties and declining advertising revenue.

Following the board meeting, NBTC Chairman Sarana confirmed that the board had acknowledged the consultancy's findings but called for a deeper 60-day analysis. This extended review will assess how many digital TV channels are sustainable post-2029 and explore measures such as lowering MUX operating costs and relaxing Universal Service Obligation (USO) rules to ease industry burdens.

While proposals like the establishment of a national OTT TV platform have yet to be formally considered, Sarana reassured stakeholders that the NBTC remains committed to ensuring a stable transition. He clarified that legal amendments to extend licenses without re-auctioning fall under parliamentary authority, not the NBTC's remit.

Sarana also referenced broader regulatory reforms underway, many spearheaded by Commissioner Pirongrong Ramasoota, including new frameworks for OTT broadcasting, support for public-interest content, promotion of self-regulation through professional associations, and the enhancement of community broadcasting services. However, several of these initiatives remain stalled, awaiting inclusion on the NBTC board agenda.

Overall, the situation highlights the pressing need for strategic direction and regulatory clarity to ensure the survival and evolution of Thailand's digital TV industry in an increasingly

competitive and digitally driven media environment. [\[The Nation\]](#)

### **HBBTV RELEASES VERSION 2025-1 OF THE HBBTV CONFORMANCE TEST SUITE**

The HbbTV Association, an international organization promoting open standards for advanced interactive television services across broadcast and broadband networks, has announced the release of version 2025-1 of its HbbTV Conformance Test Suite. This updated version reinforces the Test Suite's role as a vital tool for ensuring that television sets and set-top boxes comply with the latest HbbTV specifications. It also supports broadcasters by improving implementation consistency, thereby reducing development costs for both broadcasters and application developers.

The v2025-1 release includes a comprehensive set of 3,361 test cases, of which 3,120 are dedicated to HbbTV-related specifications, with 2,653 officially approved. This approval provides manufacturers and platforms with a reliable means to verify that their devices meet HbbTV standards, ensuring technical accuracy and consistency across the ecosystem.

The new version fully supports the latest HbbTV specification, HbbTV 2.0.4 (TS 102 796 v1.7.1), and offers enhanced test coverage in several key areas, including accessibility features, DVB-I services, voice control capabilities, and audio watermarking, in accordance with the HbbTV-ADB+TA2 specification. Additionally, the inclusion of 241 non-HbbTV test cases broadens the Test Suite's relevance by encompassing related technologies and standards.

Vincent Grivet, Chair of the HbbTV Association, emphasized the importance of the Test Suite's ongoing development. He noted that these efforts are essential for ensuring the quality, interoperability, and reliability of HbbTV-compliant products worldwide. Grivet also highlighted that this latest release continues to empower manufacturers, broadcasters, and platform operators to deliver seamless and innovative television

experiences to consumers.

Access to the HbbTV Test Suite is available through authorized HbbTV test centers and to HbbTV members for use in their own testing environments, further facilitating widespread adoption and conformance. [\[HbbTV\]](#)

### **TELEDIFUSÃO DE MACAU TRANSFORMS WORKFLOW WITH HARMONIC**

Teledifusão de Macau (TDM), the premier broadcaster in Macau, has significantly upgraded its media production and playout infrastructure through the implementation of an advanced solution provided by Harmonic. This modernization initiative features the integration of Harmonic's Spectrum X Advanced Media Server and the MediaGrid shared real-time storage system, enabling TDM to achieve heightened reliability, scalability, and operational efficiency in handling a high volume of media content.

The Spectrum X Advanced Media Server plays a pivotal role in simplifying TDM's production and playout workflows by combining content ingest with integrated channel playout capabilities. The server's software-based architecture supports a wide range of video formats, which enhances TDM's ability to deliver content with exceptional video quality. Simultaneously, the MediaGrid storage system facilitates real-time collaboration among multiple users by offering high-capacity storage and robust bandwidth. These features are particularly advantageous for streamlining media production and news editing operations.

A notable aspect of the transformation was the seamless migration of TDM's data to the new infrastructure. The MediaGrid system provides one petabyte of storage, allowing for efficient ingest, editing, playout, and archival processes. It also includes sophisticated scalability capabilities, built-in redundancy, and smooth compatibility with industry-standard editing software. These attributes position TDM to meet its dynamic content production demands while maintaining

uninterrupted broadcasting services.

The deployment of the Harmonic solution was carried out with the support of NDT Hong Kong, Harmonic's distribution partner in the Asia-Pacific region, ensuring an efficient and trouble-free implementation.

Tony Berthaud, Vice President of Sales, APAC at Harmonic, highlighted the importance of this advancement by stating that Harmonic solutions continue to set the benchmark for scalability, flexibility, and reliability in the video industry. He expressed enthusiasm in supporting TDM's transition to a modern media infrastructure capable of delivering the performance and reliability essential for contemporary broadcasting.

This strategic upgrade equips TDM with future-ready technology, enhancing its ability to adapt to the evolving demands of modern media consumption while solidifying its role as a leading broadcaster in the region. [\[C+T\]](#)

### **PAPUA NEW GUINEA'S NBC TO REINTRODUCE SHORTWAVE RADIO BY 2030**

Papua New Guinea's National Broadcasting Corporation (NBC) is working toward reintroducing shortwave radio to support the government's goal of achieving 100% broadcast coverage by 2030. This move is intended to improve communication access for the country's remote and rural communities, many of which are currently underserved due to challenging terrain and limited infrastructure.

NBC recently hosted its first stakeholder workshop on reintroducing shortwave radio transmission. The event brought together representatives from key organizations, including the Department of ICT, NICTA, DataCo PNG, and other relevant agencies, to gather feedback and encourage collaboration on this critical initiative.

NBC Managing Director Kora Nou opened the workshop by emphasizing the importance of

stakeholder cooperation in achieving nationwide broadcast coverage. He highlighted that shortwave radio is vital for delivering timely information to isolated areas and invited ongoing feedback from participants to refine the project's direction.

Seloka Lewangu, NBC's Executive Director of Engineering, explained the technical benefits of shortwave compared to FM and mediumwave. He noted that while FM offers limited, line-of-sight coverage mostly suitable for urban centers, shortwave can reach across Papua New Guinea's mountainous and island-dotted landscape, making it ideal for national coverage.

The reintroduction of shortwave is seen as a strategic and cost-effective measure to ensure reliable broadcasting across the country. It promises to enhance emergency communications, improve access to news, education, and cultural content, and reduce reliance on expensive infrastructure.

NBC plans to compile the feedback received during the workshop and submit a report to its board. If approved, this will become a formal policy directive, and NBC will begin implementing the shortwave project nationwide, marking a significant step toward inclusive and comprehensive broadcasting in Papua New Guinea. [\[RadiInfo\]](#)

### **NBTC ALLOWS TWO RADIO STATIONS TO TEST DIGITAL BROADCASTING IN DAB+**

Thailand's National Broadcasting and Telecommunications Commission (NBTC) has approved two operators to conduct six-month trials of digital radio broadcasting under its newly announced criteria for temporary testing using radio frequencies. This move is part of the NBTC's broader initiative to advance the country's broadcasting infrastructure.

The Dharma Radio Station Group, operating as IFZ Innovative Co., Ltd., has been granted rights to use frequency Block 9A (202.928 MHz) in Bangkok and its surrounding areas. Participating stations include Dharma for People and Santi Radio Station. Meanwhile, the Khon Kaen

Station Group, represented by JKP Engineering Radio Co., Ltd., received approval to use Block 6C (185.360 MHz) for testing in Khon Kaen and Maha Sarakham provinces. Stations involved in this trial include Khon Kaen Mahanakhon, Sai Fah, and various Thai Local Radio Stations.

As per licensing terms, operators must establish digital networks with standard-compliant transmission equipment, install four antennas to ensure adequate area coverage, and may broadcast up to 16-18 programs based on audio quality. Only FM stations previously licensed by the NBTC are eligible to participate, and they must simulcast their content via DAB+ without alterations. No commercial revenue can be generated from this testing phase, and licensees must bear all associated costs, including providing digital receivers for public access.

Air Chief Marshal Dr. Thanapan of the NBTC emphasized that this DAB+ trial represents a critical step in developing Thailand's broadcasting sector. It allows local operators to gain hands-on experience with digital systems and understand related economic and managerial aspects. While the current trials are regional, the long-term vision includes establishing a nationwide broadcasting system to enhance public communication, especially in emergencies where other telecom systems may fail. [\[RadiInfo\]](#) ■

# DIGITAL BROADCASTING *Updates*

## **TAG VIDEO SYSTEMS, SWXTCH.IO UNVEIL ADVANCED CLOUD-BASED MEDIA MONITORING SOLUTION**

TAG Video Systems, a provider of software-based IP media probing, monitoring, visualization, and analytics, has announced a new collaboration with swXtch.io, a company specializing in cloud-based multicast networking. The partnership aims to deliver enhanced cloud-based media monitoring capabilities for broadcasters and content producers.

As part of this collaboration, swXtch.io's multicast networking technologies are being integrated with TAG's software-based multiviewer. The combined solution is capable of monitoring a wide range of IP streams – including SMPTE 2110 and JPEG XS – with performance levels comparable to on-premises systems.

The integration is designed to support real-time stream monitoring with reduced latency and bandwidth usage while offering accurate insight into stream health and quality. These features are intended to assist broadcasters in managing cloud and hybrid workflows more efficiently and cost-effectively.

According to TAG and swXtch.io, key benefits of the joint solution include:

- **Optimized Cost Efficiency:**  
Minimizes bandwidth consumption and latency through efficient multicast replication.
- **Seamless Cloud Monitoring:** Enables real-time, scalable monitoring of multiple streams.
- **Broad Format Compatibility:**  
Supports a wide range of industry-standard protocols and formats.
- **Improved Flexibility and Scalability:**  
Facilitates the management of complex media workflows in cloud

environments.

The capabilities of the integrated system were demonstrated at the AWS JPEG XS Interop event, where TAG's cloud-based multiviewer successfully monitored JPEG XS multicast streams sourced from an on-premises network. The demonstration highlighted the viability of transitioning to cloud-based operations without compromising performance or reliability.

[\[TVTechnology\]](#)

## **MARAYA WITH AI OFFERS 'RIGHT CONTENT TO RIGHT AUDIENCE AT RIGHT MOMENT'**

Mediagenix, a provider of smart content solutions, and White Peaks Solutions, an end-to-end over-the-top (OTT) technology company, have announced a strategic collaboration with the Sharjah Broadcasting Authority to enhance Maraya, the Emirate's flagship streaming platform, through advanced content personalisation features.

As the public media entity of Sharjah, the Authority aims to deliver educational programming, cultural heritage, and high-quality Arabic-language entertainment across global digital platforms. The collaboration supports this mission by integrating AI-driven semantic recommendation capabilities into the Maraya platform.

The recommendation engine – powered by Spideo, a company acquired by Mediagenix in 2024 – is now part of the Mediagenix Recommendation suite. This tool enables real-time personalisation using semantic data, user context, and editorial guidelines, aligning recommendations with both viewer intent and platform values.

These AI-driven enhancements aim to increase engagement by 20% to 60%, boost conversion rates by up to 35%, and significantly reduce manual content curation efforts.

Users of the Maraya platform will benefit from this technology through its integration into White Peaks Solutions' content management system FAULIO, as well as the KWIKmotion online video platform – an enterprise-grade OTT solution that supports secure, scalable content delivery and monetisation across multiple devices.

This collaboration marks a step forward in delivering a more personalised and engaging viewing experience for Arabic-speaking audiences across the MENA region and beyond. [\[APB+ News\]](#)

## **DVB STUDY MISSION REVEALS GAME-CHANGING POTENTIAL OF OBJECT-BASED MEDIA**

The DVB Project has published DVB BlueBook S102, a report examining the potential of object-based media (OBM) to transform the media distribution landscape. Developed by a dedicated DVB Study Mission led by Elfed Howells (Huawei), the report highlights OBM's potential to deliver more personalized, dynamic, and interactive viewing experiences.

Object-based media involves packaging media components – such as video, audio, and graphics – as individual “objects” paired with metadata. This allows for flexible assembly based on viewer preferences, device capabilities, or environmental conditions. OBM enables broadcasters and content providers to offer enhanced accessibility, interactivity, and user control over content presentation.

The report reviews existing DVB specifications for compatibility with OBM and outlines areas where new standards may be needed to support its wider adoption. It identifies opportunities for DVB to facilitate OBM through open specifications, supporting next-generation media delivery.

DVB plans to continue stakeholder engagement to assess standardization

needs for OBM and encourages industry professionals to consult BlueBook S102 via the DVB Specification Library. [\[DVB News\]](#)

### EASE LIVE'S NEW AI PLATFORM MAKING LIFE EASIER TO MONETISE FORMATS

Ease Live, an Evertz company specialising in interactive graphics for television, OTT, and mobile platforms, has introduced Dataport, a new artificial intelligence (AI) workflow tool designed to streamline the deployment of interactive overlays across video distribution channels.

Dataport is intended to simplify how broadcasters, streaming platforms, and advertisers manage and execute complex interactive graphics. It supports rapid integration of real-time data overlays – including live stats, polls, replays, and branded sponsor graphics – across web, mobile, and Connected TV (CTV) platforms.

By automating key aspects of the overlay production process, Dataport enables video distributors to reduce operational overhead while ensuring consistent, dynamic content delivery. Broadcasters can respond in real-time to live events, adjusting graphical elements such as scoreboards and replays on-the-fly, while advertisers gain access to contextual ad insertion tools powered by AI.

The platform opens up new monetisation models by synchronising ad placements with key moments in live content, optimising viewer engagement and advertising impact. In doing so, Dataport supports innovative experiences in areas such as sports streaming, live events, and digital advertising, while helping stakeholders scale operations and reduce manual inefficiencies.

Ease Live positions Dataport as a tool to support faster innovation cycles for broadcasters and OTT platforms seeking to enhance engagement and drive new revenue opportunities.

[\[APB+ News\]](#)

### SUCCESSFUL DRM TEST FOR FIRST E-LEARNING AFRICAN PROJECT

A recent shortwave test broadcast using Digital Radio Mondiale (DRM) technology was carried out by Encompass Digital Media from Woofferton, UK, on Friday, 28 March, between 1700 and 1900 UTC on 5875 kHz. The transmission, aimed primarily at Southern Germany and Switzerland, was successfully received, with positive feedback from listeners both within and beyond the intended coverage area. Notably, one listener reported partial reception as far away as New Zealand.

The test highlighted DRM's capability to deliver educational content in multiple languages. The broadcast featured an English-language audio lesson, followed by AI-generated translations in French and German, demonstrating the potential of DRM for multilingual distance learning.

In addition to audio content, the broadcast incorporated a digital textbook using Journaline, DRM's interactive text service. This component illustrated how lesson material, including graphics and supplementary resources, can be provided in several languages – both during live transmission and for later access. The educational content also included an example homework task, additional background information, and news entries to enrich the learning experience.

The success of this test broadcast reinforces the versatility of DRM technology in supporting digital

education, language accessibility, and interactive learning, particularly in regions with limited internet connectivity. [\[DRM\]](#)

### DEVELOPMENT OF "SCENE-ADAPTIVE CAMERA"

NHK Science & Technology Research Laboratories (STRL) is promoting research on scene-adaptive imaging technology, which can adjust the shooting mode for each area of the screen according to the characteristics of the respective objects. This allows for the capturing of wide-field-of-view images and 360-degree omnidirectional images with high quality. STRL has developed the first camera mounted with this technology and has confirmed that it can capture objects with various movements and varying luminance on the same screen with high quality.

STRL will continue to develop cameras with an increasing number of pixels for practical applications in wide-field-of-view image shooting.

Wide-field-of-view images are designed to capture objects with various movements and varying luminance on the same screen. Conventional cameras typically adjust the shooting conditions of the entire screen to suit a specific object, making it difficult to capture high-quality images of all objects simultaneously. However, scene-adaptive imaging technology enhances the overall image quality of the entire screen by analyzing the characteristics of the objects being captured and then setting the appropriate shooting mode for each respective area. For example, this technology can adaptively adjust the shooting mode for each area by increasing the frame rate (the number of frames captured per second) for areas with fast-moving objects or reducing the exposure time for areas with bright objects.

STRL has been conducting research on scene-adaptive imaging technology since 2021. At STRL Open House 2023, STRL exhibited a black-and-white image sensor with a pixel count equivalent to 1K. As a result of further research, STRL developed an area control image sensor with a pixel count equivalent to 4K and a color camera incorporating this sensor. This

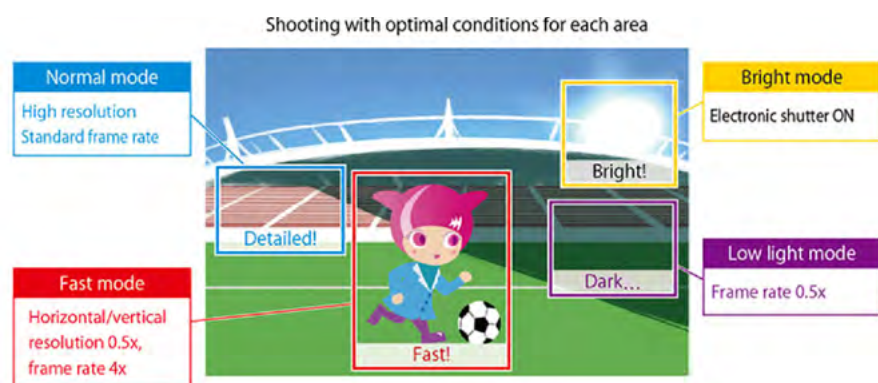


Figure 1: Captured image that used the scene-adaptive imaging technology

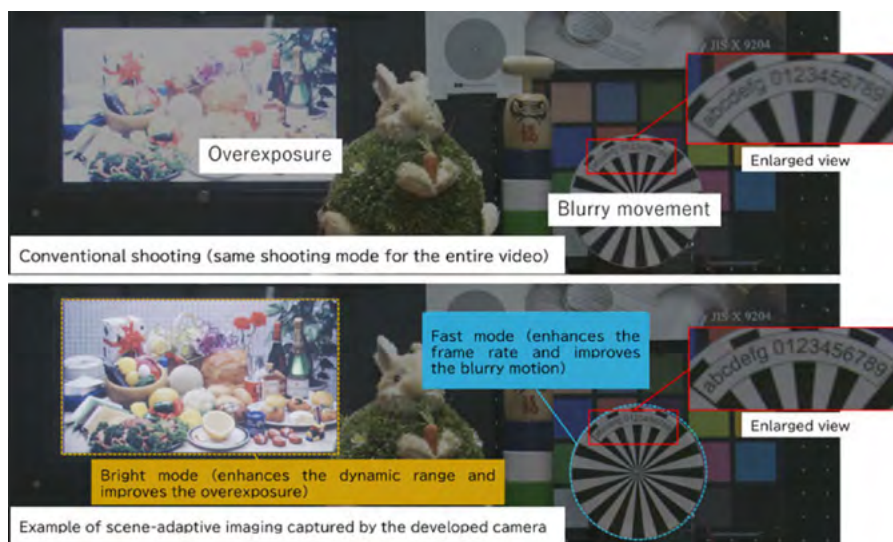


Figure 2: Comparison between conventional shooting and scene-adaptive imaging videos (Overexposure and blurry movement are simultaneously suppressed by setting the bright mode and the fast mode for each area)

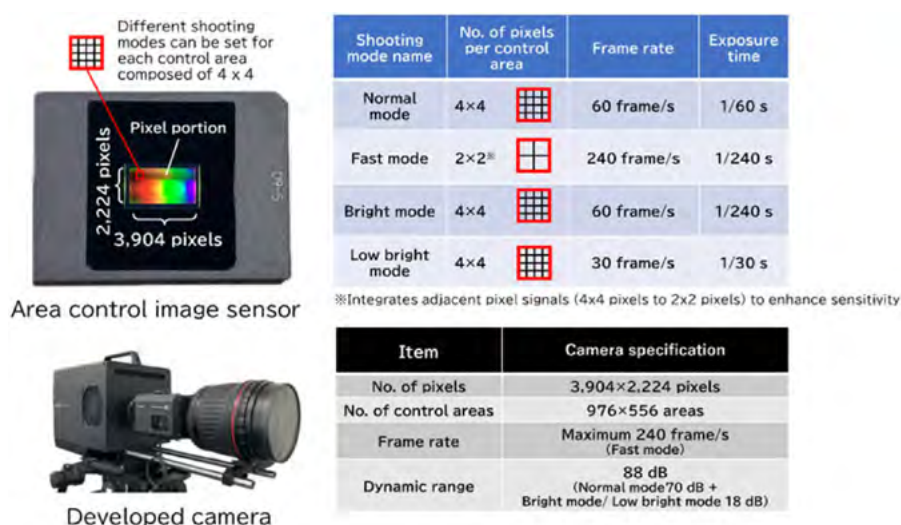


Figure 3: Developed area control image sensor and camera

camera system can set four different shooting modes (normal mode, fast mode, bright mode, and low bright mode) for each control area composed of 4 x 4 pixels, resulting in a high frame rate of up to 240 frames per second (in fast mode) and an expansion of the dynamic range (the difference between brightness and darkness that can be captured) by 18 dB compared to normal shooting (where the entire video is captured in the normal mode). [\[NHK\\_STRL\]](#)

### ATSC STANDARDS UPDATE: NEW A/344 CANDIDATE STANDARD PUBLISHED

Advanced Television Systems Committee (ATSC) has announced the publication of a new Candidate Standard (CS) and updates on several important ballots.

A new Candidate Standard, S38-576r3, titled "ATSC Candidate Standard Revision of A/344:2025-

02, ATSC 3.0 Interactive Content", was approved by TG3 following the conclusion of a ballot on 1 May 2025. The CS period for this document will run until 11 December 2025.

Candidate Standards are technical documents that have undergone significant review in Working Draft status. Elevation to CS represents a formal call for implementation and technical feedback. Revisions may be made during the implementation period, which may also be extended or shortened based on input from the relevant Specialist Group – in this case, TG3/S38. The new A/344 CS includes updates and clarifications identified since the last official version was published on 26 February 2025.

In parallel, a Corrigendum to A/344:2025-02 is currently at membership ballot, with voting closing on 11 June 2025. Corrigenda address errors or ambiguities

introduced during drafting or publication that do not impact functionality but may lead to misinterpretation or incorrect application.

Additionally, a revision of the ATSC Bylaws is under ballot with the full membership, closing on 23 May 2025. Key proposed changes include:

- Section IV.1: Modifies governance structure to optionally allow up to two additional Directors.
- Section VIII.3: Relocates committee-related procedures to document B/03, *Operational Procedures for Technology Groups and Subcommittees*. The ATSC Board has also approved corresponding updates to B/03, which will be published following the conclusion of the Bylaws ballot.

Two ballots within TG3 were also active at the time of this report:

- S33-787r0: Amendment No. 1 to ATSC Standard A/331:2025-02, covering signaling, delivery, synchronization, and error protection, is under ballot for elevation to Proposed Standard. The ballot closes 20 May 2025.
- S32-669r3: Amendment No. 1 to A/327:2025:02, focused on MIMO system performance estimation, is being considered for elevation to a Proposed Recommended Practice. The ballot closes 28 May 2025.

These developments reflect ongoing efforts within ATSC to refine and advance the ATSC 3.0 suite of standards and practices in line with evolving technological needs and industry feedback. [\[ATSC News\]](#)

### SYNAMEDIA INTRODUCES A3SA SECURITY ENHANCEMENTS FOR MEDIA EDGE GATEWAY

Synamedia has announced that its Media Edge Gateway (MEG), a software-based integrated receiver/decoder (IRD) for ATSC 3.0, now supports the Device Security requirements set by the ATSC 3.0 Security Authority (A3SA). MEG is among the first professional broadcast solutions to achieve this level of security compliance.

The MEG is designed to provide cost-effective and flexible support for broadcasters navigating the

transition between ATSC 1.0 and 3.0. Broadcasters and station groups can input over-the-air (OTA) signals in one format and output in another – such as receiving ATSC 3.0 and outputting ATSC 1.0 – without a full system overhaul. MEG also supports remote monitoring, allowing OTA signals to be converted and distributed as IP.

A3SA's device security framework ensures compliance with ATSC 3.0's encryption, device certification, and rights management protocols. This compliance process involves secure provisioning and extensive testing. Synamedia's MEG offers multiple operational benefits:

- All-in-one support for OTA, satellite, and IP reception
- Cost savings of up to 80% compared to full infrastructure upgrades
- Signal format conversion (e.g., ATSC 3.0/MPEG4 to ATSC 1.0/MPEG2)
- Enhanced remote IP signal monitoring for multi-site management

A U.S. national broadcaster is currently deploying MEG devices across 20 affiliate locations for OTA-to-IP conversion and distribution.

The addition of A3SA compliance underscores Synamedia's commitment to security, scalability, and future-readiness in the evolving ATSC 3.0 ecosystem. [\[IABM News\]](#)

### **SMPTE INTRODUCES CATENA CONTROL PLANE STANDARD FOR MEDIA SYSTEMS**

The Society of Motion Picture and Television Engineers (SMPTE) has introduced the first set of documents for Catena, a new open-source control plane standard aimed at streamlining control of media devices and services across diverse environments. The announcement was made during SMPTE's quarterly Technology Committee meetings, held from June 1-3 at Imagica in Tokyo.

Developed under the SMPTE Rapid Industry Solutions – Open Services Alliance (RIS-OSA), Catena is designed as a single, secure, and vendor-agnostic protocol to unify the currently fragmented landscape of media control protocols. It supports operations across on-premises, cloud, and hybrid infrastructures, with adaptability for both microservices and physical broadcast devices.

The initial suite of documents, submitted to the 34CS Technology Committee on media systems control and services, includes:

- ST 2138-00: Catena Overview
- ST 2138-10: Catena Model
- ST 2138-11: gRPC Connection Type
- ST 2138-12: REST Connection Type
- ST 2138-50: Catena Security

These documents are hosted on a GitHub repository along with supporting materials such as interface files and schema. The documents will next move to Public Committee Draft status, followed by an implementation and feedback phase before final standardization.

SMPTE Fellows and industry leaders emphasize Catena's importance as a unifying solution for increasingly complex media workflows. The initiative reflects collaboration with key stakeholders, including the IABM Control Plane Working Group. The Catena project aims to reduce dependency on hundreds of proprietary protocols currently in use and enable more scalable, secure, and interoperable media operations.

[\[Newscaststudio\]](#) ■

## How to contribute to the Technical Review

### **Would you like to contribute an article to the ABU Technical Review?**

We welcome submissions from everyone. This is an excellent opportunity to showcase your organisation's work and gain significant exposure.

We are open to a variety of articles, including research papers, details on new technical developments, or any content that will interest TR readers. The Technical Review, our quarterly publication, is distributed to all ABU members, industry partners, and technical staff, as well as international organisations such as the ITU, other broadcasting associations, and universities.

While it primarily targets engineers, it also features general interest news stories. It contains articles on new technologies, developments in broadcasting, member innovations, and other materials of interest to engineers.

Your article can be of any length and written in any style. Should you include photos, please ensure they are high resolution (at least 2 megapixels). Although we cannot offer payment, we do provide a free half-page advertisement for select articles, especially those covering technical research. This advertisement will be placed immediately after your article, giving your organisation extra publicity.

Additionally, articles by ABU members on Case Studies, Research, and Practical Implementations are eligible for the annual ABU Technical Review Prizes, which include a cash prize and a certificate.



You can view previous issues of the Technical Review on the ABU website's main page or directly at: <https://www.abu.org.my/technical-review/>

We look forward to considering your submission. If you need more information, please contact: [balqis@abu.org.my](mailto:balqis@abu.org.my)

# Equipment Trends

## STUDIOSONIC SHOTGUN MICROPHONE



The StudioSonic Shotgun Mic is a professional-grade shotgun microphone that provides both wireless and wired connectivity, featuring a locking USB-C and an extensive set of broadcast-quality features. Its dual-mode design allows it to operate wirelessly over 2.4GHz or through a direct USB-C digital audio connection, ensuring a secure and high-quality link to cameras, monitors, and computers.

This microphone is designed for a variety of production scenarios, such as on-location interviews, run-and-gun shooting, field reporting, and capturing unscripted dialogue. The StudioSonic combines the convenience of wireless operation with the reliability of wired performance.

It is equipped with a 48kHz/24-bit super cardioid condenser, which delivers precise voice isolation, even in challenging environments. The mic features both analog and digital outputs, and its USB-C connection allows for direct digital recording to a computer, making it suitable for podcasting, live streaming, and other digital workflows.

The microphone is powered by an internal USB-C rechargeable battery, capable of supporting up to 8 hours of use in wireless mode and up to 50 hours when used in wired mode. [\[Atomos\]](#)

## FX2 CINEMA LINE FULL-FRAME CAMERA



Sony has announced the FX2, a new addition to its Cinema Line designed with a compact form factor and a full-frame sensor to support high-quality video production in various environments.

The FX2 is equipped with a 33-megapixel back-illuminated Exmor R™ CMOS sensor, complemented by the BIONZ XR™ image processing engine and an advanced AI processing unit. This combination provides high sensitivity, a wide dynamic range, and enhanced subject detection capabilities. The camera offers over 15 stops of dynamic range when recording with S-Log3, allowing for smooth tonal gradation and detail retention in high-contrast lighting conditions. The base ISO for S-Log3 capture can be set to 800 or 4000, and it supports color profiles, including S-Gamut3 and S-Gamut3.Cine, for efficient color grading and camera matching.

In terms of recording formats, the FX2 utilizes 7K oversampling with full pixel readout and no pixel binning when capturing full-frame 4K (QFHD 3840 x 2160) video. It also supports 4K 60p (59.94p) recording in Super 35mm mode. The camera supports 10-bit depth, 4:2:2 color sampling, MPEG-H HEVC/H.265 compression, and intra-frame recording, including DCI-4K (4096 x 2160) formats. Physically, the FX2 adopts the compact, flat-top design found in Sony's FX3 and FX30 models, making it suitable for handheld, gimbal, or drone use. The magnesium alloy body includes 1/4-20 (UNC) accessory mounts in three locations, with additional screw holes on the base for secure tripod attachment.

Additional features include Auto Framing, which uses AI to crop and track a subject when the camera is fixed on a tripod, and Framing Stabilizer, which helps maintain subject positioning within the frame during movement – especially useful in solo operation scenarios.

The FX2 is positioned as a high-performance, mobile camera solution that builds on the imaging philosophy of Sony's VENICE series while offering enhanced support for still images and operational flexibility. [\[SONY\]](#)

## VILTROX UNVEILS ULTRA-BRIGHT 7-INCH HD CAMERA MONITOR

Viltrox has introduced the DC-A1, a 7-inch Full HD (1920 x 1080) touchscreen camera monitor designed for filmmakers and photographers seeking



a compact, high-visibility monitoring solution. The display supports signal input and output up to 4K resolution, providing a lossless HDMI 2.0 connection for clear and smooth image monitoring.

Featuring a 2,800-nit ultra-bright panel, the DC-A1 is optimized for visibility in high ambient light, making it suitable for outdoor and high-contrast shooting environments. The wide-angle display is paired with a detachable sun hood to further reduce glare during field use.

The monitor is equipped with a range of advanced monitoring tools, including 3D LUT support, gyroscope stabilization, focus peaking, false color, and anamorphic desqueeze functions. These tools help improve shot accuracy and visual assessment during both photography and video production. Custom LUT import capability allows users to maintain color consistency from on-set monitoring through to post-production workflows.

User interaction is supported through touchscreen control, as well as a tactile knob and button interface for one-handed operation. Customizable function buttons offer quick access to frequently used monitoring features, while pinch-to-zoom functionality enables detailed inspection of the image frame.

The DC-A1 supports three power options to accommodate a variety of shooting environments: NP-F series batteries (included), DC IN, and USB-C power delivery. This flexibility helps ensure continuous operation during extended shoots.

To maintain stability during prolonged use, the monitor features a quiet, temperature-responsive cooling fan that adjusts automatically to maintain optimal operating conditions without generating excessive noise.

The monitor measures 188 x 110 x 28 mm (7.4 x 4.3 x 1.1 inches) and weighs approximately 248 grams (8.7 ounces).



Included in the package are:

- Hard carrying case
- Custom tilt and swivel mount
- NP-F550 battery
- Quick-release sun hood
- Screen protector
- HDMI and mini HDMI cables
- USB-C power cable

[Viltrox](#)

## DIGIGRAM'S NEW APL-X SOUND CARDS CAN CAPTURE/RECORD AUDIO SIGNALS 365/24/7



Digigram has introduced its latest additions to the ALP-X series of sound cards: the ALP280e and ALP280e-MIC. These sound cards are tailored to fulfill the needs of various critical audio applications, such as broadcasting, public safety, courtroom systems, and acoustic measurement, particularly in 24/7 operational environments.

Both models are low-profile PCIe sound cards designed for high-quality audio acquisition and low-latency monitoring. They come equipped with eight analogue inputs – compatible with line-level or mic-level signals – along with zero-latency monitoring and onboard mixing functionality.

The key features of these sound cards include:

- Eight balanced analogue inputs and two balanced outputs
- Eight General Purpose Inputs (GPIs) and Outputs (GPOs)
- Maximum analogue level of +24 dBu
- Adjustable analogue gain (up to +56 dB for mic inputs)
- Equivalent Input Noise (E.I.N) of -124 dB
- Signal-to-Noise Ratio (SNR) over 115 dBA on inputs
- Sampling rates that range from 8 kHz to 192 kHz

An FPGA-based mixer is incorporated, allowing flexible routing and real-time mixing of up to 16 inputs – comprising eight analogue and eight playback channels – to 10 outputs (two analogue and eight recording channels). This design supports complex workflows for multi-channel audio capture.

Additionally, the ALP280e and ALP280e-MIC provide inter-board synchronization capabilities with up to eight ALP-X cards, facilitating scalability. They are compatible with both Windows and Linux operating systems, enhancing integration options for different audio systems.

Through these new products, Digigram seeks to strengthen its portfolio for applications that require dependable and professional-grade audio performance. [\[APB+\]](#)

## BOLIN INTRODUCES N6-420X 4K60 NDI HX3 PTZ CAMERA FOR FLEXIBLE, PROFESSIONAL-GRADE PRODUCTION

Bolin Technology has introduced the N6-420X, a 4K60 NDI HX3 PTZ camera designed to meet the demands of live production, corporate AV, education, and



worship environments. Engineered on Bolin's Blue Line platform, the N6-420X delivers high-quality video and smooth PTZ functionality in a cost-effective, professional package.



The camera features a 20x zoom lens, supporting sharp detail capture from wide-angle views to close-ups, making it suitable for use in spaces such as conference rooms, studios, and mid-sized venues. It offers output

via Certified NDI HX3, HDMI 2.0, USB-C, and IP streaming, supporting flexible workflows and efficient bandwidth usage.

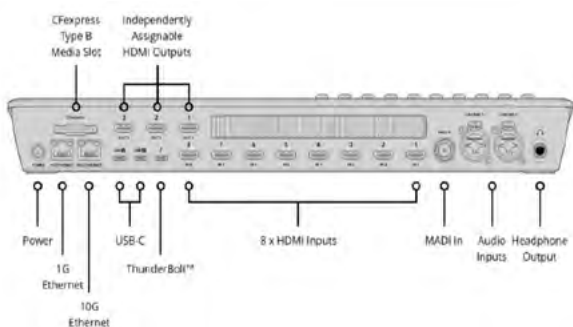
To ensure consistent video performance, the N6-420X is equipped with AI-powered auto-focus and auto-exposure, enabling it to adapt to dynamic lighting conditions. PTZ motion is smooth and precise, supporting controlled, professional-grade framing across a wide range of applications. A 3.5mm mic/line input allows for embedded audio, while support for multiple control protocols – including VISCA over IP and NDI – provides flexibility for integration into various control environments. With its combination of 4K60 resolution, versatile connectivity, AI-enhanced imaging, and elegant design, the N6-420X is well-suited for professionals seeking a reliable and scalable PTZ camera for modern video production environments. [\[Bolin Technology\]](#)

### ATEM MINI EXTREME ISO G2: A COMPACT POWERHOUSE FOR LIVE PRODUCTION AND STREAMING

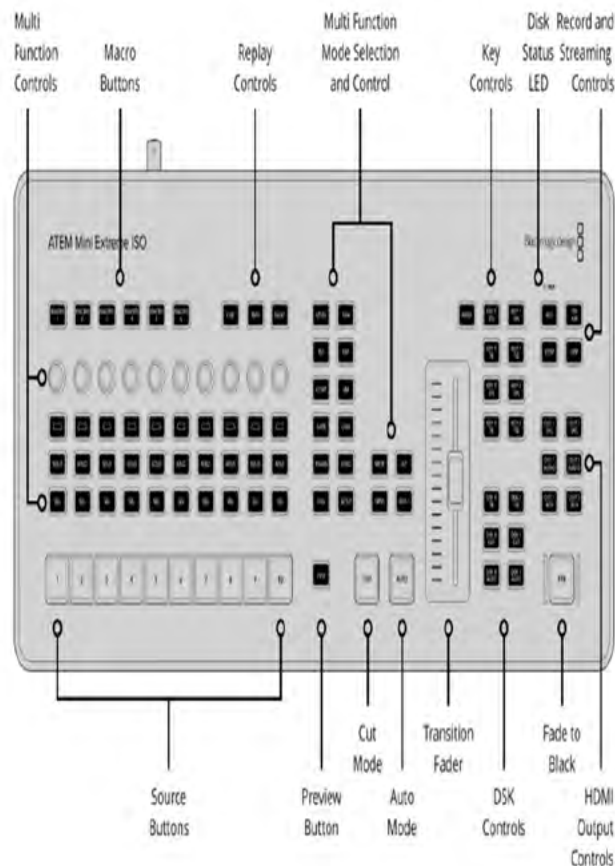
The Blackmagic Design ATEM Mini Extreme ISO G2 is a versatile live production switcher designed for multi-camera applications across various sectors such as streaming, broadcasting, education, and corporate AV.



It is equipped with 8 HDMI inputs featuring frame sync and format converters, along with 4 outputs (3 HDMI and 1 multi-view). Additional audio capabilities include XLR combo inputs and MADI audio, while it also supports recording of all inputs in H.264 format through CFexpress, USB-C, and network options.



Streaming capabilities are built-in, supporting RTMP and SRT over Ethernet or USB-shared internet, allowing for resolutions up to 1080p60. The integrated Fairlight audio mixer provides features like EQ and compression across 26 input channels, ensuring comprehensive audio management.



Key switching tools include a range of keyers, DVEs, SuperSource, and chroma keying options. The unit supports macros, stingers, and fade-to-black transitions, as well as integration with software and hardware control panels. Additionally, it features multi-view monitoring with the ability to display up to 16 windows.

With connectivity options like Thunderbolt and 10G Ethernet, along with multi-format media support, the ATEM Mini Extreme ISO G2 serves as an all-in-one solution for professional live production workflows. [\[Blackmagic\]](#)

# Personalities & Posts

## WELCOME NEW CEO



### Mr Ramesh Babu Srinivasa Veraraghavan

commonly known as SRB, started his career as an engineer and rose to manage operations. Over the past 10 years, he has focused on business development. As the CEO of Benchmark Broadcast, Ramesh leads strategic planning, technology implementation, business development, and change management initiatives. He has a proven track record of helping customers improve their services and deliver content on time, even within tight time frames, for various platforms including DTT, satellite distribution, HITS, DTH, cable, IPTV, and OTT. With his extensive knowledge of emerging broadcast technologies, he has played a key role in expanding Benchmark Broadcast's services to include HD projects and Media Asset Management (MAM) processes for clients in the Middle East, as well as in emerging markets across ASEAN and the Pacific Islands. ■

## New Technical Liaison Officer



**Tetiarahi Mathew** currently serves as the IT Manager at Radio Services at the Broadcasting and Publications Authority (BPA), Kiribati, a position he has held since May 2023. In this capacity, he oversees the technical and digital operations of BPA's AM and FM radio services, ensuring reliable nationwide coverage and leveraging modern technology to expand listener reach and engagement.

His core responsibilities include managing and upgrading broadcasting systems, implementing streaming solutions, maintaining 24/7 transmission uptime, coordinating technical teams for fault resolution, and overseeing the digital archiving of broadcasts. He also manages BPA's online media presence, particularly

live event coverage and video content on social platforms like Facebook.

Among his key achievements, Tetiarahi modernized BPA's radio infrastructure to support global access through Icecast streaming, enhanced FM signal stability, migrated live radio monitoring to the cloud, and enabled streaming via 4G networks in collaboration with local telecom providers, allowing free mobile access to broadcasts across Kiribati.

He has led several significant projects such as upgrading live broadcast systems, establishing a studio backup mechanism, assessing expansion to outer islands, and setting up FM studios in the Line Islands with online relay streaming integration.

In recognition of his efforts, he was promoted to his current position in May 2023 and received internal acknowledgment for his contributions to digital innovation in broadcasting. Tetiarahi holds a Bachelor's degree in Net-Centric Certification. ■

# ABU TECHNOLOGY CALENDAR *of Events*

# 2025

## JULY 15-17

ONLINE

WorldDAB-ABU-ASBU Workshop

## JULY 23-25

BEIJING, CHINA

ABU AI Forum

Technical Workshop (Collaboration with IPPTAR)

## AUGUST

KUALA LUMPUR, MALAYSIA

## SEPTEMBER

ONLINE

Members Innovation Webinar

## SEPTEMBER

ULAANBAATAR, MONGOLIA

ABU Technical Bureau Annual Meeting

ABU Technical Committee Meeting

ABU General Assembly

WBU Technical Committee

Members Innovation Webinar

## NOVEMBER

ONLINE

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