Analysing How Different Generations of Broadcast Formats Compare

BY CALLUM PAYNE

SUPERVISOR: PAUL BOURNE

SOLENT UNIVERSITY SOUTHAMPTON

Research Aim

To analyse how the multiple generations of broadcast formats have evolved and how they compare with current formats.

Objectives

- Identify relevant formats used in the broadcast sector
- Investigate the strengths and weaknesses of the different formats
- Develop test methods
- Test and compare a variety of formats ranging from past and present
- Investigate how broadcast formats will change in the future

Method

The aim of the project was achieved by acquiring a number of formats, ranging from past to present, before developing test methods to analyse broadcast formats. The testing for this project was to be completed in the video broadcast lab at Solent University, as it had a lot of necessary equipment to analyse the acquired broadcast formats. Equipment such as a VTR, waveform monitors, a DeckLink capture card, and PC's with the necessary software to complete the testing.

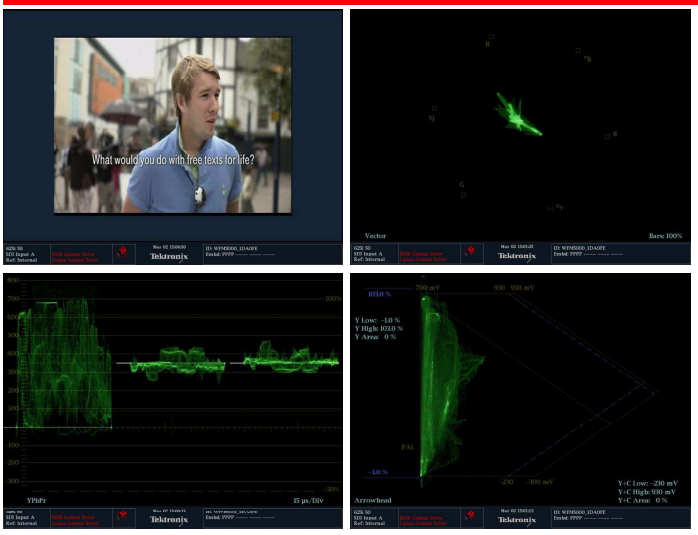
Conclusion

It was concluded the format that has made the most significant impact on the industry is MPEG-2, because of its impressive longevity and high compression rates. DVB-T2 is also recommended for use in broadcast. As it is more advanced than MPEG-2, and improves the capacity and performance of the first generation of DVB-T. It was used to develop a way for transmitting HDTV via terrestrial. As there was a heavy demand for HDTV in the UK, and the most common method of receiving TV transmissions in the UK is terrestrial, through aerials on rooftops.

Background

Throughout broadcasting history there has been an expansive array of media formats utilised, over time these technologies have evolved from analogue to digital, even today as the world of media becomes more advanced, engineers are having to keep up with demand by developing new formats. When developing these new formats, engineers must ensure that any issues or weaknesses from the previous edition of the format are fixed or improved, as well as adding new features to the format.

Testing



Analysis

The three displays analysed on the waveform monitor were the arrowhead display, YPbPr signal display and the vectorscope display. The arrowhead display plots luma on the vertical axis, with blanking shown towards the lower left corner of the arrow.

The waveform monitor can also be used for the measurement of brightness within an image (regardless of colour). The waveform monitor measures the brightness of an image by using a scale that ranges from 0 to 100 IRE (international Radio Engineers society). An image that receives an IRE measurement of 0 is completely black, with no detail. Whereas an image that has an IRE rating of 100 is clipped and will be completely white, with no detail.

Another feature of the waveform monitor is the vectorscope, which displays six colour targets on a grid. The colours are as follows Red (R), magenta (MG), blue (B-Y), cyan (CY), green (G), and yellow (YL)-the primary and secondary colours, which the scope can be set to display at 75% or 100%.