

The reality of using DGO Technology (Dual - Gain Output) with super within the labor market in 35mm CMOS sensor in modern cinema cameras Egypt the Arab Republic of
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Abstract:

The dynamic Range is considered one of the most important factors that determine the quality of the cinema camera, and production companies have tended to develop the CMOS sensor, especially the size of Super 35 mm, where the pixel or photosensitive cell plays a major role in determining the extent of the sensor's ability to show the largest amount of detail in bright and dark areas and where The dynamic range of the film negatives reaches 13 exposure degrees, while the dynamic range achieved by digital cinematographic cameras is much less than film, as it ranges between 4 or 5 exposure degrees, but in the recent period there has been a great development, as digital cinema cameras, where the dynamic range reaches 13 stops in Black magic camera, while Arri Alexa camera, up to 14 degrees of exposure, and with the emergence of modern technology for DGO (Dual - Gain Output) technology, where the photodiodes are deployed in a form that contains an optical diode to record LG's low-light areas and lighting areas. The HG frame has a structure that expands the dynamic range, allowing the image sensor to extend further into the deep, dark areas of a scene with While maintaining the high-light areas at the same time, this increased the dynamic range performance of the Cinema EOS C300 Mark III that uses the Dual Gain Output (DGO) to 16 stops that the camera can record.

And since DGO technology has given photographic directors the ability to photograph and record the image in a large dynamic range, it is possible to exploit this feature in photographing tourist scenes inside the Arab Republic of Egypt without notching or losing details, especially when photographing areas of tourist attraction with night shots, such as the city of Galala and the new Alamein, similar to With Turkish and Lebanese dramas that present the tourist attractions in their works in a pure manner without spread, which positively affects the media image of Egypt abroad

Key Words:

Dynamic Range - Dual Gain DGO - CMOS - Super 35mm output

an introduction :

The director of cinematography suffers when shooting tourist scenes, especially at night or in the afternoon times, due to the presence of large exposure differences between high and low light areas, and usually cameras that operate with sensitive CMOS slides, which are available in a limited dynamic range, they suffer from the difficulty of recording the scenes being filmed, which They have regions that are higher in the dynamic range than those recorded on the camera and cannot be accurately represented inside the sensor and lose detail in both regions of the light.

With the emergence of HDR imaging technology, this problem has been solved either by computer programs or during photography, by enlarging the range or area of the captured light, which in turn works to find more details in the image and improve the contrast of the image and to create an HDR image. There are two main types to obtain this technology

1- Redesigning the internal structure of the image sensor

2- It is multiple exposure techniques through which we can convert images with low dynamic range exposure to low-dynamic range into high-dynamic range images through external processing, which is multiple exposure

To solve the ghosting phenomenon that occurs while using multi-exposure technology, a new HDR creation technology based on dual-gain channels called DGO, which is similar to multi-exposure technology, which results in a moving image has emerged.

Study problem: statement of the problem

The cinematic dramas are distinguished in the recent period by showing the tourist attractions and the tourism promotion of different countries within the cinematic works, as is the case in the Turkish, Lebanese and other works. At night or during shooting in the afternoon times, there are large contrast differences between the degrees of lighting, which is negatively reflected in the image's shape. The problem lies when photographing a cinematic scene that contains many light densities, and while recording it on the sensitive slide, it loses many details due to the low dynamic range LDR For sensitive chips, especially sensitive CMOS chips

- How to use the DGO technology inside the Arab Republic of Egypt while photographing tourist areas without problems at different times, especially at night or noon?
- To what extent does the use of modern technology affect the thinking of the director of cinematography while working?

Objectives

The research aims to

- Shedding light on the modern technology of DGO and how to use it in cinematography
- Benefiting from the use of technology in showing the tourist areas within the Arab Republic of Egypt in dramatic works in a distinctive way without confusion or loss of details

Significance of Study Significance

The importance of the research lies:

The use of DGO technology in cameras with a CMOS sensor led to an increase in the quality of the cinematic image, and this is represented in the cameras of the "ARRI" company, and then it began to be used in cameras with a size of super 35 mm. Exploiting DGO imaging technology to produce high quality digital cinematic images, especially in photographing tourist areas at different times without blur during night photography or losing details while photographing high-light areas.

Hypothesis study assignments

The first hypothesis: The director of cinematography suffers from problems of losing details or the appearance of blur in different lighting areas while working with cinema cameras with a CMOS sensor of Su-br 35 size, and therefore the need for DGO technology came

The second hypothesis: that the introduction of DGO technology on cameras with a CMOS sensor in the size of Super 35 leads to raising their quality to reach their quality to compete with cameras with full frame size and approach the quality of the cinematic image produced from sensitive film

The third hypothesis: that the DGO technology may help productively in reducing expenses on lighting and may dispense with the use of lighting in cinematic works?

The fourth hypothesis: that the use of DGO technology in cinematic cameras helped the director of photography to move comfortably between the different formats of the cinematic image and helps him focus on the design aspect so that he devote himself to creativity in the language of the screen

Fifth hypothesis: The DGO technology helps film directors in cinemas inside the Arab Republic of Egypt to photograph tourist areas in both times of the afternoon without losing details in high-light areas, especially with the sunlight that characterizes the Arab Republic of Egypt and filming at night without the presence of noise

Methodology

semi-experimental method

Study tools

Designing a questionnaire form that the student extracts through theoretical study and his experiences in the field of field work

Arbitration of the list of questions in the questionnaire proposed by the student by a group of academic professors in the specialty

A questionnaire for workers in the field of cinematography and lighting and directors of photography and lighting within the different sectors of the National Media Authority in the Radio and Television Building in Maspero inside the Arab Republic of Egypt

Delimitations . Study Limits

Spatial boundaries: the Arab Republic of Egypt

Objective limits: Super 35 mm CMOS cameras with DGO technology

Results:

After the theoretical study and the conduct of the questionnaire, the student reached the following results:

1- Proving the validity of the first hypothesis of the study: the director of cinematography suffers from problems of losing details or the appearance of blur in different lighting areas while working with cinema cameras with a CMOS sensor of a size of su-br35, and therefore the need for DGO technology came

2- The validity of the second hypothesis: The introduction of DGO technology on cameras with a CMOS sensor in the size of Super 35 leads to raising their quality to reach the quality of competing cameras with full frame size and approaching the quality of the cinematic image produced from the sensitive film.

3- The fourth hypothesis was proven correct: the use of DGO technology in cinematic cameras helped the director of photography to move comfortably between the different formats of the

cinematic image and helps him focus on the design aspect so that he devote himself to creativity in the language of the screen

4- Proving the validity of the fifth hypothesis: that the DGO technology helps directors of photography in cinemas within the Arab Republic of Egypt to photograph tourist areas in both times of noon without losing details of them in high-light areas, especially with the sunlight that characterizes the Arab Republic of Egypt, and photography at night without the presence of noise

Recommendations

1- Cinematography directors must constantly be familiar with modern technology due to the rapid developments in the field of development of sensitive sensors and camera technology in general.

2- The use of cameras that contain DGO technology in cinematic works, especially during filming in lighting areas that suffer from large lighting differences between high and low lighting areas, and exploiting them in particular in dramatic works that contain tourist scenes that express the Arab Republic of Egypt

3- Super35mm cameras with modern sensor technology have become close in quality to full frame cameras thanks to the DGO feature and competitive prices. Film directors should take advantage of this feature with modern cameras

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