

# Modern Photogrammetric Manned Airborne Imaging Sensors

Elsayed Ammar (Egypt)

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## SUMMARY

Photogrammetric manned airborne imaging sensors are popular optical sensors used in topographic mapping. Photogrammetric manned airborne imaging sensors were passive, which depends upon the sunlight. Till now, optical imaging is mainly used in photogrammetric imaging works. Over the time, significant innovations and improvements have been made in the passive photogrammetric manned airborne imaging sensors which resulted in the form of sophisticated imaging sensors. This highlights the need to review these photogrammetric manned airborne imaging sensors.

In this study, different photogrammetric manned airborne imaging sensors are investigated. Photogrammetric manned airborne imaging sensors are first summarized and compared based on the technical parameters. Base to height (B/H) ratios are determined for the large-format current modern photogrammetric manned airborne imaging of type “Complementary Metal-Oxide Semiconductor” (CMOS) sensors such as Leica DMC III, Phase One-PAS 880 and IGI-DigiCAM 450.

The paper firstly starts with an introduction briefly mention the characteristics of the traditional old aerial film cameras which form the foundation of the geometry of photogrammetric old aerial photography and modern aerial digital imagery. The second section of the paper discuss in detail the imaging sensor technology of the two construction strategies of Charge Coupled Device (CCD) sensors; area array large format and linear array pushbroom sensors and the current modern Complementary Metal-Oxide Semiconductor (CMOS), area array large format sensors. The third section of the paper contains the parameters mentioned in the technical data sheets demonstrated by the manufacturers. In the fourth section the author determined the base to height (B/H) ratio for each one of the current modern CMOS sensors which are not published before. This indicate that the unpublished parameter (B/H) ratio reflects its weakness and it is suggested to modify the sensor

setting by the all three manufacturers by rotating the length of the sensor to be in the flight direction instead of the width. The suggestion in this study proposes the increase of the value of B/H ratio by almost twice which makes them accurate for the use in stereo-photogrammetric mapping.

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