

APGB Colour Infrared (CIR) User Guide

Colour Infrared (CIR) Product Specification

- Full coverage of Great Britain
- Delivered at 50cm resolution.
- Captured to RICS Specifications (2010 5th Edition for all data captured since 2010, RICS 2001 for all other data)
- Data acquired between 1st April and 31st October.
- All colour Infrared photography has been acquired with Vexcel UltraCams state of the art digital cameras.
- CIR Product is simultaneously captured with the RGB data ensure temporally coincident data.
- Areas are flown to Mean Low Water to cover intertidal areas, mudflats and large estuaries as requested.
- Data acquired with typically 80% overlap and 30% sidelap being maintained for stereo capture and true ortho production
- Sun angle during acquisition is greater than 20 degrees.
- Fully ortho-rectified mosaic output as 1km tiles. All ortho data since 2016 has been created as true ortho, which has removed building lean.
- NIR, Red, Green (in the RGB channels), false colour enhanced to maximise information content.
- Orthorectification will include the use of highly accurate airborne GPS/INS with ground control points. Adequate control will be used to ensure all imagery meets the image accuracy specifications and is suitable for 3D and photogrammetric use.
- Orthorectification will only use the central portion of each frame, reducing artefacts such as sun glint or cloud. Where artefacts occur, alternative frames from the stereo capture will be used. If this cannot resolve the problem, a re-flight will be required.
- Orthorectification is performed on the DSM for areas of true ortho.
- Overall positional accuracy will be better than +/-1.25m RMSE.
- Datasets supplied in manageable and edge-matched 1x1km tiles
- On-line and easy-to-use web ordering mechanism (which includes order history).
- Change Only Update (COU) is provided at sq km level.

Product Description

The APGB CIR Product is a high quality, seamless orthophoto dataset that provides a detailed colour infra-red picture of Great Britain. There is far greater chlorophyll reflectance in the near infrared than visible parts of the spectrum this imagery highlights vegetation growth to assist with environmental applications. The Aerial Photography CIR Product provides a good representation of the ground and vegetation due to:

- Aerial Photography capture to RICS Specifications
- Targeted CIR bands and spectral ranges to optimise information content
- Airborne INS and ground GPS to control the photography
- Full true orthorectification process

The Aerial Photography CIR Product comprises a digital spatial product:

- A colour infra-red orthophoto product at 50cm resolution, provided as tiles, colour enhanced to maximise information content and colour balanced to be consistent

regionally. This product allows digital viewing in mono mode, for mono-plotting, data extraction and production of vegetation indices.

The product comprises 3 bands as follows:

<u>Band</u>	<u>Description</u>	<u>Spectral Range</u>
NIRF18A	Near Infrared (NIR)	690-1000nm
REDF14A	Red	580-700nm
GRNF16A	Green	480-630nm

NIR will be displayed on monitors as Red, Red is displayed as Green and Green is displayed as Blue.

Applications

- General cartographic purposes (where the differentiation of vegetation and non-vegetation is important)
- Landcover Mapping
- Habitat/Vegetation Studies
- Greenspace Studies
- Environmental impact studies
- Urban development planning
- Vegetation Encroachment Studies
- Land management applications for forestry and farming
- Support Government Policy development for European Directives such as:
 - o Water Framework Directive
 - o Environmental Noise Directive
 - o Habitats Directive
 - o Waste Framework, Landfill and Mining Waste Directives
 - o ICZM (Integrated Coastal Zone Mapping) Directives
 - o Nitrates Directive

Coordinate System and Datums

The coordinate system used for the Aerial Photography CIR Product is the British National Grid used by the Ordnance Survey of Great Britain which is based on the OSGB36 geodetic datum and uses the Transverse Mercator projection.

The vertical datum (mean sea level) that is used in the Aerial Photography CIR Product is the Ordnance Survey Newlyn Datum.

More detail on the British National Grid coordinate system and notation can be found on the Ordnance Survey website at: www.ordnancesurvey.co.uk.

Data Format

The CIR Imagery Products can be supplied in a number of data formats which are listed below:

- JPEG
- GEOTIFF

Media Format

The CIR Imagery Products can be supplied in the following media formats:

- Direct Download
- USB Storage Device
- DVD

Note that delivery of data on DVD may take longer

System Requirements

The system requirements for using the CIR Product are dependent on the operating system software, GIS/CAD application software and hardware of the user. In terms of disc space usage, each 1x1km tile will have a slightly different file size depending on the nature of the topography (compressed formats only) in each tile and the actual data format the user requested. However, a guide to the file size of the tiles is as follows:

APGB CIR 50cm AP Data Sizing Guide						
	<i>Format</i>	TIFF	JPG	ECW (1:25)	JPG2000 (1:25)	
	<i>1x1km² Tile</i>	12	2	1	1	MB
England	<i>133599</i>	1603	267	134	134	GB
Scotland	<i>85504</i>	1026	171	86	86	GB
Wales	<i>21834</i>	262	44	22	22	GB
GB	<i>240212</i>	2883	480	240	240	GB

It is strongly recommended that a backup of the data is undertaken before a user commences using any of the Aerial Photography RGB Products.