Aerial Photography RGB User Guide

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Aerial Photography RGB Product Specification

- Full coverage of Great Britain
- Captured at 25cm resolution or better where applicable
- 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 for all data captured since 2013; some older base layer data were captured in March and November.
- All Data acquired since 2014 captured with Microsoft UltraCams; all data acquired since 2007 captured by digital sensors.
- The GSD of flown blocks will never exceed the intended 25cm or 15cm output GSD. In addition areas will be planned out to Mean Low Water to cover intertidal areas, mudflats and large estuaries as requested.
- Data acquired with typically 60% overlap and 30% sidelap ensuring a minimum of 55% overlap and 20% sidelap (25% in urban areas) being maintained for stereo capture.
- Sun angle during acquisition is greater than 20 degrees for all data captured since 2013; some base layer data was captured with a 15 degree minimum sun angle)
- Photogrammetrically scanned frames/digital imagery to maintain spatial accuracy
- Fully ortho-rectified mosaic output as 1km tiles
- Red green blue, true colour enhanced to maximise information content
- Colour balanced to provide regional consistency
- The whole production process including orthorectification will be at 25cm resolution (or 12.5cm as applicable) and as 24 bit colour, 3 band tiff files with no compression or 32 bit colour, 4 band tiff files with no compression.
- Compressed delivery formats will not exceed 25:1.
- 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 capture use.
- Orthorectification will only use the central portion of each frame, reducing foreign artefacts such as sun glint. Where foreign artefacts occur, alternative frames from the stereo capture will be used. If this cannot resolve the problem, a re-flight will be required.
- Overall positional accuracy will be better than +/-1.25m RMSE.
- Overall vertical accuracy from DTM will be better than +/-1.5m 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) providing both new and deleted features.

Product Description

The Next Perspectives Aerial Photography RGB Product is a digital orthophoto mosaic of Great Britain. It is a true colour representation of the real world, showing all ground features visible at a viewing scale of 1:10000. It is in many ways better than a map, which relies on the cartographer's interpretation of features and map specification. The Next Perspectives Aerial Photography RGB Product fills in the white spaces between features on maps.
The Aerial Photography RGB Product provides a good representation of the ground due to:

- Aerial Photography captured to RICS Specifications
- Airborne and ground GPS to control the photography
- Photogrammetric scanning of the aerial films/digital imagery
- Full orthorectification process
- Colour balancing to maximise the information content

The Aerial Photography RGB Product comprises two digital spatial products:

- A RGB, true colour orthophoto product at 12.5cm or 25cm 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 printing.
- Available on request, source photography comprising scans of the stereo RGB frames or digital frames, both with air triangulation results and colour-balanced to maximise information content. This product allows digital viewing in stereo mode, for photogrammetric stereo-plotting, accurate 3D data extraction and 3D mapping.

Applications

- General cartographic purposes
- Strategic development planning
- 3D photogrammetric feature extraction
- Environmental impact studies
- Urban development planning
- Emergency response planning
- Infrastructure planning of roads, rail, waterways, utilities, telecommunications
- Asset management of roads, rail, waterways, utilities, telecommunications
- Land management applications for forestry and farming
- Air Quality and Noise Mapping
- 3D visualisation and 'fly-throughs'
- Visual impact studies
- Support Government Policy development for European Directives such as:
  - Water Framework Directive
  - Environmental Noise Directive
  - Habitats Directive
  - Waste Framework, Landfill and Mining Waste Directives
  - ICZM (Integrated Coastal Zone Mapping) Directives
  - Nitrates Directive

Coordinate System and Datums

The coordinate system used for the Aerial Photography RGB 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 RGB 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 RGB Imagery Products can be supplied in a number of data formats which are listed below:

- JPEG
- ECW
- JPG2000
- GEOTIFF
- Uncompressed TIFF for individual frames

Media Format

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

- DVD
- Portable hard drive
- FTP Download

System Requirements

The system requirements for using the Aerial Photography RGB 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 RGB 25cm AP Data Sizing Guide

	Format	TIFF	JPG	ECW (1:25)	JPG2000 (1:25)	
	1x1km2 Tile	48	8	2	2	MB
England	*133599*	6413	1069	267	267	GB
Scotland	*85504*	4104	684	171	171	GB
Wales	*21834*	1048	175	44	44	GB
GB	*240212*	11.5	1.9	0.5	0.5	TB

APGB RGB 12.5cm AP Data Sizing Guide

	Format	TIFF	JPG	ECW (1:25)	JPG2000 (1:25)	
	1x1km2 Tile	192	30	6	6	MB
England	*133599*	25651	4008	802	802	GB
Scotland	*85504*	16417	2565	513	513	GB
Wales	*21834*	4192	655	131	131	GB
GB	*240212*	46.1	7.2	1.4	1.4	TB

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