An Application for
Associateship of the Royal Photographic Society
in
Research, Education and Application of Photography
(with particular reference to Image Management and Education)

Developing Standards for Projected Digital Images in
Photographic Events

by
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Stage Two - Full Report
December 2007

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Summary

A project to create standards for projected digital image (PDI) events was undertaken by the author between April 2005 and April 2007. The project sponsor was the Executive of the Photographic Alliance of Great Britain, which was responding to enquiries from its member Federations and their Clubs, mainly concerning suitable equipment for PDI. During the project, the sponsor received regular progress reports (see here at Annex A), and was enabled to direct the strategic aims of the project.

In a first phase between April 2005 and April 2006, the author collated technical information relevant to PDI using extensive Internet searches, by the collection of a panel of expert correspondents, and by discussions with those experts. All material was logged on a web site set up for the purpose. The outcome of this phase was a comprehensive technical report (see here at Annex B). Postscripts discuss updates to this technical report.

In a second phase between April 2006 and April 2007, the author used the technical report as a base, and analysed the requirements for particular audiences ie, organisers, authors, and with both either as expert or novice (see here at Annex C). Having decided on the main audience, which was the organisers of events, and on the suitable format of standards, the author reviewed current practice and validated a checklist of standards. The standards themselves were generic (see Box for example), were thought to be comprehensive, and they are expected to be long lasting.

> **B.02   Image Size.** The organiser <u>must</u> state the maximum pixel dimensions (width and height) permitted for image data files.

The standards were divided into:
- A-series. Two standards. For the organiser's own use in setting up the event.
- B-series. Ten standards. For the organiser to determine, and then publish as the requirements of the event.

The checklist of standards was supported by extensive guidance notes showing how each standard could be met in various ways, using methods drawn from current experience. The standards and guidance document was ratified and published by the sponsor (see here at Annex D). Postscripts comment on updates to the standards report, and also review compliance by current photographic events.

The project was completed in April 2007, and was handed over as the basis for implementing PDI events by the Photographic Alliance. The first of these will be held in early 2008 (The Alliance Great British Club Cup).

The project did not create any materials specifically for author education. However, this is known to be in hand in many places. Some open international events have produced materials, and the author has been commissioned to run workshops for which the materials are published.

Overall, this project successfully produced a set of standards for projected digital image events, in a novel format. The project satisfied the requirements of its sponsor. The standards have been published, and should be adequately resilient over time.

About the Author

Personal & Professional:

Marcus (Mark) David Buckley-Sharp qualified in medicine, and was a consultant chemical pathologist at University College London Hospitals, and a senior lecturer at University College London until his retirement in March 2006. Roles held during his career included head of department, chair of clinical audit, chair of pathology examiners, visiting examiner (Birmingham University), consultant to The Doctors Laboratory plc, and President of the Medical Education section of the Royal Society of Medicine. His special interest is IT, especially the design, coding, installation and support of large scale transactional database systems. IT roles have included Y2K compliance, system management, information governance, consultancy to the UCLH electronic patient record project and, ongoing, President of the London & South East (Health Informatics) Specialist Group of the British Computer Society. Mark is a Fellow of the Royal College of Pathologists, Fellow of the British Computer Society, and a Chartered Engineer.

Photographic:

Mark has been a member of Harrow Camera Club for over 30 years, including 21 years as one of its officers. More recently, he became a member of Aylesbury Camera Club. He was treasurer of the Chilterns Association of Camera Clubs (CACC) for 9 years, and for 4 years was the CACC member on the Executive of the Photographic Alliance of Great Britain (PAGB). For the PAGB, he completed a project for a proposed Permanent Collection, served on the Patronage Committee for 3 years, and was chair of the Technical Standards Committee. Mark joined The Royal Photographic Society in 2002, becoming LRPS, having previously achieved CPAGB. He immediately joined the committee of the Thames Valley region and has worked to help run events. In 2006, he was appointed by Council to be the Regional Organiser for Thames Valley. Mark's photographic interests are in informative pictures, now mostly devoted to lectures on the geography, history and culture of Turkey. Besides lecturing, he is a judge within CACC, is interested in the chemistry of photography and, for the PAGB, has completed the project reported here to review practical experience, and to develop standards for projected photographic digital images.

Project Overview

The project was sponsored by the Executive Committee of the Photographic Alliance of Great Britain ("The Alliance Executive"), and ran in two main phases between April 2005 and April 2007. The first phase, to April 2006, collated information about equipment suitable for projecting digital photographic images (PDI), and resulted in a technical report. The second phase, from April 2006, used the technical report as a knowledge base to develop standards for organisers of projected digital events.

Project Initiation and Structure

The Alliance Executive had received several requests, arising from its member Federations and its affiliated Clubs, for advice on PDI, covering both hardware suitability and procedures. In April 2005, the author offered to coordinate a project to develop advice for PDI, and this offer was accepted by the Alliance Executive. The Alliance Executive established a Technical Standards Committee, with the author as chair, and with Mr Ian Lyons and Mr Roger Force FRPS as members. Mr Mike Wheatley replaced Mr Force in April 2006.

Copyright Clearance

The Alliance Executive has granted copyright clearance (October 2007) for the use of their documents in this application. A copy of the e-mail is shown immediately below.

mark.buckley-sharp

From:	Howard G. Tate [howard@hgtate.e7even.com]
Sent:	09 October 2007 20:02
To:	mark.buckley-sharp
Subject:	RPS Paper Proposal

Hi Mark,

Glad to report that after consulting the permanent (so to speak) members of the PAGB Executive we are more than happy for you to go ahead with your submission to the RPS.

Regards

Howard

What was Known Before

By April 2005, other large organisations were in the process of producing some standards for PDI, notably the Photographic Society of South Africa (PSSA). The Photographic Society of America (PSA) has its Electronic Images Division. And, the organisers of individual PDI events were already producing documented requirements for their events. But, overall, practice was disparate and fragmented.

What is Added by this Project

In the technical aspects of PDI, the comprehensive data collection in this project showed that few, if any, PDI event organisers were then aware of the range of current expertise and practice. That was addressed by the technical report from the project in April 2006.

In the standards aspect of PDI, there was no analysis of the overall requirements, and no attempt to create generic standards with a validated comprehensive coverage. The PSSA standards, for example, which were in development during this project, are informative but largely procedural. This was addressed in the project by a paper on the requirements, and by the final standards report, which was ratified in April 2007.

Acknowledgements

The author acknowledges contributions by discussion with a panel of expert correspondents during the project. They are cited in the reports at Annex B and at Annex D.

Contribution by the Author

The Secretaries of the Alliance Executive confirmed (February 2007 and May 2007) that the work of the Technical Standards Committee was effectively done solely by the author. Copies of the correspondence are shown on the following two pages.

THE PHOTOGRAPHIC ALLIANCE
OF GREAT BRITAIN

Patron: The Rt. Hon. The Earl of Lichfield

Please reply to: 30 Merle Avenue
Harefield
UXBRIDGE
UB9 6DG
Tel: 01895 822202
e-mail: graham_laughton@yahoo.co.uk

Mark Buckley-Sharp CPAGB
9 Wellacre Road
KENTON   HA4 0BN

14th February 2007

Dear Mark,

All your colleagues at our February Executive meeting were very concerned to hear of your illness and to learn that you need to leave the EC at this time.

They expressed great admiration for the amount of detailed work you have done in the Technical Standards committee, collecting, sifting and validating a diverse range of digital imaging information.   Your authorship of the committee's 5th Report, presented at our recent meeting, was much admired.   Described by one member as a 'Tour de Force'!

Mark, we all send our best wishes to you for a successful outcome from your treatment and for a complete return to good health in the fullness of time.

With our best wishes.

Sincerely,

Graham A Laughton Hon.PAGB
Hon. Secretary

Member of The International Federation of Photographic Art

THE PHOTOGRAPHIC ALLIANCE
OF GREAT BRITAIN

Patron: The Rt. Hon. The Earl of Lichfield

Please reply to: Cavendish House
2 Tumbling Hill
Pontefract
WF8 3SA

Tel: 01977 702356
e-mail: hgtate@tesco.net

Mark Buckley-Sharp CPAGB
9 Wellacre Road
Kenton
HA3 0BN

16th May 2007

Dear Mark,

The President and all members of the PAGB Executive have asked me to convey our heartfelt thanks for all your efforts in guiding the Technical Standards Committee in the preparation of the standards for projected digital image events. It is apparent to everyone that the vast majority of the work was indeed your own and because of this the PAGB, the Federations and indeed all clubs and societies in the Kingdom owe you a debt of gratitude.

Once again, a huge thank-you from everyone.

Regards

Howard G. Tate
Hon. Secretary

Member of The International Federation of Photographic Art

Methodology

The Alliance Executive debates and acts within its own membership. But, on this occasion, the Executive established the Technical Standards Committee because it had insufficient expertise to answer the queries being made by its member Federations and, in turn, by their member Clubs. What expertise existed anywhere about PDI events was developing in many small pockets, comprising individuals and some organisations, acting largely independently and without knowledge of each other. There had been a previous attempt to state PDI requirements applicable to the Alliance patronage of photographic events, but this was quite limited in scope (see the Patronage section of the Alliance Handbook).

For this project, Internet facilities were used to make wide scale searches for individuals, Federations, Clubs, Exhibitions, and up to the level of international organisations including the Society, who might be demonstrating interest and activity in PDI events. One outcome was assembly of a panel of correspondents, who already had an interest and some expertise. For example, the panel member from the Society was Dr Barry Senior, currently the President, who was involved in the use of PDI for the Society's distinctions. The panel of correspondents provided more details of their own work, and also moderated the project by providing comments on draft papers issued for consultation. This use of wide-area consultation was again outside the normal practice for the Alliance Executive.

The results of searches, and the interactions with correspondents were logged, as they arose, on a web site set up and designed especially for the purpose by the author. Correspondents were given access to the web site and could see the comments of others. All reports were put onto the web site, as drafts and then in final form. The web site was consolidated and restructured after phase one of the project, so that it would be suitable to support the work in phase two. (The project phases are described more fully below.)

Project web site: http://myweb.tiscali.co.uk/markbuckleysharp

The technical report at the end of phase one (Third Interim Report, April 2006, see here at Annex B), and the ratified standards document (Final Report, April 2007, see here at Annex D) were published on the Photographic Alliance web site.

PAGB web site: http://www.pagb-photography-uk.co.uk

This methodology, of wide area consultation, was chosen for two specific reasons.

- When a reasonable number of people can contribute to the content, then it becomes very unlikely that any major topic will be omitted from consideration. By using a panel of correspondents, the project outcome could be expected to be comprehensive.

- When there is highly disparate practice, as there was in PDI by 2005, then merely exposing the practitioners to the experience of others will promote a convergence. This will happen even without the imposition of any standards, as the participants will tend to benchmark themselves against others, once identified. Self-imposed convergence was a relevant aim, because the Alliance Executive has no authority to impose its opinions on its member Federations, their member Clubs, or on anyone except itself.

The Alliance Executive meets three times per year (April, October, February), and progress reports were submitted at each meeting from October 2005 through to April 2007, forming a series of five interim reports, and one final report. The aim of these reports was to involve the Executive members sufficiently to enable their role as sponsors of the project, and to obtain any guidance about the scope. Copies of the reports made to the Executive are included in the Annexes. These include the single page meeting reports (Annex A), the technical summary at the end of phase one (Annex B), the proposals for a format of standards (Annex C), and the final standards report (Annex D). Commentaries on these follow below.

The aims of the methodology can then be summarised as engagement and capture of comprehensive experience in PDI usage for photography, coupled with educational development for the sponsor and for the community of event organisers, so that adoption of common standards would then be accepted by all as a natural progression.

Phase One - Technical Background

Commentary

As described above, Phase One commenced in April 2005 on the establishment of the Alliance Technical Standards Committee, and ran for one year until April 2006. The first remit, or scope, of the project, described in the First Interim Report of October 2005 (see Annex A), was "to collect information concerning current practice on projected digital images (PDI) and to consider what, if any, recommendations might be made for practical standards of use." The source of interest was flowing from questions by Federations and Clubs, and the Alliance was quite open that there might be no suitable outcome.

The initial scoping review suggested a range of topics which might arise while searching for current practice. One of the author's personal websites was configured with pages to log information on the topics of, *inter alia*, projectors, PCs and graphics adaptors, equipment setup, data file formats, imaging display software, and competition/exhibition management software. The website was further configured with pages to log information about, *inter alia*, Clubs, Federations, the RPS, other organisations, and individuals.

There then began a large Internet search, locating and reviewing many hundreds of websites. There are 15 Federations with just under 1000 Clubs in the Alliance. Every Federation website was searched, and within each, every Club with a website (not all Clubs have a website). Every available site was checked for information about PDI events, especially anything about equipment in use and about stated requirements for authors to follow when preparing PDI entries. The same style of search continued with The Society, including a check on all of its regions, its specialist groups, and its distinctions system. The search then continued with known international bodies including FIAP (International Federation of Photographic Art), PSA (Photographic Society of America, especially its Electronic Imaging Division), PSSA (Photographic Society of South Africa), and Exhibitions accepting their patronage. A general Google search was made using phrases such as "projected digital image", "digital exhibition",

and so on. All positive findings were logged on the website under the nearest appropriate heading, and can still be reviewed there if required.

In the search of Federations and Clubs, very little information was found, with only 0-6 Clubs per Federation expressing any view on PDI, perhaps explaining why the Alliance had been receiving requests for help. But, within the detail there were already problems looming. One, the spurious requirement for image files to be set to a specific resolution (either 72ppi or 300ppi often being quoted or, even worse, the use of dpi as a unit of projected resolution), which has largely been eliminated today. Another, author education to follow published PDI event requirements, remains ongoing.

Within The Society, the LRPS distinction in still photography was already running successfully using PDI, which is a good time to note that this project was not concerned with audio-visual, where excellent progress by those specialist practitioners had been in hand for some time. FIAP was publishing PDI standards applicable to its patronage, and various exhibitions with FIAP patronage were checked. Their requirements statements (Rules, if preferred) were limited, and had many ambiguities. Similarly, PSA was publishing some limited PDI requirement for its events, and exhibitions with PSA patronage were publishing requirements with as mixed a content as those of FIAP. Only PSSA was making a serious attempt to set some practical standards for others, but they were prescribing the method of working rather than the desired outcome quality: a format which the author has called 'procedural'.

On the other hand, there were issues receiving effective attention from some sources. Amongst these were image size, colour space, equipment calibration, and the inequality of screen area used by portrait and landscape images when the image space is not effectively square, as it is with a slide projector.

If the search for organisations running PDI had a relatively low yield, then the search for suppliers of hardware and software delivered an overwhelming quantity of sources. It was necessary to stick to the better known makers, because adding more would have been unlikely to reveal new generic information. The results of the searches were logged on the website, and collated into the Committee's Third Interim

Report of April 2006 (see here at Annex B). That content will not be elaborated at this point, except for some general comments about projectors and about display software, so that the following section can bring these comments up to date (2007).

The basic problem with purchasing a projector was that nobody had the background information to start making a shortlist. In a verbal presentation to the Alliance Executive, the author contrasted this with buying a car where the broad purposes of different marques are generally understood. One major difference between projectors is in their imaging technology ie, LCD, versus DLP, versus LCOS. Each type had its fervent admirers, which made dispassionate advice difficult. Also making advice difficult was that the projectors were and are aimed at the presentation market, and not at the comparatively insignificant market for high quality photographic reproduction. Specifications were usually vague about any features which might really improve image quality. Then again, projectors might last in the market for little more than 6 months, making all recommendations for particular models futile.

There was a wide choice of image display software. Correspondents seemed to fall over each other wanting their products included in the Alliance documentation, as if that would be an endorsement. As a result, it was necessary to clarify with the Alliance that the Alliance itself could not become a testing and accreditation organisation for either hardware or software, which it would never be competent to run. A general disclaimer was put on all reports stating that no inclusion of a product description could be taken as a recommendation for one product over another.

The collated technical summary was issued to the project's correspondents in draft for consultation, which resulted in a number of improvements and updates. It was then accepted as the project's Third Interim Report of April 2006, and published by the Alliance. It appears here as Annex B.

Postscripts. Technical Development to Date (Dec-2007)

The Third Interim Report stood up well to deeper scrutiny. (The later version at Annex B included only minor typographical corrections.) There was a challenge to the statement that ppi resolution is not relevant to projection. This was dismissed in the case argued in the 'Snippets' section of the project website, along with the subsidiary suggestion that specifying ppi would assist with catalogue production.

A major difference between projectors is their lumen ratings. Photographers had been used only to buying a 35mm projector with either a 150W or a 250W bulb (at 24v), and there was some consensus on the room and audience sizes, and hence screen size, appropriate for both. While the lumen rating was obviously also a proxy for room/audience/screen size, there was little guidance available, and far more lumen levels to consider. Using the Alliance liaison and publications, the author asked Clubs and other event organisers to measure the light reflected from their screen using a projector set to white, and to report the results. A standard method of setting and using a light meter was given. Although only a small amount of data was received, some recommendations could be given (see Box).

With limited data to hand, an acceptable brightness for digital projection may be in the region of EV6.5-8.0. EV7 may be a minimum for slides. 1800 lumens may be adequate for Club and Federation use. Digital projectors can be under run, so that a higher lumen specification should also be satisfactory if economy mode is used. No upper lumen limit has been identified yet. Higher EV (up to 9.5) have been found acceptable for projection on smaller screens eg, 4' wide, approx 1sqm. It is possible that a higher white level is acceptable precisely because there is less screen area, and hence the observer's total experience is a smaller area of high brightness in the typical blackout. If so, then this would be a favourable situation: using the same projector for a larger group, entailing moving the projector back to get a larger screen image, would still appear acceptable to the audience even though the image is objectively dimmer. [...] While authors of projected digital images have been concentrating on colour rendition, there may be a separate issue of image density which would depend on how large the event organisers choose to project the images.

Federations were surveyed for their current (in 2006) strategies for introducing PDI events into their own calendars. Results showed varied experience, but that all should have sufficient experience by mid to late 2008. Recently, the Alliance Executive decided to introduce PDI events in 2008, creating a new Great British Club Cup.

For projectors, the Canon XEED range, using LCOS technology, is widely regarded as the Rolls Royce of photographic projectors which, considering its pricing premium over the other makes and technologies, is an apt description. All other projectors can be bundled together as adequate workhorses. A projector with DLP technology and XGA image size can be now be bought for under £500, and the quality differential with XEED is far narrower than the relative price suggests. However, JVC now have a D-ILA chip, which is also LCOS technology, around which they use signal processing for the top HDTV standard, which is widescreen 1920x1080. Note that 1920x1080 sounds much more than 1400x1050 (SXGA+), but it is only 30 more lines, and the need to show mixed landscape and portrait images for photography would probably rule out the use of widescreen aspect ratio. What this demonstrates is a convergence between data and video standards, such that projector manufacturers may come to prefer the HDTV standard, a preference which may then be followed by the PC graphics card manufacturers, in turn leading to the demise of formats like SXGA+.

Since April 2006, yet more image display software has become available. For example the Society used Dicentra software (Steve Wilbur, Beckenham) for its International Projected Images Exhibition. The author recently found yet another Club using software written by one of its members. The author sympathises with the creators of new packages, knowing from personal experience that, for an active software writer, writing a new package is often the simplest way of analysing the requirement. Writing a new package is more personally satisfying than trying to match existing products to one's own requirements, but it leaves the end user at much more risk. Imaging display software is simply divided into two classes: the very general purpose album program of which there are dozens if not hundreds available, and the very special purpose competition/exhibition software which combines assembly of entries, documentation, display, scoring, and results management. In the former category it is difficult to beat the highly effective, well supported and completely free Google-Picasa. In the latter category, the user remains in a support minefield, being constantly dependent on the original supplier.

Finally, it became apparent in later 2006 that Microsoft already had a series of policies on color (sic) management within their software, which was not openly

disclosed in the marketing literature, probably because they thought few people would be interested. Colour management means the examination of each incoming image data file for any colour space setting, with processing of the image into the colour space of the output device, eg screen. In general Microsoft software which needs to display rapidly, where their examples include thumbnails and Internet Explorer, will not colour manage each image, but all their other software will. The latter group includes Windows Slideshow and the entire MSOffice product, such as PowerPoint. The colour management facilities in Windows Vista are significantly different from those in all earlier versions of Windows.

Transition

Having completed the technical background compilation, the Alliance Executive agreed that this was a suitable foundation on which to try and build some practical standards. The project was therefore rescoped into an analysis of the requirements for standards, to be followed by creation of the standards themselves.

As discussed below, this led to an agreed format of standards which had not been used in any PDI event before.

Phase Two - Standards Development

Commentary

The Alliance Executive asked, in April 2006, for the production of a set of standards which was short and simple. On the face of it, this was a reasonable requirement, but it contained inherent contradictions. A short document is only useful to someone who already has enough background knowledge to understand not merely the content, but also the implications of what is stated. For a knowledgeable person, a short document is a useful checklist for completion of processes, which are otherwise not stated in the document. For novices, a short document does not help, and a long document may not be understandable either. The problem needed some further analysis, and a discussion document was produced in August 2006 (see here at Annex C).

Every photographic event has two sets of participants. The authors and the organisers. The organisers start the process off, and publish their requirements (or Rules if preferred) to the authors. The authors prepare their entries according to the requirements, and submit the work to the organisers. The organisers show the work at the event. This raises a series of questions:
- Are the standards to be for the authors, or for the organisers?
- Is the documentation to be addressed to novices or experts?
- Are four sets of documentation needed (novice authors, experts authors, novice organisers, experts organisers), or will fewer sets suffice?
- If so, which sets of documentation are needed, and how should they be prioritised?
- How should documentation updates be managed?

The document at Annex C was only part way along the discussion which ensued.

What resolved the uncertainties was a realisation of the need to concentrate on the interface between the authors and the organisers. The interface represents the handover point between the two sets of participants, who need to trust one another. It is crucial that this interface is specified and works correctly. It then becomes unimportant how the authors and the organisers achieve their respective tasks.

The author was influenced here by the accreditation standards documentation used by Clinical Pathology Accreditation Ltd, a company set up to accredit pathology service laboratories. [The author's laboratory had been one of the first to achieve CPA accreditation when the scheme started in 1992. CPA standards have subsequently been moving towards compatibility with the ISO 9000 series for service accreditation.] In the CPA standards, each standard is a brief statement of requirement, and each standard is supported by significant material suggesting methods for compliance.

The interface between organisers and authors has to be stated by the organisers. Even if multiple standards documents were to be required, the first would have to be written for the organisers.

- There should be a 'checklist' for organisers, as required by the Alliance Executive, and this would cover those topics which must be published to authors wishing to enter the event.
- There should be 'guidance' for organisers, which would include the technical information already collected for the Third Interim Report (here at Annex B), but recast under the headings of the checklist.
- The organisers would choose a compliance method either from the guidance, or from their better knowledge, and create an instance of the checklist topics as the requirements for the particular event. For example, if the standard requires publication of the image size, then the instance might be to require XGA size (1024x768 pixels).

Annex C includes a sample of a checklist of standards for organisers. When written, there was no suggestion that this was a complete list. Again following the method that, if enough people contribute then nothing major will be omitted, the author collated the published requirements from a range of photographic events which were then advertising and open for entries. Event requirements tend to be published in narrative form rather than as lists. The author analysed these narratives to classify the content, looking for the maximum scope, and ignoring any known technical errors. The output seemed complete, although no one event included everything. In effect,

the narratives from events were reverse engineered: if those were the answers to a set of standards, then what were the questions ie, the standards themselves.

Besides standards for publication as the requirements for authors, there are standards which the organiser must follow internally in order to run an effective event. As they are part of the initial event design, these eventually became 'A-series' standards, and the requirements for authors became 'B-series' standards.

Following the October 2006 meeting of the Alliance Executive (see Annex A for report), and decisions on the format, drafting work proceeded rapidly. The February 2007 meeting of the Alliance Executive received the usual progress report (see Annex A), and also a version of the completed standards document. (Version 1.2, which is not included here, but may be seen on the Technical Standards website.) Version 1.2 was approved for consultation amongst the Executive and the committee's correspondents. Correspondents were asked to answer a specific set of questions and to provide any other comments. All the answers and comments were collated, with their responses and actions. (This consultation report is not included here, but may be seen on the Technical Standards website.)

There were many useful comments during the consultation, which allowed the guidance to be updated, and also made simpler to read. No single topic caused more contention than the issue of projector calibration. In the technical report of April 2006 (see here at Section 8.2 of Annex B), projector setup could be done in three ways:
- manually,
- using a simple utility such as Adobe Gamma, or
- using a specific hardware colorimeter device.

Users need to select a method giving adequate results for the purpose, at an acceptable cost. In the consultation on the standards guidance, most who commented on colour calibration dismissed both manual and simple utility methods as inadequate. Cheaper projectors certainly have very limited adjustments, no more than a CRT monitor ie, brightness, contrast and colour temperature. Some expensive projectors have much more refined settings, which can give a reasonable result with careful manual adjustment. Adobe Gamma only sets at the mid-level for each colour,

like making a smooth bow curve in Photoshop, and cannot set any more complex curves. The compromise (see here at Section A.01.1 of Annex D) was to allow all methods of calibration, but to remind users that the outcome still has to be judged subjectively, where test targets have their uses. For those unable to afford an expensive hardware calibration method, it is probably simpler to purchase a calibration service, which has the advantage of adding an expert opinion.

The amended standards documentation was received and ratified by the Alliance Executive at Version 2.2, which is that shown here in Annex D, and was published on the Alliance website in April 2007. Copies were sent to the committee's correspondents. A copy was sent to the Photographic Society of South Africa, who had not corresponded, but who had developed their own local standards as noted here.

In Annex D:
- Pages 1-4 introduce the material and explain its format and scope.
- Page 5 is the checklist of standards.
- Pages 6-19 are the guidance notes.

The content stands as described there, and is not further discussed in this section.

Postscripts. To Date (December 2007)

Nothing arising since publication seems to have invalidated any standard or required its revision.

It was always expected that the guidance part of the document would require updating as technology changes and experience develops. Only one significant omission has been found so far.

- In the Society's requirements for the International Projected Digital Images Exhibition, it was required that monochrome images are submitted in the RGB Mode. The Alliance guidance (standard B.01 refers) had not mentioned monochrome images. Monochrome does not mean black & white: the FIAP definition (excusing the translation) refers to tones of any one colour, so that RGB mode may be required for monochrome entries. Conversely, and demonstrating how compliance with a standard can be achieved flexibly in many ways, the Alliance Great British Club Cup will allow submission in Greyscale Mode, where images can only be black & white monochrome. That does not mean that the Alliance requires black & white images to be in Greyscale, or that all monochrome must be black & white.

Organisers will also devise ways of complying with the standards which are not shown in the guidance.

- An organiser might decide to set the maximum image size according to an HDTV standard (1440x1080, which is the non-widescreen version of 1920x1080). HDTV formats were not mentioned in the standards guidance, but are discussed here above in the Postscripts for Phase One.
- The Alliance Great British Club Cup will use a filename format of
  <seq>_<postcode>_<title>
  where <postcode> is that of the Club entering, so that the entries are shown in cycles by <seq> and in a fixed order within each cycle pseudo-randomised by Club <postcode>. This is not an example in the guidance, but it is a precisely planned instance arising from the design concepts in the guidance.

Compliance Survey

The standards were listed as a superset of the requirements being published for some events in late 2006. Ie, some events were not including some requirements. Following publication of the standards, it would be hoped that the superset remains valid, and that few events would be omitting any necessary requirements. This has been tested for nine events current at October 2007.

- Photographic Alliance Great British Club Cup
- Beyond Group (no patronage)
- Bristol International (FIAP, PSA patronage)
- Fordingbridge CC (no patronage)
- Northern Counties International (FIAP, PSA patronage)
- Royal Photographic Society International Projected Images (RPS, PSA patronage)
- Smethwick International (FIAP, PSA patronage)
- Southampton International (FIAP, PSA patronage)
- Welsh International (FIAP, PSA patronage)

Compliance was reviewed for the B-series standards. (Annex D shows full definitions of the standards.)

Standard	About	Compliance
B.01	Mode/Space	Only 2/9 stated the required Mode(s). 5/9 stated the required Colour Space(s).
B.02	Size	9/9 stated the image size.
B.03	Filename	9/9 stated the filename, with examples. In 1/9, the example did not match the specification.
B.04	File type	9/9 stated the file type(s).
B.05	File size	1/9 required e-mail submission which allows control of file size, and the maximum file size was stated. 8/9 required CD submission, where 2 of these 8 wrongly set a file size limit.
B.06	Media	9/9 stated the required media.
B.07	Metadata	9/9 stated the metadata, which usually combined media labelling and paper entry forms.
B.08	Publication	5/9 stated their publications intention.
B.09	Compliance	3/9 stated a policy for non-compliance with the other requirements.
B.10	Advice	1/9 gave additional advice on compliance. This is a voluntary standard.

There were some specific errors. One stated that projection would be at 72ppi, which is a basic technical misunderstanding. Two stated that image files must be set to 300 ppi as a cataloguing requirement, which has been demonstrated not to be required. [When images are cut and pasted into a page eg, for a catalogue, they are pasted by pixel, they lose their source resolution, and they adopt the ppi resolution of the receiving page.]

There is obviously a little way to go. Organisers may be tempted to copy requirements from one event to another, and there were some similarities of wording in the events surveyed. Therefore, it will take time for the errors to be removed, and for full compliance to happen. The improvements to target now are Mode, Filename examples, and Publications policy. The erroneous use of ppi is regrettable, especially as the Welsh International was one miscreant. Use of ppi had been raised by them in April 2006, and their error had been adequately explained.

However, of the events surveyed, only the Alliance Great British Club Cup is required by the scope of the standards to be fully compliant, with compliance being voluntary for the remainder. The Alliance Great British Club Cup is compliant with all the standards except for a statement about penalties for non-compliance. In view of the desire to encourage Clubs to enter this new event, it might be assumed that the organisers are prepared to manage non-compliance sympathetically.

Conclusion

Standards for Projected Digital Images were produced according to the sponsor's requirements, and the sponsor has accepted them by ratification and publication.

Author Education

This project did not deliver any material usable directly for author education. The question was asked as part of the analysis of requirements in summer 2006, but the emphasis turned to making standards and guidance for event organisers. Authors obviously need their own guidance to meet event requirements, and authors are more numerous than organisers. The range of experience likely to be found amongst authors will be very wide: much wider than for organisers.

At Club level, authors will arrive as new members with no knowledge about preparing images specifically for projection. Such novices may know little more than how to put a memory card into either a printer or a commercial printing booth to get a full frame print.

At the other extreme, authors are already submitting to international exhibitions. Unfortunately, it would be wrong to classify all these authors as experts. Throughout the project, organisers have reported on the many failings of authors preparing their images, even when they are given specific directions. The Society's International Projected Image Exhibition of 2007 reported errors by authors, although not precise numbers and types of error.

There is an obvious need for author education. And, again, authors call for simple instructions, although it is known that the unskilled author cannot understand the reasoning behind simple instructions. Standard B10 permits the organiser of an event to issue advice about complying with the event requirements. Some events have taken up this challenge. For example, the Shrewsbury Open and the Rushden Open events have collaborated to produced a common advice sheet available via both events.

This author was commissioned by Harrow CC to deliver workshops for author training. The training deliberately followed the Alliance standards, assuming that event organisers will do so too. The handbook for the workshops is not included here, but is published on the Advice pages of www.harrowcamera.netfirms.com