



COLOUR & SPACE IN  
CULTURAL HERITAGE



### *Short Term Scientific Mission (STSM)*

The Russian icon: processing and assessing the usefulness of spectral imaging data from WG1 Round Robin Test



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*Host Institution:* University College London, United Kingdom

*COSCH Working Group:* WG 1 – Spectral Object Documentation

*Report date:* November, 2015

## SHORT DESCRIPTION

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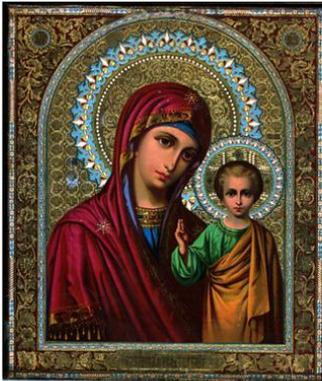
Many types of spectral imaging systems have been applied for the study and digital documentation of cultural heritage artworks. However, depending on the device and conditions used, as well as the workflow, the results obtained may vary considerably. A Round Robin Test (RRT) exercise has been carried out by COSCH Working Group 1 (WG1), which aims to identify the characteristics and performance of different spectral imaging systems and to standardise methodologies for the analysis of artworks in an effort to ensure the usefulness, accuracy and comparability of the data acquired. Five objects of different typologies have been analysed with several multi- and hyper-spectral imaging systems from twenty-one institutions. Such inter-institutional comparison can be very useful and powerful, but the management of the large amount of information that it generates requires a lot of time and effort. Short term scientific missions (STSM) have been used by COSCH early-stage researchers to gather and process the information generated by the twenty-one institutions.

The purpose of the present STSM carried out at University College London, UK, was to compare through a qualitative approach the available data obtained from one of the RRT objects, a polychrome Russian icon from the 19<sup>th</sup> century. The quality of the images produced by ten different systems was assessed by an experiment that gathered the judgement of human observers. This was a preliminary investigation of the capabilities of the different imaging systems to digitise a polychrome object with glossy surface, high specular reflectance and very fine spatial details. It was also useful to assess the degree of discrepancy between the data obtained within the RRT and to define the best and most useful procedure to deal with the diversity and large amount of information. Moreover, in some cases, the reflectance spectra at selected points of the images were also reconstructed in order to obtain a quantitative evaluation and to characterise the icon's coloured materials.

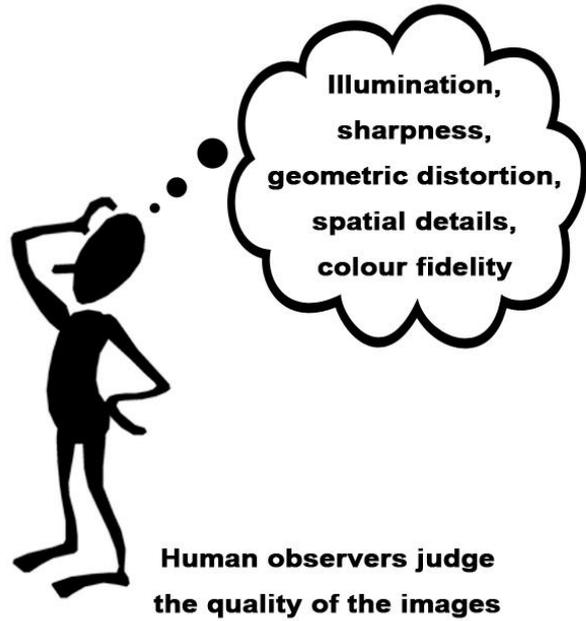
## GRAPHICAL ABSTRACT

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### Reference



**Images produced by  
different spectral  
imaging systems**



**Illumination,  
sharpness,  
geometric distortion,  
spatial details,  
colour fidelity**

**Human observers judge  
the quality of the images**