To document surface characteristics of graphic materials, supports and pictorial layers, the digital imaging device, IMROD (Imaging Module for Multi-spectral, Reflectance or 2D+) was developed in 2012-2013 at Leuven University (Belgium). A camera of 28 million pixels is digitizing the objects with omnimulti-directional lighting and export the result to 2D+.

The technique is based on polynomial texture mapping, also known as Reflectance Transformation Imaging (RTI), a technique of imaging and interactively displaying objects under varying lighting conditions to reveal surface phenomena. The module is a hemi-spherical structure with a single downward looking video camera. The object to be captured (maximum 180 to 120 mm) lies in the center and is illuminated from computer-controllable lighting directions, through the subsequent activation of multiple white LEDs (260). The different angles that illuminate the surface of the artifacts are revealing extreme details.

Examination and identification of the production of scripts, miniatures, gold tooling, embossing, stamps on paper and parchment, gold- and blind tooling on leather book covers. For changes in their structures (ea. cockling, tractions, folds, lacunas, retouching, scratches, abrasion) the imaging tool proved to be an extremely accurate. Complementary, RICH is useful to monitor the conservation and preservation status of an object before and after treatment, transport or exhibition.

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1. Dome for digitizing with omnimulti-directional lighting and export the result to 2D+

2. Antwerp, Museum Plantin-Moretus, M 15.1, Bible of Konrad of Vechta, Bohemia, 1402-1403, Fol. 47v: the Lord addressing Moses and the Israelites,
Miniature with gold patterned background: raised gold on a gesso, lozenge motif and punched floral patterns, border with rounds.
Left: miniature: 101,89 mm x 79, 47 mm. Imaging with striking light
Right, detail, floral pattern: Imaging with shaded filter
Art-technical documentation: after adding the gold leaf on the raised gesso, first the lines for the frame were tooled. Then the double lines for the lozenge pattern were tooled. The 13 full floral stamps are identical; they have the same irregularities and were stamped at the exact same X-Y position. The partially added floral stamps on the edges are created by adding pressure to one part of the handle.

3. Leuven, Mauritius Sabbe Library, Calf leather cover with the imprint of Cardinal d’Alcace, 1740,
Left: Imaging with striking light
Right: Imaging with shaded filter
Documentation: The shaded filter reveals the deeper imprint on the right side

4. Leuven, Mauritius Sabbe Library, 16th century leather cover with the blind tooling
Left: Imaging with striking light
Right: Imaging with sketch filter

5. a. 18th century paper seal, imaged with raking light with IMROD.
b. with raking light and sketch filter