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(A) [ - ] Publication in OJ
(B) [ - ] To Chairmen and Members
(C) [ - ] To Chairmen
(D) [ X ] No distribution

# Datasheet for the decision of 28 November 2025

**Case Number:** T 1009/24 - 3.5.06

**Application Number:** 19758088.9

**Publication Number:** 3761229

**IPC:** G06K9/20, G01J3/44, G01S17/89

**Language of the proceedings:** EN

**Title of invention:**
DIGITAL TECHNOLOGY FOR CULTURAL RELICS, CALLIGRAPHY AND ORIGINAL PRODUCTS

**Applicant:**
Liu, Fenghua

**Headword:**
Object identification/LIU

**Relevant legal provisions:**
EPC Art. 123(2), 83

**Keyword:**
Amendments - extension beyond the content of the application as filed (yes)

**Decisions cited:**
G 0002/10

**Catchword:**

Europäisches Patentamt
European Patent Office
Office européen des brevets

**Beschwerdekammern**

**Boards of Appeal**

**Chambres de recours**

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**Case Number: T 1009/24 - 3.5.06**

# D E C I S I O N
# of Technical Board of Appeal 3.5.06
# of 28 November 2025

| | |
|---|---|
| **Appellant:** (Applicant) | Liu, Fenghua<br>Building 3, No. Songtao Road<br>Huaxi District<br>Guiyang, Guizhou 550025 (CN) |
| **Representative:** | Parker, Andrew James<br>Meissner Bolte Partnerschaft mbB<br>Patentanwälte Rechtsanwälte<br>Postfach 86 06 24<br>81633 München (DE) |
| **Decision under appeal:** | **Decision of the Examining Division of the European Patent Office posted on 19 March 2024 refusing European patent application No. 19758088.9 pursuant to Article 97(2) EPC.** |

**Composition of the Board:**

| | |
|---|---|
| **Chairman** | M. Müller |
| **Members:** | T. Alecu |
| | K. Kerber-Zubrzycka |

## Summary of Facts and Submissions

I. The appeal lies from the decision of the Examining Division to refuse the application for lack of compliance with Articles 83 and 84 EPC.

II. The Appellant requested that the decision be set aside and that a patent be granted on the basis of the sole request underlying the decision (main request), or on the basis of a set of claims filed with the letter of 27 October 2025 (auxiliary request).

III. In its preliminary opinion the Board indicated that it tended to agree with the view of the Examining Division on the lack of compliance with Articles 83 and 84 EPC, and that further the application did not comply with Article 123(2) EPC.

IV. The present decision was taken during oral proceedings.

V. The (unnumbered) claim of the main request defines:

*A subject title of the claimed invention is "digital technology of cultural relics, calligraphy, painting, and original commodities"; the closest current technology is the visible light photography identification technology ; the common feature of the present invention and the visible light photography identification technology is using the electromagnetic wave as the detection tool. The object information extracted by the visible light photography identification technology is the surface color data cluster, and the visible light photography identification technology in the 350 nm-750 nm wavelength range is seriously interfered by rain, snow*

*and fog due to the wavelength; although pottery, jade, bronze, calligraphy, ink painting, oil painting, carving, sculpture, agricultural product, industrial product, vehicle, ship, aircraft, mountain, river, sea, bridge, building and other objects are diverse in colors and shapes, but all objects are different astronomical three-dimensional exterior-interior atom-molecular clusters; all kinds of atoms and molecules are different nucleon-electron spin-circulation electromagnetic microunits; the three-dimensional assembly of massive electromagnetic microunits with different properties, quantities and distributions can determine the differences of electromagnetic structures of any individual objects; the electromagnetic coefficients such as electrical conductivity δ, relative dielectric constant $\varepsilon_r$ and magnetic susceptibility $\chi_m$ related to the nucleon-electron clusters of various materials are different from each other; the linear equations such as $J_c = \delta E$, $D = \varepsilon_r \varepsilon_o E$ and $M = \chi_m H$ show that different electromagnetic coefficients lead to different electromagnetic energy transformation efficiencies; the non-visible electromagnetic waves in the wavelength range of 30 μm-100 million meters can irradiate atom-molecular clusters and cause various strong-weak electromagnetic interactions with nucleon-electron clusters such as vibration, rotation, polarization, magnetization or conduction at different frequencies; in the meantime the change of electromagnetic energy is related to the electromagnetic coefficients such as electrical conductivity δ, relative dielectric constant $\varepsilon_r$ and magnetic susceptibility $\chi_m$ of materials; therefore, the spectrum features revealed by the interaction between different atom-molecular electromagnetic microunit clusters of any individual objects and electromagnetic waves in the wavelength range of 30 μm-100 million*

*meters are different from each other; the sensitive wavelength or wave band of interaction between the non-visible light electromagnetic wave band and the nucleon-electron electromagnetic clusters can be determined by the characteristic trough or crest of spectrum; the light intensity distribution matrices of reflection waves of millions or tens of millions of electromagnetic space units at single or multiple interface depths can be extracted by applying sensitive wavelength or wave band detection waves to irradiate the individual objects; the reflection rate distribution matrix of the reflection waves can be converted to an individual-specific identity identification digital matrix code through analog-digital conversion; according to the reflection wave theory because of the wavelength limitation of, the visible light in the 350 nm-750 nm band, the reflection waves at interfaces can only extract the visible color data of red, orange, yellow, green, cyan, blue and violet colors at less than750 nm depth, while the electromagnetic band which wavelengths expand from micrometer to one hundred million meters theoretically can extract the three-dimensional exterior-interior electromagnetic data of non-visible light properties covering partial or entire electromagnetic media of the individual objects at various depths from surface to the depth of less than one hundred megameter; the electromagnetic information extraction depth of the electromagnetic waves in the wavelength range of 30 μm-100 million meters at the object interface is apparently deeper than that of the visible light due to the longer wavelength; in the meantime, because of the longer wavelength, the electromagnetic waves in the wavelength range of 30 μm-100 million meters with better resistance to rain, snow and fog can extract the electromagnetic structure feature information for*

*identification under any weather conditions; it is technically feasible to realize the realistic fakes of the surface colors of the object originals at relatively low cost, while it is technically impossible to realize the fakes of the electromagnetic structures of the three-dimensional exterior-interior atom-molecular clusters of the object originals at any cost; the reliability of object identification of the present invention is far beyond the visible light photography identification technology due to different wavelengths, therefore, comparing with the current visible light photography identification technology the advantage of the present invention is remarkable, and different from the visible light photography identification technology the advanced technology features of the present invention, such as three-dimensional exterior-interior penetration detection capability, individual-specific identity identification digital matrix code, resistance to rain-snow-fog interference and high reliability, are based on physics, chemistry and electromagnetism ; The 30 μm-100 million meters waveband is usually used in frequency modulation, amplitude modulation, television and communication in the worldwide patents, books, papers and internets, no any patent or non-patent documents indicate that the sensitive wavelengths or wavebands in the 30 μm-100 million meters waveband could be used as the probe to realize every individual object recognition in the world.*

***Characterising in that*** *the spectrum features extracted by scanning the astronomical three-dimensional exterior-interior nucleon-electron clusters of any individual objects with the 30 μm-100 million meters non-visible light waveband are different from each other, in the meantime, the electromagnetic waves of sensitive wavelengths or bands related of crests of*

*absorption spectra or troughs of reflection spectra, which can match intrinsic electromagnetic frequencies of nucleon-electron clusters, can be used to irradiate millions or tens of millions of the interface exterior-interior electromagnetic space units, cause strong-weak electromagnetic interactions and reveal the electromagnetic distribution differences of millions or tens of millions of interface exterior-interior nucleon-electron clusters space units of any individual objects, the extracted distribution matrices of reflection waves of any individual objects are different from each other, the invention is a method, which could realize the individual object identification, the scheme is composed of four steps: a) to extract the reflection, scattering, absorption or transmission spectrum of partial or entire media of a specific kind of object at the 30pm-100million meters waveband; b) to select single or multiple sensitive trough or crest frequencies or bands as the electromagnetic probe from the single or multiple troughs or crests in the reflection, scattering, absorption or transmission spectrum; c) the sensitive electromagnetic probe could be used as the light source to irradiate the partial or entire object medium, a multiple sensor chip array like a ten-million-pixel sensor chip array could be used to measure the distribution of electromagnetic indexes of reflection, scattering, absorption or transmission wave, such as light intensity, reflection rate or phase, through the combined application of the penetration ability of the longer wavelength and the electromagnetic interaction at the sensitive frequency, the electromagnetic feature distribution of three-dimensional exterior-interior nucleon-electron clusters of the individual object could be transformed to the specific multiple-pixel-array two-dimensional code of electromagnetic index*

*like light intensity, reflection rate or phase; d) to realize the individual object identification through the comparison of the different two-dimensional codes; based on the precise theory integration of physics, chemistry and electromagnetism the technical scope claimed by the present invention is a method of individual object recognition, which first choose single wavelength, two wavelengths or more wavelengths or narrow band or broad band from the 30 μm-100 million meters wavelength range spectrum features of the specific kind of object, then use the electromagnetic waves at the chosen wavelength or waveband to irradiate the individual objects or part of the individual object, cause electromagnetic interactions to reveal the electromagnetic differences of the three-dimensional exterior-interior nucleon-electron clusters structures of specific kind of individual objects, and immediately extract reflection waves, scattering waves, refraction waves, absorption waves, or transmission waves as the individual-object-specific electromagnetic waves identity identification information.*

VI. Claim 1 of the auxiliary request defines:

*The invention is a method, which could realize the individual object identification, the scheme is composed of four steps:*
*a) to extract the reflection, scattering, absorption or transmission spectrum of partial or entire media of a specific kind of object at the 30 μm-100 million meters waveband;*
*b) to select single or multiple trough or crest frequencies or bands as the electromagnetic probe from the single or multiple troughs or crests in the reflection, scattering, absorption or transmission spectrum;*

*c) the electromagnetic probe could be used as the light source to irradiate the partial or entire object medium, a multiple sensor array like a ten-million-pixel sensor array could be used to measure the distribution of electromagnetic indexes of reflection, scattering, absorption or transmission wave, such as light intensity, reflection rate, absorbance or phase, through the combined application of the penetration ability of the longer wavelength and the electromagnetic interaction at the through or crest frequency, the electromagnetic feature distribution of three-dimensional exterior-interior nucleon-electron clusters of the individual object could be transformed to the specific multiple-pixel two-dimensional code of electromagnetic index like light intensity, reflection rate, absorbance or phase;*
*d) to realize the individual object identification through the comparison of the different two-dimensional codes.*

## Reasons for the Decision

*The application*

1. The application relates to object "*digitalization*" and identification technology (A1 publication, paragraphs 1 and 2). It relies on the observation that while objects may appear to be the same on the surface, they are different at the "*surface-interior three-dimensional atom-molecular levels*" (column 1, lines 47 to 52). The usage of light with wavelength above the visible range 750nm to 100 million meters allows, according to the application, the extraction of this "surface-interior

three-dimensional" information (paragraph 3, from the middle of column 2 and until the end).

1.1 The application identifies a large variety of use cases for the invention, amongst them in particular the identification of counterfeited objects but also very different ones such as target detection, "*disaster prevention and reduction*" and the "*gradual[] complet[ion of] the digital construction of the earth*" (column 4).

*Article 123(2) EPC*

2. In its preliminary opinion (points 7.1 and 7.2) the Board indicated that the claim of the main request lacked clarity (Article 84 EPC), as it did not define a clear claim category, and comprised a host of features related to general physical considerations or possible uses, which did not provide any clear restriction on the matter for which protection was sought.

2.1 In that context the Board nonetheless referred (point 7.3) to a passage in the claim, which resembled a standard claim format in stating that: "*the invention is a method, which could realize the individual object identification, the scheme is composed of four steps: [..]*", labelled a) to d).

2.2 Claim 1 of the auxiliary request as filed in response to this opinion is a method claim with those four steps.

3. The Board had, however, also indicate in its preliminary opinion that it did not see any basis in

the original application for these four steps (Article 123(2) EPC).

4. During the oral proceedings the Appellant provided basis for the step a) at page 1, lines 8 to 12, and at page 3, lines 20 to 24, in the original application, and for step d) at page 3, lines 27 to 29.

4.1 For steps b) and c), the Appellant argued that the recited features were commonly known.

4.2 It was common practice to extract crests or troughs (steps b) and c)) to analyse spectra, so the person skilled in the art would perform such processing for the purposes of identifying objects using spectra.

4.3 The value of 30 µm in feature b) was derivable for the person skilled in the art because it was the well known limit between far infrared and terahertz waves: the application mentioned both and indicated that the invention was concerned with electromagnetic waves beyond the visible spectrum.

4.4 A sensor with 10 million pixels, as recited in feature c), was standard and would be used by the person skilled in the art.

4.5 Thus there was no new technical information provided to the person skilled in the art in the definition of the four steps.

5. The Board recalls that the applicable standard for the assessment of Article 123(2) EPC is whether the subject-matter of the amended claims stays within what a skilled person would derive, directly and unambiguously, and using common general knowledge,

from the original application (see decision of the Enlarged Board of Appeal G 2/10, reasons 4.3).

5.1 Matter which would merely be *obvious* for the skilled person, using common general knowledge, from the original application does not meet this standard.

5.2 It may be that the person skilled in the art would find it obvious to extract crests or troughs from the signal in a processing step, and it may also be an obvious option to use a 10-million-pixel sensor or to consider a wavelength range with a lower limit of 30 µm. But none of this information is a *direct and unambiguous* consequence of what is disclosed in the original application. Other options are available, e.g. matching spectra directly, or using a camera with a different number of pixels, or using different wavelengths.

6. The Board concludes that at least the features in steps b) and c) do not comply with Article 123(2) EPC.

*Article 83 EPC*

7. The Board has not taken a decision on Article 83 EPC, because it was unnecessary to decide the case given the conclusion above. The Board notes, however, that it has serious doubts that the disclosure is sufficient, considering the breadth of the claims of both requests.

7.1 The claimed invention is a method (or technology) which should be able to identify *any* type of object using a very wide range of electromagnetic wavelengths, some literally of planetary scales. However, the application provides no example, and no guidance as to which

wavelength to use for which objects, or how to process the data to ensure that identification is possible.

7.2 The Board is not in a position to question that the invention is based on an insight that could be exploited in individual, practical solutions. However, the extremely large breadth of the claims is not commensurate with the superficial teaching provided, and it would be a clearly undue burden on the person skilled in the art to carry out the claimed invention over its full breadth.

**Order**

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar: The Chairman:

L. Stridde Martin Müller

Decision electronically authenticated