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Dear Sir/Madam,

Re: Feedback Exercise - Views on *Emotional Perception AI Limited (Appellant) v Comptroller General of Patents, Designs and Trade Marks (Respondent)* [2026] UKSC 3

We write with regard to the feedback exercise issued by IPOS to invite views on the recent decision of the Supreme Court of the United Kingdom in *Emotional Perception AI Limited (Appellant) v Comptroller General of Patents, Designs and Trade Marks (Respondent)* [2026] UKSC 3.

This submission is made by the Association of Singapore Patent Attorneys (ASPA) on behalf of its members. ASPA is the only professional organisation dedicated solely to the representation of the patent profession in Singapore. Our members are engaged in patent work in Singapore and are either registered with IPOS as patent attorneys or are currently undergoing training to qualify as patent attorneys.

ASPA also has members who are qualified to practise in other jurisdictions and regions, including the United Kingdom, the United States, the EPO and Australia. Our members represent Singapore clients as well as foreign applicants from major industrialised countries, across many sectors of industry.

As patent practitioners, our members are expected to be aware of the provisions governing the assessment of patentability of computer-implemented inventions, artificial neural networks and claims involving software, data processing and mathematical methods. We in turn advise our clients on law and practice in Singapore. Because of this, our members have a keen interest with regard to any changes in practice.

As a preliminary point, the UK Supreme Court's decision in *Emotional Perception* is not binding in Singapore. The UK Supreme Court has no direct jurisdiction in Singapore, and its judgments can only be persuasive before the Singapore Courts. *Emotional Perception* should therefore not be treated as determining the position under Singapore law.

There is also an important statutory difference between the legal frameworks in Singapore and the UK/EPC. Unlike Section 1(2) of the UK Patents Act 1977 and Article 52(2) EPC, the Singapore Patents Act 1994 does not contain a statutory list of subject matter excluded from patentability as such. The current wording of Section 13(1) of the Act provides that, subject to subsection (2), a patentable invention is one that is new, involves an inventive step and is capable of industrial application.

This means that *Emotional Perception* cannot be transposed directly into Singapore law, since much of the UK Supreme Court's reasoning concerns the interpretation of Article 52 EPC and the UK statutory exclusions. However, we consider that the decision is nevertheless relevant in a more specific sense, in that it exposes the difficulty of using an *Aerotel*-derived "actual contribution" inquiry in examination practice, and it suggests a more structured way to distinguish the threshold question of whether there is a technical invention from the later questions of novelty and inventive step.

This point is relevant because the IPOS examination framework currently incorporates an *Aerotel*-derived analysis when considering whether a claim defines an "invention". The practical question raised by *Emotional Perception* is therefore whether that framework remains the right one for Singapore, given that the Singapore Patents Act does not contain the UK/EPC-style statutory exclusions on which the *Aerotel* approach was developed.

This can be seen from the current *Examination Guidelines for Patent Applications at IPOS*, which explain how this issue is handled in examination practice:

Paragraph 8.3 of the *Guidelines* states that, if there remains an issue that the claims may relate to subject matter which is not an “invention”, the Examiner should undertake a separate analysis of the claimed subject matter. In that analysis, the Examiner should look at substance rather than form, identify the “actual contribution” made by the claimed subject matter and consider the problem to be solved, how the claimed subject matter works and what its advantages are.

Paragraph 8.4 of the *Guidelines* then identifies this “actual contribution” inquiry as the second step of the *Aerotel/Macrossan* test. It quotes the well-known formulation asking what the inventor has “really added to human knowledge”.

Paragraph 8.5 of the *Guidelines* states that an objection should be raised if the actual contribution lies solely in subject matter that is not an “invention”.

The guidance published by IPOS in the *Supplemental Guidance for the Examination of AI-related Patent Applications* is also relevant to this discussion because it reflects current examination practice for AI-related inventions. IPOS states that the guidance supplements the *Examination Guidelines* of October 2023 and provides hypothetical examples of AI applications, with non-binding assessments of whether the claimed subject matter would be considered patentable. It also makes clear that AI-related patent applications are examined case by case and that other patentability requirements must still be satisfied.

The *Supplemental Guidance* also adopts an “actual contribution” approach. It states that determining whether a patent claim defines an invention involves properly construing the claim, identifying the actual contribution and asking whether the actual contribution falls solely within subject matter that is not patentable. It also specifically refers to the second step of the *Aerotel/Macrossan* test when identifying the actual contribution (paragraph 7 of the *Supplemental Guidance*).

In our view, this aspect of the current guidance should be reviewed. First, *Emotional Perception* casts serious doubt on the conceptual soundness of the *Aerotel* contribution approach. Second, Singapore no longer has a statutory list of exclusions corresponding to Section 1(2) of the UK Patents Act or Article 52(2) EPC.

IPOS should therefore review whether Singapore examination practice should continue to rely on an *Aerotel*-derived inquiry developed to interpret statutory exclusions that are not present in the Patents Act.

Question 1: Is Emotional Perception relevant to the development of patent practice in Singapore?

Yes. We consider that *Emotional Perception* is relevant to the development of Singapore patent practice.

Specifically, the decision is relevant in that it rejects the contribution-based approach associated with *Aerotel*. The UK Supreme Court made clear that the *Aerotel* approach should not be followed, and that the UK should adopt the same interpretation of Article 52 EPC as the Enlarged Board of the EPO in G 1/19. The Court also stated that this did not require UK courts to change their approach to inventive step, although some modification may be required.

The difficulty with *Aerotel* is that it asks the decision-maker to identify the “actual contribution” of the claim before determining whether the claim falls within excluded subject matter. That inquiry asks, too early, what the invention has added over the prior art. It therefore risks mixing the threshold inquiry into whether the claim defines an invention with the separate requirements of novelty and inventive step.

That criticism is directly relevant to the IPOS *Supplemental Guidance*. The current guidance asks the Examiner to identify the actual contribution at the stage of deciding whether the claim defines an invention. It also cites *Aerotel/Macrossan* as the basis for this approach. If IPOS accepts that *Emotional Perception* provides useful persuasive reasoning, then the continued use of an *Aerotel*-derived “actual contribution” step should be reconsidered, at least for AI-related and computer-implemented inventions.

This is particularly important for computer-implemented inventions and AI inventions. Such inventions often contain a mixture of hardware, software, data, mathematical processing and functional effects. If the threshold inquiry is framed by asking what the inventor has “contributed”, the analysis may prematurely strip away the technical implementation and treat the claim as nothing more than an abstract idea, mathematical method, recommendation scheme or computer program. Such an approach

risks refusals of patent applications that might otherwise protect genuine technical innovation.

We suggest that a clearer approach might be to keep the requirements of patentability separate. The first inquiry should be whether the claim *as a whole*, and properly construed, is directed to a technical invention. Where the claim involves physical hardware, including a conventional computer, a networked system, dedicated digital hardware or other technical means, this should ordinarily be enough to satisfy the initial inquiry into whether the claim defines an invention in a field of technology. For the avoidance of doubt, this first inquiry should not decide novelty, inventive step or industrial applicability.

This approach is consistent with the policy reflected in Article 27(1) TRIPS, which requires patents to be available for inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application.

IPOS should therefore consider whether the reasoning in *Emotional Perception* provides a better analytical framework than a contribution-based approach, while adapting that reasoning to Singapore's statutory framework.

Question 2: Does Emotional Perception bring greater clarity on patentable subject matter and its relationship with inventive step?

Yes, but only if the decision is understood as requiring a structured sequence of analysis, and only with due allowance for the different statutory position in Singapore.

We consider that the most useful clarification is the intermediate step between the “any hardware” threshold and inventive step. This is because the presence of hardware is a low threshold. It is therefore necessary to identify, before assessing inventive step, which features of the claim contribute to the technical character of the invention.

The UK Supreme Court described this intermediate step as a filter for features contributing to a technical solution of a technical problem in view of the closest prior art. It stated that the intermediate step is needed because the invention threshold provided by the “any hardware” interpretation is too low to enable the invention reliably to be tested

for novelty and inventive step. The Court also stressed that the analysis must be carried out by reference to the technical character of the invention *viewed as a whole*.

In a Singapore context, the intermediate step should not be understood as the application of a statutory exclusion under Article 52 EPC or Section 1(2) of the UK Patents Act. Singapore has no equivalent statutory exclusions. Instead, the intermediate step should be understood as an analytical tool for identifying which features of a mixed invention may properly be considered when assessing novelty and inventive step.

We consider that the core inquiry should focus on how the features in the claim interact with each other. A feature should not be disregarded merely because, viewed in isolation, it appears non-technical. A non-technical feature may contribute to the technical character of the invention if it interacts with technical features to solve a technical problem or achieve a technical effect. Consideration should be given as to the *overall technical effect* and how this is achieved by a *technically advantageous technical implementation*. Conversely, a hardware feature should not be retained merely because it is hardware. If it is incidental and does not contribute to the technical character of the invention, it should not support inventive step.

The UK Supreme Court made this point clearly in *Emotional Perception*. It stated that the intermediate step does not involve asking whether each feature, viewed separately, is technical or non-technical. The sole criterion is whether the feature contributes to the technical character of the invention *as a whole*. Technical features may therefore be filtered out if they make no such contribution, and non-technical features may be left in if they do make such a contribution.

The current IPOS *Supplemental Guidance* already contains some language pointing in this direction. For example, it considers whether a machine learning method interacts with computer hardware to a material extent and whether mathematical steps are causally linked to the specific problem being solved. Those aspects of the guidance are useful and should be retained. However, we believe that they should be recast as part of an intermediate technical-character analysis, rather than as part of an *Aerotel*-style “actual contribution” inquiry.

In practical terms, the correct question is what the claimed invention achieves in the real world and how that effect is achieved using technical means. This requires the

invention to be assessed as a whole and at the correct level of technical generality. It is not sufficient to characterise the claim at a high level as a recommendation, a search process, data processing or mathematics. We consider that such characterisations may obscure the technical mechanism by which the claimed result is achieved.

We also consider that Singapore should not assume that adoption of the intermediate step requires adoption of the EPO problem-solution approach to inventive step. The UK Supreme Court stated that the EPO problem-solution approach is a matter of practice rather than something dictated by the EPC. It also stated that *Pozzoli* remains a legitimate approach to inventive step.

Accordingly, *Emotional Perception* brings clarity if it is understood as supporting the following sequence for Singapore practice.

First, construe the claim.

Second, determine whether the claim is directed to a technical invention, having regard to the presence of technical means and the claim as a whole.

Third, identify the technical character of the invention as a whole.

Fourth, determine which claim features contribute to that technical character, including through interaction with other features.

Fifth, assess novelty and inventive step by reference to the features which make such a contribution.

Such an approach avoids importing a UK/EPC statutory exclusion framework into Singapore law, while preserving the useful parts of the reasoning in *Emotional Perception*.

Artificial Neural Networks

This point is especially important for inventions employing Artificial Neural Networks (ANNs). A trained ANN may be implemented in software, dedicated digital hardware or analogue circuitry. The patentability analysis should not turn on the label attached to the implementation. If the same technical effect is achieved by the same trained network or functionally equivalent technical arrangement, it would be artificial to

treat the invention differently merely because one implementation is described as software emulation and another as hardware.

Care is also needed before treating ANNs as computer programs. The UK Supreme Court held that an ANN is a program for a computer. It reasoned that, whatever the form of the machine on which an ANN is implemented, the ANN constitutes, in essence, a set of instructions to manipulate data in a particular way so as to produce a desired result. It also treated the weights, biases, topology and activation functions as features which operate in combination to instruct the machine to process data in a particular way.

In our view, IPOS should not adopt that reasoning uncritically for Singapore practice. First, Singapore does not have the UK/EPC statutory list of exclusions, and there is therefore no need to force ANN inventions into the category of a “program for a computer” as a threshold exclusion issue. Second, the legal characterisation of an ANN as a computer program may obscure the technical nature of the invention, particularly where the ANN is implemented in dedicated hardware or analogue circuitry.

A conventional computer program is ordinarily understood as a sequence of executable instructions. A trained ANN is technically different. Its behaviour may depend on network architecture, weights, biases, learned parameters, component values or physical configuration. Those features may determine how the system behaves, but they are not necessarily executable instructions in the ordinary sense.

This issue is most clearly seen in analogue implementations. An analogue ANN or analogue computing circuit may have no CPU executing code. Its behaviour may arise from circuit topology, component values and physical signal flow. In that context, asking where the “program” resides is not a semantic question. It exposes a real technical problem with treating all information-processing systems as if they were conventional computers executing conventional programs.

We therefore consider that treating circuit configuration, component values, weights or biases as a “program” risks replacing technical analysis with an abstract legal classification. The better approach for Singapore practice is to examine the technical means used and the technical effect achieved, rather than to decide patentability by applying a broad legal label such as “computer program”.

The same caution applies to mathematical methods. ANNs plainly use mathematics, particularly during training and in the adjustment of weights and biases. But applied mathematics should not be treated as non-patentable merely because mathematical operations are involved. As discussed above, the proper inquiry is whether the mathematics is claimed in the abstract, or whether it forms part of a technical system which achieves a technical effect.

IPOS should therefore avoid revising its guidance in a way that treats ANN inventions as inherently suspect because they involve software, mathematics, learned parameters, weights or biases. Those may be relevant to the technical analysis, but they should not be treated as automatic indicators that the claim is directed to non-patentable subject matter. For Singapore practice, we consider that the more appropriate question is whether the claim, considered as a whole, is directed to a technical invention and whether the relevant features contribute to the technical character of that invention.

Question 3: What issues or challenges could arise for applicants and practitioners, and how may these be addressed?

We consider that the main practical challenge is that Examiners and practitioners may apply the intermediate step too superficially.

We consider that there might be a risk that AI and ANN inventions will be characterised at too high a level of abstraction. For example, an invention may be described simply as making a better recommendation, ranking files, identifying similar content or applying a mathematical model. Such a characterisation is likely to miss the technical implementation and the real-world technical effect. It may also fail to account for the way in which apparently non-technical features interact with technical features.

IPOS's guidance should therefore make clear that the assessment must consider the invention as a whole. It should not simply divide claim features into technical and non-technical categories in isolation. The focus should be on whether each feature contributes to the technical character of the invention, including through interaction with other features.

The current *Supplemental Guidance* includes helpful examples which already support a more nuanced approach. For example, it recognises that AI applications are found in many fields of technology and that patent protection may be sought for many

aspects of AI-related inventions, including training datasets, machine learning methods and AI-specific computer hardware such as processors and memory chips.

However, we believe that the structure of the *Supplemental Guidance* should be updated. At present, the examples are presented through the lens of construing the claim, identifying the actual contribution and asking whether that contribution falls solely within subject matter that is not patentable. That structure is too closely tied to *Aerotel* and to a statutory exclusion framework which Singapore no longer has.

We suggest that IPOS should replace or supplement the current structure with the sequence proposed above. In particular, the guidance should make clear that the initial inquiry into whether the claim defines a technical invention is separate from novelty and inventive step, that the existing *Aerotel*-derived “actual contribution” step should be reconsidered and that the presence of hardware or other technical means should ordinarily satisfy the initial inquiry without prejudging novelty or inventive step.

We further believe that the guidance should also explain the intermediate step more fully. It should state that the Examiner should identify the technical character of *the invention as a whole* and then determine which features contribute to that technical character, including through interaction with other features. The current discussion of “interaction to a material extent” between a machine learning method and computer hardware should be expanded. The question should not be limited to whether a mathematical method interacts with conventional computer hardware. It should include whether any claim feature, technical or non-technical when viewed in isolation, contributes to the technical character of the invention as a whole.

We consider that the examples in the *Supplemental Guidance* should be reviewed and, where appropriate, revised so that the analysis follows the sequence of initial technical-invention inquiry, intermediate technical-character inquiry and then novelty and inventive step. The examples should also avoid suggesting that ANN inventions are non-patentable merely because they involve software, mathematical operations, training processes, weights, biases, learned parameters or embeddings.

Conclusion

Emotional Perception is relevant to Singapore patent practice as persuasive authority, but only with due regard to Singapore’s different statutory framework. Its

main value lies in its criticism of the *Aerotel* contribution approach and in the structured distinction it draws between the initial inquiry into whether there is a technical invention, the intermediate inquiry into technical character and the later assessment of novelty and inventive step.

That criticism is particularly relevant because the IPOS *Supplemental Guidance* for AI-related patent applications currently adopts an *Aerotel*-derived “actual contribution” framework. Since Singapore no longer has a statutory list of excluded subject matter corresponding to the UK and EPC provisions, IPOS should review whether that framework remains appropriate for Singapore practice.

In summary, ASPA welcomes IPOS’s consultation and considers that *Emotional Perception* raises issues of real practical significance for the examination of AI-related and computer-implemented inventions in Singapore. While the decision is not binding in Singapore and must be considered in light of Singapore’s different statutory framework, it provides useful persuasive reasoning on the risks of an *Aerotel*-derived “actual contribution” analysis.

ASPA respectfully invites IPOS to review the current Supplemental Guidance for the Examination of AI-related Patent Applications and the relevant portions of the *Examination Guidelines for Patent Applications at IPOS*, with a view to clarifying that the threshold inquiry into whether a claim defines a technical invention should be kept separate from novelty and inventive step, and that the technical character of the invention should be assessed by considering the claim as a whole and the interaction between its features.