



PATENTS ACT 1977

APPLICANT Zebra Technologies Corporation

ISSUE Whether patent application GB2016366.3 complies
with sections 1(1)(b) and 76(2) of the Patents Act
1977

HEARING OFFICER Ben Buchanan

DECISION

Background

- 1 This decision relates to whether patent application GB2016366.3 complies with Sections 1(1)(b) and 76(2) of the Patents Act 1977 (“the Act”).
- 2 The application was filed on 16 April 2019 as a PCT application and was published on 21 November 2019 as WO2019/221864 A1. The application entered the national phase on 15 October 2020 and was subsequently republished as GB2586189 A on 10 February 2021. Amendments to the claims had been filed on entry to the national phase and these were the subject of the first examination report which was issued on 11 November 2020 and which objected to a lack of inventive step. The Applicant chose not to amend but contested that the claims were inventive in their agent’s letter of 29 December 2020. In the Examiner’s second examination report (dated 6 January 2021), the inventive step objection was maintained, and a supplementary objection to added matter in the previously amended claims was formulated. The Agent responded with arguments that neither objection was relevant in a letter of 8 March 2021. Since no agreement had been reached the Examiner issued a third examination report on 16 April 2021 restating the objections and offering a hearing which was accepted.
- 3 The hearing was held on 12 August 2021. Peter Lucas represented the Applicant as their agent. Also present were Jason Scott as my Hearing Assistant, and the Examiner Chris Davidson; James Gulliver and Maria Lada attended as observers.
- 4 This decision considers the two outstanding objections; whether the invention provides the required inventive step and whether or not the amended claims add matter in accordance with sections 1(1)(b) and 76(2) of the Act.

Subject matter

- 5 The claimed invention relates to a method, barcode reader, and imaging engine for the purpose of identifying and reading a specific barcode in an area of interest where there are multiple barcodes. The putative invention essentially works by identifying and decoding a number of barcodes within a field of view, then determining which to report by comparison with a subsequently generated aiming image which includes an aiming light pattern.
- 6 Three independent claims exist. Claim 1 is a method of conducting a barcode read operation; Claim 5 is a barcode reader configured to implement the method; Claim 9 is an imaging engine for use with a barcode reader configured to carry out the method. Claims 5 and 9 are unitary with claim 1 and worded such that they will stand or fall with the decision regarding claim 1. The following decision is based on claim 1, but the reasoning applies equally to claims 5 and 9.
- 7 It is worth saying here that the application initially filed in the international phase originally claimed decoding a (single) barcode. The question of added matter, addressed later, considers whether the application as filed supports the decoding of two or more barcodes in a single decode frame image as presently claimed. Some of the description covers the embodiment of a single barcode being decoded. Other of the description and drawings arguably cover either embodiment. For the avoidance or doubt Mr Lucas confirmed that the embodiment where a single barcode is decoded is outside the scope of the present claims.
- 8 Claim 1 reads:

A method of conducting a barcode-read operation by a barcode reader having a controller, an imaging assembly operable to capture image frames, and an aiming light assembly operable to emit an aiming light having an aiming light pattern, the method comprising:

capturing, via the imaging assembly, a decode frame image;

decoding, via the controller, two or more barcodes within the decode frame image;

upon decoding the two or more barcodes within the decode frame image, capturing, via the imaging assembly, a picklist frame image;

detecting, within the picklist frame image, a portion of the picklist frame image illuminated by at least a part of the aiming light to define a location of the aiming light pattern;

comparing the location of the aiming light pattern within the picklist frame image to respective locations of each of the two or more barcodes within the decode frame image;

selecting one of the barcodes when the location of the aiming light pattern within the picklist frame image at least partially overlaps with the location of the one of the barcodes within the decode frame image; and

reporting, to a host, the decoding of the selected barcode.

9 Claim 5 reads:

A barcode reader, comprising:

a housing;

an imaging assembly positioned within the housing and operable to capture image frames;

an aiming light assembly positioned within the housing and operable to emit an aiming light having an aiming light pattern; and

a controller positioned with the housing and communicatively coupled to the imaging assembly and the aiming light assembly, the controller being configured to:

decode two or more barcodes within a decode frame image captured by the imaging assembly;

upon decoding the two or more barcodes within the decode frame image, cause the imaging assembly to capture a picklist frame image;

determine, within the picklist frame image, a location of at least a portion of the aiming light pattern;

compare the location of the at least a portion of the aiming light pattern within the picklist frame image to respective locations of each of the two more barcodes within the decode frame image;

select one of the barcodes when the location of the at least a portion of the aiming light pattern within the picklist frame image at least partially overlaps with the location of the one of the barcodes within the decode frame image; and

report the selected barcode to an external host.

10 Claim 12 reads:

An imaging engine for use in a barcode reader, comprising:

an imaging assembly operable to capture image frames;

an aiming light assembly positioned relative to the imaging assembly and operable to emit an aiming light having an aiming light pattern; and

a controller communicatively coupled to the imaging assembly and the aiming light assembly, the controller being configured to:

decode two or more barcodes within a decode frame image captured by the imaging assembly;

upon decoding the two or more barcodes within the decode frame image, cause the imaging assembly to capture a picklist frame image;

determine, within the picklist frame image, a location of at least a portion of the aiming light pattern;

compare the location of the at least a portion of the aiming light pattern within the picklist frame image to respective locations of each of the two or more barcodes within the decode frame image;

select one of the barcodes when the location of the at least a portion of the aiming light pattern within the picklist frame image at least partially overlaps with the location of the one of the barcodes within the decode image frame; and

report the selected barcode to an external host.

Analysis and discussion

- 11 Both of the objections were discussed at the hearing, and both must be overcome if the application is to proceed. At the hearing Mr Lucas discussed inventive step first and that is the order in which I shall address them here.

The law (inventive step)

- 12 Section 1(1) of the Patents Act deals with the conditions for grant of a patent, and states that:

A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say -

...

(b) it involves an inventive step;

...

- 13 Section 3 of the Act then sets out how the presence of an inventive step is to be determined:

An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of section 2(2) above (and disregarding section 2(3) above).

- 14 It is well-established that the approach to adopt when assessing whether an invention involves an inventive step is to follow the steps originally set out by the

Court of Appeal in *Windsurfing*¹ and reformulated by that Court in *Pozzoli*². These steps are:

(1)(a) Identify the notional “person skilled in the art”

(1)(b) Identify the relevant common general knowledge of that person;

(2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;

(3) Identify what, if any, differences exist between the matter cited as forming part of the “state of the art” and the inventive concept of the claim or the claim as construed;

(4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

Discussion (inventive step)

Identify the skilled person and relevant common general knowledge

- 15 There is no contention regarding the skilled person or the common general knowledge so I will take the Examiner’s definition of: “an engineer working in the design of barcode scanners. The common general knowledge would include familiarity with well-known barcode scanner topologies and scanning techniques.”

Identify the inventive concept

- 16 The Examiner has taken the claim to represent the inventive concept. Again, the Applicant has not proposed a different inventive concept, so I will take the Examiner’s assessment;

a method of conducting a barcode-read operation by a barcode reader having a controller, an imaging assembly operable to capture image frames, and an aiming light assembly operable to emit an aiming light having an aiming light pattern, the method comprising:

capturing, via the imaging assembly, a decode frame image;

decoding, via the controller, two or more barcodes within the decode frame image;

upon decoding the two or more barcodes within the decode frame image,

capturing, via the imaging assembly, a picklist frame image;

detecting, within the picklist frame image, a portion of the picklist frame image illuminated by at least a part of the aiming light to define a location of the aiming light pattern;

comparing the location of the aiming light pattern within the picklist frame image to respective locations of each of the two or more barcodes within the decode frame image;

¹ *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd*, [1985] RPC 59

² *Pozzoli SPA v BDMO SA* [2007] EWCA Civ 588

selecting one of the barcodes when the location of the aiming light pattern within the picklist frame image at least partially overlaps with the location of the one of the barcodes within the decode frame image; and reporting, to a host, the decoding of the selected barcode.

- 17 Given the reliance on the language of the claim for the inventive concept, I would add that in light of the description and drawings, I find the claim to be clear. There is a question of whether the feature of decoding two or more barcodes is supported, but that is addressed in the discussion of added matter later. For the time being I will accept it as it stands, and add only that the “decode frame image” is an image captured and then processed to identify and decode barcodes present within the image; the “picklist frame image” is an image captured and then processed to identify where in the image the aiming light pattern is located. By comparing (e.g. superimposing) the decode frame and picklist frame images, the invention can determine whether the aiming light pattern overlaps with any of the barcodes, indicating its selection. In other words, the invention aims to disambiguate which of a number of barcodes a user intended to scan. The way it does so provides a number of further advantages which are discussed below.
- 18 For the most part I will use the terminology of the present application in discussing the issues at hand and the prior art, including “decode frame image”, “picklist frame image”, “aiming light pattern” and “barcode”.

Identify what differences exist

- 19 US 2006/0043191 (hereinafter PATEL) has been taken as forming the state of the art. PATEL describes an optical code (which may be a barcode) scanner which also aims to disambiguate which of a number of barcodes a user intended to scan. Specifically, it seeks to overcome the problem of an aiming light not being accurate; in other words, the aiming light pattern not being coincident with the centre of a frame image captured. The question is whether any of the modes of operation of PATEL fall within the scope of the claims of the present invention, or whether the differences would be obvious to the skilled person. In contrast to the present invention, PATEL works by first activating an aiming light to enable a user to indicate a selected barcode, and then capturing and decoding the barcode (which may be one of several in the field of view) which most likely corresponds to the user’s intention.
- 20 The Examiner’s report of 16 April 2021 helpfully identifies in paragraph 21 the features disclosed in PATEL which are regarded as equivalent in the present application. In summary, the Examiner’s assessment of the difference is that in the present invention *two or more barcodes* are routinely decoded, and *the order in which the decode and picklist frame images are captured is reversed*. The Examiner also notes that PATEL only discloses decoding the selected (single) barcode. Of course, this possible because the intended barcode is already identified by comparison with the aiming light pattern before being decoded.
- 21 The Applicant disagrees with the Examiner’s assessment and at the hearing Mr Lucas suggested that the Examiner has ignored the changes to how the barcode reader would work in practice in order to facilitate the images being captured in the reverse order compared to PATEL. Mr Lucas identified the following differences:

- In order to identify a barcode, the present invention decodes that barcode, to confirm it is a barcode. Only once more than one barcode has been identified as such is the intended barcode identified using a picklist frame image.
- In PATEL the aiming light is activated each time the barcode scanner is used; in the present invention it is activated only when two or more barcodes have been decoded and identified.
- In PATEL the aiming light is activated each time, but a single barcode is decoded; in the present invention all decodable barcodes in a decode frame image are decoded each time, but the aiming light is only activated when two or more barcodes are identified. Trading off decoding operations for aiming light activation allegedly uses resources more efficiently and reduces distraction to the user.
- Although both inventions are concerned with disambiguating user intention, PATEL seeks to overcome the problem of inaccurate aiming means; the present invention aims to reduce power consumption and user distraction.

Is there an inventive step?

- 22 If the objection was simply that the order of the decoding and the aiming operations were immaterial to the inventive concept, and arbitrary, the number and nature of differences and the resultant alleged advantages of the present invention over PATEL would seem at first glance to be quite a compelling counter-argument in favour of invention. However, the Examiner has identified a reference in PATEL which, he argues, points to PATEL disclosing the reversal of the operations being specifically included within its remit. If the reference can be relied upon, this would lead to the routine decoding of multiple barcodes within a field of view characterising the remaining difference.
- 23 In the examination report of 16 April 2021, in paragraph 16, PATEL is asserted as teaching that “there is the need for two images. One image 202 must contain barcodes within the FOV [field of view] and one image 200 must contain an aiming pattern. The skilled person would realise, without recourse to inventive ingenuity and as taught in paragraph [0037], that it does not matter [in] which order these images are obtained as the determination step, as shown in 312, Fig 3, is independent thereof.” The reference to paragraph [0037] to suggest that PATEL in fact shows the order may be reversed is pivotal to the Examiner’s argument. It has been debated in correspondence, although no agreement was reached and it was discussed at length at the hearing. In short, the proper interpretation of this passage is key to the teaching of PATEL and consequently to the determination of inventive step. The relevant sentence is:

“As the user aims the imaging device and pulls the trigger, frames 200 [the aiming image] and 202 [the decode image] are acquired in rapid sequence, preferably with frame 200 acquired immediately prior to frame 202, but not limited thereto.”

- 24 The point at issue is the meaning of “preferably...immediately prior to...”.

The Examiner has understood this to mean “*preferably immediately prior to...*” i.e. essentially immediately, and preferably prior. In the Examiner’s view *immediately after* would equally satisfy the teaching of PATEL, albeit in a non-preferable embodiment.

In contrast Mr Lucas argued that it meant “*preferably...immediately prior to...*” i.e. essentially prior to, and preferably immediately so, without further frames in between.

- 19 In correspondence the Examiner has asserted that the teaching in paragraph [0037] of PATEL is “unambiguous”. I have to say that I think that assessment could apply equally well to either interpretation of the phrase on its own, depending upon the predilection of the reader! On considering the paragraph as a whole, however, it seems to me that the specification that frames (200, 202) are acquired “...*in rapid sequence...*” is helpful in coming to the proper interpretation. Having considered the wording of the paragraph in the context of the rest of the document it seems apparent to me that the (*rapid*) sequence of the acquisition of frames is essential and that the immediacy is preferable. This very point was made in the Applicant’s letter of 8 March 2021 and I am surprised more was not made of it in subsequent correspondence or at the hearing.
- 20 With respect to the second “difference”, namely the present invention routinely decoding two or more barcodes in a decode image rather than the single barcode being identified and decoded in PATEL, the Examiner states this is not inventive in paragraphs 24 & 25 of his report of 16 April 2021 since the number of barcodes decoded is inconsequential to the purpose of reporting a single decoded barcode.
- 21 In the examination report of 16 January 2021, the examiner notes that PATEL does in fact disclose decoding more than one barcode in an image, in paragraph [0038], as an optional feature in some circumstances. However, it is silent as to what the consequences for the operation thereafter are, so I cannot ascribe much significance to this reference. I assume it is to determine how much of a whole code was located in an indicated area of interest, to facilitate determination of the code the user intended to select. By extension this could be understood to mean that barcodes are identified within a field of view on the basis that they are decoded, but the disclosure in [0038] is not that specific and that interpretation would not be consistent with the identification of barcodes based on pixel values disclosed elsewhere. For example, paragraphs [0024] & [0028] clearly discuss the *selection* of an optical code from one or more imaged optical codes, selection being made in accordance with the *location* of the optical code relative to an aiming pattern. PATEL is not (to my mind) clear on *how* the selection is performed other than being based on pixels in the image, but it seems to be location-dependent and to clearly precede the step of decoding. It does not seem to be based on a barcode being decodable. According to paragraph [0038] multiple barcodes may indeed be decoded, but only after they have been identified as such and selected. This then, is for the purpose of determining which the user intended, not whether they are a barcode at all. This represents a difference compared to the present invention and I do not think assists in deciding whether or not *routinely* decoding two or more barcodes in the absence of user indication (for example an aiming light pattern) is obvious.
- 22 In addressing the Examiner’s points at the hearing, Mr Lucas further contended that PATEL in general conveys the disclosure that the picklist frame image is always captured first and it is important to do so because it is linked to how the barcode

scanner works. He also pointed to the latter portion of paragraph [0037] which discusses the benefit of capturing the images in rapid succession, i.e. to ensure the picklist frame image and the decode frame image will be substantially the same, because changes in the field of view between frames will have been minimalised. This he suggests points towards the contested “preferably” meaning that the timescale between taking the images is preferably small i.e. *preferably immediate*. Referring to paragraphs [0043] and [0044] of PATEL he showed that the embodiment does indeed work by capturing the picklist frame image first even when there is a longer period between obtaining the two images, meaning that the delay between capturing the images is *preferably* small, but that the sequence in which they are captured, namely aiming then decode, is *essential*.

- 23 The embodiment in paragraphs [0043] & [0044] of PATEL in which a frame (N-1) *preceding activation of the scanner* (during frame N) by a user is used to determine which barcode was intended, but in this embodiment the aiming light is specifically switched off in the subsequent frame (N+1) when the decode image frame is captured so this arrangement also points away from optionally reversing the order in which images are captured.
- 24 Having previously considered PATEL in detail, I took the opportunity to ask Mr Lucas about paragraph [0053] which suggests, in the context of the picklist image not being usable, that a second picklist image may be captured after the decode image has been captured. I asked him whether this scenario would fall within the scope of the claim of the present invention, or otherwise what the difference was. He very helpfully responded that the embodiment in question does capture a picklist image after capturing the barcode(s) of interest, but that it is automatic and is not necessarily used, whereas in the present application, capturing the picklist image is conditional upon having decoded multiple barcodes and in that case is always used. The context of this embodiment in PATEL is that the picklist image is captured for confirming whether a precalculated “picklist image” and calculated location of the aiming pattern is correct and the precalculated picklist image is then used for comparison with the decode image. The distinction being that the image comparison is between the precalculated location of the aiming light pattern and the location of the decoded barcodes, not between the location of the decoded barcodes and the [confirmation] picklist image which was subsequently captured.
- 25 For the reasons outlined above, I favour the Applicant’s interpretation. In other words, I agree that PATEL does not disclose that the decode frame image may be captured before the picklist frame image as claimed in the present invention. I think that PATEL does disclose the decoding of multiple barcodes within an image, but only after those barcodes have been identified as such based on pixel values.
- 26 As a consequence of capturing the picklist frame image first, Mr Lucas suggested, the state of the art barcode reader would always have the aiming light pattern “on” except for the brief moment of capturing the decode frame image. This would drain the battery and the light may be distracting to the user. Instead, the claimed invention of the present application only needs to generate the aiming light pattern when two or more barcodes are decoded, thereby overcoming these limitations.
- 27 I invited Mr Scott to clarify any points of Mr Lucas’ arguments and he asked about the objection in the pre-hearing report of 16 April 2021 that PATEL simply teaches

the need for two images and their comparison; the order being allegedly unimportant. Mr Lucas responded that it makes logical sense for the picklist frame image to be captured first because the aiming light pattern in the image is used to determine where the user intended to point the scanner in the event that the aiming light is inaccurate. He stated that there would be no motivation to make the acquisition of the second image conditional on the result of something from the first frame. Rather, they are captured as close together as feasible, preferably immediately in succession, to enable the intended barcode to be read.

- 28 It is worth revisiting that one of the key differences between PATEL and the presently claimed invention is the problem addressed. PATEL seeks to overcome the problem that the aim of an aiming light and the centre of an image captured by a barcode scanner may not be coincident due to manufacturing tolerances. In such circumstances the sequential images are processed to try to determine, by comparing images with and without the aiming light activated, which barcode was intended to be scanned. The present invention as currently claimed also seeks to disambiguate which barcode a user intended to select, but to do so by only activating the aiming light when two or more barcodes are detected, so as to save battery life and reduce distraction. These are different problems, with correspondingly different solutions and I think the skilled person would not be motivated to modify the solution in PATEL to solve the problem addressed by the present invention. It is perhaps interesting that, based upon my understanding of both inventions, the present invention would seem to solve the problem addressed by PATEL, however. But of course that does not suggest that the differences are obvious, much less without the benefit of hindsight.
- 29 If the skilled person did take PATEL as the starting point, as I have interpreted it, there is nothing to teach or suggest that the sequence of images captured may be re-ordered or that there would be an advantage in doing so. Although there is a suggestion in PATEL that more than one barcode in an image frame may be decoded, there is no suggestion, on a proper interpretation, that a decode image may be acquired before a picklist image. To do so would be counter-intuitive because PATEL teaches that the aiming light is normally on and is deactivated to subsequently capture the decode image, to ensure appropriate image quality. The only disclosure in PATEL of using an image captured prior to the step of a user actively targeting a barcode is to facilitate identification of the intended barcode, not to capture the barcodes within a frame image for decoding. That decoding step is specifically subsequent to user activation. In order for the skilled person to use their common general knowledge to arrive at the presently claimed invention, they would have to make the following changes starting with PATEL:
- Capture the decode image frame before the picklist image frame
 - Routinely identify and decode multiple barcodes where present in a decode frame
 - Activate the aiming light only when multiple barcodes were identified

They would also have to decide to decode every barcode in a decode frame, every time, in preference to activating the aiming light every time. Given the clear disclosure in the introductory paragraphs of PATEL of the prior art typically decoding

the single most likely intended barcode, and the intention of PATEL to resolve inaccuracies in the aiming light, by resolving the difference between the location of the light and the centre of the captured frame image, I think there would be considerable technical prejudice to implementing the approach of the presently claimed invention.

- 30 In summary, PATEL operates significantly differently to the present invention and does not suggest re-ordering the operation of frame image acquisition. It solves a different problem (albeit whilst still disambiguating user intention) and does not disclose or suggest the technical change of routinely decoding multiple barcodes in a frame image in place of routinely operating the aiming light. Finally, the step of acquiring a subsequent frame image is not dependent on the successful decoding of two or more barcodes in a preceding frame image and would be counterintuitive given that the mode of operation in PATEL would render it unnecessary.
- 31 Having carefully considered the issues I find the Applicant's arguments persuasive. Even if they thought to do it, the skilled person who tried reversing the order of frame image capture in PATEL would not arrive at the invention as defined in the application. Routinely decoding two or more barcodes in a frame image in PATEL would not result in the present invention and it is unclear how this would be achieved without the aiming light location information to compare to pixel location values. Even combining both of these steps would not result in the acquisition of the picklist frame image and associated activation of the aiming light in dependence upon two or more barcodes being decoded, with the attendant advantages. In conclusion, I find that the present claims do not define subject matter which is obvious over the prior art and that they do define an inventive step.

The law (added matter)

- 32 Section 76(2) provides that an application may not be amended so as to include additional subject matter beyond that originally present:

No amendment of an application for a patent shall be allowed under section 15A(6), 18(3) or 19(1) if it results in the application disclosing matter extending beyond that disclosed in the application as filed.

- 33 The Examiner bases his assessment regarding added matter on the test set out in *Bonzel and Schneider (Europe) AG v Intervention Ltd*³ summarised by Jacob J. *Richardson-Vicks Inc.'s Patent*⁴.

- 34 The test set out in *Bonzel and Schneider v Intervention* is as follows:

(1) to ascertain through the eyes of the skilled addressee what is disclosed, both explicitly and implicitly in the application;

(2) to do the same in respect of the patent as granted;

(3) to compare the two disclosures and decide whether any subject matter relevant to the invention has been added whether by deletion or addition. The

³ *Bonzel and Schneider (Europe) AG v Intervention Ltd* [1991] RPC 553

⁴ *Richardson-Vicks Inc.'s Patent* [1995] RPC 568

comparison is strict in the sense that subject matter will be added unless such matter is clearly and unambiguously disclosed in the application either explicitly or implicitly.

35 Explained in *Richardson-Vicks* as:

“the test of added matter is whether a skilled man would, upon looking at the amended specification, learn anything about the invention which he could not learn from the unamended specification.”

Discussion (added matter)

36 In the examination report of 6 January 2021, the Examiner reconsidered the amended claims filed upon entry to the national phase and concluded that the specification of:

decoding...two or more barcodes within the decode frame image...

constituted added matter. He explained that he considered the application as filed to only support the presence of more than one barcode in the field of view and not to provide a teaching to the skilled person to decode *two or more*. He asserted that in the situation where more than one barcode was present, the application was ambiguous as to how multiple barcodes would be processed. He queried whether all barcodes, just the complete barcodes (within the frame image) or a single barcode would be decoded and what would constitute “success”. Finally, he acknowledged that the claims on granted US equivalent US10,671,824 B2 reflected the same amendments and had been accepted by the USPTO.

37 In his opinion, although multiple barcodes are present within a field of view as described in paragraph [0022] of the description and shown in Figure 3, there is no explicit or implicit description of actually decoding more than one of them. I have some sympathy with this perspective. Having carefully read the description, it is not explicitly stated that multiple barcodes within a decode frame image are decoded (or even that barcodes are identified based on their being decoded per se – which might be a helpful indication). The remaining question, then, is whether his assertion that there is no implicit disclosure is correct. I will now consider this carefully.

38 As the Examiner pointed out, on the face of it the claim to decode two or more barcodes gives rise to an ambiguity which places the onus on the reader to work out what happens when multiple barcodes are present within a decode frame image.

39 In addressing the objection, Mr Lucas also referred to paragraph [0022] as the starting point for his rebuttal. The relevant section reads:

It should be apparent that in some cases, more than one barcode will be within the FOV of the reader when the frame is captured....In this case, the controller may be configured to (i) ..., or (ii) compare the locations of both barcodes to the location of the aiming mark.

40 He went on to explain that the comparison step can only be carried out because the controller has identified each barcode by decoding them.

- 41 These assertions are helpful, but I am mindful that the skilled addressee would not have the benefit of hearing them. The question is whether the reader would ascertain that they are what is clearly and unambiguously implicitly disclosed or whether in coming to that conclusion based on the amended claims they would in fact have learnt something new over the original specification.
- 42 The claims filed originally defined *decoding...a barcode within the decode frame image...* and there is no doubt that this step preceded the step of capturing the picklist frame image. In other words, it was clear from the original application that a barcode within a decode frame image was decoded before being detected as indicated by an aiming light pattern and consequently reported to a host.
- 43 The application clearly foreshadows the scenario where more than one barcode exists and indeed its very purpose is to facilitate disambiguating a user's selection in that situation. It seems that the Applicant will have had in mind the potential for the wrong barcode to be reported when several exist in a field of view, and that the solution is to identify which of those detected was intended. It is clear that the aiming operation takes place after decoding and that the disambiguation takes place by comparing the location of the aiming light pattern with the location of the detected barcodes. On balance, it seems to me to be likely that the intention is for all barcodes within a field of view to be decoded, thereby identified and thereafter the intended barcode selected by comparison with the aiming light pattern. This is the very problem to be solved. The alternative is picking and decoding only one of the barcodes without the benefit of the aiming light to assist in its selection. In that situation it is not at all clear on what basis the single barcode would be selected or how a barcode that wasn't decoded (and so identified as such yet?) would be deselected.
- 44 The interpretation of decoding two or more barcodes is consistent with Figure 4 of the application. To afford the alternative interpretation, that only a single barcode is decoded for a given decode frame including multiple barcodes, would mean that the process denoted in Figure 4 continually looped, capturing a new decode frame image each time until the (intended) decoded barcode is selected and determined to overlap with the aiming light pattern. There is no suggestion that this is the case, much less any description of the process by which the invention would iteratively loop, selecting a newly decoded barcode (among the two or more, and avoiding selecting the same barcode twice) for comparison each time. If that were the intended operation, surely the process would not capture a new decode frame every time, but would reuse the original decode frame until all barcodes captured therein had been decoded and compared? The alternative of decoding two or more barcodes in a decode frame image seems to me to be much more consistent with the application as it stands and as filed. In short, Figure 4 supports both the original and the amended claims but would not seem to readily support an alternative interpretation to decoding two or more barcodes in a decode frame image in the event that multiple barcodes are present in the image.
- 45 Although it was not referred to at length in the hearing, I should also draw attention to paragraph [0025]. This states:

...it could allow one to more-accurately read barcodes in an environment where multiple barcodes are positioned densely together. Additionally, since

the reader can bypass reporting a successful decode to an external host in the event that the barcode is outside the designated aiming mark, these configurations can help the operator avoid unintentionally reading barcodes that happened to be closer to the boundaries of the reader's FOV.

- 46 This paragraph suggests to me that where multiple barcodes are captured, they are each decoded, and a successful decode is not reported if a barcode is outside the aiming mark. The step of *reporting* a successful decode could not be bypassed if the barcode(s) had not already been decoded. Determination that the barcode is outside the aiming mark can only be made once the aiming mark is activated and the picklist frame image captured, which we know takes place after decoding. Surely then, the decoding step must decode two or more barcodes in the image.
- 47 Put simply, the purpose of the claimed invention is to determine which of two or more barcodes a user intended to select. Given the unambiguous functioning of the invention to decode a barcode prior to its selection, it is implicit that when two or more barcodes are present in a decode frame image, they must (each) be decoded. Whilst not explicit, this interpretation is implicit from Figure 4 and the description. I believe this is the correct interpretation the skilled addressee would readily apply.
- 48 In reaching this conclusion I should say that I have paid close attention to the very helpful and cautionary guidance outlined by the Examiner in paragraphs 7-9 of the examination report of 16 April. However, for the avoidance of doubt, I do not consider that the above interpretation ascribes the reader the act of having substituted or omitted a feature. Neither do I consider that the interpretation relies upon the determination that the skilled person would find it obvious to routinely decode two or more barcodes.
- 49 I therefore find that the amended claims do not add matter.
- 50 Mr Lucas offered to amend the claims if I found that the amendments had added matter and auxiliary claims have since been filed. Since I have found that there is no added matter I do not need to consider the auxiliary request.

Conclusion

- 51 The invention complies with sections 1(1)(b) and 76(2) of the Act and is therefore remitted to the Examiner for processing and grant under section 18 of the Act.

Appeal

- 52 Any appeal must be lodged within 28 days after the date of this decision.

Ben Buchanan

Deputy Director, acting for the Comptroller