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**Datasheet for the decision  
of 21 September 2011**

**Case Number:** T 1637/07 - 3.5.06

**Application Number:** 04257344.4

**Publication Number:** 1555594

**IPC:** G06F 1/16

**Language of the proceedings:** EN

**Title of invention:**  
Mobile electronic appliance

**Applicant:**  
Kabushiki Kaisha Toshiba

**Headword:**  
Impact absorbing casing/TOSHIBA

**Relevant legal provisions:**  
EPC Art. 84, 83, 56

**Relevant legal provisions (EPC 1973):**

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**Keyword:**  
"Clarity - third auxiliary request (yes)"  
"Sufficient disclosure - second/third auxiliary request (yes)"  
"Inventive step - third auxiliary request (yes)"

**Decisions cited:**

-

**Catchword:**

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Case Number: T 1637/07 - 3.5.06

**D E C I S I O N**  
of the Technical Board of Appeal 3.5.06  
of 21 September 2011

**Appellant:** Kabushiki Kaisha Toshiba  
1-1, Shibaura 1-chome  
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Tokyo 105-8001 (JP)

**Representative:** Granleese, Rhian Jane  
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**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted 11 April 2007  
refusing European patent application  
No. 04257344.4 pursuant to Article 97(1)  
EPC 1973.

**Composition of the Board:**

**Chairman:** D. H. Rees  
**Members:** S. Krischer  
M.-B. Tardo-Dino

## Summary of Facts and Submissions

I. The appeal is directed against the decision, posted on 11 April 2007, of the examining division, to refuse the application 04 257 344.

The reason for the refusal was lack of inventive step of claim 1 of the two requests over the combination of the following documents:

D1: US 2002/057813 A1, 16 May 2002.

D2: US 5 583 742 A, 10 December 1996.

II. A notice of appeal was received on 13 June 2007. The fee was received on 21 June 2007. A statement of the grounds of appeal was received on 20 August 2007. Oral proceedings were conditionally requested.

III. The board issued a summons to attend oral proceedings to be held on 21 September 2011. It raised a number of objections relating to a lack of clarity and insufficient disclosure. In contrast to the decision of the examining division, however, the board expressed its opinion that the skilled person would not combine the teachings of documents D1 and D2 in such a way as to arrive at the claimed subject-matter.

IV. In a letter dated 18 August 2011, the appellant filed a new main request and four auxiliary requests.

V. Oral proceedings were held on 21 September 2011.

VI. The appellant requests to set the decision aside and to grant a patent on the basis of the main request (claims 1-11) or of one of the four auxiliary requests (each having claims 1-11), all filed on 18 August 2011,

with a description to be amended later and drawing sheets 1-7 as originally filed.

VII. The sole independent claim of the *main request* reads as follows (*italics type* added to mark the difference to the main request refused by the examining division, here only one occurrence of the word "is"):

"1. A mobile electronic appliance, comprising:  
a display section (11) having an outer peripheral region;

a first casing (12) having a substantially flat upper surface and first casing side surface portions (17), configured to cover the outer peripheral region of the display section (11) and received the display section (11) therein;

an electronic unit (33); and

a second casing (13) configured to receive and mount the electronic unit (33), the first casing (12) being so coupled to the second casing (13) such that the first casing (12) is folded back on the upper surface of the second casing (13) to cover the display section (11), the second casing (13) having second casing side surface portions (13a) and four corner portions (13b, 16),

characterized in that:

the four corner portions (13b, 16) are swollen outward relative to the second casing side surface portions (13a) such that the side surface portions are recessed with respect to the swollen corner portions, and are formed integral with the second casing (13), void spaces are formed inside of the swollen corner portions (13b, 16),

the distance between the swollen corner portion (13b,

16) and the second casing side surface portion (13a) of the second casing (13) *is* determined not to be smaller than the braking distance that is determined from a prescribed standard dropping height, and the swollen corner portion (13b, 16) is protruded outward from the first side portion (17) of the first casing (12) when the first casing (12) is folded back on the upper surface of the second casing (13)."

Claim 1 of the *first auxiliary request* differs from claim 1 of the current main request by the expression "*of 1m*" in the following last lines of the claim:  
"... the distance between the swollen corner portion (13b, 16) and the second casing side surface portion (13a) of the second casing (13) is determined not to be smaller than the braking distance that is determined from a prescribed standard dropping height *of 1m*, and the swollen corner portion (13b, 16) is protruded outward from the first side portion (17) of the first casing (12) when the first casing (12) is folded back on the upper surface of the second casing (13)."

Claim 1 of the *second auxiliary request* differs from claim 1 of the first auxiliary request by the *italics* marked passage in the following last lines:  
"... the distance between the swollen corner portion (13b, 16) and the second casing side surface portion (13a) of the second casing (13) is determined not to be smaller than the braking distance that is determined from a prescribed standard dropping height of 1m, and the swollen corner portion (13b, 16) is protruded outward from the first side portion (17) of the first casing (12) when the first casing (12) is folded back on the upper surface of the second casing (13), *wherein*

*the braking distance is calculated by assuming that maximum critical acceleration allowable for the electronic unit is 1,000[G]."*

Claim 1 of the *third auxiliary request* differs from claim 1 of the *main request* by replacing "the braking distance that is determined from a prescribed standard dropping height" by "*0.002m*". This results in the following last lines of the claim:

"... the distance between the swollen corner portion (13b, 16) and the second casing side surface portion (13a) of the second casing (13) is determined not to be smaller than *0.002m*, and the swollen corner portion (13b, 16) is protruded outward from the first side portion (17) of the first casing (12) when the first casing (12) is folded back on the upper surface of the second casing (13)."

In view of the board's decision, the fourth auxiliary request is irrelevant.

VIII. At the end of the oral proceedings, the chairman announced the board's decision.

## Reasons for the Decision

### 1. *Admissibility of the appeal*

The appeal satisfies the requirements of the EPC for admissibility, see sections I and II above.

### 2. *Original disclosure*

As to the amendments made in claim 1 of each request, the board finds that they satisfy the requirements of Article 123(2) EPC:

- Main request: The replacement of "are" by "is" corrects an obvious grammatical mistake.
- First auxiliary request: The standard dropping height of *1m* is disclosed on page 14, line 6 of the original description.
- Second auxiliary request: The calculation of the braking distance with a maximum critical acceleration of *1,000[G]* for the electronic unit is disclosed on page 14, line 11 and 12.
- Third auxiliary request: The minimum value of *0.002m* for the distance between the swollen corner portion and the second casing side surface portion is disclosed on page 14, lines 13-17.

### 3. *Clarity and sufficient disclosure*

#### 3.1 Main request

##### 3.1.1 The following expression in claim 1 is unclear:

"the braking distance that is determined from a prescribed standard dropping height".

3.1.2 This expression was already present in original claim 1 with the exception of the insertion of the word "standard" before "dropping height", filed with the first letter of reply dated 30 March 2006. In its first communication, section 5.2, the examining division objected to "prescribed dropping height" and "braking distance" as being unclear, but did not continue to object after the word "standard" was inserted. The board however also considers the amended expression to be unclear and insufficiently disclosed.

3.1.3 Firstly, it is unclear *which standard* should be applied and which dropping height should be taken from such a standard in the case the standard includes several. The board notes that the application itself names at least three different dropping heights, namely 70cm (description page 11, lines 2-23), 1 meter and 1.22 meter (page 14, lines 4-8).

3.1.4 The appellant's argument during oral proceedings that the standards are well-known to the skilled person does not remedy the fact that there are several and that it is unclear which of them to choose.

3.1.5 Secondly, it is unclear and insufficiently disclosed *how the braking distance is to be determined from a given dropping height*. The disclosure hereto in the original description (page 13, line 19 to page 14, line 17) is insufficient. Equation (4) on page 14, line 1 gives the mathematical formula

$$2 gh / G_{max}$$

for computing the braking distance  $x$ . However, there is no discussion either of how this formula is obtained or



of how the maximum critical acceleration  $G_{max}$  is to be determined. The derivation of the formula is by no means self-evident and no evidence has been presented to the board that it was the one and only formula which the skilled person would have known to apply.

As to the maximum critical acceleration  $G_{max}$ , this value apparently might depend on many factors, as for example: is the hard disk drive the limiting element, and if so how much acceleration is tolerated by a concrete hard disk drive, at a given rotational speed, with a given distance between the read-and-write head and the magnetic surface; how does the material of the casing influence the calculation of  $G_{max}$ ?

On page 14, lines 9-12,  $G_{max}$  is set to  $1,000[G] = 9,800[m/s^2]$ ; however this appears merely to be an example (even if it's a typical one as stated during oral proceedings), and it is not disclosed for which electronic parts (including concrete hard disk drives) this value would indeed be the maximum critical acceleration.

The board notes that  $G_{max}$  is also mentioned at page 13, lines 29-31, and formula (3) on the last line of that page, but these passages do not give any more information. Formula (3) is not an equation since it merely shows the symbol " $G_{max}$ " and its unit "[m/s<sup>2</sup>]".

- 3.1.6 Thus, the feature "braking distance that is determined from a prescribed standard dropping height" of claim 1 of the main request is both unclear (Article 84 EPC) and insufficiently disclosed in the application (Article 83 EPC).

3.2 First auxiliary request

3.2.1 Claim 1 of the first auxiliary request differs from claim 1 of the current main request by the expression "of 1m" before "standard dropping height".

3.2.2 This determination of the dropping height to the typical concrete value of 1m which is also contained in a standard disclosed in the description (page 14, lines 5 and 6) is considered to be clear.

3.2.3 However, the second clarity objection of the main request, i.e. what braking distance is implied by the dropping height, still applies to the first auxiliary request: In the formula " $2 gh / G_{max}$ " for calculating the braking distance, the dropping height  $h$  is now set to 1m, but firstly it is not clear, as stated above, that the skilled person would know that this was the one and only formula which should be used, and secondly the value for the maximum critical acceleration  $G_{max}$  is still unclear and insufficiently disclosed over the whole breadth of "mobile electronic appliances" as defined in the claim.

3.2.4 The appellant argued during oral proceedings that a skilled person would know that he/she can take the value for the maximum critical acceleration  $G_{max}$  from the manufacturer's specification for the actually used electronic unit (e.g. of the hard disk which is one of the most impact sensitive devices in a computer). However, even if the board were to accept this argument (for which no evidence has been put forward) the objections raised above with respect to the formula for calculating the braking distance would still apply.

3.2.5 Thus, the feature "braking distance that is determined from a prescribed standard dropping height of 1m" of claim 1 of the first auxiliary request is both unclear (Article 84 EPC) and insufficiently disclosed in the application (Article 83 EPC).

### 3.3 Second auxiliary request

3.3.1 Claim 1 of the second auxiliary request differs from claim 1 of the first auxiliary request by the addition of "*wherein the braking distance is calculated by assuming that maximum critical acceleration allowable for the electronic unit is 1,000[G].*"

3.3.2 As with the first auxiliary request, this amendment remedies one of the objections but not all of them. Now, the value of the maximum critical acceleration  $G_{max}$  is clarified, but the formula to use is still unclear.

3.3.3 Thus, the feature "braking distance that is determined from a prescribed standard dropping height of 1m, ... wherein the braking distance is calculated by assuming that maximum critical acceleration allowable for the electronic unit is 1,000[G]" of claim 1 of the second auxiliary request is unclear (Article 84 EPC).

### 3.4 Third auxiliary request

3.4.1 Claim 1 of the third auxiliary request differs from claim 1 of the *main* request by replacing the expression "the braking distance that is determined from a prescribed standard dropping height" by the expression "*0.002m*".

- 3.4.2 In other words, the expression objected to ("the braking distance that is determined from a prescribed standard dropping height") is no longer present in this request. It has been replaced by a precise value.
- 3.4.3 With this amendment the board is satisfied that the subject-matter of claim 1 of the third auxiliary request is clear (Article 84 EPC) and that the invention as claimed is sufficiently disclosed (Article 83 EPC).
- 3.4.4 To the board's question whether it would be justified to use the value from a case put forward only as an example from the description to limit the invention as claimed in the third auxiliary request, the appellant argued that the example from page 13, line 19 to page 14, line 17 is not an arbitrary one but a typical one. It seems to the board that the given values for the dropping height and the maximum critical acceleration are indeed typical. With these values and with a formula which is not derivable by general knowledge but which is nevertheless (sufficiently) disclosed, a concrete value for the braking distance has been calculated in the description, and the board has no reason to suspect that the value calculated would not achieve the aim of the invention. The board concludes that this value was originally disclosed in the application as an actual appropriate value for a real electronic appliance, and not merely as an example of how to carry out the calculation. The appellant is therefore entitled to limit the claim in this way.

4. *Inventiveness of the third auxiliary request*
- 4.1 After the objections concerning lack of clarity and insufficient disclosure have been overcome with the third auxiliary request, the board has to decide whether the requirements of Article 56 EPC are fulfilled.
- 4.2 In this respect, there is no reason for the board to doubt that the documents found by the search examiner who was confronted with a subject-matter which does not differ in substance from the presently claimed subject-matter are not sufficient or not relevant any more: Original claim 1, which was searched by the same examiner as performed the substantive examination, is very close to claim 1 of the current third auxiliary request. The main difference is the replacement of "the braking distance that is determined from a prescribed dropping height" by "0.002m". Therefore, the remittal of the case for further examination would serve no purpose.
- 4.3 In the appealed decision, document D1 was considered to be the closest prior art to claim 1. The board agrees with that since D1 discloses the concept of "crumpling" the corners of the casing of a mobile electronic appliance in order to absorb impacts. However, it does not contain the concept of swollen corners. That is why D2 comes into play.
- 4.4 But the combination of D1 with D2 would *not* lead to claim 1. This is because D2 teaches to add an elastic *outside* member in order to cover the rigid *inside* member of the casing (D2, column 5, lines 44-67). This elastic outside member is thickened so as to form

cushioning portions at the corners (lines 10-23). No void space can be seen in these cushioning portions (figure 7).

4.5 Thus applying the teaching of D2 to the casing of D1 would result in adding an elastic outside member to cover the casing of D1, and in thickening this elastic outside member at the corners. However, the thickened outside member at the corners would not contain *void spaces* in contrast to the swollen corner portions of claim 1. There would rather be void spaces inside the former casing of D1, namely in the speaker chambers (in case they are not filled with Styrofoam as suggested in one embodiment of D1).

4.6 So, in order to combine D1 and D2 to come up with the claimed invention, the skilled person would have to pick just one feature of D2 (the overall shape with the swollen corners), and disregard everything else.

4.6.1 In order to determine the objective technical problem solved by the invention in comparison with D1, one has to keep in mind that D1 already contains the concept of a "crumple zone" at the corners of the casing of a mobile electronic appliance. Thus, the problem would be how to provide an alternative solution to the crumple zones of D1. The solution would be to take the overall shape of D2, but to provide the crumple zones with void spaces in contrast to D2 where they are filled with elastic material. This is also different to the speaker cavities of the device of D1 since the crumple zones are not used for speakers and indeed probably could not be used for them since they would be too small. Furthermore, document D1 does not disclose the idea of adding void spaces to the casing in order to improve

impact resistance but to use existing spaces (the speaker cavities, possibly additionally filled with Styrofoam).

The appellant argued that the solution claimed was not just an alternative to D1 but was in fact an improvement, since in the invention the side walls of the casing were recessed with respect to the corners, thus reducing the chances of an impact occurring somewhere along a side wall. Considering the geometry of the situation this effect would seem to be very limited, but whether the board were to accept this argument or not would anyway not make any difference to the conclusion.

Thus, the subject-matter of claim 1 of the third auxiliary request is inventive (Article 56 EPC).

**Order**

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

1. The decision under appeal is set aside.
  
2. The application is remitted to the department of first instance with the order to grant a patent on the basis of claims 1-11 of the third auxiliary request filed with the letter dated 18 August 2011, the drawings as originally filed and the description amended as necessary.

The Registrar:

The Chairman:

B. Atienza Vivancos

D. H. Rees