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**D E C I S I O N**  
**of 24 April 2002**

**Case Number:** T 0755/99 - 3.5.1  
**Application Number:** 92304670.0  
**Publication Number:** 0521609  
**IPC:** H04Q 7/20, H04M 1/72

**Language of the proceedings:** EN

**Title of invention:**  
Radio phone composable of separate modules

**Patentee:**  
Nokia Corporation

**Opponent:**  
Motorola Inc.

**Headword:**  
Modular radio phone/NOKIA

**Relevant legal provisions:**  
EPC Art. 52(1), 54(2), 56

**Keyword:**  
"Novelty (yes)"  
"Inventive step (no)"

**Decisions cited:**

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**Catchword:**

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Case Number: T 0755/99 - 3.5.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.5.1  
of 24 April 2002

**Appellant:** Nokia Corporation  
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**Respondent:** Motorola Inc.  
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**Representative:** Gibson, Sarah Jane  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 19 May 1999  
revoking European patent No. 0 521 609 pursuant  
to Article 102(1) EPC.

**Composition of the Board:**

**Chairman:** S. V. Steinbrener  
**Members:** R. Randes  
H. Preglau

## Summary of facts and submissions

I. This is an appeal against the decision of the Opposition Division to revoke European patent 0 521 609 because claim 1 as granted lacked novelty in view of the following document:

D1: US-A-4 989 230

and claim 1 as amended during oral proceedings before the Opposition Division lacked inventive step over D1.

II. The Patentee appealed, requesting in the statement of grounds of appeal received on 24 September 1999 that the patent be maintained on the basis of amended claims according to a main and an auxiliary request. The Respondent (Opponent) requested that the appeal be dismissed.

III. Claim 1 of the main and auxiliary requests reads as follows:

Main request:

"1. A radio telephone capable of dual-mode operation, comprising:

a basic module (1) including circuitry common to the operation of the telephone in both modes;

a first supplementary module (2) including circuitry for processing signals characteristic of a first mode of operation; and

a second supplementary module (3) including circuitry for processing signals characteristic of a second mode of operation,

wherein both said first and second supplementary modules (2,3) are respectively detachably couplable to

the basic module (1) such that the telephone is operable in the first mode when the first supplementary module (2) is coupled to the basic module (1), in the second mode when the second supplementary module (3) is coupled to the basic module (1) and in the first and second modes when the first and second supplementary modules (2,3) are coupled to the basic module (1)."

Auxiliary request:

"1. A radio telephone capable of dual-mode operation, comprising:

a basic module (1) including circuitry consisting of components and functions common to the operation of the telephone in both modes;

a first supplementary module (2) including circuitry for processing signals characteristic of a first mode of operation; and

a second supplementary module (3) including circuitry for processing signals characteristic of a second mode of operation,

wherein both said first and second supplementary modules (2,3) are respectively detachably couplable to the basic module (1) such that the telephone is selectively operable as a single-mode telephone in the first mode when the first supplementary module (2) is coupled to the basic module (1), as a single-mode telephone in the second mode when the second supplementary module (3) is coupled to the basic module (1) and as a dual-mode telephone in the first and second modes when the first and second supplementary modules (2,3) are coupled to the basic module (1)."

IV. In the statement of grounds of appeal the Appellant disputed whether the cordless unit 210 shown in figure 3 of D1 was detachably couplable to the cellular

telephone 220, since all the independent claims of D1 mentioned the cordless cellular telephone being a single unit. The Appellant argued that the term "module" in the patent claims implied not only electrical but also mechanical features so that D1 did not disclose a second supplementary module. The objective technical problem starting from D1 was to reduce the size of the dual-mode telephone, thus enhancing its portability, and to provide flexibility in selecting its operating mode, neither problem being mentioned in D1. In D1 both the cordless and the cellular circuitry were always essential in order to carry out the automatic mode selection routine shown in figures 4 to 8. Moreover the cellular circuitry was required for call-forwarding at home and the cordless circuitry was required away from home to take advantage of community cordless base stations. Furthermore a technical prejudice had existed at the priority date against the construction of a radio telephone as three detachable modules. The telephone according to the invention was more portable, since in single-mode operation one supplementary module could be dispensed with, and more flexible as to mode selection, since by appropriate choice of supplementary modules a dual-mode phone or two different single-mode phones could be configured.

- V. The Respondent argued that the claims lacked inventive step. D1 taught the concept of modularity, the cordless unit being detachably couplable to the cellular phone.
  
- VI. In a communication the Board introduced the following document, cited in the European Search Report, into the proceedings under Article 114(1) EPC:

D9: nachrichten elektronik + telematik, vol. 38,  
no. 4, April 1984, Heidelberg, DE, pages 134 to  
137, S. Recklies, "Handsprechfunkgeräte für den  
Weltmarkt".

The Board pointed out that D9 seemed to call the  
technical prejudice asserted by the Appellant into  
question and indicated that it doubted whether in the  
light of D1 the subject-matter of claim 1 showed  
inventive step.

- VII. The Appellant made a further submission in support of  
inventive step, emphasizing that the different  
operating frequency ranges mentioned in D9 did not  
amount to different modes and that the coding plugs  
("Kodierstecker") mentioned in D9 did not process  
signals characteristic of a mode of operation.
- VIII. In view of auxiliary requests for oral proceedings by  
both parties the Board issued a summons to oral  
proceedings. In an annex to the summons the Board  
stated that inventive step would apparently form an  
issue for discussion at the oral proceedings.
- IX. Oral proceedings were held before the Board on 24 April  
2002. The Appellant's arguments at the oral proceedings  
may be summarized as follows. It was not directly and  
unambiguously derivable from D1 that the cordless unit  
was detachably couplable to the cellular telephone.  
Moreover the Respondent had conceded that one-way "snap  
fit" connectors were known. D1 contained no incitement  
to split the telephone up into three modules, since  
this would require an extra connector and housing for  
the cellular circuitry and hence increase size and  
weight. D1 was typical of the trend at the priority

date to increase the integration of telephones. The invention went against this trend in trading functionality for portability.

D9 related to portable two-way radios and not to telephones for public networks. Hence D9 would not be considered in the context of D1.

As to claim 1 according to the auxiliary request, it was not obvious to provide a separate basic module containing no mode-specific circuitry.

- X. The Respondent's arguments can be summarized as follows. The claimed subject-matter lacked novelty in view of D1. D1 gave no details concerning the plug-socket combination 270,272 between the cordless unit and the cellular phone so that, on its usual interpretation, the term "plug" implied removability. The "existing cellular phone" referred to in figure 3 of D1 meant a cellular phone capable of functioning without the cordless unit. D1 also disclosed a second supplementary module. The cellular transmitter and receiver 222, 224 shown in figure 3 of D1 were standardized and therefore modules, the patent giving no definition of the term "module". Moreover they were supplementary to microcomputer 230. It would be at least obvious to make such a module detachably couplable to the basic unit.

The cellular circuitry mentioned in D1 was moreover not essential, particularly at home. The call-forwarding mentioned in D1 did not require the telephone to always be capable of receiving a cellular call, since call-forwarding was carried out by a higher control entity in the cellular network.

The cordless function was also not essential, particularly when away from home, since the community cordless base station mentioned in D1 merely served a few homes and not a wide area.

D9 taught the use of a basic module provided with additional functionality by code plugs. The different frequency bands associated with the plugs amounted to different operating modes, the outputs from the plugs being characteristic of the operating mode.

XI. The Appellant maintained the request (see point II above) that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of either the main or the auxiliary request filed on 24 September 1999. The Respondent requested that the appeal be dismissed.

XII. At the end of the oral proceedings the Board announced its decision.

## **Reasons for the decision**

### *1. Admissibility*

The appeal satisfies the requirements mentioned in Rule 65(1) EPC and is thus admissible.

### *2. The amendments*

Apart from editorial amendments, claim 1 according to both requests has been restricted from the case where at least one of the supplementary modules is detachably couplable to the basic module (as claimed in claim 1 of the requests refused by the Opposition Division) to the



case where both of the supplementary modules are detachably couplable to the basic module, as shown in figure 1 and described at column 3, line 41 to column 4, line 24 of the patent. The Board is consequently satisfied that claim 1 according to both requests complies with Article 123(2) and (3) EPC.

### 3. *Novelty*

It is common ground between the parties that D1 forms the closest prior art in disclosing (figure 3) a radio telephone capable of dual-mode operation (cordless/cellular), comprising: a basic module (220) including circuitry (230,250) common to the operation of the telephone in both modes and a first supplementary module (cordless unit 210) including circuitry (212,214) for processing signals characteristic of a first mode of operation (cordless). The radio telephone also comprises circuitry (222, 224) for processing signals characteristic of a second mode of operation (cellular).

The parties differ however over whether the cordless unit 210 is detachably couplable to the cellular telephone 220 and whether D1 discloses a second supplementary module.

#### 3.1 The cordless unit

According to the appealed decision, since the cordless unit 210 was described in D1 (column 4, line 1) as a "plug-in accessory", it was therefore also "plug-outable", meaning that it was detachably couplable to the cellular telephone 220. The Appellant has questioned the logic of this conclusion.

In deciding on this issue the Board must assess what the skilled person reading D1 would have understood about the features of the plug/socket combination 270,272 shown in figure 3. This assessment must be made on the basis of the disclosure of D1 as a whole and not merely on its independent claims. D1 does not offer any details of the plug and socket and certainly makes no explicit reference to removal of the cordless unit being prevented. In the Board's view, the skilled person would always assume a plug to be removable, unless taught otherwise. The question is thus whether such a contrary teaching existed.

The parties agree that "one-way" connectors were generally known at the priority date. The Board is however unconvinced that their existence alone suffices to raise reasonable doubts in the skilled person's mind that the plug and socket shown in D1 might prevent removal of the cordless unit.

The Board has also considered whether the intended use of the cordless unit implies any features of the plug and socket. The Appellant has pointed to several aspects of D1 teaching against ever removing the cordless module, such as the fact that all independent claims in D1 relate to the combination of the cellular- and cordless phones "as a single unit". Nevertheless figure 3 shows a dual-mode phone consisting of an "existing cellular phone" and, connected by the plug and socket, a cordless unit as a "plug-in accessory". In the context of this embodiment, the term "existing cellular phone" is understood to mean a unit capable of operating alone as a cellular telephone, and the term "accessory" is understood to mean a non-essential item, in the sense that it is not necessary for normal

cellular operation. This understanding is supported by the fact that separate housings are provided for both units, the housings being adapted to be coupled together by connector means (see, for example, claim 2 of D1). The automatic call routing according to figures 4 to 8 of D1 referred to by the Appellant in this context cannot cast doubt on the optional nature of the cordless module, since it is clear to a skilled person that such routing is only possible if both modes are available, which however need not necessarily be the case. Otherwise, the availability check carried out in D1 (see column 4, lines 35 to 40) would not make sense.

The Board consequently reaches the same conclusion as the contested decision in finding that it is directly and unambiguously derivable from D1 that the cordless unit is detachably couplable to the cellular telephone.

### 3.2 The second supplementary module

According to the contested decision (page 4, 3<sup>rd</sup> paragraph), the cellular telephone known from figure 3 of D1 comprises both a basic module and an additional module containing circuitry for the cellular mode, meaning that D1 discloses a second supplementary module. The Appellant has challenged this view.

The patent does not contain a definition of the term "module". The Concise Oxford Dictionary however defines the term "module" as a "standardized part or independent unit used in construction, especially of furniture, a building or an electronic system". Although the cellular telephone 220 shown in figure 3 shows schematic building blocks such as "cellular transmitter 222" and "cellular receiver 224", the Board

is not convinced that these circuits are either standardized or independent units. Moreover, the drawing of a notional boundary around just the cellular transmitter and receiver to form a purported module seems to be entirely arbitrary. It is therefore not unambiguously derivable from D1 that the cellular signal processing circuits form a second supplementary module.

Hence the Board differs from the Opposition Division in concluding that D1 does not disclose a second supplementary module containing cellular circuitry.

### 3.3 Conclusion on novelty

The subject-matter of claim 1 of both requests differs from the disclosure of D1 essentially in the partitioning of the cellular telephone, some of the circuitry not carrying out cellular signal processing being grouped into a basic module and the remaining circuits being grouped into a second supplementary module detachably couplable to the basic module.

The subject-matter of claim 1 of both requests is thus novel, Articles 52(1) and 54 EPC.

## 4. *Inventive step: main request*

### 4.1 The objective technical problem

Formulating the objective technical problem poses some difficulties in this case, since neither of the technical problems advanced by the Appellant is solved in all three claimed telephone configurations.

The Board is disinclined to regard the reduction of size and weight as the objective technical problem, since the Appellant has conceded that including the cellular signal processing circuitry in a detachably couplable module would involve adding a further socket and housing. Hence, when configured as a dual-mode phone, the telephone would be bulkier and heavier than before, thus not solving the problem.

The Board is also reluctant to regard increasing the flexibility of mode selection as the objective technical problem either, since the single-mode configurations offer less flexibility than the dual-mode telephone known from D1 in that only one mode is available. The problem is consequently not solved in the two single-mode configurations.

In the Board's view the difference features set out above have the effect of allowing the telephone to be more flexibly configured for specific uses. The objective technical problem is consequently seen as increasing the flexibility with which the telephone may be configured. This problem is attractive in that it is solved in all three telephone configurations, since the solution concerns the design of the basic module and this is present in all three telephone configurations.

#### 4.2 The obviousness of the problem

According to the appealed decision (reasons, point 7), "D1 teaches the concept of modularity". The Board agrees; D1 seems to take a step in the direction of increasing the flexibility of configuring a telephone in going from the embodiment shown in figure 2, in which a dual-mode phone is fully integrated, to the

embodiment shown in figure 3, where the cordless module can be removed. Hence D1 appears to point to the objective technical problem. The Board concludes that the objective technical problem is obvious in the light of D1.

#### 4.3 The obviousness of the solution

In fact, in the terms of document D1 the claimed solution takes one step further by making the cellular part of the known telephone modular as well.

The parties differ as to whether the call-forwarding mentioned in D1, by which incoming cellular calls can be diverted to a cordless number (see figure 6 and column 5, line 61 to column 6, line 11), teaches against making the cellular functions optional. Since the cited passage refers to call-forwarding being accomplished by "the cellular system" (column 6, line 6) "when the cellular phone cannot be reached" (column 5, lines 65 to 66), the Board understands that call-forwarding does not require the phone to be capable of receiving a cellular call. Call-forwarding is carried out elsewhere in the cellular telephone system and would thus work even if the cellular circuits were removed from the telephone itself. Consequently this aspect of D1 does not prejudice the skilled person against removing cellular circuitry from the dual-mode phone.

The parties also differ as to whether the two-way radios mentioned in D9 are relevant to the telephones for use with public networks dealt with in D1 and as to whether the different frequency bands mentioned in D9 constitute operating modes. There is also disagreement

as to whether the coding plugs in D9 process signals characteristic of a mode of operation. Whilst there may be clear differences at a system level between the operation of two-way radios and the public telephone networks, the Board is not convinced that the principles applicable to the design of the handsets themselves differ significantly. Moreover the code plugs define not only operating frequency but also other operating parameters such as coding, channel-disabling and power levels (see page 136, left column, lines 30 to 34). The Board sees no reason why such parameters do not fall within the ambit of the term "operating mode". Moreover, since the parameters stored in the coding plugs characterize the operating mode, the Board takes the view that merely outputting these parameters can be seen as processing signals characteristic of a mode of operation. D9 shows that at the priority date the problem of configuration flexibility was known in the field of portable radio transceivers (page 136, left column, lines 14 to 18), the solution lying in constructing a dual-mode device (page 136, left column, line 35) as a basic unit provided by mode-specific functionality by two code plugs, which may be seen as supplementary modules. Hence the solution is known from D9.

The Board is unable to see an inventive step in applying the teaching of D9 to increase the flexibility of configuration of a phone as described in D1. The subject-matter of claim 1 according to the main request consequently lacks inventive step in view of D1 combined with D9, Articles 52(1) and 56 EPC.

#### 4.4 Inventive step: auxiliary request

The Appellant has argued that the subject-matter of claim 1 according to the auxiliary request differs from that according to the main request in the restriction that the basic module contains no mode-specific circuitry. The Board is unable to see any such restriction of the claim. The definition of a basic module "**including** circuitry consisting of components and functions common to the operation of the telephone in both modes" (emphasis by the Board) does not exclude the presence of further circuitry, including mode-specific circuitry.

The Board finds that the subject-matter of claim 1 of the auxiliary request is essentially the same as that of claim 1 of the main request and thus lacks inventive step, Articles 52(1) and 56 EPC, for the same reasons.

**Order**

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

The appeal is dismissed.

The Registrar:

The Chairman:

M. Kiehl

S. V. Steinbrener