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D E C I S I O N
of 1 December 2005

Case Number: T 0165/03 - 3.5.03

Application Number: 92306174.1

Publication Number: 0521732

IPC: H04H 1/00

Language of the proceedings: EN

Title of invention:
Antenna system for receiving broadcast or communication signals from satellite

Patentee:
SONY CORPORATION

Opponent:
Interessengemeinschaft für Rundfunkschutzrechte GmbH Schutzrechtsverwertung & Co. KG

Headword:
Antenna system/SONY

Relevant legal provisions:
EPC Art. 56, 104, 114(2)

Keyword:
"Inventive step - main request (no), auxiliary request (yes)"
"Different apportionment of costs (no)"
"Late filed document - admitted (no)"

Decisions cited:
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Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0165/03 - 3.5.03

D E C I S I O N
of the Technical Board of Appeal 3.5.03
of 1 December 2005

Appellant: (Opponent)
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Decision under appeal: **Decision of the opposition division of the European Patent Office posted 25 November 2002 rejecting the opposition filed against European patent No. 0521732 pursuant to Article 102(2) EPC.**

Composition of the Board:

Chairman: A. S. Clelland
Members: F. van der Voort
R. Menapace

Summary of Facts and Submissions

I. This appeal is against the decision of the opposition division rejecting an opposition filed against European patent No. 0 521 732.

II. The opposition was filed against the patent as a whole and on the grounds that the claimed subject-matter was not new and did not involve an inventive step (Article 100(a) EPC). During the opposition proceedings, the opponent referred, *inter alia*, to the following documents:

D4: WO 91/00646 A;

D6: EP 0 314 931 A; and

D8: "TV and Monitor Products", May 1986, pages 73 to 95 and 118 to 131.

III. The opponent (appellant) lodged an appeal against the decision and requested that the impugned decision be set aside and the patent be revoked in its entirety. In support of his arguments, the appellant filed the following document:

D9: US 4 608 710 A.

He argued that the subject-matter of claim 1 lacked an inventive step having regard to the disclosure of either D4 or D6 alone or the disclosure of D4, as the starting point, combined with the teaching of D6 or D9. Further, the subject-matter of claim 4 was said to lack an inventive step having regard to D6 or having regard

to D4 when taking into account the customary practice followed by a person skilled in the art. In relation to the use of a microprocessor, the appellant also referred to D8. Oral proceedings were conditionally requested.

IV. In response to the statement of grounds of appeal, the respondent (proprietor) argued that the appeal should be rejected (main request). Further, the respondent requested that, if the main request could not be allowed, the patent be maintained on the basis of claims of one of four auxiliary requests. In view of the late filing of D9 he requested an apportionment of costs under Article 104 and Rule 63(1) EPC in his favour and that D9 not be admitted to the appeal proceedings. Oral proceedings were conditionally requested.

V. The appellant filed further arguments in reply to the respondent's submissions.

VI. The parties were summoned by the board to oral proceedings. In a communication accompanying the summons, the board gave a preliminary opinion.

VII. In response to the board's communication, the respondent filed amended auxiliary requests.

VIII. Oral proceedings were held on 1 December 2005 during which the respondent withdrew all existing auxiliary requests and requested as his main request that the appeal be dismissed and the patent be maintained as granted or, by way of an auxiliary request, that the patent be maintained on the basis of claims 1 to 3 as

granted and claim 4 of "Request E" as filed with letter of 24 October 2005. The appellant requested that the impugned decision be set aside and the patent be revoked in its entirety. At the end of the oral proceedings the board's decision was announced.

IX. Claim 1 as granted reads as follows:

"A system for receiving broadcast and communication signals, comprising:
a plurality of antennas (1-3) disposed to receive the broadcast and communication signals and a plurality of receivers (17-20,38-41) for receiving the signals commonly from the antennas (1-3,25,26);
a plurality of converters (4,7,10) disposed to correspond to said plurality of antennas (1-3), for converting received frequencies into predetermined frequencies; and
a change-over divider (6) connected to said plurality of antennas (1-3,25,26) and having a plurality of output terminals (t_6-t_9), said change-over divider (6) separately outputting predetermined ones of the broadcast and communication signals to said plurality of output terminals (t_6-t_9), respectively;
each of said receivers (17-20,38-41) being connected to one of said output terminals (t_6-t_9) of said change-over divider (6); characterised in that
each receiver (17-20,38-41) is adapted to provide a control pulse to said change-over divider (6) for selecting one of said plurality of antennas (1-3,25,26), respectively; and in that
said plurality of receivers (17-20,38-41) are adapted to provide DC power voltage to said plurality of

converters (4,7,10), respectively, through said change-over divider (6)."

Claim 4 as granted reads as follows:

"A change-over divider for selecting signals, comprising:
a plurality of input terminals (t_1-t_5,t_{10});
a plurality of switches (SW_1-SW_4) connected to said plurality of input terminals (t_1-t_5,t_{10}); and
a plurality of output terminals (t_6-t_9) connected to outputs of said plurality of switches (SW_1-SW_4);
characterised by further comprising
control pulse detection circuit means (23) connected to said plurality of output terminals (t_6-t_9) for detecting a control pulse;
separator circuit means (21) for separating said control pulse from DC power voltage; and
a microcomputer (24) connected to said plurality of switches (SW_1-SW_4) and said control pulse detection circuit means (23) for decoding a detected control pulse and outputting a change-over control signal to one of said plurality of switches (SW_1-SW_4) in response to said control pulse as decoded, whereby
said one of said plurality of switches (SW_1-SW_4) selects a predetermined one of the signals in response to said change-over control signal of said microcomputer (24)."

Claim 4 of "Request E" as filed with letter of 24 October 2005 reads as follows:

"A change-over divider for selecting signals, comprising:
a plurality of input terminals (t_1-t_5);

a plurality of switches (SW_1-SW_4) each connected to said plurality of input terminals (t_1-t_5); and

a plurality of output terminals (t_6-t_9) connected to outputs of said plurality of switches (SW_1-SW_4); characterised by further comprising

a control pulse detection circuit (23) connected to each of said plurality of output terminals (t_6-t_9) for detecting a control pulse thereat;

separator circuit means (21) for separating said control pulse from DC power voltage; and

a microcomputer (24) connected to each of said plurality of switches (SW_1-SW_4) and said control pulse detection circuit (23) for decoding a detected control pulse and outputting a change-over control signal to one of said plurality of switches (SW_1-SW_4) in response to said control pulse as decoded, whereby

said one of said plurality of switches (SW_1-SW_4) selects a predetermined one of the signals in response to said change-over control signal of said microcomputer (24)."

Reasons for the Decision

Main request

1. *Inventive step - claim 4 as granted*

1.1 D6 (see the figure and column 4, line 13 ff) discloses an apparatus including an interface decoder unit 200 for selecting signals and having a plurality of input terminals, to which antenna cables 14 and 15 are connected, an antenna switch 29 connected to the input terminals, and an output terminal (at 31) connected to

an output of the antenna switch. A decoder unit 11 inside the unit 200 is connected to the output terminal for detecting and decoding a control pulse. A separator circuit means (i.e. a capacitor connected to the decoder unit 11; see also column 4, lines 30 to 36) separates the control pulse from DC power voltage and an interface circuit 12 connected to the switch 29 and to the decoder unit 11 outputs a change-over control signal to the switch 29 in response to a decoded control pulse, whereby the switch selects a predetermined one of the antenna signals (column 4, lines 37 to 44).

1.2 The subject-matter of claim 4 as granted differs from the interface decoder unit described in D6 in that:
(i) the claimed change-over device has a plurality of switches;
(ii) the claimed change-over device has a plurality of output terminals connected to outputs of the plurality of switches;
(iii) the claimed control pulse detection circuit means is connected to the plurality of output terminals; and
(iv) the decoding of the control pulse and the outputting of the change-over control signal are carried out by means of a microcomputer which is connected to the plurality of switches.

The board notes that, although the claim refers to "input terminals" and "output terminals", as far as the matter for which protection is sought is concerned, i.e. a change-over divider, the designations "input" and "output" are not relevant; inasmuch as the claimed device constitutes a change-over divider, i.e. is capable of directing an input signal at one terminal to

another, selected terminal, the same applies to the interface decoder unit of D6 (column 5, lines 32 and 33; a power signal from the receiver 21 at the terminal at 31 is directed to a selected one of the antenna terminals).

1.3 The provision of a plurality of switches (feature (i)) is already suggested by the figure of D6 in which a further switch is shown at 29 in dashed lines. Feature (i) cannot therefore contribute to an inventive step.

1.4 Further, since D6 relates to an apparatus for receiving TV signals from satellites, it would be obvious to a person skilled in the art that in a building accommodating several parties, e.g. two semi-detached houses with two parties, each party may be equipped with a respective apparatus. The satellite receiving system of the building, taken as a whole, would then however include a change-over divider including all the features of claim 4, i.e. including features (ii) and (iii), with the exception of feature (iv).

1.5 The respondent argued that implementing the apparatus of D6 twice in one and the same building would result in two change-over dividers, each including a respective interface decoder unit and microcomputer, which would be contrary to claim 4, since it defines a single change-over divider having a plurality of output terminals and a single microcomputer.

The board does not find this argument convincing. The claim does not require that the switches are each connected to the plurality of input terminals and therefore covers an embodiment in which the change-over

divider consists of several physically separated units, each including a switch for selecting from only a subset of the input signals. Similarly, the microcomputer may consist of two units, each being connected to only a subset of the switches.

1.6 Further, since the decoder unit 11, which may be an integrated circuit, processes digitally coded signals (column 3, lines 10 to 15 and column 5, lines 46 to 54) and since at the priority date of the contested patent it was well-known to use microprocessors as integrated circuits for processing digital control signals in a wide variety of control systems, the use of a microcomputer in the present case for performing the required logical operations to decode digitally codified signals and for correspondingly generating switch control signals is an obvious implementation of the decoder unit and interface circuit of the apparatus disclosed in D6. Hence, feature (iv) does not contribute to an inventive step either.

1.7 The subject-matter of claim 4 as granted therefore does not involve an inventive step having regard to the disclosure of D6 (Articles 52(1) and 56 EPC). Consequently, the main request cannot be allowed.

Auxiliary request

2. *Amendments (auxiliary request)*

2.1 Claim 4 of the auxiliary request corresponds to claim 4 as granted, in which it has been further specified that:

– the switches are each connected to the plurality of input terminals;

– the control pulse detection circuit means, now referred to as "a control pulse detection circuit", is connected to each of the plurality of output terminals for detecting a control pulse thereat; and

– the microcomputer is connected to each of the plurality of switches.

2.2 These additions are based on the application as filed (see Figure 1 and column 3, lines 19 to 26 and 33 to 43 of the application as published). Claims 1 to 3 correspond to claims 1 to 3 as granted and do not include any amendments. The board is satisfied that the amendments do not give rise to objections under Articles 84 and 123(2) and (3) EPC. At the oral proceedings the appellant did not raise any objections under Article 84 EPC and/or Article 123 EPC in respect of these amendments.

3. *Inventive step - claim 4 of the auxiliary request*

3.1 Claim 4 of the auxiliary request defines, *inter alia*, that the switches are each connected to the plurality of input terminals and the microcomputer is connected to each of the switches. Starting out from D6 and implementing the system of D6 twice in one building (see point 1.4) would not result in such connections, since each switch 29 would be connected to its respective input terminals only and each decoder unit 11, via interface circuit 12, to a respective switch.

Further, modifying this system such as to be able to select each one of the input terminals would not be obvious, since there would be no need to select one of the antennas of the other party. Even if the installation of a common pair of antennas were considered, this would immediately be rejected in view of the problem which would thereby arise, namely when the parties output conflicting antenna adjustment control signals to one and the same mechanical actuator of the antennas.

3.2 The appellant argued that D6, at column 6, lines 7 to 13, explicitly referred to the case of communal receiving apparatuses having a plurality of receivers. From the abstract (*"The apparatus comprises at least one receiving antenna (1,5) having actuators, a low noise converter/amplifier (4, 7), a transmission cable (16), at least one internal unit (21, 22), first circuit means (100) for transmitting codified signals in said cable and second circuit means (200) for receiving ...*" (board's emphasis)) it followed that the apparatus could not only have a plurality of internal units, but also a plurality of units 100, each connected to a respective unit 200 via a single cable. The plurality of units 200 could be seen as forming one device having a plurality of output terminals. Further, as followed from column 4, lines 37 to 44 and column 5, lines 55 to 58, D6 was not limited to controlling mechanical actuators 2, 3, 6 for adjusting the antennas 1, 5 but could also control fully electronic switches 29 only, whereby, in case of a plurality of units 100 and 200, problems due to conflicting antenna adjustment control signals could not arise.

3.3 The board does not accept these arguments. D6 consistently describes that the interface circuit 12 controls at least one receiving antenna having actuators (see the figure, the abstract and claims 1 and 8). There is no disclosure or suggestion in D6 that, alternatively, the interface circuit 12 controls only the switch 29 inside unit 200. Doing away with the mechanical actuators 2, 3, 6 of the antennas 1, 5 would also be in contradiction with the aim of the invention according to D6, namely that of providing a method and apparatus for transmitting a plurality of control signals to devices located at the antennas (column 2, lines 16 to 20). It follows that, irrespective of whether or not switch 29 in interface decoder unit 200 is of a fully electronic type, conflicting antenna control signals would occur as soon as one of the actuators 2, 3, 6 were adjusted by a plurality of units 100, 200. Interpreting the abstract as implying a plurality of units 100, 200 would go against the plain meaning of the sentence, in which various items are separated by commas and would, in any case, make the second appearance of the wording "at least one" (see the quotation at point 3.2) superfluous in view of the same wording already appearing at the beginning of that sentence. The reference at column 6, lines 7 to 13 to communal receiving apparatuses having a plurality of receivers is therefore best understood as relating to an embodiment in which several satellite receivers, which may each be tuned to a different TV program, are connected to a common unit 100 which determines from which satellite the TV signals are received. This interpretation is in line with column 2, lines 31 to 40, which describes that at least one internal receiving

unit is connected via a single cable to the at least one antenna.

3.4 Turning now to D4, the board notes that it does not give technical details about the switching matrix 15 or 25 of Figures 1, 3 and 9 and that only in Figure 9 is a control pulse detection circuit, i.e. shaping circuit 56 connected to multiplexing circuit 57, shown. This circuit 56 is however not connected to the plurality of output terminals of the switching matrix 25 as in the claimed change-over divider (in D4, Figure 9, the output terminals of the switching matrix 25 correspond to the "ANTENNA" input lines as shown; see also page 13, lines 19 and 20 and Figure 3). Nor would there be any reason to modify circuit 56 such that it is connected to these output terminals, since the digital data to be detected arrives at cable 3.

3.5 The appellant further argued that claim 4 is directed to a change-over divider without defining any features relating to its use in a satellite receiving system. It therefore covered change-over dividers for use in completely different technical fields as well. Change-over dividers were however well-known. It would, in any case, have been a matter of routine work for a person skilled in the art to modify unit 200 of D6 such that it included a plurality of switches, each being connected to the plurality of input terminals and controlled by control pulses at a plurality of output terminals.

The board agrees that claim 4 does not define any features which would limit it to a change-over divider adapted to a specific application, such as for a

satellite receiving system. However, the appellant, despite having been given the opportunity to do so, was not able to support his allegations by means of documented prior art. Further, the board cannot see any reason why the skilled person would modify the interface decoder unit 200 of D6 in the manner as suggested by the appellant; nor was the appellant able to suggest a convincing reason why the skilled person should do so.

3.6 The subject-matter of claim 4 of the auxiliary request therefore involves an inventive step having regard to either D4 or D6.

4. *Interpretation of claim 1 as granted*

4.1 Claim 1 relates to a system for receiving broadcast and communication signals, which includes, *inter alia*, a change-over divider and a plurality of receivers for commonly receiving signals from a plurality of antennas with corresponding converters, in which "*each receiver is adapted to provide a control pulse to said change-over divider for selecting one of said plurality of antennas, respectively*". Further, claim 1 specifies that "*said plurality of receivers are adapted to provide DC power voltage to said plurality of converters, respectively, through said change-over divider*".

4.2 In accordance with the description and drawings (Figures 1 and 2, column 3, lines 24 to 26, 35 to 37 and 43 to 52, and column 4, lines 26 to 29 and 39 to 42) and in the absence of any suggestion to the contrary in the patent specification, the board interprets the

above-quoted wording such that each receiver is capable of selecting any one of the plurality of antennas and of providing DC power voltage to the converter which corresponds to the respectively selected antenna.

5. *Inventive step - claim 1 as granted*

5.1 It was common ground between the parties that the subject-matter of claim 1 differs from the apparatus disclosed in the figure of D6 in that it does not show the following features of claim 1:

- a plurality of receivers for receiving the signals commonly from the antennas (the figure of D6 shows only one satellite receiver 21); and
- the change-over divider having a plurality of output terminals and separately outputting predetermined ones of the broadcast and communication signals to the plurality of output terminals, respectively (the figure of D6 shows only one output terminal at 31).

5.2 The board notes that the reasoning given at points 1.4 and 1.5 above in respect of claim 4 as granted does not apply to claim 1 as granted, since the claim requires that each receiver is adapted to select any one of the antennas (see also point 3.1). For the same reasons as given at point 3 in respect of claim 4, the subject-matter of claim 1 thus involves an inventive step having regard to D6.

5.3 Regarding D4 it was common ground between the parties that Figure 1 discloses the features according to the preamble of claim 1. More specifically, as is described at page 4, lines 4 to 33, the switching matrix 15,

which corresponds to the change-over divider of the present invention, is located indoors at the TV set. FM demodulators 16 to 18 constitute satellite tuners for selecting a TV program from a satellite signal provided by the switching matrix which commonly receives the satellite signals from antennas 7, 10.

5.4 The appellant argued that, since D4 was silent as to how the external converters 8, 9, 11 in Figure 1 were powered and how the switching matrix 15 was controlled, it would have been obvious to the skilled person to apply the teaching of Figures 3 and 9 of D4 to the system of Figure 1. In particular, Figures 3 and 9 illustrated that both digital control signals and DC power for the converters at the antennas were provided to the switching matrix 25 via a link cable 3 (see page 8, lines 1 to 4 and 11 to 14, and page 13, lines 13 to 18 and 24 to 31). The same solution was also to be found in D6. The subject-matter of claim 1 therefore lacked an inventive step having regard to D4 alone or D4 and D6.

5.5 The board accepts that in the system of Figure 9 of D4, contrary to what the passage at D4, page 13, lines 24 and 25 might suggest, regulated power is received via the cable 3 and made available by regulator 54. However, Figures 3 and 9 relate to a system in which a switching matrix 25 is part of a microwave frequency head 23 which is part of the external unit which also includes the antennas 7, 10 and a multiplexer 2 (see page 7, lines 14 to 24, and page 1, lines 4 and 5). The system of Figures 3 and 9 therefore essentially differs from the system of Figure 1 in that in Figure 1 the switching matrix 15 is part of an internal unit which

also includes the demodulators 16 to 18 (page 4, lines 30 and 31). At page 2, lines 1 to 3, it is mentioned that an internal unit is often in the form of a cabinet located under the receiver. Hence, for the system of Figure 1 there would be no need to generate digital control and power signals at one point and to transmit these signals to a remote point as in Figures 3 and 9. In Figure 1, the antenna selection could, e.g., simply be carried out by a user directly operating the switching matrix 15. The switching matrix itself could also provide the DC power to the converters 8, 9, 11. Hence, the skilled person would not have been motivated to apply the teachings of Figures 3 and 9 to the system of Figure 1. If, for the sake of argument, he were to do so, he would not arrive at a system in which each receiver provides DC power voltage to the converter corresponding to the respectively selected antenna, since Figures 3 and 9 do not show any DC power source and do not suggest applying power selectively to a specific converter; on the contrary, Figure 9 suggests that the DC output of regulator 54 is made available for powering the whole external unit.

5.6 For the same reasons, it would not have been obvious to the skilled person to apply the teaching of D6 to the system of Figure 1 of D4. In D6 the interface decoder unit 200 is a remote unit which requires remote control by means of the unit 100 at the user and is remotely powered via the cable 16. If, for the sake of argument, the teaching of D6 were applied to Figure 1 of D4, the control signals would be generated by an additional unit, corresponding to unit 100, and not by the demodulators 16 to 18, i.e. the satellite receivers.

5.7 The board therefore concludes that the system of claim 1 involves an inventive step having regard to D4, D6 or a combination of D4 and D6. Since claims 2 and 3 are dependent on claim 1, the same applies to these claims.

6. *Admissibility of D9 - apportionment of costs*

6.1 D9 was filed by the appellant for the first time with the statement of grounds of appeal. In accordance with Article 114(2) EPC, the board may disregard facts or evidence which are not submitted in due time.

The appellant argued that the reason for introducing D9 was not because of its content being more pertinent than that of D6, but because, starting out from D4, it would certainly have been obvious to the skilled person to take into account the teaching of D9, since D9 was mentioned in the search report of D4. Moreover, the introduction of D9 was in response to the reasons given in the impugned decision, since the opposition division held that it would not have been obvious for the skilled person, starting out from D4, to combine D4 and D6. D9 should therefore be admitted to the proceedings and there would be no reason to grant an apportionment of costs in favour of the respondent.

6.2 The board notes that the content of D9 is indeed, at least *prima facie*, no more relevant than that of D6. Further, even if the skilled person were to combine D4 and D6 he would not arrive at the subject-matter of the claims of the auxiliary request (see points 3 and 5 above). The board therefore decided not to admit D9 to

the appeal proceedings. Under these circumstances the board sees no reason which would in fairness make a different apportionment of costs incurred in oral proceedings pursuant to Article 104 EPC appropriate. The respondent's request for an apportionment of costs under Article 104 EPC in his favour is therefore refused.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to maintain the patent with claims 1 to 3 as granted, claim 4 of "Request E" as filed with letter of 24 October 2005, description columns 1 and 2 as filed in the course of the oral proceedings before the board, and columns 3 to 5 and Figures 1 to 3 as granted.

3. The respondent's request for apportionment of costs is refused.

The Registrar: The Chairman:

D. Magliano A. S. Clelland