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HEADNOTES:

1. The principle of the public nature of elections emerging from Article 38 in conjunction with Article 20.1 and 20.2 of the Basic Law (Grundgesetz – GG) requires that all essential steps in the elections are subject to public examinability unless other constitutional interests justify an exception.
2. When electronic voting machines are deployed, it must be possible for the citizen to check the essential steps in the election act and in the ascertainment of the results reliably and without special expert knowledge.

**Judgment of the Second Senate of 3 March 2009  
on the basis of the oral hearing of 28 October 2008  
– 2 BvC 3/07, 2 BvC 4/07 –**

in the proceedings regarding the complaints requesting the scrutiny of an election

I. of Dr. W...

- authorised representative: Prof. Dr. ...,  
lawyers ...

– the resolution of the German Bundestag of 14 December 2006 – WP 145/05 – (Bundestag document against (Bundestagsdrucksache – BTDrucks) 16/3600) – 2 BvC 3/07 –,

II. of Prof. Dr. W...

- authorised representative: Prof. Dr. ...

– the resolution of the German Bundestag of 14 December 2006 – WP 108/05 – (Bundestag document against 16/3600) – 2 BvC 4/07 –,

RULING:

1. The Ordinance on the Deployment of Voting Machines in Elections to the German Bundestag and of the Members of the European Parliament from the Federal Republic of Germany (Federal Voting Machine Ordinance (Bundeswahlgeräteverordnung – BWahlGV)) of 3 September 1975 (Federal Law Gazette (Bundesgesetzblatt – BGBl) I p. 2459) in the version of the Ordinance Amending the Federal Voting Machine Ordinance and the European Election Code (Verordnung zur Änderung der Bundeswahlgeräteverordnung und der Europawahlordnung) of 20 April 1999 (Federal Law Gazette I p. 749) is not compatible with Article 38 in conjunction with Article 20.1 and 20.2 of the Basic Law insofar as it does not ensure monitoring that complies with the constitutional principle of the public nature of elections.
2. The use of the electronic voting machines of N.V. Nederlandsche Apparatenfabriek (Nedap) of type ESD1, hardware versions 01.02, 01.03 and 01.04, as well as of type ESD2, hardware version 01.01, in the elections to the 16th German Bundestag was not compatible with Article 38 in conjunction with Article 20.1 and 20.2 of the Basic Law.
3. The complaints requesting the scrutiny of an election are rejected in other respects.
4. The Federal Republic of Germany is ordered to reimburse to the complainant re 1. the full amount of the necessary expenses from these proceedings and to reimburse to the complainant re 2. three-quarters of his necessary expenses

GROUNDINGS:

A.

The complaints requesting the scrutiny of an election relate to the permissibility of the deployment of computer-controlled voting machines, which are also referred to as electronic voting machines or "election computers", in the elections to the 16th German *Bundestag*. 2

I.

1. Roughly two million persons eligible to vote in Brandenburg, Hesse, North Rhine-Westphalia, Rhineland-Palatinate and Saxony-Anhalt cast their votes in the elections to the 16th German *Bundestag* via computer-controlled voting machines which are manufactured by the Dutch company Nedap and have been sold in Germany since 1999 as a central component of the "Integral Election System" (IWS) of H. GmbH. The type designations of these voting machines are composed of a name for the device generation (ESD1 or ESD2), as well as in each case of a version number for the hardware (HW) and for the software (SW). The types ESD1 (HW 1.02; SW 2.02), ESD1 (HW 1.02; SW 2.07), ESD1 (HW 1.03; SW 3.08), ESD1 (HW 1.04; SW 3.08) and ESD2 (HW 1.01; SW 3.08) have so far been used in elections to the German *Bundestag*. 3

These voting machines are controlled via a microprocessor and a software program. The votes cast are exclusively stored on an electronic storage medium and are counted electronically by the voting machine at the end of the election day. After the electronic ascertainment of the results, the voting machine shows the total votes cast for the respective electoral proposals; the results can be printed out via a printer that is integrated into the voting machine. The software program which controls the registration of the ballot and the ascertainment of the results is to be found on two electronic storage modules (so-called EPROMs; EPROM = Erasable Programmable Read-Only-Memory) which are installed in the device under a screwed-on cover and are secured by two seals applied by the manufacturer. The votes cast at the voting machine – including the linkages (first vote and connected second vote) – are stored on a removable cassette-like storage medium – the so-called vote storage module, also referred to as “electronic ballot box” (see Schönau, *Elektronische Demokratie*, 2007, p. 53). The data of the voting slips, the attribution of the individual keys to the electoral proposals, as well as the date of the election and the polling station, are also stored on the vote storage module.

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The voting machines have a keypad (“the voter *tableau*”) over which an insertion sheet is placed portraying a voting slip imitating the official voting slip. Above the key field one finds a display (LCD display) which guides the voter through the election procedure and enables him or her to examine her or her entries. The keypad and the LCD display are flanked by two vision-shielding panels on either side. On the reverse of the voting machine are the abovementioned printer and a slot for the vote storage module. The voting machines are linked with a control unit on the returning committee’s table. The control unit shows the returning committee the casting of the votes by the respective voter such that the display of the number of voters increases by one. After the voter has cast his or her votes, the voting machine is blocked for further balloting until the returning committee releases it for the next voter.

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An element of the “Integral Election System” sold by H. is a programming and reading out device which enables the local authority to prepare the vote storage modules in conjunction with a personal computer prior to the elections and to read out the ballot information from the storage module after the election and to make it available for further data processing. The storage modules can be read out once more after the election day with the aid of a voting machine. The software of the “Integral Election System” also makes it possible to print the stored votes at a computer as voting slips with the corresponding crosses.

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An individual identification number of the individual voting machine, as well as the version numbers of the hardware and the software, and two checksums which are constituted by a checksum algorithm contained in the voting machine software, can be shown and printed on the voting machine. These data can be compared with the information on the nameplate of the voting machine and in the declaration of identity.

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2. An attempt was already made in Germany in the nineteen-sixties to replace the manual counting of the voting slips linked to the traditional election event using more rational methods and by deploying voting machines. According to § 35.3 of the Federal Electoral Act (*Bundeswahlgesetz – BWG*) of 7 May 1956 (Federal Law Gazette I p. 383 – Federal Electoral Act), the Federal Minister of the Interior was able to permit officially authorised vote counting devices to be used instead of voting slips. The Ordinance on the Use of Vote Counting Devices in Elections to the German *Bundestag* (*Verordnung über die Verwendung von Stimmzählgeräten bei Wahlen zum Deutschen Bundestag*) of 24 August 1961 (Federal Law Gazette I p. 1618) was handed down on this basis. § 35.3 of the Federal Electoral Act was rescinded by means of the Act Amending the Federal Electoral Act (*Gesetz zur Änderung des Bundeswahlgesetzes*) of 24 June 1975 (Federal Law Gazette I p. 1593), and replaced by a more detailed provision on “balloting with voting machines”, which since the promulgation of the new version of the Federal Electoral Act of 1 September 1975 (Federal Law Gazette I p. 2325) can be found in § 35 of the Federal Electoral Act. The Ordinance on the Deployment of Voting Machines in Elections to the German Bundestag (Federal Voting Machine Ordinance) (*Bundeswahlgeräteverordnung – BWahlGV*) of 3 September 1975 (Federal Law Gazette I p. 2459) provided in § 1 that mechanically or electrically driven voting machines may be used in elections to the German *Bundestag* if their type is authorised and their use was approved.

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On the basis of the Ordinance on the Use of Vote Counting Devices of 24 August 1961 (Federal Law Gazette I p. 1618) and of the Federal Voting Machine Ordinance of 3 September 1975 (Federal Law Gazette I p. 2459), voting machines were initially authorised and used in Germany which worked on the basis of (electro)mechanical counting devices (see Schreiber, *Handbuch des Wahlrechts zum Deutschen Bundestag*, 7th ed. 2002, § 35, marginal no. 5). These voting machines worked mechanically; a count was mechanically increased by activating a button or by placing an election token in an opening allotted to the respective electoral proposal. They did not catch on since the cost of procuring, transporting, storing and maintaining the devices was compared to a relatively minor gain in time, and the devices could frequently only be deployed in elections with a small number of electoral proposals (see *Bundestag* document 8/94, p. 2).

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These disadvantages were to be avoided by the deployment of electronic voting machines. In 1997, Nedap applied to the Federal Ministry of the Interior for a type approval for an electronic voting machine which it manufactured. The Federal Voting Machine Ordinance of 3 September 1975 (Federal Law Gazette I p. 2459), at that time most recently amended by Ordinance of 15 November 1989 (Federal Law Gazette I p. 1981) was not amenable to examine and approve such a device type. After the *Physikalisch-Technische Bundesanstalt*, referring to this circumstance in an examination report of 8 September 1998, had made a positive evaluation of the Nedap voting machine in technical terms and a test of the voting machine in Cologne had been assessed as satisfactory, the Federal Ministry of the Interior decided to make it possible to deploy computer-controlled voting machines in the European elections in June 1999. For this reason, amendments were also prepared to § 35 of the Federal Electoral Act and the Federal Voting Machine Ordinance for the deployment of computer-controlled voting machines in future *Bundestag* elections.

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§ 35.1 of the Federal Electoral Act in the version promulgated on 23 July 1993 (Federal Law Gazette I p. 1288, 1594), most recently amended by Act of 1 July 1998 (Federal Law Gazette I p. 1698, 3431), applicable at that time was worded as follows:

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Voting machines with separate counting devices may be used in place of voting slips, election envelopes and ballot boxes to make the casting and counting of the votes easier.

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The words “with separate counting devices” were deleted with the Act on General and Representative Election Statistics in Elections to the German Bundestag and in the Election of Members of the European Parliament from the Federal Republic of Germany (*Gesetz über die allgemeine und die repräsentative Wahlstatistik bei der Wahl zum Deutschen Bundestag und bei der Wahl der Abgeordneten des Europäischen Parlaments aus der Bundesrepublik Deutschland*) of 21 May 1999 (Federal Law Gazette I p. 1023). The amendment to § 35 of the Federal Electoral Act was regarded as being necessary in order to be able to adjust the Federal Voting Machine Ordinance to technical developments in voting machines (see *Bundestag* document 14/401, p. 5).

13

The Ordinance Amending the Federal Voting Machine Ordinance and the European Election Code of 20 April 1999 (Federal Law Gazette I p. 749) already entered into force on 24 April 1999 and amended a large number of provisions of the Federal Voting Machine Ordinance in order to create the preconditions for the deployment of computer-controlled voting machines. The words “including computer-controlled” were added in § 1 of the Federal Voting Machine Ordinance

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voting machines. The words "including computer-controlled" were added in § 1 of the Federal Voting Machine Ordinance after the words "electrically driven". Further amendments were effected where the Federal Voting Machine Ordinance had previously used the term "counting devices". § 2.6 of the Federal Voting Machine Ordinance was added, obliging the manufacturer to enclose a declaration of identity.

3. § 35 of the Federal Electoral Act applied to the elections to the 16th German *Bundestag*, in the version of the Federal Electoral Act promulgated on 23 July 1993 (Federal Law Gazette I p. 1288, corrected p. 1594), most recently amended by the Eighth Competence Adjustment Ordinance (*Achte Zuständigkeitsanpassungsverordnung*) of 25 November 2003 (Federal Law Gazette I p. 2304).

The provision read as follows:

§ 35

*Voting with voting machines*

(1) Voting machines may be used in place of voting slips and ballot boxes to make it easier to cast and count the votes.

(2) Voting machines within the meaning of subsection 1 must guarantee that the ballot remains secret. Their type must be authorised for use in elections to the German *Bundestag* officially for individual elections or generally. The Federal Ministry of the Interior shall decide on authorisation on request by the manufacturer of the voting machine. The use of an officially authorised voting machine shall require approval by the Federal Ministry of the Interior. Approval may be issued for individual elections or in general terms.

(3) The Federal Ministry of the Interior is herewith empowered to hand down by means of a legal ordinance which shall not require the consent of the *Bundesrat* more detailed provisions regarding

1. the preconditions for the official approval of the type of voting machine, as well as for the withdrawal and revocation of approval,

2. the procedure for the official approval of the type,

3. the procedure for the examination of a voting machine for construction corresponding to the officially approved type,

4. the public testing of a voting machine prior to its use,

5. the procedure for the official authorisation of the use, as well as for the withdrawal and revocation of the authorisation,

6. the particularities related to the elections caused by the use of voting machines.

The legal ordinance shall be handed down in agreement with the Federal Ministry of Economics and Labour in cases falling under nos. 1 and 3.

(4) § 33.1 sentence 1 and § 33.2 shall apply *mutatis mutandis* to the operation of a voting machine.

The provisions of the Federal Voting Machine Ordinance of 3 September 1975 (Federal Law Gazette I p. 2459), which were most recently amended by ordinance of 20 April 1999 (Federal Law Gazette I p. 749), relevant to the proceedings at hand, relate to the approval of voting machines and their deployment in elections. The voting machines require a type approval and a use authorisation (see § 1 of the Federal Voting Machine Ordinance). According to § 2.2 sentence 1 of the Federal Voting Machine Ordinance, the type approval may be granted if the voting machine corresponds to the Guidelines for the Construction of Voting Machines (*Richtlinien für die Bauart von Wahlgeräten*) according to Annex 1 to the Federal Voting Machine Ordinance. These guidelines regulate in particular the technical requirements to be made on the voting machines, and contain detailed stipulations for the identification, technical structure and functioning of the voting machines. Statements are made in this context on the portrayal of the electoral proposals, on operation and operability, on the ballot, on the storage of votes and on the creation of backups. The examination of the compliance of the voting machine with the above guidelines is a matter for the *Physikalisch-Technische Bundesanstalt*.

The use of approved-type voting machines requires authorisation prior to each election (§ 4.1 sentence 1 of the Federal Voting Machine Ordinance). Only those voting machines may be used which, once the election date has been set, have been examined by the manufacturer or the local authority using the operating manuals and maintenance regulations and with regard to which it has been ascertained that they are functional (§ 7.1 sentence 1 of the Federal Voting Machine Ordinance). In the constituencies in which voting machines are used, the local authority is to familiarise the head of the returning committee and his or her deputies with the voting machines prior to the elections and to familiarise them with their operation (§ 7.3 of the Federal Voting Machine Ordinance). Prior to the commencement of the election act, the local authority assigns the devices to the head of the returning committee with the necessary operating manuals and the declaration of the manufacturer according to § 2.6 of the Federal Voting Machine Ordinance that the device is constructed identically to the tested, approved type sample (see § 8 of the Federal Voting Machine Ordinance). Prior to the commencement of the ballot, the returning committee must ascertain amongst other things that the counting and storage devices are set to zero or have been erased (§ 10.1 no. 3 of the Federal Voting Machine Ordinance) and must close the voting machine needed (§ 10.2 of the Federal Voting Machine Ordinance). Prior to reading the displays of the votes counted by a voting machine, the number of the ballot records in the voter list is to be added to the number of election slips taken in and compared with the number of votes displayed (§ 13 of the Federal Voting Machine Ordinance). Deviations are to be noted and explained in the election record (§ 13 sentence 3 of the Federal Voting Machine Ordinance). The head of the returning committee, the local authority and the district returning officer must ensure on completing the tasks of the returning committee and returning the voting machines that the voting machines used or the vote storage devices removed from them and the election record with the Annexes are not made available to unauthorised parties until the *Land* (state) returning officer has revoked the blocking and sealing of the voting machines and of the vote storage devices (see § 16.2 and § 17.3 of the Federal Voting Machine Ordinance).

4. The Federal Ministry of the Interior issued type approvals for the voting machines used in the elections to the 16th German *Bundestag*. On 15 August 2005, it announced the authorisation of the use of computer-controlled voting machines made by Nedap in the elections to the 16th German *Bundestag* with details on hardware versions, storage module types and software versions (Federal Gazette (*Bundesanzeiger*) no. 158 of 23 August 2005, pp. 12747-12748). Invoking company secrets of Nedap, the Ministry however refused to make available to the interested public documents

...returning company source code, and the manner, method, access to make available to the interested public documents which Nedap had provided to the *Physikalisch-Technische Bundesanstalt* for the examination of the samples, or test reports of the *Physikalisch-Technische Bundesanstalt*.

5. The decision as to whether voting machines are acquired, and in which constituencies they are used, is a matter for the towns and local authorities. As a reason for the acquisition and the deployment of voting machines, in addition to the more rapid calculation of the election result and to the anticipated cost savings, it is stated that it is virtually impossible to inadvertently cast invalid votes; cases of doubt as to the validity of individual votes because of ambiguous markings on the voting slip and unintended errors in counting the votes are said to be virtually ruled out (see Schreiber, *Handbuch des Wahlrechts zum Deutschen Bundestag*, 7th ed. 2002, § 35, marginal no. 2). The recruitment of voluntary election assistants is also said to be made much easier because less time is needed to ascertain the election result (see Schönau, *Elektronische Demokratie*, 2007, p. 50). These advantages are said to be evident in particular in local elections, which in many *Länder* (states) were said to have been made more complex because of possibilities of cumulative voting and voting for candidates from different party lists.

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## II.

1. With their complaints requesting the scrutiny of an election, both complainants target the Federal Electoral Act and the Federal Voting Machine Ordinance insofar as they facilitate the deployment of computer-controlled voting machines. They complain of the authorisation of the use and deployment of the voting machines; furthermore, the type approvals which were issued for the Nedap voting machines used in the *Bundestag* election are said to be unlawful. The complainant re 2. complains over and above this that the proceedings of the German *Bundestag* suffered from a number of faults.

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a) aa) The complainant re 1. objected to the result of the elections to the 16th German *Bundestag* in 30 constituencies in Brandenburg, Hesse, North Rhine-Westphalia, Rhineland-Palatinate and Saxony-Anhalt referred to in greater detail. He moved to ascertain the constituencies in which computer-controlled voting machines had been used, and the number of the votes cast with these voting machines, and to repeat the elections in the constituencies concerned. The deployment of computer-controlled voting machines was said to have violated the principle of the public nature of elections and the principle of the official nature of elections. Over and above this, the voting machines were said not to be compatible with the Guidelines for the Construction of Voting Machines.

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The principle of the public nature of elections was said to guarantee the proper implementation of the elections and the correct constitution of Parliament. The monitoring of the election act was said to have to encompass above all ensuring that the marking of the vote took place secretly and that the votes cast by the voters were inserted into the ballot box without a change, that the votes were not subsequently altered and that only the votes from the ballot box were counted at the end of the election. In the deployment of the voting machines complained of, effective monitoring by the public and by the returning committee were said to be prevented since a major part of the election act and the investigation and ascertainment of the election result were said to take place inside the voting machine.

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If voting machines were deployed, it was said to only replace the public nature of elections possible in an election with voting slips if equivalent and publicly verifiable control mechanisms existed, such as a paper record of the votes cast printed by the voting machine which the voter could inspect. Corresponding control possibilities were however said not to be available to the public in deployment of the Nedap voting machines.

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It was said not to be possible for the public to check the trustworthiness of the software installed in the voting machines. The examination by the *Physikalisch-Technische Bundesanstalt* and the type approval were said not to have taken place publicly; also, the voting machines were said not to be made available to the interested public for independent examination. The source code software of the voting machines was said not to be open. Ultimately, it was said also not to be possible to examine whether the copies of the software used in the polling stations were identical to the sample examined by the *Physikalisch-Technische Bundesanstalt* and whether they were free of manipulations. It was said to be possible to effect authentication by a chain of characters ("hash value") being calculated for each original program and the copy and then compared, so that agreement between the two values was said to document the authenticity of the software. This was however said not to be reliably guaranteed in the voting machines which were the subject of the complaint since the checksums displayed and printed when the device was launched were calculated by the software installed in the voting machine itself, so that it was alleged not to be ruled out that the calculation of the checksums provided the expected chain of characters because of a prior deliberate manipulation of the software.

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The particular danger in computer-controlled voting machines was said to lie in the fact that elections could be much more effectively influenced via manipulation of the software by the device manufacturer than in ballot box elections. For instance, it was said to be possible for faulty software to allot a certain share of the votes cast to a certain party regardless of the election decision by the respective voter or for the total votes cast to be divided among the parties standing for election according to a set proportion. Manipulations were said to be possible both by politically or financially motivated "insiders", in particular employees of the manufacturer, and by external third parties who gained access to the computers used by the manufacturer (for instance via viruses or trojans); they were said with regard to the complexity of the software used not always to be discovered even in careful quality control effected by the manufacturer. Although it was said to be necessary to prevent unauthorised access to the devices between the elections through suitable security measures, no such monitoring was said to take place in Germany; there were also said to be no suitable regulations in force that were able to guarantee protected storage of the voting machines.

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It was said that the proceedings for the examination of the type sample by the *Physikalisch-Technische Bundesanstalt* and the approval of the type by the Federal Ministry of the Interior should be public as a part of the preparations for the elections. Any interests of the manufacturer in protecting its business secrets should be subordinate to the principle of democracy. For a lack of a possibility to check the device independently, the publication of the control documents and reports of the *Physikalisch-Technische Bundesanstalt* and of the source code of the voting machine software was said to be the only possibility in order to be able to judge the integrity of the elections. The non-publication of the control reports and documents and of the source code was hence said to constitute an electoral error.

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It was said not to be compatible with the "principle of the official nature of the elections" that the functionality of the voting machines could only be examined by the manufacturer (§ 7.1 of the Federal Voting Machine Ordinance), and that there was no official control of freedom from manipulation of the voting machines. Over and above the declaration of identity, there was said to be no authentication of the software implemented on the individual voting machines, so that the election bodies had to rely on effective quality assurance by the manufacturer and on there being no manipulation after the examination had been carried out by the manufacturer. The tests carried out by the district returning officer in the context of preparation for the election and by the returning committee in the polling station were said not to be suited to recognise any manipulations.

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The voting machines were said not to be compatible with the "Guidelines for the Construction of Voting

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The voting machines were said not to be compatible with the "Guidelines for the Construction of Voting Machines" (Annex 1 to § 2 of the Federal Voting Machine Ordinance). They neither complied with the general state-of-the-art, nor were they constructed in compliance with the rules of technology for systems with grievous consequences in case of misconduct (letter B no. 2.1 subsection 1 of the Guidelines for the Construction of Voting Machines). In contravention of to letter B no. 1 item 2 of the Guidelines for the Construction of Voting Machines, the software used was said not to be clearly identifiable.

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It is also said to be objectionable that § 35 of the Federal Electoral Act only calls for the ballot to be held in secret, but not for adherence to the other electoral principles. The examinability of the election result provided for in Article 41 of the Basic Law was said to be undermined if as a result of the type it were no longer to be possible to establish whether the outcome of the election had been reached lawfully.

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bb) The complainant re 2. also submitted an objection to the elections to the 16th German *Bundestag*.

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He takes the view that the deployment of the computer-controlled voting machines in at least 1,921 polling districts and 39 constituencies in five *Länder* had violated the principle of democracy, the principle of the rule of law and the principles of the public and official nature of elections. The deployment of the voting machines was said to violate the Federal Electoral Act and the Federal Voting Machine Ordinance from multiple points of view. Neither § 35 of the Federal Electoral Act, nor the Federal Voting Machine Ordinance, were said to comply with the constitutional principles of the law on elections of the public and official nature of elections.

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The complainant re 2. moved *inter alia* for a finding that the election results in the constituencies designated by the complainant re 1., in the constituencies that were manifest from a "Customer overview [of Nedap] on the 2005 *Bundestag* election" provided by the Federal Statistical Office and in all other constituencies in which voting machines of the impugned nature might have been deployed, had come about unlawfully and were hence allegedly invalid. It was said that the elections needed to be repeated in these constituencies. Furthermore, the complainant re 2. applied for the publication of the examination documents of the *Physikalisch-Technische Bundesanstalt* regarding the voting machines to which the complaint referred, as well as for the holding of an oral hearing as soon as possible and the summons of specific witnesses and experts.

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The more detailed statements of the complainant re 2. correspond to the objection submitted by the complainant re 1.

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cc) The Federal Ministry of the Interior moved to reject the objections.

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The public nature of the ballot was said to have been guaranteed in the deployment of the voting machines. The public was said to be able to check that only entitled voters were granted access to the voting booth. The returning committee was able to check by reading the control unit that each voter had in fact voted and had only done so once. Moreover, it was said that the principle of the public nature of elections was not guaranteed without restriction. It was said to be in conflict with the goal of forming a viable people's representation in a short time. The Federal Electoral Act was said to attach greater significance to the goal of elections being held in good time and to ascertaining the outcome of the election within a reasonable time than to detailed monitoring by the public.

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The public nature of the vote counting was said to have been guaranteed. The public was said to be able to check how the result of the constituency ascertained by the voting machine on conclusion of the election act was printed by the returning committee and included in the election record. The returning committee and each election observer were said to be able to compare the ballot records in the voter register and the valid and invalid first and second votes registered by the voting machine, and hence to ascertain whether the device had covered and added all the votes cast. It was said to be not possible to physically cover the individual votes; a totalling procedure which was verifiable for the public was however said not to be necessary since protection against falsification of the election result was said to be ensured by a number of other measures guaranteeing the reliability of the result as with ballot box elections. For instance, the voting machine was examined thoroughly prior to being approved by the *Physikalisch-Technische Bundesanstalt*. Comprehensive monitoring by local authorities and returning committees also took place in the run-up to the elections. The local ascertainment of the results was said to guarantee that manipulations on the part of individuals could at most impact the outcome of the election in the respective constituency.

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Public monitoring was said to be only one factor among many in order to prevent irregularities in the elections, albeit an important one. No measure was said to be able to prevent manipulations or unintentional falsification of the election result by itself. All measures together were however said to guarantee very broad protection of the elections against election falsifications.

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Since the principle of the public nature of elections had not been violated, it was said not to be necessary to bring forward the public nature of elections by publishing the control results of the *Physikalisch-Technische Bundesanstalt* and the source code for the voting machine software. The fundamentally public nature of the preparations for the election and of the election itself could be restricted for reasons of the protection of private data or of operational and business secrets. The type approval, the examinations of the voting machines by the *Physikalisch-Technische Bundesanstalt*, as well as the conclusive examination by the local authorities, were said to replace monitoring by the public in this respect.

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The paper record called for by the complainants for subsequent checking of the storage of the votes was said to be by no means non-contentious in expert circles because of its disadvantages. It was said that such a record could be manipulated just like any paper product. Further, it was impossible for a paper record to eliminate a lack of trust in the viability of the voting machine since it was created by the voting machine.

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Since the preparation and implementation of the elections were said to be public tasks, it was said to be irrelevant whether this was actually expressed in a "principle of the official nature of the elections". It was only required that the state bodies provided the facilities and resources and took responsibility for organising the elections. It was said to be unobjectionable that private individuals effected individual actions; in this respect, the state bodies only had to carry out the monitoring required. For instance, the official voting slips were printed by private printers and the election notifications and postal voting documents were sent via private postal companies. It was said to always have been sufficient that the election authority classed the enterprises commissioned as trustworthy in each case. The same was said to apply to the manufacture and supply of voting machines with a declaration of identity of the manufacturer.

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The voting machines were said to be compatible with the Guidelines for the Construction of Voting Machines. The voting machine software was said to be identifiable at any time by virtue of a comparison of the version number and the checksums with the information contained in the declaration of identity. Also the authenticity of the software was said to be guaranteed by a combination of protective measures.

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Certainly, any electoral errors were said not to be relevant to mandates. Not concrete information had been put forward indicating that different election results had been achieved in specific polling stations because of the deployment of voting machines than would have been the case with a ballot box election.

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dd) The German *Bundestag* rejected the election objections by resolution of 14 December 2006. The resolution recommendation of the Committee for the Scrutiny of Elections of 30 November 2006 (*Bundestag* document 16/3600, Annexes 1 and 2) considered the objections of both complainants to be manifestly unfounded. 56

The constitutionality of individual provisions of electoral law was said not to be amenable to a review by the German *Bundestag* since the German *Bundestag* and the Committee for the Scrutiny of Elections were not called on to find provisions of electoral law unconstitutional. 57

The deployment of the voting machines was said to have violated neither the concrete form given to the principle of the public nature of elections in non-constitutional law (§§ 10 and 31 of the Federal Electoral Act; § 54 of the Federal Electoral Code (*Bundeswahlordnung – BWO*), nor a principle of the public nature of elections going beyond this. The principle of the public nature of elections was said certainly not to entail each individual act being subject to an individual check. The public nature of the ballot was also said to be heavily restricted in postal voting. The election was said to be operated in the voting machines which were the subject of the complaint in principle in the same manner as in the ballot box election. Although marking of the voting slip and the ballot were carried out on one single device in the voting booth, the act of balloting was said to be transparent for the returning committee and the public since only the voter who had submitted his or her election notification card was able to vote using the voting machine. 58

In legal reality, when it came to the deployment of voting machines the concrete election act of voting was said to be in a conflict of interests between the principle of secret elections and that of the public nature of elections. It was said to be acceptable against this background that in the deployment of computer-controlled voting machines each sub-act of vote registration was not transparent to all. It was said to be one of the particularities of the advance in technology that one could presume that the systems deployed were viable if they had been examined in a special procedure prior to their deployment. This was said to be all the more valid given that the necessary monitoring took place in all other procedural steps, and hence the results that were obtained could be examined to determine their plausibility. The only decisive aspect was said to be whether the public had the fundamental possibility to become convinced of the viability of the election procedure. This was said to be accounted for by voting with voting machines: In particular, the public was able to check the printout of the result of the constituency ascertained by the voting machine and the transfer of the result into the election record, and hence the counting as a whole. By means of the comparison of the ballot records in the register of voters with the valid and invalid first and second votes registered by the device, as prescribed by § 14 of the Federal Voting Machine Ordinance, it was said also to be possible to check whether the voting machine had recorded all the votes and added them correctly. All the stored votes could be printed out as voting slips with the corresponding crosses and subsequently counted by hand. 59

The proceedings for type approval were said not to give rise to an election error. There was also said not to be a right to inspect the source code of the voting machine software with regard to the principle of the public nature of elections since the protection of the operational secrets of the manufacturer of the voting machines was said to outweigh the interest of the public in revealing the source code. 60

According to the convincing descriptions contained in the statement made by the Federal Ministry of the Interior, the voting machines which were the subject of the complaint were said to have complied with the provisions of the Federal Voting Machine Ordinance and with the Guidelines for the Construction of Voting Machines. According to the statements of the Federal Ministry of the Interior, manipulations were said to be theoretically possible, but hardly conceivable in practice. There were said to be no indications of deliberate manipulations or accidental alterations to the voting machines used in the *Bundestag* election forming the subject of the complaint. Even if none of the security measures mentioned were able by themselves to prevent manipulations, all the measures together were said to guarantee a very high degree of security against manipulation of the voting machines. 61

Where the complainant was complaining about a shift of state tasks towards private parties, this was said not to constitute an electoral error, even if the submission was assumed to be correct. In particular, the fact that the preparation and implementation of elections was a public task did not force the conclusion to be drawn that all necessary acts may only be carried out by officials. The necessary state control was said to be ensured. 62

Since no electoral error was therefore ascertainable, it was said not to be necessary to investigate any impact on the result of the ballot and on the distribution of seats in the German *Bundestag*. No oral hearing was set regarding the objection of the complainant re 2. according to § 6.1a no. 3 of the Law on the Scrutiny of Elections (*Wahlprüfungsgesetz – WahlPrüfG*), old version. 63

b) Both complainants have submitted a complaint requesting the scrutiny of an election to the Federal Constitutional Court (*Bundesverfassungsgericht*). 64

aa) The complainant re 1. moves to rescind the resolution of the German *Bundestag* of 14 December 2006 and to declare the elections to the 16th German *Bundestag* invalid in the constituencies referred to in the objection procedure insofar as computer-controlled voting machines were used there, and to order a repeat of the elections with voting slips and ballot boxes. Alternatively, he moves for a finding that the use of software-controlled voting machines in elections to the German *Bundestag* is not compatible with the Basic Law, furthermore as an alternative that the deployment of voting machines is not compatible with the Basic Law unless the transparency of the elections for the public, the examinability of the correctness of the election result and security against manipulation is guaranteed in a manner corresponding to elections with voting slips and ballot boxes. 65

The complainant re 1. repeats and expands his submission from the objection procedure, and submits the following as a supplement: 66

The deployment of the electronic voting machines, because of their technical and constructional security faults, was said to have violated the principles of electoral law set out in Article 38 of the Basic Law, the unwritten constitutional principles within electoral law of the public and official nature of elections, as well as the non-constitutional provisions of electoral law. 67

The public nature of the elections was also said to have been violated by virtue of the fact that the monitoring had been shifted to a non-public approval procedure and the publication of the examination results, examination documents, construction characteristics and of the source code of the devices had been refused. An evaluation of the votes cast that was verifiable by the public was said not to be possible because the individual votes could not be physically recorded. 68

The Federal Voting Machine Ordinance was said to contain serious faults insofar as it built on the principle of the declaration of identity; for there was said to be no monitoring as to whether the devices actually used corresponded to the software and hardware checked by the *Physikalisch-Technische Bundesanstalt*. 69

It was said not to be compatible with the principle of official nature of the implementation of the election for the state election authorities to relinquish control over the entire course of events, including the technical details. Democracy and the rule of law were said rather to demand that the entire election events, ranging into the ramifications of the technical 70

details, could be traced both by state bodies and by the people. The design of the election procedure, the monitoring and the parliamentary and judicial examinability of the election results, were said to be subject to the state's reserve as core state tasks.

The technical and constructional security faults in the voting machines were said to violate the principles of electoral law as to the freedom, equality and secrecy of the elections. If votes were diverted, electronically "caught" and "spied on", the freedom of the elections was said to be placed at risk. Equality was also said to be affected if it was not sure whether the vote that had been cast had been counted at all, and if so whether it was counted correctly. What is more, it was said that the secrecy of elections could suffer damage were manipulations to occur. It was said to be sufficient for a violation of the principles of electoral law that a situation had been created by the deployment of electronic voting machines in which the errors described were possible.

The restrictions of the principles of electoral law were said not to be justified by contrary constitutional provisions. Nedap's company secrecy interests that are protected by fundamental rights had to be subordinated to the interest of the public in information and to the public monitoring which was fundamental to democracy. The gain in democracy (rapidity of ascertaining the election results and increased level of security of the election procedure), linked with the deployment of computer-controlled voting machines, was also said to be unable to justify the impairment of public elections.

The election errors were said to be relevant to mandates. Major alterations were said to be possible in the mandate structure because of the major part of the votes affected by the election errors. The complainant re 1. was said not to bear the burden of proof for the elections having led to a different result without voting machines than had in fact been the case in the constituencies in which voting machines had been deployed. For the election errors which had been complained of, in particular the violation of the principle of the public nature of elections, were said to have eliminated the actual possibility to demonstrate a manipulation in concrete terms.

bb) The complainant re 2. is essentially moving to rescind the rejection of his objection by the German *Bundestag* and to repeat the elections in the constituencies designated in the written objection of 15 October 2005, as well as basically to establish the unconstitutionality of § 35 of the Federal Electoral Act and the Federal Voting Machine Ordinance.

The complainant re 2. challenges both the constitutionality of the legal basis for the deployment of computer-controlled voting machines (§ 35 of the Federal Electoral Act and the Federal Voting Machine Ordinance), and the concrete deployment of the Nedap voting machines in the elections to the 16th German *Bundestag*. The electronic voting machines used were said to violate as to their construction and functioning the principles of electoral law of the public and official nature of elections and Article 38.1 sentence 1 of the Basic Law, as well as the Federal Voting Machine Ordinance. The procedures for the approval of the voting machines by the *Physikalisch-Technische Bundesanstalt* and the Federal Ministry of the Interior which were the subject of complaint were also said not to comply with the principles of democracy and the rule of law, as well as with the principles of electoral law of the public nature of elections and the sovereign implementation of elections.

As grounds, the complainant re 2. repeats the arguments that he already submitted in the objection procedure before the German *Bundestag*. He additionally alleges that the equality of elections had been violated by differing treatment of voting slip voters and voting machine voters since the principles of democracy and the rule of law, as well as of the public and official nature of the elections, were said to apply to the same degree to voting slip voters and to voting machine voters, and that the legislature had not provided legal provisions for the deployment of the electronic voting machines which were identical and equivalent to those in the Federal Electoral Code for voting slip elections. Insofar as it was not possible to rule out that because of the technical shortcomings of the voting machines there might be discrepancies between the ballot intended by voters and the ballot registered by the voting machine, the principle of equality between "successful" and "unsuccessful" voters was said to have been violated.

He also objects to the proceedings before the German *Bundestag*. The length of the proceedings was said not to be acceptable. The German *Bundestag* was said to have taken its decision on the basis of an insufficiently verified set of facts. The impugned resolution of the German *Bundestag* was said to have not come into being effectively for a lack of a quorum since 40 Members at most had attended the ballot. The deliberations of the Committee for the Scrutiny of Elections were said to have taken place in camera. The Rules of Procedure of the German *Bundestag* (*Geschäftsordnung des Deutschen Bundestages – GO-BT*) were said to be unconstitutional because they had not provided for the hearings, deliberations and rulings of the committee in the election scrutiny procedure to be held in public. Despite an explicit motion, no date had been set for an oral hearing.

2. The complaints requesting the scrutiny of an election were served on the German *Bundestag*, the *Bundesrat*, the Federal Government, all *Länder* Governments, the federal associations of the parties represented in the German *Bundestag* (CDU, SPD, The Greens, FDP, Linkspartei, CSU) and the federal returning officer. The *Physikalisch-Technische Bundesanstalt* and the Federal Office for Information Security were afforded the opportunity according to § 27a of the Federal Constitutional Court Act (*Bundesverfassungsgerichtsgesetz – BVerfGG*) to make a statement on the technical questions that had been put forward.

a) The federal returning officer considers the deployment of the electronic voting machines to be lawful.

b) The Federal Ministry of the Interior has extended and supplemented its statements from the objection procedure before the German *Bundestag* on the use of the voting machines allegedly having been constitutional and lawful.

The public nature of elections was said to be overstretched if it were to be demanded that anyone should be able to verify the entire election events, including the preparations for the election, right down into the ramifications of the technical details and the entire state activity in an election, including the type approval of the voting machines, and that the other preparatory work of the election bodies and other institutions were subject to public monitoring.

The local organisation was said to be one of the most important means to prevent manipulations in the use of voting machines. Since the local authorities decided on their own responsibility on the acquisition of the voting machines and were said to be responsible for the proper storage of the voting machines, and for their examination prior to deployment, manipulation of the voting machines was said to require, in addition to the appropriate technical skills, a knowledge of the manner in which each individual local authority stored the voting machines and how the security measures could be overcome. The local organisation was said to also include the ascertainment of the results in the respective polling station. This meant that it was not possible to manipulate the voting machine during transportation. Impacts of any irregularities were hence restricted to the election result in the respective constituency.

c) The *Physikalisch-Technische Bundesanstalt* explained the examination concept on which the type sample check was based, and stated that the security requirements should be judged in the context of the implantation of the voting machines into the proven processes in traditional elections. The arguments of the complainant were said not to take this into account.

3. a) The Chaos Computer Club e.V. refers in its statement to an examination of the security and manipulability of Nedap election computers which was implemented in 2006 in cooperation with the Dutch initiative "We do not trust voting computers" ("*Wij vertrouwen stemcomputers niet*"). The software and the hardware of the Dutch ES3B type, which in the view of the study's authors differed only slightly from the ESD 1 and ESD 2 types used in Germany, was said to have been susceptible to manipulation with relatively little effort. The test indicates that the processes and programming methods analysed by reconstructing the source code of the voting machine were trivial and only constituted the state-of-the-art of the early nineteen-nineties. 84

The voting machines could be manipulated by the votes cast for an electoral proposal being altered prior to their storage, so that they would be stored on the vote storage module as votes cast for another party. This was said not to require any knowledge of the list place of the party or of the candidate. A further manipulation variant was said to consist in already providing for a preset percentage final result for a specific electoral proposal prior to commencement of the elections without this coming to light in a test election. It was said to be possible in practice to exchange the software without encountering difficulties. The storage media could be removed from the voting machine, read out, deleted and re-programmed using widely available tools. A person with a modicum of technical knowledge could exchange a storage medium within less than five minutes after brief training; someone with experience could have effected a swap in about one minute. Manipulations to the hardware were also simple without this being identifiable by any testing procedure used or proposed by Nedap or by the *Physikalisch-Technische Bundesanstalt*. 85

All in all, the tests had shown that the Nedap voting machines did not meet the requirements of the Federal Voting Machine Ordinance. The dynamics of the development in the potential for attack and manipulation were said to constitute one of the main risk factors of computer-aided election procedures. In contradistinction to established procedures, it was possible at any time for attack methods to be developed which were as yet unknown and the consequences of which were not foreseeable which remained unrecognised and made it possible to falsify an election. None of the fundamental difficulties in the use of computer-controlled voting machines was said to be solvable by technical means with sufficient reliability since greater technical security measures would of necessity lead to more complex systems which could be examined by even fewer people. 86

b) The Federal Ministry of the Interior takes the view that the statement of the Chaos Computer Club showed all in all an over-evaluation of technical security requirements as to the voting machines. There was said to be no way to guarantee absolute security against falsification in elections. Ballot box election and postal voting was said to be theoretically susceptible to manipulation in a similar way to elections with voting machines. Any technical security measure could be circumvented with the corresponding effort. 87

The criticised manipulation possibilities still in existence despite a protected environment were said not to differ from the risks also existing in classical elections. The existing regulations were said to be adequate. 88

4. In the oral hearing, the Senate furthermore heard Dr. Jörn Müller-Quade, European Institute for Systems Security (*Europäisches Institut für Systemsicherheit*) in Karlsruhe, and Melanie Volkamer, Institute of IT-Security and Security Law (*Institut für IT-Sicherheit und Sicherheitsrecht*) of the University of Passau, as experts. Dr. Müller-Quade particularly made a statement on the question of whether and to what degree manipulation to the hardware or software could be discovered by subsequent examinations of the voting machines. Ms Volkamer explained how the concurrence of the software with the samples installed in the individual voting machines could be examined prior to the elections. 89

## B.

Insofar as the complainant re 2. objects to the proceedings before the German *Bundestag*, his complaint requesting the scrutiny of an election is unsuccessful. 91

The complaints requesting the scrutiny of an election are well-founded insofar as they complain about the Federal Voting Machines Ordinance permitting the use of computer-controlled voting machines without ensuring effective monitoring of the election act and effective subsequent monitoring of the ascertainment of the result. In this respect, there is a violation of the principle of the public nature of elections under Article 38 of the Basic Law in conjunction with Article 20.1 and 20.2 of the Basic Law. The use of Nedap's computer-controlled voting machines was also not compatible with the principle of the public nature of elections. Both election errors however do not lead to the elections being declared invalid in the constituencies designated by the complainant. 92

It can remain open whether the constructive characteristics of the voting machines, and hence also the type approvals and the use authorisation, were compatible with the requirements contained in the Federal Voting Machine Ordinance, and in particular in the Guidelines for the Construction of Voting Machines, and with the principles of electoral law under Article 38.1 sentence 1 of the Basic Law. The same applies as to the complaints that the voting machines used had not been subject to adequate official monitoring, that the examination of the samples by the *Physikalisch-Technische Bundesanstalt* and that the type approval procedure had not taken place in public, as well as that the examination reports and documents of the *Physikalisch-Technische Bundesanstalt*, and the source code of the voting machine software, had not been made available to the public. 93

## I.

The complaint requesting the scrutiny of an election of the complainant re 2. is unsuccessful insofar as the complainant complains of the length of the proceedings before the German *Bundestag* and that the Committee for the Scrutiny of Elections had not deliberated in public and wrongly had not set an oral hearing. The complaint that the German *Bundestag* had not been quorate on accepting the resolution recommendation of the Committee for the Scrutiny of Elections is also not well-founded. 94

In the context of the complaint proceedings, the Federal Constitutional Court reviews the impugned resolution of the German *Bundestag* in formal and substantive terms. Faults in the proceedings of the German *Bundestag*, as they are claimed by the complainant, can only be relevant to the complaint if they are material and deprive it of the basis for its decision (see Decisions of the Federal Constitutional Court (*Entscheidungen des Bundesverfassungsgerichts* – BVerfGE 89, 243 (249); 89, 291 (299)). No such procedural violations are recognisable here. 95

1. Even if the proceedings took more than one year between the submission of the objection to the election and the decision of the German *Bundestag*, this does not yet constitute a grievous procedural error. The length of the proceedings by itself does not remove the basis for the decision (see Federal Constitutional Court (*Bundesverfassungsgericht* – BVerfG, judgment of the Second Senate of 3 July 2008 – 2 BvC 1/07, 7/07 –, *Neue Zeitschrift für Verwaltungsrecht* – NVwZ 2008, p. 991 (992)). 96

2. The fact that the Committee for the Scrutiny of Elections refrained from holding an oral hearing on the complainant's 97

2. The fact that the Committee for the Scrutiny of Elections refrained from holding an oral hearing on the complainant's objection to the election, and also deliberated in camera in other respects, also does not constitute a grievous error removing the basis for the decision of the German *Bundestag*.

a) According to § 6.1a no. 3 of the Law on the Scrutiny of Elections in the version of 24 August 1965 (Federal Law Gazette I p. 977 (Law on the Scrutiny of Elections, *Wahlprüfungsgesetz – WahlPrG*, old version)), which applied at the time of the decision on the complainant's objection, the committee was able to refrain from holding an oral hearing if the preliminary review revealed that the objection was manifestly unfounded. Since the amendment of § 6.1 of the Law on the Scrutiny of Elections by the Act Amending the Law on the Scrutiny of Elections of 6 June 2008 (Federal Law Gazette I p. 994), a date for an oral hearing is only to be set if the preliminary examination reveals that this can be expected to further promote the proceedings.

An objection is manifestly unfounded if no aspect is recognisable at the time of the decision which may help it to succeed (see BVerfGE 89, 243 (250); 89, 291 (300)). The evaluation is not conditional on the unfoundedness of the appeal being evident; it may also be the result of a prior thorough examination (see BVerfGE 82, 316 (319-320) on the regulation of § 24 of the Federal Constitutional Court Act with identical content).

Even if there may be reasons according to the submission of the complaint suggesting that the objection was not manifestly unfounded, in particular with regard to compliance with the Guidelines for the Construction of Voting Machines, refraining from holding an oral hearing is certainly not so grievous that the decision of the German *Bundestag* would be deprived of its basis by these means. It based its decision primarily on the deployment of computer-controlled voting machines not violating the principle of the public nature of elections and the concrete non-constitutional provisions contained in electoral law. In this respect, the German *Bundestag* has addressed the complainants' arguments in detail and made a detailed statement on the questions raised. Where it deals with the question of the approval of the Nedap voting machines used in the *Bundestag* election, it takes as a basis the statement of the Federal Ministry of the Interior, according to which manipulations are theoretically possible but, because of the bundle of technical and organisational security measures, are ruled out to the same degree as in classical voting slip elections.

b) In contradistinction to the view taken by the complainant re 2., the Committee for the Scrutiny of Elections was not obliged to deliberate in an open hearing.

The Law on the Scrutiny of Elections regulates in the provisions on oral hearings (§§ 6 et seq. of the Law on the Scrutiny of Elections) the preconditions under which the proceedings of the Committee for the Scrutiny of Elections are held in public. If an oral hearing is not waived, the hearing takes place in public. According to § 10.1 of the Law on the Scrutiny of Elections, the Committee for the Scrutiny of Elections deliberates in secret on the result of the oral hearing. According to the system of the Act, this applies in the same way if an oral hearing is waived. No constitutional aspects are evident which might oblige the legislature to enact any different regulation when legislating on the scrutiny of elections (Article 41.3 of the Basic Law).

3. The complaint of the complainant re 2. that the resolution of the German *Bundestag* of 14 December 2006 had allegedly not effectively come into being for a lack of a quorum is also unsuccessful. The German *Bundestag* decides with a simple majority on the recommendation for a resolution of the Committee for the Scrutiny of Elections (§ 13.1 sentence 1 of the Law on the Scrutiny of Elections). According to § 45.1 of the Rules of Procedure of the German *Bundestag*, the *Bundestag* is quorate if more than half of its members are present in the plenary. The *Bundestag* is regarded as being quorate regardless of the number of its members present until it is found to not be quorate in the proceedings prescribed in § 45.2 of the Rules of Procedure of the German *Bundestag*. This provision does not come up against any constitutional reservations (see BVerfGE 44, 308 (314 et seq.) on the provisions of § 49.2 of the Rules of Procedure of the German *Bundestag*, old version, the content of which is largely identical).

As is shown by the record of the session, the German *Bundestag* unanimously accepted the resolution recommendation of the Committee for the Scrutiny of Elections on 14 December 2006 (see Minutes of plenary proceedings 16/73, Stenographic Record p. 7259 B). It cannot be derived from the minutes how many delegates were present in the house when the ballot was held. There is no record that it had been doubted, or indeed ascertained, whether the German *Bundestag* was quorate. There is hence no indication that the *Bundestag* was not quorate.

## II.

1. In the context of a complaint requesting the scrutiny of an election according to § 13 no. 3 and § 48 of the Federal Constitutional Court Act, the Federal Constitutional Court has not only to guarantee compliance by the competent election bodies and the German *Bundestag* with the provisions of federal election law, but also to review whether the provisions of the Federal Electoral Act comply with the requirements of the constitution (see BVerfGE 16, 130 (135-136); BVerfGE judgment of the Second Senate of 3 July 2008 – 2 BvC 1/07, 7/07 –, *Neue Zeitschrift für Verwaltungsrecht* 2008, p. 991 (992)). This examination also covers the validity of legal ordinances.

2. The deployment of computer-controlled voting machines is in particular to be reviewed against the standard of the public nature of elections (Article 38 in conjunction with Article 20.1 and 20.2 of the Basic Law).

The public nature of elections is a fundamental precondition for democratic political will-formation. It ensures the correctness and verifiability of the election events, and hence creates a major precondition for the well-founded trust of the citizen in the correct operation of the elections. The state form of parliamentary democracy, in which the rule of the people is mediated by elections, in other words is not directly exercised, demands that the act of transferring state responsibility to parliamentarians is subject to special public monitoring. The fundamentally required public nature of the election procedure covers the electoral proposal procedure, the election act (broken regarding the ballot by the secret nature of elections) and the ascertainment of the election result (see BVerfGE judgment of the Second Senate of 3 July 2008 – 2 BvC 1/07, 7/07 –, *Neue Zeitschrift für Verwaltungsrecht* 2008, p. 991 (992) with further references).

a) The basis for public elections is formed by the fundamental constitutional options for democracy, the republic and the rule of law (Article 38 in conjunction with Article 20.1 and 20.2 of the Basic Law).

aa) In a representative democracy, the elections of the people's representation constitute the fundamental act of legitimisation. The ballot in the elections to the German *Bundestag* forms the major element of the process of will-forming from the people to the state bodies, and hence at the same time constitutes the basis for political integration. Compliance with the election principles applicable to this, and confidence in compliance with them, hence constitute preconditions for a viable democracy. Only by the possibility of monitoring whether the elections comply with the constitutional election principles is it possible to ensure that the delegation of state power to the people's representation, which forms the first and most important part of the uninterrupted legitimisation chain of the people to the bodies and office-holders entrusted with state tasks, does not suffer from a shortcoming. The democratic legitimacy of the elections demands that the election events be controllable so that manipulation can be ruled out or corrected and unjustified suspicion can be refuted. This is the only way to facilitate the well-founded trust of the sovereign in the

unjustified suspicion can be related. This is the only way to facilitate the well-founded trust of the sovereign in the correct formation of the representative body. The obligation incumbent on the legislature and on the executive to ensure that the election procedure is designed constitutionally and is implemented properly is not sufficient by itself to impart the necessary legitimacy. Only if the electorate can reliably convince itself of the lawfulness of the transfer act, if the elections are therefore implemented "before the eyes of the public" (see Schreiber, *Handbuch des Wahlrechts zum Deutschen Bundestag*, 7th ed. 2002, § 31 marginal no. 2) is it possible to guarantee the trust of the sovereign in Parliament being composed in a manner corresponding to the will of the voters that is necessary for the functioning of democracy and the democratic legitimacy of state decisions (see North Rhine/Westphalia Constitutional Court (*Verfassungsgerichtshof Nordrhein-Westfalen – NRW VerFGH*), judgment of 19 March 1991 – VerFGH 10/90 –, *Neue Zeitschrift für Verwaltungsrecht* 1991, p. 1175 (1179); Hanßmann, *Möglichkeiten und Grenzen von Internetwahlen*, 2004, p. 184).

bb) In a republic, elections are a matter for the entire people and a joint concern of all citizens. Consequently, the monitoring of the election procedure must also be a matter for and a task of the citizen. Each citizen must be able to comprehend and verify the central steps in the elections reliably and without any special prior technical knowledge.

cc) The public nature of the elections is also anchored in the principle of the rule of law. The public nature of the state's exercise of power, which is based on the rule of law, serves its transparency and controllability. It is contingent on the citizen being able to perceive acts of the state bodies. This also applies as to the activities of the election bodies.

b) The principle of the public nature of elections requires that all essential steps in the elections are subject to public examinability unless other constitutional interests justify an exception. Particular significance attaches here to the monitoring of the election act and to the ascertainment of the election result.

An election procedure in which the voter cannot reliably comprehend whether his or her vote is unfalsifiably recorded and included in the ascertainment of the election result, and how the total votes cast are assigned and counted, excludes central elements of the election procedure from public monitoring, and hence does not comply with the constitutional requirements.

c) Despite the considerable value attaching to the constitutional principle of the public nature of elections, it does not ensue from this principle that all acts in connection with the ascertainment of the election result must take place with the involvement of the public so that a well-founded trust in the correctness of the elections can be created. For instance, activities of the district returning officer with which according to § 76.1 of the Federal Electoral Code the – public – ascertainment of the election result is prepared by the district election committee are not constitutionally obliged to be subject to the principle of the direct public nature of elections (see BVerfG, judgment of the Second Senate of 3 July 2008 – 2 BvC 1/07, 7/07 –, *Neue Zeitschrift für Verwaltungsrecht* 2008, p. 991 (992)).

d) The requirements as to the examinability of the election events apply to the implementation of parliamentary elections regardless of the responsibility of the state bodies which have a constitutional structure (see BVerfGE 20, 56 (113); 41, 399 (414); Seifert, *Bundeswahlrecht*, 3rd ed. 1976, p. 130).

It is primarily a matter for the legislature to regulate how the retraceability of the essential steps in the election procedure is ensured. Article 38.3 of the Basic Law empowers and obliges the legislature to determine the details of the structure of electoral law (in particular the election system and the election procedure) and compliance with the principles of electoral law (see Magiera, in: Sachs, *GG*, 5th ed. 2009, *Art. 38*, marginal nos. 106 et seq. and 113 et seq.). The design of the technical aspects of the election events also falls within the regulatory mandate under Article 38.3 of the Basic Law (see Morlok, in: Dreier, *GG*, Vol. 2, 2nd ed. 2006, *Art. 38*, marginal no. 127), and hence the decision on deployment of voting machines and the determination of the more detailed preconditions for their deployment. Details may be regulated by means of a legal ordinance on the basis of a statutory authorisation (see Magiera, in: Sachs, *GG*, 5th ed. 2009, *Art. 38*, marginal no. 114).

The legislature is entitled to broad latitude when lending concrete shape to the principles of electoral law within which it must decide whether and to what degree deviations from individual principles of electoral law are justified in the interest of the uniformity of the entire election system and to ensure the state policy goals which they pursue (see BVerfGE 3, 19 (24-25); 59, 119 (124); 95, 335 (349)). The Federal Constitutional Court only reviews whether the legislature has remained within the boundaries of the latitude granted to it by the Basic Law, or whether it has violated a valid constitutional election principle by overstepping these boundaries. It is not a matter for the Court to find whether the legislature has found solutions which are expedient or desired in terms of legal policy within the latitude to which it is entitled (see BVerfGE 59, 119 (125)).

3. The deployment of voting machines which record the voters' votes in electronic form and ascertain the result of the election electronically is hence only compatible with the Basic Law subject to strict preconditions.

a) When electronic voting machines are deployed, it must be possible to check the essential steps in the election act and in the ascertainment of the results reliably and without special expert knowledge.

The necessity of such monitoring emerges not lastly from the susceptibility to manipulation of electronic voting machines and their amenability to error. In these, the acceptance of the voters' votes and the calculation of the election result is based on a calculation act which cannot be examined from outside or by persons without special computer knowledge. Errors in the voting machine software are hence difficult to recognise. Over and above this, such errors can affect not only one individual election computer, but all the devices used. Whilst manipulations or election falsifications are virtually impossible in classical elections with voting slips under the conditions of the valid provisions, including the provisions on the public nature of elections – or at least are only possible with considerable effort and with a very high risk of discovery which has a preventive impact – a major impact may in principle be achieved with relatively little effort by encroachments on electronically controlled voting machines. Manipulations of individual voting machines can already influence not only individual voters' votes, but all votes cast with the aid of this device. The scope of the election errors which are caused by alterations and malfunctions of a single software program affecting multiple devices is even wider. The major scope of the effect of possible errors in the voting machines or targeted election falsifications requires special precautions to be taken in order to comply with the principle of the public nature of elections.

aa) The voter himself or herself must be able to verify – also without a more detailed knowledge of computers – whether his or her vote as cast is recorded truthfully as a basis for counting or – if the votes are initially counted with technical support – at least as a basis for a subsequent re-count. It is not sufficient if he or she must rely on the functionality of the system without the possibility of personal inspection. It is hence inadequate if he or she is exclusively informed by an electronic display that his or her ballot has been registered. This does not facilitate sufficient monitoring by the voter. Equal viability must also apply to the election bodies and to interested citizens.

The consequence of this is that the votes may not be stored exclusively on an electronic storage medium after the ballot. The voter may not be required to trust solely in the technical integrity of the system after the electronic ballot. If the election result is ascertained by computer-controlled processing of the votes stored in an electronic storage

medium, it is not sufficient if only the result of the calculation process as implemented in the voting machine can be taken note of using a summary paper printout or an electronic display. By these means, voters and election bodies can only examine whether the voting machine has processed as many votes as voters have been admitted to operate the voting machine in the elections. It is not easily recognisable in such cases whether there have been programming errors in the software or targeted election falsifications through manipulation of the software or of the voting machines.

bb) The legislature is not prevented from using electronic voting machines in the elections if the constitutionally required possibility of a reliable correctness check is ensured. In particular, voting machines are conceivable in which the votes are recorded elsewhere in addition to electronic storage. This is for instance possible with electronic voting machines which print out a visible paper report of the vote cast for the respective voter, in addition to electronic recording of the vote, which can be checked prior to the final ballot and is then collected to facilitate subsequent checking. Monitoring that is independent of the electronic vote record also remains possible when systems are deployed in which the voter marks a voting slip and the election decision is recorded simultaneously (for instance with a "digital election pen", see on this Schiedermaier, *Juristenzeitung* 2007, p. 162 (170)), or subsequently (e.g. by a voting slip scanner; see on this Schönau, *Elektronische Demokratie*, 2007, pp. 51-52; Khorrami, *Bundestagswahlen per Internet*, 2006, p. 30) by electronic means in order to evaluate these by electronic means at the end of the election day.

It is certainly ensured in these cases that the voters are in charge of their ballot and that the result of the election can be reliably checked by the election authorities or by interested citizens without any special prior technical knowledge. Whether there are still other technical possibilities which create trust on the part of the electorate in the correctness of the proceedings in ascertaining the election result based on verifiability, and which hence comply with the principle of the public nature of elections, need not be decided here.

b) Restrictions on possibilities for citizens to monitor the election events cannot be compensated for by sample devices in the context of the type approval procedure or in the selection of the voting machines specifically used in the elections prior to their deployment being subjected to verification by an official institution as to their compliance with certain security requirements and their proper technical performance. The monitoring of the essential steps in the election promotes well-founded trust in the correctness of the election certainly in the necessary manner that the citizen himself or herself can reliably verify the election event.

For this reason, a comprehensive bundle of other technical and organisational security measures (e.g. monitoring and safekeeping of the voting machines, comparability of the devices used with an officially checked sample at any time, criminal liability in respect of election falsifications and local organisation of the elections) is also not suited by itself to compensate for a lack of controllability of the essential steps in the election procedure by the citizen.

Accordingly, neither participation by the interested public in procedures of the examination or approval of voting machines, nor a publication of examination reports or construction characteristics (including the source code of the software with computer-controlled voting machines) makes a major contribution towards ensuring the constitutionally required level of controllability and verifiability of the election events. Technical examinations and official approval procedures, which in any case can only be expertly evaluated by interested specialists, relate to a stage in the proceedings which is far in advance of the ballot. The participation of the public in order to achieve the required reliable monitoring of the election events is hence likely to require other additional precautions.

c) The legislature can permit exceptions to the principle of the public nature of elections to a restricted degree in order to bring other constitutional interests to fruition, in particular the written principles of electoral law from Article 38.1 sentence 1 of the Basic Law. For instance, restrictions of public monitoring of the ballot with postal voting (§ 36 of the Federal Electoral Act) can be justified with the aim of achieving as comprehensive participation in the elections as possible, thereby complying with the principle of generality of elections (see BVerfGE 21, 200 (205); 59, 119 (125)). When deploying computer-controlled voting machines, however, no contrary constitutional principles are recognisable which are able to justify a broad restriction of the public nature of elections and hence the controllability of the election act and the ascertainment of the results.

aa) Where the deployment of computer-controlled voting machines aims to rule out inadvertent incorrect markings on voting slips, unwanted invalid ballots, unintentional counting errors or incorrect interpretations of the voters' intention when votes are counted (see Schreiber, *Handbuch des Wahlrechts zum Deutschen Bundestag*, 7th ed. 2002, § 35, marginal no. 2) which repeatedly occur in classical elections with voting slips, this serves the interest of the implementation of the equality of elections under Article 38.1 sentence 1 of the Basic Law. What weight attaches to this purpose can however be left open. It certainly does not justify by itself forgoing any type of verifiability of the election act. Unintentional counting errors or incorrect interpretations of the voters' intention can also be ruled out by voting machines if supplementary monitoring by the voter, the election bodies or the public is made possible in addition to electronic recording and counting of the votes. Corresponding monitoring is for instance possible with electronic voting machines which record the votes not only in electronic form in the voting machine, but at the same time in a form which is independent of this (see II. 3. a) bb above). Apart from this, user errors – such as pushing the "invalid" key presuming that this made it possible to correct an erroneous entry – cannot be ruled out in the voting machines approved for the elections to the 16th German *Bundestag*.

bb) The principle of the secrecy of elections certainly does not constitute a counter constitutional principle which can be used as a basis for a broad restriction of the controllability of the election act and of the ascertainment of the results. There is no "conflict of interest" between the principle of secret elections and the principle of the public nature of elections which might justify such restrictions (*Bundestag* document 16/3600, Annex 1, p. 20).

The principle of secret elections guarantees that the voter alone is aware of the content of his or her election decision, and obliges the legislature to take the necessary steps to protect the election secret (see H.H. Klein, in: Maunz/Dürig, *GG*, Art. 38, marginal no. 110 [March 2007]; Pieroth, *Juristische Schulung – JuS* 1991, p. 89 (91)). The secrecy of elections constitutes the most important institutional protection of the freedom of elections (see BVerfGE 99, 1 (13)). In historic terms, secret elections may have been a caesura in the public nature of the election procedure because they renounced the open ballot in order to protect the freedom of election (see Breidenbach/Blankenagel, *Rechtliche Probleme von Internetwahlen*, Berlin 2000, pp. 34-35). Under the regime of the Basic Law, which explicitly prescribes elections as secret in order to protect their freedom, however, the principle of the public nature of elections from the outset does not apply to the act of the ballot. If the public nature of the elections is not ruled out in order to enable the ballot to be cast unobserved, the election procedure is subject to the principle of the public nature of elections (see H.H. Klein, in: Maunz/Dürig, *GG*, Art. 38, marginal no. 113 [March 2007]; Seifert, *Bundeswahlrecht*, 3rd ed. 1976, Art. 38, marginal no. 35). Accordingly, the impact of the principle of secrecy of elections is not to restrict the principle of the public nature of elections for the ballot act. It also does not justify a restriction of public monitoring in the casting of the – previously secretly marked – vote carrier or in the ascertainment of the results. This already follows from the fact that it does not oppose additional precautions enabling the voter to monitor whether his or her vote is recorded in an unfalsified manner as a basis for a subsequent re-count.

cc) Finally, the goal of being able to form a viable people's representation in a short period does not constitute a

restriction of the principle of the public nature of elections in the deployment of computer-controlled voting machines. The clarification of the correct composition of the people's representation within a suitable period is one aspect which can be taken into account when shaping the election procedure and the election scrutiny procedure (see BVerfGE 85, 148 (159)). The matter of the assembly of a new *Bundestag* in good time (see Article 39.2 of the Basic Law) is however not endangered by sufficient precautions being taken to ensure public elections. There is no constitutional requirement for the election result to be available shortly after closing the polling stations. What is more, the past *Bundestag* elections have shown that the preliminary official final result of the elections can as a rule be submitted in a matter of hours, even without the deployment of voting machines. The interest in rapidly clarifying the composition of the German *Bundestag* is therefore not a constitutional interest that is suited to impose restrictions on the public nature of the election event.

4. The normative level on which the questions related to the deployment of voting machines are to be regulated is determined in line with the requirements of the parliamentary reservation and the requirements which are placed on the authorisation to issue legal ordinances (Article 80.1 sentence 2 of the Basic Law). 133

a) The parliamentary reservation rooted in the principle of the rule of law and in the principle of democracy requires that the major decisions are to be taken by the legislature in fundamental normative areas, especially in the area of the exercise of fundamental rights, insofar as this is amenable to state regulation (see BVerfGE 49, 89 (126-127); 61, 260 (275); 80, 124 (132); 101, 1 (34)). The obligation to legislate relates here not only to the question of whether a certain article must be regulated by law at all, but also to how far these individual regulations have to go (see BVerfGE 101, 1 (34)). 134

According to Article 80.1 sentence 2 of the Basic Law, the content, purpose and scope of the authorisation to issue legal ordinances must be laid down in the statute concerned. The legislature itself must decide which questions are to be regulated by the legal ordinance, within what limits and with what goal (see BVerfGE 2, 307 (334); 5, 71 (76-77); 23, 62 (72)). The wording of the authorisation need not be formulated as precisely as possible; it must constitutionally only be sufficiently determined (see BVerfGE 55, 207 (226); 58, 257 (277); 62, 203 (209-210)). It is sufficient if the limits of the authorisation are determinable by interpretation using the interpretation principles that are generally recognised; the goals of the statute, the context together with other provisions and the genesis of the statute are significant here (see BVerfGE 8, 274 (307); 23, 62 (73); 55, 207 (226-227); 80, 1 (20-21)). In detail, the requirements as to the level of determinedness depend on the particularities of the respective object of regulation and on the intensity of the measure (see BVerfGE 58, 257 (277-278); 62, 203 (210); 76, 130 (143)). Whilst less stringent requirements are to be made with circumstances that are highly varied and subject to rapid change, more stringent requirements apply to the degree of determinedness of the authorisation with those regulations which are linked to more intensive encroachments on legal positions which are protected by fundamental rights (see BVerfGE 58, 257 (278); 62, 203 (210)). 135

b) Because of their particularities, regulations relating to the deployment of voting machines are reserved for parliamentary decision insofar as they relate to the major requirements for the deployment of such devices. This includes the decisions on the permissibility of the deployment of voting machines and the fundamental prerequisites for their deployment. These decisions cannot be left to the institution adopting the ordinance. 136

The more detailed preconditions for the approval of voting machines and the procedures to be complied with here, the details of the use of the voting machines in the elections and the guarantee of the principles of electoral law in the concrete deployment of voting machines, by contrast, do not require any detailed parliamentary regulation, but can be regulated by the institution adopting the ordinance. The respective requirements of the voting machines depend heavily on the nature of the respective voting machine, and hence do not already have to be legislated in detail at the level of the parliamentary statute. Thus, for instance, the requirements for the deployment of electronically operated voting machines differ from those for the deployment of exclusively mechanical voting machines. Because voting machines are subject to ongoing technical development, a rapid adjustment of the law is better guaranteed if the detailed regulations are transferred to the institution adopting the ordinance. 137

### III.

According to these standards, the authorisation to hand down ordinances contained in § 35 of the Federal Electoral Act does not give rise to any profound constitutional objections. 138

1. The parliamentary legislature was not obliged over and above the regulation contained in § 35 of the Federal Electoral Act to regulate the deployment of computer-controlled voting machines since the major questions in connection with the deployment of computer-controlled voting machines are determined in § 35 of the Federal Electoral Act. Where § 35 of the Federal Electoral Act authorises the adoption of the Federal Voting Machine Ordinance, the content, purpose and scope of the authorisation that has been issued is adequately regulated (Article 80.1 sentence 2 of the Basic Law). 139

The parliamentary legislature made the fundamental decision in § 35.1 of the Federal Electoral Act for the deployment of voting machines. By restricting the deployment of the voting machines to facilitating the casting and counting of votes, the legislature clearly determined the goal of the authorisation to issue ordinances. It made it clear by deleting the words "with separate counting devices" in 1999 that § 35 of the Federal Electoral Act also covers the deployment of computer-controlled voting machines. 140

The fundamental prerequisites for the deployment of the voting machines are named in § 35.2 sentences 2 to 5 and 35.3 of the Federal Electoral Act, in particular the official type approval and the official authorisation of the use of the voting machines. Of the constitutionally guaranteed election principles, only the secrecy of the ballot and the keeping of the secrecy of elections are explicitly spoken of in § 35.2 sentence 1 of the Federal Electoral Act. The other principles of electoral law are regulated in § 1.1 sentence 2 of the Federal Electoral Act. They therefore certainly also apply to the deployment of voting machines in the elections to the German *Bundestag*. Finally, the legislature provided in § 35.3 sentence 1 no. 6 of the Federal Electoral Act that the Federal Ministry of the Interior may regulate the particularities in connection with the elections brought about by the use of voting machines. This provision forms not only a sufficient normative basis in order to account for the constitutional particularities of the deployment of computer-controlled voting machines. It also makes it recognisable for citizens that an election with voting machines may entail modifications in comparison with the classical ballot box election. It is not constitutionally required that all details of the content of a legal ordinance can be derived from the respective basis for the authorisation. The latitude which can be granted to the institution adopting the ordinance in this respect is also to be measured accounting for the complexity of the material and the dynamics of development processes in voting machines. The parliamentary legislature is hence certainly not constitutionally obliged to make detailed regulations for the deployment of electronic voting machines. 141

2. § 35 of the Federal Electoral Act is compatible with the principle of the public nature of elections. 142

a) It is not constitutionally objectionable that § 35.1 of the Federal Electoral Act permits voting machines "in place of 143

voting slips and ballot boxes". For § 35.1 of the Federal Electoral Act does not rule out with this wording the approval and use of voting machines with control devices which record the votes in addition to (electronic) recording in the voting machine in a manner controlled by the voter. According to the systematic status of § 35.1 of the Federal Electoral Act, the words "in place of voting slips and ballot boxes" refer to the classical election procedure set out in § 34 of the Federal Electoral Act in which exclusively official voting slips and ballot boxes are used. § 35.1 of the Federal Electoral Act, by contrast, does not rule out the adoption of provisions which provide for devices for a verifiability of the election result that is independent of the electronic recording and evaluation of votes.

b) It is unobjectionable for the principle of the public nature of elections contained in § 35 of the Federal Electoral Act to not be explicitly listed once more as a precondition for the authorisation and use of computer-controlled voting machines. These requirements emerge directly from the constitution, and hence are also binding on the institution adopting the ordinance in lending concrete form to § 35 of the Federal Electoral Act. Independently of this, it also emerges from other provisions of the Federal Electoral Act that the use of voting machines is only permissible if the principle of the public nature of elections is adhered to. § 31 of the Federal Electoral Act determines that the election act is public. § 35.3 sentence 1 no. 4 of the Federal Electoral Act permits regulations to be made on the open testing of a voting machine prior to its use.

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#### IV.

The Federal Voting Device Ordinance is unconstitutional on grounds of a violation of the principle of the public nature of elections from Article 38 in conjunction with Article 20.1 and 20.2 of the Basic Law. It does not already encounter legal reservations because the expansion of the area of application of the Federal Voting Device Ordinance to cover computer-controlled voting machines effected by the Ordinance Amending the Federal Voting Device Ordinance of 20 April 1999 (Federal Law Gazette I p. 749) had exceeded the framework of the provision on authorisation of § 35 of the Federal Electoral Act. The Federal Voting Machine Ordinance does not however contain any provisions ensuring that only those voting machines are approved and used which comply with the constitutional preconditions of the principle of the public nature of elections.

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1. Insofar as the Ordinance Amending the Federal Voting Machine Ordinance of 20 April 1999 (Federal Law Gazette I p. 749) with effect from 24 April 1999 regulates the preconditions for the deployment of computer-controlled voting machines, it remains within the authorisation contained in the version of § 35 of the Federal Electoral Act still applicable on 24 April 1999. The latter permitted the use of voting machines "with separate counting devices" (§ 35.1 of the Federal Electoral Act). The subsequent deletion of the words "with separate counting devices" was considered necessary "in order to adjust the Federal Voting Device Ordinance to technical developments in voting machines" (*Bundestag* document 14/401, p. 5). This exception from the legislative procedure to amend § 35.1 of the Federal Electoral Act cannot however exert a decisive influence on the interpretation of the provision in the version which it had prior to the amendment. The expansion of the area of application of the Federal Voting Machine Ordinance to cover computer-aided voting machines was compatible with the wording of this earlier version. The term "counting device" only requires that item numbers, flow volumes or other values are calculated and shown automatically (see Duden, *Das große Wörterbuch der deutschen Sprache*, 3rd ed. 1999). According to the wording, this therefore also covers electronic or software-controlled counting devices in computer-controlled voting machines. The characteristic "separate counting devices" is intended in the view of the institution adopting the ordinance to refer merely to the requirement of "independent counting of first and second votes"; such independent counting of first and second votes is also possible with computer-controlled voting machines using an electronic counting device. Even if the legislature was not yet able to consider deployment of microprocessor-controlled voting machines in the original version of § 35.1 of the Federal Electoral Act (see Breidenbach/Blankenagel, *Rechtliche Probleme von Internetwahlen*, Berlin 2000, p. 7), neither the wording nor the purpose of § 35 of the Federal Electoral Act in the version applicable on entry into force of the Ordinance Amending the Federal Voting Machine Ordinance on 24 April 1999 suggest that these voting machines were intended to be ruled out from the legislative authorisation of the institution adopting the ordinance.

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2. The Federal Voting Machine Ordinance violates the principle of the public nature of elections under Article 38 in conjunction with Article 20.1 and 20.2 of the Basic Law because in the use of computer-controlled voting machines it guarantees neither effective monitoring of the election act nor the reliable verifiability of the election result. This shortcoming cannot be remedied by means of an interpretation in conformity with the constitution.

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a) The public nature of elections requires in the deployment of computer-controlled voting machines that the essential steps in the election act and the ascertainment of the results can be reviewed reliably and without special expert knowledge. Such provisions are not contained in the Federal Voting Machine Ordinance.

148

It particularly does not emerge from the Federal Voting Machine Ordinance that only voting machines may be deployed which enable the voter in casting his or her vote to ensure reliable monitoring of whether his or her vote is recorded in an unfalsified manner. The ordinance also does not make any concrete content and procedural requirements as to reliable subsequent monitoring of the ascertainment of the results.

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The obligation to seal computer-controlled voting machines and the containers in which the vote storage media are located after ascertaining the election result (§ 15.3 of the Federal Voting Machine Ordinance), as well as to ensure that the vote storage media are not accessible to unauthorised parties (§ 16.2 of the Federal Voting Machine Ordinance), is not sufficient in this respect. Even if the vote storage media can be read out once again at any time after the election day with the aid of a voting machine, the object of such a re-count is only the electronically stored votes, with regard to which neither voters nor the returning committee can examine whether they were recorded without falsification. The citizen cannot examine the essential steps in the ascertainment of the results if the re-count again takes place inside a voting machine.

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In addition, the counting of the ballot records entered in the list of voters and of the election slips which have been accepted, as well as the comparison with the numbers for the total first and second votes at the voting machine shown (see § 13 of the Federal Voting Machine Ordinance) only facilitates monitoring as to whether the voting machine has processed as many votes as voters have been admitted for the operation of the voting machine. This does not guarantee the public monitoring of the essential steps in the election act and the ascertainment of the results.

151

b) The Federal Voting Machine Ordinance cannot be interpreted in conformity with the constitution such that only voting machines may be deployed which comply with the principle of the public nature of elections.

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An application of the Federal Voting Machine Ordinance in conformity with the constitution such that type approval and use authorisation may only be issued by the Federal Ministry of the Interior if effective monitoring of election acts and ascertainment of the results is guaranteed (see Schiedermaier, *Juristenzeitung – JZ* 2007, p. 162 (170)) would overstep the boundaries of an interpretation in conformity with the constitution. In principle, the institution handing down the ordinance has various possibilities at its disposal to ensure that the central steps in ballot and vote counting can be checked. Since the Federal Voting Machine Ordinance in its current version does not make it possible to recognise

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checked. Since the Federal Voting Machine Ordinance in its current version does not make it possible to recognise what such monitoring should look like, there is no constitutionally required provision, and hence there are no adequate indications which an interpretation in conformity with the constitution could take as its starting point.

It must also be taken into consideration here that the Federal Ministry of the Interior, as the institution handing down the ordinance, as it has also clearly confirmed in its statements in the proceedings at hand, considers the possibilities for monitoring which are constitutionally necessary for effective monitoring of election acts and ascertainment of the results to be neither legally required nor expedient.

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#### V.

The computer-controlled voting machines used in the elections to the 16th German *Bundestag* also did not meet the requirements made by the constitution as to the use of electronic voting machines.

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The use of the Nedap electronic voting machines of Type ESD1 hardware versions 01.02, 01.03 and 01.04, as well as of Type ESD2 hardware version 01.01, violates the principle of the public nature of elections (Article 38 in conjunction with Article 20.1 and 20.2 of the Basic Law) because these voting machines did not facilitate effective monitoring of the election act or the reliable verifiability of the election result.

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The votes were exclusively recorded on an electronic storage medium after the ballot. Neither the voter nor the returning committees, nor the citizens present in the polling station, were able to check whether the votes cast were recorded by the voting machines without falsification. Using the display on the control unit, the returning committees could only recognise whether the voting machines registered a ballot, but not whether the votes were recorded by the voting machines without changing the content in any way. The voting machines did not provide a possibility to record the votes independently of the electronic record on the vote storage module enabling the respective voter to check his or her ballot.

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The essential steps in the ascertainment of the results by the voting machines also could not be verified by the public. Since the ascertainment of the results exclusively formed the object of a data processing procedure running inside the voting machines, it was possible for neither the election bodies nor the citizens participating in the ascertainment of the results to verify whether the valid votes cast were correctly allotted to the electoral proposals and the votes accounted for by the individual electoral proposals in total were correctly ascertained. It was not sufficient that the result of the computing process implemented in the voting machine could be taken note of using a summary paper printout or an electronic display. A public examination by means of which the citizen could have reliably verified the ascertainment of the election result himself or herself without prior special technical knowledge was hence ruled out.

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#### VI.

It may remain open whether the further complaints are well-founded. The complainants complain amongst other things that the characteristics of the voting machines and of the software used do not meet the requirements of the Federal Voting Machine Ordinance, in particular the Guidelines for the Construction of Voting Machines (Annex 1 to § 2 of the Federal Voting Machine Ordinance). The voting machines used were also said not to have been subject to sufficient official monitoring and examination of the samples by the *Physikalisch-Technische Bundesanstalt*, and that the type approval procedure should have been designed differently. The complainants hence ultimately object to the deployment of the computer-controlled voting machines used in the elections to the 16th German *Bundestag*. Even if these complaints were well-founded, in addition to the finding of the violation of the principle of the public nature of elections from Article 38 in conjunction with Article 20.1 and 20.2 of the Basic Law, these election errors would not take on any particular weight.

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#### VII.

The election errors that were ascertained do not lead to the complaints requesting the scrutiny of an election being permitted or to the repetition of the elections in the constituencies designated.

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1. The election error emerging from the fact that the type approvals for Nedap computer-controlled voting machines were granted, that the use of these voting machines in the elections to the 16th German *Bundestag* was approved and that the voting machines were indeed deployed in the elections without an effective legal basis, has no relevance to mandates. Approval and use of voting machines despite inadequate design of the legal basis do not lead as such to an influence on the election result.

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2. The election error emerging from the fact that computer-controlled voting machines were approved and deployed the characteristics of which were not compatible with the requirements of effective verifiability of the election events, even if its relevance to mandates were to be assumed, does not lead to a partial declaration of invalidity of the elections to the 16th German *Bundestag*.

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a) In the cases in which an election error may have had an impact on the distribution of mandates in the *Bundestag*, the election scrutiny decision of the Federal Constitutional Court is subject to the principle of the least incisive encroachment. The decision may only go so far as is demanded by the election error that has been ascertained. In principle, the requirement of the protection of the status quo of an elected people's representation (see BVerfGE 89, 243 (253)), which finds its legal basis in the principle of democracy, must be weighed up with the impact of the election error that has been ascertained. Simple influences on the election carrying no weight whatever do not therefore lead to the invalidity of an election. The encroachment on the composition of an elected people's representation by a decision under the law that regulates the scrutiny of elections must be justified in light of the interest in conserving the elected people's representation (see BVerfG, judgment of the Second Senate of 3 July 2008 – 2 BvC 1/07, 7/07 –, *Neue Zeitschrift für*

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