

Software Requirements for Voting Machines for Use at Elections in Ireland

The following table lists all requirements stated in

**Requirements for Voting Machines for Use at Elections in Ireland DVREC-2 (5 March 03),
Appendix, Part 1: Conditions for Voting Machines.**

The paragraphs 1.5, 4, 9.4, 11, and 12 are excluded, since they are not tested in the PTB.

The first column contains the original requirements for the voting machines. The second column contains the transformation of these requirements into requirements for the software. The software requirements will form the basis for the software tests.

Requirements for voting machines	Requirements for the software of voting machines
<p>1. General</p> <p>1.1 The requirements for voting machines contained in the Functional Specification document (version 1.7 of 5 March 2003), the electoral law and this Appendix are mandatory.</p> <p>1.2 The voting machine shall be constructed in line with the current general state of technology and be designed in accordance with recognised rules of technology applied to systems used in the machine.</p>	<p>Rem: The identification of all parts of the system is an essential prerequisite for each software test.</p> <p>0.0-1 All executable programs shall have a version number, which is shown on request and which cannot be changed during election process.</p> <p>0.0-2 All source code modules shall have a version number.</p> <p>0.0-3 Each voting machine shall have an identification number, which is shown on request and which cannot be changed during election process.</p> <p>0.0-4 Each ballot module shall have an identification number, which is shown on request and which cannot be changed during election process.</p>
<p>1.1 The requirements for voting machines contained in the Functional Specification document (version 1.7 of 5 March 2003), the electoral law and this Appendix are mandatory.</p>	<p>Rem: The requirements of the electoral law are not considered here. The requirements of the appendix are considered in the following table items.</p> <p>1.1-1 The software shall contain all functions, which are described in the Functional Specification (version 1.7 of 5 March 2003).</p>
<p>1.2 The voting machine shall be constructed in line with the current general state of technology and be designed in accordance with recognised rules of technology applied to systems used in the machine.</p>	<p>Rem: The software shall be constructed in line with the current general state of technology and be designed in accordance with recognised rules of technology.</p> <p>1.2-1 The software manufacturer shall have and apply an appropriate development model.</p> <p>1.2-2 The source code shall comply with a standardized programming language.</p> <p>1.2-3 The source code shall comply with the current principles of software engineering.</p>

<p>1.3 The voting machine shall be designed in such a way that any unauthorised alterations of a technical nature will come to notice.</p>	<p>1.3-1 The diagnostic software detects changes that influence proper functioning of the voting machine.</p>
<p>1.4 In the case of a processor-controlled machine, any alteration of the installed software by an unauthorised person will be detected.</p>	<p>1.4-1 Any alteration of the installed software by an unauthorised person should be detected.</p> <p>1.4-2 Any alteration of the content of the ballot module by an unauthorised person should be detected.</p> <p>Rem: This includes not only changes, but deletions, too.</p>
<p>2. General conditions concerning the provision of information by the voting machine</p>	
<p>2.1 The information provided by the voting machine to the user (polling staff and voter) must be relevant and clear.</p>	<p>Rem: No software requirement. Information is specified in Functional Specification.</p>
<p>2.2 The voting machine must provide the user (polling staff and voter) with information, either on the display screen on the voting machine or on the Control Unit or otherwise, on the steps that the user must or can take in sequence using the voting machine and about the functions the voting machine is carrying out pursuant to the actions taken by the user, subject to the condition that the candidate or referendum choices recorded or vote(s) cast on the machine by the voter cannot be related to that voter either at the time of voting or subsequently.</p>	<p>Rem: No software requirement. Information is specified in Functional Specification.</p> <p>Rem: See item 6.5.</p>
<p>2.3 The voting machine must provide a statement before polling commences and at close of poll listing the candidates on the ballot paper,</p> <p>the total number of activations of the voting machine,</p> <p>the number of votes cast, if any, including any null votes in the case of multiple polls, on the machine,</p> <p>number of deactivations of the voting machine where a voter does not press the "CAST VOTE(S)" button</p> <p>and other relevant details of the voting machine</p> <p>and the poll(s) concerned.</p>	<p>2.3-1 The software shall print or display all candidate information which is contained in the ballot module before and after polling. This information shall not be changeable during election process.</p> <p>Rem: The correctness of the candidate information cannot be verified by software tests.</p> <p>2.3-2 The software shall print the total number of activations of the voting machine before and after polling.</p> <p>2.3-3 The software shall print and display the number of votes including null votes on the voting machine before and after polling.</p> <p>Rem: This includes, that the number of votes and null votes is summed up correctly.</p> <p>2.3-4 The software shall print the total number of de-activations of the voting machine before and after polling.</p> <p>2.3-5 The software shall print or display all information which identifies the voting machine, the software and the ballot module before and after polling.</p> <p>2.3-6 The software shall print or display all relevant details of the election process (kind of election, date, constituency, poll station number) before and after</p>

<p>3. Installation of a ballot module</p>	<p>polling.</p>
<p>3.1 Following the insertion of a programmed ballot module into the voting machine, the voting machine shall carry out the following functions in sequence: - check to ensure that the voting machine is functioning correctly as defined in the Functional Specification; and</p> <p>- display and/or print the contents of the memory of the primary ballot module.</p>	<p>3.1-1 Following the insertion of a programmed primary ballot module into the voting machine, the software shall carry out a self check and a check of the voting machine.</p> <p>3.1-2 Following the insertion of a primary ballot module and a check of the software and the voting machine, the software shall check the inserted primary ballot module for consistency.</p> <p>3.1-3 Following the insertion and check of a primary ballot module, the software shall display and/or print the contents of the memory of the ballot module.</p> <p>Rem: The polling staff must operate the voting machine for displaying and/or print the contents of the primary ballot module.</p> <p>Rem: No software requirement.</p>
<p>3.2 The insertion of a primary ballot module shall be controlled by means of a physical key. The compartment for holding the primary ballot module shall be provided with a lock and with a covering flap with holes for insertion of a seal.</p> <p>The machine can only be activated for voting if a module has been installed and the lock on the ballot module slot is in the closed position.</p>	<p>3.2-1 The software shall only be activated for voting if a module has been installed and the lock on the ballot module slot is in the closed position.</p> <p>Rem: No software requirement.</p>
<p>3.3 A back-up module shall be installed and retained in the voting machine in accordance with the Functional Specification.</p>	<p>Rem: No software requirement.</p>
<p>5. Preparation before the poll</p> <p>5.1 A voting machine can only be used for a poll, after it has carried out or supported the following steps in sequence: - demonstrated, by way of a printed statement or on the display screen, that no votes are recorded; and</p> <p>- checked that the voting machine is functioning correctly in accordance with the Functional Specification (Chapters 2 and 8).</p>	<p>Rem: The voting machine may be switched on and off at any time. The software is not able to decide, when the ballot module is allowed to contain votes and when it should be empty. The polling staff must check the number of votes.</p> <p>5.1-1 The software shall print and display the number of votes including null votes on the voting machine before and after polling. (= 2.3-3).</p> <p>5.1-2 The software shall only be used for a poll, if it has carried out a self check and a check of the voting machine.</p>
<p>5.2 Votes shall only be recorded if the key referred to in 3.2 is inserted in the Control Unit. Withdrawal of the key from the Control Unit will switch the voting machine to standby and prevent votes from being recorded.</p>	<p>5.2-1 Votes shall only be recorded if the key referred to in 3.2 is inserted in the Control Unit. Withdrawal of the key from the Control Unit will switch the software to standby and prevent votes from being recorded.</p>
<p>6. The poll</p>	<p>6.1-1 The software shall not record votes, unless it has been activated.</p>
<p>6.2 For the recording of votes, the voting machine shall carry out or support the following steps in sequence: - the voting machine is activated for each voter by the presiding officer or a person authorised by the officer - each activation will be recorded by the voting machine;</p>	<p>6.2-1 The software shall not record votes, unless it has been activated. (= 6.1-1).</p> <p>6.2-2 The software shall count all activations.</p>

<ul style="list-style-type: none"> - LED at top of each ballot paper column highlights ballot paper(s) on which a voter is entitled to vote; - LED displays to the right of the ballot paper shall display the marks "---" on open ballot paper(s); - LED-displays opposite each candidate's details or referendum choice will display the preferences recorded on each ballot paper presented on voting machine; in the case of a referendum, the "x" shall be in the left hand position of the LED; - when a preference is recorded, details will be displayed on the bottom line of the voting machine display screen; - provision for changing a preference for a candidate or referendum choice will be provided by pressing the button a second time beside that candidate's details or referendum choice; - a voter will be able to cast his or her vote when at least one preference has been recorded on a ballot paper and, where there is more than 1 ballot paper and no preference(s) is /are recorded on the second or other remaining ballot papers, following a reminder displayed on the display screen; - a vote will be recorded, including a null vote where applicable, in the voting memory of the voting machine, following the pressing of the „CAST VOTE(S)“ button. <p>This process shall include a check that the recording of the vote(s) cast has/have been accomplished correctly. If a vote is not recorded, an error message shall be displayed;</p> <ul style="list-style-type: none"> - if the voting machine is de-activated by the polling staff when a voter fails to press the "CAST VOTE(S)" button, each such de-activation shall be recorded in the memory of the voting machine; - no action by the voter or polling station staff can interrupt the recording of a vote after the "CAST VOTE(S)" button is pressed e.g. turning key on Control Unit. <p>6.3 After each vote is stored, the voters panel on the voting machine shall be</p>	<p>6.2-3 After being activated, the software shall switch on LED's at top of those ballot papers on which the voter is entitled to vote.</p> <p>6.2-4 After being activated, the software shall display the marks "---" to the right of those ballot papers on which the voter is entitled to vote.</p> <p>6.2-5 After being activated, the software shall display the preferences chosen by the voter.</p> <p>6.2-6 After being activated, the software shall display "x" in the left hand position of the LED chosen by the voter in the case of a referendum.</p> <p>6.2-7 When a preference is recorded, the software shall display details on the bottom line of the voting machine display screen.</p> <p>6.2-8 The software shall allow to change preferences by pressing one of the selected candidates or referendum choices a second time. The replaced preferences shall not be stored permanently.</p> <p>6.2-9 The software shall allow to record the vote, if at least one preference on one ballot paper has been recorded.</p> <p>6.2-10 If there are ballot papers without recorded preferences, the software shall record the vote after displaying a reminder and receiving a confirmation.</p> <p>6.2-11 The software shall record the vote, when the voter has pressed the „CAST VOTE(S)“ button or confirmed the button pressing. The process shall be performed without any interruption.</p> <p>6.2-12 The vote shall be recorded only once.</p> <p>Rem: For checking of the recorded vote see requirement 8.5.</p> <p>6.2-13 The software shall count all de-activations.</p> <p>6.2-14 The software shall record the vote, when the voter has pressed the „CAST VOTE(S)“ button or confirmed the button pressing. The process shall be performed without any interruption (= 6.2-11).</p> <p>6.3-1 After each vote is stored, the voters panel shall be deactivated automatically. The</p>
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<p>deactivated automatically. The voting machine will not accept any further votes until a member of the polling station staff, operating the Control Unit, reactivates it.</p>	<p>software will not accept any further votes until a member of the polling staff, operating the Control Unit, reactivates the software. The activation shall not be possible by means of the voting machine.</p>
<p>6.4 Where the voter, who has been permitted to use the voting machine, does not cast his or her vote, the polling staff can de-activate the voting machine, without approaching the voting machine screen, by turning the key mentioned in 5.2. Any preference(s) entered on the voting machine screen will not be recorded as a vote.</p> <p>A deactivation of the voting machine, following the non-use of the "CAST VOTE(S)" button, shall be recorded in the memory of the voting machine.</p> <p>A new activation is only possible after use of the key mentioned in 5.2.</p>	<p>6.4-1 The software should offer a way to withdraw the activation by means of the Control Unit. Any preferences entered on the voting machine should not be recorded as a vote in this case.</p> <p>6.4-2 The software shall count all de-activations (= 6.2-13).</p>
<p>6.5 Once the voter has pressed the „CAST VOTE(S)“ button, the voting machine shall not provide information about any preference(s) recorded or vote cast by a voter.</p>	<p>6.5-1 The software shall not provide information about any preferences recorded or vote cast by a voter, after the voter has pressed the „CAST VOTE(S)“ button.</p> <p>6.5-2 The software shall not provide information about any preferences recorded or vote cast by a voter to the display of the Control Unit during the election process.</p>
<p>6.6 The number of votes cast, including null votes in the case of multiple polls, will be displayed on the Control Unit and on the voting machine in stand-by modus.</p>	<p>6.6-1 The software shall display the total number of votes including null votes on the Control Unit. The software shall display the number of votes including null votes on the voting machine in stand-by modus. .</p>
<p>7. Displaying and printing the total number of votes at close of poll</p> <p>7.1 The voting machine shall display, where necessary, the total number of votes cast and, where applicable, the number of null votes;</p> <p>additionally it shall print, where necessary, the total number of voters who were permitted to use the machine (activations); the total number of votes cast, the number of null votes and the number of de-activations.</p>	<p>7.1-1 The software shall display the number of votes and the number of null votes on the voting machine at close of poll.</p> <p>7.1-2 The software shall print the number of votes and the number of null votes at close of poll.</p> <p>7.1-3 The software shall print the total number of activations of the voting machine before and after polling. (=2.3-2)</p> <p>7.1-4 The software shall print the total number of de-activations of the voting machine before and after polling. (=2.3-4)</p>
<p>7.2 Activation of the voting machine for the display and printing of the information referred to in paragraph 7.1 shall be accomplished by means of the key referred to in paragraph 5.2. ... Withdrawal of the key from the Control Unit will automatically stop the printing process.</p> <p>The back-up module shall be checked to ensure that any existing data in the module are deleted, before the contents of the primary ballot module are copied to the back up module.</p>	<p>7.2-1 Activation of the software for the display and printing of the information referred to in paragraph 7.1 shall be accomplished by means of the key referred to in paragraph 5.2. Withdrawal of the key from the Control Unit should automatically stop the printing process.</p> <p>7.2-2 The back-up module shall be checked to ensure that any existing data in the module are deleted, before the contents of the primary ballot module are copied to the back up module.</p>
<p>7.3 After displaying or printing the total number of votes cast etc, the voting machine can only be re-activated for the casting of votes after the insertion of a new</p>	<p>7.3-1 After displaying or printing the total number of votes cast etc, the software shall accept new activation only after the insertion of a new programmed ballot</p>

<p>programmed ballot module.</p>	<p>module.</p>
<p>8. Reliability and security of the voting machine</p> <p>8.1 A vote recorded in the primary ballot module must be the vote that the voter has cast.</p> <p>The voting machine must be capable of recording votes on 5 ballot papers (maximum 90 preferences) simultaneously as per paragraph 13. The capacity of the ballot module is set out in paragraph 1.8 of the Functional Specification.</p>	<p>8.1-1 The software shall record the vote, when the voter has pressed the „CAST VOTE(S)“ button or confirmed the button pressing. The process shall be performed without any interruption. (= 6.2-11).</p> <p>8.1-2 The vote shall be recorded only once. (= 6.2-12).</p> <p>8.1-3 The software shall not record other information than the vote, when the voter has pressed the „CAST VOTE(S)“ button or confirmed the button pressing.</p> <p>Rem: See item 13.</p>
<p>8.2 Subject to 10.3, a cast vote must not be lost by a power failure, the failing of one component, the effect of environmental conditions detailed in paragraph 11.1, through normal use or through failures in the operation of the voting machine.</p>	<p>8.2-1 A cast vote must not be lost by a power failure, the failing of one component, through normal use or through failures in the operation of the voting machine.</p> <p>Rem: The influence of environmental conditions on the software cannot be examined by software tests.</p> <p>Rem: In case of power loss the writing of the vote in the ballot module stops, the vote is written in EEPROM (event history memory) on the main processor board. After restart the vote storage in the ballot module is resumed.</p> <p>8.2-2 In case of a failure during election process the software shall provide information, whether the vote of the current voter has been recorded.</p> <p>Rem: In case of power failure the software provides, after restart, the information whether the vote of the last voter has been recorded.</p>
<p>8.3 The installed ballot module and its contents must be fully maintained in case of a power failure, the effect of environmental conditions as set out in paragraph 11.1, through normal use or through failures in the operation of the voting machine.</p>	<p>8.3-1 The installed ballot module and its contents must be fully maintained in case of a power failure, through normal use or through failures in the operation of the voting machine.</p> <p>Rem: The influence of environmental conditions on the ballot module cannot be examined by software tests.</p>
<p>8.4 The functions of the voting machine must be fully maintained in the event of a power failure, or exposure to the environmental conditions as detailed in 11.1.</p>	<p>8.4-1 The functions of the software must be fully maintained in the event of a power failure.</p> <p>Rem: The influence of environmental conditions on the software cannot be examined by software tests.</p>
<p>8.5 The storing of votes in the ballot module must be made in such a way so as to ensure security and continuous self checking of all data. Each vote will be stored twice in each of 2 independent IC's within the ballot module i.e. each vote is stored four times in the ballot module.</p> <p>As each single preference is recorded, a checksum (a security code applied over a number of bytes based upon Hamming Code which is an international standard) is calculated and stored in RAM.</p>	<p>8.5-1 The storing of votes in the ballot module must be made in such a way so as to ensure security and continuous self checking of all data. Each vote should be stored twice in each of 2 independent IC's within the ballot module.</p> <p>8.5-2 As each single preference is recorded, a checksum shall be calculated and stored in RAM.</p>

<p>When the voter presses the „CAST VOTE(S)“ button, all checksums of all preferences stored in RAM shall be checked.</p> <p>As the voting machine stores preferences, a read back of the last byte of data written should be made as a further check.</p> <p>After storing all preferences, the system should check all of these again and their checksums.</p> <p>The last step is a check of all preferences stored from all voters. This sequence is repeated for every voting cycle.</p> <p>In the event that a discrepancy occurs in the checksums, an error message is generated. This message is shown on the voting machine display and on the Control Unit display enabling the presiding officer to take appropriate action.</p>	<p>8.5-3 When the voter presses the „CAST VOTE(S)“ button, all checksums of all preferences stored in RAM shall be checked.</p> <p>8.5-4 As the voting machine stores preferences, a read back of the last byte of data written should be made.</p> <p>8.5-5 After storing all preferences, the system should check all of these again and their checksums.</p> <p>8.5-6 After storing and checking all preferences of the current voter, the software shall check all preferences stored from all voters.</p> <p>8.5-7 The software shall display an error message on the voting machine display and on the Control Unit display, if a vote could not be stored.</p> <p>8.5-8 In the event that a discrepancy occurs in the checksums, an error message should be generated. This message should be shown on the voting machine display and on the Control Unit display.</p>
<p>8.6 The voting machine should, as far as is reasonably and technically possible, avoid or restrict the possibilities of accidental or intentional incorrect use.</p> <p>8.7 The voting machine shall have a physical seal on the cover of the electronics unit to prevent the exchange or interference with program chips.</p> <p>8.8 The votes shall be stored randomly in the ballot module and</p>	<p>8.6-1 The software should, as far as is reasonably and technically possible, avoid or restrict the possibilities of accidental or intentional incorrect use.</p> <p>Rem: No software requirement.</p>
<p>must not be displayed or printed on the voting machine.</p>	<p>8.8-1 The votes should be stored randomly in the ballot module.</p> <p>8.8-2 The software shall not provide information about any preferences recorded or vote cast by a voter, after the voter has pressed the „CAST VOTE(S)“ button. (= 6.5-1).</p> <p>8.8-3 The software shall not provide information about any preferences recorded or vote cast by a voter to the display of the Control Unit during the election process. (= 6.5-2).</p>
<p>9. Operability</p>	
<p>9.1 The voting machine shall be configured so that a voter can only carry out voting actions on it.</p>	<p>9.1-1 The software shall perform no other actions than described in requirement 6.2, when the voter is acting on the voting machine.</p>
<p>9.2 Voting on the voting machine must be easy to understand.</p>	<p>Rem: No software requirement.</p>
<p>9.3 The carrying out of an action by the presiding officer or by the voter must lead to a visible, audible or tangible feedback signal within one second.</p>	<p>9.3-1 The activation and de-activation for each voter must lead to a visible, audible or tangible feedback signal.</p> <p>9.3-2 The selection of preferences by the voter must lead to a visible, audible or tangible feedback signal.</p> <p>9.3-3 The pressing of the „CAST VOTE(S)“ button by the voter must lead to a visible, audible or tangible feedback signal.</p>

	Rem: The temporal requirement (feedback signal within 1 second) cannot be verified by software tests. But it can be tested functional.
10. Reporting and solution of problems	
10.1 The voting machine shall, as far as possible, be equipped with a diagnostic mechanism, so that after each action that has been performed within the voting machine, the mechanism can detect defects or incorrect working of the different components of the voting machine and their associated communication channels. These actions must include the steps that the voter or the polling staff can perform.	10.1-1 The software shall only be used for a poll, if it has carried out a self check and a check of the voting machine. (= 5.1-2). 10.1-2 The self check and the check of the voting machine should be repeated after each action.
The voting machine must report a defect or incorrect working to the user.	10.1-3 Each defect or incorrect working should be reported to the user.
10.2 In the event of a power failure between 500 msec and 2000 msec of pressing the CAST VOTE(S) button, a vote stored in the Eeprom of the machine shall not be lost, providing there is no fatal machine failure on restoration of power.	10.2-1 In the event of a power failure between 500 msec and 2000 msec of pressing the CAST VOTE(S) button, a vote stored in the Eeprom of the machine shall not be lost, providing there is no fatal machine failure on restoration of power.
10.3 In the event of a voting machine failure that affects the vote storage process (between 500 msec and 2000 msec of pressing the "CAST VOTE(S)" button), unless the failure is such as to cause a complete shut down of the machine, an error message shall be displayed e.g. error no. xxxx - vote not stored.	10.3-1 In the case requirement 10.2-1 could not be fulfilled the software should display an error message showing that the vote could not be stored.
10.4 The diagnostic mechanism shall not be accessible to or be capable of being switched off by the user.	10.4-1 The diagnostic mechanism shall not be accessible to or be capable of being switched off by the user.
10.5 The diagnostic mechanism must provide the user with messages (text or code) that support and speed up the trouble shooting procedure.	10.5-1 The diagnostic mechanism must provide the user with messages (text or code) that support and speed up the trouble shooting procedure.
10.6 The meaning of the fault messages generated by the diagnostic mechanism and the actions to be taken with respect to each fault message must be clearly stated in the voting machine user manual for help desk staff.	Rem: No software requirement.
13. Conditions for the use of voting machines for two or more polls simultaneously	
The voting machines may be used for one, two or more (maximum 5) polls that are held simultaneously, including an election and a referendum. The voting machine shall be equipped in such a way that it fulfils the following requirements:	13.1-1 The software shall be able to manage one, two or more (maximum 5) polls that are held simultaneously, including an election and a referendum. 13.1-2 The ballot module must be capable of recording votes on 5 ballot papers (maximum 90 preferences) simultaneously.
- the designation of the selection buttons for each ballot paper is stored in tabular form in the ballot module;	13.1-3 The designation of the selection buttons for each ballot paper shall be stored in tabular form in the ballot module.
- the voting machine can be activated for the voter for a maximum of 5 polls;	13.1-4 The polling staff should be able to activate the voting machine for one to five polls.
- the ballot papers displayed on the voting machine are clearly separated from each other;	Rem: No software requirement.
- the voter can record preferences starting on any ballot paper. The preferences will	13.1-5 The voter should be able to record preferences starting on any ballot paper. The

<p>start from 1 on each ballot paper (except a referendum ballot paper). The voter may switch between ballot papers until he/she has finished recording his/her preferences;</p> <p>- the cast votes are stored randomly and cannot be displayed or printed on the voting machine.</p>	<p>preferences should start from 1 on each ballot paper (except a referendum ballot paper). The voter may switch between ballot papers until he/she has finished recording his/her preferences.</p> <p>13.1-6 The votes should be stored randomly in the ballot module. (= 8.8-1).</p> <p>13.1-7 The software shall not provide information about any preferences recorded or vote cast by a voter, after the voter has pressed the „CAST VOTE(S)“ button. (= 6.5-1).</p> <p>13.1-8 The software shall not provide information about any preferences recorded or vote cast by a voter to the display of the Control Unit during the election process. (= 6.5-2).</p>
<p>14. Documentation</p> <p>14.1 The voting machine must be supplied with the following documentation:</p> <ul style="list-style-type: none"> - system documentation; - development documentation; - test documentation; - a user manual; - instructions for the voter. 	<p>Rem: Only those parts of the documentation, which are due to development and test of the software of the voting machine, are considered here.</p>
<p>14.2 The system documentation shall describe:</p> <ul style="list-style-type: none"> (a) the working principle of the voting machine and the additional equipment and a description of the construction (both electronic and mechanical) explained with: <ul style="list-style-type: none"> - construction drawings, - block diagrams, electronic and wiring diagrams, printed circuit board layouts. (b) specifications of the environmental and operating conditions for normal operation, storage and transport of the voting machine; (c) identification data, including: <ul style="list-style-type: none"> - serial, type and ordering numbers, - production and/or delivery date, - electrical connection/power supply. <p>This identification data must also be adequately indicated on the voting machine and the additional equipment.</p>	<p>Rem: No software requirement.</p>
<p>14.3 The development documentation must include:</p> <ul style="list-style-type: none"> (a) a functional specification of the voting machine and programming unit; (b) the technical design of the voting machine and programming unit; (c) listings of the application source codes; (d) a quality plan. 	<p>14.3-1 The development documentation must include:</p> <ul style="list-style-type: none"> (b) the software design of the voting machine and programming unit; (c) listings of the application source codes;
<p>14.4 The test documentation must describe which measurements the manufacturer used at the verification, the validation and the testing of components of the voting machine (including software) and must include at least:</p>	<p>14.4-1 The test documentation must describe which measurements the manufacturer used at the verification, the validation and the testing of the software of the voting machine and must include at least:</p>

<ul style="list-style-type: none"> - a test plan that describes the way in which the functions of the machine and programming unit are tested; - software module test report that describes the results of the module tests; - software integration test report(s) that describe the results of the integration tests; - software system test plan and report(s) containing the system test plan (test specification) and results. 	<ul style="list-style-type: none"> - a test plan that describes the way in which the functions of the software of voting machine and programming unit are tested; - software module test report that describes the results of the module tests; - software integration test report(s) that describe the results of the integration tests; - software system test plan and report(s) containing the system test plan (test specification) and results.
<p>14.5 The user manual</p> <p>The user manual must include:</p> <ul style="list-style-type: none"> - manual handling requirements (Council directive 90/269/EEC of 29 May 1990);- instructions for unpacking, opening, connecting and putting the voting machine into operation; - operating instructions for the adjustment of the voting machine and security and/or locking; - operating instructions for the members of the polling station; - maintenance instructions; - storage instructions. 	<p>Rem: No software requirement.</p>
<p>14.6 Instructions for the voter</p> <p>This document shall contain the instructions for a voter to use the voting machine.</p>	<p>Rem: No software requirement.</p>