FREQUENTLY ASKED QUESTIONS

On

EVM (CU, BU & VVPAT)

INDEX

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EVM General Section

Q1. What is an EVM?

Ans EVM stands for Electronic Voting Machine. It is a device used to electronically record and count votes cast in elections. The Indian Electronic Voting Machine (EVM) system is also termed as ECI-EVM, meaning an EVM specifically designed, manufactured and used for Elections as per election procedure and rules framed by Election Commission of India and documented in manual on EVM, so as to differentiate it from EVMs used in other countries.

ECI-EVM consists of Ballot Unit (BU), Control Unit (CU) and the later added Voter Verifiable Paper Audit Trail (VVPAT). EVMs come under the overall category of DRE voting machines, or Direct Recording Electronic voting machine systems, which is one of the many voting methodologies available worldwide. ECI-EVMs are considered more efficient and accurate than paper ballots, as they eliminate the possibility of invalid votes due to unclear or improperly marked (stamped) paper ballots, reduce the time required for counting and ensure that a vote is registered for a single candidate only.

For detailed information on various aspects of ECI-EVM, the following documents may be referred:

The Presentation on EVM booklet is a short comprehensive guide on ECI-EVMs. Starting with a historical perspective it covers the technical safeguards and administrative safeguards, procedures governing the secure design, production, transportation, storage and deployment of EVMs in elections. The transparent administrative processes of ECI solicit the presence and participation of recognised political parties at all stages of EVM deployment. The presentation covers the debate around EVMs and the oft-repeated and misplaced international comparisons. A few slides also cover the Judicial scrutiny the EVM has endured and passed with flying colours.

The Manual on EVM contains the gist of all-important instructions on use of BU, CU and VVPAT and serves as a ready reference. The Manual is divided into four parts. Part 1 covers Storage process and Movement of EVM during Election and Non-election period, First Level Checking, First Randomisation and Training and Awareness on EVMs. Part 2 covers all

processes from Second randomisation to Counting of Votes. Part 3 gives the historical perspective and legal perspective and Part 4 contains Annexures and reporting Formats.

ECI takes special care through pre-poll First Level Checking (FLC) before conducting poll to ensure that EVMs to be used are fit for use in elections. A very secure process of handling EVMs in poll is followed with participation of recognised political parties / candidates/their representatives.

The EVM Storage and Movement of EVM is done through EVM Management System (EMS) to ensure efficient management and control of ECI-EVM stock.

The booklet Status Paper on EVM covers in brief the journey of EVMs in India since its conceptualisation in 1977 to the present along with the socio-political feedback on introduction of EVMs. It also highlights various legal interventions and court cases in its long journey of over four decades. The role of Technical Expert Committee, and various aspects such as design and manufacturing protocol, EVM safety and security features, and stringent administrate procedure for handing EVMs along with International comparison.

Appendix 1 and 2 of this booklet provide some interesting facts on use of EVMs in elections which clearly bring out all possible permutations of electoral outcomes both favouring and disfavouring National and State Political Parties.

The Legal History of EVMs booklet provides a useful insight into EVM inception and milestones, first usage of EVM, Legislative amendment to enable usage of EVM, Legal provisions regarding EVM & VVPAT, and Judicial Decisions on EVM & VVPAT.

Q.2 In what way functioning of EVMs is different from the conventional system of voting through paper ballots? Whether technical knowledge is required for casting of vote through EVM?

Ans. In the Paper Ballot system, the list of contesting candidates is printed on a paper (ballot paper) along with serial number, name and symbol of the candidates. There is a specific space allocated for each contesting candidate where a vote can be cast by voter by putting a mark. Thereafter, voter needs to fold the ballot paper in a specified manner and to deposit in the Ballot Box. For Counting votes obtained by that candidate, only correctly marked votes are counted.

Some of the major issues with ballot paper voting are that (i) many votes become invalid due to improper marking/ink smudging (ii) Ballot boxes are also susceptible to "stuffing with spurious votes" by capturing the booth for few minutes. (iii) Voting with pre-marked ballot papers. (iv) Manual counting of votes is prone to errors and mischief and takes a lot of days.

In the ECI-EVM system of voting, the Control Unit is placed with the Presiding Officer (In-Charge CU) and the Ballot Unit(s) and VVPAT are placed inside the Voting Compartment. Instead of issuing a ballot paper, the Polling Officer in-charge of the Control Unit releases the electronic Ballot by pressing the "Ballot Button" on the Control Unit. This enables the voter to cast his/her vote by pressing the "blue button" (Candidate button) on the Ballot Unit against the candidate of his/her choice. When the voter presses a button against the candidate of his/her choice on Ballot Unit, a red LED glows against the chosen candidate's button on BU. A paper slip showing the serial number, name and the symbol of the candidate of his/her choice is generated and is visible for about 7 seconds through transparent window of VVPAT.

Hence the voter is able to see the "printed slip" and verify that vote is cast as per his/her choice. Thereafter, the printed paper slip gets cut automatically and stored in sealed Drop Box of VVPAT. A loud BEEP is heard from the Control Unit which confirms that the vote is registered successfully. The signal flow at the time of voting between BU, CU & VVPAT is shown in Annexure-I. The VVPAT paper slips can be later used for verifying the electronic count obtained from CU in case of a dispute. This record of VVPAT printed paper slips verified by voter and the process of correlating VVPAT and CU count as per established mandatory verification procedure makes the voting on EVMs trustworthy. Hence it can be seen that no technical knowledge is required for casting a Vote on the EVM and ordinary citizens can easily cast their votes on ECI EVMs.

Advantages of ECI-EVM voting system:

(i) As voting is done by pressing a button, these is no invalid vote as in paper ballot system.

(ii) Booth capturing has been eliminated by technology used in EVMs and administrative procedures such that capturing booth is not worthwhile even if attempted. EVM voting system does not permit more than 4 votes per minute under any circumstances. ***Thus it takes too long a time to cast a substantial***

number of votes giving sufficient time to security forces to respond to the Booth Capturing attempt.

(iii) No possibility of voting after CLOSE button is pressed at the close of poll.

(iv) It ensures quick, error free and mischief free counting of votes.

(v) Voter is instantly able to verify that his / her vote has been cast correctly by verifying the VVPAT's printed slip.

Q.3 Whether transportation of EVMs to the polling stations is more difficult compared to the ballot boxes?

Ans. It is easier to transport the EVMs, as compared to ballot boxes as EVMs are lighter, portable and come with custom-made carrying cases for ease of carriage/transport. EVMs are transported under extreme security and following elaborate safeguards.

Q.4 When were EVMs used for the first time in an election?

Ans. Electronic Voting Machines (EVMs) consisting of Ballot Unit (BU) & Control Unit (CU) were used for the first time in the by-elections to Parur Assembly Constituency of Kerala in 1982.

Q.5 When was VVPAT introduced?

Ans. Voter Verifiable Paper Audit Trail (VVPAT) with EVM was used for first time in the by election to Noksen Assembly Constituency of Nagaland in 2013.

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Q.6 What is the Model of EVMs used now?

Ans. Presently, the M3 Model of ECI-EVM and VVPAT are used. Similar to the earlier Models, M3 EVMs / VVPATs are also non-networked, stand-alone units that run on power-packs / batteries of their own.

Q.7 Where are the EVMs manufactured? Are they imported?

Ans. EVMs/VVPATs are not imported but indigenously designed and manufactured by two Public Sector Undertakings (PSUs) namely Bharat Electronics Limited (BEL), under the Ministry of Defence and Electronics Corporation of India Limited (ECIL), under the Department of Atomic Energy under the guidance of the Technical Experts Committee (TEC) constituted by the Election Commission of India.

Q.8 What is the maximum number of votes which can be cast in EVMs?

Ans. The ECI-EVM system can record a maximum of 2,000 votes but generally it is used for recording 1500 votes only.

Q9 What is the maximum number of candidates which EVMs can cater to?

Ans. Each Ballot Unit can cater to 16 candidates including NOTA. A total of 24 BUs can be connected to a CU to make a set of EVM. Therefore, when required, one set of EVM can cater up to a maximum of 384 candidates including NOTA.

Q.10 How can EVMs be used in areas where there is no electricity?

Ans. EVM and VVPAT do not require any external power supply. EVM and VVPAT run on their own battery/ power-packs supplied by Bharat Electronics Limited / Electronics Corporation of India Limited. EVM runs on a Power Pack of 7.5 Volts and VVPAT runs on a power-pack of 22.5 Volts

Q.11 What will happen if the EVM in a particular polling station goes out of order during poll?

Ans. During poll, as per defined Replacement protocol, if a BU or CU of a particular polling station goes out of order, (the fault is displayed on CU display) then the full set of BU, CU, and VVPAT is replaced with a new set from the Reserve EVMs in the presence of the polling agents appointed by the candidates. The votes recorded until the stage when the EVM went out of order, remain safe in the memory of the Control Unit and the VVPAT ballot slips compartment. In case only the VVPAT goes out of order, the votes recorded in the CU remain safe in its memory and therefore the polling is resumed after replacing the non-functional VVPAT with another VVPAT from the Reserve machines. On the counting day, votes recorded in all EVMs used in that polling station are counted to give the aggregate result of that polling station. If the recorded votes in the Control Units cannot be ascertained due to any technical reason, VVPAT slips of the respective Control Units are counted to get the result.

Q.12 Is it true that many petitions have been filed against EVMs in courts? What is the outcome?

Ans. After declaration of result, if candidate has any grievance on the voting in his/her constituency, he/she can file an Election Petition in the court. Over the decades there have been numerous Election Petitions. Multiple courts including the Supreme Court of India have reposed their faith in the Indian EVMs. A comprehensive study in the booklet Legal history of EVMs provides a useful insight into the relevant statutory framework governing EVMs and VVPATs.

Q.13 Is it possible to use EVMs for simultaneous elections for Parliament and State Legislative Assembly?

Ans. Yes, during simultaneous elections two separate sets of EVMs are required in a polling station; one for the Parliamentary Constituency and the other for the Legislative Assembly Constituency.

Q.14 How long does the Control Unit store the result in its memory?

Ans. The Control Unit can store the result in its memory until the data is deleted or cleared. Post every election, after the Election Petition period ECI ascertains the status of Election Petitions filed with the Hon'ble High Courts and releases the EVMs for further use if no Election Petitions have been filed. In cases where Election Petitions have been filed the related EVMs are retained securely, as per defined protocol, till the final disposal of the petition. In cases if the Hon'ble court orders a recount the control unit can be reactivated by fitting the battery to display the results stored in its memory. Moreover, VVPAT slips are also preserved till final disposal of Election petition.

Q.15 How can a voter be sure that the EVM is working and his/her vote has been recorded.

Ans. As soon as the voter presses the `blue button' on the BU against the serial number, name and symbol of the candidate of his/her choice, an LED against the candidate button glows red and the VVPAT prints a slip having serial number, name and symbol of the chosen candidate which is visible for about 7 seconds before getting cut and stored in the sealed Drop Box of the VVPAT. A loud beep sound from the CU confirms the registration of the vote. Thus,

there is both audio and visual indication for the voter to be assured that his/her vote has been recorded.

Q.16 Do EVMs malfunction?

Ans. EVMs are electronic machines and like any other machine they are also vulnerable to failures. The failed machines are sent to the factories for rectification. However, there is no question of any machine 'malfunctioning' in a way so as to favour a particular candidate, which is called tampering as per defined EVM protocol. This scenario is just not possible with the many safeguards incorporated in design of EVM itself.

Q.17 The Ballot Unit has provision for 16 candidates. If in a constituency, there are only 10 candidates and the voter presses any of the buttons from 11 to 16 will these votes not be wasted?

Ans. There is no wastage of any vote in EVMs. The unused BU buttons are masked. For example: if there are only 10 candidates including NOTA in a constituency, the unused 'Candidate' buttons provided at Sl. Nos: 11 to 16 will be physically 'masked' (covered) at the time of preparation of EVM by Returning Officer. Therefore, there is no possibility of any voter pressing any of the masked buttons at Sl Nos: 11 to 16.

Q18. What is the cost of CU, BU & VVPAT? What is the life of EVM?

Ans. The cost of CU, BU and VVPAT is finalised by the Price Negotiation Committee constituted by the Government of India. The present cost of a BU is Rs.7,991/-, CU is Rs.9,812/- and VVPAT is Rs.16,132/-. The economic life of EVMs is approximately 15 years.

EVM Procedures

Q19. Is there any provision for a Voter to lodge a complaint if the paper slip generated by VVPAT shows the name or symbol of a candidate other than the one he voted for?

Ans. Yes, if an elector after having recorded his/her vote alleges that the paper slip generated by the printer has shown the name or symbol of a candidate other than the one he/she voted for, as per the provisions of Rule 49MA of Conduct of Elections Rules, 1961, the Presiding Officer obtains a written declaration from the elector as to the allegation, after informing the elector about the consequence of making a false declaration as per Indian Penal Code.

If the elector gives the written declaration referred to in sub-rule (1) of Rule 49MA, the Presiding Officer permits the elector to record a test vote in the voting machine in his/her presence and in the presence of the candidates or polling agents who may be present in the polling station, and observe the paper slip generated by the printer.

If the allegation is found true, the Presiding Officer will report the facts immediately to the Returning Officer, stop further recording of votes in that voting machine and act as per the directions that may be given by the Returning Officer.

If, however, the allegation is found to be false and the paper slip so generated under sub-rule (1) matches with the test vote recorded by the elector under sub-rule (2), then, the Presiding Officer shall:

- Make a remark to that effect against the second entry relating to that elector in Form 17A, Rule 49L mentioning the serial number and name of the candidate for whom such test vote has been recorded;
- Obtain the signature or thumb impression of that elector against such remarks; and make necessary entries regarding such test vote in item 5 in Part I of Form 17C.

Q20. Where are the EVMs stored during election and non-election period? After announcement of the result, where are the BU, CU and VVPATs kept and for what period?

Ans. EVMs are always in secure storage during pre-poll, poll and post poll stages.

They are kept in EVM warehouse/Strong room under the custody of District Election Officer at all times.

Also, EVMs are always stored in warehouse/strong room with:

i). 24x7 CCTV coverage

ii). Double lock System

iii). Armed security (Minimum half Section during non-election period and full section during election period)

iv). Polled EVMs are kept in strong rooms with One Platoon of CAPF security at the inner cordon and State Armed Police at the outer cordon

v). DEOs conduct Monthly inspections to check the external condition of the EVM warehouse and Quarterly inspections to check the internal condition of the warehouse and submit inspection reports along with photos.

vi). After announcement of result, in the presence of the candidates/their representatives, BU, CU are sealed in their carrying case and VVPAT slips are taken out from the VVPATs and sealed in black envelopes. The BU, CU and VVPAT slips and other election materials are kept in the Strong Room under the custody of the District Election Officer concerned till the timeframe for filing Election Petition gets over i.e. 45 days from the date of declaration of result. If any Election Petition is filed before the Hon'ble High Court concerned, the respective Units are kept till final disposal of the petition. VVPAT slips are kept as per Rule 94 of the Conduct of Elections Rules 1961.

Q21. Whether representatives of recognised political parties/candidates are present while opening and closing of EVM warehouse/strong room?

Ans. EVM warehouse/strong room is always opened and closed under prior intimation to and in the presence of the stakeholders namely representatives of recognised political parties/candidates and under videography.

Q22. Who conducts the First Level Checking of EVMs?

Ans. Before every election all EVMs to be used in an election undergo a thorough physical and functional check to ensure poll worthiness. These checks are called FLC (First Level Check). Manpower in FLC consists of only authorized engineers of the manufacturers, namely Bharat Electronics Limited (BEL) and Electronics Corporation of India Limited (ECIL), who conduct the First Level Checking (FLC) of EVMs and VVPATs under control of District Election Officer and direct supervision of Dy. DEO in the presence of representative of recognised Political Parties.

Q23. Ballot boxes are engraved so as to avoid any scope for complaint of replacement of these boxes. Is there any system of numbering EVMs?

Ans. Yes. Each Ballot Unit, Control Unit and VVPAT has a unique Serial Number (ID), which is engraved on the cabinet or on metal plate riveted to the cabinet. While all EVM units are identical in operation and looks their allocation is subject to various process like randomisation, need to be transported and pre-tested (FLC) before polls. Hence for accounting purpose ID is needed for every Unit. For example, EVMs go through First Randomisation, first time to allocate them Assembly Constituency wise and Second Randomization, second time to allocate them Polling Station wise. The list containing unique ID number of EVM (Ballot Unit, Control Unit & VVPAT) to be used in a particular assembly constituency and polling station is provided to the contesting candidates / their agents. The same can be tallied anytime during the polling / counting.

i) Unique ID of Control Unit also displayed on display panel of Control Unit.

ii) Unique ID of VVPAT is printed on each VVPAT slip.

Q24. Who loads the Serial numbers, names of candidates and symbols allotted to contesting candidates in VVPAT unit and how?

Ans. Before poll, details like serial number, symbol etc. are allocated to the candidates. During Commissioning of EVMs or Preparation of EVMs**,** serial numbers, names of candidates and symbols allotted to them are used to prepare the Ballot sheet on laptop / PC provided by DEO. This sheet is loaded in VVPAT units using Symbol Loading Unit (SLU). The preparation of Ballot sheet and its loading in the VVPAT is done with the help of Manpower for preparation. (Authorised engineers of the manufacturer i.e., ECIL / BEL) in the presence of candidates / their agents. The SLU also facilitates the representatives of recognised political parties / candidates / their agents to simultaneously view symbols being loaded in the VVPAT on a big monitor or TV screen.

Q25. Whether the test printout of the Serial numbers, names of candidates and symbols that are loaded in VVPAT is taken?

Ans. During the Preparation of VVPAT**,** the test printout of the Serial numbers, names and symbols of candidates loaded in VVPAT is mandated to be taken by the Returning officer /Assistant Returning officer at the time of preparation for cross checking with the ballot paper in Ballot Unit. Thereafter, one vote to each candidate including NOTA is cast to check that the VVPAT is printing the paper slips correctly in respect of all the candidates.

Q26. Whether changing of thermal paper roll of VVPAT is allowed at polling stations?

Ans. Changing of thermal paper roll is strictly prohibited at polling stations. In case, the thermal paper roll gets exhausted by any chance, a reserve VVPAT is used as replacement.

Q27. In the conventional system, before the commencement of poll, the Presiding Officer shows to the polling agents present that the ballot box to be used in the polling station is empty. Is there any such provision to satisfy the polling agents that there are no hidden votes already recorded in the EVMs?

Ans. Yes. On the Poll Day before the commencement of poll, the Presiding Officer demonstrates to the polling agents present that there are no "hidden" votes already recorded in the CU by pressing the result button on CU. The CU display shows zero vote against all candidates. Similarly, the P.O also opens the ballot compartment of VVPAT and shows to polling agents that it is empty. Thereafter, he/she conducts a Mock -Poll with at least 50 votes in the presence of the polling agents and tallies the electronic result stored in the CU with VVPAT slip count. After mock poll, the Presiding Officer presses the "Clear Button" to clear the result of the mock poll before commencing the actual poll. Then he again demonstrates to polling agents, by pressing 'Total' button that CU display shows '0' votes and that VVPAT ballot compartment is empty. He then seals the Control Unit and VVPAT in the presence of polling agents before starting actual poll.

Q28. In the conventional system, it will be possible to know the total number of votes polled at any particular point of time. In EVMs 'Result' portion is sealed and will be opened only at the time of counting. How can the total number of votes polled be known on the date of poll?

Ans. In addition to the 'Result' button, there is a 'Total' button on Control Unit of EVMs. By pressing this button any time during poll, the total number of votes polled up to the time of pressing the button will be displayed without indicating the candidate-wise result. At the end of poll, the 'Close' button is pressed after which the machine does not accept any more votes. By pressing the Total button at end of poll, the total number of votes polled in the CU after poll is obtained and recorded by the Presiding Officer in Form 17-C and Presiding Officer's diary. Copy of Form 17-C is shared with the polling agents of the candidates.

Q29. With ballot boxes counting is done after mixing the ballot papers. Is it possible to adopt this system when EVMs are used?

Ans. Yes, a prototype of the device called 'Totaliser' that can accommodate up to 14 CUs at a time and aggregate votes without revealing the candidate-wise count of individual EVMs used at a particular polling station was considered. However, Totalisers are not in use at present as its technical aspects and other statutory/administrative related issues are under examination and matter is sub-judice.

Q30. Whether counting of printed paper slips of VVPAT is compulsory on the counting day?

Ans. Compulsory counting of printed paper slips of VVPAT is done only in the following cases:

i) In case of "no display" of result on the Control Unit, the printed paper slips of respective VVPAT(s) are counted. These slips have been verified by voters at the time of casting their votes.

ii) As directed by the Honourable Supreme court of India, mandatory verification of printed VVPAT paper slips of five randomly selected polling stations of each Assembly Constituency or each Assembly Segment in case of election to the House of the People, before declaring result.

Q31. The integrity of the VVPAT slips and the EVM machines during the entire time after polling and before counting and auditing must be ensured in a manner that is verifiable by all. There should be no trust requirement on the custody chain.

Ans. After the poll, the EVMs are stored in a strong room with a single access door and a two layered security cordon. Agents appointed by the candidates are allowed to keep watch over the EVMs round the clock till the counting. Locks to the strong rooms where the EVMs are stored are sealed with signatures of election officials as well as those of candidates or their representatives. The extant instructions of ECI make sure that all stake holders are involved in all the steps of EVM storage and movement. Thus, there is no implicit trust requirement and all stake holders jointly guard the polled EVMs.

Some of the safeguards to maintain integrity are as under:

i). List of Serial numbers of EVMs used in the poll is shared with candidates/their agents along with the detail of number of votes polled in respective EVMs to verify the same at the time of counting of votes.

ii). After poll, EVMs are sealed in their carrying cases at the polling stations in the presence of polling agents and they are also allowed to put their signatures on the seals besides the polling officer.

iii). The only power source (battery) available for the VVPAT to function is removed at the polling station in the presence of the polling agents after completion of the poll.

iv). Live feed of CCTV covering entry of Strong Rooms of polled EVMs is given to representatives of candidates camping at counting centre.

v). Two-tier security arrangements are made at the Strong Room having polled EVMs.

vi). Further, on counting day the EVM Seals and Serial Nos: are also checked by the counting agents of candidates before start of counting.

As can be seen every aspect of polled EVMs is handled transparently with active participation of representatives of candidates and nothing is left to trust on the custody chain.

Q32. The mere agreement of electronic and VVPAT counts cannot rule out spurious vote injections or deletions in both. What are the safeguards in place on this crucial matter?

Ans. ECI-EVM is designed in such a way that no vote can be cast once the CLOSE button is pressed. After poll, machines are sealed in their carrying cases at the polling stations in the presence of polling agents and they are also allowed to put their signatures on the seals. Candidates and their Agents are allowed to escort the machines to the collection centres and permitted to watch the Strong Rooms having polled EVMs till the counting day. Further, Poll start time and poll end time is displayed in the Control Unit at every switch ON. Hence, spurious injection or deletion of votes after polling and before counting can be detected. These timings are also recorded in the Presiding Officer's diary and can be cross verified with the time displayed by the EVM. The number of votes as per Form 17C is also a record of the total votes polled in EVM in that PS, thus completely eliminating the possibility of "spurious injection or deletion" of votes.

Q33. Can the ECI implement an independent review system to review the voting system and the integrity of election process?

Ans. The voting system designs go through an independent review and even an independent audit by Technical Expert Committee. Various design details are also available on the site at a level that the stakeholders may be interested in. The outcomes accepted by voters and candidates are the biggest form of review (Annexure-II and Annexure-III).

The ECI-EVM voting system goes through an independent review by way of third party (STQC) checks. They also go through independent audit by various political parties/candidates/their representatives like in mock polls. The processes are well defined and are put on the website of the ECI for public view.

Q34. What are the provisions to handle any claimed discrepancy in the votes cast?

Ans. The contesting candidates have opportunity to request for the VVPAT slip count under Rule 56D of the Conduct of Elections Rules, 1961 after completion of counting of votes from the EVMs. Further, as per existing legislation, Rule 56D (4) (b) of the Conduct of Election (Amendment) Rules in case of a discrepancy between the Electronic Count in the CU and the ballot slip count of the VVPAT, the VVPAT slip count shall prevail.

Q35. ECI claims that its EVM protocols are transparent and stake holders are involved in the various processes of EVM preparation in the run up to every Election. How are the political parties and candidates / their representatives involved in EVM processes? What information on EVMs is made available to them?

Ans. The Election Commission of India has put in place an elaborate administrative system of security measures and procedural checks-and-balances aimed at prevention of any possible misuse or procedural lapses on use of EVMs and VVPATs in elections to the State Legislative Assembly and Parliamentary Constituencies. These safeguards are implemented rigorously and transparently with the active involvement of the stakeholders i.e. National and State Recognised Political Parties or candidates/their representatives covering all the activities involving EVMs/VVPATs across the electoral process. All these activities are well documented by way of proceedings, letters, intimation, etc. by the District Election Officers (DEOs), Returning Officers (ROs) and Assistant Returning Officers (AROs) and other field officials. Listed below are the various stages in the electoral process where active participation of political parties and candidates is solicited by ECI for transparency and confidence building of the stake holders:

1. Opening and Closing of EVM warehouse
    a) During non-election period till finalization of list of the contesting candidates, EVM-VVPAT warehouses are opened/closed (for any purpose like movement of EVMs, quarterly inspection etc.) in the presence of the representatives of National and State Recognised Political Parties

b) With finalization of list of the contesting candidates, candidates and their representatives are involved while opening and closing of EVM-VVPAT warehouses/strong room.

c) Opening and Closing of EVM warehouse/strong room is done under videography.

2. First Level Checking of EVMs and VVPATs

a) First Level Checking of EVMs and VVPATs is conducted before every election by the authorised engineers of Bharat Electronics Limited (BEL) and Electronics Corporation of India Limited (ECIL) at DEO level.

b) For this purpose, National and State Recognised Political Parties at district headquarters are invited in writing by DEO concerned at least two days before the beginning of FLC and a copy is endorsed to state headquarters.

c) The representatives of National and State Recognised Political Parties are involved to oversee entire FLC process.

d) Higher Mock-Poll is conducted in 5% randomly selected EVMs (i.e. 1200 votes in 1% EVMs, 1000 votes in 2% EVMs and 500 votes in 2% EVMs). The electronic result of EVM is tallied with the VVPAT slips count. The representatives of National and State Recognised Political Parties are allowed to pick 5% EVMs randomly and also to do Mock-Poll.

e) List of FLC ok EVMs is shared with all National and State Recognised Political Parties.

f) The representatives of National and State Recognised Political Parties are allowed to sign the seals, forms, register during FLC.

3. Taking out of EVMs for Training and Awareness after FLC

a) After completion of FLC, maximum up to 10% EVMs and VVPATs are taken out for awareness and training purpose in the presence of National and State Recognised Political Parties.

b) The list of awareness and training EVMs is shared with them.

4. Randomization of EVMs.

a) First Randomization of EVMs is conducted in the presence of National and State Recognised Political Parties to allocate EVMs Assembly constituency/ segment-wise.

b) List of first randomized EVMs (AC/AS-wise) is shared with National and State Recognised Political Parties.

c) After finalization of list of contesting candidate, list of first randomized EVMs (AC/AS-wise) is also shared with contesting candidates.

d) Second Randomization of EVMs is conducted to allocate EVMs polling station wise as well as for marking the Reserve EVMs which are to be used for replacement of machines which become non- functional on poll day. List of second randomized EVMs is shared with candidates.

5. Commissioning of EVMs.
   a) Commissioning of EVMs for use in poll is done in the presence of contesting candidates.
   b) Candidates/their representatives are allowed to sign the seals used in sealing EVMs
   c) Higher Mock-Poll is conducted in 5% randomly selected EVMs by casting 1000 votes. The electronic result of CU is tallied with the VVPAT slips count. Candidates/their representatives are allowed to pick 5% EVMs randomly and also to do mock poll.
6. Dispersal of EVMs with Polling Parties.
   a) Dispersal of EVMs is done in the presence of the contesting candidates.
7. Mock Poll and Actual Poll on Poll Day
   a) Mock-Poll on Poll day is conducted at every polling station in the presence of the polling agents nominated by the contesting candidates.
   b) Polling agents nominated by the contesting candidates are allowed to remain in polling stations to observe polling process.
   c) Polling agents are allowed to sign the seals used in sealing CU,BU and VVPATs (before commencement of poll and after close of poll).
8. Transportation of polled EVMs from Polling Stations to Collection Centre
   a) Candidates/Polling agents are allowed to follow vehicles carrying polled EVMs from polling station to collection centre.
9. Storage of Polled EVMs.
   a) Polled EVMs are stored in the strong room in the presence of Candidates/their representatives.
   b) Candidates/their representatives are also allowed to put their seals on the locks of the strong room.
   c) Candidates/their representatives are also allowed to monitor storage and security of polled EVMs.

10. Counting Day

a) Polled EVM Strong Room is opened in the presence of Candidates/their representatives, Returning Officer, ECI Observer on counting day.

b) Counting of votes is done in the presence of candidates and counting agents appointed by them.

c) After completion of counting of votes, VVPAT slips are taken out from VVPATs and stored in black envelope in the presence of the candidates/their representatives.

d) After counting of votes, CU, BU and VVPAT slips are kept in the strong rooms in the presence of candidates/their representatives. They are allowed to put their seals on the locks of the strong rooms.

As can be seen from the above, all stakeholders, representatives of political parties and candidates witness and participate in all electoral processes on EVMs and are also kept well informed about the status and list of EVMs to be used for various purposes during the election.

Q36. Regarding Lok Sabha, 2019 elections, after the final vote was cast there were video reports from at least 10 different places of new EVMs being moved into strong rooms. The ECI said these were reserve EVMs but provided no evidence for this and no explanation for why they need to be moved just before counting rather than at the time of voting, when there were, in some cases, a period of several weeks between the voting and counting. There were no security officers accompanying the vehicles and why these vehicles were often unnumbered, unofficial vehicles? There have also been reports of irregularities in the counting process.

Ans. As explained in answer to question 35 above information about EVMs being used in an election is shared with political parties / candidates at different stages of preparation for the election and was accordingly done in this case too. All these allegations were false and factually incorrect. A press note No: ECI/PN/56/2019 was issued by the Commission on 21st May 2019 and is still available for reference on ECI website.

EVM Technical Section

Q37. Electronic processes, if they are to be used for voting, should be in sync with changing technologies and technological practices and be subjected to public scrutiny and examinability. Has ECI taken any steps in this regard?

Ans. The design of ECI-EVM has indeed been periodically updated to take advantage of advancements in technology. For example, the current model (M3) of the ECI-EVM uses public key encryption and digital certificates for mutual authentication by units of the EVM.

Thus, in EVMs, newer models have upgraded technology including security measures commensurate with emerging threats.

The salient features of ECI-EVMs are in public domain as in publications namely, Presentation on EVM, Manual on EVM, Status Paper on EVM and Legal History of EVM, starting from broad overview go to minute details. Further there are Laws and Rules in above mentioned references that allow voter or candidate to make a complaint or take a legal recourse. ECI also holds open debates around EVM and election processes time to time.

Q38. In spite of many videos on social media regarding tampering of EVMs, why ECI is keen to use EVMs? What steps is ECI taking to allay the fear that EVMs can be tampered?

Ans. None of the videos showing tampering of EVMs use the ECI-EVM nor do they follow the procedure prescribed by ECI for polling.

ECI has put in stringent technical safeguards and administrative safeguards, procedures for the EVMs so that the machines cannot be subjected to tampering or manipulation at any time. Further, all the election activities related to the EVMs are carried out in the presence of stakeholders, namely the political parties/candidates in the most transparent manner. Additionally, it is worth noting that EVM units are connected only to each other and cannot be accessed by any external machine. In this sense, the ECI-EVM units are a "stand alone" system.

The BU, CU and VVPAT units are manufactured using a Secure Manufacturing Facility (SMF). After the program has been loaded into the EVM unit it is one-time-programmed (OTP), hence re-programming is permanently disabled by the secure processors used in these units.

Each unit of the ECI-EVMs contains an "Unauthorised Access Detection Module (UADM)" which renders the machine unusable if it detects an attempt to open the UADM. Thus, any attempt to modify the machine after its production will fail.

Q39. Is it possible to vote more than once on an EVM by pressing the button again and again?

Ans. No, it is not possible to vote more than once on an ECI-EVM by a particular voter. As soon as a particular button on the Ballot Unit is pressed, the vote is recorded on CU for that particular candidate and a loud beep is emitted for officials and election agents to note that the vote has been completed. Thereafter, the ECI-EVM machine does not respond any further and any subsequent button pressing is ignored. The next vote is enabled on BU only when the Presiding Officer in-charge of the Control Unit releases the Ballot by pressing the Ballot Button on the Control Unit, for the next voter after due verification of his/her identity. This is a distinct advantage of the EVM over the ballot paper system where the Ballot Box can be physically captured and stuffed with votes.

Q40. Is it possible to program the EVMs in such a way that initially some votes will be recorded exactly in the same way as the blue buttons of BU are pressed, but thereafter, votes will be recorded only in favour of one particular candidate irrespective of whether the `blue button' against that candidate or any other candidate is pressed? Does the Date, Time and Session information available with EVM units not introduce a possible way to bypass the mock poll?

Ans. No. The original program is ported onto the microcontroller during manufacturing at the factory and is done many months before it is deployed in elections. It is impossible to know the name and Serial number of any candidate so much in advance to be able to pre-program the EVM to favour any particular candidate. After loading the original firmware during production, the microcontroller is One Time Programmed (OTP) to eliminate any programmability subsequently. During production in the factories all EVMs are checked to ensure they carry the original programme. Once the original programme is ported onto the microchip and it is One Time Programmed (OTP), it cannot be reprogrammed at all. One machine is used election after election with different sets of alphabetical names of candidates and recognised political parties. Further, before use in any election the First Level Checking and Commissioning of all EVMs is conducted in the presence of recognised political party / candidate representatives. High level mock poll is conducted using 1% randomly selected

EVMs with 1200 votes, 2% randomly selected EVMs with 1000 votes and 2% randomly selected EVMs with 500 votes. The electronic result on CU is tallied with VVPAT slip count to ensure proper functioning of the EVMs during FLC and Commissioning. The EVMs are stand-alone machines which are not accessible from any wired/wireless network nor are they connected with any external devices outside the EVM system. There is no operating system used in these machines. Therefore, there is absolutely no chance of reprogramming or manipulation of the program of EVM in a particular way to favour a particular candidate or political party. Various administrative safeguards, procedures and the participation of political parties / candidates or their representatives during different processes add strength to the overall robustness and transparency in the use of EVM systems. Till date, slips of 41,629 randomly selected VVPATs have been counted and not a single case of transfer of vote meant for candidate A to candidate B has been encountered. Differences, if any, between CU and VVPAT count have always been traceable to human errors.

Q41. How can one rule out the possibility of recording further votes at any time after close of the poll and before the commencement of counting by interested parties?

Ans. After completion of poll i.e. when the last voter has voted, the Officer in-charge of the Control Unit/Presiding Officer presses the 'Close' button. Thereafter, the EVM does not accept any vote. The poll 'start time' and 'end time' are recorded in the machine as well as by the Presiding Officer. After the close of poll, the Control Unit is switched off and thereafter the Ballot Unit is disconnected from the Control Unit and kept separately in their respective carrying cases and sealed. Further, the Presiding officer has to hand over to each polling agent a copy of the account of total votes recorded in Form 17-C. At the time of counting of votes, the total votes recorded in a particular control unit is tallied with this account and if there is any discrepancy, this can be pointed out by the Counting Agents of candidates.

Q42. The ECI says an EVM can be programmed only once, making hacking unlikely. However, there are reports that it can be programmed several times. There are other reports saying that EVM machines can be manipulated by connecting it to cell phones, Bluetooth devices, replacing parts of it and other forms of manipulation, apart from physical replacement of it by other EVMs.

Ans. The ECI-EVM use secure controllers which can disable further programming after a step known as one-time-programming (OTP). The technical information about the micro

controllers is available in public domain and can be accessed on the website of micro controller manufacturers.

i). Further, ECI-EVM is a standalone device without any wired or wireless connectivity outside the EVM systems.

ii). BU, CU, and VVPAT units have digital certificates, and carry out mutual authentication when connected together. Hence any other look alike machine cannot be connected to the ECI-EVM

iii). There are elaborate and robust technical safeguards and administrative safeguards, procedures for use of EVMs. Unauthorized access to EVM units during storage, transportations, randomisation, allocation, conduct of FLC, commissioning, conduct of Mock-Polls, conduct of main poll, result counting etc. is not possible. All these steps are carried out in the presence of stakeholders. Hence, there is no way anybody can approach the machines to attempt modification of the EVMs.

iv). Mock-Polls are routinely held and five percent of randomly selected EVMs undergo a mock poll with a large number of votes where the electronic results from CU are tallied with VVPAT slip count to ensure proper functioning of the EVMs. Hence, there is no question of EVMs being programmed several times, or manipulated by connecting to cell phone, Bluetooth devices, replacing part of it or through any other form of manipulation.

Q43. Whether it is possible to know much beforehand about the sequence of names on the Ballot paper of the BU or about deployment of an EVM in a particular polling station?

Ans. No, the arrangement of names of candidates in the ballot paper of the Ballot Unit is in alphabetical order, first for the National & State Recognised Political Parties, followed by other State Registered Parties, and then by independent candidates. Thus, the sequence in which the candidates' names appear on the Ballot paper of the BU is dependent on the names of the candidates and their party affiliation and keeps changing from one election to another. Therefore, the sequence cannot be ascertained much in advance.

EVMs are allocated to polling station after two stages of randomisation process through EVM Management System, EMS software application developed by the Commission. After First Level Checking FLC of EVMs, First Randomization of EVMs is done at the District Election Officer level to allocate them Assembly Constituency-wise in the presence of the representative of recognised political parties. Thereafter, before

Commissioning of EVMs, Second Randomisation of EVMs is done at the Returning Officer level to allocate them Polling Station-wise in the presence of candidates / their agents. Two levels of randomisations eliminate any scope of determining before-hand the polling station-wise deployment pattern of machines.

Q44. Whether the Election Commission has full control of the entire voting process through EVM?

Ans. Yes, Election Commission has full control over entire voting process. All election officials work directly under the direction, supervision and control of Election Commission of India during the election period.

Q45. In case of election dispute is reconstruction of vote for authentication possible in EVM voting?

Ans. In case of election dispute reconstruction of the vote for authentication is possible in EVM-VVPAT system from the data stored in Control Unit of EVM. The same has been demonstrated in the Courts whenever there was a need in cases of election disputes.

Q46. It is claimed that EVM machines can be manipulated by connecting it to cell phones, Bluetooth devices, replacing parts of it and other forms of manipulation, apart from physical replacement of it by other EVMs.

Ans. The claim is baseless and unscientific claim. The technical information about the micro controllers is available in public domain and can be accessed on the website of microcontroller manufacturers. The EVMs / VVPATs use controllers which are One Time Programmable (OTP). This feature is activated by a code /command, fed via a software program, and in the first time run at power 'on' sets an internal register to shut off any re-programmability capability. The code / command and procedure are also available in public domain in the datasheets/ application notes on use of these microcontrollers.

If these controllers had internal Bluetooth or Wi-Fi module then information in the form of features, internal block diagram of the microcontrollers, pin assignment and signals at all pins of the module would be available in the data sheets. Also, if such Transmitters or Receivers were available in the microcontrollers then power supply pins, antenna pins, frequency assignment pins, crystal oscillator pins etc that are specific to Bluetooth or Wi-Fi would also be available in data sheets. The microcontrollers used by BEL ECIL do not have such modules and this can be verified by information in their data sheets available in the public

domain. In spite and despite above available technical information the ECI-EVM is subjected to strong quality checks by electromagnetic testing to verify that no Wi-Fi, Bluetooth or unwanted frequency capability is present.

Hence, ECI-EVMs are standalone devices without any wired or wireless connectivity with units outside the EVM system. Advanced technical features and robust administrative safeguards are in place to rule out any such possibility of manipulation. The BU, CU and VVPATs have digital certification and carry out mutual authentication when connected together before communicating. Any other lookalike machine, therefore, cannot be connected to ECI EVMs. Apart from the technical safeguards there are very elaborate and tight administrative safeguards, procedures mandated by ECI to ensure the physical safety and security of the EVMs at all times.

In addition, only the authorised, well-trained engineers on the rolls of the PSUs (BEL / ECIL) are entrusted with the critical task of carrying out the First Level Checking FLC and loading of symbols, and providing other technical support as per need. The entire process is carried out in a transparent manner in the presence of the stakeholders.

Q47. To conduct free, fair and transparent elections, elections must be conducted assuming that the EVMs may possibly be tampered with. The long-time window-over the cycle of design, implementation, manufacture, testing, maintenance, storage, and deployment-may provide ample opportunity for insiders or criminals to attempt other means of access. There is an overwhelming requirement of trust on such custody chains; such assumptions of trust in various mechanisms make the election process unverifiable. What are the actions taken to address this important aspect?

Ans. The EVMs were introduced for the first time in 1982, forty years ago and have been continuously used since 2000, with all possible permutations of electoral outcomes, both favouring and disfavouring all National and State Political Parties (Annexure-II and Annexure-III). This would not have been possible if there was even a remote possibility of tampering the machines. The strong technical safeguards and stringent administrative safeguards, procedures underwritten by publicly available disclosures of its movement, checking, randomisation and, special disclosures of detail to the National and State Political Parties and Candidates ensure the integrity of the EVMs. The stakeholder participation is so designed that each step of ECI-EVM deployment is in full view and participation of all

stakeholders. More than trust on individuals or groups of persons, the system-based safety and security protocols are the foundation of ECI-EVM secure handling.

Q48. Can the details of the EVM microcontrollers be explained along with the OTP features?

Ans. Both BEL and ECIL use standard microcontrollers available off the shelf and hence all information on the microcontrollers is available in the public domain via manufacturers' data sheets/ application notes and user manuals. The One Time Programmable (OTP) feature is not activated by any hardware or pin-based signal/command at external pins of the microcontrollers, rather this code/ command is fed via a software programme and in the first time "run" at power on sets an internal register to shut off any re-programmability. Once this is done the programme cannot be changed. The procedure is available in public domain in the datasheets / user manuals on use of the microcontrollers.

Q49. It is claimed that the EVMs cannot be assumed to be tamper-proof so the electronic voting system should be redesigned to be software and hard-ware independent in order to be verifiable or auditable. Views on the same?

Ans. If a DRE produces a voter verifiable paper audit trail, it is software independent. The ECI EVM produces a paper audit trail and is therefore software independent.

(a) Firstly, ECI-EVM is thoroughly verifiable, as the voter verifies the vote cast on BU for candidate of his choice from the slip printed on paper by VVPAT that has details (Serial number, name and symbol) of the candidate voted for. Secondly the correlation between the ballot slip printed by VVPAT and the vote recorded in the EVM is established statistically with a high degree of confidence by tallying the electronic count of the Control Units with the VVPAT slip counts of five randomly selected polling stations in each assembly constituency/ segment. This is done as mandated by the Hon'ble Supreme Court of India.

(b) Evaluation of ECI-EVM design at its formulation stage as well as prototype and pilot stages are done traditionally by testing for worst case considerations, and performance measured on established statistical principles. Hence, EVM design as well as voting through EVM is reliable.

The extant instructions of ECI make sure that all stake holders are involved in all the steps of EVM storage, movement, checking FLC and preparation, Commissioning, distribution to

polling parties, Mock-Poll on poll day and during polling itself. This is to ensure transparency and to build trust amongst the public at large.

Q50. VVPAT system should be redesigned to be fully voter-verified. The voter should be able to approve the VVPAT printout before the vote is finally cast and be able to cancel if there is an error. Why shouldn't ECI implement this?

Ans. Every vote is verified by the voter and given the available provision in the statute (Rule 49 MA) for the voter to report any discrepancy between his choice of vote in the BU and VVPAT slip, such a modified system may be superfluous.

Q51. Testing is never adequate to declare an electronic system as complicated as an EVM fail safe and verified. What are the extra precautions and control mechanisms of ECI on this matter?

Ans. ECI-EVMs are simple to operate and use, stand-alone and robust vote recording machines. EVMs use advanced cryptographic methods to maintain their overall integrity. EVMs cannot be connected by wires or wirelessly to any unauthorized device. By design the EVMs are safe and tamper-proof. However, to build trust and confidence, various testing/checking/observation and mock poll protocols have been introduced across various stages of EVM deployment. With the addition of VVPATs to the BU & CUs the voter can instantly verify if his vote has been cast as intended. All processes of EVM handling are in full view and participation of stakeholders.

Q52. EVM with VVPAT introduction is no more a standalone device since it has to be connected to Symbol Loading Unit for symbol loading. Sensors, printer, Light mechanism needs drivers along with micro-controller, hence how can it still be called a rudimentary device?

Ans. Symbol Loading Unit (SLU) is part of the EVM infrastructure. The CU, BU with VVPAT still remains a standalone device. In order to print the VVPAT slips, VVPAT needs to have the Symbol information and the Candidate information loaded as data in graphical format. This can only be done through an authorized EVM specific device known as Symbol Loading Unit.

Q53. Does the VVPAT have a programmable memory? If yes, then at what stages in the election process is it accessed by an external device? If no, then where are the names and symbols of the candidates stored in the VVPAT for it to print the same in the VVPAT slip later?

Ans. A VVPAT has two different memories. One, where the program instructions are kept for the microcontrollers, is One Time Programmed (OTP). The VVPAT firmware is stored in the One Time Programmed memory. After the firmware is ported in the microcontroller at the manufacturers' site, no changes in the program are possible subsequently. The other memory is for storing graphical images containing serial number, name, and symbol of the candidates as data. This is done with the help of a symbol loading unit, during the commissioning of VVPATs before each election. Live display of the symbols being loaded into the VVPAT is done during the Commissioning process in presence of candidates /their representatives to make the process more transparent.

Q54. The voting system design should be subjected to independent (of the government and the ECI) review; and the integrity of the election process should be subjected to an independent audit. The findings should be made public.

Ans. ECI is an independent Constitutional authority in itself. The technical review of EVM is done by TEC of ECI. The printed paper slip of VVPAT is duly verified by the voter and the correlation between the electronic count of Control Unit and corresponding VVPAT slip count is established statistically with high level of confidence level.

Q55. In an EVM, where votes are recorded electronically by the press of a button, and the voter cannot examine what has been recorded, there is no way to provide a guarantee to a voter that his/her vote is cast as intended (recorded correctly in the EVM), recorded as cast (what is recorded in the EVM is what is collected in the final tally) and counted as recorded. This casts doubts on a purely EVM-based system.

Ans i) The voter verifies the vote cast on BU for candidate of his/her choice from the slip printed on paper by VVPAT that has details (serial number, name and symbol) of the candidate voted for. Thus, there is verification that the vote has been cast as intended.

ii) The count from the Control Unit where the vote is recorded and from VVPAT slips are strongly correlated as per the sampling plan advised by reputed experts in statistics. This

correlation process has been accepted by the Hon'ble Supreme Court of India in 2019, wherein as an additional measure for enhancing public confidence, the apex court recommended a higher sampling rate compared to that suggested by the experts. ECI has indeed been following this higher sampling rate.

iii) The vote count reported by the Control Unit and that obtained from a count of VVPAT slips has matched over a large number of machines and over several elections. Till date, slips of 41,629 randomly selected VVPATs, with more than 2.3 Cr votes, have been tallied and not a single case of transfer of vote meant for candidate A to candidate B has been encountered.

After successive elections, the excellent match between the Control Unit count and VVPAT slip count strengthens the correlation between votes cast, votes recorded and votes counted. A close look at the results of Legislative Assembly Elections and the Lok Sabha Elections (Annexure-II and Annexure-III) shows how the party with maximum number of seats has changed over time and amply proves the integrity of the EVMs. This should remove all doubts cast on EVM-based systems used in India.

In addition to the technical strengths as summarised above, the extant instructions of ECI make sure that all stakeholders are involved in all the steps of EVM storage, movement, checking FLC and preparation, Commissioning, distribution to polling parties, Mock Poll on poll day and during polling itself. This is to ensure transparency and to build trust amongst the public at large.

Q56. Is there transparency in the counting of votes and ascertainment of the results from the EVM reliably without special knowledge on EVM?

Ans. At time of poll, a voter casts his/her vote by pressing the candidate button of his/her choice and verifies from printed slip of VVPAT which has the details of candidate he/she has voted for. Counting of votes is conducted in absolute transparency in the presence of all the contesting candidates and counting agents authorised by the candidates. To ascertain the result from the Control Unit, no special knowledge is required. The Counting Officials just press the "RESULT" button of the Control Unit, and Candidate-wise result is automatically displayed on the display panel of the Control Unit. For this only the basic training required for the officials is imparted to them. A list giving Serial Nos. of BU, CU, and VVPAT deployed in all polling stations in the AC/AS is shared with the candidates after the second randomisation. All votes of CUs and VVPATs are counted in the presence of political parties and candidates present after verifying the intactness of seals and serial numbers of the EVMs

with the list of EVMs deployed in the polling stations which was given in advance. Subsequently, the matching of VVPAT slips of five randomly selected polling stations with their CU counts is also done in the presence of all political parties and candidates to establish the correlation between the 'vote cast and vote counted' with a very high level of confidence. The voters can therefore ascertain that their vote has been 'cast as intended, recorded as cast, and counted as recorded' without any expert knowledge. The tallying of a sample of five VVPATs per AC/AS with the CU count has been mandated by the Hon'ble Supreme Court of India. In fact, for the parliamentary general elections this mandate boils down to tallying the ballot slip counts of 20,625 randomly chosen VVPATs with the electronic counts of their Control units. If no mismatch between EVM and VVPAT counts is found in such a sample, then it provides a very high statistical guarantee that the sanctity of the election process is not affected by the use of EVMs. Till date ballot slips of 41,629 randomly selected VVPATs have been tallied with the electronic counts of their Control Units and not a single case of transfer of vote meant for candidate 'A' to candidate 'B' has been encountered. Differences in count if any have always been traceable to human errors like non-deletion of Mock-Poll votes from Control Unit or non-removal of Mock-Poll slips from VVPAT.

Q57. How ordinary citizens can check the essential steps in the voting process without technical knowledge on EVMs?

Ans. The EVM system is as simple as a basic calculator. No expert knowledge is required to operate or cast votes on EVM. All ECI-EVM related processes are easy to monitor and are conducted transparently in the presence of stakeholders. Ordinary Citizens are able to check the truthful recording of their votes through verification of printed VVPAT ballot slip by each voter, and the subsequent tallying of VVPAT slips of five randomly selected polling stations of every AC/AS with the electronic count of the corresponding Control Units to establish a strong correlation between the vote cast and the vote counted as cast with an extremely high level of confidence.

In fact, for the parliamentary general elections the mandate of the Hon'ble Supreme Court of India boils down to tallying the ballot slip counts of 20,625 randomly chosen VVPATs with the electronic counts of their Control units. If no mismatch between EVM and VVPAT counts is found in such a sample, then it can be said with near certainty that the sanctity of the election process is not disturbed by the use of EVMs. Till date ballot slips of 41,629 randomly selected VVPATs have been tallied with the electronic counts of their Control Units and not a single case of transfer of vote meant for candidate 'A' to candidate 'B' has

been detected. Differences in count if any have always been traceable to human errors like non-deletion of Mock-Poll votes from Control Unit or non-removal of Mock-Poll slips from VVPAT, wherein it is possible to identify and remove the mock poll votes.

Q58. Do BEL /ECIL share the confidential software programme with foreign chip manufacturers to copy it on to microcontrollers used in the EVMs?

Ans. Microcontrollers are ported with firmware by BEL/ECIL inside their factories under high level of security and safeguards. Out of a 4 layered secure manufacturing process (SMF) the microcontrollers are ported in the L3 area where only designated engineers are authorised access through access cards and biometric scans. No external agency either indigenous or foreign is involved in loading the firmware programme in micro controllers.

Q59. In an EVM, a vote is recorded electronically by press of a button. But the voter cannot examine what has been recorded, there is no way to provide a guarantee to a voter that her/his vote is cast as intended, recorded as cast and counted as recorded. How then, can elections conducted with EVMs be democratic and how then, can India continue to be considered an electoral democracy?

Ans. ECI-EVM has always been a truthful machine. A close look at the results of Legislative Assembly Elections and the Lok Sabha Elections (Annexure-II and Annexure-III) shows how the party with maximum number of seats has changed over time and amply proves the integrity of the EVMs. With the introduction of VVPAT the ECI EVM system enables voters to immediately verify that their vote is cast as intended by observing the VVPAT ballot slip which contains the name, serial number and symbol of the candidate for whom vote is cast. The votes are counted as recorded in Control Unit. The correlation between the ballot slip printed by VVPAT and the vote recorded in the EVM is established statistically with a very high degree of confidence by tallying the electronic count of the Control Unit with the VVPAT slip count of five randomly selected polling stations in each assembly constituency /segment.

The matter regarding mandatory verification of VVPAT slips count has already been settled by the Hon'ble Supreme Court of India by its order dated 8th April, 2019. In pursuance of that order ECI has been mandatorily verifying VVPAT slips of randomly selected 5 polling stations per assembly constituency/segment (in Parliamentary constituency elections).

It is highlighted that apart from the above, verification of VVPAT slips is done at various stages of the election process in the presence of representatives of recognised political parties/candidates as follows:

i) During FLC – in 5% machines selected randomly (1200 votes in 1%, 1000 votes in 2% & 500 votes in 2%)
ii) During Commissioning – in 5% machines selected randomly (1000 votes)
iii) Mock-Poll before actual poll – in 100% machines (at least 50 votes)

The extant instructions of ECI make sure that all stake holders are involved in all the steps of EVM storage, movement, checking FLC and preparation (Commissioning), distribution to polling parties, Mock-Poll on poll day and during polling itself. This is to ensure transparency and to build trust amongst the public at large.

Q60. With modern data analytics it may require targeting the EVMs in just a few polling stations to swing the election results for a constituency. What are the safeguards against such targeted attacks?

Ans. ECI-EVMs are absolutely stand-alone machines without any scope for wired or wireless connectivity with any other system/machine. Having no communication channel from outside ensures that there is no mechanism to influence data from outside. Moreover, the firmware of the microcontrollers is One Time Programmed (OTP) and runs out of a Read only Memory and hence cannot be updated, modified or enhanced in terms of functionality. Therefore, the election results cannot be modified by anyone and the results will be exactly as per votes cast by the voters through process of voting.

In addition to the technical safeguards the administrative safeguards, procedures ensure that unfettered access to EVMs is denied to attackers. The technical safeguards and administrative safeguards together ensure the impregnability of EVMs.

Q61. There must be stringent audit of the electronic vote count before the results are declared. The post-counting audit should not be based on ad hoc methods but by counting a statistically significant sample of the VVPAT slips according to rigorous and well-established statistical audit techniques. Why can't the audit/verification/counting of VVPAT slips be done in some cases depending on the margin of victory?

Ans. Firstly, the counting of VVPAT slips is done as per well-established procedure as directed by the Hon'ble Supreme Court of India and is not done in an ad-hoc manner. Further, the statute

also provides an opportunity for the candidates to request for the VVPAT slip count under Rule 56D of the Conduct of Elections Rules, 1961. The option of filing an Election Petition after declaration of result is also available for the contesting candidates wherein each and every VVPAT slip may be counted as per direction of the Hon'ble Court.

Q62. At the request of the Election Commission, a committee of eminent experts in statistics provided a report describing how many EVMs should be cross-checked and why. The report recommends the cross-checking of only 479 EVMs across the country, independent of how many total EVMs are used (some reports mention that a total of 10.35 lakh EVMs were used in GE 2019). It says that, if a fraction of 2% or more of the EVMs are faulty, cross-checking 479 chosen at random across the country will be sufficient to detect this fact with near certainty. Therefore a) the faulty EVM in a random sample will be detected only if the number of such EVMs in a parliamentary election is more than 20,000; and the presumption that the entire quantity of EVMs used in the country can be considered as the population is incorrect. Can this be elaborated and explained?

Ans. The following two points are raised in the question above:

(i) The margin of error in the report of the Committee was put as 2%. Hence a random sample of size 479 will detect a mismatch between EVM and VVPAT count with 'virtual certainty' only if the number of such mismatches in EVMs in a parliamentary election is more than 20,000.

(ii) The premise of using the whole country as the population is 'profoundly mistaken.'

Regarding the first point-- A general perception is that a small sample will not be able to make any valid inference about a large population. There have been several suggestions that ECI should sample a certain minimum percentage of EVM systems and verify the electronic counts with the slip counts for ensuring that there are no mismatches between EVM and VVPAT counts. The suggested percentage of EVMs to be sampled varies from 10% to 50%.

This of course is completely erroneous as any of the suggested figures of 10% or 30% or 50% has no statistical basis whatsoever and the numbers have no sanctity. The accuracy of the results obtained by a sampling procedure mainly depends on the 'absolute sample size' and not on 'the sample size as a percentage of the population size.' While non-intuitive this is the standard statistical result and is well validated in all standard books on Sampling Theory.

While it is true that a 2% margin of error has been considered in the report but the confidence level considered is also far higher at 99.993665752% (4 sigma level) than considered by most commentators.

Similarly, the question about what to use as the population for the study?

To answer this question, it was first necessary to decide over the level at which the statistical guarantee was required. In this case the basic unit of the study was the EVM machine and it was required to check the working of the EVM through VVPAT counts. It is noteworthy that all EVMs are similar, having come up through the same manufacturing and testing process. Every machine is connected to a VVPAT. Before poll each EVM undergoes FLC and multiple mock polls and verifications as per established protocols in the presence of political parties. It is also to be noted that there is no systematic bias in allotting particular EVMs to particular states / constituency/ booths. Machines are randomised twice, first time for allocating to assembly constituencies and second time for allocating to polling stations.

Thus, the report considered as a unit all the elections that are announced on a given day and typically counted on the same day. This could be any combination of assembly elections in a few states, or Lok Sabha elections along with assembly elections and bye elections and so on. All were considered as one set of elections and since the Statistical unit of study was the EVM, the population consisted of all EVMs being used in a particular set of elections for which counting was done on the same day.

However, the mandate of the Hon'ble Supreme Court to the ECI to tally five randomly chosen VVPAT systems per assembly constituency /segment goes far beyond the recommendation of taking a sample size of 479 as given by the expert committee.

In fact, for the parliamentary elections, this mandate boils down to testing 20,625 randomly chosen VVPAT systems (five in each of the 4125 assembly segments). If no mismatch in the EVM and VVPAT count is found in such a sample, then it can be said with very high level of confidence or with near certainty that the sanctity of the election process is not affected by the use of EVMs.

Q63. The ECI has to define which one is true representation of the will of the voter? Vote recorded on Control Unit or voter verified SLIP in VVPAT? If Counting is based on the Control Unit count what is the use of Verifiable paper SLIP?

Ans. The system of VVPAT has been introduced only for the purpose of greater transparency and enhancing the confidence of voters by way of immediate verification of the printed ballot slip

having the chosen candidate's Name, Serial Number and Symbol and recording of vote in the Control Unit.

As per existing legislation, Rule 56C of the Conduct of Elections (Amendment) Rules clearly states that after the returning officer is satisfied that a voting machine has not been tampered with, he shall have the votes counted by pressing the appropriate button marked "Result" provided in the control unit whereby the total votes polled and votes polled by each candidate shall be displayed in respect of each candidate on the display panel provided for the purpose in the unit. The candidate wise result so obtained from all control units used in the election is to be tabulated in a result sheet in Form 20 and the particulars so entered in the result sheet announced.

Contesting candidates have the opportunity to request for the VVPAT slip count under Rule 56D of the Conduct of Elections Rules, 1961 after completion of counting of votes from the EVMs. Rule 56D (4) (b) clearly states that in case of a discrepancy between the Electronic Count in the Control Unit and the ballot slip count of the VVPAT, the VVPAT slip count shall prevail.

Q64. There must be compliance audit, verifiable by all candidates and interested members of the general public, to ensure the integrity of the VVPAT slips. The VVPAT slips may be trustworthy at the time of voting, but it is necessary to ensure that they remain trustworthy later while auditing.

Ans. Mandatory verification of randomly selected five polling stations per assembly constituency/segment is a strong post audit of the veracity of vote count, all in the presence of stakeholders. Till date, slips of 38156 randomly selected VVPATs have been counted and not a single case of transfer of vote meant for candidate A to candidate B has been encountered. Differences if any have always been traceable to human errors such as not removing votes cast in the mock poll. Moreover, contesting candidates have opportunity to request for the VVPAT slip count under Rule 56D of the Conduct of Elections Rules, 1961 after completion of counting of votes from the EVMs. Further, aggrieved candidate(s) / voter can challenge the election by way of Election Petition before the competent court where upon directions of the Hon'ble Court each and every VVPAT slip may be counted.

EVM Tampering

Q65. An EVM has not yet been hacked provides no guarantee whatsoever that it cannot be hacked. Therefore, elections must be conducted assuming that the electronic voting machines may possibly be tampered with. What is the view of the Commission?

Ans. Indeed, the design of security mechanisms incorporated in the ECI-EVM units start with the assumption that attempts may be made to tamper their contents. Based on various scenarios for such attempts, strong security features have been incorporated in the EVM design.

i). ECI-EVM design incorporates a "mutual authentication" process so that EVM units cannot connect or communicate with any external device.

ii). These undergo strict quality checks to ensure that there is no Wi-Fi, or Bluetooth connectivity.

iii). These are so designed that they can detect an attempt to tamper the unit, and on detection of such an attempt, the EVM unit is set in a mode where it simply cannot be used in a poll. It has to be sent to the factory for enabling it to function as an EVM again.

iv). Additionally, administrative safeguards and robust security and stakeholder participation and media scrutiny ensure that there is no other scope for manipulating the EVMs.

v). Further, every EVM that is to be deployed for the election process undergoes rigorous testing and three stages of Mock-Polls, coupled with double randomisation of EVMs.

vi). While ECI supervises and controls the election process, it encourages stakeholder participation across all stages.

vii). In addition to the above, ECI regularly undertakes the repair of EVMs/VVPATs that may have become non-functional in the field. It conducts pre-checks and preventive maintenance on EVMs to weed out machines likely to fail during elections.

Q66. There are numerous examples of hacking electronic devices through electromagnetic and other channels from all over the world, including of the Software Guard Extensions of sophisticated Intel processors. In view of such possibilities, the claims that the EVM

has no external communication channels appear to be naive, especially considering that so much is at stake.

Ans Designers of ECI-EVMs are aware that electro-magnetic interference can impair the operation of some electronic devices. Accordingly, sufficient care has been taken in the design and testing of these EVMs to ensure that externally applied fields over a wide spectrum of frequencies do not affect the correct operation of EVMs. Additionally, emissions from the EVM units are monitored to ensure that these do not emit significant levels of RF which could provide an "external communication channel".

During functional testing of EVMs, CU, BU and VVPAT units are subjected to RF fields from 10 kHz to 6 GHz (from 10,000 to 6,000,000,000 cycles per second) in specified steps as per IEC standards. RF emissions from these units are monitored to rule out the presence of RF communication devices such as Wi-Fi or Blue tooth etc.

These measures ensure that no hidden "external channels" exist and EVM units are indeed a closed system with no communication with external world during their operation.

Q67. The non-verifiability of the EVM and VVPAT based voting protocol makes it impossible to rule out unpredictable manipulations by unpredictable entities, including foreign players. It is essential that all aspects of an election be observed, audited, and independently verified by the public to engender trust. What are the mechanisms of ECI to avoid such a possibility?

Ans Firstly the ECI-EVM is thoroughly verifiable, as the voter verifies the vote cast on BU for candidate of his choice from the slip printed on paper by VVPAT that has details (name, serial number and symbol) of the candidate voted for, and secondly the result as per Control Unit count is strongly correlated to the corresponding VVPAT slips count with a high level of confidence as per sampling plan mandated by Hon'ble Supreme Court of India.

Evaluation of ECI-EVM design at its formulation stage as well as prototype and pilot stages is done traditionally by testing for worst case considerations, and performance measured on established statistical principles. Hence, EVM design as well as voting through EVM is reliable.

Also, the extant instructions of ECI make sure that all stake-holders are involved in all the steps of EVM storage, movement, checking FLC and preparation Commissioning, distribution to polling parties, Mock-Poll on poll day and during polling itself. This is to ensure transparency and to build trust amongst the public at large.

Q68. "Experts" have declared that the ECI machines are non tamperable and safe but this does not make the EVM+VVPAT verifiable. None of the ECI experts have credentials in computer security and the majority of them are not even computer scientists. In addition to experts the ECI is also dependent on many other entities and organisations- including hardware manufacturers, software developers and testers, system assemblers, and un-modelled custody chains for the integrity, safety and security of its machines and is thus not entirely in control. In this situation what is the need to use EVMs for elections in India?

Ans. Comments on ECI experts are uncalled for. The EVM detractors, self-appointed technical experts and certain social media personnel have repeatedly failed to realise that the EVMs cannot be compared to a computer which runs on an operating system. The microcontrollers of EVMs and VVPATs run on a specific program designed to faithfully record the voters' choice. That the EVM is a truthful machine has been proved over decades of usage through changes in several governments at the state and central level, whenever the public wanted to. In fact, the EVM has made elections safe and virtually eradicated booth capturing by limiting the rate of vote casting to four votes a minute and thus significantly increasing the time required for stuffing false votes. Invalid votes a bane of the paper ballot system was at times greater than the winning margins and have been completely eliminated by the EVMs. Vote cast is verifiable by voter on VVPAT and the Control Unit-VVPAT vote count matches are done on well-established principles of statistics to provide a very high level of confidence.

Q69. Is the entire process on use of EVMs transparent, free and fair?

Ans. The strong technical safeguards and elaborate administrative safeguards, procedures put in place by ECI along with encouraging wide participation of all stakeholders at every stage of the election process ensures that the elections are transparent, free and fair.

The elections are transparent as these are conducted openly under the watchful eyes of the public. For example, all processes involving ECI-EVMs such as storage, transportation, randomisation, FLC, Commissioning, voting procedure, Counting etc. is conducted in full view and participation of stakeholders and representatives of recognised political parties. Hence the election is held in transparent way.

Elections conducted with ECI-EVMs are free since elaborate security arrangements are made at election booths and in their vicinity, so that voters can come and vote feely without influence of inducement, fear or coercion.

Fairness of the election is ensured through the technical design of the EVM system as well as the strong processes followed in election steps.

A vote cast on BU is verified by the voter by viewing the slip printed on VVPAT with the candidate's name, serial number and symbol on it. The voter verified slips are later correlated with Control Unit count during counting as per specified procedure.

The EVMs used for elections are thoroughly tested during First Level Check (FLC) in presence of stakeholders and Mock-Poll is conducted during FLC, commissioning as well as at start of the poll to ensure that EVMs used are functioning properly.

Due to double randomisation of EVM units, which is conducted in the presence of recognised political parties / candidates, it is not known in advance as to which machine will go to which constituency or polling station.

Insider attacks on the machines are prevented through secure manufacturing processes, SMF where all steps used in the manufacturing process are strictly monitored and automatically recorded.

Thus, it can be seen that the strong technical safeguards in EVMs and elaborate administrative safeguards, procedures and security put in place by ECI along with encouraging wide participation of all stakeholders at every stage of the election process ensures that the elections are transparent, free and fair.

Judicial Scrutiny

Q70. It is claimed that ECI is silent in respect of serious discrepancies in the two sets of data (data initially shared by the ECI and the final voter turnout/votes polled data on the EVMs) in 373 constituencies which went to elections in the first four phases of the elections of Lok Sabha, 2019.

Ans. There is no case where any candidate or his agent complained that there is any discrepancy in the total votes polled in EVM and result obtained from the EVM. It is also pertinent to highlight that the voter turnout is a dynamic figure. The final voter turnout is finalised by the Returning Officer when related documents are scrutinised and shared with all the contesting candidates.

Q71. It is well circulated in the Media that according to replies to Right to Information (RTI) queries about two million EVMs were stated to be missing from ECI. Whether it is true or not?

Ans. The matter is sub-judice and necessary clarifications have been provided to the Hon'ble High Court of Bombay. The issue is nothing more than the twisting, selective and wrongful representation of facts by vested interests.

Q72. While banning electronic voting, the German Constitutional Court made the following observation: The use of voting machines which electronically record the voters' votes and electronically ascertain the election result only meets the constitutional requirements if the essential steps of the voting and of the ascertainment of the results can be examined reliably and without any specialist knowledge of the subject…The legislature is not prevented from using electronic voting machines in elections if the possibility of a reliable examination of correctness, which is constitutionally prescribed, is safeguarded. A complementary examination by the voter, by the electoral bodies or the general public is possible for example with electronic voting machines in which the votes are recorded in another way beside electronic storage. How are ECI EVMs different from the voting systems banned by the German Constitutional Court?

Ans. Across the world, both paper ballot voting system as well as EVMs are used for conducting elections as per the preference and mandate of the authorities concerned. The Election Commission of India is a Constitutional Body mandated to conduct elections to State Legislature, both the houses of the Parliament and the offices of the President of India and

Vice-President of India, as per Act and Rules passed by the Parliament of India. Use of ECI-EVMs for conducting elections in India is approved by the Parliament and upheld by various High Courts and Hon'ble Supreme Court of India.

ECI EVMs are manufactured by central government public sector undertakings in a secure manufacturing facility. Rigorous third-party testing is carried out by STQC (Standardization Testing and Quality Certification) at the manufacturing premises before acceptance and dispatch to various states of deployment. Stringent and elaborate protocols as mandated by ECI are followed during EVM movement, storage, and deployment. The German Constitutional Court made its observation in the context of EVMs used in German elections and in relation to German law. Indian EVMs are robust and implement technologies and processes which are different and noncomparable. Hon'ble Supreme Court of India and various High Courts have time and again scrutinised the machines and have reposed their confidence and faith in ECI EVMs.

Q73. The general opinion was that at a time when there had been strong calls for the back to ballot paper system, it was the duty of ECI officials, who were strongly opposed to the demand, to ensure maximum transparency to belie any suspicion over EVMs.

Ans. EVMs are used in the Indian elections as mandated by the Representation of People Act, 1951. Therefore, EVMs are used in Indian elections as per the statutory mandate of Parliament. The same has the backing of judiciary also. The matter of bringing back the manual ballot system and discarding the use of EVMs has been brought up before various courts time and again. However, on all occasions the courts including the Hon'ble Supreme Court of India have dismissed the petitions. In a latest such judgement dated 03/08/2021 (C.R. Jaya Sukin vs ECI, SLP (Civil) 13278/2021), the Hon'ble High Court of Delhi, even imposed cost on the petitioner while dismissing the pleas to stop the use of the EVMs. Further, ECI constantly strives to bring in more transparency and wider participation in the electoral process.

Additional Topics

Q74. Which model of the EVM and VVPAT is presently in use? How many VVPATs were deployed in the General elections – 2019? What is the amount of money spent on the procurement of M3 model machines?

Ans. Post -Lok Sabha Election, 2019, ECI has been using only M3 Model EVMs and VVPATs in all the elections. M3 EVMs were first introduced in year 2013-14, and the model gradually replacing the earlier models as and when they were phased out. During Lok Sabha, 2019, VVPATs were deployed in all polling stations of the country, and a total of 17.40 Lakhs VVPAT units were available for the Elections. The amount of money spent on the procurement of M3 model machines is given in table below:

S.No.	Year of Procurement	Budget (Rs Cr)
1.	2013-14	645.75
2.	2017-19	4876.71
3.	2021-23	3960.10
4.	**Total**	**9482.56**

Q75. Why is it not worthwhile to bias the EVM in advance (during production or storage) to favour a particular symbol /candidate?

Ans. This issue has been dealt with in FAQ No 38, 40 and 43, however it is being elaborated below for more clarity:

i. The BU, CU and VVPAT units are manufactured using a Secure Manufacturing Facility (SMF) where all steps used in the manufacturing process are strictly monitored and automatically recorded to prevent "Insider attacks" on the machines. After the program has been loaded into the EVM unit it is one-time-programmed (OTP), hence re-programming is permanently disabled by the secure processors used in these units. In addition, each unit of the ECI-EVM contains an "Unauthorised Access Detection Module (UADM)" which renders the machine unusable if it detects an attempt to open the UADM. Thus, any attempt to modify the machine after its production will fail.

ii. It may also be noted that the ECI EVM is agnostic to Names & symbols of candidates. The EVM (CU) recognises only the key numbers of the BU. The ballot paper placed under the BU screen only aligns the names and symbols of the candidates with the key numbers on the BU but there is no electrical connection between the two. The arrangement of names of candidates on the ballot paper of the Ballot Unit is in alphabetical order, first for the National & State Recognised Political Parties, followed by other State Registered Parties, and then by independent candidates. Thus, the sequence in which the candidates' names appear on the Ballot paper of the BU is dependent on the names of the candidates and their party affiliation and keeps changing from one election to another. The list of contestants is finalised after the date of withdrawal, that is a few days before the poll, after which the EVMs

are Commissioned and kept in the Strong Room under tight security. It may be noted that the sequence of names cannot be ascertained much in advance. In addition, EVMs are allocated to polling station after two stages of randomisation process through EVM Management System (EMS) software application developed by the Commission. After First Level Checking (FLC) of EVMs, First Randomization of EVMs is done at the District Election Officer level to allocate them Assembly Constituency-wise in the presence of the representative of recognised political parties. Thereafter, before Commissioning of EVMs, Second Randomisation of EVMs is done at the Returning Officer level to allocate EVMs Polling Station-wise in the presence of candidates / their agents.

iii. As can be seen from above the candidate-agnostic nature of EVM, the process and time of finalisation of the list of contestants and two levels of randomisation in the allocation of EVMs eliminate any scope of EVM manipulation through any prior biasing.

Q76. In some constituencies due to a high number of contesting candidates more than one ballot unit may be required to be connected to the CU. In such cases how does the CU know that a particular vote has been cast from the 1st BU, or 2ndBU,or 3rd BU and so on?

Ans: Each BU can accommodate up to 16 candidates (including NOTA). Accordingly, first BU has the names of candidates from S.no 1 to S.no 16, the second BU has names of candidates from S.no 17 to S.no 32 and so on. At the time of Commissioning the BU the top cover of the ballot unit is opened and the Ballot sheet with the S.no, name and symbol of the candidates is inserted under the transparent screen of the ballot unit and the screen is sealed. At the same time the thumbwheel switch on each BU is set to the physical position of the BU i.e. at 1 for 1st BU,2 for 2nd BU, 3 for 3rd BU and so on. This setting is done as per the ballot sheet inserted in the BU. All unused keys in the BU are masked to avoid them from being pressed by any voter and the top cover of the BU is sealed with Pink Paper seal to eliminate access to the Ballot sheet, thumbwheel switch and inside circuit of BU. In the polling station if any BU is connected in the wrong position the CU display will give an error message.

A combination of the thumbwheel switch position and BU key number is used by the microcontroller of CU to determine the key number pressed and the BU number from which the key is pressed eg: 7 (BU1 & key 7),23 (BU2 & key 7),39(BU 3 &key 7) etc.

Q77. What are the specifications of powerpacks used for CU/BU/VVPAT?

Ans: Rating of power pack of CU is 7.5Volts, 2AH. Rating of power pack of VVPAT is 22.5 volts, 4AH. BU uses the same power pack as the CU when more than four BUs are used. *May also please refer FAQ Qn.no.10.*

Q78. How do we know when the powerpack is about to get over (CU and VT) and they are to be replaced?

Ans: The power packs of CU and VVPAT are periodically monitored and the balance power status is displayed by the Control Unit as "High", "Medium", "Low", "Marginal" and "Change Battery" along with the percentage.

The power packs are replaced from the "Reserve" power packs available with the Sector Officers when the "Change Battery" status is displayed by the CU.

Q79. What happens if the power pack of a CU/VVPAT gets drained out completely at the time of voting?

Ans:

i. If powerpack of Control Unit of EVM gets drained out on voting day, the powerpack is replaced with Reserve power pack of the EVM by the Presiding Officer in presence of the polling agents and Sector Officer. Upon replacement, the powerpack Section of the Control Unit is re-sealed with address tag and signatures of the polling agents are also obtained on the tag.
ii. If power pack of VVPAT goes non-functional on voting day, the power pack is replaced with reserve power pack of VVPAT by the Presiding Officer in presence of the polling agents and sector officer.

However, the need to change power packs occurs rarely.

Q80. What is the size of VVPAT slips and what are the properties of VVPAT slips?

Ans: The VVPAT printed slip is approximately 99mm x 56mm in size. The VVPAT slip is basically thermal paper with a print retention capability of about five years when stored properly.

Q81. What are the details printed on the slips?

Ans: Printed slip of VVPAT contains the following information:

i. Candidate Serial Number
ii. Name of the Candidate.
iii. Symbol of party or Candidate
iv. Session Number
v. VVPAT ID

These details could be viewed by the voter.

FAQ Qn.no.55may also be referred

Q82. If we get hold of a VVPAT printed slip can we know from which VVPAT machine it was printed?

Ans: Yes. VVPAT slips have the unique ID number of the VVPAT that printed the slips. Therefore, from the unique ID number mentioned on the VVPAT printed slips, we will be able to identify the source VVPAT.

Q83. Why is the VVPAT display window of a darker shade?

Ans: The colour of glass is a delicate balance between visibility to voter for vote verification, as provided in law, with illumination vis-à-vis to comply with the constitutional requirement to maintain the secrecy of vote. The VVPAT window glass has a tint necessary to maintain the secrecy of voting so that, even by mistake, anyone other than the voter is not able to view the slip easily. It may be noted that while the initial samples of VVPATs made for conducting trials had a viewing window with transparent glass, based on experience and other practical considerations, the final model of VVPAT was approved by the TEC (January, 2013) with a tinted glass so that the print slips are not visible unless internal LED lights are turned on. The same was demonstrated to the political parties in a meeting on 10th May 2013. Bulk production of VVPATs has always been done with tinted glasses only.

Q 84. What are the important legal provisions on the use of VVPATs?

Ans: Voter Verifiable Paper Audit Trail (VVPAT) was introduced by the ECI in compliance to the pronouncement of the Supreme Court in **Dr. Subramanian Swamy Vs. Election Commission of India (2013)** to ensure further transparency in the system by introducing 'paper trail' in respect of EVMs. Accordingly, the necessary amendments were made to **The Conduct of Elections Rules, 1961** as under:

Rule 49A (Design of Electronic Voting Machines)-

Every electronic voting machine (hereinafter referred to as the voting machine) shall have a control unit and a balloting unit and shall be of such designs as may be approved by the Election Commission.

Provided that a printer with a drop box of such design as may be approved by the Election Commission may also be attached to a voting machine for printing a paper trail of the vote, *in such constituency or constituencies or parts thereof as the Election Commission may direct.*

(B) Rule 49M (Maintenance of secrecy of voting by electors within the polling station and voting procedures)-

(1) *Every elector who has been permitted to vote under rule 49L shall maintain secrecy of voting within the polling station and for that purpose observe the voting procedure hereinafter laid down.*

(2) *Immediately on being permitted to vote the elector shall proceed to the presiding officer [..] for recording of elector's vote.*

(3) *The elector shall thereafter forthwith-*

(a) *proceed to the voting compartment;*

(b) ***record his vote by pressing the button on the balloting unit against the name and symbol of the candidate for whom he intends to vote; and***

(c) *come out of the voting compartment and leave the polling station:*

Provided that where printer for paper trail is used, upon casting the vote by pressing the button under clause (b), ***the elector shall be able to view through the transparent window of the printer, kept along with the balloting unit inside the voting compartment, the printed paper slip*** *showing the serial no, name and the symbol of the candidate for whom he has cast his vote before such paper slip gets cut and drops in the drop box of the printer".*

Q 85. When was legal framework for VVPAT was introduced?

Ans: 14th August 2013.

Q 86. How does signal/command flow between various units of EVM viz. BU, CU and VVVPAT? Since the VVPAT is kept along with BU inside the voting compartment of the voter, does VVPAT receive any signal/command from BU and vice-versa?

Ans: In M3 EVMs, CU always acts as Master, irrespective of the position in which it is placed or connected. BU and VVPAT act as Slave units in the connected network, which receive commands from CU to act as per the application programme. BU and VVPAT do not communicate with each other. It is the CU that communicates with both the BU and VVPAT. When a voter presses a candidate button on BU, the BU sends the button number to CU and in turn, the CU communicates to VVPAT to print the slip of the corresponding button number. Only after printing and cutting of the printed VVPAT slip, the CU registers the vote.

Recording of votes in EVM-VVPAT system:

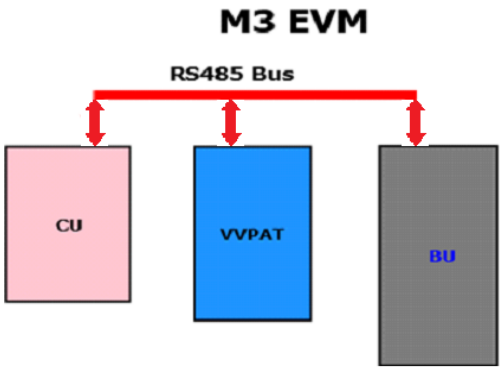
Votes are recorded only in CUs and not in BUs or VVPATs. When a particular Candidate's button in BU is pressed by the voters, BU sends the button number to CU and CU commands printing of slip related to that button number to VVPAT. The VVPAT slip so printed remains visible to the voters for about seven seconds to verify their votes cast through the VVPAT display window. VVPAT then sends an acknowledgment to the CU to mark completion of printing of slip. The CU then initiates the cut of the printed slip and the slip falls in the sealed drop box of the VVPAT **(Rules 49A and 49M,**

The Conduct of Elections Rules, 1961). After the successful completion of all these steps, i.e. printing and cutting of the VVPAT slips, the VVPAT sends an acknowledgement to the CU. Upon receiving the message from VVPAT, the CU records the vote electronically and emits a long BEEP. The BEEP marks the completion of the voting process for the voter.

Signal Flow Details in M3 Model EVM-VVPAT

In M3 model, Master-Slave bus architecture is used. VVPAT can be connected anywhere in the EVM M3 bus. The Control Unit (CU) implements communication, command processing, handling of key operations and handling of all the commands/responses to/from BU and VVPAT. The Master-Slave protocol is used to control access to the communication bus. Communication on the bus is initiated by the "Master" (CU) with a "Command" to a "Slave"(BU & VVPAT). The "Slave" which is constantly monitoring the bus for "Commands" will recognize only the "Commands" addressed to it and will respond by performing an action and by returning a "Response". Only the Master can initiate a command. CU is always the Master in the ECI M3 EVM system setup.

VVPAT signal Flow in M3 Model EVM-VVPAT



The signal flow diagram in Annexure I of FAQs may also be referred for further clarity.

Q 87. What is First Level Checking of EVMs/VVPATs? Why it is so called?

Answer: First Level Checking (FLC) of EVMs/VVPATs is a process in which the units are checked before using in elections. Only the FLC passed EVMs /VVPATs are used in election. FLC is conducted in the presence of the representatives of the National and State recognised political parties,

The process is called First Level Checking because well before the announcement of election by the Election Commission of India, the units to be used in elections are checked by the authorized engineers of the manufacturers to ensure only functional EVMs and VVPATs are

available for using in upcoming elections. The FLC is carried out under the supervision of the District Election Officer.

During the life cycle, EVM/VVPAT travels long distances to various State/UTs with different environmental conditions like extreme heat, extreme cold, extreme ranges of humidity etc. With ultimate goal of minimum replacement rate (to avoid any inconvenience to voters) during actual poll, First Level Check is mandatory process prescribed by the Commission before actual deployment of units in the elections.

Manual on Electronic Voting Machine (Chapter 2) may be referred for further details on FLC.

Q 88. What are the processes involved in First Level Checking of EVMs?

Answer: The following processes are involved in First Level Checking of EVMs and VVPATs, which are conducted in the presence of the representatives of the recognized political parties:

(a) Cleaning of Machines:
It includes dusting and removal of earlier address tags, ballot papers, cleaning of unwanted superscriptions from EVMs/VVPATs.

(b) Visual Inspection:
Visual Inspection of BU, CU, VVPAT, connecting cable, connector, latches, carrying cases etc., is conducted to ensure there is no physical damage or breakage of plastic parts, latches, switches etc.

(c) Internal inspection of BU/CU/VVPAT:
In order to provide assurance to the political parties, the authorised engineers ensure opening of Cabinets of BU and CU in the presence of the representatives of National and State Recognised Political parties during FLC and carry out visual inspection of PCB and check for spurious components, if any. Authorised engineers certify the same in prescribed format.

(d) Functionality Checks using Pre-FLC Unit (P-FLCU):
The functionality and electrical checks of CU, BU and VVPAT are conducted using Pre-FLC Unit (P-FLCU).

(e) Symbol Loading in VVPAT using Symbol Loading Unit (SLU):
Voter Verifiable Paper Audit Trail (VVPAT) is moved to Symbol Loading stage. Symbol loading in VVPAT is done using Symbol Loading Unit (SLU) and having facilitation of simultaneous viewing of symbol loading on TV/Monitor (at least 24") to the representatives of National and State Recognized political parties who are present during the FLC. It may be noted that only dummy symbols are loaded in the VVPATs for conduct of FLC and Mock polls.

(f) Casting of 96 Votes:
P-FLCU passed CU, BU and VVPAT (after symbol loading) are connected and 96 votes are cast [i.e.6 votes to each candidate button of the BU (16x6=96)]. Electronic result of EVMs and paper count of VVPAT slips are verified. Thereafter, result is cleared from Control Unit. This process is conducted for all units available for FLC i.e. BU/CU/VVPAT.

(g) FLC Sticker Labelling:
Once a unit passes the above stages, Green FLC OK sticker is pasted on Control Unit (CU)/ Ballot Unit (BU)/ Voter Verifiable Paper Audit Trail (VVPAT). Red Sticker with reason is pasted on FLC rejected units. Signatures of BEL/ECIL Engineers and

the representatives of DEO are made on both the stickers as applicable. Pink paper seals are pasted on CU and signed by FLC Engineer and FLC Supervisor. The representatives of the recognised political parties are also permitted to sign on the seals.

(h) Conduct of Mock Poll:

Mock poll in 5% of randomly selected EVMs **(i.e. 1200 votes in 1% EVMs, 1000 votes in 2% EVMs and 500 votes in 2% EVMs),** using VVPATs, is conducted in the presence of representative of recognized National and State Political Parties. Counting of printed ballot slips of each VVPAT is verified/tallied with the electronic result of the respective CU. The results are shown to the representatives of the recognized National and State Political Parties and their signatures are taken in a prescribed register. It is to be noted that for the purpose of mock poll and also to do the mock poll the representatives of the recognised political parties are allowed to pick machines randomly themselves.

Q 89. When is the First Level Checking of EVMs/VVPATs conducted?

Answer: First Level Checking of EVMs and VVPATs for use in election is conducted before every election.

In case of general elections to State Legislative Assembly and Lok Sabha, FLC is generally conducted at least 4 months and 6 months respectively before election. In case of bye-election, FLC is conducted generally within 1 month of occurrence of vacancy.

Q 90. Who conducts the First Level Checking of EVMs and VVPATs?

Answer: First Level Checking of EVMs and VVPATs is conducted by the authorised engineers of Bharat Electronics Limited (BEL) and Electronics Corporation of India Limited (ECIL), as the case may be, at district headquarters under supervision of District Election Officer, and in the presence of the representatives of the National and State recognised political parties.

Q 91. Whether the political parties are present in the First Level Checking process?

Answer: Yes, First Level Checking of EVMs is conducted in the presence of the representatives of the recognized political parties. For this purpose, a written invitation is given to the recognized political parties by the District Election Officer at district headquarters and copy endorsed to the state headquarters of the political parties.

Q 92. What are the criteria for rejection of EVMs and VVPATs as non-functional?

Answer: Only those EVMs and VVPATs are used in elections, which are found functional in First Level Checking. If any of the following is noticed in any EVM/VVPAT, it is considered as non-functional and subject to rejection:

Ballot Unit (BU): damage of connecting cable, connectors, switches, toggle, buttons, thumb wheel, LED etc., blinking of LED, not power on, etc.

Control Unit (CU): damage of connectors, switches, toggle, LED etc., buzzer problem, display problem (no display or partial display), blinking of LED, Clock error, not responding, etc.

VVPAT: paper lock problem, damage of connector, cable etc., mechanical error (paper struck/not printing), various sensors error (length error, contrast error, deplete error, fall error etc.), not responding etc.

Non-functional unit in no way signifies erroneous result, it only signifies stoppage of functioning.

Q 93. What is 'factory limit' and 'field limit' in case of VVPAT?

Answer: VVPAT is having electrical, optical and mechanical sub-systems. Four opto-electrical sensors are used in VVPAT, namely Deplete Sensor, Contrast Sensor, Fall Sensor and Length Sensor to ensure forewarning of deletion of paper roll, to maintain prescribed contrast of image on the slip, ensuring fall of the slip in sealed drop box (a vote is recorded only after slip fall is confirmed) and maintain prescribed length of the slip. Whenever, VVPAT is switched ON, self-diagnosis slips are generated. These slips have reports, namely, Deplete Diagnostic Report, Contrast Diagnostic Report, Fall Diagnostic Report, Length Diagnostic Report, Battery/LED Report and VVPAT Unit Post Report.

For optimal performance of sensors in the field, a limit (maximum and minimum electrical values) has been fixed for each sensor as per design. This limit is called **field limit**. These limits are mentioned in the self-diagnostic reports generated as above. Measured electrical values of each sensor must be within the prescribed limit. Upon self-diagnosis, if measured values are found to be outside the **field limit,** the corresponding sensor is declared non-functional and hence VVPAT is also declared non-functional.

In order to ensure that failures in the field are minimal the VVPATs are cleared from the factory at much tighter electrical limits called **factory limits**. In simple terms if "field limit" for a sensor in the VVPAT is say 100-150 for acceptance i.e. in diagnostic report, the measured electrical value of that sensor should neither be less than 100 nor more than 150. Then the factory limit for passing a VVPAT with this sensor will been considered as 110-140 to ensure negligible chances of sensor errors in the field and the VVPAT will not be cleared if the measured electrical values for the sensor are say even 109 and 141.

Q 94. What happens to the FLC rejected EVMs and VVPATs?

Answer: After completion of FLC, FLC-rejected units are sent to BEL/ECIL for rectification. Upon rectification, the units are available for deployment in the filed for subsequent elections.

FLC rejected units are also analyzed by the manufacturers and Technical Expert Committee for future improvements to reduce field rejections.

Q 95. What is done to the VVPAT slips generated during FLC?

Answer: VVPAT paper slips generated during FLC are disposed on daily basis/ regularly through paper shredding machine. The purpose of shredding VVPAT slips is to prevent from any kind of misuse of VVPAT slips to generate fake stories or misinformation. It is to be noted that VVPAT slips printed during the FLC have only dummy symbols.

Q 96. Whether Election Commission of India provides the list of EVMs and VVPATs to be used in elections to the political parties or candidates?

Answer: Yes. After completion of FLC, the list of FLC accepted EVMs and VVPATs (containing unique ID of each unit) is provided to all the recognised political parties and also to candidates, when candidates are finalised.

Q 97. Whether any repair of EVMs and VVPATs is done by the engineers in field during FLC?

Answer: No. Electrical repair is strictly prohibited in the field. Only mechanical repair like changing of button, switches, flaps, latches etc. is allowed during FLC in which no electrical repair is involved. In FLC, needless to say that the representatives of the recognised political parties are invited to witness entire process.

Q 98. Where are FLC-OK units kept after First Level Checking of EVMs and VVPATs?

Answer: After FLC, FLC-OK Units are stored in the Strong Room under double lock in the presence of the representatives of the recognised political parties. The Strong Room has 24x7 CCTV coverage and one section of armed security. The Strong Room is only opened in the presence of the representatives of the recognised political parties/candidates under videography, whenever prescribed to distribution.

Q 99. It is claimed that higher percentage of EVMs and VVPATs got defective during First Level Checking of EVMs and VVPATs pertaining to Lok Sabha 2019. What action taken by Election Commission of India to reduce the percentage of defects of EVMs and VVPATs?

Answer: In General Elections to Lok Sabha and simultaneous elections in the States of Andhra Pradesh, Arunachal Pradesh, Sikkim and Odisha, 37,377 Ballot Units (1.8%), 57,775 Control Units (3.8%) and 85,905 VVPATs (5.4%) were rejected during First Level Checking.

However, during actual poll in Lok Sabha 2019, replacement rates were BU-0.74%, CU-0.79% and VVPAT-3.36%.

After every election, an analysis of non-functional EVMs and VVPATs is carried out as an integral part for enhancing the performance of EVMs and VVPATs to reduce replacement rates during actual poll. Post General Election-2019, the Technical Expert Committee (TEC) carried out an exhaustive analysis along with Bharat Electronics Ltd (BEL) and Electronics Corporation of India Ltd (ECIL). Analysis got delayed due to COVID-19 pandemic period. In analysis, it was concluded that some corrective actions are required **to be taken to reduce the replacement rate of M3 VVPATs** and to ensure voter is not put to any inconvenience**.**

M2 model machines, used during General Election-2019, had been discontinued as their economic life completed. M2-M3 VVPATs, used along with M2 EVMs during General Election-2019, are upgraded to M3 VVPATs, as originally planned to ensure that they are compatible with M3 EVMs.

Q 100. It was reported in media citing Election Commission of India order that 6.5 lakh defective VVPATs were sent to the manufacturers i.e. Bharat Electronics Limited and Electronics Corporation of India Limited for rectification. Is it true?

Answer: Such reports are misleading. Non-functional (so called defective) VVPAT does not signify erroneous or biased functioning, it only signifies stoppage of functioning.

In 2019 Lok Sabha elections, 17.4 Lakh VVPATs (M2:2.71 Lakhs, M2-M3:2.18 Lakhs & M3:12.51 Lakhs) were **deployed** and used first time at every polling station throughout the country.

Post General Election-2019, the Technical Expert Committee (TEC) carried out an exhaustive analysis along with Bharat Electronics Ltd (BEL) and Electronics Corporation of India Ltd (ECIL). Analysis got delayed due to COVID-19 pandemic period. In analysis, it was concluded that some corrective actions are required **to be taken to** reduce the replacement rate **of M3 VVPATs** and to ensure voter is not put to any inconvenience**.** M2 VVPATs, used during General Election-2019, had been discontinued as their economic life completed. M2-M3 VVPATs, used along with M2 EVMs during General Election-2019, are upgraded to M3 VVPATs, as originally planned to ensure that they are compatible with M3 EVMs.

On the basis of said analysis and suggested corrective action, work of T1-T4 rectification for VVPATs were initiated and VVPATs falling in these categories were ordered to be sent to manufacturers **for preventive maintenance**. It is to be noted that no movement of EVM/VVPATs can be done without informing recognised political parties at source and destination. T1-T4 tasks involves following corrective measures:

i. **T1 Tasks (2.62L):** Fixation of paper tensioner wire to reduce paper flutter during printing and to mitigate the problem of length error, installation of modified hood of contrast sensor to mitigate contrast error, and installation of modified paper exit guide and Electrically Conductive and Optically Transparent (ECOT) assembly to mitigate the problem of fall error of printed ballot slips.
ii. **T2 Tasks (1.94L):** Replacement of degraded sensors due to dust deposition etc.
iii. **T3 Tasks (2.2L):** Replacement of PCB**s** using HALT cleared MLCC in cases where replacement rate due to MLCC is expected to be more than 5% (not yet started by the manufacturers)
iv. **T4 Tasks: (No special movement)** Replacement of defective MLCCs using HALT cleared MLCC in cases where replacement rate due to MLCC is expected to be less than 5% *as and* ***when*** *any VVPAT becomes* ***non-functional during use****.*

HALT (Highly Accelerated Life Tests) are now introduced for clearing MLCCs as a standard manufacturing practice to avoid future cases of T3/T4 rectifications.

Since, there is an overlapping of T1, T2 or T3 tasks in several VVPATs i.e. one machine may have multiple tasks and the individual numbers under each task are not to be added. However, in the media reports it is seen that the number of machines has been **wrongly totalled as 6.5 lakhs** considering the errors to be exclusive and not overlapping. The actual number of VVPATs to be moved **for preventive maintenance** is 3.43 Lakh, as per the ECI circular dated 27th January 2022.

Q 101 . Whether any awareness program on use of EVMs and VVPATs is conducted by Election Commission of India?

Answer: Yes, the awareness campaign of EVMs and VVPATs is conducted approximately 3 months prior to announcement of election. This is done by way of physical display and/or demonstration of the machines in public. For physical demonstration-cum-awareness on use of EVM and VVPAT, **EVM Demonstration Centre(s)** is set up at District Election Office and at the Returning Officer Headquarters/Revenue Sub-Division Offices. A **Mobile Demonstration Van is** deployed for every Assembly Constituency/Segment to cover all polling locations/ clusters at least once.

After announcement of election, no physical demonstration or awareness on use of EVMs and VVPATs is conducted just to avoid any fake narrative or misinformation. Thereafter, only digital outreach (various digital medium) is conducted.

Q 102. Is there any prescribed cut-off or range for classifying FLC-rejection rate as high?

Answer: No, there is no prescribed cut-ff or range for the same.

The Commission has only prescribed minimum availability of 120% BU, 120% CU and 130% of VVPAT after FLC compared to number of polling stations.

Web Linkages

Presentation on EVM & VVPAT

Sl. No.	Phrase	Presentation on EVM
1.	Presentation on EVM	[1]
2.	ECI-EVM	[1, 4]
3.	Control Unit,	[1, 5]
4.	CU	[1, 5]
5.	Ballot Unit,	[1, 6]
6.	BU	[1, 6]
7.	VVPAT	[1, 7]
8.	Voter Verifiable Paper Audit Trail	[1, 7]
9.	ECI-EVM system of voting	[1, 8]
10	Paper Ballot	[1, 69]
11.	technical safeguards	[1,16]
12.	Technical safeguards	[1,16]
13.	design	[1,17]
14.	production	[1,17]
15.	UADM	[1,18]
16.	OTP	[1, 20]
17.	RF emissions	[1, 19]
18.	SMF	[1, 21]
19.	production	[1, 21]
20.	manufactured	[1, 21]
21.	Third party	[1, 21]
22.	administrative safeguards	[1, 23]
23.	Administrative safeguards	[1, 23]
24.	presence	[1, 24]
25.	participation of recognised political parties	[1, 24]
26.	stakeholder	[1, 24]

27.	stakeholders	[1, 24]
28.	Transportation	[1, 25]
29.	FLC	[1,26]
30.	deployment	[1, 28]
31.	conducting poll	[1,32]
32.	storage	[1, 37]
33.	debate around EVMs	[1, 44]
34.	manipulation	[1, 48]
35.	Judicial Scrutiny	[1, 62]
36.	tampering	[1, 54]
37.	Randomisation	[1, 28]
38.	International Comparison	[1, 56]
39.	Judicial Scrutiny	[1, 62]

2.Manual on Electronic Voting Machine & VVPAT

Sl. No.	Phrase	Manual on EVM
1.	Manual on EVM	[2]
2.	Part 1	[2,7]
3.	EVM Warehouse/Strong room	[2, 10]
4.	FLC	[2, 10]
5.	First Level Checking	[2, 14]
6.	FLC	[2, 14]
7.	Manpower in FLC	[2, 16]
8.	Mock – Poll	[2, 18]
9.	First Randomisation	[2, 22]
10.	Training and Awareness	[2, 26]
11.	Part 2	[2, 30]
12.	Storage	[2, 31]

3. Status Paper on EVMs

Sl. No.	Phrase	Status Paper on EVM
1.	Status Paper on EVM	[3]
2.	Journey of EVMs	[3,1]
3.	legal interventions and court cases	[3,11]
4.	Technical Expert Committee, TEC	[3,15]
5.	EVM design and manufacturing protocol	[3,17]
6.	EVM safety and security features	[3,19]
7.	stringent administrate procedure for handing EVMs	[3,20]
8.	International comparison	[3,30]
9.	Appendix 1 and 2	[3,35]
10.	historical perspective	[3,38]

4.Legal History of EVMs & VVPATs

Sl. No.	Phrase	Legal History of EVMs
1.	Legal History of EVMs	[4]
2.	EVM inception and milestones	[4, 2]
3.	first usage of EVM	[4, 4]
4.	Legislative amendment to enable usage of EVM	[4, 8]
5.	Legal provisions regarding EVM & VVPAT	[4, 9]
6.	Rule 49MA	[4, 16]
7.	Form 17A, Rule 49L	[4, 15]
8.	Rule 56C	[4, 21]
9.	Rule 56D	[4, 22]
10.	Rule 94	[4, 25]
11.	Judicial Decisions on EVM & VVPAT	[4, 27]
12.	C.R. Jaya Sukin vs ECI, SLP (Civil) 13278/2021	[4, 32]

5.Miscellaneous documents

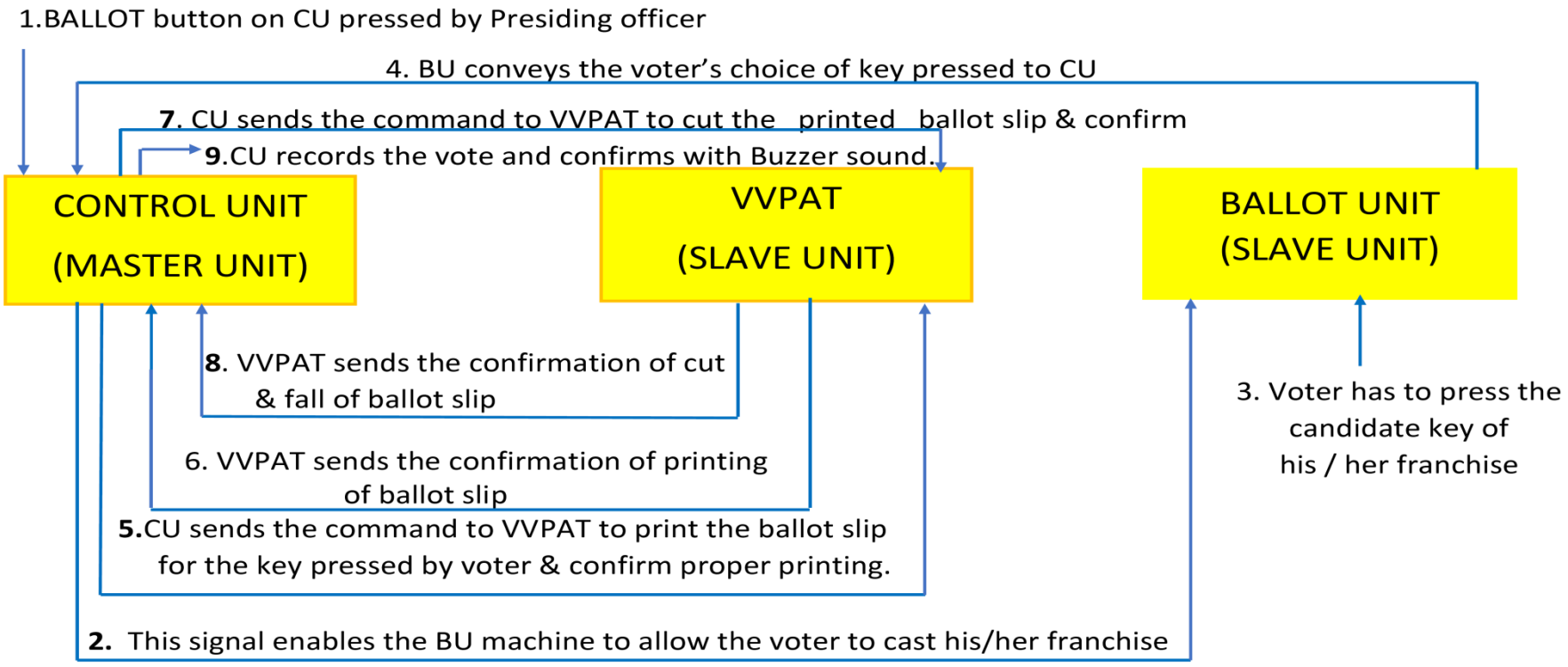
Sl. No.	Phrase	Miscellaneous
1.	Miscellaneous document	[5]
2.	Annexure-I	[5,1]
3.	Annexure-II	[5,2]
4.	Annexure-III	[5,3]
5.	Form-20	[5,4]

MISCELLANEOUS DOCUMENTS

INDEX

ANNEXURE-I

EVM SIGNAL FLOW DIAGRAM



ANNEXURE - II

Name of State/UT	Elections in which EVMs used					
	Year					
Andhra Pradesh	2004	2009	2014	2019		
Arunachal Pradesh	2004	2009	2014	2019		
Assam	2001	2006	2011	2016	2021	
Bihar	2000	2005	2010	2015	2020	
Chhattisgarh	2000	2003	2008	2013	2018	2023
Goa	2002	2007	2012	2017	2022	
Gujarat	2002	2007	2012	2017	2022	
Haryana	2000	2005	2009	2014	2019	
Himachal Pradesh	2003	2007	2012	2017	2022	
Jammu & Kashmir	2000	2004	2008	2014	--	
Jharkhand	2000	2005	2009	2014	2019	
Karnataka	2004	2008	2013	2018	2023	
Kerala	2001	2006	2011	2016	2021	
Madhya Pradesh	2003	2008	2013	2018	2023	
Maharashtra	2004	2009	2014	2019		
Manipur	2002	2007	2012	2017	2022	
Meghalaya	2003	2008	2013	2018	2023	
Mizoram	2003	2008	2013	2018	2023	
Nagaland	2003	2008	2013	2018	2023	
Orissa	2000	2004	2009	2014	2019	
Punjab	2002	2007	2012	2017	2022	
Rajasthan	2003	2008	2013	2018	2023	
Sikkim	2004	2009	2014	2019		
Tamil Nadu	2001	2006	2011	2016	2021	
Telangana				2018	2023	
Tripura	2003	2008	2013	2018	2023	
Uttar Pradesh	2002	2007	2012	2017	2022	
Uttarakhand	2002	2007	2012	2017	2022	
West Bengal	2001	2006	2011	2016	2021	
Delhi	2003	2008	2013	2015	2020	
Puducherry	2001	2006	2011	2016	2021	

TOTAL: 148 State Legislative Assembly Elections

EVMs were also used in all constituencies in General Elections to Lok Sabha in 2004, 2009, 2014 and 2019.

ANNEXURE-III

PARTY WITH MAXIMUM NUMBER OF SEATS IN LEGISLATIVE ASSEMBLY ELECTION SINCE 2004

Andhra Pradesh	2004 INC	2009 INC	2014 TDP	2019 YSRCP		Meghalaya	2008 INC	2013 INC	2018 INC	2023 NPEP
Arunachal Pradesh	2004 INC	2009 INC	2014 INC	2019 BJP		Mizoram	2008 INC	2013 INC	2018 MNF	2023 ZPM
Assam	2006 INC	2011 INC	2016 BJP	2021 BJP		Nagaland	2008 NPF	2013 NPF	2018 NPF	2023 NDPP
Bihar	2005 RJD	2010 JD(U)	2015 RJD	2020 RJD		Odisha	2004 BJD	2009 BJD	2014 BJD	2019 BJD
Chhattisgarh	2008 BJP	2013 BJP	2018 INC	2023 BJP		Punjab	2007 SAD	2012 SAD	2017 INC	2022 AAP
Goa	2007 INC	2012 BJP	2017 INC	2022 BJP		Rajasthan	2008 INC	2013 BJP	2018 INC	2023 BJP
Gujarat	2007 BJP	2012 BJP	2017 BJP	2022 BJP		Sikkim	2004 SDF	2009 SDF	2014 SDF	2019 SKM
Haryana	2005 INC	2009 INC	2014 BJP	2019 BJP		Tamil Nadu	2006 DMK	2011 AIADMK	2016 AIADMK	2021 DMK
Himachal Pradesh	2007 BJP	2012 INC	2017 BJP	2022 INC		Telangana	2014 TRS	2018 TRS	2023 INC	
Jammu & Kashmir	2008 JKNC	2014 JKPDP				Tripura	2008 CIP(M)	2013 CPI(M)	2018 BJP	2023 BJP
Jharkhand	2005 BJP	2009 BJP & JMM	2014 BJP	2019 JMM		Uttarakhand	2007 BJP	2012 INC	2017 BJP	2022 BJP
Karnataka	2004 BJP	2008 BJP	2013 INC	2018 BJP	2023 INC	Uttar Pradesh	2007 BSP	2012 SP	2017 BJP	2022 BJP
Kerala	2006 CPI(M)	2011 CPI(M)	2016 CPI(M)	2021 CPI(M)		West Bengal	2006 CPI(M)	2011 AITC	2016 AITC	2021 AITC
Madhya Pradesh	2008 BJP	2013 BJP	2018 INC	2023 BJP		NCT of Delhi	2008 INC	2013 BJP	2015 AAP	2020 AAP
Maharashtra	2004 NCP	2009 INC	2014 BJP	2019 BJP		Puducherry	2006 INC	2011 AINRC	2016 INC	2021 AINRC
Manipur	2007 INC	2012 INC	2017 INC	2022 BJP						

Party getting maximum number of seats changed 49 times in Assembly Elections

PARTY WITH MAXIMUM NUMBER OF SEATS IN LOK SABHA ELECTIONS

	2004	2009	2014	2019
Max. Seats	INC 145	INC 206	BJP 282	BJP 303
2nd Max. Seats	BJP 138	BJP 116	INC 44	INC 52

ANNEXURE — 45

(CHAPTER XV, PARA 15.27.9)

FORM 20

FINAL RESULT SHEET

[SEE RULE 56C(2)(C)]

ELECTION TO THE HOUSE OF THE PEOPLE FROM THE 56 PARLIAMENTARY CONSTITUENCY PART I

(To be used both for Parliamentary and Assembly Election)

Total No. of Electors in Assembly Constituency/Segment 87,725

Name of the Assembly/Segment... 275AB .....(in the case of election from a Parliamentary Constituency)

Serial No. Of Polling Station		No. of valid votes cast in favour of A	B	C	D	Total of valid votes	No. of rejected votes	NOTA	Total	No. of tendered votes
1	1	2	3	4	5	6	7		8	9
1.	5	135	205	403	5	748	NIL		748	1
2.	6	170	145	340	118	765	NIL		765	—
3.	6A	405	70	105	230	810	NIL		810	— 1
4.	7	240	120	215	362	937	NIL		937	2
5.	8	72	269	142	319	802	NIL		802	—
6.	9	72	142	347	92	653	NIL		653	—
7.	10	240	267	142	115	764	NIL		764	—

.....

PART II

(To be used for Parliamentary Election only)

Name of Assembly Segment	No. of valid votes cast in favour of				Total of valid votes	No. rejecte votes	NOTA	Total	No. of tendered votes
	A	B	C	D					
1	2	3	4	5	6	7		8	9
275 AB	18,697	15,353	10,974	8,458	53,482		Nil	53,482	3
276 CD	21,059	19,170	12,358	18,753	71,340		Nil	71,340	9
277 EF	21,610	13,448	23,117	9,321	67,496		Nil	67,496	
278 GH	11,822	23,731	13,728	6,540	55,821		Nil	55,821	1
280 IJ	17,523	17,399	16,055	18,835	69,812		Nil	69,812	2
281 KL	21,937	16,756	17,080	11,921	67,694		Nil	67,694	
Grand Total	112,648	105,857	93,312	73,828	385,645	8,770	385,645	15	

No. of votes recorded on postal ballot papers	**47**	**13**	**22**	**5**	**87**	**17**	**104**	**15**

Place .....

(Signed) QRS

Date : 28th July, 1992 **Returning Officer**

The portion under highlight is only for sake of illustration only.

(LAST PAGE)

Serial No. of Polling Station	No. of valid votes cast in favour of				Total of valid votes	No. of votes	NOTA	Total	No. of tendered votes
	A	B	C	D					
1	2	3	4	5	6	7		8	9
.....									
78	93	127	347	349	916	N		916	—

79	368	40	197	215	820	N I		820	—
Total No. of votes recorded at Polling Stations	21,059	19,178	12,358	18,753	71,340	N		71,340	3

No. of votes recorded on postal ballot papers (To be filled in the case of election from an assembly Constituency)	Not applicable								
Total votes polled	21,059	19,178	12,358	18,753	71,340	Nil		71,340	3

Place : Sub-Division Office AB

Assistant Returning Officer

Date : 27th July, 1992

The portion under highlight is only for sake of illustration only.